# EASTERN CANAL NORTH FDS

## MFC015
## FCD 98-36

For:

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

## TECHNICAL DATA NOTEBOOK

*Volume 3*

**October 2001**

By:

PRIMATECH
ENGINEERS & CONSULTANTS

# Federal Emergency Management Agency

Washington, D.C. 20472

**MAY 28 2002**

FLOOD CONTROL DISTRICT
RECEIVED
MAY 31 '02
CH & GM | FINANCE
PIO | LANDS
ADMIN | E & V
REG | P & PM
✓ ENG | FILE
CONTRACTS
ROUTING

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

IN REPLY REFER TO:
Case No.: 02-09-260P

The Honorable Keno Hawker
Mayor, City of Mesa
P.O. Box 1466
Mesa, AZ 85211-1466

Community: City of Mesa, AZ
Community No.: 040048
Panels Affected: 04013C2185 F, 2195 F, and 2215 G

Effective Date of This Revision: **SEP 19 2002**

102-I-A-C

Dear Mayor Hawker:

This responds to a request that the Federal Emergency Management Agency (FEMA) revise the effective Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) report for Maricopa County, Arizona and Incorporated Areas (the effective FIRM and FIS report for your community), in accordance with Part 65 of the National Flood Insurance Program (NFIP) regulations. In a letter dated December 4, 2001, Mr. Tim Murphy, P.E., Delineation Branch Manager, Flood Control District of Maricopa County, requested that FEMA revise the FIRM and FIS report to show the effects of updated topographic information and detailed hydrologic and hydraulic analyses of the flooding along the east embankment of Eastern Canal from just upstream of Baseline Road to approximately 1,000 feet upstream of East Hermosa Vista Drive.

All data required to complete our review of this request were submitted with letters from Mr. Murphy.

Because this Letter of Map Revision (LOMR) is based on a detailed hydrologic or hydraulic study conducted by a Federal, State, or local agency to replace an approximate study conducted by FEMA and shown on the flood map, fees were not assessed for the review.

We have completed our review of the submitted data and the flood data shown on the effective FIRM and in the effective FIS report. We have revised the FIRM and FIS report to modify the floodplain boundary delineations and zone designations of the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood) along the east embankment of Eastern Canal from just upstream of Baseline Road to approximately 1,000 feet upstream of East Hermosa Vista Drive. As a result of the modifications, Base Flood Elevations (BFEs) were added, and the width of the Special Flood Hazard Area (SFHA), the area that would be inundated by the base flood, increased in some areas and decreased in other areas along the above-referenced reach. Also as a result of the modifications, portions of the SFHA were redesignated Zone AH, an SFHA subject to shallow flooding with flood depths between 1 foot and 3 feet and with BFEs determined, and other portions were redesignated Zone AE, an SFHA with BFEs determined. The base flood is contained in the channel from approximately 1,400 feet downstream to approximately 500 feet downstream of North Lindsay Road. The modifications are shown on the enclosed annotated copies of FIRM Panels 04013C2185 F, 04013C2195 F, and 04013C2215 G and affected portions of the Summary of Discharges Table. Profile Panels 1208P, 1209P, and 1210P were added to the FIS report. This LOMR hereby revises the above-referenced panels of the effective FIRM and the affected portions of the FIS report, both dated July 19, 2001.

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

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

| Location | Existing BFE (feet)* | Modified BFE (feet)* |
|---|---|---|
| Just upstream of Baseline Road | None | 1,281 |
| Approximately 200 feet upstream of East Broadway Avenue | None | 1,286 |
| Just upstream of North Lindsay Road | None | 1,291 |
| Just upstream of East McKellips Road | None | 1,293 |

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

Public notification of the proposed modified BFEs will be given in the *Arizona Business Gazette* on or about June 13 and June 20, 2002. A copy of this notification is enclosed. In addition, a notice of changes will be published in the *Federal Register*. Within 90 days of the second publication in the *Arizona Business Gazette*, any interested party may request that FEMA reconsider the determination made by this LOMR. Any request for reconsideration must be based on scientific or technical data. All interested parties are on notice that, until the 90-day period elapses, the determination to modify the BFEs made by this LOMR may itself be modified.

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

We will not physically revise and republish the FIRM and FIS report for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panels and FIS report warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

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

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

A Consultation Coordination Officer (CCO) has been designated to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Mr. Jack Eldridge
Chief, Community Mitigation Programs Branch
Federal Emergency Management Agency, Region IX
The Presidio of San Francisco, Building 105
San Francisco, CA 94129-1250
(415) 923-7184

If you have any questions regarding floodplain management regulations for your community or the NFIP in general, please call the CCO for your community at the telephone number cited above. If you have any questions regarding this LOMR, please call our Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627).

Sincerely,

Max H. Yuan, P.E., Project Engineer
Hazards Study Branch
Federal Insurance and
Mitigation Administration

For: Matthew B. Miller, P.E., Chief
Hazards Study Branch
Federal Insurance and
Mitigation Administration

Enclosures

cc: Mr. Frank Mizner
Director
Planning Division
City of Mesa

Mr. Keith Nath
Floodplain Administrator
City of Mesa

Mr. Tim Murphy, P.E.
Delineation Branch Manager
Flood Control District of Maricopa County

Ms. Shanna Yager
Branch Manager
Floodplain Administrator
Flood Control District of Maricopa County

Mr. Victor Calderon
NFIP Coordinator
Arizona Division of Emergency
Management

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

On July 19, 2001, the Federal Emergency Management Agency identified Special Flood Hazard Areas (SFHAs) in the City of Mesa, Maricopa County, Arizona, through issuance of a Flood Insurance Rate Map (FIRM). The Federal Insurance and Mitigation Administration has determined that modification of the elevations of the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood) for certain locations in this community is appropriate. The modified Base Flood Elevations (BFEs) revise the FIRM for the community.

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

Detailed hydrologic and hydraulic analyses were performed for a flooding area along the east embankment of Eastern Canal and have resulted in increases and decreases in SFHA width and the establishment of BFEs from just upstream of Baseline Road to approximately 1,000 feet upstream of East Hermosa Vista Drive. The table below indicates existing and modified BFEs for selected locations along the affected lengths of the flooding source(s) cited above.

| Location | Existing BFE (feet)* | Modified BFE (feet)* |
|---|---|---|
| Just upstream of Baseline Road | None | 1,281 |
| Approximately 200 feet upstream of East Broadway Avenue | None | 1,286 |
| Just upstream of North Lindsay Road | None | 1,291 |
| Just upstream of East McKellips Road | None | 1,293 |

*National Geodetic Vertical Datum, rounded to nearest whole foot

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

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

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

The Honorable Keno Hawker
Mayor, City of Mesa
P.O. Box 1466
Mesa, AZ 85211-1466

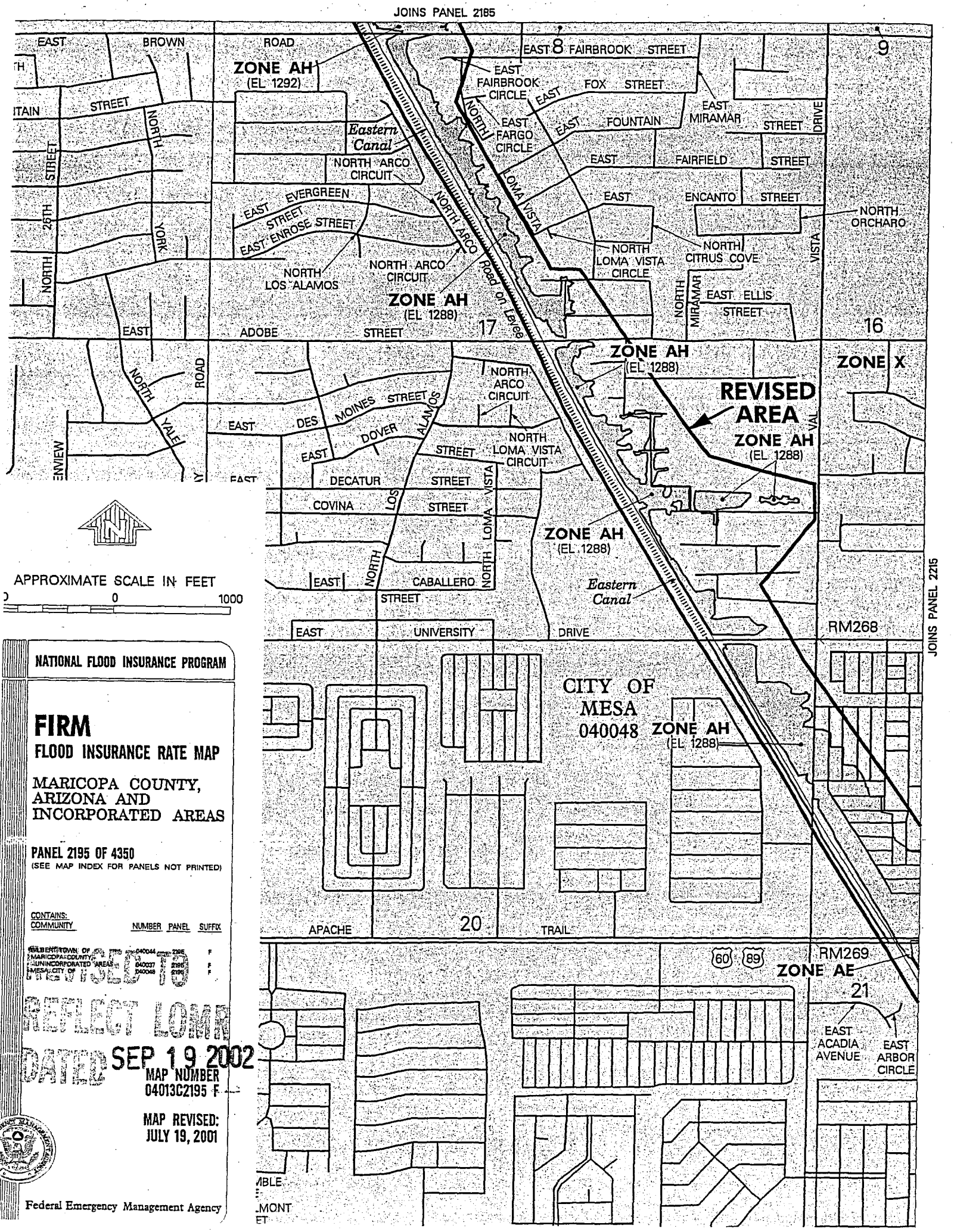
Table 3. Summary of Discharges (Cont'd)

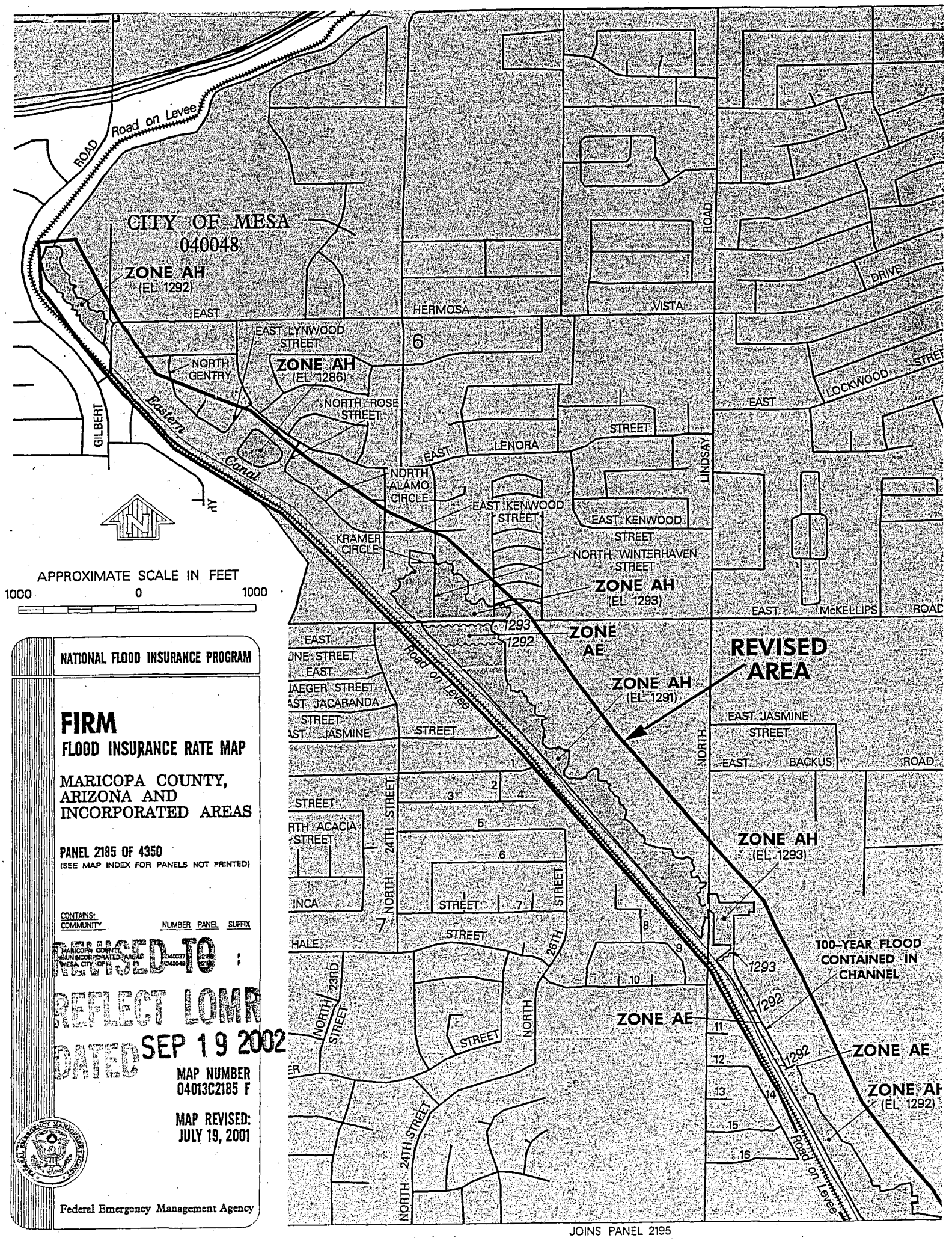
| Flooding Source and Location | Drainage Area (Square Miles) | Peak Discharges (cfs) 10-Year | 50-Year | 100-Year | 500-Year |
|---|---|---|---|---|---|
| Jackrabbit Wash | | | | | |
| Below Star Wash | 319.2 | --[1] | --[1] | 33,200 | --[1] |
| Above Star Wash | 152.4 | --[1] | --[1] | 19,300 | --[1] |
| Below Unnamed Tributary | 148.7 | --[1] | --[1] | 19,800 | --[1] |
| Above Unnamed Tributary | 140.3 | --[1] | --[1] | 19,700 | --[1] |
| At Wickenburg Road | 140.3 | --[1] | --[1] | 20,000 | --[1] |
| At Vulture Mine Road | 138.1 | --[1] | --[1] | 21,100 | --[1] |
| Unnamed Tributary of Jackrabbit Wash | | | | | |
| Mouth | 8.4 | --[1] | --[1] | 2,900 | --[1] |
| At Wickenburg Road | 8.4 | --[1] | --[1] | 3,000 | --[1] |
| At Vulture Mine Road | 3.7 | --[1] | --[1] | 3,000 | --[1] |
| Eastern Canal (Watershed 1) | | | | | |
| At Brown Road | 5.4 | --[1] | --[1] | 355 | --[1] |
| At Main Street | 8.1 | --[1] | --[1] | 634 | --[1] |
| At Southern Avenue | 10.9 | --[1] | --[1] | 168 | --[1] |
| At Freeway | 12.0 | --[1] | --[1] | 831 | --[1] |
| Consolidated Canal (Watershed 2) | | | | | |
| At Tempe Cross Cut | --[2] | --[1] | --[1] | 441 | --[1] |
| At Main Street | --[2] | --[1] | --[1] | 1,122 | --[1] |
| At Southern Avenue | --[2] | --[1] | --[1] | 1,884 | --[1] |
| At Freeway[3] | --[2] | --[1] | --[1] | 2,456 | --[1] |
| Consolidated Canal (Watershed 3)[4] | | | | | |
| At Lindsay Road | --[2] | --[1] | --[1] | 660 | --[1] |

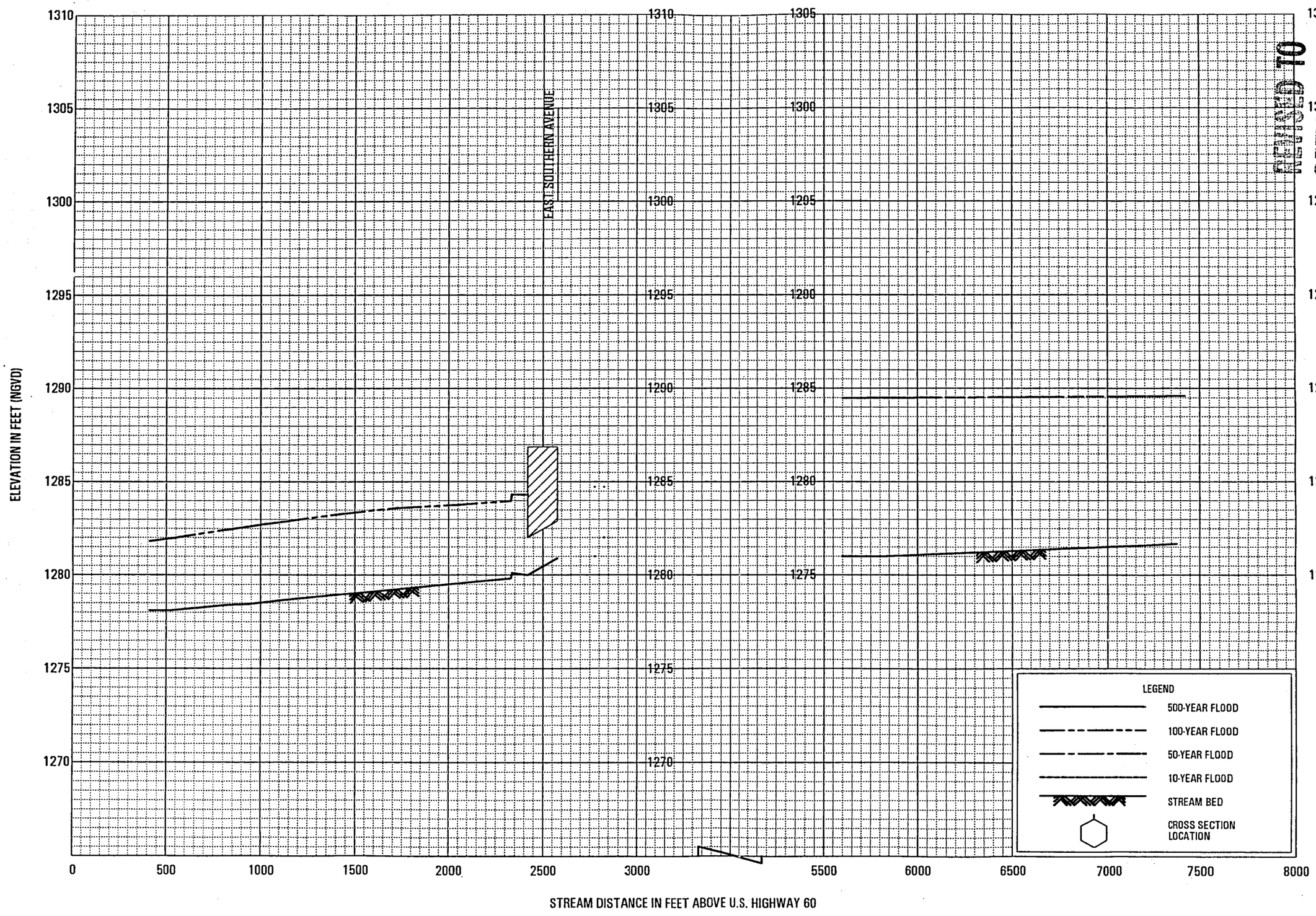
REVISED DATA

[1]Not Computed
[2]Not Available
[3]Includes Overflow From Watershed 1
[4]Includes Overflow From Watershed 1 and 4

REVISED TO REFLECT LOMR DATED SEP 19 2002


JOINS PANEL 2185
EAST BROWN ROAD
ZONE AH
(EL 1292)
STREET
NORTH
26TH STREET
YORK
EAST EVERGREEN STREET
EAST ENROSE STREET
NORTH LOS ALAMOS
NORTH ARCO CIRCUIT
Eastern Canal
NORTH ARCO CIRCUIT
ZONE AH
(EL 1288)
EAST ADOBE STREET
17
EAST 8 FAIRBROOK STREET
9
EAST FAIRBROOK CIRCLE
EAST FOX STREET
EAST FARGO CIRCLE
EAST FOUNTAIN
EAST MIRAMAR STREET
DRIVE
EAST FAIRFIELD STREET
EAST ENCANTO STREET
NORTH ORCHARD
NORTH LOMA VISTA CIRCLE
NORTH CITRUS COVE
NORTH LOMA VISTA
Road on Levee
NORTH MIRAMAR
EAST ELLIS STREET
16
ZONE AH
(EL 1288)
ZONE X
REVISED AREA
ZONE AH
(EL 1288)
NORTH ARCO CIRCUIT
NORTH LOMA VISTA CIRCUIT
NORTH ROAD
YALE
EAST DES MOINES STREET
EAST DOVER STREET
LOS ALAMOS
EAST DECATUR STREET
COVINA STREET
NORTH LOMA VISTA
ZONE AH
(EL 1288)
EAST CABALLERO STREET
Eastern Canal
EAST UNIVERSITY DRIVE
RM268
JOINS PANEL 2215
CITY OF MESA
040048
ZONE AH
(EL 1288)
APACHE TRAIL
20
60 89
RM269
ZONE AE
21
EAST ACADIA AVENUE
EAST ARBOR CIRCLE
APPROXIMATE SCALE IN FEET
0 1000
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS
PANEL 2195 OF 4350
(SEE MAP INDEX FOR PANELS NOT PRINTED)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
GILBERT, TOWN OF 040044 2195 F
MARICOPA COUNTY, UNINCORPORATED AREAS 040037 2195 F
MESA, CITY OF 040048 2195 F
REVISED TO REFLECT LOMR DATED SEP 19 2002
MAP NUMBER
04013C2195 F
MAP REVISED:
JULY 19, 2001
Federal Emergency Management Agency


CITY OF MESA
040048
ZONE AH
(EL 1292)
ZONE AH
(EL 1286)
ZONE AH
(EL 1293)
ZONE AH
(EL 1291)
ZONE AH
(EL 1293)
ZONE AH
(EL 1292)
ZONE AE
ZONE AE
ZONE AE
REVISED AREA
100-YEAR FLOOD CONTAINED IN CHANNEL
1293
1292
1293
1292
1292
Road on Levee
Eastern Canal
GILBERT ROAD
EAST HERMOSA VISTA DRIVE
EAST LYNWOOD STREET
NORTH GENTRY
NORTH ROSE STREET
EAST LENORA STREET
NORTH ALAMO CIRCLE
EAST KENWOOD STREET
KRAMER CIRCLE
NORTH WINTERHAVEN STREET
LINDSAY ROAD
LOCKWOOD STREET
EAST McKELLIPS ROAD
EAST JASMINE STREET
EAST BACKUS ROAD
NORTH 24TH STREET
NORTH 26TH STREET
NORTH 23RD STREET
NORTH 24TH STREET
6
7
APPROXIMATE SCALE IN FEET
1000 0 1000
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS
PANEL 2185 OF 4350
(SEE MAP INDEX FOR PANELS NOT PRINTED)
CONTAINS: COMMUNITY NUMBER PANEL SUFFIX
MARICOPA COUNTY, UNINCORPORATED AREAS 040037
MESA, CITY OF 040048
REVISED TO REFLECT LOMR DATED SEP 19 2002
MAP NUMBER 04013C2185 F
MAP REVISED: JULY 19, 2001
Federal Emergency Management Agency
JOINS PANEL 2195




REVISED TO REFLECT LOMR DATED SEP 19 2002

FLOOD PROFILES

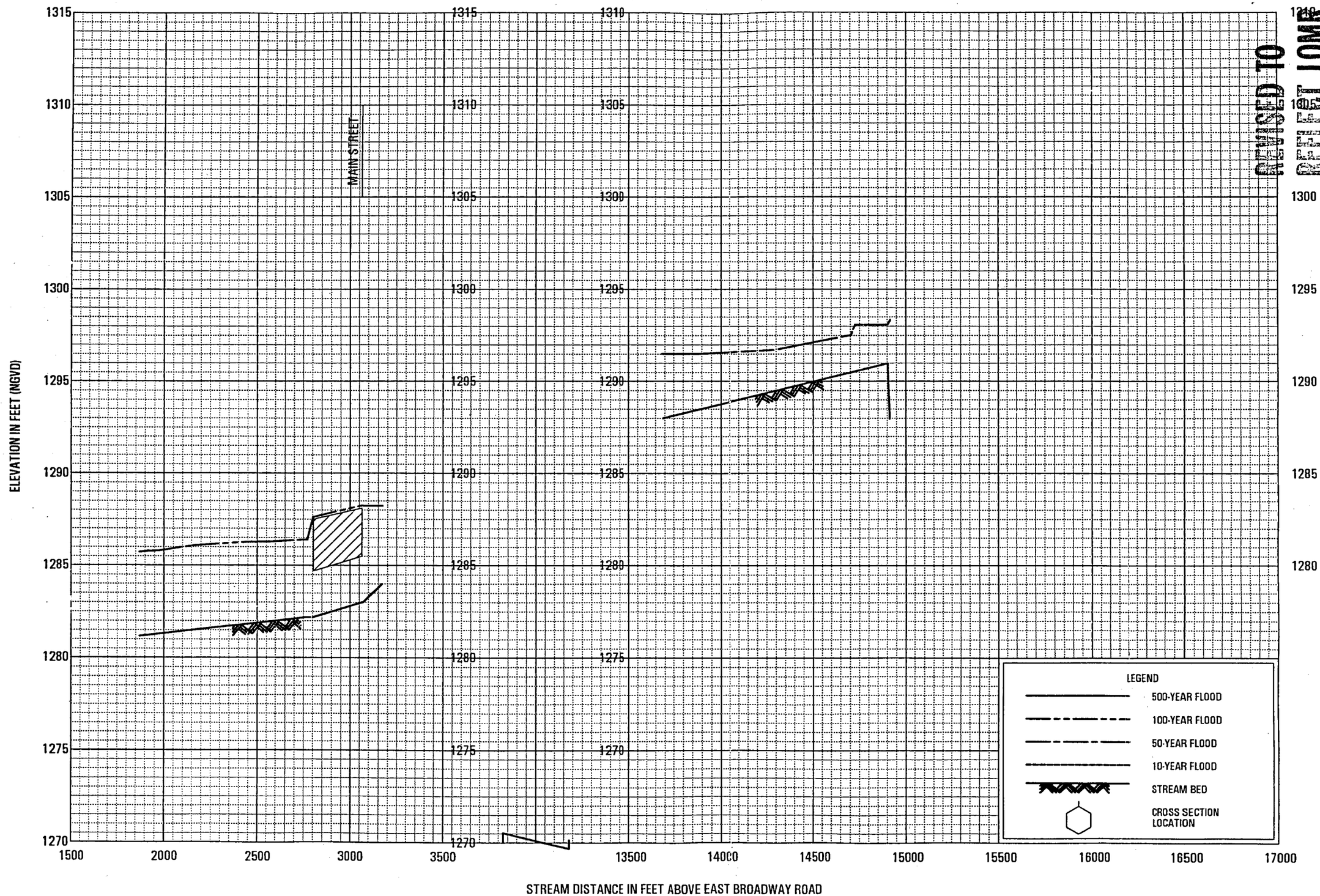
FLOODING ALONG EAST EMBANKMENT OF EASTERN CANAL

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

1208P




REVISED TO REFLECT LOMR DATED SEP 19 2002

FLOOD PROFILES

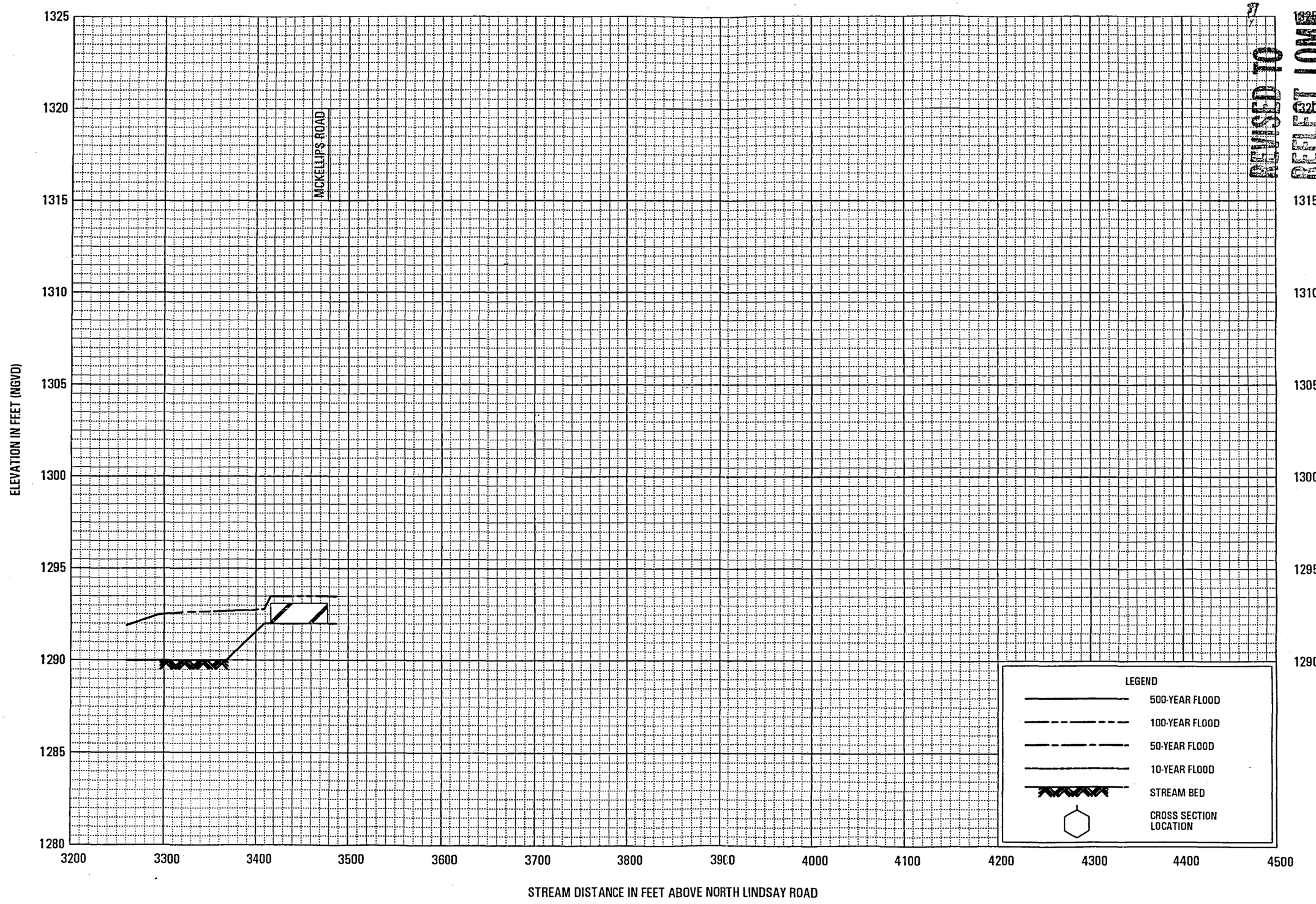
FLOODING ALONG EAST EMBANKMENT OF EASTERN CANAL

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

1209P




REVISED TO REFLECT LOMR DATED SEP 19 2002

FLOOD PROFILES

FLOODING ALONG EAST EMBANKMENT OF EASTERN CANAL

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

1210P

# EASTERN CANAL NORTH FDS

**MFC015**

**FCD 98-36**

For:

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

## TECHNICAL DATA NOTEBOOK

*Volume 3*

**October 2001**

By:

PRIMATECH

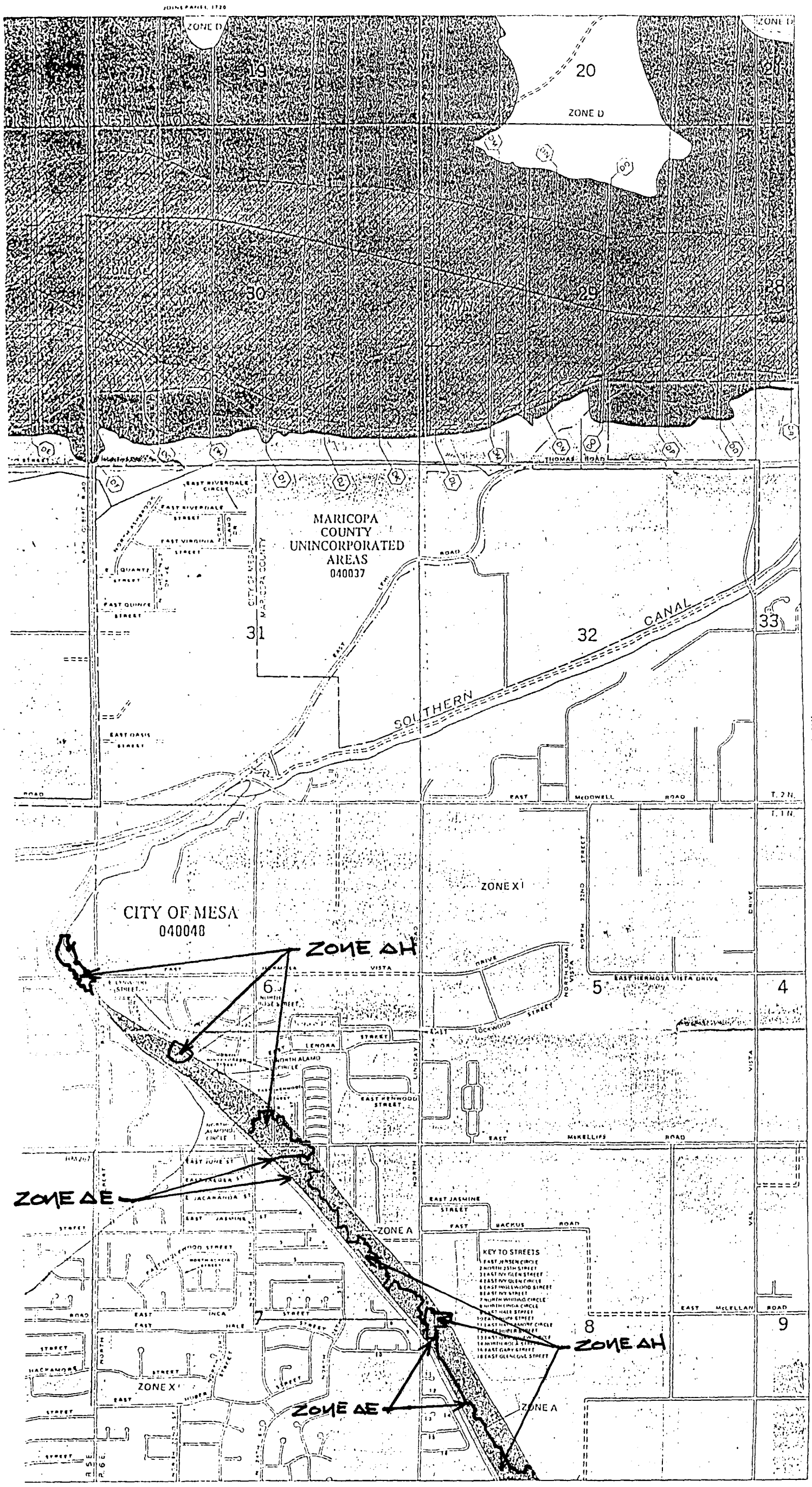
ENGINEERS & CONSULTANTS

# APPENDIX E

## HYDRAULIC ANALYSIS SUPPORTING DOCUMENTATION

E.1 Hydraulic Modeling of PA03-PA09 Conveyance Corridor
E.2 Hydraulic Modeling of PA25-PA26 Conveyance Corridor
E.3 Hydraulic Modeling of PA64-PA84 Conveyance Corridor
E.4 Hydraulic Modeling of PA84-PA94 Conveyance Corridor
E.5 Hydraulic Modeling of PA97-PA128 Conveyance Corridor
E.6 Survey Notes for Culverts
E.7 "N" Value Report

D E F G




# LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

ZONE A — No Base Flood Elevations determined

ZONE AE — Base Flood Elevations determined

ZONE AH — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

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

ZONE A99 — To be protected from 1% annual chance flood by Federal flood protection system under construction; no BFEs or flood depths shown

ZONE V — Coastal flood zone with velocity hazard (wave action); No Base Flood Elevations shown

ZONE VE — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations shown

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood

OTHER AREAS

ZONE X — Areas determined to be outside the 0.2% annual chance floodplain

ZONE D — Areas in which flood hazards are undetermined

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones and Boundary Dividing Areas of Different Special Flood Hazard Zones, Base Flood Elevations Vary within Special Flood Hazard Zones

513 — Base Flood Elevation Line; Elevation in Feet*

(D) — (D) Cross Section Line

(EL 987) — Base Flood Elevation in Feet where Uniform within Zone*

1037 X — Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

## NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Areas of special flood hazard (100-year floods) include Zones A, AE, AH, AO, A99, V, VE, D AND VE

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

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

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

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

For community map revision history prior to countywide mapping, see Section 6 of the Flood Insurance Study Report.

For a listing of all panels see separately printed Map Index.

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

APRIL 15, 1988

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

May revised September 4, 1991 to update corporate limits, to change Base Flood elevations, to add Base Flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names, and to incorporate previously issued letter of map revision.

MAP ANNOTATED BY PRIMATECH
DATE: 10-8-01
EASTERN CANAL NORTH FDS
FCD CONTRACT 98-36

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

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

# FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 2185 OF 4350

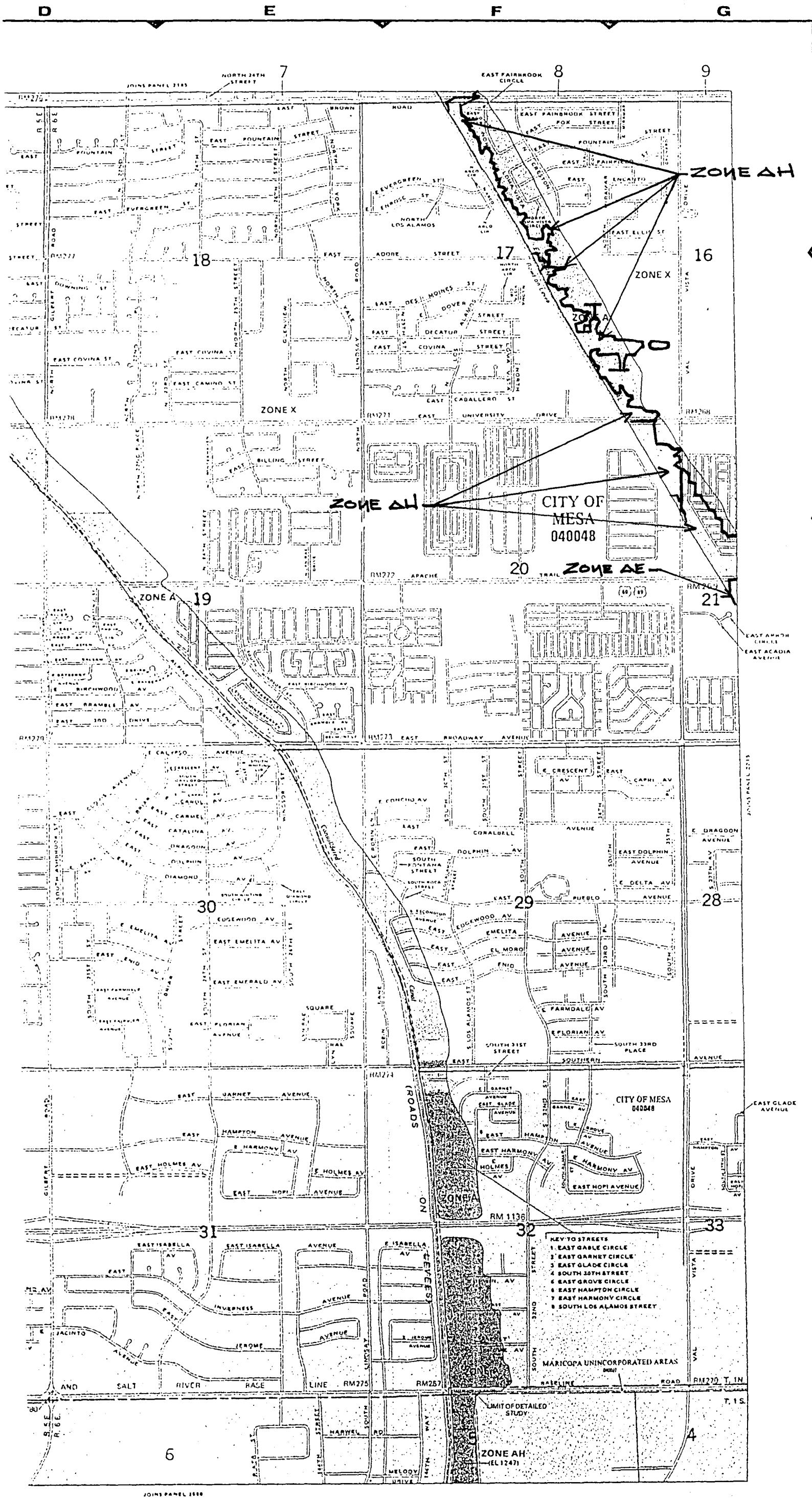
CONTAINS

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| MARICOPA COUNTY UNINCORPORATED AREAS | 040037 | 2185 | E |
| MESA, CITY OF | 040048 | 2185 | E |

MAP NUMBER
04013C2185 E

MAP REVISED:
SEPTEMBER 4, 1991

Federal Emergency Management Agency




# LEGEND

**SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD**

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

**FLOODWAY AREAS IN ZONE AE**

**OTHER FLOOD AREAS**

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

**OTHER AREAS**

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

Flood Boundary

Floodway Boundary

Zone D Boundary

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

513 — Base Flood Elevation Line; Elevation in Feet*

(D) — (D) Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone*

$RM7_X$ Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

## NOTES

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all areas in which flood hazards have been modified by man-made features since the Special Flood Hazard Areas.

Areas of 100-year flood shown on this map include Zones A, AE, AH, AO, A99, V, VE, and AR/VE.

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

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

Floodway widths in some areas may be too narrow to show to scale. Floodways which are provided in tabular form are available for inspection at the community's map repository.

Coastal flood elevations apply only landward of the shoreline.

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

For communities with revised history zone in countywide mapping, see Section 6 of the Text Volume of the Study Report.

For adjoining map panels see separately printed Map Index.

**MAP REPOSITORY**

Refer to Repository Listing on Index Map

**EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP**

APRIL 16, 1988

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

Map revised DECEMBER 3, 1993 - to change base flood elevations to and base flood elevations to add special flood hazard areas to change special flood hazard areas to change zone designations to update map format, to add roads and road names to reflect updated topographic information, and to incorporate previously issued letters of map revision.

MAP ANNOTATED BY PRIMATECH
DATE: 10-8-01
EASTERN CANAL NORTH FDS
FCD CONTRACT 98-36

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

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

# FIRM
## FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

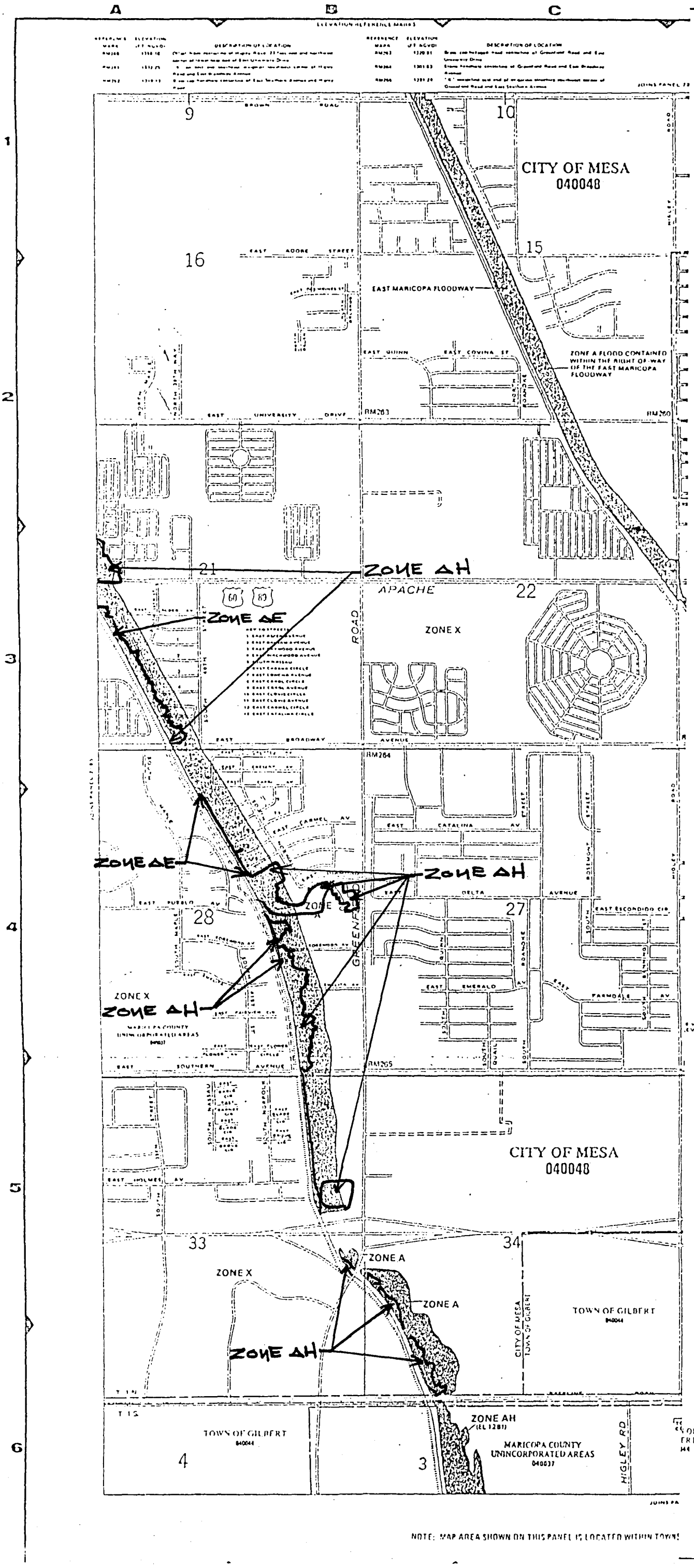
PANEL 2195 OF 4530

CONTAINS

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| MARICOPA COUNTY UNINCORPORATED AREAS | 040037 | 2195 | E |
| MESA, CITY OF | 040048 | 2195 | E |

MAP NUMBER
04013C2195 E

MAP REVISED:
DECEMBER 3, 1993




NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNS

## LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100 YEAR FLOOD

ZONE A

ZONE AE

ZONE AH

ZONE AO

ZONE AR

ZONE A99

ZONE V

ZONE VE

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

ZONE X

OTHER AREAS

ZONE X

ZONE D

Flood Boundary

Floodway Boundary

Zone D Boundary

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

513 — Base Flood Elevation Line, Elevation in Feet*

(D) — (D) Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone

RM7 X Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

## NOTES

[illegible]

Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, VE, AO AND AE

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

APRIL 16, 1988

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

[illegible]

Map revised DECEMBER 3, 1993 - to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names, to reflect updated topographic information, and to incorporate previously issued letters of map revision.

Map Annotated by Primatech

Date 10-8-01

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

Eastern Canal North FDS

FCD Contract 97-36

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

# FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 2215 OF 4350

CONTAINS

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
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| [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] |

MAP NUMBER

04013C2215 F

MAP REVISED:

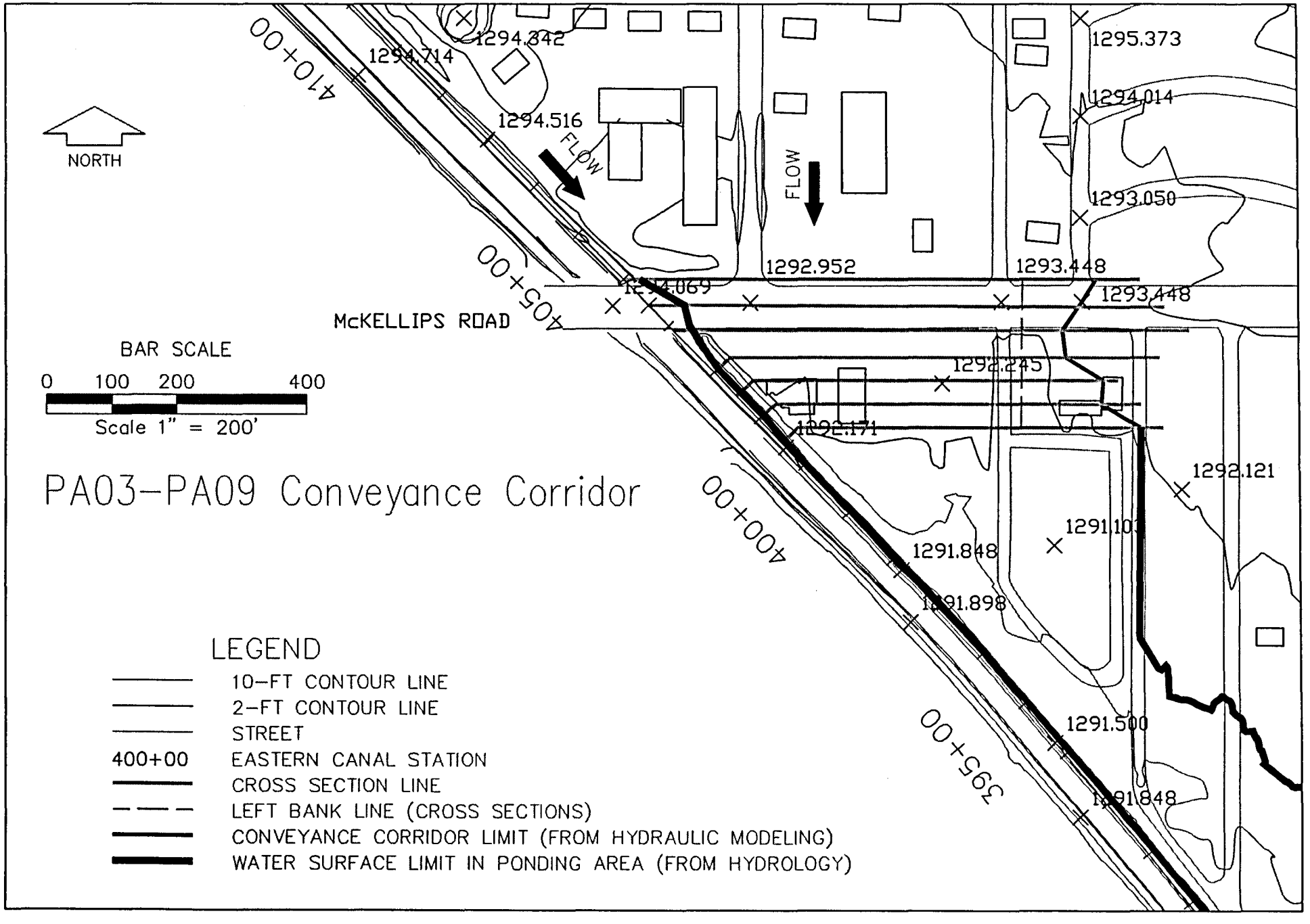
DECEMBER 3, 1993

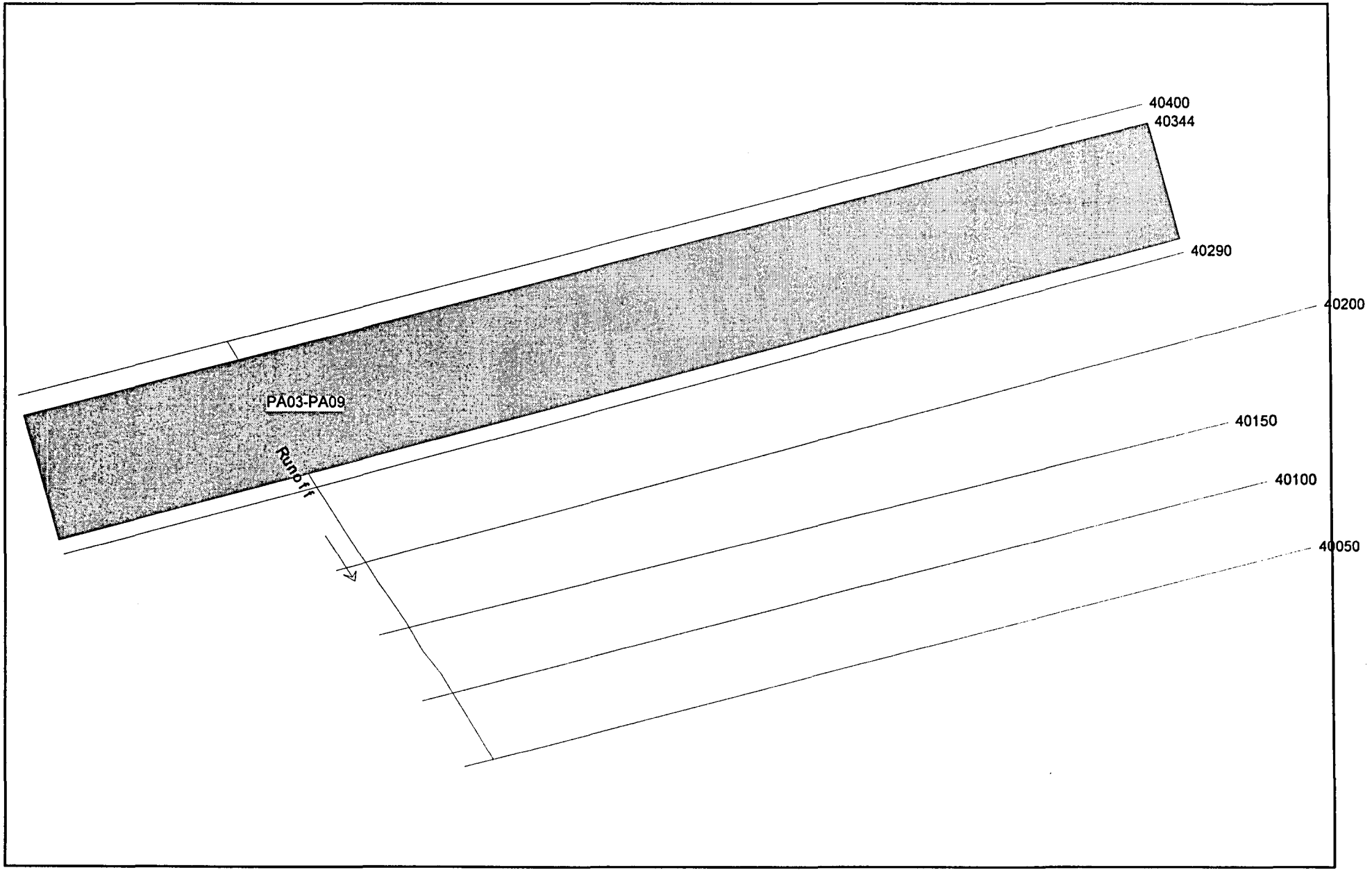
Federal Emergency Management Agency

# Appendix E.1

## Hydraulic Modeling of PA03-PA09 Conveyance Corridor

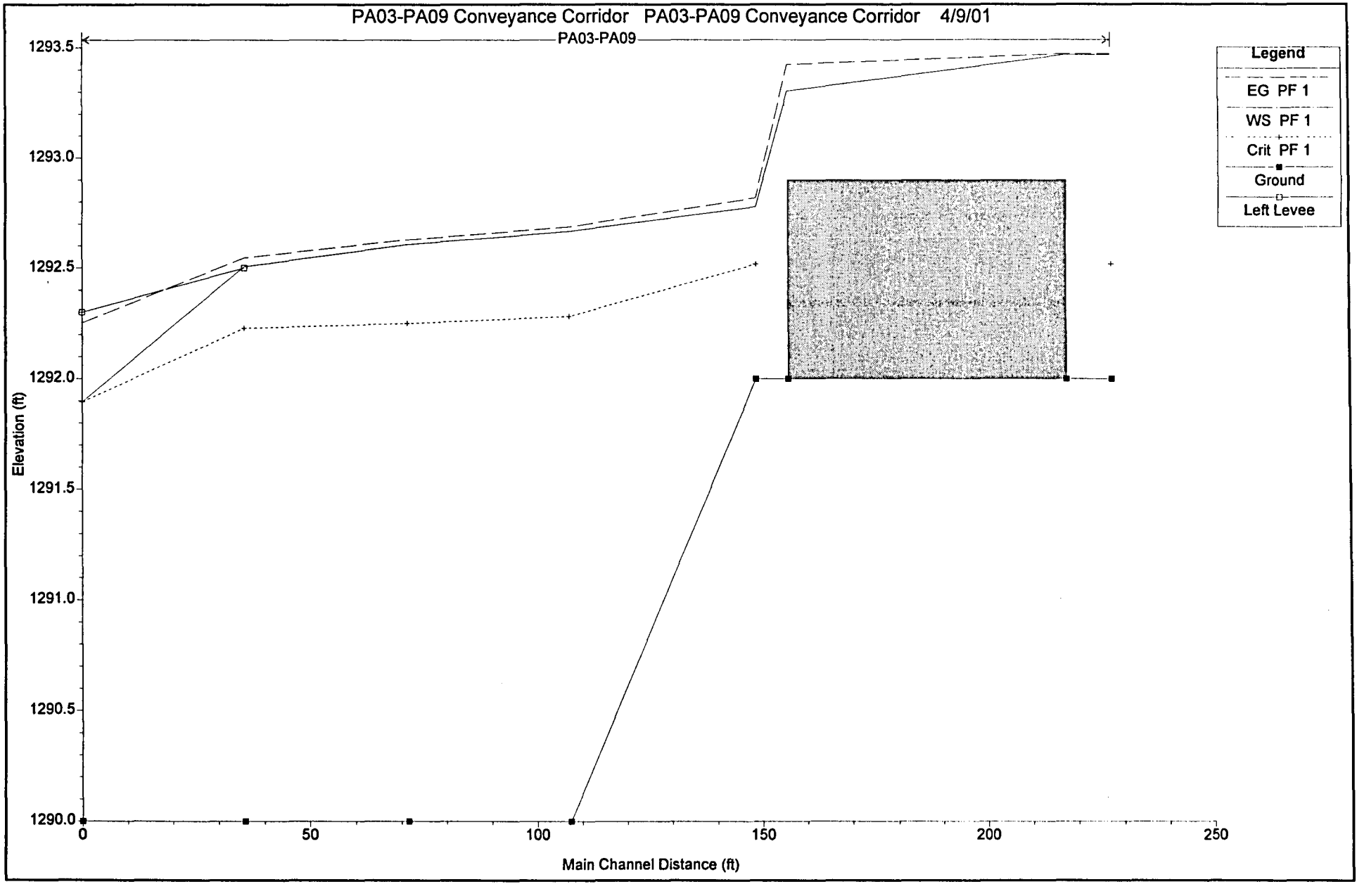
- HEC-RAS Modeling of Runoff Flows within Ponding Areas
  - Geometry – Plan View
  - Flow Profile
  - Summary Table(s)
  - Cross Section Summary Tables
  - Geometry – Cross Sections
  - HEC-RAS Report


NORTH
BAR SCALE
0 100 200 400
Scale 1" = 200'
PA03–PA09 Conveyance Corridor
McKELLIPS ROAD
FLOW
FLOW
410+00
405+00
400+00
395+00
1294.342
1294.714
1294.516
1294.069
1292.952
1293.448
1293.448
1293.050
1294.014
1295.373
1292.245
1292.171
1292.121
1291.848
1291.898
1291.500
1291.848
LEGEND
10–FT CONTOUR LINE
2–FT CONTOUR LINE
STREET
400+00 EASTERN CANAL STATION
CROSS SECTION LINE
LEFT BANK LINE (CROSS SECTIONS)
CONVEYANCE CORRIDOR LIMIT (FROM HYDRAULIC MODELING)
WATER SURFACE LIMIT IN PONDING AREA (FROM HYDROLOGY)


40400
40344
40290
40200
40150
40100
40050
PA03-PA09
Runoff

HEC-RAS Plan: PA03-PA09 River: Runoff Reach: PA03-PA09

| Reach | River Sta | Q Total | Min Ch El | W.S. Elev | Depth | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| PA03-PA09 | 40400 | 271.00 | 1292.00 | 1293.47 | 1.47 | 1292.52 | 1293.47 | 0.000185 | 0.54 | 512.95 | 677.39 | 0.10 |
| PA03-PA09 | 40344 | Inline Weir | | | | | | | | | | |
| PA03-PA09 | 40290 | 271.00 | 1292.00 | 1292.78 | 0.78 | 1292.52 | 1292.82 | 0.004310 | 1.59 | 170.21 | 464.06 | 0.43 |
| PA03-PA09 | 40200 | 271.00 | 1290.00 | 1292.67 | 2.67 | 1292.28 | 1292.69 | 0.001583 | 1.13 | 239.83 | 548.50 | 0.27 |
| PA03-PA09 | 40150 | 271.00 | 1290.00 | 1292.61 | 2.61 | 1292.25 | 1292.63 | 0.001623 | 1.21 | 223.05 | 502.43 | 0.28 |
| PA03-PA09 | 40100 | 271.00 | 1290.00 | 1292.51 | 2.51 | 1292.23 | 1292.55 | 0.003202 | 1.61 | 168.76 | 398.49 | 0.38 |
| PA03-PA09 | 40050 | 271.00 | 1290.00 | 1291.90 | 1.90 | 1291.90 | 1292.25 | 0.020477 | 4.79 | 56.58 | 129.98 | 1.01 |


PA03-PA09 Conveyance Corridor PA03-PA09 Conveyance Corridor 4/9/01
PA03-PA09
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Left Levee
Elevation (ft)
1293.5
1293.0
1292.5
1292.0
1291.5
1291.0
1290.5
1290.0
0
50
100
150
200
250
Main Channel Distance (ft)

Plan: PA03-PA09 River: Runoff Reach:PA03-PA09 Riv Sta: 40400 Profile: PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.47 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.045 | 0.035 | |
| W.S. Elev (ft) | 1293.47 | Reach Len. (ft) | 78.79 | 78.79 | 110.00 |
| Crit W.S. (ft) | 1292.52 | Flow Area (sq ft) | 13.77 | 499.17 | |
| E.G. Slope (ft/ft) | 0.000185 | Area (sq ft) | 13.77 | 499.17 | |
| Q Total (cfs) | 271.00 | Flow (cfs) | 1.47 | 269.53 | |
| Top Width (ft) | 677.39 | Top Width (ft) | 125.49 | 551.90 | |
| Vel Total (ft/s) | 0.53 | Avg. Vel. (ft/s) | 0.11 | 0.54 | |
| Max Chl Dpth (ft) | 1.47 | Hydr. Depth (ft) | 0.11 | 0.90 | |
| Conv. Total (cfs) | 19927.0 | Conv. (cfs) | 108.3 | 19818.7 | |
| Length Wtd. (ft) | 78.79 | Wetted Per. (ft) | 125.49 | 551.95 | |
| Min Ch El (ft) | 1292.00 | Shear (lb/sq ft) | 0.00 | 0.01 | |
| Alpha | 1.04 | Stream Power (lb/ft s) | 0.00 | 0.01 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | 0.18 | 1.24 | |
| C & E Loss (ft) | | Cum SA (acres) | 0.51 | 2.02 | |

Plan: PA03-PA09 River: Runoff Reach:PA03-PA09 Riv Sta: 40290 Profile: PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.82 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.04 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1292.78 | Reach Len. (ft) | 41.39 | 41.39 | 98.02 |
| Crit W.S. (ft) | 1292.52 | Flow Area (sq ft) | | 170.21 | |
| E.G. Slope (ft/ft) | 0.004310 | Area (sq ft) | 30.88 | 170.21 | |
| Q Total (cfs) | 271.00 | Flow (cfs) | | 271.00 | |
| Top Width (ft) | 464.06 | Top Width (ft) | 69.89 | 394.17 | |
| Vel Total (ft/s) | 1.59 | Avg. Vel. (ft/s) | | 1.59 | |
| Max Chl Dpth (ft) | 0.78 | Hydr. Depth (ft) | | 0.43 | |
| Conv. Total (cfs) | 4128.1 | Conv. (cfs) | | 4128.1 | |
| Length Wtd. (ft) | 41.39 | Wetted Per. (ft) | | 394.20 | |
| Min Ch El (ft) | 1292.00 | Shear (lb/sq ft) | | 0.12 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.18 | |
| Frctn Loss (ft) | 0.12 | Cum Volume (acre-ft) | 0.14 | 0.64 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.34 | 1.16 | |

Plan: PA03-PA09 River: Runoff Reach:PA03-PA09 Riv Sta: 40200 Profile: PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.69 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.02 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1292.67 | Reach Len. (ft) | 35.81 | 35.81 | 50.00 |
| Crit W.S. (ft) | 1292.28 | Flow Area (sq ft) | | 239.83 | |
| E.G. Slope (ft/ft) | 0.001583 | Area (sq ft) | 64.89 | 239.83 | |
| Q Total (cfs) | 271.00 | Flow (cfs) | | 271.00 | |
| Top Width (ft) | 548.50 | Top Width (ft) | 110.89 | 437.62 | |
| Vel Total (ft/s) | 1.13 | Avg. Vel. (ft/s) | | 1.13 | |
| Max Chl Dpth (ft) | 2.67 | Hydr. Depth (ft) | | 0.55 | |
| Conv. Total (cfs) | 6811.3 | Conv. (cfs) | | 6811.3 | |
| Length Wtd. (ft) | 35.81 | Wetted Per. (ft) | | 438.32 | |
| Min Ch El (ft) | 1290.00 | Shear (lb/sq ft) | | 0.05 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.06 | |

| | | | | | |
|---|---|---|---|---|---|
| Frctn Loss (ft) | 0.06 | Cum Volume (acre-ft) | 0.09 | 0.44 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.25 | 0.77 | |

Plan: PA03-PA09 River: Runoff Reach:PA03-PA09 Riv Sta: 40150 Profile: PF 1

| E.G. Elev (ft) | 1292.63 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.02 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1292.61 | Reach Len. (ft) | 35.81 | 35.81 | 50.00 |
| Crit W.S. (ft) | 1292.25 | Flow Area (sq ft) | | 223.05 | |
| E.G. Slope (ft/ft) | 0.001623 | Area (sq ft) | 40.90 | 223.05 | |
| Q Total (cfs) | 271.00 | Flow (cfs) | | 271.00 | |
| Top Width (ft) | 502.43 | Top Width (ft) | 132.02 | 370.41 | |
| Vel Total (ft/s) | 1.21 | Avg. Vel. (ft/s) | | 1.21 | |
| Max Chl Dpth (ft) | 2.61 | Hydr. Depth (ft) | | 0.60 | |
| Conv. Total (cfs) | 6727.7 | Conv. (cfs) | | 6727.7 | |
| Length Wtd. (ft) | 35.81 | Wetted Per. (ft) | | 372.49 | |
| Min Ch El (ft) | 1290.00 | Shear (lb/sq ft) | | 0.06 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.07 | |
| Frctn Loss (ft) | 0.08 | Cum Volume (acre-ft) | 0.05 | 0.25 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.15 | 0.44 | |

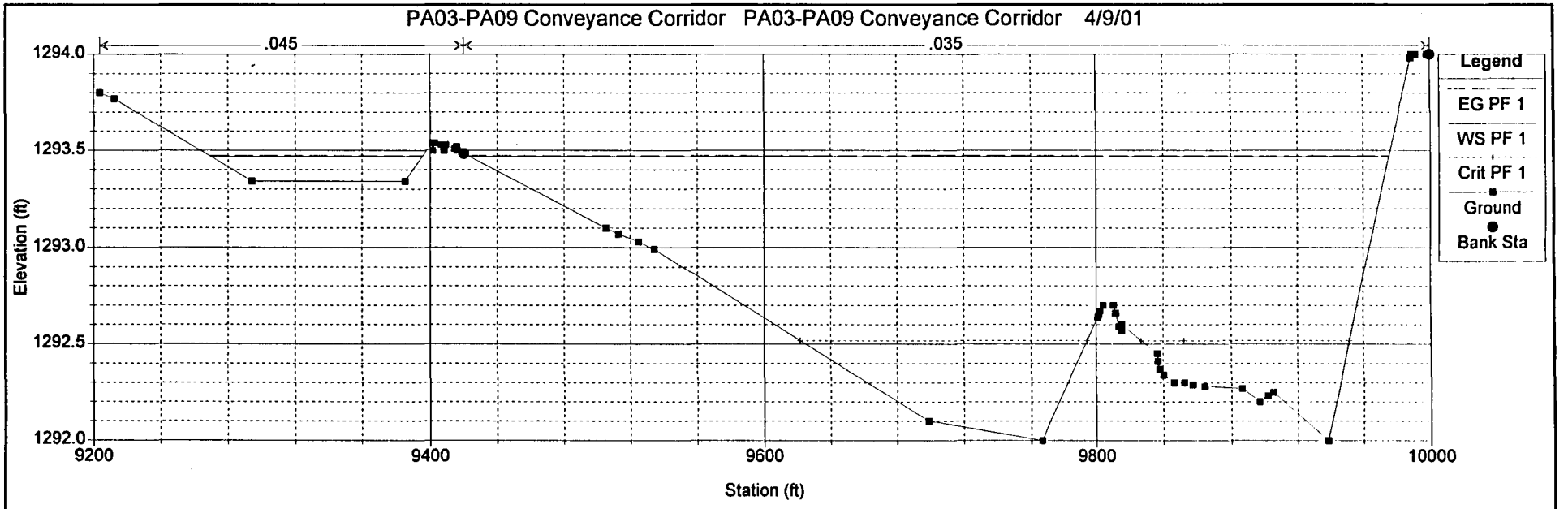
Plan: PA03-PA09 River: Runoff Reach:PA03-PA09 Riv Sta: 40100 Profile: PF 1

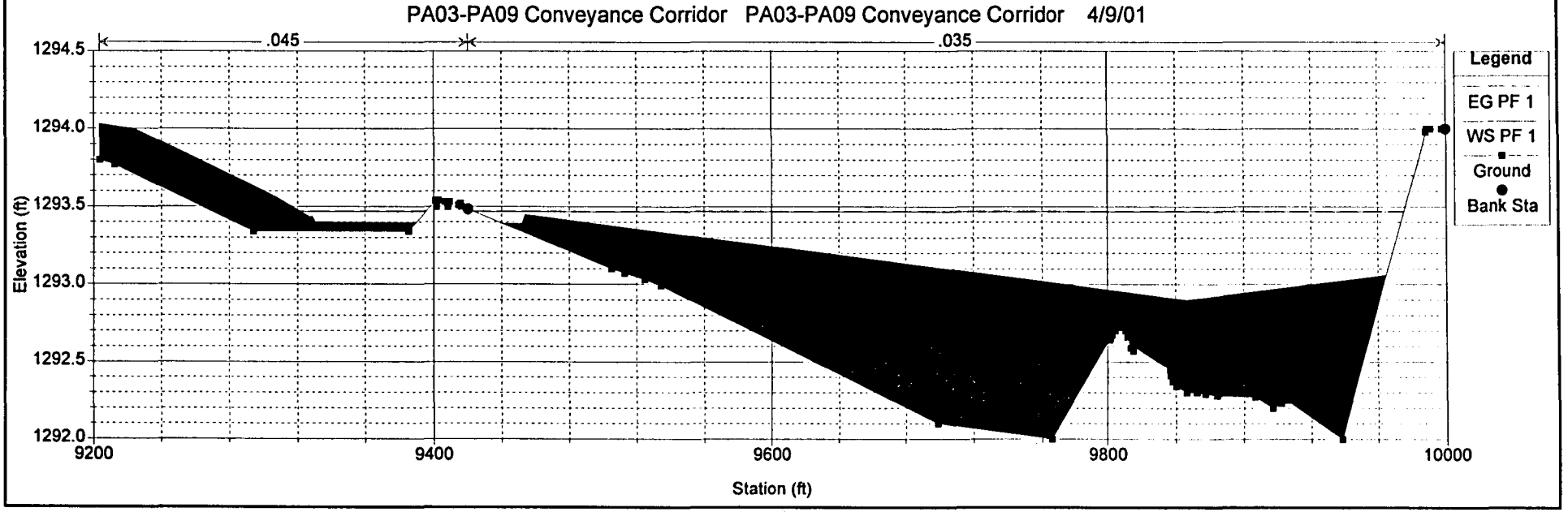
| E.G. Elev (ft) | 1292.55 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.04 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1292.51 | Reach Len. (ft) | 35.81 | 35.81 | 50.00 |
| Crit W.S. (ft) | 1292.23 | Flow Area (sq ft) | | 168.76 | |
| E.G. Slope (ft/ft) | 0.003202 | Area (sq ft) | 36.50 | 168.76 | |
| Q Total (cfs) | 271.00 | Flow (cfs) | | 271.00 | |
| Top Width (ft) | 398.49 | Top Width (ft) | 93.00 | 305.49 | |
| Vel Total (ft/s) | 1.61 | Avg. Vel. (ft/s) | | 1.61 | |
| Max Chl Dpth (ft) | 2.51 | Hydr. Depth (ft) | | 0.55 | |
| Conv. Total (cfs) | 4789.1 | Conv. (cfs) | | 4789.1 | |
| Length Wtd. (ft) | 35.81 | Wetted Per. (ft) | | 308.81 | |
| Min Ch El (ft) | 1290.00 | Shear (lb/sq ft) | | 0.11 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.18 | |
| Frctn Loss (ft) | 0.20 | Cum Volume (acre-ft) | 0.02 | 0.09 | |
| C & E Loss (ft) | 0.09 | Cum SA (acres) | 0.06 | 0.16 | |

Plan: PA03-PA09 River: Runoff Reach:PA03-PA09 Riv Sta: 40050 Profile: PF 1

| E.G. Elev (ft) | 1292.25 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.36 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1291.90 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 1291.90 | Flow Area (sq ft) | | 56.58 | |
| E.G. Slope (ft/ft) | 0.020477 | Area (sq ft) | 4.94 | 56.58 | |
| Q Total (cfs) | 271.00 | Flow (cfs) | | 271.00 | |
| Top Width (ft) | 129.98 | Top Width (ft) | 49.46 | 80.51 | |
| Vel Total (ft/s) | 4.79 | Avg. Vel. (ft/s) | | 4.79 | |
| Max Chl Dpth (ft) | 1.90 | Hydr. Depth (ft) | | 0.70 | |

| | | | | | |
|---|---|---|---|---|---|
| Conv. Total (cfs) | 1893.8 | Conv. (cfs) | | 1893.8 | |
| Length Wtd. (ft) | | Wetted Per. (ft) | | 80.83 | |
| Min Ch El (ft) | 1290.00 | Shear (lb/sq ft) | | 0.89 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 4.29 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |


PA03-PA09 Conveyance Corridor PA03-PA09 Conveyance Corridor 4/9/01
.045
.035
1294.0
1293.5
1293.0
1292.5
1292.0
Elevation (ft)
9200
9400
9600
9800
10000
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta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1294.0
1293.5
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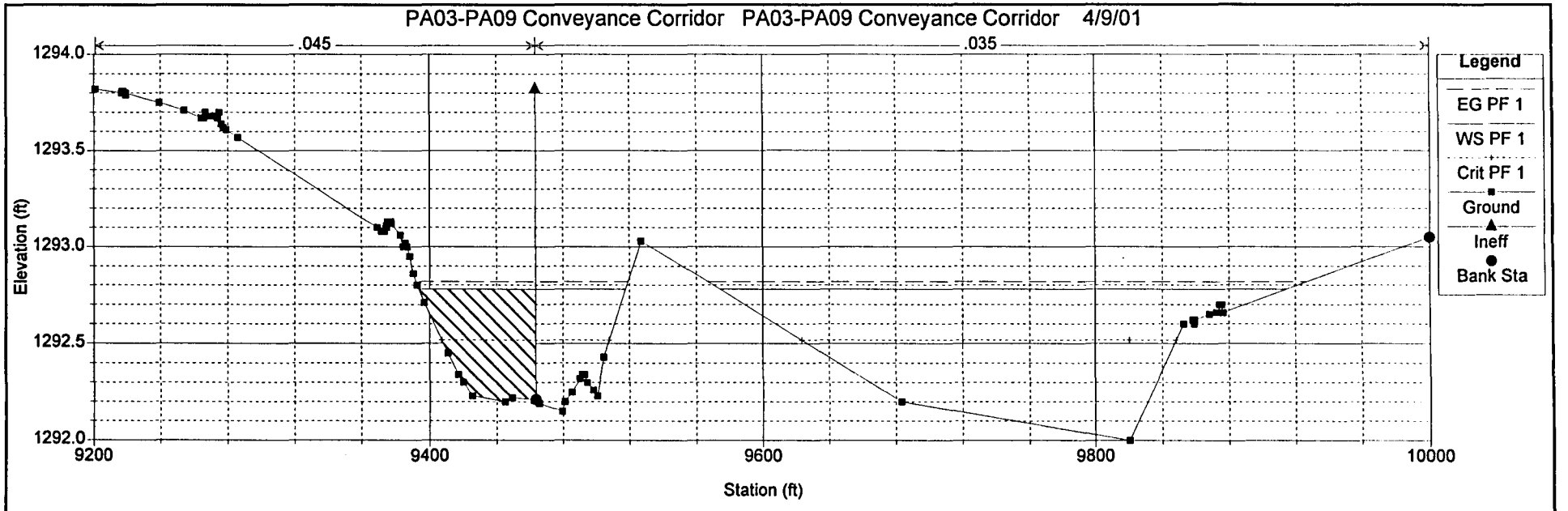
1292.5
1292.0
Elevation (ft)
9200
9400
9600
9800
10000
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta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Elevation (ft)
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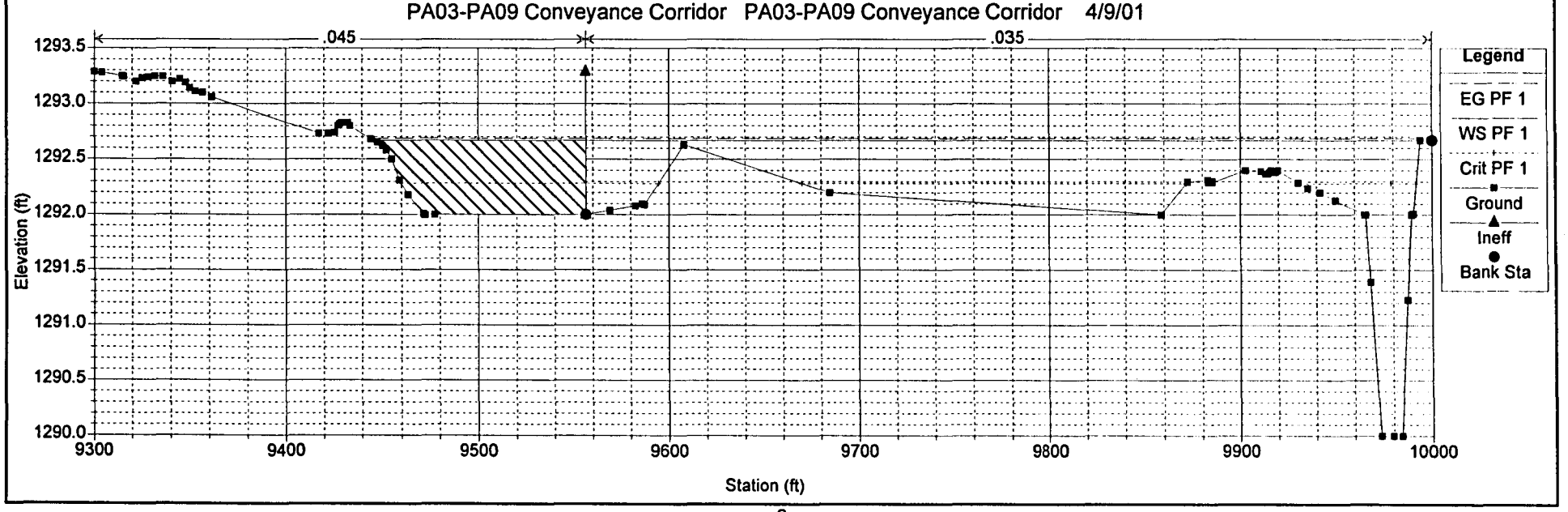
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta


PA03-PA09 Conveyance Corridor PA03-PA09 Conveyance Corridor 4/9/01
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.035
Elevation (ft)
1293.5
1293.0
1292.5
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1291.0
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1290.0
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9400
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9900
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Station (ft)
Legend
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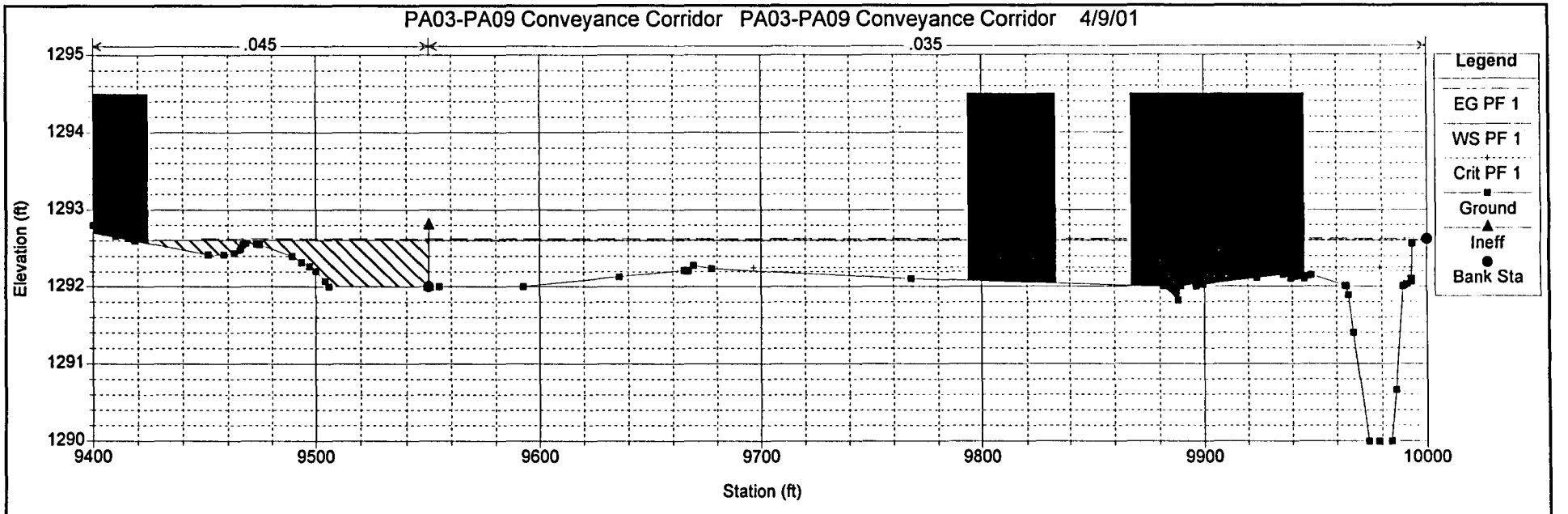
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta


PA03-PA09 Conveyance Corridor PA03-PA09 Conveyance Corridor 4/9/01
.045
.035
Elevation (ft)
1295
1294
1293
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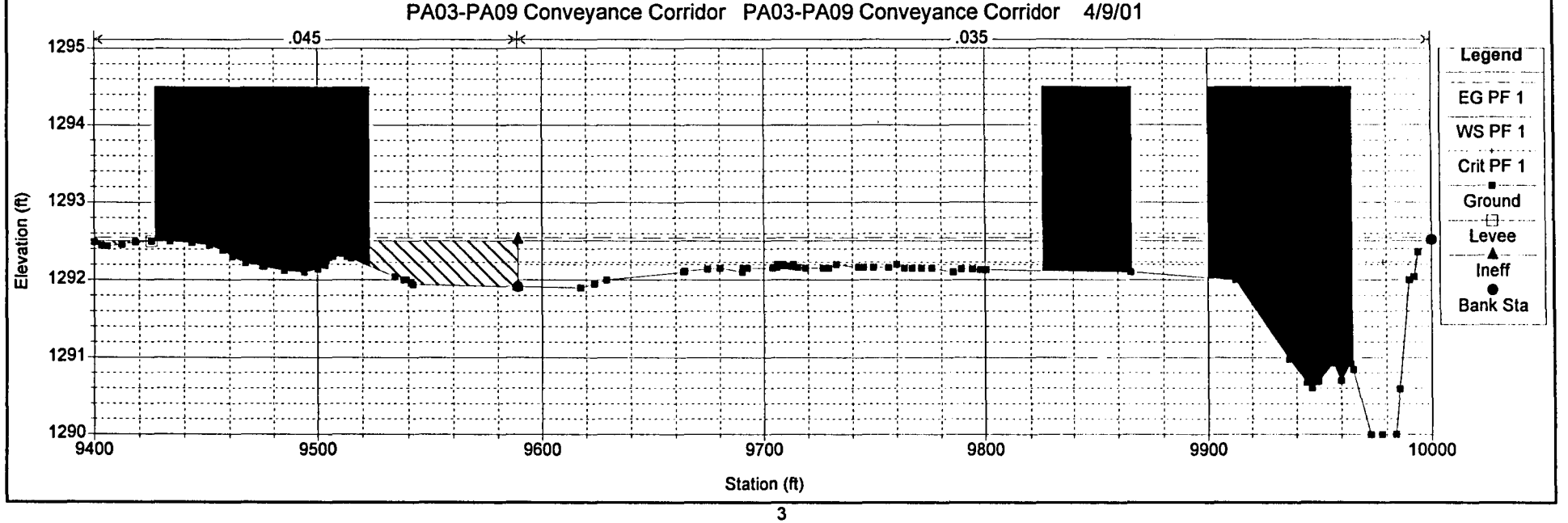
1291
1290
9400
9500
9600
9700
9800
9900
10000
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta


PA03-PA09 Conveyance Corridor PA03-PA09 Conveyance Corridor 4/9/01
.045
.035
Elevation (ft)
1295
1294
1293
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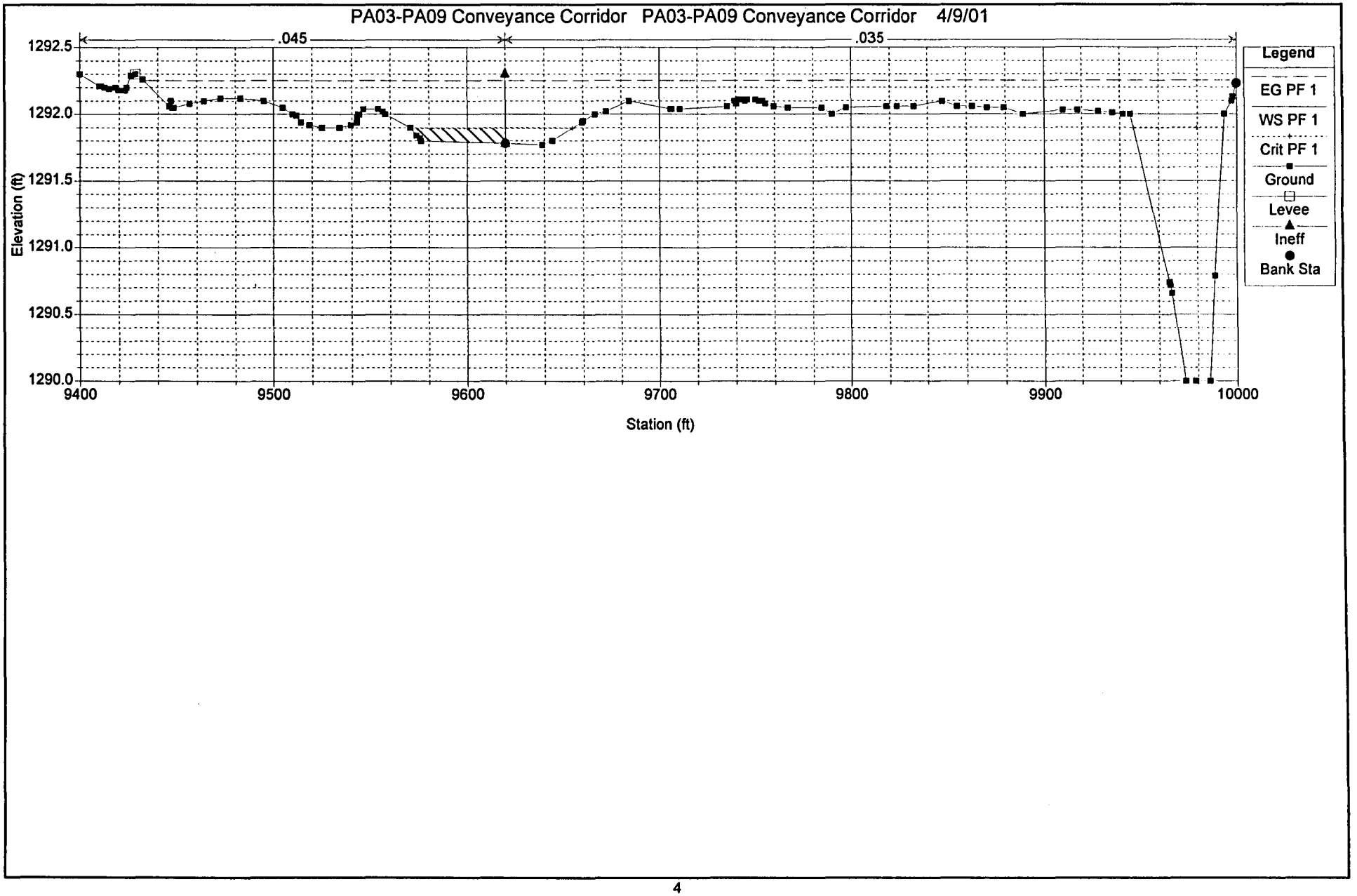
1291
1290
9400
9500
9600
9700
9800
9900
10000
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta


