Request for a Letter of Map Revision for Skunk Creek Through

TRAMONTO

A Development Located in Phoenix, Arizona

Case No. 99-09-592R

November 6, 2000

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

Prepared for:
Communities Southwest
5343 N. 16th Street, Ste. 460
Phoenix, AZ 85016

REGISTERED PROFESSIONAL ENGINEER (CIVIL)
CERTIFICATE NO. 19690
PAUL W.R. HOSKIN
Date Signed 11/6/00
ARIZONA, U.S.A.

Prepared by:
Hoskin Engineering Consultants, Inc.

323 W. Roosevelt Street, Suite 200
Phoenix, Arizona 85003
(602) 252-8384

HEC 980034-20

FAX COVER SHEET

Hoskin Engineering Consultants, Inc.
323 W. Roosevelt Street, Suite 200
Phoenix, AZ 85003

Job Number: 980034-20

Date *11/16/00*

Number of pages including cover sheet 2

TO: ***Marilyn DeRosa and Kofi Awumah***
Flood Control District

Fax: *(602) 506-4601*
Phone:
Subject: *Skunk Creek LOMR*

FROM: *Kristyn Van Meter, EIT*
Hoskin Engineering Consultants, Inc.
323 W. Roosevelt Street
Suite 200
Phoenix, AZ 85003

Fax: *(602) 252-8385*
Phone: *(602) 252-8384*
email: *kristynv@hoskineng.com*

REMARKS: ☐ *Urgent* ☐ *For your review* ☐ *Reply ASAP* ☐ *Please Comment*

Marilyn and Kofi –

Following is a copy of the letter which accompanied our LOMR Request to FEMA for Skunk Creek through Tramonto.

Hoskin Engineering Consultants, Inc.

323 W. Roosevelt Street
Suite 200
Phoenix, AZ 85003

Phone: (602) 252-8384
Fax: (602) 252-8385
email: admin@hoskineng.com

November 15, 2000

Federal Emergency Management Agency
LOMR Depot
3601 Eisenhower Avenue
Suite 600
Alexandria, Virginia 22304
Attn: LOMR Manager

Re: Tramonto Master Planned Community
Skunk Creek LOMR
Case No. 99-09-592R

Dear LOMR Manager:

Hoskin Engineering Consultants, Inc. has prepared a *Request for a Letter of Map Revision for Skunk Creek through Tramonto* as a follow-up to the previously submitted and approved CLOMR. This request for a LOMR was prepared on behalf of Communities Southwest, the developer of the master-planned community Tramonto.

In the CLOMR approval letter dated December 20, 1999, specific items and information were requested for inclusion in the LOMR submittal. The requested items are included in this LOMR submittal. Please find enclosed the completed *Request for a Letter of Map Revision for Skunk Creek Through Tramonto*, as well as the supporting documentation.

Sincerely,

Paul W. R. Hoskin, P.E.

cc.: Ray Dovalina, City of Phoenix
Thomas Loomis, ASL Consulting Engineers
Kofi Awumah, Flood Control District of Maricopa County
Marilyn DeRosa, Flood Control District of Maricopa County
Ron Brewster, Communities Southwest
Steve Turner, Carter-Burgess

LETTER OF TRANSMITTAL

Hoskin Engineering Consultants, Inc.
323 W. Roosevelt Street, Suite 200
Phoenix, AZ 85003

Date *November 7, 2000*

Project Name: *Skunk Creek/Tramonto*
Project Number: *980034-20*

Transmitted Via: ***ZAP***

Company: *Flood Control District of Maricopa County*
Address: *2801 W. Durango Street*
Phoenix, AZ 85009

Attn: *Marilyn DeRosa*
Phone: *520-474-4636*
Subject: *Skunk Creek LOMR*

From: *Kristyn Van Meter, EIT*
Hoskin Engineering Consultants, Inc.
323 W. Roosevelt Street
Suite 200
Phoenix, AZ 85003

Phone: *(602) 252-8384*
Fax : *(602) 252-8385*
email: *kristynv@hoskineng.com*

FLOOD CONTROL DISTRICT
RECEIVED
NOV 07 '00
CH & GM | FINANCE
PIO | LANDS
ADMIN | O & M
REG X | P & PM
ENG | FILE
CONTRACTS
ROUTING MDR

Quantity	***Description/Date***
1	***Draft copy of the LOMR Request for Skunk Creek Through Tramonto / November 6, 2000***
1	***Copy of Letter in response to comments dated September 2000***

REMARKS: ☐ *Urgent* ☐ *For your review* ☐ *Reply ASAP* ☐ *Please Comment*

Hoskin Engineering Consultants, Inc.

323 W. Roosevelt Street
Suite 200
Phoenix, AZ 85003

Phone: (602) 252-8384
Fax: (602) 252-8385
admin@hoskineng.com

November 6, 2000

Mr. Ray Dovalina
Floodplain Manager
City of Phoenix
200 W. Washington Street
Fifth Floor
Phoenix, AZ 85003

Re: Tramonto Master Planned Community
Skunk Creek LOMR Request
FEMA Case No. 99-09-592R
Project No. 2350.0002.01

Dear Mr. Dovalina,

Hoskin Engineering Consultants, Inc. (HEC) has received your letter dated September 25, 2000, as well as the comments from Thomas Loomis, dated September 20, 2000. In addressing the comments presented in these letters, we made the following changes to the *Request for Letter of Map Revision for Skunk Creek Through Tramonto*.

The summary information below is organized in accordance with the letter from Thomas Loomis:

1. The *Design Report for Skunk Creek Bank Stabilization Through Tramonto*, dated April 7, 2000, will be included in the LOMR request package submitted to FEMA.

2 a. Form 7 "Bridge/Culvert Form," has been added to the LOMR request package.
   b. *Phase I West Infrastructure, Bank Stabilization Plans*, were certified 'as-built' by Larry Sullivan, R.L.S.
   c. A letter from the City of Phoenix stating adoption and enforcement of the modified floodway should be added to the LOMR package after you have reviewed it. This should be provided by you and inserted where shown.

3. A draft copy of the Operations and Maintenance Plan has been included in this copy of the LOMR package. The final Operations and Maintenance Plan, approved by the City of Phoenix and Communities Southwest, will be included in the LOMR package submitted to FEMA.

4. Included in this copy of the LOMR package is a draft copy of the letter to accompany the FEMA review fee. A copy of the letter actually mailed with the fee will be included in the LOMR package submitted to FEMA.

5. Printouts of the effective and post-development HEC-1 hydrology models have been included in this copy of the LOMR package, and will be included in the LOMR package submitted to FEMA.

6 a and c. Comments cards have been added to the post-project conditions HEC-2 models, indicating that the first profile is the post-development floodplain run and the second profile is the post-development floodway run.

b. A complete HEC-2 output file for the post-project conditions model is included in this copy of the LOMR package, and will be included in the LOMR package submitted to FEMA.

d. The skew angle of the Carefree Highway Bridge was modified in the revised effective and post-project conditions HEC-2 models, to reflect the Maricopa County Department of Transportation as-builts. The actual skew angle is 45 degrees, as shown on the as-built drawings. Modifications to the model included revisions to the X1 and SB cards to reflect changes to the effective bridge opening, modifications to the channel geometry to incorporate new field survey data obtained at the bridge, and the inclusion of a debris loading factor of 2 for each of the piers. These modifications only changed the water surface near the bridge, and did not have a significant impact on the water surface upstream or downstream of the bridge.

Prior to submittal to FEMA, we will need a letter of acceptance from the City of Phoenix of the submittal and a letter stating that the City will adopt and enforce the new floodway. We will also need your signature on MT2 Form 1, Page 2 of 2. Your timely review and acceptance of this LOMR request is appreciated.

Sincerely,

Paul W. R. Hoskin, P.E.
President

Cc. Ron Brewster, Communities Southwest
Tom Loomis, ASL Consulting Engineers
Marilyn DeRosa, Flood Control District of Maricopa County
Kofi Awumah, Flood Control District of Maricopa County

Request for a Letter of Map Revision
for Skunk Creek Through Tramonto
a Development Located in Phoenix, Arizona
Case No. 99-09-592R

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CLOMR Approval from FEMA dated December 20, 1999

Form 1: Revision Requester and Community Official

1. Form 1
2. City of Phoenix letter acknowledging map revision request
3. Flood Control District of Maricopa County letter acknowledging map revision request
4. Property Owner Legal Notification Letter
5. Carter-Burgess letter of certification regarding structures in floodplain
6. Officially Adopted Maintenance Plan for Skunk Creek Embankment
7. Review fee letter

Form 3: Hydrologic Analysis

1. Form 3
2. HEC-1 Output, Effective and Post-Project Conditions Models
3. Diskette with Effective and Post-Project Conditions HEC-1 Models

Form 4: Riverine Hydraulic Analysis

1. Form 4
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Form 5: Riverine / Coastal Mapping

1. Form 5
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Form 6: Channelization

1. Form 6
2. Gabion Construction Photos
3. Bank protection calculations: bound separately in *Design Report for Skunk Creek Bank Stabilization Through Tramonto*, April 7, 2000
4. Sediment transport calculations: bound separately in *Floodplain and Sediment Impact Analysis for Skunk Creek Downstream of Tramonto*, August 11, 1999

Form 7: Bridge/Culvert

1. Form 7
2. Carefree Highway plans at Carefree Highway Bridge, Maricopa County Department of Transportation

Granite Reef Aqueduct to Carefree Highway

1. Form 5

REGISTERED PROFESSIONAL ENGINEER (CIVIL)
CERTIFICATE NO.
19690
PAUL W.R.
HOSKIN
Date Signed
ARIZONA, U.S.A.

Request for a Letter of Map Revision
for Skunk Creek Through Tramonto
a Development Located in Phoenix, Arizona
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INCLUDED PLAN SETS

Flood Delineation Study of Skunk Creek	October 2000
Annotated Flood Insurance Rate Map	October 2000
Tramonto Current and Revised Floodway Boundary Map	October 2000

Tramonto As-Built Plan Sets:

West Side Infrastructure, Bank Stabilization Plans	August 25, 2000
West Side Infrastructure, Phase West 1A – Via Puzzola	April 12, 2000
West Side Infrastructure, Phase West 1C – Cloud Road	July 25, 2000
Carefree Highway	April 12, 2000
Parcel E-5	January 11, 2000
Parcel E-7	January 31, 2000
Parcel W-17	January 27, 2000
Parcel W-19	February 3, 2000
Parcel W-20	January 27, 2000
Parcel W-26	January 27, 2000

REGISTERED PROFESSIONAL ENGINEER (CIVIL)
CERTIFICATE NO.
19690
PAUL W.R.
HOSKIN
Date Signed
ARIZONA, U.S.A.

Response to Requested Data

In the CLOMR approval letter dated December 20, 1999, specific items and information were requested for inclusion in the LOMR submittal. This section addresses each of the requested items, in the order they are mentioned in the letter. A copy of the letter is included following this section.

- *When the map revision request for the area covered by this letter is submitted, Form 1 must be included.*

  Form 1: Revision Requester and Community Official, is included in the 'Form 1' section of this submittal.

- *The detailed application and certification forms listed below may be required if as-built conditions differ from the preliminary plans. Hydraulic analyses, for as-built conditions, of the base flood and the floodway must be submitted with Form 4.*

  Form 3: Hydrologic Analyis, was not included as part of the CLOMR submittal, but is included in the 'Form 3' section of LOMR submittal.

  Form 4: Riverine Hydraulic Analysis, has been updated and is included in the 'Form 4' section of this submittal.

  Form 6: Channelization, has been updated to include sediment analysis and is included in the 'Form 6' section of this submittal.

- *Payment of map revision request fee of $3,400*

  A check for the map revision request fee has been sent to the Revisions Fee-Collection System Administrator. A copy of the letter accompanying fee payment is included in the 'Form 1' section of this submittal.

- *As-built plans, certified by a registered professional engineer, of all proposed project elements*

  See the Table of Contents for a listing of the as-built plan sets included as part of this submittal.

- *Community acknowledgement of the map revision request*

  Letters of acknowledgement from the City of Phoenix and the Flood Control District of Maricopa County are included in the 'Form 1' section of this submittal.

- *Certification of fill placement*

  The certification of fill placement letter is included in the 'Form 5' section of this submittal.

- *A copy of the public notice distributed by your community stating its intent to revise the floodway, or a statement that it has notified all affected property owners and affected adjacent jurisdictions.*

  A letter of legal notice to all affected property owners issued by the City of Phoenix is included in the 'Form 1' section of this submittal.

- *A letter stating that your community will adopt and enforce the modified floodway*

  A letter from the City of Phoenix is included in the 'Form 1' section of this submittal.

- *Review of the "Tramonto Conceptual Grading and Drainage Plan for Phase 1 Development," dated April 1999, shows concrete slope protection extending a minimum 4 feet below existing ground. Please provide calculations to show that this 4-foot minimum is adequate and that the erosion protection will remain intact during the base flood.*

  See the included Design Report for Skunk Creek Bank Stabilization Through Tramonto, dated April 7, 2000, for detailed hydraulic and sediment analyses regarding the bank protection within Tramonto. Also included is the Tramonto Phase 1, West Side Infrastructure, Bank Stabilization Plans set dated April 7, 2000.

- *An officially adopted maintenance plan for the revised reach of SkunkCreek*

  Included in the 'Form 1' section of this submittal is the operations and maintenance plan for the Skunk Creek Bank Protection through Tramonto.

- *Please submit a topographic work map that shows the revised floodplain and floodway boundary delineations from the Granite Reef Aqueduct to Carefree highway. Please also submit Form 5 "Riverine/Coastal Mapping."*

  Included in this submittal are the revised full-size Flood Delineation Study of Skunk Creek maps. See the 'Granite Reef Aqueduct (CAP) to Carefree Highway' section of this submittal for Form 5.

Federal Emergency Management Agency

Washington, D.C. 20472

DEC 20 1999

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

IN REPLY REFER TO:
Case No.: 99-09-592R

The Honorable Fulton Brock
Chairman, Maricopa County
Board of Supervisors
301 West Jefferson, 10th floor
Phoenix, AZ 85003

Community: Maricopa County, Arizona
Community No.: 040037

104

Dear Mr. Brock:

This responds to a request that the Federal Emergency Management Agency (FEMA) comment on the effects that a proposed project would have on the effective Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) report for Maricopa County, Arizona and Incorporated Areas (the effective FIRM and FIS report for your community), in accordance with Part 65 of the National Flood Insurance Program (NFIP) regulations. In a letter dated March 15, 1999, Mr. Paul W. R. Hoskins, P.E., Hoskins Engineering Consultants, requested that FEMA evaluate the effects that proposed placement of fill along the west bank of Skunk Creek between Cloud Road and Carefree Highway would have on the flood hazard information shown on the effective FIRM and FIS report.

All data required to complete our review of this request for a Conditional Letter of Map Revision (CLOMR) were submitted with letters from Mr. Hoskins.

We have completed our review of the submitted data and the flood data used to prepare the effective FIRM for your community. The submitted existing conditions HEC-2 hydraulic computer model, dated February 2, 1999, based on updated topographic information, was used as the base conditions model in our review of the proposed conditions model for this CLOMR request. We believe that, if the proposed project is constructed as shown on the submitted plans entitled "Tramonto Post Project Floodplain/Floodway Workmap," prepared by Hoskins Engineering Consultants, dated April 1999, and the data listed below are received, a revision to the FIRM would be warranted.

As a result of the placement of fill, the Special Flood Hazard Area (SFHA), the area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood), associated with the breakout flow along the west bank of Skunk Creek between Cloud Road and Carefree Highway will be removed. The base flood elevations (BFEs) will increase along the revised reach of Skunk Creek. The maximum increase in BFE, 1.0 foot, will occur approximately 1,060 feet upstream of Carefree Highway. The width of the SFHA along Skunk Creek will decrease. The maximum decrease in SFHA width, approximately 200 feet, will occur just upstream of Carefree Highway. The width of the regulatory floodway along Skunk Creek will increase in some areas and decrease in other areas, and the floodway boundary delineations will shift. The maximum increase in floodway width, approximately 50 feet, will occur approximately 2,300 feet upstream of Carefree Highway. The maximum decrease in floodway width, approximately 450 feet, will occur approximately 250 feet upstream of Carefree Highway.

Because this revision request also affects the City of Phoenix, a separate CLOMR for that community was issued on the same date as this CLOMR.

Upon completion of the project, your community may submit the data listed below and request that we make a final determination on revising the effective FIS report and FIRM.

- Detailed application and certification forms, which were used in processing this request, must be used for requesting final revisions to the maps. Therefore, when the map revision request for the area covered by this letter is submitted, Form 1, entitled "Revision Requester and Community Official Form," must be included. (A copy of this form is enclosed.)

- The detailed application and certification forms listed below may be required if as-built conditions differ from the preliminary plans. If required, please submit new forms (copies of which are enclosed) or annotated copies of the previously submitted forms showing the revised information.

  Form 3, entitled "Hydrologic Analysis Form"

  Form 4, entitled "Riverine Hydraulic Analysis Form"

  Form 5, entitled "Riverine/Coastal Mapping Form"

  Form 6, entitled "Channelization Form"

  Form 7, entitled "Bridge/Culvert Form"

  Hydraulic analyses, for as-built conditions, of the base flood and the floodway must be submitted with Form 4, and a topographic work map showing the revised floodplain and floodway boundaries must be submitted with Form 5.

- Effective March 1, 1999, FEMA revised the fee schedule for reviewing and processing requests for conditional and final modifications to published flood information and maps. In accordance with this schedule, the fee for your map revision request will be $3,400 and must be received before we can begin processing your request. Payment of this fee shall be made in the form of a check or money order, made payable in U.S. funds to the National Flood Insurance Program, or by credit card. The payment must be forwarded to the following address:

  Federal Emergency Management Agency
  Fee-Collection System Administrator
  P.O. Box 3173
  Merrifield, VA 22116-3173

- As-built plans, certified by a registered professional engineer, of all proposed project elements

- Community acknowledgment of the map revision request

- Certification that all fill placed in the currently effective base floodplain and below the proposed BFE is compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test method issued by the American Society for Testing and Materials (ASTM Standard D-698) or an acceptable equivalent method for all areas to be removed from the base floodplain

- A copy of the public notice distributed by your community stating its intent to revise the floodway, or a statement by your community that it has notified all affected property owners and affected adjacent jurisdictions

- A letter stating that your community will adopt and enforce the modified floodway, OR, if the State has jurisdiction over either the floodway or its adoption by your community, a copy of your community's letter to the appropriate State agency notifying it of the floodway modification and a copy of the letter from that agency stating its approval of the modification

- Our review of the submitted plans revealed that concrete slope protection will be installed as shown on Sheet 3 of 5 of "Tramonto Conceptual Grading and Drainage Plan For Phase 1 Development," dated April 1999. The plans show that the concrete protection will extend a minimum of 4 feet below existing ground. Please provide calculations to show that this 4-foot minimum is adequate and that the erosion protection will remain intact during the base flood.

- An officially adopted maintenance plan for the revised reach of Skunk Creek. This plan, which may be in the form of a written statement from the community Chief Executive Officer, an ordinance, or other legislation, must describe the nature of the maintenance activities, the frequency with which they will be performed, and the title of the local community official who will be responsible for ensuring that the maintenance activities are accomplished.

After receiving appropriate documentation to show that the project has been completed, FEMA will initiate a revision to the FIRM and FIS report. Because the BFEs would change as a result of the project, a 90-day appeal period would be initiated, during which community officials and interested persons may appeal the revised BFEs based on scientific or technical data.

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

This CLOMR is based on minimum floodplain management criteria established under the NFIP. Your community is responsible for approving all floodplain development, and for ensuring all necessary permits required by Federal or State law have been received. State, county, and community officials, based on

knowledge of local conditions and in the interest of safety, may set higher standards for construction in the SFHA. If the State, county, or community has adopted more restrictive or comprehensive floodplain management criteria, these criteria take precedence over the minimum NFIP criteria.

If you have any questions regarding floodplain management regulations for your community or the NFIP in general, please contact the Consultation Coordination Officer (CCO) for your community. Information on the CCO for your community may be obtained by contacting the Director, Mitigation Division of FEMA in San Francisco, California, at (415) 923-7177. If you have any technical questions regarding this CLOMR, please contact Mr. Max Yuan of our staff in Washington, DC, either by telephone at (202) 646-3843 or by facsimile at (202) 646-4596.

Sincerely,

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

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

Enclosure(s)

cc: The Honorable Skip Rimsza
Mayor, City of Phoenix

Mr. Joe Tram, P.E.
Engineering Division
Flood Control District
of Maricopa County

Mr. Paul W. R. Hoskins, P.E.
Hoskins Engineering Consultants

Form 1

Revision Requester and Community Official

FEDERAL EMERGENCY MANAGEMENT AGENCY **REVISION REQUESTER AND COMMUNITY OFFICIAL**	O.M.B No. 3067-0148 Expires April 30, 2001

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

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

1. REQUESTED RESPONSE FROM FEMA

This request is for a:

☐ CLOMR A letter from FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60,65 & 72).

☒ LOMR A letter from FEMA officially revising the current NFIP map to show the changes to floodplains, floodway or flood elevations. LOMRs typically decrease flood hazards. (See 44 CFR Ch. 1 Parts 60 & 65.)

☒ Other Describe: Relocate existing floodway between Carefree Highway and Cloud Road

2. OVERVIEW

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

☒ Physical Change ☐ Improved Methodology/Data ☒ Floodway Revision

☐ Other Describe: _____

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

2. Flooding Source: Skunk Creek

3. Project Name/Identifier: Tramonto Master Planned Community

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

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

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
Ex: 480301 480287	Katy, City Harris County	TX TX	480301 48201C	0005D 0220G	02/08/83 09/28/90
040037	Maricopa County, Unincorporated Area	AZ	04013C	0780F	09/30/95
040037 040051 040037	Maricopa County, Unincorporated Area Phoenix, City of Maricopa County, Unincorporated Area	AZ	04013C 04013C 04013C	0790E 0760E 0770D	09/30/95 09/30/95 04/15/88

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

Types of Flooding	Structures
☒ Riverine	☒ Channelization
☐ Coastal	☐ Levee/Floodwall
☐ Alluvial fan	☐ Bridge/Culvert
☐ Shallow Flooding (e.g. Zones AO and AH)	☐ Dam
☐ Lakes	☒ Fill
☐ Other (describe)	☐ Other (describe)

PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS

4. ENCROACHMENT INFORMATION

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

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

2. Does the development in the floodway cause the 1% annual chance (base) elevation to increase at any location by more than 0.000 feet? ☒ Yes ☐ No ☐ N/A

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

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

5. MAINTENANCE RESPONSIBILITY

The community is willing to assume responsibility for ☒ performing ☐ overseeing compliance with the maintenance and operation plans of the Skunk Creek Embankment
(Name)
flood control structure. If not performed promptly by an owner other than the community, the community will provide the necessary services without cost to the Federal government.

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

6. REVIEW FEE

The review fee for the appropriate request category has been included. ☒ Yes Fee amount: $3,400.00

OR

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

Please see Instructions for Fee Amounts

7. SIGNATURE

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

Signature of Revision Requester

Ron Brewster
Printed Name and Title of Revision Requester

Communities Southwest
Company Name

Telephone No.: 602 265-1952 Date: _____

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

Signature of Community Official

Ray Dovalina, P.E., Floodplain Manager
Printed Name and Title of Community Official

City of Phoenix
Community Name

Telephone No.: 602 262-4026 Date: _____

CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

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

Signature

Paul W. R. Hoskin, P.E.
Printed Name and Title of Revision Requester

Registr No. 19690 Expires (Date) 3/31/2003 State AZ

Type of License/Expertise: Engineer (Civil)

Check which forms have been included with this request

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

Form 1: Revision Requester and Community Official

Section 4. Encroachment Information, Item 2: Does the development in the floodway cause the 1% annual chance (base) elevation to increase at any location by more than 0.000 feet?

Yes. Included in this submittal are: letters from the City of Phoenix and the Flood Control District of Maricopa County acknowledging the map revision request, a letter from Carter-Burgess regarding structures in the floodplain, and a legal notification letter distributed by the City of Phoenix to all affected property owners adjacent to Skunk Creek.

Section 5. Maintenance Responsibility

Included us the officially adopted operations and maintenance plan for the Skunk Creek embankment through Tramonto.

Section 6. Review Fee

Included is the letter which accompanied payment of the review fee to the Revisions Fee-Collection System Administrator.

CITY OF PHOENIX LOMR APPROVAL LETTER

FLOOD CONTROL DISTRICT
of
Maricopa County

2801 West Durango Street • Phoenix, Arizona 85009-6399
Telephone (602) 506-1501
Fax (602) 506-4601
TT (602) 506-5859

BOARD OF DIRECTORS
Betsey Bayless
Jan Brewer
Fulton Brock
Don Stapley
Mary Rose Garrido Wilcox

August 19, 1999

Cindy White, P.E.,Floodplain Manager
Street Transportation Department
City of Phoenix
5th Floor
200 West Washington Street
Phoenix, Arizona 85003

Dear Cindy,

SUBJECT: TRAMONTO – Approval of the Request for CLOMR

This is to notify the City of Phoenix that Flood Control District of Maricopa County approves the concept of modifying a portion of the Skunk Creek floodplain, after a review of the CLOMR package submitted by Hoskin Engineering Consultants.

This approval notice is provisional however, since a few technical issues remain to be resolved, including comments from the Federal Emergency Management Agency (FEMA). This letter is to give our consent to the design concept and allow the developer to move forward with this plan of development.

If you have any questions please call me at 602-506-4663.

Sincerely,

Kofi Awumah

Kofi Awumah, Ph.D., P.E.

CC: Paul Hoskin, P.E., Hoskin Engineering Consultants Inc.,

City of Phoenix
STREET TRANSPORTATION DEPARTMENT

August 23, 1999

Mr. Matthew B. Miller, P.E.
Chief, Hazard Studies Branch
Mitigation Directorate
Federal Emergency Management Agency
500 "C" Street, S.W.
Washington, D.C. 20472

Dear Mr. Miller:

RE: LEGAL NOTICE TO ALL AFFECTED PROPERTY OWNERS ADJACENT TO SKUNK CREEK CLOMR CASE NO. 99-09-592R

On June 2, 1999 a letter was sent to Paul Hoskins listing additional information necessary to complete the review of the Conditional Letter of Map Revision for Case No. 99-09-592R. One of the items listed in the letter was documentation of individual legal notice to all affected property owners explaining the effects of the proposed project.

Enclosed is a copy of a letter prepared and signed by the City of Phoenix that was sent to all property owners as well as a map that shows the proposed limits of the revised floodplain and floodway. A list of all property owners who received this information is included.

If you have any questions on the property owner notification, please contact me at 602-262-4026.

Sincerely,

Thomas E. Callow, P.E.
Interim Street Transportation Director

Cindy D White

Cindy D. White, P.E.
Floodplain Manager

TEC/CDW/aff/990823b.wpd

Attachments

City of Phoenix

PLANNING DEPARTMENT

August 23, 1999

Re: Conditional Letter of Map Revision for Skunk Creek North of Carefree Hwy.

Dear Property Owner:

Communities Southwest, Inc. submitted a conditional letter of map revision (CLOMR) to the Federal Emergency Management Association (FEMA) for their review and approval. The purpose of the CLOMR is to map the federally recognized floodplain along the portion of Skunk Creek between Cloud Road and the Carefree Highway for Federal Emergency Management Association insurance purposes. **We are informing downstream property owners of the CLOMR submittal to make them aware of the proposed new floodplain delineation.**

The City of Phoenix supports the CLOMR modifications to the floodplain alignment. The modifications proposed in the CLOMR change a current condition in which a breakout of storm water tops the Carefree Highway in severe storms. The CLOMR proposes a realignment of the floodplain limits on the west side of the Skunk Creek Wash. This realignment eliminates the Skunk Creek storm water breakout. The attached map illustrates the proposed changes to the Skunk Creek floodplain downstream of Carefree Highway.

The Communities Southwest CLOMR application is available for review in the Floodplain Management Section of the Street Transportation Department, 5th floor, City Hall, 200 West Washington Street, Phoenix. If you have any questions regarding the CLOMR please contact Cindy White, City of Phoenix Floodplain Manager, at 602-262-4026.

The revisions to the Skunk Creek floodplain proposed by Communities Southwest will be included in the Skunk Creek Watercourse Master Plan that is now being developed by the Flood Control District of Maricopa County. The District initiated the Watercourse Master Plan in order to identify a comprehensive approach that will minimize the risk of erosion and flooding to property in or near the floodplain, minimize public expense associated with floodplain management, and protects existing public investments in this area. When it is complete, the Watercourse Master Plan will provide information to the City on the impacts of a range of structural and non-structural floodplain management techniques along Skunk Creek and its unnamed tributary. For more information about this study please contact Doug Williams, Flood Control District, at 602-506-8743.

The Phoenix City Council recently approved a General Plan Amendment for land in the North Black Canyon Corridor. As part of this Plan, the City Council adopted interim floodplain zoning policies, which will be in effect until the Flood Control District's study is complete. These policies allow no encroachment within the 100-year floodplain or 70 to 150 feet from the floodway edge, for washes with flows above 5,000 cubic feet per second (cfs). Washes fitting this description are to remain undisturbed except for utility corridors, wash transitions to the floodplain, and major arterial streets that bridge the washes. For more information regarding the recent

200 West Washington Street, Phoenix, Arizona 85003 602-262-7131 FAX: 602-495-5799

Recycled Paper

General Plan Amendment or the interim policies please contact Charles Fitzhugh at the City of Phoenix Planning Department, telephone 602-261-8802. You can also find information about the North Black Canyon Corridor Plan on the City's web site at www.ci.phoenix.az.us/PLANNING/nbccmain.html.

Sincerely,

Thomas E. Callow, P.E.
Interim Director, Street Transportation Department

David E. Richert
Director, Planning Department

Michael S. Ellegood, P.E.
Chief Engineer & General Manager, Flood Control District of Maricopa County

c:\...\my documents\clomr.doc

c: Mr. Jack Tevlin
Mr. Ray Quay
Mr. Jim Mathien
Mr. Charles Fitzhugh
Mr. Bruce Dunn (Communities Southwest, Inc.)
Mr. Ron Brewster (Communities Southwest, Inc.)
Mr. Tom Ryan (Carter Burgess, Inc.)
Mr. Paul Hoskin (Hoskin Engineering Consultants, Inc.)

Tramonto Development
5343 N. 16th St. #460
Phoenix, AZ 85016

Hardy Properties
4207 E. Palo Verde Dr.
Phoenix, AZ 85018

Ronald H. & Sue C. Cheuvront
3334 E. Sells Dr.
Phoenix, AZ 85018

US Bureau of Reclamation
135 N. 2nd Ave.
Phoenix, AZ 85003

Canyon Investors
11411 N. Tatum Blvd.
Phoenix, AZ 85028

Dr. Nick Baziotes
7600 E. Camelback Rd.
Scottsdale, AZ 85251

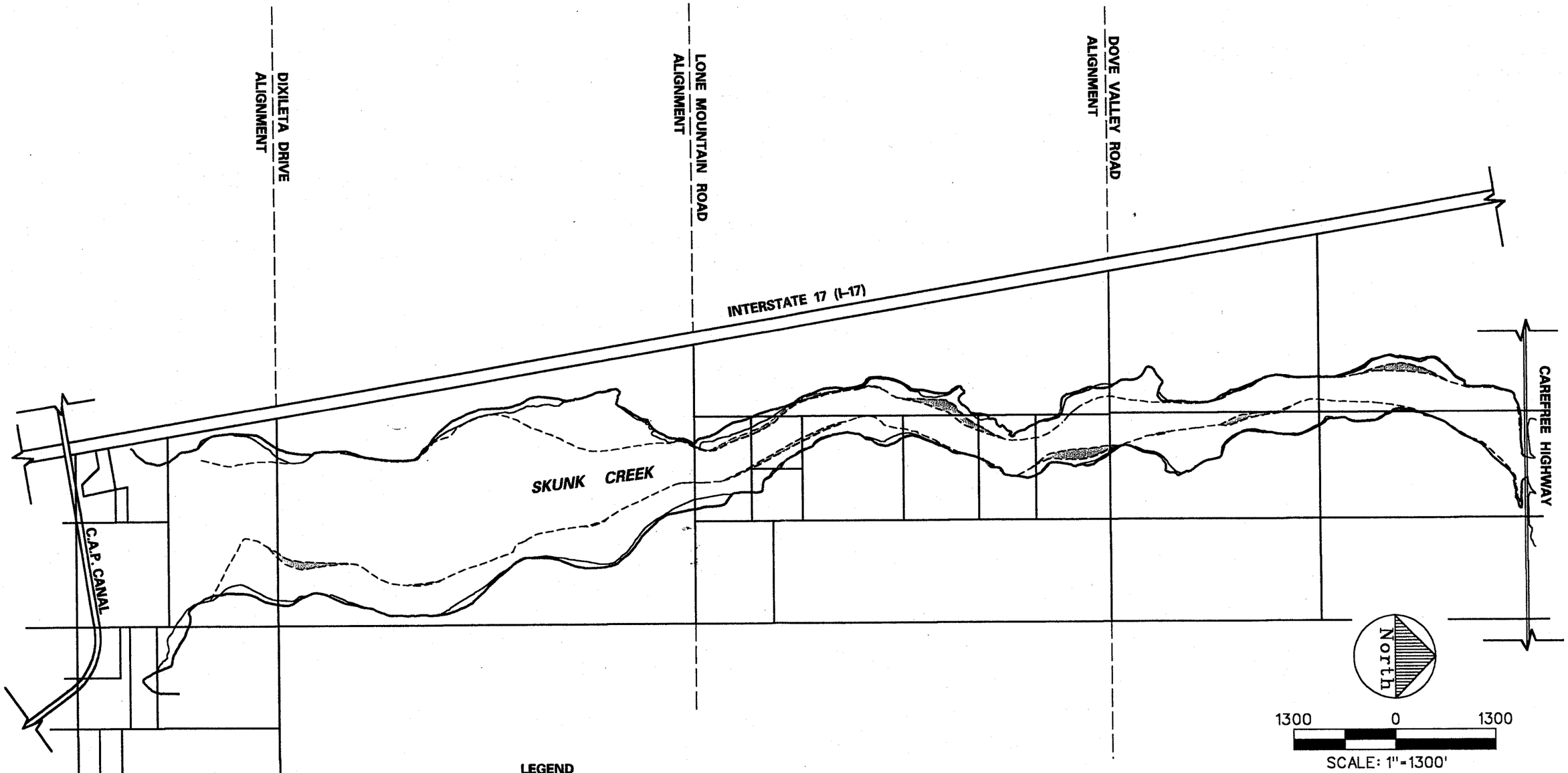
Lone Mountain Partners
2110 Grand Ave.
Phoenix, AZ 85009

Australian Native Landscape
7201 S. 27th Ave.
Phoenix, AZ 85041

L-Mar Investment Partners
3232 Cobb Parkway #315
Atlanta, GA 30339

State of Arizona
4207 E. Palo Verde Dr.
Phoenix, AZ 85018

John E. & Susan L. Propst
P.O. Box 41513
Phoenix, AZ 85080



LEGEND

- EXISTING 100-YEAR FLOODPLAIN LIMITS
- REVISED 100-YEAR FLOODPLAIN LIMITS
- EXISTING 100-YEAR FLOODWAY LIMITS
- REVISED 100-YEAR FLOODWAY LIMITS
- AREA OF ADDITIONAL FLOODPLAIN
- AREA OF ADITIONAL FLOODWAY

CITY OF PHOENIX, ARIZONA
FLOODPLAIN MANAGEMENT

SKUNK CREEK FLOODPLAIN CHANGES
BETWEEN CAP CANAL AND CAREFREE HIGHWAY

DR	DES	CK

EXHIBIT A

August 17, 1999

Michael Baker Jr., Inc.
3601 Eisenhower Avenue, Suite 600
Alexandria, VA 22304
Atttn: Pernille Buch-Pederson

RE:

The following is in reference to your request for a letter of certification stating that no structures are located in the area of Skunk Creek, Maricopa County, Arizona, between Carefree Highway and the Central Arizona Project Canal, that fall within the banks of the existing channel.

Based upon our review of the Landiscor Aerial information maps H15 and I15 dated January 29, 1999; Aerial Mapping provided by Maricopa County dated December, 1996; and a field inspection the morning of August 17, 1999, we found one area of significance. This appears to be situated on Parcel 204 11 002F (James O. Woodward) approximately 1.2 miles south of Carefree Highway on the east side of Skunk Creek. The structures on this site consist of a small plywood building (use unknown) on a concrete pad, and three concrete slabs near the north and east sides of this building. Said structures are approximately 8' above the low flow channel and 50' east of the top of bank at a bend in Skunk Creek.

The aforementioned aerial photographs and series of Polaroid shots taken in the field are on file in our office. Please let us know if we can be of further assistance.

Sincerely,

CARTER & BURGESS, INC.

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
32793
T. B.
PRICE
Date Signed 8-17-99
ARIZONA, U.S.A.

Toby B. Price, R.L.S.
Survey Manager

cc: Hoskin Engineering Consultants
520 East Portland Street
Phoenix, AZ 85004

TRAMONTO

OPERATIONS AND MAINTENANCE PLAN
FOR
SKUNK CREEK WEST EMBANKMENT
BETWEEN CLOUD ROAD AND CAREFREE HIGHWAY

November 2000

TRAMONTO
OPERATIONS AND MAINTENANCE PLAN
FOR
SKUNK CREEK WEST EMBANKMENT
BETWEEN CLOUD ROAD AND CAREFREE HIGHWAY

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TRAMONTO
OPERATIONS AND MAINTENANCE PLAN
FOR
SKUNK CREEK WEST EMBANKMENT
BETWEEN CLOUD ROAD AND CAREFREE HIGHWAY

Introduction

The purpose of this document is to serve as a guideline for the inspection and maintenance of the Skunk Creek West Embankment within the Tramonto development. The Skunk Creek West Embankment extends from Carefree Highway to Cloud Road. The purpose of the embankment is to protect the fills upon which Via del Puzzalo and the subdivisions to the west are constructed. Without the embankment in place, portions of Tramonto west of Via del Puzzalo would be at risk from flooding from the 100-year flood event within Skunk Creek. The bank protection provides an important role by protecting flood prone land from flooding and potential erosion. Without the bank protection in place, development of portions of Tramonto would not have been possible.

The bank protection should remain in place for many years, and may occasionally be subject to the forces that could result from a large flood event. Smaller flows along Skunk Creek will be confined to the main channel of the wash, which will remain in its natural and undisturbed state. This report addresses the maintenance of the embankment and bank protection only. It is the design intent for natural changes to continue to occur within the main channel of Skunk Creek.

Ownership

The Skunk Creek has been dedicated to the Tramonto Homeowners' Association by the master developer for the project, Communities Southwest. Communities Southwest is the majority shareholder within the Tramonto Homeowners' Association, but ultimately they will relinquish all responsibilities. As owners of the Skunk Creek open space area the Tramonto Homeowners' Association also assumes the primary responsibility for the maintenance of the bank protection, storm drainage outlet pipes, headwall structures, riprap, sacrificial overburden and any native landscaping (see Figure 1).

The City of Phoenix has a responsibility for public safety, and for the maintenance of public rights-of-way. The City of Phoenix will have the right to enter the limits of Skunk Creek and make repairs, should it be deemed necessary to protect the public or public facilities. Via del Tramonto and the south half of Cloud Road lie within the maintenance responsibility of the City of Phoenix. Storm drainage systems for the roadway drainage will be the responsibility of the City of Phoenix.

Carefree Highway, the Carefree Highway Bridge crossing of Skunk Creek, the north half of Cloud Road, and the Cloud Road crossing of Skunk Creek are under the ownership of Maricopa County Highway Department (MCDOT). MCDOT has the right to enter Skunk Creek to provide maintenance to the Carefree Highway bridge and its associated spur dikes.

TRAMONTO
OPERATIONS AND MAINTENANCE PLAN
FOR
SKUNK CREEK WEST EMBANKMENT
BETWEEN CLOUD ROAD AND CAREFREE HIGHWAY

Summary of Maintenance Responsibilities

Skunk Creek
Primary ownership.....Tramonto Homeowners' Association
Secondary maintenance responsibility: .....City of Phoenix

Via del Tramonto and south half of Cloud Road City of Phoenix

Carefree Highway & north half of Cloud Road Maricopa County Highway Department

Description of the Design

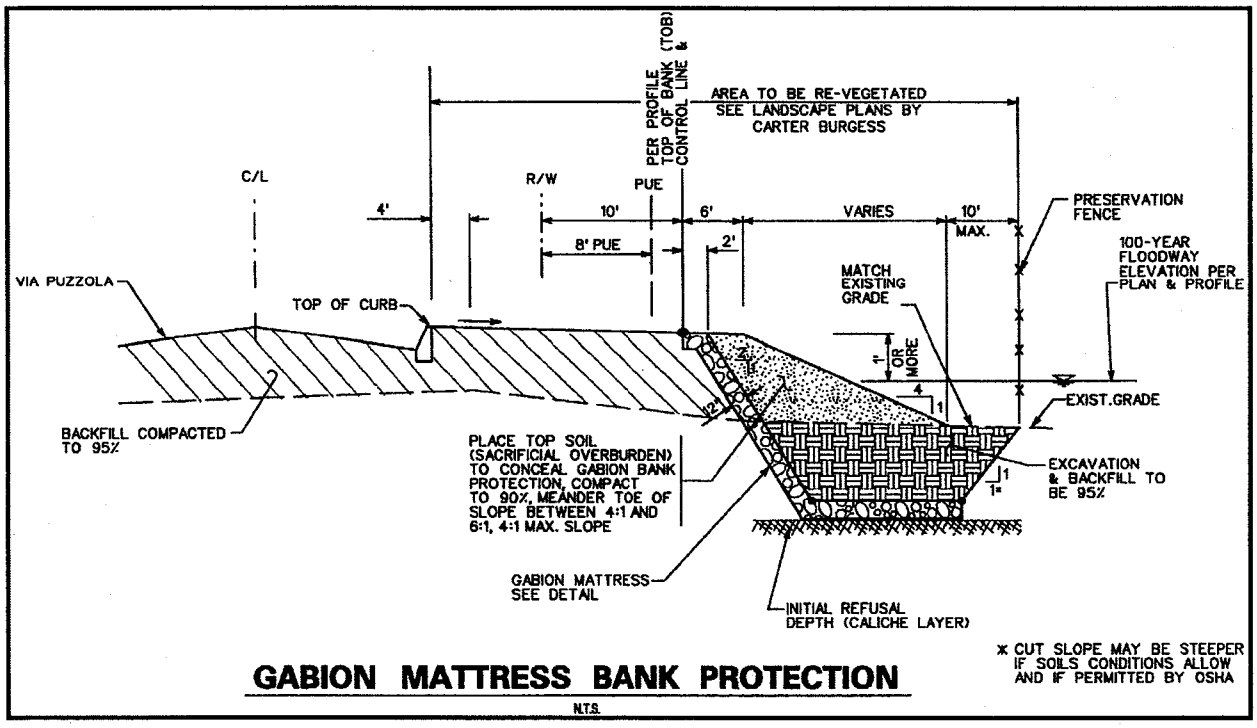
The design of the bank protection is shown in detail on design plans prepared by Hoskin Engineering Consultants, Inc. entitled *Tramonto Phase I West Side Infrastructure Bank Stabilization Plans*, dated 4/7/00. The bank protection along the west side of Skunk Creek consists of gabion mattress slope protection overlaid with a "sacrificial overburden" of earth fill, and planted with native vegetation. The purpose of the bank protection is to prevent potential erosion of the fill upon which Via Puzzola and the subdivisions to the west of Via Puzzola are built.

Gabion mattresses are long lengths of wire baskets filled with rock. The wire baskets are tied together to form a continuous mattress which is capable of deflection and movement should scour occur. These mattresses extend below grade at a slope of 2 horizontal to 1 vertical until they meet a natural caliché layer upon which they rest. The caliché layer consists of a naturally cemented rock and earth that is hard enough to resist water erosion.

The fill covering the gabion mattresses provides some weathering and corrosion protection, as well as allowing for the re-establishment of desert landscaping. Dirt, cobbles, boulders, and vegetation used in the cover layer of fill are native to the site. The fill material is termed "sacrificial" because it is not intended to provide any erosion resistance, and it has the potential to erode during a major flood event. If erosion of the fill does occur, it will need to be replaced and re-planted in order to maintain the appearance desired. Some erosion, or rilling, of the fill can be anticipated from direct precipitation and local concentration of drainage flows, especially during the first year following construction. Local repairs to the surface may be necessary from time to time, and should be expected.

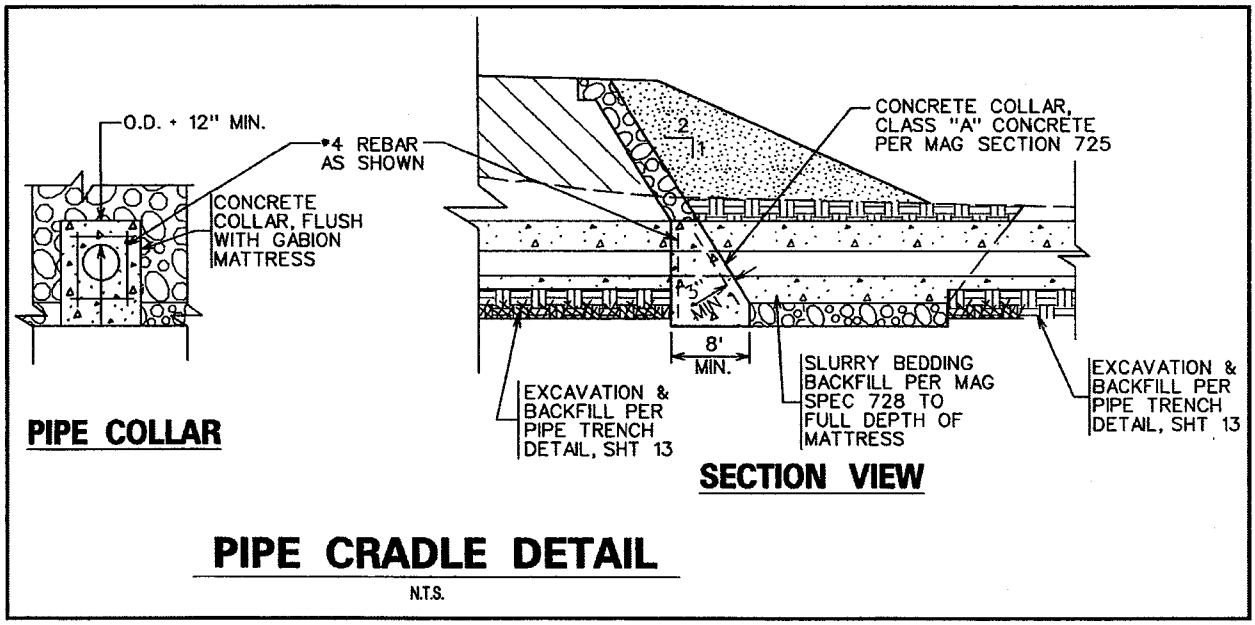
Typical cross-sections and details of the gabion mattress bank protection are shown on the following pages. Refer to Figure 1 for the alignment of the West Embankment, and the locations of storm drain systems. For more specific information, refer to the design plans.

Embankment Details - *Tramonto Phase 1 West Side Infrastructure Bank Stabilization Plans*:



GABION MATTRESS BANK PROTECTION

N.T.S.



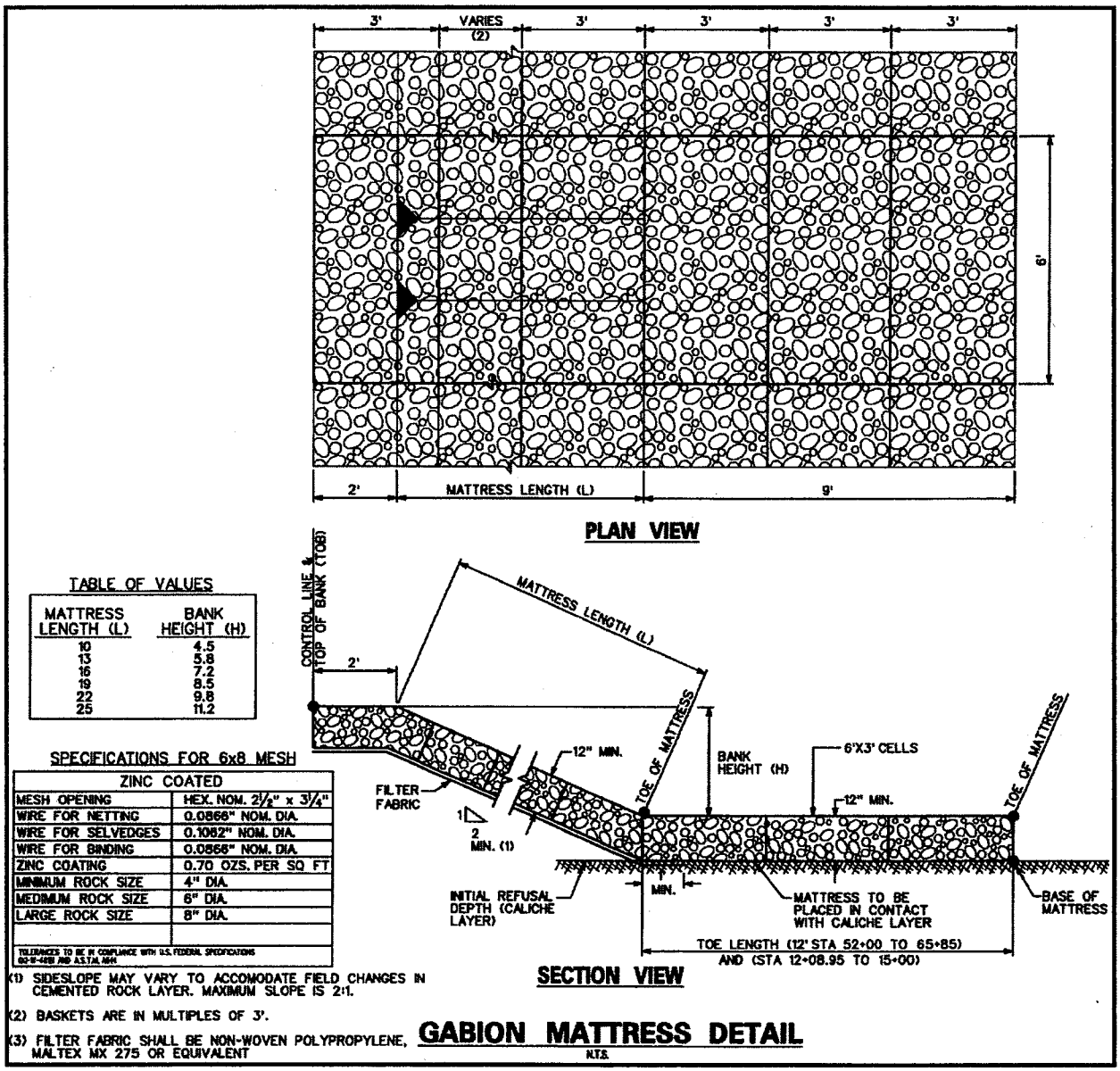
PIPE COLLAR

SECTION VIEW

PIPE CRADLE DETAIL

N.T.S.

Embankment Details (Cont'd.)



Maintenance Topics

1. Erosion Control and Local Drainage

   Three magnitudes of erosion may occur along the embankment:

   a. Rilling, or small channels forming vertically along the embankment, are caused by local runoff from the roadway and landscaping, and do not affect the function or integrity of the embankment. In areas where the flow is more concentrated, placement of loose rock riprap may help to alleviate this situation.
   b. Areas where the gabion mattress becomes exposed during smaller rainfall events may be an indication of continued expected erosion. Deposits of loose riprap might help to protect vegetation. A minimum of 4 feet horizontal to 1-foot vertical sideslope should be maintained along the embankment.
   c. In the event of a large enough flood along Skunk Creek, portions of the sacrificial fill material over the gabion mattresses could possibly be eroded, exposing the bank protection. Repairs may take the form of replacement of the fill material, and re-vegetation. If the area is one of frequent damage, placement of large diameter rock riprap may be necessary to protect the fill and vegetation.
   d. Repairs of the gabion mattresses should only be performed when a significant amount of flow threatens the ability of the structure to protect undermining of the roadway or parcels. Undermining of the gabion mattress, by erosion of the underlying caliché layer is a cause for concern. The eroded material should be removed and replaced with poured in-place concrete to the original grade of the gabion mattress. The mattress should be restored to it's original shape and condition. If wire ties have been damaged, distorted, or broken they should be replaced. Any loss of rock should be replaced.

   Erosion within the main channel of Skunk Creek is a natural process; no channel clearing should be performed.

2. Vegetation Maintenance and Control

   The West Embankment is covered will fill material and planted with native vegetation. Growth of the vegetation, including roots, which may extend into the gabion mattresses, does not affect the performance of the bank protection, and improves the stability of the overlying fill. There should be no thinning or removal of native vegetation except where it may restrict the outflow of drainage from the storm drainage systems. The locations of storm drainage outlets to Skunk Creek are shown on Figure 1.

3. Maintenance of Outflow Devices

   Six storm drain systems/culverts outlet to Skunk Creek through the embankment. Locations of these storm drain outlets are shown on Figure 1. These storm drain pipes and their outlets are the maintenance responsibility of the City of Phoenix. The outlets should be kept clear of debris and silt, and the access barriers should be checked

periodically for missing shear pins. Replacement of riprap at the storm drain outlets may be required if disrupted during or after a large flow event.

4. Gabion Maintenance
The gabion mattresses consist of wire tied baskets filled with rock. The wire is galvanized for corrosion protection; however, it should be periodically inspected at random locations to ensure that its integrity is maintained. In areas where erosion has occurred, the condition of the gabions should be observed to ensure that undue deflection has not resulted and that the wire remains tied. If it is necessary to replace gabions, they should be toed down to the caliché layer and the underlying filter fabric must also be replaced.

5. Rodent and Insect Control
Rodents and insects should not affect the integrity or function of the embankment.

6. Lined and Unlined Drainage Channel Maintenance
There is an unlined drainage channel east of Parcel W-26, southeast of the intersection of Via Puzzola and Cloud Road. Two storm drain systems outlet to this channel, which carries the flow into Skunk Creek. The channel should be kept clear of debris, vegetation that could block the flow of water, and large sediment deposits. Riprap at the culvert outlets should be replaced if carried downstream. If this occurs, a larger sized rock should be considered.

7. Maintenance of Fencing, Gates, and Signs
Skunk Creek is open to public access and is not fenced. Safety railings exist on the top of storm drain outlet headwalls. These should be inspected to ensure they are not damaged by large flood events.

Inspections:

In order to ensure the continued protection provided to Via Puzzola and the west side parcels of Tramonto, regular inspection and possible repair is required. It is the Tramonto Homeowners' Association's responsibility to provide these inspections and maintenance. The City of Phoenix also has the right to gain access to maintain the storm drain outlets, and the embankment if needed. The Tramonto Homeowners' Association shall contract with a registered civil engineer for the inspection of the embankment, and a licensed contractor for any repairs. The following inspections shall be conducted:

1. Quarterly Operational Inspections
   a. List any discrepancies.
   b. Review for action required.
   c. Schedule necessary repairs.

2. Major Storm Event
   a. Contact the Flood Control District of Maricopa County (602 506-1501) to determine whether the stream gauges for Skunk Creek have recorded any flow in the reach north of the CAP canal. If yes, continue with items b, c and d below.
   b. Inspect project during or after a major storm event.
   c. List any problems.
   d. Record flood depth.

3. Citizen Complaints/Inquiries
   a. Investigate area of complaint.
   b. Respond to citizen within 48 hours.
   c. Take action if the problem lies within the Homeowners Association responsibility, or refer to proper agency.

   If there are any questions arising from these inspections, a registered civil engineer should be consulted for advice.

Hoskin Engineering Consultants, Inc.

323 W. Roosevelt Street
Suite 200
Phoenix, AZ 85003

Phone: (602) 252-8384
Fax: (602) 252-8385
email: admin@hoskineng.com

November 6, 2000

Federal Emergency Management Agency
Revisions Fee Collection System Administrator
P.O. Box 3173
Merrifield, VA 22116

Re: Tramonto Master Planned Community
Skunk Creek LOMR
Case No. 99-09-592R

Dear Sir or Madam:

Hoskin Engineering Consultants, Inc. has prepared a *Request for a Letter of Map Revision for Skunk Creek through Tramonto* as a follow-up to the previously submitted and approved CLOMR. This request for a LOMR was prepared on behalf of Communities Southwest, the developer of the master-planned community Tramonto.

Please find enclosed a check for the $3,400 fee associated with the Skunk Creek LOMR submittal, paid by Tramonto Development, LLC.

DRAFT

Sincerely,

Paul W. R. Hoskin, P.E.

cc.: Ron Brewster, Communities Southwest

Form 3
Hydrologic Analysis

FEDERAL EMERGENCY MANAGEMENT AGENCY **HYDROLOGIC ANALYSIS**	O.M.B No. 3067-0148 Expires April 30, 2001

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average **3.67** hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

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

Note: Fill out one form for each flooding source studied

Community Name: Maricopa County, Unincorporated Areas / Phoenix, City of

Flooding Source: Skunk Creek

Project Name/Identifier: Tramonto Master Planned Community

1. REASON FOR NEW HYDROLOGIC ANALYSIS

☐ No existing analysis ☐ Improved data ☐ Changed physical condition of watershed

☐ Alternative methodology ☒ Proposed Conditions (CLOMR) ☐ Other

For the reason stated above, please attach a detailed explanation. If a computer program/model was used in revising the hydrologic analysis, **please provide a diskette with the input files** for the same flood recurrence intervals contained in the FIS for that stream; and at least for the 1% annual chance (base) flood where no detailed study exists.

Explanation provided: ☒ Yes ☐ No **Diskettes provided:** ☒ Yes ☐ No

2. METHODOLOGY FOR NEW ANALYSIS

Indicate Method	Required Data	Data Included
☐ Statistical Analysis of Gage Records	Form 3 - Attachment A	☐ Yes ☐ No
☐ Regional Regression Equations	Form 3 - Attachment C	☐ Yes ☐ No
☐ Precipitation/Runoff Model	Form 3 - Attachment D	☐ Yes ☐ No
☒ Other	Back-up computations and supporting data	☒ Yes ☐ No

3. APPROVAL OF ANALYSIS

The hydrologic analysis has already been approved by a local, state, or Federal Agency. ☐ Yes ☒ No ☐ Not Required

If Yes, attach evidence of approval. ☐ **Approval attached.** If No, attach explanation. ☒ **Explanation attached.**

4. COMPARISON OF BASE FLOOD DISCHARGES

Location:	Drainage Area (SqMi)	FIS(cfs)	Revised (cfs)
Sta 17.48	_____	27,300	27,300
Sta 17.39, Flow Split to be Removed	_____	23,700	27,300
Sta 16.86, Downstream of Carefree Highway	_____	23,300	26,700

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

If only a portion of a detailed study area was revised please attach an explanation describing the transition from the proposed discharges to the effective discharges. ☐ **Explanation Included** ☒ **Explanation Not Required**

5. HISTORICAL FLOODING INFORMATION

If historical data are available for the flooding source please provide: Location, peak discharges/water-surface elevations and dates, and source of information. ☐ **Data Attached** ☐ **Data Not Available**

PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS

Form 3: Hydrologic Analysis

Section 1. Reason for New Hydrologic Analysis

Construction of the master-planned community Tramonto will prevent the 3,600 cfs flow breakout upstream of the Carefree Highway.

Section 2. Methodology for New Analysis

Flow in the HEC-2 model was increased to model Skunk Creek without the flow breakout at section 17.39. The discharges used for the reaches of Skunk Creek were taken from information previously generated by the Flood Control District of Maricopa County for a Letter of Map Revision. Enclosed is a copy of the original hydrologic model which was prepared using HEC-1. Also enclosed is a copy of the HEC-1 model with the flow diversion removed.

Due to flow attenuation, the 3,600 cfs flow diversion does not translate to a numerical difference of 3, 600 cfs along the entire reach of Skunk Creek downstream of Carefree Highway. A comparison of the discharges is shown in the table below. Values used in the HEC-2 model were rounded to the nearest 100 cfs.

Location	HEC-1 I.D.	Current Discharge (cfs) SC100Y24	Proposed Discharge (cfs) SCPROP.DAT
Sta. 17.48 – 3,590 feet upstream of Carefree Highway	S22C	27,283	27,283
Sta. 17.30 – 2,270 feet upstream of Carefree Highway	S22C Downstream	23,636	27,283
Upstream of Union Hills watershed	S23C	23,026	26,513
Upstream of CAP canal	CAP	23,342	26,747
Upstream of Interstate 17	S24C	23,166	26,544

Section 3. Approval of Analysis

The hydrologic analysis for Skunk Creek, with a 3,600 cfs diversion between Carefree Highway and Cloud Road, was previously approved by the Flood Control District of Maricopa County and accepted by FEMA, as part of the 1997 Skunk Creek Floodplain Delineation Study. Containment of the flow diversion is reflected in the proposed discharge HEC-1 model, SCPROP.DAT included in this submittal. The Flood Control District and City of Phoenix have accepted the flow containment.

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUN   1998              *
 *           VERSION 4.1                *
 *                                      *
 *  RUN DATE   17AUG00  TIME  17:49:41  *
 *                                      *
 ****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*          (916) 756-1104              *
*                                      *
****************************************
```

