

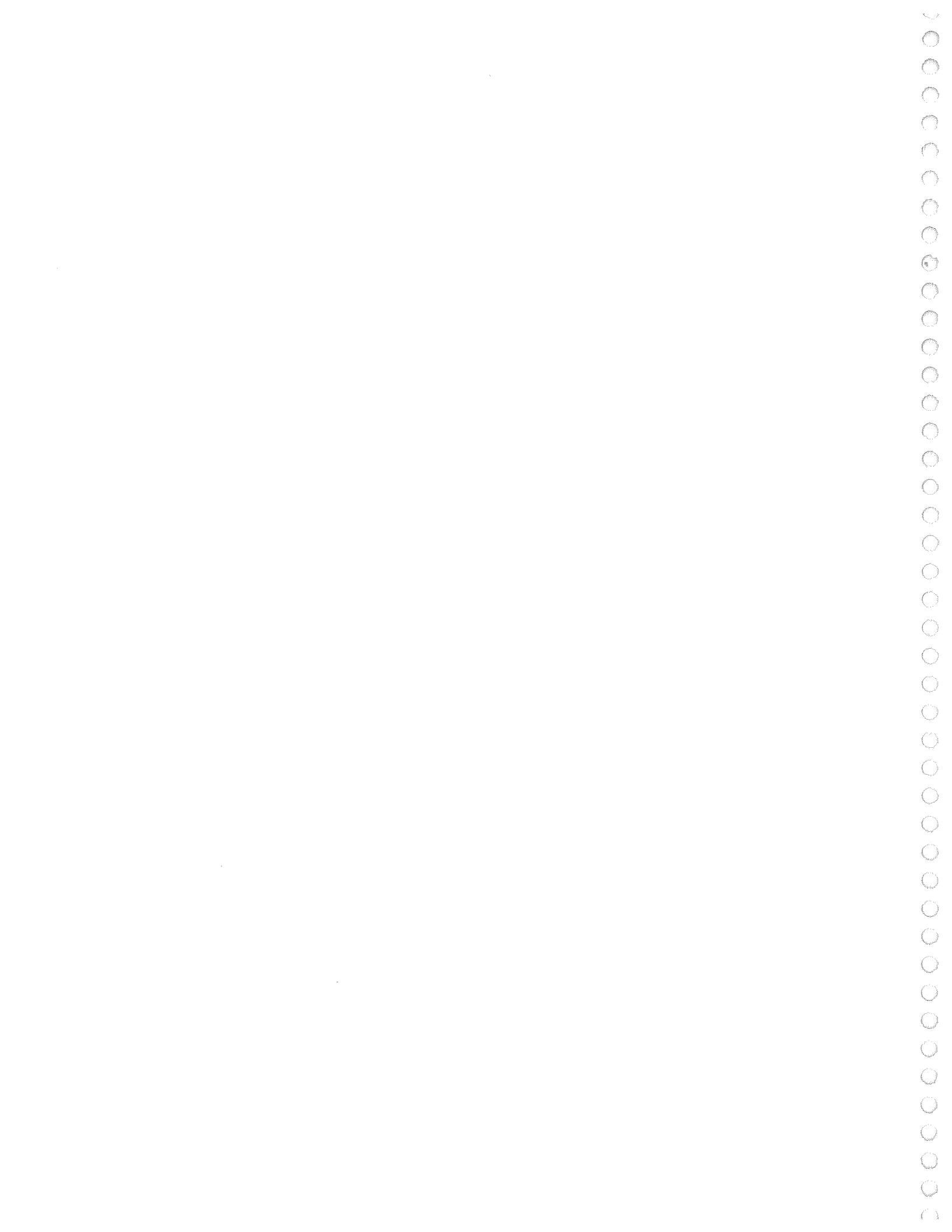
# RAFTER J RANCH FLAT CREEK FLOOD MITIGATION FEASIBILITY STUDY

Prepared for: Rafter J Ranch  
2951 Big Trail Drive  
Jackson, Wyoming 83001



Prepared By: Meridian Engineering, P.C.  
P.O. Box 6677  
Jackson, Wyoming 83002  
Phone No.: (307) 739-0500

Date: July 10, 2018







## MERIDIAN ENGINEERING, P.C.

P.O. Box 6677

Jackson, Wyoming 83002

(307) 739-0500

July 10, 2018

Joe Gawaldo, Project Representative  
Rafter J Ranch  
2951 Big Trail Drive  
Jackson, WY 83001

**RE: Flood Mitigation Feasibility Study to determine what Impacts Proposed Overbank Grading may have on the Flat Creek Regulatory Base Flood Elevation Data Published by FEMA**

Dear Joe Gawaldo,

Meridian Engineering, P.C. has performed a hydraulic analysis to determine what impacts proposed overbank grading located adjacent to the Flat Creek channel, upstream of the Big Trail Drive Bridge within Rafter J Ranch, may have on the regulatory base flood elevation (BFE) data and resultant floodplain limits published by the Federal Emergency Management Agency (FEMA). The paragraphs that follow describe the work efforts performed in preparing this analysis and associated results. In addition, other mitigation options were investigated in efforts to further reduce BFEs in an attempt to remove existing homes from the special flood hazard area. Lastly, recommendations are provided that may aid in removing select homes from the special flood hazard area through FEMA process.

Meridian Engineering understands that discussions have been held with the Teton Conservation District, Wyoming Game and Fish, and Trout Unlimited as a part of this potential project. Accordingly, Meridian Engineering understands that project interest from these entities stems from potential environmental benefits including the creation of wetlands. Wetland creation may be established as a part of overbank grading by excavating along either side of the Flat Creek channel in a manner that will lower finished ground placing it closer to groundwater. In turn, this excavation effort may increase the flood carrying capacity in the immediate overbank areas to the channel.

A detailed hydraulic analysis has been performed as a part of this feasibility study to determine how overbank grading may impact the area of inundation during the occurrence of the base flood event. The base flood is also referred to as the 1%-annual-chance flood or 100-year flood. Federal, floodplain management regulations and mandatory flood insurance purchase requirements apply when located within the 100-year floodplain. Special flood hazard areas represent the area subject to inundation by the base flood. There are two different special flood hazard area zone designations shown on the FIRM within Rafter J Ranch. They are Zones AE and AH. Zone AE defines areas subject to inundation by the 1%-annual-chance flood event determined by detailed study methods with BFEs shown. Zone AH defines areas subject to inundation by 1%-annual-chance shallow flooding (usually areas of ponding) where average depths are 1–3 feet. BFEs derived from detailed hydraulic analyses are also shown in this zone.

The Flat Creek peak discharge for the 1%-annual-chance flood event given in the effective Flood Insurance Study Report Summary of Discharges Table published by FEMA was used for this hydraulic analysis. In accordance with this table, a value of 1,290 cubic feet per second was utilized along the portion of Flat Creek located within the Rafter J Ranch development.

The hydraulic analysis performed as a part of this feasibility study is based on FEMA's effective hydraulic analysis for Flat Creek. The effective hydraulic analysis downstream of High School Road was completed by ICON/G&O Joint Venture under contract with FEMA in September 2006. The results of their detailed study were published by FEMA in 2010. FIRM Panel 2916D, dated August 5, 2010, covers the Rafter J Ranch development. On September 16, 2015, FEMA published a full countywide FIRM update for Teton County, Wyoming and Incorporated Areas. Flood hazard data within Rafter J Ranch on the 2015 FIRM remains the same as that shown on the 2010 FIRM with the exception of all elevation data being referenced to a newer vertical datum (converted from NGVD'29 to NAVD'88).

Flat Creek BFEs and floodway limits shown on the effective FIRM that were determined by ICON/G&O Joint Venture were computed using the U.S. Army Corps of Engineers HEC-RAS computer program. Cross section geometry used in their hydraulic model was derived from aerial photography taken in October 2003. Floodplain boundaries were delineated in digital format using updated contour lines and spot elevation data derived from the 2003 aerial photography.

The hydraulic analysis prepared as a part of this feasibility study was performed using the HEC-RAS computer program, Version 5.0.3. A total of six model runs were assembled as a part of this analysis. They include a duplicate effective multiple profile run, a corrected effective multiple profile run, a corrected effective multiple profile with one additional cross section added, and three different post-project conditions multiple profile runs. The duplicate effective model was created from FEMA's effective HEC-RAS hydraulic model for Flat Creek. Its purpose is to ensure that the effective model's input data has been transferred correctly to the user's computer and to ensure that the revised data will be integrated into the effective data. The corrected effective models incorporate more detailed topographic information into the duplicate effective model using 2015 LiDAR survey data obtained from the Teton Conservation District. Cross sections covering the Rafter J Ranch development that were updated using this LiDAR data include cross sections 30074, 31220, 31558, 31615, 32973, and 34540. This was done to assure the model results would be based on the newest and most accurate survey data currently available. A second corrected effective model was created that includes the addition of one new cross section (RS 32262) that is located upstream of the Big Trail Drive Bridge. This cross section was added to facilitate modeling the proposed overbank grading and allow more precise determination of what impacts the grading project may have on the base flood elevations. The post-project conditions models are based on the corrected effective model with the addition of proposed treatments in an attempt to lower the base flood levels. Option 1 includes excavation in the left and right overbanks adjacent to the Flat Creek channel between the Big Trail Drive Bridge and the Rafter J Ranch north development boundary. Option 2 includes the installation of 24-18" diameter culverts beneath Big Trail Drive located southwest of the bridge. Option 3 incorporates both Options 1 and 2 into one model. This option attempts to create the lowest overall base flood levels. Site Plans and Cross Section plots included in this report illustrate the various options and cross section locations.



The original Rafter J Big Trail Drive Bridge was replaced in recent years. Construction of the current bridge began in 2004 during a period of time following performance of field surveys as a part of ICON/G&O Joint Venture's detailed hydraulic restudy of Flat Creek. As a result, the current bridge is not incorporated into the effective Flood Insurance Study published by FEMA. In 2010, Meridian Engineering was employed by Teton County to incorporate the replacement bridge into FEMA's effective hydraulic analysis. Meridian Engineering prepared a Report, entitled "Big Trail Drive Bridge Hydraulic Analysis", dated December 14, 2010, that summarizes the findings of that effort. The analysis results indicate that no measurable increases in base flood levels will occur as a result of the bridge replacement project. BFEs computed from that analysis are included in the following Table, which provides a comparison of the calculated 1%-annual-chance flood elevations between the various hydraulic models. The column entitled, "FEMA Duplicate Effective with Replacement Bridge" contains the BFEs from the 2010 replacement bridge hydraulic analysis.

### **1% Annual Chance Flood Elevations (Feet NAVD'88)**

| <b>Cross Section</b>        | <b>FEMA Duplicate Effective Model</b> | <b>FEMA Duplicate Effective with Replacement Bridge</b> | <b>Corrected Effective Model With LiDAR Data</b> | <b>Corrected Effective with Additional Cross Section</b> | <b>Post-Project Conditions (Option 1)</b> | <b>Post-Project Conditions (Option 2)</b> | <b>Post-Project Conditions (Option 3)</b> |
|-----------------------------|---------------------------------------|---------------------------------------------------------|--------------------------------------------------|----------------------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
| <b>28908</b>                | 6065.42                               | 6065.42                                                 | 6065.42                                          | 6065.42                                                  | 6065.42                                   | 6065.42                                   | 6065.42                                   |
| <b>30074</b>                | 6068.86                               | 6068.86                                                 | 6068.97*<br>(+0.11)                              | 6068.97<br>(+0.11)                                       | 6068.97<br>(+0.11)                        | 6068.97<br>(+0.11)                        | 6068.97<br>(+0.11)                        |
| <b>31220</b>                | 6071.78                               | 6071.78                                                 | 6071.85<br>(+0.07)                               | 6071.85<br>(+0.07)                                       | 6071.85<br>(+0.07)                        | 6071.85<br>(+0.07)                        | 6071.85<br>(+0.07)                        |
| <b>31558</b>                | 6074.70                               | 6073.39**<br>(-1.31)                                    | 6073.70<br>(-1.00)                               | 6073.70<br>(-1.00)                                       | 6073.70<br>(-1.00)                        | 6073.04<br>(-1.66)                        | 6073.04<br>(-1.66)                        |
| <b>Big Trail Dr. Bridge</b> | -----                                 | -----                                                   | -----                                            | -----                                                    | -----                                     | -----                                     | -----                                     |
| <b>31615</b>                | 6075.05                               | 6075.01<br>(-0.04)                                      | 6074.71<br>(-0.34)                               | 6074.71<br>(-0.34)                                       | 6074.71<br>(-0.34)                        | 6074.69<br>(-0.36)                        | 6074.69<br>(-0.36)                        |
| <b>32262</b>                | -----                                 | -----                                                   | -----                                            | 6076.07                                                  | 6075.98                                   | 6075.55                                   | 6075.50                                   |
| <b>32973</b>                | 6076.67                               | 6076.67                                                 | 6077.67<br>(+1.00)                               | 6076.90<br>(+0.23)                                       | 6076.62<br>(-0.05)                        | 6076.98<br>(+0.31)                        | 6076.72<br>(+0.05)                        |
| <b>34540</b>                | 6079.84                               | 6079.84                                                 | 6079.85<br>(+0.01)                               | 6080.21<br>(+0.37)                                       | 6080.33<br>(+0.49)                        | 6080.20<br>(+0.36)                        | 6080.14<br>(+0.30)                        |
| <b>35470</b>                | 6081.53                               | 6081.53                                                 | 6081.47<br>(-0.06)                               | 6081.24<br>(-0.29)                                       | 6081.09<br>(-0.44)                        | 6081.25<br>(-0.28)                        | 6081.29<br>(-0.29)                        |
| <b>36595</b>                | 6084.69                               | 6084.69                                                 | 6084.69                                          | 6084.69                                                  | 6084.69                                   | 6084.69                                   | 6084.69                                   |
| <b>37738</b>                | 6088.48                               | 6088.48                                                 | 6088.48                                          | 6088.48                                                  | 6088.48                                   | 6088.48                                   | 6088.48                                   |
| <b>38668</b>                | 6090.96                               | 6090.96                                                 | 6090.96                                          | 6090.96                                                  | 6090.96                                   | 6090.96                                   | 6090.96                                   |

\* BFE increase relative to the duplicate effective model value

\*\* BFE decrease relative to the duplicate effective model value



Starting water surface elevations at the downstream end (cross section 28908) of this limited reach length hydraulic analysis were entered as known elevations for the 10-, 50-, 100-, and 500-year flood events, and taken from FEMA's effective hydraulic model. Channel and overbank roughness factors (Manning's "n" values) for all model runs created utilize the same values given in FEMA's effective hydraulic model. These values are 0.035 in the main channel and 0.05 to 0.06 in overbank areas. Channel distances between cross sections were checked for accuracy and remain the same as those specified in FEMA's effective hydraulic model. Left and right overbank distances were revised in some instances to reflect more accurate values.

Upon reviewing FEMA's effective hydraulic model relative to the 2015 LiDAR survey data, it became apparent that the Big Trail Drive roadway surface is not accurately modeled for several hundred feet on either side of the bridge. Specifically, the roadway appears elevated relative to native ground in the 2015 LiDAR survey data, but not in the model. Therefore, the elevated roadway has been added to the corrected effective and post-project conditions model runs.

Based on the results of the various hydraulic model runs, several conclusions can be drawn. First, when comparing model results between the duplicate effective model and the corrected effective models, minor changes in BFE occur (-0.34' to +0.11') as a result of incorporating newer and more accurate topographic information into the model, with the exception of the results at cross section 32973. At this cross section, the BFE increases 1.00 foot. This BFE increase appears to result from differences between the FEMA's effective hydraulic model cross section geometry and that extrapolated from the 2015 LiDAR survey (see cross section comparison in the back of this report). Upon adding cross section 32262 to the corrected effective model, the BFE increase at cross section 32973 reduces to 0.23 feet relative to the duplicate effective model results. Second, when updating the bridge and cross section geometry to include the Big Trail Drive replacement bridge and elevated roadway using the 2015 LiDAR survey data, resultant BFE values just upstream and downstream of the bridge structure drop 0.34 feet at cross section 31615 and 1.00 foot at cross section 31558. Third, proposed flood mitigation measures (Options 1, 2, and 3) do not alter the BFEs sufficiently at critical cross sections 31615, 32262, 32973, and 34540 to remove existing housing structures from the special flood hazard area.

The results of the hydraulic analysis indicate that overbank grading along either side of the Flat Creek channel, upstream of Big Trail Drive, will have negligible impacts on removing homes from FEMA's mapped special flood hazard area. This appears to largely result from FEMA's effective hydraulic analysis being based on less detailed cross section survey data than that used in this study. Comparison of cross section geometry between the corrected effective models that are based on the 2015 LiDAR survey and FEMA duplicate effective model is included in the back of this report. Based on these cross section plots, it appears that the less detailed ground surface represented in the duplicate effective model at cross sections 32973 and 34540 yields more area to convey flood flows than that offered by the more detailed geometry given in the corrected effective models. Please note that both of these cross sections are located in the area of the proposed overbank grading project.

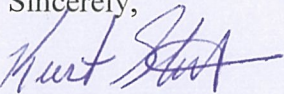
A limited review of the 2015 LiDAR survey data indicates that some of the Cedarwoods Townhomes and single family homes near W. Diamond Hitch Drive and S. Double Tree Drive may be eligible for removal from the special flood hazard area using FEMA's regulatory BFEs. FEMA has a Letter of Map Amendment (LOMA) process that can be utilized to officially remove building structures and/or lots from the special flood hazard area if it can be demonstrated that the lowest adjacent grade to the

foundation, or lowest lot elevation, is at or above BFE. The LOMA process is fee exempt by FEMA, but limited to situations where no fill has been placed to elevate the building structure or lot. Minor placement of fill around the foundation perimeter to promote drainage of surface runoff away from the structure is not classified as fill. In addition, fill placed prior to publication of the initial FIRM for the community is not classified as fill. The initial FIRM for Teton County, Wyoming is dated May 4, 1989.

Aside from potential LOMA opportunities, there may be an opportunity to lower the regulatory BFE's by updating FEMA's hydrologic analysis for Flat Creek. Hydrologic values, or peak discharge values, for the various magnitude flood events studied by FEMA on the Flat Creek drainage have been said to be overly conservative. According to the Flood Insurance Study Report for Teton County, Wyoming and Incorporated Areas, these values were calculated using a regression analysis to determine relationship between peak discharge, and drainage area flood frequency. This methodology was utilized in 1984 as a part of the initial detailed flood insurance study for Flat Creek since stream gage data was not available at that time. These values could potentially be updated using the multiple years (1991-2018) of gage data available from a gage on Flat Creek located by High School Road. Revisions to the effective hydrologic analysis can be submitted to FEMA through their Letter of Map Revision process. If approved, the revised peak discharge values would then be used to FEMA's effective hydraulic analysis.

If you should have any questions or comments relative to the above information, please do not hesitate to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read "Kurt Stout", with a stylized flourish at the end.

Kurt Stout, P.E.

Civil Engineer

Meridian Engineering, P.C.





**FEMA Flood Insurance Rate Map**







MAP SCALE 1" = 500'

250 0 500 1000 FEET

125 0 500 1000 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2916E

### FIRM

FLOOD INSURANCE RATE MAP

TETON COUNTY, WYOMING

AND INCORPORATED AREAS

**PANEL 2916 OF 3325**  
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY    | NUMBER | PANEL | SUFFIX |
|--------------|--------|-------|--------|
| TETON COUNTY | 560094 | 2916  | E      |

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.



**MAP NUMBER**  
56039C2916E

**MAP REVISED**  
SEPTEMBER 16, 2015

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)





**Duplicate Effective Multiple Profile Run**





HEC-RAS HEC-RAS 5.0.3 September 2016  
U.S. Army Corps of Engineers  
Hydrologic Engineering Center  
609 Second Street  
Davis, California

```

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
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  XXXXXX   XXXX   X   X   X   X   XXXXX

```

PROJECT DATA

Project Title: Rafter J Flood Mitigation Feasibility Study  
Project File : Flat Cr below High School Rd.prj  
Run Date and Time: 7/10/2018 7:35:12 AM

Project in English units

Project Description:

Flat Creek FIS - Confluence with Snake River to High School Road  
Multiple

Profile Run

Teton County, WY

CRS Info=<SpatialReference> <CoordinateSystem

Code="3758" Unit="US\_survey\_Foot" AcadCode="" /> <Registration OffsetX="0"

OffsetY="0" OffsetZ="0" ScaleX="1" ScaleY="1" ScaleZ="1" /></SpatialReference>

PLAN DATA

Plan Title: Flat Creek Duplicate Effective

Plan File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.p13

Geometry Title: Flat Creek Geometry

Geometry File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.g13

Flow Title : Flat Creek Multiple Profile Flows

Flow File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.f10

Plan Description:

Duplicate effective model of FEMA's effective model

Plan Summary Information:

|                           |      |                    |     |
|---------------------------|------|--------------------|-----|
| Number of: Cross Sections | = 11 | Multiple Openings  | = 0 |
| Culverts                  | = 0  | Inline Structures  | = 0 |
| Bridges                   | = 1  | Lateral Structures | = 0 |

Computational Information



Water surface calculation tolerance = 0.01  
Critical depth calculation tolerance = 0.01  
Maximum number of iterations = 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: Flat Creek Multiple Profile Flows  
Flow File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.f10

#### Flow Data (cfs)

| River      | Reach | RS    | 10-YR | 50-YR | 100-YR | 500-YR |
|------------|-------|-------|-------|-------|--------|--------|
| Flat Creek | 1     | 38668 | 800   | 1030  | 1290   | 1640   |

#### Boundary Conditions

| River      | Reach | Profile | Upstream | Downstream         |
|------------|-------|---------|----------|--------------------|
| Flat Creek | 1     | 10-YR   |          | Known WS = 6065.07 |
| Flat Creek | 1     | 50-YR   |          | Known WS = 6065.25 |
| Flat Creek | 1     | 100-YR  |          | Known WS = 6065.42 |
| Flat Creek | 1     | 500-YR  |          | Known WS = 6065.62 |

#### GEOMETRY DATA

Geometry Title: Flat Creek Geometry  
Geometry File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.g13

#### CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 38668

#### INPUT

##### Description:

| Station Elevation Data |         | num= |        | 14   |        |      |        |      |        |
|------------------------|---------|------|--------|------|--------|------|--------|------|--------|
| Sta                    | Elev    | Sta  | Elev   | Sta  | Elev   | Sta  | Elev   | Sta  | Elev   |
| 0                      | 6094.74 | 60   | 6094.2 | 388  | 6092.2 | 420  | 6090.2 | 450  | 6090.2 |
| 510                    | 6092    | 818  | 6090.2 | 1626 | 6090.2 | 1639 | 6089.1 | 1688 | 6089.1 |

|      |        |      |        |      |        |         |         |  |  |
|------|--------|------|--------|------|--------|---------|---------|--|--|
| 1706 | 6090.2 | 2477 | 6092.2 | 3046 | 6094.2 | 3275.62 | 6095.16 |  |  |
|------|--------|------|--------|------|--------|---------|---------|--|--|

Manning's n Values                      num=                      3

|     |       |      |       |      |       |
|-----|-------|------|-------|------|-------|
| Sta | n Val | Sta  | n Val | Sta  | n Val |
| 0   | .05   | 1639 | .035  | 1688 | .05   |

|           |      |       |          |              |        |              |        |
|-----------|------|-------|----------|--------------|--------|--------------|--------|
| Bank Sta: | Left | Right | Lengths: | Left Channel | Right  | Coeff Contr. | Expan. |
|           | 1639 | 1688  |          | 554.41       | 929.64 | 579.67       |        |

Ineffective Flow                      num=                      1

|       |       |      |           |
|-------|-------|------|-----------|
| Sta L | Sta R | Elev | Permanent |
| 0     | 510   | 6092 | T         |

CROSS SECTION

RIVER: Flat Creek  
 REACH: 1                      RS: 37738

INPUT  
 Description:

|         |           |      |      |    |
|---------|-----------|------|------|----|
| Station | Elevation | Data | num= | 16 |
|---------|-----------|------|------|----|

|         |         |     |        |     |        |      |        |      |        |
|---------|---------|-----|--------|-----|--------|------|--------|------|--------|
| Sta     | Elev    | Sta | Elev   | Sta | Elev   | Sta  | Elev   | Sta  | Elev   |
| 0       | 6088.7  | 138 | 6088.2 | 221 | 6088.2 | 440  | 6087.2 | 460  | 6088.2 |
| 679     | 6088.2  | 730 | 6088.4 | 802 | 6088.2 | 876  | 6086.2 | 880  | 6084.7 |
| 908     | 6084.7  | 912 | 6086.2 | 980 | 6088.2 | 1312 | 6090.2 | 2275 | 6092.2 |
| 2299.81 | 6092.35 |     |        |     |        |      |        |      |        |

Manning's n Values                      num=                      3

|     |       |     |       |     |       |
|-----|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| 0   | .05   | 880 | .035  | 908 | .05   |

|           |      |       |          |              |         |              |        |
|-----------|------|-------|----------|--------------|---------|--------------|--------|
| Bank Sta: | Left | Right | Lengths: | Left Channel | Right   | Coeff Contr. | Expan. |
|           | 880  | 908   |          | 608.2        | 1142.98 | 926.3        |        |

Ineffective Flow                      num=                      1

|       |       |        |           |
|-------|-------|--------|-----------|
| Sta L | Sta R | Elev   | Permanent |
| 0     | 730   | 6088.4 | F         |

CROSS SECTION

RIVER: Flat Creek  
 REACH: 1                      RS: 36595

INPUT  
 Description:

|         |           |      |      |    |
|---------|-----------|------|------|----|
| Station | Elevation | Data | num= | 20 |
|---------|-----------|------|------|----|

|      |         |      |        |      |        |      |        |         |        |
|------|---------|------|--------|------|--------|------|--------|---------|--------|
| Sta  | Elev    | Sta  | Elev   | Sta  | Elev   | Sta  | Elev   | Sta     | Elev   |
| 0    | 6086.63 | 82   | 6086.2 | 317  | 6084.2 | 464  | 6084.2 | 720     | 6085.2 |
| 767  | 6086.2  | 788  | 6086.2 | 803  | 6082.2 | 806  | 6081.2 | 843     | 6081.2 |
| 847  | 6082.2  | 850  | 6086.2 | 870  | 6086.2 | 999  | 6084.2 | 1026    | 6083.7 |
| 1069 | 6084.2  | 1436 | 6084.2 | 1487 | 6084.7 | 2612 | 6086.2 | 2631.71 | 6086.3 |

Manning's n Values                      num=                      3

|     |       |     |       |     |       |
|-----|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| 0   | .05   | 806 | .035  | 843 | .05   |



Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
806 843 695.19 1125.16 521.47 .1 .3

CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 35470

INPUT  
Description:  
Station Elevation Data num= 23  
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev  
0 6084.48 65 6084.2 312 6082.2 860 6082.2 1010 6083.2  
1098 6082.2 1168 6080.2 1210 6080.2 1276 6081.7 1285 6081.7  
1357 6080.7 1612 6080.2 1618 6079.1 1653 6079.1 1667 6080.2  
2080 6080.2 2098 6082.2 2108 6084.2 2120 6084.2 2144 6082.2  
2935 6082.2 3071 6084.2 3147.83 6084.53

Manning's n Values num= 3  
Sta n Val Sta n Val Sta n Val  
0 .05 1618 .035 1653 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
1618 1653 559.49 930.41 535.79 .1 .3  
Ineffective Flow num= 1  
Sta L Sta R Elev Permanent  
0 1285 6081.7 F

CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 34540

INPUT  
Description:  
Station Elevation Data num= 21  
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev  
0 6082.67 31 6082.2 459 6080.2 1129 6080.2 1141 6078.2  
1229 6078.2 1257 6079.7 1267 6079.7 1321 6079.2 1741 6079.2  
1829 6078.2 1836 6077.2 1865 6077.2 1871 6078.2 2295 6080.2  
2355 6082.2 2362 6084.2 2431 6084.2 2445 6082.2 3222 6082.2  
3268.7 6082.5

Manning's n Values num= 3  
Sta n Val Sta n Val Sta n Val  
0 .06 1836 .035 1865 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
1836 1865 847.02 1566.1 1005.44 .1 .3  
Ineffective Flow num= 1  
Sta L Sta R Elev Permanent  
0 1622 6084.4 F

Blocked Obstructions      num=      1  
Sta L    Sta R    Elev  
3629   3268.7   6085.4

CROSS SECTION

RIVER: Flat Creek  
REACH: 1                      RS: 32973

INPUT

Description:

| Station | Elevation | Data | num=   | 36   |        |      |        |      |        |  |
|---------|-----------|------|--------|------|--------|------|--------|------|--------|--|
| Sta     | Elev      | Sta  | Elev   | Sta  | Elev   | Sta  | Elev   | Sta  | Elev   |  |
| 0       | 6078.5    | 15   | 6078.2 | 311  | 6076.2 | 473  | 6074.2 | 983  | 6074.2 |  |
| 1142    | 6076.2    | 1149 | 6078.2 | 1165 | 6078.2 | 1172 | 6076.2 | 1214 | 6076.2 |  |
| 1340    | 6078.2    | 1347 | 6078.2 | 1446 | 6076.2 | 1502 | 6078.2 | 1520 | 6078.2 |  |
| 1548    | 6080.2    | 1562 | 6080.2 | 1569 | 6078.2 | 1636 | 6076.2 | 1884 | 6074.2 |  |
| 1887    | 6073.7    | 1910 | 6073.7 | 1913 | 6074.2 | 2037 | 6076.1 | 2114 | 6074.2 |  |
| 2129    | 6074.2    | 2132 | 6076.2 | 2142 | 6077.2 | 2151 | 6076.2 | 2165 | 6074.2 |  |
| 2190    | 6074.2    | 2202 | 6076.2 | 2209 | 6078.2 | 3163 | 6078.2 | 3619 | 6080.2 |  |
| 3652.19 | 6080.78   |      |        |      |        |      |        |      |        |  |

| Manning's n | Values | num= | 3     |      |       |
|-------------|--------|------|-------|------|-------|
| Sta         | n Val  | Sta  | n Val | Sta  | n Val |
| 0           | .06    | 1887 | .035  | 1910 | .06   |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right  | Coeff  | Contr. | Expan. |
|-----------|------|-------|----------|--------------|--------|--------|--------|--------|
|           | 1887 | 1910  |          | 602.63       | 1358.6 | 1375.7 | .1     | .3     |

| Ineffective Flow | num=    | 2      |           |
|------------------|---------|--------|-----------|
| Sta L            | Sta R   | Elev   | Permanent |
| 0                | 1165    | 6082.4 | F         |
| 2142             | 3652.19 | 6081.4 | F         |

| Blocked Obstructions | num=    | 1      |  |
|----------------------|---------|--------|--|
| Sta L                | Sta R   | Elev   |  |
| 2210                 | 3652.19 | 6082.4 |  |

CROSS SECTION

RIVER: Flat Creek  
REACH: 1                      RS: 31615

INPUT

Description: Upstream of Rafter J Bridge

| Station | Elevation | Data | num=    | 25   |         |      |         |        |         |
|---------|-----------|------|---------|------|---------|------|---------|--------|---------|
| Sta     | Elev      | Sta  | Elev    | Sta  | Elev    | Sta  | Elev    | Sta    | Elev    |
| 0       | 6080.97   | 35   | 6080.2  | 161  | 6078.2  | 350  | 6076.2  | 1692   | 6076.14 |
| 1720    | 6075.65   | 1762 | 6074.92 | 1809 | 6074.51 | 1849 | 6074.37 | 1862   | 6074.06 |
| 1872    | 6068.84   | 1879 | 6069.15 | 1885 | 6069.41 | 1905 | 6074.71 | 1942   | 6074.34 |
| 1983    | 6073.67   | 2029 | 6073.66 | 2078 | 6073.7  | 2184 | 6074.2  | 2473   | 6074.2  |
| 2531    | 6073.2    | 2586 | 6074.2  | 3010 | 6074.2  | 3050 | 6075.2  | 3050.5 | 6073.7  |

| Manning's n | Values | num= | 3     |     |       |
|-------------|--------|------|-------|-----|-------|
| Sta         | n Val  | Sta  | n Val | Sta | n Val |
|             |        |      |       |     |       |



|                      |        |        |          |              |       |       |        |        |
|----------------------|--------|--------|----------|--------------|-------|-------|--------|--------|
| 0                    | .06    | 1872   | .035     | 1885         | .06   |       |        |        |
| Bank Sta:            | Left   | Right  | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|                      | 1872   | 1885   |          | 43.06        | 56.46 |       | .1     | .3     |
| Blocked Obstructions |        |        | num=     | 1            |       |       |        |        |
| Sta L                | Sta R  | Elev   |          |              |       |       |        |        |
| 3050                 | 3050.5 | 6075.2 |          |              |       |       |        |        |

BRIDGE

RIVER: Flat Creek  
REACH: 1 RS: 31602

INPUT

Description: Rafter J Bridge  
Distance from Upstream XS = 13  
Deck/Roadway Width = 29  
Weir Coefficient = 2.6  
Upstream Deck/Roadway Coordinates  
num= 6  
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord  
1849 6074.37 1866.7 6075.75 1866.75 6078.35 6073.65  
1887.25 6078.24 6073.54 1887.3 6075.64 1905 6074.71

Upstream Bridge Cross Section Data

| Station | Elevation | Data | num=    | 25   |         |      |         |        |         |
|---------|-----------|------|---------|------|---------|------|---------|--------|---------|
| Sta     | Elev      | Sta  | Elev    | Sta  | Elev    | Sta  | Elev    | Sta    | Elev    |
| 0       | 6080.97   | 35   | 6080.2  | 161  | 6078.2  | 350  | 6076.2  | 1692   | 6076.14 |
| 1720    | 6075.65   | 1762 | 6074.92 | 1809 | 6074.51 | 1849 | 6074.37 | 1862   | 6074.06 |
| 1872    | 6068.84   | 1879 | 6069.15 | 1885 | 6069.41 | 1905 | 6074.71 | 1942   | 6074.34 |
| 1983    | 6073.67   | 2029 | 6073.66 | 2078 | 6073.7  | 2184 | 6074.2  | 2473   | 6074.2  |
| 2531    | 6073.2    | 2586 | 6074.2  | 3010 | 6074.2  | 3050 | 6075.2  | 3050.5 | 6073.7  |

|                    |       |      |       |      |       |
|--------------------|-------|------|-------|------|-------|
| Manning's n Values |       | num= | 3     |      |       |
| Sta                | n Val | Sta  | n Val | Sta  | n Val |
| 0                  | .06   | 1872 | .035  | 1885 | .06   |

|                      |        |        |       |        |        |
|----------------------|--------|--------|-------|--------|--------|
| Bank Sta:            | Left   | Right  | Coeff | Contr. | Expan. |
|                      | 1872   | 1885   |       | .1     | .3     |
| Blocked Obstructions |        |        | num=  | 1      |        |
| Sta L                | Sta R  | Elev   |       |        |        |
| 3050                 | 3050.5 | 6075.2 |       |        |        |

Downstream Deck/Roadway Coordinates

num= 6  
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord  
1849 6074.37 1866.7 6075.75 1866.75 6078.35 6073.65  
1887.25 6078.24 6073.54 1887.3 6075.64 1905 6074.71

Downstream Bridge Cross Section Data

| Station | Elevation | Data | num=    | 25   |         |      |         |      |         |
|---------|-----------|------|---------|------|---------|------|---------|------|---------|
| Sta     | Elev      | Sta  | Elev    | Sta  | Elev    | Sta  | Elev    | Sta  | Elev    |
| 0       | 6082.8    | 35   | 6080.2  | 161  | 6078.2  | 350  | 6076.2  | 1692 | 6076.14 |
| 1720    | 6075.65   | 1762 | 6074.92 | 1809 | 6074.51 | 1849 | 6074.37 | 1862 | 6074.06 |

|      |         |      |         |      |         |      |         |         |         |
|------|---------|------|---------|------|---------|------|---------|---------|---------|
| 1872 | 6068.84 | 1879 | 6068.83 | 1885 | 6069.41 | 1905 | 6074.71 | 1942    | 6074.34 |
| 1983 | 6073.67 | 2029 | 6073.66 | 2078 | 6073.7  | 2184 | 6074.2  | 2473    | 6074.2  |
| 2531 | 6073.2  | 2586 | 6074.2  | 3010 | 6074.2  | 3080 | 6075.2  | 3081.28 | 6073.21 |

Manning's n Values num= 3

| Sta | n Val | Sta  | n Val | Sta  | n Val |
|-----|-------|------|-------|------|-------|
| 0   | .06   | 1872 | .035  | 1885 | .06   |

Bank Sta: Left Right Coeff Contr. Expan.

|      |      |    |    |
|------|------|----|----|
| 1872 | 1885 | .1 | .3 |
|------|------|----|----|

Blocked Obstructions num= 1

| Sta L | Sta R   | Elev   |
|-------|---------|--------|
| 3080  | 3081.28 | 6075.2 |

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 = 6069  
 Energy head used in spillway design =  
 Spillway height used in design =  
 Weir crest shape = Broad Crested

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth  
 inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: Flat Creek

REACH: 1 RS: 31558

INPUT

Description: Downstream of Rafter J Bridge

| Station | Elevation | Data | num=    | 25                                      |
|---------|-----------|------|---------|-----------------------------------------|
| Sta     | Elev      | Sta  | Elev    | Sta Elev Sta Elev                       |
| 0       | 6082.8    | 35   | 6080.2  | 161 6078.2 350 6076.2 1692 6076.14      |
| 1720    | 6075.65   | 1762 | 6074.92 | 1809 6074.51 1849 6074.37 1862 6074.06  |
| 1872    | 6068.84   | 1879 | 6068.83 | 1885 6069.41 1905 6074.71 1942 6074.34  |
| 1983    | 6073.67   | 2029 | 6073.66 | 2078 6073.7 2184 6074.2 2473 6074.2     |
| 2531    | 6073.2    | 2586 | 6074.2  | 3010 6074.2 3080 6075.2 3081.28 6073.21 |

Manning's n Values num= 3



|     |       |      |       |      |       |
|-----|-------|------|-------|------|-------|
| Sta | n Val | Sta  | n Val | Sta  | n Val |
| 0   | .06   | 1872 | .035  | 1885 | .06   |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
1872 1885 446.27 338.28 229.54 .1 .3

Blocked Obstructions num= 1

|       |         |        |
|-------|---------|--------|
| Sta L | Sta R   | Elev   |
| 3080  | 3081.28 | 6075.2 |

# CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 31220

INPUT  
Description:  
Station Elevation Data num= 19

|      |         |      |        |      |        |         |         |      |        |
|------|---------|------|--------|------|--------|---------|---------|------|--------|
| Sta  | Elev    | Sta  | Elev   | Sta  | Elev   | Sta     | Elev    | Sta  | Elev   |
| 0    | 6087.99 | 8    | 6084.2 | 79   | 6078.2 | 294     | 6076.2  | 421  | 6074.2 |
| 734  | 6074.2  | 771  | 6072.2 | 1247 | 6072.2 | 1261    | 6073.6  | 1305 | 6072.2 |
| 1556 | 6070.2  | 1566 | 6068.7 | 1598 | 6068.7 | 1652    | 6070.2  | 2070 | 6070.2 |
| 2094 | 6072.2  | 2468 | 6072.2 | 3066 | 6074.2 | 3076.16 | 6074.44 |      |        |

Manning's n Values num= 3

|     |       |      |       |      |       |
|-----|-------|------|-------|------|-------|
| Sta | n Val | Sta  | n Val | Sta  | n Val |
| 0   | .06   | 1566 | .035  | 1598 | .06   |

|                |       |               |         |        |       |        |        |
|----------------|-------|---------------|---------|--------|-------|--------|--------|
| Bank Sta: Left | Right | Lengths: Left | Channel | Right  | Coeff | Contr. | Expan. |
| 1566           | 1598  | 946.34        | 1146.26 | 545.38 | .1    | .3     |        |

Ineffective Flow num= 2

|       |         |        |           |
|-------|---------|--------|-----------|
| Sta L | Sta R   | Elev   | Permanent |
| 0     | 1261    | 6073.6 | F         |
| 1872  | 3076.16 | 6073.2 | F         |

# CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 30074

INPUT  
Description:  
Station Elevation Data num= 21

|         |         |      |        |      |        |      |        |      |        |
|---------|---------|------|--------|------|--------|------|--------|------|--------|
| Sta     | Elev    | Sta  | Elev   | Sta  | Elev   | Sta  | Elev   | Sta  | Elev   |
| 0       | 6072.95 | 115  | 6072.2 | 647  | 6072.2 | 745  | 6070.2 | 1074 | 6068.2 |
| 1252    | 6069.7  | 1262 | 6069.7 | 1402 | 6068.2 | 1407 | 6066.2 | 1410 | 6065.7 |
| 1451    | 6065.7  | 1456 | 6066.2 | 1552 | 6068.2 | 1658 | 6070.2 | 1668 | 6070.4 |
| 1680    | 6070.2  | 2063 | 6070.2 | 2432 | 6071.2 | 2720 | 6072.2 | 3536 | 6072.2 |
| 3548.03 | 6071.96 |      |        |      |        |      |        |      |        |

Manning's n Values num= 3

|     |       |      |       |      |       |
|-----|-------|------|-------|------|-------|
| Sta | n Val | Sta  | n Val | Sta  | n Val |
| 0   | .06   | 1410 | .035  | 1451 | .06   |

|                      |           |                       |        |              |        |
|----------------------|-----------|-----------------------|--------|--------------|--------|
| Bank Sta: Left       | Right     | Lengths: Left Channel | Right  | Coeff Contr. | Expan. |
| 1410                 | 1451      | 722.21 1165.59        | 701.59 | .1           | .3     |
| Ineffective Flow     | num=      | 2                     |        |              |        |
| Sta L Sta R Elev     | Permanent |                       |        |              |        |
| 0 1262 6069.7        | F         |                       |        |              |        |
| 1668 3548.03 6070.4  | F         |                       |        |              |        |
| Blocked Obstructions | num=      | 1                     |        |              |        |
| Sta L Sta R Elev     |           |                       |        |              |        |
| 2761 3548.03 6070.2  |           |                       |        |              |        |

# CROSS SECTION

RIVER: Flat Creek  
 REACH: 1 RS: 28908

## INPUT

### Description:

|                                                                |      |    |
|----------------------------------------------------------------|------|----|
| Station Elevation Data                                         | num= | 20 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev                   |      |    |
| 0 6072.93 9 6072.2 146 6070.2 573 6070.2 853 6068.2            |      |    |
| 993 6068.2 1305 6067.2 1392 6066.2 1463 6064.2 1467 6063.7     |      |    |
| 1495 6063.7 1500 6064.2 1996 6064.2 2140 6065.7 2270 6065.7    |      |    |
| 2377 6064.3 2651 6065.7 2941 6066.2 3254 6068.1 3267.79 6066.6 |      |    |

|                               |      |   |
|-------------------------------|------|---|
| Manning's n Values            | num= | 3 |
| Sta n Val Sta n Val Sta n Val |      |   |
| 0 .06 1467 .035 1495 .06      |      |   |

|                     |           |                       |       |              |        |
|---------------------|-----------|-----------------------|-------|--------------|--------|
| Bank Sta: Left      | Right     | Lengths: Left Channel | Right | Coeff Contr. | Expan. |
| 1467                | 1495      | 23780.0929527.75      | 24313 | .1           | .3     |
| Ineffective Flow    | num=      | 1                     |       |              |        |
| Sta L Sta R Elev    | Permanent |                       |       |              |        |
| 2140 3267.79 6065.7 | F         |                       |       |              |        |

## Profile Output Table - Standard Table 2

| Reach | River Sta | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Vel Head<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Top Width<br>(ft) |
|-------|-----------|---------|-------------------|-------------------|------------------|--------------------|--------------------|-----------------|--------------------|------------------|-------------------|
| 1     | 28908     | 10-YR   | 6065.12           | 6065.07           | 0.05             |                    |                    | 18.22           | 128.79             | 652.99           | 856.85            |
| 1     | 28908     | 50-YR   | 6065.31           | 6065.25           | 0.06             |                    |                    | 26.53           | 150.18             | 853.29           | 929.57            |
| 1     | 28908     | 100-YR  | 6065.48           | 6065.42           | 0.06             |                    |                    | 36.88           | 174.72             | 1078.40          | 998.14            |
| 1     | 28908     | 500-YR  | 6065.69           | 6065.62           | 0.07             |                    |                    | 52.33           | 207.06             | 1380.61          | 1078.93           |
| 1     | 30074     | 10-YR   | 6068.72           | 6068.43           | 0.29             | 3.52               | 0.07               | 15.97           | 564.41             | 219.62           | 247.94            |
| 1     | 30074     | 50-YR   | 6069.02           | 6068.64           | 0.38             | 3.62               | 0.10               | 25.16           | 701.57             | 303.28           | 340.42            |
| 1     | 30074     | 100-YR  | 6069.32           | 6068.86           | 0.45             | 3.72               | 0.12               | 43.51           | 843.83             | 402.66           | 434.38            |
| 1     | 30074     | 500-YR  | 6069.66           | 6069.11           | 0.55             | 3.83               | 0.14               | 79.04           | 1020.34            | 540.62           | 542.38            |
| 1     | 31220     | 10-YR   | 6071.32           | 6071.22           | 0.10             | 2.58               | 0.02               | 70.66           | 305.47             | 423.87           | 654.45            |
| 1     | 31220     | 50-YR   | 6071.60           | 6071.50           | 0.09             | 2.56               | 0.03               | 115.67          | 342.98             | 571.35           | 693.06            |
| 1     | 31220     | 100-YR  | 6071.87           | 6071.78           | 0.09             | 2.52               | 0.04               | 174.53          | 384.39             | 731.08           | 730.59            |
| 1     | 31220     | 500-YR  | 6072.19           | 6072.10           | 0.09             | 2.49               | 0.05               | 264.81          | 437.59             | 937.60           | 774.70            |

|   |       |        |         |         |      |      |      |         |        |         |         |
|---|-------|--------|---------|---------|------|------|------|---------|--------|---------|---------|
| 1 | 31558 | 10-YR  | 6074.82 | 6073.27 | 1.54 | 1.31 | 0.43 | 72.50   | 622.61 | 104.89  | 44.41   |
| 1 | 31558 | 50-YR  | 6074.88 | 6074.60 | 0.28 | 0.61 | 0.06 | 34.89   | 459.42 | 535.68  | 1227.53 |
| 1 | 31558 | 100-YR | 6074.99 | 6074.70 | 0.30 | 0.62 | 0.06 | 45.06   | 510.27 | 734.67  | 1255.68 |
| 1 | 31558 | 500-YR | 6075.14 | 6074.85 | 0.30 | 0.63 | 0.06 | 62.73   | 561.19 | 1016.08 | 1284.50 |
| 1 | 31602 | Bridge |         |         |      |      |      |         |        |         |         |
| 1 | 31615 | 10-YR  | 6075.04 | 6075.00 | 0.04 | 0.01 | 0.01 | 33.78   | 223.66 | 542.56  | 1284.27 |
| 1 | 31615 | 50-YR  | 6075.01 | 6074.92 | 0.09 | 0.01 | 0.02 | 41.33   | 312.28 | 676.39  | 1277.12 |
| 1 | 31615 | 100-YR | 6075.14 | 6075.05 | 0.09 | 0.02 | 0.02 | 56.25   | 341.86 | 891.90  | 1289.22 |
| 1 | 31615 | 500-YR | 6075.29 | 6075.20 | 0.09 | 0.02 | 0.02 | 77.86   | 373.34 | 1188.80 | 1304.82 |
| 1 | 32973 | 10-YR  | 6076.17 | 6076.08 | 0.09 | 1.11 | 0.01 | 285.29  | 218.31 | 296.40  | 1339.77 |
| 1 | 32973 | 50-YR  | 6076.53 | 6076.46 | 0.06 | 1.51 | 0.00 | 398.55  | 226.94 | 404.51  | 1512.17 |
| 1 | 32973 | 100-YR | 6076.74 | 6076.67 | 0.07 | 1.61 | 0.00 | 522.05  | 256.97 | 510.99  | 1586.14 |
| 1 | 32973 | 500-YR | 6076.99 | 6076.92 | 0.07 | 1.69 | 0.00 | 693.98  | 295.46 | 650.56  | 1671.10 |
| 1 | 34540 | 10-YR  | 6079.81 | 6079.66 | 0.15 | 3.62 | 0.02 | 179.89  | 329.91 | 290.20  | 1032.02 |
| 1 | 34540 | 50-YR  | 6079.91 | 6079.68 | 0.23 | 3.34 | 0.05 | 236.37  | 417.22 | 376.41  | 1040.10 |
| 1 | 34540 | 100-YR | 6080.08 | 6079.84 | 0.23 | 3.29 | 0.05 | 331.03  | 464.64 | 494.33  | 1088.40 |
| 1 | 34540 | 500-YR | 6080.28 | 6080.05 | 0.23 | 3.24 | 0.05 | 459.24  | 519.94 | 660.82  | 1132.36 |
| 1 | 35470 | 10-YR  | 6081.20 | 6081.16 | 0.03 | 1.38 | 0.01 | 166.20  | 182.18 | 451.62  | 882.91  |
| 1 | 35470 | 50-YR  | 6081.40 | 6081.37 | 0.03 | 1.48 | 0.02 | 240.01  | 201.93 | 588.06  | 916.11  |
| 1 | 35470 | 100-YR | 6081.57 | 6081.53 | 0.04 | 1.48 | 0.02 | 320.55  | 229.82 | 739.63  | 942.36  |
| 1 | 35470 | 500-YR | 6081.67 | 6081.62 | 0.05 | 1.54 | 0.02 | 419.20  | 279.33 | 941.46  | 956.42  |
| 1 | 36595 | 10-YR  | 6084.59 | 6083.51 | 1.08 | 2.77 | 0.31 | 30.72   | 735.80 | 33.48   | 49.88   |
| 1 | 36595 | 50-YR  | 6084.92 | 6084.59 | 0.33 | 1.53 | 0.09 | 110.26  | 695.13 | 224.61  | 850.23  |
| 1 | 36595 | 100-YR | 6085.06 | 6084.69 | 0.38 | 1.62 | 0.10 | 161.25  | 798.08 | 330.67  | 901.27  |
| 1 | 36595 | 500-YR | 6085.23 | 6084.89 | 0.34 | 1.84 | 0.09 | 272.33  | 864.18 | 503.49  | 1130.52 |
| 1 | 37738 | 10-YR  | 6088.56 | 6088.40 | 0.16 | 3.88 | 0.09 | 247.97  | 438.81 | 113.22  | 931.57  |
| 1 | 37738 | 50-YR  | 6088.86 | 6088.38 | 0.48 | 3.90 | 0.04 | 166.90  | 686.90 | 176.20  | 912.19  |
| 1 | 37738 | 100-YR | 6088.79 | 6088.48 | 0.32 | 3.73 | 0.01 | 457.69  | 657.61 | 174.70  | 963.29  |
| 1 | 37738 | 500-YR | 6088.94 | 6088.61 | 0.33 | 3.72 | 0.00 | 699.36  | 730.40 | 210.24  | 1022.64 |
| 1 | 38668 | 10-YR  | 6090.73 | 6090.60 | 0.13 | 2.17 | 0.00 | 433.55  | 319.15 | 47.31   | 1160.03 |
| 1 | 38668 | 50-YR  | 6090.98 | 6090.93 | 0.04 | 2.07 | 0.04 | 680.10  | 255.50 | 94.41   | 1361.53 |
| 1 | 38668 | 100-YR | 6091.02 | 6090.96 | 0.06 | 2.21 | 0.03 | 858.51  | 309.26 | 122.23  | 1380.46 |
| 1 | 38668 | 500-YR | 6091.16 | 6091.10 | 0.06 | 2.21 | 0.03 | 1119.37 | 342.93 | 177.70  | 1464.79 |





## **Corrected Effective Multiple Profile Run**





HEC-RAS HEC-RAS 5.0.3 September 2016  
 U.S. Army Corps of Engineers  
 Hydrologic Engineering Center  
 609 Second Street  
 Davis, California

|          |      |        |      |      |        |       |
|----------|------|--------|------|------|--------|-------|
| X        | X    | XXXXXX | XXXX | XXXX | XX     | XXXX  |
| X        | X    | X      | X    | X    | X      | X     |
| X        | X    | X      | X    | X    | X      | X     |
| XXXXXXXX | XXXX | X      | XXX  | XXXX | XXXXXX | XXXX  |
| X        | X    | X      | X    | X    | X      | X     |
| X        | X    | X      | X    | X    | X      | X     |
| X        | X    | XXXXXX | XXXX | X    | X      | XXXXX |

PROJECT DATA

Project Title: Rafter J Flood Mitigation Feasibility Study  
 Project File : Flat Cr below High School Rd.prj  
 Run Date and Time: 7/8/2018 4:53:37 PM

Project in English units

Project Description:

Flat Creek FIS - Confluence with Snake River to High School Road

Multiple

Profile Run

Teton County, WY

CRS Info=<SpatialReference> <CoordinateSystem

Code="3758" Unit="US\_survey\_Foot" AcadCode="" /> <Registration OffsetX="0"

OffsetY="0" OffsetZ="0" ScaleX="1" ScaleY="1" ScaleZ="1" /></SpatialReference>

PLAN DATA

Plan Title: Corrected Effective wo add Xsectn

Plan File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.p01

Geometry Title: Corrected Effective wo add Xsectn

Geometry File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.g08

Flow Title : Flat Creek Multiple Profile Flows

Flow File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.f10

Plan Description:

Multiple Profile Run with new Bridge

Plan Summary Information:

Number of: Cross Sections = 11 Multiple Openings = 0



Culverts = 0 Inline Structures = 0  
Bridges = 1 Lateral Structures = 0

#### Computational Information

Water surface calculation tolerance = 0.01  
Critical depth calculation tolerance = 0.01  
Maximum number of iterations = 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: Flat Creek Multiple Profile Flows

Flow File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.f10

#### Flow Data (cfs)

| River      | Reach | RS    | 10-YR | 50-YR | 100-YR | 500-YR |
|------------|-------|-------|-------|-------|--------|--------|
| Flat Creek | 1     | 38668 | 800   | 1030  | 1290   | 1640   |

#### Boundary Conditions

| River      | Reach | Profile | Upstream | Downstream         |
|------------|-------|---------|----------|--------------------|
| Flat Creek | 1     | 10-YR   |          | Known WS = 6065.07 |
| Flat Creek | 1     | 50-YR   |          | Known WS = 6065.25 |
| Flat Creek | 1     | 100-YR  |          | Known WS = 6065.42 |
| Flat Creek | 1     | 500-YR  |          | Known WS = 6065.62 |

#### GEOMETRY DATA

Geometry Title: Corrected Effective wo add Xsectn

Geometry File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.g08

#### CROSS SECTION

RIVER: Flat Creek

REACH: 1 RS: 38668

#### INPUT

Description:

|           |          |      |       |           |
|-----------|----------|------|-------|-----------|
| Manning's | n Values |      | num=  | 3         |
| Sta       | n Val    | Sta  | n Val | Sta n Val |
| 0         | .05      | 1639 | .035  | 1688 .05  |

CROSS SECTION

```

INPUT
Description:
Station Elevation Data      num=      16
      Sta      Elev      Sta      Elev      Sta      Elev      Sta      Elev      Sta      Elev
        0 6088.7    138 6088.2    221 6088.2    440 6087.2    460 6088.2
        679 6088.2    730 6088.4    802 6088.2    876 6086.2    880 6084.7
        908 6084.7    912 6086.2    980 6088.2    1312 6090.2    2275 6092.2
2299.81 6092.35

```

|                  |       |        |           |               |       |              |        |
|------------------|-------|--------|-----------|---------------|-------|--------------|--------|
| Bank Sta:        | Left  | Right  | Lengths:  | Left Channel  | Right | Coeff Contr. | Expan. |
|                  | 880   | 908    |           | 608.2 1142.98 | 926.3 | .1           | .3     |
| Ineffective Flow | num=  |        | 1         |               |       |              |        |
| Sta L            | Sta R | Elev   | Permanent |               |       |              |        |
| 0                | 730   | 6088.4 | F         |               |       |              |        |

CROSS SECTION

```

INPUT
Description:
Station Elevation Data      num=      20
Sta      Elev      Sta      Elev      Sta      Elev      Sta      Elev      Sta      Elev
  0 6086.63      82 6086.2      317 6084.2      464 6084.2      720 6085.2
767 6086.2      788 6086.2      803 6082.2      806 6081.2      843 6081.2
847 6082.2      850 6086.2      870 6086.2      999 6084.2      1026 6083.7
1069 6084.2      1436 6084.2      1487 6084.7      2612 6086.2      2631.71 6086.3

```

Manning's n Values

| Sta   |  | Sta   |  | Sta   |  |
|-------|--|-------|--|-------|--|
| n Val |  | n Val |  | n Val |  |
| 0     |  | .05   |  | .035  |  |
| 806   |  | .035  |  | 843   |  |
|       |  |       |  | .05   |  |

| Bank Sta: | Left | Right | Lengths: | Left Channel   | Right  | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|----------------|--------|-------|--------|--------|
|           | 806  | 843   |          | 695.19 1125.16 | 521.47 |       | .1     | .3     |

CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 35470

INPUT

Description:

| Station Elevation |         | Data |        | num=    |         | 23   |        |      |        |
|-------------------|---------|------|--------|---------|---------|------|--------|------|--------|
| Sta               | Elev    | Sta  | Elev   | Sta     | Elev    | Sta  | Elev   | Sta  | Elev   |
| 0                 | 6084.48 | 65   | 6084.2 | 312     | 6082.2  | 860  | 6082.2 | 1010 | 6083.2 |
| 1098              | 6082.2  | 1168 | 6080.2 | 1210    | 6080.2  | 1276 | 6081.7 | 1285 | 6081.7 |
| 1357              | 6080.7  | 1612 | 6080.2 | 1618    | 6079.1  | 1653 | 6079.1 | 1667 | 6080.2 |
| 2080              | 6080.2  | 2098 | 6082.2 | 2108    | 6084.2  | 2120 | 6084.2 | 2144 | 6082.2 |
| 2935              | 6082.2  | 3071 | 6084.2 | 3147.83 | 6084.53 |      |        |      |        |

Manning's n Values

| Sta   |  | Sta   |  | Sta   |  |
|-------|--|-------|--|-------|--|
| n Val |  | n Val |  | n Val |  |
| 0     |  | .05   |  | .035  |  |
| 1618  |  | .035  |  | 1653  |  |
|       |  |       |  | .05   |  |

| Bank Sta: | Left | Right | Lengths: | Left Channel  | Right  | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|---------------|--------|-------|--------|--------|
|           | 1618 | 1653  |          | 559.49 930.41 | 535.79 |       | .1     | .3     |

Ineffective Flow

| Sta L |  | Sta R |  | Elev   |  |
|-------|--|-------|--|--------|--|
| 0     |  | 1285  |  | 6081.7 |  |
|       |  |       |  | F      |  |

CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 34540

INPUT

Description:

| Station Elevation |         | Data   |         | num=   |         | 489    |         |        |         |
|-------------------|---------|--------|---------|--------|---------|--------|---------|--------|---------|
| Sta               | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    |
| 0                 | 6083.77 | 5.64   | 6083.56 | 10.51  | 6083.51 | 17.81  | 6083.24 | 28.76  | 6082.71 |
| 36.07             | 6082.22 | 42.16  | 6081.66 | 45.81  | 6081.49 | 51.9   | 6081.37 | 56.77  | 6081.32 |
| 61.82             | 6081.36 | 69.72  | 6081.33 | 75.47  | 6081.26 | 87.21  | 6081.25 | 91.88  | 6081.38 |
| 96.95             | 6081.85 | 104.15 | 6082.31 | 107.08 | 6082.41 | 112.11 | 6082.44 | 120.08 | 6082.37 |
| 129.82            | 6082.58 | 133.95 | 6082.53 | 144.43 | 6082.11 | 147.98 | 6082.01 | 152.35 | 6081.97 |
| 162.69            | 6082.1  | 167.56 | 6082.1  | 172.52 | 6082.05 | 177.5  | 6082.22 | 181.29 | 6082.26 |
| 193.31            | 6082.11 | 198.82 | 6082.19 | 209.34 | 6082.17 | 219.17 | 6082.03 | 227.08 | 6081.95 |
| 233.3             | 6081.94 | 239.29 | 6081.73 | 241.45 | 6081.76 | 245.76 | 6082.22 | 247.91 | 6082.23 |
| 254               | 6081.77 | 261.56 | 6081.59 | 272.26 | 6081.23 | 275.92 | 6081.19 | 280.79 | 6081.21 |
| 288.09            | 6081.39 | 291.74 | 6081.41 | 301.8  | 6081.26 | 305.39 | 6081.26 | 316.89 | 6081.14 |
| 322.64            | 6081.12 | 336.79 | 6081.17 | 349.59 | 6081.11 | 360.11 | 6081.09 | 368.44 | 6080.95 |



|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 375.09  | 6080.9  | 390.36  | 6080.91 | 401.32  | 6080.77 | 408.14  | 6080.59 | 412.71  | 6080.63 |
| 417.14  | 6080.75 | 421.47  | 6080.77 | 428.98  | 6080.71 | 440.47  | 6080.73 | 449.53  | 6080.51 |
| 459.15  | 6080.59 | 468.28  | 6080.52 | 474.36  | 6080.53 | 480.45  | 6080.62 | 487.76  | 6080.56 |
| 496.28  | 6080.54 | 499.93  | 6080.3  | 506.02  | 6079.63 | 509.45  | 6079.36 | 513.32  | 6079.23 |
| 519.65  | 6079.33 | 525.5   | 6079.32 | 531.59  | 6079.58 | 538.89  | 6079.79 | 550.41  | 6079.86 |
| 560.81  | 6079.63 | 567.65  | 6079.54 | 571.24  | 6079.57 | 576.27  | 6079.7  | 582.72  | 6080.09 |
| 587.05  | 6080.18 | 591.24  | 6080.16 | 593.68  | 6080.05 | 597.83  | 6079.98 | 605.85  | 6080.22 |
| 611.48  | 6080.48 | 615.79  | 6080.6  | 623.09  | 6080.69 | 627.29  | 6080.79 | 636.63  | 6080.92 |
| 645.25  | 6080.71 | 649.68  | 6080.76 | 656.03  | 6081    | 661.78  | 6081.04 | 673.93  | 6080.71 |
| 679.74  | 6080.67 | 686.2   | 6080.53 | 689.71  | 6080.59 | 694.73  | 6080.84 | 700.82  | 6080.89 |
| 712.5   | 6080.82 | 720.29  | 6080.59 | 725.16  | 6080.54 | 734.34  | 6080.63 | 739.77  | 6080.71 |
| 754.2   | 6080.75 | 762.99  | 6080.7  | 776.86  | 6080.85 | 782.65  | 6080.83 | 790.03  | 6080.92 |
| 794.5   | 6080.91 | 806.91  | 6080.76 | 813.11  | 6080.78 | 831.71  | 6081.02 | 839.2   | 6081.07 |
| 849.03  | 6081.26 | 856.52  | 6081.26 | 861.69  | 6081.11 | 868.92  | 6081.04 | 873.62  | 6080.95 |
| 879.73  | 6081.11 | 886.73  | 6081.19 | 893.73  | 6081.48 | 898.89  | 6081.77 | 908.04  | 6082.03 |
| 913.36  | 6082.06 | 920.6   | 6081.74 | 928.87  | 6081.58 | 933.44  | 6081.56 | 943.04  | 6081.59 |
| 948.5   | 6081.55 | 954.91  | 6081.41 | 958.84  | 6081.39 | 964.01  | 6081.46 | 977.69  | 6081.48 |
| 982.61  | 6081.53 | 989.17  | 6081.53 | 998.11  | 6081.7  | 1008.45 | 6081.84 | 1014.65 | 6082.05 |
| 1021.13 | 6082.32 | 1027.05 | 6082.68 | 1029.32 | 6082.87 | 1035.32 | 6083.17 | 1042.43 | 6083.37 |
| 1046.53 | 6083.39 | 1051.45 | 6083.31 | 1054.73 | 6083.35 | 1059.64 | 6083.53 | 1063.23 | 6083.6  |
| 1067.84 | 6083.62 | 1074.39 | 6083.71 | 1088.32 | 6083.74 | 1092.17 | 6083.69 | 1104.71 | 6083.4  |
| 1107.67 | 6083.29 | 1111.27 | 6083.07 | 1113.87 | 6082.83 | 1117.13 | 6082.41 | 1123.17 | 6081.36 |
| 1126.28 | 6080.75 | 1131.44 | 6079.65 | 1132.48 | 6079.52 | 1137.64 | 6078.38 | 1140.74 | 6077.84 |
| 1143.85 | 6077.52 | 1148.15 | 6077.42 | 1153.88 | 6077.52 | 1160.38 | 6077.8  | 1165.55 | 6078.16 |
| 1168.57 | 6078.31 | 1175.89 | 6078.5  | 1180.02 | 6078.76 | 1184.15 | 6078.69 | 1185.02 | 6078.79 |
| 1189.32 | 6078.77 | 1192.31 | 6078.69 | 1204.18 | 6078.64 | 1208.14 | 6078.59 | 1212.89 | 6078.44 |
| 1218.26 | 6078.11 | 1222.72 | 6078.14 | 1225.5  | 6078.28 | 1230.66 | 6078.63 | 1235.01 | 6078.8  |
| 1237.9  | 6079.02 | 1243.07 | 6079.71 | 1246.17 | 6079.97 | 1252.37 | 6080.14 | 1264.77 | 6080.13 |
| 1269.43 | 6080.02 | 1275.11 | 6079.6  | 1280.27 | 6079.03 | 1283.36 | 6078.82 | 1286.48 | 6078.74 |
| 1293.71 | 6078.65 | 1301.39 | 6078.78 | 1305.08 | 6078.8  | 1310.25 | 6078.76 | 1316.14 | 6078.86 |
| 1320.24 | 6078.63 | 1322.7  | 6078.57 | 1326.78 | 6078.83 | 1330.89 | 6078.95 | 1334.02 | 6078.93 |
| 1340.22 | 6078.99 | 1346.62 | 6078.87 | 1355.48 | 6078.97 | 1365.31 | 6078.96 | 1375.15 | 6078.86 |
| 1383.34 | 6078.97 | 1387.44 | 6078.94 | 1394.1  | 6078.98 | 1396.03 | 6078.94 | 1401.37 | 6078.64 |
| 1405.47 | 6078.57 | 1410.38 | 6078.65 | 1416.7  | 6078.61 | 1425.13 | 6078.61 | 1436.61 | 6078.55 |
| 1442.34 | 6078.58 | 1448.74 | 6078.56 | 1453.82 | 6078.63 | 1461.37 | 6078.64 | 1475.94 | 6078.88 |
| 1480.04 | 6078.76 | 1488.24 | 6078.78 | 1496.29 | 6078.67 | 1501.46 | 6078.68 | 1506.26 | 6078.74 |
| 1512.8  | 6078.59 | 1519.38 | 6078.59 | 1524.19 | 6078.53 | 1530.39 | 6078.53 | 1534.95 | 6078.44 |
| 1541.5  | 6078.42 | 1548.41 | 6078.47 | 1556.33 | 6078.45 | 1560.28 | 6078.61 | 1565.54 | 6079.11 |
| 1568.64 | 6079.2  | 1572.64 | 6079.2  | 1581.66 | 6079.31 | 1590.34 | 6079.58 | 1602.74 | 6079.89 |
| 1612.05 | 6079.89 | 1616.18 | 6079.83 | 1622.38 | 6079.52 | 1630.65 | 6078.87 | 1633.28 | 6078.74 |
| 1652.95 | 6078.77 | 1661.15 | 6078.92 | 1667.7  | 6078.95 | 1680.82 | 6078.73 | 1689.01 | 6078.73 |
| 1698.77 | 6078.62 | 1700.7  | 6078.63 | 1702.72 | 6078.64 | 1707.86 | 6078.75 | 1711.27 | 6078.75 |
| 1717.69 | 6078.64 | 1721.6  | 6078.71 | 1724.7  | 6078.86 | 1729.87 | 6079.2  | 1735.72 | 6079.47 |
| 1740.21 | 6079.59 | 1745.37 | 6079.98 | 1748.01 | 6080.07 | 1749.51 | 6080.03 | 1752.93 | 6079.66 |
| 1754.57 | 6079.41 | 1757.78 | 6079.2  | 1759.49 | 6079.25 | 1764.4  | 6079.74 | 1767.08 | 6079.89 |
| 1772.6  | 6079.94 | 1776.7  | 6079.87 | 1783.62 | 6079.85 | 1789.77 | 6079.75 | 1805.6  | 6079.82 |
| 1811.11 | 6079.79 | 1818.49 | 6079.69 | 1823.92 | 6079.45 | 1827.02 | 6079.11 | 1832.19 | 6078.07 |
| 1834.88 | 6077.79 | 1836    | 6077.02 | 1865    | 6077.02 | 1866.3  | 6078.55 | 1869.4  | 6079.19 |
| 1872.5  | 6079.46 | 1879.13 | 6079.41 | 1884.73 | 6079.28 | 1890.07 | 6079.24 | 1898.8  | 6079.31 |
| 1903.51 | 6079.23 | 1909.45 | 6079.23 | 1916.94 | 6079.13 | 1922.11 | 6079.2  | 1926.25 | 6079.2  |
| 1930.76 | 6079.12 | 1938.65 | 6079.04 | 1941.75 | 6079.09 | 1946.92 | 6079.44 | 1950.02 | 6079.54 |
| 1955.19 | 6079.55 | 1966    | 6079.43 | 1971.72 | 6079.57 | 1980.75 | 6079.63 | 1986.19 | 6079.72 |
| 1991.56 | 6079.71 | 2000.37 | 6079.87 | 2000.7  | 6079.87 | 2006.37 | 6079.81 | 2014.37 | 6079.92 |
| 2029.22 | 6079.87 | 2042.53 | 6079.86 | 2045.38 | 6079.88 | 2052.38 | 6080.04 | 2056.38 | 6080.09 |
| 2064.39 | 6080.07 | 2073.24 | 6079.92 | 2083.47 | 6079.91 | 2088.59 | 6079.96 | 2093.71 | 6079.92 |

2098.39 6079.83 2105.4 6079.87 2110.4 6079.99 2114.4 6080.03 2119.3 6079.97  
2135.4 6079.92 2140.79 6080.06 2143.41 6080.06 2151.03 6079.93 2153.41 6079.85  
2158.19 6079.57 2161.41 6079.44 2170.41 6079.22 2173.41 6079.19 2176.62 6079.24  
2185.42 6079.72 2200.42 6080.16 2204.25 6080.23 2209.42 6080.22 2219.43 6080.41  
2224.43 6080.4 2233.94 6080.54 2243.43 6080.6 2250.31 6080.75 2256.43 6080.71  
2261.57 6080.75 2265.44 6080.7 2273.85 6080.72 2281.44 6080.55 2285.44 6080.56  
2294.44 6080.44 2300.45 6080.52 2303.45 6080.75 2305.45 6081.02 2308.45 6081.29  
2312.75 6081.27 2314.45 6081.16 2318.45 6081.15 2320.94 6081.24 2324.01 6081.25  
2332.45 6081.08 2340.39 6081.15 2345.46 6081.16 2348.46 6081.26 2351.46 6081.59  
2354.46 6082.2 2356.46 6082.79 2359.46 6083.53 2362.46 6084.02 2365.46 6084.24  
2368.46 6084.35 2386.45 6084.75 2389.47 6084.76 2399.47 6084.9 2407.47 6085.08  
2413.48 6085.09 2419.48 6085.15 2423.48 6085.09 2429.43 6084.93 2432.48 6084.68  
2435.48 6084.25 2437.48 6083.84 2443.48 6082.91 2446.48 6082.63 2453.49 6082.26  
2458.49 6081.81 2465.49 6081.65 2470.49 6081.35 2475.38 6081.25 2484.71 6081.31  
2492.5 6081.29 2495.5 6081.35 2500.5 6081.6 2506.5 6081.8 2514.5 6081.73  
2518.48 6081.8 2525.5 6081.83 2528.51 6081.93 2533.51 6082.22 2538.95 6082.41  
2542.51 6082.47 2552.51 6082.55 2555.51 6082.5 2563.51 6082.17 2567.61 6082.14  
2573.52 6082.23 2576.52 6082.34 2581.52 6082.62 2583.52 6082.6 2589.52 6082.35  
2594.52 6082.34 2602.52 6082.56 2610.53 6082.43 2624.53 6082.42 2632.1 6082.2  
2645.54 6082.17 2656.54 6082.01 2665.88 6082.04 2678.16 6082.12 2685.55 6082.12  
2690.44 6082.16 2696.55 6082.16 2702.55 6082.1 2708.55 6082.1 2718.55 6081.98  
2723.56 6081.96 2733.43 6081.97 2742.56 6081.83 2761.07 6081.83 2776.57 6081.74  
2792.57 6081.8 2799.96 6081.7 2812.24 6081.64 2819.58 6081.67 2834.76 6081.56  
2842.95 6081.64 2847.59 6081.6 2867.59 6081.67 2875.6 6081.78 2888.6 6081.78  
2897.6 6081.9 2900.6 6081.9 2908.6 6081.76 2921.61 6081.63 2927.91 6081.63  
2934.05 6081.67 2943.61 6081.67 2953.49 6081.63 2958.61 6081.66 2972.62 6081.66  
2985.22 6081.56 3002.77 6081.57 3012.86 6081.63 3024.12 6081.64 3032.31 6081.6  
3037.64 6081.64 3046.72 6081.63 3055.64 6081.55 3060.97 6081.54 3068.13 6081.63  
3077.34 6081.62 3082.65 6081.71 3089.63 6081.78 3096.65 6081.9 3101.65 6081.95  
3115.22 6082.03 3129.55 6082.09 3144.66 6082.09 3152.06 6082.02 3156.67 6082.02  
3169.46 6081.94 3182.77 6081.97 3193.68 6082.02 3205.68 6082.03 3217.57 6082.14  
3227.69 6082.16 3240.09 6082.16 3262.7 6082.12 3268.7 6082.18

Manning's n Values num= 3  
Sta n Val Sta n Val Sta n Val  
0 .06 1823.92 .035 1872.5 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
1823.92 1872.5 847.02 1566.11 1005.44 .1 .3  
Ineffective Flow num= 1  
Sta L Sta R Elev Permanent  
0 1252.37 6080.14 F  
Blocked Obstructions num= 1  
Sta L Sta R Elev  
3629 3268.7 6081.2

CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 32973

INPUT  
Description:  
Station Elevation Data num= 490



| Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0       | 6079.94 | 5.8     | 6080    | 13.98   | 6079.96 | 24.89   | 6079.71 | 29.3    | 6079.36 |
| 36.92   | 6078.29 | 39.01   | 6078.09 | 46.19   | 6077.75 | 49.07   | 6077.73 | 64.14   | 6078.58 |
| 68.32   | 6078.73 | 70.86   | 6078.72 | 78.07   | 6078.41 | 82.1    | 6078.32 | 92.01   | 6078.26 |
| 106.22  | 6078.28 | 111.88  | 6078.34 | 124.61  | 6078.4  | 138.1   | 6078.43 | 156.1   | 6078.4  |
| 169.7   | 6078.29 | 180.47  | 6078.17 | 191.79  | 6078.14 | 198.15  | 6078.07 | 214.21  | 6077.99 |
| 225.7   | 6077.99 | 236.91  | 6077.87 | 260.17  | 6077.78 | 267.35  | 6077.69 | 287.07  | 6077.55 |
| 291.5   | 6077.48 | 305.19  | 6077.39 | 313.55  | 6077.29 | 323.3   | 6077.11 | 345.59  | 6076.8  |
| 356.98  | 6076.82 | 363.08  | 6076.66 | 378.82  | 6076.53 | 396.1   | 6076.42 | 405.58  | 6076.11 |
| 414.07  | 6075.7  | 417.78  | 6075.61 | 421.32  | 6075.66 | 436.25  | 6076.46 | 439.32  | 6076.52 |
| 443.68  | 6076.4  | 448.97  | 6076.12 | 453.2   | 6076.06 | 459.54  | 6076.13 | 469.06  | 6075.8  |
| 474.34  | 6075.52 | 483.49  | 6075.21 | 487.03  | 6075.18 | 493.38  | 6075.4  | 500.02  | 6075.82 |
| 503.95  | 6075.99 | 513.21  | 6076.26 | 518.75  | 6077.1  | 521.92  | 6077.33 | 528.27  | 6077.15 |
| 532.5   | 6077.15 | 540.16  | 6077.45 | 545.19  | 6077.29 | 550.39  | 6076.86 | 556.3   | 6076.65 |
| 561.41  | 6076.75 | 566.33  | 6076.39 | 571.69  | 6076.09 | 582.19  | 6075.79 | 588.54  | 6075.71 |
| 593.67  | 6075.86 | 599.97  | 6075.82 | 607.84  | 6075.59 | 617.87  | 6075.73 | 625.94  | 6075.38 |
| 637.17  | 6075.25 | 642.46  | 6075.02 | 650.34  | 6074.8  | 658.32  | 6074.25 | 661.49  | 6074.18 |
| 672.38  | 6074.16 | 675.24  | 6074.26 | 680.53  | 6074.63 | 687.93  | 6074.85 | 693.21  | 6075.27 |
| 696.39  | 6075.39 | 711.73  | 6075.45 | 718.81  | 6075.36 | 728.11  | 6075.57 | 735.51  | 6075.58 |
| 740.79  | 6075.68 | 745.02  | 6075.64 | 751.08  | 6075.43 | 764.06  | 6075.63 | 773.9   | 6075.54 |
| 785.2   | 6075.27 | 795.94  | 6075.33 | 803.02  | 6075.17 | 809.32  | 6075.15 | 823.27  | 6075.29 |
| 830.67  | 6075.32 | 840.18  | 6075.69 | 845.67  | 6076.04 | 861.33  | 6076.54 | 865.2   | 6076.52 |
| 870.85  | 6076.34 | 878.25  | 6076.22 | 883.3   | 6075.95 | 892.74  | 6075.53 | 897.47  | 6075.41 |
| 902.57  | 6075.19 | 906.8   | 6075.19 | 912.08  | 6075.75 | 916.35  | 6075.84 | 918.43  | 6075.74 |
| 925.8   | 6075.61 | 929     | 6075.44 | 934.29  | 6074.82 | 940.63  | 6074.17 | 943.8   | 6073.99 |
| 950.2   | 6073.89 | 954.38  | 6074.01 | 959.64  | 6074.4  | 963.57  | 6074.49 | 970.66  | 6074.48 |
| 976.58  | 6074.56 | 980.1   | 6074.73 | 988.21  | 6075.37 | 991.91  | 6075.42 | 997.42  | 6075.26 |
| 1009.36 | 6075.19 | 1015.7  | 6075.37 | 1020.99 | 6075.45 | 1034.74 | 6076.09 | 1040.02 | 6076.08 |
| 1045.76 | 6076.19 | 1053.3  | 6076.22 | 1065.4  | 6076.33 | 1074.54 | 6076.64 | 1084.43 | 6076.65 |
| 1098.1  | 6077.08 | 1106.81 | 6077.07 | 1115.09 | 6076.69 | 1122.5  | 6076.59 | 1128.84 | 6076.78 |
| 1138.36 | 6077.6  | 1141.53 | 6078    | 1147.87 | 6079.02 | 1153.25 | 6080.11 | 1156.33 | 6080.52 |
| 1160.56 | 6080.51 | 1163.73 | 6080.04 | 1170.08 | 6078.82 | 1175.36 | 6077.56 | 1178.43 | 6077.06 |
| 1181.71 | 6076.77 | 1184.73 | 6076.69 | 1203.62 | 6076.87 | 1226.44 | 6077    | 1238.8  | 6077.12 |
| 1244.09 | 6077.13 | 1259.95 | 6077.25 | 1266.58 | 6077.36 | 1282.8  | 6077.55 | 1305.42 | 6077.73 |
| 1312.82 | 6077.76 | 1330.79 | 6077.97 | 1348.43 | 6078.11 | 1364.96 | 6078.13 | 1372.83 | 6078.01 |
| 1397.22 | 6077.08 | 1405.09 | 6076.99 | 1410.09 | 6076.85 | 1423.84 | 6076.6  | 1430.28 | 6076.65 |
| 1443.66 | 6077.01 | 1453.44 | 6077.2  | 1458.73 | 6077.24 | 1464.02 | 6077.18 | 1473.53 | 6077.27 |
| 1484.58 | 6077.23 | 1493.24 | 6077.27 | 1496.79 | 6077.41 | 1499.97 | 6077.73 | 1508.43 | 6078.94 |
| 1514.49 | 6079.71 | 1530.23 | 6081.32 | 1533.8  | 6081.64 | 1540.15 | 6082.05 | 1546.49 | 6082.26 |
| 1553.89 | 6082.32 | 1557.06 | 6082.17 | 1560.24 | 6081.78 | 1563.41 | 6081.02 | 1568.69 | 6079.57 |
| 1575.04 | 6078.19 | 1578.21 | 6077.67 | 1581.38 | 6077.38 | 1587.73 | 6077.01 | 1595.13 | 6076.93 |
| 1607.82 | 6077.05 | 1612.87 | 6077.17 | 1620.74 | 6077.08 | 1625.46 | 6076.85 | 1631.08 | 6076.75 |
| 1638.48 | 6076.83 | 1652.2  | 6076.78 | 1657.73 | 6076.63 | 1667.59 | 6076.66 | 1676.62 | 6076.36 |
| 1686.85 | 6076.24 | 1696.63 | 6075.98 | 1704.95 | 6075.63 | 1715.18 | 6075.85 | 1728.56 | 6075.73 |
| 1734.86 | 6075.84 | 1745.27 | 6075.85 | 1748.09 | 6075.88 | 1752.96 | 6075.92 | 1759.25 | 6075.87 |
| 1775.34 | 6076.15 | 1782.86 | 6076.07 | 1790.73 | 6076.4  | 1794.97 | 6076.4  | 1799.96 | 6076.23 |
| 1809.77 | 6076.18 | 1816.71 | 6076.28 | 1820.34 | 6076.24 | 1825.63 | 6075.86 | 1831.97 | 6075.67 |
| 1842.68 | 6075.78 | 1845.72 | 6075.99 | 1849.76 | 6076.47 | 1852.06 | 6076.6  | 1860.78 | 6076.76 |
| 1867.92 | 6076.61 | 1871.09 | 6076.62 | 1874.16 | 6076.48 | 1877.44 | 6076.1  | 1880.61 | 6075.49 |
| 1882.72 | 6074.94 | 1885.9  | 6074.49 | 1887    | 6073.7  | 1910    | 6073.7  | 1912.33 | 6074.87 |
| 1915.5  | 6075.57 | 1917.62 | 6076.21 | 1920.79 | 6076.94 | 1923.96 | 6077.38 | 1928.19 | 6077.36 |
| 1933.48 | 6076.51 | 1936.33 | 6076.28 | 1947.35 | 6076.24 | 1959.16 | 6075.87 | 1964.67 | 6075.79 |
| 1968.37 | 6075.65 | 1972.6  | 6075.69 | 1975.77 | 6075.95 | 1981.06 | 6076.54 | 1984.23 | 6076.66 |
| 1997.98 | 6076.68 | 2003.23 | 6076.55 | 2011.72 | 6076.72 | 2016.61 | 6076.65 | 2019.76 | 6076.75 |
| 2025.47 | 6077.11 | 2036.28 | 6077.14 | 2044.16 | 6076.7  | 2047.3  | 6076.63 | 2048.09 | 6076.64 |



|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 2058.32 | 6076.73 | 2066.19 | 6077.32 | 2068.55 | 6077.11 | 2072.49 | 6076.14 | 2074.1  | 6075.93 |
| 2075.64 | 6076.02 | 2080.45 | 6076.95 | 2083.62 | 6076.89 | 2085.73 | 6076.65 | 2088.91 | 6076.51 |
| 2093.14 | 6076.56 | 2098.42 | 6076.77 | 2106.33 | 6076.97 | 2109    | 6076.89 | 2111.84 | 6076.37 |
| 2114.28 | 6075.47 | 2117.46 | 6074.5  | 2121.68 | 6074.14 | 2124.86 | 6074.36 | 2128.03 | 6075.12 |
| 2131.51 | 6076.42 | 2133.09 | 6076.86 | 2136.49 | 6077.27 | 2143.89 | 6077.47 | 2147.25 | 6077.43 |
| 2150.4  | 6077.05 | 2153.4  | 6076.4  | 2158.69 | 6075.09 | 2161.86 | 6074.56 | 2164.57 | 6074.39 |
| 2170.08 | 6074.39 | 2177.72 | 6074.72 | 2185.13 | 6074.54 | 2188.18 | 6074.81 | 2191.33 | 6075.39 |
| 2194.64 | 6076.18 | 2199.93 | 6077.72 | 2203.1  | 6078.38 | 2206.27 | 6078.76 | 2212.47 | 6078.95 |
| 2216.85 | 6078.93 | 2226.74 | 6078.45 | 2229.53 | 6078.15 | 2234.82 | 6077.27 | 2237.99 | 6077.06 |
| 2245.32 | 6077.09 | 2250.52 | 6077.02 | 2257.81 | 6077.18 | 2267.17 | 6077.61 | 2270.29 | 6077.88 |
| 2273.33 | 6078.37 | 2276.54 | 6078.57 | 2281.74 | 6078.21 | 2291.11 | 6078.09 | 2301.52 | 6078.31 |
| 2309.42 | 6078.58 | 2312.94 | 6078.62 | 2317.13 | 6078.51 | 2322.33 | 6078.09 | 2325.45 | 6077.94 |
| 2331.7  | 6077.81 | 2338.98 | 6077.86 | 2354.6  | 6077.79 | 2363.56 | 6077.91 | 2370.21 | 6077.82 |
| 2373.33 | 6077.89 | 2381.6  | 6078.31 | 2387.9  | 6078.47 | 2400.39 | 6078.66 | 2407.67 | 6078.63 |
| 2416    | 6078.4  | 2419.12 | 6078.38 | 2430.57 | 6078.67 | 2437.86 | 6078.77 | 2445.14 | 6078.74 |
| 2463.58 | 6078.28 | 2467    | 6078.1  | 2472.2  | 6077.6  | 2475.28 | 6077.4  | 2479.49 | 6077.4  |
| 2484.69 | 6077.73 | 2488.85 | 6077.76 | 2497.09 | 6077.23 | 2506.55 | 6077.2  | 2515.14 | 6077.24 |
| 2532.31 | 6077.12 | 2550.26 | 6077.24 | 2558.64 | 6077.25 | 2567.41 | 6077.32 | 2577.65 | 6077.51 |
| 2585.64 | 6077.57 | 2593.74 | 6077.4  | 2606.46 | 6077.44 | 2622.07 | 6077.2  | 2629.35 | 6077.27 |
| 2634.56 | 6077.42 | 2646.39 | 6077.64 | 2650.17 | 6077.66 | 2662.66 | 6077.47 | 2677.23 | 6077.43 |
| 2682.43 | 6077.33 | 2695.96 | 6077.66 | 2701.17 | 6077.97 | 2709.49 | 6078.91 | 2713.63 | 6079.16 |
| 2727.18 | 6079.42 | 2733.43 | 6079.48 | 2741.45 | 6079.48 | 2750.08 | 6079.6  | 2754.24 | 6079.56 |
| 2769.85 | 6079.06 | 2778.01 | 6078.73 | 2786.51 | 6078.68 | 2791.71 | 6078.77 | 2802.88 | 6079.3  |
| 2809.4  | 6079.65 | 2816.04 | 6079.87 | 2820.43 | 6079.93 | 2826.28 | 6079.89 | 2832.3  | 6079.73 |
| 2838.54 | 6079.47 | 2843.56 | 6079.19 | 2851.03 | 6079.19 | 2854.06 | 6079.12 | 2859.36 | 6078.84 |
| 2862.84 | 6078.74 | 2870.15 | 6078.82 | 2880.39 | 6079.2  | 2897.69 | 6079.41 | 2921.8  | 6079.78 |
| 2929.09 | 6079.86 | 2934.29 | 6080.03 | 2938.46 | 6080.07 | 2941.58 | 6079.99 | 2949.9  | 6079.61 |
| 2962.29 | 6079.27 | 2966.26 | 6079.27 | 2971.76 | 6079.43 | 2994.46 | 6079.54 | 3003.24 | 6079.52 |
| 3012.35 | 6079.43 | 3016.4  | 6079.51 | 3021.72 | 6079.83 | 3031.03 | 6080.06 | 3047.11 | 6080.09 |
| 3059.18 | 6080.36 | 3066.47 | 6080.37 | 3072.71 | 6080.29 | 3085.14 | 6079.93 | 3094.57 | 6079.48 |
| 3097.69 | 6079.15 | 3102.89 | 6078.31 | 3106.02 | 6077.95 | 3109.14 | 6077.78 | 3117.47 | 6077.71 |
| 3125.79 | 6077.57 | 3128.67 | 6077.61 | 3134.12 | 6077.88 | 3138.28 | 6077.98 | 3146.71 | 6077.72 |
| 3150.95 | 6077.71 | 3157.01 | 6077.89 | 3160.14 | 6078.14 | 3168.46 | 6078.98 | 3174.71 | 6079.48 |
| 3179.91 | 6079.8  | 3190.32 | 6080.13 | 3197.24 | 6080.16 | 3207.99 | 6079.95 | 3219.69 | 6079.59 |
| 3230.91 | 6078.94 | 3237.15 | 6078.73 | 3244.16 | 6078.65 | 3255.89 | 6078.64 | 3263.17 | 6078.71 |
| 3273.58 | 6078.72 | 3288.15 | 6079.04 | 3292.81 | 6079.19 | 3301.59 | 6079.35 | 3311.83 | 6079.81 |
| 3331.86 | 6079.95 | 3338.1  | 6080.08 | 3343.31 | 6080.27 | 3349.55 | 6080.39 | 3356.84 | 6080.3  |
| 3363.25 | 6080.05 | 3372.45 | 6079.41 | 3377.64 | 6078.95 | 3380.78 | 6078.81 | 3387.02 | 6078.71 |
| 3391.18 | 6078.75 | 3406.89 | 6079.41 | 3412    | 6079.7  | 3421.36 | 6079.96 | 3424.44 | 6079.96 |
| 3431.75 | 6079.78 | 3440.1  | 6079.7  | 3455.15 | 6079.7  | 3469.24 | 6079.5  | 3475.63 | 6079.25 |
| 3483.81 | 6078.69 | 3490.05 | 6078.55 | 3497.56 | 6078.48 | 3505.67 | 6078.32 | 3518.44 | 6078.32 |
| 3522.32 | 6078.36 | 3529.6  | 6078.55 | 3536.48 | 6078.55 | 3543.13 | 6078.63 | 3550.42 | 6078.61 |
| 3560.82 | 6078.38 | 3570.19 | 6078.43 | 3578.52 | 6078.58 | 3584.76 | 6078.83 | 3589.97 | 6079.22 |
| 3596.21 | 6079.56 | 3605.58 | 6079.84 | 3613.9  | 6079.89 | 3624.8  | 6079.82 | 3652.19 | 6079.55 |

|                    |       |         |        |         |       |
|--------------------|-------|---------|--------|---------|-------|
| Manning's n Values |       |         | num= 3 |         |       |
| Sta                | n Val | Sta     | n Val  | Sta     | n Val |
| 0                  | .06   | 1860.78 | .035   | 1920.79 | .06   |

|                  |         |         |           |        |         |        |       |        |        |
|------------------|---------|---------|-----------|--------|---------|--------|-------|--------|--------|
| Bank Sta:        | Left    | Right   | Lengths:  | Left   | Channel | Right  | Coeff | Contr. | Expan. |
|                  | 1860.78 | 1920.79 |           | 602.63 | 1358.6  | 1375.7 |       | .3     | .5     |
| Ineffective Flow |         | num=    | 2         |        |         |        |       |        |        |
| Sta L            | Sta R   | Elev    | Permanent |        |         |        |       |        |        |
| 0                | 1156.33 | 6080.52 | F         |        |         |        |       |        |        |
| 2142             | 3652.19 | 6077.2  | F         |        |         |        |       |        |        |



Blocked Obstructions      num=      1  
Sta L    Sta R    Elev  
2210 3652.19    6078.2

CROSS SECTION

RIVER: Flat Creek  
REACH: 1                      RS: 31615

INPUT

Description: Upstream of Rafter J Bridge

| Station |         | Elevation Data |         | num=    |         | 492     |         |         |         |     |      |
|---------|---------|----------------|---------|---------|---------|---------|---------|---------|---------|-----|------|
| Sta     | Elev    | Sta            | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta | Elev |
| 194.24  | 6077.83 | 197.61         | 6077.7  | 201.42  | 6077.61 | 210.86  | 6077.49 | 218.18  | 6077.37 |     |      |
| 225.61  | 6077.22 | 230.75         | 6077.23 | 237.38  | 6077.13 | 243.33  | 6077.16 | 254.67  | 6077.12 |     |      |
| 263.17  | 6077.01 | 272.34         | 6076.81 | 276.87  | 6076.75 | 279.51  | 6076.66 | 290.27  | 6076.53 |     |      |
| 295.65  | 6076.53 | 302.88         | 6076.48 | 308.66  | 6076.47 | 315.36  | 6076.37 | 324.55  | 6076.31 |     |      |
| 328.88  | 6076.31 | 333.94         | 6076.42 | 341.89  | 6076.5  | 346.94  | 6076.68 | 354.17  | 6076.68 |     |      |
| 359.22  | 6076.72 | 365            | 6076.9  | 367.82  | 6076.88 | 370.33  | 6076.72 | 372.72  | 6076.48 |     |      |
| 375.84  | 6076.35 | 387.53         | 6076.29 | 391.43  | 6076.3  | 399.23  | 6076.42 | 414.59  | 6076.62 |     |      |
| 422.04  | 6076.7  | 435.09         | 6076.87 | 444.4   | 6077.01 | 456.11  | 6077.26 | 467.05  | 6077.26 |     |      |
| 469.96  | 6077.19 | 481.67         | 6076.78 | 491.15  | 6076.53 | 513.93  | 6076.13 | 515.95  | 6076.07 |     |      |
| 526.3   | 6075.88 | 535.73         | 6075.67 | 546.44  | 6075.61 | 550.57  | 6075.56 | 554.14  | 6075.46 |     |      |
| 557.23  | 6075.27 | 560.33         | 6074.96 | 563.42  | 6074.52 | 565.4   | 6074.16 | 569.61  | 6073.61 |     |      |
| 571.67  | 6073.2  | 574.76         | 6072.68 | 577.85  | 6072.27 | 580.24  | 6072.12 | 581.98  | 6072.12 |     |      |
| 585.07  | 6072.45 | 587.13         | 6072.91 | 590.23  | 6073.51 | 592.6   | 6073.77 | 596.72  | 6073.92 |     |      |
| 604.14  | 6073.91 | 612.38         | 6073.76 | 620.62  | 6073.97 | 629.68  | 6074.04 | 635.59  | 6073.96 |     |      |
| 640.4   | 6073.84 | 647.82         | 6073.93 | 656.88  | 6073.88 | 665.95  | 6073.93 | 674.77  | 6073.94 |     |      |
| 683.25  | 6073.78 | 691.5          | 6073.88 | 696.52  | 6073.86 | 700.55  | 6073.92 | 708.79  | 6073.91 |     |      |
| 714.57  | 6073.96 | 722.2          | 6074.11 | 731.06  | 6074.31 | 741.77  | 6074.33 | 748.36  | 6074.39 |     |      |
| 756.6   | 6074.43 | 764.02         | 6074.52 | 774.56  | 6074.51 | 780.97  | 6074.55 | 788.18  | 6074.32 |     |      |
| 790.99  | 6074.32 | 797.81         | 6074.46 | 801.93  | 6074.49 | 807.77  | 6074.48 | 810.87  | 6074.67 |     |      |
| 813.96  | 6075.09 | 815.94         | 6075.48 | 819.11  | 6075.96 | 822.21  | 6076.27 | 825.3   | 6076.43 |     |      |
| 827.96  | 6076.47 | 832.07         | 6076.45 | 835.61  | 6076.34 | 838.7   | 6076.13 | 847.98  | 6075.38 |     |      |
| 851.08  | 6075.09 | 856.23         | 6074.52 | 859.32  | 6074.28 | 865.51  | 6073.89 | 868.6   | 6073.77 |     |      |
| 872.81  | 6073.73 | 875.82         | 6073.8  | 880.97  | 6074.05 | 883.52  | 6074.13 | 888.19  | 6074.18 |     |      |
| 893.35  | 6074.43 | 895.06         | 6074.47 | 900.56  | 6074.47 | 907.42  | 6074.75 | 913.97  | 6074.93 |     |      |
| 919.12  | 6075.24 | 927.37         | 6075.93 | 929.43  | 6075.97 | 931.49  | 6075.9  | 936.65  | 6075.38 |     |      |
| 940.77  | 6075.17 | 943.87         | 6074.94 | 945.93  | 6074.7  | 949.02  | 6074.44 | 952.12  | 6074.35 |     |      |
| 959.4   | 6074.36 | 968.41         | 6074.55 | 971.7   | 6074.49 | 976.65  | 6074.23 | 981.6   | 6074.14 |     |      |
| 984.04  | 6074.15 | 993.14         | 6074.37 | 996.43  | 6074.35 | 1001.6  | 6074.14 | 1006.32 | 6074.09 |     |      |
| 1008.79 | 6074    | 1013.98        | 6073.68 | 1017.04 | 6073.6  | 1027.75 | 6073.45 | 1036.66 | 6073.22 |     |      |
| 1041.55 | 6073.24 | 1049.77        | 6073.32 | 1056.25 | 6073.52 | 1062.43 | 6073.43 | 1068.96 | 6073.55 |     |      |
| 1072.25 | 6073.55 | 1080.99        | 6073.38 | 1084.38 | 6073.37 | 1089.71 | 6073.45 | 1096.1  | 6073.7  |     |      |
| 1098.23 | 6073.73 | 1104.37        | 6073.63 | 1109.04 | 6073.61 | 1114.2  | 6073.76 | 1118.46 | 6073.79 |     |      |
| 1124.86 | 6073.68 | 1128.05        | 6073.52 | 1131.25 | 6073.3  | 1134.44 | 6072.96 | 1139.77 | 6072    |     |      |
| 1141.43 | 6071.88 | 1144.03        | 6072.02 | 1147.22 | 6072.69 | 1149.35 | 6073.29 | 1152.55 | 6073.99 |     |      |
| 1155.02 | 6074.35 | 1157.36        | 6074.52 | 1159.7  | 6074.57 | 1169.59 | 6074.6  | 1177.62 | 6074.44 |     |      |
| 1183.08 | 6074.47 | 1185.57        | 6074.42 | 1190.87 | 6074.19 | 1195.54 | 6074.08 | 1200.48 | 6073.84 |     |      |
| 1203.68 | 6073.81 | 1207.94        | 6073.84 | 1216.46 | 6073.55 | 1221.26 | 6073.55 | 1225.64 | 6073.47 |     |      |
| 1232.95 | 6073.44 | 1244.15        | 6073.32 | 1246.45 | 6073.36 | 1252.54 | 6073.66 | 1257.71 | 6073.78 |     |      |
| 1264.87 | 6074.01 | 1269.06        | 6074.2  | 1274.08 | 6074.55 | 1277.67 | 6074.64 | 1281.25 | 6074.62 |     |      |
| 1284.84 | 6074.69 | 1289.14        | 6074.85 | 1292.72 | 6074.9  | 1297.02 | 6074.87 | 1304.25 | 6074.88 |     |      |
| 1312.87 | 6074.92 | 1316.31        | 6074.78 | 1318.54 | 6074.61 | 1322.84 | 6074.42 | 1331.17 | 6074.41 |     |      |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1338.61 | 6074.59 | 1344.35 | 6074.89 | 1351.89 | 6075.08 | 1361.96 | 6075.24 | 1369.81 | 6075.18 |
| 1374.05 | 6075.12 | 1378.79 | 6074.97 | 1381.57 | 6075.06 | 1388.91 | 6075.13 | 1394.56 | 6075.01 |
| 1396.5  | 6074.9  | 1400.82 | 6074.79 | 1404.46 | 6074.79 | 1409.38 | 6074.71 | 1412.95 | 6074.73 |
| 1420.97 | 6074.57 | 1426.06 | 6074.62 | 1434.87 | 6074.43 | 1438.51 | 6074.43 | 1447.27 | 6074.31 |
| 1453.42 | 6074.3  | 1459.47 | 6074.37 | 1465.7  | 6074.57 | 1471.46 | 6074.82 | 1476.63 | 6075.14 |
| 1481.03 | 6075.3  | 1488.36 | 6075.38 | 1494.22 | 6075.32 | 1495.77 | 6075.26 | 1501.82 | 6075.15 |
| 1505.21 | 6075.18 | 1507.86 | 6075.11 | 1511.9  | 6075.13 | 1518.41 | 6075.42 | 1526.01 | 6075.53 |
| 1534.53 | 6075.88 | 1539.66 | 6075.82 | 1545.53 | 6076    | 1546.99 | 6076.01 | 1550.73 | 6075.88 |
| 1552.87 | 6075.89 | 1555.01 | 6076.09 | 1559.29 | 6076.72 | 1561.43 | 6076.76 | 1567.08 | 6076.61 |
| 1570.7  | 6076.38 | 1574.26 | 6076.31 | 1581.75 | 6075.94 | 1584.81 | 6075.88 | 1588.16 | 6075.96 |
| 1589.57 | 6075.91 | 1593.28 | 6075.64 | 1596.72 | 6075.69 | 1601.2  | 6075.95 | 1605.85 | 6076    |
| 1610.21 | 6075.78 | 1612.76 | 6075.76 | 1615.16 | 6075.87 | 1621.31 | 6076.34 | 1624.52 | 6076.46 |
| 1631.45 | 6076.56 | 1637.36 | 6076.6  | 1641.63 | 6076.59 | 1648.05 | 6076.5  | 1650.93 | 6076.36 |
| 1662.06 | 6075.58 | 1669.14 | 6075.38 | 1677.07 | 6075.33 | 1690.37 | 6075.32 | 1695.43 | 6075.5  |
| 1701.04 | 6075.58 | 1708.65 | 6075.53 | 1719.49 | 6075.35 | 1730.83 | 6075.33 | 1735.27 | 6075.35 |
| 1735.83 | 6075.33 | 1741.52 | 6075.11 | 1745.73 | 6075.02 | 1752.53 | 6075.01 | 1758.09 | 6074.85 |
| 1765.55 | 6074.74 | 1772.35 | 6074.77 | 1776.57 | 6074.68 | 1784.72 | 6074.37 | 1794.22 | 6074.21 |
| 1799.93 | 6074.05 | 1808.61 | 6073.97 | 1819.63 | 6073.83 | 1823.63 | 6073.82 | 1831.31 | 6073.71 |
| 1835.65 | 6073.62 | 1839.86 | 6073.61 | 1843.66 | 6073.65 | 1853.18 | 6073.83 | 1857.93 | 6073.76 |
| 1864.69 | 6073.29 | 1869.7  | 6073    | 1871.7  | 6072.75 | 1873.7  | 6072.3  | 1874.7  | 6071.95 |
| 1877.71 | 6071.09 | 1879.71 | 6070.8  | 1881.7  | 6069    | 1896.74 | 6069    | 1898.74 | 6070.77 |
| 1900.72 | 6070.97 | 1903.75 | 6071.71 | 1906.75 | 6072.66 | 1908.75 | 6073.09 | 1910.75 | 6073.39 |
| 1912.76 | 6073.58 | 1915.76 | 6073.63 | 1920.69 | 6073.39 | 1924.77 | 6073.31 | 1927.78 | 6073.18 |
| 1931.15 | 6073.16 | 1934.79 | 6073.24 | 1939.7  | 6073.44 | 1942.8  | 6073.52 | 1946.81 | 6073.56 |
| 1953.97 | 6073.55 | 1956.81 | 6073.6  | 1962.83 | 6073.82 | 1965.83 | 6073.87 | 1975.64 | 6073.82 |
| 1980.85 | 6073.82 | 1985.86 | 6073.77 | 1992    | 6073.98 | 1996.88 | 6074    | 2002.46 | 6073.83 |
| 2006.26 | 6073.77 | 2010.07 | 6073.77 | 2019.91 | 6073.85 | 2024.92 | 6073.93 | 2028.92 | 6073.94 |
| 2032.89 | 6074    | 2035.83 | 6074.1  | 2040.12 | 6074.24 | 2042.2  | 6074.22 | 2049.42 | 6073.91 |
| 2054.28 | 6073.96 | 2058.34 | 6073.93 | 2064.83 | 6073.82 | 2071.43 | 6073.6  | 2075.13 | 6073.58 |
| 2079.42 | 6073.41 | 2084.89 | 6073.44 | 2088.51 | 6073.27 | 2093.61 | 6073.14 | 2101.46 | 6073.15 |
| 2105.65 | 6073.1  | 2107.56 | 6073.13 | 2111.37 | 6073.04 | 2113.96 | 6073.03 | 2117.09 | 6072.94 |
| 2124.95 | 6072.97 | 2128.48 | 6072.9  | 2140.39 | 6072.93 | 2143.47 | 6072.9  | 2152.72 | 6072.9  |
| 2169.06 | 6073.02 | 2176.42 | 6073.01 | 2178.99 | 6073.05 | 2184.67 | 6073.06 | 2189.56 | 6073.02 |
| 2196.73 | 6073.04 | 2204.78 | 6072.78 | 2212.89 | 6072.74 | 2218    | 6072.69 | 2231.3  | 6072.76 |
| 2238.81 | 6072.76 | 2244.3  | 6072.83 | 2249.72 | 6072.84 | 2257.09 | 6072.77 | 2266.66 | 6072.78 |
| 2278.51 | 6072.82 | 2284.21 | 6072.78 | 2294.99 | 6072.78 | 2302.45 | 6072.71 | 2313.21 | 6072.81 |
| 2317.94 | 6072.91 | 2322.92 | 6072.94 | 2327.9  | 6072.9  | 2332.75 | 6072.8  | 2342.83 | 6072.69 |
| 2348.64 | 6072.65 | 2354.35 | 6072.51 | 2358.59 | 6072.5  | 2363.43 | 6072.64 | 2371.03 | 6072.65 |
| 2384.17 | 6072.81 | 2389.29 | 6072.73 | 2391.36 | 6072.62 | 2394.45 | 6072.55 | 2410.9  | 6072.45 |
| 2420.81 | 6072.58 | 2424.96 | 6072.55 | 2426.33 | 6072.6  | 2444.41 | 6072.73 | 2450.8  | 6072.72 |
| 2458.93 | 6072.6  | 2462.99 | 6072.64 | 2466.04 | 6072.76 | 2471.12 | 6073.13 | 2473.71 | 6073.27 |
| 2475.44 | 6073.29 | 2480.26 | 6073.09 | 2492.67 | 6072.89 | 2496.12 | 6072.96 | 2504.64 | 6073.31 |
| 2509.05 | 6073.42 | 2513.36 | 6073.48 | 2527.98 | 6073.53 | 2533.09 | 6073.46 | 2539.18 | 6073.26 |
| 2544.26 | 6072.98 | 2548.33 | 6072.98 | 2553    | 6073.21 | 2560.75 | 6073.27 | 2566.61 | 6073.49 |
| 2573.43 | 6073.96 | 2577.77 | 6074.35 | 2586.85 | 6074.9  | 2589.87 | 6075.01 | 2604.83 | 6075.24 |
| 2608.39 | 6075.24 | 2618.11 | 6075.14 | 2621.14 | 6075.13 | 2634.25 | 6075.44 | 2640.5  | 6075.47 |
| 2646.35 | 6075.54 | 2649.38 | 6075.41 | 2655.66 | 6074.63 | 2661.48 | 6074.05 | 2664.5  | 6073.96 |
| 2670.55 | 6073.97 | 2672.89 | 6074.06 | 2677.07 | 6074.33 | 2679.63 | 6074.45 | 2684.2  | 6074.51 |
| 2687.77 | 6074.51 | 2696.78 | 6074.41 | 2705.85 | 6074.18 | 2709.17 | 6074.07 | 2713.92 | 6073.79 |
| 2719.97 | 6073.53 | 2729.05 | 6073.29 | 2741.15 | 6073.24 | 2745.74 | 6073.24 | 2751.09 | 6073.19 |
| 2767.37 | 6073.18 | 2775.17 | 6073.24 | 2780.83 | 6073.24 | 2787.54 | 6073.29 | 2796.58 | 6073.28 |
| 2802.82 | 6073.21 | 2810.74 | 6073.07 | 2820.66 | 6073.08 | 2826.87 | 6073.11 | 2835.95 | 6073.09 |
| 2838.98 | 6073.06 | 2850.07 | 6072.88 | 2859.01 | 6072.83 | 2863.47 | 6072.83 | 2868.82 | 6072.89 |
| 2876.29 | 6072.87 | 2883.09 | 6073.02 | 2893.79 | 6073.15 | 2900.92 | 6073.36 | 2905.38 | 6073.44 |
| 2911.9  | 6073.41 | 2919.61 | 6073.51 | 2936.8  | 6073.84 | 2941.06 | 6073.88 | 2944.87 | 6073.82 |





2952.94 6073.59 2957.11 6073.57 2961.57 6073.69 2966.92 6073.78 2969.08 6073.76  
2976.73 6073.38 2980.3 6073.35 2987.23 6073.46 2990.11 6073.61 2995.3 6074.06  
2998.32 6074.26 3003.65 6074.48

Manning's n Values num= 3  
Sta n Val Sta n Val Sta n Val  
194.24 .06 1857.93 .035 1912.76 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
1857.93 1912.76 56.45 56.46 56.45 .3 .5

Ineffective Flow num= 8  
Sta L Sta R Elev Permanent  
404.29 1859.71 6075.91 T  
1910.69 2065.27 6075.1 T  
2065.27 2080.56 6074.9 T  
2080.56 2109.83 6074.73 T  
2109.83 2146.12 6074.51 T  
2146.12 2167.19 6074.39 T  
2167.19 2611.99 6074.21 T  
2611.99 3006.47 6074.95 T