PA03-PA09 Conveyance Corridor PA03-PA09 Conveyance Corridor 4/9/01
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.035
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1291.5
1291.0
1290.5
1290.0
Elevation (ft)
9400
9500
9600
9700
9800
9900
10000
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta

```
                    HEC-RAS September 1998 Version 2.2
                      U.S. Army Corp of Engineers
                     Hydrologic Engineering Center
                       609 Second Street, Suite D
                      Davis, California 95616-4687
                             (916) 756-1104

          X     X  XXXXXX    XXXX        XXXX       XX      XXXX
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          X     X  X        X            X   X    X    X   X
          XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
          X     X  X        X            X  X     X    X        X
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PROJECT DATA
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Project in English units

PLAN DATA

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Geometry Title: PA03-PA09 Conveyance Corridor
Geometry File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA03-PA09.g01

Flow Title : PA03-PA09 Conveyance Corridor
Flow File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA03-PA09.f01

Plan Summary Information:
Number of: Cross Sections = 6 Mulitple Openings = 0
Culverts = 0 Inline Weirs = 1
Bridges = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed at all cross sections
Conveyance Calculation Method: Between every coordinate point (HEC2 Style)
Friction Slope Method: Program Selects Appropriate method
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: PA03-PA09 Conveyance Corridor

Flow File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA03-PA09.f01

Flow Data (cfs)

| River | Reach | RS | PF 1 |
|---|---|---|---|
| Runoff | PA03-PA09 | 40400 | 271 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| Runoff | PA03-PA09 | PF 1 | | Known WS = 1290.73 |

GEOMETRY DATA

Geometry Title: PA03-PA09 Conveyance Corridor
Geometry File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA03-PA09.g01

CROSS SECTION RIVER: Runoff
REACH: PA03-PA09 RS: 40400

INPUT
Description:
Station Elevation Data num= 51

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9203.37 | 1293.8 | 9212.14 | 1293.77 | 9294.02 | 1293.34 | 9385.09 | 1293.34 | 9401.13 | 1293.54 |
| 9401.64 | 1293.5 | 9402.53 | 1293.54 | 9402.79 | 1293.54 | 9406.64 | 1293.53 | 9408.26 | 1293.53 |
| 9408.27 | 1293.5 | 9409.23 | 1293.53 | 9409.26 | 1293.53 | 9414.55 | 1293.51 | 9415.55 | 1293.52 |
| 9416.18 | 1293.5 | 94201 | 293.483 | 9505.18 | 1293.1 | 9512.96 | 1293.07 | 9525.01 | 1293.03 |
| 9534.39 | 1292.99 | 9698.86 | 1292.1 | 9766.26 | 1292 | 9800.94 | 1292.64 | 9801.52 | 1292.65 |
| 9802.39 | 1292.67 | 9804.22 | 1292.7 | 9810.2 | 1292.7 | 9811.42 | 1292.66 | 9813.49 | 1292.59 |
| 9814.95 | 1292.57 | 9815.02 | 1292.6 | 9836.55 | 1292.45 | 9836.85 | 1292.41 | 9838.06 | 1292.37 |
| 9840.26 | 1292.34 | 9846.36 | 1292.3 | 9852.17 | 1292.3 | 9857.1 | 1292.29 | 9864.08 | 1292.28 |
| 9886.39 | 1292.27 | 9896.84 | 1292.2 | 9901.75 | 1292.23 | 9904.99 | 1292.25 | 9938.24 | 1292 |
| 9988.43 | 1293.98 | 9988.98 | 1294 | 9989.94 | 1294 | 9991.23 | 1294 | 9997.93 | 1294 |
| 10000 | 1294 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9203.37 | .045 | 9420 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9420 | 10000 | 78.79 | 78.79 | 110 | .3 | .5 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.47 | Element | | | |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.045 | 0.035 | |
| W.S. Elev (ft) | 1293.47 | Reach Len. (ft) | 78.79 | 78.79 | 110.00 |
| Crit W.S. (ft) | 1292.52 | Flow Area (sq ft) | 13.77 | 499.17 | |
| E.G. Slope (ft/ft) | 0.000185 | Area (sq ft) | 13.77 | 499.17 | |
| Q Total (cfs) | 271.00 | Flow (cfs) | 1.47 | 269.53 | |
| Top Width (ft) | 677.39 | Top Width (ft) | 125.49 | 551.90 | |
| Vel Total (ft/s) | 0.53 | Avg. Vel. (ft/s) | 0.11 | 0.54 | |
| Max Chl Dpth (ft) | 1.47 | Hydr. Depth (ft) | 0.11 | 0.90 | |
| Conv. Total (cfs) | 19927.0 | Conv. (cfs) | 108.3 | 19818.7 | |
| Length Wtd. (ft) | 78.79 | Wetted Per. (ft) | 125.49 | 551.95 | |
| Min Ch El (ft) | 1292.00 | Shear (lb/sq ft) | 0.00 | 0.01 | |
| Alpha | 1.04 | Stream Power (lb/ft s) | 0.00 | 0.01 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | 0.18 | 1.24 | |

C & E Loss (ft) Cum SA (acres) 0.51 2.02

INLINE WEIR RIVER: Runoff
REACH: PA03-PA09 RS: 40344

INPUT
Description:
Distance from Upstream XS = 9.9
Deck/Roadway Width = 61.72
Weir Coefficient = 2.6
Bridge Deck/Roadway Skew =
Weir Embankment Coordinates num = 68

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 8138.73 | 1297.1 | 8252.05 | 1296.79 | 8255.56 | 1296.79 | 8259.76 | 1296.8 | 8276.1 | 1296.34 |
| 8304.22 | 1296.33 | 8319.25 | 1296.3 | 8323.22 | 1296.33 | 8331.23 | 1296.33 | 8333.86 | 1296.35 |
| 8339.64 | 1296.33 | 8351.06 | 1296.3 | 8352.25 | 1296.3 | 8368.93 | 1296.3 | 8375.97 | 1296.25 |
| 8409.72 | 1296 | 8557.57 | 1296 | 8586.38 | 1294.9 | 8593.29 | 1294.8 | 8597.25 | 1294.8 |
| 8598.81 | 1294.78 | 8601.76 | 1294.76 | 8615.83 | 1294.7 | 8617.96 | 1294.74 | 8619.3 | 1294.74 |
| 8631.39 | 1294.8 | 8660.95 | 1294.77 | 8661.48 | 1294.77 | 8685.43 | 1294.6 | 8691.35 | 1294.45 |
| 8696.37 | 1294.4 | 8700.09 | 1294.37 | 8707.33 | 1294.33 | 8710.67 | 1294.3 | 8714.66 | 1294.32 |
| 8716.86 | 1294.33 | 8718.42 | 1294.34 | 8742.41 | 1294.46 | 8742.67 | 1294.47 | 8743.7 | 1294.5 |
| 8743.88 | 1294.5 | 8744.2 | 1294.51 | 8745.56 | 1294.53 | 8745.83 | 1294.53 | 8749.03 | 1294.59 |
| 8749.26 | 1294.59 | 8750.56 | 1294.6 | 8755.9 | 1294.62 | 8768.73 | 1294.64 | 8794.71 | 1294.6 |
| 8826.4 | 1294.64 | 9223.76 | 1294 | 9290.78 | 1293.65 | 9307.48 | 1293.56 | 9328.09 | 1293.43 |
| 9328.32 | 1293.44 | 9328.44 | 1293.44 | 9328.73 | 1293.43 | 9328.98 | 1293.43 | 9330.47 | 1293.4 |
| 9451.66 | 1293.39 | 9452.24 | 1293.4 | 9453.94 | 1293.45 | 9846.38 | 1292.9 | 9996.07 | 1293.1 |
| 10017.34 | 1293.17 | 10055.07 | 1294.07 | 10055.49 | 1294.07 | | | | |

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins = 1292.9
Weir crest shape = Ogee

INLINE WEIR/SPILLWAY OUTPUT Profile #PF 1

| | | | |
|---|---|---|---|
| E.G. Elev (ft) | 1293.47 | Min Top Rd (ft) | 1292.90 |
| W.S. Elev (ft) | 1293.47 | Wr Top Wdth (ft) | 627.18 |
| Q Total (cfs) | 271.00 | IW Gate Flow (cfs) | |
| Q Weir (cfs) | 271.00 | Gate Q Total (cfs) | |
| Wr Flw Area (sq ft) | 183.61 | Gate Open Ht (ft) | |
| Weir Sta Lft (ft) | 9321.49 | Gate #Open | |
| Weir Sta Rgt (ft) | 9975.54 | Gate Area (sq ft) | |
| Weir Max Depth (ft) | 0.57 | Gate Submerg | |
| Weir Avg Depth (ft) | 0.29 | Gate Invert (ft) | |
| Weir Submerg | 0.00 | | |

CROSS SECTION RIVER: Runoff
REACH: PA03-PA09 RS: 40290

INPUT
Description:
Station Elevation Data num= 78

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9200.94 | 1293.82 | 9201.01 | 1293.82 | 9216.95 | 1293.8 | 9217.04 | 1293.8 | 9217.28 | 1293.81 |
| 9217.54 | 1293.81 | 9217.94 | 1293.81 | 9219.42 | 1293.79 | 9219.52 | 1293.8 | 9239.44 | 1293.75 |
| 9254.25 | 1293.71 | 9264.19 | 1293.67 | 9265.57 | 1293.67 | 9266.85 | 1293.7 | 9268.34 | 1293.68 |
| 9270.1 | 1293.68 | 9272.17 | 1293.68 | 9273.81 | 1293.67 | 9275.08 | 1293.7 | 9275.98 | 1293.64 |
| 9277.26 | 1293.62 | 9278.88 | 1293.61 | 9285.81 | 1293.57 | 9368.9 | 1293.1 | 9371.41 | 1293.08 |
| 9373.16 | 1293.08 | 9374.1 | 1293.1 | 9374.25 | 1293.11 | 9374.57 | 1293.1 | 9375.04 | 1293.13 |
| 9376.78 | 1293.13 | 9377.33 | 1293.12 | 9382.7 | 1293.06 | 9384.29 | 1293 | 9385.63 | 1293.02 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9386.67 | 1293 | 9388.16 | 1292.95 | 9390.22 | 1292.86 | 9392.6 | 1292.8 | 9396.77 | 1292.71 |
| 9410.98 | 1292.45 | 9417.14 | 1292.34 | 9420 | 1292.302 | 9425.38 | 1292.23 | 9444.94 | 1292.2 |
| 9449.15 | 1292.22 | 9463.46 | 1292.21 | 9465.53 | 1292.19 | 9479.38 | 1292.15 | 9480.89 | 1292.2 |
| 9485.15 | 1292.25 | 9490.04 | 1292.32 | 9491.46 | 1292.34 | 9492.82 | 1292.34 | 9494.15 | 1292.3 |
| 9497.95 | 1292.26 | 9500.44 | 1292.23 | 9504.34 | 1292.43 | 9527.07 | 1293.03 | 9683.3 | 1292.2 |
| 9820.48 | 1292 | 9852.6 | 1292.6 | 9858.06 | 1292.62 | 9858.19 | 1292.62 | 9859.22 | 1292.6 |
| 9859.25 | 1292.62 | 9868.04 | 1292.65 | 9872.25 | 1292.66 | 9873.47 | 1292.66 | 9874.1 | 1292.7 |
| 9874.47 | 1292.66 | 9874.9 | 1292.66 | 9875.33 | 1292.66 | 9875.64 | 1292.66 | 9875.87 | 1292.7 |
| 9876.31 | 1292.66 | 9876.77 | 1292.66 | 10000 | 1293.05 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9200.94 | .045 | 9463.46 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9463.46 | 10000 | 41.39 | 41.39 | 98.02 | .3 | .5 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 9200.94 | 9463.46 | |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.82 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.04 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1292.78 | Reach Len. (ft) | 41.39 | 41.39 | 98.02 |
| Crit W.S. (ft) | 1292.52 | Flow Area (sq ft) | | 170.21 | |
| E.G. Slope (ft/ft) | 0.004310 | Area (sq ft) | 30.88 | 170.21 | |
| Q Total (cfs) | 271.00 | Flow (cfs) | | 271.00 | |
| Top Width (ft) | 464.06 | Top Width (ft) | 69.89 | 394.17 | |
| Vel Total (ft/s) | 1.59 | Avg. Vel. (ft/s) | | 1.59 | |
| Max Chl Dpth (ft) | 0.78 | Hydr. Depth (ft) | | 0.43 | |
| Conv. Total (cfs) | 4128.1 | Conv. (cfs) | | 4128.1 | |
| Length Wtd. (ft) | 41.39 | Wetted Per. (ft) | | 394.20 | |
| Min Ch El (ft) | 1292.00 | Shear (lb/sq ft) | | 0.12 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.18 | |
| Frctn Loss (ft) | 0.12 | Cum Volume (acre-ft) | 0.14 | 0.64 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.34 | 1.16 | |

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Runoff
REACH: PA03-PA09 RS: 40200

INPUT
Description:
Station Elevation Data num= 76

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9300 | 1293.286 | 9303.97 | 1293.28 | 9314.79 | 1293.25 | 9315.57 | 1293.245 | 9322.06 | 1293.2 |
| 9325.32 | 1293.23 | 9328.32 | 1293.24 | 9331.85 | 1293.25 | 9336 | 1293.25 | 9340.86 | 1293.2 |
| 9344.74 | 1293.22 | 9347.73 | 1293.19 | 9349.85 | 1293.14 | 9352.86 | 1293.11 | 9356.68 | 1293.1 |
| 9361.36 | 1293.06 | 9417.41 | 1292.73 | 9422.29 | 1292.73 | 9425.68 | 1292.74 | 9427.5 | 1292.8 |
| 9427.8 | 1292.8 | 9428.41 | 1292.82 | 9429.33 | 1292.83 | 9432.7 | 1292.83 | 9433.77 | 1292.8 |
| 9444.17 | 1292.68 | 9447.27 | 1292.65 | 9449.86 | 1292.62 | 9451.87 | 1292.58 | 9454.77 | 1292.5 |
| 9458.77 | 1292.31 | 9463.36 | 1292.18 | 9471.46 | 1292.01 | 9471.94 | 1292 | 9472.33 | 1292 |
| 9477.33 | 1292 | 9556.37 | 1292 | 9568.92 | 1292.04 | 9582.37 | 1292.08 | 9586.07 | 1292.1 |
| 9587.22 | 1292.09 | 9607.72 | 1292.63 | 9684.62 | 1292.2 | 9858.46 | 1292 | 9872.1 | 1292.3 |
| 9882.85 | 1292.31 | 9883.1 | 1292.29 | 9885.13 | 1292.3 | 9885.2 | 1292.29 | 9902.52 | 1292.4 |
| 9910.82 | 1292.39 | 9913.22 | 1292.37 | 9914.47 | 1292.37 | 9915.19 | 1292.38 | 9916.04 | 1292.4 |
| 9916.88 | 1292.38 | 9917.51 | 1292.38 | 9917.95 | 1292.38 | 9918.81 | 1292.39 | 9919.73 | 1292.4 |
| 9930.44 | 1292.29 | 9935.44 | 1292.24 | 9941.94 | 1292.2 | 9950.04 | 1292.13 | 9965.21 | 1292 |
| 9965.84 | 1292 | 9968.08 | 1291.39 | 9973.48 | 1290 | 9979.71 | 1290 | 9984.38 | 1290 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9987.46 | 1291.23 | 9989.66 | 1292 | 9990.28 | 1292.01 | 9990.34 | 1292.01 | 9994 | 1292.67 |
| 10000 | 1292.67 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9300 | .045 | 9556.37 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9556.37 | 10000 | 35.81 | 35.81 | 50 | .3 | .5 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 9300 | 9556.37 | |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.69 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.02 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1292.67 | Reach Len. (ft) | 35.81 | 35.81 | 50.00 |
| Crit W.S. (ft) | 1292.28 | Flow Area (sq ft) | | 239.83 | |
| E.G. Slope (ft/ft) | 0.001583 | Area (sq ft) | 64.89 | 239.83 | |
| Q Total (cfs) | 271.00 | Flow (cfs) | | 271.00 | |
| Top Width (ft) | 548.50 | Top Width (ft) | 110.89 | 437.62 | |
| Vel Total (ft/s) | 1.13 | Avg. Vel. (ft/s) | | 1.13 | |
| Max Chl Dpth (ft) | 2.67 | Hydr. Depth (ft) | | 0.55 | |
| Conv. Total (cfs) | 6811.3 | Conv. (cfs) | | 6811.3 | |
| Length Wtd. (ft) | 35.81 | Wetted Per. (ft) | | 438.32 | |
| Min Ch El (ft) | 1290.00 | Shear (lb/sq ft) | | 0.05 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.06 | |
| Frctn Loss (ft) | 0.06 | Cum Volume (acre-ft) | 0.09 | 0.44 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.25 | 0.77 | |

CROSS SECTION RIVER: Runoff
REACH: PA03-PA09 RS: 40150

INPUT
Description:
Station Elevation Data num= 65

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9400 | 1292.8 | 9402.38 | 1292.79 | 9405.55 | 1292.71 | 9410.06 | 1292.66 | 9415.79 | 1292.63 |
| 9418.51 | 1292.6 | 9451.18 | 1292.42 | 9458.09 | 1292.42 | 9462.91 | 1292.44 | 9465.49 | 1292.48 |
| 9465.91 | 1292.5 | 9466.78 | 1292.55 | 9468.09 | 1292.57 | 9472.87 | 1292.56 | 9474.38 | 1292.55 |
| 9489.15 | 1292.4 | 9493.54 | 1292.32 | 9497.22 | 1292.27 | 9500.08 | 1292.21 | 9504.19 | 1292.07 |
| 9505.94 | 1292 | 9550 | 1292 | 9554.66 | 1292 | 9592.61 | 1292 | 9635.93 | 1292.13 |
| 9665.12 | 1292.22 | 9666.57 | 1292.2 | 9666.97 | 1292.22 | 9667.09 | 1292.22 | 9669.29 | 1292.28 |
| 9677.55 | 1292.24 | 9767.88 | 1292.1 | 9881.57 | 1292 | 9888.13 | 1291.82 | 9889.41 | 1292 |
| 9896.08 | 1292.03 | 9896.44 | 1292 | 9899.34 | 1292.02 | 9899.44 | 1292.02 | 9924.14 | 1292.11 |
| 9935.98 | 1292.15 | 9939.4 | 1292.1 | 9941.19 | 1292.12 | 9942.22 | 1292.13 | 9943.42 | 1292.14 |
| 9944.63 | 1292.14 | 9945.52 | 1292.1 | 9946.14 | 1292.14 | 9947.38 | 1292.14 | 9948.68 | 1292.15 |
| 9963.96 | 1292.01 | 9964.54 | 1292 | 9965.21 | 1291.89 | 9967.49 | 1291.4 | 9973.99 | 1290 |
| 9978.47 | 1290 | 9984.28 | 1290 | 9986.19 | 1290.66 | 9989.66 | 1292 | 9990.29 | 1292.01 |
| 9991.4 | 1292.03 | 9993.32 | 1292.1 | 9993.36 | 1292.06 | 9993.49 | 1292.56 | 10000 | 1292.62 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9400 | .045 | 9550 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9550 | 10000 | 35.81 | 35.81 | 50 | .3 | .5 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 9400 | 9550 | |

Blocked Obstructions num= 3

| Sta L | Sta R | Elev | Sta L | Sta R | Elev | Sta L | Sta R | Elev |
|---|---|---|---|---|---|---|---|---|

9867.38 9945.43 1294.5 9833.73 9793.71 1294.5 9424.32 9400 1294.5

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.63 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.02 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1292.61 | Reach Len. (ft) | 35.81 | 35.81 | 50.00 |
| Crit W.S. (ft) | 1292.25 | Flow Area (sq ft) | | 223.05 | |
| E.G. Slope (ft/ft) | 0.001623 | Area (sq ft) | 40.90 | 223.05 | |
| Q Total (cfs) | 271.00 | Flow (cfs) | | 271.00 | |
| Top Width (ft) | 502.43 | Top Width (ft) | 132.02 | 370.41 | |
| Vel Total (ft/s) | 1.21 | Avg. Vel. (ft/s) | | 1.21 | |
| Max Chl Dpth (ft) | 2.61 | Hydr. Depth (ft) | | 0.60 | |
| Conv. Total (cfs) | 6727.7 | Conv. (cfs) | | 6727.7 | |
| Length Wtd. (ft) | 35.81 | Wetted Per. (ft) | | 372.49 | |
| Min Ch El (ft) | 1290.00 | Shear (lb/sq ft) | | 0.06 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.07 | |
| Frctn Loss (ft) | 0.08 | Cum Volume (acre-ft) | 0.05 | 0.25 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.15 | 0.44 | |

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Runoff
REACH: PA03-PA09 RS: 40100

INPUT
Description:
Station Elevation Data num= 92

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9400 | 1292.49 | 9403.14 | 1292.45 | 9405.77 | 1292.44 | 9412.28 | 1292.46 | 9418.26 | 1292.49 |
| 9425.31 | 1292.5 | 9433.6 | 1292.5 | 9443.31 | 1292.48 | 9451.06 | 1292.45 | 9457.02 | 1292.38 |
| 9461.25 | 1292.3 | 9467.26 | 1292.22 | 9474.9 | 1292.18 | 9475.67 | 1292.17 | 9484.94 | 1292.12 |
| 9493.9 | 1292.1 | 9500.14 | 1292.14 | 9503.48 | 1292.19 | 9504.03 | 1292.25 | 9505.15 | 1292.29 |
| 9506.84 | 1292.3 | 9513.03 | 1292.3 | 9515 | 1292.28 | 9534.13 | 1292.04 | 9538.14 | 1292 |
| 9539.17 | 1292 | 9541.33 | 1291.97 | 9542.1 | 1291.94 | 9589 | 1291.915 | 9617.56 | 1291.9 |
| 9623.73 | 1291.95 | 9629.2 | 1292 | 9663.66 | 1292.1 | 9664.23 | 1292.11 | 9674.44 | 1292.14 |
| 9680.13 | 1292.15 | 9690.27 | 1292.1 | 9690.54 | 1292.15 | 9692.51 | 1292.15 | 9704.1 | 1292.15 |
| 9705.91 | 1292.16 | 9706.25 | 1292.2 | 9706.77 | 1292.18 | 9707.47 | 1292.18 | 9707.88 | 1292.18 |
| 9708.37 | 1292.18 | 9708.75 | 1292.2 | 9708.97 | 1292.18 | 9710.93 | 1292.18 | 9711.78 | 1292.18 |
| 9712.57 | 1292.17 | 9713.35 | 1292.2 | 9715.36 | 1292.16 | 9718.74 | 1292.15 | 9726.94 | 1292.15 |
| 9729.42 | 1292.15 | 9732.89 | 1292.2 | 9742.71 | 1292.16 | 9745.14 | 1292.16 | 9749.58 | 1292.16 |
| 9756.42 | 1292.16 | 9759.97 | 1292.2 | 9763.46 | 1292.15 | 9766.99 | 1292.15 | 9771.07 | 1292.15 |
| 9775.75 | 1292.15 | 9785.49 | 1292.1 | 9789.11 | 1292.14 | 9794.2 | 1292.14 | 9797.69 | 1292.13 |
| 9800.28 | 1292.13 | 9865.48 | 1292.1 | 9912.57 | 1292 | 9936.64 | 1290.98 | 9944.51 | 1290.67 |
| 9946.96 | 1290.6 | 9947.81 | 1290.7 | 9949.12 | 1290.68 | 9949.89 | 1290.69 | 9950.01 | 1290.69 |
| 9956.34 | 1290.92 | 9959.98 | 1290.7 | 9964.19 | 1290.92 | 9965.21 | 1290.84 | 9972.77 | 1290 |
| 9977.79 | 1290 | 9984.1 | 1290 | 9985.88 | 1290.59 | 9990.42 | 1292 | 9992.36 | 1292.04 |
| 9994 | 1292.36 | 10000 | 1292.52 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9400 | .045 | 9589 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9589 | 10000 | 35.81 | 35.81 | 50 | .3 | .5 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 9400 | 9589 | |

Left Levee Station= 9425.31 Elevation= 1292.5
Blocked Obstructions num= 3

| Sta L | Sta R | Elev | Sta L | Sta R | Elev | Sta L | Sta R | Elev |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 9900 | 9965 | 1294.5 | 9826 | 9866 | 1294.5 | 9427 | 9523 | 1294.5 |

CROSS SECTION OUTPUT  Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.55 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.04 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1292.51 | Reach Len. (ft) | 35.81 | 35.81 | 50.00 |
| Crit W.S. (ft) | 1292.23 | Flow Area (sq ft) | | 168.76 | |
| E.G. Slope (ft/ft) | 0.003202 | Area (sq ft) | 36.50 | 168.76 | |
| Q Total (cfs) | 271.00 | Flow (cfs) | | 271.00 | |
| Top Width (ft) | 398.49 | Top Width (ft) | 93.00 | 305.49 | |
| Vel Total (ft/s) | 1.61 | Avg. Vel. (ft/s) | | 1.61 | |
| Max Chl Dpth (ft) | 2.51 | Hydr. Depth (ft) | | 0.55 | |
| Conv. Total (cfs) | 4789.1 | Conv. (cfs) | | 4789.1 | |
| Length Wtd. (ft) | 35.81 | Wetted Per. (ft) | | 308.81 | |
| Min Ch El (ft) | 1290.00 | Shear (lb/sq ft) | | 0.11 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.18 | |
| Frctn Loss (ft) | 0.20 | Cum Volume (acre-ft) | 0.02 | 0.09 | |
| C & E Loss (ft) | 0.09 | Cum SA (acres) | 0.06 | 0.16 | |

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION  RIVER: Runoff
REACH: PA03-PA09  RS: 40050

INPUT
Description:
Station Elevation Data  num= 99

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9400 | 1292.3 | 9410.07 | 1292.21 | 9410.89 | 1292.21 | 9412.75 | 1292.2 | 9415.11 | 1292.19 |
| 9418.23 | 1292.2 | 9419.78 | 1292.18 | 9420.96 | 1292.18 | 9421.6 | 1292.18 | 9423.17 | 1292.18 |
| 9423.99 | 1292.2 | 9426.2 | 1292.29 | 9428.54 | 1292.3 | 9432.21 | 1292.26 | 9445.65 | 1292.06 |
| 9446.54 | 1292.1 | 9447.14 | 1292.05 | 9447.59 | 1292.05 | 9447.89 | 1292.05 | 9456.03 | 1292.08 |
| 9463.52 | 1292.1 | 9472.34 | 1292.12 | 9482.7 | 1292.12 | 9494.86 | 1292.1 | 9504.55 | 1292.05 |
| 9509.7 | 1292 | 9511.5 | 1291.99 | 9513.95 | 1291.94 | 9518.4 | 1291.92 | 9524.88 | 1291.9 |
| 9533.61 | 1291.9 | 9539.42 | 1291.92 | 9542.44 | 1291.94 | 9542.55 | 1291.98 | 9543.08 | 1292 |
| 9543.76 | 1292 | 9545.84 | 1292.04 | 9553.46 | 1292.04 | 9555.87 | 1292.02 | 9557.13 | 1292 |
| 9570.32 | 1291.9 | 9573.38 | 1291.84 | 9575.19 | 1291.82 | 9575.83 | 1291.8 | 96201 | 291.779 |
| 9638.82 | 1291.77 | 9643.98 | 1291.8 | 9659.34 | 1291.94 | 9659.91 | 1291.95 | 9666.08 | 1292 |
| 9671.85 | 1292.02 | 9684.05 | 1292.1 | 9705.8 | 1292.04 | 9706.38 | 1292.04 | 9710.59 | 1292.04 |
| 9735.45 | 1292.06 | 9739.32 | 1292.1 | 9740.05 | 1292.08 | 9741.17 | 1292.11 | 9742.68 | 1292.11 |
| 9743.56 | 1292.11 | 9744.61 | 1292.1 | 9745.42 | 1292.11 | 9745.9 | 1292.11 | 9750.08 | 1292.11 |
| 9751.92 | 1292.1 | 9753.61 | 1292.1 | 9755.27 | 1292.08 | 9759.59 | 1292.06 | 9766.83 | 1292.05 |
| 9784.41 | 1292.05 | 9789.73 | 1292 | 9797.17 | 1292.05 | 9818.22 | 1292.06 | 9823.43 | 1292.06 |
| 9832.96 | 1292.06 | 9847.61 | 1292.1 | 9855.23 | 1292.06 | 9862.71 | 1292.06 | 9870.27 | 1292.05 |
| 9879.02 | 1292.05 | 9889.05 | 1292 | 9909.94 | 1292.03 | 9917.71 | 1292.03 | 9928.61 | 1292.02 |
| 9936.09 | 1292.01 | 9941.65 | 1292 | 9945.5 | 1292 | 9965.21 | 1290.74 | 9965.75 | 1290.72 |
| 9966.57 | 1290.66 | 9973.33 | 1290 | 9978.54 | 1290 | 9985.91 | 1290 | 9988.78 | 1290.79 |
| 9993.57 | 1292 | 9997.18 | 1292.1 | 9998.08 | 1292.13 | 10000 | 1292.23 | | |

Manning's n Values  num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9400 | .045 | 9620 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9620 | 10000 | 0 | 0 | 0 | .3 | .5 |

Ineffective Flow  num= 1

| Sta L | Sta R | Elev |
|---|---|---|

9400 9620
Left Levee Station= 9428.54 Elevation= 1292.3

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.25 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.36 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1291.90 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 1291.90 | Flow Area (sq ft) | | 56.58 | |
| E.G. Slope (ft/ft) | 0.020477 | Area (sq ft) | 4.94 | 56.58 | |
| Q Total (cfs) | 271.00 | Flow (cfs) | | 271.00 | |
| Top Width (ft) | 129.98 | Top Width (ft) | 49.46 | 80.51 | |
| Vel Total (ft/s) | 4.79 | Avg. Vel. (ft/s) | | 4.79 | |
| Max Chl Dpth (ft) | 1.90 | Hydr. Depth (ft) | | 0.70 | |
| Conv. Total (cfs) | 1893.8 | Conv. (cfs) | | 1893.8 | |
| Length Wtd. (ft) | | Wetted Per. (ft) | | 80.83 | |
| Min Ch El (ft) | 1290.00 | Shear (lb/sq ft) | | 0.89 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 4.29 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

Warning: User specified water surface is not possible for the specified flow regime. The program used critical depth as the starting water surface.
Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

SUMMARY OF MANNING'S N VALUES

River:Runoff

| Reach | River Sta. | n1 | n2 | n3 |
|---|---|---|---|---|
| PA03-PA09 | 40400 | .045 | .035 | .035 |
| PA03-PA09 | 40344 | Inline Weir | | |
| PA03-PA09 | 40290 | .045 | .035 | .035 |
| PA03-PA09 | 40200 | .045 | .035 | .035 |
| PA03-PA09 | 40150 | .045 | .035 | .035 |
| PA03-PA09 | 40100 | .045 | .035 | .035 |
| PA03-PA09 | 40050 | .045 | .035 | .035 |

SUMMARY OF REACH LENGTHS

River: Runoff

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| PA03-PA09 | 40400 | 78.79 | 78.79 | 110 |
| PA03-PA09 | 40344 | Inline Weir | | |
| PA03-PA09 | 40290 | 41.39 | 41.39 | 98.02 |
| PA03-PA09 | 40200 | 35.81 | 35.81 | 50 |
| PA03-PA09 | 40150 | 35.81 | 35.81 | 50 |
| PA03-PA09 | 40100 | 35.81 | 35.81 | 50 |
| PA03-PA09 | 40050 | 0 | 0 | 0 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Runoff

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| PA03-PA09 | 40400 | .3 | .5 |
| PA03-PA09 | 40344 | Inline Weir | |
| PA03-PA09 | 40290 | .3 | .5 |
| PA03-PA09 | 40200 | .3 | .5 |
| PA03-PA09 | 40150 | .3 | .5 |
| PA03-PA09 | 40100 | .3 | .5 |
| PA03-PA09 | 40050 | .3 | .5 |

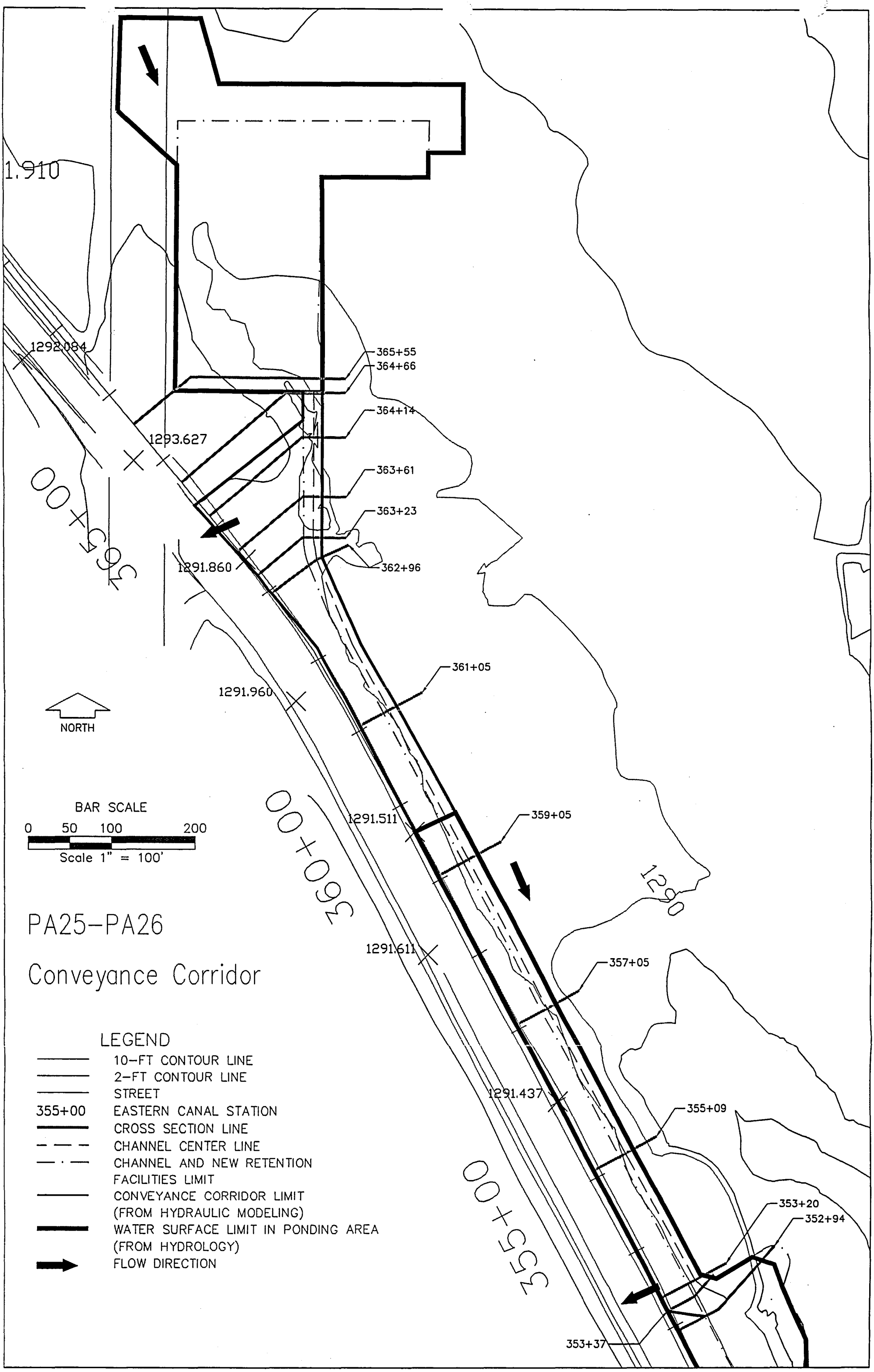
Profile Output Table - Standard Table 1

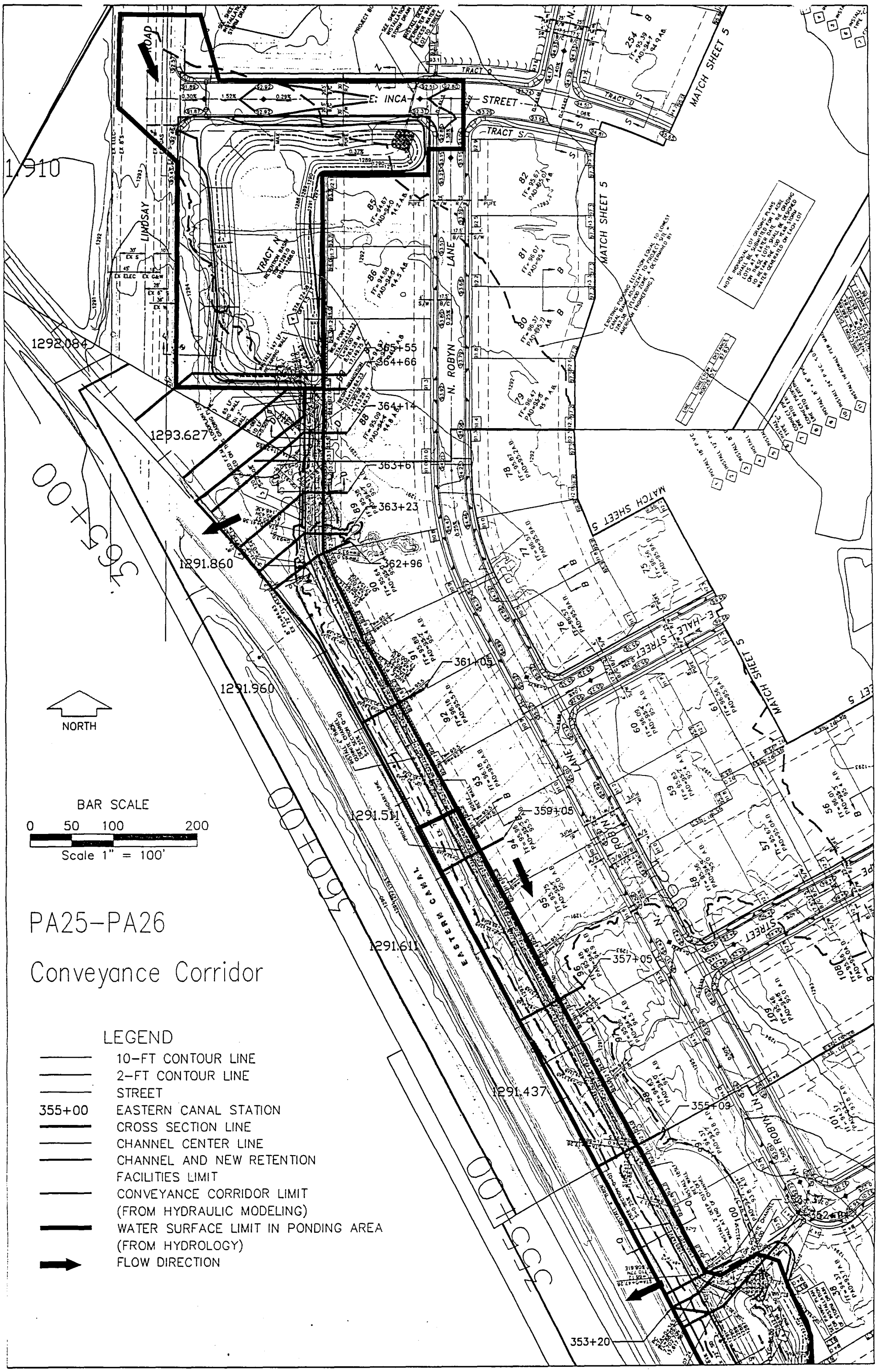
| Reach | River Sta | Q Total (cfs) | Min Ch El (ft) | W.S. Elev (ft) | Crit W.S. (ft) | E.G. Elev (ft) | E.G. Slope (ft/ft) | Vel Chnl (ft/s) | Flow Area (sq ft) | Top Width (ft) | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PA03-PA09 | 40400 | 271.00 | 1292.00 | 1293.47 | 1292.52 | 1293.47 | 0.000185 | 0.54 | 512.95 | 677.39 | 0.10 |
| PA03-PA09 | 40344 | Inline Weir | | | | | | | | | |
| PA03-PA09 | 40290 | 271.00 | 1292.00 | 1292.78 | 1292.52 | 1292.82 | 0.004310 | 1.59 | 170.21 | 464.06 | 0.43 |
| PA03-PA09 | 40200 | 271.00 | 1290.00 | 1292.67 | 1292.28 | 1292.69 | 0.001583 | 1.13 | 239.83 | 548.50 | 0.27 |
| PA03-PA09 | 40150 | 271.00 | 1290.00 | 1292.61 | 1292.25 | 1292.63 | 0.001623 | 1.21 | 223.05 | 502.43 | 0.28 |
| PA03-PA09 | 40100 | 271.00 | 1290.00 | 1292.51 | 1292.23 | 1292.55 | 0.003202 | 1.61 | 168.76 | 398.49 | 0.38 |
| PA03-PA09 | 40050 | 271.00 | 1290.00 | 1291.90 | 1291.90 | 1292.25 | 0.020477 | 4.79 | 56.58 | 129.98 | 1.01 |

# Appendix E.2

## Hydraulic Modeling of PA25-PA26 Conveyance Corridor

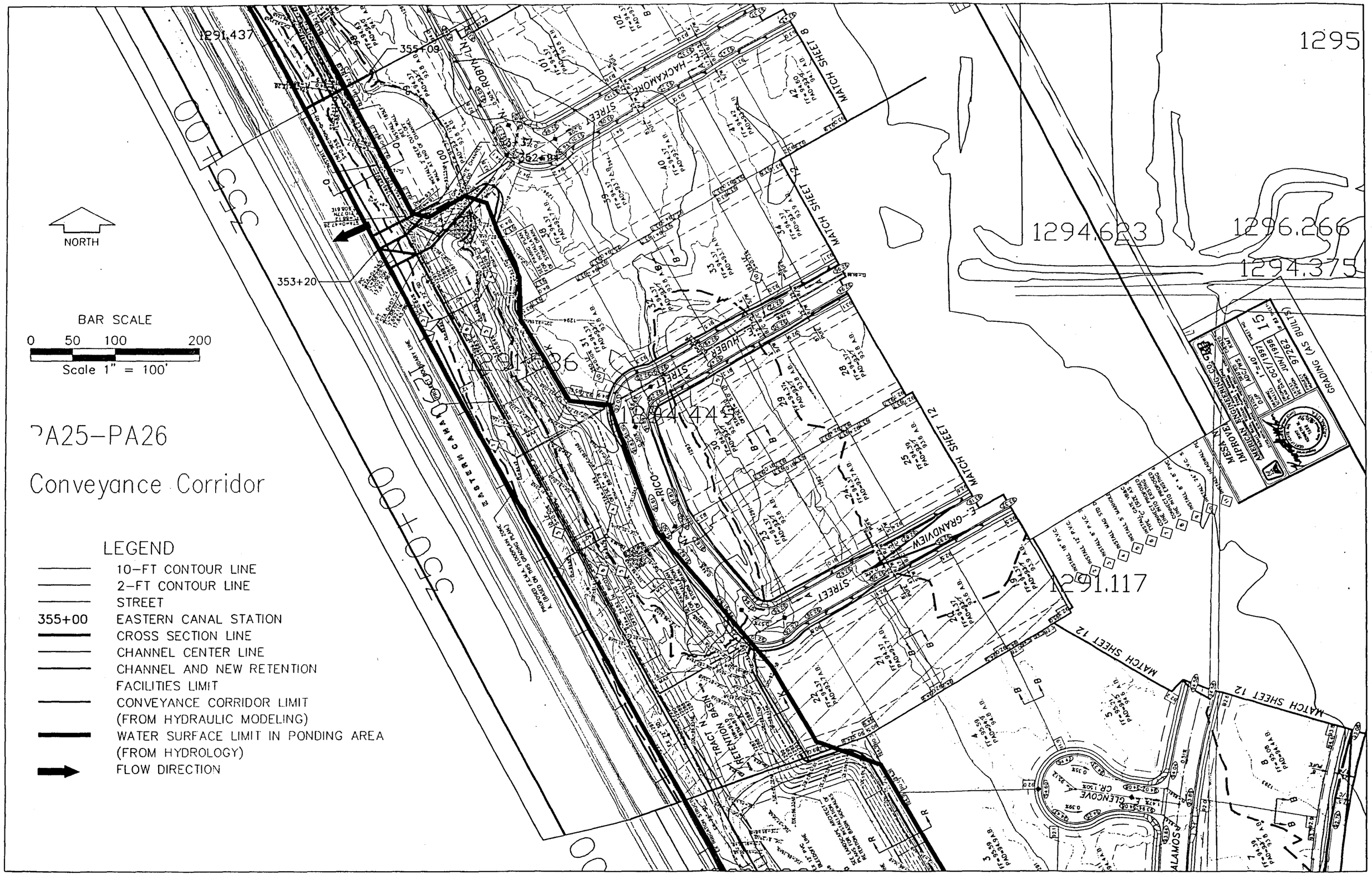
- HEC-RAS Modeling of Runoff Flows within Ponding Areas
  - Geometry – Plan View
  - Flow Profile
  - Summary Table(s)
  - Cross Section Summary Tables
  - Geometry – Cross Sections
  - HEC-RAS Report
- HEC-2 Modeling of Side Weir

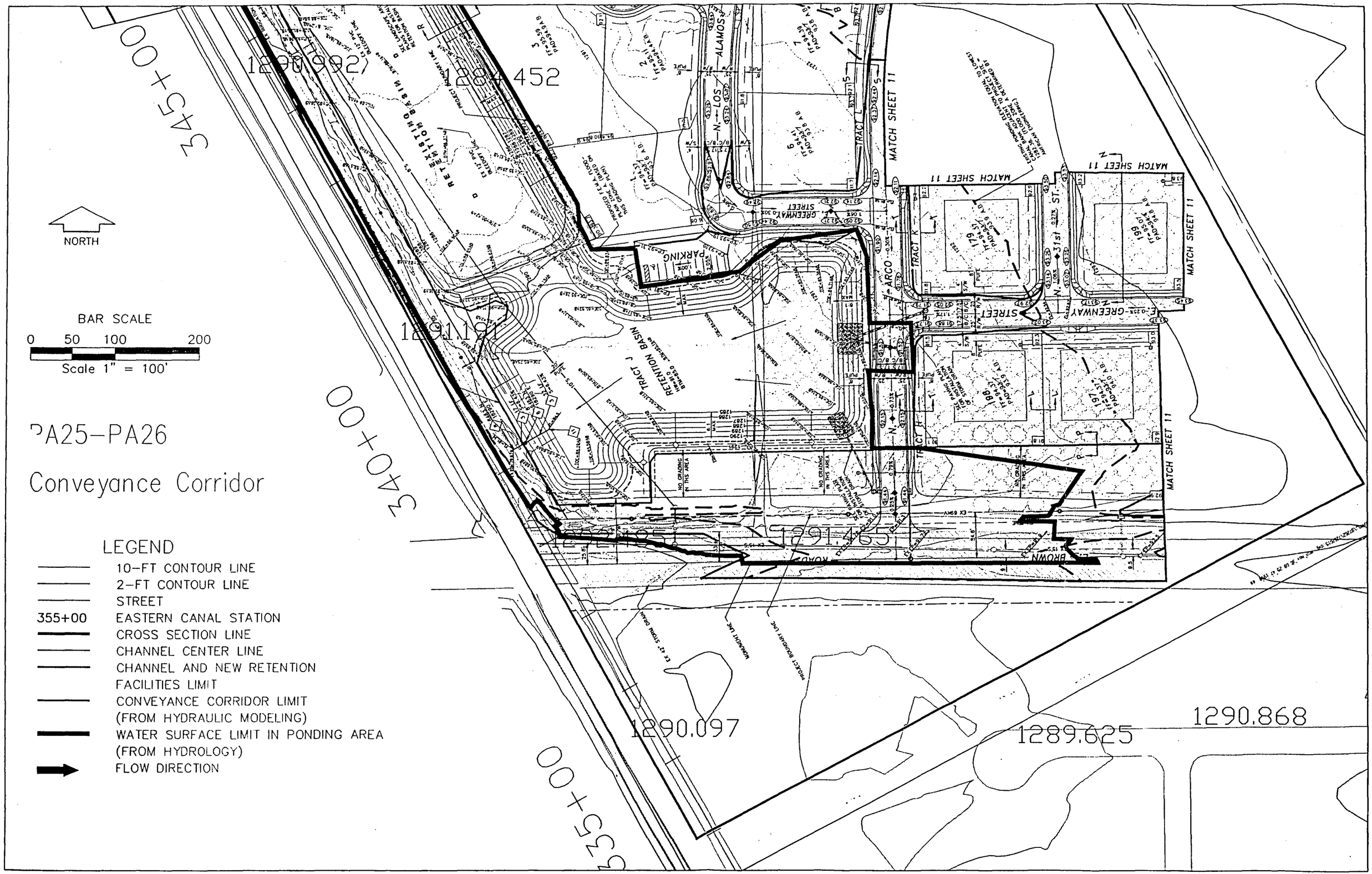

1.910
1292.084
1293.627
1291.860
1291.960
1291.511
1291.611
1291.437
365+55
364+66
364+14
363+61
363+23
362+96
361+05
359+05
357+05
355+09
353+20
352+94
353+37
363+00
360+00
355+00
1290
NORTH
BAR SCALE
0 50 100 200
Scale 1" = 100'
PA25-PA26
Conveyance Corridor
LEGEND
10-FT CONTOUR LINE
2-FT CONTOUR LINE
STREET
355+00 EASTERN CANAL STATION
CROSS SECTION LINE
CHANNEL CENTER LINE
CHANNEL AND NEW RETENTION FACILITIES LIMIT
CONVEYANCE CORRIDOR LIMIT (FROM HYDRAULIC MODELING)
WATER SURFACE LIMIT IN PONDING AREA (FROM HYDROLOGY)
FLOW DIRECTION

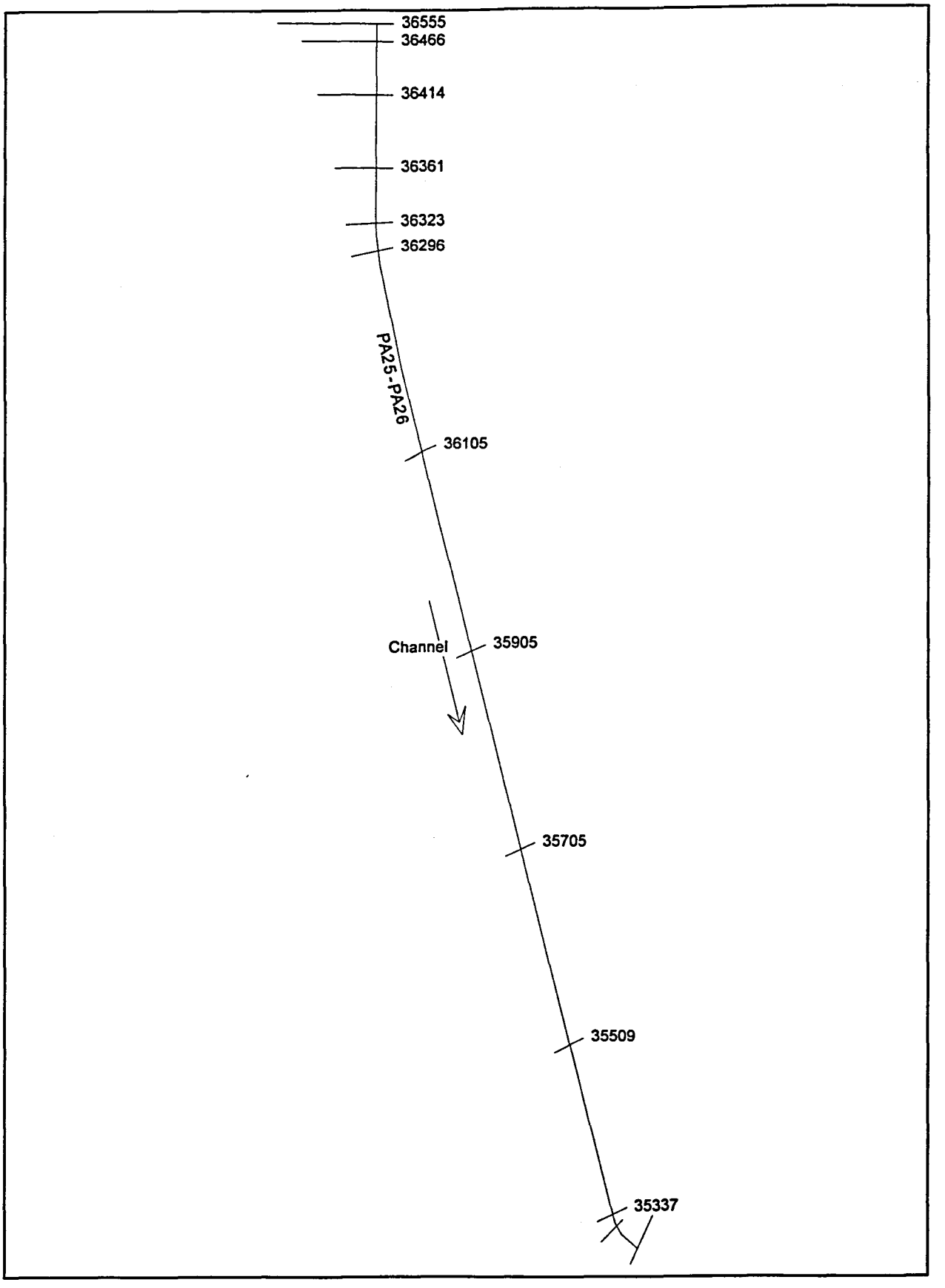


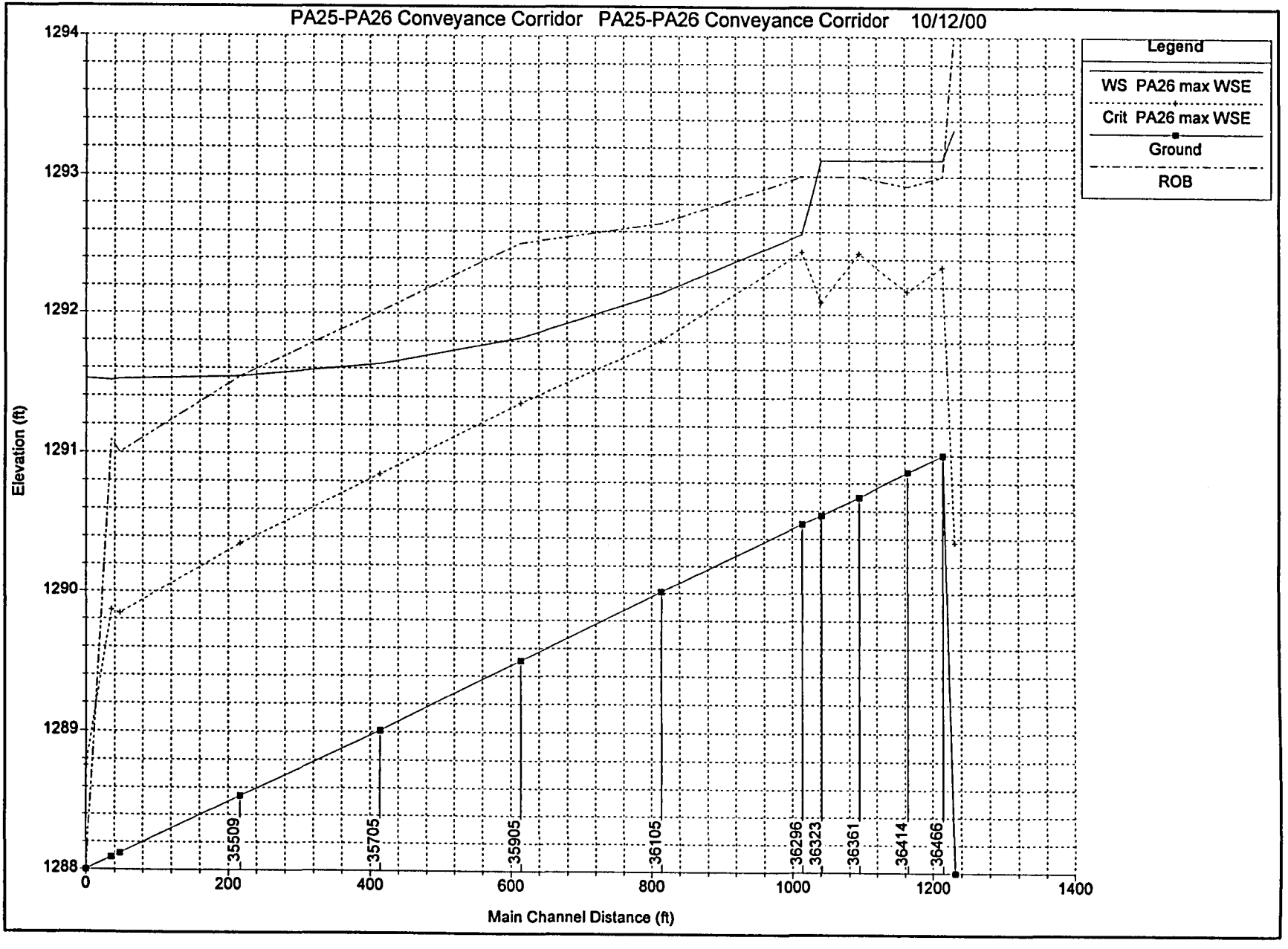

PA25–PA26

Conveyance Corridor


NORTH
BAR SCALE
0 50 100 200
Scale 1" = 100'
PA25–PA26
Conveyance Corridor
LEGEND
10–FT CONTOUR LINE
2–FT CONTOUR LINE
STREET
355+00 EASTERN CANAL STATION
CROSS SECTION LINE
CHANNEL CENTER LINE
CHANNEL AND NEW RETENTION FACILITIES LIMIT
CONVEYANCE CORRIDOR LIMIT (FROM HYDRAULIC MODELING)
WATER SURFACE LIMIT IN PONDING AREA (FROM HYDROLOGY)
FLOW DIRECTION
1291.437
355+09
353+20
1295
1294.623
1296.266
1294.375
1294.44
1291.117
MATCH SHEET 12
MATCH SHEET 8
E. HACKAMORE STREET
E. HUBER STREET
E. GRANDVIEW STREET
E. GLENCOVE CR.
ALAMOS
RICO
N. ROBIN LN.
EASTERN CANAL
RETENTION BASIN
GRADING (AS BUILT)
MESA IMPROVEMENT CO.
MEDICAN ENGINEERING CO.
OCT/1997
JUN/1998
97262


NORTH
BAR SCALE
0 50 100 200
Scale 1" = 100'
PA25–PA26
Conveyance Corridor
LEGEND
10–FT CONTOUR LINE
2–FT CONTOUR LINE
STREET
355+00 EASTERN CANAL STATION
CROSS SECTION LINE
CHANNEL CENTER LINE
CHANNEL AND NEW RETENTION FACILITIES LIMIT
CONVEYANCE CORRIDOR LIMIT (FROM HYDRAULIC MODELING)
WATER SURFACE LIMIT IN PONDING AREA (FROM HYDROLOGY)
FLOW DIRECTION
RETENTION BASIN
TRACT J
PARKING
GREENWAY
STREET
TRACT K
TRACT L
TRACT H
MATCH SHEET 11
N. LOS ALAMOS
N. 31st ST.
E. GREENWAY
E. BROWN
NO GRADING IN THIS AREA
EX 6" STORM DRAIN
MONUMENT LINE
PROJECT BOUNDARY LINE
1290.097
1289.625
1290.868
1291.465
1291.121
1290.992
1294.452
340+00
345+00
335+00


36555
36466
36414
36361
36323
36296
PA25-PA26
36105
Channel
35905
35705
35509
35337


PA25-PA26 Conveyance Corridor PA25-PA26 Conveyance Corridor 10/12/00
Legend
WS PA26 max WSE
Crit PA26 max WSE
Ground
ROB
Elevation (ft)
1294
1293
1292
1291
1290
1289
1288
0
200
400
600
800
1000
1200
1400
Main Channel Distance (ft)
35509
35705
35905
36105
36296
36323
36361
36414
36466

HEC-RAS Plan: PA25-PA26 River: PA25-PA26 Reach: Channel

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| Channel | 36555 | PA26 max WSE | 236.00 | 1288.00 | 1293.34 | 1290.37 | 1293.41 | 0.000195 | 2.14 | 110.24 | 142.69 | 0.18 |
| Channel | 36555 | 50 | 50.00 | 1288.00 | 1292.57 | 1289.09 | 1292.57 | 0.000017 | 0.55 | 90.19 | 136.37 | 0.05 |
| Channel | 36555 | 100 | 100.00 | 1288.00 | 1292.90 | 1289.56 | 1292.92 | 0.000050 | 1.01 | 98.89 | 139.55 | 0.09 |
| Channel | 36555 | 150 | 150.00 | 1288.00 | 1293.07 | 1289.92 | 1293.10 | 0.000098 | 1.45 | 103.34 | 140.96 | 0.13 |
| Channel | 36555 | 200 | 200.00 | 1288.00 | 1293.22 | 1290.19 | 1293.27 | 0.000154 | 1.87 | 107.08 | 141.90 | 0.16 |
| Channel | 36555 | 250 | 250.00 | 1288.00 | 1293.38 | 1290.42 | 1293.46 | 0.000211 | 2.24 | 111.39 | 142.97 | 0.19 |
| Channel | 36555 | 300 | 300.00 | 1288.00 | 1293.54 | 1290.66 | 1293.65 | 0.000268 | 2.59 | 115.64 | 144.04 | 0.22 |
| | | | | | | | | | | | | |
| Channel | 36466 | PA26 max WSE | 236.00 | 1291.00 | 1293.12 | 1292.34 | 1293.35 | 0.000914 | 3.90 | 60.54 | 31.16 | 0.48 |
| Channel | 36466 | 50 | 50.00 | 1291.00 | 1292.54 | 1291.54 | 1292.57 | 0.000120 | 1.15 | 43.31 | 29.99 | 0.17 |
| Channel | 36466 | 100 | 100.00 | 1291.00 | 1292.85 | 1291.80 | 1292.90 | 0.000261 | 1.91 | 52.35 | 29.99 | 0.25 |
| Channel | 36466 | 150 | 150.00 | 1291.00 | 1292.97 | 1292.02 | 1293.08 | 0.000475 | 2.68 | 55.96 | 29.99 | 0.35 |
| Channel | 36466 | 200 | 200.00 | 1291.00 | 1293.04 | 1292.22 | 1293.23 | 0.000740 | 3.43 | 58.30 | 30.43 | 0.43 |
| Channel | 36466 | 250 | 250.00 | 1291.00 | 1293.14 | 1292.40 | 1293.40 | 0.000988 | 4.09 | 61.28 | 31.40 | 0.50 |
| Channel | 36466 | 300 | 300.00 | 1291.00 | 1293.23 | 1292.56 | 1293.57 | 0.001241 | 4.70 | 64.04 | 32.26 | 0.57 |
| | | | | | | | | | | | | |
| Channel | 36414 | PA26 max WSE | 220.77 | 1290.88 | 1293.12 | 1292.17 | 1293.28 | 0.000603 | 3.28 | 90.12 | 169.21 | 0.40 |
| Channel | 36414 | 50 | 50.00 | 1290.88 | 1292.54 | 1291.43 | 1292.56 | 0.000093 | 1.07 | 46.79 | 29.99 | 0.15 |
| Channel | 36414 | 100 | 97.80 | 1290.88 | 1292.84 | 1291.65 | 1292.89 | 0.000204 | 1.75 | 55.73 | 29.99 | 0.23 |
| Channel | 36414 | 150 | 143.96 | 1290.88 | 1292.96 | 1291.88 | 1293.05 | 0.000363 | 2.43 | 62.75 | 169.21 | 0.30 |
| Channel | 36414 | 200 | 188.99 | 1290.88 | 1293.03 | 1292.06 | 1293.17 | 0.000532 | 3.01 | 76.16 | 169.21 | 0.37 |
| Channel | 36414 | 250 | 232.93 | 1290.88 | 1293.15 | 1292.21 | 1293.31 | 0.000629 | 3.38 | 94.95 | 169.21 | 0.40 |
| Channel | 36414 | 300 | 274.87 | 1290.88 | 1293.26 | 1292.34 | 1293.44 | 0.000673 | 3.61 | 114.23 | 169.21 | 0.42 |
| | | | | | | | | | | | | |
| Channel | 36361 | PA26 max WSE | 146.13 | 1290.70 | 1293.11 | 1292.44 | 1293.20 | 0.000557 | 2.66 | 89.83 | 122.14 | 0.38 |
| Channel | 36361 | 50 | 50.00 | 1290.70 | 1292.47 | 1291.70 | 1292.53 | 0.000454 | 1.99 | 25.11 | 22.33 | 0.33 |
| Channel | 36361 | 100 | 77.32 | 1290.70 | 1292.76 | 1291.95 | 1292.85 | 0.000566 | 2.42 | 31.95 | 25.00 | 0.38 |
| Channel | 36361 | 150 | 102.32 | 1290.70 | 1292.86 | 1292.15 | 1293.00 | 0.000806 | 2.97 | 34.49 | 25.91 | 0.45 |
| Channel | 36361 | 200 | 127.86 | 1290.70 | 1293.02 | 1292.33 | 1293.11 | 0.000574 | 2.62 | 78.65 | 121.77 | 0.39 |
| Channel | 36361 | 250 | 152.89 | 1290.70 | 1293.15 | 1292.48 | 1293.23 | 0.000553 | 2.68 | 93.69 | 122.26 | 0.38 |
| Channel | 36361 | 300 | 176.96 | 1290.70 | 1293.27 | 1292.62 | 1293.35 | 0.000517 | 2.70 | 108.70 | 122.75 | 0.37 |
| | | | | | | | | | | | | |

HEC-RAS Plan: PA25-PA26 River: PA25-PA26 Reach: Channel

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| Channel | 36323 | PA26 max WSE | 108.78 | 1290.57 | 1293.11 | 1292.09 | 1293.15 | 0.000245 | 1.82 | 90.31 | 92.70 | 0.26 |
| Channel | 36323 | 50 | 50.00 | 1290.57 | 1292.46 | 1291.57 | 1292.51 | 0.000359 | 1.84 | 27.20 | 22.85 | 0.30 |
| Channel | 36323 | 100 | 70.60 | 1290.57 | 1292.75 | 1291.78 | 1292.81 | 0.000383 | 2.06 | 34.29 | 25.47 | 0.31 |
| Channel | 36323 | 150 | 83.78 | 1290.57 | 1292.86 | 1291.89 | 1292.94 | 0.000436 | 2.26 | 37.09 | 26.43 | 0.34 |
| Channel | 36323 | 200 | 98.18 | 1290.57 | 1293.02 | 1292.00 | 1293.06 | 0.000257 | 1.81 | 81.77 | 92.33 | 0.26 |
| Channel | 36323 | 250 | 112.60 | 1290.57 | 1293.15 | 1292.11 | 1293.19 | 0.000242 | 1.83 | 93.27 | 92.83 | 0.26 |
| Channel | 36323 | 300 | 126.69 | 1290.57 | 1293.27 | 1292.20 | 1293.31 | 0.000226 | 1.84 | 104.71 | 93.32 | 0.25 |
| | | | | | | | | | | | | |
| Channel | 36296 | PA26 max WSE | 97.63 | 1290.51 | 1292.58 | 1292.45 | 1293.02 | 0.003163 | 5.32 | 18.36 | 15.71 | 0.87 |
| Channel | 36296 | 50 | 50.00 | 1290.51 | 1292.20 | 1291.94 | 1292.44 | 0.002172 | 3.90 | 12.82 | 13.17 | 0.70 |
| Channel | 36296 | 100 | 69.81 | 1290.51 | 1292.44 | 1292.17 | 1292.73 | 0.002265 | 4.31 | 16.19 | 14.77 | 0.73 |
| Channel | 36296 | 150 | 79.19 | 1290.51 | 1292.52 | 1292.29 | 1292.84 | 0.002413 | 4.56 | 17.37 | 15.29 | 0.75 |
| Channel | 36296 | 200 | 89.73 | 1290.51 | 1292.56 | 1292.37 | 1292.95 | 0.002822 | 4.99 | 17.99 | 15.55 | 0.82 |
| Channel | 36296 | 250 | 100.34 | 1290.51 | 1292.59 | 1292.48 | 1293.05 | 0.003303 | 5.44 | 18.44 | 15.74 | 0.89 |
| Channel | 36296 | 300 | 110.56 | 1290.51 | 1292.61 | 1292.56 | 1293.15 | 0.003781 | 5.86 | 18.85 | 15.91 | 0.95 |
| | | | | | | | | | | | | |
| Channel | 36105 | PA26 max WSE | 80.88 | 1290.01 | 1292.15 | 1291.81 | 1292.44 | 0.001957 | 4.27 | 18.95 | 15.70 | 0.68 |
| Channel | 36105 | 50 | 50.00 | 1290.01 | 1291.86 | 1291.45 | 1292.04 | 0.001498 | 3.42 | 14.62 | 13.82 | 0.59 |
| Channel | 36105 | 100 | 69.81 | 1290.01 | 1292.05 | 1291.70 | 1292.30 | 0.001854 | 4.03 | 17.33 | 15.02 | 0.66 |
| Channel | 36105 | 150 | 76.69 | 1290.01 | 1292.11 | 1291.77 | 1292.38 | 0.001934 | 4.19 | 18.30 | 15.42 | 0.68 |
| Channel | 36105 | 200 | 79.37 | 1290.01 | 1292.13 | 1291.80 | 1292.41 | 0.001961 | 4.25 | 18.67 | 15.58 | 0.68 |
| Channel | 36105 | 250 | 81.11 | 1290.01 | 1292.15 | 1291.82 | 1292.44 | 0.001978 | 4.29 | 18.92 | 15.68 | 0.69 |
| Channel | 36105 | 300 | 82.38 | 1290.01 | 1292.16 | 1291.84 | 1292.45 | 0.001994 | 4.32 | 19.09 | 15.75 | 0.69 |
| | | | | | | | | | | | | |
| Channel | 35905 | PA26 max WSE | 81.87 | 1289.51 | 1291.82 | 1291.36 | 1292.07 | 0.001539 | 3.96 | 20.65 | 15.86 | 0.61 |
| Channel | 35905 | 50 | 50.00 | 1289.51 | 1291.66 | 1290.99 | 1291.78 | 0.000815 | 2.76 | 18.11 | 14.87 | 0.44 |
| Channel | 35905 | 100 | 69.81 | 1289.51 | 1291.76 | 1291.23 | 1291.96 | 0.001274 | 3.55 | 19.68 | 15.49 | 0.55 |
| Channel | 35905 | 150 | 76.69 | 1289.51 | 1291.80 | 1291.31 | 1292.02 | 0.001420 | 3.78 | 20.27 | 15.72 | 0.59 |
| Channel | 35905 | 200 | 79.37 | 1289.51 | 1291.81 | 1291.32 | 1292.05 | 0.001475 | 3.87 | 20.50 | 15.81 | 0.60 |
| Channel | 35905 | 250 | 81.08 | 1289.51 | 1291.82 | 1291.34 | 1292.06 | 0.001508 | 3.92 | 20.66 | 15.87 | 0.61 |
| Channel | 35905 | 300 | 82.25 | 1289.51 | 1291.83 | 1291.36 | 1292.07 | 0.001532 | 3.96 | 20.76 | 15.91 | 0.61 |
| | | | | | | | | | | | | |

HEC-RAS Plan: PA25-PA26 River: PA25-PA26 Reach: Channel

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| Channel | 35705 | PA26 max WSE | 80.87 | 1289.01 | 1291.63 | 1290.85 | 1291.78 | 0.000825 | 3.13 | 25.84 | 17.72 | 0.46 |
| Channel | 35705 | 50 | 50.00 | 1289.01 | 1291.57 | 1290.49 | 1291.63 | 0.000355 | 2.02 | 24.72 | 17.33 | 0.30 |
| Channel | 35705 | 100 | 69.81 | 1289.01 | 1291.61 | 1290.73 | 1291.72 | 0.000643 | 2.75 | 25.41 | 17.57 | 0.40 |
| Channel | 35705 | 150 | 76.69 | 1289.01 | 1291.62 | 1290.81 | 1291.76 | 0.000755 | 2.99 | 25.67 | 17.66 | 0.44 |
| Channel | 35705 | 200 | 79.37 | 1289.01 | 1291.63 | 1290.82 | 1291.77 | 0.000800 | 3.08 | 25.78 | 17.70 | 0.45 |
| Channel | 35705 | 250 | 81.08 | 1289.01 | 1291.63 | 1290.84 | 1291.78 | 0.000829 | 3.14 | 25.85 | 17.72 | 0.46 |
| Channel | 35705 | 300 | 82.25 | 1289.01 | 1291.63 | 1290.86 | 1291.79 | 0.000849 | 3.18 | 25.89 | 17.73 | 0.46 |
| | | | | | | | | | | | | |
| Channel | 35509 | PA26 max WSE | 79.59 | 1288.54 | 1291.54 | 1290.35 | 1291.63 | 0.000417 | 2.41 | 32.98 | 19.99 | 0.33 |
| Channel | 35509 | 50 | 50.00 | 1288.54 | 1291.53 | 1290.02 | 1291.57 | 0.000167 | 1.53 | 32.77 | 19.93 | 0.21 |
| Channel | 35509 | 100 | 69.42 | 1288.54 | 1291.54 | 1290.26 | 1291.61 | 0.000319 | 2.11 | 32.91 | 19.97 | 0.29 |
| Channel | 35509 | 150 | 75.84 | 1288.54 | 1291.54 | 1290.33 | 1291.62 | 0.000379 | 2.30 | 32.95 | 19.98 | 0.32 |
| Channel | 35509 | 200 | 78.23 | 1288.54 | 1291.54 | 1290.35 | 1291.63 | 0.000403 | 2.37 | 32.97 | 19.98 | 0.33 |
| Channel | 35509 | 250 | 79.76 | 1288.54 | 1291.54 | 1290.37 | 1291.63 | 0.000418 | 2.42 | 32.98 | 19.99 | 0.33 |
| Channel | 35509 | 300 | 80.64 | 1288.54 | 1291.54 | 1290.38 | 1291.63 | 0.000425 | 2.44 | 34.34 | 53.28 | 0.33 |
| | | | | | | | | | | | | |
| Channel | 35337 | PA26 max WSE | 74.50 | 1288.12 | 1291.52 | 1289.84 | 1291.56 | 0.000137 | 1.67 | 52.40 | 53.28 | 0.20 |
| Channel | 35337 | 50 | 50.00 | 1288.12 | 1291.52 | 1289.55 | 1291.54 | 0.000061 | 1.12 | 52.49 | 53.28 | 0.13 |
| Channel | 35337 | 100 | 65.80 | 1288.12 | 1291.52 | 1289.75 | 1291.55 | 0.000106 | 1.47 | 52.47 | 53.28 | 0.18 |
| Channel | 35337 | 150 | 71.33 | 1288.12 | 1291.52 | 1289.80 | 1291.56 | 0.000125 | 1.60 | 52.42 | 53.28 | 0.19 |
| Channel | 35337 | 200 | 73.34 | 1288.12 | 1291.52 | 1289.83 | 1291.56 | 0.000133 | 1.64 | 52.40 | 53.28 | 0.20 |
| Channel | 35337 | 250 | 74.63 | 1288.12 | 1291.52 | 1289.83 | 1291.56 | 0.000137 | 1.67 | 52.40 | 53.28 | 0.20 |
| Channel | 35337 | 300 | 75.56 | 1288.12 | 1291.52 | 1289.86 | 1291.56 | 0.000141 | 1.69 | 52.40 | 53.28 | 0.20 |
| | | | | | | | | | | | | |
| Channel | 35320 | PA26 max WSE | 74.42 | 1288.09 | 1291.51 | 1289.87 | 1291.56 | 0.000162 | 1.75 | 50.17 | 61.22 | 0.21 |
| Channel | 35320 | 50 | 50.00 | 1288.09 | 1291.52 | 1289.57 | 1291.54 | 0.000072 | 1.17 | 50.55 | 61.22 | 0.14 |
| Channel | 35320 | 100 | 65.71 | 1288.09 | 1291.51 | 1289.74 | 1291.55 | 0.000126 | 1.54 | 50.37 | 61.22 | 0.19 |
| Channel | 35320 | 150 | 71.24 | 1288.09 | 1291.51 | 1289.82 | 1291.55 | 0.000148 | 1.68 | 50.23 | 61.22 | 0.21 |
| Channel | 35320 | 200 | 73.26 | 1288.09 | 1291.51 | 1289.85 | 1291.55 | 0.000157 | 1.72 | 50.20 | 61.22 | 0.21 |
| Channel | 35320 | 250 | 74.55 | 1288.09 | 1291.51 | 1289.86 | 1291.56 | 0.000163 | 1.75 | 50.17 | 61.22 | 0.21 |
| Channel | 35320 | 300 | 75.48 | 1288.09 | 1291.51 | 1289.88 | 1291.56 | 0.000167 | 1.78 | 50.15 | 61.22 | 0.22 |
| | | | | | | | | | | | | |

HEC-RAS Plan: PA25-PA26 River: PA25-PA26 Reach: Channel

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| Channel | 35294 | PA26 max WSE | 74.42 | 1288.00 | 1291.52 | 1288.75 | 1291.54 | 0.000027 | 1.06 | 70.40 | 86.30 | 0.10 |
| Channel | 35294 | 50 | 50.00 | 1288.00 | 1291.52 | 1288.58 | 1291.53 | 0.000012 | 0.71 | 70.40 | 86.30 | 0.07 |
| Channel | 35294 | 100 | 68.71 | 1288.00 | 1291.52 | 1288.72 | 1291.53 | 0.000023 | 0.98 | 70.40 | 86.30 | 0.09 |
| Channel | 35294 | 150 | 71.24 | 1288.00 | 1291.52 | 1288.72 | 1291.54 | 0.000025 | 1.01 | 70.40 | 86.30 | 0.10 |
| Channel | 35294 | 200 | 73.26 | 1288.00 | 1291.52 | 1288.75 | 1291.54 | 0.000026 | 1.04 | 70.40 | 86.30 | 0.10 |
| Channel | 35294 | 250 | 74.55 | 1288.00 | 1291.52 | 1288.75 | 1291.54 | 0.000027 | 1.06 | 70.40 | 86.30 | 0.10 |
| Channel | 35294 | 300 | 75.48 | 1288.00 | 1291.52 | 1288.77 | 1291.54 | 0.000028 | 1.07 | 70.40 | 86.30 | 0.10 |

Plan: PA25-PA26 River: PA25-PA26 Reach:Channel Riv Sta: 36555 Profile: PA26 max WSE

| E.G. Elev (ft) | 1293.41 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.07 | Wt. n-Val. | 0.017 | 0.025 | |
| W.S. Elev (ft) | 1293.34 | Reach Len. (ft) | 17.22 | 17.22 | 17.22 |
| Crit W.S. (ft) | 1290.37 | Flow Area (sq ft) | 0.01 | 110.23 | |
| E.G. Slope (ft/ft) | 0.000195 | Area (sq ft) | 0.01 | 436.93 | |
| Q Total (cfs) | 236.00 | Flow (cfs) | 0.00 | 236.00 | |
| Top Width (ft) | 142.69 | Top Width (ft) | | 142.68 | |
| Vel Total (ft/s) | 2.14 | Avg. Vel. (ft/s) | 0.02 | 2.14 | |
| Max Chl Dpth (ft) | 5.34 | Hydr. Depth (ft) | 1.17 | 4.24 | |
| Conv. Total (cfs) | 16911.3 | Conv. (cfs) | 0.0 | 16911.3 | |
| Length Wtd. (ft) | 17.22 | Wetted Per. (ft) | 2.34 | 26.58 | |
| Min Ch El (ft) | 1288.00 | Shear (lb/sq ft) | 0.00 | 0.05 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.00 | 0.11 | |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 0.03 | 0.95 | 0.18 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.02 | 0.57 | 0.49 |

Plan: PA25-PA26 River: PA25-PA26 Reach:Channel Riv Sta: 36466 Profile: PA26 max WSE

| E.G. Elev (ft) | 1293.35 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.24 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1293.12 | Reach Len. (ft) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (ft) | 1292.34 | Flow Area (sq ft) | | 60.48 | 0.07 |
| E.G. Slope (ft/ft) | 0.000914 | Area (sq ft) | | 60.48 | 0.07 |
| Q Total (cfs) | 236.00 | Flow (cfs) | | 235.98 | 0.02 |
| Top Width (ft) | 31.16 | Top Width (ft) | | 29.99 | 1.17 |
| Vel Total (ft/s) | 3.90 | Avg. Vel. (ft/s) | | 3.90 | 0.22 |
| Max Chl Dpth (ft) | 2.12 | Hydr. Depth (ft) | | 2.02 | 0.06 |
| Conv. Total (cfs) | 7806.5 | Conv. (cfs) | | 7806.0 | 0.5 |
| Length Wtd. (ft) | 50.00 | Wetted Per. (ft) | | 33.70 | 1.17 |
| Min Ch El (ft) | 1291.00 | Shear (lb/sq ft) | | 0.10 | 0.00 |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.40 | 0.00 |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | 0.03 | 0.85 | 0.18 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.02 | 0.53 | 0.49 |

Plan: PA25-PA26 River: PA25-PA26 Reach:Channel Riv Sta: 36414 Profile: PA26 max WSE

| E.G. Elev (ft) | 1293.28 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.16 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1293.12 | Reach Len. (ft) | 70.00 | 70.00 | 70.00 |
| Crit W.S. (ft) | 1292.17 | Flow Area (sq ft) | | 64.08 | 26.04 |
| E.G. Slope (ft/ft) | 0.000603 | Area (sq ft) | | 64.08 | 26.04 |
| Q Total (cfs) | 220.77 | Flow (cfs) | | 210.42 | 10.35 |
| Top Width (ft) | 169.21 | Top Width (ft) | | 29.99 | 139.22 |
| Vel Total (ft/s) | 2.45 | Avg. Vel. (ft/s) | | 3.28 | 0.40 |
| Max Chl Dpth (ft) | 2.24 | Hydr. Depth (ft) | | 2.14 | 0.19 |
| Conv. Total (cfs) | 8990.3 | Conv. (cfs) | | 8569.0 | 421.3 |
| Length Wtd. (ft) | 70.00 | Wetted Per. (ft) | | 33.87 | 139.41 |
| Min Ch El (ft) | 1290.88 | Shear (lb/sq ft) | | 0.07 | 0.01 |
| Alpha | 1.71 | Stream Power (lb/ft s) | | 0.23 | 0.00 |

| | | | | | |
|---|---|---|---|---|---|
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | 0.03 | 0.78 | 0.17 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.02 | 0.50 | 0.41 |

Plan: PA25-PA26 River: PA25-PA26 Reach:Channel Riv Sta: 36361 Profile: PA26 max WSE

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.20 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.09 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1293.11 | Reach Len. (ft) | 52.91 | 52.91 | 52.91 |
| Crit W.S. (ft) | 1292.44 | Flow Area (sq ft) | | 41.29 | 48.54 |
| E.G. Slope (ft/ft) | 0.000557 | Area (sq ft) | | 41.29 | 48.54 |
| Q Total (cfs) | 146.13 | Flow (cfs) | | 109.96 | 36.17 |
| Top Width (ft) | 122.14 | Top Width (ft) | | 27.65 | 94.49 |
| Vel Total (ft/s) | 1.63 | Avg. Vel. (ft/s) | | 2.66 | 0.75 |
| Max Chl Dpth (ft) | 2.41 | Hydr. Depth (ft) | | 1.49 | 0.51 |
| Conv. Total (cfs) | 6189.5 | Conv. (cfs) | | 4657.4 | 1532.0 |
| Length Wtd. (ft) | 52.91 | Wetted Per. (ft) | | 28.16 | 95.41 |
| Min Ch El (ft) | 1290.70 | Shear (lb/sq ft) | | 0.05 | 0.02 |
| Alpha | 2.07 | Stream Power (lb/ft s) | | 0.14 | 0.01 |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 0.03 | 0.69 | 0.11 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.02 | 0.45 | 0.22 |

Plan: PA25-PA26 River: PA25-PA26 Reach:Channel Riv Sta: 36323 Profile: PA26 max WSE

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.15 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.04 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1293.11 | Reach Len. (ft) | 29.28 | 27.30 | 25.26 |
| Crit W.S. (ft) | 1292.09 | Flow Area (sq ft) | | 44.17 | 46.14 |
| E.G. Slope (ft/ft) | 0.000245 | Area (sq ft) | | 44.17 | 46.14 |
| Q Total (cfs) | 108.78 | Flow (cfs) | | 80.55 | 28.23 |
| Top Width (ft) | 92.70 | Top Width (ft) | | 28.17 | 64.53 |
| Vel Total (ft/s) | 1.20 | Avg. Vel. (ft/s) | | 1.82 | 0.61 |
| Max Chl Dpth (ft) | 2.55 | Hydr. Depth (ft) | | 1.57 | 0.71 |
| Conv. Total (cfs) | 6946.3 | Conv. (cfs) | | 5143.8 | 1802.6 |
| Length Wtd. (ft) | 27.02 | Wetted Per. (ft) | | 28.73 | 65.86 |
| Min Ch El (ft) | 1290.57 | Shear (lb/sq ft) | | 0.02 | 0.01 |
| Alpha | 1.76 | Stream Power (lb/ft s) | | 0.04 | 0.01 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 0.03 | 0.64 | 0.05 |
| C & E Loss (ft) | 0.12 | Cum SA (acres) | 0.02 | 0.42 | 0.12 |

Plan: PA25-PA26 River: PA25-PA26 Reach:Channel Riv Sta: 36296 Profile: PA26 max WSE

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.02 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.44 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.58 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1292.45 | Flow Area (sq ft) | | 18.36 | |
| E.G. Slope (ft/ft) | 0.003163 | Area (sq ft) | | 18.36 | |
| Q Total (cfs) | 97.63 | Flow (cfs) | | 97.63 | |
| Top Width (ft) | 15.71 | Top Width (ft) | | 15.71 | |
| Vel Total (ft/s) | 5.32 | Avg. Vel. (ft/s) | | 5.32 | |
| Max Chl Dpth (ft) | 2.07 | Hydr. Depth (ft) | | 1.17 | |

| | | | | | |
|---|---|---|---|---|---|
| Conv. Total (cfs) | 1736.0 | Conv. (cfs) | | 1736.0 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 16.33 | |
| Min Ch El (ft) | 1290.51 | Shear (lb/sq ft) | | 0.22 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.18 | |
| Frctn Loss (ft) | 0.51 | Cum Volume (acre-ft) | 0.03 | 0.62 | 0.04 |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 0.02 | 0.41 | 0.11 |

Plan: PA25-PA26 River: PA25-PA26 Reach:Channel Riv Sta: 36105 Profile: PA26 max WSE

| E.G. Elev (ft) | 1292.44 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.28 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.15 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1291.81 | Flow Area (sq ft) | | 18.95 | |
| E.G. Slope (ft/ft) | 0.001957 | Area (sq ft) | | 18.95 | |
| Q Total (cfs) | 80.88 | Flow (cfs) | | 80.88 | |
| Top Width (ft) | 15.70 | Top Width (ft) | | 15.70 | |
| Vel Total (ft/s) | 4.27 | Avg. Vel. (ft/s) | | 4.27 | |
| Max Chl Dpth (ft) | 2.14 | Hydr. Depth (ft) | | 1.21 | |
| Conv. Total (cfs) | 1828.2 | Conv. (cfs) | | 1828.2 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 16.35 | |
| Min Ch El (ft) | 1290.01 | Shear (lb/sq ft) | | 0.14 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.60 | |
| Frctn Loss (ft) | 0.35 | Cum Volume (acre-ft) | 0.03 | 0.54 | 0.04 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.02 | 0.33 | 0.11 |

Plan: PA25-PA26 River: PA25-PA26 Reach:Channel Riv Sta: 35905 Profile: PA26 max WSE

| E.G. Elev (ft) | 1292.07 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.24 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.82 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1291.36 | Flow Area (sq ft) | | 20.65 | |
| E.G. Slope (ft/ft) | 0.001539 | Area (sq ft) | | 20.65 | |
| Q Total (cfs) | 81.87 | Flow (cfs) | | 81.87 | |
| Top Width (ft) | 15.86 | Top Width (ft) | | 15.86 | |
| Vel Total (ft/s) | 3.96 | Avg. Vel. (ft/s) | | 3.96 | |
| Max Chl Dpth (ft) | 2.31 | Hydr. Depth (ft) | | 1.30 | |
| Conv. Total (cfs) | 2086.7 | Conv. (cfs) | | 2086.7 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 16.62 | |
| Min Ch El (ft) | 1289.51 | Shear (lb/sq ft) | | 0.12 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.47 | |
| Frctn Loss (ft) | 0.24 | Cum Volume (acre-ft) | 0.03 | 0.45 | 0.04 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.02 | 0.26 | 0.11 |

Plan: PA25-PA26 River: PA25-PA26 Reach:Channel Riv Sta: 35705 Profile: PA26 max WSE

| E.G. Elev (ft) | 1291.78 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.15 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.63 | Reach Len. (ft) | 196.80 | 196.80 | 237.20 |
| Crit W.S. (ft) | 1290.85 | Flow Area (sq ft) | | 25.84 | |
| E.G. Slope (ft/ft) | 0.000825 | Area (sq ft) | | 25.84 | |

| | | | | | |
|---|---|---|---|---|---|
| Q Total (cfs) | 80.87 | Flow (cfs) | | 80.87 | |
| Top Width (ft) | 17.72 | Top Width (ft) | | 17.72 | |
| Vel Total (ft/s) | 3.13 | Avg. Vel. (ft/s) | | 3.13 | |
| Max Chl Dpth (ft) | 2.62 | Hydr. Depth (ft) | | 1.46 | |
| Conv. Total (cfs) | 2815.7 | Conv. (cfs) | | 2815.7 | |
| Length Wtd. (ft) | 196.80 | Wetted Per. (ft) | | 18.57 | |
| Min Ch El (ft) | 1289.01 | Shear (lb/sq ft) | | 0.07 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.22 | |
| Frctn Loss (ft) | 0.12 | Cum Volume (acre-ft) | 0.03 | 0.34 | 0.04 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.02 | 0.18 | 0.11 |

Plan: PA25-PA26 River: PA25-PA26 Reach:Channel Riv Sta: 35509 Profile: PA26 max WSE

| E.G. Elev (ft) | 1291.63 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.09 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.54 | Reach Len. (ft) | 170.00 | 170.00 | 170.00 |
| Crit W.S. (ft) | 1290.35 | Flow Area (sq ft) | | 32.98 | |
| E.G. Slope (ft/ft) | 0.000417 | Area (sq ft) | | 32.98 | |
| Q Total (cfs) | 79.59 | Flow (cfs) | | 79.59 | |
| Top Width (ft) | 19.99 | Top Width (ft) | | 19.99 | |
| Vel Total (ft/s) | 2.41 | Avg. Vel. (ft/s) | | 2.41 | |
| Max Chl Dpth (ft) | 3.00 | Hydr. Depth (ft) | | 1.65 | |
| Conv. Total (cfs) | 3899.4 | Conv. (cfs) | | 3899.4 | |
| Length Wtd. (ft) | 170.00 | Wetted Per. (ft) | | 20.96 | |
| Min Ch El (ft) | 1288.54 | Shear (lb/sq ft) | | 0.04 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.10 | |
| Frctn Loss (ft) | 0.05 | Cum Volume (acre-ft) | 0.03 | 0.21 | 0.04 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.02 | 0.10 | 0.11 |

Plan: PA25-PA26 River: PA25-PA26 Reach:Channel Riv Sta: 35337 Profile: PA26 max WSE

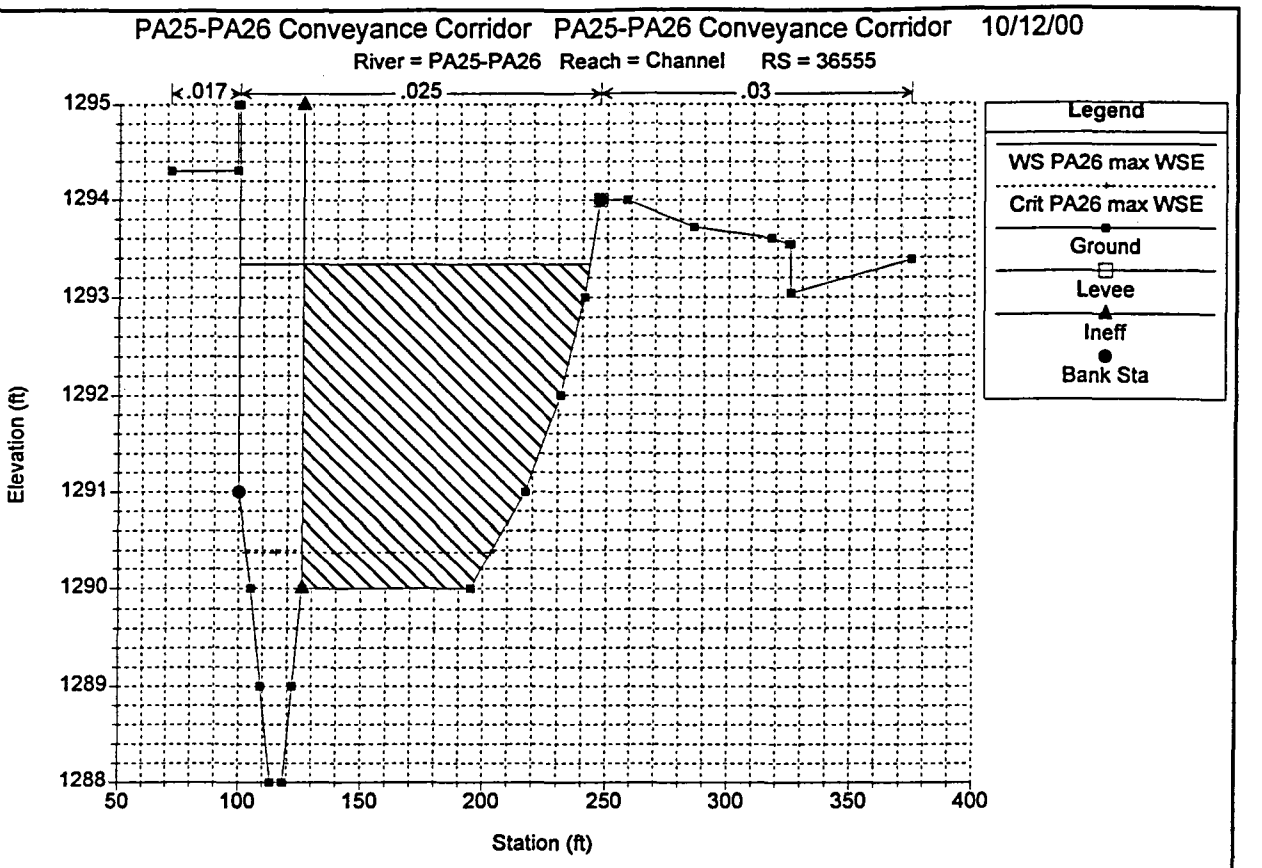
| E.G. Elev (ft) | 1291.56 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.04 | Wt. n-Val. | 0.000 | 0.017 | 0.030 |
| W.S. Elev (ft) | 1291.52 | Reach Len. (ft) | 8.01 | 12.27 | 21.00 |
| Crit W.S. (ft) | 1289.84 | Flow Area (sq ft) | 0.00 | 43.35 | 9.05 |
| E.G. Slope (ft/ft) | 0.000137 | Area (sq ft) | 0.00 | 43.35 | 9.05 |
| Q Total (cfs) | 74.50 | Flow (cfs) | 0.00 | 72.30 | 2.20 |
| Top Width (ft) | 53.28 | Top Width (ft) | | 19.99 | 33.29 |
| Vel Total (ft/s) | 1.42 | Avg. Vel. (ft/s) | 0.01 | 1.67 | 0.24 |
| Max Chl Dpth (ft) | 3.40 | Hydr. Depth (ft) | 0.41 | 2.17 | 0.27 |
| Conv. Total (cfs) | 6369.6 | Conv. (cfs) | 0.0 | 6181.5 | 188.1 |
| Length Wtd. (ft) | 12.52 | Wetted Per. (ft) | 0.82 | 20.80 | 33.32 |
| Min Ch El (ft) | 1288.12 | Shear (lb/sq ft) | | 0.02 | 0.00 |
| Alpha | 1.34 | Stream Power (lb/ft s) | | 0.03 | 0.00 |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.03 | 0.06 | 0.02 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.02 | 0.02 | 0.04 |

Plan: PA25-PA26 River: PA25-PA26 Reach:Channel Riv Sta: 35320 Profile: PA26 max WSE

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.56 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.05 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1291.51 | Reach Len. (ft) | 38.00 | 34.96 | 31.00 |
| Crit W.S. (ft) | 1289.87 | Flow Area (sq ft) | | 41.36 | 8.82 |
| E.G. Slope (ft/ft) | 0.000162 | Area (sq ft) | 0.00 | 41.36 | 8.82 |
| Q Total (cfs) | 74.42 | Flow (cfs) | | 72.43 | 1.99 |
| Top Width (ft) | 61.22 | Top Width (ft) | | 19.99 | 41.23 |
| Vel Total (ft/s) | 1.48 | Avg. Vel. (ft/s) | | 1.75 | 0.23 |
| Max Chl Dpth (ft) | 3.42 | Hydr. Depth (ft) | | 2.07 | 0.21 |
| Conv. Total (cfs) | 5842.2 | Conv. (cfs) | | 5686.1 | 156.1 |
| Length Wtd. (ft) | 34.91 | Wetted Per. (ft) | | 20.96 | 41.24 |
| Min Ch El (ft) | 1288.09 | Shear (lb/sq ft) | | 0.02 | 0.00 |
| Alpha | 1.36 | Stream Power (lb/ft s) | | 0.04 | 0.00 |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.03 | 0.04 | 0.02 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.02 | 0.02 | 0.02 |

Plan: PA25-PA26 River: PA25-PA26 Reach:Channel Riv Sta: 35294 Profile: PA26 max WSE

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.54 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.02 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.52 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 1288.75 | Flow Area (sq ft) | | 70.40 | |
| E.G. Slope (ft/ft) | 0.000027 | Area (sq ft) | 79.88 | 70.40 | 37.37 |
| Q Total (cfs) | 74.42 | Flow (cfs) | | 74.42 | |
| Top Width (ft) | 86.30 | Top Width (ft) | 44.40 | 20.00 | 21.90 |
| Vel Total (ft/s) | 1.06 | Avg. Vel. (ft/s) | | 1.06 | |
| Max Chl Dpth (ft) | 3.52 | Hydr. Depth (ft) | | 3.52 | |
| Conv. Total (cfs) | 14239.2 | Conv. (cfs) | | 14239.2 | |
| Length Wtd. (ft) | | Wetted Per. (ft) | | 20.00 | |
| Min Ch El (ft) | 1288.00 | Shear (lb/sq ft) | | 0.01 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.01 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |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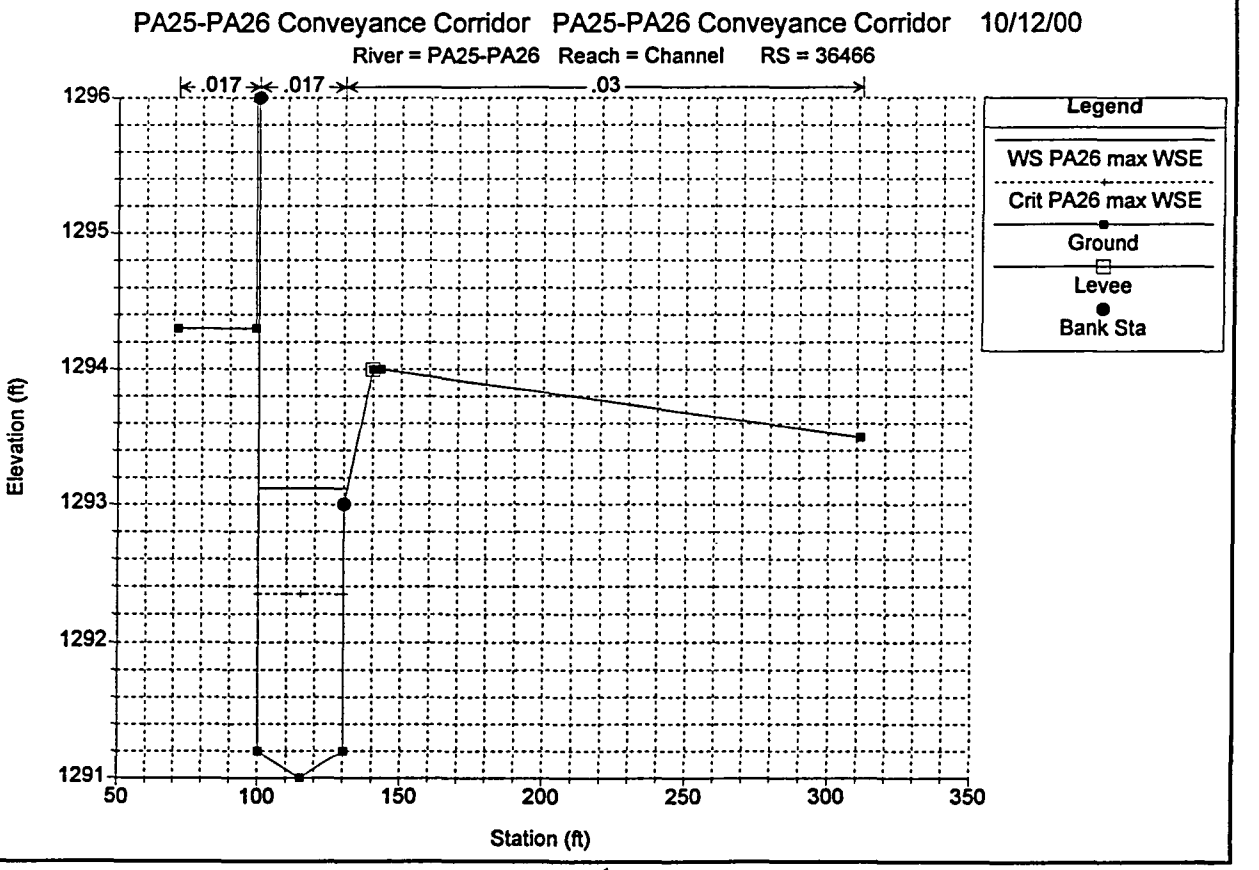
.025
.03
Legend
WS PA26 max WSE
Crit PA26 max WSE
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
1295
1294
1293
1292
1291
1290
1289
1288
50
100
150
200
250
300
350
400
Station (ft)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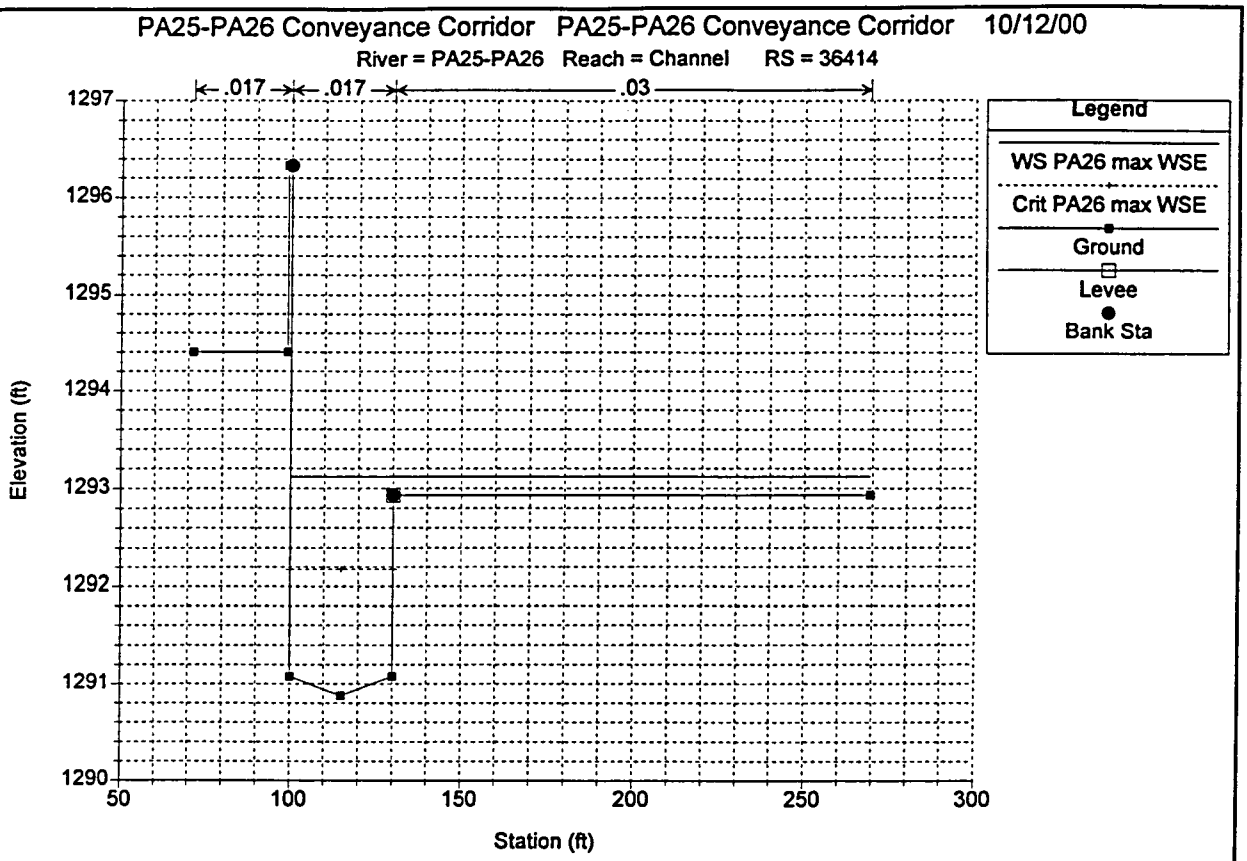
River = PA25-PA26 Reach = Channel RS = 36466
.017
.017
.03
Legend
WS PA26 max WSE
Crit PA26 max WSE
Ground
Levee
Bank Sta
Elevation (ft)
1296
1295
1294
1293
1292
1291
50
100
150
200
250
300
350
Station (ft)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River = PA25-PA26 Reach = Channel RS = 36414
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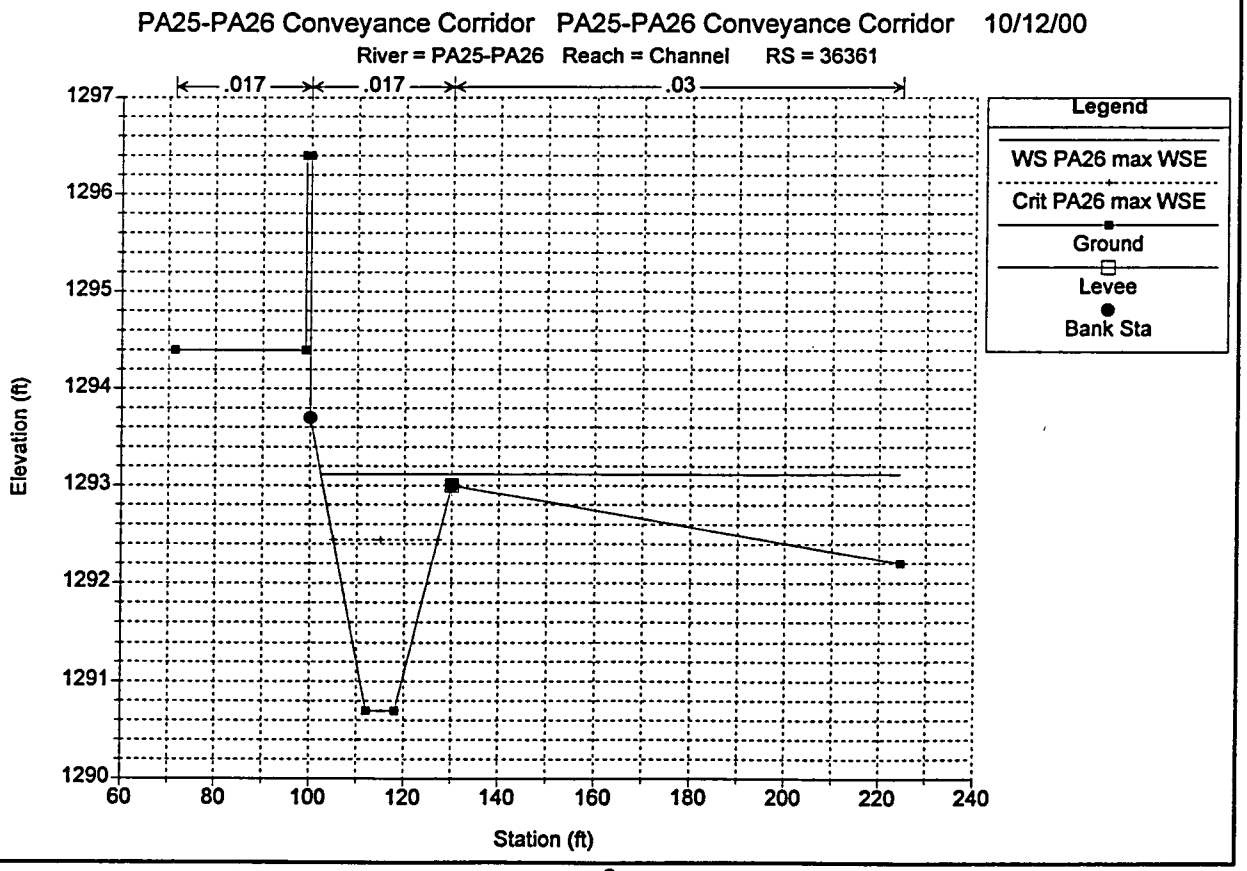
.017
.03
Legend
WS PA26 max WSE
Crit PA26 max WSE
Ground
Levee
Bank Sta
Elevation (ft)
1297
1296
1295
1294
1293
1292
1291
1290
50
100
150
200
250
300
Station (ft)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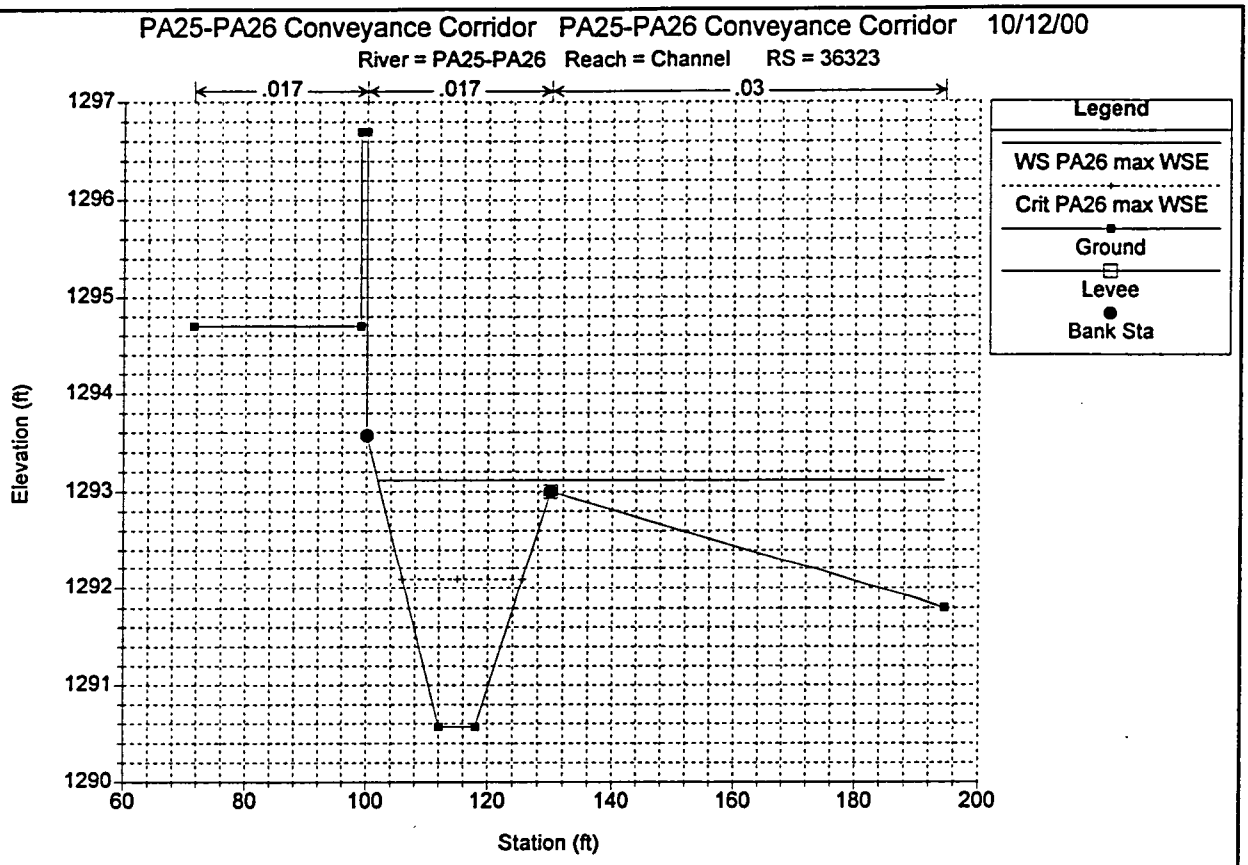
River = PA25-PA26 Reach = Channel RS = 36361
.017
.017
.03
Legend
WS PA26 max WSE
Crit PA26 max WSE
Ground
Levee
Bank Sta
Elevation (ft)
1297
1296
1295
1294
1293
1292
1291
1290
60
80
100
120
140
160
180
200
220
240
Station (ft)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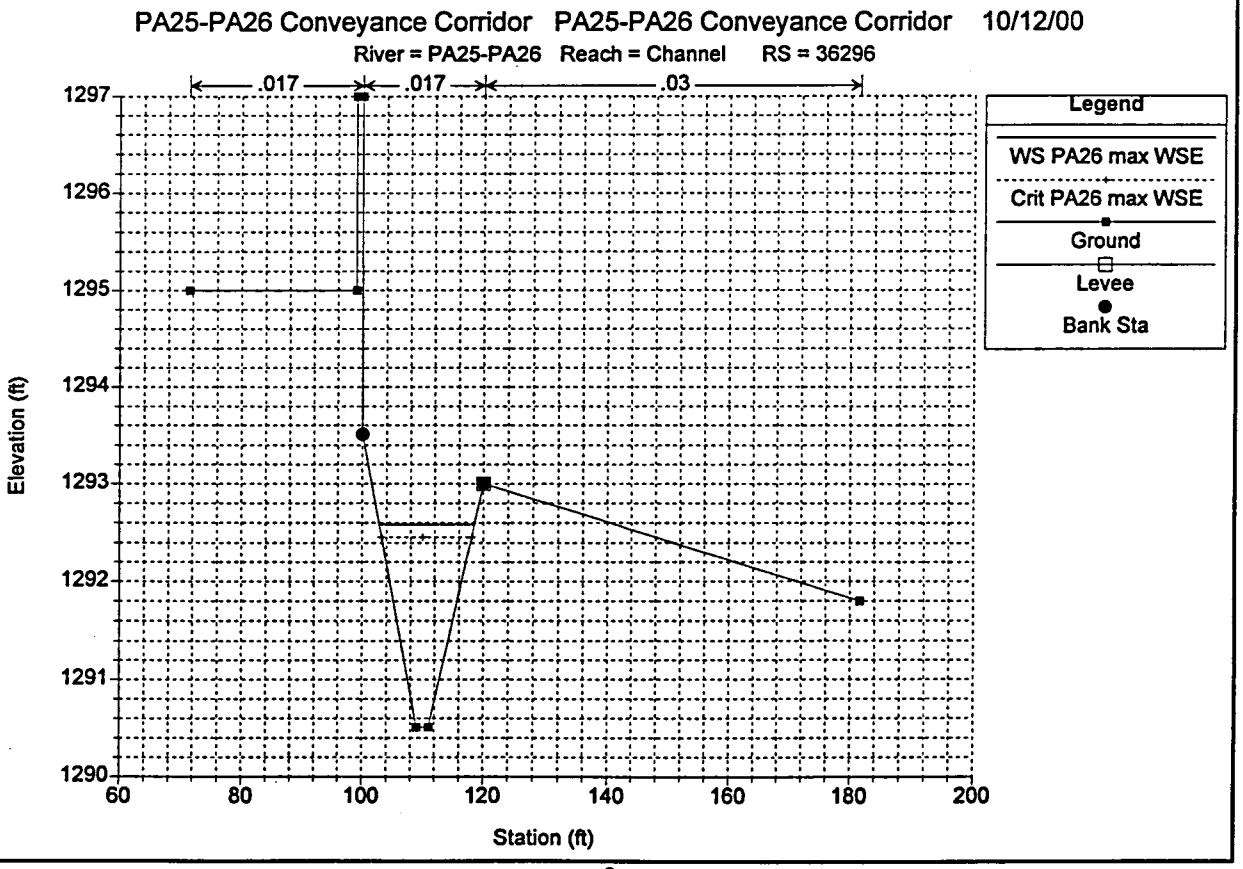
.017
.03
Legend
WS PA26 max WSE
Crit PA26 max WSE
Ground
Levee
Bank Sta
Elevation (ft)
1297
1296
1295
1294
1293
1292
1291
1290
60
80
100
120
140
160
180
200
Station (ft)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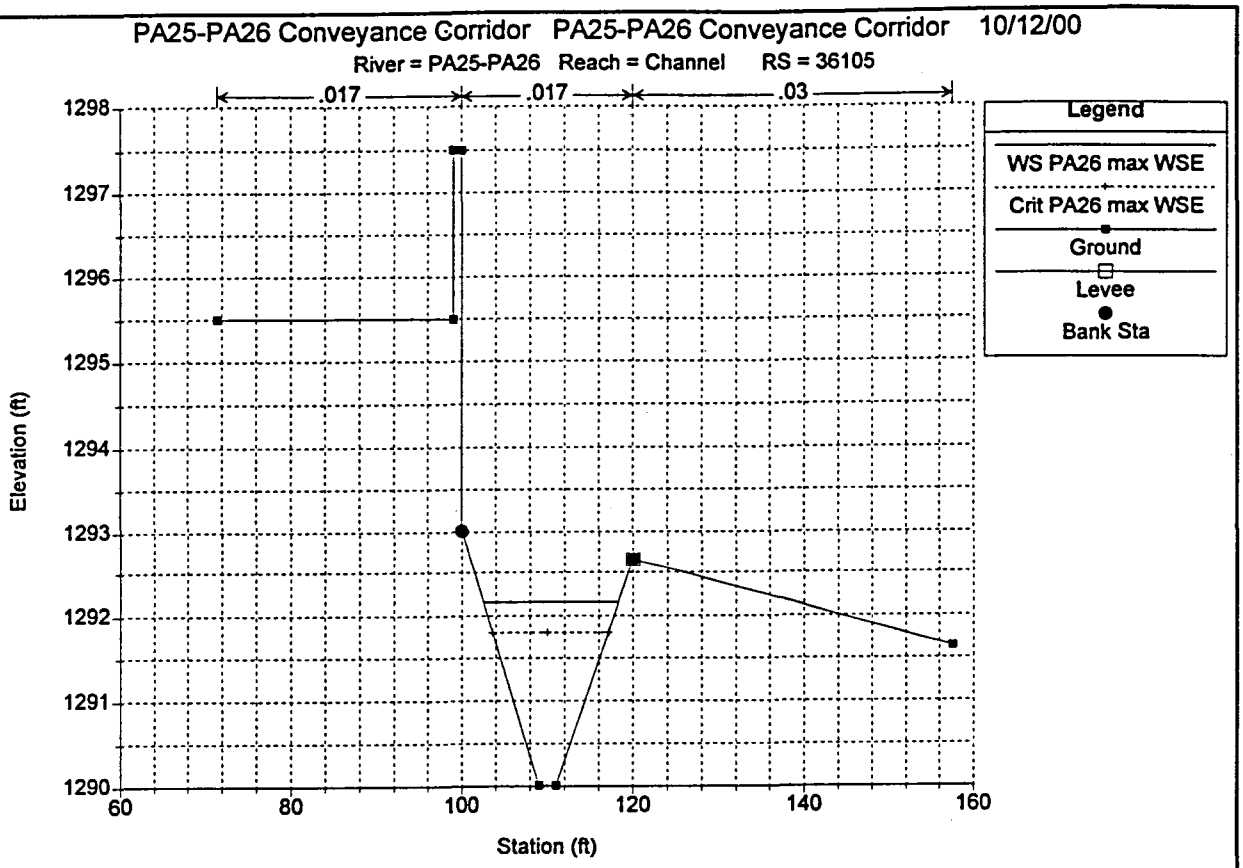
.017
.017
.03
Legend
WS PA26 max WSE
Crit PA26 max WSE
Ground
Levee
Bank Sta
Elevation (ft)
1297
1296
1295
1294
1293
1292
1291
1290
60
80
100
120
140
160
180
200
Station (ft)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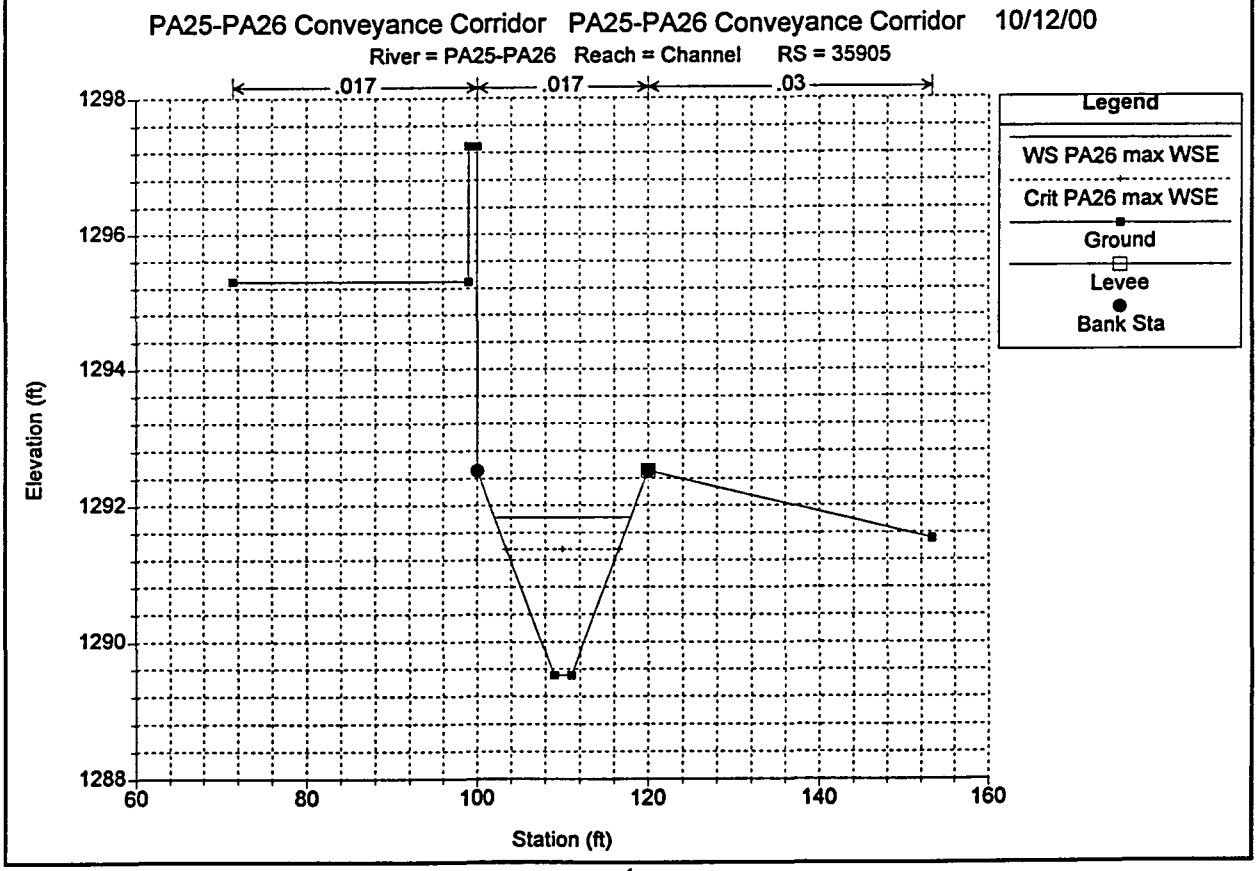
.017
.03
Legend
WS PA26 max WSE
Crit PA26 max WSE
Ground
Levee
Bank Sta
Elevation (ft)
1298
1297
1296
1295
1294
1293
1292
1291
1290
60
80
100
120
140
160
Station (ft)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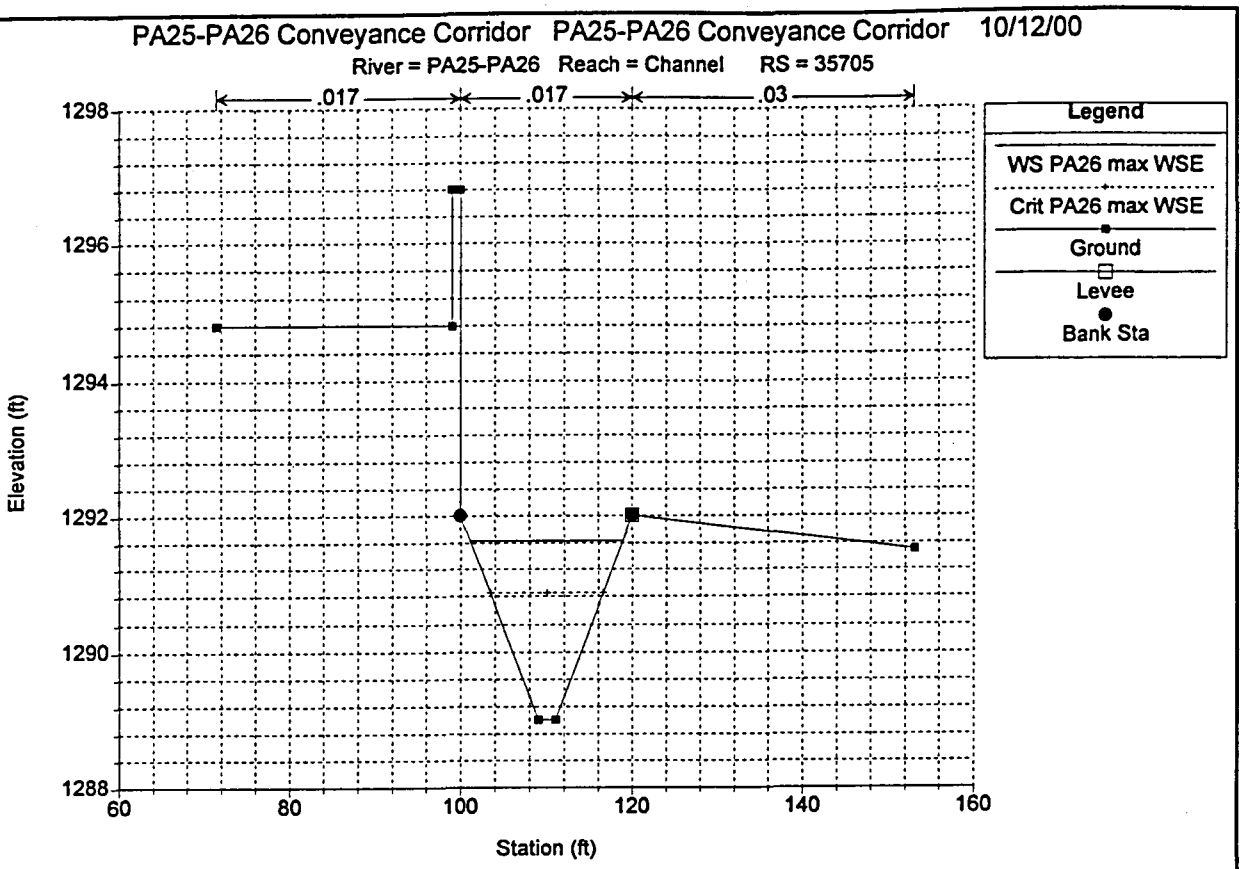
.017
.017
.03
Legend
WS PA26 max WSE
Crit PA26 max WSE
Ground
Levee
Bank Sta
Elevation (ft)
1298
1296
1294
1292
1290
1288
60
80
100
120
140
160
Station (ft)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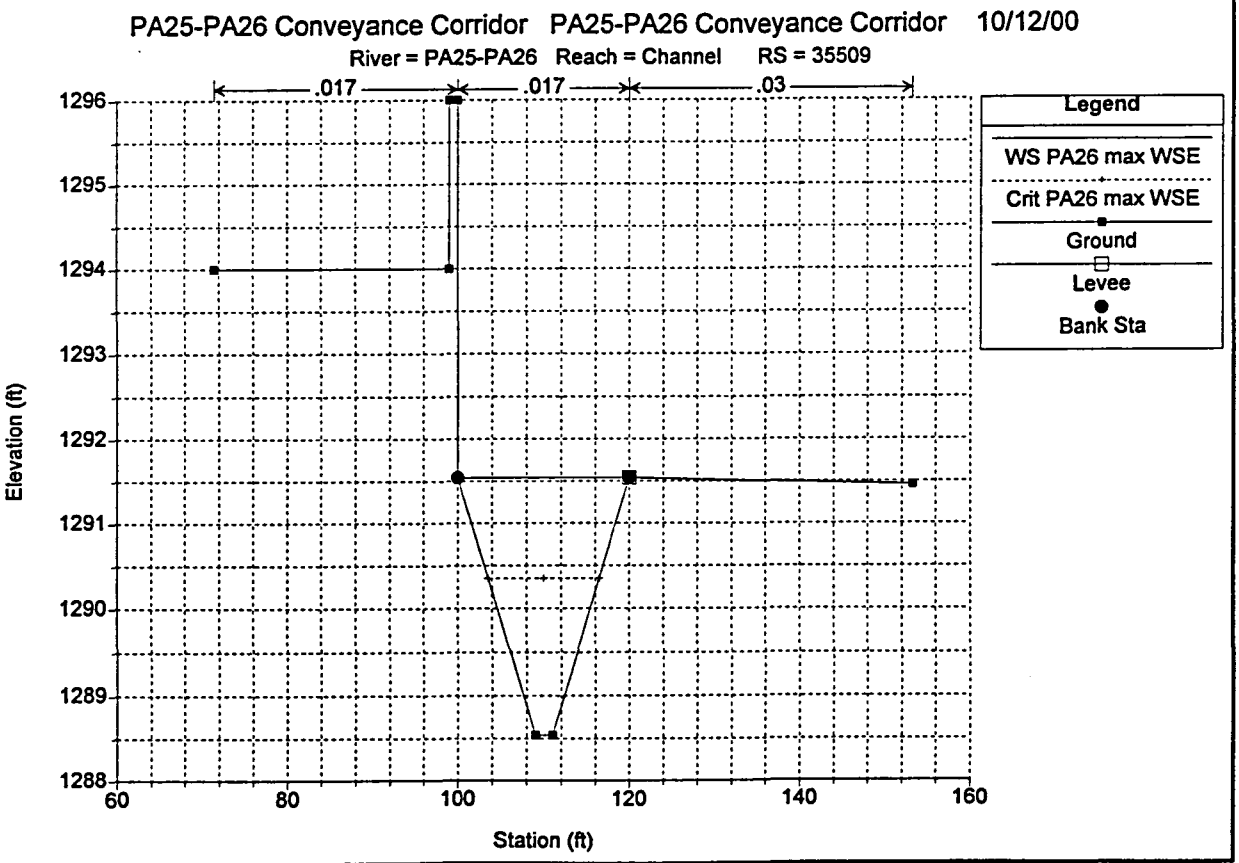
.017
.017
.03
Legend
WS PA26 max WSE
Crit PA26 max WSE
Ground
Levee
Bank Sta
Elevation (ft)
1298
1296
1294
1292
1290
1288
60
80
100
120
140
160
Station (ft)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.017
.03
Legend
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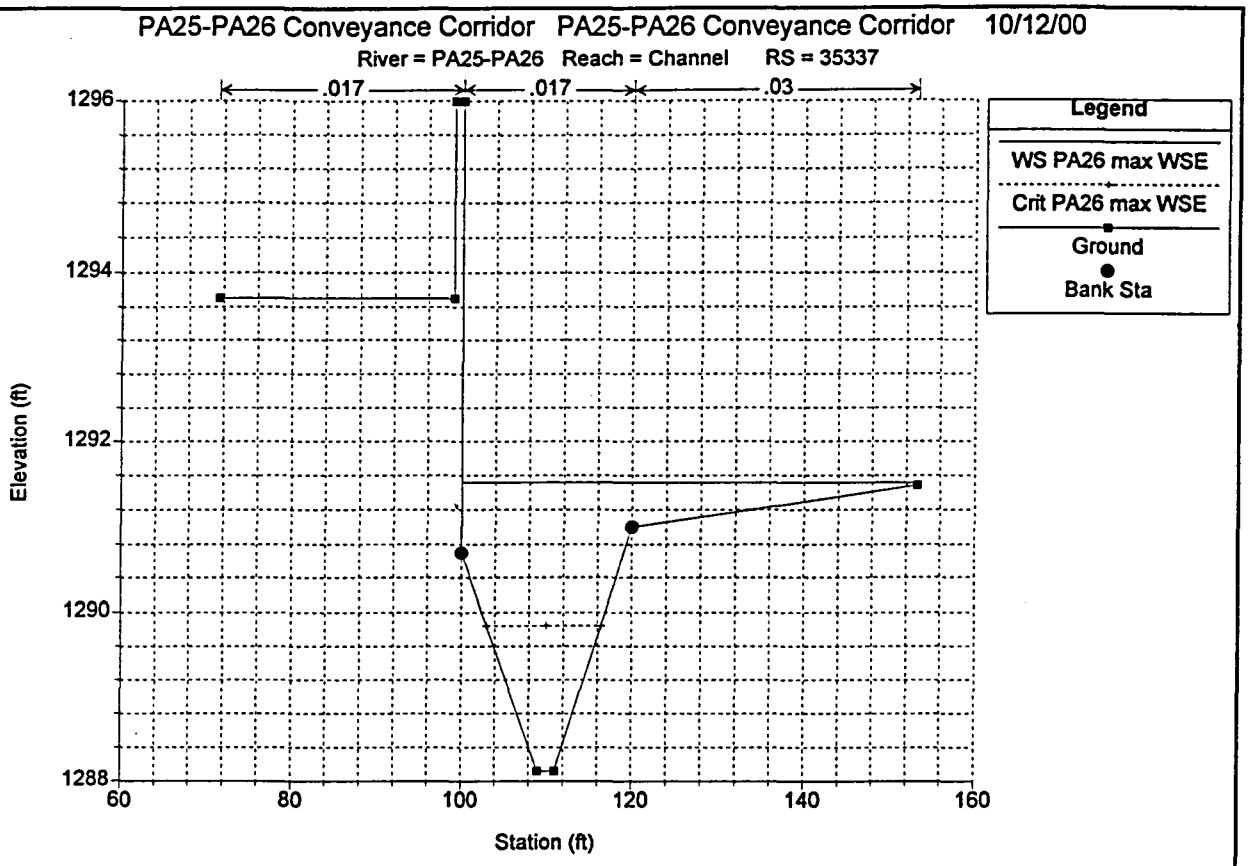
Crit PA26 max WSE
Ground
Levee
Bank Sta
Elevation (ft)
1296
1295
1294
1293
1292
1291
1290
1289
1288
60
80
100
120
140
160
Station (ft)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.017
.03
Legend
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Crit PA26 max WSE
Ground
Bank Sta
Elevation (ft)
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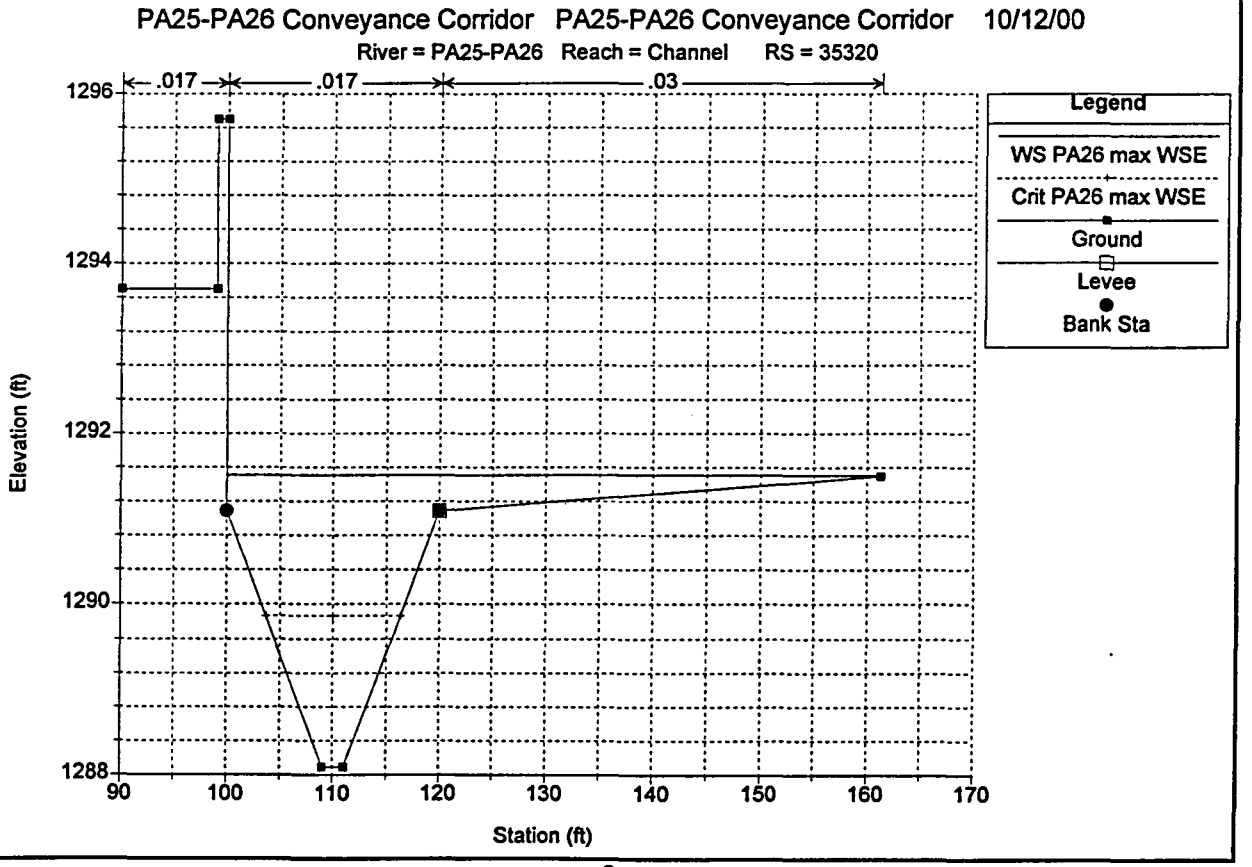
1292
1290
1288
60
80
100
120
140
160
Station (ft)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.017
.03
Legend
WS PA26 max WSE
Crit PA26 max WSE
Ground
Levee
Bank Sta
Elevation (ft)
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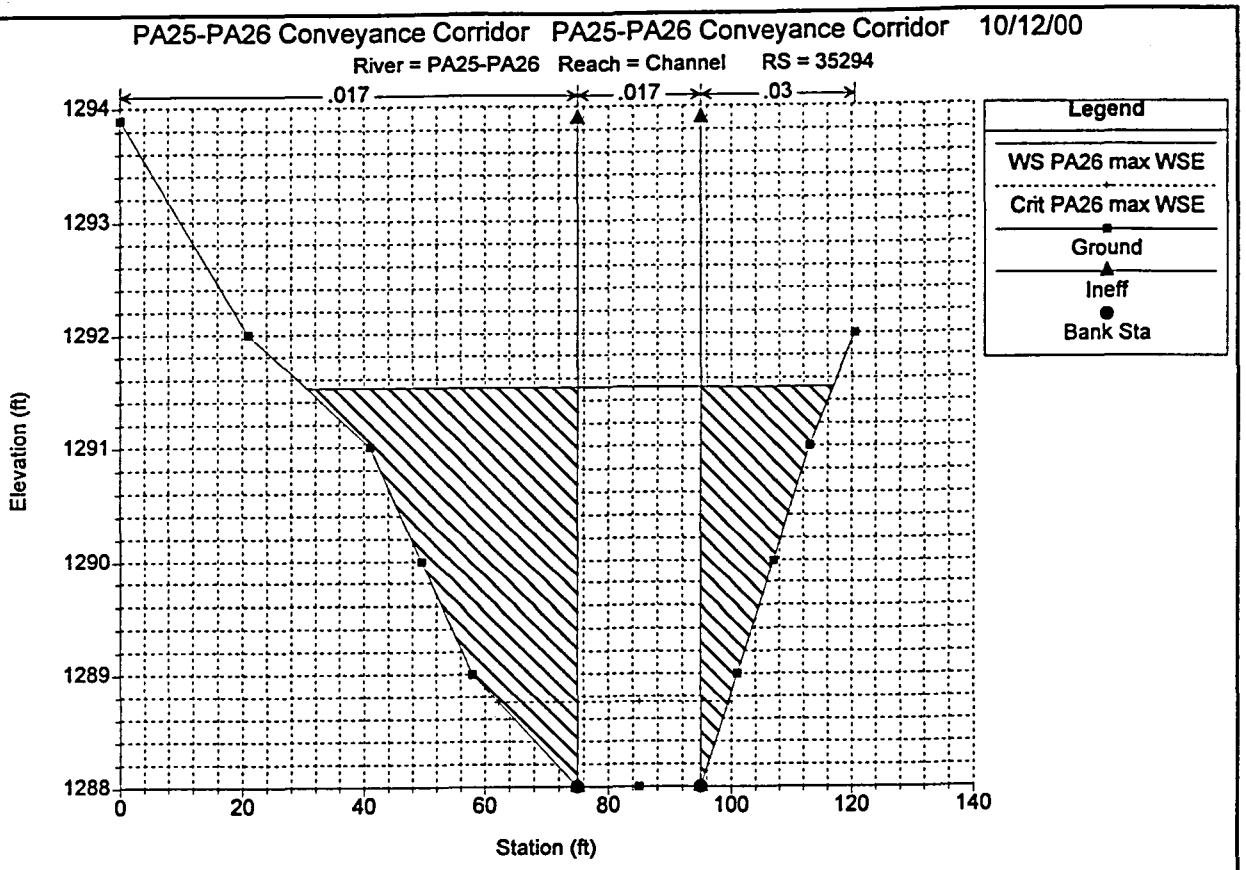
1294
1292
1290
1288
90
100
110
120
130
140
150
160
170
Station (ft)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.017
.03
Legend
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Crit PA26 max WSE
Ground
Ineff
Bank Sta
Elevation (ft)
1294
1293
1292
1291
1290
1289
1288
0
20
40
60
80
100
120
140
Station (ft)

HEC-RAS September 1998 Version 2.2
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
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PROJECT DATA
Project Title: PA25-PA26 Conveyance Corridor
Project File : PA25-PA26.prj
Run Date and Time: 11/6/00 3:51:23 PM

Project in English units

PLAN DATA

Plan Title: PA25-PA26 Conveyance Corridor
Plan File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA25-PA26.p01

Geometry Title: PA25-PA26 Conveyance Corridor
Geometry File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA25-PA26.g01

Flow Title : PA25-PA26 Conveyance Corridor
Flow File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA25-PA26.f01

Plan Summary Information:
Number of: Cross Sections = 13 Mulitple Openings = 0
Culverts = 0 Inline Weirs = 0
Bridges = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed at all cross sections
Conveyance Calculation Method: Between every coordinate point (HEC2 Style)
Friction Slope Method: Program Selects Appropriate method
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: PA25-PA26 Conveyance Corridor
Flow File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA25-PA26.f01

Flow Data (cfs)

| River | Reach | RS | PA26 max WSE | 50 | 100 | 150 | 200 | 250 | 300 |
|---|---|---|---|---|---|---|---|---|---|
| PA25-PA26 | Channel | 36555 | 236 | 50 | 100 | 150 | 200 | 250 | 300 |
| PA25-PA26 | Channel | 36466 | 236 | 50 | 100 | 150 | 200 | 250 | 300 |
| PA25-PA26 | Channel | 36414 | 220.77 | 50 | 97.8 | 143.96 | 188.99 | 232.93 | 274.87 |
| PA25-PA26 | Channel | 36361 | 146.13 | 50 | 77.32 | 102.32 | 127.86 | 152.89 | 176.96 |
| PA25-PA26 | Channel | 36323 | 108.78 | 50 | 70.6 | 83.78 | 98.18 | 112.6 | 126.69 |
| PA25-PA26 | Channel | 36296 | 97.63 | 50 | 69.81 | 79.19 | 89.73 | 100.34 | 110.56 |
| PA25-PA26 | Channel | 36105 | 80.88 | 50 | 69.81 | 76.69 | 79.37 | 81.11 | 82.38 |
| PA25-PA26 | Channel | 35905 | 81.87 | 50 | 69.81 | 76.69 | 79.37 | 81.08 | 82.25 |
| PA25-PA26 | Channel | 35705 | 80.87 | 50 | 69.81 | 76.69 | 79.37 | 81.08 | 82.25 |
| PA25-PA26 | Channel | 35509 | 79.59 | 50 | 69.42 | 75.84 | 78.23 | 79.76 | 80.64 |
| PA25-PA26 | Channel | 35337 | 74.5 | 50 | 65.8 | 71.33 | 73.34 | 74.63 | 75.56 |
| PA25-PA26 | Channel | 35320 | 74.42 | 50 | 65.71 | 71.24 | 73.26 | 74.55 | 75.48 |
| PA25-PA26 | Channel | 35294 | 74.42 | 50 | 68.71 | 71.24 | 73.26 | 74.55 | 75.48 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| PA25-PA26 | Channel | PA26 max WSE | | Known WS = 1291.52 |

| | | | |
|---|---|---|---|
| PA25-PA26 | Channel | 50 | Known WS = 1291.52 |
| PA25-PA26 | Channel | 100 | Known WS = 1291.52 |
| PA25-PA26 | Channel | 150 | Known WS = 1291.52 |
| PA25-PA26 | Channel | 200 | Known WS = 1291.52 |
| PA25-PA26 | Channel | 250 | Known WS = 1291.52 |
| PA25-PA26 | Channel | 300 | Known WS = 1291.52 |

GEOMETRY DATA

Geometry Title: PA25-PA26 Conveyance Corridor
Geometry File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA25-PA26.g01

CROSS SECTION RIVER: PA25-PA26
REACH: Channel RS: 36555

INPUT
Description:
Station Elevation Data num= 21

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 71.43 | 1294.3 | 99 | 1294.3 | 99 | 1295 | 100 | 1295 | 100.01 | 1291 |
| 105 | 1290 | 109 | 1289 | 113 | 1288 | 118 | 1288 | 122 | 1289 |
| 126 | 1290 | 195 | 1290 | 217 | 1291 | 231 | 1292 | 240.5 | 1293 |
| 247 | 1294 | 288.91 | 1293.6 | 296.01 | 1293.54 | 296.71 | 1293.54 | 296.71 | 1293.04 |
| 345.66 | 1293.38 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 71.43 | .017 | 100.01 | .025 | 247 | .03 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 100.01 | 247 | 17.22 | 17.22 | 153.36 | .3 | .5 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 126 | 345.66 | |

Right Levee Station= 247 Elevation= 1294

CROSS SECTION OUTPUT Profile #PA26 max WSE

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.41 | Element | | | |
| Vel Head (ft) | 0.07 | Wt. n-Val. | 0.017 | 0.025 | |
| W.S. Elev (ft) | 1293.34 | Reach Len. (ft) | 17.22 | 17.22 | 153.36 |
| Crit W.S. (ft) | 1290.37 | Flow Area (sq ft) | 0.01 | 110.23 | |
| E.G. Slope (ft/ft) | 0.000195 | Area (sq ft) | 0.01 | 436.94 | |
| Q Total (cfs) | 236.00 | Flow (cfs) | 0.00 | 236.00 | |
| Top Width (ft) | 142.69 | Top Width (ft) | | 142.68 | |
| Vel Total (ft/s) | 2.14 | Avg. Vel. (ft/s) | 0.02 | 2.14 | |
| Max Chl Dpth (ft) | 5.34 | Hydr. Depth (ft) | 1.17 | 4.24 | |
| Conv. Total (cfs) | 16912.1 | Conv. (cfs) | 0.0 | 16912.1 | |
| Length Wtd. (ft) | 17.22 | Wetted Per. (ft) | 2.34 | 26.58 | |
| Min Ch El (ft) | 1288.00 | Shear (lb/sq ft) | 0.00 | 0.05 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.00 | 0.11 | |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 0.03 | 0.95 | 0.19 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.02 | 0.57 | 0.49 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #50

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.57 | Element | | | |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.000 | 0.025 | |
| W.S. Elev (ft) | 1292.57 | Reach Len. (ft) | 17.22 | 17.22 | 153.36 |
| Crit W.S. (ft) | 1289.09 | Flow Area (sq ft) | 0.00 | 90.19 | |
| E.G. Slope (ft/ft) | 0.000017 | Area (sq ft) | 0.00 | 329.10 | |
| Q Total (cfs) | 50.00 | Flow (cfs) | 0.00 | 50.00 | |
| Top Width (ft) | 136.37 | Top Width (ft) | | 136.36 | |
| Vel Total (ft/s) | 0.55 | Avg. Vel. (ft/s) | 0.01 | 0.55 | |
| Max Chl Dpth (ft) | 4.57 | Hydr. Depth (ft) | 0.78 | 3.47 | |
| Conv. Total (cfs) | 12103.4 | Conv. (cfs) | 0.0 | 12103.4 | |
| Length Wtd. (ft) | 17.22 | Wetted Per. (ft) | 1.57 | 26.58 | |
| Min Ch El (ft) | 1288.00 | Shear (lb/sq ft) | | 0.00 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.00 | |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.03 | 0.80 | 0.04 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.02 | 0.53 | 0.11 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.92 | Element | | | |
| Vel Head (ft) | 0.02 | Wt. n-Val. | 0.000 | 0.025 | |
| W.S. Elev (ft) | 1292.90 | Reach Len. (ft) | 17.22 | 17.22 | 153.36 |
| Crit W.S. (ft) | 1289.56 | Flow Area (sq ft) | 0.00 | 98.89 | |
| E.G. Slope (ft/ft) | 0.000050 | Area (sq ft) | 0.00 | 375.28 | |
| Q Total (cfs) | 100.00 | Flow (cfs) | 0.00 | 100.00 | |
| Top Width (ft) | 139.55 | Top Width (ft) | | 139.54 | |
| Vel Total (ft/s) | 1.01 | Avg. Vel. (ft/s) | 0.01 | 1.01 | |
| Max Chl Dpth (ft) | 4.90 | Hydr. Depth (ft) | 0.95 | 3.80 | |
| Conv. Total (cfs) | 14111.1 | Conv. (cfs) | 0.0 | 14111.1 | |
| Length Wtd. (ft) | 17.22 | Wetted Per. (ft) | 1.90 | 26.58 | |
| Min Ch El (ft) | 1288.00 | Shear (lb/sq ft) | | 0.01 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.01 | |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.03 | 0.88 | 0.04 |

| | | | | | |
|---|---|---|---|---|---|
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.02 | 0.55 | 0.11 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #150

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.10 | Element | | | |
| Vel Head (ft) | 0.03 | Wt. n-Val. | 0.000 | 0.025 | |
| W.S. Elev (ft) | 1293.07 | Reach Len. (ft) | 17.22 | 17.22 | 153.36 |
| Crit W.S. (ft) | 1289.92 | Flow Area (sq ft) | 0.01 | 103.33 | |
| E.G. Slope (ft/ft) | 0.000098 | Area (sq ft) | 0.01 | 399.27 | |
| Q Total (cfs) | 150.00 | Flow (cfs) | 0.00 | 150.00 | |
| Top Width (ft) | 140.96 | Top Width (ft) | | 140.95 | |
| Vel Total (ft/s) | 1.45 | Avg. Vel. (ft/s) | 0.02 | 1.45 | |
| Max Chl Dpth (ft) | 5.07 | Hydr. Depth (ft) | 1.04 | 3.98 | |
| Conv. Total (cfs) | 15184.0 | Conv. (cfs) | 0.0 | 15184.0 | |
| Length Wtd. (ft) | 17.22 | Wetted Per. (ft) | 2.07 | 26.58 | |
| Min Ch El (ft) | 1288.00 | Shear (lb/sq ft) | | 0.02 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.03 | |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.03 | 0.91 | 0.04 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.02 | 0.56 | 0.30 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #200

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.27 | Element | | | |
| Vel Head (ft) | 0.05 | Wt. n-Val. | 0.017 | 0.025 | |
| W.S. Elev (ft) | 1293.22 | Reach Len. (ft) | 17.22 | 17.22 | 153.36 |
| Crit W.S. (ft) | 1290.19 | Flow Area (sq ft) | 0.01 | 107.08 | |
| E.G. Slope (ft/ft) | 0.000154 | Area (sq ft) | 0.01 | 419.66 | |
| Q Total (cfs) | 200.00 | Flow (cfs) | 0.00 | 200.00 | |
| Top Width (ft) | 141.90 | Top Width (ft) | | 141.89 | |
| Vel Total (ft/s) | 1.87 | Avg. Vel. (ft/s) | 0.02 | 1.87 | |
| Max Chl Dpth (ft) | 5.22 | Hydr. Depth (ft) | 1.11 | 4.12 | |
| Conv. Total (cfs) | 16112.6 | Conv. (cfs) | 0.0 | 16112.6 | |
| Length Wtd. (ft) | 17.22 | Wetted Per. (ft) | 2.22 | 26.58 | |
| Min Ch El (ft) | 1288.00 | Shear (lb/sq ft) | 0.00 | 0.04 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.00 | 0.07 | |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.03 | 0.93 | 0.15 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.02 | 0.57 | 0.49 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #250

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.46 | Element | | | |
| Vel Head (ft) | 0.08 | Wt. n-Val. | 0.017 | 0.025 | |
| W.S. Elev (ft) | 1293.38 | Reach Len. (ft) | 17.22 | 17.22 | 153.36 |
| Crit W.S. (ft) | 1290.42 | Flow Area (sq ft) | 0.01 | 111.40 | |
| E.G. Slope (ft/ft) | 0.000211 | Area (sq ft) | 0.01 | 443.33 | |
| Q Total (cfs) | 250.00 | Flow (cfs) | 0.00 | 250.00 | |
| Top Width (ft) | 142.98 | Top Width (ft) | | 142.97 | |
| Vel Total (ft/s) | 2.24 | Avg. Vel. (ft/s) | 0.03 | 2.24 | |
| Max Chl Dpth (ft) | 5.38 | Hydr. Depth (ft) | 1.19 | 4.29 | |
| Conv. Total (cfs) | 17210.0 | Conv. (cfs) | 0.0 | 17210.0 | |
| Length Wtd. (ft) | 17.23 | Wetted Per. (ft) | 2.38 | 26.58 | |
| Min Ch El (ft) | 1288.00 | Shear (lb/sq ft) | 0.00 | 0.06 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.00 | 0.12 | |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 0.03 | 0.95 | 0.20 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.02 | 0.57 | 0.49 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #300

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.65 | Element | | | |
| Vel Head (ft) | 0.10 | Wt. n-Val. | 0.017 | 0.025 | |
| W.S. Elev (ft) | 1293.55 | Reach Len. (ft) | 17.22 | 17.22 | 153.36 |
| Crit W.S. (ft) | 1290.66 | Flow Area (sq ft) | 0.01 | 115.64 | |
| E.G. Slope (ft/ft) | 0.000268 | Area (sq ft) | 0.01 | 466.76 | |
| Q Total (cfs) | 300.00 | Flow (cfs) | 0.00 | 300.00 | |
| Top Width (ft) | 144.04 | Top Width (ft) | | 144.03 | |
| Vel Total (ft/s) | 2.59 | Avg. Vel. (ft/s) | 0.03 | 2.59 | |
| Max Chl Dpth (ft) | 5.55 | Hydr. Depth (ft) | 1.27 | 4.45 | |
| Conv. Total (cfs) | 18316.9 | Conv. (cfs) | 0.0 | 18316.9 | |
| Length Wtd. (ft) | 17.24 | Wetted Per. (ft) | 2.54 | 26.58 | |
| Min Ch El (ft) | 1288.00 | Shear (lb/sq ft) | 0.00 | 0.07 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.00 | 0.19 | |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 0.03 | 0.98 | 0.25 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 0.02 | 0.57 | 0.64 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: PA25-PA26
REACH: Channel RS: 36466

INPUT
Description:
Station Elevation Data num= 11

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 71.43 | 1294.3 | 99 | 1294.3 | 99 | 1296 | 100 | 1296 | 100.01 | 1291.2 |
| 115 | 1291 | 129.99 | 1291.2 | 130 | 1293 | 140 | 1294 | 142.75 | 1294 |
| 311.25 | 1293.5 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 71.43 | .017 | 100 | .017 | 130 | .03 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 100 | 130 | 50 | 50 | 50 | .3 | .5 |

Right Levee Station= 140 Elevation= 1294

CROSS SECTION OUTPUT Profile #PA26 max WSE

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.35 | Element | | | |
| Vel Head (ft) | 0.24 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1293.12 | Reach Len. (ft) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (ft) | 1292.34 | Flow Area (sq ft) | | 60.48 | 0.07 |
| E.G. Slope (ft/ft) | 0.000914 | Area (sq ft) | | 60.48 | 0.07 |
| Q Total (cfs) | 236.00 | Flow (cfs) | | 235.98 | 0.02 |
| Top Width (ft) | 31.16 | Top Width (ft) | | 29.99 | 1.17 |
| Vel Total (ft/s) | 3.90 | Avg. Vel. (ft/s) | | 3.90 | 0.22 |
| Max Chl Dpth (ft) | 2.12 | Hydr. Depth (ft) | | 2.02 | 0.06 |
| Conv. Total (cfs) | 7807.3 | Conv. (cfs) | | 7806.8 | 0.5 |
| Length Wtd. (ft) | 50.00 | Wetted Per. (ft) | | 33.70 | 1.17 |
| Min Ch El (ft) | 1291.00 | Shear (lb/sq ft) | | 0.10 | 0.00 |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.40 | 0.00 |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | 0.03 | 0.85 | 0.19 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.02 | 0.53 | 0.49 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #50

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.57 | Element | | | |
| Vel Head (ft) | 0.02 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.54 | Reach Len. (ft) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (ft) | 1291.54 | Flow Area (sq ft) | | 43.31 | |
| E.G. Slope (ft/ft) | 0.000120 | Area (sq ft) | | 43.31 | |
| Q Total (cfs) | 50.00 | Flow (cfs) | | 50.00 | |
| Top Width (ft) | 29.99 | Top Width (ft) | | 29.99 | |
| Vel Total (ft/s) | 1.15 | Avg. Vel. (ft/s) | | 1.15 | |
| Max Chl Dpth (ft) | 1.54 | Hydr. Depth (ft) | | 1.44 | |
| Conv. Total (cfs) | 4568.6 | Conv. (cfs) | | 4568.6 | |
| Length Wtd. (ft) | 50.00 | Wetted Per. (ft) | | 32.67 | |
| Min Ch El (ft) | 1291.00 | Shear (lb/sq ft) | | 0.01 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.01 | |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 0.03 | 0.73 | 0.04 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.02 | 0.50 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.90 | Element | | | |
| Vel Head (ft) | 0.06 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.85 | Reach Len. (ft) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (ft) | 1291.80 | Flow Area (sq ft) | | 52.35 | |
| E.G. Slope (ft/ft) | 0.000261 | Area (sq ft) | | 52.35 | |
| Q Total (cfs) | 100.00 | Flow (cfs) | | 100.00 | |
| Top Width (ft) | 29.99 | Top Width (ft) | | 29.99 | |
| Vel Total (ft/s) | 1.91 | Avg. Vel. (ft/s) | | 1.91 | |
| Max Chl Dpth (ft) | 1.85 | Hydr. Depth (ft) | | 1.75 | |
| Conv. Total (cfs) | 6190.5 | Conv. (cfs) | | 6190.5 | |
| Length Wtd. (ft) | 50.00 | Wetted Per. (ft) | | 33.27 | |
| Min Ch El (ft) | 1291.00 | Shear (lb/sq ft) | | 0.03 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.05 | |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 0.03 | 0.79 | 0.04 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.02 | 0.52 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #150

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.08 | Element | | | |
| Vel Head (ft) | 0.11 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.97 | Reach Len. (ft) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (ft) | 1292.02 | Flow Area (sq ft) | | 55.96 | |
| E.G. Slope (ft/ft) | 0.000475 | Area (sq ft) | | 55.96 | |
| Q Total (cfs) | 150.00 | Flow (cfs) | | 150.00 | |
| Top Width (ft) | 29.99 | Top Width (ft) | | 29.99 | |
| Vel Total (ft/s) | 2.68 | Avg. Vel. (ft/s) | | 2.68 | |
| Max Chl Dpth (ft) | 1.97 | Hydr. Depth (ft) | | 1.87 | |
| Conv. Total (cfs) | 6883.6 | Conv. (cfs) | | 6883.6 | |
| Length Wtd. (ft) | 50.00 | Wetted Per. (ft) | | 33.51 | |
| Min Ch El (ft) | 1291.00 | Shear (lb/sq ft) | | 0.05 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.13 | |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 0.03 | 0.82 | 0.04 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.02 | 0.53 | 0.30 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #200

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.23 | Element | | | |
| Vel Head (ft) | 0.18 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1293.04 | Reach Len. (ft) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (ft) | 1292.22 | Flow Area (sq ft) | | 58.30 | 0.01 |
| E.G. Slope (ft/ft) | 0.000740 | Area (sq ft) | | 58.30 | 0.01 |
| Q Total (cfs) | 200.00 | Flow (cfs) | | 200.00 | 0.00 |
| Top Width (ft) | 30.43 | Top Width (ft) | | 29.99 | 0.44 |
| Vel Total (ft/s) | 3.43 | Avg. Vel. (ft/s) | | 3.43 | 0.11 |
| Max Chl Dpth (ft) | 2.04 | Hydr. Depth (ft) | | 1.94 | 0.02 |
| Conv. Total (cfs) | 7353.6 | Conv. (cfs) | | 7353.6 | 0.0 |
| Length Wtd. (ft) | 50.00 | Wetted Per. (ft) | | 33.63 | 0.44 |
| Min Ch El (ft) | 1291.00 | Shear (lb/sq ft) | | 0.08 | 0.00 |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.27 | 0.00 |
| Frctn Loss (ft) | 0.03 | Cum Volume (acre-ft) | 0.03 | 0.84 | 0.15 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.02 | 0.53 | 0.49 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #250

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.40 | Element | | | |
| Vel Head (ft) | 0.26 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1293.14 | Reach Len. (ft) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (ft) | 1292.40 | Flow Area (sq ft) | | 61.19 | 0.10 |
| E.G. Slope (ft/ft) | 0.000987 | Area (sq ft) | | 61.19 | 0.10 |
| Q Total (cfs) | 250.00 | Flow (cfs) | | 249.97 | 0.03 |
| Top Width (ft) | 31.40 | Top Width (ft) | | 29.99 | 1.41 |
| Vel Total (ft/s) | 4.08 | Avg. Vel. (ft/s) | | 4.09 | 0.26 |
| Max Chl Dpth (ft) | 2.14 | Hydr. Depth (ft) | | 2.04 | 0.07 |
| Conv. Total (cfs) | 7957.3 | Conv. (cfs) | | 7956.4 | 0.8 |
| Length Wtd. (ft) | 50.00 | Wetted Per. (ft) | | 33.72 | 1.41 |
| Min Ch El (ft) | 1291.00 | Shear (lb/sq ft) | | 0.11 | 0.00 |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.46 | 0.00 |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | 0.03 | 0.85 | 0.20 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.02 | 0.54 | 0.49 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #300

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.57 | Element | | | |
| Vel Head (ft) | 0.34 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1293.23 | Reach Len. (ft) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (ft) | 1292.56 | Flow Area (sq ft) | | 63.80 | 0.26 |
| E.G. Slope (ft/ft) | 0.001240 | Area (sq ft) | | 63.80 | 0.26 |
| Q Total (cfs) | 300.00 | Flow (cfs) | | 299.89 | 0.11 |
| Top Width (ft) | 32.27 | Top Width (ft) | | 29.99 | 2.28 |
| Vel Total (ft/s) | 4.68 | Avg. Vel. (ft/s) | | 4.70 | 0.41 |
| Max Chl Dpth (ft) | 2.23 | Hydr. Depth (ft) | | 2.13 | 0.11 |
| Conv. Total (cfs) | 8518.6 | Conv. (cfs) | | 8515.6 | 3.0 |
| Length Wtd. (ft) | 50.00 | Wetted Per. (ft) | | 33.81 | 2.29 |
| Min Ch El (ft) | 1291.00 | Shear (lb/sq ft) | | 0.15 | 0.01 |
| Alpha | 1.01 | Stream Power (lb/ft s) | | 0.69 | 0.00 |
| Frctn Loss (ft) | 0.05 | Cum Volume (acre-ft) | 0.03 | 0.87 | 0.25 |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 0.02 | 0.54 | 0.63 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: PA25-PA26
REACH: Channel RS: 36414

INPUT
Description:
Station Elevation Data num= 9

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 71.43 | 1294.4 | 99 | 1294.4 | 99 | 1296.33 | 100 | 1296.33 | 100.01 | 1291.08 |
| 115 | 1290.88 | 129.99 | 1291.08 | 130 | 1292.93 | 269.22 | 1292.93 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 71.43 | .017 | 100 | .017 | 130 | .03 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 100 | 130 | 70 | 70 | 70 | .3 | .5 |

Right Levee Station= 130 Elevation= 1292.93

CROSS SECTION OUTPUT Profile #PA26 max WSE

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.28 | Element | | | |
| Vel Head (ft) | 0.16 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1293.12 | Reach Len. (ft) | 70.00 | 70.00 | 70.00 |
| Crit W.S. (ft) | 1292.17 | Flow Area (sq ft) | | 64.09 | 26.07 |
| E.G. Slope (ft/ft) | 0.000603 | Area (sq ft) | | 64.09 | 26.07 |
| Q Total (cfs) | 220.77 | Flow (cfs) | | 210.40 | 10.37 |
| Top Width (ft) | 169.21 | Top Width (ft) | | 29.99 | 139.22 |
| Vel Total (ft/s) | 2.45 | Avg. Vel. (ft/s) | | 3.28 | 0.40 |
| Max Chl Dpth (ft) | 2.24 | Hydr. Depth (ft) | | 2.14 | 0.19 |
| Conv. Total (cfs) | 8992.8 | Conv. (cfs) | | 8570.6 | 422.3 |
| Length Wtd. (ft) | 70.00 | Wetted Per. (ft) | | 33.87 | 139.41 |
| Min Ch El (ft) | 1290.88 | Shear (lb/sq ft) | | 0.07 | 0.01 |

| | | | | | |
|---|---|---|---|---|---|
| Alpha | 1.71 | Stream Power (lb/ft s) | | 0.23 | 0.00 |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | 0.03 | 0.78 | 0.17 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.02 | 0.50 | 0.41 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #50

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.56 | Element | | | |
| Vel Head (ft) | 0.02 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.54 | Reach Len. (ft) | 70.00 | 70.00 | 70.00 |
| Crit W.S. (ft) | 1291.43 | Flow Area (sq ft) | | 46.79 | |
| E.G. Slope (ft/ft) | 0.000093 | Area (sq ft) | | 46.79 | |
| Q Total (cfs) | 50.00 | Flow (cfs) | | 50.00 | |
| Top Width (ft) | 29.99 | Top Width (ft) | | 29.99 | |
| Vel Total (ft/s) | 1.07 | Avg. Vel. (ft/s) | | 1.07 | |
| Max Chl Dpth (ft) | 1.66 | Hydr. Depth (ft) | | 1.56 | |
| Conv. Total (cfs) | 5172.3 | Conv. (cfs) | | 5172.3 | |
| Length Wtd. (ft) | 70.00 | Wetted Per. (ft) | | 32.90 | |
| Min Ch El (ft) | 1290.88 | Shear (lb/sq ft) | | 0.01 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.01 | |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 0.03 | 0.67 | 0.04 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.02 | 0.47 | 0.11 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.89 | Element | | | |
| Vel Head (ft) | 0.05 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.84 | Reach Len. (ft) | 70.00 | 70.00 | 70.00 |
| Crit W.S. (ft) | 1291.65 | Flow Area (sq ft) | | 55.73 | |
| E.G. Slope (ft/ft) | 0.000204 | Area (sq ft) | | 55.73 | |
| Q Total (cfs) | 97.80 | Flow (cfs) | | 97.80 | |
| Top Width (ft) | 29.99 | Top Width (ft) | | 29.99 | |
| Vel Total (ft/s) | 1.75 | Avg. Vel. (ft/s) | | 1.75 | |
| Max Chl Dpth (ft) | 1.96 | Hydr. Depth (ft) | | 1.86 | |
| Conv. Total (cfs) | 6839.7 | Conv. (cfs) | | 6839.7 | |
| Length Wtd. (ft) | 70.00 | Wetted Per. (ft) | | 33.50 | |
| Min Ch El (ft) | 1290.88 | Shear (lb/sq ft) | | 0.02 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.04 | |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 0.03 | 0.73 | 0.04 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.02 | 0.49 | 0.11 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #150

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.05 | Element | | | |
| Vel Head (ft) | 0.09 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1292.96 | Reach Len. (ft) | 70.00 | 70.00 | 70.00 |
| Crit W.S. (ft) | 1291.88 | Flow Area (sq ft) | | 59.23 | 3.52 |
| E.G. Slope (ft/ft) | 0.000363 | Area (sq ft) | | 59.23 | 3.52 |
| Q Total (cfs) | 143.96 | Flow (cfs) | | 143.67 | 0.29 |
| Top Width (ft) | 169.21 | Top Width (ft) | | 29.99 | 139.22 |
| Vel Total (ft/s) | 2.29 | Avg. Vel. (ft/s) | | 2.43 | 0.08 |
| Max Chl Dpth (ft) | 2.08 | Hydr. Depth (ft) | | 1.97 | 0.03 |
| Conv. Total (cfs) | 7554.6 | Conv. (cfs) | | 7539.6 | 15.0 |
| Length Wtd. (ft) | 70.00 | Wetted Per. (ft) | | 33.71 | 139.25 |
| Min Ch El (ft) | 1290.88 | Shear (lb/sq ft) | | 0.04 | 0.00 |
| Alpha | 1.12 | Stream Power (lb/ft s) | | 0.10 | 0.00 |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | 0.03 | 0.75 | 0.04 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.02 | 0.49 | 0.22 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #200

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.17 | Element | | | |
| Vel Head (ft) | 0.14 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1293.03 | Reach Len. (ft) | 70.00 | 70.00 | 70.00 |
| Crit W.S. (ft) | 1292.06 | Flow Area (sq ft) | | 61.62 | 14.58 |
| E.G. Slope (ft/ft) | 0.000531 | Area (sq ft) | | 61.62 | 14.58 |
| Q Total (cfs) | 188.99 | Flow (cfs) | | 185.29 | 3.70 |
| Top Width (ft) | 169.21 | Top Width (ft) | | 29.99 | 139.22 |
| Vel Total (ft/s) | 2.48 | Avg. Vel. (ft/s) | | 3.01 | 0.25 |
| Max Chl Dpth (ft) | 2.15 | Hydr. Depth (ft) | | 2.05 | 0.10 |
| Conv. Total (cfs) | 8199.6 | Conv. (cfs) | | 8039.2 | 160.4 |
| Length Wtd. (ft) | 70.00 | Wetted Per. (ft) | | 33.79 | 139.32 |
| Min Ch El (ft) | 1290.88 | Shear (lb/sq ft) | | 0.06 | 0.00 |
| Alpha | 1.44 | Stream Power (lb/ft s) | | 0.18 | 0.00 |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | 0.03 | 0.77 | 0.14 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.02 | 0.50 | 0.41 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #250

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.31 | Element | | | |
| Vel Head (ft) | 0.17 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1293.15 | Reach Len. (ft) | 70.00 | 70.00 | 70.00 |
| Crit W.S. (ft) | 1292.21 | Flow Area (sq ft) | | 64.95 | 30.06 |
| E.G. Slope (ft/ft) | 0.000628 | Area (sq ft) | | 64.95 | 30.06 |
| Q Total (cfs) | 232.93 | Flow (cfs) | | 219.51 | 13.42 |
| Top Width (ft) | 169.21 | Top Width (ft) | | 29.99 | 139.22 |
| Vel Total (ft/s) | 2.45 | Avg. Vel. (ft/s) | | 3.38 | 0.45 |
| Max Chl Dpth (ft) | 2.27 | Hydr. Depth (ft) | | 2.17 | 0.22 |
| Conv. Total (cfs) | 9293.7 | Conv. (cfs) | | 8758.3 | 535.4 |
| Length Wtd. (ft) | 70.00 | Wetted Per. (ft) | | 33.90 | 139.44 |
| Min Ch El (ft) | 1290.88 | Shear (lb/sq ft) | | 0.08 | 0.01 |
| Alpha | 1.79 | Stream Power (lb/ft s) | | 0.25 | 0.00 |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | 0.03 | 0.78 | 0.18 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.02 | 0.50 | 0.41 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #300

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.44 | Element | | | |
| Vel Head (ft) | 0.18 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1293.26 | Reach Len. (ft) | 70.00 | 70.00 | 70.00 |
| Crit W.S. (ft) | 1292.34 | Flow Area (sq ft) | | 68.37 | 45.94 |
| E.G. Slope (ft/ft) | 0.000672 | Area (sq ft) | | 68.37 | 45.94 |
| Q Total (cfs) | 274.87 | Flow (cfs) | | 246.75 | 28.12 |
| Top Width (ft) | 169.21 | Top Width (ft) | | 29.99 | 139.22 |
| Vel Total (ft/s) | 2.40 | Avg. Vel. (ft/s) | | 3.61 | 0.61 |
| Max Chl Dpth (ft) | 2.38 | Hydr. Depth (ft) | | 2.28 | 0.33 |
| Conv. Total (cfs) | 10603.9 | Conv. (cfs) | | 9519.2 | 1084.7 |
| Length Wtd. (ft) | 70.00 | Wetted Per. (ft) | | 34.01 | 139.55 |
| Min Ch El (ft) | 1290.88 | Shear (lb/sq ft) | | 0.08 | 0.01 |
| Alpha | 2.03 | Stream Power (lb/ft s) | | 0.30 | 0.01 |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | 0.03 | 0.79 | 0.22 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.02 | 0.50 | 0.55 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: PA25-PA26
REACH: Channel RS: 36361

INPUT
Description:
Station Elevation Data num= 9

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 71.43 | 1294.4 | 99 | 1294.4 | 99 | 1296.4 | 100 | 1296.4 | 100.01 | 1293.7 |
| 112 | 1290.7 | 118 | 1290.7 | 130 | 1293 | 224.49 | 1292.2 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 71.43 | .017 | 100.01 | .017 | 130 | .03 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 100.01 | 130 | 52.91 | 52.91 | 52.91 | .3 | .5 |

Right Levee Station= 130 Elevation= 1293

CROSS SECTION OUTPUT Profile #PA26 max WSE

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.20 | Element | | | |
| Vel Head (ft) | 0.08 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1293.11 | Reach Len. (ft) | 52.91 | 52.91 | 52.91 |
| Crit W.S. (ft) | 1292.44 | Flow Area (sq ft) | | 41.30 | 48.56 |
| E.G. Slope (ft/ft) | 0.000557 | Area (sq ft) | | 41.30 | 48.56 |
| Q Total (cfs) | 146.13 | Flow (cfs) | | 109.94 | 36.19 |
| Top Width (ft) | 122.14 | Top Width (ft) | | 27.65 | 94.49 |
| Vel Total (ft/s) | 1.63 | Avg. Vel. (ft/s) | | 2.66 | 0.75 |
| Max Chl Dpth (ft) | 2.41 | Hydr. Depth (ft) | | 1.49 | 0.51 |
| Conv. Total (cfs) | 6191.8 | Conv. (cfs) | | 4658.6 | 1533.3 |
| Length Wtd. (ft) | 52.91 | Wetted Per. (ft) | | 28.16 | 95.41 |
| Min Ch El (ft) | 1290.70 | Shear (lb/sq ft) | | 0.05 | 0.02 |
| Alpha | 2.07 | Stream Power (lb/ft s) | | 0.14 | 0.01 |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 0.03 | 0.69 | 0.11 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.02 | 0.45 | 0.22 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #50

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.53 | Element | | | |
| Vel Head (ft) | 0.06 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.47 | Reach Len. (ft) | 52.91 | 52.91 | 52.91 |
| Crit W.S. (ft) | 1291.70 | Flow Area (sq ft) | | 25.11 | |
| E.G. Slope (ft/ft) | 0.000454 | Area (sq ft) | | 25.11 | |
| Q Total (cfs) | 50.00 | Flow (cfs) | | 50.00 | |

| | | | | | |
|---|---|---|---|---|---|
| Top Width (ft) | 22.33 | Top Width (ft) | | 22.33 | |
| Vel Total (ft/s) | 1.99 | Avg. Vel. (ft/s) | | 1.99 | |
| Max Chl Dpth (ft) | 1.77 | Hydr. Depth (ft) | | 1.12 | |
| Conv. Total (cfs) | 2346.7 | Conv. (cfs) | | 2346.7 | |
| Length Wtd. (ft) | 52.91 | Wetted Per. (ft) | | 22.72 | |
| Min Ch El (ft) | 1290.70 | Shear (lb/sq ft) | | 0.03 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.06 | |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 0.03 | 0.62 | 0.04 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.02 | 0.42 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.85 | Element | | | |
| Vel Head (ft) | 0.09 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.76 | Reach Len. (ft) | 52.91 | 52.91 | 52.91 |
| Crit W.S. (ft) | 1291.95 | Flow Area (sq ft) | | 31.95 | |
| E.G. Slope (ft/ft) | 0.000566 | Area (sq ft) | | 31.95 | |
| Q Total (cfs) | 77.32 | Flow (cfs) | | 77.32 | |
| Top Width (ft) | 25.00 | Top Width (ft) | | 25.00 | |
| Vel Total (ft/s) | 2.42 | Avg. Vel. (ft/s) | | 2.42 | |
| Max Chl Dpth (ft) | 2.06 | Hydr. Depth (ft) | | 1.28 | |
| Conv. Total (cfs) | 3250.5 | Conv. (cfs) | | 3250.5 | |
| Length Wtd. (ft) | 52.91 | Wetted Per. (ft) | | 25.45 | |
| Min Ch El (ft) | 1290.70 | Shear (lb/sq ft) | | 0.04 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.11 | |
| Frctn Loss (ft) | 0.03 | Cum Volume (acre-ft) | 0.03 | 0.66 | 0.04 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.02 | 0.44 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #150

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.00 | Element | | | |
| Vel Head (ft) | 0.14 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.86 | Reach Len. (ft) | 52.91 | 52.91 | 52.91 |
| Crit W.S. (ft) | 1292.15 | Flow Area (sq ft) | | 34.49 | |
| E.G. Slope (ft/ft) | 0.000806 | Area (sq ft) | | 34.49 | |
| Q Total (cfs) | 102.32 | Flow (cfs) | | 102.32 | |
| Top Width (ft) | 25.91 | Top Width (ft) | | 25.91 | |
| Vel Total (ft/s) | 2.97 | Avg. Vel. (ft/s) | | 2.97 | |
| Max Chl Dpth (ft) | 2.16 | Hydr. Depth (ft) | | 1.33 | |
| Conv. Total (cfs) | 3603.5 | Conv. (cfs) | | 3603.5 | |
| Length Wtd. (ft) | 52.91 | Wetted Per. (ft) | | 26.39 | |
| Min Ch El (ft) | 1290.70 | Shear (lb/sq ft) | | 0.07 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.20 | |
| Frctn Loss (ft) | 0.03 | Cum Volume (acre-ft) | 0.03 | 0.67 | 0.04 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.02 | 0.45 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #200

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.11 | Element | | | |
| Vel Head (ft) | 0.09 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1293.02 | Reach Len. (ft) | 52.91 | 52.91 | 52.91 |
| Crit W.S. (ft) | 1292.33 | Flow Area (sq ft) | | 38.78 | 39.90 |
| E.G. Slope (ft/ft) | 0.000574 | Area (sq ft) | | 38.78 | 39.90 |
| Q Total (cfs) | 127.86 | Flow (cfs) | | 101.38 | 26.48 |
| Top Width (ft) | 121.77 | Top Width (ft) | | 27.28 | 94.49 |
| Vel Total (ft/s) | 1.63 | Avg. Vel. (ft/s) | | 2.61 | 0.66 |
| Max Chl Dpth (ft) | 2.32 | Hydr. Depth (ft) | | 1.42 | 0.42 |
| Conv. Total (cfs) | 5338.6 | Conv. (cfs) | | 4232.8 | 1105.8 |
| Length Wtd. (ft) | 52.91 | Wetted Per. (ft) | | 27.79 | 95.32 |
| Min Ch El (ft) | 1290.70 | Shear (lb/sq ft) | | 0.05 | 0.01 |
| Alpha | 2.09 | Stream Power (lb/ft s) | | 0.13 | 0.01 |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 0.03 | 0.69 | 0.10 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.02 | 0.45 | 0.22 |

Warning: Multiple water surfaces were found that could balance the energy equation. The program selected the water surface whose main channel velocity head was the closest to the previously computed cross section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #250

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.23 | Element | | | |
| Vel Head (ft) | 0.08 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1293.15 | Reach Len. (ft) | 52.91 | 52.91 | 52.91 |
| Crit W.S. (ft) | 1292.48 | Flow Area (sq ft) | | 42.17 | 51.56 |
| E.G. Slope (ft/ft) | 0.000553 | Area (sq ft) | | 42.17 | 51.56 |
| Q Total (cfs) | 152.89 | Flow (cfs) | | 113.07 | 39.82 |
| Top Width (ft) | 122.26 | Top Width (ft) | | 27.77 | 94.49 |
| Vel Total (ft/s) | 1.63 | Avg. Vel. (ft/s) | | 2.68 | 0.77 |
| Max Chl Dpth (ft) | 2.45 | Hydr. Depth (ft) | | 1.52 | 0.55 |
| Conv. Total (cfs) | 6504.2 | Conv. (cfs) | | 4810.2 | 1693.9 |
| Length Wtd. (ft) | 52.91 | Wetted Per. (ft) | | 28.29 | 95.44 |
| Min Ch El (ft) | 1290.70 | Shear (lb/sq ft) | | 0.05 | 0.02 |
| Alpha | 2.06 | Stream Power (lb/ft s) | | 0.14 | 0.01 |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 0.03 | 0.69 | 0.12 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.02 | 0.45 | 0.22 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #300

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.35 | Element | | | |
| Vel Head (ft) | 0.08 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1293.27 | Reach Len. (ft) | 52.91 | 52.91 | 52.91 |
| Crit W.S. (ft) | 1292.62 | Flow Area (sq ft) | | 45.61 | 63.13 |
| E.G. Slope (ft/ft) | 0.000516 | Area (sq ft) | | 45.61 | 63.13 |
| Q Total (cfs) | 176.96 | Flow (cfs) | | 123.07 | 53.89 |
| Top Width (ft) | 122.75 | Top Width (ft) | | 28.26 | 94.49 |
| Vel Total (ft/s) | 1.63 | Avg. Vel. (ft/s) | | 2.70 | 0.85 |
| Max Chl Dpth (ft) | 2.57 | Hydr. Depth (ft) | | 1.61 | 0.67 |
| Conv. Total (cfs) | 7787.4 | Conv. (cfs) | | 5415.7 | 2371.7 |
| Length Wtd. (ft) | 52.91 | Wetted Per. (ft) | | 28.80 | 95.56 |
| Min Ch El (ft) | 1290.70 | Shear (lb/sq ft) | | 0.05 | 0.02 |
| Alpha | 2.00 | Stream Power (lb/ft s) | | 0.14 | 0.02 |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 0.03 | 0.70 | 0.14 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.02 | 0.46 | 0.36 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: PA25-PA26
REACH: Channel RS: 36323

INPUT
Description:
Station Elevation Data num= 9

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 71.43 | 1294.7 | 99 | 1294.7 | 99 | 1296.7 | 100 | 1296.7 | 100.01 | 1293.57 |
| 112 | 1290.57 | 118 | 1290.57 | 130 | 1293 | 194.53 | 1291.8 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 71.43 | .017 | 100.01 | .017 | 130 | .03 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 100.01 | 130 | 25.26 | 27.3 | 29.28 | .3 | .5 |

Right Levee Station= 130 Elevation= 1293

CROSS SECTION OUTPUT Profile #PA26 max WSE

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.15 | Element | | | |
| Vel Head (ft) | 0.04 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1293.12 | Reach Len. (ft) | 25.26 | 27.30 | 29.28 |
| Crit W.S. (ft) | 1292.09 | Flow Area (sq ft) | | 44.18 | 46.15 |
| E.G. Slope (ft/ft) | 0.000245 | Area (sq ft) | | 44.18 | 46.15 |
| Q Total (cfs) | 108.78 | Flow (cfs) | | 80.54 | 28.24 |
| Top Width (ft) | 92.70 | Top Width (ft) | | 28.17 | 64.53 |
| Vel Total (ft/s) | 1.20 | Avg. Vel. (ft/s) | | 1.82 | 0.61 |
| Max Chl Dpth (ft) | 2.55 | Hydr. Depth (ft) | | 1.57 | 0.72 |
| Conv. Total (cfs) | 6948.6 | Conv. (cfs) | | 5145.0 | 1803.6 |
| Length Wtd. (ft) | 27.57 | Wetted Per. (ft) | | 28.73 | 65.86 |
| Min Ch El (ft) | 1290.57 | Shear (lb/sq ft) | | 0.02 | 0.01 |
| Alpha | 1.76 | Stream Power (lb/ft s) | | 0.04 | 0.01 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 0.03 | 0.64 | 0.05 |
| C & E Loss (ft) | 0.12 | Cum SA (acres) | 0.02 | 0.42 | 0.13 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #50

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.51 | Element | | | |
| Vel Head (ft) | 0.05 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.46 | Reach Len. (ft) | 25.26 | 27.30 | 29.28 |
| Crit W.S. (ft) | 1291.57 | Flow Area (sq ft) | | 27.20 | |
| E.G. Slope (ft/ft) | 0.000359 | Area (sq ft) | | 27.20 | |
| Q Total (cfs) | 50.00 | Flow (cfs) | | 50.00 | |
| Top Width (ft) | 22.85 | Top Width (ft) | | 22.85 | |
| Vel Total (ft/s) | 1.84 | Avg. Vel. (ft/s) | | 1.84 | |
| Max Chl Dpth (ft) | 1.89 | Hydr. Depth (ft) | | 1.19 | |
| Conv. Total (cfs) | 2638.2 | Conv. (cfs) | | 2638.2 | |
| Length Wtd. (ft) | 27.30 | Wetted Per. (ft) | | 23.27 | |
| Min Ch El (ft) | 1290.57 | Shear (lb/sq ft) | | 0.03 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.05 | |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 0.03 | 0.58 | 0.04 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 0.02 | 0.40 | 0.11 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.81 | Element | | | |
| Vel Head (ft) | 0.07 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.75 | Reach Len. (ft) | 25.26 | 27.30 | 29.28 |
| Crit W.S. (ft) | 1291.78 | Flow Area (sq ft) | | 34.29 | |
| E.G. Slope (ft/ft) | 0.000383 | Area (sq ft) | | 34.29 | |
| Q Total (cfs) | 70.60 | Flow (cfs) | | 70.60 | |
| Top Width (ft) | 25.47 | Top Width (ft) | | 25.47 | |

| | | | | | |
|---|---|---|---|---|---|
| Vel Total (ft/s) | 2.06 | Avg. Vel. (ft/s) | | 2.06 | |
| Max Chl Dpth (ft) | 2.18 | Hydr. Depth (ft) | | 1.35 | |
| Conv. Total (cfs) | 3608.1 | Conv. (cfs) | | 3608.1 | |
| Length Wtd. (ft) | 27.30 | Wetted Per. (ft) | | 25.96 | |
| Min Ch El (ft) | 1290.57 | Shear (lb/sq ft) | | 0.03 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.07 | |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 0.03 | 0.62 | 0.04 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 0.02 | 0.41 | 0.11 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #150

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.94 | Element | | | |
| Vel Head (ft) | 0.08 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.86 | Reach Len. (ft) | 25.26 | 27.30 | 29.28 |
| Crit W.S. (ft) | 1291.89 | Flow Area (sq ft) | | 37.09 | |
| E.G. Slope (ft/ft) | 0.000436 | Area (sq ft) | | 37.09 | |
| Q Total (cfs) | 83.78 | Flow (cfs) | | 83.78 | |
| Top Width (ft) | 26.43 | Top Width (ft) | | 26.43 | |
| Vel Total (ft/s) | 2.26 | Avg. Vel. (ft/s) | | 2.26 | |
| Max Chl Dpth (ft) | 2.29 | Hydr. Depth (ft) | | 1.40 | |
| Conv. Total (cfs) | 4011.7 | Conv. (cfs) | | 4011.7 | |
| Length Wtd. (ft) | 27.30 | Wetted Per. (ft) | | 26.95 | |
| Min Ch El (ft) | 1290.57 | Shear (lb/sq ft) | | 0.04 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.08 | |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 0.03 | 0.63 | 0.04 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 0.02 | 0.42 | 0.11 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #200

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.06 | Element | | | |
| Vel Head (ft) | 0.04 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1293.02 | Reach Len. (ft) | 25.26 | 27.30 | 29.28 |
| Crit W.S. (ft) | 1292.00 | Flow Area (sq ft) | | 41.60 | 40.20 |
| E.G. Slope (ft/ft) | 0.000257 | Area (sq ft) | | 41.60 | 40.20 |
| Q Total (cfs) | 98.18 | Flow (cfs) | | 75.21 | 22.97 |
| Top Width (ft) | 92.33 | Top Width (ft) | | 27.80 | 64.53 |
| Vel Total (ft/s) | 1.20 | Avg. Vel. (ft/s) | | 1.81 | 0.57 |
| Max Chl Dpth (ft) | 2.45 | Hydr. Depth (ft) | | 1.50 | 0.62 |
| Conv. Total (cfs) | 6129.0 | Conv. (cfs) | | 4695.0 | 1434.0 |
| Length Wtd. (ft) | 27.54 | Wetted Per. (ft) | | 28.35 | 65.76 |
| Min Ch El (ft) | 1290.57 | Shear (lb/sq ft) | | 0.02 | 0.01 |
| Alpha | 1.79 | Stream Power (lb/ft s) | | 0.04 | 0.01 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 0.03 | 0.64 | 0.05 |
| C & E Loss (ft) | 0.10 | Cum SA (acres) | 0.02 | 0.42 | 0.13 |

Warning: Multiple water surfaces were found that could balance the energy equation. The program selected the water surface whose main channel velocity head was the closest to the previously computed cross section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #250

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.19 | Element | | | |
| Vel Head (ft) | 0.04 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1293.15 | Reach Len. (ft) | 25.26 | 27.30 | 29.28 |
| Crit W.S. (ft) | 1292.11 | Flow Area (sq ft) | | 45.08 | 48.22 |
| E.G. Slope (ft/ft) | 0.000242 | Area (sq ft) | | 45.08 | 48.22 |
| Q Total (cfs) | 112.60 | Flow (cfs) | | 82.46 | 30.14 |
| Top Width (ft) | 92.83 | Top Width (ft) | | 28.30 | 64.53 |
| Vel Total (ft/s) | 1.21 | Avg. Vel. (ft/s) | | 1.83 | 0.63 |
| Max Chl Dpth (ft) | 2.58 | Hydr. Depth (ft) | | 1.59 | 0.75 |
| Conv. Total (cfs) | 7244.6 | Conv. (cfs) | | 5305.2 | 1939.4 |
| Length Wtd. (ft) | 27.58 | Wetted Per. (ft) | | 28.86 | 65.89 |
| Min Ch El (ft) | 1290.57 | Shear (lb/sq ft) | | 0.02 | 0.01 |
| Alpha | 1.75 | Stream Power (lb/ft s) | | 0.04 | 0.01 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 0.03 | 0.64 | 0.05 |
| C & E Loss (ft) | 0.13 | Cum SA (acres) | 0.02 | 0.42 | 0.13 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #300

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.31 | Element | | | |
| Vel Head (ft) | 0.04 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1293.27 | Reach Len. (ft) | 25.26 | 27.30 | 29.28 |
| Crit W.S. (ft) | 1292.20 | Flow Area (sq ft) | | 48.59 | 56.14 |
| E.G. Slope (ft/ft) | 0.000225 | Area (sq ft) | | 48.59 | 56.14 |
| Q Total (cfs) | 126.69 | Flow (cfs) | | 89.21 | 37.48 |
| Top Width (ft) | 93.32 | Top Width (ft) | | 28.79 | 64.53 |
| Vel Total (ft/s) | 1.21 | Avg. Vel. (ft/s) | | 1.84 | 0.67 |
| Max Chl Dpth (ft) | 2.70 | Hydr. Depth (ft) | | 1.69 | 0.87 |

| | | | | | |
|---|---|---|---|---|---|
| Conv. Total (cfs) | 8437.3 | Conv. (cfs) | | 5941.2 | 2496.1 |
| Length Wtd. (ft) | 27.61 | Wetted Per. (ft) | | 29.37 | 66.01 |
| Min Ch El (ft) | 1290.57 | Shear (lb/sq ft) | | 0.02 | 0.01 |
| Alpha | 1.71 | Stream Power (lb/ft s) | | 0.04 | 0.01 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 0.03 | 0.65 | 0.06 |
| C & E Loss (ft) | 0.15 | Cum SA (acres) | 0.02 | 0.42 | 0.27 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: PA25-PA26
REACH: Channel RS: 36296

INPUT
Description:
Station Elevation Data num= 9

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 71.43 | 1295 | 99 | 1295 | 99 | 1297 | 100 | 1297 | 100.01 | 1293.51 |
| 109 | 1290.51 | 111 | 1290.51 | 120 | 1293 | 181.54 | 1291.8 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 71.43 | .017 | 100.01 | .017 | 120 | .03 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 100.01 | 120 | 200 | 200 | 200 | .3 | .5 |

Right Levee Station= 120 Elevation= 1293

CROSS SECTION OUTPUT Profile #PA26 max WSE

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.02 | Element | | | |
| Vel Head (ft) | 0.44 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.58 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1292.45 | Flow Area (sq ft) | | 18.36 | |
| E.G. Slope (ft/ft) | 0.003163 | Area (sq ft) | | 18.36 | |
| Q Total (cfs) | 97.63 | Flow (cfs) | | 97.63 | |
| Top Width (ft) | 15.71 | Top Width (ft) | | 15.71 | |
| Vel Total (ft/s) | 5.32 | Avg. Vel. (ft/s) | | 5.32 | |
| Max Chl Dpth (ft) | 2.07 | Hydr. Depth (ft) | | 1.17 | |
| Conv. Total (cfs) | 1736.0 | Conv. (cfs) | | 1736.0 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 16.33 | |
| Min Ch El (ft) | 1290.51 | Shear (lb/sq ft) | | 0.22 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.18 | |
| Frctn Loss (ft) | 0.51 | Cum Volume (acre-ft) | 0.03 | 0.62 | 0.04 |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 0.02 | 0.41 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #50

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.44 | Element | | | |
| Vel Head (ft) | 0.24 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.20 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1291.94 | Flow Area (sq ft) | | 12.82 | |
| E.G. Slope (ft/ft) | 0.002172 | Area (sq ft) | | 12.82 | |
| Q Total (cfs) | 50.00 | Flow (cfs) | | 50.00 | |
| Top Width (ft) | 13.17 | Top Width (ft) | | 13.17 | |
| Vel Total (ft/s) | 3.90 | Avg. Vel. (ft/s) | | 3.90 | |
| Max Chl Dpth (ft) | 1.69 | Hydr. Depth (ft) | | 0.97 | |
| Conv. Total (cfs) | 1072.8 | Conv. (cfs) | | 1072.8 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 13.67 | |
| Min Ch El (ft) | 1290.51 | Shear (lb/sq ft) | | 0.13 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.50 | |
| Frctn Loss (ft) | 0.37 | Cum Volume (acre-ft) | 0.03 | 0.57 | 0.04 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.02 | 0.39 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.73 | Element | | | |
| Vel Head (ft) | 0.29 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.44 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1292.17 | Flow Area (sq ft) | | 16.19 | |
| E.G. Slope (ft/ft) | 0.002265 | Area (sq ft) | | 16.19 | |
| Q Total (cfs) | 69.81 | Flow (cfs) | | 69.81 | |
| Top Width (ft) | 14.77 | Top Width (ft) | | 14.77 | |
| Vel Total (ft/s) | 4.31 | Avg. Vel. (ft/s) | | 4.31 | |
| Max Chl Dpth (ft) | 1.93 | Hydr. Depth (ft) | | 1.10 | |
| Conv. Total (cfs) | 1466.7 | Conv. (cfs) | | 1466.7 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 15.34 | |
| Min Ch El (ft) | 1290.51 | Shear (lb/sq ft) | | 0.15 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.64 | |
| Frctn Loss (ft) | 0.41 | Cum Volume (acre-ft) | 0.03 | 0.60 | 0.04 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.02 | 0.40 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #150

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.84 | Element | | | |
| Vel Head (ft) | 0.32 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.52 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |

| | | | | | |
|---|---|---|---|---|---|
| Crit W.S. (ft) | 1292.29 | Flow Area (sq ft) | | 17.37 | |
| E.G. Slope (ft/ft) | 0.002413 | Area (sq ft) | | 17.37 | |
| Q Total (cfs) | 79.19 | Flow (cfs) | | 79.19 | |
| Top Width (ft) | 15.29 | Top Width (ft) | | 15.29 | |
| Vel Total (ft/s) | 4.56 | Avg. Vel. (ft/s) | | 4.56 | |
| Max Chl Dpth (ft) | 2.01 | Hydr. Depth (ft) | | 1.14 | |
| Conv. Total (cfs) | 1612.0 | Conv. (cfs) | | 1612.0 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 15.89 | |
| Min Ch El (ft) | 1290.51 | Shear (lb/sq ft) | | 0.16 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.75 | |
| Frctn Loss (ft) | 0.44 | Cum Volume (acre-ft) | 0.03 | 0.61 | 0.04 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.02 | 0.40 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #200

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.95 | Element | | | |
| Vel Head (ft) | 0.39 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.56 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1292.37 | Flow Area (sq ft) | | 17.99 | |
| E.G. Slope (ft/ft) | 0.002822 | Area (sq ft) | | 17.99 | |
| Q Total (cfs) | 89.73 | Flow (cfs) | | 89.73 | |
| Top Width (ft) | 15.55 | Top Width (ft) | | 15.55 | |
| Vel Total (ft/s) | 4.99 | Avg. Vel. (ft/s) | | 4.99 | |
| Max Chl Dpth (ft) | 2.05 | Hydr. Depth (ft) | | 1.16 | |
| Conv. Total (cfs) | 1689.1 | Conv. (cfs) | | 1689.1 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 16.16 | |
| Min Ch El (ft) | 1290.51 | Shear (lb/sq ft) | | 0.20 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.98 | |
| Frctn Loss (ft) | 0.48 | Cum Volume (acre-ft) | 0.03 | 0.62 | 0.04 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.02 | 0.41 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #250

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.05 | Element | | | |
| Vel Head (ft) | 0.46 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.59 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1292.48 | Flow Area (sq ft) | | 18.44 | |
| E.G. Slope (ft/ft) | 0.003303 | Area (sq ft) | | 18.44 | |
| Q Total (cfs) | 100.34 | Flow (cfs) | | 100.34 | |
| Top Width (ft) | 15.74 | Top Width (ft) | | 15.74 | |
| Vel Total (ft/s) | 5.44 | Avg. Vel. (ft/s) | | 5.44 | |
| Max Chl Dpth (ft) | 2.08 | Hydr. Depth (ft) | | 1.17 | |
| Conv. Total (cfs) | 1745.9 | Conv. (cfs) | | 1745.9 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 16.36 | |
| Min Ch El (ft) | 1290.51 | Shear (lb/sq ft) | | 0.23 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.26 | |
| Frctn Loss (ft) | 0.52 | Cum Volume (acre-ft) | 0.03 | 0.62 | 0.04 |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 0.02 | 0.41 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #300

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1293.15 | Element | | | |
| Vel Head (ft) | 0.53 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.61 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1292.56 | Flow Area (sq ft) | | 18.85 | |
| E.G. Slope (ft/ft) | 0.003781 | Area (sq ft) | | 18.85 | |
| Q Total (cfs) | 110.56 | Flow (cfs) | | 110.56 | |
| Top Width (ft) | 15.91 | Top Width (ft) | | 15.91 | |
| Vel Total (ft/s) | 5.86 | Avg. Vel. (ft/s) | | 5.86 | |
| Max Chl Dpth (ft) | 2.10 | Hydr. Depth (ft) | | 1.18 | |
| Conv. Total (cfs) | 1797.9 | Conv. (cfs) | | 1797.9 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 16.54 | |
| Min Ch El (ft) | 1290.51 | Shear (lb/sq ft) | | 0.27 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.58 | |
| Frctn Loss (ft) | 0.58 | Cum Volume (acre-ft) | 0.03 | 0.62 | 0.04 |
| C & E Loss (ft) | 0.12 | Cum SA (acres) | 0.02 | 0.41 | 0.25 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: PA25-PA26
REACH: Channel RS: 36105

INPUT
Description:
Station Elevation Data num= 9

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 71.43 | 1295.5 | 99 | 1295.5 | 99 | 1297.5 | 100 | 1297.5 | 100.01 | 1293.01 |
| 109 | 1290.01 | 111 | 1290.01 | 120 | 1292.66 | 157.53 | 1291.64 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 71.43 | .017 | 100.01 | .017 | 120 | .03 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 100.01 | 120 | 200 | 200 | 200 | .3 | .5 |

Right Levee Station= 120 Elevation= 1292.66

CROSS SECTION OUTPUT Profile #PA26 max WSE

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.44 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.28 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.15 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1291.81 | Flow Area (sq ft) | | 18.95 | |
| E.G. Slope (ft/ft) | 0.001957 | Area (sq ft) | | 18.95 | |
| Q Total (cfs) | 80.88 | Flow (cfs) | | 80.88 | |
| Top Width (ft) | 15.70 | Top Width (ft) | | 15.70 | |
| Vel Total (ft/s) | 4.27 | Avg. Vel. (ft/s) | | 4.27 | |
| Max Chl Dpth (ft) | 2.14 | Hydr. Depth (ft) | | 1.21 | |
| Conv. Total (cfs) | 1828.2 | Conv. (cfs) | | 1828.2 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 16.35 | |
| Min Ch El (ft) | 1290.01 | Shear (lb/sq ft) | | 0.14 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.60 | |
| Frctn Loss (ft) | 0.35 | Cum Volume (acre-ft) | 0.03 | 0.54 | 0.04 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.02 | 0.33 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #50

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.04 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.18 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.86 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1291.45 | Flow Area (sq ft) | | 14.62 | |
| E.G. Slope (ft/ft) | 0.001498 | Area (sq ft) | | 14.62 | |
| Q Total (cfs) | 50.00 | Flow (cfs) | | 50.00 | |
| Top Width (ft) | 13.82 | Top Width (ft) | | 13.82 | |
| Vel Total (ft/s) | 3.42 | Avg. Vel. (ft/s) | | 3.42 | |
| Max Chl Dpth (ft) | 1.85 | Hydr. Depth (ft) | | 1.06 | |
| Conv. Total (cfs) | 1291.7 | Conv. (cfs) | | 1291.7 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 14.38 | |
| Min Ch El (ft) | 1290.01 | Shear (lb/sq ft) | | 0.10 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.33 | |
| Frctn Loss (ft) | 0.23 | Cum Volume (acre-ft) | 0.03 | 0.51 | 0.04 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.02 | 0.32 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.30 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.25 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.05 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1291.70 | Flow Area (sq ft) | | 17.33 | |
| E.G. Slope (ft/ft) | 0.001854 | Area (sq ft) | | 17.33 | |
| Q Total (cfs) | 69.81 | Flow (cfs) | | 69.81 | |
| Top Width (ft) | 15.02 | Top Width (ft) | | 15.02 | |
| Vel Total (ft/s) | 4.03 | Avg. Vel. (ft/s) | | 4.03 | |
| Max Chl Dpth (ft) | 2.04 | Hydr. Depth (ft) | | 1.15 | |
| Conv. Total (cfs) | 1621.3 | Conv. (cfs) | | 1621.3 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 15.64 | |
| Min Ch El (ft) | 1290.01 | Shear (lb/sq ft) | | 0.13 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.52 | |
| Frctn Loss (ft) | 0.32 | Cum Volume (acre-ft) | 0.03 | 0.53 | 0.04 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.02 | 0.33 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #150

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.38 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.27 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.11 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1291.77 | Flow Area (sq ft) | | 18.30 | |
| E.G. Slope (ft/ft) | 0.001934 | Area (sq ft) | | 18.30 | |
| Q Total (cfs) | 76.69 | Flow (cfs) | | 76.69 | |
| Top Width (ft) | 15.42 | Top Width (ft) | | 15.42 | |
| Vel Total (ft/s) | 4.19 | Avg. Vel. (ft/s) | | 4.19 | |
| Max Chl Dpth (ft) | 2.10 | Hydr. Depth (ft) | | 1.19 | |
| Conv. Total (cfs) | 1743.7 | Conv. (cfs) | | 1743.7 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 16.07 | |
| Min Ch El (ft) | 1290.01 | Shear (lb/sq ft) | | 0.14 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.58 | |
| Frctn Loss (ft) | 0.34 | Cum Volume (acre-ft) | 0.03 | 0.53 | 0.04 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.02 | 0.33 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #200

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.41 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.28 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.13 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1291.80 | Flow Area (sq ft) | | 18.67 | |
| E.G. Slope (ft/ft) | 0.001961 | Area (sq ft) | | 18.67 | |
| Q Total (cfs) | 79.37 | Flow (cfs) | | 79.37 | |
| Top Width (ft) | 15.58 | Top Width (ft) | | 15.58 | |
| Vel Total (ft/s) | 4.25 | Avg. Vel. (ft/s) | | 4.25 | |
| Max Chl Dpth (ft) | 2.12 | Hydr. Depth (ft) | | 1.20 | |
| Conv. Total (cfs) | 1792.1 | Conv. (cfs) | | 1792.1 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 16.23 | |
| Min Ch El (ft) | 1290.01 | Shear (lb/sq ft) | | 0.14 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.60 | |
| Frctn Loss (ft) | 0.35 | Cum Volume (acre-ft) | 0.03 | 0.53 | 0.04 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.02 | 0.33 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #250

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.44 | Element | | | |
| Vel Head (ft) | 0.29 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.15 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1291.82 | Flow Area (sq ft) | | 18.92 | |
| E.G. Slope (ft/ft) | 0.001978 | Area (sq ft) | | 18.92 | |
| Q Total (cfs) | 81.11 | Flow (cfs) | | 81.11 | |
| Top Width (ft) | 15.68 | Top Width (ft) | | 15.68 | |
| Vel Total (ft/s) | 4.29 | Avg. Vel. (ft/s) | | 4.29 | |
| Max Chl Dpth (ft) | 2.14 | Hydr. Depth (ft) | | 1.21 | |
| Conv. Total (cfs) | 1823.5 | Conv. (cfs) | | 1823.5 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 16.34 | |
| Min Ch El (ft) | 1290.01 | Shear (lb/sq ft) | | 0.14 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.61 | |
| Frctn Loss (ft) | 0.35 | Cum Volume (acre-ft) | 0.03 | 0.54 | 0.04 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.02 | 0.33 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #300

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.45 | Element | | | |
| Vel Head (ft) | 0.29 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1292.16 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1291.84 | Flow Area (sq ft) | | 19.09 | |
| E.G. Slope (ft/ft) | 0.001994 | Area (sq ft) | | 19.09 | |
| Q Total (cfs) | 82.38 | Flow (cfs) | | 82.38 | |
| Top Width (ft) | 15.75 | Top Width (ft) | | 15.75 | |
| Vel Total (ft/s) | 4.32 | Avg. Vel. (ft/s) | | 4.32 | |
| Max Chl Dpth (ft) | 2.15 | Hydr. Depth (ft) | | 1.21 | |
| Conv. Total (cfs) | 1845.1 | Conv. (cfs) | | 1845.1 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 16.41 | |
| Min Ch El (ft) | 1290.01 | Shear (lb/sq ft) | | 0.14 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.62 | |
| Frctn Loss (ft) | 0.36 | Cum Volume (acre-ft) | 0.03 | 0.54 | 0.04 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.02 | 0.33 | 0.25 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: PA25-PA26
REACH: Channel RS: 35905

INPUT
Description:
Station Elevation Data num= 9

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 71.43 | 1295.3 | 99 | 1295.3 | 99 | 1297.3 | 100 | 1297.3 | 100.01 | 1292.51 |
| 109 | 1289.51 | 111 | 1289.51 | 120 | 1292.51 | 153.27 | 1291.51 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 71.43 | .017 | 100.01 | .017 | 120 | .03 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 100.01 | 120 | 200 | 200 | 200 | .3 | .5 |

Right Levee Station= 120 Elevation= 1292.51

CROSS SECTION OUTPUT Profile #PA26 max WSE

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.07 | Element | | | |
| Vel Head (ft) | 0.24 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.82 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1291.36 | Flow Area (sq ft) | | 20.65 | |
| E.G. Slope (ft/ft) | 0.001539 | Area (sq ft) | | 20.65 | |
| Q Total (cfs) | 81.87 | Flow (cfs) | | 81.87 | |
| Top Width (ft) | 15.86 | Top Width (ft) | | 15.86 | |
| Vel Total (ft/s) | 3.96 | Avg. Vel. (ft/s) | | 3.96 | |
| Max Chl Dpth (ft) | 2.31 | Hydr. Depth (ft) | | 1.30 | |
| Conv. Total (cfs) | 2086.7 | Conv. (cfs) | | 2086.7 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 16.62 | |
| Min Ch El (ft) | 1289.51 | Shear (lb/sq ft) | | 0.12 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.47 | |
| Frctn Loss (ft) | 0.24 | Cum Volume (acre-ft) | 0.03 | 0.45 | 0.04 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.02 | 0.26 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #50

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.78 | Element | | | |
| Vel Head (ft) | 0.12 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.66 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1290.99 | Flow Area (sq ft) | | 18.11 | |
| E.G. Slope (ft/ft) | 0.000815 | Area (sq ft) | | 18.11 | |
| Q Total (cfs) | 50.00 | Flow (cfs) | | 50.00 | |
| Top Width (ft) | 14.87 | Top Width (ft) | | 14.87 | |
| Vel Total (ft/s) | 2.76 | Avg. Vel. (ft/s) | | 2.76 | |
| Max Chl Dpth (ft) | 2.15 | Hydr. Depth (ft) | | 1.22 | |
| Conv. Total (cfs) | 1751.3 | Conv. (cfs) | | 1751.3 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 15.57 | |
| Min Ch El (ft) | 1289.51 | Shear (lb/sq ft) | | 0.06 | |

| | | | | | |
|---|---|---|---|---|---|
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.16 | |
| Frctn Loss (ft) | 0.12 | Cum Volume (acre-ft) | 0.03 | 0.43 | 0.04 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.02 | 0.26 | 0.11 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.96 | Element | | | |
| Vel Head (ft) | 0.20 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.76 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1291.23 | Flow Area (sq ft) | | 19.68 | |
| E.G. Slope (ft/ft) | 0.001274 | Area (sq ft) | | 19.68 | |
| Q Total (cfs) | 69.81 | Flow (cfs) | | 69.81 | |
| Top Width (ft) | 15.49 | Top Width (ft) | | 15.49 | |
| Vel Total (ft/s) | 3.55 | Avg. Vel. (ft/s) | | 3.55 | |
| Max Chl Dpth (ft) | 2.25 | Hydr. Depth (ft) | | 1.27 | |
| Conv. Total (cfs) | 1955.9 | Conv. (cfs) | | 1955.9 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 16.22 | |
| Min Ch El (ft) | 1289.51 | Shear (lb/sq ft) | | 0.10 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.34 | |
| Frctn Loss (ft) | 0.19 | Cum Volume (acre-ft) | 0.03 | 0.44 | 0.04 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.02 | 0.26 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #150

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.02 | Element | | | |
| Vel Head (ft) | 0.22 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.80 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1291.31 | Flow Area (sq ft) | | 20.27 | |
| E.G. Slope (ft/ft) | 0.001420 | Area (sq ft) | | 20.27 | |
| Q Total (cfs) | 76.69 | Flow (cfs) | | 76.69 | |
| Top Width (ft) | 15.72 | Top Width (ft) | | 15.72 | |
| Vel Total (ft/s) | 3.78 | Avg. Vel. (ft/s) | | 3.78 | |
| Max Chl Dpth (ft) | 2.29 | Hydr. Depth (ft) | | 1.29 | |
| Conv. Total (cfs) | 2035.3 | Conv. (cfs) | | 2035.3 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 16.46 | |
| Min Ch El (ft) | 1289.51 | Shear (lb/sq ft) | | 0.11 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.41 | |
| Frctn Loss (ft) | 0.22 | Cum Volume (acre-ft) | 0.03 | 0.44 | 0.04 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.02 | 0.26 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #200

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.05 | Element | | | |
| Vel Head (ft) | 0.23 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.81 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1291.32 | Flow Area (sq ft) | | 20.50 | |
| E.G. Slope (ft/ft) | 0.001475 | Area (sq ft) | | 20.50 | |
| Q Total (cfs) | 79.37 | Flow (cfs) | | 79.37 | |
| Top Width (ft) | 15.81 | Top Width (ft) | | 15.81 | |
| Vel Total (ft/s) | 3.87 | Avg. Vel. (ft/s) | | 3.87 | |
| Max Chl Dpth (ft) | 2.30 | Hydr. Depth (ft) | | 1.30 | |
| Conv. Total (cfs) | 2066.9 | Conv. (cfs) | | 2066.9 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 16.56 | |
| Min Ch El (ft) | 1289.51 | Shear (lb/sq ft) | | 0.11 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.44 | |
| Frctn Loss (ft) | 0.23 | Cum Volume (acre-ft) | 0.03 | 0.44 | 0.04 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.02 | 0.26 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #250

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.06 | Element | | | |
| Vel Head (ft) | 0.24 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.82 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1291.34 | Flow Area (sq ft) | | 20.66 | |
| E.G. Slope (ft/ft) | 0.001508 | Area (sq ft) | | 20.66 | |
| Q Total (cfs) | 81.08 | Flow (cfs) | | 81.08 | |
| Top Width (ft) | 15.87 | Top Width (ft) | | 15.87 | |
| Vel Total (ft/s) | 3.92 | Avg. Vel. (ft/s) | | 3.92 | |
| Max Chl Dpth (ft) | 2.31 | Hydr. Depth (ft) | | 1.30 | |
| Conv. Total (cfs) | 2087.7 | Conv. (cfs) | | 2087.7 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 16.62 | |
| Min Ch El (ft) | 1289.51 | Shear (lb/sq ft) | | 0.12 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.46 | |
| Frctn Loss (ft) | 0.23 | Cum Volume (acre-ft) | 0.03 | 0.45 | 0.04 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.02 | 0.26 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #300

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1292.07 | Element | | | |
| Vel Head (ft) | 0.24 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.83 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |

| | | | | | |
|---|---|---|---|---|---|
| Crit W.S. (ft) | 1291.36 | Flow Area (sq ft) | | 20.76 | |
| E.G. Slope (ft/ft) | 0.001532 | Area (sq ft) | | 20.76 | |
| Q Total (cfs) | 82.25 | Flow (cfs) | | 82.25 | |
| Top Width (ft) | 15.91 | Top Width (ft) | | 15.91 | |
| Vel Total (ft/s) | 3.96 | Avg. Vel. (ft/s) | | 3.96 | |
| Max Chl Dpth (ft) | 2.32 | Hydr. Depth (ft) | | 1.31 | |
| Conv. Total (cfs) | 2101.4 | Conv. (cfs) | | 2101.4 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 16.66 | |
| Min Ch El (ft) | 1289.51 | Shear (lb/sq ft) | | 0.12 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.47 | |
| Frctn Loss (ft) | 0.24 | Cum Volume (acre-ft) | 0.03 | 0.45 | 0.04 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.02 | 0.26 | 0.25 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: PA25-PA26
REACH: Channel RS: 35705

INPUT
Description:
Station Elevation Data num= 9

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 71.43 | 1294.8 | 99 | 1294.8 | 99 | 1296.8 | 100 | 1296.8 | 100.01 | 1292.01 |
| 109 | 1289.01 | 111 | 1289.01 | 120 | 1292.01 | 153.1 | 1291.5 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 71.43 | .017 | 100.01 | .017 | 120 | .03 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 100.01 | 120 | 196.8 | 196.8 | 196.8 | .3 | .5 |

Right Levee Station= 120 Elevation= 1292.01

CROSS SECTION OUTPUT Profile #PA26 max WSE

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.78 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.15 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.63 | Reach Len. (ft) | 196.80 | 196.80 | 196.80 |
| Crit W.S. (ft) | 1290.85 | Flow Area (sq ft) | | 25.84 | |
| E.G. Slope (ft/ft) | 0.000825 | Area (sq ft) | | 25.84 | |
| Q Total (cfs) | 80.87 | Flow (cfs) | | 80.87 | |
| Top Width (ft) | 17.72 | Top Width (ft) | | 17.72 | |
| Vel Total (ft/s) | 3.13 | Avg. Vel. (ft/s) | | 3.13 | |
| Max Chl Dpth (ft) | 2.62 | Hydr. Depth (ft) | | 1.46 | |
| Conv. Total (cfs) | 2815.7 | Conv. (cfs) | | 2815.7 | |
| Length Wtd. (ft) | 196.80 | Wetted Per. (ft) | | 18.57 | |
| Min Ch El (ft) | 1289.01 | Shear (lb/sq ft) | | 0.07 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.22 | |
| Frctn Loss (ft) | 0.12 | Cum Volume (acre-ft) | 0.03 | 0.34 | 0.04 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.02 | 0.18 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #50

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.63 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.06 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.57 | Reach Len. (ft) | 196.80 | 196.80 | 196.80 |
| Crit W.S. (ft) | 1290.49 | Flow Area (sq ft) | | 24.72 | |
| E.G. Slope (ft/ft) | 0.000355 | Area (sq ft) | | 24.72 | |
| Q Total (cfs) | 50.00 | Flow (cfs) | | 50.00 | |
| Top Width (ft) | 17.33 | Top Width (ft) | | 17.33 | |
| Vel Total (ft/s) | 2.02 | Avg. Vel. (ft/s) | | 2.02 | |
| Max Chl Dpth (ft) | 2.56 | Hydr. Depth (ft) | | 1.43 | |
| Conv. Total (cfs) | 2653.2 | Conv. (cfs) | | 2653.2 | |
| Length Wtd. (ft) | 196.80 | Wetted Per. (ft) | | 18.16 | |
| Min Ch El (ft) | 1289.01 | Shear (lb/sq ft) | | 0.03 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.06 | |
| Frctn Loss (ft) | 0.05 | Cum Volume (acre-ft) | 0.03 | 0.34 | 0.04 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.02 | 0.18 | 0.11 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.72 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.12 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.61 | Reach Len. (ft) | 196.80 | 196.80 | 196.80 |
| Crit W.S. (ft) | 1290.73 | Flow Area (sq ft) | | 25.41 | |
| E.G. Slope (ft/ft) | 0.000643 | Area (sq ft) | | 25.41 | |
| Q Total (cfs) | 69.81 | Flow (cfs) | | 69.81 | |
| Top Width (ft) | 17.57 | Top Width (ft) | | 17.57 | |
| Vel Total (ft/s) | 2.75 | Avg. Vel. (ft/s) | | 2.75 | |
| Max Chl Dpth (ft) | 2.60 | Hydr. Depth (ft) | | 1.45 | |
| Conv. Total (cfs) | 2753.2 | Conv. (cfs) | | 2753.2 | |
| Length Wtd. (ft) | 196.80 | Wetted Per. (ft) | | 18.42 | |
| Min Ch El (ft) | 1289.01 | Shear (lb/sq ft) | | 0.06 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.15 | |
| Frctn Loss (ft) | 0.09 | Cum Volume (acre-ft) | 0.03 | 0.34 | 0.04 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.02 | 0.18 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT  Profile #150

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.76 | Element | | | |
| Vel Head (ft) | 0.14 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.62 | Reach Len. (ft) | 196.80 | 196.80 | 196.80 |
| Crit W.S. (ft) | 1290.81 | Flow Area (sq ft) | | 25.67 | |
| E.G. Slope (ft/ft) | 0.000755 | Area (sq ft) | | 25.67 | |
| Q Total (cfs) | 76.69 | Flow (cfs) | | 76.69 | |
| Top Width (ft) | 17.66 | Top Width (ft) | | 17.66 | |
| Vel Total (ft/s) | 2.99 | Avg. Vel. (ft/s) | | 2.99 | |
| Max Chl Dpth (ft) | 2.61 | Hydr. Depth (ft) | | 1.45 | |
| Conv. Total (cfs) | 2791.2 | Conv. (cfs) | | 2791.2 | |
| Length Wtd. (ft) | 196.80 | Wetted Per. (ft) | | 18.51 | |
| Min Ch El (ft) | 1289.01 | Shear (lb/sq ft) | | 0.07 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.20 | |
| Frctn Loss (ft) | 0.11 | Cum Volume (acre-ft) | 0.03 | 0.34 | 0.04 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.02 | 0.18 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT  Profile #200

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.77 | Element | | | |
| Vel Head (ft) | 0.15 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.63 | Reach Len. (ft) | 196.80 | 196.80 | 196.80 |
| Crit W.S. (ft) | 1290.82 | Flow Area (sq ft) | | 25.78 | |
| E.G. Slope (ft/ft) | 0.000800 | Area (sq ft) | | 25.78 | |
| Q Total (cfs) | 79.37 | Flow (cfs) | | 79.37 | |
| Top Width (ft) | 17.70 | Top Width (ft) | | 17.70 | |
| Vel Total (ft/s) | 3.08 | Avg. Vel. (ft/s) | | 3.08 | |
| Max Chl Dpth (ft) | 2.62 | Hydr. Depth (ft) | | 1.46 | |
| Conv. Total (cfs) | 2806.6 | Conv. (cfs) | | 2806.6 | |
| Length Wtd. (ft) | 196.80 | Wetted Per. (ft) | | 18.55 | |
| Min Ch El (ft) | 1289.01 | Shear (lb/sq ft) | | 0.07 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.21 | |
| Frctn Loss (ft) | 0.12 | Cum Volume (acre-ft) | 0.03 | 0.34 | 0.04 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.02 | 0.18 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT  Profile #250

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.78 | Element | | | |
| Vel Head (ft) | 0.15 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.63 | Reach Len. (ft) | 196.80 | 196.80 | 196.80 |
| Crit W.S. (ft) | 1290.84 | Flow Area (sq ft) | | 25.85 | |
| E.G. Slope (ft/ft) | 0.000829 | Area (sq ft) | | 25.85 | |
| Q Total (cfs) | 81.08 | Flow (cfs) | | 81.08 | |
| Top Width (ft) | 17.72 | Top Width (ft) | | 17.72 | |
| Vel Total (ft/s) | 3.14 | Avg. Vel. (ft/s) | | 3.14 | |
| Max Chl Dpth (ft) | 2.62 | Hydr. Depth (ft) | | 1.46 | |
| Conv. Total (cfs) | 2816.7 | Conv. (cfs) | | 2816.7 | |
| Length Wtd. (ft) | 196.80 | Wetted Per. (ft) | | 18.57 | |
| Min Ch El (ft) | 1289.01 | Shear (lb/sq ft) | | 0.07 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.23 | |
| Frctn Loss (ft) | 0.12 | Cum Volume (acre-ft) | 0.03 | 0.34 | 0.04 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.02 | 0.18 | 0.11 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT  Profile #300

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.79 | Element | | | |
| Vel Head (ft) | 0.16 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.63 | Reach Len. (ft) | 196.80 | 196.80 | 196.80 |
| Crit W.S. (ft) | 1290.86 | Flow Area (sq ft) | | 25.89 | |
| E.G. Slope (ft/ft) | 0.000849 | Area (sq ft) | | 25.89 | |
| Q Total (cfs) | 82.25 | Flow (cfs) | | 82.25 | |
| Top Width (ft) | 17.73 | Top Width (ft) | | 17.73 | |
| Vel Total (ft/s) | 3.18 | Avg. Vel. (ft/s) | | 3.18 | |
| Max Chl Dpth (ft) | 2.62 | Hydr. Depth (ft) | | 1.46 | |
| Conv. Total (cfs) | 2822.3 | Conv. (cfs) | | 2822.3 | |
| Length Wtd. (ft) | 196.80 | Wetted Per. (ft) | | 18.59 | |
| Min Ch El (ft) | 1289.01 | Shear (lb/sq ft) | | 0.07 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.23 | |
| Frctn Loss (ft) | 0.13 | Cum Volume (acre-ft) | 0.03 | 0.34 | 0.04 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.02 | 0.18 | 0.25 |

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION  RIVER: PA25-PA26
REACH: Channel  RS: 35509

INPUT
Description:
Station Elevation Data  num= 9

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 71.43 | 1294 | 99 | 1294 | 99 | 1296 | 100 | 1296 | 100.01 | 1291.54 |
| 109 | 1288.54 | 111 | 1288.54 | 120 | 1291.54 | 153.29 | 1291.46 | | |

Manning's n Values  num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 71.43 | .017 | 100.01 | .017 | 120 | .03 |

Bank Sta: Left  Right  Lengths: Left Channel  Right  Coeff Contr.  Expan.

| | | | | | | |
|---|---|---|---|---|---|---|
| 100.01 | 120 | 170 | 170 | 170 | .3 | .5 |

Right Levee Station= 120 Elevation= 1291.54

CROSS SECTION OUTPUT Profile #PA26 max WSE

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.63 | Element | | | |
| Vel Head (ft) | 0.09 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.54 | Reach Len. (ft) | 170.00 | 170.00 | 170.00 |
| Crit W.S. (ft) | 1290.35 | Flow Area (sq ft) | | 32.98 | |
| E.G. Slope (ft/ft) | 0.000417 | Area (sq ft) | | 32.98 | |
| Q Total (cfs) | 79.59 | Flow (cfs) | | 79.59 | |
| Top Width (ft) | 19.99 | Top Width (ft) | | 19.99 | |
| Vel Total (ft/s) | 2.41 | Avg. Vel. (ft/s) | | 2.41 | |
| Max Chl Dpth (ft) | 3.00 | Hydr. Depth (ft) | | 1.65 | |
| Conv. Total (cfs) | 3899.4 | Conv. (cfs) | | 3899.4 | |
| Length Wtd. (ft) | 170.00 | Wetted Per. (ft) | | 20.96 | |
| Min Ch El (ft) | 1288.54 | Shear (lb/sq ft) | | 0.04 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.10 | |
| Frctn Loss (ft) | 0.05 | Cum Volume (acre-ft) | 0.03 | 0.21 | 0.04 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.02 | 0.10 | 0.11 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #50

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.57 | Element | | | |
| Vel Head (ft) | 0.04 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.53 | Reach Len. (ft) | 170.00 | 170.00 | 170.00 |
| Crit W.S. (ft) | 1290.02 | Flow Area (sq ft) | | 32.77 | |
| E.G. Slope (ft/ft) | 0.000167 | Area (sq ft) | | 32.77 | |
| Q Total (cfs) | 50.00 | Flow (cfs) | | 50.00 | |
| Top Width (ft) | 19.93 | Top Width (ft) | | 19.93 | |
| Vel Total (ft/s) | 1.53 | Avg. Vel. (ft/s) | | 1.53 | |
| Max Chl Dpth (ft) | 2.99 | Hydr. Depth (ft) | | 1.64 | |
| Conv. Total (cfs) | 3866.4 | Conv. (cfs) | | 3866.4 | |
| Length Wtd. (ft) | 170.00 | Wetted Per. (ft) | | 20.90 | |
| Min Ch El (ft) | 1288.54 | Shear (lb/sq ft) | | 0.02 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.02 | |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 0.03 | 0.21 | 0.04 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.02 | 0.10 | 0.11 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.61 | Element | | | |
| Vel Head (ft) | 0.07 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.54 | Reach Len. (ft) | 170.00 | 170.00 | 170.00 |
| Crit W.S. (ft) | 1290.26 | Flow Area (sq ft) | | 32.91 | |
| E.G. Slope (ft/ft) | 0.000319 | Area (sq ft) | | 32.91 | |
| Q Total (cfs) | 69.42 | Flow (cfs) | | 69.42 | |
| Top Width (ft) | 19.97 | Top Width (ft) | | 19.97 | |
| Vel Total (ft/s) | 2.11 | Avg. Vel. (ft/s) | | 2.11 | |
| Max Chl Dpth (ft) | 3.00 | Hydr. Depth (ft) | | 1.65 | |
| Conv. Total (cfs) | 3887.9 | Conv. (cfs) | | 3887.9 | |
| Length Wtd. (ft) | 170.00 | Wetted Per. (ft) | | 20.94 | |
| Min Ch El (ft) | 1288.54 | Shear (lb/sq ft) | | 0.03 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.07 | |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | 0.03 | 0.21 | 0.04 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.02 | 0.10 | 0.11 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #150

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.62 | Element | | | |
| Vel Head (ft) | 0.08 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.54 | Reach Len. (ft) | 170.00 | 170.00 | 170.00 |
| Crit W.S. (ft) | 1290.33 | Flow Area (sq ft) | | 32.95 | |
| E.G. Slope (ft/ft) | 0.000379 | Area (sq ft) | | 32.95 | |
| Q Total (cfs) | 75.84 | Flow (cfs) | | 75.84 | |
| Top Width (ft) | 19.98 | Top Width (ft) | | 19.98 | |
| Vel Total (ft/s) | 2.30 | Avg. Vel. (ft/s) | | 2.30 | |
| Max Chl Dpth (ft) | 3.00 | Hydr. Depth (ft) | | 1.65 | |
| Conv. Total (cfs) | 3894.4 | Conv. (cfs) | | 3894.4 | |
| Length Wtd. (ft) | 170.00 | Wetted Per. (ft) | | 20.95 | |
| Min Ch El (ft) | 1288.54 | Shear (lb/sq ft) | | 0.04 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.09 | |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | 0.03 | 0.21 | 0.04 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.02 | 0.10 | 0.11 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #200

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.63 | Element | | | |
| Vel Head (ft) | 0.09 | Wt. n-Val. | | 0.017 | |

| | | | | | |
|---|---|---|---|---|---|
| W.S. Elev (ft) | 1291.54 | Reach Len. (ft) | 170.00 | 170.00 | 170.00 |
| Crit W.S. (ft) | 1290.35 | Flow Area (sq ft) | | 32.97 | |
| E.G. Slope (ft/ft) | 0.000403 | Area (sq ft) | | 32.97 | |
| Q Total (cfs) | 78.23 | Flow (cfs) | | 78.23 | |
| Top Width (ft) | 19.98 | Top Width (ft) | | 19.98 | |
| Vel Total (ft/s) | 2.37 | Avg. Vel. (ft/s) | | 2.37 | |
| Max Chl Dpth (ft) | 3.00 | Hydr. Depth (ft) | | 1.65 | |
| Conv. Total (cfs) | 3897.1 | Conv. (cfs) | | 3897.1 | |
| Length Wtd. (ft) | 170.00 | Wetted Per. (ft) | | 20.96 | |
| Min Ch El (ft) | 1288.54 | Shear (lb/sq ft) | | 0.04 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.09 | |
| Frctn Loss (ft) | 0.05 | Cum Volume (acre-ft) | 0.03 | 0.21 | 0.04 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.02 | 0.10 | 0.11 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #250

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.63 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.09 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.54 | Reach Len. (ft) | 170.00 | 170.00 | 170.00 |
| Crit W.S. (ft) | 1290.37 | Flow Area (sq ft) | | 32.98 | |
| E.G. Slope (ft/ft) | 0.000418 | Area (sq ft) | | 32.98 | |
| Q Total (cfs) | 79.76 | Flow (cfs) | | 79.76 | |
| Top Width (ft) | 19.99 | Top Width (ft) | | 19.99 | |
| Vel Total (ft/s) | 2.42 | Avg. Vel. (ft/s) | | 2.42 | |
| Max Chl Dpth (ft) | 3.00 | Hydr. Depth (ft) | | 1.65 | |
| Conv. Total (cfs) | 3899.4 | Conv. (cfs) | | 3899.4 | |
| Length Wtd. (ft) | 170.00 | Wetted Per. (ft) | | 20.96 | |
| Min Ch El (ft) | 1288.54 | Shear (lb/sq ft) | | 0.04 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.10 | |
| Frctn Loss (ft) | 0.05 | Cum Volume (acre-ft) | 0.03 | 0.21 | 0.04 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.02 | 0.10 | 0.11 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #300

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.63 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.09 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1291.54 | Reach Len. (ft) | 170.00 | 170.00 | 170.00 |
| Crit W.S. (ft) | 1290.38 | Flow Area (sq ft) | | 32.99 | 1.35 |
| E.G. Slope (ft/ft) | 0.000425 | Area (sq ft) | | 32.99 | 1.35 |
| Q Total (cfs) | 80.64 | Flow (cfs) | | 80.48 | 0.16 |
| Top Width (ft) | 53.28 | Top Width (ft) | | 19.99 | 33.29 |
| Vel Total (ft/s) | 2.35 | Avg. Vel. (ft/s) | | 2.44 | 0.12 |
| Max Chl Dpth (ft) | 3.00 | Hydr. Depth (ft) | | 1.65 | 0.04 |
| Conv. Total (cfs) | 3910.0 | Conv. (cfs) | | 3902.1 | 7.9 |
| Length Wtd. (ft) | 170.00 | Wetted Per. (ft) | | 20.96 | 33.37 |
| Min Ch El (ft) | 1288.54 | Shear (lb/sq ft) | | 0.04 | 0.00 |
| Alpha | 1.08 | Stream Power (lb/ft s) | | 0.10 | 0.00 |
| Frctn Loss (ft) | 0.05 | Cum Volume (acre-ft) | 0.03 | 0.21 | 0.04 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.02 | 0.10 | 0.17 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: PA25-PA26
REACH: Channel RS: 35337

INPUT
Description:
Station Elevation Data num= 9

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 71.43 | 1293.7 | 99 | 1293.7 | 99 | 1296 | 100 | 1296 | 100.01 | 1290.7 |
| 109 | 1288.12 | 111 | 1288.12 | 120 | 1291 | 153.29 | 1291.49 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 71.43 | .017 | 100.01 | .017 | 120 | .03 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 100.01 | 120 | 8.01 | 12.27 | 21 | .3 | .5 |

CROSS SECTION OUTPUT Profile #PA26 max WSE

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.56 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.04 | Wt. n-Val. | 0.000 | 0.017 | 0.030 |
| W.S. Elev (ft) | 1291.52 | Reach Len. (ft) | 8.01 | 12.27 | 21.00 |
| Crit W.S. (ft) | 1289.84 | Flow Area (sq ft) | 0.00 | 43.35 | 9.05 |
| E.G. Slope (ft/ft) | 0.000137 | Area (sq ft) | 0.00 | 43.35 | 9.05 |
| Q Total (cfs) | 74.50 | Flow (cfs) | 0.00 | 72.30 | 2.20 |
| Top Width (ft) | 53.28 | Top Width (ft) | | 19.99 | 33.29 |
| Vel Total (ft/s) | 1.42 | Avg. Vel. (ft/s) | 0.01 | 1.67 | 0.24 |
| Max Chl Dpth (ft) | 3.40 | Hydr. Depth (ft) | 0.41 | 2.17 | 0.27 |
| Conv. Total (cfs) | 6369.6 | Conv. (cfs) | 0.0 | 6181.5 | 188.1 |
| Length Wtd. (ft) | 12.52 | Wetted Per. (ft) | 0.82 | 20.80 | 33.32 |
| Min Ch El (ft) | 1288.12 | Shear (lb/sq ft) | | 0.02 | 0.00 |
| Alpha | 1.34 | Stream Power (lb/ft s) | | 0.03 | 0.00 |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.03 | 0.06 | 0.02 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.02 | 0.02 | 0.04 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #50

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.54 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.02 | Wt. n-Val. | 0.000 | 0.017 | 0.030 |
| W.S. Elev (ft) | 1291.52 | Reach Len. (ft) | 8.01 | 12.27 | 21.00 |
| Crit W.S. (ft) | 1289.55 | Flow Area (sq ft) | 0.00 | 43.38 | 9.11 |
| E.G. Slope (ft/ft) | 0.000061 | Area (sq ft) | 0.00 | 43.38 | 9.11 |
| Q Total (cfs) | 50.00 | Flow (cfs) | 0.00 | 48.51 | 1.49 |
| Top Width (ft) | 53.28 | Top Width (ft) | | 19.99 | 33.29 |
| Vel Total (ft/s) | 0.95 | Avg. Vel. (ft/s) | 0.01 | 1.12 | 0.16 |
| Max Chl Dpth (ft) | 3.40 | Hydr. Depth (ft) | 0.41 | 2.17 | 0.27 |
| Conv. Total (cfs) | 6379.0 | Conv. (cfs) | 0.0 | 6189.0 | 190.0 |
| Length Wtd. (ft) | 12.53 | Wetted Per. (ft) | 0.82 | 20.80 | 33.32 |
| Min Ch El (ft) | 1288.12 | Shear (lb/sq ft) | | 0.01 | 0.00 |
| Alpha | 1.34 | Stream Power (lb/ft s) | | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.03 | 0.06 | 0.02 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.02 | 0.02 | 0.04 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #100

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.55 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.03 | Wt. n-Val. | 0.000 | 0.017 | 0.030 |
| W.S. Elev (ft) | 1291.52 | Reach Len. (ft) | 8.01 | 12.27 | 21.00 |
| Crit W.S. (ft) | 1289.75 | Flow Area (sq ft) | 0.00 | 43.37 | 9.09 |
| E.G. Slope (ft/ft) | 0.000106 | Area (sq ft) | 0.00 | 43.37 | 9.09 |
| Q Total (cfs) | 65.80 | Flow (cfs) | 0.00 | 63.84 | 1.96 |
| Top Width (ft) | 53.28 | Top Width (ft) | | 19.99 | 33.29 |
| Vel Total (ft/s) | 1.25 | Avg. Vel. (ft/s) | 0.01 | 1.47 | 0.22 |
| Max Chl Dpth (ft) | 3.40 | Hydr. Depth (ft) | 0.41 | 2.17 | 0.27 |
| Conv. Total (cfs) | 6376.8 | Conv. (cfs) | 0.0 | 6187.3 | 189.5 |
| Length Wtd. (ft) | 12.52 | Wetted Per. (ft) | 0.82 | 20.80 | 33.32 |
| Min Ch El (ft) | 1288.12 | Shear (lb/sq ft) | | 0.01 | 0.00 |
| Alpha | 1.34 | Stream Power (lb/ft s) | | 0.02 | 0.00 |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.03 | 0.06 | 0.02 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.02 | 0.02 | 0.04 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #150

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.56 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.04 | Wt. n-Val. | 0.000 | 0.017 | 0.030 |
| W.S. Elev (ft) | 1291.52 | Reach Len. (ft) | 8.01 | 12.27 | 21.00 |
| Crit W.S. (ft) | 1289.80 | Flow Area (sq ft) | 0.00 | 43.35 | 9.06 |
| E.G. Slope (ft/ft) | 0.000125 | Area (sq ft) | 0.00 | 43.35 | 9.06 |
| Q Total (cfs) | 71.33 | Flow (cfs) | 0.00 | 69.22 | 2.11 |
| Top Width (ft) | 53.28 | Top Width (ft) | | 19.99 | 33.29 |
| Vel Total (ft/s) | 1.36 | Avg. Vel. (ft/s) | 0.01 | 1.60 | 0.23 |
| Max Chl Dpth (ft) | 3.40 | Hydr. Depth (ft) | 0.41 | 2.17 | 0.27 |
| Conv. Total (cfs) | 6371.1 | Conv. (cfs) | 0.0 | 6182.7 | 188.4 |
| Length Wtd. (ft) | 12.52 | Wetted Per. (ft) | 0.82 | 20.80 | 33.32 |
| Min Ch El (ft) | 1288.12 | Shear (lb/sq ft) | | 0.02 | 0.00 |
| Alpha | 1.34 | Stream Power (lb/ft s) | | 0.03 | 0.00 |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.03 | 0.06 | 0.02 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.02 | 0.02 | 0.04 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #200

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.56 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.04 | Wt. n-Val. | 0.000 | 0.017 | 0.030 |
| W.S. Elev (ft) | 1291.52 | Reach Len. (ft) | 8.01 | 12.27 | 21.00 |
| Crit W.S. (ft) | 1289.83 | Flow Area (sq ft) | 0.00 | 43.35 | 9.05 |
| E.G. Slope (ft/ft) | 0.000133 | Area (sq ft) | 0.00 | 43.35 | 9.05 |
| Q Total (cfs) | 73.34 | Flow (cfs) | 0.00 | 71.17 | 2.17 |
| Top Width (ft) | 53.28 | Top Width (ft) | | 19.99 | 33.29 |
| Vel Total (ft/s) | 1.40 | Avg. Vel. (ft/s) | 0.01 | 1.64 | 0.24 |
| Max Chl Dpth (ft) | 3.40 | Hydr. Depth (ft) | 0.41 | 2.17 | 0.27 |
| Conv. Total (cfs) | 6369.6 | Conv. (cfs) | 0.0 | 6181.5 | 188.1 |
| Length Wtd. (ft) | 12.52 | Wetted Per. (ft) | 0.82 | 20.80 | 33.32 |
| Min Ch El (ft) | 1288.12 | Shear (lb/sq ft) | | 0.02 | 0.00 |
| Alpha | 1.34 | Stream Power (lb/ft s) | | 0.03 | 0.00 |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.03 | 0.06 | 0.02 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.02 | 0.02 | 0.04 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #250

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.56 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.04 | Wt. n-Val. | 0.000 | 0.017 | 0.030 |
| W.S. Elev (ft) | 1291.52 | Reach Len. (ft) | 8.01 | 12.27 | 21.00 |
| Crit W.S. (ft) | 1289.83 | Flow Area (sq ft) | 0.00 | 43.35 | 9.05 |
| E.G. Slope (ft/ft) | 0.000137 | Area (sq ft) | 0.00 | 43.35 | 9.05 |
| Q Total (cfs) | 74.63 | Flow (cfs) | 0.00 | 72.43 | 2.20 |
| Top Width (ft) | 53.28 | Top Width (ft) | | 19.99 | 33.29 |
| Vel Total (ft/s) | 1.42 | Avg. Vel. (ft/s) | 0.01 | 1.67 | 0.24 |
| Max Chl Dpth (ft) | 3.40 | Hydr. Depth (ft) | 0.41 | 2.17 | 0.27 |
| Conv. Total (cfs) | 6368.9 | Conv. (cfs) | 0.0 | 6180.9 | 188.0 |
| Length Wtd. (ft) | 12.52 | Wetted Per. (ft) | 0.82 | 20.80 | 33.32 |
| Min Ch El (ft) | 1288.12 | Shear (lb/sq ft) | | 0.02 | 0.00 |
| Alpha | 1.34 | Stream Power (lb/ft s) | | 0.03 | 0.00 |

| | | | | | |
|---|---|---|---|---|---|
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.03 | 0.06 | 0.02 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.02 | 0.02 | 0.04 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT Profile #300

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.56 | Element | | | |
| Vel Head (ft) | 0.04 | Wt. n-Val. | 0.000 | 0.017 | 0.030 |
| W.S. Elev (ft) | 1291.52 | Reach Len. (ft) | 8.01 | 12.27 | 21.00 |
| Crit W.S. (ft) | 1289.86 | Flow Area (sq ft) | 0.00 | 43.35 | 9.05 |
| E.G. Slope (ft/ft) | 0.000141 | Area (sq ft) | 0.00 | 43.35 | 9.05 |
| Q Total (cfs) | 75.56 | Flow (cfs) | 0.00 | 73.33 | 2.23 |
| Top Width (ft) | 53.28 | Top Width (ft) | | 19.99 | 33.29 |
| Vel Total (ft/s) | 1.44 | Avg. Vel. (ft/s) | 0.01 | 1.69 | 0.25 |
| Max Chl Dpth (ft) | 3.40 | Hydr. Depth (ft) | 0.41 | 2.17 | 0.27 |
| Conv. Total (cfs) | 6368.9 | Conv. (cfs) | 0.0 | 6180.9 | 188.0 |
| Length Wtd. (ft) | 12.52 | Wetted Per. (ft) | 0.82 | 20.80 | 33.32 |
| Min Ch El (ft) | 1288.12 | Shear (lb/sq ft) | | 0.02 | 0.00 |
| Alpha | 1.34 | Stream Power (lb/ft s) | | 0.03 | 0.00 |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.03 | 0.06 | 0.02 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.02 | 0.02 | 0.04 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: PA25-PA26
REACH: Channel RS: 35320

INPUT
Description:
Station Elevation Data num= 9

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 90 | 1293.7 | 99 | 1293.7 | 99 | 1295.7 | 100 | 1295.7 | 100.01 | 1291.09 |
| 109 | 1288.09 | 111 | 1288.09 | 120 | 1291.09 | 161.23 | 1291.5 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 90 | .017 | 100.01 | .017 | 120 | .03 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 100.01 | 120 | 38 | 34.96 | 31 | .3 | .5 |

Right Levee Station= 120 Elevation= 1291.09

CROSS SECTION OUTPUT Profile #PA26 max WSE

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.56 | Element | | | |
| Vel Head (ft) | 0.05 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1291.51 | Reach Len. (ft) | 38.00 | 34.96 | 31.00 |
| Crit W.S. (ft) | 1289.87 | Flow Area (sq ft) | | 41.36 | 8.82 |
| E.G. Slope (ft/ft) | 0.000162 | Area (sq ft) | 0.00 | 41.36 | 8.82 |
| Q Total (cfs) | 74.42 | Flow (cfs) | | 72.43 | 1.99 |
| Top Width (ft) | 61.22 | Top Width (ft) | | 19.99 | 41.23 |
| Vel Total (ft/s) | 1.48 | Avg. Vel. (ft/s) | | 1.75 | 0.23 |
| Max Chl Dpth (ft) | 3.42 | Hydr. Depth (ft) | | 2.07 | 0.21 |
| Conv. Total (cfs) | 5842.2 | Conv. (cfs) | | 5686.1 | 156.1 |
| Length Wtd. (ft) | 34.91 | Wetted Per. (ft) | | 20.96 | 41.24 |
| Min Ch El (ft) | 1288.09 | Shear (lb/sq ft) | | 0.02 | 0.00 |
| Alpha | 1.36 | Stream Power (lb/ft s) | | 0.04 | 0.00 |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.03 | 0.04 | 0.02 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.02 | 0.02 | 0.02 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #50

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.54 | Element | | | |
| Vel Head (ft) | 0.02 | Wt. n-Val. | 0.000 | 0.017 | 0.030 |
| W.S. Elev (ft) | 1291.52 | Reach Len. (ft) | 38.00 | 34.96 | 31.00 |
| Crit W.S. (ft) | 1289.57 | Flow Area (sq ft) | 0.00 | 41.48 | 9.07 |
| E.G. Slope (ft/ft) | 0.000072 | Area (sq ft) | 0.00 | 41.48 | 9.07 |
| Q Total (cfs) | 50.00 | Flow (cfs) | 0.00 | 48.61 | 1.39 |
| Top Width (ft) | 61.22 | Top Width (ft) | | 19.99 | 41.23 |
| Vel Total (ft/s) | 0.99 | Avg. Vel. (ft/s) | 0.00 | 1.17 | 0.15 |
| Max Chl Dpth (ft) | 3.43 | Hydr. Depth (ft) | 0.21 | 2.08 | 0.22 |
| Conv. Total (cfs) | 5878.4 | Conv. (cfs) | 0.0 | 5714.6 | 163.7 |
| Length Wtd. (ft) | 34.90 | Wetted Per. (ft) | 0.43 | 20.96 | 41.25 |
| Min Ch El (ft) | 1288.09 | Shear (lb/sq ft) | | 0.01 | 0.00 |
| Alpha | 1.37 | Stream Power (lb/ft s) | | 0.01 | 0.00 |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.03 | 0.04 | 0.02 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.02 | 0.02 | 0.02 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #100

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.55 | Element | | | |
| Vel Head (ft) | 0.04 | Wt. n-Val. | 0.000 | 0.017 | 0.030 |
| W.S. Elev (ft) | 1291.51 | Reach Len. (ft) | 38.00 | 34.96 | 31.00 |
| Crit W.S. (ft) | 1289.74 | Flow Area (sq ft) | 0.00 | 41.42 | 8.95 |
| E.G. Slope (ft/ft) | 0.000126 | Area (sq ft) | 0.00 | 41.42 | 8.95 |
| Q Total (cfs) | 65.71 | Flow (cfs) | 0.00 | 63.92 | 1.79 |

| | | | | | |
|---|---|---|---|---|---|
| Top Width (ft) | 61.22 | Top Width (ft) | | 19.99 | 41.23 |
| Vel Total (ft/s) | 1.30 | Avg. Vel. (ft/s) | 0.01 | 1.54 | 0.20 |
| Max Chl Dpth (ft) | 3.42 | Hydr. Depth (ft) | 0.21 | 2.07 | 0.22 |
| Conv. Total (cfs) | 5860.6 | Conv. (cfs) | 0.0 | 5700.6 | 160.0 |
| Length Wtd. (ft) | 34.91 | Wetted Per. (ft) | 0.42 | 20.96 | 41.24 |
| Min Ch El (ft) | 1288.09 | Shear (lb/sq ft) | | 0.02 | 0.00 |
| Alpha | 1.36 | Stream Power (lb/ft s) | | 0.02 | 0.00 |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.03 | 0.04 | 0.02 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.02 | 0.02 | 0.02 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #150

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.55 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.04 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1291.51 | Reach Len. (ft) | 38.00 | 34.96 | 31.00 |
| Crit W.S. (ft) | 1289.82 | Flow Area (sq ft) | | 41.38 | 8.86 |
| E.G. Slope (ft/ft) | 0.000148 | Area (sq ft) | 0.00 | 41.38 | 8.86 |
| Q Total (cfs) | 71.24 | Flow (cfs) | | 69.32 | 1.92 |
| Top Width (ft) | 61.22 | Top Width (ft) | | 19.99 | 41.23 |
| Vel Total (ft/s) | 1.42 | Avg. Vel. (ft/s) | | 1.68 | 0.22 |
| Max Chl Dpth (ft) | 3.42 | Hydr. Depth (ft) | | 2.07 | 0.21 |
| Conv. Total (cfs) | 5847.8 | Conv. (cfs) | | 5690.6 | 157.3 |
| Length Wtd. (ft) | 34.91 | Wetted Per. (ft) | | 20.96 | 41.24 |
| Min Ch El (ft) | 1288.09 | Shear (lb/sq ft) | | 0.02 | 0.00 |
| Alpha | 1.36 | Stream Power (lb/ft s) | | 0.03 | 0.00 |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.03 | 0.04 | 0.02 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.02 | 0.02 | 0.02 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #200

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.55 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.04 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1291.51 | Reach Len. (ft) | 38.00 | 34.96 | 31.00 |
| Crit W.S. (ft) | 1289.85 | Flow Area (sq ft) | | 41.36 | 8.83 |
| E.G. Slope (ft/ft) | 0.000157 | Area (sq ft) | 0.00 | 41.36 | 8.83 |
| Q Total (cfs) | 73.26 | Flow (cfs) | | 71.30 | 1.96 |
| Top Width (ft) | 61.22 | Top Width (ft) | | 19.99 | 41.23 |
| Vel Total (ft/s) | 1.46 | Avg. Vel. (ft/s) | | 1.72 | 0.22 |
| Max Chl Dpth (ft) | 3.42 | Hydr. Depth (ft) | | 2.07 | 0.21 |
| Conv. Total (cfs) | 5844.3 | Conv. (cfs) | | 5687.8 | 156.5 |
| Length Wtd. (ft) | 34.91 | Wetted Per. (ft) | | 20.96 | 41.24 |
| Min Ch El (ft) | 1288.09 | Shear (lb/sq ft) | | 0.02 | 0.00 |
| Alpha | 1.36 | Stream Power (lb/ft s) | | 0.03 | 0.00 |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.03 | 0.04 | 0.02 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.02 | 0.02 | 0.02 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #250

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.56 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.05 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1291.51 | Reach Len. (ft) | 38.00 | 34.96 | 31.00 |
| Crit W.S. (ft) | 1289.86 | Flow Area (sq ft) | | 41.35 | 8.81 |
| E.G. Slope (ft/ft) | 0.000163 | Area (sq ft) | 0.00 | 41.35 | 8.81 |
| Q Total (cfs) | 74.55 | Flow (cfs) | | 72.56 | 1.99 |
| Top Width (ft) | 61.22 | Top Width (ft) | | 19.99 | 41.23 |
| Vel Total (ft/s) | 1.49 | Avg. Vel. (ft/s) | | 1.75 | 0.23 |
| Max Chl Dpth (ft) | 3.42 | Hydr. Depth (ft) | | 2.07 | 0.21 |
| Conv. Total (cfs) | 5841.5 | Conv. (cfs) | | 5685.5 | 155.9 |
| Length Wtd. (ft) | 34.91 | Wetted Per. (ft) | | 20.96 | 41.24 |
| Min Ch El (ft) | 1288.09 | Shear (lb/sq ft) | | 0.02 | 0.00 |
| Alpha | 1.36 | Stream Power (lb/ft s) | | 0.04 | 0.00 |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.03 | 0.04 | 0.02 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.02 | 0.02 | 0.02 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #300

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.56 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.05 | Wt. n-Val. | | 0.017 | 0.030 |
| W.S. Elev (ft) | 1291.51 | Reach Len. (ft) | 38.00 | 34.96 | 31.00 |
| Crit W.S. (ft) | 1289.88 | Flow Area (sq ft) | | 41.35 | 8.80 |
| E.G. Slope (ft/ft) | 0.000167 | Area (sq ft) | 0.00 | 41.35 | 8.80 |
| Q Total (cfs) | 75.48 | Flow (cfs) | | 73.47 | 2.01 |
| Top Width (ft) | 61.22 | Top Width (ft) | | 19.99 | 41.23 |
| Vel Total (ft/s) | 1.51 | Avg. Vel. (ft/s) | | 1.78 | 0.23 |
| Max Chl Dpth (ft) | 3.42 | Hydr. Depth (ft) | | 2.07 | 0.21 |

| | | | | | |
|---|---|---|---|---|---|
| Conv. Total (cfs) | 5840.1 | Conv. (cfs) | | 5684.4 | 155.6 |
| Length Wtd. (ft) | 34.91 | Wetted Per. (ft) | | 20.96 | 41.24 |
| Min Ch El (ft) | 1288.09 | Shear (lb/sq ft) | | 0.02 | 0.00 |
| Alpha | 1.36 | Stream Power (lb/ft s) | | 0.04 | 0.00 |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.03 | 0.04 | 0.02 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.02 | 0.02 | 0.02 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: PA25-PA26
REACH: Channel RS: 35294

INPUT
Description:
Station Elevation Data num= 12

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 1293.9 | 21 | 1292 | 41 | 1291 | 49.5 | 1290 | 58 | 1289 |
| 75 | 1288 | 85 | 1288 | 95 | 1288 | 101 | 1289 | 107 | 1290 |
| 113 | 1291 | 120.5 | 1292 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .03 | 75 | .017 | 95 | .03 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 75 | 95 | 0 | 0 | 0 | .3 | .5 |

Ineffective Flow num= 2

| Sta L | Sta R | Elev | Sta L | Sta R | Elev |
|---|---|---|---|---|---|
| 0 | 75 | | 95 | 120.5 | |

CROSS SECTION OUTPUT Profile #PA26 max WSE

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.54 | Element | | | |
| Vel Head (ft) | 0.02 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.52 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 1288.75 | Flow Area (sq ft) | | 70.40 | |
| E.G. Slope (ft/ft) | 0.000027 | Area (sq ft) | 79.88 | 70.40 | 37.37 |
| Q Total (cfs) | 74.42 | Flow (cfs) | | 74.42 | |
| Top Width (ft) | 86.30 | Top Width (ft) | 44.40 | 20.00 | 21.90 |
| Vel Total (ft/s) | 1.06 | Avg. Vel. (ft/s) | | 1.06 | |
| Max Chl Dpth (ft) | 3.52 | Hydr. Depth (ft) | | 3.52 | |
| Conv. Total (cfs) | 14239.2 | Conv. (cfs) | | 14239.2 | |
| Length Wtd. (ft) | | Wetted Per. (ft) | | 20.00 | |
| Min Ch El (ft) | 1288.00 | Shear (lb/sq ft) | | 0.01 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.01 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

CROSS SECTION OUTPUT Profile #50

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.53 | Element | | | |
| Vel Head (ft) | 0.01 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.52 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 1288.58 | Flow Area (sq ft) | | 70.40 | |
| E.G. Slope (ft/ft) | 0.000012 | Area (sq ft) | 79.88 | 70.40 | 37.37 |
| Q Total (cfs) | 50.00 | Flow (cfs) | | 50.00 | |
| Top Width (ft) | 86.30 | Top Width (ft) | 44.40 | 20.00 | 21.90 |
| Vel Total (ft/s) | 0.71 | Avg. Vel. (ft/s) | | 0.71 | |
| Max Chl Dpth (ft) | 3.52 | Hydr. Depth (ft) | | 3.52 | |
| Conv. Total (cfs) | 14239.2 | Conv. (cfs) | | 14239.2 | |
| Length Wtd. (ft) | | Wetted Per. (ft) | | 20.00 | |
| Min Ch El (ft) | 1288.00 | Shear (lb/sq ft) | | 0.00 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.00 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

CROSS SECTION OUTPUT Profile #100

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.53 | Element | | | |
| Vel Head (ft) | 0.01 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.52 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 1288.72 | Flow Area (sq ft) | | 70.40 | |
| E.G. Slope (ft/ft) | 0.000023 | Area (sq ft) | 79.88 | 70.40 | 37.37 |
| Q Total (cfs) | 68.71 | Flow (cfs) | | 68.71 | |
| Top Width (ft) | 86.30 | Top Width (ft) | 44.40 | 20.00 | 21.90 |
| Vel Total (ft/s) | 0.98 | Avg. Vel. (ft/s) | | 0.98 | |
| Max Chl Dpth (ft) | 3.52 | Hydr. Depth (ft) | | 3.52 | |
| Conv. Total (cfs) | 14239.2 | Conv. (cfs) | | 14239.2 | |
| Length Wtd. (ft) | | Wetted Per. (ft) | | 20.00 | |
| Min Ch El (ft) | 1288.00 | Shear (lb/sq ft) | | 0.01 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.00 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

CROSS SECTION OUTPUT Profile #150

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.54 | Element | | | |
| Vel Head (ft) | 0.02 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.52 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 1288.72 | Flow Area (sq ft) | | 70.40 | |
| E.G. Slope (ft/ft) | 0.000025 | Area (sq ft) | 79.88 | 70.40 | 37.37 |
| Q Total (cfs) | 71.24 | Flow (cfs) | | 71.24 | |
| Top Width (ft) | 86.30 | Top Width (ft) | 44.40 | 20.00 | 21.90 |
| Vel Total (ft/s) | 1.01 | Avg. Vel. (ft/s) | | 1.01 | |
| Max Chl Dpth (ft) | 3.52 | Hydr. Depth (ft) | | 3.52 | |

| | | | |
|---|---|---|---|
| Conv. Total (cfs) | 14239.2 | Conv. (cfs) | 14239.2 |
| Length Wtd. (ft) | | Wetted Per. (ft) | 20.00 |
| Min Ch El (ft) | 1288.00 | Shear (lb/sq ft) | 0.01 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.01 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | |
| C & E Loss (ft) | | Cum SA (acres) | |

CROSS SECTION OUTPUT Profile #200

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.54 | Element | | | |
| Vel Head (ft) | 0.02 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.52 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 1288.75 | Flow Area (sq ft) | | 70.40 | |
| E.G. Slope (ft/ft) | 0.000026 | Area (sq ft) | 79.88 | 70.40 | 37.37 |
| Q Total (cfs) | 73.26 | Flow (cfs) | | 73.26 | |
| Top Width (ft) | 86.30 | Top Width (ft) | 44.40 | 20.00 | 21.90 |
| Vel Total (ft/s) | 1.04 | Avg. Vel. (ft/s) | | 1.04 | |
| Max Chl Dpth (ft) | 3.52 | Hydr. Depth (ft) | | 3.52 | |
| Conv. Total (cfs) | 14239.2 | Conv. (cfs) | | 14239.2 | |
| Length Wtd. (ft) | | Wetted Per. (ft) | | 20.00 | |
| Min Ch El (ft) | 1288.00 | Shear (lb/sq ft) | | 0.01 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.01 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

CROSS SECTION OUTPUT Profile #250

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.54 | Element | | | |
| Vel Head (ft) | 0.02 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.52 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 1288.75 | Flow Area (sq ft) | | 70.40 | |
| E.G. Slope (ft/ft) | 0.000027 | Area (sq ft) | 79.88 | 70.40 | 37.37 |
| Q Total (cfs) | 74.55 | Flow (cfs) | | 74.55 | |
| Top Width (ft) | 86.30 | Top Width (ft) | 44.40 | 20.00 | 21.90 |
| Vel Total (ft/s) | 1.06 | Avg. Vel. (ft/s) | | 1.06 | |
| Max Chl Dpth (ft) | 3.52 | Hydr. Depth (ft) | | 3.52 | |
| Conv. Total (cfs) | 14239.2 | Conv. (cfs) | | 14239.2 | |
| Length Wtd. (ft) | | Wetted Per. (ft) | | 20.00 | |
| Min Ch El (ft) | 1288.00 | Shear (lb/sq ft) | | 0.01 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.01 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

CROSS SECTION OUTPUT Profile #300

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1291.54 | Element | | | |
| Vel Head (ft) | 0.02 | Wt. n-Val. | | 0.017 | |
| W.S. Elev (ft) | 1291.52 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 1288.77 | Flow Area (sq ft) | | 70.40 | |
| E.G. Slope (ft/ft) | 0.000028 | Area (sq ft) | 79.88 | 70.40 | 37.37 |
| Q Total (cfs) | 75.48 | Flow (cfs) | | 75.48 | |
| Top Width (ft) | 86.30 | Top Width (ft) | 44.40 | 20.00 | 21.90 |
| Vel Total (ft/s) | 1.07 | Avg. Vel. (ft/s) | | 1.07 | |
| Max Chl Dpth (ft) | 3.52 | Hydr. Depth (ft) | | 3.52 | |
| Conv. Total (cfs) | 14239.2 | Conv. (cfs) | | 14239.2 | |
| Length Wtd. (ft) | | Wetted Per. (ft) | | 20.00 | |
| Min Ch El (ft) | 1288.00 | Shear (lb/sq ft) | | 0.01 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.01 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

SUMMARY OF MANNING'S N VALUES

River:PA25-PA26

| Reach | River Sta. | n1 | n2 | n3 |
|---|---|---|---|---|
| Channel | 36555 | .017 | .025 | .03 |
| Channel | 36466 | .017 | .017 | .03 |
| Channel | 36414 | .017 | .017 | .03 |
| Channel | 36361 | .017 | .017 | .03 |
| Channel | 36323 | .017 | .017 | .03 |
| Channel | 36296 | .017 | .017 | .03 |
| Channel | 36105 | .017 | .017 | .03 |
| Channel | 35905 | .017 | .017 | .03 |
| Channel | 35705 | .017 | .017 | .03 |
| Channel | 35509 | .017 | .017 | .03 |
| Channel | 35337 | .017 | .017 | .03 |
| Channel | 35320 | .017 | .017 | .03 |
| Channel | 35294 | .03 | .017 | .03 |

SUMMARY OF REACH LENGTHS

River: PA25-PA26

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| Channel | 36555 | 17.22 | 17.22 | 153.36 |
| Channel | 36466 | 50 | 50 | 50 |
| Channel | 36414 | 70 | 70 | 70 |
| Channel | 36361 | 52.91 | 52.91 | 52.91 |
| Channel | 36323 | 25.26 | 27.3 | 29.28 |
| Channel | 36296 | 200 | 200 | 200 |
| Channel | 36105 | 200 | 200 | 200 |

| | | | | |
|---|---|---|---|---|
| Channel | 35905 | 200 | 200 | 200 |
| Channel | 35705 | 196.8 | 196.8 | 196.8 |
| Channel | 35509 | 170 | 170 | 170 |
| Channel | 35337 | 8.01 | 12.27 | 21 |
| Channel | 35320 | 38 | 34.96 | 31 |
| Channel | 35294 | 0 | 0 | 0 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: PA25-PA26

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| Channel | 36555 | .3 | .5 |
| Channel | 36466 | .3 | .5 |
| Channel | 36414 | .3 | .5 |
| Channel | 36361 | .3 | .5 |
| Channel | 36323 | .3 | .5 |
| Channel | 36296 | .3 | .5 |
| Channel | 36105 | .3 | .5 |
| Channel | 35905 | .3 | .5 |
| Channel | 35705 | .3 | .5 |
| Channel | 35509 | .3 | .5 |
| Channel | 35337 | .3 | .5 |
| Channel | 35320 | .3 | .5 |
| Channel | 35294 | .3 | .5 |

Profile Output Table - Standard Table 1

| Reach | River Sta | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| Channel | 36555 | 236.00 | 1288.00 | 1293.34 | 1290.37 | 1293.41 | 0.000195 | 2.14 | 110.24 | 142.69 | 0.18 |
| Channel | 36555 | 50.00 | 1288.00 | 1292.57 | 1289.09 | 1292.57 | 0.000017 | 0.55 | 90.19 | 136.37 | 0.05 |
| Channel | 36555 | 100.00 | 1288.00 | 1292.90 | 1289.56 | 1292.92 | 0.000050 | 1.01 | 98.89 | 139.55 | 0.09 |
| Channel | 36555 | 150.00 | 1288.00 | 1293.07 | 1289.92 | 1293.10 | 0.000098 | 1.45 | 103.34 | 140.96 | 0.13 |
| Channel | 36555 | 200.00 | 1288.00 | 1293.22 | 1290.19 | 1293.27 | 0.000154 | 1.87 | 107.08 | 141.90 | 0.16 |
| Channel | 36555 | 250.00 | 1288.00 | 1293.38 | 1290.42 | 1293.46 | 0.000211 | 2.24 | 111.40 | 142.98 | 0.19 |
| Channel | 36555 | 300.00 | 1288.00 | 1293.55 | 1290.66 | 1293.65 | 0.000268 | 2.59 | 115.65 | 144.04 | 0.22 |
| Channel | 36466 | 236.00 | 1291.00 | 1293.12 | 1292.34 | 1293.35 | 0.000914 | 3.90 | 60.55 | 31.16 | 0.48 |
| Channel | 36466 | 50.00 | 1291.00 | 1292.54 | 1291.54 | 1292.57 | 0.000120 | 1.15 | 43.31 | 29.99 | 0.17 |
| Channel | 36466 | 100.00 | 1291.00 | 1292.85 | 1291.80 | 1292.90 | 0.000261 | 1.91 | 52.35 | 29.99 | 0.25 |
| Channel | 36466 | 150.00 | 1291.00 | 1292.97 | 1292.02 | 1293.08 | 0.000475 | 2.68 | 55.96 | 29.99 | 0.35 |
| Channel | 36466 | 200.00 | 1291.00 | 1293.04 | 1292.22 | 1293.23 | 0.000740 | 3.43 | 58.31 | 30.43 | 0.43 |
| Channel | 36466 | 250.00 | 1291.00 | 1293.14 | 1292.40 | 1293.40 | 0.000987 | 4.09 | 61.29 | 31.40 | 0.50 |
| Channel | 36466 | 300.00 | 1291.00 | 1293.23 | 1292.56 | 1293.57 | 0.001240 | 4.70 | 64.06 | 32.27 | 0.57 |
| Channel | 36414 | 220.77 | 1290.88 | 1293.12 | 1292.17 | 1293.28 | 0.000603 | 3.28 | 90.16 | 169.21 | 0.40 |
| Channel | 36414 | 50.00 | 1290.88 | 1292.54 | 1291.43 | 1292.56 | 0.000093 | 1.07 | 46.79 | 29.99 | 0.15 |
| Channel | 36414 | 97.80 | 1290.88 | 1292.84 | 1291.65 | 1292.89 | 0.000204 | 1.75 | 55.73 | 29.99 | 0.23 |
| Channel | 36414 | 143.96 | 1290.88 | 1292.96 | 1291.88 | 1293.05 | 0.000363 | 2.43 | 62.75 | 169.21 | 0.30 |
| Channel | 36414 | 188.99 | 1290.88 | 1293.03 | 1292.06 | 1293.17 | 0.000531 | 3.01 | 76.20 | 169.21 | 0.37 |
| Channel | 36414 | 232.93 | 1290.88 | 1293.15 | 1292.21 | 1293.31 | 0.000628 | 3.38 | 95.02 | 169.21 | 0.40 |
| Channel | 36414 | 274.87 | 1290.88 | 1293.26 | 1292.34 | 1293.44 | 0.000672 | 3.61 | 114.31 | 169.21 | 0.42 |
| Channel | 36361 | 146.13 | 1290.70 | 1293.11 | 1292.44 | 1293.20 | 0.000557 | 2.66 | 89.86 | 122.14 | 0.38 |
| Channel | 36361 | 50.00 | 1290.70 | 1292.47 | 1291.70 | 1292.53 | 0.000454 | 1.99 | 25.11 | 22.33 | 0.33 |
| Channel | 36361 | 77.32 | 1290.70 | 1292.76 | 1291.95 | 1292.85 | 0.000566 | 2.42 | 31.95 | 25.00 | 0.38 |
| Channel | 36361 | 102.32 | 1290.70 | 1292.86 | 1292.15 | 1293.00 | 0.000806 | 2.97 | 34.49 | 25.91 | 0.45 |
| Channel | 36361 | 127.86 | 1290.70 | 1293.02 | 1292.33 | 1293.11 | 0.000574 | 2.61 | 78.67 | 121.77 | 0.39 |
| Channel | 36361 | 152.89 | 1290.70 | 1293.15 | 1292.48 | 1293.23 | 0.000553 | 2.68 | 93.73 | 122.26 | 0.38 |
| Channel | 36361 | 176.96 | 1290.70 | 1293.27 | 1292.62 | 1293.35 | 0.000516 | 2.70 | 108.73 | 122.75 | 0.37 |
| Channel | 36323 | 108.78 | 1290.57 | 1293.12 | 1292.09 | 1293.15 | 0.000245 | 1.82 | 90.33 | 92.70 | 0.26 |
| Channel | 36323 | 50.00 | 1290.57 | 1292.46 | 1291.57 | 1292.51 | 0.000359 | 1.84 | 27.20 | 22.85 | 0.30 |
| Channel | 36323 | 70.60 | 1290.57 | 1292.75 | 1291.78 | 1292.81 | 0.000383 | 2.06 | 34.29 | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 25.47 | 0.31 | | | | | | | | | |
| Channel | 36323 | 83.78 | 1290.57 | 1292.86 | 1291.89 | 1292.94 | 0.000436 | 2.26 | 37.09 | |
| 26.43 | 0.34 | | | | | | | | | |
| Channel | 36323 | 98.18 | 1290.57 | 1293.02 | 1292.00 | 1293.06 | 0.000257 | 1.81 | 81.80 | |
| 92.33 | 0.26 | | | | | | | | | |
| Channel | 36323 | 112.60 | 1290.57 | 1293.15 | 1292.11 | 1293.19 | 0.000242 | 1.83 | 93.30 | |
| 92.83 | 0.26 | | | | | | | | | |
| Channel | 36323 | 126.69 | 1290.57 | 1293.27 | 1292.20 | 1293.31 | 0.000225 | 1.84 | 104.73 | |
| 93.32 | 0.25 | | | | | | | | | |
| Channel | 36296 | 97.63 | 1290.51 | 1292.58 | 1292.45 | 1293.02 | 0.003163 | 5.32 | 18.36 | |
| 15.71 | 0.87 | | | | | | | | | |
| Channel | 36296 | 50.00 | 1290.51 | 1292.20 | 1291.94 | 1292.44 | 0.002172 | 3.90 | 12.82 | |
| 13.17 | 0.70 | | | | | | | | | |
| Channel | 36296 | 69.81 | 1290.51 | 1292.44 | 1292.17 | 1292.73 | 0.002265 | 4.31 | 16.19 | |
| 14.77 | 0.73 | | | | | | | | | |
| Channel | 36296 | 79.19 | 1290.51 | 1292.52 | 1292.29 | 1292.84 | 0.002413 | 4.56 | 17.37 | |
| 15.29 | 0.75 | | | | | | | | | |
| Channel | 36296 | 89.73 | 1290.51 | 1292.56 | 1292.37 | 1292.95 | 0.002822 | 4.99 | 17.99 | |
| 15.55 | 0.82 | | | | | | | | | |
| Channel | 36296 | 100.34 | 1290.51 | 1292.59 | 1292.48 | 1293.05 | 0.003303 | 5.44 | 18.44 | |
| 15.74 | 0.89 | | | | | | | | | |
| Channel | 36296 | 110.56 | 1290.51 | 1292.61 | 1292.56 | 1293.15 | 0.003781 | 5.86 | 18.85 | |
| 15.91 | 0.95 | | | | | | | | | |
| Channel | 36105 | 80.88 | 1290.01 | 1292.15 | 1291.81 | 1292.44 | 0.001957 | 4.27 | 18.95 | |
| 15.70 | 0.68 | | | | | | | | | |
| Channel | 36105 | 50.00 | 1290.01 | 1291.86 | 1291.45 | 1292.04 | 0.001498 | 3.42 | 14.62 | |
| 13.82 | 0.59 | | | | | | | | | |
| Channel | 36105 | 69.81 | 1290.01 | 1292.05 | 1291.70 | 1292.30 | 0.001854 | 4.03 | 17.33 | |
| 15.02 | 0.66 | | | | | | | | | |
| Channel | 36105 | 76.69 | 1290.01 | 1292.11 | 1291.77 | 1292.38 | 0.001934 | 4.19 | 18.30 | |
| 15.42 | 0.68 | | | | | | | | | |
| Channel | 36105 | 79.37 | 1290.01 | 1292.13 | 1291.80 | 1292.41 | 0.001961 | 4.25 | 18.67 | |
| 15.58 | 0.68 | | | | | | | | | |
| Channel | 36105 | 81.11 | 1290.01 | 1292.15 | 1291.82 | 1292.44 | 0.001978 | 4.29 | 18.92 | |
| 15.68 | 0.69 | | | | | | | | | |
| Channel | 36105 | 82.38 | 1290.01 | 1292.16 | 1291.84 | 1292.45 | 0.001994 | 4.32 | 19.09 | |
| 15.75 | 0.69 | | | | | | | | | |
| Channel | 35905 | 81.87 | 1289.51 | 1291.82 | 1291.36 | 1292.07 | 0.001539 | 3.96 | 20.65 | |
| 15.86 | 0.61 | | | | | | | | | |
| Channel | 35905 | 50.00 | 1289.51 | 1291.66 | 1290.99 | 1291.78 | 0.000815 | 2.76 | 18.11 | |
| 14.87 | 0.44 | | | | | | | | | |
| Channel | 35905 | 69.81 | 1289.51 | 1291.76 | 1291.23 | 1291.96 | 0.001274 | 3.55 | 19.68 | |
| 15.49 | 0.55 | | | | | | | | | |
| Channel | 35905 | 76.69 | 1289.51 | 1291.80 | 1291.31 | 1292.02 | 0.001420 | 3.78 | 20.27 | |
| 15.72 | 0.59 | | | | | | | | | |
| Channel | 35905 | 79.37 | 1289.51 | 1291.81 | 1291.32 | 1292.05 | 0.001475 | 3.87 | 20.50 | |
| 15.81 | 0.60 | | | | | | | | | |
| Channel | 35905 | 81.08 | 1289.51 | 1291.82 | 1291.34 | 1292.06 | 0.001508 | 3.92 | 20.66 | |
| 15.87 | 0.61 | | | | | | | | | |
| Channel | 35905 | 82.25 | 1289.51 | 1291.83 | 1291.36 | 1292.07 | 0.001532 | 3.96 | 20.76 | |
| 15.91 | 0.61 | | | | | | | | | |
| Channel | 35705 | 80.87 | 1289.01 | 1291.63 | 1290.85 | 1291.78 | 0.000825 | 3.13 | 25.84 | |
| 17.72 | 0.46 | | | | | | | | | |
| Channel | 35705 | 50.00 | 1289.01 | 1291.57 | 1290.49 | 1291.63 | 0.000355 | 2.02 | 24.72 | |
| 17.33 | 0.30 | | | | | | | | | |
| Channel | 35705 | 69.81 | 1289.01 | 1291.61 | 1290.73 | 1291.72 | 0.000643 | 2.75 | 25.41 | |
| 17.57 | 0.40 | | | | | | | | | |
| Channel | 35705 | 76.69 | 1289.01 | 1291.62 | 1290.81 | 1291.76 | 0.000755 | 2.99 | 25.67 | |
| 17.66 | 0.44 | | | | | | | | | |
| Channel | 35705 | 79.37 | 1289.01 | 1291.63 | 1290.82 | 1291.77 | 0.000800 | 3.08 | 25.78 | |
| 17.70 | 0.45 | | | | | | | | | |
| Channel | 35705 | 81.08 | 1289.01 | 1291.63 | 1290.84 | 1291.78 | 0.000829 | 3.14 | 25.85 | |
| 17.72 | 0.46 | | | | | | | | | |
| Channel | 35705 | 82.25 | 1289.01 | 1291.63 | 1290.86 | 1291.79 | 0.000849 | 3.18 | 25.89 | |
| 17.73 | 0.46 | | | | | | | | | |
| Channel | 35509 | 79.59 | 1288.54 | 1291.54 | 1290.35 | 1291.63 | 0.000417 | 2.41 | 32.98 | |
| 19.99 | 0.33 | | | | | | | | | |
| Channel | 35509 | 50.00 | 1288.54 | 1291.53 | 1290.02 | 1291.57 | 0.000167 | 1.53 | 32.77 | |
| 19.93 | 0.21 | | | | | | | | | |
| Channel | 35509 | 69.42 | 1288.54 | 1291.54 | 1290.26 | 1291.61 | 0.000319 | 2.11 | 32.91 | |
| 19.97 | 0.29 | | | | | | | | | |
| Channel | 35509 | 75.84 | 1288.54 | 1291.54 | 1290.33 | 1291.62 | 0.000379 | 2.30 | 32.95 | |
| 19.98 | 0.32 | | | | | | | | | |
| Channel | 35509 | 78.23 | 1288.54 | 1291.54 | 1290.35 | 1291.63 | 0.000403 | 2.37 | 32.97 | |
| 19.98 | 0.33 | | | | | | | | | |
| Channel | 35509 | 79.76 | 1288.54 | 1291.54 | 1290.37 | 1291.63 | 0.000418 | 2.42 | 32.98 | |
| 19.99 | 0.33 | | | | | | | | | |
| Channel | 35509 | 80.64 | 1288.54 | 1291.54 | 1290.38 | 1291.63 | 0.000425 | 2.44 | 34.34 | |
| 53.28 | 0.33 | | | | | | | | | |
| Channel | 35337 | 74.50 | 1288.12 | 1291.52 | 1289.84 | 1291.56 | 0.000137 | 1.67 | 52.40 | |
| 53.28 | 0.20 | | | | | | | | | |
| Channel | 35337 | 50.00 | 1288.12 | 1291.52 | 1289.55 | 1291.54 | 0.000061 | 1.12 | 52.49 | |
| 53.28 | 0.13 | | | | | | | | | |
| Channel | 35337 | 65.80 | 1288.12 | 1291.52 | 1289.75 | 1291.55 | 0.000106 | 1.47 | 52.47 | |
| 53.28 | 0.18 | | | | | | | | | |
| Channel | 35337 | 71.33 | 1288.12 | 1291.52 | 1289.80 | 1291.56 | 0.000125 | 1.60 | 52.42 | |
| 53.28 | 0.19 | | | | | | | | | |
| Channel | 35337 | 73.34 | 1288.12 | 1291.52 | 1289.83 | 1291.56 | 0.000133 | 1.64 | 52.40 | |
| 53.28 | 0.20 | | | | | | | | | |
| Channel | 35337 | 74.63 | 1288.12 | 1291.52 | 1289.83 | 1291.56 | 0.000137 | 1.67 | 52.40 | |
| 53.28 | 0.20 | | | | | | | | | |
| Channel | 35337 | 75.56 | 1288.12 | 1291.52 | 1289.86 | 1291.56 | 0.000141 | 1.69 | 52.40 | |
| 53.28 | 0.20 | | | | | | | | | |
| Channel | 35320 | 74.42 | 1288.09 | 1291.51 | 1289.87 | 1291.56 | 0.000162 | 1.75 | 50.17 | |
| 61.22 | 0.21 | | | | | | | | | |
| Channel | 35320 | 50.00 | 1288.09 | 1291.52 | 1289.57 | 1291.54 | 0.000072 | 1.17 | 50.55 | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 61.22 | 0.14 | | | | | | | | |
| Channel | 35320 | 65.71 | 1288.09 | 1291.51 | 1289.74 | 1291.55 | 0.000126 | 1.54 | 50.37 |
| 61.22 | 0.19 | | | | | | | | |
| Channel | 35320 | 71.24 | 1288.09 | 1291.51 | 1289.82 | 1291.55 | 0.000148 | 1.68 | 50.23 |
| 61.22 | 0.21 | | | | | | | | |
| Channel | 35320 | 73.26 | 1288.09 | 1291.51 | 1289.85 | 1291.55 | 0.000157 | 1.72 | 50.20 |
| 61.22 | 0.21 | | | | | | | | |
| Channel | 35320 | 74.55 | 1288.09 | 1291.51 | 1289.86 | 1291.56 | 0.000163 | 1.75 | 50.17 |
| 61.22 | 0.21 | | | | | | | | |
| Channel | 35320 | 75.48 | 1288.09 | 1291.51 | 1289.88 | 1291.56 | 0.000167 | 1.78 | 50.15 |
| 61.22 | 0.22 | | | | | | | | |
| Channel | 35294 | 74.42 | 1288.00 | 1291.52 | 1288.75 | 1291.54 | 0.000027 | 1.06 | 70.40 |
| 86.30 | 0.10 | | | | | | | | |
| Channel | 35294 | 50.00 | 1288.00 | 1291.52 | 1288.58 | 1291.53 | 0.000012 | 0.71 | 70.40 |
| 86.30 | 0.07 | | | | | | | | |
| Channel | 35294 | 68.71 | 1288.00 | 1291.52 | 1288.72 | 1291.53 | 0.000023 | 0.98 | 70.40 |
| 86.30 | 0.09 | | | | | | | | |
| Channel | 35294 | 71.24 | 1288.00 | 1291.52 | 1288.72 | 1291.54 | 0.000025 | 1.01 | 70.40 |
| 86.30 | 0.10 | | | | | | | | |
| Channel | 35294 | 73.26 | 1288.00 | 1291.52 | 1288.75 | 1291.54 | 0.000026 | 1.04 | 70.40 |
| 86.30 | 0.10 | | | | | | | | |
| Channel | 35294 | 74.55 | 1288.00 | 1291.52 | 1288.75 | 1291.54 | 0.000027 | 1.06 | 70.40 |
| 86.30 | 0.10 | | | | | | | | |
| Channel | 35294 | 75.48 | 1288.00 | 1291.52 | 1288.77 | 1291.54 | 0.000028 | 1.07 | 70.40 |
| 86.30 | 0.10 | | | | | | | | |

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    12OCT00    TIME   15:31:12 *
 ******************************************
```