```
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
```

EFFECTIVE MODEL INPUT FILENAME: SC100Y24.DAT

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
        3           ID    SKUNK CREEK FOODPLAIN DELINEATION STUDY
        4           ID    CAP AQUEDUCT THROUGH TOWN OF NEW RIVER
        5           ID
        6           ID    100-YEAR 24-HOUR FLOOD HYDROLOGY
        7           ID
        8           ID                 METHODS OF STUDY:
        9           ID    - FCD STORM PATTERNS
       10           ID    - FCD PHOENIX AREA S-GRAPHS
       11           ID    - GREEN-AMPT LOSSES
       12           ID    - MUSKINGUM STREAM ROUTING
       13           ID    - FCD DDMS PROGRAM (VER 1.1, AUG 1995) USED TO COMPUTE PARAMETERS
       14           ID
       15           ID    INPUT FILE NAME - SC100Y24.DAT
       16           ID
       17           ID    MONTGOMERY WATSON
       18           ID    MARCH 1996
       19           ID
       20           ID   DDM MCUHP2 SKUNK CREEK FOODPLAIN DELINEATION STUDY
                    *DIAGRAM
       21           IT       5 05JAN96    0000     300
       22           IN      15
       23           IO       5
                    *  THE FOLLOWING JD CARDS DESCRIBE A PRECIP DEPTH/AREA CURVE FOR HEC-1.
                    *  THE JD CARD DATA IS DERIVED FROM DARF DATA GIVEN IN THE MARICOPA COUNTY
                    *  DRAINAGE DESIGN MANUAL (TBL 2.2).  USING THE JD CARDS HEC-1 APPLIES THE
                    *  CORRECT DARF TO POINT RAINFALL VALUES FOR EACH CONCENTRATION POINT.
       24           JD   4.602    .001
                    * THE FOLLOWING PC RECORD USED A 24-HOUR SCS TYPE II RAINFALL
       25           PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
       26           PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
       27           PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
       28           PC    .110    .115    .120    .126    .135    .142    .150    .158    .166    .175
       29           PC    .184    .195    .208    .224    .243    .266    .318    .479    .678    .716
       30           PC    .743    .764    .781    .795    .808    .818    .828    .837    .844    .851
       31           PC    .858    .865    .871    .877    .883    .889    .895    .900    .905    .910
       32           PC    .915    .919    .923    .927    .931    .935    .939    .943    .947    .951
       33           PC    .954    .957    .960    .963    .966    .969    .972    .975    .978    .981
       34           PC    .984    .987    .990    .993    .996    .999   1.000
       35           JD   4.574       1
       36           JD   4.464       5
       37           JD   4.326      10
       38           JD   4.188      20
       39           JD   4.142      30
       40           JD   4.050      40
       41           JD   4.004      50
       42           JD   3.949      65
                    * DDM   ***** Updated *****
1                                          HEC-1 INPUT                                                    PAGE  2

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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 43          KK      S1
 44          KM    BASIN S1
 45          KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 46          KM     L=       2.5  Lca=        .9   S=  535.5  Kn= .040  LAG=  24.0
 47          KM     PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
 48          BA     2.08
 49          LG      .22      .38     6.40      .14     6.00
 50          UI     292.     975.    1892.    2662.    2623.    1696.    1381.    1093.     796.     657.
 51          UI     486.     358.     293.     224.     156.     143.      92.      56.      56.      56.
 52          UI      56.      56.       0.       0.       0.       0.       0.       0.       0.       0.
 53          UI       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
             * DDM   ***** Preserved *****

 54          KK     S1R
 55          KM     ROUTE S1 THROUGH S2
 56          RM       4    0.31    0.35
             * DDM   ***** Updated *****

 57          KK      S2
 58          KM    BASIN S2
 59          KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 60          KM     L=       2.2  Lca=       1.1   S=  384.2  Kn= .036  LAG=  23.4
 61          KM     PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
 62          BA     1.17
 63          LG      .18      .35     7.00      .11     7.00
 64          UI     169.     592.    1118.    1615.    1407.     953.     770.     600.     436.     362.
 65          UI     251.     198.     152.     120.      83.      83.      33.      32.      32.      32.
 66          UI      32.       0.       0.       0.       0.       0.       0.       0.       0.       0.
 67          UI       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
             * DDM   ***** Preserved *****

 68          KK     S2C
 69          KM     COMBINE S1+S2
 70          HC       2
             * DDM   ***** Updated *****

 71          KK      S3
 72          KM    BASIN S3
 73          KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 74          KM     L=       2.3  Lca=       1.1   S=  331.3  Kn= .035  LAG=  23.5
 75          KM     PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
 76          BA     1.03
 77          LG      .17      .39     5.70      .19     4.00
 78          UI     148.     513.     974.    1398.    1248.     837.     677.     529.     385.     320.
 79          UI     222.     174.     135.     108.      72.      72.      32.      28.      28.      28.
 80          UI      28.       0.       0.       0.       0.       0.       0.       0.       0.       0.
 81          UI       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
             * DDM   ***** Preserved *****
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 82          KK     S3C
 83          KM     COMBINE S3+S2C (SUBAREAS S1-S3)
 84          HC       2
             * DDM   ***** Preserved *****

 85          KK     S3R
 86          KM     ROUTE S3C THROUGH S6
 87          RM       4    0.33    0.30
             * DDM   ***** Updated *****

 88          KK      S4
 89          KM    BASIN S4
 90          KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 91          KM     L=       2.3  Lca=       1.1   S=  588.7  Kn= .040  LAG=  24.4
 92          KM     PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
 93          BA      .97
 94          LG      .20      .39     5.70      .19      .00
 95          UI     134.     437.     853.    1188.    1253.     794.     648.     517.     381.     309.
 96          UI     241.     170.     144.     103.      80.      66.      53.      26.      26.      26.
 97          UI      26.      26.       0.       0.       0.       0.       0.       0.       0.       0.
 98          UI       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
             * DDM   ***** Updated *****

 99          KK      S5
100          KM    BASIN S5
101          KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
102          KM     L=       2.9  Lca=       1.8   S=  618.6  Kn= .043  LAG=  34.0
103          KM     PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
104          BA     1.85
105          LG      .23      .39     5.70      .18      .00
106          UI     183.     333.     782.    1176.    1442.    2021.    1475.    1109.     962.     830.
107          UI     702.     564.     461.     409.     335.     259.     220.     201.     142.     140.
108          UI      93.      90.      90.      49.      35.      35.      35.      35.      35.      35.
109          UI      35.       0.       0.       0.       0.       0.       0.       0.       0.       0.
110          UI       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
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                * DDM   ***** Preserved *****

 111            KK     S5C
 112            KM    COMBINE S4+S5
 113            HC       2
                * DDM   ***** Preserved *****

 114            KK     S5R
 115            KM    ROUTE S5C THROUGH S6
 116            RM       5    0.44    0.30
                * DDM   ***** Updated *****

 117            KK      S6
 118            KM   BASIN S6
 119            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 120            KM    L=      2.4  Lca=      1.1   S=  152.5  Kn= .034  LAG=  27.3
 121            KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
 122            BA     .94
 123            LG     .23     .35    7.00     .12    2.00
1                                          HEC-1 INPUT                                                    PAGE  4

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 124            UI    115.    313.    666.    939.   1088.   1061.    849.    614.    450.    322.
 125            UI    234.    175.    122.     83.     75.     28.     28.     28.     28.     28.
 126            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 127            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Preserved *****

 128            KK     S6C
 129            KM    COMBINE S6+S5R+S3R (SUBAREAS S1-S6)
 130            KM    NEW RIVER ROAD
 131            HC       3
                * DDM   ***** Preserved *****

 132            KK     S6R
 133            KM    ROUTE S6C THROUGH S10
 134            RM       2    0.18    0.25
                * DDM   ***** Updated *****

 135            KK      S9
 136            KM   BASIN S9
 137            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 138            KM    L=      2.3  Lca=       .9   S=  329.0  Kn= .044  LAG=  27.9
 139            KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
 140            BA    1.02
 141            LG     .20     .39    5.70     .19     .00
 142            UI    123.    321.    680.    925.   1329.    913.    702.    590.    484.    372.
 143            UI    299.    254.    185.    149.    126.     94.     76.     60.     60.     27.
 144            UI     24.     24.     24.     24.     24.      0.      0.      0.      0.      0.
 145            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Preserved *****

 146            KK     S9R
 147            KM    ROUTE S9 THROUGH S10
 148            RM       3    0.22    0.30
                * DDM   ***** Updated *****

 149            KK     S10
 150            KM   BASIN S10
 151            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 152            KM    L=      2.7  Lca=      1.2   S=  156.7  Kn= .032  LAG=  27.9
 153            KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
 154            BA    1.80
 155            LG     .17     .40    6.00     .18     .00
 156            UI    217.    569.   1215.   1741.   2034.   2025.   1669.   1212.    894.    656.
 157            UI    465.    358.    247.    179.    149.     76.     53.     53.     53.     53.
 158            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 159            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Updated *****

 160            KK      S7
 161            KM   BASIN S7
 162            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 163            KM    L=      2.1  Lca=      1.3   S=  136.4  Kn= .031  LAG=  25.5
 164            KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
 165            BA     .68
 166            LG     .15     .32    7.60     .09    4.00
1                                          HEC-1 INPUT                                                    PAGE  5

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 167            UI     90.    278.    556.    774.    863.    777.    571.    406.    288.    202.
 168            UI    149.    100.     69.     59.     22.     22.     22.     22.      0.      0.
 169            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Updated *****

 170            KK      S8
 171            KM   BASIN S8
 172            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
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173          KM    L=      1.9  Lca=      1.0   S=  207.2  Kn= .034  LAG=  22.9
174          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
175          BA    1.12
176          LG     .17     .39    5.70     .19     .00
177          UI    165.    611.   1147.   1509.   1531.   1190.    814.    554.    375.    268.
178          UI    173.    113.     77.     40.     40.     40.      0.      0.      0.      0.
179          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

180          KK     S8C
181          KM    COMBINE S7+S8
182          HC       2
             * DDM   ***** Preserved *****

183          KK    S8CR
184          KM    ROUTE S8C THROUGH S10
185          RM       2    0.14    0.25
             * DDM   ***** Preserved *****

186          KK    S10C
187          KM    COMBINE S9R+S10+S6R+S8CR (SUBAREAS S1-S10)
188          HC       4
             * DDM   ***** Preserved *****

189          KK    S10R
190          KM    ROUTE S10C THROUGH S13
191          RM       1    0.09    0.25
             * DDM   ***** Updated *****

192          KK     S13
193          KM   BASIN S13
194          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
195          KM    L=      2.7  Lca=      1.2   S=  425.1  Kn= .035  LAG=  24.5
196          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
197          BA    1.27
198          LG     .22     .37    5.30     .23   20.00
199          UI    175.    567.   1109.   1541.   1652.   1043.    851.    680.    503.    406.
200          UI    318.    227.    191.    134.    108.     86.     73.     34.     34.     34.
201          UI     34.     34.      0.      0.      0.      0.      0.      0.      0.      0.
202          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Updated *****
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

203          KK     S11
204          KM   BASIN S11
205          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
206          KM    L=      2.7  Lca=      1.3   S=  438.1  Kn= .037  LAG=  26.9
207          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
208          BA     .92
209          LG     .20     .39    5.70     .19     .00
210          UI    115.    317.    664.    896.   1241.    783.    631.    523.    422.    315.
211          UI    265.    210.    154.    129.     98.     84.     56.     56.     36.     22.
212          UI     22.     22.     22.     22.      0.      0.      0.      0.      0.      0.
213          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

214          KK    S11R
215          KM    ROUTE S11 THROUGH S12
216          RM       3    0.24    0.30
             * DDM   ***** Updated *****

217          KK     S12
218          KM   BASIN S12
219          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
220          KM    L=      2.8  Lca=      1.3   S=  123.2  Kn= .031  LAG=  29.1
221          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
222          BA     .91
223          LG     .15     .32    7.60     .09    1.00
224          UI    105.    257.    558.    811.    971.    995.    868.    652.    482.    359.
225          UI    262.    195.    146.    109.     72.     67.     26.     26.     26.     26.
226          UI     26.      0.      0.      0.      0.      0.      0.      0.      0.      0.
227          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

228          KK    S12C
229          KM    COMBINE S11R+S12 (SUBAREAS S11 AND S12)
230          HC       2
             * DDM   ***** Preserved *****

231          KK    S13C
232          KM    COMBINE S10R+S13+S12C       (SUBAREAS S1-S13)
233          HC       3
             * DDM   ***** Preserved *****

234          KK   S13CR
235          KM    ROUTE S13C THROUGH S14
236          RM       2    0.15    0.25
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                * DDM   ***** Updated *****

 237            KK     S14
 238            KM   BASIN S14
 239            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 240            KM    L=      1.8  Lca=      1.0   S=  670.5  Kn= .036  LAG=  18.8
 241            KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
 242            BA     .83
 243            LG     .23     .39    5.80     .18   25.00
 244            UI    187.    709.   1211.   1355.    825.    631.    435.    331.    218.    166.
1                                    HEC-1 INPUT                                                    PAGE  7

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 245            UI    114.     77.     67.     29.     29.     29.     29.      0.      0.      0.
 246            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *  ******************************************************************
                *  INFLOW FROM CLINE CREEK                                              *
                *                                                                       *
                *  INPUT TAKEN FROM CLINE CREEK FLOODPLAIN DELINEATION STUDY BY BAKER   *
                *  ENGINEERS (12/11/89) AS REVISED BY FCDMC (2/27/96).                  *
                *                                                                       *
                *  FILE CLINE.DAT
                *  ******************************************************************
                *
                *      HYDROLOGY FOR:    100-YEAR 24 HOUR EVENT
                *
                *      PURPOSE OF STUDY: DELINEATION OF THE 100-YEAR FLOODPLAIN OF
                *                        CLINE CREEK AND TRIBUTARIES - SKUNK CREEK
                *                        TO THE TONTO NATIONAL FOREST BOUNDARY
                *
                *      METHODS OF STUDY: HEC-1   DIMENSIONLESS SCS HYDROGRAPH 6 MIN. INTERVALS
                *      (ORIGINAL MODEL)  PRECIPITATION- SCS TYPE II STORM BY 15 MIN. INCREMENTS
                *                        EXCESS PRECIPITATION- INITIAL AND UNIFORM LOSS RATES
                *                                  &  PERCENT IMPERVIOUS
                *                        STREAM ROUTING- MUSKINGUM METHOD
                *
                *      WATERSHED NAME:   CLINE CREEK   ( BASIN X IS SUBBASIN C-6 )
                *      Revised by :    Hasan Mushtaq, FCDMC
                *                      February 23, 1996.
                *
                *      (1)     A reduction factor of 1.00 was used to be consistent with
                *              the previous study.  DARFS are applied in full watershed model.
                *      (2)     Green-Ampt infiltration method was used for soil loss.
                *      (3)     Phoenix Valley S-graph and Mountain S-graphs were
                *              used to generate the excess rainfall.
                *      (4)     L, Lca, S, were measured from the work maps.
                *      (5)     Roughness values for the subbasins are assumed to vary
                *              between 0.025 and 0.030.  These may be changed as necessary.
                *
                *                              Names (KK cards) of routing and combination step
                *      with the format CO-1 and RO-1 were changed by MW to include a prefix of
                *      "C" (indicating Cline Creek) so they would be differently named than
                *      combination and routing steps in Roger Creek.  This was necessary
                *      because the DDMS was transposing data from one the lower data blocks
                *      to the upper ones and deleting the lower blocks.
                *
                * DDM   ***** Updated *****

 247            KK   X1SUB
 248            KM   BASIN X1SUB
 249            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 250            KM    L=      1.8  Lca=       .8   S=  320.0  Kn= .020  LAG=  11.0
 251            KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
 252            BA     .61
 253            LG     .20     .30    8.00     .07   16.00
 254            UI    456.   1602.   1122.    665.    379.    205.    116.     64.     35.     35.
 255            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 256            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Preserved *****
1                                    HEC-1 INPUT                                                    PAGE  8

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 257            KK   XROX2
 258            KM        ROUTE X1 THROUGH SUBBASIN X2
 259            RM       2    0.15    0.30
                * DDM   ***** Updated *****

 260            KK   X2SUB
 261            KM   BASIN X2SUB
 262            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 263            KM    L=      2.0  Lca=      1.0   S=  311.6  Kn= .020  LAG=  12.5
 264            KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
 265            BA     .43
 266            LG     .20     .32    7.60     .08    6.00
 267            UI    241.    860.    931.    528.    317.    193.    115.     69.     41.     22.
 268            UI     22.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 269            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
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                * DDM   ***** Preserved *****

270             KK   XCO-1
271             KM        COMBINE RUNOFF FROM SUBBASINS X1 AND X2
272             HC       2
                * DDM   ***** Preserved *****

273             KK   XROX3
274             KM        ROUTE X1 & X2 THROUGH SUBBASINS X3 & X5
275             RM       2    0.23    0.30
                * DDM   ***** Updated *****

276             KK   X3SUB
277             KM   BASIN X3SUB
278             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
279             KM    L=      2.3  Lca=      1.2   S=  196.0  Kn= .020  LAG=  15.6
280             KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
281             BA     .56
282             LG     .20     .32    7.60     .08    1.00
283             UI    188.    723.   1108.    970.    572.    326.    187.    104.     57.     29.
284             UI     29.      0.      0.      0.      0.      0.      0.      0.      0.      0.
285             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Preserved *****

286             KK   XCO-2
287             KM        COMBINE RUNOFF FROM SUBBASINS X1,X2, AND X3
288             HC       2
                * DDM   ***** Updated *****

289             KK   X4SUB
290             KM   BASIN X4SUB
291             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
292             KM    L=      1.1  Lca=       .6   S=  250.0  Kn= .020  LAG=   8.8
293             KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
294             BA     .28
295             LG     .20     .27    8.80     .05     .00
296             UI    356.    968.    551.    203.     74.     26.      0.      0.      0.      0.
297             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE  9

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

298             KK   XCO-3
299             KM        COMBINE RUNOFF FROM SUBBASINS X1,X2,X3,AND X4
300             HC       2
                * DDM   ***** Updated *****

301             KK   X5SUB
302             KM   BASIN X5SUB
303             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
304             KM    L=      1.5  Lca=       .9   S=  198.7  Kn= .020  LAG=  11.6
305             KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
306             BA     .38
307             LG     .20     .37    6.60     .13     .00
308             UI    253.    874.    917.    470.    221.    101.     43.     27.      0.      0.
309             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Preserved *****

310             KK   XCO-4
311             KM        COMBINE RUNOFF FROM SUBBASINS X1,X2,X3,X4,AND X5
312             KM        BASIN X OUTFLOW HYDROGRAPH = SUB C-6 RUNOFF HYDROGRAPH
313             HC       2
                * DDM   ***** Updated *****

314             KK   SUBC1
315             KM   BASIN SUBC1
316             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
317             KM    L=      1.3  Lca=       .8   S= 1143.0  Kn= .020  LAG=   7.8
318             KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
319             BA    1.26
320             LG     .20     .35    4.80     .26     .00
321             UI   2015.   4263.   1937.    870.    381.    158.    104.      0.      0.      0.
322             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Preserved *****

323             KK   CRO-1
324             KM        ROUTE C-1       THROUGH      C-2
325             RM       6     .58      .3
                * DDM   ***** Updated *****

326             KK   SUBC2
327             KM   BASIN SUBC2
328             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
329             KM    L=      3.8  Lca=      2.1   S=  369.4  Kn= .020  LAG=  20.5
330             KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
331             BA    2.19
332             LG     .20     .35    4.80     .26     .00
333             UI    398.   1547.   2645.   3635.   2218.   1726.   1306.    918.    721.    495.
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334          UI    378.    276.    186.    176.     71.     69.     69.     69.      0.      0.
335          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Updated *****
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

336          KK   SUBC3
337          KM   BASIN SUBC3
338          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
339          KM    L=      2.2  Lca=      1.6   S=  403.7  Kn= .020  LAG=  14.8
340          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
341          BA    1.24
342          LG     .23     .35    4.90     .26    1.00
343          UI    474.   1738.   2670.   1591.   1112.    710.    467.    306.    195.    138.
344          UI     64.     54.     54.      0.      0.      0.      0.      0.      0.      0.
345          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Updated *****

346          KK   SUBC4
347          KM   BASIN SUBC4
348          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
349          KM    L=      2.9  Lca=      1.9   S=  688.4  Kn= .020  LAG=  15.8
350          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
351          BA    2.54
352          LG     .20     .35    4.80     .26     .00
353          UI    829.   3129.   5236.   3326.   2386.   1563.   1101.    691.    481.    313.
354          UI    234.    104.    104.    104.      0.      0.      0.      0.      0.      0.
355          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

356          KK   CRO-2
357          KM        ROUTE C-4 THROUGH C-5
358          RM       3     .27      .3
             * DDM   ***** Updated *****

359          KK   SUBC5
360          KM   BASIN SUBC5
361          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
362          KM    L=      2.9  Lca=      1.4   S=  540.8  Kn= .020  LAG=  15.0
363          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
364          BA    3.39
365          LG     .24     .37    5.20     .23    6.00
366          UI   1255.   4625.   7250.   4358.   3077.   1965.   1317.    866.    552.    372.
367          UI    205.    146.    146.      0.      0.      0.      0.      0.      0.      0.
368          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

369          KK   CCO-1
370          KM        COMBINE RUNOFF FROM SUBBASINS C-4 AND C-5
371          HC       2
             * DDM   ***** Preserved *****

372          KK   CRO-3
373          KM        ROUTE C-4&5 THROUGH C-3
374          RM       3     .24      .3
             * DDM   ***** Preserved *****
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

375          KK   CCO-2
376          KM        COMBINE RUNOFF FROM SUBBASINS 4&5 WITH C-1,2&3
377          HC       4
             * DDM   ***** Preserved *****

378          KK   CRO-4
379          KM        ROUTE C-1,2,3,4,5 THROUGH C-9 UPST
380          RM       3     .25      .3
             * DDM   ***** Updated *****

381          KK   SUBC7
382          KM   BASIN SUBC7
383          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
384          KM    L=      2.5  Lca=      1.1   S=  561.0  Kn= .020  LAG=  12.6
385          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
386          BA    1.20
387          LG     .40     .27    8.80     .06   18.00
388          UI    656.   2336.   2590.   1467.    882.    544.    325.    195.    120.     61.
389          UI     61.      0.      0.      0.      0.      0.      0.      0.      0.      0.
390          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

391          KK   CRO-5
392          KM        ROUTE C-7 THROUGH C-8
393          RM       8     .77      .3
             * DDM   ***** Updated *****
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394          KK   SUBC8
395          KM   BASIN SUBC8
396          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
397          KM    L=      2.6  Lca=      1.2   S=  101.6  Kn= .022  LAG=  20.4
398          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
399          BA    1.42
400          LG     .37     .19   10.10     .04   13.00
401          UI    262.   1020.   1830.   2221.   1951.   1316.    858.    550.    371.    229.
402          UI    161.     72.     57.     57.     57.      0.      0.      0.      0.      0.
403          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

404          KK   CCO-3
405          KM        COMBINE RUNOFF FROM SUBBASINS C-7 AND C-8
406          HC       2
             * DDM   ***** Preserved *****

407          KK   CCO-4
408          KM        COMBINE RUNOFF FROM SUBBASINS C-1 THROUGH 5; C-6 AND C-7&8
409          HC       3
             * DDM   ***** Preserved *****
1                                    HEC-1 INPUT                                          PAGE 12

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

410          KK   CRO-6
411          KM        ROUTE C-1 THROUGH 8 THROUGH C-9 DWN
412          RM       2     .21      .3
             * DDM   ***** Updated *****

413          KK   SUBC9
414          KM   BASIN SUBC9
415          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
416          KM    L=      2.5  Lca=      1.4   S=   81.3  Kn= .022  LAG=  21.8
417          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
418          BA     .58
419          LG     .35     .31    6.80     .14    7.00
420          UI     89.    358.    655.    832.    804.    579.    389.    260.    173.    116.
421          UI     76.     58.     22.     22.     22.     22.      0.      0.      0.      0.
422          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

423          KK   CCO-5
424          KM        COMBINE RUNOFF FROM SUBBASINS C-1 THROUGH 8 AND C-9
425          HC       2
             *  ******************************************
             *  END CLINE CREEK WATERSHED MODEL
             *  RESUME SKUNK CREEK WATERSHED MODEL
             *  ******************************************
             * DDM   ***** Preserved *****

426          KK  CLINER
427          KM    ROUTE CLINE CREEK FLOWS THROUGH S14
428          RM       1  0.0583    0.25
             * DDM   ***** Preserved *****

429          KK    S14C
430          KM    COMBINE S13C+S14+CLINE CREEK BASINS (SUBAREAS S1-S14 & CLINE CREEK BASIN)
431          HC       3
             * DDM   ***** Preserved *****

432          KK   S14CR
433          KM    ROUTE S14C THROUGH S16
434          RM       4    0.29    0.25
             * DDM   ***** Updated *****

435          KK     S15
436          KM   BASIN S15
437          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
438          KM    L=      2.0  Lca=      1.0   S=  238.1  Kn= .035  LAG=  23.5
439          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
440          BA     .99
441          LG     .21     .35    7.00     .12   15.00
442          UI    141.    501.    959.   1278.   1326.   1077.    741.    513.    352.    244.
443          UI    166.    111.     87.     34.     34.     34.     34.      0.      0.      0.
444          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****
1                                    HEC-1 INPUT                                          PAGE 13

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

445          KK    S15R
446          KM    ROUTE S15 THROUGH S16
447          RM       1    0.08    0.25
             *  ******************************************************************
             *  INFLOW FROM RODGER CREEK                                          *
             *  INPUT TAKEN FROM RODGER CREEK FLOODPLAIN DELINEATION STUDY BY BAKER  *
             *  ENGINEERS (12/7/89) AS REVISED BY FCDMC (2/27/96)                 *
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*                                                                      *
*  FILE ROGER.DAT
*  ***********************************************************************
*
*      HYDROLOGY FOR:     100-YEAR 24 HOUR EVENT
*
*      PURPOSE OF STUDY: DELINEATION OF THE 100-YEAR FLOODPLAIN OF
*                        RODGER CREEK ABOVE CONFLUENCE WITH SKUNK CREEK
*
*      METHODS OF STUDY: HEC-1   DIMENSIONLESS SCS HYDROGRAPH 5 MIN. INTERVALS
*      (ORIGINAL MODEL)          PRECIPITATION- SCS TYPE II STORM BY 15 MIN. INC
*                                    -AREAL REDUCTION NOT USED  < 10 SQ. MI.
*                        EXCESS PRECIPITATION- INITIAL AND UNIFORM LOSS RATES
*                                    &  PERCENT IMPERVIOUS
*                        STREAM ROUTING- MUSKINGUM METHOD
*
*      CURRENT MODEL USES FCD STORM PATTERNS FOR PRECIP DISTRIBUTION
*
*      WATERSHED NAME: RODGER CREEK
*      Revision by:       Hasan Mushtaq, Flood Control District
*                         January 24, 1996.
*
*      (1)      A reduction factor of 1.00 was used to be consistent with
*               the previous study.  DARFS are applied in full watershed model.
*      (2)      Green-Ampt infiltration method was used for soil loss.
*      (3)      Valley S-graph was used to derive the unit hydrograph.
*      (4)      L, Lca, S, were measured from the work map.
*      (5)      Roughness value for the subbasins are assumed constant
*               at 0.030.  These may be changed as needed.
*
* DDM   ***** Updated *****

KK      R1
KM   BASIN R1
KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
KM    L=      2.9  Lca=      1.1   S=  112.2  Kn= .025  LAG=  23.3
KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
BA    1.56
LG     .15     .25    9.70     .05   17.00
UI    226.    812.   1543.   2048.   2113.   1686.   1158.    801.    542.    382.
UI    256.    168.    128.     55.     55.     55.     55.      0.      0.      0.
UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
* DDM   ***** Preserved *****
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LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK    RO-1
KM        ROUTE R-1 THROUGH R-2
RM       4      .3      .3
* DDM   ***** Updated *****

KK      R2
KM   BASIN R2
KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
KM    L=      3.4  Lca=      1.5   S=  327.4  Kn= .025  LAG=  22.0
KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
BA    1.98
LG     .15     .29    8.40     .07   14.00
UI    304.   1191.   2106.   3147.   2080.   1599.   1264.    916.    706.    537.
UI    373.    299.    231.    149.    149.     63.     58.     58.     58.     58.
UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
* DDM   ***** Preserved *****

KK    CO-1
KM        COMBINE RUNOFF FROM SUBBASINS R-1 AND R-2
HC       2    3.54
* DDM   ***** Preserved *****

KK    RO-2
KM        ROUTE R-1 AND R-2 THROUGH R-3
RM       5      .4      .3
* DDM   ***** Updated *****

KK      R3
KM   BASIN R3
KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
KM    L=      3.5  Lca=      2.1   S=  365.7  Kn= .030  LAG=  29.9
KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
BA    1.59
LG     .10     .35    7.00     .13   25.00
UI    179.    414.    909.   1272.   1709.   1694.   1105.    936.    789.    649.
UI    496.    423.    349.    262.    215.    187.    137.    119.     88.     88.
UI     58.     34.     34.     34.     34.     34.     34.      0.      0.      0.
UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
* DDM   ***** Preserved *****

KK    CO-2
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490          KM        COMBINE RUNOFF FROM R-1, R-2, AND R-3
491          HC       2    5.13
             *  ****************************************
             *  END RODGER CREEK WATERSHED MODEL
             *  RESUME SKUNK CREEK WATERSHED MODEL
             *  ****************************************
             * DDM   ***** Updated *****
1                                    HEC-1 INPUT                                                    PAGE 15

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


492          KK     S16
493          KM   BASIN S16
494          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
495          KM    L=       1.9  Lca=        .9   S=  333.3  Kn= .033  LAG=  19.1
496          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
497          BA    1.32
498          LG     .29     .39    5.80     .20     .00
499          UI    285.   1084.   1846.   2166.   1310.   1007.    707.    529.    361.    268.
500          UI    188.    131.    114.     49.     45.     45.     45.      0.      0.      0.
501          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

502          KK    S16C
503          KM   COMBINE S14R+S16+S15+RODGER CREEK (SUBAREAS S1-S16, CLINE & RODGER CR BASINS)
504          HC       4
             * DDM   ***** Preserved *****

505          KK   S16CR
506          KM    ROUTE S16C THROUGH S21
507          RM       6    0.47    0.25
             * DDM   ***** Updated *****

508          KK     S21
509          KM   BASIN S21
510          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
511          KM    L=       3.7  Lca=       1.6   S=   56.6  Kn= .026  LAG=  34.6
512          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
513          BA    2.22
514          LG     .21     .27    8.80     .06     .00
515          UI    216.    382.    914.   1387.   1793.   2018.   2050.   1870.   1478.   1148.
516          UI    900.    695.    535.    422.    334.    237.    195.    148.    139.     53.
517          UI     53.     53.     53.     53.     53.      0.      0.      0.      0.      0.
518          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

519          KK    S21C
520          KM    COMBINE S16CR+S21 (SUBAREAS S1-S16, S21, CLINE & RODGER CREEK BASINS)
521          HC       2
             * DDM   ***** Updated *****

522          KK     S17
523          KM   BASIN S17
524          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
525          KM    L=       2.5  Lca=       1.0   S=  136.0  Kn= .038  LAG=  30.9
526          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
527          BA    1.03
528          LG     .16     .33    7.30     .10     .00
529          UI    113.    244.    554.    816.   1007.   1079.   1002.    791.    596.    452.
530          UI    340.    251.    194.    144.    111.     77.     71.     27.     27.     27.
531          UI     27.     27.      0.      0.      0.      0.      0.      0.      0.      0.
532          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****
1                                    HEC-1 INPUT                                                    PAGE 16

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


533          KK    S17R
534          KM    ROUTE S17 THROUGH S18
535          RM       4    0.33    0.25
             * DDM   ***** Updated *****

536          KK     S18
537          KM   BASIN S18
538          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
539          KM    L=       2.4  Lca=       1.1   S=   59.5  Kn= .030  LAG=  28.8
540          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
541          BA    1.71
542          LG     .15     .27    8.80     .06     .00
543          UI    200.    498.   1075.   1559.   1854.   1883.   1625.   1211.    895.    660.
544          UI    486.    355.    265.    197.    137.    114.     49.     49.     49.     49.
545          UI     49.      0.      0.      0.      0.      0.      0.      0.      0.      0.
546          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

547          KK    S18C
548          KM    COMBINE S17+S18
549          HC       2
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                * DDM   ***** Preserved *****

550             KK   S18CR
551             KM    ROUTE S18C THROUGH S19
552             RM       1    0.06    0.20
                * DDM   ***** Updated *****

553             KK     S19
554             KM   BASIN S19
555             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
556             KM    L=      1.5  Lca=       .7   S=   76.5  Kn= .031  LAG=  19.6
557             KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
558             BA     .77
559             LG     .17     .29    8.40     .07    4.00
560             UI    157.    605.   1069.   1255.   1042.    674.    433.    275.    175.    110.
561             UI     74.     32.     32.     32.      0.      0.      0.      0.      0.      0.
562             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Preserved *****

563             KK    S19C
564             KM    COMBINE S19+S18CR (SUBAREAS S17-S19)
565             HC       2
                * DDM   ***** Preserved *****

566             KK   S19CR
567             KM    ROUTE S19C THROUGH S20
568             RM       3    0.28    0.20
                * DDM   ***** Updated *****
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LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

569             KK     S20
570             KM   BASIN S20
571             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
572             KM    L=      2.4  Lca=      1.0   S=   43.3  Kn= .030  LAG=  28.9
573             KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
574             BA    1.27
575             LG     .17     .27    8.80     .06    6.00
576             UI    148.    366.    792.   1150.   1371.   1397.   1210.    904.    668.    495.
577             UI    363.    267.    199.    149.    102.     88.     36.     36.     36.     36.
578             UI     36.      0.      0.      0.      0.      0.      0.      0.      0.      0.
579             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Preserved *****

580             KK    S20C
581             KM    COMBINE S19CR+S20   (SUBAREAS S17-S19 & S20)
582             HC       2
                * DDM   ***** Preserved *****

583             KK   S21C2
584             KM    COMBINE S20C+S21C   (SUBAREAS S1-S21, CLINE & RODGER CREEK BASINS)
585             HC       2
                * DDM   ***** Preserved *****

586             KK  S21C2R
587             KM    ROUTE S21C2 THROUGH S22
588             RM       3    0.27    0.25
                * DDM   ***** Updated *****

589             KK     S22
590             KM   BASIN S22
591             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
592             KM    L=      2.3  Lca=      1.1   S=  277.5  Kn= .032  LAG=  22.7
593             KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
594             BA    1.47
595             LG     .25     .39    5.80     .19     .00
596             UI    218.    808.   1472.   2195.   1629.   1188.    949.    716.    532.    424.
597             UI    299.    241.    169.    130.    106.     76.     42.     42.     42.     42.
598             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
599             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Preserved *****

600             KK    S22C
601             KM    COMBINE S22+S21CR   (SUBAREAS S1-S22, CLINE & RODGER CREEK BASINS)
602             KM    CAREFREE HIGHWAY
603             HC       2

604             KK    S22C
605             KM    DIVERSION OUT OF SKUNK CREEK
606             DT   S22CD
607             DI       0   27283
608             DQ       0    3600
                * DDM   ***** Preserved *****
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LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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609          KK   S22CR
610          KM    ROUTE S22C THROUGH S23
611          RM       7    0.56    0.25
             * DDM   ***** Updated *****

612          KK     S23
613          KM   BASIN S23
614          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
615          KM    L=      4.6  Lca=      2.1   S=   43.9  Kn= .026  LAG=  42.9
616          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
617          BA    1.72
618          LG     .35     .25    9.70     .05     .00
619          UI    135.    142.    435.    671.    900.   1112.   1232.   1294.   1251.   1142.
620          UI    931.    757.    624.    508.    410.    334.    271.    226.    188.    143.
621          UI    121.     92.     92.     59.     33.     33.     33.     33.     33.     33.
622          UI     33.      0.      0.      0.      0.      0.      0.      0.      0.      0.
623          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

624          KK    S23C
625          KM    COMBINE S23+S22CR   (SUBAREAS S1-S23, CLINE AND RODGER CREEK BASINS)
626          KM   CAP OVERCHUTES
627          HC       2
             *  ***********************************************************************
             *  INFLOW FROM UNION HILLS                                                 *
             *  HOSKIN ENGINEERING CONSULTANTS UNDER CONTRACT TO MONTGOMERY WATSON      *
             *                                                                          *
             *  FILE:C:\FILEDIR\950008\HYDRO\HEC1\UNIONHL\H1UH100B.I
             *  ***********************************************************************
             *
             * DDM   ***** Updated *****

628          KK      U1
629          KM   BASIN U1
630          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
631          KM    L=      2.6  Lca=      1.7   S=   72.5  Kn= .030  LAG=  33.5
632          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
633          BA    2.53
634          LG     .27     .25    9.70     .05    8.00
635          UI    254.    473.   1127.   1672.   2183.   2397.   2379.   2101.   1625.   1252.
636          UI    975.    743.    559.    443.    342.    270.    179.    174.     96.     62.
637          UI     62.     62.     62.     62.      0.      0.      0.      0.      0.      0.
638          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Updated *****

639          KK      U2
640          KM   BASIN U2
641          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
642          KM    L=      2.8  Lca=      1.7   S=   58.2  Kn= .031  LAG=  37.1
643          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
644          BA    1.60
645          LG     .29     .22   10.10     .04    6.00
646          UI    145.    225.    554.    862.   1125.   1309.   1388.   1334.   1141.    909.
647          UI    717.    569.    447.    352.    281.    225.    165.    141.     99.     99.
1                                          HEC-1 INPUT                                          PAGE 19

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

648          UI     53.     35.     35.     35.     35.     35.     35.      0.      0.      0.
649          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Updated *****

650          KK      U3
651          KM   BASIN U3
652          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
653          KM    L=      2.1  Lca=      1.3   S=   91.3  Kn= .034  LAG=  30.4
654          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
655          BA     .84
656          LG     .24     .36    6.80     .13    8.00
657          UI     93.    210.    468.    689.    843.    892.    818.    633.    476.    361.
658          UI    268.    195.    154.    110.     84.     64.     48.     23.     23.     23.
659          UI     23.     23.      0.      0.      0.      0.      0.      0.      0.      0.
660          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

661          KK     U3C
662          KM       COMBINE RUNOFF FROM SUB-BASINS U1, U2 AND U3
663          HC       3
             * DDM   ***** Preserved *****

664          KK     U3R
665          KM        ROUTE U3C THROUGH U4 TO U4C
666          RM       2    0.19      .2
             * DDM   ***** Updated *****

667          KK      U4
668          KM   BASIN U4
669          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
670          KM    L=      2.1  Lca=      1.2   S=  135.3  Kn= .036  LAG=  28.7
671          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
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672          BA    2.80
673          LG     .23     .35    7.00     .12    8.00
674          UI    328.    820.   1767.   2561.   3039.   3078.   2647.   1967.   1453.   1068.
675          UI    785.    577.    426.    317.    224.    178.     80.     80.     80.     80.
676          UI     80.      0.      0.      0.      0.      0.      0.      0.      0.      0.
677          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

678          KK     U4C
679          KM        COMBINE U3R WITH SUB-BASIN U4
680          HC       2
             * DDM   ***** Preserved *****

681          KK     U4R
682          KM        ROUTE FLOW FROM U4C THROUGH SUB-BASIN U4 TO U5C
683          RM       2      .2      .2
             * DDM   ***** Updated *****
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

684          KK      U5
685          KM   BASIN U5
686          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
687          KM    L=      3.3  Lca=      1.9   S=  163.2  Kn= .032  LAG=  35.0
688          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
689          BA    3.25
690          LG     .28     .37    6.60     .15    3.00
691          UI    313.    541.   1299.   1989.   2565.   2906.   2976.   2741.   2195.   1708.
692          UI   1339.   1042.    802.    628.    502.    369.    305.    214.    214.     93.
693          UI     76.     76.     76.     76.     76.      0.      0.      0.      0.      0.
694          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

695          KK     U5C
696          KM        COMBINE FLOW FROM U4R WITH SUB-BASIN U5
697          HC       2
             * DDM   ***** Preserved *****

698          KK     U5R
699          KM        ROUTE FLOW FROM U5C THROUGH U7 TO U7C
700          RM       3     .24     .15
             * DDM   ***** Updated *****

701          KK      U6
702          KM   BASIN U6
703          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
704          KM    L=      1.4  Lca=       .8   S=  315.6  Kn= .041  LAG=  20.7
705          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
706          BA     .70
707          LG     .21     .33    7.30     .10   11.00
708          UI    125.    487.    834.   1165.    715.    557.    424.    299.    236.    161.
709          UI    126.     88.     63.     56.     27.     22.     22.     22.     22.      0.
710          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
711          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

712          KK     U6R
713          KM        ROUTE FLOW FROM SUB-BASIN U6 THROUGH U7 TO U7C
714          RM       1     .09     .15
             * DDM   ***** Updated *****

715          KK      U7
716          KM   BASIN U7
717          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
718          KM    L=      3.3  Lca=      1.8   S=   49.4  Kn= .025  LAG=  34.1
719          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
720          BA    1.47
721          LG     .35     .25    9.70     .05    1.00
722          UI    145.    262.    626.    940.   1219.   1360.   1368.   1227.    961.    746.
723          UI    577.    446.    346.    265.    213.    154.    118.     99.     76.     35.
724          UI     35.     35.     35.     35.     35.      0.      0.      0.      0.      0.
725          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

726          KK     U7C
727          KM        COMBINE SUB-BASIN U7 WITH U5R AND U6R
728          KM        CAP OVERCHUTES. ALL UNION HILLS SUB-BASINS COMBINE
729          HC       3
             * DDM   ***** Preserved *****

730          KK     CAP
731          KM    COMBINE S23C+U7C    (SUBAREAS S1-S23, CLINE CR, RODGER CR & UNION HILLS BASI
732          KM    COMBINED FLOW AT CAP OVERCHUTES
733          HC       2
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```
                    *  KK CAPR1
                    *  KM STORAGE ROUTING FOR PONDING AT CAP OVERCHUTES
                    *  (NOT INCLUDED AT THIS TIME)
                    *  RS
                    *  RV
                    *  RQ
                    * DDM   ***** Preserved *****

734                 KK   CAPR2
735                 KM    ROUTE CAP OVERFLOW THROUGH S24
736                 RM       3    0.23    0.25
                    * DDM   ***** Updated *****

737                 KK     S24
738                 KM   BASIN S24
739                 KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
740                 KM    L=      1.4  Lca=       .8   S=   38.0  Kn= .026  LAG=  19.0
741                 KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
742                 BA     .64
743                 LG     .35     .30    8.00     .09     .00
744                 UI    140.    538.    935.   1070.    844.    535.    336.    212.    135.     82.
745                 UI     47.     28.     28.      0.      0.      0.      0.      0.      0.      0.
746                 UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                    * DDM   ***** Preserved *****

747                 KK    S24C
748                 KM   COMBINE S24+CAPR2    (SUBAREAS S1-S24, CLINE CR, RODGER CR & UNION HILLS BASI
749                 KM    COMBINED FLOW AT I-17
750                 HC       2
751                 ZZ
1
                 SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   43          S1
                V
                V
   54         S1R
                .
                .
   57           .          S2
                .           .
                .           .
   68         S2C............
                .
                .
   71           .          S3
                .           .
                .           .
   82         S3C............
                V
                V
   85         S3R
                .
                .
   88           .          S4
                .           .
                .           .
   99           .           .          S5
                .           .           .
                .           .           .
  111           .         S5C............
                .           V
                .           V
  114           .         S5R
                .           .
                .           .
  117           .           .          S6
                .           .           .
                .           .           .
  128         S6C........................
                V
                V
  132         S6R
                .
                .
  135           .          S9
                .           V
                .           V
  146           .         S9R
                .           .
                .           .
  149           .           .         S10
                .           .           .
                .           .           .
  160           .           .           .          S7
                .           .           .           .
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170                                                S8
                                                    .
                                                    .
180                                          S8C............
                                                V
                                                V
183                                          S8CR
                                                .
                                                .
186        S10C...................................
              V
              V
189        S10R
              .
              .
192                S13
                     .
                     .
203                      S11
                          V
                          V
214                      S11R
                          .
                          .
217                                          S12
                                                .
                                                .
228                      S12C............
                          .
                          .
231        S13C........................
              V
              V
234       S13CR
              .
              .
237                S14
                     .
                     .
247                    X1SUB
                          V
                          V
257                    XROX2
                          .
                          .
260                                       X2SUB
                                                .
                                                .
270                    XCO-1............
                          V
                          V
273                    XROX3
                          .
                          .
276                                       X3SUB
                                                .
                                                .
286                    XCO-2............
                          .
                          .
289                                       X4SUB
                                                .
                                                .
298                    XCO-3............
                          .
                          .
301                                       X5SUB
                                                .
                                                .
310                    XCO-4............
                          .
                          .
314                                       SUBC1
                                                V
                                                V
323                                       CRO-1
                                                .
                                                .
326                                                   SUBC2
                                                        .
                                                        .
336                                                          SUBC3
                                                               .
                                                               .
346                                                                     SUBC4
                                                                          V
                                                                          V
356                                                                     CRO-2
                                                                          .
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359                                                                  SUBC5
369                                                          CCO-1
                                                                 V
                                                                 V
372                                                          CRO-3
375                                  CCO-2
                                         V
                                         V
378                                  CRO-4
381                                              SUBC7
                                                     V
                                                     V
391                                              CRO-5
394                                                          SUBC8
404                                              CCO-3
407                          CCO-4
                                 V
                                 V
410                          CRO-6
413                                  SUBC9
423                          CCO-5
                                 V
                                 V
426                         CLINER
429                  S14C
                        V
                        V
432                 S14CR
435                     S15
                          V
                          V
445                    S15R
448                              R1
                                  V
                                  V
458                         RO-1
461                                      R2
472                         CO-1
                                 V
                                 V
475                         RO-2
478                                      R3
489                         CO-2
492                                     S16
502                  S16C
                        V
                        V
505                 S16CR
508                     S21
519                  S21C
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                .
522             .         S17
                .          V
                .          V
533             .        S17R
                .           .
                .           .
536             .           .         S18
                .           .           .
                .           .           .
547             .        S18C............
                .          V
                .          V
550             .       S18CR
                .           .
                .           .
553             .           .         S19
                .           .           .
                .           .           .
563             .        S19C............
                .          V
                .          V
566             .       S19CR
                .           .
                .           .
569             .           .         S20
                .           .           .
                .           .           .
580             .        S20C............
                .           .
                .           .
583        S21C2............
               V
               V
586       S21C2R
                .
                .
589             .         S22
                .           .
                .           .
600         S22C............
                .
                .
606             .-------->   S22CD
604         S22C
               V
               V
609        S22CR
                .
                .
612             .         S23
                .           .
                .           .
624         S23C............
                .
                .
628             .          U1
                .           .
                .           .
639             .           .          U2
                .           .           .
                .           .           .
650             .           .           .          U3
                .           .           .           .
                .           .           .           .
661             .         U3C.......................
                .          V
                .          V
664             .         U3R
                .           .
                .           .
667             .           .          U4
                .           .           .
                .           .           .
678             .         U4C............
                .          V
                .          V
681             .         U4R
                .           .
                .           .
684             .           .          U5
                .           .           .
                .           .           .
695             .         U5C............
                .          V
                .          V
698             .         U5R
                .           .
                .           .
701             .           .          U6
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                .          .          V
                .          .          V
  712           .          .        U6R
                .          .          .
                .          .          .
  715           .          .          .          U7
                .          .          .           .
                .          .          .           .
  726           .        U7C.......................
                .          .
                .          .
  730         CAP............
                V
                V
  734       CAPR2
                .
                .
  737           .        S24
                .          .
                .          .
  747        S24C............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************                    ****************************************
*                                      *                    *                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                    *   U.S. ARMY CORPS OF ENGINEERS       *
*              JUN   1998              *                    *   HYDROLOGIC ENGINEERING CENTER      *
*            VERSION 4.1               *                    *         609 SECOND STREET            *
*                                      *                    *      DAVIS, CALIFORNIA 95616         *
*  RUN DATE   17AUG00  TIME  17:49:41  *                    *          (916) 756-1104              *
*                                      *                    *                                      *
****************************************                    ****************************************
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                    FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

                    SKUNK CREEK FOODPLAIN DELINEATION STUDY
                    CAP AQUEDUCT THROUGH TOWN OF NEW RIVER

                    100-YEAR 24-HOUR FLOOD HYDROLOGY

                                METHODS OF STUDY:
                    - FCD STORM PATTERNS
                    - FCD PHOENIX AREA S-GRAPHS
                    - GREEN-AMPT LOSSES
                    - MUSKINGUM STREAM ROUTING
                    - FCD DDMS PROGRAM (VER 1.1, AUG 1995) USED TO COMPUTE PARAMETERS

                    INPUT FILE NAME - SC100Y24.DAT

                    MONTGOMERY WATSON
                    MARCH 1996

                   DDM MCUHP2 SKUNK CREEK FOODPLAIN DELINEATION STUDY

  23 IO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

     IT          HYDROGRAPH TIME DATA
                        NMIN           5  MINUTES IN COMPUTATION INTERVAL
                       IDATE      5JAN96  STARTING DATE
                       ITIME        0000  STARTING TIME
                          NQ         300  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE      6JAN96  ENDING DATE
                      NDTIME        0055  ENDING TIME
                      ICENT          19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   24.92 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

  24 JD          INDEX STORM NO. 1
                       STRM        4.60  PRECIPITATION DEPTH
                       TRDA         .00  TRANSPOSITION DRAINAGE AREA

  25 PI            PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
```

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.01	.01	.01	.01	.01	.02	.02	.02	.05	.05
.05	.07	.07	.07	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

35 JD INDEX STORM NO. 2

STRM 4.57 PRECIPITATION DEPTH

TRDA 1.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.01	.01	.01	.01	.01	.02	.02	.02	.05	.05
.05	.07	.07	.07	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

36 JD INDEX STORM NO. 3

STRM 4.46 PRECIPITATION DEPTH

TRDA 5.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.01	.01	.01	.01	.01	.02	.02	.02	.05	.05
.05	.07	.07	.07	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

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                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00

37 JD         INDEX STORM NO. 4
                STRM        4.33  PRECIPITATION DEPTH
                TRDA       10.00  TRANSPOSITION DRAINAGE AREA

 0 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .02       .02       .02       .05       .05
                .05       .07       .07       .07       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00

38 JD         INDEX STORM NO. 5
                STRM        4.19  PRECIPITATION DEPTH
                TRDA       20.00  TRANSPOSITION DRAINAGE AREA

 0 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .02       .02       .02       .05       .05
                .05       .07       .07       .07       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00

39 JD         INDEX STORM NO. 6
                STRM        4.14  PRECIPITATION DEPTH
                TRDA       30.00  TRANSPOSITION DRAINAGE AREA

 0 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.01	.01	.01	.01	.01	.02	.02	.02	.05	.05
.05	.07	.07	.07	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

40 JD INDEX STORM NO. 7

STRM 4.05 PRECIPITATION DEPTH

TRDA 40.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.01	.01	.01	.01	.01	.02	.02	.02	.05	.05
.05	.07	.07	.07	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

41 JD INDEX STORM NO. 8

STRM 4.00 PRECIPITATION DEPTH

TRDA 50.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.01	.01	.01	.01	.01	.02	.02	.02	.05	.05
.05	.07	.07	.07	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00

42 JD        INDEX STORM NO. 9
                STRM        3.95  PRECIPITATION DEPTH
                TRDA       65.00  TRANSPOSITION DRAINAGE AREA

 0 PI         PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .02       .02       .02       .05       .05
                .05       .07       .07       .07       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .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
1
                                          RUNOFF SUMMARY
                                   FLOW IN CUBIC FEET PER SECOND
                                TIME IN HOURS,  AREA IN SQUARE MILES

                                     PEAK   TIME OF   AVERAGE FLOW FOR MAXIMUM PERIOD   BASIN   MAXIMUM   TIME OF
        OPERATION        STATION     FLOW    PEAK                                       AREA    STAGE   MAX STAGE
+                                                      6-HOUR     24-HOUR    72-HOUR
        HYDROGRAPH AT
+                            S1     2911.   12.17       389.       102.       98.      2.08
        ROUTED TO
+                           S1R     2737.   12.50       388.       102.       98.      2.08
        HYDROGRAPH AT
+                            S2     1738.   12.17       240.        63.       61.      1.17
        2 COMBINED AT
+                           S2C     3760.   12.33       619.       162.      156.      3.25
        HYDROGRAPH AT
+                            S3     1415.   12.17       179.        46.       45.      1.03
        2 COMBINED AT
+                           S3C     4899.   12.25       788.       206.      198.      4.28
        ROUTED TO
+                           S3R     4664.   12.58       788.       206.      198.      4.28
        HYDROGRAPH AT
+                            S4     1295.   12.17       161.        40.       39.       .97
        HYDROGRAPH AT
+                            S5     2007.   12.25       307.        77.       74.      1.85
        2 COMBINED AT
+                           S5C     3169.   12.25       461.       115.      111.      2.82
        ROUTED TO
+                           S5R     2936.   12.67       461.       115.      111.      2.82
        HYDROGRAPH AT
+                            S6     1339.   12.17       179.        45.       44.       .94
        3 COMBINED AT
+                           S6C     7840.   12.58      1365.       350.      337.      8.04
        ROUTED TO
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+		S6R	7610.	12.75	1365.	350.	337.	8.04
	HYDROGRAPH AT							
+		S9	1254.	12.17	169.	42.	41.	1.02
	ROUTED TO							
+		S9R	1209.	12.42	169.	42.	41.	1.02
	HYDROGRAPH AT							
+		S10	2350.	12.17	297.	74.	71.	1.80
	HYDROGRAPH AT							
+		S7	1061.	12.17	146.	37.	36.	.68
	HYDROGRAPH AT							
+		S8	1650.	12.17	186.	47.	45.	1.12
	2 COMBINED AT							
+		S8C	2685.	12.17	327.	83.	80.	1.80
	ROUTED TO							
+		S8CR	2567.	12.33	327.	83.	80.	1.80
	4 COMBINED AT							
+		S10C	9741.	12.50	2042.	520.	501.	12.66
	ROUTED TO							
+		S10R	9693.	12.67	2042.	520.	501.	12.66
	HYDROGRAPH AT							
+		S13	1734.	12.17	249.	71.	69.	1.27
	HYDROGRAPH AT							
+		S11	1161.	12.17	153.	38.	37.	.92
	ROUTED TO							
+		S11R	1104.	12.42	153.	38.	37.	.92
	HYDROGRAPH AT							
+		S12	1307.	12.25	190.	48.	46.	.91
	2 COMBINED AT							
+		S12C	2246.	12.33	338.	85.	82.	1.83
	3 COMBINED AT							
+		S13C	11811.	12.50	2536.	652.	629.	15.76
	ROUTED TO							
+		S13CR	11671.	12.67	2536.	652.	628.	15.76
	HYDROGRAPH AT							
+		S14	1336.	12.08	177.	52.	50.	.83
	HYDROGRAPH AT							
+		X1SUB	1216.	12.00	147.	40.	39.	.61
	ROUTED TO							
+		XROX2	1165.	12.17	147.	40.	39.	.61
	HYDROGRAPH AT							
+		X2SUB	824.	12.00	96.	25.	24.	.43
	2 COMBINED AT							
+		XCO-1	1933.	12.08	242.	65.	63.	1.04
	ROUTED TO							
+		XROX3	1772.	12.33	242.	65.	63.	1.04
	HYDROGRAPH AT							
+		X3SUB	1054.	12.08	119.	30.	29.	.56
	2 COMBINED AT							
+		XCO-2	2500.	12.17	358.	94.	91.	1.60
	HYDROGRAPH AT							
+		X4SUB	613.	12.00	69.	17.	17.	.28
	2 COMBINED AT							
+		XCO-3	2890.	12.08	424.	111.	107.	1.88
	HYDROGRAPH AT							
+		X5SUB	727.	12.00	69.	17.	17.	.38
	2 COMBINED AT							
+		XCO-4	3571.	12.08	491.	127.	122.	2.26
	HYDROGRAPH AT							
+		SUBC1	2369.	12.00	197.	49.	47.	1.26
	ROUTED TO							

+		CRO-1	1917.	12.50	197.	49.	47.	1.26
	HYDROGRAPH AT							
+		SUBC2	3033.	12.08	337.	84.	81.	2.19
	HYDROGRAPH AT							
+		SUBC3	1990.	12.08	194.	49.	47.	1.24
	HYDROGRAPH AT							
+		SUBC4	3948.	12.08	390.	97.	94.	2.54
	ROUTED TO							
+		CRO-2	3600.	12.33	390.	97.	94.	2.54
	HYDROGRAPH AT							
+		SUBC5	5426.	12.08	559.	147.	141.	3.39
	2 COMBINED AT							
+		CCO-1	7632.	12.08	925.	238.	230.	5.93
	ROUTED TO							
+		CRO-3	7189.	12.33	925.	238.	230.	5.93
	4 COMBINED AT							
+		CCO-2	10883.	12.25	1556.	396.	382.	10.62
	ROUTED TO							
+		CRO-4	10520.	12.50	1556.	396.	382.	10.62
	HYDROGRAPH AT							
+		SUBC7	2311.	12.00	293.	81.	78.	1.20
	ROUTED TO							
+		CRO-5	1901.	12.75	293.	81.	78.	1.20
	HYDROGRAPH AT							
+		SUBC8	2543.	12.08	382.	102.	99.	1.42
	2 COMBINED AT							
+		CCO-3	2818.	12.17	665.	181.	174.	2.62
	3 COMBINED AT							
+		CCO-4	13884.	12.50	2567.	666.	642.	15.50
	ROUTED TO							
+		CRO-6	13620.	12.67	2567.	666.	642.	15.50
	HYDROGRAPH AT							
+		SUBC9	915.	12.17	112.	29.	28.	.58
	2 COMBINED AT							
+		CCO-5	13747.	12.67	2659.	691.	665.	16.08
	ROUTED TO							
+		CLINER	13687.	12.75	2659.	691.	665.	16.08
	3 COMBINED AT							
+		S14C	24427.	12.67	5120.	1329.	1281.	32.67
	ROUTED TO							
+		S14CR	23990.	13.00	5120.	1329.	1281.	32.67
	HYDROGRAPH AT							
+		S15	1564.	12.17	209.	58.	55.	.99
	ROUTED TO							
+		S15R	1528.	12.25	209.	58.	55.	.99
	HYDROGRAPH AT							
+		R1	2636.	12.17	406.	111.	107.	1.56
	ROUTED TO							
+		RO-1	2487.	12.42	406.	111.	107.	1.56
	HYDROGRAPH AT							
+		R2	3120.	12.17	471.	128.	123.	1.98
	2 COMBINED AT							
+		CO-1	4800.	12.25	865.	235.	227.	3.54
	ROUTED TO							
+		RO-2	4536.	12.67	865.	235.	227.	3.54
	HYDROGRAPH AT							
+		R3	2074.	12.25	357.	103.	100.	1.59
	2 COMBINED AT							
+		CO-2	5624.	12.58	1206.	334.	322.	5.13
	HYDROGRAPH AT							

+	S16	1930.	12.08	208.	52.	50.	1.32
4 COMBINED AT +	S16C	27332.	12.92	6394.	1682.	1620.	40.11
ROUTED TO +	S16CR	26483.	13.42	6394.	1681.	1619.	40.11
HYDROGRAPH AT +	S21	2946.	12.25	506.	127.	122.	2.22
2 COMBINED AT +	S21C	26688.	13.33	6794.	1781.	1715.	42.33
HYDROGRAPH AT +	S17	1422.	12.25	207.	52.	50.	1.03
ROUTED TO +	S17R	1332.	12.58	207.	52.	50.	1.03
HYDROGRAPH AT +	S18	2537.	12.25	397.	99.	96.	1.71
2 COMBINED AT +	S18C	3343.	12.33	596.	149.	143.	2.74
ROUTED TO +	S18CR	3305.	12.33	596.	149.	143.	2.74
HYDROGRAPH AT +	S19	1368.	12.08	176.	45.	43.	.77
2 COMBINED AT +	S19C	4239.	12.25	763.	192.	185.	3.51
ROUTED TO +	S19CR	3991.	12.58	763.	192.	185.	3.51
HYDROGRAPH AT +	S20	1900.	12.25	305.	79.	76.	1.27
2 COMBINED AT +	S20C	5257.	12.42	1054.	267.	257.	4.78
2 COMBINED AT +	S21C2	27733.	13.33	7634.	1994.	1920.	47.11
ROUTED TO +	S21C2R	27283.	13.58	7634.	1993.	1920.	47.11
HYDROGRAPH AT +	S22	1987.	12.17	238.	59.	57.	1.47
2 COMBINED AT +	S22C	27283.	13.58	7824.	2040.	1965.	48.58
DIVERSION TO +	S22CD	3593.	13.58	1030.	269.	259.	48.58
HYDROGRAPH AT +	S22C	23636.	13.58	6777.	1767.	1702.	48.58
ROUTED TO +	S22CR	23002.	14.17	6777.	1766.	1701.	48.58
HYDROGRAPH AT +	S23	2027.	12.42	401.	100.	97.	1.72
2 COMBINED AT +	S23C	23026.	14.17	7089.	1844.	1776.	50.30
HYDROGRAPH AT +	U1	3481.	12.25	616.	161.	155.	2.53
HYDROGRAPH AT +	U2	2119.	12.33	414.	107.	103.	1.60
HYDROGRAPH AT +	U3	1138.	12.25	165.	44.	42.	.84
3 COMBINED AT +	U3C	6584.	12.25	1170.	305.	294.	4.97
ROUTED TO +	U3R	6303.	12.50	1170.	305.	294.	4.97
HYDROGRAPH AT +	U4	3846.	12.25	548.	145.	140.	2.80
2 COMBINED AT							

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+                          U4C      9151.   12.33        1662.        436.        420.       7.77

         ROUTED TO
+                          U4R      8782.   12.58        1662.        436.        420.       7.77

         HYDROGRAPH AT
+                           U5      3759.   12.33         565.        145.        139.       3.25

         2 COMBINED AT
+                          U5C     11462.   12.50        2153.        561.        541.      11.02

         ROUTED TO
+                          U5R     10980.   12.75        2153.        561.        541.      11.02

         HYDROGRAPH AT
+                           U6      1121.   12.08         152.         41.         39.        .70

         ROUTED TO
+                          U6R      1075.   12.17         152.         41.         39.        .70

         HYDROGRAPH AT
+                           U7      1991.   12.25         346.         87.         84.       1.47

         3 COMBINED AT
+                          U7C     12209.   12.67        2578.        671.        646.      13.19

         2 COMBINED AT
+                          CAP     23342.   14.08        9244.       2406.       2318.      63.49

         ROUTED TO
+                        CAPR2     23166.   14.33        9244.       2406.       2317.      63.49

         HYDROGRAPH AT
+                          S24      1113.   12.08         128.         32.         31.        .64

         2 COMBINED AT
+                         S24C     23166.   14.33        9346.       2431.       2342.      64.13
1                                                   HEC-1 INPUT                                        PAGE  1

          LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 *** WARNING *** ZZ-CARD MISSING
             1
             2           ZZ
1****************************************                                    ****************************************
 *                                      *                                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *              JUN   1998              *                                    *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                    *          609 SECOND STREET           *
 *                                      *                                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   17AUG00  TIME  17:49:41  *                                    *           (916) 756-1104             *
 *                                      *                                    *                                      *
 ****************************************                                    ****************************************


 *** HEC-1 ERROR 1 *** INVALID CARD IDENTIFICATION CODE OR CARD OUT OF SEQUENCE
     CARD NO.    1

     IT          HYDROGRAPH TIME DATA
                       NMIN           5  MINUTES IN COMPUTATION INTERVAL
                      IDATE      5JAN96  STARTING DATE
                      ITIME        0000  STARTING TIME
                         NQ         300  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      6JAN96  ENDING DATE
                     NDTIME        0055  ENDING TIME
                      ICENT          19  CENTURY MARK

                  COMPUTATION INTERVAL     .08 HOURS
                       TOTAL TIME BASE   24.92 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

               SUBBASIN RUNOFF DATA

   0 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .00  SUBBASIN AREA

                 PRECIPITATION DATA
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0 PB STORM .00 BASIN TOTAL PRECIPITATION

0 PI INCREMENTAL PRECIPITATION PATTERN

0 UI INPUT UNITGRAPH, 0 ORDINATES, VOLUME = .00

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HYDROGRAPH AT STATION S24C

DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
5	JAN	0000	1	.00	.00	.00	0.	5	JAN	1230	151	.00	-.01	.01	0.
5	JAN	0005	2	.00	.00	.00	0.	5	JAN	1235	152	.00	.00	.00	0.
5	JAN	0010	3	.00	.00	.00	0.	5	JAN	1240	153	.00	.00	.00	0.
5	JAN	0015	4	.00	.00	.00	0.	5	JAN	1245	154	.00	.00	.00	0.
5	JAN	0020	5	.00	.00	.00	0.	5	JAN	1250	155	.00	.00	.00	0.
5	JAN	0025	6	.00	.00	.00	0.	5	JAN	1255	156	.00	.00	.00	0.
5	JAN	0030	7	.00	.00	.00	0.	5	JAN	1300	157	.00	.00	.00	0.
5	JAN	0035	8	.00	.00	.00	0.	5	JAN	1305	158	.00	.00	.00	0.
5	JAN	0040	9	.00	.00	.00	0.	5	JAN	1310	159	.00	.00	.00	0.
5	JAN	0045	10	.00	.00	.00	0.	5	JAN	1315	160	.00	.00	.00	0.
5	JAN	0050	11	.00	.00	.00	0.	5	JAN	1320	161	.00	.00	.00	0.
5	JAN	0055	12	.00	.00	.00	0.	5	JAN	1325	162	.00	.00	.00	0.
5	JAN	0100	13	.00	.00	.00	0.	5	JAN	1330	163	.00	.00	.00	0.
5	JAN	0105	14	.00	.00	.00	0.	5	JAN	1335	164	.00	.00	.00	0.
5	JAN	0110	15	.00	.00	.00	0.	5	JAN	1340	165	.00	.00	.00	0.
5	JAN	0115	16	.00	.00	.00	0.	5	JAN	1345	166	.00	.00	.00	0.
5	JAN	0120	17	.00	.00	.00	0.	5	JAN	1350	167	.00	.00	.00	0.
5	JAN	0125	18	.00	.00	.00	0.	5	JAN	1355	168	.00	.00	.00	0.
5	JAN	0130	19	.00	.00	.00	0.	5	JAN	1400	169	.00	.00	.00	0.
5	JAN	0135	20	.00	.00	.00	0.	5	JAN	1405	170	.00	.00	.00	0.
5	JAN	0140	21	.00	.00	.00	0.	5	JAN	1410	171	.00	.00	.00	0.
5	JAN	0145	22	.00	.00	.00	0.	5	JAN	1415	172	.00	.00	.00	0.
5	JAN	0150	23	.00	.00	.00	0.	5	JAN	1420	173	.00	.00	.00	0.
5	JAN	0155	24	.00	.00	.00	0.	5	JAN	1425	174	.00	.00	.00	0.
5	JAN	0200	25	.00	.00	.00	0.	5	JAN	1430	175	.00	.00	.00	0.
5	JAN	0205	26	.00	.00	.00	0.	5	JAN	1435	176	.00	.00	.00	0.
5	JAN	0210	27	.00	.00	.00	0.	5	JAN	1440	177	.00	.00	.00	0.
5	JAN	0215	28	.00	.00	.00	0.	5	JAN	1445	178	.00	.00	.00	0.
5	JAN	0220	29	.00	.00	.00	0.	5	JAN	1450	179	.00	.00	.00	0.
5	JAN	0225	30	.00	.00	.00	0.	5	JAN	1455	180	.00	.00	.00	0.
5	JAN	0230	31	.00	.00	.00	0.	5	JAN	1500	181	.00	.00	.00	0.
5	JAN	0235	32	.00	.00	.00	0.	5	JAN	1505	182	.00	.00	.00	0.
5	JAN	0240	33	.00	.00	.00	0.	5	JAN	1510	183	.00	.00	.00	0.
5	JAN	0245	34	.00	.00	.00	0.	5	JAN	1515	184	.00	.00	.00	0.
5	JAN	0250	35	.00	.00	.00	0.	5	JAN	1520	185	.00	.00	.00	0.
5	JAN	0255	36	.00	.00	.00	0.	5	JAN	1525	186	.00	.00	.00	0.
5	JAN	0300	37	.00	.00	.00	0.	5	JAN	1530	187	.00	.00	.00	0.
5	JAN	0305	38	.00	.00	.00	0.	5	JAN	1535	188	.00	.00	.00	0.
5	JAN	0310	39	.00	.00	.00	0.	5	JAN	1540	189	.00	.00	.00	0.
5	JAN	0315	40	.00	.00	.00	0.	5	JAN	1545	190	.00	.00	.00	0.
5	JAN	0320	41	.00	.00	.00	0.	5	JAN	1550	191	.00	.00	.00	0.
5	JAN	0325	42	.00	.00	.00	0.	5	JAN	1555	192	.00	.00	.00	0.
5	JAN	0330	43	.00	.00	.00	0.	5	JAN	1600	193	.00	.00	.00	0.
5	JAN	0335	44	.00	.00	.00	0.	5	JAN	1605	194	.00	.00	.00	0.
5	JAN	0340	45	.00	.00	.00	0.	5	JAN	1610	195	.00	.00	.00	0.
5	JAN	0345	46	.00	.00	.00	0.	5	JAN	1615	196	.00	.00	.00	0.
5	JAN	0350	47	.00	.00	.00	0.	5	JAN	1620	197	.00	.00	.00	0.
5	JAN	0355	48	.00	.00	.00	0.	5	JAN	1625	198	.00	.00	.00	0.
5	JAN	0400	49	.00	.00	.00	0.	5	JAN	1630	199	.00	.00	.00	0.
5	JAN	0405	50	.00	.00	.00	0.	5	JAN	1635	200	.00	.00	.00	0.
5	JAN	0410	51	.00	.00	.00	0.	5	JAN	1640	201	.00	.00	.00	0.
5	JAN	0415	52	.00	.00	.00	0.	5	JAN	1645	202	.00	.00	.00	0.
5	JAN	0420	53	.00	.00	.00	0.	5	JAN	1650	203	.00	.00	.00	0.
5	JAN	0425	54	.00	.00	.00	0.	5	JAN	1655	204	.00	.00	.00	0.
5	JAN	0430	55	.00	.00	.00	0.	5	JAN	1700	205	.00	.00	.00	0.
5	JAN	0435	56	.00	.00	.00	0.	5	JAN	1705	206	.00	.00	.00	0.
5	JAN	0440	57	.00	.00	.00	0.	5	JAN	1710	207	.00	.00	.00	0.
5	JAN	0445	58	.00	.00	.00	0.	5	JAN	1715	208	.00	.00	.00	0.
5	JAN	0450	59	.00	.00	.00	0.	5	JAN	1720	209	.00	.00	.00	0.
5	JAN	0455	60	.00	.00	.00	0.	5	JAN	1725	210	.00	.00	.00	0.
5	JAN	0500	61	.00	.00	.00	0.	5	JAN	1730	211	.00	.00	.00	0.
5	JAN	0505	62	.00	.00	.00	0.	5	JAN	1735	212	.00	.00	.00	0.
5	JAN	0510	63	.00	.00	.00	0.	5	JAN	1740	213	.00	.00	.00	0.
5	JAN	0515	64	.00	.00	.00	0.	5	JAN	1745	214	.00	.00	.00	0.
5	JAN	0520	65	.00	.00	.00	0.	5	JAN	1750	215	.00	.00	.00	0.
5	JAN	0525	66	.00	.00	.00	0.	5	JAN	1755	216	.00	.00	.00	0.
5	JAN	0530	67	.00	.00	.00	0.	5	JAN	1800	217	.00	.00	.00	0.
5	JAN	0535	68	.00	.00	.00	0.	5	JAN	1805	218	.00	.00	.00	0.
5	JAN	0540	69	.00	.00	.00	0.	5	JAN	1810	219	.00	.00	.00	0.
5	JAN	0545	70	.00	.00	.00	0.	5	JAN	1815	220	.00	.00	.00	0.
5	JAN	0550	71	.00	.00	.00	0.	5	JAN	1820	221	.00	.00	.00	0.
5	JAN	0555	72	.00	.00	.00	0.	5	JAN	1825	222	.00	.00	.00	0.

5 JAN 0600	73	.00	.00	.00	0.	*	5 JAN 1830	223	.00	.00	.00	0.
5 JAN 0605	74	.00	.00	.00	0.	*	5 JAN 1835	224	.00	.00	.00	0.
5 JAN 0610	75	.00	.00	.00	0.	*	5 JAN 1840	225	.00	.00	.00	0.
5 JAN 0615	76	.00	.00	.00	0.	*	5 JAN 1845	226	.00	.00	.00	0.
5 JAN 0620	77	.00	.00	.00	0.	*	5 JAN 1850	227	.00	.00	.00	0.
5 JAN 0625	78	.00	.00	.00	0.	*	5 JAN 1855	228	.00	.00	.00	0.
5 JAN 0630	79	.00	.00	.00	0.	*	5 JAN 1900	229	.00	.00	.00	0.
5 JAN 0635	80	.00	.00	.00	0.	*	5 JAN 1905	230	.00	.00	.00	0.
5 JAN 0640	81	.00	.00	.00	0.	*	5 JAN 1910	231	.00	.00	.00	0.
5 JAN 0645	82	.00	.00	.00	0.	*	5 JAN 1915	232	.00	.00	.00	0.
5 JAN 0650	83	.00	.00	.00	0.	*	5 JAN 1920	233	.00	.00	.00	0.
5 JAN 0655	84	.00	.00	.00	0.	*	5 JAN 1925	234	.00	.00	.00	0.
5 JAN 0700	85	.00	.00	.00	0.	*	5 JAN 1930	235	.00	.00	.00	0.
5 JAN 0705	86	.00	.00	.00	0.	*	5 JAN 1935	236	.00	.00	.00	0.
5 JAN 0710	87	.00	.00	.00	0.	*	5 JAN 1940	237	.00	.00	.00	0.
5 JAN 0715	88	.00	.00	.00	0.	*	5 JAN 1945	238	.00	.00	.00	0.
5 JAN 0720	89	.00	.00	.00	0.	*	5 JAN 1950	239	.00	.00	.00	0.
5 JAN 0725	90	.00	.00	.00	0.	*	5 JAN 1955	240	.00	.00	.00	0.
5 JAN 0730	91	.00	.00	.00	0.	*	5 JAN 2000	241	.00	.00	.00	0.
5 JAN 0735	92	.00	.00	.00	0.	*	5 JAN 2005	242	.00	.00	.00	0.
5 JAN 0740	93	.00	.00	.00	0.	*	5 JAN 2010	243	.00	.00	.00	0.
5 JAN 0745	94	.00	.00	.00	0.	*	5 JAN 2015	244	.00	.00	.00	0.
5 JAN 0750	95	.00	.00	.00	0.	*	5 JAN 2020	245	.00	.00	.00	0.
5 JAN 0755	96	.00	.00	.00	0.	*	5 JAN 2025	246	.00	.00	.00	0.
5 JAN 0800	97	.00	.00	.00	0.	*	5 JAN 2030	247	.00	.00	.00	0.
5 JAN 0805	98	.00	.00	.00	0.	*	5 JAN 2035	248	.00	.00	.00	0.
5 JAN 0810	99	.00	.00	.00	0.	*	5 JAN 2040	249	.00	.00	.00	0.
5 JAN 0815	100	.00	.00	.00	0.	*	5 JAN 2045	250	.00	.00	.00	0.
5 JAN 0820	101	.00	.00	.00	0.	*	5 JAN 2050	251	.00	.00	.00	0.
5 JAN 0825	102	.00	.00	.00	0.	*	5 JAN 2055	252	.00	.00	.00	0.
5 JAN 0830	103	.00	.00	.00	0.	*	5 JAN 2100	253	.00	.00	.00	0.
5 JAN 0835	104	.00	.00	.00	0.	*	5 JAN 2105	254	.00	.00	.00	0.
5 JAN 0840	105	.00	.00	.00	0.	*	5 JAN 2110	255	.00	.00	.00	0.
5 JAN 0845	106	.00	.00	.00	0.	*	5 JAN 2115	256	.00	.00	.00	0.
5 JAN 0850	107	.00	.00	.00	0.	*	5 JAN 2120	257	.00	.00	.00	0.
5 JAN 0855	108	.00	.00	.00	0.	*	5 JAN 2125	258	.00	.00	.00	0.
5 JAN 0900	109	.00	.00	.00	0.	*	5 JAN 2130	259	.00	.00	.00	0.
5 JAN 0905	110	.00	.00	.00	0.	*	5 JAN 2135	260	.00	.00	.00	0.
5 JAN 0910	111	.00	.00	.00	0.	*	5 JAN 2140	261	.00	.00	.00	0.
5 JAN 0915	112	.00	.00	.00	0.	*	5 JAN 2145	262	.00	.00	.00	0.
5 JAN 0920	113	.00	.00	.00	0.	*	5 JAN 2150	263	.00	.00	.00	0.
5 JAN 0925	114	.00	.00	.00	0.	*	5 JAN 2155	264	.00	.00	.00	0.
5 JAN 0930	115	.00	.00	.00	0.	*	5 JAN 2200	265	.00	.00	.00	0.
5 JAN 0935	116	.00	.00	.00	0.	*	5 JAN 2205	266	.00	.00	.00	0.
5 JAN 0940	117	.00	.00	.00	0.	*	5 JAN 2210	267	.00	.00	.00	0.
5 JAN 0945	118	.00	.00	.00	0.	*	5 JAN 2215	268	.00	.00	.00	0.
5 JAN 0950	119	.00	.00	.00	0.	*	5 JAN 2220	269	.00	.00	.00	0.
5 JAN 0955	120	.00	.00	.00	0.	*	5 JAN 2225	270	.00	.00	.00	0.
5 JAN 1000	121	.00	.00	.00	0.	*	5 JAN 2230	271	.00	.00	.00	0.
5 JAN 1005	122	.00	.00	.00	0.	*	5 JAN 2235	272	.00	.00	.00	0.
5 JAN 1010	123	.00	.00	.00	0.	*	5 JAN 2240	273	.00	.00	.00	0.
5 JAN 1015	124	.00	.00	.00	0.	*	5 JAN 2245	274	.00	.00	.00	0.
5 JAN 1020	125	.00	.00	.00	0.	*	5 JAN 2250	275	.00	.00	.00	0.
5 JAN 1025	126	.00	.00	.00	0.	*	5 JAN 2255	276	.00	.00	.00	0.
5 JAN 1030	127	.00	.00	.00	0.	*	5 JAN 2300	277	.00	.00	.00	0.
5 JAN 1035	128	.00	.00	.00	0.	*	5 JAN 2305	278	.00	.00	.00	0.
5 JAN 1040	129	.00	.00	.00	0.	*	5 JAN 2310	279	.00	.00	.00	0.
5 JAN 1045	130	.00	.00	.00	0.	*	5 JAN 2315	280	.00	.00	.00	0.
5 JAN 1050	131	.00	.00	.00	0.	*	5 JAN 2320	281	.00	.00	.00	0.
5 JAN 1055	132	.00	.00	.00	0.	*	5 JAN 2325	282	.00	.00	.00	0.
5 JAN 1100	133	.00	.00	.00	0.	*	5 JAN 2330	283	.00	.00	.00	0.
5 JAN 1105	134	.00	.00	.00	0.	*	5 JAN 2335	284	.00	.00	.00	0.
5 JAN 1110	135	.00	.00	.00	0.	*	5 JAN 2340	285	.00	.00	.00	0.
5 JAN 1115	136	.00	.00	.00	0.	*	5 JAN 2345	286	.00	.00	.00	0.
5 JAN 1120	137	.00	-.04	.04	0.	*	5 JAN 2350	287	.00	.00	.00	0.
5 JAN 1125	138	.00	-.04	.04	0.	*	5 JAN 2355	288	.00	.00	.00	0.
5 JAN 1130	139	.00	-.04	.04	0.	*	6 JAN 0000	289	.00	.00	.00	0.
5 JAN 1135	140	.00	-.18	.18	0.	*	6 JAN 0005	290	.00	.00	.00	0.
5 JAN 1140	141	.00	-.18	.18	0.	*	6 JAN 0010	291	.00	.00	.00	0.
5 JAN 1145	142	.00	-.18	.18	0.	*	6 JAN 0015	292	.00	.00	.00	0.
5 JAN 1150	143	.00	-.23	.23	0.	*	6 JAN 0020	293	.00	.00	.00	0.
5 JAN 1155	144	.00	-.23	.23	0.	*	6 JAN 0025	294	.00	.00	.00	0.
5 JAN 1200	145	.00	-.24	.24	0.	*	6 JAN 0030	295	.00	.00	.00	0.
5 JAN 1205	146	.00	-.02	.02	0.	*	6 JAN 0035	296	.00	.00	.00	0.
5 JAN 1210	147	.00	-.02	.02	0.	*	6 JAN 0040	297	.00	.00	.00	0.
5 JAN 1215	148	.00	-.02	.02	0.	*	6 JAN 0045	298	.00	.00	.00	0.
5 JAN 1220	149	.00	-.01	.01	0.	*	6 JAN 0050	299	.00	.00	.00	0.
5 JAN 1225	150	.00	-.01	.01	0.	*	6 JAN 0055	300	.00	.00	.00	0.
						*						

****

TOTAL RAINFALL = .00, TOTAL LOSS = -1.49, TOTAL EXCESS = 1.49

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)					
		(CFS)				
+ 0.	.00		0.	0.	0.	0.
		(INCHES)	.000	.000	.000	.000
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 64.13 SQ MI

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	S24C	0.	.00	0.	0.	0.	64.13		

*** 1 ERROR(S) DETECTED BY HEC-1 ***

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1****************************************                    ****************************************
*                                      *                    *                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                    *    U.S. ARMY CORPS OF ENGINEERS      *
*              JUN   1998              *                    *    HYDROLOGIC ENGINEERING CENTER     *
*            VERSION 4.1               *                    *          609 SECOND STREET           *
*                                      *                    *       DAVIS, CALIFORNIA 95616        *
*  RUN DATE   17OCT00  TIME  08:07:10  *                    *           (916) 756-1104             *
*                                      *                    *                                      *
****************************************                    ****************************************

                                   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
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PROPOSED MODEL INPUT FILENAME: SCPROP.DAT

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

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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
        3           ID    SKUNK CREEK FOODPLAIN DELINEATION STUDY
        4           ID    CAP AQUEDUCT THROUGH TOWN OF NEW RIVER
        5           ID
        6           ID    100-YEAR 24-HOUR FLOOD HYDROLOGY
        7           ID
        8           ID                 METHODS OF STUDY:
        9           ID    - FCD STORM PATTERNS
       10           ID    - FCD PHOENIX AREA S-GRAPHS
       11           ID    - GREEN-AMPT LOSSES
       12           ID    - MUSKINGUM STREAM ROUTING
       13           ID    - FCD DDMS PROGRAM (VER 1.1, AUG 1995) USED TO COMPUTE PARAMETERS
       14           ID
       15           ID    INPUT FILE NAME - ~~SCL00Y24.DAT~~ SCPROP.DAT
       16           ID
       17           ID    MONTGOMERY WATSON
       18           ID    MARCH 1996
       19           ID
       20           ID   DDM MCUHP2 SKUNK CREEK FOODPLAIN DELINEATION STUDY
                    *DIAGRAM
       21           IT       5 05JAN96    0000     300
       22           IN      15
       23           IO       5
                    *  THE FOLLOWING JD CARDS DESCRIBE A PRECIP DEPTH/AREA CURVE FOR HEC-1.
                    *  THE JD CARD DATA IS DERIVED FROM DARF DATA GIVEN IN THE MARICOPA COUNTY
                    *  DRAINAGE DESIGN MANUAL (TBL 2.2).  USING THE JD CARDS HEC-1 APPLIES THE
                    *  CORRECT DARF TO POINT RAINFALL VALUES FOR EACH CONCENTRATION POINT.
       24           JD   4.602    .001
                    * THE FOLLOWING PC RECORD USED A 24-HOUR SCS TYPE II RAINFALL
       25           PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
       26           PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
       27           PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
       28           PC    .110    .115    .120    .126    .135    .142    .150    .158    .166    .175
       29           PC    .184    .195    .208    .224    .243    .266    .318    .479    .678    .716
       30           PC    .743    .764    .781    .795    .808    .818    .828    .837    .844    .851
       31           PC    .858    .865    .871    .877    .883    .889    .895    .900    .905    .910
       32           PC    .915    .919    .923    .927    .931    .935    .939    .943    .947    .951
       33           PC    .954    .957    .960    .963    .966    .969    .972    .975    .978    .981
       34           PC    .984    .987    .990    .993    .996    .999   1.000
       35           JD   4.574       1
       36           JD   4.464       5
       37           JD   4.326      10
       38           JD   4.188      20
       39           JD   4.142      30
       40           JD   4.050      40
       41           JD   4.004      50
       42           JD   3.949      65
                    * DDM   ***** Updated *****
1                                                HEC-1 INPUT                                                PAGE  2

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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 43          KK      S1
 44          KM   BASIN S1
 45          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 46          KM    L=      2.5  Lca=       .9   S=  535.5  Kn= .040  LAG=  24.0
 47          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
 48          BA    2.08
 49          LG     .22     .38    6.40     .14    6.00
 50          UI    292.    975.   1892.   2662.   2623.   1696.   1381.   1093.    796.    657.
 51          UI    486.    358.    293.    224.    156.    143.     92.     56.     56.     56.
 52          UI     56.     56.      0.      0.      0.      0.      0.      0.      0.      0.
 53          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

 54          KK     S1R
 55          KM    ROUTE S1 THROUGH S2
 56          RM       4    0.31    0.35
             * DDM   ***** Updated *****

 57          KK      S2
 58          KM   BASIN S2
 59          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 60          KM    L=      2.2  Lca=      1.1   S=  384.2  Kn= .036  LAG=  23.4
 61          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
 62          BA    1.17
 63          LG     .18     .35    7.00     .11    7.00
 64          UI    169.    592.   1118.   1615.   1407.    953.    770.    600.    436.    362.
 65          UI    251.    198.    152.    120.     83.     83.     33.     32.     32.     32.
 66          UI     32.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 67          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

 68          KK     S2C
 69          KM    COMBINE S1+S2
 70          HC       2
             * DDM   ***** Updated *****

 71          KK      S3
 72          KM   BASIN S3
 73          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 74          KM    L=      2.3  Lca=      1.1   S=  331.3  Kn= .035  LAG=  23.5
 75          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
 76          BA    1.03
 77          LG     .17     .39    5.70     .19    4.00
 78          UI    148.    513.    974.   1398.   1248.    837.    677.    529.    385.    320.
 79          UI    222.    174.    135.    108.     72.     72.     32.     28.     28.     28.
 80          UI     28.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 81          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 82          KK     S3C
 83          KM    COMBINE S3+S2C (SUBAREAS S1-S3)
 84          HC       2
             * DDM   ***** Preserved *****

 85          KK     S3R
 86          KM    ROUTE S3C THROUGH S6
 87          RM       4    0.33    0.30
             * DDM   ***** Updated *****

 88          KK      S4
 89          KM   BASIN S4
 90          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 91          KM    L=      2.3  Lca=      1.1   S=  588.7  Kn= .040  LAG=  24.4
 92          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
 93          BA     .97
 94          LG     .20     .39    5.70     .19     .00
 95          UI    134.    437.    853.   1188.   1253.    794.    648.    517.    381.    309.
 96          UI    241.    170.    144.    103.     80.     66.     53.     26.     26.     26.
 97          UI     26.     26.      0.      0.      0.      0.      0.      0.      0.      0.
 98          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Updated *****

 99          KK      S5
100          KM   BASIN S5
101          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
102          KM    L=      2.9  Lca=      1.8   S=  618.6  Kn= .043  LAG=  34.0
103          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
104          BA    1.85
105          LG     .23     .39    5.70     .18     .00
106          UI    183.    333.    782.   1176.   1442.   2021.   1475.   1109.    962.    830.
107          UI    702.    564.    461.    409.    335.    259.    220.    201.    142.    140.
108          UI     93.     90.     90.     49.     35.     35.     35.     35.     35.     35.
109          UI     35.      0.      0.      0.      0.      0.      0.      0.      0.      0.
110          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
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                * DDM   ***** Preserved *****

 111            KK     S5C
 112            KM    COMBINE S4+S5
 113            HC       2
                * DDM   ***** Preserved *****

 114            KK     S5R
 115            KM    ROUTE S5C THROUGH S6
 116            RM       5    0.44    0.30
                * DDM   ***** Updated *****

 117            KK      S6
 118            KM   BASIN S6
 119            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 120            KM    L=      2.4  Lca=      1.1   S=  152.5  Kn= .034  LAG=  27.3
 121            KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
 122            BA     .94
 123            LG     .23     .35    7.00     .12    2.00
1                                          HEC-1 INPUT                                                    PAGE  4

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 124            UI    115.    313.    666.    939.   1088.   1061.    849.    614.    450.    322.
 125            UI    234.    175.    122.     83.     75.     28.     28.     28.     28.     28.
 126            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 127            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Preserved *****

 128            KK     S6C
 129            KM    COMBINE S6+S5R+S3R (SUBAREAS S1-S6)
 130            KM    NEW RIVER ROAD
 131            HC       3
                * DDM   ***** Preserved *****

 132            KK     S6R
 133            KM    ROUTE S6C THROUGH S10
 134            RM       2    0.18    0.25
                * DDM   ***** Updated *****

 135            KK      S9
 136            KM   BASIN S9
 137            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 138            KM    L=      2.3  Lca=       .9   S=  329.0  Kn= .044  LAG=  27.9
 139            KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
 140            BA    1.02
 141            LG     .20     .39    5.70     .19     .00
 142            UI    123.    321.    680.    925.   1329.    913.    702.    590.    484.    372.
 143            UI    299.    254.    185.    149.    126.     94.     76.     60.     60.     27.
 144            UI     24.     24.     24.     24.     24.      0.      0.      0.      0.      0.
 145            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Preserved *****

 146            KK     S9R
 147            KM    ROUTE S9 THROUGH S10
 148            RM       3    0.22    0.30
                * DDM   ***** Updated *****

 149            KK     S10
 150            KM   BASIN S10
 151            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 152            KM    L=      2.7  Lca=      1.2   S=  156.7  Kn= .032  LAG=  27.9
 153            KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
 154            BA    1.80
 155            LG     .17     .40    6.00     .18     .00
 156            UI    217.    569.   1215.   1741.   2034.   2025.   1669.   1212.    894.    656.
 157            UI    465.    358.    247.    179.    149.     76.     53.     53.     53.     53.
 158            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 159            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Updated *****

 160            KK      S7
 161            KM   BASIN S7
 162            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 163            KM    L=      2.1  Lca=      1.3   S=  136.4  Kn= .031  LAG=  25.5
 164            KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
 165            BA     .68
 166            LG     .15     .32    7.60     .09    4.00
1                                          HEC-1 INPUT                                                    PAGE  5

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 167            UI     90.    278.    556.    774.    863.    777.    571.    406.    288.    202.
 168            UI    149.    100.     69.     59.     22.     22.     22.     22.      0.      0.
 169            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Updated *****

 170            KK      S8
 171            KM   BASIN S8
 172            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
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173          KM    L=      1.9  Lca=      1.0   S=  207.2  Kn= .034  LAG=  22.9
174          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
175          BA    1.12
176          LG     .17     .39    5.70     .19     .00
177          UI    165.    611.   1147.   1509.   1531.   1190.    814.    554.    375.    268.
178          UI    173.    113.     77.     40.     40.     40.      0.      0.      0.      0.
179          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

180          KK     S8C
181          KM    COMBINE S7+S8
182          HC       2
             * DDM   ***** Preserved *****

183          KK    S8CR
184          KM    ROUTE S8C THROUGH S10
185          RM       2    0.14    0.25
             * DDM   ***** Preserved *****

186          KK    S10C
187          KM    COMBINE S9R+S10+S6R+S8CR (SUBAREAS S1-S10)
188          HC       4
             * DDM   ***** Preserved *****

189          KK    S10R
190          KM    ROUTE S10C THROUGH S13
191          RM       1    0.09    0.25
             * DDM   ***** Updated *****

192          KK     S13
193          KM   BASIN S13
194          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
195          KM    L=      2.7  Lca=      1.2   S=  425.1  Kn= .035  LAG=  24.5
196          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
197          BA    1.27
198          LG     .22     .37    5.30     .23   20.00
199          UI    175.    567.   1109.   1541.   1652.   1043.    851.    680.    503.    406.
200          UI    318.    227.    191.    134.    108.     86.     73.     34.     34.     34.
201          UI     34.     34.      0.      0.      0.      0.      0.      0.      0.      0.
202          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Updated *****
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

203          KK     S11
204          KM   BASIN S11
205          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
206          KM    L=      2.7  Lca=      1.3   S=  438.1  Kn= .037  LAG=  26.9
207          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
208          BA     .92
209          LG     .20     .39    5.70     .19     .00
210          UI    115.    317.    664.    896.   1241.    783.    631.    523.    422.    315.
211          UI    265.    210.    154.    129.     98.     84.     56.     56.     36.     22.
212          UI     22.     22.     22.     22.      0.      0.      0.      0.      0.      0.
213          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

214          KK    S11R
215          KM    ROUTE S11 THROUGH S12
216          RM       3    0.24    0.30
             * DDM   ***** Updated *****

217          KK     S12
218          KM   BASIN S12
219          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
220          KM    L=      2.8  Lca=      1.3   S=  123.2  Kn= .031  LAG=  29.1
221          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
222          BA     .91
223          LG     .15     .32    7.60     .09    1.00
224          UI    105.    257.    558.    811.    971.    995.    868.    652.    482.    359.
225          UI    262.    195.    146.    109.     72.     67.     26.     26.     26.     26.
226          UI     26.      0.      0.      0.      0.      0.      0.      0.      0.      0.
227          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

228          KK    S12C
229          KM    COMBINE S11R+S12 (SUBAREAS S11 AND S12)
230          HC       2
             * DDM   ***** Preserved *****

231          KK    S13C
232          KM    COMBINE S10R+S13+S12C       (SUBAREAS S1-S13)
233          HC       3
             * DDM   ***** Preserved *****

234          KK   S13CR
235          KM    ROUTE S13C THROUGH S14
236          RM       2    0.15    0.25
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                * DDM   ***** Updated *****

 237            KK     S14
 238            KM   BASIN S14
 239            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 240            KM    L=      1.8  Lca=      1.0   S=  670.5  Kn= .036  LAG=  18.8
 241            KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
 242            BA     .83
 243            LG     .23     .39    5.80     .18   25.00
 244            UI    187.    709.   1211.   1355.    825.    631.    435.    331.    218.    166.
1                                    HEC-1 INPUT                                                    PAGE  7

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 245            UI    114.     77.     67.     29.     29.     29.     29.      0.      0.      0.
 246            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *  ******************************************************************
                *  INFLOW FROM CLINE CREEK                                              *
                *                                                                       *
                *  INPUT TAKEN FROM CLINE CREEK FLOODPLAIN DELINEATION STUDY BY BAKER   *
                *  ENGINEERS (12/11/89) AS REVISED BY FCDMC (2/27/96).                  *
                *                                                                       *
                *  FILE CLINE.DAT
                *  ******************************************************************
                *
                *      HYDROLOGY FOR:    100-YEAR 24 HOUR EVENT
                *
                *      PURPOSE OF STUDY: DELINEATION OF THE 100-YEAR FLOODPLAIN OF
                *                        CLINE CREEK AND TRIBUTARIES - SKUNK CREEK
                *                        TO THE TONTO NATIONAL FOREST BOUNDARY
                *
                *      METHODS OF STUDY: HEC-1   DIMENSIONLESS SCS HYDROGRAPH 6 MIN. INTERVALS
                *      (ORIGINAL MODEL)  PRECIPITATION- SCS TYPE II STORM BY 15 MIN. INCREMENTS
                *                        EXCESS PRECIPITATION- INITIAL AND UNIFORM LOSS RATES
                *                                  &  PERCENT IMPERVIOUS
                *                        STREAM ROUTING- MUSKINGUM METHOD
                *
                *      WATERSHED NAME:   CLINE CREEK   ( BASIN X IS SUBBASIN C-6 )
                *      Revised by :    Hasan Mushtaq, FCDMC
                *                      February 23, 1996.
                *
                *      (1)     A reduction factor of 1.00 was used to be consistent with
                *              the previous study.  DARFS are applied in full watershed model.
                *      (2)     Green-Ampt infiltration method was used for soil loss.
                *      (3)     Phoenix Valley S-graph and Mountain S-graphs were
                *              used to generate the excess rainfall.
                *      (4)     L, Lca, S, were measured from the work maps.
                *      (5)     Roughness values for the subbasins are assumed to vary
                *              between 0.025 and 0.030.  These may be changed as necessary.
                *
                *                                Names (KK cards) of routing and combination step
                *      with the format CO-1 and RO-1 were changed by MW to include a prefix of
                *      "C" (indicating Cline Creek) so they would be differently named than
                *      combination and routing steps in Roger Creek.  This was necessary
                *      because the DDMS was transposing data from one the lower data blocks
                *      to the upper ones and deleting the lower blocks.
                *
                * DDM   ***** Updated *****

 247            KK   X1SUB
 248            KM   BASIN X1SUB
 249            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 250            KM    L=      1.8  Lca=       .8   S=  320.0  Kn= .020  LAG=  11.0
 251            KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
 252            BA     .61
 253            LG     .20     .30    8.00     .07   16.00
 254            UI    456.   1602.   1122.    665.    379.    205.    116.     64.     35.     35.
 255            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 256            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Preserved *****
1                                    HEC-1 INPUT                                                    PAGE  8

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 257            KK   XROX2
 258            KM        ROUTE X1 THROUGH SUBBASIN X2
 259            RM       2    0.15    0.30
                * DDM   ***** Updated *****

 260            KK   X2SUB
 261            KM   BASIN X2SUB
 262            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 263            KM    L=      2.0  Lca=      1.0   S=  311.6  Kn= .020  LAG=  12.5
 264            KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
 265            BA     .43
 266            LG     .20     .32    7.60     .08    6.00
 267            UI    241.    860.    931.    528.    317.    193.    115.     69.     41.     22.
 268            UI     22.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 269            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
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                * DDM   ***** Preserved *****

270             KK   XCO-1
271             KM        COMBINE RUNOFF FROM SUBBASINS X1 AND X2
272             HC       2
                * DDM   ***** Preserved *****

273             KK   XROX3
274             KM        ROUTE X1 & X2 THROUGH SUBBASINS X3 & X5
275             RM       2    0.23    0.30
                * DDM   ***** Updated *****

276             KK   X3SUB
277             KM   BASIN X3SUB
278             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
279             KM    L=      2.3  Lca=      1.2   S=  196.0  Kn= .020  LAG=  15.6
280             KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
281             BA     .56
282             LG     .20     .32    7.60     .08    1.00
283             UI    188.    723.   1108.    970.    572.    326.    187.    104.     57.     29.
284             UI     29.      0.      0.      0.      0.      0.      0.      0.      0.      0.
285             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Preserved *****

286             KK   XCO-2
287             KM        COMBINE RUNOFF FROM SUBBASINS X1,X2, AND X3
288             HC       2
                * DDM   ***** Updated *****

289             KK   X4SUB
290             KM   BASIN X4SUB
291             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
292             KM    L=      1.1  Lca=       .6   S=  250.0  Kn= .020  LAG=   8.8
293             KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
294             BA     .28
295             LG     .20     .27    8.80     .05     .00
296             UI    356.    968.    551.    203.     74.     26.      0.      0.      0.      0.
297             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE  9

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

298             KK   XCO-3
299             KM        COMBINE RUNOFF FROM SUBBASINS X1,X2,X3,AND X4
300             HC       2
                * DDM   ***** Updated *****

301             KK   X5SUB
302             KM   BASIN X5SUB
303             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
304             KM    L=      1.5  Lca=       .9   S=  198.7  Kn= .020  LAG=  11.6
305             KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
306             BA     .38
307             LG     .20     .37    6.60     .13     .00
308             UI    253.    874.    917.    470.    221.    101.     43.     27.      0.      0.
309             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Preserved *****

310             KK   XCO-4
311             KM        COMBINE RUNOFF FROM SUBBASINS X1,X2,X3,X4,AND X5
312             KM        BASIN X OUTFLOW HYDROGRAPH = SUB C-6 RUNOFF HYDROGRAPH
313             HC       2
                * DDM   ***** Updated *****

314             KK   SUBC1
315             KM   BASIN SUBC1
316             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
317             KM    L=      1.3  Lca=       .8   S= 1143.0  Kn= .020  LAG=   7.8
318             KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
319             BA    1.26
320             LG     .20     .35    4.80     .26     .00
321             UI   2015.   4263.   1937.    870.    381.    158.    104.      0.      0.      0.
322             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Preserved *****

323             KK   CRO-1
324             KM        ROUTE C-1       THROUGH      C-2
325             RM       6     .58      .3
                * DDM   ***** Updated *****

326             KK   SUBC2
327             KM   BASIN SUBC2
328             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
329             KM    L=      3.8  Lca=      2.1   S=  369.4  Kn= .020  LAG=  20.5
330             KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
331             BA    2.19
332             LG     .20     .35    4.80     .26     .00
333             UI    398.   1547.   2645.   3635.   2218.   1726.   1306.    918.    721.    495.
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334          UI    378.    276.    186.    176.     71.     69.     69.     69.      0.      0.
335          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Updated *****
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

336          KK   SUBC3
337          KM   BASIN SUBC3
338          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
339          KM    L=      2.2  Lca=      1.6   S=  403.7  Kn= .020  LAG=  14.8
340          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
341          BA    1.24
342          LG     .23     .35    4.90     .26    1.00
343          UI    474.   1738.   2670.   1591.   1112.    710.    467.    306.    195.    138.
344          UI     64.     54.     54.      0.      0.      0.      0.      0.      0.      0.
345          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Updated *****

346          KK   SUBC4
347          KM   BASIN SUBC4
348          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
349          KM    L=      2.9  Lca=      1.9   S=  688.4  Kn= .020  LAG=  15.8
350          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
351          BA    2.54
352          LG     .20     .35    4.80     .26     .00
353          UI    829.   3129.   5236.   3326.   2386.   1563.   1101.    691.    481.    313.
354          UI    234.    104.    104.    104.      0.      0.      0.      0.      0.      0.
355          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

356          KK   CRO-2
357          KM        ROUTE C-4 THROUGH C-5
358          RM       3     .27      .3
             * DDM   ***** Updated *****

359          KK   SUBC5
360          KM   BASIN SUBC5
361          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
362          KM    L=      2.9  Lca=      1.4   S=  540.8  Kn= .020  LAG=  15.0
363          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
364          BA    3.39
365          LG     .24     .37    5.20     .23    6.00
366          UI   1255.   4625.   7250.   4358.   3077.   1965.   1317.    866.    552.    372.
367          UI    205.    146.    146.      0.      0.      0.      0.      0.      0.      0.
368          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

369          KK   CCO-1
370          KM        COMBINE RUNOFF FROM SUBBASINS C-4 AND C-5
371          HC       2
             * DDM   ***** Preserved *****

372          KK   CRO-3
373          KM        ROUTE C-4&5 THROUGH C-3
374          RM       3     .24      .3
             * DDM   ***** Preserved *****
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

375          KK   CCO-2
376          KM        COMBINE RUNOFF FROM SUBBASINS 4&5 WITH C-1,2&3
377          HC       4
             * DDM   ***** Preserved *****

378          KK   CRO-4
379          KM        ROUTE C-1,2,3,4,5 THROUGH C-9 UPST
380          RM       3     .25      .3
             * DDM   ***** Updated *****

381          KK   SUBC7
382          KM   BASIN SUBC7
383          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
384          KM    L=      2.5  Lca=      1.1   S=  561.0  Kn= .020  LAG=  12.6
385          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
386          BA    1.20
387          LG     .40     .27    8.80     .06   18.00
388          UI    656.   2336.   2590.   1467.    882.    544.    325.    195.    120.     61.
389          UI     61.      0.      0.      0.      0.      0.      0.      0.      0.      0.
390          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

391          KK   CRO-5
392          KM        ROUTE C-7 THROUGH C-8
393          RM       8     .77      .3
             * DDM   ***** Updated *****
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394          KK   SUBC8
395          KM   BASIN SUBC8
396          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
397          KM    L=      2.6  Lca=      1.2   S=  101.6  Kn= .022  LAG=  20.4
398          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
399          BA    1.42
400          LG     .37     .19   10.10     .04   13.00
401          UI    262.   1020.   1830.   2221.   1951.   1316.    858.    550.    371.    229.
402          UI    161.     72.     57.     57.     57.      0.      0.      0.      0.      0.
403          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

404          KK   CCO-3
405          KM        COMBINE RUNOFF FROM SUBBASINS C-7 AND C-8
406          HC       2
             * DDM   ***** Preserved *****

407          KK   CCO-4
408          KM        COMBINE RUNOFF FROM SUBBASINS C-1 THROUGH 5; C-6 AND C-7&8
409          HC       3
             * DDM   ***** Preserved *****
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

410          KK   CRO-6
411          KM        ROUTE C-1 THROUGH 8 THROUGH C-9 DWN
412          RM       2     .21      .3
             * DDM   ***** Updated *****

413          KK   SUBC9
414          KM   BASIN SUBC9
415          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
416          KM    L=      2.5  Lca=      1.4   S=   81.3  Kn= .022  LAG=  21.8
417          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
418          BA     .58
419          LG     .35     .31    6.80     .14    7.00
420          UI     89.    358.    655.    832.    804.    579.    389.    260.    173.    116.
421          UI     76.     58.     22.     22.     22.     22.      0.      0.      0.      0.
422          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

423          KK   CCO-5
424          KM        COMBINE RUNOFF FROM SUBBASINS C-1 THROUGH 8 AND C-9
425          HC       2
             *  ******************************************
             *  END CLINE CREEK WATERSHED MODEL
             *  RESUME SKUNK CREEK WATERSHED MODEL
             *  ******************************************
             * DDM   ***** Preserved *****

426          KK  CLINER
427          KM    ROUTE CLINE CREEK FLOWS THROUGH S14
428          RM       1  0.0583    0.25
             * DDM   ***** Preserved *****

429          KK    S14C
430          KM    COMBINE S13C+S14+CLINE CREEK BASINS (SUBAREAS S1-S14 & CLINE CREEK BASIN)
431          HC       3
             * DDM   ***** Preserved *****

432          KK   S14CR
433          KM    ROUTE S14C THROUGH S16
434          RM       4    0.29    0.25
             * DDM   ***** Updated *****

435          KK     S15
436          KM   BASIN S15
437          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
438          KM    L=      2.0  Lca=      1.0   S=  238.1  Kn= .035  LAG=  23.5
439          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
440          BA     .99
441          LG     .21     .35    7.00     .12   15.00
442          UI    141.    501.    959.   1278.   1326.   1077.    741.    513.    352.    244.
443          UI    166.    111.     87.     34.     34.     34.     34.      0.      0.      0.
444          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

445          KK    S15R
446          KM    ROUTE S15 THROUGH S16
447          RM       1    0.08    0.25
             *  ********************************************************************
             *  INFLOW FROM RODGER CREEK                                            *
             *  INPUT TAKEN FROM RODGER CREEK FLOODPLAIN DELINEATION STUDY BY BAKER *
             *  ENGINEERS (12/7/89) AS REVISED BY FCDMC (2/27/96)                   *
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*                                                                      *
*  FILE ROGER.DAT
*  ***********************************************************************
*
*      HYDROLOGY FOR:     100-YEAR 24 HOUR EVENT
*
*      PURPOSE OF STUDY: DELINEATION OF THE 100-YEAR FLOODPLAIN OF
*                        RODGER CREEK ABOVE CONFLUENCE WITH SKUNK CREEK
*
*      METHODS OF STUDY: HEC-1   DIMENSIONLESS SCS HYDROGRAPH 5 MIN. INTERVALS
*      (ORIGINAL MODEL)          PRECIPITATION- SCS TYPE II STORM BY 15 MIN. INC
*                                    -AREAL REDUCTION NOT USED  < 10 SQ. MI.
*                        EXCESS PRECIPITATION- INITIAL AND UNIFORM LOSS RATES
*                                    &  PERCENT IMPERVIOUS
*                        STREAM ROUTING- MUSKINGUM METHOD
*
*      CURRENT MODEL USES FCD STORM PATTERNS FOR PRECIP DISTRIBUTION
*
*      WATERSHED NAME: RODGER CREEK
*      Revision by:       Hasan Mushtaq, Flood Control District
*                         January 24, 1996.
*
*      (1)      A reduction factor of 1.00 was used to be consistent with
*               the previous study.  DARFS are applied in full watershed model.
*      (2)      Green-Ampt infiltration method was used for soil loss.
*      (3)      Valley S-graph was used to derive the unit hydrograph.
*      (4)      L, Lca, S, were measured from the work map.
*      (5)      Roughness value for the subbasins are assumed constant
*               at 0.030.  These may be changed as needed.
*
* DDM   ***** Updated *****