Blocked Obstructions num= 1  
Sta L Sta R Elev  
3050 3003.65 6075.2

BRIDGE

RIVER: Flat Creek  
REACH: 1 RS: 31602

INPUT

Description: Big Trail Drive Bridge & Irrigation Ditch Culvert

Distance from Upstream XS = 13

Deck/Roadway Width = 37

Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates

num= 491  
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord  
213.74 6078.93 0 219.21 6078.86 0 225.96 6078.76 0  
230.2 6078.72 0 231.47 6078.69 0 234.44 6078.66 0  
242.9 6078.54 0 245.83 6078.48 0 251.57 6078.4 0  
262.73 6078.27 0 274.75 6078.1 0 280.41 6078.04 0  
283.24 6078 0 288.5 6077.97 0 294.82 6077.92 0  
296.29 6077.92 0 301.24 6077.88 0 305.06 6077.86 0  
310.17 6077.8 0 312.37 6077.79 0 318.22 6077.73 0  
323.25 6077.7 0 329.42 6077.65 0 332.83 6077.61 0  
337.95 6077.58 0 342.34 6077.54 0 351.84 6077.52 0  
358.42 6077.45 0 365.73 6077.43 0 369.38 6077.4 0  
374.98 6077.38 0 378.16 6077.35 0 381.81 6077.34 0  
393.77 6077.27 0 405.05 6077.24 0 411.93 6077.19 0  
416.51 6077.18 0 419.79 6077.16 0 426.45 6077.16 0  
439.75 6077.09 0 444.73 6077.05 0 452.42 6077.02 0  
457.01 6076.98 0 463.88 6076.95 0 467.5 5940.54 0  
467.71 5933.09 0 471.83 5970.1 0 483.72 6076.89 0  
490.27 6076.85 0 494.6 6076.84 0 496.66 6076.82 0



|         |         |         |         |         |         |         |         |   |
|---------|---------|---------|---------|---------|---------|---------|---------|---|
| 1395.19 | 6076.91 | 0       | 1397.09 | 6076.91 | 0       | 1402.75 | 6076.95 | 0 |
| 1409.55 | 6077.01 | 0       | 1411.96 | 6077.04 | 0       | 1419.03 | 6077.08 | 0 |
| 1425    | 6077.13 | 0       | 1428.81 | 6077.18 | 0       | 1434.48 | 6077.2  | 0 |
| 1439.19 | 6077.2  | 0       | 1443.63 | 6077.24 | 0       | 1445.22 | 6077.24 | 0 |
| 1455.49 | 6077.32 | 0       | 1459.94 | 6077.33 | 0       | 1465.04 | 6077.37 | 0 |
| 1469.71 | 6077.36 | 0       | 1482.98 | 6077.36 | 0       | 1483.38 | 6077.37 | 0 |
| 1495.94 | 6077.39 | 0       | 1499.17 | 6077.41 | 0       | 1516.83 | 6077.41 | 0 |
| 1517.45 | 6077.4  | 0       | 1530.28 | 6077.4  | 0       | 1535.44 | 6077.37 | 0 |
| 1543.76 | 6077.39 | 0       | 1546.01 | 6077.37 | 0       | 1556.54 | 6077.37 | 0 |
| 1557.24 | 6077.36 | 0       | 1580.96 | 6077.36 | 0       | 1586.32 | 6077.33 | 0 |
| 1593.18 | 6077.31 | 0       | 1596.19 | 6077.31 | 0       | 1600.7  | 6077.28 | 0 |
| 1607.43 | 6077.25 | 0       | 1613.05 | 6077.26 | 0       | 1613.68 | 6077.25 | 0 |
| 1620.77 | 6077.25 | 0       | 1624.44 | 6077.23 | 0       | 1629.81 | 6077.23 | 0 |
| 1640.79 | 6077.2  | 0       | 1650.26 | 6077.14 | 0       | 1651.98 | 6077.14 | 0 |
| 1658.87 | 6077.09 | 0       | 1663.35 | 6077.07 | 0       | 1671.78 | 6077.06 | 0 |
| 1682.6  | 6077    | 0       | 1689.1  | 6076.98 | 0       | 1696.62 | 6076.9  | 0 |
| 1698.1  | 6076.9  | 0       | 1707.14 | 6076.8  | 0       | 1709.64 | 6076.76 | 0 |
| 1715.65 | 6076.73 | 0       | 1721.66 | 6076.69 | 0       | 1727.66 | 6076.68 | 0 |
| 1738.49 | 6076.61 | 0       | 1745.69 | 6076.57 | 0       | 1753.36 | 6076.56 | 0 |
| 1753.68 | 6076.55 | 0       | 1758.71 | 6076.55 | 0       | 1762.23 | 6076.54 | 0 |
| 1770.78 | 6076.5  | 0       | 1777.74 | 6076.44 | 0       | 1778.74 | 6076.44 | 0 |
| 1785.03 | 6076.37 | 0       | 1790.73 | 6076.35 | 0       | 1803.08 | 6076.25 | 0 |
| 1806.78 | 6076.24 | 0       | 1812.57 | 6076.19 | 0       | 1817.8  | 6076.17 | 0 |
| 1827.77 | 6076.11 | 0       | 1833.82 | 6076.1  | 0       | 1838.83 | 6076.08 | 0 |
| 1843.92 | 6076.08 | 0       | 1852.85 | 6076    | 0       | 1861.02 | 6075.98 | 0 |
| 1863.86 | 6075.96 | 0       | 1866.87 | 6075.86 | 0       | 1869.46 | 6075.85 |   |
| 1871.07 | 6075.85 | 6073.11 | 1900.02 | 6075.85 | 6072.97 | 1901.62 | 6075.85 |   |
| 1907.56 | 6075.74 | 0       | 1909.46 | 6075.78 | 0       | 1917.06 | 6075.76 | 0 |
| 1923.95 | 6075.73 | 0       | 1935.1  | 6075.65 | 0       | 1943.65 | 6075.65 | 0 |
| 1943.98 | 6075.64 | 0       | 1949.35 | 6075.64 | 0       | 1949.99 | 6075.63 | 0 |
| 1974.03 | 6075.63 | 0       | 1984.49 | 6075.58 | 0       | 1989.05 | 6075.54 | 0 |
| 1998.74 | 6075.44 | 0       | 2003.49 | 6075.41 | 0       | 2007.08 | 6075.37 | 0 |
| 2015.84 | 6075.24 | 0       | 2031.12 | 6075.16 | 0       | 2035.4  | 6075.15 | 0 |
| 2036.17 | 6075.16 | 0       | 2043.41 | 6075.16 | 0       | 2044.24 | 6075.15 | 0 |
| 2053.19 | 6075.15 | 0       | 2053.32 | 6075.16 | 0       | 2059.77 | 6075.16 | 0 |
| 2067.55 | 6075.12 | 0       | 2069.5  | 6075.08 | 0       | 2073.18 | 6075.03 | 0 |
| 2079.78 | 6074.92 | 0       | 2088.95 | 6074.85 | 0       | 2094.59 | 6074.8  | 0 |
| 2099.92 | 6074.78 | 0       | 2102.88 | 6074.78 | 0       | 2106.59 | 6074.76 | 0 |
| 2111.04 | 6074.75 | 0       | 2116.72 | 6074.68 | 0       | 2123.87 | 6074.64 | 0 |
| 2128.85 | 6074.6  | 0       | 2130.33 | 6074.6  | 0       | 2138.16 | 6074.54 | 0 |
| 2148.85 | 6074.52 | 0       | 2155.23 | 6074.49 | 0       | 2160.18 | 6074.45 | 0 |
| 2168.27 | 6074.43 | 0       | 2173.07 | 6074.39 | 0       | 2175.74 | 6074.39 | 0 |
| 2182.14 | 6074.36 | 0       | 2184.83 | 6074.36 | 0       | 2190.46 | 6074.32 | 0 |
| 2195.81 | 6074.32 | 0       | 2202.89 | 6074.29 | 0       | 2207.4  | 6074.29 | 0 |
| 2221.53 | 6074.25 | 0       | 2232.67 | 6074.25 | 0       | 2233.03 | 6074.26 | 0 |
| 2242.74 | 6074.26 | 0       | 2247.23 | 6074.22 | 0       | 2254.33 | 6074.22 | 0 |
| 2254.98 | 6074.21 | 0       | 2261.42 | 6074.21 | 0       | 2266.75 | 6074.2  | 0 |
| 2271.53 | 6074.22 | 0       | 2280.16 | 6074.22 | 0       | 2280.84 | 6074.23 | 0 |
| 2289.32 | 6074.23 | 0       | 2298.87 | 6074.26 | 0       | 2306.79 | 6074.23 | 0 |
| 2311.88 | 6074.22 | 0       | 2324.78 | 6074.22 | 0       | 2329.93 | 6074.24 | 0 |
| 2342.46 | 6074.24 | 0       | 2343.2  | 6074.25 | 0       | 2352.9  | 6074.25 | 0 |
| 2353.65 | 6074.24 | 0       | 2369.71 | 6074.24 | 0       | 2374.53 | 6074.27 | 0 |
| 2380.53 | 6074.28 | 0       | 2380.96 | 6074.29 | 0       | 2386.58 | 6074.3  | 0 |
| 2390.48 | 6074.28 | 0       | 2405.86 | 6074.28 | 0       | 2414.49 | 6074.26 | 0 |
| 2419.71 | 6074.23 | 0       | 2421.93 | 6074.23 | 0       | 2429.32 | 6074.2  | 0 |

|         |         |   |         |         |   |         |         |   |
|---------|---------|---|---------|---------|---|---------|---------|---|
| 2437.19 | 6074.16 | 0 | 2440.62 | 6074.13 | 0 | 2452.63 | 6074.13 | 0 |
| 2453.02 | 6074.12 | 0 | 2461.87 | 6074.12 | 0 | 2467.19 | 6074.14 | 0 |
| 2469.8  | 6074.16 | 0 | 2477.87 | 6074.18 | 0 | 2479.89 | 6074.2  | 0 |
| 2488.44 | 6074.22 | 0 | 2494.03 | 6074.27 | 0 | 2499.96 | 6074.29 | 0 |
| 2502.11 | 6074.31 | 0 | 2508.17 | 6074.32 | 0 | 2512.21 | 6074.34 | 0 |
| 2519.44 | 6074.36 | 0 | 2523.87 | 6074.39 | 0 | 2530.07 | 6074.39 | 0 |
| 2530.38 | 6074.4  | 0 | 2535.43 | 6074.4  | 0 | 2541.49 | 6074.36 | 0 |
| 2559.29 | 6074.36 | 0 | 2559.67 | 6074.37 | 0 | 2578.85 | 6074.37 | 0 |
| 2581.43 | 6074.38 | 0 | 2585.43 | 6074.42 | 0 | 2589.4  | 6074.43 | 0 |
| 2595.6  | 6074.47 | 0 | 2600.03 | 6074.48 | 0 | 2608.89 | 6074.53 | 0 |
| 2614.19 | 6074.55 | 0 | 2622.17 | 6074.64 | 0 | 2623.28 | 6074.64 | 0 |
| 2628.33 | 6074.69 | 0 | 2629.34 | 6074.69 | 0 | 2638.11 | 6074.79 | 0 |
| 2642.47 | 6074.86 | 0 | 2647.85 | 6074.93 | 0 | 2652.57 | 6074.98 | 0 |
| 2655.83 | 6075.03 | 0 | 2670.74 | 6075.2  | 0 | 2677.08 | 6075.23 | 0 |
| 2680.62 | 6075.27 | 0 | 2687.91 | 6075.3  | 0 | 2690.36 | 6075.33 | 0 |
| 2698.01 | 6075.37 | 0 | 2701.88 | 6075.36 | 0 | 2710.73 | 6075.38 | 0 |
| 2715.08 | 6075.35 | 0 | 2720.48 | 6075.35 | 0 | 2725.79 | 6075.38 | 0 |
| 2731.99 | 6075.32 | 0 | 2736.69 | 6075.32 | 0 | 2743.89 | 6075.27 | 0 |
| 2746.16 | 6075.27 | 0 | 2752.53 | 6075.22 | 0 | 2757.67 | 6075.22 | 0 |
| 2758.29 | 6075.23 | 0 | 2763.64 | 6075.23 | 0 | 2769.18 | 6075.18 | 0 |
| 2775.76 | 6075.17 | 0 | 2778.93 | 6075.15 | 0 | 2784.24 | 6075.15 | 0 |
| 2791.92 | 6075.18 | 0 | 2797.97 | 6075.18 | 0 | 2801.51 | 6075.15 | 0 |
| 2806.05 | 6075.13 | 0 | 2809.04 | 6075.1  | 0 | 2817.01 | 6075.06 | 0 |
| 2817.16 | 6075.05 | 0 | 2830.29 | 6074.99 | 0 | 2835.34 | 6074.98 | 0 |
| 2842.69 | 6074.98 | 0 | 2843.41 | 6074.97 | 0 | 2863.06 | 6074.97 | 0 |
| 2865.63 | 6074.99 | 0 | 2874.72 | 6074.99 | 0 | 2878.11 | 6075.01 | 0 |
| 2884.31 | 6075.02 | 0 | 2887.85 | 6075.04 | 0 | 2890.87 | 6075.04 | 0 |
| 2897.94 | 6075.07 | 0 | 2901.14 | 6075.07 | 0 | 2904.68 | 6075.09 | 0 |
| 2907.34 | 6075.09 | 0 | 2916.75 | 6075.13 | 0 | 2940    | 6075.13 | 0 |
| 2940.37 | 6075.14 | 0 | 2947.05 | 6075.14 | 0 | 2953.51 | 6075.11 | 0 |
| 2956.55 | 6075.11 | 0 | 2959.39 | 6075.09 | 0 | 2963.62 | 6075.08 | 0 |
| 2974.37 | 6075.08 | 0 | 2974.74 | 6075.07 | 0 | 2979.66 | 6075.08 | 0 |
| 2981.43 | 6075.1  | 0 | 2986.87 | 6075.1  | 0 | 2987.59 | 6075.11 | 0 |
| 2995.96 | 6075.11 | 0 | 2999    | 6075.09 | 0 | 3003.46 | 6075.08 | 0 |
| 3006.32 | 6075.05 | 0 | 3016.68 | 6074.92 | 0 | 3020.2  | 6074.9  | 0 |
| 3024.26 | 6074.86 | 0 | 3028.31 | 6074.86 | 0 | 3033.36 | 6074.9  | 0 |
| 3037.83 | 6074.89 | 0 | 3042.89 | 6074.84 | 0 |         |         |   |

|                                    |         |        |         |        |         |        |         |        |         |
|------------------------------------|---------|--------|---------|--------|---------|--------|---------|--------|---------|
| Upstream Bridge Cross Section Data |         |        |         |        |         |        |         |        |         |
| Station Elevation                  |         | Data   |         | num=   |         | 492    |         |        |         |
| Sta                                | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    |
| 194.21                             | 6077.83 | 197.58 | 6077.7  | 201.39 | 6077.61 | 210.83 | 6077.49 | 218.15 | 6077.37 |
| 225.58                             | 6077.22 | 230.72 | 6077.23 | 237.35 | 6077.13 | 243.3  | 6077.16 | 254.64 | 6077.12 |
| 263.14                             | 6077.01 | 272.31 | 6076.81 | 276.84 | 6076.75 | 279.48 | 6076.66 | 290.24 | 6076.53 |
| 295.62                             | 6076.53 | 302.85 | 6076.48 | 308.63 | 6076.47 | 315.33 | 6076.37 | 324.52 | 6076.31 |
| 328.85                             | 6076.31 | 333.91 | 6076.42 | 341.86 | 6076.5  | 346.91 | 6076.68 | 354.14 | 6076.68 |
| 359.19                             | 6076.72 | 364.97 | 6076.9  | 367.79 | 6076.88 | 370.3  | 6076.72 | 372.69 | 6076.48 |
| 375.81                             | 6076.35 | 387.5  | 6076.29 | 391.4  | 6076.3  | 399.2  | 6076.42 | 414.56 | 6076.62 |
| 422.01                             | 6076.7  | 435.06 | 6076.87 | 444.37 | 6077.01 | 456.08 | 6077.26 | 467.02 | 6077.26 |
| 469.93                             | 6077.19 | 481.64 | 6076.78 | 491.12 | 6076.53 | 513.9  | 6076.13 | 515.92 | 6076.07 |
| 526.27                             | 6075.88 | 535.7  | 6075.67 | 546.41 | 6075.61 | 550.54 | 6075.56 | 554.11 | 6075.46 |
| 557.2                              | 6075.27 | 560.3  | 6074.96 | 563.39 | 6074.52 | 565.37 | 6074.16 | 569.58 | 6073.61 |
| 571.64                             | 6073.2  | 574.73 | 6072.68 | 577.82 | 6072.27 | 580.21 | 6072.12 | 581.95 | 6072.12 |
| 585.04                             | 6072.45 | 587.1  | 6072.91 | 590.2  | 6073.51 | 592.57 | 6073.77 | 596.69 | 6073.92 |
| 604.11                             | 6073.91 | 612.35 | 6073.76 | 620.59 | 6073.97 | 629.65 | 6074.04 | 635.56 | 6073.96 |





|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 640.37  | 6073.84 | 647.79  | 6073.93 | 656.85  | 6073.88 | 665.92  | 6073.93 | 674.74  | 6073.94 |
| 683.22  | 6073.78 | 691.47  | 6073.88 | 696.49  | 6073.86 | 700.52  | 6073.92 | 708.76  | 6073.91 |
| 714.54  | 6073.96 | 722.17  | 6074.11 | 731.03  | 6074.31 | 741.74  | 6074.33 | 748.33  | 6074.39 |
| 756.57  | 6074.43 | 763.99  | 6074.52 | 774.53  | 6074.51 | 780.94  | 6074.55 | 788.15  | 6074.32 |
| 790.96  | 6074.32 | 797.78  | 6074.46 | 801.9   | 6074.49 | 807.74  | 6074.48 | 810.84  | 6074.67 |
| 813.93  | 6075.09 | 815.91  | 6075.48 | 819.08  | 6075.96 | 822.18  | 6076.27 | 825.27  | 6076.43 |
| 827.93  | 6076.47 | 832.04  | 6076.45 | 835.58  | 6076.34 | 838.67  | 6076.13 | 847.95  | 6075.38 |
| 851.05  | 6075.09 | 856.2   | 6074.52 | 859.29  | 6074.28 | 865.48  | 6073.89 | 868.57  | 6073.77 |
| 872.78  | 6073.73 | 875.79  | 6073.8  | 880.94  | 6074.05 | 883.49  | 6074.13 | 888.16  | 6074.18 |
| 893.32  | 6074.43 | 895.03  | 6074.47 | 900.53  | 6074.47 | 907.39  | 6074.75 | 913.94  | 6074.93 |
| 919.09  | 6075.24 | 927.34  | 6075.93 | 929.4   | 6075.97 | 931.46  | 6075.9  | 936.62  | 6075.38 |
| 940.74  | 6075.17 | 943.84  | 6074.94 | 945.9   | 6074.7  | 948.99  | 6074.44 | 952.09  | 6074.35 |
| 959.37  | 6074.36 | 968.38  | 6074.55 | 971.67  | 6074.49 | 976.62  | 6074.23 | 981.57  | 6074.14 |
| 984.01  | 6074.15 | 993.11  | 6074.37 | 996.4   | 6074.35 | 1001.57 | 6074.14 | 1006.29 | 6074.09 |
| 1008.76 | 6074    | 1013.95 | 6073.68 | 1017.01 | 6073.6  | 1027.72 | 6073.45 | 1036.63 | 6073.22 |
| 1041.52 | 6073.24 | 1049.74 | 6073.32 | 1056.22 | 6073.52 | 1062.4  | 6073.43 | 1068.93 | 6073.55 |
| 1072.22 | 6073.55 | 1080.96 | 6073.38 | 1084.35 | 6073.37 | 1089.68 | 6073.45 | 1096.07 | 6073.7  |
| 1098.2  | 6073.73 | 1104.34 | 6073.63 | 1109.01 | 6073.61 | 1114.17 | 6073.76 | 1118.43 | 6073.79 |
| 1124.83 | 6073.68 | 1128.02 | 6073.52 | 1131.22 | 6073.3  | 1134.41 | 6072.96 | 1139.74 | 6072    |
| 1141.4  | 6071.88 | 1144    | 6072.02 | 1147.19 | 6072.69 | 1149.32 | 6073.29 | 1152.52 | 6073.99 |
| 1154.99 | 6074.35 | 1157.33 | 6074.52 | 1159.67 | 6074.57 | 1169.56 | 6074.6  | 1177.59 | 6074.44 |
| 1183.05 | 6074.47 | 1185.54 | 6074.42 | 1190.84 | 6074.19 | 1195.51 | 6074.08 | 1200.45 | 6073.84 |
| 1203.65 | 6073.81 | 1207.91 | 6073.84 | 1216.43 | 6073.55 | 1221.23 | 6073.55 | 1225.61 | 6073.47 |
| 1232.92 | 6073.44 | 1244.12 | 6073.32 | 1246.42 | 6073.36 | 1252.51 | 6073.66 | 1257.68 | 6073.78 |
| 1264.84 | 6074.01 | 1269.03 | 6074.2  | 1274.05 | 6074.55 | 1277.64 | 6074.64 | 1281.22 | 6074.62 |
| 1284.81 | 6074.69 | 1289.11 | 6074.85 | 1292.69 | 6074.9  | 1296.99 | 6074.87 | 1304.22 | 6074.88 |
| 1312.84 | 6074.92 | 1316.28 | 6074.78 | 1318.51 | 6074.61 | 1322.81 | 6074.42 | 1331.14 | 6074.41 |
| 1338.58 | 6074.59 | 1344.32 | 6074.89 | 1351.86 | 6075.08 | 1361.93 | 6075.24 | 1369.78 | 6075.18 |
| 1374.02 | 6075.12 | 1378.76 | 6074.97 | 1381.54 | 6075.06 | 1388.88 | 6075.13 | 1394.53 | 6075.01 |
| 1396.47 | 6074.9  | 1400.79 | 6074.79 | 1404.43 | 6074.79 | 1409.35 | 6074.71 | 1412.92 | 6074.73 |
| 1420.94 | 6074.57 | 1426.03 | 6074.62 | 1434.84 | 6074.43 | 1438.48 | 6074.43 | 1447.24 | 6074.31 |
| 1453.39 | 6074.3  | 1459.44 | 6074.37 | 1465.67 | 6074.57 | 1471.43 | 6074.82 | 1476.6  | 6075.14 |
| 1481    | 6075.3  | 1488.33 | 6075.38 | 1494.19 | 6075.32 | 1495.74 | 6075.26 | 1501.79 | 6075.15 |
| 1505.18 | 6075.18 | 1507.83 | 6075.11 | 1511.87 | 6075.13 | 1518.38 | 6075.42 | 1525.98 | 6075.53 |
| 1534.5  | 6075.88 | 1539.63 | 6075.82 | 1545.5  | 6076    | 1546.96 | 6076.01 | 1550.7  | 6075.88 |
| 1552.84 | 6075.89 | 1554.98 | 6076.09 | 1559.26 | 6076.72 | 1561.4  | 6076.76 | 1567.05 | 6076.61 |
| 1570.67 | 6076.38 | 1574.23 | 6076.31 | 1581.72 | 6075.94 | 1584.78 | 6075.88 | 1588.13 | 6075.96 |
| 1589.54 | 6075.91 | 1593.25 | 6075.64 | 1596.69 | 6075.69 | 1601.17 | 6075.95 | 1605.82 | 6076    |
| 1610.18 | 6075.78 | 1612.73 | 6075.76 | 1615.13 | 6075.87 | 1621.28 | 6076.34 | 1624.49 | 6076.46 |
| 1631.42 | 6076.56 | 1637.33 | 6076.6  | 1641.6  | 6076.59 | 1648.02 | 6076.5  | 1650.9  | 6076.36 |
| 1662.03 | 6075.58 | 1669.11 | 6075.38 | 1677.04 | 6075.33 | 1690.34 | 6075.32 | 1695.4  | 6075.5  |
| 1701.01 | 6075.58 | 1708.62 | 6075.53 | 1719.46 | 6075.35 | 1730.8  | 6075.33 | 1735.24 | 6075.35 |
| 1735.8  | 6075.33 | 1741.49 | 6075.11 | 1745.7  | 6075.02 | 1752.5  | 6075.01 | 1758.06 | 6074.85 |
| 1765.52 | 6074.74 | 1772.32 | 6074.77 | 1776.54 | 6074.68 | 1784.69 | 6074.37 | 1794.19 | 6074.21 |
| 1799.9  | 6074.05 | 1808.58 | 6073.97 | 1819.6  | 6073.83 | 1823.6  | 6073.82 | 1831.28 | 6073.71 |
| 1835.62 | 6073.62 | 1839.83 | 6073.61 | 1843.63 | 6073.65 | 1853.15 | 6073.83 | 1857.9  | 6073.76 |
| 1864.66 | 6073.29 | 1869.67 | 6073    | 1871.67 | 6072.75 | 1873.67 | 6072.3  | 1874.67 | 6071.95 |
| 1877.68 | 6071.09 | 1879.68 | 6070.8  | 1881.67 | 6069    | 1896.71 | 6069    | 1898.71 | 6070.77 |
| 1900.69 | 6070.97 | 1903.72 | 6071.71 | 1906.72 | 6072.66 | 1908.72 | 6073.09 | 1910.72 | 6073.39 |
| 1912.73 | 6073.58 | 1915.73 | 6073.63 | 1920.66 | 6073.39 | 1924.74 | 6073.31 | 1927.75 | 6073.18 |
| 1931.12 | 6073.16 | 1934.76 | 6073.24 | 1939.67 | 6073.44 | 1942.77 | 6073.52 | 1946.78 | 6073.56 |
| 1953.94 | 6073.55 | 1956.78 | 6073.6  | 1962.8  | 6073.82 | 1965.8  | 6073.87 | 1975.61 | 6073.82 |
| 1980.82 | 6073.82 | 1985.83 | 6073.77 | 1991.97 | 6073.98 | 1996.85 | 6074    | 2002.43 | 6073.83 |
| 2006.23 | 6073.77 | 2010.04 | 6073.77 | 2019.88 | 6073.85 | 2024.89 | 6073.93 | 2028.89 | 6073.94 |
| 2032.86 | 6074    | 2035.8  | 6074.1  | 2040.05 | 6074.24 | 2042.17 | 6074.22 | 2049.39 | 6073.91 |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 2054.25 | 6073.96 | 2058.31 | 6073.93 | 2064.8  | 6073.82 | 2071.4  | 6073.6  | 2075.1  | 6073.58 |
| 2079.39 | 6073.41 | 2084.86 | 6073.44 | 2088.48 | 6073.27 | 2093.58 | 6073.14 | 2101.43 | 6073.15 |
| 2105.62 | 6073.1  | 2107.53 | 6073.13 | 2111.34 | 6073.04 | 2113.93 | 6073.03 | 2117.06 | 6072.94 |
| 2124.92 | 6072.97 | 2128.45 | 6072.9  | 2140.36 | 6072.93 | 2143.44 | 6072.9  | 2152.69 | 6072.9  |
| 2169.03 | 6073.02 | 2176.39 | 6073.01 | 2178.96 | 6073.05 | 2184.64 | 6073.06 | 2189.53 | 6073.02 |
| 2196.7  | 6073.04 | 2204.75 | 6072.78 | 2212.86 | 6072.74 | 2217.97 | 6072.69 | 2231.27 | 6072.76 |
| 2238.78 | 6072.76 | 2244.27 | 6072.83 | 2249.69 | 6072.84 | 2257.06 | 6072.77 | 2266.63 | 6072.78 |
| 2278.48 | 6072.82 | 2284.18 | 6072.78 | 2294.96 | 6072.78 | 2302.42 | 6072.71 | 2313.18 | 6072.81 |
| 2317.91 | 6072.91 | 2322.89 | 6072.94 | 2327.87 | 6072.9  | 2332.72 | 6072.8  | 2342.8  | 6072.69 |
| 2348.61 | 6072.65 | 2354.32 | 6072.51 | 2358.56 | 6072.5  | 2363.4  | 6072.64 | 2371    | 6072.65 |
| 2384.14 | 6072.81 | 2389.26 | 6072.73 | 2391.33 | 6072.62 | 2394.42 | 6072.55 | 2410.87 | 6072.45 |
| 2420.78 | 6072.58 | 2424.93 | 6072.55 | 2426.3  | 6072.6  | 2444.38 | 6072.73 | 2450.77 | 6072.72 |
| 2458.9  | 6072.6  | 2462.96 | 6072.64 | 2466.01 | 6072.76 | 2471.09 | 6073.13 | 2473.68 | 6073.27 |
| 2475.41 | 6073.29 | 2480.23 | 6073.09 | 2492.64 | 6072.89 | 2496.09 | 6072.96 | 2504.61 | 6073.31 |
| 2509.02 | 6073.42 | 2513.33 | 6073.48 | 2527.95 | 6073.53 | 2533.06 | 6073.46 | 2539.15 | 6073.26 |
| 2544.23 | 6072.98 | 2548.3  | 6072.98 | 2552.97 | 6073.21 | 2560.72 | 6073.27 | 2566.58 | 6073.49 |
| 2573.4  | 6073.96 | 2577.74 | 6074.35 | 2586.82 | 6074.9  | 2589.84 | 6075.01 | 2604.8  | 6075.24 |
| 2608.36 | 6075.24 | 2618.08 | 6075.14 | 2621.11 | 6075.13 | 2634.22 | 6075.44 | 2640.47 | 6075.47 |
| 2646.32 | 6075.54 | 2649.35 | 6075.41 | 2655.63 | 6074.63 | 2661.45 | 6074.05 | 2664.47 | 6073.96 |
| 2670.52 | 6073.97 | 2672.86 | 6074.06 | 2677.04 | 6074.33 | 2679.6  | 6074.45 | 2684.17 | 6074.51 |
| 2687.74 | 6074.51 | 2696.75 | 6074.41 | 2705.82 | 6074.18 | 2709.14 | 6074.07 | 2713.89 | 6073.79 |
| 2719.94 | 6073.53 | 2729.02 | 6073.29 | 2741.12 | 6073.24 | 2745.71 | 6073.24 | 2751.06 | 6073.19 |
| 2767.34 | 6073.18 | 2775.14 | 6073.24 | 2780.8  | 6073.24 | 2787.51 | 6073.29 | 2796.55 | 6073.28 |
| 2802.79 | 6073.21 | 2810.71 | 6073.07 | 2820.63 | 6073.08 | 2826.84 | 6073.11 | 2835.92 | 6073.09 |
| 2838.95 | 6073.06 | 2850.04 | 6072.88 | 2858.98 | 6072.83 | 2863.44 | 6072.83 | 2868.79 | 6072.89 |
| 2876.26 | 6072.87 | 2883.06 | 6073.02 | 2893.76 | 6073.15 | 2900.89 | 6073.36 | 2905.35 | 6073.44 |
| 2911.87 | 6073.41 | 2919.58 | 6073.51 | 2936.77 | 6073.84 | 2941.03 | 6073.88 | 2944.84 | 6073.82 |
| 2952.91 | 6073.59 | 2957.08 | 6073.57 | 2961.54 | 6073.69 | 2966.89 | 6073.78 | 2969.05 | 6073.76 |
| 2976.7  | 6073.38 | 2980.27 | 6073.35 | 2987.2  | 6073.46 | 2990.08 | 6073.61 | 2995.27 | 6074.06 |
| 2998.29 | 6074.26 | 3003.62 | 6074.48 |         |         |         |         |         |         |

|                    |       |        |       |        |       |
|--------------------|-------|--------|-------|--------|-------|
| Manning's n Values |       | num=   |       | 3      |       |
| Sta                | n Val | Sta    | n Val | Sta    | n Val |
| 194.21             | .06   | 1735.8 | .035  | 2035.8 | .06   |

|           |        |        |       |        |        |
|-----------|--------|--------|-------|--------|--------|
| Bank Sta: | Left   | Right  | Coeff | Contr. | Expan. |
|           | 1735.8 | 2035.8 |       | .3     | .5     |

|                  |         |         |           |
|------------------|---------|---------|-----------|
| Ineffective Flow |         | num=    | 8         |
| Sta L            | Sta R   | Elev    | Permanent |
| 404.29           | 1859.71 | 6075.91 | T         |
| 1910.69          | 2065.27 | 6075.1  | T         |
| 2065.27          | 2080.56 | 6074.9  | T         |
| 2080.56          | 2109.83 | 6074.73 | T         |
| 2109.83          | 2146.12 | 6074.51 | T         |
| 2146.12          | 2167.19 | 6074.39 | T         |
| 2167.19          | 2611.99 | 6074.21 | T         |
| 2611.99          | 3006.47 | 6074.95 | T         |

|                      |         |        |      |   |
|----------------------|---------|--------|------|---|
| Blocked Obstructions |         |        | num= | 1 |
| Sta L                | Sta R   | Elev   |      |   |
| 3050                 | 3003.62 | 6075.2 |      |   |

|                         |         |             |        |         |         |
|-------------------------|---------|-------------|--------|---------|---------|
| Downstream Deck/Roadway |         | Coordinates |        |         |         |
| num=                    |         | 488         |        |         |         |
| Sta                     | Hi      | Cord        | Lo     | Cord    | Sta     |
| 213.74                  | 6078.93 | 0           | 218.18 | 6078.87 | 0       |
|                         |         |             |        |         | 223.13  |
|                         |         |             |        |         | 6078.79 |
|                         |         |             |        |         | 0       |



|         |         |   |         |         |   |         |         |   |
|---------|---------|---|---------|---------|---|---------|---------|---|
| 230.36  | 6078.72 | 0 | 231.75  | 6078.69 | 0 | 245.69  | 6078.49 | 0 |
| 251.26  | 6078.4  | 0 | 257.78  | 6078.32 | 0 | 266.27  | 6078.23 | 0 |
| 274.95  | 6078.1  | 0 | 279.7   | 6078.05 | 0 | 283.16  | 6078    | 0 |
| 293.13  | 6077.92 | 0 | 299.94  | 6077.9  | 0 | 303.6   | 6077.87 | 0 |
| 307.62  | 6077.82 | 0 | 310.91  | 6077.8  | 0 | 316.02  | 6077.75 | 0 |
| 319.51  | 6077.73 | 0 | 321.87  | 6077.7  | 0 | 330.64  | 6077.64 | 0 |
| 332.52  | 6077.61 | 0 | 335.76  | 6077.6  | 0 | 339.41  | 6077.56 | 0 |
| 348.74  | 6077.52 | 0 | 351.11  | 6077.52 | 0 | 355.5   | 6077.48 | 0 |
| 361.34  | 6077.44 | 0 | 365.07  | 6077.43 | 0 | 371.02  | 6077.39 | 0 |
| 373.04  | 6077.39 | 0 | 377.7   | 6077.36 | 0 | 380.01  | 6077.36 | 0 |
| 384     | 6077.33 | 0 | 389.85  | 6077.31 | 0 | 392.06  | 6077.29 | 0 |
| 402.76  | 6077.26 | 0 | 407.35  | 6077.22 | 0 | 418.04  | 6077.16 | 0 |
| 423.39  | 6077.15 | 0 | 429.55  | 6077.15 | 0 | 433.32  | 6077.14 | 0 |
| 436.38  | 6077.11 | 0 | 440.39  | 6077.09 | 0 | 444.92  | 6077.05 | 0 |
| 448.6   | 6077.04 | 0 | 456.24  | 6077    | 0 | 462.36  | 6076.95 | 0 |
| 467.5   | 6076.94 | 0 | 474     | 6076.94 | 0 | 479.93  | 6076.91 | 0 |
| 485.93  | 6076.87 | 0 | 492.43  | 6076.84 | 0 | 494.6   | 6076.84 | 0 |
| 500.56  | 6076.81 | 0 | 505.99  | 6076.77 | 0 | 510.57  | 6076.76 | 0 |
| 514.69  | 6076.72 | 0 | 518.39  | 6076.71 | 0 | 524.18  | 6076.68 | 0 |
| 532.19  | 6076.62 | 0 | 544.03  | 6076.56 | 0 | 555.61  | 6076.48 | 0 |
| 559.74  | 6076.47 | 0 | 565.53  | 6076.43 | 0 | 568.84  | 6076.42 | 0 |
| 570.28  | 6076.4  | 0 | 577.11  | 6076.36 | 0 | 593.96  | 6076.27 | 0 |
| 600.77  | 6076.26 | 0 | 606.88  | 6076.23 | 0 | 613.38  | 6076.21 | 0 |
| 622.59  | 6076.21 | 0 | 622.79  | 6076.22 | 0 | 629.21  | 6076.22 | 0 |
| 630     | 6076.23 | 0 | 641.61  | 6076.23 | 0 | 642.35  | 6076.22 | 0 |
| 651.21  | 6076.22 | 0 | 658.15  | 6076.25 | 0 | 662.29  | 6076.25 | 0 |
| 667.06  | 6076.27 | 0 | 678.39  | 6076.35 | 0 | 682.96  | 6076.37 | 0 |
| 684.83  | 6076.39 | 0 | 695.37  | 6076.44 | 0 | 698.98  | 6076.47 | 0 |
| 704.46  | 6076.5  | 0 | 710.05  | 6076.52 | 0 | 716.48  | 6076.57 | 0 |
| 718.52  | 6076.57 | 0 | 724.31  | 6076.6  | 0 | 730.9   | 6076.62 | 0 |
| 735.27  | 6076.62 | 0 | 738.37  | 6076.64 | 0 | 746.64  | 6076.66 | 0 |
| 749.95  | 6076.68 | 0 | 755.74  | 6076.69 | 0 | 760.48  | 6076.71 | 0 |
| 763.84  | 6076.74 | 0 | 771.45  | 6076.78 | 0 | 780.55  | 6076.79 | 0 |
| 785.7   | 6076.81 | 0 | 791.3   | 6076.82 | 0 | 796.79  | 6076.82 | 0 |
| 801.22  | 6076.83 | 0 | 811.97  | 6076.89 | 0 | 814.45  | 6076.89 | 0 |
| 824.59  | 6076.94 | 0 | 827.73  | 6076.94 | 0 | 833.47  | 6076.96 | 0 |
| 839.26  | 6077    | 0 | 843.4   | 6077    | 0 | 849.19  | 6077.04 | 0 |
| 851.67  | 6077.04 | 0 | 857.46  | 6077.07 | 0 | 865.73  | 6077.07 | 0 |
| 869.03  | 6077.06 | 0 | 871.95  | 6077.08 | 0 | 875.03  | 6077.08 | 0 |
| 878.96  | 6077.1  | 0 | 882.37  | 6077.1  | 0 | 888.88  | 6077.12 | 0 |
| 894.98  | 6077.16 | 0 | 905.92  | 6077.13 | 0 | 921.13  | 6077.13 | 0 |
| 929.4   | 6077.07 | 0 | 932.8   | 6077.07 | 0 | 939.33  | 6077.05 | 0 |
| 942.99  | 6077.03 | 0 | 947.1   | 6076.99 | 0 | 951.73  | 6076.96 | 0 |
| 955.04  | 6076.92 | 0 | 961.52  | 6076.86 | 0 | 965.64  | 6076.84 | 0 |
| 972.41  | 6076.77 | 0 | 975.93  | 6076.76 | 0 | 983.99  | 6076.69 | 0 |
| 988.95  | 6076.68 | 0 | 994.46  | 6076.6  | 0 | 997.22  | 6076.58 | 0 |
| 1003.73 | 6076.57 | 0 | 1010.45 | 6076.54 | 0 | 1014.58 | 6076.54 | 0 |
| 1026.99 | 6076.42 | 0 | 1030.3  | 6076.41 | 0 | 1035.65 | 6076.43 | 0 |
| 1038.57 | 6076.46 | 0 | 1044.91 | 6076.38 | 0 | 1049.03 | 6076.36 | 0 |
| 1055.11 | 6076.35 | 0 | 1058.89 | 6076.32 | 0 | 1065.86 | 6076.29 | 0 |
| 1068.34 | 6076.26 | 0 | 1076.83 | 6076.26 | 0 | 1077.43 | 6076.25 | 0 |
| 1090.67 | 6076.25 | 0 | 1094.8  | 6076.22 | 0 | 1100.92 | 6076.22 | 0 |
| 1111.34 | 6076.17 | 0 | 1116.3  | 6076.16 | 0 | 1123.16 | 6076.13 | 0 |
| 1125.22 | 6076.11 | 0 | 1130.34 | 6076.09 | 0 | 1132.43 | 6076.07 | 0 |
| 1138.6  | 6076.04 | 0 | 1146.47 | 6076.02 | 0 | 1163.55 | 6076.02 | 0 |

|         |         |   |         |         |        |         |         |         |
|---------|---------|---|---------|---------|--------|---------|---------|---------|
| 1168.77 | 6076.03 | 0 | 1179.02 | 6076.08 | 0      | 1205.53 | 6076.08 | 0       |
| 1211.96 | 6076.12 | 0 | 1216.77 | 6076.13 | 0      | 1224.81 | 6076.19 | 0       |
| 1232.85 | 6076.2  | 0 | 1233.49 | 6076.21 | 0      | 1242.22 | 6076.23 | 0       |
| 1242.84 | 6076.24 | 0 | 1248.69 | 6076.25 | 0      | 1258.93 | 6076.31 | 0       |
| 1271.13 | 6076.31 | 0 | 1276.91 | 6076.36 | 0      | 1285.27 | 6076.42 | 0       |
| 1289.63 | 6076.42 | 0 | 1294.78 | 6076.45 | 0      | 1302.83 | 6076.46 | 0       |
| 1303.51 | 6076.47 | 0 | 1308.68 | 6076.47 | 0      | 1309.29 | 6076.48 | 0       |
| 1314.53 | 6076.48 | 0 | 1315.07 | 6076.49 | 0      | 1320.33 | 6076.49 | 0       |
| 1326.25 | 6076.51 | 0 | 1340.31 | 6076.51 | 0      | 1340.96 | 6076.52 | 0       |
| 1348.21 | 6076.52 | 0 | 1355.2  | 6076.54 | 0      | 1363.02 | 6076.61 | 0       |
| 1368.01 | 6076.63 | 0 | 1372.99 | 6076.68 | 0      | 1384.35 | 6076.81 | 0       |
| 1389.31 | 6076.86 | 0 | 1391.76 | 6076.87 | 0      | 1402.75 | 6076.96 | 0       |
| 1407.71 | 6077.01 | 0 | 1419.92 | 6077.09 | 0      | 1429.65 | 6077.19 | 0       |
| 1434.74 | 6077.2  | 0 | 1438.15 | 6077.22 | 0      | 1442.61 | 6077.23 | 0       |
| 1450.18 | 6077.29 | 0 | 1460.23 | 6077.33 | 0      | 1464.29 | 6077.36 | 0       |
| 1481.09 | 6077.36 | 0 | 1488.46 | 6077.4  | 0      | 1499.91 | 6077.4  | 0       |
| 1500.51 | 6077.41 | 0 | 1512.42 | 6077.41 | 0      | 1513.07 | 6077.4  | 0       |
| 1521.29 | 6077.4  | 0 | 1521.87 | 6077.41 | 0      | 1527.67 | 6077.4  | 0       |
| 1533.38 | 6077.37 | 0 | 1543.21 | 6077.39 | 0      | 1546.01 | 6077.37 | 0       |
| 1552.75 | 6077.37 | 0 | 1553.21 | 6077.36 | 0      | 1574.3  | 6077.36 | 0       |
| 1574.47 | 6077.37 | 0 | 1588.74 | 6077.33 | 0      | 1592.07 | 6077.31 | 0       |
| 1594.69 | 6077.31 | 0 | 1598.43 | 6077.29 | 0      | 1605.26 | 6077.27 | 0       |
| 1607.43 | 6077.25 | 0 | 1620.77 | 6077.25 | 0      | 1621.31 | 6077.24 | 0       |
| 1630.83 | 6077.21 | 0 | 1634.77 | 6077.21 | 0      | 1638.96 | 6077.19 | 0       |
| 1645.33 | 6077.18 | 0 | 1655.22 | 6077.11 | 0      | 1657.15 | 6077.11 | 0       |
| 1663.17 | 6077.07 | 0 | 1670.06 | 6077.06 | 0      | 1678.59 | 6077.01 | 0       |
| 1690.05 | 6076.97 | 0 | 1695.62 | 6076.91 | 0      | 1699.62 | 6076.89 | 0       |
| 1709.64 | 6076.76 | 0 | 1712.64 | 6076.75 | 0      | 1720.44 | 6076.69 | 0       |
| 1730.67 | 6076.64 | 0 | 1732.67 | 6076.64 | 0      | 1739.44 | 6076.6  | 0       |
| 1743.69 | 6076.59 | 0 | 1746.09 | 6076.57 | 0      | 1749.89 | 6076.57 | 0       |
| 1752.7  | 6076.55 | 0 | 1759.71 | 6076.54 | 0      | 1765.72 | 6076.51 | 0       |
| 1768.88 | 6076.51 | 0 | 1775.53 | 6076.46 | 0      | 1776.74 | 6076.46 | 0       |
| 1783.75 | 6076.38 | 0 | 1790.73 | 6076.35 | 0      | 1796.77 | 6076.3  | 0       |
| 1802.13 | 6076.27 | 0 | 1813.79 | 6076.18 | 0      | 1820.17 | 6076.16 | 0       |
| 1826.81 | 6076.12 | 0 | 1828.81 | 6076.12 | 0      | 1833.47 | 6076.09 | 0       |
| 1839.17 | 6076.09 | 0 | 1842.02 | 6076.08 | 0      | 1852.47 | 6076.01 | 0       |
| 1857.86 | 6075.98 | 0 | 1862.92 | 6075.97 | 0      | 1864.87 | 6075.95 | 0       |
| 1869.9  | 6075.85 | 0 | 1871.5  | 6075.85 | 6073.1 | 1900.27 | 6075.85 | 6072.93 |
| 1901.88 | 6075.85 | 0 | 1930.35 | 6075.68 | 0      | 1932.25 | 6075.68 | 0       |
| 1937.95 | 6075.65 | 0 | 1946.99 | 6075.64 | 0      | 1947.45 | 6075.63 | 0       |
| 1955.05 | 6075.63 | 0 | 1955.96 | 6075.62 | 0      | 1960.75 | 6075.63 | 0       |
| 1974.37 | 6075.63 | 0 | 1978.79 | 6075.59 | 0      | 1989.24 | 6075.52 | 0       |
| 1994.94 | 6075.46 | 0 | 1997.06 | 6075.45 | 0      | 2002.54 | 6075.39 | 0       |
| 2007.29 | 6075.35 | 0 | 2013.09 | 6075.28 | 0      | 2014.09 | 6075.28 | 0       |
| 2024.1  | 6075.18 | 0 | 2026.29 | 6075.18 | 0      | 2033.62 | 6075.14 | 0       |
| 2038.96 | 6075.14 | 0 | 2039.19 | 6075.15 | 0      | 2044.75 | 6075.15 | 0       |
| 2052.26 | 6075.13 | 0 | 2056.75 | 6075.16 | 0      | 2059.42 | 6075.16 | 0       |
| 2062.09 | 6075.14 | 0 | 2066.53 | 6075.13 | 0      | 2068.92 | 6075.1  | 0       |
| 2073.95 | 6075    | 0 | 2078.4  | 6074.94 | 0      | 2082.86 | 6074.91 | 0       |
| 2086.56 | 6074.87 | 0 | 2095.47 | 6074.8  | 0      | 2103.68 | 6074.8  | 0       |
| 2109.23 | 6074.77 | 0 | 2115.49 | 6074.7  | 0      | 2130.33 | 6074.59 | 0       |
| 2136.94 | 6074.57 | 0 | 2145.31 | 6074.52 | 0      | 2147.43 | 6074.52 | 0       |
| 2154.34 | 6074.48 | 0 | 2163.7  | 6074.45 | 0      | 2176.48 | 6074.38 | 0       |
| 2180.31 | 6074.38 | 0 | 2187.79 | 6074.34 | 0      | 2189.93 | 6074.34 | 0       |
| 2195.36 | 6074.31 | 0 | 2199.83 | 6074.31 | 0      | 2205.18 | 6074.29 | 0       |





|         |         |   |         |         |   |         |         |   |
|---------|---------|---|---------|---------|---|---------|---------|---|
| 2209.77 | 6074.26 | 0 | 2213.21 | 6074.25 | 0 | 2233.39 | 6074.25 | 0 |
| 2237.71 | 6074.26 | 0 | 2244.18 | 6074.23 | 0 | 2248.16 | 6074.22 | 0 |
| 2253.54 | 6074.22 | 0 | 2254.21 | 6074.21 | 0 | 2259.65 | 6074.21 | 0 |
| 2260.01 | 6074.2  | 0 | 2267.21 | 6074.2  | 0 | 2272.07 | 6074.22 | 0 |
| 2277.39 | 6074.22 | 0 | 2278    | 6074.23 | 0 | 2285.2  | 6074.23 | 0 |
| 2285.68 | 6074.24 | 0 | 2293.84 | 6074.24 | 0 | 2295.99 | 6074.26 | 0 |
| 2306.79 | 6074.23 | 0 | 2312.19 | 6074.22 | 0 | 2325.53 | 6074.22 | 0 |
| 2329.55 | 6074.24 | 0 | 2347.22 | 6074.24 | 0 | 2347.68 | 6074.25 | 0 |
| 2352.9  | 6074.25 | 0 | 2356.03 | 6074.26 | 0 | 2358.12 | 6074.24 | 0 |
| 2361.25 | 6074.25 | 0 | 2364.89 | 6074.24 | 0 | 2370.65 | 6074.25 | 0 |
| 2373.56 | 6074.27 | 0 | 2379    | 6074.28 | 0 | 2382.13 | 6074.3  | 0 |
| 2385.78 | 6074.29 | 0 | 2394.66 | 6074.29 | 0 | 2395.42 | 6074.28 | 0 |
| 2405.06 | 6074.28 | 0 | 2405.86 | 6074.27 | 0 | 2411.9  | 6074.27 | 0 |
| 2417.91 | 6074.25 | 0 | 2422.84 | 6074.21 | 0 | 2431.56 | 6074.19 | 0 |
| 2438.85 | 6074.14 | 0 | 2443.28 | 6074.13 | 0 | 2450.61 | 6074.13 | 0 |
| 2451.25 | 6074.12 | 0 | 2463.74 | 6074.12 | 0 | 2471.62 | 6074.17 | 0 |
| 2477.87 | 6074.18 | 0 | 2482.92 | 6074.21 | 0 | 2489.99 | 6074.23 | 0 |
| 2497.3  | 6074.29 | 0 | 2500.09 | 6074.29 | 0 | 2505.14 | 6074.32 | 0 |
| 2508.17 | 6074.32 | 0 | 2512.21 | 6074.34 | 0 | 2515.24 | 6074.34 | 0 |
| 2522.1  | 6074.38 | 0 | 2530.38 | 6074.38 | 0 | 2536.44 | 6074.4  | 0 |
| 2543.35 | 6074.36 | 0 | 2546.89 | 6074.35 | 0 | 2553.09 | 6074.35 | 0 |
| 2557.52 | 6074.33 | 0 | 2567.26 | 6074.34 | 0 | 2571.69 | 6074.37 | 0 |
| 2581.88 | 6074.38 | 0 | 2585.86 | 6074.42 | 0 | 2589.4  | 6074.43 | 0 |
| 2597.03 | 6074.48 | 0 | 2601.8  | 6074.5  | 0 | 2605.11 | 6074.5  | 0 |
| 2611.17 | 6074.52 | 0 | 2618.63 | 6074.6  | 0 | 2623.94 | 6074.64 | 0 |
| 2629.34 | 6074.7  | 0 | 2630.35 | 6074.7  | 0 | 2635.46 | 6074.76 | 0 |
| 2646.51 | 6074.9  | 0 | 2654.94 | 6075.02 | 0 | 2667.34 | 6075.16 | 0 |
| 2669.99 | 6075.2  | 0 | 2674.78 | 6075.22 | 0 | 2677.97 | 6075.25 | 0 |
| 2682.86 | 6075.27 | 0 | 2685.94 | 6075.3  | 0 | 2689.48 | 6075.31 | 0 |
| 2699.02 | 6075.37 | 0 | 2713.39 | 6075.37 | 0 | 2714.16 | 6075.36 | 0 |
| 2725.27 | 6075.36 | 0 | 2730.32 | 6075.35 | 0 | 2734.64 | 6075.32 | 0 |
| 2736.38 | 6075.32 | 0 | 2745.47 | 6075.26 | 0 | 2756.79 | 6075.21 | 0 |
| 2762.1  | 6075.22 | 0 | 2768.3  | 6075.19 | 0 | 2774.75 | 6075.18 | 0 |
| 2779.8  | 6075.15 | 0 | 2782.83 | 6075.15 | 0 | 2786.87 | 6075.17 | 0 |
| 2795.96 | 6075.18 | 0 | 2799.3  | 6075.16 | 0 | 2802.01 | 6075.16 | 0 |
| 2805.49 | 6075.14 | 0 | 2808.07 | 6075.11 | 0 | 2811.1  | 6075.1  | 0 |
| 2817.89 | 6075.03 | 0 | 2824.09 | 6075.01 | 0 | 2830.29 | 6075    | 0 |
| 2832.95 | 6074.98 | 0 | 2840.39 | 6074.98 | 0 | 2840.92 | 6074.97 | 0 |
| 2848.46 | 6074.97 | 0 | 2852.5  | 6074.99 | 0 | 2863.95 | 6074.97 | 0 |
| 2868.37 | 6074.99 | 0 | 2873.69 | 6075    | 0 | 2880.74 | 6075    | 0 |
| 2886.84 | 6075.03 | 0 | 2889.63 | 6075.03 | 0 | 2894.06 | 6075.06 | 0 |
| 2896.93 | 6075.06 | 0 | 2900.97 | 6075.08 | 0 | 2903.8  | 6075.08 | 0 |
| 2907.03 | 6075.1  | 0 | 2912.65 | 6075.11 | 0 | 2913.09 | 6075.12 | 0 |
| 2918.29 | 6075.12 | 0 | 2918.85 | 6075.13 | 0 | 2939.36 | 6075.13 | 0 |
| 2940    | 6075.14 | 0 | 2946.44 | 6075.14 | 0 | 2950.58 | 6075.13 | 0 |
| 2956.55 | 6075.1  | 0 | 2961.15 | 6075.09 | 0 | 2967.66 | 6075.09 | 0 |
| 2972.61 | 6075.07 | 0 | 2977.9  | 6075.08 | 0 | 2984.85 | 6075.11 | 0 |
| 2996.41 | 6075.11 | 0 | 3000.01 | 6075.1  | 0 | 3003.46 | 6075.06 | 0 |
| 3011.39 | 6074.99 | 0 | 3015.8  | 6074.93 | 0 | 3019.21 | 6074.91 | 0 |
| 3024.26 | 6074.86 | 0 | 3028.31 | 6074.86 | 0 | 3033.36 | 6074.9  | 0 |
| 3037.83 | 6074.89 | 0 | 3042.89 | 6074.84 | 0 | 3059.51 | 6074.85 | 0 |
| 3072.97 | 6074.84 | 0 | 3073.82 | 6074.84 | 0 |         |         |   |

Downstream Bridge Cross Section Data  
Station Elevation Data num= 492

| Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 256.52  | 6077.76 | 270.89  | 6077.23 | 275.72  | 6077.12 | 280.68  | 6077.12 | 289.54  | 6077.05 |
| 298.03  | 6076.88 | 302.89  | 6076.73 | 311.39  | 6076.58 | 314.3   | 6076.57 | 325.32  | 6076.33 |
| 334.15  | 6076.28 | 339.07  | 6076.21 | 346.31  | 6076.24 | 349.79  | 6076.19 | 355.04  | 6076.19 |
| 360.13  | 6076.14 | 367     | 6075.96 | 372.33  | 6075.88 | 379.37  | 6075.84 | 386.41  | 6075.87 |
| 396.48  | 6076.1  | 404.01  | 6076.14 | 409.57  | 6076.22 | 421.2   | 6076.19 | 430.88  | 6076.19 |
| 438.7   | 6076.06 | 444.29  | 6076.1  | 456.8   | 6075.88 | 468.72  | 6075.57 | 482.19  | 6075.38 |
| 493.94  | 6075.29 | 500.18  | 6075.29 | 505     | 6075.25 | 519.72  | 6075.25 | 522.62  | 6075.28 |
| 531.94  | 6075.5  | 540.08  | 6075.83 | 543.28  | 6075.91 | 549.04  | 6075.95 | 553.11  | 6075.9  |
| 557.18  | 6075.91 | 565.12  | 6076.06 | 572.65  | 6076.08 | 577.44  | 6076.14 | 582.42  | 6076.14 |
| 589.75  | 6076.24 | 600.21  | 6076.29 | 605.22  | 6076.29 | 609.29  | 6076.24 | 620.06  | 6075.91 |
| 632.09  | 6075.76 | 634.37  | 6075.7  | 637.69  | 6075.5  | 645.98  | 6074.91 | 654.07  | 6074.6  |
| 659.45  | 6074.27 | 664.64  | 6073.48 | 666.71  | 6073.29 | 668.78  | 6073.24 | 673.62  | 6073.5  |
| 677.08  | 6073.53 | 680.94  | 6073.44 | 684.2   | 6073.49 | 689.52  | 6073.88 | 692.63  | 6073.99 |
| 696.77  | 6074.06 | 702.99  | 6074.3  | 707.81  | 6074.54 | 711.07  | 6074.58 | 715.96  | 6074.56 |
| 720.62  | 6074.63 | 726.84  | 6074.67 | 731.43  | 6074.64 | 738.24  | 6074.68 | 743.42  | 6074.53 |
| 746.53  | 6074.52 | 751.71  | 6074.65 | 758.97  | 6074.59 | 767.22  | 6074.8  | 770.51  | 6074.82 |
| 777.84  | 6074.58 | 780.74  | 6074.54 | 792.14  | 6074.8  | 794.94  | 6074.81 | 799.4   | 6074.74 |
| 804.58  | 6074.93 | 807.69  | 6074.96 | 815.3   | 6074.76 | 822.62  | 6074.8  | 829.46  | 6074.61 |
| 834.84  | 6074.51 | 839.83  | 6074.51 | 847.87  | 6074.65 | 851.12  | 6074.63 | 857.45  | 6074.28 |
| 861.6   | 6074.26 | 866.78  | 6074.44 | 874.04  | 6074.3  | 879.22  | 6074.46 | 883.37  | 6074.35 |
| 889.39  | 6074.04 | 892.7   | 6073.99 | 897.53  | 6074.15 | 900.79  | 6074.18 | 920.33  | 6074.15 |
| 923.59  | 6074.12 | 928.98  | 6074.23 | 932.09  | 6074.25 | 938.31  | 6074.13 | 942.45  | 6074.01 |
| 945.62  | 6074    | 953.72  | 6074.19 | 958     | 6074.19 | 961.11  | 6074.29 | 963.19  | 6074.43 |
| 969.41  | 6074.67 | 971.48  | 6074.71 | 979.77  | 6074.65 | 988.06  | 6074.8  | 989.54  | 6074.79 |
| 994.28  | 6074.92 | 1003.39 | 6075.12 | 1008.27 | 6075.15 | 1018.13 | 6075.13 | 1023.74 | 6075.29 |
| 1026.42 | 6075.2  | 1031.6  | 6074.71 | 1034.71 | 6074.48 | 1038.86 | 6074.26 | 1041.97 | 6074.2  |
| 1047.15 | 6074.37 | 1051.3  | 6074.28 | 1056.48 | 6073.84 | 1060.63 | 6073.75 | 1068.92 | 6073.78 |
| 1073.07 | 6073.65 | 1078.25 | 6073.31 | 1081.36 | 6073.22 | 1093.77 | 6073.14 | 1098.98 | 6072.96 |
| 1104.17 | 6072.96 | 1109.24 | 6073.23 | 1115.57 | 6073.38 | 1118.19 | 6073.4  | 1127.15 | 6073.36 |
| 1140.18 | 6073.13 | 1145.06 | 6073.13 | 1150.58 | 6073.06 | 1154.84 | 6073.05 | 1158.91 | 6072.98 |
| 1163.25 | 6072.99 | 1171.93 | 6072.72 | 1177.15 | 6072.65 | 1182.95 | 6072.62 | 1191.48 | 6072.45 |
| 1197.99 | 6072.14 | 1202.65 | 6071.79 | 1205.76 | 6071.73 | 1213.15 | 6071.85 | 1218.64 | 6071.8  |
| 1222.5  | 6071.88 | 1226.04 | 6071.81 | 1228.18 | 6071.65 | 1234.85 | 6071.31 | 1238.16 | 6071.24 |
| 1241.8  | 6071.28 | 1247.2  | 6071.46 | 1249.66 | 6071.47 | 1253.95 | 6071.31 | 1258.25 | 6071.24 |
| 1261.47 | 6071.45 | 1263.62 | 6071.76 | 1265.73 | 6071.92 | 1267.27 | 6071.93 | 1271.12 | 6071.72 |
| 1274.35 | 6071.75 | 1279.72 | 6072    | 1287.24 | 6071.97 | 1290.43 | 6072.11 | 1295.83 | 6072.43 |
| 1299.05 | 6072.41 | 1306.82 | 6072.18 | 1309.79 | 6072.27 | 1313.01 | 6072.51 | 1315.06 | 6072.74 |
| 1318.38 | 6073    | 1320.52 | 6073.06 | 1326.7  | 6072.95 | 1329.53 | 6072.86 | 1336.43 | 6072.79 |
| 1348.65 | 6072.41 | 1351.85 | 6072.36 | 1361.88 | 6072.5  | 1368.49 | 6072.78 | 1372.74 | 6072.82 |
| 1380.62 | 6072.82 | 1386.9  | 6072.71 | 1391.34 | 6072.67 | 1402.97 | 6072.28 | 1405.98 | 6072.29 |
| 1410.27 | 6072.4  | 1416.5  | 6072.3  | 1419.46 | 6072.32 | 1425.15 | 6072.53 | 1432.85 | 6072.48 |
| 1437.19 | 6072.54 | 1443.56 | 6072.49 | 1446.24 | 6072.53 | 1452.59 | 6073.01 | 1456.95 | 6073.15 |
| 1461.98 | 6073.22 | 1475.56 | 6073.7  | 1479.72 | 6073.76 | 1487.22 | 6073.74 | 1492.11 | 6073.78 |
| 1506.51 | 6074.04 | 1516.58 | 6074.11 | 1524.49 | 6074.12 | 1528.82 | 6074.18 | 1535.4  | 6074.18 |
| 1543.21 | 6074.3  | 1551.11 | 6074.31 | 1556.44 | 6074.38 | 1559.99 | 6074.5  | 1561.92 | 6074.49 |
| 1567.09 | 6074.58 | 1574.38 | 6074.97 | 1576.8  | 6075.05 | 1582.61 | 6075.11 | 1587.62 | 6075.06 |
| 1591.85 | 6075.13 | 1595.68 | 6075.08 | 1601.14 | 6075.15 | 1604.17 | 6075.1  | 1609.26 | 6075.21 |
| 1612.9  | 6075.14 | 1617.37 | 6075.16 | 1620.08 | 6075.1  | 1628.19 | 6075.13 | 1633.6  | 6075.27 |
| 1636.5  | 6075.25 | 1641.89 | 6075.49 | 1652.54 | 6075.55 | 1657.95 | 6075.65 | 1660.66 | 6075.65 |
| 1666.07 | 6075.77 | 1668.84 | 6075.77 | 1676.1  | 6075.96 | 1681.34 | 6076.05 | 1687.93 | 6076.09 |
| 1693.36 | 6075.98 | 1700.07 | 6076    | 1704.12 | 6075.93 | 1713.33 | 6075.96 | 1718.04 | 6075.91 |
| 1724.65 | 6075.93 | 1730.56 | 6075.8  | 1733.87 | 6075.81 | 1735.8  | 6075.85 | 1738.7  | 6075.92 |
| 1744.11 | 6075.94 | 1753.18 | 6076.32 | 1759.48 | 6076.41 | 1766.25 | 6076.39 | 1769.73 | 6076.34 |
| 1775.6  | 6076.07 | 1777.75 | 6075.9  | 1781.76 | 6075.44 | 1783.76 | 6075.36 | 1790.84 | 6075.73 |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1794.65 | 6075.83 | 1804.17 | 6075.97 | 1807.03 | 6075.97 | 1814.65 | 6075.89 | 1819.81 | 6075.94 |
| 1826.82 | 6075.79 | 1837.51 | 6075.43 | 1846.84 | 6075.18 | 1849.85 | 6074.95 | 1853.85 | 6074.57 |
| 1855.85 | 6074.54 | 1859.86 | 6074.64 | 1861.86 | 6074.61 | 1864.87 | 6074.33 | 1867.87 | 6073.66 |
| 1870.85 | 6072.74 | 1874.88 | 6071.24 | 1876.88 | 6070.76 | 1878.88 | 6070.59 | 1881.32 | 6069    |
| 1897.91 | 6069    | 1899.42 | 6070.57 | 1901.32 | 6070.83 | 1903.92 | 6071.63 | 1904.92 | 6072.12 |
| 1906.92 | 6072.8  | 1908.92 | 6073.23 | 1910.85 | 6073.51 | 1919.94 | 6074.6  | 1923.23 | 6074.78 |
| 1935.61 | 6074.88 | 1940.97 | 6074.98 | 1947.97 | 6074.81 | 1953.71 | 6074.74 | 1957.52 | 6074.75 |
| 1965    | 6074.61 | 1976.57 | 6074.6  | 1983.02 | 6074.52 | 1989.91 | 6074.55 | 1994.04 | 6074.44 |
| 2001.04 | 6074.11 | 2014.67 | 6073.97 | 2018.48 | 6073.89 | 2027.05 | 6073.77 | 2031.08 | 6073.65 |
| 2035.8  | 6073.56 | 2037.53 | 6073.53 | 2043.24 | 6073.33 | 2048.11 | 6073.24 | 2056.58 | 6072.9  |
| 2063.13 | 6072.77 | 2065.61 | 6072.79 | 2069.13 | 6073.05 | 2074.14 | 6073.74 | 2076.14 | 6073.97 |
| 2080.2  | 6074.2  | 2083.34 | 6074.21 | 2088.05 | 6074.11 | 2093.97 | 6073.9  | 2099.03 | 6073.79 |
| 2101.38 | 6073.62 | 2106.88 | 6072.91 | 2114.1  | 6072.38 | 2117.87 | 6072.22 | 2123.98 | 6072.16 |
| 2128.49 | 6072.05 | 2132.72 | 6072.02 | 2137.12 | 6072.08 | 2141.14 | 6072.01 | 2145.92 | 6072.04 |
| 2156.37 | 6072.39 | 2164.47 | 6072.44 | 2173.65 | 6072.27 | 2177.95 | 6072.29 | 2186.4  | 6072.51 |
| 2196.01 | 6072.68 | 2200.55 | 6072.7  | 2208.57 | 6072.51 | 2211.24 | 6072.49 | 2215.23 | 6072.61 |
| 2222.54 | 6072.91 | 2226.79 | 6073.03 | 2231.75 | 6073.07 | 2239.87 | 6072.9  | 2245.23 | 6072.94 |
| 2250.19 | 6072.86 | 2252.39 | 6072.77 | 2262.87 | 6072.51 | 2271.48 | 6072.6  | 2277.29 | 6072.51 |
| 2287.09 | 6072.54 | 2292.05 | 6072.53 | 2300.2  | 6072.35 | 2310.84 | 6072.31 | 2318.37 | 6072.2  |
| 2330.19 | 6072.51 | 2343.22 | 6072.68 | 2350.03 | 6072.69 | 2353.01 | 6072.63 | 2357.75 | 6072.45 |
| 2364.16 | 6072.31 | 2370.98 | 6072.21 | 2374.29 | 6072.26 | 2379.8  | 6072.44 | 2384.63 | 6072.49 |
| 2390.79 | 6072.64 | 2394.9  | 6072.79 | 2408.55 | 6072.63 | 2416.29 | 6072.49 | 2421.39 | 6072.46 |
| 2426.46 | 6072.5  | 2436.67 | 6072.3  | 2440.95 | 6072.31 | 2445.84 | 6072.24 | 2448.89 | 6072.3  |
| 2453.75 | 6072.71 | 2457.04 | 6072.91 | 2462.27 | 6073.03 | 2470.29 | 6072.98 | 2478.44 | 6073.13 |
| 2485.57 | 6073.12 | 2490.42 | 6073.23 | 2493.83 | 6073.26 | 2497.24 | 6073.19 | 2505.94 | 6072.82 |
| 2510.02 | 6072.77 | 2516    | 6072.88 | 2521.12 | 6073.1  | 2527.34 | 6073.22 | 2528.36 | 6073.31 |
| 2531.41 | 6073.28 | 2537.48 | 6073.38 | 2540.51 | 6073.33 | 2543.53 | 6073.19 | 2548.58 | 6072.73 |
| 2551.6  | 6072.56 | 2556.22 | 6072.53 | 2563.35 | 6072.59 | 2567.74 | 6072.57 | 2579.38 | 6072.41 |
| 2584.73 | 6072.39 | 2591.13 | 6072.46 | 2594.98 | 6072.46 | 2605.22 | 6072.33 | 2613.13 | 6072.36 |
| 2624.82 | 6072.33 | 2630.16 | 6072.27 | 2639.36 | 6072.28 | 2647.09 | 6072.19 | 2652.12 | 6072.25 |
| 2660.45 | 6072.44 | 2670.63 | 6072.44 | 2675.67 | 6072.7  | 2679.71 | 6072.72 | 2687.78 | 6072.38 |
| 2691.63 | 6072.37 | 2694.84 | 6072.53 | 2699.88 | 6072.96 | 2702.91 | 6073.16 | 2705.88 | 6073.16 |
| 2710.34 | 6073.01 | 2713    | 6073.03 | 2718.04 | 6073.25 | 2725.1  | 6073.3  | 2728.13 | 6073.37 |
| 2733.17 | 6073.7  | 2737.06 | 6073.7  | 2739.74 | 6073.52 | 2743.26 | 6073.37 | 2748.3  | 6073.45 |
| 2757.38 | 6073.49 | 2764.68 | 6073.47 | 2771.5  | 6073.68 | 2776.26 | 6073.59 | 2779.82 | 6073.61 |
| 2782.6  | 6073.82 | 2787.64 | 6074.39 | 2790.67 | 6074.61 | 2794.97 | 6074.74 | 2804.6  | 6074.88 |
| 2808.33 | 6074.88 | 2815.46 | 6074.81 | 2820.93 | 6074.59 | 2823.96 | 6074.52 | 2830.01 | 6074.52 |
| 2834.17 | 6074.33 | 2837.07 | 6073.99 | 2842.11 | 6073.04 | 2845.14 | 6072.62 | 2847.53 | 6072.45 |
| 2851.98 | 6072.35 | 2867.13 | 6072.49 | 2870.36 | 6072.48 | 2877.82 | 6072.36 | 2884.48 | 6072.32 |
| 2893.56 | 6072.39 | 2901.87 | 6072.39 | 2910.71 | 6072.3  | 2916.12 | 6072.29 | 2921.8  | 6072.21 |
| 2929.49 | 6072.05 | 2936.93 | 6072.07 | 2952.65 | 6072.27 | 2957.07 | 6072.39 | 2963.16 | 6072.48 |
| 2969.57 | 6072.49 | 2978.29 | 6072.46 | 2987.56 | 6072.47 | 2997.45 | 6072.37 | 3008.55 | 6072.5  |
| 3018.64 | 6072.54 | 3024.81 | 6072.65 | 3041.84 | 6073.14 | 3048.86 | 6073.25 | 3053.94 | 6073.54 |
| 3057.77 | 6073.69 | 3061    | 6073.91 | 3066.05 | 6074.4  | 3075.13 | 6074.91 | 3078.15 | 6075.01 |
| 3086.67 | 6075.08 | 3093.54 | 6075.05 |         |         |         |         |         |         |

|                    |       |        |       |        |       |  |
|--------------------|-------|--------|-------|--------|-------|--|
| Manning's n Values |       |        | num=  | 3      |       |  |
| Sta                | n Val | Sta    | n Val | Sta    | n Val |  |
| 256.52             | .06   | 1735.8 | .035  | 2035.8 | .06   |  |

|                  |         |         |           |        |
|------------------|---------|---------|-----------|--------|
| Bank Sta: Left   | Right   | Coeff   | Contr.    | Expan. |
| 1735.8           | 2035.8  |         | .3        | .5     |
| Ineffective Flow | num=    | 10      |           |        |
| Sta L            | Sta R   | Elev    | Permanent |        |
| 322.52           | 1863.65 | 6075.96 | T         |        |

1920.31 1978.56 6075.62 T  
1978.56 2005.04 6075.48 T  
2005.04 2067.26 6075.15 T  
2067.26 2120.22 6074.82 T  
2120.22 2181.12 6074.51 T  
2181.12 2583.58 6074.26 T  
2583.58 2625.95 6074.59 T  
2625.95 2645.8 6074.82 T  
2645.8 3073.42 6075.11 T

Blocked Obstructions num= 1  
Sta L Sta R Elev  
3159.6 3093.54 6075.2

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 = 6071.65  
Energy head used in spillway design =  
Spillway height used in design =  
Weir crest shape = Broad Crested

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data  
Energy  
Selected Low Flow Methods = Highest Energy Answer

High Flow Method  
Pressure and Weir flow  
Submerged Inlet Cd =  
Submerged Inlet + Outlet Cd = .8  
Max Low Cord =

Additional Bridge Parameters  
Add Friction component to Momentum  
Do not add Weight component to Momentum  
Class B flow critical depth computations use critical depth  
inside the bridge at the upstream end  
Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 31558

INPUT  
Description: Downstream of Rafter J Bridge  
Station Elevation Data num= 492  
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev  
256.52 6077.76 270.89 6077.23 275.72 6077.12 280.68 6077.12 289.54 6077.05  
298.03 6076.88 302.89 6076.73 311.39 6076.58 314.3 6076.57 325.32 6076.33  
334.15 6076.28 339.07 6076.21 346.31 6076.24 349.79 6076.19 355.04 6076.19  
360.13 6076.14 367 6075.96 372.33 6075.88 379.37 6075.84 386.41 6075.87  
396.48 6076.1 404.01 6076.14 409.57 6076.22 421.2 6076.19 430.88 6076.19





|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 438.7   | 6076.06 | 444.29  | 6076.1  | 456.8   | 6075.88 | 468.72  | 6075.57 | 482.19  | 6075.38 |
| 493.94  | 6075.29 | 500.18  | 6075.29 | 505     | 6075.25 | 519.72  | 6075.25 | 522.62  | 6075.28 |
| 531.94  | 6075.5  | 540.08  | 6075.83 | 543.28  | 6075.91 | 549.04  | 6075.95 | 553.11  | 6075.9  |
| 557.18  | 6075.91 | 565.12  | 6076.06 | 572.65  | 6076.08 | 577.44  | 6076.14 | 582.42  | 6076.14 |
| 589.75  | 6076.24 | 600.21  | 6076.29 | 605.22  | 6076.29 | 609.29  | 6076.24 | 620.06  | 6075.91 |
| 632.09  | 6075.76 | 634.37  | 6075.7  | 637.69  | 6075.5  | 645.98  | 6074.91 | 654.07  | 6074.6  |
| 659.45  | 6074.27 | 664.64  | 6073.48 | 666.71  | 6073.29 | 668.78  | 6073.24 | 673.62  | 6073.5  |
| 677.08  | 6073.53 | 680.94  | 6073.44 | 684.2   | 6073.49 | 689.52  | 6073.88 | 692.63  | 6073.99 |
| 696.77  | 6074.06 | 702.99  | 6074.3  | 707.81  | 6074.54 | 711.07  | 6074.58 | 715.96  | 6074.56 |
| 720.62  | 6074.63 | 726.84  | 6074.67 | 731.43  | 6074.64 | 738.24  | 6074.68 | 743.42  | 6074.53 |
| 746.53  | 6074.52 | 751.71  | 6074.65 | 758.97  | 6074.59 | 767.22  | 6074.8  | 770.51  | 6074.82 |
| 777.84  | 6074.58 | 780.74  | 6074.54 | 792.14  | 6074.8  | 794.94  | 6074.81 | 799.4   | 6074.74 |
| 804.58  | 6074.93 | 807.69  | 6074.96 | 815.3   | 6074.76 | 822.62  | 6074.8  | 829.46  | 6074.61 |
| 834.84  | 6074.51 | 839.83  | 6074.51 | 847.87  | 6074.65 | 851.12  | 6074.63 | 857.45  | 6074.28 |
| 861.6   | 6074.26 | 866.78  | 6074.44 | 874.04  | 6074.3  | 879.22  | 6074.46 | 883.37  | 6074.35 |
| 889.39  | 6074.04 | 892.7   | 6073.99 | 897.53  | 6074.15 | 900.79  | 6074.18 | 920.33  | 6074.15 |
| 923.59  | 6074.12 | 928.98  | 6074.23 | 932.09  | 6074.25 | 938.31  | 6074.13 | 942.45  | 6074.01 |
| 945.62  | 6074    | 953.72  | 6074.19 | 958     | 6074.19 | 961.11  | 6074.29 | 963.19  | 6074.43 |
| 969.41  | 6074.67 | 971.48  | 6074.71 | 979.77  | 6074.65 | 988.06  | 6074.8  | 989.54  | 6074.79 |
| 994.28  | 6074.92 | 1003.39 | 6075.12 | 1008.27 | 6075.15 | 1018.13 | 6075.13 | 1023.74 | 6075.29 |
| 1026.42 | 6075.2  | 1031.6  | 6074.71 | 1034.71 | 6074.48 | 1038.86 | 6074.26 | 1041.97 | 6074.2  |
| 1047.15 | 6074.37 | 1051.3  | 6074.28 | 1056.48 | 6073.84 | 1060.63 | 6073.75 | 1068.92 | 6073.78 |
| 1073.07 | 6073.65 | 1078.25 | 6073.31 | 1081.36 | 6073.22 | 1093.77 | 6073.14 | 1098.98 | 6072.96 |
| 1104.17 | 6072.96 | 1109.24 | 6073.23 | 1115.57 | 6073.38 | 1118.19 | 6073.4  | 1127.15 | 6073.36 |
| 1140.18 | 6073.13 | 1145.06 | 6073.13 | 1150.58 | 6073.06 | 1154.84 | 6073.05 | 1158.91 | 6072.98 |
| 1163.25 | 6072.99 | 1171.93 | 6072.72 | 1177.15 | 6072.65 | 1182.95 | 6072.62 | 1191.48 | 6072.45 |
| 1197.99 | 6072.14 | 1202.65 | 6071.79 | 1205.76 | 6071.73 | 1213.15 | 6071.85 | 1218.64 | 6071.8  |
| 1222.5  | 6071.88 | 1226.04 | 6071.81 | 1228.18 | 6071.65 | 1234.85 | 6071.31 | 1238.16 | 6071.24 |
| 1241.8  | 6071.28 | 1247.2  | 6071.46 | 1249.66 | 6071.47 | 1253.95 | 6071.31 | 1258.25 | 6071.24 |
| 1261.47 | 6071.45 | 1263.62 | 6071.76 | 1265.73 | 6071.92 | 1267.27 | 6071.93 | 1271.12 | 6071.72 |
| 1274.35 | 6071.75 | 1279.72 | 6072    | 1287.24 | 6071.97 | 1290.43 | 6072.11 | 1295.83 | 6072.43 |
| 1299.05 | 6072.41 | 1306.82 | 6072.18 | 1309.79 | 6072.27 | 1313.01 | 6072.51 | 1315.06 | 6072.74 |
| 1318.38 | 6073    | 1320.52 | 6073.06 | 1326.7  | 6072.95 | 1329.53 | 6072.86 | 1336.43 | 6072.79 |
| 1348.65 | 6072.41 | 1351.85 | 6072.36 | 1361.88 | 6072.5  | 1368.49 | 6072.78 | 1372.74 | 6072.82 |
| 1380.62 | 6072.82 | 1386.9  | 6072.71 | 1391.34 | 6072.67 | 1402.97 | 6072.28 | 1405.98 | 6072.29 |
| 1410.27 | 6072.4  | 1416.5  | 6072.3  | 1419.46 | 6072.32 | 1425.15 | 6072.53 | 1432.85 | 6072.48 |
| 1437.19 | 6072.54 | 1443.56 | 6072.49 | 1446.24 | 6072.53 | 1452.59 | 6073.01 | 1456.95 | 6073.15 |
| 1461.98 | 6073.22 | 1475.56 | 6073.7  | 1479.72 | 6073.76 | 1487.22 | 6073.74 | 1492.11 | 6073.78 |
| 1506.51 | 6074.04 | 1516.58 | 6074.11 | 1524.49 | 6074.12 | 1528.82 | 6074.18 | 1535.4  | 6074.18 |
| 1543.21 | 6074.3  | 1551.11 | 6074.31 | 1556.44 | 6074.38 | 1559.99 | 6074.5  | 1561.92 | 6074.49 |
| 1567.09 | 6074.58 | 1574.38 | 6074.97 | 1576.8  | 6075.05 | 1582.61 | 6075.11 | 1587.62 | 6075.06 |
| 1591.85 | 6075.13 | 1595.68 | 6075.08 | 1601.14 | 6075.15 | 1604.17 | 6075.1  | 1609.26 | 6075.21 |
| 1612.9  | 6075.14 | 1617.37 | 6075.16 | 1620.08 | 6075.1  | 1628.19 | 6075.13 | 1633.6  | 6075.27 |
| 1636.5  | 6075.25 | 1641.89 | 6075.49 | 1652.54 | 6075.55 | 1657.95 | 6075.65 | 1660.66 | 6075.65 |
| 1666.07 | 6075.77 | 1668.84 | 6075.77 | 1676.1  | 6075.96 | 1681.34 | 6076.05 | 1687.93 | 6076.09 |
| 1693.36 | 6075.98 | 1700.07 | 6076    | 1704.12 | 6075.93 | 1713.33 | 6075.96 | 1718.04 | 6075.91 |
| 1724.65 | 6075.93 | 1730.56 | 6075.8  | 1733.87 | 6075.81 | 1735.8  | 6075.85 | 1738.7  | 6075.92 |
| 1744.11 | 6075.94 | 1753.18 | 6076.32 | 1759.48 | 6076.41 | 1766.25 | 6076.39 | 1769.73 | 6076.34 |
| 1775.6  | 6076.07 | 1777.75 | 6075.9  | 1781.76 | 6075.44 | 1783.76 | 6075.36 | 1790.84 | 6075.73 |
| 1794.65 | 6075.83 | 1804.17 | 6075.97 | 1807.03 | 6075.97 | 1814.65 | 6075.89 | 1819.81 | 6075.94 |
| 1826.82 | 6075.79 | 1837.51 | 6075.43 | 1846.84 | 6075.18 | 1849.85 | 6074.95 | 1853.85 | 6074.57 |
| 1855.85 | 6074.54 | 1859.86 | 6074.64 | 1861.86 | 6074.61 | 1864.87 | 6074.33 | 1867.87 | 6073.66 |
| 1870.85 | 6072.74 | 1874.88 | 6071.24 | 1876.88 | 6070.76 | 1878.88 | 6070.59 | 1881.32 | 6069    |
| 1897.91 | 6069    | 1899.42 | 6070.57 | 1901.32 | 6070.83 | 1903.92 | 6071.63 | 1904.92 | 6072.12 |
| 1906.92 | 6072.8  | 1908.92 | 6073.23 | 1910.85 | 6073.51 | 1919.94 | 6074.6  | 1923.23 | 6074.78 |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1935.61 | 6074.88 | 1940.97 | 6074.98 | 1947.97 | 6074.81 | 1953.71 | 6074.74 | 1957.52 | 6074.75 |
| 1965    | 6074.61 | 1976.57 | 6074.6  | 1983.02 | 6074.52 | 1989.91 | 6074.55 | 1994.04 | 6074.44 |
| 2001.04 | 6074.11 | 2014.67 | 6073.97 | 2018.48 | 6073.89 | 2027.05 | 6073.77 | 2031.08 | 6073.65 |
| 2035.8  | 6073.56 | 2037.53 | 6073.53 | 2043.24 | 6073.33 | 2048.11 | 6073.24 | 2056.58 | 6072.9  |
| 2063.13 | 6072.77 | 2065.61 | 6072.79 | 2069.13 | 6073.05 | 2074.14 | 6073.74 | 2076.14 | 6073.97 |
| 2080.2  | 6074.2  | 2083.34 | 6074.21 | 2088.05 | 6074.11 | 2093.97 | 6073.9  | 2099.03 | 6073.79 |
| 2101.38 | 6073.62 | 2106.88 | 6072.91 | 2114.1  | 6072.38 | 2117.87 | 6072.22 | 2123.98 | 6072.16 |
| 2128.49 | 6072.05 | 2132.72 | 6072.02 | 2137.12 | 6072.08 | 2141.14 | 6072.01 | 2145.92 | 6072.04 |
| 2156.37 | 6072.39 | 2164.47 | 6072.44 | 2173.65 | 6072.27 | 2177.95 | 6072.29 | 2186.4  | 6072.51 |
| 2196.01 | 6072.68 | 2200.55 | 6072.7  | 2208.57 | 6072.51 | 2211.24 | 6072.49 | 2215.23 | 6072.61 |
| 2222.54 | 6072.91 | 2226.79 | 6073.03 | 2231.75 | 6073.07 | 2239.87 | 6072.9  | 2245.23 | 6072.94 |
| 2250.19 | 6072.86 | 2252.39 | 6072.77 | 2262.87 | 6072.51 | 2271.48 | 6072.6  | 2277.29 | 6072.51 |
| 2287.09 | 6072.54 | 2292.05 | 6072.53 | 2300.2  | 6072.35 | 2310.84 | 6072.31 | 2318.37 | 6072.2  |
| 2330.19 | 6072.51 | 2343.22 | 6072.68 | 2350.03 | 6072.69 | 2353.01 | 6072.63 | 2357.75 | 6072.45 |
| 2364.16 | 6072.31 | 2370.98 | 6072.21 | 2374.29 | 6072.26 | 2379.8  | 6072.44 | 2384.63 | 6072.49 |
| 2390.79 | 6072.64 | 2394.9  | 6072.79 | 2408.55 | 6072.63 | 2416.29 | 6072.49 | 2421.39 | 6072.46 |
| 2426.46 | 6072.5  | 2436.67 | 6072.3  | 2440.95 | 6072.31 | 2445.84 | 6072.24 | 2448.89 | 6072.3  |
| 2453.75 | 6072.71 | 2457.04 | 6072.91 | 2462.27 | 6073.03 | 2470.29 | 6072.98 | 2478.44 | 6073.13 |
| 2485.57 | 6073.12 | 2490.42 | 6073.23 | 2493.83 | 6073.26 | 2497.24 | 6073.19 | 2505.94 | 6072.82 |
| 2510.02 | 6072.77 | 2516    | 6072.88 | 2521.12 | 6073.1  | 2527.34 | 6073.22 | 2528.36 | 6073.31 |
| 2531.41 | 6073.28 | 2537.48 | 6073.38 | 2540.51 | 6073.33 | 2543.53 | 6073.19 | 2548.58 | 6072.73 |
| 2551.6  | 6072.56 | 2556.22 | 6072.53 | 2563.35 | 6072.59 | 2567.74 | 6072.57 | 2579.38 | 6072.41 |
| 2584.73 | 6072.39 | 2591.13 | 6072.46 | 2594.98 | 6072.46 | 2605.22 | 6072.33 | 2613.13 | 6072.36 |
| 2624.82 | 6072.33 | 2630.16 | 6072.27 | 2639.36 | 6072.28 | 2647.09 | 6072.19 | 2652.12 | 6072.25 |
| 2660.45 | 6072.44 | 2670.63 | 6072.44 | 2675.67 | 6072.7  | 2679.71 | 6072.72 | 2687.78 | 6072.38 |
| 2691.63 | 6072.37 | 2694.84 | 6072.53 | 2699.88 | 6072.96 | 2702.91 | 6073.16 | 2705.88 | 6073.16 |
| 2710.34 | 6073.01 | 2713    | 6073.03 | 2718.04 | 6073.25 | 2725.1  | 6073.3  | 2728.13 | 6073.37 |
| 2733.17 | 6073.7  | 2737.06 | 6073.7  | 2739.74 | 6073.52 | 2743.26 | 6073.37 | 2748.3  | 6073.45 |
| 2757.38 | 6073.49 | 2764.68 | 6073.47 | 2771.5  | 6073.68 | 2776.26 | 6073.59 | 2779.82 | 6073.61 |
| 2782.6  | 6073.82 | 2787.64 | 6074.39 | 2790.67 | 6074.61 | 2794.97 | 6074.74 | 2804.6  | 6074.88 |
| 2808.33 | 6074.88 | 2815.46 | 6074.81 | 2820.93 | 6074.59 | 2823.96 | 6074.52 | 2830.01 | 6074.52 |
| 2834.17 | 6074.33 | 2837.07 | 6073.99 | 2842.11 | 6073.04 | 2845.14 | 6072.62 | 2847.53 | 6072.45 |
| 2851.98 | 6072.35 | 2867.13 | 6072.49 | 2870.36 | 6072.48 | 2877.82 | 6072.36 | 2884.48 | 6072.32 |
| 2893.56 | 6072.39 | 2901.87 | 6072.39 | 2910.71 | 6072.3  | 2916.12 | 6072.29 | 2921.8  | 6072.21 |
| 2929.49 | 6072.05 | 2936.93 | 6072.07 | 2952.65 | 6072.27 | 2957.07 | 6072.39 | 2963.16 | 6072.48 |
| 2969.57 | 6072.49 | 2978.29 | 6072.46 | 2987.56 | 6072.47 | 2997.45 | 6072.37 | 3008.55 | 6072.5  |
| 3018.64 | 6072.54 | 3024.81 | 6072.65 | 3041.84 | 6073.14 | 3048.86 | 6073.25 | 3053.94 | 6073.54 |
| 3057.77 | 6073.69 | 3061    | 6073.91 | 3066.05 | 6074.4  | 3075.13 | 6074.91 | 3078.15 | 6075.01 |
| 3086.67 | 6075.08 | 3093.54 | 6075.05 |         |         |         |         |         |         |

|             |        |         |       |
|-------------|--------|---------|-------|
| Manning's n | Values | num=    | 3     |
| Sta         | n Val  | Sta     | n Val |
| 256.52      | .06    | 1859.86 | .035  |
|             |        | 1923.23 | .06   |

|                  |         |         |           |        |         |        |       |        |        |
|------------------|---------|---------|-----------|--------|---------|--------|-------|--------|--------|
| Bank Sta:        | Left    | Right   | Lengths:  | Left   | Channel | Right  | Coeff | Contr. | Expan. |
|                  | 1859.86 | 1923.23 |           | 446.27 | 338.28  | 229.54 |       | .3     | .5     |
| Ineffective Flow |         |         | num=      | 10     |         |        |       |        |        |
| Sta L            | Sta R   | Elev    | Permanent |        |         |        |       |        |        |
| 322.52           | 1863.65 | 6075.96 | T         |        |         |        |       |        |        |
| 1920.31          | 1978.56 | 6075.62 | T         |        |         |        |       |        |        |
| 1978.56          | 2005.04 | 6075.48 | T         |        |         |        |       |        |        |
| 2005.04          | 2067.26 | 6075.15 | T         |        |         |        |       |        |        |
| 2067.26          | 2120.22 | 6074.82 | T         |        |         |        |       |        |        |
| 2120.22          | 2181.12 | 6074.51 | T         |        |         |        |       |        |        |
| 2181.12          | 2583.58 | 6074.26 | T         |        |         |        |       |        |        |



|                      |         |         |        |
|----------------------|---------|---------|--------|
| 2583.58              | 2625.95 | 6074.59 | T      |
| 2625.95              | 2645.8  | 6074.82 | T      |
| 2645.8               | 3073.42 | 6075.11 | T      |
| Blocked Obstructions |         |         | num= 1 |
| Sta L                | Sta R   | Elev    |        |
| 3159.6               | 3093.54 | 6075.2  |        |

# CROSS SECTION

RIVER: Flat Creek  
 REACH: 1 RS: 31220

## INPUT

Description:

| Station | Elevation | Data    | num=    | 488     |         |         |         |         |         |  |
|---------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|--|
| Sta     | Elev      | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    |  |
| 0       | 6089.1    | 2.36    | 6087.98 | 7.69    | 6085.19 | 10.88   | 6083.77 | 14.08   | 6082.83 |  |
| 18.82   | 6081.98   | 21.53   | 6081.26 | 26.61   | 6079.45 | 28.95   | 6078.9  | 30.51   | 6078.75 |  |
| 32.85   | 6078.86   | 35.19   | 6079.36 | 39.87   | 6080.78 | 42.82   | 6081.23 | 47.08   | 6081.39 |  |
| 50.28   | 6081.2    | 53.47   | 6080.73 | 55.6    | 6080.28 | 58.8    | 6079.74 | 61.99   | 6079.35 |  |
| 68.38   | 6078.8    | 71.57   | 6078.6  | 75.83   | 6078.42 | 84.2    | 6077.98 | 90.74   | 6077.76 |  |
| 98.19   | 6077.64   | 105.36  | 6077.69 | 112.03  | 6077.84 | 114.72  | 6077.83 | 119.4   | 6077.69 |  |
| 124.07  | 6077.66   | 132.26  | 6077.87 | 137.33  | 6077.87 | 157.82  | 6077.62 | 166.18  | 6077.59 |  |
| 178.05  | 6077.49   | 181.24  | 6077.43 | 189.76  | 6077.15 | 196.15  | 6077.12 | 203.6   | 6077.16 |  |
| 208.92  | 6077.05   | 215.29  | 6077.01 | 223.09  | 6077.06 | 240.87  | 6077.32 | 251.16  | 6077.42 |  |
| 263.23  | 6077.66   | 269.09  | 6077.68 | 277.67  | 6077.54 | 280.79  | 6077.46 | 286.65  | 6077.23 |  |
| 291.98  | 6076.77   | 294.82  | 6076.57 | 297.94  | 6076.51 | 302.61  | 6076.51 | 306.52  | 6076.43 |  |
| 312.21  | 6076.14   | 317.43  | 6075.77 | 320.72  | 6075.61 | 328.81  | 6075.33 | 336.69  | 6075.19 |  |
| 340.46  | 6075.16   | 351.6   | 6075.18 | 356.42  | 6075.11 | 365.77  | 6074.92 | 369.67  | 6074.88 |  |
| 373.96  | 6074.93   | 388.87  | 6074.89 | 393.84  | 6074.94 | 399.3   | 6074.89 | 403.98  | 6074.74 |  |
| 409.1   | 6074.67   | 425.81  | 6074.69 | 437.85  | 6074.69 | 439.98  | 6074.71 | 447.64  | 6074.97 |  |
| 453.09  | 6075.12   | 455.95  | 6075.33 | 461.27  | 6075.86 | 464.46  | 6076.04 | 468.69  | 6076.09 |  |
| 478.82  | 6075.89   | 491.08  | 6075.51 | 497.47  | 6075.25 | 499.1   | 6075.23 | 507.05  | 6074.92 |  |
| 509.18  | 6074.76   | 514.51  | 6074.59 | 521.96  | 6074.6  | 530.28  | 6074.52 | 535.57  | 6074.54 |  |
| 540.42  | 6074.63   | 545.88  | 6074.61 | 552.84  | 6074.66 | 559.13  | 6074.65 | 564.55  | 6074.74 |  |
| 568.49  | 6074.74   | 576.26  | 6074.57 | 583.72  | 6074.59 | 588.76  | 6074.48 | 593.81  | 6074.45 |  |
| 599.63  | 6074.55   | 603.57  | 6074.57 | 607.47  | 6074.53 | 615.66  | 6074.56 | 620.72  | 6074.49 |  |
| 629.3   | 6074.42   | 638.02  | 6074.45 | 643.31  | 6074.37 | 651.13  | 6074.38 | 660.49  | 6074.27 |  |
| 668.9   | 6074.08   | 677.64  | 6074.01 | 692.45  | 6074.15 | 696.35  | 6074.24 | 698.69  | 6074.37 |  |
| 704.15  | 6074.91   | 707.38  | 6075.09 | 713.51  | 6075.25 | 720.52  | 6075.33 | 724.42  | 6075.29 |  |
| 727.46  | 6075.19   | 730.65  | 6074.98 | 735.98  | 6074.55 | 743.43  | 6074.31 | 746.62  | 6074.12 |  |
| 749.82  | 6073.61   | 753.01  | 6072.67 | 755.14  | 6071.85 | 758.34  | 6070.98 | 761.53  | 6070.6  |  |
| 764.96  | 6070.56   | 766.52  | 6070.64 | 768.98  | 6070.97 | 774.31  | 6072.36 | 777.44  | 6072.76 |  |
| 780.56  | 6072.89   | 793.03  | 6072.9  | 800.56  | 6072.99 | 805.51  | 6072.99 | 812.21  | 6073.12 |  |
| 817.2   | 6073.17   | 824.35  | 6073.17 | 831.8   | 6073.13 | 836.69  | 6073.06 | 839.81  | 6073.08 |  |
| 846.71  | 6073.21   | 861.72  | 6073.18 | 864.81  | 6073.11 | 870.45  | 6072.91 | 873.33  | 6072.88 |  |
| 883.47  | 6072.9    | 889.3   | 6072.86 | 898.88  | 6072.99 | 909.53  | 6073.03 | 915.44  | 6072.99 |  |
| 920.18  | 6073.05   | 927.14  | 6073.31 | 934.02  | 6073.45 | 940.39  | 6073.51 | 944.67  | 6073.45 |  |
| 954.25  | 6073.16   | 959.57  | 6072.86 | 965.96  | 6072.71 | 970.02  | 6072.79 | 979.8   | 6073.29 |  |
| 981.93  | 6073.44   | 985.13  | 6073.56 | 989.51  | 6073.58 | 997.9   | 6073.42 | 1002.76 | 6073.36 |  |
| 1010.68 | 6073.33   | 1014.94 | 6073.26 | 1021.48 | 6073.06 | 1034.73 | 6072.52 | 1040.49 | 6072.19 |  |
| 1045.82 | 6071.83   | 1050.32 | 6071.7  | 1053.27 | 6071.73 | 1062.02 | 6071.99 | 1069.04 | 6072.09 |  |
| 1072.44 | 6072.25   | 1077.76 | 6072.68 | 1083.85 | 6072.95 | 1090.54 | 6072.97 | 1097.99 | 6072.94 |  |
| 1100.12 | 6073      | 1110.36 | 6072.96 | 1115.82 | 6073.23 | 1119.29 | 6073.35 | 1122.05 | 6073.38 |  |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1128.29 | 6073.25 | 1133.75 | 6073.26 | 1136.32 | 6073.22 | 1141.55 | 6073.03 | 1147.1  | 6072.99 |
| 1152.92 | 6072.77 | 1158.75 | 6072.59 | 1164.94 | 6072.69 | 1171.17 | 6072.97 | 1178.19 | 6073.12 |
| 1187.43 | 6073.28 | 1193.78 | 6073.27 | 1199.14 | 6073.19 | 1208.25 | 6073.13 | 1214.83 | 6073.16 |
| 1222.57 | 6073.24 | 1225.72 | 6073.12 | 1231.08 | 6072.64 | 1234.28 | 6072.4  | 1237.45 | 6072.24 |
| 1241.73 | 6072.31 | 1248.36 | 6072.76 | 1253.44 | 6073.27 | 1256.64 | 6073.5  | 1259.83 | 6073.61 |
| 1272.72 | 6073.66 | 1283.9  | 6073.52 | 1296.59 | 6073.16 | 1301.86 | 6073.03 | 1307.27 | 6072.83 |
| 1311.16 | 6072.56 | 1317    | 6072.29 | 1319.92 | 6072.26 | 1327.5  | 6072.09 | 1340.32 | 6072.03 |
| 1344.26 | 6071.98 | 1356.37 | 6071.62 | 1362.46 | 6071.38 | 1371.51 | 6071.37 | 1377.35 | 6071.45 |
| 1381.89 | 6071.4  | 1388.45 | 6071.24 | 1395.09 | 6071.23 | 1397.43 | 6071.33 | 1402.09 | 6071.79 |
| 1404.61 | 6071.84 | 1410.25 | 6071.57 | 1414.91 | 6071.53 | 1418.24 | 6071.59 | 1422.13 | 6071.75 |
| 1422.6  | 6071.76 | 1427.97 | 6071.91 | 1434.72 | 6071.87 | 1438.76 | 6071.81 | 1440.55 | 6071.85 |
| 1442.88 | 6072.13 | 1447.54 | 6073.29 | 1449.87 | 6073.5  | 1453.34 | 6073.37 | 1457.71 | 6072.44 |
| 1461.36 | 6072.02 | 1463.86 | 6071.93 | 1467.36 | 6071.94 | 1472.02 | 6072.1  | 1475.21 | 6072.05 |
| 1486    | 6072.04 | 1491.83 | 6072.21 | 1495.33 | 6072.4  | 1498.82 | 6072.33 | 1506.56 | 6071.91 |
| 1512.39 | 6071.8  | 1515.31 | 6071.85 | 1520.41 | 6071.8  | 1526.8  | 6071.59 | 1530.29 | 6071.58 |
| 1537.28 | 6071.27 | 1540.89 | 6071.21 | 1543.74 | 6071.34 | 1548.68 | 6071.82 | 1551.03 | 6071.95 |
| 1555.93 | 6071.83 | 1558.26 | 6071.61 | 1560.36 | 6071.09 | 1563.42 | 6070.08 | 1566    | 6068.7  |
| 1598    | 6068.7  | 1600.22 | 6069.62 | 1604.88 | 6070.51 | 1607.17 | 6070.84 | 1610.81 | 6071.01 |
| 1618.87 | 6070.78 | 1623.21 | 6070.48 | 1625.39 | 6070.39 | 1628.19 | 6070.48 | 1632.86 | 6070.89 |
| 1640.19 | 6071.07 | 1646.54 | 6071.53 | 1648.72 | 6071.57 | 1654.56 | 6071.52 | 1660.83 | 6071.42 |
| 1663.16 | 6071.53 | 1666.95 | 6071.85 | 1669.14 | 6071.88 | 1672.78 | 6071.8  | 1682.97 | 6071.8  |
| 1692.47 | 6071.84 | 1699.29 | 6071.97 | 1704.43 | 6071.99 | 1710.69 | 6071.88 | 1713.27 | 6071.89 |
| 1719.1  | 6072.02 | 1722.6  | 6071.8  | 1724.54 | 6071.68 | 1728.19 | 6071.54 | 1730.38 | 6071.52 |
| 1736.21 | 6071.64 | 1739.85 | 6071.66 | 1749.21 | 6071.96 | 1753.11 | 6071.89 | 1758.95 | 6071.55 |
| 1766.73 | 6070.7  | 1769.02 | 6070.57 | 1776.21 | 6069.66 | 1778.49 | 6069.53 | 1782.87 | 6069.53 |
| 1790.1  | 6069.31 | 1794.86 | 6069.37 | 1803.28 | 6069.41 | 1809.84 | 6069.34 | 1814.67 | 6069.62 |
| 1817    | 6069.68 | 1821.25 | 6069.65 | 1824.42 | 6069.8  | 1830.98 | 6069.92 | 1836.82 | 6069.81 |
| 1839.15 | 6069.68 | 1844.97 | 6069.56 | 1847.75 | 6069.58 | 1855.04 | 6069.49 | 1860.13 | 6069.34 |
| 1865.25 | 6069.34 | 1870.62 | 6069.27 | 1873.81 | 6069.27 | 1878.37 | 6069.38 | 1883.55 | 6069.33 |
| 1889.39 | 6069.47 | 1895.09 | 6069.23 | 1898.59 | 6069.28 | 1901.07 | 6069.52 | 1904.41 | 6070.12 |
| 1905.58 | 6070.4  | 1908.27 | 6070.81 | 1910.8  | 6070.97 | 1918.4  | 6071.29 | 1920.73 | 6071.31 |
| 1926.56 | 6071.19 | 1931.59 | 6071.14 | 1939.61 | 6071.15 | 1942.88 | 6071.1  | 1951.28 | 6070.81 |
| 1954.2  | 6070.75 | 1965.02 | 6070.66 | 1973.88 | 6070.67 | 1986.27 | 6070.6  | 1995.75 | 6070.48 |
| 2003.04 | 6070.1  | 2010.33 | 6070    | 2016.3  | 6070.02 | 2021.27 | 6069.97 | 2025.63 | 6070.01 |
| 2028.56 | 6070.11 | 2035.12 | 6070.24 | 2043.19 | 6070.18 | 2049.03 | 6070.09 | 2051.27 | 6070.26 |
| 2056.26 | 6070.88 | 2059.42 | 6071.08 | 2065.01 | 6071.22 | 2073.76 | 6071.2  | 2084.08 | 6071.42 |
| 2089.8  | 6071.77 | 2099.65 | 6072.71 | 2102.92 | 6072.84 | 2106.32 | 6072.85 | 2109.52 | 6072.72 |
| 2112.17 | 6072.49 | 2115.41 | 6072.11 | 2120.11 | 6071.47 | 2123.5  | 6071.17 | 2127.54 | 6071.1  |
| 2130.57 | 6071.17 | 2133.35 | 6071.14 | 2135.62 | 6071.03 | 2139.53 | 6070.94 | 2151.88 | 6070.97 |
| 2157.85 | 6071.15 | 2162.9  | 6071.41 | 2169.98 | 6071.64 | 2175.03 | 6071.91 | 2178.36 | 6072.02 |
| 2186.14 | 6072.13 | 2197.26 | 6072.02 | 2201.39 | 6072.05 | 2209.38 | 6072.03 | 2220.5  | 6072.19 |
| 2228.58 | 6072.18 | 2243.74 | 6072    | 2255.15 | 6071.81 | 2260.92 | 6071.84 | 2273.04 | 6072.08 |
| 2281.12 | 6072.26 | 2293.99 | 6072.4  | 2302.34 | 6072.53 | 2308.11 | 6072.55 | 2316.05 | 6072.65 |
| 2324.57 | 6072.64 | 2338.72 | 6072.78 | 2358.93 | 6072.87 | 2370.04 | 6072.8  | 2379.14 | 6072.66 |
| 2387.22 | 6072.5  | 2398.33 | 6072.42 | 2406.96 | 6072.44 | 2414.03 | 6072.36 | 2421.09 | 6072.33 |
| 2429.91 | 6072.45 | 2452.86 | 6072.47 | 2459.04 | 6072.5  | 2467.87 | 6072.58 | 2477.58 | 6072.55 |
| 2489.93 | 6072.58 | 2502.41 | 6072.55 | 2511.5  | 6072.65 | 2518.57 | 6072.67 | 2521.71 | 6072.73 |
| 2523.47 | 6072.67 | 2530.7  | 6072.67 | 2548.19 | 6072.87 | 2562.02 | 6072.98 | 2573.14 | 6072.96 |
| 2581.73 | 6073.02 | 2590.32 | 6072.99 | 2598.4  | 6072.99 | 2608.2  | 6072.91 | 2615.27 | 6072.91 |
| 2621.64 | 6072.96 | 2626.69 | 6073.09 | 2634.77 | 6073.11 | 2641.03 | 6073.27 | 2646.16 | 6073.27 |
| 2652.34 | 6073.13 | 2663.07 | 6073.12 | 2667.34 | 6073.14 | 2675.28 | 6073.09 | 2683.23 | 6073.22 |
| 2693.82 | 6073.28 | 2700.45 | 6073.28 | 2709.71 | 6073.36 | 2714.6  | 6073.44 | 2721.18 | 6073.46 |
| 2742.89 | 6073.69 | 2749.43 | 6073.72 | 2753.84 | 6073.83 | 2761.78 | 6073.97 | 2765.12 | 6074    |
| 2773.2  | 6073.95 | 2781.29 | 6073.95 | 2790.91 | 6073.82 | 2805.54 | 6073.68 | 2815.62 | 6073.65 |
| 2820.69 | 6073.7  | 2827.77 | 6073.72 | 2835.85 | 6073.82 | 2844.94 | 6073.81 | 2855.05 | 6073.88 |



|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 2860.1  | 6073.94 | 2870.2  | 6073.98 | 2882.7  | 6073.99 | 2894.45 | 6074.07 | 2899.24 | 6074.14 |
| 2903.89 | 6074.14 | 2916.24 | 6074.23 | 2927.8  | 6074.24 | 2933.86 | 6074.19 | 2940.07 | 6074.23 |
| 2949.78 | 6074.23 | 2955.07 | 6074.28 | 2971.85 | 6074.28 | 2979.79 | 6074.33 | 2991.46 | 6074.36 |
| 2997.52 | 6074.32 | 3010.65 | 6074.39 | 3027.83 | 6074.39 | 3041.98 | 6074.41 | 3052.76 | 6074.37 |
| 3057.46 | 6074.41 | 3065.41 | 6074.39 | 3076.16 | 6074.42 |         |         |         |         |

Manning's n Values num= 3

|     |       |         |       |         |       |
|-----|-------|---------|-------|---------|-------|
| Sta | n Val | Sta     | n Val | Sta     | n Val |
| 0   | .06   | 1555.93 | .035  | 1610.81 | .06   |

|           |         |         |          |              |         |       |        |        |
|-----------|---------|---------|----------|--------------|---------|-------|--------|--------|
| Bank Sta: | Left    | Right   | Lengths: | Left Channel | Right   | Coeff | Contr. | Expan. |
|           | 1555.93 | 1610.81 |          | 946.34       | 1146.26 |       | .1     | .3     |

Ineffective Flow num= 2

|         |         |         |           |
|---------|---------|---------|-----------|
| Sta L   | Sta R   | Elev    | Permanent |
| 0       | 1272.72 | 6073.66 | F         |
| 2106.32 | 3076.16 | 6072.85 | F         |