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

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



THIS RUN EXECUTED 12OCT00  15:31:12

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

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

PA 25-26.dat

```
SPLIT FLOW BEING PERFORMED

SF     SPLIT   FLOW    PROBLEM

JC     SPLIT   FLOW    PROBLEM
JP     0       0       0       0       0

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35294    AND    35320
WS     2   35294   35320       -1      3.4
WC       1292.00   34.96 1291.50

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35320    AND    35337
WS     2   35320   35337       -1      3.4
WC       1291.50   12.28 1291.49

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35337    AND    35509
WS     2   35337   35509       -1      3.4
WC       1291.49     170 1291.54

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35509    AND    35705
WS     2   35509   35705       -1      3.4
WC       1291.54   196.8 1292.01

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35705    AND    35905
WS     2   35705   35905       -1      3.4
WC       1292.01     200 1292.51

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35905    AND    36105
WS     2   35905   36105       -1      3.4
WC       1292.51     200 1292.66

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36105    AND    36296
WS     2   36105   36296       -1      3.4
WC       1292.66     200 1293.00
```



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TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36296    AND    36323
WS     2   36296   36323       -1      3.4
WC       1293.00   27.27 1293.00

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36323    AND    36361
WS     2   36323   36361       -1      3.4
WC       1293.00   52.86 1293.00

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36361    AND    36414
WS     2   36361   36414       -1      3.4
WC       1293.00      70 1292.93

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36414    AND    36466
WS     2   36414   36466       -1      3.4
WC       1292.93      50 1294.00

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36466    AND    36555
WS     2   36466   36555       -1      3.4
```

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WC        1294.00    17.23 1294.00
1
   12OCT00       15:31:12                                                                                    PAGE    3

T1 HEC-2 Input   Data    file:   SPLIT   FLOW    SOLUTION
T2 PA2526 -        LATERAL WEIR    SPLIT   FLOW Q=       236CFS
T3 PA2527 -        LATERAL WEIR    SPLIT   FLOW Q=       236CFS

J1  ICHECK    INQ       NINV      IDIR      STRT     METRIC    HVINS     Q         WSEL      FQ

      0        2         0         0         0         0         0         0   1291.52         0

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

    -10

QT        1    236.00
NC   0.0170    0.0170    0.0300       0.3       0.5
X1    35294        12     75.00     95.00      0.00      0.00      0.00
GR   1293.9      0.00   1292.00     21.00   1291.00     41.00   1290.00     49.50   1289.00     58.00
GR   1288.0     75.00   1288.00     85.00   1288.00     95.00   1289.00    101.00   1290.00    107.00
GR   1291.0    113.00   1292.00    120.50

X1    35320         9    100.01    120.00     38.00     34.96     31.00
GR   1293.7     90.00   1293.70     99.00   1295.70     99.00   1295.70    100.00   1291.09    100.01
GR   1288.1    109.00   1288.09    111.00   1291.09    120.00   1291.50    161.23

X1    35337         9    100.01    120.00      8.00     12.28     21.00
GR   1293.7     71.43   1293.70     99.00   1296.00     99.00   1296.00    100.00   1290.70    100.01
GR   1288.1    109.00   1288.12    111.00   1291.00    120.00   1291.49    153.29

X1    35509         8    100.01    120.00    170.00    170.00    170.00
GR   1294.0     71.43   1294.00     99.00   1296.00     99.00   1296.00    100.00   1291.54    100.01
GR   1288.5    109.00   1288.54    111.00   1291.54    120.00

X1    35705         8    100.01    120.00    196.80    196.80    237.20
GR   1294.8     71.43   1294.80     99.00   1296.80     99.00   1296.80    100.00   1292.01    100.01
GR   1289.0    109.00   1289.01    111.00   1292.01    120.00

X1    35905         8    100.01    120.00    200.00    200.00    200.00
GR   1295.3     71.43   1295.30     99.00   1297.30     99.00   1297.30    100.00   1292.51    100.01
GR   1289.5    109.00   1289.51    111.00   1292.51    120.00

X1    36105         8    100.01    120.00    200.00    200.00    200.00
GR   1295.5     71.43   1295.50     99.00   1297.50     99.00   1297.50    100.00   1293.01    100.01
GR   1290.0    109.00   1290.01    111.00   1292.66    120.00

X1    36296         8    100.01    120.00    200.00    200.00    200.00
GR   1295.0     71.43   1295.00     99.00   1297.00     99.00   1297.00    100.00   1293.51    100.01
GR   1290.5    109.00   1290.51    111.00   1293.00    120.00

X1    36323         8    100.01    130.00     29.25     27.27     25.26
GR   1294.7     71.43   1294.70     99.00   1296.70     99.00   1296.70    100.00   1293.57    100.01
GR   1290.6    112.00   1290.57    118.00   1293.00    130.00
1
   12OCT00       15:31:12                                                                                    PAGE    4


X1    36361         8    100.01    130.00     52.86     52.86     52.86
GR   1294.4     71.43   1294.40     99.00   1296.40     99.00   1296.40    100.00   1293.70    100.01
GR   1290.7    112.00   1290.70    118.00   1293.00    130.00

X1    36414         8    100.00    130.00     70.00     70.00     70.00
GR   1294.4     71.43   1294.40     99.00   1296.33     99.00   1296.33    100.00   1291.08    100.01
GR   1290.9    115.00   1291.08    129.99   1292.93    130.00

X1    36466         9    100.00    130.00     50.00     50.00     50.00
GR   1294.3     71.43   1294.30     99.00   1296.00     99.00   1296.00    100.00   1291.20    100.01
GR   1291.0    115.00   1291.20    129.99   1293.00    130.00   1294.00    140.00

NH        3    0.0170    100.01    0.0250    247.00    0.0300    258.00
X1    36555        17    100.01    247.00     17.23     17.23     17.23
GR   1294.3     71.43   1294.30     99.00   1295.00     99.00   1295.00    100.00   1291.00    100.01
GR   1290.0    105.00   1289.00    109.00   1288.00    113.00   1288.00    118.00   1289.00    122.00
GR   1290.0    126.00   1290.00    195.00   1291.00    217.00   1292.00    231.00   1293.00    240.50
GR   1294.0    247.00   1294.00    258.00
1
PROFILE FOR STREAM  7 -       LATERAL WEIR


PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA


ELEVATION  1288.     1289.     1290.     1291.     1292.     1293.     1294.     1295.     1296.     1297.
    SECNO   CUMDIS

 35294.00     0.  I         .         .         .    E    M         .         .         .         .         .         .
             10.  I         L         .         .    E  M .         .         .         .         .         .         .
             20.  CI        .         L         .    E M  .         .         .         .         .         .         .
             30.  CI        .         .         L    E    .         .         .         .         .         .         .
 35320.00    40.  CI        .         .        .L    E    .         .         .         .         .         .         .
             50.  CI        .         .       LR    E    .         .         .         .         .         .         .
 35337.00    60.  CI        .         .     L  R    WE   .         .         .         .         .         .         .
             70.  CI        .         .     L  R    WE   .         .         .         .         .         .         .
             80.  CI        .         .      L .R   WE   .         .         .         .         .         .         .
             90.  C I       .         .      L .R   WE   .         .         .         .         .         .         .
            100.  C I       .         .       L.R   WE   .         .         .         .         .         .         .
            110.  C I       .         .       L. R  WE   .         .         .         .         .         .         .
            120.  C I       .         .        L R  WE   .         .         .         .         .         .         .
            130.  C  I      .         .        L R  WE   .         .         .         .         .         .         .
            140.  C  I      .         .        .L R ME   .         .         .         .         .         .         .
            150.  C  I      .         .        .L R ME   .         .         .         .         .         .         .
            160.  C  I      .         .        . LR ME   .         .         .         .         .         .         .
            170.  C   I     .         .        . LR ME   .         .         .         .         .         .         .
```

```
           180.  C   I     .         .         .  LRME   .         .         .         .         .         .         .
           190.  C   I     .         .         .  LRME   .         .         .         .         .         .         .
           200.  C   I     .         .         .   LMWE  .         .         .         .         .         .         .
           210.  C    I    .         .         .   LRWE  .         .         .         .         .         .         .
           220.  C    I    .         .         .    LWE  .         .         .         .         .         .         .
35509.00   230.  C    I    .         .         .    LWE  .         .         .         .         .         .         .
           240.  C    I    .         .         .     WE  .         .         .         .         .         .         .
           250.  C    I    .         .         .     WE  .         .         .         .         .         .         .
           260.  C     I   .         .         .     WE  .         .         .         .         .         .         .
           270.  C     I   .         .         .     LE  .         .         .         .         .         .         .
           280.  C     I   .         .         .     LE  .         .         .         .         .         .         .
           290.  C     I   .         .         .      WE .         .         .         .         .         .         .
           300.  C     I   .         .         .      WE .         .         .         .         .         .         .
           310.  C      I  .         .         .      WE .         .         .         .         .         .         .
           320.  C      I  .         .         .      WE .         .         .         .         .         .         .
           330.  C      I  .         .         .      WE .         .         .         .         .         .         .
           340.  C      I  .         .         .      WE .         .         .         .         .         .         .
           350.  C       I .         .         .       E .         .         .         .         .         .         .
           360.  C       I .         .         .       WE.         .         .         .         .         .         .
           370.  C       I .         .         .       WE.         .         .         .         .         .         .
           380.  C       I .         .         .       WE.         .         .         .         .         .         .
           390.  C       I .         .         .       WE.         .         .         .         .         .         .
           400.  C        I.         .         .       WE.         .         .         .         .         .         .
           410.  C        I.         .         .       WE.         .         .         .         .         .         .
           420.  C        I.         .         .       WE.         .         .         .         .         .         .
           430.  C        I.         .         .        WE         .         .         .         .         .         .
           440.  C        I.         .         .        WE         .         .         .         .         .         .
           450.  C         I         .         .        WE         .         .         .         .         .         .
35705.00   460.  C         I         .         .        WE         .         .         .         .         .         .
           470.  C         I         .         .        WE         .         .         .         .         .         .
           480.  C         .I        .         .        WEL        .         .         .         .         .         .
           490.  C         .I        .         .         WE        .         .         .         .         .         .
           500.  C         .I        .         .         WE        .         .         .         .         .         .
           510.  C         .I        .         .         WE        .         .         .         .         .         .
           520.  C         . I       .         .         WEL       .         .         .         .         .         .
           530.  C         . I       .         .         WEL       .         .         .         .         .         .
           540.  C         . I       .         .         W E       .         .         .         .         .         .
           550.  C         . I       .         .         .WE       .         .         .         .         .         .
           560.  C         .  I      .         .         .WEL      .         .         .         .         .         .
           570.  C         .  I      .         .         .WEL      .         .         .         .         .         .
           580.  C         .  I      .         .         .WEL      .         .         .         .         .         .
           590.  C         .  I      .         .         .W E      .         .         .         .         .         .
           600.  C         .  I      .         .         .W EL     .         .         .         .         .         .
           610.  C         .   I     .         .         . WEL     .         .         .         .         .         .
           620.  C         .   I     .         .         . WEL     .         .         .         .         .         .
           630.  C         .   I     .         .         . WEL     .         .         .         .         .         .
           640.  C         .   I     .         .         . WE L    .         .         .         .         .         .
           650.  C         .    I    .         .         . W EL    .         .         .         .         .         .
35905.00   660.  C         .    I    .         .         .  WEL    .         .         .         .         .         .
           670.  C         .    I    .         .         .  WEL    .         .         .         .         .         .
           680.  C         .     I   .         .         .  WERL   .         .         .         .         .         .
           690.  C         .     I   .         .         .  WERL   .         .         .         .         .         .
           700.  C         .     I   .         .         .  W EL   .         .         .         .         .         .
           710.  C         .     I   .         .         .   WEL   .         .         .         .         .         .
           720.  C         .      I  .         .         .   WERL  .         .         .         .         .         .
           730.  C         .      I  .         .         .   WERL  .         .         .         .         .         .
           740.  C         .      I  .         .         .   WERL  .         .         .         .         .         .
           750.  C         .      I  .         .         .   W EL  .         .         .         .         .         .
           760.  C         .       I .         .         .    WE L .         .         .         .         .         .
           770.  C         .       I .         .         .    WE L .         .         .         .         .         .
           780.  C         .       I .         .         .    WE L .         .         .         .         .         .
           790.  C         .       I .         .         .    WREL .         .         .         .         .         .
           800.  C         .       I .         .         .    WRE L.         .         .         .         .         .
           810.  C         .        I.         .         .     WE L.         .         .         .         .         .
           820.  C         .        I.         .         .     WE L.         .         .         .         .         .
           830.  C         .        I.         .         .     WE L.         .         .         .         .         .
           840.  C         .        I.         .         .     W E L         .         .         .         .         .
           850.  C         .         I         .         .     WRE L         .         .         .         .         .
36105.00   860.  C         .         I         .         .      WE L         .         .         .         .         .
           870.  C         .         I         .         .      WE L         .         .         .         .         .
           880.  C         .         .I        .         .      W E.L        .         .         .         .         .
           890.  C         .         .I        .         .      W E.L        .         .         .         .         .
           900.  C         .         .I        .         .      RWE.L        .         .         .         .         .
           910.  C         .         .I        .         .      RWE.L        .         .         .         .         .
           920.  C         .         . I       .         .       W E L       .         .         .         .         .
           930.  C         .         . I       .         .       W E L       .         .         .         .         .
           940.  C         .         . I       .         .       RWE L       .         .         .         .         .
           950.  C         .         . I       .         .       RWE L       .         .         .         .         .
           960.  C         .         .  I      .         .       RW.E L      .         .         .         .         .
           970.  C         .         .  I      .         .       RW.E L      .         .         .         .         .
           980.  C         .         .  I      .         .        RWE L      .         .         .         .         .
           990.  C         .         .  I      .         .        RWE L      .         .         .         .         .
          1000.  C         .         .   I     .         .        RW E L     .         .         .         .         .
          1010.  C         .         .   I     .         .        RW E L     .         .         .         .         .
          1020.  C         .         .   I     .         .        R.WE L     .         .         .         .         .
          1030.  C         .         .   I     .         .        R.W EL     .         .         .         .         .
          1040.  C         .         .    I    .         .         RW E L    .         .         .         .         .
          1050.  C         .         .    I    .         .         RW E L    .         .         .         .         .
36296.00  1060.  C         .         .    I    .         .         R WE L    .         .         .         .         .
          1070.  C         .         .    I    .         .         R W EL    .         .         .         .         .
          1080.  C         .         .     I   .         .         R  WE L   .         .         .         .         .
36323.00  1090.  C         .         .     I   .         .         R  WE L   .         .         .         .         .
          1100.  C         .         .     I   .         .         R  WE L   .         .         .         .         .
          1110.  C         .         .     I   .         .         R  WE L   .         .         .         .         .
          1120.  C         .         .     I   .         .         R   WEL   .         .         .         .         .
          1130.  C         .         .      I  .         .         R   WE L  .         .         .         .         .
36361.00  1140.  C         .         .      I  .         .         R   WE L  .         .         .         .         .
          1150.  C         .         .      I  .         .         R   WE    .L        .         .         .         .
          1160.  C         .         .       I .         .         R   WE    .    L    .         .         .         .
          1170.  C         .         .       I .         .         R   W E   .       L .         .         .         .
          1180.  C         .         .       I .         .         R   W E   .         . L       .         .         .
          1190.  C         .         .       I .         .         R   W E   .         .     L   .         .         .
          1200.  C         .         .        I.         .        R.    WE   .         .         L         .         .
36414.00  1210.  C         .         .        I.         .        R.    WE   .         .         .  L      .         .
          1220.  C         .         .        I.         .        R.M   WE   .         .         .  L      .         .
          1230.  C         .         .        I.         .         R   MW E  .         .         . L       .         .
          1240.  C         .         .         I         .         R    WME  .         .         .L        .         .
          1250.  C         .         .         I         .         R    W EM .         .         .L        .         .
```

```
 36466.00  1260.  C        .        .        L        .        .      RE  M        .        .        .        .
           1270.  C        .   I    .        .        .        .      .L  RE  M     .        .        .        .
 36555.00  1280.  I        .        .        L        .        .       WE R         .        .        .        .
1
   12OCT00      15:31:12                                                                                    PAGE    5
```

THIS RUN EXECUTED 12OCT00 15:31:12

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

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

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

7 - LATERAL WEIR

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35294.000 | .00 | .00 | .00 | 1288.00 | 74.42 | 1291.52 | .00 | 1291.52 | .08 | .33 | 187.66 | 262.14 |
| * 35320.000 | 31.00 | .00 | .00 | 1288.09 | 74.42 | 1291.50 | .00 | 1291.54 | 4.63 | 1.67 | 49.71 | 34.60 |
| 35337.000 | 21.00 | .00 | .00 | 1288.10 | 74.50 | 1291.52 | .00 | 1291.55 | 3.79 | 1.57 | 52.24 | 38.25 |
| * 35509.000 | 170.00 | .00 | .00 | 1288.50 | 79.59 | 1291.60 | .00 | 1291.68 | 11.35 | 2.32 | 34.38 | 23.62 |
| 35705.000 | 237.20 | .00 | .00 | 1289.00 | 80.87 | 1291.90 | .00 | 1292.01 | 15.82 | 2.61 | 30.97 | 20.33 |
| 35905.000 | 200.00 | .00 | .00 | 1289.50 | 80.87 | 1292.25 | .00 | 1292.38 | 20.61 | 2.88 | 28.06 | 17.82 |
| 36105.000 | 200.00 | .00 | .00 | 1290.00 | 80.88 | 1292.67 | .00 | 1292.80 | 21.43 | 2.89 | 28.00 | 17.47 |
| 36296.000 | 200.00 | .00 | .00 | 1290.50 | 97.63 | 1293.15 | .00 | 1293.33 | 29.54 | 3.42 | 28.51 | 17.96 |
| * 36323.000 | 25.26 | .00 | .00 | 1290.57 | 108.78 | 1293.33 | .00 | 1293.41 | 9.65 | 2.17 | 50.14 | 35.02 |
| 36361.000 | 52.86 | .00 | .00 | 1290.70 | 146.13 | 1293.37 | .00 | 1293.51 | 19.07 | 3.01 | 48.57 | 33.47 |
| * 36414.000 | 70.00 | .00 | .00 | 1290.90 | 220.77 | 1293.48 | .00 | 1293.62 | 12.82 | 2.95 | 74.75 | 61.66 |
| 36466.000 | 50.00 | .00 | .00 | 1291.00 | 236.00 | 1293.54 | .00 | 1293.70 | 15.04 | 3.20 | 74.67 | 60.86 |
| * 36555.000 | 17.23 | .00 | .00 | 1288.00 | 236.00 | 1293.74 | .00 | 1293.75 | .13 | .48 | 495.28 | 664.43 |

1
12OCT00 15:31:12 PAGE 6

7 - LATERAL WEIR

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 35294.000 | 74.42 | 1291.52 | .00 | .00 | .00 | 86.30 | .00 |
| * 35320.000 | 74.42 | 1291.50 | .00 | -.02 | .00 | 61.22 | 31.00 |
| 35337.000 | 74.50 | 1291.52 | .00 | .01 | .00 | 53.28 | 21.00 |
| * 35509.000 | 79.59 | 1291.60 | .00 | .08 | .00 | 19.99 | 170.00 |
| 35705.000 | 80.87 | 1291.90 | .00 | .30 | .00 | 19.36 | 237.20 |
| 35905.000 | 80.87 | 1292.25 | .00 | .35 | .00 | 18.44 | 200.00 |
| 36105.000 | 80.88 | 1292.67 | .00 | .42 | .00 | 18.98 | 200.00 |
| 36296.000 | 97.63 | 1293.15 | .00 | .48 | .00 | 18.94 | 200.00 |
| * 36323.000 | 108.78 | 1293.33 | .00 | .18 | .00 | 29.03 | 25.26 |
| 36361.000 | 146.13 | 1293.37 | .00 | .04 | .00 | 28.68 | 52.86 |
| * 36414.000 | 220.77 | 1293.48 | .00 | .11 | .00 | 29.99 | 70.00 |
| 36466.000 | 236.00 | 1293.54 | .00 | .06 | .00 | 35.41 | 50.00 |
| * 36555.000 | 236.00 | 1293.74 | .00 | .20 | .00 | 145.32 | 17.23 |

1
12OCT00 15:31:12 PAGE 7

SUMMARY OF ERRORS AND SPECIAL NOTES

```
WARNING SECNO=  35320.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  35509.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  36323.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  36414.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  36555.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

```
*************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *                                        *
 *  RUN DATE    12OCT00    TIME   16:29:34 *
 ******************************************
*************************************
```


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


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



THIS RUN EXECUTED 12OCT00  16:29:34

```
*************************************
 HEC-2 WATER SURFACE PROFILES
 Version   4.6.2;  May 1991
*************************************
```

PA 25-26A.dat

SPLIT FLOW BEING PERFORMED

```
SF      SPLIT   FLOW    PROBLEM

JC      SPLIT   FLOW    PROBLEM
JP      0       0       0       0       0

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35294    AND    35320
WS      2   35294   35320       -1      3.4
WC        1292.00   34.96 1291.50

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35320    AND    35337
WS      2   35320   35337       -1      3.4
WC        1291.50   12.28 1291.49

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35337    AND    35509
WS      2   35337   35509       -1      3.4
WC        1291.49     170 1291.54

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35509    AND    35705
WS      2   35509   35705       -1      3.4
WC        1291.54   196.8 1292.01

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35705    AND    35905
WS      2   35705   35905       -1      3.4
WC        1292.01     200 1292.51

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35905    AND    36105
WS      2   35905   36105       -1      3.4
WC        1292.51     200 1292.66

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36105    AND    36296
WS      2   36105   36296       -1      3.4
WC        1292.66     200 1293.00
```



```
TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36296    AND    36323
WS      2   36296   36323       -1      3.4
WC        1293.00   27.27 1293.00

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36323    AND    36361
WS      2   36323   36361       -1      3.4
WC        1293.00   52.86 1293.00

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36361    AND    36414
WS      2   36361   36414       -1      3.4
WC        1293.00      70 1292.93
```

```
TW
WS      2   36414   36466      -1      3.4
WC        1292.93      50 1294.00

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36466    AND    36555
WS      2   36466   36555      -1      3.4
WC        1294.00   17.23 1294.00
1
   12OCT00      16:29:34                                                                                    PAGE    3

T1 HEC-2 Input Data file: SPLIT FLOW SOLUTION
T2 PA25-26A - LATERAL WEIR SPLIT FLOW Q= 50.00 CFS
T3 PA25-26A - LATERAL WEIR SPLIT FLOW Q= 50.00 CFS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         2         0         0         0         0         0         0   1291.50         0

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

    -10

QT        1     50.00
NC   0.0170    0.0170    0.0300       0.3       0.5
X1    35294        12     75.00     95.00      0.00      0.00      0.00
GR   1293.9      0.00   1292.00     21.00   1291.00     41.00   1290.00     49.50   1289.00     58.00
GR   1288.0     75.00   1288.00     85.00   1288.00     95.00   1289.00    101.00   1290.00    107.00
GR   1291.0    113.00   1292.00    120.50

X1    35320         9    100.01    120.00     38.00     34.96     31.00
GR   1293.7     90.00   1293.70     99.00   1295.70     99.00   1295.70    100.00   1291.09    100.01
GR   1288.1    109.00   1288.09    111.00   1291.09    120.00   1291.50    161.23

X1    35337         9    100.01    120.00      8.00     12.28     21.00
GR   1293.7     71.43   1293.70     99.00   1296.00     99.00   1296.00    100.00   1290.70    100.01
GR   1288.1    109.00   1288.12    111.00   1291.00    120.00   1291.49    153.29

X1    35509         8    100.01    120.00    170.00    170.00    170.00
GR   1294.0     71.43   1294.00     99.00   1296.00     99.00   1296.00    100.00   1291.54    100.01
GR   1288.5    109.00   1288.54    111.00   1291.54    120.00

X1    35705         8    100.01    120.00    196.80    196.80    237.20
GR   1294.8     71.43   1294.80     99.00   1296.80     99.00   1296.80    100.00   1292.01    100.01
GR   1289.0    109.00   1289.01    111.00   1292.01    120.00

X1    35905         8    100.01    120.00    200.00    200.00    200.00
GR   1295.3     71.43   1295.30     99.00   1297.30     99.00   1297.30    100.00   1292.51    100.01
GR   1289.5    109.00   1289.51    111.00   1292.51    120.00

X1    36105         8    100.01    120.00    200.00    200.00    200.00
GR   1295.5     71.43   1295.50     99.00   1297.50     99.00   1297.50    100.00   1293.01    100.01
GR   1290.0    109.00   1290.01    111.00   1292.66    120.00

X1    36296         8    100.01    120.00    200.00    200.00    200.00
GR   1295.0     71.43   1295.00     99.00   1297.00     99.00   1297.00    100.00   1293.51    100.01
GR   1290.5    109.00   1290.51    111.00   1293.00    120.00

X1    36323         8    100.01    130.00     29.25     27.27     25.26
GR   1294.7     71.43   1294.70     99.00   1296.70     99.00   1296.70    100.00   1293.57    100.01
GR   1290.6    112.00   1290.57    118.00   1293.00    130.00
1
   12OCT00      16:29:34                                                                                    PAGE    4


X1    36361         8    100.01    130.00     52.86     52.86     52.86
GR   1294.4     71.43   1294.40     99.00   1296.40     99.00   1296.40    100.00   1293.70    100.01
GR   1290.7    112.00   1290.70    118.00   1293.00    130.00

X1    36414         8    100.00    130.00     70.00     70.00     70.00
GR   1294.4     71.43   1294.40     99.00   1296.33     99.00   1296.33    100.00   1291.08    100.01
GR   1290.9    115.00   1291.08    129.99   1292.93    130.00

X1    36466         9    100.00    130.00     50.00     50.00     50.00
GR   1294.3     71.43   1294.30     99.00   1296.00     99.00   1296.00    100.00   1291.20    100.01
GR   1291.0    115.00   1291.20    129.99   1293.00    130.00   1294.00    140.00

NH        3    0.0170    100.01    0.0250    247.00    0.0300    258.00
X1    36555        17    100.01    247.00     17.23     17.23     17.23
GR   1294.3     71.43   1294.30     99.00   1295.00     99.00   1295.00    100.00   1291.00    100.01
GR   1290.0    105.00   1289.00    109.00   1288.00    113.00   1288.00    118.00   1289.00    122.00
GR   1290.0    126.00   1290.00    195.00   1291.00    217.00   1292.00    231.00   1293.00    240.50
GR   1294.0    247.00   1294.00    258.00
1
PROFILE FOR STREAM  26A - LATERAL WEIR SPLIT


PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA


ELEVATION  1288.     1289.     1290.     1291.     1292.     1293.     1294.     1295.     1296.     1297.
    SECNO   CUMDIS

 35294.00     0.  I        .         .         .    E    M         .         .         .         .         .         .
             10.  I        L         .         .    E  M .         .         .         .         .         .         .
             20.  CI       .         L         .    E M  .         .         .         .         .         .         .
             30.  CI       .         .         L    E    .         .         .         .         .         .         .
 35320.00    40.  CI       .         .        .L    E    .         .         .         .         .         .         .
             50.  CI       .         .       LR     E    .         .         .         .         .         .         .
 35337.00    60.  CI       .         .     L  R     E    .         .         .         .         .         .         .
             70.  CI       .         .     L  R     E    .         .         .         .         .         .         .
             80.  CI       .         .      L .R    E    .         .         .         .         .         .         .
             90.  C I      .         .      L .R    E    .         .         .         .         .         .         .
            100.  C I      .         .       L.R    E    .         .         .         .         .         .         .
```

```
          120.  C I       .         .         L R  E    .         .         .         .         .         .         .
          130.  C  I      .         .         L R  E    .         .         .         .         .         .         .
          140.  C  I      .         .         .L R E    .         .         .         .         .         .         .
          150.  C  I      .         .         .L R E    .         .         .         .         .         .         .
          160.  C  I      .         .         . LR E    .         .         .         .         .         .         .
          170.  C   I     .         .         . LR E    .         .         .         .         .         .         .
          180.  C   I     .         .         .  LRWE   .         .         .         .         .         .         .
          190.  C   I     .         .         .  LRWE   .         .         .         .         .         .         .
          200.  C   I     .         .         .   LWE   .         .         .         .         .         .         .
          210.  C    I    .         .         .   LWE   .         .         .         .         .         .         .
          220.  C    I    .         .         .    WE   .         .         .         .         .         .         .
35509.00  230.  C    I    .         .         .    WE   .         .         .         .         .         .         .
          240.  C    I    .         .         .    WE   .         .         .         .         .         .         .
          250.  C    I    .         .         .     E   .         .         .         .         .         .         .
          260.  C     I   .         .         .     E   .         .         .         .         .         .         .
          270.  C     I   .         .         .     E   .         .         .         .         .         .         .
          280.  C     I   .         .         .     E   .         .         .         .         .         .         .
          290.  C     I   .         .         .     EL  .         .         .         .         .         .         .
          300.  C     I   .         .         .     EL  .         .         .         .         .         .         .
          310.  C      I  .         .         .     EL  .         .         .         .         .         .         .
          320.  C      I  .         .         .     EL  .         .         .         .         .         .         .
          330.  C      I  .         .         .     EL  .         .         .         .         .         .         .
          340.  C      I  .         .         .     E L .         .         .         .         .         .         .
          350.  C       I .         .         .     WEL .         .         .         .         .         .         .
          360.  C       I .         .         .     WEL .         .         .         .         .         .         .
          370.  C       I .         .         .     WEL .         .         .         .         .         .         .
          380.  C       I .         .         .     WEL .         .         .         .         .         .         .
          390.  C       I .         .         .     WE L.         .         .         .         .         .         .
          400.  C        I.         .         .     WE L.         .         .         .         .         .         .
          410.  C        I.         .         .     WE L.         .         .         .         .         .         .
          420.  C        I.         .         .      E L.         .         .         .         .         .         .
          430.  C        I.         .         .      E L.         .         .         .         .         .         .
          440.  C        I.         .         .      E  L         .         .         .         .         .         .
          450.  C         I         .         .      E  L         .         .         .         .         .         .
35705.00  460.  C         I         .         .      E  L         .         .         .         .         .         .
          470.  C         I         .         .     WE L         .         .         .         .         .         .
          480.  C         .I        .         .     WE .L        .         .         .         .         .         .
          490.  C         .I        .         .     WE .L        .         .         .         .         .         .
          500.  C         .I        .         .     WE .L        .         .         .         .         .         .
          510.  C         .I        .         .     WE .L        .         .         .         .         .         .
          520.  C         . I       .         .     WE . L       .         .         .         .         .         .
          530.  C         . I       .         .      E . L       .         .         .         .         .         .
          540.  C         . I       .         .      E . L       .         .         .         .         .         .
          550.  C         . I       .         .      E . L       .         .         .         .         .         .
          560.  C         .  I      .         .     WE.  L       .         .         .         .         .         .
          570.  C         .  I      .         .     WE.  L       .         .         .         .         .         .
          580.  C         .  I      .         .     WE.  L       .         .         .         .         .         .
          590.  C         .  I      .         .     WE.  L       .         .         .         .         .         .
          600.  C         .  I      .         .     WE.   L      .         .         .         .         .         .
          610.  C         .   I     .         .     WE.   L      .         .         .         .         .         .
          620.  C         .   I     .         .      E.   L      .         .         .         .         .         .
          630.  C         .   I     .         .      E.   L      .         .         .         .         .         .
          640.  C         .   I     .         .     WE    L      .         .         .         .         .         .
          650.  C         .    I    .         .     WE    L      .         .         .         .         .         .
35905.00  660.  C         .    I    .         .     WE    L      .         .         .         .         .         .
          670.  C         .    I    .         .     WE    L      .         .         .         .         .         .
          680.  C         .     I   .         .     WE    RL     .         .         .         .         .         .
          690.  C         .     I   .         .     WE    RL     .         .         .         .         .         .
          700.  C         .     I   .         .      E    RL     .         .         .         .         .         .
          710.  C         .     I   .         .     WE    RL     .         .         .         .         .         .
          720.  C         .      I  .         .     WE     RL    .         .         .         .         .         .
          730.  C         .      I  .         .     WE     RL    .         .         .         .         .         .
          740.  C         .      I  .         .     WE     RL    .         .         .         .         .         .
          750.  C         .      I  .         .     WE     RL    .         .         .         .         .         .
          760.  C         .       I .         .     .WE    R L   .         .         .         .         .         .
          770.  C         .       I .         .     .WE    R L   .         .         .         .         .         .
          780.  C         .       I .         .     .WE    R L   .         .         .         .         .         .
          790.  C         .       I .         .     .WE    R L   .         .         .         .         .         .
          800.  C         .       I .         .     .WE    R  L. .         .         .         .         .         .
          810.  C         .        I.         .     .WE    R  L. .         .         .         .         .         .
          820.  C         .        I.         .     . WE   R  L. .         .         .         .         .         .
          830.  C         .        I.         .     . WE   R  L. .         .         .         .         .         .
          840.  C         .        I.         .     . WE   R   L .         .         .         .         .         .
          850.  C         .         I         .     . WE    R  L .         .         .         .         .         .
36105.00  860.  C         .         I         .     . WE    R  L .         .         .         .         .         .
          870.  C         .         I         .     .  WE   R  L .         .         .         .         .         .
          880.  C         .        .I         .     .  WE   R  .L .         .         .         .         .         .
          890.  C         .        .I         .     .  WE   R  .L .         .         .         .         .         .
          900.  C         .        .I         .     .  WE   R  .L .         .         .         .         .         .
          910.  C         .        .I         .     .  WE   R  .L .         .         .         .         .         .
          920.  C         .         . I       .     .   WE  R . L .         .         .         .         .         .
          930.  C         .         . I       .     .   WE  R . L .         .         .         .         .         .
          940.  C         .         . I       .     .   WE  R . L .         .         .         .         .         .
          950.  C         .         . I       .     .   WE  R . L .         .         .         .         .         .
          960.  C         .         .  I      .     .   WE  R .  L .         .         .         .         .         .
          970.  C         .         .  I      .     .    WE R .  L .         .         .         .         .         .
          980.  C         .         .  I      .     .    WE  R.  L .         .         .         .         .         .
          990.  C         .         .  I      .     .    WE  R.  L .         .         .         .         .         .
         1000.  C         .         .   I     .     .    WE  R.   L .         .         .         .         .         .
         1010.  C         .         .   I     .     .    WE  R.   L .         .         .         .         .         .
         1020.  C         .         .   I     .     .     WE R.   L .         .         .         .         .         .
         1030.  C         .         .   I     .     .     WE R.   L .         .         .         .         .         .
         1040.  C         .         .    I    .     .     WE  R    L .         .         .         .         .         .
         1050.  C         .         .    I    .     .     WE  R    L .         .         .         .         .         .
36296.00 1060.  C         .         .    I    .     .      WE R    L .         .         .         .         .         .
         1070.  C         .         .    I    .     .      WE R    L .         .         .         .         .         .
         1080.  C         .         .     I   .     .      WE R     L .         .         .         .         .         .
36323.00 1090.  C         .         .     I   .     .       E R     L .         .         .         .         .         .
         1100.  C         .         .     I   .     .       E R     L .         .         .         .         .         .
         1110.  C         .         .     I   .     .       E R     L .         .         .         .         .         .
         1120.  C         .         .     I   .     .       E R     L .         .         .         .         .         .
         1130.  C         .         .      I  .     .       E R      L .         .         .         .         .         .
36361.00 1140.  C         .         .      I  .     .       E R      L .         .         .         .         .         .
         1150.  C         .         .      I  .     .       E R         .L        .         .         .         .         .
         1160.  C         .         .       I .     .       E R         .    L    .         .         .         .         .
         1170.  C         .         .       I .     .       E R         .         L .         .         .         .         .
         1180.  C         .         .       I .     .       E R         .         . L         .         .         .         .
```

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            1200.  C        .        .        I.       .       WE.        .        .        .        .        .
  36414.00  1210.  C        .        .        I.       .       WE.        .        .        .  L     .        .
            1220.  C        .        .        I.       .        E.M       .        .        .  L     .        .
            1230.  C        .        .        I.       .        ER   M    .        .        . L      .        .
            1240.  C        .        .         I       .        ER     M  .        .        .L       .        .
            1250.  C        .        .         I       .        ER       M .        .        .L       .        .
  36466.00  1260.  C        .        .         I       .        ER         M        .        L        .        .
            1270.  C        . I      .         .       .        E.L    R   M        .        .        .        .
  36555.00  1280.  I        .        .         L       .        E.         R        .        .        .        .
1
   12OCT00      16:29:34                                                                                    PAGE    5
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THIS RUN EXECUTED 12OCT00 16:29:34

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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

26A - LATERAL WEIR SPLIT

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35294.000 | .00 | .00 | .00 | 1288.00 | 49.87 | 1291.50 | .00 | 1291.50 | .04 | .22 | 185.94 | 258.76 |
| * 35320.000 | 31.00 | .00 | .00 | 1288.09 | 49.87 | 1291.49 | .00 | 1291.51 | 2.13 | 1.13 | 49.08 | 34.15 |
| 35337.000 | 21.00 | .00 | .00 | 1288.10 | 49.88 | 1291.50 | .00 | 1291.51 | 1.74 | 1.06 | 51.70 | 37.78 |
| * 35509.000 | 170.00 | .00 | .00 | 1288.50 | 50.00 | 1291.54 | .00 | 1291.57 | 5.04 | 1.51 | 33.13 | 22.27 |
| 35705.000 | 237.20 | .00 | .00 | 1289.00 | 50.00 | 1291.68 | .00 | 1291.74 | 8.91 | 1.87 | 26.79 | 16.75 |
| 35905.000 | 200.00 | .00 | .00 | 1289.50 | 50.00 | 1291.90 | .00 | 1291.98 | 15.25 | 2.28 | 21.91 | 12.80 |
| 36105.000 | 200.00 | .00 | .00 | 1290.00 | 50.00 | 1292.23 | .00 | 1292.33 | 19.53 | 2.47 | 20.24 | 11.31 |
| 36296.000 | 200.00 | .00 | .00 | 1290.50 | 50.00 | 1292.65 | .00 | 1292.75 | 22.32 | 2.58 | 19.39 | 10.58 |
| * 36323.000 | 25.26 | .00 | .00 | 1290.57 | 50.00 | 1292.77 | .00 | 1292.80 | 5.92 | 1.45 | 34.45 | 20.55 |
| 36361.000 | 52.86 | .00 | .00 | 1290.70 | 50.00 | 1292.80 | .00 | 1292.83 | 6.85 | 1.52 | 32.82 | 19.10 |
| * 36414.000 | 70.00 | .00 | .00 | 1290.90 | 50.00 | 1292.85 | .00 | 1292.86 | 1.66 | .90 | 55.75 | 38.76 |
| 36466.000 | 50.00 | .00 | .00 | 1291.00 | 50.00 | 1292.86 | .00 | 1292.87 | 1.99 | .95 | 52.70 | 35.45 |
| * 36555.000 | 17.23 | .00 | .00 | 1288.00 | 50.00 | 1292.88 | .00 | 1292.88 | .01 | .13 | 371.93 | 424.04 |

1
12OCT00 16:29:34 PAGE 6

26A - LATERAL WEIR SPLIT

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 35294.000 | 49.87 | 1291.50 | .00 | .00 | .00 | 85.75 | .00 |
| * 35320.000 | 49.87 | 1291.49 | .00 | -.01 | .00 | 60.40 | 31.00 |
| 35337.000 | 49.88 | 1291.50 | .00 | .01 | .00 | 53.28 | 21.00 |
| * 35509.000 | 50.00 | 1291.54 | .00 | .04 | .00 | 19.97 | 170.00 |
| 35705.000 | 50.00 | 1291.68 | .00 | .15 | .00 | 18.02 | 237.20 |
| 35905.000 | 50.00 | 1291.90 | .00 | .22 | .00 | 16.32 | 200.00 |
| 36105.000 | 50.00 | 1292.23 | .00 | .34 | .00 | 16.20 | 200.00 |
| 36296.000 | 50.00 | 1292.65 | .00 | .41 | .00 | 16.12 | 200.00 |
| * 36323.000 | 50.00 | 1292.77 | .00 | .12 | .00 | 25.59 | 25.26 |
| 36361.000 | 50.00 | 1292.80 | .00 | .03 | .00 | 25.32 | 52.86 |
| * 36414.000 | 50.00 | 1292.85 | .00 | .05 | .00 | 29.99 | 70.00 |
| 36466.000 | 50.00 | 1292.86 | .00 | .01 | .00 | 29.99 | 50.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| * | 36555.000 | 50.00 | 1292.88 | .00 | .02 | .00 | 139.32 | 17.23 |



SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 35320.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 35509.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 36323.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 36414.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 36555.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

```
****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    12OCT00    TIME   16:31:36 *
 ******************************************
****************************************
```


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


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



THIS RUN EXECUTED 12OCT00  16:31:36

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****************************************
 HEC-2 WATER SURFACE PROFILES
 Version   4.6.2;  May 1991
****************************************
```

PA25-26B.dat

```
SPLIT FLOW BEING PERFORMED

SF     SPLIT   FLOW    PROBLEM

JC     SPLIT   FLOW    PROBLEM
JP     0       0       0       0       0

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35294    AND    35320
WS     2   35294   35320      -1      3.4
WC       1292.00   34.96 1291.50

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35320    AND    35337
WS     2   35320   35337      -1      3.4
WC       1291.50   12.28 1291.49

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35337    AND    35509
WS     2   35337   35509      -1      3.4
WC       1291.49     170 1291.54

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35509    AND    35705
WS     2   35509   35705      -1      3.4
WC       1291.54   196.8 1292.01

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35705    AND    35905
WS     2   35705   35905      -1      3.4
WC       1292.01     200 1292.51

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35905    AND    36105
WS     2   35905   36105      -1      3.4
WC       1292.51     200 1292.66

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36105    AND    36296
WS     2   36105   36296      -1      3.4
WC       1292.66     200 1293.00
```



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TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36296    AND    36323
WS     2   36296   36323      -1      3.4
WC       1293.00   27.27 1293.00

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36323    AND    36361
WS     2   36323   36361      -1      3.4
WC       1293.00   52.86 1293.00

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36361    AND    36414
WS     2   36361   36414      -1      3.4
WC       1293.00      70 1292.93
```

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TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36414    AND    36466
WS      2   36414   36466      -1      3.4
WC        1292.93      50 1294.00

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36466    AND    36555
WS      2   36466   36555      -1      3.4
WC        1294.00   17.23 1294.00
1
   12OCT00      16:31:36                                                                    PAGE    3

T1 HEC-2 Input Data file: SPLIT FLOW SOLUTION
T2 PA25-26B - LATERAL WEIR SPLIT FLOW Q= 100.00 CFS
T3 PA25-26B - LATERAL WEIR SPLIT FLOW Q= 100.00 CFS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         2         0         0         0         0         0         0      1291.52      0

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

    -10

QT        1    100.00
NC   0.0170    0.0170    0.0300       0.3       0.5
X1    35294        12     75.00     95.00      0.00      0.00      0.00
GR   1293.9      0.00   1292.00     21.00   1291.00     41.00   1290.00     49.50   1289.00     58.00
GR   1288.0     75.00   1288.00     85.00   1288.00     95.00   1289.00    101.00   1290.00    107.00
GR   1291.0    113.00   1292.00    120.50

X1    35320         9    100.01    120.00     38.00     34.96     31.00
GR   1293.7     90.00   1293.70     99.00   1295.70     99.00   1295.70    100.00   1291.09    100.01
GR   1288.1    109.00   1288.09    111.00   1291.09    120.00   1291.50    161.23

X1    35337         9    100.01    120.00      8.00     12.28     21.00
GR   1293.7     71.43   1293.70     99.00   1296.00     99.00   1296.00    100.00   1290.70    100.01
GR   1288.1    109.00   1288.12    111.00   1291.00    120.00   1291.49    153.29

X1    35509         8    100.01    120.00    170.00    170.00    170.00
GR   1294.0     71.43   1294.00     99.00   1296.00     99.00   1296.00    100.00   1291.54    100.01
GR   1288.5    109.00   1288.54    111.00   1291.54    120.00

X1    35705         8    100.01    120.00    196.80    196.80    237.20
GR   1294.8     71.43   1294.80     99.00   1296.80     99.00   1296.80    100.00   1292.01    100.01
GR   1289.0    109.00   1289.01    111.00   1292.01    120.00

X1    35905         8    100.01    120.00    200.00    200.00    200.00
GR   1295.3     71.43   1295.30     99.00   1297.30     99.00   1297.30    100.00   1292.51    100.01
GR   1289.5    109.00   1289.51    111.00   1292.51    120.00

X1    36105         8    100.01    120.00    200.00    200.00    200.00
GR   1295.5     71.43   1295.50     99.00   1297.50     99.00   1297.50    100.00   1293.01    100.01
GR   1290.0    109.00   1290.01    111.00   1292.66    120.00

X1    36296         8    100.01    120.00    200.00    200.00    200.00
GR   1295.0     71.43   1295.00     99.00   1297.00     99.00   1297.00    100.00   1293.51    100.01
GR   1290.5    109.00   1290.51    111.00   1293.00    120.00

X1    36323         8    100.01    130.00     29.25     27.27     25.26
GR   1294.7     71.43   1294.70     99.00   1296.70     99.00   1296.70    100.00   1293.57    100.01
GR   1290.6    112.00   1290.57    118.00   1293.00    130.00
1
   12OCT00      16:31:36                                                                    PAGE    4

X1    36361         8    100.01    130.00     52.86     52.86     52.86
GR   1294.4     71.43   1294.40     99.00   1296.40     99.00   1296.40    100.00   1293.70    100.01
GR   1290.7    112.00   1290.70    118.00   1293.00    130.00

X1    36414         8    100.00    130.00     70.00     70.00     70.00
GR   1294.4     71.43   1294.40     99.00   1296.33     99.00   1296.33    100.00   1291.08    100.01
GR   1290.9    115.00   1291.08    129.99   1292.93    130.00

X1    36466         9    100.00    130.00     50.00     50.00     50.00
GR   1294.3     71.43   1294.30     99.00   1296.00     99.00   1296.00    100.00   1291.20    100.01
GR   1291.0    115.00   1291.20    129.99   1293.00    130.00   1294.00    140.00

NH        3    0.0170    100.01    0.0250    247.00    0.0300    258.00
X1    36555        17    100.01    247.00     17.23     17.23     17.23
GR   1294.3     71.43   1294.30     99.00   1295.00     99.00   1295.00    100.00   1291.00    100.01
GR   1290.0    105.00   1289.00    109.00   1288.00    113.00   1288.00    118.00   1289.00    122.00
GR   1290.0    126.00   1290.00    195.00   1291.00    217.00   1292.00    231.00   1293.00    240.50
GR   1294.0    247.00   1294.00    258.00
1
PROFILE FOR STREAM  26B - LATERAL WEIR SPLIT


PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA


ELEVATION  1288.     1289.     1290.     1291.     1292.     1293.     1294.     1295.     1296.     1297.
    SECNO   CUMDIS

 35294.00     0.  I        .         .         .    E    M        .         .         .         .         .         .
             10.  I        L         .         .    E  M  .        .         .         .         .         .         .
             20.  CI       .         L         .    E M   .        .         .         .         .         .         .
             30.  CI       .         .         L    E     .        .         .         .         .         .         .
 35320.00    40.  CI       .         .         .L   E     .        .         .         .         .         .         .
             50.  CI       .         .        LR    E     .        .         .         .         .         .         .
 35337.00    60.  CI       .         .      L  R    E     .        .         .         .         .         .         .
             70.  CI       .         .      L  R    E     .        .         .         .         .         .         .
             80.  CI       .         .       L .R   WE    .        .         .         .         .         .         .
             90.  C I      .         .       L .R   WE    .        .         .         .         .         .         .
            100.  C I      .         .        L.R   WE    .        .         .         .         .         .         .
```

```
           110.  C I
           120.  C I       .         .         L R  WE   .         .         .         .         .         .         .
           130.  C  I      .         .         L R  WE   .         .         .         .         .         .         .
           140.  C  I      .         .         .L R WE   .         .         .         .         .         .         .
           150.  C  I      .         .         .L R ME   .         .         .         .         .         .         .
           160.  C  I      .         .         . LR ME   .         .         .         .         .         .         .
           170.  C   I     .         .         . LR ME   .         .         .         .         .         .         .
           180.  C   I     .         .         .  LRME   .         .         .         .         .         .         .
           190.  C   I     .         .         .  LRME   .         .         .         .         .         .         .
           200.  C   I     .         .         .   LME   .         .         .         .         .         .         .
           210.  C    I    .         .         .   LRE   .         .         .         .         .         .         .
           220.  C    I    .         .         .    LE   .         .         .         .         .         .         .
35509.00   230.  C    I    .         .         .    LWE  .         .         .         .         .         .         .
           240.  C    I    .         .         .     WE  .         .         .         .         .         .         .
           250.  C    I    .         .         .     WE  .         .         .         .         .         .         .
           260.  C     I   .         .         .     WE  .         .         .         .         .         .         .
           270.  C     I   .         .         .     WE  .         .         .         .         .         .         .
           280.  C     I   .         .         .     WE  .         .         .         .         .         .         .
           290.  C     I   .         .         .     WE  .         .         .         .         .         .         .
           300.  C     I   .         .         .      E  .         .         .         .         .         .         .
           310.  C      I  .         .         .      E  .         .         .         .         .         .         .
           320.  C      I  .         .         .      E  .         .         .         .         .         .         .
           330.  C      I  .         .         .      WE .         .         .         .         .         .         .
           340.  C      I  .         .         .      WE .         .         .         .         .         .         .
           350.  C       I .         .         .      WE .         .         .         .         .         .         .
           360.  C       I .         .         .      WE .         .         .         .         .         .         .
           370.  C       I .         .         .      WE .         .         .         .         .         .         .
           380.  C       I .         .         .      WE .         .         .         .         .         .         .
           390.  C       I .         .         .      WEL.         .         .         .         .         .         .
           400.  C        I.         .         .       EL.         .         .         .         .         .         .
           410.  C        I.         .         .       EL.         .         .         .         .         .         .
           420.  C        I.         .         .       WE.         .         .         .         .         .         .
           430.  C        I.         .         .       WE.         .         .         .         .         .         .
           440.  C        I.         .         .       WEL         .         .         .         .         .         .
           450.  C         I         .         .       WEL         .         .         .         .         .         .
35705.00   460.  C         I         .         .       WEL         .         .         .         .         .         .
           470.  C         I         .         .       WEL         .         .         .         .         .         .
           480.  C         .I        .         .        E.L        .         .         .         .         .         .
           490.  C         .I        .         .        WEL        .         .         .         .         .         .
           500.  C         .I        .         .        WEL        .         .         .         .         .         .
           510.  C         .I        .         .        WEL        .         .         .         .         .         .
           520.  C         . I       .         .        WE L       .         .         .         .         .         .
           530.  C         . I       .         .        WE L       .         .         .         .         .         .
           540.  C         . I       .         .        WE L       .         .         .         .         .         .
           550.  C         . I       .         .         WEL       .         .         .         .         .         .
           560.  C         .  I      .         .         WE L      .         .         .         .         .         .
           570.  C         .  I      .         .         WE L      .         .         .         .         .         .
           580.  C         .  I      .         .         WE L      .         .         .         .         .         .
           590.  C         .  I      .         .         WE L      .         .         .         .         .         .
           600.  C         .  I      .         .         WE  L     .         .         .         .         .         .
           610.  C         .   I     .         .         .WE L     .         .         .         .         .         .
           620.  C         .   I     .         .         .WE L     .         .         .         .         .         .
           630.  C         .   I     .         .         .WE L     .         .         .         .         .         .
           640.  C         .   I     .         .         .WE  L    .         .         .         .         .         .
           650.  C         .    I    .         .         .WE  L    .         .         .         .         .         .
35905.00   660.  C         .    I    .         .         .WE  L    .         .         .         .         .         .
           670.  C         .    I    .         .         .W E L    .         .         .         .         .         .
           680.  C         .     I   .         .         . WE RL   .         .         .         .         .         .
           690.  C         .     I   .         .         . WE RL   .         .         .         .         .         .
           700.  C         .     I   .         .         . WE RL   .         .         .         .         .         .
           710.  C         .     I   .         .         . WE RL   .         .         .         .         .         .
           720.  C         .      I  .         .         . W E RL  .         .         .         .         .         .
           730.  C         .      I  .         .         .  WE RL  .         .         .         .         .         .
           740.  C         .      I  .         .         .  WE RL  .         .         .         .         .         .
           750.  C         .      I  .         .         .  WE RL  .         .         .         .         .         .
           760.  C         .       I .         .         .  WE R L .         .         .         .         .         .
           770.  C         .       I .         .         .  W ER L .         .         .         .         .         .
           780.  C         .       I .         .         .   WER L .         .         .         .         .         .
           790.  C         .       I .         .         .   WER L .         .         .         .         .         .
           800.  C         .       I .         .         .   WER  L.         .         .         .         .         .
           810.  C         .        I.         .         .   WER  L.         .         .         .         .         .
           820.  C         .        I.         .         .   W E  L.         .         .         .         .         .
           830.  C         .        I.         .         .    WE  L.         .         .         .         .         .
           840.  C         .        I.         .         .    WE   L         .         .         .         .         .
           850.  C         .         I         .         .    WER  L         .         .         .         .         .
36105.00   860.  C         .         I         .         .    W E  L         .         .         .         .         .
           870.  C         .         I         .         .    W E  L         .         .         .         .         .
           880.  C         .         .I        .         .     WE  .L        .         .         .         .         .
           890.  C         .         .I        .         .     WE  .L        .         .         .         .         .
           900.  C         .         .I        .         .     WE  .L        .         .         .         .         .
           910.  C         .         .I        .         .     WRE .L        .         .         .         .         .
           920.  C         .         . I       .         .      WE . L       .         .         .         .         .
           930.  C         .         . I       .         .      WE . L       .         .         .         .         .
           940.  C         .         . I       .         .      WE . L       .         .         .         .         .
           950.  C         .         . I       .         .      WE . L       .         .         .         .         .
           960.  C         .         .  I      .         .      WRE.  L      .         .         .         .         .
           970.  C         .         .  I      .         .       WE.  L      .         .         .         .         .
           980.  C         .         .  I      .         .       WE.  L      .         .         .         .         .
           990.  C         .         .  I      .         .       WE.  L      .         .         .         .         .
          1000.  C         .         .   I     .         .       WRE   L     .         .         .         .         .
          1010.  C         .         .   I     .         .       WRE   L     .         .         .         .         .
          1020.  C         .         .   I     .         .        WE   L     .         .         .         .         .
          1030.  C         .         .   I     .         .        WE   L     .         .         .         .         .
          1040.  C         .         .    I    .         .        WE    L    .         .         .         .         .
          1050.  C         .         .    I    .         .        WRE   L    .         .         .         .         .
36296.00  1060.  C         .         .    I    .         .         WE   L    .         .         .         .         .
          1070.  C         .         .    I    .         .         WE   L    .         .         .         .         .
          1080.  C         .         .     I   .         .         RE    L   .         .         .         .         .
36323.00  1090.  C         .         .     I   .         .         RE    L   .         .         .         .         .
          1100.  C         .         .     I   .         .         RE    L   .         .         .         .         .
          1110.  C         .         .     I   .         .         RWE   L   .         .         .         .         .
          1120.  C         .         .     I   .         .         RWE   L   .         .         .         .         .
          1130.  C         .         .      I  .         .         RWE    L  .         .         .         .         .
36361.00  1140.  C         .         .      I  .         .         RWE    L  .         .         .         .         .
          1150.  C         .         .      I  .         .         RWE       .L        .         .         .         .
          1160.  C         .         .       I .         .         RWE       .    L    .         .         .         .
          1170.  C         .         .       I .         .         R E       .       L .         .         .         .
          1180.  C         .         .       I .         .         R E       .         . L       .         .         .
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          1190. C        .        .        I.        .        R. E      .        .        L        .        .
          1200. C        .        .        I.        .        R. E      .        .        .  L     .        .
 36414.00 1210. C        .        .        I.        .        R. E      .        .        .  L     .        .
          1220. C        .        .        I.        .        R.ME      .        .        .  L     .        .
          1230. C        .        .        I.        .         R E M    .        .        . L      .        .
          1240. C        .        .         I        .         R E   M  .        .        .L       .        .
          1250. C        .        .         I        .         R E    M .        .        .L       .        .
 36466.00 1260. C        .        .         I        .         R WE     M        .        L        .        .
          1270. C        . I      .         .        .         .LWE  R  M        .        .        .        .
 36555.00 1280. I        .        .         L        .         .  E     R        .        .        .        .
1
   12OCT00      16:31:36                                                                                PAGE    5
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THIS RUN EXECUTED 12OCT00 16:31:36

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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

26B - LATERAL WEIR SPLIT

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35294.000 | .00 | .00 | .00 | 1288.00 | 65.71 | 1291.52 | .00 | 1291.52 | .06 | .29 | 187.66 | 262.14 |
| * 35320.000 | 31.00 | .00 | .00 | 1288.09 | 65.71 | 1291.51 | .00 | 1291.54 | 3.57 | 1.47 | 49.97 | 34.79 |
| 35337.000 | 21.00 | .00 | .00 | 1288.10 | 65.80 | 1291.52 | .00 | 1291.54 | 2.93 | 1.38 | 52.46 | 38.45 |
| * 35509.000 | 170.00 | .00 | .00 | 1288.50 | 69.42 | 1291.58 | .00 | 1291.65 | 8.95 | 2.04 | 34.02 | 23.20 |
| 35705.000 | 237.20 | .00 | .00 | 1289.00 | 69.81 | 1291.83 | .00 | 1291.91 | 13.44 | 2.37 | 29.49 | 19.04 |
| 35905.000 | 200.00 | .00 | .00 | 1289.50 | 69.81 | 1292.13 | .00 | 1292.24 | 19.04 | 2.70 | 25.89 | 16.00 |
| 36105.000 | 200.00 | .00 | .00 | 1290.00 | 69.81 | 1292.53 | .00 | 1292.65 | 21.00 | 2.76 | 25.29 | 15.23 |
| 36296.000 | 200.00 | .00 | .00 | 1290.50 | 69.81 | 1292.96 | .00 | 1293.08 | 22.62 | 2.82 | 24.77 | 14.68 |
| * 36323.000 | 25.26 | .00 | .00 | 1290.57 | 70.60 | 1293.10 | .00 | 1293.14 | 6.24 | 1.63 | 43.36 | 28.27 |
| 36361.000 | 52.86 | .00 | .00 | 1290.70 | 77.32 | 1293.13 | .00 | 1293.18 | 8.39 | 1.86 | 41.67 | 26.69 |
| * 36414.000 | 70.00 | .00 | .00 | 1290.90 | 97.80 | 1293.19 | .00 | 1293.22 | 3.74 | 1.48 | 65.93 | 50.59 |
| 36466.000 | 50.00 | .00 | .00 | 1291.00 | 100.00 | 1293.21 | .00 | 1293.25 | 4.43 | 1.58 | 63.39 | 47.54 |
| * 36555.000 | 17.23 | .00 | .00 | 1288.00 | 100.00 | 1293.26 | .00 | 1293.26 | .04 | .24 | 425.48 | 523.48 |

1
12OCT00 16:31:36 PAGE 6

26B - LATERAL WEIR SPLIT

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 35294.000 | 65.71 | 1291.52 | .00 | .00 | .00 | 86.30 | .00 |
| * 35320.000 | 65.71 | 1291.51 | .00 | -.01 | .00 | 61.22 | 31.00 |
| 35337.000 | 65.80 | 1291.52 | .00 | .01 | .00 | 53.28 | 21.00 |
| * 35509.000 | 69.42 | 1291.58 | .00 | .06 | .00 | 19.99 | 170.00 |
| 35705.000 | 69.81 | 1291.83 | .00 | .25 | .00 | 18.90 | 237.20 |
| 35905.000 | 69.81 | 1292.13 | .00 | .30 | .00 | 17.72 | 200.00 |
| 36105.000 | 69.81 | 1292.53 | .00 | .40 | .00 | 18.08 | 200.00 |
| 36296.000 | 69.81 | 1292.96 | .00 | .43 | .00 | 18.19 | 200.00 |
| * 36323.000 | 70.60 | 1293.10 | .00 | .13 | .00 | 28.07 | 25.26 |
| 36361.000 | 77.32 | 1293.13 | .00 | .03 | .00 | 27.70 | 52.86 |
| * 36414.000 | 97.80 | 1293.19 | .00 | .06 | .00 | 29.99 | 70.00 |
| 36466.000 | 100.00 | 1293.21 | .00 | .02 | .00 | 32.06 | 50.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| * | 36555.000 | 100.00 | 1293.26 | .00 | .05 | .00 | 142.16 | 17.23 |



SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 35320.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 35509.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 36323.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 36414.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 36555.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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1
*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    12OCT00    TIME   16:32:41  *
 ******************************************
*****************************************
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* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET, SUITE D
* DAVIS, CALIFORNIA 95616-4687
*          (916) 756-1104
```

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

1
12OCT00  16:32:41  PAGE 1

THIS RUN EXECUTED 12OCT00  16:32:41

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*************************************
 HEC-2 WATER SURFACE PROFILES
 Version   4.6.2;  May 1991
*************************************
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PA-25-26C.dat

```
SPLIT FLOW BEING PERFORMED

SF      SPLIT   FLOW    PROBLEM

JC      SPLIT   FLOW    PROBLEM
JP      0       0       0       0       0

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35294    AND    35320
WS      2   35294   35320       -1      3.4
WC        1292.00   34.96 1291.50

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35320    AND    35337
WS      2   35320   35337       -1      3.4
WC        1291.50   12.28 1291.49

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35337    AND    35509
WS      2   35337   35509       -1      3.4
WC        1291.49     170 1291.54

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35509    AND    35705
WS      2   35509   35705       -1      3.4
WC        1291.54   196.8 1292.01

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35705    AND    35905
WS      2   35705   35905       -1      3.4
WC        1292.01     200 1292.51

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35905    AND    36105
WS      2   35905   36105       -1      3.4
WC        1292.51     200 1292.66

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36105    AND    36296
WS      2   36105   36296       -1      3.4
WC        1292.66     200 1293.00
```

1
12OCT00  16:32:41  PAGE 2

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TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36296    AND    36323
WS      2   36296   36323       -1      3.4
WC        1293.00   27.27 1293.00

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36323    AND    36361
WS      2   36323   36361       -1      3.4
WC        1293.00   52.86 1293.00

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36361    AND    36414
WS      2   36361   36414       -1      3.4
WC        1293.00      70 1292.93
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TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36414    AND    36466
WS      2   36414   36466      -1      3.4
WC        1292.93      50 1294.00

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36466    AND    36555
WS      2   36466   36555      -1      3.4
WC        1294.00   17.23 1294.00
1
   12OCT00      16:32:41                                                                                    PAGE    3

T1 HEC-2 Input Data file: SPLIT FLOW SOLUTION
T2 PA25-26C - LATERAL WEIR SPLIT FLOW Q= 150.00 CFS
T3 PA25-26C - LATERAL WEIR SPLIT FLOW Q= 150.00 CFS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         2         0         0         0         0         0         0    1291.52        0

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

    -10

QT        1    150.00
NC   0.0170    0.0170    0.0300       0.3       0.5
X1    35294        12     75.00     95.00      0.00      0.00      0.00
GR   1293.9      0.00   1292.00     21.00   1291.00     41.00   1290.00     49.50   1289.00     58.00
GR   1288.0     75.00   1288.00     85.00   1288.00     95.00   1289.00    101.00   1290.00    107.00
GR   1291.0    113.00   1292.00    120.50

X1    35320         9    100.01    120.00     38.00     34.96     31.00
GR   1293.7     90.00   1293.70     99.00   1295.70     99.00   1295.70    100.00   1291.09    100.01
GR   1288.1    109.00   1288.09    111.00   1291.09    120.00   1291.50    161.23

X1    35337         9    100.01    120.00      8.00     12.28     21.00
GR   1293.7     71.43   1293.70     99.00   1296.00     99.00   1296.00    100.00   1290.70    100.01
GR   1288.1    109.00   1288.12    111.00   1291.00    120.00   1291.49    153.29

X1    35509         8    100.01    120.00    170.00    170.00    170.00
GR   1294.0     71.43   1294.00     99.00   1296.00     99.00   1296.00    100.00   1291.54    100.01
GR   1288.5    109.00   1288.54    111.00   1291.54    120.00

X1    35705         8    100.01    120.00    196.80    196.80    237.20
GR   1294.8     71.43   1294.80     99.00   1296.80     99.00   1296.80    100.00   1292.01    100.01
GR   1289.0    109.00   1289.01    111.00   1292.01    120.00

X1    35905         8    100.01    120.00    200.00    200.00    200.00
GR   1295.3     71.43   1295.30     99.00   1297.30     99.00   1297.30    100.00   1292.51    100.01
GR   1289.5    109.00   1289.51    111.00   1292.51    120.00

X1    36105         8    100.01    120.00    200.00    200.00    200.00
GR   1295.5     71.43   1295.50     99.00   1297.50     99.00   1297.50    100.00   1293.01    100.01
GR   1290.0    109.00   1290.01    111.00   1292.66    120.00

X1    36296         8    100.01    120.00    200.00    200.00    200.00
GR   1295.0     71.43   1295.00     99.00   1297.00     99.00   1297.00    100.00   1293.51    100.01
GR   1290.5    109.00   1290.51    111.00   1293.00    120.00

X1    36323         8    100.01    130.00     29.25     27.27     25.26
GR   1294.7     71.43   1294.70     99.00   1296.70     99.00   1296.70    100.00   1293.57    100.01
GR   1290.6    112.00   1290.57    118.00   1293.00    130.00
1
   12OCT00      16:32:41                                                                                    PAGE    4

X1    36361         8    100.01    130.00     52.86     52.86     52.86
GR   1294.4     71.43   1294.40     99.00   1296.40     99.00   1296.40    100.00   1293.70    100.01
GR   1290.7    112.00   1290.70    118.00   1293.00    130.00

X1    36414         8    100.00    130.00     70.00     70.00     70.00
GR   1294.4     71.43   1294.40     99.00   1296.33     99.00   1296.33    100.00   1291.08    100.01
GR   1290.9    115.00   1291.08    129.99   1292.93    130.00

X1    36466         9    100.00    130.00     50.00     50.00     50.00
GR   1294.3     71.43   1294.30     99.00   1296.00     99.00   1296.00    100.00   1291.20    100.01
GR   1291.0    115.00   1291.20    129.99   1293.00    130.00   1294.00    140.00

NH        3    0.0170    100.01    0.0250    247.00    0.0300    258.00
X1    36555        17    100.01    247.00     17.23     17.23     17.23
GR   1294.3     71.43   1294.30     99.00   1295.00     99.00   1295.00    100.00   1291.00    100.01
GR   1290.0    105.00   1289.00    109.00   1288.00    113.00   1288.00    118.00   1289.00    122.00
GR   1290.0    126.00   1290.00    195.00   1291.00    217.00   1292.00    231.00   1293.00    240.50
GR   1294.0    247.00   1294.00    258.00
1
PROFILE FOR STREAM  26C - LATERAL WEIR SPLIT


PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA


ELEVATION  1288.     1289.     1290.     1291.     1292.     1293.     1294.     1295.     1296.     1297.
    SECNO   CUMDIS

 35294.00     0.  I        .         .         .    E    M        .         .         .         .         .         .
             10.  I        L         .         .    E  M .        .         .         .         .         .         .
             20.  CI       .         L         .    E M  .        .         .         .         .         .         .
             30.  CI       .         .         L    E    .        .         .         .         .         .         .
 35320.00    40.  CI       .         .        .L    E    .        .         .         .         .         .         .
             50.  CI       .         .       LR     E    .        .         .         .         .         .         .
 35337.00    60.  CI       .         .     L  R     WE   .        .         .         .         .         .         .
             70.  CI       .         .     L  R     WE   .        .         .         .         .         .         .
             80.  CI       .         .      L .R    WE   .        .         .         .         .         .         .
             90.  C I      .         .      L .R    WE   .        .         .         .         .         .         .
            100.  C I      .         .       L.R    WE   .        .         .         .         .         .         .
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              110.  C I       .         .        L. R  WE   .         .         .         .         .         .         .
              120.  C I       .         .         L R  WE   .         .         .         .         .         .         .
              130.  C  I      .         .         L R  WE   .         .         .         .         .         .         .
              140.  C  I      .         .         .L R WE   .         .         .         .         .         .         .
              150.  C  I      .         .         .L R ME   .         .         .         .         .         .         .
              160.  C  I      .         .         . LR ME   .         .         .         .         .         .         .
              170.  C   I     .         .         . LR ME   .         .         .         .         .         .         .
              180.  C   I     .         .         .  LRME   .         .         .         .         .         .         .
              190.  C   I     .         .         .  LRME   .         .         .         .         .         .         .
              200.  C   I     .         .         .   LME   .         .         .         .         .         .         .
              210.  C    I    .         .         .   LRWE  .         .         .         .         .         .         .
              220.  C    I    .         .         .    LWE  .         .         .         .         .         .         .
35509.00      230.  C    I    .         .         .    LWE  .         .         .         .         .         .         .
              240.  C    I    .         .         .     WE  .         .         .         .         .         .         .
              250.  C    I    .         .         .     WE  .         .         .         .         .         .         .
              260.  C     I   .         .         .     WE  .         .         .         .         .         .         .
              270.  C     I   .         .         .     WE  .         .         .         .         .         .         .
              280.  C     I   .         .         .     LE  .         .         .         .         .         .         .
              290.  C     I   .         .         .      E  .         .         .         .         .         .         .
              300.  C     I   .         .         .      WE .         .         .         .         .         .         .
              310.  C      I  .         .         .      WE .         .         .         .         .         .         .
              320.  C      I  .         .         .      WE .         .         .         .         .         .         .
              330.  C      I  .         .         .      WE .         .         .         .         .         .         .
              340.  C      I  .         .         .      WE .         .         .         .         .         .         .
              350.  C       I .         .         .      WE .         .         .         .         .         .         .
              360.  C       I .         .         .      WE .         .         .         .         .         .         .
              370.  C       I .         .         .       E .         .         .         .         .         .         .
              380.  C       I .         .         .       WE.         .         .         .         .         .         .
              390.  C       I .         .         .       WE.         .         .         .         .         .         .
              400.  C        I.         .         .       WE.         .         .         .         .         .         .
              410.  C        I.         .         .       WE.         .         .         .         .         .         .
              420.  C        I.         .         .       WE.         .         .         .         .         .         .
              430.  C        I.         .         .       WE.         .         .         .         .         .         .
              440.  C        I.         .         .       WEL         .         .         .         .         .         .
              450.  C         I         .         .        EL         .         .         .         .         .         .
35705.00      460.  C         I         .         .        WE         .         .         .         .         .         .
              470.  C         I         .         .        WE         .         .         .         .         .         .
              480.  C         .I        .         .        WEL        .         .         .         .         .         .
              490.  C         .I        .         .        WEL        .         .         .         .         .         .
              500.  C         .I        .         .        WEL        .         .         .         .         .         .
              510.  C         .I        .         .         WE        .         .         .         .         .         .
              520.  C         . I       .         .         WEL       .         .         .         .         .         .
              530.  C         . I       .         .         WEL       .         .         .         .         .         .
              540.  C         . I       .         .         WEL       .         .         .         .         .         .
              550.  C         . I       .         .         WEL       .         .         .         .         .         .
              560.  C         .  I      .         .         WE L      .         .         .         .         .         .
              570.  C         .  I      .         .         .WEL      .         .         .         .         .         .
              580.  C         .  I      .         .         .WEL      .         .         .         .         .         .
              590.  C         .  I      .         .         .WEL      .         .         .         .         .         .
              600.  C         .  I      .         .         .WE L     .         .         .         .         .         .
              610.  C         .   I     .         .         .WE L     .         .         .         .         .         .
              620.  C         .   I     .         .         .W EL     .         .         .         .         .         .
              630.  C         .   I     .         .         . WEL     .         .         .         .         .         .
              640.  C         .   I     .         .         . WE L    .         .         .         .         .         .
              650.  C         .    I    .         .         . WE L    .         .         .         .         .         .
35905.00      660.  C         .    I    .         .         . WE L    .         .         .         .         .         .
              670.  C         .    I    .         .         . W EL    .         .         .         .         .         .
              680.  C         .     I   .         .         .  WERL   .         .         .         .         .         .
              690.  C         .     I   .         .         .  WERL   .         .         .         .         .         .
              700.  C         .     I   .         .         .  WERL   .         .         .         .         .         .
              710.  C         .     I   .         .         .  WERL   .         .         .         .         .         .
              720.  C         .      I  .         .         .  W ERL  .         .         .         .         .         .
              730.  C         .      I  .         .         .   WERL  .         .         .         .         .         .
              740.  C         .      I  .         .         .   WERL  .         .         .         .         .         .
              750.  C         .      I  .         .         .   WERL  .         .         .         .         .         .
              760.  C         .       I .         .         .   WER L .         .         .         .         .         .
              770.  C         .       I .         .         .   W E L .         .         .         .         .         .
              780.  C         .       I .         .         .    WE L .         .         .         .         .         .
              790.  C         .       I .         .         .    WE L .         .         .         .         .         .
              800.  C         .       I .         .         .    WE  L.         .         .         .         .         .
              810.  C         .        I.         .         .    WE  L.         .         .         .         .         .
              820.  C         .        I.         .         .    WRE L.         .         .         .         .         .
              830.  C         .        I.         .         .     WE L.         .         .         .         .         .
              840.  C         .        I.         .         .     WE  L         .         .         .         .         .
              850.  C         .         I         .         .     WE  L         .         .         .         .         .
36105.00      860.  C         .         I         .         .     WE  L         .         .         .         .         .
              870.  C         .         I         .         .     WRE L         .         .         .         .         .
              880.  C         .         .I        .         .      WE .L        .         .         .         .         .
              890.  C         .         .I        .         .      WE .L        .         .         .         .         .
              900.  C         .         .I        .         .      WE .L        .         .         .         .         .
              910.  C         .         .I        .         .      W E.L        .         .         .         .         .
              920.  C         .         . I       .         .       WE. L       .         .         .         .         .
              930.  C         .         . I       .         .       WE. L       .         .         .         .         .
              940.  C         .         . I       .         .       WE. L       .         .         .         .         .
              950.  C         .         . I       .         .       WE. L       .         .         .         .         .
              960.  C         .         .  I      .         .       W E  L      .         .         .         .         .
              970.  C         .         .  I      .         .       RWE  L      .         .         .         .         .
              980.  C         .         .  I      .         .        WE  L      .         .         .         .         .
              990.  C         .         .  I      .         .        WE  L      .         .         .         .         .
             1000.  C         .         .   I     .         .        W.E  L     .         .         .         .         .
             1010.  C         .         .   I     .         .        RWE  L     .         .         .         .         .
             1020.  C         .         .   I     .         .        RWE  L     .         .         .         .         .
             1030.  C         .         .   I     .         .        RWE  L     .         .         .         .         .
             1040.  C         .         .    I    .         .         W E  L    .         .         .         .         .
             1050.  C         .         .    I    .         .         W E  L    .         .         .         .         .
36296.00     1060.  C         .         .    I    .         .         RWE  L    .         .         .         .         .
             1070.  C         .         .    I    .         .         RWE  L    .         .         .         .         .
             1080.  C         .         .     I   .         .         R E   L   .         .         .         .         .
36323.00     1090.  C         .         .     I   .         .         R WE  L   .         .         .         .         .
             1100.  C         .         .     I   .         .         R WE  L   .         .         .         .         .
             1110.  C         .         .     I   .         .         R WE  L   .         .         .         .         .
             1120.  C         .         .     I   .         .         R WE  L   .         .         .         .         .
             1130.  C         .         .      I  .         .         R WE   L  .         .         .         .         .
36361.00     1140.  C         .         .      I  .         .         R WE   L  .         .         .         .         .
             1150.  C         .         .      I  .         .         R  E      .L        .         .         .         .
             1160.  C         .         .       I .         .         R  E      .    L    .         .         .         .
             1170.  C         .         .       I .         .         R  E      .       L .         .         .         .
             1180.  C         .         .       I .         .         R  WE     .         . L       .         .         .
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          1190.  C        .        .        I .        .        R  WE      .        .        .        .        .
          1200.  C        .        .        I.        .       R.  WE      .        .        L        .        .
 36414.00 1210.  C        .        .        I.        .       R.  WE      .        .        .  L     .        .
          1220.  C        .        .        I.        .       R.M WE      .        .        .  L     .        .
          1230.  C        .        .        I.        .        R  WE      .        .        . L      .        .
          1240.  C        .        .         I        .        R  WE M    .        .        .L       .        .
          1250.  C        .        .         I        .        R  WE   M  .        .        .L       .        .
 36466.00 1260.  C        .        .         I        .        R  WE     M        .        L        .        .
          1270.  C        .   I    .         .        .        .L  E R   M        .        .        .        .
 36555.00 1280.  I        .        .         L        .        .   E     R        .        .        .        .
1
   12OCT00      16:32:41                                                                                    PAGE    5
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THIS RUN EXECUTED 12OCT00 16:32:41

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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

26C - LATERAL WEIR SPLIT

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35294.000 | .00 | .00 | .00 | 1288.00 | 71.24 | 1291.52 | .00 | 1291.52 | .07 | .31 | 187.66 | 262.14 |
| * 35320.000 | 31.00 | .00 | .00 | 1288.09 | 71.24 | 1291.50 | .00 | 1291.54 | 4.22 | 1.60 | 49.80 | 34.67 |
| 35337.000 | 21.00 | .00 | .00 | 1288.10 | 71.33 | 1291.52 | .00 | 1291.55 | 3.46 | 1.50 | 52.32 | 38.32 |
| * 35509.000 | 170.00 | .00 | .00 | 1288.50 | 75.84 | 1291.59 | .00 | 1291.67 | 10.44 | 2.22 | 34.24 | 23.47 |
| 35705.000 | 237.20 | .00 | .00 | 1289.00 | 76.69 | 1291.87 | .00 | 1291.97 | 14.94 | 2.52 | 30.41 | 19.84 |
| 35905.000 | 200.00 | .00 | .00 | 1289.50 | 76.69 | 1292.21 | .00 | 1292.33 | 20.06 | 2.82 | 27.24 | 17.12 |
| 36105.000 | 200.00 | .00 | .00 | 1290.00 | 76.69 | 1292.62 | .00 | 1292.74 | 21.25 | 2.84 | 27.01 | 16.63 |
| 36296.000 | 200.00 | .00 | .00 | 1290.50 | 79.19 | 1293.06 | .00 | 1293.20 | 23.65 | 2.97 | 26.66 | 16.28 |
| * 36323.000 | 25.26 | .00 | .00 | 1290.57 | 83.78 | 1293.20 | .00 | 1293.25 | 7.19 | 1.81 | 46.40 | 31.24 |
| 36361.000 | 52.86 | .00 | .00 | 1290.70 | 102.32 | 1293.24 | .00 | 1293.32 | 11.92 | 2.29 | 44.73 | 29.64 |
| * 36414.000 | 70.00 | .00 | .00 | 1290.90 | 143.96 | 1293.32 | .00 | 1293.38 | 6.78 | 2.06 | 69.74 | 55.28 |
| 36466.000 | 50.00 | .00 | .00 | 1291.00 | 150.00 | 1293.35 | .00 | 1293.42 | 8.04 | 2.22 | 67.99 | 52.91 |
| * 36555.000 | 17.23 | .00 | .00 | 1288.00 | 150.00 | 1293.44 | .00 | 1293.45 | .07 | .33 | 452.39 | 576.48 |

1
12OCT00 16:32:41 PAGE 6

26C - LATERAL WEIR SPLIT

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 35294.000 | 71.24 | 1291.52 | .00 | .00 | .00 | 86.30 | .00 |
| * 35320.000 | 71.24 | 1291.50 | .00 | -.02 | .00 | 61.22 | 31.00 |
| 35337.000 | 71.33 | 1291.52 | .00 | .01 | .00 | 53.28 | 21.00 |
| * 35509.000 | 75.84 | 1291.59 | .00 | .07 | .00 | 19.99 | 170.00 |
| 35705.000 | 76.69 | 1291.87 | .00 | .28 | .00 | 19.19 | 237.20 |
| 35905.000 | 76.69 | 1292.21 | .00 | .33 | .00 | 18.17 | 200.00 |
| 36105.000 | 76.69 | 1292.62 | .00 | .41 | .00 | 18.68 | 200.00 |
| 36296.000 | 79.19 | 1293.06 | .00 | .44 | .00 | 18.65 | 200.00 |
| * 36323.000 | 83.78 | 1293.20 | .00 | .14 | .00 | 28.51 | 25.26 |
| 36361.000 | 102.32 | 1293.24 | .00 | .03 | .00 | 28.14 | 52.86 |
| * 36414.000 | 143.96 | 1293.32 | .00 | .08 | .00 | 29.99 | 70.00 |
| 36466.000 | 150.00 | 1293.35 | .00 | .03 | .00 | 33.47 | 50.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| * | 36555.000 | 150.00 | 1293.44 | .00 | .10 | .00 | 143.39 | 17.23 |



SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 35320.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 35509.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 36323.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 36414.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 36555.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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1*****************************************
*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *                                        *
 *  RUN DATE    12OCT00    TIME   16:37:23 *
 *****************************************
*****************************************
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* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET, SUITE D
* DAVIS, CALIFORNIA 95616-4687
*          (916) 756-1104
```

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X     X  XXXXXXX  XXXXX            XXXXX
X     X  X       X    X           X    X
X     X  X       X                     X
XXXXXXX  XXXX    X         XXXXX   XXXXX
X     X  X       X                X
X     X  X       X    X           X
X     X  XXXXXXX  XXXXX            XXXXXXX
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THIS RUN EXECUTED 12OCT00  16:37:23

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*************************************
 HEC-2 WATER SURFACE PROFILES
 Version   4.6.2;  May 1991
*************************************
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PA25-261.dat

SPLIT FLOW BEING PERFORMED

```
SF     SPLIT   FLOW    PROBLEM

JC     SPLIT   FLOW    PROBLEM
JP     0       0       0       0       0

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35294    AND    35320
WS     2   35294   35320       -1      3.4
WC       1292.00   34.96 1291.50

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35320    AND    35337
WS     2   35320   35337       -1      3.4
WC       1291.50   12.28 1291.49

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35337    AND    35509
WS     2   35337   35509       -1      3.4
WC       1291.49     170 1291.54

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35509    AND    35705
WS     2   35509   35705       -1      3.4
WC       1291.54   196.8 1292.01

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35705    AND    35905
WS     2   35705   35905       -1      3.4
WC       1292.01     200 1292.51

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35905    AND    36105
WS     2   35905   36105       -1      3.4
WC       1292.51     200 1292.66

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36105    AND    36296
WS     2   36105   36296       -1      3.4
WC       1292.66     200 1293.00
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TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36296    AND    36323
WS     2   36296   36323       -1      3.4
WC       1293.00   27.27 1293.00

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36323    AND    36361
WS     2   36323   36361       -1      3.4
WC       1293.00   52.86 1293.00

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36361    AND    36414
WS     2   36361   36414       -1      3.4
WC       1293.00      70 1292.93
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TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36414    AND    36466
WS      2   36414   36466      -1      3.4
WC        1292.93      50 1294.00

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36466    AND    36555
WS      2   36466   36555      -1      3.4
WC        1294.00   17.23 1294.00
1
   12OCT00      16:37:23                                                                    PAGE    3

T1 HEC-2 Input Data file: SPLIT FLOW SOLUTION
T2 PA25-26D - LATERAL WEIR SPLIT FLOW Q= 200.00 CFS
T3 PA25-26D - LATERAL WEIR SPLIT FLOW Q= 200.00 CFS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         2         0         0         0         0         0         0      1291.52      0

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

    -10

QT        1    200.00
NC   0.0170    0.0170    0.0300       0.3       0.5
X1    35294        12     75.00     95.00      0.00      0.00      0.00
GR   1293.9      0.00   1292.00     21.00   1291.00     41.00   1290.00     49.50   1289.00     58.00
GR   1288.0     75.00   1288.00     85.00   1288.00     95.00   1289.00    101.00   1290.00    107.00
GR   1291.0    113.00   1292.00    120.50

X1    35320         9    100.01    120.00     38.00     34.96     31.00
GR   1293.7     90.00   1293.70     99.00   1295.70     99.00   1295.70    100.00   1291.09    100.01
GR   1288.1    109.00   1288.09    111.00   1291.09    120.00   1291.50    161.23

X1    35337         9    100.01    120.00      8.00     12.28     21.00
GR   1293.7     71.43   1293.70     99.00   1296.00     99.00   1296.00    100.00   1290.70    100.01
GR   1288.1    109.00   1288.12    111.00   1291.00    120.00   1291.49    153.29

X1    35509         8    100.01    120.00    170.00    170.00    170.00
GR   1294.0     71.43   1294.00     99.00   1296.00     99.00   1296.00    100.00   1291.54    100.01
GR   1288.5    109.00   1288.54    111.00   1291.54    120.00

X1    35705         8    100.01    120.00    196.80    196.80    237.20
GR   1294.8     71.43   1294.80     99.00   1296.80     99.00   1296.80    100.00   1292.01    100.01
GR   1289.0    109.00   1289.01    111.00   1292.01    120.00

X1    35905         8    100.01    120.00    200.00    200.00    200.00
GR   1295.3     71.43   1295.30     99.00   1297.30     99.00   1297.30    100.00   1292.51    100.01
GR   1289.5    109.00   1289.51    111.00   1292.51    120.00

X1    36105         8    100.01    120.00    200.00    200.00    200.00
GR   1295.5     71.43   1295.50     99.00   1297.50     99.00   1297.50    100.00   1293.01    100.01
GR   1290.0    109.00   1290.01    111.00   1292.66    120.00

X1    36296         8    100.01    120.00    200.00    200.00    200.00
GR   1295.0     71.43   1295.00     99.00   1297.00     99.00   1297.00    100.00   1293.51    100.01
GR   1290.5    109.00   1290.51    111.00   1293.00    120.00

X1    36323         8    100.01    130.00     29.25     27.27     25.26
GR   1294.7     71.43   1294.70     99.00   1296.70     99.00   1296.70    100.00   1293.57    100.01
GR   1290.6    112.00   1290.57    118.00   1293.00    130.00
1
   12OCT00      16:37:23                                                                    PAGE    4

X1    36361         8    100.01    130.00     52.86     52.86     52.86
GR   1294.4     71.43   1294.40     99.00   1296.40     99.00   1296.40    100.00   1293.70    100.01
GR   1290.7    112.00   1290.70    118.00   1293.00    130.00

X1    36414         8    100.00    130.00     70.00     70.00     70.00
GR   1294.4     71.43   1294.40     99.00   1296.33     99.00   1296.33    100.00   1291.08    100.01
GR   1290.9    115.00   1291.08    129.99   1292.93    130.00

X1    36466         9    100.00    130.00     50.00     50.00     50.00
GR   1294.3     71.43   1294.30     99.00   1296.00     99.00   1296.00    100.00   1291.20    100.01
GR   1291.0    115.00   1291.20    129.99   1293.00    130.00   1294.00    140.00

NH        3    0.0170    100.01    0.0250    247.00    0.0300    258.00
X1    36555        17    100.01    247.00     17.23     17.23     17.23
GR   1294.3     71.43   1294.30     99.00   1295.00     99.00   1295.00    100.00   1291.00    100.01
GR   1290.0    105.00   1289.00    109.00   1288.00    113.00   1288.00    118.00   1289.00    122.00
GR   1290.0    126.00   1290.00    195.00   1291.00    217.00   1292.00    231.00   1293.00    240.50
GR   1294.0    247.00   1294.00    258.00
1
PROFILE FOR STREAM  26D - LATERAL WEIR SPLIT

PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

ELEVATION  1288.     1289.     1290.     1291.     1292.     1293.     1294.     1295.     1296.     1297.
    SECNO   CUMDIS

 35294.00     0.  I        .         .         .   E    M        .         .         .         .         .         .
             10.  I        L         .         .   E  M  .        .         .         .         .         .         .
             20.  CI       .         L         .   E M   .        .         .         .         .         .         .
             30.  CI       .         .         L   E     .        .         .         .         .         .         .
 35320.00    40.  CI       .         .        .L   E     .        .         .         .         .         .         .
             50.  CI       .         .       LR    E     .        .         .         .         .         .         .
 35337.00    60.  CI       .         .     L  R    WE    .        .         .         .         .         .         .
             70.  CI       .         .     L  R    WE    .        .         .         .         .         .         .
             80.  CI       .         .      L .R   WE    .        .         .         .         .         .         .
             90.  C I      .         .      L .R   WE    .        .         .         .         .         .         .
            100.  C I      .         .       L.R   WE    .        .         .         .         .         .         .
```

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           110.  C I       .         .        L. R  WE   .         .         .         .         .         .         .
           120.  C I       .         .         L R  WE   .         .         .         .         .         .         .
           130.  C  I      .         .         L R  WE   .         .         .         .         .         .         .
           140.  C  I      .         .         .L R ME   .         .         .         .         .         .         .
           150.  C  I      .         .         .L R ME   .         .         .         .         .         .         .
           160.  C  I      .         .         . LR ME   .         .         .         .         .         .         .
           170.  C   I     .         .         . LR ME   .         .         .         .         .         .         .
           180.  C   I     .         .         .  LRME   .         .         .         .         .         .         .
           190.  C   I     .         .         .  LRME   .         .         .         .         .         .         .
           200.  C   I     .         .         .   LMWE  .         .         .         .         .         .         .
           210.  C    I    .         .         .   LRWE  .         .         .         .         .         .         .
           220.  C    I    .         .         .    LWE  .         .         .         .         .         .         .
35509.00   230.  C    I    .         .         .    LWE  .         .         .         .         .         .         .
           240.  C    I    .         .         .     WE  .         .         .         .         .         .         .
           250.  C    I    .         .         .     WE  .         .         .         .         .         .         .
           260.  C     I   .         .         .     WE  .         .         .         .         .         .         .
           270.  C     I   .         .         .     WE  .         .         .         .         .         .         .
           280.  C     I   .         .         .     LE  .         .         .         .         .         .         .
           290.  C     I   .         .         .      WE .         .         .         .         .         .         .
           300.  C     I   .         .         .      WE .         .         .         .         .         .         .
           310.  C      I  .         .         .      WE .         .         .         .         .         .         .
           320.  C      I  .         .         .      WE .         .         .         .         .         .         .
           330.  C      I  .         .         .      WE .         .         .         .         .         .         .
           340.  C      I  .         .         .      WE .         .         .         .         .         .         .
           350.  C       I .         .         .      WE .         .         .         .         .         .         .
           360.  C       I .         .         .       WE.         .         .         .         .         .         .
           370.  C       I .         .         .       WE.         .         .         .         .         .         .
           380.  C       I .         .         .       WE.         .         .         .         .         .         .
           390.  C       I .         .         .       WE.         .         .         .         .         .         .
           400.  C        I.         .         .       WE.         .         .         .         .         .         .
           410.  C        I.         .         .       WE.         .         .         .         .         .         .
           420.  C        I.         .         .       WE.         .         .         .         .         .         .
           430.  C        I.         .         .       WE.         .         .         .         .         .         .
           440.  C        I.         .         .        WE         .         .         .         .         .         .
           450.  C         I         .         .        WE         .         .         .         .         .         .
35705.00   460.  C         I         .         .        WE         .         .         .         .         .         .
           470.  C         I         .         .        WE         .         .         .         .         .         .
           480.  C         .I        .         .        WEL        .         .         .         .         .         .
           490.  C         .I        .         .        W.E        .         .         .         .         .         .
           500.  C         .I        .         .         WE        .         .         .         .         .         .
           510.  C         .I        .         .         WE        .         .         .         .         .         .
           520.  C         . I       .         .         WEL       .         .         .         .         .         .
           530.  C         . I       .         .         WEL       .         .         .         .         .         .
           540.  C         . I       .         .         WEL       .         .         .         .         .         .
           550.  C         . I       .         .         W E       .         .         .         .         .         .
           560.  C         .  I      .         .         .WEL      .         .         .         .         .         .
           570.  C         .  I      .         .         .WEL      .         .         .         .         .         .
           580.  C         .  I      .         .         .WEL      .         .         .         .         .         .
           590.  C         .  I      .         .         .WEL      .         .         .         .         .         .
           600.  C         .  I      .         .         .W EL     .         .         .         .         .         .
           610.  C         .   I     .         .         .W EL     .         .         .         .         .         .
           620.  C         .   I     .         .         . WEL     .         .         .         .         .         .
           630.  C         .   I     .         .         . WEL     .         .         .         .         .         .
           640.  C         .   I     .         .         . WE L    .         .         .         .         .         .
           650.  C         .    I    .         .         . WE L    .         .         .         .         .         .
35905.00   660.  C         .    I    .         .         . W EL    .         .         .         .         .         .
           670.  C         .    I    .         .         .  WEL    .         .         .         .         .         .
           680.  C         .     I   .         .         .  WERL   .         .         .         .         .         .
           690.  C         .     I   .         .         .  WERL   .         .         .         .         .         .
           700.  C         .     I   .         .         .  WERL   .         .         .         .         .         .
           710.  C         .     I   .         .         .  W EL   .         .         .         .         .         .
           720.  C         .      I  .         .         .   WERL  .         .         .         .         .         .
           730.  C         .      I  .         .         .   WERL  .         .         .         .         .         .
           740.  C         .      I  .         .         .   WERL  .         .         .         .         .         .
           750.  C         .      I  .         .         .   WERL  .         .         .         .         .         .
           760.  C         .       I .         .         .   W E L .         .         .         .         .         .
           770.  C         .       I .         .         .    WE L .         .         .         .         .         .
           780.  C         .       I .         .         .    WE L .         .         .         .         .         .
           790.  C         .       I .         .         .    WE L .         .         .         .         .         .
           800.  C         .       I .         .         .    WRE L.         .         .         .         .         .
           810.  C         .        I.         .         .    WRE L.         .         .         .         .         .
           820.  C         .        I.         .         .     WE L.         .         .         .         .         .
           830.  C         .        I.         .         .     WE L.         .         .         .         .         .
           840.  C         .        I.         .         .     WE  L         .         .         .         .         .
           850.  C         .         I         .         .     WRE L         .         .         .         .         .
36105.00   860.  C         .         I         .         .      WE L         .         .         .         .         .
           870.  C         .         I         .         .      WE L         .         .         .         .         .
           880.  C         .         .I        .         .      WE .L        .         .         .         .         .
           890.  C         .         .I        .         .      W E.L        .         .         .         .         .
           900.  C         .         .I        .         .      W E.L        .         .         .         .         .
           910.  C         .         .I        .         .      RWE.L        .         .         .         .         .
           920.  C         .         . I       .         .       WE. L       .         .         .         .         .
           930.  C         .         . I       .         .       W E L       .         .         .         .         .
           940.  C         .         . I       .         .       W E L       .         .         .         .         .
           950.  C         .         . I       .         .       RWE L       .         .         .         .         .
           960.  C         .         .  I      .         .       RWE  L      .         .         .         .         .
           970.  C         .         .  I      .         .       RW.E L      .         .         .         .         .
           980.  C         .         .  I      .         .        W.E L      .         .         .         .         .
           990.  C         .         .  I      .         .        RWE L      .         .         .         .         .
          1000.  C         .         .   I     .         .        RWE  L     .         .         .         .         .
          1010.  C         .         .   I     .         .        RW E L     .         .         .         .         .
          1020.  C         .         .   I     .         .        RW E L     .         .         .         .         .
          1030.  C         .         .   I     .         .        RW E L     .         .         .         .         .
          1040.  C         .         .    I    .         .         RWE  L    .         .         .         .         .
          1050.  C         .         .    I    .         .         RW E L    .         .         .         .         .
36296.00  1060.  C         .         .    I    .         .         RW E L    .         .         .         .         .
          1070.  C         .         .    I    .         .         R WE L    .         .         .         .         .
          1080.  C         .         .     I   .         .         R WE  L   .         .         .         .         .
36323.00  1090.  C         .         .     I   .         .         R  E  L   .         .         .         .         .
          1100.  C         .         .     I   .         .         R  WE L   .         .         .         .         .
          1110.  C         .         .     I   .         .         R  WE L   .         .         .         .         .
          1120.  C         .         .     I   .         .         R  WE L   .         .         .         .         .
          1130.  C         .         .      I  .         .         R  WE  L  .         .         .         .         .
36361.00  1140.  C         .         .      I  .         .         R  WE  L  .         .         .         .         .
          1150.  C         .         .      I  .         .         R  WE     .L        .         .         .         .
          1160.  C         .         .       I .         .         R  W E    .    L    .         .         .         .
          1170.  C         .         .       I .         .         R   WE    .       L .         .         .         .
          1180.  C         .         .       I .         .         R   WE    .         . L       .         .         .
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          1190.  C        .        .       I .       .        R   WE    .        .       L .       .        .
          1200.  C        .        .        I.       .       R.   WE    .        .         L       .        .
  36414.00 1210.  C        .        .        I.       .       R.   WE    .        .         .  L    .        .
          1220.  C        .        .        I.       .       R.M  WE    .        .         .  L    .        .
          1230.  C        .        .        I.       .        R   WE    .        .         . L     .        .
          1240.  C        .        .         I       .        R   W E   .        .         .L      .        .
          1250.  C        .        .         I       .        R    WE M .        .         .L      .        .
  36466.00 1260.  C        .        .         I       .        R    WE   M        .         L       .        .
          1270.  C        .  I     .         .       .       .L    E   M        .         .       .        .
  36555.00 1280.  I        .        .         L       .        .    E   R        .         .       .        .
1
   12OCT00      16:37:23                                                                                    PAGE    5
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THIS RUN EXECUTED 12OCT00 16:37:23

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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

26D - LATERAL WEIR SPLIT

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35294.000 | .00 | .00 | .00 | 1288.00 | 73.26 | 1291.52 | .00 | 1291.52 | .08 | .32 | 187.66 | 262.14 |
| * 35320.000 | 31.00 | .00 | .00 | 1288.09 | 73.26 | 1291.50 | .00 | 1291.54 | 4.47 | 1.64 | 49.76 | 34.63 |
| 35337.000 | 21.00 | .00 | .00 | 1288.10 | 73.34 | 1291.52 | .00 | 1291.55 | 3.67 | 1.55 | 52.27 | 38.28 |
| * 35509.000 | 170.00 | .00 | .00 | 1288.50 | 78.23 | 1291.60 | .00 | 1291.68 | 11.02 | 2.28 | 34.32 | 23.56 |
| 35705.000 | 237.20 | .00 | .00 | 1289.00 | 79.37 | 1291.89 | .00 | 1292.00 | 15.51 | 2.58 | 30.77 | 20.16 |
| 35905.000 | 200.00 | .00 | .00 | 1289.50 | 79.37 | 1292.23 | .00 | 1292.36 | 20.41 | 2.86 | 27.76 | 17.57 |
| 36105.000 | 200.00 | .00 | .00 | 1290.00 | 79.37 | 1292.65 | .00 | 1292.78 | 21.39 | 2.87 | 27.65 | 17.16 |
| 36296.000 | 200.00 | .00 | .00 | 1290.50 | 89.73 | 1293.12 | .00 | 1293.28 | 27.06 | 3.24 | 27.73 | 17.25 |
| * 36323.000 | 25.26 | .00 | .00 | 1290.57 | 98.18 | 1293.28 | .00 | 1293.34 | 8.58 | 2.02 | 48.66 | 33.52 |
| 36361.000 | 52.86 | .00 | .00 | 1290.70 | 127.86 | 1293.32 | .00 | 1293.43 | 16.02 | 2.72 | 47.06 | 31.95 |
| * 36414.000 | 70.00 | .00 | .00 | 1290.90 | 188.99 | 1293.42 | .00 | 1293.52 | 10.22 | 2.60 | 72.77 | 59.11 |
| 36466.000 | 50.00 | .00 | .00 | 1291.00 | 200.00 | 1293.46 | .00 | 1293.59 | 12.05 | 2.80 | 71.97 | 57.62 |
| * 36555.000 | 17.23 | .00 | .00 | 1288.00 | 200.00 | 1293.62 | .00 | 1293.62 | .10 | .42 | 477.46 | 627.40 |

1
12OCT00 16:37:23 PAGE 6

26D - LATERAL WEIR SPLIT

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 35294.000 | 73.26 | 1291.52 | .00 | .00 | .00 | 86.30 | .00 |
| * 35320.000 | 73.26 | 1291.50 | .00 | -.02 | .00 | 61.22 | 31.00 |
| 35337.000 | 73.34 | 1291.52 | .00 | .01 | .00 | 53.28 | 21.00 |
| * 35509.000 | 78.23 | 1291.60 | .00 | .08 | .00 | 19.99 | 170.00 |
| 35705.000 | 79.37 | 1291.89 | .00 | .30 | .00 | 19.30 | 237.20 |
| 35905.000 | 79.37 | 1292.23 | .00 | .34 | .00 | 18.34 | 200.00 |
| 36105.000 | 79.37 | 1292.65 | .00 | .42 | .00 | 18.89 | 200.00 |
| 36296.000 | 89.73 | 1293.12 | .00 | .47 | .00 | 18.82 | 200.00 |
| * 36323.000 | 98.18 | 1293.28 | .00 | .16 | .00 | 28.83 | 25.26 |
| 36361.000 | 127.86 | 1293.32 | .00 | .04 | .00 | 28.47 | 52.86 |
| * 36414.000 | 188.99 | 1293.42 | .00 | .10 | .00 | 29.99 | 70.00 |
| 36466.000 | 200.00 | 1293.46 | .00 | .05 | .00 | 34.64 | 50.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| * | 36555.000 | 200.00 | 1293.62 | .00 | .16 | .00 | 144.52 | 17.23 |



SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 35320.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 35509.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 36323.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 36414.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 36555.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