448          KK      R1
449          KM   BASIN R1
450          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
451          KM    L=      2.9  Lca=      1.1   S=  112.2  Kn= .025  LAG=  23.3
452          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
453          BA    1.56
454          LG     .15     .25    9.70     .05   17.00
455          UI    226.    812.   1543.   2048.   2113.   1686.   1158.    801.    542.    382.
456          UI    256.    168.    128.     55.     55.     55.     55.      0.      0.      0.
457          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****
1                                   HEC-1 INPUT                                                PAGE 14

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


458          KK    RO-1
459          KM        ROUTE R-1 THROUGH R-2
460          RM       4      .3      .3
             * DDM   ***** Updated *****

461          KK      R2
462          KM   BASIN R2
463          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
464          KM    L=      3.4  Lca=      1.5   S=  327.4  Kn= .025  LAG=  22.0
465          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
466          BA    1.98
467          LG     .15     .29    8.40     .07   14.00
468          UI    304.   1191.   2106.   3147.   2080.   1599.   1264.    916.    706.    537.
469          UI    373.    299.    231.    149.    149.     63.     58.     58.     58.     58.
470          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
471          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

472          KK    CO-1
473          KM        COMBINE RUNOFF FROM SUBBASINS R-1 AND R-2
474          HC       2    3.54
             * DDM   ***** Preserved *****

475          KK    RO-2
476          KM        ROUTE R-1 AND R-2 THROUGH R-3
477          RM       5      .4      .3
             * DDM   ***** Updated *****

478          KK      R3
479          KM   BASIN R3
480          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
481          KM    L=      3.5  Lca=      2.1   S=  365.7  Kn= .030  LAG=  29.9
482          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
483          BA    1.59
484          LG     .10     .35    7.00     .13   25.00
485          UI    179.    414.    909.   1272.   1709.   1694.   1105.    936.    789.    649.
486          UI    496.    423.    349.    262.    215.    187.    137.    119.     88.     88.
487          UI     58.     34.     34.     34.     34.     34.     34.      0.      0.      0.
488          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

489          KK    CO-2
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490          KM        COMBINE RUNOFF FROM R-1, R-2, AND R-3
491          HC       2    5.13
             *  ****************************************
             *  END RODGER CREEK WATERSHED MODEL
             *  RESUME SKUNK CREEK WATERSHED MODEL
             *  ****************************************
             * DDM   ***** Updated *****
1                                        HEC-1 INPUT                                                    PAGE 15

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


492          KK     S16
493          KM   BASIN S16
494          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
495          KM    L=       1.9  Lca=        .9   S=  333.3  Kn= .033  LAG=  19.1
496          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
497          BA    1.32
498          LG     .29     .39    5.80     .20     .00
499          UI    285.   1084.   1846.   2166.   1310.   1007.    707.    529.    361.    268.
500          UI    188.    131.    114.     49.     45.     45.     45.      0.      0.      0.
501          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

502          KK    S16C
503          KM   COMBINE S14R+S16+S15+RODGER CREEK (SUBAREAS S1-S16, CLINE & RODGER CR BASINS)
504          HC       4
             * DDM   ***** Preserved *****

505          KK   S16CR
506          KM    ROUTE S16C THROUGH S21
507          RM       6    0.47    0.25
             * DDM   ***** Updated *****

508          KK     S21
509          KM   BASIN S21
510          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
511          KM    L=       3.7  Lca=       1.6   S=   56.6  Kn= .026  LAG=  34.6
512          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
513          BA    2.22
514          LG     .21     .27    8.80     .06     .00
515          UI    216.    382.    914.   1387.   1793.   2018.   2050.   1870.   1478.   1148.
516          UI    900.    695.    535.    422.    334.    237.    195.    148.    139.     53.
517          UI     53.     53.     53.     53.     53.      0.      0.      0.      0.      0.
518          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

519          KK    S21C
520          KM    COMBINE S16CR+S21 (SUBAREAS S1-S16, S21, CLINE & RODGER CREEK BASINS)
521          HC       2
             * DDM   ***** Updated *****

522          KK     S17
523          KM   BASIN S17
524          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
525          KM    L=       2.5  Lca=       1.0   S=  136.0  Kn= .038  LAG=  30.9
526          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
527          BA    1.03
528          LG     .16     .33    7.30     .10     .00
529          UI    113.    244.    554.    816.   1007.   1079.   1002.    791.    596.    452.
530          UI    340.    251.    194.    144.    111.     77.     71.     27.     27.     27.
531          UI     27.     27.      0.      0.      0.      0.      0.      0.      0.      0.
532          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****
1                                        HEC-1 INPUT                                                    PAGE 16

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


533          KK    S17R
534          KM    ROUTE S17 THROUGH S18
535          RM       4    0.33    0.25
             * DDM   ***** Updated *****

536          KK     S18
537          KM   BASIN S18
538          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
539          KM    L=       2.4  Lca=       1.1   S=   59.5  Kn= .030  LAG=  28.8
540          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
541          BA    1.71
542          LG     .15     .27    8.80     .06     .00
543          UI    200.    498.   1075.   1559.   1854.   1883.   1625.   1211.    895.    660.
544          UI    486.    355.    265.    197.    137.    114.     49.     49.     49.     49.
545          UI     49.      0.      0.      0.      0.      0.      0.      0.      0.      0.
546          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

547          KK    S18C
548          KM    COMBINE S17+S18
549          HC       2
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                * DDM   ***** Preserved *****

 550            KK   S18CR
 551            KM    ROUTE S18C THROUGH S19
 552            RM       1    0.06    0.20
                * DDM   ***** Updated *****

 553            KK     S19
 554            KM   BASIN S19
 555            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 556            KM    L=      1.5  Lca=       .7   S=   76.5  Kn= .031  LAG=  19.6
 557            KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
 558            BA     .77
 559            LG     .17     .29    8.40     .07    4.00
 560            UI    157.    605.   1069.   1255.   1042.    674.    433.    275.    175.    110.
 561            UI     74.     32.     32.     32.      0.      0.      0.      0.      0.      0.
 562            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Preserved *****

 563            KK    S19C
 564            KM    COMBINE S19+S18CR (SUBAREAS S17-S19)
 565            HC       2
                * DDM   ***** Preserved *****

 566            KK   S19CR
 567            KM    ROUTE S19C THROUGH S20
 568            RM       3    0.28    0.20
                * DDM   ***** Updated *****
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LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 569            KK     S20
 570            KM   BASIN S20
 571            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 572            KM    L=      2.4  Lca=      1.0   S=   43.3  Kn= .030  LAG=  28.9
 573            KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
 574            BA    1.27
 575            LG     .17     .27    8.80     .06    6.00
 576            UI    148.    366.    792.   1150.   1371.   1397.   1210.    904.    668.    495.
 577            UI    363.    267.    199.    149.    102.     88.     36.     36.     36.     36.
 578            UI     36.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 579            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Preserved *****

 580            KK    S20C
 581            KM    COMBINE S19CR+S20   (SUBAREAS S17-S19 & S20)
 582            HC       2
                * DDM   ***** Preserved *****

 583            KK   S21C2
 584            KM    COMBINE S20C+S21C   (SUBAREAS S1-S21, CLINE & RODGER CREEK BASINS)
 585            HC       2
                * DDM   ***** Preserved *****

 586            KK  S21C2R
 587            KM    ROUTE S21C2 THROUGH S22
 588            RM       3    0.27    0.25
                * DDM   ***** Updated *****

 589            KK     S22
 590            KM   BASIN S22
 591            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 592            KM    L=      2.3  Lca=      1.1   S=  277.5  Kn= .032  LAG=  22.7
 593            KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
 594            BA    1.47
 595            LG     .25     .39    5.80     .19     .00
 596            UI    218.    808.   1472.   2195.   1629.   1188.    949.    716.    532.    424.
 597            UI    299.    241.    169.    130.    106.     76.     42.     42.     42.     42.
 598            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 599            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                * DDM   ***** Preserved *****

 600            KK    S22C
 601            KM    COMBINE S22+S21CR   (SUBAREAS S1-S22, CLINE & RODGER CREEK BASINS)
 602            KM    CAREFREE HIGHWAY
 603            HC       2
                *   S22C
                *   DIVERSION OUT OF SKUNK CREEK
                *  S22CD
                *      0   27283
                *      0    3600
                * DDM   ***** Preserved *****
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LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 604            KK   S22CR
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605          KM    ROUTE S22C THROUGH S23
606          RM       7    0.56    0.25
             * DDM   ***** Updated *****

607          KK     S23
608          KM   BASIN S23
609          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
610          KM    L=      4.6  Lca=      2.1   S=   43.9  Kn= .026  LAG=  42.9
611          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
612          BA    1.72
613          LG     .35     .25    9.70     .05     .00
614          UI    135.    142.    435.    671.    900.   1112.   1232.   1294.   1251.   1142.
615          UI    931.    757.    624.    508.    410.    334.    271.    226.    188.    143.
616          UI    121.     92.     92.     59.     33.     33.     33.     33.     33.     33.
617          UI     33.      0.      0.      0.      0.      0.      0.      0.      0.      0.
618          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

619          KK    S23C
620          KM    COMBINE S23+S22CR   (SUBAREAS S1-S23, CLINE AND RODGER CREEK BASINS)
621          KM   CAP OVERCHUTES
622          HC       2
             *  ***********************************************************************
             *  INFLOW FROM UNION HILLS                                                 *
             *  HOSKIN ENGINEERING CONSULTANTS UNDER CONTRACT TO MONTGOMERY WATSON      *
             *                                                                          *
             *  FILE:C:\FILEDIR\950008\HYDRO\HEC1\UNIONHL\H1UH100B.I
             *  ***********************************************************************
             *
             * DDM   ***** Updated *****

623          KK      U1
624          KM   BASIN U1
625          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
626          KM    L=      2.6  Lca=      1.7   S=   72.5  Kn= .030  LAG=  33.5
627          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
628          BA    2.53
629          LG     .27     .25    9.70     .05    8.00
630          UI    254.    473.   1127.   1672.   2183.   2397.   2379.   2101.   1625.   1252.
631          UI    975.    743.    559.    443.    342.    270.    179.    174.     96.     62.
632          UI     62.     62.     62.     62.      0.      0.      0.      0.      0.      0.
633          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Updated *****

634          KK      U2
635          KM   BASIN U2
636          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
637          KM    L=      2.8  Lca=      1.7   S=   58.2  Kn= .031  LAG=  37.1
638          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
639          BA    1.60
640          LG     .29     .22   10.10     .04    6.00
641          UI    145.    225.    554.    862.   1125.   1309.   1388.   1334.   1141.    909.
642          UI    717.    569.    447.    352.    281.    225.    165.    141.     99.     99.
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

643          UI     53.     35.     35.     35.     35.     35.     35.      0.      0.      0.
644          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Updated *****

645          KK      U3
646          KM   BASIN U3
647          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
648          KM    L=      2.1  Lca=      1.3   S=   91.3  Kn= .034  LAG=  30.4
649          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
650          BA     .84
651          LG     .24     .36    6.80     .13    8.00
652          UI     93.    210.    468.    689.    843.    892.    818.    633.    476.    361.
653          UI    268.    195.    154.    110.     84.     64.     48.     23.     23.     23.
654          UI     23.     23.      0.      0.      0.      0.      0.      0.      0.      0.
655          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

656          KK     U3C
657          KM       COMBINE RUNOFF FROM SUB-BASINS U1, U2 AND U3
658          HC       3
             * DDM   ***** Preserved *****

659          KK     U3R
660          KM        ROUTE U3C THROUGH U4 TO U4C
661          RM       2    0.19      .2
             * DDM   ***** Updated *****

662          KK      U4
663          KM   BASIN U4
664          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
665          KM    L=      2.1  Lca=      1.2   S=  135.3  Kn= .036  LAG=  28.7
666          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
667          BA    2.80
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668          LG     .23     .35    7.00     .12    8.00
669          UI    328.    820.   1767.   2561.   3039.   3078.   2647.   1967.   1453.   1068.
670          UI    785.    577.    426.    317.    224.    178.     80.     80.     80.     80.
671          UI     80.      0.      0.      0.      0.      0.      0.      0.      0.      0.
672          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

673          KK     U4C
674          KM        COMBINE U3R WITH SUB-BASIN U4
675          HC       2
             * DDM   ***** Preserved *****

676          KK     U4R
677          KM        ROUTE FLOW FROM U4C THROUGH SUB-BASIN U4 TO U5C
678          RM       2      .2      .2
             * DDM   ***** Updated *****
1                                        HEC-1 INPUT                                                PAGE 20

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


679          KK      U5
680          KM   BASIN U5
681          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
682          KM    L=      3.3  Lca=      1.9   S=  163.2  Kn= .032  LAG=  35.0
683          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
684          BA    3.25
685          LG     .28     .37    6.60     .15    3.00
686          UI    313.    541.   1299.   1989.   2565.   2906.   2976.   2741.   2195.   1708.
687          UI   1339.   1042.    802.    628.    502.    369.    305.    214.    214.     93.
688          UI     76.     76.     76.     76.     76.      0.      0.      0.      0.      0.
689          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

690          KK     U5C
691          KM        COMBINE FLOW FROM U4R WITH SUB-BASIN U5
692          HC       2
             * DDM   ***** Preserved *****

693          KK     U5R
694          KM        ROUTE FLOW FROM U5C THROUGH U7 TO U7C
695          RM       3     .24     .15
             * DDM   ***** Updated *****

696          KK      U6
697          KM   BASIN U6
698          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
699          KM    L=      1.4  Lca=       .8   S=  315.6  Kn= .041  LAG=  20.7
700          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
701          BA     .70
702          LG     .21     .33    7.30     .10   11.00
703          UI    125.    487.    834.   1165.    715.    557.    424.    299.    236.    161.
704          UI    126.     88.     63.     56.     27.     22.     22.     22.     22.      0.
705          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
706          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****

707          KK     U6R
708          KM        ROUTE FLOW FROM SUB-BASIN U6 THROUGH U7 TO U7C
709          RM       1     .09     .15
             * DDM   ***** Updated *****

710          KK      U7
711          KM   BASIN U7
712          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
713          KM    L=      3.3  Lca=      1.8   S=   49.4  Kn= .025  LAG=  34.1
714          KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
715          BA    1.47
716          LG     .35     .25    9.70     .05    1.00
717          UI    145.    262.    626.    940.   1219.   1360.   1368.   1227.    961.    746.
718          UI    577.    446.    346.    265.    213.    154.    118.     99.     76.     35.
719          UI     35.     35.     35.     35.     35.      0.      0.      0.      0.      0.
720          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             * DDM   ***** Preserved *****
1                                        HEC-1 INPUT                                                PAGE 21

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


721          KK     U7C
722          KM        COMBINE SUB-BASIN U7 WITH U5R AND U6R
723          KM        CAP OVERCHUTES. ALL UNION HILLS SUB-BASINS COMBINE
724          HC       3
             * DDM   ***** Preserved *****

725          KK     CAP
726          KM    COMBINE S23C+U7C    (SUBAREAS S1-S23, CLINE CR, RODGER CR & UNION HILLS BASI
727          KM    COMBINED FLOW AT CAP OVERCHUTES
728          HC       2
             *  KK CAPR1
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                    *  KM STORAGE ROUTING FOR PONDING AT CAP OVERCHUTES
                    *  (NOT INCLUDED AT THIS TIME)
                    *  RS
                    *  RV
                    *  RQ
                    * DDM   ***** Preserved *****

729                 KK   CAPR2
730                 KM    ROUTE CAP OVERFLOW THROUGH S24
731                 RM       3    0.23    0.25
                    * DDM   ***** Updated *****

732                 KK     S24
733                 KM   BASIN S24
734                 KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
735                 KM    L=       1.4  Lca=        .8   S=   38.0  Kn= .026  LAG=  19.0
736                 KM    DESERT/RANGELAND S-GRAPH WAS USED FOR THE BASIN
737                 BA     .64
738                 LG     .35     .30    8.00     .09     .00
739                 UI    140.    538.    935.   1070.    844.    535.    336.    212.    135.     82.
740                 UI     47.     28.     28.      0.      0.      0.      0.      0.      0.      0.
741                 UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                    * DDM   ***** Preserved *****

742                 KK    S24C
743                 KM   COMBINE S24+CAPR2    (SUBAREAS S1-S24, CLINE CR, RODGER CR & UNION HILLS BASI
744                 KM    COMBINED FLOW AT I-17
745                 HC       2
746                 ZZ
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1

SCHEMATIC DIAGRAM OF STREAM NETWORK

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 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    43          S1
                 V
                 V
    54         S1R
                 .
                 .
    57           .          S2
                 .           .
                 .           .
    68         S2C............
                 .
                 .
    71           .          S3
                 .           .
                 .           .
    82         S3C............
                 V
                 V
    85         S3R
                 .
                 .
    88           .          S4
                 .           .
                 .           .
    99           .           .          S5
                 .           .           .
                 .           .           .
   111           .         S5C............
                 .           V
                 .           V
   114           .         S5R
                 .           .
                 .           .
   117           .           .          S6
                 .           .           .
                 .           .           .
   128         S6C........................
                 V
                 V
   132         S6R
                 .
                 .
   135           .          S9
                 .           V
                 .           V
   146           .         S9R
                 .           .
                 .           .
   149           .           .         S10
                 .           .           .
                 .           .           .
   160           .           .           .          S7
                 .           .           .           .
                 .           .           .           .
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170          .          .          .          .          S8
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180          .          .          .        S8C...........
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             .          .          .          V
183          .          .          .       S8CR
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186       S10C...................................
             V
             V
189       S10R
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192          .       S13
             .          .
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203          .          .       S11
             .          .         V
             .          .         V
214          .          .      S11R
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217          .          .         .        S12
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             .          .         .          .
228          .          .      S12C...........
             .          .         .
             .          .         .
231       S13C......................
             V
             V
234      S13CR
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237          .       S14
             .          .
             .          .
247          .          .     X1SUB
             .          .         V
             .          .         V
257          .          .     XROX2
             .          .         .
             .          .         .
260          .          .         .      X2SUB
             .          .         .          .
             .          .         .          .
270          .          .     XCO-1...........
             .          .         V
             .          .         V
273          .          .     XROX3
             .          .         .
             .          .         .
276          .          .         .      X3SUB
             .          .         .          .
             .          .         .          .
286          .          .     XCO-2...........
             .          .         .
             .          .         .
289          .          .         .      X4SUB
             .          .         .          .
             .          .         .          .
298          .          .     XCO-3...........
             .          .         .
             .          .         .
301          .          .         .      X5SUB
             .          .         .          .
             .          .         .          .
310          .          .     XCO-4...........
             .          .         .
             .          .         .
314          .          .         .      SUBC1
             .          .         .          V
             .          .         .          V
323          .          .         .      CRO-1
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326          .          .         .          .      SUBC2
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336          .          .         .          .          .      SUBC3
             .          .         .          .          .          .
             .          .         .          .          .          .
346          .          .         .          .          .          .      SUBC4
             .          .         .          .          .          .          V
             .          .         .          .          .          .          V
356          .          .         .          .          .          .      CRO-2
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359          .          .          .          .          .          .          .      SUBC5
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369          .          .          .          .          .          .      CCO-1............
             .          .          .          .          .          .          V
             .          .          .          .          .          .          V
372          .          .          .          .          .          .      CRO-3
             .          .          .          .          .          .          .
             .          .          .          .          .          .          .
375          .          .          .      CCO-2..................................
             .          .          .          V
             .          .          .          V
378          .          .          .      CRO-4
             .          .          .          .
             .          .          .          .
381          .          .          .          .      SUBC7
             .          .          .          .          V
             .          .          .          .          V
391          .          .          .          .      CRO-5
             .          .          .          .          .
             .          .          .          .          .
394          .          .          .          .          .      SUBC8
             .          .          .          .          .          .
             .          .          .          .          .          .
404          .          .          .          .      CCO-3............
             .          .          .          .          .
             .          .          .          .          .
407          .          .      CCO-4......................
             .          .          V
             .          .          V
410          .          .      CRO-6
             .          .          .
             .          .          .
413          .          .          .      SUBC9
             .          .          .          .
             .          .          .          .
423          .          .      CCO-5............
             .          .          V
             .          .          V
426          .          .     CLINER
             .          .          .
             .          .          .
429       S14C......................
             V
             V
432       S14CR
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435          .        S15
             .          V
             .          V
445          .       S15R
             .          .
             .          .
448          .          .         R1
             .          .          V
             .          .          V
458          .          .       RO-1
             .          .          .
             .          .          .
461          .          .          .         R2
             .          .          .          .
             .          .          .          .
472          .          .       CO-1............
             .          .          V
             .          .          V
475          .          .       RO-2
             .          .          .
             .          .          .
478          .          .          .         R3
             .          .          .          .
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489          .          .       CO-2............
             .          .          .
             .          .          .
492          .          .          .        S16
             .          .          .          .
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502       S16C...................................
             V
             V
505       S16CR
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508          .        S21
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519       S21C............
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522          .        S17
             .          V
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533          .       S17R
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536          .          .         S18
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547          .       S18C............
             .          V
             .          V
550          .      S18CR
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553          .          .         S19
             .          .           .
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563          .       S19C............
             .          V
             .          V
566          .      S19CR
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569          .          .         S20
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580          .       S20C............
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583      S21C2............
             V
             V
586     S21C2R
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589          .        S22
             .          .
             .          .
600       S22C............
             V
             V
604      S22CR
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607          .        S23
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619       S23C............
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623          .         U1
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634          .          .          U2
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645          .          .           .          U3
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656          .        U3C........................
             .          V
             .          V
659          .        U3R
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662          .          .          U4
             .          .           .
             .          .           .
673          .        U4C............
             .          V
             .          V
676          .        U4R
             .          .
             .          .
679          .          .          U5
             .          .           .
             .          .           .
690          .        U5C............
             .          V
             .          V
693          .        U5R
             .          .
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696          .          .          U6
             .          .           V
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707          .          .         U6R
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710          .          .          .          U7
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721          .        U7C.......................
             .          .
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725        CAP...........
             V
             V
729      CAPR2
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732          .        S24
             .          .
             .          .
742       S24C...........
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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      *
 *              JUN   1998              *                    *    HYDROLOGIC ENGINEERING CENTER     *
 *           VERSION 4.1                *                    *          609 SECOND STREET           *
 *                                      *                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   17OCT00  TIME  08:07:10  *                    *           (916) 756-1104             *
 *                                      *                    *                                      *
 ****************************************                    ****************************************
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

SKUNK CREEK FOODPLAIN DELINEATION STUDY
CAP AQUEDUCT THROUGH TOWN OF NEW RIVER

100-YEAR 24-HOUR FLOOD HYDROLOGY

METHODS OF STUDY:
- FCD STORM PATTERNS
- FCD PHOENIX AREA S-GRAPHS
- GREEN-AMPT LOSSES
- MUSKINGUM STREAM ROUTING
- FCD DDMS PROGRAM (VER 1.1, AUG 1995) USED TO COMPUTE PARAMETERS

INPUT FILE NAME - SC100Y24.DAT

MONTGOMERY WATSON
MARCH 1996

DDM MCUHP2 SKUNK CREEK FOODPLAIN DELINEATION STUDY

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23 IO          OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

   IT          HYDROGRAPH TIME DATA
                      NMIN          5  MINUTES IN COMPUTATION INTERVAL
                     IDATE     5JAN96  STARTING DATE
                     ITIME       0000  STARTING TIME
                        NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE     6JAN96  ENDING DATE
                    NDTIME       0055  ENDING TIME
                     ICENT         19  CENTURY MARK

                COMPUTATION INTERVAL     .08 HOURS
                     TOTAL TIME BASE   24.92 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

24 JD          INDEX STORM NO. 1
                     STRM        4.60  PRECIPITATION DEPTH
                     TRDA         .00  TRANSPOSITION DRAINAGE AREA

25 PI            PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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.01	.01	.01	.01	.01	.02	.02	.02	.05	.05
.05	.07	.07	.07	.01	.01	.01	.01	.01	.01
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35 JD INDEX STORM NO. 2

STRM 4.57 PRECIPITATION DEPTH

TRDA 1.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

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.01	.01	.01	.01	.01	.02	.02	.02	.05	.05
.05	.07	.07	.07	.01	.01	.01	.01	.01	.01
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36 JD INDEX STORM NO. 3

STRM 4.46 PRECIPITATION DEPTH

TRDA 5.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

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.01	.01	.01	.01	.01	.02	.02	.02	.05	.05
.05	.07	.07	.07	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
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37 JD        INDEX STORM NO. 4
                STRM        4.33  PRECIPITATION DEPTH
                TRDA       10.00  TRANSPOSITION DRAINAGE AREA

 0 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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                .05       .07       .07       .07       .01       .01       .01       .01       .01       .01
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38 JD        INDEX STORM NO. 5
                STRM        4.19  PRECIPITATION DEPTH
                TRDA       20.00  TRANSPOSITION DRAINAGE AREA

 0 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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                .01       .01       .01       .01       .01       .02       .02       .02       .05       .05
                .05       .07       .07       .07       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
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                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00

39 JD        INDEX STORM NO. 6
                STRM        4.14  PRECIPITATION DEPTH
                TRDA       30.00  TRANSPOSITION DRAINAGE AREA

 0 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.01	.01	.01	.01	.01	.02	.02	.02	.05	.05
.05	.07	.07	.07	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

40 JD INDEX STORM NO. 7

STRM 4.05 PRECIPITATION DEPTH

TRDA 40.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.01	.01	.01	.01	.01	.02	.02	.02	.05	.05
.05	.07	.07	.07	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

41 JD INDEX STORM NO. 8

STRM 4.00 PRECIPITATION DEPTH

TRDA 50.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.01	.01	.01	.01	.01	.02	.02	.02	.05	.05
.05	.07	.07	.07	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

42 JD INDEX STORM NO. 9

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                    STRM        3.95  PRECIPITATION DEPTH
                    TRDA       65.00  TRANSPOSITION DRAINAGE AREA

0 PI            PRECIPITATION PATTERN
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                   .01       .01       .01       .01       .01       .02       .02       .02       .05       .05
                   .05       .07       .07       .07       .01       .01       .01       .01       .01       .01
                   .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
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                   .00       .00       .00       .00       .00       .00       .00       .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
1
                                                  RUNOFF SUMMARY
                                             FLOW IN CUBIC FEET PER SECOND
                                          TIME IN HOURS,  AREA IN SQUARE MILES

                                     PEAK   TIME OF    AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN    MAXIMUM    TIME OF
          OPERATION        STATION  FLOW    PEAK                                          AREA     STAGE    MAX STAGE
+                                                      6-HOUR     24-HOUR     72-HOUR

          HYDROGRAPH AT
+                             S1    2911.   12.17       389.        102.        98.       2.08

          ROUTED TO
+                            S1R    2737.   12.50       388.        102.        98.       2.08

          HYDROGRAPH AT
+                             S2    1738.   12.17       240.         63.        61.       1.17

          2 COMBINED AT
+                            S2C    3760.   12.33       619.        162.       156.       3.25

          HYDROGRAPH AT
+                             S3    1415.   12.17       179.         46.        45.       1.03

          2 COMBINED AT
+                            S3C    4899.   12.25       788.        206.       198.       4.28

          ROUTED TO
+                            S3R    4664.   12.58       788.        206.       198.       4.28

          HYDROGRAPH AT
+                             S4    1295.   12.17       161.         40.        39.        .97

          HYDROGRAPH AT
+                             S5    2007.   12.25       307.         77.        74.       1.85

          2 COMBINED AT
+                            S5C    3169.   12.25       461.        115.       111.       2.82

          ROUTED TO
+                            S5R    2936.   12.67       461.        115.       111.       2.82

          HYDROGRAPH AT
+                             S6    1339.   12.17       179.         45.        44.        .94

          3 COMBINED AT
+                            S6C    7840.   12.58      1365.        350.       337.       8.04

          ROUTED TO
+                            S6R    7610.   12.75      1365.        350.       337.       8.04

          HYDROGRAPH AT
+                             S9    1254.   12.17       169.         42.        41.       1.02
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+	ROUTED TO	S9R	1209.	12.42	169.	42.	41.	1.02
+	HYDROGRAPH AT	S10	2350.	12.17	297.	74.	71.	1.80
+	HYDROGRAPH AT	S7	1061.	12.17	146.	37.	36.	.68
+	HYDROGRAPH AT	S8	1650.	12.17	186.	47.	45.	1.12
+	2 COMBINED AT	S8C	2685.	12.17	327.	83.	80.	1.80
+	ROUTED TO	S8CR	2567.	12.33	327.	83.	80.	1.80
+	4 COMBINED AT	S10C	9741.	12.50	2042.	520.	501.	12.66
+	ROUTED TO	S10R	9693.	12.67	2042.	520.	501.	12.66
+	HYDROGRAPH AT	S13	1734.	12.17	249.	71.	69.	1.27
+	HYDROGRAPH AT	S11	1161.	12.17	153.	38.	37.	.92
+	ROUTED TO	S11R	1104.	12.42	153.	38.	37.	.92
+	HYDROGRAPH AT	S12	1307.	12.25	190.	48.	46.	.91
+	2 COMBINED AT	S12C	2246.	12.33	338.	85.	82.	1.83
+	3 COMBINED AT	S13C	11811.	12.50	2536.	652.	629.	15.76
+	ROUTED TO	S13CR	11671.	12.67	2536.	652.	628.	15.76
+	HYDROGRAPH AT	S14	1336.	12.08	177.	52.	50.	.83
+	HYDROGRAPH AT	X1SUB	1216.	12.00	147.	40.	39.	.61
+	ROUTED TO	XROX2	1165.	12.17	147.	40.	39.	.61
+	HYDROGRAPH AT	X2SUB	824.	12.00	96.	25.	24.	.43
+	2 COMBINED AT	XCO-1	1933.	12.08	242.	65.	63.	1.04
+	ROUTED TO	XROX3	1772.	12.33	242.	65.	63.	1.04
+	HYDROGRAPH AT	X3SUB	1054.	12.08	119.	30.	29.	.56
+	2 COMBINED AT	XCO-2	2500.	12.17	358.	94.	91.	1.60
+	HYDROGRAPH AT	X4SUB	613.	12.00	69.	17.	17.	.28
+	2 COMBINED AT	XCO-3	2890.	12.08	424.	111.	107.	1.88
+	HYDROGRAPH AT	X5SUB	727.	12.00	69.	17.	17.	.38
+	2 COMBINED AT	XCO-4	3571.	12.08	491.	127.	122.	2.26
+	HYDROGRAPH AT	SUBC1	2369.	12.00	197.	49.	47.	1.26
+	ROUTED TO	CRO-1	1917.	12.50	197.	49.	47.	1.26
+	HYDROGRAPH AT	SUBC2	3033.	12.08	337.	84.	81.	2.19

+	HYDROGRAPH AT	SUBC3	1990.	12.08	194.	49.	47.	1.24
+	HYDROGRAPH AT	SUBC4	3948.	12.08	390.	97.	94.	2.54
+	ROUTED TO	CRO-2	3600.	12.33	390.	97.	94.	2.54
+	HYDROGRAPH AT	SUBC5	5426.	12.08	559.	147.	141.	3.39
+	2 COMBINED AT	CCO-1	7632.	12.08	925.	238.	230.	5.93
+	ROUTED TO	CRO-3	7189.	12.33	925.	238.	230.	5.93
+	4 COMBINED AT	CCO-2	10883.	12.25	1556.	396.	382.	10.62
+	ROUTED TO	CRO-4	10520.	12.50	1556.	396.	382.	10.62
+	HYDROGRAPH AT	SUBC7	2311.	12.00	293.	81.	78.	1.20
+	ROUTED TO	CRO-5	1901.	12.75	293.	81.	78.	1.20
+	HYDROGRAPH AT	SUBC8	2543.	12.08	382.	102.	99.	1.42
+	2 COMBINED AT	CCO-3	2818.	12.17	665.	181.	174.	2.62
+	3 COMBINED AT	CCO-4	13884.	12.50	2567.	666.	642.	15.50
+	ROUTED TO	CRO-6	13620.	12.67	2567.	666.	642.	15.50
+	HYDROGRAPH AT	SUBC9	915.	12.17	112.	29.	28.	.58
+	2 COMBINED AT	CCO-5	13747.	12.67	2659.	691.	665.	16.08
+	ROUTED TO	CLINER	13687.	12.75	2659.	691.	665.	16.08
+	3 COMBINED AT	S14C	24427.	12.67	5120.	1329.	1281.	32.67
+	ROUTED TO	S14CR	23990.	13.00	5120.	1329.	1281.	32.67
+	HYDROGRAPH AT	S15	1564.	12.17	209.	58.	55.	.99
+	ROUTED TO	S15R	1528.	12.25	209.	58.	55.	.99
+	HYDROGRAPH AT	R1	2636.	12.17	406.	111.	107.	1.56
+	ROUTED TO	RO-1	2487.	12.42	406.	111.	107.	1.56
+	HYDROGRAPH AT	R2	3120.	12.17	471.	128.	123.	1.98
+	2 COMBINED AT	CO-1	4800.	12.25	865.	235.	227.	3.54
+	ROUTED TO	RO-2	4536.	12.67	865.	235.	227.	3.54
+	HYDROGRAPH AT	R3	2074.	12.25	357.	103.	100.	1.59
+	2 COMBINED AT	CO-2	5624.	12.58	1206.	334.	322.	5.13
+	HYDROGRAPH AT	S16	1930.	12.08	208.	52.	50.	1.32
+	4 COMBINED AT	S16C	27332.	12.92	6394.	1682.	1620.	40.11

	ROUTED TO						
+	S16CR	26483.	13.42	6394.	1681.	1619.	40.11
	HYDROGRAPH AT						
+	S21	2946.	12.25	506.	127.	122.	2.22
	2 COMBINED AT						
+	S21C	26688.	13.33	6794.	1781.	1715.	42.33
	HYDROGRAPH AT						
+	S17	1422.	12.25	207.	52.	50.	1.03
	ROUTED TO						
+	S17R	1332.	12.58	207.	52.	50.	1.03
	HYDROGRAPH AT						
+	S18	2537.	12.25	397.	99.	96.	1.71
	2 COMBINED AT						
+	S18C	3343.	12.33	596.	149.	143.	2.74
	ROUTED TO						
+	S18CR	3305.	12.33	596.	149.	143.	2.74
	HYDROGRAPH AT						
+	S19	1368.	12.08	176.	45.	43.	.77
	2 COMBINED AT						
+	S19C	4239.	12.25	763.	192.	185.	3.51
	ROUTED TO						
+	S19CR	3991.	12.58	763.	192.	185.	3.51
	HYDROGRAPH AT						
+	S20	1900.	12.25	305.	79.	76.	1.27
	2 COMBINED AT						
+	S20C	5257.	12.42	1054.	267.	257.	4.78
	2 COMBINED AT						
+	S21C2	27733.	13.33	7634.	1994.	1920.	47.11
	ROUTED TO						
+	S21C2R	27283.	13.58	7634.	1993.	1920.	47.11
	HYDROGRAPH AT						
+	S22	1987.	12.17	238.	59.	57.	1.47
	2 COMBINED AT						
+	S22C	27283.	13.58	7824.	2040.	1965.	48.58
	ROUTED TO						
+	S22CR	26498.	14.17	7807.	2034.	1959.	48.58
	HYDROGRAPH AT						
+	S23	2027.	12.42	401.	100.	97.	1.72
	2 COMBINED AT						
+	S23C	26513.	14.17	8116.	2111.	2034.	50.30
	HYDROGRAPH AT						
+	U1	3481.	12.25	616.	161.	155.	2.53
	HYDROGRAPH AT						
+	U2	2119.	12.33	414.	107.	103.	1.60
	HYDROGRAPH AT						
+	U3	1138.	12.25	165.	44.	42.	.84
	3 COMBINED AT						
+	U3C	6584.	12.25	1170.	305.	294.	4.97
	ROUTED TO						
+	U3R	6303.	12.50	1170.	305.	294.	4.97
	HYDROGRAPH AT						
+	U4	3846.	12.25	548.	145.	140.	2.80
	2 COMBINED AT						
+	U4C	9151.	12.33	1662.	436.	420.	7.77
	ROUTED TO						
+	U4R	8782.	12.58	1662.	436.	420.	7.77
	HYDROGRAPH AT						
+	U5	3759.	12.33	565.	145.	139.	3.25
	2 COMBINED AT						
+	U5C	11462.	12.50	2153.	561.	541.	11.02

	ROUTED TO						
+	U5R	10980.	12.75	2153.	561.	541.	11.02
	HYDROGRAPH AT						
+	U6	1121.	12.08	152.	41.	39.	.70
	ROUTED TO						
+	U6R	1075.	12.17	152.	41.	39.	.70
	HYDROGRAPH AT						
+	U7	1991.	12.25	346.	87.	84.	1.47
	3 COMBINED AT						
+	U7C	12209.	12.67	2578.	671.	646.	13.19
	2 COMBINED AT						
+	CAP	26747.	14.17	10252.	2669.	2571.	63.49
	ROUTED TO						
+	CAPR2	26544.	14.33	10251.	2668.	2570.	63.49
	HYDROGRAPH AT						
+	S24	1113.	12.08	128.	32.	31.	.64
	2 COMBINED AT						
+	S24C	26544.	14.33	10353.	2694.	2594.	64.13

*** NORMAL END OF HEC-1 ***

Form 4

Riverine Hydraulic Analysis

FEDERAL EMERGENCY MANAGEMENT AGENCY **RIVERINE HYDRAULIC ANALYSIS**	O.M.B No. 3067-0148 Expires April 30, 2001

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2.25 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

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

Note: Fill out one form for each flooding source studied

Community Name: Maricopa County, Unincorporated Areas / Phoenix, City of

Flooding Source: Skunk Creek

Project Name/Identifier: Tramonto Master Planned Community

1. REACH TO BE REVISED

Describe the limits of the revision OR submit a copy of the FIRM with the revision area clearly highlighted.
Copy of FIRM(s) attached depicting area of the revision (highlighted, or circled)? ☒ Yes

Downstream Limit: Carefree Highway

Upstream Limit: Cloud Road

2. MODELS SUBMITTED

Requirements: for areas which have detailed flooding:	**for areas which do not have detailed flooding:**
Full input and output listings along with files on diskette for each of the models listed below (items 1-4) and a summary of the source of input parameters used in the models must be provided. The summary must include a description of any changes made from model to model (e.g., Duplicate Effective model to Corrected Effective model). At a minimum, the Duplicate Effective (item 1) and the Revised or Post-Project Conditions (item 4) models must be submitted. See instructions for directions on when other models may be required.	Only the 100-year (Base) flood profile is required. A hydraulic model is not required for areas which do not have detailed flooding; however, BFEs may not be added to the revised FIRM. If a hydraulic model is developed for the area, items 3 and 4 described below must be submitted.

If hydraulic models are not developed, hydraulic analyses (including all calculations) for existing or pre-project conditions and revised or post-project conditions must be submitted.

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

2. Corrected Effective Model ☒ **Natural** **File Name** REVDIST.DAT ☒ **Floodway** **File Name** REVDIST.DAT
The Corrected Effective model is the model that corrects any errors that occur in the Duplicate Effective model, adds any additional cross sections to the Duplicate Effective model, or incorporates more detailed topographic information than that used in the currently effective model. The Correctly Effective model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.

3. Existing or Pre-Project Conditions Model ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____
The Duplicate Effective model or Corrective Effective model is modified to produce the Existing or Pre-Project Conditions model to reflect any modifications that have occurred within the floodplain since the date of the Effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the Corrected Effective model or Duplicate Effective model.

4. Revised or Post-Project Conditions Model ☒ **Natural** **File Name** LOMR.DAT ☒ **Floodway** **File Name** LOMR.DAT
The Existing or Pre-Project Conditions model (or Duplicate Effective model or Corrected Effective model, as appropriate) is revised to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for the proposed project this model must reflect proposed conditions.

5. Other – Please attach a sheet describing all other models submitted along with the file names. ☐ **Natural** ☐ **Floodway**

PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS

3. STARTING WATER-SURFACE ELEVATIONS

Explain how they were determined. Explanation Attached? ☒ Yes ☐ No

NOTE: If the effective study is an approximate study, the slope/area method is recommended.
For detailed analysis studies, using a known water-surface elevation is recommended.

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

If the results indicate any of the following, attach an explanation - to this form, or to the hydraulic model printout- as to the reasonableness of the situation.

☐ Supercritical depth ☐ Critical Depth ☐ Drawdowns ☐ Negative Floodway Surcharges

☐ Floodway Surcharges Greater Than Maximum Allowed by Community/State

☐ Water surface elevations higher than the end points of cross sections.

☒ Floodway discharge is different than the Natural 100-year (base) flood discharge.

☒ Project causes 100-year floodplain or floodway elevations to increase (state if increases are located off the requester's property)

Explanation attached with Form ☒ **Explanation provided on attached printout** ☐

If Hydraulic model used is HEC-2, has it been checked with FEMA'S CHECK-2 computer program? ☐ **Yes** ☒ **No**
(see instructions for information on how to obtain CHECK-2)

5. REVISED FIRM/FBFM AND FLOOD PROFILES

1. Profile Transition

a. 100-Year Water-Surface Elevations - indicate the difference in water surface elevations where the project 100-year elevations tie into the existing 100-year water surface elevations at each end of the project.

Downstream End 16.87 within 0.88 (feet) Upstream End 17.95 within 0.73 (feet)
Cross-Section # *Cross-Section #*

b. Floodway Elevations - indicate the difference in water surface elevations where the project floodway elevations tie into the existing floodway water surface elevations at each end of the project.

Downstream End 16.87 within 0.88 (feet) Upstream End 17.95 within 0.25 (feet)
Cross-Section # *Cross-Section #*

c. Floodway widths - indicate the difference in floodway widths where the project floodway widths tie into the existing floodway width at each end of the project.

Downstream End 16.87 within 7 (feet) Upstream End 17.95 within 26 (feet)
Cross-Section # *Cross-Section #*

2. Profile Checklist (check box if information has been provided on profile)

The following information (unless in parentheses) must be included at the same scale as the existing profiles for this project:

☒ Stream Name ☒ Community Name ☐ Corporate Limits labeled ☐ Study limits labeled

☐ Confluences labeled ☐ Channel Stationing ☐ Streambed profiled ☐ Cross Sections labeled

☒ Horizontal/Vertical Scales indicated ☒ 100-year elevs profiled*

☒ Road Crossings ☐ Labeled ☐ Low Chord Elevations ☐ Top of Road Elevations

*All recurrence intervals in the effective study must also be profiled.

Floodway Data Table

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

Floodway Data Table Attached ☒ **Yes** ☐ **Not Required**

Form 4: Riverine Hydraulic Analysis

Section 2. Models Submitted

The Duplicate Effective Model, DIST.DAT, has not changed since the CLOMR submittal.

The Corrected Effective Model, REVDIST.DAT, has changed since the CLOMR submittal. The Carefree Highway Bridge geometry was updated with data from a survey dated October 6, 2000, and as-built plans.

The Post-Project Conditions Model is LOMR.DAT. Revisions were made to reflect the as-built conditions through Tramonto. Floodplain encroachment locations were modified along the west bank of Skunk Creek per the bank protection/stabilization plans, and along the east bank of Skunk Creek per the individual parcel plans. Bank stabilization and parcel plan sets are included in this submittal. The only change to the LOMR.DAT model since the CLOMR submittal is updated Carefree Highway Bridge geometry. The bridge geometry was updated with data from a survey dated October 6, 2000, and as-built plans.

Section 5. Revised FIRM/FBFM and Flood Profiles

Following are tables showing the profile transition and floodway data table information. Included in this submittal are the revised Flood Profile maps for Skunk Creek.

Item 1: Profile Transition

Cross-Section	Description	Corrected Effective Model REVDIST.DAT	Post-Project Conditions Model LOMR.DAT	Difference
16.87	100-Year Water Surface	1679.96	1680.84	0.88
	Floodway Elevation	1679.96	1680.84	0.88
	Floodway Width	395*	402*	7
17.95	100-Year Water Surface	1729.77	1730.50	0.73
	Floodway Elevation	1730.26	1730.51	0.25
	Floodway Width	750	776	26

* Actual mapped width. HEC-2 output shows widths at the 45-degree Carefree Highway Bridge skew of 279 for REVDIST.DAT and 284 for LOMR.DAT.

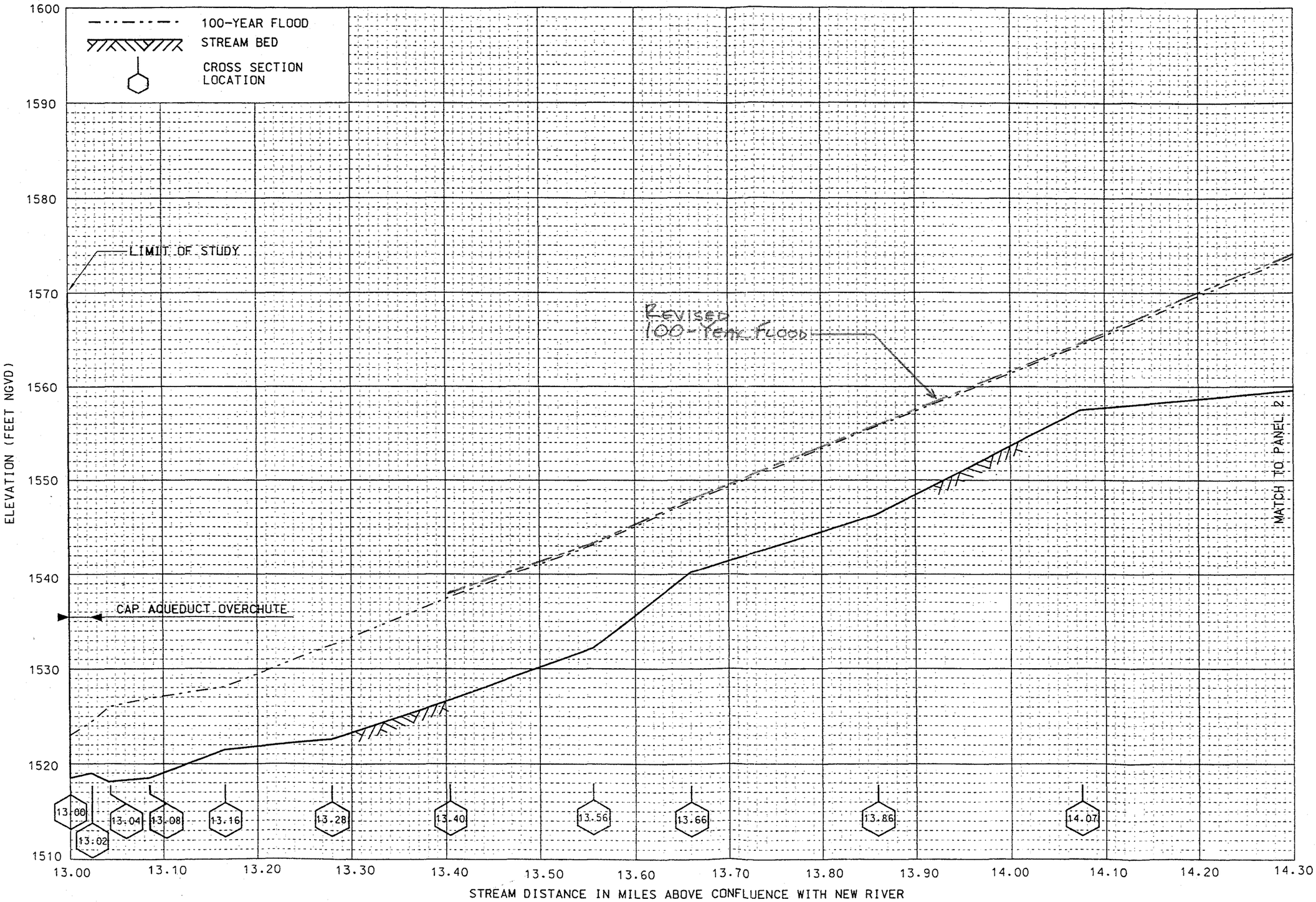
Form 4: Riverine Hydraulic Analysis

Section 5. Revised FIRM/FBFM and Flood Profiles (Cont'd.)

Item 2: Floodway Data Table – Cloud Road to Carefree Highway (from LOMR.OUT)

Skunk Creek Cross-Section I.D.	Revised Conditions Floodway			Base Flood Water Surface Elevation		
	Width (Feet)	Section Area (Square Feet)	Mean Velocity (Feet Per Second)	Revised Conditions FP (Feet)	Revised Conditions FW (Feet)	Increase (Feet)
16.87	402*	2387	11.4	1680.84	1680.84	0.00
16.96	426	2137	12.8	1684.88	1684.88	0.00
17.06	820	3313	8.2	1689.87	1690.24	0.37
17.18	880	2713	10.1	1695.24	1695.19	-0.05
17.30	907	3837	7.1	1701.39	1701.48	0.09
17.39	713	2819	9.7	1705.16	1705.16	0.00
17.48	851	3392	8.0	1709.83	1709.84	0.01
17.57	747	3084	8.9	1713.84	1713.88	0.04
17.65	846	3839	7.1	1717.56	1717.65	0.09
17.78	936	4163	6.6	1722.50	1722.49	-0.01
17.84	916	3125	8.7	1724.75	1724.75	0.00
17.95	776	3366	8.1	1730.50	1730.51	0.01

* Actual mapped width. HEC-2 output shows width at the 45-degree Carefree Highway Bridge skew of 284 feet.



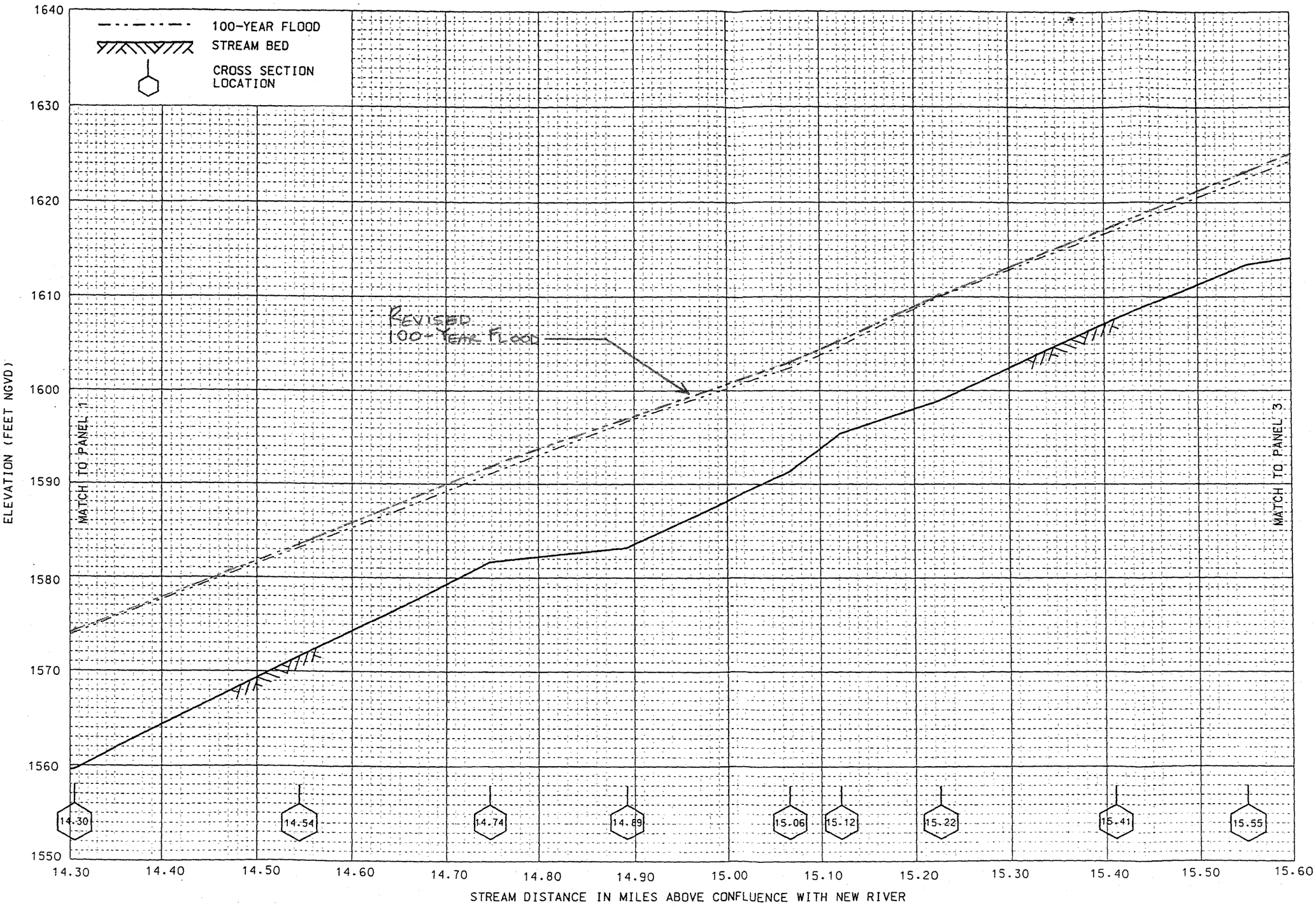
FLOOD PROFILES

SKUNK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

PANEL 1



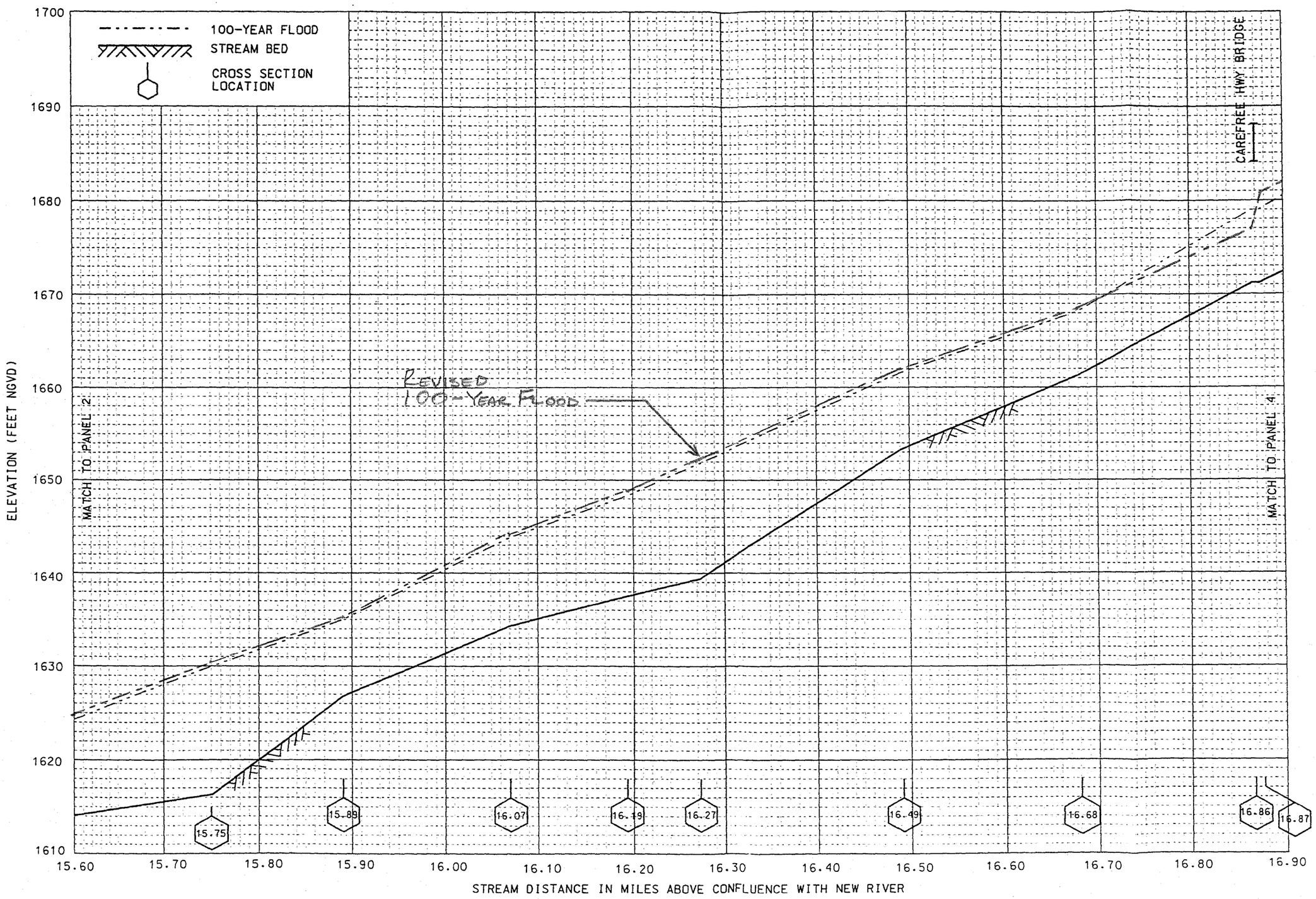
FLOOD PROFILES

SKUNK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

PANEL 2



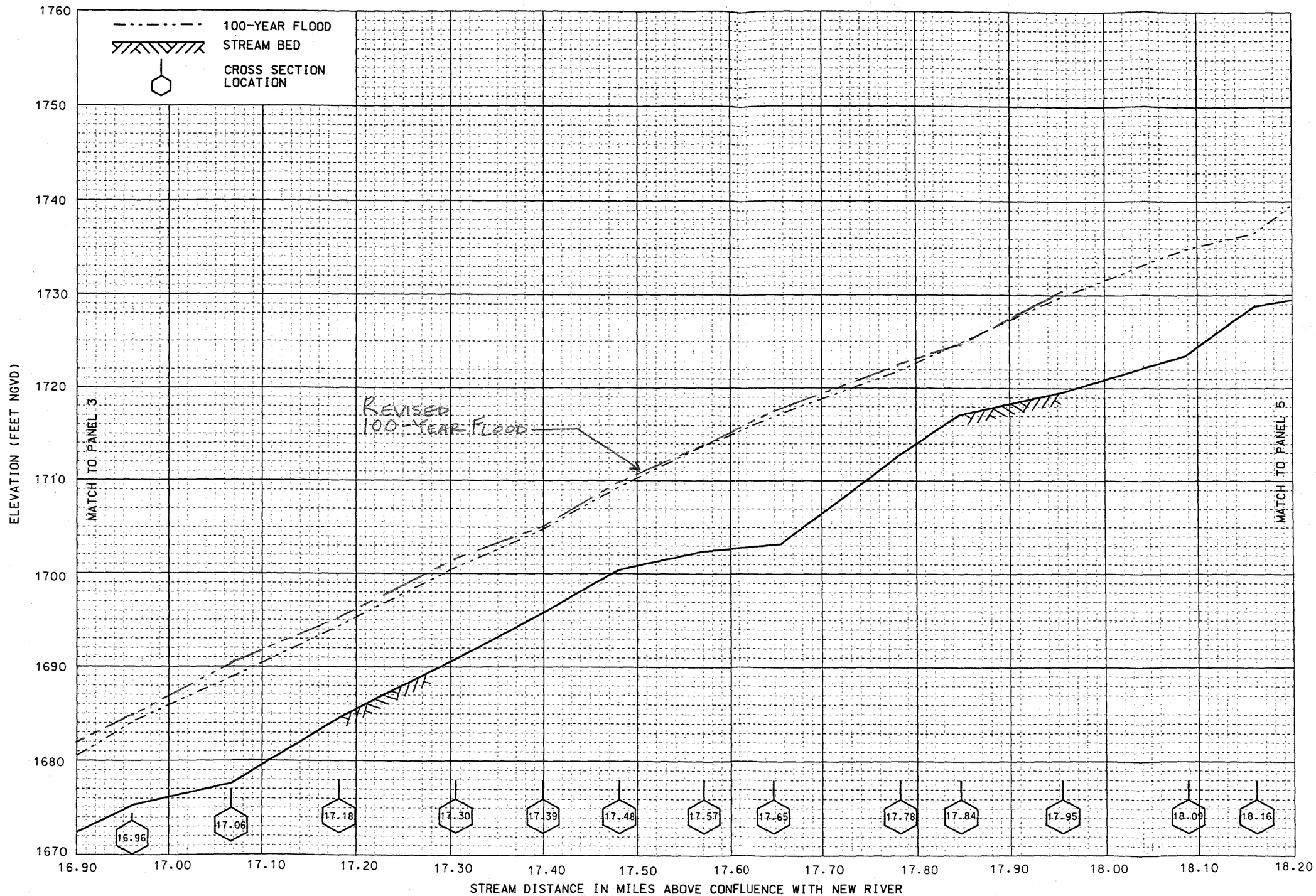
FLOOD PROFILES

SKUNK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

PANEL 3



FLOOD PROFILES

SKUNK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

PANEL 4

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    10OCT00    TIME   10:13:51 *
 *****************************************
```

```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
```

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

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1
   10OCT00      10:13:51                                                                    PAGE    1
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THIS RUN EXECUTED 10OCT00 10:13:51

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

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

REVISED EFFECTIVE
CONDITIONS
REVDIST.DAT

```
        REVISED EFFECTIVE MODEL FOR SKUNK CREEK THROUGH TRAMONTO

        PREPARED BY HOSKIN ENGINEERING CONSULTANTS, INC.
        FILENAME:        REVDIST.DAT

        MODIFICATIONS MADE TO THE EFFECTIVE MODEL
        BY HOSKIN ENGINEERING CONSULTANTS, INC.:
        1.CAREFREE HIGHWAY BRIDGE DATA MODIFIED TO REFLECT AS-BUILT PLANS
          AND SURVEY DATA 10-6-00.

        COMPLETE HEC-2 MODEL FOR ENTIRE SKUNK CREEK FLOODPLAIN DELINEATION STUDY
        HEC ANALYSIS INCLUDES SECTIONS 13.00 TO 17.95 (FLOODPLAIN ANALYSIS ONLY)
        MONTGOMERY WATSON ANALYSIS INCLUDES SECTIONS 18.09 TO 20.62 AND 22.96 TO
        CASTRO FLEET ANALYSIS (DEL WEBB) INCLUDES SECTIONS 20.64 TO 22.95


 SPLIT FLOW BEING PERFORMED


 SF      SPLIT FLOW FROM SECTIONS 13.02 TO 13.28


 TW      I-17 SPLIT FLOW
         WEIR FLOW OCCURS ALONG I-17 BETWEEN CROSS-SECTIONS 13.02 & 13.28
         FLOW WEIRS OVER THE NORTH BOUND LANES OF I-17 AND ALSO OVER THE
         EMBANKMENT INTO THE CENTRAL ARIZONA PROJECT CANAL
 WS    11   13.02   13.28      -1     2.6
 WC     0  1527.2     490  1526.1     725    1526     780  1524.5     830    1526
 WC   855  1526.7     995    1528    1230    1530    1515    1532    1750    1534
 WC  1840  1534.5
1
   10OCT00      10:13:51                                                                    PAGE    2


 T1      SKUNK CREEK FLOODPLAIN AND FLOODWAY DELINEATION (METHOD 1)
 T2      100-YEAR FREQUENCY            DATE:  FEBRUARY 1998
 T2      RUN INCORPORATING FCDMC'S AND FEMA'S REVISIONS AT NEW RIVER ROAD BRIDGE
 T3      MONT. WAT. AND HEC

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                                                                  1522.96

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1                  -1


 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        43         1         8        42         3        61         2        55        26
      56        39        38        38        53         4        54       115

 J5  LPRNT    NUMSEC                    ********REQUESTED SECTION NUMBERS********
```

```
-10       -10
      SPLIT FLOW ANALYSES AT CAP CANAL & CAREFREE HWY
      NO FLOODWAY ANALYSIS PERFORMED FOR CROSS SECTIONS 13.00 TO 13.28
      DUE TO WEIR FLOW AND PONDING OF WATER UPSTREAM OF THE CAP CANAL BERM.
      THE FLOODWAY CONCEPT IS NOT APPLICABLE FOR THIS REACH.

QT        2      15700      15700
NC     .025       .025       .025         .3          .5
ET                 9.1        9.1                                                                  9820       10065
      DOWNSTREAM OF BRINK OF CAP OVERCHUTE NO.1 (BOR STA 470+80)
      OVERFLOW DISCHARGE HAS BEEN ADJUSTED TO ACCOUNT FOR SPLIT FLOW TO CAP
      OVERCHUTE NO.2 (BOR STA 492+04)
X1    13.00          8       9820      10065
GR    1527.0       7780     1518.5     7780.5     1518.5     7939.5     1527.0       7940     1527.0       9820
GR    1518.5     9820.5     1518.5    10064.5     1527.0      10065

ET                 9.1        9.1                                                                  9820       10065
      UPSTREAM ENTRANCE TO CAP OVERCUTE NO.1
X1    13.02          8       9820      10065        120        120        120
GR    1527.0       7780       1519     7780.5       1519     7939.5     1527.0       7940     1527.0       9820
GR     1519      9820.5       1519    10064.5     1527.0      10065

NC      .04        .04        .04         .3          .5
ET                 9.1        9.1                                                                  9537       10350
X1    13.04         77       9721      10130        100        100        100
GR    1531.2       7311     1526.9       7365     1526.6       7377     1527.8       7428       1527       7475
GR    1526.6       7516     1520.1       7540     1519.5       7577     1519.3       7631     1519.6       7648
GR    1518.7       7682       1519       7704     1518.1       7758     1518.4       7790     1520.6       7803
GR    1526.7       7829     1527.1       7840     1526.9       7898     1526.2       7917       1531       7961
GR    1532.2       7999       1532       8035     1532.1       8067     1532.4       8106     1537.1       8125
GR    1532.3       8139     1533.8       8206     1533.4       8257     1532.9       8297     1532.3       8355
GR    1532.9       8404     1533.1       8450     1533.5       8518     1533.5       8547     1533.9       8592
1
   10OCT00      10:13:51                                                                                    PAGE    3

GR    1534.2       8649     1533.7       8711     1532.6       8807     1532.4       8944     1532.6       8993
GR      1533       9051     1532.4       9144     1533.9       9163     1536.3       9206     1537.1       9230
GR    1536.6       9261     1535.6       9288     1533.9       9315     1532.8       9358     1532.3       9408
GR    1532.3       9438     1532.1       9481     1529.4       9537     1527.9       9567     1527.1       9596
GR    1527.1       9632     1527.7       9669     1527.5       9710       1528       9721     1522.3       9749
GR    1520.2       9797     1519.6       9890     1520.1       9931     1521.2       9949     1520.1       9966
GR    1518.8       9976     1519.8      10027     1520.7      10082     1521.2      10108     1527.1      10130
GR    1526.8      10162     1526.5      10210       1527      10249     1527.4      10274     1527.5      10325
GR    1528.4      10355     1528.1      10398

NC     .069       .044       .050         .1          .3
ET                 9.1        9.1                                                                  9550       10679
X1    13.08         57       9615      10182        230        230        230
GR      1532       7732       1530       7863       1528       7933       1526       8065       1525       8114
GR    1524.5       8264       1524       8409     1522.2       8469     1522.5       8605     1522.2       8621
GR    1522.8       8775     1522.9       8828       1523       8862     1522.5       8926     1521.9       8955
GR    1520.4       8966     1522.5       9024     1524.4       9127       1524       9197     1524.1       9265
GR    1524.4       9305       1524       9386     1524.3       9436     1523.7       9447     1523.6       9533
GR    1524.2       9615     1523.4       9651     1522.6       9720     1520.4       9740     1522.2       9755
GR    1522.9       9781     1524.6       9805     1520.9       9821       1521       9836     1522.2       9847
GR      1523       9886     1522.2       9978     1518.5       9992     1518.2      10002     1518.8      10008
GR    1522.4      10023       1522      10070     1521.1      10078       1522      10090       1522      10106
GR      1520      10131     1521.5      10160     1523.5      10182     1523.9      10210     1524.3      10274
GR    1524.7      10346       1526      10460     1525.8      10512     1524.4      10555     1524.5      10575
GR      1526      10616       1528      10679

NC     .038       .042       .052         .1          .3
ET                 9.1        9.1                                                                  9421       10816
      NEW CROSS SECTION:  GR CARD DATA DEVELOPED FROM TOPOGRAPHIC MAPS
X1    13.16         53       9953      10288        420        425        421
GR      1534       7863       1532       8128       1530       8316       1528       8551     1526.5       8641
GR      1528       8791     1528.3       8868       1528       8888       1526       8946       1525       9139
GR      1526       9169     1526.2       9219       1526       9255     1525.3       9389       1526       9405
GR    1526.5       9421       1526       9442     1525.5       9459       1526       9481     1526.4       9632
GR      1526       9721       1525       9736       1526       9751       1528       9929     1528.3       9936
GR      1528       9943       1526       9953       1524       9963       1522       9981     1521.5       9991
GR      1522      10001       1524      10043     1524.5      10093       1524      10148       1523      10163
GR      1524      10215       1523      10220       1524      10225       1525      10235       1524      10245
GR    1523.2      10250       1524      10255       1526      10273     1526.2      10288       1526      10303
GR    1525.8      10323       1526      10349       1528      10689     1528.4      10744       1528      10774
GR    1527.5      10784       1528      10793     1529.8      10816
      CROSS-SECTION AT WHICH FLOWS TO CAP OVERCHUTES 1 AND 2 RECOMBINE.
      WSEL MATCHES AT THIS CROSS-SECTION