# CROSS SECTION

RIVER: Flat Creek

REACH: 1 RS: 30074

## INPUT

### Description:

|         |           |        |         |        |         |        |         |        |         |
|---------|-----------|--------|---------|--------|---------|--------|---------|--------|---------|
| Station | Elevation | Data   | num=    | 489    |         |        |         |        |         |
| Sta     | Elev      | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    |
| 0       | 6074.06   | 3.21   | 6074.01 | 5.5    | 6073.85 | 9.74   | 6073.78 | 14.88  | 6074.19 |
| 16.35   | 6074.23   | 20.76  | 6073.99 | 25.17  | 6073.83 | 35.81  | 6073.87 | 44.28  | 6074.18 |
| 48.12   | 6074.22   | 53.59  | 6074.01 | 60.43  | 6074.25 | 63.9   | 6074.26 | 70.74  | 6074.11 |
| 77.64   | 6073.78   | 83.01  | 6073.63 | 95.96  | 6073.66 | 99.4   | 6073.6  | 105.59 | 6073.39 |
| 109.69  | 6073.13   | 114.84 | 6072.64 | 118.86 | 6072.41 | 126.88 | 6071.64 | 132.61 | 6071.37 |
| 139.1   | 6070.84   | 147.49 | 6070.25 | 157.48 | 6069.81 | 165.1  | 6069.52 | 171.26 | 6069.41 |
| 180.7   | 6069.45   | 187.57 | 6069.67 | 195.7  | 6070.37 | 201.31 | 6070.6  | 204.52 | 6070.79 |
| 212.6   | 6071.55   | 219.64 | 6071.89 | 225.1  | 6071.95 | 233.38 | 6072.28 | 235.67 | 6072.28 |
| 242     | 6072.43   | 247.12 | 6072.61 | 257.43 | 6072.88 | 262.58 | 6072.8  | 267.72 | 6072.93 |
| 272.87  | 6072.64   | 275.81 | 6072.54 | 280.22 | 6072.6  | 288.24 | 6072.56 | 295.66 | 6072.59 |
| 307.81  | 6072.75   | 318.12 | 6072.85 | 322.12 | 6072.85 | 333.14 | 6072.66 | 341.6  | 6072.64 |
| 354.46  | 6072.52   | 364.18 | 6072.51 | 369.89 | 6072.57 | 379.45 | 6072.56 | 384.6  | 6072.44 |
| 391.95  | 6072.43   | 397.83 | 6072.49 | 404    | 6072.47 | 416.2  | 6072.28 | 423.47 | 6072.25 |
| 431.9   | 6072.26   | 439.5  | 6072.14 | 450.38 | 6071.83 | 466.99 | 6071.25 | 470.42 | 6071.07 |
| 479.58  | 6070.46   | 492.64 | 6070.29 | 497.79 | 6070.35 | 502.93 | 6070.32 | 515.43 | 6070.67 |
| 520.81  | 6070.89   | 527.68 | 6071.02 | 538.21 | 6071.04 | 545.56 | 6070.94 | 551.44 | 6071.06 |
| 554.02  | 6071.05   | 559.53 | 6070.88 | 566.61 | 6070.48 | 573.48 | 6069.94 | 579.21 | 6069.14 |
| 582.64  | 6068.87   | 594.07 | 6068.72 | 597.53 | 6068.79 | 600.97 | 6068.96 | 604.4  | 6069.39 |
| 606.57  | 6069.97   | 610.13 | 6071.23 | 613.56 | 6072.26 | 617    | 6072.83 | 620.43 | 6073.05 |
| 623.87  | 6073.11   | 633.03 | 6073.14 | 637.14 | 6073.08 | 649.45 | 6072.62 | 658.02 | 6072.57 |
| 663.17  | 6072.41   | 666.11 | 6072.15 | 669.67 | 6071.7  | 675.4  | 6070.84 | 682.27 | 6070.09 |
| 689.14  | 6069.69   | 695.51 | 6069.57 | 708    | 6069.67 | 713.19 | 6069.67 | 723.5  | 6069.74 |
| 734.46  | 6069.66   | 751.37 | 6069.85 | 760.92 | 6069.83 | 785.33 | 6069.84 | 796.94 | 6069.71 |
| 805.02  | 6069.88   | 808.7  | 6069.9  | 813.96 | 6069.8  | 827.7  | 6069.32 | 838.26 | 6069.29 |
| 846.02  | 6069.13   | 858.79 | 6069.17 | 867.78 | 6069.37 | 876.32 | 6069.4  | 885.88 | 6069.28 |
| 891.83  | 6069.02   | 898.7  | 6069.15 | 903.28 | 6069.15 | 910.87 | 6068.86 | 914.2  | 6068.81 |
| 924.1   | 6068.84   | 929.24 | 6068.78 | 936.77 | 6068.8  | 942.93 | 6068.88 | 950.23 | 6068.87 |
| 966.73  | 6068.8    | 971.99 | 6068.72 | 979.22 | 6068.52 | 983.63 | 6068.5  | 998.33 | 6068.28 |



|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1003.48 | 6068.31 | 1006.42 | 6068.39 | 1012.3  | 6068.85 | 1016.65 | 6068.85 | 1021.85 | 6068.57 |
| 1029.94 | 6068.69 | 1033.83 | 6068.66 | 1037.26 | 6068.49 | 1039.49 | 6068.28 | 1043.9  | 6068.07 |
| 1049.86 | 6068.25 | 1057.13 | 6068.04 | 1064.75 | 6068.02 | 1079.63 | 6068.07 | 1084.21 | 6068.17 |
| 1090.21 | 6068.02 | 1096.81 | 6068.06 | 1098.91 | 6068.01 | 1102.71 | 6067.69 | 1108.26 | 6066.75 |
| 1110.79 | 6066.52 | 1113.73 | 6066.5  | 1116.28 | 6066.61 | 1119.71 | 6067.02 | 1122    | 6067.52 |
| 1125.44 | 6067.92 | 1132.11 | 6068.05 | 1136.89 | 6068.09 | 1143.76 | 6067.83 | 1149.75 | 6067.95 |
| 1162.08 | 6068.13 | 1171.06 | 6068.09 | 1178.11 | 6068.1  | 1181.55 | 6068.04 | 1187.27 | 6068.04 |
| 1194.58 | 6067.83 | 1202.16 | 6067.82 | 1206.34 | 6067.89 | 1212.96 | 6068.22 | 1218.1  | 6068.57 |
| 1221.63 | 6068.69 | 1234.36 | 6068.8  | 1243.39 | 6069.17 | 1248.97 | 6069.48 | 1258.99 | 6069.59 |
| 1266.61 | 6069.56 | 1270.87 | 6069.35 | 1278.89 | 6068.8  | 1283.23 | 6068.36 | 1284.99 | 6068.18 |
| 1289.4  | 6068.04 | 1294.55 | 6068.1  | 1304.08 | 6068.08 | 1309.8  | 6068.16 | 1320.11 | 6068.05 |
| 1330.42 | 6068.03 | 1339.58 | 6068.14 | 1343.79 | 6068.07 | 1353.4  | 6068.12 | 1359.55 | 6068.31 |
| 1366.58 | 6068.28 | 1372.79 | 6068.37 | 1378.51 | 6068.39 | 1383.48 | 6068.5  | 1389.96 | 6068.77 |
| 1395.24 | 6068.84 | 1398.18 | 6068.73 | 1401.86 | 6068.26 | 1407.74 | 6066.9  | 1410    | 6065.7  |
| 1451    | 6065.7  | 1451.91 | 6066.34 | 1456.38 | 6066.72 | 1463.25 | 6067.51 | 1468.98 | 6068.45 |
| 1471.68 | 6068.72 | 1474.7  | 6068.72 | 1479.28 | 6068.36 | 1482.69 | 6068.23 | 1487.3  | 6068.17 |
| 1492.95 | 6068.02 | 1505.27 | 6068.12 | 1511.35 | 6068.28 | 1514.78 | 6068.23 | 1519.36 | 6068.06 |
| 1524.61 | 6067.96 | 1534.25 | 6067.96 | 1545.19 | 6068.15 | 1552.47 | 6067.94 | 1556.01 | 6067.98 |
| 1560.59 | 6068.19 | 1566.31 | 6068.19 | 1572.99 | 6067.96 | 1578.26 | 6067.72 | 1581.94 | 6067.63 |
| 1583.23 | 6067.67 | 1588.55 | 6067.83 | 1593.8  | 6067.91 | 1599.52 | 6067.73 | 1603.78 | 6067.74 |
| 1607.88 | 6067.97 | 1613.54 | 6068.49 | 1616.7  | 6068.7  | 1623.1  | 6068.75 | 1635.59 | 6069.06 |
| 1642.94 | 6069.11 | 1645.33 | 6069.22 | 1652.5  | 6069.97 | 1657.64 | 6070.67 | 1661.32 | 6071    |
| 1664.11 | 6071.08 | 1668.4  | 6071.08 | 1677.66 | 6070.8  | 1683.47 | 6070.42 | 1697.42 | 6069.29 |
| 1701.42 | 6069.28 | 1706.43 | 6069.44 | 1721.43 | 6069.51 | 1729.44 | 6069.41 | 1736.7  | 6069.4  |
| 1746.45 | 6069.34 | 1752.19 | 6069.41 | 1755.45 | 6069.39 | 1763.8  | 6069.05 | 1769.46 | 6069.04 |
| 1777.35 | 6069.19 | 1784.47 | 6069.14 | 1794.48 | 6069.31 | 1802.48 | 6069.58 | 1811.49 | 6069.76 |
| 1833.49 | 6069.92 | 1843.5  | 6070.09 | 1851.88 | 6070.09 | 1856.51 | 6070.13 | 1869.52 | 6070.09 |
| 1876.52 | 6070.02 | 1892.5  | 6069.91 | 1909.95 | 6069.92 | 1915.54 | 6069.89 | 1929.55 | 6069.9  |
| 1935.56 | 6069.87 | 1946.56 | 6069.75 | 1952.54 | 6069.75 | 1967.57 | 6069.88 | 1974.58 | 6069.85 |
| 1983.51 | 6069.95 | 1991.59 | 6069.93 | 1998.59 | 6069.79 | 2007.6  | 6069.8  | 2018.6  | 6070.05 |
| 2028.61 | 6069.98 | 2035.78 | 6069.86 | 2047.62 | 6070.18 | 2055.62 | 6070.31 | 2077.64 | 6070.52 |
| 2089.01 | 6070.53 | 2097.72 | 6070.48 | 2106.65 | 6070.62 | 2121.66 | 6070.49 | 2129.52 | 6070.27 |
| 2135.67 | 6070.29 | 2141.67 | 6070.18 | 2145.15 | 6070.17 | 2156.68 | 6070.27 | 2160.63 | 6070.38 |
| 2165.47 | 6070.65 | 2173.69 | 6070.92 | 2179.69 | 6071.07 | 2187.7  | 6071.14 | 2196.7  | 6071.04 |
| 2203.71 | 6071.12 | 2213.71 | 6071.11 | 2217.72 | 6071.14 | 2224.72 | 6071.28 | 2235.16 | 6071.42 |
| 2248.71 | 6071.57 | 2268.07 | 6071.61 | 2276.75 | 6071.53 | 2289.76 | 6071.54 | 2307.29 | 6071.47 |
| 2317.77 | 6071.33 | 2329.05 | 6071.38 | 2349.79 | 6071.57 | 2360.8  | 6071.73 | 2371.63 | 6071.78 |
| 2379.38 | 6071.76 | 2396.8  | 6071.83 | 2400.82 | 6071.78 | 2409.83 | 6071.55 | 2415.83 | 6071.6  |
| 2420.83 | 6071.79 | 2432.84 | 6071.86 | 2444.85 | 6072.01 | 2457.85 | 6071.99 | 2460.86 | 6071.95 |
| 2468.42 | 6071.68 | 2478.87 | 6071.54 | 2492.87 | 6071.26 | 2499.88 | 6071.26 | 2504.88 | 6071.44 |
| 2508.88 | 6071.3  | 2513.89 | 6070.77 | 2516.81 | 6070.61 | 2520.69 | 6070.64 | 2523.89 | 6070.75 |
| 2531.9  | 6071.23 | 2534.9  | 6071.31 | 2546.9  | 6071.41 | 2551.91 | 6071.57 | 2552.91 | 6071.35 |
| 2554.56 | 6071.9  | 2559.91 | 6071.92 | 2565.91 | 6071.7  | 2573.92 | 6071.11 | 2584.57 | 6070.97 |
| 2590.37 | 6070.95 | 2595.93 | 6070.82 | 2603.92 | 6070.38 | 2606.83 | 6070.29 | 2610.7  | 6070.34 |
| 2613.94 | 6070.48 | 2622.95 | 6071    | 2627.95 | 6071.41 | 2633.19 | 6071.76 | 2639.96 | 6072.02 |
| 2648.45 | 6072.07 | 2658.13 | 6072.02 | 2664.9  | 6072.09 | 2667.97 | 6072.04 | 2673.61 | 6071.8  |
| 2679.98 | 6071.85 | 2682.98 | 6072.04 | 2688.13 | 6072.53 | 2691.99 | 6072.58 | 2694.99 | 6072.37 |
| 2699.74 | 6071.85 | 2705.99 | 6071.43 | 2713    | 6071.07 | 2716    | 6070.6  | 2718    | 6070.08 |
| 2721    | 6069.49 | 2724.91 | 6069.45 | 2728.01 | 6069.79 | 2734.01 | 6070.83 | 2739.01 | 6071.88 |
| 2742.02 | 6072.34 | 2745.02 | 6072.6  | 2748.14 | 6072.67 | 2753.95 | 6072.54 | 2764.03 | 6072.47 |
| 2770.03 | 6072.24 | 2778.14 | 6071.79 | 2781.33 | 6071.68 | 2799.05 | 6071.5  | 2806.21 | 6071.52 |
| 2812.02 | 6071.59 | 2818.06 | 6071.58 | 2824.06 | 6071.64 | 2831.38 | 6071.79 | 2835.07 | 6071.82 |
| 2845.9  | 6071.77 | 2861.38 | 6071.75 | 2867.19 | 6071.82 | 2872.09 | 6071.78 | 2886.1  | 6071.34 |
| 2893.1  | 6071.24 | 2908.11 | 6071.21 | 2916.11 | 6071.31 | 2923.33 | 6071.27 | 2928.12 | 6071.13 |
| 2935.13 | 6071.08 | 2941.13 | 6070.95 | 2944.13 | 6070.95 | 2953.14 | 6071.11 | 2964.14 | 6071.58 |



|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 2975.15 | 6071.69 | 2993.98 | 6071.49 | 3001.72 | 6071.47 | 3006.17 | 6071.53 | 3019.15 | 6071.52 |
| 3027.86 | 6071.4  | 3033.66 | 6071.25 | 3039.18 | 6071.03 | 3049.15 | 6071.08 | 3052.05 | 6071.17 |
| 3060.2  | 6071.7  | 3064.2  | 6071.8  | 3067.54 | 6071.77 | 3073.2  | 6071.54 | 3078.19 | 6071.12 |
| 3084.21 | 6070.81 | 3094.64 | 6070.74 | 3104.32 | 6070.84 | 3109.16 | 6070.94 | 3112.23 | 6071.11 |
| 3117.23 | 6071.54 | 3123.23 | 6071.75 | 3127.23 | 6071.74 | 3133.24 | 6071.44 | 3138.2  | 6070.95 |
| 3141.24 | 6070.77 | 3149.81 | 6070.65 | 3154.25 | 6070.7  | 3160.25 | 6070.97 | 3165.26 | 6071.32 |
| 3168.2  | 6071.42 | 3182.27 | 6071.52 | 3187.27 | 6071.44 | 3195.27 | 6070.91 | 3198.2  | 6070.82 |
| 3206.28 | 6070.83 | 3216.29 | 6070.64 | 3226.27 | 6070.62 | 3241.3  | 6070.41 | 3249.5  | 6070.24 |
| 3261.12 | 6070.05 | 3269.32 | 6070.09 | 3281.44 | 6070.11 | 3298.33 | 6070.18 | 3310.34 | 6070.45 |
| 3313.34 | 6070.59 | 3318.34 | 6070.96 | 3321.13 | 6071.08 | 3328.35 | 6071.13 | 3334.35 | 6071.04 |
| 3345.32 | 6070.77 | 3352.1  | 6070.68 | 3361.37 | 6070.71 | 3369.52 | 6070.83 | 3380.17 | 6070.84 |
| 3390.38 | 6070.72 | 3396.62 | 6070.72 | 3406.39 | 6070.81 | 3413.07 | 6070.91 | 3418.4  | 6070.92 |
| 3423.4  | 6070.99 | 3431.46 | 6071.03 | 3437.41 | 6071    | 3451.79 | 6071.12 | 3458.57 | 6071.27 |
| 3466.43 | 6071.34 | 3477.43 | 6071.57 | 3487.44 | 6071.68 | 3502.12 | 6071.9  | 3511.8  | 6071.95 |
| 3522.45 | 6072.07 | 3531.16 | 6072    | 3539.87 | 6072.01 | 3548.03 | 6071.93 |         |         |

|                                |      |   |
|--------------------------------|------|---|
| Manning's n Values             | num= | 3 |
| Sta n Val Sta n Val Sta n Val  |      |   |
| 0 .06 1395.24 .035 1471.68 .06 |      |   |

|                            |                             |              |        |
|----------------------------|-----------------------------|--------------|--------|
| Bank Sta: Left Right       | Lengths: Left Channel Right | Coeff Contr. | Expan. |
| 1395.24 1471.68            | 722.21 1165.59 701.59       | .1           | .3     |
| Ineffective Flow num=      | 2                           |              |        |
| Sta L Sta R Elev Permanent |                             |              |        |
| 0 1258.99 6069.58 F        |                             |              |        |
| 1664.11 3548.03 6071.08 F  |                             |              |        |
| Blocked Obstructions num=  | 1                           |              |        |
| Sta L Sta R Elev           |                             |              |        |
| 2761 3548.03 6070.2        |                             |              |        |

CROSS SECTION

|                   |           |
|-------------------|-----------|
| RIVER: Flat Creek |           |
| REACH: 1          | RS: 28908 |

|                                                                |    |
|----------------------------------------------------------------|----|
| INPUT                                                          |    |
| Description:                                                   |    |
| Station Elevation Data num=                                    | 20 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev                   |    |
| 0 6072.93 9 6072.2 146 6070.2 573 6070.2 853 6068.2            |    |
| 993 6068.2 1305 6067.2 1392 6066.2 1463 6064.2 1467 6063.7     |    |
| 1495 6063.7 1500 6064.2 1996 6064.2 2140 6065.7 2270 6065.7    |    |
| 2377 6064.3 2651 6065.7 2941 6066.2 3254 6068.1 3267.79 6066.6 |    |

|                               |      |   |
|-------------------------------|------|---|
| Manning's n Values            | num= | 3 |
| Sta n Val Sta n Val Sta n Val |      |   |
| 0 .06 1467 .035 1495 .06      |      |   |

|                            |                             |              |        |
|----------------------------|-----------------------------|--------------|--------|
| Bank Sta: Left Right       | Lengths: Left Channel Right | Coeff Contr. | Expan. |
| 1467 1495                  | 23238.4528908.2623791.45    | .1           | .3     |
| Ineffective Flow num=      | 1                           |              |        |
| Sta L Sta R Elev Permanent |                             |              |        |
| 2140 3267.79 6065.7 F      |                             |              |        |

Profile Output Table - Standard Table 2

| Reach | River Sta | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Vel Head<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Top Width<br>(ft) |
|-------|-----------|---------|-------------------|-------------------|------------------|--------------------|--------------------|-----------------|--------------------|------------------|-------------------|
| 1     | 28908     | 10-YR   | 6065.12           | 6065.07           | 0.05             |                    |                    | 18.22           | 128.79             | 652.99           | 856.85            |
| 1     | 28908     | 50-YR   | 6065.31           | 6065.25           | 0.06             |                    |                    | 26.53           | 150.18             | 853.29           | 929.57            |
| 1     | 28908     | 100-YR  | 6065.48           | 6065.42           | 0.06             |                    |                    | 36.88           | 174.72             | 1078.40          | 998.14            |
| 1     | 28908     | 500-YR  | 6065.69           | 6065.62           | 0.07             |                    |                    | 52.33           | 207.06             | 1380.61          | 1078.93           |
| 1     | 30074     | 10-YR   | 6068.86           | 6068.60           | 0.25             | 3.68               | 0.06               | 38.11           | 680.01             | 81.88            | 535.24            |
| 1     | 30074     | 50-YR   | 6069.08           | 6068.79           | 0.29             | 3.71               | 0.07               | 74.32           | 818.59             | 137.08           | 617.38            |
| 1     | 30074     | 100-YR  | 6069.30           | 6068.97           | 0.33             | 3.74               | 0.08               | 118.99          | 966.08             | 204.93           | 705.60            |
| 1     | 30074     | 500-YR  | 6069.56           | 6069.17           | 0.38             | 3.78               | 0.09               | 186.27          | 1156.45            | 297.29           | 787.37            |
| 1     | 31220     | 10-YR   | 6071.42           | 6071.34           | 0.07             | 2.55               | 0.02               | 0.36            | 328.05             | 471.59           | 479.32            |
| 1     | 31220     | 50-YR   | 6071.68           | 6071.60           | 0.08             | 2.58               | 0.02               | 5.72            | 385.46             | 638.82           | 580.43            |
| 1     | 31220     | 100-YR  | 6071.92           | 6071.85           | 0.08             | 2.61               | 0.03               | 18.53           | 440.83             | 830.63           | 706.17            |
| 1     | 31220     | 500-YR  | 6072.25           | 6072.16           | 0.09             | 2.66               | 0.03               | 57.09           | 539.67             | 1043.24          | 938.65            |
| 1     | 31558     | 10-YR   | 6073.87           | 6072.59           | 1.28             | 1.33               | 0.60               |                 | 800.00             |                  | 792.21            |
| 1     | 31558     | 50-YR   | 6074.54           | 6073.13           | 1.41             | 1.27               | 0.67               |                 | 1030.00            |                  | 1153.14           |
| 1     | 31558     | 100-YR  | 6075.19           | 6073.70           | 1.49             | 1.24               | 0.70               |                 | 1290.00            |                  | 1417.66           |
| 1     | 31558     | 500-YR  | 6075.47           | 6074.84           | 0.63             | 0.91               | 0.27               |                 | 1343.67            | 296.33           | 2071.58           |
| 1     | 31602     | Bridge  |                   |                   |                  |                    |                    |                 |                    |                  |                   |
| 1     | 31615     | 10-YR   | 6074.63           | 6074.21           | 0.42             |                    |                    |                 | 800.00             |                  | 1517.75           |
| 1     | 31615     | 50-YR   | 6074.72           | 6073.70           | 1.02             |                    |                    |                 | 1030.00            |                  | 1049.72           |
| 1     | 31615     | 100-YR  | 6075.19           | 6074.71           | 0.48             |                    |                    |                 | 1084.01            | 205.99           | 1875.73           |
| 1     | 31615     | 500-YR  | 6075.48           | 6075.11           | 0.38             |                    |                    |                 | 1161.59            | 478.41           | 2041.17           |
| 1     | 32973     | 10-YR   | 6077.25           | 6077.21           | 0.05             | 2.51               | 0.11               | 216.40          | 320.04             | 263.57           | 1529.99           |
| 1     | 32973     | 50-YR   | 6077.63           | 6077.60           | 0.03             | 2.61               | 0.30               | 358.22          | 351.32             | 320.46           | 1706.47           |
| 1     | 32973     | 100-YR  | 6077.72           | 6077.67           | 0.05             | 2.40               | 0.13               | 460.62          | 425.00             | 404.39           | 1730.58           |
| 1     | 32973     | 500-YR  | 6077.92           | 6077.87           | 0.05             | 2.34               | 0.10               | 623.52          | 495.82             | 520.66           | 1806.51           |
| 1     | 34540     | 10-YR   | 6079.68           | 6079.56           | 0.12             | 2.41               | 0.02               | 420.01          | 361.27             | 18.72            | 750.10            |
| 1     | 34540     | 50-YR   | 6079.77           | 6079.58           | 0.19             | 2.09               | 0.05               | 547.61          | 455.19             | 27.20            | 764.48            |
| 1     | 34540     | 100-YR  | 6079.99           | 6079.85           | 0.14             | 2.25               | 0.03               | 740.71          | 480.92             | 68.37            | 919.88            |
| 1     | 34540     | 500-YR  | 6080.20           | 6080.05           | 0.14             | 2.26               | 0.03               | 975.65          | 545.12             | 119.23           | 1119.18           |
| 1     | 35470     | 10-YR   | 6081.18           | 6081.15           | 0.04             | 1.50               | 0.01               | 164.23          | 184.77             | 451.00           | 880.17            |
| 1     | 35470     | 50-YR   | 6081.38           | 6081.35           | 0.04             | 1.60               | 0.02               | 237.34          | 205.14             | 587.52           | 912.20            |
| 1     | 35470     | 100-YR  | 6081.51           | 6081.47           | 0.04             | 1.52               | 0.01               | 313.01          | 238.36             | 738.63           | 931.81            |
| 1     | 35470     | 500-YR  | 6081.70           | 6081.65           | 0.05             | 1.50               | 0.01               | 422.92          | 275.35             | 941.74           | 961.19            |
| 1     | 36595     | 10-YR   | 6084.59           | 6083.51           | 1.08             | 2.89               | 0.31               | 30.72           | 735.80             | 33.48            | 49.88             |
| 1     | 36595     | 50-YR   | 6084.92           | 6084.59           | 0.33             | 1.60               | 0.09               | 110.26          | 695.13             | 224.61           | 850.23            |
| 1     | 36595     | 100-YR  | 6085.06           | 6084.69           | 0.38             | 1.81               | 0.10               | 161.25          | 798.08             | 330.67           | 901.27            |
| 1     | 36595     | 500-YR  | 6085.23           | 6084.89           | 0.34             | 1.77               | 0.09               | 272.33          | 864.18             | 503.49           | 1130.52           |
| 1     | 37738     | 10-YR   | 6088.56           | 6088.40           | 0.16             | 3.88               | 0.09               | 247.97          | 438.81             | 113.22           | 931.57            |
| 1     | 37738     | 50-YR   | 6088.86           | 6088.38           | 0.48             | 3.90               | 0.04               | 166.90          | 686.90             | 176.20           | 912.19            |
| 1     | 37738     | 100-YR  | 6088.79           | 6088.48           | 0.32             | 3.73               | 0.01               | 457.69          | 657.61             | 174.70           | 963.29            |



|   |       |        |         |         |      |      |      |         |        |        |         |
|---|-------|--------|---------|---------|------|------|------|---------|--------|--------|---------|
| 1 | 37738 | 500-YR | 6088.94 | 6088.61 | 0.33 | 3.72 | 0.00 | 699.36  | 730.40 | 210.24 | 1022.64 |
| 1 | 38668 | 10-YR  | 6090.73 | 6090.60 | 0.13 | 2.17 | 0.00 | 433.55  | 319.15 | 47.31  | 1160.03 |
| 1 | 38668 | 50-YR  | 6090.98 | 6090.93 | 0.04 | 2.07 | 0.04 | 680.10  | 255.50 | 94.41  | 1361.53 |
| 1 | 38668 | 100-YR | 6091.02 | 6090.96 | 0.06 | 2.21 | 0.03 | 858.51  | 309.26 | 122.23 | 1380.46 |
| 1 | 38668 | 500-YR | 6091.16 | 6091.10 | 0.06 | 2.21 | 0.03 | 1119.37 | 342.93 | 177.70 | 1464.79 |





**Corrected Effective Multiple Profile Run with  
One Additional Cross Section**





HEC-RAS HEC-RAS 5.0.3 September 2016  
 U.S. Army Corps of Engineers  
 Hydrologic Engineering Center  
 609 Second Street  
 Davis, California

|          |      |        |      |      |        |      |
|----------|------|--------|------|------|--------|------|
| X        | X    | XXXXXX | XXXX | XXXX | XX     | XXXX |
| X        | X    | X      | X    | X    | X      | X    |
| X        | X    | X      | X    | X    | X      | X    |
| XXXXXXXX | XXXX | X      | XXX  | XXXX | XXXXXX | XXXX |
| X        | X    | X      | X    | X    | X      | X    |
| X        | X    | X      | X    | X    | X      | X    |
| X        | X    | XXXXXX | XXXX | X    | X      | XXXX |

PROJECT DATA

Project Title: Rafter J Flood Mitigation Feasibility Study  
 Project File : Flat Cr below High School Rd.prj  
 Run Date and Time: 7/8/2018 5:01:45 PM

Project in English units

Project Description:

Flat Creek FIS - Confluence with Snake River to High School Road  
 Multiple  
 Profile Run  
 Teton County, WY  
 CRS Info=<SpatialReference> <CoordinateSystem  
 Code="3758" Unit="US\_survey\_Foot" AcadCode="" /> <Registration OffsetX="0"  
 OffsetY="0" OffsetZ="0" ScaleX="1" ScaleY="1" ScaleZ="1" /></SpatialReference>

PLAN DATA

Plan Title: Corrected Effective w add Xsectn  
 Plan File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.p02

Geometry Title: Corrected Geom add Xsectn  
 Geometry File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.g09

Flow Title : Flat Creek Multiple Profile Flows  
 Flow File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.f10

Plan Description:

Multiple Profile Run with new Bridge

Plan Summary Information:

Number of: Cross Sections = 12 Multiple Openings = 0

Culverts = 0 Inline Structures = 0  
Bridges = 1 Lateral Structures = 0

#### Computational Information

Water surface calculation tolerance = 0.01  
Critical depth calculation tolerance = 0.01  
Maximum number of iterations = 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: Flat Creek Multiple Profile Flows

Flow File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.f10

#### Flow Data (cfs)

| River      | Reach | RS    | 10-YR | 50-YR | 100-YR | 500-YR |
|------------|-------|-------|-------|-------|--------|--------|
| Flat Creek | 1     | 38668 | 800   | 1030  | 1290   | 1640   |

#### Boundary Conditions

| River      | Reach | Profile | Upstream | Downstream         |
|------------|-------|---------|----------|--------------------|
| Flat Creek | 1     | 10-YR   |          | Known WS = 6065.07 |
| Flat Creek | 1     | 50-YR   |          | Known WS = 6065.25 |
| Flat Creek | 1     | 100-YR  |          | Known WS = 6065.42 |
| Flat Creek | 1     | 500-YR  |          | Known WS = 6065.62 |

#### GEOMETRY DATA

Geometry Title: Corrected Geom add Xsectn

Geometry File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.g09

#### CROSS SECTION

RIVER: Flat Creek

REACH: 1 RS: 38668

#### INPUT

Description:



|                        |         |      |        |      |        |         |         |      |        |
|------------------------|---------|------|--------|------|--------|---------|---------|------|--------|
| Station Elevation Data |         | num= | 14     |      |        |         |         |      |        |
| Sta                    | Elev    | Sta  | Elev   | Sta  | Elev   | Sta     | Elev    | Sta  | Elev   |
| 0                      | 6094.74 | 60   | 6094.2 | 388  | 6092.2 | 420     | 6090.2  | 450  | 6090.2 |
| 510                    | 6092    | 818  | 6090.2 | 1626 | 6090.2 | 1639    | 6089.1  | 1688 | 6089.1 |
| 1706                   | 6090.2  | 2477 | 6092.2 | 3046 | 6094.2 | 3275.62 | 6095.16 |      |        |

|                    |       |      |       |      |       |
|--------------------|-------|------|-------|------|-------|
| Manning's n Values |       | num= | 3     |      |       |
| Sta                | n Val | Sta  | n Val | Sta  | n Val |
| 0                  | .05   | 1639 | .035  | 1688 | .05   |

|                  |       |       |           |              |        |       |        |        |
|------------------|-------|-------|-----------|--------------|--------|-------|--------|--------|
| Bank Sta:        | Left  | Right | Lengths:  | Left Channel | Right  | Coeff | Contr. | Expan. |
|                  | 1639  | 1688  |           | 554.41       | 929.64 |       | .1     | .3     |
| Ineffective Flow | num=  |       | 1         |              |        |       |        |        |
| Sta L            | Sta R | Elev  | Permanent |              |        |       |        |        |
| 0                | 510   | 6092  | T         |              |        |       |        |        |

# CROSS SECTION

RIVER: Flat Creek  
 REACH: 1 RS: 37738

INPUT  
 Description:

|                        |         |      |        |     |        |      |        |      |        |
|------------------------|---------|------|--------|-----|--------|------|--------|------|--------|
| Station Elevation Data |         | num= | 16     |     |        |      |        |      |        |
| Sta                    | Elev    | Sta  | Elev   | Sta | Elev   | Sta  | Elev   | Sta  | Elev   |
| 0                      | 6088.7  | 138  | 6088.2 | 221 | 6088.2 | 440  | 6087.2 | 460  | 6088.2 |
| 679                    | 6088.2  | 730  | 6088.4 | 802 | 6088.2 | 876  | 6086.2 | 880  | 6084.7 |
| 908                    | 6084.7  | 912  | 6086.2 | 980 | 6088.2 | 1312 | 6090.2 | 2275 | 6092.2 |
| 2299.81                | 6092.35 |      |        |     |        |      |        |      |        |

|                    |       |      |       |     |       |
|--------------------|-------|------|-------|-----|-------|
| Manning's n Values |       | num= | 3     |     |       |
| Sta                | n Val | Sta  | n Val | Sta | n Val |
| 0                  | .05   | 880  | .035  | 908 | .05   |

|                  |       |        |           |              |         |       |        |        |
|------------------|-------|--------|-----------|--------------|---------|-------|--------|--------|
| Bank Sta:        | Left  | Right  | Lengths:  | Left Channel | Right   | Coeff | Contr. | Expan. |
|                  | 880   | 908    |           | 608.2        | 1142.98 |       | .1     | .3     |
| Ineffective Flow | num=  |        | 1         |              |         |       |        |        |
| Sta L            | Sta R | Elev   | Permanent |              |         |       |        |        |
| 0                | 730   | 6088.4 | F         |              |         |       |        |        |

# CROSS SECTION

RIVER: Flat Creek  
 REACH: 1 RS: 36595

INPUT  
 Description:

|                        |         |      |        |      |        |      |        |         |        |
|------------------------|---------|------|--------|------|--------|------|--------|---------|--------|
| Station Elevation Data |         | num= | 20     |      |        |      |        |         |        |
| Sta                    | Elev    | Sta  | Elev   | Sta  | Elev   | Sta  | Elev   | Sta     | Elev   |
| 0                      | 6086.63 | 82   | 6086.2 | 317  | 6084.2 | 464  | 6084.2 | 720     | 6085.2 |
| 767                    | 6086.2  | 788  | 6086.2 | 803  | 6082.2 | 806  | 6081.2 | 843     | 6081.2 |
| 847                    | 6082.2  | 850  | 6086.2 | 870  | 6086.2 | 999  | 6084.2 | 1026    | 6083.7 |
| 1069                   | 6084.2  | 1436 | 6084.2 | 1487 | 6084.7 | 2612 | 6086.2 | 2631.71 | 6086.3 |



Manning's n Values num= 3  
Sta n Val Sta n Val Sta n Val  
0 .05 806 .035 843 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
806 843 695.19 1125.16 521.47 .1 .3

CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 35470

INPUT  
Description:  
Station Elevation Data num= 23  
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev  
0 6084.48 65 6084.2 312 6082.2 860 6082.2 1010 6083.2  
1098 6082.2 1168 6080.2 1210 6080.2 1276 6081.7 1285 6081.7  
1357 6080.7 1612 6080.2 1618 6079.1 1653 6079.1 1667 6080.2  
2080 6080.2 2098 6082.2 2108 6084.2 2120 6084.2 2144 6082.2  
2935 6082.2 3071 6084.2 3147.83 6084.53

Manning's n Values num= 3  
Sta n Val Sta n Val Sta n Val  
0 .05 1618 .035 1653 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
1618 1653 559.49 930.41 535.79 .1 .3

Ineffective Flow num= 1  
Sta L Sta R Elev Permanent  
0 1285 6081.7 F

CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 34540

INPUT  
Description:  
Station Elevation Data num= 489  
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev  
0 6083.77 5.64 6083.56 10.51 6083.51 17.81 6083.24 28.76 6082.71  
36.07 6082.22 42.16 6081.66 45.81 6081.49 51.9 6081.37 56.77 6081.32  
61.82 6081.36 69.72 6081.33 75.47 6081.26 87.21 6081.25 91.88 6081.38  
96.95 6081.85 104.15 6082.31 107.08 6082.41 112.11 6082.44 120.08 6082.37  
129.82 6082.58 133.95 6082.53 144.43 6082.11 147.98 6082.01 152.35 6081.97  
162.69 6082.1 167.56 6082.1 172.52 6082.05 177.5 6082.22 181.29 6082.26  
193.31 6082.11 198.82 6082.19 209.34 6082.17 219.17 6082.03 227.08 6081.95  
233.3 6081.94 239.29 6081.73 241.45 6081.76 245.76 6082.22 247.91 6082.23  
254 6081.77 261.56 6081.59 272.26 6081.23 275.92 6081.19 280.79 6081.21  
288.09 6081.39 291.74 6081.41 301.8 6081.26 305.39 6081.26 316.89 6081.14  
322.64 6081.12 336.79 6081.17 349.59 6081.11 360.11 6081.09 368.44 6080.95

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 375.09  | 6080.9  | 390.36  | 6080.91 | 401.32  | 6080.77 | 408.14  | 6080.59 | 412.71  | 6080.63 |
| 417.14  | 6080.75 | 421.47  | 6080.77 | 428.98  | 6080.71 | 440.47  | 6080.73 | 449.53  | 6080.51 |
| 459.15  | 6080.59 | 468.28  | 6080.52 | 474.36  | 6080.53 | 480.45  | 6080.62 | 487.76  | 6080.56 |
| 496.28  | 6080.54 | 499.93  | 6080.3  | 506.02  | 6079.63 | 509.45  | 6079.36 | 513.32  | 6079.23 |
| 519.65  | 6079.33 | 525.5   | 6079.32 | 531.59  | 6079.58 | 538.89  | 6079.79 | 550.41  | 6079.86 |
| 560.81  | 6079.63 | 567.65  | 6079.54 | 571.24  | 6079.57 | 576.27  | 6079.7  | 582.72  | 6080.09 |
| 587.05  | 6080.18 | 591.24  | 6080.16 | 593.68  | 6080.05 | 597.83  | 6079.98 | 605.85  | 6080.22 |
| 611.48  | 6080.48 | 615.79  | 6080.6  | 623.09  | 6080.69 | 627.29  | 6080.79 | 636.63  | 6080.92 |
| 645.25  | 6080.71 | 649.68  | 6080.76 | 656.03  | 6081    | 661.78  | 6081.04 | 673.93  | 6080.71 |
| 679.74  | 6080.67 | 686.2   | 6080.53 | 689.71  | 6080.59 | 694.73  | 6080.84 | 700.82  | 6080.89 |
| 712.5   | 6080.82 | 720.29  | 6080.59 | 725.16  | 6080.54 | 734.34  | 6080.63 | 739.77  | 6080.71 |
| 754.2   | 6080.75 | 762.99  | 6080.7  | 776.86  | 6080.85 | 782.65  | 6080.83 | 790.03  | 6080.92 |
| 794.5   | 6080.91 | 806.91  | 6080.76 | 813.11  | 6080.78 | 831.71  | 6081.02 | 839.2   | 6081.07 |
| 849.03  | 6081.26 | 856.52  | 6081.26 | 861.69  | 6081.11 | 868.92  | 6081.04 | 873.62  | 6080.95 |
| 879.73  | 6081.11 | 886.73  | 6081.19 | 893.73  | 6081.48 | 898.89  | 6081.77 | 908.04  | 6082.03 |
| 913.36  | 6082.06 | 920.6   | 6081.74 | 928.87  | 6081.58 | 933.44  | 6081.56 | 943.04  | 6081.59 |
| 948.5   | 6081.55 | 954.91  | 6081.41 | 958.84  | 6081.39 | 964.01  | 6081.46 | 977.69  | 6081.48 |
| 982.61  | 6081.53 | 989.17  | 6081.53 | 998.11  | 6081.7  | 1008.45 | 6081.84 | 1014.65 | 6082.05 |
| 1021.13 | 6082.32 | 1027.05 | 6082.68 | 1029.32 | 6082.87 | 1035.32 | 6083.17 | 1042.43 | 6083.37 |
| 1046.53 | 6083.39 | 1051.45 | 6083.31 | 1054.73 | 6083.35 | 1059.64 | 6083.53 | 1063.23 | 6083.6  |
| 1067.84 | 6083.62 | 1074.39 | 6083.71 | 1088.32 | 6083.74 | 1092.17 | 6083.69 | 1104.71 | 6083.4  |
| 1107.67 | 6083.29 | 1111.27 | 6083.07 | 1113.87 | 6082.83 | 1117.13 | 6082.41 | 1123.17 | 6081.36 |
| 1126.28 | 6080.75 | 1131.44 | 6079.65 | 1132.48 | 6079.52 | 1137.64 | 6078.38 | 1140.74 | 6077.84 |
| 1143.85 | 6077.52 | 1148.15 | 6077.42 | 1153.88 | 6077.52 | 1160.38 | 6077.8  | 1165.55 | 6078.16 |
| 1168.57 | 6078.31 | 1175.89 | 6078.5  | 1180.02 | 6078.76 | 1184.15 | 6078.69 | 1185.02 | 6078.79 |
| 1189.32 | 6078.77 | 1192.31 | 6078.69 | 1204.18 | 6078.64 | 1208.14 | 6078.59 | 1212.89 | 6078.44 |
| 1218.26 | 6078.11 | 1222.72 | 6078.14 | 1225.5  | 6078.28 | 1230.66 | 6078.63 | 1235.01 | 6078.8  |
| 1237.9  | 6079.02 | 1243.07 | 6079.71 | 1246.17 | 6079.97 | 1252.37 | 6080.14 | 1264.77 | 6080.13 |
| 1269.43 | 6080.02 | 1275.11 | 6079.6  | 1280.27 | 6079.03 | 1283.36 | 6078.82 | 1286.48 | 6078.74 |
| 1293.71 | 6078.65 | 1301.39 | 6078.78 | 1305.08 | 6078.8  | 1310.25 | 6078.76 | 1316.14 | 6078.86 |
| 1320.24 | 6078.63 | 1322.7  | 6078.57 | 1326.78 | 6078.83 | 1330.89 | 6078.95 | 1334.02 | 6078.93 |
| 1340.22 | 6078.99 | 1346.62 | 6078.87 | 1355.48 | 6078.97 | 1365.31 | 6078.96 | 1375.15 | 6078.86 |
| 1383.34 | 6078.97 | 1387.44 | 6078.94 | 1394.1  | 6078.98 | 1396.03 | 6078.94 | 1401.37 | 6078.64 |
| 1405.47 | 6078.57 | 1410.38 | 6078.65 | 1416.7  | 6078.61 | 1425.13 | 6078.61 | 1436.61 | 6078.55 |
| 1442.34 | 6078.58 | 1448.74 | 6078.56 | 1453.82 | 6078.63 | 1461.37 | 6078.64 | 1475.94 | 6078.88 |
| 1480.04 | 6078.76 | 1488.24 | 6078.78 | 1496.29 | 6078.67 | 1501.46 | 6078.68 | 1506.26 | 6078.74 |
| 1512.8  | 6078.59 | 1519.38 | 6078.59 | 1524.19 | 6078.53 | 1530.39 | 6078.53 | 1534.95 | 6078.44 |
| 1541.5  | 6078.42 | 1548.41 | 6078.47 | 1556.33 | 6078.45 | 1560.28 | 6078.61 | 1565.54 | 6079.11 |
| 1568.64 | 6079.2  | 1572.64 | 6079.2  | 1581.66 | 6079.31 | 1590.34 | 6079.58 | 1602.74 | 6079.89 |
| 1612.05 | 6079.89 | 1616.18 | 6079.83 | 1622.38 | 6079.52 | 1630.65 | 6078.87 | 1633.28 | 6078.74 |
| 1652.95 | 6078.77 | 1661.15 | 6078.92 | 1667.7  | 6078.95 | 1680.82 | 6078.73 | 1689.01 | 6078.73 |
| 1698.77 | 6078.62 | 1700.7  | 6078.63 | 1702.72 | 6078.64 | 1707.86 | 6078.75 | 1711.27 | 6078.75 |
| 1717.69 | 6078.64 | 1721.6  | 6078.71 | 1724.7  | 6078.86 | 1729.87 | 6079.2  | 1735.72 | 6079.47 |
| 1740.21 | 6079.59 | 1745.37 | 6079.98 | 1748.01 | 6080.07 | 1749.51 | 6080.03 | 1752.93 | 6079.66 |
| 1754.57 | 6079.41 | 1757.78 | 6079.2  | 1759.49 | 6079.25 | 1764.4  | 6079.74 | 1767.08 | 6079.89 |
| 1772.6  | 6079.94 | 1776.7  | 6079.87 | 1783.62 | 6079.85 | 1789.77 | 6079.75 | 1805.6  | 6079.82 |
| 1811.11 | 6079.79 | 1818.49 | 6079.69 | 1823.92 | 6079.45 | 1827.02 | 6079.11 | 1832.19 | 6078.07 |
| 1834.88 | 6077.79 | 1836    | 6077.02 | 1865    | 6077.02 | 1866.3  | 6078.55 | 1869.4  | 6079.19 |
| 1872.5  | 6079.46 | 1879.13 | 6079.41 | 1884.73 | 6079.28 | 1890.07 | 6079.24 | 1898.8  | 6079.31 |
| 1903.51 | 6079.23 | 1909.45 | 6079.23 | 1916.94 | 6079.13 | 1922.11 | 6079.2  | 1926.25 | 6079.2  |
| 1930.76 | 6079.12 | 1938.65 | 6079.04 | 1941.75 | 6079.09 | 1946.92 | 6079.44 | 1950.02 | 6079.54 |
| 1955.19 | 6079.55 | 1966    | 6079.43 | 1971.72 | 6079.57 | 1980.75 | 6079.63 | 1986.19 | 6079.72 |
| 1991.56 | 6079.71 | 2000.37 | 6079.87 | 2000.7  | 6079.87 | 2006.37 | 6079.81 | 2014.37 | 6079.92 |
| 2029.22 | 6079.87 | 2042.53 | 6079.86 | 2045.38 | 6079.88 | 2052.38 | 6080.04 | 2056.38 | 6080.09 |
| 2064.39 | 6080.07 | 2073.24 | 6079.92 | 2083.47 | 6079.91 | 2088.59 | 6079.96 | 2093.71 | 6079.92 |

2098.39 6079.83 2105.4 6079.87 2110.4 6079.99 2114.4 6080.03 2119.3 6079.97  
2135.4 6079.92 2140.79 6080.06 2143.41 6080.06 2151.03 6079.93 2153.41 6079.85  
2158.19 6079.57 2161.41 6079.44 2170.41 6079.22 2173.41 6079.19 2176.62 6079.24  
2185.42 6079.72 2200.42 6080.16 2204.25 6080.23 2209.42 6080.22 2219.43 6080.41  
2224.43 6080.4 2233.94 6080.54 2243.43 6080.6 2250.31 6080.75 2256.43 6080.71  
2261.57 6080.75 2265.44 6080.7 2273.85 6080.72 2281.44 6080.55 2285.44 6080.56  
2294.44 6080.44 2300.45 6080.52 2303.45 6080.75 2305.45 6081.02 2308.45 6081.29  
2312.75 6081.27 2314.45 6081.16 2318.45 6081.15 2320.94 6081.24 2324.01 6081.25  
2332.45 6081.08 2340.39 6081.15 2345.46 6081.16 2348.46 6081.26 2351.46 6081.59  
2354.46 6082.2 2356.46 6082.79 2359.46 6083.53 2362.46 6084.02 2365.46 6084.24  
2368.46 6084.35 2386.45 6084.75 2389.47 6084.76 2399.47 6084.9 2407.47 6085.08  
2413.48 6085.09 2419.48 6085.15 2423.48 6085.09 2429.43 6084.93 2432.48 6084.68  
2435.48 6084.25 2437.48 6083.84 2443.48 6082.91 2446.48 6082.63 2453.49 6082.26  
2458.49 6081.81 2465.49 6081.65 2470.49 6081.35 2475.38 6081.25 2484.71 6081.31  
2492.5 6081.29 2495.5 6081.35 2500.5 6081.6 2506.5 6081.8 2514.5 6081.73  
2518.48 6081.8 2525.5 6081.83 2528.51 6081.93 2533.51 6082.22 2538.95 6082.41  
2542.51 6082.47 2552.51 6082.55 2555.51 6082.5 2563.51 6082.17 2567.61 6082.14  
2573.52 6082.23 2576.52 6082.34 2581.52 6082.62 2583.52 6082.6 2589.52 6082.35  
2594.52 6082.34 2602.52 6082.56 2610.53 6082.43 2624.53 6082.42 2632.1 6082.2  
2645.54 6082.17 2656.54 6082.01 2665.88 6082.04 2678.16 6082.12 2685.55 6082.12  
2690.44 6082.16 2696.55 6082.16 2702.55 6082.1 2708.55 6082.1 2718.55 6081.98  
2723.56 6081.96 2733.43 6081.97 2742.56 6081.83 2761.07 6081.83 2776.57 6081.74  
2792.57 6081.8 2799.96 6081.7 2812.24 6081.64 2819.58 6081.67 2834.76 6081.56  
2842.95 6081.64 2847.59 6081.6 2867.59 6081.67 2875.6 6081.78 2888.6 6081.78  
2897.6 6081.9 2900.6 6081.9 2908.6 6081.76 2921.61 6081.63 2927.91 6081.63  
2934.05 6081.67 2943.61 6081.67 2953.49 6081.63 2958.61 6081.66 2972.62 6081.66  
2985.22 6081.56 3002.77 6081.57 3012.86 6081.63 3024.12 6081.64 3032.31 6081.6  
3037.64 6081.64 3046.72 6081.63 3055.64 6081.55 3060.97 6081.54 3068.13 6081.63  
3077.34 6081.62 3082.65 6081.71 3089.63 6081.78 3096.65 6081.9 3101.65 6081.95  
3115.22 6082.03 3129.55 6082.09 3144.66 6082.09 3152.06 6082.02 3156.67 6082.02  
3169.46 6081.94 3182.77 6081.97 3193.68 6082.02 3205.68 6082.03 3217.57 6082.14  
3227.69 6082.16 3240.09 6082.16 3262.7 6082.12 3268.7 6082.18

Manning's n Values num= 3  
Sta n Val Sta n Val Sta n Val  
0 .06 1823.92 .035 1872.5 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
1823.92 1872.5 847.02 1566.11 1005.44 .1 .3  
Ineffective Flow num= 1  
Sta L Sta R Elev Permanent  
0 1252.37 6080.14 F  
Blocked Obstructions num= 1  
Sta L Sta R Elev  
3629 3268.7 6081.2

CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 32973

INPUT  
Description:  
Station Elevation Data num= 490



| Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0       | 6079.94 | 5.8     | 6080    | 13.98   | 6079.96 | 24.89   | 6079.71 | 29.3    | 6079.36 |
| 36.92   | 6078.29 | 39.01   | 6078.09 | 46.19   | 6077.75 | 49.07   | 6077.73 | 64.14   | 6078.58 |
| 68.32   | 6078.73 | 70.86   | 6078.72 | 78.07   | 6078.41 | 82.1    | 6078.32 | 92.01   | 6078.26 |
| 106.22  | 6078.28 | 111.88  | 6078.34 | 124.61  | 6078.4  | 138.1   | 6078.43 | 156.1   | 6078.4  |
| 169.7   | 6078.29 | 180.47  | 6078.17 | 191.79  | 6078.14 | 198.15  | 6078.07 | 214.21  | 6077.99 |
| 225.7   | 6077.99 | 236.91  | 6077.87 | 260.17  | 6077.78 | 267.35  | 6077.69 | 287.07  | 6077.55 |
| 291.5   | 6077.48 | 305.19  | 6077.39 | 313.55  | 6077.29 | 323.3   | 6077.11 | 345.59  | 6076.8  |
| 356.98  | 6076.82 | 363.08  | 6076.66 | 378.82  | 6076.53 | 396.1   | 6076.42 | 405.58  | 6076.11 |
| 414.07  | 6075.7  | 417.78  | 6075.61 | 421.32  | 6075.66 | 436.25  | 6076.46 | 439.32  | 6076.52 |
| 443.68  | 6076.4  | 448.97  | 6076.12 | 453.2   | 6076.06 | 459.54  | 6076.13 | 469.06  | 6075.8  |
| 474.34  | 6075.52 | 483.49  | 6075.21 | 487.03  | 6075.18 | 493.38  | 6075.4  | 500.02  | 6075.82 |
| 503.95  | 6075.99 | 513.21  | 6076.26 | 518.75  | 6077.1  | 521.92  | 6077.33 | 528.27  | 6077.15 |
| 532.5   | 6077.15 | 540.16  | 6077.45 | 545.19  | 6077.29 | 550.39  | 6076.86 | 556.3   | 6076.65 |
| 561.41  | 6076.75 | 566.33  | 6076.39 | 571.69  | 6076.09 | 582.19  | 6075.79 | 588.54  | 6075.71 |
| 593.67  | 6075.86 | 599.97  | 6075.82 | 607.84  | 6075.59 | 617.87  | 6075.73 | 625.94  | 6075.38 |
| 637.17  | 6075.25 | 642.46  | 6075.02 | 650.34  | 6074.8  | 658.32  | 6074.25 | 661.49  | 6074.18 |
| 672.38  | 6074.16 | 675.24  | 6074.26 | 680.53  | 6074.63 | 687.93  | 6074.85 | 693.21  | 6075.27 |
| 696.39  | 6075.39 | 711.73  | 6075.45 | 718.81  | 6075.36 | 728.11  | 6075.57 | 735.51  | 6075.58 |
| 740.79  | 6075.68 | 745.02  | 6075.64 | 751.08  | 6075.43 | 764.06  | 6075.63 | 773.9   | 6075.54 |
| 785.2   | 6075.27 | 795.94  | 6075.33 | 803.02  | 6075.17 | 809.32  | 6075.15 | 823.27  | 6075.29 |
| 830.67  | 6075.32 | 840.18  | 6075.69 | 845.67  | 6076.04 | 861.33  | 6076.54 | 865.2   | 6076.52 |
| 870.85  | 6076.34 | 878.25  | 6076.22 | 883.3   | 6075.95 | 892.74  | 6075.53 | 897.47  | 6075.41 |
| 902.57  | 6075.19 | 906.8   | 6075.19 | 912.08  | 6075.75 | 916.35  | 6075.84 | 918.43  | 6075.74 |
| 925.8   | 6075.61 | 929     | 6075.44 | 934.29  | 6074.82 | 940.63  | 6074.17 | 943.8   | 6073.99 |
| 950.2   | 6073.89 | 954.38  | 6074.01 | 959.64  | 6074.4  | 963.57  | 6074.49 | 970.66  | 6074.48 |
| 976.58  | 6074.56 | 980.1   | 6074.73 | 988.21  | 6075.37 | 991.91  | 6075.42 | 997.42  | 6075.26 |
| 1009.36 | 6075.19 | 1015.7  | 6075.37 | 1020.99 | 6075.45 | 1034.74 | 6076.09 | 1040.02 | 6076.08 |
| 1045.76 | 6076.19 | 1053.3  | 6076.22 | 1065.4  | 6076.33 | 1074.54 | 6076.64 | 1084.43 | 6076.65 |
| 1098.1  | 6077.08 | 1106.81 | 6077.07 | 1115.09 | 6076.69 | 1122.5  | 6076.59 | 1128.84 | 6076.78 |
| 1138.36 | 6077.6  | 1141.53 | 6078    | 1147.87 | 6079.02 | 1153.25 | 6080.11 | 1156.33 | 6080.52 |
| 1160.56 | 6080.51 | 1163.73 | 6080.04 | 1170.08 | 6078.82 | 1175.36 | 6077.56 | 1178.43 | 6077.06 |
| 1181.71 | 6076.77 | 1184.73 | 6076.69 | 1203.62 | 6076.87 | 1226.44 | 6077    | 1238.8  | 6077.12 |
| 1244.09 | 6077.13 | 1259.95 | 6077.25 | 1266.58 | 6077.36 | 1282.8  | 6077.55 | 1305.42 | 6077.73 |
| 1312.82 | 6077.76 | 1330.79 | 6077.97 | 1348.43 | 6078.11 | 1364.96 | 6078.13 | 1372.83 | 6078.01 |
| 1397.22 | 6077.08 | 1405.09 | 6076.99 | 1410.09 | 6076.85 | 1423.84 | 6076.6  | 1430.28 | 6076.65 |
| 1443.66 | 6077.01 | 1453.44 | 6077.2  | 1458.73 | 6077.24 | 1464.02 | 6077.18 | 1473.53 | 6077.27 |
| 1484.58 | 6077.23 | 1493.24 | 6077.27 | 1496.79 | 6077.41 | 1499.97 | 6077.73 | 1508.43 | 6078.94 |
| 1514.49 | 6079.71 | 1530.23 | 6081.32 | 1533.8  | 6081.64 | 1540.15 | 6082.05 | 1546.49 | 6082.26 |
| 1553.89 | 6082.32 | 1557.06 | 6082.17 | 1560.24 | 6081.78 | 1563.41 | 6081.02 | 1568.69 | 6079.57 |
| 1575.04 | 6078.19 | 1578.21 | 6077.67 | 1581.38 | 6077.38 | 1587.73 | 6077.01 | 1595.13 | 6076.93 |
| 1607.82 | 6077.05 | 1612.87 | 6077.17 | 1620.74 | 6077.08 | 1625.46 | 6076.85 | 1631.08 | 6076.75 |
| 1638.48 | 6076.83 | 1652.2  | 6076.78 | 1657.73 | 6076.63 | 1667.59 | 6076.66 | 1676.62 | 6076.36 |
| 1686.85 | 6076.24 | 1696.63 | 6075.98 | 1704.95 | 6075.63 | 1715.18 | 6075.85 | 1728.56 | 6075.73 |
| 1734.86 | 6075.84 | 1745.27 | 6075.85 | 1748.09 | 6075.88 | 1752.96 | 6075.92 | 1759.25 | 6075.87 |
| 1775.34 | 6076.15 | 1782.86 | 6076.07 | 1790.73 | 6076.4  | 1794.97 | 6076.4  | 1799.96 | 6076.23 |
| 1809.77 | 6076.18 | 1816.71 | 6076.28 | 1820.34 | 6076.24 | 1825.63 | 6075.86 | 1831.97 | 6075.67 |
| 1842.68 | 6075.78 | 1845.72 | 6075.99 | 1849.76 | 6076.47 | 1852.06 | 6076.6  | 1860.78 | 6076.76 |
| 1867.92 | 6076.61 | 1871.09 | 6076.62 | 1874.16 | 6076.48 | 1877.44 | 6076.1  | 1880.61 | 6075.49 |
| 1882.72 | 6074.94 | 1885.9  | 6074.49 | 1887    | 6073.7  | 1910    | 6073.7  | 1912.33 | 6074.87 |
| 1915.5  | 6075.57 | 1917.62 | 6076.21 | 1920.79 | 6076.94 | 1923.96 | 6077.38 | 1928.19 | 6077.36 |
| 1933.48 | 6076.51 | 1936.33 | 6076.28 | 1947.35 | 6076.24 | 1959.16 | 6075.87 | 1964.67 | 6075.79 |
| 1968.37 | 6075.65 | 1972.6  | 6075.69 | 1975.77 | 6075.95 | 1981.06 | 6076.54 | 1984.23 | 6076.66 |
| 1997.98 | 6076.68 | 2003.23 | 6076.55 | 2011.72 | 6076.72 | 2016.61 | 6076.65 | 2019.76 | 6076.75 |
| 2025.47 | 6077.11 | 2036.28 | 6077.14 | 2044.16 | 6076.7  | 2047.3  | 6076.63 | 2048.09 | 6076.64 |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 2058.32 | 6076.73 | 2066.19 | 6077.32 | 2068.55 | 6077.11 | 2072.49 | 6076.14 | 2074.1  | 6075.93 |
| 2075.64 | 6076.02 | 2080.45 | 6076.95 | 2083.62 | 6076.89 | 2085.73 | 6076.65 | 2088.91 | 6076.51 |
| 2093.14 | 6076.56 | 2098.42 | 6076.77 | 2106.33 | 6076.97 | 2109    | 6076.89 | 2111.84 | 6076.37 |
| 2114.28 | 6075.47 | 2117.46 | 6074.5  | 2121.68 | 6074.14 | 2124.86 | 6074.36 | 2128.03 | 6075.12 |
| 2131.51 | 6076.42 | 2133.09 | 6076.86 | 2136.49 | 6077.27 | 2143.89 | 6077.47 | 2147.25 | 6077.43 |
| 2150.4  | 6077.05 | 2153.4  | 6076.4  | 2158.69 | 6075.09 | 2161.86 | 6074.56 | 2164.57 | 6074.39 |
| 2170.08 | 6074.39 | 2177.72 | 6074.72 | 2185.13 | 6074.54 | 2188.18 | 6074.81 | 2191.33 | 6075.39 |
| 2194.64 | 6076.18 | 2199.93 | 6077.72 | 2203.1  | 6078.38 | 2206.27 | 6078.76 | 2212.47 | 6078.95 |
| 2216.85 | 6078.93 | 2226.74 | 6078.45 | 2229.53 | 6078.15 | 2234.82 | 6077.27 | 2237.99 | 6077.06 |
| 2245.32 | 6077.09 | 2250.52 | 6077.02 | 2257.81 | 6077.18 | 2267.17 | 6077.61 | 2270.29 | 6077.88 |
| 2273.33 | 6078.37 | 2276.54 | 6078.57 | 2281.74 | 6078.21 | 2291.11 | 6078.09 | 2301.52 | 6078.31 |
| 2309.42 | 6078.58 | 2312.94 | 6078.62 | 2317.13 | 6078.51 | 2322.33 | 6078.09 | 2325.45 | 6077.94 |
| 2331.7  | 6077.81 | 2338.98 | 6077.86 | 2354.6  | 6077.79 | 2363.56 | 6077.91 | 2370.21 | 6077.82 |
| 2373.33 | 6077.89 | 2381.6  | 6078.31 | 2387.9  | 6078.47 | 2400.39 | 6078.66 | 2407.67 | 6078.63 |
| 2416    | 6078.4  | 2419.12 | 6078.38 | 2430.57 | 6078.67 | 2437.86 | 6078.77 | 2445.14 | 6078.74 |
| 2463.58 | 6078.28 | 2467    | 6078.1  | 2472.2  | 6077.6  | 2475.28 | 6077.4  | 2479.49 | 6077.4  |
| 2484.69 | 6077.73 | 2488.85 | 6077.76 | 2497.09 | 6077.23 | 2506.55 | 6077.2  | 2515.14 | 6077.24 |
| 2532.31 | 6077.12 | 2550.26 | 6077.24 | 2558.64 | 6077.25 | 2567.41 | 6077.32 | 2577.65 | 6077.51 |
| 2585.64 | 6077.57 | 2593.74 | 6077.4  | 2606.46 | 6077.44 | 2622.07 | 6077.2  | 2629.35 | 6077.27 |
| 2634.56 | 6077.42 | 2646.39 | 6077.64 | 2650.17 | 6077.66 | 2662.66 | 6077.47 | 2677.23 | 6077.43 |
| 2682.43 | 6077.33 | 2695.96 | 6077.66 | 2701.17 | 6077.97 | 2709.49 | 6078.91 | 2713.63 | 6079.16 |
| 2727.18 | 6079.42 | 2733.43 | 6079.48 | 2741.45 | 6079.48 | 2750.08 | 6079.6  | 2754.24 | 6079.56 |
| 2769.85 | 6079.06 | 2778.01 | 6078.73 | 2786.51 | 6078.68 | 2791.71 | 6078.77 | 2802.88 | 6079.3  |
| 2809.4  | 6079.65 | 2816.04 | 6079.87 | 2820.43 | 6079.93 | 2826.28 | 6079.89 | 2832.3  | 6079.73 |
| 2838.54 | 6079.47 | 2843.56 | 6079.19 | 2851.03 | 6079.19 | 2854.06 | 6079.12 | 2859.36 | 6078.84 |
| 2862.84 | 6078.74 | 2870.15 | 6078.82 | 2880.39 | 6079.2  | 2897.69 | 6079.41 | 2921.8  | 6079.78 |
| 2929.09 | 6079.86 | 2934.29 | 6080.03 | 2938.46 | 6080.07 | 2941.58 | 6079.99 | 2949.9  | 6079.61 |
| 2962.29 | 6079.27 | 2966.26 | 6079.27 | 2971.76 | 6079.43 | 2994.46 | 6079.54 | 3003.24 | 6079.52 |
| 3012.35 | 6079.43 | 3016.4  | 6079.51 | 3021.72 | 6079.83 | 3031.03 | 6080.06 | 3047.11 | 6080.09 |
| 3059.18 | 6080.36 | 3066.47 | 6080.37 | 3072.71 | 6080.29 | 3085.14 | 6079.93 | 3094.57 | 6079.48 |
| 3097.69 | 6079.15 | 3102.89 | 6078.31 | 3106.02 | 6077.95 | 3109.14 | 6077.78 | 3117.47 | 6077.71 |
| 3125.79 | 6077.57 | 3128.67 | 6077.61 | 3134.12 | 6077.88 | 3138.28 | 6077.98 | 3146.71 | 6077.72 |
| 3150.95 | 6077.71 | 3157.01 | 6077.89 | 3160.14 | 6078.14 | 3168.46 | 6078.98 | 3174.71 | 6079.48 |
| 3179.91 | 6079.8  | 3190.32 | 6080.13 | 3197.24 | 6080.16 | 3207.99 | 6079.95 | 3219.69 | 6079.59 |
| 3230.91 | 6078.94 | 3237.15 | 6078.73 | 3244.16 | 6078.65 | 3255.89 | 6078.64 | 3263.17 | 6078.71 |
| 3273.58 | 6078.72 | 3288.15 | 6079.04 | 3292.81 | 6079.19 | 3301.59 | 6079.35 | 3311.83 | 6079.81 |
| 3331.86 | 6079.95 | 3338.1  | 6080.08 | 3343.31 | 6080.27 | 3349.55 | 6080.39 | 3356.84 | 6080.3  |
| 3363.25 | 6080.05 | 3372.45 | 6079.41 | 3377.64 | 6078.95 | 3380.78 | 6078.81 | 3387.02 | 6078.71 |
| 3391.18 | 6078.75 | 3406.89 | 6079.41 | 3412    | 6079.7  | 3421.36 | 6079.96 | 3424.44 | 6079.96 |
| 3431.75 | 6079.78 | 3440.1  | 6079.7  | 3455.15 | 6079.7  | 3469.24 | 6079.5  | 3475.63 | 6079.25 |
| 3483.81 | 6078.69 | 3490.05 | 6078.55 | 3497.56 | 6078.48 | 3505.67 | 6078.32 | 3518.44 | 6078.32 |
| 3522.32 | 6078.36 | 3529.6  | 6078.55 | 3536.48 | 6078.55 | 3543.13 | 6078.63 | 3550.42 | 6078.61 |
| 3560.82 | 6078.38 | 3570.19 | 6078.43 | 3578.52 | 6078.58 | 3584.76 | 6078.83 | 3589.97 | 6079.22 |
| 3596.21 | 6079.56 | 3605.58 | 6079.84 | 3613.9  | 6079.89 | 3624.8  | 6079.82 | 3652.19 | 6079.55 |

|                    |         |         |           |              |        |
|--------------------|---------|---------|-----------|--------------|--------|
| Manning's n Values |         |         | num= 3    |              |        |
| Sta                | n Val   | Sta     | n Val     | Sta          | n Val  |
| 0                  | .06     | 1860.78 | .035      | 1920.79      | .06    |
|                    |         |         |           |              |        |
| Bank Sta:          | Left    | Right   | Lengths:  | Left Channel | Right  |
|                    | 1860.78 | 1920.79 |           | 431.73       | 711.11 |
|                    |         |         |           |              | 595.34 |
| Ineffective Flow   |         |         | num= 2    |              |        |
| Sta L              | Sta R   | Elev    | Permanent |              |        |
| 0                  | 1156.33 | 6080.52 | F         |              |        |
| 2142               | 3652.19 | 6077.2  | F         |              |        |





CROSS SECTION

INPUT

| Station | Elevation | Data   | num=    | 492    |         |        |         |        |         |  |
|---------|-----------|--------|---------|--------|---------|--------|---------|--------|---------|--|
| Sta     | Elev      | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    |  |
| 0       | 6076.77   | 8.26   | 6076.7  | 20.65  | 6076.56 | 32.58  | 6076.25 | 38.93  | 6076.06 |  |
| 44.21   | 6076      | 49.77  | 6076.01 | 57.64  | 6076.07 | 62.86  | 6076.07 | 67.48  | 6075.99 |  |
| 79.11   | 6075.88   | 84.39  | 6075.78 | 90.74  | 6075.53 | 100.13 | 6074.89 | 102.37 | 6074.7  |  |
| 105.54  | 6074.55   | 109.77 | 6074.53 | 112.94 | 6074.57 | 116.66 | 6074.7  | 119.02 | 6074.85 |  |
| 122.46  | 6074.92   | 125.63 | 6074.6  | 128.8  | 6073.86 | 130.92 | 6073.28 | 134.09 | 6072.74 |  |
| 137.26  | 6072.49   | 140.44 | 6072.4  | 144.67 | 6072.49 | 147.84 | 6072.73 | 151.01 | 6073.08 |  |
| 156.3   | 6073.82   | 159.47 | 6074.08 | 163.7  | 6074.13 | 168.99 | 6073.86 | 178.5  | 6073.61 |  |
| 181.98  | 6073.58   | 185.9  | 6073.65 | 191.19 | 6074.03 | 194.36 | 6074.13 | 198.59 | 6074.18 |  |
| 204.8   | 6074.35   | 211.28 | 6074.61 | 213.4  | 6074.74 | 216.57 | 6074.83 | 220.54 | 6074.88 |  |
| 223.69  | 6075.01   | 229.2  | 6075.3  | 239.83 | 6075.5  | 243    | 6075.58 | 246.17 | 6075.76 |  |
| 251.46  | 6076.21   | 254.63 | 6076.43 | 258.86 | 6076.62 | 270.49 | 6077.08 | 274.84 | 6077.15 |  |
| 283.18  | 6077.39   | 296.09 | 6077.33 | 301.6  | 6077.2  | 304.75 | 6077.23 | 311.73 | 6077.37 |  |
| 321.35  | 6077.3    | 331.82 | 6077.25 | 344.88 | 6077.12 | 352.12 | 6077.11 | 358.26 | 6077.02 |  |
| 363.77  | 6077.02   | 372    | 6077.2  | 379.41 | 6077.25 | 387.38 | 6077.45 | 391.04 | 6077.5  |  |
| 395.25  | 6077.5    | 399.18 | 6077.43 | 406.9  | 6077.12 | 417.47 | 6077.05 | 433.33 | 6076.72 |  |
| 436.96  | 6076.58   | 442.85 | 6076.23 | 448.14 | 6075.88 | 451.12 | 6075.76 | 458.71 | 6075.64 |  |
| 462.14  | 6075.71   | 466.86 | 6075.93 | 473.51 | 6075.81 | 477.88 | 6075.79 | 484.09 | 6076.05 |  |
| 485.75  | 6076.07   | 488.9  | 6075.95 | 492.83 | 6075.68 | 496.75 | 6075.58 | 499.83 | 6075.44 |  |
| 502.06  | 6075.26   | 505.23 | 6075.09 | 509.36 | 6074.98 | 512.64 | 6074.94 | 518.8  | 6074.94 |  |
| 522.15  | 6074.84   | 527.44 | 6074.61 | 530.6  | 6074.51 | 533.76 | 6074.49 | 538.48 | 6074.57 |  |
| 544.36  | 6074.6    | 550.28 | 6074.79 | 557.05 | 6074.68 | 560.51 | 6074.76 | 562.88 | 6074.76 |  |
| 568.38  | 6074.63   | 571.85 | 6074.59 | 577.04 | 6074.59 | 584.54 | 6074.72 | 586.65 | 6074.73 |  |
| 591.94  | 6074.63   | 596.17 | 6074.59 | 603.01 | 6074.46 | 609.31 | 6074.57 | 613.24 | 6074.54 |  |
| 617.32  | 6074.6    | 622.6  | 6074.9  | 627.41 | 6074.84 | 629.77 | 6074.88 | 635.23 | 6075.37 |  |
| 637.41  | 6075.44   | 640    | 6075.4  | 644.81 | 6075.11 | 647.54 | 6075.01 | 650.23 | 6074.99 |  |
| 655.38  | 6075.12   | 659.85 | 6075.06 | 665.18 | 6075.11 | 671.48 | 6075.25 | 674.63 | 6075.26 |  |
| 679.35  | 6075.18   | 683.28 | 6075.16 | 686.43 | 6075.22 | 689.22 | 6075.35 | 691.94 | 6075.39 |  |
| 698.74  | 6075.18   | 704.53 | 6075.17 | 714.76 | 6074.64 | 718.7  | 6074.59 | 722    | 6074.73 |  |
| 724.11  | 6074.88   | 728.14 | 6074.95 | 733.63 | 6074.75 | 741.03 | 6074.63 | 750.55 | 6074.11 |  |
| 753.72  | 6073.84   | 759.01 | 6073.21 | 761.98 | 6072.97 | 766.41 | 6072.96 | 774.87 | 6073.5  |  |
| 778.04  | 6073.56   | 782.27 | 6073.57 | 787.95 | 6073.52 | 793.46 | 6073.6  | 813.99 | 6073.71 |  |
| 822.94  | 6073.92   | 827.3  | 6073.99 | 832.81 | 6074.15 | 839.1  | 6074.04 | 844.48 | 6074.17 |  |
| 854.17  | 6074.14   | 860.35 | 6074.06 | 873.21 | 6073.97 | 877.44 | 6074.04 | 88     |         |  |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1153.41 | 6074.95 | 1160.82 | 6075.08 | 1162.93 | 6075.15 | 1166.1  | 6075.4  | 1169.27 | 6075.81 |
| 1172.45 | 6076.36 | 1174.56 | 6076.91 | 1175.62 | 6077.09 | 1177.73 | 6077.78 | 1178.79 | 6078.01 |
| 1180.91 | 6078.77 | 1181.96 | 6079    | 1184.08 | 6079.69 | 1187.25 | 6080.21 | 1190.42 | 6080.33 |
| 1191.59 | 6080.28 | 1195.99 | 6079.9  | 1200.28 | 6079.19 | 1203.14 | 6078.65 | 1204.58 | 6078.48 |
| 1207.44 | 6077.79 | 1208.87 | 6077.57 | 1211.73 | 6076.95 | 1213.16 | 6076.8  | 1216.02 | 6076.3  |
| 1220.31 | 6075.87 | 1224.11 | 6075.72 | 1229.23 | 6075.68 | 1234.62 | 6075.76 | 1243.91 | 6075.95 |
| 1255.23 | 6076.12 | 1261.81 | 6076.16 | 1283.27 | 6076.41 | 1304.73 | 6076.71 | 1314.74 | 6076.97 |
| 1318.87 | 6077.05 | 1327.62 | 6077.11 | 1334.1  | 6077.11 | 1348.57 | 6077.43 | 1366.96 | 6077.56 |
| 1375.45 | 6077.65 | 1398.78 | 6077.65 | 1405.41 | 6077.61 | 1410.1  | 6077.61 | 1427.77 | 6077.36 |
| 1433.49 | 6077.15 | 1441.21 | 6076.99 | 1444.56 | 6076.89 | 1452.09 | 6076.52 | 1457.82 | 6076.31 |
| 1462.11 | 6076.33 | 1470.69 | 6076.53 | 1475.32 | 6076.8  | 1485.76 | 6076.74 | 1486.47 | 6076.89 |
| 1488.59 | 6076.82 | 1494.25 | 6076.94 | 1502.73 | 6076.94 | 1506.98 | 6076.82 | 1510.51 | 6076.4  |
| 1513.62 | 6075.75 | 1516.48 | 6074.98 | 1519.7  | 6074.29 | 1524.26 | 6073.51 | 1527.05 | 6073.18 |
| 1530.79 | 6072.96 | 1536.51 | 6072.89 | 1548.03 | 6072.89 | 1562.26 | 6072.93 | 1577.69 | 6072.94 |
| 1584.76 | 6072.86 | 1590.42 | 6072.86 | 1596.08 | 6072.97 | 1598.91 | 6073.09 | 1603.75 | 6073.5  |
| 1608.15 | 6074.32 | 1610.91 | 6074.97 | 1613.74 | 6075.29 | 1615.14 | 6075.33 | 1618.06 | 6075.22 |
| 1626.48 | 6074.99 | 1629.12 | 6075    | 1638.51 | 6075.24 | 1640.95 | 6075.24 | 1643.81 | 6075.15 |
| 1653.83 | 6074.7  | 1657.4  | 6074.47 | 1658.12 | 6074.42 | 1665.28 | 6074.07 | 1668.28 | 6074.05 |
| 1674.57 | 6074.37 | 1676.66 | 6074.34 | 1689.6  | 6073.76 | 1695.08 | 6073    | 1697.2  | 6072.92 |
| 1700.74 | 6073.19 | 1703.91 | 6073.28 | 1708.82 | 6073.14 | 1714.88 | 6073.05 | 1718.21 | 6072.88 |
| 1721.24 | 6072.84 | 1723.94 | 6072.94 | 1728.23 | 6073.34 | 1732.59 | 6073.94 | 1734.68 | 6074.31 |
| 1736.79 | 6074.55 | 1738.19 | 6074.62 | 1742.54 | 6074.65 | 1744.58 | 6074.72 | 1749.53 | 6074.99 |
| 1753.57 | 6075.02 | 1757.76 | 6074.82 | 1760.14 | 6074.55 | 1766.15 | 6074.02 | 1769.33 | 6073.57 |
| 1771.74 | 6073.14 | 1775.94 | 6072.6  | 1780.13 | 6072.16 | 1782.93 | 6071.99 | 1785.73 | 6071.89 |
| 1789.13 | 6071.5  | 1794.04 | 6071.5  | 1801.86 | 6071.5  | 1808.93 | 6071.5  | 1817.89 | 6072.08 |
| 1824.09 | 6072.09 | 1827.32 | 6072.25 | 1829.44 | 6072.72 | 1831.56 | 6073.6  | 1833.68 | 6074.62 |
| 1835.8  | 6075.36 | 1838.63 | 6075.86 | 1841.66 | 6075.97 | 1844.45 | 6075.88 | 1851.44 | 6075.17 |
| 1855.56 | 6075.01 | 1859.14 | 6074.95 | 1869.62 | 6074.98 | 1878.46 | 6075.07 | 1885    | 6075.18 |
| 1891.33 | 6075.22 | 1901.35 | 6075.41 | 1906.52 | 6075.46 | 1911.36 | 6075.6  | 1917.16 | 6075.64 |
| 1923.49 | 6075.54 | 1930.56 | 6075.65 | 1934.1  | 6075.54 | 1937.63 | 6075.07 | 1939.75 | 6074.89 |
| 1942.58 | 6075.03 | 1944.7  | 6075.31 | 1947.53 | 6075.47 | 1954.29 | 6075.32 | 1957.4  | 6075.33 |
| 1964.3  | 6075.35 | 1973.7  | 6075.05 | 1980.04 | 6074.94 | 1982.88 | 6074.94 | 1990.05 | 6075.07 |
| 1994.2  | 6075.34 | 1997.21 | 6075.68 | 2000.07 | 6075.91 | 2002.45 | 6076.02 | 2007.22 | 6076.05 |
| 2014    | 6076.17 | 2017.84 | 6076.2  | 2022.62 | 6076.48 | 2025.61 | 6076.54 | 2032.72 | 6076.54 |
| 2035.72 | 6076.51 | 2043.54 | 6076.35 | 2047.72 | 6076.24 | 2050.72 | 6076.11 | 2058.72 | 6075.55 |
| 2064.46 | 6075.39 | 2074.43 | 6075.34 | 2079.72 | 6075.27 | 2086.72 | 6075.31 | 2097.34 | 6075.5  |
| 2116.72 | 6075.67 | 2128.22 | 6075.62 | 2136.19 | 6075.69 | 2146.15 | 6075.6  | 2155.12 | 6075.61 |
| 2160.72 | 6075.52 | 2171.06 | 6075.53 | 2179.03 | 6075.42 | 2190.72 | 6075.29 | 2200.94 | 6075.29 |
| 2211.72 | 6075.24 | 2219.87 | 6075.24 | 2229.72 | 6075.18 | 2233.82 | 6075.18 | 2242.72 | 6075.24 |
| 2251.72 | 6075.25 | 2261.71 | 6075.31 | 2266.69 | 6075.31 | 2271.67 | 6075.27 | 2281.72 | 6075.27 |
| 2293.59 | 6075.15 | 2297.57 | 6075.15 | 2308.72 | 6075.3  | 2320.72 | 6075.68 | 2325.72 | 6075.89 |
| 2328.72 | 6075.93 | 2336.43 | 6075.84 | 2344.72 | 6075.81 | 2352.72 | 6075.67 | 2356.72 | 6075.67 |
| 2361.33 | 6075.72 | 2371.29 | 6075.72 | 2374.72 | 6075.68 | 2382.72 | 6075.5  | 2392.72 | 6075.48 |
| 2396.72 | 6075.41 | 2405.72 | 6075.46 | 2413.72 | 6075.47 | 2419.11 | 6075.43 | 2431.06 | 6075.43 |
| 2436.04 | 6075.35 | 2447    | 6075.26 | 2453.72 | 6075.35 | 2463.72 | 6075.29 | 2468.92 | 6075.29 |
| 2477.89 | 6075.24 | 2494.82 | 6075.24 | 2501.72 | 6075.28 | 2505.78 | 6075.27 | 2520.72 | 6075.03 |
| 2533.67 | 6074.91 | 2542.72 | 6074.88 | 2550.61 | 6074.94 | 2560.72 | 6074.94 | 2569.73 | 6074.91 |
| 2590.45 | 6074.8  | 2601.41 | 6074.63 | 2605.73 | 6074.65 | 2610.38 | 6074.73 | 2617.73 | 6074.78 |
| 2620.73 | 6074.85 | 2625.73 | 6075.16 | 2629.73 | 6075.1  | 2632.73 | 6074.84 | 2635.73 | 6074.46 |
| 2638.73 | 6073.97 | 2640.73 | 6073.5  | 2641.73 | 6073.36 | 2643.73 | 6072.83 | 2644.73 | 6072.68 |
| 2646.73 | 6072.14 | 2647.73 | 6071.98 | 2650.73 | 6071.15 | 2652.73 | 6070.42 | 2655.73 | 6069.44 |
| 2658.73 | 6068.87 | 2662.18 | 6068.72 | 2870.73 | 6068.72 | 2875.73 | 6068.79 | 2880.35 | 6069.06 |
| 2884.33 | 6069.25 | 2887.73 | 6069.15 | 2892.73 | 6068.78 | 2895.73 | 6068.72 | 2950.08 | 6068.72 |
| 2953.73 | 6068.81 | 2956.73 | 6069.18 | 2959.73 | 6069.82 | 2961.73 | 6070.31 | 2964.73 | 6070.78 |
| 2970.73 | 6071.5  | 2980.73 | 6072.51 | 2982.73 | 6072.77 | 2986.73 | 6073.16 | 2988.73 | 6073.42 |



2994.73 6074.01 2998.73 6074.36 3003.73 6074.91 3009.85 6075.48 3015.73 6075.97  
3022.73 6076.49 3027.73 6076.89 3031.73 6077.1 3036.73 6077.51 3039.73 6077.7  
3045.72 6077.93 3051.66 6078.01

Manning's n Values num= 3  
Sta n Val Sta n Val Sta n Val  
0 .06 1753.57 .035 1841.66 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
1753.57 1841.66 533.3 647.47 649.67 .3 .5  
Ineffective Flow num= 2  
Sta L Sta R Elev Permanent  
0 1190.42 6080.33 T  
2025.61 3051.66 6076.54 T

CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 31615

INPUT

Description: Upstream of Rafter J Bridge

Station Elevation Data num= 492  
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev  
194.24 6077.83 197.61 6077.7 201.42 6077.61 210.86 6077.49 218.18 6077.37  
225.61 6077.22 230.75 6077.23 237.38 6077.13 243.33 6077.16 254.67 6077.12  
263.17 6077.01 272.34 6076.81 276.87 6076.75 279.51 6076.66 290.27 6076.53  
295.65 6076.53 302.88 6076.48 308.66 6076.47 315.36 6076.37 324.55 6076.31  
328.88 6076.31 333.94 6076.42 341.89 6076.5 346.94 6076.68 354.17 6076.68  
359.22 6076.72 365 6076.9 367.82 6076.88 370.33 6076.72 372.72 6076.48  
375.84 6076.35 387.53 6076.29 391.43 6076.3 399.23 6076.42 414.59 6076.62  
422.04 6076.7 435.09 6076.87 444.4 6077.01 456.11 6077.26 467.05 6077.26  
469.96 6077.19 481.67 6076.78 491.15 6076.53 513.93 6076.13 515.95 6076.07  
526.3 6075.88 535.73 6075.67 546.44 6075.61 550.57 6075.56 554.14 6075.46  
557.23 6075.27 560.33 6074.96 563.42 6074.52 565.4 6074.16 569.61 6073.61  
571.67 6073.2 574.76 6072.68 577.85 6072.27 580.24 6072.12 581.98 6072.12  
585.07 6072.45 587.13 6072.91 590.23 6073.51 592.6 6073.77 596.72 6073.92  
604.14 6073.91 612.38 6073.76 620.62 6073.97 629.68 6074.04 635.59 6073.96  
640.4 6073.84 647.82 6073.93 656.88 6073.88 665.95 6073.93 674.77 6073.94  
683.25 6073.78 691.5 6073.88 696.52 6073.86 700.55 6073.92 708.79 6073.91  
714.57 6073.96 722.2 6074.11 731.06 6074.31 741.77 6074.33 748.36 6074.39  
756.6 6074.43 764.02 6074.52 774.56 6074.51 780.97 6074.55 788.18 6074.32  
790.99 6074.32 797.81 6074.46 801.93 6074.49 807.77 6074.48 810.87 6074.67  
813.96 6075.09 815.94 6075.48 819.11 6075.96 822.21 6076.27 825.3 6076.43  
827.96 6076.47 832.07 6076.45 835.61 6076.34 838.7 6076.13 847.98 6075.38  
851.08 6075.09 856.23 6074.52 859.32 6074.28 865.51 6073.89 868.6 6073.77  
872.81 6073.73 875.82 6073.8 880.97 6074.05 883.52 6074.13 888.19 6074.18  
893.35 6074.43 895.06 6074.47 900.56 6074.47 907.42 6074.75 913.97 6074.93  
919.12 6075.24 927.37 6075.93 929.43 6075.97 931.49 6075.9 936.65 6075.38  
940.77 6075.17 943.87 6074.94 945.93 6074.7 949.02 6074.44 952.12 6074.35  
959.4 6074.36 968.41 6074.55 971.7 6074.49 976.65 6074.23 981.6 6074.14  
984.04 6074.15 993.14 6074.37 996.43 6074.35 1001.6 6074.14 1006.32 6074.09  
1008.79 6074 1013.98 6073.68 1017.04 6073.6 1027.75 6073.45 1036.66 6073.22  
1041.55 6073.24 1049.77 6073.32 1056.25 6073.52 1062.43 6073.43 1068.96 6073.55

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1072.25 | 6073.55 | 1080.99 | 6073.38 | 1084.38 | 6073.37 | 1089.71 | 6073.45 | 1096.1  | 6073.7  |
| 1098.23 | 6073.73 | 1104.37 | 6073.63 | 1109.04 | 6073.61 | 1114.2  | 6073.76 | 1118.46 | 6073.79 |
| 1124.86 | 6073.68 | 1128.05 | 6073.52 | 1131.25 | 6073.3  | 1134.44 | 6072.96 | 1139.77 | 6072    |
| 1141.43 | 6071.88 | 1144.03 | 6072.02 | 1147.22 | 6072.69 | 1149.35 | 6073.29 | 1152.55 | 6073.99 |
| 1155.02 | 6074.35 | 1157.36 | 6074.52 | 1159.7  | 6074.57 | 1169.59 | 6074.6  | 1177.62 | 6074.44 |
| 1183.08 | 6074.47 | 1185.57 | 6074.42 | 1190.87 | 6074.19 | 1195.54 | 6074.08 | 1200.48 | 6073.84 |
| 1203.68 | 6073.81 | 1207.94 | 6073.84 | 1216.46 | 6073.55 | 1221.26 | 6073.55 | 1225.64 | 6073.47 |
| 1232.95 | 6073.44 | 1244.15 | 6073.32 | 1246.45 | 6073.36 | 1252.54 | 6073.66 | 1257.71 | 6073.78 |
| 1264.87 | 6074.01 | 1269.06 | 6074.2  | 1274.08 | 6074.55 | 1277.67 | 6074.64 | 1281.25 | 6074.62 |
| 1284.84 | 6074.69 | 1289.14 | 6074.85 | 1292.72 | 6074.9  | 1297.02 | 6074.87 | 1304.25 | 6074.88 |
| 1312.87 | 6074.92 | 1316.31 | 6074.78 | 1318.54 | 6074.61 | 1322.84 | 6074.42 | 1331.17 | 6074.41 |
| 1338.61 | 6074.59 | 1344.35 | 6074.89 | 1351.89 | 6075.08 | 1361.96 | 6075.24 | 1369.81 | 6075.18 |
| 1374.05 | 6075.12 | 1378.79 | 6074.97 | 1381.57 | 6075.06 | 1388.91 | 6075.13 | 1394.56 | 6075.01 |
| 1396.5  | 6074.9  | 1400.82 | 6074.79 | 1404.46 | 6074.79 | 1409.38 | 6074.71 | 1412.95 | 6074.73 |
| 1420.97 | 6074.57 | 1426.06 | 6074.62 | 1434.87 | 6074.43 | 1438.51 | 6074.43 | 1447.27 | 6074.31 |
| 1453.42 | 6074.3  | 1459.47 | 6074.37 | 1465.7  | 6074.57 | 1471.46 | 6074.82 | 1476.63 | 6075.14 |
| 1481.03 | 6075.3  | 1488.36 | 6075.38 | 1494.22 | 6075.32 | 1495.77 | 6075.26 | 1501.82 | 6075.15 |
| 1505.21 | 6075.18 | 1507.86 | 6075.11 | 1511.9  | 6075.13 | 1518.41 | 6075.42 | 1526.01 | 6075.53 |
| 1534.53 | 6075.88 | 1539.66 | 6075.82 | 1545.53 | 6076    | 1546.99 | 6076.01 | 1550.73 | 6075.88 |
| 1552.87 | 6075.89 | 1555.01 | 6076.09 | 1559.29 | 6076.72 | 1561.43 | 6076.76 | 1567.08 | 6076.61 |
| 1570.7  | 6076.38 | 1574.26 | 6076.31 | 1581.75 | 6075.94 | 1584.81 | 6075.88 | 1588.16 | 6075.96 |
| 1589.57 | 6075.91 | 1593.28 | 6075.64 | 1596.72 | 6075.69 | 1601.2  | 6075.95 | 1605.85 | 6076    |
| 1610.21 | 6075.78 | 1612.76 | 6075.76 | 1615.16 | 6075.87 | 1621.31 | 6076.34 | 1624.52 | 6076.46 |
| 1631.45 | 6076.56 | 1637.36 | 6076.6  | 1641.63 | 6076.59 | 1648.05 | 6076.5  | 1650.93 | 6076.36 |
| 1662.06 | 6075.58 | 1669.14 | 6075.38 | 1677.07 | 6075.33 | 1690.37 | 6075.32 | 1695.43 | 6075.5  |
| 1701.04 | 6075.58 | 1708.65 | 6075.53 | 1719.49 | 6075.35 | 1730.83 | 6075.33 | 1735.27 | 6075.35 |
| 1735.83 | 6075.33 | 1741.52 | 6075.11 | 1745.73 | 6075.02 | 1752.53 | 6075.01 | 1758.09 | 6074.85 |
| 1765.55 | 6074.74 | 1772.35 | 6074.77 | 1776.57 | 6074.68 | 1784.72 | 6074.37 | 1794.22 | 6074.21 |
| 1799.93 | 6074.05 | 1808.61 | 6073.97 | 1819.63 | 6073.83 | 1823.63 | 6073.82 | 1831.31 | 6073.71 |
| 1835.65 | 6073.62 | 1839.86 | 6073.61 | 1843.66 | 6073.65 | 1853.18 | 6073.83 | 1857.93 | 6073.76 |
| 1864.69 | 6073.29 | 1869.7  | 6073    | 1871.7  | 6072.75 | 1873.7  | 6072.3  | 1874.7  | 6071.95 |
| 1877.71 | 6071.09 | 1879.71 | 6070.8  | 1881.7  | 6069    | 1896.74 | 6069    | 1898.74 | 6070.77 |
| 1900.72 | 6070.97 | 1903.75 | 6071.71 | 1906.75 | 6072.66 | 1908.75 | 6073.09 | 1910.75 | 6073.39 |
| 1912.76 | 6073.58 | 1915.76 | 6073.63 | 1920.69 | 6073.39 | 1924.77 | 6073.31 | 1927.78 | 6073.18 |
| 1931.15 | 6073.16 | 1934.79 | 6073.24 | 1939.7  | 6073.44 | 1942.8  | 6073.52 | 1946.81 | 6073.56 |
| 1953.97 | 6073.55 | 1956.81 | 6073.6  | 1962.83 | 6073.82 | 1965.83 | 6073.87 | 1975.64 | 6073.82 |
| 1980.85 | 6073.82 | 1985.86 | 6073.77 | 1992    | 6073.98 | 1996.88 | 6074    | 2002.46 | 6073.83 |
| 2006.26 | 6073.77 | 2010.07 | 6073.77 | 2019.91 | 6073.85 | 2024.92 | 6073.93 | 2028.92 | 6073.94 |
| 2032.89 | 6074    | 2035.83 | 6074.1  | 2040.12 | 6074.24 | 2042.2  | 6074.22 | 2049.42 | 6073.91 |
| 2054.28 | 6073.96 | 2058.34 | 6073.93 | 2064.83 | 6073.82 | 2071.43 | 6073.6  | 2075.13 | 6073.58 |
| 2079.42 | 6073.41 | 2084.89 | 6073.44 | 2088.51 | 6073.27 | 2093.61 | 6073.14 | 2101.46 | 6073.15 |
| 2105.65 | 6073.1  | 2107.56 | 6073.13 | 2111.37 | 6073.04 | 2113.96 | 6073.03 | 2117.09 | 6072.94 |
| 2124.95 | 6072.97 | 2128.48 | 6072.9  | 2140.39 | 6072.93 | 2143.47 | 6072.9  | 2152.72 | 6072.9  |
| 2169.06 | 6073.02 | 2176.42 | 6073.01 | 2178.99 | 6073.05 | 2184.67 | 6073.06 | 2189.56 | 6073.02 |
| 2196.73 | 6073.04 | 2204.78 | 6072.78 | 2212.89 | 6072.74 | 2218    | 6072.69 | 2231.3  | 6072.76 |
| 2238.81 | 6072.76 | 2244.3  | 6072.83 | 2249.72 | 6072.84 | 2257.09 | 6072.77 | 2266.66 | 6072.78 |
| 2278.51 | 6072.82 | 2284.21 | 6072.78 | 2294.99 | 6072.78 | 2302.45 | 6072.71 | 2313.21 | 6072.81 |
| 2317.94 | 6072.91 | 2322.92 | 6072.94 | 2327.9  | 6072.9  | 2332.75 | 6072.8  | 2342.83 | 6072.69 |
| 2348.64 | 6072.65 | 2354.35 | 6072.51 | 2358.59 | 6072.5  | 2363.43 | 6072.64 | 2371.03 | 6072.65 |
| 2384.17 | 6072.81 | 2389.29 | 6072.73 | 2391.36 | 6072.62 | 2394.45 | 6072.55 | 2410.9  | 6072.45 |
| 2420.81 | 6072.58 | 2424.96 | 6072.55 | 2426.33 | 6072.6  | 2444.41 | 6072.73 | 2450.8  | 6072.72 |
| 2458.93 | 6072.6  | 2462.99 | 6072.64 | 2466.04 | 6072.76 | 2471.12 | 6073.13 | 2473.71 | 6073.27 |
| 2475.44 | 6073.29 | 2480.26 | 6073.09 | 2492.67 | 6072.89 | 2496.12 | 6072.96 | 2504.64 | 6073.31 |
| 2509.05 | 6073.42 | 2513.36 | 6073.48 | 2527.98 | 6073.53 | 2533.09 | 6073.46 | 2539.18 | 6073.26 |
| 2544.26 | 6072.98 | 2548.33 | 6072.98 | 2553    | 6073.21 | 2560.75 | 6073.27 | 2566.61 | 6073.49 |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 2573.43 | 6073.96 | 2577.77 | 6074.35 | 2586.85 | 6074.9  | 2589.87 | 6075.01 | 2604.83 | 6075.24 |
| 2608.39 | 6075.24 | 2618.11 | 6075.14 | 2621.14 | 6075.13 | 2634.25 | 6075.44 | 2640.5  | 6075.47 |
| 2646.35 | 6075.54 | 2649.38 | 6075.41 | 2655.66 | 6074.63 | 2661.48 | 6074.05 | 2664.5  | 6073.96 |
| 2670.55 | 6073.97 | 2672.89 | 6074.06 | 2677.07 | 6074.33 | 2679.63 | 6074.45 | 2684.2  | 6074.51 |
| 2687.77 | 6074.51 | 2696.78 | 6074.41 | 2705.85 | 6074.18 | 2709.17 | 6074.07 | 2713.92 | 6073.79 |
| 2719.97 | 6073.53 | 2729.05 | 6073.29 | 2741.15 | 6073.24 | 2745.74 | 6073.24 | 2751.09 | 6073.19 |
| 2767.37 | 6073.18 | 2775.17 | 6073.24 | 2780.83 | 6073.24 | 2787.54 | 6073.29 | 2796.58 | 6073.28 |
| 2802.82 | 6073.21 | 2810.74 | 6073.07 | 2820.66 | 6073.08 | 2826.87 | 6073.11 | 2835.95 | 6073.09 |
| 2838.98 | 6073.06 | 2850.07 | 6072.88 | 2859.01 | 6072.83 | 2863.47 | 6072.83 | 2868.82 | 6072.89 |
| 2876.29 | 6072.87 | 2883.09 | 6073.02 | 2893.79 | 6073.15 | 2900.92 | 6073.36 | 2905.38 | 6073.44 |
| 2911.9  | 6073.41 | 2919.61 | 6073.51 | 2936.8  | 6073.84 | 2941.06 | 6073.88 | 2944.87 | 6073.82 |
| 2952.94 | 6073.59 | 2957.11 | 6073.57 | 2961.57 | 6073.69 | 2966.92 | 6073.78 | 2969.08 | 6073.76 |
| 2976.73 | 6073.38 | 2980.3  | 6073.35 | 2987.23 | 6073.46 | 2990.11 | 6073.61 | 2995.3  | 6074.06 |
| 2998.32 | 6074.26 | 3003.65 | 6074.48 |         |         |         |         |         |         |

Manning's n Values

num=3

| Sta    | n Val | Sta     | n Val | Sta     | n Val |
|--------|-------|---------|-------|---------|-------|
| 194.24 | .06   | 1857.93 | .035  | 1912.76 | .06   |

| Bank Sta: | Left    | Right   | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|---------|---------|----------|--------------|-------|-------|--------|--------|
|           | 1857.93 | 1912.76 |          | 56.45        | 56.46 | 56.45 | .3     | .5     |

Ineffective Flow

num=8

| Sta L   | Sta R   | Elev    | Permanent |
|---------|---------|---------|-----------|
| 404.29  | 1859.71 | 6075.91 | T         |
| 1910.69 | 2065.27 | 6075.1  | T         |
| 2065.27 | 2080.56 | 6074.9  | T         |
| 2080.56 | 2109.83 | 6074.73 | T         |
| 2109.83 | 2146.12 | 6074.51 | T         |
| 2146.12 | 2167.19 | 6074.39 | T         |
| 2167.19 | 2611.99 | 6074.21 | T         |
| 2611.99 | 3006.47 | 6074.95 | T         |

Blocked Obstructions

num=1

| Sta L | Sta R   | Elev   |
|-------|---------|--------|
| 3050  | 3003.65 | 6075.2 |

BRIDGE

RIVER: Flat Creek

REACH: 1

RS: 31602

INPUT

Description: Big Trails Drive Bridge

Distance from Upstream XS = 13

Deck/Roadway Width = 37

Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates

num=491

| Sta    | Hi Cord | Lo Cord | Sta    | Hi Cord | Lo Cord | Sta    | Hi Cord | Lo Cord |
|--------|---------|---------|--------|---------|---------|--------|---------|---------|
| 213.74 | 6078.93 | 0       | 219.21 | 6078.86 | 0       | 225.96 | 6078.76 | 0       |
| 230.2  | 6078.72 | 0       | 231.47 | 6078.69 | 0       | 234.44 | 6078.66 | 0       |
| 242.9  | 6078.54 | 0       | 245.83 | 6078.48 | 0       | 251.57 | 6078.4  | 0       |
| 262.73 | 6078.27 | 0       | 274.75 | 6078.1  | 0       | 280.41 | 6078.04 | 0       |
| 283.24 | 6078    | 0       | 288.5  | 6077.97 | 0       | 294.82 | 6077.92 | 0       |
| 296.29 | 6077.92 | 0       | 301.24 | 6077.88 | 0       | 305.06 | 6077.86 | 0       |



|         |         |   |         |         |   |         |         |   |
|---------|---------|---|---------|---------|---|---------|---------|---|
| 310.17  | 6077.8  | 0 | 312.37  | 6077.79 | 0 | 318.22  | 6077.73 | 0 |
| 323.25  | 6077.7  | 0 | 329.42  | 6077.65 | 0 | 332.83  | 6077.61 | 0 |
| 337.95  | 6077.58 | 0 | 342.34  | 6077.54 | 0 | 351.84  | 6077.52 | 0 |
| 358.42  | 6077.45 | 0 | 365.73  | 6077.43 | 0 | 369.38  | 6077.4  | 0 |
| 374.98  | 6077.38 | 0 | 378.16  | 6077.35 | 0 | 381.81  | 6077.34 | 0 |
| 393.77  | 6077.27 | 0 | 405.05  | 6077.24 | 0 | 411.93  | 6077.19 | 0 |
| 416.51  | 6077.18 | 0 | 419.79  | 6077.16 | 0 | 426.45  | 6077.16 | 0 |
| 439.75  | 6077.09 | 0 | 444.73  | 6077.05 | 0 | 452.42  | 6077.02 | 0 |
| 457.01  | 6076.98 | 0 | 463.88  | 6076.95 | 0 | 467.5   | 5940.54 | 0 |
| 467.71  | 5933.09 | 0 | 471.83  | 5970.1  | 0 | 483.72  | 6076.89 | 0 |
| 490.27  | 6076.85 | 0 | 494.6   | 6076.84 | 0 | 496.66  | 6076.82 | 0 |
| 502.85  | 6076.8  | 0 | 508.31  | 6076.77 | 0 | 515.72  | 6076.71 | 0 |
| 529.14  | 6076.65 | 0 | 538.24  | 6076.58 | 0 | 546.13  | 6076.55 | 0 |
| 558.09  | 6076.47 | 0 | 562.22  | 6076.46 | 0 | 570.28  | 6076.41 | 0 |
| 570.49  | 6076.4  | 0 | 576.46  | 6076.37 | 0 | 582.07  | 6076.33 | 0 |
| 583.72  | 6076.33 | 0 | 592.37  | 6076.28 | 0 | 596.02  | 6076.25 | 0 |
| 602.75  | 6076.26 | 0 | 608.38  | 6076.22 | 0 | 614.32  | 6076.22 | 0 |
| 614.55  | 6076.21 | 0 | 620.94  | 6076.21 | 0 | 624.85  | 6076.2  | 0 |
| 630.86  | 6076.23 | 0 | 637.48  | 6076.23 | 0 | 638.23  | 6076.22 | 0 |
| 646.58  | 6076.22 | 0 | 647     | 6076.23 | 0 | 654.85  | 6076.23 | 0 |
| 660.63  | 6076.26 | 0 | 665     | 6076.26 | 0 | 672.21  | 6076.32 | 0 |
| 678.83  | 6076.36 | 0 | 682.96  | 6076.37 | 0 | 688.75  | 6076.41 | 0 |
| 691.77  | 6076.42 | 0 | 697.95  | 6076.46 | 0 | 701.16  | 6076.49 | 0 |
| 706.19  | 6076.5  | 0 | 713.56  | 6076.54 | 0 | 717.7   | 6076.57 | 0 |
| 721.83  | 6076.58 | 0 | 727.62  | 6076.61 | 0 | 732.58  | 6076.62 | 0 |
| 743.25  | 6076.66 | 0 | 749.43  | 6076.67 | 0 | 752.43  | 6076.69 | 0 |
| 757.66  | 6076.7  | 0 | 762.35  | 6076.73 | 0 | 764.01  | 6076.73 | 0 |
| 770.62  | 6076.77 | 0 | 776.41  | 6076.77 | 0 | 780.31  | 6076.79 | 0 |
| 783.4   | 6076.79 | 0 | 789.58  | 6076.82 | 0 | 794.73  | 6076.82 | 0 |
| 800.39  | 6076.83 | 0 | 805.36  | 6076.86 | 0 | 807.08  | 6076.86 | 0 |
| 816.93  | 6076.91 | 0 | 821.5   | 6076.92 | 0 | 824.38  | 6076.94 | 0 |
| 828.7   | 6076.94 | 0 | 836.78  | 6076.99 | 0 | 848.74  | 6077.03 | 0 |
| 852.38  | 6077.05 | 0 | 855.47  | 6077.05 | 0 | 859.11  | 6077.08 | 0 |
| 864.74  | 6077.07 | 0 | 869.86  | 6077.07 | 0 | 870.69  | 6077.08 | 0 |
| 880.18  | 6077.08 | 0 | 884.3   | 6077.09 | 0 | 890.77  | 6077.13 | 0 |
| 892.54  | 6077.13 | 0 | 897.15  | 6077.16 | 0 | 900.46  | 6077.14 | 0 |
| 904.89  | 6077.14 | 0 | 910.04  | 6077.12 | 0 | 915.19  | 6077.12 | 0 |
| 915.35  | 6077.13 | 0 | 921.37  | 6077.13 | 0 | 926.1   | 6077.09 | 0 |
| 933.72  | 6077.08 | 0 | 937.67  | 6077.05 | 0 | 946.77  | 6077    | 0 |
| 955.04  | 6076.89 | 0 | 960     | 6076.86 | 0 | 963.58  | 6076.85 | 0 |
| 969.93  | 6076.8  | 0 | 975.93  | 6076.77 | 0 | 986.23  | 6076.69 | 0 |
| 989.32  | 6076.68 | 0 | 995.49  | 6076.59 | 0 | 1002.18 | 6076.59 | 0 |
| 1006.31 | 6076.56 | 0 | 1011.28 | 6076.54 | 0 | 1014.03 | 6076.54 | 0 |
| 1020.2  | 6076.49 | 0 | 1027.41 | 6076.41 | 0 | 1036.09 | 6076.41 | 0 |
| 1036.68 | 6076.4  | 0 | 1045.18 | 6076.39 | 0 | 1049.03 | 6076.36 | 0 |
| 1051.8  | 6076.36 | 0 | 1055.93 | 6076.33 | 0 | 1060.9  | 6076.32 | 0 |
| 1066.53 | 6076.28 | 0 | 1068.34 | 6076.28 | 0 | 1074.77 | 6076.24 | 0 |
| 1079.9  | 6076.24 | 0 | 1080.74 | 6076.25 | 0 | 1089.18 | 6076.25 | 0 |
| 1095.36 | 6076.22 | 0 | 1099.76 | 6076.21 | 0 | 1105.66 | 6076.21 | 0 |
| 1109.69 | 6076.18 | 0 | 1117.13 | 6076.15 | 0 | 1121.93 | 6076.12 | 0 |
| 1128.71 | 6076.1  | 0 | 1133.67 | 6076.07 | 0 | 1137.8  | 6076.06 | 0 |
| 1142.72 | 6076.03 | 0 | 1146.07 | 6076.02 | 0 | 1163.76 | 6076.02 | 0 |
| 1176.07 | 6076.07 | 0 | 1176.61 | 6076.08 | 0 | 1182.24 | 6076.06 | 0 |
| 1187.56 | 6076.06 | 0 | 1193.48 | 6076.08 | 0 | 1204.73 | 6076.08 | 0 |
| 1209.48 | 6076.11 | 0 | 1214.37 | 6076.12 | 0 | 1217.58 | 6076.15 | 0 |



|         |         |         |         |         |         |         |         |   |
|---------|---------|---------|---------|---------|---------|---------|---------|---|
| 1220.8  | 6076.16 | 0       | 1228.83 | 6076.21 | 0       | 1236.86 | 6076.21 | 0 |
| 1240.64 | 6076.23 | 0       | 1243.38 | 6076.23 | 0       | 1249.16 | 6076.27 | 0 |
| 1253.08 | 6076.28 | 0       | 1256.01 | 6076.31 | 0       | 1263.32 | 6076.31 | 0 |
| 1271.13 | 6076.34 | 0       | 1274.6  | 6076.34 | 0       | 1280.88 | 6076.37 | 0 |
| 1285.73 | 6076.42 | 0       | 1291.94 | 6076.43 | 0       | 1296.24 | 6076.45 | 0 |
| 1302.35 | 6076.46 | 0       | 1305.65 | 6076.48 | 0       | 1310.88 | 6076.48 | 0 |
| 1311.6  | 6076.49 | 0       | 1317.6  | 6076.49 | 0       | 1320.33 | 6076.51 | 0 |
| 1339.03 | 6076.51 | 0       | 1339.54 | 6076.52 | 0       | 1345.42 | 6076.52 | 0 |
| 1345.95 | 6076.53 | 0       | 1351.42 | 6076.53 | 0       | 1354.63 | 6076.54 | 0 |
| 1361.6  | 6076.6  | 0       | 1367.15 | 6076.63 | 0       | 1373.54 | 6076.71 | 0 |
| 1377.38 | 6076.72 | 0       | 1385.06 | 6076.82 | 0       | 1390.28 | 6076.86 | 0 |
| 1395.19 | 6076.91 | 0       | 1397.09 | 6076.91 | 0       | 1402.75 | 6076.95 | 0 |
| 1409.55 | 6077.01 | 0       | 1411.96 | 6077.04 | 0       | 1419.03 | 6077.08 | 0 |
| 1425    | 6077.13 | 0       | 1428.81 | 6077.18 | 0       | 1434.48 | 6077.2  | 0 |
| 1439.19 | 6077.2  | 0       | 1443.63 | 6077.24 | 0       | 1445.22 | 6077.24 | 0 |
| 1455.49 | 6077.32 | 0       | 1459.94 | 6077.33 | 0       | 1465.04 | 6077.37 | 0 |
| 1469.71 | 6077.36 | 0       | 1482.98 | 6077.36 | 0       | 1483.38 | 6077.37 | 0 |
| 1495.94 | 6077.39 | 0       | 1499.17 | 6077.41 | 0       | 1516.83 | 6077.41 | 0 |
| 1517.45 | 6077.4  | 0       | 1530.28 | 6077.4  | 0       | 1535.44 | 6077.37 | 0 |
| 1543.76 | 6077.39 | 0       | 1546.01 | 6077.37 | 0       | 1556.54 | 6077.37 | 0 |
| 1557.24 | 6077.36 | 0       | 1580.96 | 6077.36 | 0       | 1586.32 | 6077.33 | 0 |
| 1593.18 | 6077.31 | 0       | 1596.19 | 6077.31 | 0       | 1600.7  | 6077.28 | 0 |
| 1607.43 | 6077.25 | 0       | 1613.05 | 6077.26 | 0       | 1613.68 | 6077.25 | 0 |
| 1620.77 | 6077.25 | 0       | 1624.44 | 6077.23 | 0       | 1629.81 | 6077.23 | 0 |
| 1640.79 | 6077.2  | 0       | 1650.26 | 6077.14 | 0       | 1651.98 | 6077.14 | 0 |
| 1658.87 | 6077.09 | 0       | 1663.35 | 6077.07 | 0       | 1671.78 | 6077.06 | 0 |
| 1682.6  | 6077    | 0       | 1689.1  | 6076.98 | 0       | 1696.62 | 6076.9  | 0 |
| 1698.1  | 6076.9  | 0       | 1707.14 | 6076.8  | 0       | 1709.64 | 6076.76 | 0 |
| 1715.65 | 6076.73 | 0       | 1721.66 | 6076.69 | 0       | 1727.66 | 6076.68 | 0 |
| 1738.49 | 6076.61 | 0       | 1745.69 | 6076.57 | 0       | 1753.36 | 6076.56 | 0 |
| 1753.68 | 6076.55 | 0       | 1758.71 | 6076.55 | 0       | 1762.23 | 6076.54 | 0 |
| 1770.78 | 6076.5  | 0       | 1777.74 | 6076.44 | 0       | 1778.74 | 6076.44 | 0 |
| 1785.03 | 6076.37 | 0       | 1790.73 | 6076.35 | 0       | 1803.08 | 6076.25 | 0 |
| 1806.78 | 6076.24 | 0       | 1812.57 | 6076.19 | 0       | 1817.8  | 6076.17 | 0 |
| 1827.77 | 6076.11 | 0       | 1833.82 | 6076.1  | 0       | 1838.83 | 6076.08 | 0 |
| 1843.92 | 6076.08 | 0       | 1852.85 | 6076    | 0       | 1861.02 | 6075.98 | 0 |
| 1863.86 | 6075.96 | 0       | 1866.87 | 6075.86 | 0       | 1869.46 | 6075.85 | 0 |
| 1871.07 | 6075.85 | 6073.11 | 1900.02 | 6075.85 | 6072.97 | 1901.62 | 6075.85 | 0 |
| 1907.56 | 6075.74 | 0       | 1909.46 | 6075.78 | 0       | 1917.06 | 6075.76 | 0 |
| 1923.95 | 6075.73 | 0       | 1935.1  | 6075.65 | 0       | 1943.65 | 6075.65 | 0 |
| 1943.98 | 6075.64 | 0       | 1949.35 | 6075.64 | 0       | 1949.99 | 6075.63 | 0 |
| 1974.03 | 6075.63 | 0       | 1984.49 | 6075.58 | 0       | 1989.05 | 6075.54 | 0 |
| 1998.74 | 6075.44 | 0       | 2003.49 | 6075.41 | 0       | 2007.08 | 6075.37 | 0 |
| 2015.84 | 6075.24 | 0       | 2031.12 | 6075.16 | 0       | 2035.4  | 6075.15 | 0 |
| 2036.17 | 6075.16 | 0       | 2043.41 | 6075.16 | 0       | 2044.24 | 6075.15 | 0 |
| 2053.19 | 6075.15 | 0       | 2053.32 | 6075.16 | 0       | 2059.77 | 6075.16 | 0 |
| 2067.55 | 6075.12 | 0       | 2069.5  | 6075.08 | 0       | 2073.18 | 6075.03 | 0 |
| 2079.78 | 6074.92 | 0       | 2088.95 | 6074.85 | 0       | 2094.59 | 6074.8  | 0 |
| 2099.92 | 6074.78 | 0       | 2102.88 | 6074.78 | 0       | 2106.59 | 6074.76 | 0 |
| 2111.04 | 6074.75 | 0       | 2116.72 | 6074.68 | 0       | 2123.87 | 6074.64 | 0 |
| 2128.85 | 6074.6  | 0       | 2130.33 | 6074.6  | 0       | 2138.16 | 6074.54 | 0 |
| 2148.85 | 6074.52 | 0       | 2155.23 | 6074.49 | 0       | 2160.18 | 6074.45 | 0 |
| 2168.27 | 6074.43 | 0       | 2173.07 | 6074.39 | 0       | 2175.74 | 6074.39 | 0 |
| 2182.14 | 6074.36 | 0       | 2184.83 | 6074.36 | 0       | 2190.46 | 6074.32 | 0 |
| 2195.81 | 6074.32 | 0       | 2202.89 | 6074.29 | 0       | 2207.4  | 6074.29 | 0 |

|         |         |   |         |         |   |         |         |   |
|---------|---------|---|---------|---------|---|---------|---------|---|
| 2221.53 | 6074.25 | 0 | 2232.67 | 6074.25 | 0 | 2233.03 | 6074.26 | 0 |
| 2242.74 | 6074.26 | 0 | 2247.23 | 6074.22 | 0 | 2254.33 | 6074.22 | 0 |
| 2254.98 | 6074.21 | 0 | 2261.42 | 6074.21 | 0 | 2266.75 | 6074.2  | 0 |
| 2271.53 | 6074.22 | 0 | 2280.16 | 6074.22 | 0 | 2280.84 | 6074.23 | 0 |
| 2289.32 | 6074.23 | 0 | 2298.87 | 6074.26 | 0 | 2306.79 | 6074.23 | 0 |
| 2311.88 | 6074.22 | 0 | 2324.78 | 6074.22 | 0 | 2329.93 | 6074.24 | 0 |
| 2342.46 | 6074.24 | 0 | 2343.2  | 6074.25 | 0 | 2352.9  | 6074.25 | 0 |
| 2353.65 | 6074.24 | 0 | 2369.71 | 6074.24 | 0 | 2374.53 | 6074.27 | 0 |
| 2380.53 | 6074.28 | 0 | 2380.96 | 6074.29 | 0 | 2386.58 | 6074.3  | 0 |
| 2390.48 | 6074.28 | 0 | 2405.86 | 6074.28 | 0 | 2414.49 | 6074.26 | 0 |
| 2419.71 | 6074.23 | 0 | 2421.93 | 6074.23 | 0 | 2429.32 | 6074.2  | 0 |
| 2437.19 | 6074.16 | 0 | 2440.62 | 6074.13 | 0 | 2452.63 | 6074.13 | 0 |
| 2453.02 | 6074.12 | 0 | 2461.87 | 6074.12 | 0 | 2467.19 | 6074.14 | 0 |
| 2469.8  | 6074.16 | 0 | 2477.87 | 6074.18 | 0 | 2479.89 | 6074.2  | 0 |
| 2488.44 | 6074.22 | 0 | 2494.03 | 6074.27 | 0 | 2499.96 | 6074.29 | 0 |
| 2502.11 | 6074.31 | 0 | 2508.17 | 6074.32 | 0 | 2512.21 | 6074.34 | 0 |
| 2519.44 | 6074.36 | 0 | 2523.87 | 6074.39 | 0 | 2530.07 | 6074.39 | 0 |
| 2530.38 | 6074.4  | 0 | 2535.43 | 6074.4  | 0 | 2541.49 | 6074.36 | 0 |
| 2559.29 | 6074.36 | 0 | 2559.67 | 6074.37 | 0 | 2578.85 | 6074.37 | 0 |
| 2581.43 | 6074.38 | 0 | 2585.43 | 6074.42 | 0 | 2589.4  | 6074.43 | 0 |
| 2595.6  | 6074.47 | 0 | 2600.03 | 6074.48 | 0 | 2608.89 | 6074.53 | 0 |
| 2614.19 | 6074.55 | 0 | 2622.17 | 6074.64 | 0 | 2623.28 | 6074.64 | 0 |
| 2628.33 | 6074.69 | 0 | 2629.34 | 6074.69 | 0 | 2638.11 | 6074.79 | 0 |
| 2642.47 | 6074.86 | 0 | 2647.85 | 6074.93 | 0 | 2652.57 | 6074.98 | 0 |
| 2655.83 | 6075.03 | 0 | 2670.74 | 6075.2  | 0 | 2677.08 | 6075.23 | 0 |
| 2680.62 | 6075.27 | 0 | 2687.91 | 6075.3  | 0 | 2690.36 | 6075.33 | 0 |
| 2698.01 | 6075.37 | 0 | 2701.88 | 6075.36 | 0 | 2710.73 | 6075.38 | 0 |
| 2715.08 | 6075.35 | 0 | 2720.48 | 6075.35 | 0 | 2725.79 | 6075.38 | 0 |
| 2731.99 | 6075.32 | 0 | 2736.69 | 6075.32 | 0 | 2743.89 | 6075.27 | 0 |
| 2746.16 | 6075.27 | 0 | 2752.53 | 6075.22 | 0 | 2757.67 | 6075.22 | 0 |
| 2758.29 | 6075.23 | 0 | 2763.64 | 6075.23 | 0 | 2769.18 | 6075.18 | 0 |
| 2775.76 | 6075.17 | 0 | 2778.93 | 6075.15 | 0 | 2784.24 | 6075.15 | 0 |
| 2791.92 | 6075.18 | 0 | 2797.97 | 6075.18 | 0 | 2801.51 | 6075.15 | 0 |
| 2806.05 | 6075.13 | 0 | 2809.04 | 6075.1  | 0 | 2817.01 | 6075.06 | 0 |
| 2817.16 | 6075.05 | 0 | 2830.29 | 6074.99 | 0 | 2835.34 | 6074.98 | 0 |
| 2842.69 | 6074.98 | 0 | 2843.41 | 6074.97 | 0 | 2863.06 | 6074.97 | 0 |
| 2865.63 | 6074.99 | 0 | 2874.72 | 6074.99 | 0 | 2878.11 | 6075.01 | 0 |
| 2884.31 | 6075.02 | 0 | 2887.85 | 6075.04 | 0 | 2890.87 | 6075.04 | 0 |
| 2897.94 | 6075.07 | 0 | 2901.14 | 6075.07 | 0 | 2904.68 | 6075.09 | 0 |
| 2907.34 | 6075.09 | 0 | 2916.75 | 6075.13 | 0 | 2940    | 6075.13 | 0 |
| 2940.37 | 6075.14 | 0 | 2947.05 | 6075.14 | 0 | 2953.51 | 6075.11 | 0 |
| 2956.55 | 6075.11 | 0 | 2959.39 | 6075.09 | 0 | 2963.62 | 6075.08 | 0 |
| 2974.37 | 6075.08 | 0 | 2974.74 | 6075.07 | 0 | 2979.66 | 6075.08 | 0 |
| 2981.43 | 6075.1  | 0 | 2986.87 | 6075.1  | 0 | 2987.59 | 6075.11 | 0 |
| 2995.96 | 6075.11 | 0 | 2999    | 6075.09 | 0 | 3003.46 | 6075.08 | 0 |
| 3006.32 | 6075.05 | 0 | 3016.68 | 6074.92 | 0 | 3020.2  | 6074.9  | 0 |
| 3024.26 | 6074.86 | 0 | 3028.31 | 6074.86 | 0 | 3033.36 | 6074.9  | 0 |
| 3037.83 | 6074.89 | 0 | 3042.89 | 6074.84 | 0 |         |         |   |