```
1
*************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *                                        *
 *  RUN DATE    12OCT00    TIME   16:39:00 *
 ******************************************
*************************************
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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
```



THIS RUN EXECUTED 12OCT00  16:39:00

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*************************************
 HEC-2 WATER SURFACE PROFILES
 Version   4.6.2;  May 1991
*************************************
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PA25-26E.dat

```
SPLIT FLOW BEING PERFORMED

SF     SPLIT   FLOW    PROBLEM

JC     SPLIT   FLOW    PROBLEM
JP     0       0       0       0       0

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35294    AND    35320
WS     2   35294   35320       -1      3.4
WC       1292.00   34.96 1291.50

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35320    AND    35337
WS     2   35320   35337       -1      3.4
WC       1291.50   12.28 1291.49

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35337    AND    35509
WS     2   35337   35509       -1      3.4
WC       1291.49     170 1291.54

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35509    AND    35705
WS     2   35509   35705       -1      3.4
WC       1291.54   196.8 1292.01

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35705    AND    35905
WS     2   35705   35905       -1      3.4
WC       1292.01     200 1292.51

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35905    AND    36105
WS     2   35905   36105       -1      3.4
WC       1292.51     200 1292.66

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36105    AND    36296
WS     2   36105   36296       -1      3.4
WC       1292.66     200 1293.00
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TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36296    AND    36323
WS     2   36296   36323       -1      3.4
WC       1293.00   27.27 1293.00

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36323    AND    36361
WS     2   36323   36361       -1      3.4
WC       1293.00   52.86 1293.00

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36361    AND    36414
WS     2   36361   36414       -1      3.4
WC       1293.00      70 1292.93
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TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36414    AND    36466
WS     2   36414   36466      -1      3.4
WC       1292.93      50 1294.00

TW     RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36466    AND    36555
WS     2   36466   36555      -1      3.4
WC       1294.00   17.23 1294.00
1
   12OCT00      16:39:00                                                                    PAGE    3

T1 HEC-2 Input Data file: SPLIT FLOW SOLUTION
T2 PA25-26E - LATERAL WEIR SPLIT FLOW Q= 250.00 CFS
T3 PA25-26E - LATERAL WEIR SPLIT FLOW Q= 250.00 CFS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         2         0         0         0         0         0         0      1291.52      0

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

    -10

QT        1    250.00
NC   0.0170    0.0170    0.0300       0.3       0.5
X1    35294        12     75.00     95.00      0.00      0.00      0.00
GR   1293.9      0.00   1292.00     21.00   1291.00     41.00   1290.00     49.50   1289.00     58.00
GR   1288.0     75.00   1288.00     85.00   1288.00     95.00   1289.00    101.00   1290.00    107.00
GR   1291.0    113.00   1292.00    120.50

X1    35320         9    100.01    120.00     38.00     34.96     31.00
GR   1293.7     90.00   1293.70     99.00   1295.70     99.00   1295.70    100.00   1291.09    100.01
GR   1288.1    109.00   1288.09    111.00   1291.09    120.00   1291.50    161.23

X1    35337         9    100.01    120.00      8.00     12.28     21.00
GR   1293.7     71.43   1293.70     99.00   1296.00     99.00   1296.00    100.00   1290.70    100.01
GR   1288.1    109.00   1288.12    111.00   1291.00    120.00   1291.49    153.29

X1    35509         8    100.01    120.00    170.00    170.00    170.00
GR   1294.0     71.43   1294.00     99.00   1296.00     99.00   1296.00    100.00   1291.54    100.01
GR   1288.5    109.00   1288.54    111.00   1291.54    120.00

X1    35705         8    100.01    120.00    196.80    196.80    237.20
GR   1294.8     71.43   1294.80     99.00   1296.80     99.00   1296.80    100.00   1292.01    100.01
GR   1289.0    109.00   1289.01    111.00   1292.01    120.00

X1    35905         8    100.01    120.00    200.00    200.00    200.00
GR   1295.3     71.43   1295.30     99.00   1297.30     99.00   1297.30    100.00   1292.51    100.01
GR   1289.5    109.00   1289.51    111.00   1292.51    120.00

X1    36105         8    100.01    120.00    200.00    200.00    200.00
GR   1295.5     71.43   1295.50     99.00   1297.50     99.00   1297.50    100.00   1293.01    100.01
GR   1290.0    109.00   1290.01    111.00   1292.66    120.00

X1    36296         8    100.01    120.00    200.00    200.00    200.00
GR   1295.0     71.43   1295.00     99.00   1297.00     99.00   1297.00    100.00   1293.51    100.01
GR   1290.5    109.00   1290.51    111.00   1293.00    120.00

X1    36323         8    100.01    130.00     29.25     27.27     25.26
GR   1294.7     71.43   1294.70     99.00   1296.70     99.00   1296.70    100.00   1293.57    100.01
GR   1290.6    112.00   1290.57    118.00   1293.00    130.00
1
   12OCT00      16:39:00                                                                    PAGE    4

X1    36361         8    100.01    130.00     52.86     52.86     52.86
GR   1294.4     71.43   1294.40     99.00   1296.40     99.00   1296.40    100.00   1293.70    100.01
GR   1290.7    112.00   1290.70    118.00   1293.00    130.00

X1    36414         8    100.00    130.00     70.00     70.00     70.00
GR   1294.4     71.43   1294.40     99.00   1296.33     99.00   1296.33    100.00   1291.08    100.01
GR   1290.9    115.00   1291.08    129.99   1292.93    130.00

X1    36466         9    100.00    130.00     50.00     50.00     50.00
GR   1294.3     71.43   1294.30     99.00   1296.00     99.00   1296.00    100.00   1291.20    100.01
GR   1291.0    115.00   1291.20    129.99   1293.00    130.00   1294.00    140.00

NH        3    0.0170    100.01    0.0250    247.00    0.0300    258.00
X1    36555        17    100.01    247.00     17.23     17.23     17.23
GR   1294.3     71.43   1294.30     99.00   1295.00     99.00   1295.00    100.00   1291.00    100.01
GR   1290.0    105.00   1289.00    109.00   1288.00    113.00   1288.00    118.00   1289.00    122.00
GR   1290.0    126.00   1290.00    195.00   1291.00    217.00   1292.00    231.00   1293.00    240.50
GR   1294.0    247.00   1294.00    258.00
1
PROFILE FOR STREAM  26E - LATERAL WEIR SPLIT


PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA


ELEVATION  1288.     1289.     1290.     1291.     1292.     1293.     1294.     1295.     1296.     1297.
    SECNO   CUMDIS

 35294.00     0.  I        .         .         .    E    M        .         .         .         .         .         .
             10.  I        L         .         .    E   M .       .         .         .         .         .         .
             20.  CI       .         L         .    E M  .        .         .         .         .         .         .
             30.  CI       .         .         L    E    .        .         .         .         .         .         .
 35320.00    40.  CI       .         .        .L    E    .        .         .         .         .         .         .
             50.  CI       .         .       LR     E    .        .         .         .         .         .         .
 35337.00    60.  CI       .         .     L  R     WE   .        .         .         .         .         .         .
             70.  CI       .         .     L  R     WE   .        .         .         .         .         .         .
             80.  CI       .         .      L .R    WE   .        .         .         .         .         .         .
             90.  C I      .         .      L .R    WE   .        .         .         .         .         .         .
            100.  C I      .         .       L.R    WE   .        .         .         .         .         .         .
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            110. C I       .         .         L R  WE   .         .         .         .         .         .         .
            120. C I       .         .         L R  WE   .         .         .         .         .         .         .
            130. C  I      .         .         L R  WE   .         .         .         .         .         .         .
            140. C  I      .         .         .L R ME   .         .         .         .         .         .         .
            150. C  I      .         .         .L R ME   .         .         .         .         .         .         .
            160. C  I      .         .         . LR ME   .         .         .         .         .         .         .
            170. C   I     .         .         . LR ME   .         .         .         .         .         .         .
            180. C   I     .         .         .  LRME   .         .         .         .         .         .         .
            190. C   I     .         .         .  LRME   .         .         .         .         .         .         .
            200. C   I     .         .         .   LMWE  .         .         .         .         .         .         .
            210. C    I    .         .         .   LRWE  .         .         .         .         .         .         .
            220. C    I    .         .         .    LWE  .         .         .         .         .         .         .
35509.00    230. C    I    .         .         .    LWE  .         .         .         .         .         .         .
            240. C    I    .         .         .     WE  .         .         .         .         .         .         .
            250. C    I    .         .         .     WE  .         .         .         .         .         .         .
            260. C     I   .         .         .     WE  .         .         .         .         .         .         .
            270. C     I   .         .         .     LE  .         .         .         .         .         .         .
            280. C     I   .         .         .     LE  .         .         .         .         .         .         .
            290. C     I   .         .         .      WE .         .         .         .         .         .         .
            300. C     I   .         .         .      WE .         .         .         .         .         .         .
            310. C      I  .         .         .      WE .         .         .         .         .         .         .
            320. C      I  .         .         .      WE .         .         .         .         .         .         .
            330. C      I  .         .         .      WE .         .         .         .         .         .         .
            340. C      I  .         .         .      WE .         .         .         .         .         .         .
            350. C       I .         .         .       E .         .         .         .         .         .         .
            360. C       I .         .         .       WE.         .         .         .         .         .         .
            370. C       I .         .         .       WE.         .         .         .         .         .         .
            380. C       I .         .         .       WE.         .         .         .         .         .         .
            390. C       I .         .         .       WE.         .         .         .         .         .         .
            400. C        I.         .         .       WE.         .         .         .         .         .         .
            410. C        I.         .         .       WE.         .         .         .         .         .         .
            420. C        I.         .         .       WE.         .         .         .         .         .         .
            430. C        I.         .         .        WE         .         .         .         .         .         .
            440. C        I.         .         .        WE         .         .         .         .         .         .
            450. C         I         .         .        WE         .         .         .         .         .         .
35705.00    460. C         I         .         .        WE         .         .         .         .         .         .
            470. C         I         .         .        WE         .         .         .         .         .         .
            480. C         .I        .         .        WEL        .         .         .         .         .         .
            490. C         .I        .         .         WE        .         .         .         .         .         .
            500. C         .I        .         .         WE        .         .         .         .         .         .
            510. C         .I        .         .         WE        .         .         .         .         .         .
            520. C         . I       .         .         WEL       .         .         .         .         .         .
            530. C         . I       .         .         WEL       .         .         .         .         .         .
            540. C         . I       .         .         W E       .         .         .         .         .         .
            550. C         . I       .         .         .WE       .         .         .         .         .         .
            560. C         .  I      .         .         .WEL      .         .         .         .         .         .
            570. C         .  I      .         .         .WEL      .         .         .         .         .         .
            580. C         .  I      .         .         .WEL      .         .         .         .         .         .
            590. C         .  I      .         .         .W E      .         .         .         .         .         .
            600. C         .  I      .         .         .W EL     .         .         .         .         .         .
            610. C         .   I     .         .         . WEL     .         .         .         .         .         .
            620. C         .   I     .         .         . WEL     .         .         .         .         .         .
            630. C         .   I     .         .         . WEL     .         .         .         .         .         .
            640. C         .   I     .         .         . WE L    .         .         .         .         .         .
            650. C         .    I    .         .         . W EL    .         .         .         .         .         .
35905.00    660. C         .    I    .         .         .  WEL    .         .         .         .         .         .
            670. C         .    I    .         .         .  WEL    .         .         .         .         .         .
            680. C         .     I   .         .         .  WERL   .         .         .         .         .         .
            690. C         .     I   .         .         .  WERL   .         .         .         .         .         .
            700. C         .     I   .         .         .  W EL   .         .         .         .         .         .
            710. C         .     I   .         .         .   WEL   .         .         .         .         .         .
            720. C         .      I  .         .         .   WERL  .         .         .         .         .         .
            730. C         .      I  .         .         .   WERL  .         .         .         .         .         .
            740. C         .      I  .         .         .   WERL  .         .         .         .         .         .
            750. C         .      I  .         .         .   W EL  .         .         .         .         .         .
            760. C         .       I .         .         .    WE L .         .         .         .         .         .
            770. C         .       I .         .         .    WE L .         .         .         .         .         .
            780. C         .       I .         .         .    WE L .         .         .         .         .         .
            790. C         .       I .         .         .    WREL .         .         .         .         .         .
            800. C         .       I .         .         .    WRE L.         .         .         .         .         .
            810. C         .        I.         .         .     WE L.         .         .         .         .         .
            820. C         .        I.         .         .     WE L.         .         .         .         .         .
            830. C         .        I.         .         .     WE L.         .         .         .         .         .
            840. C         .        I.         .         .     W E L         .         .         .         .         .
            850. C         .         I         .         .     WRE L         .         .         .         .         .
36105.00    860. C         .         I         .         .      WE L         .         .         .         .         .
            870. C         .         I         .         .      WE L         .         .         .         .         .
            880. C         .         .I        .         .      W E.L        .         .         .         .         .
            890. C         .         .I        .         .      W E.L        .         .         .         .         .
            900. C         .         .I        .         .      RWE.L        .         .         .         .         .
            910. C         .         .I        .         .      RWE.L        .         .         .         .         .
            920. C         .         . I       .         .       W E L       .         .         .         .         .
            930. C         .         . I       .         .       W E L       .         .         .         .         .
            940. C         .         . I       .         .       RWE L       .         .         .         .         .
            950. C         .         . I       .         .       RWE L       .         .         .         .         .
            960. C         .         .  I      .         .       RW.E L      .         .         .         .         .
            970. C         .         .  I      .         .       RW.E L      .         .         .         .         .
            980. C         .         .  I      .         .        RWE L      .         .         .         .         .
            990. C         .         .  I      .         .        RW EL      .         .         .         .         .
           1000. C         .         .   I     .         .        RW E L     .         .         .         .         .
           1010. C         .         .   I     .         .        RW E L     .         .         .         .         .
           1020. C         .         .   I     .         .        R.WE L     .         .         .         .         .
           1030. C         .         .   I     .         .        R.W EL     .         .         .         .         .
           1040. C         .         .    I    .         .         RW E L    .         .         .         .         .
           1050. C         .         .    I    .         .         RW E L    .         .         .         .         .
36296.00   1060. C         .         .    I    .         .         R WE L    .         .         .         .         .
           1070. C         .         .    I    .         .         R W EL    .         .         .         .         .
           1080. C         .         .     I   .         .         R  WE L   .         .         .         .         .
36323.00   1090. C         .         .     I   .         .         R  WE L   .         .         .         .         .
           1100. C         .         .     I   .         .         R   WEL   .         .         .         .         .
           1110. C         .         .     I   .         .         R   WEL   .         .         .         .         .
           1120. C         .         .     I   .         .         R   WEL   .         .         .         .         .
           1130. C         .         .      I  .         .         R   WE L  .         .         .         .         .
36361.00   1140. C         .         .      I  .         .         R   WE L  .         .         .         .         .
           1150. C         .         .      I  .         .         R   W E   .L        .         .         .         .
           1160. C         .         .       I .         .         R   W E   .    L    .         .         .         .
           1170. C         .         .       I .         .         R   W E   .       L .         .         .         .
           1180. C         .         .       I .         .         R     WE  .         . L       .         .         .
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          1190.  C        .        .        I .        .        R     WE  .        .        L        .        .
          1200.  C        .        .        I.        .        R.     WE  .        .        L        .        .
 36414.00 1210.  C        .        .        I.        .        R.     W E .        .        .  L     .        .
          1220.  C        .        .        I.        .        R.M    W E .        .        .  L     .        .
          1230.  C        .        .        I.        .        R    MW E .        .        . L      .        .
          1240.  C        .        .         I        .        R     WME .        .        .L       .        .
          1250.  C        .        .         I        .        R      WEM .        .        .L       .        .
 36466.00 1260.  C        .        .         I        .        R      WE  M        .        L        .        .
          1270.  C        .   I    .         .        .        .L     RWE M        .        .        .        .
 36555.00 1280.  I        .        .         L        .        .        E R        .        .        .        .
1
   12OCT00      16:39:00                                                                                    PAGE    5
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THIS RUN EXECUTED 12OCT00 16:39:01

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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

26E - LATERAL WEIR SPLIT

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35294.000 | .00 | .00 | .00 | 1288.00 | 74.55 | 1291.52 | .00 | 1291.52 | .08 | .33 | 187.66 | 262.14 |
| * 35320.000 | 31.00 | .00 | .00 | 1288.09 | 74.55 | 1291.50 | .00 | 1291.54 | 4.64 | 1.67 | 49.72 | 34.61 |
| 35337.000 | 21.00 | .00 | .00 | 1288.10 | 74.63 | 1291.52 | .00 | 1291.55 | 3.81 | 1.58 | 52.23 | 38.25 |
| * 35509.000 | 170.00 | .00 | .00 | 1288.50 | 79.76 | 1291.60 | .00 | 1291.68 | 11.40 | 2.32 | 34.38 | 23.63 |
| 35705.000 | 237.20 | .00 | .00 | 1289.00 | 81.08 | 1291.90 | .00 | 1292.01 | 15.87 | 2.62 | 31.00 | 20.35 |
| 35905.000 | 200.00 | .00 | .00 | 1289.50 | 81.08 | 1292.25 | .00 | 1292.38 | 20.64 | 2.89 | 28.10 | 17.85 |
| 36105.000 | 200.00 | .00 | .00 | 1290.00 | 81.11 | 1292.67 | .00 | 1292.80 | 21.44 | 2.89 | 28.05 | 17.52 |
| 36296.000 | 200.00 | .00 | .00 | 1290.50 | 100.34 | 1293.16 | .00 | 1293.35 | 30.76 | 3.50 | 28.65 | 18.09 |
| * 36323.000 | 25.26 | .00 | .00 | 1290.57 | 112.60 | 1293.35 | .00 | 1293.43 | 10.03 | 2.22 | 50.66 | 35.55 |
| 36361.000 | 52.86 | .00 | .00 | 1290.70 | 152.89 | 1293.39 | .00 | 1293.54 | 20.21 | 3.11 | 49.10 | 34.01 |
| * 36414.000 | 70.00 | .00 | .00 | 1290.90 | 232.93 | 1293.51 | .00 | 1293.65 | 13.87 | 3.09 | 75.44 | 62.55 |
| 36466.000 | 50.00 | .00 | .00 | 1291.00 | 250.00 | 1293.57 | .00 | 1293.74 | 16.24 | 3.34 | 75.65 | 62.03 |
| * 36555.000 | 17.23 | .00 | .00 | 1288.00 | 250.00 | 1293.79 | .00 | 1293.79 | .14 | .50 | 500.69 | 675.83 |

1
12OCT00 16:39:00 PAGE 6

26E - LATERAL WEIR SPLIT

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 35294.000 | 74.55 | 1291.52 | .00 | .00 | .00 | 86.30 | .00 |
| * 35320.000 | 74.55 | 1291.50 | .00 | -.02 | .00 | 61.22 | 31.00 |
| 35337.000 | 74.63 | 1291.52 | .00 | .01 | .00 | 53.28 | 21.00 |
| * 35509.000 | 79.76 | 1291.60 | .00 | .08 | .00 | 19.99 | 170.00 |
| 35705.000 | 81.08 | 1291.90 | .00 | .31 | .00 | 19.37 | 237.20 |
| 35905.000 | 81.08 | 1292.25 | .00 | .35 | .00 | 18.45 | 200.00 |
| 36105.000 | 81.11 | 1292.67 | .00 | .42 | .00 | 18.98 | 200.00 |
| 36296.000 | 100.34 | 1293.16 | .00 | .49 | .00 | 18.96 | 200.00 |
| * 36323.000 | 112.60 | 1293.35 | .00 | .19 | .00 | 29.10 | 25.26 |
| 36361.000 | 152.89 | 1293.39 | .00 | .04 | .00 | 28.75 | 52.86 |
| * 36414.000 | 232.93 | 1293.51 | .00 | .11 | .00 | 29.99 | 70.00 |
| 36466.000 | 250.00 | 1293.57 | .00 | .06 | .00 | 35.68 | 50.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| * | 36555.000 | 250.00 | 1293.79 | .00 | .22 | .00 | 145.56 | 17.23 |



SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 35320.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 35509.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 36323.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 36414.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 36555.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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1
*************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *                                        *
 *  RUN DATE    12OCT00    TIME   16:40:52 *
 *****************************************
*************************************
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* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET, SUITE D
* DAVIS, CALIFORNIA 95616-4687
* (916) 756-1104


```
X     X  XXXXXXX  XXXXX            XXXXX
X     X  X       X    X           X    X
X     X  X       X                     X
XXXXXXX  XXXX    X         XXXXX   XXXXX
X     X  X       X                X
X     X  X       X    X           X
X     X  XXXXXXX  XXXXX            XXXXXXX
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THIS RUN EXECUTED 12OCT00    16:40:52

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*************************************
 HEC-2 WATER SURFACE PROFILES
 Version   4.6.2;  May 1991
*************************************
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PA 25-26F.dat

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SPLIT FLOW BEING PERFORMED

SF      SPLIT   FLOW    PROBLEM

JC      SPLIT   FLOW    PROBLEM
JP      0       0       0       0       0

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35294    AND    35320
WS      2   35294   35320       -1      3.4
WC        1292.00   34.96 1291.50

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35320    AND    35337
WS      2   35320   35337       -1      3.4
WC        1291.50   12.28 1291.49

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35337    AND    35509
WS      2   35337   35509       -1      3.4
WC        1291.49     170 1291.54

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35509    AND    35705
WS      2   35509   35705       -1      3.4
WC        1291.54   196.8 1292.01

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35705    AND    35905
WS      2   35705   35905       -1      3.4
WC        1292.01     200 1292.51

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   35905    AND    36105
WS      2   35905   36105       -1      3.4
WC        1292.51     200 1292.66

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36105    AND    36296
WS      2   36105   36296       -1      3.4
WC        1292.66     200 1293.00
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TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36296    AND    36323
WS      2   36296   36323       -1      3.4
WC        1293.00   27.27 1293.00

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36323    AND    36361
WS      2   36323   36361       -1      3.4
WC        1293.00   52.86 1293.00

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36361    AND    36414
WS      2   36361   36414       -1      3.4
WC        1293.00      70 1292.93
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TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36414    AND    36466
WS      2   36414   36466       -1      3.4
WC        1292.93       50 1294.00

TW      RIGHT   BANK    NATURAL LEVEE   BETWEEN SECTIONS   36466    AND    36555
WS      2   36466   36555       -1      3.4
WC        1294.00   17.23 1294.00
1
   12OCT00      16:40:52                                                                                    PAGE    3

T1 HEC-2 Input Data file: SPLIT FLOW SOLUTION
T2 PA25-26F - LATERAL WEIR SPLIT FLOW Q= 300.00 CFS
T3 PA25-26F - LATERAL WEIR SPLIT FLOW Q= 300.00 CFS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0        2         0         0         0         0         0         0      1291.52      0

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

    -10

QT        1    300.00
NC   0.0170    0.0170    0.0300       0.3       0.5
X1    35294        12     75.00     95.00      0.00      0.00      0.00
GR   1293.9      0.00   1292.00     21.00   1291.00     41.00   1290.00     49.50   1289.00     58.00
GR   1288.0     75.00   1288.00     85.00   1288.00     95.00   1289.00    101.00   1290.00    107.00
GR   1291.0    113.00   1292.00    120.50

X1    35320         9    100.01    120.00     38.00     34.96     31.00
GR   1293.7     90.00   1293.70     99.00   1295.70     99.00   1295.70    100.00   1291.09    100.01
GR   1288.1    109.00   1288.09    111.00   1291.09    120.00   1291.50    161.23

X1    35337         9    100.01    120.00      8.00     12.28     21.00
GR   1293.7     71.43   1293.70     99.00   1296.00     99.00   1296.00    100.00   1290.70    100.01
GR   1288.1    109.00   1288.12    111.00   1291.00    120.00   1291.49    153.29

X1    35509         8    100.01    120.00    170.00    170.00    170.00
GR   1294.0     71.43   1294.00     99.00   1296.00     99.00   1296.00    100.00   1291.54    100.01
GR   1288.5    109.00   1288.54    111.00   1291.54    120.00

X1    35705         8    100.01    120.00    196.80    196.80    237.20
GR   1294.8     71.43   1294.80     99.00   1296.80     99.00   1296.80    100.00   1292.01    100.01
GR   1289.0    109.00   1289.01    111.00   1292.01    120.00

X1    35905         8    100.01    120.00    200.00    200.00    200.00
GR   1295.3     71.43   1295.30     99.00   1297.30     99.00   1297.30    100.00   1292.51    100.01
GR   1289.5    109.00   1289.51    111.00   1292.51    120.00

X1    36105         8    100.01    120.00    200.00    200.00    200.00
GR   1295.5     71.43   1295.50     99.00   1297.50     99.00   1297.50    100.00   1293.01    100.01
GR   1290.0    109.00   1290.01    111.00   1292.66    120.00

X1    36296         8    100.01    120.00    200.00    200.00    200.00
GR   1295.0     71.43   1295.00     99.00   1297.00     99.00   1297.00    100.00   1293.51    100.01
GR   1290.5    109.00   1290.51    111.00   1293.00    120.00

X1    36323         8    100.01    130.00     29.25     27.27     25.26
GR   1294.7     71.43   1294.70     99.00   1296.70     99.00   1296.70    100.00   1293.57    100.01
GR   1290.6    112.00   1290.57    118.00   1293.00    130.00
1
   12OCT00      16:40:52                                                                                    PAGE    4

X1    36361         8    100.01    130.00     52.86     52.86     52.86
GR   1294.4     71.43   1294.40     99.00   1296.40     99.00   1296.40    100.00   1293.70    100.01
GR   1290.7    112.00   1290.70    118.00   1293.00    130.00

X1    36414         8    100.00    130.00     70.00     70.00     70.00
GR   1294.4     71.43   1294.40     99.00   1296.33     99.00   1296.33    100.00   1291.08    100.01
GR   1290.9    115.00   1291.08    129.99   1292.93    130.00

X1    36466         9    100.00    130.00     50.00     50.00     50.00
GR   1294.3     71.43   1294.30     99.00   1296.00     99.00   1296.00    100.00   1291.20    100.01
GR   1291.0    115.00   1291.20    129.99   1293.00    130.00   1294.00    140.00

NH        3    0.0170    100.01    0.0250    247.00    0.0300    258.00
X1    36555        17    100.01    247.00     17.23     17.23     17.23
GR   1294.3     71.43   1294.30     99.00   1295.00     99.00   1295.00    100.00   1291.00    100.01
GR   1290.0    105.00   1289.00    109.00   1288.00    113.00   1288.00    118.00   1289.00    122.00
GR   1290.0    126.00   1290.00    195.00   1291.00    217.00   1292.00    231.00   1293.00    240.50
GR   1294.0    247.00   1294.00    258.00
1
PROFILE FOR STREAM  26F - LATERAL WEIR SPLIT

PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

ELEVATION  1288.     1289.     1290.     1291.     1292.     1293.     1294.     1295.     1296.     1297.
    SECNO   CUMDIS

 35294.00     0.  I        .         .         .    E    M         .         .         .         .         .         .
             10.  I        L         .         .    E  M  .         .         .         .         .         .         .
             20.  CI       .         L         .    E M   .         .         .         .         .         .         .
             30.  CI       .         .         L    E     .         .         .         .         .         .         .
 35320.00    40.  CI       .         .         .L   E     .         .         .         .         .         .         .
             50.  CI       .         .        LR    E     .         .         .         .         .         .         .
 35337.00    60.  CI       .         .      L  R    WE    .         .         .         .         .         .         .
             70.  CI       .         .      L  R    WE    .         .         .         .         .         .         .
             80.  CI       .         .       L .R   WE    .         .         .         .         .         .         .
             90.  C I      .         .       L .R   WE    .         .         .         .         .         .         .
            100.  C I      .         .        L.R   WE    .         .         .         .         .         .         .
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          110. C I       .         .        L. R  WE   .         .         .         .         .         .         .
          120. C I       .         .         L R  WE   .         .         .         .         .         .         .
          130. C  I      .         .         L R  WE   .         .         .         .         .         .         .
          140. C  I      .         .         .L R ME   .         .         .         .         .         .         .
          150. C  I      .         .         .L R ME   .         .         .         .         .         .         .
          160. C  I      .         .         . LR ME   .         .         .         .         .         .         .
          170. C   I     .         .         . LR ME   .         .         .         .         .         .         .
          180. C   I     .         .         .  LRME   .         .         .         .         .         .         .
          190. C   I     .         .         .  LRMWE  .         .         .         .         .         .         .
          200. C   I     .         .         .   LMWE  .         .         .         .         .         .         .
          210. C    I    .         .         .   LRWE  .         .         .         .         .         .         .
          220. C    I    .         .         .    LWE  .         .         .         .         .         .         .
35509.00  230. C    I    .         .         .    LWE  .         .         .         .         .         .         .
          240. C    I    .         .         .     WE  .         .         .         .         .         .         .
          250. C    I    .         .         .     WE  .         .         .         .         .         .         .
          260. C     I   .         .         .     WE  .         .         .         .         .         .         .
          270. C     I   .         .         .     LE  .         .         .         .         .         .         .
          280. C     I   .         .         .     LWE .         .         .         .         .         .         .
          290. C     I   .         .         .      WE .         .         .         .         .         .         .
          300. C     I   .         .         .      WE .         .         .         .         .         .         .
          310. C      I  .         .         .      WE .         .         .         .         .         .         .
          320. C      I  .         .         .      WE .         .         .         .         .         .         .
          330. C      I  .         .         .      WE .         .         .         .         .         .         .
          340. C      I  .         .         .      WE .         .         .         .         .         .         .
          350. C       I .         .         .       WE.         .         .         .         .         .         .
          360. C       I .         .         .       WE.         .         .         .         .         .         .
          370. C       I .         .         .       WE.         .         .         .         .         .         .
          380. C       I .         .         .       WE.         .         .         .         .         .         .
          390. C       I .         .         .       WE.         .         .         .         .         .         .
          400. C        I.         .         .       WE.         .         .         .         .         .         .
          410. C        I.         .         .       WE.         .         .         .         .         .         .
          420. C        I.         .         .       WLE         .         .         .         .         .         .
          430. C        I.         .         .        WE         .         .         .         .         .         .
          440. C        I.         .         .        WE         .         .         .         .         .         .
          450. C         I         .         .        WE         .         .         .         .         .         .
35705.00  460. C         I         .         .        WE         .         .         .         .         .         .
          470. C         I         .         .        WE         .         .         .         .         .         .
          480. C         .I        .         .        W.E        .         .         .         .         .         .
          490. C         .I        .         .         WE        .         .         .         .         .         .
          500. C         .I        .         .         WE        .         .         .         .         .         .
          510. C         .I        .         .         WE        .         .         .         .         .         .
          520. C         . I       .         .         WEL       .         .         .         .         .         .
          530. C         . I       .         .         W E       .         .         .         .         .         .
          540. C         . I       .         .         .WE       .         .         .         .         .         .
          550. C         . I       .         .         .WE       .         .         .         .         .         .
          560. C         .  I      .         .         .WEL      .         .         .         .         .         .
          570. C         .  I      .         .         .WEL      .         .         .         .         .         .
          580. C         .  I      .         .         .WEL      .         .         .         .         .         .
          590. C         .  I      .         .         .W E      .         .         .         .         .         .
          600. C         .  I      .         .         . WEL     .         .         .         .         .         .
          610. C         .   I     .         .         . WEL     .         .         .         .         .         .
          620. C         .   I     .         .         . WEL     .         .         .         .         .         .
          630. C         .   I     .         .         . WEL     .         .         .         .         .         .
          640. C         .   I     .         .         . W EL    .         .         .         .         .         .
          650. C         .    I    .         .         . W EL    .         .         .         .         .         .
35905.00  660. C         .    I    .         .         .  WEL    .         .         .         .         .         .
          670. C         .    I    .         .         .  WEL    .         .         .         .         .         .
          680. C         .     I   .         .         .  WERL   .         .         .         .         .         .
          690. C         .     I   .         .         .  W EL   .         .         .         .         .         .
          700. C         .     I   .         .         .  W EL   .         .         .         .         .         .
          710. C         .     I   .         .         .   WEL   .         .         .         .         .         .
          720. C         .      I  .         .         .   WERL  .         .         .         .         .         .
          730. C         .      I  .         .         .   WERL  .         .         .         .         .         .
          740. C         .      I  .         .         .   W EL  .         .         .         .         .         .
          750. C         .      I  .         .         .    WEL  .         .         .         .         .         .
          760. C         .       I .         .         .    WE L .         .         .         .         .         .
          770. C         .       I .         .         .    WE L .         .         .         .         .         .
          780. C         .       I .         .         .    WREL .         .         .         .         .         .
          790. C         .       I .         .         .    WREL .         .         .         .         .         .
          800. C         .       I .         .         .     WE L.         .         .         .         .         .
          810. C         .        I.         .         .     WE L.         .         .         .         .         .
          820. C         .        I.         .         .     WE L.         .         .         .         .         .
          830. C         .        I.         .         .     W EL.         .         .         .         .         .
          840. C         .        I.         .         .     W E L         .         .         .         .         .
          850. C         .         I         .         .      WE L         .         .         .         .         .
36105.00  860. C         .         I         .         .      WE L         .         .         .         .         .
          870. C         .         I         .         .      W EL         .         .         .         .         .
          880. C         .         .I        .         .      W E.L        .         .         .         .         .
          890. C         .         .I        .         .      RWE.L        .         .         .         .         .
          900. C         .         .I        .         .      RWE.L        .         .         .         .         .
          910. C         .         .I        .         .      RW EL        .         .         .         .         .
          920. C         .         . I       .         .       W E L       .         .         .         .         .
          930. C         .         . I       .         .       RWE L       .         .         .         .         .
          940. C         .         . I       .         .       RW.EL       .         .         .         .         .
          950. C         .         . I       .         .       RW.EL       .         .         .         .         .
          960. C         .         .  I      .         .       RW.E L      .         .         .         .         .
          970. C         .         .  I      .         .       R W EL      .         .         .         .         .
          980. C         .         .  I      .         .        RW EL      .         .         .         .         .
          990. C         .         .  I      .         .        RW EL      .         .         .         .         .
         1000. C         .         .   I     .         .        RW E L     .         .         .         .         .
         1010. C         .         .   I     .         .        R.W EL     .         .         .         .         .
         1020. C         .         .   I     .         .        R.W EL     .         .         .         .         .
         1030. C         .         .   I     .         .        R.W EL     .         .         .         .         .
         1040. C         .         .    I    .         .         RW  EL    .         .         .         .         .
         1050. C         .         .    I    .         .         R W EL    .         .         .         .         .
36296.00 1060. C         .         .    I    .         .         R W EL    .         .         .         .         .
         1070. C         .         .    I    .         .         R  W E    .         .         .         .         .
         1080. C         .         .     I   .         .         R   WEL   .         .         .         .         .
36323.00 1090. C         .         .     I   .         .         R   WEL   .         .         .         .         .
         1100. C         .         .     I   .         .         R   WEL   .         .         .         .         .
         1110. C         .         .     I   .         .         R   W E   .         .         .         .         .
         1120. C         .         .     I   .         .         R   W E   .         .         .         .         .
         1130. C         .         .      I  .         .         R    WEL  .         .         .         .         .
36361.00 1140. C         .         .      I  .         .         R    W E  .         .         .         .         .
         1150. C         .         .      I  .         .         R    W E  .L        .         .         .         .
         1160. C         .         .       I .         .         R    W E  .    L    .         .         .         .
         1170. C         .         .       I .         .         R    W E  .       L .         .         .         .
         1180. C         .         .       I .         .         R    W E  .         . L       .         .         .
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                1190.  C        .        .       I .        .        R     W E .        .       L  .        .        .
                1200.  C        .        .        I.        .       R.     W E .        .          L        .        .
   36414.00     1210.  C        .        .        I.        .       R.     W E .        .          .  L     .        .
                1220.  C        .        .        I.        .      R.M     W E .        .          .  L     .        .
                1230.  C        .        .        I.        .        R   M W E .        .          . L      .        .
                1240.  C        .        .         I        .        R     W  E.        .          .L       .        .
                1250.  C        .        .         I        .        R      WME.        .          .L       .        .
   36466.00     1260.  C        .        .         I        .        R      W EM        .          L        .        .
                1270.  C        . I      .         .        .       .L    R WEM        .          .        .        .
   36555.00     1280.  I        .        .         L        .        .        E        .          .        .        .
1
   12OCT00      16:40:52                                                                                          PAGE    5
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THIS RUN EXECUTED 12OCT00 16:40:52

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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

26F - LATERAL WEIR SPLIT

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35294.000 | .00 | .00 | .00 | 1288.00 | 75.48 | 1291.52 | .00 | 1291.52 | .08 | .33 | 187.66 | 262.14 |
| * 35320.000 | 31.00 | .00 | .00 | 1288.09 | 75.48 | 1291.50 | .00 | 1291.54 | 4.76 | 1.70 | 49.69 | 34.58 |
| 35337.000 | 21.00 | .00 | .00 | 1288.10 | 75.56 | 1291.52 | .00 | 1291.55 | 3.91 | 1.60 | 52.21 | 38.23 |
| * 35509.000 | 170.00 | .00 | .00 | 1288.50 | 80.64 | 1291.60 | .00 | 1291.69 | 11.61 | 2.34 | 34.42 | 23.67 |
| 35705.000 | 237.20 | .00 | .00 | 1289.00 | 82.25 | 1291.91 | .00 | 1292.02 | 16.12 | 2.64 | 31.15 | 20.48 |
| 35905.000 | 200.00 | .00 | .00 | 1289.50 | 82.25 | 1292.27 | .00 | 1292.40 | 20.79 | 2.90 | 28.32 | 18.04 |
| 36105.000 | 200.00 | .00 | .00 | 1290.00 | 82.38 | 1292.69 | .00 | 1292.82 | 21.50 | 2.91 | 28.32 | 17.77 |
| 36296.000 | 200.00 | .00 | .00 | 1290.50 | 110.56 | 1293.20 | .00 | 1293.43 | 35.17 | 3.78 | 29.25 | 18.64 |
| * 36323.000 | 25.26 | .00 | .00 | 1290.57 | 126.69 | 1293.42 | .00 | 1293.51 | 11.28 | 2.40 | 52.74 | 37.72 |
| 36361.000 | 52.86 | .00 | .00 | 1290.70 | 176.96 | 1293.46 | .00 | 1293.65 | 23.97 | 3.46 | 51.18 | 36.15 |
| * 36414.000 | 70.00 | .00 | .00 | 1290.90 | 274.87 | 1293.60 | .00 | 1293.79 | 17.34 | 3.52 | 78.07 | 66.01 |
| 36466.000 | 50.00 | .00 | .00 | 1291.00 | 300.00 | 1293.67 | .00 | 1293.90 | 20.26 | 3.83 | 79.44 | 66.65 |
| * 36555.000 | 17.23 | .00 | .00 | 1288.00 | 300.00 | 1293.96 | .00 | 1293.97 | .17 | .57 | 527.19 | 732.50 |

1
12OCT00 16:40:52 PAGE 6

26F - LATERAL WEIR SPLIT

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 35294.000 | 75.48 | 1291.52 | .00 | .00 | .00 | 86.30 | .00 |
| * 35320.000 | 75.48 | 1291.50 | .00 | -.02 | .00 | 61.22 | 31.00 |
| 35337.000 | 75.56 | 1291.52 | .00 | .02 | .00 | 53.28 | 21.00 |
| * 35509.000 | 80.64 | 1291.60 | .00 | .08 | .00 | 19.99 | 170.00 |
| 35705.000 | 82.25 | 1291.91 | .00 | .31 | .00 | 19.41 | 237.20 |
| 35905.000 | 82.25 | 1292.27 | .00 | .35 | .00 | 18.52 | 200.00 |
| 36105.000 | 82.38 | 1292.69 | .00 | .42 | .00 | 19.03 | 200.00 |
| 36296.000 | 110.56 | 1293.20 | .00 | .52 | .00 | 19.06 | 200.00 |
| * 36323.000 | 126.69 | 1293.42 | .00 | .22 | .00 | 29.39 | 25.26 |
| 36361.000 | 176.96 | 1293.46 | .00 | .04 | .00 | 29.04 | 52.86 |
| * 36414.000 | 274.87 | 1293.60 | .00 | .13 | .00 | 29.99 | 70.00 |
| 36466.000 | 300.00 | 1293.67 | .00 | .08 | .00 | 36.73 | 50.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| * | 36555.000 | 300.00 | 1293.96 | .00 | .29 | .00 | 146.74 | 17.23 |

1



SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 35320.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 35509.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 36323.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 36414.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 36555.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

example

```
SF SPLIT FLOW PROBLEM
JC SPLIT FLOW PROBLEM
JP     0       0       0       0       0

TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   13582    AND    13700
WS     2   13582   13700      -1     3.4
WC       1284.00  118.00 1282.90

TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   13700    AND    14000
WS     2   13700   14000      -1     3.4
WC       1282.90  300.00 1282.00

TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14000    AND    14100
WS     2   14000   14100      -1     3.4
WC       1282.00  100.00 1283.00

TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14100    AND    14200
WS     2   14100   14200      -1     3.4
WC       1283.00  100.00 1284.00

TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14200    AND    14300
WS     2   14200   14300      -1     3.4
WC       1284.00  100.00 1284.00

TW      RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14900    AND    15200
WS     2   14900   15200      -1     3.4
WC       1284.00  300.00 1284.00

TW      RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   15200    AND    15500
WS     2   15200   15500      -1     3.4
WC       1284.00  300.00 1284.00

TW      RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   15500    AND    15750
WS     2   15500   15750      -1     3.4
WC       1284.00  250.00 1284.00
EE
T1      HEC-2 Input   Data    file:   SPLIT    FLOW    SOLUTION
T2      CHN128 - LATERAL WEIR SPLIT FLOW Q= 155 CFS
T3      CHN128 - LATERAL WEIR SPLIT FLOW Q= 155 CFS
J1     0       5       0       0 .001237       0       0       0 1284.00       0
J5   -10     -10
QT     5   89.00  115.00  140.00  155.00  205.00
NC0.0450  0.0350  0.0350     0.1     0.3
X1 13582      37 9964.7310000.00    0.00    0.00    0.00
GR1284.0 9940.05 1283.98 9940.08 1283.99 9940.10 1283.99 9940.11 1283.99 9940.25
GR1284.0 9940.26 1283.99 9940.28 1283.99 9940.34 1283.99 9940.41 1283.99 9940.46
GR1284.0 9940.48 1283.99 9940.50 1283.98 9940.53 1283.98 9940.60 1283.97 9940.74
GR1284.0 9940.95 1283.96 9941.17 1284.00 9941.79 1284.00 9942.65 1284.00 9943.30
GR1284.0 9946.51 1284.00 9948.10 1284.00 9949.62 1284.00 9952.57 1284.00 9954.57
GR1284.0 9964.73 1283.02 9968.55 1282.22 9971.25 1282.00 9972.08 1280.00 9979.60
GR1278.1 9983.20 1280.00 9986.24 1281.30 9991.28 1282.00 9992.45 1282.93 9993.94
GR1284.0 9995.82 1284.0010000.00
X1 13700      16 9967.7910000.00  118.00  118.00  118.00
GR1282.9 9967.79 1282.60 9968.89 1282.20 9970.83 1282.00 9971.43 1280.75 9974.60
GR1280.0 9976.34 1278.11 9979.33 1280.00 9982.10 1281.36 9984.58 1282.00 9985.65
GR1282.2 9985.98 1284.00 9989.37 1284.47 9999.68 1284.47 9999.75 1284.48 9999.94
GR1284.510000.00
X1 14000      10 9963.8010000.00  300.00  300.00  300.00
GR1282.0 9963.80 1282.00 9965.57 1281.43 9967.11 1278.40 9974.60 1280.00 9977.92
GR1280.7 9979.14 1282.00 9981.63 1283.10 9983.42 1284.00 9985.11 1284.0010000.00
X1 14100      14 9962.2410000.00  100.00  100.00  100.00
GR1283.0 9962.24 1282.46 9965.05 1281.76 9966.82 1280.68 9969.42 1279.76 9971.09
GR1278.4 9975.00 1279.76 9978.71 1279.97 9979.20 1281.16 9981.30 1281.62 9982.20
GR1281.8 9982.49 1282.46 9983.79 1284.00 9986.52 1284.0010000.00
X1 14200      14 9962.2410000.00  100.00  100.00  100.00
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```

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GR1285.7 9304.74 1285.65 9329.46 1285.65 9336.21 1285.54 9352.68 1285.53 9362.72
GR1285.4 9373.11 1285.39 9384.32 1285.40 9396.09 1285.24 9405.27 1285.10 9415.00
GR1285.0 9424.76 1284.38 9525.97 1284.38 9542.27 1284.38 9567.22 1284.38 9601.08
GR1284.4 9629.04 1284.38 9656.22 1284.34 9659.30 1284.33 9660.48 1284.33 9663.77
GR1284.3 9667.99 1284.28 9673.37 1284.24 9680.25 1284.18 9689.49 1284.10 9700.00
GR1284.1 9702.38 1284.00 9713.05 1284.00 9721.01 1284.00 9756.39 1284.00 9768.53
GR1284.0 9771.25 1284.00 9862.26 1284.00 9862.54 1284.00 9863.29 1284.00 9962.24
GR1282.7 9965.05 1282.00 9966.82 1280.92 9969.42 1280.00 9971.09 1278.68 9975.00
GR1280.0 9978.71 1280.21 9979.20 1281.40 9981.30 1281.86 9982.20 1282.00 9982.49
GR1282.7 9983.79 1284.00 9986.52 1284.0010000.00
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GR1285.8 9452.72 1285.76 9471.57 1284.98 9550.29 1284.88 9565.91 1284.80 9575.21
GR1284.7 9583.70 1284.64 9597.36 1284.55 9609.89 1284.49 9620.27 1284.45 9627.64
GR1284.4 9636.14 1284.40 9645.58 1284.40 9655.79 1284.39 9665.38 1284.36 9674.53
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GR1284.0 9734.06 1284.00 9734.48 1284.00 9816.10 1284.00 9828.24 1284.00 9950.37
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GR1279.0 9974.45 1280.00 9976.90 1280.62 9978.11 1282.00 9980.99 1283.04 9983.19
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GR1284.1 9654.29 1284.08 9663.19 1284.02 9690.76 1284.00 9692.87 1284.00 9693.17
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GR1285.5 9894.05 1285.60 9895.05 1285.55 9896.06 1285.53 9896.97 1284.89 9918.28
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GR1284.6 9959.24 1284.70 9959.51 1284.99 9963.36 1285.64 9966.69 1285.72 9967.24
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EJ
ER
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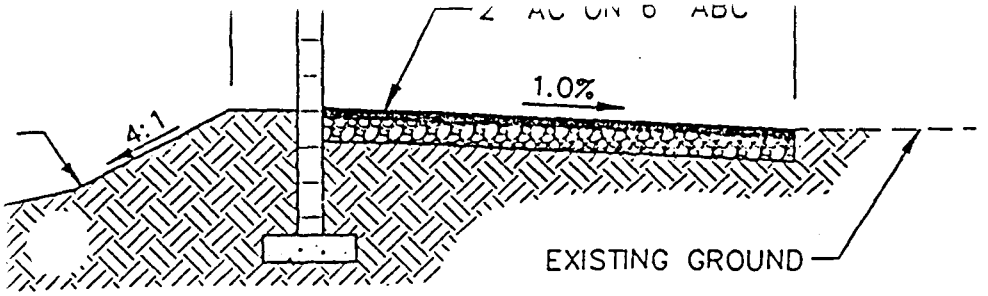


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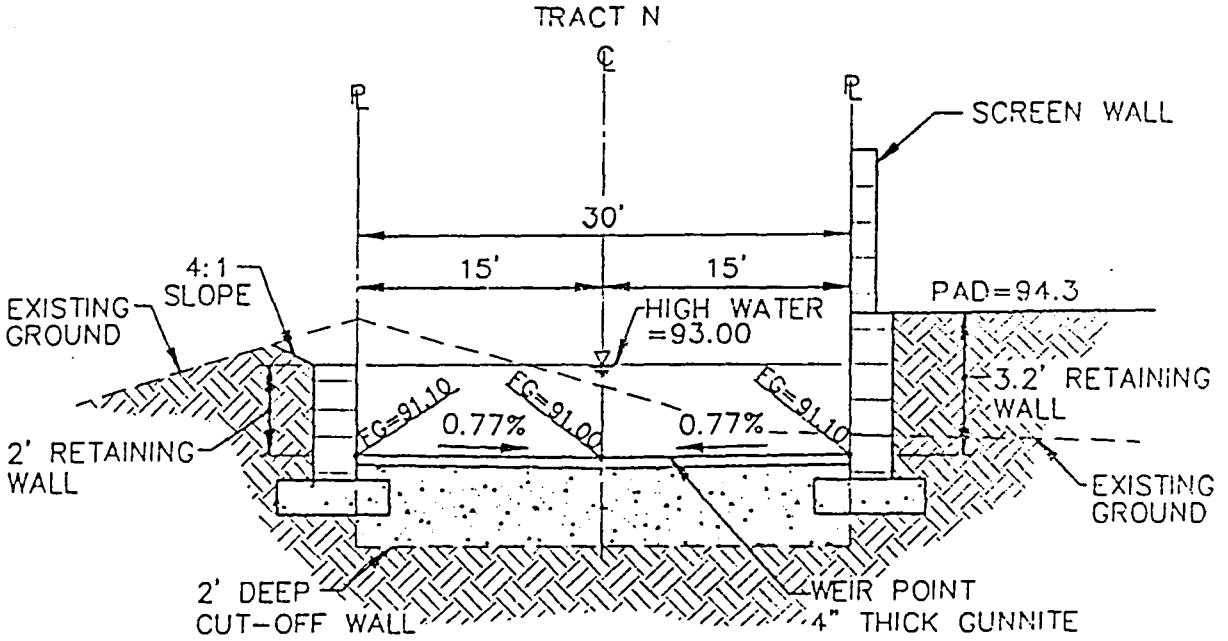


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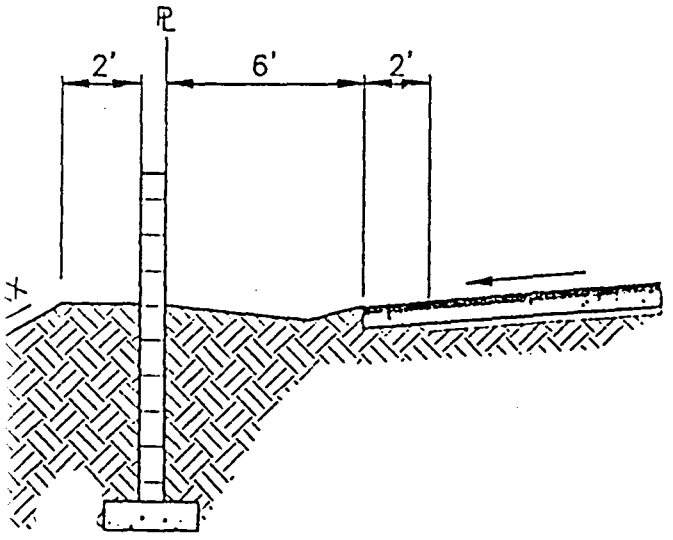
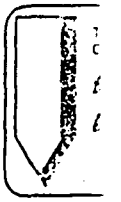


MESA NORTHGR
IMPROVEMENT PI

AMERICAN ENGINEE
consulting engineers,
21442 NORTH 20TH AVENUE . PHOENIX, ARIZO

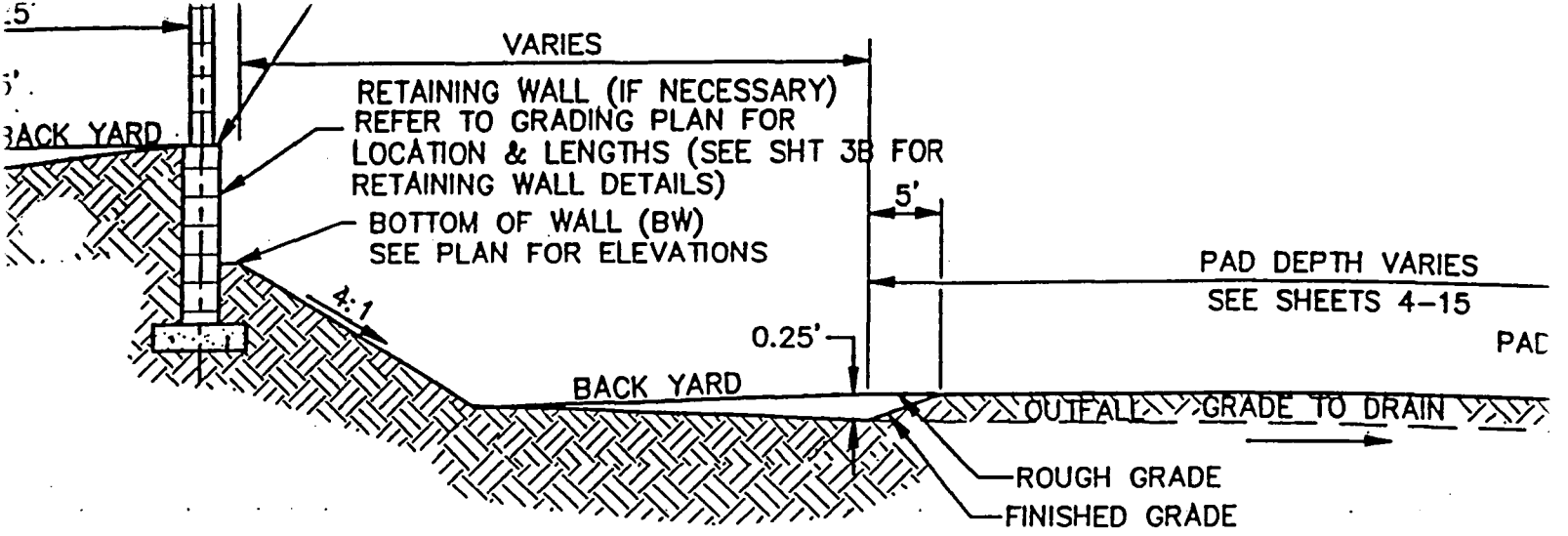
Registered Professional Engineer (Civil)
CERTIFICATE NO.
31317
KENNETH M.

| LAYOUT | DRA |
|---|---|
| DJP | W |

DRAWING SCALE(S) 1" =

ORIGINAL PLAN DATE OCT /

CTION CC–CC

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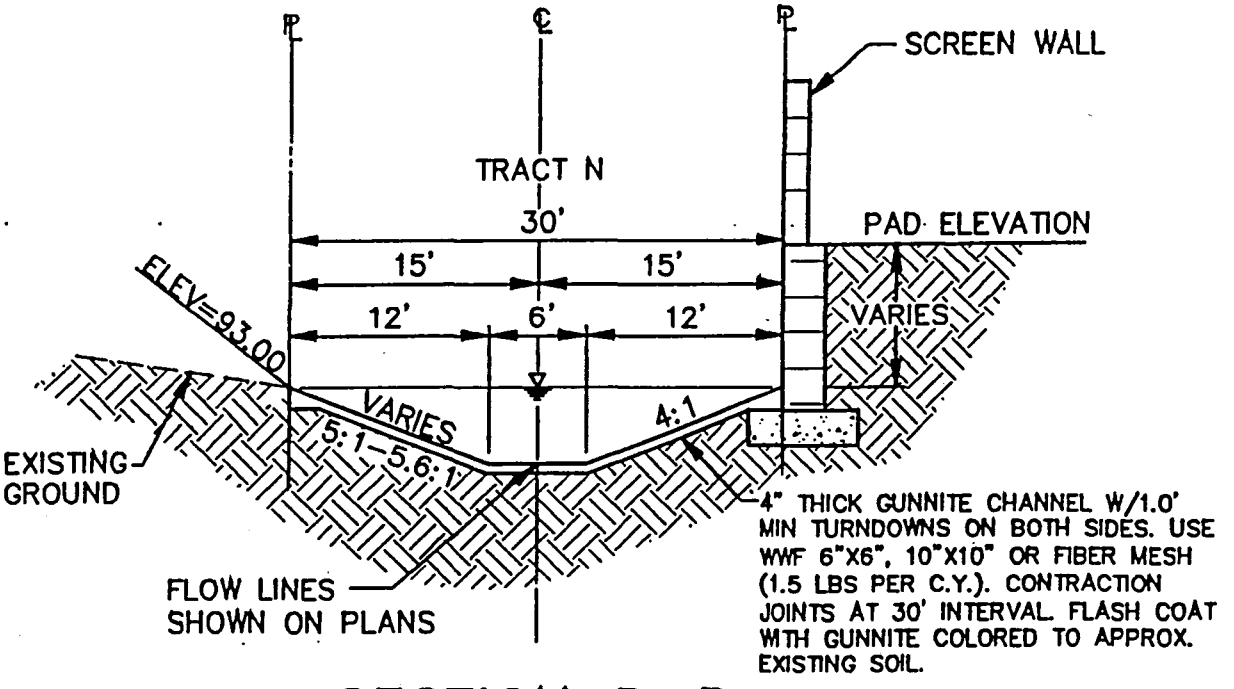


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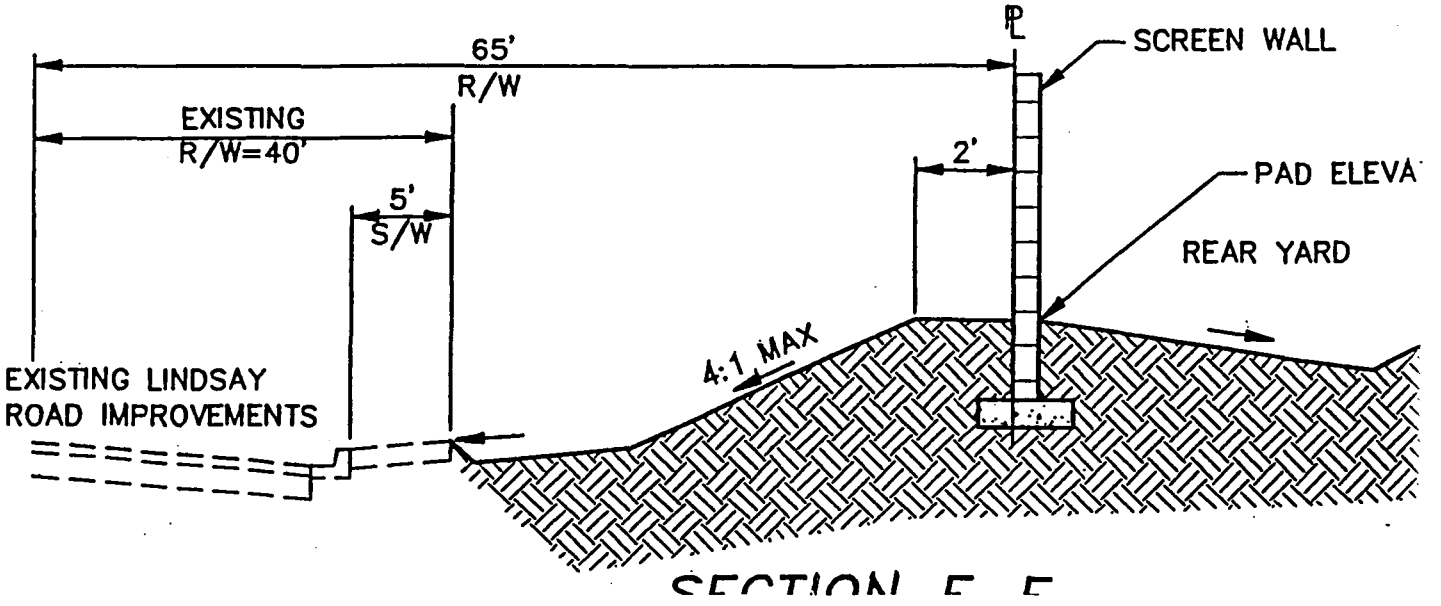

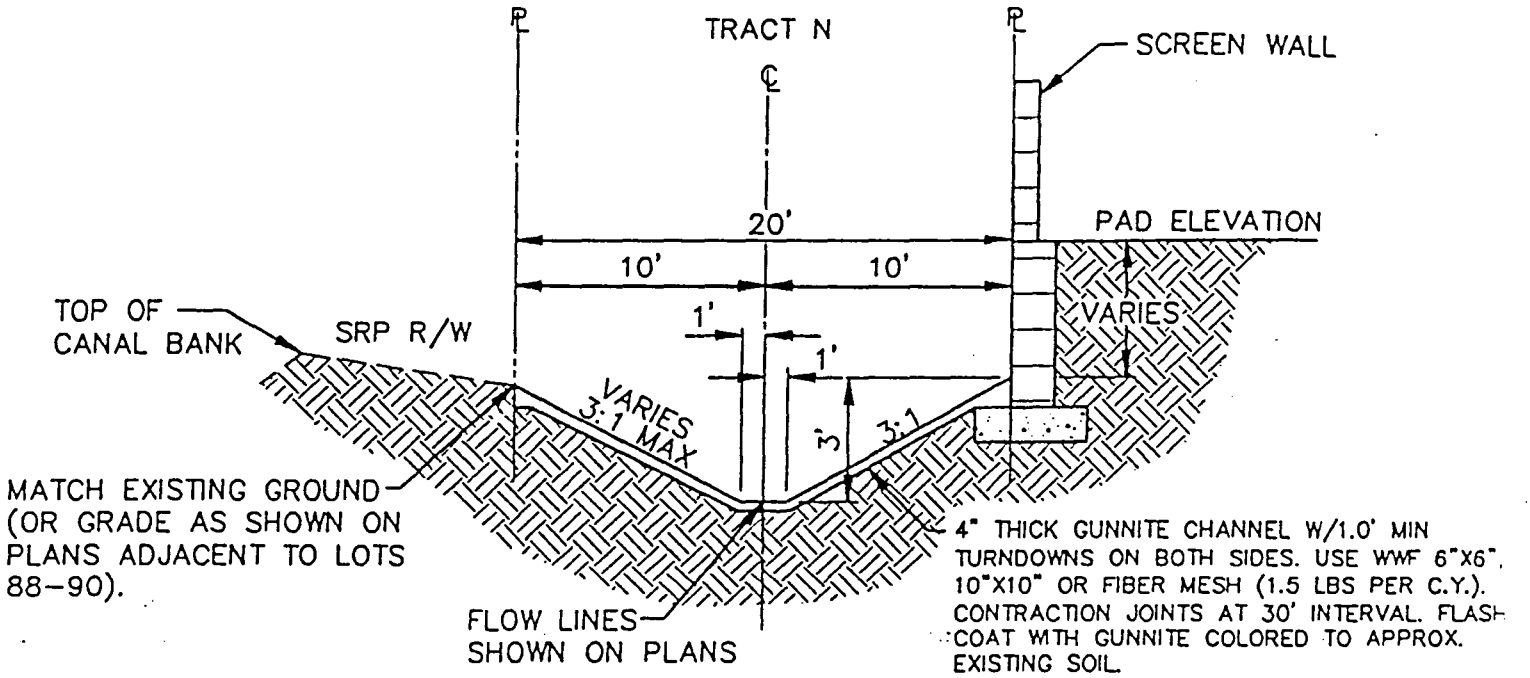


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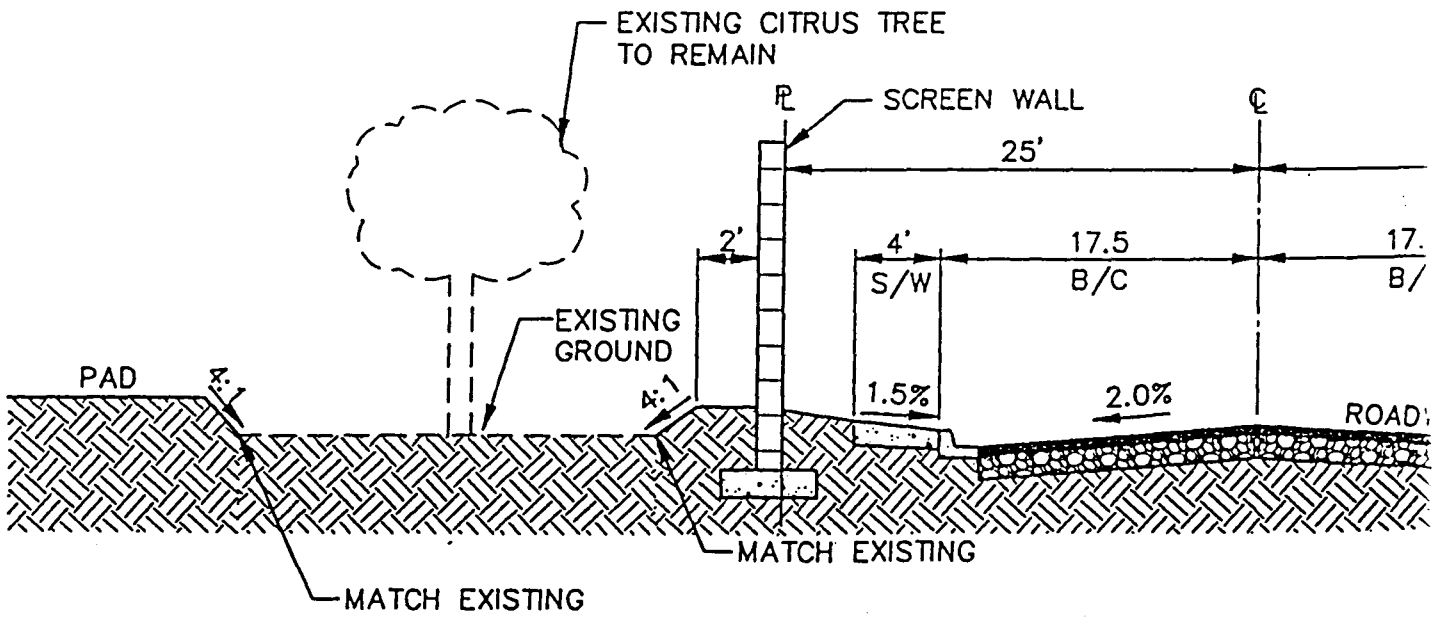


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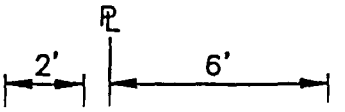
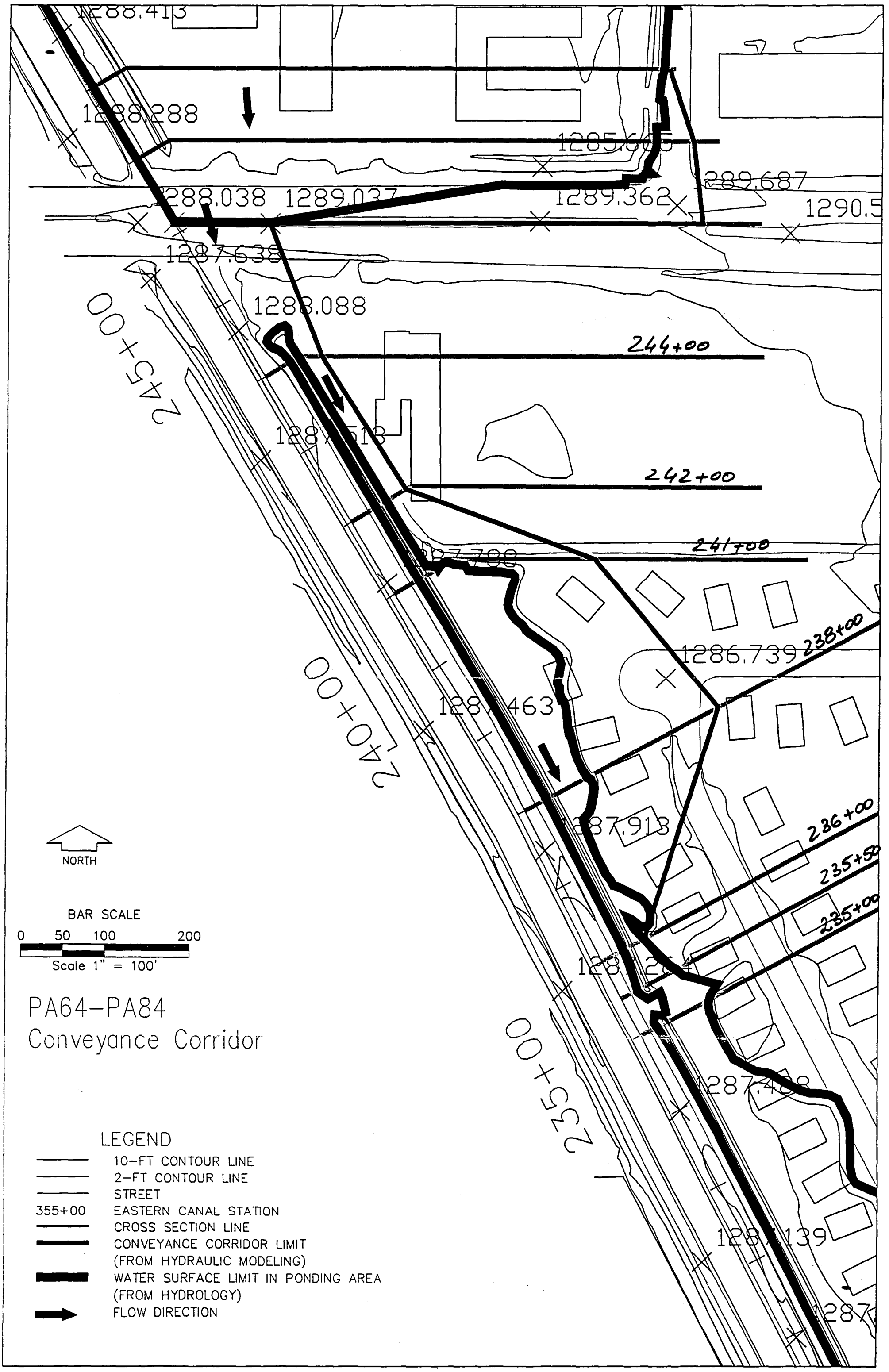
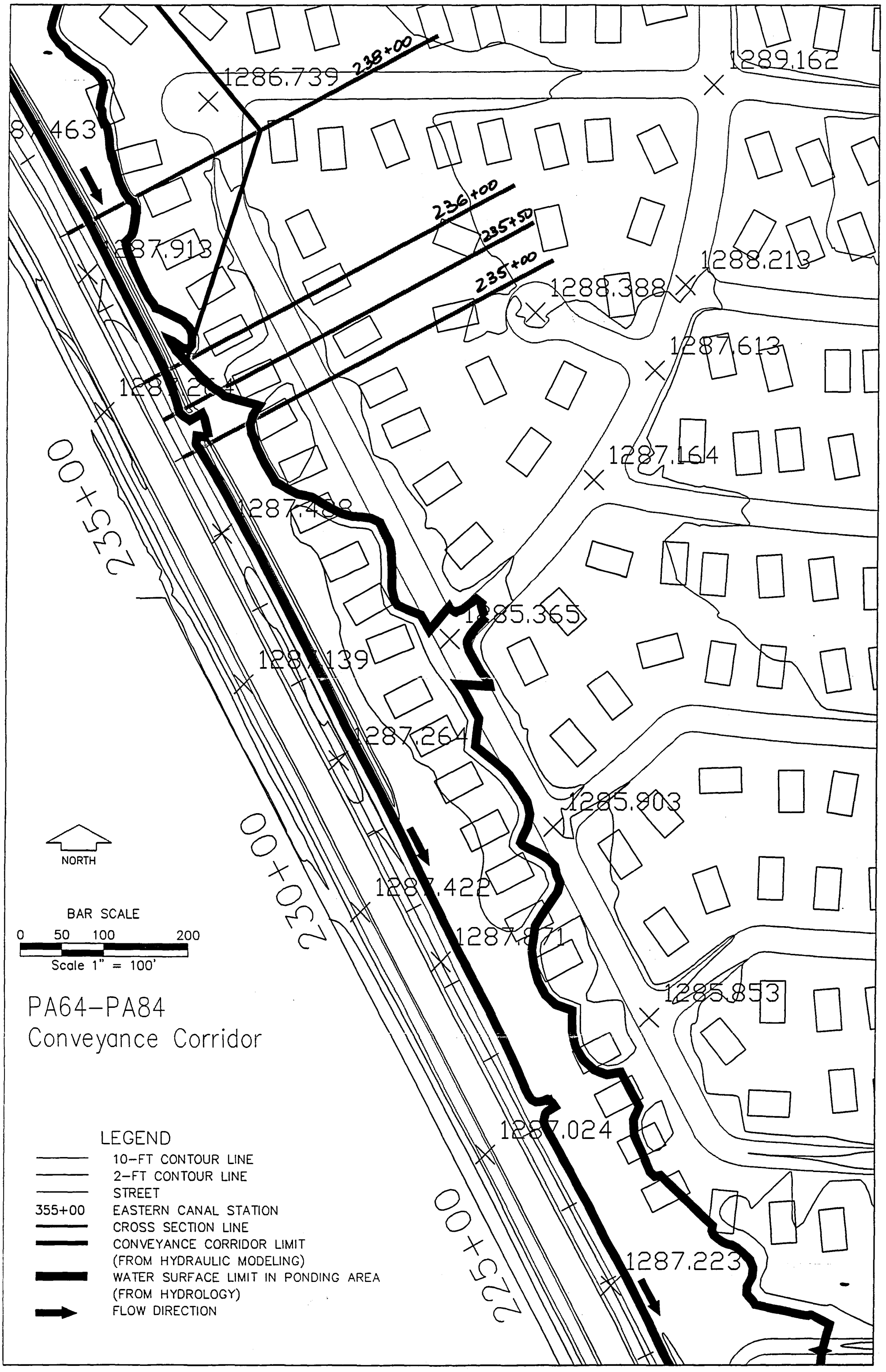


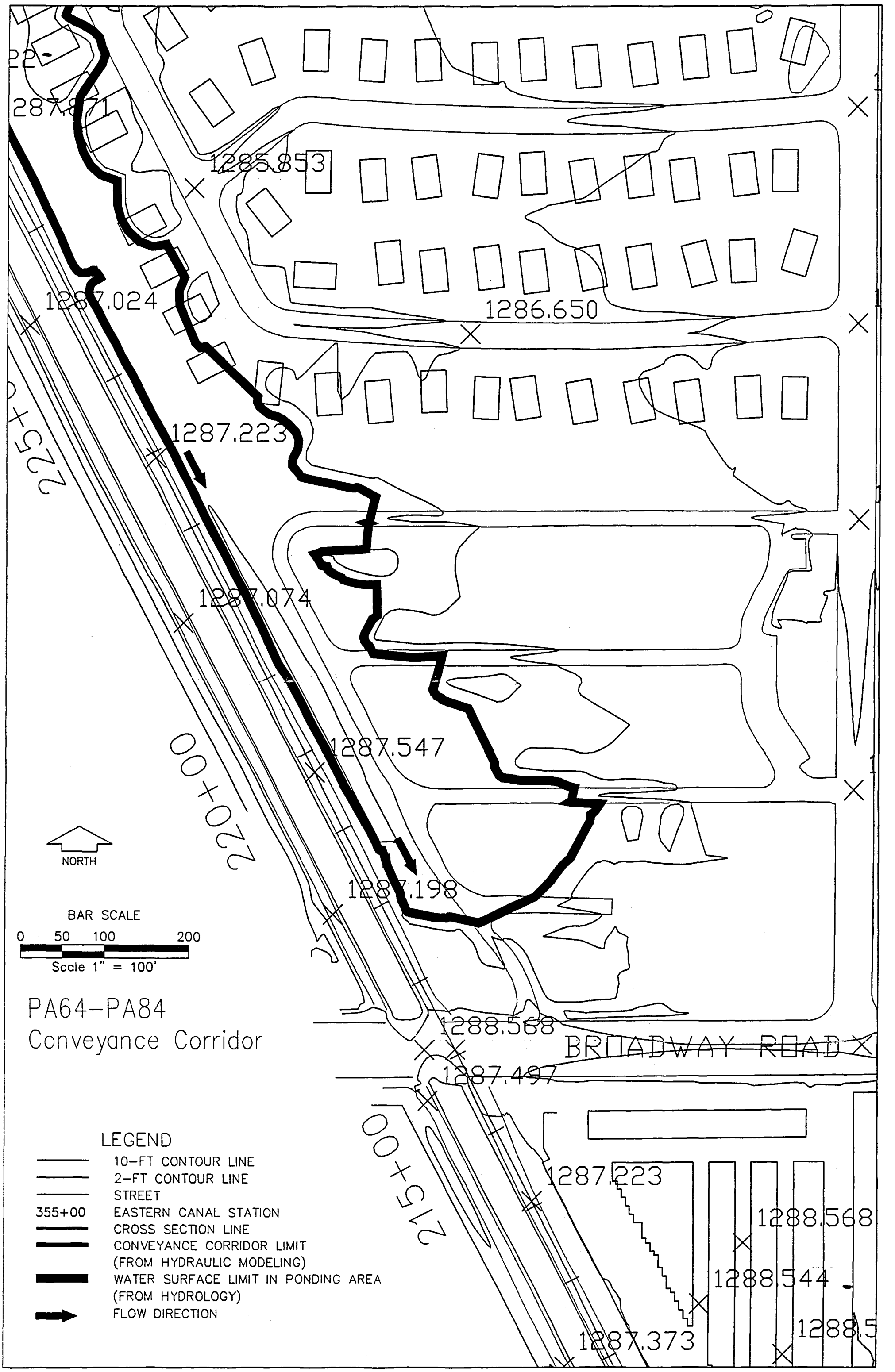
# Appendix E.3

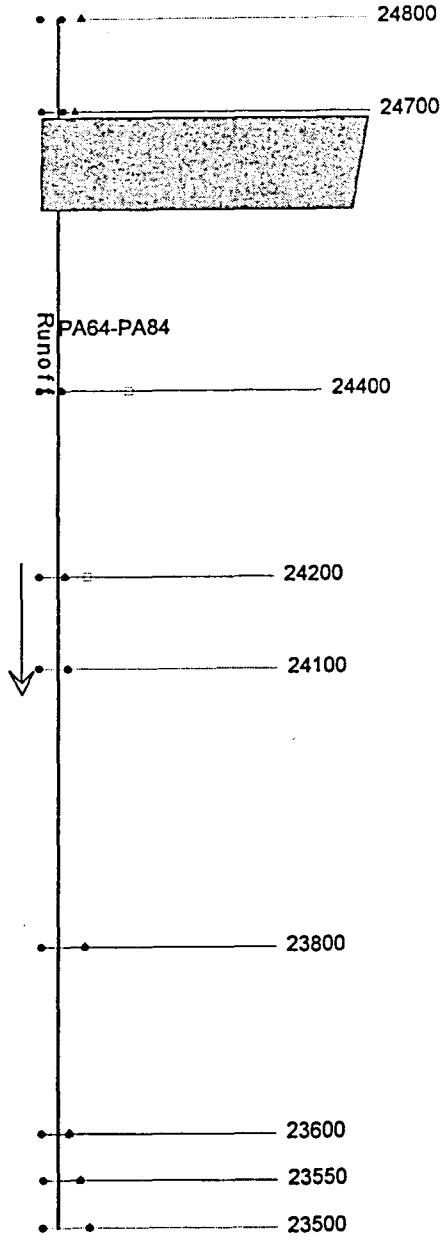
## Hydraulic Modeling of PA64-PA84 Conveyance Corridor

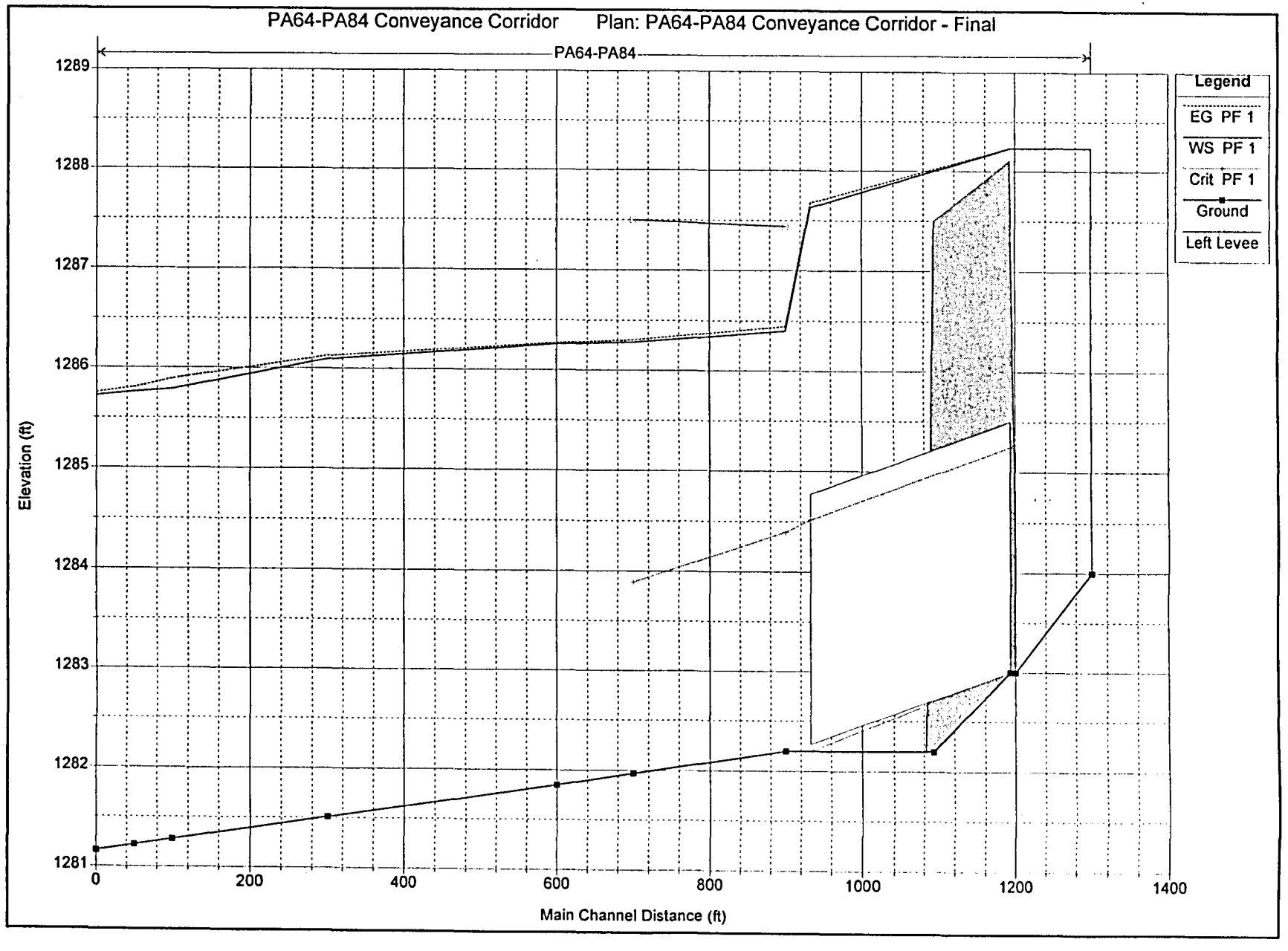
- HEC-RAS Modeling of Runoff Flows within Ponding Areas
  - Geometry – Plan View
  - Flow Profile
  - Summary Table(s)
  - Cross Section Summary Tables
  - Geometry – Cross Sections
  - HEC-RAS Report


1288.413
1288.288
1288.038
1289.037
1289.362
1289.687
1290.5
1287.638
1288.088
244+00
243+00
242+00
241+00
238+00
1286.739
240+00
236+00
235+50
235+00
234+00
NORTH
BAR SCALE
0 50 100 200
Scale 1" = 100'
PA64–PA84
Conveyance Corridor
LEGEND
10–FT CONTOUR LINE
2–FT CONTOUR LINE
STREET
355+00 EASTERN CANAL STATION
CROSS SECTION LINE
CONVEYANCE CORRIDOR LIMIT (FROM HYDRAULIC MODELING)
WATER SURFACE LIMIT IN PONDING AREA (FROM HYDROLOGY)
FLOW DIRECTION


238+00
236+00
235+50
235+00
234+00
233+00
232+00
231+00
230+00
229+00
228+00
227+00
226+00
225+00
1286.739
1289.162
1287.913
1288.213
1288.388
1287.613
1287.164
1287.458
1285.365
1287.264
1285.803
1287.422
1285.853
1287.024
1287.223
NORTH
BAR SCALE
0 50 100 200
Scale 1" = 100'
PA64–PA84
Conveyance Corridor
LEGEND
10–FT CONTOUR LINE
2–FT CONTOUR LINE
STREET
355+00 EASTERN CANAL STATION
CROSS SECTION LINE
CONVEYANCE CORRIDOR LIMIT (FROM HYDRAULIC MODELING)
WATER SURFACE LIMIT IN PONDING AREA (FROM HYDROLOGY)
FLOW DIRECTION


1285.853
1287.024
1286.650
1287.223
1287.074
1287.547
1287.198
1288.568
1287.497
BROADWAY ROAD
1287.223
1288.568
1288.544
1287.373
225+00
220+00
215+00
NORTH
BAR SCALE
0 50 100 200
Scale 1" = 100'
PA64–PA84
Conveyance Corridor
LEGEND
10–FT CONTOUR LINE
2–FT CONTOUR LINE
STREET
355+00 EASTERN CANAL STATION
CROSS SECTION LINE
CONVEYANCE CORRIDOR LIMIT (FROM HYDRAULIC MODELING)
WATER SURFACE LIMIT IN PONDING AREA (FROM HYDROLOGY)
FLOW DIRECTION


24800
24700
PA64-PA84
Runoff
24400
24200
24100
23800
23600
23550
23500


PA64-PA84 Conveyance Corridor Plan: PA64-PA84 Conveyance Corridor - Final
PA64-PA84
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Left Levee
Elevation (ft)
1289
1288
1287
1286
1285
1284
1283
1282
1281
0
200
400
600
800
1000
1200
1400
Main Channel Distance (ft)

HEC-RAS Plan: PA64-PA84 Co River: Runoff Reach: PA64-PA84 Profile: PF 1

| Reach | River Sta | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| PA64-PA84 | 24800 | 50.00 | 1284.00 | 1288.24 | | 1288.24 | 0.000032 | 0.35 | 155.18 | 676.37 | 0.05 |
| PA64-PA84 | 24700 | 50.00 | 1283.00 | 1288.23 | 1285.28 | 1288.23 | 0.000051 | 0.46 | 119.34 | 618.26 | 0.06 |
| PA64-PA84 | 24693 | Culvert | | | | | | | | | |
| PA64-PA84 | 24400 | 50.00 | 1282.20 | 1286.40 | 1284.40 | 1286.44 | 0.000751 | 1.69 | 29.56 | 42.32 | 0.21 |
| PA64-PA84 | 24200 | 50.00 | 1281.97 | 1286.28 | 1283.89 | 1286.31 | 0.000554 | 1.24 | 40.22 | 49.42 | 0.18 |
| PA64-PA84 | 24100 | 50.00 | 1281.85 | 1286.26 | | 1286.27 | 0.000193 | 0.85 | 58.82 | 223.49 | 0.11 |
| PA64-PA84 | 23800 | 136.00 | 1281.51 | 1286.09 | | 1286.13 | 0.000755 | 1.45 | 93.74 | 142.31 | 0.21 |
| PA64-PA84 | 23600 | 136.00 | 1281.28 | 1285.79 | | 1285.89 | 0.001907 | 2.61 | 52.08 | 28.57 | 0.34 |
| PA64-PA84 | 23550 | 136.00 | 1281.22 | 1285.76 | | 1285.80 | 0.000991 | 1.71 | 79.58 | 52.82 | 0.25 |
| PA64-PA84 | 23500 | 136.00 | 1281.16 | 1285.72 | 1283.74 | 1285.75 | 0.000787 | 1.43 | 95.32 | 69.85 | 0.22 |

HEC-RAS Plan: PA64-PA84 Co River: Runoff Reach: PA64-PA84 Profile: PF 1

| Reach | River Sta | E.G. US. | W.S. US. | E.G. IC | E.G. OC | Min El Weir Flow | Culv Q | Q Weir | Delta WS | Culv Vel US | Culv Vel DS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (ft) | (ft) | (ft) | (ft) | (ft) | (cfs) | (cfs) | (ft) | (ft/s) | (ft/s) |
| PA64-PA84 | 24693 Culvert PA64 | 1288.23 | 1288.23 | 1288.23 | 1288.49 | 1288.12 | 46.43 | 3.57 | 1.83 | 9.46 | 9.46 |

Plan: PA64-PA84 Co Runoff PA64-PA84 RS: 24800 Profile: PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1288.24 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.045 | 0.035 | |
| W.S. Elev (ft) | 1288.24 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 86.82 | 68.36 | |
| E.G. Slope (ft/ft) | 0.000032 | Area (sq ft) | 407.22 | 68.36 | |
| Q Total (cfs) | 50.00 | Flow (cfs) | 26.04 | 23.96 | |
| Top Width (ft) | 676.37 | Top Width (ft) | 638.42 | 37.95 | |
| Vel Total (ft/s) | 0.32 | Avg. Vel. (ft/s) | 0.30 | 0.35 | |
| Max Chl Dpth (ft) | 4.23 | Hydr. Depth (ft) | 2.04 | 1.80 | |
| Conv. Total (cfs) | 8850.9 | Conv. (cfs) | 4609.9 | 4241.1 | |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 42.58 | 38.70 | |
| Min Ch El (ft) | 1284.00 | Shear (lb/sq ft) | 0.00 | 0.00 | |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.00 | 0.00 | |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 2.03 | 1.83 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 4.95 | 1.10 | |

Plan: PA64-PA84 Co Runoff PA64-PA84 RS: 24700 Profile: PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1288.23 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.045 | 0.035 | |
| W.S. Elev (ft) | 1288.23 | Reach Len. (ft) | 300.00 | 300.00 | 300.00 |
| Crit W.S. (ft) | 1285.28 | Flow Area (sq ft) | 45.18 | 74.16 | |
| E.G. Slope (ft/ft) | 0.000051 | Area (sq ft) | 282.09 | 74.16 | |
| Q Total (cfs) | 50.00 | Flow (cfs) | 15.64 | 34.36 | |
| Top Width (ft) | 618.26 | Top Width (ft) | 580.46 | 37.81 | |
| Vel Total (ft/s) | 0.42 | Avg. Vel. (ft/s) | 0.35 | 0.46 | |
| Max Chl Dpth (ft) | 5.23 | Hydr. Depth (ft) | 1.78 | 1.96 | |
| Conv. Total (cfs) | 6991.6 | Conv. (cfs) | 2186.3 | 4805.3 | |
| Length Wtd. (ft) | 300.00 | Wetted Per. (ft) | 25.47 | 39.33 | |
| Min Ch El (ft) | 1283.00 | Shear (lb/sq ft) | 0.01 | 0.01 | |
| Alpha | 1.05 | Stream Power (lb/ft s) | 0.00 | 0.00 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | 1.24 | 1.67 | |
| C & E Loss (ft) | | Cum SA (acres) | 3.56 | 1.01 | |

Plan: PA64-PA84 Co Runoff PA64-PA84 RS: 24400 Profile: PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1286.44 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.04 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1286.40 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1284.40 | Flow Area (sq ft) | | 29.56 | |
| E.G. Slope (ft/ft) | 0.000751 | Area (sq ft) | 5.48 | 29.56 | |
| Q Total (cfs) | 50.00 | Flow (cfs) | | 50.00 | |
| Top Width (ft) | 42.32 | Top Width (ft) | 27.65 | 14.67 | |
| Vel Total (ft/s) | 1.69 | Avg. Vel. (ft/s) | | 1.69 | |
| Max Chl Dpth (ft) | 4.20 | Hydr. Depth (ft) | | 2.02 | |
| Conv. Total (cfs) | 1824.7 | Conv. (cfs) | | 1824.7 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 16.87 | |
| Min Ch El (ft) | 1282.20 | Shear (lb/sq ft) | | 0.08 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.14 | |
| Frctn Loss (ft) | 0.13 | Cum Volume (acre-ft) | 0.25 | 1.31 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.46 | 0.83 | |

Plan: PA64-PA84 Co Runoff PA64-PA84 RS: 24200 Profile: PF 1

| E.G. Elev (ft) | 1286.31 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.02 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1286.28 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | 1283.89 | Flow Area (sq ft) | | 40.22 | |
| E.G. Slope (ft/ft) | 0.000554 | Area (sq ft) | 2.39 | 40.22 | |
| Q Total (cfs) | 50.00 | Flow (cfs) | | 50.00 | |
| Top Width (ft) | 49.42 | Top Width (ft) | 22.54 | 26.88 | |
| Vel Total (ft/s) | 1.24 | Avg. Vel. (ft/s) | | 1.24 | |
| Max Chl Dpth (ft) | 4.31 | Hydr. Depth (ft) | | 1.50 | |
| Conv. Total (cfs) | 2124.4 | Conv. (cfs) | | 2124.4 | |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | | 28.98 | |
| Min Ch El (ft) | 1281.97 | Shear (lb/sq ft) | | 0.05 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.06 | |
| Frctn Loss (ft) | 0.03 | Cum Volume (acre-ft) | 0.23 | 1.15 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.35 | 0.74 | |

Plan: PA64-PA84 Co Runoff PA64-PA84 RS: 24100 Profile: PF 1

| E.G. Elev (ft) | 1286.27 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.01 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1286.26 | Reach Len. (ft) | 300.00 | 300.00 | 300.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 58.82 | |
| E.G. Slope (ft/ft) | 0.000193 | Area (sq ft) | 45.23 | 58.82 | |
| Q Total (cfs) | 50.00 | Flow (cfs) | | 50.00 | |
| Top Width (ft) | 223.49 | Top Width (ft) | 191.29 | 32.20 | |
| Vel Total (ft/s) | 0.85 | Avg. Vel. (ft/s) | | 0.85 | |
| Max Chl Dpth (ft) | 4.41 | Hydr. Depth (ft) | | 1.83 | |
| Conv. Total (cfs) | 3594.7 | Conv. (cfs) | | 3594.7 | |
| Length Wtd. (ft) | 300.00 | Wetted Per. (ft) | | 34.06 | |
| Min Ch El (ft) | 1281.85 | Shear (lb/sq ft) | | 0.02 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.02 | |
| Frctn Loss (ft) | 0.14 | Cum Volume (acre-ft) | 0.18 | 1.04 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.10 | 0.67 | |

Plan: PA64-PA84 Co Runoff PA64-PA84 RS: 23800 Profile: PF 1

| E.G. Elev (ft) | 1286.13 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.03 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1286.09 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 93.74 | |
| E.G. Slope (ft/ft) | 0.000755 | Area (sq ft) | 3.88 | 93.74 | |
| Q Total (cfs) | 136.00 | Flow (cfs) | | 136.00 | |
| Top Width (ft) | 142.31 | Top Width (ft) | 76.99 | 65.32 | |
| Vel Total (ft/s) | 1.45 | Avg. Vel. (ft/s) | | 1.45 | |
| Max Chl Dpth (ft) | 4.58 | Hydr. Depth (ft) | | 1.43 | |
| Conv. Total (cfs) | 4949.3 | Conv. (cfs) | | 4949.3 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 67.58 | |
| Min Ch El (ft) | 1281.51 | Shear (lb/sq ft) | | 0.07 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.09 | |
| Frctn Loss (ft) | 0.23 | Cum Volume (acre-ft) | 0.01 | 0.51 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.18 | 0.33 | |

Plan: PA64-PA84 Co Runoff PA64-PA84 RS: 23600 Profile: PF 1

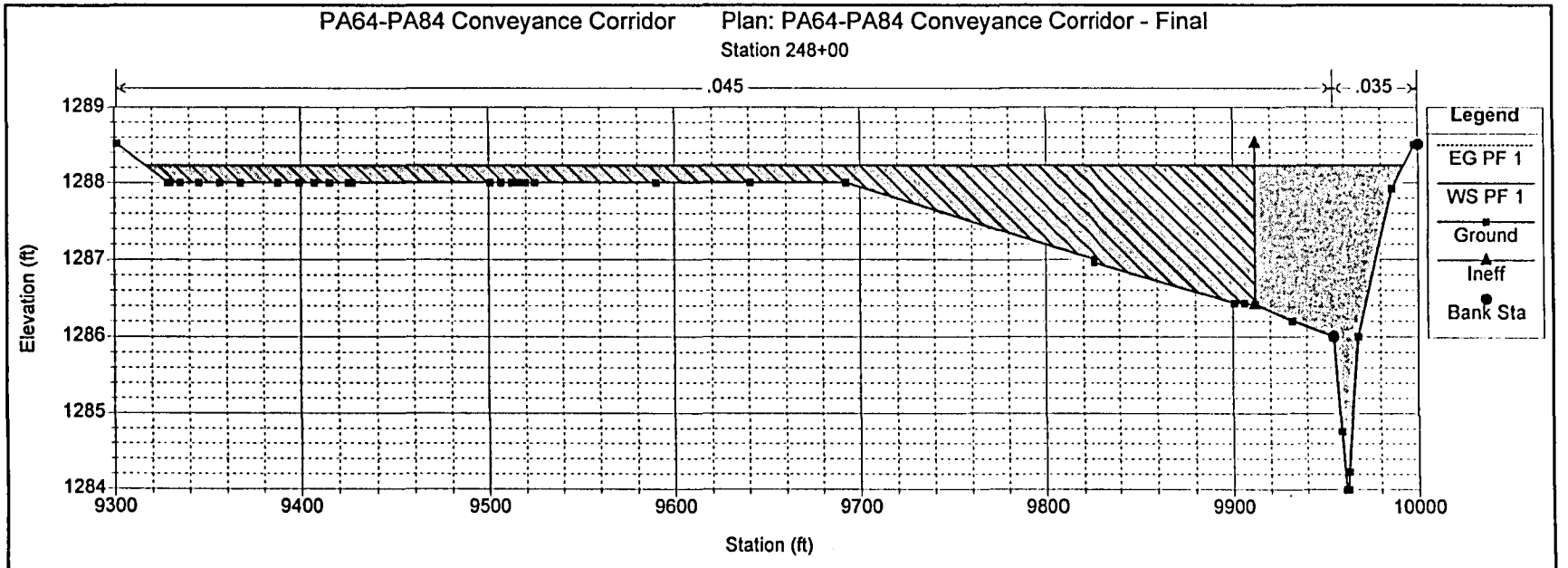
| E.G. Elev (ft) | 1285.89 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.11 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1285.79 | Reach Len. (ft) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 52.08 | |
| E.G. Slope (ft/ft) | 0.001907 | Area (sq ft) | | 52.08 | |
| Q Total (cfs) | 136.00 | Flow (cfs) | | 136.00 | |
| Top Width (ft) | 28.57 | Top Width (ft) | | 28.57 | |
| Vel Total (ft/s) | 2.61 | Avg. Vel. (ft/s) | | 2.61 | |
| Max Chl Dpth (ft) | 4.51 | Hydr. Depth (ft) | | 1.82 | |
| Conv. Total (cfs) | 3114.7 | Conv. (cfs) | | 3114.7 | |
| Length Wtd. (ft) | 50.00 | Wetted Per. (ft) | | 31.16 | |
| Min Ch El (ft) | 1281.28 | Shear (lb/sq ft) | | 0.20 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.52 | |
| Frctn Loss (ft) | 0.07 | Cum Volume (acre-ft) | | 0.18 | |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | | 0.12 | |

Plan: PA64-PA84 Co Runoff PA64-PA84 RS: 23550 Profile: PF 1

| E.G. Elev (ft) | 1285.80 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.05 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1285.76 | Reach Len. (ft) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 79.58 | |
| E.G. Slope (ft/ft) | 0.000991 | Area (sq ft) | | 79.58 | |
| Q Total (cfs) | 136.00 | Flow (cfs) | | 136.00 | |
| Top Width (ft) | 52.82 | Top Width (ft) | | 52.82 | |
| Vel Total (ft/s) | 1.71 | Avg. Vel. (ft/s) | | 1.71 | |
| Max Chl Dpth (ft) | 4.54 | Hydr. Depth (ft) | | 1.51 | |
| Conv. Total (cfs) | 4321.2 | Conv. (cfs) | | 4321.2 | |
| Length Wtd. (ft) | 50.00 | Wetted Per. (ft) | | 55.02 | |
| Min Ch El (ft) | 1281.22 | Shear (lb/sq ft) | | 0.09 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.15 | |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | | 0.10 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | | 0.07 | |

Plan: PA64-PA84 Co Runoff PA64-PA84 RS: 23500 Profile: PF 1

| E.G. Elev (ft) | 1285.75 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.03 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1285.72 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 1283.74 | Flow Area (sq ft) | | 95.32 | |
| E.G. Slope (ft/ft) | 0.000787 | Area (sq ft) | | 95.32 | |
| Q Total (cfs) | 136.00 | Flow (cfs) | | 136.00 | |
| Top Width (ft) | 69.85 | Top Width (ft) | | 69.85 | |
| Vel Total (ft/s) | 1.43 | Avg. Vel. (ft/s) | | 1.43 | |
| Max Chl Dpth (ft) | 4.56 | Hydr. Depth (ft) | | 1.36 | |
| Conv. Total (cfs) | 4847.5 | Conv. (cfs) | | 4847.5 | |
| Length Wtd. (ft) | | Wetted Per. (ft) | | 72.71 | |
| Min Ch El (ft) | 1281.16 | Shear (lb/sq ft) | | 0.06 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.09 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |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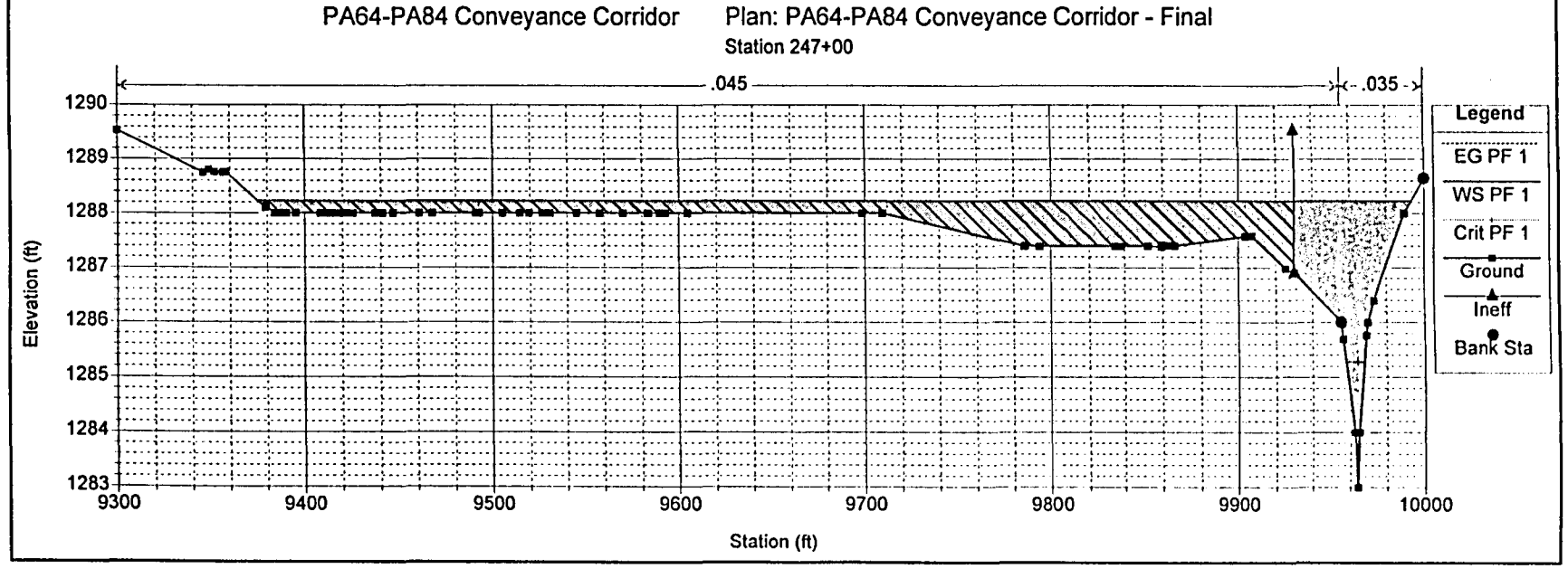
Station (ft)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Plan: PA64-PA84 Conveyance Corridor - Final
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Elevation (ft)
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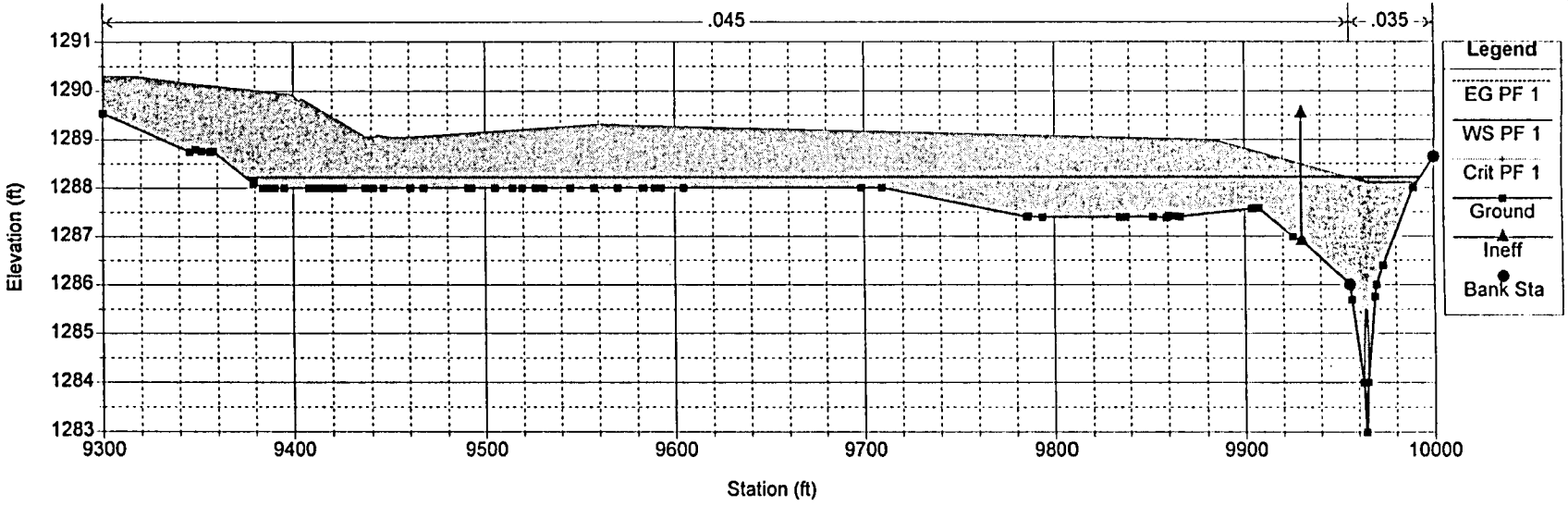
Station (ft)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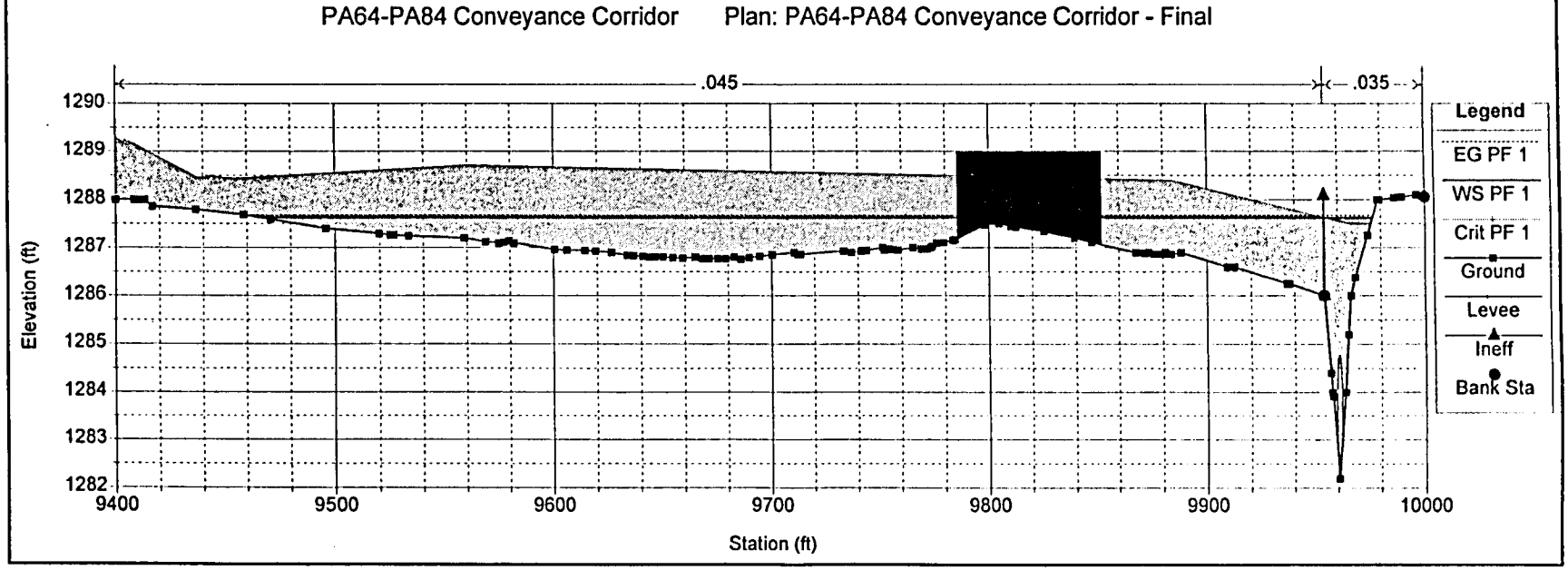
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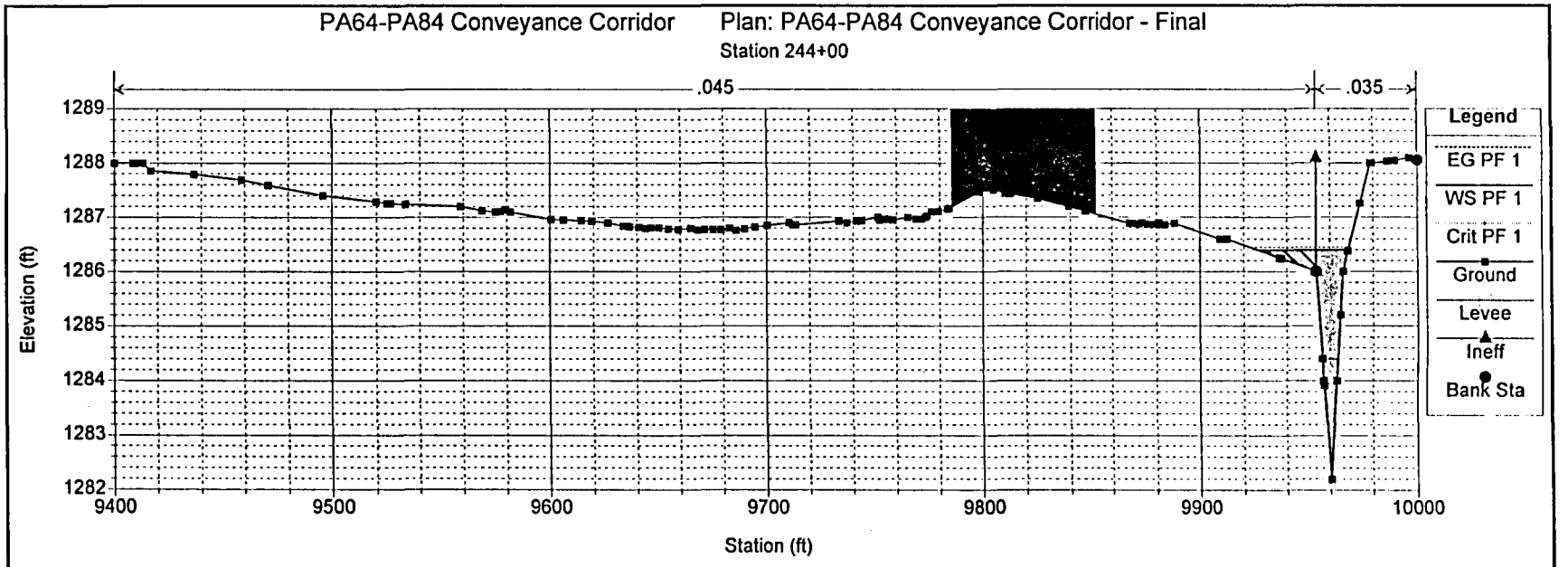
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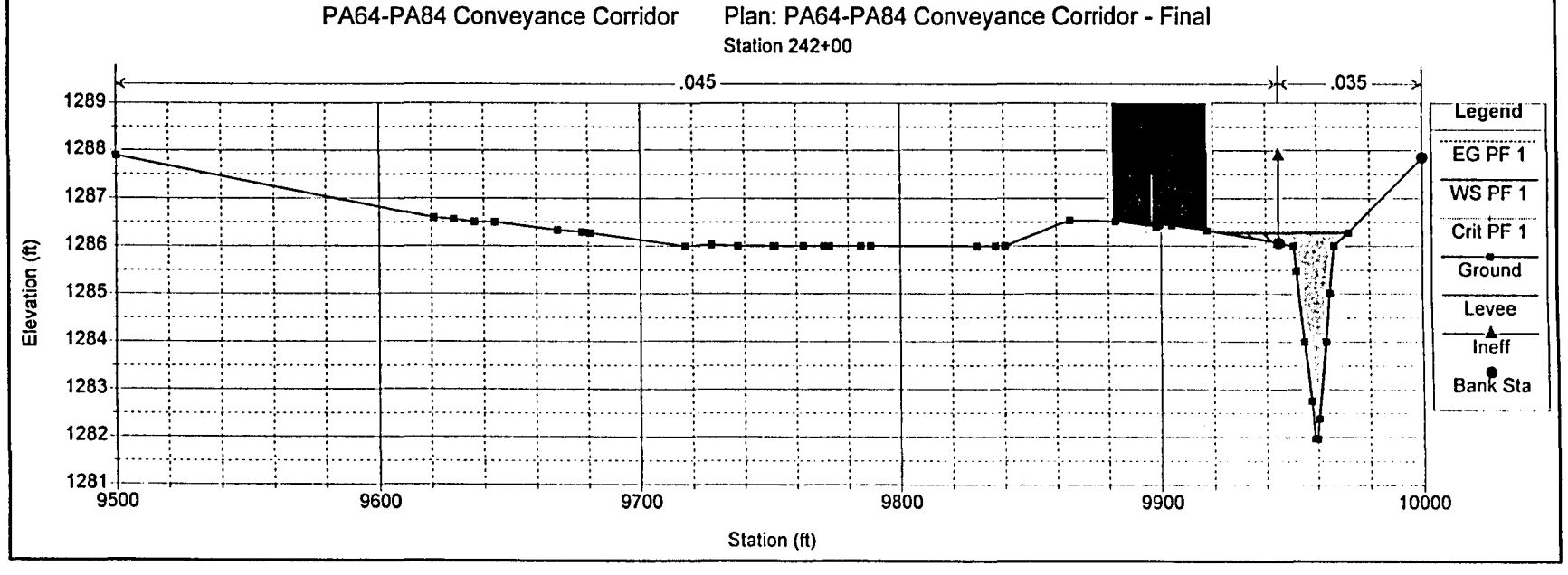
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Station (ft)
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WS PF 1
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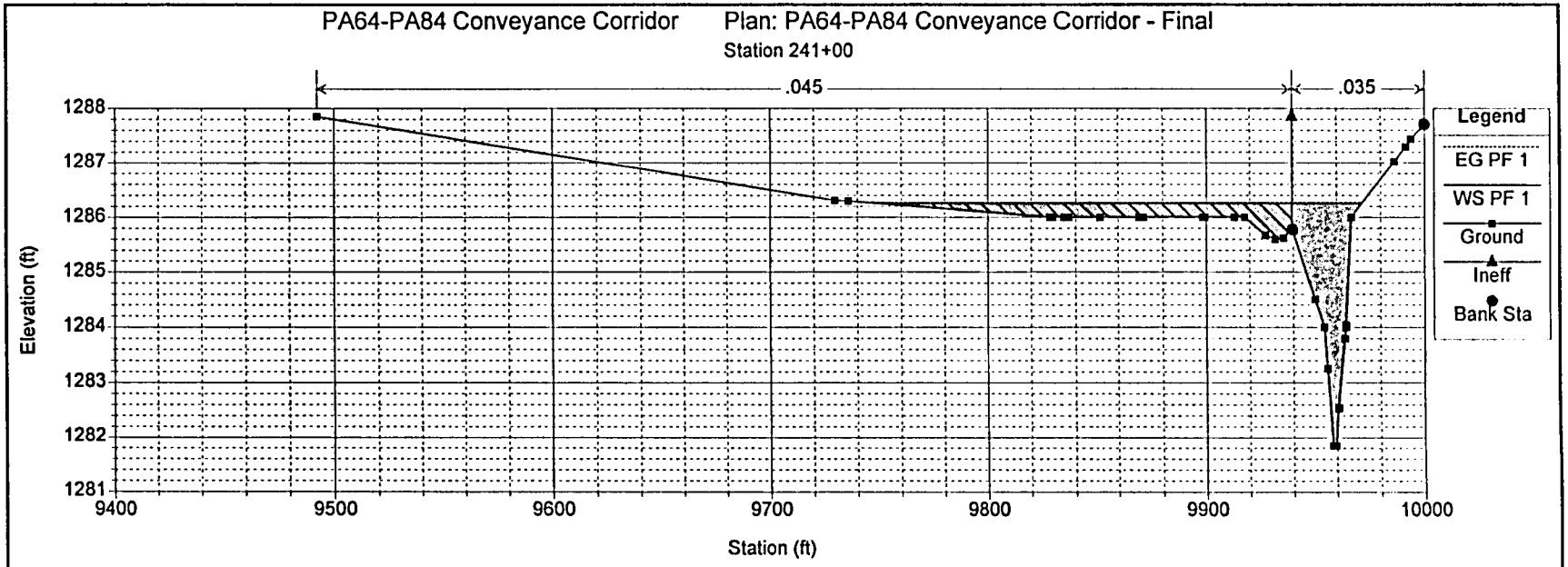
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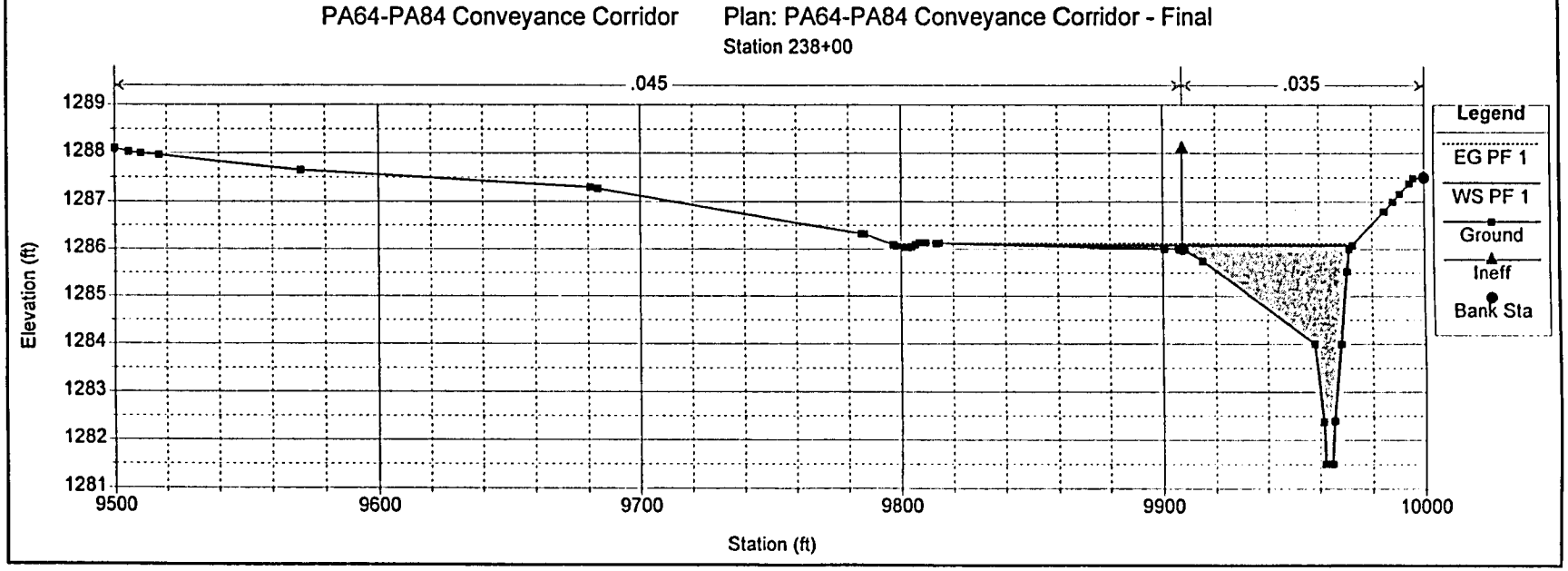
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Plan: PA64-PA84 Conveyance Corridor - Final
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Station (ft)
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EG PF 1
WS PF 1
Ground
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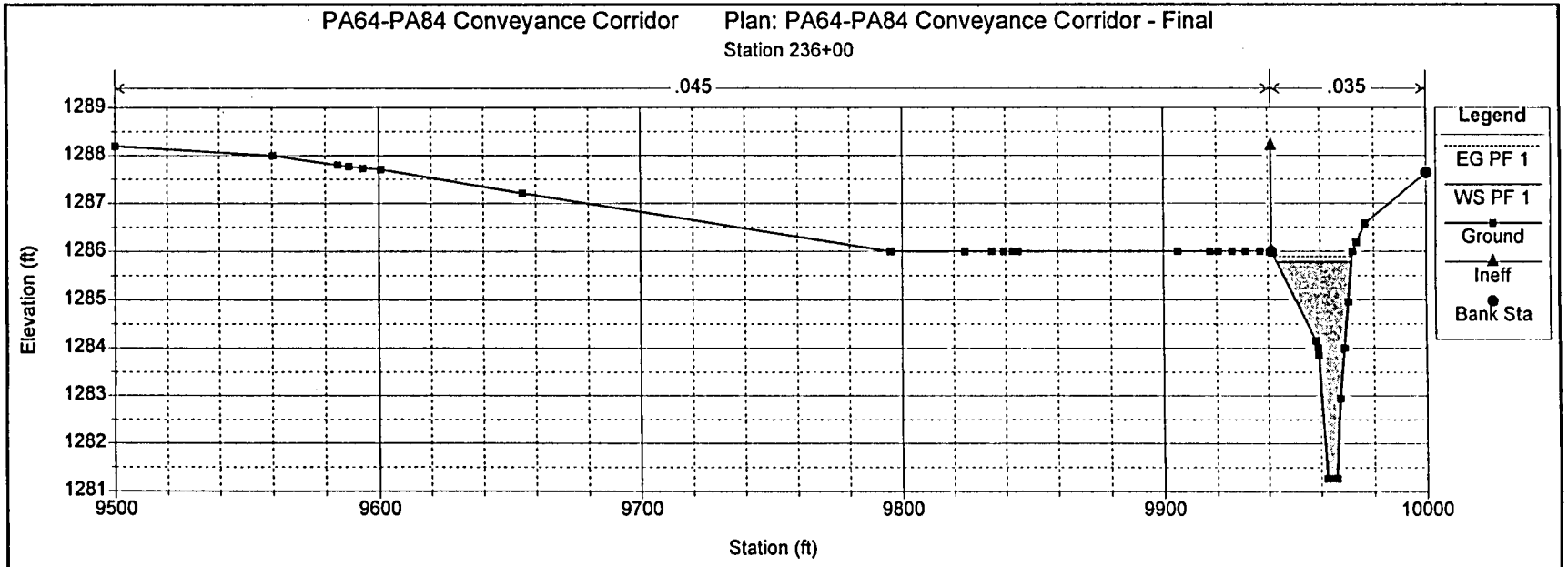
PA64-PA84 Conveyance Corridor
Plan: PA64-PA84 Conveyance Corridor - Final
Station 236+00
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Elevation (ft)
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Station (ft)
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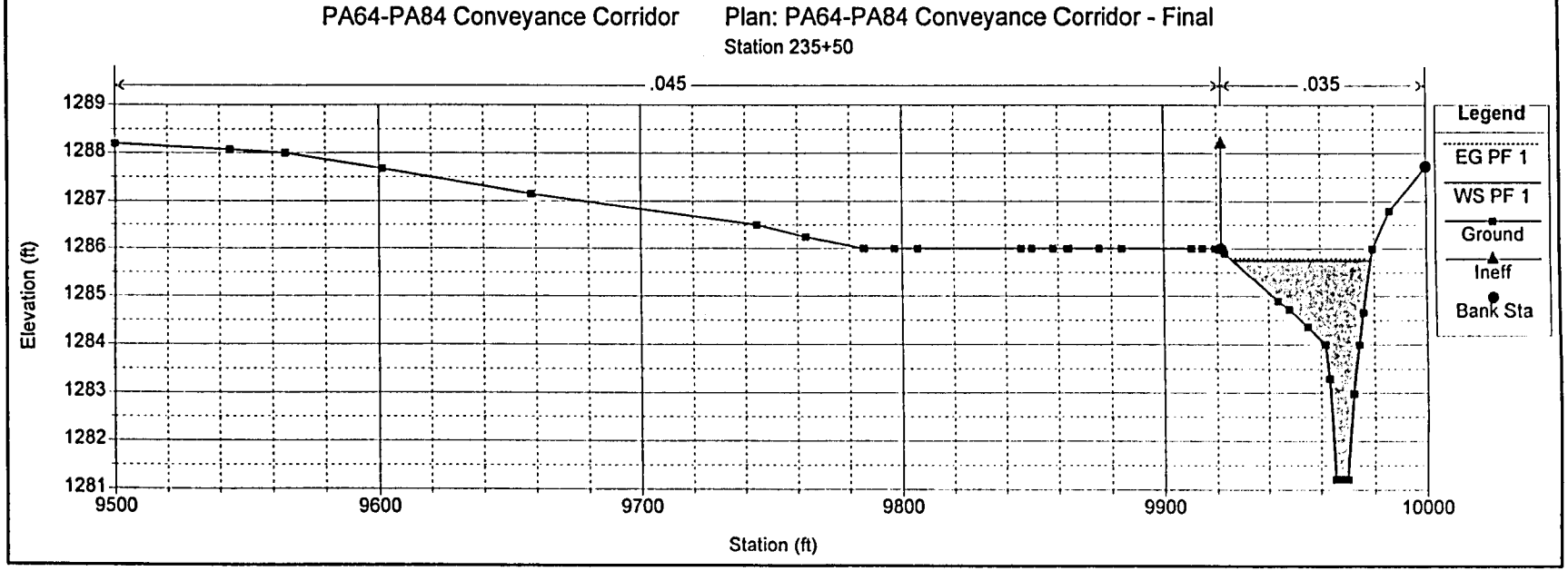
Bank Sta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Station 235+50
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Station (ft)
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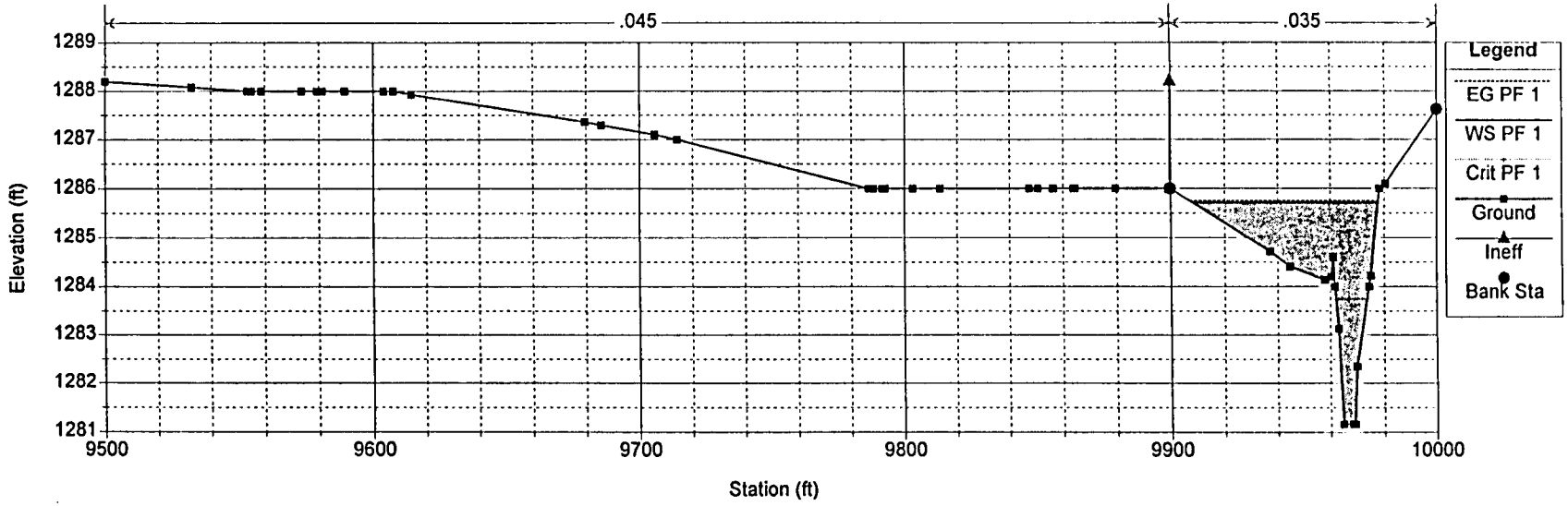
Bank Sta

PA64-PA84 Conveyance Corridor Plan: PA64-PA84 Conveyance Corridor - Final

Station 235+00



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                    HEC-RAS September 1998 Version 2.2
                      U.S. Army Corp of Engineers
                     Hydrologic Engineering Center
                       609 Second Street, Suite D
                      Davis, California 95616-4687
                             (916) 756-1104

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PROJECT DATA
Project Title: PA64-PA84 Conveyance Corridor
Project File : PA64-PA84.prj
Run Date and Time: 5/8/01 4:01:39 PM

Project in English units

PLAN DATA

Plan Title: PA64-PA84 Conveyance Corridor - Final
Plan File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA64-PA84.p02

Geometry Title: PA64-PA84 Conveyance Corridor - Final
Geometry File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA64-PA84.g01

Flow Title : PA64-PA84 Conveyance Corridor - Final
Flow File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA64-PA84.f01

Plan Summary Information:
Number of: Cross Sections = 9 Mulitple Openings = 0
Culverts = 1 Inline Weirs = 0
Bridges = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: PA64-PA84 Conveyance Corridor - Final

Flow File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA64-PA84.f01

Flow Data (cfs)

| River | Reach | RS | PF 1 |
|---|---|---|---|
| Runoff | PA64-PA84 | 24800 | 50 |
| Runoff | PA64-PA84 | 23800 | 136 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| Runoff | PA64-PA84 | PF 1 | | Known WS = 1285.72 |

GEOMETRY DATA

Geometry Title: PA64-PA84 Conveyance Corridor - Final
Geometry File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA64-PA84.g01

CROSS SECTION RIVER: Runoff
REACH: PA64-PA84 RS: 24800

INPUT
Description: Station 248+00
Station Elevation Data num= 39

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9301.25 | 1288.52 | 9328.38 | 1288 | 9329.63 | 1288 | 9335.03 | 1288 | 9345.16 | 1288 |
| 9356.29 | 1288 | 9367.62 | 1288 | 9387.82 | 1288 | 9399.25 | 1288 | 9407.12 | 1288 |
| 9415.43 | 1288 | 9425.22 | 1288 | 9426.82 | 1288 | 9500.74 | 1288 | 9506.49 | 1288 |
| 9512.54 | 1288 | 9516.05 | 1288 | 9518.78 | 1288 | 9519.9 | 1288 | 9524.9 | 1288 |
| 9590.18 | 1288 | 9640.79 | 1288 | 9692.47 | 1288 | 9825.89 | 1287 | 9826.06 | 1286.96 |
| 9900.98 | 1286.43 | 9906.22 | 1286.43 | 9911.97 | 1286.41 | 9931.85 | 1286.2 | 9954.55 | 1286 |
| 9958.68 | 1284.76 | 9961.15 | 1284 | 9961.95 | 1284 | 9962.17 | 1284 | 9962.72 | 1284.23 |
| 9967.88 | 1286 | 9986.22 | 1287.92 | 9998 | 1288.51 | 10000 | 1288.51 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9301.25 | .045 | 9954.55 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9954.55 | 10000 | | 100 | 100 | 100 .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 9301.25 | 9911.97 | |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1288.24 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.045 | 0.035 | |
| W.S. Elev (ft) | 1288.24 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 87.02 | 68.53 | |
| E.G. Slope (ft/ft) | 0.000032 | Area (sq ft) | 410.10 | 68.53 | |
| Q Total (cfs) | 50.00 | Flow (cfs) | 26.05 | 23.95 | |
| Top Width (ft) | 676.70 | Top Width (ft) | 638.65 | 38.04 | |
| Vel Total (ft/s) | 0.32 | Avg. Vel. (ft/s) | 0.30 | 0.35 | |
| Max Chl Dpth (ft) | 4.24 | Hydr. Depth (ft) | 2.04 | 1.80 | |
| Conv. Total (cfs) | 8879.1 | Conv. (cfs) | 4626.9 | 4252.2 | |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | 42.58 | 38.79 | |
| Min Ch El (ft) | 1284.00 | Shear (lb/sq ft) | 0.00 | 0.00 | |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.00 | 0.00 | |

| | | | |
|---|---|---|---|
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 2.04 | 1.83 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 4.94 | 1.10 |

CROSS SECTION RIVER: Runoff
REACH: PA64-PA84 RS: 24700

INPUT
Description: Station 247+00
Station Elevation Data num= 74

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9300 | 1289.533 | 9345.54 | 1288.75 | 9348.74 | 1288.8 | 9351.72 | 1288.76 | 9356.19 | 1288.75 |
| 9356.9 | 1288.76 | 9357.97 | 1288.76 | 9379.15 | 1288.1 | 9379.35 | 1288.13 | 9383.96 | 1288 |
| 9387.62 | 1288 | 9390.52 | 1288 | 9395.3 | 1288 | 9408.48 | 1288 | 9411.46 | 1288 |
| 9412.66 | 1288 | 9413.03 | 1288 | 9416.66 | 1288 | 9419.43 | 1288 | 9421.51 | 1288 |
| 9425.29 | 1288 | 9425.45 | 1288 | 9437.05 | 1288 | 9439.82 | 1288 | 9441.07 | 1288 |
| 9446.53 | 1288 | 9460.69 | 1288 | 9467.57 | 1288 | 9490.72 | 1288 | 9491.66 | 1288 |
| 9492.71 | 1288 | 9505.13 | 1288 | 9514.61 | 1288 | 9519.48 | 1288 | 9526.71 | 1288 |
| 9530.78 | 1288 | 9545.09 | 1288 | 9557.54 | 1288 | 9569.98 | 1288 | 9583.09 | 1288 |
| 9583.69 | 1288 | 9589.47 | 1288 | 9591.85 | 1288 | 9592.76 | 1288 | 9604.59 | 1288 |
| 9698.67 | 1288 | 9709.36 | 1288 | 9785.6 | 1287.4 | 9786.16 | 1287.41 | 9793.92 | 1287.39 |
| 9834.85 | 1287.39 | 9838.06 | 1287.39 | 9852.37 | 1287.4 | 9859.41 | 1287.38 | 9860.6 | 1287.42 |
| 9862.63 | 1287.41 | 9864.03 | 1287.41 | 9866.37 | 1287.4 | 9903.72 | 1287.57 | 9904.66 | 1287.58 |
| 9907.2 | 1287.58 | 9925.37 | 1286.98 | 9930.01 | 1286.9 | 9954.55 | 1286.04 | 9955.45 | 1286 |
| 9956.43 | 1285.69 | 9962.53 | 1284 | 9964 | 1283 | 9964.98 | 1284 | 9968.97 | 1285.76 |
| 9969.68 | 1286 | 9973.23 | 1286.39 | 9989.58 | 1288 | 10000 | 1288.65 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9300 | .045 | 9955.45 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9955.45 | 10000 | 300 | 300 | 300 | .3 | .5 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 9300 | 9930 | |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1288.24 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | 0.045 | 0.035 | |
| W.S. Elev (ft) | 1288.23 | Reach Len. (ft) | 300.00 | 300.00 | 300.00 |
| Crit W.S. (ft) | 1285.28 | Flow Area (sq ft) | 45.29 | 74.33 | |
| E.G. Slope (ft/ft) | 0.000051 | Area (sq ft) | 284.71 | 74.33 | |
| Q Total (cfs) | 50.00 | Flow (cfs) | 15.65 | 34.35 | |
| Top Width (ft) | 618.48 | Top Width (ft) | 580.60 | 37.88 | |
| Vel Total (ft/s) | 0.42 | Avg. Vel. (ft/s) | 0.35 | 0.46 | |
| Max Chl Dpth (ft) | 5.23 | Hydr. Depth (ft) | 1.78 | 1.96 | |
| Conv. Total (cfs) | 7013.4 | Conv. (cfs) | 2195.6 | 4817.9 | |
| Length Wtd. (ft) | 300.00 | Wetted Per. (ft) | 25.47 | 39.40 | |
| Min Ch El (ft) | 1283.00 | Shear (lb/sq ft) | 0.01 | 0.01 | |
| Alpha | 1.05 | Stream Power (lb/ft s) | 0.00 | 0.00 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | 1.25 | 1.67 | |
| C & E Loss (ft) | | Cum SA (acres) | 3.54 | 1.01 | |

CULVERT RIVER: Runoff
REACH: PA64-PA84 RS: 24693

INPUT
Description:
Distance from Upstream XS = 7
Deck/Roadway Width = 100
Weir Coefficient = 2.6

Bridge Deck/Roadway Skew = 0

Upstream Deck/Roadway Coordinates

num= 198

| Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord |
|---|---|---|---|---|---|---|---|---|
| 8310.05 | 1294 | 1280 | 8310.43 | 1294 | 1280 | 8310.86 | 1294 | 1280 |
| 8313.6 | 1294 | 1280 | 8314.69 | 1294 | 1280 | 8316.32 | 1294 | 1280 |
| 8318.81 | 1294 | 1280 | 8320.94 | 1294 | 1280 | 8459.22 | 1294.8 | 1280 |
| 8463.55 | 1294.79 | 1280 | 8466.86 | 1294.8 | 1280 | 8470.21 | 1294.78 | 1280 |
| 8471.9 | 1294.78 | 1280 | 8474.75 | 1294.79 | 1280 | 8480.44 | 1294.79 | 1280 |
| 8484.4 | 1294.8 | 1280 | 8487.49 | 1294.79 | 1280 | 8488.5 | 1294.79 | 1280 |
| 8489.13 | 1294.79 | 1280 | 8490.95 | 1294.8 | 1280 | 8491.2 | 1294.8 | 1280 |
| 8494.51 | 1294.84 | 1280 | 8498.56 | 1294.82 | 1280 | 8501.51 | 1294.8 | 1280 |
| 8504 | 1294.78 | 1280 | 8512.3 | 1294.7 | 1280 | 8512.68 | 1294.67 | 1280 |
| 8514.09 | 1294.61 | 1280 | 8515.4 | 1294.55 | 1280 | 8518.59 | 1294.47 | 1280 |
| 8524.39 | 1294.4 | 1280 | 8553.72 | 1294.1 | 1280 | 8566.68 | 1294.03 | 1280 |
| 8568.48 | 1294 | 1280 | 8570.82 | 1294 | 1280 | 8573.13 | 1294 | 1280 |
| 8584.64 | 1294 | 1280 | 8585.13 | 1294 | 1280 | 8589.94 | 1294 | 1280 |
| 8595.88 | 1294 | 1280 | 8596.87 | 1294 | 1280 | 8597.66 | 1294 | 1280 |
| 8605.01 | 1293.84 | 1280 | 8622.79 | 1293.7 | 1280 | 8636.56 | 1293.52 | 1280 |
| 8639.96 | 1293.49 | 1280 | 8648.44 | 1293.44 | 1280 | 8653.78 | 1293.39 | 1280 |
| 8713.5 | 1293.1 | 1280 | 8713.78 | 1293.13 | 1280 | 8714.17 | 1293.13 | 1280 |
| 8717.19 | 1293.13 | 1280 | 8722.5 | 1293.14 | 1280 | 8729.24 | 1293.1 | 1280 |
| 8732.04 | 1293.12 | 1280 | 8792.63 | 1292.59 | 1280 | 8807.42 | 1292.58 | 1280 |
| 8808.75 | 1292.58 | 1280 | 8810.58 | 1292.6 | 1280 | 8814.13 | 1292.57 | 1280 |
| 8820.02 | 1292.57 | 1280 | 8834.87 | 1292.57 | 1280 | 8835.61 | 1292.57 | 1280 |
| 8837.49 | 1292.6 | 1280 | 8839.01 | 1292.56 | 1280 | 8910.75 | 1292.65 | 1280 |
| 8911.55 | 1292.65 | 1280 | 8912.63 | 1292.65 | 1280 | 8914.82 | 1292.6 | 1280 |
| 8917.43 | 1292.65 | 1280 | 8919.69 | 1292.65 | 1280 | 8919.88 | 1292.65 | 1280 |
| 8920.15 | 1292.65 | 1280 | 8920.57 | 1292.7 | 1280 | 8920.58 | 1292.65 | 1280 |
| 8920.66 | 1292.65 | 1280 | 8920.71 | 1292.66 | 1280 | 8920.99 | 1292.66 | 1280 |
| 8921.24 | 1292.7 | 1280 | 8921.37 | 1292.66 | 1280 | 8922.03 | 1292.66 | 1280 |
| 8922.37 | 1292.65 | 1280 | 8922.64 | 1292.65 | 1280 | 8922.75 | 1292.7 | 1280 |
| 8923.15 | 1292.65 | 1280 | 8924.77 | 1292.62 | 1280 | 8925.14 | 1292.62 | 1280 |
| 8926.55 | 1292.61 | 1280 | 8934.16 | 1292.6 | 1280 | 8934.78 | 1292.54 | 1280 |
| 8939.93 | 1292.5 | 1280 | 8952.73 | 1292.42 | 1280 | 8996.57 | 1292 | 1280 |
| 8999.61 | 1292 | 1280 | 9003.65 | 1292 | 1280 | 9009.44 | 1292 | 1280 |
| 9011.04 | 1292 | 1280 | 9011.72 | 1291.94 | 1280 | 9017.77 | 1291.3 | 1280 |
| 9029.27 | 1291.12 | 1280 | 9048.56 | 1291 | 1280 | 9055.52 | 1290.97 | 1280 |
| 9061.42 | 1290.95 | 1280 | 9074.12 | 1290.9 | 1280 | 9076.15 | 1290.93 | 1280 |
| 9079.28 | 1290.92 | 1280 | 9080.18 | 1290.93 | 1280 | 9082.66 | 1290.93 | 1280 |
| 9085.96 | 1290.9 | 1280 | 9101.99 | 1290.93 | 1280 | 9114.58 | 1290.93 | 1280 |
| 9115.45 | 1290.93 | 1280 | 9124.01 | 1290.93 | 1280 | 9132.22 | 1290.9 | 1280 |
| 9137.54 | 1290.93 | 1280 | 9145.87 | 1290.9 | 1280 | 9146.25 | 1290.9 | 1280 |
| 9159.4 | 1290.89 | 1280 | 9179.9 | 1290 | 1280 | 9251.76 | 1290.43 | 1280 |
| 9255.91 | 1290.43 | 1280 | 9256.44 | 1290.43 | 1280 | 9258.28 | 1290.43 | 1280 |
| 9263.11 | 1290.4 | 1280 | 9264.12 | 1290.43 | 1280 | 9266.43 | 1290.43 | 1280 |
| 9270.04 | 1290.43 | 1280 | 9274.97 | 1290.36 | 1280 | 9275.33 | 1290.3 | 1280 |
| 9276.07 | 1290.34 | 1280 | 9276.96 | 1290.34 | 1280 | 9279.05 | 1290.34 | 1280 |
| 9290.6 | 1290.32 | 1280 | 9319.38 | 1290.3 | 1280 | 9332.95 | 1290.22 | 1280 |
| 9343.36 | 1290.17 | 1280 | 9360.27 | 1290.1 | 1280 | 9385.18 | 1290 | 1280 |
| 9385.73 | 1290 | 1280 | 9389.77 | 1289.97 | 1280 | 9393.36 | 1289.95 | 1280 |
| 9398.89 | 1289.95 | 1280 | 9399.36 | 1289.94 | 1280 | 9403.23 | 1289.8 | 1280 |
| 9404.49 | 1289.85 | 1280 | 9437.33 | 1289.06 | 1280 | 9440.64 | 1289.07 | 1280 |
| 9442.06 | 1289.06 | 1280 | 9443.18 | 1289.1 | 1280 | 9450.34 | 1289.05 | 1280 |
| 9458.1 | 1289.05 | 1280 | 9562.04 | 1289.32 | 1280 | 9562.25 | 1289.3 | 1280 |
| 9562.41 | 1289.32 | 1280 | 9562.69 | 1289.32 | 1280 | 9563.01 | 1289.32 | 1280 |
| 9563.49 | 1289.31 | 1280 | 9563.78 | 1289.3 | 1280 | 9564.05 | 1289.32 | 1280 |
| 9564.39 | 1289.31 | 1280 | 9564.71 | 1289.31 | 1280 | 9565.05 | 1289.31 | 1280 |
| 9565.34 | 1289.3 | 1280 | 9566.14 | 1289.31 | 1280 | 9566.25 | 1289.31 | 1280 |
| 9566.31 | 1289.31 | 1280 | 9566.33 | 1289.31 | 1280 | 9566.59 | 1289.3 | 1280 |
| 9566.9 | 1289.31 | 1280 | 9566.94 | 1289.32 | 1280 | 9566.99 | 1289.32 | 1280 |
| 9567.02 | 1289.32 | 1280 | 9567.41 | 1289.3 | 1280 | 9567.46 | 1289.32 | 1280 |
| 9567.55 | 1289.32 | 1280 | 9567.69 | 1289.32 | 1280 | 9567.93 | 1289.31 | 1280 |
| 9568.38 | 1289.3 | 1280 | 9568.49 | 1289.32 | 1280 | 9568.6 | 1289.32 | 1280 |

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|---|---|---|---|---|---|---|---|---|---|
| 9568.74 | 1289.32 | 1280 | 9568.95 | 1289.32 | 1280 | 9569.03 | 1289.3 | 1280 | |
| 9569.16 | 1289.31 | 1280 | 9569.39 | 1289.31 | 1280 | 9569.47 | 1289.31 | 1280 | |
| 9569.64 | 1289.31 | 1280 | 9569.78 | 1289.3 | 1280 | 9569.82 | 1289.31 | 1280 | |
| 9570.05 | 1289.31 | 1280 | 9570.19 | 1289.31 | 1280 | 9572.79 | 1289.29 | 1280 | |
| 9572.98 | 1289.3 | 1280 | 9884.12 | 1289 | 1280 | 9965.89 | 1288.11 | 1280 | |
| 9993.88 | 1288.11 | 1280 | 10000 | 1288.01 | 1280 | 10040 | 1288.04 | 1280 | |

Upstream Bridge Cross Section Data
Station Elevation Data num= 74

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9300 | 1289.533 | 9345.54 | 1288.75 | 9348.74 | 1288.8 | 9351.72 | 1288.76 | 9356.19 | 1288.75 |
| 9356.9 | 1288.76 | 9357.97 | 1288.76 | 9379.15 | 1288.1 | 9379.35 | 1288.13 | 9383.96 | 1288 |
| 9387.62 | 1288 | 9390.52 | 1288 | 9395.3 | 1288 | 9408.48 | 1288 | 9411.46 | 1288 |
| 9412.66 | 1288 | 9413.03 | 1288 | 9416.66 | 1288 | 9419.43 | 1288 | 9421.51 | 1288 |
| 9425.29 | 1288 | 9425.45 | 1288 | 9437.05 | 1288 | 9439.82 | 1288 | 9441.07 | 1288 |
| 9446.53 | 1288 | 9460.69 | 1288 | 9467.57 | 1288 | 9490.72 | 1288 | 9491.66 | 1288 |
| 9492.71 | 1288 | 9505.13 | 1288 | 9514.61 | 1288 | 9519.48 | 1288 | 9526.71 | 1288 |
| 9530.78 | 1288 | 9545.09 | 1288 | 9557.54 | 1288 | 9569.98 | 1288 | 9583.09 | 1288 |
| 9583.69 | 1288 | 9589.47 | 1288 | 9591.85 | 1288 | 9592.76 | 1288 | 9604.59 | 1288 |
| 9698.67 | 1288 | 9709.36 | 1288 | 9785.6 | 1287.4 | 9786.16 | 1287.41 | 9793.92 | 1287.39 |
| 9834.85 | 1287.39 | 9838.06 | 1287.39 | 9852.37 | 1287.4 | 9859.41 | 1287.38 | 9860.6 | 1287.42 |
| 9862.63 | 1287.41 | 9864.03 | 1287.41 | 9866.37 | 1287.4 | 9903.72 | 1287.57 | 9904.66 | 1287.58 |
| 9907.2 | 1287.58 | 9925.37 | 1286.98 | 9930.01 | 1286.9 | 9954.55 | 1286.04 | 9955.45 | 1286 |
| 9956.43 | 1285.69 | 9962.53 | 1284 | 9964 | 1283 | 9964.98 | 1284 | 9968.97 | 1285.76 |
| 9969.68 | 1286 | 9973.23 | 1286.39 | 9989.58 | 1288 | 10000 | 1288.65 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9300 | .045 | 9955.45 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Coeff Contr. | Expan. |
|---|---|---|---|
| 9955.45 | 10000 | .3 | .5 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 9300 | 9930 | |

Downstream Deck/Roadway Coordinates
num= 198

| Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord |
|---|---|---|---|---|---|---|---|---|
| 8310.05 | 1293.4 | 1280 | 8310.43 | 1293.4 | 1280 | 8310.86 | 1293.4 | 1280 |
| 8313.6 | 1293.4 | 1280 | 8314.69 | 1293.4 | 1280 | 8316.32 | 1293.4 | 1280 |
| 8318.81 | 1293.4 | 1280 | 8320.94 | 1293.4 | 1280 | 8459.22 | 1294.2 | 1280 |
| 8463.55 | 1294.19 | 1280 | 8466.86 | 1294.2 | 1280 | 8470.21 | 1294.18 | 1280 |
| 8471.9 | 1294.18 | 1280 | 8474.75 | 1294.19 | 1280 | 8480.44 | 1294.19 | 1280 |
| 8484.4 | 1294.2 | 1280 | 8487.49 | 1294.19 | 1280 | 8488.5 | 1294.19 | 1280 |
| 8489.13 | 1294.19 | 1280 | 8490.95 | 1294.2 | 1280 | 8491.2 | 1294.2 | 1280 |
| 8494.51 | 1294.24 | 1280 | 8498.56 | 1294.22 | 1280 | 8501.51 | 1294.2 | 1280 |
| 8504 | 1294.18 | 1280 | 8512.3 | 1294.1 | 1280 | 8512.68 | 1294.07 | 1280 |
| 8514.09 | 1294.01 | 1280 | 8515.4 | 1293.95 | 1280 | 8518.59 | 1293.87 | 1280 |
| 8524.39 | 1293.8 | 1280 | 8553.72 | 1293.5 | 1280 | 8566.68 | 1293.43 | 1280 |
| 8568.48 | 1293.4 | 1280 | 8570.82 | 1293.4 | 1280 | 8573.13 | 1293.4 | 1280 |
| 8584.64 | 1293.4 | 1280 | 8585.13 | 1293.4 | 1280 | 8589.94 | 1293.4 | 1280 |
| 8595.88 | 1293.4 | 1280 | 8596.87 | 1293.4 | 1280 | 8597.66 | 1293.4 | 1280 |
| 8605.01 | 1293.24 | 1280 | 8622.79 | 1293.1 | 1280 | 8636.56 | 1292.92 | 1280 |
| 8639.96 | 1292.89 | 1280 | 8648.44 | 1292.84 | 1280 | 8653.78 | 1292.79 | 1280 |
| 8713.5 | 1292.5 | 1280 | 8713.78 | 1292.53 | 1280 | 8714.17 | 1292.53 | 1280 |
| 8717.19 | 1292.53 | 1280 | 8722.5 | 1292.54 | 1280 | 8729.24 | 1292.5 | 1280 |
| 8732.04 | 1292.52 | 1280 | 8792.63 | 1291.99 | 1280 | 8807.42 | 1291.98 | 1280 |
| 8808.75 | 1291.98 | 1280 | 8810.58 | 1292 | 1280 | 8814.13 | 1291.97 | 1280 |
| 8820.02 | 1291.97 | 1280 | 8834.87 | 1291.97 | 1280 | 8835.61 | 1291.97 | 1280 |
| 8837.49 | 1292 | 1280 | 8839.01 | 1291.96 | 1280 | 8910.75 | 1292.05 | 1280 |
| 8911.55 | 1292.05 | 1280 | 8912.63 | 1292.05 | 1280 | 8914.82 | 1292 | 1280 |
| 8917.43 | 1292.05 | 1280 | 8919.69 | 1292.05 | 1280 | 8919.88 | 1292.05 | 1280 |
| 8920.15 | 1292.05 | 1280 | 8920.57 | 1292.1 | 1280 | 8920.58 | 1292.05 | 1280 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 8920.66 | 1292.05 | 1280 | 8920.71 | 1292.06 | 1280 | 8920.99 | 1292.06 | 1280 |
| 8921.24 | 1292.1 | 1280 | 8921.37 | 1292.06 | 1280 | 8922.03 | 1292.06 | 1280 |
| 8922.37 | 1292.05 | 1280 | 8922.64 | 1292.05 | 1280 | 8922.75 | 1292.1 | 1280 |
| 8923.15 | 1292.05 | 1280 | 8924.77 | 1292.02 | 1280 | 8925.14 | 1292.02 | 1280 |
| 8926.55 | 1292.01 | 1280 | 8934.16 | 1292 | 1280 | 8934.78 | 1291.94 | 1280 |
| 8939.93 | 1291.9 | 1280 | 8952.73 | 1291.82 | 1280 | 8996.57 | 1291.4 | 1280 |
| 8999.61 | 1291.4 | 1280 | 9003.65 | 1291.4 | 1280 | 9009.44 | 1291.4 | 1280 |
| 9011.04 | 1291.4 | 1280 | 9011.72 | 1291.34 | 1280 | 9017.77 | 1290.7 | 1280 |
| 9029.27 | 1290.52 | 1280 | 9048.56 | 1290.4 | 1280 | 9055.52 | 1290.37 | 1280 |
| 9061.42 | 1290.35 | 1280 | 9074.12 | 1290.3 | 1280 | 9076.15 | 1290.33 | 1280 |
| 9079.28 | 1290.32 | 1280 | 9080.18 | 1290.33 | 1280 | 9082.66 | 1290.33 | 1280 |
| 9085.96 | 1290.3 | 1280 | 9101.99 | 1290.33 | 1280 | 9114.58 | 1290.33 | 1280 |
| 9115.45 | 1290.33 | 1280 | 9124.01 | 1290.33 | 1280 | 9132.22 | 1290.3 | 1280 |
| 9137.54 | 1290.33 | 1280 | 9145.87 | 1290.3 | 1280 | 9146.25 | 1290.3 | 1280 |
| 9159.4 | 1290.29 | 1280 | 9179.9 | 1289.4 | 1280 | 9251.76 | 1289.83 | 1280 |
| 9255.91 | 1289.83 | 1280 | 9256.44 | 1289.83 | 1280 | 9258.28 | 1289.83 | 1280 |
| 9263.11 | 1289.8 | 1280 | 9264.12 | 1289.83 | 1280 | 9266.43 | 1289.83 | 1280 |
| 9270.04 | 1289.83 | 1280 | 9274.97 | 1289.76 | 1280 | 9275.33 | 1289.7 | 1280 |
| 9276.07 | 1289.74 | 1280 | 9276.96 | 1289.74 | 1280 | 9279.05 | 1289.74 | 1280 |
| 9290.6 | 1289.72 | 1280 | 9319.38 | 1289.7 | 1280 | 9332.95 | 1289.62 | 1280 |
| 9343.36 | 1289.57 | 1280 | 9360.27 | 1289.5 | 1280 | 9385.18 | 1289.4 | 1280 |
| 9385.73 | 1289.4 | 1280 | 9389.77 | 1289.37 | 1280 | 9393.36 | 1289.35 | 1280 |
| 9398.89 | 1289.35 | 1280 | 9399.36 | 1289.34 | 1280 | 9403.23 | 1289.2 | 1280 |
| 9404.49 | 1289.25 | 1280 | 9437.33 | 1288.46 | 1280 | 9440.64 | 1288.47 | 1280 |
| 9442.06 | 1288.46 | 1280 | 9443.18 | 1288.5 | 1280 | 9450.34 | 1288.45 | 1280 |
| 9458.1 | 1288.45 | 1280 | 9562.04 | 1288.72 | 1280 | 9562.25 | 1288.7 | 1280 |
| 9562.41 | 1288.72 | 1280 | 9562.69 | 1288.72 | 1280 | 9563.01 | 1288.72 | 1280 |
| 9563.49 | 1288.71 | 1280 | 9563.78 | 1288.7 | 1280 | 9564.05 | 1288.72 | 1280 |
| 9564.39 | 1288.71 | 1280 | 9564.71 | 1288.71 | 1280 | 9565.05 | 1288.71 | 1280 |
| 9565.34 | 1288.7 | 1280 | 9566.14 | 1288.71 | 1280 | 9566.25 | 1288.71 | 1280 |
| 9566.31 | 1288.71 | 1280 | 9566.33 | 1288.71 | 1280 | 9566.59 | 1288.7 | 1280 |
| 9566.9 | 1288.71 | 1280 | 9566.94 | 1288.72 | 1280 | 9566.99 | 1288.72 | 1280 |
| 9567.02 | 1288.72 | 1280 | 9567.41 | 1288.7 | 1280 | 9567.46 | 1288.72 | 1280 |
| 9567.55 | 1288.72 | 1280 | 9567.69 | 1288.72 | 1280 | 9567.93 | 1288.71 | 1280 |
| 9568.38 | 1288.7 | 1280 | 9568.49 | 1288.72 | 1280 | 9568.6 | 1288.72 | 1280 |
| 9568.74 | 1288.72 | 1280 | 9568.95 | 1288.72 | 1280 | 9569.03 | 1288.7 | 1280 |
| 9569.16 | 1288.71 | 1280 | 9569.39 | 1288.71 | 1280 | 9569.47 | 1288.71 | 1280 |
| 9569.64 | 1288.71 | 1280 | 9569.78 | 1288.7 | 1280 | 9569.82 | 1288.71 | 1280 |
| 9570.05 | 1288.71 | 1280 | 9570.19 | 1288.71 | 1280 | 9572.79 | 1288.69 | 1280 |
| 9572.98 | 1288.7 | 1280 | 9884.12 | 1288.4 | 1280 | 9965.89 | 1287.5 | 1280 |
| 9993.88 | 1287.5 | 1280 | 10000 | 1287.41 | 1280 | 10040 | 1287.44 | 1280 |