ET                 9.1        9.1                                                                  9537       10802
X1    13.28         65       9671      10110        390        610        600
GR      1536       8217     1534.9       8297     1534.2       8552     1534.3       8677       1534       8812
GR      1532       8979       1530       9107     1529.3       9165       1530       9205       1532       9255
GR    1532.2       9337     1531.5       9390     1531.5       9439     1530.1       9484     1525.7       9507
GR    1526.0       9523     1529.8       9537     1530.1       9605     1530.9       9671     1530.2       9682
GR    1530.4       9709     1531.2       9726     1531.3       9776     1530.4       9840     1529.7       9851
GR    1530.9       9901     1531.6       9962     1530.6       9975     1522.9       9991     1522.6      10000
GR    1522.9      10034     1530.4      10052     1530.6      10083     1527.4      10097     1531.2      10110
```

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GR   1531.0      10143     1531.2      10169      1532.3      10193      1532.9      10222      1532.2      10250
1
   10OCT00      10:13:51                                                                                          PAGE    4

GR   1532.2      10302     1532.2      10347      1531.6      10363      1532.0      10389      1531.1      10421
GR   1531.1      10475     1531.1      10529      1529.7      10581      1530.3      10594      1530.6      10634
GR   1530.0      10654     1530.5      10667      1529.9      10697      1531.7      10727      1532.2      10771
GR   1532.9      10840     1533.5      10884      1533.9      10956      1533.3      10961      1534.6      10969
GR   1534.9      10995     1534.0      11002      1533.5      11019      1534.9      11025      1535.4      11065

QT        2      23300      23300
ET                            7.1                                        9670      10602
X1    13.40         73      9670      10319        650        590       678.6
GR     1540       8520      1538       8940       1536       9105        1535       9155       1536       9197
GR   1536.2       9202      1536       9212     1535.9     9214.5        1536       9217     1536.5       9287
GR     1536       9359    1535.5       9414       1536       9474      1537.5       9641     1537.6       9670
GR   1536.4       9692    1534.6       9719     1527.4       9732      1530.8       9748     1532.1       9770
GR   1530.0       9782    1534.1       9800     1533.9       9820      1535.3       9840     1534.9       9849
GR   1535.8       9866    1536.5       9908     1537.1       9939      1536.9       9968     1535.2       9980
GR   1529.0       9994    1528.7      10000     1529.7      10010      1534.5      10033     1534.1      10063
GR   1534.3      10084    1534.3      10102     1536.0      10133      1536.4      10164     1535.0      10177
GR   1535.9      10194    1535.2      10209     1526.8      10246      1528.5      10252     1529.1      10269
GR   1537.1      10289    1537.5      10319     1536.6      10361      1535.1      10379     1535.3      10395
GR   1536.0      10422    1535.1      10447     1535.7      10465      1535.8      10514     1535.1      10539
GR   1535.0      10600    1535.4      10653     1535.5      10687      1535.0      10726     1534.3      10744
GR   1534.4      10772    1535.1      10797     1534.7      10833      1535.5      10874     1535.5      10910
GR   1535.1      10944    1534.7      11001     1535.1      11027      1539.0      11043     1538.8      11070
GR   1537.4      11080    1540.1      11101     1539.6      11142

ET                            7.1                                        9236      10494
X1    13.55         79      9688      10494        740        850       787.3
GR   1544.6       8416    1544.5       8496     1543.9       8598      1543.5       8689     1542.8       8797
GR   1542.2       8877    1541.9       8929     1541.3       8950      1540.3       8963     1539.6       8985
GR   1540.1       8993    1540.1       9040     1539.8       9081      1540.4       9104     1540.0       9157
GR   1540.8       9241    1541.2       9311     1540.5       9346      1541.0       9443     1540.2       9451
GR   1541.2       9464    1541.0       9477     1541.9       9510      1542.7       9558     1543.1       9592
GR   1543.3       9645    1543.1       9688     1541.9       9715      1539.8       9736     1540.1       9742
GR   1538.2       9757    1537.4       9776     1532.2       9787      1535.6       9804     1540.7       9828
GR   1539.7       9836    1541.7       9855     1541.6       9877      1542.0       9897     1541.4       9930
GR   1541.8       9965    1535.8       9988     1535.2      10000      1538.4      10010     1540.8      10031
GR   1540.9      10045    1540.5      10054     1541.3      10065      1541.2      10098     1541.8      10123
GR   1541.3      10132    1542.7      10150     1541.1      10176      1539.5      10191     1538.7      10208
GR   1537.7      10219    1539.2      10233     1541.4      10262      1541.1      10270     1542.0      10283
GR   1542.3      10307    1541.4      10349     1537.3      10370      1537.9      10380     1537.0      10394
GR   1538.6      10403    1541.0      10432     1542.6      10456      1543.0      10494     1544.4      10550
GR   1544.5      10623    1545.0      10680     1545.2      10743      1544.8      10802     1544.6      10856
GR   1544.2      10907    1544.1      10973     1545.1      10985      1545.3      10993

ET                  9.1        7.1                                        9055      10482      8335      10646
X1    13.66         92      9477      10486        500        540       549.1
GR   1548.4       8244    1548.9       8287     1549.0       8335      1548.3       8352     1548.2       8399
GR   1548.3       8462    1548.0       8514     1547.5       8594      1546.9       8663     1546.0       8720
GR   1545.8       8738    1544.9       8780     1544.1       8828      1543.6       8914     1543.1       8917
GR   1543.7       8921    1544.0       8985     1544.6       9048      1545.1       9086     1545.3       9138
GR   1546.1       9173    1546.5       9234     1546.3       9275      1546.0       9318     1545.7       9360
GR   1545.3       9383    1545.1       9436     1544.5       9449      1545.0       9457     1544.1       9467
GR   1545.4       9477    1544.9       9492     1543.5       9512      1540.2       9528     1540.5       9540
GR   1542.2       9550    1546.6       9572     1546.4       9585      1542.7       9600     1542.8       9619
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GR   1543.3       9627    1542.4       9643     1543.1       9655      1546.0       9667     1546.6       9689
GR   1546.7       9709    1546.1       9717     1546.0       9736      1544.6       9744     1546.0       9753
GR   1545.3       9775    1546.1       9791     1546.1       9829      1547.5       9852     1547.5       9878
GR   1546.7       9894    1546.7       9941     1545.9       9956      1544.6       9988     1542.1      10000
GR   1542.3      10006    1543.9      10015     1543.0      10055      1543.5      10063     1546.5      10083
GR   1546.6      10108    1546.0      10119     1547.2      10133      1546.3      10145     1547.2      10160
GR   1546.2      10177    1546.6      10193     1546.1      10207      1546.4      10246     1546.8      10280
GR   1547.3      10324    1547.3      10357     1546.7      10379      1545.6      10392     1543.2      10408
GR   1543.9      10430    1542.9      10442     1542.6      10465      1548.6      10486     1549.3      10509
GR   1549.5      10557    1549.8      10592     1549.9      10646      1549.4      10686     1549.5      10727
GR   1549.4      10784    1549.5      10846

ET                  9.1        7.1                                        8708      10232      8212      10433
          CROSS-SECTION PROVIDED BY AERIAL MAPPER SKEWED TO CONTAIN FLOW
X1    13.86         90      9330      10042       1060       1050      1049.1
GR   1556.0       8212    1554.0       8550     1553.0       8600      1553.4       8617     1552.4       8685
GR   1551.6       8708    1551.5       8749     1550.6       8759      1551.7       8767     1552.1       8788
GR   1551.5       8817    1554.3       8863     1555.1       8895      1555.4       8908     1555.1       8935
GR   1555.0       8975    1555.5       9022     1556.1       9072      1556.9       9125     1557.1       9165
GR   1557.3       9223    1556.6       9242     1557.3       9263      1557.4       9298     1557.0       9319
GR   1556.1       9330    1553.5       9344     1552.5       9379      1551.4       9393     1552.9       9404
GR   1552.7       9416    1551.9       9420     1553.3       9429      1553.2       9446     1549.8       9464
GR   1549.3       9472    1549.8       9494     1553.0       9513      1553.6       9535     1553.4       9596
GR   1552.9       9605    1553.3       9613     1553.5       9634      1553.4       9666     1553.2       9716
GR   1552.5       9727    1553.4       9739     1552.6       9770      1553.6       9784     1553.4       9803
GR   1551.8       9819    1551.2       9831     1552.5       9842      1551.1       9855     1553.3       9864
GR   1553.3       9885    1551.8       9919     1549.0       9936      1549.0       9948     1551.6       9970
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GR   1550.4      9983     1547.6      9991     1546.3     10000     1551.6     10009     1554.6     10023
GR   1555.7     10042     1555.6     10083     1554.3     10149     1550.9     10159     1552.6     10171
GR   1554.4     10197     1554.7     10232     1556.0     10271     1557.0     10327     1557.5     10379
GR   1557.7     10433     1557.5     10477     1557.5     10546     1557.7     10596     1557.6     10656
GR   1557.4     10695     1557.1     10752     1556.8     10820     1556.5     10873     1556.1     10945
GR   1555.9     10962     1555.7     11006     1558.1     11035     1561.0     11054     1561.7     11092

ET                 9.1       7.1                                     8805     10529      8530     10608
        CROSS-SECTION PROVIDED BY AERIAL MAPPER SKEWED TO CONTAIN FLOW
X1    14.07        65      9879     10059      1050      1100     1134.1
GR   1565.4      8530      1564      8652      1562      8685     1560.7      8705     1560.7      8805
GR     1562      8920    1562.4      9043    1562.8      9116     1563.1      9185     1562.8      9201
GR   1562.8      9250    1563.3      9286    1563.7      9321     1563.4      9353     1562.5      9394
GR   1561.5      9417    1561.4      9462    1562.3      9530     1562.4      9554     1562.0      9566
GR   1562.0      9614    1562.3      9680    1563.1      9746     1563.6      9814     1564.0      9855
GR   1564.3      9879    1560.9      9898    1561.4      9904     1558.5      9924     1558.9      9938
GR   1558.9      9959    1557.5      9972    1557.5      9978     1558.5     10000     1562.0     10020
GR   1562.6     10040    1564.5     10059    1564.0     10077     1563.5     10125     1563.1     10151
GR   1562.6     10166    1562.7     10176    1562.2     10201     1563.1     10217     1563.0     10249
GR   1563.1     10300    1563.0     10338    1563.2     10381     1563.1     10396     1562.3     10404
GR   1563.1     10408    1563.1     10454    1563.1     10499     1564.1     10516     1565.5     10571
GR   1566.0     10608    1565.9     10656    1565.8     10710     1565.6     10758     1564.7     10813
GR   1564.3     10848    1564.8     10873    1565.1     10923     1570.0     10950     1570.8     10989

        The following GR record has been modified as per discussion with the
        FEMA technical evaluator. From station 8450 to station 9500, the
        elevations are read from the topographic map. From station 9563 to
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        station 11361, the elevations remain the same as provided by the
        Aerial Mapping Company, Inc (AMCI) (March 17, 1998).

ET                           7.1                                     9210     10160
X1    14.30        73      9923     10027      1010      1210     1213.6
GR   1576.2      8450    1575.9      8550    1574.1      8650     1573.7      8750     1573.5      8850
GR   1573.4      8950    1573.3      9050    1572.5      9150     1572.5      9250     1571.9      9350
GR   1571.9      9450    1573.5      9500    1573.8      9563     1574.2      9626     1573.5      9652
GR   1573.1      9672    1573.8      9707    1573.7      9731     1573.8      9769     1573.2      9788
GR   1573.2      9836    1572.9      9878    1572.4      9906     1571.6      9923     1570.4      9941
GR   1565.1      9961    1565.2      9967    1560.0      9973     1560.3      9983     1559.6     10000
GR   1566.5     10011    1570.0     10027    1570.1     10045     1569.4     10052     1570.1     10062
GR   1571.0     10097    1571.2     10131    1571.1     10157     1572.5     10191     1572.9     10211
GR   1572.6     10251    1572.3     10297    1572.5     10351     1572.2     10386     1571.8     10410
GR   1572.1     10417    1571.7     10437    1571.7     10448     1571.5     10480     1571.6     10515
GR   1572.7     10552    1572.9     10571    1572.7     10608     1572.4     10642     1571.4     10681
GR   1571.6     10735    1571.9     10765    1572.0     10792     1571.2     10804     1571.8     10811
GR   1573.2     10852    1575.9     10899    1577.1     10931     1577.9     10967     1578.4     10992
GR   1578.7     11034    1578.6     11096    1578.4     11179     1578.2     11233     1577.7     11273
GR   1582.1     11295    1582.8     11336    1577.8     11361

ET                 9.1       7.1                                     9950     10480      9283     10588
X1    14.54        65      9950     10480      1410      1150     1273.2
GR   1584.8      8984    1584.8      9072    1584.7      9160     1584.7      9220     1584.9      9283
GR   1584.7      9355    1584.5      9421    1584.2      9499     1583.8      9525     1583.4      9546
GR   1583.7      9563    1583.4      9621    1583.8      9683     1583.0      9715     1583.4      9741
GR   1582.9      9767    1583.5      9798    1583.9      9818     1584.2      9845     1584.0      9892
GR   1583.2      9926    1581.9      9950    1574.4      9970     1574.0      9986     1571.6     10000
GR   1576.7     10045    1574.9     10066    1577.8     10080     1579.5     10110     1577.7     10136
GR   1578.5     10153    1578.1     10177    1576.3     10199     1576.9     10222     1576.6     10259
GR   1577.7     10273    1577.7     10287    1578.9     10306     1578.4     10354     1578.1     10384
GR   1577.0     10410    1578.1     10416    1578.3     10428     1577.7     10437     1580.1     10458
GR   1583.0     10480    1583.8     10495    1584.2     10523     1584.8     10556     1585.0     10588
GR   1584.4     10623    1583.5     10669    1583.4     10695     1583.4     10738     1583.8     10762
GR   1584.1     10808    1583.9     10821    1583.9     10881     1584.2     10936     1584.2     10999
GR   1584.2     11072    1584.3     11131    1584.1     11205     1584.2     11269     1584.9     11381

NC     .059      .042      .039        .1        .3
        CROSS-SECTION PROVIDED BY AERIAL MAPPER SKEWED TO CONTAIN FLOW
ET                           7.1                                     9720     10076
X1    14.74        37      9976     10076      1180       970     1070.9
GR   1594.6      9253    1594.6      9384    1593.5      9435     1592.2      9495     1591.7      9526
GR   1590.5      9540    1589.6      9564    1589.3      9615     1589.0      9650     1587.4      9663
GR   1587.4      9705    1587.0      9720    1588.5      9769     1588.3      9791     1587.1      9809
GR   1586.1      9837    1585.5      9853    1585.1      9871     1585.5      9891     1584.9      9917
GR   1585.0      9952    1587.3      9976    1581.8      9988     1581.8     10000     1582.1     10024
GR   1581.7     10057    1588.3     10076    1588.3     10095     1590.2     10125     1591.0     10145
GR   1591.6     10172    1591.5     10203    1591.5     10225     1591.6     10248     1591.7     10375
GR     1592     10635    1592.6     10690
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ET                           7.1                                     9620     10059
X1    14.89        49      9938     10059       700       760      756.4
GR   1601.5      9234    1601.3      9270    1599.7      9318     1598.4      9337     1597.4      9377
GR   1597.0      9406    1596.9      9434    1597.5      9460     1598.4      9477     1598.5      9494
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GR	1597.0	9511	1595.3	9549	1593.2	9572	1593.5	9577	1590.8	9587
GR	1591.2	9606	1591.0	9626	1592.0	9633	1593.0	9659	1592.7	9671
GR	1593.5	9683	1593.6	9702	1592.4	9714	1592.5	9741	1592.4	9775
GR	1592.7	9804	1591.3	9817	1591.4	9847	1591.8	9869	1592.2	9890
GR	1593.0	9906	1592.5	9927	1591.9	9938	1589.9	9949	1589.9	9956
GR	1587.2	9979	1583.3	9995	1583.2	10000	1583.3	10013	1583.8	10032
GR	1588.0	10042	1596.4	10059	1597.2	10087	1598.2	10101	1599.3	10141
GR	1599.6	10186	1600.2	10236	1600.4	10284	1600.5	10319		
ET			7.1				9972	10390		
X1	15.06	62	9972	10390	670	950	930.3			
GR	1603.3	9119	1603.9	9192	1604.4	9267	1604.9	9349	1605.9	9431
GR	1606.0	9497	1606.1	9575	1606.3	9620	1606.6	9663	1606.5	9685
GR	1605.7	9707	1603.0	9733	1599.7	9751	1599.0	9759	1599.5	9764
GR	1600.1	9782	1600.6	9800	1600.6	9836	1601.4	9872	1602.1	9917
GR	1602.2	9972	1597.9	9988	1593.0	10000	1591.5	10010	1591.3	10020
GR	1594.5	10043	1593.9	10060	1595.3	10070	1597.5	10089	1598.0	10109
GR	1597.8	10126	1595.7	10138	1596.7	10152	1600.2	10174	1600.1	10205
GR	1593.4	10229	1593.7	10246	1596.4	10268	1596.6	10283	1597.3	10298
GR	1597.8	10314	1597.1	10323	1598.4	10337	1597.4	10350	1600.0	10367
GR	1601.4	10390	1601.3	10411	1599.6	10441	1595.7	10453	1600.3	10470
GR	1600.7	10480	1602.7	10495	1603.6	10517	1605.1	10549	1606.0	10581
GR	1606.6	10621	1606.9	10667	1607.1	10713	1607.2	10776	1607.4	10855
GR	1607.4	10916	1607.6	10950						
ET		9.1	7.1				9975	10351	9503	10546
X1	15.12	61	9975	10351	255	330	283.6			
GR	1604.6	9081	1604.5	9136	1604.6	9184	1605.2	9236	1605.8	9313
GR	1606.1	9379	1606.4	9423	1606.8	9503	1606.7	9545	1606.5	9620
GR	1606.2	9665	1605.5	9703	1604.5	9754	1603.8	9762	1604.4	9792
GR	1603.5	9836	1603.5	9865	1602.9	9886	1603.3	9903	1603.9	9928
GR	1604.1	9975	1596.3	10000	1596.9	10009	1596.4	10015	1596.7	10032
GR	1595.8	10059	1600.2	10070	1601.3	10087	1601.7	10109	1602.2	10130
GR	1602.4	10144	1601.5	10156	1602.1	10176	1602.1	10205	1601.7	10213
GR	1602.2	10230	1602.8	10258	1595.4	10282	1596.7	10302	1597.2	10319
GR	1601.5	10351	1600.3	10370	1601.1	10378	1601.1	10387	1603.1	10417
GR	1603.4	10441	1603.1	10480	1602.9	10493	1603.8	10513	1604.1	10532
GR	1606.5	10546	1606.1	10564	1607.2	10587	1608.2	10621	1609.1	10657
GR	1609.8	10716	1610.4	10769	1610.7	10822	1611.1	10863	1611.2	10909
GR	1611	10955								
ET		9.1	7.1				9977	10348	9749	10672
X1	15.22	54	9977	10348	535	600	553.1			
GR	1609.2	9347	1609.6	9393	1610.2	9448	1610.9	9497	1611.3	9548
GR	1611.8	9619	1612.0	9694	1612.0	9749	1611.9	9816	1611.1	9893
GR	1610.5	9937	1609.1	9977	1599.9	9996	1599.4	10000	1599.2	10022
GR	1598.9	10041	1602.7	10057	1605.6	10077	1606.6	10091	1606.1	10113
GR	1606.8	10126	1607.7	10151	1607.9	10166	1606.7	10191	1606.0	10210
GR	1606.8	10234	1605.9	10242	1606.2	10249	1604.1	10260	1605.4	10269

GR	1605.1	10282	1602.0	10301	1601.5	10310	1601.9	10327	1607.8	10348
GR	1608.2	10374	1608.0	10413	1607.9	10439	1604.5	10461	1607.3	10480
GR	1607.9	10507	1609.1	10527	1611.0	10570	1612.3	10605	1613.6	10657
GR	1613.8	10672	1613.4	10708	1613.6	10752	1614.3	10797	1615.1	10850
GR	1615.6	10891	1616.3	10934	1616.8	10987	1617.2	11062		
ET			7.1				9979	10353		
X1	15.41	57	9979	10353	980	950	968.9			
GR	1618.0	9542	1618.6	9643	1618.9	9676	1620.7	9683	1619.0	9694
GR	1619.4	9751	1619.7	9787	1620.0	9830	1619.2	9867	1619.4	9907
GR	1619.7	9940	1618.7	9968	1615.1	9979	1609.8	9993	1609.2	10000
GR	1608.3	10009	1607.6	10021	1609.7	10027	1610.4	10043	1610.4	10053
GR	1611.1	10058	1612.8	10070	1613.1	10077	1611.8	10085	1612.0	10096
GR	1610.1	10106	1611.9	10113	1613.0	10124	1613.0	10135	1612.5	10157
GR	1611.8	10178	1612.0	10194	1610.2	10212	1610.9	10221	1610.4	10245
GR	1609.6	10257	1609.4	10282	1608.7	10297	1610.1	10310	1611.0	10324
GR	1611.0	10333	1614.7	10353	1618.6	10383	1620.1	10403	1620.5	10426
GR	1621.2	10440	1619.6	10464	1617.9	10479	1618.1	10496	1619.3	10517
GR	1620.0	10534	1621.0	10569	1622.0	10607	1622.6	10642	1622.9	10678
GR	1623.0	10732	1623.1	10769						
ET			7.1				9935	10182		
X1	15.55	46	9935	10147	730	550	755.3			
GR	1625.7	9335	1625.5	9408	1625.7	9486	1625.9	9510	1625.7	9532
GR	1626.2	9567	1627.0	9622	1628.0	9645	1627.1	9680	1626.7	9703
GR	1626.5	9731	1626.1	9761	1625.3	9790	1623.7	9822	1622.3	9835
GR	1618.7	9858	1619.5	9869	1619.7	9906	1619.5	9935	1618.8	9954
GR	1615.4	9972	1615.3	9982	1613.8	9991	1613.9	10000	1614.7	10030
GR	1615.2	10057	1614.9	10078	1613.4	10093	1614.5	10104	1617.5	10126
GR	1619.4	10147	1620.5	10184	1620.7	10222	1620.5	10247	1620.2	10266
GR	1619.4	10278	1618.9	10314	1619.4	10326	1620.0	10343	1624.2	10368
GR	1625.0	10381	1625.1	10410	1625.3	10453	1625.2	10483	1625.1	10525
GR	1625.0	10531								
ET			7.1				9477	10116		
X1	15.75	50	9977	10102	880	1030	1048.4			
GR	1633.1	9040	1633.1	9098	1632.7	9146	1632.0	9185	1632.0	9268

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GR   1631.5      9319     1630.5      9364     1630.7      9404     1629.9      9431     1626.7      9467
GR   1626.1      9481     1624.3      9500     1624.3      9515     1623.4      9534     1619.5      9549
GR   1619.5      9557     1622.4      9566     1624.1      9580     1624.8      9602     1625.6      9637
GR   1626.1      9689     1626.0      9712     1625.0      9736     1625.4      9751     1627.1      9769
GR   1628.7      9816     1628.8      9835     1627.8      9850     1628.0      9875     1628.6      9933
GR   1627.2      9944     1626.9      9963     1626.1      9967     1625.7      9977     1619.8     10000
GR   1620.1     10015     1621.2     10027     1621.5     10050     1616.7     10070     1616.3     10079
GR   1627.5     10102     1627.9     10116     1627.5     10121     1628.4     10138     1629.3     10174
GR   1630.3     10210     1631.2     10259     1631.4     10307     1631.7     10370     1631.7     10411

ET                          7.1                                     9817     10210
X1     15.89        58     9969     10210       700       730     738.4
GR   1636.6      9095     1637.0      9172     1636.9      9243     1637.2      9312     1637.1      9359
GR   1637.6      9398     1638.1      9428     1637.5      9460     1634.0      9490     1630.6      9517
GR   1631.6      9522     1631.8      9539     1631.4      9550     1631.6      9571     1632.6      9626
GR   1633.3      9676     1633.4      9714     1632.5      9744     1631.7      9775     1630.9      9809
GR   1629.2      9818     1629.2      9822     1630.6      9831     1631.6      9850     1632.4      9866
1
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GR   1632.6      9887     1632.1      9901     1636.5      9919     1635.9      9934     1633.3      9949
GR   1633.2      9969     1632.2      9981     1626.9     10000     1627.0     10011     1628.2     10018
GR   1627.9     10035     1626.8     10056     1626.8     10068     1630.8     10096     1630.7     10121
GR   1631.1     10172     1630.2     10182     1630.1     10194     1633.5     10210     1635.6     10224
GR   1636.1     10243     1636.9     10296     1637.0     10337     1637.2     10370     1637.1     10414
GR   1636.4     10440     1636.4     10469     1635.7     10477     1636.7     10492     1636.9     10535
GR   1637.6     10578     1637.2     10598     1637.2     10621

ET                          7.1                                     9830     10130
X1     16.07        42     9948     10130       980       840     950.3
GR   1648.3      9258     1648.3      9327     1648.3      9384     1648.1      9446     1648.0      9494
GR   1647.3      9536     1646.8      9578     1645.7      9614     1644.4      9631     1641.8      9648
GR   1641.5      9701     1641.1      9720     1638.4      9734     1637.8      9750     1639.7      9760
GR   1637.5      9781     1639.3      9791     1639.5      9822     1638.8      9854     1638.8      9877
GR   1639.4      9884     1640.1      9902     1640.1      9948     1638.8      9974     1634.8      9986
GR   1634.3     10000     1634.7     10037     1635.4     10044     1636.2     10071     1636.3     10089
GR   1635.5     10105     1635.5     10113     1643.3     10130     1644.3     10166     1645.7     10196
GR   1646.5     10222     1646.6     10267     1646.7     10315     1646.2     10350     1645.8     10392
GR   1645.6     10433     1645.5     10494

ET                          7.1                                     9600     10068
X1     16.19        54     9934     10077       540       660     645.6
GR   1652.0      9011     1652.5      9072     1652.6      9131     1652.8      9193     1652.7      9235
GR   1651.8      9260     1649.9      9281     1647.9      9326     1645.6      9377     1644.7      9385
GR   1645.2      9392     1646.1      9431     1646.6      9457     1646.3      9500     1645.4      9506
GR   1646.3      9515     1646.3      9539     1645.2      9548     1645.8      9556     1645.2      9574
GR   1643.7      9600     1641.7      9613     1640.9      9624     1641.8      9639     1641.7      9652
GR   1642.7      9664     1642.9      9687     1642.4      9695     1642.5      9709     1644.9      9730
GR   1646.3      9760     1646.9      9781     1647.2      9807     1646.2      9817     1645.8      9833
GR   1646.5      9855     1646.9      9881     1644.9      9907     1644.4      9934     1643.9      9950
GR   1638.9      9966     1639.7      9981     1637.5     10000     1637.8     10018     1637.9     10034
GR   1639.1     10048     1652.0     10077     1652.8     10101     1653.2     10139     1653.3     10192
GR   1653.0     10245     1652.7     10291     1652.4     10341     1652.2     10389

ET                          7.1                                     9760     10042
X1     16.27        50     9760     10045       400       425     422.1
GR   1655.1      9044     1655.3      9106     1655.6      9139     1655.9      9198     1656.1      9247
GR   1656.3      9283     1655.9      9326     1654.9      9357     1652.7      9394     1650.9      9404
GR   1650.4      9443     1650.5      9466     1650.7      9508     1648.7      9529     1648.6      9539
GR   1646.7      9553     1648.2      9572     1647.6      9588     1648.6      9600     1647.5      9623
GR   1649.0      9643     1650.5      9667     1650.2      9682     1650.3      9700     1649.6      9724
GR   1650.2      9760     1648.3      9771     1647.7      9798     1646.1      9816     1647.3      9835
GR   1647.9      9853     1649.6      9872     1649.9      9892     1648.8      9905     1648.9      9915
GR   1648.4      9923     1648.9      9947     1643.5      9967     1642.4      9990     1639.4     10000
GR   1639.8     10009     1640.0     10032     1654.9     10045     1655.9     10052     1656.0     10111
GR   1656.2     10158     1656.4     10207     1656.4     10255     1656.5     10316     1656.1     10391

ET                          7.1                                     9906     10320
X1     16.49        46     9906     10130      1190      1150    1153.6
GR   1667.1      9520     1667.6      9583     1667.4      9619     1665.7      9661     1665.1      9708
GR   1664.9      9776     1664.1      9808     1661.9      9841     1661.5      9871     1659.1      9888
GR   1659.2      9906     1653.7      9925     1653.9      9933     1653.8      9961     1653.3     10000
GR   1654.5     10018     1658.6     10040     1658.9     10066     1658.1     10073     1657.8     10095
GR   1659.1     10104     1659.5     10130     1653.7     10147     1654.0     10168     1653.7     10211
1
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GR   1655.7     10224     1655.2     10234     1655.3     10246     1656.7     10253     1657.7     10285
GR   1658.8     10316     1659.1     10335     1658.9     10371     1657.8     10413     1656.7     10420
GR   1657.4     10428     1657.6     10438     1656.8     10446     1657.6     10465     1659.8     10485
GR   1662.4     10512     1663.3     10532     1664.0     10582     1664.5     10619     1664.7     10669
GR   1664.8     10742

NC      .043      .057      .043        .1        .3
ET                          7.1                                     9940     10590
X1     16.68        51     9928     10590       940      1160     997.5
GR   1682.1      9880     1676.2      9916     1673.5      9928     1662.9      9950     1662.6      9956
GR   1666.6      9964     1666.2      9989     1662.3     10000     1662.8     10009     1662.7     10020
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GR   1664.5     10025     1665.2     10043     1665.3     10076     1664.9     10100     1662.9     10107
GR   1662.9     10120     1661.5     10135     1665.1     10142     1665.4     10161     1664.6     10168
GR   1664.2     10183     1664.5     10192     1663.7     10218     1662.3     10230     1661.7     10247
GR   1662.9     10262     1664.5     10302     1664.0     10308     1663.9     10353     1664.0     10390
GR   1663.6     10437     1663.5     10463     1662.9     10470     1663.5     10479     1662.7     10511
GR   1661.8     10530     1661.3     10540     1661.3     10553     1662.3     10569     1666.8     10590
GR   1675.2     10612     1674.8     10641     1675.2     10677     1675.4     10718     1675.4     10765
GR   1675.3     10821     1675.4     10870     1675.6     10900     1675.6     10938     1676.0     10964
GR   1676.0     11005

QT        2     23700     23700
NC     .059      .042      .033        .3         .5

         DOWNSTREAM FACE OF CAREFREE HIGHWAY BRIDGE.
         BRIDGE OPENING ADJUSTED BY FACTOR OF 0.707 TO ACCOUNT FOR
         45 DEGREE SKEW. DOWNSTREAM REACH LENGTHS REDUCED TO
         ACCOUNT FOR NEW CAREFREE HIGHWAY BRIDGE CONSTRUCTION.

X1    16.86         6      9893     10317      888.2      778.2      879.1      0.707
X3       10                                                                     1685       1685
GR   1685.3      9893   1671.01      9933    1670.42     10000    1669.51     10103    1669.11     10273
GR   1685.3     10317

         UPSTREAM FACE OF CAREFREE HIGHWAY BRIDGE.
         APPROXIMATELY 3,600 CFS DIVERTS OUT OF THE SKUNK CREEK WASH
         AT APPROXIMATELY 1,500 FEET WEST OF THE MAIN HIGHWAY BRIDGE.
         REFER TO SPLIT FLOW MODEL FROM CROSS-SECTION 16.87 TO CROSS-SECTION
         17.48. CROSS-SECTION 17.48 IS THE POINT OF FLOW MATCHING.
         BT BASED UPON "AS-BUILT" PLANS ADJUSTED TO ACCOUNT FOR MAPPED
         CONDITIONS.  DOWNSTREAM REACH LENGTHS FOR CROSS-SECTION 16.87
         INCREASED TO 146 FT TO REFLECT THE ADDITION OF THE SOUTHERN
         HALF OF THE CAREFREE HIGHWAY BRIDGE. PIER WIDTH OF 3.5 FEET
         MULTIPLIED BY DEBRIS FACTOR OF 2 = 3 PIERS AT 7-FOOT WIDTH EACH.

SB     1.05      1.56       2.7         0        232         21       2254          2    1670.71    1669.11
X1    16.87         6      9890     10320        146        146        146      0.707
X2        0         0         1    1681.1       1686          0          0       1.33      0.707
X3       10                                                                     1685       1685
BT        4      9885    1685.6                 9918     1685.7                10102       1686
BT    10337    1685.8
GR   1684.9      9890   1671.81      9943    1671.88     10000    1672.01     10108    1670.71     10272
GR   1684.1     10320
1
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QT        2     23700     27300
NC     .059      .042      .033        .1         .3

ET                 9.1       7.1                                     9914     10534      9914     11080
X1    16.96        91      9932     10342        410        600      456.2       1.0
GR   1685.3      9506    1684.9      9512    1684.9      9562     1683.3      9581    1679.9      9590
GR   1679.2      9614    1679.1      9652    1678.4      9689     1677.8      9727    1678.5      9746
GR   1678.3      9775    1677.8      9799    1676.9      9881     1678.1      9893    1684.2      9914
GR   1684.0      9932    1677.1      9949    1677.7      9972     1676.7      9985    1675.3      9992
GR   1675.3     10000    1675.7     10014    1675.4     10051     1677.6     10074    1678.1     10092
GR   1679.4     10108    1679.2     10136    1679.5     10173     1679.0     10202    1679.4     10220
GR   1679.0     10234    1679.5     10238    1684.2     10250     1684.6     10288    1685.3     10342
GR   1685.9     10384    1685.8     10428    1685.2     10463     1684.5     10482    1682.3     10514
GR   1681.4     10534    1682.1     10545    1682.5     10560     1684.2     10582    1684.8     10622
GR   1684.7     10649    1685.1     10672    1685.5     10706     1685.5     10737    1685.8     10779
GR   1686.3     10814    1686.5     10834    1688.1     10878     1688.8     10903    1688.8     10928
GR   1688.2     10985    1688.3     11016    1688.3     11054     1687.8     11117    1687.6     11181
GR   1687.7     11237    1687.6     11314    1687.4     11379     1687.5     11452    1687.3     11512
GR   1686.8     11591    1685.9     11650    1685.6     11686     1684.9     11712    1683.0     11765
GR   1682.4     11798    1682.4     11834    1682.7     11878     1683.4     11896    1683.6     11949
GR   1680.0     11976    1680.7     11994    1679.2     12001     1679.1     12011    1682.1     12028
GR   1683.5     12050    1682.9     12083    1683.6     12101     1682.7     12165    1683.5     12199
GR   1684.9     12244    1685.0     12310    1685.1     12378     1685.7     12455    1686.0     12564
GR     1686     12588

ET                 9.1       7.1                                     9650     10550      9451     10899
X1    17.06        93      9947     10090        630        440      566.0
GR   1693.1      9396    1693.1      9429    1694.6      9451      1694      9469    1692.7      9483
GR   1690.1      9500    1688.3      9528      1688      9575    1686.9      9591    1683.2      9614
GR     1682      9646    1686.4      9662    1685.8      9683    1686.6      9692      1686      9722
GR   1684.7      9734    1685.9      9754      1686      9791    1685.3      9818    1683.1      9830
GR   1682.1      9868    1683.2      9889    1682.9      9898    1684.9      9923    1685.2      9947
GR   1683.5      9956    1681.7      9985    1679.9      9992    1679.7     10008    1682.3     10014
GR   1681.8     10034    1677.9     10052    1677.6     10069    1679.1     10076    1685.3     10090
GR   1687.6     10108    1689.1     10133    1689.8     10173    1689.2     10243    1688.5     10314
GR   1687.9     10337    1688.6     10365    1687.9     10412    1687.8     10470      1687     10492
GR   1688.5     10529    1687.5     10540    1688.1     10559    1688.4     10598    1688.7     10647
GR   1689.7     10671    1690.4     10732    1690.6     10787    1690.7     10842      1691     10899
GR     1691     10962    1690.8     11019      1691     11074      1691     11123    1691.2     11172
GR   1690.8     11226    1690.6     11287    1690.5     11327    1690.2     11411    1689.7     11476
GR   1689.5     11519    1688.3     11564    1686.9     11573    1688.2     11581    1688.8     11596
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GR   1688.2     11658     1686.5     11695     1689.2     11753     1689.8     11799     1690.1     11858
GR   1690.9     11909     1691.5     11940     1691.7     11977     1691.2     12023     1690.3     12065
GR   1690.1     12087     1689.3     12097     1689.9     12114      1688      12120      1690      12131
GR   1686.6     12148     1686.5     12160     1690.5     12185     1690.5     12215     1688.7     12241
GR   1690.5     12265     1690.9     12303     1691.6     12342
1
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NC     .048       .048       .046        .1         .3
ET                 9.1        7.1                                    9697      10650       9590      10839
X1    17.18        93       9978      10254        610        510     600.8
GR     1696      9490     1697.3       9502     1697.3       9524    1696.7       9540     1697.5       9548
GR     1697      9590     1695.8       9637     1694.2       9670      1695       9680     1694.7       9691
GR   1693.9      9697     1694.6       9712     1694.2       9740    1693.4       9789     1692.3       9814
GR   1691.1      9826     1692.1       9838     1692.4       9859    1691.5       9904     1690.9       9962
GR   1690.9      9978     1685.7      10000     1685.6      10019    1686.6      10034     1689.1      10044
GR   1690.8     10065     1690.9      10082     1689.9      10128    1689.1      10138     1685.8      10148
GR   1685.8     10175     1684.6      10185     1686.3      10200    1685.1      10212     1689.4      10231
GR   1691.9     10254       1694      10284     1695.2      10319    1695.6      10362     1695.6      10400
GR   1695.2     10432     1694.1      10449     1693.9      10505    1693.6      10552     1693.7      10569
GR   1693.3     10602     1692.4      10634     1692.9      10656    1692.9      10706     1694.1      10761
GR     1695     10775     1695.7      10808     1695.8      10839    1695.6      10896     1695.6      10955
GR   1696.1     11003     1695.4      11058     1696.1      11085    1696.6      11116     1696.2      11167
GR     1696     11215     1695.8      11248     1695.3      11280    1694.9      11328     1694.4      11371
GR   1694.1     11424     1692.8      11469       1693      11486    1692.7      11520     1693.1      11534
GR   1693.3     11566     1693.5      11608     1693.4      11655    1693.5      11702     1693.7      11737
GR     1694     11780     1694.7      11819     1694.5      11858    1694.5      11904     1694.6      11941
GR   1695.7     11977       1696      12031     1696.1      12074    1696.5      12131     1696.8      12186
GR   1696.2     12231     1696.2      12258     1696.3      12297    1693.7      12312     1692.8      12326
GR   1693.9     12340     1692.6      12349     1695.5      12374

ET                 9.1        7.1                                    9670      10450       9451      11686
X1    17.30        94       9970      10156        630        580     644.4
GR   1709.9      9242     1708.2       9260     1706.5       9300    1705.2       9338     1703.1       9381
GR   1704.5      9413     1704.5       9451     1703.3       9493    1702.3       9521     1701.2       9570
GR     1700      9618       1699       9627     1699.2       9648      1698       9679       1699       9686
GR   1698.3      9717     1697.4       9761     1696.8       9765    1697.6       9773     1697.4       9803
GR   1697.5      9836     1699.4       9861     1699.4       9871    1697.6       9893     1697.6       9934
GR   1697.2      9970     1690.8       9995     1690.9      10000    1691.2      10028     1692.5      10058
GR   1692.2     10084     1695.8      10098     1697.2      10124    1697.9      10156     1696.5      10170
GR   1695.9     10182     1698.3      10199     1699.2      10229      1699      10247     1697.6      10259
GR   1697.2     10277     1697.9      10288       1697      10310    1694.3      10328     1697.2      10341
GR   1698.4     10367     1697.1      10374     1698.2      10390    1697.1      10454     1698.2      10462
GR   1698.5     10490     1699.1      10524     1700.2      10537    1700.1      10572       1701      10604
GR   1701.2     10633     1700.8      10688     1701.1      10722    1700.3      10800     1699.5      10880
GR   1699.2     10927     1699.5      10968     1699.4      11021    1699.9      11080     1699.9      11127
GR   1699.6     11158     1699.8      11178     1699.8      11210    1699.9      11261     1700.4      11306
GR   1700.7     11368     1700.6      11425     1700.8      11471    1700.7      11527     1700.6      11577
GR   1701.4     11617     1702.2      11650     1703.1      11686    1702.3      11714     1701.4      11754
GR   1700.3     11798     1699.6      11825     1696.6      11836    1697.3      11844     1697.8      11862
GR   1700.9     11875     1700.9      11915     1700.5      11939    1701.3      11973     1701.8      11995
GR     1702     12038     1702.2      12089     1702.2      12143    1702.3      12204

ET                 9.1        7.1                                    9785      10550       9731      11369
X1    17.39        73       9893      10179        465        530     500.0
GR   1713.9      9128     1709.7       9156     1709.2       9177    1709.5       9183     1708.9       9207
GR   1709.6      9217     1709.1       9253     1709.2       9281    1708.9       9312     1707.8       9371
GR   1706.6      9394     1707.1       9403     1707.1       9424    1706.6       9439     1705.2       9458
GR   1704.7      9481     1704.3       9504     1704.6       9537    1704.4       9578     1705.3       9611
GR   1705.5      9640     1704.7       9662     1705.2       9687    1705.8       9731     1705.7       9758
GR   1704.4      9791     1704.0       9825     1703.4       9873    1703.0       9893     1702.2       9912
1
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GR   1696.7      9927     1697.4       9941     1701.3       9968    1695.7       9985     1695.7      10000
GR   1699.4     10030     1699.2      10067     1699.9      10079    1701.7      10104     1700.9      10123
GR   1697.4     10136     1697.2      10157     1702.3      10179    1701.4      10210     1699.4      10221
GR   1700.4     10228     1701.9      10252     1702.1      10263    1702.8      10284     1702.9      10310
GR   1702.3     10333     1702.9      10359     1702.3      10415    1702.8      10453     1703.2      10499
GR   1702.8     10542     1703.4      10591     1702.6      10629    1702.8      10673     1703.0      10746
GR   1703.3     10809     1703.2      10867     1703.0      10927      1704      11130       1704      11150
GR     1704     11175       1705      11360       1704      11595      1704      11640       1706      11780
GR     1706     12000       1706      12035       1704      12095

NC      .06      .060       .042        .1         .3
QT        2     27300      27300
ET                 9.1        7.1                                    9850      10605       9404      11597
        APPROX. 3,600 CFS DIVERTS INTO RIGHT OVERBANK FROM THIS CROSS-SECTION
        DOWNSTREAM.  REFER TO SPLIT FLOW MODEL FOR RIGHT OVERBANK
        FLOODWAY ANALYSIS USES ENTIRE FLOW AND IS STRICTLY FOR MAINSTREAM
X1    17.48        56       9893      10073        429        429     429.4
GR   1716.9      9386     1716.7       9404     1714.5       9422    1711.8       9441     1710.3       9466
GR   1709.4      9486     1708.4       9505     1707.0       9520    1706.7       9530     1708.4       9538
GR   1707.3      9595     1706.9       9625     1707.5       9651    1707.3       9687     1706.4       9717
GR   1705.7      9748     1706.2       9766     1705.9       9814    1706.6       9836     1706.6       9893
GR   1703.6      9922     1702.6       9943     1701.1       9949    1700.4      10000     1701.5      10011
GR   1701.4     10022     1702.2      10030     1702.1      10044    1701.3      10056     1705.4      10073
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GR   1707.3     10092    1706.4     10110     1706.5     10150     1706.8     10158     1706.7     10199
GR   1704.8     10215    1706.2     10239     1706.5     10304     1706.7     10350     1707.2     10403
GR   1707.2     10454    1707.5     10492     1707.4     10526     1706.5     10574     1706.5     10605
GR     1708     10855      1708     11020       1708     11110       1708     11120       1706     11160
GR     1704     11175      1704     11190       1706     11200       1708     11265       1710     11505
GR     1712     11700

ET                          7.1                                   9879     10640
X1    17.57        71      9923     10040        365       500     474.4
GR   1723.7      9217    1721.8      9244     1720.8      9285     1719.2      9332     1717.5      9346
GR   1719.0      9366    1717.9      9383     1718.3      9406     1717.3      9428     1718.0      9472
GR   1716.2      9501    1713.6      9517     1710.4      9529     1709.4      9546     1711.3      9563
GR   1712.0      9584    1713.0      9599     1713.4      9620     1712.5      9674     1711.6      9740
GR   1711.4      9766    1709.7      9812     1710.1      9821     1709.6      9843     1708.4      9870
GR   1710.3      9882    1705.2      9906     1708.0      9923     1706.7      9948     1702.4      9958
GR   1702.4      9977    1702.4     10000     1702.4     10003     1704.7     10010     1705.0     10025
GR   1708.9     10040    1710.6     10064     1709.3     10088     1709.9     10098     1710.0     10113
GR   1708.3     10138    1708.0     10148     1708.6     10153     1712.4     10185     1713.1     10220
GR   1712.8     10268    1712.0     10329     1712.7     10373     1711.9     10411     1711.8     10496
GR   1711.7     10502    1711.8     10546     1711.7     10618     1711.7     10659     1708.5     10678
GR   1708.2     10689    1708.8     10703     1711.7     10723     1711.7     10771     1710.7     10781
GR   1710.8     10823    1710.9     10851     1711.6     10902     1712.7     10957     1713.9     11014
GR   1714.2     11086    1714.3     11138     1715.0     11179     1715.0     11246     1715.4     11301
GR   1716.0     11343

ET                          7.1                                   9629     10386
X1    17.65        52      9924     10021        370       500     460.8
GR   1736.9      9339    1729.9      9372     1724.2      9403     1716.1      9427     1714.8      9450
GR   1714.6      9483    1711.7      9494     1711.7      9502     1714.4      9513     1713.6      9534
GR   1713.6      9569    1713.2      9597     1714.4      9610     1714.5      9626     1713.4      9648
GR   1714.2      9675    1714.1      9725     1714.2      9774     1714.7      9823     1714.3      9864
1
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GR   1713.7      9889    1713.6      9908     1709.3      9924     1705.8      9956     1704.4      9979
GR   1703.2     10000    1709.6     10021     1711.2     10042     1712.8     10070     1714.6     10118
GR   1714.7     10154    1715.8     10167     1716.5     10195     1716.2     10222     1716.1     10240
GR   1715.6     10292    1715.8     10335     1713.9     10368     1710.9     10380     1711.8     10406
GR   1714.2     10451    1715.2     10483     1715.6     10517     1715.9     10564     1716.5     10610
GR   1716.8     10648    1716.7     10691     1716.9     10742     1717.1     10797     1718.0     10850
GR   1718.4     10896    1718.6     10921

ET                  9.1      7.1                                   9654     10560      9628     10607
X1    17.78        63      9931     10026        490       720     661.3
GR   1740.7      9566    1733.7      9596     1727.1      9628     1717.5      9654     1716.8      9677
GR   1715.1      9683    1714.8      9689     1719.1      9706     1718.9      9719     1719.2      9748
GR   1720.0      9788    1719.0      9794     1719.6      9812     1718.3      9826     1720.3      9841
GR   1720.9      9860    1720.7      9887     1720.3      9931     1713.2      9946     1712.8      9967
GR   1713.4      9972    1713.4     10000     1713.6     10008     1715.9     10026     1716.6     10040
GR   1716.8     10088    1717.1     10101     1717.6     10145     1717.6     10170     1717.3     10180
GR   1716.9     10205    1715.0     10216     1715.3     10230     1716.6     10243     1717.7     10275
GR   1717.6     10292    1719.6     10309     1720.8     10347     1720.3     10379     1720.1     10397
GR   1715.3     10423    1715.5     10440     1714.9     10455     1718.8     10473     1719.1     10486
GR   1717.3     10499    1720.4     10519     1721.1     10537     1720.5     10551     1721.4     10591
GR   1722.2     10607    1721.4     10679     1722.3     10711     1722.6     10725     1722.5     10751
GR   1721.6     10777    1722.3     10814     1723.0     10858     1723.2     10902     1723.7     10930
GR   1723.9     10969    1724.0     11000     1724.3     11030

ET                          7.1                                   9770     10560
X1    17.84        63      9925     10217        310       310     341.7
GR   1733.9      9667    1732.9      9669     1733.0      9685     1731.0      9704     1726.2      9726
GR   1726.1      9740    1719.2      9768     1718.8      9779     1723.3      9805     1723.6      9844
GR   1724.2      9853    1723.9      9871     1722.8      9886     1723.8      9900     1722.7      9925
GR   1718.3      9940    1719.1      9952     1717.8      9966     1717.7      9978     1718.0      9991
GR   1717.1      9997    1717.2     10000     1719.2     10019     1719.3     10077     1718.0     10098
GR   1717.9     10126    1718.6     10145     1719.3     10168     1718.4     10178     1718.6     10187
GR   1722.3     10205    1722.7     10217     1722.9     10230     1722.0     10265     1720.9     10318
GR   1721.3     10342    1722.8     10368     1723.2     10400     1724.2     10435     1724.1     10450
GR   1723.2     10469    1721.8     10507     1720.4     10515     1720.0     10529     1720.9     10537
GR   1719.5     10554    1718.4     10569     1720.7     10581     1720.9     10596     1722.8     10617
GR   1722.9     10632    1721.0     10645     1721.0     10651     1722.4     10661     1723.6     10695
GR   1724.5     10727    1725.0     10776     1725.0     10833     1725.0     10878     1725.2     10927
GR   1725.7     10977    1726.0     11006     1726.0     11048
        CLOUD ROAD CROSSES THROUGH THIS CROSS-SECTION 3-60" CMPS:CAPACITY IGNORE

ET                          7.1                                   9845     10595
X1    17.95        59      9867     10047        500       520     563.8
GR   1739.2      9761    1734.6      9787     1728.5      9827     1727.1      9844     1726.5      9867
GR   1723.0      9881    1722.9      9894     1723.8      9912     1723.8      9930     1722.8      9946
GR   1722.2      9961    1722.7      9976     1720.1     10000     1719.8     10007     1719.5     10031
GR   1727.4     10047    1726.6     10071     1727.1     10088     1724.0     10107     1724.4     10120
GR   1725.8     10135    1726.2     10156     1727.0     10188     1726.5     10217     1726.9     10249
GR   1727.8     10286    1728.6     10318     1728.5     10334     1725.8     10347     1723.8     10386
GR   1722.3     10394    1722.3     10401     1726.5     10426     1727.2     10437     1727.7     10469
GR   1727.1     10497    1725.6     10517     1726.1     10522     1729.1     10543     1728.9     10557
GR   1728.5     10593    1728.3     10604     1729.6     10628     1730.2     10652     1730.2     10697
GR   1730.2     10720    1730.4     10762     1730.3     10813     1730.0     10869     1729.4     10914
GR   1728.8     10939    1728.9     10983     1729.1     11024     1729.1     11080     1730.2     11109
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GR   1732.4      11145     1733.2      11176      1733.4       11238      1733.1       11244
        ENCROACHMENT INSERTED AT SECTION 18.09 TO CONTAIN FLOODPLAIN

QT        2      27700      27700
ET                            7.1                                          9895       10610
X1    18.09         60       9936      10310·      712.5         375     705.8
GR   1788.5       9672     1784.1       9713     1776.9        9762    1771.6        9792     1748.2       9828
GR   1733.9       9855     1732.7       9862     1729.9        9872    1729.7        9880     1731.3       9885
GR   1730.9       9900     1727.3       9919     1730.5        9936    1727.5        9951     1728.2       9971
GR   1728.2       9991     1727.4      10000     1727.8       10006    1728.8       10065     1729.6      10076
GR   1731.3      10090     1731.8      10119     1731.7       10178    1730.9       10226     1729.9      10264
GR   1726.2      10280     1725.9      10290     1733.0       10310    1732.9       10333     1731.3      10380
GR   1730.4      10407     1729.1      10447     1728.6       10497    1729.1       10522     1723.5      10540
GR   1723.7      10556     1728.6      10573     1731.4       10597    1733.6       10633     1734.3      10663
GR   1734.2      10717     1733.5      10772     1732.5       10799    1732.3       10847     1732.4      10899
GR   1732.3      10935     1733.1      10974     1733.0       11013    1732.8       11076     1733.3      11132
GR   1733.7      11210     1734.0      11263     1734.7       11349    1735.8       11423     1736.6      11479
GR   1737.7      11538     1738.0      11570     1738.6       11595    1739.1       11632     1739.7      11661

NC     .055       .055       .030
ET                            7.1                                          9752       10425
X1    18.16         34       9836      10075       345         360     377.6
X2                                                                                                                15
GR   1755.1       9687     1739.9       9711     1736.1        9724    1734.0        9754     1730.7       9768
GR   1730.5       9775     1733.9       9788     1735.2        9810    1735.2        9836     1734.7       9860
GR   1733.3       9877     1732.7       9892     1732.9        9911    1732.5        9951     1732.5       9981
GR   1729.6       9996     1729.6      10000     1729.6       10020    1728.8       10050     1739.0      10075
GR   1737.8      10078     1737.2      10095     1735.8       10124    1734.7       10139     1734.0      10155
GR   1733.5      10199       1730      10330       1730       10380      1734       10430       1736      10650
GR   1736.9      10750       1738      10930       1738       11040      1740       11130
        NEW CROSS SECTION: GR CARD DATA FOR 18.20 DEVELOPED FROM TOPOGRAPHIC MAP
        CROSS SECTION ADDED TO MODEL FLOW OVER CLOUD ROAD
        CAPACITY OF 3-60" CMPS IGNORED

ET                            7.1                                          9630       10330
X1    18.23         19       9800      10010       370         400     370
GR     1750       9510       1740       9550      1736        9640      1734        9650       1736       9660
GR     1736       9690       1735       9700      1736        9710      1738        9780       1738       9800
GR     1736       9930       1734       9950      1732        9965      1730       10000     1738.8      10010
GR     1740      10240       1740      10480      1740       10730      1742       10870

ET                            7.1                                          9630       10330
X1    18.29         57       9914      10049       200         310     300
GR   1750.9       9535     1741.6       9583     1737.2        9597    1739.5        9608     1739.1       9634
GR   1737.5       9647     1732.6       9660     1737.5        9678    1739.3        9712     1740.2       9758
GR   1740.1       9788     1739.1       9800     1739.7        9812    1738.7        9832     1735.8       9852
GR   1737.4       9872     1738.3       9914     1737.0        9932    1735.5        9949     1735.0       9968
GR   1734.0       9976     1734.6       9984     1734.3       10000    1735.5       10009     1735.3      10020
GR   1733.5      10029     1739.9      10049     1740.5       10076    1740.0       10115     1736.1      10130
GR   1734.7      10144     1736.9      10160     1738.4       10185    1742.0       10213     1742.5      10244
GR   1742.8      10266     1742.2      10270     1742.8       10286    1742.8       10318     1742.7      10349
GR   1742.8      10388     1742.5      10395     1742.5       10429    1742.2       10468     1742.6      10472
GR   1742.5      10553     1741.1      10565     1742.8       10574    1743.2       10607     1743.0      10634
GR   1743.3      10693     1744.6      10746     1744.9       10795    1745.6       10858     1746.0      10899
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GR   1747.1      10970     1747.8      11035

NC     .055       .055       .042
ET                            7.1                                          9832       10475
X1    18.49         63       9832      10037     1162.5         850    1099.7
GR   1762.2       9699     1754.7       9727     1746.3        9755    1747.1        9766     1747.4       9792
GR   1747.4       9832     1745.9       9853     1742.7        9867    1743.3        9895     1744.9       9909
GR   1744.8       9930     1744.6       9965     1741.7        9985    1741.9       10000     1745.2      10015
GR   1746.9      10037     1746.9      10052     1746.2       10060    1745.8       10072     1747.3      10082
GR   1747.8      10111     1748.7      10142     1748.9       10167    1749.0       10202     1748.9      10243
GR   1748.7      10282     1748.2      10327     1748.0       10379    1747.8       10394     1746.5      10406
GR   1747.4      10417     1743.7      10434     1744.0       10445    1746.9       10464     1742.3      10481
GR   1746.3      10497     1748.9      10522     1750.3       10562    1751.2       10602     1751.4      10637
GR   1751.9      10676     1752.2      10727     1752.5       10780    1752.7       10817     1753.1      10834
GR   1753.7      10873     1754.2      10897     1754.5       10951    1754.9       10998     1755.3      11036
GR   1755.7      11087     1757.1      11131     1757.6       11137    1757.6       11163     1759.2      11194
GR   1759.0      11230     1759.4      11254     1760.4       11285    1761.5       11316     1763.0      11352
GR   1766.6      11387     1769.6      11411     1778.1       11458

NC     .040       .040       .030
ET                            7.1                                          9700       10480
X1    18.57         62       9947      10041       275         675     389.0
GR   1785.6       9578     1759.3       9624     1751.3        9644    1748.8        9663     1748.5       9671
GR   1746.0       9703     1743.7       9714     1743.5        9735    1746.6        9747     1749.2       9772
GR   1750.4       9819     1750.1       9829     1750.3        9832    1751.1        9879     1752.5       9926
GR   1752.5       9947     1745.1       9969     1744.4       10000    1744.4       10001     1745.5      10006
GR   1745.9      10014     1751.5      10041     1749.2       10062    1751.5       10076     1751.5      10102
GR   1750.9      10116     1751.2      10146     1752.4       10170    1752.3       10224     1751.4      10247
GR   1752.2      10263     1753.1      10302     1753.6       10332    1753.3       10360     1753.7      10386
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GR   1751.0     10400    1753.4     10416     1752.6     10452     1752.5     10474     1751.8     10490
GR   1752.7     10507    1752.8     10528     1754.2     10560     1755.2     10585     1756.5     10600
GR   1757.0     10645    1757.7     10678     1757.9     10717     1758.1     10766     1758.8     10820
GR   1759.2     10862    1760.1     10915     1760.2     10941     1760.5     10950     1760.8     10964
GR   1760.4     10993    1760.2     11007     1761.1     11021     1761.8     11048     1765.7     11082
GR   1770.4     11111    1776.8     11148

QT        2     27300    27300
ET              9.1       7.1                                     9380      10125      9321      10244
X1    18.74       69      9975     10142       750       650     917.8
GR   1770.0      9245    1770.1      9249    1763.2      9269    1763.1      9291    1762.2      9321
GR   1760.3      9332    1758.0      9362    1757.6      9377    1752.0      9388    1754.6      9404
GR   1753.8      9417    1750.4      9437    1750.7      9454    1754.9      9479    1756.6      9493
GR   1756.7      9528    1756.7      9552    1757.1      9583    1757.8      9616    1758.2      9656
GR   1758.9      9692    1760.0      9729    1759.4      9750    1759.8      9767    1758.1      9791
GR   1758.5      9814    1759.2      9851    1759.0      9883    1758.5      9908    1757.0      9924
GR   1757.7      9938    1757.7      9975    1755.1      9986    1755.0     10000    1755.2     10018
GR   1755.3     10042    1757.7     10056    1758.5     10111    1758.7     10142    1759.6     10163
GR   1760.5     10198    1760.9     10244    1760.1     10281    1759.2     10318    1759.3     10336
GR   1759.6     10361    1759.5     10381    1759.2     10434    1761.4     10471    1763.1     10502
GR   1763.6     10533    1763.5     10581    1763.1     10628    1763.7     10660    1763.7     10706
GR   1763.6     10752    1763.6     10796    1763.9     10855    1763.8     10889    1761.9     10896
GR   1763.9     10910    1764.0     10932    1766.7     10947    1766.0     10962    1764.0     10991
GR   1762.8     11003    1766.7     11018    1768.5     11036    1779.0     11093
1
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ET              9.1       7.1                                     9576      10140      9470      10165
X1    18.84       46      9915     10036       500       325     497.1
GR   1772.3      9380    1771.7      9419    1770.8      9450    1764.5      9475    1756.9      9503
GR   1757.6      9512    1758.4      9522    1758.5      9531    1757.4      9538    1759.8      9557
GR   1759.9      9576    1758.7      9586    1759.6      9597    1759.6      9604    1758.6      9612
GR   1760.0      9620    1760.6      9649    1760.6      9679    1761.0      9702    1759.8      9721
GR   1760.5      9732    1760.6      9768    1759.8      9784    1759.8      9797    1761.3      9818
GR   1763.1      9848    1763.4      9888    1763.2      9915    1759.9      9942    1758.0      9987
GR   1755.9     10000    1755.7     10008    1762.6     10036    1763.3     10051    1762.5     10101
GR   1760.8     10107    1762.3     10115    1764.2     10145    1765.5     10182    1766.0     10209
GR   1765.0     10231    1765.0     10258    1765.5     10308    1764.9     10357    1765.4     10413
GR   1765.4     10417

ET                       7.1                                     9639      10480
X1    18.96       70      9924     10021       525       600     631.7
GR   1779.1      9326    1778.7      9377    1776.0      9418    1774.9      9427    1773.9      9442
GR   1769.0      9458    1767.7      9482    1766.0      9489    1767.1      9496    1767.3      9514
GR   1767.0      9536    1768.0      9545    1768.8      9570    1768.6      9607    1768.1      9640
GR   1767.9      9649    1767.8      9687    1767.3      9714    1767.7      9726    1767.9      9764
GR   1767.6      9796    1768.2      9809    1768.3      9837    1768.6      9862    1768.2      9894
GR   1768.0      9924    1762.2      9931    1762.6      9938    1762.6      9959    1762.9     10000
GR   1763.3     10007    1766.3     10021    1767.2     10035    1767.2     10043    1766.0     10055
GR   1766.9     10069    1765.7     10100    1766.7     10107    1766.3     10125    1764.5     10137
GR   1769.4     10159    1771.0     10193    1770.9     10235    1770.5     10281    1769.0     10317
GR   1768.7     10347    1767.5     10358    1768.8     10370    1768.8     10401    1767.4     10408
GR   1768.5     10414    1769.0     10436    1769.7     10455    1770.2     10515    1770.5     10574
GR   1770.6     10644    1770.7     10686    1770.9     10731    1771.0     10781    1771.3     10818
GR   1771.2     10877    1772.4     10930    1773.1     10975    1773.1     11027    1773.4     11087
GR   1773.8     11135    1773.9     11195    1774.3     11217    1774.5     11277    1774.6     11298

NC     .031      .031      .045
ET                       7.1                                     9485      10315
X1    19.07       67      9928     10068       680       500     601.0
GR   1782.6      9213    1779.1      9244    1776.5      9266    1775.1      9296    1775.1      9326
GR   1775.0      9352    1775.0      9406    1774.8      9426    1773.3      9467    1772.0      9515
GR   1770.3      9537    1769.6      9556    1768.1      9569    1770.4      9586    1771.6      9614
GR   1772.0      9641    1773.6      9656    1773.2      9691    1772.0      9711    1769.5      9724
GR   1771.8      9748    1772.9      9783    1772.1      9806    1772.2      9842    1772.3      9876
GR   1772.6      9909    1771.9      9928    1770.5      9952    1771.6      9969    1768.0      9985
GR   1764.8     10000    1764.8     10007    1766.5     10022    1767.0     10047    1773.1     10068
GR   1773.7     10092    1773.3     10141    1772.6     10157    1773.2     10164    1773.6     10198
GR   1773.9     10246    1775.1     10274    1775.3     10315    1775.0     10361    1774.5     10402
GR   1774.0     10441    1773.4     10485    1773.6     10509    1773.5     10558    1773.8     10573
GR   1774.1     10632    1774.4     10679    1775.2     10711    1775.1     10731    1775.4     10750
GR   1775.7     10774    1775.7     10827    1776.0     10882    1777.1     10923    1777.8     10971
GR   1778.3     11014    1779.1     11069    1779.6     11099    1779.4     11110    1780.0     11128
GR   1780.4     11163    1781.1     11196
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From Cross section 19.18 to Cross section 20.62, the floodplain and the floodway boundaries are made coincident on the right overbank only. As per discussion with the FEMA technical evaluator, this is done to include, the low flow channel on the right overbank of the Skunk Creek Wash, within the floodway boundary. (March 17, 1998)

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ET                       7.1                                     9330      10076
X1    19.18       68      9874     10080       460       720     598.7
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GR	1795.7	8834	1795.3	8905	1794.5	8989	1793.6	9042	1792.7	9078
GR	1791.3	9114	1788.0	9152	1782.9	9213	1780.0	9246	1778.8	9281
GR	1778.2	9312	1777.6	9367	1776.3	9382	1775.6	9399	1773.5	9415
GR	1778.7	9430	1776.1	9442	1776.5	9452	1778.7	9465	1778.8	9479
GR	1774.7	9493	1775.1	9514	1777.0	9534	1777.6	9568	1778.0	9625
GR	1776.9	9638	1777.0	9649	1779.0	9672	1779.1	9722	1779.0	9764
GR	1778.2	9774	1778.8	9813	1778.5	9834	1779.4	9854	1779.4	9874
GR	1777.1	9906	1777.0	9918	1774.7	9926	1775.9	9943	1773.9	9980
GR	1771.2	10000	1770.0	10006	1770.1	10025	1775.5	10040	1775.8	10055
GR	1781.1	10080	1781.4	10135	1782.1	10202	1782.2	10254	1781.8	10305
GR	1781.8	10344	1781.6	10403	1781.1	10410	1781.3	10438	1781.4	10534
GR	1781.9	10600	1783.0	10659	1783.1	10688	1783.2	10727	1783.6	10758
GR	1784.1	10796	1784.4	10857	1785.3	10925	1786.0	10969	1787.5	11042
GR	1788.4	11098	1788.4	11158	1788.6	11224				
ET		9.1	7.1				9430	10065	9391	10110
X1	19.26	63	9981	10061	500	300	416.4			
GR	1802.4	8946	1802.1	9041	1801.9	9101	1801.3	9177	1800.7	9213
GR	1798.0	9258	1793.5	9307	1787.2	9361	1785.3	9382	1783.0	9425
GR	1781.7	9434	1783.4	9446	1783.2	9458	1780.8	9466	1781.0	9478
GR	1783.2	9490	1784.1	9541	1782.4	9573	1782.3	9594	1783.1	9602
GR	1782.2	9634	1782.9	9645	1782.2	9675	1781.9	9708	1779.9	9715
GR	1780.1	9723	1779.1	9740	1780.5	9759	1780.0	9812	1780.5	9819
GR	1780.3	9849	1779.9	9900	1777.9	9923	1779.6	9934	1779.5	9955
GR	1778.2	9981	1775.4	10000	1773.0	10018	1780.7	10024	1782.0	10035
GR	1782.7	10061	1781.9	10070	1783.4	10085	1784.6	10129	1785.5	10176
GR	1785.6	10243	1785.1	10331	1785.2	10394	1784.9	10452	1784.7	10511
GR	1784.7	10595	1784.5	10657	1784.8	10707	1785.4	10777	1786.0	10836
GR	1785.9	10871	1785.3	10904	1785.7	10948	1786.9	10995	1788.1	11037
GR	1789.0	11072	1789.7	11162	1790.1	11215				
NC	.050	.055	.032							
ET			7.1				9660	10610		
X1	19.41	75	9928	10072	600	790	769.4			
GR	1806.6	9245	1806.7	9277	1807.3	9288	1807.7	9349	1807.6	9395
GR	1807.2	9410	1804.4	9447	1802.7	9475	1794.3	9548	1789.7	9613
GR	1787.9	9658	1786.2	9675	1787.1	9681	1788.2	9715	1788.1	9764
GR	1787.7	9796	1788.3	9830	1790.3	9859	1791.0	9880	1790.6	9908
GR	1789.4	9928	1786.8	9948	1787.6	9965	1783.9	9979	1784.0	10000
GR	1784.6	10039	1785.0	10052	1788.6	10072	1788.5	10110	1788.6	10139
GR	1787.5	10171	1786.6	10183	1783.2	10193	1783.3	10209	1786.1	10225
GR	1786.6	10246	1785.9	10263	1786.5	10284	1787.3	10328	1785.2	10353
GR	1783.2	10365	1782.6	10374	1783.1	10383	1785.8	10403	1785.7	10415
GR	1784.0	10425	1787.3	10446	1786.7	10480	1787.3	10495	1787.0	10521
GR	1783.5	10545	1783.8	10561	1783.0	10587	1790.3	10616	1791.8	10654
GR	1792.3	10698	1792.8	10763	1793.2	10803	1792.6	10811	1793.2	10823
GR	1793.3	10878	1793.4	10925	1793.3	10979	1793.4	11038	1793.5	11100
GR	1793.0	11160	1793.2	11213	1793.8	11254	1794.0	11307	1794.5	11380
GR	1795.1	11443	1795.9	11509	1796.6	11572	1798.4	11647	1800.1	11735

1

ET		9.1	7.1				9901	10581	9795	10814
X1	19.52	67	9972	10055	700	485	606.3			
GR	1812.8	8989	1810.6	9047	1806.8	9099	1802.6	9147	1800.0	9196
GR	1799.2	9242	1798.6	9307	1797.5	9367	1797.0	9417	1796.1	9474
GR	1794.8	9482	1795.5	9489	1795.5	9517	1796.3	9524	1795.4	9528
GR	1795.8	9590	1796.2	9657	1796.5	9718	1796.5	9795	1795.5	9871
GR	1794.5	9916	1788.8	9936	1791.3	9952	1790.6	9972	1788.7	9983
GR	1787.0	10000	1786.4	10005	1786.2	10022	1793.0	10038	1793.4	10055
GR	1793.6	10095	1792.6	10134	1788.1	10156	1788.2	10164	1789.7	10177
GR	1788.7	10189	1791.3	10215	1790.4	10222	1791.5	10238	1790.6	10251
GR	1791.5	10265	1791.3	10294	1790.4	10300	1791.2	10325	1791.4	10345
GR	1790.3	10354	1791.8	10387	1791.6	10411	1791.2	10436	1790.4	10472
GR	1787.7	10488	1791.0	10502	1790.8	10518	1787.9	10539	1786.8	10559
GR	1795.2	10582	1796.4	10617	1797.0	10679	1797.5	10746	1797.8	10814
GR	1797.8	10893	1796.5	10903	1797.5	10910	1797.7	11010	1797.3	11097
GR	1797.8	11187	1798.4	11237						
ET		9.1	7.1				9984	10730.51	9966	10788
X1	19.62	67	9966	10120	515	530	528.0			
GR	1819.8	8806	1819.0	8856	1816.9	8894	1813.9	8937	1808.0	9000
GR	1806.3	9035	1805.0	9083	1804.4	9143	1804.3	9224	1803.1	9276
GR	1802.8	9354	1802.3	9437	1802.2	9491	1802.1	9563	1801.6	9653
GR	1801.3	9716	1800.7	9737	1800.7	9753	1801.4	9783	1801.1	9834
GR	1801.3	9879	1802.7	9924	1803.9	9966	1802.5	9981	1791.1	10000
GR	1790.3	10025	1792.4	10036	1796.0	10046	1797.5	10077	1798.2	10120
GR	1797.8	10180	1796.4	10221	1795.6	10241	1795.0	10293	1793.1	10309
GR	1793.9	10317	1792.4	10323	1793.3	10343	1795.7	10361	1796.4	10375
GR	1794.9	10398	1797.1	10417	1797.6	10448	1797.1	10494	1796.2	10535
GR	1795.1	10581	1795.3	10609	1794.6	10632	1795.2	10650	1798.6	10677
GR	1799.9	10708	1801.3	10742	1802.6	10788	1803.7	10840	1804.6	10901
GR	1805.9	10961	1806.4	11026	1807.4	11080	1808.6	11145	1810.0	11200
GR	1811.0	11254	1811.5	11295	1812.3	11357	1812.9	11404	1813.0	11456
GR	1813.4	11503	1813.6	11537						

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ET                          7.1                                     9825      10550
X1    19.72        67      9948     10043       500       500     509.9
GR   1820.7      8821    1819.2      8851    1815.6      8885    1812.3      8917    1810.8      8958
GR   1809.5      9008    1809.2      9064    1808.4      9129    1808.3      9196    1807.8      9243
GR   1807.2      9298    1806.8      9350    1806.7      9423    1806.8      9474    1807.4      9534
GR   1807.5      9576    1807.2      9623    1808.0      9677    1808.6      9715    1808.4      9793
GR   1801.9      9812    1800.9      9822    1801.3      9847    1802.0      9871    1797.2      9884
GR   1796.5      9893    1799.8      9905    1801.6      9926    1800.7      9948    1798.3      9961
GR   1798.4      9973    1797.8      9989    1796.5     10000    1795.1     10018    1796.9     10030
GR   1801.8     10043    1803.5     10064    1802.9     10089    1802.3     10108    1802.7     10129
GR   1801.7     10160    1801.7     10187    1800.4     10225    1797.4     10241    1797.5     10261
GR   1799.5     10275    1802.1     10300    1803.1     10326    1802.7     10359    1801.2     10408
GR   1799.9     10465    1798.3     10483    1798.4     10498    1799.1     10513    1803.1     10533
GR   1805.0     10563    1806.4     10592    1808.2     10641    1809.5     10680    1810.8     10739
GR   1811.8     10811    1812.5     10850    1813.4     10907    1813.9     10953    1814.5     11005
GR   1815.1     11071    1816.1     11150
1
   10OCT00      10:13:51                                                                          PAGE   20
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ET                          7.1                                     9770      10420
X1    19.83        56      9960     10074       500       600     567.8
GR   1830.0      8668    1827.6      8712    1824.6      8723    1824.8      8739    1824.3      8769
GR   1823.8      8781    1824.4      8788    1821.0      8799    1818.3      8829    1815.8      8883
GR   1814.6      8943    1814.0      8997    1813.4      9054    1812.8      9125    1811.8      9179
GR   1811.7      9223    1811.4      9270    1811.3      9332    1811.2      9390    1811.4      9457
GR   1811.3      9547    1811.4      9602    1811.6      9651    1812.0      9681    1811.8      9711
GR   1810.3      9736    1807.2      9751    1806.9      9761    1807.3      9770    1807.1      9804
GR   1806.0      9826    1807.0      9836    1806.3      9862    1807.6      9881    1807.7      9908
GR   1805.3      9929    1805.5      9943    1805.8      9960    1802.8      9974    1801.2     10000
GR   1800.7     10018    1799.3     10035    1801.9     10045    1806.6     10074    1806.2     10121
GR   1808.3     10150    1807.5     10184    1803.9     10206    1804.5     10222    1805.7     10263
GR   1806.9     10301    1807.9     10333    1808.1     10372    1808.7     10398    1810.5     10429
GR   1812.0     10487

NC     .060       .060       .042
        CROSS SECTION 19.92 LENGTHENED 865 FEET
        AT LEFT OVERBANK USING TOPOGRAPHIC MAP
ET                  9.1        7.1                                     9710   10393.31      9220   10393.31
X1    19.92        59      9974     10097       250       660     492.0
GR    1820      8928      1818      8966      1816      8991      1816      9091      1814      9241
GR   1813.1      9365      1814      9529      1814      9617      1814      9667      1812      9705
GR    1810      9718    1810.2      9793    1811.6      9827    1813.4      9863    1813.8      9879
GR   1813.7      9909    1812.6      9948    1814.2      9959    1809.7      9974    1810.5      9985
GR   1803.6     10000    1802.0     10014    1802.0     10024    1805.4     10044    1808.1     10057
GR   1806.0     10066    1809.4     10082    1810.4     10097    1811.0     10133    1811.4     10180
GR   1809.0     10199    1808.9     10220    1809.0     10230    1809.9     10241    1809.5     10268
GR   1809.7     10283    1812.0     10305    1811.8     10320    1811.7     10343    1811.0     10358
GR   1808.8     10373    1816.5     10399    1817.6     10413    1818.3     10433    1819.8     10462
GR   1820.5     10505    1820.8     10531    1821.4     10576    1822.7     10630    1823.4     10666
GR   1823.8     10698    1823.9     10751    1824.1     10814    1825.4     10888    1825.8     10922
GR   1826.0     10953    1826.3     10986    1827.2     11006    1825.9     11024

ET                          7.1                                     9420   10473.12
X1    20.05        82      9954     10032       815       770     700.0
GR   1837.4      8864    1837.6      8907    1836.8      8931    1834.6      8968    1831.8      9005
GR   1828.0      9039    1825.1      9079    1823.7      9125    1823.8      9157    1823.6      9204
GR   1822.6      9253    1821.4      9335    1820.6      9358    1821.5      9370    1820.6      9394
GR   1819.6      9416    1820.6      9455    1815.6      9477    1815.4      9503    1813.8      9517
GR   1818.4      9541    1817.8      9582    1817.2      9602    1819.1      9625    1814.9      9637
GR   1815.6      9646    1815.7      9655    1815.9      9688    1815.5      9702    1820.9      9716
GR   1819.4      9721    1818.7      9750    1814.4      9760    1813.5      9772    1813.8      9786
GR   1816.1      9802    1814.9      9837    1815.8      9849    1815.7      9857    1814.1      9864
GR   1816.0      9878    1816.9      9903    1816.5      9916    1812.5      9935    1812.6      9942
GR   1814.4      9954    1813.0      9967    1813.9      9974    1813.9      9980    1810.7      9996
GR   1811.1     10000    1814.9     10011    1816.0     10032    1816.4     10064    1815.2     10113
GR   1813.6     10133    1813.6     10143    1816.9     10156    1816.8     10212    1815.5     10230
GR   1816.3     10241    1817.1     10307    1817.5     10334    1815.2     10363    1815.1     10382
GR   1811.9     10416    1811.2     10447    1821.5     10476    1823.1     10491    1824.4     10529
GR   1825.4     10579    1825.5     10625    1826.7     10672    1827.6     10715    1828.4     10774
GR   1828.2     10838    1828.7     10872    1829.8     10922    1830.9     10960    1832.5     11023
GR   1833.6     11102    1834.7     11161
        THE PRESENCE OF INNER-CHANNEL ISLANDS AT THIS CROSS-SECTION CAUSE
1
   10OCT00      10:13:51                                                                          PAGE   21
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        FLOODWAY TOPWID TO EXCEED FLOODPLAIN TOPWID
        HOWEVER, FLOODWAY IS WITHIN BOUNDARIES OF FLOODPLAIN

ET                          7.1                                     9202     10489.7
X1    20.16        84      9953     10071       450       635     555.7
GR   1839.8      8766    1839.7      8868    1839.0      8906    1837.5      8936    1835.4      8966
GR   1830.2      9031    1826.4      9108    1826.0      9139    1823.8      9167    1822.0      9194
GR   1820.4      9200    1822.2      9212    1824.2      9232    1825.0      9258    1825.2      9304
GR   1825.0      9319    1825.2      9350    1824.4      9361    1825.6      9371    1825.3      9392
GR   1821.1      9406    1821.4      9412    1822.9      9419    1823.0      9425    1825.8      9445
GR   1825.2      9480    1824.7      9525    1823.3      9578    1820.9      9589    1821.7      9606
GR   1821.1      9622    1819.3      9642    1822.4      9654    1823.6      9666    1823.3      9722
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GR   1823.1      9744    1822.0      9757    1822.7      9772    1821.3      9783    1821.3      9792
GR   1822.8      9801    1822.3      9815    1823.3      9843    1823.6      9868    1821.8      9878
GR   1821.9      9915    1821.2      9922    1821.6      9937    1821.5      9953    1818.5      9966
GR   1818.4      9969    1817.7     10000    1823.9     10015    1823.6     10071    1822.5     10096
GR   1818.7     10118    1819.0     10139    1818.8     10178    1818.4     10195    1822.0     10208
GR   1822.0     10255    1823.5     10284    1823.1     10336    1818.5     10362    1816.2     10374
GR   1815.5     10399    1821.2     10419    1823.5     10433    1821.4     10460    1821.3     10473
GR   1827.1     10501    1828.7     10517    1831.0     10565    1832.9     10629    1834.3     10701
GR   1835.5     10772    1836.6     10833    1838.1     10896    1839.4     10960    1840.2     11027
GR   1841.8     11070    1843.2     11118    1843.3     11140    1844.3     11213

NC     .060      .060      .032
ET                         7.1                                   9190     10395
X1    20.26        75      9920     10054      460       585     531.6
GR   1841.1      9079    1837.6      9115    1832.2      9151    1823.3      9182    1825.3      9191
GR   1825.4      9208    1824.1      9218    1825.7      9224    1825.2      9253    1826.0      9307
GR   1826.8      9342    1828.1      9363    1828.4      9404    1829.1      9465    1829.6      9507
GR   1829.5      9540    1830.4      9622    1824.8      9632    1825.0      9639    1826.2      9650
GR   1826.5      9664    1828.9      9675    1829.6      9699    1828.5      9705    1830.4      9715
GR   1831.4      9758    1830.1      9814    1829.7      9837    1828.3      9846    1829.5      9865
GR   1830.1      9879    1828.2      9920    1828.4      9945    1827.2      9956    1827.2      9972
GR   1826.1      9988    1825.2     10000    1827.3     10010    1827.9     10026    1828.2     10054
GR   1825.5     10064    1825.1     10080    1825.8     10088    1828.7     10096    1828.6     10154
GR   1828.6     10194    1828.5     10234    1828.5     10252    1827.7     10286    1825.4     10319
GR   1822.4     10332    1821.9     10351    1822.0     10362    1823.4     10376    1831.1     10399
GR   1831.8     10430    1832.0     10506    1833.5     10517    1830.7     10529    1831.7     10537
GR   1832.9     10569    1833.5     10610    1834.2     10643    1834.9     10700    1835.9     10737
GR   1837.7     10781    1838.8     10819    1839.9     10856    1840.6     10898    1841.0     10931
GR   1842.2     10974    1842.9     11026    1843.6     11058    1844.6     11090    1847.1     11174

ET                         7.1                                   9209     10415
X1    20.38        73      9951     10043      475       650     622.3
GR   1849.9      8509    1849.2      8596    1848.3      8668    1847.3      8765    1848.6      8773
GR   1848.1      8863    1846.3      8872    1846.0      8903    1845.5      8963    1845.4      9003
GR   1844.6      9025    1843.4      9077    1842.6      9104    1840.6      9126    1836.4      9160
GR   1834.0      9184    1832.5      9192    1830.6      9230    1829.9      9246    1830.6      9254
GR   1830.9      9288    1831.8      9338    1832.3      9368    1832.4      9434    1831.3      9490
GR   1826.9      9519    1827.2      9537    1829.2      9545    1830.0      9576    1831.6      9589
GR   1831.4      9612    1830.9      9643    1832.2      9666    1833.5      9709    1834.1      9741
GR   1834.7      9771    1835.2      9813    1835.5      9881    1834.7      9895    1835.0      9900
GR   1834.2      9927    1837.5      9951    1832.6      9968    1830.2      9990    1829.6     10000
GR   1829.6     10026    1835.9     10043    1835.6     10087    1835.6     10133    1834.5     10164
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GR   1833.5     10195    1832.2     10216    1830.5     10229    1828.9     10256    1833.1     10293
GR   1833.2     10312    1832.1     10335    1828.9     10376    1826.6     10386    1825.9     10405
GR   1835.3     10419    1836.4     10447    1838.3     10512    1840.2     10570    1841.9     10634
GR   1842.9     10686    1843.6     10739    1844.7     10806    1845.4     10855    1846.3     10909
GR   1847.7     10988    1848.6     11055    1850.5     11170

ET                         7.1                                   9424     10330
X1    20.48        56      9972     10065      600       520     526.7
GR   1851.3      9087    1849.1      9145    1846.5      9183    1842.4      9221    1839.1      9262
GR   1838.0      9283    1837.3      9345    1836.5      9355    1837.5      9361    1837.6      9412
GR   1837.7      9460    1838.6      9516    1839.0      9572    1839.4      9640    1839.7      9704
GR   1838.6      9740    1834.9      9768    1836.7      9779    1838.1      9799    1838.7      9823
GR   1837.9      9831    1839.3      9847    1838.7      9864    1838.4      9896    1839.8      9916
GR   1840.7      9931    1840.6      9972    1833.9      9986    1834.0     10000    1833.9     10014
GR   1832.8     10023    1833.0     10050    1838.6     10065    1838.2     10087    1839.0     10112
GR   1839.5     10139    1838.8     10187    1838.7     10195    1839.2     10224    1838.6     10238
GR   1835.2     10261    1832.4     10282    1833.4     10309    1838.4     10327    1839.0     10350
GR   1838.5     10390    1838.9     10422    1840.0     10485    1841.4     10529    1842.6     10561
GR   1843.7     10597    1844.6     10655    1845.6     10697    1847.1     10752    1848.1     10812
GR   1849.4     10880

ET                         7.1                                   9485     10370
X1    20.62        70      9969     10074      915       580     788.9
GR   1862.9      8837    1863.2      8931    1863.6      9003    1863.2      9090    1863.4      9138
GR   1862.6      9153    1859.6      9182    1854.0      9218    1848.4      9257    1846.4      9269
GR   1845.8      9297    1844.7      9324    1845.8      9340    1846.0      9381    1846.6      9417
GR   1845.7      9438    1845.2      9464    1844.5      9486    1843.9      9511    1842.5      9518
GR   1844.1      9526    1844.7      9552    1845.3      9592    1845.8      9629    1846.0      9687
GR   1846.1      9735    1846.1      9789    1846.5      9840    1847.1      9863    1846.5      9868
GR   1846.9      9913    1846.8      9953    1845.6      9969    1839.7      9996    1839.8     10000
GR   1840.0     10019    1839.3     10042    1843.3     10053    1844.3     10074    1844.0     10092
GR   1845.1     10110    1846.7     10134    1847.1     10182    1846.7     10229    1846.6     10275
GR   1845.6     10310    1844.5     10333    1842.9     10344    1844.2     10354    1844.0     10366
GR   1840.3     10373    1843.4     10384    1844.1     10407    1844.2     10429    1848.4     10479
GR   1849.6     10531    1850.8     10591    1851.3     10631    1851.9     10692    1853.1     10742
GR   1853.8     10786    1854.5     10840    1855.5     10898    1856.4     10969    1857.3     11016
GR   1858.1     11070    1858.6     11103    1858.2     11111    1858.6     11127    1858.9     11144
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Beginning of Castro Fleet's Analysis (Del Webb Area)
Cross Section Identification Numbers Were Increased
By A Factor ranging from 0.25 to 0.14 miles For Consistency
With Montgomery Watson Modeling
For Example, Castro Fleet Cross Section 20.39 becomes
Montgomery Watson Cross Section 20.64

NC	0.045	0.045	0.043	0.3	0.5					
ET			9.1						9500	10350
X1	20.64	23	9500	10340	112.5	137.5	135			
GR	1864	8950	1860	9140	1848	9220	1846.5	9300	1847	9430
GR	1845	9500	1847	9660	1847	9940	1844	9950	1842	9970
GR	1842	10000	1842	10020	1844	10030	1848	10110	1848	10210
GR	1844	10310	1844	10340	1843	10360	1844	10370	1848	10420
GR	1852	10600	1856	10830	1860	11100				

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NC	0.06	0.06	0.038	0.3	0.5					
ET			7.1				4500	5310		
X1	20.71	36	4910	5170	475	320	369.6			
GR	1855	4055	1854	4060	1853	4095	1852.9	4122	1852	4212
GR	1851	4265	1850.8	4290	1851	4350	1851	4430	1850	4455
GR	1849	4460	1848	4480	1848	4490	1849	4550	1850	4625
GR	1850	4720	1850	4750	1851	4810	1852	4910	1851	4960
GR	1844	4990	1843	4995	1844	5020	1846	5040	1847	5075
GR	1850	5085	1850	5140	1851	5160	1852	5170	1852	5230
GR	1851	5270	1850	5370	1849	5390	1850	5470	1854	5534
GR	1856	5610								
ET		9.1	7.1				4500	5160	4240	5500
X1	20.79	32	4907	5160	460	575	422.4			
GR	1859	3860	1858	3895	1857.4	3925	1857.2	3980	1857	4030
GR	1856	4070	1855	4240	1854	4300	1854	4350	1853	4385
GR	1852	4415	1851	4440	1852	4450	1853	4585	1855	4907
GR	1854	4937	1852	4950	1850	4980	1848	4990	1847.5	5000
GR	1848	5027	1850	5070	1852	5083	1854	5118	1855.3	5160
GR	1854.3	5205	1855	5300	1854	5350	1853	5385	1854	5465
GR	1856	5530	1860	5645						
ET		9.1	7.1				4550	5220	4090	5475
X1	20.90	33	4810	5090	570	480	580.8			
GR	1864	3740	1862.7	3790	1863.2	3845	1862	3915	1861.5	3950
GR	1862	3965	1863.2	4090	1862	4200	1862	4360	1862	4425
GR	1858	4560	1858	4625	1860.7	4810	1860	4830	1858	4850
GR	1857.5	4865	1858	4875	1858.2	4885	1858	4900	1856	4950
GR	1854	4965	1852.6	5000	1854	5030	1858	5042	1860	5050
GR	1860.9	5090	1860.5	5210	1860	5275	1858.5	5330	1860	5385
GR	1861	5475	1864	5520	1866	5545				
ET		9.1	7.1				4390	5060	3955	5605
X1	20.98	41	4695	5060	400	430.5	422.4			
GR	1870	3490	1868	3540	1866.2	3580	1866.7	3660	1866.2	3800
GR	1868	3955	1866	4145	1864	4330	1862.8	4380	1863.2	4390
GR	1862	4425	1861	4440	1862	4465	1861.3	4500	1862	4520
GR	1863.6	4580	1863.3	4615	1864	4645	1864.2	4695	1864	4730
GR	1862	4870	1861	4880	1860	4920	1858	4945	1856	4965
GR	1854	4995	1853.2	5000	1854	5005	1860	5020	1864.7	5060
GR	1866	5125	1866.2	5165	1866	5220	1864	5280	1864	5315
GR	1866	5390	1870	5470	1872	5480	1874	5505	1876	5565
GR	1878	5605								

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ET		9.1	7.1				4380	5075	3875	5475
X1	21.05	36	4892	5045	340	380	369.6			
GR	1870	3540	1869.5	3560	1870	3605	1870	3670	1869.5	3730
GR	1870	3750	1872	3825	1872.3	3875	1872	3975	1870	4080
GR	1868	4220	1866	4345	1864.8	4400	1866	4430	1866.4	4475
GR	1866	4520	1865.5	4545	1866	4560	1867	4610	1866.3	4670
GR	1867.4	4775	1866	4830	1866	4892	1864	4920	1862	4930
GR	1860	4960	1858	4990	1857.6	5000	1858	5012	1860	5022
GR	1866	5045	1868	5075	1869.2	5095	1868.3	5145	1870	5375
GR	1872	5475								
ET		9.1	7.1				4350	5125	3950	5580
X1	21.11	31	4850	5125	260	370	316.8			
GR	1880	3410	1876	3480	1874	3535	1872.3	3595	1872	3735
GR	1874	3910	1874	4025	1872	4160	1870	4280	1868	4325
GR	1866.5	4365	1868	4410	1869.7	4450	1868	4555	1869.3	4675
GR	1869.1	4715	1870	4770	1870	4850	1868	4910	1866	4930
GR	1864	4945	1862	4960	1860.5	4990	1862	5020	1864	5035
GR	1866	5055	1868	5080	1870	5125	1872	5185	1874	5420
GR	1876	5580								

ET		9.1	7.1				4200	5100	4050	5700
X1	21.18	31	4950	5100	360	355.5	369.6			
GR	1876	3690	1875.2	3800	1875	3940	1876	4050	1874	4155
GR	1872	4225	1870	4240	1869.7	4250	1870	4260	1872	4300
GR	1874	4330	1874.4	4420	1874	4490	1872.5	4650	1872.9	4845
GR	1872	4950	1870	4970	1868	4980	1866	4988	1865	5000
GR	1866	5010	1868	5080	1870	5090	1872	5100	1874	5120
GR	1876	5200	1878	5270	1878	5365	1877.3	5480	1878	5535
GR	1880	5700								

ET		9.1	7.1				4310	5055	4025	5600
X1	21.25	38	4910	5055	420	370	369.6			
GR	1887	3610	1886	3650	1885.2	3723	1884	3857	1883.2	3890
GR	1884	4025	1882	4125	1880	4220	1878	4225	1875.3	4260
GR	1876	4275	1878	4310	1879	4365	1878.4	4410	1879.8	4500
GR	1879.8	4515	1878	4655	1877	4685	1877.6	4730	1876.5	4820
GR	1876.6	4860	1876	4880	1875	4910	1874	4935	1870	4965
GR	1868.7	5000	1870	5045	1878	5055	1880	5090	1880	5120
GR	1880	5365	1878.3	5400	1878.4	5430	1879.5	5490	1880	5540
GR	1880.7	5600	1882	5715	1884	5850				

ET		9.1	7.1				4450	5100	4035	5485
X1	21.31	33	4825	5050	230	310	316.8			
GR	1887.3	3660	1886	3740	1884.3	3930	1885	4040	1884	4125
GR	1882	4200	1880	4275	1878	4280	1876.4	4290	1878	4310
GR	1880	4410	1880.7	4500	1880	4570	1878.8	4640	1879.8	4700
GR	1878	4825	1872	4855	1871.2	4870	1872	4880	1874	4890
GR	1876	4900	1876.5	4920	1876	4940	1874	4950	1872	4965

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GR	1870.7	5000	1872	5015	1878	5050	1880	5065	1882	5105
GR	1883.5	5190	1883.9	5230	1884	5585				

ET		9.1	7.1				4400	5105	4070	5425
X1	21.35	28	4895	5025	205	220	211.2			
GR	1888	3755	1886	4110	1884	4225	1882	4320	1880	4330
GR	1879.2	4350	1880	4400	1881.5	4490	1881	4620	1880	4750
GR	1878	4755	1876	4760	1874.2	4770	1876	4800	1878	4810
GR	1878	4895	1876	4915	1874	4970	1872	4980	1871.5	5000
GR	1872	5015	1878	5025	1880	5030	1882	5040	1884	5105
GR	1886	5310	1886.8	5430	1887	5500				

ET		9.1	7.1				4500	5100	4110	5290
X1	21.41	28	4910	5010	422	422	422			
GR	1890	4110	1888	4250	1886	4330	1885	4510	1884	4575
GR	1880	4590	1879	4600	1880	4620	1882	4630	1882.5	4670
GR	1882	4720	1880	4765	1877.5	4795	1880	4805	1881	4830
GR	1880	4845	1879	4855	1880	4865	1882	4910	1880	4930
GR	1878	4980	1874.2	5000	1880	5010	1882	5020	1884	5030
GR	1886	5060	1888	5165	1889	5290				

ET		9.1	7.1				4617	5317	4585	5515
X1	21.49	37	4900	5080	475	475	475			
GR	1892.5	4565	1892	4585	1890	4640	1888	4690	1884	4695
GR	1882	4710	1884	4715	1884.5	4730	1884	4755	1883.3	4770
GR	1886	4780	1887	4840	1887.7	4900	1886	4925	1885.3	4940
GR	1886	4950	1886	4990	1884	4995	1883	5000	1884	5010
GR	1885	5035	1884	5040	1882	5060	1884	5070	1888	5080
GR	1889.4	5130	1888	5155	1884	5175	1882.5	5195	1884	5210
GR	1884	5220	1886	5240	1888	5270	1890	5295	1892	5345
GR	1891.5	5390	1894.1	5515						

ET		9.1	7.1				4415	5255	4220	5630
X1	21.58	39	4815	5255	525	250	475.2			
GR	1906	4220	1904	4250	1900	4320	1886.8	4365	1886.8	4395
GR	1888	4400	1890	4415	1892	4430	1892	4465	1894	4510
GR	1894	4565	1892	4590	1888	4615	1892	4640	1894	4670
GR	1894.7	4725	1894	4750	1893.3	4780	1894	4815	1892	4890
GR	1890.1	4910	1892	4940	1890	4965	1888	5000	1890	5025
GR	1892	5050	1893.8	5090	1890	5155	1888	5170	1890	5185
GR	1892	5235	1894	5255	1894.3	5310	1894	5355	1892.2	5425
GR	1894	5482	1894.8	5525	1895.5	5630	1897	5800		

ET			7.1				4265	5320		
X1	21.63	55	4980	5300	280	370	264			
GR	1910	4060	1908	4130	1906	4140	1900	4180	1900	4212
GR	1888	4220	1888	4230	1890	4250	1892	4260	1894	4290
GR	1896	4320	1894.9	4375	1897.6	4435	1898	4480	1898	4560
GR	1896	4585	1894	4605	1892	4625	1898.6	4633	1892	4645

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GR	1894	4660	1896	4695	1896	4725	1894	4785	1892.6	4800
GR	1894	4805	1896	4830	1898	4930	1896	4980	1890	4990
GR	1888.5	5000	1890	5007	1892	5025	1894	5085	1895.3	5140
GR	1894	5185	1892	5190	1892	5205	1894	5220	1894.8	5240
GR	1894	5255	1893.8	5270	1894	5275	1896	5300	1897.7	5400
GR	1898	5530	1898.3	5565	1898	5585	1898	5600	1900	5705
GR	1902	5840	1904	5950	1906	6015	1908	6085	1910	6175

ET			7.1				3970	5300		
X1	21.69	41	4780	5085	408	320	422.4			
GR	1910	3860	1900	3900	1898	3970	1900	4020	1900.9	4060
GR	1900	4070	1899.3	4080	1900	4110	1900	4145	1900.8	4180
GR	1900.8	4230	1900	4290	1898	4310	1896	4365	1894	4380
GR	1896	4390	1898	4415	1899.9	4480	1898	4505	1897.3	4510
GR	1898	4515	1900	4575	1901.6	4660	1901.8	4685	1900.8	4755
GR	1900	4780	1898	4815	1896.1	4907	1898	4940	1896	4982
GR	1895.1	5000	1896	5015	1898	5025	1900	5085	1898	5157
GR	1897.1	5160	1898	5175	1900	5265	1902	5280	1902.2	5300
GR	1904	5615								

ET			7.1				3694	5165		
X1	21.77	50	4795	5045	442.2	422.4	422.4			
GR	1915	3630	1910	3652	1909	3680	1905	3697	1900	3705
GR	1895	3720	1899	3745	1900	3815	1904	3837	1905	3850
GR	1905	3876	1905	3952	1906	4005	1906	4075	1906	4115
GR	1904	4180	1902	4205	1902	4240	1900	4255	1902	4270
GR	1904	4290	1904	4320	1902	4325	1902	4340	1906	4355
GR	1906	4395	1906	4445	1906	4535	1905.3	4565	1906	4620
GR	1906.5	4740	1906	4785	1904	4795	1902	4830	1900	4850
GR	1900	4885	1900	4910	1902	4955	1900	4965	1898	4970
GR	1898	4975	1897.3	5000	1898	5005	1900	5015	1902	5030
GR	1904	5045	1904	5115	1903.1	5130	1904	5150	1906	5205

ET			7.1				3750	5200		
X1	21.82	49	4950	5070	240.7	297.2	264			
GR	1920	3655	1906	3700	1906	3720	1904	3740	1903	3750
GR	1902	3760	1901	3790	1900	3805	1901	3830	1905	3850
GR	1907	3860	1908	3935	1908	3970	1908.7	4025	1908.2	4080
GR	1908.9	4110	1908	4135	1906	4185	1905	4195	1906	4210
GR	1905.2	4240	1906	4250	1906.5	4260	1906	4285	1904	4300
GR	1902.3	4310	1904	4340	1906	4355	1908	4375	1909.4	4475
GR	1909.3	4605	1909.6	4805	1908	4830	1906	4855	1904.3	4865
GR	1905.8	4885	1906	4915	1906	4950	1904	4965	1902	4970
GR	1900.5	4980	1900.5	5000	1902	5015	1904.5	5040	1906	5070
GR	1906.7	5150	1908	5180	1910	5250	1911	5350		

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ET			7.1				3900	5040		
X1	21.91	44	4878	5040	450.3	450.3	475.2			
GR	1925	3740	1920	3780	1915	3805	1910	3826	1907	3835
GR	1906	3850	1906	3863	1906	3883	1905	3895	1902	3915
GR	1905	3935	1909	3945	1910	3990	1912	4030	1912.5	4070
GR	1912	4125	1910	4190	1911.1	4250	1910	4320	1908	4370
GR	1910	4380	1908	4410	1910	4425	1912	4460	1910	4490
GR	1912	4500	1914	4525	1914.6	4730	1914	4830	1912	4878
GR	1910	4940	1908	4975	1906	4990	1906	5000	1910	5020
GR	1912	5040	1912.5	5060	1912	5080	1912.5	5120	1912	5150
GR	1910.6	5180	1912	5210	1914	5250	1916	5370		

ET			7.1				3765	5090		
X1	21.99	46	4960	5090	400	470	422.4			
GR	1925	3660	1910	3675	1915	3740	1916	3765	1918	3835
GR	1914	3895	1918	4025	1917	4095	1912	4105	1910	4130
GR	1911	4147	1912	4175	1913	4218	1916	4272	1916	4320
GR	1914	4390	1914	4445	1916	4485	1916	4500	1914	4518
GR	1916	4550	1916	4603	1917.8	4700	1916.6	4740	1918	4800
GR	1919	4850	1918	4960	1912	4975	1910	4985	1909.9	5000
GR	1910	5008	1912	5022	1916	5090	1918	5160	1918	5185
GR	1916	5195	1916	5210	1917.2	5235	1916	5255	1914	5260
GR	1913.4	5270	1914	5275	1916	5285	1918	5320	1920	5362
GR	1922	5435								

ET			7.1				4050	5175		
X1	22.08	64	4930	5055	450.7	300	475.2			
GR	1930	3620	1925	3660	1930	3700	1919	3720	1920	3765
GR	1920	3785	1915	3835	1919	3850	1919	3875	1916	3895
GR	1919	3910	1921	3950	1921	4090	1920	4120	1918	4150
GR	1918	4170	1916	4180	1915	4200	1913	4210	1915	4235

GR	1918	4250	1918	4260	1917	4270	1916	4280	1915.8	4290
GR	1918	4315	1920	4345	1918	4360	1916.2	4390	1918	4450
GR	1920	4465	1921.2	4480	1920	4515	1918.5	4525	1920	4555
GR	1920.3	4565	1920	4575	1918.6	4585	1920	4605	1922	4635
GR	1922.7	4655	1922	4770	1921	4870	1922	4905	1922.2	4915
GR	1922	4930	1920	4950	1917	4970	1916	4975	1915	4990
GR	1915	5010	1916	5020	1918	5040	1922	5055	1922	5080
GR	1920	5110	1920	5130	1918.3	5155	1920	5175	1922	5220
GR	1920	5270	1922	5305	1924	5420	1926	5545		
ET			7.1				3700	5070		
X1	22.15	65	4960	5050	330.7	378.9	369.6			
GR	1926	3312	1925	3385	1923	3520	1918	3540	1916	3550
GR	1918	3560	1920	3565	1923	3579	1923.3	3585	1923	3615
GR	1922	3680	1921	3705	1922	3722	1922.8	3756	1922	3822
GR	1921	3840	1920	3853	1918	3867	1916	3885	1915	3895
GR	1916	3905	1920	3915	1922	4030	1924	4045	1925	4075
GR	1926	4105	1927	4170	1926	4308	1924	4325	1922	4350
GR	1920	4360	1918.4	4385	1920	4410	1922	4430	1924	4445

GR	1926	4456	1926	4515	1923	4535	1926	4550	1927.2	4575
GR	1926	4662	1924	4786	1924	4800	1925.3	4815	1924	4825
GR	1924	4853	1923.3	4870	1926	4917	1924	4960	1922	4972
GR	1920	4985	1919	4990	1919	5010	1920	5015	1922	5022
GR	1924	5050	1926	5075	1927.4	5135	1926	5160	1925.8	5185
GR	1926	5210	1926.4	5265	1926	5295	1926	5325	1928	5376
ET			7.1				3918	5067		
X1	22.22	49	4955	5067	312.4	473.3	369.6			
GR	1930	3685	1928	3800	1925	3895	1924	3907	1923	3920
GR	1920	3935	1918	3970	1923	3990	1924	4058	1924	4105
GR	1925	4125	1927	4138	1929	4210	1929.8	4410	1928	4510
GR	1922	4530	1920	4533	1919.6	4552	1920	4565	1922	4577
GR	1924	4585	1926	4590	1928	4600	1928	4648	1926	4657
GR	1925.6	4662	1926	4670	1928	4680	1930	4712	1929.5	4795
GR	1930	4915	1930.2	4935	1930	4955	1928	4975	1922	4985
GR	1921.5	5000	1921.5	5020	1928	5055	1930	5067	1930.2	5080
GR	1930	5097	1930	5117	1930.2	5145	1930	5170	1928	5205
GR	1930	5240	1932	5305	1932.5	5455	1933	5555		
ET			7.1				4000	5100		
X1	22.29	57	4972	5040	358.9	280	369.6			
GR	1935	3908	1930	3955	1925	3960	1924.5	3965	1924	3985
GR	1923.5	4005	1924	4015	1923	4050	1923.5	4055	1924	4065
GR	1924.5	4085	1926.5	4100	1927	4110	1927.2	4120	1927.8	4140
GR	1928.5	4175	1929.5	4250	1931	4300	1932.5	4350	1933.2	4400
GR	1934	4465	1934	4491	1932	4630	1930	4640	1925	4652
GR	1926	4672	1928	4710	1930	4740	1932	4770	1932	4860
GR	1931	4880	1932	4890	1934	4908	1934	4930	1932	4972
GR	1930	4980	1928	4982	1926	4984	1925.5	4990	1925.5	5010
GR	1926	5020	1930	5030	1932	5040	1934	5060	1934	5072
GR	1932	5100	1931.9	5110	1932	5115	1932.4	5155	1932	5205
GR	1931.6	5240	1932	5273	1932.4	5320	1931.7	5380	1932	5410
GR	1934	5534	1936	5678						
ET			7.1				4100	5080		
X1	22.36	59	4940	5070	435.7	370	369.6			
GR	1940	4050	1930	4110	1928	4150	1927	4172	1926	4185
GR	1929	4200	1925	4210	1926	4220	1930	4236	1932	4250
GR	1933	4305	1934	4333	1935	4365	1936	4402	1937	4460
GR	1937.8	4525	1937	4605	1936	4630	1934	4632	1934	4635
GR	1933.3	4650	1934	4660	1934.7	4675	1936	4735	1937	4750
GR	1936	4765	1934	4787	1932.5	4800	1936	4822	1935	4850
GR	1936	4860	1938	4890	1938	4940	1930	4975	1929	4985
GR	1929	5000	1930	5010	1934	5025	1936	5040	1938	5070
GR	1938	5110	1936	5140	1934	5155	1932.2	5180	1934	5195
GR	1936	5202	1938	5232	1938.8	5285	1938	5345	1937.3	5420
GR	1936	5485	1935	5490	1936	5525	1936	5650	1935	5655
GR	1936	5670	1938	5710	1940	5805	1940.7	5845		

ET		9.1	7.1				4192	5110	4098	5825
X1	22.43	54	4880	5110	410	340	369.6			
GR	1944	3745	1942	3955	1936	4000	1934	4020	1935	4060
GR	1933.4	4070	1935	4080	1936.8	4098	1936	4140	1935	4163
GR	1934	4173	1935	4180	1936	4185	1938	4287	1939	4295
GR	1939	4340	1938	4367	1937	4375	1936	4400	1935	4415
GR	1935	4425	1937	4440	1935	4452	1940	4535	1937.5	4570
GR	1939.3	4630	1939	4665	1939	4690	1940	4745	1940	4827

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GR   1941.5      4880      1940      4915      1940      4950      1938      4960      1934      4970
GR   1936.2      4980    1936.2      5000      1934      5010      1938      5025      1940      5050
GR   1939.8      5065      1940      5080    1941.5      5110      1940      5135      1940      5165
GR     1936      5175      1936      5190      1934      5210      1936      5223      1938      5225
GR     1940      5240      1942      5310      1942      5825      1944      5965

ET                9.1       7.1                                  4372      5095      4230      5330
X1    22.48        59      4932      5095     210.7       220       264
GR     1946      3700      1944      3780      1942      3990      1938      4025      1937      4040
GR     1936      4070      1935      4080      1937      4095      1938      4115      1940      4133
GR     1945      4178      1945      4230      1943      4268      1940      4310      1938      4338
GR   1937.5      4350      1938      4395      1939      4415      1940      4440      1940      4460
GR     1940      4485      1940      4503    1940.7      4515      1940      4565    1939.6      4578
GR     1940      4583      1941      4645      1942      4670    1942.6      4690      1942      4705
GR     1941      4720    1940.4      4730      1942      4745      1942      4765      1943      4805
GR     1944      4900      1944      4932      1942      4952      1940      4967      1936      4980
GR     1936      5013      1940      5045      1942      5055      1942      5072      1942      5085
GR     1944      5095      1944      5113      1942      5140      1942      5155    1942.5      5172
GR     1942      5185      1940      5212      1938      5225      1938      5237      1940      5245
GR     1942      5255      1944      5330    1944.8      5420      1946      5650

ET                          7.1                                  4470      5105
X1    22.56        32      4970      5095     335.4       390     422.4
GR     1952      4125      1950      4340      1945      4420      1940      4455      1940      4525
GR   1938.5      4530      1940      4550      1942      4565      1944      4610      1945      4660
GR   1946.0      4750      1946      4770    1946.0      4790    1946.5      4905    1946.0      4970
GR     1940      4980    1938.6      4990    1938.6      5010      1940      5020      1942      5055
GR     1944      5060      1946      5095      1946      5180      1944      5190      1944      5200
GR     1946      5240      1948      5255    1947.5      5300      1948      5400    1948.4      5475
GR     1950      5600      1952      5740

ET                          7.1                                  4475      5050
X1    22.67        32      4950      5050       620       450       528
GR     1960      4165      1957      4230      1956      4290      1954      4400      1952      4430
GR     1950      4440      1948      4450      1945      4460      1948      4480      1949      4540
GR     1950      4560    1950.7      4610      1950      4665      1949      4680      1949      4690
GR     1950      4700    1951.0      4730      1951      4785    1950.3      4800      1952      4850
GR     1952      4930      1950      4950      1946      4980    1944.5      5000    1944.5      5020
GR     1946      5040      1950      5050      1950      5070      1952      5087      1954      5120
GR   1954.6      5195      1956      5275
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ET                          7.1                                  4499      5025
X1    22.73        41      4880      5025       330       310     316.8
GR     1960      4200    1955.5      4300      1955      4310      1954      4357      1953      4390
GR     1953      4410      1954      4435    1954.2      4450    1954.0      4460      1953      4480
GR     1952      4510    1952.5      4520      1952      4530      1954      4540      1953      4570
GR     1952      4580      1953    4580.5      1953      4590      1954      4600      1954      4620
GR     1954      4670      1956      4690      1957      4720      1956      4750    1954.8      4780
GR     1956      4810    1956.2      4840      1956      4870      1954      4880      1952      4900
GR     1950      4965      1948      4980      1947      4985      1947      5010      1948      5010
GR     1950      5020      1954      5025      1956      5030    1957.5      5085      1958      5125
GR     1960      5450

ET                          7.1                                  4490      5150
X1    22.79        33      4930      5060       295       310     316.8
GR     1962      4140      1961      4195      1960      4240      1959      4270      1958      4310
GR     1957      4380      1956      4390    1955.5      4410      1956      4420      1957      4440
GR     1958      4510      1957      4550    1956.7      4590      1956      4660      1956      4690
GR     1958      4700    1958.2      4720    1959.8      4785      1958      4830      1959      4880
GR     1958      4900      1956      4930      1954      4940      1952      4965      1950      4985
GR     1950      5000      1952      5010      1954      5040      1956      5060      1958      5100
GR     1960      5125      1961      5165      1962      5295

QT        2     24400     24400
ET                          7.1                                  4450      5192
X1    22.86        39      4912      5192       370       370       370
GR     1970      3772      1969      3806      1968      3932      1966      4108      1964      4274
GR     1962      4360      1960      4434    1959.5      4442      1960      4452      1961      4480
GR     1962      4530    1962.5      4585      1962      4636      1960      4646      1961      4651
GR     1960      4660    1960.5      4672      1960      4686      1958      4690      1958      4702
GR     1960      4718      1962      4834    1962.5      4888      1962      4912      1960      4968
GR     1958      4976    1953.5      5000      1954      5024      1956      5030      1958      5034
GR     1960      5078    1960.5      5108      1960      5124      1962      5192      1964      5202
GR     1966      5232      1968      5262      1970      5300      1972      5440

NC    0.050     0.050     0.048     0.300     0.500
ET                          9.1                                                          9450     10050
X1    22.95        25      9450     10050      1000      1000      1003
GR     1996      8260      1980      8430      1978      8470      1978      8680      1976      8820
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GR     1972       9090     1969.5       9320      1969.5       9380       1970       9450       1969       9500
GR     1969       9600       1969       9900        1968       9950       1964       9980       1962       9985
GR     1962      10000       1962      10030        1964      10040       1972      10050       1976      10130
GR     1980      10200       1984      10210        1988      10250       1992      10300       1996      10380

        Beginning of Montgomery Watson's Analysis
        Cross Section 22.96 Lengthened 339 feet
        At Left Overbank Using Topographic Maps

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NC     .060       .060       .032
ET                           7.1                                          9500      10014
X1    22.96         30       9951      10016         25       31.3         30
GR     1976       8982       1974       9119       1972       9307     1972.6       9320     1972.3       9386
GR   1971.4       9440     1970.3       9470     1970.0       9513     1970.3       9589     1970.5       9618
GR   1969.4       9642     1968.0       9660     1968.3       9669     1969.4       9686     1970.0       9718
GR   1970.9       9775     1970.6       9827     1969.3       9844     1969.6       9876     1968.6       9900
GR   1966.0       9951     1962.9       9963     1960.8       9977     1959.6      10000     1975.7      10016
GR   1976.9      10023     1976.7      10050     1978.0      10090     1979.7      10124     1979.9      10128
        Cross Section 23.12 Lengthened 138 feet
        At Left Overbank Using Topographic Maps

ET                           7.1                                          9595      10156
X1    23.13         33       9895      10011        730        900      880.2
GR     1982       9370     1980.4       9508     1979.3       9530     1978.8       9541     1976.9       9554
GR   1975.8       9580     1976.1       9638     1978.0       9690     1979.4       9720     1979.7       9787
GR   1980.0       9868     1978.3       9895     1976.9       9917     1970.6       9932     1970.6       9945
GR   1972.0       9951     1972.1       9965     1971.0       9979     1969.8      10000     1977.2      10011
GR   1976.9      10035     1978.0      10067     1977.4      10101     1976.4      10129     1976.3      10151
GR   1974.6      10162     1975.4      10170     1974.1      10183     1979.6      10212     1984.6      10262
GR   1987.7      10301     1989.9      10311     1990.6      10332


ET                           7.1                                          9874      10208
X1    23.25         43       9874      10025        675        550      619.4
GR   1995.4       9293     1994.8       9364     1994.0       9421     1993.5       9518     1992.6       9602
GR   1991.5       9609     1991.8       9613     1991.8       9632     1991.3       9639     1989.2       9660
GR   1985.0       9694     1984.5       9713     1983.9       9766     1985.6       9801     1985.9       9827
GR   1983.8       9861     1983.5       9874     1984.0       9900     1983.4       9928     1980.3       9945
GR   1977.5       9954     1977.8       9973     1977.3      10000     1981.3      10025     1981.3      10054
GR   1981.9      10078     1982.1      10105     1982.9      10118     1983.4      10150     1982.6      10165
GR   1984.1      10181     1983.0      10208     1984.4      10226     1984.9      10257     1984.8      10299
GR   1983.0      10332     1983.0      10353     1981.5      10361     1982.6      10374     1980.9      10385
GR   1983.0      10400     1983.2      10408     1988.6      10424


ET                           7.1                                          9963      10294
X1    23.33         42       9963      10017        490        375      432.6
GR   1997.8       9541     1998.0       9565     1997.1       9582     1995.9       9646     1994.4       9703
GR   1992.7       9741     1990.4       9769     1989.2       9809     1988.3       9819     1989.6       9835
GR   1990.8       9858     1990.9       9896     1989.9       9924     1990.4       9942     1989.0       9963
GR   1981.3       9981     1981.1      10000     1981.1      10004     1985.3      10017     1985.4      10026
GR   1981.8      10038     1979.5      10048     1979.9      10057     1982.0      10065     1983.8      10082
GR   1983.9      10100     1985.4      10111     1985.6      10129     1987.8      10146     1988.1      10164
GR   1986.2      10182     1986.4      10202     1988.2      10222     1988.1      10253     1987.4      10269
GR   1985.8      10289     1986.7      10314     1985.1      10333     1984.6      10339     1988.4      10352
GR   1997.3      10368     2000.4      10386

1
   10OCT00      10:13:51                                                                                    PAGE   32


ET                           7.1                                          9867      10332
X1    23.45         39       9979      10058        530        630      623.5
GR     2004       9460     2001.8       9576     2001.7       9590     2000.8       9623     1999.9       9662
GR   1999.2       9712     1998.8       9731     1998.0       9753     1997.6       9787     1998.1       9817
GR   1997.8       9850     1993.1       9874     1991.8       9888     1991.4       9909     1993.8       9927
GR   1994.2       9951     1995.1       9959     1994.8       9979     1991.5       9985     1991.5       9991
GR   1991.8      10000     1992.0      10005     1993.9      10020     1993.4      10039     1994.5      10058
GR   1995.7      10103     1994.5      10137     1994.5      10151     1993.7      10157     1994.8      10172
GR   1994.3      10236     1989.9      10252     1991.7      10260     1991.5      10270     1988.5      10279
GR   1988.4      10305     1989.5      10314     1989.5      10328     2000.1      10352
        Cross Section 23.55 Lengthened 44 feet
        At Right Overbank Using Topographic Maps

ET                 9.1        7.1                                          9766      10233       9559      10289
X1    23.55         60       9916      10102        325        595      545.1
GR   2010.3       9015     2009.9       9102     2010.1       9149     2009.4       9207     2009.9       9212
GR   2009.4       9263     2008.5       9315     2008.3       9335     2007.2       9375     2006.5       9405
GR   2005.9       9440     2005.3       9466     2004.5       9486     2003.7       9531     2003.9       9555
GR   2004.9       9559     2003.2       9569     2003.1       9588     2003.9       9594     2003.2       9603
GR   2002.1       9647     2001.6       9661     2002.5       9696     2001.9       9730     1996.9       9743
GR   1996.7       9766     1999.4       9781     1999.0       9791     1999.7       9801     1999.5       9809
GR   2000.3       9835     1999.1       9840     1999.5       9849     1999.2       9869     2000.3       9882
GR   2000.6       9905     2001.2       9916     2000.5       9945     1997.4       9959     1997.0       9976
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GR   1997.7      10000     1997.9      10014      1999.2      10028      1999.6      10062      1999.4      10069
GR   1997.9      10076     1997.7      10081      1998.5      10091      2001.1      10102      2001.7      10131
GR   2001.3      10157     2000.2      10184      1998.8      10202      1999.1      10213      1998.6      10233
GR   1997.8      10242     1997.9      10248      2003.1      10264       2006       10289       2010       10308

QT        2      11800      11800
ET                 9.1        7.1                                       9435       10097       9421       10114
X1    23.64         56       9941      10019        525        460      500.2
GR   2012.0       9081     2009.1       9109      2010.9       9138      2010.6       9200      2010.6       9231
GR   2010.0       9271     2008.5       9295      2009.8       9317      2009.9       9349      2008.2       9387
GR   2009.2       9404     2009.5       9421      2008.6       9435      2008.8       9458      2007.8       9510
GR   2007.1       9517     2007.0       9528      2007.6       9537      2007.1       9556      2008.1       9572
GR   2007.9       9599     2007.7       9630      2006.6       9658      2006.6       9671      2005.6       9677
GR   2005.5       9691     2007.7       9701      2007.4       9715      2008.3       9720      2008.1       9732
GR   2006.4       9747     2007.3       9767      2006.7       9799      2004.9       9846      2003.6       9855
GR   2002.8       9863     2004.4       9877      2003.0       9889      2002.9       9912      2004.6       9925
GR   2003.7       9941     2003.6       9970      2000.1       9978      2000.0      10000      2000.5      10005
GR   2005.1      10019     2004.9      10032      2003.1      10039      2006.0      10054      2006.1      10071
GR   2005.8      10078     2007.0      10097      2009.5      10114      2012.2      10136      2015.7      10155
GR   2023.6      10203


ET                           7.1                                       9668       10021
X1    23.87         37       9934      10021       1125       1200      1179.6
GR   2023.3       9487     2022.3       9499      2020.6       9550      2020.9       9575      2019.9       9594
GR   2018.0       9628     2013.9       9648      2013.6       9662      2013.8       9669      2013.5       9681
GR   2015.5       9700     2016.7       9728      2017.0       9769      2016.9       9804      2016.1       9825
GR   2017.0       9842     2017.1       9875      2017.7       9907      2016.7       9934      2010.1       9951
GR   2009.9       9969     2009.2       9975      2008.8      10000      2009.0      10006      2016.7      10021
GR   2017.0      10039     2016.6      10054      2016.7      10083      2017.3      10098      2018.0      10134
1
   10OCT00      10:13:51                                                                                    PAGE   33


GR   2018.8      10166     2020.4      10207      2020.9      10234      2023.6      10273      2025.8      10306
GR   2032.1      10345     2040.5      10396
        THE PRESENCE OF INNER-CHANNEL ISLANDS AT THIS CROSS-SECTION CAUSE
        FLOODWAY TOPWID TO EXCEED FLOODPLAIN TOPWID
        HOWEVER, FLOODWAY IS WITHIN BOUNDARIES OF FLOODPLAIN

ET                           7.1                                       9542       10042
X1    23.94         40       9880      10020        340        435      403.2
GR   2031.2       9457     2030.7       9474      2029.6       9483      2027.1       9516      2017.8       9533
GR   2016.0       9551     2015.9       9572      2019.4       9596      2019.8       9626      2020.8       9671
GR   2021.0       9700     2021.4       9725      2021.0       9769      2020.7       9789      2021.5       9809
GR   2020.9       9827     2021.0       9848      2020.6       9880      2017.4       9894      2016.4       9919
GR   2015.4       9946     2013.2       9968      2011.7       9979      2010.6      10000      2010.4      10002
GR   2020.1      10020     2020.1      10036      2015.1      10042      2020.1      10055      2020.4      10073
GR   2020.9      10100     2020.8      10118      2021.6      10131      2021.9      10153      2023.1      10190
GR   2025.2      10226     2026.9      10261      2029.9      10293      2034.7      10332      2041.6      10375


ET                           7.1                                       9900       10123
X1    24.03         54       9932      10023        585        300      457.8
GR   2044.9       9452     2044.9       9469      2045.3       9474      2044.9       9481      2044.1       9515
GR   2043.3       9557     2043.0       9579      2042.2       9620      2041.6       9655      2040.6       9682
GR   2038.9       9711     2036.2       9729      2028.0       9750      2019.6       9768      2023.4       9783
GR   2023.5       9793     2021.3       9806      2018.8       9819      2018.8       9824      2022.7       9838
GR   2024.3       9872     2024.4       9889      2023.6       9903      2022.7       9917      2025.1       9932
GR   2021.5       9958     2017.5       9976      2017.6      10000      2017.8      10003      2022.1      10023
GR   2021.0      10063     2021.8      10077      2021.2      10095      2017.8      10109      2017.9      10123
GR   2019.5      10134     2019.9      10146      2018.6      10165      2023.3      10194      2024.0      10218
GR   2022.9      10256     2023.4      10289      2024.1      10362      2023.3      10370      2024.5      10375
GR   2024.9      10405     2026.5      10435      2026.3      10485      2027.5      10501      2029.8      10536
GR   2031.9      10570     2035.0      10601      2038.6      10635      2040.2      10662


ET                           7.1                                       9860       10067
X1    24.12         36       9911      10067        450        440      451.7
GR   2040.0       9627     2033.7       9648      2033.1       9664      2033.6       9693      2033.9       9726
GR   2028.6       9737     2028.2       9750      2028.8       9778      2028.5       9813      2028.0       9838
GR   2027.8       9859     2026.6       9911      2024.1       9920      2023.5       9941      2020.6       9944
GR   2020.7       9956     2021.2       9961      2021.6       9986      2021.8      10000      2022.2      10027
GR   2023.4      10043     2027.2      10067      2028.1      10094      2027.9      10126      2028.3      10153
GR   2029.3      10187     2029.8      10228      2030.5      10272      2032.1      10330      2033.3      10374
GR   2034.3      10393     2035.9      10430      2036.7      10455      2038.0      10506      2039.2      10545
GR   2040.1      10570

QT        2       9700       9700
ET                 9.1        7.1                                       9953       10199       9798       10247
X1    24.25         36       9951      10018        765        665      708.6
GR   2057.6       9699     2047.9       9735      2040.4       9770      2037.4       9798      2035.3       9809
GR   2034.2       9832     2033.9       9842      2034.4       9867      2033.8       9901      2034.6       9951
GR   2025.5       9968     2024.8       9981      2024.2      10000      2024.0      10004      2034.5      10018
GR   2032.8      10045     2033.1      10052      2031.6      10070      2032.0      10114      2031.0      10129
GR   2031.0      10144     2027.1      10162      2027.4      10175      2027.2      10199      2035.8      10247
GR   2034.3      10261     2033.5      10281      2034.3      10295      2033.9      10311      2035.0      10361
GR   2035.5      10407     2036.0      10444      2037.1      10491      2038.2      10532      2038.8      10565
1
   10OCT00      10:13:51                                                                                    PAGE   34
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GR   2040.1      10589

NC     .060       .060       .030

ET                 9.1        7.1                                        9811      10077       9743      10160
X1    24.38         35       9811      10077        640        450      708.8
GR   2051.6       9708     2042.0       9743     2037.7       9780     2036.0       9794     2035.7       9811
GR   2035.6       9834     2035.8       9863     2033.7       9875     2033.6       9888     2031.6       9897
GR   2032.7       9911     2032.8       9930     2031.5       9944     2033.6       9954     2034.0       9974
GR   2032.9       9981     2032.7      10000     2034.0      10004     2035.1      10038     2036.3      10077
GR   2035.5      10089     2036.1      10095     2037.2      10138     2043.0      10160     2037.4      10176
GR   2038.0      10193     2037.8      10210     2039.4      10223     2039.9      10290     2039.4      10329
GR   2039.7      10377     2041.0      10388     2041.6      10437     2044.0      10478     2045.1      10503

ET                           7.1                                        9834      10048
X1    24.48         36       9951      10048        385        550      501.7
GR   2061.1       9511     2053.5       9553     2047.0       9589     2043.8       9620     2042.3       9644
GR   2042.4       9664     2039.1       9675     2039.4       9685     2039.2       9706     2038.5       9717
GR   2040.8       9726     2042.6       9753     2043.3       9785     2040.4       9802     2040.4       9842
GR   2041.8       9882     2041.7       9921     2041.5       9951     2037.2       9962     2036.8      10000
GR   2038.7      10008     2037.8      10037     2042.9      10048     2042.5      10072     2044.3      10105
GR   2046.9      10138     2048.9      10176     2051.1      10202     2053.2      10263     2054.6      10306
GR   2056.1      10364     2057.1      10410     2057.5      10438     2057.9      10448     2058.4      10465
GR   2060.5      10492

ET                           7.1                                        9944      10023
X1    24.61         50       9944      10023        730        725      668.9
GR   2050.1       9369     2051.1       9378     2052.3       9403     2052.0       9416     2052.5       9419
GR   2050.4       9428     2049.9       9460     2049.7       9502     2049.3       9538     2049.2       9575
GR   2048.9       9619     2048.8       9675     2048.7       9704     2048.4       9738     2044.8       9755
GR   2044.9       9775     2046.7       9782     2047.7       9798     2048.5       9821     2048.6       9858
GR   2048.0       9893     2046.0       9915     2046.2       9921     2045.9       9934     2046.1       9944
GR   2042.9       9959     2040.7       9984     2040.2      10000     2045.3      10012     2046.5      10023
GR   2045.5      10037     2047.0      10050     2048.1      10074     2049.2      10086     2049.8      10096
GR   2050.2      10130     2050.7      10157     2051.0      10182     2051.4      10196     2051.6      10219
GR   2051.8      10244     2052.4      10250     2052.8      10264     2054.9      10291     2056.3      10312
GR   2057.2      10332     2057.8      10361     2058.5      10384     2060.0      10407     2060.8      10420

ET                           7.1                                        9961      10086
X1    24.74         56       9961      10086        615        615      668.8
GR   2081.5       9294     2080.2       9308     2078.8       9338     2076.9       9349     2076.0       9369
GR   2075.7       9380     2068.8       9410     2065.3       9431     2062.9       9450     2060.4       9482
GR   2058.1       9498     2057.8       9511     2057.0       9536     2056.2       9547     2055.2       9561
GR   2054.7       9579     2055.9       9591     2055.8       9620     2055.4       9659     2055.4       9701
GR   2055.2       9721     2055.4       9748     2055.3       9770     2055.6       9802     2054.7       9824
GR   2055.2       9841     2055.4       9891     2055.2       9906     2055.1       9937     2055.0       9961
GR   2045.8       9981     2046.1      10000     2048.3      10011     2049.5      10036     2051.2      10065
GR   2053.8      10086     2053.9      10124     2054.1      10146     2053.1      10180     2052.0      10189
GR   2052.0      10200     2055.6      10217     2055.5      10239     2057.7      10273     2062.1      10328
GR   2063.9      10369     2065.4      10394     2065.9      10436     2067.2      10468     2067.8      10500
GR   2068.8      10535     2070.1      10564     2073.7      10606     2074.7      10622     2076.2      10637
1
   10OCT00      10:13:51                                                                                  PAGE   35

GR   2079.0      10674

QT         2       7800       7800

ET                           7.1                                        9929      10080
X1    24.87         27       9962      10071        775        685      732.8
GR   2071.9       9592     2067.9       9602     2064.5       9634     2061.1       9659       2071       9690
GR     2071       9750     2061.7       9754     2061.3       9770     2061.2       9816     2061.7       9870
GR   2061.6       9911     2059.7       9917     2061.1       9929     2060.7       9962     2055.0       9978
GR   2054.6      10000     2056.3      10012     2056.4      10042     2057.8      10057     2059.1      10071
GR   2058.6      10100     2057.2      10124     2060.1      10135     2060.8      10157     2061.5      10172
GR   2062.8      10198     2071.0      10237

ET                           7.1                                        9920      10100
X1    24.95         42       9920      10097        485        285      405.6
GR   2090.8       9562     2088.9       9594     2087.3       9620     2084.3       9641     2085.1       9653
GR   2084.2       9681     2083.1       9695     2083.8       9703     2083.6       9718     2081.7       9745
GR   2079.0       9774     2076.8       9810     2075.2       9846     2073.3       9874     2070.0       9901
GR   2064.7       9920     2064.6       9939     2064.3       9953     2063.7       9975     2057.4       9989
GR   2057.7      10000     2059.4      10007     2059.9      10018     2059.3      10024     2060.4      10033
GR   2060.5      10069     2059.2      10086     2060.5      10097     2060.3      10121     2061.5      10135
GR   2062.9      10159     2062.7      10173     2062.2      10185     2060.8      10201     2061.1      10204
GR   2060.5      10226     2061.2      10236     2061.2      10248     2060.2      10258     2060.0      10266
GR   2063.2      10275     2070.9      10296

ET                 9.1        7.1                                        9952      10105       9928      10113
X1    25.12         46       9949      10053        900        800      867.7
GR   2078.3       9560     2077.5       9570     2077.5       9586     2076.9       9612     2076.2       9632
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GR	2077.3	9637	2074.7	9654	2074.1	9667	2075.1	9676	2074.3	9703
GR	2072.5	9721	2071.6	9740	2069.4	9774	2066.9	9798	2069.4	9819
GR	2068.6	9826	2069.9	9836	2071.0	9855	2071.7	9872	2074.9	9903
GR	2074.9	9928	2073.5	9949	2066.7	9976	2066.2	9985	2064.7	10000
GR	2065.2	10008	2065.0	10033	2070.6	10053	2072.1	10079	2071.5	10092
GR	2072.4	10104	2075.3	10113	2075.0	10125	2071.2	10138	2073.0	10173
GR	2072.5	10184	2072.0	10211	2072.3	10240	2077.9	10242	2072.5	10253
GR	2072.4	10267	2075.6	10289	2082.4	10312	2087.7	10348	2090.5	10372
GR	2094.9	10396								

ET		9.1	7.1				9849	10037	9552	10052
X1	25.28	57	9965	10024	950	715	867.5			
GR	2089.8	8848	2088.3	8893	2087.1	8943	2086.2	8997	2085.0	9033
GR	2083.4	9077	2081.8	9099	2081.2	9134	2080.2	9154	2078.5	9166
GR	2078.0	9174	2080.2	9181	2080.4	9199	2081.1	9222	2082.1	9234
GR	2082.8	9269	2084.1	9292	2085.0	9320	2084.5	9323	2084.8	9330
GR	2085.5	9337	2085.8	9360	2085.7	9378	2084.3	9386	2084.0	9409
GR	2083.4	9433	2082.5	9450	2082.0	9487	2082.2	9498	2082.7	9523
GR	2082.6	9552	2082.3	9577	2081.3	9606	2079.8	9632	2079.1	9648
GR	2079.9	9657	2080.1	9675	2078.5	9687	2079.9	9707	2079.3	9725
GR	2079.4	9767	2079.5	9791	2079.0	9807	2079.3	9838	2078.9	9849
GR	2078.6	9887	2077.3	9899	2078.7	9919	2078.7	9954	2077.8	9965
GR	2075.1	9978	2072.6	9995	2072.3	10000	2071.5	10014	2074.0	10024

GR	2089.4	10052	2090.5	10060

ET		9.1	7.1				9650	10296	9287	10336
X1	25.38	77	9865	10140	255	760	538.7			
GR	2090.3	8816	2088.6	8849	2087.3	8903	2085.3	8954	2083.9	9005
GR	2082.6	9032	2082.1	9045	2082.7	9053	2082.1	9066	2080.1	9076
GR	2080.0	9083	2081.8	9098	2081.8	9126	2083.8	9174	2084.9	9211
GR	2085.4	9235	2085.7	9244	2084.8	9247	2085.9	9262	2086.0	9276
GR	2085.7	9287	2085.0	9308	2084.6	9333	2084.1	9379	2083.9	9415
GR	2083.6	9447	2082.2	9487	2081.2	9510	2081.6	9523	2082.0	9549
GR	2081.8	9565	2082.4	9571	2082.5	9601	2082.8	9624	2083.3	9672
GR	2083.3	9697	2082.4	9725	2083.4	9760	2084.1	9775	2084.0	9795
GR	2083.4	9810	2084.8	9830	2084.7	9865	2081.6	9873	2081.7	9883
GR	2082.7	9892	2083.3	9910	2082.8	9940	2080.6	9952	2082.1	9967
GR	2080.3	9984	2079.8	10000	2083.8	10012	2083.2	10026	2083.3	10037
GR	2081.7	10071	2081.5	10085	2084.0	10094	2084.6	10109	2084.3	10140
GR	2082.2	10152	2084.6	10162	2084.0	10174	2080.9	10194	2084.5	10203
GR	2084.5	10236	2078.2	10262	2078.9	10281	2084.1	10296	2085.8	10336
GR	2087.0	10404	2089.1	10466	2089.3	10498	2090.7	10528	2091.2	10546
GR	2095.2	10571	2101.2	10610						

ET		9.1	7.1				9968	10598	9861	10705
X1	25.45	70	9966	10072	375	375	362.2			
GR	2093.6	9071	2092.6	9124	2091.0	9188	2089.7	9236	2088.1	9290
GR	2086.9	9314	2085.1	9329	2084.6	9367	2081.0	9383	2081.0	9394
GR	2083.6	9412	2085.2	9434	2086.6	9464	2087.6	9517	2088.1	9557
GR	2088.0	9570	2088.4	9600	2089.3	9633	2088.7	9650	2088.5	9679
GR	2088.2	9715	2088.9	9731	2089.3	9761	2089.8	9775	2090.2	9813
GR	2090.2	9861	2089.6	9909	2088.8	9941	2088.8	9966	2085.1	9975
GR	2084.8	10000	2086.9	10010	2086.9	10026	2088.5	10038	2086.9	10053
GR	2087.9	10072	2088.3	10093	2088.1	10113	2084.7	10127	2084.6	10132
GR	2087.4	10148	2088.0	10182	2088.5	10230	2088.2	10266	2087.8	10301
GR	2085.6	10312	2087.2	10322	2087.7	10347	2087.3	10374	2086.2	10388
GR	2086.2	10394	2087.9	10414	2088.5	10440	2089.0	10488	2088.4	10513
GR	2086.7	10533	2086.8	10551	2085.6	10575	2082.0	10598	2081.7	10615
GR	2082.7	10641	2087.7	10653	2089.2	10679	2089.8	10705	2090.3	10742
GR	2091.5	10771	2090.5	10780	2092.7	10793	2097.1	10823	2101.2	10867

ET		9.1	7.1				9686	10511	9608	10564
X1	25.56	91	9927	10048	535	600	583.5			
GR	2110.3	8666	2108.6	8716	2107.3	8774	2105.7	8825	2104.5	8861
GR	2102.2	8927	2100.4	8984	2098.8	9019	2098.0	9059	2096.0	9098
GR	2094.0	9131	2093.0	9168	2092.3	9193	2089.6	9224	2086.1	9237
GR	2085.5	9256	2087.2	9268	2092.9	9288	2094.5	9307	2095.3	9336
GR	2095.4	9368	2095.2	9413	2095.0	9460	2095.0	9487	2094.8	9519
GR	2094.4	9538	2098.2	9554	2098.6	9566	2098.5	9595	2097.9	9608
GR	2095.0	9624	2094.1	9642	2095.3	9652	2096.3	9680	2095.9	9687
GR	2096.2	9706	2095.4	9716	2095.2	9745	2094.6	9777	2094.9	9800
GR	2094.6	9817	2093.7	9823	2094.9	9842	2094.8	9883	2095.2	9898
GR	2095.2	9927	2094.7	9952	2092.3	9968	2091.6	9977	2091.8	9996
GR	2091.9	10000	2095.6	10010	2095.6	10048	2095.1	10094	2093.8	10121

GR	2094.6	10134	2094.8	10169	2094.0	10215	2093.5	10221	2094.1	10231
GR	2094.3	10277	2094.6	10298	2094.0	10305	2094.7	10315	2094.9	10348
GR	2094.8	10375	2092.6	10390	2086.0	10406	2085.6	10413	2086.2	10422
GR	2091.0	10446	2093.0	10478	2094.8	10511	2096.6	10542	2097.9	10564

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GR   2097.6     10603    2096.4     10638    2095.1     10656    2094.9     10681    2094.8     10697
GR   2095.3     10731    2095.5     10757    2095.3     10794    2094.8     10827    2093.8     10854
GR   2089.5     10871    2089.9     10883    2092.1     10908    2098.3     10928    2099.8     10954
GR   2101.0     10993

ET                 9.1       7.1                                   9931     10477     9707     10627
X1    25.63         87      9934     10088      375       350    365.7
GR   2114.6      8821    2111.4      8900    2109.3      8953    2107.0      9003    2104.7      9056
GR   2102.4      9103    2100.5      9143    2098.6      9174    2095.5      9198    2092.8      9214
GR   2089.7      9227    2090.3      9244    2093.5      9261    2094.7      9275    2095.8      9289
GR   2097.9      9335    2099.1      9384    2099.6      9438    2099.9      9493    2100.2      9543
GR   2100.5      9596    2100.9      9624    2106.9      9647    2107.2      9662    2106.8      9693
GR   2106.2      9707    2102.4      9728    2101.7      9762    2101.2      9788    2101.2      9832
GR   2101.1      9886    2100.3      9904    2098.8      9919    2098.6      9934    2101.0      9939
GR   2096.0      9948    2095.4      9954    2095.2      9965    2096.0      9979    2095.7     10000
GR   2099.2     10007    2099.2     10040    2098.1     10042    2098.2     10065    2099.2     10088
GR   2099.8     10155    2099.6     10209    2099.2     10251    2098.0     10299    2096.3     10317
GR   2097.8     10334    2097.6     10367    2097.0     10381    2096.4     10417    2093.0     10431
GR   2093.0     10444    2094.6     10458    2094.7     10468    2095.1     10477    2096.5     10487
GR   2096.8     10508    2093.2     10530    2093.3     10540    2096.9     10570    2101.2     10603
GR   2104.4     10627    2107.2     10654    2108.1     10674    2108.3     10698    2108.4     10733
GR   2107.3     10752    2106.2     10782    2105.8     10806    2104.7     10820    2101.3     10840
GR   2099.6     10859    2098.3     10882    2096.7     10922    2095.5     10932    2095.3     10958
GR   2092.3     10971    2091.7     10994    2096.6     11006    2094.2     11019    2097.7     11031
GR   2098.6     11065    2100.9     11087

NC     .060      .060      .020       0.3       0.5

ET                          7.11                                   9881     10099
X1    25.70        21      9881     10099       200       750     396
X3       10                                                      2110.7    2112.0
GR   2108.3      9805    2108.0      9854    2099.0      9881    2098.8      9959    2099.0     10000
GR   2098.9     10036    2098.9     10099    2098.8     10197    2110.1     10227    2110.8     10263
GR   2110.8     10300    2110.7     10338    2110.9     10373    2110.9     10410      2108     10740
GR     2108     10800      2106     10880      2106     10950      2116     11010      2116     11070
GR     2106     11340
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Cross Section 25.72 is immediately Upstream of New River Bridge
Bridge skew has been incorporated by computing distance and effective area based on a projection normal to flow direction.
The GR record data that lie outside the bridge and adjacent embankments have not been skewed.
This method is different than that used for the Carefree Highway Bridge, where the entire set of GR record data are skewed by a constant factor.


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QT        2      7800      7800

SB      0.9       1.6       2.6         0       197        16      1410         2    2099.2    2099.0
ET                9.11      9.11                                                      9990     10227
X1    25.72        47      9990     10227      79.7      79.7      79.7
X2                            1    2109.0    2114.5         0         0      1.33
X3       10                                                      2109.8    2111.6
BT       -9     10030    2109.8                10058    2110.0                10087    2110.3
BT              10115    2110.5                10143    2110.7                10171    2111.0
BT              10200    2111.2                10228    2111.4                10256    2111.6
GR   2109.9      9144    2106.1      9200    2102.4      9282    2101.6      9293    2100.2      9339
GR   2098.5      9390    2096.3      9412    2093.5      9425    2093.6      9433    2099.2      9452
GR   2101.1      9492    2102.1      9545    2102.5      9597    2102.6      9644    2102.1      9681
GR   2101.8      9709    2100.8      9730    2102.5      9751    2103.1      9775    2103.6      9810
GR   2106.3      9822    2106.6      9831    2105.8      9834    2105.5      9861    2106.3      9865
GR   2106.0      9874    2104.7      9878    2104.9      9900    2108.9      9910    2109.0      9922
GR   2108.9      9963    2099.5      9990    2099.2     10000    2099.9     10074    2100.4     10145
GR   2100.6     10227    2100.1     10315    2111.0     10331    2111.3     10372    2111.2     10431
GR   2110.1     10490      2110     10550      2113     10570      2113     10610      2109     10770
GR     2108     10950      2108     11320

NC     .055      .055      .032
```