Upstream Bridge Cross Section Data

| Station Elevation Data |         | num=   |         | 492    |         |        |         |        |         |
|------------------------|---------|--------|---------|--------|---------|--------|---------|--------|---------|
| Sta                    | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    |
| 194.21                 | 6077.83 | 197.58 | 6077.7  | 201.39 | 6077.61 | 210.83 | 6077.49 | 218.15 | 6077.37 |
| 225.58                 | 6077.22 | 230.72 | 6077.23 | 237.35 | 6077.13 | 243.3  | 6077.16 | 254.64 | 6077.12 |
| 263.14                 | 6077.01 | 272.31 | 6076.81 | 276.84 | 6076.75 | 279.48 | 6076.66 | 290.24 | 6076.53 |



295.62 6076.53 302.85 6076.48 308.63 6076.47 315.33 6076.37 324.52 6076.31  
328.85 6076.31 333.91 6076.42 341.86 6076.5 346.91 6076.68 354.14 6076.68  
359.19 6076.72 364.97 6076.9 367.79 6076.88 370.3 6076.72 372.69 6076.48  
375.81 6076.35 387.5 6076.29 391.4 6076.3 399.2 6076.42 414.56 6076.62  
422.01 6076.7 435.06 6076.87 444.37 6077.01 456.08 6077.26 467.02 6077.26  
469.93 6077.19 481.64 6076.78 491.12 6076.53 513.9 6076.13 515.92 6076.07  
526.27 6075.88 535.7 6075.67 546.41 6075.61 550.54 6075.56 554.11 6075.46  
557.2 6075.27 560.3 6074.96 563.39 6074.52 565.37 6074.16 569.58 6073.61  
571.64 6073.2 574.73 6072.68 577.82 6072.27 580.21 6072.12 581.95 6072.12  
585.04 6072.45 587.1 6072.91 590.2 6073.51 592.57 6073.77 596.69 6073.92  
604.11 6073.91 612.35 6073.76 620.59 6073.97 629.65 6074.04 635.56 6073.96  
640.37 6073.84 647.79 6073.93 656.85 6073.88 665.92 6073.93 674.74 6073.94  
683.22 6073.78 691.47 6073.88 696.49 6073.86 700.52 6073.92 708.76 6073.91  
714.54 6073.96 722.17 6074.11 731.03 6074.31 741.74 6074.33 748.33 6074.39  
756.57 6074.43 763.99 6074.52 774.53 6074.51 780.94 6074.55 788.15 6074.32  
790.96 6074.32 797.78 6074.46 801.9 6074.49 807.74 6074.48 810.84 6074.67  
813.93 6075.09 815.91 6075.48 819.08 6075.96 822.18 6076.27 825.27 6076.43  
827.93 6076.47 832.04 6076.45 835.58 6076.34 838.67 6076.13 847.95 6075.38  
851.05 6075.09 856.2 6074.52 859.29 6074.28 865.48 6073.89 868.57 6073.77  
872.78 6073.73 875.79 6073.8 880.94 6074.05 883.49 6074.13 888.16 6074.18  
893.32 6074.43 895.03 6074.47 900.53 6074.47 907.39 6074.75 913.94 6074.93  
919.09 6075.24 927.34 6075.93 929.4 6075.97 931.46 6075.9 936.62 6075.38  
940.74 6075.17 943.84 6074.94 945.9 6074.7 948.99 6074.44 952.09 6074.35  
959.37 6074.36 968.38 6074.55 971.67 6074.49 976.62 6074.23 981.57 6074.14  
984.01 6074.15 993.11 6074.37 996.4 6074.35 1001.57 6074.14 1006.29 6074.09  
1008.76 6074 1013.95 6073.68 1017.01 6073.6 1027.72 6073.45 1036.63 6073.22  
1041.52 6073.24 1049.74 6073.32 1056.22 6073.52 1062.4 6073.43 1068.93 6073.55  
1072.22 6073.55 1080.96 6073.38 1084.35 6073.37 1089.68 6073.45 1096.07 6073.7  
1098.2 6073.73 1104.34 6073.63 1109.01 6073.61 1114.17 6073.76 1118.43 6073.79  
1124.83 6073.68 1128.02 6073.52 1131.22 6073.3 1134.41 6072.96 1139.74 6072  
1141.4 6071.88 1144 6072.02 1147.19 6072.69 1149.32 6073.29 1152.52 6073.99  
1154.99 6074.35 1157.33 6074.52 1159.67 6074.57 1169.56 6074.6 1177.59 6074.44  
1183.05 6074.47 1185.54 6074.42 1190.84 6074.19 1195.51 6074.08 1200.45 6073.84  
1203.65 6073.81 1207.91 6073.84 1216.43 6073.55 1221.23 6073.55 1225.61 6073.47  
1232.92 6073.44 1244.12 6073.32 1246.42 6073.36 1252.51 6073.66 1257.68 6073.78  
1264.84 6074.01 1269.03 6074.2 1274.05 6074.55 1277.64 6074.64 1281.22 6074.62  
1284.81 6074.69 1289.11 6074.85 1292.69 6074.9 1296.99 6074.87 1304.22 6074.88  
1312.84 6074.92 1316.28 6074.78 1318.51 6074.61 1322.81 6074.42 1331.14 6074.41  
1338.58 6074.59 1344.32 6074.89 1351.86 6075.08 1361.93 6075.24 1369.78 6075.18  
1374.02 6075.12 1378.76 6074.97 1381.54 6075.06 1388.88 6075.13 1394.53 6075.01  
1396.47 6074.9 1400.79 6074.79 1404.43 6074.79 1409.35 6074.71 1412.92 6074.73  
1420.94 6074.57 1426.03 6074.62 1434.84 6074.43 1438.48 6074.43 1447.24 6074.31  
1453.39 6074.3 1459.44 6074.37 1465.67 6074.57 1471.43 6074.82 1476.6 6075.14  
1481 6075.3 1488.33 6075.38 1494.19 6075.32 1495.74 6075.26 1501.79 6075.15  
1505.18 6075.18 1507.83 6075.11 1511.87 6075.13 1518.38 6075.42 1525.98 6075.53  
1534.5 6075.88 1539.63 6075.82 1545.5 6076 1546.96 6076.01 1550.7 6075.88  
1552.84 6075.89 1554.98 6076.09 1559.26 6076.72 1561.4 6076.76 1567.05 6076.61  
1570.67 6076.38 1574.23 6076.31 1581.72 6075.94 1584.78 6075.88 1588.13 6075.96  
1589.54 6075.91 1593.25 6075.64 1596.69 6075.69 1601.17 6075.95 1605.82 6076  
1610.18 6075.78 1612.73 6075.76 1615.13 6075.87 1621.28 6076.34 1624.49 6076.46  
1631.42 6076.56 1637.33 6076.6 1641.6 6076.59 1648.02 6076.5 1650.9 6076.36  
1662.03 6075.58 1669.11 6075.38 1677.04 6075.33 1690.34 6075.32 1695.4 6075.5  
1701.01 6075.58 1708.62 6075.53 1719.46 6075.35 1730.8 6075.33 1735.24 6075.35  
1735.8 6075.33 1741.49 6075.11 1745.7 6075.02 1752.5 6075.01 1758.06 6074.85  
1765.52 6074.74 1772.32 6074.77 1776.54 6074.68 1784.69 6074.37 1794.19 6074.21

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1799.9  | 6074.05 | 1808.58 | 6073.97 | 1819.6  | 6073.83 | 1823.6  | 6073.82 | 1831.28 | 6073.71 |
| 1835.62 | 6073.62 | 1839.83 | 6073.61 | 1843.63 | 6073.65 | 1853.15 | 6073.83 | 1857.9  | 6073.76 |
| 1864.66 | 6073.29 | 1869.67 | 6073    | 1871.67 | 6072.75 | 1873.67 | 6072.3  | 1874.67 | 6071.95 |
| 1877.68 | 6071.09 | 1879.68 | 6070.8  | 1881.67 | 6069    | 1896.71 | 6069    | 1898.71 | 6070.77 |
| 1900.69 | 6070.97 | 1903.72 | 6071.71 | 1906.72 | 6072.66 | 1908.72 | 6073.09 | 1910.72 | 6073.39 |
| 1912.73 | 6073.58 | 1915.73 | 6073.63 | 1920.66 | 6073.39 | 1924.74 | 6073.31 | 1927.75 | 6073.18 |
| 1931.12 | 6073.16 | 1934.76 | 6073.24 | 1939.67 | 6073.44 | 1942.77 | 6073.52 | 1946.78 | 6073.56 |
| 1953.94 | 6073.55 | 1956.78 | 6073.6  | 1962.8  | 6073.82 | 1965.8  | 6073.87 | 1975.61 | 6073.82 |
| 1980.82 | 6073.82 | 1985.83 | 6073.77 | 1991.97 | 6073.98 | 1996.85 | 6074    | 2002.43 | 6073.83 |
| 2006.23 | 6073.77 | 2010.04 | 6073.77 | 2019.88 | 6073.85 | 2024.89 | 6073.93 | 2028.89 | 6073.94 |
| 2032.86 | 6074    | 2035.8  | 6074.1  | 2040.09 | 6074.24 | 2042.17 | 6074.22 | 2049.39 | 6073.91 |
| 2054.25 | 6073.96 | 2058.31 | 6073.93 | 2064.8  | 6073.82 | 2071.4  | 6073.6  | 2075.1  | 6073.58 |
| 2079.39 | 6073.41 | 2084.86 | 6073.44 | 2088.48 | 6073.27 | 2093.58 | 6073.14 | 2101.43 | 6073.15 |
| 2105.62 | 6073.1  | 2107.53 | 6073.13 | 2111.34 | 6073.04 | 2113.93 | 6073.03 | 2117.06 | 6072.94 |
| 2124.92 | 6072.97 | 2128.45 | 6072.9  | 2140.36 | 6072.93 | 2143.44 | 6072.9  | 2152.69 | 6072.9  |
| 2169.03 | 6073.02 | 2176.39 | 6073.01 | 2178.96 | 6073.05 | 2184.64 | 6073.06 | 2189.53 | 6073.02 |
| 2196.7  | 6073.04 | 2204.75 | 6072.78 | 2212.86 | 6072.74 | 2217.97 | 6072.69 | 2231.27 | 6072.76 |
| 2238.78 | 6072.76 | 2244.27 | 6072.83 | 2249.69 | 6072.84 | 2257.06 | 6072.77 | 2266.63 | 6072.78 |
| 2278.48 | 6072.82 | 2284.18 | 6072.78 | 2294.96 | 6072.78 | 2302.42 | 6072.71 | 2313.18 | 6072.81 |
| 2317.91 | 6072.91 | 2322.89 | 6072.94 | 2327.87 | 6072.9  | 2332.72 | 6072.8  | 2342.8  | 6072.69 |
| 2348.61 | 6072.65 | 2354.32 | 6072.51 | 2358.56 | 6072.5  | 2363.4  | 6072.64 | 2371    | 6072.65 |
| 2384.14 | 6072.81 | 2389.26 | 6072.73 | 2391.33 | 6072.62 | 2394.42 | 6072.55 | 2410.87 | 6072.45 |
| 2420.78 | 6072.58 | 2424.93 | 6072.55 | 2426.3  | 6072.6  | 2444.38 | 6072.73 | 2450.77 | 6072.72 |
| 2458.9  | 6072.6  | 2462.96 | 6072.64 | 2466.01 | 6072.76 | 2471.09 | 6073.13 | 2473.68 | 6073.27 |
| 2475.41 | 6073.29 | 2480.23 | 6073.09 | 2492.64 | 6072.89 | 2496.09 | 6072.96 | 2504.61 | 6073.31 |
| 2509.02 | 6073.42 | 2513.33 | 6073.48 | 2527.95 | 6073.53 | 2533.06 | 6073.46 | 2539.15 | 6073.26 |
| 2544.23 | 6072.98 | 2548.3  | 6072.98 | 2552.97 | 6073.21 | 2560.72 | 6073.27 | 2566.58 | 6073.49 |
| 2573.4  | 6073.96 | 2577.74 | 6074.35 | 2586.82 | 6074.9  | 2589.84 | 6075.01 | 2604.8  | 6075.24 |
| 2608.36 | 6075.24 | 2618.08 | 6075.14 | 2621.11 | 6075.13 | 2634.22 | 6075.44 | 2640.47 | 6075.47 |
| 2646.32 | 6075.54 | 2649.35 | 6075.41 | 2655.63 | 6074.63 | 2661.45 | 6074.05 | 2664.47 | 6073.96 |
| 2670.52 | 6073.97 | 2672.86 | 6074.06 | 2677.04 | 6074.33 | 2679.6  | 6074.45 | 2684.17 | 6074.51 |
| 2687.74 | 6074.51 | 2696.75 | 6074.41 | 2705.82 | 6074.18 | 2709.14 | 6074.07 | 2713.89 | 6073.79 |
| 2719.94 | 6073.53 | 2729.02 | 6073.29 | 2741.12 | 6073.24 | 2745.71 | 6073.24 | 2751.06 | 6073.19 |
| 2767.34 | 6073.18 | 2775.14 | 6073.24 | 2780.8  | 6073.24 | 2787.51 | 6073.29 | 2796.55 | 6073.28 |
| 2802.79 | 6073.21 | 2810.71 | 6073.07 | 2820.63 | 6073.08 | 2826.84 | 6073.11 | 2835.92 | 6073.09 |
| 2838.95 | 6073.06 | 2850.04 | 6072.88 | 2858.98 | 6072.83 | 2863.44 | 6072.83 | 2868.79 | 6072.89 |
| 2876.26 | 6072.87 | 2883.06 | 6073.02 | 2893.76 | 6073.15 | 2900.89 | 6073.36 | 2905.35 | 6073.44 |
| 2911.87 | 6073.41 | 2919.58 | 6073.51 | 2936.77 | 6073.84 | 2941.03 | 6073.88 | 2944.84 | 6073.82 |
| 2952.91 | 6073.59 | 2957.08 | 6073.57 | 2961.54 | 6073.69 | 2966.89 | 6073.78 | 2969.05 | 6073.76 |
| 2976.7  | 6073.38 | 2980.27 | 6073.35 | 2987.2  | 6073.46 | 2990.08 | 6073.61 | 2995.27 | 6074.06 |
| 2998.29 | 6074.26 | 3003.62 | 6074.48 |         |         |         |         |         |         |

|                    |             |            |
|--------------------|-------------|------------|
| Manning's n Values | num=        | 3          |
| Sta n Val          | Sta n Val   | Sta n Val  |
| 194.21 .06         | 1735.8 .035 | 2035.8 .06 |

|                  |         |         |           |        |
|------------------|---------|---------|-----------|--------|
| Bank Sta: Left   | Right   | Coeff   | Contr.    | Expan. |
| 1735.8           | 2035.8  |         | .3        | .5     |
| Ineffective Flow | num=    | 8       |           |        |
| Sta L            | Sta R   | Elev    | Permanent |        |
| 404.29           | 1859.71 | 6075.91 | T         |        |
| 1910.69          | 2065.27 | 6075.1  | T         |        |
| 2065.27          | 2080.56 | 6074.9  | T         |        |
| 2080.56          | 2109.83 | 6074.73 | T         |        |
| 2109.83          | 2146.12 | 6074.51 | T         |        |





|                      |         |         |        |
|----------------------|---------|---------|--------|
| 2146.12              | 2167.19 | 6074.39 | T      |
| 2167.19              | 2611.99 | 6074.21 | T      |
| 2611.99              | 3006.47 | 6074.95 | T      |
| Blocked Obstructions |         |         | num= 1 |
| Sta L                | Sta R   | Elev    |        |
| 3050                 | 3003.62 | 6075.2  |        |

| Downstream |         | Deck/Roadway |        | Coordinates |         |
|------------|---------|--------------|--------|-------------|---------|
| num= 488   |         |              |        |             |         |
| Sta        | Hi Cord | Lo Cord      | Sta    | Hi Cord     | Lo Cord |
| 213.74     | 6078.93 | 0            | 218.18 | 6078.87     | 0       |
| 230.36     | 6078.72 | 0            | 231.75 | 6078.69     | 0       |
| 251.26     | 6078.4  | 0            | 257.78 | 6078.32     | 0       |
| 274.95     | 6078.1  | 0            | 279.7  | 6078.05     | 0       |
| 293.13     | 6077.92 | 0            | 299.94 | 6077.9      | 0       |
| 307.62     | 6077.82 | 0            | 310.91 | 6077.8      | 0       |
| 319.51     | 6077.73 | 0            | 321.87 | 6077.7      | 0       |
| 332.52     | 6077.61 | 0            | 335.76 | 6077.6      | 0       |
| 348.74     | 6077.52 | 0            | 351.11 | 6077.52     | 0       |
| 361.34     | 6077.44 | 0            | 365.07 | 6077.43     | 0       |
| 373.04     | 6077.39 | 0            | 377.7  | 6077.36     | 0       |
| 384        | 6077.33 | 0            | 389.85 | 6077.31     | 0       |
| 402.76     | 6077.26 | 0            | 407.35 | 6077.22     | 0       |
| 423.39     | 6077.15 | 0            | 429.55 | 6077.15     | 0       |
| 436.38     | 6077.11 | 0            | 440.39 | 6077.09     | 0       |
| 448.6      | 6077.04 | 0            | 456.24 | 6077        | 0       |
| 467.5      | 6076.94 | 0            | 474    | 6076.94     | 0       |
| 485.93     | 6076.87 | 0            | 492.43 | 6076.84     | 0       |
| 500.56     | 6076.81 | 0            | 505.99 | 6076.77     | 0       |
| 514.69     | 6076.72 | 0            | 518.39 | 6076.71     | 0       |
| 532.19     | 6076.62 | 0            | 544.03 | 6076.56     | 0       |
| 559.74     | 6076.47 | 0            | 565.53 | 6076.43     | 0       |
| 570.28     | 6076.4  | 0            | 577.11 | 6076.36     | 0       |
| 600.77     | 6076.26 | 0            | 606.88 | 6076.23     | 0       |
| 622.59     | 6076.21 | 0            | 622.79 | 6076.22     | 0       |
| 630        | 6076.23 | 0            | 641.61 | 6076.23     | 0       |
| 651.21     | 6076.22 | 0            | 658.15 | 6076.25     | 0       |
| 667.06     | 6076.27 | 0            | 678.39 | 6076.35     | 0       |
| 684.83     | 6076.39 | 0            | 695.37 | 6076.44     | 0       |
| 704.46     | 6076.5  | 0            | 710.05 | 6076.52     | 0       |
| 718.52     | 6076.57 | 0            | 724.31 | 6076.6      | 0       |
| 735.27     | 6076.62 | 0            | 738.37 | 6076.64     | 0       |
| 749.95     | 6076.68 | 0            | 755.74 | 6076.69     | 0       |
| 763.84     | 6076.74 | 0            | 771.45 | 6076.78     | 0       |
| 785.7      | 6076.81 | 0            | 791.3  | 6076.82     | 0       |
| 801.22     | 6076.83 | 0            | 811.97 | 6076.89     | 0       |
| 824.59     | 6076.94 | 0            | 827.73 | 6076.94     | 0       |
| 839.26     | 6077    | 0            | 843.4  | 6077        | 0       |
| 851.67     | 6077.04 | 0            | 857.46 | 6077.07     | 0       |
| 869.03     | 6077.06 | 0            | 871.95 | 6077.08     | 0       |
| 878.96     | 6077.1  | 0            | 882.37 | 6077.1      | 0       |
| 894.98     | 6077.16 | 0            | 905.92 | 6077.13     | 0       |
| 929.4      | 6077.07 | 0            | 932.8  | 6077.07     | 0       |
| 942.99     | 6077.03 | 0            | 947.1  | 6076.99     | 0       |
| 955.04     | 6076.92 | 0            | 961.52 | 6076.86     | 0       |
|            |         |              | 965.64 | 6076.84     | 0       |

|         |         |   |         |         |        |         |         |         |
|---------|---------|---|---------|---------|--------|---------|---------|---------|
| 972.41  | 6076.77 | 0 | 975.93  | 6076.76 | 0      | 983.99  | 6076.69 | 0       |
| 988.95  | 6076.68 | 0 | 994.46  | 6076.6  | 0      | 997.22  | 6076.58 | 0       |
| 1003.73 | 6076.57 | 0 | 1010.45 | 6076.54 | 0      | 1014.58 | 6076.54 | 0       |
| 1026.99 | 6076.42 | 0 | 1030.3  | 6076.41 | 0      | 1035.65 | 6076.43 | 0       |
| 1038.57 | 6076.46 | 0 | 1044.91 | 6076.38 | 0      | 1049.03 | 6076.36 | 0       |
| 1055.11 | 6076.35 | 0 | 1058.89 | 6076.32 | 0      | 1065.86 | 6076.29 | 0       |
| 1068.34 | 6076.26 | 0 | 1076.83 | 6076.26 | 0      | 1077.43 | 6076.25 | 0       |
| 1090.67 | 6076.25 | 0 | 1094.8  | 6076.22 | 0      | 1100.92 | 6076.22 | 0       |
| 1111.34 | 6076.17 | 0 | 1116.3  | 6076.16 | 0      | 1123.16 | 6076.13 | 0       |
| 1125.22 | 6076.11 | 0 | 1130.34 | 6076.09 | 0      | 1132.43 | 6076.07 | 0       |
| 1138.6  | 6076.04 | 0 | 1146.47 | 6076.02 | 0      | 1163.55 | 6076.02 | 0       |
| 1168.77 | 6076.03 | 0 | 1179.02 | 6076.08 | 0      | 1205.53 | 6076.08 | 0       |
| 1211.96 | 6076.12 | 0 | 1216.77 | 6076.13 | 0      | 1224.81 | 6076.19 | 0       |
| 1232.85 | 6076.2  | 0 | 1233.49 | 6076.21 | 0      | 1242.22 | 6076.23 | 0       |
| 1242.84 | 6076.24 | 0 | 1248.69 | 6076.25 | 0      | 1258.93 | 6076.31 | 0       |
| 1271.13 | 6076.31 | 0 | 1276.91 | 6076.36 | 0      | 1285.27 | 6076.42 | 0       |
| 1289.63 | 6076.42 | 0 | 1294.78 | 6076.45 | 0      | 1302.83 | 6076.46 | 0       |
| 1303.51 | 6076.47 | 0 | 1308.68 | 6076.47 | 0      | 1309.29 | 6076.48 | 0       |
| 1314.53 | 6076.48 | 0 | 1315.07 | 6076.49 | 0      | 1320.33 | 6076.49 | 0       |
| 1326.25 | 6076.51 | 0 | 1340.31 | 6076.51 | 0      | 1340.96 | 6076.52 | 0       |
| 1348.21 | 6076.52 | 0 | 1355.2  | 6076.54 | 0      | 1363.02 | 6076.61 | 0       |
| 1368.01 | 6076.63 | 0 | 1372.99 | 6076.68 | 0      | 1384.35 | 6076.81 | 0       |
| 1389.31 | 6076.86 | 0 | 1391.76 | 6076.87 | 0      | 1402.75 | 6076.96 | 0       |
| 1407.71 | 6077.01 | 0 | 1419.92 | 6077.09 | 0      | 1429.65 | 6077.19 | 0       |
| 1434.74 | 6077.2  | 0 | 1438.15 | 6077.22 | 0      | 1442.61 | 6077.23 | 0       |
| 1450.18 | 6077.29 | 0 | 1460.23 | 6077.33 | 0      | 1464.29 | 6077.36 | 0       |
| 1481.09 | 6077.36 | 0 | 1488.46 | 6077.4  | 0      | 1499.91 | 6077.4  | 0       |
| 1500.51 | 6077.41 | 0 | 1512.42 | 6077.41 | 0      | 1513.07 | 6077.4  | 0       |
| 1521.29 | 6077.4  | 0 | 1521.87 | 6077.41 | 0      | 1527.67 | 6077.4  | 0       |
| 1533.38 | 6077.37 | 0 | 1543.21 | 6077.39 | 0      | 1546.01 | 6077.37 | 0       |
| 1552.75 | 6077.37 | 0 | 1553.21 | 6077.36 | 0      | 1574.3  | 6077.36 | 0       |
| 1574.47 | 6077.37 | 0 | 1588.74 | 6077.33 | 0      | 1592.07 | 6077.31 | 0       |
| 1594.69 | 6077.31 | 0 | 1598.43 | 6077.29 | 0      | 1605.26 | 6077.27 | 0       |
| 1607.43 | 6077.25 | 0 | 1620.77 | 6077.25 | 0      | 1621.31 | 6077.24 | 0       |
| 1630.83 | 6077.21 | 0 | 1634.77 | 6077.21 | 0      | 1638.96 | 6077.19 | 0       |
| 1645.33 | 6077.18 | 0 | 1655.22 | 6077.11 | 0      | 1657.15 | 6077.11 | 0       |
| 1663.17 | 6077.07 | 0 | 1670.06 | 6077.06 | 0      | 1678.59 | 6077.01 | 0       |
| 1690.05 | 6076.97 | 0 | 1695.62 | 6076.91 | 0      | 1699.62 | 6076.89 | 0       |
| 1709.64 | 6076.76 | 0 | 1712.64 | 6076.75 | 0      | 1720.44 | 6076.69 | 0       |
| 1730.67 | 6076.64 | 0 | 1732.67 | 6076.64 | 0      | 1739.44 | 6076.6  | 0       |
| 1743.69 | 6076.59 | 0 | 1746.09 | 6076.57 | 0      | 1749.89 | 6076.57 | 0       |
| 1752.7  | 6076.55 | 0 | 1759.71 | 6076.54 | 0      | 1765.72 | 6076.51 | 0       |
| 1768.88 | 6076.51 | 0 | 1775.53 | 6076.46 | 0      | 1776.74 | 6076.46 | 0       |
| 1783.75 | 6076.38 | 0 | 1790.73 | 6076.35 | 0      | 1796.77 | 6076.3  | 0       |
| 1802.13 | 6076.27 | 0 | 1813.79 | 6076.18 | 0      | 1820.17 | 6076.16 | 0       |
| 1826.81 | 6076.12 | 0 | 1828.81 | 6076.12 | 0      | 1833.47 | 6076.09 | 0       |
| 1839.17 | 6076.09 | 0 | 1842.02 | 6076.08 | 0      | 1852.47 | 6076.01 | 0       |
| 1857.86 | 6075.98 | 0 | 1862.92 | 6075.97 | 0      | 1864.87 | 6075.95 | 0       |
| 1869.9  | 6075.85 | 0 | 1871.5  | 6075.85 | 6073.1 | 1900.27 | 6075.85 | 6072.93 |
| 1901.88 | 6075.85 | 0 | 1930.35 | 6075.68 | 0      | 1932.25 | 6075.68 | 0       |
| 1937.95 | 6075.65 | 0 | 1946.99 | 6075.64 | 0      | 1947.45 | 6075.63 | 0       |
| 1955.05 | 6075.63 | 0 | 1955.96 | 6075.62 | 0      | 1960.75 | 6075.63 | 0       |
| 1974.37 | 6075.63 | 0 | 1978.79 | 6075.59 | 0      | 1989.24 | 6075.52 | 0       |
| 1994.94 | 6075.46 | 0 | 1997.06 | 6075.45 | 0      | 2002.54 | 6075.39 | 0       |
| 2007.29 | 6075.35 | 0 | 2013.09 | 6075.28 | 0      | 2014.09 | 6075.28 | 0       |



|         |         |   |         |         |   |         |         |   |
|---------|---------|---|---------|---------|---|---------|---------|---|
| 2024.1  | 6075.18 | 0 | 2026.29 | 6075.18 | 0 | 2033.62 | 6075.14 | 0 |
| 2038.96 | 6075.14 | 0 | 2039.19 | 6075.15 | 0 | 2044.75 | 6075.15 | 0 |
| 2052.26 | 6075.13 | 0 | 2056.75 | 6075.16 | 0 | 2059.42 | 6075.16 | 0 |
| 2062.09 | 6075.14 | 0 | 2066.53 | 6075.13 | 0 | 2068.92 | 6075.1  | 0 |
| 2073.95 | 6075    | 0 | 2078.4  | 6074.94 | 0 | 2082.86 | 6074.91 | 0 |
| 2086.56 | 6074.87 | 0 | 2095.47 | 6074.8  | 0 | 2103.68 | 6074.8  | 0 |
| 2109.23 | 6074.77 | 0 | 2115.49 | 6074.7  | 0 | 2130.33 | 6074.59 | 0 |
| 2136.94 | 6074.57 | 0 | 2145.31 | 6074.52 | 0 | 2147.43 | 6074.52 | 0 |
| 2154.34 | 6074.48 | 0 | 2163.7  | 6074.45 | 0 | 2176.48 | 6074.38 | 0 |
| 2180.31 | 6074.38 | 0 | 2187.79 | 6074.34 | 0 | 2189.93 | 6074.34 | 0 |
| 2195.36 | 6074.31 | 0 | 2199.83 | 6074.31 | 0 | 2205.18 | 6074.29 | 0 |
| 2209.77 | 6074.26 | 0 | 2213.21 | 6074.25 | 0 | 2233.39 | 6074.25 | 0 |
| 2237.71 | 6074.26 | 0 | 2244.18 | 6074.23 | 0 | 2248.16 | 6074.22 | 0 |
| 2253.54 | 6074.22 | 0 | 2254.21 | 6074.21 | 0 | 2259.65 | 6074.21 | 0 |
| 2260.01 | 6074.2  | 0 | 2267.21 | 6074.2  | 0 | 2272.07 | 6074.22 | 0 |
| 2277.39 | 6074.22 | 0 | 2278    | 6074.23 | 0 | 2285.2  | 6074.23 | 0 |
| 2285.68 | 6074.24 | 0 | 2293.84 | 6074.24 | 0 | 2295.99 | 6074.26 | 0 |
| 2306.79 | 6074.23 | 0 | 2312.19 | 6074.22 | 0 | 2325.53 | 6074.22 | 0 |
| 2329.55 | 6074.24 | 0 | 2347.22 | 6074.24 | 0 | 2347.68 | 6074.25 | 0 |
| 2352.9  | 6074.25 | 0 | 2356.03 | 6074.26 | 0 | 2358.12 | 6074.24 | 0 |
| 2361.25 | 6074.25 | 0 | 2364.89 | 6074.24 | 0 | 2370.65 | 6074.25 | 0 |
| 2373.56 | 6074.27 | 0 | 2379    | 6074.28 | 0 | 2382.13 | 6074.3  | 0 |
| 2385.78 | 6074.29 | 0 | 2394.66 | 6074.29 | 0 | 2395.42 | 6074.28 | 0 |
| 2405.06 | 6074.28 | 0 | 2405.86 | 6074.27 | 0 | 2411.9  | 6074.27 | 0 |
| 2417.91 | 6074.25 | 0 | 2422.84 | 6074.21 | 0 | 2431.56 | 6074.19 | 0 |
| 2438.85 | 6074.14 | 0 | 2443.28 | 6074.13 | 0 | 2450.61 | 6074.13 | 0 |
| 2451.25 | 6074.12 | 0 | 2463.74 | 6074.12 | 0 | 2471.62 | 6074.17 | 0 |
| 2477.87 | 6074.18 | 0 | 2482.92 | 6074.21 | 0 | 2489.99 | 6074.23 | 0 |
| 2497.3  | 6074.29 | 0 | 2500.09 | 6074.29 | 0 | 2505.14 | 6074.32 | 0 |
| 2508.17 | 6074.32 | 0 | 2512.21 | 6074.34 | 0 | 2515.24 | 6074.34 | 0 |
| 2522.1  | 6074.38 | 0 | 2530.38 | 6074.38 | 0 | 2536.44 | 6074.4  | 0 |
| 2543.35 | 6074.36 | 0 | 2546.89 | 6074.35 | 0 | 2553.09 | 6074.35 | 0 |
| 2557.52 | 6074.33 | 0 | 2567.26 | 6074.34 | 0 | 2571.69 | 6074.37 | 0 |
| 2581.88 | 6074.38 | 0 | 2585.86 | 6074.42 | 0 | 2589.4  | 6074.43 | 0 |
| 2597.03 | 6074.48 | 0 | 2601.8  | 6074.5  | 0 | 2605.11 | 6074.5  | 0 |
| 2611.17 | 6074.52 | 0 | 2618.63 | 6074.6  | 0 | 2623.94 | 6074.64 | 0 |
| 2629.34 | 6074.7  | 0 | 2630.35 | 6074.7  | 0 | 2635.46 | 6074.76 | 0 |
| 2646.51 | 6074.9  | 0 | 2654.94 | 6075.02 | 0 | 2667.34 | 6075.16 | 0 |
| 2669.99 | 6075.2  | 0 | 2674.78 | 6075.22 | 0 | 2677.97 | 6075.25 | 0 |
| 2682.86 | 6075.27 | 0 | 2685.94 | 6075.3  | 0 | 2689.48 | 6075.31 | 0 |
| 2699.02 | 6075.37 | 0 | 2713.39 | 6075.37 | 0 | 2714.16 | 6075.36 | 0 |
| 2725.27 | 6075.36 | 0 | 2730.32 | 6075.35 | 0 | 2734.64 | 6075.32 | 0 |
| 2736.38 | 6075.32 | 0 | 2745.47 | 6075.26 | 0 | 2756.79 | 6075.21 | 0 |
| 2762.1  | 6075.22 | 0 | 2768.3  | 6075.19 | 0 | 2774.75 | 6075.18 | 0 |
| 2779.8  | 6075.15 | 0 | 2782.83 | 6075.15 | 0 | 2786.87 | 6075.17 | 0 |
| 2795.96 | 6075.18 | 0 | 2799.3  | 6075.16 | 0 | 2802.01 | 6075.16 | 0 |
| 2805.49 | 6075.14 | 0 | 2808.07 | 6075.11 | 0 | 2811.1  | 6075.1  | 0 |
| 2817.89 | 6075.03 | 0 | 2824.09 | 6075.01 | 0 | 2830.29 | 6075    | 0 |
| 2832.95 | 6074.98 | 0 | 2840.39 | 6074.98 | 0 | 2840.92 | 6074.97 | 0 |
| 2848.46 | 6074.97 | 0 | 2852.5  | 6074.99 | 0 | 2863.95 | 6074.97 | 0 |
| 2868.37 | 6074.99 | 0 | 2873.69 | 6075    | 0 | 2880.74 | 6075    | 0 |
| 2886.84 | 6075.03 | 0 | 2889.63 | 6075.03 | 0 | 2894.06 | 6075.06 | 0 |
| 2896.93 | 6075.06 | 0 | 2900.97 | 6075.08 | 0 | 2903.8  | 6075.08 | 0 |
| 2907.03 | 6075.1  | 0 | 2912.65 | 6075.11 | 0 | 2913.09 | 6075.12 | 0 |
| 2918.29 | 6075.12 | 0 | 2918.85 | 6075.13 | 0 | 2939.36 | 6075.13 | 0 |

|         |         |   |         |         |   |         |         |   |
|---------|---------|---|---------|---------|---|---------|---------|---|
| 2940    | 6075.14 | 0 | 2946.44 | 6075.14 | 0 | 2950.58 | 6075.13 | 0 |
| 2956.55 | 6075.1  | 0 | 2961.15 | 6075.09 | 0 | 2967.66 | 6075.09 | 0 |
| 2972.61 | 6075.07 | 0 | 2977.9  | 6075.08 | 0 | 2984.85 | 6075.11 | 0 |
| 2996.41 | 6075.11 | 0 | 3000.01 | 6075.1  | 0 | 3003.46 | 6075.06 | 0 |
| 3011.39 | 6074.99 | 0 | 3015.8  | 6074.93 | 0 | 3019.21 | 6074.91 | 0 |
| 3024.26 | 6074.86 | 0 | 3028.31 | 6074.86 | 0 | 3033.36 | 6074.9  | 0 |
| 3037.83 | 6074.89 | 0 | 3042.89 | 6074.84 | 0 | 3059.51 | 6074.85 | 0 |
| 3072.97 | 6074.84 | 0 | 3073.82 | 6074.84 | 0 |         |         |   |

Downstream Bridge Cross Section Data

| Station | Elevation | Data    | num=    | 492     |         |         |         |         |         |  |
|---------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|--|
| Sta     | Elev      | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    |  |
| 256.52  | 6077.76   | 270.89  | 6077.23 | 275.72  | 6077.12 | 280.68  | 6077.12 | 289.54  | 6077.05 |  |
| 298.03  | 6076.88   | 302.89  | 6076.73 | 311.39  | 6076.58 | 314.3   | 6076.57 | 325.32  | 6076.33 |  |
| 334.15  | 6076.28   | 339.07  | 6076.21 | 346.31  | 6076.24 | 349.79  | 6076.19 | 355.04  | 6076.19 |  |
| 360.13  | 6076.14   | 367     | 6075.96 | 372.33  | 6075.88 | 379.37  | 6075.84 | 386.41  | 6075.87 |  |
| 396.48  | 6076.1    | 404.01  | 6076.14 | 409.57  | 6076.22 | 421.2   | 6076.19 | 430.88  | 6076.19 |  |
| 438.7   | 6076.06   | 444.29  | 6076.1  | 456.8   | 6075.88 | 468.72  | 6075.57 | 482.19  | 6075.38 |  |
| 493.94  | 6075.29   | 500.18  | 6075.29 | 505     | 6075.25 | 519.72  | 6075.25 | 522.62  | 6075.28 |  |
| 531.94  | 6075.5    | 540.08  | 6075.83 | 543.28  | 6075.91 | 549.04  | 6075.95 | 553.11  | 6075.9  |  |
| 557.18  | 6075.91   | 565.12  | 6076.06 | 572.65  | 6076.08 | 577.44  | 6076.14 | 582.42  | 6076.14 |  |
| 589.75  | 6076.24   | 600.21  | 6076.29 | 605.22  | 6076.29 | 609.29  | 6076.24 | 620.06  | 6075.91 |  |
| 632.09  | 6075.76   | 634.37  | 6075.7  | 637.69  | 6075.5  | 645.98  | 6074.91 | 654.07  | 6074.6  |  |
| 659.45  | 6074.27   | 664.64  | 6073.48 | 666.71  | 6073.29 | 668.78  | 6073.24 | 673.62  | 6073.5  |  |
| 677.08  | 6073.53   | 680.94  | 6073.44 | 684.2   | 6073.49 | 689.52  | 6073.88 | 692.63  | 6073.99 |  |
| 696.77  | 6074.06   | 702.99  | 6074.3  | 707.81  | 6074.54 | 711.07  | 6074.58 | 715.96  | 6074.56 |  |
| 720.62  | 6074.63   | 726.84  | 6074.67 | 731.43  | 6074.64 | 738.24  | 6074.68 | 743.42  | 6074.53 |  |
| 746.53  | 6074.52   | 751.71  | 6074.65 | 758.97  | 6074.59 | 767.22  | 6074.8  | 770.51  | 6074.82 |  |
| 777.84  | 6074.58   | 780.74  | 6074.54 | 792.14  | 6074.8  | 794.94  | 6074.81 | 799.4   | 6074.74 |  |
| 804.58  | 6074.93   | 807.69  | 6074.96 | 815.3   | 6074.76 | 822.62  | 6074.8  | 829.46  | 6074.61 |  |
| 834.84  | 6074.51   | 839.83  | 6074.51 | 847.87  | 6074.65 | 851.12  | 6074.63 | 857.45  | 6074.28 |  |
| 861.6   | 6074.26   | 866.78  | 6074.44 | 874.04  | 6074.3  | 879.22  | 6074.46 | 883.37  | 6074.35 |  |
| 889.39  | 6074.04   | 892.7   | 6073.99 | 897.53  | 6074.15 | 900.79  | 6074.18 | 920.33  | 6074.15 |  |
| 923.59  | 6074.12   | 928.98  | 6074.23 | 932.09  | 6074.25 | 938.31  | 6074.13 | 942.45  | 6074.01 |  |
| 945.62  | 6074      | 953.72  | 6074.19 | 958     | 6074.19 | 961.11  | 6074.29 | 963.19  | 6074.43 |  |
| 969.41  | 6074.67   | 971.48  | 6074.71 | 979.77  | 6074.65 | 988.06  | 6074.8  | 989.54  | 6074.79 |  |
| 994.28  | 6074.92   | 1003.39 | 6075.12 | 1008.27 | 6075.15 | 1018.13 | 6075.13 | 1023.74 | 6075.29 |  |
| 1026.42 | 6075.2    | 1031.6  | 6074.71 | 1034.71 | 6074.48 | 1038.86 | 6074.26 | 1041.97 | 6074.2  |  |
| 1047.15 | 6074.37   | 1051.3  | 6074.28 | 1056.48 | 6073.84 | 1060.63 | 6073.75 | 1068.92 | 6073.78 |  |
| 1073.07 | 6073.65   | 1078.25 | 6073.31 | 1081.36 | 6073.22 | 1093.77 | 6073.14 | 1098.98 | 6072.96 |  |
| 1104.17 | 6072.96   | 1109.24 | 6073.23 | 1115.57 | 6073.38 | 1118.19 | 6073.4  | 1127.15 | 6073.36 |  |
| 1140.18 | 6073.13   | 1145.06 | 6073.13 | 1150.58 | 6073.06 | 1154.84 | 6073.05 | 1158.91 | 6072.98 |  |
| 1163.25 | 6072.99   | 1171.93 | 6072.72 | 1177.15 | 6072.65 | 1182.95 | 6072.62 | 1191.48 | 6072.45 |  |
| 1197.99 | 6072.14   | 1202.65 | 6071.79 | 1205.76 | 6071.73 | 1213.15 | 6071.85 | 1218.64 | 6071.8  |  |
| 1222.5  | 6071.88   | 1226.04 | 6071.81 | 1228.18 | 6071.65 | 1234.85 | 6071.31 | 1238.16 | 6071.24 |  |
| 1241.8  | 6071.28   | 1247.2  | 6071.46 | 1249.66 | 6071.47 | 1253.95 | 6071.31 | 1258.25 | 6071.24 |  |
| 1261.47 | 6071.45   | 1263.62 | 6071.76 | 1265.73 | 6071.92 | 1267.27 | 6071.93 | 1271.12 | 6071.72 |  |
| 1274.35 | 6071.75   | 1279.72 | 6072    | 1287.24 | 6071.97 | 1290.43 | 6072.11 | 1295.83 | 6072.43 |  |
| 1299.05 | 6072.41   | 1306.82 | 6072.18 | 1309.79 | 6072.27 | 1313.01 | 6072.51 | 1315.06 | 6072.74 |  |
| 1318.38 | 6073      | 1320.52 | 6073.06 | 1326.7  | 6072.95 | 1329.53 | 6072.86 | 1336.43 | 6072.79 |  |
| 1348.65 | 6072.41   | 1351.85 | 6072.36 | 1361.88 | 6072.5  | 1368.49 | 6072.78 | 1372.74 | 6072.82 |  |
| 1380.62 | 6072.82   | 1386.9  | 6072.71 | 1391.34 | 6072.67 | 1402.97 | 6072.28 | 1405.98 | 6072.29 |  |
| 1410.27 | 6072.4    | 1416.5  | 6072.3  | 1419.46 | 6072.32 | 1425.15 | 6072.53 | 1432.85 | 6072.48 |  |
| 1437.19 | 6072.54   | 1443.56 | 6072.49 | 1446.24 | 6072.53 | 1452.59 | 6073.01 | 1456.95 | 6073.15 |  |
| 1461.98 | 6073.22   | 1475.56 | 6073.7  | 1479.72 | 6073.76 | 1487.22 | 6073.74 | 1492.11 | 6073.78 |  |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1506.51 | 6074.04 | 1516.58 | 6074.11 | 1524.49 | 6074.12 | 1528.82 | 6074.18 | 1535.4  | 6074.18 |
| 1543.21 | 6074.3  | 1551.11 | 6074.31 | 1556.44 | 6074.38 | 1559.99 | 6074.5  | 1561.92 | 6074.49 |
| 1567.09 | 6074.58 | 1574.38 | 6074.97 | 1576.8  | 6075.05 | 1582.61 | 6075.11 | 1587.62 | 6075.06 |
| 1591.85 | 6075.13 | 1595.68 | 6075.08 | 1601.14 | 6075.15 | 1604.17 | 6075.1  | 1609.26 | 6075.21 |
| 1612.9  | 6075.14 | 1617.37 | 6075.16 | 1620.08 | 6075.1  | 1628.19 | 6075.13 | 1633.6  | 6075.27 |
| 1636.5  | 6075.25 | 1641.89 | 6075.49 | 1652.54 | 6075.55 | 1657.95 | 6075.65 | 1660.66 | 6075.65 |
| 1666.07 | 6075.77 | 1668.84 | 6075.77 | 1676.1  | 6075.96 | 1681.34 | 6076.05 | 1687.93 | 6076.09 |
| 1693.36 | 6075.98 | 1700.07 | 6076    | 1704.12 | 6075.93 | 1713.33 | 6075.96 | 1718.04 | 6075.91 |
| 1724.65 | 6075.93 | 1730.56 | 6075.8  | 1733.87 | 6075.81 | 1735.8  | 6075.85 | 1738.7  | 6075.92 |
| 1744.11 | 6075.94 | 1753.18 | 6076.32 | 1759.48 | 6076.41 | 1766.25 | 6076.39 | 1769.73 | 6076.34 |
| 1775.6  | 6076.07 | 1777.75 | 6075.9  | 1781.76 | 6075.44 | 1783.76 | 6075.36 | 1790.84 | 6075.73 |
| 1794.65 | 6075.83 | 1804.17 | 6075.97 | 1807.03 | 6075.97 | 1814.65 | 6075.89 | 1819.81 | 6075.94 |
| 1826.82 | 6075.79 | 1837.51 | 6075.43 | 1846.84 | 6075.18 | 1849.85 | 6074.95 | 1853.85 | 6074.57 |
| 1855.85 | 6074.54 | 1859.86 | 6074.64 | 1861.86 | 6074.61 | 1864.87 | 6074.33 | 1867.87 | 6073.66 |
| 1870.85 | 6072.74 | 1874.88 | 6071.24 | 1876.88 | 6070.76 | 1878.88 | 6070.59 | 1881.32 | 6069    |
| 1897.91 | 6069    | 1899.42 | 6070.57 | 1901.32 | 6070.83 | 1903.92 | 6071.63 | 1904.92 | 6072.12 |
| 1906.92 | 6072.8  | 1908.92 | 6073.23 | 1910.85 | 6073.51 | 1919.94 | 6074.6  | 1923.23 | 6074.78 |
| 1935.61 | 6074.88 | 1940.97 | 6074.98 | 1947.97 | 6074.81 | 1953.71 | 6074.74 | 1957.52 | 6074.75 |
| 1965    | 6074.61 | 1976.57 | 6074.6  | 1983.02 | 6074.52 | 1989.91 | 6074.55 | 1994.04 | 6074.44 |
| 2001.04 | 6074.11 | 2014.67 | 6073.97 | 2018.48 | 6073.89 | 2027.05 | 6073.77 | 2031.08 | 6073.65 |
| 2035.8  | 6073.56 | 2037.53 | 6073.53 | 2043.24 | 6073.33 | 2048.11 | 6073.24 | 2056.58 | 6072.9  |
| 2063.13 | 6072.77 | 2065.61 | 6072.79 | 2069.13 | 6073.05 | 2074.14 | 6073.74 | 2076.14 | 6073.97 |
| 2080.2  | 6074.2  | 2083.34 | 6074.21 | 2088.05 | 6074.11 | 2093.97 | 6073.9  | 2099.03 | 6073.79 |
| 2101.38 | 6073.62 | 2106.88 | 6072.91 | 2114.1  | 6072.38 | 2117.87 | 6072.22 | 2123.98 | 6072.16 |
| 2128.49 | 6072.05 | 2132.72 | 6072.02 | 2137.12 | 6072.08 | 2141.14 | 6072.01 | 2145.92 | 6072.04 |
| 2156.37 | 6072.39 | 2164.47 | 6072.44 | 2173.65 | 6072.27 | 2177.95 | 6072.29 | 2186.4  | 6072.51 |
| 2196.01 | 6072.68 | 2200.55 | 6072.7  | 2208.57 | 6072.51 | 2211.24 | 6072.49 | 2215.23 | 6072.61 |
| 2222.54 | 6072.91 | 2226.79 | 6073.03 | 2231.75 | 6073.07 | 2239.87 | 6072.9  | 2245.23 | 6072.94 |
| 2250.19 | 6072.86 | 2252.39 | 6072.77 | 2262.87 | 6072.51 | 2271.48 | 6072.6  | 2277.29 | 6072.51 |
| 2287.09 | 6072.54 | 2292.05 | 6072.53 | 2300.2  | 6072.35 | 2310.84 | 6072.31 | 2318.37 | 6072.2  |
| 2330.19 | 6072.51 | 2343.22 | 6072.68 | 2350.03 | 6072.69 | 2353.01 | 6072.63 | 2357.75 | 6072.45 |
| 2364.16 | 6072.31 | 2370.98 | 6072.21 | 2374.29 | 6072.26 | 2379.8  | 6072.44 | 2384.63 | 6072.49 |
| 2390.79 | 6072.64 | 2394.9  | 6072.79 | 2408.55 | 6072.63 | 2416.29 | 6072.49 | 2421.39 | 6072.46 |
| 2426.46 | 6072.5  | 2436.67 | 6072.3  | 2440.95 | 6072.31 | 2445.84 | 6072.24 | 2448.89 | 6072.3  |
| 2453.75 | 6072.71 | 2457.04 | 6072.91 | 2462.27 | 6073.03 | 2470.29 | 6072.98 | 2478.44 | 6073.13 |
| 2485.57 | 6073.12 | 2490.42 | 6073.23 | 2493.83 | 6073.26 | 2497.24 | 6073.19 | 2505.94 | 6072.82 |
| 2510.02 | 6072.77 | 2516    | 6072.88 | 2521.12 | 6073.1  | 2527.34 | 6073.22 | 2528.36 | 6073.31 |
| 2531.41 | 6073.28 | 2537.48 | 6073.38 | 2540.51 | 6073.33 | 2543.53 | 6073.19 | 2548.58 | 6072.73 |
| 2551.6  | 6072.56 | 2556.22 | 6072.53 | 2563.35 | 6072.59 | 2567.74 | 6072.57 | 2579.38 | 6072.41 |
| 2584.73 | 6072.39 | 2591.13 | 6072.46 | 2594.98 | 6072.46 | 2605.22 | 6072.33 | 2613.13 | 6072.36 |
| 2624.82 | 6072.33 | 2630.16 | 6072.27 | 2639.36 | 6072.28 | 2647.09 | 6072.19 | 2652.12 | 6072.25 |
| 2660.45 | 6072.44 | 2670.63 | 6072.44 | 2675.67 | 6072.7  | 2679.71 | 6072.72 | 2687.78 | 6072.38 |
| 2691.63 | 6072.37 | 2694.84 | 6072.53 | 2699.88 | 6072.96 | 2702.91 | 6073.16 | 2705.88 | 6073.16 |
| 2710.34 | 6073.01 | 2713    | 6073.03 | 2718.04 | 6073.25 | 2725.1  | 6073.3  | 2728.13 | 6073.37 |
| 2733.17 | 6073.7  | 2737.06 | 6073.7  | 2739.74 | 6073.52 | 2743.26 | 6073.37 | 2748.3  | 6073.45 |
| 2757.38 | 6073.49 | 2764.68 | 6073.47 | 2771.5  | 6073.68 | 2776.26 | 6073.59 | 2779.82 | 6073.61 |
| 2782.6  | 6073.82 | 2787.64 | 6074.39 | 2790.67 | 6074.61 | 2794.97 | 6074.74 | 2804.6  | 6074.88 |
| 2808.33 | 6074.88 | 2815.46 | 6074.81 | 2820.93 | 6074.59 | 2823.96 | 6074.52 | 2830.01 | 6074.52 |
| 2834.17 | 6074.33 | 2837.07 | 6073.99 | 2842.11 | 6073.04 | 2845.14 | 6072.62 | 2847.53 | 6072.45 |
| 2851.98 | 6072.35 | 2867.13 | 6072.49 | 2870.36 | 6072.48 | 2877.82 | 6072.36 | 2884.48 | 6072.32 |
| 2893.56 | 6072.39 | 2901.87 | 6072.39 | 2910.71 | 6072.3  | 2916.12 | 6072.29 | 2921.8  | 6072.21 |
| 2929.49 | 6072.05 | 2936.93 | 6072.07 | 2952.65 | 6072.27 | 2957.07 | 6072.39 | 2963.16 | 6072.48 |
| 2969.57 | 6072.49 | 2978.29 | 6072.46 | 2987.56 | 6072.47 | 2997.45 | 6072.37 | 3008.55 | 6072.5  |
| 3018.64 | 6072.54 | 3024.81 | 6072.65 | 3041.84 | 6073.14 | 3048.86 | 6073.25 | 3053.94 | 6073.54 |
| 3057.77 | 6073.69 | 3061    | 6073.91 | 3066.05 | 6074.4  | 3075.13 | 6074.91 | 3078.15 | 6075.01 |

3086.67 6075.08 3093.54 6075.05

Manning's n Values num= 3  
Sta n Val Sta n Val Sta n Val  
256.52 .06 1735.8 .035 2035.8 .06

Bank Sta: Left Right Coeff Contr. Expan.  
1735.8 2035.8 .3 .5

Ineffective Flow num= 10  
Sta L Sta R Elev Permanent  
322.52 1863.65 6075.96 T  
1920.31 1978.56 6075.62 T  
1978.56 2005.04 6075.48 T  
2005.04 2067.26 6075.15 T  
2067.26 2120.22 6074.82 T  
2120.22 2181.12 6074.51 T  
2181.12 2583.58 6074.26 T  
2583.58 2625.95 6074.59 T  
2625.95 2645.8 6074.82 T  
2645.8 3073.42 6075.11 T

Blocked Obstructions num= 1  
Sta L Sta R Elev  
3159.6 3093.54 6075.2

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 = 6071.65  
Energy head used in spillway design =  
Spillway height used in design =  
Weir crest shape = Broad Crested

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data  
Energy  
Selected Low Flow Methods = Highest Energy Answer

High Flow Method  
Pressure and Weir flow  
Submerged Inlet Cd =  
Submerged Inlet + Outlet Cd = .8  
Max Low Cord =

Additional Bridge Parameters  
Add Friction component to Momentum  
Do not add Weight component to Momentum  
Class B flow critical depth computations use critical depth  
inside the bridge at the upstream end  
Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: Flat Creek



REACH: 1

RS: 31558

INPUT

Description: Downstream of Rafter J Bridge

| Station Elevation Data |         | num=    |         | 492     |         |         |         |         |         |
|------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Sta                    | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    |
| 256.52                 | 6077.76 | 270.89  | 6077.23 | 275.72  | 6077.12 | 280.68  | 6077.12 | 289.54  | 6077.05 |
| 298.03                 | 6076.88 | 302.89  | 6076.73 | 311.39  | 6076.58 | 314.3   | 6076.57 | 325.32  | 6076.33 |
| 334.15                 | 6076.28 | 339.07  | 6076.21 | 346.31  | 6076.24 | 349.79  | 6076.19 | 355.04  | 6076.19 |
| 360.13                 | 6076.14 | 367     | 6075.96 | 372.33  | 6075.88 | 379.37  | 6075.84 | 386.41  | 6075.87 |
| 396.48                 | 6076.1  | 404.01  | 6076.14 | 409.57  | 6076.22 | 421.2   | 6076.19 | 430.88  | 6076.19 |
| 438.7                  | 6076.06 | 444.29  | 6076.1  | 456.8   | 6075.88 | 468.72  | 6075.57 | 482.19  | 6075.38 |
| 493.94                 | 6075.29 | 500.18  | 6075.29 | 505     | 6075.25 | 519.72  | 6075.25 | 522.62  | 6075.28 |
| 531.94                 | 6075.5  | 540.08  | 6075.83 | 543.28  | 6075.91 | 549.04  | 6075.95 | 553.11  | 6075.9  |
| 557.18                 | 6075.91 | 565.12  | 6076.06 | 572.65  | 6076.08 | 577.44  | 6076.14 | 582.42  | 6076.14 |
| 589.75                 | 6076.24 | 600.21  | 6076.29 | 605.22  | 6076.29 | 609.29  | 6076.24 | 620.06  | 6075.91 |
| 632.09                 | 6075.76 | 634.37  | 6075.7  | 637.69  | 6075.5  | 645.98  | 6074.91 | 654.07  | 6074.6  |
| 659.45                 | 6074.27 | 664.64  | 6073.48 | 666.71  | 6073.29 | 668.78  | 6073.24 | 673.62  | 6073.5  |
| 677.08                 | 6073.53 | 680.94  | 6073.44 | 684.2   | 6073.49 | 689.52  | 6073.88 | 692.63  | 6073.99 |
| 696.77                 | 6074.06 | 702.99  | 6074.3  | 707.81  | 6074.54 | 711.07  | 6074.58 | 715.96  | 6074.56 |
| 720.62                 | 6074.63 | 726.84  | 6074.67 | 731.43  | 6074.64 | 738.24  | 6074.68 | 743.42  | 6074.53 |
| 746.53                 | 6074.52 | 751.71  | 6074.65 | 758.97  | 6074.59 | 767.22  | 6074.8  | 770.51  | 6074.82 |
| 777.84                 | 6074.58 | 780.74  | 6074.54 | 792.14  | 6074.8  | 794.94  | 6074.81 | 799.4   | 6074.74 |
| 804.58                 | 6074.93 | 807.69  | 6074.96 | 815.3   | 6074.76 | 822.62  | 6074.8  | 829.46  | 6074.61 |
| 834.84                 | 6074.51 | 839.83  | 6074.51 | 847.87  | 6074.65 | 851.12  | 6074.63 | 857.45  | 6074.28 |
| 861.6                  | 6074.26 | 866.78  | 6074.44 | 874.04  | 6074.3  | 879.22  | 6074.46 | 883.37  | 6074.35 |
| 889.39                 | 6074.04 | 892.7   | 6073.99 | 897.53  | 6074.15 | 900.79  | 6074.18 | 920.33  | 6074.15 |
| 923.59                 | 6074.12 | 928.98  | 6074.23 | 932.09  | 6074.25 | 938.31  | 6074.13 | 942.45  | 6074.01 |
| 945.62                 | 6074    | 953.72  | 6074.19 | 958     | 6074.19 | 961.11  | 6074.29 | 963.19  | 6074.43 |
| 969.41                 | 6074.67 | 971.48  | 6074.71 | 979.77  | 6074.65 | 988.06  | 6074.8  | 989.54  | 6074.79 |
| 994.28                 | 6074.92 | 1003.39 | 6075.12 | 1008.27 | 6075.15 | 1018.13 | 6075.13 | 1023.74 | 6075.29 |
| 1026.42                | 6075.2  | 1031.6  | 6074.71 | 1034.71 | 6074.48 | 1038.86 | 6074.26 | 1041.97 | 6074.2  |
| 1047.15                | 6074.37 | 1051.3  | 6074.28 | 1056.48 | 6073.84 | 1060.63 | 6073.75 | 1068.92 | 6073.78 |
| 1073.07                | 6073.65 | 1078.25 | 6073.31 | 1081.36 | 6073.22 | 1093.77 | 6073.14 | 1098.98 | 6072.96 |
| 1104.17                | 6072.96 | 1109.24 | 6073.23 | 1115.57 | 6073.38 | 1118.19 | 6073.4  | 1127.15 | 6073.36 |
| 1140.18                | 6073.13 | 1145.06 | 6073.13 | 1150.58 | 6073.06 | 1154.84 | 6073.05 | 1158.91 | 6072.98 |
| 1163.25                | 6072.99 | 1171.93 | 6072.72 | 1177.15 | 6072.65 | 1182.95 | 6072.62 | 1191.48 | 6072.45 |
| 1197.99                | 6072.14 | 1202.65 | 6071.79 | 1205.76 | 6071.73 | 1213.15 | 6071.85 | 1218.64 | 6071.8  |
| 1222.5                 | 6071.88 | 1226.04 | 6071.81 | 1228.18 | 6071.65 | 1234.85 | 6071.31 | 1238.16 | 6071.24 |
| 1241.8                 | 6071.28 | 1247.2  | 6071.46 | 1249.66 | 6071.47 | 1253.95 | 6071.31 | 1258.25 | 6071.24 |
| 1261.47                | 6071.45 | 1263.62 | 6071.76 | 1265.73 | 6071.92 | 1267.27 | 6071.93 | 1271.12 | 6071.72 |
| 1274.35                | 6071.75 | 1279.72 | 6072    | 1287.24 | 6071.97 | 1290.43 | 6072.11 | 1295.83 | 6072.43 |
| 1299.05                | 6072.41 | 1306.82 | 6072.18 | 1309.79 | 6072.27 | 1313.01 | 6072.51 | 1315.06 | 6072.74 |
| 1318.38                | 6073    | 1320.52 | 6073.06 | 1326.7  | 6072.95 | 1329.53 | 6072.86 | 1336.43 | 6072.79 |
| 1348.65                | 6072.41 | 1351.85 | 6072.36 | 1361.88 | 6072.5  | 1368.49 | 6072.78 | 1372.74 | 6072.82 |
| 1380.62                | 6072.82 | 1386.9  | 6072.71 | 1391.34 | 6072.67 | 1402.97 | 6072.28 | 1405.98 | 6072.29 |
| 1410.27                | 6072.4  | 1416.5  | 6072.3  | 1419.46 | 6072.32 | 1425.15 | 6072.53 | 1432.85 | 6072.48 |
| 1437.19                | 6072.54 | 1443.56 | 6072.49 | 1446.24 | 6072.53 | 1452.59 | 6073.01 | 1456.95 | 6073.15 |
| 1461.98                | 6073.22 | 1475.56 | 6073.7  | 1479.72 | 6073.76 | 1487.22 | 6073.74 | 1492.11 | 6073.78 |
| 1506.51                | 6074.04 | 1516.58 | 6074.11 | 1524.49 | 6074.12 | 1528.82 | 6074.18 | 1535.4  | 6074.18 |
| 1543.21                | 6074.3  | 1551.11 | 6074.31 | 1556.44 | 6074.38 | 1559.99 | 6074.5  | 1561.92 | 6074.49 |
| 1567.09                | 6074.58 | 1574.38 | 6074.97 | 1576.8  | 6075.05 | 1582.61 | 6075.11 | 1587.62 | 6075.06 |
| 1591.85                | 6075.13 | 1595.68 | 6075.08 | 1601.14 | 6075.15 | 1604.17 | 6075.1  | 1609.26 | 6075.21 |
| 1612.9                 | 6075.14 | 1617.37 | 6075.16 | 1620.08 | 6075.1  | 1628.19 | 6075.13 | 1633.6  | 6075.27 |
| 1636.5                 | 6075.25 | 1641.89 | 6075.49 | 1652.54 | 6075.55 | 1657.95 | 6075.65 | 1660.66 | 6075.65 |

1666.07 6075.77 1668.84 6075.77 1676.1 6075.96 1681.34 6076.05 1687.93 6076.09  
1693.36 6075.98 1700.07 6076 1704.12 6075.93 1713.33 6075.96 1718.04 6075.91  
1724.65 6075.93 1730.56 6075.8 1733.87 6075.81 1735.8 6075.85 1738.7 6075.92  
1744.11 6075.94 1753.18 6076.32 1759.48 6076.41 1766.25 6076.39 1769.73 6076.34  
1775.6 6076.07 1777.75 6075.9 1781.76 6075.44 1783.76 6075.36 1790.84 6075.73  
1794.65 6075.83 1804.17 6075.97 1807.03 6075.97 1814.65 6075.89 1819.81 6075.94  
1826.82 6075.79 1837.51 6075.43 1846.84 6075.18 1849.85 6074.95 1853.85 6074.57  
1855.85 6074.54 1859.86 6074.64 1861.86 6074.61 1864.87 6074.33 1867.87 6073.66  
1870.85 6072.74 1874.88 6071.24 1876.88 6070.76 1878.88 6070.59 1881.32 6069  
1897.91 6069 1899.42 6070.57 1901.32 6070.83 1903.92 6071.63 1904.92 6072.12  
1906.92 6072.8 1908.92 6073.23 1910.85 6073.51 1919.94 6074.6 1923.23 6074.78  
1935.61 6074.88 1940.97 6074.98 1947.97 6074.81 1953.71 6074.74 1957.52 6074.75  
1965 6074.61 1976.57 6074.6 1983.02 6074.52 1989.91 6074.55 1994.04 6074.44  
2001.04 6074.11 2014.67 6073.97 2018.48 6073.89 2027.05 6073.77 2031.08 6073.65  
2035.8 6073.56 2037.53 6073.53 2043.24 6073.33 2048.11 6073.24 2056.58 6072.9  
2063.13 6072.77 2065.61 6072.79 2069.13 6073.05 2074.14 6073.74 2076.14 6073.97  
2080.2 6074.2 2083.34 6074.21 2088.05 6074.11 2093.97 6073.9 2099.03 6073.79  
2101.38 6073.62 2106.88 6072.91 2114.1 6072.38 2117.87 6072.22 2123.98 6072.16  
2128.49 6072.05 2132.72 6072.02 2137.12 6072.08 2141.14 6072.01 2145.92 6072.04  
2156.37 6072.39 2164.47 6072.44 2173.65 6072.27 2177.95 6072.29 2186.4 6072.51  
2196.01 6072.68 2200.55 6072.7 2208.57 6072.51 2211.24 6072.49 2215.23 6072.61  
2222.54 6072.91 2226.79 6073.03 2231.75 6073.07 2239.87 6072.9 2245.23 6072.94  
2250.19 6072.86 2252.39 6072.77 2262.87 6072.51 2271.48 6072.6 2277.29 6072.51  
2287.09 6072.54 2292.05 6072.53 2300.2 6072.35 2310.84 6072.31 2318.37 6072.2  
2330.19 6072.51 2343.22 6072.68 2350.03 6072.69 2353.01 6072.63 2357.75 6072.45  
2364.16 6072.31 2370.98 6072.21 2374.29 6072.26 2379.8 6072.44 2384.63 6072.49  
2390.79 6072.64 2394.9 6072.79 2408.55 6072.63 2416.29 6072.49 2421.39 6072.46  
2426.46 6072.5 2436.67 6072.3 2440.95 6072.31 2445.84 6072.24 2448.89 6072.3  
2453.75 6072.71 2457.04 6072.91 2462.27 6073.03 2470.29 6072.98 2478.44 6073.13  
2485.57 6073.12 2490.42 6073.23 2493.83 6073.26 2497.24 6073.19 2505.94 6072.82  
2510.02 6072.77 2516 6072.88 2521.12 6073.1 2527.34 6073.22 2528.36 6073.31  
2531.41 6073.28 2537.48 6073.38 2540.51 6073.33 2543.53 6073.19 2548.58 6072.73  
2551.6 6072.56 2556.22 6072.53 2563.35 6072.59 2567.74 6072.57 2579.38 6072.41  
2584.73 6072.39 2591.13 6072.46 2594.98 6072.46 2605.22 6072.33 2613.13 6072.36  
2624.82 6072.33 2630.16 6072.27 2639.36 6072.28 2647.09 6072.19 2652.12 6072.25  
2660.45 6072.44 2670.63 6072.44 2675.67 6072.7 2679.71 6072.72 2687.78 6072.38  
2691.63 6072.37 2694.84 6072.53 2699.88 6072.96 2702.91 6073.16 2705.88 6073.16  
2710.34 6073.01 2713 6073.03 2718.04 6073.25 2725.1 6073.3 2728.13 6073.37  
2733.17 6073.7 2737.06 6073.7 2739.74 6073.52 2743.26 6073.37 2748.3 6073.45  
2757.38 6073.49 2764.68 6073.47 2771.5 6073.68 2776.26 6073.59 2779.82 6073.61  
2782.6 6073.82 2787.64 6074.39 2790.67 6074.61 2794.97 6074.74 2804.6 6074.88  
2808.33 6074.88 2815.46 6074.81 2820.93 6074.59 2823.96 6074.52 2830.01 6074.52  
2834.17 6074.33 2837.07 6073.99 2842.11 6073.04 2845.14 6072.62 2847.53 6072.45  
2851.98 6072.35 2867.13 6072.49 2870.36 6072.48 2877.82 6072.36 2884.48 6072.32  
2893.56 6072.39 2901.87 6072.39 2910.71 6072.3 2916.12 6072.29 2921.8 6072.21  
2929.49 6072.05 2936.93 6072.07 2952.65 6072.27 2957.07 6072.39 2963.16 6072.48  
2969.57 6072.49 2978.29 6072.46 2987.56 6072.47 2997.45 6072.37 3008.55 6072.5  
3018.64 6072.54 3024.81 6072.65 3041.84 6073.14 3048.86 6073.25 3053.94 6073.54  
3057.77 6073.69 3061 6073.91 3066.05 6074.4 3075.13 6074.91 3078.15 6075.01  
3086.67 6075.08 3093.54 6075.05

Manning's n Values num= 3  
Sta n Val Sta n Val Sta n Val  
256.52 .06 1859.86 .035 1923.23 .06



|                      |         |         |           |               |        |              |        |
|----------------------|---------|---------|-----------|---------------|--------|--------------|--------|
| Bank Sta:            | Left    | Right   | Lengths:  | Left Channel  | Right  | Coeff Contr. | Expan. |
|                      | 1859.86 | 1923.23 |           | 446.27 338.28 | 229.54 | .3           | .5     |
| Ineffective Flow     | num=    |         | 10        |               |        |              |        |
| Sta L                | Sta R   | Elev    | Permanent |               |        |              |        |
| 322.52               | 1863.65 | 6075.96 | T         |               |        |              |        |
| 1920.31              | 1978.56 | 6075.62 | T         |               |        |              |        |
| 1978.56              | 2005.04 | 6075.48 | T         |               |        |              |        |
| 2005.04              | 2067.26 | 6075.15 | T         |               |        |              |        |
| 2067.26              | 2120.22 | 6074.82 | T         |               |        |              |        |
| 2120.22              | 2181.12 | 6074.51 | T         |               |        |              |        |
| 2181.12              | 2583.58 | 6074.26 | T         |               |        |              |        |
| 2583.58              | 2625.95 | 6074.59 | T         |               |        |              |        |
| 2625.95              | 2645.8  | 6074.82 | T         |               |        |              |        |
| 2645.8               | 3073.42 | 6075.11 | T         |               |        |              |        |
| Blocked Obstructions | num=    |         | 1         |               |        |              |        |
| Sta L                | Sta R   | Elev    |           |               |        |              |        |
| 3159.6               | 3093.54 | 6075.2  |           |               |        |              |        |

# CROSS SECTION

RIVER: Flat Creek

REACH: 1 RS: 31220

## INPUT

Description:

|         |           |        |         |        |         |        |         |        |         |
|---------|-----------|--------|---------|--------|---------|--------|---------|--------|---------|
| Station | Elevation | Data   | num=    | 488    |         |        |         |        |         |
| Sta     | Elev      | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    |
| 0       | 6089.1    | 2.36   | 6087.98 | 7.69   | 6085.19 | 10.88  | 6083.77 | 14.08  | 6082.83 |
| 18.82   | 6081.98   | 21.53  | 6081.26 | 26.61  | 6079.45 | 28.95  | 6078.9  | 30.51  | 6078.75 |
| 32.85   | 6078.86   | 35.19  | 6079.36 | 39.87  | 6080.78 | 42.82  | 6081.23 | 47.08  | 6081.39 |
| 50.28   | 6081.2    | 53.47  | 6080.73 | 55.6   | 6080.28 | 58.8   | 6079.74 | 61.99  | 6079.35 |
| 68.38   | 6078.8    | 71.57  | 6078.6  | 75.83  | 6078.42 | 84.2   | 6077.98 | 90.74  | 6077.76 |
| 98.19   | 6077.64   | 105.36 | 6077.69 | 112.03 | 6077.84 | 114.72 | 6077.83 | 119.4  | 6077.69 |
| 124.07  | 6077.66   | 132.26 | 6077.87 | 137.33 | 6077.87 | 157.82 | 6077.62 | 166.18 | 6077.59 |
| 178.05  | 6077.49   | 181.24 | 6077.43 | 189.76 | 6077.15 | 196.15 | 6077.12 | 203.6  | 6077.16 |
| 208.92  | 6077.05   | 215.29 | 6077.01 | 223.09 | 6077.06 | 240.87 | 6077.32 | 251.16 | 6077.42 |
| 263.23  | 6077.66   | 269.09 | 6077.68 | 277.67 | 6077.54 | 280.79 | 6077.46 | 286.65 | 6077.23 |
| 291.98  | 6076.77   | 294.82 | 6076.57 | 297.94 | 6076.51 | 302.61 | 6076.51 | 306.52 | 6076.43 |
| 312.21  | 6076.14   | 317.43 | 6075.77 | 320.72 | 6075.61 | 328.81 | 6075.33 | 336.69 | 6075.19 |
| 340.46  | 6075.16   | 351.6  | 6075.18 | 356.42 | 6075.11 | 365.77 | 6074.92 | 369.67 | 6074.88 |
| 373.96  | 6074.93   | 388.87 | 6074.89 | 393.84 | 6074.94 | 399.3  | 6074.89 | 403.98 | 6074.74 |
| 409.1   | 6074.67   | 425.81 | 6074.69 | 437.85 | 6074.69 | 439.98 | 6074.71 | 447.64 | 6074.97 |
| 453.09  | 6075.12   | 455.95 | 6075.33 | 461.27 | 6075.86 | 464.46 | 6076.04 | 468.69 | 6076.09 |
| 478.82  | 6075.89   | 491.08 | 6075.51 | 497.47 | 6075.25 | 499.1  | 6075.23 | 507.05 | 6074.92 |
| 509.18  | 6074.76   | 514.51 | 6074.59 | 521.96 | 6074.6  | 530.28 | 6074.52 | 535.57 | 6074.54 |
| 540.42  | 6074.63   | 545.88 | 6074.61 | 552.84 | 6074.66 | 559.13 | 6074.65 | 564.55 | 6074.74 |
| 568.49  | 6074.74   | 576.26 | 6074.57 | 583.72 | 6074.59 | 588.76 | 6074.48 | 593.81 | 6074.45 |
| 599.63  | 6074.55   | 603.57 | 6074.57 | 607.47 | 6074.53 | 615.66 | 6074.56 | 620.72 | 6074.49 |
| 629.3   | 6074.42   | 638.02 | 6074.45 | 643.31 | 6074.37 | 651.13 | 6074.38 | 660.49 | 6074.27 |
| 668.9   | 6074.08   | 677.64 | 6074.01 | 692.45 | 6074.15 | 696.35 | 6074.24 | 698.69 | 6074.37 |
| 704.15  | 6074.91   | 707.38 | 6075.09 | 713.51 | 6075.25 | 720.52 | 6075.33 | 724.42 | 6075.29 |
| 727.46  | 6075.19   | 730.65 | 6074.98 | 735.98 | 6074.55 | 743.43 | 6074.31 | 746.62 | 6074.12 |
| 749.82  | 6073.61   | 753.01 | 6072.67 | 755.14 | 6071.85 | 758.34 | 6070.98 | 761.53 | 6070.6  |
| 764.96  | 6070.56   | 766.52 | 6070.64 | 768.98 | 6070.97 | 774.31 | 6072.36 | 777.44 | 6072.76 |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 780.56  | 6072.89 | 793.03  | 6072.9  | 800.56  | 6072.99 | 805.51  | 6072.99 | 812.21  | 6073.12 |
| 817.2   | 6073.17 | 824.35  | 6073.17 | 831.8   | 6073.13 | 836.69  | 6073.06 | 839.81  | 6073.08 |
| 846.71  | 6073.21 | 861.72  | 6073.18 | 864.81  | 6073.11 | 870.45  | 6072.91 | 873.33  | 6072.88 |
| 883.47  | 6072.9  | 889.3   | 6072.86 | 898.88  | 6072.99 | 909.53  | 6073.03 | 915.44  | 6072.99 |
| 920.18  | 6073.05 | 927.14  | 6073.31 | 934.02  | 6073.45 | 940.39  | 6073.51 | 944.67  | 6073.45 |
| 954.25  | 6073.16 | 959.57  | 6072.86 | 965.96  | 6072.71 | 970.02  | 6072.79 | 979.8   | 6073.29 |
| 981.93  | 6073.44 | 985.13  | 6073.56 | 989.51  | 6073.58 | 997.9   | 6073.42 | 1002.76 | 6073.36 |
| 1010.68 | 6073.33 | 1014.94 | 6073.26 | 1021.48 | 6073.06 | 1034.73 | 6072.52 | 1040.49 | 6072.19 |
| 1045.82 | 6071.83 | 1050.32 | 6071.7  | 1053.27 | 6071.73 | 1062.02 | 6071.99 | 1069.04 | 6072.09 |
| 1072.44 | 6072.25 | 1077.76 | 6072.68 | 1083.85 | 6072.95 | 1090.54 | 6072.97 | 1097.99 | 6072.94 |
| 1100.12 | 6073    | 1110.36 | 6072.96 | 1115.82 | 6073.23 | 1119.29 | 6073.35 | 1122.05 | 6073.38 |
| 1128.29 | 6073.25 | 1133.75 | 6073.26 | 1136.32 | 6073.22 | 1141.55 | 6073.03 | 1147.1  | 6072.99 |
| 1152.92 | 6072.77 | 1158.75 | 6072.59 | 1164.94 | 6072.69 | 1171.17 | 6072.97 | 1178.19 | 6073.12 |
| 1187.43 | 6073.28 | 1193.78 | 6073.27 | 1199.14 | 6073.19 | 1208.25 | 6073.13 | 1214.83 | 6073.16 |
| 1222.57 | 6073.24 | 1225.72 | 6073.12 | 1231.08 | 6072.64 | 1234.28 | 6072.4  | 1237.45 | 6072.24 |
| 1241.73 | 6072.31 | 1248.36 | 6072.76 | 1253.44 | 6073.27 | 1256.64 | 6073.5  | 1259.83 | 6073.61 |
| 1272.72 | 6073.66 | 1283.9  | 6073.52 | 1296.59 | 6073.16 | 1301.86 | 6073.03 | 1307.27 | 6072.83 |
| 1311.16 | 6072.56 | 1317    | 6072.29 | 1319.92 | 6072.26 | 1327.5  | 6072.09 | 1340.32 | 6072.03 |
| 1344.26 | 6071.98 | 1356.37 | 6071.62 | 1362.46 | 6071.38 | 1371.51 | 6071.37 | 1377.35 | 6071.45 |
| 1381.89 | 6071.4  | 1388.45 | 6071.24 | 1395.09 | 6071.23 | 1397.43 | 6071.33 | 1402.09 | 6071.79 |
| 1404.61 | 6071.84 | 1410.25 | 6071.57 | 1414.91 | 6071.53 | 1418.24 | 6071.59 | 1422.13 | 6071.75 |
| 1422.6  | 6071.76 | 1427.97 | 6071.91 | 1434.72 | 6071.87 | 1438.76 | 6071.81 | 1440.55 | 6071.85 |
| 1442.88 | 6072.13 | 1447.54 | 6073.29 | 1449.87 | 6073.5  | 1453.34 | 6073.37 | 1457.71 | 6072.44 |
| 1461.36 | 6072.02 | 1463.86 | 6071.93 | 1467.36 | 6071.94 | 1472.02 | 6072.1  | 1475.21 | 6072.05 |
| 1486    | 6072.04 | 1491.83 | 6072.21 | 1495.33 | 6072.4  | 1498.82 | 6072.33 | 1506.56 | 6071.91 |
| 1512.39 | 6071.8  | 1515.31 | 6071.85 | 1520.41 | 6071.8  | 1526.8  | 6071.59 | 1530.29 | 6071.58 |
| 1537.28 | 6071.27 | 1540.89 | 6071.21 | 1543.74 | 6071.34 | 1548.68 | 6071.82 | 1551.03 | 6071.95 |
| 1555.93 | 6071.83 | 1558.26 | 6071.61 | 1560.36 | 6071.09 | 1563.42 | 6070.08 | 1566    | 6068.7  |
| 1598    | 6068.7  | 1600.22 | 6069.62 | 1604.88 | 6070.51 | 1607.17 | 6070.84 | 1610.81 | 6071.01 |
| 1618.87 | 6070.78 | 1623.21 | 6070.48 | 1625.39 | 6070.39 | 1628.19 | 6070.48 | 1632.86 | 6070.89 |
| 1640.19 | 6071.07 | 1646.54 | 6071.53 | 1648.72 | 6071.57 | 1654.56 | 6071.52 | 1660.83 | 6071.42 |
| 1663.16 | 6071.53 | 1666.95 | 6071.85 | 1669.14 | 6071.88 | 1672.78 | 6071.8  | 1682.97 | 6071.8  |
| 1692.47 | 6071.84 | 1699.29 | 6071.97 | 1704.43 | 6071.99 | 1710.69 | 6071.88 | 1713.27 | 6071.89 |
| 1719.1  | 6072.02 | 1722.6  | 6071.8  | 1724.54 | 6071.68 | 1728.19 | 6071.54 | 1730.38 | 6071.52 |
| 1736.21 | 6071.64 | 1739.85 | 6071.66 | 1749.21 | 6071.96 | 1753.11 | 6071.89 | 1758.95 | 6071.55 |
| 1766.73 | 6070.7  | 1769.02 | 6070.57 | 1776.21 | 6069.66 | 1778.49 | 6069.53 | 1782.87 | 6069.53 |
| 1790.1  | 6069.31 | 1794.86 | 6069.37 | 1803.28 | 6069.41 | 1809.84 | 6069.34 | 1814.67 | 6069.62 |
| 1817    | 6069.68 | 1821.25 | 6069.65 | 1824.42 | 6069.8  | 1830.98 | 6069.92 | 1836.82 | 6069.81 |
| 1839.15 | 6069.68 | 1844.97 | 6069.56 | 1847.75 | 6069.58 | 1855.04 | 6069.49 | 1860.13 | 6069.34 |
| 1865.25 | 6069.34 | 1870.62 | 6069.27 | 1873.81 | 6069.27 | 1878.37 | 6069.38 | 1883.55 | 6069.33 |
| 1889.39 | 6069.47 | 1895.09 | 6069.23 | 1898.59 | 6069.28 | 1901.07 | 6069.52 | 1904.41 | 6070.12 |
| 1905.58 | 6070.4  | 1908.27 | 6070.81 | 1910.8  | 6070.97 | 1918.4  | 6071.29 | 1920.73 | 6071.31 |
| 1926.56 | 6071.19 | 1931.59 | 6071.14 | 1939.61 | 6071.15 | 1942.88 | 6071.1  | 1951.28 | 6070.81 |
| 1954.2  | 6070.75 | 1965.02 | 6070.66 | 1973.88 | 6070.67 | 1986.27 | 6070.6  | 1995.75 | 6070.48 |
| 2003.04 | 6070.1  | 2010.33 | 6070    | 2016.3  | 6070.02 | 2021.27 | 6069.97 | 2025.63 | 6070.01 |
| 2028.56 | 6070.11 | 2035.12 | 6070.24 | 2043.19 | 6070.18 | 2049.03 | 6070.09 | 2051.27 | 6070.26 |
| 2056.26 | 6070.88 | 2059.42 | 6071.08 | 2065.01 | 6071.22 | 2073.76 | 6071.2  | 2084.08 | 6071.42 |
| 2089.8  | 6071.77 | 2099.65 | 6072.71 | 2102.92 | 6072.84 | 2106.32 | 6072.85 | 2109.52 | 6072.72 |
| 2112.17 | 6072.49 | 2115.41 | 6072.11 | 2120.11 | 6071.47 | 2123.5  | 6071.17 | 2127.54 | 6071.1  |
| 2130.57 | 6071.17 | 2133.35 | 6071.14 | 2135.62 | 6071.03 | 2139.53 | 6070.94 | 2151.88 | 6070.97 |
| 2157.85 | 6071.15 | 2162.9  | 6071.41 | 2169.98 | 6071.64 | 2175.03 | 6071.91 | 2178.36 | 6072.02 |
| 2186.14 | 6072.13 | 2197.26 | 6072.02 | 2201.39 | 6072.05 | 2209.38 | 6072.03 | 2220.5  | 6072.19 |
| 2228.58 | 6072.18 | 2243.74 | 6072    | 2255.15 | 6071.81 | 2260.92 | 6071.84 | 2273.04 | 6072.08 |
| 2281.12 | 6072.26 | 2293.99 | 6072.4  | 2302.34 | 6072.53 | 2308.11 | 6072.55 | 2316.05 | 6072.65 |
| 2324.57 | 6072.64 | 2338.72 | 6072.78 | 2358.93 | 6072.87 | 2370.04 | 6072.8  | 2379.14 | 6072.66 |



|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 2387.22 | 6072.5  | 2398.33 | 6072.42 | 2406.96 | 6072.44 | 2414.03 | 6072.36 | 2421.09 | 6072.33 |
| 2429.91 | 6072.45 | 2452.86 | 6072.47 | 2459.04 | 6072.5  | 2467.87 | 6072.58 | 2477.58 | 6072.55 |
| 2489.93 | 6072.58 | 2502.41 | 6072.55 | 2511.5  | 6072.65 | 2518.57 | 6072.67 | 2521.71 | 6072.73 |
| 2523.47 | 6072.67 | 2530.7  | 6072.67 | 2548.19 | 6072.87 | 2562.02 | 6072.98 | 2573.14 | 6072.96 |
| 2581.73 | 6073.02 | 2590.32 | 6072.99 | 2598.4  | 6072.99 | 2608.2  | 6072.91 | 2615.27 | 6072.91 |
| 2621.64 | 6072.96 | 2626.69 | 6073.09 | 2634.77 | 6073.11 | 2641.03 | 6073.27 | 2646.16 | 6073.27 |
| 2652.34 | 6073.13 | 2663.07 | 6073.12 | 2667.34 | 6073.14 | 2675.28 | 6073.09 | 2683.23 | 6073.22 |
| 2693.82 | 6073.28 | 2700.45 | 6073.28 | 2709.71 | 6073.36 | 2714.6  | 6073.44 | 2721.18 | 6073.46 |
| 2742.89 | 6073.69 | 2749.43 | 6073.72 | 2753.84 | 6073.83 | 2761.78 | 6073.97 | 2765.12 | 6074    |
| 2773.2  | 6073.95 | 2781.29 | 6073.95 | 2790.91 | 6073.82 | 2805.54 | 6073.68 | 2815.62 | 6073.65 |
| 2820.69 | 6073.7  | 2827.77 | 6073.72 | 2835.85 | 6073.82 | 2844.94 | 6073.81 | 2855.05 | 6073.88 |
| 2860.1  | 6073.94 | 2870.2  | 6073.98 | 2882.7  | 6073.99 | 2894.45 | 6074.07 | 2899.24 | 6074.14 |
| 2903.89 | 6074.14 | 2916.24 | 6074.23 | 2927.8  | 6074.24 | 2933.86 | 6074.19 | 2940.07 | 6074.23 |
| 2949.78 | 6074.23 | 2955.07 | 6074.28 | 2971.85 | 6074.28 | 2979.79 | 6074.33 | 2991.46 | 6074.36 |
| 2997.52 | 6074.32 | 3010.65 | 6074.39 | 3027.83 | 6074.39 | 3041.98 | 6074.41 | 3052.76 | 6074.37 |
| 3057.46 | 6074.41 | 3065.41 | 6074.39 | 3076.16 | 6074.42 |         |         |         |         |

|                    |       |         |       |         |       |
|--------------------|-------|---------|-------|---------|-------|
| Manning's n Values |       | num=    |       | 3       |       |
| Sta                | n Val | Sta     | n Val | Sta     | n Val |
| 0                  | .06   | 1555.93 | .035  | 1610.81 | .06   |

|                  |         |         |           |              |         |              |        |
|------------------|---------|---------|-----------|--------------|---------|--------------|--------|
| Bank Sta:        | Left    | Right   | Lengths:  | Left Channel | Right   | Coeff Contr. | Expan. |
|                  | 1555.93 | 1610.81 |           | 946.34       | 1146.26 | 545.38       | .1 .3  |
| Ineffective Flow | num=    |         | 2         |              |         |              |        |
| Sta L            | Sta R   | Elev    | Permanent |              |         |              |        |
| 0                | 1272.72 | 6073.66 | F         |              |         |              |        |
| 2106.32          | 3076.16 | 6072.85 | F         |              |         |              |        |

CROSS SECTION

RIVER: Flat Creek  
 REACH: 1                      RS: 30074

INPUT  
 Description:

|         |           |        |         |        |         |                               |
|---------|-----------|--------|---------|--------|---------|-------------------------------|
| Station | Elevation | Data   | num=    |        | 489     |                               |
| Sta     | Elev      | Sta    | Elev    | Sta    | Elev    | Sta Elev Sta Elev             |
| 0       | 6074.06   | 3.21   | 6074.01 | 5.5    | 6073.85 | 9.74 6073.78 14.88 6074.19    |
| 16.35   | 6074.23   | 20.76  | 6073.99 | 25.17  | 6073.83 | 35.81 6073.87 44.28 6074.18   |
| 48.12   | 6074.22   | 53.59  | 6074.01 | 60.43  | 6074.25 | 63.9 6074.26 70.74 6074.11    |
| 77.64   | 6073.78   | 83.01  | 6073.63 | 95.96  | 6073.66 | 99.4 6073.6 105.59 6073.39    |
| 109.69  | 6073.13   | 114.84 | 6072.64 | 118.86 | 6072.41 | 126.88 6071.64 132.61 6071.37 |
| 139.1   | 6070.84   | 147.49 | 6070.25 | 157.48 | 6069.81 | 165.1 6069.52 171.26 6069.41  |
| 180.7   | 6069.45   | 187.57 | 6069.67 | 195.7  | 6070.37 | 201.31 6070.6 204.52 6070.79  |
| 212.6   | 6071.55   | 219.64 | 6071.89 | 225.1  | 6071.95 | 233.38 6072.28 235.67 6072.28 |
| 242     | 6072.43   | 247.12 | 6072.61 | 257.43 | 6072.88 | 262.58 6072.8 267.72 6072.93  |
| 272.87  | 6072.64   | 275.81 | 6072.54 | 280.22 | 6072.6  | 288.24 6072.56 295.66 6072.59 |
| 307.81  | 6072.75   | 318.12 | 6072.85 | 322.12 | 6072.85 | 333.14 6072.66 341.6 6072.64  |
| 354.46  | 6072.52   | 364.18 | 6072.51 | 369.89 | 6072.57 | 379.45 6072.56 384.6 6072.44  |
| 391.95  | 6072.43   | 397.83 | 6072.49 | 404    | 6072.47 | 416.2 6072.28 423.47 6072.25  |
| 431.9   | 6072.26   | 439.5  | 6072.14 | 450.38 | 6071.83 | 466.99 6071.25 470.42 6071.07 |
| 479.58  | 6070.46   | 492.64 | 6070.29 | 497.79 | 6070.35 | 502.93 6070.32 515.43 6070.67 |
| 520.81  | 6070.89   | 527.68 | 6071.02 | 538.21 | 6071.04 | 545.56 6070.94 551.44 6071.06 |
| 554.02  | 6071.05   | 559.53 | 6070.88 | 566.61 | 6070.48 | 573.48 6069.94 579.21 6069.14 |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 582.64  | 6068.87 | 594.07  | 6068.72 | 597.53  | 6068.79 | 600.97  | 6068.96 | 604.4   | 6069.39 |
| 606.57  | 6069.97 | 610.13  | 6071.23 | 613.56  | 6072.26 | 617     | 6072.83 | 620.43  | 6073.05 |
| 623.87  | 6073.11 | 633.03  | 6073.14 | 637.14  | 6073.08 | 649.45  | 6072.62 | 658.02  | 6072.57 |
| 663.17  | 6072.41 | 666.11  | 6072.15 | 669.67  | 6071.7  | 675.4   | 6070.84 | 682.27  | 6070.09 |
| 689.14  | 6069.69 | 695.51  | 6069.57 | 708     | 6069.67 | 713.19  | 6069.67 | 723.5   | 6069.74 |
| 734.46  | 6069.66 | 751.37  | 6069.85 | 760.92  | 6069.83 | 785.33  | 6069.84 | 796.94  | 6069.71 |
| 805.02  | 6069.88 | 808.7   | 6069.9  | 813.96  | 6069.8  | 827.7   | 6069.32 | 838.26  | 6069.29 |
| 846.02  | 6069.13 | 858.79  | 6069.17 | 867.78  | 6069.37 | 876.32  | 6069.4  | 885.88  | 6069.28 |
| 891.83  | 6069.02 | 898.7   | 6069.15 | 903.28  | 6069.15 | 910.87  | 6068.86 | 914.2   | 6068.81 |
| 924.1   | 6068.84 | 929.24  | 6068.78 | 936.77  | 6068.8  | 942.93  | 6068.88 | 950.23  | 6068.87 |
| 966.73  | 6068.8  | 971.99  | 6068.72 | 979.22  | 6068.52 | 983.63  | 6068.5  | 998.33  | 6068.28 |
| 1003.48 | 6068.31 | 1006.42 | 6068.39 | 1012.3  | 6068.85 | 1016.65 | 6068.85 | 1021.85 | 6068.57 |
| 1029.94 | 6068.69 | 1033.83 | 6068.66 | 1037.26 | 6068.49 | 1039.49 | 6068.28 | 1043.9  | 6068.07 |
| 1049.86 | 6068.25 | 1057.13 | 6068.04 | 1064.75 | 6068.02 | 1079.63 | 6068.07 | 1084.21 | 6068.17 |
| 1090.21 | 6068.02 | 1096.81 | 6068.06 | 1098.91 | 6068.01 | 1102.71 | 6067.69 | 1108.26 | 6066.75 |
| 1110.79 | 6066.52 | 1113.73 | 6066.5  | 1116.28 | 6066.61 | 1119.71 | 6067.02 | 1122    | 6067.52 |
| 1125.44 | 6067.92 | 1132.11 | 6068.05 | 1136.89 | 6068.09 | 1143.76 | 6067.83 | 1149.75 | 6067.95 |
| 1162.08 | 6068.13 | 1171.06 | 6068.09 | 1178.11 | 6068.1  | 1181.55 | 6068.04 | 1187.27 | 6068.04 |
| 1194.58 | 6067.83 | 1202.16 | 6067.82 | 1206.34 | 6067.89 | 1212.96 | 6068.22 | 1218.1  | 6068.57 |
| 1221.63 | 6068.69 | 1234.36 | 6068.8  | 1243.39 | 6069.17 | 1248.97 | 6069.48 | 1258.99 | 6069.59 |
| 1266.61 | 6069.56 | 1270.87 | 6069.35 | 1278.89 | 6068.8  | 1283.23 | 6068.36 | 1284.99 | 6068.18 |
| 1289.4  | 6068.04 | 1294.55 | 6068.1  | 1304.08 | 6068.08 | 1309.8  | 6068.16 | 1320.11 | 6068.05 |
| 1330.42 | 6068.03 | 1339.58 | 6068.14 | 1343.79 | 6068.07 | 1353.4  | 6068.12 | 1359.55 | 6068.31 |
| 1366.58 | 6068.28 | 1372.79 | 6068.37 | 1378.51 | 6068.39 | 1383.48 | 6068.5  | 1389.96 | 6068.77 |
| 1395.24 | 6068.84 | 1398.18 | 6068.73 | 1401.86 | 6068.26 | 1407.74 | 6066.9  | 1410    | 6065.7  |
| 1451    | 6065.7  | 1451.91 | 6066.34 | 1456.38 | 6066.72 | 1463.25 | 6067.51 | 1468.98 | 6068.45 |
| 1471.68 | 6068.72 | 1474.7  | 6068.72 | 1479.28 | 6068.36 | 1482.69 | 6068.23 | 1487.3  | 6068.17 |
| 1492.95 | 6068.02 | 1505.27 | 6068.12 | 1511.35 | 6068.28 | 1514.78 | 6068.23 | 1519.36 | 6068.06 |
| 1524.61 | 6067.96 | 1534.25 | 6067.96 | 1545.19 | 6068.15 | 1552.47 | 6067.94 | 1556.01 | 6067.98 |
| 1560.59 | 6068.19 | 1566.31 | 6068.19 | 1572.99 | 6067.96 | 1578.26 | 6067.72 | 1581.94 | 6067.63 |
| 1583.23 | 6067.67 | 1588.55 | 6067.83 | 1593.8  | 6067.91 | 1599.52 | 6067.73 | 1603.78 | 6067.74 |
| 1607.88 | 6067.97 | 1613.54 | 6068.49 | 1616.7  | 6068.7  | 1623.1  | 6068.75 | 1635.59 | 6069.06 |
| 1642.94 | 6069.11 | 1645.33 | 6069.22 | 1652.5  | 6069.97 | 1657.64 | 6070.67 | 1661.32 | 6071    |
| 1664.11 | 6071.08 | 1668.4  | 6071.08 | 1677.66 | 6070.8  | 1683.47 | 6070.42 | 1697.42 | 6069.29 |
| 1701.42 | 6069.28 | 1706.43 | 6069.44 | 1721.43 | 6069.51 | 1729.44 | 6069.41 | 1736.7  | 6069.4  |
| 1746.45 | 6069.34 | 1752.19 | 6069.41 | 1755.45 | 6069.39 | 1763.8  | 6069.05 | 1769.46 | 6069.04 |
| 1777.35 | 6069.19 | 1784.47 | 6069.14 | 1794.48 | 6069.31 | 1802.48 | 6069.58 | 1811.49 | 6069.76 |
| 1833.49 | 6069.92 | 1843.5  | 6070.09 | 1851.88 | 6070.09 | 1856.51 | 6070.13 | 1869.52 | 6070.09 |
| 1876.52 | 6070.02 | 1892.5  | 6069.91 | 1909.95 | 6069.92 | 1915.54 | 6069.89 | 1929.55 | 6069.9  |
| 1935.56 | 6069.87 | 1946.56 | 6069.75 | 1952.54 | 6069.75 | 1967.57 | 6069.88 | 1974.58 | 6069.85 |
| 1983.51 | 6069.95 | 1991.59 | 6069.93 | 1998.59 | 6069.79 | 2007.6  | 6069.8  | 2018.6  | 6070.05 |
| 2028.61 | 6069.98 | 2035.78 | 6069.86 | 2047.62 | 6070.18 | 2055.62 | 6070.31 | 2077.64 | 6070.52 |
| 2089.01 | 6070.53 | 2097.72 | 6070.48 | 2106.65 | 6070.62 | 2121.66 | 6070.49 | 2129.52 | 6070.27 |
| 2135.67 | 6070.29 | 2141.67 | 6070.18 | 2145.15 | 6070.17 | 2156.68 | 6070.27 | 2160.63 | 6070.38 |
| 2165.47 | 6070.65 | 2173.69 | 6070.92 | 2179.69 | 6071.07 | 2187.7  | 6071.14 | 2196.7  | 6071.04 |
| 2203.71 | 6071.12 | 2213.71 | 6071.11 | 2217.72 | 6071.14 | 2224.72 | 6071.28 | 2235.16 | 6071.42 |
| 2248.71 | 6071.57 | 2268.07 | 6071.61 | 2276.75 | 6071.53 | 2289.76 | 6071.54 | 2307.29 | 6071.47 |
| 2317.77 | 6071.33 | 2329.05 | 6071.38 | 2349.79 | 6071.57 | 2360.8  | 6071.73 | 2371.63 | 6071.78 |
| 2379.38 | 6071.76 | 2396.8  | 6071.83 | 2400.82 | 6071.78 | 2409.83 | 6071.55 | 2415.83 | 6071.6  |
| 2420.83 | 6071.79 | 2432.84 | 6071.86 | 2444.85 | 6072.01 | 2457.85 | 6071.99 | 2460.86 | 6071.95 |
| 2468.42 | 6071.68 | 2478.87 | 6071.54 | 2492.87 | 6071.26 | 2499.88 | 6071.26 | 2504.88 | 6071.44 |
| 2508.88 | 6071.3  | 2513.89 | 6070.77 | 2516.81 | 6070.61 | 2520.69 | 6070.64 | 2523.89 | 6070.75 |
| 2531.9  | 6071.23 | 2534.9  | 6071.31 | 2546.9  | 6071.41 | 2551.91 | 6071.57 | 2552.91 | 6071.35 |
| 2554.56 | 6071.9  | 2559.91 | 6071.92 | 2565.91 | 6071.7  | 2573.92 | 6071.11 | 2584.57 | 6070.97 |
| 2590.37 | 6070.95 | 2595.93 | 6070.82 | 2603.92 | 6070.38 | 2606.83 | 6070.29 | 2610.7  | 6070.34 |





|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 2613.94 | 6070.48 | 2622.95 | 6071    | 2627.95 | 6071.41 | 2633.19 | 6071.76 | 2639.96 | 6072.02 |
| 2648.45 | 6072.07 | 2658.13 | 6072.02 | 2664.9  | 6072.09 | 2667.97 | 6072.04 | 2673.61 | 6071.8  |
| 2679.98 | 6071.85 | 2682.98 | 6072.04 | 2688.13 | 6072.53 | 2691.99 | 6072.58 | 2694.99 | 6072.37 |
| 2699.74 | 6071.85 | 2705.99 | 6071.43 | 2713    | 6071.07 | 2716    | 6070.6  | 2718    | 6070.08 |
| 2721    | 6069.49 | 2724.91 | 6069.45 | 2728.01 | 6069.79 | 2734.01 | 6070.83 | 2739.01 | 6071.88 |
| 2742.02 | 6072.34 | 2745.02 | 6072.6  | 2748.14 | 6072.67 | 2753.95 | 6072.54 | 2764.03 | 6072.47 |
| 2770.03 | 6072.24 | 2778.14 | 6071.79 | 2781.33 | 6071.68 | 2799.05 | 6071.5  | 2806.21 | 6071.52 |
| 2812.02 | 6071.59 | 2818.06 | 6071.58 | 2824.06 | 6071.64 | 2831.38 | 6071.79 | 2835.07 | 6071.82 |
| 2845.9  | 6071.77 | 2861.38 | 6071.75 | 2867.19 | 6071.82 | 2872.09 | 6071.78 | 2886.1  | 6071.34 |
| 2893.1  | 6071.24 | 2908.11 | 6071.21 | 2916.11 | 6071.31 | 2923.33 | 6071.27 | 2928.12 | 6071.13 |
| 2935.13 | 6071.08 | 2941.13 | 6070.95 | 2944.13 | 6070.95 | 2953.14 | 6071.11 | 2964.14 | 6071.58 |
| 2975.15 | 6071.69 | 2993.98 | 6071.49 | 3001.72 | 6071.47 | 3006.17 | 6071.53 | 3019.15 | 6071.52 |
| 3027.86 | 6071.4  | 3033.66 | 6071.25 | 3039.18 | 6071.03 | 3049.15 | 6071.08 | 3052.05 | 6071.17 |
| 3060.2  | 6071.7  | 3064.2  | 6071.8  | 3067.54 | 6071.77 | 3073.2  | 6071.54 | 3078.19 | 6071.12 |
| 3084.21 | 6070.81 | 3094.64 | 6070.74 | 3104.32 | 6070.84 | 3109.16 | 6070.94 | 3112.23 | 6071.11 |
| 3117.23 | 6071.54 | 3123.23 | 6071.75 | 3127.23 | 6071.74 | 3133.24 | 6071.44 | 3138.2  | 6070.95 |
| 3141.24 | 6070.77 | 3149.81 | 6070.65 | 3154.25 | 6070.7  | 3160.25 | 6070.97 | 3165.26 | 6071.32 |
| 3168.2  | 6071.42 | 3182.27 | 6071.52 | 3187.27 | 6071.44 | 3195.27 | 6070.91 | 3198.2  | 6070.82 |
| 3206.28 | 6070.83 | 3216.29 | 6070.64 | 3226.27 | 6070.62 | 3241.3  | 6070.41 | 3249.5  | 6070.24 |
| 3261.12 | 6070.05 | 3269.32 | 6070.09 | 3281.44 | 6070.11 | 3298.33 | 6070.18 | 3310.34 | 6070.45 |
| 3313.34 | 6070.59 | 3318.34 | 6070.96 | 3321.13 | 6071.08 | 3328.35 | 6071.13 | 3334.35 | 6071.04 |
| 3345.32 | 6070.77 | 3352.1  | 6070.68 | 3361.37 | 6070.71 | 3369.52 | 6070.83 | 3380.17 | 6070.84 |
| 3390.38 | 6070.72 | 3396.62 | 6070.72 | 3406.39 | 6070.81 | 3413.07 | 6070.91 | 3418.4  | 6070.92 |
| 3423.4  | 6070.99 | 3431.46 | 6071.03 | 3437.41 | 6071    | 3451.79 | 6071.12 | 3458.57 | 6071.27 |
| 3466.43 | 6071.34 | 3477.43 | 6071.57 | 3487.44 | 6071.68 | 3502.12 | 6071.9  | 3511.8  | 6071.95 |
| 3522.45 | 6072.07 | 3531.16 | 6072    | 3539.87 | 6072.01 | 3548.03 | 6071.93 |         |         |