Downstream Bridge Cross Section Data
Station Elevation Data num= 111

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9400 | 1288 | 9408.48 | 1288 | 9411.46 | 1288 | 9412.66 | 1288 | 9413.03 | 1288 |
| 9416.77 | 1287.86 | 9436.59 | 1287.79 | 9458.64 | 1287.69 | 9470.88 | 1287.59 | 9496.06 | 1287.4 |
| 9519.84 | 1287.29 | 9524.88 | 1287.26 | 9526.47 | 1287.26 | 9533.37 | 1287.24 | 9558.75 | 1287.2 |
| 9568.61 | 1287.12 | 9574.87 | 1287.1 | 9576.99 | 1287.11 | 9579.43 | 1287.14 | 9581.71 | 1287.1 |
| 9600.46 | 1286.96 | 9606.15 | 1286.95 | 9614.41 | 1286.94 | 9619.23 | 1286.93 | 9626.53 | 1286.9 |
| 9633.81 | 1286.84 | 9635.38 | 1286.84 | 9636.57 | 1286.83 | 9640.83 | 1286.82 | 9643.89 | 1286.8 |
| 9646.38 | 1286.81 | 9650.13 | 1286.81 | 9654.57 | 1286.79 | 9659.03 | 1286.78 | 9664.79 | 1286.8 |
| 9668.19 | 1286.77 | 9671.28 | 1286.77 | 9675.25 | 1286.77 | 9678.9 | 1286.77 | 9682.71 | 1286.8 |
| 9685.85 | 1286.76 | 9689.71 | 1286.79 | 9694.54 | 1286.82 | 9700.28 | 1286.85 | 9710.44 | 1286.9 |
| 9712.25 | 1286.86 | 9712.99 | 1286.86 | 9713.45 | 1286.86 | 9733.38 | 1286.93 | 9737.17 | 1286.9 |
| 9741.5 | 1286.93 | 9742.29 | 1286.94 | 9743.22 | 1286.94 | 9743.77 | 1286.94 | 9751.51 | 1287 |
| 9752.26 | 1286.95 | 9754.52 | 1286.97 | 9755.96 | 1286.96 | 9758.4 | 1286.95 | 9765.32 | 1287 |
| 9769.13 | 1286.97 | 9771.62 | 1286.97 | 9773.31 | 1287 | 9774.11 | 1287.03 | 9776.21 | 1287.1 |
| 9779.44 | 1287.11 | 9783.59 | 1287.15 | 9784.52 | 1287.17 | 9798.24 | 1287.47 | 9804.78 | 1287.5 |
| 9810.33 | 1287.44 | 9810.84 | 1287.44 | 9812.51 | 1287.43 | 9825.33 | 1287.34 | 9839.08 | 1287.2 |
| 9846.92 | 1287.11 | 9867.85 | 1286.89 | 9869.19 | 1286.89 | 9872.02 | 1286.88 | 9873.32 | 1286.9 |
| 9875.96 | 1286.87 | 9876.72 | 1286.87 | 9878.95 | 1286.87 | 9880.09 | 1286.87 | 9881.11 | 1286.9 |
| 9882.54 | 1286.86 | 9883.75 | 1286.86 | 9888.16 | 1286.89 | 9909.18 | 1286.6 | 9911.12 | 1286.6 |
| 9912.31 | 1286.6 | 9936.6 | 1286.25 | 9937.65 | 1286.24 | 9953.84 | 1286 | 9956.51 | 1284.4 |

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 9957.14    1284 9957.42 1283.91 9960.56  1282.2 9963.42    1284 9965.05  1285.2
 9966.26    1286 9968.38 1286.38 9974.03 1287.26 9978.68    1288 9979.39    1288
 9986.45 1288.04 9988.35 1288.05 9988.83 1288.05 9989.64 1288.05 9996.33  1288.1
   10000 1288.06

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9400    .045 9953.84    .035   10000    .035

Bank Sta: Left   Right    Coeff Contr.   Expan.
       9953.84   10000            .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
    9400 9953.84
Left Levee      Station= 9810.84      Elevation= 1287.44
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 9785.53 9851.84    1289

Upstream Embankment side slope              =       2 horiz. to 1.0 vertical
Downstream Embankment side slope            =       2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =    1288
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Culvert PA64    Circular     2.5
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 1 - Square edge entrance with headwall
Solution Criteria = Inlet control
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                  7     260       .014                    1                1
Upstream   Elevation =  1283
           Centerline Station =  9964
Downstream Elevation =  1282.27
           Centerline Station =  9960.5

CULVERT OUTPUT    Profile #PF 1
Culvert ID : Culvert PA64

  Culv Q (cfs)             46.46   Culv Vel In (ft/s)        9.46
  # Barrels                    1   Culv Vel Out (ft/s)       9.46
  Q Barrel (cfs)           46.46   Culv Inv El Up (ft)    1283.00
  E.G. US. (ft)          1288.24   Culv Inv El Dn (ft)    1282.27
  W.S. US. (ft)          1288.23   Culv Frctn Ls (ft)        0.00
  Delta EG (ft)             1.79   Culv Ext Lss (ft)         1.35
  Delta WS (ft)             1.84   Culv Ent Lss (ft)         1.39
  E.G. IC (ft)           1288.24   Q Weir (cfs)              3.54
  E.G. OC (ft)           1288.46   Weir Sta Lft (ft)      9954.27
  Culvert Control          Inlet   Weir Sta Rgt (ft)      9993.37
  Culv WS In (ft)        1285.50   Weir Submerg              0.00
  Culv WS Out (ft)       1284.77   Weir Max Depth (ft)       0.13
  Culv Nml Depth (ft)       2.50   Weir Avg Depth (ft)       0.10
  Culv Crt Depth (ft)       2.25   Wr Flw Area (sq ft)       4.08
  Culv Ful Lngh (ft)      260.00   Min Top Rd (ft)        1288.11


Note:    The normal depth exceeds the height of the culvert.  The program assumes that the normal
         depth is equal to the height of the culvert.
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CROSS SECTION RIVER: Runoff
REACH: PA64-PA84 RS: 24400

INPUT
Description: Station 244+00
Station Elevation Data num= 111

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9400 | 1288 | 9408.48 | 1288 | 9411.46 | 1288 | 9412.66 | 1288 | 9413.03 | 1288 |
| 9416.77 | 1287.86 | 9436.59 | 1287.79 | 9458.64 | 1287.69 | 9470.88 | 1287.59 | 9496.06 | 1287.4 |
| 9519.84 | 1287.29 | 9524.88 | 1287.26 | 9526.47 | 1287.26 | 9533.37 | 1287.24 | 9558.75 | 1287.2 |
| 9568.61 | 1287.12 | 9574.87 | 1287.1 | 9576.99 | 1287.11 | 9579.43 | 1287.14 | 9581.71 | 1287.1 |
| 9600.46 | 1286.96 | 9606.15 | 1286.95 | 9614.41 | 1286.94 | 9619.23 | 1286.93 | 9626.53 | 1286.9 |
| 9633.81 | 1286.84 | 9635.38 | 1286.84 | 9636.57 | 1286.83 | 9640.83 | 1286.82 | 9643.89 | 1286.8 |
| 9646.38 | 1286.81 | 9650.13 | 1286.81 | 9654.57 | 1286.79 | 9659.03 | 1286.78 | 9664.79 | 1286.8 |
| 9668.19 | 1286.77 | 9671.28 | 1286.77 | 9675.25 | 1286.77 | 9678.9 | 1286.77 | 9682.71 | 1286.8 |
| 9685.85 | 1286.76 | 9689.71 | 1286.79 | 9694.54 | 1286.82 | 9700.28 | 1286.85 | 9710.44 | 1286.9 |
| 9712.25 | 1286.86 | 9712.99 | 1286.86 | 9713.45 | 1286.86 | 9733.38 | 1286.93 | 9737.17 | 1286.9 |
| 9741.5 | 1286.93 | 9742.29 | 1286.94 | 9743.22 | 1286.94 | 9743.77 | 1286.94 | 9751.51 | 1287 |
| 9752.26 | 1286.95 | 9754.52 | 1286.97 | 9755.96 | 1286.96 | 9758.4 | 1286.95 | 9765.32 | 1287 |
| 9769.13 | 1286.97 | 9771.62 | 1286.97 | 9773.31 | 1287 | 9774.11 | 1287.03 | 9776.21 | 1287.1 |
| 9779.44 | 1287.11 | 9783.59 | 1287.15 | 9784.52 | 1287.17 | 9798.24 | 1287.47 | 9804.78 | 1287.5 |
| 9810.33 | 1287.44 | 9810.84 | 1287.44 | 9812.51 | 1287.43 | 9825.33 | 1287.34 | 9839.08 | 1287.2 |
| 9846.92 | 1287.11 | 9867.85 | 1286.89 | 9869.19 | 1286.89 | 9872.02 | 1286.88 | 9873.32 | 1286.9 |
| 9875.96 | 1286.87 | 9876.72 | 1286.87 | 9878.95 | 1286.87 | 9880.09 | 1286.87 | 9881.11 | 1286.9 |
| 9882.54 | 1286.86 | 9883.75 | 1286.86 | 9888.16 | 1286.89 | 9909.18 | 1286.6 | 9911.12 | 1286.6 |
| 9912.31 | 1286.6 | 9936.6 | 1286.25 | 9937.65 | 1286.24 | 9953.84 | 1286 | 9956.51 | 1284.4 |
| 9957.14 | 1284 | 9957.42 | 1283.91 | 9960.56 | 1282.2 | 9963.42 | 1284 | 9965.05 | 1285.2 |
| 9966.26 | 1286 | 9968.38 | 1286.38 | 9974.03 | 1287.26 | 9978.68 | 1288 | 9979.39 | 1288 |
| 9986.45 | 1288.04 | 9988.35 | 1288.05 | 9988.83 | 1288.05 | 9989.64 | 1288.05 | 9996.33 | 1288.1 |
| 10000 | 1288.06 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9400 | .045 | 9953.84 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9953.84 | 10000 | 200 | 200 | 200 | .3 | .5 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 9400 | 9953.84 | |

Left Levee Station= 9810.84 Elevation= 1287.44
Blocked Obstructions num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 9785.53 | 9851.84 | 1289 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1286.44 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.04 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1286.40 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1284.39 | Flow Area (sq ft) | | 29.54 | |
| E.G. Slope (ft/ft) | 0.000752 | Area (sq ft) | 5.42 | 29.54 | |
| Q Total (cfs) | 50.00 | Flow (cfs) | | 50.00 | |
| Top Width (ft) | 42.17 | Top Width (ft) | 27.52 | 14.66 | |
| Vel Total (ft/s) | 1.69 | Avg. Vel. (ft/s) | | 1.69 | |
| Max Chl Dpth (ft) | 4.20 | Hydr. Depth (ft) | | 2.02 | |
| Conv. Total (cfs) | 1822.7 | Conv. (cfs) | | 1822.7 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 16.85 | |
| Min Ch El (ft) | 1282.20 | Shear (lb/sq ft) | | 0.08 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.14 | |
| Frctn Loss (ft) | 0.13 | Cum Volume (acre-ft) | 0.25 | 1.31 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.44 | 0.83 | |

CROSS SECTION RIVER: Runoff
REACH: PA64-PA84 RS: 24200

INPUT
Description: Station 242+00
Station Elevation Data num= 42

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9500 | 1287.89 | 9620.86 | 1286.6 | 9628.55 | 1286.56 | 9636.44 | 1286.51 | 9644.11 | 1286.5 |
| 9668.25 | 1286.34 | 9677.56 | 1286.3 | 9678.7 | 1286.29 | 9680.83 | 1286.28 | 9717.27 | 1286 |
| 9727.33 | 1286.03 | 9737.44 | 1286 | 9751.1 | 1286 | 9751.64 | 1286 | 9762.6 | 1286 |
| 9770.63 | 1286 | 9772.69 | 1286 | 9784.93 | 1286 | 9788.64 | 1286 | 9829.44 | 1286 |
| 9836.53 | 1286 | 9840.15 | 1286 | 9864.72 | 1286.54 | 9882.81 | 1286.52 | 9898.15 | 1286.4 |
| 9899.55 | 1286.44 | 9904.17 | 1286.43 | 9917.48 | 1286.33 | 9945.12 | 1286.07 | 9950.79 | 1286 |
| 9951.69 | 1285.48 | 9954.59 | 1284 | 9957.32 | 1282.76 | 9958.86 | 1281.97 | 9959.6 | 1281.97 |
| 9959.8 | 1281.97 | 9960.43 | 1282.39 | 9963.09 | 1284 | 9964.77 | 1285.01 | 9966.42 | 1286 |
| 9971.97 | 1286.28 | 10000 | 1287.85 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9500 | .045 | 9945.12 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9945.12 | 10000 | 100 | 100 | 100 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 9500 | 9945.12 | |

Left Levee Station= 9896.72 Elevation= 1287.5
Blocked Obstructions num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 9881.99 | 9917.48 | 1289 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1286.30 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.02 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1286.28 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | 1283.89 | Flow Area (sq ft) | | 40.15 | |
| E.G. Slope (ft/ft) | 0.000556 | Area (sq ft) | 2.34 | 40.15 | |
| Q Total (cfs) | 50.00 | Flow (cfs) | | 50.00 | |
| Top Width (ft) | 49.14 | Top Width (ft) | 22.29 | 26.84 | |
| Vel Total (ft/s) | 1.25 | Avg. Vel. (ft/s) | | 1.25 | |
| Max Chl Dpth (ft) | 4.31 | Hydr. Depth (ft) | | 1.50 | |
| Conv. Total (cfs) | 2121.0 | Conv. (cfs) | | 2121.0 | |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | | 28.94 | |
| Min Ch El (ft) | 1281.97 | Shear (lb/sq ft) | | 0.05 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.06 | |
| Frctn Loss (ft) | 0.03 | Cum Volume (acre-ft) | 0.23 | 1.15 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.33 | 0.74 | |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Runoff
REACH: PA64-PA84 RS: 24100

INPUT
Description: Station 241+00
Station Elevation Data num= 37

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9492.23 | 1287.85 | 9729.57 | 1286.31 | 9735.84 | 1286.3 | 9828.66 | 1286 | 9830.21 | 1286 |
| 9835.15 | 1286 | 9835.99 | 1286 | 9836.61 | 1286 | 9851.01 | 1286 | 9851.65 | 1286 |
| 9869.35 | 1286 | 9871.28 | 1286 | 9898.27 | 1286 | 9898.38 | 1286 | 9899.12 | 1286 |
| 9912.9 | 1286 | 9917.48 | 1286 | 9927.25 | 1285.67 | 9931.7 | 1285.6 | 9935.5 | 1285.62 |

```
 9939.44 1285.77    99501284.501 9954.17    1284 9955.65 1283.26  9958.2 1281.85
 9959.15 1281.85 9959.61 1281.85 9960.63 1282.53  9960.8 1282.55 9963.84  1283.8
 9964.31    1284 9964.37 1284.04 9966.76    1286 9986.08 1287.03 9991.25  1287.3
 9993.68 1287.44   10000 1287.71

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 9492.23    .045 9939.44    .035   10000    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9939.44   10000              300     300     300              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 9492.23 9939.44

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1286.27   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.01   Wt. n-Val.                            0.035
  W.S. Elev (ft)            1286.26   Reach Len. (ft)             300.00    300.00     300.00
  Crit W.S. (ft)                      Flow Area (sq ft)                      58.75
  E.G. Slope (ft/ft)       0.000194   Area (sq ft)                 44.78     58.75
  Q Total (cfs)               50.00   Flow (cfs)                             50.00
  Top Width (ft)             222.73   Top Width (ft)              190.57     32.16
  Vel Total (ft/s)             0.85   Avg. Vel. (ft/s)                        0.85
  Max Chl Dpth (ft)            4.41   Hydr. Depth (ft)                        1.83
  Conv. Total (cfs)          3590.2   Conv. (cfs)                           3590.2
  Length Wtd. (ft)           300.00   Wetted Per. (ft)                       34.02
  Min Ch El (ft)            1281.85   Shear (lb/sq ft)                        0.02
  Alpha                        1.00   Stream Power (lb/ft s)                  0.02
  Frctn Loss (ft)              0.14   Cum Volume (acre-ft)          0.18      1.03
  C & E Loss (ft)              0.00   Cum SA (acres)                1.09      0.67


CROSS SECTION          RIVER: Runoff
REACH: PA64-PA84          RS: 23800

INPUT
Description: Station 238+00
Station Elevation Data    num=      41
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9500  1288.1 9505.39 1288.03 9510.12    1288 9517.11 1287.96 9570.84 1287.65
 9680.95  1287.3 9683.84 1287.27 9784.84 1286.33 9786.06 1286.32 9796.89  1286.1
 9797.28  1286.1 9798.32 1286.07 9801.53 1286.04 9802.68 1286.04    9804 1286.05
 9805.38  1286.1 9806.88 1286.14  9809.5 1286.14 9813.37 1286.12 9814.65 1286.13
 9900.54    1286 9906.11    1286  9906.6    1286 9907.44    1286 9915.09 1285.75
 9957.91    1284 9961.17 1282.38 9961.98 1281.51  9962.2 1281.51 9964.81 1281.51
 9965.47  1282.4 9968.16    1284 9970.56 1285.53 9971.38    1286 9972.69 1286.09
 9984.56  1286.8 9987.87    1287  9990.5 1287.16 9994.26 1287.38 9995.86 1287.48
   10000  1287.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9500    .045 9907.44    .035   10000    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9907.44   10000              200     200     200              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
    9500 9907.44

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1286.12   Element                    Left OB    Channel   Right OB
```

| | | | | | |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.03 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1286.09 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 93.54 | |
| E.G. Slope (ft/ft) | 0.000760 | Area (sq ft) | 3.65 | 93.54 | |
| Q Total (cfs) | 136.00 | Flow (cfs) | | 136.00 | |
| Top Width (ft) | 140.06 | Top Width (ft) | 74.79 | 65.27 | |
| Vel Total (ft/s) | 1.45 | Avg. Vel. (ft/s) | | 1.45 | |
| Max Chl Dpth (ft) | 4.58 | Hydr. Depth (ft) | | 1.43 | |
| Conv. Total (cfs) | 4934.2 | Conv. (cfs) | | 4934.2 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 67.53 | |
| Min Ch El (ft) | 1281.51 | Shear (lb/sq ft) | | 0.07 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.10 | |
| Frctn Loss (ft) | 0.23 | Cum Volume (acre-ft) | 0.01 | 0.51 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.17 | 0.33 | |

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Runoff
REACH: PA64-PA84 RS: 23600

INPUT
Description: Station 236+00
Station Elevation Data num= 34

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9500 | 1288.2 | 9560.37 | 1288 | 9584.68 | 1287.8 | 9588.76 | 1287.77 | 9593.95 | 1287.73 |
| 9600.79 | 1287.7 | 9655.1 | 1287.21 | 9795.43 | 1286 | 9795.84 | 1286 | 9824.14 | 1286 |
| 9834.54 | 1286 | 9839.15 | 1286 | 9842.57 | 1286 | 9844.82 | 1286 | 9905.36 | 1286 |
| 9917.66 | 1286 | 9920.74 | 1286 | 9926.11 | 1286 | 9931.36 | 1286 | 9937.01 | 1286 |
| 9941.34 | 1286 | 9958.09 | 1284.15 | 9958.93 | 1284 | 9959.15 | 1283.86 | 9962.42 | 1281.28 |
| 9963.87 | 1281.28 | 9965.86 | 1281.28 | 9967.44 | 1282.94 | 9969.06 | 1284 | 9970.63 | 1284.96 |
| 9972.16 | 1286 | 9973.57 | 1286.19 | 9976.79 | 1286.58 | 10000 | 1287.63 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9500 | .045 | 9941.34 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9941.34 | 10000 | 50 | 50 | 50 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 9500 | 9941.34 | |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1285.89 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.11 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1285.78 | Reach Len. (ft) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 51.96 | |
| E.G. Slope (ft/ft) | 0.001918 | Area (sq ft) | | 51.96 | |
| Q Total (cfs) | 136.00 | Flow (cfs) | | 136.00 | |
| Top Width (ft) | 28.52 | Top Width (ft) | | 28.52 | |
| Vel Total (ft/s) | 2.62 | Avg. Vel. (ft/s) | | 2.62 | |
| Max Chl Dpth (ft) | 4.50 | Hydr. Depth (ft) | | 1.82 | |
| Conv. Total (cfs) | 3105.3 | Conv. (cfs) | | 3105.3 | |
| Length Wtd. (ft) | 50.00 | Wetted Per. (ft) | | 31.11 | |
| Min Ch El (ft) | 1281.28 | Shear (lb/sq ft) | | 0.20 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.52 | |
| Frctn Loss (ft) | 0.07 | Cum Volume (acre-ft) | | 0.18 | |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | | 0.12 | |

CROSS SECTION RIVER: Runoff
REACH: PA64-PA84 RS: 23550

INPUT
Description: Station 235+50
Station Elevation Data num= 40

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9500 | 1288.2 | 9543.93 | 1288.07 | 9564.93 | 1288 | 9601.21 | 1287.67 | 9658.27 | 1287.15 |
| 9744.64 | 1286.5 | 9763.15 | 1286.25 | 9785.33 | 1286 | 9785.34 | 1286 | 9785.44 | 1286 |
| 9785.6 | 1286 | 9797.05 | 1286 | 9806.1 | 1286 | 9845.9 | 1286 | 9849.94 | 1286 |
| 9858.07 | 1286 | 9863.47 | 1286 | 9875.18 | 1286 | 9884.09 | 1286 | 9910.45 | 1286 |
| 9914.52 | 1286 | 9919.36 | 1286 | 9920.93 | 1285.98 | 9921.76 | 1286 | 9921.8 | 1286 |
| 9923.06 | 1285.9 | 9943.67 | 1284.9 | 9947.94 | 1284.72 | 9954.94 | 1284.36 | 9961.66 | 1284 |
| 9963.06 | 1283.3 | 9965.3 | 1281.22 | 9968.18 | 1281.22 | 9969.96 | 1281.22 | 9972.19 | 1282.99 |
| 9974.33 | 1284 | 9976 | 1284.66 | 9979.45 | 1286 | 9985.91 | 1286.8 | 10000 | 1287.72 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9500 | .045 | 9921.8 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9921.8 | 10000 | 50 | 50 | 50 | .3 | .5 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 9500 | 9921.8 | |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1285.80 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.05 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1285.76 | Reach Len. (ft) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 79.58 | |
| E.G. Slope (ft/ft) | 0.000991 | Area (sq ft) | | 79.58 | |
| Q Total (cfs) | 136.00 | Flow (cfs) | | 136.00 | |
| Top Width (ft) | 52.82 | Top Width (ft) | | 52.82 | |
| Vel Total (ft/s) | 1.71 | Avg. Vel. (ft/s) | | 1.71 | |
| Max Chl Dpth (ft) | 4.54 | Hydr. Depth (ft) | | 1.51 | |
| Conv. Total (cfs) | 4320.7 | Conv. (cfs) | | 4320.7 | |
| Length Wtd. (ft) | 50.00 | Wetted Per. (ft) | | 55.02 | |
| Min Ch El (ft) | 1281.22 | Shear (lb/sq ft) | | 0.09 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.15 | |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | | 0.10 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | | 0.07 | |

CROSS SECTION RIVER: Runoff
REACH: PA64-PA84 RS: 23500

INPUT
Description: Station 235+00
Station Elevation Data num= 48

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9500 | 1288.2 | 9532.67 | 1288.08 | 9553.55 | 1288 | 9555.04 | 1288 | 9558.73 | 1288 |
| 9573.47 | 1288 | 9579.23 | 1288 | 9580.29 | 1288 | 9581.15 | 1288 | 9589.4 | 1288 |
| 9603.91 | 1288 | 9607.53 | 1288 | 9614.39 | 1287.93 | 9679.55 | 1287.36 | 9685.58 | 1287.29 |
| 9705.63 | 1287.1 | 9714.22 | 1287 | 9786.48 | 1286 | 9787.32 | 1286 | 9788.31 | 1286 |
| 9791.57 | 1286 | 9791.89 | 1286 | 9792.67 | 1286 | 9803.15 | 1286 | 9813.4 | 1286 |
| 9847.26 | 1286 | 9850.5 | 1286 | 9856.23 | 1286 | 9864 | 1286 | 9879.44 | 1286 |
| 9899.75 | 1286 | 9937.13 | 1284.71 | 9944.57 | 1284.4 | 9957.74 | 1284.14 | 9958.18 | 1284.13 |
| 9960.29 | 1284.2 | 9961.11 | 1284.6 | 9961.62 | 1284 | 9963.03 | 1283.13 | 9964.74 | 1281.16 |
| 9968.43 | 1281.16 | 9969.13 | 1281.16 | 9970.06 | 1282.35 | 9974.44 | 1284 | 9975.06 | 1284.22 |
| 9978.21 | 1286 | 9980.41 | 1286.1 | 10000 | 1287.62 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9500 | .045 | 9899.75 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9899.75 | 10000 | 100 | 100 | 100 | .3 | .5 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 9500 | 9899.75 | |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1285.75 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.03 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1285.72 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 1283.74 | Flow Area (sq ft) | | 95.32 | |
| E.G. Slope (ft/ft) | 0.000787 | Area (sq ft) | | 95.32 | |
| Q Total (cfs) | 136.00 | Flow (cfs) | | 136.00 | |
| Top Width (ft) | 69.85 | Top Width (ft) | | 69.85 | |
| Vel Total (ft/s) | 1.43 | Avg. Vel. (ft/s) | | 1.43 | |
| Max Chl Dpth (ft) | 4.56 | Hydr. Depth (ft) | | 1.36 | |
| Conv. Total (cfs) | 4847.5 | Conv. (cfs) | | 4847.5 | |
| Length Wtd. (ft) | | Wetted Per. (ft) | | 72.71 | |
| Min Ch El (ft) | 1281.16 | Shear (lb/sq ft) | | 0.06 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.09 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

SUMMARY OF MANNING'S N VALUES

River:Runoff

| Reach | River Sta. | n1 | n2 | n3 |
|---|---|---|---|---|
| PA64-PA84 | 24800 | .045 | .035 | .035 |
| PA64-PA84 | 24700 | .045 | .035 | .035 |
| PA64-PA84 | 24693 | Culvert | | |
| PA64-PA84 | 24400 | .045 | .035 | .035 |
| PA64-PA84 | 24200 | .045 | .035 | .035 |
| PA64-PA84 | 24100 | .045 | .035 | .035 |
| PA64-PA84 | 23800 | .045 | .035 | .035 |
| PA64-PA84 | 23600 | .045 | .035 | .035 |
| PA64-PA84 | 23550 | .045 | .035 | .035 |
| PA64-PA84 | 23500 | .045 | .035 | .035 |

SUMMARY OF REACH LENGTHS

River: Runoff

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| PA64-PA84 | 24800 | 100 | 100 | 100 |
| PA64-PA84 | 24700 | 300 | 300 | 300 |
| PA64-PA84 | 24693 | Culvert | | |
| PA64-PA84 | 24400 | 200 | 200 | 200 |
| PA64-PA84 | 24200 | 100 | 100 | 100 |
| PA64-PA84 | 24100 | 300 | 300 | 300 |
| PA64-PA84 | 23800 | 200 | 200 | 200 |
| PA64-PA84 | 23600 | 50 | 50 | 50 |

| | | | | |
|---|---|---|---|---|
| PA64-PA84 | 23550 | 50 | 50 | 50 |
| PA64-PA84 | 23500 | 100 | 100 | 100 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Runoff

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| PA64-PA84 | 24800 | .1 | .3 |
| PA64-PA84 | 24700 | .3 | .5 |
| PA64-PA84 | 24693 | Culvert | |
| PA64-PA84 | 24400 | .3 | .5 |
| PA64-PA84 | 24200 | .1 | .3 |
| PA64-PA84 | 24100 | .1 | .3 |
| PA64-PA84 | 23800 | .1 | .3 |
| PA64-PA84 | 23600 | .1 | .3 |
| PA64-PA84 | 23550 | .3 | .5 |
| PA64-PA84 | 23500 | .3 | .5 |

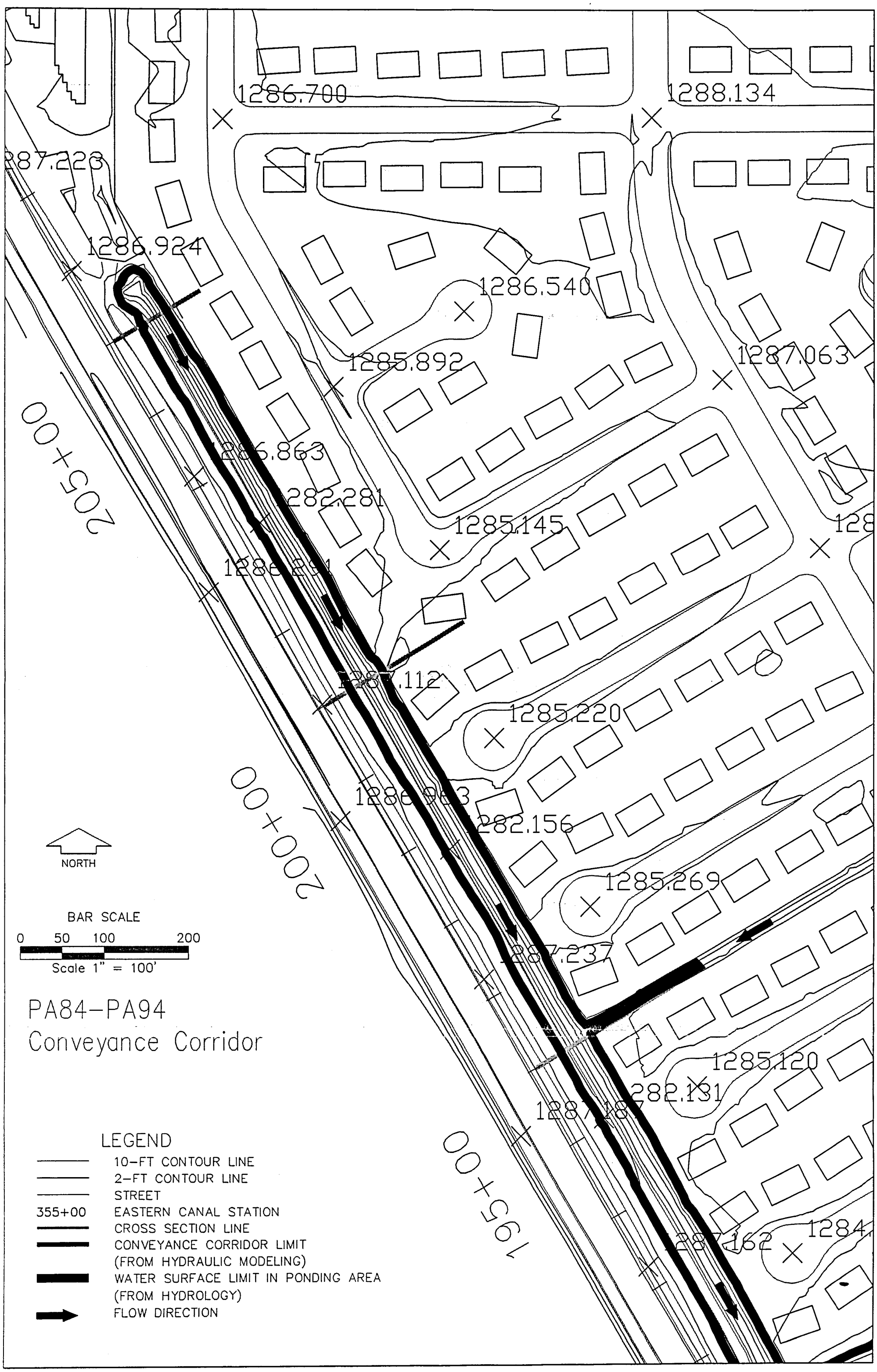
Profile Output Table - Standard Table 1

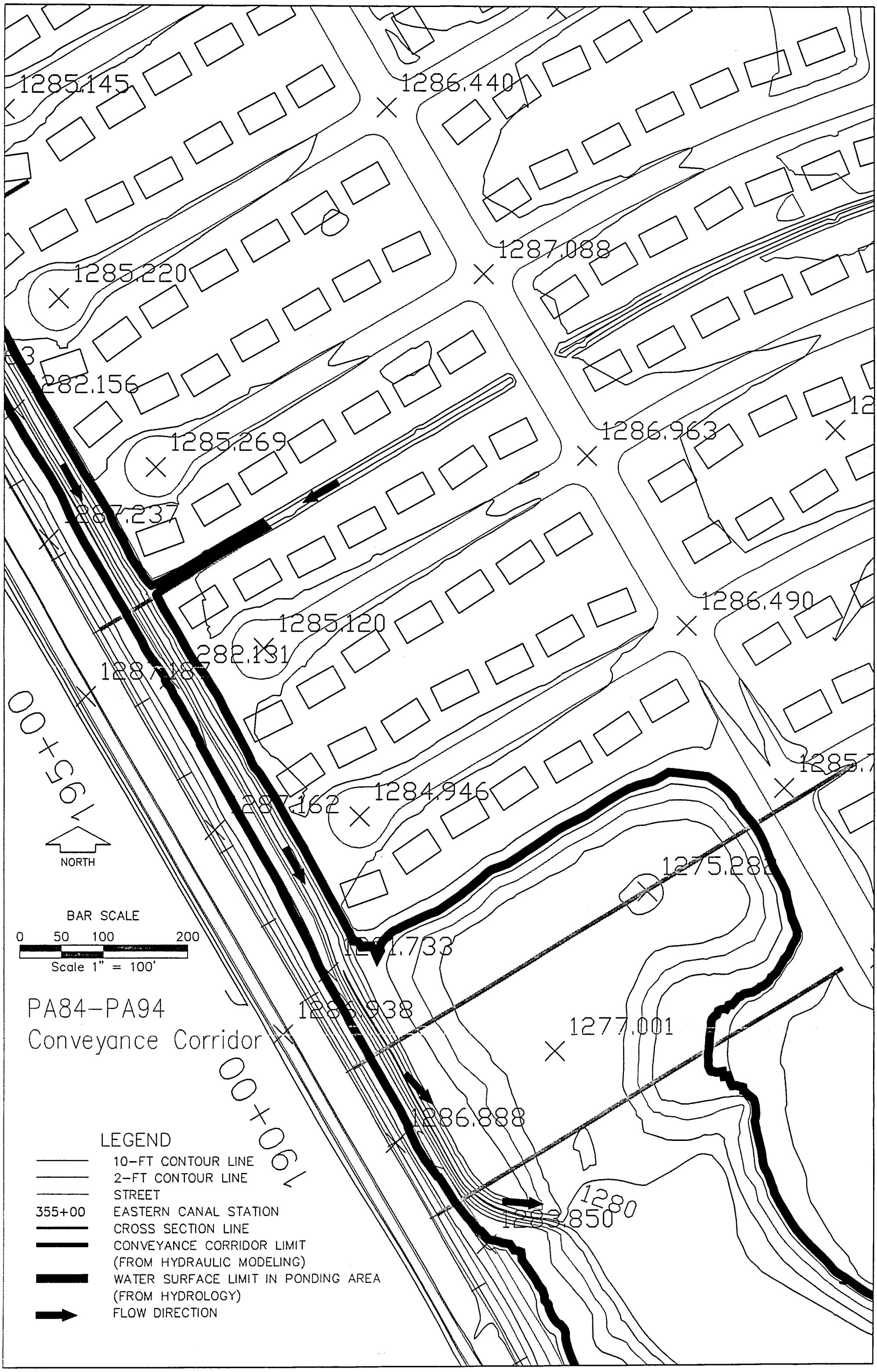
| Reach | River Sta | Q Total (cfs) | Min Ch El (ft) | W.S. Elev (ft) | Crit W.S. (ft) | E.G. Elev (ft) | E.G. Slope (ft/ft) | Vel Chnl (ft/s) | Flow Area (sq ft) | Top Width (ft) | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PA64-PA84 | 24800 | 50.00 | 1284.00 | 1288.24 | | 1288.24 | 0.000032 | 0.35 | 155.55 | 676.70 | 0.05 |
| PA64-PA84 | 24700 | 50.00 | 1283.00 | 1288.23 | 1285.28 | 1288.24 | 0.000051 | 0.46 | 119.63 | 618.48 | 0.06 |
| PA64-PA84 | 24693 | Culvert | | | | | | | | | |
| PA64-PA84 | 24400 | 50.00 | 1282.20 | 1286.40 | 1284.39 | 1286.44 | 0.000752 | 1.69 | 29.54 | 42.17 | 0.21 |
| PA64-PA84 | 24200 | 50.00 | 1281.97 | 1286.28 | 1283.89 | 1286.30 | 0.000556 | 1.25 | 40.15 | 49.14 | 0.18 |
| PA64-PA84 | 24100 | 50.00 | 1281.85 | 1286.26 | | 1286.27 | 0.000194 | 0.85 | 58.75 | 222.73 | 0.11 |
| PA64-PA84 | 23800 | 136.00 | 1281.51 | 1286.09 | | 1286.12 | 0.000760 | 1.45 | 93.54 | 140.06 | 0.21 |
| PA64-PA84 | 23600 | 136.00 | 1281.28 | 1285.78 | | 1285.89 | 0.001918 | 2.62 | 51.96 | 28.52 | 0.34 |
| PA64-PA84 | 23550 | 136.00 | 1281.22 | 1285.76 | | 1285.80 | 0.000991 | 1.71 | 79.58 | 52.82 | 0.25 |
| PA64-PA84 | 23500 | 136.00 | 1281.16 | 1285.72 | 1283.74 | 1285.75 | 0.000787 | 1.43 | 95.32 | 69.85 | 0.22 |

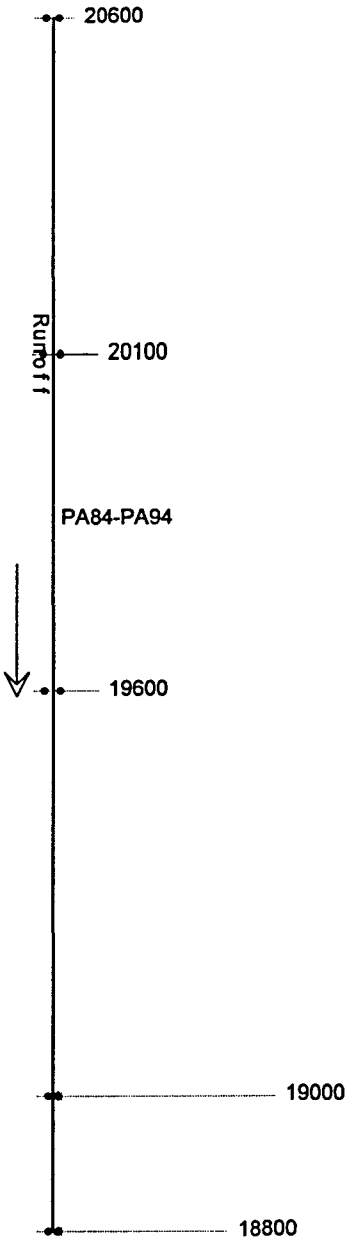
# Appendix E.4

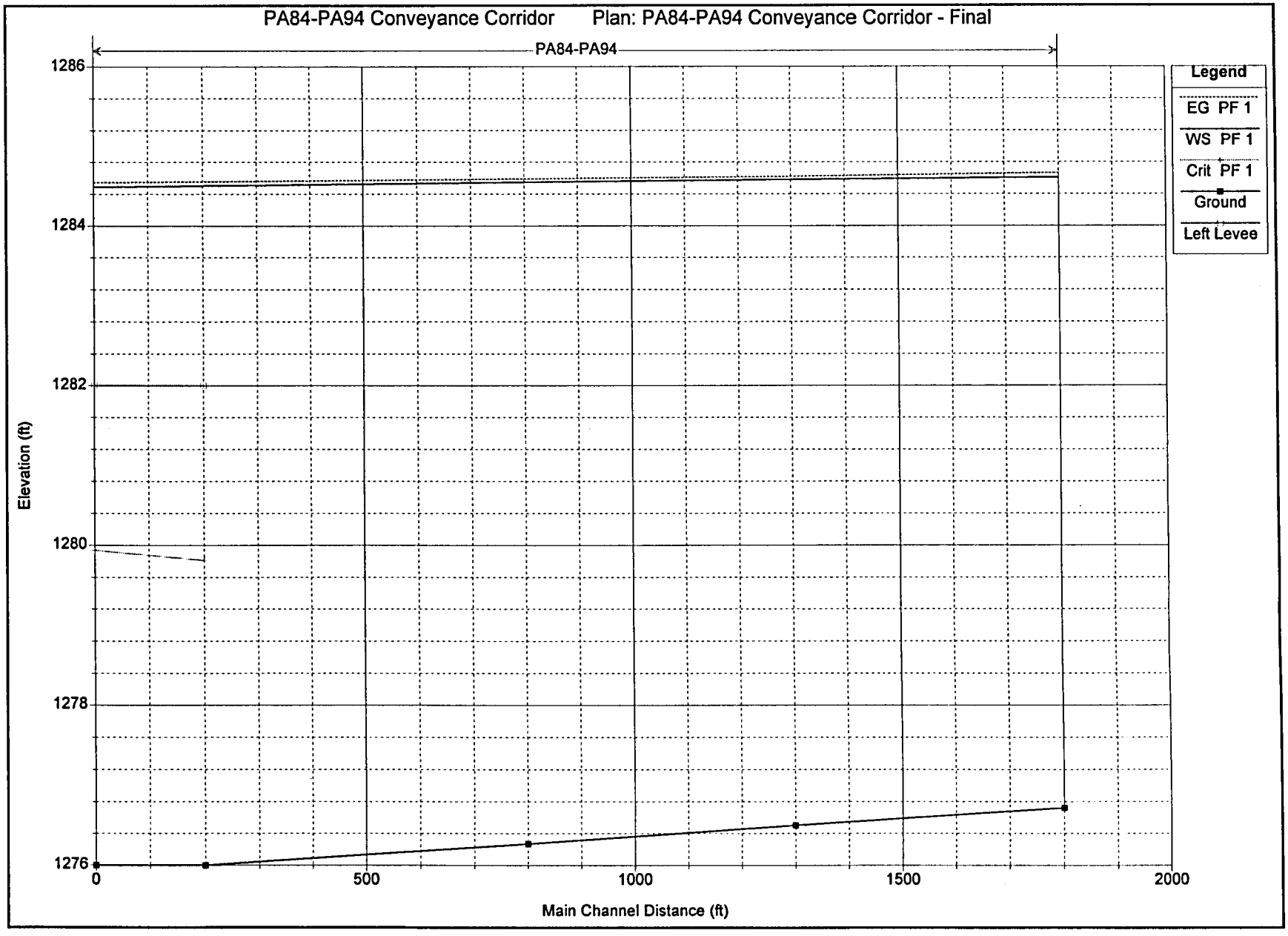
## Hydraulic Modeling of PA84-PA94 Conveyance Corridor

- HEC-RAS Modeling of Runoff Flows within Ponding Areas
  - Geometry – Plan View
  - Flow Profile
  - Summary Table(s)
  - Cross Section Summary Tables
  - Geometry – Cross Sections
  - HEC-RAS Report


1286.700
1288.134
1286.924
1286.540
1285.892
1287.063
1286.863
1285.145
1285.220
1285.269
1285.120
205+00
200+00
195+00
NORTH
BAR SCALE
0 50 100 200
Scale 1" = 100'
PA84–PA94
Conveyance Corridor
LEGEND
10–FT CONTOUR LINE
2–FT CONTOUR LINE
STREET
355+00 EASTERN CANAL STATION
CROSS SECTION LINE
CONVEYANCE CORRIDOR LIMIT (FROM HYDRAULIC MODELING)
WATER SURFACE LIMIT IN PONDING AREA (FROM HYDROLOGY)
FLOW DIRECTION


1285.145
1286.440
1287.088
1285.220
1282.156
1285.269
1286.963
1287.237
1286.490
1285.120
1282.131
1287.187
1285.7
1284.946
1287.162
1275.282
1286.938
1277.001
1286.888
1280
1283.850
195+00
190+00
NORTH
BAR SCALE
0 50 100 200
Scale 1" = 100'
PA84–PA94
Conveyance Corridor
LEGEND
10–FT CONTOUR LINE
2–FT CONTOUR LINE
STREET
355+00 EASTERN CANAL STATION
CROSS SECTION LINE
CONVEYANCE CORRIDOR LIMIT (FROM HYDRAULIC MODELING)
WATER SURFACE LIMIT IN PONDING AREA (FROM HYDROLOGY)
FLOW DIRECTION


20600
Runoff
20100
PA84-PA94
19600
19000
18800


PA84-PA94 Conveyance Corridor Plan: PA84-PA94 Conveyance Corridor - Final
PA84-PA94
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Left Levee
Elevation (ft)
1286
1284
1282
1280
1278
1276
0
500
1000
1500
2000
Main Channel Distance (ft)

HEC-RAS Plan: PA84-PA94 River: Runoff Reach: PA84-PA94

| Reach | River Sta | Q Total | Min Ch El | W.S. Elev | Depth | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| PA84-PA94 | 206+00.0 | 284.00 | 1276.72 | 1284.61 | 7.89 | | 1284.66 | 0.000089 | 1.91 | 151.39 | 48.70 | 0.17 |
| PA84-PA94 | 201+00.0 | 303.00 | 1276.50 | 1284.58 | 8.08 | | 1284.62 | 0.000060 | 1.57 | 194.81 | 56.19 | 0.14 |
| PA84-PA94 | 196+00.0 | 312.00 | 1276.27 | 1284.55 | | | 1284.59 | 0.000059 | 1.62 | 206.28 | 90.76 | 0.14 |
| PA84-PA94 | 190+00.0 | 312.00 | 1276.00 | 1284.50 | 8.50 | 1279.81 | 1284.56 | 0.000050 | 1.86 | 186.52 | 558.96 | 0.14 |
| PA84-PA94 | 188+00.0 | 312.00 | 1276.00 | 1284.49 | 8.49 | 1279.94 | 1284.54 | 0.000054 | 1.91 | 182.48 | 408.40 | 0.14 |

Plan: PA84-PA94 River: Runoff Reach:PA84-PA94 Riv Sta: 20600 Profile: PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1284.66 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.06 | Wt. n-Val. | 0.035 | 0.017 | 0.035 |
| W.S. Elev (ft) | 1284.61 | Reach Len. (ft) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 0.59 | 148.67 | 2.12 |
| E.G. Slope (ft/ft) | 0.000089 | Area (sq ft) | 0.59 | 148.67 | 2.12 |
| Q Total (cfs) | 284.00 | Flow (cfs) | 0.10 | 283.58 | 0.32 |
| Top Width (ft) | 48.70 | Top Width (ft) | 1.94 | 37.63 | 9.13 |
| Vel Total (ft/s) | 1.88 | Avg. Vel. (ft/s) | 0.18 | 1.91 | 0.15 |
| Max Chl Dpth (ft) | 7.89 | Hydr. Depth (ft) | 0.30 | 3.95 | 0.23 |
| Conv. Total (cfs) | 30140.7 | Conv. (cfs) | 11.0 | 30095.7 | 34.1 |
| Length Wtd. (ft) | 500.00 | Wetted Per. (ft) | 2.04 | 42.18 | 9.15 |
| Min Ch El (ft) | 1276.72 | Shear (lb/sq ft) | 0.00 | 0.02 | 0.00 |
| Alpha | 1.03 | Stream Power (lb/ft s) | 0.00 | 0.04 | 0.00 |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | 33.39 | 7.34 | 0.31 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 6.08 | 1.71 | 0.35 |

Plan: PA84-PA94 River: Runoff Reach:PA84-PA94 Riv Sta: 20100 Profile: PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1284.62 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.04 | Wt. n-Val. | 0.035 | 0.017 | 0.035 |
| W.S. Elev (ft) | 1284.58 | Reach Len. (ft) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 0.40 | 193.26 | 1.14 |
| E.G. Slope (ft/ft) | 0.000060 | Area (sq ft) | 0.40 | 193.26 | 1.14 |
| Q Total (cfs) | 303.00 | Flow (cfs) | 0.05 | 302.78 | 0.16 |
| Top Width (ft) | 56.19 | Top Width (ft) | 1.39 | 50.84 | 3.96 |
| Vel Total (ft/s) | 1.56 | Avg. Vel. (ft/s) | 0.14 | 1.57 | 0.14 |
| Max Chl Dpth (ft) | 8.08 | Hydr. Depth (ft) | 0.29 | 3.80 | 0.29 |
| Conv. Total (cfs) | 39184.5 | Conv. (cfs) | 7.1 | 39156.4 | 21.0 |
| Length Wtd. (ft) | 500.00 | Wetted Per. (ft) | 1.50 | 54.76 | 4.01 |
| Min Ch El (ft) | 1276.50 | Shear (lb/sq ft) | 0.00 | 0.01 | 0.00 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.00 | 0.02 | 0.00 |
| Frctn Loss (ft) | 0.03 | Cum Volume (acre-ft) | 33.38 | 5.38 | 0.29 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 6.06 | 1.21 | 0.27 |

Plan: PA84-PA94 River: Runoff Reach:PA84-PA94 Riv Sta: 19600 Profile: PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1284.59 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.04 | Wt. n-Val. | 0.035 | 0.017 | 0.035 |
| W.S. Elev (ft) | 1284.55 | Reach Len. (ft) | 600.00 | 600.00 | 600.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 14.47 | 190.62 | 1.18 |
| E.G. Slope (ft/ft) | 0.000059 | Area (sq ft) | 14.47 | 190.62 | 1.18 |
| Q Total (cfs) | 312.00 | Flow (cfs) | 2.39 | 309.45 | 0.16 |
| Top Width (ft) | 90.76 | Top Width (ft) | 40.20 | 46.24 | 4.32 |
| Vel Total (ft/s) | 1.51 | Avg. Vel. (ft/s) | 0.16 | 1.62 | 0.14 |
| Max Chl Dpth (ft) | 8.28 | Hydr. Depth (ft) | 0.36 | 4.12 | 0.27 |
| Conv. Total (cfs) | 40633.3 | Conv. (cfs) | 310.8 | 40301.6 | 20.9 |
| Length Wtd. (ft) | 600.00 | Wetted Per. (ft) | 40.23 | 50.67 | 4.35 |
| Min Ch El (ft) | 1276.27 | Shear (lb/sq ft) | 0.00 | 0.01 | 0.00 |
| Alpha | 1.14 | Stream Power (lb/ft s) | 0.00 | 0.02 | 0.00 |

Plan: PA84-PA94 River: Runoff Reach:PA84-PA94 Riv Sta: 19600 Profile: PF 1 (Continued)

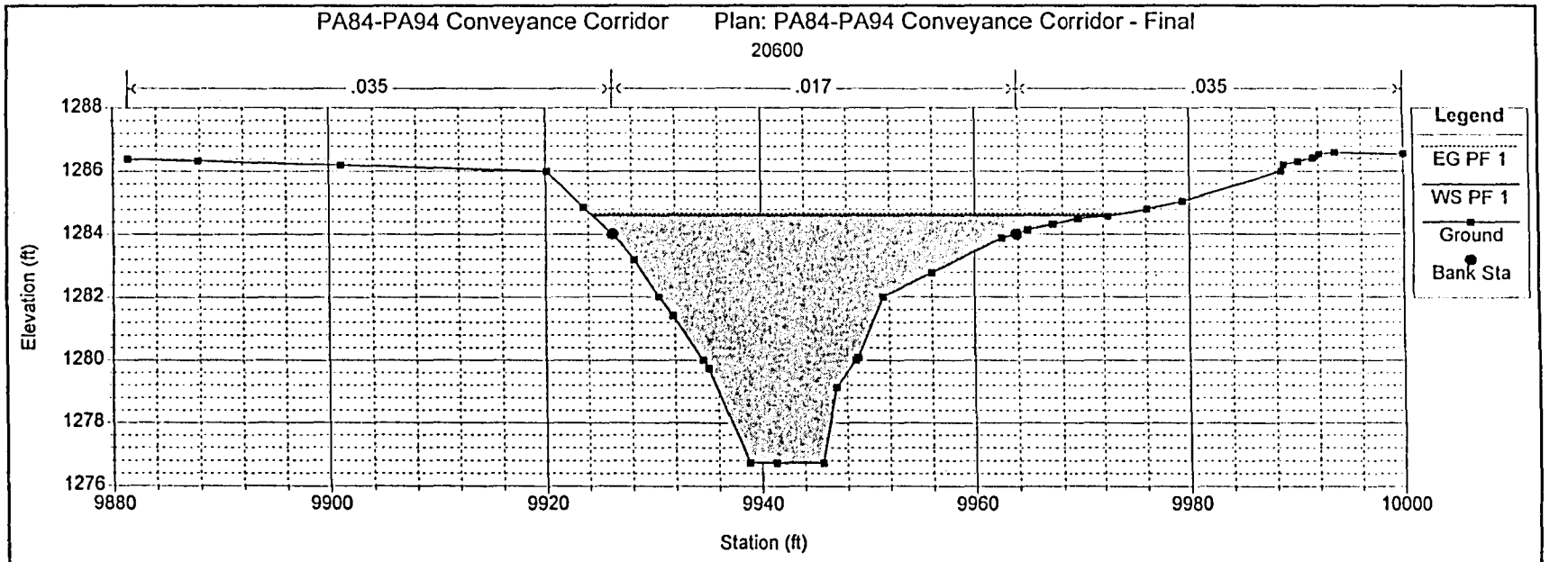
| | | | | | |
|---|---|---|---|---|---|
| Frctn Loss (ft) | 0.03 | Cum Volume (acre-ft) | 33.30 | 3.18 | 0.27 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 5.82 | 0.65 | 0.23 |

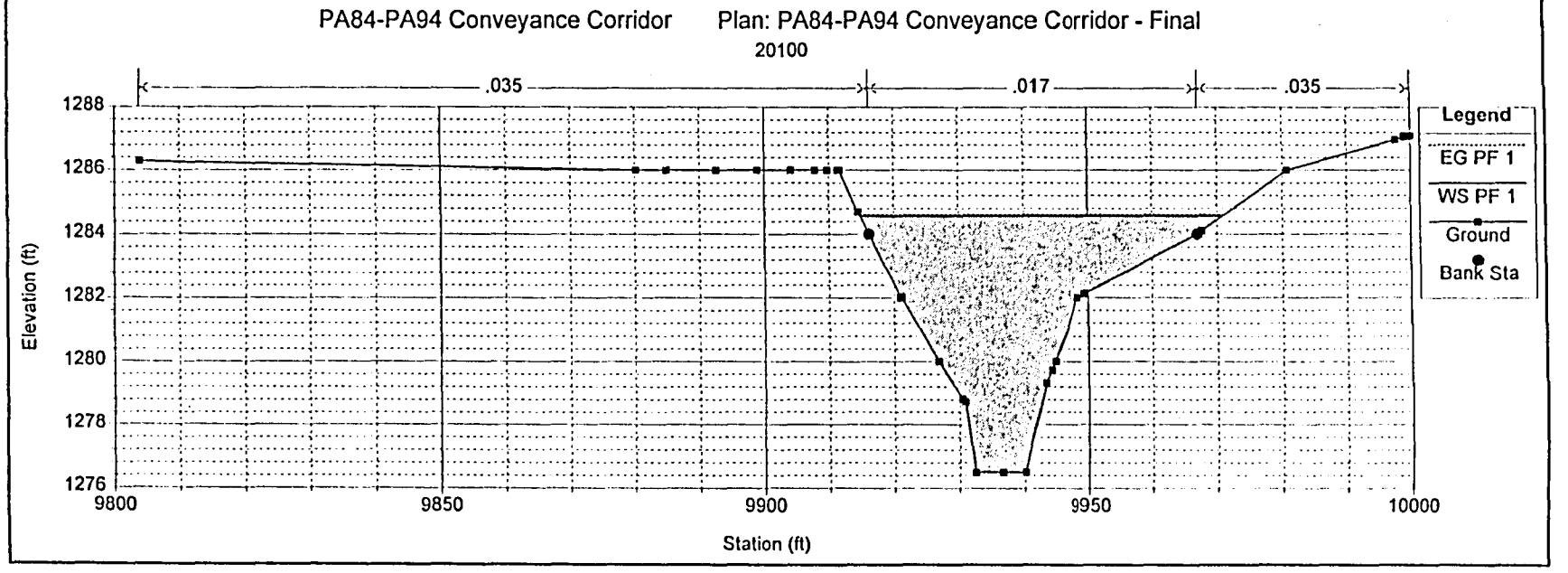
Plan: PA84-PA94 River: Runoff Reach:PA84-PA94 Riv Sta: 19000 Profile: PF 1

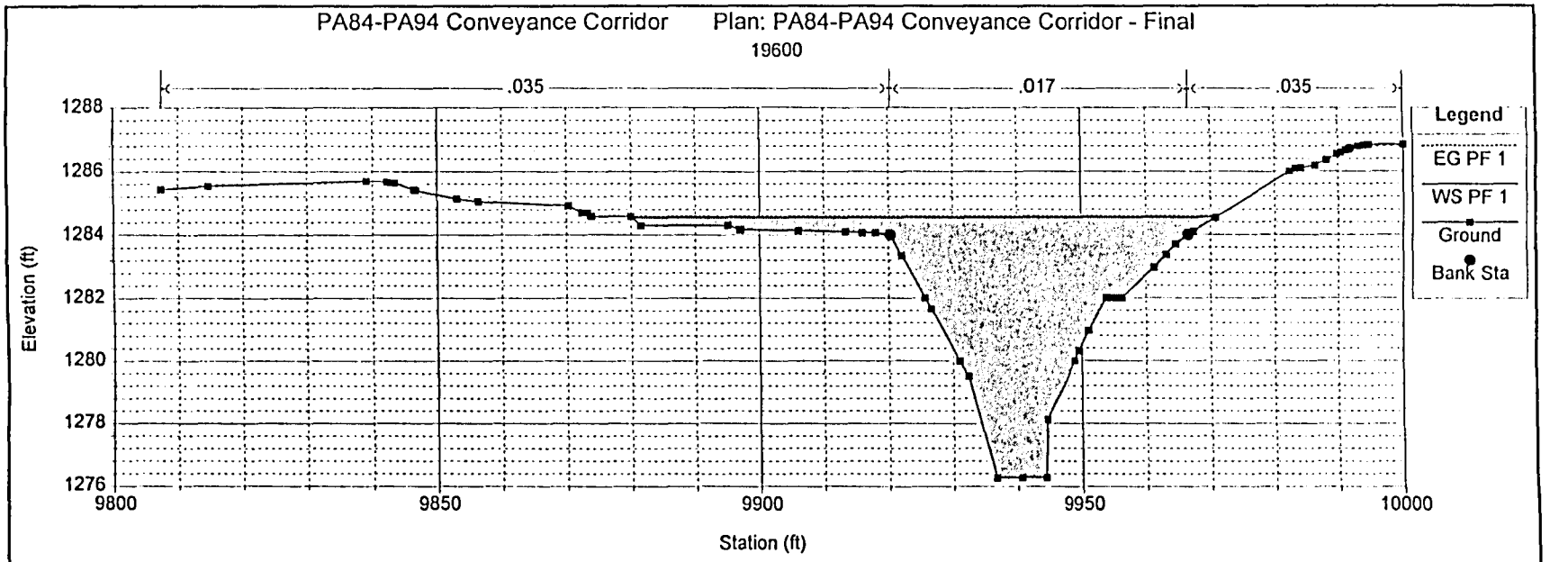
| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1284.56 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.05 | Wt. n-Val. | | 0.017 | 0.035 |
| W.S. Elev (ft) | 1284.50 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1279.81 | Flow Area (sq ft) | | 163.30 | 23.22 |
| E.G. Slope (ft/ft) | 0.000050 | Area (sq ft) | 3230.29 | 163.30 | 23.22 |
| Q Total (cfs) | 312.00 | Flow (cfs) | | 303.54 | 8.46 |
| Top Width (ft) | 558.96 | Top Width (ft) | 512.87 | 28.89 | 17.20 |
| Vel Total (ft/s) | 1.67 | Avg. Vel. (ft/s) | | 1.86 | 0.36 |
| Max Chl Dpth (ft) | 9.20 | Hydr. Depth (ft) | | 5.65 | 1.35 |
| Conv. Total (cfs) | 44060.9 | Conv. (cfs) | | 42865.7 | 1195.1 |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 31.38 | 17.39 |
| Min Ch El (ft) | 1276.00 | Shear (lb/sq ft) | | 0.02 | 0.00 |
| Alpha | 1.20 | Stream Power (lb/ft s) | | 0.03 | 0.00 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 10.95 | 0.74 | 0.11 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 2.01 | 0.13 | 0.08 |

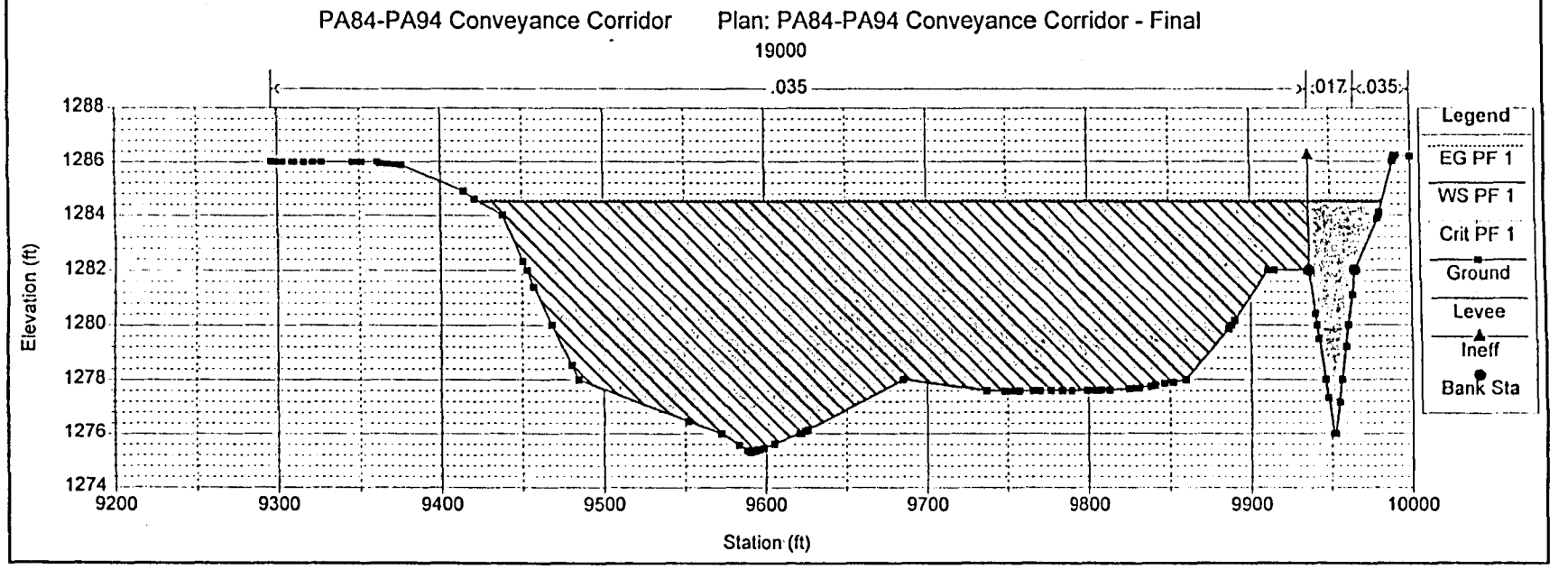
Plan: PA84-PA94 River: Runoff Reach:PA84-PA94 Riv Sta: 18800 Profile: PF 1

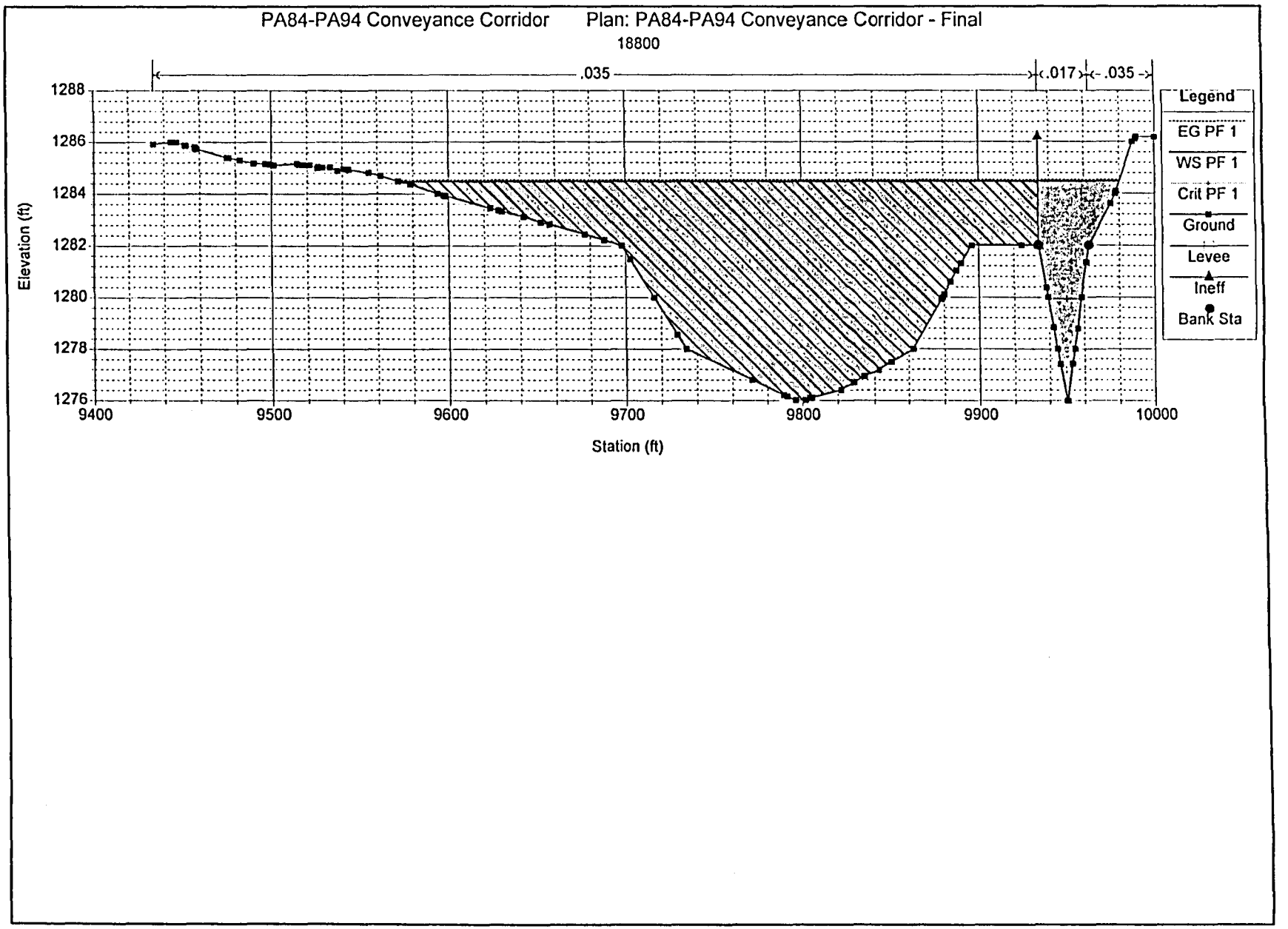
| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1284.54 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.05 | Wt. n-Val. | | 0.017 | 0.035 |
| W.S. Elev (ft) | 1284.49 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 1279.94 | Flow Area (sq ft) | | 159.15 | 23.33 |
| E.G. Slope (ft/ft) | 0.000054 | Area (sq ft) | 1540.44 | 159.15 | 23.33 |
| Q Total (cfs) | 312.00 | Flow (cfs) | | 303.18 | 8.82 |
| Top Width (ft) | 408.40 | Top Width (ft) | 362.35 | 28.72 | 17.33 |
| Vel Total (ft/s) | 1.71 | Avg. Vel. (ft/s) | | 1.91 | 0.38 |
| Max Chl Dpth (ft) | 8.49 | Hydr. Depth (ft) | | 5.54 | 1.35 |
| Conv. Total (cfs) | 42433.3 | Conv. (cfs) | | 41234.2 | 1199.1 |
| Length Wtd. (ft) | | Wetted Per. (ft) | | 31.19 | 17.52 |
| Min Ch El (ft) | 1276.00 | Shear (lb/sq ft) | | 0.02 | 0.00 |
| Alpha | 1.21 | Stream Power (lb/ft s) | | 0.03 | 0.00 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |


PA84-PA94 Conveyance Corridor
Plan: PA84-PA94 Conveyance Corridor - Final
20600
.035
.017
.035
Elevation (ft)
1288
1286
1284
1282
1280
1278
1276
9880
9900
9920
9940
9960
9980
10000
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta


PA84-PA94 Conveyance Corridor
Plan: PA84-PA94 Conveyance Corridor - Final
20100
.035
.017
.035
Elevation (ft)
1288
1286
1284
1282
1280
1278
1276
9800
9850
9900
9950
10000
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta


PA84-PA94 Conveyance Corridor
Plan: PA84-PA94 Conveyance Corridor - Final
19600
.035
.017
.035
Elevation (ft)
1288
1286
1284
1282
1280
1278
1276
9800
9850
9900
9950
10000
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta


PA84-PA94 Conveyance Corridor
Plan: PA84-PA94 Conveyance Corridor - Final
19000
.035
.017
.035
Elevation (ft)
1288
1286
1284
1282
1280
1278
1276
1274
9200
9300
9400
9500
9600
9700
9800
9900
10000
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta


PA84-PA94 Conveyance Corridor
Plan: PA84-PA94 Conveyance Corridor - Final
18800
.035
.017
.035
1288
1286
1284
1282
1280
1278
1276
Elevation (ft)
9400
9500
9600
9700
9800
9900
10000
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Levee
Ineff
Bank Sta

```
                    HEC-RAS September 1998 Version 2.2
                      U.S. Army Corp of Engineers
                     Hydrologic Engineering Center
                       609 Second Street, Suite D
                      Davis, California 95616-4687
                             (916) 756-1104

            X     X  XXXXXX    XXXX        XXXX       XX      XXXX
            X     X  X        X    X       X   X     X  X    X
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            X     X  X        X            X  X     X    X        X
            X     X  X        X    X       X   X    X    X        X
            X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
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PROJECT DATA
Project Title: PA84-PA94 Conveyance Corridor
Project File : PA84-PA94.prj
Run Date and Time: 5/11/01 2:10:41 PM

Project in English units

PLAN DATA

Plan Title: PA84-PA94 Conveyance Corridor - Final
Plan File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA84-PA94.p01

Geometry Title: PA84-PA94 Conveyance Corridor - Final
Geometry File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA84-PA94.g01

Flow Title : PA84-PA94 Conveyance Corridor
Flow File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA84-PA94.f03

Plan Summary Information:
Number of: Cross Sections = 5 Mulitple Openings = 0
Culverts = 0 Inline Weirs = 0
Bridges = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: PA84-PA94 Conveyance Corridor

Flow File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA84-PA94.f03

Flow Data (cfs)

| River | Reach | RS | PF 1 |
|---|---|---|---|
| Runoff | PA84-PA94 | 20600 | 284 |
| Runoff | PA84-PA94 | 20100 | 303 |
| Runoff | PA84-PA94 | 19600 | 312 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| Runoff | PA84-PA94 | PF 1 | | Known WS = 1284.49 |

GEOMETRY DATA

Geometry Title: PA84-PA94 Conveyance Corridor - Final
Geometry File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA84-PA94.g01

CROSS SECTION RIVER: Runoff
REACH: PA84-PA94 RS: 20600

INPUT
Description: Station 206+00
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9881.36 | 1286.4 | 9887.87 | 1286.34 | 9901.16 | 1286.2 | 9920.11 | 1286 | 9923.52 | 1284.86 |
| 9926.27 | 1284 | 9928.21 | 1283.19 | 9930.56 | 1282 | 9931.79 | 1281.4 | 9934.54 | 1280 |
| 9935.06 | 1279.74 | 9938.83 | 1276.72 | 9941.33 | 1276.72 | 9945.75 | 1276.72 | 9947 | 1279.13 |
| 9948.81 | 1280 | 9949.05 | 1280.09 | 9951.44 | 1282 | 99561 | 282.769 | 9962.53 | 1283.87 |
| 9963.9 | 1284 | 9964.97 | 1284.14 | 9967.21 | 1284.32 | 9969.7 | 1284.5 | 9972.43 | 1284.57 |
| 9976.06 | 1284.8 | 9979.34 | 1285.05 | 9988.54 | 1286 | 9988.78 | 1286.2 | 9990.11 | 1286.31 |
| 9991.48 | 1286.42 | 9991.61 | 1286.45 | 9992.08 | 1286.54 | 9993.55 | 1286.6 | 10000 | 1286.56 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9881.36 | .035 | 9926.27 | .017 | 9963.9 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9926.27 | 9963.9 | 500 | 500 | 500 | .3 | .5 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1284.66 | Element | | | |
| Vel Head (ft) | 0.06 | Wt. n-Val. | 0.035 | 0.017 | 0.035 |
| W.S. Elev (ft) | 1284.61 | Reach Len. (ft) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 0.59 | 148.67 | 2.12 |
| E.G. Slope (ft/ft) | 0.000089 | Area (sq ft) | 0.59 | 148.67 | 2.12 |
| Q Total (cfs) | 284.00 | Flow (cfs) | 0.10 | 283.58 | 0.32 |
| Top Width (ft) | 48.70 | Top Width (ft) | 1.94 | 37.63 | 9.13 |
| Vel Total (ft/s) | 1.88 | Avg. Vel. (ft/s) | 0.18 | 1.91 | 0.15 |
| Max Chl Dpth (ft) | 7.89 | Hydr. Depth (ft) | 0.30 | 3.95 | 0.23 |
| Conv. Total (cfs) | 30140.7 | Conv. (cfs) | 11.0 | 30095.7 | 34.1 |
| Length Wtd. (ft) | 500.00 | Wetted Per. (ft) | 2.04 | 42.18 | 9.15 |
| Min Ch El (ft) | 1276.72 | Shear (lb/sq ft) | 0.00 | 0.02 | 0.00 |
| Alpha | 1.03 | Stream Power (lb/ft s) | 0.00 | 0.04 | 0.00 |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | 33.39 | 7.34 | 0.31 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 6.08 | 1.71 | 0.35 |

CROSS SECTION RIVER: Runoff
REACH: PA84-PA94 RS: 20100

INPUT
Description: Station 201+00
Station Elevation Data num= 50

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9803.81 | 1286.28 | 9880.21 | 1286 | 9884.89 | 1286 | 9892.58 | 1286 | 9898.91 | 1286 |
| 9904.09 | 1286 | 9907.81 | 1286 | 9909.72 | 1286 | 9911.31 | 1286 | 9911.32 | 1286 |
| 9911.39 | 1286 | 9911.59 | 1286 | 9914.44 | 1284.7 | 9916.11 | 1284 | 9920.96 | 1282.04 |
| 9921.01 | 1282.02 | 9921.07 | 1282 | 9921.14 | 1282 | 9926.79 | 1280 | 9930.4 | 1278.81 |
| 9930.83 | 1278.72 | 9932.49 | 1276.5 | 9936.62 | 1276.5 | 9940.16 | 1276.5 | 9943.25 | 1279.32 |
| 9944.24 | 1279.74 | 9944.82 | 1280 | 9948.27 | 1282 | 9948.34 | 1282 | 9948.36 | 1282 |
| 9948.37 | 1282 | 9949.5 | 1282.13 | 9966.95 | 1284 | 9967.6 | 1284.1 | 9980.69 | 1286 |
| 9997.68 | 1286.97 | 9999.01 | 1287.05 | 9999.06 | 1287.1 | 9999.29 | 1287.07 | 9999.36 | 1287.07 |
| 9999.47 | 1287.08 | 9999.5 | 1287.09 | 9999.51 | 1287.1 | 9999.6 | 1287.09 | 9999.74 | 1287.09 |
| 9999.79 | 1287.1 | 9999.81 | 1287.1 | 9999.83 | 1287.1 | 9999.84 | 1287.1 | 10000 | 1287.1 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9803.81 | .035 | 9916.11 | .017 | 9966.95 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9916.11 | 9966.95 | 500 | 500 | 500 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1284.62 | Element | | | |
| Vel Head (ft) | 0.04 | Wt. n-Val. | 0.035 | 0.017 | 0.035 |
| W.S. Elev (ft) | 1284.58 | Reach Len. (ft) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 0.40 | 193.26 | 1.14 |
| E.G. Slope (ft/ft) | 0.000060 | Area (sq ft) | 0.40 | 193.26 | 1.14 |
| Q Total (cfs) | 303.00 | Flow (cfs) | 0.05 | 302.78 | 0.16 |
| Top Width (ft) | 56.19 | Top Width (ft) | 1.39 | 50.84 | 3.96 |
| Vel Total (ft/s) | 1.56 | Avg. Vel. (ft/s) | 0.14 | 1.57 | 0.14 |
| Max Chl Dpth (ft) | 8.08 | Hydr. Depth (ft) | 0.29 | 3.80 | 0.29 |
| Conv. Total (cfs) | 39184.5 | Conv. (cfs) | 7.1 | 39156.4 | 21.0 |
| Length Wtd. (ft) | 500.00 | Wetted Per. (ft) | 1.50 | 54.76 | 4.01 |
| Min Ch El (ft) | 1276.50 | Shear (lb/sq ft) | 0.00 | 0.01 | 0.00 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.00 | 0.02 | 0.00 |
| Frctn Loss (ft) | 0.03 | Cum Volume (acre-ft) | 33.38 | 5.38 | 0.29 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 6.06 | 1.21 | 0.27 |

CROSS SECTION RIVER: Runoff
REACH: PA84-PA94 RS: 19600

INPUT
Description: Station 196+00
Station Elevation Data num= 67

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9807.39 | 1285.43 | 9814.7 | 1285.54 | 9839.08 | 1285.7 | 9842.24 | 1285.67 | 9842.81 | 1285.65 |
| 9843.46 | 1285.64 | 9846.44 | 1285.42 | 9846.67 | 1285.4 | 9853.07 | 1285.13 | 9856.36 | 1285.05 |
| 9870.24 | 1284.92 | 9872.39 | 1284.7 | 9873.23 | 1284.7 | 9873.72 | 1284.6 | 9873.88 | 1284.59 |
| 9879.93 | 1284.58 | 9881.49 | 1284.29 | 9895.03 | 1284.3 | 9896.95 | 1284.15 | 9897 | 1284.15 |
| 9897.12 | 1284.16 | 9906.05 | 1284.13 | 9913.37 | 1284.1 | 9915.93 | 1284.06 | 9918.05 | 1284.06 |
| 9920.14 | 1284.01 | 9920.27 | 1284 | 9920.3 | 1284 | 9922.02 | 1283.35 | 9925.66 | 1282 |
| 9926.62 | 1281.65 | 9930.96 | 1280 | 9932.28 | 1279.5 | 9936.69 | 1276.27 | 9940.65 | 1276.27 |
| 9944.22 | 1276.27 | 9944.5 | 1278.12 | 9948.89 | 1280 | 9949.6 | 1280.32 | 9951.07 | 1280.95 |
| 9953.87 | 1282 | 9953.92 | 1282 | 9955.02 | 1282 | 9955.58 | 1282 | 9956.26 | 1282 |
| 9961.22 | 1282.96 | 9963.11 | 1283.37 | 9964.63 | 1283.7 | 9966.54 | 1284 | 9967.3 | 1284.1 |
| 9970.79 | 1284.54 | 9982.38 | 1286 | 9983.3 | 1286.1 | 9984.18 | 1286.12 | 9986.39 | 1286.2 |
| 9988.21 | 1286.36 | 9989.83 | 1286.55 | 9990.48 | 1286.6 | 9991.16 | 1286.66 | 9991.63 | 1286.69 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9991.72 | 1286.71 | 9991.88 | 1286.74 | 9993.05 | 1286.8 | 9993.98 | 1286.82 | 9994.51 | 1286.83 |
| 9994.7 | 1286.84 | 10000 | 1286.85 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9807.39 | .035 | 9920.3 | .017 | 9966.54 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9920.3 | 9966.54 | 600 | 600 | 600 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1284.59 | Element | | | |
| Vel Head (ft) | 0.04 | Wt. n-Val. | 0.035 | 0.017 | 0.035 |
| W.S. Elev (ft) | 1284.55 | Reach Len. (ft) | 600.00 | 600.00 | 600.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 14.47 | 190.62 | 1.18 |
| E.G. Slope (ft/ft) | 0.000059 | Area (sq ft) | 14.47 | 190.62 | 1.18 |
| Q Total (cfs) | 312.00 | Flow (cfs) | 2.39 | 309.45 | 0.16 |
| Top Width (ft) | 90.76 | Top Width (ft) | 40.20 | 46.24 | 4.32 |
| Vel Total (ft/s) | 1.51 | Avg. Vel. (ft/s) | 0.16 | 1.62 | 0.14 |
| Max Chl Dpth (ft) | 8.28 | Hydr. Depth (ft) | 0.36 | 4.12 | 0.27 |
| Conv. Total (cfs) | 40633.3 | Conv. (cfs) | 310.8 | 40301.6 | 20.9 |
| Length Wtd. (ft) | 600.00 | Wetted Per. (ft) | 40.23 | 50.67 | 4.35 |
| Min Ch El (ft) | 1276.27 | Shear (lb/sq ft) | 0.00 | 0.01 | 0.00 |
| Alpha | 1.14 | Stream Power (lb/ft s) | 0.00 | 0.02 | 0.00 |
| Frctn Loss (ft) | 0.03 | Cum Volume (acre-ft) | 33.30 | 3.18 | 0.27 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 5.82 | 0.65 | 0.23 |

CROSS SECTION RIVER: Runoff
REACH: PA84-PA94 RS: 19000

INPUT
Description: Station 190+00
Station Elevation Data num= 119

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9296.48 | 1286.03 | 9296.92 | 1286.02 | 9297.34 | 1286.02 | 9297.79 | 1286 | 9298.18 | 1286.01 |
| 9298.37 | 1286.01 | 9298.47 | 1286.01 | 9298.51 | 1286.01 | 9298.6 | 1286 | 9298.72 | 1286.01 |
| 9298.85 | 1286.01 | 9298.92 | 1286.01 | 9298.95 | 1286.01 | 9298.95 | 1286 | 9298.97 | 1286.01 |
| 9299.49 | 1286 | 9299.86 | 1286 | 9300.97 | 1286 | 9303.45 | 1286 | 9309.4 | 1286 |
| 9310.58 | 1286 | 9316.53 | 1286 | 9321.9 | 1286 | 9327.03 | 1286 | 9346.29 | 1286 |
| 9347.58 | 1286 | 9350.27 | 1286 | 9351.47 | 1286 | 9361.19 | 1286 | 9363.11 | 1285.95 |
| 9367.45 | 1285.93 | 9372.2 | 1285.91 | 9375.83 | 1285.89 | 9413.96 | 1284.9 | 9420.88 | 1284.6 |
| 9438.11 | 1284 | 9450.37 | 1282.33 | 9452.92 | 1282 | 9457 | 1281.4 | 9467.75 | 1280 |
| 9479.98 | 1278.53 | 9484.42 | 1278 | 9551.8 | 1276.46 | 9572.19 | 1276 | 9583.5 | 1275.56 |
| 9588.5 | 1275.37 | 9589.58 | 1275.34 | 9590.22 | 1275.33 | 9590.66 | 1275.3 | 9591.07 | 1275.33 |
| 9592.22 | 1275.34 | 9593.47 | 1275.35 | 9594.06 | 1275.36 | 9594.95 | 1275.4 | 9596.3 | 1275.4 |
| 9598.74 | 1275.46 | 9605.28 | 1275.62 | 9620.97 | 1276 | 9621.91 | 1276 | 9624.06 | 1276.09 |
| 9624.45 | 1276.09 | 9626.04 | 1276.14 | 9685.12 | 1278 | 9736.95 | 1277.6 | 9748.22 | 1277.58 |
| 9750.66 | 1277.59 | 9751.69 | 1277.59 | 9752.81 | 1277.59 | 9755.57 | 1277.6 | 9757.26 | 1277.58 |
| 9766.11 | 1277.59 | 9769.35 | 1277.59 | 9776.4 | 1277.6 | 9783.41 | 1277.6 | 9789.22 | 1277.6 |
| 9799.41 | 1277.6 | 9801.9 | 1277.6 | 9802.83 | 1277.6 | 9806.12 | 1277.6 | 9807.95 | 1277.62 |
| 9812.87 | 1277.61 | 9813.13 | 1277.62 | 9824.83 | 1277.67 | 9828.95 | 1277.7 | 9830.96 | 1277.7 |
| 9838.2 | 1277.76 | 9840.83 | 1277.79 | 9846.58 | 1277.86 | 9851.67 | 1277.9 | 9859.37 | 1278 |
| 9886.31 | 1279.86 | 9887.96 | 1280 | 9889.9 | 1280.17 | 9910.92 | 1282 | 9914.69 | 1282 |
| 9936.53 | 1282 | 9940.12 | 1280.41 | 9941.15 | 1280 | 9942.33 | 1279.5 | 9946.15 | 1278 |
| 9947.86 | 1277.33 | 9951.18 | 1276 | 9951.88 | 1276 | 9952.28 | 1276 | 9954.83 | 1277.18 |
| 9956.61 | 1278 | 9959.33 | 1279.22 | 9961.12 | 1280 | 9963.53 | 1281.1 | 9965.42 | 1282 |
| 9979.61 | 1283.88 | 9980.51 | 1284 | 9980.92 | 1284.1 | 9988.92 | 1286 | 9989.59 | 1286.1 |
| 9989.96 | 1286.18 | 9990.37 | 1286.22 | 9991.27 | 1286.24 | 10000 | 1286.2 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9296.48 | .035 | 9936.53 | .017 | 9965.42 | .035 |

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9936.53 9965.42              200     200     200              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 9296.48 9936.53
Left Levee      Station= 9936.53      Elevation=    1282

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1284.56   Element                   Left OB    Channel   Right OB
  Vel Head (ft)                0.05   Wt. n-Val.                            0.017      0.035
  W.S. Elev (ft)            1284.50   Reach Len. (ft)            200.00    200.00     200.00
  Crit W.S. (ft)            1279.81   Flow Area (sq ft)                    163.30      23.22
  E.G. Slope (ft/ft)       0.000050   Area (sq ft)              3230.29    163.30      23.22
  Q Total (cfs)              312.00   Flow (cfs)                           303.54       8.46
  Top Width (ft)             558.96   Top Width (ft)             512.87     28.89      17.20
  Vel Total (ft/s)             1.67   Avg. Vel. (ft/s)                      1.86       0.36
  Max Chl Dpth (ft)            9.20   Hydr. Depth (ft)                      5.65       1.35
  Conv. Total (cfs)         44060.9   Conv. (cfs)                        42865.7     1195.1
  Length Wtd. (ft)           200.00   Wetted Per. (ft)                     31.38      17.39
  Min Ch El (ft)            1276.00   Shear (lb/sq ft)                      0.02       0.00
  Alpha                        1.20   Stream Power (lb/ft s)                0.03       0.00
  Frctn Loss (ft)              0.01   Cum Volume (acre-ft)        10.95     0.74       0.11
  C & E Loss (ft)              0.00   Cum SA (acres)               2.01     0.13       0.08


CROSS SECTION          RIVER: Runoff
REACH: PA84-PA94          RS: 18800

INPUT
Description: Station 188+00
Station Elevation Data    num=      98
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 9433.91 1285.92 9443.78    1286 9444.45    1286 9444.64 1286.01 9447.17    1286
 9451.71 1285.88  9452.4 1285.86 9457.35  1285.8 9457.46 1285.75 9458.33 1285.74
 9475.26 1285.39 9476.21 1285.39 9482.53  1285.3 9490.25 1285.18 9496.82 1285.16
 9498.48 1285.15 9499.83 1285.13 9501.48  1285.1 9514.48 1285.17 9515.73 1285.13
 9518.26 1285.12 9521.68  1285.1 9526.04    1285 9526.41 1285.04  9528.3 1285.02
 9528.94 1285.02  9533.2 1285.03 9537.22  1284.9 9540.81 1284.96 9542.92 1284.94
 9543.58 1284.94 9554.94 1284.81 9561.73  1284.7 9571.62 1284.49 9578.46 1284.37
 9593.73    1284 9597.16 1283.94  9597.8  1283.9 9598.26 1283.92 9623.45 1283.44
 9627.96 1283.36 9629.96 1283.32 9642.31  1283.1 9651.94  1282.9 9656.95 1282.81
 9676.91 1282.43 9687.94 1282.22 9697.95    1282 9702.66 1281.47 9715.97    1280
 9728.94 1278.55 9733.94    1278 9771.08  1276.8 9789.06 1276.22 9791.07 1276.16
  9795.9 1276.01 9801.66 1276.02 9803.94  1276.1 9804.33 1276.08 9804.84  1276.1
 9805.37 1276.11 9821.86 1276.41 9828.67  1276.7 9834.66 1276.94 9842.83 1277.18
  9850.1 1277.49 9862.45    1278 9862.47    1278 9878.47 1279.92 9879.13    1280
 9880.05 1280.12 9883.77  1280.6 9887.16 1281.02 9889.78  1281.3 9896.03    1282
 9924.48    1282 9933.97    1282 9938.27 1280.36 9939.21    1280 9942.19 1278.83
 9944.31    1278 9945.91  1277.4 9949.71    1276 9949.88    1276 9950.05    1276
 9952.92 1277.41 9954.33    1278  9956.2 1278.79 9958.42    1280 9961.27 1281.34
 9962.69    1282 9975.13  1283.6 9977.64    1284 9978.05 1284.09 9987.48    1286
 9989.17 1286.13 9989.56  1286.2   10000 1286.19

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 9433.91    .035 9933.97    .017 9962.69    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9933.97 9962.69                0       0       0              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 9433.91 9933.97
```

Left Levee Station= 9933.97 Elevation= 1282

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1284.54 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.05 | Wt. n-Val. | | 0.017 | 0.035 |
| W.S. Elev (ft) | 1284.49 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 1279.94 | Flow Area (sq ft) | | 159.15 | 23.33 |
| E.G. Slope (ft/ft) | 0.000054 | Area (sq ft) | 1540.44 | 159.15 | 23.33 |
| Q Total (cfs) | 312.00 | Flow (cfs) | | 303.18 | 8.82 |
| Top Width (ft) | 408.40 | Top Width (ft) | 362.35 | 28.72 | 17.33 |
| Vel Total (ft/s) | 1.71 | Avg. Vel. (ft/s) | | 1.91 | 0.38 |
| Max Chl Dpth (ft) | 8.49 | Hydr. Depth (ft) | | 5.54 | 1.35 |
| Conv. Total (cfs) | 42433.3 | Conv. (cfs) | | 41234.2 | 1199.1 |
| Length Wtd. (ft) | | Wetted Per. (ft) | | 31.19 | 17.52 |
| Min Ch El (ft) | 1276.00 | Shear (lb/sq ft) | | 0.02 | 0.00 |
| Alpha | 1.21 | Stream Power (lb/ft s) | | 0.03 | 0.00 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

SUMMARY OF MANNING'S N VALUES

River:Runoff

| Reach | River Sta. | n1 | n2 | n3 |
|---|---|---|---|---|
| PA84-PA94 | 20600 | .035 | .017 | .035 |
| PA84-PA94 | 20100 | .035 | .017 | .035 |
| PA84-PA94 | 19600 | .035 | .017 | .035 |
| PA84-PA94 | 19000 | .035 | .017 | .035 |
| PA84-PA94 | 18800 | .035 | .017 | .035 |

SUMMARY OF REACH LENGTHS

River: Runoff

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| PA84-PA94 | 20600 | 500 | 500 | 500 |
| PA84-PA94 | 20100 | 500 | 500 | 500 |
| PA84-PA94 | 19600 | 600 | 600 | 600 |
| PA84-PA94 | 19000 | 200 | 200 | 200 |
| PA84-PA94 | 18800 | 0 | 0 | 0 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Runoff

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| PA84-PA94 | 20600 | .3 | .5 |
| PA84-PA94 | 20100 | .1 | .3 |
| PA84-PA94 | 19600 | .1 | .3 |
| PA84-PA94 | 19000 | .1 | .3 |
| PA84-PA94 | 18800 | .1 | .3 |

Profile Output Table - Standard Table 1

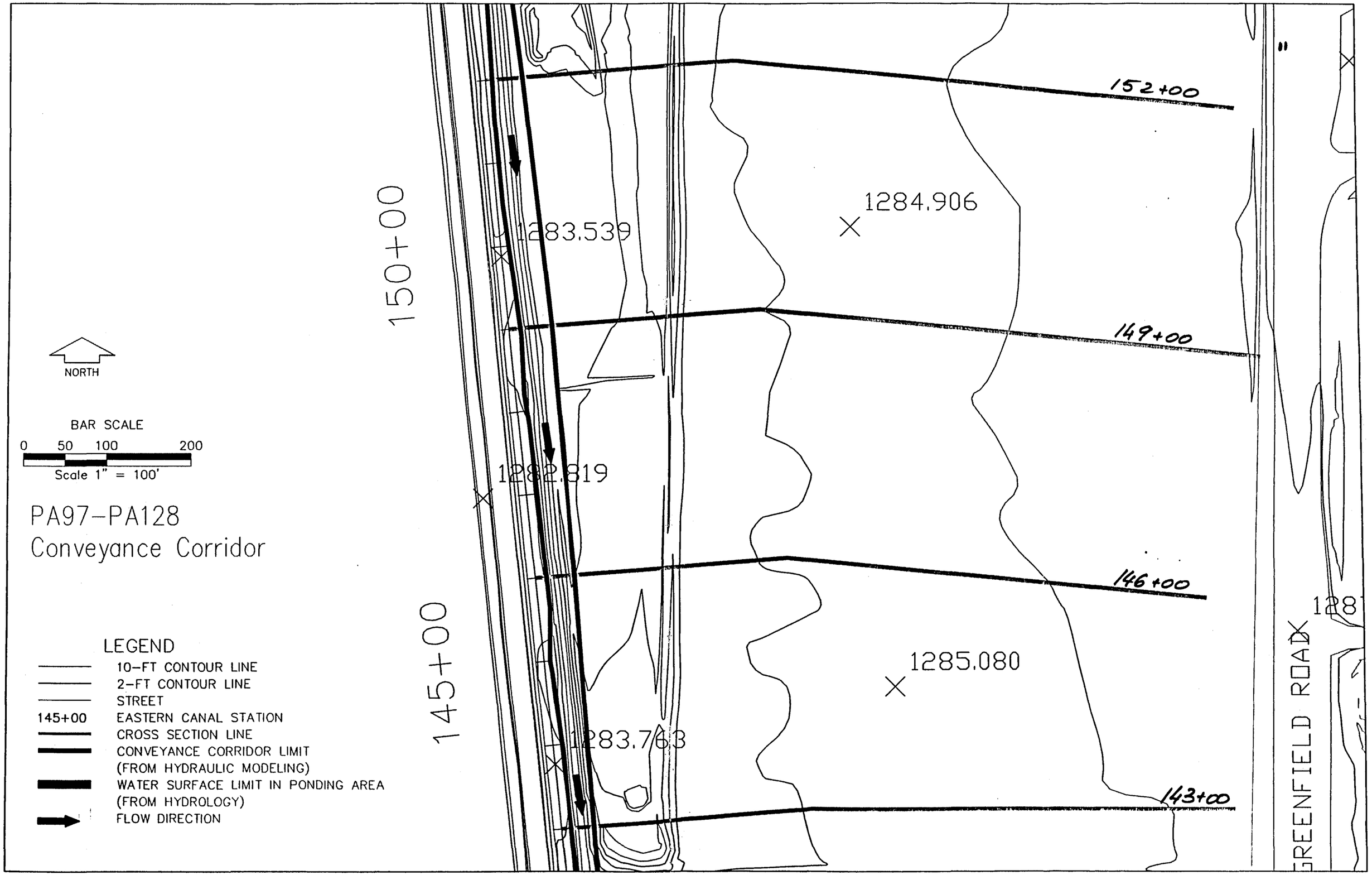
| Reach | River Sta | Q Total (cfs) | Min Ch El (ft) | W.S. Elev (ft) | Crit W.S. (ft) | E.G. Elev (ft) | E.G. Slope (ft/ft) | Vel Chnl (ft/s) | Flow Area (sq ft) | Top Width (ft) | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PA84-PA94 | 20600 | 284.00 | 1276.72 | 1284.61 | | 1284.66 | 0.000089 | 1.91 | 151.39 | 48.70 | 0.17 |
| PA84-PA94 | 20100 | 303.00 | 1276.50 | 1284.58 | | 1284.62 | 0.000060 | 1.57 | 194.81 | 56.19 | 0.14 |
| PA84-PA94 | 19600 | 312.00 | 1276.27 | 1284.55 | | 1284.59 | 0.000059 | 1.62 | 206.28 | 90.76 | 0.14 |
| PA84-PA94 | 19000 | 312.00 | 1276.00 | 1284.50 | 1279.81 | 1284.56 | 0.000050 | 1.86 | 186.52 | 558.96 | 0.14 |
| PA84-PA94 | 18800 | 312.00 | 1276.00 | 1284.49 | 1279.94 | 1284.54 | 0.000054 | 1.91 | 182.48 | 408.40 | 0.14 |

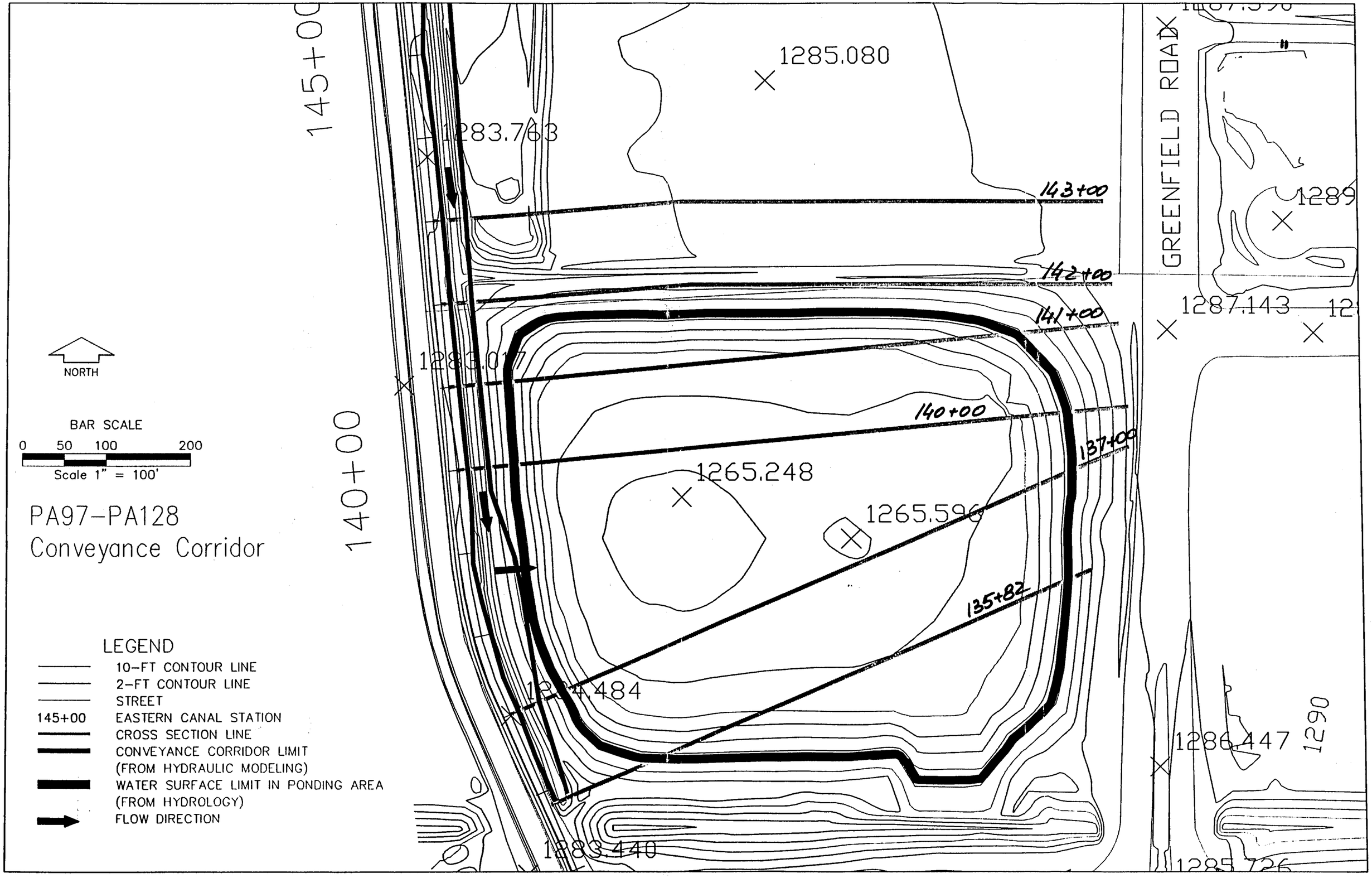
# Appendix E.5

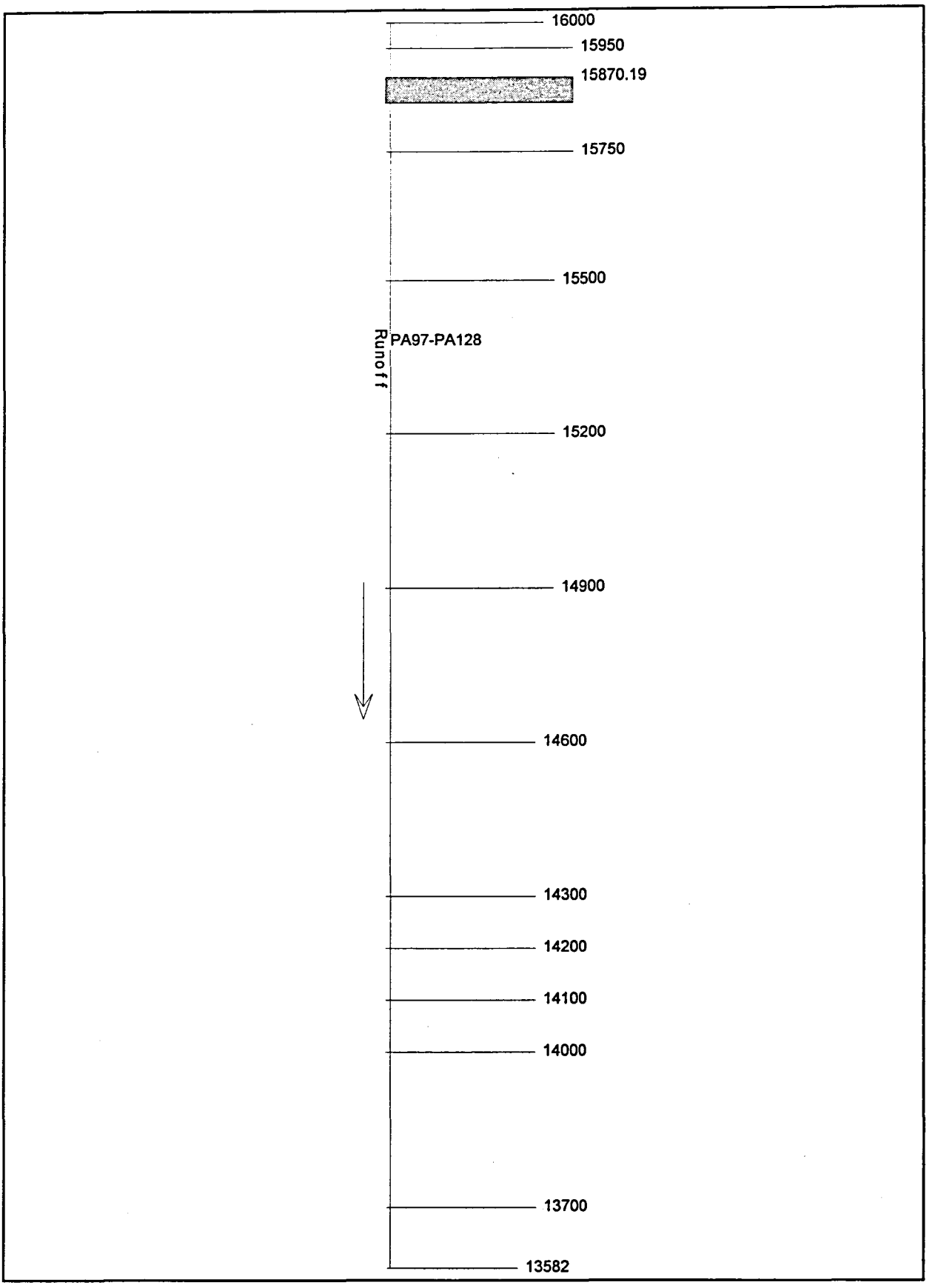
## Hydraulic Modeling of PA97-PA128 Conveyance Corridor

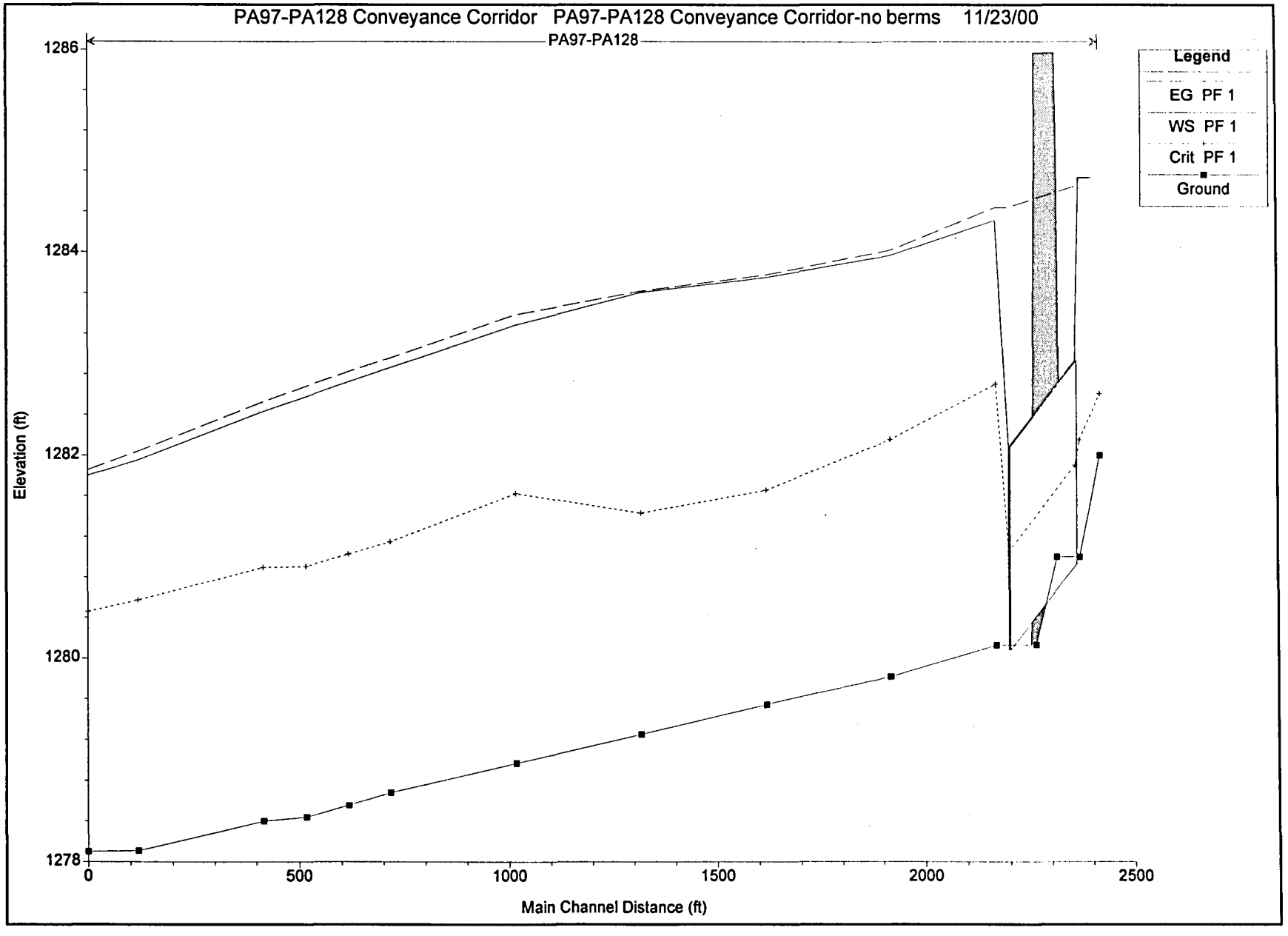
- HEC-RAS Modeling of Runoff Flows within Ponding Areas
  - Geometry – Plan View
  - Flow Profile
  - Summary Table(s)
  - Cross Section Summary Tables
  - Geometry – Cross Sections
  - HEC-RAS Report
- HEC-2 Modeling of Side Weirs

1285.034
160+00
1287.201
160+00
1292.981
159+50
1287.077
158+70.19
SOUTHERN AVE
1284.285
157+50
NORTH
BAR SCALE
0 50 100 200
Scale 1" = 100'
PA97-PA128
Conveyance Corridor
1283.987
155+00
1285.900
155+00
1287.739
1285.167
GREENFIELD ROAD
152+00
LEGEND
10-FT CONTOUR LINE
2-FT CONTOUR LINE
STREET
145+00 EASTERN CANAL STATION
CROSS SECTION LINE
CONVEYANCE CORRIDOR LIMIT
(FROM HYDRAULIC MODELING)
WATER SURFACE LIMIT IN PONDING AREA
(FROM HYDROLOGY)
FLOW DIRECTION


152+00
149+00
146+00
143+00
150+00
145+00
1284.906
1283.539
1282.819
1285.080
1283.763
GREENFIELD ROAD
128
NORTH
BAR SCALE
0 50 100 200
Scale 1" = 100'
PA97–PA128
Conveyance Corridor
LEGEND
10–FT CONTOUR LINE
2–FT CONTOUR LINE
STREET
145+00 EASTERN CANAL STATION
CROSS SECTION LINE
CONVEYANCE CORRIDOR LIMIT (FROM HYDRAULIC MODELING)
WATER SURFACE LIMIT IN PONDING AREA (FROM HYDROLOGY)
FLOW DIRECTION


145+00
140+00
1285.080
1283.763
143+00
142+00
141+00
1283.017
140+00
137+00
1265.248
1265.596
135+82
1284.484
1283.440
GREENFIELD ROAD
1287.143
1286.447
1290
NORTH
BAR SCALE
0 50 100 200
Scale 1" = 100'
PA97–PA128
Conveyance Corridor
LEGEND
10–FT CONTOUR LINE
2–FT CONTOUR LINE
STREET
145+00 EASTERN CANAL STATION
CROSS SECTION LINE
CONVEYANCE CORRIDOR LIMIT (FROM HYDRAULIC MODELING)
WATER SURFACE LIMIT IN PONDING AREA (FROM HYDROLOGY)
FLOW DIRECTION


16000
15950
15870.19
15750
15500
PA97-PA128
Runoff
15200
14900
14600
14300
14200
14100
14000
13700
13582


PA97-PA128 Conveyance Corridor PA97-PA128 Conveyance Corridor-no berms 11/23/00
PA97-PA128
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Elevation (ft)
1286
1284
1282
1280
1278
0
500
1000
1500
2000
2500
Main Channel Distance (ft)

HEC-RAS Plan: PA97-PA128 n River: Runoff Reach: PA97-PA128

| Reach | River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| PA97-PA128 | 16000 | PF 1 | 15.00 | 1282.00 | 1284.73 | 1282.60 | 1284.73 | 0.000003 | 0.10 | 152.37 | 334.48 | 0.01 |
| PA97-PA128 | 15950 | PF 1 | 15.00 | 1281.00 | 1284.73 | 1282.15 | 1284.73 | 0.000050 | 0.44 | 33.85 | 267.34 | 0.06 |
| PA97-PA128 | 15870.2 | | Culvert | | | | | | | | | |
| PA97-PA128 | 15750 | PF 1 | 155.00 | 1280.13 | 1284.31 | 1282.70 | 1284.44 | 0.002482 | 2.88 | 58.36 | 54.95 | 0.38 |
| PA97-PA128 | 15500 | PF 1 | 108.51 | 1279.82 | 1283.96 | 1282.16 | 1284.01 | 0.000986 | 1.80 | 60.22 | 37.00 | 0.25 |
| PA97-PA128 | 15200 | PF 1 | 108.51 | 1279.54 | 1283.75 | 1281.66 | 1283.77 | 0.000625 | 1.30 | 83.19 | 59.87 | 0.20 |
| PA97-PA128 | 14900 | PF 1 | 108.51 | 1279.25 | 1283.60 | 1281.43 | 1283.61 | 0.000440 | 0.99 | 109.80 | 92.60 | 0.16 |
| PA97-PA128 | 14600 | PF 1 | 108.51 | 1278.97 | 1283.28 | 1281.62 | 1283.38 | 0.001468 | 2.57 | 42.14 | 19.31 | 0.31 |
| PA97-PA128 | 14300 | PF 1 | 108.51 | 1278.68 | 1282.86 | 1281.15 | 1282.96 | 0.001363 | 2.52 | 43.12 | 19.42 | 0.30 |
| PA97-PA128 | 14200 | PF 1 | 108.51 | 1278.56 | 1282.72 | 1281.03 | 1282.82 | 0.001393 | 2.54 | 42.73 | 471.51 | 0.30 |
| PA97-PA128 | 14100 | PF 1 | 108.51 | 1278.44 | 1282.57 | 1280.90 | 1282.68 | 0.001465 | 2.57 | 42.27 | 716.04 | 0.31 |
| PA97-PA128 | 14000 | PF 1 | 91.02 | 1278.40 | 1282.43 | 1280.90 | 1282.53 | 0.001524 | 2.47 | 36.82 | 751.22 | 0.31 |
| PA97-PA128 | 13700 | PF 1 | 58.32 | 1278.11 | 1281.95 | 1280.57 | 1282.04 | 0.001736 | 2.36 | 24.72 | 733.03 | 0.31 |
| PA97-PA128 | 13582 | PF 1 | 58.32 | 1278.10 | 1281.80 | 1280.46 | 1281.86 | 0.001237 | 1.92 | 30.38 | 633.51 | 0.27 |

Plan: PA97-PA128 n River: Runoff Reach:PA97-PA128 Riv Sta: 15870.19 Profile: PF 1 Culvert ID: Culv. PA97 B Culv: Culv

| | | | |
|---|---|---|---|
| Culv Q (cfs) | 7.50 | Culv Vel In (ft/s) | 2.39 |
| # Barrels | 1 | Culv Vel Out (ft/s) | 2.39 |
| Q Barrel (cfs) | 7.50 | Culv Inv El Up (ft) | 1280.93 |
| E.G. US. (ft) | 1284.73 | Culv Inv El Dn (ft) | 1280.08 |
| W.S. US. (ft) | 1284.73 | Culv Frctn Ls (ft) | 0.20 |
| Delta EG (ft) | 0.29 | Culv Ext Lss (ft) | |
| Delta WS (ft) | 0.42 | Culv Ent Lss (ft) | 0.09 |
| E.G. IC (ft) | 1282.33 | Q Weir (cfs) | |
| E.G. OC (ft) | 1284.73 | Weir Sta Lft (ft) | |
| Culvert Control | Outlet | Weir Sta Rgt (ft) | |
| Culv WS In (ft) | 1282.93 | Weir Submerg | |
| Culv WS Out (ft) | 1282.08 | Weir Max Depth (ft) | |
| Culv Nml Depth (ft) | | Weir Avg Depth (ft) | |
| Culv Crt Depth (ft) | 0.97 | Wr Flw Area (sq ft) | |
| Culv Ful Lngh (ft) | 160.00 | Min Top Rd (ft) | 1286.94 |

Plan: PA97-PA128 n River: Runoff Reach:PA97-PA128 Riv Sta: 16000 Profile: PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1284.73 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1284.73 | Reach Len. (ft) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (ft) | 1282.60 | Flow Area (sq ft) | | 152.37 | |
| E.G. Slope (ft/ft) | 0.000003 | Area (sq ft) | 70.78 | 152.37 | |
| Q Total (cfs) | 15.00 | Flow (cfs) | | 15.00 | |
| Top Width (ft) | 334.48 | Top Width (ft) | 229.94 | 104.55 | |
| Vel Total (ft/s) | 0.10 | Avg. Vel. (ft/s) | | 0.10 | |
| Max Chl Dpth (ft) | 2.73 | Hydr. Depth (ft) | | 1.46 | |
| Conv. Total (cfs) | 8275.4 | Conv. (cfs) | | 8275.4 | |
| Length Wtd. (ft) | 50.00 | Wetted Per. (ft) | | 105.30 | |
| Min Ch El (ft) | 1282.00 | Shear (lb/sq ft) | | 0.00 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.00 | |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 108.92 | 3.18 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 11.26 | 2.04 | |

Plan: PA97-PA128 n River: Runoff Reach:PA97-PA128 Riv Sta: 15950 Profile: PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1284.73 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1284.73 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1282.15 | Flow Area (sq ft) | | 33.85 | |
| E.G. Slope (ft/ft) | 0.000050 | Area (sq ft) | 125.57 | 33.85 | |
| Q Total (cfs) | 15.00 | Flow (cfs) | | 15.00 | |
| Top Width (ft) | 267.34 | Top Width (ft) | 250.11 | 17.23 | |
| Vel Total (ft/s) | 0.44 | Avg. Vel. (ft/s) | | 0.44 | |
| Max Chl Dpth (ft) | 3.73 | Hydr. Depth (ft) | | 1.96 | |
| Conv. Total (cfs) | 2122.9 | Conv. (cfs) | | 2122.9 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 18.85 | |
| Min Ch El (ft) | 1281.00 | Shear (lb/sq ft) | | 0.01 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.00 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | 108.80 | 3.07 | |
| C & E Loss (ft) | | Cum SA (acres) | 10.98 | 1.97 | |

Plan: PA97-PA128 n River: Runoff Reach:PA97-PA128 Riv Sta: 15750 Profile: PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1284.44 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.13 | Wt. n-Val. | 0.045 | 0.035 | |
| W.S. Elev (ft) | 1284.31 | Reach Len. (ft) | 250.00 | 250.00 | 250.00 |
| Crit W.S. (ft) | 1282.70 | Flow Area (sq ft) | 5.84 | 52.52 | |
| E.G. Slope (ft/ft) | 0.002482 | Area (sq ft) | 5.84 | 52.52 | |
| Q Total (cfs) | 155.00 | Flow (cfs) | 3.67 | 151.33 | |
| Top Width (ft) | 54.95 | Top Width (ft) | 24.76 | 30.19 | |
| Vel Total (ft/s) | 2.66 | Avg. Vel. (ft/s) | 0.63 | 2.88 | |
| Max Chl Dpth (ft) | 4.18 | Hydr. Depth (ft) | 0.24 | 1.74 | |
| Conv. Total (cfs) | 3111.3 | Conv. (cfs) | 73.6 | 3037.7 | |
| Length Wtd. (ft) | 250.00 | Wetted Per. (ft) | 24.87 | 33.03 | |
| Min Ch El (ft) | 1280.13 | Shear (lb/sq ft) | 0.04 | 0.25 | |
| Alpha | 1.15 | Stream Power (lb/ft s) | 0.02 | 0.71 | |

Plan: PA97-PA128 n River: Runoff Reach:PA97-PA128 Riv Sta: 15750 Profile: PF 1 (Continued)

| | | | | | |
|---|---|---|---|---|---|
| Frctn Loss (ft) | 0.40 | Cum Volume (acre-ft) | 108.50 | 2.87 | |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 10.35 | 1.86 | |

Plan: PA97-PA128 n River: Runoff Reach:PA97-PA128 Riv Sta: 15500 Profile: PF 1

| E.G. Elev (ft) | 1284.01 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.05 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1283.96 | Reach Len. (ft) | 300.00 | 300.00 | 300.00 |
| Crit W.S. (ft) | 1282.16 | Flow Area (sq ft) | | 60.22 | |
| E.G. Slope (ft/ft) | 0.000986 | Area (sq ft) | | 60.22 | |
| Q Total (cfs) | 108.51 | Flow (cfs) | | 108.51 | |
| Top Width (ft) | 37.00 | Top Width (ft) | | 37.00 | |
| Vel Total (ft/s) | 1.80 | Avg. Vel. (ft/s) | | 1.80 | |
| Max Chl Dpth (ft) | 4.14 | Hydr. Depth (ft) | | 1.63 | |
| Conv. Total (cfs) | 3455.6 | Conv. (cfs) | | 3455.6 | |
| Length Wtd. (ft) | 300.00 | Wetted Per. (ft) | | 38.32 | |
| Min Ch El (ft) | 1279.82 | Shear (lb/sq ft) | | 0.10 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.17 | |
| Frctn Loss (ft) | 0.23 | Cum Volume (acre-ft) | 108.49 | 2.55 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 10.28 | 1.67 | |

Plan: PA97-PA128 n River: Runoff Reach:PA97-PA128 Riv Sta: 15200 Profile: PF 1

| E.G. Elev (ft) | 1283.77 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.03 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1283.75 | Reach Len. (ft) | 300.00 | 300.00 | 300.00 |
| Crit W.S. (ft) | 1281.66 | Flow Area (sq ft) | | 83.19 | |
| E.G. Slope (ft/ft) | 0.000625 | Area (sq ft) | | 83.19 | |
| Q Total (cfs) | 108.51 | Flow (cfs) | | 108.51 | |
| Top Width (ft) | 59.87 | Top Width (ft) | | 59.87 | |
| Vel Total (ft/s) | 1.30 | Avg. Vel. (ft/s) | | 1.30 | |
| Max Chl Dpth (ft) | 4.21 | Hydr. Depth (ft) | | 1.39 | |
| Conv. Total (cfs) | 4341.6 | Conv. (cfs) | | 4341.6 | |
| Length Wtd. (ft) | 300.00 | Wetted Per. (ft) | | 61.04 | |
| Min Ch El (ft) | 1279.54 | Shear (lb/sq ft) | | 0.05 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.07 | |
| Frctn Loss (ft) | 0.16 | Cum Volume (acre-ft) | 108.49 | 2.05 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 10.28 | 1.33 | |

Plan: PA97-PA128 n River: Runoff Reach:PA97-PA128 Riv Sta: 14900 Profile: PF 1

| E.G. Elev (ft) | 1283.61 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.02 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1283.60 | Reach Len. (ft) | 300.00 | 300.00 | 300.00 |
| Crit W.S. (ft) | 1281.43 | Flow Area (sq ft) | | 109.80 | |
| E.G. Slope (ft/ft) | 0.000440 | Area (sq ft) | | 109.80 | |
| Q Total (cfs) | 108.51 | Flow (cfs) | | 108.51 | |
| Top Width (ft) | 92.60 | Top Width (ft) | | 92.60 | |
| Vel Total (ft/s) | 0.99 | Avg. Vel. (ft/s) | | 0.99 | |
| Max Chl Dpth (ft) | 4.35 | Hydr. Depth (ft) | | 1.19 | |

Plan: PA97-PA128 n River: Runoff Reach:PA97-PA128 Riv Sta: 14900 Profile: PF 1 (Continued)

| | | | | | |
|---|---|---|---|---|---|
| Conv. Total (cfs) | 5173.7 | Conv. (cfs) | | 5173.7 | |
| Length Wtd. (ft) | 300.00 | Wetted Per. (ft) | | 93.91 | |
| Min Ch El (ft) | 1279.25 | Shear (lb/sq ft) | | 0.03 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.03 | |
| Frctn Loss (ft) | 0.22 | Cum Volume (acre-ft) | 108.49 | 1.39 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 10.28 | 0.81 | |

Plan: PA97-PA128 n River: Runoff Reach:PA97-PA128 Riv Sta: 14600 Profile: PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1283.38 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.10 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1283.28 | Reach Len. (ft) | 300.00 | 300.00 | 300.00 |
| Crit W.S. (ft) | 1281.62 | Flow Area (sq ft) | | 42.14 | |
| E.G. Slope (ft/ft) | 0.001468 | Area (sq ft) | | 42.14 | |
| Q Total (cfs) | 108.51 | Flow (cfs) | | 108.51 | |
| Top Width (ft) | 19.31 | Top Width (ft) | | 19.31 | |
| Vel Total (ft/s) | 2.57 | Avg. Vel. (ft/s) | | 2.57 | |
| Max Chl Dpth (ft) | 4.31 | Hydr. Depth (ft) | | 2.18 | |
| Conv. Total (cfs) | 2832.6 | Conv. (cfs) | | 2832.6 | |
| Length Wtd. (ft) | 300.00 | Wetted Per. (ft) | | 21.16 | |
| Min Ch El (ft) | 1278.97 | Shear (lb/sq ft) | | 0.18 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.47 | |
| Frctn Loss (ft) | 0.42 | Cum Volume (acre-ft) | 108.49 | 0.87 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 10.28 | 0.42 | |

Plan: PA97-PA128 n River: Runoff Reach:PA97-PA128 Riv Sta: 14300 Profile: PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1282.96 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.10 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1282.86 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | 1281.15 | Flow Area (sq ft) | | 43.12 | |
| E.G. Slope (ft/ft) | 0.001363 | Area (sq ft) | | 43.12 | |
| Q Total (cfs) | 108.51 | Flow (cfs) | | 108.51 | |
| Top Width (ft) | 19.42 | Top Width (ft) | | 19.42 | |
| Vel Total (ft/s) | 2.52 | Avg. Vel. (ft/s) | | 2.52 | |
| Max Chl Dpth (ft) | 4.18 | Hydr. Depth (ft) | | 2.22 | |
| Conv. Total (cfs) | 2938.8 | Conv. (cfs) | | 2938.8 | |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | | 21.20 | |
| Min Ch El (ft) | 1278.68 | Shear (lb/sq ft) | | 0.17 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.44 | |
| Frctn Loss (ft) | 0.14 | Cum Volume (acre-ft) | 108.49 | 0.57 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 10.28 | 0.29 | |

Plan: PA97-PA128 n River: Runoff Reach:PA97-PA128 Riv Sta: 14200 Profile: PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1282.82 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.10 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1282.72 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | 1281.03 | Flow Area (sq ft) | | 42.73 | |
| E.G. Slope (ft/ft) | 0.001393 | Area (sq ft) | 243.26 | 42.73 | |

Plan: PA97-PA128 n River: Runoff Reach:PA97-PA128 Riv Sta: 14200 Profile: PF 1 (Continued)

| | | | | | |
|---|---|---|---|---|---|
| Q Total (cfs) | 108.51 | Flow (cfs) | | 108.51 | |
| Top Width (ft) | 471.51 | Top Width (ft) | 452.22 | 19.29 | |
| Vel Total (ft/s) | 2.54 | Avg. Vel. (ft/s) | | 2.54 | |
| Max Chl Dpth (ft) | 4.16 | Hydr. Depth (ft) | | 2.22 | |
| Conv. Total (cfs) | 2907.7 | Conv. (cfs) | | 2907.7 | |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | | 21.06 | |
| Min Ch El (ft) | 1278.56 | Shear (lb/sq ft) | | 0.18 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.45 | |
| Frctn Loss (ft) | 0.14 | Cum Volume (acre-ft) | 108.21 | 0.47 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 9.76 | 0.25 | |

Plan: PA97-PA128 n River: Runoff Reach:PA97-PA128 Riv Sta: 14100 Profile: PF 1

| E.G. Elev (ft) | 1282.68 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.10 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1282.57 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 |
| Crit W.S. (ft) | 1280.90 | Flow Area (sq ft) | | 42.27 | |
| E.G. Slope (ft/ft) | 0.001465 | Area (sq ft) | 4838.01 | 42.27 | |
| Q Total (cfs) | 108.51 | Flow (cfs) | | 108.51 | |
| Top Width (ft) | 716.04 | Top Width (ft) | 696.50 | 19.54 | |
| Vel Total (ft/s) | 2.57 | Avg. Vel. (ft/s) | | 2.57 | |
| Max Chl Dpth (ft) | 9.18 | Hydr. Depth (ft) | | 2.16 | |
| Conv. Total (cfs) | 2834.9 | Conv. (cfs) | | 2834.9 | |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | | 21.28 | |
| Min Ch El (ft) | 1278.44 | Shear (lb/sq ft) | | 0.18 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.47 | |
| Frctn Loss (ft) | 0.15 | Cum Volume (acre-ft) | 102.37 | 0.38 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 8.45 | 0.20 | |

Plan: PA97-PA128 n River: Runoff Reach:PA97-PA128 Riv Sta: 14000 Profile: PF 1

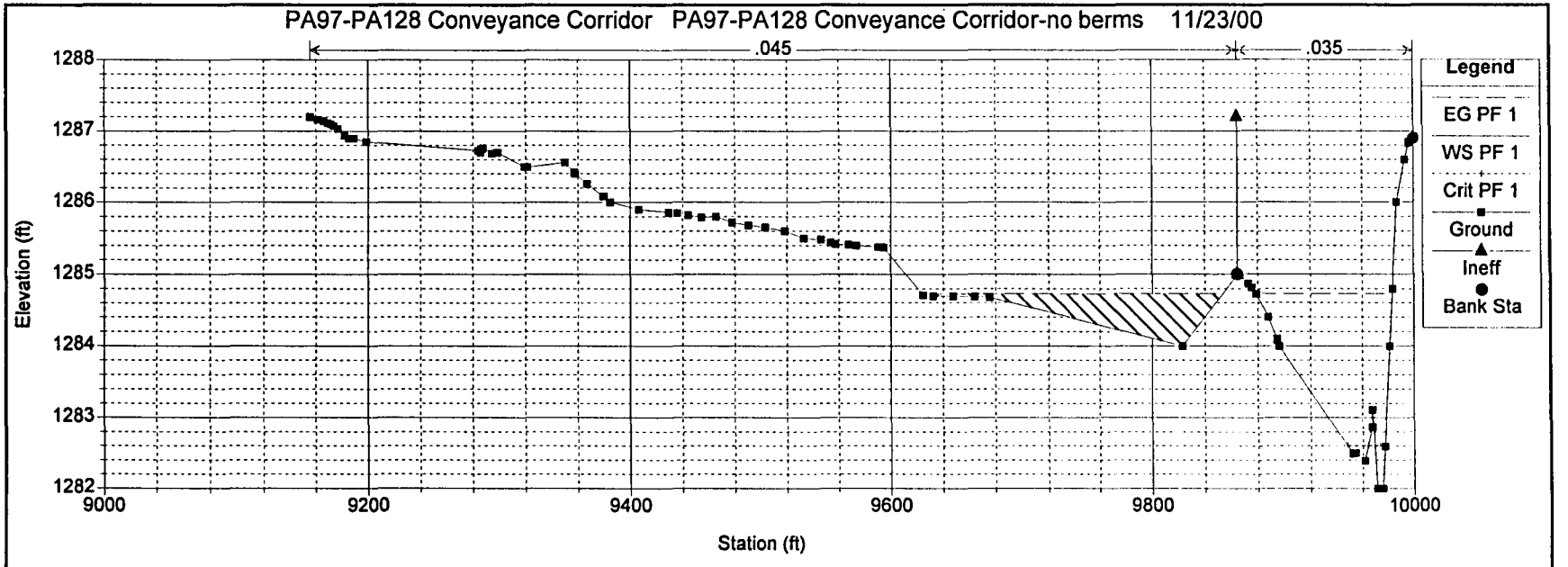
| E.G. Elev (ft) | 1282.53 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.09 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1282.43 | Reach Len. (ft) | 300.00 | 300.00 | 300.00 |
| Crit W.S. (ft) | 1280.90 | Flow Area (sq ft) | | 36.82 | |
| E.G. Slope (ft/ft) | 0.001524 | Area (sq ft) | 9544.65 | 36.82 | |
| Q Total (cfs) | 91.02 | Flow (cfs) | | 91.02 | |
| Top Width (ft) | 751.22 | Top Width (ft) | 732.69 | 18.53 | |
| Vel Total (ft/s) | 2.47 | Avg. Vel. (ft/s) | | 2.47 | |
| Max Chl Dpth (ft) | 15.87 | Hydr. Depth (ft) | | 1.99 | |
| Conv. Total (cfs) | 2331.8 | Conv. (cfs) | | 2331.8 | |
| Length Wtd. (ft) | 300.00 | Wetted Per. (ft) | | 20.21 | |
| Min Ch El (ft) | 1278.40 | Shear (lb/sq ft) | | 0.17 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.43 | |
| Frctn Loss (ft) | 0.48 | Cum Volume (acre-ft) | 85.87 | 0.29 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 6.80 | 0.16 | |

Plan: PA97-PA128 n River: Runoff Reach:PA97-PA128 Riv Sta: 13700 Profile: PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1282.04 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.09 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1281.95 | Reach Len. (ft) | 118.00 | 118.00 | 118.00 |
| Crit W.S. (ft) | 1280.57 | Flow Area (sq ft) | | 24.72 | |
| E.G. Slope (ft/ft) | 0.001736 | Area (sq ft) | 9288.60 | 24.72 | |
| Q Total (cfs) | 58.32 | Flow (cfs) | | 58.32 | |
| Top Width (ft) | 733.03 | Top Width (ft) | 719.01 | 14.02 | |
| Vel Total (ft/s) | 2.36 | Avg. Vel. (ft/s) | | 2.36 | |
| Max Chl Dpth (ft) | 15.86 | Hydr. Depth (ft) | | 1.76 | |
| Conv. Total (cfs) | 1399.6 | Conv. (cfs) | | 1399.6 | |
| Length Wtd. (ft) | 118.00 | Wetted Per. (ft) | | 16.05 | |
| Min Ch El (ft) | 1278.11 | Shear (lb/sq ft) | | 0.17 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.39 | |
| Frctn Loss (ft) | 0.17 | Cum Volume (acre-ft) | 21.01 | 0.07 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.81 | 0.05 | |

Plan: PA97-PA128 n River: Runoff Reach:PA97-PA128 Riv Sta: 13582 Profile: PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1281.86 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.06 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1281.80 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 1280.46 | Flow Area (sq ft) | | 30.38 | |
| E.G. Slope (ft/ft) | 0.001237 | Area (sq ft) | 6225.06 | 30.38 | |
| Q Total (cfs) | 58.32 | Flow (cfs) | | 58.32 | |
| Top Width (ft) | 633.51 | Top Width (ft) | 614.22 | 19.29 | |
| Vel Total (ft/s) | 1.92 | Avg. Vel. (ft/s) | | 1.92 | |
| Max Chl Dpth (ft) | 13.75 | Hydr. Depth (ft) | | 1.57 | |
| Conv. Total (cfs) | 1657.9 | Conv. (cfs) | | 1657.9 | |
| Length Wtd. (ft) | | Wetted Per. (ft) | | 20.84 | |
| Min Ch El (ft) | 1278.10 | Shear (lb/sq ft) | | 0.11 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.22 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |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Legend
EG PF 1
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Elevation (ft)
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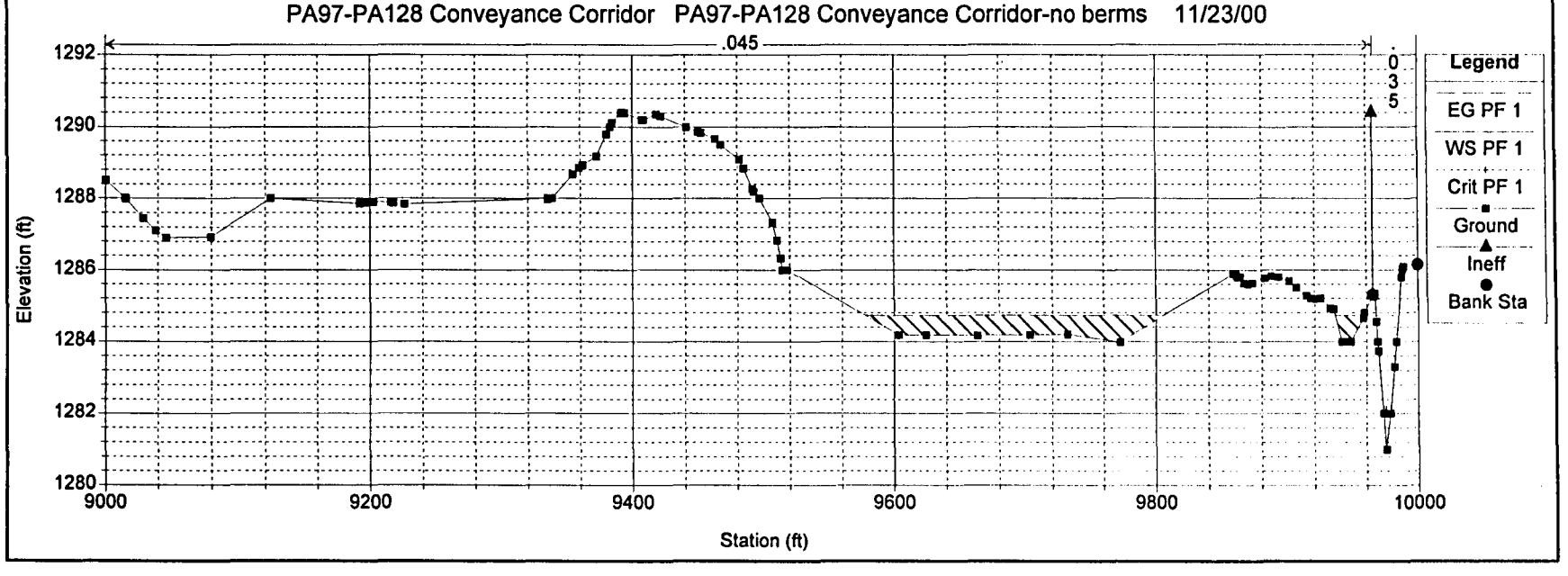
Station (ft)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Elevation (ft)
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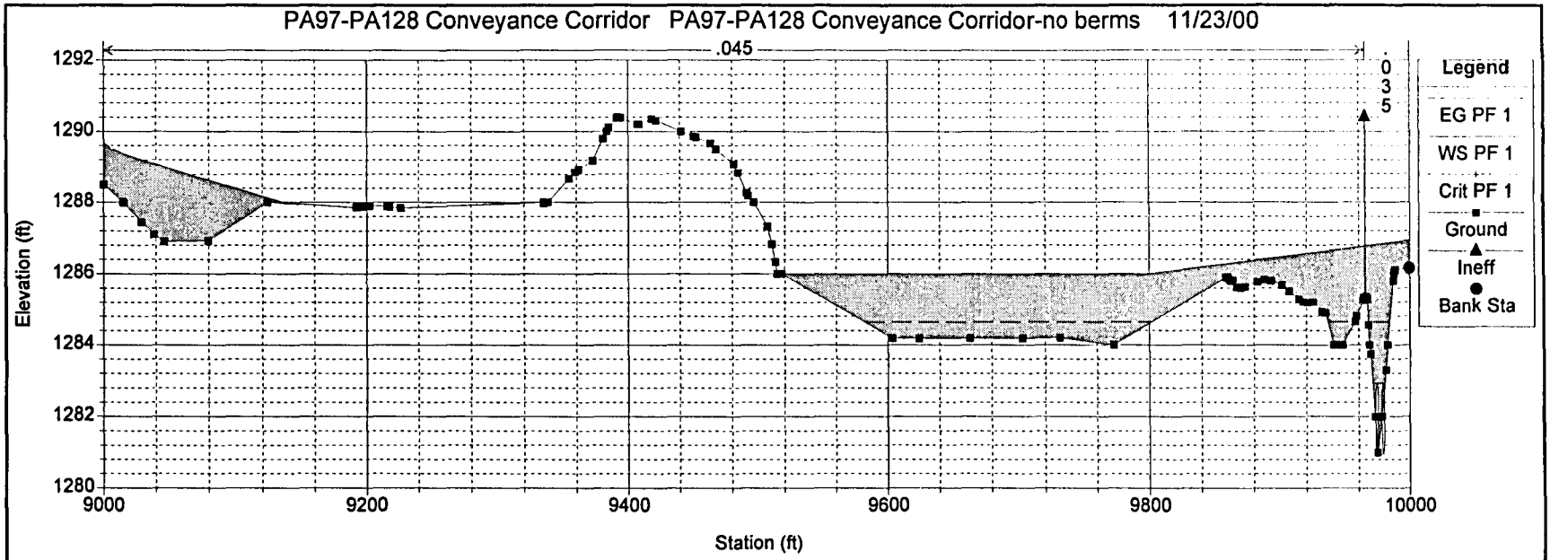
Station (ft)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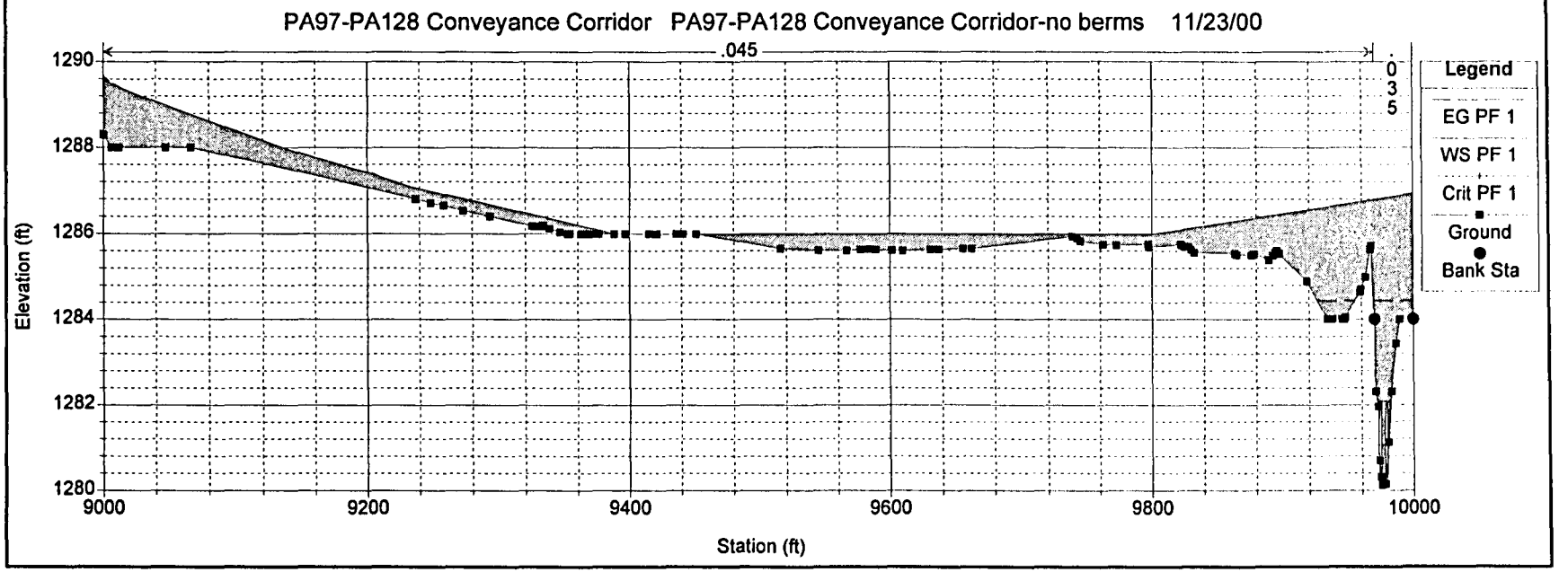
Station (ft)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Elevation (ft)
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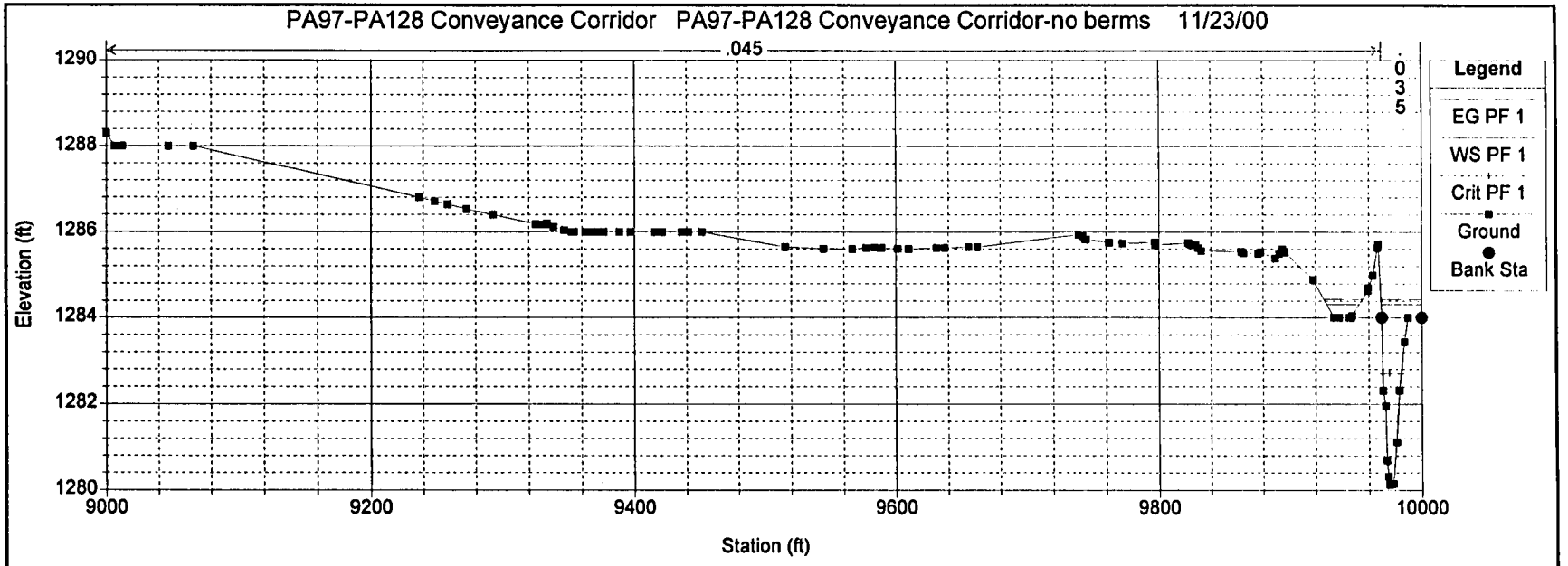
Station (ft)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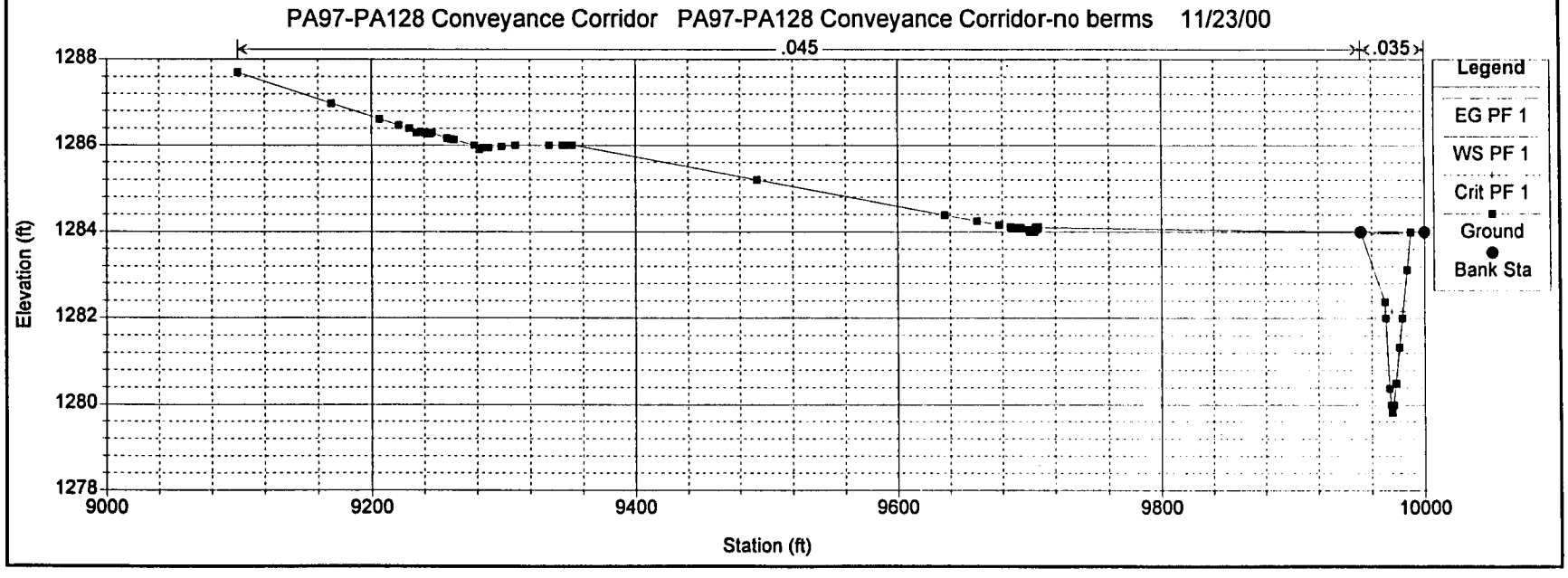
Station (ft)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Crit PF 1
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Elevation (ft)
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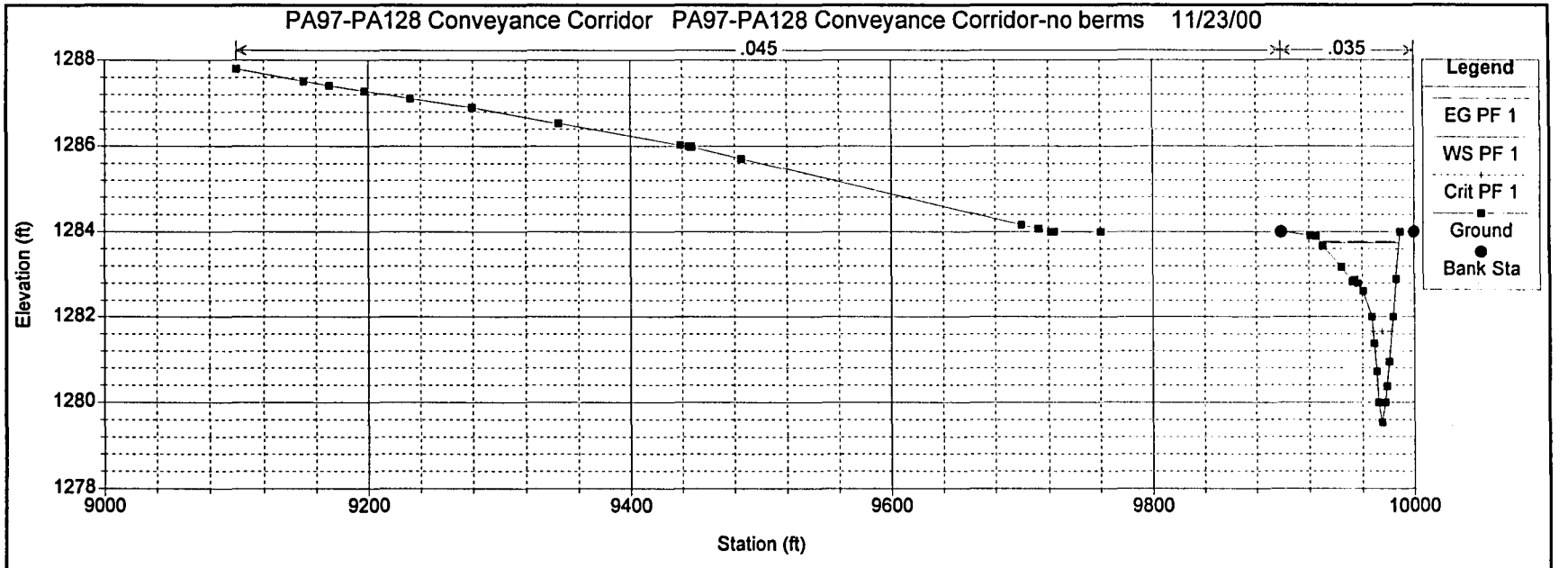
Station (ft)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EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
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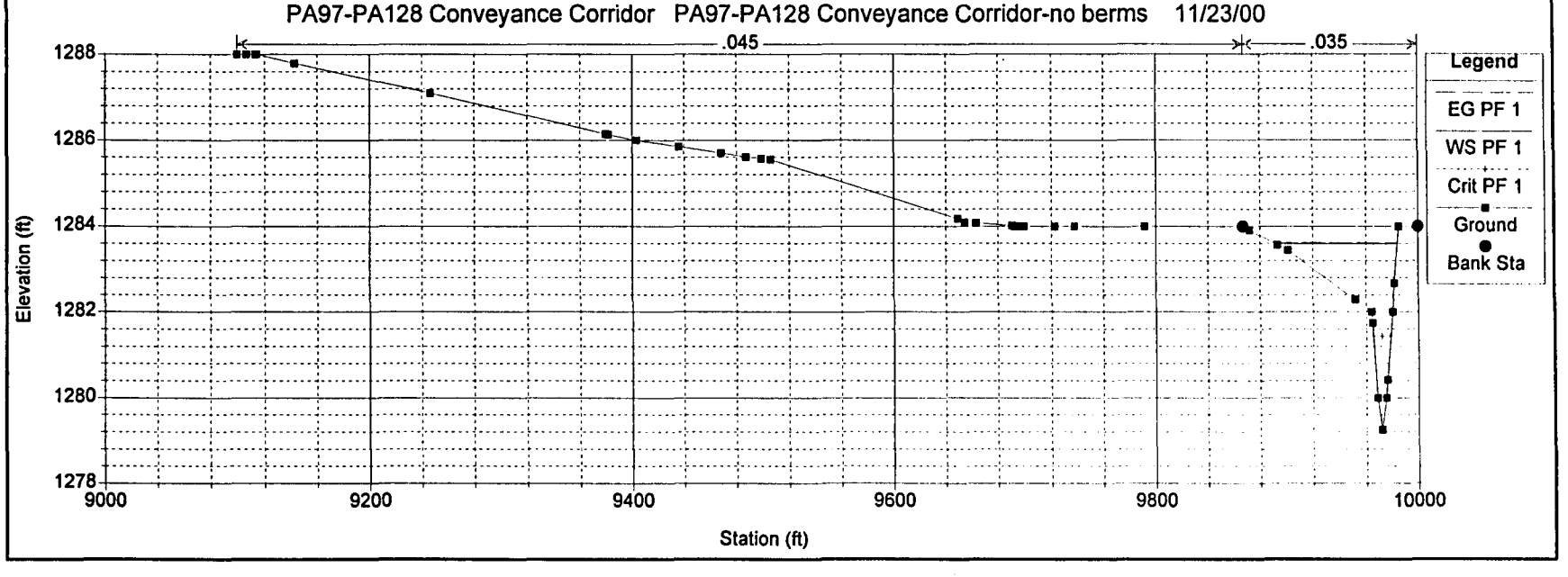
9800
10000
Station (ft)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EG PF 1
WS PF 1
Crit PF 1
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Bank Sta
Elevation (ft)
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9400
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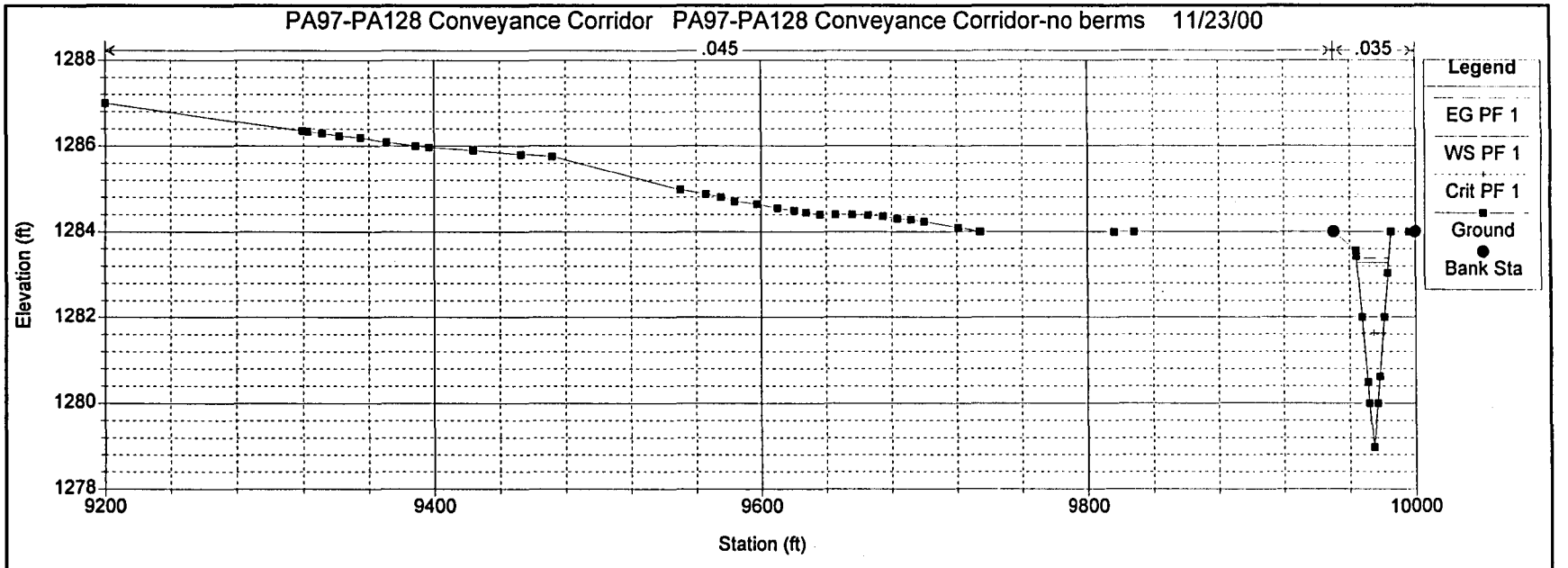
9800
10000
Station (ft)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Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
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9800
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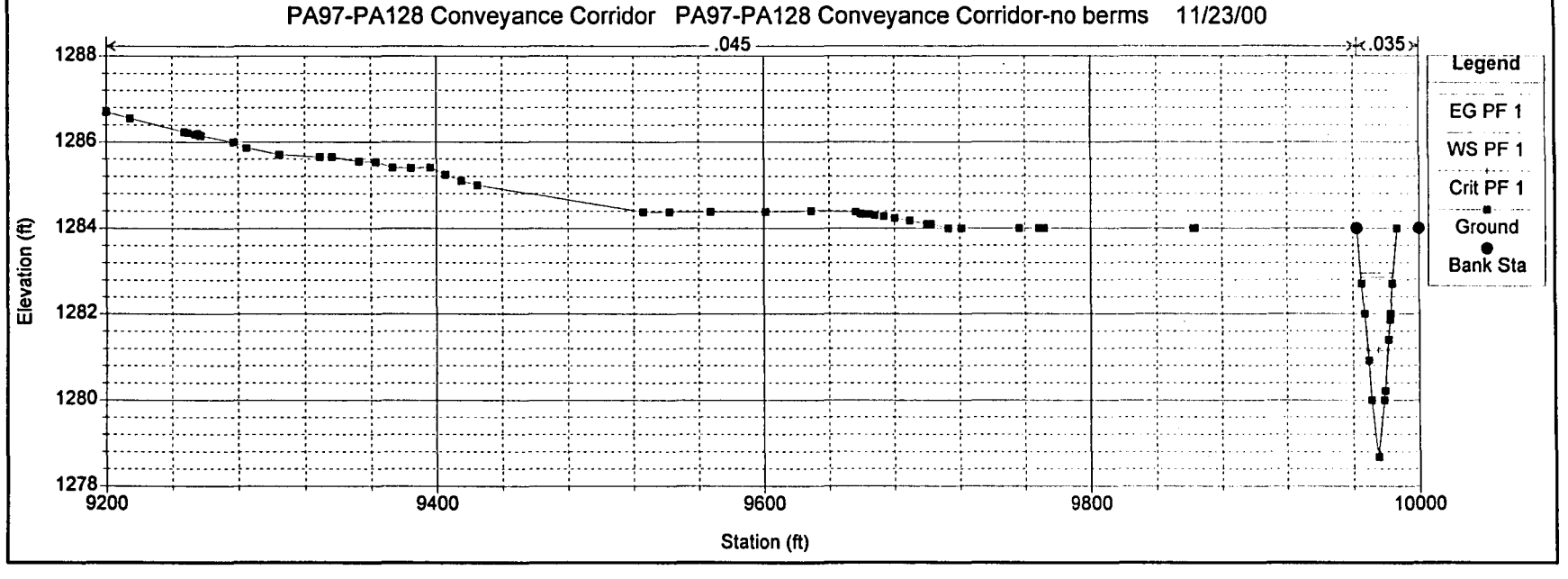
Station (ft)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.045
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
1288
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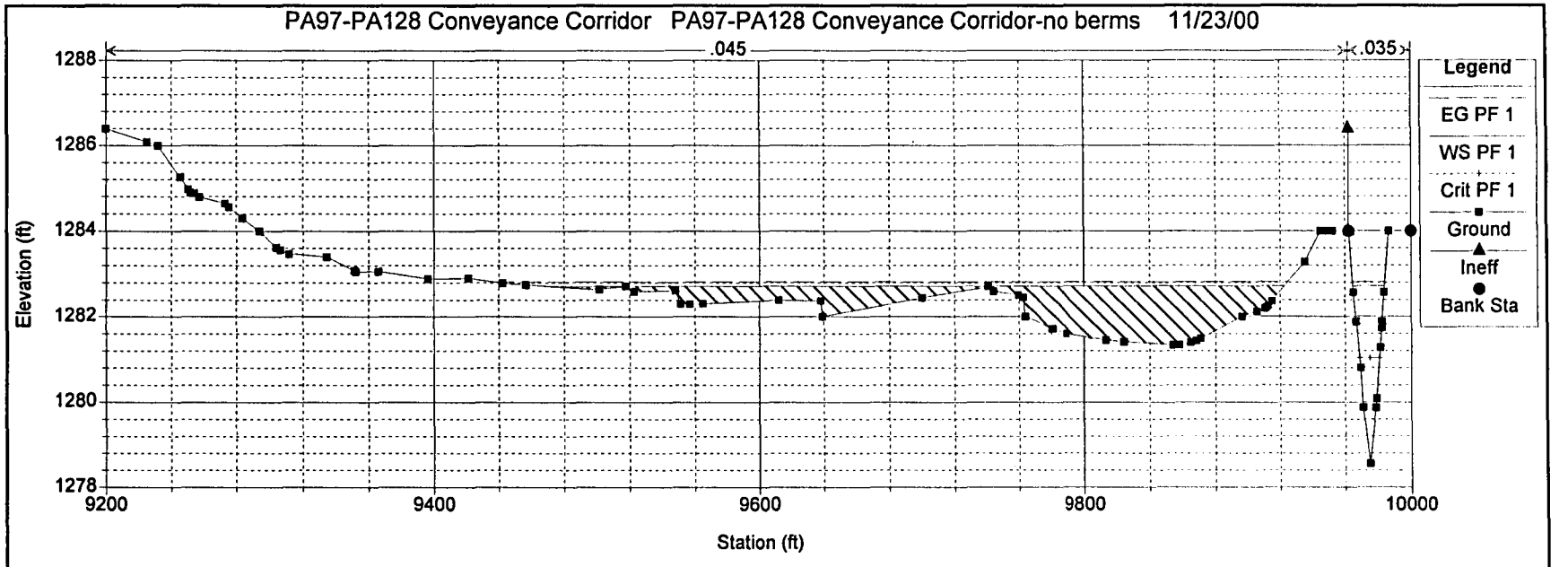
9200
9400
9600
9800
10000
Station (ft)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Legend
EG PF 1
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Elevation (ft)
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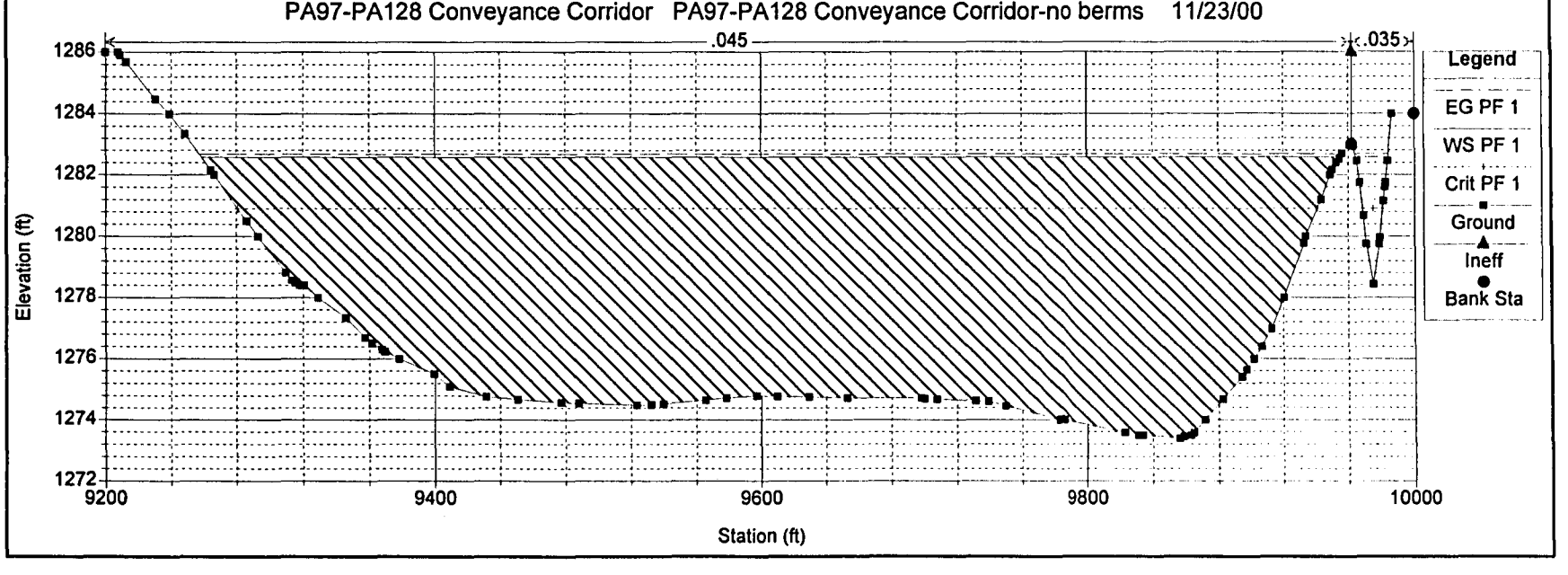
Station (ft)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Legend
EG PF 1
WS PF 1
Crit PF 1
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Bank Sta
Elevation (ft)
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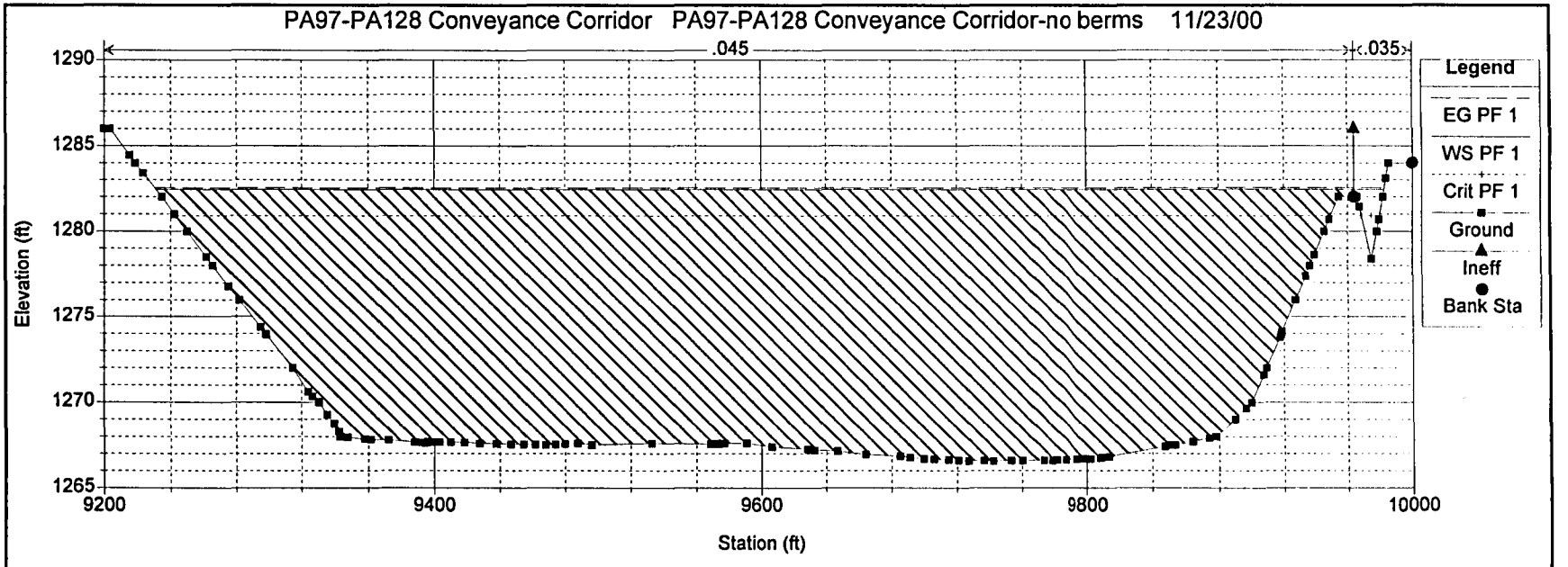
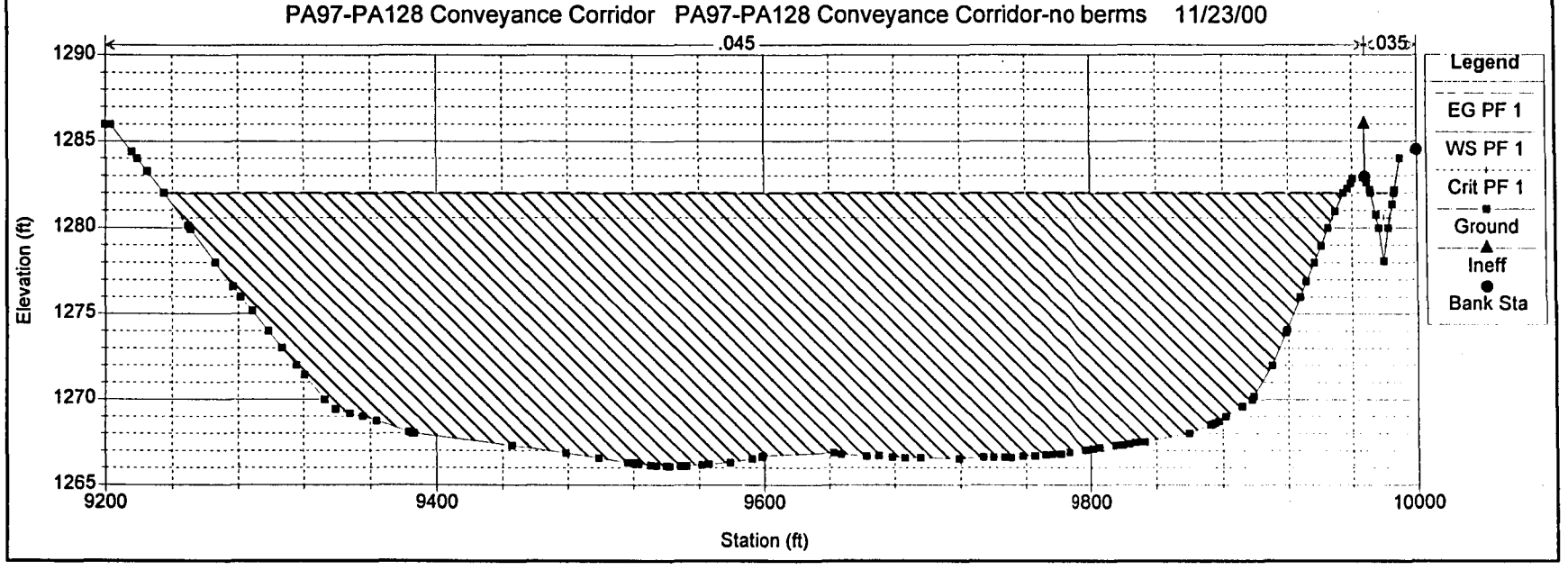
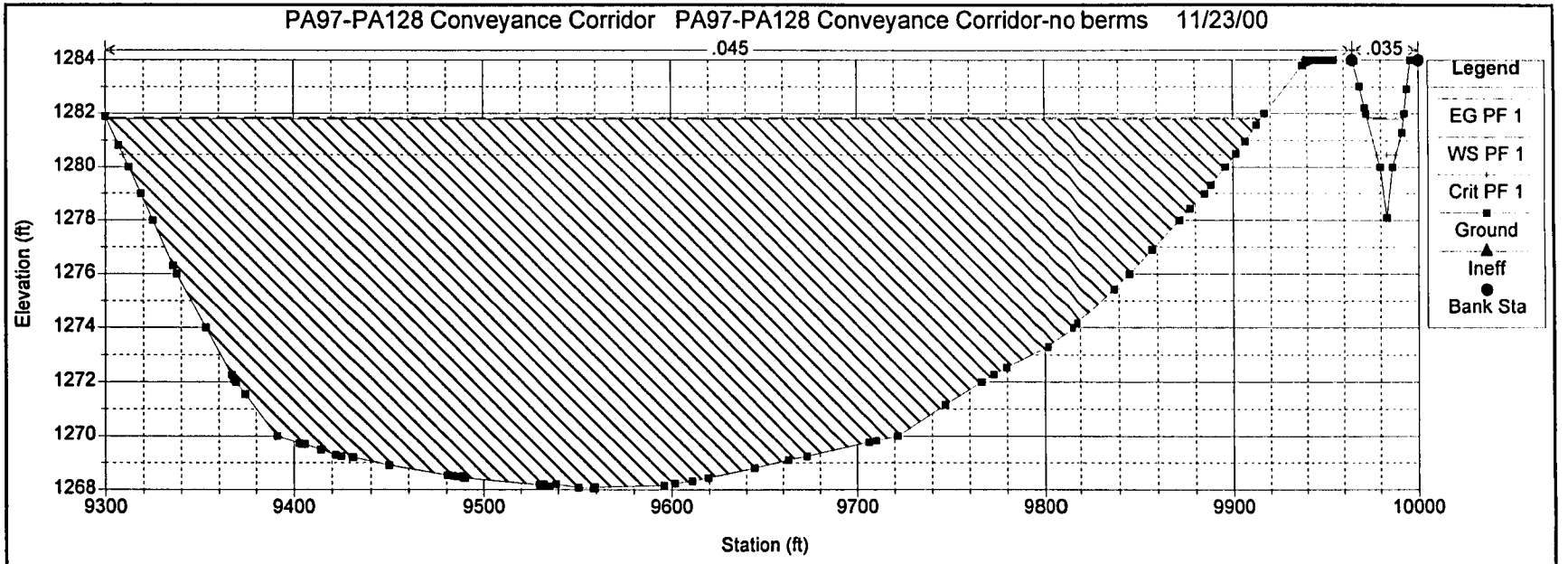
1280
1278
1276
1274
1272
9200
9400
9600
9800
10000
Station (ft)