The ET station in the right overbank was judged to be the limit for effective flow. The ET station on the left was set at where flow could begin to breakout out to the east. The flow that breakouts to the east will be modeled separatley. The discharge for the main branch of Skunk Creek isn't being reduced by the flow that breakouts to the east, because during flood events the east bank could easily be elevated to contain flow in the main branch of Skunk Creek.

```
ET                9.1       7.1                                   9914     10040     9914     10327
X1    25.83        75      9914     10040      600       145     612.5
GR   2120.4      9162    2114.5      9211    2109.9      9263    2108.9      9290    2107.8      9328
GR   2106.5      9372    2103.6      9395    2106.3      9420    2108.1      9450    2109.1      9502
GR   2108.8      9536    2109.2      9569    2108.7      9592    2107.9      9604    2108.9      9618
GR   2109.6      9668    2110.4      9705    2110.5      9758    2111.0      9812    2110.6      9853
GR   2110.8      9906    2111.8      9914    2110.2      9938    2108.1      9966    2106.0     10000
```

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GR   2105.1      10012     2105.3      10025      2112.7      10040      2111.0      10048      2111.1      10092
GR   2110.8      10157     2109.6      10190      2110.4      10217      2109.9      10245      2110.7      10299
GR   2113.0      10312     2113.3      10327      2113.7      10343      2113.6      10361      2113.1      10375
GR   2111.3      10387     2111.1      10441      2110.5      10482      2110.8      10503      2111.1      10535
GR   2110.7      10556     2110.0      10612      2108.4      10639      2109.7      10665      2110.1      10700
GR   2109.5      10738     2108.4      10759      2108.1      10779      2108.8      10805      2109.2      10831
GR   2108.6      10856     2109.7      10900      2110.1      10946      2109.6      10987      2109.2      11018
GR   2109.6      11025     2109.0      11062      2108.7      11099      2108.2      11124      2106.6      11135
GR   2108.1      11149     2106.3      11202      2104.6      11211      2104.6      11220      2107.0      11228
GR   2108.0      11262     2109.4      11305      2110.1      11347      2110.5      11359      2114.0      11456

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NC                                        0.1         0.3

        The ET station in the right overbank was judged to be the limit for
        effective flow in the overbank.  The ET station on the left was set at
        where could begin to breakout to the east.

ET                 9.1        7.1                                        9923       10064       9923       10616
X1    25.95         91       9986      10057        600        625      620.6
GR   2150.7       8862     2150.4       8964     2150.1       8996     2148.4       9049     2146.4       9088
GR   2142.8       9120     2137.7       9145     2132.5       9163     2128.8       9186     2125.7       9218
GR   2123.2       9254     2119.8       9297     2117.2       9322     2116.1       9353     2116.6       9368
GR   2115.7       9416     2115.9       9426     2115.4       9474     2112.1       9487     2114.1       9494
GR   2113.7       9507     2111.4       9517     2111.4       9520     2115.0       9529     2116.1       9568
GR   2115.2       9609     2114.0       9623     2115.1       9634     2115.8       9657     2116.6       9681
GR   2115.6       9694     2116.5       9727     2117.5       9777     2117.4       9802     2117.8       9841
GR   2117.6       9912     2119.0       9923     2118.9       9936     2117.6       9941     2117.5       9969
GR   2118.1       9986     2110.8      10000     2110.4      10020     2113.5      10032     2114.2      10046
GR   2117.7      10057     2119.5      10072     2119.9      10096     2119.4      10103     2119.1      10132
GR   2117.6      10144     2117.5      10154     2119.2      10169     2119.1      10217     2118.1      10258
GR   2118.8      10282     2118.9      10315     2118.6      10363     2116.5      10380     2116.4      10387
GR   2117.4      10398     2117.6      10425     2117.2      10461     2116.9      10490     2116.0      10512
GR   2116.2      10538     2115.9      10580     2116.3      10593     2116.8      10616     2116.5      10644
GR   2116.2      10658     2116.1      10680     2116.1      10729     2115.9      10781     2115.7      10829
GR   2115.5      10882     2115.9      10993     2115.8      11030     2115.0      11108     2114.4      11161
GR   2113.5      11189     2110.3      11205     2110.5      11222     2112.9      11235     2109.1      11242
GR   2109.1      11249     2112.8      11264     2114.5      11290     2117.0      11327     2118.6      11367
GR   2123.3      11510

        The ET station for the flow in the right overbank was judged to be the
        maximum limit for effective flow.

ET                 9.1        7.1                                        9969       10052                  10472
QT       2        7800       7800
X1    26.17         64       9967      10039       1225       1040      1132.0
GR   2160.5       9322     2160.3       9339     2159.0       9377     2158.6       9388     2155.2       9405
GR   2153.6       9419     2152.8       9457     2152.1       9498     2151.4       9556     2150.9       9605
GR   2149.4       9633     2148.4       9670     2147.7       9709     2146.4       9766     2145.2       9786
GR   2143.3       9832     2142.1       9867     2141.5       9891     2140.9       9927     2138.3       9940
GR   2136.6       9957     2132.3       9967     2122.5       9980     2121.9       9988     2121.7      10000
GR   2128.2      10020     2129.9      10039     2131.5      10063     2131.2      10085     2131.5      10098
GR   2130.8      10122     2129.5      10141     2130.1      10155     2130.2      10165     2131.5      10194
GR   2131.8      10227     2131.3      10274     2130.2      10286     2128.2      10302     2129.3      10313
GR   2130.8      10335     2131.2      10373     2129.7      10391     2128.3      10403     2129.7      10418
GR   2132.6      10448     2131.9      10472     2132.9      10501     2133.3      10535     2133.4      10566
GR   2132.5      10609     2131.9      10640     2131.7      10651     2132.7      10668     2134.4      10720
GR   2135.1      10759     2136.1      10820     2136.5      10860     2136.0      10933     2136.4      10948
GR   2136.2      10973     2135.2      10990     2133.2      11036     2131.6      11050
1
   10OCT00      10:13:51                                                                                    PAGE   40

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


FLOW DISTRIBUTION FOR SECNO=     18.16          CWSEL=   1736.55

STA=    9722.    9775.    9836.   10075.   10199.   10330.   10380.   10430.   10650.   10711.
  PER Q=      3.5      2.6     50.3      3.3     17.9     11.5      6.2      4.6       .1
   AREA=    145.8    135.6   1025.1    183.7    628.8    327.5    227.5    341.0     16.8
    VEL=      6.6      5.3     13.6      5.0      7.9      9.7      7.6      3.7      1.2
  DEPTH=      2.8      2.2      4.4      1.5      4.8      6.5      4.5      1.5       .3

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   10OCT00      10:13:51                                                                                    PAGE   41


T1       Floodway Run - Method 1
T2       Date:  4-25-97
T3       Floodway Run - Method 1
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10	3							1522.96	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							

FLOW DISTRIBUTION FOR SECNO= 18.16 CWSEL= 1736.97

STA=	9752.	9775.	9836.	10075.	10199.	10330.	10380.	10425.
PER Q=	3.1	3.1	53.3	4.0	18.8	11.6	6.1	
AREA=	115.1	161.3	1123.3	223.6	683.9	348.5	232.7	
VEL=	7.4	5.3	13.2	4.9	7.6	9.3	7.2	
DEPTH=	5.0	2.6	4.8	1.8	5.2	7.0	5.2	

THIS RUN EXECUTED 10OCT00 10:13:57

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

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

MONT. WAT. AND HEC

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	DIFEG	CRIWS	VLOB	VCH	VROB	XLCH	SECNO
*	13.000	13163.05	1522.98	4.48	1518.50	1525.23	.00	1522.98	.00	12.04	.00	.00	13.00
*	13.000	13163.05	1522.98	4.48	1518.50	1525.23	.00	1522.98	.00	12.04	.00	.00	13.00
	13.020	13163.05	1524.39	5.39	1519.00	1525.94	.00	1523.47	.00	10.00	.00	120.00	13.02
	13.020	13163.05	1524.39	5.39	1519.00	1525.94	.00	1523.47	.00	10.00	.00	120.00	13.02
	13.040	13163.05	1525.95	7.85	1518.10	1526.53	.00	.00	.00	6.14	.00	100.00	13.04
	13.040	13163.05	1525.95	7.85	1518.10	1526.53	.00	.00	.00	6.14	.00	100.00	13.04
	13.080	13163.05	1526.93	8.73	1518.20	1527.13	.00	.00	1.98	3.86	2.59	230.00	13.08
	13.080	13163.05	1526.93	8.73	1518.20	1527.13	.00	.00	1.98	3.86	2.59	230.00	13.08
*	13.160	13163.05	1528.14	6.64	1521.50	1528.50	.00	.00	4.19	5.41	3.12	421.00	13.16
*	13.160	13163.05	1528.14	6.64	1521.50	1528.50	.00	.00	4.19	5.41	3.12	421.00	13.16
	13.280	15700.00	1532.51	9.91	1522.60	1533.21	.00	1532.24	7.91	6.81	5.70	600.00	13.28
	13.280	15700.00	1532.51	9.91	1522.60	1533.21	.00	1532.24	7.91	6.81	5.70	600.00	13.28
*	13.400	23300.00	1537.72	10.92	1526.80	1538.06	.00	.00	3.85	4.87	4.79	678.60	13.40
*	13.400	23300.00	1538.53	11.73	1526.80	1539.16	1.10	.00	.00	6.43	6.14	678.60	13.40
	13.550	23300.00	1543.09	10.89	1532.20	1543.69	.00	.00	6.88	5.52	.45	787.30	13.55
	13.550	23300.00	1544.06	11.86	1532.20	1544.57	.88	.00	6.20	5.55	.00	787.30	13.55
	13.660	23300.00	1547.65	7.45	1540.20	1548.17	.00	.00	6.65	4.24	.00	549.10	13.66
	13.660	23300.00	1548.19	7.99	1540.20	1548.78	.61	.00	7.28	5.50	.00	549.10	13.66
	13.860	23300.00	1555.73	9.43	1546.30	1556.28	.00	.00	6.53	5.59	4.81	1049.10	13.86
	13.860	23300.00	1556.31	10.01	1546.30	1556.86	.58	.00	6.97	5.58	4.90	1049.10	13.86
	14.070	23300.00	1564.42	6.92	1557.50	1565.01	.00	.00	6.30	6.69	3.95	1134.10	14.07
	14.070	23300.00	1564.58	7.08	1557.50	1565.25	.23	.00	6.58	7.31	4.52	1134.10	14.07

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	DIFEG	CRIWS	VLOB	VCH	VROB	XLCH	SECNO
*	14.300	23300.00	1573.99	14.39	1559.60	1574.90	.00	1573.99	4.15	10.39	5.49	1213.60	14.30
*	14.300	23300.00	1574.76	15.16	1559.60	1576.12	1.22	1574.76	5.88	11.41	8.46	1213.60	14.30
	14.540	23300.00	1583.24	11.64	1571.60	1584.12	.00	.00	1.93	7.53	.70	1273.20	14.54
	14.540	23300.00	1583.77	12.17	1571.60	1584.51	.39	.00	.00	6.92	.00	1273.20	14.54
*	14.740	23300.00	1591.09	9.39	1581.70	1593.15	.00	1591.09	6.40	14.71	5.56	1070.90	14.74
*	14.740	23300.00	1591.24	9.54	1581.70	1593.99	.84	1591.24	7.84	16.13	.00	1070.90	14.74
	14.890	23300.00	1596.68	13.48	1583.20	1598.40	.00	1596.03	5.08	12.68	.71	756.40	14.89
*	14.890	23300.00	1597.53	14.33	1583.20	1599.09	.68	.00	5.05	11.92	.00	756.40	14.89

	15.060	23300.00	1602.36	11.06	1591.30	1603.57	.00	.00	2.83	9.14	5.66	930.30	15.06
	15.060	23300.00	1602.45	11.15	1591.30	1603.97	.41	.00	.00	9.91	.00	930.30	15.06
*	15.120	23300.00	1604.66	9.26	1595.40	1606.47	.00	1604.66	2.67	11.32	6.72	283.60	15.12
*	15.120	23300.00	1604.74	9.34	1595.40	1607.27	.80	1604.74	.00	12.77	.00	283.60	15.12
	15.220	23300.00	1610.04	11.14	1598.90	1611.52	.00	.00	1.31	10.14	5.82	553.10	15.22
*	15.220	23300.00	1610.78	11.88	1598.90	1612.35	.84	.00	.00	10.07	.00	553.10	15.22
	15.410	23300.00	1616.92	9.32	1607.60	1618.62	.00	.00	1.93	10.48	3.19	968.90	15.41
	15.410	23300.00	1617.05	9.45	1607.60	1618.69	.07	.00	.00	10.29	.00	968.90	15.41
*	15.550	23300.00	1622.53	9.13	1613.40	1624.72	.00	1622.53	4.78	12.94	6.35	755.30	15.55
*	15.550	23300.00	1622.91	9.51	1613.40	1626.22	1.50	1622.91	.00	14.79	7.42	755.30	15.55
	15.750	23300.00	1629.97	13.67	1616.30	1631.23	.00	.00	4.83	11.29	3.41	1048.40	15.75
*	15.750	23300.00	1630.93	14.63	1616.30	1631.86	.63	.00	4.40	9.78	3.79	1048.40	15.75
*	15.890	23300.00	1635.01	8.21	1626.80	1636.85	.00	1635.01	5.65	12.53	3.14	738.40	15.89
*	15.890	23300.00	1635.75	8.95	1626.80	1638.43	1.58	1635.75	6.65	13.84	.00	738.40	15.89
	16.070	23300.00	1643.78	9.48	1634.30	1645.58	.00	.00	5.60	12.27	1.17	950.30	16.07
	16.070	23300.00	1644.75	10.45	1634.30	1646.99	1.41	.00	6.12	12.81	.00	950.30	16.07
	16.190	23300.00	1648.31	10.81	1637.50	1649.95	.00	.00	5.10	12.65	.00	645.60	16.19
	16.190	23300.00	1649.23	11.73	1637.50	1650.86	.91	.00	5.62	12.14	.00	645.60	16.19
*	16.270	23300.00	1651.78	12.38	1639.40	1653.84	.00	1651.78	5.33	12.50	.00	422.10	16.27
*	16.270	23300.00	1652.32	12.92	1639.40	1655.35	1.51	1652.32	.00	13.98	.00	422.10	16.27
*	16.490	23300.00	1661.63	8.33	1653.30	1662.62	.00	.00	2.91	8.42	7.65	1153.60	16.49
*	16.490	23300.00	1662.56	9.26	1653.30	1663.71	1.10	.00	.00	8.56	8.66	1153.60	16.49
	16.680	23300.00	1668.17	6.87	1661.30	1669.20	.00	.00	.00	8.16	1.72	997.50	16.68
	16.680	23300.00	1668.38	7.08	1661.30	1669.32	.12	.00	.00	7.79	.00	997.50	16.68
*	16.860	23700.00	1676.35	7.24	1669.11	1679.53	.00	1676.35	.00	14.30	.00	879.10	16.86
*	16.860	23700.00	1676.36	7.25	1669.11	1679.53	.00	1676.36	.00	14.29	.00	879.10	16.86

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	DIFEG	CRIWS	VLOB	VCH	VROB	XLCH	SECNO
*	16.870	23700.00	1679.96	9.25	1670.71	1681.87	.00	.00	.00	11.07	.00	146.00	16.87
*	16.870	23700.00	1679.96	9.25	1670.71	1681.87	.00	.00	.00	11.07	.00	146.00	16.87
*	16.960	23700.00	1683.73	8.43	1675.30	1686.34	.00	1683.73	.00	13.08	4.26	456.20	16.96
*	16.960	27300.00	1684.57	9.27	1675.30	1687.19	.85	1684.57	1.35	13.10	4.79	456.20	16.96
*	17.060	23700.00	1688.89	11.29	1677.60	1690.67	.00	1688.89	5.07	13.03	2.71	566.00	17.06
*	17.060	27300.00	1689.73	12.13	1677.60	1691.70	1.03	1689.73	5.45	13.69	3.67	566.00	17.06
*	17.180	23700.00	1694.41	9.81	1684.60	1696.04	.00	1694.41	5.93	11.10	3.52	600.80	17.18
*	17.180	27300.00	1694.93	10.33	1684.60	1696.65	.61	1694.93	6.34	11.47	4.05	600.80	17.18
	17.300	23700.00	1700.59	9.79	1690.80	1701.52	.00	.00	5.01	9.75	4.59	644.40	17.30
	17.300	27300.00	1701.08	10.28	1690.80	1702.36	.84	.00	6.10	10.85	6.64	644.40	17.30
	17.390	23700.00	1704.66	8.96	1695.70	1705.73	.00	1704.54	3.04	9.74	4.58	500.00	17.39
	17.390	27300.00	1705.43	9.73	1695.70	1706.88	1.15	.00	4.33	10.73	6.52	500.00	17.39
*	17.480	27300.00	1709.25	8.85	1700.40	1710.29	.00	1709.25	3.90	10.96	3.69	429.40	17.48
*	17.480	27300.00	1709.99	9.59	1700.40	1711.77	1.48	1709.99	4.93	12.78	5.10	429.40	17.48
*	17.570	27300.00	1713.69	11.29	1702.40	1715.03	.00	1713.69	4.86	12.55	3.98	474.40	17.57
*	17.570	27300.00	1714.46	12.06	1702.40	1716.57	1.54	1714.46	7.90	14.27	4.83	474.40	17.57
*	17.650	27300.00	1717.21	14.01	1703.20	1718.72	.00	1717.21	4.09	13.06	4.03	460.80	17.65
	17.650	27300.00	1717.68	14.48	1703.20	1719.85	1.12	1717.62	4.78	14.62	4.81	460.80	17.65
	17.780	27300.00	1721.91	9.11	1712.80	1723.20	.00	.00	5.08	12.94	6.38	661.30	17.78
	17.780	27300.00	1722.85	10.05	1712.80	1723.68	.48	.00	4.35	10.50	5.39	661.30	17.78
	17.840	27300.00	1724.77	7.67	1717.10	1726.18	.00	.00	4.68	10.98	5.08	341.70	17.84
*	17.840	27300.00	1724.74	7.64	1717.10	1726.68	.50	1724.74	4.75	12.38	5.51	341.70	17.84
*	17.950	27300.00	1729.77	10.27	1719.50	1731.52	.00	1729.77	4.43	12.83	5.33	563.80	17.95
	17.950	27300.00	1730.26	10.76	1719.50	1731.73	.21	.00	4.42	11.75	5.34	563.80	17.95
*	18.090	27700.00	1734.86	11.36	1723.50	1735.43	.00	.00	4.98	7.29	4.42	705.80	18.09
	18.090	27700.00	1734.85	11.35	1723.50	1735.76	.33	.00	6.13	8.37	6.61	705.80	18.09
*	18.160	27700.00	1736.55	7.75	1728.80	1738.36	.00	1736.55	5.98	13.59	7.00	377.60	18.16
	18.160	27700.00	1736.97	8.17	1728.80	1738.80	.44	.00	6.16	13.15	7.54	377.60	18.16
*	18.230	27700.00	1741.75	11.75	1730.00	1743.29	.00	1741.75	5.68	12.32	3.03	370.00	18.23
*	18.230	27700.00	1741.77	11.77	1730.00	1744.05	.76	1741.77	6.85	14.10	3.85	370.00	18.23

	18.290	27700.00	1743.06	10.46	1732.60	1744.89	.00	1742.91	5.92	14.16	4.91	300.00	18.29
*	18.290	27700.00	1744.11	11.51	1732.60	1745.48	.58	.00	5.35	12.20	4.69	300.00	18.29
	18.490	27700.00	1750.88	9.18	1741.70	1752.33	.00	.00	5.85	11.68	6.08	1099.70	18.49
*	18.490	27700.00	1750.98	9.28	1741.70	1753.02	.69	1750.98	.00	13.29	6.75	1099.70	18.49

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	DIFEG	CRIWS	VLOB	VCH	VROB	XLCH	SECNO
*	18.570	27700.00	1754.08	10.58	1743.50	1755.87	.00	1754.08	9.38	14.06	4.77	389.00	18.57
*	18.570	27700.00	1754.64	11.14	1743.50	1756.41	.55	.00	9.24	14.01	5.26	389.00	18.57
*	18.740	27300.00	1760.57	10.17	1750.40	1762.15	.00	1760.57	9.74	11.21	3.66	917.80	18.74
*	18.740	27300.00	1760.63	10.23	1750.40	1762.35	.20	1760.63	10.07	11.81	.00	917.80	18.74
	18.840	27300.00	1764.69	8.99	1755.70	1766.59	.00	1764.59	9.31	14.02	5.21	497.10	18.84
*	18.840	27300.00	1765.57	9.87	1755.70	1767.66	1.07	1765.57	9.10	14.62	6.36	497.10	18.84
*	18.960	27300.00	1771.34	9.14	1762.20	1772.72	.00	1771.34	5.71	13.45	5.27	631.70	18.96
*	18.960	27300.00	1771.86	9.66	1762.20	1773.44	.72	1771.86	6.14	13.74	6.15	631.70	18.96
*	19.070	27300.00	1775.13	10.33	1764.80	1776.42	.00	1775.13	9.44	9.85	5.19	601.00	19.07
	19.070	27300.00	1775.41	10.61	1764.80	1776.83	.41	.00	9.84	9.80	6.02	601.00	19.07
*	19.180	27300.00	1780.34	10.34	1770.00	1782.02	.00	1780.34	10.35	10.40	.00	598.70	19.18
*	19.180	27300.00	1780.49	10.49	1770.00	1782.19	.18	1780.49	10.58	10.29	.00	598.70	19.18
	19.260	27300.00	1784.76	11.76	1773.00	1786.60	.00	1784.67	11.17	9.82	6.55	416.40	19.26
*	19.260	27300.00	1784.80	11.80	1773.00	1786.75	.15	1784.80	11.47	9.97	5.60	416.40	19.26
	19.410	27300.00	1790.80	8.20	1782.60	1791.76	.00	.00	4.52	10.94	6.35	769.40	19.41
	19.410	27300.00	1790.90	8.30	1782.60	1791.86	.10	.00	4.59	10.86	6.32	769.40	19.41
*	19.520	27300.00	1794.85	8.65	1786.20	1796.91	.00	1794.85	8.46	16.90	8.34	606.30	19.52
*	19.520	27300.00	1794.85	8.65	1786.20	1796.91	.00	1794.85	8.45	16.89	8.33	606.30	19.52
	19.620	27300.00	1800.83	10.53	1790.30	1802.06	.00	.00	.00	12.16	6.67	528.00	19.62
	19.620	27300.00	1800.82	10.52	1790.30	1802.06	.00	.00	.00	12.17	6.67	528.00	19.62
*	19.720	27300.00	1805.02	9.92	1795.10	1806.84	.00	1805.02	7.33	15.24	6.28	509.90	19.72
*	19.720	27300.00	1805.05	9.95	1795.10	1806.92	.08	1805.05	7.50	15.40	6.37	509.90	19.72
*	19.830	27300.00	1810.83	11.53	1799.30	1812.92	.00	1810.83	5.87	14.97	5.49	567.80	19.83
*	19.830	27300.00	1810.78	11.48	1799.30	1813.05	.13	1810.78	6.11	15.44	5.67	567.80	19.83
*	19.920	27300.00	1814.80	12.80	1802.00	1816.46	.00	1814.80	4.18	13.43	6.11	492.00	19.92
	19.920	27300.00	1814.98	12.98	1802.00	1816.80	.34	.00	5.41	13.69	6.30	492.00	19.92
	20.050	27300.00	1820.70	10.00	1810.70	1821.23	.00	.00	4.79	8.77	5.20	700.00	20.05
*	20.050	27300.00	1820.85	10.15	1810.70	1821.35	.12	.00	4.68	8.49	5.05	700.00	20.05
*	20.160	27300.00	1824.75	9.25	1815.50	1826.00	.00	.00	6.22	10.65	9.54	555.70	20.16
*	20.160	27300.00	1824.72	9.22	1815.50	1826.06	.06	1824.72	6.39	10.97	9.86	555.70	20.16
*	20.260	27300.00	1831.31	9.41	1821.90	1832.06	.00	.00	5.44	10.16	6.55	531.60	20.26
*	20.260	27300.00	1831.45	9.55	1821.90	1832.22	.16	.00	5.36	10.25	6.58	531.60	20.26
	20.380	27300.00	1835.69	9.79	1825.90	1836.48	.00	.00	5.95	11.05	6.59	622.30	20.38
	20.380	27300.00	1835.76	9.86	1825.90	1836.56	.08	.00	5.99	11.06	6.58	622.30	20.38

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	DIFEG	CRIWS	VLOB	VCH	VROB	XLCH	SECNO
*	20.480	27300.00	1841.48	9.08	1832.40	1842.84	.00	1841.48	4.60	14.30	5.42	526.70	20.48
*	20.480	27300.00	1842.08	9.68	1832.40	1843.75	.91	1842.08	4.84	14.97	6.40	526.70	20.48
*	20.620	27300.00	1848.79	9.49	1839.30	1850.37	.00	1848.79	4.47	14.65	5.00	788.90	20.62
*	20.620	27300.00	1849.51	10.21	1839.30	1851.43	1.06	1849.51	5.01	15.27	5.05	788.90	20.62
*	20.640	27300.00	1850.90	8.90	1842.00	1851.24	.00	.00	4.23	4.83	4.45	135.00	20.64
*	20.640	27300.00	1851.90	9.90	1842.00	1852.38	1.14	.00	.00	5.58	4.50	135.00	20.64
*	20.710	27300.00	1852.87	9.87	1843.00	1854.18	.00	1852.87	5.48	11.81	5.13	369.60	20.71
*	20.710	27300.00	1853.49	10.49	1843.00	1855.40	1.23	1853.49	6.47	13.12	4.52	369.60	20.71
*	20.790	27300.00	1857.17	9.67	1847.50	1857.91	.00	.00	4.38	9.01	3.74	422.40	20.79
*	20.790	27300.00	1858.09	10.59	1847.50	1859.43	1.52	.00	5.23	10.82	.00	422.40	20.79
*	20.900	27300.00	1862.43	9.83	1852.60	1863.86	.00	1862.43	4.90	11.55	4.29	580.80	20.90
*	20.900	27300.00	1862.77	10.17	1852.60	1864.74	.88	1862.77	6.15	12.63	4.07	580.80	20.90
	20.980	27300.00	1866.18	12.98	1853.20	1867.49	.00	1865.81	4.68	10.43	2.63	422.40	20.98
	20.980	27300.00	1866.91	13.71	1853.20	1868.12	.63	.00	4.94	9.69	.00	422.40	20.98

*	21.050	27300.00	1869.77	12.17	1857.60	1871.37	.00	1869.77	4.24	12.62	2.27	369.60	21.05
*	21.050	27300.00	1869.92	12.32	1857.60	1871.93	.56	1869.92	4.79	13.54	3.98	369.60	21.05
	21.110	27300.00	1872.00	11.50	1860.50	1873.36	.00	.00	4.44	10.95	2.06	316.80	21.11
	21.110	27300.00	1872.76	12.26	1860.50	1873.90	.54	.00	4.34	9.90	.00	316.80	21.11
*	21.180	27300.00	1876.07	11.07	1865.00	1877.60	.00	1876.07	4.33	12.61	2.93	369.60	21.18
*	21.180	27300.00	1876.09	11.09	1865.00	1877.78	.18	1876.09	4.69	13.02	.00	369.60	21.18
*	21.250	27300.00	1880.86	12.16	1868.70	1882.51	.00	1880.86	3.94	12.50	2.19	369.60	21.25
*	21.250	27300.00	1880.99	12.29	1868.70	1883.17	.66	1880.99	4.30	13.69	.00	369.60	21.25
	21.310	27300.00	1882.64	11.94	1870.70	1883.90	.00	.00	3.39	10.26	2.61	316.80	21.31
	21.310	27300.00	1883.45	12.75	1870.70	1884.72	.82	.00	3.52	9.98	3.07	316.80	21.31
	21.350	27300.00	1883.36	11.86	1871.50	1885.23	.00	.00	5.18	13.62	3.18	211.20	21.35
	21.350	27300.00	1884.12	12.62	1871.50	1885.70	.47	.00	5.06	12.50	2.91	211.20	21.35
	21.410	27300.00	1886.75	12.55	1874.20	1888.30	.00	.00	6.52	13.62	4.74	422.00	21.41
	21.410	27300.00	1886.69	12.49	1874.20	1888.42	.12	.00	7.16	14.05	4.92	422.00	21.41
	21.490	27300.00	1890.86	8.86	1882.00	1892.34	.00	.00	7.15	12.14	6.98	475.00	21.49
	21.490	27300.00	1891.09	9.09	1882.00	1892.43	.09	.00	6.81	11.61	6.63	475.00	21.49
	21.580	27300.00	1895.50	8.70	1886.80	1896.45	.00	.00	5.88	9.00	3.28	475.20	21.58
*	21.580	27300.00	1895.56	8.76	1886.80	1897.25	.79	1895.56	5.91	11.41	.00	475.20	21.58
	21.630	27300.00	1897.88	9.88	1888.00	1899.24	.00	1897.48	6.52	11.07	2.56	264.00	21.63
	21.630	27300.00	1898.81	10.81	1888.00	1899.97	.74	.00	4.82	10.23	3.80	264.00	21.63

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	DIFEG	CRIWS	VLOB	VCH	VROB	XLCH	SECNO
	21.690	27300.00	1902.22	8.22	1894.00	1903.06	.00	.00	4.65	9.33	4.66	422.40	21.69
	21.690	27300.00	1902.24	8.24	1894.00	1903.16	.10	.00	4.81	9.66	4.83	422.40	21.69
	21.770	27300.00	1905.63	10.63	1895.00	1907.24	.00	1905.36	7.31	12.07	3.59	422.40	21.77
	21.770	27300.00	1905.73	10.73	1895.00	1907.26	.02	.00	7.04	11.79	3.77	422.40	21.77
*	21.820	27300.00	1908.88	8.88	1900.00	1910.37	.00	1908.88	7.09	13.63	4.56	264.00	21.82
*	21.820	27300.00	1908.92	8.92	1900.00	1910.58	.21	1908.92	7.38	14.26	4.83	264.00	21.82
	21.910	27300.00	1914.04	12.04	1902.00	1914.81	.00	.00	6.33	9.18	3.46	475.20	21.91
	21.910	27300.00	1914.60	12.60	1902.00	1915.60	.79	.00	6.39	10.69	.00	475.20	21.91
	21.990	27300.00	1917.76	7.86	1909.90	1918.98	.00	1917.60	6.56	12.84	4.31	422.40	21.99
	21.990	27300.00	1918.43	8.53	1909.90	1919.61	.62	.00	6.08	12.41	.00	422.40	21.99
	22.080	27300.00	1922.61	9.61	1913.00	1923.23	.00	.00	5.34	9.28	3.39	475.20	22.08
	22.080	27300.00	1922.98	9.98	1913.00	1923.90	.67	.00	6.30	10.80	4.58	475.20	22.08
	22.150	27300.00	1925.39	10.39	1915.00	1926.31	.00	.00	7.06	10.76	2.09	369.60	22.15
	22.150	27300.00	1926.11	11.11	1915.00	1927.17	.86	.00	7.32	11.59	3.04	369.60	22.15
	22.220	27300.00	1928.96	10.96	1918.00	1930.31	.00	.00	8.59	11.82	1.65	369.60	22.22
	22.220	27300.00	1929.46	11.46	1918.00	1930.81	.51	.00	8.71	11.41	.00	369.60	22.22
	22.290	27300.00	1933.00	10.00	1923.00	1933.96	.00	.00	7.37	10.75	2.13	369.60	22.29
	22.290	27300.00	1933.37	10.37	1923.00	1934.52	.56	.00	7.67	12.06	1.83	369.60	22.29
	22.360	27300.00	1936.94	11.94	1925.00	1938.18	.00	.00	8.55	11.16	4.12	369.60	22.36
	22.360	27300.00	1937.48	12.48	1925.00	1938.67	.50	.00	8.18	10.63	.00	369.60	22.36
	22.430	27300.00	1941.79	8.39	1933.40	1942.49	.00	.00	6.38	7.84	6.50	369.60	22.43
	22.430	27300.00	1942.23	8.83	1933.40	1943.29	.79	.00	7.41	10.03	.00	369.60	22.43
	22.480	27300.00	1944.10	9.10	1935.00	1945.44	.00	.00	7.42	12.45	6.30	264.00	22.48
	22.480	27300.00	1944.97	9.97	1935.00	1946.73	1.29	.00	7.56	13.70	.00	264.00	22.48
	22.560	27300.00	1948.18	9.68	1938.50	1949.48	.00	.00	6.75	12.42	4.00	422.40	22.56
	22.560	27300.00	1949.07	10.57	1938.50	1950.55	1.07	.00	6.65	12.79	3.83	422.40	22.56
*	22.670	27300.00	1954.37	9.87	1944.50	1956.30	.00	1954.37	6.38	15.09	5.03	528.00	22.67
*	22.670	27300.00	1954.94	10.44	1944.50	1957.05	.74	1954.94	6.57	15.26	.00	528.00	22.67
*	22.730	27300.00	1957.89	10.89	1947.00	1959.79	.00	1957.89	5.53	13.87	2.69	316.80	22.73
*	22.730	27300.00	1958.64	11.64	1947.00	1961.11	1.32	1958.64	6.08	14.84	.00	316.80	22.73
*	22.790	27300.00	1960.94	10.94	1950.00	1962.71	.00	1960.94	4.97	13.74	4.56	316.80	22.79
	22.790	27300.00	1961.63	11.63	1950.00	1963.68	.98	.00	5.38	14.13	4.97	316.80	22.79
	22.860	24400.00	1964.52	11.02	1953.50	1965.64	.00	.00	4.77	10.13	2.55	370.00	22.86
	22.860	24400.00	1965.27	11.77	1953.50	1966.28	.64	.00	4.68	9.36	.00	370.00	22.86

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	DIFEG	CRIWS	VLOB	VCH	VROB	XLCH	SECNO
	22.950	24400.00	1972.66	10.66	1962.00	1973.45	.00	.00	4.74	7.55	1.27	1003.00	22.95
*	22.950	24400.00	1972.69	10.69	1962.00	1973.94	.49	.00	.00	8.97	.00	1003.00	22.95
*	22.960	24400.00	1974.46	14.86	1959.60	1976.26	.00	1974.46	4.44	15.19	.00	30.00	22.96
*	22.960	24400.00	1974.59	14.99	1959.60	1976.96	.71	1974.59	5.43	16.56	.00	30.00	22.96
*	23.130	24400.00	1981.33	11.53	1969.80	1983.41	.00	1981.33	4.41	14.58	5.30	880.20	23.13
*	23.130	24400.00	1982.25	12.45	1969.80	1984.45	1.03	1982.25	4.44	14.41	5.18	880.20	23.13
*	23.250	24400.00	1987.17	9.87	1977.30	1989.03	.00	1987.17	3.94	13.83	5.60	619.40	23.25
*	23.250	24400.00	1987.81	10.51	1977.30	1990.90	1.87	1987.81	.00	16.06	7.18	619.40	23.25
*	23.330	24400.00	1991.35	11.85	1979.50	1993.72	.00	1991.35	3.19	18.13	8.14	432.60	23.33
	23.330	24400.00	1992.11	12.61	1979.50	1994.72	1.00	.00	.00	18.14	8.64	432.60	23.33
	23.450	24400.00	1998.50	10.10	1988.40	2000.15	.00	.00	7.08	14.79	8.56	623.50	23.45
	23.450	24400.00	1998.99	10.59	1988.40	2000.54	.39	.00	7.40	14.11	8.09	623.50	23.45
*	23.550	24400.00	2003.92	7.22	1996.70	2005.92	.00	2003.92	6.50	14.15	6.42	545.10	23.55
*	23.550	24400.00	2004.52	7.82	1996.70	2007.03	1.11	2004.52	7.02	14.98	6.40	545.10	23.55
	23.640	11800.00	2008.98	8.98	2000.00	2010.13	.00	.00	3.79	11.37	3.89	500.20	23.64
	23.640	11800.00	2009.84	9.84	2000.00	2010.53	.40	.00	3.13	9.13	3.35	500.20	23.64
*	23.870	11800.00	2018.87	10.07	2008.80	2020.60	.00	2018.87	3.38	12.20	2.41	1179.60	23.87
*	23.870	11800.00	2019.04	10.24	2008.80	2021.23	.63	2019.04	3.51	13.14	.00	1179.60	23.87
	23.940	11800.00	2020.86	10.46	2010.40	2022.88	.00	2020.83	4.45	12.24	3.25	403.20	23.94
	23.940	11800.00	2021.78	11.38	2010.40	2023.25	.36	.00	3.08	10.48	2.26	403.20	23.94
	24.030	11800.00	2025.13	7.63	2017.50	2026.02	.00	.00	4.07	10.48	4.79	457.80	24.03
*	24.030	11800.00	2025.83	8.33	2017.50	2028.41	2.39	2025.83	4.31	15.03	7.18	457.80	24.03
*	24.120	11800.00	2028.90	8.30	2020.60	2030.98	.00	2028.90	2.15	11.82	1.83	451.70	24.12
*	24.120	11800.00	2029.75	9.15	2020.60	2031.41	.43	.00	2.85	10.48	.00	451.70	24.12
*	24.250	9700.00	2033.67	9.67	2024.00	2035.81	.00	2033.67	.00	14.03	5.47	708.60	24.25
*	24.250	9700.00	2033.98	9.98	2024.00	2036.28	.47	2033.98	.00	14.22	5.42	708.60	24.25
*	24.380	9700.00	2038.55	7.05	2031.50	2039.46	.00	.00	2.51	7.87	2.43	708.80	24.38
*	24.380	9700.00	2038.87	7.37	2031.50	2039.80	.34	.00	.00	7.73	.00	708.80	24.38
*	24.480	9700.00	2043.74	6.94	2036.80	2045.30	.00	2043.74	3.87	11.92	1.75	501.70	24.48
*	24.480	9700.00	2044.46	7.66	2036.80	2046.83	1.53	2044.46	4.11	13.30	.00	501.70	24.48
*	24.610	9700.00	2050.04	9.84	2040.20	2051.52	.00	2050.04	2.87	11.60	3.26	668.90	24.61
*	24.610	9700.00	2050.49	10.29	2040.20	2054.40	2.88	2050.49	.00	15.87	.00	668.90	24.61
*	24.740	9700.00	2055.85	10.05	2045.80	2057.47	.00	2055.85	1.14	10.79	2.80	668.80	24.74
*	24.740	9700.00	2056.69	10.89	2045.80	2058.49	1.02	.00	.00	10.77	.00	668.80	24.74

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	DIFEG	CRIWS	VLOB	VCH	VROB	XLCH	SECNO
*	24.870	7800.00	2061.94	7.34	2054.60	2063.58	.00	2061.94	1.56	11.10	3.82	732.80	24.87
*	24.870	7800.00	2061.99	7.39	2054.60	2064.49	.91	2061.99	2.17	12.82	3.54	732.80	24.87
	24.950	7800.00	2064.96	7.56	2057.40	2065.68	.00	.00	.41	7.85	3.95	405.60	24.95
	24.950	7800.00	2065.79	8.39	2057.40	2067.21	1.52	.00	.00	9.57	2.70	405.60	24.95
*	25.120	7800.00	2072.77	8.07	2064.70	2075.32	.00	2072.77	.00	12.91	2.28	867.70	25.12
*	25.120	7800.00	2072.79	8.09	2064.70	2075.32	.00	2072.79	.00	12.86	2.28	867.70	25.12
*	25.280	7800.00	2081.36	9.86	2071.50	2082.98	.00	2081.36	2.74	12.05	3.40	867.50	25.28
*	25.280	7800.00	2081.44	9.94	2071.50	2083.89	.91	2081.44	3.64	13.83	3.95	867.50	25.28
	25.380	7800.00	2084.98	6.78	2078.20	2085.30	.00	.00	2.66	5.69	3.72	538.70	25.38
*	25.380	7800.00	2085.95	7.75	2078.20	2086.28	.98	.00	2.19	5.36	3.13	538.70	25.38
*	25.450	7800.00	2088.35	7.35	2081.00	2089.38	.00	2088.35	.00	9.81	7.56	362.20	25.45
*	25.450	7800.00	2089.24	8.24	2081.00	2090.27	.89	2089.24	.00	11.30	5.13	362.20	25.45
*	25.560	7800.00	2095.84	10.34	2085.50	2096.30	.00	.00	2.21	6.43	5.43	583.50	25.56
*	25.560	7800.00	2095.91	10.41	2085.50	2096.36	.06	.00	2.22	6.39	5.30	583.50	25.56
	25.630	7800.00	2099.06	9.36	2089.70	2099.84	.00	.00	1.36	8.78	6.35	365.70	25.63
*	25.630	7800.00	2099.44	9.74	2089.70	2100.64	.80	2099.41	2.54	10.25	7.79	365.70	25.63
*	25.700	7800.00	2102.31	3.51	2098.80	2104.03	.00	2102.31	.00	10.51	.00	396.00	25.70
*	25.700	7800.00	2102.54	3.74	2098.80	2104.05	.02	.00	.00	9.84	.00	396.00	25.70
*	25.720	7800.00	2104.11	4.91	2099.20	2105.13	.00	.00	.00	8.10	.00	79.70	25.72
*	25.720	7800.00	2104.11	4.91	2099.20	2105.13	.00	.00	.00	8.10	.00	79.70	25.72

*	25.830	7800.00	2112.46	8.86	2103.60	2113.92	.00	2112.46	.00	10.93	3.81	612.50	25.83
*	25.830	7800.00	2113.04	9.44	2103.60	2115.55	1.63	2113.04	.00	12.69	.00	612.50	25.83
*	25.950	7800.00	2119.31	10.21	2109.10	2120.57	.00	2119.31	2.59	11.05	3.31	620.60	25.95
*	25.950	7800.00	2120.33	11.23	2109.10	2123.08	2.51	2120.33	4.00	13.84	3.20	620.60	25.95
*	26.170	7800.00	2132.48	10.78	2121.70	2133.91	.00	2132.48	.02	11.24	3.08	1132.00	26.17
*	26.170	7800.00	2132.69	10.99	2121.70	2136.22	2.31	2132.69	.00	15.20	4.03	1132.00	26.17

MONT. WAT. AND HEC

SUMMARY PRINTOUT

	SECNO	SSTA	TOPWID	ENDST
*	13.000	9820.24	244.53	10064.76
*	13.000	9820.24	244.53	10064.76
	13.020	9820.16	244.67	10064.84
	13.020	9820.16	244.67	10064.84
	13.040	9731.08	394.62	10125.70
	13.040	9731.08	394.62	10125.70
	13.080	9550.00	1095.47	10645.47
	13.080	9550.00	1095.47	10645.47
*	13.160	9421.00	1310.31	10794.75
*	13.160	9421.00	1310.31	10794.75
	13.280	9537.00	1230.26	10801.64
	13.280	9537.00	1230.26	10801.64
*	13.400	8963.18	2079.32	11082.48
*	13.400	9670.00	932.00	10602.00
	13.550	8752.06	1648.66	10497.65
	13.550	9236.00	1258.00	10494.00
	13.660	8570.05	1912.62	10482.67
	13.660	9055.00	1427.00	10482.00
	13.860	8257.22	1715.14	10262.97
	13.860	8708.00	1282.28	10232.00
	14.070	8615.59	1909.12	10528.49
	14.070	8805.00	1724.00	10529.00
*	14.300	8677.95	2146.54	10865.72
*	14.300	9210.00	950.00	10160.00
	14.540	9705.41	620.61	10484.50
	14.540	9950.00	530.00	10480.00
*	14.740	9533.07	616.16	10149.23
*	14.740	9720.00	356.00	10076.00
	14.890	9518.21	550.50	10068.71
*	14.890	9620.00	439.00	10059.00
	15.060	9736.51	755.91	10492.42
	15.060	9972.00	418.00	10390.00