Manning's n Values                    num=                    3

|     |       |         |       |         |       |
|-----|-------|---------|-------|---------|-------|
| Sta | n Val | Sta     | n Val | Sta     | n Val |
| 0   | .06   | 1395.24 | .035  | 1471.68 | .06   |

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

|         |         |        |         |        |    |    |
|---------|---------|--------|---------|--------|----|----|
| 1395.24 | 1471.68 | 722.21 | 1165.59 | 701.59 | .1 | .3 |
|---------|---------|--------|---------|--------|----|----|

Ineffective Flow                    num=                    2

|         |         |         |           |
|---------|---------|---------|-----------|
| Sta L   | Sta R   | Elev    | Permanent |
| 0       | 1258.99 | 6069.58 | F         |
| 1664.11 | 3548.03 | 6071.08 | F         |

Blocked Obstructions                    num=                    1

|       |         |        |
|-------|---------|--------|
| Sta L | Sta R   | Elev   |
| 2761  | 3548.03 | 6070.2 |

CROSS SECTION

RIVER: Flat Creek  
 REACH: 1                    RS: 28908

INPUT  
 Description:

|         |           |      |        |      |        |      |        |         |        |
|---------|-----------|------|--------|------|--------|------|--------|---------|--------|
| Station | Elevation | Data | num=   | 20   |        |      |        |         |        |
| Sta     | Elev      | Sta  | Elev   | Sta  | Elev   | Sta  | Elev   | Sta     | Elev   |
| 0       | 6072.93   | 9    | 6072.2 | 146  | 6070.2 | 573  | 6070.2 | 853     | 6068.2 |
| 993     | 6068.2    | 1305 | 6067.2 | 1392 | 6066.2 | 1463 | 6064.2 | 1467    | 6063.7 |
| 1495    | 6063.7    | 1500 | 6064.2 | 1996 | 6064.2 | 2140 | 6065.7 | 2270    | 6065.7 |
| 2377    | 6064.3    | 2651 | 6065.7 | 2941 | 6066.2 | 3254 | 6068.1 | 3267.79 | 6066.6 |

Manning's n Values num= 3  
Sta n Val Sta n Val Sta n Val  
0 .06 1467 .035 1495 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
1467 1495 23238.4528908.2623791.45 .1 .3  
Ineffective Flow num= 1  
Sta L Sta R Elev Permanent  
2140 3267.79 6065.7 F

Profile Output Table - Standard Table 2

| Reach | River Sta | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Vel Head<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Top Width<br>(ft) |
|-------|-----------|---------|-------------------|-------------------|------------------|--------------------|--------------------|-----------------|--------------------|------------------|-------------------|
| 1     | 28908     | 10-YR   | 6065.12           | 6065.07           | 0.05             |                    |                    | 18.22           | 128.79             | 652.99           | 856.85            |
| 1     | 28908     | 50-YR   | 6065.31           | 6065.25           | 0.06             |                    |                    | 26.53           | 150.18             | 853.29           | 929.57            |
| 1     | 28908     | 100-YR  | 6065.48           | 6065.42           | 0.06             |                    |                    | 36.88           | 174.72             | 1078.40          | 998.14            |
| 1     | 28908     | 500-YR  | 6065.69           | 6065.62           | 0.07             |                    |                    | 52.33           | 207.06             | 1380.61          | 1078.93           |
| 1     | 30074     | 10-YR   | 6068.86           | 6068.60           | 0.25             | 3.68               | 0.06               | 38.11           | 680.01             | 81.88            | 535.24            |
| 1     | 30074     | 50-YR   | 6069.08           | 6068.79           | 0.29             | 3.71               | 0.07               | 74.32           | 818.59             | 137.08           | 617.38            |
| 1     | 30074     | 100-YR  | 6069.30           | 6068.97           | 0.33             | 3.74               | 0.08               | 118.99          | 966.08             | 204.93           | 705.60            |
| 1     | 30074     | 500-YR  | 6069.56           | 6069.17           | 0.38             | 3.78               | 0.09               | 186.27          | 1156.45            | 297.29           | 787.37            |
| 1     | 31220     | 10-YR   | 6071.42           | 6071.34           | 0.07             | 2.55               | 0.02               | 0.36            | 328.05             | 471.59           | 479.32            |
| 1     | 31220     | 50-YR   | 6071.68           | 6071.60           | 0.08             | 2.58               | 0.02               | 5.72            | 385.46             | 638.82           | 580.43            |
| 1     | 31220     | 100-YR  | 6071.92           | 6071.85           | 0.08             | 2.61               | 0.03               | 18.53           | 440.83             | 830.63           | 706.17            |
| 1     | 31220     | 500-YR  | 6072.25           | 6072.16           | 0.09             | 2.66               | 0.03               | 57.09           | 539.67             | 1043.24          | 938.65            |
| 1     | 31558     | 10-YR   | 6073.87           | 6072.59           | 1.28             | 1.33               | 0.60               |                 | 800.00             |                  | 792.21            |
| 1     | 31558     | 50-YR   | 6074.54           | 6073.13           | 1.41             | 1.27               | 0.67               |                 | 1030.00            |                  | 1153.14           |
| 1     | 31558     | 100-YR  | 6075.19           | 6073.70           | 1.49             | 1.24               | 0.70               |                 | 1290.00            |                  | 1417.66           |
| 1     | 31558     | 500-YR  | 6075.47           | 6074.84           | 0.63             | 0.91               | 0.27               |                 | 1343.67            | 296.33           | 2071.58           |
| 1     | 31602     | Bridge  |                   |                   |                  |                    |                    |                 |                    |                  |                   |
| 1     | 31615     | 10-YR   | 6074.63           | 6074.21           | 0.42             |                    |                    |                 | 800.00             |                  | 1517.75           |
| 1     | 31615     | 50-YR   | 6074.72           | 6073.70           | 1.02             |                    |                    |                 | 1030.00            |                  | 1049.72           |
| 1     | 31615     | 100-YR  | 6075.19           | 6074.71           | 0.48             |                    |                    |                 | 1084.01            | 205.99           | 1875.73           |
| 1     | 31615     | 500-YR  | 6075.48           | 6075.11           | 0.38             |                    |                    |                 | 1161.59            | 478.41           | 2041.17           |
| 1     | 32262     | 10-YR   | 6075.48           | 6075.44           | 0.04             | 0.74               | 0.11               | 319.21          | 472.37             | 8.41             | 2012.66           |
| 1     | 32262     | 50-YR   | 6075.89           | 6075.85           | 0.04             | 0.88               | 0.29               | 439.99          | 554.69             | 35.32            | 2316.61           |
| 1     | 32262     | 100-YR  | 6076.12           | 6076.07           | 0.05             | 0.79               | 0.13               | 566.93          | 660.25             | 62.82            | 2424.51           |
| 1     | 32262     | 500-YR  | 6076.40           | 6076.34           | 0.06             | 0.82               | 0.10               | 730.47          | 800.34             | 109.18           | 2508.56           |
| 1     | 32973     | 10-YR   | 6076.92           | 6076.56           | 0.36             | 0.88               | 0.10               | 141.06          | 531.81             | 127.14           | 1000.83           |
| 1     | 32973     | 50-YR   | 6077.10           | 6076.76           | 0.34             | 0.83               | 0.09               | 248.65          | 603.54             | 177.81           | 1195.62           |
| 1     | 32973     | 100-YR  | 6077.28           | 6076.90           | 0.38             | 0.95               | 0.10               | 342.35          | 710.16             | 237.49           | 1308.80           |
| 1     | 32973     | 500-YR  | 6077.49           | 6077.13           | 0.36             | 1.00               | 0.09               | 529.40          | 814.69             | 295.92           | 1481.12           |
| 1     | 34540     | 10-YR   | 6080.01           | 6079.97           | 0.04             | 3.06               | 0.03               | 470.34          | 280.97             | 48.69            | 1069.07           |
| 1     | 34540     | 50-YR   | 6079.74           | 6079.46           | 0.28             |                    |                    | 512.15          | 501.34             | 16.51            | 703.83            |



|   |       |        |         |         |      |      |      |         |        |        |         |
|---|-------|--------|---------|---------|------|------|------|---------|--------|--------|---------|
| 1 | 34540 | 100-YR | 6080.25 | 6080.21 | 0.04 | 2.93 | 0.03 | 871.12  | 321.47 | 97.41  | 1179.50 |
| 1 | 34540 | 500-YR | 6080.42 | 6080.38 | 0.04 | 2.90 | 0.03 | 1115.95 | 368.21 | 155.84 | 1200.83 |
| 1 | 35470 | 10-YR  | 6081.08 | 6081.02 | 0.05 | 1.06 | 0.00 | 148.14  | 206.74 | 445.12 | 860.41  |
| 1 | 35470 | 50-YR  | 6081.43 | 6081.39 | 0.03 | 1.66 | 0.02 | 242.54  | 198.92 | 588.54 | 919.94  |
| 1 | 35470 | 100-YR | 6081.32 | 6081.24 | 0.07 | 1.06 | 0.01 | 281.78  | 276.03 | 732.19 | 895.72  |
| 1 | 35470 | 500-YR | 6081.50 | 6081.42 | 0.08 | 1.07 | 0.01 | 391.04  | 311.02 | 937.94 | 924.70  |
| 1 | 36595 | 10-YR  | 6084.66 | 6083.89 | 0.77 | 3.37 | 0.21 | 36.14   | 727.24 | 36.62  | 78.27   |
| 1 | 36595 | 50-YR  | 6084.92 | 6084.59 | 0.33 | 1.47 | 0.09 | 110.26  | 695.13 | 224.61 | 850.23  |
| 1 | 36595 | 100-YR | 6085.06 | 6084.69 | 0.38 | 2.63 | 0.09 | 161.25  | 798.08 | 330.67 | 901.27  |
| 1 | 36595 | 500-YR | 6085.23 | 6084.89 | 0.34 | 2.46 | 0.08 | 272.33  | 864.18 | 503.49 | 1130.52 |
| 1 | 37738 | 10-YR  | 6088.28 | 6087.57 | 0.71 |      |      | 96.74   | 612.19 | 91.07  | 220.53  |
| 1 | 37738 | 50-YR  | 6088.86 | 6088.38 | 0.48 | 3.90 | 0.04 | 166.90  | 686.90 | 176.20 | 912.19  |
| 1 | 37738 | 100-YR | 6088.79 | 6088.48 | 0.32 | 3.73 | 0.01 | 457.69  | 657.61 | 174.70 | 963.29  |
| 1 | 37738 | 500-YR | 6088.94 | 6088.61 | 0.33 | 3.72 | 0.00 | 699.36  | 730.40 | 210.24 | 1022.64 |
| 1 | 38668 | 10-YR  | 6090.87 | 6090.83 | 0.04 | 2.53 | 0.07 | 511.14  | 223.45 | 65.41  | 1301.17 |
| 1 | 38668 | 50-YR  | 6090.98 | 6090.93 | 0.04 | 2.07 | 0.04 | 680.10  | 255.50 | 94.41  | 1361.53 |
| 1 | 38668 | 100-YR | 6091.02 | 6090.96 | 0.06 | 2.21 | 0.03 | 858.51  | 309.26 | 122.23 | 1380.46 |
| 1 | 38668 | 500-YR | 6091.16 | 6091.10 | 0.06 | 2.21 | 0.03 | 1119.37 | 342.93 | 177.70 | 1464.79 |



**Post-Project Conditions Multiple Profile Run – Option 1**







HEC-RAS HEC-RAS 5.0.3 September 2016  
 U.S. Army Corps of Engineers  
 Hydrologic Engineering Center  
 609 Second Street  
 Davis, California

|          |      |        |      |      |        |       |
|----------|------|--------|------|------|--------|-------|
| 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     |
| XXXXXXXX | 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: Rafter J Flood Mitigation Feasibility Study  
 Project File : Flat Cr below High School Rd.prj  
 Run Date and Time: 7/8/2018 4:46:33 PM

Project in English units

Project Description:

Flat Creek FIS - Confluence with Snake River to High School Road

Multiple

Profile Run

Teton County, WY

CRS Info=<SpatialReference> <CoordinateSystem

Code="3758" Unit="US\_survey\_Foot" AcadCode="" /> <Registration OffsetX="0"

OffsetY="0" OffsetZ="0" ScaleX="1" ScaleY="1" ScaleZ="1" /></SpatialReference>

PLAN DATA

Plan Title: Prop Option 1

Plan File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.p03

Geometry Title: Prop Option 1 Geom

Geometry File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.g10

Flow Title : Flat Creek Multiple Profile Flows

Flow File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.f10

Plan Description:

Multiple Profile Run with new Bridge

Plan Summary Information:

Number of: Cross Sections = 12 Multiple Openings = 0

Culverts = 0 Inline Structures = 0  
Bridges = 1 Lateral Structures = 0

#### Computational Information

Water surface calculation tolerance = 0.01  
Critical depth calculation tolerance = 0.01  
Maximum number of iterations = 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: Flat Creek Multiple Profile Flows

Flow File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.f10

#### Flow Data (cfs)

| River      | Reach | RS    | 10-YR | 50-YR | 100-YR | 500-YR |
|------------|-------|-------|-------|-------|--------|--------|
| Flat Creek | 1     | 38668 | 800   | 1030  | 1290   | 1640   |

#### Boundary Conditions

| River      | Reach | Profile | Upstream | Downstream         |
|------------|-------|---------|----------|--------------------|
| Flat Creek | 1     | 10-YR   |          | Known WS = 6065.07 |
| Flat Creek | 1     | 50-YR   |          | Known WS = 6065.25 |
| Flat Creek | 1     | 100-YR  |          | Known WS = 6065.42 |
| Flat Creek | 1     | 500-YR  |          | Known WS = 6065.62 |

#### GEOMETRY DATA

Geometry Title: Prop Option 1 Geom

Geometry File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.g10

#### CROSS SECTION

RIVER: Flat Creek

REACH: 1 RS: 38668

#### INPUT

Description:



|           |     |        |      |      |      |
|-----------|-----|--------|------|------|------|
| Manning's | n   | Values |      | num= | 3    |
| Sta       | n   | Val    | Sta  | n    | Val  |
| 0         | .05 |        | 1639 | .035 |      |
|           |     |        |      |      | 1688 |
|           |     |        |      |      | .05  |

CROSS SECTION

INPUT

[illegible]

|                  |       |        |           |               |       |              |        |
|------------------|-------|--------|-----------|---------------|-------|--------------|--------|
| Bank Sta:        | Left  | Right  | Lengths:  | Left Channel  | Right | Coeff Contr. | Expan. |
|                  | 880   | 908    |           | 608.2 1142.98 | 926.3 | .1           | .3     |
| Ineffective Flow | num=  |        | 1         |               |       |              |        |
| Sta L            | Sta R | Elev   | Permanent |               |       |              |        |
| 0                | 730   | 6088.4 | F         |               |       |              |        |

INPUT

|         |           |      |        |      |        |      |        |         |        |  |
|---------|-----------|------|--------|------|--------|------|--------|---------|--------|--|
| Station | Elevation | Data | num=   | 20   |        |      |        |         |        |  |
| Sta     | Elev      | Sta  | Elev   | Sta  | Elev   | Sta  | Elev   | Sta     | Elev   |  |
| 0       | 6086.63   | 82   | 6086.2 | 317  | 6084.2 | 464  | 6084.2 | 720     | 6085.2 |  |
| 767     | 6086.2    | 788  | 6086.2 | 803  | 6082.2 | 906  | 6081.2 | 843     | 6081.2 |  |
| 847     | 6082.2    | 850  | 6086.2 | 870  | 6086.2 | 999  | 6084.2 | 1026    | 6083.7 |  |
| 1069    | 6084.2    | 1436 | 6084.2 | 1487 | 6084.7 | 2612 | 6086.2 | 2631.71 | 6086.3 |  |

Manning's n Values

| Sta |  | n Val |  | Sta |  | n Val |  |
|-----|--|-------|--|-----|--|-------|--|
| 0   |  | .05   |  | 806 |  | .035  |  |

| Bank Sta: | Left | Right | Lengths: |  | Left Channel | Right   | Coeff  | Contr. | Expan. |
|-----------|------|-------|----------|--|--------------|---------|--------|--------|--------|
|           | 806  | 843   |          |  | 695.19       | 1125.16 | 521.47 | .1     | .3     |

CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 35470

INPUT

Description:

| Station |         | Elevation |        | Data    |         | num= |        | 23   |        |
|---------|---------|-----------|--------|---------|---------|------|--------|------|--------|
| Sta     | Elev    | Sta       | Elev   | Sta     | Elev    | Sta  | Elev   | Sta  | Elev   |
| 0       | 6084.48 | 65        | 6084.2 | 312     | 6082.2  | 860  | 6082.2 | 1010 | 6083.2 |
| 1098    | 6082.2  | 1168      | 6080.2 | 1210    | 6080.2  | 1276 | 6081.7 | 1285 | 6081.7 |
| 1357    | 6080.7  | 1612      | 6080.2 | 1618    | 6079.1  | 1653 | 6079.1 | 1667 | 6080.2 |
| 2080    | 6080.2  | 2098      | 6082.2 | 2108    | 6084.2  | 2120 | 6084.2 | 2144 | 6082.2 |
| 2935    | 6082.2  | 3071      | 6084.2 | 3147.83 | 6084.53 |      |        |      |        |

Manning's n Values

| Sta |  | n Val |  | Sta  |  | n Val |  |
|-----|--|-------|--|------|--|-------|--|
| 0   |  | .05   |  | 1618 |  | .035  |  |

| Bank Sta: | Left | Right | Lengths: |  | Left Channel | Right  | Coeff  | Contr. | Expan. |
|-----------|------|-------|----------|--|--------------|--------|--------|--------|--------|
|           | 1618 | 1653  |          |  | 559.49       | 930.41 | 535.79 | .1     | .3     |

Ineffective Flow

| Sta L |  | Sta R |  | Elev   |  | Permanent |  |
|-------|--|-------|--|--------|--|-----------|--|
| 0     |  | 1285  |  | 6081.7 |  | F         |  |

CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 34540

INPUT

Description:

| Station |         | Elevation |         | Data   |         | num=   |         | 453    |         |
|---------|---------|-----------|---------|--------|---------|--------|---------|--------|---------|
| Sta     | Elev    | Sta       | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    |
| 0       | 6083.77 | 5.64      | 6083.56 | 10.51  | 6083.51 | 17.81  | 6083.24 | 28.76  | 6082.71 |
| 36.07   | 6082.22 | 42.16     | 6081.66 | 45.81  | 6081.49 | 51.9   | 6081.37 | 56.77  | 6081.32 |
| 61.82   | 6081.36 | 69.72     | 6081.33 | 75.47  | 6081.26 | 87.21  | 6081.25 | 91.88  | 6081.38 |
| 96.95   | 6081.85 | 104.15    | 6082.31 | 107.08 | 6082.41 | 112.11 | 6082.44 | 120.08 | 6082.37 |
| 129.82  | 6082.58 | 133.95    | 6082.53 | 144.43 | 6082.11 | 147.98 | 6082.01 | 152.35 | 6081.97 |
| 162.69  | 6082.1  | 167.56    | 6082.1  | 172.52 | 6082.05 | 177.5  | 6082.22 | 181.29 | 6082.26 |
| 193.31  | 6082.11 | 198.82    | 6082.19 | 209.34 | 6082.17 | 219.17 | 6082.03 | 227.08 | 6081.95 |
| 233.3   | 6081.94 | 239.29    | 6081.73 | 241.45 | 6081.76 | 245.76 | 6082.22 | 247.91 | 6082.23 |
| 254     | 6081.77 | 261.56    | 6081.59 | 272.26 | 6081.23 | 275.92 | 6081.19 | 280.79 | 6081.21 |
| 288.09  | 6081.39 | 291.74    | 6081.41 | 301.8  | 6081.26 | 305.39 | 6081.26 | 316.89 | 6081.14 |
| 322.64  | 6081.12 | 336.79    | 6081.17 | 349.59 | 6081.11 | 360.11 | 6081.09 | 368.44 | 6080.95 |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 375.09  | 6080.9  | 390.36  | 6080.91 | 401.32  | 6080.77 | 408.14  | 6080.59 | 412.71  | 6080.63 |
| 417.14  | 6080.75 | 421.47  | 6080.77 | 428.98  | 6080.71 | 440.47  | 6080.73 | 449.53  | 6080.51 |
| 459.15  | 6080.59 | 468.28  | 6080.52 | 474.36  | 6080.53 | 480.45  | 6080.62 | 487.76  | 6080.56 |
| 496.28  | 6080.54 | 499.93  | 6080.3  | 506.02  | 6079.63 | 509.45  | 6079.36 | 513.32  | 6079.23 |
| 519.65  | 6079.33 | 525.5   | 6079.32 | 531.59  | 6079.58 | 538.89  | 6079.79 | 550.41  | 6079.86 |
| 560.81  | 6079.63 | 567.65  | 6079.54 | 571.24  | 6079.57 | 576.27  | 6079.7  | 582.72  | 6080.09 |
| 587.05  | 6080.18 | 591.24  | 6080.16 | 593.68  | 6080.05 | 597.83  | 6079.98 | 605.85  | 6080.22 |
| 611.48  | 6080.48 | 615.79  | 6080.6  | 623.09  | 6080.69 | 627.29  | 6080.79 | 636.63  | 6080.92 |
| 645.25  | 6080.71 | 649.68  | 6080.76 | 656.03  | 6081    | 661.78  | 6081.04 | 673.93  | 6080.71 |
| 679.74  | 6080.67 | 686.2   | 6080.53 | 689.71  | 6080.59 | 694.73  | 6080.84 | 700.82  | 6080.89 |
| 712.5   | 6080.82 | 720.29  | 6080.59 | 725.16  | 6080.54 | 734.34  | 6080.63 | 739.77  | 6080.71 |
| 754.2   | 6080.75 | 762.99  | 6080.7  | 776.86  | 6080.85 | 782.65  | 6080.83 | 790.03  | 6080.92 |
| 794.5   | 6080.91 | 806.91  | 6080.76 | 813.11  | 6080.78 | 831.71  | 6081.02 | 839.2   | 6081.07 |
| 849.03  | 6081.26 | 856.52  | 6081.26 | 861.69  | 6081.11 | 868.92  | 6081.04 | 873.62  | 6080.95 |
| 879.73  | 6081.11 | 886.73  | 6081.19 | 893.73  | 6081.48 | 898.89  | 6081.77 | 908.04  | 6082.03 |
| 913.36  | 6082.06 | 920.6   | 6081.74 | 928.87  | 6081.58 | 933.44  | 6081.56 | 943.04  | 6081.59 |
| 948.5   | 6081.55 | 954.91  | 6081.41 | 958.84  | 6081.39 | 964.01  | 6081.46 | 977.69  | 6081.48 |
| 982.61  | 6081.53 | 989.17  | 6081.53 | 998.11  | 6081.7  | 1008.45 | 6081.84 | 1014.65 | 6082.05 |
| 1021.13 | 6082.32 | 1027.05 | 6082.68 | 1029.32 | 6082.87 | 1035.32 | 6083.17 | 1042.43 | 6083.37 |
| 1046.53 | 6083.39 | 1051.45 | 6083.31 | 1054.73 | 6083.35 | 1059.64 | 6083.53 | 1063.23 | 6083.6  |
| 1067.84 | 6083.62 | 1074.39 | 6083.71 | 1088.32 | 6083.74 | 1092.17 | 6083.69 | 1104.71 | 6083.4  |
| 1107.67 | 6083.29 | 1111.27 | 6083.07 | 1113.87 | 6082.83 | 1117.13 | 6082.41 | 1123.17 | 6081.36 |
| 1126.28 | 6080.75 | 1131.44 | 6079.65 | 1132.48 | 6079.52 | 1137.64 | 6078.38 | 1140.74 | 6077.84 |
| 1143.85 | 6077.52 | 1148.15 | 6077.42 | 1153.88 | 6077.52 | 1160.38 | 6077.8  | 1165.55 | 6078.16 |
| 1168.57 | 6078.31 | 1175.89 | 6078.5  | 1180.02 | 6078.76 | 1184.15 | 6078.69 | 1185.02 | 6078.79 |
| 1189.32 | 6078.77 | 1192.31 | 6078.69 | 1204.18 | 6078.64 | 1208.14 | 6078.59 | 1212.89 | 6078.44 |
| 1218.26 | 6078.11 | 1222.72 | 6078.14 | 1225.5  | 6078.28 | 1230.66 | 6078.63 | 1235.01 | 6078.8  |
| 1237.9  | 6079.02 | 1243.07 | 6079.71 | 1246.17 | 6079.97 | 1252.37 | 6080.14 | 1264.77 | 6080.13 |
| 1269.43 | 6080.02 | 1275.11 | 6079.6  | 1280.27 | 6079.03 | 1283.36 | 6078.82 | 1286.48 | 6078.74 |
| 1293.71 | 6078.65 | 1301.39 | 6078.78 | 1305.08 | 6078.8  | 1310.25 | 6078.76 | 1316.14 | 6078.86 |
| 1320.24 | 6078.63 | 1322.7  | 6078.57 | 1326.78 | 6078.83 | 1330.89 | 6078.95 | 1334.02 | 6078.93 |
| 1340.22 | 6078.99 | 1346.62 | 6078.87 | 1355.48 | 6078.97 | 1365.31 | 6078.96 | 1375.15 | 6078.86 |
| 1383.34 | 6078.97 | 1387.44 | 6078.94 | 1394.1  | 6078.98 | 1396.03 | 6078.94 | 1401.37 | 6078.64 |
| 1405.47 | 6078.57 | 1410.38 | 6078.65 | 1416.7  | 6078.61 | 1425.13 | 6078.61 | 1436.61 | 6078.55 |
| 1442.34 | 6078.58 | 1448.74 | 6078.56 | 1453.82 | 6078.63 | 1461.37 | 6078.64 | 1475.94 | 6078.88 |
| 1480.04 | 6078.76 | 1488.24 | 6078.78 | 1496.29 | 6078.67 | 1501.46 | 6078.68 | 1506.26 | 6078.74 |
| 1512.8  | 6078.59 | 1519.38 | 6078.59 | 1524.19 | 6078.53 | 1530.39 | 6078.53 | 1534.95 | 6078.44 |
| 1541.5  | 6078.42 | 1548.41 | 6078.47 | 1556.33 | 6078.45 | 1560.28 | 6078.61 | 1565.54 | 6079.11 |
| 1568.64 | 6079.2  | 1572.64 | 6079.2  | 1581.66 | 6079.31 | 1590.34 | 6079.58 | 1602.74 | 6079.89 |
| 1612.05 | 6079.89 | 1616.18 | 6079.83 | 1622.38 | 6079.52 | 1630.65 | 6078.87 | 1633.28 | 6078.74 |
| 1652.95 | 6078.77 | 1661.15 | 6078.92 | 1667.7  | 6078.95 | 1680.82 | 6078.73 | 1689.01 | 6078.73 |
| 1698.77 | 6078.62 | 1700.7  | 6078.63 | 1702.72 | 6078.64 | 1707.86 | 6078.75 | 1711.27 | 6078.75 |
| 1717.69 | 6078.64 | 1721.6  | 6078.71 | 1724.7  | 6078.86 | 1729.87 | 6079.2  | 1735.72 | 6079.47 |
| 1740.21 | 6079.59 | 1745.37 | 6079.98 | 1748.01 | 6080.07 | 1749.51 | 6080.03 | 1752.93 | 6079.66 |
| 1754.57 | 6079.41 | 1757.78 | 6079.2  | 1759.49 | 6079.25 | 1764.4  | 6079.74 | 1767.08 | 6079.89 |
| 1772.6  | 6079.94 | 1776.7  | 6079.87 | 1783.62 | 6079.85 | 1789.77 | 6079.75 | 1805.6  | 6079.82 |
| 1811.11 | 6079.79 | 1818.49 | 6079.69 | 1823.92 | 6079.45 | 1827.02 | 6079.11 | 1832.19 | 6078.07 |
| 1834.88 | 6077.79 | 1836    | 6077.02 | 1865    | 6077.02 | 1866.3  | 6078.55 | 1869.4  | 6079.19 |
| 1872.5  | 6079.46 | 1879.13 | 6079.41 | 1884.73 | 6079.28 | 1890.07 | 6079.24 | 1898.8  | 6079.31 |
| 1903.51 | 6079.23 | 1909.45 | 6079.23 | 1916.94 | 6079.13 | 1922.11 | 6079.2  | 1926.25 | 6079.2  |
| 1930.76 | 6079.12 | 1938.65 | 6079    | 2173.41 | 6079    | 2176.62 | 6079.24 | 2185.42 | 6079.72 |
| 2200.42 | 6080.16 | 2204.25 | 6080.23 | 2209.42 | 6080.22 | 2219.43 | 6080.41 | 2224.43 | 6080.4  |
| 2233.94 | 6080.54 | 2243.43 | 6080.6  | 2250.31 | 6080.75 | 2256.43 | 6080.71 | 2261.57 | 6080.75 |
| 2265.44 | 6080.7  | 2273.85 | 6080.72 | 2281.44 | 6080.55 | 2285.44 | 6080.56 | 2294.44 | 6080.44 |
| 2300.45 | 6080.52 | 2303.45 | 6080.75 | 2305.45 | 6081.02 | 2308.45 | 6081.29 | 2312.75 | 6081.27 |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 2314.45 | 6081.16 | 2318.45 | 6081.15 | 2320.94 | 6081.24 | 2324.01 | 6081.25 | 2332.45 | 6081.08 |
| 2340.39 | 6081.15 | 2345.46 | 6081.16 | 2348.46 | 6081.26 | 2351.46 | 6081.59 | 2354.46 | 6082.2  |
| 2356.46 | 6082.79 | 2359.46 | 6083.53 | 2362.46 | 6084.02 | 2365.46 | 6084.24 | 2368.46 | 6084.35 |
| 2386.45 | 6084.75 | 2389.47 | 6084.76 | 2399.47 | 6084.9  | 2407.47 | 6085.08 | 2413.48 | 6085.09 |
| 2419.48 | 6085.15 | 2423.48 | 6085.09 | 2429.43 | 6084.93 | 2432.48 | 6084.68 | 2435.48 | 6084.25 |
| 2437.48 | 6083.84 | 2443.48 | 6082.91 | 2446.48 | 6082.63 | 2453.49 | 6082.26 | 2458.49 | 6081.81 |
| 2465.49 | 6081.65 | 2470.49 | 6081.35 | 2475.38 | 6081.25 | 2484.71 | 6081.31 | 2492.5  | 6081.29 |
| 2495.5  | 6081.35 | 2500.5  | 6081.6  | 2506.5  | 6081.8  | 2514.5  | 6081.73 | 2518.48 | 6081.8  |
| 2525.5  | 6081.83 | 2528.51 | 6081.93 | 2533.51 | 6082.22 | 2538.95 | 6082.41 | 2542.51 | 6082.47 |
| 2552.51 | 6082.55 | 2555.51 | 6082.5  | 2563.51 | 6082.17 | 2567.61 | 6082.14 | 2573.52 | 6082.23 |
| 2576.52 | 6082.34 | 2581.52 | 6082.62 | 2583.52 | 6082.6  | 2589.52 | 6082.35 | 2594.52 | 6082.34 |
| 2602.52 | 6082.56 | 2610.53 | 6082.43 | 2624.53 | 6082.42 | 2632.1  | 6082.2  | 2645.54 | 6082.17 |
| 2656.54 | 6082.01 | 2665.88 | 6082.04 | 2678.16 | 6082.12 | 2685.55 | 6082.12 | 2690.44 | 6082.16 |
| 2696.55 | 6082.16 | 2702.55 | 6082.1  | 2708.55 | 6082.1  | 2718.55 | 6081.98 | 2723.56 | 6081.96 |
| 2733.43 | 6081.97 | 2742.56 | 6081.83 | 2761.07 | 6081.83 | 2776.57 | 6081.74 | 2792.57 | 6081.8  |
| 2799.96 | 6081.7  | 2812.24 | 6081.64 | 2819.58 | 6081.67 | 2834.76 | 6081.56 | 2842.95 | 6081.64 |
| 2847.59 | 6081.6  | 2867.59 | 6081.67 | 2875.6  | 6081.78 | 2888.6  | 6081.78 | 2897.6  | 6081.9  |
| 2900.6  | 6081.9  | 2908.6  | 6081.76 | 2921.61 | 6081.63 | 2927.91 | 6081.63 | 2934.05 | 6081.67 |
| 2943.61 | 6081.67 | 2953.49 | 6081.63 | 2958.61 | 6081.66 | 2972.62 | 6081.66 | 2985.22 | 6081.56 |
| 3002.77 | 6081.57 | 3012.86 | 6081.63 | 3024.12 | 6081.64 | 3032.31 | 6081.6  | 3037.64 | 6081.64 |
| 3046.72 | 6081.63 | 3055.64 | 6081.55 | 3060.97 | 6081.54 | 3068.13 | 6081.63 | 3077.34 | 6081.62 |
| 3082.65 | 6081.71 | 3089.63 | 6081.78 | 3096.65 | 6081.9  | 3101.65 | 6081.95 | 3115.22 | 6082.03 |
| 3129.55 | 6082.09 | 3144.66 | 6082.09 | 3152.06 | 6082.02 | 3156.67 | 6082.02 | 3169.46 | 6081.94 |
| 3182.77 | 6081.97 | 3193.68 | 6082.02 | 3205.68 | 6082.03 | 3217.57 | 6082.14 | 3227.69 | 6082.16 |
| 3240.09 | 6082.16 | 3262.7  | 6082.12 | 3268.7  | 6082.18 |         |         |         |         |

Manning's n Values                    num=                    3

|     |       |         |       |        |       |
|-----|-------|---------|-------|--------|-------|
| Sta | n Val | Sta     | n Val | Sta    | n Val |
| 0   | .06   | 1823.92 | .035  | 1872.5 | .06   |

|                |        |               |         |         |       |        |        |
|----------------|--------|---------------|---------|---------|-------|--------|--------|
| Bank Sta: Left | Right  | Lengths: Left | Channel | Right   | Coeff | Contr. | Expan. |
| 1823.92        | 1872.5 | 847.02        | 1566.11 | 1005.44 | .1    |        | .3     |

Ineffective Flow                    num=                    1

|       |         |         |           |
|-------|---------|---------|-----------|
| Sta L | Sta R   | Elev    | Permanent |
| 0     | 1252.37 | 6080.14 | F         |

Blocked Obstructions                    num=                    1

|       |        |        |
|-------|--------|--------|
| Sta L | Sta R  | Elev   |
| 3629  | 3268.7 | 6081.2 |

CROSS SECTION

RIVER: Flat Creek

REACH: 1                    RS: 32973

INPUT

Description:

|         |           |        |         |        |         |        |         |        |         |
|---------|-----------|--------|---------|--------|---------|--------|---------|--------|---------|
| Station | Elevation | Data   | num=    | 454    |         |        |         |        |         |
| Sta     | Elev      | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    |
| 0       | 6079.94   | 5.8    | 6080    | 13.98  | 6079.96 | 24.89  | 6079.71 | 29.3   | 6079.36 |
| 36.92   | 6078.29   | 39.01  | 6078.09 | 46.19  | 6077.75 | 49.07  | 6077.73 | 64.14  | 6078.58 |
| 68.32   | 6078.73   | 70.86  | 6078.72 | 78.07  | 6078.41 | 82.1   | 6078.32 | 92.01  | 6078.26 |
| 106.22  | 6078.28   | 111.88 | 6078.34 | 124.61 | 6078.4  | 138.1  | 6078.43 | 156.1  | 6078.4  |
| 169.7   | 6078.29   | 180.47 | 6078.17 | 191.79 | 6078.14 | 198.15 | 6078.07 | 214.21 | 6077.99 |
| 225.7   | 6077.99   | 236.91 | 6077.87 | 260.17 | 6077.78 | 267.35 | 6077.69 | 287.07 | 6077.55 |



291.5 6077.48 305.19 6077.39 313.55 6077.29 323.3 6077.11 345.59 6076.8  
356.98 6076.82 363.08 6076.66 378.82 6076.53 396.1 6076.42 405.58 6076.11  
414.07 6075.7 417.78 6075.61 421.32 6075.66 436.25 6076.46 439.32 6076.52  
443.68 6076.4 448.97 6076.12 453.2 6076.06 459.54 6076.13 469.06 6075.8  
474.34 6075.52 483.49 6075.21 487.03 6075.18 493.38 6075.4 500.02 6075.82  
503.95 6075.99 513.21 6076.26 518.75 6077.1 521.92 6077.33 528.27 6077.15  
532.5 6077.15 540.16 6077.45 545.19 6077.29 550.39 6076.86 556.3 6076.65  
561.41 6076.75 566.33 6076.39 571.69 6076.09 582.19 6075.79 588.54 6075.71  
593.67 6075.86 599.97 6075.82 607.84 6075.59 617.87 6075.73 625.94 6075.38  
637.17 6075.25 642.46 6075.02 650.34 6074.8 658.32 6074.25 661.49 6074.18  
672.38 6074.16 675.24 6074.26 680.53 6074.63 687.93 6074.85 693.21 6075.27  
696.39 6075.39 711.73 6075.45 718.81 6075.36 728.11 6075.57 735.51 6075.58  
740.79 6075.68 745.02 6075.64 751.08 6075.43 764.06 6075.63 773.9 6075.54  
785.2 6075.27 795.94 6075.33 803.02 6075.17 809.32 6075.15 823.27 6075.29  
830.67 6075.32 840.18 6075.69 845.67 6076.04 861.33 6076.54 865.2 6076.52  
870.85 6076.34 878.25 6076.22 883.3 6075.95 892.74 6075.53 897.47 6075.41  
902.57 6075.19 906.8 6075.19 912.08 6075.75 916.35 6075.84 918.43 6075.74  
925.8 6075.61 929 6075.44 934.29 6074.82 940.63 6074.17 943.8 6073.99  
950.2 6073.89 954.38 6074.01 959.64 6074.4 963.57 6074.49 970.66 6074.48  
976.58 6074.56 980.1 6074.73 988.21 6075.37 991.91 6075.42 997.42 6075.26  
1009.36 6075.19 1015.7 6075.37 1020.99 6075.45 1034.74 6076.09 1040.02 6076.08  
1045.76 6076.19 1053.3 6076.22 1065.4 6076.33 1074.54 6076.64 1084.43 6076.65  
1098.1 6077.08 1106.81 6077.07 1115.09 6076.69 1122.5 6076.59 1128.84 6076.78  
1138.36 6077.6 1141.53 6078 1147.87 6079.02 1153.25 6080.11 1156.33 6080.52  
1160.56 6080.51 1163.73 6080.04 1170.08 6078.82 1175.36 6077.56 1178.43 6077.06  
1181.71 6076.77 1184.73 6076.69 1203.62 6076.87 1226.44 6077 1238.8 6077.12  
1244.09 6077.13 1259.95 6077.25 1266.58 6077.36 1282.8 6077.55 1305.42 6077.73  
1312.82 6077.76 1330.79 6077.97 1348.43 6078.11 1364.96 6078.13 1372.83 6078.01  
1397.22 6077.08 1405.09 6076.99 1410.09 6076.85 1423.84 6076.6 1430.28 6076.65  
1443.66 6077.01 1453.44 6077.2 1458.73 6077.24 1464.02 6077.18 1473.53 6077.27  
1484.58 6077.23 1493.24 6077.27 1496.79 6077.41 1499.97 6077.73 1508.43 6078.94  
1514.49 6079.71 1530.23 6081.32 1533.8 6081.64 1540.15 6082.05 1546.49 6082.26  
1553.89 6082.32 1557.06 6082.17 1560.24 6081.78 1563.41 6081.02 1568.69 6079.57  
1575.04 6078.19 1578.21 6077.67 1581.38 6077.38 1587.73 6077.01 1595.13 6076.93  
1607.82 6077.05 1612.87 6077.17 1620.74 6077.08 1625.46 6076.85 1631.08 6076.75  
1638.48 6076.83 1652.2 6076.78 1657.73 6076.63 1667.59 6076.66 1676.62 6076.36  
1686.85 6076.24 1696.63 6075.98 1704.95 6075.63 1715.18 6075.65 1831.97 6075.65  
1842.68 6075.78 1845.72 6075.99 1849.76 6076.47 1852.06 6076.6 1860.78 6076.76  
1867.92 6076.61 1871.09 6076.62 1874.16 6076.48 1877.44 6076.1 1880.61 6075.49  
1882.72 6074.94 1885.9 6074.49 1887 6073.7 1910 6073.7 1912.33 6074.87  
1915.5 6075.57 1917.62 6076.21 1920.79 6076.94 1923.96 6077.38 1928.19 6077.36  
1933.48 6076.51 1936.33 6076.28 1947.35 6076.24 1959.16 6075.87 1964.67 6075.79  
1968.37 6075.65 2074.1 6075.65 2075.64 6076.02 2088.91 6076.51 2093.14 6076.56  
2098.42 6076.77 2106.33 6076.97 2109 6076.89 2111.84 6076.37 2114.28 6075.47  
2117.46 6074.5 2121.68 6074.14 2124.86 6074.36 2128.03 6075.12 2131.51 6076.42  
2133.09 6076.86 2136.49 6077.27 2143.89 6077.47 2147.25 6077.43 2150.4 6077.05  
2153.4 6076.4 2158.69 6075.09 2161.86 6074.56 2164.57 6074.39 2170.08 6074.39  
2177.72 6074.72 2185.13 6074.54 2188.18 6074.81 2191.33 6075.39 2194.64 6076.18  
2199.93 6077.72 2203.1 6078.38 2206.27 6078.76 2212.47 6078.95 2216.85 6078.93  
2226.74 6078.45 2229.53 6078.15 2234.82 6077.27 2237.99 6077.06 2245.32 6077.09  
2250.52 6077.02 2257.81 6077.18 2267.17 6077.61 2270.29 6077.88 2273.33 6078.37  
2276.54 6078.57 2281.74 6078.21 2291.11 6078.09 2301.52 6078.31 2309.42 6078.58  
2312.94 6078.62 2317.13 6078.51 2322.33 6078.09 2325.45 6077.94 2331.7 6077.81  
2338.98 6077.86 2354.6 6077.79 2363.56 6077.91 2370.21 6077.82 2373.33 6077.89  
2381.6 6078.31 2387.9 6078.47 2400.39 6078.66 2407.67 6078.63 2416 6078.4

2419.12 6078.38 2430.57 6078.67 2437.86 6078.77 2445.14 6078.74 2463.58 6078.28  
2467 6078.1 2472.2 6077.6 2475.28 6077.4 2479.49 6077.4 2484.69 6077.73  
2488.85 6077.76 2497.09 6077.23 2506.55 6077.2 2515.14 6077.24 2532.31 6077.12  
2550.26 6077.24 2558.64 6077.25 2567.41 6077.32 2577.65 6077.51 2585.64 6077.57  
2593.74 6077.4 2606.46 6077.44 2622.07 6077.2 2629.35 6077.27 2634.56 6077.42  
2646.39 6077.64 2650.17 6077.66 2662.66 6077.47 2677.23 6077.43 2682.43 6077.33  
2695.96 6077.66 2701.17 6077.97 2709.49 6078.91 2713.63 6079.16 2727.18 6079.42  
2733.43 6079.48 2741.45 6079.48 2750.08 6079.6 2754.24 6079.56 2769.85 6079.06  
2778.01 6078.73 2786.51 6078.68 2791.71 6078.77 2802.88 6079.3 2809.4 6079.65  
2816.04 6079.87 2820.43 6079.93 2826.28 6079.89 2832.3 6079.73 2838.54 6079.47  
2843.56 6079.19 2851.03 6079.19 2854.06 6079.12 2859.36 6078.84 2862.84 6078.74  
2870.15 6078.82 2880.39 6079.2 2897.69 6079.41 2921.8 6079.78 2929.09 6079.86  
2934.29 6080.03 2938.46 6080.07 2941.58 6079.99 2949.9 6079.61 2962.29 6079.27  
2966.26 6079.27 2971.76 6079.43 2994.46 6079.54 3003.24 6079.52 3012.35 6079.43  
3016.4 6079.51 3021.72 6079.83 3031.03 6080.06 3047.11 6080.09 3059.18 6080.36  
3066.47 6080.37 3072.71 6080.29 3085.14 6079.93 3094.57 6079.48 3097.69 6079.15  
3102.89 6078.31 3106.02 6077.95 3109.14 6077.78 3117.47 6077.71 3125.79 6077.57  
3128.67 6077.61 3134.12 6077.88 3138.28 6077.98 3146.71 6077.72 3150.95 6077.71  
3157.01 6077.89 3160.14 6078.14 3168.46 6078.98 3174.71 6079.48 3179.91 6079.8  
3190.32 6080.13 3197.24 6080.16 3207.99 6079.95 3219.69 6079.59 3230.91 6078.94  
3237.15 6078.73 3244.16 6078.65 3255.89 6078.64 3263.17 6078.71 3273.58 6078.72  
3288.15 6079.04 3292.81 6079.19 3301.59 6079.35 3311.83 6079.81 3331.86 6079.95  
3338.1 6080.08 3343.31 6080.27 3349.55 6080.39 3356.84 6080.3 3363.25 6080.05  
3372.45 6079.41 3377.64 6078.95 3380.78 6078.81 3387.02 6078.71 3391.18 6078.75  
3406.89 6079.41 3412 6079.7 3421.36 6079.96 3424.44 6079.96 3431.75 6079.78  
3440.1 6079.7 3455.15 6079.7 3469.24 6079.5 3475.63 6079.25 3483.81 6078.69  
3490.05 6078.55 3497.56 6078.48 3505.67 6078.32 3518.44 6078.32 3522.32 6078.36  
3529.6 6078.55 3536.48 6078.55 3543.13 6078.63 3550.42 6078.61 3560.82 6078.38  
3570.19 6078.43 3578.52 6078.58 3584.76 6078.83 3589.97 6079.22 3596.21 6079.56  
3605.58 6079.84 3613.9 6079.89 3624.8 6079.82 3652.19 6079.55

Manning's n Values num= 3  
Sta n Val Sta n Val Sta n Val  
0 .06 1860.78 .035 1920.79 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
1860.78 1920.79 431.73 711.11 595.34 .1 .3  
Ineffective Flow num= 2  
Sta L Sta R Elev Permanent  
0 1156.33 6080.52 F  
2142 3652.19 6077.2 F  
Blocked Obstructions num= 1  
Sta L Sta R Elev  
2210 3652.19 6078.2

CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 32262

INPUT  
Description:  
Station Elevation Data num= 474  
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev



|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0       | 6076.77 | 8.26    | 6076.7  | 20.65   | 6076.56 | 32.58   | 6076.25 | 38.93   | 6076.06 |
| 44.21   | 6076    | 49.77   | 6076.01 | 57.64   | 6076.07 | 62.86   | 6076.07 | 67.48   | 6075.99 |
| 79.11   | 6075.88 | 84.39   | 6075.78 | 90.74   | 6075.53 | 100.13  | 6074.89 | 102.37  | 6074.7  |
| 105.54  | 6074.55 | 109.77  | 6074.53 | 112.94  | 6074.57 | 116.66  | 6074.7  | 119.02  | 6074.85 |
| 122.46  | 6074.92 | 125.63  | 6074.6  | 128.8   | 6073.86 | 130.92  | 6073.28 | 134.09  | 6072.74 |
| 137.26  | 6072.49 | 140.44  | 6072.4  | 144.67  | 6072.49 | 147.84  | 6072.73 | 151.01  | 6073.08 |
| 156.3   | 6073.82 | 159.47  | 6074.08 | 163.7   | 6074.13 | 168.99  | 6073.86 | 178.5   | 6073.61 |
| 181.98  | 6073.58 | 185.9   | 6073.65 | 191.19  | 6074.03 | 194.36  | 6074.13 | 198.59  | 6074.18 |
| 204.8   | 6074.35 | 211.28  | 6074.61 | 213.4   | 6074.74 | 216.57  | 6074.83 | 220.54  | 6074.88 |
| 223.69  | 6075.01 | 229.2   | 6075.3  | 239.83  | 6075.5  | 243     | 6075.58 | 246.17  | 6075.76 |
| 251.46  | 6076.21 | 254.63  | 6076.43 | 258.86  | 6076.62 | 270.49  | 6077.08 | 274.84  | 6077.15 |
| 283.18  | 6077.39 | 296.09  | 6077.33 | 301.6   | 6077.2  | 304.75  | 6077.23 | 311.73  | 6077.37 |
| 321.35  | 6077.3  | 331.82  | 6077.25 | 344.88  | 6077.12 | 352.12  | 6077.11 | 358.26  | 6077.02 |
| 363.77  | 6077.02 | 372     | 6077.2  | 379.41  | 6077.25 | 387.38  | 6077.45 | 391.04  | 6077.5  |
| 395.25  | 6077.5  | 399.18  | 6077.43 | 406.9   | 6077.12 | 417.47  | 6077.05 | 433.33  | 6076.72 |
| 436.96  | 6076.58 | 442.85  | 6076.23 | 448.14  | 6075.88 | 451.12  | 6075.76 | 458.71  | 6075.64 |
| 462.14  | 6075.71 | 466.86  | 6075.93 | 473.51  | 6075.81 | 477.88  | 6075.79 | 484.09  | 6076.05 |
| 485.75  | 6076.07 | 488.9   | 6075.95 | 492.83  | 6075.68 | 496.75  | 6075.58 | 499.83  | 6075.44 |
| 502.06  | 6075.26 | 505.23  | 6075.09 | 509.36  | 6074.98 | 512.64  | 6074.94 | 518.8   | 6074.94 |
| 522.15  | 6074.84 | 527.44  | 6074.61 | 530.6   | 6074.51 | 533.76  | 6074.49 | 538.48  | 6074.57 |
| 544.36  | 6074.6  | 550.28  | 6074.79 | 557.05  | 6074.68 | 560.51  | 6074.76 | 562.88  | 6074.76 |
| 568.38  | 6074.63 | 571.85  | 6074.59 | 577.04  | 6074.59 | 584.54  | 6074.72 | 586.65  | 6074.73 |
| 591.94  | 6074.63 | 596.17  | 6074.59 | 603.01  | 6074.46 | 609.31  | 6074.57 | 613.24  | 6074.54 |
| 617.32  | 6074.6  | 622.6   | 6074.9  | 627.41  | 6074.84 | 629.77  | 6074.88 | 635.23  | 6075.37 |
| 637.41  | 6075.44 | 640     | 6075.4  | 644.81  | 6075.11 | 647.54  | 6075.01 | 650.23  | 6074.99 |
| 655.38  | 6075.12 | 659.85  | 6075.06 | 665.18  | 6075.11 | 671.48  | 6075.25 | 674.63  | 6075.26 |
| 679.35  | 6075.18 | 683.28  | 6075.16 | 686.43  | 6075.22 | 689.22  | 6075.35 | 691.94  | 6075.39 |
| 698.74  | 6075.18 | 704.53  | 6075.17 | 714.76  | 6074.64 | 718.7   | 6074.59 | 722     | 6074.73 |
| 724.11  | 6074.88 | 728.14  | 6074.95 | 733.63  | 6074.75 | 741.03  | 6074.63 | 750.55  | 6074.11 |
| 753.72  | 6073.84 | 759.01  | 6073.21 | 761.98  | 6072.97 | 766.41  | 6072.96 | 774.87  | 6073.5  |
| 778.04  | 6073.56 | 782.27  | 6073.57 | 787.95  | 6073.52 | 793.46  | 6073.6  | 813.99  | 6073.71 |
| 822.94  | 6073.92 | 827.3   | 6073.99 | 832.81  | 6074.15 | 839.1   | 6074.04 | 844.48  | 6074.17 |
| 854.17  | 6074.14 | 860.35  | 6074.06 | 873.21  | 6073.97 | 877.44  | 6074.04 | 880.81  | 6074.21 |
| 885.89  | 6074.56 | 892.62  | 6074.7  | 898.13  | 6074.69 | 902.95  | 6074.8  | 910.21  | 6075.04 |
| 915.26  | 6075.13 | 924.1   | 6075.14 | 928.19  | 6075.1  | 933.48  | 6074.9  | 938.76  | 6074.85 |
| 943.77  | 6074.98 | 947.22  | 6074.98 | 954     | 6074.9  | 961.42  | 6074.9  | 968.37  | 6074.7  |
| 979.97  | 6074.67 | 990.99  | 6074.77 | 994.92  | 6074.83 | 1002.79 | 6074.78 | 1007.49 | 6074.81 |
| 1013.81 | 6074.81 | 1021.68 | 6074.87 | 1026.4  | 6074.78 | 1033.93 | 6074.78 | 1038.21 | 6074.72 |
| 1049.79 | 6074.68 | 1057.19 | 6074.76 | 1066.04 | 6074.69 | 1073.05 | 6074.68 | 1078.34 | 6074.73 |
| 1084.51 | 6074.6  | 1091.03 | 6074.64 | 1096.82 | 6074.63 | 1101.17 | 6074.69 | 1109.13 | 6074.69 |
| 1113.76 | 6074.73 | 1121.63 | 6074.71 | 1127.14 | 6074.82 | 1135.01 | 6074.82 | 1144.95 | 6074.96 |
| 1153.41 | 6074.95 | 1160.82 | 6075.08 | 1162.93 | 6075.15 | 1166.1  | 6075.4  | 1169.27 | 6075.81 |
| 1172.45 | 6076.36 | 1174.56 | 6076.91 | 1175.62 | 6077.09 | 1177.73 | 6077.78 | 1178.79 | 6078.01 |
| 1180.91 | 6078.77 | 1181.96 | 6079    | 1184.08 | 6079.69 | 1187.25 | 6080.21 | 1190.42 | 6080.33 |
| 1191.59 | 6080.28 | 1195.99 | 6079.9  | 1200.28 | 6079.19 | 1203.14 | 6078.65 | 1204.58 | 6078.48 |
| 1207.44 | 6077.79 | 1208.87 | 6077.57 | 1211.73 | 6076.95 | 1213.16 | 6076.8  | 1216.02 | 6076.3  |
| 1220.31 | 6075.87 | 1224.11 | 6075.72 | 1229.23 | 6075.68 | 1234.62 | 6075.76 | 1243.91 | 6075.95 |
| 1255.23 | 6076.12 | 1261.81 | 6076.16 | 1283.27 | 6076.41 | 1304.73 | 6076.71 | 1314.74 | 6076.97 |
| 1318.87 | 6077.05 | 1327.62 | 6077.11 | 1334.1  | 6077.11 | 1348.57 | 6077.43 | 1366.96 | 6077.56 |
| 1375.45 | 6077.65 | 1398.78 | 6077.65 | 1405.41 | 6077.61 | 1410.1  | 6077.61 | 1427.77 | 6077.36 |
| 1433.49 | 6077.15 | 1441.21 | 6076.99 | 1444.56 | 6076.89 | 1452.09 | 6076.52 | 1457.82 | 6076.31 |
| 1462.11 | 6076.33 | 1470.69 | 6076.53 | 1475.32 | 6076.8  | 1485.76 | 6076.74 | 1486.47 | 6076.89 |
| 1488.59 | 6076.82 | 1494.25 | 6076.94 | 1502.73 | 6076.94 | 1506.98 | 6076.82 | 1510.51 | 6076.4  |
| 1513.62 | 6075.75 | 1516.48 | 6074.98 | 1519.7  | 6074.29 | 1524.26 | 6073.51 | 1527.05 | 6073.18 |
| 1530.79 | 6072.96 | 1536.51 | 6072.89 | 1548.03 | 6072.89 | 1562.26 | 6072.93 | 1577.69 | 6072.94 |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1584.76 | 6072.86 | 1590.42 | 6072.86 | 1596.08 | 6072.97 | 1598.91 | 6073.09 | 1603.75 | 6073.5  |
| 1608.15 | 6074.32 | 1610.91 | 6074.97 | 1613.74 | 6075.29 | 1615.14 | 6075.33 | 1618.06 | 6075.22 |
| 1626.48 | 6074.99 | 1629.12 | 6075    | 1638.51 | 6075.24 | 1640.95 | 6075.24 | 1643.81 | 6075.15 |
| 1653.83 | 6074.7  | 1657.4  | 6074.47 | 1658.12 | 6074    | 1665.28 | 6074    | 1668.28 | 6074    |
| 1674.57 | 6074    | 1676.66 | 6074    | 1689.6  | 6073.76 | 1695.08 | 6073    | 1697.2  | 6072.92 |
| 1700.74 | 6073.19 | 1703.91 | 6073.28 | 1708.82 | 6073.14 | 1714.88 | 6073.05 | 1718.21 | 6072.88 |
| 1721.24 | 6072.84 | 1723.94 | 6072.94 | 1728.23 | 6073.34 | 1732.59 | 6073.94 | 1734.68 | 6074.31 |
| 1736.79 | 6074.55 | 1738.19 | 6074.62 | 1742.54 | 6074.65 | 1744.58 | 6074.72 | 1749.53 | 6074.99 |
| 1753.57 | 6075.02 | 1757.76 | 6074.82 | 1760.14 | 6074.55 | 1766.15 | 6074.02 | 1769.33 | 6073.57 |
| 1771.74 | 6073.14 | 1775.94 | 6072.6  | 1780.13 | 6072.16 | 1782.93 | 6071.99 | 1785.73 | 6071.89 |
| 1789.13 | 6071.5  | 1794.04 | 6071.5  | 1801.86 | 6071.5  | 1808.93 | 6071.5  | 1817.89 | 6072.08 |
| 1824.09 | 6072.09 | 1827.32 | 6072.25 | 1829.44 | 6072.72 | 1831.56 | 6073.6  | 1833.68 | 6074.62 |
| 1835.8  | 6075.36 | 1838.63 | 6075.86 | 1841.66 | 6075.97 | 1844.45 | 6075.88 | 1851.44 | 6075.17 |
| 1855.56 | 6075.01 | 1859.14 | 6074.95 | 1869.62 | 6074    | 1976.73 | 6074    | 1980.04 | 6074.94 |
| 1982.88 | 6074.94 | 1990.05 | 6075.07 | 1994.2  | 6075.34 | 1997.21 | 6075.68 | 2000.07 | 6075.91 |
| 2002.45 | 6076.02 | 2007.22 | 6076.05 | 2014    | 6076.17 | 2017.84 | 6076.2  | 2022.62 | 6076.48 |
| 2025.61 | 6076.54 | 2032.72 | 6076.54 | 2035.72 | 6076.51 | 2043.54 | 6076.35 | 2047.72 | 6076.24 |
| 2050.72 | 6076.11 | 2058.72 | 6075.55 | 2064.46 | 6075.39 | 2074.43 | 6075.34 | 2079.72 | 6075.27 |
| 2086.72 | 6075.31 | 2097.34 | 6075.5  | 2116.72 | 6075.67 | 2128.22 | 6075.62 | 2136.19 | 6075.69 |
| 2146.15 | 6075.6  | 2155.12 | 6075.61 | 2160.72 | 6075.52 | 2171.06 | 6075.53 | 2179.03 | 6075.42 |
| 2190.72 | 6075.29 | 2200.94 | 6075.29 | 2211.72 | 6075.24 | 2219.87 | 6075.24 | 2229.72 | 6075.18 |
| 2233.82 | 6075.18 | 2242.72 | 6075.24 | 2251.72 | 6075.25 | 2261.71 | 6075.31 | 2266.69 | 6075.31 |
| 2271.67 | 6075.27 | 2281.72 | 6075.27 | 2293.59 | 6075.15 | 2297.57 | 6075.15 | 2308.72 | 6075.3  |
| 2320.72 | 6075.68 | 2325.72 | 6075.89 | 2328.72 | 6075.93 | 2336.43 | 6075.84 | 2344.72 | 6075.81 |
| 2352.72 | 6075.67 | 2356.72 | 6075.67 | 2361.33 | 6075.72 | 2371.29 | 6075.72 | 2374.72 | 6075.68 |
| 2382.72 | 6075.5  | 2392.72 | 6075.48 | 2396.72 | 6075.41 | 2405.72 | 6075.46 | 2413.72 | 6075.47 |
| 2419.11 | 6075.43 | 2431.06 | 6075.43 | 2436.04 | 6075.35 | 2447    | 6075.26 | 2453.72 | 6075.35 |
| 2463.72 | 6075.29 | 2468.92 | 6075.29 | 2477.89 | 6075.24 | 2494.82 | 6075.24 | 2501.72 | 6075.28 |
| 2505.78 | 6075.27 | 2520.72 | 6075.03 | 2533.67 | 6074.91 | 2542.72 | 6074.88 | 2550.61 | 6074.94 |
| 2560.72 | 6074.94 | 2569.73 | 6074.91 | 2590.45 | 6074.8  | 2601.41 | 6074.63 | 2605.73 | 6074.65 |
| 2610.38 | 6074.73 | 2617.73 | 6074.78 | 2620.73 | 6074.85 | 2625.73 | 6075.16 | 2629.73 | 6075.1  |
| 2632.73 | 6074.84 | 2635.73 | 6074.46 | 2638.73 | 6073.97 | 2640.73 | 6073.5  | 2641.73 | 6073.36 |
| 2643.73 | 6072.83 | 2644.73 | 6072.68 | 2646.73 | 6072.14 | 2647.73 | 6071.98 | 2650.73 | 6071.15 |
| 2652.73 | 6070.42 | 2655.73 | 6069.44 | 2658.73 | 6068.87 | 2662.18 | 6068.72 | 2870.73 | 6068.72 |
| 2875.73 | 6068.79 | 2880.35 | 6069.06 | 2884.33 | 6069.25 | 2887.73 | 6069.15 | 2892.73 | 6068.78 |
| 2895.73 | 6068.72 | 2950.08 | 6068.72 | 2953.73 | 6068.81 | 2956.73 | 6069.18 | 2959.73 | 6069.82 |
| 2961.73 | 6070.31 | 2964.73 | 6070.78 | 2970.73 | 6071.5  | 2980.73 | 6072.51 | 2982.73 | 6072.77 |
| 2986.73 | 6073.16 | 2988.73 | 6073.42 | 2994.73 | 6074.01 | 2998.73 | 6074.36 | 3003.73 | 6074.91 |
| 3009.85 | 6075.48 | 3015.73 | 6075.97 | 3022.73 | 6076.49 | 3027.73 | 6076.89 | 3031.73 | 6077.1  |
| 3036.73 | 6077.51 | 3039.73 | 6077.7  | 3045.72 | 6077.93 | 3051.66 | 6078.01 |         |         |

|                  |         |         |           |         |         |        |       |        |        |
|------------------|---------|---------|-----------|---------|---------|--------|-------|--------|--------|
| Manning's        | n       | Values  | num=      | 3       |         |        |       |        |        |
| Sta              | n       | Val     | Sta       | n       | Val     | Sta    | n     | Val    |        |
| 0                | .06     | 1780.13 | .035      | 1833.68 | .06     |        |       |        |        |
| Bank Sta:        | Left    | Right   | Lengths:  | Left    | Channel | Right  | Coeff | Contr. | Expan. |
|                  | 1780.13 | 1833.68 |           | 533.3   | 647.47  | 649.67 | .3    |        | .5     |
| Ineffective Flow |         | num=    | 2         |         |         |        |       |        |        |
| Sta L            | Sta R   | Elev    | Permanent |         |         |        |       |        |        |
| 0                | 1190.42 | 6080.33 | T         |         |         |        |       |        |        |
| 2025.61          | 3051.66 | 6076.54 | T         |         |         |        |       |        |        |

CROSS SECTION



RIVER: Flat Creek

REACH: 1

RS: 31615

INPUT

Description: Upstream of Rafter J Bridge

| Station | Elevation | Data    | num=    | 492     |         |         |         |         |         |
|---------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Sta     | Elev      | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    |
| 194.24  | 6077.83   | 197.61  | 6077.7  | 201.42  | 6077.61 | 210.86  | 6077.49 | 218.18  | 6077.37 |
| 225.61  | 6077.22   | 230.75  | 6077.23 | 237.38  | 6077.13 | 243.33  | 6077.16 | 254.67  | 6077.12 |
| 263.17  | 6077.01   | 272.34  | 6076.81 | 276.87  | 6076.75 | 279.51  | 6076.66 | 290.27  | 6076.53 |
| 295.65  | 6076.53   | 302.88  | 6076.48 | 308.66  | 6076.47 | 315.36  | 6076.37 | 324.55  | 6076.31 |
| 328.88  | 6076.31   | 333.94  | 6076.42 | 341.89  | 6076.5  | 346.94  | 6076.68 | 354.17  | 6076.68 |
| 359.22  | 6076.72   | 365     | 6076.9  | 367.82  | 6076.88 | 370.33  | 6076.72 | 372.72  | 6076.48 |
| 375.84  | 6076.35   | 387.53  | 6076.29 | 391.43  | 6076.3  | 399.23  | 6076.42 | 414.59  | 6076.62 |
| 422.04  | 6076.7    | 435.09  | 6076.87 | 444.4   | 6077.01 | 456.11  | 6077.26 | 467.05  | 6077.26 |
| 469.96  | 6077.19   | 481.67  | 6076.78 | 491.15  | 6076.53 | 513.93  | 6076.13 | 515.95  | 6076.07 |
| 526.3   | 6075.88   | 535.73  | 6075.67 | 546.44  | 6075.61 | 550.57  | 6075.56 | 554.14  | 6075.46 |
| 557.23  | 6075.27   | 560.33  | 6074.96 | 563.42  | 6074.52 | 565.4   | 6074.16 | 569.61  | 6073.61 |
| 571.67  | 6073.2    | 574.76  | 6072.68 | 577.85  | 6072.27 | 580.24  | 6072.12 | 581.98  | 6072.12 |
| 585.07  | 6072.45   | 587.13  | 6072.91 | 590.23  | 6073.51 | 592.6   | 6073.77 | 596.72  | 6073.92 |
| 604.14  | 6073.91   | 612.38  | 6073.76 | 620.62  | 6073.97 | 629.68  | 6074.04 | 635.59  | 6073.96 |
| 640.4   | 6073.84   | 647.82  | 6073.93 | 656.88  | 6073.88 | 665.95  | 6073.93 | 674.77  | 6073.94 |
| 683.25  | 6073.78   | 691.5   | 6073.88 | 696.52  | 6073.86 | 700.55  | 6073.92 | 708.79  | 6073.91 |
| 714.57  | 6073.96   | 722.2   | 6074.11 | 731.06  | 6074.31 | 741.77  | 6074.33 | 748.36  | 6074.39 |
| 756.6   | 6074.43   | 764.02  | 6074.52 | 774.56  | 6074.51 | 780.97  | 6074.55 | 788.18  | 6074.32 |
| 790.99  | 6074.32   | 797.81  | 6074.46 | 801.93  | 6074.49 | 807.77  | 6074.48 | 810.87  | 6074.67 |
| 813.96  | 6075.09   | 815.94  | 6075.48 | 819.11  | 6075.96 | 822.21  | 6076.27 | 825.3   | 6076.43 |
| 827.96  | 6076.47   | 832.07  | 6076.45 | 835.61  | 6076.34 | 838.7   | 6076.13 | 847.98  | 6075.38 |
| 851.08  | 6075.09   | 856.23  | 6074.52 | 859.32  | 6074.28 | 865.51  | 6073.89 | 868.6   | 6073.77 |
| 872.81  | 6073.73   | 875.82  | 6073.8  | 880.97  | 6074.05 | 883.52  | 6074.13 | 888.19  | 6074.18 |
| 893.35  | 6074.43   | 895.06  | 6074.47 | 900.56  | 6074.47 | 907.42  | 6074.75 | 913.97  | 6074.93 |
| 919.12  | 6075.24   | 927.37  | 6075.93 | 929.43  | 6075.97 | 931.49  | 6075.9  | 936.65  | 6075.38 |
| 940.77  | 6075.17   | 943.87  | 6074.94 | 945.93  | 6074.7  | 949.02  | 6074.44 | 952.12  | 6074.35 |
| 959.4   | 6074.36   | 968.41  | 6074.55 | 971.7   | 6074.49 | 976.65  | 6074.23 | 981.6   | 6074.14 |
| 984.04  | 6074.15   | 993.14  | 6074.37 | 996.43  | 6074.35 | 1001.6  | 6074.14 | 1006.32 | 6074.09 |
| 1008.79 | 6074      | 1013.98 | 6073.68 | 1017.04 | 6073.6  | 1027.75 | 6073.45 | 1036.66 | 6073.22 |
| 1041.55 | 6073.24   | 1049.77 | 6073.32 | 1056.25 | 6073.52 | 1062.43 | 6073.43 | 1068.96 | 6073.55 |
| 1072.25 | 6073.55   | 1080.99 | 6073.38 | 1084.38 | 6073.37 | 1089.71 | 6073.45 | 1096.1  | 6073.7  |
| 1098.23 | 6073.73   | 1104.37 | 6073.63 | 1109.04 | 6073.61 | 1114.2  | 6073.76 | 1118.46 | 6073.79 |
| 1124.86 | 6073.68   | 1128.05 | 6073.52 | 1131.25 | 6073.3  | 1134.44 | 6072.96 | 1139.77 | 6072    |
| 1141.43 | 6071.88   | 1144.03 | 6072.02 | 1147.22 | 6072.69 | 1149.35 | 6073.29 | 1152.55 | 6073.99 |
| 1155.02 | 6074.35   | 1157.36 | 6074.52 | 1159.7  | 6074.57 | 1169.59 | 6074.6  | 1177.62 | 6074.44 |
| 1183.08 | 6074.47   | 1185.57 | 6074.42 | 1190.87 | 6074.19 | 1195.54 | 6074.08 | 1200.48 | 6073.84 |
| 1203.68 | 6073.81   | 1207.94 | 6073.84 | 1216.46 | 6073.55 | 1221.26 | 6073.55 | 1225.64 | 6073.47 |
| 1232.95 | 6073.44   | 1244.15 | 6073.32 | 1246.45 | 6073.36 | 1252.54 | 6073.66 | 1257.71 | 6073.78 |
| 1264.87 | 6074.01   | 1269.06 | 6074.2  | 1274.08 | 6074.55 | 1277.67 | 6074.64 | 1281.25 | 6074.62 |
| 1284.84 | 6074.69   | 1289.14 | 6074.85 | 1292.72 | 6074.9  | 1297.02 | 6074.87 | 1304.25 | 6074.88 |
| 1312.87 | 6074.92   | 1316.31 | 6074.78 | 1318.54 | 6074.61 | 1322.84 | 6074.42 | 1331.17 | 6074.41 |
| 1338.61 | 6074.59   | 1344.35 | 6074.89 | 1351.89 | 6075.08 | 1361.96 | 6075.24 | 1369.81 | 6075.18 |
| 1374.05 | 6075.12   | 1378.79 | 6074.97 | 1381.57 | 6075.06 | 1388.91 | 6075.13 | 1394.56 | 6075.01 |
| 1396.5  | 6074.9    | 1400.82 | 6074.79 | 1404.46 | 6074.79 | 1409.38 | 6074.71 | 1412.95 | 6074.73 |
| 1420.97 | 6074.57   | 1426.06 | 6074.62 | 1434.87 | 6074.43 | 1438.51 | 6074.43 | 1447.27 | 6074.31 |
| 1453.42 | 6074.3    | 1459.47 | 6074.37 | 1465.7  | 6074.57 | 1471.46 | 6074.82 | 1476.63 | 6075.14 |
| 1481.03 | 6075.3    | 1488.36 | 6075.38 | 1494.22 | 6075.32 | 1495.77 | 6075.26 | 1501.82 | 6075.15 |
| 1505.21 | 6075.18   | 1507.86 | 6075.11 | 1511.9  | 6075.13 | 1518.41 | 6075.42 | 1526.01 | 6075.53 |

1534.53 6075.88 1539.66 6075.82 1545.53 6076 1546.99 6076.01 1550.73 6075.88  
1552.87 6075.89 1555.01 6076.09 1559.29 6076.72 1561.43 6076.76 1567.08 6076.61  
1570.7 6076.38 1574.26 6076.31 1581.75 6075.94 1584.81 6075.88 1588.16 6075.96  
1589.57 6075.91 1593.28 6075.64 1596.72 6075.69 1601.2 6075.95 1605.85 6076  
1610.21 6075.78 1612.76 6075.76 1615.16 6075.87 1621.31 6076.34 1624.52 6076.46  
1631.45 6076.56 1637.36 6076.6 1641.63 6076.59 1648.05 6076.5 1650.93 6076.36  
1662.06 6075.58 1669.14 6075.38 1677.07 6075.33 1690.37 6075.32 1695.43 6075.5  
1701.04 6075.58 1708.65 6075.53 1719.49 6075.35 1730.83 6075.33 1735.27 6075.35  
1735.83 6075.33 1741.52 6075.11 1745.73 6075.02 1752.53 6075.01 1758.09 6074.85  
1765.55 6074.74 1772.35 6074.77 1776.57 6074.68 1784.72 6074.37 1794.22 6074.21  
1799.93 6074.05 1808.61 6073.97 1819.63 6073.83 1823.63 6073.82 1831.31 6073.71  
1835.65 6073.62 1839.86 6073.61 1843.66 6073.65 1853.18 6073.83 1857.93 6073.76  
1864.69 6073.29 1869.7 6073 1871.7 6072.75 1873.7 6072.3 1874.7 6071.95  
1877.71 6071.09 1879.71 6070.8 1881.7 6069 1896.74 6069 1898.74 6070.77  
1900.72 6070.97 1903.75 6071.71 1906.75 6072.66 1908.75 6073.09 1910.75 6073.39  
1912.76 6073.58 1915.76 6073.63 1920.69 6073.39 1924.77 6073.31 1927.78 6073.18  
1931.15 6073.16 1934.79 6073.24 1939.7 6073.44 1942.8 6073.52 1946.81 6073.56  
1953.97 6073.55 1956.81 6073.6 1962.83 6073.82 1965.83 6073.87 1975.64 6073.82  
1980.85 6073.82 1985.86 6073.77 1992 6073.98 1996.88 6074 2002.46 6073.83  
2006.26 6073.77 2010.07 6073.77 2019.91 6073.85 2024.92 6073.93 2028.92 6073.94  
2032.89 6074 2035.83 6074.1 2040.12 6074.24 2042.2 6074.22 2049.42 6073.91  
2054.28 6073.96 2058.34 6073.93 2064.83 6073.82 2071.43 6073.6 2075.13 6073.58  
2079.42 6073.41 2084.89 6073.44 2088.51 6073.27 2093.61 6073.14 2101.46 6073.15  
2105.65 6073.1 2107.56 6073.13 2111.37 6073.04 2113.96 6073.03 2117.09 6072.94  
2124.95 6072.97 2128.48 6072.9 2140.39 6072.93 2143.47 6072.9 2152.72 6072.9  
2169.06 6073.02 2176.42 6073.01 2178.99 6073.05 2184.67 6073.06 2189.56 6073.02  
2196.73 6073.04 2204.78 6072.78 2212.89 6072.74 2218 6072.69 2231.3 6072.76  
2238.81 6072.76 2244.3 6072.83 2249.72 6072.84 2257.09 6072.77 2266.66 6072.78  
2278.51 6072.82 2284.21 6072.78 2294.99 6072.78 2302.45 6072.71 2313.21 6072.81  
2317.94 6072.91 2322.92 6072.9 2327.9 6072.9 2332.75 6072.8 2342.83 6072.69  
2348.64 6072.65 2354.35 6072.51 2358.59 6072.5 2363.43 6072.64 2371.03 6072.65  
2384.17 6072.81 2389.29 6072.73 2391.36 6072.62 2394.45 6072.55 2410.9 6072.45  
2420.81 6072.58 2424.96 6072.55 2426.33 6072.6 2444.41 6072.73 2450.8 6072.72  
2458.93 6072.6 2462.99 6072.64 2466.04 6072.76 2471.12 6073.13 2473.71 6073.27  
2475.44 6073.29 2480.26 6073.09 2492.67 6072.89 2496.12 6072.96 2504.64 6073.31  
2509.05 6073.42 2513.36 6073.48 2527.98 6073.53 2533.09 6073.46 2539.18 6073.26  
2544.26 6072.98 2548.33 6072.98 2553 6073.21 2560.75 6073.27 2566.61 6073.49  
2573.43 6073.96 2577.77 6074.35 2586.85 6074.9 2589.87 6075.01 2604.83 6075.24  
2608.39 6075.24 2618.11 6075.14 2621.14 6075.13 2634.25 6075.44 2640.5 6075.47  
2646.35 6075.54 2649.38 6075.41 2655.66 6074.63 2661.48 6074.05 2664.5 6073.96  
2670.55 6073.97 2672.89 6074.06 2677.07 6074.33 2679.63 6074.45 2684.2 6074.51  
2687.77 6074.51 2696.78 6074.41 2705.85 6074.18 2709.17 6074.07 2713.92 6073.79  
2719.97 6073.53 2729.05 6073.29 2741.15 6073.24 2745.74 6073.24 2751.09 6073.19  
2767.37 6073.18 2775.17 6073.24 2780.83 6073.24 2787.54 6073.29 2796.58 6073.28  
2802.82 6073.21 2810.74 6073.07 2820.66 6073.08 2826.87 6073.11 2835.95 6073.09  
2838.98 6073.06 2850.07 6072.88 2859.01 6072.83 2863.47 6072.83 2868.82 6072.89  
2876.29 6072.87 2883.09 6073.02 2893.79 6073.15 2900.92 6073.36 2905.38 6073.44  
2911.9 6073.41 2919.61 6073.51 2936.8 6073.84 2941.06 6073.88 2944.87 6073.82  
2952.94 6073.59 2957.11 6073.57 2961.57 6073.69 2966.92 6073.78 2969.08 6073.76  
2976.73 6073.38 2980.3 6073.35 2987.23 6073.46 2990.11 6073.61 2995.3 6074.06  
2998.32 6074.26 3003.65 6074.48

Manning's n Values num= 3  
Sta n Val Sta n Val Sta n Val  
194.24 .06 1857.93 .035 1912.76 .06





|           |         |         |          |              |       |       |        |        |
|-----------|---------|---------|----------|--------------|-------|-------|--------|--------|
| Bank Sta: | Left    | Right   | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|           | 1857.93 | 1912.76 |          | 56.45        | 56.46 | 56.45 | .3     | .5     |

|                  |         |         |
|------------------|---------|---------|
| Ineffective Flow | num=    | 8       |
| Sta L            | Sta R   | Elev    |
| 404.29           | 1859.71 | 6075.91 |
| 1910.69          | 2065.27 | 6075.1  |
| 2065.27          | 2080.56 | 6074.9  |
| 2080.56          | 2109.83 | 6074.73 |
| 2109.83          | 2146.12 | 6074.51 |
| 2146.12          | 2167.19 | 6074.39 |
| 2167.19          | 2611.99 | 6074.21 |
| 2611.99          | 3006.47 | 6074.95 |

|                      |         |        |
|----------------------|---------|--------|
| Blocked Obstructions | num=    | 1      |
| Sta L                | Sta R   | Elev   |
| 3050                 | 3003.65 | 6075.2 |

BRIDGE

RIVER: Flat Creek

REACH: 1 RS: 31602

INPUT

Description: Big Trails Drive Bridge

Distance from Upstream XS = 13

Deck/Roadway Width = 37

Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates

|        |         |      |        |         |     |        |         |    |      |     |    |      |    |      |
|--------|---------|------|--------|---------|-----|--------|---------|----|------|-----|----|------|----|------|
| num=   | 491     |      |        |         |     |        |         |    |      |     |    |      |    |      |
| Sta    | Hi      | Cord | Lo     | Cord    | Sta | Hi     | Cord    | Lo | Cord | Sta | Hi | Cord | Lo | Cord |
| 213.74 | 6078.93 | 0    | 219.21 | 6078.86 | 0   | 225.96 | 6078.76 | 0  |      |     |    |      |    |      |
| 230.2  | 6078.72 | 0    | 231.47 | 6078.69 | 0   | 234.44 | 6078.66 | 0  |      |     |    |      |    |      |
| 242.9  | 6078.54 | 0    | 245.83 | 6078.48 | 0   | 251.57 | 6078.4  | 0  |      |     |    |      |    |      |
| 262.73 | 6078.27 | 0    | 274.75 | 6078.1  | 0   | 280.41 | 6078.04 | 0  |      |     |    |      |    |      |
| 283.24 | 6078    | 0    | 288.5  | 6077.97 | 0   | 294.82 | 6077.92 | 0  |      |     |    |      |    |      |
| 296.29 | 6077.92 | 0    | 301.24 | 6077.88 | 0   | 305.06 | 6077.86 | 0  |      |     |    |      |    |      |
| 310.17 | 6077.8  | 0    | 312.37 | 6077.79 | 0   | 318.22 | 6077.73 | 0  |      |     |    |      |    |      |
| 323.25 | 6077.7  | 0    | 329.42 | 6077.65 | 0   | 332.83 | 6077.61 | 0  |      |     |    |      |    |      |
| 337.95 | 6077.58 | 0    | 342.34 | 6077.54 | 0   | 351.84 | 6077.52 | 0  |      |     |    |      |    |      |
| 358.42 | 6077.45 | 0    | 365.73 | 6077.43 | 0   | 369.38 | 6077.4  | 0  |      |     |    |      |    |      |
| 374.98 | 6077.38 | 0    | 378.16 | 6077.35 | 0   | 381.81 | 6077.34 | 0  |      |     |    |      |    |      |
| 393.77 | 6077.27 | 0    | 405.05 | 6077.24 | 0   | 411.93 | 6077.19 | 0  |      |     |    |      |    |      |
| 416.51 | 6077.18 | 0    | 419.79 | 6077.16 | 0   | 426.45 | 6077.16 | 0  |      |     |    |      |    |      |
| 439.75 | 6077.09 | 0    | 444.73 | 6077.05 | 0   | 452.42 | 6077.02 | 0  |      |     |    |      |    |      |
| 457.01 | 6076.98 | 0    | 463.88 | 6076.95 | 0   | 467.5  | 5940.54 | 0  |      |     |    |      |    |      |
| 467.71 | 5933.09 | 0    | 471.83 | 5970.1  | 0   | 483.72 | 6076.89 | 0  |      |     |    |      |    |      |
| 490.27 | 6076.85 | 0    | 494.6  | 6076.84 | 0   | 496.66 | 6076.82 | 0  |      |     |    |      |    |      |
| 502.85 | 6076.8  | 0    | 508.31 | 6076.77 | 0   | 515.72 | 6076.71 | 0  |      |     |    |      |    |      |
| 529.14 | 6076.65 | 0    | 538.24 | 6076.58 | 0   | 546.13 | 6076.55 | 0  |      |     |    |      |    |      |
| 558.09 | 6076.47 | 0    | 562.22 | 6076.46 | 0   | 570.28 | 6076.41 | 0  |      |     |    |      |    |      |
| 570.49 | 6076.4  | 0    | 576.46 | 6076.37 | 0   | 582.07 | 6076.33 | 0  |      |     |    |      |    |      |
| 583.72 | 6076.33 | 0    | 592.37 | 6076.28 | 0   | 596.02 | 6076.25 | 0  |      |     |    |      |    |      |
| 602.75 | 6076.26 | 0    | 608.38 | 6076.22 | 0   | 614.32 | 6076.22 | 0  |      |     |    |      |    |      |
| 614.55 | 6076.21 | 0    | 620.94 | 6076.21 | 0   | 624.85 | 6076.2  | 0  |      |     |    |      |    |      |

|         |         |   |         |         |   |         |         |   |
|---------|---------|---|---------|---------|---|---------|---------|---|
| 630.86  | 6076.23 | 0 | 637.48  | 6076.23 | 0 | 638.23  | 6076.22 | 0 |
| 646.58  | 6076.22 | 0 | 647     | 6076.23 | 0 | 654.85  | 6076.23 | 0 |
| 660.63  | 6076.26 | 0 | 665     | 6076.26 | 0 | 672.21  | 6076.32 | 0 |
| 678.83  | 6076.36 | 0 | 682.96  | 6076.37 | 0 | 688.75  | 6076.41 | 0 |
| 691.77  | 6076.42 | 0 | 697.95  | 6076.46 | 0 | 701.16  | 6076.49 | 0 |
| 706.19  | 6076.5  | 0 | 713.56  | 6076.54 | 0 | 717.7   | 6076.57 | 0 |
| 721.83  | 6076.58 | 0 | 727.62  | 6076.61 | 0 | 732.58  | 6076.62 | 0 |
| 743.25  | 6076.66 | 0 | 749.43  | 6076.67 | 0 | 752.43  | 6076.69 | 0 |
| 757.66  | 6076.7  | 0 | 762.35  | 6076.73 | 0 | 764.01  | 6076.73 | 0 |
| 770.62  | 6076.77 | 0 | 776.41  | 6076.77 | 0 | 780.31  | 6076.79 | 0 |
| 783.4   | 6076.79 | 0 | 789.58  | 6076.82 | 0 | 794.73  | 6076.82 | 0 |
| 800.39  | 6076.83 | 0 | 805.36  | 6076.86 | 0 | 807.08  | 6076.86 | 0 |
| 816.93  | 6076.91 | 0 | 821.5   | 6076.92 | 0 | 824.38  | 6076.94 | 0 |
| 828.7   | 6076.94 | 0 | 836.78  | 6076.99 | 0 | 848.74  | 6077.03 | 0 |
| 852.38  | 6077.05 | 0 | 855.47  | 6077.05 | 0 | 859.11  | 6077.08 | 0 |
| 864.74  | 6077.07 | 0 | 869.86  | 6077.07 | 0 | 870.69  | 6077.08 | 0 |
| 880.18  | 6077.08 | 0 | 884.3   | 6077.09 | 0 | 890.77  | 6077.13 | 0 |
| 892.54  | 6077.13 | 0 | 897.15  | 6077.16 | 0 | 900.46  | 6077.14 | 0 |
| 904.89  | 6077.14 | 0 | 910.04  | 6077.12 | 0 | 915.19  | 6077.12 | 0 |
| 915.35  | 6077.13 | 0 | 921.37  | 6077.13 | 0 | 926.1   | 6077.09 | 0 |
| 933.72  | 6077.08 | 0 | 937.67  | 6077.05 | 0 | 946.77  | 6077    | 0 |
| 955.04  | 6076.89 | 0 | 960     | 6076.86 | 0 | 963.58  | 6076.85 | 0 |
| 969.93  | 6076.8  | 0 | 975.93  | 6076.77 | 0 | 986.23  | 6076.69 | 0 |
| 989.32  | 6076.68 | 0 | 995.49  | 6076.59 | 0 | 1002.18 | 6076.59 | 0 |
| 1006.31 | 6076.56 | 0 | 1011.28 | 6076.54 | 0 | 1014.03 | 6076.54 | 0 |
| 1020.2  | 6076.49 | 0 | 1027.41 | 6076.41 | 0 | 1036.09 | 6076.41 | 0 |
| 1036.68 | 6076.4  | 0 | 1045.18 | 6076.39 | 0 | 1049.03 | 6076.36 | 0 |
| 1051.8  | 6076.36 | 0 | 1055.93 | 6076.33 | 0 | 1060.9  | 6076.32 | 0 |
| 1066.53 | 6076.28 | 0 | 1068.34 | 6076.28 | 0 | 1074.77 | 6076.24 | 0 |
| 1079.9  | 6076.24 | 0 | 1080.74 | 6076.25 | 0 | 1089.18 | 6076.25 | 0 |
| 1095.36 | 6076.22 | 0 | 1099.76 | 6076.21 | 0 | 1105.66 | 6076.21 | 0 |
| 1109.69 | 6076.18 | 0 | 1117.13 | 6076.15 | 0 | 1121.93 | 6076.12 | 0 |
| 1128.71 | 6076.1  | 0 | 1133.67 | 6076.07 | 0 | 1137.8  | 6076.06 | 0 |
| 1142.72 | 6076.03 | 0 | 1146.07 | 6076.02 | 0 | 1163.76 | 6076.02 | 0 |
| 1176.07 | 6076.07 | 0 | 1176.61 | 6076.08 | 0 | 1182.24 | 6076.06 | 0 |
| 1187.56 | 6076.06 | 0 | 1193.48 | 6076.08 | 0 | 1204.73 | 6076.08 | 0 |
| 1209.48 | 6076.11 | 0 | 1214.37 | 6076.12 | 0 | 1217.58 | 6076.15 | 0 |
| 1220.8  | 6076.16 | 0 | 1228.83 | 6076.21 | 0 | 1236.86 | 6076.21 | 0 |
| 1240.64 | 6076.23 | 0 | 1243.38 | 6076.23 | 0 | 1249.16 | 6076.27 | 0 |
| 1253.08 | 6076.28 | 0 | 1256.01 | 6076.31 | 0 | 1263.32 | 6076.31 | 0 |
| 1271.13 | 6076.34 | 0 | 1274.6  | 6076.34 | 0 | 1280.88 | 6076.37 | 0 |
| 1285.73 | 6076.42 | 0 | 1291.94 | 6076.43 | 0 | 1296.24 | 6076.45 | 0 |
| 1302.35 | 6076.46 | 0 | 1305.65 | 6076.48 | 0 | 1310.88 | 6076.48 | 0 |
| 1311.6  | 6076.49 | 0 | 1317.6  | 6076.49 | 0 | 1320.33 | 6076.51 | 0 |
| 1339.03 | 6076.51 | 0 | 1339.54 | 6076.52 | 0 | 1345.42 | 6076.52 | 0 |
| 1345.95 | 6076.53 | 0 | 1351.42 | 6076.53 | 0 | 1354.63 | 6076.54 | 0 |
| 1361.6  | 6076.6  | 0 | 1367.15 | 6076.63 | 0 | 1373.54 | 6076.71 | 0 |
| 1377.38 | 6076.72 | 0 | 1385.06 | 6076.82 | 0 | 1390.28 | 6076.86 | 0 |
| 1395.19 | 6076.91 | 0 | 1397.09 | 6076.91 | 0 | 1402.75 | 6076.95 | 0 |
| 1409.55 | 6077.01 | 0 | 1411.96 | 6077.04 | 0 | 1419.03 | 6077.08 | 0 |
| 1425    | 6077.13 | 0 | 1428.81 | 6077.18 | 0 | 1434.48 | 6077.2  | 0 |
| 1439.19 | 6077.2  | 0 | 1443.63 | 6077.24 | 0 | 1445.22 | 6077.24 | 0 |
| 1455.49 | 6077.32 | 0 | 1459.94 | 6077.33 | 0 | 1465.04 | 6077.37 | 0 |
| 1469.71 | 6077.36 | 0 | 1482.98 | 6077.36 | 0 | 1483.38 | 6077.37 | 0 |
| 1495.94 | 6077.39 | 0 | 1499.17 | 6077.41 | 0 | 1516.83 | 6077.41 | 0 |

A



|         |         |         |         |         |         |         |         |   |
|---------|---------|---------|---------|---------|---------|---------|---------|---|
| 1517.45 | 6077.4  | 0       | 1530.28 | 6077.4  | 0       | 1535.44 | 6077.37 | 0 |
| 1543.76 | 6077.39 | 0       | 1546.01 | 6077.37 | 0       | 1556.54 | 6077.37 | 0 |
| 1557.24 | 6077.36 | 0       | 1580.96 | 6077.36 | 0       | 1586.32 | 6077.33 | 0 |
| 1593.18 | 6077.31 | 0       | 1596.19 | 6077.31 | 0       | 1600.7  | 6077.28 | 0 |
| 1607.43 | 6077.25 | 0       | 1613.05 | 6077.26 | 0       | 1613.68 | 6077.25 | 0 |
| 1620.77 | 6077.25 | 0       | 1624.44 | 6077.23 | 0       | 1629.81 | 6077.23 | 0 |
| 1640.79 | 6077.2  | 0       | 1650.26 | 6077.14 | 0       | 1651.98 | 6077.14 | 0 |
| 1658.87 | 6077.09 | 0       | 1663.35 | 6077.07 | 0       | 1671.78 | 6077.06 | 0 |
| 1682.6  | 6077    | 0       | 1689.1  | 6076.98 | 0       | 1696.62 | 6076.9  | 0 |
| 1698.1  | 6076.9  | 0       | 1707.14 | 6076.8  | 0       | 1709.64 | 6076.76 | 0 |
| 1715.65 | 6076.73 | 0       | 1721.66 | 6076.69 | 0       | 1727.66 | 6076.68 | 0 |
| 1738.49 | 6076.61 | 0       | 1745.69 | 6076.57 | 0       | 1753.36 | 6076.56 | 0 |
| 1753.68 | 6076.55 | 0       | 1758.71 | 6076.55 | 0       | 1762.23 | 6076.54 | 0 |
| 1770.78 | 6076.5  | 0       | 1777.74 | 6076.44 | 0       | 1778.74 | 6076.44 | 0 |
| 1785.03 | 6076.37 | 0       | 1790.73 | 6076.35 | 0       | 1803.08 | 6076.25 | 0 |
| 1806.78 | 6076.24 | 0       | 1812.57 | 6076.19 | 0       | 1817.8  | 6076.17 | 0 |
| 1827.77 | 6076.11 | 0       | 1833.82 | 6076.1  | 0       | 1838.83 | 6076.08 | 0 |
| 1843.92 | 6076.08 | 0       | 1852.85 | 6076    | 0       | 1861.02 | 6075.98 | 0 |
| 1863.86 | 6075.96 | 0       | 1866.87 | 6075.86 | 0       | 1869.46 | 6075.85 | 0 |
| 1871.07 | 6075.85 | 6073.11 | 1900.02 | 6075.85 | 6072.97 | 1901.62 | 6075.85 |   |
| 1907.56 | 6075.74 | 0       | 1909.46 | 6075.78 | 0       | 1917.06 | 6075.76 | 0 |
| 1923.95 | 6075.73 | 0       | 1935.1  | 6075.65 | 0       | 1943.65 | 6075.65 | 0 |
| 1943.98 | 6075.64 | 0       | 1949.35 | 6075.64 | 0       | 1949.99 | 6075.63 | 0 |
| 1974.03 | 6075.63 | 0       | 1984.49 | 6075.58 | 0       | 1989.05 | 6075.54 | 0 |
| 1998.74 | 6075.44 | 0       | 2003.49 | 6075.41 | 0       | 2007.08 | 6075.37 | 0 |
| 2015.84 | 6075.24 | 0       | 2031.12 | 6075.16 | 0       | 2035.4  | 6075.15 | 0 |
| 2036.17 | 6075.16 | 0       | 2043.41 | 6075.16 | 0       | 2044.24 | 6075.15 | 0 |
| 2053.19 | 6075.15 | 0       | 2053.32 | 6075.16 | 0       | 2059.77 | 6075.16 | 0 |
| 2067.55 | 6075.12 | 0       | 2069.5  | 6075.08 | 0       | 2073.18 | 6075.03 | 0 |
| 2079.78 | 6074.92 | 0       | 2088.95 | 6074.85 | 0       | 2094.59 | 6074.8  | 0 |
| 2099.92 | 6074.78 | 0       | 2102.88 | 6074.78 | 0       | 2106.59 | 6074.76 | 0 |
| 2111.04 | 6074.75 | 0       | 2116.72 | 6074.68 | 0       | 2123.87 | 6074.64 | 0 |
| 2128.85 | 6074.6  | 0       | 2130.33 | 6074.6  | 0       | 2138.16 | 6074.54 | 0 |
| 2148.85 | 6074.52 | 0       | 2155.23 | 6074.49 | 0       | 2160.18 | 6074.45 | 0 |
| 2168.27 | 6074.43 | 0       | 2173.07 | 6074.39 | 0       | 2175.74 | 6074.39 | 0 |
| 2182.14 | 6074.36 | 0       | 2184.83 | 6074.36 | 0       | 2190.46 | 6074.32 | 0 |
| 2195.81 | 6074.32 | 0       | 2202.89 | 6074.29 | 0       | 2207.4  | 6074.29 | 0 |
| 2221.53 | 6074.25 | 0       | 2232.67 | 6074.25 | 0       | 2233.03 | 6074.26 | 0 |
| 2242.74 | 6074.26 | 0       | 2247.23 | 6074.22 | 0       | 2254.33 | 6074.22 | 0 |
| 2254.98 | 6074.21 | 0       | 2261.42 | 6074.21 | 0       | 2266.75 | 6074.2  | 0 |
| 2271.53 | 6074.22 | 0       | 2280.16 | 6074.22 | 0       | 2280.84 | 6074.23 | 0 |
| 2289.32 | 6074.23 | 0       | 2298.87 | 6074.26 | 0       | 2306.79 | 6074.23 | 0 |
| 2311.88 | 6074.22 | 0       | 2324.78 | 6074.22 | 0       | 2329.93 | 6074.24 | 0 |
| 2342.46 | 6074.24 | 0       | 2343.2  | 6074.25 | 0       | 2352.9  | 6074.25 | 0 |
| 2353.65 | 6074.24 | 0       | 2369.71 | 6074.24 | 0       | 2374.53 | 6074.27 | 0 |
| 2380.53 | 6074.28 | 0       | 2380.96 | 6074.29 | 0       | 2386.58 | 6074.3  | 0 |
| 2390.48 | 6074.28 | 0       | 2405.86 | 6074.28 | 0       | 2414.49 | 6074.26 | 0 |
| 2419.71 | 6074.23 | 0       | 2421.93 | 6074.23 | 0       | 2429.32 | 6074.2  | 0 |
| 2437.19 | 6074.16 | 0       | 2440.62 | 6074.13 | 0       | 2452.63 | 6074.13 | 0 |
| 2453.02 | 6074.12 | 0       | 2461.87 | 6074.12 | 0       | 2467.19 | 6074.14 | 0 |
| 2469.8  | 6074.16 | 0       | 2477.87 | 6074.18 | 0       | 2479.89 | 6074.2  | 0 |
| 2488.44 | 6074.22 | 0       | 2494.03 | 6074.27 | 0       | 2499.96 | 6074.29 | 0 |
| 2502.11 | 6074.31 | 0       | 2508.17 | 6074.32 | 0       | 2512.21 | 6074.34 | 0 |
| 2519.44 | 6074.36 | 0       | 2523.87 | 6074.39 | 0       | 2530.07 | 6074.39 | 0 |
| 2530.38 | 6074.4  | 0       | 2535.43 | 6074.4  | 0       | 2541.49 | 6074.36 | 0 |



```
Station Elevation Data      num=      492
```