PA97-PA128 Conveyance Corridor PA97-PA128 Conveyance Corridor-no berms 11/23/00
.045
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1290
1285
1280
1275
1270
1265
9200
9400
9600
9800
10000
Station (ft)


PA97-PA128 Conveyance Corridor PA97-PA128 Conveyance Corridor-no berms 11/23/00
.045
.035
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1290
1285
1280
1275
1270
1265
9200
9400
9600
9800
10000
Station (ft)


PA97-PA128 Conveyance Corridor PA97-PA128 Conveyance Corridor-no berms 11/23/00
.045
.035
Elevation (ft)
1284
1282
1280
1278
1276
1274
1272
1270
1268
9300
9400
9500
9600
9700
9800
9900
10000
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Ineff
Bank Sta

```
                    HEC-RAS September 1998 Version 2.2
                      U.S. Army Corp of Engineers
                     Hydrologic Engineering Center
                       609 Second Street, Suite D
                      Davis, California 95616-4687
                             (916) 756-1104

          X     X  XXXXXX    XXXX        XXXX       XX      XXXX
          X     X  X        X    X       X   X     X  X    X
          X     X  X        X            X   X    X    X   X
          XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
          X     X  X        X            X  X     X    X        X
          X     X  X        X    X       X   X    X    X        X
          X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: PA97-PA128 Conveyance Corridor
Project File : PA97-PA128.prj
Run Date and Time: 4/19/01 8:25:57 PM

Project in English units

PLAN DATA

Plan Title: PA97-PA128 Conveyance Corridor-no berms
Plan File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA97-PA128.p02

Geometry Title: PA97-PA128 Conveyance Corridor-no berms
Geometry File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA97-PA128.g01

Flow Title : PA97-PA128 Conveyance Corridor
Flow File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA97-PA128.f03

Plan Summary Information:
Number of: Cross Sections = 13 Mulitple Openings = 0
Culverts = 1 Inline Weirs = 0
Bridges = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed at all cross sections
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: PA97-PA128 Conveyance Corridor

Flow File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA97-PA128.f03

Flow Data (cfs)

| River | Reach | RS | PF 1 |
|---|---|---|---|
| Runoff | PA97-PA128 | 16000 | 15 |
| Runoff | PA97-PA128 | 15750 | 155 |
| Runoff | PA97-PA128 | 15500 | 108.51 |
| Runoff | PA97-PA128 | 14100 | 108.51 |
| Runoff | PA97-PA128 | 14000 | 91.02 |
| Runoff | PA97-PA128 | 13700 | 58.32 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| Runoff | PA97-PA128 | PF 1 | | Normal S = .001237 |

GEOMETRY DATA

Geometry Title: PA97-PA128 Conveyance Corridor-no berms
Geometry File : d:\Florin\2001-10-05 Submittal\Hec-RAS\PA97-PA128.g01

CROSS SECTION RIVER: Runoff
REACH: PA97-PA128 RS: 16000

INPUT
Description:
Station Elevation Data num= 81

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9155.66 | 1287.2 | 9155.99 | 1287.19 | 9161.53 | 1287.16 | 9165.9 | 1287.14 | 9168.92 | 1287.11 |
| 9171.48 | 1287.1 | 9173.5 | 1287.07 | 9176.76 | 1287.03 | 9181.71 | 1286.94 | 9184.93 | 1286.9 |
| 9188.56 | 1286.9 | 9198.47 | 1286.85 | 9283.89 | 1286.73 | 9284.09 | 1286.73 | 9284.74 | 1286.73 |
| 9285.65 | 1286.7 | 9285.94 | 1286.75 | 9286.59 | 1286.75 | 9287.61 | 1286.76 | 9294.16 | 1286.69 |
| 9298.77 | 1286.7 | 9319.25 | 1286.5 | 9321.31 | 1286.49 | 9350.07 | 1286.56 | 9357.15 | 1286.42 |
| 9357.7 | 1286.4 | 9366.95 | 1286.26 | 9379.24 | 1286.08 | 9379.85 | 1286.08 | 9384.75 | 1286 |
| 9406.56 | 1285.9 | 9429.23 | 1285.86 | 9435.71 | 1285.85 | 9444.28 | 1285.82 | 9454.42 | 1285.79 |
| 9465.61 | 1285.8 | 9477.63 | 1285.72 | 9490.27 | 1285.68 | 9503.37 | 1285.65 | 9518.29 | 1285.6 |
| 9533.05 | 1285.5 | 9546.35 | 1285.48 | 9553.79 | 1285.44 | 9557.52 | 1285.42 | 9567.76 | 1285.41 |
| 9573.43 | 1285.4 | 9590.45 | 1285.38 | 9592.73 | 1285.38 | 9594.53 | 1285.37 | 9624.51 | 1284.71 |
| 9632.22 | 1284.7 | 9647.31 | 1284.7 | 9663.68 | 1284.69 | 9675.38 | 1284.68 | 9823.12 | 1284 |
| 9864.6 | 1285 | 9872.75 | 1284.87 | 9875.31 | 1284.82 | 9878.52 | 1284.73 | 9887.81 | 1284.4 |
| 9894.58 | 1284.1 | 9894.64 | 1284.08 | 9895.98 | 1284 | 9952.09 | 1282.5 | 9952.44 | 1282.49 |
| 9954.42 | 1282.5 | 9961.55 | 1282.39 | 9967.16 | 1282.87 | 9967.74 | 1283.11 | 9971.12 | 1282 |
| 9971.61 | 1282 | 9974.7 | 1282 | 9975.27 | 1282 | 9976.78 | 1282.59 | 9980.98 | 1284 |
| 9983.2 | 1284.8 | 9986.69 | 1286 | 9993.25 | 1286.6 | 9996.26 | 1286.83 | 9996.42 | 1286.85 |
| 10000 | 1286.9 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9155.66 | .045 | 9864.6 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9864.6 | 10000 | 50 | 50 | 50 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 9155.66 | 9864.6 | |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1284.73 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.00 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1284.73 | Reach Len. (ft) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (ft) | 1282.60 | Flow Area (sq ft) | | 152.37 | |
| E.G. Slope (ft/ft) | 0.000003 | Area (sq ft) | 70.78 | 152.37 | |
| Q Total (cfs) | 15.00 | Flow (cfs) | | 15.00 | |
| Top Width (ft) | 334.48 | Top Width (ft) | 229.94 | 104.55 | |
| Vel Total (ft/s) | 0.10 | Avg. Vel. (ft/s) | | 0.10 | |
| Max Chl Dpth (ft) | 2.73 | Hydr. Depth (ft) | | 1.46 | |
| Conv. Total (cfs) | 8275.4 | Conv. (cfs) | | 8275.4 | |
| Length Wtd. (ft) | 50.00 | Wetted Per. (ft) | | 105.30 | |
| Min Ch El (ft) | 1282.00 | Shear (lb/sq ft) | | 0.00 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.00 | |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 108.92 | 3.18 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 11.26 | 2.04 | |

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Runoff
REACH: PA97-PA128 RS: 15950

INPUT
Description:
Station Elevation Data num= 107

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9000 | 1288.5 | 9014.81 | 1288.02 | 9015.38 | 1288 | 9015.75 | 1287.99 | 9028.84 | 1287.45 |
| 9038.25 | 1287.1 | 9046.05 | 1286.9 | 9079.42 | 1286.92 | 9124.26 | 1288 | 9191.99 | 1287.86 |
| 9192.54 | 1287.9 | 9194.28 | 1287.87 | 9196.77 | 1287.88 | 9197.54 | 1287.9 | 9199.31 | 1287.91 |
| 9202.06 | 1287.9 | 9202.52 | 1287.91 | 9216.02 | 1287.89 | 9217.87 | 1287.87 | 9226.16 | 1287.84 |
| 9335.1 | 1288 | 9335.25 | 1287.97 | 9337.88 | 1288 | 9337.89 | 1288 | 9337.91 | 1288 |
| 9338.46 | 1288 | 9354.33 | 1288.67 | 9358.86 | 1288.85 | 9361.8 | 1288.93 | 9372.67 | 1289.17 |
| 9380.24 | 1289.8 | 9380.53 | 1289.8 | 9383.23 | 1290 | 9384.73 | 1290.11 | 9391.48 | 1290.38 |
| 9392.18 | 1290.4 | 9394.37 | 1290.38 | 9407.42 | 1290.2 | 9408.56 | 1290.2 | 9418.34 | 1290.35 |
| 9421.7 | 1290.3 | 9441.18 | 1290 | 9450.45 | 1289.86 | 9452.37 | 1289.84 | 9463.21 | 1289.66 |
| 9467.53 | 1289.5 | 9481.15 | 1289.08 | 9484.42 | 1288.84 | 9491.35 | 1288.26 | 9492.27 | 1288.19 |
| 9496.64 | 1288 | 9506.76 | 1287.33 | 9510.19 | 1286.83 | 9513.09 | 1286.33 | 9514.49 | 1286 |
| 9517.85 | 1286 | 9603.46 | 1284.18 | 9624.14 | 1284.18 | 9663.24 | 1284.18 | 9703.59 | 1284.18 |
| 9731.24 | 1284.2 | 9772.74 | 1284 | 9858.76 | 1285.89 | 9859.65 | 1285.88 | 9859.94 | 1285.87 |
| 9860.3 | 1285.9 | 9861.35 | 1285.82 | 9862.13 | 1285.79 | 9863.65 | 1285.81 | 9866.92 | 1285.62 |
| 9869.83 | 1285.6 | 9873.22 | 1285.63 | 9882.4 | 1285.77 | 9882.46 | 1285.77 | 9887.64 | 1285.82 |
| 9892.51 | 1285.8 | 9893 | 1285.8 | 9901.04 | 1285.68 | 9906.55 | 1285.5 | 9914.13 | 1285.28 |
| 9917.5 | 1285.2 | 9920.98 | 1285.19 | 9924.86 | 1285.2 | 9932.12 | 1284.92 | 9934.26 | 1284.9 |
| 9934.74 | 1284.9 | 9941.06 | 1284 | 9944.32 | 1284 | 9947.91 | 1284 | 9957.34 | 1284.65 |
| 9958.38 | 1284.8 | 9965.04 | 1285.3 | 9966.12 | 1285.35 | 9966.67 | 1285.32 | 9967.53 | 1284.55 |
| 9968.28 | 1284 | 9968.93 | 1283.74 | 9972.95 | 1282 | 9974.66 | 1281 | 9978.12 | 1282 |
| 9981.22 | 1283.3 | 9982.79 | 1284 | 9987.14 | 1285.79 | 9987.67 | 1286 | 9988.3 | 1286.05 |
| 9988.81 | 1286.1 | 10000 | 1286.15 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9000 | .045 | 9965.04 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9965.04 | 10000 | 200 | 200 | 200 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 9000 | 9965.04 | |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1284.73 | Element | Left OB | Channel | Right OB |

| | | | | | |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.00 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1284.73 | Reach Len. (ft) | 200.00 | 200.00 | 200.00 |
| Crit W.S. (ft) | 1282.15 | Flow Area (sq ft) | | 33.85 | |
| E.G. Slope (ft/ft) | 0.000050 | Area (sq ft) | 125.57 | 33.85 | |
| Q Total (cfs) | 15.00 | Flow (cfs) | | 15.00 | |
| Top Width (ft) | 267.34 | Top Width (ft) | 250.11 | 17.23 | |
| Vel Total (ft/s) | 0.44 | Avg. Vel. (ft/s) | | 0.44 | |
| Max Chl Dpth (ft) | 3.73 | Hydr. Depth (ft) | | 1.96 | |
| Conv. Total (cfs) | 2122.9 | Conv. (cfs) | | 2122.9 | |
| Length Wtd. (ft) | 200.00 | Wetted Per. (ft) | | 18.85 | |
| Min Ch El (ft) | 1281.00 | Shear (lb/sq ft) | | 0.01 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.00 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | 108.80 | 3.07 | |
| C & E Loss (ft) | | Cum SA (acres) | 10.98 | 1.97 | |

CULVERT RIVER: Runoff
REACH: PA97-PA128 RS: 15870.19

INPUT
Description:
Distance from Upstream XS = 55
Deck/Roadway Width = 50
Weir Coefficient = 2.8
Bridge Deck/Roadway Skew =
Upstream Deck/Roadway Coordinates
num= 23

| Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord |
|---|---|---|---|---|---|---|---|---|
| 9000 | 1289.7 | 1280 | 9000.13 | 1289.67 | 1280 | 9004.15 | 1289.57 | 1280 |
| 9005.55 | 1289.5 | 1280 | 9006.51 | 1289.48 | 1280 | 9007.91 | 1289.5 | 1280 |
| 9016.26 | 1289.36 | 1280 | 9025.45 | 1289.25 | 1280 | 9042.74 | 1289.05 | 1280 |
| 9135.61 | 1288 | 1280 | 9190.04 | 1287.5 | 1280 | 9204.28 | 1287.39 | 1280 |
| 9211.07 | 1287.3 | 1280 | 9216.22 | 1287.25 | 1280 | 9222.93 | 1287.19 | 1280 |
| 9231.54 | 1287.1 | 1280 | 9286.03 | 1286.73 | 1280 | 9373.36 | 1286.12 | 1280 |
| 9388.33 | 1286 | 1280 | 9792.48 | 1286 | 1280 | 9792.86 | 1285.97 | 1280 |
| 9800.5 | 1286 | 1280 | 10000 | 1286.94 | 1280 | | | |

Upstream Bridge Cross Section Data
Station Elevation Data num= 107

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9000 | 1288.5 | 9014.81 | 1288.02 | 9015.38 | 1288 | 9015.75 | 1287.99 | 9028.84 | 1287.45 |
| 9038.25 | 1287.1 | 9046.05 | 1286.9 | 9079.42 | 1286.92 | 9124.26 | 1288 | 9191.99 | 1287.86 |
| 9192.54 | 1287.9 | 9194.28 | 1287.87 | 9196.77 | 1287.88 | 9197.54 | 1287.9 | 9199.31 | 1287.91 |
| 9202.06 | 1287.9 | 9202.52 | 1287.91 | 9216.02 | 1287.89 | 9217.87 | 1287.87 | 9226.16 | 1287.84 |
| 9335.1 | 1288 | 9335.25 | 1287.97 | 9337.88 | 1288 | 9337.89 | 1288 | 9337.91 | 1288 |
| 9338.46 | 1288 | 9354.33 | 1288.67 | 9358.86 | 1288.85 | 9361.8 | 1288.93 | 9372.67 | 1289.17 |
| 9380.24 | 1289.8 | 9380.53 | 1289.8 | 9383.23 | 1290 | 9384.73 | 1290.11 | 9391.48 | 1290.38 |
| 9392.18 | 1290.4 | 9394.37 | 1290.38 | 9407.42 | 1290.2 | 9408.56 | 1290.2 | 9418.34 | 1290.35 |
| 9421.7 | 1290.3 | 9441.18 | 1290 | 9450.45 | 1289.86 | 9452.37 | 1289.84 | 9463.21 | 1289.66 |
| 9467.53 | 1289.5 | 9481.15 | 1289.08 | 9484.42 | 1288.84 | 9491.35 | 1288.26 | 9492.27 | 1288.19 |
| 9496.64 | 1288 | 9506.76 | 1287.33 | 9510.19 | 1286.83 | 9513.09 | 1286.33 | 9514.49 | 1286 |
| 9517.85 | 1286 | 9603.46 | 1284.18 | 9624.14 | 1284.18 | 9663.24 | 1284.18 | 9703.59 | 1284.18 |
| 9731.24 | 1284.2 | 9772.74 | 1284 | 9858.76 | 1285.89 | 9859.65 | 1285.88 | 9859.94 | 1285.87 |
| 9860.3 | 1285.9 | 9861.35 | 1285.82 | 9862.13 | 1285.79 | 9863.65 | 1285.81 | 9866.92 | 1285.62 |
| 9869.83 | 1285.6 | 9873.22 | 1285.63 | 9882.4 | 1285.77 | 9882.46 | 1285.77 | 9887.64 | 1285.82 |
| 9892.51 | 1285.8 | 9893 | 1285.8 | 9901.04 | 1285.68 | 9906.55 | 1285.5 | 9914.13 | 1285.28 |
| 9917.5 | 1285.2 | 9920.98 | 1285.19 | 9924.86 | 1285.2 | 9932.12 | 1284.92 | 9934.26 | 1284.9 |
| 9934.74 | 1284.9 | 9941.06 | 1284 | 9944.32 | 1284 | 9947.91 | 1284 | 9957.34 | 1284.65 |
| 9958.38 | 1284.8 | 9965.04 | 1285.3 | 9966.12 | 1285.35 | 9966.67 | 1285.32 | 9967.53 | 1284.55 |
| 9968.28 | 1284 | 9968.93 | 1283.74 | 9972.95 | 1282 | 9974.66 | 1281 | 9978.12 | 1282 |
| 9981.22 | 1283.3 | 9982.79 | 1284 | 9987.14 | 1285.79 | 9987.67 | 1286 | 9988.3 | 1286.05 |
| 9988.81 | 1286.1 | 10000 | 1286.15 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9000 | .045 | 9965.04 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Coeff Contr. | Expan. |
|---|---|---|---|
| 9965.04 | 10000 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 9000 | 9965.04 | |

Downstream Deck/Roadway Coordinates

num= 23

| Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord |
|---|---|---|---|---|---|---|---|---|
| 9000 | 1289.7 | 1280 | 9000.13 | 1289.67 | 1280 | 9004.15 | 1289.57 | 1280 |
| 9005.55 | 1289.5 | 1280 | 9006.51 | 1289.48 | 1280 | 9007.91 | 1289.5 | 1280 |
| 9016.26 | 1289.36 | 1280 | 9025.45 | 1289.25 | 1280 | 9042.74 | 1289.05 | 1280 |
| 9135.61 | 1288 | 1280 | 9190.04 | 1287.5 | 1280 | 9204.28 | 1287.39 | 1280 |
| 9211.07 | 1287.3 | 1280 | 9216.22 | 1287.25 | 1280 | 9222.93 | 1287.19 | 1280 |
| 9231.54 | 1287.1 | 1280 | 9286.03 | 1286.73 | 1280 | 9373.36 | 1286.12 | 1280 |
| 9388.33 | 1286 | 1280 | 9792.48 | 1286 | 1280 | 9792.86 | 1285.97 | 1280 |
| 9800.5 | 1286 | 1280 | 10000 | 1286.94 | 1280 | | | |

Downstream Bridge Cross Section Data

Station Elevation Data num= 98

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9000 | 1288.3 | 9006.08 | 1288 | 9010.63 | 1288 | 9011.99 | 1288 | 9047.38 | 1288 |
| 9066.66 | 1288 | 9236.69 | 1286.8 | 9248.37 | 1286.71 | 9258.28 | 1286.64 | 9272.9 | 1286.53 |
| 9293.19 | 1286.4 | 9325.24 | 1286.18 | 9327.91 | 1286.17 | 9330.25 | 1286.17 | 9332.11 | 1286.17 |
| 9333.55 | 1286.2 | 9333.84 | 1286.17 | 9338.63 | 1286.12 | 9346.7 | 1286.04 | 9352.31 | 1286 |
| 9353.46 | 1286 | 9354.16 | 1286 | 9362.89 | 1286 | 9364.71 | 1286 | 9366.26 | 1286 |
| 9367.67 | 1286 | 9369.34 | 1286 | 9371.21 | 1286 | 9376.48 | 1286 | 9388.42 | 1286 |
| 9396.78 | 1286 | 9415.14 | 1286 | 9415.5 | 1286 | 9421.19 | 1286 | 9436.14 | 1286 |
| 9441.01 | 1286 | 9441.34 | 1286 | 9451.57 | 1286 | 9515.43 | 1285.65 | 9544.8 | 1285.61 |
| 9566.53 | 1285.6 | 9577.15 | 1285.63 | 9583.15 | 1285.64 | 9588.96 | 1285.63 | 9601.37 | 1285.61 |
| 9609.69 | 1285.6 | 9631.06 | 1285.63 | 9637.02 | 1285.63 | 9655.63 | 1285.65 | 9662.24 | 1285.65 |
| 9738.73 | 1285.94 | 9742.64 | 1285.9 | 9745 | 1285.83 | 9762.03 | 1285.76 | 9772.19 | 1285.74 |
| 9796.65 | 1285.76 | 9797.25 | 1285.7 | 9822.09 | 1285.75 | 9822.9 | 1285.73 | 9824.24 | 1285.71 |
| 9826.16 | 1285.7 | 9828.02 | 1285.7 | 9830 | 1285.63 | 9832.39 | 1285.56 | 9863.26 | 1285.54 |
| 9864.82 | 1285.51 | 9876.13 | 1285.5 | 9878.05 | 1285.53 | 9889.34 | 1285.39 | 9892.34 | 1285.49 |
| 9894.05 | 1285.54 | 9895.05 | 1285.6 | 9896.06 | 1285.55 | 9896.97 | 1285.53 | 9918.28 | 1284.89 |
| 9933.93 | 1284 | 9937.67 | 1284 | 9945.26 | 1284 | 9946.79 | 1284 | 9947.31 | 1284.04 |
| 9959.24 | 1284.64 | 9959.51 | 1284.7 | 9963.36 | 1284.99 | 9966.69 | 1285.64 | 9967.24 | 1285.72 |
| 9969.81 | 1284 | 9970.6 | 1282.31 | 9972.5 | 1281.96 | 9973.46 | 1280.69 | 9974.35 | 1280.31 |
| 9975.43 | 1280.13 | 9976.51 | 1280.15 | 9978.1 | 1280.15 | 9980.7 | 1281.12 | 9982.87 | 1282.31 |
| 9986.69 | 1283.44 | 9989.6 | 1284 | 10000 | 1284 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9000 | .045 | 9969.81 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Coeff Contr. | Expan. |
|---|---|---|---|
| 9969.81 | 10000 | .1 | .3 |

| | | |
|---|---|---|
| Upstream Embankment side slope | = | 2 horiz. to 1.0 vertical |
| Downstream Embankment side slope | = | 2 horiz. to 1.0 vertical |
| Maximum allowable submergence for weir flow | = | .95 |
| Elevation at which weir flow begins | = | 1286 |
| Energy head used in spillway design | = | |
| Spillway height used in design | = | |
| Weir crest shape | = | Broad Crested |

Number of Culverts = 2

| Culvert Name | Shape | Rise | Span |
|---|---|---|---|
| Culv. PA97 B | Circular | 2 | |

```
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 1 - Square edge entrance with headwall
Solution Criteria = Outlet control
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                 10     160       .014                    1                1
Upstream   Elevation =  1280.93
           Centerline Station =  9974
Downstream Elevation =  1280.08
           Centerline Station =  9974

Culvert Name     Shape      Rise    Span
Culv. PA97 A    Circular       2
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 1 - Square edge entrance with headwall
Solution Criteria = Outlet control
Culvert Upstrm Dist  Length    n Value   Entrance Loss Coef   Exit Loss Coef
                  7     160       .014                    1                1
Upstream   Elevation =  1280.93
           Centerline Station =  9979
Downstream Elevation =  1280.08
           Centerline Station =  9979

CULVERT OUTPUT    Profile #PF 1
Culvert ID : Culv. PA97 B

  Culv Q (cfs)              7.50   Culv Vel In (ft/s)        2.39
  # Barrels                    1   Culv Vel Out (ft/s)       2.39
  Q Barrel (cfs)            7.50   Culv Inv El Up (ft)    1280.93
  E.G. US. (ft)          1284.73   Culv Inv El Dn (ft)    1280.08
  W.S. US. (ft)          1284.73   Culv Frctn Ls (ft)        0.20
  Delta EG (ft)             0.29   Culv Ext Lss (ft)
  Delta WS (ft)             0.42   Culv Ent Lss (ft)         0.09
  E.G. IC (ft)           1282.33   Q Weir (cfs)
  E.G. OC (ft)           1284.73   Weir Sta Lft (ft)
  Culvert Control         Outlet   Weir Sta Rgt (ft)
  Culv WS In (ft)        1282.93   Weir Submerg
  Culv WS Out (ft)       1282.08   Weir Max Depth (ft)
  Culv Nml Depth (ft)              Weir Avg Depth (ft)
  Culv Crt Depth (ft)       0.97   Wr Flw Area (sq ft)
  Culv Ful Lngh (ft)      160.00   Min Top Rd (ft)        1286.94


CULVERT OUTPUT    Profile #PF 1
Culvert ID : Culv. PA97 A

  Culv Q (cfs)              7.50   Culv Vel In (ft/s)        2.39
  # Barrels                    1   Culv Vel Out (ft/s)       2.39
  Q Barrel (cfs)            7.50   Culv Inv El Up (ft)    1280.93
  E.G. US. (ft)          1284.73   Culv Inv El Dn (ft)    1280.08
  W.S. US. (ft)          1284.73   Culv Frctn Ls (ft)        0.20
  Delta EG (ft)             0.29   Culv Ext Lss (ft)
  Delta WS (ft)             0.42   Culv Ent Lss (ft)         0.09
  E.G. IC (ft)           1282.33   Q Weir (cfs)
  E.G. OC (ft)           1284.73   Weir Sta Lft (ft)
  Culvert Control         Outlet   Weir Sta Rgt (ft)
  Culv WS In (ft)        1282.93   Weir Submerg
  Culv WS Out (ft)       1282.08   Weir Max Depth (ft)
  Culv Nml Depth (ft)              Weir Avg Depth (ft)
  Culv Crt Depth (ft)       0.97   Wr Flw Area (sq ft)
  Culv Ful Lngh (ft)      160.00   Min Top Rd (ft)        1286.94


CROSS SECTION          RIVER: Runoff
REACH: PA97-PA128         RS: 15750
```

INPUT
Description:
Station Elevation Data num= 98

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9000 | 1288.3 | 9006.08 | 1288 | 9010.63 | 1288 | 9011.99 | 1288 | 9047.38 | 1288 |
| 9066.66 | 1288 | 9236.69 | 1286.8 | 9248.37 | 1286.71 | 9258.28 | 1286.64 | 9272.9 | 1286.53 |
| 9293.19 | 1286.4 | 9325.24 | 1286.18 | 9327.91 | 1286.17 | 9330.25 | 1286.17 | 9332.11 | 1286.17 |
| 9333.55 | 1286.2 | 9333.84 | 1286.17 | 9338.63 | 1286.12 | 9346.7 | 1286.04 | 9352.31 | 1286 |
| 9353.46 | 1286 | 9354.16 | 1286 | 9362.89 | 1286 | 9364.71 | 1286 | 9366.26 | 1286 |
| 9367.67 | 1286 | 9369.34 | 1286 | 9371.21 | 1286 | 9376.48 | 1286 | 9388.42 | 1286 |
| 9396.78 | 1286 | 9415.14 | 1286 | 9415.5 | 1286 | 9421.19 | 1286 | 9436.14 | 1286 |
| 9441.01 | 1286 | 9441.34 | 1286 | 9451.57 | 1286 | 9515.43 | 1285.65 | 9544.8 | 1285.61 |
| 9566.53 | 1285.6 | 9577.15 | 1285.63 | 9583.15 | 1285.64 | 9588.96 | 1285.63 | 9601.37 | 1285.61 |
| 9609.69 | 1285.6 | 9631.06 | 1285.63 | 9637.02 | 1285.63 | 9655.63 | 1285.65 | 9662.24 | 1285.65 |
| 9738.73 | 1285.94 | 9742.64 | 1285.9 | 9745 | 1285.83 | 9762.03 | 1285.76 | 9772.19 | 1285.74 |
| 9796.65 | 1285.76 | 9797.25 | 1285.7 | 9822.09 | 1285.75 | 9822.9 | 1285.73 | 9824.24 | 1285.71 |
| 9826.16 | 1285.7 | 9828.02 | 1285.7 | 9830 | 1285.63 | 9832.39 | 1285.56 | 9863.26 | 1285.54 |
| 9864.82 | 1285.51 | 9876.13 | 1285.5 | 9878.05 | 1285.53 | 9889.34 | 1285.39 | 9892.34 | 1285.49 |
| 9894.05 | 1285.54 | 9895.05 | 1285.6 | 9896.06 | 1285.55 | 9896.97 | 1285.53 | 9918.28 | 1284.89 |
| 9933.93 | 1284 | 9937.67 | 1284 | 9945.26 | 1284 | 9946.79 | 1284 | 9947.31 | 1284.04 |
| 9959.24 | 1284.64 | 9959.51 | 1284.7 | 9963.36 | 1284.99 | 9966.69 | 1285.64 | 9967.24 | 1285.72 |
| 9969.81 | 1284 | 9970.6 | 1282.31 | 9972.5 | 1281.96 | 9973.46 | 1280.69 | 9974.35 | 1280.31 |
| 9975.43 | 1280.13 | 9976.51 | 1280.15 | 9978.1 | 1280.15 | 9980.7 | 1281.12 | 9982.87 | 1282.31 |
| 9986.69 | 1283.44 | 9989.6 | 1284 | 10000 | 1284 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9000 | .045 | 9969.81 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9969.81 | 10000 | 250 | 250 | 250 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1284.44 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.13 | Wt. n-Val. | 0.045 | 0.035 | |
| W.S. Elev (ft) | 1284.31 | Reach Len. (ft) | 250.00 | 250.00 | 250.00 |
| Crit W.S. (ft) | 1282.70 | Flow Area (sq ft) | 5.84 | 52.52 | |
| E.G. Slope (ft/ft) | 0.002482 | Area (sq ft) | 5.84 | 52.52 | |
| Q Total (cfs) | 155.00 | Flow (cfs) | 3.67 | 151.33 | |
| Top Width (ft) | 54.95 | Top Width (ft) | 24.76 | 30.19 | |
| Vel Total (ft/s) | 2.66 | Avg. Vel. (ft/s) | 0.63 | 2.88 | |
| Max Chl Dpth (ft) | 4.18 | Hydr. Depth (ft) | 0.24 | 1.74 | |
| Conv. Total (cfs) | 3111.3 | Conv. (cfs) | 73.6 | 3037.7 | |
| Length Wtd. (ft) | 250.00 | Wetted Per. (ft) | 24.87 | 33.03 | |
| Min Ch El (ft) | 1280.13 | Shear (lb/sq ft) | 0.04 | 0.25 | |
| Alpha | 1.15 | Stream Power (lb/ft s) | 0.02 | 0.71 | |
| Frctn Loss (ft) | 0.40 | Cum Volume (acre-ft) | 108.50 | 2.87 | |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 10.35 | 1.86 | |

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: Runoff
REACH: PA97-PA128 RS: 15500

INPUT
Description:
Station Elevation Data num= 74

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9100 | 1287.7 | 9170.15 | 1286.98 | 9205.88 | 1286.62 | 9220.79 | 1286.47 | 9228.89 | 1286.4 |
| 9234.06 | 1286.3 | 9237.59 | 1286.32 | 9240.12 | 1286.3 | 9242.28 | 1286.28 | 9244.17 | 1286.27 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9245.88 | 1286.3 | 9257.27 | 1286.17 | 9260.35 | 1286.15 | 9262.52 | 1286.14 | 9278.11 | 1286 |
| 9281.92 | 1285.9 | 9284.29 | 1285.94 | 9288.93 | 1285.94 | 9298.88 | 1285.97 | 9309.2 | 1286 |
| 9334.48 | 1286 | 9344.49 | 1286 | 9349.76 | 1286 | 9351.02 | 1286 | 9351.94 | 1286 |
| 9492.99 | 1285.2 | 9635.88 | 1284.39 | 9660.73 | 1284.25 | 9677.43 | 1284.16 | 9686.14 | 1284.11 |
| 9688.29 | 1284.1 | 9689.51 | 1284.09 | 9690.11 | 1284.09 | 9690.8 | 1284.09 | 9691.56 | 1284.09 |
| 9693.72 | 1284.1 | 9693.98 | 1284.08 | 9694.12 | 1284.08 | 9699.8 | 1284.05 | 9700 | 1284.05 |
| 9700.72 | 1284 | 9701.39 | 1284.05 | 9701.71 | 1284.05 | 9701.89 | 1284.05 | 9702.06 | 1284.04 |
| 9702.43 | 1284 | 9702.67 | 1284.04 | 9703.27 | 1284.04 | 9703.43 | 1284.04 | 9703.93 | 1284.04 |
| 9704.11 | 1284 | 9705.14 | 1284.05 | 9705.3 | 1284.05 | 9705.32 | 1284.05 | 9705.35 | 1284.06 |
| 9705.43 | 1284.1 | 9705.69 | 1284.08 | 9705.84 | 1284.09 | 9706.11 | 1284.11 | 9706.29 | 1284.12 |
| 9706.64 | 1284.1 | 9952.04 | 1284 | 9970.04 | 1282.38 | 9970.6 | 1282 | 9973.46 | 1280.38 |
| 9974.35 | 1280 | 9975.43 | 1279.82 | 9976.51 | 1280 | 9978.1 | 1280.5 | 9980.7 | 1281.33 |
| 9982.87 | 1282 | 9986.69 | 1283.13 | 9989.6 | 1284 | 10000 | 1284 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9100 | .045 | 9952.04 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9952.04 | 10000 | 300 | 300 | 300 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1284.01 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.05 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1283.96 | Reach Len. (ft) | 300.00 | 300.00 | 300.00 |
| Crit W.S. (ft) | 1282.16 | Flow Area (sq ft) | | 60.22 | |
| E.G. Slope (ft/ft) | 0.000986 | Area (sq ft) | | 60.22 | |
| Q Total (cfs) | 108.51 | Flow (cfs) | | 108.51 | |
| Top Width (ft) | 37.00 | Top Width (ft) | | 37.00 | |
| Vel Total (ft/s) | 1.80 | Avg. Vel. (ft/s) | | 1.80 | |
| Max Chl Dpth (ft) | 4.14 | Hydr. Depth (ft) | | 1.63 | |
| Conv. Total (cfs) | 3455.6 | Conv. (cfs) | | 3455.6 | |
| Length Wtd. (ft) | 300.00 | Wetted Per. (ft) | | 38.32 | |
| Min Ch El (ft) | 1279.82 | Shear (lb/sq ft) | | 0.10 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.17 | |
| Frctn Loss (ft) | 0.23 | Cum Volume (acre-ft) | 108.49 | 2.55 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 10.28 | 1.67 | |

CROSS SECTION RIVER: Runoff
REACH: PA97-PA128 RS: 15200

INPUT
Description:
Station Elevation Data num= 44

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9100 | 1287.8 | 9150.46 | 1287.51 | 9170.08 | 1287.41 | 9197.12 | 1287.28 | 9232.27 | 1287.11 |
| 9279.37 | 1286.9 | 9344.87 | 1286.53 | 9438.34 | 1286.03 | 9444.8 | 1286 | 9445.78 | 1285.99 |
| 9445.89 | 1286 | 9446.03 | 1285.99 | 9446.18 | 1285.99 | 9446.61 | 1285.99 | 9446.73 | 1285.99 |
| 9446.87 | 1286 | 9447.2 | 1285.98 | 9485.26 | 1285.71 | 9700 | 1284.16 | 9712.6 | 1284.07 |
| 9721.93 | 1284 | 9724.33 | 1284 | 9760.53 | 1284 | 9898.92 | 1284 | 9920.86 | 1283.91 |
| 9925.25 | 1283.9 | 9930.34 | 1283.67 | 9944.66 | 1283.18 | 9952.63 | 1282.83 | 9953.92 | 1282.88 |
| 9956.45 | 1282.8 | 9960.54 | 1282.62 | 9967.35 | 1282 | 9968.9 | 1281.38 | 9971.05 | 1280.72 |
| 9972.42 | 1280 | 9975.05 | 1279.54 | 9977.81 | 1280 | 9978.85 | 1280.37 | 9980.52 | 1280.95 |
| 9983.53 | 1282 | 9986.13 | 1282.9 | 9989.23 | 1284 | 10000 | 1284 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9100 | .045 | 9898.92 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9898.92 | 10000 | 300 | 300 | 300 | .1 | .3 |

CROSS SECTION OUTPUT  Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1283.77 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.03 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1283.75 | Reach Len. (ft) | 300.00 | 300.00 | 300.00 |
| Crit W.S. (ft) | 1281.66 | Flow Area (sq ft) | | 83.19 | |
| E.G. Slope (ft/ft) | 0.000625 | Area (sq ft) | | 83.19 | |
| Q Total (cfs) | 108.51 | Flow (cfs) | | 108.51 | |
| Top Width (ft) | 59.87 | Top Width (ft) | | 59.87 | |
| Vel Total (ft/s) | 1.30 | Avg. Vel. (ft/s) | | 1.30 | |
| Max Chl Dpth (ft) | 4.21 | Hydr. Depth (ft) | | 1.39 | |
| Conv. Total (cfs) | 4341.6 | Conv. (cfs) | | 4341.6 | |
| Length Wtd. (ft) | 300.00 | Wetted Per. (ft) | | 61.04 | |
| Min Ch El (ft) | 1279.54 | Shear (lb/sq ft) | | 0.05 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.07 | |
| Frctn Loss (ft) | 0.16 | Cum Volume (acre-ft) | 108.49 | 2.05 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 10.28 | 1.33 | |

CROSS SECTION  RIVER: Runoff
REACH: PA97-PA128  RS: 14900

INPUT
Description:
Station Elevation Data  num=  40

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9100 | 1288 | 9106.54 | 1288 | 9113.03 | 1288 | 9113.89 | 1288 | 9142.77 | 1287.79 |
| 9246.69 | 1287.1 | 9379.98 | 1286.15 | 9381.89 | 1286.14 | 9403.34 | 1286 | 9435.98 | 1285.85 |
| 9468.11 | 1285.7 | 9487.09 | 1285.61 | 9498.84 | 1285.57 | 9505.9 | 1285.55 | 9649.12 | 1284.18 |
| 9654.29 | 1284.1 | 9663.19 | 1284.08 | 9690.76 | 1284.02 | 9692.87 | 1284 | 9693.17 | 1284 |
| 9696.73 | 1284 | 9700 | 1284 | 9722.57 | 1284 | 9737.75 | 1284 | 9791.21 | 1284 |
| 9867.14 | 1284 | 9872.09 | 1283.91 | 9893.26 | 1283.57 | 9901.09 | 1283.45 | 9951.49 | 1282.29 |
| 9963.88 | 1282 | 9964.55 | 1281.74 | 9968.47 | 1280 | 9971.84 | 1279.25 | 9975.21 | 1280 |
| 9976.12 | 1280.42 | 9980.08 | 1282 | 9981.73 | 1282.67 | 9985.1 | 1284 | 10000 | 1284 |

Manning's n Values  num=  3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9100 | .045 | 9867.14 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9867.14 | 10000 | 300 | 300 | 300 | .1 | .3 |

CROSS SECTION OUTPUT  Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1283.61 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.02 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1283.60 | Reach Len. (ft) | 300.00 | 300.00 | 300.00 |
| Crit W.S. (ft) | 1281.43 | Flow Area (sq ft) | | 109.80 | |
| E.G. Slope (ft/ft) | 0.000440 | Area (sq ft) | | 109.80 | |
| Q Total (cfs) | 108.51 | Flow (cfs) | | 108.51 | |
| Top Width (ft) | 92.60 | Top Width (ft) | | 92.60 | |
| Vel Total (ft/s) | 0.99 | Avg. Vel. (ft/s) | | 0.99 | |
| Max Chl Dpth (ft) | 4.35 | Hydr. Depth (ft) | | 1.19 | |
| Conv. Total (cfs) | 5173.7 | Conv. (cfs) | | 5173.7 | |
| Length Wtd. (ft) | 300.00 | Wetted Per. (ft) | | 93.91 | |
| Min Ch El (ft) | 1279.25 | Shear (lb/sq ft) | | 0.03 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.03 | |
| Frctn Loss (ft) | 0.22 | Cum Volume (acre-ft) | 108.49 | 1.39 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 10.28 | 0.81 | |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Runoff
REACH: PA97-PA128 RS: 14600

INPUT
Description:
Station Elevation Data num= 48

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9200 | 1287 | 9319.42 | 1286.35 | 9322.88 | 1286.34 | 9331.31 | 1286.3 | 9341.79 | 1286.24 |
| 9354.73 | 1286.2 | 9370.67 | 1286.09 | 9388.44 | 1286 | 9396.61 | 1285.97 | 9423.66 | 1285.9 |
| 9452.72 | 1285.8 | 9471.57 | 1285.76 | 9550.29 | 1284.98 | 9565.91 | 1284.88 | 9575.21 | 1284.8 |
| 9583.7 | 1284.7 | 9597.36 | 1284.64 | 9609.89 | 1284.55 | 9620.27 | 1284.49 | 9627.64 | 1284.45 |
| 9636.14 | 1284.4 | 9645.58 | 1284.4 | 9655.79 | 1284.4 | 9665.38 | 1284.39 | 9674.53 | 1284.36 |
| 9683.42 | 1284.3 | 9691.86 | 1284.28 | 9699.84 | 1284.23 | 9700 | 1284.23 | 9720.9 | 1284.09 |
| 9734.06 | 1284 | 9734.48 | 1284 | 9816.1 | 1284 | 9828.24 | 1284 | 9950.37 | 1284 |
| 9963.68 | 1283.56 | 9964.04 | 1283.43 | 9967.35 | 1282 | 9970.86 | 1280.49 | 9971.94 | 1280 |
| 9974.45 | 1278.97 | 9976.9 | 1280 | 9978.11 | 1280.62 | 9980.99 | 1282 | 9983.19 | 1283.04 |
| 9985.23 | 1284 | 9996.17 | 1284 | 10000 | 1284 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9200 | .045 | 9950.37 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9950.37 | 10000 | 300 | 300 | 300 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1283.38 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.10 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1283.28 | Reach Len. (ft) | 300.00 | 300.00 | 300.00 |
| Crit W.S. (ft) | 1281.62 | Flow Area (sq ft) | | 42.14 | |
| E.G. Slope (ft/ft) | 0.001468 | Area (sq ft) | | 42.14 | |
| Q Total (cfs) | 108.51 | Flow (cfs) | | 108.51 | |
| Top Width (ft) | 19.31 | Top Width (ft) | | 19.31 | |
| Vel Total (ft/s) | 2.57 | Avg. Vel. (ft/s) | | 2.57 | |
| Max Chl Dpth (ft) | 4.31 | Hydr. Depth (ft) | | 2.18 | |
| Conv. Total (cfs) | 2832.6 | Conv. (cfs) | | 2832.6 | |
| Length Wtd. (ft) | 300.00 | Wetted Per. (ft) | | 21.16 | |
| Min Ch El (ft) | 1278.97 | Shear (lb/sq ft) | | 0.18 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.47 | |
| Frctn Loss (ft) | 0.42 | Cum Volume (acre-ft) | 108.49 | 0.87 | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 10.28 | 0.42 | |

CROSS SECTION RIVER: Runoff
REACH: PA97-PA128 RS: 14300

INPUT
Description:
Station Elevation Data num= 58

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9200 | 1286.7 | 9214.47 | 1286.55 | 9247.77 | 1286.24 | 9249.93 | 1286.22 | 9254.29 | 1286.18 |
| 9255.76 | 1286.2 | 9257.27 | 1286.16 | 9257.81 | 1286.15 | 9277.62 | 1286 | 9285.09 | 1285.86 |
| 9304.74 | 1285.7 | 9329.46 | 1285.65 | 9336.21 | 1285.65 | 9352.68 | 1285.54 | 9362.72 | 1285.53 |
| 9373.11 | 1285.4 | 9384.32 | 1285.39 | 9396.09 | 1285.4 | 9405.27 | 1285.24 | 9415 | 1285.1 |
| 9424.76 | 1285 | 9525.97 | 1284.38 | 9542.27 | 1284.38 | 9567.22 | 1284.38 | 9601.08 | 1284.38 |
| 9629.04 | 1284.4 | 9656.22 | 1284.38 | 9659.3 | 1284.34 | 9660.48 | 1284.33 | 9663.77 | 1284.33 |
| 9667.99 | 1284.3 | 9673.37 | 1284.28 | 9680.25 | 1284.24 | 9689.49 | 1284.18 | 9700 | 1284.1 |
| 9702.38 | 1284.1 | 9713.05 | 1284 | 9721.01 | 1284 | 9756.39 | 1284 | 9768.53 | 1284 |
| 9771.25 | 1284 | 9862.26 | 1284 | 9862.54 | 1284 | 9863.29 | 1284 | 9962.24 | 1284 |
| 9965.05 | 1282.7 | 9966.82 | 1282 | 9969.42 | 1280.92 | 9971.09 | 1280 | 9975 | 1278.68 |
| 9978.71 | 1280 | 9979.2 | 1280.21 | 9981.3 | 1281.4 | 9982.2 | 1281.86 | 9982.49 | 1282 |
| 9983.79 | 1282.7 | 9986.52 | 1284 | 10000 | 1284 | | | | |

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9200    .045 9962.24    .035   10000    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9962.24   10000              100     100     100              .1       .3

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1282.96   Element                   Left OB    Channel   Right OB
  Vel Head (ft)                0.10   Wt. n-Val.                            0.035
  W.S. Elev (ft)            1282.86   Reach Len. (ft)            100.00    100.00     100.00
  Crit W.S. (ft)            1281.15   Flow Area (sq ft)                     43.12
  E.G. Slope (ft/ft)       0.001363   Area (sq ft)                          43.12
  Q Total (cfs)              108.51   Flow (cfs)                           108.51
  Top Width (ft)              19.42   Top Width (ft)                        19.42
  Vel Total (ft/s)             2.52   Avg. Vel. (ft/s)                       2.52
  Max Chl Dpth (ft)            4.18   Hydr. Depth (ft)                       2.22
  Conv. Total (cfs)          2938.8   Conv. (cfs)                          2938.8
  Length Wtd. (ft)           100.00   Wetted Per. (ft)                      21.20
  Min Ch El (ft)            1278.68   Shear (lb/sq ft)                       0.17
  Alpha                        1.00   Stream Power (lb/ft s)                 0.44
  Frctn Loss (ft)              0.14   Cum Volume (acre-ft)       108.49      0.57
  C & E Loss (ft)              0.00   Cum SA (acres)              10.28      0.29


CROSS SECTION          RIVER: Runoff
REACH: PA97-PA128         RS: 14200

INPUT
Description:
Station Elevation Data    num=      73
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9200  1286.4 9224.88 1286.09 9231.64    1286 9245.49 1285.26 9250.18 1284.97
 9251.45  1284.9 9254.21 1284.88 9257.04 1284.79 9273.04 1284.64 9275.43 1284.56
 9283.72  1284.3  9293.7    1284 9303.71 1283.62 9306.18 1283.57 9311.42 1283.48
 9334.45  1283.4 9351.04 1283.09 9352.05 1283.06  9365.9 1283.07 9396.24 1282.89
 9421.21  1282.9 9442.31 1282.79 9456.55 1282.75 9501.34 1282.65 9517.62 1282.72
 9522.57  1282.6 9547.99 1282.62 9551.14  1282.3 9556.92  1282.3 9564.87 1282.31
 9611.83  1282.4 9638.15 1282.38 9639.16    1282    9700 1282.45 9740.58 1282.71
  9743.9  1282.6 9759.43 1282.51 9762.46 1282.46 9763.81    1282 9780.12 1281.72
 9788.72  1281.6 9813.33 1281.45 9824.26 1281.41 9854.25 1281.35 9858.25 1281.36
 9865.05  1281.4 9868.43 1281.44 9871.11 1281.49 9896.43    1282 9905.42 1282.12
 9910.42  1282.2 9911.45 1282.23 9912.71 1282.27  9914.9 1282.38 9935.25 1283.28
 9944.79    1284 9947.49    1284 9949.56    1284 9952.13    1284 9962.24    1284
 9965.05 1282.58 9966.82 1281.88 9969.42  1280.8 9971.09 1279.88    9975 1278.56
 9978.71 1279.88  9979.2 1280.09  9981.3 1281.28  9982.2 1281.74 9982.49 1281.88
 9983.79 1282.58 9986.52    1284   10000    1284

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9200    .045 9962.24    .035   10000    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9962.24   10000              100     100     100              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
    9200 9962.24

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1282.82   Element                   Left OB    Channel   Right OB
  Vel Head (ft)                0.10   Wt. n-Val.                            0.035
  W.S. Elev (ft)            1282.72   Reach Len. (ft)            100.00    100.00     100.00
```

| | | | | | |
|---|---|---|---|---|---|
| Crit W.S. (ft) | 1281.03 | Flow Area (sq ft) | | | 42.73 |
| E.G. Slope (ft/ft) | 0.001393 | Area (sq ft) | 243.26 | | 42.73 |
| Q Total (cfs) | 108.51 | Flow (cfs) | | | 108.51 |
| Top Width (ft) | 471.51 | Top Width (ft) | 452.22 | | 19.29 |
| Vel Total (ft/s) | 2.54 | Avg. Vel. (ft/s) | | | 2.54 |
| Max Chl Dpth (ft) | 4.16 | Hydr. Depth (ft) | | | 2.22 |
| Conv. Total (cfs) | 2907.7 | Conv. (cfs) | | | 2907.7 |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | | | 21.06 |
| Min Ch El (ft) | 1278.56 | Shear (lb/sq ft) | | | 0.18 |
| Alpha | 1.00 | Stream Power (lb/ft s) | | | 0.45 |
| Frctn Loss (ft) | 0.14 | Cum Volume (acre-ft) | 108.21 | | 0.47 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 9.76 | | 0.25 |

Warning: Divided flow computed for this cross-section.

CROSS SECTION RIVER: Runoff
REACH: PA97-PA128 RS: 14100

INPUT
Description:
Station Elevation Data num= 85

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9200 | 1286 | 9207.51 | 1286 | 9208.76 | 1285.9 | 9212.18 | 1285.68 | 9230.3 | 1284.48 |
| 9238.9 | 1284 | 9248.33 | 1283.35 | 9263.89 | 1282.15 | 9266.03 | 1282 | 9286.08 | 1280.5 |
| 9292.82 | 1280 | 9309.36 | 1278.82 | 9313.1 | 1278.57 | 9315.02 | 1278.48 | 9317.68 | 1278.4 |
| 9320.31 | 1278.4 | 9329.07 | 1278 | 9345.78 | 1277.34 | 9357.54 | 1276.69 | 9361.75 | 1276.52 |
| 9367.76 | 1276.3 | 9368.94 | 1276.23 | 9369.62 | 1276.23 | 9377.91 | 1276 | 9399.27 | 1275.51 |
| 9408.81 | 1275.1 | 9431.25 | 1274.77 | 9450.58 | 1274.67 | 9477.19 | 1274.58 | 9487.89 | 1274.55 |
| 9523.33 | 1274.5 | 9532.31 | 1274.51 | 9539.54 | 1274.53 | 9565.44 | 1274.66 | 9578.41 | 1274.73 |
| 9596.95 | 1274.8 | 9609.55 | 1274.78 | 9629.32 | 1274.76 | 9652.79 | 1274.73 | 9697.76 | 1274.73 |
| 9700 | 1274.7 | 9707.42 | 1274.68 | 9731.23 | 1274.64 | 9739 | 1274.62 | 9749.62 | 1274.46 |
| 9782.56 | 1274 | 9783.02 | 1274.03 | 9785.59 | 1274 | 9823.03 | 1273.59 | 9831.18 | 1273.49 |
| 9834.03 | 1273.5 | 9856.27 | 1273.39 | 9858.62 | 1273.45 | 9863.06 | 1273.49 | 9864.75 | 1273.57 |
| 9871.57 | 1274 | 9882.33 | 1274.68 | 9894.19 | 1275.42 | 9896.99 | 1275.64 | 9901.26 | 1276 |
| 9906.28 | 1276.4 | 9912.59 | 1276.98 | 9920.43 | 1278 | 9932.55 | 1279.78 | 9933.85 | 1280 |
| 9943.4 | 1281.2 | 9948.68 | 1282 | 9949.98 | 1282.17 | 9952.32 | 1282.39 | 9954.48 | 1282.53 |
| 9956.06 | 1282.7 | 9962.24 | 1283 | 9965.05 | 1282.46 | 9966.82 | 1281.76 | 9969.42 | 1280.68 |
| 9971.09 | 1279.76 | 9975 | 1278.44 | 9978.71 | 1279.76 | 9979.2 | 1279.97 | 9981.3 | 1281.16 |
| 9982.2 | 1281.62 | 9982.49 | 1281.76 | 9983.79 | 1282.46 | 9986.52 | 1284 | 10000 | 1284 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9200 | .045 | 9962.24 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9962.24 | 10000 | 100 | 100 | 100 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 9200 | 9962.24 | |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 1282.68 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.10 | Wt. n-Val. | | 0.035 | | |
| W.S. Elev (ft) | 1282.57 | Reach Len. (ft) | 100.00 | 100.00 | 100.00 | |
| Crit W.S. (ft) | 1280.90 | Flow Area (sq ft) | | 42.27 | | |
| E.G. Slope (ft/ft) | 0.001465 | Area (sq ft) | 4838.01 | 42.27 | | |
| Q Total (cfs) | 108.51 | Flow (cfs) | | 108.51 | | |
| Top Width (ft) | 716.04 | Top Width (ft) | 696.50 | 19.54 | | |
| Vel Total (ft/s) | 2.57 | Avg. Vel. (ft/s) | | 2.57 | | |
| Max Chl Dpth (ft) | 9.18 | Hydr. Depth (ft) | | 2.16 | | |
| Conv. Total (cfs) | 2834.9 | Conv. (cfs) | | 2834.9 | | |
| Length Wtd. (ft) | 100.00 | Wetted Per. (ft) | | 21.28 | | |

| | | | | |
|---|---|---|---|---|
| Min Ch El (ft) | 1278.44 | Shear (lb/sq ft) | | 0.18 |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.47 |
| Frctn Loss (ft) | 0.15 | Cum Volume (acre-ft) | 102.37 | 0.38 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 8.45 | 0.20 |

Warning: Divided flow computed for this cross-section.

CROSS SECTION RIVER: Runoff
REACH: PA97-PA128 RS: 14000

INPUT
Description:
Station Elevation Data num= 116

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9200 | 1286 | 9203.41 | 1286 | 9215.16 | 1284.45 | 9218.49 | 1284 | 9223.16 | 1283.41 |
| 9234.6 | 1282 | 9242.18 | 1281.01 | 9250.02 | 1280 | 9261.69 | 1278.5 | 9265.65 | 1278 |
| 9274.87 | 1276.8 | 9281.53 | 1276 | 9294.59 | 1274.39 | 9297.79 | 1274 | 9298.23 | 1273.95 |
| 9314.37 | 1272 | 9324.06 | 1270.61 | 9326.58 | 1270.34 | 9330.42 | 1270.02 | 9330.45 | 1270.02 |
| 9330.48 | 1270 | 9330.54 | 1270.02 | 9330.74 | 1270 | 9335.47 | 1269.27 | 9339.98 | 1268.76 |
| 9342.44 | 1268.3 | 9343.08 | 1268 | 9347.37 | 1267.97 | 9357.49 | 1267.87 | 9361.42 | 1267.84 |
| 9372.13 | 1267.8 | 9387.85 | 1267.67 | 9391.65 | 1267.64 | 9394.13 | 1267.62 | 9395.45 | 1267.63 |
| 9395.62 | 1267.7 | 9398.08 | 1267.67 | 9402.85 | 1267.67 | 9409.85 | 1267.66 | 9418.13 | 1267.64 |
| 9427.5 | 1267.6 | 9437.72 | 1267.58 | 9446.68 | 1267.55 | 9454.58 | 1267.53 | 9461.58 | 1267.52 |
| 9467.99 | 1267.5 | 9473.97 | 1267.53 | 9479.69 | 1267.56 | 9487.53 | 1267.59 | 9496.05 | 1267.5 |
| 9532.65 | 1267.6 | 9568.58 | 1267.55 | 9570.19 | 1267.56 | 9572.13 | 1267.56 | 9573.74 | 1267.57 |
| 9575.29 | 1267.6 | 9576.75 | 1267.6 | 9590.55 | 1267.6 | 9606.23 | 1267.4 | 9628.31 | 1267.27 |
| 9632.36 | 1267.2 | 9646.72 | 1267.14 | 9663.89 | 1266.94 | 9684.98 | 1266.85 | 9690.99 | 1266.78 |
| 9699.58 | 1266.7 | 9705.66 | 1266.68 | 9714.59 | 1266.65 | 9720.7 | 1266.61 | 9726.77 | 1266.58 |
| 9736.36 | 1266.6 | 9742.06 | 1266.56 | 9753.21 | 1266.59 | 9760.16 | 1266.59 | 9772.86 | 1266.61 |
| 9778.41 | 1266.6 | 9780.8 | 1266.62 | 9786.45 | 1266.64 | 9793.7 | 1266.67 | 9798.47 | 1266.69 |
| 9802.34 | 1266.7 | 9808.16 | 1266.75 | 9809.3 | 1266.77 | 9813.56 | 1266.81 | 9847.5 | 1267.42 |
| 9850.55 | 1267.5 | 9853.53 | 1267.5 | 9864.09 | 1267.7 | 9873.91 | 1267.91 | 9877.76 | 1268 |
| 9889.77 | 1269 | 9896.41 | 1269.65 | 9899.86 | 1270 | 9907.18 | 1271.6 | 9909 | 1272 |
| 9917.33 | 1273.8 | 9918.05 | 1274 | 9918.21 | 1274.03 | 9918.62 | 1274.13 | 9927.04 | 1276 |
| 9933.36 | 1277.4 | 9936.08 | 1278 | 9939 | 1278.64 | 9945.13 | 1280 | 9948.32 | 1280.7 |
| 9954.18 | 1282 | 9963.8 | 1282 | 9965.57 | 1282 | 9967.11 | 1281.43 | 9974.6 | 1278.4 |
| 9977.92 | 1280 | 9979.14 | 1280.69 | 9981.63 | 1282 | 9983.42 | 1283.1 | 9985.11 | 1284 |
| 10000 | 1284 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9200 | .045 | 9963.8 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9963.8 | 10000 | 300 | 300 | 300 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 9200 | 9963.8 | |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1282.53 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.09 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1282.43 | Reach Len. (ft) | 300.00 | 300.00 | 300.00 |
| Crit W.S. (ft) | 1280.90 | Flow Area (sq ft) | | 36.82 | |
| E.G. Slope (ft/ft) | 0.001524 | Area (sq ft) | 9544.65 | 36.82 | |
| Q Total (cfs) | 91.02 | Flow (cfs) | | 91.02 | |
| Top Width (ft) | 751.22 | Top Width (ft) | 732.69 | 18.53 | |
| Vel Total (ft/s) | 2.47 | Avg. Vel. (ft/s) | | 2.47 | |
| Max Chl Dpth (ft) | 15.87 | Hydr. Depth (ft) | | 1.99 | |
| Conv. Total (cfs) | 2331.8 | Conv. (cfs) | | 2331.8 | |
| Length Wtd. (ft) | 300.00 | Wetted Per. (ft) | | 20.21 | |
| Min Ch El (ft) | 1278.40 | Shear (lb/sq ft) | | 0.17 | |

| | | | | |
|---|---|---|---|---|
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.43 |
| Frctn Loss (ft) | 0.48 | Cum Volume (acre-ft) | 85.87 | 0.29 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 6.80 | 0.16 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Runoff
REACH: PA97-PA128 RS: 13700

INPUT
Description:
Station Elevation Data num= 115

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9200 | 1286 | 9203 | 1286 | 9215.99 | 1284.38 | 9218.99 | 1284 | 9224.79 | 1283.26 |
| 9234.98 | 1282 | 9249.55 | 1280.13 | 9250.62 | 1280 | 9251.24 | 1279.92 | 9266.26 | 1278 |
| 9277.01 | 1276.6 | 9281.55 | 1276 | 9288.41 | 1275.19 | 9298.16 | 1274 | 9306.63 | 1273.01 |
| 9315.53 | 1272 | 9320.56 | 1271.43 | 9332.8 | 1270 | 9339.39 | 1269.44 | 9347.79 | 1269.18 |
| 9355.5 | 1269 | 9363.62 | 1268.73 | 9383.38 | 1268.09 | 9385.22 | 1268.02 | 9386.12 | 1268 |
| 9445.96 | 1267.3 | 9478.85 | 1266.86 | 9498.73 | 1266.57 | 9516.32 | 1266.31 | 9519.42 | 1266.27 |
| 9520.58 | 1266.3 | 9521.74 | 1266.24 | 9522.91 | 1266.23 | 9530.09 | 1266.16 | 9533.7 | 1266.12 |
| 9539.78 | 1266.1 | 9541.72 | 1266.09 | 9548.27 | 1266.1 | 9548.94 | 1266.09 | 9549.33 | 1266.09 |
| 9551.17 | 1266.1 | 9551.64 | 1266.1 | 9552.16 | 1266.1 | 9561.43 | 1266.18 | 9565.63 | 1266.2 |
| 9578.76 | 1266.3 | 9592.22 | 1266.52 | 9598.24 | 1266.63 | 9598.77 | 1266.69 | 9642.61 | 1266.87 |
| 9646.98 | 1266.8 | 9662.48 | 1266.67 | 9670.11 | 1266.71 | 9678.31 | 1266.63 | 9685.89 | 1266.58 |
| 9695.35 | 1266.6 | 9719.01 | 1266.53 | 9733.84 | 1266.62 | 9739.79 | 1266.61 | 9746.49 | 1266.61 |
| 9750.5 | 1266.6 | 9757.67 | 1266.67 | 9765.19 | 1266.7 | 9771.35 | 1266.75 | 9775.88 | 1266.78 |
| 9780.72 | 1266.8 | 9785.99 | 1266.89 | 9796.97 | 1267.02 | 9801.38 | 1267.1 | 9805.52 | 1267.16 |
| 9815.63 | 1267.3 | 9819.98 | 1267.32 | 9823.84 | 1267.38 | 9827.21 | 1267.46 | 9830.32 | 1267.5 |
| 9833.21 | 1267.5 | 9859.92 | 1268 | 9872.62 | 1268.5 | 9873.67 | 1268.54 | 9875.11 | 1268.61 |
| 9877.35 | 1268.7 | 9881.51 | 1268.98 | 9891.47 | 1269.61 | 9897.52 | 1270 | 9898.52 | 1270.2 |
| 9909.65 | 1272 | 9918.25 | 1273.91 | 9918.63 | 1274 | 9919.06 | 1274.1 | 9927.35 | 1276 |
| 9931.03 | 1276.9 | 9936.22 | 1278 | 9940.64 | 1278.98 | 9945.03 | 1280 | 9949.53 | 1280.95 |
| 9954.59 | 1282 | 9957.08 | 1282.26 | 9959.22 | 1282.56 | 9960.39 | 1282.83 | 9967.79 | 1282.93 |
| 9968.89 | 1282.6 | 9970.83 | 1282.2 | 9971.43 | 1282 | 9974.6 | 1280.75 | 9976.34 | 1280 |
| 9979.33 | 1278.11 | 9982.1 | 1280 | 9984.58 | 1281.36 | 9985.65 | 1282 | 9985.98 | 1282.17 |
| 9989.37 | 1284 | 9999.68 | 1284.47 | 9999.75 | 1284.47 | 9999.94 | 1284.48 | 10000 | 1284.5 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9200 | .045 | 9967.79 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9967.79 | 10000 | 118 | 118 | 118 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 9200 | 9967.79 | |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1282.04 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.09 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1281.95 | Reach Len. (ft) | 118.00 | 118.00 | 118.00 |
| Crit W.S. (ft) | 1280.57 | Flow Area (sq ft) | | 24.72 | |
| E.G. Slope (ft/ft) | 0.001736 | Area (sq ft) | 9288.60 | 24.72 | |
| Q Total (cfs) | 58.32 | Flow (cfs) | | 58.32 | |
| Top Width (ft) | 733.03 | Top Width (ft) | 719.01 | 14.02 | |
| Vel Total (ft/s) | 2.36 | Avg. Vel. (ft/s) | | 2.36 | |
| Max Chl Dpth (ft) | 15.86 | Hydr. Depth (ft) | | 1.76 | |
| Conv. Total (cfs) | 1399.6 | Conv. (cfs) | | 1399.6 | |
| Length Wtd. (ft) | 118.00 | Wetted Per. (ft) | | 16.05 | |
| Min Ch El (ft) | 1278.11 | Shear (lb/sq ft) | | 0.17 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.39 | |

| | | | |
|---|---|---|---|
| Frctn Loss (ft) | 0.17 | Cum Volume (acre-ft) | 21.01 | 0.07 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.81 | 0.05 |

Warning: Divided flow computed for this cross-section.

CROSS SECTION RIVER: Runoff
REACH: PA97-PA128 RS: 13582

INPUT
Description:
Station Elevation Data num= 112

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 9300 | 1281.9 | 9306.95 | 1280.81 | 9312.26 | 1280 | 9318.66 | 1278.99 | 9325.11 | 1278 |
| 9335.81 | 1276.3 | 9337.71 | 1276 | 9352.96 | 1274.01 | 9353.04 | 1274 | 9366.96 | 1272.26 |
| 9367.94 | 1272.1 | 9369.2 | 1272 | 9374.13 | 1271.55 | 9391.03 | 1270 | 9402.83 | 1269.73 |
| 9404.1 | 1269.7 | 9405.71 | 1269.69 | 9414.24 | 1269.49 | 9422.14 | 1269.29 | 9424.92 | 1269.24 |
| 9430.87 | 1269.2 | 9449.61 | 1268.91 | 9480.52 | 1268.54 | 9483.4 | 1268.51 | 9485.55 | 1268.49 |
| 9488.43 | 1268.5 | 9489.07 | 1268.45 | 9489.96 | 1268.43 | 9529.82 | 1268.18 | 9531.2 | 1268.17 |
| 9532.19 | 1268.2 | 9533.54 | 1268.14 | 9534.03 | 1268.13 | 9534.46 | 1268.13 | 9535.09 | 1268.14 |
| 9538.76 | 1268.2 | 9550.67 | 1268.09 | 9558.64 | 1268.05 | 9558.93 | 1268.05 | 9559.18 | 1268.06 |
| 9559.25 | 1268.1 | 9595.87 | 1268.16 | 9601.74 | 1268.24 | 9610.85 | 1268.32 | 9619.64 | 1268.44 |
| 9644.27 | 1268.8 | 9662.61 | 1269.1 | 9672.96 | 1269.24 | 9706.32 | 1269.77 | 9710.11 | 1269.82 |
| 9721.52 | 1270 | 9747.02 | 1271.16 | 9766.44 | 1272 | 9772.9 | 1272.28 | 9779.7 | 1272.54 |
| 9801.76 | 1273.3 | 9815.12 | 1274 | 9817.83 | 1274.17 | 9837.39 | 1275.43 | 9845.45 | 1276 |
| 9857.36 | 1276.9 | 9871.41 | 1278 | 9877.07 | 1278.43 | 9884.84 | 1278.99 | 9888.33 | 1279.31 |
| 9895.92 | 1280 | 9901.53 | 1280.5 | 9906.47 | 1280.96 | 9912.61 | 1281.58 | 9916.86 | 1282 |
| 9937.78 | 1283.8 | 9939.47 | 1283.91 | 9939.82 | 1283.94 | 9939.94 | 1283.96 | 9940.03 | 1283.97 |
| 9940.05 | 1284 | 9940.08 | 1283.98 | 9940.1 | 1283.99 | 9940.11 | 1283.99 | 9940.25 | 1283.99 |
| 9940.26 | 1284 | 9940.28 | 1283.99 | 9940.34 | 1283.99 | 9940.41 | 1283.99 | 9940.46 | 1283.99 |
| 9940.48 | 1284 | 9940.5 | 1283.99 | 9940.53 | 1283.98 | 9940.6 | 1283.98 | 9940.74 | 1283.97 |
| 9940.95 | 1284 | 9941.17 | 1283.96 | 9941.79 | 1284 | 9942.65 | 1284 | 9943.3 | 1284 |
| 9946.51 | 1284 | 9948.1 | 1284 | 9949.62 | 1284 | 9952.57 | 1284 | 9954.57 | 1284 |
| 9964.73 | 1284 | 9968.55 | 1283.02 | 9971.25 | 1282.22 | 9972.08 | 1282 | 9979.6 | 1280 |
| 9983.2 | 1278.1 | 9986.24 | 1280 | 9991.28 | 1281.3 | 9992.45 | 1282 | 9993.94 | 1282.93 |
| 9995.82 | 1284 | 10000 | 1284 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 9300 | .045 | 9964.73 | .035 | 10000 | .035 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 9964.73 | 10000 | 0 | 0 | 0 | .1 | .3 |

Ineffective Flow num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 9300 | 9964.73 | |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1281.86 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.06 | Wt. n-Val. | | 0.035 | |
| W.S. Elev (ft) | 1281.80 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 1280.46 | Flow Area (sq ft) | | 30.38 | |
| E.G. Slope (ft/ft) | 0.001237 | Area (sq ft) | 6225.06 | 30.38 | |
| Q Total (cfs) | 58.32 | Flow (cfs) | | 58.32 | |
| Top Width (ft) | 633.51 | Top Width (ft) | 614.22 | 19.29 | |
| Vel Total (ft/s) | 1.92 | Avg. Vel. (ft/s) | | 1.92 | |
| Max Chl Dpth (ft) | 13.75 | Hydr. Depth (ft) | | 1.57 | |
| Conv. Total (cfs) | 1657.9 | Conv. (cfs) | | 1657.9 | |
| Length Wtd. (ft) | | Wetted Per. (ft) | | 20.84 | |
| Min Ch El (ft) | 1278.10 | Shear (lb/sq ft) | | 0.11 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.22 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

Warning: Divided flow computed for this cross-section.

SUMMARY OF MANNING'S N VALUES

River:Runoff

| Reach | River Sta. | n1 | n2 | n3 |
|---|---|---|---|---|
| PA97-PA128 | 16000 | .045 | .035 | .035 |
| PA97-PA128 | 15950 | .045 | .035 | .035 |
| PA97-PA128 | 15870.19 | Culvert | | |
| PA97-PA128 | 15750 | .045 | .035 | .035 |
| PA97-PA128 | 15500 | .045 | .035 | .035 |
| PA97-PA128 | 15200 | .045 | .035 | .035 |
| PA97-PA128 | 14900 | .045 | .035 | .035 |
| PA97-PA128 | 14600 | .045 | .035 | .035 |
| PA97-PA128 | 14300 | .045 | .035 | .035 |
| PA97-PA128 | 14200 | .045 | .035 | .035 |
| PA97-PA128 | 14100 | .045 | .035 | .035 |
| PA97-PA128 | 14000 | .045 | .035 | .035 |
| PA97-PA128 | 13700 | .045 | .035 | .035 |
| PA97-PA128 | 13582 | .045 | .035 | .035 |

SUMMARY OF REACH LENGTHS

River: Runoff

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| PA97-PA128 | 16000 | 50 | 50 | 50 |
| PA97-PA128 | 15950 | 200 | 200 | 200 |
| PA97-PA128 | 15870.19 | Culvert | | |
| PA97-PA128 | 15750 | 250 | 250 | 250 |
| PA97-PA128 | 15500 | 300 | 300 | 300 |
| PA97-PA128 | 15200 | 300 | 300 | 300 |
| PA97-PA128 | 14900 | 300 | 300 | 300 |
| PA97-PA128 | 14600 | 300 | 300 | 300 |
| PA97-PA128 | 14300 | 100 | 100 | 100 |
| PA97-PA128 | 14200 | 100 | 100 | 100 |
| PA97-PA128 | 14100 | 100 | 100 | 100 |
| PA97-PA128 | 14000 | 300 | 300 | 300 |
| PA97-PA128 | 13700 | 118 | 118 | 118 |
| PA97-PA128 | 13582 | 0 | 0 | 0 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Runoff

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| PA97-PA128 | 16000 | .1 | .3 |
| PA97-PA128 | 15950 | .1 | .3 |
| PA97-PA128 | 15870.19 | Culvert | |
| PA97-PA128 | 15750 | .1 | .3 |

| | | | |
|---|---|---|---|
| PA97-PA128 | 15500 | .1 | .3 |
| PA97-PA128 | 15200 | .1 | .3 |
| PA97-PA128 | 14900 | .1 | .3 |
| PA97-PA128 | 14600 | .1 | .3 |
| PA97-PA128 | 14300 | .1 | .3 |
| PA97-PA128 | 14200 | .1 | .3 |
| PA97-PA128 | 14100 | .1 | .3 |
| PA97-PA128 | 14000 | .1 | .3 |
| PA97-PA128 | 13700 | .1 | .3 |
| PA97-PA128 | 13582 | .1 | .3 |

Profile Output Table - Standard Table 1

| Reach | River Sta | Q Total (cfs) | Min Ch El (ft) | W.S. Elev (ft) | Crit W.S. (ft) | E.G. Elev (ft) | E.G. Slope (ft/ft) | Vel Chnl (ft/s) | Flow Area (sq ft) | Top Width (ft) | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PA97-PA128 | 16000 | 15.00 | 1282.00 | 1284.73 | 1282.60 | 1284.73 | 0.000003 | 0.10 | 152.37 | 334.48 | 0.01 |
| PA97-PA128 | 15950 | 15.00 | 1281.00 | 1284.73 | 1282.15 | 1284.73 | 0.000050 | 0.44 | 33.85 | 267.34 | 0.06 |
| PA97-PA128 | 15870.19 | Culvert | | | | | | | | | |
| PA97-PA128 | 15750 | 155.00 | 1280.13 | 1284.31 | 1282.70 | 1284.44 | 0.002482 | 2.88 | 58.36 | 54.95 | 0.38 |
| PA97-PA128 | 15500 | 108.51 | 1279.82 | 1283.96 | 1282.16 | 1284.01 | 0.000986 | 1.80 | 60.22 | 37.00 | 0.25 |
| PA97-PA128 | 15200 | 108.51 | 1279.54 | 1283.75 | 1281.66 | 1283.77 | 0.000625 | 1.30 | 83.19 | 59.87 | 0.20 |
| PA97-PA128 | 14900 | 108.51 | 1279.25 | 1283.60 | 1281.43 | 1283.61 | 0.000440 | 0.99 | 109.80 | 92.60 | 0.16 |
| PA97-PA128 | 14600 | 108.51 | 1278.97 | 1283.28 | 1281.62 | 1283.38 | 0.001468 | 2.57 | 42.14 | 19.31 | 0.31 |
| PA97-PA128 | 14300 | 108.51 | 1278.68 | 1282.86 | 1281.15 | 1282.96 | 0.001363 | 2.52 | 43.12 | 19.42 | 0.30 |
| PA97-PA128 | 14200 | 108.51 | 1278.56 | 1282.72 | 1281.03 | 1282.82 | 0.001393 | 2.54 | 42.73 | 471.51 | 0.30 |
| PA97-PA128 | 14100 | 108.51 | 1278.44 | 1282.57 | 1280.90 | 1282.68 | 0.001465 | 2.57 | 42.27 | 716.04 | 0.31 |
| PA97-PA128 | 14000 | 91.02 | 1278.40 | 1282.43 | 1280.90 | 1282.53 | 0.001524 | 2.47 | 36.82 | 751.22 | 0.31 |
| PA97-PA128 | 13700 | 58.32 | 1278.11 | 1281.95 | 1280.57 | 1282.04 | 0.001736 | 2.36 | 24.72 | 733.03 | 0.31 |
| PA97-PA128 | 13582 | 58.32 | 1278.10 | 1281.80 | 1280.46 | 1281.86 | 0.001237 | 1.92 | 30.38 | 633.51 | 0.27 |

```
1*********************************************
 *  HEC-2 WATER SURFACE PROFILES             *
 *                                           *
 *  Version   4.6.2;  May 1991               *
 *                                           *
 *  RUN DATE    16OCT00    TIME   12:41:23   *
 *********************************************
```

```
 *  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
```

```
1
   16OCT00      12:41:23                                                                                    PAGE    1

                                                                                THIS RUN EXECUTED 16OCT00    12:41:23
 *************************************
  HEC-2 WATER SURFACE PROFILES

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


 SPLIT FLOW BEING PERFORMED


 SF SPLIT FLOW PROBLEM


 JC SPLIT FLOW PROBLEM
 JP     0       0       0       0       0


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   13582    AND    13700
 WS     2   13582   13700      -1      3.4
 WC       1284.00  118.00 1282.90


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   13700    AND    14000
 WS     2   13700   14000      -1      3.4
 WC       1282.90  300.00 1282.00


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14000    AND    14100
 WS     2   14000   14100      -1      3.4
 WC       1282.00  100.00 1283.00


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14100    AND    14200
 WS     2   14100   14200      -1      3.4
 WC       1283.00  100.00 1284.00


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14200    AND    14300
 WS     2   14200   14300      -1      3.4
 WC       1284.00  100.00 1284.00


 TW     RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14900    AND     1520
 WS     2   14900   15200      -1      3.4
 WC       1284.00  300.00 1284.00


 TW     RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   15200    AND     1550
 WS     2   15200   15500      -1      3.4
 WC       1284.00  300.00 1284.00
1
   16OCT00      12:41:23                                                                                    PAGE    2


 TW     RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   15500    AND     1575
 WS     2   15500   15750      -1      3.4
 WC       1284.00  250.00 1284.00
1
   16OCT00      12:41:23                                                                                    PAGE    3


 T1      HEC-2 Input   Data    file:   SPLIT    FLOW    SOLUTION
 T2      CHN128 - LATERAL WEIR SPLIT FLOW Q= 45  CFS
 T3      CHN128 - LATERAL WEIR SPLIT FLOW Q= 45  CFS

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         2         0         0   .001237         0         0         0   1284.00         0

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

    -10       -10

 QT        1     45.00
 NC   0.0450    0.0350    0.0350       0.1       0.3
 X1    13582        37   9964.73  10000.00      0.00      0.00      0.00
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1284.0 | 9940.05 | 1283.98 | 9940.08 | 1283.99 | 9940.12 | 1283.99 | 9940.15 | 1283.99 | 9940.18 |
| GR | 1284.0 | 9940.26 | 1283.99 | 9940.28 | 1283.99 | 9940.34 | 1283.99 | 9940.41 | 1283.99 | 9940.46 |
| GR | 1284.0 | 9940.48 | 1283.99 | 9940.50 | 1283.98 | 9940.53 | 1283.98 | 9940.60 | 1283.97 | 9940.74 |
| GR | 1284.0 | 9940.95 | 1283.96 | 9941.17 | 1284.00 | 9941.79 | 1284.00 | 9942.65 | 1284.00 | 9943.30 |
| GR | 1284.0 | 9946.51 | 1284.00 | 9948.10 | 1284.00 | 9949.62 | 1284.00 | 9952.57 | 1284.00 | 9954.57 |
| GR | 1284.0 | 9964.73 | 1283.02 | 9968.55 | 1282.22 | 9971.25 | 1282.00 | 9972.08 | 1280.00 | 9979.60 |
| GR | 1278.1 | 9983.20 | 1280.00 | 9986.24 | 1281.30 | 9991.28 | 1282.00 | 9992.45 | 1282.93 | 9993.94 |
| GR | 1284.0 | 9995.82 | 1284.00 | 10000.00 | | | | | | |
| X1 | 13700 | 16 | 9967.79 | 10000.00 | 118.00 | 118.00 | 118.00 | | | |
| GR | 1282.9 | 9967.79 | 1282.60 | 9968.89 | 1282.20 | 9970.83 | 1282.00 | 9971.43 | 1280.75 | 9974.60 |
| GR | 1280.0 | 9976.34 | 1278.11 | 9979.33 | 1280.00 | 9982.10 | 1281.36 | 9984.58 | 1282.00 | 9985.65 |
| GR | 1282.2 | 9985.98 | 1284.00 | 9989.37 | 1284.47 | 9999.68 | 1284.47 | 9999.75 | 1284.48 | 9999.94 |
| GR | 1284.5 | 10000.00 | | | | | | | | |
| X1 | 14000 | 10 | 9963.80 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1282.0 | 9963.80 | 1282.00 | 9965.57 | 1281.43 | 9967.11 | 1278.40 | 9974.60 | 1280.00 | 9977.92 |
| GR | 1280.7 | 9979.14 | 1282.00 | 9981.63 | 1283.10 | 9983.42 | 1284.00 | 9985.11 | 1284.00 | 10000.00 |
| X1 | 14100 | 14 | 9962.24 | 10000.00 | 100.00 | 100.00 | 100.00 | | | |
| GR | 1283.0 | 9962.24 | 1282.46 | 9965.05 | 1281.76 | 9966.82 | 1280.68 | 9969.42 | 1279.76 | 9971.09 |
| GR | 1278.4 | 9975.00 | 1279.76 | 9978.71 | 1279.97 | 9979.20 | 1281.16 | 9981.30 | 1281.62 | 9982.20 |
| GR | 1281.8 | 9982.49 | 1282.46 | 9983.79 | 1284.00 | 9986.52 | 1284.00 | 10000.00 | | |
| X1 | 14200 | 14 | 9962.24 | 10000.00 | 100.00 | 100.00 | 100.00 | | | |
| GR | 1284.0 | 9962.24 | 1282.58 | 9965.05 | 1281.88 | 9966.82 | 1280.80 | 9969.42 | 1279.88 | 9971.09 |
| GR | 1278.6 | 9975.00 | 1279.88 | 9978.71 | 1280.09 | 9979.20 | 1281.28 | 9981.30 | 1281.74 | 9982.20 |
| GR | 1281.9 | 9982.49 | 1282.58 | 9983.79 | 1284.00 | 9986.52 | 1284.00 | 10000.00 | | |
| X1 | 14300 | 58 | 9962.24 | 10000.00 | 100.00 | 100.00 | 100.00 | | | |
| GR | 1286.7 | 9200.00 | 1286.55 | 9214.47 | 1286.24 | 9247.77 | 1286.22 | 9249.93 | 1286.18 | 9254.29 |
| GR | 1286.2 | 9255.76 | 1286.16 | 9257.27 | 1286.15 | 9257.81 | 1286.00 | 9277.62 | 1285.86 | 9285.09 |
| GR | 1285.7 | 9304.74 | 1285.65 | 9329.46 | 1285.65 | 9336.21 | 1285.54 | 9352.68 | 1285.53 | 9362.72 |
| GR | 1285.4 | 9373.11 | 1285.39 | 9384.32 | 1285.40 | 9396.09 | 1285.24 | 9405.27 | 1285.10 | 9415.00 |
| GR | 1285.0 | 9424.76 | 1284.38 | 9525.97 | 1284.38 | 9542.27 | 1284.38 | 9567.22 | 1284.38 | 9601.08 |
| GR | 1284.4 | 9629.04 | 1284.38 | 9656.22 | 1284.34 | 9659.30 | 1284.33 | 9660.48 | 1284.33 | 9663.77 |
| GR | 1284.3 | 9667.99 | 1284.28 | 9673.37 | 1284.24 | 9680.25 | 1284.18 | 9689.49 | 1284.10 | 9700.00 |
| GR | 1284.1 | 9702.38 | 1284.00 | 9713.05 | 1284.00 | 9721.01 | 1284.00 | 9756.39 | 1284.00 | 9768.53 |
| GR | 1284.0 | 9771.25 | 1284.00 | 9862.26 | 1284.00 | 9862.54 | 1284.00 | 9863.29 | 1284.00 | 9962.24 |



| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1282.7 | 9965.05 | 1282.00 | 9966.82 | 1280.92 | 9969.42 | 1280.00 | 9971.09 | 1278.68 | 9975.00 |
| GR | 1280.0 | 9978.71 | 1280.21 | 9979.20 | 1281.40 | 9981.30 | 1281.86 | 9982.20 | 1282.00 | 9982.49 |
| GR | 1282.7 | 9983.79 | 1284.00 | 9986.52 | 1284.00 | 10000.00 | | | | |
| X1 | 14600 | 48 | 9950.37 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1287.0 | 9200.00 | 1286.35 | 9319.42 | 1286.34 | 9322.88 | 1286.30 | 9331.31 | 1286.24 | 9341.79 |
| GR | 1286.2 | 9354.73 | 1286.09 | 9370.67 | 1286.00 | 9388.44 | 1285.97 | 9396.61 | 1285.90 | 9423.66 |
| GR | 1285.8 | 9452.72 | 1285.76 | 9471.57 | 1284.98 | 9550.29 | 1284.88 | 9565.91 | 1284.80 | 9575.21 |
| GR | 1284.7 | 9583.70 | 1284.64 | 9597.36 | 1284.55 | 9609.89 | 1284.49 | 9620.27 | 1284.45 | 9627.64 |
| GR | 1284.4 | 9636.14 | 1284.40 | 9645.58 | 1284.40 | 9655.79 | 1284.39 | 9665.38 | 1284.36 | 9674.53 |
| GR | 1284.3 | 9683.42 | 1284.28 | 9691.86 | 1284.23 | 9699.84 | 1284.23 | 9700.00 | 1284.09 | 9720.90 |
| GR | 1284.0 | 9734.06 | 1284.00 | 9734.48 | 1284.00 | 9816.10 | 1284.00 | 9828.24 | 1284.00 | 9950.37 |
| GR | 1283.6 | 9963.68 | 1283.43 | 9964.04 | 1282.00 | 9967.35 | 1280.49 | 9970.86 | 1280.00 | 9971.94 |
| GR | 1279.0 | 9974.45 | 1280.00 | 9976.90 | 1280.62 | 9978.11 | 1282.00 | 9980.99 | 1283.04 | 9983.19 |
| GR | 1284.0 | 9985.23 | 1284.00 | 9996.17 | 1284.00 | 10000.00 | | | | |
| X1 | 14900 | 40 | 9867.14 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1288.0 | 9100.00 | 1288.00 | 9106.54 | 1288.00 | 9113.03 | 1288.00 | 9113.89 | 1287.79 | 9142.77 |
| GR | 1287.1 | 9246.69 | 1286.15 | 9379.98 | 1286.14 | 9381.89 | 1286.00 | 9403.34 | 1285.85 | 9435.98 |
| GR | 1285.7 | 9468.11 | 1285.61 | 9487.09 | 1285.57 | 9498.84 | 1285.55 | 9505.90 | 1284.18 | 9649.12 |
| GR | 1284.1 | 9654.29 | 1284.08 | 9663.19 | 1284.02 | 9690.76 | 1284.00 | 9692.87 | 1284.00 | 9693.17 |
| GR | 1284.0 | 9696.73 | 1284.00 | 9700.00 | 1284.00 | 9722.57 | 1284.00 | 9737.75 | 1284.00 | 9791.21 |
| GR | 1284.0 | 9867.14 | 1283.91 | 9872.09 | 1283.57 | 9893.26 | 1283.45 | 9901.09 | 1282.29 | 9951.49 |
| GR | 1282.0 | 9963.88 | 1281.74 | 9964.55 | 1280.00 | 9968.47 | 1279.25 | 9971.84 | 1280.00 | 9975.21 |
| GR | 1280.4 | 9976.12 | 1282.00 | 9980.08 | 1282.67 | 9981.73 | 1284.00 | 9985.10 | 1284.00 | 10000.00 |
| X1 | 15200 | 44 | 9898.92 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1287.8 | 9100.00 | 1287.51 | 9150.46 | 1287.41 | 9170.08 | 1287.28 | 9197.12 | 1287.11 | 9232.27 |
| GR | 1286.9 | 9279.37 | 1286.53 | 9344.87 | 1286.03 | 9438.34 | 1286.00 | 9444.80 | 1285.99 | 9445.78 |
| GR | 1286.0 | 9445.89 | 1285.99 | 9446.03 | 1285.99 | 9446.18 | 1285.99 | 9446.61 | 1285.99 | 9446.73 |
| GR | 1286.0 | 9446.87 | 1285.98 | 9447.20 | 1285.71 | 9485.26 | 1284.16 | 9700.00 | 1284.07 | 9712.60 |
| GR | 1284.0 | 9721.93 | 1284.00 | 9724.33 | 1284.00 | 9760.53 | 1284.00 | 9898.92 | 1283.91 | 9920.86 |
| GR | 1283.9 | 9925.25 | 1283.67 | 9930.34 | 1283.18 | 9944.66 | 1282.83 | 9952.63 | 1282.88 | 9953.92 |
| GR | 1282.8 | 9956.45 | 1282.62 | 9960.54 | 1282.00 | 9967.35 | 1281.38 | 9968.90 | 1280.72 | 9971.05 |
| GR | 1280.0 | 9972.42 | 1279.54 | 9975.05 | 1280.00 | 9977.81 | 1280.37 | 9978.85 | 1280.95 | 9980.52 |
| GR | 1282.0 | 9983.53 | 1282.90 | 9986.13 | 1284.00 | 9989.23 | 1284.00 | 10000.00 | | |
| X1 | 15500 | 74 | 9952.04 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1287.7 | 9100.00 | 1286.98 | 9170.15 | 1286.62 | 9205.88 | 1286.47 | 9220.79 | 1286.40 | 9228.89 |
| GR | 1286.3 | 9234.06 | 1286.32 | 9237.59 | 1286.30 | 9240.12 | 1286.28 | 9242.28 | 1286.27 | 9244.17 |
| GR | 1286.3 | 9245.88 | 1286.17 | 9257.27 | 1286.15 | 9260.35 | 1286.14 | 9262.52 | 1286.00 | 9278.11 |
| GR | 1285.9 | 9281.92 | 1285.94 | 9284.29 | 1285.94 | 9288.93 | 1285.97 | 9298.88 | 1286.00 | 9309.20 |
| GR | 1286.0 | 9334.48 | 1286.00 | 9344.49 | 1286.00 | 9349.76 | 1286.00 | 9351.02 | 1286.00 | 9351.94 |
| GR | 1285.2 | 9492.99 | 1284.39 | 9635.88 | 1284.25 | 9660.73 | 1284.16 | 9677.43 | 1284.11 | 9686.14 |
| GR | 1284.1 | 9688.29 | 1284.09 | 9689.51 | 1284.09 | 9690.11 | 1284.09 | 9690.80 | 1284.09 | 9691.56 |
| GR | 1284.1 | 9693.72 | 1284.08 | 9693.98 | 1284.08 | 9694.12 | 1284.05 | 9699.80 | 1284.05 | 9700.00 |
| GR | 1284.0 | 9700.72 | 1284.05 | 9701.39 | 1284.05 | 9701.71 | 1284.05 | 9701.89 | 1284.04 | 9702.06 |
| GR | 1284.0 | 9702.43 | 1284.04 | 9702.67 | 1284.04 | 9703.27 | 1284.04 | 9703.43 | 1284.04 | 9703.93 |
| GR | 1284.0 | 9704.11 | 1284.05 | 9705.14 | 1284.05 | 9705.30 | 1284.05 | 9705.32 | 1284.06 | 9705.35 |
| GR | 1284.1 | 9705.43 | 1284.08 | 9705.69 | 1284.09 | 9705.84 | 1284.11 | 9706.11 | 1284.12 | 9706.29 |
| GR | 1284.1 | 9706.64 | 1284.00 | 9952.04 | 1282.38 | 9970.04 | 1282.00 | 9970.60 | 1280.38 | 9973.46 |
| GR | 1280.0 | 9974.35 | 1279.82 | 9975.43 | 1280.00 | 9976.51 | 1280.50 | 9978.10 | 1281.33 | 9980.70 |
| GR | 1282.0 | 9982.87 | 1283.13 | 9986.69 | 1284.00 | 9989.60 | 1284.00 | 10000.00 | | |



| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15750 | 98 | 9969.81 | 10000.00 | 250.00 | 250.00 | 250.00 | | | |
| GR | 1288.3 | 9000.00 | 1288.00 | 9006.08 | 1288.00 | 9010.63 | 1288.00 | 9011.99 | 1288.00 | 9047.38 |
| GR | 1288.0 | 9066.66 | 1286.80 | 9236.69 | 1286.71 | 9248.37 | 1286.64 | 9258.28 | 1286.53 | 9272.90 |
| GR | 1286.4 | 9293.19 | 1286.18 | 9325.24 | 1286.17 | 9327.91 | 1286.17 | 9330.25 | 1286.17 | 9332.11 |
| GR | 1286.2 | 9333.55 | 1286.17 | 9333.84 | 1286.12 | 9338.63 | 1286.04 | 9346.70 | 1286.00 | 9352.31 |
| GR | 1286.0 | 9353.46 | 1286.00 | 9354.16 | 1286.00 | 9362.89 | 1286.00 | 9364.71 | 1286.00 | 9366.26 |
| GR | 1286.0 | 9367.67 | 1286.00 | 9369.34 | 1286.00 | 9371.21 | 1286.00 | 9376.48 | 1286.00 | 9388.42 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1286.0 | 9396.78 | 1286.00 | 9415.14 | 1286.00 | 9415.50 | [illegible] | [illegible] | [illegible] | [illegible] |
| GR | 1286.0 | 9441.01 | 1286.00 | 9441.34 | 1286.00 | 9451.57 | 1285.65 | 9515.43 | 1285.61 | 9544.80 |
| GR | 1285.6 | 9566.53 | 1285.63 | 9577.15 | 1285.64 | 9583.15 | 1285.63 | 9588.96 | 1285.61 | 9601.37 |
| GR | 1285.6 | 9609.69 | 1285.63 | 9631.06 | 1285.63 | 9637.02 | 1285.65 | 9655.63 | 1285.65 | 9662.24 |
| GR | 1285.9 | 9738.73 | 1285.90 | 9742.64 | 1285.83 | 9745.00 | 1285.76 | 9762.03 | 1285.74 | 9772.19 |
| GR | 1285.8 | 9796.65 | 1285.70 | 9797.25 | 1285.75 | 9822.09 | 1285.73 | 9822.90 | 1285.71 | 9824.24 |
| GR | 1285.7 | 9826.16 | 1285.70 | 9828.02 | 1285.63 | 9830.00 | 1285.56 | 9832.39 | 1285.54 | 9863.26 |
| GR | 1285.5 | 9864.82 | 1285.50 | 9876.13 | 1285.53 | 9878.05 | 1285.39 | 9889.34 | 1285.49 | 9892.34 |
| GR | 1285.5 | 9894.05 | 1285.60 | 9895.05 | 1285.55 | 9896.06 | 1285.53 | 9896.97 | 1284.89 | 9918.28 |
| GR | 1284.0 | 9933.93 | 1284.00 | 9937.67 | 1284.00 | 9945.26 | 1284.00 | 9946.79 | 1284.04 | 9947.31 |
| GR | 1284.6 | 9959.24 | 1284.70 | 9959.51 | 1284.99 | 9963.36 | 1285.64 | 9966.69 | 1285.72 | 9967.24 |
| GR | 1284.0 | 9969.81 | 1282.31 | 9970.60 | 1281.96 | 9972.50 | 1280.69 | 9973.46 | 1280.31 | 9974.35 |
| GR | 1280.1 | 9975.43 | 1280.15 | 9976.51 | 1280.15 | 9978.10 | 1281.12 | 9980.70 | 1282.31 | 9982.87 |
| GR | 1283.4 | 9986.69 | 1284.00 | 9989.60 | 1284.00 | 10000.00 | | | | |

1

PROFILE FOR STREAM CHN128 - LATERAL WEIR SP

PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

```
ELEVATION  1278.     1279.     1280.     1281.     1282.     1283.     1284.     1285.     1286.     1287.
    SECNO   CUMDIS
 13582.00     0.  I         .         .         .   WE    .         .         L.        .         .         .         .
             20.  I         .         .         .   WE    .         .       L  R        .         .         .         .
             40.  I         .         .         .    E    .         .     L   .R        .         .         .         .
             60.  I         .         .         .   WE    .         .   L     . R       .         .         .         .
             80.  I         .         .         .   WE    .         . L       . R       .         .         .         .
            100.  I         .         .         .   WE    .         L         .  R      .         .         .         .
 13700.00   120.  I         .         .         .    E    .       L .         .   R     .         .         .         .
            140.  I         .         .         .   WE    .      L  .         .   R     .         .         .         .
            160.  I         .         .         .   WE    .      L  .         .  R      .         .         .         .
            180.  CI        .         .         .   WE    .    L    .         .  R      .         .         .         .
            200.  CI        .         .         .    E    .    L    .         .  R      .         .         .         .
            220.  CI        .         .         .    E    .   L     .         . R       .         .         .         .
            240.  CI        .         .         .   WE .   L       .         . R       .         .         .         .
            260.  CI        .         .         .   WE .   L       .         . R       .         .         .         .
            280.  C I       .         .         .    E .  L        .         .R        .         .         .         .
            300.  C I       .         .         .    E .  L        .         .R        .         .         .         .
            320.  C I       .         .         .   WE. L          .         .R        .         .         .         .
            340.  C I       .         .         .   WE.L           .         R         .         .         .         .
            360.  C I       .         .         .    E.L           .         R         .         .         .         .
            380.  C  I      .         .         .   EL             .         R         .         .         .         .
            400.  C  I      .         .         .   EL             .        R.         .         .         .         .
 14000.00   420.  C  I      .         .         .   WE             .        R.         .         .         .         .
            440.  C  I      .         .         .   WEL            .        R.         .         .         .         .
            460.  C  I      .         .         .    E  L          .        R.         .         .         .         .
            480.  C  I      .         .         .    E    L        .        R.         .         .         .         .
            500.  C  I      .         .         .    E      L      .        R.         .         .         .         .
 14100.00   520.  C  I      .         .         .    E        L.   .        R.         .         .         .         .
            540.  C  I      .         .         .    E         .L  .        R.         .         .         .         .
            560.  C   I     .         .         .    E          .  L        R.         .         .         .         .
            580.  C   I     .         .         .   WE          .    L      R.         .         .         .         .
            600.  C    I    .         .         .   WE          .      L  R.         .         .         .         .
 14200.00   620.  C    I    .         .         .   WE          .        L.         .         .         .         .
            640.  C    I    .         .         .   .E          .        L.         .         .         .         .
            660.  C    I    .         .         .   .E          .        L.         .         .         .         .
            680.  C    I    .         .         .   .E          .        L.         .         .         .         .
            700.  C     I   .         .         .   .E          .        L.         .         .         .         .
 14300.00   720.  C     I   .         .         .   .E          .        L.         .         .         .         .
            740.  C     I   .         .         .   .E          .        L.         .         .         .         .
            760.  C     I   .         .         .   .E          .        L.         .         .         .         .
            780.  C     I   .         .         .   .WE         .        L.         .         .         .         .
            800.  C      I  .         .         .   .WE         .        L.         .         .         .         .
            820.  C      I  .         .         .   . E         .        L.         .         .         .         .
            840.  C      I  .         .         .   . E         .        L.         .         .         .         .
            860.  C      I  .         .         .   . E         .        L.         .         .         .         .
            880.  C       I .         .         .   . E         .        L.         .         .         .         .
            900.  C       I .         .         .   . E         .        L.         .         .         .         .
            920.  C       I .         .         .   . WE        .        L.         .         .         .         .
            940.  C       I .         .         .   . WE        .        L.         .         .         .         .
            960.  C       I .         .         .   .  E        .        L.         .         .         .         .
            980.  C        I.         .         .   .  E        .        L.         .         .         .         .
           1000.  C        I.         .         .   .  E        .        L.         .         .         .         .
 14600.00  1020.  C        I.         .         .   .  E        .        L.         .         .         .         .
           1040.  C        I.         .         .   .  E        .        L.         .         .         .         .
           1060.  C        I.         .         .   .  WE       .        L.         .         .         .         .
           1080.  C         I         .         .   .  WE       .        L.         .         .         .         .
           1100.  C         I         .         .   .   E       .        L.         .         .         .         .
           1120.  C         I         .         .   .   E       .        L.         .         .         .         .
           1140.  C         I         .         .   .   E       .        L.         .         .         .         .
           1160.  C         I         .         .   .   E       .        L.         .         .         .         .
           1180.  C         I         .         .   .   E       .        L.         .         .         .         .
           1200.  C         .I        .         .   .   WE      .        L.         .         .         .         .
           1220.  C         .I        .         .   .    E      .        L.         .         .         .         .
           1240.  C         .I        .         .   .    E      .        L.         .         .         .         .
           1260.  C         .I        .         .   .    E      .        L.         .         .         .         .
           1280.  C         .I        .         .   .    E      .        L.         .         .         .         .
           1300.  C         .I        .         .   .    E      .        L.         .         .         .         .
 14900.00  1320.  C         . I       .         .   .    WE     .        L.         .         .         .         .
           1340.  C         . I       .         .   .     E     .        L.         .         .         .         .
           1360.  C         . I       .         .   .     E     .        L.         .         .         .         .
           1380.  C         . I       .         .   .     E     .        L.         .         .         .         .
           1400.  C         . I       .         .   .     E     .        L.         .         .         .         .
           1420.  C         . I       .         .   .     E     .        L.         .         .         .         .
           1440.  C         .  I      .         .   .     E     .        L.         .         .         .         .
           1460.  C         .  I      .         .   .     E     .        L.         .         .         .         .
           1480.  C         .  I      .         .   .     E     .        L.         .         .         .         .
           1500.  C         .  I      .         .   .     E     .        L.         .         .         .         .
           1520.  C         .  I      .         .   .     WE    .        L.         .         .         .         .
           1540.  C         .   I     .         .   .      E    .        L.         .         .         .         .
           1560.  C         .   I     .         .   .      E    .        L.         .         .         .         .
           1580.  C         .   I     .         .   .      E    .        L.         .         .         .         .
           1600.  C         .   I     .         .   .      E    .        L.         .         .         .         .
 15200.00  1620.  C         .   I     .         .   .      E    .        L.         .         .         .         .
```

```
            1640.  C        .    I    .         .         .     E  .        L.        .         .         .         .
            1660.  C        .    I    .         .         .     E  .        L.        .         .         .         .
            1680.  C        .    I    .         .         .     E  .        L.        .         .         .         .
            1700.  C        .    I    .         .         .    WE  .        L.        .         .         .         .
            1720.  C        .    I    .         .         .     E  .        L.        .         .         .         .
            1740.  C        .     I   .         .         .     E  .        L.        .         .         .         .
            1760.  C        .     I   .         .         .     E  .        L.        .         .         .         .
            1780.  C        .     I   .         .         .     E  .        L.        .         .         .         .
            1800.  C        .     I   .         .         .     E  .        L.        .         .         .         .
            1820.  C        .     I   .         .         .     E  .        L.        .         .         .         .
            1840.  C        .     I   .         .         .     E  .        L.        .         .         .         .
            1860.  C        .      I  .         .         .    WE.        L.        .         .         .         .
            1880.  C        .      I  .         .         .    WE.        L.        .         .         .         .
            1900.  C        .      I  .         .         .     E.        L.        .         .         .         .
  15500.00  1920.  C        .      I  .         .         .     E.        L.        .         .         .         .
            1940.  C        .      I  .         .         .     E.        L.        .         .         .         .
            1960.  C        .       I .         .         .     E.        L.        .         .         .         .
            1980.  C        .       I .         .         .     E.        L.        .         .         .         .
            2000.  C        .       I .         .         .    WE        L.        .         .         .         .
            2020.  C        .       I .         .         .    WE        L.        .         .         .         .
            2040.  C        .        I.         .         .     E        L.        .         .         .         .
            2060.  C        .        I.         .         .     E        L.        .         .         .         .
            2080.  C        .        I.         .         .     E        L.        .         .         .         .
            2100.  C        .        I.         .         .     E        L.        .         .         .         .
            2120.  C        .        I.         .         .    WE        L.        .         .         .         .
            2140.  C        .         I         .         .    WE        L.        .         .         .         .
            2160.  C        .         I         .         .    .E        L.        .         .         .         .
  15750.00  2180.  C        .         I         .         .    .E        L.        .         .         .         .
1
   16OCT00      12:41:23                                                                                    PAGE     6
```

THIS RUN EXECUTED 16OCT00 12:41:23

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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

CHN128 - LATERAL WEIR SP

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13582.000 | .00 | .00 | .00 | 1278.10 | 44.95 | 1281.52 | .00 | 1281.57 | 12.34 | 1.79 | 25.17 | 12.80 |
| 13700.000 | 118.00 | .00 | .00 | 1278.11 | 44.95 | 1281.67 | .00 | 1281.74 | 16.04 | 2.15 | 20.92 | 11.23 |
| * 14000.000 | 300.00 | .00 | .00 | 1278.40 | 44.99 | 1282.02 | .00 | 1282.06 | 7.45 | 1.53 | 29.45 | 16.48 |
| 14100.000 | 100.00 | .00 | .00 | 1278.40 | 45.00 | 1282.09 | .00 | 1282.12 | 4.54 | 1.34 | 33.59 | 21.11 |
| 14200.000 | 100.00 | .00 | .00 | 1278.60 | 45.00 | 1282.14 | .00 | 1282.17 | 5.17 | 1.40 | 32.04 | 19.80 |
| 14300.000 | 100.00 | .00 | .00 | 1278.68 | 45.00 | 1282.19 | .00 | 1282.22 | 5.60 | 1.45 | 31.09 | 19.02 |
| 14600.000 | 300.00 | .00 | .00 | 1279.00 | 45.00 | 1282.39 | .00 | 1282.43 | 8.60 | 1.69 | 26.59 | 15.34 |
| 14900.000 | 300.00 | .00 | .00 | 1279.25 | 45.00 | 1282.63 | .00 | 1282.65 | 5.82 | 1.00 | 44.89 | 18.65 |
| 15200.000 | 300.00 | .00 | .00 | 1279.54 | 45.00 | 1282.79 | .00 | 1282.81 | 4.91 | 1.13 | 39.73 | 20.31 |
| 15500.000 | 300.00 | .00 | .00 | 1279.82 | 45.00 | 1282.97 | .00 | 1283.00 | 8.57 | 1.47 | 30.59 | 15.37 |
| 15750.000 | 250.00 | .00 | .00 | 1280.10 | 45.00 | 1283.16 | .00 | 1283.20 | 7.26 | 1.58 | 28.49 | 16.70 |

1
16OCT00 12:41:23 PAGE 7

CHN128 - LATERAL WEIR SP

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 13582.000 | 44.95 | 1281.52 | .00 | .00 | -2.48 | 17.76 | .00 |
| 13700.000 | 44.95 | 1281.67 | .00 | .15 | .00 | 12.83 | 118.00 |
| * 14000.000 | 44.99 | 1282.02 | .00 | .36 | .00 | 17.87 | 300.00 |
| 14100.000 | 45.00 | 1282.09 | .00 | .07 | .00 | 17.08 | 100.00 |
| 14200.000 | 45.00 | 1282.14 | .00 | .05 | .00 | 16.77 | 100.00 |
| 14300.000 | 45.00 | 1282.19 | .00 | .05 | .00 | 16.50 | 100.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 14600.000 | 45.00 | 1282.39 | .00 | .20 | .00 | 15.36 | 300.00 |
| 14900.000 | 45.00 | 1282.63 | .00 | .24 | .00 | 45.26 | 300.00 |
| 15200.000 | 45.00 | 1282.79 | .00 | .16 | .00 | 29.10 | 300.00 |
| 15500.000 | 45.00 | 1282.97 | .00 | .18 | .00 | 22.64 | 300.00 |
| 15750.000 | 45.00 | 1283.16 | .00 | .19 | .00 | 15.65 | 250.00 |



SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 14000.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

```
1*********************************************
 *  HEC-2 WATER SURFACE PROFILES             *
 *                                           *
 *  Version   4.6.2;  May 1991               *
 *                                           *
 *  RUN DATE    16OCT00    TIME   12:36:33   *
 *********************************************
```

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

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



THIS RUN EXECUTED 16OCT00  12:36:33

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

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

SPLIT FLOW BEING PERFORMED

SF SPLIT FLOW PROBLEM

```
JC SPLIT FLOW PROBLEM
JP     0       0       0       0       0

TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   13582    AND    13700
WS     2   13582   13700      -1      3.4
WC       1284.00  118.00 1282.90

TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   13700    AND    14000
WS     2   13700   14000      -1      3.4
WC       1282.90  300.00 1282.00

TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14000    AND    14100
WS     2   14000   14100      -1      3.4
WC       1282.00  100.00 1283.00

TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14100    AND    14200
WS     2   14100   14200      -1      3.4
WC       1283.00  100.00 1284.00

TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14200    AND    14300
WS     2   14200   14300      -1      3.4
WC       1284.00  100.00 1284.00

TW      RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14900    AND    1520
WS     2   14900   15200      -1      3.4
WC       1284.00  300.00 1284.00

TW      RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   15200    AND    1550
WS     2   15200   15500      -1      3.4
WC       1284.00  300.00 1284.00
```



```
TW      RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   15500    AND    1575
WS     2   15500   15750      -1      3.4
WC       1284.00  250.00 1284.00
```



```
T1      HEC-2 Input   Data    file:   SPLIT    FLOW    SOLUTION
T2      CHN128 - LATERAL WEIR SPLIT FLOW Q= 89  CFS
T3      CHN128 - LATERAL WEIR SPLIT FLOW Q= 89  CFS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         2         0         0   .001237         0         0         0   1284.00         0

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

    -10       -10

QT        5     89.00    115.00    140.00    155.00    205.00
NC   0.0450    0.0350    0.0350       0.1       0.3
X1    13582        37   9964.73  10000.00      0.00      0.00      0.00
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1284.0 | 9940.05 | 1283.98 | 9940.08 | 1283.99 | 9940.12 | 1283.99 | 9940.16 | 1283.99 | 9940.21 |
| GR | 1284.0 | 9940.26 | 1283.99 | 9940.28 | 1283.99 | 9940.34 | 1283.99 | 9940.41 | 1283.99 | 9940.46 |
| GR | 1284.0 | 9940.48 | 1283.99 | 9940.50 | 1283.98 | 9940.53 | 1283.98 | 9940.60 | 1283.97 | 9940.74 |
| GR | 1284.0 | 9940.95 | 1283.96 | 9941.17 | 1284.00 | 9941.79 | 1284.00 | 9942.65 | 1284.00 | 9943.30 |
| GR | 1284.0 | 9946.51 | 1284.00 | 9948.10 | 1284.00 | 9949.62 | 1284.00 | 9952.57 | 1284.00 | 9954.57 |
| GR | 1284.0 | 9964.73 | 1283.02 | 9968.55 | 1282.22 | 9971.25 | 1282.00 | 9972.08 | 1280.00 | 9979.60 |
| GR | 1278.1 | 9983.20 | 1280.00 | 9986.24 | 1281.30 | 9991.28 | 1282.00 | 9992.45 | 1282.93 | 9993.94 |
| GR | 1284.0 | 9995.82 | 1284.00 | 10000.00 | | | | | | |
| X1 | 13700 | 16 | 9967.79 | 10000.00 | 118.00 | 118.00 | 118.00 | | | |
| GR | 1282.9 | 9967.79 | 1282.60 | 9968.89 | 1282.20 | 9970.83 | 1282.00 | 9971.43 | 1280.75 | 9974.60 |
| GR | 1280.0 | 9976.34 | 1278.11 | 9979.33 | 1280.00 | 9982.10 | 1281.36 | 9984.58 | 1282.00 | 9985.65 |
| GR | 1282.2 | 9985.98 | 1284.00 | 9989.37 | 1284.47 | 9999.68 | 1284.47 | 9999.75 | 1284.48 | 9999.94 |
| GR | 1284.5 | 10000.00 | | | | | | | | |
| X1 | 14000 | 10 | 9963.80 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1282.0 | 9963.80 | 1282.00 | 9965.57 | 1281.43 | 9967.11 | 1278.40 | 9974.60 | 1280.00 | 9977.92 |
| GR | 1280.7 | 9979.14 | 1282.00 | 9981.63 | 1283.10 | 9983.42 | 1284.00 | 9985.11 | 1284.00 | 10000.00 |
| X1 | 14100 | 14 | 9962.24 | 10000.00 | 100.00 | 100.00 | 100.00 | | | |
| GR | 1283.0 | 9962.24 | 1282.46 | 9965.05 | 1281.76 | 9966.82 | 1280.68 | 9969.42 | 1279.76 | 9971.09 |
| GR | 1278.4 | 9975.00 | 1279.76 | 9978.71 | 1279.97 | 9979.20 | 1281.16 | 9981.30 | 1281.62 | 9982.20 |
| GR | 1281.8 | 9982.49 | 1282.46 | 9983.79 | 1284.00 | 9986.52 | 1284.00 | 10000.00 | | |
| X1 | 14200 | 14 | 9962.24 | 10000.00 | 100.00 | 100.00 | 100.00 | | | |
| GR | 1284.0 | 9962.24 | 1282.58 | 9965.05 | 1281.88 | 9966.82 | 1280.80 | 9969.42 | 1279.88 | 9971.09 |
| GR | 1278.6 | 9975.00 | 1279.88 | 9978.71 | 1280.09 | 9979.20 | 1281.28 | 9981.30 | 1281.74 | 9982.20 |
| GR | 1281.9 | 9982.49 | 1282.58 | 9983.79 | 1284.00 | 9986.52 | 1284.00 | 10000.00 | | |
| X1 | 14300 | 58 | 9962.24 | 10000.00 | 100.00 | 100.00 | 100.00 | | | |
| GR | 1286.7 | 9200.00 | 1286.55 | 9214.47 | 1286.24 | 9247.77 | 1286.22 | 9249.93 | 1286.18 | 9254.29 |
| GR | 1286.2 | 9255.76 | 1286.16 | 9257.27 | 1286.15 | 9257.81 | 1286.00 | 9277.62 | 1285.86 | 9285.09 |
| GR | 1285.7 | 9304.74 | 1285.65 | 9329.46 | 1285.65 | 9336.21 | 1285.54 | 9352.68 | 1285.53 | 9362.72 |
| GR | 1285.4 | 9373.11 | 1285.39 | 9384.32 | 1285.40 | 9396.09 | 1285.24 | 9405.27 | 1285.10 | 9415.00 |
| GR | 1285.0 | 9424.76 | 1284.38 | 9525.97 | 1284.38 | 9542.27 | 1284.38 | 9567.22 | 1284.38 | 9601.08 |
| GR | 1284.4 | 9629.04 | 1284.38 | 9656.22 | 1284.34 | 9659.30 | 1284.33 | 9660.48 | 1284.33 | 9663.77 |
| GR | 1284.3 | 9667.99 | 1284.28 | 9673.37 | 1284.24 | 9680.25 | 1284.18 | 9689.49 | 1284.10 | 9700.00 |
| GR | 1284.1 | 9702.38 | 1284.00 | 9713.05 | 1284.00 | 9721.01 | 1284.00 | 9756.39 | 1284.00 | 9768.53 |
| GR | 1284.0 | 9771.25 | 1284.00 | 9862.26 | 1284.00 | 9862.54 | 1284.00 | 9863.29 | 1284.00 | 9962.24 |



| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1282.7 | 9965.05 | 1282.00 | 9966.82 | 1280.92 | 9969.42 | 1280.00 | 9971.09 | 1278.68 | 9975.00 |
| GR | 1280.0 | 9978.71 | 1280.21 | 9979.20 | 1281.40 | 9981.30 | 1281.86 | 9982.20 | 1282.00 | 9982.49 |
| GR | 1282.7 | 9983.79 | 1284.00 | 9986.52 | 1284.00 | 10000.00 | | | | |
| X1 | 14600 | 48 | 9950.37 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1287.0 | 9200.00 | 1286.35 | 9319.42 | 1286.34 | 9322.88 | 1286.30 | 9331.31 | 1286.24 | 9341.79 |
| GR | 1286.2 | 9354.73 | 1286.09 | 9370.67 | 1286.00 | 9388.44 | 1285.97 | 9396.61 | 1285.90 | 9423.66 |
| GR | 1285.8 | 9452.72 | 1285.76 | 9471.57 | 1284.98 | 9550.29 | 1284.88 | 9565.91 | 1284.80 | 9575.21 |
| GR | 1284.7 | 9583.70 | 1284.64 | 9597.36 | 1284.55 | 9609.89 | 1284.49 | 9620.27 | 1284.45 | 9627.64 |
| GR | 1284.4 | 9636.14 | 1284.40 | 9645.58 | 1284.40 | 9655.79 | 1284.39 | 9665.38 | 1284.36 | 9674.53 |
| GR | 1284.3 | 9683.42 | 1284.28 | 9691.86 | 1284.23 | 9699.84 | 1284.23 | 9700.00 | 1284.09 | 9720.90 |
| GR | 1284.0 | 9734.06 | 1284.00 | 9734.48 | 1284.00 | 9816.10 | 1284.00 | 9828.24 | 1284.00 | 9950.37 |
| GR | 1283.6 | 9963.68 | 1283.43 | 9964.04 | 1282.00 | 9967.35 | 1280.49 | 9970.86 | 1280.00 | 9971.94 |
| GR | 1279.0 | 9974.45 | 1280.00 | 9976.90 | 1280.62 | 9978.11 | 1282.00 | 9980.99 | 1283.04 | 9983.19 |
| GR | 1284.0 | 9985.23 | 1284.00 | 9996.17 | 1284.00 | 10000.00 | | | | |
| X1 | 14900 | 40 | 9867.14 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1288.0 | 9100.00 | 1288.00 | 9106.54 | 1288.00 | 9113.03 | 1288.00 | 9113.89 | 1287.79 | 9142.77 |
| GR | 1287.1 | 9246.69 | 1286.15 | 9379.98 | 1286.14 | 9381.89 | 1286.00 | 9403.34 | 1285.85 | 9435.98 |
| GR | 1285.7 | 9468.11 | 1285.61 | 9487.09 | 1285.57 | 9498.84 | 1285.55 | 9505.90 | 1284.18 | 9649.12 |
| GR | 1284.1 | 9654.29 | 1284.08 | 9663.19 | 1284.02 | 9690.76 | 1284.00 | 9692.87 | 1284.00 | 9693.17 |
| GR | 1284.0 | 9696.73 | 1284.00 | 9700.00 | 1284.00 | 9722.57 | 1284.00 | 9737.75 | 1284.00 | 9791.21 |
| GR | 1284.0 | 9867.14 | 1283.91 | 9872.09 | 1283.57 | 9893.26 | 1283.45 | 9901.09 | 1282.29 | 9951.49 |
| GR | 1282.0 | 9963.88 | 1281.74 | 9964.55 | 1280.00 | 9968.47 | 1279.25 | 9971.84 | 1280.00 | 9975.21 |
| GR | 1280.4 | 9976.12 | 1282.00 | 9980.08 | 1282.67 | 9981.73 | 1284.00 | 9985.10 | 1284.00 | 10000.00 |
| X1 | 15200 | 44 | 9898.92 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1287.8 | 9100.00 | 1287.51 | 9150.46 | 1287.41 | 9170.08 | 1287.28 | 9197.12 | 1287.11 | 9232.27 |
| GR | 1286.9 | 9279.37 | 1286.53 | 9344.87 | 1286.03 | 9438.34 | 1286.00 | 9444.80 | 1285.99 | 9445.78 |
| GR | 1286.0 | 9445.89 | 1285.99 | 9446.03 | 1285.99 | 9446.18 | 1285.99 | 9446.61 | 1285.99 | 9446.73 |
| GR | 1286.0 | 9446.87 | 1285.98 | 9447.20 | 1285.71 | 9485.26 | 1284.16 | 9700.00 | 1284.07 | 9712.60 |
| GR | 1284.0 | 9721.93 | 1284.00 | 9724.33 | 1284.00 | 9760.53 | 1284.00 | 9898.92 | 1283.91 | 9920.86 |
| GR | 1283.9 | 9925.25 | 1283.67 | 9930.34 | 1283.18 | 9944.66 | 1282.83 | 9952.63 | 1282.88 | 9953.92 |
| GR | 1282.8 | 9956.45 | 1282.62 | 9960.54 | 1282.00 | 9967.35 | 1281.38 | 9968.90 | 1280.72 | 9971.05 |
| GR | 1280.0 | 9972.42 | 1279.54 | 9975.05 | 1280.00 | 9977.81 | 1280.37 | 9978.85 | 1280.95 | 9980.52 |
| GR | 1282.0 | 9983.53 | 1282.90 | 9986.13 | 1284.00 | 9989.23 | 1284.00 | 10000.00 | | |
| X1 | 15500 | 74 | 9952.04 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1287.7 | 9100.00 | 1286.98 | 9170.15 | 1286.62 | 9205.88 | 1286.47 | 9220.79 | 1286.40 | 9228.89 |
| GR | 1286.3 | 9234.06 | 1286.32 | 9237.59 | 1286.30 | 9240.12 | 1286.28 | 9242.28 | 1286.27 | 9244.17 |
| GR | 1286.3 | 9245.88 | 1286.17 | 9257.27 | 1286.15 | 9260.35 | 1286.14 | 9262.52 | 1286.00 | 9278.11 |
| GR | 1285.9 | 9281.92 | 1285.94 | 9284.29 | 1285.94 | 9288.93 | 1285.97 | 9298.88 | 1286.00 | 9309.20 |
| GR | 1286.0 | 9334.48 | 1286.00 | 9344.49 | 1286.00 | 9349.76 | 1286.00 | 9351.02 | 1286.00 | 9351.94 |
| GR | 1285.2 | 9492.99 | 1284.39 | 9635.88 | 1284.25 | 9660.73 | 1284.16 | 9677.43 | 1284.11 | 9686.14 |
| GR | 1284.1 | 9688.29 | 1284.09 | 9689.51 | 1284.09 | 9690.11 | 1284.09 | 9690.80 | 1284.09 | 9691.56 |
| GR | 1284.1 | 9693.72 | 1284.08 | 9693.98 | 1284.08 | 9694.12 | 1284.05 | 9699.80 | 1284.05 | 9700.00 |
| GR | 1284.0 | 9700.72 | 1284.05 | 9701.39 | 1284.05 | 9701.71 | 1284.05 | 9701.89 | 1284.04 | 9702.06 |
| GR | 1284.0 | 9702.43 | 1284.04 | 9702.67 | 1284.04 | 9703.27 | 1284.04 | 9703.43 | 1284.04 | 9703.93 |
| GR | 1284.0 | 9704.11 | 1284.05 | 9705.14 | 1284.05 | 9705.30 | 1284.05 | 9705.32 | 1284.06 | 9705.35 |
| GR | 1284.1 | 9705.43 | 1284.08 | 9705.69 | 1284.09 | 9705.84 | 1284.11 | 9706.11 | 1284.12 | 9706.29 |
| GR | 1284.1 | 9706.64 | 1284.00 | 9952.04 | 1282.38 | 9970.04 | 1282.00 | 9970.60 | 1280.38 | 9973.46 |
| GR | 1280.0 | 9974.35 | 1279.82 | 9975.43 | 1280.00 | 9976.51 | 1280.50 | 9978.10 | 1281.33 | 9980.70 |
| GR | 1282.0 | 9982.87 | 1283.13 | 9986.69 | 1284.00 | 9989.60 | 1284.00 | 10000.00 | | |



| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15750 | 98 | 9969.81 | 10000.00 | 250.00 | 250.00 | 250.00 | | | |
| GR | 1288.3 | 9000.00 | 1288.00 | 9006.08 | 1288.00 | 9010.63 | 1288.00 | 9011.99 | 1288.00 | 9047.38 |
| GR | 1288.0 | 9066.66 | 1286.80 | 9236.69 | 1286.71 | 9248.37 | 1286.64 | 9258.28 | 1286.53 | 9272.90 |
| GR | 1286.4 | 9293.19 | 1286.18 | 9325.24 | 1286.17 | 9327.91 | 1286.17 | 9330.25 | 1286.17 | 9332.11 |
| GR | 1286.2 | 9333.55 | 1286.17 | 9333.84 | 1286.12 | 9338.63 | 1286.04 | 9346.70 | 1286.00 | 9352.31 |
| GR | 1286.0 | 9353.46 | 1286.00 | 9354.16 | 1286.00 | 9362.89 | 1286.00 | 9364.71 | 1286.00 | 9366.26 |
| GR | 1286.0 | 9367.67 | 1286.00 | 9369.34 | 1286.00 | 9371.21 | 1286.00 | 9376.48 | 1286.00 | 9388.42 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1286.0 | 9396.78 | 1286.00 | 9415.14 | 1286.00 | 9415.30 | [illegible] | [illegible] | [illegible] | [illegible] |
| GR | 1286.0 | 9441.01 | 1286.00 | 9441.34 | 1286.00 | 9451.57 | 1285.65 | 9515.43 | 1285.61 | 9544.80 |
| GR | 1285.6 | 9566.53 | 1285.63 | 9577.15 | 1285.64 | 9583.15 | 1285.63 | 9588.96 | 1285.61 | 9601.37 |
| GR | 1285.6 | 9609.69 | 1285.63 | 9631.06 | 1285.63 | 9637.02 | 1285.65 | 9655.63 | 1285.65 | 9662.24 |
| GR | 1285.9 | 9738.73 | 1285.90 | 9742.64 | 1285.83 | 9745.00 | 1285.76 | 9762.03 | 1285.74 | 9772.19 |
| GR | 1285.8 | 9796.65 | 1285.70 | 9797.25 | 1285.75 | 9822.09 | 1285.73 | 9822.90 | 1285.71 | 9824.24 |
| GR | 1285.7 | 9826.16 | 1285.70 | 9828.02 | 1285.63 | 9830.00 | 1285.56 | 9832.39 | 1285.54 | 9863.26 |
| GR | 1285.5 | 9864.82 | 1285.50 | 9876.13 | 1285.53 | 9878.05 | 1285.39 | 9889.34 | 1285.49 | 9892.34 |
| GR | 1285.5 | 9894.05 | 1285.60 | 9895.05 | 1285.55 | 9896.06 | 1285.53 | 9896.97 | 1284.89 | 9918.28 |
| GR | 1284.0 | 9933.93 | 1284.00 | 9937.67 | 1284.00 | 9945.26 | 1284.00 | 9946.79 | 1284.04 | 9947.31 |
| GR | 1284.6 | 9959.24 | 1284.70 | 9959.51 | 1284.99 | 9963.36 | 1285.64 | 9966.69 | 1285.72 | 9967.24 |
| GR | 1284.0 | 9969.81 | 1282.31 | 9970.60 | 1281.96 | 9972.50 | 1280.69 | 9973.46 | 1280.31 | 9974.35 |
| GR | 1280.1 | 9975.43 | 1280.15 | 9976.51 | 1280.15 | 9978.10 | 1281.12 | 9980.70 | 1282.31 | 9982.87 |
| GR | 1283.4 | 9986.69 | 1284.00 | 9989.60 | 1284.00 | 10000.00 | | | | |

1

PROFILE FOR STREAM CHN128 - LATERAL WEIR SP

PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

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ELEVATION  1278.     1279.     1280.     1281.     1282.     1283.     1284.     1285.     1286.     1287.
    SECNO   CUMDIS

 13582.00     0.  I         .         .         .      E  .         .        L.         .         .         .         .
             20.  I         .         .         .      E  .         .      L  R         .         .         .         .
             40.  I         .         .         .      WE .         .    L    .R        .         .         .         .
             60.  I         .         .         .      WE .         .  L      . R       .         .         .         .
             80.  I         .         .         .       E .         . L       . R       .         .         .         .
            100.  I         .         .         .       WE.         L         .  R      .         .         .         .
 13700.00   120.  I         .         .         .       WE.       L .         .   R     .         .         .         .
            140.  I         .         .         .       WE.      L  .         .   R     .         .         .         .
            160.  I         .         .         .        E.      L  .         .  R      .         .         .         .
            180.  CI        .         .         .        WE     L   .         .  R      .         .         .         .
            200.  CI        .         .         .        WE     L   .         .  R      .         .         .         .
            220.  CI        .         .         .         E    L    .         . R       .         .         .         .
            240.  CI        .         .         .         WE  L     .         . R       .         .         .         .
            260.  CI        .         .         .         WE  L     .         . R       .         .         .         .
            280.  C I       .         .         .         WE L      .         .R        .         .         .         .
            300.  C I       .         .         .         .WEL      .         .R        .         .         .         .
            320.  C I       .         .         .         .WE       .         .R        .         .         .         .
            340.  C I       .         .         .         .WE       .         R         .         .         .         .
            360.  C I       .         .         .         .LE       .         R         .         .         .         .
            380.  C  I      .         .         .         L WE      .         R         .         .         .         .
            400.  C  I      .         .         .         L WE      .        R.         .         .         .         .
 14000.00   420.  C  I      .         .         .        L.  E      .        R.         .         .         .         .
            440.  C  I      .         .         .         .L WE     .        R.         .         .         .         .
            460.  C  I      .         .         .         .  WE     .        R.         .         .         .         .
            480.  C  I      .         .         .         .  WEL    .        R.         .         .         .         .
            500.  C  I      .         .         .         .  WE  L  .        R.         .         .         .         .
 14100.00   520.  C  I      .         .         .         .   E    L.        R.         .         .         .         .
            540.  C  I      .         .         .         .   WE    .L       R.         .         .         .         .
            560.  C   I     .         .         .         .   WE    .  L     R.         .         .         .         .
            580.  C   I     .         .         .         .   WE    .    L   R.         .         .         .         .
            600.  C    I    .         .         .         .    E    .      L R.         .         .         .         .
 14200.00   620.  C    I    .         .         .         .    WE   .        L.         .         .         .         .
            640.  C    I    .         .         .         .    WE   .        L.         .         .         .         .
            660.  C    I    .         .         .         .    WE   .        L.         .         .         .         .
            680.  C    I    .         .         .         .    WE   .        L.         .         .         .         .
            700.  C     I   .         .         .         .     E   .        L.         .         .         .         .
 14300.00   720.  C     I   .         .         .         .     WE  .        L.         .         .         .         .
            740.  C     I   .         .         .         .     WE  .        L.         .         .         .         .
            760.  C     I   .         .         .         .     WE  .        L.         .         .         .         .
            780.  C     I   .         .         .         .      E  .        L.         .         .         .         .
            800.  C      I  .         .         .         .      WE .        L.         .         .         .         .
            820.  C      I  .         .         .         .      WE .        L.         .         .         .         .
            840.  C      I  .         .         .         .      WE .        L.         .         .         .         .
            860.  C      I  .         .         .         .       E .        L.         .         .         .         .
            880.  C       I .         .         .         .       WE.        L.         .         .         .         .
            900.  C       I .         .         .         .       WE.        L.         .         .         .         .
            920.  C       I .         .         .         .       WE.        L.         .         .         .         .
            940.  C       I .         .         .         .        E.        L.         .         .         .         .
            960.  C       I .         .         .         .        WE        L.         .         .         .         .
            980.  C        I.         .         .         .        WE        L.         .         .         .         .
           1000.  C        I.         .         .         .        WE        L.         .         .         .         .
 14600.00  1020.  C        I.         .         .         .         E        L.         .         .         .         .
           1040.  C        I.         .         .         .         WE       L.         .         .         .         .
           1060.  C        I.         .         .         .         WE       L.         .         .         .         .
           1080.  C         I         .         .         .         WE       L.         .         .         .         .
           1100.  C         I         .         .         .         WE       L.         .         .         .         .
           1120.  C         I         .         .         .         .E       L.         .         .         .         .
           1140.  C         I         .         .         .         .E       L.         .         .         .         .
           1160.  C         I         .         .         .         .E       L.         .         .         .         .
           1180.  C         I         .         .         .         .WE      L.         .         .         .         .
           1200.  C         .I        .         .         .         .WE      L.         .         .         .         .
           1220.  C         .I        .         .         .         . E      L.         .         .         .         .
           1240.  C         .I        .         .         .         . E      L.         .         .         .         .
           1260.  C         .I        .         .         .         . E      L.         .         .         .         .
           1280.  C         .I        .         .         .         . E      L.         .         .         .         .
           1300.  C         .I        .         .         .         . WE     L.         .         .         .         .
 14900.00  1320.  C         . I       .         .         .         .  E     L.         .         .         .         .
           1340.  C         . I       .         .         .         .  E     L.         .         .         .         .
           1360.  C         . I       .         .         .         .  E     L.         .         .         .         .
           1380.  C         . I       .         .         .         .  E     L.         .         .         .         .
           1400.  C         . I       .         .         .         .  E     L.         .         .         .         .
           1420.  C         . I       .         .         .         .  E     L.         .         .         .         .
           1440.  C         .  I      .         .         .         .  E     L.         .         .         .         .
           1460.  C         .  I      .         .         .         .  E     L.         .         .         .         .
           1480.  C         .  I      .         .         .         .  WE    L.         .         .         .         .
           1500.  C         .  I      .         .         .         .  WE    L.         .         .         .         .
           1520.  C         .  I      .         .         .         .   E    L.         .         .         .         .
           1540.  C         .   I     .         .         .         .   E    L.         .         .         .         .
           1560.  C         .   I     .         .         .         .   E    L.         .         .         .         .
           1580.  C         .   I     .         .         .         .   E    L.         .         .         .         .
           1600.  C         .   I     .         .         .         .   E    L.         .         .         .         .
 15200.00  1620.  C         .   I     .         .         .         .   E    L.         .         .         .         .
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```
            1640.  C         .    I    .         .         .         .    E    E.         .         .         .         .
            1660.  C         .    I    .         .         .         .   WE    L.         .         .         .         .
            1680.  C         .    I    .         .         .         .    E    L.         .         .         .         .
            1700.  C         .    I    .         .         .         .    E    L.         .         .         .         .
            1720.  C         .    I    .         .         .         .    E    L.         .         .         .         .
            1740.  C         .     I   .         .         .         .    E    L.         .         .         .         .
            1760.  C         .     I   .         .         .         .    E    L.         .         .         .         .
            1780.  C         .     I   .         .         .         .   WE    L.         .         .         .         .
            1800.  C         .     I   .         .         .         .   WE    L.         .         .         .         .
            1820.  C         .     I   .         .         .         .    E    L.         .         .         .         .
            1840.  C         .     I   .         .         .         .    E    L.         .         .         .         .
            1860.  C         .      I  .         .         .         .    E    L.         .         .         .         .
            1880.  C         .      I  .         .         .         .    E    L.         .         .         .         .
            1900.  C         .      I  .         .         .         .   WE    L.         .         .         .         .
  15500.00  1920.  C         .      I  .         .         .         .   WE    L.         .         .         .         .
            1940.  C         .      I  .         .         .         .    E    L.         .         .         .         .
            1960.  C         .       I .         .         .         .    E    L.         .         .         .         .
            1980.  C         .       I .         .         .         .    E    L.         .         .         .         .
            2000.  C         .       I .         .         .         .   WEL.         .         .         .         .
            2020.  C         .       I .         .         .         .   WEL.         .         .         .         .
            2040.  C         .        I.         .         .         .    EL.         .         .         .         .
            2060.  C         .        I.         .         .         .    EL.         .         .         .         .
            2080.  C         .        I.         .         .         .    WE.         .         .         .         .
            2100.  C         .        I.         .         .         .    WE.         .         .         .         .
            2120.  C         .        I.         .         .         .     E.         .         .         .         .
            2140.  C         .         I         .         .         .     E.         .         .         .         .
            2160.  C         .         I         .         .         .    WE         .         .         .         .
  15750.00  2180.  C         .         I         .         .         .    WE         .         .         .         .
1
   16OCT00      12:36:33                                                                                          PAGE     6


                                                                                                THIS RUN EXECUTED 16OCT00     12:36:33
 ***************************************
  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

 CHN128 - LATERAL WEIR SP

 SUMMARY PRINTOUT TABLE  150

       SECNO      XLCH      ELTRD      ELLC      ELMIN        Q       CWSEL     CRIWS      EG       10*KS      VCH      AREA
.01K
    13582.000       .00        .00       .00   1278.10    55.79    1281.76       .00   1281.81     12.25     1.89     29.52
15.94
    13700.000    118.00        .00       .00   1278.11    55.79    1281.91       .00   1281.99     17.03     2.32     24.08
13.52
 *  14000.000    300.00        .00       .00   1278.40    77.80    1282.35       .00   1282.43     13.01     2.21     35.27
21.57
    14100.000    100.00        .00       .00   1278.40    88.95    1282.47       .00   1282.54     10.95     2.20     40.35
26.88
    14200.000    100.00        .00       .00   1278.60    88.95    1282.58       .00   1282.66     11.31     2.23     39.87
26.45
    14300.000    100.00        .00       .00   1278.68    88.95    1282.69       .00   1282.77     11.26     2.23     39.91
26.51
    14600.000    300.00        .00       .00   1279.00    88.95    1283.05       .00   1283.14     13.22     2.36     37.75
24.46
 *  14900.000    300.00        .00       .00   1279.25    88.95    1283.35       .00   1283.37      4.77     1.00     88.90
40.72
    15200.000    300.00        .00       .00   1279.54    88.95    1283.51       .00   1283.53      6.39     1.27     69.79
35.18
    15500.000    300.00        .00       .00   1279.82    88.95    1283.73       .00   1283.77      9.57     1.71     51.95
28.76
    15750.000    250.00        .00       .00   1280.10    89.00    1284.02       .00   1284.08     15.92     2.05     43.58
22.31
1
   16OCT00      12:36:33                                                                                          PAGE     7

 CHN128 - LATERAL WEIR SP

 SUMMARY PRINTOUT TABLE  150

       SECNO        Q       CWSEL     DIFWSP    DIFWSX    DIFKWS    TOPWID     XLCH
    13582.000     55.79   1281.76       .00       .00     -2.24     19.05       .00
    13700.000     55.79   1281.91       .00       .15       .00     13.83    118.00
 *  14000.000     77.80   1282.35       .00       .44       .00     18.40    300.00
    14100.000     88.95   1282.47       .00       .12       .00     18.80    100.00
    14200.000     88.95   1282.58       .00       .11       .00     18.73    100.00
    14300.000     88.95   1282.69       .00       .11       .00     18.70    100.00
```

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 14600.000 | 88.95 | 1283.05 | .00 | .36 | .00 | 18.29 | 300.00 |
| * | 14900.000 | 88.95 | 1283.35 | .00 | .30 | .00 | 78.08 | 300.00 |
| | 15200.000 | 88.95 | 1283.51 | .00 | .16 | .00 | 52.82 | 300.00 |
| | 15500.000 | 88.95 | 1283.73 | .00 | .22 | .00 | 33.62 | 300.00 |
| | 15750.000 | 89.00 | 1284.02 | .00 | .29 | .00 | 43.29 | 250.00 |



SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 14000.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 14900.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

```
1
 *  HEC-2 WATER SURFACE PROFILES            *                          *  U.S. ARMY CORPS OF ENGINEERS        *
 *                                          *                          *  HYDROLOGIC ENGINEERING CENTER       *
 *  Version   4.6.2;  May 1991              *                          *  609 SECOND STREET, SUITE D          *
 *                                          *                          *  DAVIS, CALIFORNIA 95616-4687        *
 *  RUN DATE    16OCT00    TIME   12:35:45  *                          *          (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
1
   16OCT00      12:35:45                                                                                PAGE    1


                                                                                THIS RUN EXECUTED 16OCT00    12:35:45
 ************************************
  HEC-2 WATER SURFACE PROFILES

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



 SPLIT FLOW BEING PERFORMED


 SF SPLIT FLOW PROBLEM


 JC SPLIT FLOW PROBLEM
 JP     0       0       0       0        0


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   13582    AND    13700
 WS     2   13582   13700      -1      3.4
 WC       1284.00  118.00 1282.90


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   13700    AND    14000
 WS     2   13700   14000      -1      3.4
 WC       1282.90  300.00 1282.00


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14000    AND    14100
 WS     2   14000   14100      -1      3.4
 WC       1282.00  100.00 1283.00


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14100    AND    14200
 WS     2   14100   14200      -1      3.4
 WC       1283.00  100.00 1284.00


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14200    AND    14300
 WS     2   14200   14300      -1      3.4
 WC       1284.00  100.00 1284.00


 TW      RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14900    AND     1520
 WS     2   14900   15200      -1      3.4
 WC       1284.00  300.00 1284.00


 TW      RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   15200    AND     1550
 WS     2   15200   15500      -1      3.4
 WC       1284.00  300.00 1284.00
1
   16OCT00      12:35:45                                                                                PAGE    2


 TW      RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   15500    AND     1575
 WS     2   15500   15750      -1      3.4
 WC       1284.00  250.00 1284.00
1
   16OCT00      12:35:45                                                                                PAGE    3

 T1      HEC-2 Input   Data    file:   SPLIT    FLOW    SOLUTION
 T2      CHN128 - LATERAL WEIR SPLIT FLOW Q= 115 CFS
 T3      CHN128 - LATERAL WEIR SPLIT FLOW Q= 115 CFS

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0        3         0         0   .001237         0         0         0   1284.00         0