	SECNO	SSTA	TOPWID	ENDST
*	15.120	9745.79	789.48	10535.27
*	15.120	9975.00	376.00	10351.00
	15.220	9950.28	597.88	10548.16
*	15.220	9977.00	371.00	10348.00
	15.410	9973.43	396.66	10370.09
	15.410	9979.00	374.00	10353.00
*	15.550	9832.84	525.23	10358.08
*	15.550	9935.00	247.00	10182.00
	15.750	9428.94	768.87	10197.80
*	15.750	9477.00	639.00	10116.00

*	15.890	9481.37	712.40	10220.04
*	15.890	9817.00	374.02	10210.00
	16.070	9635.05	512.27	10147.32
	16.070	9830.00	300.00	10130.00
	16.190	9316.73	751.98	10068.71
	16.190	9600.00	468.00	10068.00
*	16.270	9399.10	643.18	10042.28
*	16.270	9760.00	282.00	10042.00
*	16.490	9861.13	642.89	10504.02
*	16.490	9906.00	414.00	10320.00
	16.680	9939.05	654.54	10593.60
	16.680	9940.00	650.00	10590.00
*	16.860	9910.70	264.88	10175.58
*	16.860	9910.70	264.88	10175.58
*	16.870	9904.13	279.40	10183.53
*	16.870	9904.13	279.40	10183.53
*	16.960	9932.66	398.88	10575.93
*	16.960	9914.00	424.48	10534.00
*	17.060	9518.80	988.07	10651.60
*	17.060	9650.00	887.44	10550.00
*	17.180	9665.71	913.57	10765.79
*	17.180	9697.00	827.81	10650.00
	17.300	9594.52	1567.44	11344.66
	17.300	9670.00	780.00	10450.00

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	SECNO	SSTA	TOPWID	ENDST
	17.390	9784.11	1515.12	11299.23
	17.390	9785.00	765.00	10550.00
*	17.480	9488.92	1925.64	11414.56
*	17.480	9850.00	755.00	10605.00
*	17.570	9516.45	1487.53	11003.98
*	17.570	9879.00	761.00	10640.00
*	17.650	9423.70	1379.96	10803.66
	17.650	9629.00	757.00	10386.00
	17.780	9642.06	959.09	10601.15
	17.780	9654.00	906.00	10560.00
	17.840	9745.39	1008.18	10753.57
*	17.840	9770.00	790.00	10560.00
*	17.950	9818.68	1027.29	11097.62
	17.950	9845.00	750.00	10595.00
*	18.090	9853.20	1506.08	11359.28
	18.090	9895.00	715.00	10610.00
*	18.160	9722.46	949.15	10711.09
	18.160	9752.00	643.27	10425.00
*	18.230	9543.01	1309.37	10852.37
*	18.230	9630.00	700.00	10330.00
	18.290	9575.47	1039.14	10645.45
*	18.290	9630.00	700.00	10330.00
	18.490	9739.73	848.14	10587.87
*	18.490	9832.00	643.00	10475.00
*	18.570	9637.06	920.13	10557.19
*	18.570	9700.00	780.00	10480.00
*	18.740	9330.44	875.64	10206.07
*	18.740	9380.00	745.00	10125.00
	18.840	9474.25	684.70	10158.95
*	18.840	9576.00	564.00	10140.00
*	18.960	9450.36	1432.78	10883.15
*	18.960	9639.00	841.00	10480.00

*	19.070	9295.43	1357.34	10732.67
	19.070	9485.00	830.00	10315.00

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	SECNO	SSTA	TOPWID	ENDST
*	19.180	9242.08	834.35	10076.44
*	19.180	9330.00	746.00	10076.00
	19.260	9392.03	717.97	10110.00
*	19.260	9430.00	635.00	10065.00
	19.410	9597.37	1012.08	10628.82
	19.410	9660.00	941.00	10610.00
*	19.520	9900.45	680.58	10581.03
*	19.520	9901.00	680.00	10581.00
	19.620	9983.79	746.74	10730.53
	19.620	9984.00	746.43	10730.43
*	19.720	9802.87	760.62	10563.49
*	19.720	9825.00	725.00	10550.00
*	19.830	9727.16	714.61	10441.77
*	19.830	9770.00	650.00	10420.00
*	19.920	9220.00	1173.26	10393.26
	19.920	9710.00	683.31	10393.31
	20.050	9355.04	1085.65	10473.75
*	20.050	9420.00	1052.87	10473.12
*	20.160	9154.87	1116.07	10489.67
*	20.160	9202.00	1063.30	10489.50
*	20.260	9154.12	1253.31	10533.85
*	20.260	9190.00	1205.00	10395.00
	20.380	9167.09	1211.13	10428.94
	20.380	9209.00	1166.53	10415.00
*	20.480	9232.37	1298.90	10531.27
*	20.480	9424.00	906.00	10330.00
*	20.620	9254.26	1241.81	10496.07
*	20.620	9485.00	885.00	10370.00
*	20.640	9200.65	1349.99	10550.64
*	20.640	9500.00	850.00	10350.00
*	20.710	4124.87	1391.07	5515.94
*	20.710	4500.00	810.00	5310.00
*	20.790	4240.00	1260.00	5500.00
*	20.790	4500.00	660.00	5160.00

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	SECNO	SSTA	TOPWID	ENDST
*	20.900	4161.02	1313.97	5475.00
*	20.900	4550.00	670.00	5220.00
	20.980	4128.74	1250.99	5393.42
	20.980	4390.00	670.00	5060.00
*	21.050	4096.29	1247.21	5343.50
*	21.050	4380.00	695.00	5075.00
	21.110	4159.86	1025.38	5185.24
	21.110	4350.00	775.00	5125.00
*	21.180	4050.00	1152.57	5202.57
*	21.180	4200.00	900.00	5100.00
*	21.250	4179.23	1420.77	5600.00
*	21.250	4310.00	745.00	5055.00
	21.310	4175.94	965.41	5141.35
	21.310	4450.00	650.00	5100.00
	21.350	4255.26	829.04	5084.30
	21.350	4400.00	705.00	5105.00

	21.410	4299.76	799.93	5099.69
	21.410	4500.00	596.32	5096.32
	21.490	4616.35	700.14	5316.50
	21.490	4617.00	700.00	5317.00
	21.580	4335.33	1294.67	5630.00
*	21.580	4415.00	840.00	5255.00
	21.630	4213.41	1159.04	5478.43
	21.630	4265.00	1055.00	5320.00
	21.690	3891.12	1412.19	5303.31
	21.690	3970.00	1330.00	5300.00
	21.770	3694.34	964.76	5194.72
	21.770	3694.00	958.18	5165.00
*	21.820	3690.75	1139.89	5210.74
*	21.820	3750.00	1074.67	5200.00
	21.910	3809.06	1154.39	5251.95
	21.910	3900.00	1140.00	5040.00
	21.990	3667.24	1403.61	5315.83
	21.990	3765.00	1234.22	5090.00

	SECNO	SSTA	TOPWID	ENDST
	22.080	3713.43	1609.96	5340.23
	22.080	4050.00	1125.00	5175.00
	22.150	3356.58	1241.16	5067.37
	22.150	3700.00	1088.06	5070.00
	22.220	3744.67	831.90	5221.84
	22.220	3918.00	783.94	5063.74
	22.290	3926.81	1282.22	5471.95
	22.290	4000.00	911.26	5100.00
	22.360	4068.37	1104.00	5688.77
	22.360	4100.00	844.30	5062.21
	22.430	4098.00	1204.82	5302.82
	22.430	4192.00	918.00	5110.00
	22.480	4247.04	1082.95	5330.00
	22.480	4372.00	723.00	5095.00
	22.560	4369.09	1064.96	5434.06
	22.560	4470.00	635.00	5105.00
*	22.670	4379.74	786.32	5166.05
*	22.670	4475.00	575.00	5050.00
*	22.730	4246.90	869.26	5116.16
*	22.730	4499.00	526.00	5025.00
*	22.790	4197.60	965.08	5162.69
	22.790	4490.00	660.00	5150.00
	22.860	4230.68	979.15	5209.83
	22.860	4450.00	742.00	5192.00
	22.950	9045.60	1017.56	10063.16
*	22.950	9450.00	600.00	10050.00
*	22.960	9087.79	926.98	10014.76
*	22.960	9500.00	514.00	10014.00
*	23.130	9427.59	801.73	10229.32
*	23.130	9595.00	561.00	10156.00
*	23.250	9676.44	743.33	10419.76
*	23.250	9874.00	334.00	10208.00
*	23.330	9757.41	599.89	10357.31
	23.330	9963.00	331.00	10294.00

	SECNO	SSTA	TOPWID	ENDST

	23.450	9739.33	609.04	10348.37
	23.450	9867.00	465.00	10332.00
*	23.550	9564.76	706.32	10271.08
*	23.550	9766.00	467.00	10233.00
	23.640	9429.11	681.35	10110.46
	23.640	9435.00	662.00	10097.00
*	23.870	9612.42	555.39	10167.81
*	23.870	9668.00	353.00	10021.00
	23.940	9527.41	415.48	10118.92
	23.940	9542.00	500.00	10042.00
	24.030	9756.17	652.99	10409.16
*	24.030	9900.00	223.00	10123.00
*	24.120	9736.38	436.92	10173.30
*	24.120	9860.00	207.00	10067.00
*	24.250	9952.75	267.97	10235.08
*	24.250	9953.00	237.05	10199.00
*	24.380	9772.72	370.39	10143.11
*	24.380	9811.00	266.00	10077.00
*	24.480	9620.98	473.74	10094.71
*	24.480	9834.00	214.00	10048.00
*	24.610	9451.16	665.08	10116.24
*	24.610	9944.00	79.00	10023.00
*	24.740	9551.84	678.84	10244.47
*	24.740	9961.00	125.00	10086.00
*	24.870	9652.80	435.82	10180.87
*	24.870	9929.00	151.00	10080.00
	24.950	9919.06	360.74	10279.80
	24.950	9920.00	180.00	10100.00
*	25.120	9951.89	153.27	10105.16
*	25.120	9952.00	153.00	10105.00
*	25.280	9604.19	433.20	10037.39
*	25.280	9849.00	188.00	10037.00
	25.380	9308.85	1008.00	10316.85
*	25.380	9650.00	646.00	10296.00

	SECNO	SSTA	TOPWID	ENDST
*	25.450	9967.09	582.34	10664.28
*	25.450	9968.00	630.00	10598.00
*	25.560	9619.37	866.12	10528.90
*	25.560	9686.72	802.73	10511.00
	25.630	9916.31	458.07	10586.65
*	25.630	9931.00	429.73	10477.00
*	25.700	9881.00	218.00	10099.00
*	25.700	9881.00	218.00	10099.00
*	25.720	9990.00	237.00	10227.00
*	25.720	9990.00	237.00	10227.00
*	25.830	9914.00	393.33	10308.95
*	25.830	9914.00	126.00	10040.00
*	25.950	9923.00	652.16	10616.00
*	25.950	9923.00	141.00	10064.00
*	26.170	9966.59	499.86	10472.00
*	26.170	9969.00	83.00	10052.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=     13.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     13.000  PROFILE=  2  CRITICAL DEPTH ASSUMED

WARNING SECNO=     13.160  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     13.160  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     13.400  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     13.400  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     14.300  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     14.300  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     14.300  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     14.300  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     14.740  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     14.740  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     14.740  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     14.740  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     14.890  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     15.120  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     15.120  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     15.120  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     15.120  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     15.220  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     15.550  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     15.550  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     15.550  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     15.550  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     15.750  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     15.890  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     15.890  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     15.890  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     15.890  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     15.890  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=     16.270  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     16.270  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     16.270  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     16.270  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     16.490  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     16.490  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     16.860  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     16.860  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=     16.860  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     16.860  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     16.870  PROFILE=  1  HYDRAULIC JUMP D.S.
WARNING SECNO=     16.870  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=     16.870  PROFILE=  2  HYDRAULIC JUMP D.S.
WARNING SECNO=     16.870  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     16.960  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     16.960  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     16.960  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     16.960  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     16.960  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     16.960  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

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CAUTION SECNO=     17.180  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     17.480  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     17.570  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     17.570  PROFILE=  2  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=     17.840  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     17.840  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     17.950  PROFILE=  1  CRITICAL DEPTH ASSUMED
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WARNING SECNO=     18.090  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     18.160  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     18.160  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     18.230  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     18.230  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     18.230  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     18.230  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     18.230  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=     18.230  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=     18.290  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     18.490  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     18.490  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     18.570  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     18.740  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=     18.840  PROFILE=  2  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     18.960  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     18.960  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     18.960  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     18.960  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     18.960  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

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CAUTION SECNO=     19.180  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     19.720  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     19.720  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     19.830  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     19.830  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     19.830  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     19.830  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     19.830  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
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CAUTION SECNO=     19.920  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     19.920  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     20.050  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     20.160  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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CAUTION SECNO=     20.160  PROFILE=  2  MINIMUM SPECIFIC ENERGY
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WARNING SECNO=     20.260  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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CAUTION SECNO=     20.480  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

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WARNING SECNO=     20.640  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     20.640  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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WARNING SECNO=     20.790  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     20.790  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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CAUTION SECNO=     20.900  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=     20.900  PROFILE=  2  MINIMUM SPECIFIC ENERGY

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CAUTION SECNO=     21.050  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     21.180  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     21.180  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     21.180  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     21.180  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=     21.250  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     21.250  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     21.250  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     21.250  PROFILE=  2  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     21.250  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     21.250  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=     21.580  PROFILE=  2  CRITICAL DEPTH ASSUMED

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CAUTION SECNO=     21.820  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     21.820  PROFILE=  2  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     22.670  PROFILE=  2  MINIMUM SPECIFIC ENERGY

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CAUTION SECNO=     22.960  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     22.960  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     22.960  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     22.960  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     22.960  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     22.960  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=     23.130  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     23.130  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     23.130  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     23.130  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     23.250  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     23.250  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     23.250  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     23.250  PROFILE=  2  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=     23.330  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     23.330  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     23.550  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     23.550  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     23.550  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     23.550  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     23.870  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     23.870  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     23.870  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     23.870  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=     23.870  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

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CAUTION SECNO=     24.030  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     24.030  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=     24.120  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     24.120  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=     24.120  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     24.250  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     24.250  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     24.250  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     24.250  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     24.380  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     24.380  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     24.480  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     24.480  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     24.480  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     24.480  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     24.480  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     24.480  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=     24.610  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     24.610  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     24.610  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     24.610  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     24.740  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     24.740  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     24.740  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=     24.740  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     24.870  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     24.870  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     24.870  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     24.870  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     24.870  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     24.870  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=     25.120  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     25.120  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     25.120  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     25.120  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     25.120  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     25.280  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     25.280  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=     25.280  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     25.380  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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CAUTION SECNO=     25.450  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     25.450  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     25.450  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     25.450  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     25.450  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=     25.560  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     25.560  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     25.630  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     25.700  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     25.700  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=     25.700  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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CAUTION SECNO=     25.720  PROFILE=  1  HYDRAULIC JUMP D.S.
WARNING SECNO=     25.720  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=     25.720  PROFILE=  2  HYDRAULIC JUMP D.S.

CAUTION SECNO=     25.830  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     25.830  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     25.830  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     25.830  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     25.830  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     25.830  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=     25.950  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     25.950  PROFILE=  2  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     26.170  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=     26.170  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     26.170  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     26.170  PROFILE=  2  MINIMUM SPECIFIC ENERGY
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Floodway width summary: MONT. WAT. AND HEC
Profile No. 2

Section Number	Elevation Increase	Top Width	Left Encroach Station	Left Sta Distance From Center	Center Station	Right Sta Distance From Center	Right Encroach Station
13.000	.00	245.00	9820.00	122.50	9942.50	122.50	10065.00
13.020	.00	245.00	9820.00	122.50	9942.50	122.50	10065.00
13.040	.00	813.00	9537.00	388.50	9925.50	424.50	10350.00
13.080	.00	1129.00	9550.00	348.50	9898.50	780.50	10679.00
13.160	.00	1395.00	9421.00	699.50	10120.50	695.50	10816.00
13.280	.00	1265.00	9537.00	353.50	9890.50	911.50	10802.00
13.400	.81	932.00	9670.00	324.50	9994.50	607.50	10602.00
13.550	.97	1258.00	9236.00	855.00	10091.00	403.00	10494.00
13.660	.54	1427.00	9055.00	926.50	9981.50	500.50	10482.00
13.860	.58	1524.00	8708.00	978.00	9686.00	546.00	10232.00
14.070	.16	1724.00	8805.00	1164.00	9969.00	560.00	10529.00
14.300	.78	950.00	9210.00	765.00	9975.00	185.00	10160.00
14.540	.53	530.00	9950.00	265.00	10215.00	265.00	10480.00
14.740	.14	356.00	9720.00	306.00	10026.00	50.00	10076.00
14.890	.84	439.00	9620.00	378.50	9998.50	60.50	10059.00
15.060	.09	418.00	9972.00	209.00	10181.00	209.00	10390.00
15.120	.08	376.00	9975.00	188.00	10163.00	188.00	10351.00
15.220	.74	371.00	9977.00	185.50	10162.50	185.50	10348.00
15.410	.13	374.00	9979.00	187.00	10166.00	187.00	10353.00
15.550	.38	247.00	9935.00	106.00	10041.00	141.00	10182.00
15.750	.96	639.00	9477.00	562.50	10039.50	76.50	10116.00
15.890	.74	393.00	9817.00	272.50	10089.50	120.50	10210.00
16.070	.97	300.00	9830.00	209.00	10039.00	91.00	10130.00
16.190	.92	468.00	9600.00	405.50	10005.50	62.50	10068.00
16.270	.53	282.00	9760.00	142.50	9902.50	139.50	10042.00
16.490	.93	414.00	9906.00	112.00	10018.00	302.00	10320.00
16.680	.21	650.00	9940.00	319.00	10259.00	331.00	10590.00
16.860	*** Encroachments not set ***						
16.870	*** Encroachments not set ***						
16.960	.83	620.00	9914.00	223.00	10137.00	397.00	10534.00
17.060	.84	900.00	9650.00	368.50	10018.50	531.50	10550.00
17.180	.52	953.00	9697.00	419.00	10116.00	534.00	10650.00
17.300	.50	780.00	9670.00	393.00	10063.00	387.00	10450.00
17.390	.77	765.00	9785.00	251.00	10036.00	514.00	10550.00
17.480	.74	755.00	9850.00	133.00	9983.00	622.00	10605.00
17.570	.77	761.00	9879.00	102.50	9981.50	658.50	10640.00
17.650	.47	757.00	9629.00	343.50	9972.50	413.50	10386.00
17.780	.94	906.00	9654.00	324.50	9978.50	581.50	10560.00
17.840	-.03	790.00	9770.00	301.00	10071.00	489.00	10560.00
17.950	.49	750.00	9845.00	112.00	9957.00	638.00	10595.00
18.090	-.01	715.00	9895.00	228.00	10123.00	487.00	10610.00
18.160	.42	673.00	9752.00	203.50	9955.50	469.50	10425.00
18.230	.02	700.00	9630.00	275.00	9905.00	425.00	10330.00
18.290	1.05	700.00	9630.00	351.50	9981.50	348.50	10330.00
18.490	.09	643.00	9832.00	102.50	9934.50	540.50	10475.00
18.570	.56	780.00	9700.00	294.00	9994.00	486.00	10480.00
18.740	.06	745.00	9380.00	678.50	10058.50	66.50	10125.00

18.840	.88	564.00	9576.00	399.50	9975.50	164.50	10140.00
18.960	.52	841.00	9639.00	333.50	9972.50	507.50	10480.00
19.070	.29	830.00	9485.00	513.00	9998.00	317.00	10315.00
19.180	.15	746.00	9330.00	647.00	9977.00	99.00	10076.00

19.260	.04	635.00	9430.00	591.00	10021.00	44.00	10065.00
19.410	.10	950.00	9660.00	340.00	10000.00	610.00	10610.00
19.520	.00	680.00	9901.00	112.50	10013.50	567.50	10581.00
19.620	.00	746.51	9984.00	59.00	10043.00	687.51	10730.51
19.720	.02	725.00	9825.00	170.50	9995.50	554.50	10550.00
19.830	-.05	650.00	9770.00	247.00	10017.00	403.00	10420.00
19.920	.18	683.31	9710.00	325.50	10035.50	357.81	10393.31
20.050	.15	1053.12	9420.00	573.00	9993.00	480.12	10473.12
20.160	-.03	1287.70	9202.00	810.00	10012.00	477.70	10489.70
20.260	.14	1205.00	9190.00	797.00	9987.00	408.00	10395.00
20.380	.07	1206.00	9209.00	788.00	9997.00	418.00	10415.00
20.480	.60	906.00	9424.00	594.50	10018.50	311.50	10330.00
20.620	.72	885.00	9485.00	536.50	10021.50	348.50	10370.00
20.640	1.00	850.00	9500.00	420.00	9920.00	430.00	10350.00
20.710	.62	810.00	4500.00	540.00	5040.00	270.00	5310.00
20.790	.92	660.00	4500.00	533.50	5033.50	126.50	5160.00
20.900	.35	670.00	4550.00	400.00	4950.00	270.00	5220.00
20.980	.73	670.00	4390.00	487.50	4877.50	182.50	5060.00
21.050	.16	695.00	4380.00	588.50	4968.50	106.50	5075.00
21.110	.76	775.00	4350.00	637.50	4987.50	137.50	5125.00
21.180	.02	900.00	4200.00	825.00	5025.00	75.00	5100.00
21.250	.14	745.00	4310.00	672.50	4982.50	72.50	5055.00
21.310	.81	650.00	4450.00	487.50	4937.50	162.50	5100.00
21.350	.76	705.00	4400.00	560.00	4960.00	145.00	5105.00
21.410	-.06	600.00	4500.00	460.00	4960.00	140.00	5100.00
21.490	.22	700.00	4617.00	373.00	4990.00	327.00	5317.00
21.580	.05	840.00	4415.00	620.00	5035.00	220.00	5255.00
21.630	.93	1055.00	4265.00	875.00	5140.00	180.00	5320.00
21.690	.02	1330.00	3970.00	962.50	4932.50	367.50	5300.00
21.770	.10	1471.00	3694.00	1226.00	4920.00	245.00	5165.00
21.820	.04	1450.00	3750.00	1260.00	5010.00	190.00	5200.00
21.910	.56	1140.00	3900.00	1059.00	4959.00	81.00	5040.00
21.990	.67	1325.00	3765.00	1260.00	5025.00	65.00	5090.00
22.080	.36	1125.00	4050.00	942.50	4992.50	182.50	5175.00
22.150	.72	1370.00	3700.00	1305.00	5005.00	65.00	5070.00
22.220	.50	1149.00	3918.00	1093.00	5011.00	56.00	5067.00
22.290	.37	1100.00	4000.00	1006.00	5006.00	94.00	5100.00
22.360	.54	980.00	4100.00	905.00	5005.00	75.00	5080.00
22.430	.44	918.00	4192.00	803.00	4995.00	115.00	5110.00
22.480	.87	723.00	4372.00	641.50	5013.50	81.50	5095.00
22.560	.88	635.00	4470.00	562.50	5032.50	72.50	5105.00
22.670	.57	575.00	4475.00	525.00	5000.00	50.00	5050.00
22.730	.75	526.00	4499.00	453.50	4952.50	72.50	5025.00
22.790	.69	660.00	4490.00	505.00	4995.00	155.00	5150.00
22.860	.75	742.00	4450.00	602.00	5052.00	140.00	5192.00
22.950	.03	600.00	9450.00	300.00	9750.00	300.00	10050.00
22.960	.14	514.00	9500.00	483.50	9983.50	30.50	10014.00
23.130	.92	561.00	9595.00	358.00	9953.00	203.00	10156.00
23.250	.64	334.00	9874.00	75.50	9949.50	258.50	10208.00
23.330	.76	331.00	9963.00	27.00	9990.00	304.00	10294.00

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23.450	.50	465.00	9867.00	151.50	10018.50	313.50	10332.00
23.550	.60	467.00	9766.00	243.00	10009.00	224.00	10233.00
23.640	.86	662.00	9435.00	545.00	9980.00	117.00	10097.00
23.870	.17	353.00	9668.00	309.50	9977.50	43.50	10021.00
23.940	.93	500.00	9542.00	408.00	9950.00	92.00	10042.00
24.030	.70	223.00	9900.00	77.50	9977.50	145.50	10123.00
24.120	.86	207.00	9860.00	129.00	9989.00	78.00	10067.00
24.250	.31	246.00	9953.00	31.50	9984.50	214.50	10199.00
24.380	.33	266.00	9811.00	133.00	9944.00	133.00	10077.00
24.480	.72	214.00	9834.00	165.50	9999.50	48.50	10048.00
24.610	.46	79.00	9944.00	39.50	9983.50	39.50	10023.00
24.740	.83	125.00	9961.00	62.50	10023.50	62.50	10086.00
24.870	.05	151.00	9929.00	87.50	10016.50	63.50	10080.00
24.950	.83	180.00	9920.00	88.50	10008.50	91.50	10100.00
25.120	.02	153.00	9952.00	49.00	10001.00	104.00	10105.00
25.280	.08	188.00	9849.00	145.50	9994.50	42.50	10037.00
25.380	.97	646.00	9650.00	352.50	10002.50	293.50	10296.00
25.450	.89	630.00	9968.00	51.00	10019.00	579.00	10598.00
25.560	.07	825.00	9686.00	301.50	9987.50	523.50	10511.00
25.630	.38	546.00	9931.00	80.00	10011.00	466.00	10477.00
25.700	.23	218.00	9881.00	109.00	9990.00	109.00	10099.00
25.720	.00	237.00	9990.00	118.50	10108.50	118.50	10227.00
25.830	.59	126.00	9914.00	63.00	9977.00	63.00	10040.00
25.950	1.02	141.00	9923.00	98.50	10021.50	42.50	10064.00
26.170	.21	83.00	9969.00	34.00	10003.00	49.00	10052.00

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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    16OCT00    TIME   13:14:46 *
 *****************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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1
   16OCT00      13:14:46                                                                    PAGE    1
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THIS RUN EXECUTED 16OCT00 13:14:46

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

 Version   4.6.2;  May 1991
*************************************
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POST-PROJECT
CONDITIONS
LOMR.DAT

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        POST-PROJECT CONDITIONS MODEL FOR SKUNK CREEK THROUGH TRAMONTO

        PREPARED BY HOSKIN ENGINEERING CONSULTANTS, INC.
        FILENAME:       LOMR.DAT

        PROFILE 1: POST-PROJECT TRAMONTO FLOODPLAIN
        PROFILE 2: POST-PROJECT TRAMONTO FLOODWAY

        MODIFICATIONS MADE TO THE EFFECTIVE MODEL
        BY HOSKIN ENGINEERING CONSULTANTS, INC.:
        1.CAREFREE HIGHWAY BRIDGE DATA MODIFIED TO REFLECT AS-BUILT PLANS
          AND SURVEY DATA 10-6-00.
        2.NEW ONE-FOOT TOPOGRAPHIC CONTOUR MAPPING FROM SECTION 16.96 TO 17.95
        3.FULL FLOW CONTAINED WITHIN THE FLOODWAY, FLOW SPLIT REMOVED
        4.FLOW DISTRIBUTION TRACE CARDS ADD TO SECTIONS 16.876 TO 18.23
        5.ENCROACHMENTS MODIFIED PER PROPOSED TRAMONTO DEVELOPMENT

        COMPLETE HEC-2 MODEL FOR ENTIRE SKUNK CREEK FLOODPLAIN DELINEATION STUDY
        HEC ANALYSIS INCLUDES SECTIONS 13.00 TO 17.95 (FLOODPLAIN ANALYSIS ONLY)
        MONTGOMERY WATSON ANALYSIS INCLUDES SECTIONS 18.09 TO 20.62 AND 22.96 TO
        CASTRO FLEET ANALYSIS (DEL WEBB) INCLUDES SECTIONS 20.64 TO 22.95


 SPLIT FLOW BEING PERFORMED


 SF      SPLIT FLOW FROM SECTIONS 13.02 TO 13.28


 TW      I-17 SPLIT FLOW
         WEIR FLOW OCCURS ALONG I-17 BETWEEN CROSS-SECTIONS 13.02 & 13.28
         FLOW WEIRS OVER THE NORTH BOUND LANES OF I-17 AND ALSO OVER THE
         EMBANKMENT INTO THE CENTRAL ARIZONA PROJECT CANAL
 WS    11   13.02   13.28      -1     2.6
 WC     0  1527.2     490  1526.1     725    1526     780  1524.5     830    1526
 WC   855  1526.7     995    1528    1230    1530    1515    1532    1750    1534
 WC  1840  1534.5
1
   16OCT00      13:14:46                                                                    PAGE    2


 T1      SKUNK CREEK FLOODPLAIN AND FLOODWAY DELINEATION (METHOD 1)
 T2      100-YEAR FREQUENCY            DATE:  FEBRUARY 1998
 T2      RUN INCORPORATING FCDMC'S AND FEMA'S REVISIONS AT NEW RIVER ROAD BRIDGE
 T3      MONT. WAT. AND HEC

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                                                                  1522.96

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1                  -1
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J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38        43         1         8        42         3        61         2        55        26
     56        39        38        38        53         4        54       110       115       150
    200

J5  LPRNT    NUMSEC                    ********REQUESTED SECTION NUMBERS********

    -10       -10
        SPLIT FLOW ANALYSES AT CAP CANAL & CAREFREE HWY
        NO FLOODWAY ANALYSIS PERFORMED FOR CROSS SECTIONS 13.00 TO 13.28
        DUE TO WEIR FLOW AND PONDING OF WATER UPSTREAM OF THE CAP CANAL BERM.
        THE FLOODWAY CONCEPT IS NOT APPLICABLE FOR THIS REACH.
        Q100 INCREASED FROM 15700 CFS TO 18900 CFS DUE TO UPSTREAM DEVELOPMENT.

QT        2     18900     18900
NC     .025      .025      .025        .3        .5
ET                 9.1       9.1                                                          9820     10065
        DOWNSTREAM OF BRINK OF CAP OVERCHUTE NO.1 (BOR STA 470+80)
        OVERFLOW DISCHARGE HAS BEEN ADJUSTED TO ACCOUNT FOR SPLIT FLOW TO CAP
        OVERCHUTE NO.2 (BOR STA 492+04)
X1    13.00         8      9820     10065
GR   1527.0      7780    1518.5    7780.5    1518.5    7939.5    1527.0      7940    1527.0      9820
GR   1518.5    9820.5    1518.5   10064.5    1527.0     10065

ET                 9.1       9.1                                                          9820     10065
        UPSTREAM ENTRANCE TO CAP OVERCUTE NO.1
X1    13.02         8      9820     10065       120       120       120
GR   1527.0      7780      1519    7780.5      1519    7939.5    1527.0      7940    1527.0      9820
GR     1519    9820.5      1519   10064.5    1527.0     10065

NC      .04       .04       .04        .3        .5
ET                 9.1       9.1                                                          9537     10350
1
   16OCT00      13:14:46                                                                          PAGE    3

X1    13.04        77      9721     10130       100       100       100
GR   1531.2      7311    1526.9      7365    1526.6      7377    1527.8      7428      1527      7475
GR   1526.6      7516    1520.1      7540    1519.5      7577    1519.3      7631    1519.6      7648
GR   1518.7      7682      1519      7704    1518.1      7758    1518.4      7790    1520.6      7803
GR   1526.7      7829    1527.1      7840    1526.9      7898    1526.2      7917      1531      7961
GR   1532.2      7999      1532      8035    1532.1      8067    1532.4      8106    1537.1      8125
GR   1532.3      8139    1533.8      8206    1533.4      8257    1532.9      8297    1532.3      8355
GR   1532.9      8404    1533.1      8450    1533.5      8518    1533.5      8547    1533.9      8592
GR   1534.2      8649    1533.7      8711    1532.6      8807    1532.4      8944    1532.6      8993
GR     1533      9051    1532.4      9144    1533.9      9163    1536.3      9206    1537.1      9230
GR   1536.6      9261    1535.6      9288    1533.9      9315    1532.8      9358    1532.3      9408
GR   1532.3      9438    1532.1      9481    1529.4      9537    1527.9      9567    1527.1      9596
GR   1527.1      9632    1527.7      9669    1527.5      9710      1528      9721    1522.3      9749
GR   1520.2      9797    1519.6      9890    1520.1      9931    1521.2      9949    1520.1      9966
GR   1518.8      9976    1519.8     10027    1520.7     10082    1521.2     10108    1527.1     10130
GR   1526.8     10162    1526.5     10210      1527     10249    1527.4     10274    1527.5     10325
GR   1528.4     10355    1528.1     10398

NC     .069      .044      .050        .1        .3
ET                 9.1       9.1                                                          9550     10679
X1    13.08        57      9615     10182       230       230       230
GR     1532      7732      1530      7863      1528      7933      1526      8065      1525      8114
GR   1524.5      8264      1524      8409    1522.2      8469    1522.5      8605    1522.2      8621
GR   1522.8      8775    1522.9      8828      1523      8862    1522.5      8926    1521.9      8955
GR   1520.4      8966    1522.5      9024    1524.4      9127      1524      9197    1524.1      9265
GR   1524.4      9305      1524      9386    1524.3      9436    1523.7      9447    1523.6      9533
GR   1524.2      9615    1523.4      9651    1522.6      9720    1520.4      9740    1522.2      9755
GR   1522.9      9781    1524.6      9805    1520.9      9821      1521      9836    1522.2      9847
GR     1523      9886    1522.2      9978    1518.5      9992    1518.2     10002    1518.8     10008
GR   1522.4     10023      1522     10070    1521.1     10078      1522     10090      1522     10106
GR     1520     10131    1521.5     10160    1523.5     10182    1523.9     10210    1524.3     10274
GR   1524.7     10346      1526     10460    1525.8     10512    1524.4     10555    1524.5     10575
GR     1526     10616      1528     10679

NC     .038      .042      .052        .1        .3
ET                 9.1       9.1                                                          9421     10816
        NEW CROSS SECTION:  GR CARD DATA DEVELOPED FROM TOPOGRAPHIC MAPS
X1    13.16        53      9953     10288       420       425       421
GR     1534      7863      1532      8128      1530      8316      1528      8551    1526.5      8641
GR     1528      8791    1528.3      8868      1528      8888      1526      8946      1525      9139
GR     1526      9169    1526.2      9219      1526      9255    1525.3      9389      1526      9405
GR   1526.5      9421      1526      9442    1525.5      9459      1526      9481    1526.4      9632
GR     1526      9721      1525      9736      1526      9751      1528      9929    1528.3      9936
GR     1528      9943      1526      9953      1524      9963      1522      9981    1521.5      9991
GR     1522     10001      1524     10043    1524.5     10093      1524     10148      1523     10163
GR     1524     10215      1523     10220      1524     10225      1525     10235      1524     10245
GR   1523.2     10250      1524     10255      1526     10273    1526.2     10288      1526     10303
GR   1525.8     10323      1526     10349      1528     10689    1528.4     10744      1528     10774
GR   1527.5     10784      1528     10793    1529.8     10816
        CROSS-SECTION AT WHICH FLOWS TO CAP OVERCHUTES 1 AND 2 RECOMBINE.
        WSEL MATCHES AT THIS CROSS-SECTION
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ET                 9.1       9.1                                                          9537       10802
X1    13.28         65      9671      10110       390       610       600
GR     1536       8217    1534.9       8297    1534.2      8552    1534.3       8677      1534        8812
GR     1532       8979      1530       9107    1529.3      9165      1530       9205      1532        9255
GR   1532.2       9337    1531.5       9390    1531.5      9439    1530.1       9484    1525.7        9507
GR   1526.0       9523    1529.8       9537    1530.1      9605    1530.9       9671    1530.2        9682
GR   1530.4       9709    1531.2       9726    1531.3      9776    1530.4       9840    1529.7        9851
GR   1530.9       9901    1531.6       9962    1530.6      9975    1522.9       9991    1522.6       10000
GR   1522.9      10034    1530.4      10052    1530.6     10083    1527.4      10097    1531.2       10110
GR   1531.0      10143    1531.2      10169    1532.3     10193    1532.9      10222    1532.2       10250
GR   1532.2      10302    1532.2      10347    1531.6     10363    1532.0      10389    1531.1       10421
GR   1531.1      10475    1531.1      10529    1529.7     10581    1530.3      10594    1530.6       10634
GR   1530.0      10654    1530.5      10667    1529.9     10697    1531.7      10727    1532.2       10771
GR   1532.9      10840    1533.5      10884    1533.9     10956    1533.3      10961    1534.6       10969
GR   1534.9      10995    1534.0      11002    1533.5     11019    1534.9      11025    1535.4       11065
        Q100 INCREASED FROM 23300,23300 TO 26700,26700 CFS
        DUE TO UPSTREAM DEVELOPMENT.

QT        2      26700     26700
ET                 9.1       7.1                                       9670      10602                 11043
X1    13.40         74      9670      10319       650       590     678.6
GR     1540       8520      1538       8940      1536      9105      1535       9155      1536        9197
GR   1536.2       9202      1536       9212    1535.9    9214.5      1536       9217    1536.5        9287
GR     1536       9359    1535.5       9414      1536      9474    1537.5       9641    1537.6        9670
GR   1536.4       9692    1534.6       9719    1527.4      9732    1530.8       9748    1532.1        9770
GR   1530.0       9782    1534.1       9800    1533.9      9820    1535.3       9840    1534.9        9849
GR   1535.8       9866    1536.5       9908    1537.1      9939    1536.9       9968    1535.2        9980
GR   1529.0       9994    1528.7      10000    1529.7     10010    1534.5      10033    1534.1       10063
GR   1534.3      10084    1534.3      10102    1536.0     10133    1536.4      10164    1535.0       10177
GR   1535.9      10194    1535.2      10209    1526.8     10246    1528.5      10252    1529.1       10269
GR   1537.1      10289    1537.5      10319    1536.6     10361    1535.1      10379    1535.3       10395
GR   1536.0      10422    1535.1      10447    1535.7     10465    1535.8      10514    1535.1       10539
GR   1535.0      10600    1535.4      10653    1535.5     10687    1535.0      10726    1534.3       10744
GR   1534.4      10772    1535.1      10797    1534.7     10833    1535.5      10874    1535.5       10910
GR   1535.1      10944    1534.7      11001    1535.1     11027    1538.7      11030    1539.0       11043
GR   1538.8      11070    1537.4      11080    1540.1     11101    1539.6      11142

ET                          7.1                                       9160      10494
X1    13.55         79      9688      10494       740       850     787.3
GR   1544.6       8416    1544.5       8496    1543.9      8598    1543.5       8689    1542.8        8797
GR   1542.2       8877    1541.9       8929    1541.3      8950    1540.3       8963    1539.6        8985
GR   1540.1       8993    1540.1       9040    1539.8      9081    1540.4       9104    1540.0        9157
GR   1540.8       9241    1541.2       9311    1540.5      9346    1541.0       9443    1540.2        9451
GR   1541.2       9464    1541.0       9477    1541.9      9510    1542.7       9558    1543.1        9592
GR   1543.3       9645    1543.1       9688    1541.9      9715    1539.8       9736    1540.1        9742
GR   1538.2       9757    1537.4       9776    1532.2      9787    1535.6       9804    1540.7        9828
GR   1539.7       9836    1541.7       9855    1541.6      9877    1542.0       9897    1541.4        9930
GR   1541.8       9965    1535.8       9988    1535.2     10000    1538.4      10010    1540.8       10031
GR   1540.9      10045    1540.5      10054    1541.3     10065    1541.2      10098    1541.8       10123
GR   1541.3      10132    1542.7      10150    1541.1     10176    1539.5      10191    1538.7       10208
GR   1537.7      10219    1539.2      10233    1541.4     10262    1541.1      10270    1542.0       10283
GR   1542.3      10307    1541.4      10349    1537.3     10370    1537.9      10380    1537.0       10394
GR   1538.6      10403    1541.0      10432    1542.6     10456    1543.0      10494    1544.4       10550
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GR   1544.5      10623    1545.0      10680    1545.2     10743    1544.8      10802    1544.6       10856
GR   1544.2      10907    1544.1      10973    1545.1     10985    1545.3      10993

ET                 9.1       7.1                                       9055      10482       8335       10646
X1    13.66         92      9477      10486       500       540     549.1
GR   1548.4       8244    1548.9       8287    1549.0      8335    1548.3       8352    1548.2        8399
GR   1548.3       8462    1548.0       8514    1547.5      8594    1546.9       8663    1546.0        8720
GR   1545.8       8738    1544.9       8780    1544.1      8828    1543.6       8914    1543.1        8917
GR   1543.7       8921    1544.0       8985    1544.6      9048    1545.1       9086    1545.3        9138
GR   1546.1       9173    1546.5       9234    1546.3      9275    1546.0       9318    1545.7        9360
GR   1545.3       9383    1545.1       9436    1544.5      9449    1545.0       9457    1544.1        9467
GR   1545.4       9477    1544.9       9492    1543.5      9512    1540.2       9528    1540.5        9540
GR   1542.2       9550    1546.6       9572    1546.4      9585    1542.7       9600    1542.8        9619
GR   1543.3       9627    1542.4       9643    1543.1      9655    1546.0       9667    1546.6        9689
GR   1546.7       9709    1546.1       9717    1546.0      9736    1544.6       9744    1546.0        9753
GR   1545.3       9775    1546.1       9791    1546.1      9829    1547.5       9852    1547.5        9878
GR   1546.7       9894    1546.7       9941    1545.9      9956    1544.6       9988    1542.1       10000
GR   1542.3      10006    1543.9      10015    1543.0     10055    1543.5      10063    1546.5       10083
GR   1546.6      10108    1546.0      10119    1547.2     10133    1546.3      10145    1547.2       10160
GR   1546.2      10177    1546.6      10193    1546.1     10207    1546.4      10246    1546.8       10280
GR   1547.3      10324    1547.3      10357    1546.7     10379    1545.6      10392    1543.2       10408
GR   1543.9      10430    1542.9      10442    1542.6     10465    1548.6      10486    1549.3       10509
GR   1549.5      10557    1549.8      10592    1549.9     10646    1549.4      10686    1549.5       10727
GR   1549.4      10784    1549.5      10846

ET                 9.1       7.1                                       8708      10232       8212       10433
        CROSS-SECTION PROVIDED BY AERIAL MAPPER SKEWED TO CONTAIN FLOW
X1    13.86         90      9330      10042      1060      1050    1049.1
GR   1556.0       8212    1554.0       8550    1553.0      8600    1553.4       8617    1552.4        8685
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GR   1551.6      8708     1551.5      8749     1550.6      8759     1551.7      8767     1552.1      8788
GR   1551.5      8817     1554.3      8863     1555.1      8895     1555.4      8908     1555.1      8935
GR   1555.0      8975     1555.5      9022     1556.1      9072     1556.9      9125     1557.1      9165
GR   1557.3      9223     1556.6      9242     1557.3      9263     1557.4      9298     1557.0      9319
GR   1556.1      9330     1553.5      9344     1552.5      9379     1551.4      9393     1552.9      9404
GR   1552.7      9416     1551.9      9420     1553.3      9429     1553.2      9446     1549.8      9464
GR   1549.3      9472     1549.8      9494     1553.0      9513     1553.6      9535     1553.4      9596
GR   1552.9      9605     1553.3      9613     1553.5      9634     1553.4      9666     1553.2      9716
GR   1552.5      9727     1553.4      9739     1552.6      9770     1553.6      9784     1553.4      9803
GR   1551.8      9819     1551.2      9831     1552.5      9842     1551.1      9855     1553.3      9864
GR   1553.3      9885     1551.8      9919     1549.0      9936     1549.0      9948     1551.6      9970
GR   1550.4      9983     1547.6      9991     1546.3     10000     1551.6     10009     1554.6     10023
GR   1555.7     10042     1555.6     10083     1554.3     10149     1550.9     10159     1552.6     10171
GR   1554.4     10197     1554.7     10232     1556.0     10271     1557.0     10327     1557.5     10379
GR   1557.7     10433     1557.5     10477     1557.5     10546     1557.7     10596     1557.6     10656
GR   1557.4     10695     1557.1     10752     1556.8     10820     1556.5     10873     1556.1     10945
GR   1555.9     10962     1555.7     11006     1558.1     11035     1561.0     11054     1561.7     11092

ET                 9.1       7.1                                     8805     10529      8530     10608
        CROSS-SECTION PROVIDED BY AERIAL MAPPER SKEWED TO CONTAIN FLOW
X1    14.07        65      9879     10059      1050      1100     1134.1
GR   1565.4      8530      1564      8652      1562      8685     1560.7      8705     1560.7      8805
GR     1562      8920    1562.4      9043    1562.8      9116     1563.1      9185     1562.8      9201
GR   1562.8      9250    1563.3      9286    1563.7      9321     1563.4      9353     1562.5      9394
GR   1561.5      9417    1561.4      9462    1562.3      9530     1562.4      9554     1562.0      9566
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GR   1562.0      9614     1562.3      9680     1563.1      9746     1563.6      9814     1564.0      9855
GR   1564.3      9879     1560.9      9898     1561.4      9904     1558.5      9924     1558.9      9938
GR   1558.9      9959     1557.5      9972     1557.5      9978     1558.5     10000     1562.0     10020
GR   1562.6     10040     1564.5     10059     1564.0     10077     1563.5     10125     1563.1     10151
GR   1562.6     10166     1562.7     10176     1562.2     10201     1563.1     10217     1563.0     10249
GR   1563.1     10300     1563.0     10338     1563.2     10381     1563.1     10396     1562.3     10404
GR   1563.1     10408     1563.1     10454     1563.1     10499     1564.1     10516     1565.5     10571
GR   1566.0     10608     1565.9     10656     1565.8     10710     1565.6     10758     1564.7     10813
GR   1564.3     10848     1564.8     10873     1565.1     10923     1570.0     10950     1570.8     10989
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The following GR record has been modified as per discussion with the FEMA technical evaluator. From station 8450 to station 9500, the elevations are read from the topographic map. From station 9563 to station 11361, the elevations remain the same as provided by the Aerial Mapping Company, Inc (AMCI) (March 17, 1998).

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ET                                 7.1                                     9210     10160
X1    14.30        73      9923     10027      1010      1210     1213.6
GR   1576.2      8450     1575.9      8550     1574.1      8650     1573.7      8750     1573.5      8850
GR   1573.4      8950     1573.3      9050     1572.5      9150     1572.5      9250     1571.9      9350
GR   1571.9      9450     1573.5      9500     1573.8      9563     1574.2      9626     1573.5      9652
GR   1573.1      9672     1573.8      9707     1573.7      9731     1573.8      9769     1573.2      9788
GR   1573.2      9836     1572.9      9878     1572.4      9906     1571.6      9923     1570.4      9941
GR   1565.1      9961     1565.2      9967     1560.0      9973     1560.3      9983     1559.6     10000
GR   1566.5     10011     1570.0     10027     1570.1     10045     1569.4     10052     1570.1     10062
GR   1571.0     10097     1571.2     10131     1571.1     10157     1572.5     10191     1572.9     10211
GR   1572.6     10251     1572.3     10297     1572.5     10351     1572.2     10386     1571.8     10410
GR   1572.1     10417     1571.7     10437     1571.7     10448     1571.5     10480     1571.6     10515
GR   1572.7     10552     1572.9     10571     1572.7     10608     1572.4     10642     1571.4     10681
GR   1571.6     10735     1571.9     10765     1572.0     10792     1571.2     10804     1571.8     10811
GR   1573.2     10852     1575.9     10899     1577.1     10931     1577.9     10967     1578.4     10992
GR   1578.7     11034     1578.6     11096     1578.4     11179     1578.2     11233     1577.7     11273
GR   1582.1     11295     1582.8     11336     1577.8     11361

ET                 9.1       7.1                                     9950     10480      9283     10588
X1    14.54        65      9950     10480      1410      1150     1273.2
GR   1584.8      8984     1584.8      9072     1584.7      9160     1584.7      9220     1584.9      9283
GR   1584.7      9355     1584.5      9421     1584.2      9499     1583.8      9525     1583.4      9546
GR   1583.7      9563     1583.4      9621     1583.8      9683     1583.0      9715     1583.4      9741
GR   1582.9      9767     1583.5      9798     1583.9      9818     1584.2      9845     1584.0      9892
GR   1583.2      9926     1581.9      9950     1574.4      9970     1574.0      9986     1571.6     10000
GR   1576.7     10045     1574.9     10066     1577.8     10080     1579.5     10110     1577.7     10136
GR   1578.5     10153     1578.1     10177     1576.3     10199     1576.9     10222     1576.6     10259
GR   1577.7     10273     1577.7     10287     1578.9     10306     1578.4     10354     1578.1     10384
GR   1577.0     10410     1578.1     10416     1578.3     10428     1577.7     10437     1580.1     10458
GR   1583.0     10480     1583.8     10495     1584.2     10523     1584.8     10556     1585.0     10588
GR   1584.4     10623     1583.5     10669     1583.4     10695     1583.4     10738     1583.8     10762
GR   1584.1     10808     1583.9     10821     1583.9     10881     1584.2     10936     1584.2     10999
GR   1584.2     11072     1584.3     11131     1584.1     11205     1584.2     11269     1584.9     11381
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NC     .059       .042       .039        .1        .3
        CROSS-SECTION PROVIDED BY AERIAL MAPPER SKEWED TO CONTAIN FLOW
ET                 9.1       7.1                                     9700     10100                10380
X1    14.74        39      9976     10076      1180       970     1070.9
GR   1594.6      9253     1594.6      9384     1593.5      9435     1592.2      9495     1591.7      9526
GR   1590.5      9540     1589.6      9564     1589.3      9615     1589.0      9650     1587.4      9663
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GR	1587.4	9705	1587.0	9720	1588.5	9769	1588.3	9791	1587.1	9809
GR	1586.1	9837	1585.5	9853	1585.1	9871	1585.5	9891	1584.9	9917
GR	1585.0	9952	1587.3	9976	1581.8	9988	1581.8	10000	1582.1	10024
GR	1581.7	10057	1588.3	10076	1588.3	10095	1590.2	10125	1591.0	10145
GR	1591.6	10172	1591.5	10203	1591.5	10225	1591.6	10248	1591.7	10375
GR	1592	10380	1591.6	10500	1592	10635	1592.6	10690		
ET		9.1	7.1				9600	10080	9490	
X1	14.89	49	9938	10059	700	760	756.4			
GR	1601.5	9234	1601.3	9270	1599.7	9318	1598.4	9337	1597.4	9377
GR	1597.0	9406	1596.9	9434	1597.5	9460	1598.4	9477	1598.5	9494
GR	1597.0	9511	1595.3	9549	1593.2	9572	1593.5	9577	1590.8	9587
GR	1591.2	9606	1591.0	9626	1592.0	9633	1593.0	9659	1592.7	9671
GR	1593.5	9683	1593.6	9702	1592.4	9714	1592.5	9741	1592.4	9775
GR	1592.7	9804	1591.3	9817	1591.4	9847	1591.8	9869	1592.2	9890
GR	1593.0	9906	1592.5	9927	1591.9	9938	1589.9	9949	1589.9	9956
GR	1587.2	9979	1583.3	9995	1583.2	10000	1583.3	10013	1583.8	10032
GR	1588.0	10042	1596.4	10059	1597.2	10087	1598.2	10101	1599.3	10141
GR	1599.6	10186	1600.2	10236	1600.4	10284	1600.5	10319		
ET			7.1				9972	10390		
X1	15.06	62	9972	10390	670	950	930.3			
GR	1603.3	9119	1603.9	9192	1604.4	9267	1604.9	9349	1605.9	9431
GR	1606.0	9497	1606.1	9575	1606.3	9620	1606.6	9663	1606.5	9685
GR	1605.7	9707	1603.0	9733	1599.7	9751	1599.0	9759	1599.5	9764
GR	1600.1	9782	1600.6	9800	1600.6	9836	1601.4	9872	1602.1	9917
GR	1602.2	9972	1597.9	9988	1593.0	10000	1591.5	10010	1591.3	10020
GR	1594.5	10043	1593.9	10060	1595.3	10070	1597.5	10089	1598.0	10109
GR	1597.8	10126	1595.7	10138	1596.7	10152	1600.2	10174	1600.1	10205
GR	1593.4	10229	1593.7	10246	1596.4	10268	1596.6	10283	1597.3	10298
GR	1597.8	10314	1597.1	10323	1598.4	10337	1597.4	10350	1600.0	10367
GR	1601.4	10390	1601.3	10411	1599.6	10441	1595.7	10453	1600.3	10470
GR	1600.7	10480	1602.7	10495	1603.6	10517	1605.1	10549	1606.0	10581
GR	1606.6	10621	1606.9	10667	1607.1	10713	1607.2	10776	1607.4	10855
GR	1607.4	10916	1607.6	10950						
ET		9.1	7.1				9975	10351	9503	10546
X1	15.12	61	9975	10351	255	330	283.6			
GR	1604.6	9081	1604.5	9136	1604.6	9184	1605.2	9236	1605.8	9313
GR	1606.1	9379	1606.4	9423	1606.8	9503	1606.7	9545	1606.5	9620
GR	1606.2	9665	1605.5	9703	1604.5	9754	1603.8	9762	1604.4	9792
GR	1603.5	9836	1603.5	9865	1602.9	9886	1603.3	9903	1603.9	9928
GR	1604.1	9975	1596.3	10000	1596.9	10009	1596.4	10015	1596.7	10032
GR	1595.8	10059	1600.2	10070	1601.3	10087	1601.7	10109	1602.2	10130
GR	1602.4	10144	1601.5	10156	1602.1	10176	1602.1	10205	1601.7	10213
GR	1602.2	10230	1602.8	10258	1595.4	10282	1596.7	10302	1597.2	10319
GR	1601.5	10351	1600.3	10370	1601.1	10378	1601.1	10387	1603.1	10417

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GR	1603.4	10441	1603.1	10480	1602.9	10493	1603.8	10513	1604.1	10532
GR	1606.5	10546	1606.1	10564	1607.2	10587	1608.2	10621	1609.1	10657
GR	1609.8	10716	1610.4	10769	1610.7	10822	1611.1	10863	1611.2	10909
GR	1611	10955								
ET		9.1	7.1				9977	10500	9749	10672
X1	15.22	54	9977	10348	535	600	553.1			
GR	1609.2	9347	1609.6	9393	1610.2	9448	1610.9	9497	1611.3	9548
GR	1611.8	9619	1612.0	9694	1612.0	9749	1611.9	9816	1611.1	9893
GR	1610.5	9937	1609.1	9977	1599.9	9996	1599.4	10000	1599.2	10022
GR	1598.9	10041	1602.7	10057	1605.6	10077	1606.6	10091	1606.1	10113
GR	1606.8	10126	1607.7	10151	1607.9	10166	1606.7	10191	1606.0	10210
GR	1606.8	10234	1605.9	10242	1606.2	10249	1604.1	10260	1605.4	10269
GR	1605.1	10282	1602.0	10301	1601.5	10310	1601.9	10327	1607.8	10348
GR	1608.2	10374	1608.0	10413	1607.9	10439	1604.5	10461	1607.3	10480
GR	1607.9	10507	1609.1	10527	1611.0	10570	1612.3	10605	1613.6	10657
GR	1613.8	10672	1613.4	10708	1613.6	10752	1614.3	10797	1615.1	10850
GR	1615.6	10891	1616.3	10934	1616.8	10987	1617.2	11062		
ET			7.1				9979	10353		
X1	15.41	57	9979	10353	980	950	968.9			
GR	1618.0	9542	1618.6	9643	1618.9	9676	1620.7	9683	1619.0	9694
GR	1619.4	9751	1619.7	9787	1620.0	9830	1619.2	9867	1619.4	9907
GR	1619.7	9940	1618.7	9968	1615.1	9979	1609.8	9993	1609.2	10000
GR	1608.3	10009	1607.6	10021	1609.7	10027	1610.4	10043	1610.4	10053
GR	1611.1	10058	1612.8	10070	1613.1	10077	1611.8	10085	1612.0	10096
GR	1610.1	10106	1611.9	10113	1613.0	10124	1613.0	10135	1612.5	10157
GR	1611.8	10178	1612.0	10194	1610.2	10212	1610.9	10221	1610.4	10245
GR	1609.6	10257	1609.4	10282	1608.7	10297	1610.1	10310	1611.0	10324
GR	1611.0	10333	1614.7	10353	1618.6	10383	1620.1	10403	1620.5	10426
GR	1621.2	10440	1619.6	10464	1617.9	10479	1618.1	10496	1619.3	10517
GR	1620.0	10534	1621.0	10569	1622.0	10607	1622.6	10642	1622.9	10678
GR	1623.0	10732	1623.1	10769						
ET			7.1				9890	10182		
X1	15.55	46	9935	10147	730	550	755.3			
GR	1625.7	9335	1625.5	9408	1625.7	9486	1625.9	9510	1625.7	9532
GR	1626.2	9567	1627.0	9622	1628.0	9645	1627.1	9680	1626.7	9703
GR	1626.5	9731	1626.1	9761	1625.3	9790	1623.7	9822	1622.3	9835

GR	1618.7	9858	1619.5	9869	1619.7	9906	1619.5	9935	1618.8	9954
GR	1615.4	9972	1615.3	9982	1613.8	9991	1613.9	10000	1614.7	10030
GR	1615.2	10057	1614.9	10078	1613.4	10093	1614.5	10104	1617.5	10126
GR	1619.4	10147	1620.5	10184	1620.7	10222	1620.5	10247	1620.2	10266
GR	1619.4	10278	1618.9	10314	1619.4	10326	1620.0	10343	1624.2	10368
GR	1625.0	10381	1625.1	10410	1625.3	10453	1625.2	10483	1625.1	10525
GR	1625.0	10531								
ET			7.1				9477	10116		
X1	15.75	50	9977	10102	880	1030	1048.4			
GR	1633.1	9040	1633.1	9098	1632.7	9146	1632.0	9185	1632.0	9268
GR	1631.5	9319	1630.5	9364	1630.7	9404	1629.9	9431	1626.7	9467
GR	1626.1	9481	1624.3	9500	1624.3	9515	1623.4	9534	1619.5	9549
GR	1619.5	9557	1622.4	9566	1624.1	9580	1624.8	9602	1625.6	9637
GR	1626.1	9689	1626.0	9712	1625.0	9736	1625.4	9751	1627.1	9769

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GR	1628.7	9816	1628.8	9835	1627.8	9850	1628.0	9875	1628.6	9933
GR	1627.2	9944	1626.9	9963	1626.1	9967	1625.7	9977	1619.8	10000
GR	1620.1	10015	1621.2	10027	1621.5	10050	1616.7	10070	1616.3	10079
GR	1627.5	10102	1627.9	10116	1627.5	10121	1628.4	10138	1629.3	10174
GR	1630.3	10210	1631.2	10259	1631.4	10307	1631.7	10370	1631.7	10411
ET			7.1				9817	10210		
X1	15.89	58	9969	10210	700	730	738.4			
GR	1636.6	9095	1637.0	9172	1636.9	9243	1637.2	9312	1637.1	9359
GR	1637.6	9398	1638.1	9428	1637.5	9460	1634.0	9490	1630.6	9517
GR	1631.6	9522	1631.8	9539	1631.4	9550	1631.6	9571	1632.6	9626
GR	1633.3	9676	1633.4	9714	1632.5	9744	1631.7	9775	1630.9	9809
GR	1629.2	9818	1629.2	9822	1630.6	9831	1631.6	9850	1632.4	9866
GR	1632.6	9887	1632.1	9901	1636.5	9919	1635.9	9934	1633.3	9949
GR	1633.2	9969	1632.2	9981	1626.9	10000	1627.0	10011	1628.2	10018
GR	1627.9	10035	1626.8	10056	1626.8	10068	1630.8	10096	1630.7	10121
GR	1631.1	10172	1630.2	10182	1630.1	10194	1633.5	10210	1635.6	10224
GR	1636.1	10243	1636.9	10296	1637.0	10337	1637.2	10370	1637.1	10414
GR	1636.4	10440	1636.4	10469	1635.7	10477	1636.7	10492	1636.9	10535
GR	1637.6	10578	1637.2	10598	1637.2	10621				
ET			7.1				9760	10130		
X1	16.07	42	9948	10130	980	840	950.3			
GR	1648.3	9258	1648.3	9327	1648.3	9384	1648.1	9446	1648.0	9494
GR	1647.3	9536	1646.8	9578	1645.7	9614	1644.4	9631	1641.8	9648
GR	1641.5	9701	1641.1	9720	1638.4	9734	1637.8	9750	1639.7	9760
GR	1637.5	9781	1639.3	9791	1639.5	9822	1638.8	9854	1638.8	9877
GR	1639.4	9884	1640.1	9902	1640.1	9948	1638.8	9974	1634.8	9986
GR	1634.3	10000	1634.7	10037	1635.4	10044	1636.2	10071	1636.3	10089
GR	1635.5	10105	1635.5	10113	1643.3	10130	1644.3	10166	1645.7	10196
GR	1646.5	10222	1646.6	10267	1646.7	10315	1646.2	10350	1645.8	10392
GR	1645.6	10433	1645.5	10494						
ET			7.1				9600	10068		
X1	16.19	54	9934	10077	540	660	645.6			
GR	1652.0	9011	1652.5	9072	1652.6	9131	1652.8	9193	1652.7	9235
GR	1651.8	9260	1649.9	9281	1647.9	9326	1645.6	9377	1644.7	9385
GR	1645.2	9392	1646.1	9431	1646.6	9457	1646.3	9500	1645.4	9506
GR	1646.3	9515	1646.3	9539	1645.2	9548	1645.8	9556	1645.2	9574
GR	1643.7	9600	1641.7	9613	1640.9	9624	1641.8	9639	1641.7	9652
GR	1642.7	9664	1642.9	9687	1642.4	9695	1642.5	9709	1644.9	9730
GR	1646.3	9760	1646.9	9781	1647.2	9807	1646.2	9817	1645.8	9833
GR	1646.5	9855	1646.9	9881	1644.9	9907	1644.4	9934	1643.9	9950
GR	1638.9	9966	1639.7	9981	1637.5	10000	1637.8	10018	1637.9	10034
GR	1639.1	10048	1652.0	10077	1652.8	10101	1653.2	10139	1653.3	10192
GR	1653.0	10245	1652.7	10291	1652.4	10341	1652.2	10389		
ET			7.1				9760	10042		
X1	16.27	50	9760	10045	400	425	422.1			
GR	1655.1	9044	1655.3	9106	1655.6	9139	1655.9	9198	1656.1	9247
GR	1656.3	9283	1655.9	9326	1654.9	9357	1652.7	9394	1650.9	9404
GR	1650.4	9443	1650.5	9466	1650.7	9508	1648.7	9529	1648.6	9539
GR	1646.7	9553	1648.2	9572	1647.6	9588	1648.6	9600	1647.5	9623
GR	1649.0	9643	1650.5	9667	1650.2	9682	1650.3	9700	1649.6	9724

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GR	1650.2	9760	1648.3	9771	1647.7	9798	1646.1	9816	1647.3	9835
GR	1647.9	9853	1649.6	9872	1649.9	9892	1648.8	9905	1648.9	9915
GR	1648.4	9923	1648.9	9947	1643.5	9967	1642.4	9990	1639.4	10000
GR	1639.8	10009	1640.0	10032	1654.9	10045	1655.9	10052	1656.0	10111
GR	1656.2	10158	1656.4	10207	1656.4	10255	1656.5	10316	1656.1	10391
ET			7.1				9906	10430		
X1	16.49	46	9906	10130	1190	1150	1153.6			
GR	1667.1	9520	1667.6	9583	1667.4	9619	1665.7	9661	1665.1	9708
GR	1664.9	9776	1664.1	9808	1661.9	9841	1661.5	9871	1659.1	9888
GR	1659.2	9906	1653.7	9925	1653.9	9933	1653.8	9961	1653.3	10000
GR	1654.5	10018	1658.6	10040	1658.9	10066	1658.1	10073	1657.8	10095
GR	1659.1	10104	1659.5	10130	1653.7	10147	1654.0	10168	1653.7	10211

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GR   1655.7     10224     1655.2     10234     1655.3     10246     1656.7     10253     1657.7     10285
GR   1658.8     10316     1659.1     10335     1658.9     10371     1657.8     10413     1656.7     10420
GR   1657.4     10428     1657.6     10438     1656.8     10446     1657.6     10465     1659.8     10485
GR   1662.4     10512     1663.3     10532     1664.0     10582     1664.5     10619     1664.7     10669
GR   1664.8     10742

NC    .043       .057      .043        .1        .3
ET                          7.1                                    9940     10590
X1    16.68        51      9928     10590       940      1160     997.5
GR   1682.1      9880     1676.2      9916    1673.5      9928    1662.9      9950     1662.6      9956
GR   1666.6      9964     1666.2      9989    1662.3     10000    1662.8     10009     1662.7     10020
GR   1664.5     10025     1665.2     10043    1665.3     10076    1664.9     10100     1662.9     10107
GR   1662.9     10120     1661.5     10135    1665.1     10142    1665.4     10161     1664.6     10168
GR   1664.2     10183     1664.5     10192    1663.7     10218    1662.3     10230     1661.7     10247
GR   1662.9     10262     1664.5     10302    1664.0     10308    1663.9     10353     1664.0     10390
GR   1663.6     10437     1663.5     10463    1662.9     10470    1663.5     10479     1662.7     10511
GR   1661.8     10530     1661.3     10540    1661.3     10553    1662.3     10569     1666.8     10590
GR   1675.2     10612     1674.8     10641    1675.2     10677    1675.4     10718     1675.4     10765
GR   1675.3     10821     1675.4     10870    1675.6     10900    1675.6     10938     1676.0     10964
GR   1676.0     11005


QT       2     27300     27300
NC    .059       .042      .033        .3        .5

        DOWNSTREAM FACE OF CAREFREE HIGHWAY BRIDGE.
        BRIDGE OPENING ADJUSTED BY FACTOR OF 0.707 TO ACCOUNT FOR
        45 DEGREE SKEW.  DOWNSTREAM REACH LENGTHS REDUCED TO
        ACCOUNT FOR NEW CAREFREE HIGHWAY BRIDGE CONSTRUCTION.

X1    16.86         6      9893     10317     888.2     778.2     879.1     0.707
X2                                                                                                15
X3       10                                                                  1685      1685
GR   1685.3      9893   1671.01      9933   1670.42     10000   1669.51     10103   1669.11     10273
GR   1685.3     10317

        UPSTREAM FACE OF CAREFREE HIGHWAY BRIDGE.
        APPROXIMATELY 3,600 CFS DIVERTS OUT OF THE SKUNK CREEK WASH
        AT APPROXIMATELY 1,500 FEET WEST OF THE MAIN HIGHWAY BRIDGE.
        REFER TO SPLIT FLOW MODEL FROM CROSS-SECTION 16.87 TO CROSS-SECTION
        17.48. CROSS-SECTION 17.48 IS THE POINT OF FLOW MATCHING.
1
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        BT BASED UPON "AS-BUILT" PLANS ADJUSTED TO ACCOUNT FOR MAPPED
        CONDITIONS.  DOWNSTREAM REACH LENGTHS FOR CROSS-SECTION 16.87
        INCREASED TO 146 FT TO REFLECT THE ADDITION OF THE SOUTHERN
        HALF OF THE CAREFREE HIGHWAY BRIDGE. PIER WIDTH OF 3.5 FEET
        MULTIPLIED BY DEBRIS FACTOR OF 2 = 3 PIERS AT 7-FOOT WIDTH EACH.


SB     1.05      1.56       2.7         0       232        21      2254         2   1670.71   1669.11
X1    16.87         6      9890     10320       146       146       146     0.707
X2        0         0         1    1681.1      1686         0         0      1.33      .707        15
X3       10                                                                  1685      1685
BT        4      9885    1685.6                 9918    1685.7               10102    1686.0
BT    10337    1685.8
GR   1684.9      9890   1671.81      9943   1671.88     10000   1672.01     10108   1670.71     10272
GR   1684.1     10320


QT       2     27300     27300
NC    .059       .042      .033        .1        .3

        GR DATA FOR SECTIONS 16.96 TO 17.95 IS BASED UPON ONE-FOOT MAPPING
        FROM CARTER-BURGESS DIGITAL TERRAIN MODEL. DATE: 2-24-99
        GR ELEVATIONS FOR SECTIONS 16.96 TO 17.95 ARE BASED UPON
        CITY OF PHOENIX DATUM.  MONTGOMERY-WATSON GR DATA ARE BASED UPON
        NGVD 1927 DATUM.  THE GR DATA FOR SECTIONS 16.96 TO 17.95 ARE
        RAISED BY 0.21 FEET ON THE X1 CARD FOR CONVERSION TO THE
        NGVD 1927 DATUM.

ET                9.1       7.1                                    9914     10348      9914     10348
X1    16.96        61      9932     10342       410       600     456.2       1.0      0.21
X2                                                                                                15
GR   1684.1   9539.39   1680.00   9594.54   1682.00   9637.67   1680.00   9655.49   1680.00   9757.68
GR   1678.5   9807.96   1678.00   9870.41   1678.00   9902.01   1684.00   9929.31      1684      9932
GR   1684.0   9947.83    1678.0      9966   1677.71   9988.98   1676.00  10007.22   1676.00  10075.82
GR   1679.4  10134.07   1679.9  10257.04   1682.44   10270.3   1682.91  10282.57   1684.29  10307.33
GR   1684.7     10342   1685.2  10383.59    1685.6  10435.94   1684.59  10503.13   1681.61  10542.21
GR   1681.7  10567.46   1684.5  10601.12   1685.0   10660.64   1685.14   10704.2   1685.85  10830.52
GR   1686.6   10864.9   1688.5  10909.44   1688.7   10920.87   1688.46  10970.87   1688.21   11018.3
GR   1688.4  11061.63   1687.9  11137.84   1687.9   11246.93   1687.23  11567.48   1686.77  11645.69
GR   1686.1  11668.64   1685.0  11730.35   1682.7   11795.39   1683.11   11904.8   1683.60  11972.35
GR   1680.6  11995.13   1681.3  12009.48   1680.0   12021.63   1680.01  12033.37   1683.12   12052.5
GR   1684.1  12068.44   1683.2  12108.19   1683.9   12127.91   1683.29  12159.06   1683.75  12199.78
GR   1684.7  12221.54   1685.3  12302.92   1686.2   12482.15   1686.01  12553.87   1686.23  12583.61
GR   1685.8  12619.86
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ET                 9.1        7.1                                    9650       10470       9533       10470
X1    17.06         68       9947      10090        630        440     566.0                   0.21
X2                                                                                                        15
GR   1694.0    9385.95    1693.95    9443.14    1690.00    9475.62   1690.00    9497.53    1688.00    9557.26
GR   1684.0    9581.93    1682.31    9621.41    1686.00    9643.26   1686.00    9763.42    1684.00    9806.79
GR   1684.0    9929.44    1682.68       9947    1681.50    9963.19   1680.00    9982.51    1682.00    9988.59
GR   1682.0   10002.50     1678.0   10029.28    1678.00   10052.12   1684.48   10064.34    1686.00   10069.46
GR   1687.9      10090     1689.0   10122.23     1689.3   10215.28   1688.00   10336.61    1688.10   10396.62
1
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GR   1687.8   10487.99     1688.0   10511.72    1687.4   10522.16   1688.38   10572.12    1688.62   10626.53
GR   1689.6   10646.45     1690.6   10749.60    1690.3   10800.60   1690.98   10928.08    1690.54   11030.08
GR   1690.9   11081.08     1690.9   11116.85    1690.4   11217.90   1690.40   11307.94    1690.05   11414.59
GR   1688.9   11515.03     1688.4   11541.26    1687.2   11553.62   1688.71   11570.43    1688.71   11611.26
GR   1686.9   11659.40     1686.6   11686.45    1689.0   11715.46   1689.84   11790.80    1690.01   11846.52
GR   1691.6   11921.73     1691.6   11976.53    1690.2   12032.71   1690.45   12064.67    1689.28   12092.70
GR   1687.0   12101.40     1689.2   12110.11    1686.7   12121.50   1687.03   12132.17    1690.17   12142.33
GR   1688.6   12152.05     1690.3   12176.39    1690.4   12191.90   1689.44   12200.38    1691.39   12313.66
GR   1691.5   12385.08     1691.0   12479.24    1692.1   12605.82

NC     .048       .048       .046         .1         .3

ET                 9.1        7.1                                    9788       10668       9746       10695
X1    17.18         56       9978      10254        610        510     600.8                   0.21
X2                                                                                                        15
GR   1699.8    9493.99    1697.06    9664.32    1695.56    9715.97   1694.00    9779.51    1692.05    9808.56
GR   1693.2    9845.85    1692.49    9935.01    1692.00    9963.19   1688.74       9978    1686.00    9990.45
GR   1686.0   10011.48     1690.0   10053.30    1690.00   10123.73   1687.29   10145.22    1686.00   10162.51
GR   1688.0   10206.89     1688.0   10244.97    1689.35      10254   1694.00   10284.66    1696.00   10342.46
GR   1695.4   10386.32     1695.1   10446.24    1694.00   10516.41   1693.77   10575.40    1693.06   10655.64
GR   1694.5   10749.27     1695.8   10806.19    1695.72   10933.46    1696.0   10997.29     1695.9   11083.48
GR   1696.1   11089.79     1696.5   11108.75    1695.63   11237.26    1694.8   11322.92     1693.7   11408.60
GR   1692.9   11445.19     1692.4   11459.18    1693.31   11474.48    1692.3   11499.27     1692.8   11568.83
GR   1693.0   11665.60     1693.9   11794.13    1694.57   11930.31    1695.5   12034.58     1695.9   12115.02
GR   1695.7   12238.17     1695.9   12285.64    1692.73   12313.61    1692.5   12332.10     1696.4   12352.81
GR   1695.9   12381.62     1696.6   12395.49    1696.08   12435.45    1696.7   12500.30     1698.0   12576.83
GR   1698.2   12621.60

ET                 9.1        7.1                                    9628       10535       9568       10560
X1    17.30         53       9970      10156        630        580     644.4                   0.21
X2                                                                                                        15
GR   1710.5    9112.36    1710.00    9177.76    1709.63    9217.43   1704.60    9322.93    1704.00    9419.22
GR   1703.9    9448.82    1701.30    9534.19    1700.00    9566.96   1700.00    9598.26    1698.00    9656.94
GR   1698.0    9720.94    1697.35    9761.09    1698.00    9881.54   1697.02    9933.98    1696.00    9946.95
GR   1692.0    9962.55       1692       9970    1692.00   10031.21   1694.00   10063.76    1696.00   10074.95
GR   1696.0   10119.18     1697.2      10156     1697.7   10169.28   1698.00   10277.48    1696.00   10295.67
GR   1696.1   10308.57     1698.0   10327.84    1698.0   10437.49   1700.00   10523.21    1700.30   10569.87
GR   1700.6   10584.84     1699.9   10675.27    1700.1   10755.39   1699.09   10873.25    1698.71   10927.80
GR   1699.6   11081.73     1699.2   11129.84    1699.4   11231.27   1700.25   11358.81    1700.39   11481.95
GR   1700.5   11585.67     1702.2   11666.67    1700.7   11730.00   1700.10   11772.84    1699.51   11807.15
GR   1696.2   11820.90     1696.9   11838.62    1700.5   11855.95   1700.12   11882.17    1700.24   11925.03
GR   1701.8   11987.03     1701.9   12128.46    1702.0   12183.66

ET                 9.1        7.1                                    9758       10471       9731       10473
X1    17.39         55       9893      10179        465        530     500.0                   0.21
X2                                                                                                        15
GR   1711.1    9116.73    1710.00    9167.22    1710.00    9190.00   1707.78    9326.23    1706.00    9403.55
GR   1706.0    9430.65    1705.12    9471.20    1704.74    9555.58   1704.99    9664.90    1705.40    9710.74
GR   1703.9    9779.45    1702.00    9887.09    1697.84       9893   1698.00    9898.69    1698.00    9920.72
GR   1700.0    9928.58     1696.0    9951.05    1696.00    9973.40   1698.00    9991.02    1700.00   10057.52
GR   1700.0   10099.04     1698.0   10111.87    1698.00   10131.69   1702.00   10144.53    1702.00   10170.78
1
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GR   1701.3      10179     1700.0   10195.61    1702.0   10231.60   1702.16   10316.97    1702.77   10463.14
GR   1703.1   10621.24     1703.1   10798.44    1702.8   10893.36   1702.71   10911.99    1702.16   10938.60
GR   1703.1   10984.81     1703.6   11071.94    1704.0   11149.81   1704.00   11216.87    1704.77   11322.45
GR   1704.5   11451.58     1704.3   11532.28    1705.1   11566.52   1702.62   11580.13    1704.07   11595.54
GR   1702.3   11601.47     1702.4   11622.56    1705.9   11645.05   1704.94   11673.91    1704.89   11732.23
GR   1705.4   11786.90     1704.9   11887.47    1705.2   11960.19   1704.78   12035.23    1704.18   12058.85

NC       .06      .060       .042         .1         .3
QT         2     27300      27300

ET                 9.1        7.1                                    9488.92     10340       9478       10355

        APPROX. 3,600 CFS DIVERTS INTO RIGHT OVERBANK FROM THIS CROSS-SECTION
        DOWNSTREAM.  REFER TO SPLIT FLOW MODEL FOR RIGHT OVERBANK ANALYSIS.
        FLOODWAY ANALYSIS USES ENTIRE FLOW AND IS STRICTLY FOR MAIN CHANNEL.

X1    17.48         40       9893      10073        429        429     429.4                   0.21
X2                                                                                                        15
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GR   1716.0   9372.88   1710.84   9458.51   1708.00   9485.84   1708.00   9544.18   1707.25   9597.50
GR   1706.6   9679.17   1706.00   9739.84   1706.00   9877.04   1702.68      9893   1702.00   9936.69
GR   1702.0  10037.70   1704.40  10047.62   1706.00  10063.16   1706.00     10073   1706.00  10247.95
GR   1706.5  10301.08    1706.8  10455.69   1706.73  10561.82   1706.57  10600.14   1706.88  10693.59
GR   1707.2  10757.24    1708.0  10805.71   1708.14  10845.01   1709.12  10975.02   1708.96  11014.26
GR   1707.7  11046.61    1707.6  11059.28   1708.52  11074.56   1706.96  11086.14   1708.52  11099.03
GR   1707.8  11126.83    1708.7  11136.13   1704.10  11173.88   1706.87  11188.45   1707.99  11249.19
GR   1708.8  11382.36    1709.3  11482.61   1709.58  11541.69   1710.44  11616.42   1711.83  11696.98

ET                 9.1       7.1                                 9516.45     10263      9440     10274
X1     17.57        33      9923     10040       365       500     474.4                 0.21
X2                                                                                         .        15
GR   1720.8   9203.88   1716.95   9303.56   1715.14   9335.15   1714.09   9428.56   1714.36   9471.01
GR   1710.0   9508.10   1711.13   9548.25   1712.00   9576.05   1712.00   9686.77   1708.00   9871.91
GR   1706.0   9897.50   1706.00      9923   1702.00   9930.23   1703.39   9971.46   1706.17  10007.46
GR   1708.7  10020.08   1710.00     10040   1708.32  10114.97   1711.29  10161.60   1712.00  10169.27
GR   1712.0  10401.97   1711.82  10474.54   1711.46  10628.12   1710.00  10672.93   1708.32  10688.83
GR   1710.0  10716.66   1710.06  10827.37   1711.41  10887.64   1713.38  11026.76   1713.78  11097.48
GR   1714.3  11153.34   1714.48  11225.31   1715.18  11289.40

ET                 9.1       7.1                                 9423.70     10270      9350     10296
X1     17.65        31      9924     10021       370       500     460.8                 0.21
X2                                                                                                15
GR   1734.7   9336.28   1726.00   9382.74   1716.00   9413.87   1714.00   9475.55   1712.00   9482.60
GR   1712.5   9493.88   1713.77   9550.02   1713.27   9594.24   1714.00   9630.30   1713.10   9665.77
GR   1714.0   9812.95   1711.89   9899.02   1708.00   9912.78   1707.04      9924   1704.00   9959.39
GR   1704.0   9984.01    1708.1   9992.68   1710.00  10000.49   1711.07     10021   1714.00  10077.36
GR   1715.2  10133.98    1715.9  10205.53    1714.2  10358.37   1713.30  10370.66   1712.00  10376.05
GR   1712.0  10399.95    1714.0  10455.92    1715.9  10593.80   1716.54  10726.83   1718.00  10854.12
GR   1718.1  10903.11
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ET                 9.1       7.1                                 9642.06     10578      9600     10605
X1     17.78        28      9931     10026       490       720     661.3                 0.21
X2                                                                                                15
GR   1751.5   9514.89   1741.31   9570.53   1732.00   9599.65   1721.18   9627.65   1716.00   9684.50
GR   1718.0   9717.21   1718.27   9765.64   1720.00   9841.50   1720.00      9931   1720.00   9955.49
GR   1714.0   9973.26    1714.0   9988.08   1713.17     10026   1716.00  10070.76   1716.23  10151.26
GR   1715.8  10235.37    1718.0  10282.17   1720.00  10309.14   1720.00  10385.19   1716.00  10409.40
GR   1716.0  10447.79    1720.0  10488.02   1720.00  10527.03   1722.00  10585.51   1722.00  10781.23
GR   1723.6  10884.80    1724.0  10986.97   1724.69  11024.28

ET                 9.1       7.1                                 9745.39     10665      9700     10678
X1     17.84        29      9925     10219       310       310     341.7                 0.21
X2                                                                                                15
GR   1730.7   9670.69   1728.76   9713.32   1724.00   9753.84   1720.00   9772.54   1720.44   9790.38
GR   1722.1   9800.90   1724.00   9834.61   1724.00   9909.89   1723.00      9925   1722.00   9940.13
GR   1719.4   9955.16    1718.0  10029.40   1718.00  10048.88   1718.00  10133.86   1720.00  10164.50
GR   1720.1     10219    1722.0  10230.85   1722.00  10374.53   1723.13  10440.30   1722.38  10487.83
GR   1720.0  10533.75    1720.0  10579.92   1722.00  10616.26   1722.00  10663.58   1724.00  10716.91
GR   1724.5  10765.44    1725.3  10867.86   1725.36  10903.95   1726.37  11049.41

        CLOUD ROAD CROSSES THROUGH THIS CROSS-SECTION.
        3-60" CMPS:CAPACITY IGNORED

ET                           7.1                                 9818.68     10595
X1     17.95        42      9867     10047       500       520     563.8                 0.21
X2                                                                                                15
GR   1740.3   9755.02   1730.00   9818.34   1726.64   9852.10   1726.15      9867   1725.94   9873.24
GR   1724.0   9879.76    1724.0   9941.90   1722.00  10021.83   1722.00  10042.15   1723.30     10047
GR   1726.5  10058.87    1726.0  10131.78    1726.8  10166.46   1726.86  10219.74   1728.00  10281.54
GR   1728.0  10340.58    1726.0  10351.82    1724.0  10391.92   1724.22  10410.16   1728.00  10440.86
GR   1728.0  10470.78    1726.5  10517.06    1726.0  10529.03   1722.85  10545.77   1728.15  10569.84
GR   1730.0  10647.71    1730.1  10713.11    1730.0  10858.38   1729.75  10888.71   1730.00  11036.40
GR   1731.1  11046.39    1734.0  11060.67    1731.9  11064.15   1734.74  11068.55   1752.62  11081.31
GR   1754.9  11117.17    1762.6  11121.41    1773.7  11131.30   1795.88  11138.65   1761.77  11146.48
GR   1754.6  11150.26    1844.6  11242.14

        END OF CARTER-BURGESS ONE-FOOT CONTOUR MAPPING.
        MONTGOMERY-WATSON TWO-FOOT INTERVAL CONTOUR MAPPING RESUMES.