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 851.05  | 6075.09 | 856.2   | 6074.52 | 859.29  | 6074.28 | 865.48  | 6073.89 | 868.57  | 6073.77 |
| 872.78  | 6073.73 | 875.79  | 6073.8  | 880.94  | 6074.05 | 883.49  | 6074.13 | 888.16  | 6074.18 |
| 893.32  | 6074.43 | 895.03  | 6074.47 | 900.53  | 6074.47 | 907.39  | 6074.75 | 913.94  | 6074.93 |
| 919.09  | 6075.24 | 927.34  | 6075.93 | 929.4   | 6075.97 | 931.46  | 6075.9  | 936.62  | 6075.38 |
| 940.74  | 6075.17 | 943.84  | 6074.94 | 945.9   | 6074.7  | 948.99  | 6074.44 | 952.09  | 6074.35 |
| 959.37  | 6074.36 | 968.38  | 6074.55 | 971.67  | 6074.49 | 976.62  | 6074.23 | 981.57  | 6074.14 |
| 984.01  | 6074.15 | 993.11  | 6074.37 | 996.4   | 6074.35 | 1001.57 | 6074.14 | 1006.29 | 6074.09 |
| 1008.76 | 6074    | 1013.95 | 6073.68 | 1017.01 | 6073.6  | 1027.72 | 6073.45 | 1036.63 | 6073.22 |
| 1041.52 | 6073.24 | 1049.74 | 6073.32 | 1056.22 | 6073.52 | 1062.4  | 6073.43 | 1068.93 | 6073.55 |
| 1072.22 | 6073.55 | 1080.96 | 6073.38 | 1084.35 | 6073.37 | 1089.68 | 6073.45 | 1096.07 | 6073.7  |
| 1098.2  | 6073.73 | 1104.34 | 6073.63 | 1109.01 | 6073.61 | 1114.17 | 6073.76 | 1118.43 | 6073.79 |
| 1124.83 | 6073.68 | 1128.02 | 6073.52 | 1131.22 | 6073.3  | 1134.41 | 6072.96 | 1139.74 | 6072    |
| 1141.4  | 6071.88 | 1144    | 6072.02 | 1147.19 | 6072.69 | 1149.32 | 6073.29 | 1152.52 | 6073.99 |
| 1154.99 | 6074.35 | 1157.33 | 6074.52 | 1159.67 | 6074.57 | 1169.56 | 6074.6  | 1177.59 | 6074.44 |
| 1183.05 | 6074.47 | 1185.54 | 6074.42 | 1190.84 | 6074.19 | 1195.51 | 6074.08 | 1200.45 | 6073.84 |
| 1203.65 | 6073.81 | 1207.91 | 6073.84 | 1216.43 | 6073.55 | 1221.23 | 6073.55 | 1225.61 | 6073.47 |
| 1232.92 | 6073.44 | 1244.12 | 6073.32 | 1246.42 | 6073.36 | 1252.51 | 6073.66 | 1257.68 | 6073.78 |
| 1264.84 | 6074.01 | 1269.03 | 6074.2  | 1274.05 | 6074.55 | 1277.64 | 6074.64 | 1281.22 | 6074.62 |
| 1284.81 | 6074.69 | 1289.11 | 6074.85 | 1292.69 | 6074.9  | 1296.99 | 6074.87 | 1304.22 | 6074.88 |
| 1312.84 | 6074.92 | 1316.28 | 6074.78 | 1318.51 | 6074.61 | 1322.81 | 6074.42 | 1331.14 | 6074.41 |
| 1338.58 | 6074.59 | 1344.32 | 6074.89 | 1351.86 | 6075.08 | 1361.93 | 6075.24 | 1369.78 | 6075.18 |
| 1374.02 | 6075.12 | 1378.76 | 6074.97 | 1381.54 | 6075.06 | 1388.88 | 6075.13 | 1394.53 | 6075.01 |
| 1396.47 | 6074.9  | 1400.79 | 6074.79 | 1404.43 | 6074.79 | 1409.35 | 6074.71 | 1412.92 | 6074.73 |
| 1420.94 | 6074.57 | 1426.03 | 6074.62 | 1434.84 | 6074.43 | 1438.48 | 6074.43 | 1447.24 | 6074.31 |
| 1453.39 | 6074.3  | 1459.44 | 6074.37 | 1465.67 | 6074.57 | 1471.43 | 6074.82 | 1476.6  | 6075.14 |
| 1481    | 6075.3  | 1488.33 | 6075.38 | 1494.19 | 6075.32 | 1495.74 | 6075.26 | 1501.79 | 6075.15 |
| 1505.18 | 6075.18 | 1507.83 | 6075.11 | 1511.87 | 6075.13 | 1518.38 | 6075.42 | 1525.98 | 6075.53 |
| 1534.5  | 6075.88 | 1539.63 | 6075.82 | 1545.5  | 6076    | 1546.96 | 6076.01 | 1550.7  | 6075.88 |
| 1552.84 | 6075.89 | 1554.98 | 6076.09 | 1559.26 | 6076.72 | 1561.4  | 6076.76 | 1567.05 | 6076.61 |
| 1570.67 | 6076.38 | 1574.23 | 6076.31 | 1581.72 | 6075.94 | 1584.78 | 6075.88 | 1588.13 | 6075.96 |
| 1589.54 | 6075.91 | 1593.25 | 6075.64 | 1596.69 | 6075.69 | 1601.17 | 6075.95 | 1605.82 | 6076    |
| 1610.18 | 6075.78 | 1612.73 | 6075.76 | 1615.13 | 6075.87 | 1621.28 | 6076.34 | 1624.49 | 6076.46 |
| 1631.42 | 6076.56 | 1637.33 | 6076.6  | 1641.6  | 6076.59 | 1648.02 | 6076.5  | 1650.9  | 6076.36 |
| 1662.03 | 6075.58 | 1669.11 | 6075.38 | 1677.04 | 6075.33 | 1690.34 | 6075.32 | 1695.4  | 6075.5  |
| 1701.01 | 6075.58 | 1708.62 | 6075.53 | 1719.46 | 6075.35 | 1730.8  | 6075.33 | 1735.24 | 6075.35 |
| 1735.8  | 6075.33 | 1741.49 | 6075.11 | 1745.7  | 6075.02 | 1752.5  | 6075.01 | 1758.06 | 6074.85 |
| 1765.52 | 6074.74 | 1772.32 | 6074.77 | 1776.54 | 6074.68 | 1784.69 | 6074.37 | 1794.19 | 6074.21 |
| 1799.9  | 6074.05 | 1808.58 | 6073.97 | 1819.6  | 6073.83 | 1823.6  | 6073.82 | 1831.28 | 6073.71 |
| 1835.62 | 6073.62 | 1839.83 | 6073.61 | 1843.63 | 6073.65 | 1853.15 | 6073.83 | 1857.9  | 6073.76 |
| 1864.66 | 6073.29 | 1869.67 | 6073    | 1871.67 | 6072.75 | 1873.67 | 6072.3  | 1874.67 | 6071.95 |
| 1877.68 | 6071.09 | 1879.68 | 6070.8  | 1881.67 | 6069    | 1896.71 | 6069    | 1898.71 | 6070.77 |
| 1900.69 | 6070.97 | 1903.72 | 6071.71 | 1906.72 | 6072.66 | 1908.72 | 6073.09 | 1910.72 | 6073.39 |
| 1912.73 | 6073.58 | 1915.73 | 6073.63 | 1920.66 | 6073.39 | 1924.74 | 6073.31 | 1927.75 | 6073.18 |
| 1931.12 | 6073.16 | 1934.76 | 6073.24 | 1939.67 | 6073.44 | 1942.77 | 6073.52 | 1946.78 | 6073.56 |
| 1953.94 | 6073.55 | 1956.78 | 6073.6  | 1962.8  | 6073.82 | 1965.8  | 6073.87 | 1975.61 | 6073.82 |
| 1980.82 | 6073.82 | 1985.83 | 6073.77 | 1991.97 | 6073.98 | 1996.85 | 6074    | 2002.43 | 6073.83 |
| 2006.23 | 6073.77 | 2010.04 | 6073.77 | 2019.88 | 6073.85 | 2024.89 | 6073.93 | 2028.89 | 6073.94 |
| 2032.86 | 6074    | 2035.8  | 6074.1  | 2040.09 | 6074.24 | 2042.17 | 6074.22 | 2049.39 | 6073.91 |
| 2054.25 | 6073.96 | 2058.31 | 6073.93 | 2064.8  | 6073.82 | 2071.4  | 6073.6  | 2075.1  | 6073.58 |
| 2079.39 | 6073.41 | 2084.86 | 6073.44 | 2088.48 | 6073.27 | 2093.58 | 6073.14 | 2101.43 | 6073.15 |
| 2105.62 | 6073.1  | 2107.53 | 6073.13 | 2111.34 | 6073.04 | 2113.93 | 6073.03 | 2117.06 | 6072.94 |
| 2124.92 | 6072.97 | 2128.45 | 6072.9  | 2140.36 | 6072.93 | 2143.44 | 6072.9  | 2152.69 | 6072.9  |
| 2169.03 | 6073.02 | 2176.39 | 6073.01 | 2178.96 | 6073.05 | 2184.64 | 6073.06 | 2189.53 | 6073.02 |
| 2196.7  | 6073.04 | 2204.75 | 6072.78 | 2212.86 | 6072.74 | 2217.97 | 6072.69 | 2231.27 | 6072.76 |
| 2238.78 | 6072.76 | 2244.27 | 6072.83 | 2249.69 | 6072.84 | 2257.06 | 6072.77 | 2266.63 | 6072.78 |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 2278.48 | 6072.82 | 2284.18 | 6072.78 | 2294.96 | 6072.78 | 2302.42 | 6072.71 | 2313.18 | 6072.81 |
| 2317.91 | 6072.91 | 2322.89 | 6072.94 | 2327.87 | 6072.9  | 2332.72 | 6072.8  | 2342.8  | 6072.69 |
| 2348.61 | 6072.65 | 2354.32 | 6072.51 | 2358.56 | 6072.5  | 2363.4  | 6072.64 | 2371    | 6072.65 |
| 2384.14 | 6072.81 | 2389.26 | 6072.73 | 2391.33 | 6072.62 | 2394.42 | 6072.55 | 2410.87 | 6072.45 |
| 2420.78 | 6072.58 | 2424.93 | 6072.55 | 2426.3  | 6072.6  | 2444.38 | 6072.73 | 2450.77 | 6072.72 |
| 2458.9  | 6072.6  | 2462.96 | 6072.64 | 2466.01 | 6072.76 | 2471.09 | 6073.13 | 2473.68 | 6073.27 |
| 2475.41 | 6073.29 | 2480.23 | 6073.09 | 2492.64 | 6072.89 | 2496.09 | 6072.96 | 2504.61 | 6073.31 |
| 2509.02 | 6073.42 | 2513.33 | 6073.48 | 2527.95 | 6073.53 | 2533.06 | 6073.46 | 2539.15 | 6073.26 |
| 2544.23 | 6072.98 | 2548.3  | 6072.98 | 2552.97 | 6073.21 | 2560.72 | 6073.27 | 2566.58 | 6073.49 |
| 2573.4  | 6073.96 | 2577.74 | 6074.35 | 2586.82 | 6074.9  | 2589.84 | 6075.01 | 2604.8  | 6075.24 |
| 2608.36 | 6075.24 | 2618.08 | 6075.14 | 2621.11 | 6075.13 | 2634.22 | 6075.44 | 2640.47 | 6075.47 |
| 2646.32 | 6075.54 | 2649.35 | 6075.41 | 2655.63 | 6074.63 | 2661.45 | 6074.05 | 2664.47 | 6073.96 |
| 2670.52 | 6073.97 | 2672.86 | 6074.06 | 2677.04 | 6074.33 | 2679.6  | 6074.45 | 2684.17 | 6074.51 |
| 2687.74 | 6074.51 | 2696.75 | 6074.41 | 2705.82 | 6074.18 | 2709.14 | 6074.07 | 2713.89 | 6073.79 |
| 2719.94 | 6073.53 | 2729.02 | 6073.29 | 2741.12 | 6073.24 | 2745.71 | 6073.24 | 2751.06 | 6073.19 |
| 2767.34 | 6073.18 | 2775.14 | 6073.24 | 2780.8  | 6073.24 | 2787.51 | 6073.29 | 2796.55 | 6073.28 |
| 2802.79 | 6073.21 | 2810.71 | 6073.07 | 2820.63 | 6073.08 | 2826.84 | 6073.11 | 2835.92 | 6073.09 |
| 2838.95 | 6073.06 | 2850.04 | 6072.88 | 2858.98 | 6072.83 | 2863.44 | 6072.83 | 2868.79 | 6072.89 |
| 2876.26 | 6072.87 | 2883.06 | 6073.02 | 2893.76 | 6073.15 | 2900.89 | 6073.36 | 2905.35 | 6073.44 |
| 2911.87 | 6073.41 | 2919.58 | 6073.51 | 2936.77 | 6073.84 | 2941.03 | 6073.88 | 2944.84 | 6073.82 |
| 2952.91 | 6073.59 | 2957.08 | 6073.57 | 2961.54 | 6073.69 | 2966.89 | 6073.78 | 2969.05 | 6073.76 |
| 2976.7  | 6073.38 | 2980.27 | 6073.35 | 2987.2  | 6073.46 | 2990.08 | 6073.61 | 2995.27 | 6074.06 |
| 2998.29 | 6074.26 | 3003.62 | 6074.48 |         |         |         |         |         |         |

|                                   |      |   |
|-----------------------------------|------|---|
| Manning's n Values                | num= | 3 |
| Sta n Val Sta n Val Sta n Val     |      |   |
| 194.21 .06 1735.8 .035 2035.8 .06 |      |   |

|                      |       |        |        |
|----------------------|-------|--------|--------|
| Bank Sta: Left Right | Coeff | Contr. | Expan. |
| 1735.8 2035.8        | .3    |        | .5     |

|                         |           |   |
|-------------------------|-----------|---|
| Ineffective Flow        | num=      | 8 |
| Sta L Sta R Elev        | Permanent |   |
| 404.29 1859.71 6075.91  | T         |   |
| 1910.69 2065.27 6075.1  | T         |   |
| 2065.27 2080.56 6074.9  | T         |   |
| 2080.56 2109.83 6074.73 | T         |   |
| 2109.83 2146.12 6074.51 | T         |   |
| 2146.12 2167.19 6074.39 | T         |   |
| 2167.19 2611.99 6074.21 | T         |   |
| 2611.99 3006.47 6074.95 | T         |   |

|                      |      |   |
|----------------------|------|---|
| Blocked Obstructions | num= | 1 |
| Sta L Sta R Elev     |      |   |
| 3050 3003.62 6075.2  |      |   |

|                         |                     |                     |
|-------------------------|---------------------|---------------------|
| Downstream Deck/Roadway | Coordinates         |                     |
| num=                    | 488                 |                     |
| Sta Hi Cord Lo Cord     | Sta Hi Cord Lo Cord | Sta Hi Cord Lo Cord |
| 213.74 6078.93 0        | 218.18 6078.87 0    | 223.13 6078.79 0    |
| 230.36 6078.72 0        | 231.75 6078.69 0    | 245.69 6078.49 0    |
| 251.26 6078.4 0         | 257.78 6078.32 0    | 266.27 6078.23 0    |
| 274.95 6078.1 0         | 279.7 6078.05 0     | 283.16 6078 0       |
| 293.13 6077.92 0        | 299.94 6077.9 0     | 303.6 6077.87 0     |
| 307.62 6077.82 0        | 310.91 6077.8 0     | 316.02 6077.75 0    |
| 319.51 6077.73 0        | 321.87 6077.7 0     | 330.64 6077.64 0    |
| 332.52 6077.61 0        | 335.76 6077.6 0     | 339.41 6077.56 0    |





|         |         |   |         |         |   |         |         |   |
|---------|---------|---|---------|---------|---|---------|---------|---|
| 348.74  | 6077.52 | 0 | 351.11  | 6077.52 | 0 | 355.5   | 6077.48 | 0 |
| 361.34  | 6077.44 | 0 | 365.07  | 6077.43 | 0 | 371.02  | 6077.39 | 0 |
| 373.04  | 6077.39 | 0 | 377.7   | 6077.36 | 0 | 380.01  | 6077.36 | 0 |
| 384     | 6077.33 | 0 | 389.85  | 6077.31 | 0 | 392.06  | 6077.29 | 0 |
| 402.76  | 6077.26 | 0 | 407.35  | 6077.22 | 0 | 418.04  | 6077.16 | 0 |
| 423.39  | 6077.15 | 0 | 429.55  | 6077.15 | 0 | 433.32  | 6077.14 | 0 |
| 436.38  | 6077.11 | 0 | 440.39  | 6077.09 | 0 | 444.92  | 6077.05 | 0 |
| 448.6   | 6077.04 | 0 | 456.24  | 6077    | 0 | 462.36  | 6076.95 | 0 |
| 467.5   | 6076.94 | 0 | 474     | 6076.94 | 0 | 479.93  | 6076.91 | 0 |
| 485.93  | 6076.87 | 0 | 492.43  | 6076.84 | 0 | 494.6   | 6076.84 | 0 |
| 500.56  | 6076.81 | 0 | 505.99  | 6076.77 | 0 | 510.57  | 6076.76 | 0 |
| 514.69  | 6076.72 | 0 | 518.39  | 6076.71 | 0 | 524.18  | 6076.68 | 0 |
| 532.19  | 6076.62 | 0 | 544.03  | 6076.56 | 0 | 555.61  | 6076.48 | 0 |
| 559.74  | 6076.47 | 0 | 565.53  | 6076.43 | 0 | 568.84  | 6076.42 | 0 |
| 570.28  | 6076.4  | 0 | 577.11  | 6076.36 | 0 | 593.96  | 6076.27 | 0 |
| 600.77  | 6076.26 | 0 | 606.88  | 6076.23 | 0 | 613.38  | 6076.21 | 0 |
| 622.59  | 6076.21 | 0 | 622.79  | 6076.22 | 0 | 629.21  | 6076.22 | 0 |
| 630     | 6076.23 | 0 | 641.61  | 6076.23 | 0 | 642.35  | 6076.22 | 0 |
| 651.21  | 6076.22 | 0 | 658.15  | 6076.25 | 0 | 662.29  | 6076.25 | 0 |
| 667.06  | 6076.27 | 0 | 678.39  | 6076.35 | 0 | 682.96  | 6076.37 | 0 |
| 684.83  | 6076.39 | 0 | 695.37  | 6076.44 | 0 | 698.98  | 6076.47 | 0 |
| 704.46  | 6076.5  | 0 | 710.05  | 6076.52 | 0 | 716.48  | 6076.57 | 0 |
| 718.52  | 6076.57 | 0 | 724.31  | 6076.6  | 0 | 730.9   | 6076.62 | 0 |
| 735.27  | 6076.62 | 0 | 738.37  | 6076.64 | 0 | 746.64  | 6076.66 | 0 |
| 749.95  | 6076.68 | 0 | 755.74  | 6076.69 | 0 | 760.48  | 6076.71 | 0 |
| 763.84  | 6076.74 | 0 | 771.45  | 6076.78 | 0 | 780.55  | 6076.79 | 0 |
| 785.7   | 6076.81 | 0 | 791.3   | 6076.82 | 0 | 796.79  | 6076.82 | 0 |
| 801.22  | 6076.83 | 0 | 811.97  | 6076.89 | 0 | 814.45  | 6076.89 | 0 |
| 824.59  | 6076.94 | 0 | 827.73  | 6076.94 | 0 | 833.47  | 6076.96 | 0 |
| 839.26  | 6077    | 0 | 843.4   | 6077    | 0 | 849.19  | 6077.04 | 0 |
| 851.67  | 6077.04 | 0 | 857.46  | 6077.07 | 0 | 865.73  | 6077.07 | 0 |
| 869.03  | 6077.06 | 0 | 871.95  | 6077.08 | 0 | 875.03  | 6077.08 | 0 |
| 878.96  | 6077.1  | 0 | 882.37  | 6077.1  | 0 | 888.88  | 6077.12 | 0 |
| 894.98  | 6077.16 | 0 | 905.92  | 6077.13 | 0 | 921.13  | 6077.13 | 0 |
| 929.4   | 6077.07 | 0 | 932.8   | 6077.07 | 0 | 939.33  | 6077.05 | 0 |
| 942.99  | 6077.03 | 0 | 947.1   | 6076.99 | 0 | 951.73  | 6076.96 | 0 |
| 955.04  | 6076.92 | 0 | 961.52  | 6076.86 | 0 | 965.64  | 6076.84 | 0 |
| 972.41  | 6076.77 | 0 | 975.93  | 6076.76 | 0 | 983.99  | 6076.69 | 0 |
| 988.95  | 6076.68 | 0 | 994.46  | 6076.6  | 0 | 997.22  | 6076.58 | 0 |
| 1003.73 | 6076.57 | 0 | 1010.45 | 6076.54 | 0 | 1014.58 | 6076.54 | 0 |
| 1026.99 | 6076.42 | 0 | 1030.3  | 6076.41 | 0 | 1035.65 | 6076.43 | 0 |
| 1038.57 | 6076.46 | 0 | 1044.91 | 6076.38 | 0 | 1049.03 | 6076.36 | 0 |
| 1055.11 | 6076.35 | 0 | 1058.89 | 6076.32 | 0 | 1065.86 | 6076.29 | 0 |
| 1068.34 | 6076.26 | 0 | 1076.83 | 6076.26 | 0 | 1077.43 | 6076.25 | 0 |
| 1090.67 | 6076.25 | 0 | 1094.8  | 6076.22 | 0 | 1100.92 | 6076.22 | 0 |
| 1111.34 | 6076.17 | 0 | 1116.3  | 6076.16 | 0 | 1123.16 | 6076.13 | 0 |
| 1125.22 | 6076.11 | 0 | 1130.34 | 6076.09 | 0 | 1132.43 | 6076.07 | 0 |
| 1138.6  | 6076.04 | 0 | 1146.47 | 6076.02 | 0 | 1163.55 | 6076.02 | 0 |
| 1168.77 | 6076.03 | 0 | 1179.02 | 6076.08 | 0 | 1205.53 | 6076.08 | 0 |
| 1211.96 | 6076.12 | 0 | 1216.77 | 6076.13 | 0 | 1224.81 | 6076.19 | 0 |
| 1232.85 | 6076.2  | 0 | 1233.49 | 6076.21 | 0 | 1242.22 | 6076.23 | 0 |
| 1242.84 | 6076.24 | 0 | 1248.69 | 6076.25 | 0 | 1258.93 | 6076.31 | 0 |
| 1271.13 | 6076.31 | 0 | 1276.91 | 6076.36 | 0 | 1285.27 | 6076.42 | 0 |
| 1289.63 | 6076.42 | 0 | 1294.78 | 6076.45 | 0 | 1302.83 | 6076.46 | 0 |
| 1303.51 | 6076.47 | 0 | 1308.68 | 6076.47 | 0 | 1309.29 | 6076.48 | 0 |

|         |         |   |         |         |        |         |         |         |
|---------|---------|---|---------|---------|--------|---------|---------|---------|
| 1314.53 | 6076.48 | 0 | 1315.07 | 6076.49 | 0      | 1320.33 | 6076.49 | 0       |
| 1326.25 | 6076.51 | 0 | 1340.31 | 6076.51 | 0      | 1340.96 | 6076.52 | 0       |
| 1348.21 | 6076.52 | 0 | 1355.2  | 6076.54 | 0      | 1363.02 | 6076.61 | 0       |
| 1368.01 | 6076.63 | 0 | 1372.99 | 6076.68 | 0      | 1384.35 | 6076.81 | 0       |
| 1389.31 | 6076.86 | 0 | 1391.76 | 6076.87 | 0      | 1402.75 | 6076.96 | 0       |
| 1407.71 | 6077.01 | 0 | 1419.92 | 6077.09 | 0      | 1429.65 | 6077.19 | 0       |
| 1434.74 | 6077.2  | 0 | 1438.15 | 6077.22 | 0      | 1442.61 | 6077.23 | 0       |
| 1450.18 | 6077.29 | 0 | 1460.23 | 6077.33 | 0      | 1464.29 | 6077.36 | 0       |
| 1481.09 | 6077.36 | 0 | 1488.46 | 6077.4  | 0      | 1499.91 | 6077.4  | 0       |
| 1500.51 | 6077.41 | 0 | 1512.42 | 6077.41 | 0      | 1513.07 | 6077.4  | 0       |
| 1521.29 | 6077.4  | 0 | 1521.87 | 6077.41 | 0      | 1527.67 | 6077.4  | 0       |
| 1533.38 | 6077.37 | 0 | 1543.21 | 6077.39 | 0      | 1546.01 | 6077.37 | 0       |
| 1552.75 | 6077.37 | 0 | 1553.21 | 6077.36 | 0      | 1574.3  | 6077.36 | 0       |
| 1574.47 | 6077.37 | 0 | 1588.74 | 6077.33 | 0      | 1592.07 | 6077.31 | 0       |
| 1594.69 | 6077.31 | 0 | 1598.43 | 6077.29 | 0      | 1605.26 | 6077.27 | 0       |
| 1607.43 | 6077.25 | 0 | 1620.77 | 6077.25 | 0      | 1621.31 | 6077.24 | 0       |
| 1630.83 | 6077.21 | 0 | 1634.77 | 6077.21 | 0      | 1638.96 | 6077.19 | 0       |
| 1645.33 | 6077.18 | 0 | 1655.22 | 6077.11 | 0      | 1657.15 | 6077.11 | 0       |
| 1663.17 | 6077.07 | 0 | 1670.06 | 6077.06 | 0      | 1678.59 | 6077.01 | 0       |
| 1690.05 | 6076.97 | 0 | 1695.62 | 6076.91 | 0      | 1699.62 | 6076.89 | 0       |
| 1709.64 | 6076.76 | 0 | 1712.64 | 6076.75 | 0      | 1720.44 | 6076.69 | 0       |
| 1730.67 | 6076.64 | 0 | 1732.67 | 6076.64 | 0      | 1739.44 | 6076.6  | 0       |
| 1743.69 | 6076.59 | 0 | 1746.09 | 6076.57 | 0      | 1749.89 | 6076.57 | 0       |
| 1752.7  | 6076.55 | 0 | 1759.71 | 6076.54 | 0      | 1765.72 | 6076.51 | 0       |
| 1768.88 | 6076.51 | 0 | 1775.53 | 6076.46 | 0      | 1776.74 | 6076.46 | 0       |
| 1783.75 | 6076.38 | 0 | 1790.73 | 6076.35 | 0      | 1796.77 | 6076.3  | 0       |
| 1802.13 | 6076.27 | 0 | 1813.79 | 6076.18 | 0      | 1820.17 | 6076.16 | 0       |
| 1826.81 | 6076.12 | 0 | 1828.81 | 6076.12 | 0      | 1833.47 | 6076.09 | 0       |
| 1839.17 | 6076.09 | 0 | 1842.02 | 6076.08 | 0      | 1852.47 | 6076.01 | 0       |
| 1857.86 | 6075.98 | 0 | 1862.92 | 6075.97 | 0      | 1864.87 | 6075.95 | 0       |
| 1869.9  | 6075.85 | 0 | 1871.5  | 6075.85 | 6073.1 | 1900.27 | 6075.85 | 6072.93 |
| 1901.88 | 6075.85 | 0 | 1930.35 | 6075.68 | 0      | 1932.25 | 6075.68 | 0       |
| 1937.95 | 6075.65 | 0 | 1946.99 | 6075.64 | 0      | 1947.45 | 6075.63 | 0       |
| 1955.05 | 6075.63 | 0 | 1955.96 | 6075.62 | 0      | 1960.75 | 6075.63 | 0       |
| 1974.37 | 6075.63 | 0 | 1978.79 | 6075.59 | 0      | 1989.24 | 6075.52 | 0       |
| 1994.94 | 6075.46 | 0 | 1997.06 | 6075.45 | 0      | 2002.54 | 6075.39 | 0       |
| 2007.29 | 6075.35 | 0 | 2013.09 | 6075.28 | 0      | 2014.09 | 6075.28 | 0       |
| 2024.1  | 6075.18 | 0 | 2026.29 | 6075.18 | 0      | 2033.62 | 6075.14 | 0       |
| 2038.96 | 6075.14 | 0 | 2039.19 | 6075.15 | 0      | 2044.75 | 6075.15 | 0       |
| 2052.26 | 6075.13 | 0 | 2056.75 | 6075.16 | 0      | 2059.42 | 6075.16 | 0       |
| 2062.09 | 6075.14 | 0 | 2066.53 | 6075.13 | 0      | 2068.92 | 6075.1  | 0       |
| 2073.95 | 6075    | 0 | 2078.4  | 6074.94 | 0      | 2082.86 | 6074.91 | 0       |
| 2086.56 | 6074.87 | 0 | 2095.47 | 6074.8  | 0      | 2103.68 | 6074.8  | 0       |
| 2109.23 | 6074.77 | 0 | 2115.49 | 6074.7  | 0      | 2130.33 | 6074.59 | 0       |
| 2136.94 | 6074.57 | 0 | 2145.31 | 6074.52 | 0      | 2147.43 | 6074.52 | 0       |
| 2154.34 | 6074.48 | 0 | 2163.7  | 6074.45 | 0      | 2176.48 | 6074.38 | 0       |
| 2180.31 | 6074.38 | 0 | 2187.79 | 6074.34 | 0      | 2189.93 | 6074.34 | 0       |
| 2195.36 | 6074.31 | 0 | 2199.83 | 6074.31 | 0      | 2205.18 | 6074.29 | 0       |
| 2209.77 | 6074.26 | 0 | 2213.21 | 6074.25 | 0      | 2233.39 | 6074.25 | 0       |
| 2237.71 | 6074.26 | 0 | 2244.18 | 6074.23 | 0      | 2248.16 | 6074.22 | 0       |
| 2253.54 | 6074.22 | 0 | 2254.21 | 6074.21 | 0      | 2259.65 | 6074.21 | 0       |
| 2260.01 | 6074.2  | 0 | 2267.21 | 6074.2  | 0      | 2272.07 | 6074.22 | 0       |
| 2277.39 | 6074.22 | 0 | 2278    | 6074.23 | 0      | 2285.2  | 6074.23 | 0       |
| 2285.68 | 6074.24 | 0 | 2293.84 | 6074.24 | 0      | 2295.99 | 6074.26 | 0       |
| 2306.79 | 6074.23 | 0 | 2312.19 | 6074.22 | 0      | 2325.53 | 6074.22 | 0       |



|         |         |   |         |         |   |         |         |   |
|---------|---------|---|---------|---------|---|---------|---------|---|
| 2329.55 | 6074.24 | 0 | 2347.22 | 6074.24 | 0 | 2347.68 | 6074.25 | 0 |
| 2352.9  | 6074.25 | 0 | 2356.03 | 6074.26 | 0 | 2358.12 | 6074.24 | 0 |
| 2361.25 | 6074.25 | 0 | 2364.89 | 6074.24 | 0 | 2370.65 | 6074.25 | 0 |
| 2373.56 | 6074.27 | 0 | 2379    | 6074.28 | 0 | 2382.13 | 6074.3  | 0 |
| 2385.78 | 6074.29 | 0 | 2394.66 | 6074.29 | 0 | 2395.42 | 6074.28 | 0 |
| 2405.06 | 6074.28 | 0 | 2405.86 | 6074.27 | 0 | 2411.9  | 6074.27 | 0 |
| 2417.91 | 6074.25 | 0 | 2422.84 | 6074.21 | 0 | 2431.56 | 6074.19 | 0 |
| 2438.85 | 6074.14 | 0 | 2443.28 | 6074.13 | 0 | 2450.61 | 6074.13 | 0 |
| 2451.25 | 6074.12 | 0 | 2463.74 | 6074.12 | 0 | 2471.62 | 6074.17 | 0 |
| 2477.87 | 6074.18 | 0 | 2482.92 | 6074.21 | 0 | 2489.99 | 6074.23 | 0 |
| 2497.3  | 6074.29 | 0 | 2500.09 | 6074.29 | 0 | 2505.14 | 6074.32 | 0 |
| 2508.17 | 6074.32 | 0 | 2512.21 | 6074.34 | 0 | 2515.24 | 6074.34 | 0 |
| 2522.1  | 6074.38 | 0 | 2530.38 | 6074.38 | 0 | 2536.44 | 6074.4  | 0 |
| 2543.35 | 6074.36 | 0 | 2546.89 | 6074.35 | 0 | 2553.09 | 6074.35 | 0 |
| 2557.52 | 6074.33 | 0 | 2567.26 | 6074.34 | 0 | 2571.69 | 6074.37 | 0 |
| 2581.88 | 6074.38 | 0 | 2585.86 | 6074.42 | 0 | 2589.4  | 6074.43 | 0 |
| 2597.03 | 6074.48 | 0 | 2601.8  | 6074.5  | 0 | 2605.11 | 6074.5  | 0 |
| 2611.17 | 6074.52 | 0 | 2618.63 | 6074.6  | 0 | 2623.94 | 6074.64 | 0 |
| 2629.34 | 6074.7  | 0 | 2630.35 | 6074.7  | 0 | 2635.46 | 6074.76 | 0 |
| 2646.51 | 6074.9  | 0 | 2654.94 | 6075.02 | 0 | 2667.34 | 6075.16 | 0 |
| 2669.99 | 6075.2  | 0 | 2674.78 | 6075.22 | 0 | 2677.97 | 6075.25 | 0 |
| 2682.86 | 6075.27 | 0 | 2685.94 | 6075.3  | 0 | 2689.48 | 6075.31 | 0 |
| 2699.02 | 6075.37 | 0 | 2713.39 | 6075.37 | 0 | 2714.16 | 6075.36 | 0 |
| 2725.27 | 6075.36 | 0 | 2730.32 | 6075.35 | 0 | 2734.64 | 6075.32 | 0 |
| 2736.38 | 6075.32 | 0 | 2745.47 | 6075.26 | 0 | 2756.79 | 6075.21 | 0 |
| 2762.1  | 6075.22 | 0 | 2768.3  | 6075.19 | 0 | 2774.75 | 6075.18 | 0 |
| 2779.8  | 6075.15 | 0 | 2782.83 | 6075.15 | 0 | 2786.87 | 6075.17 | 0 |
| 2795.96 | 6075.18 | 0 | 2799.3  | 6075.16 | 0 | 2802.01 | 6075.16 | 0 |
| 2805.49 | 6075.14 | 0 | 2808.07 | 6075.11 | 0 | 2811.1  | 6075.1  | 0 |
| 2817.89 | 6075.03 | 0 | 2824.09 | 6075.01 | 0 | 2830.29 | 6075    | 0 |
| 2832.95 | 6074.98 | 0 | 2840.39 | 6074.98 | 0 | 2840.92 | 6074.97 | 0 |
| 2848.46 | 6074.97 | 0 | 2852.5  | 6074.99 | 0 | 2863.95 | 6074.97 | 0 |
| 2868.37 | 6074.99 | 0 | 2873.69 | 6075    | 0 | 2880.74 | 6075    | 0 |
| 2886.84 | 6075.03 | 0 | 2889.63 | 6075.03 | 0 | 2894.06 | 6075.06 | 0 |
| 2896.93 | 6075.06 | 0 | 2900.97 | 6075.08 | 0 | 2903.8  | 6075.08 | 0 |
| 2907.03 | 6075.1  | 0 | 2912.65 | 6075.11 | 0 | 2913.09 | 6075.12 | 0 |
| 2918.29 | 6075.12 | 0 | 2918.85 | 6075.13 | 0 | 2939.36 | 6075.13 | 0 |
| 2940    | 6075.14 | 0 | 2946.44 | 6075.14 | 0 | 2950.58 | 6075.13 | 0 |
| 2956.55 | 6075.1  | 0 | 2961.15 | 6075.09 | 0 | 2967.66 | 6075.09 | 0 |
| 2972.61 | 6075.07 | 0 | 2977.9  | 6075.08 | 0 | 2984.85 | 6075.11 | 0 |
| 2996.41 | 6075.11 | 0 | 3000.01 | 6075.1  | 0 | 3003.46 | 6075.06 | 0 |
| 3011.39 | 6074.99 | 0 | 3015.8  | 6074.93 | 0 | 3019.21 | 6074.91 | 0 |
| 3024.26 | 6074.86 | 0 | 3028.31 | 6074.86 | 0 | 3033.36 | 6074.9  | 0 |
| 3037.83 | 6074.89 | 0 | 3042.89 | 6074.84 | 0 | 3059.51 | 6074.85 | 0 |
| 3072.97 | 6074.84 | 0 | 3073.82 | 6074.84 | 0 |         |         |   |

Downstream Bridge Cross Section Data

| Station | Elevation | Data   | num=    | 492    |         |        |         |        |         |  |
|---------|-----------|--------|---------|--------|---------|--------|---------|--------|---------|--|
| Sta     | Elev      | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    |  |
| 256.52  | 6077.76   | 270.89 | 6077.23 | 275.72 | 6077.12 | 280.68 | 6077.12 | 289.54 | 6077.05 |  |
| 298.03  | 6076.88   | 302.89 | 6076.73 | 311.39 | 6076.58 | 314.3  | 6076.57 | 325.32 | 6076.33 |  |
| 334.15  | 6076.28   | 339.07 | 6076.21 | 346.31 | 6076.24 | 349.79 | 6076.19 | 355.04 | 6076.19 |  |
| 360.13  | 6076.14   | 367    | 6075.96 | 372.33 | 6075.88 | 379.37 | 6075.84 | 386.41 | 6075.87 |  |
| 396.48  | 6076.1    | 404.01 | 6076.14 | 409.57 | 6076.22 | 421.2  | 6076.19 | 430.88 | 6076.19 |  |
| 438.7   | 6076.06   | 444.29 | 6076.1  | 456.8  | 6075.88 | 468.72 | 6075.57 | 482.19 | 6075.38 |  |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 493.94  | 6075.29 | 500.18  | 6075.29 | 505     | 6075.25 | 519.72  | 6075.25 | 522.62  | 6075.28 |
| 531.94  | 6075.5  | 540.08  | 6075.83 | 543.28  | 6075.91 | 549.04  | 6075.95 | 553.11  | 6075.9  |
| 557.18  | 6075.91 | 565.12  | 6076.06 | 572.65  | 6076.08 | 577.44  | 6076.14 | 582.42  | 6076.14 |
| 589.75  | 6076.24 | 600.21  | 6076.29 | 605.22  | 6076.29 | 609.29  | 6076.24 | 620.06  | 6075.91 |
| 632.09  | 6075.76 | 634.37  | 6075.7  | 637.69  | 6075.5  | 645.98  | 6074.91 | 654.07  | 6074.6  |
| 659.45  | 6074.27 | 664.64  | 6073.48 | 666.71  | 6073.29 | 668.78  | 6073.24 | 673.62  | 6073.5  |
| 677.08  | 6073.53 | 680.94  | 6073.44 | 684.2   | 6073.49 | 689.52  | 6073.88 | 692.63  | 6073.99 |
| 696.77  | 6074.06 | 702.99  | 6074.3  | 707.81  | 6074.54 | 711.07  | 6074.58 | 715.96  | 6074.56 |
| 720.62  | 6074.63 | 726.84  | 6074.67 | 731.43  | 6074.64 | 738.24  | 6074.68 | 743.42  | 6074.53 |
| 746.53  | 6074.52 | 751.71  | 6074.65 | 758.97  | 6074.59 | 767.22  | 6074.8  | 770.51  | 6074.82 |
| 777.84  | 6074.58 | 780.74  | 6074.54 | 792.14  | 6074.8  | 794.94  | 6074.81 | 799.4   | 6074.74 |
| 804.58  | 6074.93 | 807.69  | 6074.96 | 815.3   | 6074.76 | 822.62  | 6074.8  | 829.46  | 6074.61 |
| 834.84  | 6074.51 | 839.83  | 6074.51 | 847.87  | 6074.65 | 851.12  | 6074.63 | 857.45  | 6074.28 |
| 861.6   | 6074.26 | 866.78  | 6074.44 | 874.04  | 6074.3  | 879.22  | 6074.46 | 883.37  | 6074.35 |
| 889.39  | 6074.04 | 892.7   | 6073.99 | 897.53  | 6074.15 | 900.79  | 6074.18 | 920.33  | 6074.15 |
| 923.59  | 6074.12 | 928.98  | 6074.23 | 932.09  | 6074.25 | 938.31  | 6074.13 | 942.45  | 6074.01 |
| 945.62  | 6074    | 953.72  | 6074.19 | 958     | 6074.19 | 961.11  | 6074.29 | 963.19  | 6074.43 |
| 969.41  | 6074.67 | 971.48  | 6074.71 | 979.77  | 6074.65 | 988.06  | 6074.8  | 989.54  | 6074.79 |
| 994.28  | 6074.92 | 1003.39 | 6075.12 | 1008.27 | 6075.15 | 1018.13 | 6075.13 | 1023.74 | 6075.29 |
| 1026.42 | 6075.2  | 1031.6  | 6074.71 | 1034.71 | 6074.48 | 1038.86 | 6074.26 | 1041.97 | 6074.2  |
| 1047.15 | 6074.37 | 1051.3  | 6074.28 | 1056.48 | 6073.84 | 1060.63 | 6073.75 | 1068.92 | 6073.78 |
| 1073.07 | 6073.65 | 1078.25 | 6073.31 | 1081.36 | 6073.22 | 1093.77 | 6073.14 | 1098.98 | 6072.96 |
| 1104.17 | 6072.96 | 1109.24 | 6073.23 | 1115.57 | 6073.38 | 1118.19 | 6073.4  | 1127.15 | 6073.36 |
| 1140.18 | 6073.13 | 1145.06 | 6073.13 | 1150.58 | 6073.06 | 1154.84 | 6073.05 | 1158.91 | 6072.98 |
| 1163.25 | 6072.99 | 1171.93 | 6072.72 | 1177.15 | 6072.65 | 1182.95 | 6072.62 | 1191.48 | 6072.45 |
| 1197.99 | 6072.14 | 1202.65 | 6071.79 | 1205.76 | 6071.73 | 1213.15 | 6071.85 | 1218.64 | 6071.8  |
| 1222.5  | 6071.88 | 1226.04 | 6071.81 | 1228.18 | 6071.65 | 1234.85 | 6071.31 | 1238.16 | 6071.24 |
| 1241.8  | 6071.28 | 1247.2  | 6071.46 | 1249.66 | 6071.47 | 1253.95 | 6071.31 | 1258.25 | 6071.24 |
| 1261.47 | 6071.45 | 1263.62 | 6071.76 | 1265.73 | 6071.92 | 1267.27 | 6071.93 | 1271.12 | 6071.72 |
| 1274.35 | 6071.75 | 1279.72 | 6072    | 1287.24 | 6071.97 | 1290.43 | 6072.11 | 1295.83 | 6072.43 |
| 1299.05 | 6072.41 | 1306.82 | 6072.18 | 1309.79 | 6072.27 | 1313.01 | 6072.51 | 1315.06 | 6072.74 |
| 1318.38 | 6073    | 1320.52 | 6073.06 | 1326.7  | 6072.95 | 1329.53 | 6072.86 | 1336.43 | 6072.79 |
| 1348.65 | 6072.41 | 1351.85 | 6072.36 | 1361.88 | 6072.5  | 1368.49 | 6072.78 | 1372.74 | 6072.82 |
| 1380.62 | 6072.82 | 1386.9  | 6072.71 | 1391.34 | 6072.67 | 1402.97 | 6072.28 | 1405.98 | 6072.29 |
| 1410.27 | 6072.4  | 1416.5  | 6072.3  | 1419.46 | 6072.32 | 1425.15 | 6072.53 | 1432.85 | 6072.48 |
| 1437.19 | 6072.54 | 1443.56 | 6072.49 | 1446.24 | 6072.53 | 1452.59 | 6073.01 | 1456.95 | 6073.15 |
| 1461.98 | 6073.22 | 1475.56 | 6073.7  | 1479.72 | 6073.76 | 1487.22 | 6073.74 | 1492.11 | 6073.78 |
| 1506.51 | 6074.04 | 1516.58 | 6074.11 | 1524.49 | 6074.12 | 1528.82 | 6074.18 | 1535.4  | 6074.18 |
| 1543.21 | 6074.3  | 1551.11 | 6074.31 | 1556.44 | 6074.38 | 1559.99 | 6074.5  | 1561.92 | 6074.49 |
| 1567.09 | 6074.58 | 1574.38 | 6074.97 | 1576.8  | 6075.05 | 1582.61 | 6075.11 | 1587.62 | 6075.06 |
| 1591.85 | 6075.13 | 1595.68 | 6075.08 | 1601.14 | 6075.15 | 1604.17 | 6075.1  | 1609.26 | 6075.21 |
| 1612.9  | 6075.14 | 1617.37 | 6075.16 | 1620.08 | 6075.1  | 1628.19 | 6075.13 | 1633.6  | 6075.27 |
| 1636.5  | 6075.25 | 1641.89 | 6075.49 | 1652.54 | 6075.55 | 1657.95 | 6075.65 | 1660.66 | 6075.65 |
| 1666.07 | 6075.77 | 1668.84 | 6075.77 | 1676.1  | 6075.96 | 1681.34 | 6076.05 | 1687.93 | 6076.09 |
| 1693.36 | 6075.98 | 1700.07 | 6076    | 1704.12 | 6075.93 | 1713.33 | 6075.96 | 1718.04 | 6075.91 |
| 1724.65 | 6075.93 | 1730.56 | 6075.8  | 1733.87 | 6075.81 | 1735.8  | 6075.85 | 1738.7  | 6075.92 |
| 1744.11 | 6075.94 | 1753.18 | 6076.32 | 1759.48 | 6076.41 | 1766.25 | 6076.39 | 1769.73 | 6076.34 |
| 1775.6  | 6076.07 | 1777.75 | 6075.9  | 1781.76 | 6075.44 | 1783.76 | 6075.36 | 1790.84 | 6075.73 |
| 1794.65 | 6075.83 | 1804.17 | 6075.97 | 1807.03 | 6075.97 | 1814.65 | 6075.89 | 1819.81 | 6075.94 |
| 1826.82 | 6075.79 | 1837.51 | 6075.43 | 1846.84 | 6075.18 | 1849.85 | 6074.95 | 1853.85 | 6074.57 |
| 1855.85 | 6074.54 | 1859.86 | 6074.64 | 1861.86 | 6074.61 | 1864.87 | 6074.33 | 1867.87 | 6073.66 |
| 1870.85 | 6072.74 | 1874.88 | 6071.24 | 1876.88 | 6070.76 | 1878.88 | 6070.59 | 1881.32 | 6069    |
| 1897.91 | 6069    | 1899.42 | 6070.57 | 1901.32 | 6070.83 | 1903.92 | 6071.63 | 1904.92 | 6072.12 |
| 1906.92 | 6072.8  | 1908.92 | 6073.23 | 1910.85 | 6073.51 | 1919.94 | 6074.6  | 1923.23 | 6074.78 |
| 1935.61 | 6074.88 | 1940.97 | 6074.98 | 1947.97 | 6074.81 | 1953.71 | 6074.74 | 1957.52 | 6074.75 |



|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1965    | 6074.61 | 1976.57 | 6074.6  | 1983.02 | 6074.52 | 1989.91 | 6074.55 | 1994.04 | 6074.44 |
| 2001.04 | 6074.11 | 2014.67 | 6073.97 | 2018.48 | 6073.89 | 2027.05 | 6073.77 | 2031.08 | 6073.65 |
| 2035.8  | 6073.56 | 2037.53 | 6073.53 | 2043.24 | 6073.33 | 2048.11 | 6073.24 | 2056.58 | 6072.9  |
| 2063.13 | 6072.77 | 2065.61 | 6072.79 | 2069.13 | 6073.05 | 2074.14 | 6073.74 | 2076.14 | 6073.97 |
| 2080.2  | 6074.2  | 2083.34 | 6074.21 | 2088.05 | 6074.11 | 2093.97 | 6073.9  | 2099.03 | 6073.79 |
| 2101.38 | 6073.62 | 2106.88 | 6072.91 | 2114.1  | 6072.38 | 2117.87 | 6072.22 | 2123.98 | 6072.16 |
| 2128.49 | 6072.05 | 2132.72 | 6072.02 | 2137.12 | 6072.08 | 2141.14 | 6072.01 | 2145.92 | 6072.04 |
| 2156.37 | 6072.39 | 2164.47 | 6072.44 | 2173.65 | 6072.27 | 2177.95 | 6072.29 | 2186.4  | 6072.51 |
| 2196.01 | 6072.68 | 2200.55 | 6072.7  | 2208.57 | 6072.51 | 2211.24 | 6072.49 | 2215.23 | 6072.61 |
| 2222.54 | 6072.91 | 2226.79 | 6073.03 | 2231.75 | 6073.07 | 2239.87 | 6072.9  | 2245.23 | 6072.94 |
| 2250.19 | 6072.86 | 2252.39 | 6072.77 | 2262.87 | 6072.51 | 2271.48 | 6072.6  | 2277.29 | 6072.51 |
| 2287.09 | 6072.54 | 2292.05 | 6072.53 | 2300.2  | 6072.35 | 2310.84 | 6072.31 | 2318.37 | 6072.2  |
| 2330.19 | 6072.51 | 2343.22 | 6072.68 | 2350.03 | 6072.69 | 2353.01 | 6072.63 | 2357.75 | 6072.45 |
| 2364.16 | 6072.31 | 2370.98 | 6072.21 | 2374.29 | 6072.26 | 2379.8  | 6072.44 | 2384.63 | 6072.49 |
| 2390.79 | 6072.64 | 2394.9  | 6072.79 | 2408.55 | 6072.63 | 2416.29 | 6072.49 | 2421.39 | 6072.46 |
| 2426.46 | 6072.5  | 2436.67 | 6072.3  | 2440.95 | 6072.31 | 2445.84 | 6072.24 | 2448.89 | 6072.3  |
| 2453.75 | 6072.71 | 2457.04 | 6072.91 | 2462.27 | 6073.03 | 2470.29 | 6072.98 | 2478.44 | 6073.13 |
| 2485.57 | 6073.12 | 2490.42 | 6073.23 | 2493.83 | 6073.26 | 2497.24 | 6073.19 | 2505.94 | 6072.82 |
| 2510.02 | 6072.77 | 2516    | 6072.88 | 2521.12 | 6073.1  | 2527.34 | 6073.22 | 2528.36 | 6073.31 |
| 2531.41 | 6073.28 | 2537.48 | 6073.38 | 2540.51 | 6073.33 | 2543.53 | 6073.19 | 2548.58 | 6072.73 |
| 2551.6  | 6072.56 | 2556.22 | 6072.53 | 2563.35 | 6072.59 | 2567.74 | 6072.57 | 2579.38 | 6072.41 |
| 2584.73 | 6072.39 | 2591.13 | 6072.46 | 2594.98 | 6072.46 | 2605.22 | 6072.33 | 2613.13 | 6072.36 |
| 2624.82 | 6072.33 | 2630.16 | 6072.27 | 2639.36 | 6072.28 | 2647.09 | 6072.19 | 2652.12 | 6072.25 |
| 2660.45 | 6072.44 | 2670.63 | 6072.44 | 2675.67 | 6072.7  | 2679.71 | 6072.72 | 2687.78 | 6072.38 |
| 2691.63 | 6072.37 | 2694.84 | 6072.53 | 2699.88 | 6072.96 | 2702.91 | 6073.16 | 2705.88 | 6073.16 |
| 2710.34 | 6073.01 | 2713    | 6073.03 | 2718.04 | 6073.25 | 2725.1  | 6073.3  | 2728.13 | 6073.37 |
| 2733.17 | 6073.7  | 2737.06 | 6073.7  | 2739.74 | 6073.52 | 2743.26 | 6073.37 | 2748.3  | 6073.45 |
| 2757.38 | 6073.49 | 2764.68 | 6073.47 | 2771.5  | 6073.68 | 2776.26 | 6073.59 | 2779.82 | 6073.61 |
| 2782.6  | 6073.82 | 2787.64 | 6074.39 | 2790.67 | 6074.61 | 2794.97 | 6074.74 | 2804.6  | 6074.88 |
| 2808.33 | 6074.88 | 2815.46 | 6074.81 | 2820.93 | 6074.59 | 2823.96 | 6074.52 | 2830.01 | 6074.52 |
| 2834.17 | 6074.33 | 2837.07 | 6073.99 | 2842.11 | 6073.04 | 2845.14 | 6072.62 | 2847.53 | 6072.45 |
| 2851.98 | 6072.35 | 2867.13 | 6072.49 | 2870.36 | 6072.48 | 2877.82 | 6072.36 | 2884.48 | 6072.32 |
| 2893.56 | 6072.39 | 2901.87 | 6072.39 | 2910.71 | 6072.3  | 2916.12 | 6072.29 | 2921.8  | 6072.21 |
| 2929.49 | 6072.05 | 2936.93 | 6072.07 | 2952.65 | 6072.27 | 2957.07 | 6072.39 | 2963.16 | 6072.48 |
| 2969.57 | 6072.49 | 2978.29 | 6072.46 | 2987.56 | 6072.47 | 2997.45 | 6072.37 | 3008.55 | 6072.5  |
| 3018.64 | 6072.54 | 3024.81 | 6072.65 | 3041.84 | 6073.14 | 3048.86 | 6073.25 | 3053.94 | 6073.54 |
| 3057.77 | 6073.69 | 3061    | 6073.91 | 3066.05 | 6074.4  | 3075.13 | 6074.91 | 3078.15 | 6075.01 |
| 3086.67 | 6075.08 | 3093.54 | 6075.05 |         |         |         |         |         |         |

|                    |       |        |        |        |       |
|--------------------|-------|--------|--------|--------|-------|
| Manning's n Values |       |        | num= 3 |        |       |
| Sta                | n Val | Sta    | n Val  | Sta    | n Val |
| 256.52             | .06   | 1735.8 | .035   | 2035.8 | .06   |

|           |        |        |       |        |        |
|-----------|--------|--------|-------|--------|--------|
| Bank Sta: | Left   | Right  | Coeff | Contr. | Expan. |
|           | 1735.8 | 2035.8 |       | .3     | .5     |

|                  |         |         |           |
|------------------|---------|---------|-----------|
| Ineffective Flow | num= 10 |         |           |
| Sta L            | Sta R   | Elev    | Permanent |
| 322.52           | 1863.65 | 6075.96 | T         |
| 1920.31          | 1978.56 | 6075.62 | T         |
| 1978.56          | 2005.04 | 6075.48 | T         |
| 2005.04          | 2067.26 | 6075.15 | T         |
| 2067.26          | 2120.22 | 6074.82 | T         |
| 2120.22          | 2181.12 | 6074.51 | T         |
| 2181.12          | 2583.58 | 6074.26 | T         |
| 2583.58          | 2625.95 | 6074.59 | T         |

```

2625.95  2645.8  6074.82      T
2645.8  3073.42  6075.11      T
Blocked Obstructions      num=
Sta L    Sta R    Elev
3159.6  3093.54  6075.2

```

|                                             |   |                          |
|---------------------------------------------|---|--------------------------|
| 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         | = | 6071.65                  |
| Energy head used in spillway design         | = |                          |
| Spillway height used in design              | = |                          |
| Weir crest shape                            | = | Broad Crested            |

Number of Bridge Coefficient Sets = 1

## Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

## High Flow Method

## Pressure and Weir flow

Submerged Inlet Cd

Submerged Inlet + Outlet Cd = .8

Max Low Cord =

### Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth

inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: Flat Creek

REACH: 1 RS: 31558

INPUT

Description: Downstream of Rafter J Bridge

| Station | Elevation | Data   | num=    | 492    |         |        |         |        |         |  |
|---------|-----------|--------|---------|--------|---------|--------|---------|--------|---------|--|
| Sta     | Elev      | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    |  |
| 256.52  | 6077.76   | 270.89 | 6077.23 | 275.72 | 6077.12 | 280.68 | 6077.12 | 289.54 | 6077.05 |  |
| 298.03  | 6076.88   | 302.89 | 6076.73 | 311.39 | 6076.58 | 314.3  | 6076.57 | 325.32 | 6076.33 |  |
| 334.15  | 6076.28   | 339.07 | 6076.21 | 346.31 | 6076.24 | 349.79 | 6076.19 | 355.04 | 6076.19 |  |
| 360.13  | 6076.14   | 367    | 6075.96 | 372.33 | 6075.88 | 379.37 | 6075.84 | 386.41 | 6075.87 |  |
| 396.48  | 6076.1    | 404.01 | 6076.14 | 409.57 | 6076.22 | 421.2  | 6076.19 | 430.88 | 6076.19 |  |
| 438.7   | 6076.06   | 444.29 | 6076.1  | 456.8  | 6075.88 | 468.72 | 6075.57 | 482.19 | 6075.38 |  |
| 493.94  | 6075.29   | 500.18 | 6075.29 | 505    | 6075.25 | 519.72 | 6075.25 | 522.62 | 6075.28 |  |
| 531.94  | 6075.5    | 540.08 | 6075.83 | 543.28 | 6075.91 | 549.04 | 6075.95 | 553.11 | 6075.9  |  |
| 557.18  | 6075.91   | 565.12 | 6076.06 | 572.65 | 6076.08 | 577.44 | 6076.14 | 582.42 | 6076.14 |  |
| 589.75  | 6076.24   | 600.21 | 6076.29 | 605.22 | 6076.29 | 609.29 | 6076.24 | 620.06 | 6075.91 |  |
| 632.09  | 6075.76   | 634.37 | 6075.7  | 637.69 | 6075.5  | 645.98 | 6074.91 | 654.07 | 6074.6  |  |
| 659.45  | 6074.27   | 664.64 | 6073.48 | 666.71 | 6073.29 | 668.78 | 6073.24 | 673.62 | 6073.5  |  |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 677.08  | 6073.53 | 680.94  | 6073.44 | 684.2   | 6073.49 | 689.52  | 6073.88 | 692.63  | 6073.99 |
| 696.77  | 6074.06 | 702.99  | 6074.3  | 707.81  | 6074.54 | 711.07  | 6074.58 | 715.96  | 6074.56 |
| 720.62  | 6074.63 | 726.84  | 6074.67 | 731.43  | 6074.64 | 738.24  | 6074.68 | 743.42  | 6074.53 |
| 746.53  | 6074.52 | 751.71  | 6074.65 | 758.97  | 6074.59 | 767.22  | 6074.8  | 770.51  | 6074.82 |
| 777.84  | 6074.58 | 780.74  | 6074.54 | 792.14  | 6074.8  | 794.94  | 6074.81 | 799.4   | 6074.74 |
| 804.58  | 6074.93 | 807.69  | 6074.96 | 815.3   | 6074.76 | 822.62  | 6074.8  | 829.46  | 6074.61 |
| 834.84  | 6074.51 | 839.83  | 6074.51 | 847.87  | 6074.65 | 851.12  | 6074.63 | 857.45  | 6074.28 |
| 861.6   | 6074.26 | 866.78  | 6074.44 | 874.04  | 6074.3  | 879.22  | 6074.46 | 883.37  | 6074.35 |
| 889.39  | 6074.04 | 892.7   | 6073.99 | 897.53  | 6074.15 | 900.79  | 6074.18 | 920.33  | 6074.15 |
| 923.59  | 6074.12 | 928.98  | 6074.23 | 932.09  | 6074.25 | 938.31  | 6074.13 | 942.45  | 6074.01 |
| 945.62  | 6074    | 953.72  | 6074.19 | 958     | 6074.19 | 961.11  | 6074.29 | 963.19  | 6074.43 |
| 969.41  | 6074.67 | 971.48  | 6074.71 | 979.77  | 6074.65 | 988.06  | 6074.8  | 989.54  | 6074.79 |
| 994.28  | 6074.92 | 1003.39 | 6075.12 | 1008.27 | 6075.15 | 1018.13 | 6075.13 | 1023.74 | 6075.29 |
| 1026.42 | 6075.2  | 1031.6  | 6074.71 | 1034.71 | 6074.48 | 1038.86 | 6074.26 | 1041.97 | 6074.2  |
| 1047.15 | 6074.37 | 1051.3  | 6074.28 | 1056.48 | 6073.84 | 1060.63 | 6073.75 | 1068.92 | 6073.78 |
| 1073.07 | 6073.65 | 1078.25 | 6073.31 | 1081.36 | 6073.22 | 1093.77 | 6073.14 | 1098.98 | 6072.96 |
| 1104.17 | 6072.96 | 1109.24 | 6073.23 | 1115.57 | 6073.38 | 1118.19 | 6073.4  | 1127.15 | 6073.36 |
| 1140.18 | 6073.13 | 1145.06 | 6073.13 | 1150.58 | 6073.06 | 1154.84 | 6073.05 | 1158.91 | 6072.98 |
| 1163.25 | 6072.99 | 1171.93 | 6072.72 | 1177.15 | 6072.65 | 1182.95 | 6072.62 | 1191.48 | 6072.45 |
| 1197.99 | 6072.14 | 1202.65 | 6071.79 | 1205.76 | 6071.73 | 1213.15 | 6071.85 | 1218.64 | 6071.8  |
| 1222.5  | 6071.88 | 1226.04 | 6071.81 | 1228.18 | 6071.65 | 1234.85 | 6071.31 | 1238.16 | 6071.24 |
| 1241.8  | 6071.28 | 1247.2  | 6071.46 | 1249.66 | 6071.47 | 1253.95 | 6071.31 | 1258.25 | 6071.24 |
| 1261.47 | 6071.45 | 1263.62 | 6071.76 | 1265.73 | 6071.92 | 1267.27 | 6071.93 | 1271.12 | 6071.72 |
| 1274.35 | 6071.75 | 1279.72 | 6072    | 1287.24 | 6071.97 | 1290.43 | 6072.11 | 1295.83 | 6072.43 |
| 1299.05 | 6072.41 | 1306.82 | 6072.18 | 1309.79 | 6072.27 | 1313.01 | 6072.51 | 1315.06 | 6072.74 |
| 1318.38 | 6073    | 1320.52 | 6073.06 | 1326.7  | 6072.95 | 1329.53 | 6072.86 | 1336.43 | 6072.79 |
| 1348.65 | 6072.41 | 1351.85 | 6072.36 | 1361.88 | 6072.5  | 1368.49 | 6072.78 | 1372.74 | 6072.82 |
| 1380.62 | 6072.82 | 1386.9  | 6072.71 | 1391.34 | 6072.67 | 1402.97 | 6072.28 | 1405.98 | 6072.29 |
| 1410.27 | 6072.4  | 1416.5  | 6072.3  | 1419.46 | 6072.32 | 1425.15 | 6072.53 | 1432.85 | 6072.48 |
| 1437.19 | 6072.54 | 1443.56 | 6072.49 | 1446.24 | 6072.53 | 1452.59 | 6073.01 | 1456.95 | 6073.15 |
| 1461.98 | 6073.22 | 1475.56 | 6073.7  | 1479.72 | 6073.76 | 1487.22 | 6073.74 | 1492.11 | 6073.78 |
| 1506.51 | 6074.04 | 1516.58 | 6074.11 | 1524.49 | 6074.12 | 1528.82 | 6074.18 | 1535.4  | 6074.18 |
| 1543.21 | 6074.3  | 1551.11 | 6074.31 | 1556.44 | 6074.38 | 1559.99 | 6074.5  | 1561.92 | 6074.49 |
| 1567.09 | 6074.58 | 1574.38 | 6074.97 | 1576.8  | 6075.05 | 1582.61 | 6075.11 | 1587.62 | 6075.06 |
| 1591.85 | 6075.13 | 1595.68 | 6075.08 | 1601.14 | 6075.15 | 1604.17 | 6075.1  | 1609.26 | 6075.21 |
| 1612.9  | 6075.14 | 1617.37 | 6075.16 | 1620.08 | 6075.1  | 1628.19 | 6075.13 | 1633.6  | 6075.27 |
| 1636.5  | 6075.25 | 1641.89 | 6075.49 | 1652.54 | 6075.55 | 1657.95 | 6075.65 | 1660.66 | 6075.65 |
| 1666.07 | 6075.77 | 1668.84 | 6075.77 | 1676.1  | 6075.96 | 1681.34 | 6076.05 | 1687.93 | 6076.09 |
| 1693.36 | 6075.98 | 1700.07 | 6076    | 1704.12 | 6075.93 | 1713.33 | 6075.96 | 1718.04 | 6075.91 |
| 1724.65 | 6075.93 | 1730.56 | 6075.8  | 1733.87 | 6075.81 | 1735.8  | 6075.85 | 1738.7  | 6075.92 |
| 1744.11 | 6075.94 | 1753.18 | 6076.32 | 1759.48 | 6076.41 | 1766.25 | 6076.39 | 1769.73 | 6076.34 |
| 1775.6  | 6076.07 | 1777.75 | 6075.9  | 1781.76 | 6075.44 | 1783.76 | 6075.36 | 1790.84 | 6075.73 |
| 1794.65 | 6075.83 | 1804.17 | 6075.97 | 1807.03 | 6075.97 | 1814.65 | 6075.89 | 1819.81 | 6075.94 |
| 1826.82 | 6075.79 | 1837.51 | 6075.43 | 1846.84 | 6075.18 | 1849.85 | 6074.95 | 1853.85 | 6074.57 |
| 1855.85 | 6074.54 | 1859.86 | 6074.64 | 1861.86 | 6074.61 | 1864.87 | 6074.33 | 1867.87 | 6073.66 |
| 1870.85 | 6072.74 | 1874.88 | 6071.24 | 1876.88 | 6070.76 | 1878.88 | 6070.59 | 1881.32 | 6069    |
| 1897.91 | 6069    | 1899.42 | 6070.57 | 1901.32 | 6070.83 | 1903.92 | 6071.63 | 1904.92 | 6072.12 |
| 1906.92 | 6072.8  | 1908.92 | 6073.23 | 1910.85 | 6073.51 | 1919.94 | 6074.6  | 1923.23 | 6074.78 |
| 1935.61 | 6074.88 | 1940.97 | 6074.98 | 1947.97 | 6074.81 | 1953.71 | 6074.74 | 1957.52 | 6074.75 |
| 1965    | 6074.61 | 1976.57 | 6074.6  | 1983.02 | 6074.52 | 1989.91 | 6074.55 | 1994.04 | 6074.44 |
| 2001.04 | 6074.11 | 2014.67 | 6073.97 | 2018.48 | 6073.89 | 2027.05 | 6073.77 | 2031.08 | 6073.65 |
| 2035.8  | 6073.56 | 2037.53 | 6073.53 | 2043.24 | 6073.33 | 2048.11 | 6073.24 | 2056.58 | 6072.9  |
| 2063.13 | 6072.77 | 2065.61 | 6072.79 | 2069.13 | 6073.05 | 2074.14 | 6073.74 | 2076.14 | 6073.97 |
| 2080.2  | 6074.2  | 2083.34 | 6074.21 | 2088.05 | 6074.11 | 2093.97 | 6073.9  | 2099.03 | 6073.79 |
| 2101.38 | 6073.62 | 2106.88 | 6072.91 | 2114.1  | 6072.38 | 2117.87 | 6072.22 | 2123.98 | 6072.16 |



2128.49 6072.05 2132.72 6072.02 2137.12 6072.08 2141.14 6072.01 2145.92 6072.04  
2156.37 6072.39 2164.47 6072.44 2173.65 6072.27 2177.95 6072.29 2186.4 6072.51  
2196.01 6072.68 2200.55 6072.7 2208.57 6072.51 2211.24 6072.49 2215.23 6072.61  
2222.54 6072.91 2226.79 6073.03 2231.75 6073.07 2239.87 6072.9 2245.23 6072.94  
2250.19 6072.86 2252.39 6072.77 2262.87 6072.51 2271.48 6072.6 2277.29 6072.51  
2287.09 6072.54 2292.05 6072.53 2300.2 6072.35 2310.84 6072.31 2318.37 6072.2  
2330.19 6072.51 2343.22 6072.68 2350.03 6072.69 2353.01 6072.63 2357.75 6072.45  
2364.16 6072.31 2370.98 6072.21 2374.29 6072.26 2379.8 6072.44 2384.63 6072.49  
2390.79 6072.64 2394.9 6072.79 2408.55 6072.63 2416.29 6072.49 2421.39 6072.46  
2426.46 6072.5 2436.67 6072.3 2440.95 6072.31 2445.84 6072.24 2448.89 6072.3  
2453.75 6072.71 2457.04 6072.91 2462.27 6073.03 2470.29 6072.98 2478.44 6073.13  
2485.57 6073.12 2490.42 6073.23 2493.83 6073.26 2497.24 6073.19 2505.94 6072.82  
2510.02 6072.77 2516 6072.88 2521.12 6073.1 2527.34 6073.22 2528.36 6073.31  
2531.41 6073.28 2537.48 6073.38 2540.51 6073.33 2543.53 6073.19 2548.58 6072.73  
2551.6 6072.56 2556.22 6072.53 2563.35 6072.59 2567.74 6072.57 2579.38 6072.41  
2584.73 6072.39 2591.13 6072.46 2594.98 6072.46 2605.22 6072.33 2613.13 6072.36  
2624.82 6072.33 2630.16 6072.27 2639.36 6072.28 2647.09 6072.19 2652.12 6072.25  
2660.45 6072.44 2670.63 6072.42 2675.67 6072.7 2679.71 6072.72 2687.78 6072.38  
2691.63 6072.37 2694.84 6072.53 2699.88 6072.96 2702.91 6073.16 2705.88 6073.16  
2710.34 6073.01 2713 6073.03 2718.04 6073.25 2725.1 6073.3 2728.13 6073.37  
2733.17 6073.7 2737.06 6073.7 2739.74 6073.52 2743.26 6073.37 2748.3 6073.45  
2757.38 6073.49 2764.68 6073.47 2771.5 6073.68 2776.26 6073.59 2779.82 6073.61  
2782.6 6073.82 2787.64 6074.39 2790.67 6074.61 2794.97 6074.74 2804.6 6074.88  
2808.33 6074.88 2815.46 6074.81 2820.93 6074.59 2823.96 6074.52 2830.01 6074.52  
2834.17 6074.33 2837.07 6073.99 2842.11 6073.04 2845.14 6072.62 2847.53 6072.45  
2851.98 6072.35 2867.13 6072.49 2870.36 6072.48 2877.82 6072.36 2884.48 6072.32  
2893.56 6072.39 2901.87 6072.39 2910.71 6072.3 2916.12 6072.29 2921.8 6072.21  
2929.49 6072.05 2936.93 6072.07 2952.65 6072.27 2957.07 6072.39 2963.16 6072.48  
2969.57 6072.49 2978.29 6072.46 2987.56 6072.47 2997.45 6072.37 3008.55 6072.5  
3018.64 6072.54 3024.81 6072.65 3041.84 6073.14 3048.86 6073.25 3053.94 6073.54  
3057.77 6073.69 3061 6073.91 3066.05 6074.4 3075.13 6074.91 3078.15 6075.01  
3086.67 6075.08 3093.54 6075.05

Manning's n Values num= 3  
Sta n Val Sta n Val Sta n Val  
256.52 .06 1859.86 .035 1923.23 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
1859.86 1923.23 446.27 338.28 229.54 .3 .5

Ineffective Flow num= 10  
Sta L Sta R Elev Permanent  
322.52 1863.65 6075.96 T  
1920.31 1978.56 6075.62 T  
1978.56 2005.04 6075.48 T  
2005.04 2067.26 6075.15 T  
2067.26 2120.22 6074.82 T  
2120.22 2181.12 6074.51 T  
2181.12 2583.58 6074.26 T  
2583.58 2625.95 6074.59 T  
2625.95 2645.8 6074.82 T  
2645.8 3073.42 6075.11 T

Blocked Obstructions num= 1  
Sta L Sta R Elev  
3159.6 3093.54 6075.2



## CROSS SECTION

RIVER: Flat Creek

REACH: 1

RS: 31220

## INPUT

Description:

| Station | Elevation | Data    | num=    | 488     | Sta     | Elev    | Sta     | Elev    | Sta     | Elev | Sta | Elev |
|---------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|------|-----|------|
| 0       | 6089.1    | 2.36    | 6087.98 | 7.69    | 6085.19 | 10.88   | 6083.77 | 14.08   | 6082.83 |      |     |      |
| 18.82   | 6081.98   | 21.53   | 6081.26 | 26.61   | 6079.45 | 28.95   | 6078.9  | 30.51   | 6078.75 |      |     |      |
| 32.85   | 6078.86   | 35.19   | 6079.36 | 39.87   | 6080.78 | 42.82   | 6081.23 | 47.08   | 6081.39 |      |     |      |
| 50.28   | 6081.2    | 53.47   | 6080.73 | 55.6    | 6080.28 | 58.8    | 6079.74 | 61.99   | 6079.35 |      |     |      |
| 68.38   | 6078.8    | 71.57   | 6078.6  | 75.83   | 6078.42 | 84.2    | 6077.98 | 90.74   | 6077.76 |      |     |      |
| 98.19   | 6077.64   | 105.36  | 6077.69 | 112.03  | 6077.84 | 114.72  | 6077.83 | 119.4   | 6077.69 |      |     |      |
| 124.07  | 6077.66   | 132.26  | 6077.87 | 137.33  | 6077.87 | 157.82  | 6077.62 | 166.18  | 6077.59 |      |     |      |
| 178.05  | 6077.49   | 181.24  | 6077.43 | 189.76  | 6077.15 | 196.15  | 6077.12 | 203.6   | 6077.16 |      |     |      |
| 208.92  | 6077.05   | 215.29  | 6077.01 | 223.09  | 6077.06 | 240.87  | 6077.32 | 251.16  | 6077.42 |      |     |      |
| 263.23  | 6077.66   | 269.09  | 6077.68 | 277.67  | 6077.54 | 280.79  | 6077.46 | 286.65  | 6077.23 |      |     |      |
| 291.98  | 6076.77   | 294.82  | 6076.57 | 297.94  | 6076.51 | 302.61  | 6076.51 | 306.52  | 6076.43 |      |     |      |
| 312.21  | 6076.14   | 317.43  | 6075.77 | 320.72  | 6075.61 | 328.81  | 6075.33 | 336.69  | 6075.19 |      |     |      |
| 340.46  | 6075.16   | 351.6   | 6075.18 | 356.42  | 6075.11 | 365.77  | 6074.92 | 369.67  | 6074.88 |      |     |      |
| 373.96  | 6074.93   | 388.87  | 6074.89 | 393.84  | 6074.94 | 399.3   | 6074.89 | 403.98  | 6074.74 |      |     |      |
| 409.1   | 6074.67   | 425.81  | 6074.69 | 437.85  | 6074.69 | 439.98  | 6074.71 | 447.64  | 6074.97 |      |     |      |
| 453.09  | 6075.12   | 455.95  | 6075.33 | 461.27  | 6075.86 | 464.46  | 6076.04 | 468.69  | 6076.09 |      |     |      |
| 478.82  | 6075.89   | 491.08  | 6075.51 | 497.47  | 6075.25 | 499.1   | 6075.23 | 507.05  | 6074.92 |      |     |      |
| 509.18  | 6074.76   | 514.51  | 6074.59 | 521.96  | 6074.6  | 530.28  | 6074.52 | 535.57  | 6074.54 |      |     |      |
| 540.42  | 6074.63   | 545.88  | 6074.61 | 552.84  | 6074.66 | 559.13  | 6074.65 | 564.55  | 6074.74 |      |     |      |
| 568.49  | 6074.74   | 576.26  | 6074.57 | 583.72  | 6074.59 | 588.76  | 6074.48 | 593.81  | 6074.45 |      |     |      |
| 599.63  | 6074.55   | 603.57  | 6074.57 | 607.47  | 6074.53 | 615.66  | 6074.56 | 620.72  | 6074.49 |      |     |      |
| 629.3   | 6074.42   | 638.02  | 6074.45 | 643.31  | 6074.37 | 651.13  | 6074.38 | 660.49  | 6074.27 |      |     |      |
| 668.9   | 6074.08   | 677.64  | 6074.01 | 692.45  | 6074.15 | 696.35  | 6074.24 | 698.69  | 6074.37 |      |     |      |
| 704.15  | 6074.91   | 707.38  | 6075.09 | 713.51  | 6075.25 | 720.52  | 6075.33 | 724.42  | 6075.29 |      |     |      |
| 727.46  | 6075.19   | 730.65  | 6074.98 | 735.98  | 6074.55 | 743.43  | 6074.31 | 746.62  | 6074.12 |      |     |      |
| 749.82  | 6073.61   | 753.01  | 6072.67 | 755.14  | 6071.85 | 758.34  | 6070.98 | 761.53  | 6070.6  |      |     |      |
| 764.96  | 6070.56   | 766.52  | 6070.64 | 768.98  | 6070.97 | 774.31  | 6072.36 | 777.44  | 6072.76 |      |     |      |
| 780.56  | 6072.89   | 793.03  | 6072.9  | 800.56  | 6072.99 | 805.51  | 6072.99 | 812.21  | 6073.12 |      |     |      |
| 817.2   | 6073.17   | 824.35  | 6073.17 | 831.8   | 6073.13 | 836.69  | 6073.06 | 839.81  | 6073.08 |      |     |      |
| 846.71  | 6073.21   | 861.72  | 6073.18 | 864.81  | 6073.11 | 870.45  | 6072.91 | 873.33  | 6072.88 |      |     |      |
| 883.47  | 6072.9    | 889.3   | 6072.86 | 898.88  | 6072.99 | 909.53  | 6073.03 | 915.44  | 6072.99 |      |     |      |
| 920.18  | 6073.05   | 927.14  | 6073.31 | 934.02  | 6073.45 | 940.39  | 6073.51 | 944.67  | 6073.45 |      |     |      |
| 954.25  | 6073.16   | 959.57  | 6072.86 | 965.96  | 6072.71 | 970.02  | 6072.79 | 979.8   | 6073.29 |      |     |      |
| 981.93  | 6073.44   | 985.13  | 6073.56 | 989.51  | 6073.58 | 997.9   | 6073.42 | 1002.76 | 6073.36 |      |     |      |
| 1010.68 | 6073.33   | 1014.94 | 6073.26 | 1021.48 | 6073.06 | 1034.73 | 6072.52 | 1040.49 | 6072.19 |      |     |      |
| 1045.82 | 6071.83   | 1050.32 | 6071.7  | 1053.27 | 6071.73 | 1062.02 | 6071.99 | 1069.04 | 6072.09 |      |     |      |
| 1072.44 | 6072.25   | 1077.76 | 6072.68 | 1083.85 | 6072.95 | 1090.54 | 6072.97 | 1097.99 | 6072.94 |      |     |      |
| 1100.12 | 6073      | 1110.36 | 6072.96 | 1115.82 | 6073.23 | 1119.29 | 6073.35 | 1122.05 | 6073.38 |      |     |      |
| 1128.29 | 6073.25   | 1133.75 | 6073.26 | 1136.32 | 6073.22 | 1141.55 | 6073.03 | 1147.1  | 6072.99 |      |     |      |
| 1152.92 | 6072.77   | 1158.75 | 6072.59 | 1164.94 | 6072.69 | 1171.17 | 6072.97 | 1178.19 | 6073.12 |      |     |      |
| 1187.43 | 6073.28   | 1193.78 | 6073.27 | 1199.14 | 6073.19 | 1208.25 | 6073.13 | 1214.83 | 6073.16 |      |     |      |
| 1222.57 | 6073.24   | 1225.72 | 6073.12 | 1231.08 | 6072.64 | 1234.28 | 6072.4  | 1237.45 | 6072.24 |      |     |      |
| 1241.73 | 6072.31   | 1248.36 | 6072.76 | 1253.44 | 6073.27 | 1256.64 | 6073.5  | 1259.83 | 6073.61 |      |     |      |
| 1272.72 | 6073.66   | 1283.9  | 6073.52 | 1296.59 | 6073.16 | 1301.86 | 6073.03 | 1307.27 | 6072.83 |      |     |      |
| 1311.16 | 6072.56   | 1317    | 6072.29 | 1319.92 | 6072.26 | 1327.5  | 6072.09 | 1340.32 | 6072.03 |      |     |      |

1344.26 6071.98 1356.37 6071.62 1362.46 6071.38 1371.51 6071.37 1377.35 6071.45  
1381.89 6071.4 1388.45 6071.24 1395.09 6071.23 1397.43 6071.33 1402.09 6071.79  
1404.61 6071.84 1410.25 6071.57 1414.91 6071.53 1418.24 6071.59 1422.13 6071.75  
1422.6 6071.76 1427.97 6071.91 1434.72 6071.87 1438.76 6071.81 1440.55 6071.85  
1442.88 6072.13 1447.54 6073.29 1449.87 6073.5 1453.34 6073.37 1457.71 6072.44  
1461.36 6072.02 1463.86 6071.93 1467.36 6071.94 1472.02 6072.1 1475.21 6072.05  
1486 6072.04 1491.83 6072.21 1495.33 6072.4 1498.82 6072.33 1506.56 6071.91  
1512.39 6071.8 1515.31 6071.85 1520.41 6071.8 1526.8 6071.59 1530.29 6071.58  
1537.28 6071.27 1540.89 6071.21 1543.74 6071.34 1548.68 6071.82 1551.03 6071.95  
1555.93 6071.83 1558.26 6071.61 1560.36 6071.09 1563.42 6070.08 1566 6068.7  
1598 6068.7 1600.22 6069.62 1604.88 6070.51 1607.17 6070.84 1610.81 6071.01  
1618.87 6070.78 1623.21 6070.48 1625.39 6070.39 1628.19 6070.48 1632.86 6070.89  
1640.19 6071.07 1646.54 6071.53 1648.72 6071.57 1654.56 6071.52 1660.83 6071.42  
1663.16 6071.53 1666.95 6071.85 1669.14 6071.88 1672.78 6071.8 1682.97 6071.8  
1692.47 6071.84 1699.29 6071.97 1704.43 6071.99 1710.69 6071.88 1713.27 6071.89  
1719.1 6072.02 1722.6 6071.8 1724.54 6071.68 1728.19 6071.54 1730.38 6071.52  
1736.21 6071.64 1739.85 6071.66 1749.21 6071.96 1753.11 6071.89 1758.95 6071.55  
1766.73 6070.7 1769.02 6070.57 1776.21 6069.66 1778.49 6069.53 1782.87 6069.53  
1790.1 6069.31 1794.86 6069.37 1803.28 6069.41 1809.84 6069.34 1814.67 6069.62  
1817 6069.68 1821.25 6069.65 1824.42 6069.8 1830.98 6069.92 1836.82 6069.81  
1839.15 6069.68 1844.97 6069.56 1847.75 6069.58 1855.04 6069.49 1860.13 6069.34  
1865.25 6069.34 1870.62 6069.27 1873.81 6069.27 1878.37 6069.38 1883.55 6069.33  
1889.39 6069.47 1895.09 6069.23 1898.59 6069.28 1901.07 6069.52 1904.41 6070.12  
1905.58 6070.4 1908.27 6070.81 1910.8 6070.97 1918.4 6071.29 1920.73 6071.31  
1926.56 6071.19 1931.59 6071.14 1939.61 6071.15 1942.88 6071.1 1951.28 6070.81  
1954.2 6070.75 1965.02 6070.66 1973.88 6070.67 1986.27 6070.6 1995.75 6070.48  
2003.04 6070.1 2010.33 6070 2016.3 6070.02 2021.27 6069.97 2025.63 6070.01  
2028.56 6070.11 2035.12 6070.24 2043.19 6070.18 2049.03 6070.09 2051.27 6070.26  
2056.26 6070.88 2059.42 6071.08 2065.01 6071.22 2073.76 6071.2 2084.08 6071.42  
2089.8 6071.77 2099.65 6072.71 2102.92 6072.84 2106.32 6072.85 2109.52 6072.72  
2112.17 6072.49 2115.41 6072.11 2120.11 6071.47 2123.5 6071.17 2127.54 6071.1  
2130.57 6071.17 2133.35 6071.14 2135.62 6071.03 2139.53 6070.94 2151.88 6070.97  
2157.85 6071.15 2162.9 6071.41 2169.98 6071.64 2175.03 6071.91 2178.36 6072.02  
2186.14 6072.13 2197.26 6072.02 2201.39 6072.05 2209.38 6072.03 2220.5 6072.19  
2228.58 6072.18 2243.74 6072 2255.15 6071.81 2260.92 6071.84 2273.04 6072.08  
2281.12 6072.26 2293.99 6072.4 2302.34 6072.53 2308.11 6072.55 2316.05 6072.65  
2324.57 6072.64 2338.72 6072.78 2358.93 6072.87 2370.04 6072.8 2379.14 6072.66  
2387.22 6072.5 2398.33 6072.42 2406.96 6072.44 2414.03 6072.36 2421.09 6072.33  
2429.91 6072.45 2452.86 6072.47 2459.04 6072.5 2467.87 6072.58 2477.58 6072.55  
2489.93 6072.58 2502.41 6072.55 2511.5 6072.65 2518.57 6072.67 2521.71 6072.73  
2523.47 6072.67 2530.7 6072.67 2548.19 6072.87 2562.02 6072.98 2573.14 6072.96  
2581.73 6073.02 2590.32 6072.99 2598.4 6072.99 2608.2 6072.91 2615.27 6072.91  
2621.64 6072.96 2626.69 6073.09 2634.77 6073.11 2641.03 6073.27 2646.16 6073.27  
2652.34 6073.13 2663.07 6073.12 2667.34 6073.14 2675.28 6073.09 2683.23 6073.22  
2693.82 6073.28 2700.45 6073.28 2709.71 6073.36 2714.6 6073.44 2721.18 6073.46  
2742.89 6073.69 2749.43 6073.72 2753.84 6073.83 2761.78 6073.97 2765.12 6074  
2773.2 6073.95 2781.29 6073.95 2790.91 6073.82 2805.54 6073.68 2815.62 6073.65  
2820.69 6073.7 2827.77 6073.72 2835.85 6073.82 2844.94 6073.81 2855.05 6073.88  
2860.1 6073.94 2870.2 6073.98 2882.7 6073.99 2894.45 6074.07 2899.24 6074.14  
2903.89 6074.14 2916.24 6074.23 2927.8 6074.24 2933.86 6074.19 2940.07 6074.23  
2949.78 6074.23 2955.07 6074.28 2971.85 6074.28 2979.79 6074.33 2991.46 6074.36  
2997.52 6074.32 3010.65 6074.39 3027.83 6074.39 3041.98 6074.41 3052.76 6074.37  
3057.46 6074.41 3065.41 6074.39 3076.16 6074.42

Manning's n Values num= 3

|     |       |         |       |         |       |
|-----|-------|---------|-------|---------|-------|
| Sta | n Val | Sta     | n Val | Sta     | n Val |
| 0   | .06   | 1555.93 | .035  | 1610.81 | .06   |

|                  |         |         |           |              |         |        |        |        |
|------------------|---------|---------|-----------|--------------|---------|--------|--------|--------|
| Bank Sta:        | Left    | Right   | Lengths:  | Left Channel | Right   | Coeff  | Contr. | Expan. |
|                  | 1555.93 | 1610.81 |           | 946.34       | 1146.26 | 545.38 | .1     | .3     |
| Ineffective Flow |         | num=    | 2         |              |         |        |        |        |
| Sta L            | Sta R   | Elev    | Permanent |              |         |        |        |        |
| 0                | 1272.72 | 6073.66 | F         |              |         |        |        |        |
| 2106.32          | 3076.16 | 6072.85 | F         |              |         |        |        |        |

# CROSS SECTION

RIVER: Flat Creek  
 REACH: 1

RS: 30074

## INPUT

### Description:

| Station | Elevation | Data    | num=    | 489     |         |         |         |         |         |  |
|---------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|--|
| Sta     | Elev      | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    |  |
| 0       | 6074.06   | 3.21    | 6074.01 | 5.5     | 6073.85 | 9.74    | 6073.78 | 14.88   | 6074.19 |  |
| 16.35   | 6074.23   | 20.76   | 6073.99 | 25.17   | 6073.83 | 35.81   | 6073.87 | 44.28   | 6074.18 |  |
| 48.12   | 6074.22   | 53.59   | 6074.01 | 60.43   | 6074.25 | 63.9    | 6074.26 | 70.74   | 6074.11 |  |
| 77.64   | 6073.78   | 83.01   | 6073.63 | 95.96   | 6073.66 | 99.4    | 6073.6  | 105.59  | 6073.39 |  |
| 109.69  | 6073.13   | 114.84  | 6072.64 | 118.86  | 6072.41 | 126.88  | 6071.64 | 132.61  | 6071.37 |  |
| 139.1   | 6070.84   | 147.49  | 6070.25 | 157.48  | 6069.81 | 165.1   | 6069.52 | 171.26  | 6069.41 |  |
| 180.7   | 6069.45   | 187.57  | 6069.67 | 195.7   | 6070.37 | 201.31  | 6070.6  | 204.52  | 6070.79 |  |
| 212.6   | 6071.55   | 219.64  | 6071.89 | 225.1   | 6071.95 | 233.38  | 6072.28 | 235.67  | 6072.28 |  |
| 242     | 6072.43   | 247.12  | 6072.61 | 257.43  | 6072.88 | 262.58  | 6072.8  | 267.72  | 6072.93 |  |
| 272.87  | 6072.64   | 275.81  | 6072.54 | 280.22  | 6072.6  | 288.24  | 6072.56 | 295.66  | 6072.59 |  |
| 307.81  | 6072.75   | 318.12  | 6072.85 | 322.12  | 6072.85 | 333.14  | 6072.66 | 341.6   | 6072.64 |  |
| 354.46  | 6072.52   | 364.18  | 6072.51 | 369.89  | 6072.57 | 379.45  | 6072.56 | 384.6   | 6072.44 |  |
| 391.95  | 6072.43   | 397.83  | 6072.49 | 404     | 6072.47 | 416.2   | 6072.28 | 423.47  | 6072.25 |  |
| 431.9   | 6072.26   | 439.5   | 6072.14 | 450.38  | 6071.83 | 466.99  | 6071.25 | 470.42  | 6071.07 |  |
| 479.58  | 6070.46   | 492.64  | 6070.29 | 497.79  | 6070.35 | 502.93  | 6070.32 | 515.43  | 6070.67 |  |
| 520.81  | 6070.89   | 527.68  | 6071.02 | 538.21  | 6071.04 | 545.56  | 6070.94 | 551.44  | 6071.06 |  |
| 554.02  | 6071.05   | 559.53  | 6070.88 | 566.61  | 6070.48 | 573.48  | 6069.94 | 579.21  | 6069.14 |  |
| 582.64  | 6068.87   | 594.07  | 6068.72 | 597.53  | 6068.79 | 600.97  | 6068.96 | 604.4   | 6069.39 |  |
| 606.57  | 6069.97   | 610.13  | 6071.23 | 613.56  | 6072.26 | 617     | 6072.83 | 620.43  | 6073.05 |  |
| 623.87  | 6073.11   | 633.03  | 6073.14 | 637.14  | 6073.08 | 649.45  | 6072.62 | 658.02  | 6072.57 |  |
| 663.17  | 6072.41   | 666.11  | 6072.15 | 669.67  | 6071.7  | 675.4   | 6070.84 | 682.27  | 6070.09 |  |
| 689.14  | 6069.69   | 695.51  | 6069.57 | 708     | 6069.67 | 713.19  | 6069.67 | 723.5   | 6069.74 |  |
| 734.46  | 6069.66   | 751.37  | 6069.85 | 760.92  | 6069.83 | 785.33  | 6069.84 | 796.94  | 6069.71 |  |
| 805.02  | 6069.88   | 808.7   | 6069.9  | 813.96  | 6069.8  | 827.7   | 6069.32 | 838.26  | 6069.29 |  |
| 846.02  | 6069.13   | 858.79  | 6069.17 | 867.78  | 6069.37 | 876.32  | 6069.4  | 885.88  | 6069.28 |  |
| 891.83  | 6069.02   | 898.7   | 6069.15 | 903.28  | 6069.15 | 910.87  | 6068.86 | 914.2   | 6068.81 |  |
| 924.1   | 6068.84   | 929.24  | 6068.78 | 936.77  | 6068.8  | 942.93  | 6068.88 | 950.23  | 6068.87 |  |
| 966.73  | 6068.8    | 971.99  | 6068.72 | 979.22  | 6068.52 | 983.63  | 6068.5  | 998.33  | 6068.28 |  |
| 1003.48 | 6068.31   | 1006.42 | 6068.39 | 1012.3  | 6068.85 | 1016.65 | 6068.85 | 1021.85 | 6068.57 |  |
| 1029.94 | 6068.69   | 1033.83 | 6068.66 | 1037.26 | 6068.49 | 1039.49 | 6068.28 | 1043.9  | 6068.07 |  |
| 1049.86 | 6068.25   | 1057.13 | 6068.04 | 1064.75 | 6068.02 | 1079.63 | 6068.07 | 1084.21 | 6068.17 |  |
| 1090.21 | 6068.02   | 1096.81 | 6068.06 | 1098.91 | 6068.01 | 1102.71 | 6067.69 | 1108.26 | 6066.75 |  |
| 1110.79 | 6066.52   | 1113.73 | 6066.5  | 1116.28 | 6066.61 | 1119.71 | 6067.02 | 1122    | 6067.52 |  |
| 1125.44 | 6067.92   | 1132.11 | 6068.05 | 1136.89 | 6068.09 | 1143.76 | 6067.83 | 1149.75 | 6067.95 |  |
| 1162.08 | 6068.13   | 1171.06 | 6068.09 | 1178.11 | 6068.1  | 1181.55 | 6068.04 | 1187.27 | 6068.04 |  |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1194.58 | 6067.83 | 1202.16 | 6067.82 | 1206.34 | 6067.89 | 1212.96 | 6068.22 | 1218.1  | 6068.57 |
| 1221.63 | 6068.69 | 1234.36 | 6068.8  | 1243.39 | 6069.17 | 1248.97 | 6069.48 | 1258.99 | 6069.59 |
| 1266.61 | 6069.56 | 1270.87 | 6069.35 | 1278.89 | 6068.8  | 1283.23 | 6068.36 | 1284.99 | 6068.18 |
| 1289.4  | 6068.04 | 1294.55 | 6068.1  | 1304.08 | 6068.08 | 1309.8  | 6068.16 | 1320.11 | 6068.05 |
| 1330.42 | 6068.03 | 1339.58 | 6068.14 | 1343.79 | 6068.07 | 1353.4  | 6068.12 | 1359.55 | 6068.31 |
| 1366.58 | 6068.28 | 1372.79 | 6068.37 | 1378.51 | 6068.39 | 1383.48 | 6068.5  | 1389.96 | 6068.77 |
| 1395.24 | 6068.84 | 1398.18 | 6068.73 | 1401.86 | 6068.26 | 1407.74 | 6066.9  | 1410    | 6065.7  |
| 1451    | 6065.7  | 1451.91 | 6066.34 | 1456.38 | 6066.72 | 1463.25 | 6067.51 | 1468.98 | 6068.45 |
| 1471.68 | 6068.72 | 1474.7  | 6068.72 | 1479.28 | 6068.36 | 1482.69 | 6068.23 | 1487.3  | 6068.17 |
| 1492.95 | 6068.02 | 1505.27 | 6068.12 | 1511.35 | 6068.28 | 1514.78 | 6068.23 | 1519.36 | 6068.06 |
| 1524.61 | 6067.96 | 1534.25 | 6067.96 | 1545.19 | 6068.15 | 1552.47 | 6067.94 | 1556.01 | 6067.98 |
| 1560.59 | 6068.19 | 1566.31 | 6068.19 | 1572.99 | 6067.96 | 1578.26 | 6067.72 | 1581.94 | 6067.63 |
| 1583.23 | 6067.67 | 1588.55 | 6067.83 | 1593.8  | 6067.91 | 1599.52 | 6067.73 | 1603.78 | 6067.74 |
| 1607.88 | 6067.97 | 1613.54 | 6068.49 | 1616.7  | 6068.7  | 1623.1  | 6068.75 | 1635.59 | 6069.06 |
| 1642.94 | 6069.11 | 1645.33 | 6069.22 | 1652.5  | 6069.97 | 1657.64 | 6070.67 | 1661.32 | 6071    |
| 1664.11 | 6071.08 | 1668.4  | 6071.08 | 1677.66 | 6070.8  | 1683.47 | 6070.42 | 1697.42 | 6069.29 |
| 1701.42 | 6069.28 | 1706.43 | 6069.44 | 1721.43 | 6069.51 | 1729.44 | 6069.41 | 1736.7  | 6069.4  |
| 1746.45 | 6069.34 | 1752.19 | 6069.41 | 1755.45 | 6069.39 | 1763.8  | 6069.05 | 1769.46 | 6069.04 |
| 1777.35 | 6069.19 | 1784.47 | 6069.14 | 1794.48 | 6069.31 | 1802.48 | 6069.58 | 1811.49 | 6069.76 |
| 1833.49 | 6069.92 | 1843.5  | 6070.09 | 1851.88 | 6070.09 | 1856.51 | 6070.13 | 1869.52 | 6070.09 |
| 1876.52 | 6070.02 | 1892.5  | 6069.91 | 1909.95 | 6069.92 | 1915.54 | 6069.89 | 1929.55 | 6069.9  |
| 1935.56 | 6069.87 | 1946.56 | 6069.75 | 1952.54 | 6069.75 | 1967.57 | 6069.88 | 1974.58 | 6069.85 |
| 1983.51 | 6069.95 | 1991.59 | 6069.93 | 1998.59 | 6069.79 | 2007.6  | 6069.8  | 2018.6  | 6070.05 |
| 2028.61 | 6069.98 | 2035.78 | 6069.86 | 2047.62 | 6070.18 | 2055.62 | 6070.31 | 2077.64 | 6070.52 |
| 2089.01 | 6070.53 | 2097.72 | 6070.48 | 2106.65 | 6070.62 | 2121.66 | 6070.49 | 2129.52 | 6070.27 |
| 2135.67 | 6070.29 | 2141.67 | 6070.18 | 2145.15 | 6070.17 | 2156.68 | 6070.27 | 2160.63 | 6070.38 |
| 2165.47 | 6070.65 | 2173.69 | 6070.92 | 2179.69 | 6071.07 | 2187.7  | 6071.14 | 2196.7  | 6071.04 |
| 2203.71 | 6071.12 | 2213.71 | 6071.11 | 2217.72 | 6071.14 | 2224.72 | 6071.28 | 2235.16 | 6071.42 |
| 2248.71 | 6071.57 | 2268.07 | 6071.61 | 2276.75 | 6071.53 | 2289.76 | 6071.54 | 2307.29 | 6071.47 |
| 2317.77 | 6071.33 | 2329.05 | 6071.38 | 2349.79 | 6071.57 | 2360.8  | 6071.73 | 2371.63 | 6071.78 |
| 2379.38 | 6071.76 | 2396.8  | 6071.83 | 2400.82 | 6071.78 | 2409.83 | 6071.55 | 2415.83 | 6071.6  |
| 2420.83 | 6071.79 | 2432.84 | 6071.86 | 2444.85 | 6072.01 | 2457.85 | 6071.99 | 2460.86 | 6071.95 |
| 2468.42 | 6071.68 | 2478.87 | 6071.54 | 2492.87 | 6071.26 | 2499.88 | 6071.26 | 2504.88 | 6071.44 |
| 2508.88 | 6071.3  | 2513.89 | 6070.77 | 2516.81 | 6070.61 | 2520.69 | 6070.64 | 2523.89 | 6070.75 |
| 2531.9  | 6071.23 | 2534.9  | 6071.31 | 2546.9  | 6071.41 | 2551.91 | 6071.57 | 2552.91 | 6071.35 |
| 2554.56 | 6071.9  | 2559.91 | 6071.92 | 2565.91 | 6071.7  | 2573.92 | 6071.11 | 2584.57 | 6070.97 |
| 2590.37 | 6070.95 | 2595.93 | 6070.82 | 2603.92 | 6070.38 | 2606.83 | 6070.29 | 2610.7  | 6070.34 |
| 2613.94 | 6070.48 | 2622.95 | 6071    | 2627.95 | 6071.41 | 2633.19 | 6071.76 | 2639.96 | 6072.02 |
| 2648.45 | 6072.07 | 2658.13 | 6072.02 | 2664.9  | 6072.09 | 2667.97 | 6072.04 | 2673.61 | 6071.8  |
| 2679.98 | 6071.85 | 2682.98 | 6072.04 | 2688.13 | 6072.53 | 2691.99 | 6072.58 | 2694.99 | 6072.37 |
| 2699.74 | 6071.85 | 2705.99 | 6071.43 | 2713    | 6071.07 | 2716    | 6070.6  | 2718    | 6070.08 |
| 2721    | 6069.49 | 2724.91 | 6069.45 | 2728.01 | 6069.79 | 2734.01 | 6070.83 | 2739.01 | 6071.88 |
| 2742.02 | 6072.34 | 2745.02 | 6072.6  | 2748.14 | 6072.67 | 2753.95 | 6072.54 | 2764.03 | 6072.47 |
| 2770.03 | 6072.24 | 2778.14 | 6071.79 | 2781.33 | 6071.68 | 2799.05 | 6071.5  | 2806.21 | 6071.52 |
| 2812.02 | 6071.59 | 2818.06 | 6071.58 | 2824.06 | 6071.64 | 2831.38 | 6071.79 | 2835.07 | 6071.82 |
| 2845.9  | 6071.77 | 2861.38 | 6071.75 | 2867.19 | 6071.82 | 2872.09 | 6071.78 | 2886.1  | 6071.34 |
| 2893.1  | 6071.24 | 2908.11 | 6071.21 | 2916.11 | 6071.31 | 2923.33 | 6071.27 | 2928.12 | 6071.13 |
| 2935.13 | 6071.08 | 2941.13 | 6070.95 | 2944.13 | 6070.95 | 2953.14 | 6071.11 | 2964.14 | 6071.58 |
| 2975.15 | 6071.69 | 2993.98 | 6071.49 | 3001.72 | 6071.47 | 3006.17 | 6071.53 | 3019.15 | 6071.52 |
| 3027.86 | 6071.4  | 3033.66 | 6071.25 | 3039.18 | 6071.03 | 3049.15 | 6071.08 | 3052.05 | 6071.17 |
| 3060.2  | 6071.7  | 3064.2  | 6071.8  | 3067.54 | 6071.77 | 3073.2  | 6071.54 | 3078.19 | 6071.12 |
| 3084.21 | 6070.81 | 3094.64 | 6070.74 | 3104.32 | 6070.84 | 3109.16 | 6070.94 | 3112.23 | 6071.11 |
| 3117.23 | 6071.54 | 3123.23 | 6071.75 | 3127.23 | 6071.74 | 3133.24 | 6071.44 | 3138.2  | 6070.95 |
| 3141.24 | 6070.77 | 3149.81 | 6070.65 | 3154.25 | 6070.7  | 3160.25 | 6070.97 | 3165.26 | 6071.32 |
| 3168.2  | 6071.42 | 3182.27 | 6071.52 | 3187.27 | 6071.44 | 3195.27 | 6070.91 | 3198.2  | 6070.82 |



|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 3206.28 | 6070.83 | 3216.29 | 6070.64 | 3226.27 | 6070.62 | 3241.3  | 6070.41 | 3249.5  | 6070.24 |
| 3261.12 | 6070.05 | 3269.32 | 6070.09 | 3281.44 | 6070.11 | 3298.33 | 6070.18 | 3310.34 | 6070.45 |
| 3313.34 | 6070.59 | 3318.34 | 6070.96 | 3321.13 | 6071.08 | 3328.35 | 6071.13 | 3334.35 | 6071.04 |
| 3345.32 | 6070.77 | 3352.1  | 6070.68 | 3361.37 | 6070.71 | 3369.52 | 6070.83 | 3380.17 | 6070.84 |
| 3390.38 | 6070.72 | 3396.62 | 6070.72 | 3406.39 | 6070.81 | 3413.07 | 6070.91 | 3418.4  | 6070.92 |
| 3423.4  | 6070.99 | 3431.46 | 6071.03 | 3437.41 | 6071    | 3451.79 | 6071.12 | 3458.57 | 6071.27 |
| 3466.43 | 6071.34 | 3477.43 | 6071.57 | 3487.44 | 6071.68 | 3502.12 | 6071.9  | 3511.8  | 6071.95 |
| 3522.45 | 6072.07 | 3531.16 | 6072    | 3539.87 | 6072.01 | 3548.03 | 6071.93 |         |         |

|                    |       |         |       |         |       |
|--------------------|-------|---------|-------|---------|-------|
| Manning's n Values |       | num=    |       | 3       |       |
| Sta                | n Val | Sta     | n Val | Sta     | n Val |
| 0                  | .06   | 1395.24 | .035  | 1471.68 | .06   |

|                      |         |         |           |              |         |        |        |        |
|----------------------|---------|---------|-----------|--------------|---------|--------|--------|--------|
| Bank Sta:            | Left    | Right   | Lengths:  | Left Channel | Right   | Coeff  | Contr. | Expan. |
|                      | 1395.24 | 1471.68 |           | 722.21       | 1165.59 | 701.59 | .1     | .3     |
| Ineffective Flow     | num=    |         | 2         |              |         |        |        |        |
| Sta L                | Sta R   | Elev    | Permanent |              |         |        |        |        |
| 0                    | 1258.99 | 6069.58 | F         |              |         |        |        |        |
| 1664.11              | 3548.03 | 6071.08 | F         |              |         |        |        |        |
| Blocked Obstructions | num=    |         | 1         |              |         |        |        |        |
| Sta L                | Sta R   | Elev    |           |              |         |        |        |        |
| 2761                 | 3548.03 | 6070.2  |           |              |         |        |        |        |

CROSS SECTION

RIVER: Flat Creek  
 REACH: 1                      RS: 28908

INPUT  
 Description:

|         |           |      |        |      |        |      |        |         |        |
|---------|-----------|------|--------|------|--------|------|--------|---------|--------|
| Station | Elevation | Data | num=   |      | 20     |      |        |         |        |
| Sta     | Elev      | Sta  | Elev   | Sta  | Elev   | Sta  | Elev   | Sta     | Elev   |
| 0       | 6072.93   | 9    | 6072.2 | 146  | 6070.2 | 573  | 6070.2 | 853     | 6068.2 |
| 993     | 6068.2    | 1305 | 6067.2 | 1392 | 6066.2 | 1463 | 6064.2 | 1467    | 6063.7 |
| 1495    | 6063.7    | 1500 | 6064.2 | 1996 | 6064.2 | 2140 | 6065.7 | 2270    | 6065.7 |
| 2377    | 6064.3    | 2651 | 6065.7 | 2941 | 6066.2 | 3254 | 6068.1 | 3267.79 | 6066.6 |

|                    |       |      |       |      |       |
|--------------------|-------|------|-------|------|-------|
| Manning's n Values |       | num= |       | 3    |       |
| Sta                | n Val | Sta  | n Val | Sta  | n Val |
| 0                  | .06   | 1467 | .035  | 1495 | .06   |

|                  |         |        |           |              |          |          |        |        |
|------------------|---------|--------|-----------|--------------|----------|----------|--------|--------|
| Bank Sta:        | Left    | Right  | Lengths:  | Left Channel | Right    | Coeff    | Contr. | Expan. |
|                  | 1467    | 1495   |           | 23238.45     | 28908.26 | 23791.45 | .1     | .3     |
| Ineffective Flow | num=    |        | 1         |              |          |          |        |        |
| Sta L            | Sta R   | Elev   | Permanent |              |          |          |        |        |
| 2140             | 3267.79 | 6065.7 | F         |              |          |          |        |        |

Profile Output Table - Standard Table 2

| Reach | River Sta | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Vel Head<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Top Width<br>(ft) |
|-------|-----------|---------|-------------------|-------------------|------------------|--------------------|--------------------|-----------------|--------------------|------------------|-------------------|
| 1     | 28908     | 10-YR   | 6065.12           | 6065.07           | 0.05             |                    |                    | 18.22           | 128.79             | 652.99           | 856.85            |
| 1     | 28908     | 50-YR   | 6065.31           | 6065.25           | 0.06             |                    |                    | 26.53           | 150.18             | 853.29           | 929.57            |

|   |       |        |         |         |      |      |      |        |         |         |         |
|---|-------|--------|---------|---------|------|------|------|--------|---------|---------|---------|
| 1 | 28908 | 100-YR | 6065.48 | 6065.42 | 0.06 |      |      | 36.88  | 174.72  | 1078.40 | 998.14  |
| 1 | 28908 | 500-YR | 6065.69 | 6065.62 | 0.07 |      |      | 52.33  | 207.06  | 1380.61 | 1078.93 |
| 1 | 30074 | 10-YR  | 6068.86 | 6068.60 | 0.25 | 3.68 | 0.06 | 38.11  | 680.01  | 81.88   | 535.24  |
| 1 | 30074 | 50-YR  | 6069.08 | 6068.79 | 0.29 | 3.71 | 0.07 | 74.32  | 818.59  | 137.08  | 617.38  |
| 1 | 30074 | 100-YR | 6069.30 | 6068.97 | 0.33 | 3.74 | 0.08 | 118.99 | 966.08  | 204.93  | 705.60  |
| 1 | 30074 | 500-YR | 6069.56 | 6069.17 | 0.38 | 3.78 | 0.09 | 186.27 | 1156.45 | 297.29  | 787.37  |
| 1 | 31220 | 10-YR  | 6071.42 | 6071.34 | 0.07 | 2.55 | 0.02 | 0.36   | 328.05  | 471.59  | 479.32  |
| 1 | 31220 | 50-YR  | 6071.68 | 6071.60 | 0.08 | 2.58 | 0.02 | 5.72   | 385.46  | 638.82  | 580.43  |
| 1 | 31220 | 100-YR | 6071.92 | 6071.85 | 0.08 | 2.61 | 0.03 | 18.53  | 440.83  | 830.63  | 706.17  |
| 1 | 31220 | 500-YR | 6072.25 | 6072.16 | 0.09 | 2.66 | 0.03 | 57.09  | 539.67  | 1043.24 | 938.65  |
| 1 | 31558 | 10-YR  | 6073.87 | 6072.59 | 1.28 | 1.33 | 0.60 |        | 800.00  |         | 792.21  |
| 1 | 31558 | 50-YR  | 6074.54 | 6073.13 | 1.41 | 1.26 | 0.66 |        | 1030.00 |         | 1160.48 |
| 1 | 31558 | 100-YR | 6075.19 | 6073.70 | 1.49 | 1.24 | 0.70 |        | 1290.00 |         | 1417.66 |
| 1 | 31558 | 500-YR | 6075.47 | 6074.84 | 0.63 | 0.91 | 0.27 |        | 1343.67 | 296.33  | 2071.58 |
| 1 | 31602 | Bridge |         |         |      |      |      |        |         |         |         |
| 1 | 31615 | 10-YR  | 6074.63 | 6074.21 | 0.42 |      |      |        | 800.00  |         | 1517.75 |
| 1 | 31615 | 50-YR  | 6074.73 | 6073.73 | 1.00 |      |      |        | 1030.00 |         | 1069.76 |
| 1 | 31615 | 100-YR | 6075.19 | 6074.71 | 0.48 |      |      |        | 1084.01 | 205.99  | 1875.73 |
| 1 | 31615 | 500-YR | 6075.48 | 6075.11 | 0.38 |      |      |        | 1161.59 | 478.41  | 2041.17 |
| 1 | 32262 | 10-YR  | 6075.40 | 6075.36 | 0.04 | 0.66 | 0.12 | 311.18 | 389.93  | 98.89   | 1980.93 |
| 1 | 32262 | 50-YR  | 6075.79 | 6075.75 | 0.04 | 0.78 | 0.29 | 430.04 | 448.31  | 151.65  | 2267.91 |
| 1 | 32262 | 100-YR | 6076.03 | 6075.98 | 0.05 | 0.71 | 0.13 | 557.49 | 532.68  | 199.83  | 2377.78 |
| 1 | 32262 | 500-YR | 6076.33 | 6076.27 | 0.06 | 0.74 | 0.10 | 733.04 | 637.98  | 268.98  | 2486.15 |
| 1 | 32973 | 10-YR  | 6076.61 | 6076.24 | 0.37 | 0.79 | 0.10 | 137.92 | 479.45  | 182.63  | 953.77  |
| 1 | 32973 | 50-YR  | 6076.79 | 6076.44 | 0.35 | 0.72 | 0.09 | 223.19 | 541.12  | 265.69  | 1043.30 |
| 1 | 32973 | 100-YR | 6076.93 | 6076.62 | 0.31 | 0.81 | 0.08 | 331.86 | 583.74  | 374.40  | 1131.61 |
| 1 | 32973 | 500-YR | 6077.21 | 6076.99 | 0.22 | 0.83 | 0.05 | 486.34 | 632.39  | 521.28  | 1396.02 |
| 1 | 34540 | 10-YR  | 6079.85 | 6079.81 | 0.04 | 3.21 | 0.03 | 379.74 | 252.80  | 167.46  | 1046.95 |
| 1 | 34540 | 50-YR  | 6080.02 | 6079.98 | 0.04 | 3.21 | 0.03 | 497.76 | 293.62  | 238.61  | 1115.00 |
| 1 | 34540 | 100-YR | 6080.35 | 6080.33 | 0.02 | 2.54 | 0.03 | 754.61 | 257.91  | 277.48  | 1195.45 |
| 1 | 34540 | 500-YR | 6080.22 | 6080.18 | 0.04 | 3.00 | 0.02 | 938.70 | 354.56  | 346.74  | 1176.26 |
| 1 | 35470 | 10-YR  | 6081.03 | 6080.96 | 0.07 | 1.17 | 0.01 | 139.00 | 219.85  | 441.16  | 850.88  |
| 1 | 35470 | 50-YR  | 6081.18 | 6081.12 | 0.07 | 1.15 | 0.01 | 206.93 | 243.91  | 579.16  | 875.48  |
| 1 | 35470 | 100-YR | 6081.20 | 6081.09 | 0.11 | 0.84 | 0.03 | 254.63 | 311.59  | 723.78  | 871.89  |
| 1 | 35470 | 500-YR | 6081.47 | 6081.38 | 0.08 | 1.24 | 0.01 | 384.47 | 318.76  | 936.77  | 918.30  |
| 1 | 36595 | 10-YR  | 6084.73 | 6084.09 | 0.64 | 3.53 | 0.17 | 38.59  | 717.74  | 43.68   | 106.35  |
| 1 | 36595 | 50-YR  | 6084.92 | 6084.59 | 0.33 | 2.42 | 0.08 | 110.26 | 695.13  | 224.61  | 850.23  |
| 1 | 36595 | 100-YR | 6085.06 | 6084.69 | 0.38 | 3.41 | 0.08 | 161.25 | 798.08  | 330.67  | 901.27  |
| 1 | 36595 | 500-YR | 6085.23 | 6084.89 | 0.34 | 2.61 | 0.08 | 272.33 | 864.18  | 503.49  | 1130.52 |
| 1 | 37738 | 10-YR  | 6088.61 | 6088.49 | 0.12 | 3.05 | 0.05 | 290.93 | 401.58  | 107.49  | 969.98  |
| 1 | 37738 | 50-YR  | 6088.86 | 6088.38 | 0.48 | 3.90 | 0.04 | 166.90 | 686.90  | 176.20  | 912.19  |
| 1 | 37738 | 100-YR | 6088.79 | 6088.48 | 0.32 | 3.73 | 0.01 | 457.69 | 657.61  | 174.70  | 963.29  |
| 1 | 37738 | 500-YR | 6088.94 | 6088.61 | 0.33 | 3.72 | 0.00 | 699.36 | 730.40  | 210.24  | 1022.64 |





|   |       |        |         |         |      |      |      |         |        |        |         |
|---|-------|--------|---------|---------|------|------|------|---------|--------|--------|---------|
| 1 | 38668 | 10-YR  | 6090.73 | 6090.57 | 0.16 | 1.91 | 0.01 | 419.03  | 335.61 | 45.36  | 1143.76 |
| 1 | 38668 | 50-YR  | 6090.98 | 6090.93 | 0.04 | 2.07 | 0.04 | 680.10  | 255.50 | 94.41  | 1361.53 |
| 1 | 38668 | 100-YR | 6091.02 | 6090.96 | 0.06 | 2.21 | 0.03 | 858.51  | 309.26 | 122.23 | 1380.46 |
| 1 | 38668 | 500-YR | 6091.16 | 6091.10 | 0.06 | 2.21 | 0.03 | 1119.37 | 342.93 | 177.70 | 1464.79 |



**Post-Project Conditions Multiple Profile Run – Option 2**





HEC-RAS HEC-RAS 5.0.3 September 2016  
 U.S. Army Corps of Engineers  
 Hydrologic Engineering Center  
 609 Second Street  
 Davis, California

|          |      |        |      |      |        |       |
|----------|------|--------|------|------|--------|-------|
| X        | X    | XXXXXX | XXXX | XXXX | XX     | XXXX  |
| X        | X    | X      | X    | X    | X      | X     |
| X        | X    | X      | X    | X    | X      | X     |
| XXXXXXXX | XXXX | X      | XXX  | XXXX | XXXXXX | XXXX  |
| X        | X    | X      | X    | X    | X      | X     |
| X        | X    | X      | X    | X    | X      | X     |
| X        | X    | XXXXXX | XXXX | X    | X      | XXXXX |

PROJECT DATA

Project Title: Rafter J Flood Mitigation Feasibility Study  
 Project File : Flat Cr below High School Rd.prj  
 Run Date and Time: 7/9/2018 8:40:12 AM

Project in English units

Project Description:

Flat Creek FIS - Confluence with Snake River to High School Road  
 Multiple  
 Profile Run  
 Teton County, WY  
 CRS Info=<SpatialReference> <CoordinateSystem  
 Code="3758" Unit="US\_survey\_Foot" AcadCode="" /> <Registration OffsetX="0"  
 OffsetY="0" OffsetZ="0" ScaleX="1" ScaleY="1" ScaleZ="1" /></SpatialReference>

PLAN DATA

Plan Title: Prop Option 2  
 Plan File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.p05

Geometry Title: Prop Option 2 Geom  
 Geometry File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.g12

Flow Title : Flat Creek Multiple Profile Flows  
 Flow File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.f10

Plan Description:

Multiple Profile Run with new Bridge

Plan Summary Information:

Number of: Cross Sections = 12 Multiple Openings = 1

Culverts = 0 Inline Structures = 0  
Bridges = 0 Lateral Structures = 0

#### Computational Information

Water surface calculation tolerance = 0.01  
Critical depth calculation tolerance = 0.01  
Maximum number of iterations = 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: Flat Creek Multiple Profile Flows

Flow File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.f10

#### Flow Data (cfs)

| River      | Reach | RS    | 10-YR | 50-YR | 100-YR | 500-YR |
|------------|-------|-------|-------|-------|--------|--------|
| Flat Creek | 1     | 38668 | 800   | 1030  | 1290   | 1640   |

#### Boundary Conditions

| River      | Reach | Profile | Upstream | Downstream         |
|------------|-------|---------|----------|--------------------|
| Flat Creek | 1     | 10-YR   |          | Known WS = 6065.07 |
| Flat Creek | 1     | 50-YR   |          | Known WS = 6065.25 |
| Flat Creek | 1     | 100-YR  |          | Known WS = 6065.42 |
| Flat Creek | 1     | 500-YR  |          | Known WS = 6065.62 |

#### GEOMETRY DATA

Geometry Title: Prop Option 2 Geom

Geometry File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.g12

#### CROSS SECTION

RIVER: Flat Creek

REACH: 1 RS: 38668

#### INPUT

Description:

|                        |         |      |        |      |        |         |         |      |        |
|------------------------|---------|------|--------|------|--------|---------|---------|------|--------|
| Station Elevation Data |         | num= |        | 14   |        |         |         |      |        |
| Sta                    | Elev    | Sta  | Elev   | Sta  | Elev   | Sta     | Elev    | Sta  | Elev   |
| 0                      | 6094.74 | 60   | 6094.2 | 388  | 6092.2 | 420     | 6090.2  | 450  | 6090.2 |
| 510                    | 6092    | 818  | 6090.2 | 1626 | 6090.2 | 1639    | 6089.1  | 1688 | 6089.1 |
| 1706                   | 6090.2  | 2477 | 6092.2 | 3046 | 6094.2 | 3275.62 | 6095.16 |      |        |

|                    |       |      |       |      |       |
|--------------------|-------|------|-------|------|-------|
| Manning's n Values |       | num= |       | 3    |       |
| Sta                | n Val | Sta  | n Val | Sta  | n Val |
| 0                  | .05   | 1639 | .035  | 1688 | .05   |

|           |      |       |          |              |        |        |        |        |
|-----------|------|-------|----------|--------------|--------|--------|--------|--------|
| Bank Sta: | Left | Right | Lengths: | Left Channel | Right  | Coeff  | Contr. | Expan. |
|           | 1639 | 1688  |          | 554.41       | 929.64 | 579.67 | .1     | .3     |

|                  |       |      |           |  |
|------------------|-------|------|-----------|--|
| Ineffective Flow | num=  |      | 1         |  |
| Sta L            | Sta R | Elev | Permanent |  |
| 0                | 510   | 6092 | T         |  |

# CROSS SECTION

RIVER: Flat Creek  
 REACH: 1 RS: 37738

INPUT  
 Description:

|                        |         |      |        |     |        |      |        |      |        |
|------------------------|---------|------|--------|-----|--------|------|--------|------|--------|
| Station Elevation Data |         | num= |        | 16  |        |      |        |      |        |
| Sta                    | Elev    | Sta  | Elev   | Sta | Elev   | Sta  | Elev   | Sta  | Elev   |
| 0                      | 6088.7  | 138  | 6088.2 | 221 | 6088.2 | 440  | 6087.2 | 460  | 6088.2 |
| 679                    | 6088.2  | 730  | 6088.4 | 802 | 6088.2 | 876  | 6086.2 | 880  | 6084.7 |
| 908                    | 6084.7  | 912  | 6086.2 | 980 | 6088.2 | 1312 | 6090.2 | 2275 | 6092.2 |
| 2299.81                | 6092.35 |      |        |     |        |      |        |      |        |

|                    |       |      |       |     |       |
|--------------------|-------|------|-------|-----|-------|
| Manning's n Values |       | num= |       | 3   |       |
| Sta                | n Val | Sta  | n Val | Sta | n Val |
| 0                  | .05   | 880  | .035  | 908 | .05   |

|           |      |       |          |              |         |       |        |        |
|-----------|------|-------|----------|--------------|---------|-------|--------|--------|
| Bank Sta: | Left | Right | Lengths: | Left Channel | Right   | Coeff | Contr. | Expan. |
|           | 880  | 908   |          | 608.2        | 1142.98 | 926.3 | .1     | .3     |

|                  |       |        |           |  |
|------------------|-------|--------|-----------|--|
| Ineffective Flow | num=  |        | 1         |  |
| Sta L            | Sta R | Elev   | Permanent |  |
| 0                | 730   | 6088.4 | F         |  |

# CROSS SECTION

RIVER: Flat Creek  
 REACH: 1 RS: 36595

INPUT  
 Description:

|                        |         |      |        |      |        |      |        |         |        |
|------------------------|---------|------|--------|------|--------|------|--------|---------|--------|
| Station Elevation Data |         | num= |        | 20   |        |      |        |         |        |
| Sta                    | Elev    | Sta  | Elev   | Sta  | Elev   | Sta  | Elev   | Sta     | Elev   |
| 0                      | 6086.63 | 82   | 6086.2 | 317  | 6084.2 | 464  | 6084.2 | 720     | 6085.2 |
| 767                    | 6086.2  | 788  | 6086.2 | 803  | 6082.2 | 806  | 6081.2 | 843     | 6081.2 |
| 847                    | 6082.2  | 850  | 6086.2 | 870  | 6086.2 | 999  | 6084.2 | 1026    | 6083.7 |
| 1069                   | 6084.2  | 1436 | 6084.2 | 1487 | 6084.7 | 2612 | 6086.2 | 2631.71 | 6086.3 |



Manning's n Values num= 3  
Sta n Val Sta n Val Sta n Val  
0 .05 806 .035 843 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
806 843 695.19 1125.16 521.47 .1 .3

CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 35470

INPUT  
Description:  
Station Elevation Data num= 23  
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev  
0 6084.48 65 6084.2 312 6082.2 860 6082.2 1010 6083.2  
1098 6082.2 1168 6080.2 1210 6080.2 1276 6081.7 1285 6081.7  
1357 6080.7 1612 6080.2 1618 6079.1 1653 6079.1 1667 6080.2  
2080 6080.2 2098 6082.2 2108 6084.2 2120 6084.2 2144 6082.2  
2935 6082.2 3071 6084.2 3147.83 6084.53

Manning's n Values num= 3  
Sta n Val Sta n Val Sta n Val  
0 .05 1618 .035 1653 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
1618 1653 559.49 930.41 535.79 .1 .3

Ineffective Flow num= 1  
Sta L Sta R Elev Permanent  
0 1285 6081.7 F

CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 34540

INPUT  
Description:  
Station Elevation Data num= 489  
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev  
0 6083.77 5.64 6083.56 10.51 6083.51 17.81 6083.24 28.76 6082.71  
36.07 6082.22 42.16 6081.66 45.81 6081.49 51.9 6081.37 56.77 6081.32  
61.82 6081.36 69.72 6081.33 75.47 6081.26 87.21 6081.25 91.88 6081.38  
96.95 6081.85 104.15 6082.31 107.08 6082.41 112.11 6082.44 120.08 6082.37  
129.82 6082.58 133.95 6082.53 144.43 6082.11 147.98 6082.01 152.35 6081.97  
162.69 6082.1 167.56 6082.1 172.52 6082.05 177.5 6082.22 181.29 6082.26  
193.31 6082.11 198.82 6082.19 209.34 6082.17 219.17 6082.03 227.08 6081.95  
233.3 6081.94 239.29 6081.73 241.45 6081.76 245.76 6082.22 247.91 6082.23  
254 6081.77 261.56 6081.59 272.26 6081.23 275.92 6081.19 280.79 6081.21  
288.09 6081.39 291.74 6081.41 301.8 6081.26 305.39 6081.26 316.89 6081.14  
322.64 6081.12 336.79 6081.17 349.59 6081.11 360.11 6081.09 368.44 6080.95

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 375.09  | 6080.9  | 390.36  | 6080.91 | 401.32  | 6080.77 | 408.14  | 6080.59 | 412.71  | 6080.63 |
| 417.14  | 6080.75 | 421.47  | 6080.77 | 428.98  | 6080.71 | 440.47  | 6080.73 | 449.53  | 6080.51 |
| 459.15  | 6080.59 | 468.28  | 6080.52 | 474.36  | 6080.53 | 480.45  | 6080.62 | 487.76  | 6080.56 |
| 496.28  | 6080.54 | 499.93  | 6080.3  | 506.02  | 6079.63 | 509.45  | 6079.36 | 513.32  | 6079.23 |
| 519.65  | 6079.33 | 525.5   | 6079.32 | 531.59  | 6079.58 | 538.89  | 6079.79 | 550.41  | 6079.86 |
| 560.81  | 6079.63 | 567.65  | 6079.54 | 571.24  | 6079.57 | 576.27  | 6079.7  | 582.72  | 6080.09 |
| 587.05  | 6080.18 | 591.24  | 6080.16 | 593.68  | 6080.05 | 597.83  | 6079.98 | 605.85  | 6080.22 |
| 611.48  | 6080.48 | 615.79  | 6080.6  | 623.09  | 6080.69 | 627.29  | 6080.79 | 636.63  | 6080.92 |
| 645.25  | 6080.71 | 649.68  | 6080.76 | 656.03  | 6081    | 661.78  | 6081.04 | 673.93  | 6080.71 |
| 679.74  | 6080.67 | 686.2   | 6080.53 | 689.71  | 6080.59 | 694.73  | 6080.84 | 700.82  | 6080.89 |
| 712.5   | 6080.82 | 720.29  | 6080.59 | 725.16  | 6080.54 | 734.34  | 6080.63 | 739.77  | 6080.71 |
| 754.2   | 6080.75 | 762.99  | 6080.7  | 776.86  | 6080.85 | 782.65  | 6080.83 | 790.03  | 6080.92 |
| 794.5   | 6080.91 | 806.91  | 6080.76 | 813.11  | 6080.78 | 831.71  | 6081.02 | 839.2   | 6081.07 |
| 849.03  | 6081.26 | 856.52  | 6081.26 | 861.69  | 6081.11 | 868.92  | 6081.04 | 873.62  | 6080.95 |
| 879.73  | 6081.11 | 886.73  | 6081.19 | 893.73  | 6081.48 | 898.89  | 6081.77 | 908.04  | 6082.03 |
| 913.36  | 6082.06 | 920.6   | 6081.74 | 928.87  | 6081.58 | 933.44  | 6081.56 | 943.04  | 6081.59 |
| 948.5   | 6081.55 | 954.91  | 6081.41 | 958.84  | 6081.39 | 964.01  | 6081.46 | 977.69  | 6081.48 |
| 982.61  | 6081.53 | 989.17  | 6081.53 | 998.11  | 6081.7  | 1008.45 | 6081.84 | 1014.65 | 6082.05 |
| 1021.13 | 6082.32 | 1027.05 | 6082.68 | 1029.32 | 6082.87 | 1035.32 | 6083.17 | 1042.43 | 6083.37 |
| 1046.53 | 6083.39 | 1051.45 | 6083.31 | 1054.73 | 6083.35 | 1059.64 | 6083.53 | 1063.23 | 6083.6  |
| 1067.84 | 6083.62 | 1074.39 | 6083.71 | 1088.32 | 6083.74 | 1092.17 | 6083.69 | 1104.71 | 6083.4  |
| 1107.67 | 6083.29 | 1111.27 | 6083.07 | 1113.87 | 6082.83 | 1117.13 | 6082.41 | 1123.17 | 6081.36 |
| 1126.28 | 6080.75 | 1131.44 | 6079.65 | 1132.48 | 6079.52 | 1137.64 | 6078.38 | 1140.74 | 6077.84 |
| 1143.85 | 6077.52 | 1148.15 | 6077.42 | 1153.88 | 6077.52 | 1160.38 | 6077.8  | 1165.55 | 6078.16 |
| 1168.57 | 6078.31 | 1175.89 | 6078.5  | 1180.02 | 6078.76 | 1184.15 | 6078.69 | 1185.02 | 6078.79 |
| 1189.32 | 6078.77 | 1192.31 | 6078.69 | 1204.18 | 6078.64 | 1208.14 | 6078.59 | 1212.89 | 6078.44 |
| 1218.26 | 6078.11 | 1222.72 | 6078.14 | 1225.5  | 6078.28 | 1230.66 | 6078.63 | 1235.01 | 6078.8  |
| 1237.9  | 6079.02 | 1243.07 | 6079.71 | 1246.17 | 6079.97 | 1252.37 | 6080.14 | 1264.77 | 6080.13 |
| 1269.43 | 6080.02 | 1275.11 | 6079.6  | 1280.27 | 6079.03 | 1283.36 | 6078.82 | 1286.48 | 6078.74 |
| 1293.71 | 6078.65 | 1301.39 | 6078.78 | 1305.08 | 6078.8  | 1310.25 | 6078.76 | 1316.14 | 6078.86 |
| 1320.24 | 6078.63 | 1322.7  | 6078.57 | 1326.78 | 6078.83 | 1330.89 | 6078.95 | 1334.02 | 6078.93 |
| 1340.22 | 6078.99 | 1346.62 | 6078.87 | 1355.48 | 6078.97 | 1365.31 | 6078.96 | 1375.15 | 6078.86 |
| 1383.34 | 6078.97 | 1387.44 | 6078.94 | 1394.1  | 6078.98 | 1396.03 | 6078.94 | 1401.37 | 6078.64 |
| 1405.47 | 6078.57 | 1410.38 | 6078.65 | 1416.7  | 6078.61 | 1425.13 | 6078.61 | 1436.61 | 6078.55 |
| 1442.34 | 6078.58 | 1448.74 | 6078.56 | 1453.82 | 6078.63 | 1461.37 | 6078.64 | 1475.94 | 6078.88 |
| 1480.04 | 6078.76 | 1488.24 | 6078.78 | 1496.29 | 6078.67 | 1501.46 | 6078.68 | 1506.26 | 6078.74 |
| 1512.8  | 6078.59 | 1519.38 | 6078.59 | 1524.19 | 6078.53 | 1530.39 | 6078.53 | 1534.95 | 6078.44 |
| 1541.5  | 6078.42 | 1548.41 | 6078.47 | 1556.33 | 6078.45 | 1560.28 | 6078.61 | 1565.54 | 6079.11 |
| 1568.64 | 6079.2  | 1572.64 | 6079.2  | 1581.66 | 6079.31 | 1590.34 | 6079.58 | 1602.74 | 6079.89 |
| 1612.05 | 6079.89 | 1616.18 | 6079.83 | 1622.38 | 6079.52 | 1630.65 | 6078.87 | 1633.28 | 6078.74 |
| 1652.95 | 6078.77 | 1661.15 | 6078.92 | 1667.7  | 6078.95 | 1680.82 | 6078.73 | 1689.01 | 6078.73 |
| 1698.77 | 6078.62 | 1700.7  | 6078.63 | 1702.72 | 6078.64 | 1707.86 | 6078.75 | 1711.27 | 6078.75 |
| 1717.69 | 6078.64 | 1721.6  | 6078.71 | 1724.7  | 6078.86 | 1729.87 | 6079.2  | 1735.72 | 6079.47 |
| 1740.21 | 6079.59 | 1745.37 | 6079.98 | 1748.01 | 6080.07 | 1749.51 | 6080.03 | 1752.93 | 6079.66 |
| 1754.57 | 6079.41 | 1757.78 | 6079.2  | 1759.49 | 6079.25 | 1764.4  | 6079.74 | 1767.08 | 6079.89 |
| 1772.6  | 6079.94 | 1776.7  | 6079.87 | 1783.62 | 6079.85 | 1789.77 | 6079.75 | 1805.6  | 6079.82 |
| 1811.11 | 6079.79 | 1818.49 | 6079.69 | 1823.92 | 6079.45 | 1827.02 | 6079.11 | 1832.19 | 6078.07 |
| 1834.88 | 6077.79 | 1836    | 6077.02 | 1865    | 6077.02 | 1866.3  | 6078.55 | 1869.4  | 6079.19 |
| 1872.5  | 6079.46 | 1879.13 | 6079.41 | 1884.73 | 6079.28 | 1890.07 | 6079.24 | 1898.8  | 6079.31 |
| 1903.51 | 6079.23 | 1909.45 | 6079.23 | 1916.94 | 6079.13 | 1922.11 | 6079.2  | 1926.25 | 6079.2  |
| 1930.76 | 6079.12 | 1938.65 | 6079.04 | 1941.75 | 6079.09 | 1946.92 | 6079.44 | 1950.02 | 6079.54 |
| 1955.19 | 6079.55 | 1966    | 6079.43 | 1971.72 | 6079.57 | 1980.75 | 6079.63 | 1986.19 | 6079.72 |
| 1991.56 | 6079.71 | 2000.37 | 6079.87 | 2000.7  | 6079.87 | 2006.37 | 6079.81 | 2014.37 | 6079.92 |
| 2029.22 | 6079.87 | 2042.53 | 6079.86 | 2045.38 | 6079.88 | 2052.38 | 6080.04 | 2056.38 | 6080.09 |
| 2064.39 | 6080.07 | 2073.24 | 6079.92 | 2083.47 | 6079.91 | 2088.59 | 6079.96 | 2093.71 | 6079.92 |

2098.39 6079.83 2105.4 6079.87 2110.4 6079.99 2114.4 6080.03 2119.3 6079.97  
2135.4 6079.92 2140.79 6080.06 2143.41 6080.06 2151.03 6079.93 2153.41 6079.85  
2158.19 6079.57 2161.41 6079.44 2170.41 6079.22 2173.41 6079.19 2176.62 6079.24  
2185.42 6079.72 2200.42 6080.16 2204.25 6080.23 2209.42 6080.22 2219.43 6080.41  
2224.43 6080.4 2233.94 6080.54 2243.43 6080.6 2250.31 6080.75 2256.43 6080.71  
2261.57 6080.75 2265.44 6080.7 2273.85 6080.72 2281.44 6080.55 2285.44 6080.56  
2294.44 6080.44 2300.45 6080.52 2303.45 6080.75 2305.45 6081.02 2308.45 6081.29  
2312.75 6081.27 2314.45 6081.16 2318.45 6081.15 2320.94 6081.24 2324.01 6081.25  
2332.45 6081.08 2340.39 6081.15 2345.46 6081.16 2348.46 6081.26 2351.46 6081.59  
2354.46 6082.2 2356.46 6082.79 2359.46 6083.53 2362.46 6084.02 2365.46 6084.24  
2368.46 6084.35 2386.45 6084.75 2389.47 6084.76 2399.47 6084.9 2407.47 6085.08  
2413.48 6085.09 2419.48 6085.15 2423.48 6085.09 2429.43 6084.93 2432.48 6084.68  
2435.48 6084.25 2437.48 6083.84 2443.48 6082.91 2446.48 6082.63 2453.49 6082.26  
2458.49 6081.81 2465.49 6081.65 2470.49 6081.35 2475.38 6081.25 2484.71 6081.31  
2492.5 6081.29 2495.5 6081.35 2500.5 6081.6 2506.5 6081.8 2514.5 6081.73  
2518.48 6081.8 2525.5 6081.83 2528.51 6081.93 2533.51 6082.22 2538.95 6082.41  
2542.51 6082.47 2552.51 6082.55 2555.51 6082.5 2563.51 6082.17 2567.61 6082.14  
2573.52 6082.23 2576.52 6082.34 2581.52 6082.62 2583.52 6082.6 2589.52 6082.35  
2594.52 6082.34 2602.52 6082.56 2610.53 6082.43 2624.53 6082.42 2632.1 6082.2  
2645.54 6082.17 2656.54 6082.01 2665.88 6082.04 2678.16 6082.12 2685.55 6082.12  
2690.44 6082.16 2696.55 6082.16 2702.55 6082.1 2708.55 6082.1 2718.55 6081.98  
2723.56 6081.96 2733.43 6081.97 2742.56 6081.83 2761.07 6081.83 2776.57 6081.74  
2792.57 6081.8 2799.96 6081.7 2812.24 6081.64 2819.58 6081.67 2834.76 6081.56  
2842.95 6081.64 2847.59 6081.6 2867.59 6081.67 2875.6 6081.78 2888.6 6081.78  
2897.6 6081.9 2900.6 6081.9 2908.6 6081.76 2921.61 6081.63 2927.91 6081.63  
2934.05 6081.67 2943.61 6081.67 2953.49 6081.63 2958.61 6081.66 2972.62 6081.66  
2985.22 6081.56 3002.77 6081.57 3012.86 6081.63 3024.12 6081.64 3032.31 6081.6  
3037.64 6081.64 3046.72 6081.63 3055.64 6081.55 3060.97 6081.54 3068.13 6081.63  
3077.34 6081.62 3082.65 6081.71 3089.63 6081.78 3096.65 6081.9 3101.65 6081.95  
3115.22 6082.03 3129.55 6082.09 3144.66 6082.09 3152.06 6082.02 3156.67 6082.02  
3169.46 6081.94 3182.77 6081.97 3193.68 6082.02 3205.68 6082.03 3217.57 6082.14  
3227.69 6082.16 3240.09 6082.16 3262.7 6082.12 3268.7 6082.18

Manning's n Values num= 3  
Sta n Val Sta n Val Sta n Val  
0 .06 1823.92 .035 1872.5 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
1823.92 1872.5 847.02 1566.11 1005.44 .1 .3  
Ineffective Flow num= 1  
Sta L Sta R Elev Permanent  
0 1252.37 6080.14 F  
Blocked Obstructions num= 1  
Sta L Sta R Elev  
3629 3268.7 6081.2

CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 32973

INPUT  
Description:  
Station Elevation Data num= 490



| Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0       | 6079.94 | 5.8     | 6080    | 13.98   | 6079.96 | 24.89   | 6079.71 | 29.3    | 6079.36 |
| 36.92   | 6078.29 | 39.01   | 6078.09 | 46.19   | 6077.75 | 49.07   | 6077.73 | 64.14   | 6078.58 |
| 68.32   | 6078.73 | 70.86   | 6078.72 | 78.07   | 6078.41 | 82.1    | 6078.32 | 92.01   | 6078.26 |
| 106.22  | 6078.28 | 111.88  | 6078.34 | 124.61  | 6078.4  | 138.1   | 6078.43 | 156.1   | 6078.4  |
| 169.7   | 6078.29 | 180.47  | 6078.17 | 191.79  | 6078.14 | 198.15  | 6078.07 | 214.21  | 6077.99 |
| 225.7   | 6077.99 | 236.91  | 6077.87 | 260.17  | 6077.78 | 267.35  | 6077.69 | 287.07  | 6077.55 |
| 291.5   | 6077.48 | 305.19  | 6077.39 | 313.55  | 6077.29 | 323.3   | 6077.11 | 345.59  | 6076.8  |
| 356.98  | 6076.82 | 363.08  | 6076.66 | 378.82  | 6076.53 | 396.1   | 6076.42 | 405.58  | 6076.11 |
| 414.07  | 6075.7  | 417.78  | 6075.61 | 421.32  | 6075.66 | 436.25  | 6076.46 | 439.32  | 6076.52 |
| 443.68  | 6076.4  | 448.97  | 6076.12 | 453.2   | 6076.06 | 459.54  | 6076.13 | 469.06  | 6075.8  |
| 474.34  | 6075.52 | 483.49  | 6075.21 | 487.03  | 6075.18 | 493.38  | 6075.4  | 500.02  | 6075.82 |
| 503.95  | 6075.99 | 513.21  | 6076.26 | 518.75  | 6077.1  | 521.92  | 6077.33 | 528.27  | 6077.15 |
| 532.5   | 6077.15 | 540.16  | 6077.45 | 545.19  | 6077.29 | 550.39  | 6076.86 | 556.3   | 6076.65 |
| 561.41  | 6076.75 | 566.33  | 6076.39 | 571.69  | 6076.09 | 582.19  | 6075.79 | 588.54  | 6075.71 |
| 593.67  | 6075.86 | 599.97  | 6075.82 | 607.84  | 6075.59 | 617.87  | 6075.73 | 625.94  | 6075.38 |
| 637.17  | 6075.25 | 642.46  | 6075.02 | 650.34  | 6074.8  | 658.32  | 6074.25 | 661.49  | 6074.18 |
| 672.38  | 6074.16 | 675.24  | 6074.26 | 680.53  | 6074.63 | 687.93  | 6074.85 | 693.21  | 6075.27 |
| 696.39  | 6075.39 | 711.73  | 6075.45 | 718.81  | 6075.36 | 728.11  | 6075.57 | 735.51  | 6075.58 |
| 740.79  | 6075.68 | 745.02  | 6075.64 | 751.08  | 6075.43 | 764.06  | 6075.63 | 773.9   | 6075.54 |
| 785.2   | 6075.27 | 795.94  | 6075.33 | 803.02  | 6075.17 | 809.32  | 6075.15 | 823.27  | 6075.29 |
| 830.67  | 6075.32 | 840.18  | 6075.69 | 845.67  | 6076.04 | 861.33  | 6076.54 | 865.2   | 6076.52 |
| 870.85  | 6076.34 | 878.25  | 6076.22 | 883.3   | 6075.95 | 892.74  | 6075.53 | 897.47  | 6075.41 |
| 902.57  | 6075.19 | 906.8   | 6075.19 | 912.08  | 6075.75 | 916.35  | 6075.84 | 918.43  | 6075.74 |
| 925.8   | 6075.61 | 929     | 6075.44 | 934.29  | 6074.82 | 940.63  | 6074.17 | 943.8   | 6073.99 |
| 950.2   | 6073.89 | 954.38  | 6074.01 | 959.64  | 6074.4  | 963.57  | 6074.49 | 970.66  | 6074.48 |
| 976.58  | 6074.56 | 980.1   | 6074.73 | 988.21  | 6075.37 | 991.91  | 6075.42 | 997.42  | 6075.26 |
| 1009.36 | 6075.19 | 1015.7  | 6075.37 | 1020.99 | 6075.45 | 1034.74 | 6076.09 | 1040.02 | 6076.08 |
| 1045.76 | 6076.19 | 1053.3  | 6076.22 | 1065.4  | 6076.33 | 1074.54 | 6076.64 | 1084.43 | 6076.65 |
| 1098.1  | 6077.08 | 1106.81 | 6077.07 | 1115.09 | 6076.69 | 1122.5  | 6076.59 | 1128.84 | 6076.78 |
| 1138.36 | 6077.6  | 1141.53 | 6078    | 1147.87 | 6079.02 | 1153.25 | 6080.11 | 1156.33 | 6080.52 |
| 1160.56 | 6080.51 | 1163.73 | 6080.04 | 1170.08 | 6078.82 | 1175.36 | 6077.56 | 1178.43 | 6077.06 |
| 1181.71 | 6076.77 | 1184.73 | 6076.69 | 1203.62 | 6076.87 | 1226.44 | 6077    | 1238.8  | 6077.12 |
| 1244.09 | 6077.13 | 1259.95 | 6077.25 | 1266.58 | 6077.36 | 1282.8  | 6077.55 | 1305.42 | 6077.73 |
| 1312.82 | 6077.76 | 1330.79 | 6077.97 | 1348.43 | 6078.11 | 1364.96 | 6078.13 | 1372.83 | 6078.01 |
| 1397.22 | 6077.08 | 1405.09 | 6076.99 | 1410.09 | 6076.85 | 1423.84 | 6076.6  | 1430.28 | 6076.65 |
| 1443.66 | 6077.01 | 1453.44 | 6077.2  | 1458.73 | 6077.24 | 1464.02 | 6077.18 | 1473.53 | 6077.27 |
| 1484.58 | 6077.23 | 1493.24 | 6077.27 | 1496.79 | 6077.41 | 1499.97 | 6077.73 | 1508.43 | 6078.94 |
| 1514.49 | 6079.71 | 1530.23 | 6081.32 | 1533.8  | 6081.64 | 1540.15 | 6082.05 | 1546.49 | 6082.26 |
| 1553.89 | 6082.32 | 1557.06 | 6082.17 | 1560.24 | 6081.78 | 1563.41 | 6081.02 | 1568.69 | 6079.57 |
| 1575.04 | 6078.19 | 1578.21 | 6077.67 | 1581.38 | 6077.38 | 1587.73 | 6077.01 | 1595.13 | 6076.93 |
| 1607.82 | 6077.05 | 1612.87 | 6077.17 | 1620.74 | 6077.08 | 1625.46 | 6076.85 | 1631.08 | 6076.75 |
| 1638.48 | 6076.83 | 1652.2  | 6076.78 | 1657.73 | 6076.63 | 1667.59 | 6076.66 | 1676.62 | 6076.36 |
| 1686.85 | 6076.24 | 1696.63 | 6075.98 | 1704.95 | 6075.63 | 1715.18 | 6075.85 | 1728.56 | 6075.73 |
| 1734.86 | 6075.84 | 1745.27 | 6075.85 | 1748.09 | 6075.88 | 1752.96 | 6075.92 | 1759.25 | 6075.87 |
| 1775.34 | 6076.15 | 1782.86 | 6076.07 | 1790.73 | 6076.4  | 1794.97 | 6076.4  | 1799.96 | 6076.23 |
| 1809.77 | 6076.18 | 1816.71 | 6076.28 | 1820.34 | 6076.24 | 1825.63 | 6075.86 | 1831.97 | 6075.67 |
| 1842.68 | 6075.78 | 1845.72 | 6075.99 | 1849.76 | 6076.47 | 1852.06 | 6076.6  | 1860.78 | 6076.76 |
| 1867.92 | 6076.61 | 1871.09 | 6076.62 | 1874.16 | 6076.48 | 1877.44 | 6076.1  | 1880.61 | 6075.49 |
| 1882.72 | 6074.94 | 1885.9  | 6074.49 | 1887    | 6073.7  | 1910    | 6073.7  | 1912.33 | 6074.87 |
| 1915.5  | 6075.57 | 1917.62 | 6076.21 | 1920.79 | 6076.94 | 1923.96 | 6077.38 | 1928.19 | 6077.36 |
| 1933.48 | 6076.51 | 1936.33 | 6076.28 | 1947.35 | 6076.24 | 1959.16 | 6075.87 | 1964.67 | 6075.79 |
| 1968.37 | 6075.65 | 1972.6  | 6075.69 | 1975.77 | 6075.95 | 1981.06 | 6076.54 | 1984.23 | 6076.66 |
| 1997.98 | 6076.68 | 2003.23 | 6076.55 | 2011.72 | 6076.72 | 2016.61 | 6076.65 | 2019.76 | 6076.75 |
| 2025.47 | 6077.11 | 2036.28 | 6077.14 | 2044.16 | 6076.7  | 2047.3  | 6076.63 | 2048.09 | 6076.64 |

|                  |         |         |           |        |         |        |       |        |        |
|------------------|---------|---------|-----------|--------|---------|--------|-------|--------|--------|
| Bank Sta:        | Left    | Right   | Lengths:  | Left   | Channel | Right  | Coeff | Contr. | Expan. |
|                  | 1860.78 | 1920.79 |           | 431.73 | 711.11  | 595.34 |       | .1     | .3     |
| Ineffective Flow | num=    |         | 2         |        |         |        |       |        |        |
| Sta L            | Sta R   | Elev    | Permanent |        |         |        |       |        |        |
| 0                | 1156.33 | 6080.52 | F         |        |         |        |       |        |        |
| 2142             | 3652.19 | 6077.2  | F         |        |         |        |       |        |        |

Blocked Obstructions      num=      1  
Sta L    Sta R    Elev  
2210 3652.19   6078.2

CROSS SECTION

RIVER: Flat Creek  
REACH: 1                      RS: 32262

INPUT

Description:

| Station | Elevation | Data    | num=    | 492     |         |         |         |         |         |  |
|---------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|--|
| Sta     | Elev      | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    |  |
| 0       | 6076.77   | 8.26    | 6076.7  | 20.65   | 6076.56 | 32.58   | 6076.25 | 38.93   | 6076.06 |  |
| 44.21   | 6076      | 49.77   | 6076.01 | 57.64   | 6076.07 | 62.86   | 6076.07 | 67.48   | 6075.99 |  |
| 79.11   | 6075.88   | 84.39   | 6075.78 | 90.74   | 6075.53 | 100.13  | 6074.89 | 102.37  | 6074.7  |  |
| 105.54  | 6074.55   | 109.77  | 6074.53 | 112.94  | 6074.57 | 116.66  | 6074.7  | 119.02  | 6074.85 |  |
| 122.46  | 6074.92   | 125.63  | 6074.6  | 128.8   | 6073.86 | 130.92  | 6073.28 | 134.09  | 6072.74 |  |
| 137.26  | 6072.49   | 140.44  | 6072.4  | 144.67  | 6072.49 | 147.84  | 6072.73 | 151.01  | 6073.08 |  |
| 156.3   | 6073.82   | 159.47  | 6074.08 | 163.7   | 6074.13 | 168.99  | 6073.86 | 178.5   | 6073.61 |  |
| 181.98  | 6073.58   | 185.9   | 6073.65 | 191.19  | 6074.03 | 194.36  | 6074.13 | 198.59  | 6074.18 |  |
| 204.8   | 6074.35   | 211.28  | 6074.61 | 213.4   | 6074.74 | 216.57  | 6074.83 | 220.54  | 6074.88 |  |
| 223.69  | 6075.01   | 229.2   | 6075.3  | 239.83  | 6075.5  | 243     | 6075.58 | 246.17  | 6075.76 |  |
| 251.46  | 6076.21   | 254.63  | 6076.43 | 258.86  | 6076.62 | 270.49  | 6077.08 | 274.84  | 6077.15 |  |
| 283.18  | 6077.39   | 296.09  | 6077.33 | 301.6   | 6077.2  | 304.75  | 6077.23 | 311.73  | 6077.37 |  |
| 321.35  | 6077.3    | 331.82  | 6077.25 | 344.88  | 6077.12 | 352.12  | 6077.11 | 358.26  | 6077.02 |  |
| 363.77  | 6077.02   | 372     | 6077.2  | 379.41  | 6077.25 | 387.38  | 6077.45 | 391.04  | 6077.5  |  |
| 395.25  | 6077.5    | 399.18  | 6077.43 | 406.9   | 6077.12 | 417.47  | 6077.05 | 433.33  | 6076.72 |  |
| 436.96  | 6076.58   | 442.85  | 6076.23 | 448.14  | 6075.88 | 451.12  | 6075.76 | 458.71  | 6075.64 |  |
| 462.14  | 6075.71   | 466.86  | 6075.93 | 473.51  | 6075.81 | 477.88  | 6075.79 | 484.09  | 6076.05 |  |
| 485.75  | 6076.07   | 488.9   | 6075.95 | 492.83  | 6075.68 | 496.75  | 6075.58 | 499.83  | 6075.44 |  |
| 502.06  | 6075.26   | 505.23  | 6075.09 | 509.36  | 6074.98 | 512.64  | 6074.94 | 518.8   | 6074.94 |  |
| 522.15  | 6074.84   | 527.44  | 6074.61 | 530.6   | 6074.51 | 533.76  | 6074.49 | 538.48  | 6074.57 |  |
| 544.36  | 6074.6    | 550.28  | 6074.79 | 557.05  | 6074.68 | 560.51  | 6074.76 | 562.88  | 6074.76 |  |
| 568.38  | 6074.63   | 571.85  | 6074.59 | 577.04  | 6074.59 | 584.54  | 6074.72 | 586.65  | 6074.73 |  |
| 591.94  | 6074.63   | 596.17  | 6074.59 | 603.01  | 6074.46 | 609.31  | 6074.57 | 613.24  | 6074.54 |  |
| 617.32  | 6074.6    | 622.6   | 6074.9  | 627.41  | 6074.84 | 629.77  | 6074.88 | 635.23  | 6075.37 |  |
| 637.41  | 6075.44   | 640     | 6075.4  | 644.81  | 6075.11 | 647.54  | 6075.01 | 650.23  | 6074.99 |  |
| 655.38  | 6075.12   | 659.85  | 6075.06 | 665.18  | 6075.11 | 671.48  | 6075.25 | 674.63  | 6075.26 |  |
| 679.35  | 6075.18   | 683.28  | 6075.16 | 686.43  | 6075.22 | 689.22  | 6075.35 | 691.94  | 6075.39 |  |
| 698.74  | 6075.18   | 704.53  | 6075.17 | 714.76  | 6074.64 | 718.7   | 6074.59 | 722     | 6074.73 |  |
| 724.11  | 6074.88   | 728.14  | 6074.95 | 733.63  | 6074.75 | 741.03  | 6074.63 | 750.55  | 6074.11 |  |
| 753.72  | 6073.84   | 759.01  | 6073.21 | 761.98  | 6072.97 | 766.41  | 6072.96 | 774.87  | 6073.5  |  |
| 778.04  | 6073.56   | 782.27  | 6073.57 | 787.95  | 6073.52 | 793.46  | 6073.6  | 813.99  | 6073.71 |  |
| 822.94  | 6073.92   | 827.3   | 6073.99 | 832.81  | 6074.15 | 839.1   | 6074.04 | 844.48  | 6074.17 |  |
| 854.17  | 6074.14   | 860.35  | 6074.06 | 873.21  | 6073.97 | 877.44  | 6074.04 | 880.81  | 6074.21 |  |
| 885.89  | 6074.56   | 892.62  | 6074.7  | 898.13  | 6074.69 | 902.95  | 6074.8  | 910.21  | 6075.04 |  |
| 915.26  | 6075.13   | 924.1   | 6075.14 | 928.19  | 6075.1  | 933.48  | 6074.9  | 938.76  | 6074.85 |  |
| 943.77  | 6074.98   | 947.22  | 6074.98 | 954     | 6074.9  | 961.42  | 6074.9  | 968.37  | 6074.7  |  |
| 979.97  | 6074.67   | 990.99  | 6074.77 | 994.92  | 6074.83 | 1002.79 | 6074.78 | 1007.49 | 6074.81 |  |
| 1013.81 | 6074.81   | 1021.68 | 6074.87 | 1026.4  | 6074.78 | 1033.93 | 6074.78 | 1038.21 | 6074.72 |  |
| 1049.79 | 6074.68   | 1057.19 | 6074.76 | 1066.04 | 6074.69 | 1073.05 | 6074.68 | 1078.34 | 6074.73 |  |
| 1084.51 | 6074.6    | 1091.03 | 6074.64 | 1096.82 | 6074.63 | 1101.17 | 6074.69 | 1109.13 | 6074.69 |  |
| 1113.76 | 6074.73   | 1121.63 | 6074.71 | 1127.14 | 6074.82 | 1135.01 | 6074.82 | 1144.95 | 6074.96 |  |

1153.41 6074.95 1160.82 6075.08 1162.93 6075.15 1166.1 6075.4 1169.27 6075.81  
1172.45 6076.36 1174.56 6076.91 1175.62 6077.09 1177.73 6077.78 1178.79 6078.01  
1180.91 6078.77 1181.96 6079 1184.08 6079.69 1187.25 6080.21 1190.42 6080.33  
1191.59 6080.28 1191.99 6079.19 1200.29 6079.14 1203.16 6078.65 1204.58 6078.48  
1207.44 6078.87 6077.57 1211.73 6076.95 1213.16 6076.8 1216.02 6076.3  
1220.31 6075.87 1224.11 6075.72 1229.23 6075.68 1234.62 6075.76 1243.91 6075.95  
1255.23 6076.12 1261.81 6076.16 1283.27 6076.41 1304.73 6076.71 1314.74 6076.97  
1318.87 6077.05 1327.62 6077.11 1334.7 6077.11 1348.57 6077.43 1366.96 6077.56  
1375.45 6077.65 1398.78 6077.65 1405.41 6077.61 1410.1 6077.61 1427.77 6077.36  
1433.49 6077.15 1441.21 6076.99 1444.56 6076.89 1452.09 6076.52 1457.82 6076.31  
1462.11 6076.33 1470.69 6076.53 1475.32 6076.8 1485.76 6076.74 1486.47 6076.89  
1488.59 6076.82 1494.48 6076.94 1502.73 6076.98 1506.98 6076.82 1510.51 6076.4  
1513.62 6075.75 1516.45 6074.98 1519.7 6074.29 1524.26 6073.51 1527.05 6073.18  
1530.79 6072.96 1536.51 6072.89 1548.03 6072.89 1562.26 6072.93 1577.69 6072.94  
1584.76 6072.86 1590.42 6072.86 1596.08 6072.97 1598.91 6073.09 1603.75 6073.5  
1608.15 6074.32 1610.91 6074.97 1613.74 6075.29 1615.14 6075.33 1618.06 6075.22  
1626.48 6074.99 1629.12 6075 1638.51 6075.24 1640.95 6075.24 1643.81 6075.15  
1653.83 6074.7 1657.4 6074.47 1658.12 6074.42 1665.28 6074.07 1668.28 6074.05  
1674.57 6074.37 1676.66 6074.34 1689.6 6073.76 1695.08 6073 1697.2 6072.92  
1700.74 6073.19 1703.91 6073.28 1708.82 6073.14 1714.88 6073.05 1718.21 6072.88  
1721.24 6074.84 1728.94 6073.34 1732.59 6073.94 1734.68 6074.31 6074.99  
1736.79 6074.55 1738.19 6074.62 1742.54 6074.65 1744.58 6074.72 1749.53 6074.99  
1753.57 6075.02 1757.76 6074.82 1760.14 6074.55 1766.15 6074.02 1769.33 6073.57  
1771.74 6073.14 1775.94 6072.6 1780.13 6072.16 1782.93 6071.99 1785.73 6071.89  
1789.13 6071.53 1801.86 6071.5 1808.93 6071.5 1817.89 6071.56 1833.68 6074.62  
1824.09 6072.09 1827.32 6072.25 1829.44 6072.72 1831.56 6073.6 1833.68 6074.62  
1835.8 6075.36 1838.63 6075.86 1841.66 6075.97 1844.45 6075.88 1851.44 6075.17  
1855.56 6075.01 1859.14 6074.95 1869.62 6074.98 1878.46 6075.07 1885 6075.18  
1891.33 6075.22 1901.35 6075.46 1906.52 6075.36 1911.16 6075.6 1917.16 6075.64  
1923.49 6075.54 1930.56 6075.65 1934.1 6075.54 1937.63 6075.07 1939.75 6074.89  
1942.58 6075.03 1947.7 6075.31 1947.53 6075.47 1954.29 6075.32 1957.4 6075.33  
1964.3 6075.35 1973.7 6075.05 1980.04 6074.94 1982.88 6074.94 1990.05 6075.07  
1994.2 6075.34 1997.21 6075.68 2000.07 6075.91 2002.45 6076.02 2007.22 6076.05  
2035.72 6076.51 2043.54 6076.35 2047.72 6076.24 2050.72 6076.11 2058.72 6075.55  
2064.46 6075.39 2074.43 6075.34 2079.72 6075.27 2086.72 6075.31 2097.34 6075.5  
2116.72 6075.52 2117.06 6075.53 2179.03 6075.42 2190.94 6075.29 2200.92 6075.61  
2211.72 6075.24 2219.87 6075.72 2229.72 6075.18 2233.82 6075.18 2242.72 6075.24  
2251.72 6075.25 2261.71 6075.31 2271.67 6075.27 2281.72 6075.27 6075.89  
2292.59 6075.15 2297.53 6075.72 2308.72 6075.3 2320.72 6075.68 2325.67 6075.72 6075.67  
2361.33 6075.72 2371.29 6075.72 2374.72 6075.68 2382.72 6075.72 2392.72 6075.48  
2396.72 6075.41 2405.72 6075.46 2413.72 6075.47 2419.11 6075.43 2431.06 6075.43  
2436.04 6075.35 2447 6075.26 2453.72 6075.35 2463.72 6075.29 2468.72 6075.29  
2477.89 6075.24 2494.82 6075.82 2501.72 6075.28 2505.78 6075.27 2520.72 6075.03  
2533.67 6074.91 2542.72 6074.88 2550.61 6074.94 2560.72 6074.94 2569.73 6074.91  
2590.45 6074.8 2601.41 6074.63 2605.73 6074.65 2610.38 6074.73 2617.73 6074.78  
2620.73 6074.85 2625.73 6075.16 2629.73 6075.1 2632.73 6074.84 2635.73 6074.46  
2638.73 6073.97 2643.73 6073.36 2643.73 6072.83 2644.73 6070.42 2655.73 6069.44  
2646.73 6072.14 2647.73 6071.98 2650.73 6071.15 2652.73 6070.42 2655.73 6069.44  
2658.73 6068.87 2662.18 6068.72 2870.73 6068.72 2875.73 6068.79 2880.35 6069.06  
2884.33 6069.25 2887.73 6069.15 2892.73 6068.78 2895.73 6068.72 2950.08 6068.72  
2953.73 6068.81 2956.73 6069.18 2959.73 6069.73 6069.82 2961.73 6070.31 2964.73 6070.78  
2970.73 6071.5 2980.73 6072.51 2982.73 6072.77 2986.73 6073.16 2988.73 6073.42



2994.73 6074.01 2998.73 6074.36 3003.73 6074.91 3009.85 6075.48 3015.73 6075.97  
 3022.73 6076.49 3027.73 6076.89 3031.73 6077.1 3036.73 6077.51 3039.73 6077.7  
 3045.72 6077.93 3051.66 6078.01

Manning's n Values num= 3  
 Sta n Val Sta n Val Sta n Val  
 0 .06 1753.57 .035 1841.66 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 1753.57 1841.66 533.3 647.47 649.67 .3 .5  
 Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 1190.42 6080.33 T  
 2025.61 3051.66 6076.54 T

# CROSS SECTION

RIVER: Flat Creek  
 REACH: 1 RS: 31615

## INPUT

Description: Upstream of Rafter J Bridge

Station Elevation Data num= 450

| Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 194.21  | 6077.83 | 197.58  | 6077.7  | 201.39  | 6077.61 | 210.83  | 6077.49 | 218.15  | 6077.37 |
| 225.58  | 6077.22 | 230.72  | 6077.23 | 237.35  | 6077.13 | 243.3   | 6077.16 | 254.64  | 6077.12 |
| 263.14  | 6077.01 | 272.31  | 6076.81 | 276.84  | 6076.75 | 279.48  | 6076.66 | 290.24  | 6076.53 |
| 295.62  | 6076.53 | 302.85  | 6076.48 | 308.63  | 6076.47 | 315.33  | 6076.37 | 324.52  | 6076.31 |
| 328.85  | 6076.31 | 333.91  | 6076.42 | 341.86  | 6076.5  | 346.91  | 6076.68 | 354.14  | 6076.68 |
| 359.19  | 6076.72 | 364.97  | 6076.9  | 367.79  | 6076.88 | 370.3   | 6076.72 | 372.69  | 6076.48 |
| 375.81  | 6076.35 | 387.5   | 6076.29 | 391.4   | 6076.3  | 399.2   | 6076.42 | 414.56  | 6076.62 |
| 422.01  | 6076.7  | 435.06  | 6076.87 | 444.37  | 6077.01 | 456.08  | 6077.26 | 467.02  | 6077.26 |
| 469.93  | 6077.19 | 481.64  | 6076.78 | 491.12  | 6076.53 | 513.9   | 6076.13 | 515.92  | 6076.07 |
| 526.27  | 6075.88 | 535.7   | 6075.67 | 546.41  | 6075.61 | 550.54  | 6075.56 | 554.11  | 6075.46 |
| 557.2   | 6075.27 | 560.3   | 6074.96 | 563.39  | 6074.52 | 565.37  | 6074.16 | 569.58  | 6073.61 |
| 571.64  | 6073.2  | 574.73  | 6072.68 | 577.82  | 6072.27 | 580.21  | 6072.12 | 581.95  | 6072.12 |
| 585.04  | 6072.45 | 587.1   | 6072.91 | 590.2   | 6073.51 | 592.57  | 6073.77 | 596.69  | 6073.92 |
| 604.11  | 6073.91 | 612.35  | 6073.76 | 620.59  | 6073.97 | 629.65  | 6074.04 | 635.56  | 6073.96 |
| 640.37  | 6073.84 | 647.79  | 6073.93 | 656.85  | 6073.88 | 665.92  | 6073.93 | 674.74  | 6073.94 |
| 683.22  | 6073.78 | 691.47  | 6073.88 | 696.49  | 6073.86 | 700.52  | 6073.92 | 708.76  | 6073.91 |
| 714.54  | 6073.96 | 722.17  | 6074.11 | 731.03  | 6074.31 | 741.74  | 6074.33 | 748.33  | 6074.39 |
| 756.57  | 6074.43 | 763.99  | 6074.52 | 774.53  | 6074.51 | 780.94  | 6074.55 | 788.15  | 6074.32 |
| 790.96  | 6074.32 | 797.78  | 6074.46 | 801.9   | 6074.49 | 807.74  | 6074.48 | 810.84  | 6074.67 |
| 813.93  | 6075.09 | 815.91  | 6075.48 | 819.08  | 6075.96 | 822.18  | 6076.27 | 825.27  | 6076.43 |
| 827.93  | 6076.47 | 832.04  | 6076.45 | 835.58  | 6076.34 | 838.67  | 6076.13 | 847.95  | 6075.38 |
| 851.05  | 6075.09 | 856.2   | 6074.52 | 859.29  | 6074.28 | 865.48  | 6073.89 | 868.57  | 6073.77 |
| 872.78  | 6073.73 | 875.79  | 6073.8  | 880.94  | 6074.05 | 883.49  | 6074.13 | 888.16  | 6074.18 |
| 893.32  | 6074.43 | 895.03  | 6074.47 | 900.53  | 6074.47 | 907.39  | 6074.75 | 913.94  | 6074.93 |
| 919.09  | 6075.24 | 927.34  | 6075.93 | 929.4   | 6075.97 | 931.46  | 6075.9  | 936.62  | 6075.38 |
| 940.74  | 6075.17 | 943.84  | 6074.94 | 945.9   | 6074.7  | 948.99  | 6074.44 | 952.09  | 6074.35 |
| 959.37  | 6074.36 | 968.38  | 6074.55 | 971.67  | 6074.49 | 976.62  | 6074.23 | 981.57  | 6074.14 |
| 984.01  | 6074.15 | 993.11  | 6074.37 | 996.4   | 6074.35 | 1001.57 | 6074.14 | 1006.29 | 6074.09 |
| 1008.76 | 6074    | 1013.95 | 6073.68 | 1017.01 | 6073.6  | 1027.72 | 6073.45 | 1036.63 | 6073.22 |
| 1041.52 | 6073.24 | 1049.74 | 6073.32 | 1056.22 | 6073.52 | 1062.4  | 6073.43 | 1068.93 | 6073.55 |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1072.22 | 6073.55 | 1080.96 | 6073.38 | 1084.35 | 6073.37 | 1089.68 | 6073.45 | 1096.07 | 6073.7  |
| 1098.2  | 6073.73 | 1104.34 | 6073.63 | 1109.01 | 6073.61 | 1114.17 | 6073.76 | 1118.43 | 6073.79 |
| 1124.83 | 6073.68 | 1128.02 | 6073.52 | 1131.22 | 6073.3  | 1134.41 | 6072.96 | 1139.74 | 6072    |
| 1141.4  | 6071.88 | 1144    | 6072.02 | 1147.19 | 6072.69 | 1149.32 | 6073.29 | 1152.52 | 6073.99 |
| 1154.99 | 6074.35 | 1157.33 | 6074.52 | 1159.67 | 6074.57 | 1169.56 | 6074.6  | 1177.59 | 6074.44 |
| 1183.05 | 6074.47 | 1185.54 | 6074.42 | 1190.84 | 6074.19 | 1195.51 | 6074.08 | 1200.45 | 6073.84 |
| 1203.65 | 6073.81 | 1207.91 | 6073.84 | 1216.43 | 6073.55 | 1221.23 | 6073.55 | 1225.61 | 6073.47 |
| 1232.92 | 6073.44 | 1244.12 | 6073.32 | 1246.42 | 6073.36 | 1252.51 | 6073.66 | 1257.68 | 6073.78 |
| 1264.84 | 6074.01 | 1269.03 | 6074.2  | 1274.05 | 6074.55 | 1277.64 | 6074.64 | 1281.22 | 6074.62 |
| 1284.81 | 6074.69 | 1289.11 | 6074.85 | 1292.69 | 6074.9  | 1296.99 | 6074.87 | 1304.22 | 6074.88 |
| 1312.84 | 6074.92 | 1316.28 | 6074.78 | 1318.51 | 6074.61 | 1322.81 | 6074.42 | 1331.14 | 6074.41 |
| 1338.58 | 6074.59 | 1344.32 | 6074.89 | 1351.86 | 6075.08 | 1361.93 | 6075.24 | 1369.78 | 6075.18 |
| 1374.02 | 6075.12 | 1378.76 | 6074.97 | 1381.54 | 6075.06 | 1388.88 | 6075.13 | 1394.53 | 6075.01 |
| 1396.47 | 6074.9  | 1400.79 | 6074.79 | 1404.43 | 6074.79 | 1409.35 | 6074.71 | 1412.92 | 6074.73 |
| 1420.94 | 6074.57 | 1426.03 | 6074.62 | 1434.84 | 6074.43 | 1438.48 | 6074.43 | 1447.24 | 6074.31 |
| 1453.39 | 6074.3  | 1459.44 | 6074.37 | 1465.67 | 6074.57 | 1471.43 | 6074.82 | 1476.6  | 6075.14 |
| 1481    | 6075.3  | 1488.33 | 6075.38 | 1494.19 | 6075.32 | 1495.74 | 6075.26 | 1501.79 | 6075.15 |
| 1505.18 | 6075.18 | 1507.83 | 6075.11 | 1511.87 | 6075.13 | 1518.38 | 6075.42 | 1525.98 | 6075.53 |
| 1534.5  | 6075.88 | 1539.63 | 6075.82 | 1545.5  | 6076    | 1546.96 | 6076.01 | 1550.7  | 6075.88 |
| 1552.84 | 6075.89 | 1554.98 | 6076.09 | 1559.26 | 6076.72 | 1561.4  | 6076.76 | 1567.05 | 6076.61 |
| 1570.67 | 6076.38 | 1574.23 | 6076.31 | 1581.72 | 6075.94 | 1584.78 | 6075.88 | 1588.13 | 6075.96 |
| 1589.54 | 6075.91 | 1593.25 | 6075.64 | 1596.69 | 6075.69 | 1601.17 | 6075.95 | 1605.82 | 6076    |
| 1610.18 | 6075.78 | 1612.73 | 6075.76 | 1615.13 | 6075.87 | 1621.28 | 6076.34 | 1624.49 | 6076.46 |
| 1631.42 | 6076.56 | 1637.33 | 6076.6  | 1641.6  | 6076.59 | 1648.02 | 6076.5  | 1650.9  | 6076.36 |
| 1662.03 | 6075.58 | 1669.11 | 6075.38 | 1677.04 | 6075.33 | 1690.34 | 6075.32 | 1695.4  | 6075.5  |
| 1701.01 | 6075.58 | 1708.62 | 6075.53 | 1719.46 | 6075.35 | 1730.8  | 6075.33 | 1735.24 | 6075.35 |
| 1735.8  | 6075.33 | 1741.49 | 6075.11 | 1745.7  | 6075.02 | 1752.5  | 6075.01 | 1758.06 | 6074.85 |
| 1765.52 | 6074.74 | 1772.32 | 6074.77 | 1776.54 | 6074.68 | 1784.69 | 6074.37 | 1794.19 | 6074.21 |
| 1799.9  | 6074.05 | 1808.58 | 6073.97 | 1819.6  | 6073.83 | 1823.6  | 6073.82 | 1831.28 | 6073.71 |
| 1835.62 | 6073.62 | 1839.83 | 6073.61 | 1843.63 | 6073.65 | 1853.15 | 6073.83 | 1857.9  | 6073.76 |
| 1864.66 | 6073.29 | 1869.67 | 6073    | 1871.67 | 6072.75 | 1873.67 | 6072.3  | 1874.67 | 6071.95 |
| 1877.68 | 6071.09 | 1879.68 | 6070.8  | 1881.67 | 6069    | 1896.71 | 6069    | 1898.71 | 6070.77 |
| 1900.69 | 6070.97 | 1903.72 | 6071.71 | 1906.72 | 6072.66 | 1908.72 | 6073.09 | 1910.72 | 6073.39 |
| 1912.73 | 6073.58 | 1915.73 | 6073.63 | 1920.66 | 6073.39 | 1924.74 | 6073.31 | 1927.75 | 6073.18 |
| 1930    | 6072.8  | 2069.79 | 6072.8  | 2160.01 | 6072.8  | 2169.03 | 6073.02 | 2176.39 | 6073.01 |
| 2178.96 | 6073.05 | 2184.64 | 6073.06 | 2189.53 | 6073.02 | 2196.7  | 6073.04 | 2204.75 | 6072.78 |
| 2212.86 | 6072.74 | 2217.97 | 6072.69 | 2231.27 | 6072.76 | 2238.78 | 6072.76 | 2244.27 | 6072.83 |
| 2249.69 | 6072.84 | 2257.06 | 6072.77 | 2266.63 | 6072.78 | 2278.48 | 6072.82 | 2284.18 | 6072.78 |
| 2294.96 | 6072.78 | 2302.42 | 6072.71 | 2313.18 | 6072.81 | 2317.91 | 6072.91 | 2322.89 | 6072.94 |
| 2327.87 | 6072.9  | 2332.72 | 6072.8  | 2342.8  | 6072.69 | 2348.61 | 6072.65 | 2354.32 | 6072.51 |
| 2358.56 | 6072.5  | 2363.4  | 6072.64 | 2371    | 6072.65 | 2384.14 | 6072.81 | 2389.26 | 6072.73 |
| 2391.33 | 6072.62 | 2394.42 | 6072.55 | 2410.87 | 6072.45 | 2420.78 | 6072.58 | 2424.93 | 6072.55 |
| 2426.3  | 6072.6  | 2444.38 | 6072.73 | 2450.77 | 6072.72 | 2458.9  | 6072.6  | 2462.96 | 6072.64 |
| 2466.01 | 6072.76 | 2471.09 | 6073.13 | 2473.68 | 6073.27 | 2475.41 | 6073.29 | 2480.23 | 6073.09 |
| 2492.64 | 6072.89 | 2496.09 | 6072.96 | 2504.61 | 6073.31 | 2509.02 | 6073.42 | 2513.33 | 6073.48 |
| 2527.95 | 6073.53 | 2533.06 | 6073.46 | 2539.15 | 6073.26 | 2544.23 | 6072.98 | 2548.3  | 6072.98 |
| 2552.97 | 6073.21 | 2560.72 | 6073.27 | 2566.58 | 6073.49 | 2573.4  | 6073.96 | 2577.74 | 6074.35 |
| 2586.82 | 6074.9  | 2589.84 | 6075.01 | 2604.8  | 6075.24 | 2608.36 | 6075.24 | 2618.08 | 6075.14 |
| 2621.11 | 6075.13 | 2634.22 | 6075.44 | 2640.47 | 6075.47 | 2646.32 | 6075.54 | 2649.35 | 6075.41 |
| 2655.63 | 6074.63 | 2661.45 | 6074.05 | 2664.47 | 6073.96 | 2670.52 | 6073.97 | 2672.86 | 6074.06 |
| 2677.04 | 6074.33 | 2679.6  | 6074.45 | 2684.17 | 6074.51 | 2687.74 | 6074.51 | 2696.75 | 6074.41 |
| 2705.82 | 6074.18 | 2709.14 | 6074.07 | 2713.89 | 6073.79 | 2719.94 | 6073.53 | 2729.02 | 6073.29 |
| 2741.12 | 6073.24 | 2745.71 | 6073.24 | 2751.06 | 6073.19 | 2767.34 | 6073.18 | 2775.14 | 6073.24 |
| 2780.8  | 6073.24 | 2787.51 | 6073.29 | 2796.55 | 6073.28 | 2802.79 | 6073.21 | 2810.71 | 6073.07 |
| 2820.63 | 6073.08 | 2826.84 | 6073.11 | 2835.92 | 6073.09 | 2838.95 | 6073.06 | 2850.04 | 6072.88 |

|           |          |        |       |         |       |
|-----------|----------|--------|-------|---------|-------|
| Manning's | n Values |        | num=  | 3       |       |
| Sta       | n Val    | Sta    | n Val | Sta     | n Val |
| 194.21    | .06      | 1857.9 | .035  | 1912.73 | .06   |

| Ineffective Flow |         | num=    | 3         |
|------------------|---------|---------|-----------|
| Sta L            | Sta R   | Elev    | Permanent |
| 404.26           | 1859.68 | 6075.91 | T         |
| 2177.63          | 2611.96 | 6074.21 | T         |
| 2611.96          | 3006.44 | 6074.95 | T         |

MULTIPLE OPENING

REACH: 1 RS: 31602

| num= 491 |         |      |    |      |        |         |      |    |      |        |         |      |    |      |
|----------|---------|------|----|------|--------|---------|------|----|------|--------|---------|------|----|------|
| Sta      | Hi      | Cord | Lo | Cord | Sta    | Hi      | Cord | Lo | Cord | Sta    | Hi      | Cord | Lo | Cord |
| 213.74   | 6078.93 |      | 0  |      | 219.21 | 6078.86 |      | 0  |      | 225.96 | 6078.76 |      | 0  |      |
| 230.2    | 6078.72 |      | 0  |      | 231.47 | 6078.69 |      | 0  |      | 234.44 | 6078.66 |      | 0  |      |
| 242.9    | 6078.54 |      | 0  |      | 245.83 | 6078.48 |      | 0  |      | 251.57 | 6078.4  |      | 0  |      |
| 262.73   | 6078.27 |      | 0  |      | 274.75 | 6078.1  |      | 0  |      | 280.41 | 6078.04 |      | 0  |      |
| 283.24   | 6078    |      | 0  |      | 288.5  | 6077.97 |      | 0  |      | 294.82 | 6077.92 |      | 0  |      |
| 296.29   | 6077.92 |      | 0  |      | 301.24 | 6077.88 |      | 0  |      | 305.06 | 6077.86 |      | 0  |      |
| 310.17   | 6077.8  |      | 0  |      | 312.37 | 6077.79 |      | 0  |      | 318.22 | 6077.73 |      | 0  |      |
| 323.25   | 6077.7  |      | 0  |      | 329.42 | 6077.65 |      | 0  |      | 332.83 | 6077.61 |      | 0  |      |
| 337.95   | 6077.58 |      | 0  |      | 342.34 | 6077.54 |      | 0  |      | 351.84 | 6077.52 |      | 0  |      |
| 358.42   | 6077.45 |      | 0  |      | 365.73 | 6077.43 |      | 0  |      | 369.38 | 6077.4  |      | 0  |      |
| 374.98   | 6077.38 |      | 0  |      | 378.16 | 6077.35 |      | 0  |      | 381.81 | 6077.34 |      | 0  |      |
| 393.77   | 6077.27 |      | 0  |      | 405.05 | 6077.24 |      | 0  |      | 411.93 | 6077.19 |      | 0  |      |
| 416.51   | 6077.18 |      | 0  |      | 419.79 | 6077.16 |      | 0  |      | 426.45 | 6077.16 |      | 0  |      |
| 439.75   | 6077.09 |      | 0  |      | 444.73 | 6077.05 |      | 0  |      | 452.42 | 6077.02 |      | 0  |      |
| 457.01   | 6076.98 |      | 0  |      | 463.88 | 6076.95 |      | 0  |      | 467.5  | 5940.54 |      | 0  |      |
| 467.71   | 5933.09 |      | 0  |      | 471.83 | 5970.1  |      | 0  |      | 483.72 | 6076.89 |      | 0  |      |
| 490.27   | 6076.85 |      | 0  |      | 494.6  | 6076.84 |      | 0  |      | 496.66 | 6076.82 |      | 0  |      |
| 502.85   | 6076.8  |      | 0  |      | 508.31 | 6076.77 |      | 0  |      | 515.72 | 6076.71 |      | 0  |      |
| 529.14   | 6076.65 |      | 0  |      | 538.24 | 6076.58 |      | 0  |      | 546.13 | 6076.55 |      | 0  |      |
| 558.09   | 6076.47 |      | 0  |      | 562.22 | 6076.46 |      | 0  |      | 570.28 | 6076.41 |      | 0  |      |

|         |         |   |         |         |   |         |         |   |
|---------|---------|---|---------|---------|---|---------|---------|---|
| 570.49  | 6076.4  | 0 | 576.46  | 6076.37 | 0 | 582.07  | 6076.33 | 0 |
| 583.72  | 6076.33 | 0 | 592.37  | 6076.28 | 0 | 596.02  | 6076.25 | 0 |
| 602.75  | 6076.26 | 0 | 608.38  | 6076.22 | 0 | 614.32  | 6076.22 | 0 |
| 614.55  | 6076.21 | 0 | 620.94  | 6076.21 | 0 | 624.85  | 6076.2  | 0 |
| 630.86  | 6076.23 | 0 | 637.48  | 6076.23 | 0 | 638.23  | 6076.22 | 0 |
| 646.58  | 6076.22 | 0 | 647     | 6076.23 | 0 | 654.85  | 6076.23 | 0 |
| 660.63  | 6076.26 | 0 | 665     | 6076.26 | 0 | 672.21  | 6076.32 | 0 |
| 678.83  | 6076.36 | 0 | 682.96  | 6076.37 | 0 | 688.75  | 6076.41 | 0 |
| 691.77  | 6076.42 | 0 | 697.95  | 6076.46 | 0 | 701.16  | 6076.49 | 0 |
| 706.19  | 6076.5  | 0 | 713.56  | 6076.54 | 0 | 717.7   | 6076.57 | 0 |
| 721.83  | 6076.58 | 0 | 727.62  | 6076.61 | 0 | 732.58  | 6076.62 | 0 |
| 743.25  | 6076.66 | 0 | 749.43  | 6076.67 | 0 | 752.43  | 6076.69 | 0 |
| 757.66  | 6076.7  | 0 | 762.35  | 6076.73 | 0 | 764.01  | 6076.73 | 0 |
| 770.62  | 6076.77 | 0 | 776.41  | 6076.77 | 0 | 780.31  | 6076.79 | 0 |
| 783.4   | 6076.79 | 0 | 789.58  | 6076.82 | 0 | 794.73  | 6076.82 | 0 |
| 800.39  | 6076.83 | 0 | 805.36  | 6076.86 | 0 | 807.08  | 6076.86 | 0 |
| 816.93  | 6076.91 | 0 | 821.5   | 6076.92 | 0 | 824.38  | 6076.94 | 0 |
| 828.7   | 6076.94 | 0 | 836.78  | 6076.99 | 0 | 848.74  | 6077.03 | 0 |
| 852.38  | 6077.05 | 0 | 855.47  | 6077.05 | 0 | 859.11  | 6077.08 | 0 |
| 864.74  | 6077.07 | 0 | 869.86  | 6077.07 | 0 | 870.69  | 6077.08 | 0 |
| 880.18  | 6077.08 | 0 | 884.3   | 6077.09 | 0 | 890.77  | 6077.13 | 0 |
| 892.54  | 6077.13 | 0 | 897.15  | 6077.16 | 0 | 900.46  | 6077.14 | 0 |
| 904.89  | 6077.14 | 0 | 910.04  | 6077.12 | 0 | 915.19  | 6077.12 | 0 |
| 915.35  | 6077.13 | 0 | 921.37  | 6077.13 | 0 | 926.1   | 6077.09 | 0 |
| 933.72  | 6077.08 | 0 | 937.67  | 6077.05 | 0 | 946.77  | 6077    | 0 |
| 955.04  | 6076.89 | 0 | 960     | 6076.86 | 0 | 963.58  | 6076.85 | 0 |
| 969.93  | 6076.8  | 0 | 975.93  | 6076.77 | 0 | 986.23  | 6076.69 | 0 |
| 989.32  | 6076.68 | 0 | 995.49  | 6076.59 | 0 | 1002.18 | 6076.59 | 0 |
| 1006.31 | 6076.56 | 0 | 1011.28 | 6076.54 | 0 | 1014.03 | 6076.54 | 0 |
| 1020.2  | 6076.49 | 0 | 1027.41 | 6076.41 | 0 | 1036.09 | 6076.41 | 0 |
| 1036.68 | 6076.4  | 0 | 1045.18 | 6076.39 | 0 | 1049.03 | 6076.36 | 0 |
| 1051.8  | 6076.36 | 0 | 1055.93 | 6076.33 | 0 | 1060.9  | 6076.32 | 0 |
| 1066.53 | 6076.28 | 0 | 1068.34 | 6076.28 | 0 | 1074.77 | 6076.24 | 0 |
| 1079.9  | 6076.24 | 0 | 1080.74 | 6076.25 | 0 | 1089.18 | 6076.25 | 0 |
| 1095.36 | 6076.22 | 0 | 1099.76 | 6076.21 | 0 | 1105.66 | 6076.21 | 0 |
| 1109.69 | 6076.18 | 0 | 1117.13 | 6076.15 | 0 | 1121.93 | 6076.12 | 0 |
| 1128.71 | 6076.1  | 0 | 1133.67 | 6076.07 | 0 | 1137.8  | 6076.06 | 0 |
| 1142.72 | 6076.03 | 0 | 1146.07 | 6076.02 | 0 | 1163.76 | 6076.02 | 0 |
| 1176.07 | 6076.07 | 0 | 1176.61 | 6076.08 | 0 | 1182.24 | 6076.06 | 0 |
| 1187.56 | 6076.06 | 0 | 1193.48 | 6076.08 | 0 | 1204.73 | 6076.08 | 0 |
| 1209.48 | 6076.11 | 0 | 1214.37 | 6076.12 | 0 | 1217.58 | 6076.15 | 0 |
| 1220.8  | 6076.16 | 0 | 1228.83 | 6076.21 | 0 | 1236.86 | 6076.21 | 0 |
| 1240.64 | 6076.23 | 0 | 1243.38 | 6076.23 | 0 | 1249.16 | 6076.27 | 0 |
| 1253.08 | 6076.28 | 0 | 1256.01 | 6076.31 | 0 | 1263.32 | 6076.31 | 0 |
| 1271.13 | 6076.34 | 0 | 1274.6  | 6076.34 | 0 | 1280.88 | 6076.37 | 0 |
| 1285.73 | 6076.42 | 0 | 1291.94 | 6076.43 | 0 | 1296.24 | 6076.45 | 0 |
| 1302.35 | 6076.46 | 0 | 1305.65 | 6076.48 | 0 | 1310.88 | 6076.48 | 0 |
| 1311.6  | 6076.49 | 0 | 1317.6  | 6076.49 | 0 | 1320.33 | 6076.51 | 0 |
| 1339.03 | 6076.51 | 0 | 1339.54 | 6076.52 | 0 | 1345.42 | 6076.52 | 0 |
| 1345.95 | 6076.53 | 0 | 1351.42 | 6076.53 | 0 | 1354.63 | 6076.54 | 0 |
| 1361.6  | 6076.6  | 0 | 1367.15 | 6076.63 | 0 | 1373.54 | 6076.71 | 0 |
| 1377.38 | 6076.72 | 0 | 1385.06 | 6076.82 | 0 | 1390.28 | 6076.86 | 0 |
| 1395.19 | 6076.91 | 0 | 1397.09 | 6076.91 | 0 | 1402.75 | 6076.95 | 0 |
| 1409.55 | 6077.01 | 0 | 1411.96 | 6077.04 | 0 | 1419.03 | 6077.08 | 0 |
| 1425    | 6077.13 | 0 | 1428.81 | 6077.18 | 0 | 1434.48 | 6077.2  | 0 |



|         |         |         |         |         |         |         |         |   |
|---------|---------|---------|---------|---------|---------|---------|---------|---|
| 1439.19 | 6077.2  | 0       | 1443.63 | 6077.24 | 0       | 1445.22 | 6077.24 | 0 |
| 1455.49 | 6077.32 | 0       | 1459.94 | 6077.33 | 0       | 1465.04 | 6077.37 | 0 |
| 1469.71 | 6077.36 | 0       | 1482.98 | 6077.36 | 0       | 1483.38 | 6077.37 | 0 |
| 1495.94 | 6077.39 | 0       | 1499.17 | 6077.41 | 0       | 1516.83 | 6077.41 | 0 |
| 1517.45 | 6077.4  | 0       | 1530.28 | 6077.4  | 0       | 1535.44 | 6077.37 | 0 |
| 1543.76 | 6077.39 | 0       | 1546.01 | 6077.37 | 0       | 1556.54 | 6077.37 | 0 |
| 1557.24 | 6077.36 | 0       | 1580.96 | 6077.36 | 0       | 1586.32 | 6077.33 | 0 |
| 1593.18 | 6077.31 | 0       | 1596.19 | 6077.31 | 0       | 1600.7  | 6077.28 | 0 |
| 1607.43 | 6077.25 | 0       | 1613.05 | 6077.26 | 0       | 1613.68 | 6077.25 | 0 |
| 1620.77 | 6077.25 | 0       | 1624.44 | 6077.23 | 0       | 1629.81 | 6077.23 | 0 |
| 1640.79 | 6077.2  | 0       | 1650.26 | 6077.14 | 0       | 1651.98 | 6077.14 | 0 |
| 1658.87 | 6077.09 | 0       | 1663.35 | 6077.07 | 0       | 1671.78 | 6077.06 | 0 |
| 1682.6  | 6077    | 0       | 1689.1  | 6076.98 | 0       | 1696.62 | 6076.9  | 0 |
| 1698.1  | 6076.9  | 0       | 1707.14 | 6076.8  | 0       | 1709.64 | 6076.76 | 0 |
| 1715.65 | 6076.73 | 0       | 1721.66 | 6076.69 | 0       | 1727.66 | 6076.68 | 0 |
| 1738.49 | 6076.61 | 0       | 1745.69 | 6076.57 | 0       | 1753.36 | 6076.56 | 0 |
| 1753.68 | 6076.55 | 0       | 1758.71 | 6076.55 | 0       | 1762.23 | 6076.54 | 0 |
| 1770.78 | 6076.5  | 0       | 1777.74 | 6076.44 | 0       | 1778.74 | 6076.44 | 0 |
| 1785.03 | 6076.37 | 0       | 1790.73 | 6076.35 | 0       | 1803.08 | 6076.25 | 0 |
| 1806.78 | 6076.24 | 0       | 1812.57 | 6076.19 | 0       | 1817.8  | 6076.17 | 0 |
| 1827.77 | 6076.11 | 0       | 1833.82 | 6076.1  | 0       | 1838.83 | 6076.08 | 0 |
| 1843.92 | 6076.08 | 0       | 1852.85 | 6076    | 0       | 1861.02 | 6075.98 | 0 |
| 1863.86 | 6075.96 | 0       | 1866.87 | 6075.86 | 0       | 1869.46 | 6075.85 | 0 |
| 1871.07 | 6075.85 | 6073.11 | 1900.02 | 6075.85 | 6072.97 | 1901.62 | 6075.85 |   |
| 1907.56 | 6075.74 | 0       | 1909.46 | 6075.78 | 0       | 1917.06 | 6075.76 | 0 |
| 1923.95 | 6075.73 | 0       | 1935.1  | 6075.65 | 0       | 1943.65 | 6075.65 | 0 |
| 1943.98 | 6075.64 | 0       | 1949.35 | 6075.64 | 0       | 1949.99 | 6075.63 | 0 |
| 1974.03 | 6075.63 | 0       | 1984.49 | 6075.58 | 0       | 1989.05 | 6075.54 | 0 |
| 1998.74 | 6075.44 | 0       | 2003.49 | 6075.41 | 0       | 2007.08 | 6075.37 | 0 |
| 2015.84 | 6075.24 | 0       | 2031.12 | 6075.16 | 0       | 2035.4  | 6075.15 | 0 |
| 2036.17 | 6075.16 | 0       | 2043.41 | 6075.16 | 0       | 2044.24 | 6075.15 | 0 |
| 2053.19 | 6075.15 | 0       | 2053.32 | 6075.16 | 0       | 2059.77 | 6075.16 | 0 |
| 2067.55 | 6075.12 | 0       | 2069.5  | 6075.08 | 0       | 2073.18 | 6075.03 | 0 |
| 2079.78 | 6074.92 | 0       | 2088.95 | 6074.85 | 0       | 2094.59 | 6074.8  | 0 |
| 2099.92 | 6074.78 | 0       | 2102.88 | 6074.78 | 0       | 2106.59 | 6074.76 | 0 |
| 2111.04 | 6074.75 | 0       | 2116.72 | 6074.68 | 0       | 2123.87 | 6074.64 | 0 |
| 2128.85 | 6074.6  | 0       | 2130.33 | 6074.6  | 0       | 2138.16 | 6074.54 | 0 |
| 2148.85 | 6074.52 | 0       | 2155.23 | 6074.49 | 0       | 2160.18 | 6074.45 | 0 |
| 2168.27 | 6074.43 | 0       | 2173.07 | 6074.39 | 0       | 2175.74 | 6074.39 | 0 |
| 2182.14 | 6074.36 | 0       | 2184.83 | 6074.36 | 0       | 2190.46 | 6074.32 | 0 |
| 2195.81 | 6074.32 | 0       | 2202.89 | 6074.29 | 0       | 2207.4  | 6074.29 | 0 |
| 2221.53 | 6074.25 | 0       | 2232.67 | 6074.25 | 0       | 2233.03 | 6074.26 | 0 |
| 2242.74 | 6074.26 | 0       | 2247.23 | 6074.22 | 0       | 2254.33 | 6074.22 | 0 |
| 2254.98 | 6074.21 | 0       | 2261.42 | 6074.21 | 0       | 2266.75 | 6074.2  | 0 |
| 2271.53 | 6074.22 | 0       | 2280.16 | 6074.22 | 0       | 2280.84 | 6074.23 | 0 |
| 2289.32 | 6074.23 | 0       | 2298.87 | 6074.26 | 0       | 2306.79 | 6074.23 | 0 |
| 2311.88 | 6074.22 | 0       | 2324.78 | 6074.22 | 0       | 2329.93 | 6074.24 | 0 |
| 2342.46 | 6074.24 | 0       | 2343.2  | 6074.25 | 0       | 2352.9  | 6074.25 | 0 |
| 2353.65 | 6074.24 | 0       | 2369.71 | 6074.24 | 0       | 2374.53 | 6074.27 | 0 |
| 2380.53 | 6074.28 | 0       | 2380.96 | 6074.29 | 0       | 2386.58 | 6074.3  | 0 |
| 2390.48 | 6074.28 | 0       | 2405.86 | 6074.28 | 0       | 2414.49 | 6074.26 | 0 |
| 2419.71 | 6074.23 | 0       | 2421.93 | 6074.23 | 0       | 2429.32 | 6074.2  | 0 |
| 2437.19 | 6074.16 | 0       | 2440.62 | 6074.13 | 0       | 2452.63 | 6074.13 | 0 |
| 2453.02 | 6074.12 | 0       | 2461.87 | 6074.12 | 0       | 2467.19 | 6074.14 | 0 |
| 2469.8  | 6074.16 | 0       | 2477.87 | 6074.18 | 0       | 2479.89 | 6074.2  | 0 |

|         |         |   |         |         |   |         |         |   |
|---------|---------|---|---------|---------|---|---------|---------|---|
| 2488.44 | 6074.22 | 0 | 2494.03 | 6074.27 | 0 | 2499.96 | 6074.29 | 0 |
| 2502.11 | 6074.31 | 0 | 2508.17 | 6074.32 | 0 | 2512.21 | 6074.34 | 0 |
| 2519.44 | 6074.36 | 0 | 2523.87 | 6074.39 | 0 | 2530.07 | 6074.39 | 0 |
| 2530.38 | 6074.4  | 0 | 2535.43 | 6074.4  | 0 | 2541.49 | 6074.36 | 0 |
| 2559.29 | 6074.36 | 0 | 2559.67 | 6074.37 | 0 | 2578.85 | 6074.37 | 0 |
| 2581.43 | 6074.38 | 0 | 2585.43 | 6074.42 | 0 | 2589.4  | 6074.43 | 0 |
| 2595.6  | 6074.47 | 0 | 2600.03 | 6074.48 | 0 | 2608.89 | 6074.53 | 0 |
| 2614.19 | 6074.55 | 0 | 2622.17 | 6074.64 | 0 | 2623.28 | 6074.64 | 0 |
| 2628.33 | 6074.69 | 0 | 2629.34 | 6074.69 | 0 | 2638.11 | 6074.79 | 0 |
| 2642.47 | 6074.86 | 0 | 2647.85 | 6074.93 | 0 | 2652.57 | 6074.98 | 0 |
| 2655.83 | 6075.03 | 0 | 2670.74 | 6075.2  | 0 | 2677.08 | 6075.23 | 0 |
| 2680.62 | 6075.27 | 0 | 2687.91 | 6075.3  | 0 | 2690.36 | 6075.33 | 0 |
| 2698.01 | 6075.37 | 0 | 2701.88 | 6075.36 | 0 | 2710.73 | 6075.38 | 0 |
| 2715.08 | 6075.35 | 0 | 2720.48 | 6075.35 | 0 | 2725.79 | 6075.38 | 0 |
| 2731.99 | 6075.32 | 0 | 2736.69 | 6075.32 | 0 | 2743.89 | 6075.27 | 0 |
| 2746.16 | 6075.27 | 0 | 2752.53 | 6075.22 | 0 | 2757.67 | 6075.22 | 0 |
| 2758.29 | 6075.23 | 0 | 2763.64 | 6075.23 | 0 | 2769.18 | 6075.18 | 0 |
| 2775.76 | 6075.17 | 0 | 2778.93 | 6075.15 | 0 | 2784.24 | 6075.15 | 0 |
| 2791.92 | 6075.18 | 0 | 2797.97 | 6075.18 | 0 | 2801.51 | 6075.15 | 0 |
| 2806.05 | 6075.13 | 0 | 2809.04 | 6075.1  | 0 | 2817.01 | 6075.06 | 0 |
| 2817.16 | 6075.05 | 0 | 2830.29 | 6074.99 | 0 | 2835.34 | 6074.98 | 0 |
| 2842.69 | 6074.98 | 0 | 2843.41 | 6074.97 | 0 | 2863.06 | 6074.97 | 0 |
| 2865.63 | 6074.99 | 0 | 2874.72 | 6074.99 | 0 | 2878.11 | 6075.01 | 0 |
| 2884.31 | 6075.02 | 0 | 2887.85 | 6075.04 | 0 | 2890.87 | 6075.04 | 0 |
| 2897.94 | 6075.07 | 0 | 2901.14 | 6075.07 | 0 | 2904.68 | 6075.09 | 0 |
| 2907.34 | 6075.09 | 0 | 2916.75 | 6075.13 | 0 | 2940    | 6075.13 | 0 |
| 2940.37 | 6075.14 | 0 | 2947.05 | 6075.14 | 0 | 2953.51 | 6075.11 | 0 |
| 2956.55 | 6075.11 | 0 | 2959.39 | 6075.09 | 0 | 2963.62 | 6075.08 | 0 |
| 2974.37 | 6075.08 | 0 | 2974.74 | 6075.07 | 0 | 2979.66 | 6075.08 | 0 |
| 2981.43 | 6075.1  | 0 | 2986.87 | 6075.1  | 0 | 2987.59 | 6075.11 | 0 |
| 2995.96 | 6075.11 | 0 | 2999    | 6075.09 | 0 | 3003.46 | 6075.08 | 0 |
| 3006.32 | 6075.05 | 0 | 3016.68 | 6074.92 | 0 | 3020.2  | 6074.9  | 0 |
| 3024.26 | 6074.86 | 0 | 3028.31 | 6074.86 | 0 | 3033.36 | 6074.9  | 0 |
| 3037.83 | 6074.89 | 0 | 3042.89 | 6074.84 | 0 |         |         |   |

Upstream Bridge Cross Section Data

| Station Elevation Data |         | num=   |         | 450    |         |        |         |        |         |
|------------------------|---------|--------|---------|--------|---------|--------|---------|--------|---------|
| Sta                    | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    |
| 194.21                 | 6077.83 | 197.58 | 6077.7  | 201.39 | 6077.61 | 210.83 | 6077.49 | 218.15 | 6077.37 |
| 225.58                 | 6077.22 | 230.72 | 6077.23 | 237.35 | 6077.13 | 243.3  | 6077.16 | 254.64 | 6077.12 |
| 263.14                 | 6077.01 | 272.31 | 6076.81 | 276.84 | 6076.75 | 279.48 | 6076.66 | 290.24 | 6076.53 |
| 295.62                 | 6076.53 | 302.85 | 6076.48 | 308.63 | 6076.47 | 315.33 | 6076.37 | 324.52 | 6076.31 |
| 328.85                 | 6076.31 | 333.91 | 6076.42 | 341.86 | 6076.5  | 346.91 | 6076.68 | 354.14 | 6076.68 |
| 359.19                 | 6076.72 | 364.97 | 6076.9  | 367.79 | 6076.88 | 370.3  | 6076.72 | 372.69 | 6076.48 |
| 375.81                 | 6076.35 | 387.5  | 6076.29 | 391.4  | 6076.3  | 399.2  | 6076.42 | 414.56 | 6076.62 |
| 422.01                 | 6076.7  | 435.06 | 6076.87 | 444.37 | 6077.01 | 456.08 | 6077.26 | 467.02 | 6077.26 |
| 469.93                 | 6077.19 | 481.64 | 6076.78 | 491.12 | 6076.53 | 513.9  | 6076.13 | 515.92 | 6076.07 |
| 526.27                 | 6075.88 | 535.7  | 6075.67 | 546.41 | 6075.61 | 550.54 | 6075.56 | 554.11 | 6075.46 |
| 557.2                  | 6075.27 | 560.3  | 6074.96 | 563.39 | 6074.52 | 565.37 | 6074.16 | 569.58 | 6073.61 |
| 571.64                 | 6073.2  | 574.73 | 6072.68 | 577.82 | 6072.27 | 580.21 | 6072.12 | 581.95 | 6072.12 |
| 585.04                 | 6072.45 | 587.1  | 6072.91 | 590.2  | 6073.51 | 592.57 | 6073.77 | 596.69 | 6073.92 |
| 604.11                 | 6073.91 | 612.35 | 6073.76 | 620.59 | 6073.97 | 629.65 | 6074.04 | 635.56 | 6073.96 |
| 640.37                 | 6073.84 | 647.79 | 6073.93 | 656.85 | 6073.88 | 665.92 | 6073.93 | 674.74 | 6073.94 |
| 683.22                 | 6073.78 | 691.47 | 6073.88 | 696.49 | 6073.86 | 700.52 | 6073.92 | 708.76 | 6073.91 |
| 714.54                 | 6073.96 | 722.17 | 6074.11 | 731.03 | 6074.31 | 741.74 | 6074.33 | 748.33 | 6074.39 |



|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 756.57  | 6074.43 | 763.99  | 6074.52 | 774.53  | 6074.51 | 780.94  | 6074.55 | 788.15  | 6074.32 |
| 790.96  | 6074.32 | 797.78  | 6074.46 | 801.9   | 6074.49 | 807.74  | 6074.48 | 810.84  | 6074.67 |
| 813.93  | 6075.09 | 815.91  | 6075.48 | 819.08  | 6075.96 | 822.18  | 6076.27 | 825.27  | 6076.43 |
| 827.93  | 6076.47 | 832.04  | 6076.45 | 835.58  | 6076.34 | 838.67  | 6076.13 | 847.95  | 6075.38 |
| 851.05  | 6075.09 | 856.2   | 6074.52 | 859.29  | 6074.28 | 865.48  | 6073.89 | 868.57  | 6073.77 |
| 872.78  | 6073.73 | 875.79  | 6073.8  | 880.94  | 6074.05 | 883.49  | 6074.13 | 888.16  | 6074.18 |
| 893.32  | 6074.43 | 895.03  | 6074.47 | 900.53  | 6074.47 | 907.39  | 6074.75 | 913.94  | 6074.93 |
| 919.09  | 6075.24 | 927.34  | 6075.93 | 929.4   | 6075.97 | 931.46  | 6075.9  | 936.62  | 6075.38 |
| 940.74  | 6075.17 | 943.84  | 6074.94 | 945.9   | 6074.7  | 948.99  | 6074.44 | 952.09  | 6074.35 |
| 959.37  | 6074.36 | 968.38  | 6074.55 | 971.67  | 6074.49 | 976.62  | 6074.23 | 981.57  | 6074.14 |
| 984.01  | 6074.15 | 993.11  | 6074.37 | 996.4   | 6074.35 | 1001.57 | 6074.14 | 1006.29 | 6074.09 |
| 1008.76 | 6074    | 1013.95 | 6073.68 | 1017.01 | 6073.6  | 1027.72 | 6073.45 | 1036.63 | 6073.22 |
| 1041.52 | 6073.24 | 1049.74 | 6073.32 | 1056.22 | 6073.52 | 1062.4  | 6073.43 | 1068.93 | 6073.55 |
| 1072.22 | 6073.55 | 1080.96 | 6073.38 | 1084.35 | 6073.37 | 1089.68 | 6073.45 | 1096.07 | 6073.7  |
| 1098.2  | 6073.73 | 1104.34 | 6073.63 | 1109.01 | 6073.61 | 1114.17 | 6073.76 | 1118.43 | 6073.79 |
| 1124.83 | 6073.68 | 1128.02 | 6073.52 | 1131.22 | 6073.3  | 1134.41 | 6072.96 | 1139.74 | 6072    |
| 1141.4  | 6071.88 | 1144    | 6072.02 | 1147.19 | 6072.69 | 1149.32 | 6073.29 | 1152.52 | 6073.99 |
| 1154.99 | 6074.35 | 1157.33 | 6074.52 | 1159.67 | 6074.57 | 1169.56 | 6074.6  | 1177.59 | 6074.44 |
| 1183.05 | 6074.47 | 1185.54 | 6074.42 | 1190.84 | 6074.19 | 1195.51 | 6074.08 | 1200.45 | 6073.84 |
| 1203.65 | 6073.81 | 1207.91 | 6073.84 | 1216.43 | 6073.55 | 1221.23 | 6073.55 | 1225.61 | 6073.47 |
| 1232.92 | 6073.44 | 1244.12 | 6073.32 | 1246.42 | 6073.36 | 1252.51 | 6073.66 | 1257.68 | 6073.78 |
| 1264.84 | 6074.01 | 1269.03 | 6074.2  | 1274.05 | 6074.55 | 1277.64 | 6074.64 | 1281.22 | 6074.62 |
| 1284.81 | 6074.69 | 1289.11 | 6074.85 | 1292.69 | 6074.9  | 1296.99 | 6074.87 | 1304.22 | 6074.88 |
| 1312.84 | 6074.92 | 1316.28 | 6074.78 | 1318.51 | 6074.61 | 1322.81 | 6074.42 | 1331.14 | 6074.41 |
| 1338.58 | 6074.59 | 1344.32 | 6074.89 | 1351.86 | 6075.08 | 1361.93 | 6075.24 | 1369.78 | 6075.18 |
| 1374.02 | 6075.12 | 1378.76 | 6074.97 | 1381.54 | 6075.06 | 1388.88 | 6075.13 | 1394.53 | 6075.01 |
| 1396.47 | 6074.9  | 1400.79 | 6074.79 | 1404.43 | 6074.79 | 1409.35 | 6074.71 | 1412.92 | 6074.73 |
| 1420.94 | 6074.57 | 1426.03 | 6074.62 | 1434.84 | 6074.43 | 1438.48 | 6074.43 | 1447.24 | 6074.31 |
| 1453.39 | 6074.3  | 1459.44 | 6074.37 | 1465.67 | 6074.57 | 1471.43 | 6074.82 | 1476.6  | 6075.14 |
| 1481    | 6075.3  | 1488.33 | 6075.38 | 1494.19 | 6075.32 | 1495.74 | 6075.26 | 1501.79 | 6075.15 |
| 1505.18 | 6075.18 | 1507.83 | 6075.11 | 1511.87 | 6075.13 | 1518.38 | 6075.42 | 1525.98 | 6075.53 |
| 1534.5  | 6075.88 | 1539.63 | 6075.82 | 1545.5  | 6076    | 1546.96 | 6076.01 | 1550.7  | 6075.88 |
| 1552.84 | 6075.89 | 1554.98 | 6076.09 | 1559.26 | 6076.72 | 1561.4  | 6076.76 | 1567.05 | 6076.61 |
| 1570.67 | 6076.38 | 1574.23 | 6076.31 | 1581.72 | 6075.94 | 1584.78 | 6075.88 | 1588.13 | 6075.96 |
| 1589.54 | 6075.91 | 1593.25 | 6075.64 | 1596.69 | 6075.69 | 1601.17 | 6075.95 | 1605.82 | 6076    |
| 1610.18 | 6075.78 | 1612.73 | 6075.76 | 1615.13 | 6075.87 | 1621.28 | 6076.34 | 1624.49 | 6076.46 |
| 1631.42 | 6076.56 | 1637.33 | 6076.6  | 1641.6  | 6076.59 | 1648.02 | 6076.5  | 1650.9  | 6076.36 |
| 1662.03 | 6075.58 | 1669.11 | 6075.38 | 1677.04 | 6075.33 | 1690.34 | 6075.32 | 1695.4  | 6075.5  |
| 1701.01 | 6075.58 | 1708.62 | 6075.53 | 1719.46 | 6075.35 | 1730.8  | 6075.33 | 1735.24 | 6075.35 |
| 1735.8  | 6075.33 | 1741.49 | 6075.11 | 1745.7  | 6075.02 | 1752.5  | 6075.01 | 1758.06 | 6074.85 |
| 1765.52 | 6074.74 | 1772.32 | 6074.77 | 1776.54 | 6074.68 | 1784.69 | 6074.37 | 1794.19 | 6074.21 |
| 1799.9  | 6074.05 | 1808.58 | 6073.97 | 1819.6  | 6073.83 | 1823.6  | 6073.82 | 1831.28 | 6073.71 |
| 1835.62 | 6073.62 | 1839.83 | 6073.61 | 1843.63 | 6073.65 | 1853.15 | 6073.83 | 1857.9  | 6073.76 |
| 1864.66 | 6073.29 | 1869.67 | 6073    | 1871.67 | 6072.75 | 1873.67 | 6072.3  | 1874.67 | 6071.95 |
| 1877.68 | 6071.09 | 1879.68 | 6070.8  | 1881.67 | 6069    | 1896.71 | 6069    | 1898.71 | 6070.77 |
| 1900.69 | 6070.97 | 1903.72 | 6071.71 | 1906.72 | 6072.66 | 1908.72 | 6073.09 | 1910.72 | 6073.39 |
| 1912.73 | 6073.58 | 1915.73 | 6073.63 | 1920.66 | 6073.39 | 1924.74 | 6073.31 | 1927.75 | 6073.18 |
| 1930    | 6072.8  | 2069.79 | 6072.8  | 2160.01 | 6072.8  | 2169.03 | 6073.02 | 2176.39 | 6073.01 |
| 2178.96 | 6073.05 | 2184.64 | 6073.06 | 2189.53 | 6073.02 | 2196.7  | 6073.04 | 2204.75 | 6072.78 |
| 2212.86 | 6072.74 | 2217.97 | 6072.69 | 2231.27 | 6072.76 | 2238.78 | 6072.76 | 2244.27 | 6072.83 |
| 2249.69 | 6072.84 | 2257.06 | 6072.77 | 2266.63 | 6072.78 | 2278.48 | 6072.82 | 2284.18 | 6072.78 |
| 2294.96 | 6072.78 | 2302.42 | 6072.71 | 2313.18 | 6072.81 | 2317.91 | 6072.91 | 2322.89 | 6072.94 |
| 2327.87 | 6072.9  | 2332.72 | 6072.8  | 2342.8  | 6072.69 | 2348.61 | 6072.65 | 2354.32 | 6072.51 |
| 2358.56 | 6072.5  | 2363.4  | 6072.64 | 2371    | 6072.65 | 2384.14 | 6072.81 | 2389.26 | 6072.73 |
| 2391.33 | 6072.62 | 2394.42 | 6072.55 | 2410.87 | 6072.45 | 2420.78 | 6072.58 | 2424.93 | 6072.55 |



|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 2426.3  | 6072.6  | 2444.38 | 6072.73 | 2450.77 | 6072.72 | 2458.9  | 6072.6  | 2462.96 | 6072.64 |
| 2466.01 | 6072.76 | 2471.09 | 6073.13 | 2473.68 | 6073.27 | 2475.41 | 6073.29 | 2480.23 | 6073.09 |
| 2492.64 | 6072.89 | 2496.09 | 6072.96 | 2504.61 | 6073.31 | 2509.02 | 6073.42 | 2513.33 | 6073.48 |
| 2527.95 | 6073.53 | 2533.06 | 6073.46 | 2539.15 | 6073.26 | 2544.23 | 6072.98 | 2548.3  | 6072.98 |
| 2552.97 | 6073.21 | 2560.72 | 6073.27 | 2566.58 | 6073.49 | 2573.4  | 6073.96 | 2577.74 | 6074.35 |
| 2586.82 | 6074.9  | 2589.84 | 6075.01 | 2604.8  | 6075.24 | 2608.36 | 6075.24 | 2618.08 | 6075.14 |
| 2621.11 | 6075.13 | 2634.22 | 6075.44 | 2640.47 | 6075.47 | 2646.32 | 6075.54 | 2649.35 | 6075.41 |
| 2655.63 | 6074.63 | 2661.45 | 6074.05 | 2664.47 | 6073.96 | 2670.52 | 6073.97 | 2672.86 | 6074.06 |
| 2677.04 | 6074.33 | 2679.6  | 6074.45 | 2684.17 | 6074.51 | 2687.74 | 6074.51 | 2696.75 | 6074.41 |
| 2705.82 | 6074.18 | 2709.14 | 6074.07 | 2713.89 | 6073.79 | 2719.94 | 6073.53 | 2729.02 | 6073.29 |
| 2741.12 | 6073.24 | 2745.71 | 6073.24 | 2751.06 | 6073.19 | 2767.34 | 6073.18 | 2775.14 | 6073.24 |
| 2780.8  | 6073.24 | 2787.51 | 6073.29 | 2796.55 | 6073.28 | 2802.79 | 6073.21 | 2810.71 | 6073.07 |
| 2820.63 | 6073.08 | 2826.84 | 6073.11 | 2835.92 | 6073.09 | 2838.95 | 6073.06 | 2850.04 | 6072.88 |
| 2858.98 | 6072.83 | 2863.44 | 6072.83 | 2868.79 | 6072.89 | 2876.26 | 6072.87 | 2883.06 | 6073.02 |
| 2893.76 | 6073.15 | 2900.89 | 6073.36 | 2905.35 | 6073.44 | 2911.87 | 6073.41 | 2919.58 | 6073.51 |
| 2936.77 | 6073.84 | 2941.03 | 6073.88 | 2944.84 | 6073.82 | 2952.91 | 6073.59 | 2957.08 | 6073.57 |
| 2961.54 | 6073.69 | 2966.89 | 6073.78 | 2969.05 | 6073.76 | 2976.7  | 6073.38 | 2980.27 | 6073.35 |
| 2987.2  | 6073.46 | 2990.08 | 6073.61 | 2995.27 | 6074.06 | 2998.29 | 6074.26 | 3003.62 | 6074.48 |

Manning's n Values num= 3

| Sta    | n Val | Sta    | n Val | Sta     | n Val |
|--------|-------|--------|-------|---------|-------|
| 194.21 | .06   | 1857.9 | .035  | 1912.73 | .06   |

Bank Sta: Left Right Coeff Contr. Expan.

|        |         |    |    |
|--------|---------|----|----|
| 1857.9 | 1912.73 | .3 | .5 |
|--------|---------|----|----|

Ineffective Flow num= 3

| Sta L   | Sta R   | Elev    | Permanent |
|---------|---------|---------|-----------|
| 404.26  | 1859.68 | 6075.91 | T         |
| 2177.63 | 2611.96 | 6074.21 | T         |
| 2611.96 | 3006.44 | 6074.95 | T         |

Blocked Obstructions num= 1

| Sta L   | Sta R   | Elev   |
|---------|---------|--------|
| 3049.97 | 3003.62 | 6075.2 |