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

    -10       -10

 QT        5     89.00     115.00     140.00     155.00     205.00
 NC   0.0450    0.0350     0.0350        0.1        0.3
 X1    13582        37    9964.73   10000.00       0.00       0.00       0.00
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1284.0 | 9940.05 | 1283.98 | 9940.08 | 1283.99 | 9940.10 | 1283.99 | [illegible] | [illegible] | [illegible] |
| GR | 1284.0 | 9940.26 | 1283.99 | 9940.28 | 1283.99 | 9940.34 | 1283.99 | 9940.41 | 1283.99 | 9940.46 |
| GR | 1284.0 | 9940.48 | 1283.99 | 9940.50 | 1283.98 | 9940.53 | 1283.98 | 9940.60 | 1283.97 | 9940.74 |
| GR | 1284.0 | 9940.95 | 1283.96 | 9941.17 | 1284.00 | 9941.79 | 1284.00 | 9942.65 | 1284.00 | 9943.30 |
| GR | 1284.0 | 9946.51 | 1284.00 | 9948.10 | 1284.00 | 9949.62 | 1284.00 | 9952.57 | 1284.00 | 9954.57 |
| GR | 1284.0 | 9964.73 | 1283.02 | 9968.55 | 1282.22 | 9971.25 | 1282.00 | 9972.08 | 1280.00 | 9979.60 |
| GR | 1278.1 | 9983.20 | 1280.00 | 9986.24 | 1281.30 | 9991.28 | 1282.00 | 9992.45 | 1282.93 | 9993.94 |
| GR | 1284.0 | 9995.82 | 1284.00 | 10000.00 | | | | | | |
| X1 | 13700 | 16 | 9967.79 | 10000.00 | 118.00 | 118.00 | 118.00 | | | |
| GR | 1282.9 | 9967.79 | 1282.60 | 9968.89 | 1282.20 | 9970.83 | 1282.00 | 9971.43 | 1280.75 | 9974.60 |
| GR | 1280.0 | 9976.34 | 1278.11 | 9979.33 | 1280.00 | 9982.10 | 1281.36 | 9984.58 | 1282.00 | 9985.65 |
| GR | 1282.2 | 9985.98 | 1284.00 | 9989.37 | 1284.47 | 9999.68 | 1284.47 | 9999.75 | 1284.48 | 9999.94 |
| GR | 1284.5 | 10000.00 | | | | | | | | |
| X1 | 14000 | 10 | 9963.80 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1282.0 | 9963.80 | 1282.00 | 9965.57 | 1281.43 | 9967.11 | 1278.40 | 9974.60 | 1280.00 | 9977.92 |
| GR | 1280.7 | 9979.14 | 1282.00 | 9981.63 | 1283.10 | 9983.42 | 1284.00 | 9985.11 | 1284.00 | 10000.00 |
| X1 | 14100 | 14 | 9962.24 | 10000.00 | 100.00 | 100.00 | 100.00 | | | |
| GR | 1283.0 | 9962.24 | 1282.46 | 9965.05 | 1281.76 | 9966.82 | 1280.68 | 9969.42 | 1279.76 | 9971.09 |
| GR | 1278.4 | 9975.00 | 1279.76 | 9978.71 | 1279.97 | 9979.20 | 1281.16 | 9981.30 | 1281.62 | 9982.20 |
| GR | 1281.8 | 9982.49 | 1282.46 | 9983.79 | 1284.00 | 9986.52 | 1284.00 | 10000.00 | | |
| X1 | 14200 | 14 | 9962.24 | 10000.00 | 100.00 | 100.00 | 100.00 | | | |
| GR | 1284.0 | 9962.24 | 1282.58 | 9965.05 | 1281.88 | 9966.82 | 1280.80 | 9969.42 | 1279.88 | 9971.09 |
| GR | 1278.6 | 9975.00 | 1279.88 | 9978.71 | 1280.09 | 9979.20 | 1281.28 | 9981.30 | 1281.74 | 9982.20 |
| GR | 1281.9 | 9982.49 | 1282.58 | 9983.79 | 1284.00 | 9986.52 | 1284.00 | 10000.00 | | |
| X1 | 14300 | 58 | 9962.24 | 10000.00 | 100.00 | 100.00 | 100.00 | | | |
| GR | 1286.7 | 9200.00 | 1286.55 | 9214.47 | 1286.24 | 9247.77 | 1286.22 | 9249.93 | 1286.18 | 9254.29 |
| GR | 1286.2 | 9255.76 | 1286.16 | 9257.27 | 1286.15 | 9257.81 | 1286.00 | 9277.62 | 1285.86 | 9285.09 |
| GR | 1285.7 | 9304.74 | 1285.65 | 9329.46 | 1285.65 | 9336.21 | 1285.54 | 9352.68 | 1285.53 | 9362.72 |
| GR | 1285.4 | 9373.11 | 1285.39 | 9384.32 | 1285.40 | 9396.09 | 1285.24 | 9405.27 | 1285.10 | 9415.00 |
| GR | 1285.0 | 9424.76 | 1284.38 | 9525.97 | 1284.38 | 9542.27 | 1284.38 | 9567.22 | 1284.38 | 9601.08 |
| GR | 1284.4 | 9629.04 | 1284.38 | 9656.22 | 1284.34 | 9659.30 | 1284.33 | 9660.48 | 1284.33 | 9663.77 |
| GR | 1284.3 | 9667.99 | 1284.28 | 9673.37 | 1284.24 | 9680.25 | 1284.18 | 9689.49 | 1284.10 | 9700.00 |
| GR | 1284.1 | 9702.38 | 1284.00 | 9713.05 | 1284.00 | 9721.01 | 1284.00 | 9756.39 | 1284.00 | 9768.53 |
| GR | 1284.0 | 9771.25 | 1284.00 | 9862.26 | 1284.00 | 9862.54 | 1284.00 | 9863.29 | 1284.00 | 9962.24 |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1282.7 | 9965.05 | 1282.00 | 9966.82 | 1280.92 | 9969.42 | 1280.00 | 9971.09 | 1278.68 | 9975.00 |
| GR | 1280.0 | 9978.71 | 1280.21 | 9979.20 | 1281.40 | 9981.30 | 1281.86 | 9982.20 | 1282.00 | 9982.49 |
| GR | 1282.7 | 9983.79 | 1284.00 | 9986.52 | 1284.00 | 10000.00 | | | | |
| X1 | 14600 | 48 | 9950.37 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1287.0 | 9200.00 | 1286.35 | 9319.42 | 1286.34 | 9322.88 | 1286.30 | 9331.31 | 1286.24 | 9341.79 |
| GR | 1286.2 | 9354.73 | 1286.09 | 9370.67 | 1286.00 | 9388.44 | 1285.97 | 9396.61 | 1285.90 | 9423.66 |
| GR | 1285.8 | 9452.72 | 1285.76 | 9471.57 | 1284.98 | 9550.29 | 1284.88 | 9565.91 | 1284.80 | 9575.21 |
| GR | 1284.7 | 9583.70 | 1284.64 | 9597.36 | 1284.55 | 9609.89 | 1284.49 | 9620.27 | 1284.45 | 9627.64 |
| GR | 1284.4 | 9636.14 | 1284.40 | 9645.58 | 1284.40 | 9655.79 | 1284.39 | 9665.38 | 1284.36 | 9674.53 |
| GR | 1284.3 | 9683.42 | 1284.28 | 9691.86 | 1284.23 | 9699.84 | 1284.23 | 9700.00 | 1284.09 | 9720.90 |
| GR | 1284.0 | 9734.06 | 1284.00 | 9734.48 | 1284.00 | 9816.10 | 1284.00 | 9828.24 | 1284.00 | 9950.37 |
| GR | 1283.6 | 9963.68 | 1283.43 | 9964.04 | 1282.00 | 9967.35 | 1280.49 | 9970.86 | 1280.00 | 9971.94 |
| GR | 1279.0 | 9974.45 | 1280.00 | 9976.90 | 1280.62 | 9978.11 | 1282.00 | 9980.99 | 1283.04 | 9983.19 |
| GR | 1284.0 | 9985.23 | 1284.00 | 9996.17 | 1284.00 | 10000.00 | | | | |
| X1 | 14900 | 40 | 9867.14 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1288.0 | 9100.00 | 1288.00 | 9106.54 | 1288.00 | 9113.03 | 1288.00 | 9113.89 | 1287.79 | 9142.77 |
| GR | 1287.1 | 9246.69 | 1286.15 | 9379.98 | 1286.14 | 9381.89 | 1286.00 | 9403.34 | 1285.85 | 9435.98 |
| GR | 1285.7 | 9468.11 | 1285.61 | 9487.09 | 1285.57 | 9498.84 | 1285.55 | 9505.90 | 1284.18 | 9649.12 |
| GR | 1284.1 | 9654.29 | 1284.08 | 9663.19 | 1284.02 | 9690.76 | 1284.00 | 9692.87 | 1284.00 | 9693.17 |
| GR | 1284.0 | 9696.73 | 1284.00 | 9700.00 | 1284.00 | 9722.57 | 1284.00 | 9737.75 | 1284.00 | 9791.21 |
| GR | 1284.0 | 9867.14 | 1283.91 | 9872.09 | 1283.57 | 9893.26 | 1283.45 | 9901.09 | 1282.29 | 9951.49 |
| GR | 1282.0 | 9963.88 | 1281.74 | 9964.55 | 1280.00 | 9968.47 | 1279.25 | 9971.84 | 1280.00 | 9975.21 |
| GR | 1280.4 | 9976.12 | 1282.00 | 9980.08 | 1282.67 | 9981.73 | 1284.00 | 9985.10 | 1284.00 | 10000.00 |
| X1 | 15200 | 44 | 9898.92 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1287.8 | 9100.00 | 1287.51 | 9150.46 | 1287.41 | 9170.08 | 1287.28 | 9197.12 | 1287.11 | 9232.27 |
| GR | 1286.9 | 9279.37 | 1286.53 | 9344.87 | 1286.03 | 9438.34 | 1286.00 | 9444.80 | 1285.99 | 9445.78 |
| GR | 1286.0 | 9445.89 | 1285.99 | 9446.03 | 1285.99 | 9446.18 | 1285.99 | 9446.61 | 1285.99 | 9446.73 |
| GR | 1286.0 | 9446.87 | 1285.98 | 9447.20 | 1285.71 | 9485.26 | 1284.16 | 9700.00 | 1284.07 | 9712.60 |
| GR | 1284.0 | 9721.93 | 1284.00 | 9724.33 | 1284.00 | 9760.53 | 1284.00 | 9898.92 | 1283.91 | 9920.86 |
| GR | 1283.9 | 9925.25 | 1283.67 | 9930.34 | 1283.18 | 9944.66 | 1282.83 | 9952.63 | 1282.88 | 9953.92 |
| GR | 1282.8 | 9956.45 | 1282.62 | 9960.54 | 1282.00 | 9967.35 | 1281.38 | 9968.90 | 1280.72 | 9971.05 |
| GR | 1280.0 | 9972.42 | 1279.54 | 9975.05 | 1280.00 | 9977.81 | 1280.37 | 9978.85 | 1280.95 | 9980.52 |
| GR | 1282.0 | 9983.53 | 1282.90 | 9986.13 | 1284.00 | 9989.23 | 1284.00 | 10000.00 | | |
| X1 | 15500 | 74 | 9952.04 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1287.7 | 9100.00 | 1286.98 | 9170.15 | 1286.62 | 9205.88 | 1286.47 | 9220.79 | 1286.40 | 9228.89 |
| GR | 1286.3 | 9234.06 | 1286.32 | 9237.59 | 1286.30 | 9240.12 | 1286.28 | 9242.28 | 1286.27 | 9244.17 |
| GR | 1286.3 | 9245.88 | 1286.17 | 9257.27 | 1286.15 | 9260.35 | 1286.14 | 9262.52 | 1286.00 | 9278.11 |
| GR | 1285.9 | 9281.92 | 1285.94 | 9284.29 | 1285.94 | 9288.93 | 1285.97 | 9298.88 | 1286.00 | 9309.20 |
| GR | 1286.0 | 9334.48 | 1286.00 | 9344.49 | 1286.00 | 9349.76 | 1286.00 | 9351.02 | 1286.00 | 9351.94 |
| GR | 1285.2 | 9492.99 | 1284.39 | 9635.88 | 1284.25 | 9660.73 | 1284.16 | 9677.43 | 1284.11 | 9686.14 |
| GR | 1284.1 | 9688.29 | 1284.09 | 9689.51 | 1284.09 | 9690.11 | 1284.09 | 9690.80 | 1284.09 | 9691.56 |
| GR | 1284.1 | 9693.72 | 1284.08 | 9693.98 | 1284.08 | 9694.12 | 1284.05 | 9699.80 | 1284.05 | 9700.00 |
| GR | 1284.0 | 9700.72 | 1284.05 | 9701.39 | 1284.05 | 9701.71 | 1284.05 | 9701.89 | 1284.04 | 9702.06 |
| GR | 1284.0 | 9702.43 | 1284.04 | 9702.67 | 1284.04 | 9703.27 | 1284.04 | 9703.43 | 1284.04 | 9703.93 |
| GR | 1284.0 | 9704.11 | 1284.05 | 9705.14 | 1284.05 | 9705.30 | 1284.05 | 9705.32 | 1284.06 | 9705.35 |
| GR | 1284.1 | 9705.43 | 1284.08 | 9705.69 | 1284.09 | 9705.84 | 1284.11 | 9706.11 | 1284.12 | 9706.29 |
| GR | 1284.1 | 9706.64 | 1284.00 | 9952.04 | 1282.38 | 9970.04 | 1282.00 | 9970.60 | 1280.38 | 9973.46 |
| GR | 1280.0 | 9974.35 | 1279.82 | 9975.43 | 1280.00 | 9976.51 | 1280.50 | 9978.10 | 1281.33 | 9980.70 |
| GR | 1282.0 | 9982.87 | 1283.13 | 9986.69 | 1284.00 | 9989.60 | 1284.00 | 10000.00 | | |

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|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15750 | 98 | 9969.81 | 10000.00 | 250.00 | 250.00 | 250.00 | | | |
| GR | 1288.3 | 9000.00 | 1288.00 | 9006.08 | 1288.00 | 9010.63 | 1288.00 | 9011.99 | 1288.00 | 9047.38 |
| GR | 1288.0 | 9066.66 | 1286.80 | 9236.69 | 1286.71 | 9248.37 | 1286.64 | 9258.28 | 1286.53 | 9272.90 |
| GR | 1286.4 | 9293.19 | 1286.18 | 9325.24 | 1286.17 | 9327.91 | 1286.17 | 9330.25 | 1286.17 | 9332.11 |
| GR | 1286.2 | 9333.55 | 1286.17 | 9333.84 | 1286.12 | 9338.63 | 1286.04 | 9346.70 | 1286.00 | 9352.31 |
| GR | 1286.0 | 9353.46 | 1286.00 | 9354.16 | 1286.00 | 9362.89 | 1286.00 | 9364.71 | 1286.00 | 9366.26 |
| GR | 1286.0 | 9367.67 | 1286.00 | 9369.34 | 1286.00 | 9371.21 | 1286.00 | 9376.48 | 1286.00 | 9388.42 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1286.0 | 9396.78 | 1286.00 | 9415.14 | 1286.00 | 9415.50 | [illegible] | [illegible] | [illegible] | [illegible] |
| GR | 1286.0 | 9441.01 | 1286.00 | 9441.34 | 1286.00 | 9451.57 | 1285.65 | 9515.43 | 1285.61 | 9544.80 |
| GR | 1285.6 | 9566.53 | 1285.63 | 9577.15 | 1285.64 | 9583.15 | 1285.63 | 9588.96 | 1285.61 | 9601.37 |
| GR | 1285.6 | 9609.69 | 1285.63 | 9631.06 | 1285.63 | 9637.02 | 1285.65 | 9655.63 | 1285.65 | 9662.24 |
| GR | 1285.9 | 9738.73 | 1285.90 | 9742.64 | 1285.83 | 9745.00 | 1285.76 | 9762.03 | 1285.74 | 9772.19 |
| GR | 1285.8 | 9796.65 | 1285.70 | 9797.25 | 1285.75 | 9822.09 | 1285.73 | 9822.90 | 1285.71 | 9824.24 |
| GR | 1285.7 | 9826.16 | 1285.70 | 9828.02 | 1285.63 | 9830.00 | 1285.56 | 9832.39 | 1285.54 | 9863.26 |
| GR | 1285.5 | 9864.82 | 1285.50 | 9876.13 | 1285.53 | 9878.05 | 1285.39 | 9889.34 | 1285.49 | 9892.34 |
| GR | 1285.5 | 9894.05 | 1285.60 | 9895.05 | 1285.55 | 9896.06 | 1285.53 | 9896.97 | 1284.89 | 9918.28 |
| GR | 1284.0 | 9933.93 | 1284.00 | 9937.67 | 1284.00 | 9945.26 | 1284.00 | 9946.79 | 1284.04 | 9947.31 |
| GR | 1284.6 | 9959.24 | 1284.70 | 9959.51 | 1284.99 | 9963.36 | 1285.64 | 9966.69 | 1285.72 | 9967.24 |
| GR | 1284.0 | 9969.81 | 1282.31 | 9970.60 | 1281.96 | 9972.50 | 1280.69 | 9973.46 | 1280.31 | 9974.35 |
| GR | 1280.1 | 9975.43 | 1280.15 | 9976.51 | 1280.15 | 9978.10 | 1281.12 | 9980.70 | 1282.31 | 9982.87 |
| GR | 1283.4 | 9986.69 | 1284.00 | 9989.60 | 1284.00 | 10000.00 | | | | |

1
PROFILE FOR STREAM  CHN128 - LATERAL WEIR SP

PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

```
ELEVATION  1278.     1279.     1280.     1281.     1282.     1283.     1284.     1285.     1286.     1287.
    SECNO   CUMDIS

 13582.00     0.  I         .         .         .      E  .         .        L.         .         .         .         .
             20.  I         .         .         .      WE .         .      L  R         .         .         .         .
             40.  I         .         .         .      WE .         .    L    .R        .         .         .         .
             60.  I         .         .         .       E .         .  L      . R       .         .         .         .
             80.  I         .         .         .       WE.         . L       . R       .         .         .         .
            100.  I         .         .         .       WE.         L         .  R      .         .         .         .
 13700.00   120.  I         .         .         .       WE.       L .         .   R     .         .         .         .
            140.  I         .         .         .        E.      L  .         .   R     .         .         .         .
            160.  I         .         .         .        WE      L  .         .  R      .         .         .         .
            180.  CI        .         .         .        WE     L   .         .  R      .         .         .         .
            200.  CI        .         .         .         E     L   .         .  R      .         .         .         .
            220.  CI        .         .         .         WE   L    .         . R       .         .         .         .
            240.  CI        .         .         .         WE  L     .         . R       .         .         .         .
            260.  CI        .         .         .         WE  L     .         . R       .         .         .         .
            280.  C I       .         .         .         .WEL      .         .R        .         .         .         .
            300.  C I       .         .         .         .WEL      .         .R        .         .         .         .
            320.  C I       .         .         .         .WE       .         .R        .         .         .         .
            340.  C I       .         .         .         .LWE      .         R         .         .         .         .
            360.  C I       .         .         .         .LWE      .         R         .         .         .         .
            380.  C  I      .         .         .         L WE      .         R         .         .         .         .
            400.  C  I      .         .         .         L  E      .        R.         .         .         .         .
 14000.00   420.  C  I      .         .         .        L.  WE     .        R.         .         .         .         .
            440.  C  I      .         .         .         .L WE     .        R.         .         .         .         .
            460.  C  I      .         .         .         .  WE     .        R.         .         .         .         .
            480.  C  I      .         .         .         .   WE    .        R.         .         .         .         .
            500.  C  I      .         .         .         .   WE L  .        R.         .         .         .         .
 14100.00   520.  C  I      .         .         .         .   WE   L.        R.         .         .         .         .
            540.  C  I      .         .         .         .    E    .L       R.         .         .         .         .
            560.  C   I     .         .         .         .    WE   .  L     R.         .         .         .         .
            580.  C   I     .         .         .         .    WE   .    L   R.         .         .         .         .
            600.  C    I    .         .         .         .    WE   .      L R.         .         .         .         .
 14200.00   620.  C    I    .         .         .         .     WE  .        L.         .         .         .         .
            640.  C    I    .         .         .         .     WE  .        L.         .         .         .         .
            660.  C    I    .         .         .         .     WE  .        L.         .         .         .         .
            680.  C    I    .         .         .         .     WE  .        L.         .         .         .         .
            700.  C     I   .         .         .         .      WE .        L.         .         .         .         .
 14300.00   720.  C     I   .         .         .         .      WE .        L.         .         .         .         .
            740.  C     I   .         .         .         .      WE .        L.         .         .         .         .
            760.  C     I   .         .         .         .      WE .        L.         .         .         .         .
            780.  C     I   .         .         .         .       WE.        L.         .         .         .         .
            800.  C      I  .         .         .         .       WE.        L.         .         .         .         .
            820.  C      I  .         .         .         .       WE.        L.         .         .         .         .
            840.  C      I  .         .         .         .        E.        L.         .         .         .         .
            860.  C      I  .         .         .         .        WE        L.         .         .         .         .
            880.  C       I .         .         .         .        WE        L.         .         .         .         .
            900.  C       I .         .         .         .        WE        L.         .         .         .         .
            920.  C       I .         .         .         .         E        L.         .         .         .         .
            940.  C       I .         .         .         .         WE       L.         .         .         .         .
            960.  C       I .         .         .         .         WE       L.         .         .         .         .
            980.  C        I.         .         .         .         WE       L.         .         .         .         .
           1000.  C        I.         .         .         .         .WE      L.         .         .         .         .
 14600.00  1020.  C        I.         .         .         .         .WE      L.         .         .         .         .
           1040.  C        I.         .         .         .         .WE      L.         .         .         .         .
           1060.  C        I.         .         .         .         .WE      L.         .         .         .         .
           1080.  C         I         .         .         .         . E      L.         .         .         .         .
           1100.  C         I         .         .         .         . E      L.         .         .         .         .
           1120.  C         I         .         .         .         . WE     L.         .         .         .         .
           1140.  C         I         .         .         .         . WE     L.         .         .         .         .
           1160.  C         I         .         .         .         . WE     L.         .         .         .         .
           1180.  C         I         .         .         .         .  E     L.         .         .         .         .
           1200.  C         .I        .         .         .         .  E     L.         .         .         .         .
           1220.  C         .I        .         .         .         .  E     L.         .         .         .         .
           1240.  C         .I        .         .         .         .  E     L.         .         .         .         .
           1260.  C         .I        .         .         .         .  WE    L.         .         .         .         .
           1280.  C         .I        .         .         .         .   E    L.         .         .         .         .
           1300.  C         .I        .         .         .         .   E    L.         .         .         .         .
 14900.00  1320.  C         . I       .         .         .         .   E    L.         .         .         .         .
           1340.  C         . I       .         .         .         .   E    L.         .         .         .         .
           1360.  C         . I       .         .         .         .   E    L.         .         .         .         .
           1380.  C         . I       .         .         .         .   E    L.         .         .         .         .
           1400.  C         . I       .         .         .         .   WE   L.         .         .         .         .
           1420.  C         . I       .         .         .         .    E   L.         .         .         .         .
           1440.  C         .  I      .         .         .         .    E   L.         .         .         .         .
           1460.  C         .  I      .         .         .         .    E   L.         .         .         .         .
           1480.  C         .  I      .         .         .         .    E   L.         .         .         .         .
           1500.  C         .  I      .         .         .         .    E   L.         .         .         .         .
           1520.  C         .  I      .         .         .         .    E   L.         .         .         .         .
           1540.  C         .   I     .         .         .         .    E   L.         .         .         .         .
           1560.  C         .   I     .         .         .         .    E   L.         .         .         .         .
           1580.  C         .   I     .         .         .         .    WE  L.         .         .         .         .
           1600.  C         .   I     .         .         .         .    WE  L.         .         .         .         .
 15200.00  1620.  C         .   I     .         .         .         .     E  L.         .         .         .         .
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            1640.  C        .   I    .         .         .         .    E  L.        .         .         .         .
            1660.  C        .   I    .         .         .         .    E  L.        .         .         .         .
            1680.  C        .   I    .         .         .         .    E  L.        .         .         .         .
            1700.  C        .   I    .         .         .         .    E  L.        .         .         .         .
            1720.  C        .   I    .         .         .         .   WE  L.        .         .         .         .
            1740.  C        .    I   .         .         .         .   WE  L.        .         .         .         .
            1760.  C        .    I   .         .         .         .    E  L.        .         .         .         .
            1780.  C        .    I   .         .         .         .    E  L.        .         .         .         .
            1800.  C        .    I   .         .         .         .    E  L.        .         .         .         .
            1820.  C        .    I   .         .         .         .    E  L.        .         .         .         .
            1840.  C        .    I   .         .         .         .   WEL.        .         .         .         .
            1860.  C        .     I  .         .         .         .   WEL.        .         .         .         .
            1880.  C        .     I  .         .         .         .   WEL.        .         .         .         .
            1900.  C        .     I  .         .         .         .    EL.        .         .         .         .
  15500.00  1920.  C        .     I  .         .         .         .    EL.        .         .         .         .
            1940.  C        .     I  .         .         .         .    EL.        .         .         .         .
            1960.  C        .      I .         .         .         .    WE.        .         .         .         .
            1980.  C        .      I .         .         .         .    WE.        .         .         .         .
            2000.  C        .      I .         .         .         .     E.        .         .         .         .
            2020.  C        .      I .         .         .         .     WE        .         .         .         .
            2040.  C        .       I.         .         .         .     WE        .         .         .         .
            2060.  C        .       I.         .         .         .     WE        .         .         .         .
            2080.  C        .       I.         .         .         .     LE        .         .         .         .
            2100.  C        .       I.         .         .         .     LWE       .         .         .         .
            2120.  C        .       I.         .         .         .     LWE       .         .         .         .
            2140.  C        .        I         .         .         .     LWE       .         .         .         .
            2160.  C        .        I         .         .         .     L.E       .         .         .         .
  15750.00  2180.  C        .        I         .         .         .     L.WE      .         .         .         .
```



THIS RUN EXECUTED 16OCT00 12:35:45

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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

CHN128 - LATERAL WEIR SP

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13582.000 | .00 | .00 | .00 | 1278.10 | 56.81 | 1281.78 | .00 | 1281.83 | 12.27 | 1.90 | 29.90 | 16.22 |
| 13700.000 | 118.00 | .00 | .00 | 1278.11 | 56.81 | 1281.93 | .00 | 1282.01 | 17.14 | 2.33 | 24.35 | 13.72 |
| * 14000.000 | 300.00 | .00 | .00 | 1278.40 | 85.36 | 1282.39 | .00 | 1282.48 | 14.66 | 2.37 | 36.06 | 22.29 |
| 14100.000 | 100.00 | .00 | .00 | 1278.40 | 100.53 | 1282.53 | .00 | 1282.62 | 13.13 | 2.42 | 41.46 | 27.74 |
| 14200.000 | 100.00 | .00 | .00 | 1278.60 | 100.53 | 1282.66 | .00 | 1282.75 | 13.05 | 2.43 | 41.38 | 27.83 |
| 14300.000 | 100.00 | .00 | .00 | 1278.68 | 100.53 | 1282.79 | .00 | 1282.88 | 12.76 | 2.41 | 41.74 | 28.14 |
| 14600.000 | 300.00 | .00 | .00 | 1279.00 | 100.53 | 1283.19 | .00 | 1283.28 | 14.19 | 2.49 | 40.30 | 26.69 |
| * 14900.000 | 300.00 | .00 | .00 | 1279.25 | 100.53 | 1283.50 | .00 | 1283.51 | 4.53 | 1.00 | 100.89 | 47.22 |
| 15200.000 | 300.00 | .00 | .00 | 1279.54 | 100.53 | 1283.65 | .00 | 1283.68 | 6.39 | 1.30 | 77.60 | 39.77 |
| 15500.000 | 300.00 | .00 | .00 | 1279.82 | 100.53 | 1283.87 | .00 | 1283.92 | 9.75 | 1.77 | 56.89 | 32.19 |
| 15750.000 | 250.00 | .00 | .00 | 1280.10 | 115.00 | 1284.18 | .00 | 1284.26 | 18.14 | 2.34 | 51.41 | 27.00 |



CHN128 - LATERAL WEIR SP

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 13582.000 | 56.81 | 1281.78 | .00 | .00 | -2.22 | 19.15 | .00 |
| 13700.000 | 56.81 | 1281.93 | .00 | .15 | .00 | 13.91 | 118.00 |
| * 14000.000 | 85.36 | 1282.39 | .00 | .47 | .00 | 18.46 | 300.00 |
| 14100.000 | 100.53 | 1282.53 | .00 | .14 | .00 | 19.20 | 100.00 |
| 14200.000 | 100.53 | 1282.66 | .00 | .13 | .00 | 19.04 | 100.00 |
| 14300.000 | 100.53 | 1282.79 | .00 | .13 | .00 | 19.11 | 100.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 14600.000 | 100.53 | 1283.19 | .00 | .40 | .00 | 18.90 | 300.00 |
| * | 14900.000 | 100.53 | 1283.50 | .00 | .31 | .00 | 85.88 | 300.00 |
| | 15200.000 | 100.53 | 1283.65 | .00 | .15 | .00 | 57.36 | 300.00 |
| | 15500.000 | 100.53 | 1283.87 | .00 | .22 | .00 | 35.68 | 300.00 |
| | 15750.000 | 115.00 | 1284.18 | .00 | .31 | .00 | 49.83 | 250.00 |



SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 14000.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 14900.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

```
1
 *  HEC-2 WATER SURFACE PROFILES            *                    *  U.S. ARMY CORPS OF ENGINEERS        *
 *                                          *                    *  HYDROLOGIC ENGINEERING CENTER       *
 *  Version   4.6.2;  May 1991              *                    *  609 SECOND STREET, SUITE D          *
 *                                          *                    *  DAVIS, CALIFORNIA 95616-4687        *
 *  RUN DATE    16OCT00    TIME   12:34:36  *                    *        (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
1
   16OCT00      12:34:36                                                                          PAGE    1


                                                                          THIS RUN EXECUTED 16OCT00    12:34:36
 ************************************
  HEC-2 WATER SURFACE PROFILES

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



 SPLIT FLOW BEING PERFORMED


 SF SPLIT FLOW PROBLEM


 JC SPLIT FLOW PROBLEM
 JP     0       0       0       0        0


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   13582    AND    13700
 WS     2   13582   13700      -1      3.4
 WC       1284.00  118.00 1282.90


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   13700    AND    14000
 WS     2   13700   14000      -1      3.4
 WC       1282.90  300.00 1282.00


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14000    AND    14100
 WS     2   14000   14100      -1      3.4
 WC       1282.00  100.00 1283.00


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14100    AND    14200
 WS     2   14100   14200      -1      3.4
 WC       1283.00  100.00 1284.00


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14200    AND    14300
 WS     2   14200   14300      -1      3.4
 WC       1284.00  100.00 1284.00


 TW      RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14900    AND    1520
 WS     2   14900   15200      -1      3.4
 WC       1284.00  300.00 1284.00


 TW      RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   15200    AND    1550
 WS     2   15200   15500      -1      3.4
 WC       1284.00  300.00 1284.00
1
   16OCT00      12:34:36                                                                          PAGE    2


 TW      RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   15500    AND    1575
 WS     2   15500   15750      -1      3.4
 WC       1284.00  250.00 1284.00
1
   16OCT00      12:34:36                                                                          PAGE    3

 T1      HEC-2 Input   Data    file:   SPLIT    FLOW    SOLUTION
 T2      CHN128 - LATERAL WEIR SPLIT FLOW Q= 140 CFS
 T3      CHN128 - LATERAL WEIR SPLIT FLOW Q= 140 CFS

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0        4         0         0   .001237         0         0         0   1284.00         0

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

    -10       -10

 QT        5     89.00     115.00     140.00     155.00     205.00
 NC   0.0450    0.0350     0.0350        0.1        0.3
 X1    13582        37    9964.73   10000.00       0.00       0.00       0.00
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1284.0 | 9940.05 | 1283.98 | 9940.08 | 1283.99 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| GR | 1284.0 | 9940.26 | 1283.99 | 9940.28 | 1283.99 | 9940.34 | 1283.99 | 9940.41 | 1283.99 | 9940.46 |
| GR | 1284.0 | 9940.48 | 1283.99 | 9940.50 | 1283.98 | 9940.53 | 1283.98 | 9940.60 | 1283.97 | 9940.74 |
| GR | 1284.0 | 9940.95 | 1283.96 | 9941.17 | 1284.00 | 9941.79 | 1284.00 | 9942.65 | 1284.00 | 9943.30 |
| GR | 1284.0 | 9946.51 | 1284.00 | 9948.10 | 1284.00 | 9949.62 | 1284.00 | 9952.57 | 1284.00 | 9954.57 |
| GR | 1284.0 | 9964.73 | 1283.02 | 9968.55 | 1282.22 | 9971.25 | 1282.00 | 9972.08 | 1280.00 | 9979.60 |
| GR | 1278.1 | 9983.20 | 1280.00 | 9986.24 | 1281.30 | 9991.28 | 1282.00 | 9992.45 | 1282.93 | 9993.94 |
| GR | 1284.0 | 9995.82 | 1284.00 | 10000.00 | | | | | | |
| X1 | 13700 | 16 | 9967.79 | 10000.00 | 118.00 | 118.00 | 118.00 | | | |
| GR | 1282.9 | 9967.79 | 1282.60 | 9968.89 | 1282.20 | 9970.83 | 1282.00 | 9971.43 | 1280.75 | 9974.60 |
| GR | 1280.0 | 9976.34 | 1278.11 | 9979.33 | 1280.00 | 9982.10 | 1281.36 | 9984.58 | 1282.00 | 9985.65 |
| GR | 1282.2 | 9985.98 | 1284.00 | 9989.37 | 1284.47 | 9999.68 | 1284.47 | 9999.75 | 1284.48 | 9999.94 |
| GR | 1284.5 | 10000.00 | | | | | | | | |
| X1 | 14000 | 10 | 9963.80 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1282.0 | 9963.80 | 1282.00 | 9965.57 | 1281.43 | 9967.11 | 1278.40 | 9974.60 | 1280.00 | 9977.92 |
| GR | 1280.7 | 9979.14 | 1282.00 | 9981.63 | 1283.10 | 9983.42 | 1284.00 | 9985.11 | 1284.00 | 10000.00 |
| X1 | 14100 | 14 | 9962.24 | 10000.00 | 100.00 | 100.00 | 100.00 | | | |
| GR | 1283.0 | 9962.24 | 1282.46 | 9965.05 | 1281.76 | 9966.82 | 1280.68 | 9969.42 | 1279.76 | 9971.09 |
| GR | 1278.4 | 9975.00 | 1279.76 | 9978.71 | 1279.97 | 9979.20 | 1281.16 | 9981.30 | 1281.62 | 9982.20 |
| GR | 1281.8 | 9982.49 | 1282.46 | 9983.79 | 1284.00 | 9986.52 | 1284.00 | 10000.00 | | |
| X1 | 14200 | 14 | 9962.24 | 10000.00 | 100.00 | 100.00 | 100.00 | | | |
| GR | 1284.0 | 9962.24 | 1282.58 | 9965.05 | 1281.88 | 9966.82 | 1280.80 | 9969.42 | 1279.88 | 9971.09 |
| GR | 1278.6 | 9975.00 | 1279.88 | 9978.71 | 1280.09 | 9979.20 | 1281.28 | 9981.30 | 1281.74 | 9982.20 |
| GR | 1281.9 | 9982.49 | 1282.58 | 9983.79 | 1284.00 | 9986.52 | 1284.00 | 10000.00 | | |
| X1 | 14300 | 58 | 9962.24 | 10000.00 | 100.00 | 100.00 | 100.00 | | | |
| GR | 1286.7 | 9200.00 | 1286.55 | 9214.47 | 1286.24 | 9247.77 | 1286.22 | 9249.93 | 1286.18 | 9254.29 |
| GR | 1286.2 | 9255.76 | 1286.16 | 9257.27 | 1286.15 | 9257.81 | 1286.00 | 9277.62 | 1285.86 | 9285.09 |
| GR | 1285.7 | 9304.74 | 1285.65 | 9329.46 | 1285.65 | 9336.21 | 1285.54 | 9352.68 | 1285.53 | 9362.72 |
| GR | 1285.4 | 9373.11 | 1285.39 | 9384.32 | 1285.40 | 9396.09 | 1285.24 | 9405.27 | 1285.10 | 9415.00 |
| GR | 1285.0 | 9424.76 | 1284.38 | 9525.97 | 1284.38 | 9542.27 | 1284.38 | 9567.22 | 1284.38 | 9601.08 |
| GR | 1284.4 | 9629.04 | 1284.38 | 9656.22 | 1284.34 | 9659.30 | 1284.33 | 9660.48 | 1284.33 | 9663.77 |
| GR | 1284.3 | 9667.99 | 1284.28 | 9673.37 | 1284.24 | 9680.25 | 1284.18 | 9689.49 | 1284.10 | 9700.00 |
| GR | 1284.1 | 9702.38 | 1284.00 | 9713.05 | 1284.00 | 9721.01 | 1284.00 | 9756.39 | 1284.00 | 9768.53 |
| GR | 1284.0 | 9771.25 | 1284.00 | 9862.26 | 1284.00 | 9862.54 | 1284.00 | 9863.29 | 1284.00 | 9962.24 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1282.7 | 9965.05 | 1282.00 | 9966.82 | 1280.92 | 9969.42 | 1280.00 | 9971.09 | 1278.68 | 9975.00 |
| GR | 1280.0 | 9978.71 | 1280.21 | 9979.20 | 1281.40 | 9981.30 | 1281.86 | 9982.20 | 1282.00 | 9982.49 |
| GR | 1282.7 | 9983.79 | 1284.00 | 9986.52 | 1284.00 | 10000.00 | | | | |
| X1 | 14600 | 48 | 9950.37 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1287.0 | 9200.00 | 1286.35 | 9319.42 | 1286.34 | 9322.88 | 1286.30 | 9331.31 | 1286.24 | 9341.79 |
| GR | 1286.2 | 9354.73 | 1286.09 | 9370.67 | 1286.00 | 9388.44 | 1285.97 | 9396.61 | 1285.90 | 9423.66 |
| GR | 1285.8 | 9452.72 | 1285.76 | 9471.57 | 1284.98 | 9550.29 | 1284.88 | 9565.91 | 1284.80 | 9575.21 |
| GR | 1284.7 | 9583.70 | 1284.64 | 9597.36 | 1284.55 | 9609.89 | 1284.49 | 9620.27 | 1284.45 | 9627.64 |
| GR | 1284.4 | 9636.14 | 1284.40 | 9645.58 | 1284.40 | 9655.79 | 1284.39 | 9665.38 | 1284.36 | 9674.53 |
| GR | 1284.3 | 9683.42 | 1284.28 | 9691.86 | 1284.23 | 9699.84 | 1284.23 | 9700.00 | 1284.09 | 9720.90 |
| GR | 1284.0 | 9734.06 | 1284.00 | 9734.48 | 1284.00 | 9816.10 | 1284.00 | 9828.24 | 1284.00 | 9950.37 |
| GR | 1283.6 | 9963.68 | 1283.43 | 9964.04 | 1282.00 | 9967.35 | 1280.49 | 9970.86 | 1280.00 | 9971.94 |
| GR | 1279.0 | 9974.45 | 1280.00 | 9976.90 | 1280.62 | 9978.11 | 1282.00 | 9980.99 | 1283.04 | 9983.19 |
| GR | 1284.0 | 9985.23 | 1284.00 | 9996.17 | 1284.00 | 10000.00 | | | | |
| X1 | 14900 | 40 | 9867.14 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1288.0 | 9100.00 | 1288.00 | 9106.54 | 1288.00 | 9113.03 | 1288.00 | 9113.89 | 1287.79 | 9142.77 |
| GR | 1287.1 | 9246.69 | 1286.15 | 9379.98 | 1286.14 | 9381.89 | 1286.00 | 9403.34 | 1285.85 | 9435.98 |
| GR | 1285.7 | 9468.11 | 1285.61 | 9487.09 | 1285.57 | 9498.84 | 1285.55 | 9505.90 | 1284.18 | 9649.12 |
| GR | 1284.1 | 9654.29 | 1284.08 | 9663.19 | 1284.02 | 9690.76 | 1284.00 | 9692.87 | 1284.00 | 9693.17 |
| GR | 1284.0 | 9696.73 | 1284.00 | 9700.00 | 1284.00 | 9722.57 | 1284.00 | 9737.75 | 1284.00 | 9791.21 |
| GR | 1284.0 | 9867.14 | 1283.91 | 9872.09 | 1283.57 | 9893.26 | 1283.45 | 9901.09 | 1282.29 | 9951.49 |
| GR | 1282.0 | 9963.88 | 1281.74 | 9964.55 | 1280.00 | 9968.47 | 1279.25 | 9971.84 | 1280.00 | 9975.21 |
| GR | 1280.4 | 9976.12 | 1282.00 | 9980.08 | 1282.67 | 9981.73 | 1284.00 | 9985.10 | 1284.00 | 10000.00 |
| X1 | 15200 | 44 | 9898.92 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1287.8 | 9100.00 | 1287.51 | 9150.46 | 1287.41 | 9170.08 | 1287.28 | 9197.12 | 1287.11 | 9232.27 |
| GR | 1286.9 | 9279.37 | 1286.53 | 9344.87 | 1286.03 | 9438.34 | 1286.00 | 9444.80 | 1285.99 | 9445.78 |
| GR | 1286.0 | 9445.89 | 1285.99 | 9446.03 | 1285.99 | 9446.18 | 1285.99 | 9446.61 | 1285.99 | 9446.73 |
| GR | 1286.0 | 9446.87 | 1285.98 | 9447.20 | 1285.71 | 9485.26 | 1284.16 | 9700.00 | 1284.07 | 9712.60 |
| GR | 1284.0 | 9721.93 | 1284.00 | 9724.33 | 1284.00 | 9760.53 | 1284.00 | 9898.92 | 1283.91 | 9920.86 |
| GR | 1283.9 | 9925.25 | 1283.67 | 9930.34 | 1283.18 | 9944.66 | 1282.83 | 9952.63 | 1282.88 | 9953.92 |
| GR | 1282.8 | 9956.45 | 1282.62 | 9960.54 | 1282.00 | 9967.35 | 1281.38 | 9968.90 | 1280.72 | 9971.05 |
| GR | 1280.0 | 9972.42 | 1279.54 | 9975.05 | 1280.00 | 9977.81 | 1280.37 | 9978.85 | 1280.95 | 9980.52 |
| GR | 1282.0 | 9983.53 | 1282.90 | 9986.13 | 1284.00 | 9989.23 | 1284.00 | 10000.00 | | |
| X1 | 15500 | 74 | 9952.04 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1287.7 | 9100.00 | 1286.98 | 9170.15 | 1286.62 | 9205.88 | 1286.47 | 9220.79 | 1286.40 | 9228.89 |
| GR | 1286.3 | 9234.06 | 1286.32 | 9237.59 | 1286.30 | 9240.12 | 1286.28 | 9242.28 | 1286.27 | 9244.17 |
| GR | 1286.3 | 9245.88 | 1286.17 | 9257.27 | 1286.15 | 9260.35 | 1286.14 | 9262.52 | 1286.00 | 9278.11 |
| GR | 1285.9 | 9281.92 | 1285.94 | 9284.29 | 1285.94 | 9288.93 | 1285.97 | 9298.88 | 1286.00 | 9309.20 |
| GR | 1286.0 | 9334.48 | 1286.00 | 9344.49 | 1286.00 | 9349.76 | 1286.00 | 9351.02 | 1286.00 | 9351.94 |
| GR | 1285.2 | 9492.99 | 1284.39 | 9635.88 | 1284.25 | 9660.73 | 1284.16 | 9677.43 | 1284.11 | 9686.14 |
| GR | 1284.1 | 9688.29 | 1284.09 | 9689.51 | 1284.09 | 9690.11 | 1284.09 | 9690.80 | 1284.09 | 9691.56 |
| GR | 1284.1 | 9693.72 | 1284.08 | 9693.98 | 1284.08 | 9694.12 | 1284.05 | 9699.80 | 1284.05 | 9700.00 |
| GR | 1284.0 | 9700.72 | 1284.05 | 9701.39 | 1284.05 | 9701.71 | 1284.05 | 9701.89 | 1284.04 | 9702.06 |
| GR | 1284.0 | 9702.43 | 1284.04 | 9702.67 | 1284.04 | 9703.27 | 1284.04 | 9703.43 | 1284.04 | 9703.93 |
| GR | 1284.0 | 9704.11 | 1284.05 | 9705.14 | 1284.05 | 9705.30 | 1284.05 | 9705.32 | 1284.06 | 9705.35 |
| GR | 1284.1 | 9705.43 | 1284.08 | 9705.69 | 1284.09 | 9705.84 | 1284.11 | 9706.11 | 1284.12 | 9706.29 |
| GR | 1284.1 | 9706.64 | 1284.00 | 9952.04 | 1282.38 | 9970.04 | 1282.00 | 9970.60 | 1280.38 | 9973.46 |
| GR | 1280.0 | 9974.35 | 1279.82 | 9975.43 | 1280.00 | 9976.51 | 1280.50 | 9978.10 | 1281.33 | 9980.70 |
| GR | 1282.0 | 9982.87 | 1283.13 | 9986.69 | 1284.00 | 9989.60 | 1284.00 | 10000.00 | | |

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|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15750 | 98 | 9969.81 | 10000.00 | 250.00 | 250.00 | 250.00 | | | |
| GR | 1288.3 | 9000.00 | 1288.00 | 9006.08 | 1288.00 | 9010.63 | 1288.00 | 9011.99 | 1288.00 | 9047.38 |
| GR | 1288.0 | 9066.66 | 1286.80 | 9236.69 | 1286.71 | 9248.37 | 1286.64 | 9258.28 | 1286.53 | 9272.90 |
| GR | 1286.4 | 9293.19 | 1286.18 | 9325.24 | 1286.17 | 9327.91 | 1286.17 | 9330.25 | 1286.17 | 9332.11 |
| GR | 1286.2 | 9333.55 | 1286.17 | 9333.84 | 1286.12 | 9338.63 | 1286.04 | 9346.70 | 1286.00 | 9352.31 |
| GR | 1286.0 | 9353.46 | 1286.00 | 9354.16 | 1286.00 | 9362.89 | 1286.00 | 9364.71 | 1286.00 | 9366.26 |
| GR | 1286.0 | 9367.67 | 1286.00 | 9369.34 | 1286.00 | 9371.21 | 1286.00 | 9376.48 | 1286.00 | 9388.42 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1286.0 | 9396.78 | 1286.00 | 9415.14 | 1286.00 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| GR | 1286.0 | 9441.01 | 1286.00 | 9441.34 | 1286.00 | 9451.57 | 1285.65 | 9515.43 | 1285.61 | 9544.80 |
| GR | 1285.6 | 9566.53 | 1285.63 | 9577.15 | 1285.64 | 9583.15 | 1285.63 | 9588.96 | 1285.61 | 9601.37 |
| GR | 1285.6 | 9609.69 | 1285.63 | 9631.06 | 1285.63 | 9637.02 | 1285.65 | 9655.63 | 1285.65 | 9662.24 |
| GR | 1285.9 | 9738.73 | 1285.90 | 9742.64 | 1285.83 | 9745.00 | 1285.76 | 9762.03 | 1285.74 | 9772.19 |
| GR | 1285.8 | 9796.65 | 1285.70 | 9797.25 | 1285.75 | 9822.09 | 1285.73 | 9822.90 | 1285.71 | 9824.24 |
| GR | 1285.7 | 9826.16 | 1285.70 | 9828.02 | 1285.63 | 9830.00 | 1285.56 | 9832.39 | 1285.54 | 9863.26 |
| GR | 1285.5 | 9864.82 | 1285.50 | 9876.13 | 1285.53 | 9878.05 | 1285.39 | 9889.34 | 1285.49 | 9892.34 |
| GR | 1285.5 | 9894.05 | 1285.60 | 9895.05 | 1285.55 | 9896.06 | 1285.53 | 9896.97 | 1284.89 | 9918.28 |
| GR | 1284.0 | 9933.93 | 1284.00 | 9937.67 | 1284.00 | 9945.26 | 1284.00 | 9946.79 | 1284.04 | 9947.31 |
| GR | 1284.6 | 9959.24 | 1284.70 | 9959.51 | 1284.99 | 9963.36 | 1285.64 | 9966.69 | 1285.72 | 9967.24 |
| GR | 1284.0 | 9969.81 | 1282.31 | 9970.60 | 1281.96 | 9972.50 | 1280.69 | 9973.46 | 1280.31 | 9974.35 |
| GR | 1280.1 | 9975.43 | 1280.15 | 9976.51 | 1280.15 | 9978.10 | 1281.12 | 9980.70 | 1282.31 | 9982.87 |
| GR | 1283.4 | 9986.69 | 1284.00 | 9989.60 | 1284.00 | 10000.00 | | | | |

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PROFILE FOR STREAM  CHN128 - LATERAL WEIR SP

PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

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ELEVATION  1278.     1279.     1280.     1281.     1282.     1283.     1284.     1285.     1286.     1287.
    SECNO   CUMDIS

 13582.00      0.  I         .         .         .      E  .         .        L.         .         .         .         .
              20.  I         .         .         .      WE .         .      L  R         .         .         .         .
              40.  I         .         .         .      WE .         .    L    .R        .         .         .         .
              60.  I         .         .         .       E .         .  L      . R       .         .         .         .
              80.  I         .         .         .       WE.         . L       . R       .         .         .         .
             100.  I         .         .         .       WE.         L         .  R      .         .         .         .
 13700.00    120.  I         .         .         .       WE.       L .         .   R     .         .         .         .
             140.  I         .         .         .        WE      L  .         .   R     .         .         .         .
             160.  I         .         .         .        WE      L  .         .  R      .         .         .         .
             180.  CI        .         .         .        WE     L   .         .  R      .         .         .         .
             200.  CI        .         .         .         E     L   .         .  R      .         .         .         .
             220.  CI        .         .         .         WE   L    .         . R       .         .         .         .
             240.  CI        .         .         .         WE  L     .         . R       .         .         .         .
             260.  CI        .         .         .         .E  L     .         . R       .         .         .         .
             280.  C I       .         .         .         .WEL      .         .R        .         .         .         .
             300.  C I       .         .         .         .WEL      .         .R        .         .         .         .
             320.  C I       .         .         .         . E       .         .R        .         .         .         .
             340.  C I       .         .         .         .LWE      .         R         .         .         .         .
             360.  C I       .         .         .         .LWE      .         R         .         .         .         .
             380.  C  I      .         .         .         L WE      .         R         .         .         .         .
             400.  C  I      .         .         .         L  WE     .        R.         .         .         .         .
 14000.00    420.  C  I      .         .         .        L.  WE     .        R.         .         .         .         .
             440.  C  I      .         .         .         .L WE     .        R.         .         .         .         .
             460.  C  I      .         .         .         .  LWE    .        R.         .         .         .         .
             480.  C  I      .         .         .         .   WE    .        R.         .         .         .         .
             500.  C  I      .         .         .         .   WE L  .        R.         .         .         .         .
 14100.00    520.  C  I      .         .         .         .    WE  L.        R.         .         .         .         .
             540.  C  I      .         .         .         .    WE   .L       R.         .         .         .         .
             560.  C   I     .         .         .         .    WE   .  L     R.         .         .         .         .
             580.  C   I     .         .         .         .    WE   .    L   R.         .         .         .         .
             600.  C    I    .         .         .         .     WE  .      L R.         .         .         .         .
 14200.00    620.  C    I    .         .         .         .     WE  .        L.         .         .         .         .
             640.  C    I    .         .         .         .     WE  .        L.         .         .         .         .
             660.  C    I    .         .         .         .     WE  .        L.         .         .         .         .
             680.  C    I    .         .         .         .      WE .        L.         .         .         .         .
             700.  C     I   .         .         .         .      WE .        L.         .         .         .         .
 14300.00    720.  C     I   .         .         .         .      WE .        L.         .         .         .         .
             740.  C     I   .         .         .         .       E .        L.         .         .         .         .
             760.  C     I   .         .         .         .       WE.        L.         .         .         .         .
             780.  C     I   .         .         .         .       WE.        L.         .         .         .         .
             800.  C      I  .         .         .         .       WE.        L.         .         .         .         .
             820.  C      I  .         .         .         .        WE        L.         .         .         .         .
             840.  C      I  .         .         .         .        WE        L.         .         .         .         .
             860.  C      I  .         .         .         .        WE        L.         .         .         .         .
             880.  C       I .         .         .         .        WE        L.         .         .         .         .
             900.  C       I .         .         .         .         WE       L.         .         .         .         .
             920.  C       I .         .         .         .         WE       L.         .         .         .         .
             940.  C       I .         .         .         .         WE       L.         .         .         .         .
             960.  C       I .         .         .         .         .WE      L.         .         .         .         .
             980.  C        I.         .         .         .         .WE      L.         .         .         .         .
            1000.  C        I.         .         .         .         .WE      L.         .         .         .         .
 14600.00   1020.  C        I.         .         .         .         .WE      L.         .         .         .         .
            1040.  C        I.         .         .         .         . WE     L.         .         .         .         .
            1060.  C        I.         .         .         .         . WE     L.         .         .         .         .
            1080.  C         I         .         .         .         . WE     L.         .         .         .         .
            1100.  C         I         .         .         .         . WE     L.         .         .         .         .
            1120.  C         I         .         .         .         . WE     L.         .         .         .         .
            1140.  C         I         .         .         .         .  E     L.         .         .         .         .
            1160.  C         I         .         .         .         .  E     L.         .         .         .         .
            1180.  C         I         .         .         .         .  WE    L.         .         .         .         .
            1200.  C         .I        .         .         .         .  WE    L.         .         .         .         .
            1220.  C         .I        .         .         .         .   E    L.         .         .         .         .
            1240.  C         .I        .         .         .         .   E    L.         .         .         .         .
            1260.  C         .I        .         .         .         .   E    L.         .         .         .         .
            1280.  C         .I        .         .         .         .   E    L.         .         .         .         .
            1300.  C         .I        .         .         .         .   WE   L.         .         .         .         .
 14900.00   1320.  C         . I       .         .         .         .    E   L.         .         .         .         .
            1340.  C         . I       .         .         .         .    E   L.         .         .         .         .
            1360.  C         . I       .         .         .         .    E   L.         .         .         .         .
            1380.  C         . I       .         .         .         .    E   L.         .         .         .         .
            1400.  C         . I       .         .         .         .    E   L.         .         .         .         .
            1420.  C         . I       .         .         .         .    E   L.         .         .         .         .
            1440.  C         .  I      .         .         .         .    E   L.         .         .         .         .
            1460.  C         .  I      .         .         .         .    E   L.         .         .         .         .
            1480.  C         .  I      .         .         .         .    WE  L.         .         .         .         .
            1500.  C         .  I      .         .         .         .     E  L.         .         .         .         .
            1520.  C         .  I      .         .         .         .     E  L.         .         .         .         .
            1540.  C         .   I     .         .         .         .     E  L.         .         .         .         .
            1560.  C         .   I     .         .         .         .     E  L.         .         .         .         .
            1580.  C         .   I     .         .         .         .     E  L.         .         .         .         .
            1600.  C         .   I     .         .         .         .     E  L.         .         .         .         .
 15200.00   1620.  C         .   I     .         .         .         .     E  L.         .         .         .         .
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            1640.  C         .    I    .         .         .         .    WE L.         .         .         .         .
            1660.  C         .    I    .         .         .         .     E L.         .         .         .         .
            1680.  C         .    I    .         .         .         .     E L.         .         .         .         .
            1700.  C         .    I    .         .         .         .     E L.         .         .         .         .
            1720.  C         .    I    .         .         .         .     E L.         .         .         .         .
            1740.  C         .     I   .         .         .         .     E L.         .         .         .         .
            1760.  C         .     I   .         .         .         .     E L.         .         .         .         .
            1780.  C         .     I   .         .         .         .    WEL.         .         .         .         .
            1800.  C         .     I   .         .         .         .    WEL.         .         .         .         .
            1820.  C         .     I   .         .         .         .     EL.         .         .         .         .
            1840.  C         .     I   .         .         .         .     EL.         .         .         .         .
            1860.  C         .      I  .         .         .         .     EL.         .         .         .         .
            1880.  C         .      I  .         .         .         .     EL.         .         .         .         .
            1900.  C         .      I  .         .         .         .     WE.         .         .         .         .
  15500.00  1920.  C         .      I  .         .         .         .     WE.         .         .         .         .
            1940.  C         .      I  .         .         .         .     WE.         .         .         .         .
            1960.  C         .       I .         .         .         .      E.         .         .         .         .
            1980.  C         .       I .         .         .         .      WE         .         .         .         .
            2000.  C         .       I .         .         .         .      WE         .         .         .         .
            2020.  C         .       I .         .         .         .      LE         .         .         .         .
            2040.  C         .        I.         .         .         .      LWE        .         .         .         .
            2060.  C         .        I.         .         .         .      LWE        .         .         .         .
            2080.  C         .        I.         .         .         .      LWE        .         .         .         .
            2100.  C         .        I.         .         .         .      L.WE       .         .         .         .
            2120.  C         .        I.         .         .         .      L.WE       .         .         .         .
            2140.  C         .         I         .         .         .      L.WE       .         .         .         .
            2160.  C         .         I         .         .         .      L.W E      .         .         .         .
  15750.00  2180.  C         .         I         .         .         .      L. WE      .         .         .         .
```



THIS RUN EXECUTED 16OCT00 12:34:36

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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

CHN128 - LATERAL WEIR SP

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13582.000 | .00 | .00 | .00 | 1278.10 | 57.06 | 1281.78 | .00 | 1281.84 | 12.27 | 1.90 | 29.99 | 16.29 |
| 13700.000 | 118.00 | .00 | .00 | 1278.11 | 57.06 | 1281.93 | .00 | 1282.02 | 17.16 | 2.34 | 24.42 | 13.77 |
| * 14000.000 | 300.00 | .00 | .00 | 1278.40 | 88.61 | 1282.41 | .00 | 1282.50 | 15.43 | 2.44 | 36.35 | 22.56 |
| 14100.000 | 100.00 | .00 | .00 | 1278.40 | 105.25 | 1282.55 | .00 | 1282.65 | 14.03 | 2.51 | 41.92 | 28.09 |
| 14200.000 | 100.00 | .00 | .00 | 1278.60 | 105.25 | 1282.69 | .00 | 1282.79 | 13.75 | 2.51 | 41.99 | 28.39 |
| 14300.000 | 100.00 | .00 | .00 | 1278.68 | 105.25 | 1282.83 | .00 | 1282.92 | 13.34 | 2.48 | 42.49 | 28.82 |
| 14600.000 | 300.00 | .00 | .00 | 1279.00 | 105.25 | 1283.24 | .00 | 1283.34 | 14.54 | 2.55 | 41.32 | 27.60 |
| * 14900.000 | 300.00 | .00 | .00 | 1279.25 | 105.25 | 1283.56 | .00 | 1283.57 | 4.46 | .99 | 106.06 | 49.81 |
| 15200.000 | 300.00 | .00 | .00 | 1279.54 | 105.25 | 1283.71 | .00 | 1283.73 | 6.32 | 1.30 | 80.85 | 41.86 |
| 15500.000 | 300.00 | .00 | .00 | 1279.82 | 105.25 | 1283.92 | .00 | 1283.97 | 9.82 | 1.79 | 58.87 | 33.59 |
| 15750.000 | 250.00 | .00 | .00 | 1280.10 | 140.00 | 1284.26 | .00 | 1284.37 | 22.40 | 2.69 | 55.68 | 29.58 |



CHN128 - LATERAL WEIR SP

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 13582.000 | 57.06 | 1281.78 | .00 | .00 | -2.22 | 19.18 | .00 |
| 13700.000 | 57.06 | 1281.93 | .00 | .15 | .00 | 13.93 | 118.00 |
| * 14000.000 | 88.61 | 1282.41 | .00 | .48 | .00 | 18.49 | 300.00 |
| 14100.000 | 105.25 | 1282.55 | .00 | .14 | .00 | 19.37 | 100.00 |
| 14200.000 | 105.25 | 1282.69 | .00 | .14 | .00 | 19.17 | 100.00 |
| 14300.000 | 105.25 | 1282.83 | .00 | .14 | .00 | 19.28 | 100.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 14600.000 | 105.25 | 1283.24 | .00 | .41 | .00 | 19.14 | 300.00 |
| * | 14900.000 | 105.25 | 1283.56 | .00 | .32 | .00 | 89.87 | 300.00 |
| | 15200.000 | 105.25 | 1283.71 | .00 | .15 | .00 | 58.89 | 300.00 |
| | 15500.000 | 105.25 | 1283.92 | .00 | .22 | .00 | 36.47 | 300.00 |
| | 15750.000 | 140.00 | 1284.26 | .00 | .33 | .00 | 53.18 | 250.00 |



SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 14000.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 14900.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

```
1
 *  HEC-2 WATER SURFACE PROFILES            *
 *                                          *
 *  Version   4.6.2;  May 1991              *
 *                                          *
 *  RUN DATE    16OCT00    TIME   12:32:06  *
 ********************************************
```

```
 *  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
   16OCT00      12:32:06                                                                                PAGE    1
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                                                                                THIS RUN EXECUTED 16OCT00    12:32:06
 ************************************
  HEC-2 WATER SURFACE PROFILES

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


 SPLIT FLOW BEING PERFORMED


 SF SPLIT FLOW PROBLEM


 JC SPLIT FLOW PROBLEM
 JP     0       0       0       0        0


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   13582    AND    13700
 WS     2   13582   13700      -1      3.4
 WC       1284.00  118.00 1282.90


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   13700    AND    14000
 WS     2   13700   14000      -1      3.4
 WC       1282.90  300.00 1282.00


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14000    AND    14100
 WS     2   14000   14100      -1      3.4
 WC       1282.00  100.00 1283.00


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14100    AND    14200
 WS     2   14100   14200      -1      3.4
 WC       1283.00  100.00 1284.00


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14200    AND    14300
 WS     2   14200   14300      -1      3.4
 WC       1284.00  100.00 1284.00


 TW      RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14900    AND    1520
 WS     2   14900   15200      -1      3.4
 WC       1284.00  300.00 1284.00


 TW      RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   15200    AND    1550
 WS     2   15200   15500      -1      3.4
 WC       1284.00  300.00 1284.00
1
   16OCT00      12:32:06                                                                                PAGE    2


 TW      RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   15500    AND    1575
 WS     2   15500   15750      -1      3.4
 WC       1284.00  250.00 1284.00
1
   16OCT00      12:32:06                                                                                PAGE    3


 T1      HEC-2 Input   Data    file:   SPLIT    FLOW    SOLUTION
 T2      CHN128 - LATERAL WEIR SPLIT FLOW Q= 155 CFS
 T3      CHN128 - LATERAL WEIR SPLIT FLOW Q= 155 CFS

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0        5         0         0   .001237         0         0         0   1284.00         0

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

    -10       -10

 QT        5     89.00     115.00     140.00     155.00     205.00
 NC   0.0450    0.0350     0.0350        0.1        0.3
 X1    13582        37    9964.73   10000.00       0.00       0.00       0.00
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1284.0 | 9940.05 | 1283.98 | 9940.09 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| GR | 1284.0 | 9940.26 | 1283.99 | 9940.28 | 1283.99 | 9940.34 | 1283.99 | 9940.41 | 1283.99 | 9940.46 |
| GR | 1284.0 | 9940.48 | 1283.99 | 9940.50 | 1283.98 | 9940.53 | 1283.98 | 9940.60 | 1283.97 | 9940.74 |
| GR | 1284.0 | 9940.95 | 1283.96 | 9941.17 | 1284.00 | 9941.79 | 1284.00 | 9942.65 | 1284.00 | 9943.30 |
| GR | 1284.0 | 9946.51 | 1284.00 | 9948.10 | 1284.00 | 9949.62 | 1284.00 | 9952.57 | 1284.00 | 9954.57 |
| GR | 1284.0 | 9964.73 | 1283.02 | 9968.55 | 1282.22 | 9971.25 | 1282.00 | 9972.08 | 1280.00 | 9979.60 |
| GR | 1278.1 | 9983.20 | 1280.00 | 9986.24 | 1281.30 | 9991.28 | 1282.00 | 9992.45 | 1282.93 | 9993.94 |
| GR | 1284.0 | 9995.82 | 1284.00 | 10000.00 | | | | | | |
| X1 | 13700 | 16 | 9967.79 | 10000.00 | 118.00 | 118.00 | 118.00 | | | |
| GR | 1282.9 | 9967.79 | 1282.60 | 9968.89 | 1282.20 | 9970.83 | 1282.00 | 9971.43 | 1280.75 | 9974.60 |
| GR | 1280.0 | 9976.34 | 1278.11 | 9979.33 | 1280.00 | 9982.10 | 1281.36 | 9984.58 | 1282.00 | 9985.65 |
| GR | 1282.2 | 9985.98 | 1284.00 | 9989.37 | 1284.47 | 9999.68 | 1284.47 | 9999.75 | 1284.48 | 9999.94 |
| GR | 1284.5 | 10000.00 | | | | | | | | |
| X1 | 14000 | 10 | 9963.80 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1282.0 | 9963.80 | 1282.00 | 9965.57 | 1281.43 | 9967.11 | 1278.40 | 9974.60 | 1280.00 | 9977.92 |
| GR | 1280.7 | 9979.14 | 1282.00 | 9981.63 | 1283.10 | 9983.42 | 1284.00 | 9985.11 | 1284.00 | 10000.00 |
| X1 | 14100 | 14 | 9962.24 | 10000.00 | 100.00 | 100.00 | 100.00 | | | |
| GR | 1283.0 | 9962.24 | 1282.46 | 9965.05 | 1281.76 | 9966.82 | 1280.68 | 9969.42 | 1279.76 | 9971.09 |
| GR | 1278.4 | 9975.00 | 1279.76 | 9978.71 | 1279.97 | 9979.20 | 1281.16 | 9981.30 | 1281.62 | 9982.20 |
| GR | 1281.8 | 9982.49 | 1282.46 | 9983.79 | 1284.00 | 9986.52 | 1284.00 | 10000.00 | | |
| X1 | 14200 | 14 | 9962.24 | 10000.00 | 100.00 | 100.00 | 100.00 | | | |
| GR | 1284.0 | 9962.24 | 1282.58 | 9965.05 | 1281.88 | 9966.82 | 1280.80 | 9969.42 | 1279.88 | 9971.09 |
| GR | 1278.6 | 9975.00 | 1279.88 | 9978.71 | 1280.09 | 9979.20 | 1281.28 | 9981.30 | 1281.74 | 9982.20 |
| GR | 1281.9 | 9982.49 | 1282.58 | 9983.79 | 1284.00 | 9986.52 | 1284.00 | 10000.00 | | |
| X1 | 14300 | 58 | 9962.24 | 10000.00 | 100.00 | 100.00 | 100.00 | | | |
| GR | 1286.7 | 9200.00 | 1286.55 | 9214.47 | 1286.24 | 9247.77 | 1286.22 | 9249.93 | 1286.18 | 9254.29 |
| GR | 1286.2 | 9255.76 | 1286.16 | 9257.27 | 1286.15 | 9257.81 | 1286.00 | 9277.62 | 1285.86 | 9285.09 |
| GR | 1285.7 | 9304.74 | 1285.65 | 9329.46 | 1285.65 | 9336.21 | 1285.54 | 9352.68 | 1285.53 | 9362.72 |
| GR | 1285.4 | 9373.11 | 1285.39 | 9384.32 | 1285.40 | 9396.09 | 1285.24 | 9405.27 | 1285.10 | 9415.00 |
| GR | 1285.0 | 9424.76 | 1284.38 | 9525.97 | 1284.38 | 9542.27 | 1284.38 | 9567.22 | 1284.38 | 9601.08 |
| GR | 1284.4 | 9629.04 | 1284.38 | 9656.22 | 1284.34 | 9659.30 | 1284.33 | 9660.48 | 1284.33 | 9663.77 |
| GR | 1284.3 | 9667.99 | 1284.28 | 9673.37 | 1284.24 | 9680.25 | 1284.18 | 9689.49 | 1284.10 | 9700.00 |
| GR | 1284.1 | 9702.38 | 1284.00 | 9713.05 | 1284.00 | 9721.01 | 1284.00 | 9756.39 | 1284.00 | 9768.53 |
| GR | 1284.0 | 9771.25 | 1284.00 | 9862.26 | 1284.00 | 9862.54 | 1284.00 | 9863.29 | 1284.00 | 9962.24 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1282.7 | 9965.05 | 1282.00 | 9966.82 | 1280.92 | 9969.42 | 1280.00 | 9971.09 | 1278.68 | 9975.00 |
| GR | 1280.0 | 9978.71 | 1280.21 | 9979.20 | 1281.40 | 9981.30 | 1281.86 | 9982.20 | 1282.00 | 9982.49 |
| GR | 1282.7 | 9983.79 | 1284.00 | 9986.52 | 1284.00 | 10000.00 | | | | |
| X1 | 14600 | 48 | 9950.37 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1287.0 | 9200.00 | 1286.35 | 9319.42 | 1286.34 | 9322.88 | 1286.30 | 9331.31 | 1286.24 | 9341.79 |
| GR | 1286.2 | 9354.73 | 1286.09 | 9370.67 | 1286.00 | 9388.44 | 1285.97 | 9396.61 | 1285.90 | 9423.66 |
| GR | 1285.8 | 9452.72 | 1285.76 | 9471.57 | 1284.98 | 9550.29 | 1284.88 | 9565.91 | 1284.80 | 9575.21 |
| GR | 1284.7 | 9583.70 | 1284.64 | 9597.36 | 1284.55 | 9609.89 | 1284.49 | 9620.27 | 1284.45 | 9627.64 |
| GR | 1284.4 | 9636.14 | 1284.40 | 9645.58 | 1284.40 | 9655.79 | 1284.39 | 9665.38 | 1284.36 | 9674.53 |
| GR | 1284.3 | 9683.42 | 1284.28 | 9691.86 | 1284.23 | 9699.84 | 1284.23 | 9700.00 | 1284.09 | 9720.90 |
| GR | 1284.0 | 9734.06 | 1284.00 | 9734.48 | 1284.00 | 9816.10 | 1284.00 | 9828.24 | 1284.00 | 9950.37 |
| GR | 1283.6 | 9963.68 | 1283.43 | 9964.04 | 1282.00 | 9967.35 | 1280.49 | 9970.86 | 1280.00 | 9971.94 |
| GR | 1279.0 | 9974.45 | 1280.00 | 9976.90 | 1280.62 | 9978.11 | 1282.00 | 9980.99 | 1283.04 | 9983.19 |
| GR | 1284.0 | 9985.23 | 1284.00 | 9996.17 | 1284.00 | 10000.00 | | | | |
| X1 | 14900 | 40 | 9867.14 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1288.0 | 9100.00 | 1288.00 | 9106.54 | 1288.00 | 9113.03 | 1288.00 | 9113.89 | 1287.79 | 9142.77 |
| GR | 1287.1 | 9246.69 | 1286.15 | 9379.98 | 1286.14 | 9381.89 | 1286.00 | 9403.34 | 1285.85 | 9435.98 |
| GR | 1285.7 | 9468.11 | 1285.61 | 9487.09 | 1285.57 | 9498.84 | 1285.55 | 9505.90 | 1284.18 | 9649.12 |
| GR | 1284.1 | 9654.29 | 1284.08 | 9663.19 | 1284.02 | 9690.76 | 1284.00 | 9692.87 | 1284.00 | 9693.17 |
| GR | 1284.0 | 9696.73 | 1284.00 | 9700.00 | 1284.00 | 9722.57 | 1284.00 | 9737.75 | 1284.00 | 9791.21 |
| GR | 1284.0 | 9867.14 | 1283.91 | 9872.09 | 1283.57 | 9893.26 | 1283.45 | 9901.09 | 1282.29 | 9951.49 |
| GR | 1282.0 | 9963.88 | 1281.74 | 9964.55 | 1280.00 | 9968.47 | 1279.25 | 9971.84 | 1280.00 | 9975.21 |
| GR | 1280.4 | 9976.12 | 1282.00 | 9980.08 | 1282.67 | 9981.73 | 1284.00 | 9985.10 | 1284.00 | 10000.00 |
| X1 | 15200 | 44 | 9898.92 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1287.8 | 9100.00 | 1287.51 | 9150.46 | 1287.41 | 9170.08 | 1287.28 | 9197.12 | 1287.11 | 9232.27 |
| GR | 1286.9 | 9279.37 | 1286.53 | 9344.87 | 1286.03 | 9438.34 | 1286.00 | 9444.80 | 1285.99 | 9445.78 |
| GR | 1286.0 | 9445.89 | 1285.99 | 9446.03 | 1285.99 | 9446.18 | 1285.99 | 9446.61 | 1285.99 | 9446.73 |
| GR | 1286.0 | 9446.87 | 1285.98 | 9447.20 | 1285.71 | 9485.26 | 1284.16 | 9700.00 | 1284.07 | 9712.60 |
| GR | 1284.0 | 9721.93 | 1284.00 | 9724.33 | 1284.00 | 9760.53 | 1284.00 | 9898.92 | 1283.91 | 9920.86 |
| GR | 1283.9 | 9925.25 | 1283.67 | 9930.34 | 1283.18 | 9944.66 | 1282.83 | 9952.63 | 1282.88 | 9953.92 |
| GR | 1282.8 | 9956.45 | 1282.62 | 9960.54 | 1282.00 | 9967.35 | 1281.38 | 9968.90 | 1280.72 | 9971.05 |
| GR | 1280.0 | 9972.42 | 1279.54 | 9975.05 | 1280.00 | 9977.81 | 1280.37 | 9978.85 | 1280.95 | 9980.52 |
| GR | 1282.0 | 9983.53 | 1282.90 | 9986.13 | 1284.00 | 9989.23 | 1284.00 | 10000.00 | | |
| X1 | 15500 | 74 | 9952.04 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1287.7 | 9100.00 | 1286.98 | 9170.15 | 1286.62 | 9205.88 | 1286.47 | 9220.79 | 1286.40 | 9228.89 |
| GR | 1286.3 | 9234.06 | 1286.32 | 9237.59 | 1286.30 | 9240.12 | 1286.28 | 9242.28 | 1286.27 | 9244.17 |
| GR | 1286.3 | 9245.88 | 1286.17 | 9257.27 | 1286.15 | 9260.35 | 1286.14 | 9262.52 | 1286.00 | 9278.11 |
| GR | 1285.9 | 9281.92 | 1285.94 | 9284.29 | 1285.94 | 9288.93 | 1285.97 | 9298.88 | 1286.00 | 9309.20 |
| GR | 1286.0 | 9334.48 | 1286.00 | 9344.49 | 1286.00 | 9349.76 | 1286.00 | 9351.02 | 1286.00 | 9351.94 |
| GR | 1285.2 | 9492.99 | 1284.39 | 9635.88 | 1284.25 | 9660.73 | 1284.16 | 9677.43 | 1284.11 | 9686.14 |
| GR | 1284.1 | 9688.29 | 1284.09 | 9689.51 | 1284.09 | 9690.11 | 1284.09 | 9690.80 | 1284.09 | 9691.56 |
| GR | 1284.1 | 9693.72 | 1284.08 | 9693.98 | 1284.08 | 9694.12 | 1284.05 | 9699.80 | 1284.05 | 9700.00 |
| GR | 1284.0 | 9700.72 | 1284.05 | 9701.39 | 1284.05 | 9701.71 | 1284.05 | 9701.89 | 1284.04 | 9702.06 |
| GR | 1284.0 | 9702.43 | 1284.04 | 9702.67 | 1284.04 | 9703.27 | 1284.04 | 9703.43 | 1284.04 | 9703.93 |
| GR | 1284.0 | 9704.11 | 1284.05 | 9705.14 | 1284.05 | 9705.30 | 1284.05 | 9705.32 | 1284.06 | 9705.35 |
| GR | 1284.1 | 9705.43 | 1284.08 | 9705.69 | 1284.09 | 9705.84 | 1284.11 | 9706.11 | 1284.12 | 9706.29 |
| GR | 1284.1 | 9706.64 | 1284.00 | 9952.04 | 1282.38 | 9970.04 | 1282.00 | 9970.60 | 1280.38 | 9973.46 |
| GR | 1280.0 | 9974.35 | 1279.82 | 9975.43 | 1280.00 | 9976.51 | 1280.50 | 9978.10 | 1281.33 | 9980.70 |
| GR | 1282.0 | 9982.87 | 1283.13 | 9986.69 | 1284.00 | 9989.60 | 1284.00 | 10000.00 | | |

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|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15750 | 98 | 9969.81 | 10000.00 | 250.00 | 250.00 | 250.00 | | | |
| GR | 1288.3 | 9000.00 | 1288.00 | 9006.08 | 1288.00 | 9010.63 | 1288.00 | 9011.99 | 1288.00 | 9047.38 |
| GR | 1288.0 | 9066.66 | 1286.80 | 9236.69 | 1286.71 | 9248.37 | 1286.64 | 9258.28 | 1286.53 | 9272.90 |
| GR | 1286.4 | 9293.19 | 1286.18 | 9325.24 | 1286.17 | 9327.91 | 1286.17 | 9330.25 | 1286.17 | 9332.11 |
| GR | 1286.2 | 9333.55 | 1286.17 | 9333.84 | 1286.12 | 9338.63 | 1286.04 | 9346.70 | 1286.00 | 9352.31 |
| GR | 1286.0 | 9353.46 | 1286.00 | 9354.16 | 1286.00 | 9362.89 | 1286.00 | 9364.71 | 1286.00 | 9366.26 |
| GR | 1286.0 | 9367.67 | 1286.00 | 9369.34 | 1286.00 | 9371.21 | 1286.00 | 9376.48 | 1286.00 | 9388.42 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1286.0 | 9390.78 | 1286.00 | 9419.14 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| GR | 1286.0 | 9441.01 | 1286.00 | 9441.34 | 1286.00 | 9451.57 | 1285.65 | 9515.43 | 1285.61 | 9544.80 |
| GR | 1285.6 | 9566.53 | 1285.63 | 9577.15 | 1285.64 | 9583.15 | 1285.63 | 9588.96 | 1285.61 | 9601.37 |
| GR | 1285.6 | 9609.69 | 1285.63 | 9631.06 | 1285.63 | 9637.02 | 1285.65 | 9655.63 | 1285.65 | 9662.24 |
| GR | 1285.9 | 9738.73 | 1285.90 | 9742.64 | 1285.83 | 9745.00 | 1285.76 | 9762.03 | 1285.74 | 9772.19 |
| GR | 1285.8 | 9796.65 | 1285.70 | 9797.25 | 1285.75 | 9822.09 | 1285.73 | 9822.90 | 1285.71 | 9824.24 |
| GR | 1285.7 | 9826.16 | 1285.70 | 9828.02 | 1285.63 | 9830.00 | 1285.56 | 9832.39 | 1285.54 | 9863.26 |
| GR | 1285.5 | 9864.82 | 1285.50 | 9876.13 | 1285.53 | 9878.05 | 1285.39 | 9889.34 | 1285.49 | 9892.34 |
| GR | 1285.5 | 9894.05 | 1285.60 | 9895.05 | 1285.55 | 9896.06 | 1285.53 | 9896.97 | 1284.89 | 9918.28 |
| GR | 1284.0 | 9933.93 | 1284.00 | 9937.67 | 1284.00 | 9945.26 | 1284.00 | 9946.79 | 1284.04 | 9947.31 |
| GR | 1284.6 | 9959.24 | 1284.70 | 9959.51 | 1284.99 | 9963.36 | 1285.64 | 9966.69 | 1285.72 | 9967.24 |
| GR | 1284.0 | 9969.81 | 1282.31 | 9970.60 | 1281.96 | 9972.50 | 1280.69 | 9973.46 | 1280.31 | 9974.35 |
| GR | 1280.1 | 9975.43 | 1280.15 | 9976.51 | 1280.15 | 9978.10 | 1281.12 | 9980.70 | 1282.31 | 9982.87 |
| GR | 1283.4 | 9986.69 | 1284.00 | 9989.60 | 1284.00 | 10000.00 | | | | |

1

PROFILE FOR STREAM  CHN128 - LATERAL WEIR SP

PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

```
ELEVATION  1278.     1279.     1280.     1281.     1282.     1283.     1284.     1285.     1286.     1287.
    SECNO   CUMDIS

 13582.00     0.  I         .         .         .      WE .         .        L.         .         .         .         .
             20.  I         .         .         .      WE .         .      L  R         .         .         .         .
             40.  I         .         .         .       E .         .    L    .R        .         .         .         .
             60.  I         .         .         .       WE.         .  L      . R       .         .         .         .
             80.  I         .         .         .       WE.         . L       . R       .         .         .         .
            100.  I         .         .         .       WE.         L         .  R      .         .         .         .
 13700.00   120.  I         .         .         .        E.       L .         .   R     .         .         .         .
            140.  I         .         .         .        WE      L  .         .   R     .         .         .         .
            160.  I         .         .         .        WE      L  .         .  R      .         .         .         .
            180.  CI        .         .         .         E     L   .         .  R      .         .         .         .
            200.  CI        .         .         .         WE    L   .         .  R      .         .         .         .
            220.  CI        .         .         .         WE   L    .         . R       .         .         .         .
            240.  CI        .         .         .         WE  L     .         . R       .         .         .         .
            260.  CI        .         .         .         .WE L     .         . R       .         .         .         .
            280.  C I       .         .         .         .WEL      .         .R        .         .         .         .
            300.  C I       .         .         .         .WEL      .         .R        .         .         .         .
            320.  C I       .         .         .         . WE      .         .R        .         .         .         .
            340.  C I       .         .         .         .LWE      .         R         .         .         .         .
            360.  C I       .         .         .         .LWE      .         R         .         .         .         .
            380.  C  I      .         .         .         L  WE     .         R         .         .         .         .
            400.  C  I      .         .         .         L  WE     .        R.         .         .         .         .
 14000.00   420.  C  I      .         .         .        L.  WE     .        R.         .         .         .         .
            440.  C  I      .         .         .         .L  WE    .        R.         .         .         .         .
            460.  C  I      .         .         .         .  LWE    .        R.         .         .         .         .
            480.  C  I      .         .         .         .   WE    .        R.         .         .         .         .
            500.  C  I      .         .         .         .   W EL  .        R.         .         .         .         .
 14100.00   520.  C  I      .         .         .         .    WE  L.        R.         .         .         .         .
            540.  C  I      .         .         .         .    WE   .L       R.         .         .         .         .
            560.  C   I     .         .         .         .    WE   .  L     R.         .         .         .         .
            580.  C   I     .         .         .         .     WE  .    L   R.         .         .         .         .
            600.  C    I    .         .         .         .     WE  .      L R.         .         .         .         .
 14200.00   620.  C    I    .         .         .         .     WE  .        L.         .         .         .         .
            640.  C    I    .         .         .         .     WE  .        L.         .         .         .         .
            660.  C    I    .         .         .         .      WE .        L.         .         .         .         .
            680.  C    I    .         .         .         .      WE .        L.         .         .         .         .
            700.  C     I   .         .         .         .      WE .        L.         .         .         .         .
 14300.00   720.  C     I   .         .         .         .       E .        L.         .         .         .         .
            740.  C     I   .         .         .         .       WE.        L.         .         .         .         .
            760.  C     I   .         .         .         .       WE.        L.         .         .         .         .
            780.  C     I   .         .         .         .       WE.        L.         .         .         .         .
            800.  C      I  .         .         .         .        WE        L.         .         .         .         .
            820.  C      I  .         .         .         .        WE        L.         .         .         .         .
            840.  C      I  .         .         .         .        WE        L.         .         .         .         .
            860.  C      I  .         .         .         .         WE       L.         .         .         .         .
            880.  C       I .         .         .         .         WE       L.         .         .         .         .
            900.  C       I .         .         .         .         WE       L.         .         .         .         .
            920.  C       I .         .         .         .         WE       L.         .         .         .         .
            940.  C       I .         .         .         .         .WE      L.         .         .         .         .
            960.  C       I .         .         .         .         .WE      L.         .         .         .         .
            980.  C        I.         .         .         .         .WE      L.         .         .         .         .
           1000.  C        I.         .         .         .         .W E     L.         .         .         .         .
 14600.00  1020.  C        I.         .         .         .         . WE     L.         .         .         .         .
           1040.  C        I.         .         .         .         . WE     L.         .         .         .         .
           1060.  C        I.         .         .         .         . WE     L.         .         .         .         .
           1080.  C         I         .         .         .         . WE     L.         .         .         .         .
           1100.  C         I         .         .         .         .  E     L.         .         .         .         .
           1120.  C         I         .         .         .         .  WE    L.         .         .         .         .
           1140.  C         I         .         .         .         .  WE    L.         .         .         .         .
           1160.  C         I         .         .         .         .  WE    L.         .         .         .         .
           1180.  C         I         .         .         .         .  WE    L.         .         .         .         .
           1200.  C         .I        .         .         .         .   E    L.         .         .         .         .
           1220.  C         .I        .         .         .         .   E    L.         .         .         .         .
           1240.  C         .I        .         .         .         .   E    L.         .         .         .         .
           1260.  C         .I        .         .         .         .   WE   L.         .         .         .         .
           1280.  C         .I        .         .         .         .   WE   L.         .         .         .         .
           1300.  C         .I        .         .         .         .    E   L.         .         .         .         .
 14900.00  1320.  C         . I       .         .         .         .    E   L.         .         .         .         .
           1340.  C         . I       .         .         .         .    E   L.         .         .         .         .
           1360.  C         . I       .         .         .         .    E   L.         .         .         .         .
           1380.  C         . I       .         .         .         .    E   L.         .         .         .         .
           1400.  C         . I       .         .         .         .    E   L.         .         .         .         .
           1420.  C         . I       .         .         .         .    WE  L.         .         .         .         .
           1440.  C         .  I      .         .         .         .     E  L.         .         .         .         .
           1460.  C         .  I      .         .         .         .     E  L.         .         .         .         .
           1480.  C         .  I      .         .         .         .     E  L.         .         .         .         .
           1500.  C         .  I      .         .         .         .     E  L.         .         .         .         .
           1520.  C         .  I      .         .         .         .     E  L.         .         .         .         .
           1540.  C         .   I     .         .         .         .     E  L.         .         .         .         .
           1560.  C         .   I     .         .         .         .     E  L.         .         .         .         .
           1580.  C         .   I     .         .         .         .     E  L.         .         .         .         .
           1600.  C         .   I     .         .         .         .     E  L.         .         .         .         .
 15200.00  1620.  C         .   I     .         .         .         .     WE L.         .         .         .         .
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            1640.  C        .    I    .         .         .         .     E L.        .         .         .         .
            1660.  C        .    I    .         .         .         .     E L.        .         .         .         .
            1680.  C        .    I    .         .         .         .     E L.        .         .         .         .
            1700.  C        .    I    .         .         .         .     E L.        .         .         .         .
            1720.  C        .    I    .         .         .         .     E L.        .         .         .         .
            1740.  C        .     I   .         .         .         .     WEL.        .         .         .         .
            1760.  C        .     I   .         .         .         .     WEL.        .         .         .         .
            1780.  C        .     I   .         .         .         .      EL.        .         .         .         .
            1800.  C        .     I   .         .         .         .      EL.        .         .         .         .
            1820.  C        .     I   .         .         .         .      EL.        .         .         .         .
            1840.  C        .     I   .         .         .         .      EL.        .         .         .         .
            1860.  C        .      I  .         .         .         .      WE.        .         .         .         .
            1880.  C        .      I  .         .         .         .      WE.        .         .         .         .
            1900.  C        .      I  .         .         .         .      WE.        .         .         .         .
  15500.00  1920.  C        .      I  .         .         .         .      WE.        .         .         .         .
            1940.  C        .      I  .         .         .         .       E.        .         .         .         .
            1960.  C        .       I .         .         .         .       WE        .         .         .         .
            1980.  C        .       I .         .         .         .       WE        .         .         .         .
            2000.  C        .       I .         .         .         .       LE        .         .         .         .
            2020.  C        .       I .         .         .         .       LWE       .         .         .         .
            2040.  C        .        I.         .         .         .       LWE       .         .         .         .
            2060.  C        .        I.         .         .         .       L.E       .         .         .         .
            2080.  C        .        I.         .         .         .       L.WE      .         .         .         .
            2100.  C        .        I.         .         .         .       L.WE      .         .         .         .
            2120.  C        .        I.         .         .         .       L.WE      .         .         .         .
            2140.  C        .         I         .         .         .       L. WE     .         .         .         .
            2160.  C        .         I         .         .         .       L. WE     .         .         .         .
  15750.00  2180.  C        .         I         .         .         .       L. WE     .         .         .         .
1
   16OCT00      12:32:06                                                                                    PAGE     6
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THIS RUN EXECUTED 16OCT00 12:32:06

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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

CHN128 - LATERAL WEIR SP

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13582.000 | .00 | .00 | .00 | 1278.10 | 58.34 | 1281.81 | .00 | 1281.86 | 12.30 | 1.92 | 30.46 | 16.64 |
| 13700.000 | 118.00 | .00 | .00 | 1278.11 | 58.34 | 1281.96 | .00 | 1282.04 | 17.29 | 2.36 | 24.76 | 14.03 |
| * 14000.000 | 300.00 | .00 | .00 | 1278.40 | 90.33 | 1282.43 | .00 | 1282.53 | 15.42 | 2.45 | 36.84 | 23.00 |
| 14100.000 | 100.00 | .00 | .00 | 1278.40 | 107.56 | 1282.58 | .00 | 1282.68 | 14.24 | 2.53 | 42.44 | 28.50 |
| 14200.000 | 100.00 | .00 | .00 | 1278.60 | 107.56 | 1282.72 | .00 | 1282.82 | 13.86 | 2.53 | 42.54 | 28.89 |
| 14300.000 | 100.00 | .00 | .00 | 1278.68 | 107.56 | 1282.86 | .00 | 1282.95 | 13.44 | 2.50 | 43.06 | 29.34 |
| 14600.000 | 300.00 | .00 | .00 | 1279.00 | 107.56 | 1283.27 | .00 | 1283.38 | 14.60 | 2.56 | 41.94 | 28.15 |
| * 14900.000 | 300.00 | .00 | .00 | 1279.25 | 107.56 | 1283.59 | .00 | 1283.60 | 4.39 | .99 | 108.98 | 51.32 |
| 15200.000 | 300.00 | .00 | .00 | 1279.54 | 107.56 | 1283.74 | .00 | 1283.76 | 6.25 | 1.30 | 82.61 | 43.03 |
| 15500.000 | 300.00 | .00 | .00 | 1279.82 | 107.57 | 1283.95 | .00 | 1284.00 | 9.93 | 1.80 | 59.62 | 34.13 |
| 15750.000 | 250.00 | .00 | .00 | 1280.10 | 155.00 | 1284.31 | .00 | 1284.43 | 24.85 | 2.88 | 58.21 | 31.10 |

1
16OCT00 12:32:06 PAGE 7

CHN128 - LATERAL WEIR SP

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 13582.000 | 58.34 | 1281.81 | .00 | .00 | -2.19 | 19.31 | .00 |
| 13700.000 | 58.34 | 1281.96 | .00 | .15 | .00 | 14.03 | 118.00 |
| * 14000.000 | 90.33 | 1282.43 | .00 | .48 | .00 | 18.53 | 300.00 |
| 14100.000 | 107.56 | 1282.58 | .00 | .14 | .00 | 19.56 | 100.00 |
| 14200.000 | 107.56 | 1282.72 | .00 | .14 | .00 | 19.28 | 100.00 |
| 14300.000 | 107.56 | 1282.86 | .00 | .14 | .00 | 19.41 | 100.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 14600.000 | 107.56 | 1283.27 | .00 | .42 | .00 | 19.28 | 300.00 |
| * | 14900.000 | 107.56 | 1283.59 | .00 | .32 | .00 | 91.99 | 300.00 |
| | 15200.000 | 107.56 | 1283.74 | .00 | .15 | .00 | 59.63 | 300.00 |
| | 15500.000 | 107.57 | 1283.95 | .00 | .22 | .00 | 36.77 | 300.00 |
| | 15750.000 | 155.00 | 1284.31 | .00 | .35 | .00 | 55.06 | 250.00 |



SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 14000.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 14900.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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1*********************************************
 *  HEC-2 WATER SURFACE PROFILES             *
 *                                           *
 *  Version   4.6.2;  May 1991               *
 *                                           *
 *  RUN DATE    16OCT00    TIME   12:29:02   *
*********************************************
```

```
 *  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
   16OCT00      12:29:02                                                                                PAGE    1
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                                                                                THIS RUN EXECUTED 16OCT00    12:29:02
*************************************
 HEC-2 WATER SURFACE PROFILES

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


SPLIT FLOW BEING PERFORMED


SF SPLIT FLOW PROBLEM


JC SPLIT FLOW PROBLEM
JP     0       0       0       0       0


TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   13582    AND    13700
WS     2   13582   13700      -1      3.4
WC       1284.00  118.00 1282.90


TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   13700    AND    14000
WS     2   13700   14000      -1      3.4
WC       1282.90  300.00 1282.00


TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14000    AND    14100
WS     2   14000   14100      -1      3.4
WC       1282.00  100.00 1283.00


TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14100    AND    14200
WS     2   14100   14200      -1      3.4
WC       1283.00  100.00 1284.00


TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14200    AND    14300
WS     2   14200   14300      -1      3.4
WC       1284.00  100.00 1284.00


TW      RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14900    AND    1520
WS     2   14900   15200      -1      3.4
WC       1284.00  300.00 1284.00


TW      RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   15200    AND    1550
WS     2   15200   15500      -1      3.4
WC       1284.00  300.00 1284.00
1
   16OCT00      12:29:02                                                                                PAGE    2


TW      RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   15500    AND    1575
WS     2   15500   15750      -1      3.4
WC       1284.00  250.00 1284.00
1
   16OCT00      12:29:02                                                                                PAGE    3


T1      HEC-2 Input   Data    file:   SPLIT    FLOW    SOLUTION
T2      CHN128 - LATERAL WEIR SPLIT FLOW Q= 205 CFS
T3      CHN128 - LATERAL WEIR SPLIT FLOW Q= 205 CFS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         6         0         0   .001237         0         0         0   1284.00         0

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

    -10       -10

QT        5     89.00    115.00    140.00    155.00    205.00
NC   0.0450    0.0350    0.0350       0.1       0.3
X1    13582        37   9964.73  10000.00      0.00      0.00      0.00
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1284.0 | 9940.05 | 1283.98 | 9940.06 | 1283.99 | 9940.10 | 1283.99 | 9940.41 | 1283.99 | 9940.46 |
| GR | 1284.0 | 9940.26 | 1283.99 | 9940.28 | 1283.99 | 9940.34 | 1283.99 | 9940.60 | 1283.97 | 9940.74 |
| GR | 1284.0 | 9940.48 | 1283.99 | 9940.50 | 1283.98 | 9940.53 | 1283.98 | 9940.60 | 1283.97 | 9940.74 |
| GR | 1284.0 | 9940.95 | 1283.96 | 9941.17 | 1284.00 | 9941.79 | 1284.00 | 9942.65 | 1284.00 | 9943.30 |
| GR | 1284.0 | 9946.51 | 1284.00 | 9948.10 | 1284.00 | 9949.62 | 1284.00 | 9952.57 | 1284.00 | 9954.57 |
| GR | 1284.0 | 9964.73 | 1283.02 | 9968.55 | 1282.22 | 9971.25 | 1282.00 | 9972.08 | 1280.00 | 9979.60 |
| GR | 1278.1 | 9983.20 | 1280.00 | 9986.24 | 1281.30 | 9991.28 | 1282.00 | 9992.45 | 1282.93 | 9993.94 |
| GR | 1284.0 | 9995.82 | 1284.00 | 10000.00 | | | | | | |
| X1 | 13700 | 16 | 9967.79 | 10000.00 | 118.00 | 118.00 | 118.00 | | | |
| GR | 1282.9 | 9967.79 | 1282.60 | 9968.89 | 1282.20 | 9970.83 | 1282.00 | 9971.43 | 1280.75 | 9974.60 |
| GR | 1280.0 | 9976.34 | 1278.11 | 9979.33 | 1280.00 | 9982.10 | 1281.36 | 9984.58 | 1282.00 | 9985.65 |
| GR | 1282.2 | 9985.98 | 1284.00 | 9989.37 | 1284.47 | 9999.68 | 1284.47 | 9999.75 | 1284.48 | 9999.94 |
| GR | 1284.5 | 10000.00 | | | | | | | | |
| X1 | 14000 | 10 | 9963.80 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1282.0 | 9963.80 | 1282.00 | 9965.57 | 1281.43 | 9967.11 | 1278.40 | 9974.60 | 1280.00 | 9977.92 |
| GR | 1280.7 | 9979.14 | 1282.00 | 9981.63 | 1283.10 | 9983.42 | 1284.00 | 9985.11 | 1284.00 | 10000.00 |
| X1 | 14100 | 14 | 9962.24 | 10000.00 | 100.00 | 100.00 | 100.00 | | | |
| GR | 1283.0 | 9962.24 | 1282.46 | 9965.05 | 1281.76 | 9966.82 | 1280.68 | 9969.42 | 1279.76 | 9971.09 |
| GR | 1278.4 | 9975.00 | 1279.76 | 9978.71 | 1279.97 | 9979.20 | 1281.16 | 9981.30 | 1281.62 | 9982.20 |
| GR | 1281.8 | 9982.49 | 1282.46 | 9983.79 | 1284.00 | 9986.52 | 1284.00 | 10000.00 | | |
| X1 | 14200 | 14 | 9962.24 | 10000.00 | 100.00 | 100.00 | 100.00 | | | |
| GR | 1284.0 | 9962.24 | 1282.58 | 9965.05 | 1281.88 | 9966.82 | 1280.80 | 9969.42 | 1279.88 | 9971.09 |
| GR | 1278.6 | 9975.00 | 1279.88 | 9978.71 | 1280.09 | 9979.20 | 1281.28 | 9981.30 | 1281.74 | 9982.20 |
| GR | 1281.9 | 9982.49 | 1282.58 | 9983.79 | 1284.00 | 9986.52 | 1284.00 | 10000.00 | | |
| X1 | 14300 | 58 | 9962.24 | 10000.00 | 100.00 | 100.00 | 100.00 | | | |
| GR | 1286.7 | 9200.00 | 1286.55 | 9214.47 | 1286.24 | 9247.77 | 1286.22 | 9249.93 | 1286.18 | 9254.29 |
| GR | 1286.2 | 9255.76 | 1286.16 | 9257.27 | 1286.15 | 9257.81 | 1286.00 | 9277.62 | 1285.86 | 9285.09 |
| GR | 1285.7 | 9304.74 | 1285.65 | 9329.46 | 1285.65 | 9336.21 | 1285.54 | 9352.68 | 1285.53 | 9362.72 |
| GR | 1285.4 | 9373.11 | 1285.39 | 9384.32 | 1285.40 | 9396.09 | 1285.24 | 9405.27 | 1285.10 | 9415.00 |
| GR | 1285.0 | 9424.76 | 1284.38 | 9525.97 | 1284.38 | 9542.27 | 1284.38 | 9567.22 | 1284.38 | 9601.08 |
| GR | 1284.4 | 9629.04 | 1284.38 | 9656.22 | 1284.34 | 9659.30 | 1284.33 | 9660.48 | 1284.33 | 9663.77 |
| GR | 1284.3 | 9667.99 | 1284.28 | 9673.37 | 1284.24 | 9680.25 | 1284.18 | 9689.49 | 1284.10 | 9700.00 |
| GR | 1284.1 | 9702.38 | 1284.00 | 9713.05 | 1284.00 | 9721.01 | 1284.00 | 9756.39 | 1284.00 | 9768.53 |
| GR | 1284.0 | 9771.25 | 1284.00 | 9862.26 | 1284.00 | 9862.54 | 1284.00 | 9863.29 | 1284.00 | 9962.24 |

1



| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1282.7 | 9965.05 | 1282.00 | 9966.82 | 1280.92 | 9969.42 | 1280.00 | 9971.09 | 1278.68 | 9975.00 |
| GR | 1280.0 | 9978.71 | 1280.21 | 9979.20 | 1281.40 | 9981.30 | 1281.86 | 9982.20 | 1282.00 | 9982.49 |
| GR | 1282.7 | 9983.79 | 1284.00 | 9986.52 | 1284.00 | 10000.00 | | | | |
| X1 | 14600 | 48 | 9950.37 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1287.0 | 9200.00 | 1286.35 | 9319.42 | 1286.34 | 9322.88 | 1286.30 | 9331.31 | 1286.24 | 9341.79 |
| GR | 1286.2 | 9354.73 | 1286.09 | 9370.67 | 1286.00 | 9388.44 | 1285.97 | 9396.61 | 1285.90 | 9423.66 |
| GR | 1285.8 | 9452.72 | 1285.76 | 9471.57 | 1284.98 | 9550.29 | 1284.88 | 9565.91 | 1284.80 | 9575.21 |
| GR | 1284.7 | 9583.70 | 1284.64 | 9597.36 | 1284.55 | 9609.89 | 1284.49 | 9620.27 | 1284.45 | 9627.64 |
| GR | 1284.4 | 9636.14 | 1284.40 | 9645.58 | 1284.40 | 9655.79 | 1284.39 | 9665.38 | 1284.36 | 9674.53 |
| GR | 1284.3 | 9683.42 | 1284.28 | 9691.86 | 1284.23 | 9699.84 | 1284.23 | 9700.00 | 1284.09 | 9720.90 |
| GR | 1284.0 | 9734.06 | 1284.00 | 9734.48 | 1284.00 | 9816.10 | 1284.00 | 9828.24 | 1284.00 | 9950.37 |
| GR | 1283.6 | 9963.68 | 1283.43 | 9964.04 | 1282.00 | 9967.35 | 1280.49 | 9970.86 | 1280.00 | 9971.94 |
| GR | 1279.0 | 9974.45 | 1280.00 | 9976.90 | 1280.62 | 9978.11 | 1282.00 | 9980.99 | 1283.04 | 9983.19 |
| GR | 1284.0 | 9985.23 | 1284.00 | 9996.17 | 1284.00 | 10000.00 | | | | |
| X1 | 14900 | 40 | 9867.14 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1288.0 | 9100.00 | 1288.00 | 9106.54 | 1288.00 | 9113.03 | 1288.00 | 9113.89 | 1287.79 | 9142.77 |
| GR | 1287.1 | 9246.69 | 1286.15 | 9379.98 | 1286.14 | 9381.89 | 1286.00 | 9403.34 | 1285.85 | 9435.98 |
| GR | 1285.7 | 9468.11 | 1285.61 | 9487.09 | 1285.57 | 9498.84 | 1285.55 | 9505.90 | 1284.18 | 9649.12 |
| GR | 1284.1 | 9654.29 | 1284.08 | 9663.19 | 1284.02 | 9690.76 | 1284.00 | 9692.87 | 1284.00 | 9693.17 |
| GR | 1284.0 | 9696.73 | 1284.00 | 9700.00 | 1284.00 | 9722.57 | 1284.00 | 9737.75 | 1284.00 | 9791.21 |
| GR | 1284.0 | 9867.14 | 1283.91 | 9872.09 | 1283.57 | 9893.26 | 1283.45 | 9901.09 | 1282.29 | 9951.49 |
| GR | 1282.0 | 9963.88 | 1281.74 | 9964.55 | 1280.00 | 9968.47 | 1279.25 | 9971.84 | 1280.00 | 9975.21 |
| GR | 1280.4 | 9976.12 | 1282.00 | 9980.08 | 1282.67 | 9981.73 | 1284.00 | 9985.10 | 1284.00 | 10000.00 |
| X1 | 15200 | 44 | 9898.92 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1287.8 | 9100.00 | 1287.51 | 9150.46 | 1287.41 | 9170.08 | 1287.28 | 9197.12 | 1287.11 | 9232.27 |
| GR | 1286.9 | 9279.37 | 1286.53 | 9344.87 | 1286.03 | 9438.34 | 1286.00 | 9444.80 | 1285.99 | 9445.78 |
| GR | 1286.0 | 9445.89 | 1285.99 | 9446.03 | 1285.99 | 9446.18 | 1285.99 | 9446.61 | 1285.99 | 9446.73 |
| GR | 1286.0 | 9446.87 | 1285.98 | 9447.20 | 1285.71 | 9485.26 | 1284.16 | 9700.00 | 1284.07 | 9712.60 |
| GR | 1284.0 | 9721.93 | 1284.00 | 9724.33 | 1284.00 | 9760.53 | 1284.00 | 9898.92 | 1283.91 | 9920.86 |
| GR | 1283.9 | 9925.25 | 1283.67 | 9930.34 | 1283.18 | 9944.66 | 1282.83 | 9952.63 | 1282.88 | 9953.92 |
| GR | 1282.8 | 9956.45 | 1282.62 | 9960.54 | 1282.00 | 9967.35 | 1281.38 | 9968.90 | 1280.72 | 9971.05 |
| GR | 1280.0 | 9972.42 | 1279.54 | 9975.05 | 1280.00 | 9977.81 | 1280.37 | 9978.85 | 1280.95 | 9980.52 |
| GR | 1282.0 | 9983.53 | 1282.90 | 9986.13 | 1284.00 | 9989.23 | 1284.00 | 10000.00 | | |
| X1 | 15500 | 74 | 9952.04 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1287.7 | 9100.00 | 1286.98 | 9170.15 | 1286.62 | 9205.88 | 1286.47 | 9220.79 | 1286.40 | 9228.89 |
| GR | 1286.3 | 9234.06 | 1286.32 | 9237.59 | 1286.30 | 9240.12 | 1286.28 | 9242.28 | 1286.27 | 9244.17 |
| GR | 1286.3 | 9245.88 | 1286.17 | 9257.27 | 1286.15 | 9260.35 | 1286.14 | 9262.52 | 1286.00 | 9278.11 |
| GR | 1285.9 | 9281.92 | 1285.94 | 9284.29 | 1285.94 | 9288.93 | 1285.97 | 9298.88 | 1286.00 | 9309.20 |
| GR | 1286.0 | 9334.48 | 1286.00 | 9344.49 | 1286.00 | 9349.76 | 1286.00 | 9351.02 | 1286.00 | 9351.94 |
| GR | 1285.2 | 9492.99 | 1284.39 | 9635.88 | 1284.25 | 9660.73 | 1284.16 | 9677.43 | 1284.11 | 9686.14 |
| GR | 1284.1 | 9688.29 | 1284.09 | 9689.51 | 1284.09 | 9690.11 | 1284.09 | 9690.80 | 1284.09 | 9691.56 |
| GR | 1284.1 | 9693.72 | 1284.08 | 9693.98 | 1284.08 | 9694.12 | 1284.05 | 9699.80 | 1284.05 | 9700.00 |
| GR | 1284.0 | 9700.72 | 1284.05 | 9701.39 | 1284.05 | 9701.71 | 1284.05 | 9701.89 | 1284.04 | 9702.06 |
| GR | 1284.0 | 9702.43 | 1284.04 | 9702.67 | 1284.04 | 9703.27 | 1284.04 | 9703.43 | 1284.04 | 9703.93 |
| GR | 1284.0 | 9704.11 | 1284.05 | 9705.14 | 1284.05 | 9705.30 | 1284.05 | 9705.32 | 1284.06 | 9705.35 |
| GR | 1284.1 | 9705.43 | 1284.08 | 9705.69 | 1284.09 | 9705.84 | 1284.11 | 9706.11 | 1284.12 | 9706.29 |
| GR | 1284.1 | 9706.64 | 1284.00 | 9952.04 | 1282.38 | 9970.04 | 1282.00 | 9970.60 | 1280.38 | 9973.46 |
| GR | 1280.0 | 9974.35 | 1279.82 | 9975.43 | 1280.00 | 9976.51 | 1280.50 | 9978.10 | 1281.33 | 9980.70 |
| GR | 1282.0 | 9982.87 | 1283.13 | 9986.69 | 1284.00 | 9989.60 | 1284.00 | 10000.00 | | |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15750 | 98 | 9969.81 | 10000.00 | 250.00 | 250.00 | 250.00 | | | |
| GR | 1288.3 | 9000.00 | 1288.00 | 9006.08 | 1288.00 | 9010.63 | 1288.00 | 9011.99 | 1288.00 | 9047.38 |
| GR | 1288.0 | 9066.66 | 1286.80 | 9236.69 | 1286.71 | 9248.37 | 1286.64 | 9258.28 | 1286.53 | 9272.90 |
| GR | 1286.4 | 9293.19 | 1286.18 | 9325.24 | 1286.17 | 9327.91 | 1286.17 | 9330.25 | 1286.17 | 9332.11 |
| GR | 1286.2 | 9333.55 | 1286.17 | 9333.84 | 1286.12 | 9338.63 | 1286.04 | 9346.70 | 1286.00 | 9352.31 |
| GR | 1286.0 | 9353.46 | 1286.00 | 9354.16 | 1286.00 | 9362.89 | 1286.00 | 9364.71 | 1286.00 | 9366.26 |
| GR | 1286.0 | 9367.67 | 1286.00 | 9369.34 | 1286.00 | 9371.21 | 1286.00 | 9376.48 | 1286.00 | 9388.42 |

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GR   1286.0   9441.01   1286.00   9441.34   1286.00   9451.57   1285.65   9515.43   1285.61   9544.80
GR   1285.6   9566.53   1285.63   9577.15   1285.64   9583.15   1285.63   9588.96   1285.61   9601.37
GR   1285.6   9609.69   1285.63   9631.06   1285.63   9637.02   1285.65   9655.63   1285.65   9662.24
GR   1285.9   9738.73   1285.90   9742.64   1285.83   9745.00   1285.76   9762.03   1285.74   9772.19
GR   1285.8   9796.65   1285.70   9797.25   1285.75   9822.09   1285.73   9822.90   1285.71   9824.24
GR   1285.7   9826.16   1285.70   9828.02   1285.63   9830.00   1285.56   9832.39   1285.54   9863.26
GR   1285.5   9864.82   1285.50   9876.13   1285.53   9878.05   1285.39   9889.34   1285.49   9892.34
GR   1285.5   9894.05   1285.60   9895.05   1285.55   9896.06   1285.53   9896.97   1284.89   9918.28
GR   1284.0   9933.93   1284.00   9937.67   1284.00   9945.26   1284.00   9946.79   1284.04   9947.31
GR   1284.6   9959.24   1284.70   9959.51   1284.99   9963.36   1285.64   9966.69   1285.72   9967.24
GR   1284.0   9969.81   1282.31   9970.60   1281.96   9972.50   1280.69   9973.46   1280.31   9974.35
GR   1280.1   9975.43   1280.15   9976.51   1280.15   9978.10   1281.12   9980.70   1282.31   9982.87
GR   1283.4   9986.69   1284.00   9989.60   1284.00  10000.00
1
PROFILE FOR STREAM  CHN128 - LATERAL WEIR SP


PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA


ELEVATION  1278.     1279.     1280.     1281.     1282.     1283.     1284.     1285.     1286.     1287.
    SECNO   CUMDIS

  13582.00      0.  I         .         .         .     WE  .         .        L.         .         .         .
               20.  I         .         .         .      E  .         .      L  R         .         .         .
               40.  I         .         .         .      WE .         .    L    .R        .         .         .
               60.  I         .         .         .      WE .         .  L      . R       .         .         .
               80.  I         .         .         .      WE .         . L       . R       .         .         .
              100.  I         .         .         .       WE.         L         .  R      .         .         .
  13700.00    120.  I         .         .         .       WE.       L .         .   R     .         .         .
              140.  I         .         .         .       WE.      L  .         .   R     .         .         .
              160.  I         .         .         .        E.      L  .         .  R      .         .         .
              180.  CI        .         .         .        WE     L   .         .  R      .         .         .
              200.  CI        .         .         .        WE     L   .         .  R      .         .         .
              220.  CI        .         .         .         E    L    .         . R       .         .         .
              240.  CI        .         .         .         WE  L     .         . R       .         .         .
              260.  CI        .         .         .         WE  L     .         . R       .         .         .
              280.  C I       .         .         .         .E L      .         .R        .         .         .
              300.  C I       .         .         .         .WEL      .         .R        .         .         .
              320.  C I       .         .         .         .WE       .         .R        .         .         .
              340.  C I       .         .         .         .WE       .         R         .         .         .
              360.  C I       .         .         .         .LWE      .         R         .         .         .
              380.  C  I      .         .         .         L WE      .         R         .         .         .
              400.  C  I      .         .         .         L WE      .        R.         .         .         .
  14000.00    420.  C  I      .         .         .        L.  WE     .        R.         .         .         .
              440.  C  I      .         .         .         .L WE     .        R.         .         .         .
              460.  C  I      .         .         .         .  WE     .        R.         .         .         .
              480.  C  I      .         .         .         .   WE    .        R.         .         .         .
              500.  C  I      .         .         .         .   WE L  .        R.         .         .         .
  14100.00    520.  C  I      .         .         .         .   WE   L.        R.         .         .         .
              540.  C  I      .         .         .         .    WE   .L       R.         .         .         .
              560.  C   I     .         .         .         .    WE   .  L     R.         .         .         .
              580.  C   I     .         .         .         .    WE   .    L   R.         .         .         .
              600.  C    I    .         .         .         .     WE  .      L R.         .         .         .
  14200.00    620.  C    I    .         .         .         .     WE  .        L.         .         .         .
              640.  C    I    .         .         .         .     WE  .        L.         .         .         .
              660.  C    I    .         .         .         .     W E .        L.         .         .         .
              680.  C    I    .         .         .         .      WE .        L.         .         .         .
              700.  C     I   .         .         .         .      WE .        L.         .         .         .
  14300.00    720.  C     I   .         .         .         .      WE .        L.         .         .         .
              740.  C     I   .         .         .         .       WE.        L.         .         .         .
              760.  C     I   .         .         .         .       WE.        L.         .         .         .
              780.  C     I   .         .         .         .       WE.        L.         .         .         .
              800.  C      I  .         .         .         .        WE        L.         .         .         .
              820.  C      I  .         .         .         .        WE        L.         .         .         .
              840.  C      I  .         .         .         .        WE        L.         .         .         .
              860.  C      I  .         .         .         .        W.E       L.         .         .         .
              880.  C       I .         .         .         .         WE       L.         .         .         .
              900.  C       I .         .         .         .         WE       L.         .         .         .
              920.  C       I .         .         .         .         WE       L.         .         .         .
              940.  C       I .         .         .         .         .WE      L.         .         .         .
              960.  C       I .         .         .         .         .WE      L.         .         .         .
              980.  C        I.         .         .         .         .WE      L.         .         .         .
             1000.  C        I.         .         .         .         . WE     L.         .         .         .
  14600.00   1020.  C        I.         .         .         .         . WE     L.         .         .         .
             1040.  C        I.         .         .         .         . WE     L.         .         .         .
             1060.  C        I.         .         .         .         . WE     L.         .         .         .
             1080.  C         I         .         .         .         . WE     L.         .         .         .
             1100.  C         I         .         .         .         .  WE    L.         .         .         .
             1120.  C         I         .         .         .         .  WE    L.         .         .         .
             1140.  C         I         .         .         .         .  WE    L.         .         .         .
             1160.  C         I         .         .         .         .  WE    L.         .         .         .
             1180.  C         I         .         .         .         .   E    L.         .         .         .
             1200.  C         .I        .         .         .         .   E    L.         .         .         .
             1220.  C         .I        .         .         .         .   E    L.         .         .         .
             1240.  C         .I        .         .         .         .   WE   L.         .         .         .
             1260.  C         .I        .         .         .         .   WE   L.         .         .         .
             1280.  C         .I        .         .         .         .    E   L.         .         .         .
             1300.  C         .I        .         .         .         .    E   L.         .         .         .
  14900.00   1320.  C         . I       .         .         .         .    E   L.         .         .         .
             1340.  C         . I       .         .         .         .    E   L.         .         .         .
             1360.  C         . I       .         .         .         .    E   L.         .         .         .
             1380.  C         . I       .         .         .         .    WE  L.         .         .         .
             1400.  C         . I       .         .         .         .     E  L.         .         .         .
             1420.  C         . I       .         .         .         .     E  L.         .         .         .
             1440.  C         .  I      .         .         .         .     E  L.         .         .         .
             1460.  C         .  I      .         .         .         .     E  L.         .         .         .
             1480.  C         .  I      .         .         .         .     E  L.         .         .         .
             1500.  C         .  I      .         .         .         .     E  L.         .         .         .
             1520.  C         .  I      .         .         .         .     E  L.         .         .         .
             1540.  C         .   I     .         .         .         .     E  L.         .         .         .
             1560.  C         .   I     .         .         .         .     WE L.         .         .         .
             1580.  C         .   I     .         .         .         .     WE L.         .         .         .
             1600.  C         .   I     .         .         .         .      E L.         .         .         .
  15200.00   1620.  C         .   I     .         .         .         .      E L.         .         .         .
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            1660.  C        .   I    .         .         .         .      E L.        .         .         .         .
            1680.  C        .   I    .         .         .         .      E L.        .         .         .         .
            1700.  C        .   I    .         .         .         .      WEL.        .         .         .         .
            1720.  C        .   I    .         .         .         .      WEL.        .         .         .         .
            1740.  C        .    I   .         .         .         .       EL.        .         .         .         .
            1760.  C        .    I   .         .         .         .       EL.        .         .         .         .
            1780.  C        .    I   .         .         .         .       EL.        .         .         .         .
            1800.  C        .    I   .         .         .         .       EL.        .         .         .         .
            1820.  C        .    I   .         .         .         .       WE.        .         .         .         .
            1840.  C        .    I   .         .         .         .       WE.        .         .         .         .
            1860.  C        .     I  .         .         .         .        E.        .         .         .         .
            1880.  C        .     I  .         .         .         .        E.        .         .         .         .
            1900.  C        .     I  .         .         .         .        E.        .         .         .         .
  15500.00  1920.  C        .     I  .         .         .         .       WE         .         .         .         .
            1940.  C        .     I  .         .         .         .       WE         .         .         .         .
            1960.  C        .      I .         .         .         .       LE         .         .         .         .
            1980.  C        .      I .         .         .         .       LWE        .         .         .         .
            2000.  C        .      I .         .         .         .       L.E        .         .         .         .
            2020.  C        .      I .         .         .         .       L.WE       .         .         .         .
            2040.  C        .       I.         .         .         .       L.WE       .         .         .         .
            2060.  C        .       I.         .         .         .       L. WE      .         .         .         .
            2080.  C        .       I.         .         .         .       L. WE      .         .         .         .
            2100.  C        .       I.         .         .         .       L. W E     .         .         .         .
            2120.  C        .       I.         .         .         .       L.  WE     .         .         .         .
            2140.  C        .        I         .         .         .       L.  W E    .         .         .         .
            2160.  C        .        I         .         .         .       L.   WE    .         .         .         .
  15750.00  2180.  C        .        I         .         .         .       L.   WE    .         .         .         .
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   16OCT00      12:29:02                                                                                          PAGE     6
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THIS RUN EXECUTED 16OCT00 12:29:02

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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

CHN128 - LATERAL WEIR SP

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13582.000 | .00 | .00 | .00 | 1278.10 | 55.11 | 1281.74 | .00 | 1281.80 | 12.23 | 1.88 | 29.27 | 15.76 |
| 13700.000 | 118.00 | .00 | .00 | 1278.11 | 55.11 | 1281.89 | .00 | 1281.98 | 16.96 | 2.31 | 23.89 | 13.38 |
| * 14000.000 | 300.00 | .00 | .00 | 1278.40 | 89.72 | 1282.38 | .00 | 1282.48 | 16.46 | 2.50 | 35.87 | 22.11 |
| 14100.000 | 100.00 | .00 | .00 | 1278.40 | 110.31 | 1282.53 | .00 | 1282.64 | 15.70 | 2.65 | 41.59 | 27.84 |
| 14200.000 | 100.00 | .00 | .00 | 1278.60 | 110.31 | 1282.69 | .00 | 1282.80 | 15.09 | 2.63 | 42.00 | 28.39 |
| 14300.000 | 100.00 | .00 | .00 | 1278.68 | 110.31 | 1282.84 | .00 | 1282.95 | 14.40 | 2.58 | 42.76 | 29.06 |
| 14600.000 | 300.00 | .00 | .00 | 1279.00 | 110.31 | 1283.28 | .00 | 1283.39 | 15.18 | 2.62 | 42.12 | 28.31 |
| * 14900.000 | 300.00 | .00 | .00 | 1279.25 | 110.31 | 1283.61 | .00 | 1283.62 | 4.46 | 1.00 | 110.76 | 52.26 |
| 15200.000 | 300.00 | .00 | .00 | 1279.54 | 110.31 | 1283.76 | .00 | 1283.79 | 6.32 | 1.32 | 83.88 | 43.89 |
| * 15500.000 | 300.00 | .00 | .00 | 1279.82 | 110.31 | 1284.01 | .00 | 1284.05 | 12.99 | 1.78 | 61.96 | 30.61 |
| 15750.000 | 250.00 | .00 | .00 | 1280.10 | 205.00 | 1284.47 | .00 | 1284.64 | 31.12 | 3.41 | 67.54 | 36.75 |

1
16OCT00 12:29:02 PAGE 7

CHN128 - LATERAL WEIR SP

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 13582.000 | 55.11 | 1281.74 | .00 | .00 | -2.26 | 18.98 | .00 |
| 13700.000 | 55.11 | 1281.89 | .00 | .15 | .00 | 13.77 | 118.00 |
| * 14000.000 | 89.72 | 1282.38 | .00 | .49 | .00 | 18.45 | 300.00 |
| 14100.000 | 110.31 | 1282.53 | .00 | .15 | .00 | 19.25 | 100.00 |
| 14200.000 | 110.31 | 1282.69 | .00 | .16 | .00 | 19.17 | 100.00 |
| 14300.000 | 110.31 | 1282.84 | .00 | .15 | .00 | 19.34 | 100.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 14600.000 | 110.31 | 1283.28 | .00 | .44 | .00 | 19.33 | 300.00 |
| * | 14900.000 | 110.31 | 1283.61 | .00 | .33 | .00 | 93.23 | 300.00 |
| | 15200.000 | 110.31 | 1283.76 | .00 | .15 | .00 | 60.16 | 300.00 |
| * | 15500.000 | 110.31 | 1284.01 | .00 | .25 | .00 | 62.13 | 300.00 |
| | 15750.000 | 205.00 | 1284.47 | .00 | .46 | .00 | 61.53 | 250.00 |



SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 14000.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 14900.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 15500.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

```
1*********************************************
 *  HEC-2 WATER SURFACE PROFILES             *
 *                                           *
 *  Version   4.6.2;  May 1991               *
 *                                           *
 *  RUN DATE    16OCT00    TIME   12:49:21   *
 *********************************************
```

```
 *  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
   16OCT00      12:49:21                                                                                PAGE    1

                                                                                THIS RUN EXECUTED 16OCT00    12:49:21
 *************************************
  HEC-2 WATER SURFACE PROFILES

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



 SPLIT FLOW BEING PERFORMED


 SF SPLIT FLOW PROBLEM


 JC SPLIT FLOW PROBLEM
 JP     0       0       0       0        0


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   13582    AND    13700
 WS     2   13582   13700      -1      3.4
 WC       1284.00  118.00 1282.90


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   13700    AND    14000
 WS     2   13700   14000      -1      3.4
 WC       1282.90  300.00 1282.00


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14000    AND    14100
 WS     2   14000   14100      -1      3.4
 WC       1282.00  100.00 1283.00


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14100    AND    14200
 WS     2   14100   14200      -1      3.4
 WC       1283.00  100.00 1284.00


 TW      LEFT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14200    AND    14300
 WS     2   14200   14300      -1      3.4
 WC       1284.00  100.00 1284.00


 TW      RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   14900    AND    1520
 WS     2   14900   15200      -1      3.4
 WC       1284.00  300.00 1284.00


 TW      RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   15200    AND    1550
 WS     2   15200   15500      -1      3.4
 WC       1284.00  300.00 1284.00

1
   16OCT00      12:49:21                                                                                PAGE    2


 TW      RIGHT   BANK    NATURAL LEVEE    BETWEEN SECTIONS   15500    AND    1575
 WS     2   15500   15750      -1      3.4
 WC       1284.00  250.00 1284.00
1
   16OCT00      12:49:21                                                                                PAGE    3


 T1      HEC-2 Input   Data    file:   SPLIT    FLOW    SOLUTION
 T2      CHN128 - LATERAL WEIR SPLIT FLOW Q= 300 CFS
 T3      CHN128 - LATERAL WEIR SPLIT FLOW Q= 300 CFS

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0        2         0         0   .001237         0         0         0   1284.00         0

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

    -10       -10

 QT        1     300.00
 NC   0.0450     0.0350     0.0350        0.1        0.3
 X1    13582         37    9964.73   10000.00       0.00       0.00       0.00
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1284.0 | 9940.05 | 1283.98 | 9940.08 | 1283.99 | 9940.12 | 1283.99 | 9940.15 | 1283.99 | 9940.18 |
| GR | 1284.0 | 9940.26 | 1283.99 | 9940.28 | 1283.99 | 9940.34 | 1283.99 | 9940.41 | 1283.99 | 9940.46 |
| GR | 1284.0 | 9940.48 | 1283.99 | 9940.50 | 1283.98 | 9940.53 | 1283.98 | 9940.60 | 1283.97 | 9940.74 |
| GR | 1284.0 | 9940.95 | 1283.96 | 9941.17 | 1284.00 | 9941.79 | 1284.00 | 9942.65 | 1284.00 | 9943.30 |
| GR | 1284.0 | 9946.51 | 1284.00 | 9948.10 | 1284.00 | 9949.62 | 1284.00 | 9952.57 | 1284.00 | 9954.57 |
| GR | 1284.0 | 9964.73 | 1283.02 | 9968.55 | 1282.22 | 9971.25 | 1282.00 | 9972.08 | 1280.00 | 9979.60 |
| GR | 1278.1 | 9983.20 | 1280.00 | 9986.24 | 1281.30 | 9991.28 | 1282.00 | 9992.45 | 1282.93 | 9993.94 |
| GR | 1284.0 | 9995.82 | 1284.00 | 10000.00 | | | | | | |
| X1 | 13700 | 16 | 9967.79 | 10000.00 | 118.00 | 118.00 | 118.00 | | | |
| GR | 1282.9 | 9967.79 | 1282.60 | 9968.89 | 1282.20 | 9970.83 | 1282.00 | 9971.43 | 1280.75 | 9974.60 |
| GR | 1280.0 | 9976.34 | 1278.11 | 9979.33 | 1280.00 | 9982.10 | 1281.36 | 9984.58 | 1282.00 | 9985.65 |
| GR | 1282.2 | 9985.98 | 1284.00 | 9989.37 | 1284.47 | 9999.68 | 1284.47 | 9999.75 | 1284.48 | 9999.94 |
| GR | 1284.5 | 10000.00 | | | | | | | | |
| X1 | 14000 | 10 | 9963.80 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1282.0 | 9963.80 | 1282.00 | 9965.57 | 1281.43 | 9967.11 | 1278.40 | 9974.60 | 1280.00 | 9977.92 |
| GR | 1280.7 | 9979.14 | 1282.00 | 9981.63 | 1283.10 | 9983.42 | 1284.00 | 9985.11 | 1284.00 | 10000.00 |
| X1 | 14100 | 14 | 9962.24 | 10000.00 | 100.00 | 100.00 | 100.00 | | | |
| GR | 1283.0 | 9962.24 | 1282.46 | 9965.05 | 1281.76 | 9966.82 | 1280.68 | 9969.42 | 1279.76 | 9971.09 |
| GR | 1278.4 | 9975.00 | 1279.76 | 9978.71 | 1279.97 | 9979.20 | 1281.16 | 9981.30 | 1281.62 | 9982.20 |
| GR | 1281.8 | 9982.49 | 1282.46 | 9983.79 | 1284.00 | 9986.52 | 1284.00 | 10000.00 | | |
| X1 | 14200 | 14 | 9962.24 | 10000.00 | 100.00 | 100.00 | 100.00 | | | |
| GR | 1284.0 | 9962.24 | 1282.58 | 9965.05 | 1281.88 | 9966.82 | 1280.80 | 9969.42 | 1279.88 | 9971.09 |
| GR | 1278.6 | 9975.00 | 1279.88 | 9978.71 | 1280.09 | 9979.20 | 1281.28 | 9981.30 | 1281.74 | 9982.20 |
| GR | 1281.9 | 9982.49 | 1282.58 | 9983.79 | 1284.00 | 9986.52 | 1284.00 | 10000.00 | | |
| X1 | 14300 | 58 | 9962.24 | 10000.00 | 100.00 | 100.00 | 100.00 | | | |
| GR | 1286.7 | 9200.00 | 1286.55 | 9214.47 | 1286.24 | 9247.77 | 1286.22 | 9249.93 | 1286.18 | 9254.29 |
| GR | 1286.2 | 9255.76 | 1286.16 | 9257.27 | 1286.15 | 9257.81 | 1286.00 | 9277.62 | 1285.86 | 9285.09 |
| GR | 1285.7 | 9304.74 | 1285.65 | 9329.46 | 1285.65 | 9336.21 | 1285.54 | 9352.68 | 1285.53 | 9362.72 |
| GR | 1285.4 | 9373.11 | 1285.39 | 9384.32 | 1285.40 | 9396.09 | 1285.24 | 9405.27 | 1285.10 | 9415.00 |
| GR | 1285.0 | 9424.76 | 1284.38 | 9525.97 | 1284.38 | 9542.27 | 1284.38 | 9567.22 | 1284.38 | 9601.08 |
| GR | 1284.4 | 9629.04 | 1284.38 | 9656.22 | 1284.34 | 9659.30 | 1284.33 | 9660.48 | 1284.33 | 9663.77 |
| GR | 1284.3 | 9667.99 | 1284.28 | 9673.37 | 1284.24 | 9680.25 | 1284.18 | 9689.49 | 1284.10 | 9700.00 |
| GR | 1284.1 | 9702.38 | 1284.00 | 9713.05 | 1284.00 | 9721.01 | 1284.00 | 9756.39 | 1284.00 | 9768.53 |
| GR | 1284.0 | 9771.25 | 1284.00 | 9862.26 | 1284.00 | 9862.54 | 1284.00 | 9863.29 | 1284.00 | 9962.24 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1282.7 | 9965.05 | 1282.00 | 9966.82 | 1280.92 | 9969.42 | 1280.00 | 9971.09 | 1278.68 | 9975.00 |
| GR | 1280.0 | 9978.71 | 1280.21 | 9979.20 | 1281.40 | 9981.30 | 1281.86 | 9982.20 | 1282.00 | 9982.49 |
| GR | 1282.7 | 9983.79 | 1284.00 | 9986.52 | 1284.00 | 10000.00 | | | | |
| X1 | 14600 | 48 | 9950.37 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1287.0 | 9200.00 | 1286.35 | 9319.42 | 1286.34 | 9322.88 | 1286.30 | 9331.31 | 1286.24 | 9341.79 |
| GR | 1286.2 | 9354.73 | 1286.09 | 9370.67 | 1286.00 | 9388.44 | 1285.97 | 9396.61 | 1285.90 | 9423.66 |
| GR | 1285.8 | 9452.72 | 1285.76 | 9471.57 | 1284.98 | 9550.29 | 1284.88 | 9565.91 | 1284.80 | 9575.21 |
| GR | 1284.7 | 9583.70 | 1284.64 | 9597.36 | 1284.55 | 9609.89 | 1284.49 | 9620.27 | 1284.45 | 9627.64 |
| GR | 1284.4 | 9636.14 | 1284.40 | 9645.58 | 1284.40 | 9655.79 | 1284.39 | 9665.38 | 1284.36 | 9674.53 |
| GR | 1284.3 | 9683.42 | 1284.28 | 9691.86 | 1284.23 | 9699.84 | 1284.23 | 9700.00 | 1284.09 | 9720.90 |
| GR | 1284.0 | 9734.06 | 1284.00 | 9734.48 | 1284.00 | 9816.10 | 1284.00 | 9828.24 | 1284.00 | 9950.37 |
| GR | 1283.6 | 9963.68 | 1283.43 | 9964.04 | 1282.00 | 9967.35 | 1280.49 | 9970.86 | 1280.00 | 9971.94 |
| GR | 1279.0 | 9974.45 | 1280.00 | 9976.90 | 1280.62 | 9978.11 | 1282.00 | 9980.99 | 1283.04 | 9983.19 |
| GR | 1284.0 | 9985.23 | 1284.00 | 9996.17 | 1284.00 | 10000.00 | | | | |
| X1 | 14900 | 40 | 9867.14 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1288.0 | 9100.00 | 1288.00 | 9106.54 | 1288.00 | 9113.03 | 1288.00 | 9113.89 | 1287.79 | 9142.77 |
| GR | 1287.1 | 9246.69 | 1286.15 | 9379.98 | 1286.14 | 9381.89 | 1286.00 | 9403.34 | 1285.85 | 9435.98 |
| GR | 1285.7 | 9468.11 | 1285.61 | 9487.09 | 1285.57 | 9498.84 | 1285.55 | 9505.90 | 1284.18 | 9649.12 |
| GR | 1284.1 | 9654.29 | 1284.08 | 9663.19 | 1284.02 | 9690.76 | 1284.00 | 9692.87 | 1284.00 | 9693.17 |
| GR | 1284.0 | 9696.73 | 1284.00 | 9700.00 | 1284.00 | 9722.57 | 1284.00 | 9737.75 | 1284.00 | 9791.21 |
| GR | 1284.0 | 9867.14 | 1283.91 | 9872.09 | 1283.57 | 9893.26 | 1283.45 | 9901.09 | 1282.29 | 9951.49 |
| GR | 1282.0 | 9963.88 | 1281.74 | 9964.55 | 1280.00 | 9968.47 | 1279.25 | 9971.84 | 1280.00 | 9975.21 |
| GR | 1280.4 | 9976.12 | 1282.00 | 9980.08 | 1282.67 | 9981.73 | 1284.00 | 9985.10 | 1284.00 | 10000.00 |
| X1 | 15200 | 44 | 9898.92 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1287.8 | 9100.00 | 1287.51 | 9150.46 | 1287.41 | 9170.08 | 1287.28 | 9197.12 | 1287.11 | 9232.27 |
| GR | 1286.9 | 9279.37 | 1286.53 | 9344.87 | 1286.03 | 9438.34 | 1286.00 | 9444.80 | 1285.99 | 9445.78 |
| GR | 1286.0 | 9445.89 | 1285.99 | 9446.03 | 1285.99 | 9446.18 | 1285.99 | 9446.61 | 1285.99 | 9446.73 |
| GR | 1286.0 | 9446.87 | 1285.98 | 9447.20 | 1285.71 | 9485.26 | 1284.16 | 9700.00 | 1284.07 | 9712.60 |
| GR | 1284.0 | 9721.93 | 1284.00 | 9724.33 | 1284.00 | 9760.53 | 1284.00 | 9898.92 | 1283.91 | 9920.86 |
| GR | 1283.9 | 9925.25 | 1283.67 | 9930.34 | 1283.18 | 9944.66 | 1282.83 | 9952.63 | 1282.88 | 9953.92 |
| GR | 1282.8 | 9956.45 | 1282.62 | 9960.54 | 1282.00 | 9967.35 | 1281.38 | 9968.90 | 1280.72 | 9971.05 |
| GR | 1280.0 | 9972.42 | 1279.54 | 9975.05 | 1280.00 | 9977.81 | 1280.37 | 9978.85 | 1280.95 | 9980.52 |
| GR | 1282.0 | 9983.53 | 1282.90 | 9986.13 | 1284.00 | 9989.23 | 1284.00 | 10000.00 | | |
| X1 | 15500 | 74 | 9952.04 | 10000.00 | 300.00 | 300.00 | 300.00 | | | |
| GR | 1287.7 | 9100.00 | 1286.98 | 9170.15 | 1286.62 | 9205.88 | 1286.47 | 9220.79 | 1286.40 | 9228.89 |
| GR | 1286.3 | 9234.06 | 1286.32 | 9237.59 | 1286.30 | 9240.12 | 1286.28 | 9242.28 | 1286.27 | 9244.17 |
| GR | 1286.3 | 9245.88 | 1286.17 | 9257.27 | 1286.15 | 9260.35 | 1286.14 | 9262.52 | 1286.00 | 9278.11 |
| GR | 1285.9 | 9281.92 | 1285.94 | 9284.29 | 1285.94 | 9288.93 | 1285.97 | 9298.88 | 1286.00 | 9309.20 |
| GR | 1286.0 | 9334.48 | 1286.00 | 9344.49 | 1286.00 | 9349.76 | 1286.00 | 9351.02 | 1286.00 | 9351.94 |
| GR | 1285.2 | 9492.99 | 1284.39 | 9635.88 | 1284.25 | 9660.73 | 1284.16 | 9677.43 | 1284.11 | 9686.14 |
| GR | 1284.1 | 9688.29 | 1284.09 | 9689.51 | 1284.09 | 9690.11 | 1284.09 | 9690.80 | 1284.09 | 9691.56 |
| GR | 1284.1 | 9693.72 | 1284.08 | 9693.98 | 1284.08 | 9694.12 | 1284.05 | 9699.80 | 1284.05 | 9700.00 |
| GR | 1284.0 | 9700.72 | 1284.05 | 9701.39 | 1284.05 | 9701.71 | 1284.05 | 9701.89 | 1284.04 | 9702.06 |
| GR | 1284.0 | 9702.43 | 1284.04 | 9702.67 | 1284.04 | 9703.27 | 1284.04 | 9703.43 | 1284.04 | 9703.93 |
| GR | 1284.0 | 9704.11 | 1284.05 | 9705.14 | 1284.05 | 9705.30 | 1284.05 | 9705.32 | 1284.06 | 9705.35 |
| GR | 1284.1 | 9705.43 | 1284.08 | 9705.69 | 1284.09 | 9705.84 | 1284.11 | 9706.11 | 1284.12 | 9706.29 |
| GR | 1284.1 | 9706.64 | 1284.00 | 9952.04 | 1282.38 | 9970.04 | 1282.00 | 9970.60 | 1280.38 | 9973.46 |
| GR | 1280.0 | 9974.35 | 1279.82 | 9975.43 | 1280.00 | 9976.51 | 1280.50 | 9978.10 | 1281.33 | 9980.70 |
| GR | 1282.0 | 9982.87 | 1283.13 | 9986.69 | 1284.00 | 9989.60 | 1284.00 | 10000.00 | | |

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|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 15750 | 98 | 9969.81 | 10000.00 | 250.00 | 250.00 | 250.00 | | | |
| GR | 1288.3 | 9000.00 | 1288.00 | 9006.08 | 1288.00 | 9010.63 | 1288.00 | 9011.99 | 1288.00 | 9047.38 |
| GR | 1288.0 | 9066.66 | 1286.80 | 9236.69 | 1286.71 | 9248.37 | 1286.64 | 9258.28 | 1286.53 | 9272.90 |
| GR | 1286.4 | 9293.19 | 1286.18 | 9325.24 | 1286.17 | 9327.91 | 1286.17 | 9330.25 | 1286.17 | 9332.11 |
| GR | 1286.2 | 9333.55 | 1286.17 | 9333.84 | 1286.12 | 9338.63 | 1286.04 | 9346.70 | 1286.00 | 9352.31 |
| GR | 1286.0 | 9353.46 | 1286.00 | 9354.16 | 1286.00 | 9362.89 | 1286.00 | 9364.71 | 1286.00 | 9366.26 |
| GR | 1286.0 | 9367.67 | 1286.00 | 9369.34 | 1286.00 | 9371.21 | 1286.00 | 9376.48 | 1286.00 | 9388.42 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 1286.0 | 9396.78 | 1286.00 | 9415.14 | 1286.00 | 9415.50 | [illegible] | [illegible] | [illegible] | 9544.80 |
| GR | 1286.0 | 9441.01 | 1286.00 | 9441.34 | 1286.00 | 9451.57 | 1285.65 | 9515.43 | 1285.61 | 9601.37 |
| GR | 1285.6 | 9566.53 | 1285.63 | 9577.15 | 1285.64 | 9583.15 | 1285.63 | 9588.96 | 1285.61 | 9662.24 |
| GR | 1285.6 | 9609.69 | 1285.63 | 9631.06 | 1285.63 | 9637.02 | 1285.65 | 9655.63 | 1285.65 | 9772.19 |
| GR | 1285.9 | 9738.73 | 1285.90 | 9742.64 | 1285.83 | 9745.00 | 1285.76 | 9762.03 | 1285.74 | 9824.24 |
| GR | 1285.8 | 9796.65 | 1285.70 | 9797.25 | 1285.75 | 9822.09 | 1285.73 | 9822.90 | 1285.71 | 9863.26 |
| GR | 1285.7 | 9826.16 | 1285.70 | 9828.02 | 1285.63 | 9830.00 | 1285.56 | 9832.39 | 1285.54 | 9892.34 |
| GR | 1285.5 | 9864.82 | 1285.50 | 9876.13 | 1285.53 | 9878.05 | 1285.39 | 9889.34 | 1285.49 | 9918.28 |
| GR | 1285.5 | 9894.05 | 1285.60 | 9895.05 | 1285.55 | 9896.06 | 1285.53 | 9896.97 | 1284.89 | 9947.31 |
| GR | 1284.0 | 9933.93 | 1284.00 | 9937.67 | 1284.00 | 9945.26 | 1284.00 | 9946.79 | 1284.04 | 9967.24 |
| GR | 1284.6 | 9959.24 | 1284.70 | 9959.51 | 1284.99 | 9963.36 | 1285.64 | 9966.69 | 1285.72 | 9974.35 |
| GR | 1284.0 | 9969.81 | 1282.31 | 9970.60 | 1281.96 | 9972.50 | 1280.69 | 9973.46 | 1280.31 | 9982.87 |
| GR | 1280.1 | 9975.43 | 1280.15 | 9976.51 | 1280.15 | 9978.10 | 1281.12 | 9980.70 | 1282.31 | |
| GR | 1283.4 | 9986.69 | 1284.00 | 9989.60 | 1284.00 | 10000.00 | | | | |

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PROFILE FOR STREAM  CHN128 - LATERAL WEIR SP

PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

```
ELEVATION  1278.      1279.      1280.      1281.      1282.      1283.      1284.      1285.      1286.      1287.
   SECNO     CUMDIS

13582.00       0.  I         .         .         .      WE .         .        L.         .         .         .         .
              20.  I         .         .         .      WE .         .      L  R         .         .         .         .
              40.  I         .         .         .      WE .         .    L    .R        .         .         .         .
              60.  I         .         .         .       E .         .  L      . R       .         .         .         .
              80.  I         .         .         .       WE.         . L       . R       .         .         .         .
             100.  I         .         .         .       WE.         L         .  R      .         .         .         .
13700.00     120.  I         .         .         .       WE.       L .         .   R     .         .         .         .
             140.  I         .         .         .        WE      L  .         .   R     .         .         .         .
             160.  I         .         .         .        WE      L  .         .  R      .         .         .         .
             180.  CI        .         .         .        WE     L   .         .  R      .         .         .         .
             200.  CI        .         .         .         WE    L   .         .  R      .         .         .         .
             220.  CI        .         .         .         WE   L    .         . R       .         .         .         .
             240.  CI        .         .         .         WE  L     .         . R       .         .         .         .
             260.  CI        .         .         .         .WE L     .         . R       .         .         .         .
             280.  C I       .         .         .         .WEL      .         .R        .         .         .         .
             300.  C I       .         .         .         .WEL      .         .R        .         .         .         .
             320.  C I       .         .         .         . WE      .         .R        .         .         .         .
             340.  C I       .         .         .         .LWE      .         R         .         .         .         .
             360.  C I       .         .         .         .LWE      .         R         .         .         .         .
             380.  C  I      .         .         .         L  WE     .         R         .         .         .         .
             400.  C  I      .         .         .         L  WE     .        R.         .         .         .         .
14000.00     420.  C  I      .         .         .        L.  WE     .        R.         .         .         .         .
             440.  C  I      .         .         .         .L  WE    .        R.         .         .         .         .
             460.  C  I      .         .         .         .  LWE    .        R.         .         .         .         .
             480.  C  I      .         .         .         .   WE    .        R.         .         .         .         .
             500.  C  I      .         .         .         .    WEL  .        R.         .         .         .         .
14100.00     520.  C  I      .         .         .         .    WE  L.        R.         .         .         .         .
             540.  C  I      .         .         .         .    WE   .L       R.         .         .         .         .
             560.  C   I     .         .         .         .     WE  .  L     R.         .         .         .         .
             580.  C   I     .         .         .         .     WE  .    L   R.         .         .         .         .
             600.  C    I    .         .         .         .     WE  .      L R.         .         .         .         .
14200.00     620.  C    I    .         .         .         .      WE .        L.         .         .         .         .
             640.  C    I    .         .         .         .      WE .        L.         .         .         .         .
             660.  C    I    .         .         .         .      WE .        L.         .         .         .         .
             680.  C    I    .         .         .         .      WE .        L.         .         .         .         .
             700.  C     I   .         .         .         .       WE.        L.         .         .         .         .
14300.00     720.  C     I   .         .         .         .       WE.        L.         .         .         .         .
             740.  C     I   .         .         .         .       WE.        L.         .         .         .         .
             760.  C     I   .         .         .         .        WE        L.         .         .         .         .
             780.  C     I   .         .         .         .        WE        L.         .         .         .         .
             800.  C      I  .         .         .         .        WE        L.         .         .         .         .
             820.  C      I  .         .         .         .        W.E       L.         .         .         .         .
             840.  C      I  .         .         .         .         WE       L.         .         .         .         .
             860.  C      I  .         .         .         .         WE       L.         .         .         .         .
             880.  C       I .         .         .         .         WE       L.         .         .         .         .
             900.  C       I .         .         .         .         .WE      L.         .         .         .         .
             920.  C       I .         .         .         .         .WE      L.         .         .         .         .
             940.  C       I .         .         .         .         .WE      L.         .         .         .         .
             960.  C       I .         .         .         .         . WE     L.         .         .         .         .
             980.  C        I.         .         .         .         . WE     L.         .         .         .         .
            1000.  C        I.         .         .         .         . WE     L.         .         .         .         .
14600.00    1020.  C        I.         .         .         .         . WE     L.         .         .         .         .
            1040.  C        I.         .         .         .         .  WE    L.         .         .         .         .
            1060.  C        I.         .         .         .         .  WE    L.         .         .         .         .
            1080.  C         I         .         .         .         .  WE    L.         .         .         .         .
            1100.  C         I         .         .         .         .  WE    L.         .         .         .         .
            1120.  C         I         .         .         .         .  WE    L.         .         .         .         .
            1140.  C         I         .         .         .         .   E    L.         .         .         .         .
            1160.  C         I         .         .         .         .   WE   L.         .         .         .         .
            1180.  C         I         .         .         .         .   WE   L.         .         .         .         .
            1200.  C         .I        .         .         .         .   WE   L.         .         .         .         .
            1220.  C         .I        .         .         .         .    E   L.         .         .         .         .
            1240.  C         .I        .         .         .         .    E   L.         .         .         .         .
            1260.  C         .I        .         .         .         .    E   L.         .         .         .         .
            1280.  C         .I        .         .         .         .    E   L.         .         .         .         .
            1300.  C         .I        .         .         .         .    WE  L.         .         .         .         .
14900.00    1320.  C         . I       .         .         .         .     E  L.         .         .         .         .
            1340.  C         . I       .         .         .         .     E  L.         .         .         .         .
            1360.  C         . I       .         .         .         .     E  L.         .         .         .         .
            1380.  C         . I       .         .         .         .     E  L.         .         .         .         .
            1400.  C         . I       .         .         .         .     E  L.         .         .         .         .
            1420.  C         . I       .         .         .         .     E  L.         .         .         .         .
            1440.  C         .  I      .         .         .         .     E  L.         .         .         .         .
            1460.  C         .  I      .         .         .         .     WE L.         .         .         .         .
            1480.  C         .  I      .         .         .         .     WE L.         .         .         .         .
            1500.  C         .  I      .         .         .         .      E L.         .         .         .         .
            1520.  C         .  I      .         .         .         .      E L.         .         .         .         .
            1540.  C         .   I     .         .         .         .      E L.         .         .         .         .
            1560.  C         .   I     .         .         .         .      E L.         .         .         .         .
            1580.  C         .   I     .         .         .         .      E L.         .         .         .         .
            1600.  C         .   I     .         .         .         .      E L.         .         .         .         .
15200.00    1620.  C         .   I     .         .         .         .      E L.         .         .         .         .
```

```
          1640.  C        .    I    .         .         .         .      WEL.         .         .         .         .
          1660.  C        .    I    .         .         .         .      WEL.         .         .         .         .
          1680.  C        .    I    .         .         .         .       EL.         .         .         .         .
          1700.  C        .    I    .         .         .         .       EL.         .         .         .         .
          1720.  C        .    I    .         .         .         .       EL.         .         .         .         .
          1740.  C        .     I   .         .         .         .       EL.         .         .         .         .
          1760.  C        .     I   .         .         .         .       WE.         .         .         .         .
          1780.  C        .     I   .         .         .         .       WE.         .         .         .         .
          1800.  C        .     I   .         .         .         .        E.         .         .         .         .
          1820.  C        .     I   .         .         .         .        E.         .         .         .         .
          1840.  C        .     I   .         .         .         .        E.         .         .         .         .
          1860.  C        .      I  .         .         .         .        E.         .         .         .         .
          1880.  C        .      I  .         .         .         .       WE         .         .         .         .
          1900.  C        .      I  .         .         .         .       WE         .         .         .         .
 15500.00 1920.  C        .      I  .         .         .         .       LE         .         .         .         .
          1940.  C        .      I  .         .         .         .       LWE        .         .         .         .
          1960.  C        .       I .         .         .         .       LWE        .         .         .         .
          1980.  C        .       I .         .         .         .       L.WE       .         .         .         .
          2000.  C        .       I .         .         .         .       L.W E      .         .         .         .
          2020.  C        .       I .         .         .         .       L. WE      .         .         .         .
          2040.  C        .        I.         .         .         .       L. W E     .         .         .         .
          2060.  C        .        I.         .         .         .       L.  W E    .         .         .         .
          2080.  C        .        I.         .         .         .       L.  W E    .         .         .         .
          2100.  C        .        I.         .         .         .       L.   W E   .         .         .         .
          2120.  C        .        I.         .         .         .       L.   W  E  .         .         .         .
          2140.  C        .         I         .         .         .       L.    W E  .         .         .         .
          2160.  C        .         I         .         .         .       L.    W  E .         .         .         .
 15750.00 2180.  C        .         I         .         .         .       L.    W  E .         .         .         .
1
   16OCT00      12:49:21                                                                                    PAGE     6


                                                                                                THIS RUN EXECUTED 16OCT00     12:49:22
 ***************************************
  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

 CHN128 - LATERAL WEIR SP

 SUMMARY PRINTOUT TABLE  150

       SECNO      XLCH      ELTRD      ELLC      ELMIN       Q       CWSEL     CRIWS      EG       10*KS      VCH      AREA
.01K
    13582.000      .00       .00       .00    1278.10     57.53    1281.79      .00    1281.85     12.28     1.91     30.16
16.42
    13700.000   118.00       .00       .00    1278.11     57.53    1281.94      .00    1282.03     17.21     2.34     24.54
13.87
 *  14000.000   300.00       .00       .00    1278.40     94.44    1282.44      .00    1282.54     16.80     2.56     36.88
23.04
    14100.000   100.00       .00       .00    1278.40    114.07    1282.59      .00    1282.70     15.75     2.67     42.75
28.75
    14200.000   100.00       .00       .00    1278.60    114.07    1282.75      .00    1282.86     15.01     2.64     43.13
29.44
    14300.000   100.00       .00       .00    1278.68    114.07    1282.90      .00    1283.00     14.37     2.60     43.89
30.10
    14600.000   300.00       .00       .00    1279.00    114.07    1283.34      .00    1283.45     15.15     2.64     43.23
29.31
 *  14900.000   300.00       .00       .00    1279.25    114.07    1283.66      .00    1283.68      4.30      .98    115.86
54.99
    15200.000   300.00       .00       .00    1279.54    114.07    1283.81      .00    1283.83      6.18     1.31     86.86
45.90
    15500.000   300.00       .00       .00    1279.82    114.95    1284.05      .00    1284.10     12.61     1.79     66.89
32.37
    15750.000   250.00       .00       .00    1280.10    300.00    1284.63      .00    1284.92     48.05     4.46     78.20
43.28
1
   16OCT00      12:49:21                                                                                    PAGE     7