QT        2     27700     27700
ET                           7.1                                    9895     10610
X1     18.09        60      9936     10310     712.5       375     705.8
X2                                                                                                15
GR   1788.5      9672    1784.1      9713    1776.9      9762    1771.6      9792    1748.2      9828
GR   1733.9      9855    1732.7      9862    1729.9      9872    1729.7      9880    1731.3      9885
GR   1730.9      9900    1727.3      9919    1730.5      9936    1727.5      9951    1728.2      9971
GR   1728.2      9991    1727.4     10000    1727.8     10006    1728.8     10065    1729.6     10076
GR   1731.3     10090    1731.8     10119    1731.7     10178    1730.9     10226    1729.9     10264
GR   1726.2     10280    1725.9     10290    1733.0     10310    1732.9     10333    1731.3     10380
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GR   1730.4      10407     1729.1      10447     1728.6      10497     1729.1      10522     1723.5      10540
1
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GR   1723.7      10556     1728.6      10573     1731.4      10597     1733.6      10633     1734.3      10663
GR   1734.2      10717     1733.5      10772     1732.5      10799     1732.3      10847     1732.4      10899
GR   1732.3      10935     1733.1      10974     1733.0      11013     1732.8      11076     1733.3      11132
GR   1733.7      11210     1734.0      11263     1734.7      11349     1735.8      11423     1736.6      11479
GR   1737.7      11538     1738.0      11570     1738.6      11595     1739.1      11632     1739.7      11661

NC     .055       .055       .030
ET                           7.1                                       9752      10425
X1    18.16         34       9836      10075       345       360      377.6
X2                                                                                                        15
GR   1755.1       9687     1739.9       9711     1736.1       9724     1734.0       9754     1730.7       9768
GR   1730.5       9775     1733.9       9788     1735.2       9810     1735.2       9836     1734.7       9860
GR   1733.3       9877     1732.7       9892     1732.9       9911     1732.5       9951     1732.5       9981
GR   1729.6       9996     1729.6      10000     1729.6      10020     1728.8      10050     1739.0      10075
GR   1737.8      10078     1737.2      10095     1735.8      10124     1734.7      10139     1734.0      10155
GR   1733.5      10199       1730      10330       1730      10380      1734       10430      1736       10650
GR   1736.9      10750       1738      10930       1738      11040      1740       11130
        NEW CROSS SECTION: GR CARD DATA FOR 18.20 DEVELOPED FROM TOPOGRAPHIC MAP
        CROSS SECTION ADDED TO MODEL FLOW OVER CLOUD ROAD
        CAPACITY OF 3-60" CMPS IGNORED

ET                           7.1                                       9630      10330
X1    18.23         19       9800      10010       370       400      370
X2                                                                                                        15
GR     1750       9510       1740       9550     1736       9640     1734       9650      1736       9660
GR     1736       9690       1735       9700     1736       9710     1738       9780      1738       9800
GR     1736       9930       1734       9950     1732       9965     1730      10000    1738.8      10010
GR     1740      10240       1740      10480     1740      10730     1742      10870

ET                           7.1                                       9630      10330
X1    18.29         57       9914      10049       200       310      300
GR   1750.9       9535     1741.6       9583     1737.2       9597     1739.5       9608     1739.1       9634
GR   1737.5       9647     1732.6       9660     1737.5       9678     1739.3       9712     1740.2       9758
GR   1740.1       9788     1739.1       9800     1739.7       9812     1738.7       9832     1735.8       9852
GR   1737.4       9872     1738.3       9914     1737.0       9932     1735.5       9949     1735.0       9968
GR   1734.0       9976     1734.6       9984     1734.3      10000     1735.5      10009     1735.3      10020
GR   1733.5      10029     1739.9      10049     1740.5      10076     1740.0      10115     1736.1      10130
GR   1734.7      10144     1736.9      10160     1738.4      10185     1742.0      10213     1742.5      10244
GR   1742.8      10266     1742.2      10270     1742.8      10286     1742.8      10318     1742.7      10349
GR   1742.8      10388     1742.5      10395     1742.5      10429     1742.2      10468     1742.6      10472
GR   1742.5      10553     1741.1      10565     1742.8      10574     1743.2      10607     1743.0      10634
GR   1743.3      10693     1744.6      10746     1744.9      10795     1745.6      10858     1746.0      10899
GR   1747.1      10970     1747.8      11035

NC     .055       .055       .042
ET                           7.1                                       9832      10475
X1    18.49         63       9832      10037     1162.5       850     1099.7
GR   1762.2       9699     1754.7       9727     1746.3       9755     1747.1       9766     1747.4       9792
GR   1747.4       9832     1745.9       9853     1742.7       9867     1743.3       9895     1744.9       9909
GR   1744.8       9930     1744.6       9965     1741.7       9985     1741.9      10000     1745.2      10015
GR   1746.9      10037     1746.9      10052     1746.2      10060     1745.8      10072     1747.3      10082
GR   1747.8      10111     1748.7      10142     1748.9      10167     1749.0      10202     1748.9      10243
GR   1748.7      10282     1748.2      10327     1748.0      10379     1747.8      10394     1746.5      10406
GR   1747.4      10417     1743.7      10434     1744.0      10445     1746.9      10464     1742.3      10481
1
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GR   1746.3      10497     1748.9      10522     1750.3      10562     1751.2      10602     1751.4      10637
GR   1751.9      10676     1752.2      10727     1752.5      10780     1752.7      10817     1753.1      10834
GR   1753.7      10873     1754.2      10897     1754.5      10951     1754.9      10998     1755.3      11036
GR   1755.7      11087     1757.1      11131     1757.6      11137     1757.6      11163     1759.2      11194
GR   1759.0      11230     1759.4      11254     1760.4      11285     1761.5      11316     1763.0      11352
GR   1766.6      11387     1769.6      11411     1778.1      11458

NC     .040       .040       .030
ET                           7.1                                       9700      10480
X1    18.57         62       9947      10041       275       675      389.0
GR   1785.6       9578     1759.3       9624     1751.3       9644     1748.8       9663     1748.5       9671
GR   1746.0       9703     1743.7       9714     1743.5       9735     1746.6       9747     1749.2       9772
GR   1750.4       9819     1750.1       9829     1750.3       9832     1751.1       9879     1752.5       9926
GR   1752.5       9947     1745.1       9969     1744.4      10000     1744.4      10001     1745.5      10006
GR   1745.9      10014     1751.5      10041     1749.2      10062     1751.5      10076     1751.5      10102
GR   1750.9      10116     1751.2      10146     1752.4      10170     1752.3      10224     1751.4      10247
GR   1752.2      10263     1753.1      10302     1753.6      10332     1753.3      10360     1753.7      10386
GR   1751.0      10400     1753.4      10416     1752.6      10452     1752.5      10474     1751.8      10490
GR   1752.7      10507     1752.8      10528     1754.2      10560     1755.2      10585     1756.5      10600
GR   1757.0      10645     1757.7      10678     1757.9      10717     1758.1      10766     1758.8      10820
GR   1759.2      10862     1760.1      10915     1760.2      10941     1760.5      10950     1760.8      10964
GR   1760.4      10993     1760.2      11007     1761.1      11021     1761.8      11048     1765.7      11082
GR   1770.4      11111     1776.8      11148

QT         2      27300      27300
ET               9.1          7.1                                       9380      10125      9321      10244
X1    18.74         69       9975      10142       750       650      917.8
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GR   1770.0      9245     1770.1      9249     1763.2      9269     1763.1      9291     1762.2      9321
GR   1760.3      9332     1758.0      9362     1757.6      9377     1752.0      9388     1754.6      9404
GR   1753.8      9417     1750.4      9437     1750.7      9454     1754.9      9479     1756.6      9493
GR   1756.7      9528     1756.7      9552     1757.1      9583     1757.8      9616     1758.2      9656
GR   1758.9      9692     1760.0      9729     1759.4      9750     1759.8      9767     1758.1      9791
GR   1758.5      9814     1759.2      9851     1759.0      9883     1758.5      9908     1757.0      9924
GR   1757.7      9938     1757.7      9975     1755.1      9986     1755.0     10000     1755.2     10018
GR   1755.3     10042     1757.7     10056     1758.5     10111     1758.7     10142     1759.6     10163
GR   1760.5     10198     1760.9     10244     1760.1     10281     1759.2     10318     1759.3     10336
GR   1759.6     10361     1759.5     10381     1759.2     10434     1761.4     10471     1763.1     10502
GR   1763.6     10533     1763.5     10581     1763.1     10628     1763.7     10660     1763.7     10706
GR   1763.6     10752     1763.6     10796     1763.9     10855     1763.8     10889     1761.9     10896
GR   1763.9     10910     1764.0     10932     1766.7     10947     1766.0     10962     1764.0     10991
GR   1762.8     11003     1766.7     11018     1768.5     11036     1779.0     11093

ET                 9.1       7.1                                     9576     10140      9470     10165
X1    18.84        46      9915     10036       500       325     497.1
GR   1772.3      9380     1771.7      9419     1770.8      9450     1764.5      9475     1756.9      9503
GR   1757.6      9512     1758.4      9522     1758.5      9531     1757.4      9538     1759.8      9557
GR   1759.9      9576     1758.7      9586     1759.6      9597     1759.6      9604     1758.6      9612
GR   1760.0      9620     1760.6      9649     1760.6      9679     1761.0      9702     1759.8      9721
GR   1760.5      9732     1760.6      9768     1759.8      9784     1759.8      9797     1761.3      9818
GR   1763.1      9848     1763.4      9888     1763.2      9915     1759.9      9942     1758.0      9987
GR   1755.9     10000     1755.7     10008     1762.6     10036     1763.3     10051     1762.5     10101
GR   1760.8     10107     1762.3     10115     1764.2     10145     1765.5     10182     1766.0     10209
GR   1765.0     10231     1765.0     10258     1765.5     10308     1764.9     10357     1765.4     10413
GR   1765.4     10417
1
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ET                           7.1                                     9639     10480
X1    18.96        70      9924     10021       525       600     631.7
GR   1779.1      9326     1778.7      9377     1776.0      9418     1774.9      9427     1773.9      9442
GR   1769.0      9458     1767.7      9482     1766.0      9489     1767.1      9496     1767.3      9514
GR   1767.0      9536     1768.0      9545     1768.8      9570     1768.6      9607     1768.1      9640
GR   1767.9      9649     1767.8      9687     1767.3      9714     1767.7      9726     1767.9      9764
GR   1767.6      9796     1768.2      9809     1768.3      9837     1768.6      9862     1768.2      9894
GR   1768.0      9924     1762.2      9931     1762.6      9938     1762.6      9959     1762.9     10000
GR   1763.3     10007     1766.3     10021     1767.2     10035     1767.2     10043     1766.0     10055
GR   1766.9     10069     1765.7     10100     1766.7     10107     1766.3     10125     1764.5     10137
GR   1769.4     10159     1771.0     10193     1770.9     10235     1770.5     10281     1769.0     10317
GR   1768.7     10347     1767.5     10358     1768.8     10370     1768.8     10401     1767.4     10408
GR   1768.5     10414     1769.0     10436     1769.7     10455     1770.2     10515     1770.5     10574
GR   1770.6     10644     1770.7     10686     1770.9     10731     1771.0     10781     1771.3     10818
GR   1771.2     10877     1772.4     10930     1773.1     10975     1773.1     11027     1773.4     11087
GR   1773.8     11135     1773.9     11195     1774.3     11217     1774.5     11277     1774.6     11298

NC     .031       .031       .045
1
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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


FLOW DISTRIBUTION FOR SECNO=     16.86          CWSEL=   1677.00

STA=    9909.   10193.
  PER Q=    100.0
   AREA=   1828.3
    VEL=     14.9
  DEPTH=      6.8

FLOW DISTRIBUTION FOR SECNO=     16.87          CWSEL=   1680.84

STA=    9902.   10194.
  PER Q=    100.0
   AREA=   2387.4
    VEL=     11.4
  DEPTH=      8.4

FLOW DISTRIBUTION FOR SECNO=     16.96          CWSEL=   1684.88

STA=    9914.    9929.    9932.   10342.
  PER Q=       .5       .0     99.5
   AREA=     36.1      1.8   2099.5
    VEL=      3.6      1.9     12.9
  DEPTH=      2.4       .7      5.1

FLOW DISTRIBUTION FOR SECNO=     17.06          CWSEL=   1689.87

STA=    9533.    9621.    9763.    9807.    9929.    9947.   10090.   10397.   10470.
  PER Q=      7.8      9.6      3.8     15.0      2.6     56.4      3.1      1.6
   AREA=    376.9    559.0    201.8    693.3    110.9   1159.1    303.4    122.8
    VEL=      5.6      4.7      5.2      5.9      6.4     13.3      2.8      3.6
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  DEPTH=      4.3      3.9      4.7      5.7      6.3      8.1      1.0      1.7

FLOW DISTRIBUTION FOR SECNO=     17.18          CWSEL=   1695.24

STA=    9746.    9846.    9935.    9978.   10254.   10516.   10695.
  PER Q=      3.1      3.8      4.0     82.2      3.0      4.0
   AREA=    169.0    195.1    147.6   1898.1    152.5    263.3
    VEL=      5.0      5.3      7.3     11.8      5.4      4.1
  DEPTH=      1.7      2.2      3.4      6.9       .6      1.5
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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

FLOW DISTRIBUTION FOR SECNO=     17.30          CWSEL=   1701.39

STA=    9568.    9721.    9882.    9934.    9963.    9970.   10156.   10277.   10309.   10437.   10560.
  PER Q=      6.4     11.9      4.2      5.3      2.8     45.2      8.5      3.6      8.8      3.3
   AREA=    367.5    563.3    192.6    172.6     68.4   1295.5    410.1    142.3    428.6    226.2
    VEL=      4.7      5.8      6.0      8.4     11.0      9.5      5.6      6.9      5.6      3.9
  DEPTH=      2.4      3.5      3.7      6.0      9.2      7.0      3.4      4.6      3.3      1.8

FLOW DISTRIBUTION FOR SECNO=     17.39          CWSEL=   1705.16

STA=    9731.    9779.    9887.    9893.   10179.   10196.   10232.   10317.   10463.   10473.
  PER Q=       .2      4.2       .9     73.1      2.3      4.4      6.1      8.3       .4
   AREA=     25.4    215.6     29.7   1720.4     71.5    142.3    245.3    363.7     21.4
    VEL=      2.2      5.4      8.7     11.6      8.9      8.4      6.8      6.2      5.0
  DEPTH=       .5      2.0      5.0      6.0      4.3      4.0      2.9      2.5      2.2

FLOW DISTRIBUTION FOR SECNO=     17.48          CWSEL=   1709.83

STA=    9478.    9486.    9544.    9598.    9679.    9740.    9877.    9893.   10073.   10248.   10301.   10355.
  PER Q=       .1      1.1      1.5      3.7      3.9     10.3      2.2     57.5     13.1      3.5      3.0
   AREA=      9.5     94.2    106.1    219.6    201.1    495.9     84.2   1254.7    632.3    178.7    165.1
    VEL=      2.5      3.3      3.8      4.6      5.3      5.7      7.2     12.5      5.7      5.4      4.9
  DEPTH=      1.2      1.6      2.0      2.7      3.3      3.6      5.3      7.0      3.6      3.4      3.1

FLOW DISTRIBUTION FOR SECNO=     17.57          CWSEL=   1713.84

STA=    9477.    9508.    9548.    9576.    9687.    9872.    9898.    9923.   10040.   10115.   10162.   10169.   10274.
  PER Q=       .7      2.3       .8      2.2     14.2      5.3      6.7     53.2      8.1      3.9       .2      2.1
   AREA=     56.1    123.1     57.4    180.5    672.1    169.7    194.6   1002.6    335.1    178.4     15.2    170.7
    VEL=      3.6      5.2      4.0      3.4      5.8      8.6      9.5     14.5      6.6      6.0      3.8      3.3
  DEPTH=      1.8      3.1      2.1      1.6      3.6      6.6      7.6      8.6      4.5      3.8      2.0      1.6

FLOW DISTRIBUTION FOR SECNO=     17.65          CWSEL=   1717.56

STA=    9410.    9494.    9550.    9630.    9813.    9899.    9924.   10021.   10077.   10206.   10296.
  PER Q=      3.6      4.3      5.2     11.9      7.1      6.2     51.0      5.4      3.5      1.9
   AREA=    236.2    236.8    303.5    694.5    379.3    212.2   1050.1    271.5    284.8    176.9
    VEL=      4.1      5.0      4.6      4.7      5.1      8.0     13.3      5.4      3.3      2.9
  DEPTH=      2.8      4.2      3.8      3.8      4.4      8.5     10.8      4.8      2.2      2.0
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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

FLOW DISTRIBUTION FOR SECNO=     17.78          CWSEL=   1722.50

STA=    9625.    9685.    9717.    9766.    9842.    9931.   10026.   10071.   10151.   10235.   10282.   10385.   10448.
  PER Q=      3.8      4.0      3.9      3.9      2.7     22.2     10.2     12.6     13.6      5.9      3.8      8.3
   AREA=    211.7    172.9    201.0    239.0    204.5    602.6    344.7    496.7    527.4    252.0    262.4    345.0
    VEL=      4.9      6.3      5.3      4.4      3.6     10.0      8.0      7.0      7.0      6.3      3.9      6.5
  DEPTH=      3.5      5.3      4.2      3.2      2.3      6.3      7.7      6.2      6.3      5.4      2.5      5.5

STA=   10448.   10488.   10605.
  PER Q=      3.4      1.9
   AREA=    172.4    169.9
    VEL=      5.4      3.0
  DEPTH=      4.3      1.5

FLOW DISTRIBUTION FOR SECNO=     17.84          CWSEL=   1724.75

STA=    9749.    9801.    9925.   10219.   10375.   10488.   10534.   10580.   10664.   10678.
  PER Q=      3.6      1.0     70.2      7.5      3.2      3.3      5.6      5.1       .5
   AREA=    159.8    105.7   1617.7    405.2    213.9    153.5    209.3    248.2     32.6
    VEL=      6.1      2.7     11.8      5.1      4.1      5.9      7.3      5.6      4.2
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  DEPTH=      3.1       .9      5.5      2.6      1.9      3.3      4.5      3.0      2.3

FLOW DISTRIBUTION FOR SECNO=     17.95          CWSEL=   1730.50

STA=    9817.    9867.   10047.   10132.   10220.   10282.   10392.   10410.   10471.   10529.   10570.   11039.
  PER Q=      2.1     54.7      8.0      6.4      3.0      8.2      3.2      3.8      3.6      5.4      1.4
   AREA=    124.7   1240.0    358.4    319.2    176.7    384.2    112.7    196.8    189.0    213.4    218.9
    VEL=      4.6     12.0      6.1      5.5      4.7      5.8      7.8      5.3      5.1      7.0      1.8
  DEPTH=      2.5      6.9      4.2      3.6      2.9      3.5      6.2      3.2      3.2      5.2       .5

FLOW DISTRIBUTION FOR SECNO=     18.09          CWSEL=   1734.95

STA=    9853.    9919.    9936.   10310.   10407.   10447.   10497.   10522.   10540.   10556.   10573.   10633.   10899.
  PER Q=      4.7      2.0     49.8      3.8      3.8      6.1      3.1      3.8      5.5      3.7      3.0      4.2
   AREA=    281.4    102.8   1938.1    290.6    208.0    305.0    152.5    155.7    181.6    149.6    207.0    438.5
    VEL=      4.6      5.5      7.1      3.6      5.0      5.6      5.6      6.8      8.4      6.9      4.1      2.6
  DEPTH=      4.3      6.0      5.2      3.0      5.2      6.1      6.1      8.6     11.3      8.8      3.4      1.6

STA=   10899.   11076.   11366.
  PER Q=      3.9      2.5
   AREA=    384.6    331.5
    VEL=      2.8      2.1
  DEPTH=      2.2      1.1
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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

FLOW DISTRIBUTION FOR SECNO=     18.16          CWSEL=   1736.55

STA=    9722.    9775.    9836.   10075.   10199.   10330.   10380.   10430.   10650.   10711.
  PER Q=      3.5      2.6     50.3      3.3     17.9     11.5      6.2      4.6       .1
   AREA=    145.8    135.6   1025.0    183.7    628.7    327.5    227.5    340.8     16.8
    VEL=      6.6      5.3     13.6      5.0      7.9      9.7      7.6      3.7      1.2
  DEPTH=      2.8      2.2      4.4      1.5      4.8      6.5      4.5      1.5       .3

FLOW DISTRIBUTION FOR SECNO=     18.23          CWSEL=   1741.75

STA=    9543.    9640.    9660.    9690.    9710.    9780.    9800.   10010.   10240.   10480.   10730.   10852.
  PER Q=      5.9      3.4      4.0      3.0      6.7      1.3     59.3      6.8      4.4      4.5       .7
   AREA=    343.4    135.0    172.4    125.0    332.4     75.0   1333.1    540.0    419.5    437.0    106.9
    VEL=      4.7      7.0      6.4      6.7      5.6      4.8     12.3      3.5      2.9      2.9      1.8
  DEPTH=      3.5      6.7      5.7      6.2      4.7      3.7      6.3      2.3      1.7      1.7       .9
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T1      Floodway Run - Method 1
T2      Date:  4-25-97
T3      Floodway Run - Method 1

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -10        3                                                                  1522.96

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2                   -1

FLOW DISTRIBUTION FOR SECNO=     16.86          CWSEL=   1677.00

STA=    9909.   10193.
  PER Q=    100.0
   AREA=   1830.4
    VEL=     14.9
  DEPTH=      6.8

FLOW DISTRIBUTION FOR SECNO=     16.87          CWSEL=   1680.84

STA=    9902.   10194.
  PER Q=    100.0
   AREA=   2387.4
    VEL=     11.4
  DEPTH=      8.4

FLOW DISTRIBUTION FOR SECNO=     16.96          CWSEL=   1684.88

STA=    9914.    9929.    9932.   10342.
  PER Q=       .5       .0     99.5
   AREA=     36.1      1.8   2099.5
    VEL=      3.6      1.9     12.9
  DEPTH=      2.4       .7      5.1
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FLOW DISTRIBUTION FOR SECNO= 17.06 CWSEL= 1690.24

STA=	9650.	9763.	9807.	9929.	9947.	10090.	10122.	10215.	10337.	10397.	10470.
PER Q=	7.7	4.4	16.7	2.8	60.9	.7	.7	2.0	1.8	2.3	
AREA=	456.9	218.1	739.3	117.4	1212.7	50.9	81.7	167.2	118.7	150.3	
VEL=	4.6	5.5	6.2	6.6	13.7	3.6	2.4	3.2	4.1	4.1	
DEPTH=	4.0	5.0	6.0	6.7	8.5	1.6	.9	1.4	2.0	2.0	

FLOW DISTRIBUTION FOR SECNO= 17.18 CWSEL= 1695.19

1

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

STA=	9788.	9809.	9846.	9935.	9963.	9978.	10254.	10285.	10313.	10516.	10575.	10656.	10668.
PER Q=	.9	1.8	3.7	1.8	2.2	83.4	2.6	.1	.2	.8	2.0	.4	
AREA=	46.1	87.9	190.5	77.1	68.3	1883.8	101.4	13.9	30.7	64.7	125.7	22.6	
VEL=	5.3	5.7	5.4	6.3	8.8	12.1	7.1	2.0	2.0	3.4	4.4	4.4	
DEPTH=	2.2	2.4	2.1	2.7	4.6	6.8	3.3	.5	.2	1.1	1.6	1.8	

FLOW DISTRIBUTION FOR SECNO= 17.30 CWSEL= 1701.48

STA=	9628.	9721.	9761.	9882.	9934.	9963.	9970.	10156.	10277.	10309.	10437.	10523.	10535.
PER Q=	5.5	3.1	9.2	4.3	5.3	2.7	45.3	8.7	3.7	9.0	3.0	.1	
AREA=	289.8	144.4	433.2	197.3	175.2	69.1	1312.2	421.0	145.1	440.1	194.7	14.5	
VEL=	5.2	5.8	5.8	5.9	8.3	10.9	9.4	5.6	6.9	5.6	4.2	2.7	
DEPTH=	3.1	3.6	3.6	3.8	6.1	9.3	7.1	3.5	4.7	3.4	2.3	1.2	

FLOW DISTRIBUTION FOR SECNO= 17.39 CWSEL= 1705.16

STA=	9758.	9779.	9887.	9893.	10179.	10196.	10232.	10317.	10463.	10471.
PER Q=	.2	4.2	.9	73.2	2.3	4.4	6.1	8.2	.3	
AREA=	17.4	214.9	29.7	1718.6	71.4	142.0	244.7	362.7	17.0	
VEL=	2.9	5.4	8.7	11.6	8.9	8.4	6.8	6.2	4.8	
DEPTH=	.8	2.0	5.0	6.0	4.3	3.9	2.9	2.5	2.2	

FLOW DISTRIBUTION FOR SECNO= 17.48 CWSEL= 1709.84

STA=	9489.	9544.	9598.	9679.	9740.	9877.	9893.	10073.	10248.	10301.	10340.
PER Q=	1.1	1.5	3.8	4.0	10.4	2.2	58.0	13.3	3.6	2.1	
AREA=	89.9	106.7	220.6	201.8	497.6	84.4	1256.9	634.5	179.4	120.2	
VEL=	3.3	3.8	4.7	5.4	5.7	7.2	12.6	5.7	5.4	4.9	
DEPTH=	1.6	2.0	2.7	3.3	3.6	5.3	7.0	3.6	3.4	3.1	

FLOW DISTRIBUTION FOR SECNO= 17.57 CWSEL= 1713.88

STA=	9516.	9548.	9576.	9687.	9872.	9898.	9923.	10040.	10115.	10162.	10169.	10263.
PER Q=	1.7	.9	2.3	14.5	5.4	6.8	53.9	8.3	4.0	.2	2.0	
AREA=	95.1	58.6	185.2	680.0	170.8	195.7	1007.5	338.3	180.4	15.6	156.8	
VEL=	4.8	4.0	3.5	5.8	8.7	9.5	14.6	6.7	6.0	3.9	3.4	
DEPTH=	3.0	2.1	1.7	3.7	6.7	7.7	8.6	4.5	3.9	2.0	1.7	

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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

FLOW DISTRIBUTION FOR SECNO= 17.65 CWSEL= 1717.65

STA=	9424.	9494.	9550.	9630.	9813.	9899.	9924.	10021.	10077.	10206.	10270.
PER Q=	3.5	4.4	5.3	12.1	7.3	6.2	50.9	5.5	3.6	1.3	
AREA=	224.4	241.5	310.3	709.8	386.6	214.3	1058.3	276.2	295.6	122.2	
VEL=	4.2	5.0	4.6	4.7	5.1	7.9	13.1	5.4	3.4	2.8	
DEPTH=	3.2	4.3	3.9	3.9	4.5	8.6	10.9	4.9	2.3	1.9	

FLOW DISTRIBUTION FOR SECNO= 17.78 CWSEL= 1722.49

STA=	9642.	9685.	9717.	9766.	9842.	9931.	10026.	10071.	10151.	10235.	10282.	10385.	10448.
PER Q=	3.6	4.0	3.9	3.9	2.7	22.2	10.2	12.7	13.6	5.9	3.8	8.3	
AREA=	184.5	172.8	200.8	238.7	204.2	602.2	344.5	496.4	527.1	251.8	262.0	344.8	
VEL=	5.3	6.3	5.4	4.5	3.6	10.1	8.1	7.0	7.0	6.4	3.9	6.6	
DEPTH=	4.3	5.3	4.1	3.1	2.3	6.3	7.7	6.2	6.3	5.4	2.5	5.5	

STA=	10448.	10488.	10578.
PER Q=	3.4	1.9	
AREA=	172.2	160.9	
VEL=	5.4	3.1	
DEPTH=	4.3	1.8	

FLOW DISTRIBUTION FOR SECNO= 17.84 CWSEL= 1724.75

STA=	9749.	9801.	9925.	10219.	10375.	10488.	10534.	10580.	10664.	10665.
PER Q=	3.6	1.1	70.5	7.6	3.2	3.4	5.6	5.1	.0	
AREA=	160.3	106.8	1620.3	406.6	215.0	153.9	209.7	249.0	3.6	
VEL=	6.1	2.7	11.9	5.1	4.1	6.0	7.3	5.6	2.5	
DEPTH=	3.1	.9	5.5	2.6	1.9	3.4	4.5	3.0	2.5	

FLOW DISTRIBUTION FOR SECNO= 17.95 CWSEL= 1730.51

STA=	9819.	9867.	10047.	10132.	10220.	10282.	10392.	10410.	10471.	10529.	10570.	10595.
PER Q=	2.1	55.1	8.1	6.5	3.1	8.3	3.3	3.9	3.6	5.5	.6	
AREA=	124.7	1241.3	359.0	319.7	177.1	384.9	112.8	197.2	189.4	213.7	46.5	
VEL=	4.7	12.1	6.2	5.6	4.7	5.9	7.9	5.4	5.2	7.0	3.4	
DEPTH=	2.6	6.9	4.2	3.6	2.9	3.5	6.2	3.3	3.3	5.2	1.8	

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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

FLOW DISTRIBUTION FOR SECNO= 18.09 CWSEL= 1735.16

STA=	9895.	9936.	10310.	10407.	10447.	10497.	10522.	10540.	10556.	10573.	10610.
PER Q=	5.1	57.7	4.6	4.4	7.0	3.5	4.3	6.2	4.2	3.0	
AREA=	242.3	2015.0	310.6	216.2	315.3	157.6	159.4	184.9	153.1	167.4	
VEL=	5.8	7.9	4.1	5.6	6.2	6.2	7.5	9.3	7.6	4.9	
DEPTH=	5.9	5.4	3.2	5.4	6.3	6.3	8.9	11.6	9.0	4.5	

FLOW DISTRIBUTION FOR SECNO= 18.16 CWSEL= 1736.96

STA=	9752.	9775.	9836.	10075.	10199.	10330.	10380.	10425.
PER Q=	3.1	3.1	53.3	4.0	18.8	11.7	6.1	
AREA=	114.7	160.2	1119.1	221.8	681.5	347.6	231.8	
VEL=	7.4	5.3	13.2	5.0	7.7	9.3	7.2	
DEPTH=	5.0	2.6	4.8	1.8	5.2	7.0	5.2	

FLOW DISTRIBUTION FOR SECNO= 18.23 CWSEL= 1741.77

STA=	9630.	9640.	9650.	9660.	9690.	9700.	9710.	9780.	9800.	10010.	10240.	10330.
PER Q=	1.1	2.0	2.0	4.5	1.7	1.7	7.7	1.5	68.0	7.9	1.9	
AREA=	55.5	67.7	67.7	173.0	62.7	62.7	333.8	75.4	1337.3	544.6	159.1	
VEL=	5.3	8.0	8.0	7.3	7.7	7.7	6.4	5.5	14.1	4.0	3.3	
DEPTH=	5.5	6.8	6.8	5.8	6.3	6.3	4.8	3.8	6.4	2.4	1.8	

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THIS RUN EXECUTED 16OCT00 13:14:48

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 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

MONT. WAT. AND HEC

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	DIFEG	CRIWS	VLOB	VCH	VROB	XLCH	SECNO
*	13.000	15267.22	1523.44	4.94	1518.50	1525.93	.00	1523.44	.00	12.65	.00	.00	13.00
*	13.000	15267.22	1523.44	4.94	1518.50	1525.93	.00	1523.44	.00	12.65	.00	.00	13.00
	13.020	15267.22	1524.91	5.91	1519.00	1526.65	.00	1523.94	.00	10.57	.00	120.00	13.02
	13.020	15267.22	1524.91	5.91	1519.00	1526.65	.00	1523.94	.00	10.57	.00	120.00	13.02
	13.040	15267.22	1526.65	8.55	1518.10	1527.27	.00	.00	.00	6.30	.33	100.00	13.04
	13.040	15267.22	1526.65	8.55	1518.10	1527.27	.00	.00	.00	6.30	.33	100.00	13.04
	13.080	15267.22	1527.60	9.40	1518.20	1527.79	.00	.00	2.00	3.74	2.69	230.00	13.08
	13.080	15267.22	1527.60	9.40	1518.20	1527.79	.00	.00	2.00	3.74	2.69	230.00	13.08
*	13.160	15267.22	1528.55	7.05	1521.50	1528.88	.00	.00	4.28	5.18	3.23	421.00	13.16
*	13.160	15267.22	1528.55	7.05	1521.50	1528.88	.00	.00	4.28	5.18	3.23	421.00	13.16
*	13.280	18900.00	1532.61	10.01	1522.60	1533.52	.00	1532.43	9.09	7.79	6.54	600.00	13.28

*	13.280	18900.00	1532.61	10.01	1522.60	1533.52	.00	1532.43	9.09	7.79	6.54	600.00	13.28
*	13.400	26700.00	1538.03	11.23	1526.80	1538.38	.00	.00	4.03	4.89	4.91	678.60	13.40
*	13.400	26700.00	1538.97	12.17	1526.80	1539.64	1.26	.00	.00	6.59	6.46	678.60	13.40
*	13.550	26700.00	1543.21	11.01	1532.20	1543.91	.00	.00	7.41	5.99	.85	787.30	13.55
	13.550	26700.00	1544.21	12.01	1532.20	1544.75	.84	.00	6.51	5.58	.00	787.30	13.55
	13.660	26700.00	1547.91	7.71	1540.20	1548.45	.00	.00	6.74	4.42	.00	549.10	13.66
	13.660	26700.00	1548.35	8.15	1540.20	1549.04	.59	.00	7.89	5.95	.00	549.10	13.66
	13.860	26700.00	1555.92	9.62	1546.30	1556.53	.00	.00	6.83	5.96	5.03	1049.10	13.86
	13.860	26700.00	1556.65	10.35	1546.30	1557.23	.70	.00	7.03	5.78	5.13	1049.10	13.86
	14.070	26700.00	1564.65	7.15	1557.50	1565.27	.00	.00	6.47	6.74	4.24	1134.10	14.07
	14.070	26700.00	1564.76	7.26	1557.50	1565.50	.23	.00	6.97	7.60	4.91	1134.10	14.07

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	DIFEG	CRIWS	VLOB	VCH	VROB	XLCH	SECNO
*	14.300	26700.00	1574.16	14.56	1559.60	1575.12	.00	1574.16	4.48	10.82	5.89	1213.60	14.30
*	14.300	26700.00	1575.03	15.43	1559.60	1576.49	1.37	1575.03	6.46	11.90	9.01	1213.60	14.30
	14.540	26700.00	1583.69	12.09	1571.60	1584.67	.00	.00	2.12	7.96	1.43	1273.20	14.54
	14.540	26700.00	1584.29	12.69	1571.60	1585.12	.45	.00	.00	7.33	.00	1273.20	14.54
*	14.740	26700.00	1591.73	10.03	1581.70	1593.70	.00	1591.73	6.56	14.66	5.20	1070.90	14.74
*	14.740	26700.00	1591.63	9.93	1581.70	1594.44	.74	1591.63	8.00	16.63	7.70	1070.90	14.74
	14.890	26700.00	1597.00	13.80	1583.20	1598.98	.00	1596.53	5.61	13.71	1.27	756.40	14.89
*	14.890	26700.00	1597.89	14.69	1583.20	1599.55	.57	.00	5.45	12.50	2.66	756.40	14.89
	15.060	26700.00	1602.93	11.63	1591.30	1604.16	.00	.00	3.06	9.27	5.82	930.30	15.06
	15.060	26700.00	1602.88	11.58	1591.30	1604.61	.45	.00	.00	10.56	.00	930.30	15.06
*	15.120	26700.00	1605.22	9.82	1595.40	1606.94	.00	1605.22	3.16	11.17	6.90	283.60	15.12
*	15.120	26700.00	1605.20	9.80	1595.40	1607.97	1.03	1605.20	.00	13.35	.00	283.60	15.12
	15.220	26700.00	1610.20	11.30	1598.90	1612.00	.00	.00	1.58	11.20	6.51	553.10	15.22
*	15.220	26700.00	1611.17	12.27	1598.90	1612.45	.46	.00	.00	9.43	6.13	553.10	15.22
	15.410	26700.00	1617.54	9.94	1607.60	1619.36	.00	.00	2.28	10.86	3.64	968.90	15.41
	15.410	26700.00	1616.98	9.38	1607.60	1619.19	-.17	.00	.00	11.94	.00	968.90	15.41
*	15.550	26700.00	1623.07	9.67	1613.40	1625.31	.00	1623.07	5.17	13.22	6.93	755.30	15.55
	15.550	26700.00	1623.50	10.10	1613.40	1626.78	1.47	1623.41	5.96	14.99	7.87	755.30	15.55
	15.750	26700.00	1630.41	14.11	1616.30	1631.75	.00	.00	5.13	11.83	3.85	1048.40	15.75
*	15.750	26700.00	1631.38	15.08	1616.30	1632.42	.66	.00	4.76	10.42	4.20	1048.40	15.75
*	15.890	26700.00	1635.37	8.57	1626.80	1637.35	.00	1635.37	6.04	13.11	3.62	738.40	15.89
*	15.890	26700.00	1636.31	9.51	1626.80	1639.17	1.82	1636.31	7.00	14.36	.00	738.40	15.89
	16.070	26700.00	1644.24	9.94	1634.30	1646.21	.00	.00	6.04	12.93	1.85	950.30	16.07
	16.070	26700.00	1645.15	10.85	1634.30	1647.09	.88	.00	6.25	12.45	.00	950.30	16.07
	16.190	26700.00	1648.89	11.39	1637.50	1650.49	.00	.00	5.31	12.72	.00	645.60	16.19
	16.190	26700.00	1649.14	11.64	1637.50	1651.35	.87	.00	6.52	14.13	.00	645.60	16.19
*	16.270	26700.00	1652.31	12.91	1639.40	1654.37	.00	1652.31	5.60	12.64	.00	422.10	16.27
*	16.270	26700.00	1652.83	13.43	1639.40	1656.20	1.83	1652.83	.00	14.75	.00	422.10	16.27
	16.490	26700.00	1661.97	8.67	1653.30	1663.10	.00	.00	3.09	9.03	8.16	1153.60	16.49
*	16.490	26700.00	1662.93	9.63	1653.30	1663.92	.82	.00	.00	8.28	7.71	1153.60	16.49
	16.680	26700.00	1668.62	7.32	1661.30	1669.73	.00	.00	.00	8.47	2.02	997.50	16.68
*	16.680	26700.00	1668.47	7.17	1661.30	1669.66	-.07	.00	.00	8.77	.00	997.50	16.68
*	16.860	27300.00	1677.00	7.89	1669.11	1680.46	.00	1677.00	.00	14.93	.00	879.10	16.86
*	16.860	27300.00	1677.00	7.89	1669.11	1680.46	.00	1677.00	.00	14.92	.00	879.10	16.86

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	DIFEG	CRIWS	VLOB	VCH	VROB	XLCH	SECNO
*	16.870	27300.00	1680.84	10.13	1670.71	1682.87	.00	.00	.00	11.44	.00	146.00	16.87
*	16.870	27300.00	1680.84	10.13	1670.71	1682.87	.00	.00	.00	11.44	.00	146.00	16.87
*	16.960	27300.00	1684.88	8.67	1676.21	1687.47	.00	1684.88	3.55	12.94	.00	456.20	16.96
*	16.960	27300.00	1684.88	8.67	1676.21	1687.47	.00	1684.88	3.55	12.94	.00	456.20	16.96
	17.060	27300.00	1689.87	11.66	1678.21	1691.60	.00	.00	5.46	13.28	3.05	566.00	17.06
*	17.060	27300.00	1690.24	12.03	1678.21	1692.18	.59	1690.24	5.65	13.70	3.57	566.00	17.06
*	17.180	27300.00	1695.24	9.03	1686.21	1697.11	.00	1695.24	5.79	11.82	4.57	600.80	17.18

*	17.180	27300.00	1695.19	8.98	1686.21	1697.16	.06	1695.19	6.07	12.09	4.68	600.80	17.18
	17.300	27300.00	1701.39	9.18	1692.21	1702.32	.00	.00	6.12	9.53	5.47	644.40	17.30
	17.300	27300.00	1701.48	9.27	1692.21	1702.40	.08	.00	6.28	9.43	5.52	644.40	17.30
	17.390	27300.00	1705.16	8.95	1696.21	1706.88	.00	.00	5.43	11.60	6.95	500.00	17.39
	17.390	27300.00	1705.16	8.95	1696.21	1706.88	.01	.00	5.58	11.63	6.97	500.00	17.39
	17.480	27300.00	1709.83	7.62	1702.21	1711.42	.00	.00	5.16	12.51	5.48	429.40	17.48
	17.480	27300.00	1709.84	7.63	1702.21	1711.46	.05	.00	5.23	12.60	5.55	429.40	17.48
	17.570	27300.00	1713.84	11.63	1702.21	1715.83	.00	1713.83	6.09	14.49	5.60	474.40	17.57
	17.570	27300.00	1713.88	11.67	1702.21	1715.93	.10	1713.88	6.24	14.60	5.72	474.40	17.57
	17.650	27300.00	1717.56	13.35	1704.21	1719.13	.00	.00	5.06	13.25	4.02	460.80	17.65
	17.650	27300.00	1717.65	13.44	1704.21	1719.19	.06	.00	5.07	13.12	4.09	460.80	17.65
	17.780	27300.00	1722.50	9.12	1713.38	1723.28	.00	.00	4.85	10.04	6.33	661.30	17.78
	17.780	27300.00	1722.49	9.11	1713.38	1723.29	.01	.00	4.93	10.08	6.37	661.30	17.78
	17.840	27300.00	1724.75	6.54	1718.21	1726.41	.00	1724.69	4.74	11.84	5.45	341.70	17.84
	17.840	27300.00	1724.75	6.54	1718.21	1726.43	.02	1724.70	4.75	11.87	5.49	341.70	17.84
	17.950	27300.00	1730.50	8.29	1722.21	1731.93	.00	1730.31	4.63	12.04	5.44	563.80	17.95
	17.950	27300.00	1730.51	8.30	1722.21	1732.00	.06	.00	4.67	12.12	5.83	563.80	17.95
*	18.090	27700.00	1734.95	11.45	1723.50	1735.49	.00	.00	4.86	7.12	4.29	705.80	18.09
	18.090	27700.00	1735.16	11.66	1723.50	1735.98	.49	.00	5.77	7.94	6.19	705.80	18.09
*	18.160	27700.00	1736.55	7.75	1728.80	1738.36	.00	1736.55	5.98	13.59	7.01	377.60	18.16
	18.160	27700.00	1736.96	8.16	1728.80	1738.80	.44	.00	6.18	13.20	7.57	377.60	18.16
*	18.230	27700.00	1741.75	11.75	1730.00	1743.29	.00	1741.75	5.68	12.32	3.03	370.00	18.23
*	18.230	27700.00	1741.77	11.77	1730.00	1744.05	.76	1741.77	6.84	14.09	3.85	370.00	18.23
	18.290	27700.00	1743.06	10.46	1732.60	1744.89	.00	1742.91	5.92	14.16	4.91	300.00	18.29
*	18.290	27700.00	1744.11	11.51	1732.60	1745.47	.58	.00	5.35	12.21	4.69	300.00	18.29
	18.490	27700.00	1750.88	9.18	1741.70	1752.33	.00	.00	5.85	11.68	6.08	1099.70	18.49
*	18.490	27700.00	1750.98	9.28	1741.70	1753.02	.69	1750.98	.00	13.29	6.75	1099.70	18.49

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	DIFEG	CRIWS	VLOB	VCH	VROB	XLCH	SECNO
*	18.570	27700.00	1754.08	10.58	1743.50	1755.87	.00	1754.08	9.38	14.06	4.77	389.00	18.57
*	18.570	27700.00	1754.64	11.14	1743.50	1756.41	.55	.00	9.24	14.01	5.26	389.00	18.57
*	18.740	27300.00	1760.57	10.17	1750.40	1762.15	.00	1760.57	9.74	11.21	3.66	917.80	18.74
*	18.740	27300.00	1760.63	10.23	1750.40	1762.35	.20	1760.63	10.07	11.81	.00	917.80	18.74
	18.840	27300.00	1764.69	8.99	1755.70	1766.59	.00	1764.59	9.31	14.02	5.21	497.10	18.84
*	18.840	27300.00	1765.57	9.87	1755.70	1767.66	1.07	1765.57	9.10	14.62	6.36	497.10	18.84
*	18.960	27300.00	1771.34	9.14	1762.20	1772.72	.00	1771.34	5.71	13.44	5.27	631.70	18.96
*	18.960	27300.00	1771.86	9.66	1762.20	1773.44	.72	1771.86	6.14	13.74	6.15	631.70	18.96

MONT. WAT. AND HEC

SUMMARY PRINTOUT

	SECNO	SSTA	TOPWID	ENDST
*	13.000	9820.21	244.58	10064.79
*	13.000	9820.21	244.58	10064.79
	13.020	9820.13	244.74	10064.87
	13.020	9820.13	244.74	10064.87
	13.040	9727.66	435.01	10221.26
	13.040	9727.66	435.01	10221.26
	13.080	9550.00	1116.36	10666.36
	13.080	9550.00	1116.36	10666.36
*	13.160	9421.00	1379.01	10800.01
*	13.160	9421.00	1379.01	10800.01
*	13.280	9537.00	1239.74	10802.00
*	13.280	9537.00	1239.74	10802.00
*	13.400	8932.05	2097.40	11029.45
*	13.400	9670.00	932.00	10602.00

*	13.550	8731.59	1734.88	10502.96
	13.550	9160.00	1334.00	10494.00
	13.660	8528.04	1955.55	10483.59
	13.660	9055.00	1427.00	10482.00
	13.860	8225.41	1769.30	10268.62
	13.860	8708.00	1312.71	10232.00
	14.070	8594.61	1943.33	10537.94
	14.070	8805.00	1724.00	10529.00
*	14.300	8646.87	2213.30	10868.65
*	14.300	9210.00	950.00	10160.00
	14.540	9530.89	839.24	10492.90
	14.540	9950.00	530.00	10480.00
*	14.740	9523.94	851.61	10375.55
*	14.740	9700.00	400.00	10100.00
	14.890	9510.98	569.09	10080.07
*	14.890	9600.00	480.00	10080.00
	15.060	9733.36	767.36	10500.72
	15.060	9972.00	418.00	10390.00

	SECNO	SSTA	TOPWID	ENDST
*	15.120	9717.32	821.21	10538.53
*	15.120	9975.00	376.00	10351.00
	15.220	9945.53	606.40	10551.93
*	15.220	9977.00	523.00	10500.00
	15.410	9971.54	403.31	10374.85
	15.410	9979.00	374.00	10353.00
*	15.550	9827.86	533.41	10361.27
	15.550	9890.00	292.00	10182.00
	15.750	9414.00	801.64	10215.64
*	15.750	9477.00	639.00	10116.00
*	15.890	9478.29	721.42	10222.44
*	15.890	9817.00	387.37	10210.00
	16.070	9632.04	531.86	10163.89
	16.070	9760.00	370.00	10130.00
	16.190	9303.61	766.41	10070.02
	16.190	9600.00	468.00	10068.00
*	16.270	9396.15	646.59	10042.74
*	16.270	9760.00	282.00	10042.00
	16.490	9839.97	667.55	10507.52
*	16.490	9906.00	524.00	10430.00
	16.680	9938.12	656.66	10594.78
*	16.680	9940.00	650.00	10590.00
*	16.860	9909.44	267.38	10176.81
*	16.860	9909.42	267.41	10176.83
*	16.870	9901.63	284.12	10185.75
*	16.870	9901.63	284.12	10185.75
*	16.960	9914.00	425.78	10339.78
*	16.960	9914.00	425.78	10339.78
	17.060	9533.00	937.00	10470.00
*	17.060	9650.00	820.00	10470.00
*	17.180	9746.00	813.03	10695.00
*	17.180	9788.00	739.23	10668.00
	17.300	9568.00	992.00	10560.00
	17.300	9628.00	907.00	10535.00

	SECNO	SSTA	TOPWID	ENDST

	17.390	9731.22	741.78	10473.00
	17.390	9758.00	713.00	10471.00
	17.480	9478.00	877.00	10355.00
	17.480	9488.92	851.08	10340.00
	17.570	9477.22	796.78	10274.00
	17.570	9516.45	746.55	10263.00
	17.650	9409.66	886.34	10296.00
	17.650	9423.70	846.30	10270.00
	17.780	9624.79	980.21	10605.00
	17.780	9642.06	935.94	10578.00
	17.840	9749.30	928.70	10678.00
	17.840	9749.23	915.77	10665.00
	17.950	9816.56	1222.46	11039.02
	17.950	9818.68	776.32	10595.00
*	18.090	9853.02	1512.79	11365.81
	18.090	9895.00	715.00	10610.00
*	18.160	9722.46	949.07	10711.02
	18.160	9752.00	642.85	10425.00
*	18.230	9543.01	1309.36	10852.36
*	18.230	9630.00	700.00	10330.00
	18.290	9575.47	1039.25	10645.50
*	18.290	9630.00	700.00	10330.00
	18.490	9739.73	848.13	10587.85
*	18.490	9832.00	643.00	10475.00
*	18.570	9637.06	920.13	10557.18
*	18.570	9700.00	780.00	10480.00
*	18.740	9330.44	875.62	10206.06
*	18.740	9380.00	745.00	10125.00
	18.840	9474.25	684.70	10158.95
*	18.840	9576.00	564.00	10140.00
*	18.960	9450.36	1432.82	10883.18
*	18.960	9639.00	841.00	10480.00

MONT. WAT. AND HEC

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
*	13.000	1523.44	.00	1525.93	244.58	.00	15267.22	.00	245.00	9820.00	9820.00	10065.00	10065.00
*	13.000	1523.44	.00	1525.93	244.58	.00	15267.22	.00	245.00	9820.00	9820.00	10065.00	10065.00
	13.020	1524.91	.00	1526.65	244.74	.00	15267.22	.00	245.00	9820.00	9820.00	10065.00	10065.00
	13.020	1524.91	.00	1526.65	244.74	.00	15267.22	.00	245.00	9820.00	9820.00	10065.00	10065.00
	13.040	1526.65	.00	1527.27	435.01	.00	15266.40	.82	813.00	9537.00	9721.00	10130.00	10350.00
	13.040	1526.65	.00	1527.27	435.01	.00	15266.40	.82	813.00	9537.00	9721.00	10130.00	10350.00
	13.080	1527.60	.00	1527.79	1116.36	472.17	11540.04	3255.01	1129.00	9550.00	9615.00	10182.00	10679.00
	13.080	1527.60	.00	1527.79	1116.36	472.17	11540.04	3255.01	1129.00	9550.00	9615.00	10182.00	10679.00
*	13.160	1528.55	.00	1528.88	1379.01	4744.66	8158.34	2364.22	1395.00	9421.00	9953.00	10288.00	10816.00
*	13.160	1528.55	.00	1528.88	1379.01	4744.66	8158.34	2364.22	1395.00	9421.00	9953.00	10288.00	10816.00
*	13.280	1532.61	.00	1533.52	1239.74	2914.98	10344.04	5640.98	1265.00	9537.00	9671.00	10110.00	10802.00
*	13.280	1532.61	.00	1533.52	1239.74	2914.98	10344.04	5640.98	1265.00	9537.00	9671.00	10110.00	10802.00
*	13.400	1538.03	.00	1538.38	2097.40	4798.19	12403.62	9498.18	11043.00	.00	9670.00	10319.00	11043.00
*	13.400	1538.97	.00	1539.64	932.00	.00	20703.53	5996.48	932.00	9670.00	9670.00	10319.00	10602.00
*	13.550	1543.21	.00	1543.91	1734.88	12786.32	13912.83	.86	.00	.00	9688.00	10494.00	.00
	13.550	1544.21	.00	1544.75	1334.00	9279.04	17420.96	.00	1334.00	9160.00	9688.00	10494.00	10494.00
	13.660	1547.91	.00	1548.45	1955.55	15581.83	11118.17	.00	2311.00	8335.00	9477.00	10486.00	10646.00
	13.660	1548.35	.00	1549.04	1427.00	9079.60	17620.40	.00	1427.00	9055.00	9477.00	10486.00	10482.00
	13.860	1555.92	.00	1556.53	1769.30	10410.36	14821.19	1468.44	2221.00	8212.00	9330.00	10042.00	10433.00
	13.860	1556.65	.00	1557.23	1312.71	7212.98	17388.26	2098.76	1524.00	8708.00	9330.00	10042.00	10232.00

	14.070	1564.65	.00	1565.27	1943.33	18439.29	5316.07	2944.64	2078.00	8530.00	9879.00	10059.00	10608.00
	14.070	1564.76	.00	1565.50	1724.00	16911.75	6141.03	3647.22	1724.00	8805.00	9879.00	10059.00	10529.00
*	14.300	1574.16	.00	1575.12	2213.30	5904.67	9812.20	10983.13	.00	.00	9923.00	10027.00	.00
*	14.300	1575.03	.00	1576.49	950.00	9589.30	11865.30	5245.40	950.00	9210.00	9923.00	10027.00	10160.00
	14.540	1583.69	.00	1584.67	839.24	219.17	26474.51	6.32	1305.00	9283.00	9950.00	10480.00	10588.00
	14.540	1584.29	.00	1585.12	530.00	.00	26700.00	.00	530.00	9950.00	9950.00	10480.00	10480.00
*	14.740	1591.73	.00	1593.70	851.61	12573.53	13087.74	1038.72	10380.00	.00	9976.00	10076.00	10380.00
*	14.740	1591.63	.00	1594.44	400.00	11420.69	14669.58	609.74	400.00	9700.00	9976.00	10076.00	10100.00
	14.890	1597.00	.00	1598.98	569.09	10307.29	16384.68	8.03	-9490.00	9490.00	9938.00	10059.00	10319.00
*	14.890	1597.89	.00	1599.55	480.00	10339.75	16293.54	66.71	480.00	9600.00	9938.00	10059.00	10080.00
	15.060	1602.93	.00	1604.16	767.36	1310.58	23650.94	1738.48	.00	.00	9972.00	10390.00	.00
	15.060	1602.88	.00	1604.61	418.00	.00	26700.00	.00	418.00	9972.00	9972.00	10390.00	10390.00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
*	15.120	1605.22	.00	1606.94	821.21	1064.47	22413.19	3222.34	1043.00	9503.00	9975.00	10351.00	10546.00
*	15.120	1605.20	.00	1607.97	376.00	.00	26700.00	.00	376.00	9975.00	9975.00	10351.00	10351.00
	15.220	1610.20	.00	1612.00	606.40	27.35	23513.85	3158.80	923.00	9749.00	9977.00	10348.00	10672.00
*	15.220	1611.17	.00	1612.45	523.00	.00	23214.30	3485.70	523.00	9977.00	9977.00	10348.00	10500.00
	15.410	1617.54	.00	1619.36	403.31	20.70	26566.40	112.90	.00	.00	9979.00	10353.00	.00
	15.410	1616.98	.00	1619.19	374.00	.00	26700.00	.00	374.00	9979.00	9979.00	10353.00	10353.00
*	15.550	1623.07	.00	1625.31	533.41	1729.17	20569.55	4401.28	.00	.00	9935.00	10147.00	.00
	15.550	1623.50	.00	1626.78	292.00	1038.35	24677.49	984.16	292.00	9890.00	9935.00	10147.00	10182.00
	15.750	1630.41	.00	1631.75	801.64	11781.96	14259.15	658.89	.00	.00	9977.00	10102.00	.00
*	15.750	1631.38	.00	1632.42	639.00	12666.64	13817.15	216.21	639.00	9477.00	9977.00	10102.00	10116.00
*	15.890	1635.37	.00	1637.35	721.42	8589.19	18068.78	42.02	.00	.00	9969.00	10210.00	.00
*	15.890	1636.31	.00	1639.17	387.37	3650.00	23050.00	.00	393.00	9817.00	9969.00	10210.00	10210.00
	16.070	1644.24	.00	1646.21	531.86	8157.90	18512.54	29.56	.00	.00	9948.00	10130.00	.00
	16.070	1645.15	.00	1647.09	370.00	6830.21	19869.79	.00	370.00	9760.00	9948.00	10130.00	10130.00
	16.190	1648.89	.00	1650.49	766.41	11844.35	14855.65	.00	.00	.00	9934.00	10077.00	.00
	16.190	1649.14	.00	1651.35	468.00	9743.63	16956.37	.00	468.00	9600.00	9934.00	10077.00	10068.00
*	16.270	1652.31	.00	1654.37	646.59	5635.41	21064.59	.00	.00	.00	9760.00	10045.00	.00
*	16.270	1652.83	.00	1656.20	282.00	.00	26700.00	.00	282.00	9760.00	9760.00	10045.00	10042.00
	16.490	1661.97	.00	1663.10	667.55	269.46	11633.23	14797.32	.00	.00	9906.00	10130.00	.00
*	16.490	1662.93	.00	1663.92	524.00	.00	12449.85	14250.15	524.00	9906.00	9906.00	10130.00	10430.00
	16.680	1668.62	.00	1669.73	656.66	.00	26691.18	8.82	.00	.00	9928.00	10590.00	.00
*	16.680	1668.47	.00	1669.66	650.00	.00	26700.00	.00	650.00	9940.00	9928.00	10590.00	10590.00
*	16.860	1677.00	.00	1680.46	267.38	.00	27300.00	.00	.00	.00	9893.00	10192.77	.00
*	16.860	1677.00	.00	1680.46	267.41	.00	27300.00	.00	.00	.00	9893.00	10192.77	.00
*	16.870	1680.84	.00	1682.87	284.12	.00	27300.00	.00	.00	.00	9890.00	10194.01	.00
*	16.870	1680.84	.00	1682.87	284.12	.00	27300.00	.00	.00	.00	9890.00	10194.01	.00
*	16.960	1684.88	.00	1687.47	425.78	134.66	27165.34	.00	434.00	9914.00	9932.00	10342.00	10348.00
*	16.960	1684.88	.00	1687.47	425.78	134.66	27165.34	.00	434.00	9914.00	9932.00	10342.00	10348.00
	17.060	1689.87	.00	1691.60	937.00	10604.60	15393.55	1301.85	937.00	9533.00	9947.00	10090.00	10470.00
*	17.060	1690.24	.00	1692.18	820.00	8647.06	16619.87	2033.07	820.00	9650.00	9947.00	10090.00	10470.00
*	17.180	1695.24	.00	1697.11	813.03	2961.64	22439.85	1898.51	949.00	9746.00	9978.00	10254.00	10695.00
*	17.180	1695.19	.00	1697.16	739.23	2850.98	22770.54	1678.48	880.00	9788.00	9978.00	10254.00	10668.00
	17.300	1701.39	.00	1702.32	992.00	8351.68	12350.47	6597.85	992.00	9568.00	9970.00	10156.00	10560.00
	17.300	1701.48	.00	1702.40	907.00	8219.44	12375.96	6704.60	907.00	9628.00	9970.00	10156.00	10535.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
17.390	1705.16	.00	1706.88	741.78	1469.38	19963.48	5867.13	742.00	9731.00	9893.00	10179.00	10473.00
17.390	1705.16	.00	1706.88	713.00	1462.12	19995.83	5842.05	713.00	9758.00	9893.00	10179.00	10471.00
17.480	1709.83	.00	1711.42	877.00	6246.27	15702.10	5351.64	877.00	9478.00	9893.00	10073.00	10355.00
17.480	1709.84	.00	1711.46	851.08	6276.90	15839.61	5183.49	851.08	9488.92	9893.00	10073.00	10340.00
17.570	1713.84	.00	1715.83	796.78	8854.59	14529.50	3915.91	834.00	9440.00	9923.00	10040.00	10274.00
17.570	1713.88	.00	1715.93	746.55	8644.08	14706.14	3949.79	746.55	9516.45	9923.00	10040.00	10263.00

	17.650	1717.56	.00	1719.13	886.34	10435.57	13914.91	2949.53	946.00	9350.00	9924.00	10021.00	10296.00
	17.650	1717.65	.00	1719.19	846.30	10573.57	13887.33	2839.10	846.30	9423.70	9924.00	10021.00	10270.00
	17.780	1722.50	.00	1723.28	980.21	4986.18	6052.94	16260.87	1005.00	9600.00	9931.00	10026.00	10605.00
	17.780	1722.49	.00	1723.29	935.94	4935.83	6068.20	16295.97	935.94	9642.06	9931.00	10026.00	10578.00
	17.840	1724.75	.00	1726.41	928.70	1259.54	19158.36	6882.10	978.00	9700.00	9925.00	10219.00	10678.00
	17.840	1724.75	.00	1726.43	915.77	1269.67	19233.62	6796.71	919.61	9745.39	9925.00	10219.00	10665.00
	17.950	1730.50	.00	1731.93	1222.46	577.39	14924.04	11798.57	.00	.00	9867.00	10047.00	.00
	17.950	1730.51	.00	1732.00	776.32	582.74	15045.62	11671.63	776.32	9818.68	9867.00	10047.00	10595.00
*	18.090	1734.95	.00	1735.49	1512.79	1867.96	13799.42	12032.62	.00	.00	9936.00	10310.00	.00
	18.090	1735.16	.00	1735.98	715.00	1399.29	15992.76	10307.95	715.00	9895.00	9936.00	10310.00	10610.00
*	18.160	1736.55	.00	1738.36	949.07	1682.31	13934.35	12083.34	.00	.00	9836.00	10075.00	.00
	18.160	1736.96	.00	1738.80	642.85	1698.49	14775.26	11226.25	673.00	9752.00	9836.00	10075.00	10425.00
*	18.230	1741.75	.00	1743.29	1309.36	6722.26	16427.39	4550.35	.00	.00	9800.00	10010.00	.00
*	18.230	1741.77	.00	1744.05	700.00	6149.18	18841.92	2708.90	700.00	9630.00	9800.00	10010.00	10330.00
	18.290	1743.06	.00	1744.89	1039.25	9127.73	14164.92	4407.35	.00	.00	9914.00	10049.00	.00
*	18.290	1744.11	.00	1745.47	700.00	8818.43	13946.80	4934.77	700.00	9630.00	9914.00	10049.00	10330.00
	18.490	1750.88	.00	1752.33	848.13	1841.14	15733.75	10125.10	.00	.00	9832.00	10037.00	.00
*	18.490	1750.98	.00	1753.02	643.00	.00	18153.77	9546.24	643.00	9832.00	9832.00	10037.00	10475.00
*	18.570	1754.08	.00	1755.87	920.13	13908.22	9458.03	4333.74	.00	.00	9947.00	10041.00	.00
*	18.570	1754.64	.00	1756.41	780.00	11979.17	10164.19	5556.64	780.00	9700.00	9947.00	10041.00	10480.00
*	18.740	1760.57	.00	1762.15	875.62	20362.16	6760.89	176.95	923.00	9321.00	9975.00	10142.00	10244.00
*	18.740	1760.63	.00	1762.35	745.00	20455.03	6844.97	.00	745.00	9380.00	9975.00	10142.00	10125.00
	18.840	1764.69	.00	1766.59	684.70	16833.08	9395.68	1071.25	695.00	9470.00	9915.00	10036.00	10165.00
*	18.840	1765.57	.00	1767.66	564.00	14100.26	11353.45	1846.29	564.00	9576.00	9915.00	10036.00	10140.00
*	18.960	1771.34	.00	1772.72	1432.82	8975.88	10636.10	7688.02	.00	.00	9924.00	10021.00	.00
*	18.960	1771.86	.00	1773.44	841.00	6793.90	11568.47	8937.63	841.00	9639.00	9924.00	10021.00	10480.00

MONT. WAT. AND HEC

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	13.000	.00	.00	.00	1518.50	15267.22	1523.44	1523.44	1525.93	56.71	12.65	1206.60	2027.39
*	13.000	.00	.00	.00	1518.50	15267.22	1523.44	1523.44	1525.93	56.71	12.65	1206.60	2027.39
	13.020	120.00	.00	.00	1519.00	15267.22	1524.91	1523.94	1526.65	31.48	10.57	1444.02	2721.10
	13.020	120.00	.00	.00	1519.00	15267.22	1524.91	1523.94	1526.65	31.48	10.57	1444.02	2721.10
	13.040	100.00	.00	.00	1518.10	15267.22	1526.65	.00	1527.27	26.24	6.30	2424.90	2980.27
	13.040	100.00	.00	.00	1518.10	15267.22	1526.65	.00	1527.27	26.24	6.30	2424.90	2980.27
	13.080	230.00	.00	.00	1518.20	15267.22	1527.60	.00	1527.79	16.61	3.74	4530.28	3745.52
	13.080	230.00	.00	.00	1518.20	15267.22	1527.60	.00	1527.79	16.61	3.74	4530.28	3745.52
*	13.160	421.00	.00	.00	1521.50	15267.22	1528.55	.00	1528.88	41.83	5.18	3416.58	2360.70
*	13.160	421.00	.00	.00	1521.50	15267.22	1528.55	.00	1528.88	41.83	5.18	3416.58	2360.70
*	13.280	600.00	.00	.00	1522.60	18900.00	1532.61	1532.43	1533.52	171.83	7.79	2512.03	1441.84
*	13.280	600.00	.00	.00	1522.60	18900.00	1532.61	1532.43	1533.52	171.83	7.79	2512.03	1441.84
*	13.400	678.60	.00	.00	1526.80	26700.00	1538.03	.00	1538.38	48.26	4.89	5663.28	3843.41
*	13.400	678.60	.00	.00	1526.80	26700.00	1538.97	.00	1539.64	66.27	6.59	4068.86	3279.96
*	13.550	787.30	.00	.00	1532.20	26700.00	1543.21	.00	1543.91	107.95	5.99	4049.98	2569.83
	13.550	787.30	.00	.00	1532.20	26700.00	1544.21	.00	1544.75	63.46	5.58	4546.16	3351.71
	13.660	549.10	.00	.00	1540.20	26700.00	1547.91	.00	1548.45	70.76	4.42	4827.37	3174.17
	13.660	549.10	.00	.00	1540.20	26700.00	1548.35	.00	1549.04	103.42	5.95	4111.33	2625.47
	13.860	1049.10	.00	.00	1546.30	26700.00	1555.92	.00	1556.53	82.81	5.96	4300.10	2934.07
	13.860	1049.10	.00	.00	1546.30	26700.00	1556.65	.00	1557.23	60.42	5.78	4443.80	3434.88
	14.070	1134.10	.00	.00	1557.50	26700.00	1564.65	.00	1565.27	78.25	6.74	4332.45	3018.31
	14.070	1134.10	.00	.00	1557.50	26700.00	1564.76	.00	1565.50	96.44	7.60	3978.23	2718.90
*	14.300	1213.60	.00	.00	1559.60	26700.00	1574.16	1574.16	1575.12	85.17	10.82	4089.92	2893.09
*	14.300	1213.60	.00	.00	1559.60	26700.00	1575.03	1575.03	1576.49	90.56	11.90	3064.13	2805.71
	14.540	1273.20	.00	.00	1571.60	26700.00	1583.69	.00	1584.67	67.49	7.96	3434.36	3249.96
	14.540	1273.20	.00	.00	1571.60	26700.00	1584.29	.00	1585.12	51.12	7.33	3644.07	3734.32
*	14.740	1070.90	.00	.00	1581.70	26700.00	1591.73	1591.73	1593.70	82.44	14.66	3009.84	2940.61

*	14.740	1070.90	.00	.00	1581.70	26700.00	1591.63	1591.63	1594.44	107.65	16.63	2388.30	2573.42
	14.890	756.40	.00	.00	1583.20	26700.00	1597.00	1596.53	1598.98	63.55	13.71	3039.51	3349.36
*	14.890	756.40	.00	.00	1583.20	26700.00	1597.89	.00	1599.55	47.09	12.50	3226.89	3890.86
	15.060	930.30	.00	.00	1591.30	26700.00	1602.93	.00	1604.16	53.70	9.27	3279.17	3643.57
	15.060	930.30	.00	.00	1591.30	26700.00	1602.88	.00	1604.61	70.97	10.56	2529.49	3169.29

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	15.120	283.60	.00	.00	1595.40	26700.00	1605.22	1605.22	1606.94	93.47	11.17	2809.91	2761.72
*	15.120	283.60	.00	.00	1595.40	26700.00	1605.20	1605.20	1607.97	136.24	13.35	1999.72	2287.47
	15.220	553.10	.00	.00	1598.90	26700.00	1610.20	.00	1612.00	86.99	11.20	2602.46	2862.63
*	15.220	553.10	.00	.00	1598.90	26700.00	1611.17	.00	1612.45	50.33	9.43	3029.60	3763.37
	15.410	968.90	.00	.00	1607.60	26700.00	1617.54	.00	1619.36	66.99	10.86	2487.24	3262.17
	15.410	968.90	.00	.00	1607.60	26700.00	1616.98	.00	1619.19	92.64	11.94	2236.78	2773.96
*	15.550	755.30	.00	.00	1613.40	26700.00	1623.07	1623.07	1625.31	84.85	13.22	2525.71	2898.59
	15.550	755.30	.00	.00	1613.40	26700.00	1623.50	1623.41	1626.78	101.21	14.99	1945.64	2653.96
	15.750	1048.40	.00	.00	1616.30	26700.00	1630.41	.00	1631.75	49.01	11.83	3671.44	3813.84
*	15.750	1048.40	.00	.00	1616.30	26700.00	1631.38	.00	1632.42	33.40	10.42	4040.98	4620.23
*	15.890	738.40	.00	.00	1626.80	26700.00	1635.37	1635.37	1637.35	116.63	13.11	2811.78	2472.36
*	15.890	738.40	.00	.00	1626.80	26700.00	1636.31	1636.31	1639.17	116.02	14.36	2126.71	2478.81
	16.070	950.30	.00	.00	1634.30	26700.00	1644.24	.00	1646.21	74.91	12.93	2798.98	3084.85
	16.070	950.30	.00	.00	1634.30	26700.00	1645.15	.00	1647.09	60.83	12.45	2689.09	3423.26
	16.190	645.60	.00	.00	1637.50	26700.00	1648.89	.00	1650.49	65.28	12.72	3397.32	3304.62
	16.190	645.60	.00	.00	1637.50	26700.00	1649.14	.00	1651.35	76.94	14.13	2695.03	3044.02
*	16.270	422.10	.00	.00	1639.40	26700.00	1652.31	1652.31	1654.37	106.99	12.64	2672.38	2581.32
*	16.270	422.10	.00	.00	1639.40	26700.00	1652.83	1652.83	1656.20	132.04	14.75	1810.29	2323.56
	16.490	1153.60	.00	.00	1653.30	26700.00	1661.97	.00	1663.10	55.02	9.03	3187.47	3599.47
*	16.490	1153.60	.00	.00	1653.30	26700.00	1662.93	.00	1663.92	38.45	8.28	3350.32	4305.65
	16.680	997.50	.00	.00	1661.30	26700.00	1668.62	.00	1669.73	74.40	8.47	3154.19	3095.36
*	16.680	997.50	.00	.00	1661.30	26700.00	1668.47	.00	1669.66	83.33	8.77	3045.74	2924.84
*	16.860	879.10	.00	.00	1669.11	27300.00	1677.00	1677.00	1680.46	86.13	14.93	1828.30	2941.55
*	16.860	879.10	.00	.00	1669.11	27300.00	1677.00	1677.00	1680.46	85.83	14.92	1830.36	2946.83
*	16.870	146.00	1686.00	1681.10	1670.71	27300.00	1680.84	.00	1682.87	38.36	11.44	2387.35	4407.77
*	16.870	146.00	1686.00	1681.10	1670.71	27300.00	1680.84	.00	1682.87	38.36	11.44	2387.35	4407.77
*	16.960	456.20	.00	.00	1676.21	27300.00	1684.88	1684.88	1687.47	93.29	12.94	2137.40	2826.42
*	16.960	456.20	.00	.00	1676.21	27300.00	1684.88	1684.88	1687.47	93.29	12.94	2137.40	2826.42
	17.060	566.00	.00	.00	1678.21	27300.00	1689.87	.00	1691.60	54.74	13.28	3527.18	3689.98
*	17.060	566.00	.00	.00	1678.21	27300.00	1690.24	1690.24	1692.18	54.87	13.70	3313.23	3685.47
*	17.180	600.80	.00	.00	1686.21	27300.00	1695.24	1695.24	1697.11	102.82	11.82	2825.63	2692.33
*	17.180	600.80	.00	.00	1686.21	27300.00	1695.19	1695.19	1697.16	108.57	12.09	2712.67	2620.03
	17.300	644.40	.00	.00	1692.21	27300.00	1701.39	.00	1702.32	65.59	9.53	3867.16	3371.00
	17.300	644.40	.00	.00	1692.21	27300.00	1701.48	.00	1702.40	63.11	9.43	3836.64	3436.40

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
17.390	500.00	.00	.00	1696.21	27300.00	1705.16	.00	1706.88	118.77	11.60	2835.26	2504.97
17.390	500.00	.00	.00	1696.21	27300.00	1705.16	.00	1706.88	119.58	11.63	2818.57	2496.52
17.480	429.40	.00	.00	1702.21	27300.00	1709.83	.00	1711.42	94.20	12.51	3441.34	2812.75
17.480	429.40	.00	.00	1702.21	27300.00	1709.84	.00	1711.46	95.30	12.60	3392.04	2796.56
17.570	474.40	.00	.00	1702.21	27300.00	1713.84	1713.83	1715.83	97.26	14.49	3155.49	2768.13
17.570	474.40	.00	.00	1702.21	27300.00	1713.88	1713.88	1715.93	98.01	14.60	3083.88	2757.52
17.650	460.80	.00	.00	1704.21	27300.00	1717.56	.00	1719.13	59.61	13.25	3845.85	3535.94
17.650	460.80	.00	.00	1704.21	27300.00	1717.65	.00	1719.19	57.86	13.12	3839.05	3588.88
17.780	661.30	.00	.00	1713.38	27300.00	1722.50	.00	1723.28	69.59	10.04	4202.25	3272.46
17.780	661.30	.00	.00	1713.38	27300.00	1722.49	.00	1723.29	70.09	10.08	4162.84	3260.78
17.840	341.70	.00	.00	1718.21	27300.00	1724.75	1724.69	1726.41	115.50	11.84	3146.07	2540.17
17.840	341.70	.00	.00	1718.21	27300.00	1724.75	1724.70	1726.43	115.78	11.87	3125.28	2537.16
17.950	563.80	.00	.00	1722.21	27300.00	1730.50	1730.31	1731.93	88.57	12.04	3534.11	2900.75

	17.950	563.80	.00	.00	1722.21	27300.00	1730.51	.00	1732.00	89.73	12.12	3366.32	2881.99
*	18.090	705.80	.00	.00	1723.50	27700.00	1734.95	.00	1735.49	45.50	7.12	5126.93	4106.39
	18.090	705.80	.00	.00	1723.50	27700.00	1735.16	.00	1735.98	53.69	7.94	3921.72	3780.41
*	18.160	377.60	.00	.00	1728.80	27700.00	1736.55	1736.55	1738.36	105.62	13.59	3031.17	2695.26
	18.160	377.60	.00	.00	1728.80	27700.00	1736.96	.00	1738.80	89.15	13.20	2876.72	2933.77
*	18.230	370.00	.00	.00	1730.00	27700.00	1741.75	1741.75	1743.29	53.86	12.32	4019.75	3774.26
*	18.230	370.00	.00	.00	1730.00	27700.00	1741.77	1741.77	1744.05	70.12	14.09	2939.42	3307.92
	18.290	300.00	.00	.00	1732.60	27700.00	1743.06	1742.91	1744.89	57.35	14.16	3438.56	3657.62
*	18.290	300.00	.00	.00	1732.60	27700.00	1744.11	.00	1745.47	35.72	12.21	3844.66	4634.90
	18.490	1099.70	.00	.00	1741.70	27700.00	1750.88	.00	1752.33	89.25	11.68	3326.94	2932.00
*	18.490	1099.70	.00	.00	1741.70	27700.00	1750.98	1750.98	1753.02	115.97	13.29	2779.79	2572.21
*	18.570	389.00	.00	.00	1743.50	27700.00	1754.08	1754.08	1755.87	60.01	14.06	3063.69	3575.83
*	18.570	389.00	.00	.00	1743.50	27700.00	1754.64	.00	1756.41	53.90	14.01	3078.75	3773.12
*	18.740	917.80	.00	.00	1750.40	27300.00	1760.57	1760.57	1762.15	92.76	11.21	2742.18	2834.52
*	18.740	917.80	.00	.00	1750.40	27300.00	1760.63	1760.63	1762.35	95.76	11.81	2611.96	2789.80
	18.840	497.10	.00	.00	1755.70	27300.00	1764.69	1764.59	1766.59	82.96	14.02	2682.68	2997.28
*	18.840	497.10	.00	.00	1755.70	27300.00	1765.57	1765.57	1767.66	74.09	14.62	2615.54	3171.53
*	18.960	631.70	.00	.00	1762.20	27300.00	1771.34	1771.34	1772.72	46.35	13.44	3822.79	4009.81
*	18.960	631.70	.00	.00	1762.20	27300.00	1771.86	1771.86	1773.44	44.61	13.74	3403.05	4087.30

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	13.000	15267.22	1523.44	.00	.00	.00	244.58	.00
*	13.000	15267.22	1523.44	.00	.00	.00	244.58	.00
	13.020	15267.22	1524.91	.00	1.47	.00	244.74	120.00
	13.020	15267.22	1524.91	.00	1.47	.00	244.74	120.00
	13.040	15267.22	1526.65	.00	1.74	.00	435.01	100.00
	13.040	15267.22	1526.65	.00	1.74	.00	435.01	100.00
	13.080	15267.22	1527.60	.00	.94	.00	1116.36	230.00
	13.080	15267.22	1527.60	.00	.94	.00	1116.36	230.00
*	13.160	15267.22	1528.55	.00	.95	.00	1379.01	421.00
*	13.160	15267.22	1528.55	.00	.95	.00	1379.01	421.00
*	13.280	18900.00	1532.61	.00	4.07	.00	1239.74	600.00
*	13.280	18900.00	1532.61	.00	4.07	.00	1239.74	600.00
*	13.400	26700.00	1538.03	.00	5.42	.00	2097.40	678.60
*	13.400	26700.00	1538.97	.94	6.36	.00	932.00	678.60
*	13.550	26700.00	1543.21	.00	5.18	.00	1734.88	787.30
	13.550	26700.00	1544.21	.99	5.23	.00	1334.00	787.30
	13.660	26700.00	1547.91	.00	4.70	.00	1955.55	549.10
	13.660	26700.00	1548.35	.44	4.14	.00	1427.00	549.10
	13.860	26700.00	1555.92	.00	8.01	.00	1769.30	1049.10
	13.860	26700.00	1556.65	.73	8.30	.00	1312.71	1049.10
	14.070	26700.00	1564.65	.00	8.73	.00	1943.33	1134.10
	14.070	26700.00	1564.76	.11	8.12	.00	1724.00	1134.10
*	14.300	26700.00	1574.16	.00	9.51	.00	2213.30	1213.60
*	14.300	26700.00	1575.03	.87	10.27	.00	950.00	1213.60
	14.540	26700.00	1583.69	.00	9.54	.00	839.24	1273.20
	14.540	26700.00	1584.29	.60	9.26	.00	530.00	1273.20
*	14.740	26700.00	1591.73	.00	8.04	.00	851.61	1070.90
*	14.740	26700.00	1591.63	-.10	7.34	.00	400.00	1070.90
	14.890	26700.00	1597.00	.00	5.27	.00	569.09	756.40
*	14.890	26700.00	1597.89	.89	6.26	.00	480.00	756.40
	15.060	26700.00	1602.93	.00	5.93	.00	767.36	930.30
	15.060	26700.00	1602.88	-.05	4.98	.00	418.00	930.30

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	15.120	26700.00	1605.22	.00	2.29	.00	821.21	283.60
*	15.120	26700.00	1605.20	-.02	2.32	.00	376.00	283.60
	15.220	26700.00	1610.20	.00	4.98	.00	606.40	553.10
*	15.220	26700.00	1611.17	.97	5.97	.00	523.00	553.10
	15.410	26700.00	1617.54	.00	7.34	.00	403.31	968.90
	15.410	26700.00	1616.98	-.56	5.80	.00	374.00	968.90
*	15.550	26700.00	1623.07	.00	5.53	.00	533.41	755.30
	15.550	26700.00	1623.50	.43	6.52	.00	292.00	755.30
	15.750	26700.00	1630.41	.00	7.34	.00	801.64	1048.40
*	15.750	26700.00	1631.38	.97	7.88	.00	639.00	1048.40
*	15.890	26700.00	1635.37	.00	4.96	.00	721.42	738.40
*	15.890	26700.00	1636.31	.94	4.93	.00	387.37	738.40
	16.070	26700.00	1644.24	.00	8.88	.00	531.86	950.30
	16.070	26700.00	1645.15	.91	8.84	.00	370.00	950.30
	16.190	26700.00	1648.89	.00	4.65	.00	766.41	645.60
	16.190	26700.00	1649.14	.25	3.99	.00	468.00	645.60
*	16.270	26700.00	1652.31	.00	3.42	.00	646.59	422.10
*	16.270	26700.00	1652.83	.51	3.68	.00	282.00	422.10
	16.490	26700.00	1661.97	.00	9.66	.00	667.55	1153.60
*	16.490	26700.00	1662.93	.96	10.11	.00	524.00	1153.60
	16.680	26700.00	1668.62	.00	6.64	.00	656.66	997.50
*	16.680	26700.00	1668.47	-.15	5.53	.00	650.00	997.50
*	16.860	27300.00	1677.00	.00	8.38	.00	267.38	879.10
*	16.860	27300.00	1677.00	.01	8.54	.00	267.41	879.10
*	16.870	27300.00	1680.84	.00	3.84	.00	284.12	146.00
*	16.870	27300.00	1680.84	.00	3.84	.00	284.12	146.00
*	16.960	27300.00	1684.88	.00	4.04	.00	425.78	456.20
*	16.960	27300.00	1684.88	.00	4.04	.00	425.78	456.20
	17.060	27300.00	1689.87	.00	4.98	.00	937.00	566.00
*	17.060	27300.00	1690.24	.37	5.35	.00	820.00	566.00
*	17.180	27300.00	1695.24	.00	5.38	.00	813.03	600.80
*	17.180	27300.00	1695.19	-.05	4.95	.00	739.23	600.80
	17.300	27300.00	1701.39	.00	6.15	.00	992.00	644.40
	17.300	27300.00	1701.48	.08	6.28	.00	907.00	644.40

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	17.390	27300.00	1705.16	.00	3.77	.00	741.78	500.00
	17.390	27300.00	1705.16	-.01	3.68	.00	713.00	500.00
	17.480	27300.00	1709.83	.00	4.67	.00	877.00	429.40
	17.480	27300.00	1709.84	.01	4.69	.00	851.08	429.40
	17.570	27300.00	1713.84	.00	4.01	.00	796.78	474.40
	17.570	27300.00	1713.88	.04	4.04	.00	746.55	474.40
	17.650	27300.00	1717.56	.00	3.72	.00	886.34	460.80
	17.650	27300.00	1717.65	.09	3.77	.00	846.30	460.80
	17.780	27300.00	1722.50	.00	4.94	.00	980.21	661.30
	17.780	27300.00	1722.49	.00	4.85	.00	935.94	661.30
	17.840	27300.00	1724.75	.00	2.25	.00	928.70	341.70
	17.840	27300.00	1724.75	.01	2.26	.00	915.77	341.70
	17.950	27300.00	1730.50	.00	5.75	.00	1222.46	563.80
	17.950	27300.00	1730.51	.01	5.75	.00	776.32	563.80
*	18.090	27700.00	1734.95	.00	4.45	.00	1512.79	705.80
	18.090	27700.00	1735.16	.21	4.66	.00	715.00	705.80
*	18.160	27700.00	1736.55	.00	1.60	.00	949.07	377.60
	18.160	27700.00	1736.96	.41	1.79	.00	642.85	377.60
*	18.230	27700.00	1741.75	.00	5.20	.00	1309.36	370.00
*	18.230	27700.00	1741.77	.02	4.81	.00	700.00	370.00

	18.290	27700.00	1743.06	.00	1.32	.00	1039.25	300.00
*	18.290	27700.00	1744.11	1.04	2.34	.00	700.00	300.00
	18.490	27700.00	1750.88	.00	7.82	.00	848.13	1099.70
*	18.490	27700.00	1750.98	.09	6.87	.00	643.00	1099.70
*	18.570	27700.00	1754.08	.00	3.20	.00	920.13	389.00
*	18.570	27700.00	1754.64	.56	3.66	.00	780.00	389.00
*	18.740	27300.00	1760.57	.00	6.49	.00	875.62	917.80
*	18.740	27300.00	1760.63	.06	6.00	.00	745.00	917.80
	18.840	27300.00	1764.69	.00	4.12	.00	684.70	497.10
*	18.840	27300.00	1765.57	.88	4.94	.00	564.00	497.10
*	18.960	27300.00	1771.34	.00	6.65	.00	1432.82	631.70
*	18.960	27300.00	1771.86	.52	6.29	.00	841.00	631.70

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SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=     13.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     13.000  PROFILE=  2  CRITICAL DEPTH ASSUMED

WARNING SECNO=     13.160  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     13.160  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     13.280  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     13.280  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     13.400  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     13.400  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     13.550  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     14.300  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     14.300  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     14.300  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     14.300  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     14.740  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     14.740  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     14.740  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     14.740  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     14.890  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     15.120  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     15.120  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     15.120  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     15.120  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     15.220  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     15.550  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     15.550  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     15.750  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     15.890  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     15.890  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     15.890  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     15.890  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     15.890  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=     16.270  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     16.270  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     16.270  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     16.270  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     16.490  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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1


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WARNING SECNO=     16.680  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     16.860  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     16.860  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     16.860  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     16.860  PROFILE=  2  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=     16.870  PROFILE=  1  HYDRAULIC JUMP D.S.
WARNING SECNO=     16.870  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=     16.870  PROFILE=  2  HYDRAULIC JUMP D.S.
WARNING SECNO=     16.870  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     16.960  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     16.960  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     16.960  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     16.960  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     16.960  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     16.960  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=     17.060  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     17.060  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     17.180  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     17.180  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     17.180  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     17.180  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     18.090  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     18.160  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     18.160  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     18.230  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     18.230  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     18.230  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     18.230  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     18.230  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     18.230  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=     18.290  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     18.490  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     18.490  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     18.570  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     18.570  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=     18.570  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     18.740  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     18.740  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     18.740  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     18.740  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     18.840  PROFILE=  2  CRITICAL DEPTH ASSUMED
1
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CAUTION SECNO=     18.840  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     18.960  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     18.960  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     18.960  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     18.960  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     18.960  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     18.960  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

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Floodway width summary: MONT. WAT. AND HEC
Profile No. 2

Section Number	Elevation Increase	Top Width	Left Encroach Station	Left Sta Distance From Center	Center Station	Right Sta Distance From Center	Right Encroach Station
13.000	.00	245.00	9820.00	122.50	9942.50	122.50	10065.00
13.020	.00	245.00	9820.00	122.50	9942.50	122.50	10065.00
13.040	.00	813.00	9537.00	388.50	9925.50	424.50	10350.00
13.080	.00	1129.00	9550.00	348.50	9898.50	780.50	10679.00
13.160	.00	1395.00	9421.00	699.50	10120.50	695.50	10816.00
13.280	.00	1265.00	9537.00	353.50	9890.50	911.50	10802.00
13.400	.94	932.00	9670.00	324.50	9994.50	607.50	10602.00
13.550	.99	1334.00	9160.00	931.00	10091.00	403.00	10494.00
13.660	.44	1427.00	9055.00	926.50	9981.50	500.50	10482.00
13.860	.73	1524.00	8708.00	978.00	9686.00	546.00	10232.00
14.070	.11	1724.00	8805.00	1164.00	9969.00	560.00	10529.00
14.300	.87	950.00	9210.00	765.00	9975.00	185.00	10160.00
14.540	.60	530.00	9950.00	265.00	10215.00	265.00	10480.00
14.740	-.10	400.00	9700.00	326.00	10026.00	74.00	10100.00
14.890	.89	480.00	9600.00	398.50	9998.50	81.50	10080.00
15.060	-.05	418.00	9972.00	209.00	10181.00	209.00	10390.00
15.120	-.02	376.00	9975.00	188.00	10163.00	188.00	10351.00
15.220	.97	523.00	9977.00	185.50	10162.50	337.50	10500.00

15.410	-.56	374.00	9979.00	187.00	10166.00	187.00	10353.00
15.550	.43	292.00	9890.00	151.00	10041.00	141.00	10182.00
15.750	.97	639.00	9477.00	562.50	10039.50	76.50	10116.00
15.890	.94	393.00	9817.00	272.50	10089.50	120.50	10210.00
16.070	.91	370.00	9760.00	279.00	10039.00	91.00	10130.00
16.190	.25	468.00	9600.00	405.50	10005.50	62.50	10068.00
16.270	.51	282.00	9760.00	142.50	9902.50	139.50	10042.00
16.490	.96	524.00	9906.00	112.00	10018.00	412.00	10430.00
16.680	-.15	650.00	9940.00	319.00	10259.00	331.00	10590.00
16.860	*** Encroachments not set ***						
16.870	*** Encroachments not set ***						
16.960	.00	434.00	9914.00	223.00	10137.00	211.00	10348.00
17.060	.37	820.00	9650.00	368.50	10018.50	451.50	10470.00
17.180	-.05	880.00	9788.00	328.00	10116.00	552.00	10668.00
17.300	.08	907.00	9628.00	435.00	10063.00	472.00	10535.00
17.390	-.01	713.00	9758.00	278.00	10036.00	435.00	10471.00
17.480	.01	851.08	9488.92	494.08	9983.00	357.00	10340.00
17.570	.04	746.55	9516.45	465.05	9981.50	281.50	10263.00
17.650	.09	846.30	9423.70	548.80	9972.50	297.50	10270.00
17.780	.00	935.94	9642.06	336.44	9978.50	599.50	10578.00
17.840	.01	919.61	9745.39	326.61	10072.00	593.00	10665.00
17.950	.01	776.32	9818.68	138.32	9957.00	638.00	10595.00
18.090	.21	715.00	9895.00	228.00	10123.00	487.00	10610.00
18.160	.41	673.00	9752.00	203.50	9955.50	469.50	10425.00
18.230	.02	700.00	9630.00	275.00	9905.00	425.00	10330.00
18.290	1.04	700.00	9630.00	351.50	9981.50	348.50	10330.00
18.490	.09	643.00	9832.00	102.50	9934.50	540.50	10475.00
18.570	.56	780.00	9700.00	294.00	9994.00	486.00	10480.00
18.740	.06	745.00	9380.00	678.50	10058.50	66.50	10125.00

18.840	.88	564.00	9576.00	399.50	9975.50	164.50	10140.00
18.960	.52	841.00	9639.00	333.50	9972.50	507.50	10480.00

FLOODWAY DATA, MONT. WAT. AND HEC
PROFILE NO. 2

STATION	WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
13.000	245.	1207.	12.7	1523.4	1523.4	.0
13.020	245.	1444.	10.6	1524.9	1524.9	.0
13.040	494.	2425.	6.3	1526.7	1526.7	.0
13.080	1116.	4530.	3.4	1527.6	1527.6	.0
13.160	1379.	3417.	4.5	1528.5	1528.5	.0
13.280	1265.	2512.	7.5	1532.6	1532.6	.0
13.400	932.	4069.	6.6	1538.9	1538.0	.9
13.550	1334.	4546.	5.9	1544.2	1543.2	1.0
13.660	1427.	4111.	6.5	1548.3	1547.9	.4
13.860	1524.	4444.	6.0	1556.6	1555.9	.7
14.070	1724.	3978.	6.7	1564.8	1564.7	.1
14.300	950.	3064.	8.7	1575.1	1574.2	.9
14.540	530.	3644.	7.3	1584.3	1583.7	.6
14.740	400.	2388.	11.2	1591.6	1591.7	-.1
14.890	480.	3227.	8.3	1597.9	1597.0	.9
15.060	418.	2529.	10.6	1602.8	1602.9	-.1
15.120	376.	2000.	13.4	1605.2	1605.2	.0
15.220	523.	3030.	8.8	1611.2	1610.2	1.0
15.410	374.	2237.	11.9	1616.9	1617.5	-.6
15.550	292.	1946.	13.7	1623.5	1623.1	.4
15.750	639.	4041.	6.6	1631.4	1630.4	1.0
15.890	393.	2127.	12.6	1636.3	1635.4	.9
16.070	370.	2689.	9.9	1645.1	1644.2	.9
16.190	468.	2695.	9.9	1649.1	1648.9	.2
16.270	282.	1810.	14.7	1652.8	1652.3	.5
16.490	524.	3350.	8.0	1663.0	1662.0	1.0
16.680	650.	3046.	8.8	1668.4	1668.6	-.2
16.860	267.	1830.	14.9	1677.0	1677.0	.0
16.870	284.	2387.	11.4	1680.8	1680.8	.0
16.960	426.	2137.	12.8	1684.9	1684.9	.0
17.060	820.	3313.	8.2	1690.3	1689.9	.4
17.180	880.	2713.	10.1	1695.1	1695.2	-.1
17.300	907.	3837.	7.1	1701.5	1701.4	.1
17.390	713.	2819.	9.7	1705.2	1705.2	.0
17.480	851.	3392.	8.0	1709.8	1709.8	.0
17.570	747.	3084.	8.9	1713.8	1713.8	.0
17.650	846.	3839.	7.1	1717.7	1717.6	.1
17.780	936.	4163.	6.6	1722.5	1722.5	.0
17.840	916.	3125.	8.7	1724.7	1724.7	.0
17.950	776.	3366.	8.1	1730.5	1730.5	.0
18.090	715.	3922.	7.1	1735.1	1734.9	.2

18.160	673.	2877.	9.6	1736.9	1736.5	.4

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FLOODWAY DATA, MONT. WAT. AND HEC
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
18.230	700.	2939.	9.4	1741.7	1741.7	.0
18.290	700.	3845.	7.2	1744.1	1743.1	1.0
18.490	643.	2780.	10.0	1751.0	1750.9	.1
18.570	780.	3079.	9.0	1754.7	1754.1	.6
18.740	745.	2612.	10.5	1760.7	1760.6	.1
18.840	564.	2616.	10.4	1765.6	1764.7	.9
18.960	841.	3403.	8.0	1771.8	1771.3	.5

Form 5

Riverine / Coastal Mapping

FEDERAL EMERGENCY MANAGEMENT AGENCY **RIVERINE / COASTAL MAPPING**	O.M.B No. 3067-0148 Expires April 30, 2001

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1.5 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

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

Note: Fill out one form for each flooding source studied

Community Name: Maricopa County, Unincorporated Areas / Phoenix, City of

Flooding Source: Skunk Creek

Project Name/Identifier: Tramonto Master Planned Community

This is a ☒ Manual ☐ Digital submission. *Digital map submissions may be used to update digital FIRMs (DFIRMs). For updating DFIRMs, these submissions must be coordinated with FEMA Headquarters as far in advance as possible.*

1. MAPPING CHANGES

1. A topographic workmap must be submitted showing the following information (check N/A when not applicable):

	Yes	No	N/A
a. Revised approximate 100-year floodplain boundaries (Zone A)	☐	☐	☒
b. Revised detailed 100- and 500-year floodplain boundaries.	☒	☐	☐
c. Revised floodway boundaries	☒	☐	☐
d. Location and alignment of all cross sections with stationing control indicated.	☒	☐	☐
e. Stream alignments, road alignments and dam alignments.	☒	☐	☐
f. Current community boundaries.	☐	☐	☒
g. Effective 100- year floodplain and floodway boundaries from FIRM/FBFM reduced or enlarged to the scale of the topographic workmap	☒	☐	☐
h. Tie-ins between the effective and revised 100-, 500-year and floodway boundaries	☒	☐	☐
i. The requester's property boundaries and community easements	☒	☐	☐
j. The signed certification of a registered professional engineer	☒	☐	☐
k. Location and description of reference marks	☒	☐	☐
l. Vertical datum (example: NGVD, NAVD)	☒	☐	☐
m. Coastal zone designations tie into adjacent areas not being revised	☐	☐	☐
n. Location and alignment of all coastal transects used to revise the coastal analyze	☐	☐	☐
o. V-zone has been delineated to extend landward to the heel of the primary frontal dune	☐	☐	☐

If any items are marked No or N/A please attach an explanation.