 CHN128 - LATERAL WEIR SP

 SUMMARY PRINTOUT TABLE  150

       SECNO        Q       CWSEL     DIFWSP     DIFWSX     DIFKWS     TOPWID      XLCH
    13582.000     57.53    1281.79       .00        .00      -2.21      19.23       .00
    13700.000     57.53    1281.94       .00        .15        .00      13.97    118.00
 *  14000.000     94.44    1282.44       .00        .50        .00      18.54    300.00
    14100.000    114.07    1282.59       .00        .16        .00      19.67    100.00
    14200.000    114.07    1282.75       .00        .16        .00      19.40    100.00
    14300.000    114.07    1282.90       .00        .15        .00      19.59    100.00
```

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 14600.000 | 114.07 | 1283.34 | .00 | .44 | .00 | 19.58 | 300.00 |
| * | 14900.000 | 114.07 | 1283.66 | .00 | .32 | .00 | 96.71 | 300.00 |
| | 15200.000 | 114.07 | 1283.81 | .00 | .15 | .00 | 61.38 | 300.00 |
| | 15500.000 | 114.95 | 1284.05 | .00 | .24 | .00 | 170.53 | 300.00 |
| | 15750.000 | 300.00 | 1284.63 | .00 | .58 | .00 | 67.61 | 250.00 |



SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 14000.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 14900.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

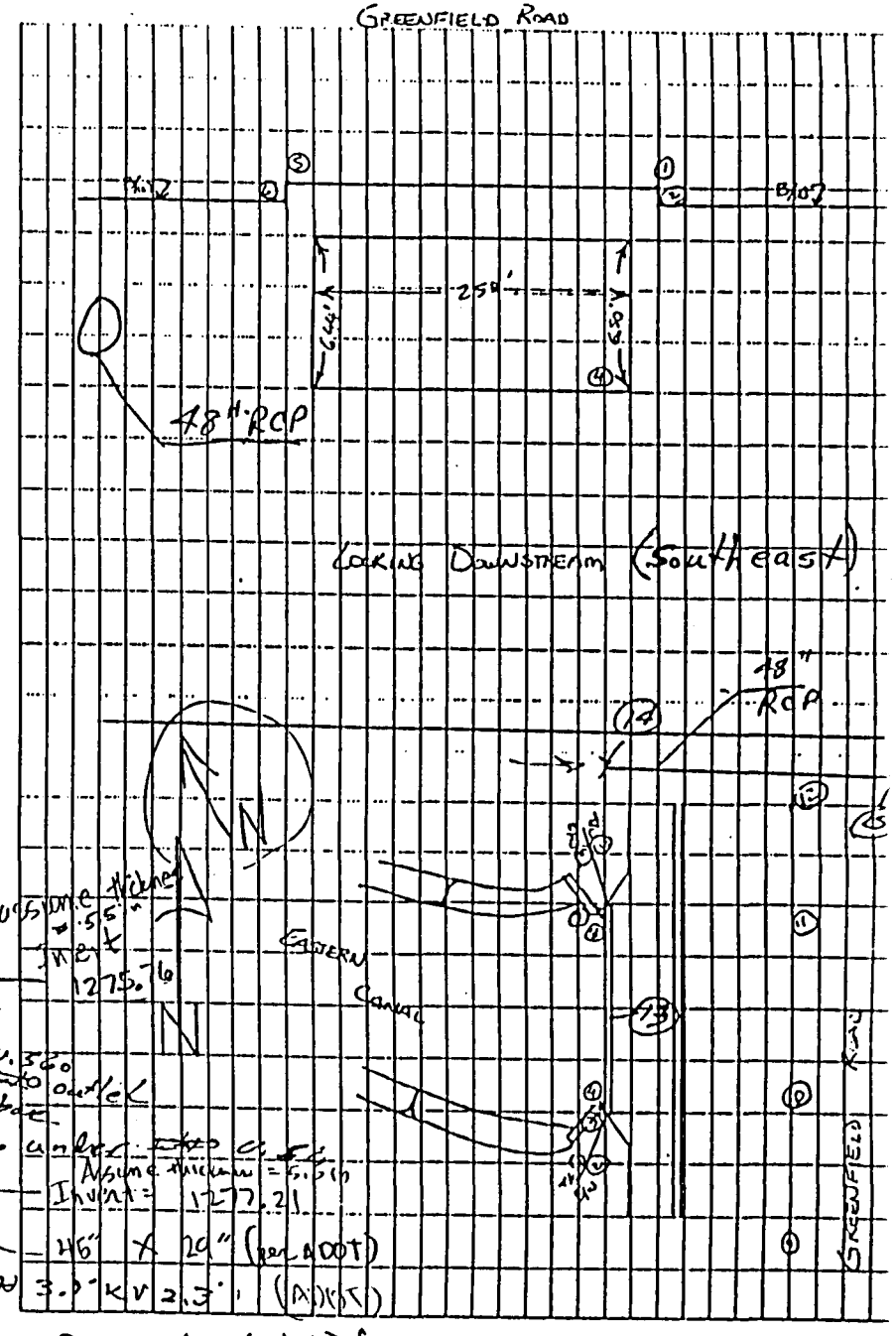
# Appendix E.6

# Survey Notes for Culverts

| Sta | BS | H.I. | FS | Elev | Remarks |
|---|---|---|---|---|---|
| TBM #75 | | | | 1279.408 | Rebar |
| | 9.51 | 1288.92 | | | |
| 1 | | | 3.60 | 1285.32 | T/C |
| 2 | | | 3.96 | 1284.96 | B/W |
| 3 | | | 4.60 | 1284.32 | Top of Wingwall |
| 4 | | | 12.56 | 1276.36 | Invert |
| 5 | | | 3.55 | 1285.37 | T/C |
| 6 | | | 3.96 | 1284.96 | B/W |
| 7 | 4.86 | 1289.24 | 4.54 | 1284.38 | Top of Wingwall |
| 8 | | | 12.53 | 1276.39 | Inv |
| 9 | | | 4.27 | 1284.65 | Pvmt |
| 10 | | | 4.20 | 1284.72 | Pvmt |
| 11 | | | 4.13 | 1284.79 | Pvmt |
| 12 | | | 4.11 | 1284.81 | Pvmt |
| TBM #75 | | | 9.52 | 1279.40 | ✓ |
| 13 | | | 4.66 | 1284.58 | #1262-M McBC No El. |
| 14 | | Greenfield | 12.62 | 1276.62 | I.E. Inlet 48" Pipe |
| 15 | | | 9.02 | 1280.22 | Soffit ± Outlet Pipe |
| 16 | | U660 | 12.23 | 1277.01 | I.E. 48" Pipe under |
| TBM | 5.56 | 1289.18 | 5.62 | 1283.62 | T. Headwall same feature above |
| T.BM. | 5.23 | 1289.43 | 4.98 | 1284.20 | T. Headwall Inlet 48" Pipe Soffit |
| | | | 7.76 | 1281.67 | Inlet. Inlet 48" Pipe |
| | | ADOT | 12.96 | 1276.47 | Top Pipe |

2.3 (4)

2.98 T.B. to I.E.

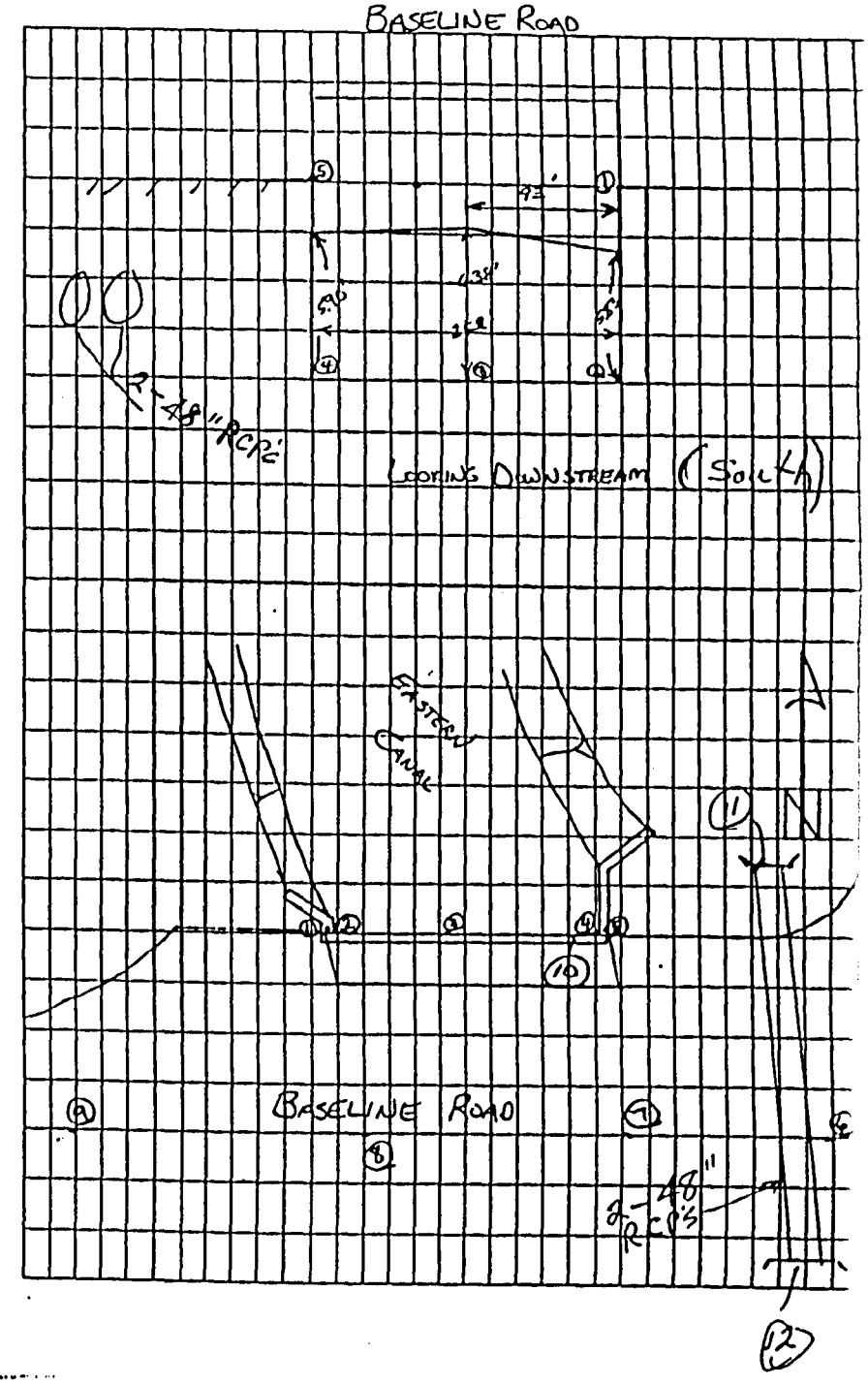



I.E. 73.49 (inlet) (Horizontal)

| STA | BS+ | H.I. | FS- | ELEV | REMARKS |
|---|---|---|---|---|---|
| TBM #227 | ... | | | 1283.017 | "4" in Concrete |
| | 4.98 | 1288.00 | | | |
| 1 | | | 4.98 | 1283.02 | Top of Wingwall |
| 2 | | | 12.55 | 1275.45 | INV |
| 3 | | | 12.62 | 1275.38 | INV |
| 4 | | | 12.54 | 1275.46 | INV |
| 5 | 5.58 | 1288.58 | 5.00 | 1283.00 | Top of Wingwall |
| 6 | | | 3.92 | 1284.08 | Point |
| 7 | | | 3.70 | 1284.30 | Point |
| 8 | | | 3.74 | 1284.26 | Point |
| 9 | | | 4.16 | 1283.83 | Point |
| 10 | | | 1.61 | 1286.97 | McDOT B.C |
| 11 | | | 12.56 | 1276.02 2-48" | I.E. Inlet 1287.72 |
| TBM #227 | | | | | ✓ |
| 12 | | | 12.95 | 1275.63 | I.E. Outlet |

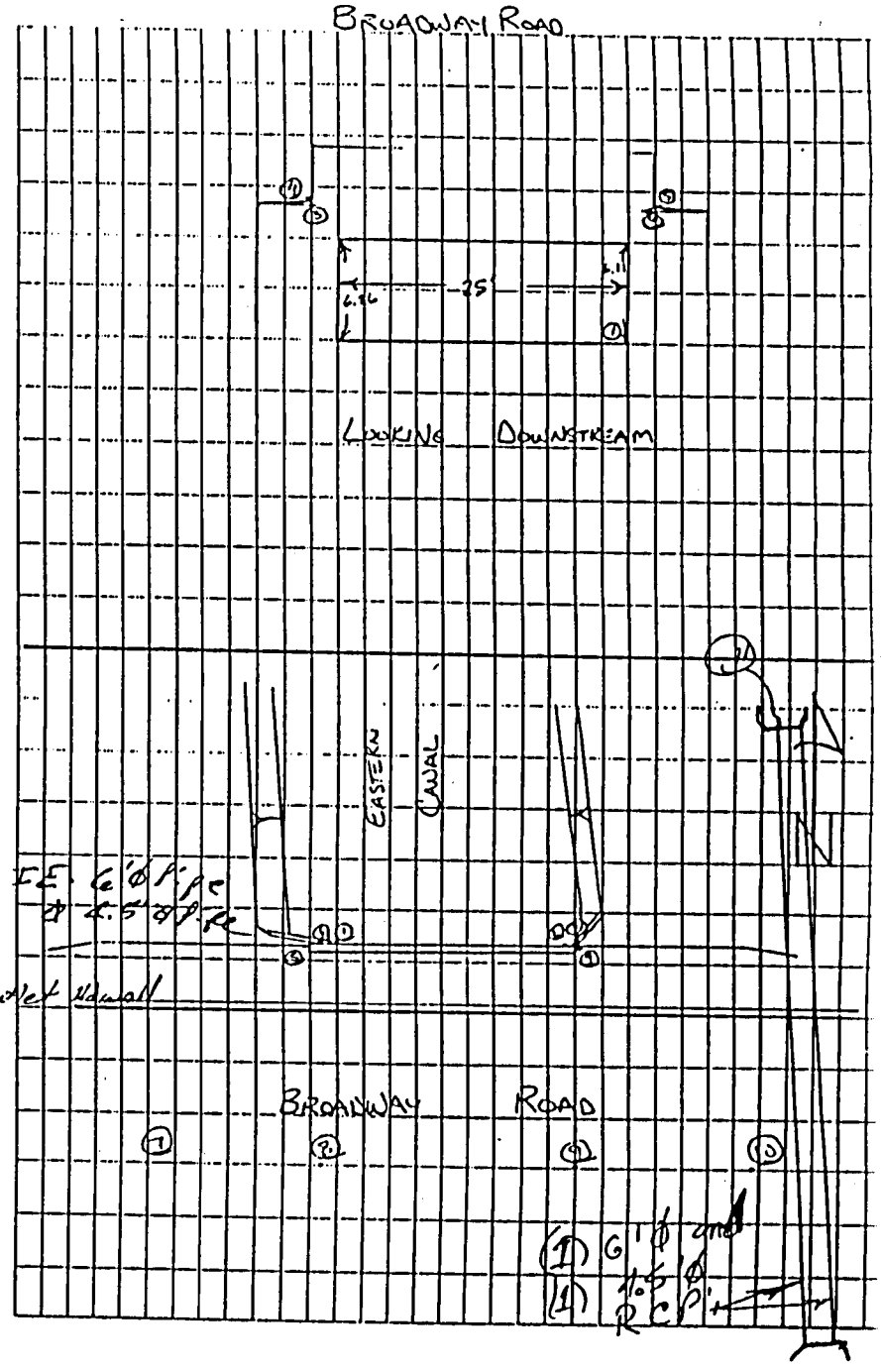
Backsight 4.98 on Wingwall

4.17 on S/W

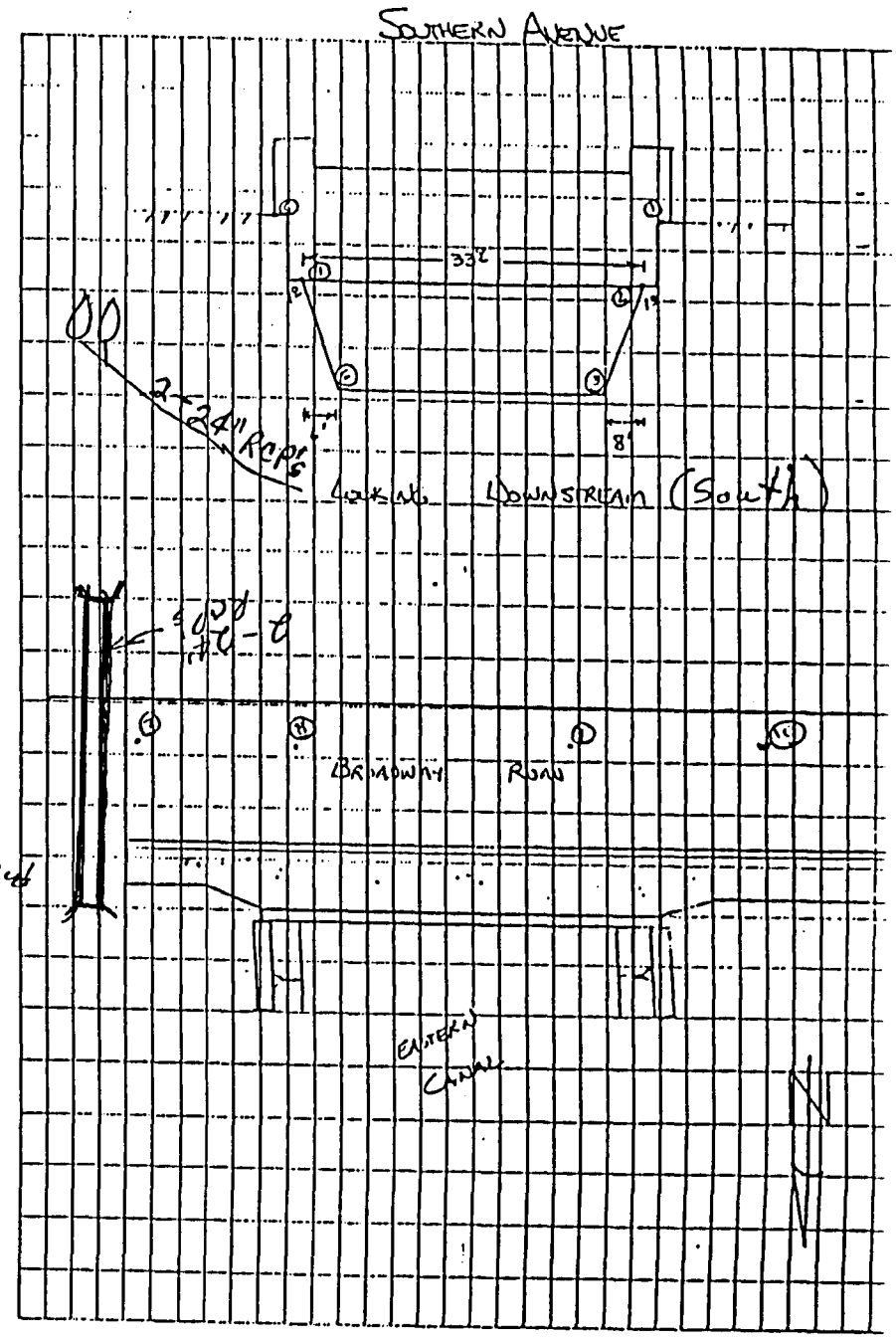


| Sta | BS+ | H.I. | FS- | Elev | Remarks |
|---|---|---|---|---|---|
| TBM #190 | | | | 1288.477 | "+" in Conc |
| | 4.60 | 1293.08 | | | |
| 1 | | | 12.30 | 1280.78 | Invert |
| 2 | | | 12.24 | 1280.84 | Invert |
| 3 | 4.05 | 1292.53 | 4.60 | 1288.48 | Top of Wingwall |
| 4 | | | 4.31 | 1288.71 | B/W |
| 5 | | | 4.30 | 1288.78 | B/W |
| 6 | | | 4.60 | 1288.48 | Top of Wingwall |
| 7 | | | 4.30 | 1288.78 | Pvmt |
| 8 | | | 4.51 | 1288.57 | Pvmt |
| 9 | | | 4.50 | 1288.58 | Pvmt |
| 10 | | | 4.51 | 1288.57 | Pvmt |
| TBM #190 | | | 4.60 | 1288.48 | ✓ |
| 11 | | | 4.98 | 1287.55 | Top Hdwall 8.4' Above F.E. 6'ϕ Pipe & 4.5' ϕ Pipe |
| | | | | | Invert = 1279.15 |
| T.B.M | 3.89 | 1291.67 | 4.75 | 1287.78 | M.H. Rim 150' N. of outlet Hdwall |
| | | | 7.43 | 1284.24 | Top Hdwall outlet |
| | | | | | 7.52' Top Hdwall to F.E. |
| | | | | | Invert = 1276.72 |

2.3(15)



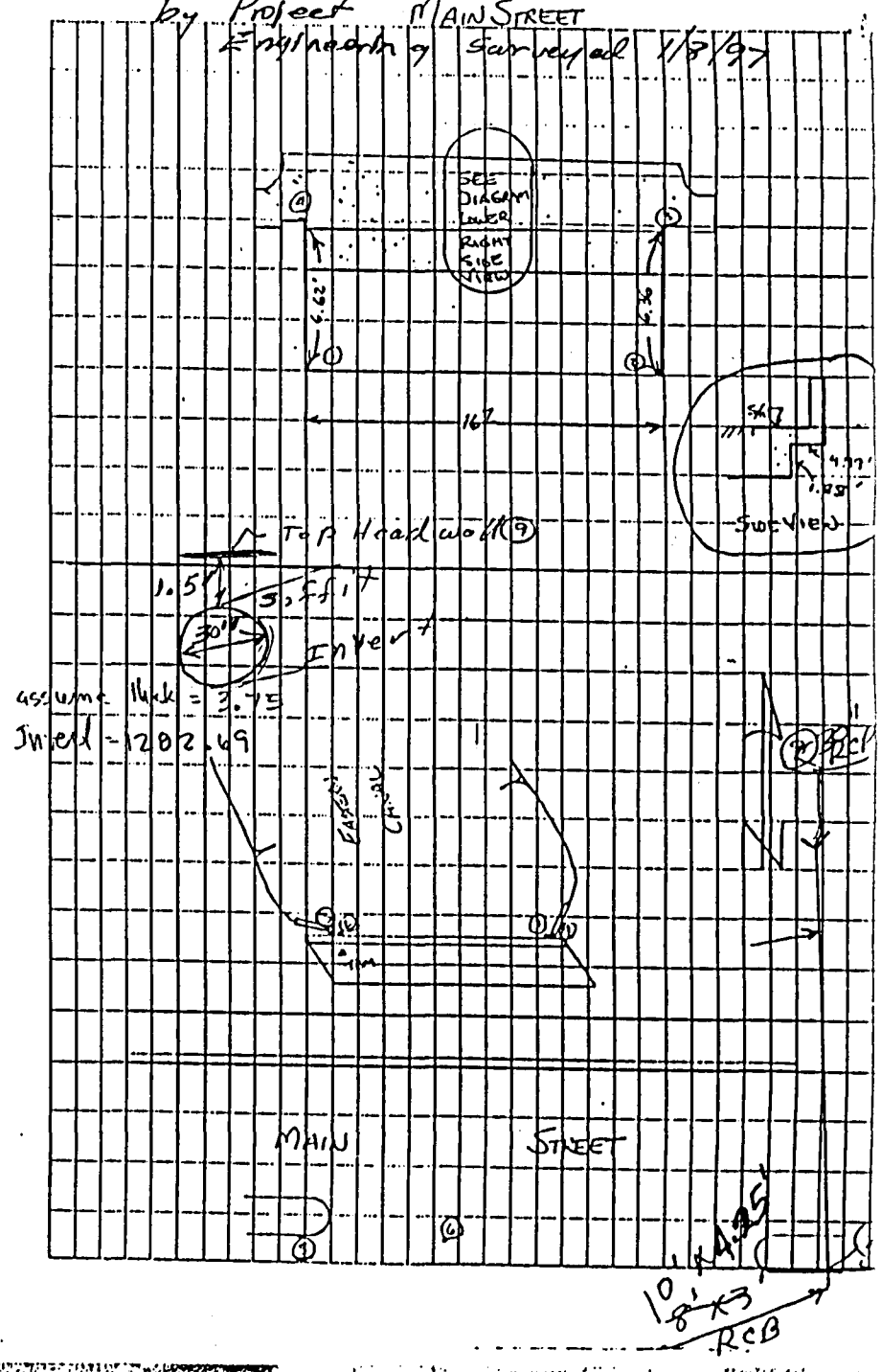
| STA | BS+ | H.I. | FS- | ELEV | REMARKS |
|---|---|---|---|---|---|
| TBM#216 | | | | 1285.828 | SRP BC. |
| | 5.87 | 1291.70 | | | |
| 1 | | | 4.49 | 1287.21 | Top of Wingwall |
| 2 | | | 7.75 | 1283.95 | Top of Abutment |
| 3 | | | 12.90 | 1278.80 | Toe of Slope |
| 4 | | | 7.65 | 1284.05 | Top of Abutment |
| 5 | | | 12.63 | 1279.07 | Toe of Slope |
| 6 | 4.03 | 1291.37 | 4.36 | 1287.34 | Top of Wingwall |
| 7 | | | 4.92 | 1286.78 | Pvmt |
| 8 | | | 4.70 | 1287.00 | Pvmt |
| 9 | | | 4.93 | 1286.77 | Pvmt |
| 10 | | | 5.06 | 1286.64 | Pvmt |
| TBM#216 | | | 5.87 | 1285.83 | ✓ |
| | | | 10.44 | 1280.93 | Inlet I.E. |
| | | | 11.29 | 1280.08 | outet I.E. |
| | | | | 10.1 = 1279.08 | +0.1 For Mud |



3/13/97 Greg S. and Eddie of h / west using Field Notes of Canal Bridges by Project Engineering Surveyed 1/8/97

| STA | BS+ | H.I. | FS- | ELEV | REMARKS |
|---|---|---|---|---|---|
| TBM #183 | 4.38 | 1292.93 | | 1288.548 | AND BC. |
| | 5.57 | 1294.12 | | | |
| 1 | | | 12.33 | 1281.79 | Invert |
| 2 | | | 12.36 | 1281.76 | Invert |
| 3 | | | 5.58 | 1288.54 | Top of Wingwall |
| 4 | | | 5.41 | 1288.71 | Top of Wingwall |
| 5 | | | 6.39 | 1287.73 | Point |
| 6 | | | 6.15 | 1287.97 | Point |
| 7 | | | 6.06 | 1288.06 | Point |
| 8 | | | 5.78 | 1288.34 | Point |
| TBM #183 | | | 5.56 | 1288.56 | ✓ |
| 9 | | | 5.93 | 1287.00 | Inlet T. Hdwll 1.5' T.H. to Soffit |
| 10 | | | 10.66 | 1282.27 | I.E. outlet 10.5' x 4.25' RCB. |

2.3 (14)



# Appendix E.7

# "N" Value Report

FOR: GREG SCHUELKE, P.E.

# TRANSMITTAL

**PROJECT ENGINEERING CONSULTANTS, LTD.**
ENGINEERS ◻ PLANNERS ◻ SURVEYORS

| | |
|---|---|
| TO: Baker Eng | DATE: 1-16-97 |
| 1313 E Osburn # 150 | JOB NO. Mesa ADMS |
| | RE: Culverts on Eastern Canal |
| ATTN: Bob Davies | |

THE FOLLOWING ITEMS ARE TRANSMITTED:

☒ Herewith ☐ Under Separate Cover

2 Copies of Field notes
of Culvert measurements & Inverts
along the Eastern Canal

THE ABOVE ITEMS ARE SUBMITTED:

| | | |
|---|---|---|
| ☐ Per Your Request | ☒ For Approval | ☐ Resubmit For Approval |
| ☐ For Review | ☒ For Your Use | ☐ For Bid |
| ☐ For Recording | ☐ For Your Signature | ☐ For Your Records |

REMARKS:

Please give me a call if you need anything Else.

COPY TO: _____

Signed Karl Mortensen

2.3 (1)

3130 N. 35th Avenue, Suite 1, Phoenix, Arizona 85017 (602) 484-7691 FAX (602) 484-7694

# TECHNICAL DATA NOTEBOOK
# EASTERN CANAL FIS
# SECTION 4.2 FIELD RECONNAISSANCE AND HYDRAULIC PARAMETER ESTIMATION
# FCD NO. 96-10

JANUARY 30, 1997

PREPARED FOR:
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
2801 WEST DURANGO STREET
PHOENIX ARIZONA 85009

AND

CITY OF MESA
ENGINEERING DEPARTMENT
55 NORTH CENTER STREET
MESA, ARIZONA 85211-1466

Registered Professional Engineer (Civil)
CERTIFICATE NO.
15290
GREGORY A.
SCHUELKE
Date Signed 1/30/97
ARIZONA, U.S.A.

A-N WEST NO. 7158-04

A-N WEST INC.
Consulting Engineers
7600 North 15th Street, Suite 200
Phoenix, Arizona 85020
(602) 861-2200

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  - 4.2.1.2 Methodology.....1
- 4.2.2 Expansion and Contraction Coefficients.....2
- 4.2.3 Hydraulic Jump/Drop Analysis.....2
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- 4.2.5 Observation of Possible Overflow Areas.....3


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## APPENDIX A


Field Photos ..... A-1 - A-13
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Registered Professional Engineer (Civil)
CERTIFICATE NO.
15290
GREGORY A.
SCHUELKE
Date Signed 1/30/97
ARIZONA, U.S.A.

# TECHNICAL DATA NOTEBOOK
# EASTERN CANAL FIS
# SECTION 4.2 FIELD RECONNAISSANCE AND HYDRAULIC PARAMETER ESTIMATION

## 4.2 FIELD RECONNAISSANCE & HYDRAULIC PARAMETER ESTIMATION

### 4.2.1 Manning's 'n' Values

**4.2.1.1 Introduction.** On September 6, 1996 and January 14, 1997, A-N West, Inc. made a reconnaissance field trip to the Eastern Canal to photograph and evaluate Manning's 'n' values. The study reach proceeded from the Baseline Road north to Hermosa Vista Drive, along the upstream (east side) of the Eastern canal, a distance of approximately 6.5 miles. The Eastern Canal study reach area is shown on Figures 1 and 2. Figure 1 shows the extent of the study in reference to the surrounding area. Figure 2 shows the location of photograph I.D. numbers and their directions.

**4.2.1.2 Methodology.** Manning's 'n' values were estimated using two references. The first document, "Estimated Manning's Roughness Coefficients for Stream Channels and Floodplains in Maricopa County, Arizona", was prepared by U.S. Geological Survey (USGS) Water Resources Division by B.W. Thompson and H.W. Hyalmarsen for the Flood Control District of Maricopa County, dated, April, 1991. The other reference used was "Open Channel Hydraulics" which was written by Ven Te Chow, Ph.D.; published by McGraw Hill Book Company in 1959.

Field visit observations of vegetation, and channel and overbank 'n' value characteristics were noted and representative photographs were taken. The photos are included in this report and are referenced with orientation of photo, estimated 'n' values and location by geographical proximity to landmarks such as streets, Eastern Canal.

Using the USGS document, "Open Channel Hydraulics," field photos and site observations, Manning's 'n' values were estimated at several key locations of the floodplain just east of the Eastern Canal. In some cases, a typical cross section will indicate overbanks with different 'n' values to account for different vegetation. Dr. Chow's text, "Open Channel Hydraulics", was used for special topography like the citrus groves because the USGS document did not cover this vegetation adequately.

It is anticipated that the NH record option of the HEC-2 model will be used to subdivide the distinct 'n' value sub-elements which were noted in the channel and overbank areas.

### 4.2.2 Expansion and Contraction Coefficients:

Expansion and contraction of flows due to changes in channel cross section were estimated to be somewhat abrupt as flow expands and contracts through the developed area. Therefore, expansion and contraction coefficients of 0.5 and 0.3, respectively, are proposed based on the HEC-2 model user manual's discussion of these parameters. Because of the low velocities along the canal due to the mild longitudinal slope of approximately 0.00032 ft/ft, expansion and contraction losses are not expected to be significant.

### 4.2.3 Hydraulic Jump/Drop Analysis:

Hydraulic jumps are not anticipated along the study reach. The overall slope along the 6.5 mile study reach is 0.00032 ft/ft, which is very mild.

### 4.2.4 Inventory of Road Crossings & Drainage Structures:

The following Table 1 shows an inventory of road crossings, drainage structures and sizes along the Eastern Canal study limits.

As noted on Table 1, the culverts under several of the downstream road crossings are expected to be accounted for by either modeling the culverts by special culvert routine or by subracting the estimate culvert capacity from the discharge being modeled at the road crossing cross-sections, where culverts are located.

## TABLE 1

## EASTERN CANAL FIS
## ROAD CROSSING AND DRAINAGE STRUCTURE SUMMARY

| River Mile | Location | Description | Structure Type/Size |
|---|---|---|---|
| 16.477 | Baseline Road | Major Street with 1± Foot Dip(2) | 2-4' RCP's x 130'/Hdwall and Trsh RK(1) |
| 16.938 | Greenfield Rd. | Major Street with 0.3± foot Dip(2) | 1-4' RCP x 95'/Hdwall(1) |
| 17.160 | U.S. 60 Freeway | Freeway with overpass, No Dip(2) | 1-4' RCP x 135'/Hdwall and ½ TRSH RK(1) |
| 17.59 | Southern Avenue | Major Street with 1.3± foot Dip(2) | 2-24" RCP's x 160' with Hdwall (Bell End)(1) |
| 18.680 | Broadway Road | Major Street with 0.5± foot Dip(2) | 1-6' and 1-4.5' RCP x 1100' with Hdwall and vertical TRSH RK(1) |
| 19.251 | Main St. (Apache Blvd) | Major Street, No Dip(2) | Inlet-1-30" RCP x 260' with Hdwall (Bell End)(1). Outlet - 1-8' x 3' RCB± |
| 19.526 | Val Vista Dr. | Major Street, with 0.5± foot Dip(2) | 1-30" RCP x 1780' with Hdwall and TRSH RK(3) |
| 19.832 | University Dr. | Major Street with 0.5± foot Dip(2) | same as pipe at Val Vista Drive(3) |
| 20.402 | Adobe Street | Major Street with 3± foot Dip(2) | Approx. 2 foot storm sewer size(3) |
| 20.987 | Brown Road | Major Street with 1± foot Dip(2) | Approx. 2 foot storm sewer size(3) |
| 21.529 | Lindsay Road | Major Street with 2± foot Dip(2) | Approx. 2 foot storm sewer size(3) |
| 22.230 | McKellips Road | Major Street with 1.1± foot Dip(2) | 1-24" RCP with Hdwall(3) |
| 22.916 | Gilbert Road | Major Street with 2± foot Dip(2) | No Culvert/S.D. |

Notes:

1. Anticipate modeling culverts in HEC-2 model by special culvert option with road profile for weir flow over road or by subtracting the estimated culvert capacity from flow at cross-section locations where culverts are located.
2. Dip denotes road profile which dips or is depressed below adjacent top of road at the canal to cause flow over road before flow over canal on road.
3. Where storm drain is noted, it is assumed the hydrology modeling reflects storm drain capacity.
4. TRSH RK = Trash Rack. Hdwall = Headwall. RCP = Reinforced Concrete Pipe. RCB = Reinforced Concrete Box Culvert.

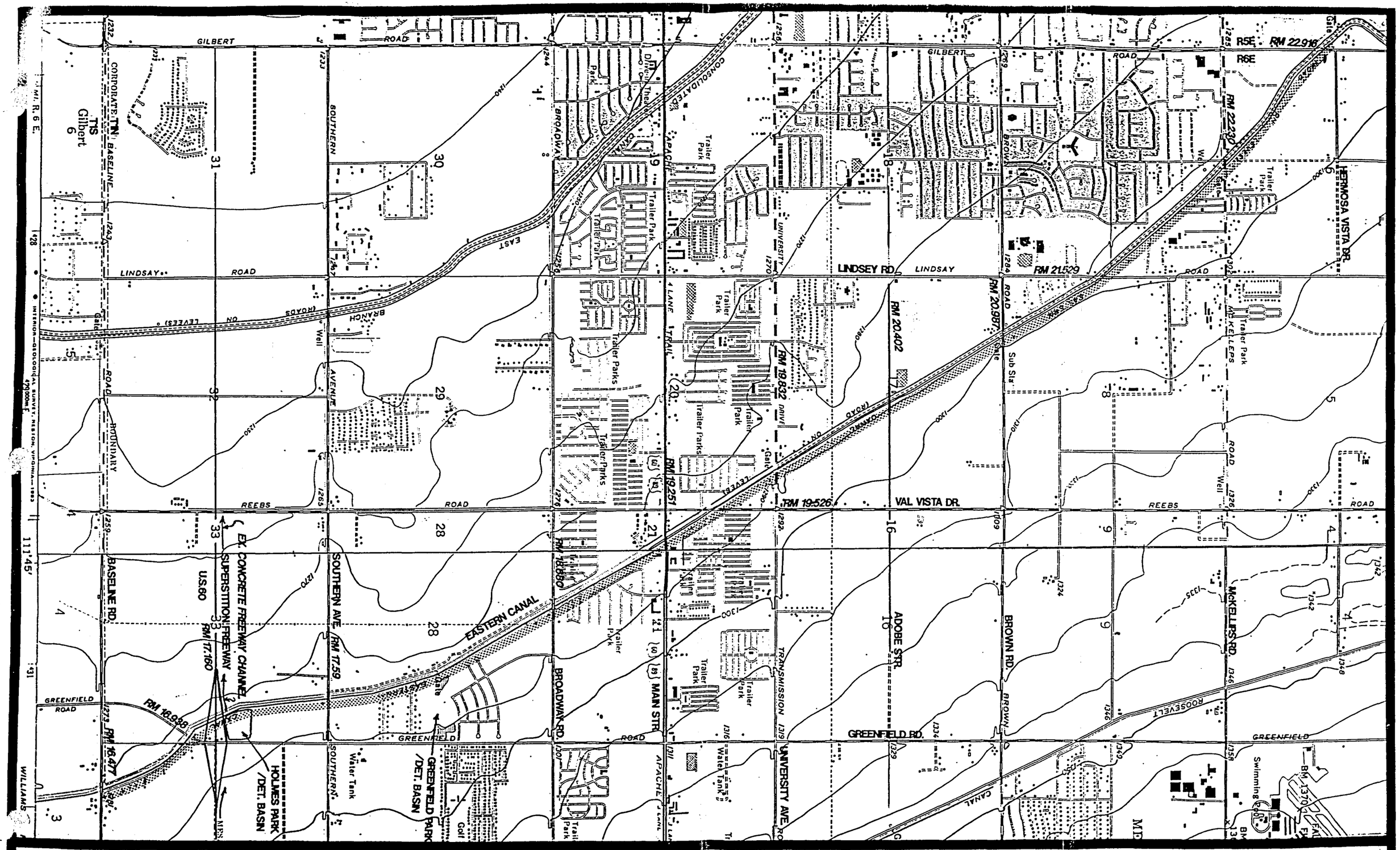
**4.2.5 Observation of Possible Overflow Areas:** The continuous conveyance capacity along the upslope side of Eastern Canal is limited by a number of factors including:

a) Very mild average longitudinal slope over 6.5 mile project length of 0.00032 ft/ft.
b) As shown by Table 1, small culverts and storm drains and minimal or no dip or depressed roadway upslope of the canal to convey flow across the roads.
c) Mild, natural ground ridges (as shown on project 200 scale, 2 ft. C.I. mapping), which intersect the Eastern Canal, most notably at River Mile 20.268 (700 ft. south of Adobe Street) and River Mile 22.331 (500 ft. north of McKellips Road).

At the U.S. 60 freeway, for example, the 4 foot diameter x 195 foot long RCP has a capacity of approximately 65 CFS (5 fps., velocity) at an assumed 1 foot head loss. Flow over this capacity would overflow into the Eastern Canal and then likely into the freeway drainage channel (flowing westerly along the north side of freeway).

At Main Street, the 30 inch RCP culvert at the upstream side has approximately 25 CFS capacity. With no significant dip or depressed road profile, breakout across the canal on the street bridge would be anticipated for flows over this 25 CFS.

At the two ridges noted at River Mile 20.268 and 22.331, there was a small swale noted during field site visits along the immediate upslope side of the canal. The swales were perhaps 15 feet wide x 0.5 deep from top of adjacent canal bank. Assuming 5 fps velocity, such a swale could convey approximately 40 CFS before overtopping of the adjacent canal bank occurs.




ANW NO.7158-04
FCDMC NO.96-10

A-N WEST INC.

SCALE-2000'

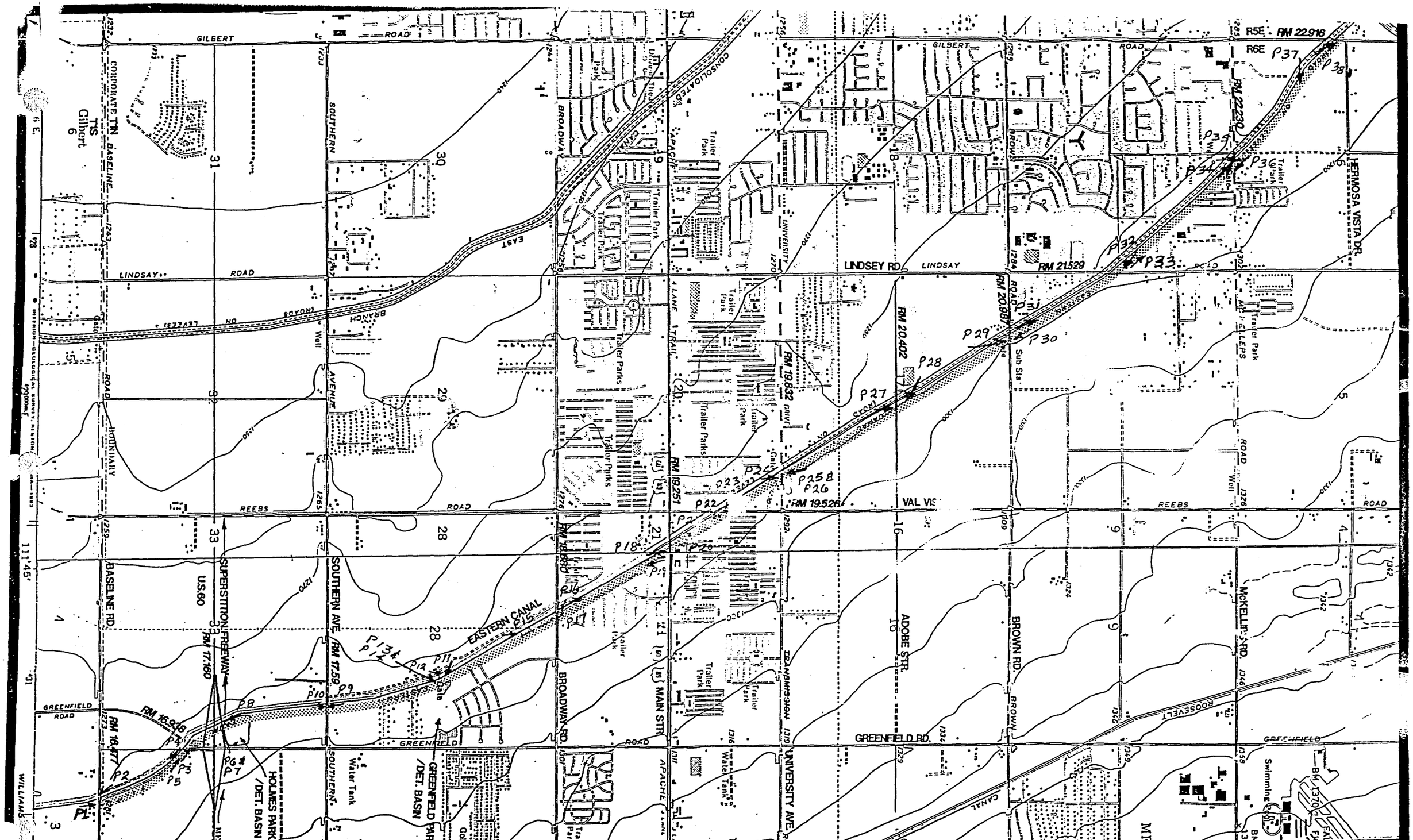
*EXPLANATION*

STUDY LIMITS

*RM 16.477 RIVER MILE NO.*

LOCATION MAP
EASTERN CANAL FIS

*FIGURE 1*




ANW NO.7158-04
FCDMC NO.96-10

A·N WEST INC.
Consulting Engineers

0 2000
SCALE 1"=2000'

**EXPLANATION**

STUDY LIMITS

P1 SITE PHOTO I.D. AND DIRECTION

***SITE VISIT PHOTO*** LOCATION MAP
EASTERN CANAL FIS

***FIGURE 2***

#1 Upstream at Baseline Rd.

2 - 48" RCP's in Inlet and outlet Headwall.

Inlet Headwall has Trash Rack with 30° Angle From Vertical

# 2 Downstream From Baseline Rd.

$n_{(LOB)} = 0.03$

$n_{(C)} = 0.04$

#3 Upstream From Greenfield Rd.

1 - 48" RCP in Headwall (Inle and outlet)

Field Visit

# 4 Downstream From Greenfield Rd.

$n_{(LOB)} = 0.035$
$n_{(C)} = 0.04$

# 5 Upstream at Outlet Headwall of 1-48" RCP Under Greenfield Rd.

Match P. 4-3 Top

# 6
Downstream at concrete channel Flowing west Along North side U.S. 60 and Detention Basin Holmes Park From near Greenfield Rd.

In Background is 48" RCP, Mitered End under Eastern Canal

Match PA-2 Bo m

#7
Looking Northwest From Same Location As Photo # 6 at Detention Basin / Holmes Park

Eastern Canal In Background.

#8

Downstream at Inlet of 48" RCP Across U.S. 60 with Head wall and Damaged (1/2 Gone) of Vertical Trash Rack

Conc. Chann. $n = 0.015$

#9
Downstream at One 24" RCP Culvert Under Southern Ave. with Headwall (Bell End).

Earth Chann. $n = 0.03\pm$

Field Visit

#10

Upstream From Southern Ave.

$n_{LOB} = 0.035$
$n_{(c)} = 0.035$

#11

Downstream at Concrete Channel Into Greenfield Park / Detention Basin.

$n_{LOB} = 0.03$
$n_{channel} = 0.015$

#12

Upstream at Concrete Channel From Greenfield Park / Detention Basin.

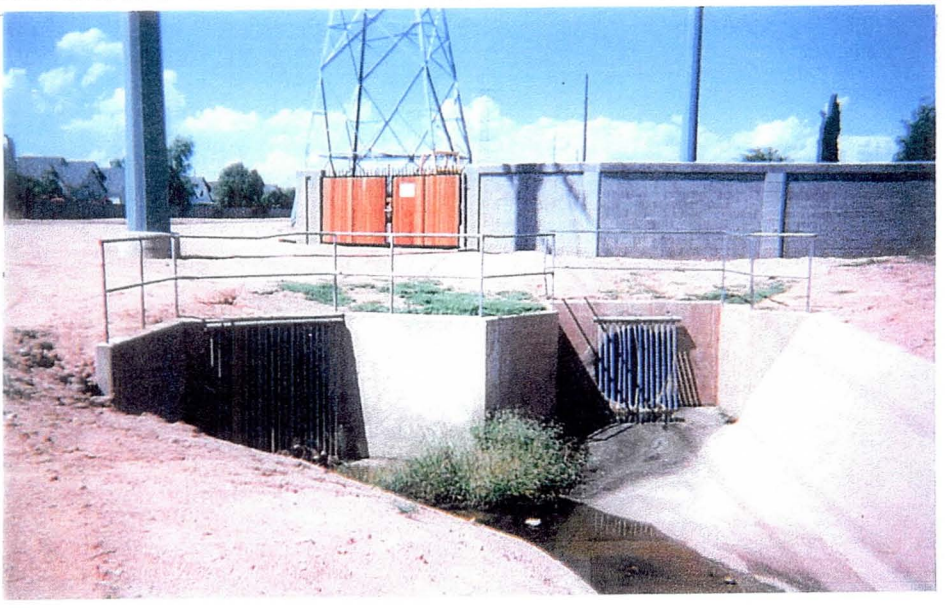
Weighted
$n_{channel} = 0.024$
Top Bank to Wall
$n_{Houses} = \underline{0.25}$

#13 Upstream at Greenfield Park / Detention Basin At Pump Outfall

Match Below Lt.

Match Above, Rt.

#14 Same as #13 Above



#15 Upstream At 1-6'Ø RCP (Left) and 1-4.5'Ø RCP (Right) with Headwall and Vert. Trash Racks.

Approx. 950 FT South of Broadway Rd.

#16 Downstream at Inlet of 1 - 4.5' ϕ RCP and 1 - 6' ϕ RCP with Headwall and Vert. Trash Racks

Approx. 100 Foot North of Broadway Rd.

#17 Upstream From Same Location as Photo #16 At Concrete Channel

Approx. 5' Deep,
2' Bottom
12' Topwidth
1:1 sideslopes

Wtd. n (Channel - Fence To Top Bank = 0.024

#18 Upstream at Box Culvert Outlet At Main St (Apache Blvd.)

Note: The north side of Road, has 30 inch RCP Per Photo # 20.

n(conc. chann.) = 0.015

#19
Downstream From South side of Main Street (Apache Blvd.) at Concrete Channel

Bottom 2'±
Topwidth 10'±
Depth 4'±

n (conc. chann.) = 0.015

#20
Downstream at 30"Ø RCP In Headwall (Bell End) At Main Street (Apache Blvd.)

Note: Box Culvert At outlet End Per Photo #18

#21
Upstream at Point of Photo #20 Just Upstream (North of Main Str. (Apache Blvd.)

wtd channel n=.035
(Top /Bank to Large Trees

# 22.

Upstream at Pipe Outlet At Val Vista Blvd.

2'ø± RCP In Headwall

Wtd. Chann. n = .035
(Top Bank to Large Trees

#23 Downstream at Val Vista Blvd. (Back ground) and Catch Basin (Foregrou with 15" to 18" Connector Pipe To 24"? RCP

n chann. = 0.030
(Top/Bank to Fence or shrubs - width = 25'±

#24

Upstream at Univers Dr. sign Noting "city of Mesa Storm Drain In Back grd.

Shallow Swale This Location

n chann. = 0.030
(Top Bank To Fence or Shrubs - width = 25

#25
Downstream at University Dr and 30" RCP In Drop Inlet with Headwall and Trash Rack

#26
Closeup of same 30" RCP / Headwall as Photo #24

#27 Upstream at Adobe Street
Note: "City of Mesa Storm Drain" sign In Background, Rt.

#28 Downstream at Inlet of 18" RCP In Headwall w/ Trash Rack, North side of Adobe street.

Pipe Angles To East Toward small Detention Basin Behind Block wall

#29 Upstream at Brown Road

Note: "City of Mesa Storm Drain" sign To Rt. side

#30 Downstream at Brown Rd.

#31
Upstream
North side of
Brown Road

n = 0.030 (open land)

#32
Downstream at
Lindsey Rd.
Pipe Headwall To
Left (In Trees)
With 2' Ø RCP
(Square Edge)

#33
Upstream From
North side Lindsey
Road

n(chann) = 0.035
(Top Bank to Fence)

# 34
Upstream at Outlet of 24"ϕ RCP Under McKellips Road

n(chann.) = 0.035
(Top/Bank to Fence)

# 35
Upstream From McKellips Road Depressed Parking In Apartment complex with Retention and Pump

Note: A 24" RCP In Headwall Is In Background

# 36 Downstream From North Side of McKellips Rd.

nchann. = 0.035
(Top Bank to Fence)

#37
Downstream at Park Along Canal Between McKellips and Gilbert Rd

$n_{chann} = 0.030$
(Top Bank to Fence)
$n_{LOB} = 0.030$
(Park / Det. Basin

#38
Upstream at Gilbert Rd / Hermosa Vista Dr

$n = 0.030$ (Chann.)
(Top / Bank To Fence)

Table 2.--*Adjustment factors for the determination of overall Manning's n values*

[Modified from Chow, 1959]

| Channel conditions | Manning's n adjustment[1] | Example |
|---|---|---|
| Degree of irregularity: | | |
| Smooth | 0.000 | Smoothest channel attainable in given bed material. |
| Minor | .001- .005 | Channels with slightly eroded or scoured side slopes. |
| $n_1$ Moderate | .006- .010 | Channels with moderately sloughed or eroded side slopes. |
| Severe | .011- .020 | Channels with badly sloughed banks; unshaped, jagged, and irregular surfaces of channels in rock. |
| Effects of obstruction[2]: | | |
| Negligible | .000- .004 | A few scattered obstructions, which include debris deposits, stumps, exposed roots, logs, piers, or isolated boulders, that occupy less than 5 percent of the cross-sectional area. |
| Minor | .005- .015 | Obstructions occupy 5 to 15 percent of the cross-sectional area and the spacing between obstructions is such that the sphere of influence around one obstruction does not extend to the sphere of influence around another obstruction. Smaller adjustments are used for curved smooth-surfaced objects than are used for sharp-edged angular objects. |
| $n_2$ Appreciable | .020- .030 | Obstructions occupy from 15 to 50 percent of the cross-sectional area or the space between obstructions is small enough to cause the effects of several obstructions to be additive, thereby blocking an equivalent part of a cross section. |
| Severe | .040- .060 | Obstructions occupy more than 50 percent of the cross-sectional area or the space between obstructions is small enough to cause turbulence across most of the cross section. |
| Vegetation: | | |
| Small | .002- .010 | Dense growths of flexible turf grass, such as Bermuda, or weeds where the average depth of flow is at least two times the height of the vegetation; supple tree seedlings such as willow, cottonwood, arrow weed, or saltcedar where the average depth of flow is at least three times the height of the vegetation. |
| $n_3$ Medium | .010- .025 | Grass or weeds where the average depth of flow is from one to two times the height of the vegetation; moderately dense stemmy grass, weeds, or tree seedlings where the average depth of flow is from two to three times the height of the vegetation; moderately dense brush, similar to 1- to 2-year-old saltcedar in the dormant season, along the banks and no significant vegetation along the channel bottoms where the hydraulic radius exceeds 2 feet. |
| Large | .025- .050 | Turf grass or weeds where the average depth to flow is about equal to the height of vegetation; small trees intergrown with some weeds and brush where the hydraulic radius exceeds 2 feet. |

See footnotes at end of table.

A common method of selecting the roughness coefficient, *n*, is to first select a base value of *n* for the bed material (table 1). The base values of *n* are for a straight uniform channel of a given bed material. Cross-section irregularities, channel alignment, obstructions, vegetation, and other factors that increase roughness are accounted for by adding increments of roughness to the base value of *n*. Ranges of adjustments for the factors that may add to channel roughness are ~~shown in table~~ 2.

Many alluvial channels in Maricopa County have bed material that moves during floodflow. In addition to the changing channel geometry of these channels, the roughness coefficient may change during floodflow because of the changing form of the channel bed in parts of the channel cross section (Davidian, 1984). Bedforms, such as dunes, antidunes, and plane bed have been observed during large floods. Within a few minutes, dunes can appear, disappear, and reappear at different locations across a large stream channel. The Manning roughness coefficient can double or triple when the bedform changes from plane to dunes. A method of defining reliable values of Manning's *n* for unstable alluvial channels is not available. A plane bedform is common during large floods, and for this report, plane-bed conditions are assumed where the roughness coefficient is related to the size of the channel material and not the form of the channel bed. Plane-bed conditions were assumed for nearly all indirect measurements of peak discharge where the slope-area method was used.

Table 1.--*Base values of Manning's n for stable channels*

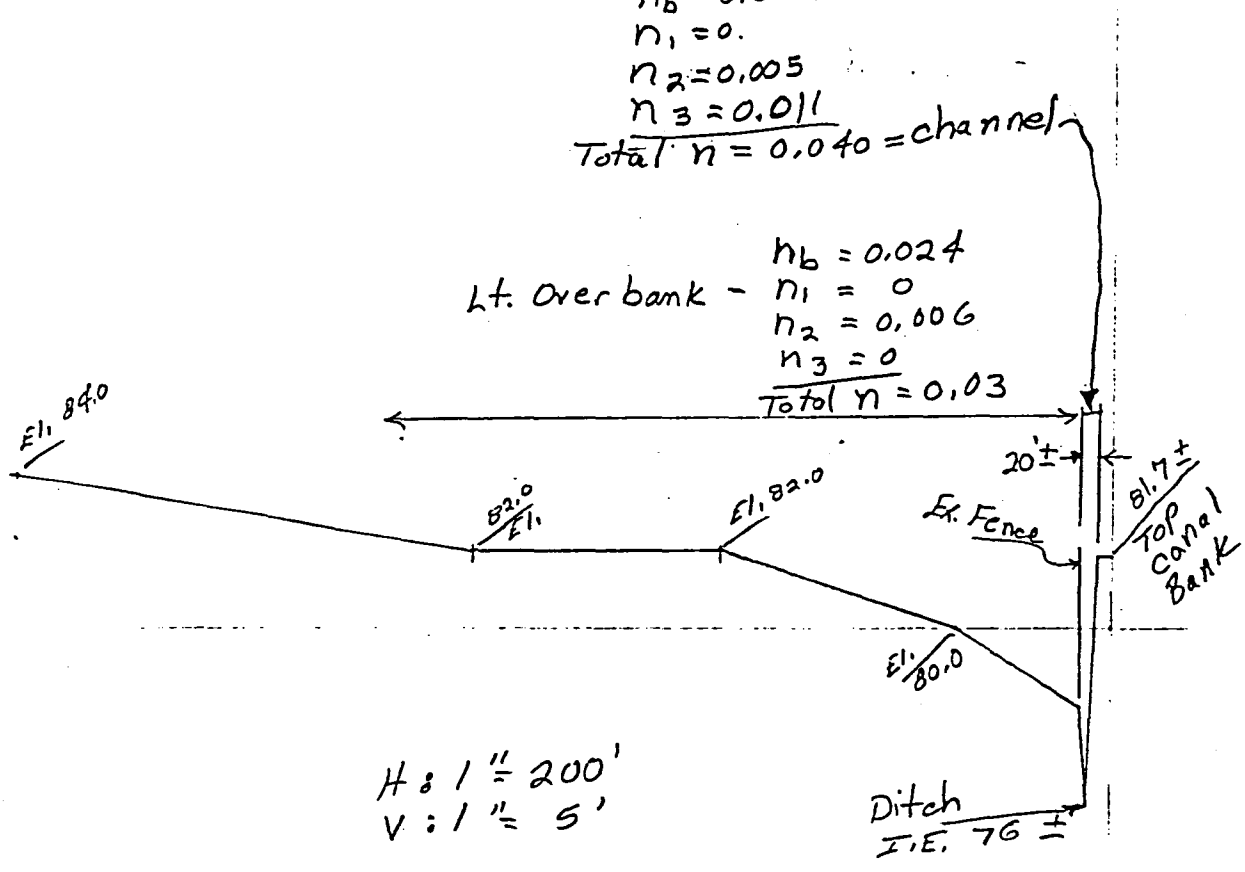
[Modified from Aldridge and Garrett, 1973, table 1]

| Channel material | Size of bed material | | Base *n* values | |
|---|---|---|---|---|
| | Millimeters | Inches | Benson and Dalrymple (1967)[1] | Chow (1959)[2] |
| Concrete..... | ------- | -------- | 0.012-0.018 | 0.011 |
| Rock cut..... | ------- | -------- | ---------- | .025 |
| Firm soil..... | ------- | -------- | .025- .032 | .020 |
| $n_b$ Coarse sand..... | 1-2 | -------- | .026- .035 | ----- |
| Fine gravel..... | ------- | -------- | ---------- | .024 |
| Gravel..... | 2-64 | 0.08-2.5 | .028- .035 | ----- |
| Coarse gravel..... | ------- | -------- | ---------- | .028 |
| Cobble..... | 64-256 | 2.5-10.0 | .030- .050 | ----- |
| Boulder..... | >256 | >10.0 | .040- .070 | ----- |

[1]Straight uniform channel.
[2]Smoothest channel attainable in indicated material.

$n_b = 0.024$
$n_1 = 0.$
$n_2 = 0.005$
$n_3 = 0.011$
Total $n = 0.040$ = channel

Lt. Overbank – $n_b = 0.024$, $n_1 = 0$, $n_2 = 0.006$, $n_3 = 0$
Total $n = 0.03$



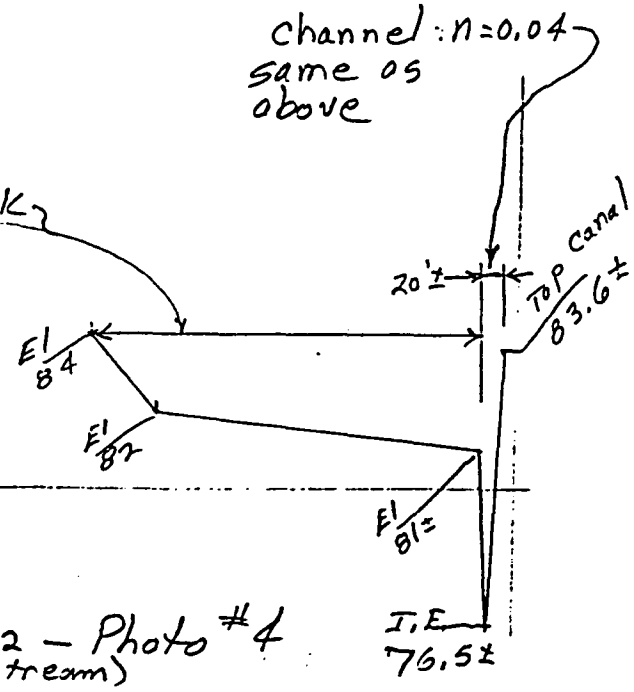

H: 1" = 200'
V: 1" = 5'

Section @ R.M. 16.424 – Photo #2
(Looking Downstream)

---

$n_b = 0.024$
$n_1 = 0$
$n_2 = 0.006$
$n_3 = 0.005$
Total $n = 0.035$, Lt. overbank

Channel: $n = 0.04$ same as above




H: 1" = 200'
V: 1" = 5'

Section @ R.M 16.872 – Photo #4
(Looking Downstream)

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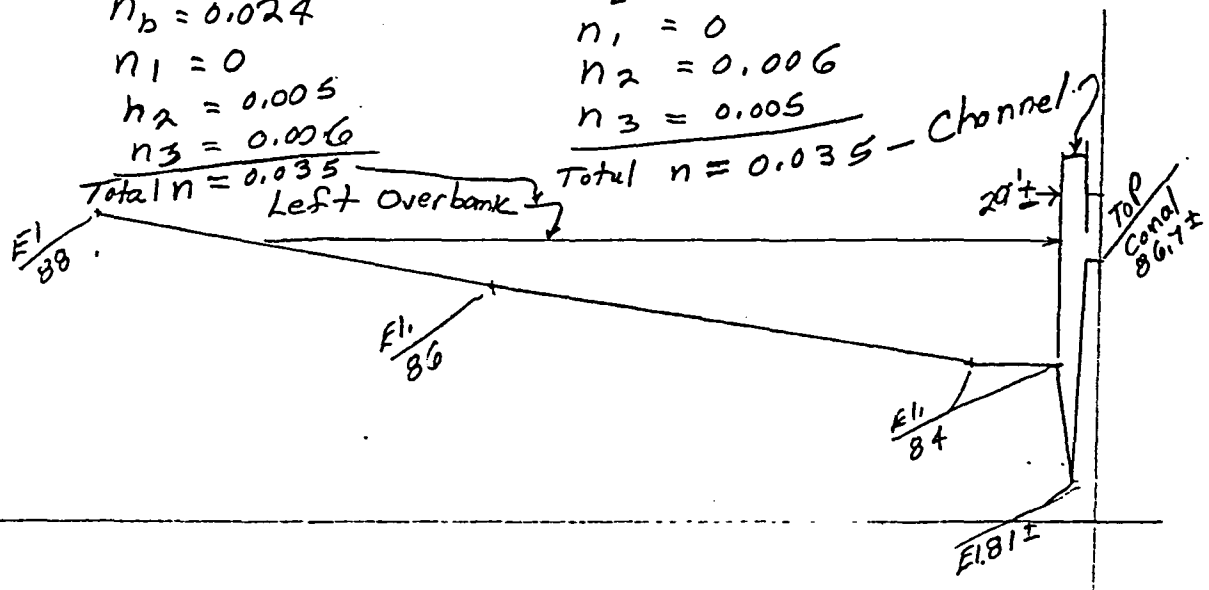
San Jose, California
Phoenix, Arizona

Eastern Canal FIS

Project ____ Sht. ___ of ___
Calc. By GAS Date 1/28/97
Chkd. ____ Date ____

$n_b = 0.024$
$n_1 = 0$
$n_2 = 0.005$
$n_3 = 0.006$
Total $n = 0.035$ Left Overbank

$n_b = 0.024$
$n_1 = 0$
$n_2 = 0.006$
$n_3 = 0.005$
Total $n = 0.035$ – Channel

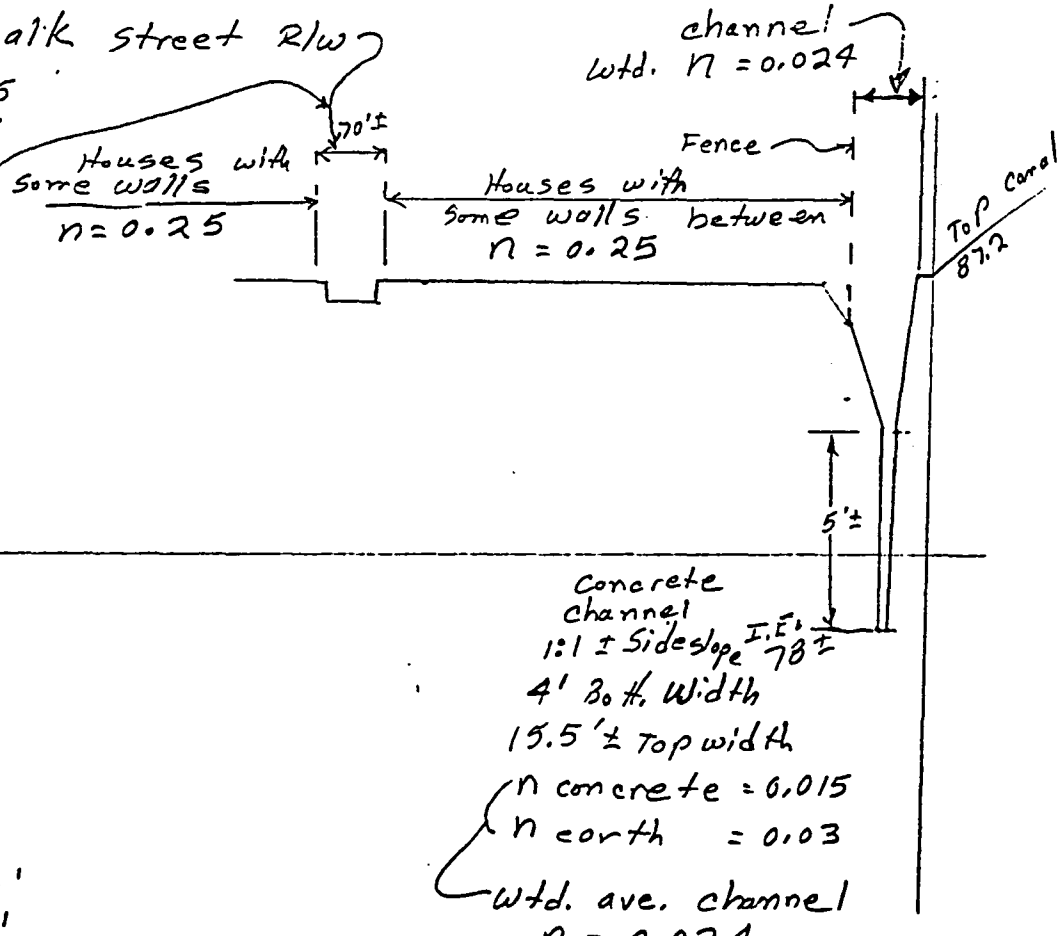



H: 1" = 200'
V: 1" = 5'
Section @ RM 17.685 – Photo #10

Norwalk Street R/W

$n_{pavement} = 0.015$
$n$ Between S/W and Prop. Line $= 0.035$
Wtd $n = 0.020$ street

channel
Wtd. $n = 0.024$




4' Bo. W. Width
15.5'± Top width
$n$ concrete $= 0.015$
$n$ earth $= 0.03$
Wtd. ave. channel $n = 0.024$

H: 1" = 200'
V: 1" = 5'
Section @ RM 18.215 – Photo #12

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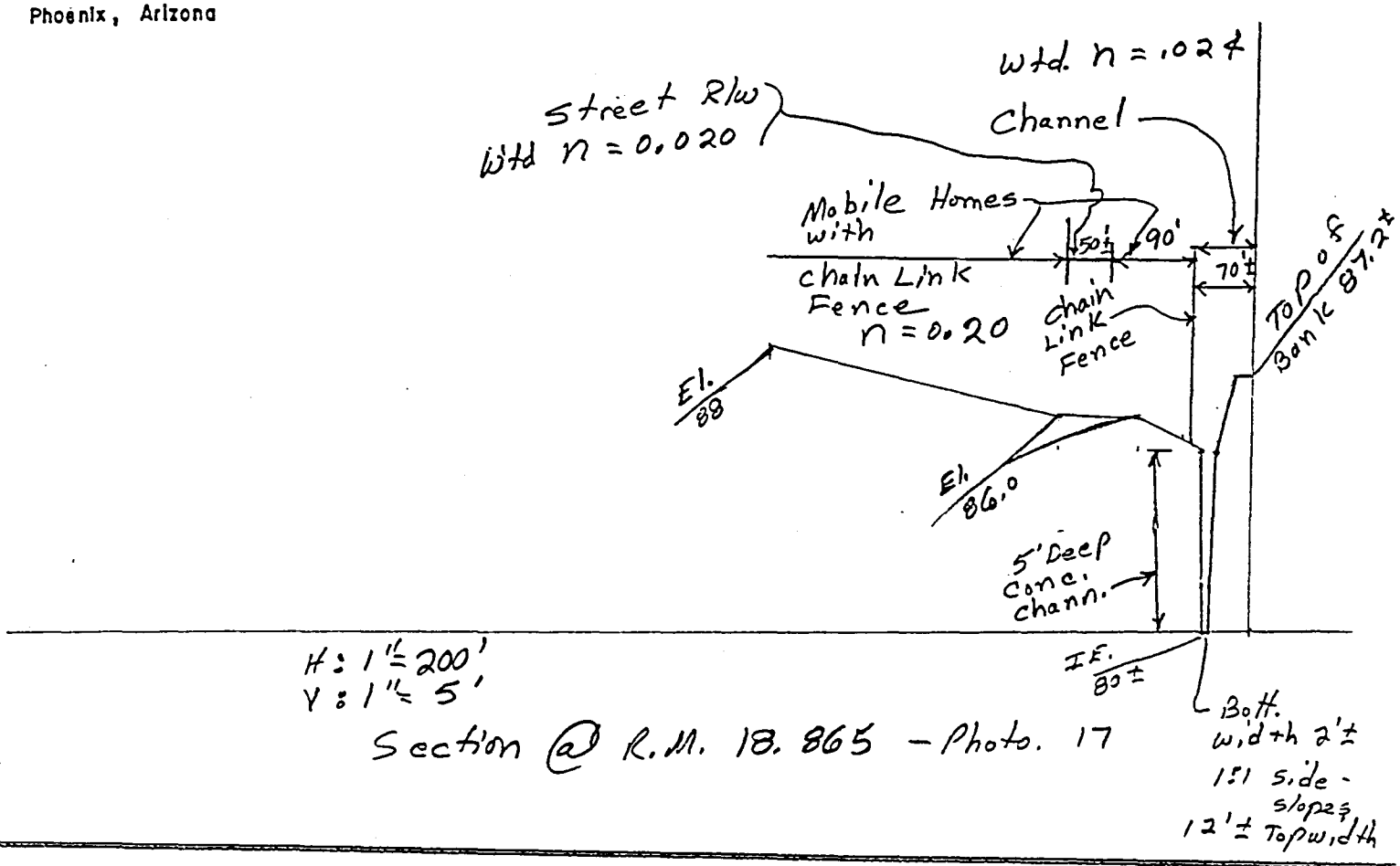
San Jose, California
Phoenix, Arizona

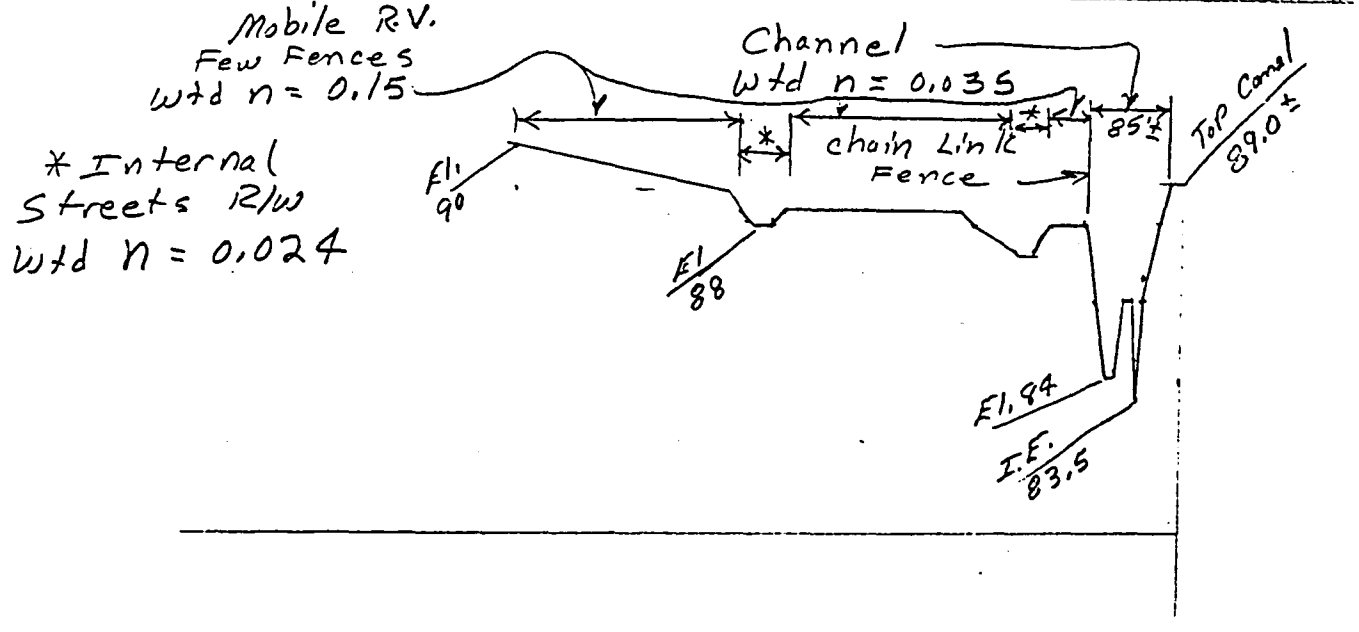
Eastern Canal FIS

Project ____ Sht. ___ of ___
Calc. By GAS Date 1/29/97
Chkd. ____ Date ____




H: 1" = 200'
V: 1" = 5'

Section @ R.M. 18.865 – Photo. 17




* Internal
Streets R/w
wtd n = 0.024

Section @ R.M. 19.455 – Photos 21 and 22

| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 2 | | | |
| 1 | | | |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

## EASTERN CANAL NORTH FLOOD DELINEATION STUDY F.C.D. CONTRACT NO. 98-36

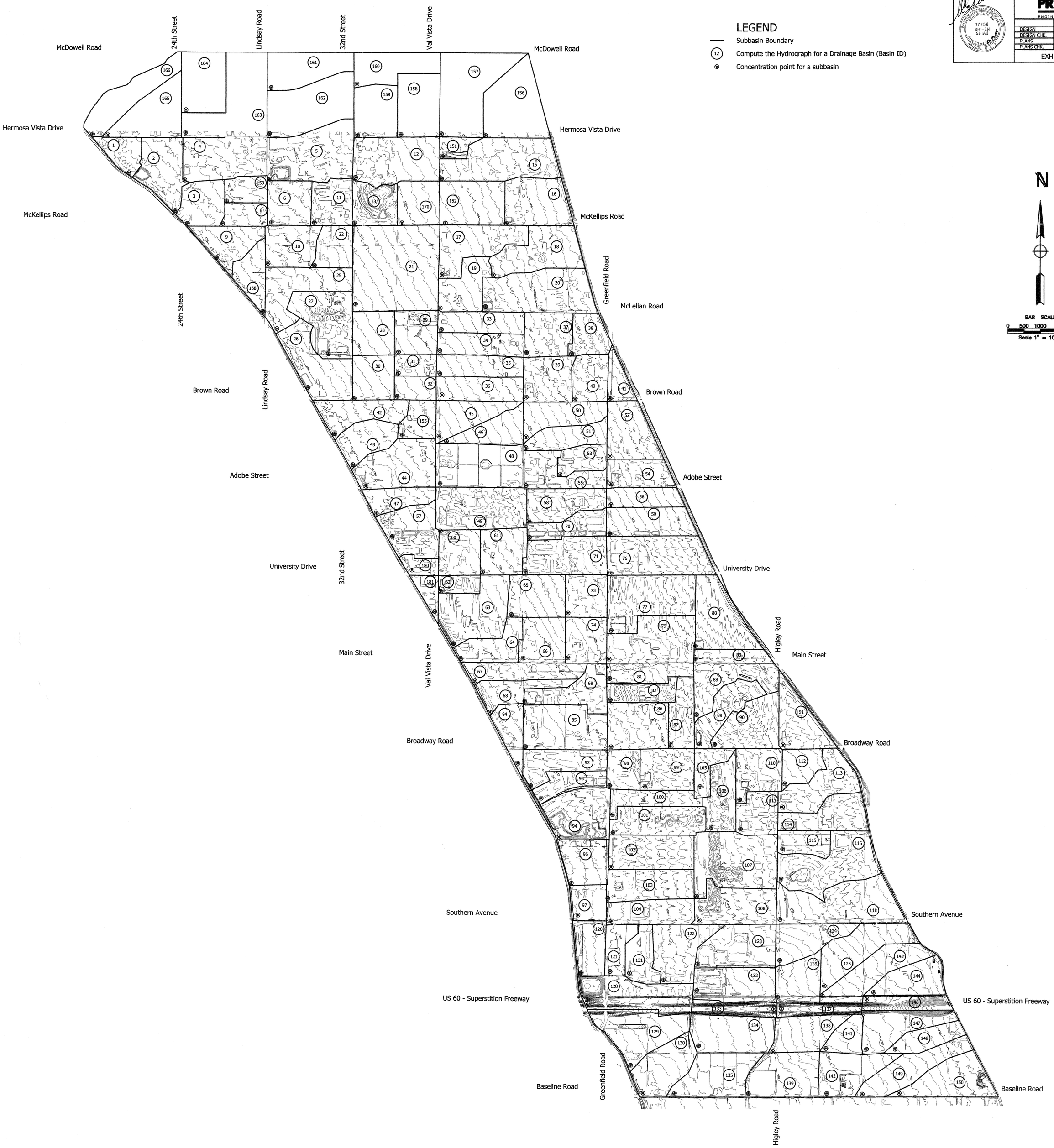
## HYDROLOGY WATERSHED MAP

Registered Professional Engineer (Civil) CERTIFICATE NO. 17756 SHI-EN SHIAU Date Signed 10-2-01 ARIZONA, U.S.A.

**PRIMATECH**
ENGINEERS & CONSULTANTS

| | BY | DATE |
|---|---|---|
| DESIGN | FB | OCT., 2001 |
| DESIGN CHK. | WVH | OCT., 2001 |
| PLANS | - | - |
| PLANS CHK. | - | - |

EXHIBIT 1 SHEET 1 OF 1




NOTE:
Topography for northernmost portion of watershed was not included in the aerial mapping provided. This area was delineated using the USGS 7.5-minute Quadrangle map for Buckhorn, Az.

| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 2 | | | |
| 1 | | | |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

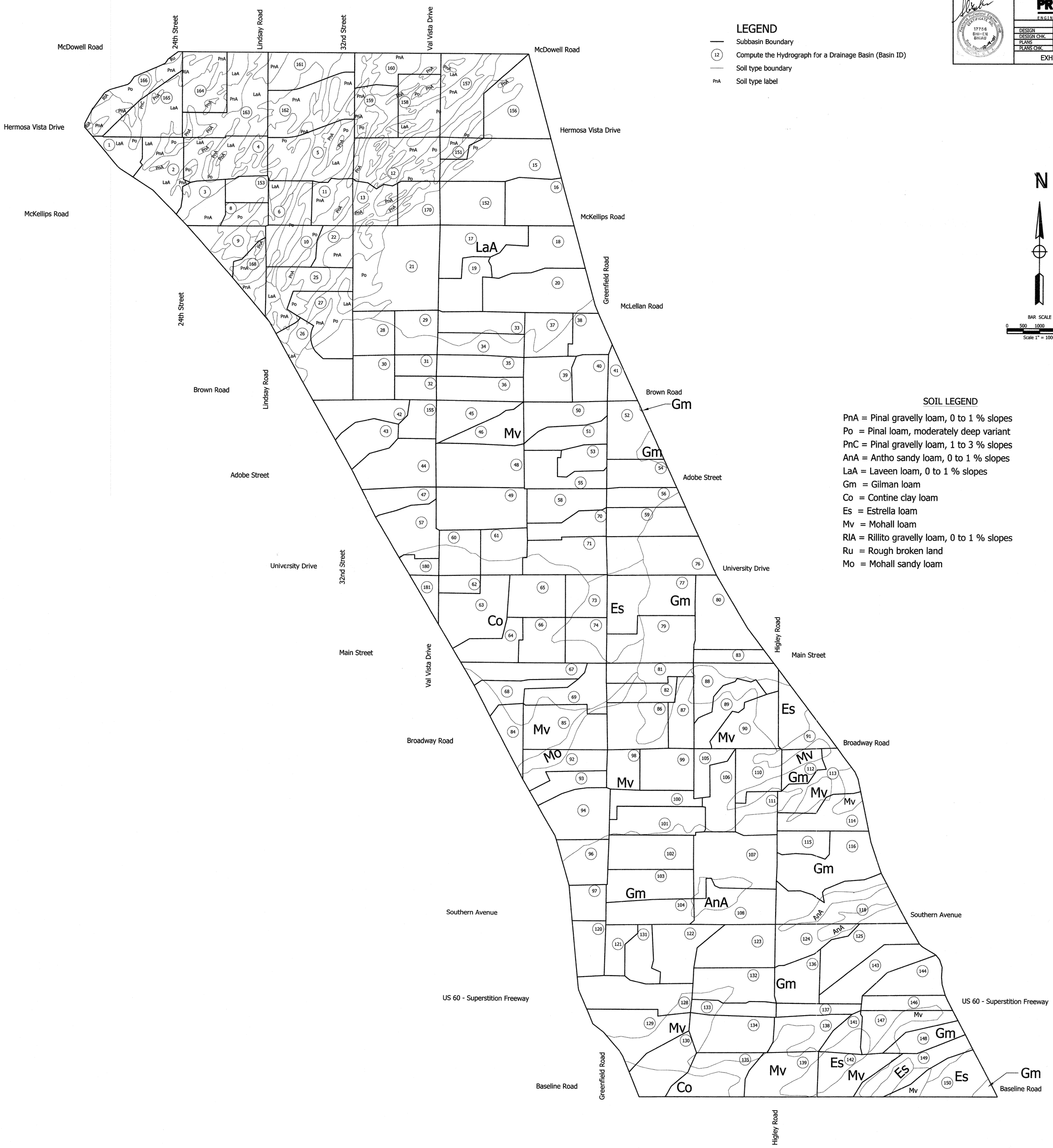
## EASTERN CANAL NORTH FLOOD DELINEATION STUDY
## F.C.D. CONTRACT NO. 98-36

### HYDROLOGY SOILS MAP

PRIMATECH
ENGINEERS & CONSULTANTS

| | BY | DATE |
|---|---|---|
| DESIGN | FB | OCT., 2001 |
| DESIGN CHK. | WVH | OCT., 2001 |
| PLANS | - | - |
| PLANS CHK. | - | - |

EXHIBIT 2 SHEET 1 OF 1




## LEGEND

- Subbasin Boundary
- (12) Compute the Hydrograph for a Drainage Basin (Basin ID)
- Soil type boundary
- PnA Soil type label

N

BAR SCALE
0 500 1000 2000
Scale 1" = 1000'

## SOIL LEGEND

PnA = Pinal gravelly loam, 0 to 1 % slopes
Po = Pinal loam, moderately deep variant
PnC = Pinal gravelly loam, 1 to 3 % slopes
AnA = Antho sandy loam, 0 to 1 % slopes
LaA = Laveen loam, 0 to 1 % slopes
Gm = Gilman loam
Co = Contine clay loam
Es = Estrella loam
Mv = Mohall loam
RlA = Rillito gravelly loam, 0 to 1 % slopes
Ru = Rough broken land
Mo = Mohall sandy loam

| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 2 | | | |
| 1 | | | |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

## EASTERN CANAL NORTH FLOOD DELINEATION STUDY F.C.D. CONTRACT NO. 98-36

### STORM DRAIN SYSTEM

PRIMATECH
ENGINEERS & CONSULTANTS

| | BY | DATE |
|---|---|---|
| DESIGN | FB | OCT, 2001 |
| DESIGN CHK. | WVH | OCT, 2001 |
| PLANS | - | - |
| PLANS CHK. | - | - |

EXHIBIT 4 SHEET 1 OF 1

## LEGEND

- Storm Drains
- Pavement
- 30 Storm Drain ID
- Flow Direction in Storm Drain
- Subbasin boundary
- (12) Compute the Hydrograph for a Drainage Basin (Basin ID)

| NO. | REVISION |
|---|---|
| 2 | |
| 1 | |

# FLOOD CONTROL DIST OF MARICOPA COUN

## EASTERN CANAL NORT FLOOD DELINEATION ST F.C.D. CONTRACT NO. 98

## HYDROLOGY LAND-USE MA

PRIMATEC ENGINEERS & CONSUL

| | BY |
|---|---|
| DESIGN | FB |
| DESIGN CHK. | WVH |
| PLANS | - |
| PLANS CHK. | - |

EXHIBIT 3 SHEET

| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 2 | | | |
| 1 | | | |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

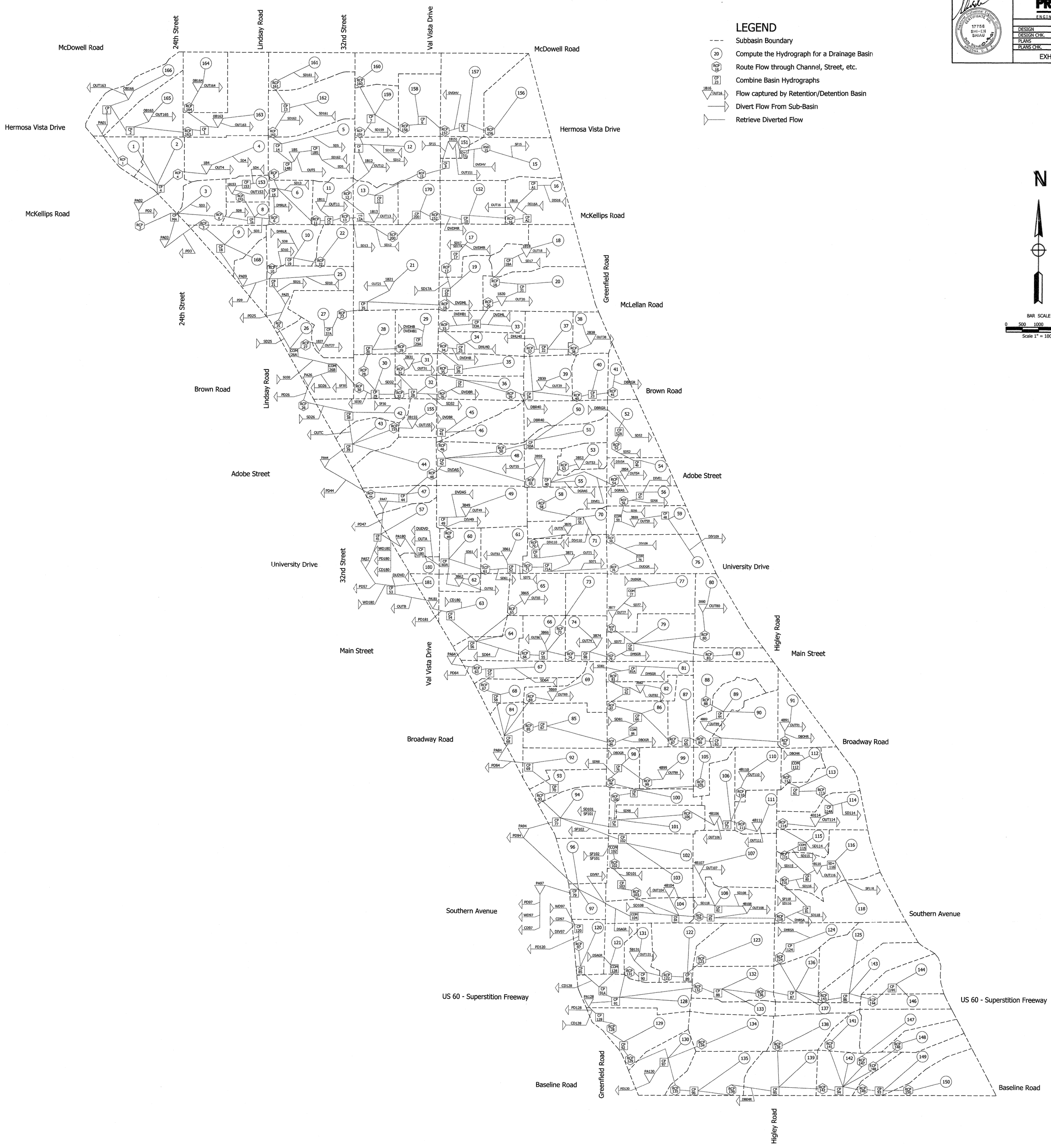
## EASTERN CANAL NORTH FLOOD DELINEATION STUDY F.C.D. CONTRACT NO. 98-36

### HEC-1 FLOW SCHEMATIC

PRIMATECH
ENGINEERS & CONSULTANTS

| | BY | DATE |
|---|---|---|
| DESIGN | FB | OCT, 2001 |
| DESIGN CHK. | WVH | OCT, 2001 |
| PLANS | - | - |
| PLANS CHK. | - | - |

EXHIBIT 5 SHEET 1 OF 1



| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 2 | | | |
| 1 | | | |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

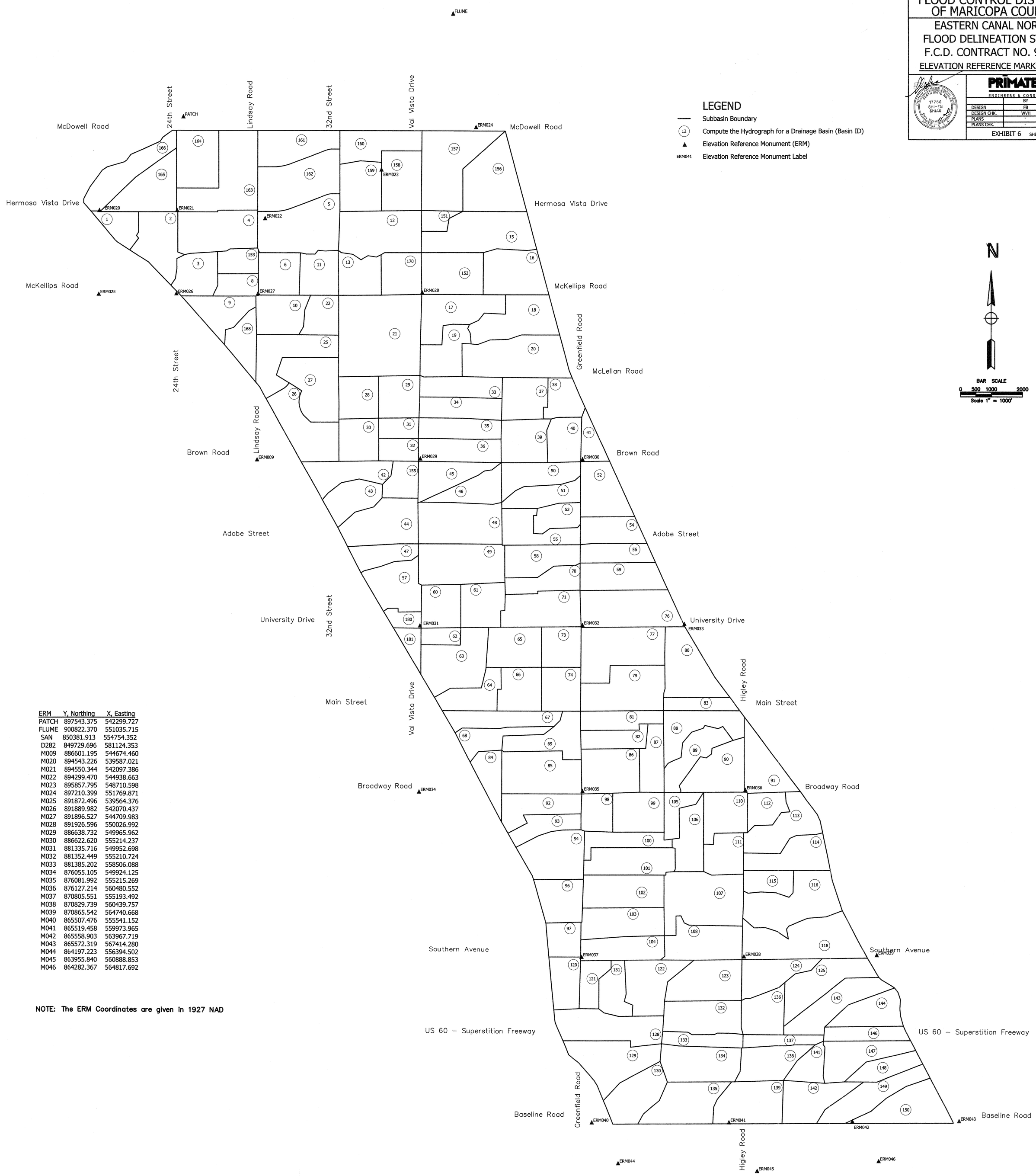
## EASTERN CANAL NORTH FLOOD DELINEATION STUDY F.C.D. CONTRACT NO. 98-36

## ELEVATION REFERENCE MARKS (ERM)

PRIMATECH
ENGINEERS & CONSULTANTS

| | BY | DATE |
|---|---|---|
| DESIGN | FB | OCT, 2001 |
| DESIGN CHK. | WVH | OCT, 2001 |
| PLANS | - | - |
| PLANS CHK. | - | - |

EXHIBIT 6 SHEET 1 OF 1




| ERM | Y, Northing | X, Easting |
|---|---|---|
| PATCH | 897543.375 | 542299.727 |
| FLUME | 900822.370 | 551035.715 |
| SAN | 850381.913 | 554754.352 |
| D282 | 849729.696 | 581124.353 |
| M009 | 886601.195 | 544674.460 |
| M020 | 894543.226 | 539587.021 |
| M021 | 894550.344 | 542097.386 |
| M022 | 894299.470 | 544938.663 |
| M023 | 895857.795 | 548710.598 |
| M024 | 897210.399 | 551769.871 |
| M025 | 891872.496 | 539564.376 |
| M026 | 891889.982 | 542070.437 |
| M027 | 891896.527 | 544709.983 |
| M028 | 891926.596 | 550026.992 |
| M029 | 886638.732 | 549965.962 |
| M030 | 886622.620 | 555214.237 |
| M031 | 881335.716 | 549952.698 |
| M032 | 881352.449 | 555210.724 |
| M033 | 881385.202 | 558506.088 |
| M034 | 876055.105 | 549924.125 |
| M035 | 876081.992 | 555215.269 |
| M036 | 876127.214 | 560480.552 |
| M037 | 870805.551 | 555193.492 |
| M038 | 870829.739 | 560439.757 |
| M039 | 870865.542 | 564740.668 |
| M040 | 865507.476 | 555541.152 |
| M041 | 865519.458 | 559973.965 |
| M042 | 865558.903 | 563967.719 |
| M043 | 865572.319 | 567414.280 |
| M044 | 864197.223 | 556394.502 |
| M045 | 863955.840 | 560888.853 |
| M046 | 864282.367 | 564817.692 |

**NOTE: The ERM Coordinates are given in 1927 NAD**

| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 2 | | | |
| 1 | | | |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

## EASTERN CANAL NORTH FLOOD DELINEATION STUDY

## F.C.D. CONTRACT NO. 98-36

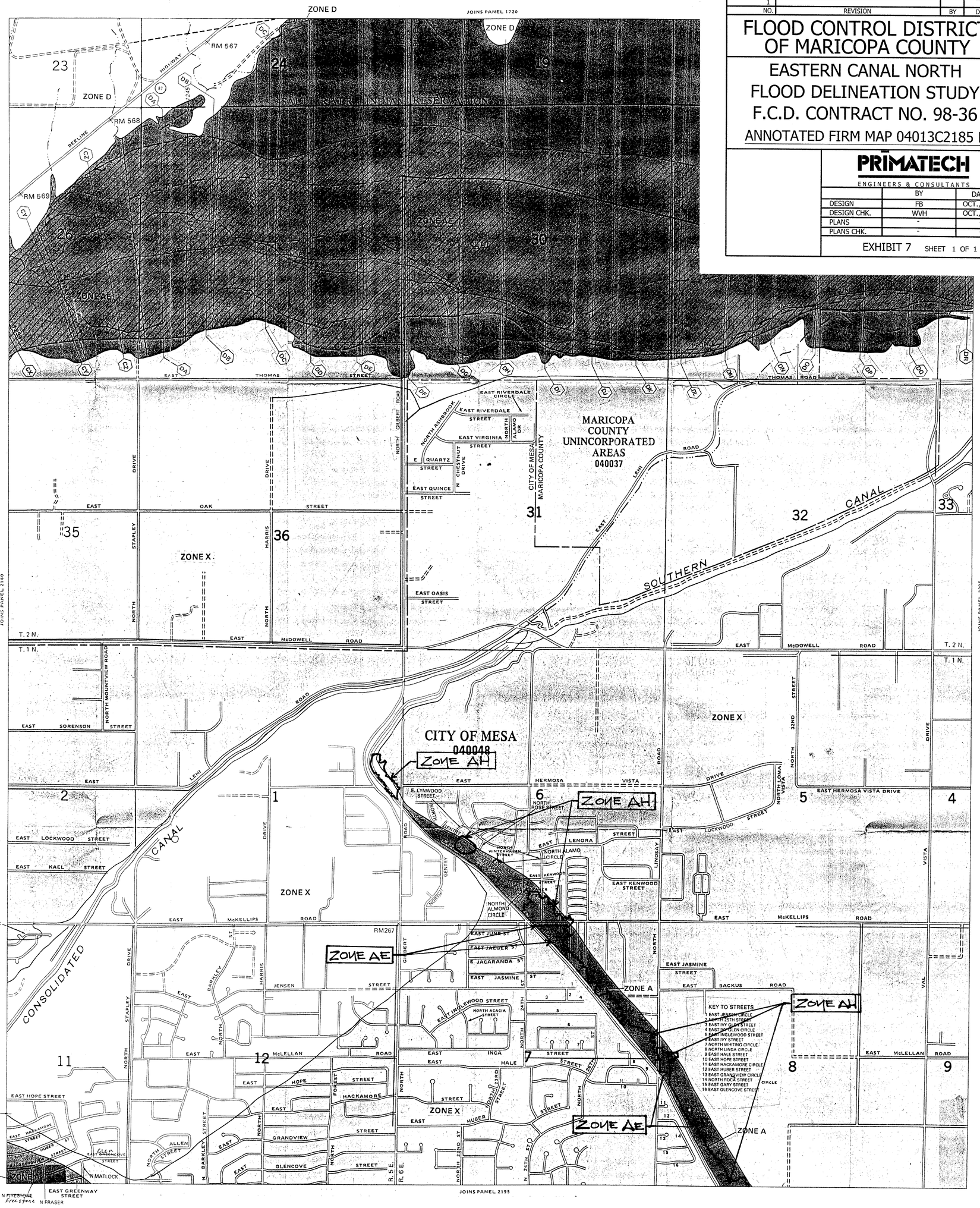
## ANNOTATED FIRM MAP 04013C2185 E

**PRIMATECH**

ENGINEERS & CONSULTANTS

| | BY | DATE |
|---|---|---|
| DESIGN | FB | OCT., 2001 |
| DESIGN CHK. | WVH | OCT., 2001 |
| PLANS | - | - |
| PLANS CHK. | - | - |

EXHIBIT 7 SHEET 1 OF 1




ELEVATION REFERENCE MARKS

| REFERENCE MARK | ELEVATION AT NGVD | DESCRIPTION OF LOCATION |
|---|---|---|
| RM267 | 1,285.49 | Brass cap on northwest corner of irrigation box of southwest corner of North Gilbert Road and East McKellips Road |
| RM567 | 1,277.39 | B&N No. 12, a No. 4 rebar with aluminum cap stamped B.N.12 1,277.39 on south right-of-way fence of S.R. 87, S.R. 87 M.P. 181.59. |
| RM568 | 1,274.80 | B&N No. 13, a No. 4 rebar with aluminum cap stamped B.N.13 1,274.80 on south right-of-way fence of S.R. 87, S.R. 87 M.P. 181.00 |
| RM569 | 1,260.90 | B&N No. 14, brass cap in concrete at south right-of-way fence of S.R. 87, S.R. 87 M.P. 180.52 Elevation 1,260.90. |

## LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDA BY 100-YEAR FLOOD

- ZONE A — No base flood elevations determined.
- ZONE AE — Base flood elevations determined.
- ZONE AH — Flood depths of 1 to 3 feet (usually a ponding); base flood elevations deter
- ZONE A0 — Flood depths of 1 to 3 feet (usually flow on sloping terrain); average determined. For areas of alluvial fan ing, velocities also determined.
- ZONE A99 — To be protected from 100-year flo Federal flood protection system construction; no base elevations deter
- ZONE V — Coastal flood with velocity hazard action); no base flood elevations mined.
- ZONE VE — Coastal flood with velocity hazard action); base flood elevations deter

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- ZONE X — Areas of 500-year flood; area 100-year flood with average de of less than 1 foot or with drai areas less than 1 square mile; areas protected by levees from year flood.

OTHER AREAS

- ZONE X — Areas determined to be outside year flood plain.
- ZONE D — Areas in which flood hazards undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Fl Hazard Zones, and Boun Dividing Areas of Diffe Coastal Base Flood Elevat Within Special Flood Haz Zones.

513 — Base Flood Elevation Line; vation in Feet*

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Where Uniform Within Zo

RM7X — Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

## NOTES

This map is for use in administering the National Flood Insurance Prog it does not necessarily identify all areas subject to flooding, partic from local drainage sources of small size, or all planimetric features ou Special Flood Hazard Areas.

Areas of special flood hazard (100-year flood) include Zones A, A1-30 AH, AO, A99, V, V1-30 AND VE.

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

Boundaries of the floodways were computed at cross sections and int latec between cross sections. The floodways were based on hyd considerations with regard to requirements of the Federal Emerg Management Agency.

Floodway widths in some areas may be too narrow to show to sc Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

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

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

For adjoining map panels see separately printed Map Index

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP.

APRIL 15, 1988

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

Map revised September 4, 1991 to update corporate limits, to cha base flood elevations, to add base flood elevations, to add special hazard areas, to change special flood hazard areas, to change designations, to update map format, to add roads and road names a incorporate previously issued letter of map revision.

To determine if flood insurance is available, contact an insura agent or call the National Flood Insurance Program at (8 638-6620.

N

APPROXIMATE SCALE IN FEET

1000 0 1000

218 S

NATIONAL FLOOD INSURANCE PRO

**FIRM**

**FLOOD INSURANCE RATE M**

MARICOPA COUNTY, ARIZONA AND INCORPORATED ARE

PANEL 2185 OF 4350

CONTAINS:

| COMMUNITY | NUMBER | PANEL |
|---|---|---|
| MARICOPA COUNTY, UNINCORPORATED AREAS | 040037 | 2185 |
| MESA, CITY OF | 040048 | 2185 |

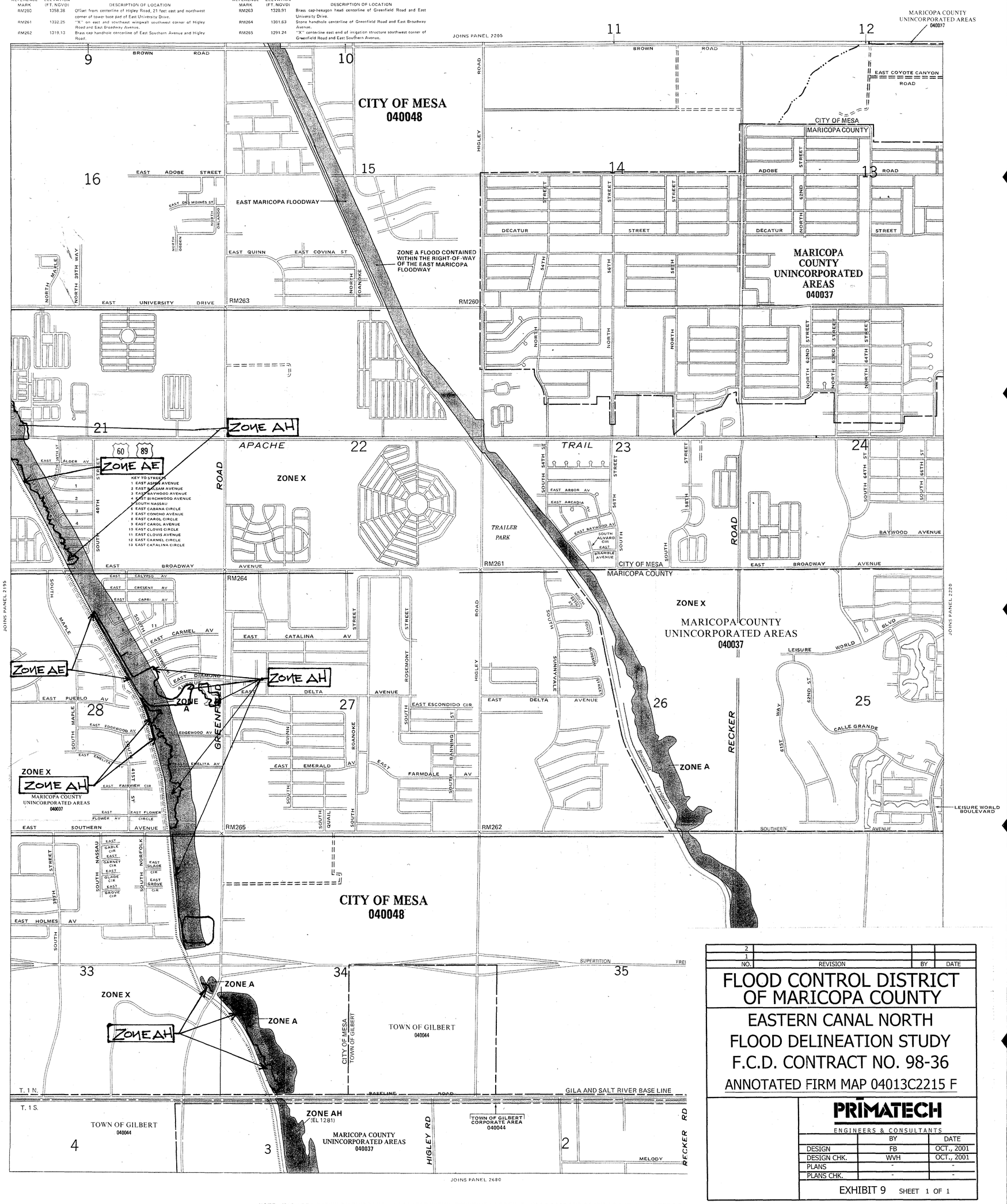
MAP NUMBE 04013C2185

MAP REVISE SEPTEMBER 4, 19

Federal Emergency Management Agen

## ELEVATION REFERENCE MARKS

| REFERENCE MARK | ELEVATION (FT. NGVD) | DESCRIPTION OF LOCATION |
|---|---|---|
| RM260 | 1358.38 | Offset from centerline of Higley Road, 21 feet east and northwest corner of tower base pad of East University Drive. |
| RM261 | 1332.25 | "X" on east and southeast wingwall southwest corner of Higley Road and East Broadway Avenue. |
| RM262 | 1319.13 | Brass cap handhole centerline of East Southern Avenue and Higley Road. |
| RM263 | 1320.91 | Brass cap-hexagon head centerline of Greenfield Road and East University Drive. |
| RM264 | 1301.63 | Stone handhole centerline of Greenfield Road and East Broadway Avenue. |
| RM265 | 1291.24 | "X" centerline east end of irrigation structure southwest corner of Greenfield Road and East Southern Avenue. |




NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 1 NORTH, RANGE 6 EAST AND TOWNSHIP 1 SOUTH, RANGE 6 EAS

## LEGEND

**SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD**

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

**FLOODWAY AREAS IN ZONE AE**

**OTHER FLOOD AREAS**

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

**OTHER AREAS**

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

Flood Boundary

Floodway Boundary

Zone D Boundary

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

513 — Base Flood Elevation Line; Elevation in Feet*

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

RM7 × — Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

## NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Areas of special flood hazard (100-year flood) include Zones A, A1-30, AE, AH, AO, A99, V, V1-30 AND VE.

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

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

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

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

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

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Index Map

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

EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL:
Map revised September 4, 1991 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names and to incorporate previously issued letter of map revision.

Map revised DECEMBER 3, 1993 to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names, to reflect updated topographic information, and to incorporate previously issued letters of map revision.

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

N

APPROXIMATE SCALE IN FEET
1000 0 1000

| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 2 | | | |
| 1 | | | |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

## EASTERN CANAL NORTH FLOOD DELINEATION STUDY

## F.C.D. CONTRACT NO. 98-36

## ANNOTATED FIRM MAP 04013C2215 F

**PRIMATECH**
ENGINEERS & CONSULTANTS

| | BY | DATE |
|---|---|---|
| DESIGN | FB | OCT., 2001 |
| DESIGN CHK. | WVH | OCT., 2001 |
| PLANS | - | - |
| PLANS CHK. | - | - |

EXHIBIT 9 SHEET 1 OF 1

NATIONAL FLOOD INSURANCE PROGRAM

# FIRM
## FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 2215 OF 4350

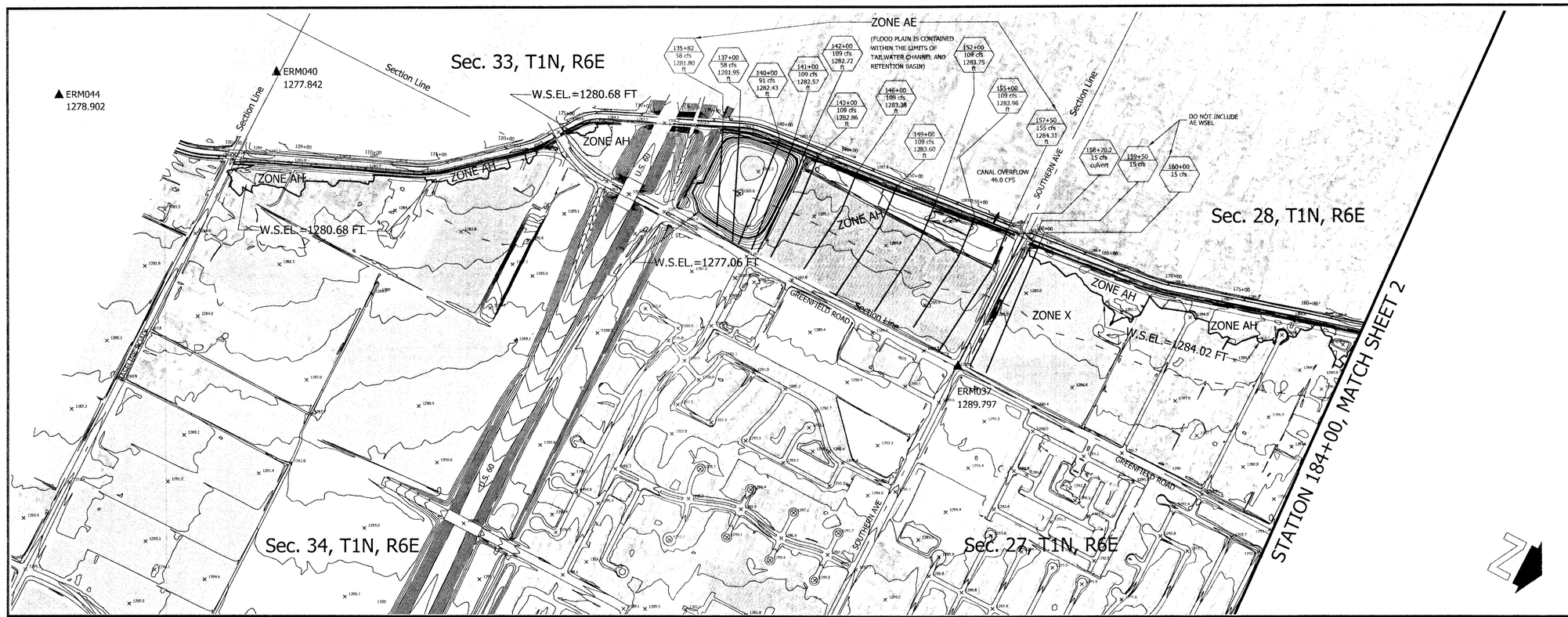
CONTAINS:

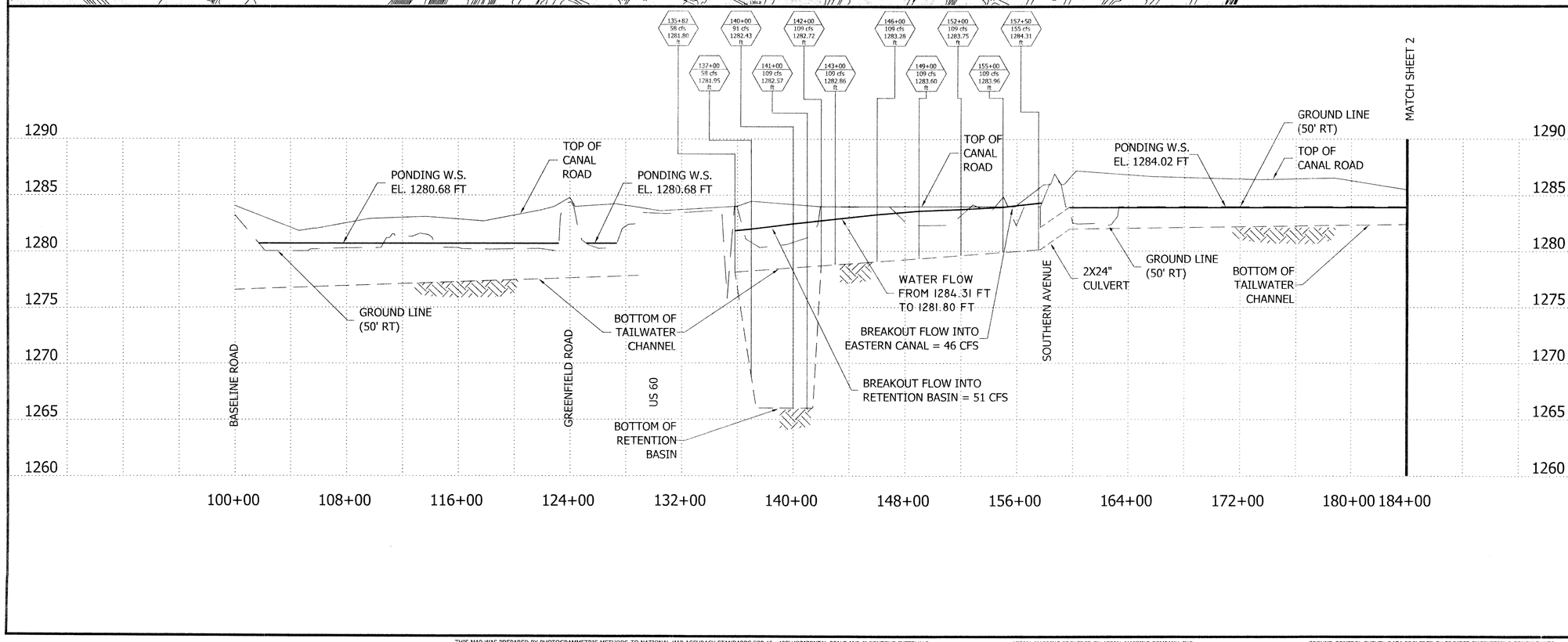
| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| GILBERT, TOWN OF | 040044 | 2215 | F |
| MARICOPA COUNTY, UNINCORPORATED AREAS | 040037 | 2215 | F |
| MESA, CITY OF | 040048 | 2215 | F |

MAP NUMBER
04013C2215 F

MAP REVISED:
DECEMBER 3, 1993

Federal Emergency Management Agency




## LEGEND

| | |
|---|---|
| 100-YR FLOODPLAIN BOUNDARY | |
| OLD 100-YR FLOODPLAIN BOUNDARY | |
| HYDRAULIC BASE LINE WITH RIVER STATION | 125+00 130+00 |
| CROSS SECTION | 157+50 155.00 1284.31 ft |
| ELEVATION REFERENCE MARK | ERM042 |
| BASE FLOOD ELEVATIONS | 1221 |
| ZONE DESIGNATIONS | ZONE AE |
| SECTION LINES (APPROXIMATE) | Section Line |

## ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NGVD OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD=+ 1.752 FT
DATUM CONVERSION FACTOR METRIC SYSTEM TO IMPERIAL SYSTEM, 0.3048 M = 1 FT.
HORIZONTAL CONTROL BASED ON 1983 NAD.

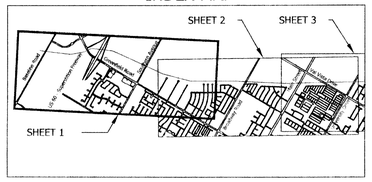
| I.D. NUMBER | ELEVATION (FT) | DESCRIPTION/LOCATION |
|---|---|---|
| ERM037 | 1289.797 | CITY OF MESA BRASS CAP IN HANDHOLE (0.49' BELOW RIM) AT INTERSECTION OF SOUTHERN AVENUE AND GREENFIELD ROAD. N: 870,852.388 E: 754,980.869 |
| ERM040 | 1277.842 | CITY OF MESA BRASS CAP IN HANDHOLE (0.49' BELOW RIM) AT INTERSECTION OF BASELINE ROAD AND EAST VALLEY AUTO PARK, EAST OF GREENFIELD ROAD. N: 865,554.298 E: 755,328.570 |
| ERM044 | 1278.902 | SET 1/2" REBAR FLUSH W/GROUND ±1300' SOUTH OF BASELINE ROAD, ±25' WEST OF EAST EDGE EASTERN CANAL, ±5' WEST OF CONCRETE DITCH, ±5' NORTH OF CONCRETE DITCH. N: 864,244.045 E: 756,181.932 |

## NOTES

1 - THE HYDRAULIC BASE LINE IS SET ALONG TOP OF CANAL ROAD. CROSS SECTION STATION 10,000 IS SET AT THE HYDRAULIC BASE LINE, UNLESS NOTED OTHERWISE.

2 - THE GROUND LINE IS SET AT 50 FT. FROM THE HYDRAULIC BASELINE. DEPTHS MAY BE GREATER OR LESS THAN THE ONES REPRESENTED ON THE PROFILE.

## INDEX MAP




400' 0' 400' 800'

SCALE: 1"= 400 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATE: 03/20/96

| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 2 | | | |
| 1 | REVISION 1 | FB | July, 2002 |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

## EASTERN CANAL NORTH FLOOD DELINEATION STUDY F.C.D. CONTRACT NO. 98-36

WORKMAP #1

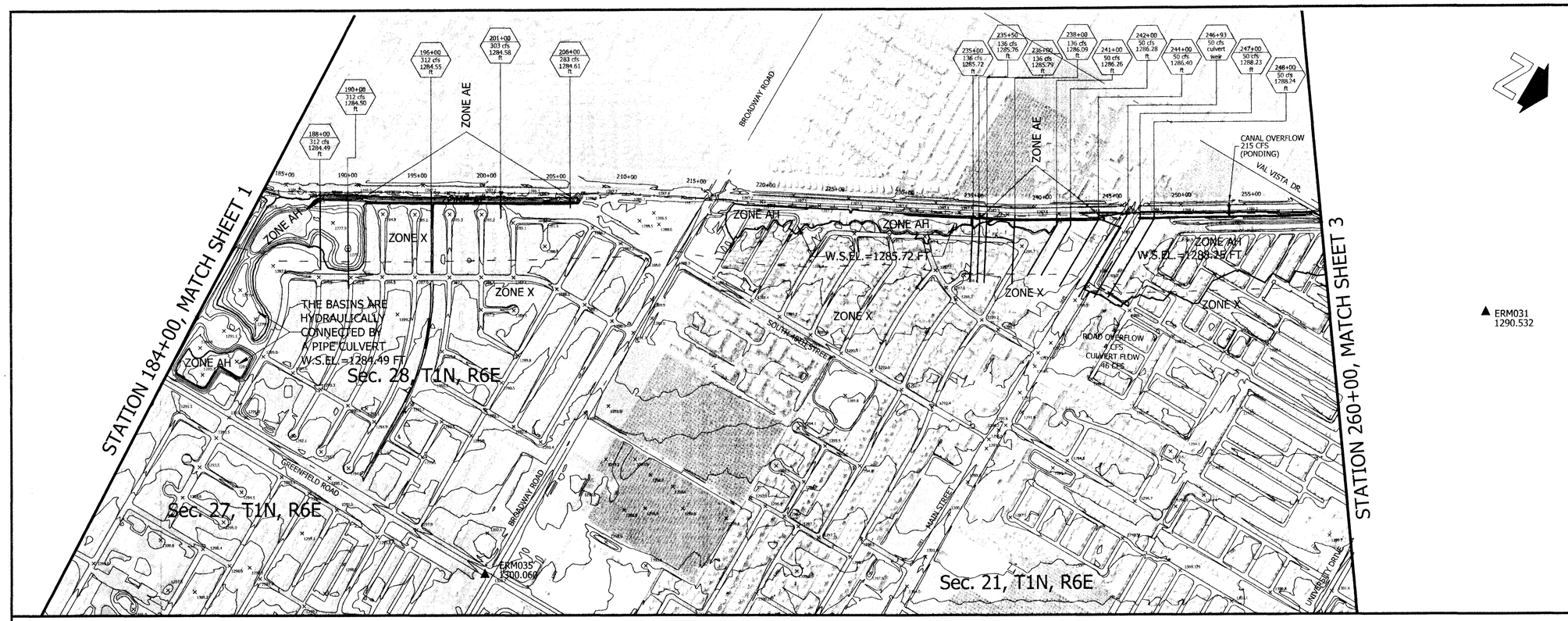
Registered Professional Engineer (Civil) CERTIFICATE NO. 17756 SHI-EN SHIAU Date Signed 8-21-02 ARIZONA U.S.A.

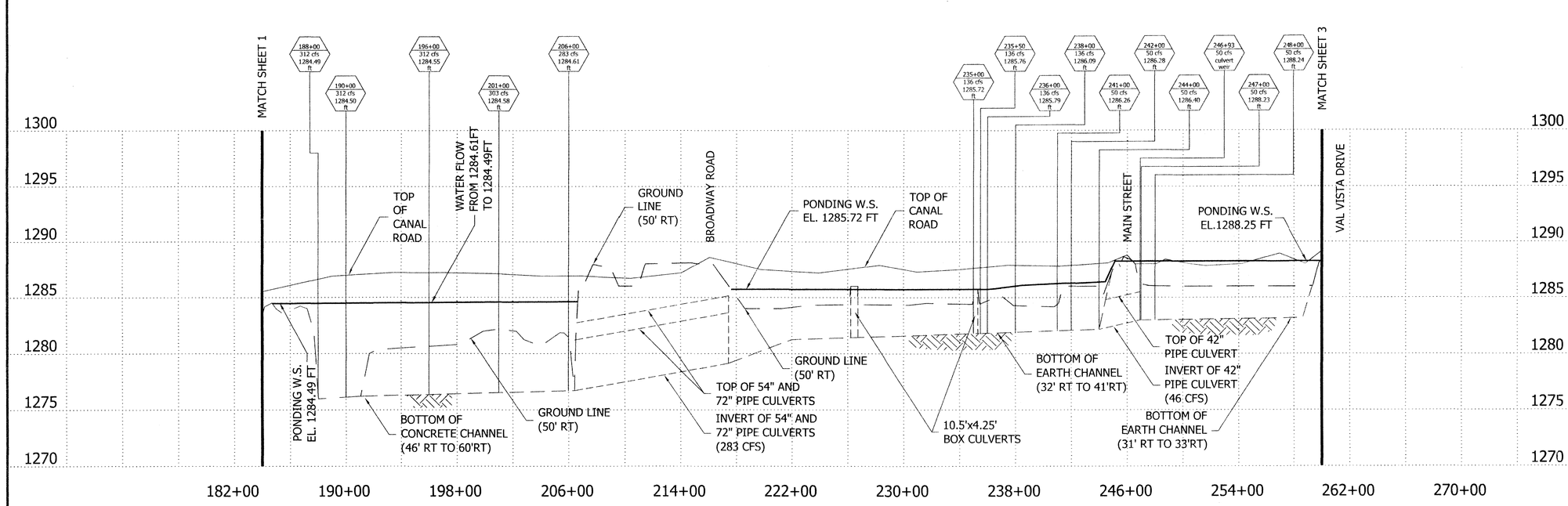
**PRIMATECH**
ENGINEERS & CONSULTANTS

| | BY | DATE |
|---|---|---|
| DESIGN | FB | OCT., 2001 |
| DESIGN CHK. | WVH | OCT., 2001 |
| PLANS | - | - |
| PLANS CHK. | - | - |

EXHIBIT 10 SHEET 1 OF 4

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 400' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. AERIAL MAPPING PROVIDED BY AERIAL MAPPING COMPANY, INC. GROUND CONTROL SURVEY DATA PROVIDED BY PROJECT ENGINEERING CONSULTANTS




## LEGEND

| | |
|---|---|
| 100-YR FLOODPLAIN BOUNDARY | |
| OLD 100-YR FLOODPLAIN BOUNDARY | |
| HYDRAULIC BASE LINE WITH RIVER STATION | 125+00 130+0 |
| CROSS SECTION | |
| ELEVATION REFERENCE MARK | ERM042 |
| BASE FLOOD ELEVATIONS | 1221 |
| ZONE DESIGNATIONS | ZONE AE |
| SECTION LINES (APPROXIMATE) | Section Line |

## ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NGVD OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD=+ 1.752 FT
DATUM CONVERSION FACTOR METRIC SYSTEM TO IMPERIAL SYSTE
0.3048 M = 1 FT.
HORIZONTAL CONTROL BASED ON 1983 NAD.

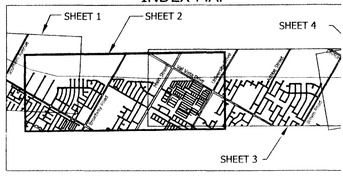
| I.D. NUMBER | ELEVATION (FT) | DESCRIPTION/LOCATION |
|---|---|---|
| ERM031 | 1290.532 | CITY OF MESA BRASS CAP IN HAND (0.58' BELOW RIM) AT INTERSECTI UNIVERSITY DRIVE AND VAL VISTA N: 881,382.552 E: 749,739.987 |
| ERM035 | 1300.060 | CITY OF MESA BRASS CAP IN HAND (0.78' BELOW RIM) AT INTERSECTI BROADWAY AVENUE AND GREENFI ROAD. N: 876,128.848 E: 755,002.612 |

## NOTES

1 - THE HYDRAULIC BASE LINE IS SET ALONG TOP OF CANAL R CROSS SECTION STATION 10,000 IS SET AT THE HYDRAULI BASE LINE, UNLESS NOTED OTHERWISE.

2 - THE GROUND LINE IS SET AT 50 FT. FROM THE HYDRAULIC BASELINE. DEPTHS MAY BE GREATER OR LESS THAN THE C REPRESENTED ON THE PROFILE.

INDEX MAP




400' 0' 400' 8

SCALE: 1"= 400 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATE: 03/20/96

| NO. | REVISION | BY | D |
|---|---|---|---|
| 2 | | | |
| 1 | REVISION 1 | FB | Jul |

# FLOOD CONTROL DISTRIC OF MARICOPA COUNTY

## EASTERN CANAL NORTH FLOOD DELINEATION STUDY F.C.D. CONTRACT NO. 98-36

WORKMAP #2

Registered Professional Engineer (CIVIL) CERTIFICATE NO. 17756 SHI-EN SHIAU Date Signed 2-6-97 ARIZONA U.S.A.

PRIMATECH
ENGINEERS & CONSULTANTS

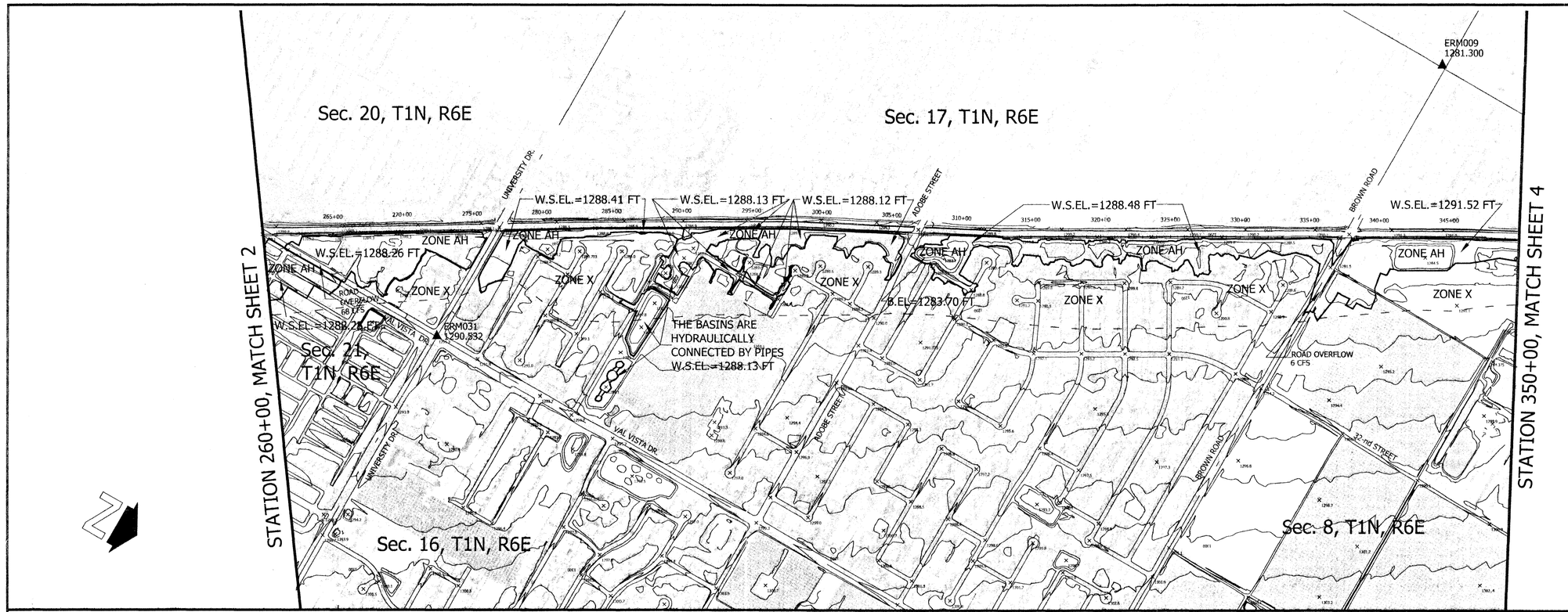
| | BY | D |
|---|---|---|
| DESIGN | FB | OCT |
| DESIGN CHK. | WVH | OCT |
| PLANS | - | |
| PLANS CHK. | - | |

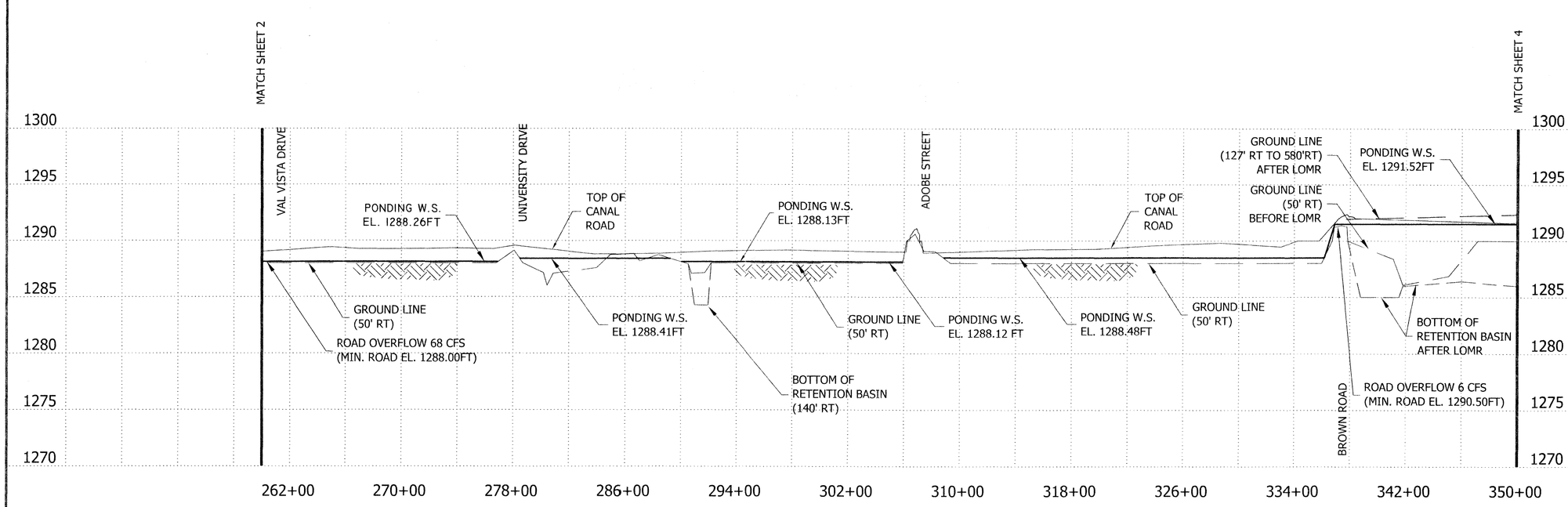
EXHIBIT 11 SHEET 2 OF 4

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 400' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

AERIAL MAPPING PROVIDED BY AERIAL MAPPING COMPANY, INC.

GROUND CONTROL SURVEY DATA PROVIDED BY PROJECT ENGINEERING CONSULTANTS




## LEGEND

| | |
|---|---|
| 100-YR FLOODPLAIN BOUNDARY | |
| OLD 100-YR FLOODPLAIN BOUNDARY | |
| HYDRAULIC BASE LINE WITH RIVER STATION | 335+00 340+00 |
| CROSS SECTION | |
| ELEVATION REFERENCE MARK | ERM042 |
| BASE FLOOD ELEVATIONS | 1221 |
| ZONE DESIGNATIONS | ZONE AE |
| SECTION LINES (APPROXIMATE) | Section Line |

## ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NGVD OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD=+ 1.752 FT
DATUM CONVERSION FACTOR METRIC SYSTEM TO IMPERIAL SYSTEM, 0.3048 M = 1 FT.
HORIZONTAL CONTROL BASED ON 1983 NAD.

| I.D. NUMBER | ELEVATION (FT) | DESCRIPTION/LOCATION |
|---|---|---|
| ERM009 | 1281.300 | CITY OF MESA BRASS CAP IN HANDHOLE (0.90' BELOW RIM) AT INTERSECTION OF BROWN ROAD AND LINDSAY ROAD. N: 886,648.012 E: 744,461.693 |
| ERM031 | 1290.532 | CITY OF MESA BRASS CAP IN HANDHOLE (0.58' BELOW RIM) AT INTERSECTION OF UNIVERSITY DRIVE AND VAL VISTA DRIVE. N: 881,382.552 E: 749,739.987 |

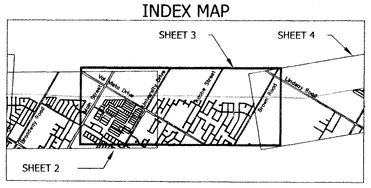
## NOTES

1 - THE HYDRAULIC BASE LINE IS SET ALONG TOP OF CANAL ROAD. CROSS SECTION STATION 10,000 IS SET AT THE HYDRAULIC BASE LINE, UNLESS NOTED OTHERWISE.

2 - THE GROUND LINE IS SET AT 50 FT. FROM THE HYDRAULIC BASELINE. DEPTHS MAY BE GREATER OR LESS THAN THE ONES REPRESENTED ON THE PROFILE.

3 - THE MESA NORTHGROVE LOMR REFERRED TO IN THE PROFILE IS REGISTERED AS CASE NUMBER 99-09-238P, FROM 1/26/1999.

INDEX MAP




400' 0' 400' 800'

SCALE: 1"= 400 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATE: 03/20/96

| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 2 | | | |
| 1 | REVISION 1 | FB | July, 2002 |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

## EASTERN CANAL NORTH FLOOD DELINEATION STUDY F.C.D. CONTRACT NO. 98-36

WORKMAP #3

Registered Professional Engineer (Civil) CERTIFICATE NO. 17756 SHI-EN SHIAU Date Signed 8-21-02 ARIZONA U.S.A.

PRIMATECH
ENGINEERS & CONSULTANTS

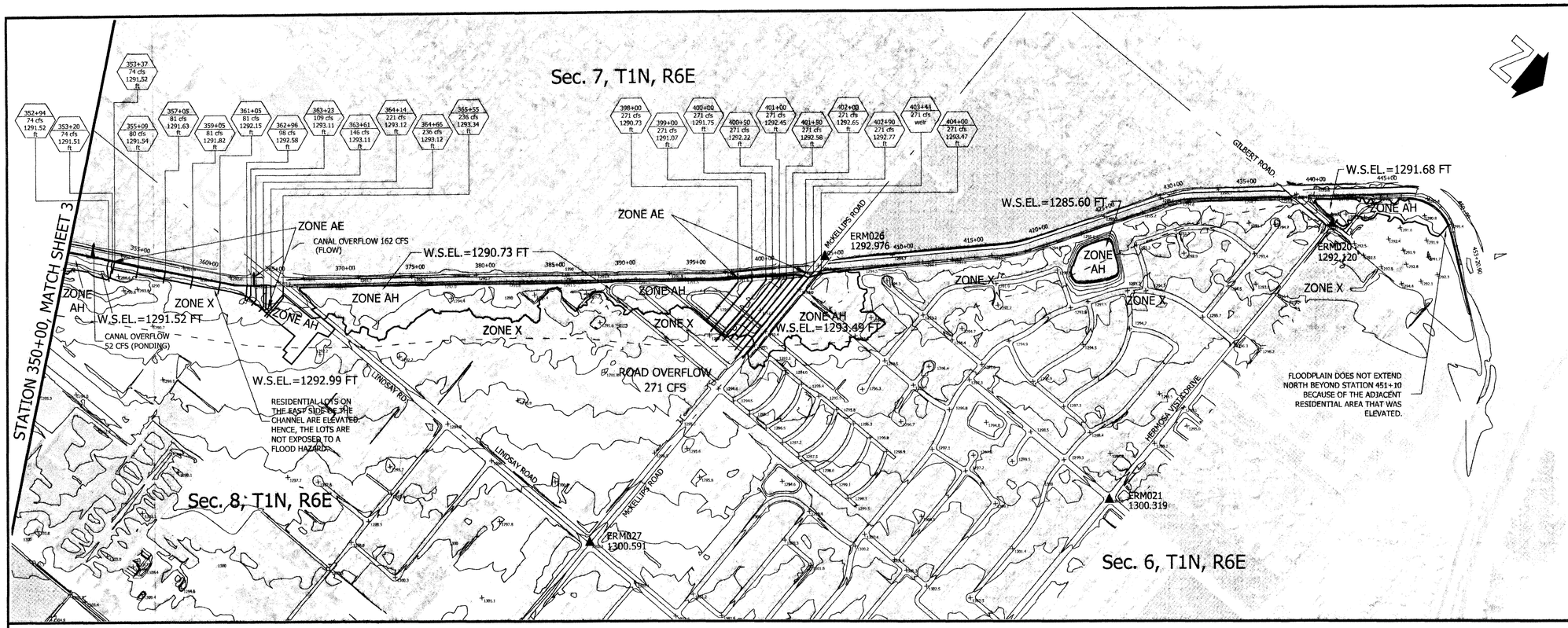
| | BY | DATE |
|---|---|---|
| DESIGN | FB | OCT., 2001 |
| DESIGN CHK. | WVH | OCT., 2001 |
| PLANS | - | - |
| PLANS CHK. | - | - |

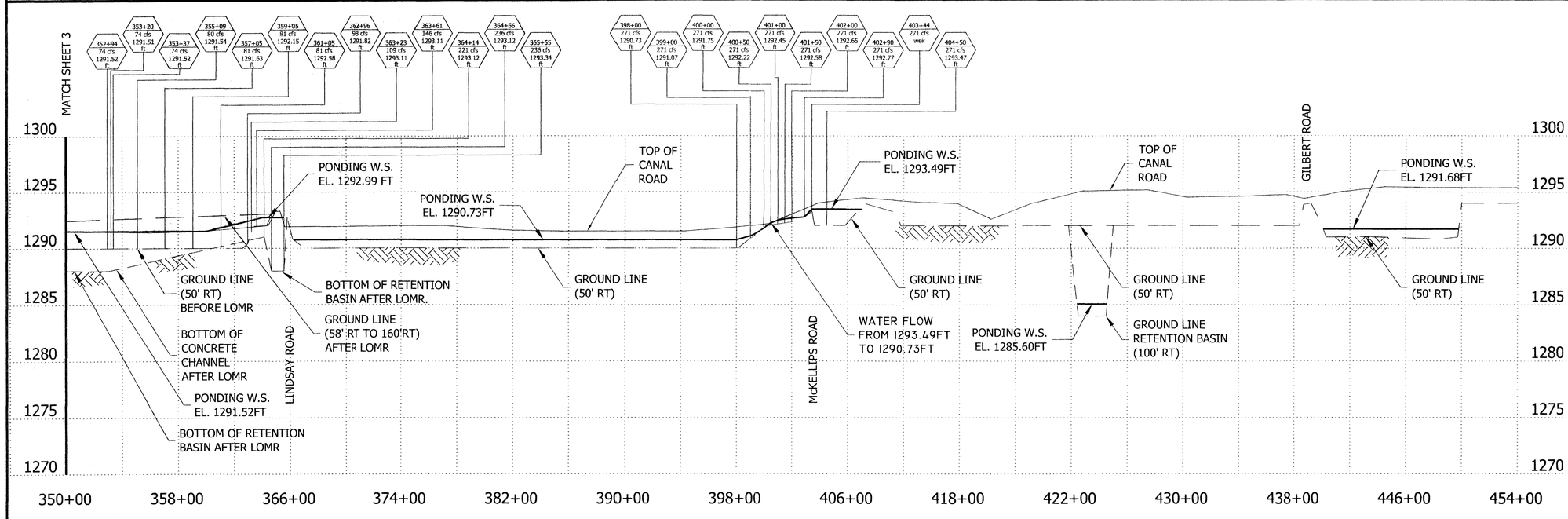
EXHIBIT 12 SHEET 3 OF 4

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 400' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

AERIAL MAPPING PROVIDED BY AERIAL MAPPING COMPANY, INC.

GROUND CONTROL SURVEY DATA PROVIDED BY PROJECT ENGINEERING CONSULTANTS




## LEGEND

| | |
|---|---|
| 100-YR FLOODPLAIN BOUNDARY | |
| OLD 100-YR FLOODPLAIN BOUNDARY | |
| HYDRAULIC BASE LINE WITH RIVER STATION | 335+00 340+00 |
| CROSS SECTION | |
| ELEVATION REFERENCE MARK | ERM042 |
| BASE FLOOD ELEVATIONS | 1221 |
| ZONE DESIGNATIONS | ZONE AE |
| SECTION LINES (APPROXIMATE) | Section Line |

## ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NGVD OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD=+ 1.752 FT
DATUM CONVERSION FACTOR METRIC SYSTEM TO IMPERIAL SYSTEM, 0.3048 M = 1 FT.
HORIZONTAL CONTROL BASED ON 1983 NAD.

| I.D. NUMBER | ELEVATION (FT) | DESCRIPTION/LOCATION |
|---|---|---|
| ERM020 | 1292.120 | CITY OF MESA BRASS CAP IN HANDHOLE (0.72' BELOW RIM) AT INTERSECTION OF HERMOSA VISTA DR. AND OLD GILBERT RD. N: 894,590.030 E: 739,374.180 |
| ERM021 | 1300.319 | CITY OF MESA BRASS CAP IN HANDHOLE (0.84' BELOW RIM) AT INTERSECTION OF HERMOSA VISTA DR. AND 24th STR. N: 894,597.165 E: 741,884.554 |
| ERM026 | 1292.976 | UNMARKED BRASS CAP IN HANDHOLE (0.30' BELOW RIM, 0.63' BELOW PAVEMENT) IN CL McKELLIPS RD., ±1/2 MILE EAST OF GILBERT RD., ±100' WEST OF CL EASTERN CANAL, ±300' EAST OF 24th STR. N: 891,936.798 E: 741,857.621 |
| ERM027 | 1300.591 | CITY OF MESA BRASS CAP IN HANDHOLE (0.50' BELOW RIM) AT INTERSECTION OF LINDSAY RD. AND McKELLIPS RD. N: 891,943.363 E: 744,497.178 |

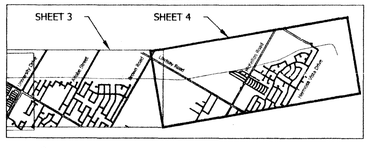
## NOTES

1 - THE HYDRAULIC BASE LINE IS SET ALONG TOP OF CANAL ROAD. CROSS SECTION STATION 10,000 IS SET AT THE HYDRAULIC BASE LINE, UNLESS NOTED OTHERWISE.

2 - THE GROUND LINE IS SET AT 50 FT. FROM THE HYDRAULIC BASELINE. DEPTHS MAY BE GREATER OR LESS THAN THE ONES REPRESENTED ON THE PROFILE.

3 - THE MESA NORTHGROVE LOMR REFERRED TO IN THE PROFILE IS REGISTERED AS CASE NUMBER 99-09-238P, FROM 1/26/1999.

## INDEX MAP




400' 0' 400' 800'

SCALE: 1"= 400 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATE: 03/20/96

| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 2 | | | |
| 1 | REVISION 1 | FB | July, 2002 |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

## EASTERN CANAL NORTH FLOOD DELINEATION STUDY F.C.D. CONTRACT NO. 98-36

WORKMAP #4

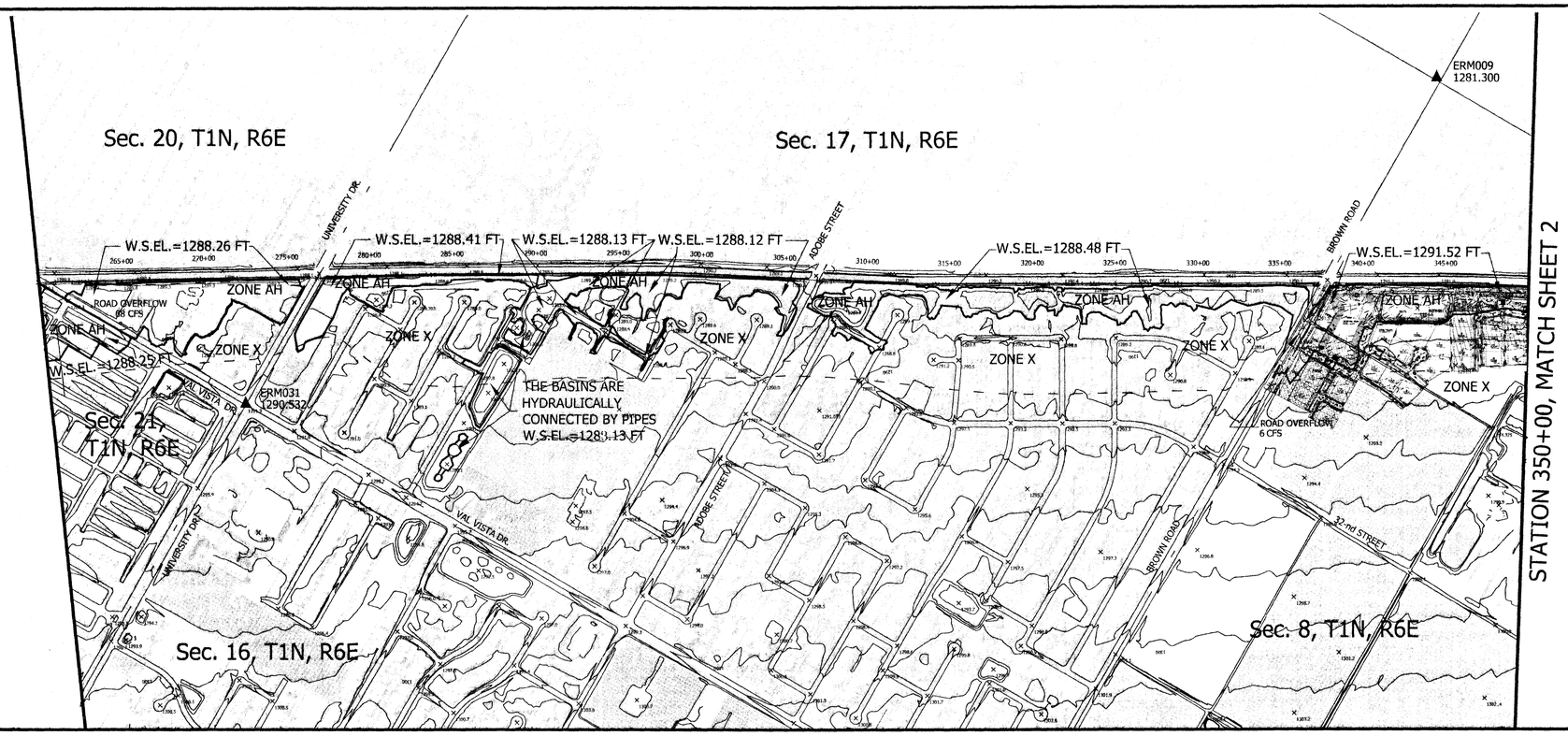
Registered Professional Engineer (Civil) CERTIFICATE NO. 17756 SHI-EN SHIAU Date Signed 8-21-02 ARIZONA U.S.A.

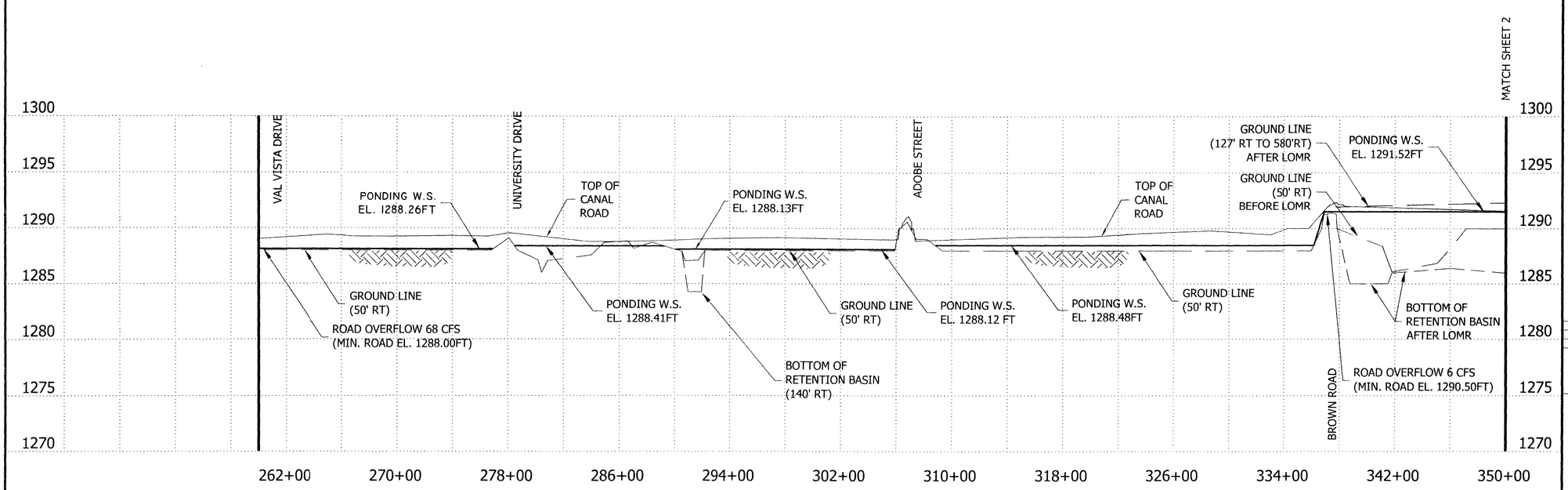
PRIMATECH
ENGINEERS & CONSULTANTS

| | BY | DATE |
|---|---|---|
| DESIGN | FB | OCT., 2001 |
| DESIGN CHK. | WVH | OCT., 2001 |
| PLANS | - | - |
| PLANS CHK. | - | - |

EXHIBIT 13 SHEET 4 OF 4

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 400' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. AERIAL MAPPING PROVIDED BY AERIAL MAPPING COMPANY, INC. GROUND CONTROL SURVEY DATA PROVIDED BY PROJECT ENGINEERING CONSULTANTS




## LEGEND

| | |
|---|---|
| 100-YR FLOODPLAIN BOUNDARY | |
| OLD 100-YR FLOODPLAIN BOUNDARY | |
| HYDRAULIC BASE LINE WITH RIVER STATION | 335+00 340+00 |
| CROSS SECTION | |
| ELEVATION REFERENCE MARK | ERM042 |
| BASE FLOOD ELEVATIONS | 1221 |
| ZONE DESIGNATIONS | ZONE AE |
| SECTION LINES (APPROXIMATE) | Section Line |

## ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NGVD OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD=+ 1.752 FT
DATUM CONVERSION FACTOR METRIC SYSTEM TO IMPERIAL SYSTEM, 0.3048 M = 1 FT.
HORIZONTAL CONTROL BASED ON 1983 NAD.

| I.D. NUMBER | ELEVATION (FT) | DESCRIPTION/LOCATION |
|---|---|---|
| ERM009 | 1281.300 | CITY OF MESA BRASS CAP IN HANDHOLE (0.90' BELOW RIM) AT INTERSECTION OF BROWN ROAD AND LINDSAY ROAD. N: 886,648.012 E: 744,461.693 |
| ERM031 | 1290.532 | CITY OF MESA BRASS CAP IN HANDHOLE (0.58' BELOW RIM) AT INTERSECTION OF UNIVERSITY DRIVE AND VAL VISTA DRIVE. N: 881,382.552 E: 749,739.987 |

## NOTES

1 - THE HYDRAULIC BASE LINE IS SET ALONG TOP OF CANAL ROAD. CROSS SECTION STATION 10,000 IS SET AT THE HYDRAULIC BASE LINE, UNLESS NOTED OTHERWISE.
2 - THE GROUND LINE IS SET AT 50 FT. FROM THE HYDRAULIC BASELINE. DEPTHS MAY BE GREATER OR LESS THAN THE ONES REPRESENTED ON THE PROFILE.
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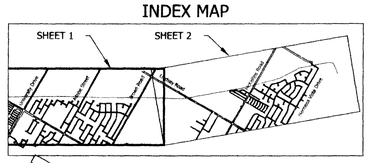
## INDEX MAP




400' 0' 400' 800'
SCALE: 1"= 400 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATE: 03/20/96

| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 2 | | | |
| 1 | REVISION 1 | FB | July, 2002 |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

## EASTERN CANAL NORTH FLOOD DELINEATION STUDY F.C.D. CONTRACT NO. 98-36

### WORKMAP #3 INCLUDING LOMR

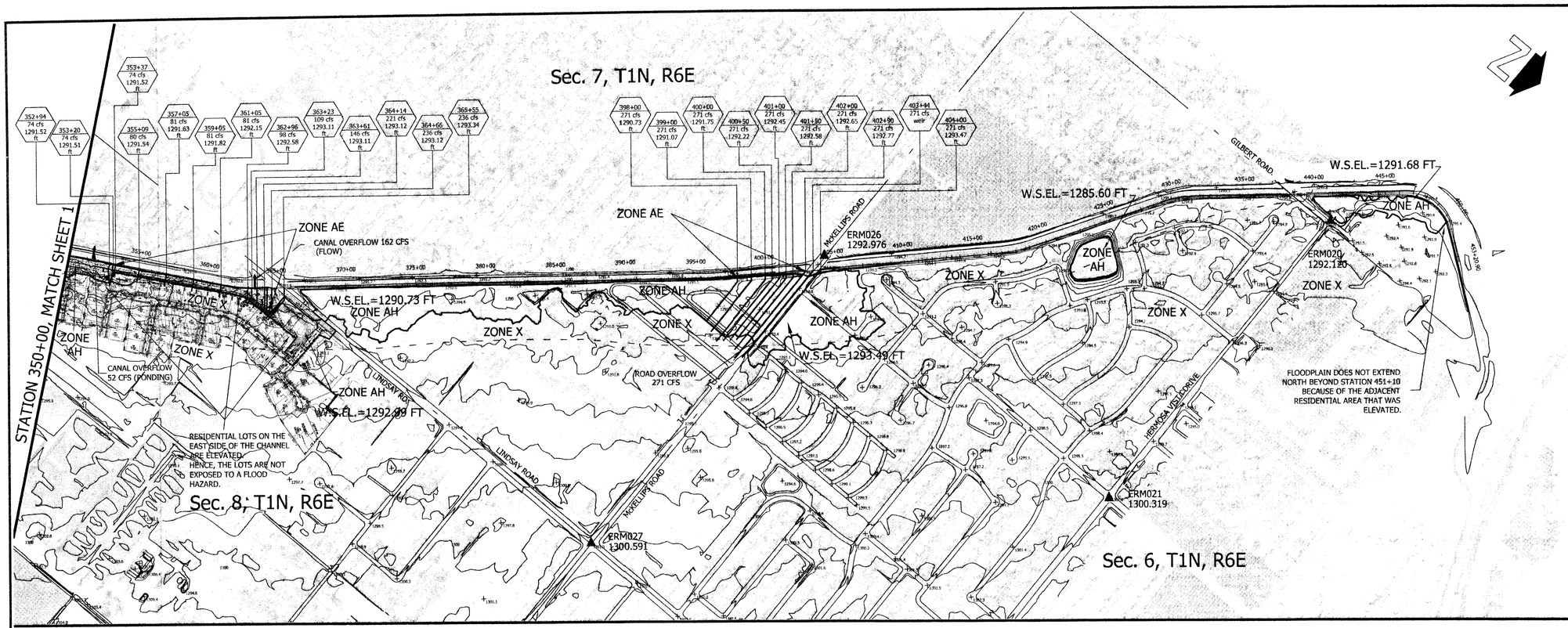
Registered Professional Engineer (Civil) CERTIFICATE NO. 17756 SHI-EN SHIAU Date Signed 8-21-02 ARIZONA U.S.A.

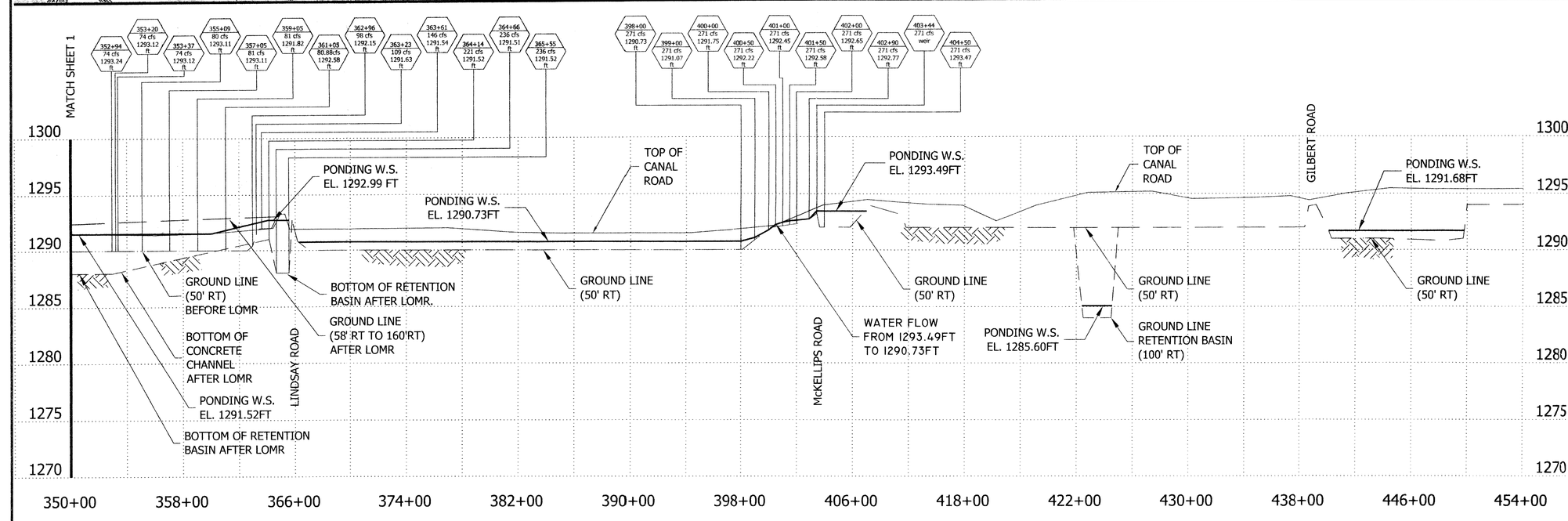
**PRIMATECH**
ENGINEERS & CONSULTANTS

| | BY | DATE |
|---|---|---|
| DESIGN | FB | OCT., 2001 |
| DESIGN CHK. | WVH | OCT., 2001 |
| PLANS | - | - |
| PLANS CHK. | - | - |

EXHIBIT 14 SHEET 1 OF 2

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 400' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.
AERIAL MAPPING PROVIDED BY AERIAL MAPPING COMPANY, INC.
GROUND CONTROL SURVEY DATA PROVIDED BY PROJECT ENGINEERING CONSULTANTS




## LEGEND

| | |
|---|---|
| 100-YR FLOODPLAIN BOUNDARY | |
| OLD 100-YR FLOODPLAIN BOUNDARY | |
| HYDRAULIC BASE LINE WITH RIVER STATION | 335+00 340+00 |
| CROSS SECTION | |
| ELEVATION REFERENCE MARK | ERM042 |
| BASE FLOOD ELEVATIONS | 1221 |
| ZONE DESIGNATIONS | ZONE AE |
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| I.D. NUMBER | ELEVATION (FT) | DESCRIPTION/LOCATION |
|---|---|---|
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| ERM021 | 1300.319 | CITY OF MESA BRASS CAP IN HANDHOLE (0.84' BELOW RIM) AT INTERSECTION OF HERMOSA VISTA DR. AND 24th STR. N: 894,597.165 E: 741,884.554 |
| ERM026 | 1292.976 | UNMARKED BRASS CAP IN HANDHOLE (0.30' BELOW RIM, 0.63' BELOW PAVEMENT) IN CL McKELLIPS RD., ±1/2 MILE EAST OF GILBERT RD., ±100' WEST OF CL EASTERN CANAL, ±300' EAST OF 24th STR. N: 891,936.798 E: 741,857.621 |
| ERM027 | 1300.591 | CITY OF MESA BRASS CAP IN HANDHOLE (0.50' BELOW RIM) AT INTERSECTION OF LINDSAY RD. AND McKELLIPS RD. N: 891,943.363 E: 744,497.178 |

## NOTES

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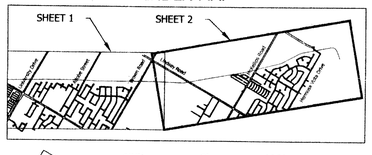
## INDEX MAP




400' 0' 400' 800'

SCALE: 1"= 400 FEET
CONTOUR INTERVAL = 2 FEET
FLIGHT DATE: 03/20/96

| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 2 | | | |
| 1 | REVISION 1 | FB | July, 2002 |

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

## EASTERN CANAL NORTH FLOOD DELINEATION STUDY
## F.C.D. CONTRACT NO. 98-36
## WORKMAP #4 INCLUDING LOMR

Registered Professional Engineer (CIVIL) CERTIFICATE NO. 17756 SHI-EN SHIAU Date Signed 8-21-02 ARIZONA U.S.A.

**PRIMATECH**
ENGINEERS & CONSULTANTS

| | BY | DATE |
|---|---|---|
| DESIGN | FB | MAY, 2001 |
| DESIGN CHK. | WVH | MAY, 2001 |
| PLANS | - | - |
| PLANS CHK. | - | - |

EXHIBIT 15 SHEET 2 OF 2

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 400' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

AERIAL MAPPING PROVIDED BY AERIAL MAPPING COMPANY, INC.

GROUND CONTROL SURVEY DATA PROVIDED BY PROJECT ENGINEERING CONSULTANTS