2. What is the source and date of the updated topographic information (example: orthophoto maps, July 1985; filed survey, May 1979, beach profile, June 1987 etc.)? Aerial Topographic Mapping

3. What is the scale and contour interval of the following workmaps?

Effective FIS Scale 1" = 200' Contour Interval 2'

Revision Request Scale 1" = 200' Contour Interval 1'

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

4. Attach an annotated FIRM/FBFM at the scale of the effective FIRM/FBFM showing the revised 100- and 500-year floodplain and the floodway boundaries and how they tie into those shown on the effective FIRM/FBFM downstream and upstream of the revisions or adjacent to the area of revision for coastal studies. **FIRM/FBFM attached?** ☒ **Yes** ☐ **No**

PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS

2. EARTH FILL PLACEMENT

1. The fill is: ☐ Existing ☒ Proposed

2. Has fill been/will be placed in the regulatory floodway? ☐ Yes ☒ No
If Yes, please attach completed Riverine Hydraulic Analysis Form (Form 4).

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

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

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

If Yes, justify steeper slopes _____

b. Is adequate erosion protection provided for fill slopes exposed to moving flood waters? (*Slopes exposed to flows with velocities of up to 5 feet per second (fps) during the 100-year flood must, at a minimum, be protected by a cover of grass, vines, weeds, or similar vegetation; slopes exposed to flows with velocities greater than 5 fps during the 100-year flood must, at a minimum, be protected by stone or rock riprap.)*

☒ Yes ☐ No

If No, describe erosion protection provided _____

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

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

If Yes, attach certification of fill compaction (item 3c. above) by the community's NFIP permit official, a registered professional engineer, or an accredited soils engineer in accordance with Subparagraph 65.5(a)(6) of the NFIP regulations.

Fill certification attached ☒ **Yes** ☐ **No**

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

If Yes, is the fill protected from erosion by a flood control structure such as a revetment or seawall?

☐ Yes ☐ No

If Yes, attach the Coastal Structures Form (Form 10).

Form 5: Riverine / Coastal Mapping

Section 2. Earth Fill Placement

Only change to this portion of the form since the CLOMR submittal is the inclusion of the fill certification in this LOMR package.

CONSTRUCTION INSPECTION & TESTING CO.

2002 WEST NORTH LANE
PHOENIX, ARIZONA 85021-1927
(602) 861-2002 FAX (602)861-9116

AUGUST 28, 2000

COMMUNITIES SOUTHWEST,
5343 N. 16TH STREET, SUITE 460
PHOENIX, ARIZONA 85016

RE: EARTHWORK OBSERVATION
BANK STABILIZATION

PROJECT: TRAMONTO PHASE 1, WEST SIDE INFRASTRUCTURE
33RD AVENUE & CAREFREE HIGHWAY
PHOENIX, ARIZONA

ATTENTION: RON BREWSTER

IN ACCORDANCE WITH YOUR REQUEST, WE HAVE COMPLETED THE EARTHWORK OBSERVATION OF THE BANK STABILIZATION WITHIN THE SUBJECT PROJECT.

THE SURFACE SITE CLEARING, PREPARATION OF SUBGRADE SOILS AND PLACEMENT AND COMPACTION OF ANY REQUIRED FILL WITHIN THE BANK STABILIZATION AREA WAS ACCOMPLISHED IN ACCORDANCE WITH THE SPECIFICATIONS INCLUDED IN OUR SOIL INVESTIGATION REPORT FOR THIS PROJECT DATED MAY 7, 1997 (OPUBCO PROPERTY), ADDENDUMS AND PROJECT SPECIFICATIONS. TESTS WERE PEFORMED EVERY 300' OF THE BANK.

FIELD DENSITY TEST RESULTS ARE ENCLOSED.

RESPECTFULLY SUBMITTED,
CONSTRUCTION INSPECTION & TESTING CO.

JOHN B. RITTER, P.E.

Registered Professional Engineer (Civil)
Certificate No. 11315
JOHN B. RITTER
Date Signed 8-28-00
ARIZONA, U.S.A.

COPIES TO: ADDRESSEE

CONSTRUCTION INSPECTION & TESTING CO.

2002 WEST NORTH LANE
PHOENIX, ARIZONA 85021-1927
(602)861-2002 FAX (602)861-9116

FIELD DENSITY TEST RESULTS

Client	COMMUNITIES SOUTHWEST		
Project	TRAMONTO PH 1, W. SIDE INFRASTRUCTURE		
Location	33RD AVE. & CAREFREE HWY.		
	PHOENIX	Contractor	WHEELER
Material	IMPORT	Sampled by	SAC

Date	Sta. #	Location	% Moisture	Dry Density (PCF)	% Compaction
	BANK STABILIZATION:				
	FLOOR				
04/12/00	10+00	SUBGRADE	13.6	114.8	95.6
	12+30	"	12.9	116.2	96.8
	14+25	"	13.4	116.7	97.2
	16+28	"	15.2	117.2	97.6
	18+50	"	14.7	115.1	95.9
	21+14	"	13.3	115.9	96.6
	24+20	"	12.9	115.4	96.1
04/13/00	26+00	"	14.7	118.7	98.9
	11+50	2' BEL.GR.	13.5	117.3	97.7
	15+25	1' BEL.GR.	14.1	116.5	97.1
	19+25	GRADE	14.7	117.4	97.8
	22+30	"	15.6	119.2	99.3
	25+40	"	13.9	116.3	96.9
	14+30	"	13.2	114.5	95.4
07/25/00	63+00	"	6.0	130.2	97.9
	61+50	1' BEL.GR.	5.9	128.6	96.7
07/26/00	59+00	"	5.5	127.7	96.0
	57+00	2' BEL.GR.	6.6	127.1	95.5
07/27/00	56+00	3' BEL.GR.	8.1	128.9	97.0

CONSTRUCTION INSPECTION & TESTING CO.

2002 WEST NORTH LANE
PHOENIX, ARIZONA 85021-1927
(602)861-2002 FAX (602)861-9116

FIELD DENSITY TEST RESULTS

Client	COMMUNITIES SOUTHWEST		
Project	TRAMONTO PH 1, W. SIDE INFRASTRUCTURE		
Location	33RD AVE. & CAREFREE HWY.		
	PHOENIX	Contractor	WHEELER
Material	IMPORT	Sampled by	SAC

Date	Sta. #	Location	% Moisture	Dry Density (PCF)	% Compaction
	BANK STABILIZATION:				
	FLOOR				
08/02/00	52+10	3' BEL.GR.	7.2	126.7	95.2
	50+22	2' BEL.GR.	6.9	127.9	96.1
	48+00	1' BEL.GR.	6.6	128.6	96.7
08/03/00	46+00	2' BEL.GR.	7.4	127.1	95.5
	44+15	"	7.1	126.9	95.4
08/04/00	42+20	GRADE	6.9	128.3	96.4
	40+27	1' BEL.GR.	8.1	129.3	97.2
08/07/00	41+10	GRADE	7.1	127.3	95.7
	43+13	"	6.2	130.2	97.9
	45+06	"	8.3	129.1	97.0
	47+10	"	8.2	127.5	95.8
	51+25	1' BEL.GR.	9.1	128.6	96.7
	52+00	GRADE	8.5	126.5	95.1
	56+50	"	7.2	129.7	97.5
08/08/00	16+10	2' BEL.GR.	7.4	127.9	96.1
	18+30	"	6.1	128.4	96.5
	20+36	1' BEL.GR.	6.9	126.6	95.2
	22+40	"	7.3	127.3	95.7
	24+60	2' BEL.GR.	8.2	126.9	95.4
	26+90	"	7.5	129.4	97.3

CONSTRUCTION INSPECTION & TESTING CO.

2002 WEST NORTH LANE
PHOENIX, ARIZONA 85021-1927
(602)861-2002 FAX (602)861-9116

FIELD DENSITY TEST RESULTS

Client	COMMUNITIES SOUTHWEST		
Project	TRAMONTO PH 1, W. SIDE INFRASTRUCTURE		
Location	33RD AVE. & CAREFREE HWY.		
	PHOENIX	Contractor	WHEELER
Material	IMPORT	Sampled by	SAC

Date	Sta. #	Location	% Moisture	Dry Density (PCF)	% Compaction
	BANK STABILIZATION:				
	FLOOR				
08/08/00	28+40	1' BEL.GR.	6.4	129.9	97.6
08/09/00	30+45	"	5.9	130.1	97.8
	32+60	2' BEL.GR.	6.3	128.6	96.7
	34+80	"	7.7	128.0	96.2
	36+60	1' BEL.GR.	8.1	126.8	95.3
08/10/00	38+95	"	8.4	127.4	97.8
	40+45	2' BEL.GR.	7.5	129.5	97.3

THE ABOVE TESTS BASED ON A MAXIMUM DRY DENSITY OF 120.0 PCF @ 12.2% OPT. M.C., 133.0 PCF @ 6.2% OPT. M.C.

COPIES TO: CLIENT

CONSTRUCTION INSPECTION & TESTING CO.
2002 WEST NORTH LANE
PHOENIX, ARIZONA 85021-1927
(602)861-2002 FAX (602)861-9116

FIELD DENSITY TEST RESULTS

Client	COMMUNITIES SOUTHWEST		
Project	TRAMONTO PH I, W. SIDE INFRASTRUCTURE		
Location	33RD AVE. & CAREFREE HWY.		
	PHOENIX	Contractor	WHEELER
Material	IMPORT	Sampled by	SAC

Date	Sta. #	Location	% Moisture	Dry Density (PCF)	% Compaction
	BANK STABILIZATION:				
	SLOPE				
08/02/00	56+10	GRADE	7.4	119.4	90.8
	58+25	"	7.7	120.7	91.8
	60+26	"	8.1	119.9	91.2
	62+20	"	6.9	121.3	92.2
08/10/00	16+00	"	8.1	120.4	91.5
	20+40	"	8.8	119.6	90.9
	24+50	"	6.5	118.8	90.3
	28+30	"	7.4	121.4	92.3
	31+45	"	6.3	120.9	91.9
	35+60	"	8.7	119.7	90.6
	39+20	"	7.1	121.5	92.4
08/11/00	43+60	"	8.2	122.7	93.3
	47+20	"	6.7	121.5	92.4
	51+26	"	6.9	119.5	90.8
	54+20	"	7.8	122.1	92.8
	12+00	1' BEL.GR	8.4	126.8	95.3
	14+00	"	7.7	128.4	96.5
	13+00	GRADE	6.3	119.3	90.7

THE ABOVE TESTS BASED ON A MAXIMUM DRY DENSITY OF 131.5 PCF @ 7.6% OPT. M.C.

Form 6
Channelization

FEDERAL EMERGENCY MANAGEMENT AGENCY **CHANNELIZATION**	O.M.B. Burden No. 3067-0148 Expires April 30, 2001

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1.75 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

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

Community Name: Maricopa County, Unincorporated Areas / Phoenix, City of

Flooding Source: Skunk Creek

Project Name/Identifier: Tramonto Master Planned Community

1. REACH TO BE REVISED

Describe the limits of the revision **OR** submit a copy of the FIRM with the revision area clearly highlighted.
Copy of FIRM(s) attached depicting area of the revision (highlighted, or circled)? ☒ Yes

Downstream Limit: Carefree Highway

Upstream Limit: Cloud Road

2. CHANNEL DESCRIPTION

Attach the following information about the channel (check box if information has been provided):

☒ Description of the inlet and outlet

☒ Description of the shape of the channel *(both cross sectional and planimetric configuration)* and its lining *(channel bottom and sides)*:

3. ACCESSORY STRUCTURES

The channelization includes:

- ☐ Levees *(Attach Levee/Floodwall System Analysis Form - Form 8)*
- ☐ Drop structures
- ☐ Superelevated sections
- ☐ Transitions in cross sectional geometry
- ☐ Debris basin/detention basin
- ☐ Energy dissipater
- ☐ Other (Describe):

4. DRAWING CHECKLIST

Attach the plans of the channelization certified by a registered professional engineer. The plan detail and information should include (check box if information has been provided):

☒ Channel alignment and locations of inlet, outlet, and accessory structures

☒ Channel lining

☒ Typical cross sections and profiles of channel banks and invert

PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS

5. HYDRAULIC CONSIDERATIONS

1. The channel was designed to carry 27,300 (cfs) and/or the 100-year flood.

2. The design elevation in the channel based on:

   ☒ Subcritical flow

   ☐ Critical flow

   ☐ Supercritical flow

   ☐ Energy grade line

3. **If there is the potential for a hydraulic jump at the following locations, check the box(es) that apply and attach an explanation of how the hydraulic jump is controlled without affecting the stability of the channel.**

Inlet to channel?	☐ Yes
Outlet of channel?	☐ Yes
At Drop Structures?	☐ Yes
At Transitions?	☐ Yes
Other locations?	☐ Yes

Explanation Attached? ☐ **Yes** ☐ **No** ☒ **N/A**

6. SEDIMENT TRANSPORT CONSIDERATIONS

If there is any indication from historical records that sediment transport (including scour and deposition) can affect the 100-year (base flood) water-surface elevations; and/or based on the stream geomorphology, vegetative cover, development of the watershed and bank conditions, there is a potential for debris and sediment transport (including sewer and deposition) to affect the base flood water-surface elevations, then provide the following information **(Check the box if provided):**

☒ Estimated sediment load

☒ Method used to estimate sediment transport

☒ Method used to estimate scour and/or deposition

☒ Method used to revise hydraulic or hydrologic analysis (model) to account for sediment transport

Form 6 Channelization

Section 2. Description of the shape of the channel and its lining

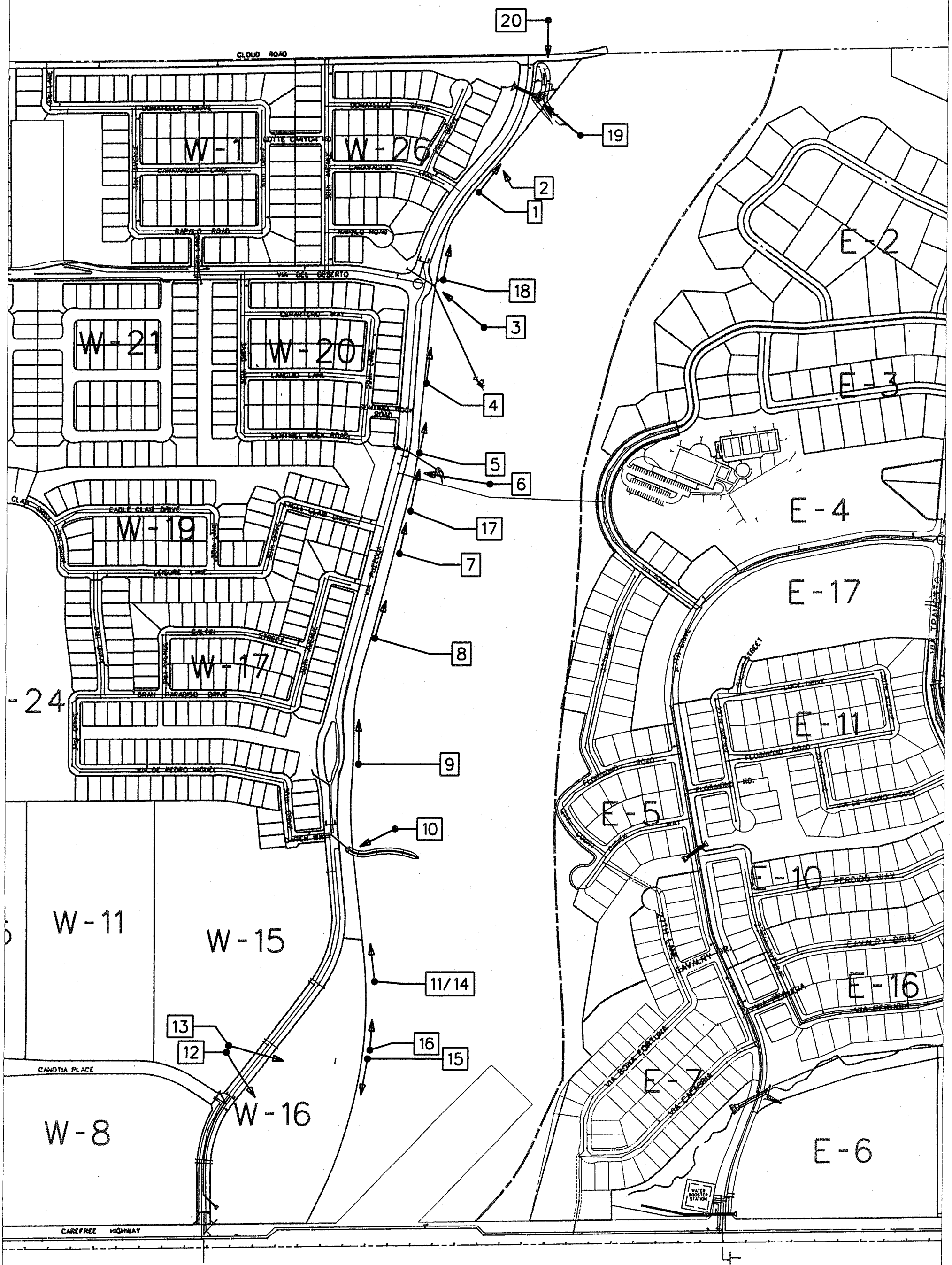
The channel will remain in its natural state with the exception of fill placement and bank protection beyond the floodway limits. See the included Bank Protection Plan set. Included in this section are field photos taken during and after the gabion bank protection was installed.

Section 4. Drawing Checklist

Included in this submittal are the *Tramonto Phase 1 West Side Infrastructure Bank Stabilization* plans.

Section 6. Sediment Transport Considerations

A sediment transport analysis for Skunk Creek through Tramonto was performed as part of the *Floodplain and Sediment Impact Analysis for Skunk Creek Downstream of Tramonto* report, a copy of which is included in this submittal.



GABION PHOTO INDEX

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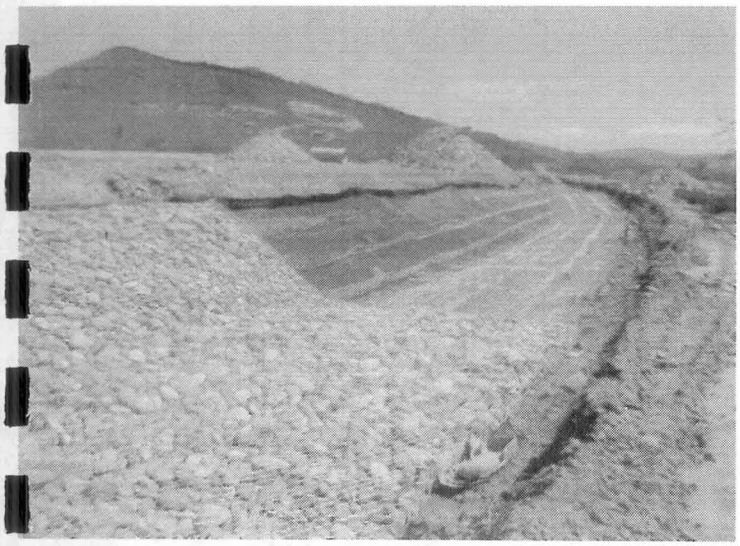

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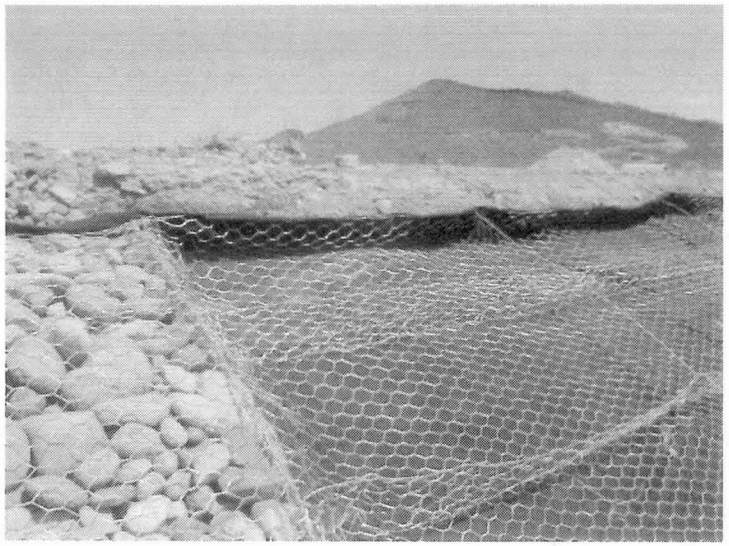
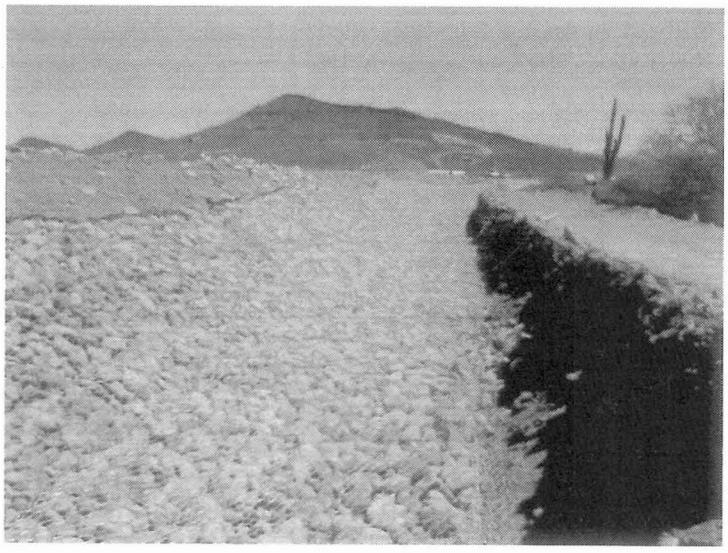
Gabions looking north



7/12/00
#2
Gabion detail

7/12/00
#3
Gabion construction at round-about



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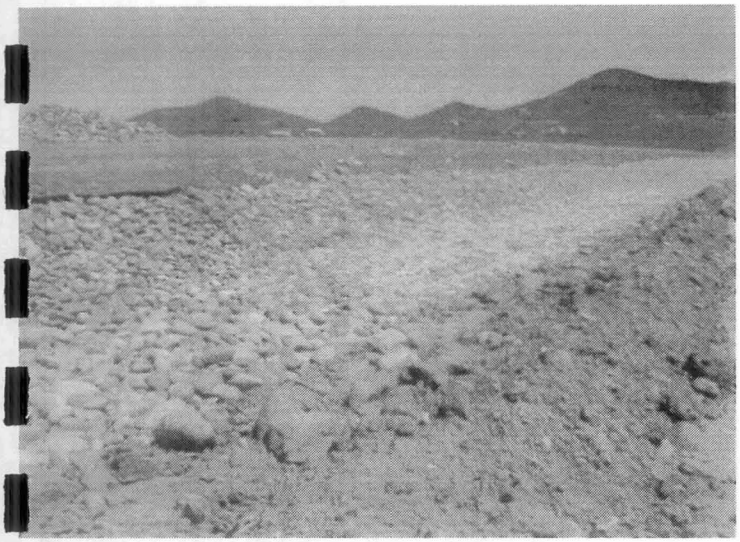
#4
Gabion construction



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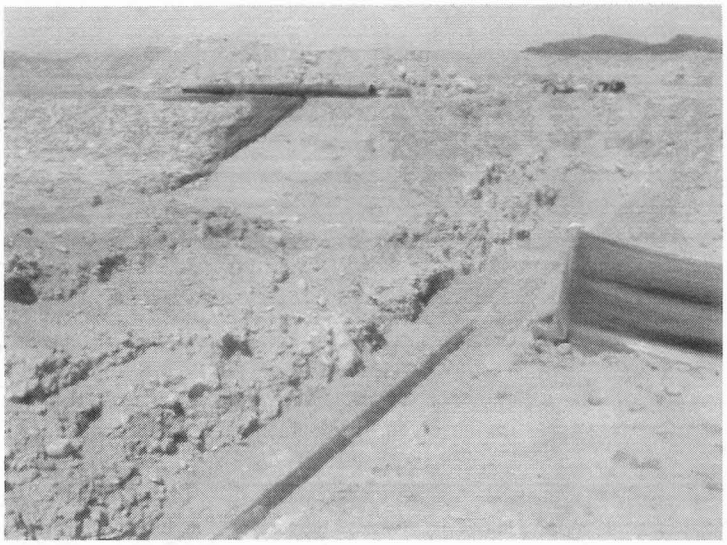
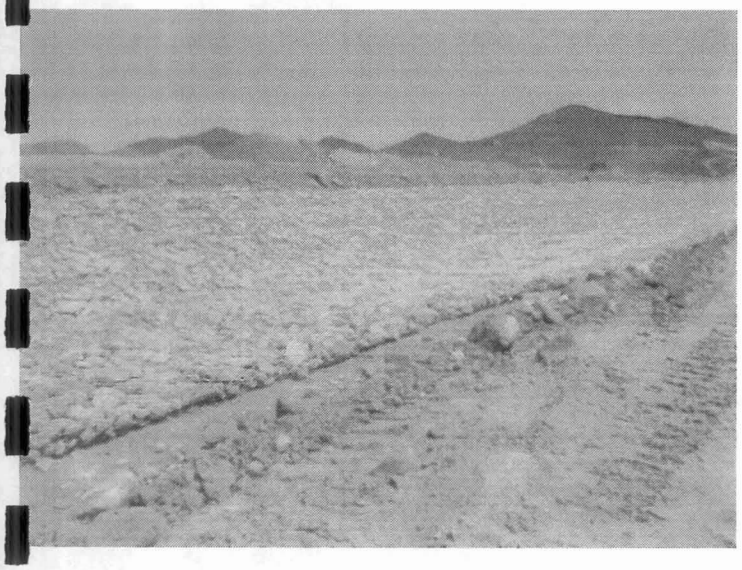
Gabion construction



7/12/00
#6
Gabion construction at waterline



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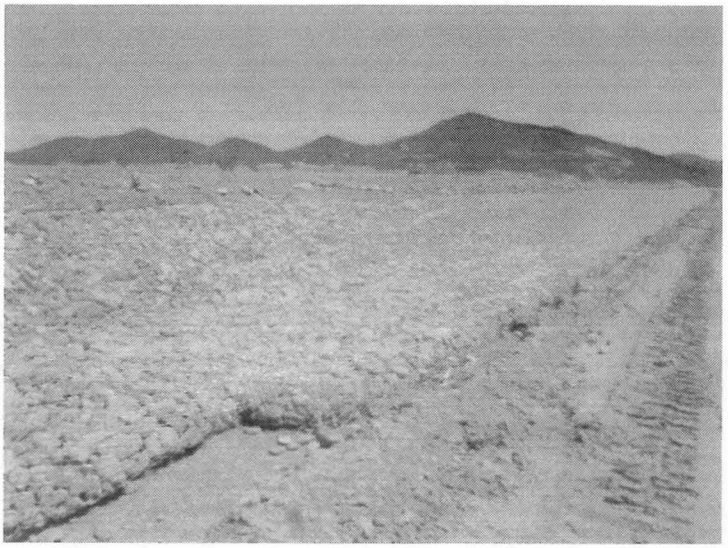
#7
Gabion construction



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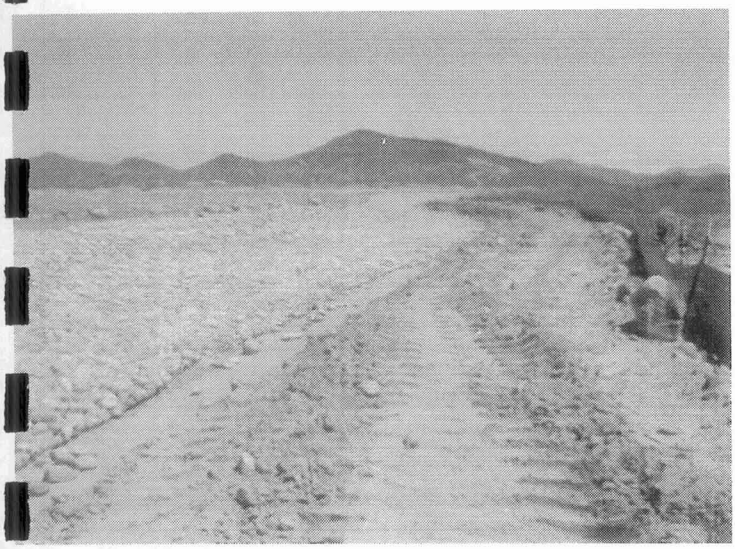
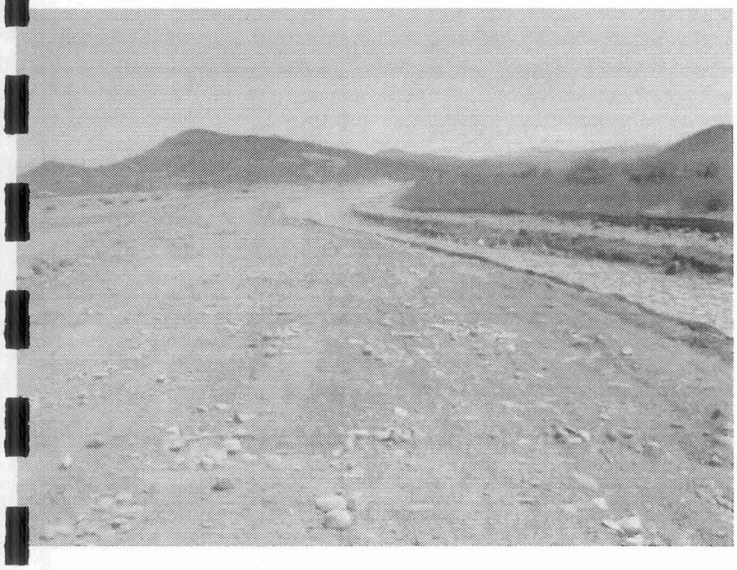
#8
Gabion construction



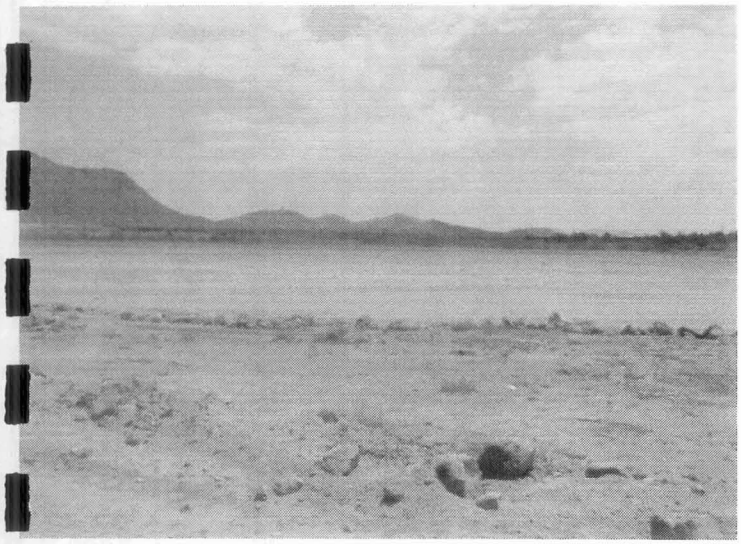
7/12/00
#9
Gabion construction

7/12/00
#10
Gabion construction

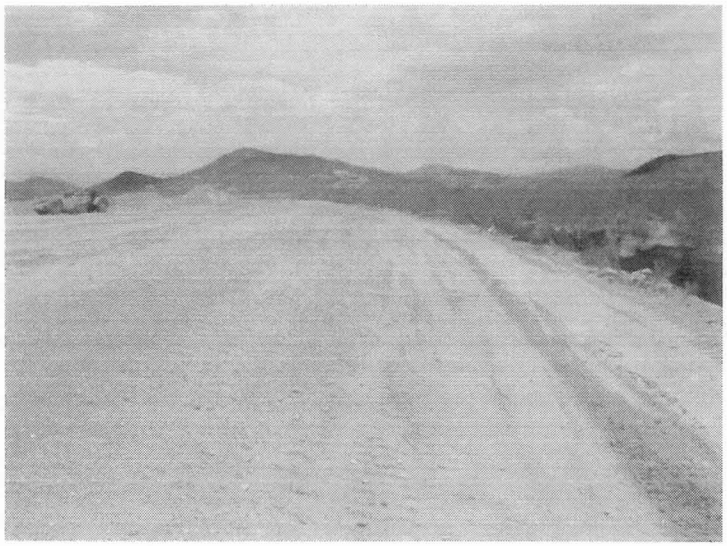


7/12/00
#11
Gabion construction

8/11/00
#12
Parcel W16 graded



8/11/00
#13
Parcel W16 graded



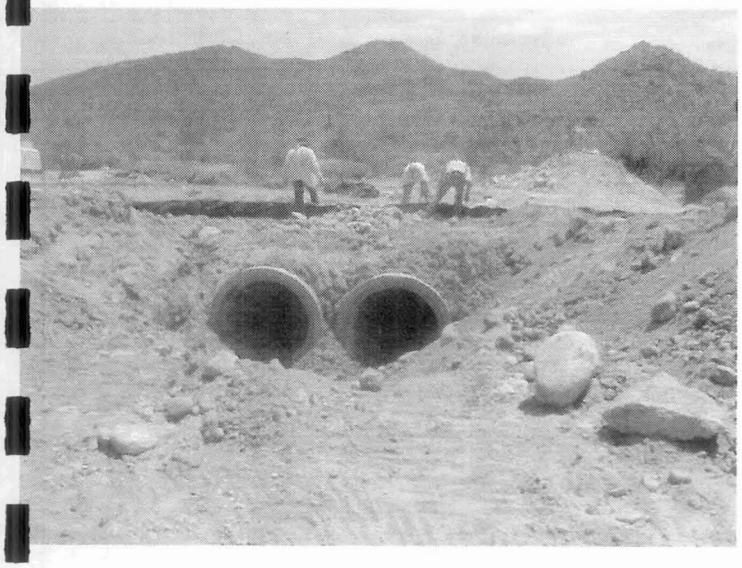
8/11/00
#14
Gabion covered at #11

8/11/00
#15
Gabions covered

8/11/00
#16
Gabions partially covered

8/11/00
#17
Gabions in progress at pipe crossing

8/11/00
#18
Gabions at north end of site



8/11/00
#19
Pipe construction south of Cloud Road

8/11/00
#20
Gabions south of Cloud Road

Form 7
Bridge/Culvert

FEDERAL EMERGENCY MANAGEMENT AGENCY **BRIDGE/CULVERT**	O.M.B. Burden No. 3067-0148 Expires April 30, 2001

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

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

Community Name: Maricopa County, Unincorporated Areas / Phoenix, City of

Flooding Source: Skunk Creek

Project Name/Identifier: Tramonto Master Planned Community

1. IDENTIFIER

1. Name of structure (roadway, railroad, etc.): Carefree Highway Bridge

2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier):

   HEC-2 Cross-Section 16.87

3. This revision reflects (check one of the following):

   ☐ New bridge/culvert not modeled in the FIS

   ☒ Modified bridge/culvert previously modeled in the FIS

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

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

   HEC-2 with special bridge routine. The modification is included in both the revised effective model, REVDIST.DAT, and the post-project conditions model, LOMR.DAT.

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

   Justification attached ☐ **Yes** ☐ **No** ☒ **N/A**

PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS

2. DRAWING CHECKLIST

Attach plans of the structure(s) certified by a registered professional engineer. The plan detail and information should include the following (check the boxes if the information has been provided):

- ☒ Dimensions (height, width, span, radius, length)
- ☐ Shape (culverts only)
- ☐ Material
- ☐ Beveling or Rounding
- ☐ Wing Wall Angle
- ☐ Low Chord Elevations - Upstream and Downstream
- ☐ Top of Road Elevations - Upstream and Downstream
- ☐ Structure Invert Elevations - Upstream and Downstream
- ☐ Stream Invert Elevations - Upstream and Downstream
- ☐ Skew Angle
- ☐ Cross-Section Locations
- ☐ Distances Between Cross Sections
- ☐ Erosion Protection

3. SEDIMENT TRANSPORT CONSIDERATIONS

If there is any indication from historical records that sediment transport (including scour and deposition) can affect the 100-year (base flood) water-surface elevations; and/or based on the stream geomorphology, vegetative cover, development of the watershed and bank conditions, there is a potential for debris and sediment transport (including sewer and deposition) to affect the base flood elevations, then provide the following information **(Check the box if provided):**

- ☒ Estimated sediment load
- ☒ Method used to estimate sediment transport
- ☒ Method used to estimate scour and/or deposition
- ☐ Method used to revise hydraulic or hydrologic analysis (model) to account for sediment transport

Form 7 Bridge/Culvert

Section 1. Identifier, Item 3

This revision reflects the addition of the southern half of the Carefree Highway Bridge since the previous flood study was prepared. The bridge modifications are reflected in both the revised effective model, REVDIST.DAT, and the post-project conditions model, LOMR.DAT, included as part of this LOMR submittal.

Section 3 Sediment Transport Considerations

A sediment transport analysis for Skunk Creek through Tramonto, including the Carefree Highway Bridge, was performed as part of the *Floodplain and Sediment Impact Analysis for Skunk Creek Downstream of Tramonto* report, a copy of which is included in this submittal.

Granite Reef Aqueduct (CAP)
to Carefree Highway

FEDERAL EMERGENCY MANAGEMENT AGENCY **RIVERINE / COASTAL MAPPING**	O.M.B No. 3067-0148 Expires April 30, 2001

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1.5 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

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

Note: Fill out one form for each flooding source studied

Community Name: Maricopa County, Unincorporated Areas / Phoenix, City of

Flooding Source: Skunk Creek; Granite Reef Aqueduct (CAP) to Carefree Highway

Project Name/Identifier: Tramonto Master Planned Community

This is a ☒ Manual ☐ Digital submission. *Digital map submissions may be used to update digital FIRMs (DFIRMs). For updating DFIRMs, these submissions must be coordinated with FEMA Headquarters as far in advance as possible.*

1. MAPPING CHANGES

1. A topographic workmap must be submitted showing the following information (check N/A when not applicable):

a. Revised approximate 100-year floodplain boundaries (Zone A)	☐ Yes	☐ No	☒ N/A
b. Revised detailed 100- and 500-year floodplain boundaries.	☒ Yes	☐ No	☐ N/A
c. Revised floodway boundaries	☒ Yes	☐ No	☐ N/A
d. Location and alignment of all cross sections with stationing control indicated.	☒ Yes	☐ No	☐ N/A
e. Stream alignments, road alignments and dam alignments.	☒ Yes	☐ No	☐ N/A
f. Current community boundaries.	☐ Yes	☐ No	☒ N/A
g. Effective 100- year floodplain and floodway boundaries from FIRM/FBFM reduced or enlarged to the scale of the topographic workmap	☐ Yes	☐ No	☐ N/A
h. Tie-ins between the effective and revised 100-, 500-year and floodway boundaries	☐ Yes	☐ No	☐ N/A
i. The requester's property boundaries and community easements	☐ Yes	☐ No	☐ N/A
j. The signed certification of a registered professional engineer	☒ Yes	☐ No	☐ N/A
k. Location and description of reference marks	☒ Yes	☐ No	☐ N/A
l. Vertical datum (example: NGVD, NAVD)	☒ Yes	☐ No	☐ N/A
m. Coastal zone designations tie into adjacent areas not being revised	☐ Yes	☐ No	☒ N/A
n. Location and alignment of all coastal transects used to revise the coastal analyze	☐ Yes	☐ No	☒ N/A
o. V-zone has been delineated to extend landward to the heel of the primary frontal dune	☐ Yes	☐ No	☒ N/A

If any items are marked No or N/A please attach an explanation.

2. What is the source and date of the updated topographic information (example: orthophoto maps, July 1985; filed survey, May 1979, beach profile, June 1987 etc.)? Aerial Topographic Mapping, May 1996

3. What is the scale and contour interval of the following workmaps?

Effective FIS Scale 1" = 200' Contour Interval 2'

Revision Request Scale 1" = 200' Contour Interval 2'

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

4. Attach an annotated FIRM/FBFM at the scale of the effective FIRM/FBFM showing the revised 100- and 500-year floodplain and the floodway boundaries and how they tie into those shown on the effective FIRM/FBFM downstream and upstream of the revisions or adjacent to the area of revision for coastal studies. **FIRM/FBFM attached?** ☒ **Yes** ☐ **No**

PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS

2. EARTH FILL PLACEMENT

1. The fill is: ☐ Existing ☐ Proposed

2. Has fill been/will be placed in the regulatory floodway? ☐ Yes ☒ No
If Yes, please attach completed Riverine Hydraulic Analysis Form (Form 4).

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

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

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

If Yes, justify steeper slopes _____

b. Is adequate erosion protection provided for fill slopes exposed to moving flood waters? (*Slopes exposed to flows with velocities of up to 5 feet per second (fps) during the 100-year flood must, at a minimum, be protected by a cover of grass, vines, weeds, or similar vegetation; slopes exposed to flows with velocities greater than 5 fps during the 100-year flood must, at a minimum, be protected by stone or rock riprap.)*

☐ Yes ☐ No

If No, describe erosion protection provided _____

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

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

If Yes, attach certification of fill compaction (item 3c. above) by the community's NFIP permit official, a registered professional engineer, or an accredited soils engineer in accordance with Subparagraph 65.5(a)(6) of the NFIP regulations.

Fill certification attached ☐ **Yes** ☐ **No**

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

If Yes, is the fill protected from erosion by a flood control structure such as a revetment or seawall?

☐ Yes ☐ No

If Yes, attach the Coastal Structures Form (Form 10).

Granite Reef Aqueduct to Carefree Highway

Form 5, "Riverine / Coastal Mapping"

Hydraulic Model Reflecting As-Built Conditions

The Post-Project Conditions Model, LOMR.DAT, reflects the as-built conditions through Tramonto. The 100-year discharge within Skunk Creek, downstream of the Carefree Highway bridge, increased as a result of the encroachment through Tramonto – see the 'Form 3' section of this submittal.

Floodplain / Floodway Delineation Work Maps

Post-Project floodplain and floodway water surface elevations and boundaries, between the CAP Granite Reef Aqueduct and Carefree Highway, are represented on the revised *Flood Delineation Study of Skunk Creek* maps included in this submittal.

Annotated FIRM

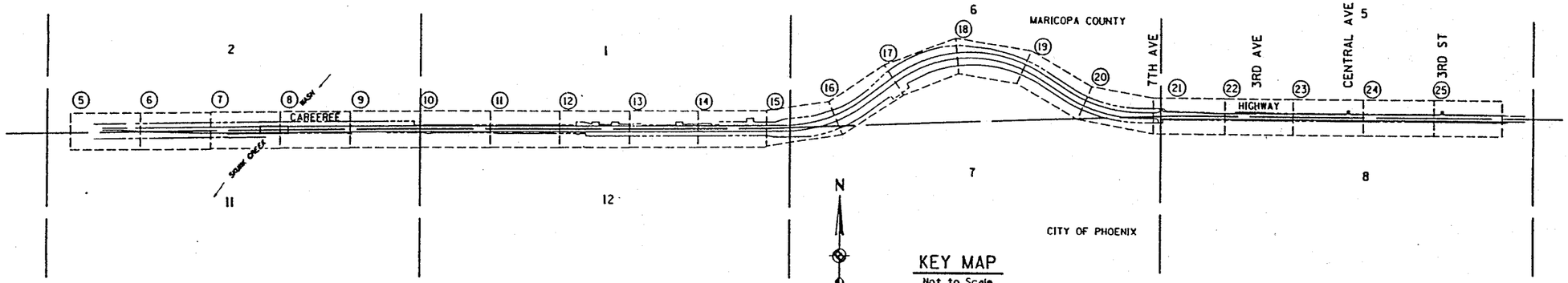
A revised annotated FIRM is included in this LOMR submittal.

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION

PLANS FOR THE CONSTRUCTION OF:

CAREFREE HIGHWAY- INTERSTATE 17 TO THIRD STREET

PROJECT NO. 68842

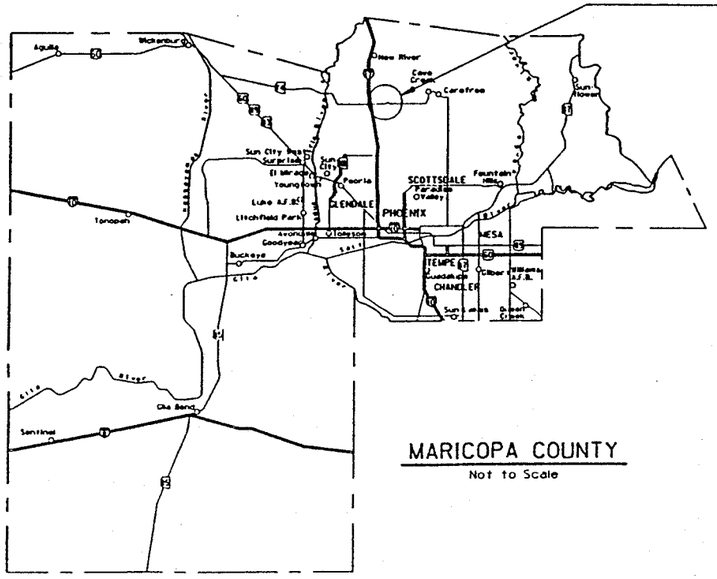


KEY MAP

Not to Scale

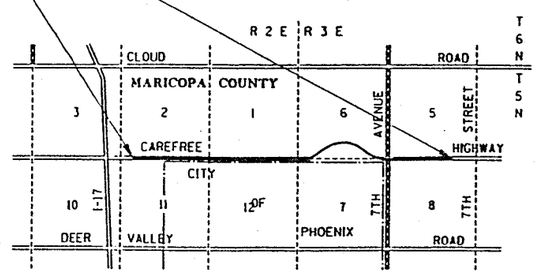
PLAN & PROFILE SHEETS

PROJECT NO. 68842



MARICOPA COUNTY

Not to Scale



VICINITY MAP

Not to Scale

IN COOPERATION WITH:

CITY OF PHOENIX

MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION

ISSUED FOR PUBLIC BIDDING BY:

PROJECT MANAGER — DATE 6/10/92

COUNTY BOARD OF SUPERVISORS

DON STAPLEY - CHAIRMAN

DISTRICT 1	FULTON BROCK
DISTRICT 2	DON STAPLEY
DISTRICT 3	BETSEY BAYLESS
DISTRICT 4	JANICE K. BREWER
DISTRICT 5	MARY ROSE WILCOX

000001.dgn 12/6/93

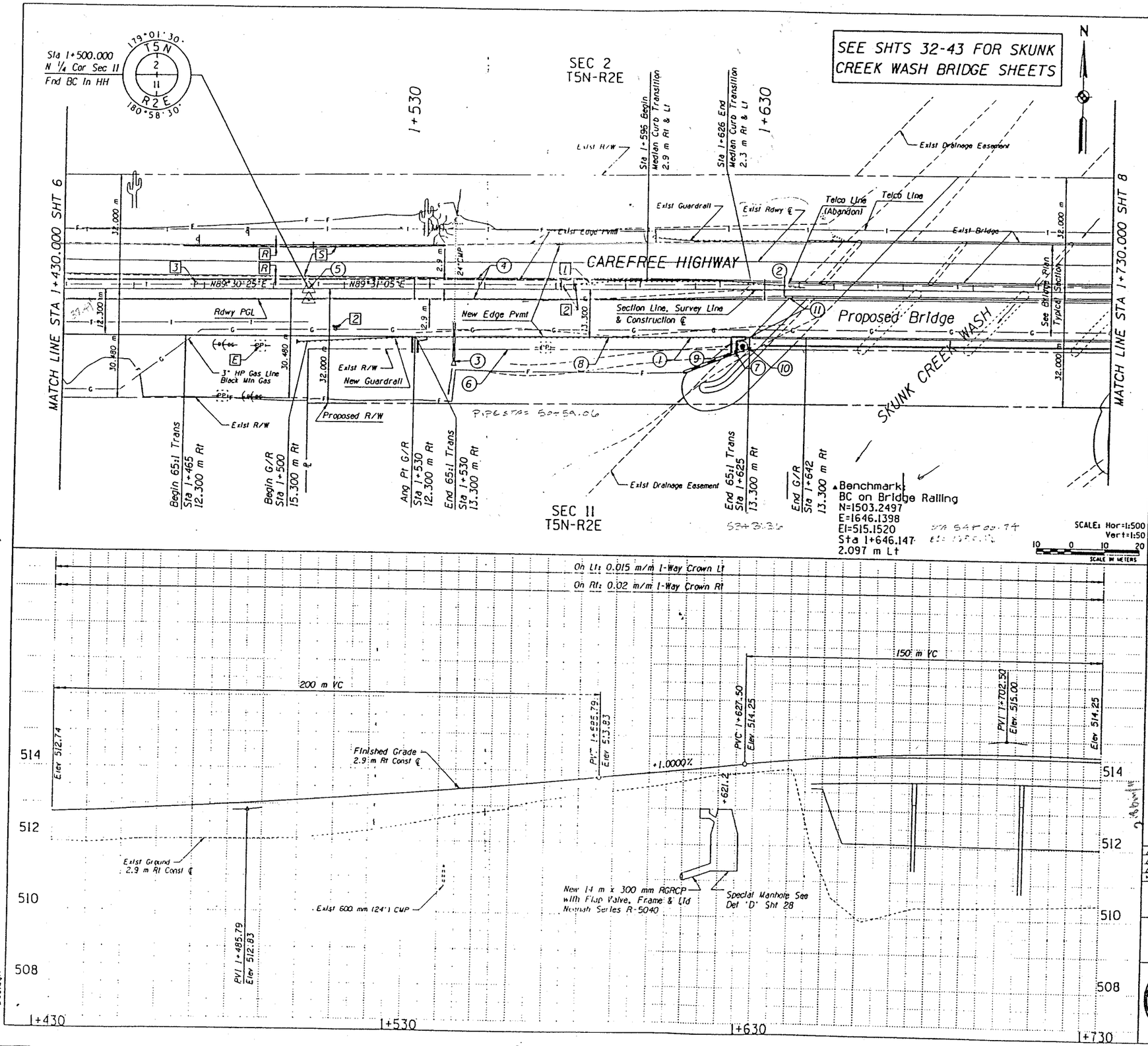
TRAMONTO

98 P002

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	68842			

☐ REMOVAL/RELOCATE ☐

- [R] Remove 102 m² Exist Pvmt.
- [S] Sawcut Tack & Match Exist Pvmt.
- [T] Adjust Exist Tel M/H to Grade (by US West).
- [E] Relocate Exist Power Pole (by APS).
- [1] Sta 1+573 to Sta 1+642. Lt. Remove 69 m Exist Guardrail & BCT.
- [2] Remove/Relocate Exist Sign by Owner.



○ CONSTRUCTION ○

1. Sta 1+500 to Sta. 1+642. Rt. Construct 142 m Guardrail per MCDOT Std Det No 2036 thru 2039. Construct Guardrail External Terminal GET-1. ADOT Std Det C-10.40
2. Construct 2 m Transition from Bridge Rail to Curb. See Det 'E', Sht 28.
3. Sta 1+542. Rt. Install 11 m x 600 mm CMP Pipe Extension with End Section.
4. Sta 1+430 to Sta 1+626. 2.9 m Rt & Lt. Construct 392 m Single Curb-Type 'B', per MAG Std Det No. 222.
5. Sta 1+500.000. Install New Survey Monument per MAG Std Det 120-2. Type "E".
6. Sta 1+530.0. 13.3 m Rt. Install Embankment Spillway per MAG Std Det 550.
7. Sta 1+621.2. 15.2 m Rt. Install Catch Basin per MAG Std Det No 537. Type "G".
8. Sta 1+532.0 to 1+621.2 Construct 65 m of .15 m Extruded AC Curb.
9. Sta 1+621.2. 13.3 m Rt. Install Embankment Spillway per MAG Std Det 550.
10. Sta 1+623.2 13.3 m Rt. Install Manhole per MAG Std Det 422 Modified.
11. Install Concrete Barrier Transition per MCDOT Std Det 2044.

TWO WORKING DAYS BEFORE YOU DIG, CALL 263-1100 BLUE STAKE

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

CAREFREE HIGHWAY
I-17 TO 3RD STREET
PROJECT NO. 68842

	BY	DATE
DESIGNED	S. HATAB	6/10/97
DRAWN	J. GLENDENING	6/10/97
CHECKED		

PLAN AND PROFILE
Sta 1+430.000 to 1+730.000

SHEET 7 OF 50

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	68842			

☐ REMOVAL/RELOCATE ☐

- [R] Remove 176 m^2 Exist Pvmt.
- [S] Sawcut Tack & Match Exist Pvmt.
- [E] Relocate Exist Power Pole (by APS).
- [1] Sta 1+573 to Sta 1+642, Lt, Remove 69M Exist Guardrail & BCT.
- [2] Remove/Relocate Exist Sign.
- [3] Relocate Tree by MCDOT Forces.
- [4] Remove, Fill, & Compact Exist 1050 mm CMP.

◯ CONSTRUCTION ◯

1. Sta 1+764 to Sta. 1+870, 13.3 m Rt. Construct 106 m Guardrail per MCDOT Std Det No 2036 thru 2039. Guard Rail Anchor Assembly per MCDOT Std Det 2042..
2. Construct 2 m Transition from Bridge Rail to Curb. See Det "E", Sht 28.
3. Sta 1+787 to Sta 1+841, 30.5 m Lt. Install 54 m x 1050 mm CMP Pipe with Headwall & End Section per MAG Std Det No 501-1 thru 501-5.
4. Sta 1+780 to Sta 2+030, 2.9 m Rt & Lt. Construct 500 m Single Curb-Type "B", per MAG Std Det No. 222.
5. Sta 1+762.5, 13.3 m Rt, Install Embankment Spillway per MAG Std Det 550.
6. Sta 1+762.500, 15.2 m Rt, Install Special Manhole, 300 mm CMP, See Detail "D" Sht 28. 57+82.48
7. Sta 1+758 to 1+823 Construct 65 m of .15 m Extruded AC Curb.
8. Sta 1+827.5, 13.3 m Rt, Install Embankment Spillway per MAG Std Det 550.
9. Install Concrete Barrier Transition MCDOT Std Det 2044.
10. Sta 1+762.5, 15.2 m Rt, Install Catch Basin per MAG Std Det 537, Type "G", See Det "D" Sht 28.

TWO WORKING DAYS BEFORE YOU DIG, CALL 263-1100 BLUE STAKE

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

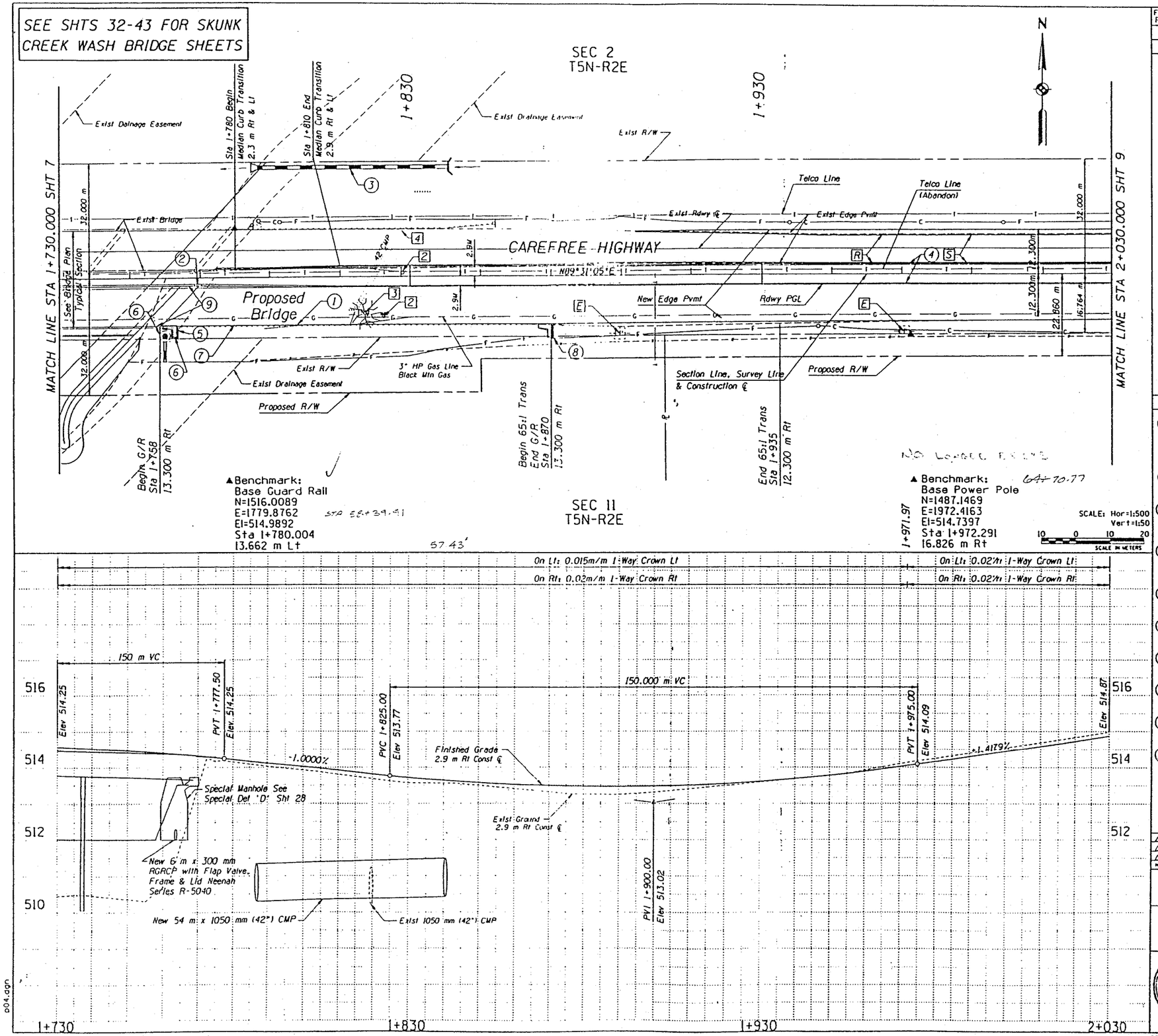
CAREFREE HIGHWAY
I-17 TO 3RD STREET
PROJECT NO. 68842

	BY	DATE
DESIGNED	S. HATAB	6/10/97
DRAWN	J. GLENDENING	6/10/97
CHECKED		

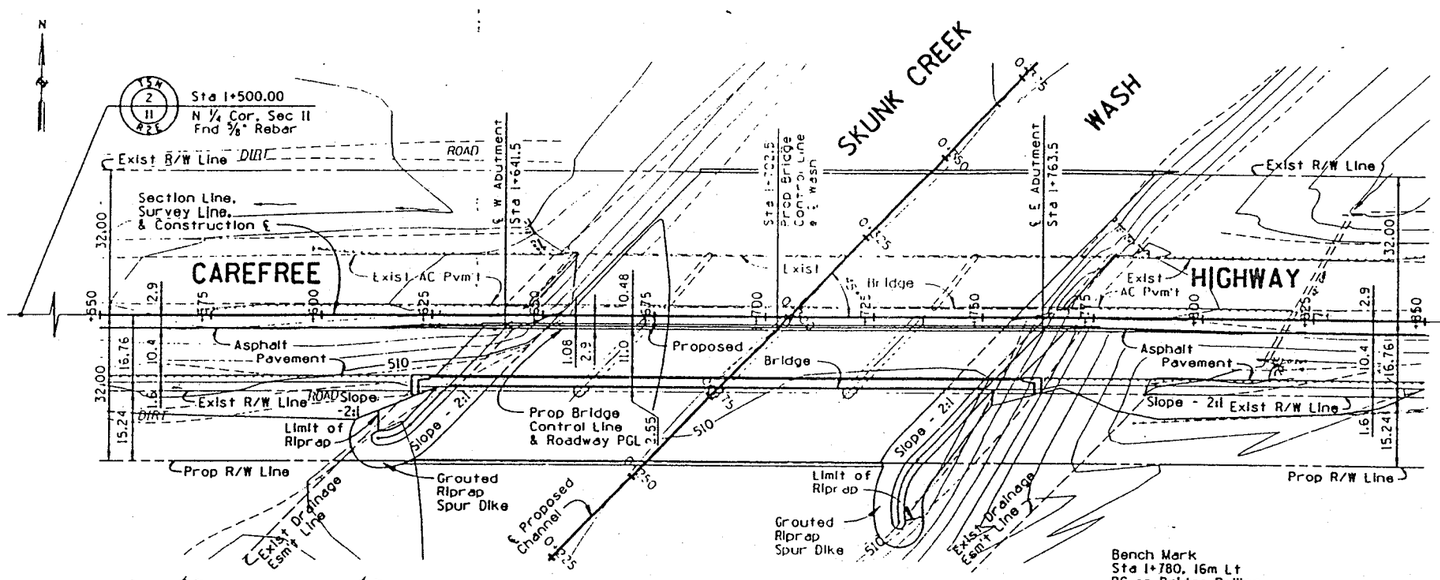
PLAN AND PROFILE
Sta 1+730.000 to 2+030.000

SHEET 8 OF 50

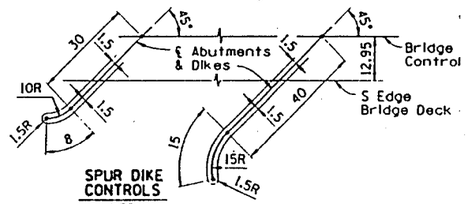
TRACS NO.



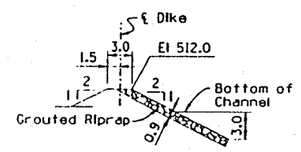
F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	68842			



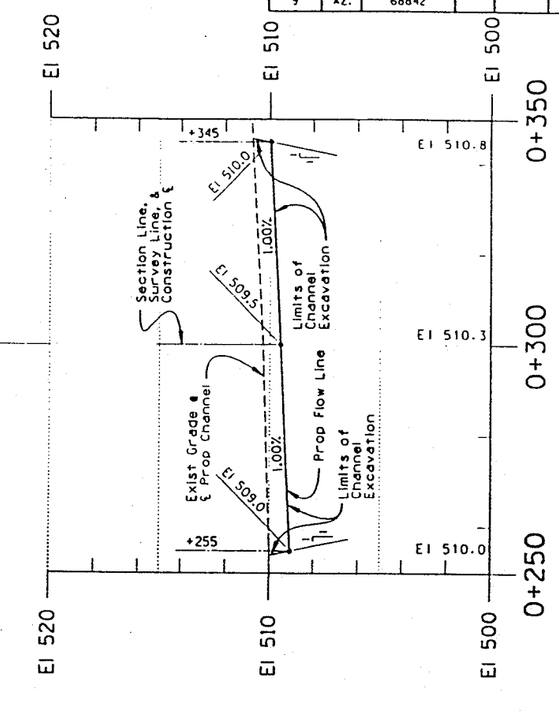
PLAN
Scale: 1:600



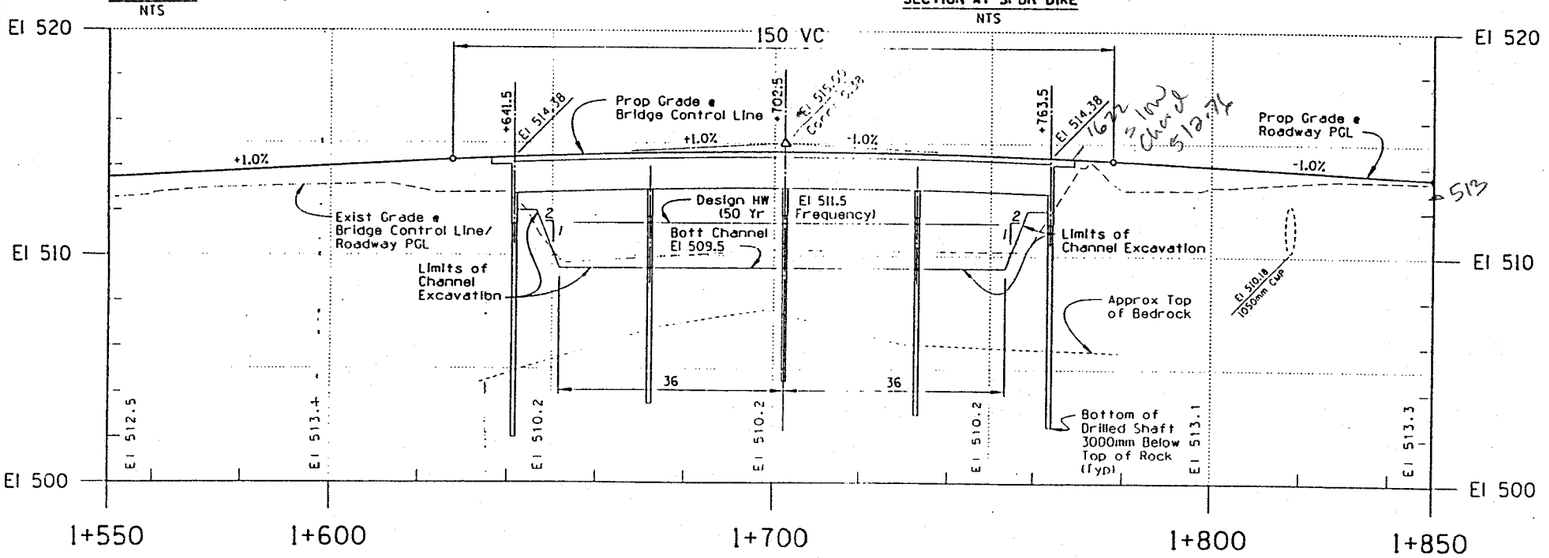
SPUR DIKE CONTROLS
NTS



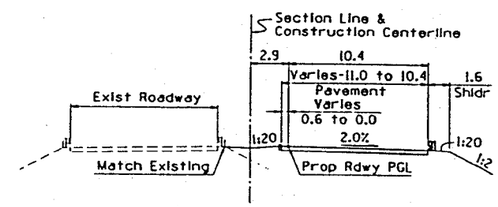
SECTION AT SPUR DIKE
NTS



CHANNEL PROFILE
Scales: 1:600 Horz
1:120 Vert



PROFILE
Scales: 1:600 Horz
1:120 Vert
Note: All Channel Dimensions are Normal to ℄ Channel



TYPICAL SECTION - APPROACHES
Scale: 1:200

GENERAL NOTES

Datum - Elevations on MCDOT Datum

Hydraulic Data
Drainage Area = 128.7 sq km
Q_{50} = 610 cms
Q_{100} = 890 cms

All Dimensions are in Meters
Unless Noted Otherwise

QUANTITES

Channel Excavation ----- 5000 cm
Plain Riprap ---------- 400 cm
Grouted Riprap -------- 1200 cm

NO.	REVISION	BY	DATE
1			
2			
3			
4			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

CAREFREE HIGHWAY BRIDGE
SKUNK CREEK WASH
PROJECT NO. 68842

	BY	DATE
DESIGNED	T. SONNEMANN	03/31/97
DRAWN	T. SONNEMANN	03/31/97
CHECKED	P. EPSTEIN	03/31/97

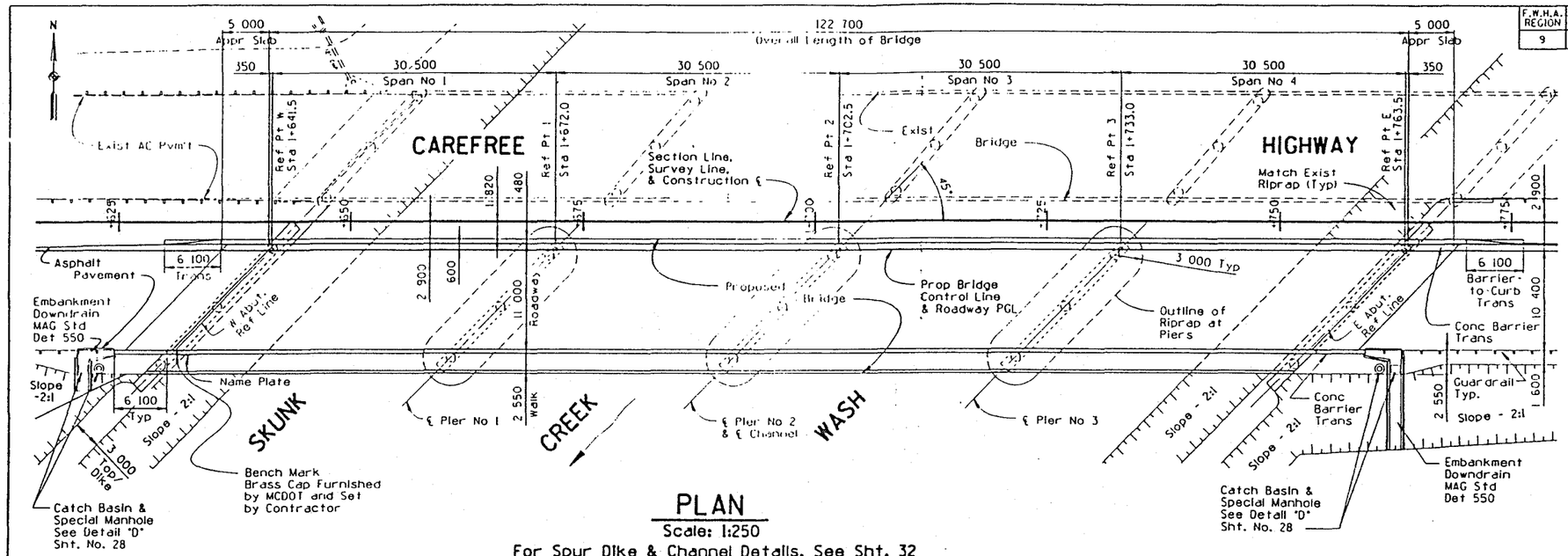
LOCATION PLAN

SHEET 35 OF 50

TRACS NO.

ipcplan.dgn/border.dgn 05/06/97

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	68842			



PLAN

Scale: 1:250

For Spur Dike & Channel Details, See Sht. 32

GENERAL NOTES

Construction - MAG Uniform Std Specs for Public Works Constr. 1996, Metric Edition, and Current Revisions thereto

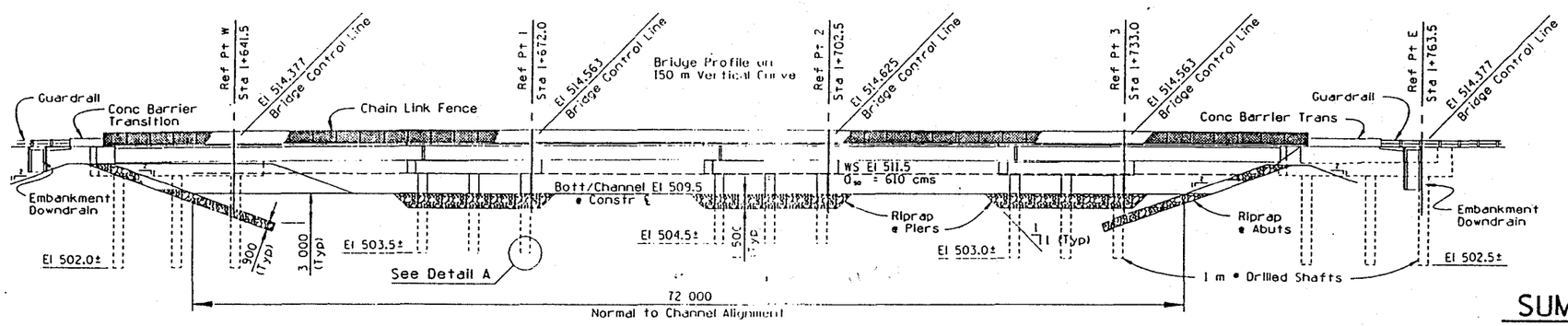
Design - AASHTO LRFD Bridge Design Specs, 1994 Metric Edition
Four Span Precast Beam and Slab
Simple Support - Dead Loads
Continuous Support - Live Loads

Loading - MS 18-44 and Allowance for Future Wearing Surface

Concrete - Class AA, f'c = 30 MPa
Class A, f'c = 25 MPa
Precast Beams - Concrete, Special f'c = 42 Pa
Bridge Railing, Fence Curb and Approach Slabs Shall Be Class A
All Other Concrete Shall Be Class AA

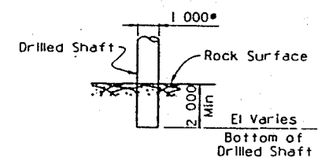
Reinforcing Steel - ASTM A-615M, Gr 400 fy = 400 MPa

Drilled Shaft Loads -
Abutments - 3062 kN
Piers - 4400 kN



ELEVATION

Scale: 1:250

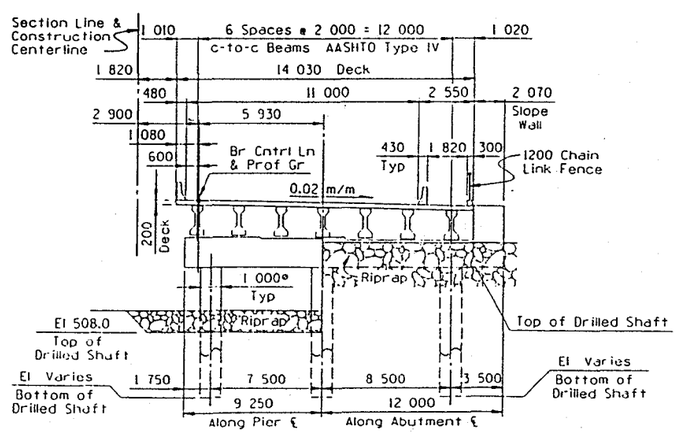


DETAIL A

Scale: 1:125

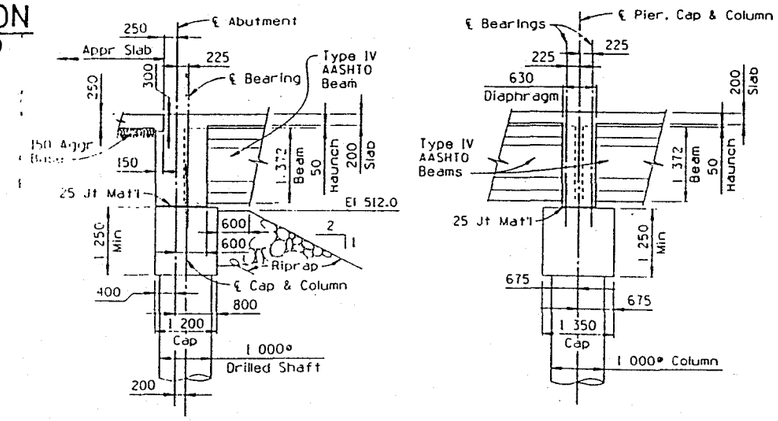
SUMMARY OF QUANTITIES

Drilled Shafts ---------- 93 m
Class A Concrete ---------- 86 cm
Class AA Concrete ---------- 776 cm
Precast Beams ---------- 28 ea
Reinforcing Steel ------ 64 410 kg
Chain Link Fence ---------- 123 m



TYPICAL SECTION THRU DECK

Scale: 1:125



TYPICAL SECTIONS

Scale: 1:50

NO.	REVISION	BY	DATE
1			
2			
3			
4			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

CAREFREE HIGHWAY BRIDGE
SKUNK CREEK WASH
PROJECT NO. 68842

	BY	DATE
DESIGNED	T. SONNEMANN	03/31/97
DRAWN	T. SONNEMANN	03/31/97
CHECKED	P. EPSTEIN	03/31/97

GENERAL PLAN OF BRIDGE

SHEET OF 36 50

TRACS NO.

genplan.dgn/border.dgn 05/06/97