Downstream Deck/Roadway Coordinates num= 488

| Sta    | Hi Cord | Lo Cord | Sta    | Hi Cord | Lo Cord | Sta    | Hi Cord | Lo Cord |
|--------|---------|---------|--------|---------|---------|--------|---------|---------|
| 213.74 | 6078.93 | 0       | 218.18 | 6078.87 | 0       | 223.13 | 6078.79 | 0       |
| 230.36 | 6078.72 | 0       | 231.75 | 6078.69 | 0       | 245.69 | 6078.49 | 0       |
| 251.26 | 6078.4  | 0       | 257.78 | 6078.32 | 0       | 266.27 | 6078.23 | 0       |
| 274.95 | 6078.1  | 0       | 279.7  | 6078.05 | 0       | 283.16 | 6078    | 0       |
| 293.13 | 6077.92 | 0       | 299.94 | 6077.9  | 0       | 303.6  | 6077.87 | 0       |
| 307.62 | 6077.82 | 0       | 310.91 | 6077.8  | 0       | 316.02 | 6077.75 | 0       |
| 319.51 | 6077.73 | 0       | 321.87 | 6077.7  | 0       | 330.64 | 6077.64 | 0       |
| 332.52 | 6077.61 | 0       | 335.76 | 6077.6  | 0       | 339.41 | 6077.56 | 0       |
| 348.74 | 6077.52 | 0       | 351.11 | 6077.52 | 0       | 355.5  | 6077.48 | 0       |
| 361.34 | 6077.44 | 0       | 365.07 | 6077.43 | 0       | 371.02 | 6077.39 | 0       |
| 373.04 | 6077.39 | 0       | 377.7  | 6077.36 | 0       | 380.01 | 6077.36 | 0       |
| 384    | 6077.33 | 0       | 389.85 | 6077.31 | 0       | 392.06 | 6077.29 | 0       |
| 402.76 | 6077.26 | 0       | 407.35 | 6077.22 | 0       | 418.04 | 6077.16 | 0       |
| 423.39 | 6077.15 | 0       | 429.55 | 6077.15 | 0       | 433.32 | 6077.14 | 0       |
| 436.38 | 6077.11 | 0       | 440.39 | 6077.09 | 0       | 444.92 | 6077.05 | 0       |
| 448.6  | 6077.04 | 0       | 456.24 | 6077    | 0       | 462.36 | 6076.95 | 0       |
| 467.5  | 6076.94 | 0       | 474    | 6076.94 | 0       | 479.93 | 6076.91 | 0       |
| 485.93 | 6076.87 | 0       | 492.43 | 6076.84 | 0       | 494.6  | 6076.84 | 0       |

|         |         |   |         |         |   |         |         |   |
|---------|---------|---|---------|---------|---|---------|---------|---|
| 500.56  | 6076.81 | 0 | 505.99  | 6076.77 | 0 | 510.57  | 6076.76 | 0 |
| 514.69  | 6076.72 | 0 | 518.39  | 6076.71 | 0 | 524.18  | 6076.68 | 0 |
| 532.19  | 6076.62 | 0 | 544.03  | 6076.56 | 0 | 555.61  | 6076.48 | 0 |
| 559.74  | 6076.47 | 0 | 565.53  | 6076.43 | 0 | 568.84  | 6076.42 | 0 |
| 570.28  | 6076.4  | 0 | 577.11  | 6076.36 | 0 | 593.96  | 6076.27 | 0 |
| 600.77  | 6076.26 | 0 | 606.88  | 6076.23 | 0 | 613.38  | 6076.21 | 0 |
| 622.59  | 6076.21 | 0 | 622.79  | 6076.22 | 0 | 629.21  | 6076.22 | 0 |
| 630     | 6076.23 | 0 | 641.61  | 6076.23 | 0 | 642.35  | 6076.22 | 0 |
| 651.21  | 6076.22 | 0 | 658.15  | 6076.25 | 0 | 662.29  | 6076.25 | 0 |
| 667.06  | 6076.27 | 0 | 678.39  | 6076.35 | 0 | 682.96  | 6076.37 | 0 |
| 684.83  | 6076.39 | 0 | 695.37  | 6076.44 | 0 | 698.98  | 6076.47 | 0 |
| 704.46  | 6076.5  | 0 | 710.05  | 6076.52 | 0 | 716.48  | 6076.57 | 0 |
| 718.52  | 6076.57 | 0 | 724.31  | 6076.6  | 0 | 730.9   | 6076.62 | 0 |
| 735.27  | 6076.62 | 0 | 738.37  | 6076.64 | 0 | 746.64  | 6076.66 | 0 |
| 749.95  | 6076.68 | 0 | 755.74  | 6076.69 | 0 | 760.48  | 6076.71 | 0 |
| 763.84  | 6076.74 | 0 | 771.45  | 6076.78 | 0 | 780.55  | 6076.79 | 0 |
| 785.7   | 6076.81 | 0 | 791.3   | 6076.82 | 0 | 796.79  | 6076.82 | 0 |
| 801.22  | 6076.83 | 0 | 811.97  | 6076.89 | 0 | 814.45  | 6076.89 | 0 |
| 824.59  | 6076.94 | 0 | 827.73  | 6076.94 | 0 | 833.47  | 6076.96 | 0 |
| 839.26  | 6077    | 0 | 843.4   | 6077    | 0 | 849.19  | 6077.04 | 0 |
| 851.67  | 6077.04 | 0 | 857.46  | 6077.07 | 0 | 865.73  | 6077.07 | 0 |
| 869.03  | 6077.06 | 0 | 871.95  | 6077.08 | 0 | 875.03  | 6077.08 | 0 |
| 878.96  | 6077.1  | 0 | 882.37  | 6077.1  | 0 | 888.88  | 6077.12 | 0 |
| 894.98  | 6077.16 | 0 | 905.92  | 6077.13 | 0 | 921.13  | 6077.13 | 0 |
| 929.4   | 6077.07 | 0 | 932.8   | 6077.07 | 0 | 939.33  | 6077.05 | 0 |
| 942.99  | 6077.03 | 0 | 947.1   | 6076.99 | 0 | 951.73  | 6076.96 | 0 |
| 955.04  | 6076.92 | 0 | 961.52  | 6076.86 | 0 | 965.64  | 6076.84 | 0 |
| 972.41  | 6076.77 | 0 | 975.93  | 6076.76 | 0 | 983.99  | 6076.69 | 0 |
| 988.95  | 6076.68 | 0 | 994.46  | 6076.6  | 0 | 997.22  | 6076.58 | 0 |
| 1003.73 | 6076.57 | 0 | 1010.45 | 6076.54 | 0 | 1014.58 | 6076.54 | 0 |
| 1026.99 | 6076.42 | 0 | 1030.3  | 6076.41 | 0 | 1035.65 | 6076.43 | 0 |
| 1038.57 | 6076.46 | 0 | 1044.91 | 6076.38 | 0 | 1049.03 | 6076.36 | 0 |
| 1055.11 | 6076.35 | 0 | 1058.89 | 6076.32 | 0 | 1065.86 | 6076.29 | 0 |
| 1068.34 | 6076.26 | 0 | 1076.83 | 6076.26 | 0 | 1077.43 | 6076.25 | 0 |
| 1090.67 | 6076.25 | 0 | 1094.8  | 6076.22 | 0 | 1100.92 | 6076.22 | 0 |
| 1111.34 | 6076.17 | 0 | 1116.3  | 6076.16 | 0 | 1123.16 | 6076.13 | 0 |
| 1125.22 | 6076.11 | 0 | 1130.34 | 6076.09 | 0 | 1132.43 | 6076.07 | 0 |
| 1138.6  | 6076.04 | 0 | 1146.47 | 6076.02 | 0 | 1163.55 | 6076.02 | 0 |
| 1168.77 | 6076.03 | 0 | 1179.02 | 6076.08 | 0 | 1205.53 | 6076.08 | 0 |
| 1211.96 | 6076.12 | 0 | 1216.77 | 6076.13 | 0 | 1224.81 | 6076.19 | 0 |
| 1232.85 | 6076.2  | 0 | 1233.49 | 6076.21 | 0 | 1242.22 | 6076.23 | 0 |
| 1242.84 | 6076.24 | 0 | 1248.69 | 6076.25 | 0 | 1258.93 | 6076.31 | 0 |
| 1271.13 | 6076.31 | 0 | 1276.91 | 6076.36 | 0 | 1285.27 | 6076.42 | 0 |
| 1289.63 | 6076.42 | 0 | 1294.78 | 6076.45 | 0 | 1302.83 | 6076.46 | 0 |
| 1303.51 | 6076.47 | 0 | 1308.68 | 6076.47 | 0 | 1309.29 | 6076.48 | 0 |
| 1314.53 | 6076.48 | 0 | 1315.07 | 6076.49 | 0 | 1320.33 | 6076.49 | 0 |
| 1326.25 | 6076.51 | 0 | 1340.31 | 6076.51 | 0 | 1340.96 | 6076.52 | 0 |
| 1348.21 | 6076.52 | 0 | 1355.2  | 6076.54 | 0 | 1363.02 | 6076.61 | 0 |
| 1368.01 | 6076.63 | 0 | 1372.99 | 6076.68 | 0 | 1384.35 | 6076.81 | 0 |
| 1389.31 | 6076.86 | 0 | 1391.76 | 6076.87 | 0 | 1402.75 | 6076.96 | 0 |
| 1407.71 | 6077.01 | 0 | 1419.92 | 6077.09 | 0 | 1429.65 | 6077.19 | 0 |
| 1434.74 | 6077.2  | 0 | 1438.15 | 6077.22 | 0 | 1442.61 | 6077.23 | 0 |
| 1450.18 | 6077.29 | 0 | 1460.23 | 6077.33 | 0 | 1464.29 | 6077.36 | 0 |
| 1481.09 | 6077.36 | 0 | 1488.46 | 6077.4  | 0 | 1499.91 | 6077.4  | 0 |
| 1500.51 | 6077.41 | 0 | 1512.42 | 6077.41 | 0 | 1513.07 | 6077.4  | 0 |

|         |         |   |         |         |        |         |         |         |
|---------|---------|---|---------|---------|--------|---------|---------|---------|
| 1521.29 | 6077.4  | 0 | 1521.87 | 6077.41 | 0      | 1527.67 | 6077.4  | 0       |
| 1533.38 | 6077.37 | 0 | 1543.21 | 6077.39 | 0      | 1546.01 | 6077.37 | 0       |
| 1552.75 | 6077.37 | 0 | 1553.21 | 6077.36 | 0      | 1574.3  | 6077.36 | 0       |
| 1574.47 | 6077.37 | 0 | 1588.74 | 6077.33 | 0      | 1592.07 | 6077.31 | 0       |
| 1594.69 | 6077.31 | 0 | 1598.43 | 6077.29 | 0      | 1605.26 | 6077.27 | 0       |
| 1607.43 | 6077.25 | 0 | 1620.77 | 6077.25 | 0      | 1621.31 | 6077.24 | 0       |
| 1630.83 | 6077.21 | 0 | 1634.77 | 6077.21 | 0      | 1638.96 | 6077.19 | 0       |
| 1645.33 | 6077.18 | 0 | 1655.22 | 6077.11 | 0      | 1657.15 | 6077.11 | 0       |
| 1663.17 | 6077.07 | 0 | 1670.06 | 6077.06 | 0      | 1678.59 | 6077.01 | 0       |
| 1690.05 | 6076.97 | 0 | 1695.62 | 6076.91 | 0      | 1699.62 | 6076.89 | 0       |
| 1709.64 | 6076.76 | 0 | 1712.64 | 6076.75 | 0      | 1720.44 | 6076.69 | 0       |
| 1730.67 | 6076.64 | 0 | 1732.67 | 6076.64 | 0      | 1739.44 | 6076.6  | 0       |
| 1743.69 | 6076.59 | 0 | 1746.09 | 6076.57 | 0      | 1749.89 | 6076.57 | 0       |
| 1752.7  | 6076.55 | 0 | 1759.71 | 6076.54 | 0      | 1765.72 | 6076.51 | 0       |
| 1768.88 | 6076.51 | 0 | 1775.53 | 6076.46 | 0      | 1776.74 | 6076.46 | 0       |
| 1783.75 | 6076.38 | 0 | 1790.73 | 6076.35 | 0      | 1796.77 | 6076.3  | 0       |
| 1802.13 | 6076.27 | 0 | 1813.79 | 6076.18 | 0      | 1820.17 | 6076.16 | 0       |
| 1826.81 | 6076.12 | 0 | 1828.81 | 6076.12 | 0      | 1833.47 | 6076.09 | 0       |
| 1839.17 | 6076.09 | 0 | 1842.02 | 6076.08 | 0      | 1852.47 | 6076.01 | 0       |
| 1857.86 | 6075.98 | 0 | 1862.92 | 6075.97 | 0      | 1864.87 | 6075.95 | 0       |
| 1869.9  | 6075.85 | 0 | 1871.5  | 6075.85 | 6073.1 | 1900.27 | 6075.85 | 6072.93 |
| 1901.88 | 6075.85 | 0 | 1930.35 | 6075.68 | 0      | 1932.25 | 6075.68 | 0       |
| 1937.95 | 6075.65 | 0 | 1946.99 | 6075.64 | 0      | 1947.45 | 6075.63 | 0       |
| 1955.05 | 6075.63 | 0 | 1955.96 | 6075.62 | 0      | 1960.75 | 6075.63 | 0       |
| 1974.37 | 6075.63 | 0 | 1978.79 | 6075.59 | 0      | 1989.24 | 6075.52 | 0       |
| 1994.94 | 6075.46 | 0 | 1997.06 | 6075.45 | 0      | 2002.54 | 6075.39 | 0       |
| 2007.29 | 6075.35 | 0 | 2013.09 | 6075.28 | 0      | 2014.09 | 6075.28 | 0       |
| 2024.1  | 6075.18 | 0 | 2026.29 | 6075.18 | 0      | 2033.62 | 6075.14 | 0       |
| 2038.96 | 6075.14 | 0 | 2039.19 | 6075.15 | 0      | 2044.75 | 6075.15 | 0       |
| 2052.26 | 6075.13 | 0 | 2056.75 | 6075.16 | 0      | 2059.42 | 6075.16 | 0       |
| 2062.09 | 6075.14 | 0 | 2066.53 | 6075.13 | 0      | 2068.92 | 6075.1  | 0       |
| 2073.95 | 6075    | 0 | 2078.4  | 6074.94 | 0      | 2082.86 | 6074.91 | 0       |
| 2086.56 | 6074.87 | 0 | 2095.47 | 6074.8  | 0      | 2103.68 | 6074.8  | 0       |
| 2109.23 | 6074.77 | 0 | 2115.49 | 6074.7  | 0      | 2130.33 | 6074.59 | 0       |
| 2136.94 | 6074.57 | 0 | 2145.31 | 6074.52 | 0      | 2147.43 | 6074.52 | 0       |
| 2154.34 | 6074.48 | 0 | 2163.7  | 6074.45 | 0      | 2176.48 | 6074.38 | 0       |
| 2180.31 | 6074.38 | 0 | 2187.79 | 6074.34 | 0      | 2189.93 | 6074.34 | 0       |
| 2195.36 | 6074.31 | 0 | 2199.83 | 6074.31 | 0      | 2205.18 | 6074.29 | 0       |
| 2209.77 | 6074.26 | 0 | 2213.21 | 6074.25 | 0      | 2233.39 | 6074.25 | 0       |
| 2237.71 | 6074.26 | 0 | 2244.18 | 6074.23 | 0      | 2248.16 | 6074.22 | 0       |
| 2253.54 | 6074.22 | 0 | 2254.21 | 6074.21 | 0      | 2259.65 | 6074.21 | 0       |
| 2260.01 | 6074.2  | 0 | 2267.21 | 6074.2  | 0      | 2272.07 | 6074.22 | 0       |
| 2277.39 | 6074.22 | 0 | 2278    | 6074.23 | 0      | 2285.2  | 6074.23 | 0       |
| 2285.68 | 6074.24 | 0 | 2293.84 | 6074.24 | 0      | 2295.99 | 6074.26 | 0       |
| 2306.79 | 6074.23 | 0 | 2312.19 | 6074.22 | 0      | 2325.53 | 6074.22 | 0       |
| 2329.55 | 6074.24 | 0 | 2347.22 | 6074.24 | 0      | 2347.68 | 6074.25 | 0       |
| 2352.9  | 6074.25 | 0 | 2356.03 | 6074.26 | 0      | 2358.12 | 6074.24 | 0       |
| 2361.25 | 6074.25 | 0 | 2364.89 | 6074.24 | 0      | 2370.65 | 6074.25 | 0       |
| 2373.56 | 6074.27 | 0 | 2379    | 6074.28 | 0      | 2382.13 | 6074.3  | 0       |
| 2385.78 | 6074.29 | 0 | 2394.66 | 6074.29 | 0      | 2395.42 | 6074.28 | 0       |
| 2405.06 | 6074.28 | 0 | 2405.86 | 6074.27 | 0      | 2411.9  | 6074.27 | 0       |
| 2417.91 | 6074.25 | 0 | 2422.84 | 6074.21 | 0      | 2431.56 | 6074.19 | 0       |
| 2438.85 | 6074.14 | 0 | 2443.28 | 6074.13 | 0      | 2450.61 | 6074.13 | 0       |
| 2451.25 | 6074.12 | 0 | 2463.74 | 6074.12 | 0      | 2471.62 | 6074.17 | 0       |
| 2477.87 | 6074.18 | 0 | 2482.92 | 6074.21 | 0      | 2489.99 | 6074.23 | 0       |



|         |         |   |         |         |   |         |         |   |
|---------|---------|---|---------|---------|---|---------|---------|---|
| 2497.3  | 6074.29 | 0 | 2500.09 | 6074.29 | 0 | 2505.14 | 6074.32 | 0 |
| 2508.17 | 6074.32 | 0 | 2512.21 | 6074.34 | 0 | 2515.24 | 6074.34 | 0 |
| 2522.1  | 6074.38 | 0 | 2530.38 | 6074.38 | 0 | 2536.44 | 6074.4  | 0 |
| 2543.35 | 6074.36 | 0 | 2546.89 | 6074.35 | 0 | 2553.09 | 6074.35 | 0 |
| 2557.52 | 6074.33 | 0 | 2567.26 | 6074.34 | 0 | 2571.69 | 6074.37 | 0 |
| 2581.88 | 6074.38 | 0 | 2585.86 | 6074.42 | 0 | 2589.4  | 6074.43 | 0 |
| 2597.03 | 6074.48 | 0 | 2601.8  | 6074.5  | 0 | 2605.11 | 6074.5  | 0 |
| 2611.17 | 6074.52 | 0 | 2618.63 | 6074.6  | 0 | 2623.94 | 6074.64 | 0 |
| 2629.34 | 6074.7  | 0 | 2630.35 | 6074.7  | 0 | 2635.46 | 6074.76 | 0 |
| 2646.51 | 6074.9  | 0 | 2654.94 | 6075.02 | 0 | 2667.34 | 6075.16 | 0 |
| 2669.99 | 6075.2  | 0 | 2674.78 | 6075.22 | 0 | 2677.97 | 6075.25 | 0 |
| 2682.86 | 6075.27 | 0 | 2685.94 | 6075.3  | 0 | 2689.48 | 6075.31 | 0 |
| 2699.02 | 6075.37 | 0 | 2713.39 | 6075.37 | 0 | 2714.16 | 6075.36 | 0 |
| 2725.27 | 6075.36 | 0 | 2730.32 | 6075.35 | 0 | 2734.64 | 6075.32 | 0 |
| 2736.38 | 6075.32 | 0 | 2745.47 | 6075.26 | 0 | 2756.79 | 6075.21 | 0 |
| 2762.1  | 6075.22 | 0 | 2768.3  | 6075.19 | 0 | 2774.75 | 6075.18 | 0 |
| 2779.8  | 6075.15 | 0 | 2782.83 | 6075.15 | 0 | 2786.87 | 6075.17 | 0 |
| 2795.96 | 6075.18 | 0 | 2799.3  | 6075.16 | 0 | 2802.01 | 6075.16 | 0 |
| 2805.49 | 6075.14 | 0 | 2808.07 | 6075.11 | 0 | 2811.1  | 6075.1  | 0 |
| 2817.89 | 6075.03 | 0 | 2824.09 | 6075.01 | 0 | 2830.29 | 6075    | 0 |
| 2832.95 | 6074.98 | 0 | 2840.39 | 6074.98 | 0 | 2840.92 | 6074.97 | 0 |
| 2848.46 | 6074.97 | 0 | 2852.5  | 6074.99 | 0 | 2863.95 | 6074.97 | 0 |
| 2868.37 | 6074.99 | 0 | 2873.69 | 6075    | 0 | 2880.74 | 6075    | 0 |
| 2886.84 | 6075.03 | 0 | 2889.63 | 6075.03 | 0 | 2894.06 | 6075.06 | 0 |
| 2896.93 | 6075.06 | 0 | 2900.97 | 6075.08 | 0 | 2903.8  | 6075.08 | 0 |
| 2907.03 | 6075.1  | 0 | 2912.65 | 6075.11 | 0 | 2913.09 | 6075.12 | 0 |
| 2918.29 | 6075.12 | 0 | 2918.85 | 6075.13 | 0 | 2939.36 | 6075.13 | 0 |
| 2940    | 6075.14 | 0 | 2946.44 | 6075.14 | 0 | 2950.58 | 6075.13 | 0 |
| 2956.55 | 6075.1  | 0 | 2961.15 | 6075.09 | 0 | 2967.66 | 6075.09 | 0 |
| 2972.61 | 6075.07 | 0 | 2977.9  | 6075.08 | 0 | 2984.85 | 6075.11 | 0 |
| 2996.41 | 6075.11 | 0 | 3000.01 | 6075.1  | 0 | 3003.46 | 6075.06 | 0 |
| 3011.39 | 6074.99 | 0 | 3015.8  | 6074.93 | 0 | 3019.21 | 6074.91 | 0 |
| 3024.26 | 6074.86 | 0 | 3028.31 | 6074.86 | 0 | 3033.36 | 6074.9  | 0 |
| 3037.83 | 6074.89 | 0 | 3042.89 | 6074.84 | 0 | 3059.51 | 6074.85 | 0 |
| 3072.97 | 6074.84 | 0 | 3073.82 | 6074.84 | 0 |         |         |   |

# Downstream Bridge Cross Section Data

| Station | Elevation | Data   | num=    | 450    |         |        |         |        |         |
|---------|-----------|--------|---------|--------|---------|--------|---------|--------|---------|
| Sta     | Elev      | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    |
| 256.52  | 6077.76   | 270.89 | 6077.23 | 275.72 | 6077.12 | 280.68 | 6077.12 | 289.54 | 6077.05 |
| 298.03  | 6076.88   | 302.89 | 6076.73 | 311.39 | 6076.58 | 314.3  | 6076.57 | 325.32 | 6076.33 |
| 334.15  | 6076.28   | 339.07 | 6076.21 | 346.31 | 6076.24 | 349.79 | 6076.19 | 355.04 | 6076.19 |
| 360.13  | 6076.14   | 367    | 6075.96 | 372.33 | 6075.88 | 379.37 | 6075.84 | 386.41 | 6075.87 |
| 396.48  | 6076.1    | 404.01 | 6076.14 | 409.57 | 6076.22 | 421.2  | 6076.19 | 430.88 | 6076.19 |
| 438.7   | 6076.06   | 444.29 | 6076.1  | 456.8  | 6075.88 | 468.72 | 6075.57 | 482.19 | 6075.38 |
| 493.94  | 6075.29   | 500.18 | 6075.29 | 505    | 6075.25 | 519.72 | 6075.25 | 522.62 | 6075.28 |
| 531.94  | 6075.5    | 540.08 | 6075.83 | 543.28 | 6075.91 | 549.04 | 6075.95 | 553.11 | 6075.9  |
| 557.18  | 6075.91   | 565.12 | 6076.06 | 572.65 | 6076.08 | 577.44 | 6076.14 | 582.42 | 6076.14 |
| 589.75  | 6076.24   | 600.21 | 6076.29 | 605.22 | 6076.29 | 609.29 | 6076.24 | 620.06 | 6075.91 |
| 632.09  | 6075.76   | 634.37 | 6075.7  | 637.69 | 6075.5  | 645.98 | 6074.91 | 654.07 | 6074.6  |
| 659.45  | 6074.27   | 664.64 | 6073.48 | 666.71 | 6073.29 | 668.78 | 6073.24 | 673.62 | 6073.5  |
| 677.08  | 6073.53   | 680.94 | 6073.44 | 684.2  | 6073.49 | 689.52 | 6073.88 | 692.63 | 6073.99 |
| 696.77  | 6074.06   | 702.99 | 6074.3  | 707.81 | 6074.54 | 711.07 | 6074.58 | 715.96 | 6074.56 |
| 720.62  | 6074.63   | 726.84 | 6074.67 | 731.43 | 6074.64 | 738.24 | 6074.68 | 743.42 | 6074.53 |
| 746.53  | 6074.52   | 751.71 | 6074.65 | 758.97 | 6074.59 | 767.22 | 6074.8  | 770.51 | 6074.82 |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 777.84  | 6074.58 | 780.74  | 6074.54 | 792.14  | 6074.8  | 794.94  | 6074.81 | 799.4   | 6074.74 |
| 804.58  | 6074.93 | 807.69  | 6074.96 | 815.3   | 6074.76 | 822.62  | 6074.8  | 829.46  | 6074.61 |
| 834.84  | 6074.51 | 839.83  | 6074.51 | 847.87  | 6074.65 | 851.12  | 6074.63 | 857.45  | 6074.28 |
| 861.6   | 6074.26 | 866.78  | 6074.44 | 874.04  | 6074.3  | 879.22  | 6074.46 | 883.37  | 6074.35 |
| 889.39  | 6074.04 | 892.7   | 6073.99 | 897.53  | 6074.15 | 900.79  | 6074.18 | 920.33  | 6074.15 |
| 923.59  | 6074.12 | 928.98  | 6074.23 | 932.09  | 6074.25 | 938.31  | 6074.13 | 942.45  | 6074.01 |
| 945.62  | 6074    | 953.72  | 6074.19 | 958     | 6074.19 | 961.11  | 6074.29 | 963.19  | 6074.43 |
| 969.41  | 6074.67 | 971.48  | 6074.71 | 979.77  | 6074.65 | 988.06  | 6074.8  | 989.54  | 6074.79 |
| 994.28  | 6074.92 | 1003.39 | 6075.12 | 1008.27 | 6075.15 | 1018.13 | 6075.13 | 1023.74 | 6075.29 |
| 1026.42 | 6075.2  | 1031.6  | 6074.71 | 1034.71 | 6074.48 | 1038.86 | 6074.26 | 1041.97 | 6074.2  |
| 1047.15 | 6074.37 | 1051.3  | 6074.28 | 1056.48 | 6073.84 | 1060.63 | 6073.75 | 1068.92 | 6073.78 |
| 1073.07 | 6073.65 | 1078.25 | 6073.31 | 1081.36 | 6073.22 | 1093.77 | 6073.14 | 1098.98 | 6072.96 |
| 1104.17 | 6072.96 | 1109.24 | 6073.23 | 1115.57 | 6073.38 | 1118.19 | 6073.4  | 1127.15 | 6073.36 |
| 1140.18 | 6073.13 | 1145.06 | 6073.13 | 1150.58 | 6073.06 | 1154.84 | 6073.05 | 1158.91 | 6072.98 |
| 1163.25 | 6072.99 | 1171.93 | 6072.72 | 1177.15 | 6072.65 | 1182.95 | 6072.62 | 1191.48 | 6072.45 |
| 1197.99 | 6072.14 | 1202.65 | 6071.79 | 1205.76 | 6071.73 | 1213.15 | 6071.85 | 1218.64 | 6071.8  |
| 1222.5  | 6071.88 | 1226.04 | 6071.81 | 1228.18 | 6071.65 | 1234.85 | 6071.31 | 1238.16 | 6071.24 |
| 1241.8  | 6071.28 | 1247.2  | 6071.46 | 1249.66 | 6071.47 | 1253.95 | 6071.31 | 1258.25 | 6071.24 |
| 1261.47 | 6071.45 | 1263.62 | 6071.76 | 1265.73 | 6071.92 | 1267.27 | 6071.93 | 1271.12 | 6071.72 |
| 1274.35 | 6071.75 | 1279.72 | 6072    | 1287.24 | 6071.97 | 1290.43 | 6072.11 | 1295.83 | 6072.43 |
| 1299.05 | 6072.41 | 1306.82 | 6072.18 | 1309.79 | 6072.27 | 1313.01 | 6072.51 | 1315.06 | 6072.74 |
| 1318.38 | 6073    | 1320.52 | 6073.06 | 1326.7  | 6072.95 | 1329.53 | 6072.86 | 1336.43 | 6072.79 |
| 1348.65 | 6072.41 | 1351.85 | 6072.36 | 1361.88 | 6072.5  | 1368.49 | 6072.78 | 1372.74 | 6072.82 |
| 1380.62 | 6072.82 | 1386.9  | 6072.71 | 1391.34 | 6072.67 | 1402.97 | 6072.28 | 1405.98 | 6072.29 |
| 1410.27 | 6072.4  | 1416.5  | 6072.3  | 1419.46 | 6072.32 | 1425.15 | 6072.53 | 1432.85 | 6072.48 |
| 1437.19 | 6072.54 | 1443.56 | 6072.49 | 1446.24 | 6072.53 | 1452.59 | 6073.01 | 1456.95 | 6073.15 |
| 1461.98 | 6073.22 | 1475.56 | 6073.7  | 1479.72 | 6073.76 | 1487.22 | 6073.74 | 1492.11 | 6073.78 |
| 1506.51 | 6074.04 | 1516.58 | 6074.11 | 1524.49 | 6074.12 | 1528.82 | 6074.18 | 1535.4  | 6074.18 |
| 1543.21 | 6074.3  | 1551.11 | 6074.31 | 1556.44 | 6074.38 | 1559.99 | 6074.5  | 1561.92 | 6074.49 |
| 1567.09 | 6074.58 | 1574.38 | 6074.97 | 1576.8  | 6075.05 | 1582.61 | 6075.11 | 1587.62 | 6075.06 |
| 1591.85 | 6075.13 | 1595.68 | 6075.08 | 1601.14 | 6075.15 | 1604.17 | 6075.1  | 1609.26 | 6075.21 |
| 1612.9  | 6075.14 | 1617.37 | 6075.16 | 1620.08 | 6075.1  | 1628.19 | 6075.13 | 1633.6  | 6075.27 |
| 1636.5  | 6075.25 | 1641.89 | 6075.49 | 1652.54 | 6075.55 | 1657.95 | 6075.65 | 1660.66 | 6075.65 |
| 1666.07 | 6075.77 | 1668.84 | 6075.77 | 1676.1  | 6075.96 | 1681.34 | 6076.05 | 1687.93 | 6076.09 |
| 1693.36 | 6075.98 | 1700.07 | 6076    | 1704.12 | 6075.93 | 1713.33 | 6075.96 | 1718.04 | 6075.91 |
| 1724.65 | 6075.93 | 1730.56 | 6075.8  | 1733.87 | 6075.81 | 1735.8  | 6075.85 | 1738.7  | 6075.92 |
| 1744.11 | 6075.94 | 1753.18 | 6076.32 | 1759.48 | 6076.41 | 1766.25 | 6076.39 | 1769.73 | 6076.34 |
| 1775.6  | 6076.07 | 1777.75 | 6075.9  | 1781.76 | 6075.44 | 1783.76 | 6075.36 | 1790.84 | 6075.73 |
| 1794.65 | 6075.83 | 1804.17 | 6075.97 | 1807.03 | 6075.97 | 1814.65 | 6075.89 | 1819.81 | 6075.94 |
| 1826.82 | 6075.79 | 1837.51 | 6075.43 | 1846.84 | 6075.18 | 1849.85 | 6074.95 | 1853.85 | 6074.57 |
| 1855.85 | 6074.54 | 1859.86 | 6074.64 | 1861.86 | 6074.61 | 1864.87 | 6074.33 | 1867.87 | 6073.66 |
| 1870.85 | 6072.74 | 1874.88 | 6071.24 | 1876.88 | 6070.76 | 1878.88 | 6070.59 | 1881.32 | 6069    |
| 1897.91 | 6069    | 1899.42 | 6070.57 | 1901.32 | 6070.83 | 1903.92 | 6071.63 | 1904.92 | 6072.12 |
| 1906.92 | 6072.8  | 1908.92 | 6073.23 | 1910.85 | 6073.51 | 1919.94 | 6074.6  | 1923.23 | 6074.78 |
| 1945    | 6072    | 2084.86 | 6072    | 2185.04 | 6072    | 2196.01 | 6072.68 | 2200.55 | 6072.7  |
| 2208.57 | 6072.51 | 2211.24 | 6072.49 | 2215.23 | 6072.61 | 2222.54 | 6072.91 | 2226.79 | 6073.03 |
| 2231.75 | 6073.07 | 2239.87 | 6072.9  | 2245.23 | 6072.94 | 2250.19 | 6072.86 | 2252.39 | 6072.77 |
| 2262.87 | 6072.51 | 2271.48 | 6072.6  | 2277.29 | 6072.51 | 2287.09 | 6072.54 | 2292.05 | 6072.53 |
| 2300.2  | 6072.35 | 2310.84 | 6072.31 | 2318.37 | 6072.2  | 2330.19 | 6072.51 | 2343.22 | 6072.68 |
| 2350.03 | 6072.69 | 2353.01 | 6072.63 | 2357.75 | 6072.45 | 2364.16 | 6072.31 | 2370.98 | 6072.21 |
| 2374.29 | 6072.26 | 2379.8  | 6072.44 | 2384.63 | 6072.49 | 2390.79 | 6072.64 | 2394.9  | 6072.79 |
| 2408.55 | 6072.63 | 2416.29 | 6072.49 | 2421.39 | 6072.46 | 2426.46 | 6072.5  | 2436.67 | 6072.3  |
| 2440.95 | 6072.31 | 2445.84 | 6072.24 | 2448.89 | 6072.3  | 2453.75 | 6072.71 | 2457.04 | 6072.91 |
| 2462.27 | 6073.03 | 2470.29 | 6072.98 | 2478.44 | 6073.13 | 2485.57 | 6073.12 | 2490.42 | 6073.23 |
| 2493.83 | 6073.26 | 2497.24 | 6073.19 | 2505.94 | 6072.82 | 2510.02 | 6072.77 | 2516    | 6072.88 |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 2521.12 | 6073.1  | 2527.34 | 6073.22 | 2528.36 | 6073.31 | 2531.41 | 6073.28 | 2537.48 | 6073.38 |
| 2540.51 | 6073.33 | 2543.53 | 6073.19 | 2548.58 | 6072.73 | 2551.6  | 6072.56 | 2556.22 | 6072.53 |
| 2563.35 | 6072.59 | 2567.74 | 6072.57 | 2579.38 | 6072.41 | 2584.73 | 6072.39 | 2591.13 | 6072.46 |
| 2594.98 | 6072.46 | 2605.22 | 6072.33 | 2613.13 | 6072.36 | 2624.82 | 6072.33 | 2630.16 | 6072.27 |
| 2639.36 | 6072.28 | 2647.09 | 6072.19 | 2652.12 | 6072.25 | 2660.45 | 6072.44 | 2670.63 | 6072.44 |
| 2675.67 | 6072.7  | 2679.71 | 6072.72 | 2687.78 | 6072.38 | 2691.63 | 6072.37 | 2694.84 | 6072.53 |
| 2699.88 | 6072.96 | 2702.91 | 6073.16 | 2705.88 | 6073.16 | 2710.34 | 6073.01 | 2713    | 6073.03 |
| 2718.04 | 6073.25 | 2725.1  | 6073.3  | 2728.13 | 6073.37 | 2733.17 | 6073.7  | 2737.06 | 6073.7  |
| 2739.74 | 6073.52 | 2743.26 | 6073.37 | 2748.3  | 6073.45 | 2757.38 | 6073.49 | 2764.68 | 6073.47 |
| 2771.5  | 6073.68 | 2776.26 | 6073.59 | 2779.82 | 6073.61 | 2782.6  | 6073.82 | 2787.64 | 6074.39 |
| 2790.67 | 6074.61 | 2794.97 | 6074.74 | 2804.6  | 6074.88 | 2808.33 | 6074.88 | 2815.46 | 6074.81 |
| 2820.93 | 6074.59 | 2823.96 | 6074.52 | 2830.01 | 6074.52 | 2834.17 | 6074.33 | 2837.07 | 6073.99 |
| 2842.11 | 6073.04 | 2845.14 | 6072.62 | 2847.53 | 6072.45 | 2851.98 | 6072.35 | 2867.13 | 6072.49 |
| 2870.36 | 6072.48 | 2877.82 | 6072.36 | 2884.48 | 6072.32 | 2893.56 | 6072.39 | 2901.87 | 6072.39 |
| 2910.71 | 6072.3  | 2916.12 | 6072.29 | 2921.8  | 6072.21 | 2929.49 | 6072.05 | 2936.93 | 6072.07 |
| 2952.65 | 6072.27 | 2957.07 | 6072.39 | 2963.16 | 6072.48 | 2969.57 | 6072.49 | 2978.29 | 6072.46 |
| 2987.56 | 6072.47 | 2997.45 | 6072.37 | 3008.55 | 6072.5  | 3018.64 | 6072.54 | 3024.81 | 6072.65 |
| 3041.84 | 6073.14 | 3048.86 | 6073.25 | 3053.94 | 6073.54 | 3057.77 | 6073.69 | 3061    | 6073.91 |
| 3066.05 | 6074.4  | 3075.13 | 6074.91 | 3078.15 | 6075.01 | 3086.67 | 6075.08 | 3093.54 | 6075.05 |

|                    |             |                  |
|--------------------|-------------|------------------|
| Manning's n Values | num=        | 3                |
| Sta n Val          | Sta n Val   | Sta n Val        |
| 256.52             | .06 1861.86 | .035 1919.94 .06 |

|                |         |       |        |        |
|----------------|---------|-------|--------|--------|
| Bank Sta: Left | Right   | Coeff | Contr. | Expan. |
| 1861.86        | 1919.94 | .3    |        | .5     |

|                  |         |         |           |
|------------------|---------|---------|-----------|
| Ineffective Flow | num=    | 5       |           |
| Sta L            | Sta R   | Elev    | Permanent |
| 322.52           | 1863.65 | 6075.96 | T         |
| 2228.27          | 2583.58 | 6074.26 | T         |
| 2583.58          | 2625.95 | 6074.59 | T         |
| 2625.95          | 2645.8  | 6074.82 | T         |
| 2645.8           | 3073.42 | 6075.11 | T         |

|                      |         |        |
|----------------------|---------|--------|
| Blocked Obstructions | num=    | 1      |
| Sta L                | Sta R   | Elev   |
| 3159.6               | 3093.54 | 6075.2 |

|                                             |   |                          |
|---------------------------------------------|---|--------------------------|
| 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         | = | 6071.65                  |
| Energy head used in spillway design         | = |                          |
| Spillway height used in design              | = |                          |
| Weir crest shape                            | = | Broad Crested            |

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Pressure and Weir flow

Submerged Inlet Cd =

Submerged Inlet + Outlet Cd = .8

Max Low Cord =

Additional Bridge Parameters

Add Friction component to Momentum  
Do not add Weight component to Momentum  
Class B flow critical depth computations use critical depth  
inside the bridge at the upstream end  
Criteria to check for pressure flow = Upstream energy grade line

Number of Culverts = 1

Culvert Name      Shape      Rise      Span  
Prop RCPs      Circular      1.5  
FHWA Chart # 1 - Concrete Pipe Culvert  
FHWA Scale # 1 - Square edge entrance with headwall  
Solution Criteria = Highest U.S. EG  
Culvert Upstrm Dist   Length      Top n      Bottom n      Depth Blocked      Entrance Loss Coef      Exit Loss Coef  
                         0      56      .011      .011      0      .2      1

Number of Barrels = 24

Upstream Elevation = 6072.8

Centerline Stations

|      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|
| Sta. | Sta. | Sta. | Sta. | Sta. | Sta. | Sta. | Sta. | Sta. | Sta. |
| 1930 | 1940 | 1950 | 1960 | 1970 | 1980 | 1990 | 2000 | 2010 | 2020 |
| 2030 | 2040 | 2050 | 2060 | 2070 | 2080 | 2090 | 2100 | 2110 | 2120 |
| 2130 | 2140 | 2150 | 2160 |      |      |      |      |      |      |

Downstream Elevation = 6072

Centerline Stations

|      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|
| Sta. | Sta. | Sta. | Sta. | Sta. | Sta. | Sta. | Sta. | Sta. | Sta. |
| 1945 | 1955 | 1965 | 1975 | 1985 | 1995 | 2005 | 2015 | 2025 | 2035 |
| 2045 | 2055 | 2065 | 2075 | 2085 | 2096 | 2108 | 2121 | 2132 | 2143 |
| 2154 | 2165 | 2175 | 2185 |      |      |      |      |      |      |

Multiple Opening Stagnation Limits

|               | Upstream  |            | Downstream |            |
|---------------|-----------|------------|------------|------------|
| Opening Type  | Sta. Left | Sta. Right | Sta. Left  | Sta. Right |
| Bridge        | 194.21    | 1928       | 256.52     | 1940       |
| Culvert Group | 1905      | 3003.62    | 1908       | 3093.54    |

CROSS SECTION

RIVER: Flat Creek

REACH: 1      RS: 31558

INPUT

Description: Downstream of Rafter J Bridge

| Station Elevation Data |         | num=   |         | 450    |         |        |         |        |         |
|------------------------|---------|--------|---------|--------|---------|--------|---------|--------|---------|
| Sta                    | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    |
| 256.52                 | 6077.76 | 270.89 | 6077.23 | 275.72 | 6077.12 | 280.68 | 6077.12 | 289.54 | 6077.05 |
| 298.03                 | 6076.88 | 302.89 | 6076.73 | 311.39 | 6076.58 | 314.3  | 6076.57 | 325.32 | 6076.33 |
| 334.15                 | 6076.28 | 339.07 | 6076.21 | 346.31 | 6076.24 | 349.79 | 6076.19 | 355.04 | 6076.19 |



|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 360.13  | 6076.14 | 367     | 6075.96 | 372.33  | 6075.88 | 379.37  | 6075.84 | 386.41  | 6075.87 |
| 396.48  | 6076.1  | 404.01  | 6076.14 | 409.57  | 6076.22 | 421.2   | 6076.19 | 430.88  | 6076.19 |
| 438.7   | 6076.06 | 444.29  | 6076.1  | 456.8   | 6075.88 | 468.72  | 6075.57 | 482.19  | 6075.38 |
| 493.94  | 6075.29 | 500.18  | 6075.29 | 505     | 6075.25 | 519.72  | 6075.25 | 522.62  | 6075.28 |
| 531.94  | 6075.5  | 540.08  | 6075.83 | 543.28  | 6075.91 | 549.04  | 6075.95 | 553.11  | 6075.9  |
| 557.18  | 6075.91 | 565.12  | 6076.06 | 572.65  | 6076.08 | 577.44  | 6076.14 | 582.42  | 6076.14 |
| 589.75  | 6076.24 | 600.21  | 6076.29 | 605.22  | 6076.29 | 609.29  | 6076.24 | 620.06  | 6075.91 |
| 632.09  | 6075.76 | 634.37  | 6075.7  | 637.69  | 6075.5  | 645.98  | 6074.91 | 654.07  | 6074.6  |
| 659.45  | 6074.27 | 664.64  | 6073.48 | 666.71  | 6073.29 | 668.78  | 6073.24 | 673.62  | 6073.5  |
| 677.08  | 6073.53 | 680.94  | 6073.44 | 684.2   | 6073.49 | 689.52  | 6073.88 | 692.63  | 6073.99 |
| 696.77  | 6074.06 | 702.99  | 6074.3  | 707.81  | 6074.54 | 711.07  | 6074.58 | 715.96  | 6074.56 |
| 720.62  | 6074.63 | 726.84  | 6074.67 | 731.43  | 6074.64 | 738.24  | 6074.68 | 743.42  | 6074.53 |
| 746.53  | 6074.52 | 751.71  | 6074.65 | 758.97  | 6074.59 | 767.22  | 6074.8  | 770.51  | 6074.82 |
| 777.84  | 6074.58 | 780.74  | 6074.54 | 792.14  | 6074.8  | 794.94  | 6074.81 | 799.4   | 6074.74 |
| 804.58  | 6074.93 | 807.69  | 6074.96 | 815.3   | 6074.76 | 822.62  | 6074.8  | 829.46  | 6074.61 |
| 834.84  | 6074.51 | 839.83  | 6074.51 | 847.87  | 6074.65 | 851.12  | 6074.63 | 857.45  | 6074.28 |
| 861.6   | 6074.26 | 866.78  | 6074.44 | 874.04  | 6074.3  | 879.22  | 6074.46 | 883.37  | 6074.35 |
| 889.39  | 6074.04 | 892.7   | 6073.99 | 897.53  | 6074.15 | 900.79  | 6074.18 | 920.33  | 6074.15 |
| 923.59  | 6074.12 | 928.98  | 6074.23 | 932.09  | 6074.25 | 938.31  | 6074.13 | 942.45  | 6074.01 |
| 945.62  | 6074    | 953.72  | 6074.19 | 958     | 6074.19 | 961.11  | 6074.29 | 963.19  | 6074.43 |
| 969.41  | 6074.67 | 971.48  | 6074.71 | 979.77  | 6074.65 | 988.06  | 6074.8  | 989.54  | 6074.79 |
| 994.28  | 6074.92 | 1003.39 | 6075.12 | 1008.27 | 6075.15 | 1018.13 | 6075.13 | 1023.74 | 6075.29 |
| 1026.42 | 6075.2  | 1031.6  | 6074.71 | 1034.71 | 6074.48 | 1038.86 | 6074.26 | 1041.97 | 6074.2  |
| 1047.15 | 6074.37 | 1051.3  | 6074.28 | 1056.48 | 6073.84 | 1060.63 | 6073.75 | 1068.92 | 6073.78 |
| 1073.07 | 6073.65 | 1078.25 | 6073.31 | 1081.36 | 6073.22 | 1093.77 | 6073.14 | 1098.98 | 6072.96 |
| 1104.17 | 6072.96 | 1109.24 | 6073.23 | 1115.57 | 6073.38 | 1118.19 | 6073.4  | 1127.15 | 6073.36 |
| 1140.18 | 6073.13 | 1145.06 | 6073.13 | 1150.58 | 6073.06 | 1154.84 | 6073.05 | 1158.91 | 6072.98 |
| 1163.25 | 6072.99 | 1171.93 | 6072.72 | 1177.15 | 6072.65 | 1182.95 | 6072.62 | 1191.48 | 6072.45 |
| 1197.99 | 6072.14 | 1202.65 | 6071.79 | 1205.76 | 6071.73 | 1213.15 | 6071.85 | 1218.64 | 6071.8  |
| 1222.5  | 6071.88 | 1226.04 | 6071.81 | 1228.18 | 6071.65 | 1234.85 | 6071.31 | 1238.16 | 6071.24 |
| 1241.8  | 6071.28 | 1247.2  | 6071.46 | 1249.66 | 6071.47 | 1253.95 | 6071.31 | 1258.25 | 6071.24 |
| 1261.47 | 6071.45 | 1263.62 | 6071.76 | 1265.73 | 6071.92 | 1267.27 | 6071.93 | 1271.12 | 6071.72 |
| 1274.35 | 6071.75 | 1279.72 | 6072    | 1287.24 | 6071.97 | 1290.43 | 6072.11 | 1295.83 | 6072.43 |
| 1299.05 | 6072.41 | 1306.82 | 6072.18 | 1309.79 | 6072.27 | 1313.01 | 6072.51 | 1315.06 | 6072.74 |
| 1318.38 | 6073    | 1320.52 | 6073.06 | 1326.7  | 6072.95 | 1329.53 | 6072.86 | 1336.43 | 6072.79 |
| 1348.65 | 6072.41 | 1351.85 | 6072.36 | 1361.88 | 6072.5  | 1368.49 | 6072.78 | 1372.74 | 6072.82 |
| 1380.62 | 6072.82 | 1386.9  | 6072.71 | 1391.34 | 6072.67 | 1402.97 | 6072.28 | 1405.98 | 6072.29 |
| 1410.27 | 6072.4  | 1416.5  | 6072.3  | 1419.46 | 6072.32 | 1425.15 | 6072.53 | 1432.85 | 6072.48 |
| 1437.19 | 6072.54 | 1443.56 | 6072.49 | 1446.24 | 6072.53 | 1452.59 | 6073.01 | 1456.95 | 6073.15 |
| 1461.98 | 6073.22 | 1475.56 | 6073.7  | 1479.72 | 6073.76 | 1487.22 | 6073.74 | 1492.11 | 6073.78 |
| 1506.51 | 6074.04 | 1516.58 | 6074.11 | 1524.49 | 6074.12 | 1528.82 | 6074.18 | 1535.4  | 6074.18 |
| 1543.21 | 6074.3  | 1551.11 | 6074.31 | 1556.44 | 6074.38 | 1559.99 | 6074.5  | 1561.92 | 6074.49 |
| 1567.09 | 6074.58 | 1574.38 | 6074.97 | 1576.8  | 6075.05 | 1582.61 | 6075.11 | 1587.62 | 6075.06 |
| 1591.85 | 6075.13 | 1595.68 | 6075.08 | 1601.14 | 6075.15 | 1604.17 | 6075.1  | 1609.26 | 6075.21 |
| 1612.9  | 6075.14 | 1617.37 | 6075.16 | 1620.08 | 6075.1  | 1628.19 | 6075.13 | 1633.6  | 6075.27 |
| 1636.5  | 6075.25 | 1641.89 | 6075.49 | 1652.54 | 6075.55 | 1657.95 | 6075.65 | 1660.66 | 6075.65 |
| 1666.07 | 6075.77 | 1668.84 | 6075.77 | 1676.1  | 6075.96 | 1681.34 | 6076.05 | 1687.93 | 6076.09 |
| 1693.36 | 6075.98 | 1700.07 | 6076    | 1704.12 | 6075.93 | 1713.33 | 6075.96 | 1718.04 | 6075.91 |
| 1724.65 | 6075.93 | 1730.56 | 6075.8  | 1733.87 | 6075.81 | 1735.8  | 6075.85 | 1738.7  | 6075.92 |
| 1744.11 | 6075.94 | 1753.18 | 6076.32 | 1759.48 | 6076.41 | 1766.25 | 6076.39 | 1769.73 | 6076.34 |
| 1775.6  | 6076.07 | 1777.75 | 6075.9  | 1781.76 | 6075.44 | 1783.76 | 6075.36 | 1790.84 | 6075.73 |
| 1794.65 | 6075.83 | 1804.17 | 6075.97 | 1807.03 | 6075.97 | 1814.65 | 6075.89 | 1819.81 | 6075.94 |
| 1826.82 | 6075.79 | 1837.51 | 6075.43 | 1846.84 | 6075.18 | 1849.85 | 6074.95 | 1853.85 | 6074.57 |
| 1855.85 | 6074.54 | 1859.86 | 6074.64 | 1861.86 | 6074.61 | 1864.87 | 6074.33 | 1867.87 | 6073.66 |
| 1870.85 | 6072.74 | 1874.88 | 6071.24 | 1876.88 | 6070.76 | 1878.88 | 6070.59 | 1881.32 | 6069    |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1897.91 | 6069    | 1899.42 | 6070.57 | 1901.32 | 6070.83 | 1903.92 | 6071.63 | 1904.92 | 6072.12 |
| 1906.92 | 6072.8  | 1908.92 | 6073.23 | 1910.85 | 6073.51 | 1919.94 | 6074.6  | 1923.23 | 6074.78 |
| 1945    | 6072    | 2084.86 | 6072    | 2185.04 | 6072    | 2196.01 | 6072.68 | 2200.55 | 6072.7  |
| 2208.57 | 6072.51 | 2211.24 | 6072.49 | 2215.23 | 6072.61 | 2222.54 | 6072.91 | 2226.79 | 6073.03 |
| 2231.75 | 6073.07 | 2239.87 | 6072.9  | 2245.23 | 6072.94 | 2250.19 | 6072.86 | 2252.39 | 6072.77 |
| 2262.87 | 6072.51 | 2271.48 | 6072.6  | 2277.29 | 6072.51 | 2287.09 | 6072.54 | 2292.05 | 6072.53 |
| 2300.2  | 6072.35 | 2310.84 | 6072.31 | 2318.37 | 6072.2  | 2330.19 | 6072.51 | 2343.22 | 6072.68 |
| 2350.03 | 6072.69 | 2353.01 | 6072.63 | 2357.75 | 6072.45 | 2364.16 | 6072.31 | 2370.98 | 6072.21 |
| 2374.29 | 6072.26 | 2379.8  | 6072.44 | 2384.63 | 6072.49 | 2390.79 | 6072.64 | 2394.9  | 6072.79 |
| 2408.55 | 6072.63 | 2416.29 | 6072.49 | 2421.39 | 6072.46 | 2426.46 | 6072.5  | 2436.67 | 6072.3  |
| 2440.95 | 6072.31 | 2445.84 | 6072.24 | 2448.89 | 6072.3  | 2453.75 | 6072.71 | 2457.04 | 6072.91 |
| 2462.27 | 6073.03 | 2470.29 | 6072.98 | 2478.44 | 6073.13 | 2485.57 | 6073.12 | 2490.42 | 6073.23 |
| 2493.83 | 6073.26 | 2497.24 | 6073.19 | 2505.94 | 6072.82 | 2510.02 | 6072.77 | 2516    | 6072.88 |
| 2521.12 | 6073.1  | 2527.34 | 6073.22 | 2528.36 | 6073.31 | 2531.41 | 6073.28 | 2537.48 | 6073.38 |
| 2540.51 | 6073.33 | 2543.53 | 6073.19 | 2548.58 | 6072.73 | 2551.6  | 6072.56 | 2556.22 | 6072.53 |
| 2563.35 | 6072.59 | 2567.74 | 6072.57 | 2579.38 | 6072.41 | 2584.73 | 6072.39 | 2591.13 | 6072.46 |
| 2594.98 | 6072.46 | 2605.22 | 6072.33 | 2613.13 | 6072.36 | 2624.82 | 6072.33 | 2630.16 | 6072.27 |
| 2639.36 | 6072.28 | 2647.09 | 6072.19 | 2652.12 | 6072.25 | 2660.45 | 6072.44 | 2670.63 | 6072.44 |
| 2675.67 | 6072.7  | 2679.71 | 6072.72 | 2687.78 | 6072.38 | 2691.63 | 6072.37 | 2694.84 | 6072.53 |
| 2699.88 | 6072.96 | 2702.91 | 6073.16 | 2705.88 | 6073.16 | 2710.34 | 6073.01 | 2713    | 6073.03 |
| 2718.04 | 6073.25 | 2725.1  | 6073.3  | 2728.13 | 6073.37 | 2733.17 | 6073.7  | 2737.06 | 6073.7  |
| 2739.74 | 6073.52 | 2743.26 | 6073.37 | 2748.3  | 6073.45 | 2757.38 | 6073.49 | 2764.68 | 6073.47 |
| 2771.5  | 6073.68 | 2776.26 | 6073.59 | 2779.82 | 6073.61 | 2782.6  | 6073.82 | 2787.64 | 6074.39 |
| 2790.67 | 6074.61 | 2794.97 | 6074.74 | 2804.6  | 6074.88 | 2808.33 | 6074.88 | 2815.46 | 6074.81 |
| 2820.93 | 6074.59 | 2823.96 | 6074.52 | 2830.01 | 6074.52 | 2834.17 | 6074.33 | 2837.07 | 6073.99 |
| 2842.11 | 6073.04 | 2845.14 | 6072.62 | 2847.53 | 6072.45 | 2851.98 | 6072.35 | 2867.13 | 6072.49 |
| 2870.36 | 6072.48 | 2877.82 | 6072.36 | 2884.48 | 6072.32 | 2893.56 | 6072.39 | 2901.87 | 6072.39 |
| 2910.71 | 6072.3  | 2916.12 | 6072.29 | 2921.8  | 6072.21 | 2929.49 | 6072.05 | 2936.93 | 6072.07 |
| 2952.65 | 6072.27 | 2957.07 | 6072.39 | 2963.16 | 6072.48 | 2969.57 | 6072.49 | 2978.29 | 6072.46 |
| 2987.56 | 6072.47 | 2997.45 | 6072.37 | 3008.55 | 6072.5  | 3018.64 | 6072.54 | 3024.81 | 6072.65 |
| 3041.84 | 6073.14 | 3048.86 | 6073.25 | 3053.94 | 6073.54 | 3057.77 | 6073.69 | 3061    | 6073.91 |
| 3066.05 | 6074.4  | 3075.13 | 6074.91 | 3078.15 | 6075.01 | 3086.67 | 6075.08 | 3093.54 | 6075.05 |

|                    |       |         |       |
|--------------------|-------|---------|-------|
| Manning's n Values |       | num=    | 3     |
| Sta                | n Val | Sta     | n Val |
| 256.52             | .06   | 1861.86 | .035  |
|                    |       | 1919.94 | .06   |

|                      |         |         |           |        |         |        |       |        |        |
|----------------------|---------|---------|-----------|--------|---------|--------|-------|--------|--------|
| Bank Sta:            | Left    | Right   | Lengths:  | Left   | Channel | Right  | Coeff | Contr. | Expan. |
|                      | 1861.86 | 1919.94 |           | 446.27 | 338.28  | 229.54 |       | .3     | .5     |
| Ineffective Flow     | num=    |         | 5         |        |         |        |       |        |        |
| Sta L                | Sta R   | Elev    | Permanent |        |         |        |       |        |        |
| 322.52               | 1863.65 | 6075.96 | T         |        |         |        |       |        |        |
| 2228.27              | 2583.58 | 6074.26 | T         |        |         |        |       |        |        |
| 2583.58              | 2625.95 | 6074.59 | T         |        |         |        |       |        |        |
| 2625.95              | 2645.8  | 6074.82 | T         |        |         |        |       |        |        |
| 2645.8               | 3073.42 | 6075.11 | T         |        |         |        |       |        |        |
| Blocked Obstructions | num=    |         | 1         |        |         |        |       |        |        |
| Sta L                | Sta R   | Elev    |           |        |         |        |       |        |        |
| 3159.6               | 3093.54 | 6075.2  |           |        |         |        |       |        |        |

CROSS SECTION

RIVER: Flat Creek  
 REACH: 1 RS: 31220



## INPUT

Description:

| Station | Elevation | Data    | num=    | 488     |         |         |         |         |         |  |
|---------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|--|
| Sta     | Elev      | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    |  |
| 0       | 6089.1    | 2.36    | 6087.98 | 7.69    | 6085.19 | 10.88   | 6083.77 | 14.08   | 6082.83 |  |
| 18.82   | 6081.98   | 21.53   | 6081.26 | 26.61   | 6079.45 | 28.95   | 6078.9  | 30.51   | 6078.75 |  |
| 32.85   | 6078.86   | 35.19   | 6079.36 | 39.87   | 6080.78 | 42.82   | 6081.23 | 47.08   | 6081.39 |  |
| 50.28   | 6081.2    | 53.47   | 6080.73 | 55.6    | 6080.28 | 58.8    | 6079.74 | 61.99   | 6079.35 |  |
| 68.38   | 6078.8    | 71.57   | 6078.6  | 75.83   | 6078.42 | 84.2    | 6077.98 | 90.74   | 6077.76 |  |
| 98.19   | 6077.64   | 105.36  | 6077.69 | 112.03  | 6077.84 | 114.72  | 6077.83 | 119.4   | 6077.69 |  |
| 124.07  | 6077.66   | 132.26  | 6077.87 | 137.33  | 6077.87 | 157.82  | 6077.62 | 166.18  | 6077.59 |  |
| 178.05  | 6077.49   | 181.24  | 6077.43 | 189.76  | 6077.15 | 196.15  | 6077.12 | 203.6   | 6077.16 |  |
| 208.92  | 6077.05   | 215.29  | 6077.01 | 223.09  | 6077.06 | 240.87  | 6077.32 | 251.16  | 6077.42 |  |
| 263.23  | 6077.66   | 269.09  | 6077.68 | 277.67  | 6077.54 | 280.79  | 6077.46 | 286.65  | 6077.23 |  |
| 291.98  | 6076.77   | 294.82  | 6076.57 | 297.94  | 6076.51 | 302.61  | 6076.51 | 306.52  | 6076.43 |  |
| 312.21  | 6076.14   | 317.43  | 6075.77 | 320.72  | 6075.61 | 328.81  | 6075.33 | 336.69  | 6075.19 |  |
| 340.46  | 6075.16   | 351.6   | 6075.18 | 356.42  | 6075.11 | 365.77  | 6074.92 | 369.67  | 6074.88 |  |
| 373.96  | 6074.93   | 388.87  | 6074.89 | 393.84  | 6074.94 | 399.3   | 6074.89 | 403.98  | 6074.74 |  |
| 409.1   | 6074.67   | 425.81  | 6074.69 | 437.85  | 6074.69 | 439.98  | 6074.71 | 447.64  | 6074.97 |  |
| 453.09  | 6075.12   | 455.95  | 6075.33 | 461.27  | 6075.86 | 464.46  | 6076.04 | 468.69  | 6076.09 |  |
| 478.82  | 6075.89   | 491.08  | 6075.51 | 497.47  | 6075.25 | 499.1   | 6075.23 | 507.05  | 6074.92 |  |
| 509.18  | 6074.76   | 514.51  | 6074.59 | 521.96  | 6074.6  | 530.28  | 6074.52 | 535.57  | 6074.54 |  |
| 540.42  | 6074.63   | 545.88  | 6074.61 | 552.84  | 6074.66 | 559.13  | 6074.65 | 564.55  | 6074.74 |  |
| 568.49  | 6074.74   | 576.26  | 6074.57 | 583.72  | 6074.59 | 588.76  | 6074.48 | 593.81  | 6074.45 |  |
| 599.63  | 6074.55   | 603.57  | 6074.57 | 607.47  | 6074.53 | 615.66  | 6074.56 | 620.72  | 6074.49 |  |
| 629.3   | 6074.42   | 638.02  | 6074.45 | 643.31  | 6074.37 | 651.13  | 6074.38 | 660.49  | 6074.27 |  |
| 668.9   | 6074.08   | 677.64  | 6074.01 | 692.45  | 6074.15 | 696.35  | 6074.24 | 698.69  | 6074.37 |  |
| 704.15  | 6074.91   | 707.38  | 6075.09 | 713.51  | 6075.25 | 720.52  | 6075.33 | 724.42  | 6075.29 |  |
| 727.46  | 6075.19   | 730.65  | 6074.98 | 735.98  | 6074.55 | 743.43  | 6074.31 | 746.62  | 6074.12 |  |
| 749.82  | 6073.61   | 753.01  | 6072.67 | 755.14  | 6071.85 | 758.34  | 6070.98 | 761.53  | 6070.6  |  |
| 764.96  | 6070.56   | 766.52  | 6070.64 | 768.98  | 6070.97 | 774.31  | 6072.36 | 777.44  | 6072.76 |  |
| 780.56  | 6072.89   | 793.03  | 6072.9  | 800.56  | 6072.99 | 805.51  | 6072.99 | 812.21  | 6073.12 |  |
| 817.2   | 6073.17   | 824.35  | 6073.17 | 831.8   | 6073.13 | 836.69  | 6073.06 | 839.81  | 6073.08 |  |
| 846.71  | 6073.21   | 861.72  | 6073.18 | 864.81  | 6073.11 | 870.45  | 6072.91 | 873.33  | 6072.88 |  |
| 883.47  | 6072.9    | 889.3   | 6072.86 | 898.88  | 6072.99 | 909.53  | 6073.03 | 915.44  | 6072.99 |  |
| 920.18  | 6073.05   | 927.14  | 6073.31 | 934.02  | 6073.45 | 940.39  | 6073.51 | 944.67  | 6073.45 |  |
| 954.25  | 6073.16   | 959.57  | 6072.86 | 965.96  | 6072.71 | 970.02  | 6072.79 | 979.8   | 6073.29 |  |
| 981.93  | 6073.44   | 985.13  | 6073.56 | 989.51  | 6073.58 | 997.9   | 6073.42 | 1002.76 | 6073.36 |  |
| 1010.68 | 6073.33   | 1014.94 | 6073.26 | 1021.48 | 6073.06 | 1034.73 | 6072.52 | 1040.49 | 6072.19 |  |
| 1045.82 | 6071.83   | 1050.32 | 6071.7  | 1053.27 | 6071.73 | 1062.02 | 6071.99 | 1069.04 | 6072.09 |  |
| 1072.44 | 6072.25   | 1077.76 | 6072.68 | 1083.85 | 6072.95 | 1090.54 | 6072.97 | 1097.99 | 6072.94 |  |
| 1100.12 | 6073      | 1110.36 | 6072.96 | 1115.82 | 6073.23 | 1119.29 | 6073.35 | 1122.05 | 6073.38 |  |
| 1128.29 | 6073.25   | 1133.75 | 6073.26 | 1136.32 | 6073.22 | 1141.55 | 6073.03 | 1147.1  | 6072.99 |  |
| 1152.92 | 6072.77   | 1158.75 | 6072.59 | 1164.94 | 6072.69 | 1171.17 | 6072.97 | 1178.19 | 6073.12 |  |
| 1187.43 | 6073.28   | 1193.78 | 6073.27 | 1199.14 | 6073.19 | 1208.25 | 6073.13 | 1214.83 | 6073.16 |  |
| 1222.57 | 6073.24   | 1225.72 | 6073.12 | 1231.08 | 6072.64 | 1234.28 | 6072.4  | 1237.45 | 6072.24 |  |
| 1241.73 | 6072.31   | 1248.36 | 6072.76 | 1253.44 | 6073.27 | 1256.64 | 6073.5  | 1259.83 | 6073.61 |  |
| 1272.72 | 6073.66   | 1283.9  | 6073.52 | 1296.59 | 6073.16 | 1301.86 | 6073.03 | 1307.27 | 6072.83 |  |
| 1311.16 | 6072.56   | 1317    | 6072.29 | 1319.92 | 6072.26 | 1327.5  | 6072.09 | 1340.32 | 6072.03 |  |
| 1344.26 | 6071.98   | 1356.37 | 6071.62 | 1362.46 | 6071.38 | 1371.51 | 6071.37 | 1377.35 | 6071.45 |  |
| 1381.89 | 6071.4    | 1388.45 | 6071.24 | 1395.09 | 6071.23 | 1397.43 | 6071.33 | 1402.09 | 6071.79 |  |
| 1404.61 | 6071.84   | 1410.25 | 6071.57 | 1414.91 | 6071.53 | 1418.24 | 6071.59 | 1422.13 | 6071.75 |  |
| 1422.6  | 6071.76   | 1427.97 | 6071.91 | 1434.72 | 6071.87 | 1438.76 | 6071.81 | 1440.55 | 6071.85 |  |
| 1442.88 | 6072.13   | 1447.54 | 6073.29 | 1449.87 | 6073.5  | 1453.34 | 6073.37 | 1457.71 | 6072.44 |  |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1461.36 | 6072.02 | 1463.86 | 6071.93 | 1467.36 | 6071.94 | 1472.02 | 6072.1  | 1475.21 | 6072.05 |
| 1486    | 6072.04 | 1491.83 | 6072.21 | 1495.33 | 6072.4  | 1498.82 | 6072.33 | 1506.56 | 6071.91 |
| 1512.39 | 6071.8  | 1515.31 | 6071.85 | 1520.41 | 6071.8  | 1526.8  | 6071.59 | 1530.29 | 6071.58 |
| 1537.28 | 6071.27 | 1540.89 | 6071.21 | 1543.74 | 6071.34 | 1548.68 | 6071.82 | 1551.03 | 6071.95 |
| 1555.93 | 6071.83 | 1558.26 | 6071.61 | 1560.36 | 6071.09 | 1563.42 | 6070.08 | 1566    | 6068.7  |
| 1598    | 6068.7  | 1600.22 | 6069.62 | 1604.88 | 6070.51 | 1607.17 | 6070.84 | 1610.81 | 6071.01 |
| 1618.87 | 6070.78 | 1623.21 | 6070.48 | 1625.39 | 6070.39 | 1628.19 | 6070.48 | 1632.86 | 6070.89 |
| 1640.19 | 6071.07 | 1646.54 | 6071.53 | 1648.72 | 6071.57 | 1654.56 | 6071.52 | 1660.83 | 6071.42 |
| 1663.16 | 6071.53 | 1666.95 | 6071.85 | 1669.14 | 6071.88 | 1672.78 | 6071.8  | 1682.97 | 6071.8  |
| 1692.47 | 6071.84 | 1699.29 | 6071.97 | 1704.43 | 6071.99 | 1710.69 | 6071.88 | 1713.27 | 6071.89 |
| 1719.1  | 6072.02 | 1722.6  | 6071.8  | 1724.54 | 6071.68 | 1728.19 | 6071.54 | 1730.38 | 6071.52 |
| 1736.21 | 6071.64 | 1739.85 | 6071.66 | 1749.21 | 6071.96 | 1753.11 | 6071.89 | 1758.95 | 6071.55 |
| 1766.73 | 6070.7  | 1769.02 | 6070.57 | 1776.21 | 6069.66 | 1778.49 | 6069.53 | 1782.87 | 6069.53 |
| 1790.1  | 6069.31 | 1794.86 | 6069.37 | 1803.28 | 6069.41 | 1809.84 | 6069.34 | 1814.67 | 6069.62 |
| 1817    | 6069.68 | 1821.25 | 6069.65 | 1824.42 | 6069.8  | 1830.98 | 6069.92 | 1836.82 | 6069.81 |
| 1839.15 | 6069.68 | 1844.97 | 6069.56 | 1847.75 | 6069.58 | 1855.04 | 6069.49 | 1860.13 | 6069.34 |
| 1865.25 | 6069.34 | 1870.62 | 6069.27 | 1873.81 | 6069.27 | 1878.37 | 6069.38 | 1883.55 | 6069.33 |
| 1889.39 | 6069.47 | 1895.09 | 6069.23 | 1898.59 | 6069.28 | 1901.07 | 6069.52 | 1904.41 | 6070.12 |
| 1905.58 | 6070.4  | 1908.27 | 6070.81 | 1910.8  | 6070.97 | 1918.4  | 6071.29 | 1920.73 | 6071.31 |
| 1926.56 | 6071.19 | 1931.59 | 6071.14 | 1939.61 | 6071.15 | 1942.88 | 6071.1  | 1951.28 | 6070.81 |
| 1954.2  | 6070.75 | 1965.02 | 6070.66 | 1973.88 | 6070.67 | 1986.27 | 6070.6  | 1995.75 | 6070.48 |
| 2003.04 | 6070.1  | 2010.33 | 6070    | 2016.3  | 6070.02 | 2021.27 | 6069.97 | 2025.63 | 6070.01 |
| 2028.56 | 6070.11 | 2035.12 | 6070.24 | 2043.19 | 6070.18 | 2049.03 | 6070.09 | 2051.27 | 6070.26 |
| 2056.26 | 6070.88 | 2059.42 | 6071.08 | 2065.01 | 6071.22 | 2073.76 | 6071.2  | 2084.08 | 6071.42 |
| 2089.8  | 6071.77 | 2099.65 | 6072.71 | 2102.92 | 6072.84 | 2106.32 | 6072.85 | 2109.52 | 6072.72 |
| 2112.17 | 6072.49 | 2115.41 | 6072.11 | 2120.11 | 6071.47 | 2123.5  | 6071.17 | 2127.54 | 6071.1  |
| 2130.57 | 6071.17 | 2133.35 | 6071.14 | 2135.62 | 6071.03 | 2139.53 | 6070.94 | 2151.88 | 6070.97 |
| 2157.85 | 6071.15 | 2162.9  | 6071.41 | 2169.98 | 6071.64 | 2175.03 | 6071.91 | 2178.36 | 6072.02 |
| 2186.14 | 6072.13 | 2197.26 | 6072.02 | 2201.39 | 6072.05 | 2209.38 | 6072.03 | 2220.5  | 6072.19 |
| 2228.58 | 6072.18 | 2243.74 | 6072    | 2255.15 | 6071.81 | 2260.92 | 6071.84 | 2273.04 | 6072.08 |
| 2281.12 | 6072.26 | 2293.99 | 6072.4  | 2302.34 | 6072.53 | 2308.11 | 6072.55 | 2316.05 | 6072.65 |
| 2324.57 | 6072.64 | 2338.72 | 6072.78 | 2358.93 | 6072.87 | 2370.04 | 6072.8  | 2379.14 | 6072.66 |
| 2387.22 | 6072.5  | 2398.33 | 6072.42 | 2406.96 | 6072.44 | 2414.03 | 6072.36 | 2421.09 | 6072.33 |
| 2429.91 | 6072.45 | 2452.86 | 6072.47 | 2459.04 | 6072.5  | 2467.87 | 6072.58 | 2477.58 | 6072.55 |
| 2489.93 | 6072.58 | 2502.41 | 6072.55 | 2511.5  | 6072.65 | 2518.57 | 6072.67 | 2521.71 | 6072.73 |
| 2523.47 | 6072.67 | 2530.7  | 6072.67 | 2548.19 | 6072.87 | 2562.02 | 6072.98 | 2573.14 | 6072.96 |
| 2581.73 | 6073.02 | 2590.32 | 6072.99 | 2598.4  | 6072.99 | 2608.2  | 6072.91 | 2615.27 | 6072.91 |
| 2621.64 | 6072.96 | 2626.69 | 6073.09 | 2634.77 | 6073.11 | 2641.03 | 6073.27 | 2646.16 | 6073.27 |
| 2652.34 | 6073.13 | 2663.07 | 6073.12 | 2667.34 | 6073.14 | 2675.28 | 6073.09 | 2683.23 | 6073.22 |
| 2693.82 | 6073.28 | 2700.45 | 6073.28 | 2709.71 | 6073.36 | 2714.6  | 6073.44 | 2721.18 | 6073.46 |
| 2742.89 | 6073.69 | 2749.43 | 6073.72 | 2753.84 | 6073.83 | 2761.78 | 6073.97 | 2765.12 | 6074    |
| 2773.2  | 6073.95 | 2781.29 | 6073.95 | 2790.91 | 6073.82 | 2805.54 | 6073.68 | 2815.62 | 6073.65 |
| 2820.69 | 6073.7  | 2827.77 | 6073.72 | 2835.85 | 6073.82 | 2844.94 | 6073.81 | 2855.05 | 6073.88 |
| 2860.1  | 6073.94 | 2870.2  | 6073.98 | 2882.7  | 6073.99 | 2894.45 | 6074.07 | 2899.24 | 6074.14 |
| 2903.89 | 6074.14 | 2916.24 | 6074.23 | 2927.8  | 6074.24 | 2933.86 | 6074.19 | 2940.07 | 6074.23 |
| 2949.78 | 6074.23 | 2955.07 | 6074.28 | 2971.85 | 6074.28 | 2979.79 | 6074.33 | 2991.46 | 6074.36 |
| 2997.52 | 6074.32 | 3010.65 | 6074.39 | 3027.83 | 6074.39 | 3041.98 | 6074.41 | 3052.76 | 6074.37 |
| 3057.46 | 6074.41 | 3065.41 | 6074.39 | 3076.16 | 6074.42 |         |         |         |         |

|                    |         |         |          |              |         |
|--------------------|---------|---------|----------|--------------|---------|
| Manning's n Values |         |         | num= 3   |              |         |
| Sta                | n Val   | Sta     | n Val    | Sta          | n Val   |
| 0                  | .06     | 1555.93 | .035     | 1610.81      | .06     |
| Bank Sta:          | Left    | Right   | Lengths: | Left Channel | Right   |
|                    | 1555.93 | 1610.81 |          | 946.34       | 1146.26 |
|                    |         |         |          | 545.38       |         |
|                    |         |         |          | .1           | .3      |



|                  |         |                |
|------------------|---------|----------------|
| Ineffective Flow | num=    | 2              |
| Sta L            | Sta R   | Elev Permanent |
| 0                | 1272.72 | 6073.66 F      |
| 2106.32          | 3076.16 | 6072.85 F      |

# CROSS SECTION

RIVER: Flat Creek  
 REACH: 1 RS: 30074

## INPUT

### Description:

| Station | Elevation | Data    | num=    | 489             |
|---------|-----------|---------|---------|-----------------|
| Sta     | Elev      | Sta     | Elev    |                 |
| 0       | 6074.06   | 3.21    | 6074.01 | 5.5 6073.85     |
| 16.35   | 6074.23   | 20.76   | 6073.99 | 25.17 6073.83   |
| 48.12   | 6074.22   | 53.59   | 6074.01 | 60.43 6074.25   |
| 77.64   | 6073.78   | 83.01   | 6073.63 | 95.96 6073.66   |
| 109.69  | 6073.13   | 114.84  | 6072.64 | 118.86 6072.41  |
| 139.1   | 6070.84   | 147.49  | 6070.25 | 157.48 6069.81  |
| 180.7   | 6069.45   | 187.57  | 6069.67 | 195.7 6070.37   |
| 212.6   | 6071.55   | 219.64  | 6071.89 | 225.1 6071.95   |
| 242     | 6072.43   | 247.12  | 6072.61 | 257.43 6072.88  |
| 272.87  | 6072.64   | 275.81  | 6072.54 | 280.22 6072.6   |
| 307.81  | 6072.75   | 318.12  | 6072.85 | 322.12 6072.85  |
| 354.46  | 6072.52   | 364.18  | 6072.51 | 369.89 6072.57  |
| 391.95  | 6072.43   | 397.83  | 6072.49 | 404 6072.47     |
| 431.9   | 6072.26   | 439.5   | 6072.14 | 450.38 6071.83  |
| 479.58  | 6070.46   | 492.64  | 6070.29 | 497.79 6070.35  |
| 520.81  | 6070.89   | 527.68  | 6071.02 | 538.21 6071.04  |
| 554.02  | 6071.05   | 559.53  | 6070.88 | 566.61 6070.48  |
| 582.64  | 6068.87   | 594.07  | 6068.72 | 597.53 6068.79  |
| 606.57  | 6069.97   | 610.13  | 6071.23 | 613.56 6072.26  |
| 623.87  | 6073.11   | 633.03  | 6073.14 | 637.14 6073.08  |
| 663.17  | 6072.41   | 666.11  | 6072.15 | 669.67 6071.7   |
| 689.14  | 6069.69   | 695.51  | 6069.57 | 708 6069.67     |
| 734.46  | 6069.66   | 751.37  | 6069.85 | 760.92 6069.83  |
| 805.02  | 6069.88   | 808.7   | 6069.9  | 813.96 6069.8   |
| 846.02  | 6069.13   | 858.79  | 6069.17 | 867.78 6069.37  |
| 891.83  | 6069.02   | 898.7   | 6069.15 | 903.28 6069.15  |
| 924.1   | 6068.84   | 929.24  | 6068.78 | 936.77 6068.8   |
| 966.73  | 6068.8    | 971.99  | 6068.72 | 979.22 6068.52  |
| 1003.48 | 6068.31   | 1006.42 | 6068.39 | 1012.3 6068.85  |
| 1029.94 | 6068.69   | 1033.83 | 6068.66 | 1037.26 6068.49 |
| 1049.86 | 6068.25   | 1057.13 | 6068.04 | 1064.75 6068.02 |
| 1090.21 | 6068.02   | 1096.81 | 6068.06 | 1098.91 6068.01 |
| 1110.79 | 6066.52   | 1113.73 | 6066.5  | 1116.28 6066.61 |
| 1125.44 | 6067.92   | 1132.11 | 6068.05 | 1136.89 6068.09 |
| 1162.08 | 6068.13   | 1171.06 | 6068.09 | 1178.11 6068.1  |
| 1194.58 | 6067.83   | 1202.16 | 6067.82 | 1206.34 6067.89 |
| 1221.63 | 6068.69   | 1234.36 | 6068.8  | 1243.39 6069.17 |
| 1266.61 | 6069.56   | 1270.87 | 6069.35 | 1278.89 6068.8  |
| 1289.4  | 6068.04   | 1294.55 | 6068.1  | 1304.08 6068.08 |
| 1330.42 | 6068.03   | 1339.58 | 6068.14 | 1343.79 6068.07 |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1366.58 | 6068.28 | 1372.79 | 6068.37 | 1378.51 | 6068.39 | 1383.48 | 6068.5  | 1389.96 | 6068.77 |
| 1395.24 | 6068.84 | 1398.18 | 6068.73 | 1401.86 | 6068.26 | 1407.74 | 6066.9  | 1410    | 6065.7  |
| 1451    | 6065.7  | 1451.91 | 6066.34 | 1456.38 | 6066.72 | 1463.25 | 6067.51 | 1468.98 | 6068.45 |
| 1471.68 | 6068.72 | 1474.7  | 6068.72 | 1479.28 | 6068.36 | 1482.69 | 6068.23 | 1487.3  | 6068.17 |
| 1492.95 | 6068.02 | 1505.27 | 6068.12 | 1511.35 | 6068.28 | 1514.78 | 6068.23 | 1519.36 | 6068.06 |
| 1524.61 | 6067.96 | 1534.25 | 6067.96 | 1545.19 | 6068.15 | 1552.47 | 6067.94 | 1556.01 | 6067.98 |
| 1560.59 | 6068.19 | 1566.31 | 6068.19 | 1572.99 | 6067.96 | 1578.26 | 6067.72 | 1581.94 | 6067.63 |
| 1583.23 | 6067.67 | 1588.55 | 6067.83 | 1593.8  | 6067.91 | 1599.52 | 6067.73 | 1603.78 | 6067.74 |
| 1607.88 | 6067.97 | 1613.54 | 6068.49 | 1616.7  | 6068.7  | 1623.1  | 6068.75 | 1635.59 | 6069.06 |
| 1642.94 | 6069.11 | 1645.33 | 6069.22 | 1652.5  | 6069.97 | 1657.64 | 6070.67 | 1661.32 | 6071    |
| 1664.11 | 6071.08 | 1668.4  | 6071.08 | 1677.66 | 6070.8  | 1683.47 | 6070.42 | 1697.42 | 6069.29 |
| 1701.42 | 6069.28 | 1706.43 | 6069.44 | 1721.43 | 6069.51 | 1729.44 | 6069.41 | 1736.7  | 6069.4  |
| 1746.45 | 6069.34 | 1752.19 | 6069.41 | 1755.45 | 6069.39 | 1763.8  | 6069.05 | 1769.46 | 6069.04 |
| 1777.35 | 6069.19 | 1784.47 | 6069.14 | 1794.48 | 6069.31 | 1802.48 | 6069.58 | 1811.49 | 6069.76 |
| 1833.49 | 6069.92 | 1843.5  | 6070.09 | 1851.88 | 6070.09 | 1856.51 | 6070.13 | 1869.52 | 6070.09 |
| 1876.52 | 6070.02 | 1892.5  | 6069.91 | 1909.95 | 6069.92 | 1915.54 | 6069.89 | 1929.55 | 6069.9  |
| 1935.56 | 6069.87 | 1946.56 | 6069.75 | 1952.54 | 6069.75 | 1967.57 | 6069.88 | 1974.58 | 6069.85 |
| 1983.51 | 6069.95 | 1991.59 | 6069.93 | 1998.59 | 6069.79 | 2007.6  | 6069.8  | 2018.6  | 6070.05 |
| 2028.61 | 6069.98 | 2035.78 | 6069.86 | 2047.62 | 6070.18 | 2055.62 | 6070.31 | 2077.64 | 6070.52 |
| 2089.01 | 6070.53 | 2097.72 | 6070.48 | 2106.65 | 6070.62 | 2121.66 | 6070.49 | 2129.52 | 6070.27 |
| 2135.67 | 6070.29 | 2141.67 | 6070.18 | 2145.15 | 6070.17 | 2156.68 | 6070.27 | 2160.63 | 6070.38 |
| 2165.47 | 6070.65 | 2173.69 | 6070.92 | 2179.69 | 6071.07 | 2187.7  | 6071.14 | 2196.7  | 6071.04 |
| 2203.71 | 6071.12 | 2213.71 | 6071.11 | 2217.72 | 6071.14 | 2224.72 | 6071.28 | 2235.16 | 6071.42 |
| 2248.71 | 6071.57 | 2268.07 | 6071.61 | 2276.75 | 6071.53 | 2289.76 | 6071.54 | 2307.29 | 6071.47 |
| 2317.77 | 6071.33 | 2329.05 | 6071.38 | 2349.79 | 6071.57 | 2360.8  | 6071.73 | 2371.63 | 6071.78 |
| 2379.38 | 6071.76 | 2396.8  | 6071.83 | 2400.82 | 6071.78 | 2409.83 | 6071.55 | 2415.83 | 6071.6  |
| 2420.83 | 6071.79 | 2432.84 | 6071.86 | 2444.85 | 6072.01 | 2457.85 | 6071.99 | 2460.86 | 6071.95 |
| 2468.42 | 6071.68 | 2478.87 | 6071.54 | 2492.87 | 6071.26 | 2499.88 | 6071.26 | 2504.88 | 6071.44 |
| 2508.88 | 6071.3  | 2513.89 | 6070.77 | 2516.81 | 6070.61 | 2520.69 | 6070.64 | 2523.89 | 6070.75 |
| 2531.9  | 6071.23 | 2534.9  | 6071.31 | 2546.9  | 6071.41 | 2551.91 | 6071.57 | 2552.91 | 6071.35 |
| 2554.56 | 6071.9  | 2559.91 | 6071.92 | 2565.91 | 6071.7  | 2573.92 | 6071.11 | 2584.57 | 6070.97 |
| 2590.37 | 6070.95 | 2595.93 | 6070.82 | 2603.92 | 6070.38 | 2606.83 | 6070.29 | 2610.7  | 6070.34 |
| 2613.94 | 6070.48 | 2622.95 | 6071    | 2627.95 | 6071.41 | 2633.19 | 6071.76 | 2639.96 | 6072.02 |
| 2648.45 | 6072.07 | 2658.13 | 6072.02 | 2664.9  | 6072.09 | 2667.97 | 6072.04 | 2673.61 | 6071.8  |
| 2679.98 | 6071.85 | 2682.98 | 6072.04 | 2688.13 | 6072.53 | 2691.99 | 6072.58 | 2694.99 | 6072.37 |
| 2699.74 | 6071.85 | 2705.99 | 6071.43 | 2713    | 6071.07 | 2716    | 6070.6  | 2718    | 6070.08 |
| 2721    | 6069.49 | 2724.91 | 6069.45 | 2728.01 | 6069.79 | 2734.01 | 6070.83 | 2739.01 | 6071.88 |
| 2742.02 | 6072.34 | 2745.02 | 6072.6  | 2748.14 | 6072.67 | 2753.95 | 6072.54 | 2764.03 | 6072.47 |
| 2770.03 | 6072.24 | 2778.14 | 6071.79 | 2781.33 | 6071.68 | 2799.05 | 6071.5  | 2806.21 | 6071.52 |
| 2812.02 | 6071.59 | 2818.06 | 6071.58 | 2824.06 | 6071.64 | 2831.38 | 6071.79 | 2835.07 | 6071.82 |
| 2845.9  | 6071.77 | 2861.38 | 6071.75 | 2867.19 | 6071.82 | 2872.09 | 6071.78 | 2886.1  | 6071.34 |
| 2893.1  | 6071.24 | 2908.11 | 6071.21 | 2916.11 | 6071.31 | 2923.33 | 6071.27 | 2928.12 | 6071.13 |
| 2935.13 | 6071.08 | 2941.13 | 6070.95 | 2944.13 | 6070.95 | 2953.14 | 6071.11 | 2964.14 | 6071.58 |
| 2975.15 | 6071.69 | 2993.98 | 6071.49 | 3001.72 | 6071.47 | 3006.17 | 6071.53 | 3019.15 | 6071.52 |
| 3027.86 | 6071.4  | 3033.66 | 6071.25 | 3039.18 | 6071.03 | 3049.15 | 6071.08 | 3052.05 | 6071.17 |
| 3060.2  | 6071.7  | 3064.2  | 6071.8  | 3067.54 | 6071.77 | 3073.2  | 6071.54 | 3078.19 | 6071.12 |
| 3084.21 | 6070.81 | 3094.64 | 6070.74 | 3104.32 | 6070.84 | 3109.16 | 6070.94 | 3112.23 | 6071.11 |
| 3117.23 | 6071.54 | 3123.23 | 6071.75 | 3127.23 | 6071.74 | 3133.24 | 6071.44 | 3138.2  | 6070.95 |
| 3141.24 | 6070.77 | 3149.81 | 6070.65 | 3154.25 | 6070.7  | 3160.25 | 6070.97 | 3165.26 | 6071.32 |
| 3168.2  | 6071.42 | 3182.27 | 6071.52 | 3187.27 | 6071.44 | 3195.27 | 6070.91 | 3198.2  | 6070.82 |
| 3206.28 | 6070.83 | 3216.29 | 6070.64 | 3226.27 | 6070.62 | 3241.3  | 6070.41 | 3249.5  | 6070.24 |
| 3261.12 | 6070.05 | 3269.32 | 6070.09 | 3281.44 | 6070.11 | 3298.33 | 6070.18 | 3310.34 | 6070.45 |
| 3313.34 | 6070.59 | 3318.34 | 6070.96 | 3321.13 | 6071.08 | 3328.35 | 6071.13 | 3334.35 | 6071.04 |
| 3345.32 | 6070.77 | 3352.1  | 6070.68 | 3361.37 | 6070.71 | 3369.52 | 6070.83 | 3380.17 | 6070.84 |
| 3390.38 | 6070.72 | 3396.62 | 6070.72 | 3406.39 | 6070.81 | 3413.07 | 6070.91 | 3418.4  | 6070.92 |



|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 3423.4  | 6070.99 | 3431.46 | 6071.03 | 3437.41 | 6071    | 3451.79 | 6071.12 | 3458.57 | 6071.27 |
| 3466.43 | 6071.34 | 3477.43 | 6071.57 | 3487.44 | 6071.68 | 3502.12 | 6071.9  | 3511.8  | 6071.95 |
| 3522.45 | 6072.07 | 3531.16 | 6072    | 3539.87 | 6072.01 | 3548.03 | 6071.93 |         |         |

|                    |       |         |       |
|--------------------|-------|---------|-------|
| Manning's n Values |       | num=    | 3     |
| Sta                | n Val | Sta     | n Val |
| 0                  | .06   | 1395.24 | .035  |
|                    |       | 1471.68 | .06   |

|                      |         |         |           |              |         |       |        |        |
|----------------------|---------|---------|-----------|--------------|---------|-------|--------|--------|
| Bank Sta:            | Left    | Right   | Lengths:  | Left Channel | Right   | Coeff | Contr. | Expan. |
|                      | 1395.24 | 1471.68 |           | 722.21       | 1165.59 |       | .1     | .3     |
| Ineffective Flow     | num=    |         | 2         |              |         |       |        |        |
| Sta L                | Sta R   | Elev    | Permanent |              |         |       |        |        |
| 0                    | 1258.99 | 6069.58 | F         |              |         |       |        |        |
| 1664.11              | 3548.03 | 6071.08 | F         |              |         |       |        |        |
| Blocked Obstructions |         | num=    | 1         |              |         |       |        |        |
| Sta L                | Sta R   | Elev    |           |              |         |       |        |        |
| 2761                 | 3548.03 | 6070.2  |           |              |         |       |        |        |

CROSS SECTION

RIVER: Flat Creek  
 REACH: 1 RS: 28908

INPUT  
 Description:

|         |           |      |        |         |
|---------|-----------|------|--------|---------|
| Station | Elevation | Data | num=   | 20      |
| Sta     | Elev      | Sta  | Elev   | Sta     |
| 0       | 6072.93   | 9    | 6072.2 | 146     |
| 993     | 6068.2    | 1305 | 6067.2 | 1392    |
| 1495    | 6063.7    | 1500 | 6064.2 | 1996    |
| 2377    | 6064.3    | 2651 | 6065.7 | 2941    |
|         |           |      | 6066.2 | 3254    |
|         |           |      | 6068.1 | 3267.79 |
|         |           |      | 6066.6 |         |

|                    |       |      |       |
|--------------------|-------|------|-------|
| Manning's n Values |       | num= | 3     |
| Sta                | n Val | Sta  | n Val |
| 0                  | .06   | 1467 | .035  |
|                    |       | 1495 | .06   |

|                  |         |        |           |              |          |       |        |        |
|------------------|---------|--------|-----------|--------------|----------|-------|--------|--------|
| Bank Sta:        | Left    | Right  | Lengths:  | Left Channel | Right    | Coeff | Contr. | Expan. |
|                  | 1467    | 1495   |           | 23238.45     | 28908.26 |       | .1     | .3     |
| Ineffective Flow | num=    |        | 1         |              |          |       |        |        |
| Sta L            | Sta R   | Elev   | Permanent |              |          |       |        |        |
| 2140             | 3267.79 | 6065.7 | F         |              |          |       |        |        |

Profile Output Table - Standard Table 2

| Reach | River Sta | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Vel Head<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Top Width<br>(ft) |
|-------|-----------|---------|-------------------|-------------------|------------------|--------------------|--------------------|-----------------|--------------------|------------------|-------------------|
| 1     | 28908     | 10-YR   | 6065.12           | 6065.07           | 0.05             |                    |                    | 18.22           | 128.79             | 652.99           | 856.85            |
| 1     | 28908     | 50-YR   | 6065.31           | 6065.25           | 0.06             |                    |                    | 26.53           | 150.18             | 853.29           | 929.57            |
| 1     | 28908     | 100-YR  | 6065.48           | 6065.42           | 0.06             |                    |                    | 36.88           | 174.72             | 1078.40          | 998.14            |
| 1     | 28908     | 500-YR  | 6065.69           | 6065.62           | 0.07             |                    |                    | 52.33           | 207.06             | 1380.61          | 1078.93           |
| 1     | 30074     | 10-YR   | 6068.86           | 6068.60           | 0.25             | 3.68               | 0.06               | 38.11           | 680.01             | 81.88            | 535.24            |
| 1     | 30074     | 50-YR   | 6069.08           | 6068.79           | 0.29             | 3.71               | 0.07               | 74.32           | 818.59             | 137.08           | 617.38            |



|   |       |           |         |         |      |      |      |         |         |         |         |
|---|-------|-----------|---------|---------|------|------|------|---------|---------|---------|---------|
| 1 | 30074 | 100-YR    | 6069.30 | 6068.97 | 0.33 | 3.74 | 0.08 | 118.99  | 966.08  | 204.93  | 705.60  |
| 1 | 30074 | 500-YR    | 6069.56 | 6069.17 | 0.38 | 3.78 | 0.09 | 186.27  | 1156.45 | 297.29  | 787.37  |
| 1 | 31220 | 10-YR     | 6071.42 | 6071.34 | 0.07 | 2.55 | 0.02 | 0.36    | 328.05  | 471.59  | 479.32  |
| 1 | 31220 | 50-YR     | 6071.68 | 6071.60 | 0.08 | 2.58 | 0.02 | 5.72    | 385.46  | 638.82  | 580.43  |
| 1 | 31220 | 100-YR    | 6071.92 | 6071.85 | 0.08 | 2.61 | 0.03 | 18.53   | 440.83  | 830.63  | 706.17  |
| 1 | 31220 | 500-YR    | 6072.25 | 6072.16 | 0.09 | 2.66 | 0.03 | 57.09   | 539.67  | 1043.24 | 938.65  |
| 1 | 31558 | 10-YR     | 6073.08 | 6072.65 | 0.43 | 0.99 | 0.18 |         | 562.25  | 237.75  | 1009.57 |
| 1 | 31558 | 50-YR     | 6073.30 | 6072.84 | 0.46 | 0.97 | 0.19 |         | 651.81  | 378.19  | 1138.58 |
| 1 | 31558 | 100-YR    | 6073.50 | 6073.04 | 0.46 | 0.96 | 0.19 |         | 731.62  | 558.38  | 1248.09 |
| 1 | 31558 | 500-YR    | 6073.72 | 6073.21 | 0.51 | 0.99 | 0.21 |         | 847.89  | 792.11  | 1356.38 |
| 1 | 31602 | Mult Open |         |         |      |      |      |         |         |         |         |
| 1 | 31615 | 10-YR     | 6074.43 | 6074.33 | 0.10 |      |      |         | 503.51  | 296.49  | 1587.99 |
| 1 | 31615 | 50-YR     | 6074.64 | 6074.54 | 0.09 |      |      |         | 559.63  | 470.37  | 1802.73 |
| 1 | 31615 | 100-YR    | 6074.80 | 6074.69 | 0.10 |      |      |         | 641.26  | 648.74  | 1871.90 |
| 1 | 31615 | 500-YR    | 6075.15 | 6075.06 | 0.08 |      |      |         | 675.53  | 964.47  | 2018.34 |
| 1 | 32262 | 10-YR     | 6075.13 | 6075.07 | 0.06 | 0.69 | 0.01 | 312.26  | 487.24  | 0.50    | 1518.73 |
| 1 | 32262 | 50-YR     | 6075.39 | 6075.31 | 0.08 | 0.75 | 0.00 | 410.32  | 613.68  | 6.00    | 1866.99 |
| 1 | 32262 | 100-YR    | 6075.64 | 6075.55 | 0.09 | 0.84 | 0.00 | 526.50  | 743.02  | 20.49   | 2099.78 |
| 1 | 32262 | 500-YR    | 6075.93 | 6075.82 | 0.11 | 0.77 | 0.01 | 698.59  | 888.07  | 53.34   | 2302.23 |
| 1 | 32973 | 10-YR     | 6076.92 | 6076.56 | 0.36 | 1.30 | 0.09 | 141.06  | 531.81  | 127.14  | 1000.83 |
| 1 | 32973 | 50-YR     | 6077.10 | 6076.76 | 0.34 | 1.52 | 0.08 | 248.65  | 603.54  | 177.81  | 1195.62 |
| 1 | 32973 | 100-YR    | 6077.31 | 6076.98 | 0.33 | 1.59 | 0.07 | 378.75  | 695.87  | 215.38  | 1371.01 |
| 1 | 32973 | 500-YR    | 6077.40 | 6077.20 | 0.19 | 1.43 | 0.03 | 442.35  | 657.32  | 540.34  | 1527.18 |
| 1 | 34540 | 10-YR     | 6080.01 | 6079.97 | 0.04 | 3.06 | 0.03 | 470.34  | 280.97  | 48.69   | 1069.07 |
| 1 | 34540 | 50-YR     | 6079.74 | 6079.46 | 0.28 |      |      | 512.15  | 501.34  | 16.51   | 703.83  |
| 1 | 34540 | 100-YR    | 6080.23 | 6080.20 | 0.04 | 2.89 | 0.03 | 870.19  | 325.37  | 94.44   | 1177.66 |
| 1 | 34540 | 500-YR    | 6080.33 | 6080.28 | 0.05 | 2.91 | 0.01 | 1111.76 | 393.19  | 135.05  | 1190.67 |
| 1 | 35470 | 10-YR     | 6081.08 | 6081.02 | 0.05 | 1.06 | 0.00 | 148.14  | 206.74  | 445.12  | 860.41  |
| 1 | 35470 | 50-YR     | 6081.43 | 6081.39 | 0.03 | 1.66 | 0.02 | 242.54  | 198.92  | 588.54  | 919.94  |
| 1 | 35470 | 100-YR    | 6081.32 | 6081.25 | 0.07 | 1.09 | 0.01 | 282.88  | 274.64  | 732.48  | 896.81  |
| 1 | 35470 | 500-YR    | 6081.53 | 6081.46 | 0.07 | 1.21 | 0.01 | 396.31  | 304.91  | 938.79  | 930.09  |
| 1 | 36595 | 10-YR     | 6084.66 | 6083.89 | 0.77 | 3.37 | 0.21 | 36.14   | 727.24  | 36.62   | 78.27   |
| 1 | 36595 | 50-YR     | 6084.92 | 6084.59 | 0.33 | 1.47 | 0.09 | 110.26  | 695.13  | 224.61  | 850.23  |
| 1 | 36595 | 100-YR    | 6085.06 | 6084.69 | 0.38 | 2.60 | 0.09 | 161.25  | 798.08  | 330.67  | 901.27  |
| 1 | 36595 | 500-YR    | 6085.23 | 6084.89 | 0.34 | 2.34 | 0.08 | 272.33  | 864.18  | 503.49  | 1130.52 |
| 1 | 37738 | 10-YR     | 6088.28 | 6087.57 | 0.71 |      |      | 96.74   | 612.19  | 91.07   | 220.53  |
| 1 | 37738 | 50-YR     | 6088.86 | 6088.38 | 0.48 | 3.90 | 0.04 | 166.90  | 686.90  | 176.20  | 912.19  |
| 1 | 37738 | 100-YR    | 6088.79 | 6088.48 | 0.32 | 3.73 | 0.01 | 457.69  | 657.61  | 174.70  | 963.29  |
| 1 | 37738 | 500-YR    | 6088.94 | 6088.61 | 0.33 | 3.72 | 0.00 | 699.36  | 730.40  | 210.24  | 1022.64 |
| 1 | 38668 | 10-YR     | 6090.87 | 6090.83 | 0.04 | 2.53 | 0.07 | 511.14  | 223.45  | 65.41   | 1301.17 |
| 1 | 38668 | 50-YR     | 6090.98 | 6090.93 | 0.04 | 2.07 | 0.04 | 680.10  | 255.50  | 94.41   | 1361.53 |
| 1 | 38668 | 100-YR    | 6091.02 | 6090.96 | 0.06 | 2.21 | 0.03 | 858.51  | 309.26  | 122.23  | 1380.46 |
| 1 | 38668 | 500-YR    | 6091.16 | 6091.10 | 0.06 | 2.21 | 0.03 | 1119.37 | 342.93  | 177.70  | 1464.79 |

**Post-Project Conditions Multiple Profile Run – Option 3**





HEC-RAS HEC-RAS 5.0.3 September 2016  
 U.S. Army Corps of Engineers  
 Hydrologic Engineering Center  
 609 Second Street  
 Davis, California

|          |      |        |      |      |        |       |
|----------|------|--------|------|------|--------|-------|
| X        | X    | XXXXXX | XXXX | XXXX | XX     | XXXX  |
| X        | X    | X      | X    | X    | X      | X     |
| X        | X    | X      | X    | X    | X      | X     |
| XXXXXXXX | XXXX | X      | XXX  | XXXX | XXXXXX | XXXX  |
| X        | X    | X      | X    | X    | X      | X     |
| X        | X    | X      | X    | X    | X      | X     |
| X        | X    | XXXXXX | XXXX | X    | X      | XXXXX |

PROJECT DATA

Project Title: Rafter J Flood Mitigation Feasibility Study  
 Project File : Flat Cr below High School Rd.prj  
 Run Date and Time: 7/9/2018 8:44:41 AM

Project in English units

Project Description:

Flat Creek FIS - Confluence with Snake River to High School Road  
 Multiple  
 Profile Run  
 Teton County, WY  
 CRS Info=<SpatialReference> <CoordinateSystem  
 Code="3758" Unit="US\_survey\_Foot" AcadCode="" /> <Registration OffsetX="0"  
 OffsetY="0" OffsetZ="0" ScaleX="1" ScaleY="1" ScaleZ="1" /></SpatialReference>

PLAN DATA

Plan Title: Prop Option 3

Plan File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.p06

Geometry Title: Prop Option 3 Geom

Geometry File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.g11

Flow Title : Flat Creek Multiple Profile Flows

Flow File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.f10

Plan Description:

Multiple Profile Run with new Bridge

Plan Summary Information:

Number of: Cross Sections = 12 Multiple Openings = 1

Culverts = 0 Inline Structures = 0  
Bridges = 0 Lateral Structures = 0

#### Computational Information

Water surface calculation tolerance = 0.01  
Critical depth calculation tolerance = 0.01  
Maximum number of iterations = 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: Flat Creek Multiple Profile Flows  
Flow File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.f10

#### Flow Data (cfs)

| River      | Reach | RS    | 10-YR | 50-YR | 100-YR | 500-YR |
|------------|-------|-------|-------|-------|--------|--------|
| Flat Creek | 1     | 38668 | 800   | 1030  | 1290   | 1640   |

#### Boundary Conditions

| River      | Reach | Profile | Upstream | Downstream         |
|------------|-------|---------|----------|--------------------|
| Flat Creek | 1     | 10-YR   |          | Known WS = 6065.07 |
| Flat Creek | 1     | 50-YR   |          | Known WS = 6065.25 |
| Flat Creek | 1     | 100-YR  |          | Known WS = 6065.42 |
| Flat Creek | 1     | 500-YR  |          | Known WS = 6065.62 |

#### GEOMETRY DATA

Geometry Title: Prop Option 3 Geom  
Geometry File : C:\Land Projects 2009\18-585\GEOHECRAS\Flat Cr below High School Rd.g11

#### CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 38668

#### INPUT

Description:

| Station Elevation Data |         | num= | 14     |                             |
|------------------------|---------|------|--------|-----------------------------|
| Sta                    | Elev    | Sta  | Elev   | Sta Elev                    |
| 0                      | 6094.74 | 60   | 6094.2 | 388 6092.2                  |
| 510                    | 6092    | 818  | 6090.2 | 1626 6090.2                 |
| 1706                   | 6090.2  | 2477 | 6092.2 | 3046 6094.2 3275.62 6095.16 |

| Manning's n Values |       | num= | 3     |           |
|--------------------|-------|------|-------|-----------|
| Sta                | n Val | Sta  | n Val | Sta n Val |
| 0                  | .05   | 1639 | .035  | 1688 .05  |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right  | Coeff | Contr. | Expan. |
|----------------|-------|---------------|---------|--------|-------|--------|--------|
| 1639           | 1688  | 554.41        | 929.64  | 579.67 | .1    | .3     |        |

Ineffective Flow num= 1

| Sta L | Sta R | Elev | Permanent |
|-------|-------|------|-----------|
| 0     | 510   | 6092 | T         |

# CROSS SECTION

RIVER: Flat Creek  
 REACH: 1 RS: 37738

## INPUT

### Description:

| Station Elevation Data |         | num= | 16     |                         |
|------------------------|---------|------|--------|-------------------------|
| Sta                    | Elev    | Sta  | Elev   | Sta Elev                |
| 0                      | 6088.7  | 138  | 6088.2 | 221 6088.2              |
| 679                    | 6088.2  | 730  | 6088.4 | 802 6088.2              |
| 908                    | 6084.7  | 912  | 6086.2 | 980 6088.2              |
| 2299.81                | 6092.35 |      |        | 1312 6090.2 2275 6092.2 |

| Manning's n Values |       | num= | 3     |           |
|--------------------|-------|------|-------|-----------|
| Sta                | n Val | Sta  | n Val | Sta n Val |
| 0                  | .05   | 880  | .035  | 908 .05   |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff | Contr. | Expan. |
|----------------|-------|---------------|---------|-------|-------|--------|--------|
| 880            | 908   | 608.2         | 1142.98 | 926.3 | .1    | .3     |        |

Ineffective Flow num= 1

| Sta L | Sta R | Elev   | Permanent |
|-------|-------|--------|-----------|
| 0     | 730   | 6088.4 | F         |

# CROSS SECTION

RIVER: Flat Creek  
 REACH: 1 RS: 36595

## INPUT

### Description:

| Station Elevation Data |         | num= | 20     |                            |
|------------------------|---------|------|--------|----------------------------|
| Sta                    | Elev    | Sta  | Elev   | Sta Elev                   |
| 0                      | 6086.63 | 82   | 6086.2 | 317 6084.2                 |
| 767                    | 6086.2  | 788  | 6086.2 | 803 6082.2                 |
| 847                    | 6082.2  | 850  | 6086.2 | 870 6086.2                 |
| 1069                   | 6084.2  | 1436 | 6084.2 | 1487 6084.7                |
|                        |         |      |        | 2612 6086.2 2631.71 6086.3 |

|                    |       |      |       |     |       |
|--------------------|-------|------|-------|-----|-------|
| Manning's n Values |       | num= |       | 3   |       |
| Sta                | n Val | Sta  | n Val | Sta | n Val |
| 0                  | .05   | 806  | .035  | 843 | .05   |

|           |      |       |          |                |        |              |        |
|-----------|------|-------|----------|----------------|--------|--------------|--------|
| Bank Sta: | Left | Right | Lengths: | Left Channel   | Right  | Coeff Contr. | Expan. |
|           | 806  | 843   |          | 695.19 1125.16 | 521.47 | .1           | .3     |

CROSS SECTION

RIVER: Flat Creek  
 REACH: 1 RS: 35470

INPUT

Description:

|                        |         |      |        |         |         |
|------------------------|---------|------|--------|---------|---------|
| Station Elevation Data |         | num= |        | 23      |         |
| Sta                    | Elev    | Sta  | Elev   | Sta     | Elev    |
| 0                      | 6084.48 | 65   | 6084.2 | 312     | 6082.2  |
| 1098                   | 6082.2  | 1168 | 6080.2 | 1210    | 6080.2  |
| 1357                   | 6080.7  | 1612 | 6080.2 | 1618    | 6079.1  |
| 2080                   | 6080.2  | 2098 | 6082.2 | 2108    | 6084.2  |
| 2935                   | 6082.2  | 3071 | 6084.2 | 3147.83 | 6084.53 |

|                    |       |      |       |      |       |
|--------------------|-------|------|-------|------|-------|
| Manning's n Values |       | num= |       | 3    |       |
| Sta                | n Val | Sta  | n Val | Sta  | n Val |
| 0                  | .05   | 1618 | .035  | 1653 | .05   |

|           |      |       |          |               |        |              |        |
|-----------|------|-------|----------|---------------|--------|--------------|--------|
| Bank Sta: | Left | Right | Lengths: | Left Channel  | Right  | Coeff Contr. | Expan. |
|           | 1618 | 1653  |          | 559.49 930.41 | 535.79 | .1           | .3     |

|                  |       |        |
|------------------|-------|--------|
| Ineffective Flow | num=  | 1      |
| Sta L            | Sta R | Elev   |
| 0                | 1285  | 6081.7 |

F

CROSS SECTION

RIVER: Flat Creek  
 REACH: 1 RS: 34540

INPUT

Description:

|                        |         |        |         |        |         |
|------------------------|---------|--------|---------|--------|---------|
| Station Elevation Data |         | num=   |         | 453    |         |
| Sta                    | Elev    | Sta    | Elev    | Sta    | Elev    |
| 0                      | 6083.77 | 5.64   | 6083.56 | 10.51  | 6083.51 |
| 36.07                  | 6082.22 | 42.16  | 6081.66 | 45.81  | 6081.49 |
| 61.82                  | 6081.36 | 69.72  | 6081.33 | 75.47  | 6081.26 |
| 96.95                  | 6081.85 | 104.15 | 6082.31 | 107.08 | 6082.41 |
| 129.82                 | 6082.58 | 133.95 | 6082.53 | 144.43 | 6082.11 |
| 162.69                 | 6082.1  | 167.56 | 6082.1  | 172.52 | 6082.05 |
| 193.31                 | 6082.11 | 198.82 | 6082.19 | 209.34 | 6082.17 |
| 233.3                  | 6081.94 | 239.29 | 6081.73 | 241.45 | 6081.76 |
| 254                    | 6081.77 | 261.56 | 6081.59 | 272.26 | 6081.23 |
| 288.09                 | 6081.39 | 291.74 | 6081.41 | 301.8  | 6081.26 |
| 322.64                 | 6081.12 | 336.79 | 6081.17 | 349.59 | 6081.11 |



|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 375.09  | 6080.9  | 390.36  | 6080.91 | 401.32  | 6080.77 | 408.14  | 6080.59 | 412.71  | 6080.63 |
| 417.14  | 6080.75 | 421.47  | 6080.77 | 428.98  | 6080.71 | 440.47  | 6080.73 | 449.53  | 6080.51 |
| 459.15  | 6080.59 | 468.28  | 6080.52 | 474.36  | 6080.53 | 480.45  | 6080.62 | 487.76  | 6080.56 |
| 496.28  | 6080.54 | 499.93  | 6080.3  | 506.02  | 6079.63 | 509.45  | 6079.36 | 513.32  | 6079.23 |
| 519.65  | 6079.33 | 525.5   | 6079.32 | 531.59  | 6079.58 | 538.89  | 6079.79 | 550.41  | 6079.86 |
| 560.81  | 6079.63 | 567.65  | 6079.54 | 571.24  | 6079.57 | 576.27  | 6079.7  | 582.72  | 6080.09 |
| 587.05  | 6080.18 | 591.24  | 6080.16 | 593.68  | 6080.05 | 597.83  | 6079.98 | 605.85  | 6080.22 |
| 611.48  | 6080.48 | 615.79  | 6080.6  | 623.09  | 6080.69 | 627.29  | 6080.79 | 636.63  | 6080.92 |
| 645.25  | 6080.71 | 649.68  | 6080.76 | 656.03  | 6081    | 661.78  | 6081.04 | 673.93  | 6080.71 |
| 679.74  | 6080.67 | 686.2   | 6080.53 | 689.71  | 6080.59 | 694.73  | 6080.84 | 700.82  | 6080.89 |
| 712.5   | 6080.82 | 720.29  | 6080.59 | 725.16  | 6080.54 | 734.34  | 6080.63 | 739.77  | 6080.71 |
| 754.2   | 6080.75 | 762.99  | 6080.7  | 776.86  | 6080.85 | 782.65  | 6080.83 | 790.03  | 6080.92 |
| 794.5   | 6080.91 | 806.91  | 6080.76 | 813.11  | 6080.78 | 831.71  | 6081.02 | 839.2   | 6081.07 |
| 849.03  | 6081.26 | 856.52  | 6081.26 | 861.69  | 6081.11 | 868.92  | 6081.04 | 873.62  | 6080.95 |
| 879.73  | 6081.11 | 886.73  | 6081.19 | 893.73  | 6081.48 | 898.89  | 6081.77 | 908.04  | 6082.03 |
| 913.36  | 6082.06 | 920.6   | 6081.74 | 928.87  | 6081.58 | 933.44  | 6081.56 | 943.04  | 6081.59 |
| 948.5   | 6081.55 | 954.91  | 6081.41 | 958.84  | 6081.39 | 964.01  | 6081.46 | 977.69  | 6081.48 |
| 982.61  | 6081.53 | 989.17  | 6081.53 | 998.11  | 6081.7  | 1008.45 | 6081.84 | 1014.65 | 6082.05 |
| 1021.13 | 6082.32 | 1027.05 | 6082.68 | 1029.32 | 6082.87 | 1035.32 | 6083.17 | 1042.43 | 6083.37 |
| 1046.53 | 6083.39 | 1051.45 | 6083.31 | 1054.73 | 6083.35 | 1059.64 | 6083.53 | 1063.23 | 6083.6  |
| 1067.84 | 6083.62 | 1074.39 | 6083.71 | 1088.32 | 6083.74 | 1092.17 | 6083.69 | 1104.71 | 6083.4  |
| 1107.67 | 6083.29 | 1111.27 | 6083.07 | 1113.87 | 6082.83 | 1117.13 | 6082.41 | 1123.17 | 6081.36 |
| 1126.28 | 6080.75 | 1131.44 | 6079.65 | 1132.48 | 6079.52 | 1137.64 | 6078.38 | 1140.74 | 6077.84 |
| 1143.85 | 6077.52 | 1148.15 | 6077.42 | 1153.88 | 6077.52 | 1160.38 | 6077.8  | 1165.55 | 6078.16 |
| 1168.57 | 6078.31 | 1175.89 | 6078.5  | 1180.02 | 6078.76 | 1184.15 | 6078.69 | 1185.02 | 6078.79 |
| 1189.32 | 6078.77 | 1192.31 | 6078.69 | 1204.18 | 6078.64 | 1208.14 | 6078.59 | 1212.89 | 6078.44 |
| 1218.26 | 6078.11 | 1222.72 | 6078.14 | 1225.5  | 6078.28 | 1230.66 | 6078.63 | 1235.01 | 6078.8  |
| 1237.9  | 6079.02 | 1243.07 | 6079.71 | 1246.17 | 6079.97 | 1252.37 | 6080.14 | 1264.77 | 6080.13 |
| 1269.43 | 6080.02 | 1275.11 | 6079.6  | 1280.27 | 6079.03 | 1283.36 | 6078.82 | 1286.48 | 6078.74 |
| 1293.71 | 6078.65 | 1301.39 | 6078.78 | 1305.08 | 6078.8  | 1310.25 | 6078.76 | 1316.14 | 6078.86 |
| 1320.24 | 6078.63 | 1322.7  | 6078.57 | 1326.78 | 6078.83 | 1330.89 | 6078.95 | 1334.02 | 6078.93 |
| 1340.22 | 6078.99 | 1346.62 | 6078.87 | 1355.48 | 6078.97 | 1365.31 | 6078.96 | 1375.15 | 6078.86 |
| 1383.34 | 6078.97 | 1387.44 | 6078.94 | 1394.1  | 6078.98 | 1396.03 | 6078.94 | 1401.37 | 6078.64 |
| 1405.47 | 6078.57 | 1410.38 | 6078.65 | 1416.7  | 6078.61 | 1425.13 | 6078.61 | 1436.61 | 6078.55 |
| 1442.34 | 6078.58 | 1448.74 | 6078.56 | 1453.82 | 6078.63 | 1461.37 | 6078.64 | 1475.94 | 6078.88 |
| 1480.04 | 6078.76 | 1488.24 | 6078.78 | 1496.29 | 6078.67 | 1501.46 | 6078.68 | 1506.26 | 6078.74 |
| 1512.8  | 6078.59 | 1519.38 | 6078.59 | 1524.19 | 6078.53 | 1530.39 | 6078.53 | 1534.95 | 6078.44 |
| 1541.5  | 6078.42 | 1548.41 | 6078.47 | 1556.33 | 6078.45 | 1560.28 | 6078.61 | 1565.54 | 6079.11 |
| 1568.64 | 6079.2  | 1572.64 | 6079.2  | 1581.66 | 6079.31 | 1590.34 | 6079.58 | 1602.74 | 6079.89 |
| 1612.05 | 6079.89 | 1616.18 | 6079.83 | 1622.38 | 6079.52 | 1630.65 | 6078.87 | 1633.28 | 6078.74 |
| 1652.95 | 6078.77 | 1661.15 | 6078.92 | 1667.7  | 6078.95 | 1680.82 | 6078.73 | 1689.01 | 6078.73 |
| 1698.77 | 6078.62 | 1700.7  | 6078.63 | 1702.72 | 6078.64 | 1707.86 | 6078.75 | 1711.27 | 6078.75 |
| 1717.69 | 6078.64 | 1721.6  | 6078.71 | 1724.7  | 6078.86 | 1729.87 | 6079.2  | 1735.72 | 6079.47 |
| 1740.21 | 6079.59 | 1745.37 | 6079.98 | 1748.01 | 6080.07 | 1749.51 | 6080.03 | 1752.93 | 6079.66 |
| 1754.57 | 6079.41 | 1757.78 | 6079.2  | 1759.49 | 6079.25 | 1764.4  | 6079.74 | 1767.08 | 6079.89 |
| 1772.6  | 6079.94 | 1776.7  | 6079.87 | 1783.62 | 6079.85 | 1789.77 | 6079.75 | 1805.6  | 6079.82 |
| 1811.11 | 6079.79 | 1818.49 | 6079.69 | 1823.92 | 6079.45 | 1827.02 | 6079.11 | 1832.19 | 6078.07 |
| 1834.88 | 6077.79 | 1836    | 6077.02 | 1865    | 6077.02 | 1866.3  | 6078.55 | 1869.4  | 6079.19 |
| 1872.5  | 6079.46 | 1879.13 | 6079.41 | 1884.73 | 6079.28 | 1890.07 | 6079.24 | 1898.8  | 6079.31 |
| 1903.51 | 6079.23 | 1909.45 | 6079.23 | 1916.94 | 6079.13 | 1922.11 | 6079.2  | 1926.25 | 6079.2  |
| 1930.76 | 6079.12 | 1938.65 | 6079    | 2173.41 | 6079    | 2176.62 | 6079.24 | 2185.42 | 6079.72 |
| 2200.42 | 6080.16 | 2204.25 | 6080.23 | 2209.42 | 6080.22 | 2219.43 | 6080.41 | 2224.43 | 6080.4  |
| 2233.94 | 6080.54 | 2243.43 | 6080.6  | 2250.31 | 6080.75 | 2256.43 | 6080.71 | 2261.57 | 6080.75 |
| 2265.44 | 6080.7  | 2273.85 | 6080.72 | 2281.44 | 6080.55 | 2285.44 | 6080.56 | 2294.44 | 6080.44 |
| 2300.45 | 6080.52 | 2303.45 | 6080.75 | 2305.45 | 6081.02 | 2308.45 | 6081.29 | 2312.75 | 6081.27 |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 2314.45 | 6081.16 | 2318.45 | 6081.15 | 2320.94 | 6081.24 | 2324.01 | 6081.25 | 2332.45 | 6081.08 |
| 2340.39 | 6081.15 | 2345.46 | 6081.16 | 2348.46 | 6081.26 | 2351.46 | 6081.59 | 2354.46 | 6082.2  |
| 2356.46 | 6082.79 | 2359.46 | 6083.53 | 2362.46 | 6084.02 | 2365.46 | 6084.24 | 2368.46 | 6084.35 |
| 2386.45 | 6084.75 | 2389.47 | 6084.76 | 2399.47 | 6084.9  | 2407.47 | 6085.08 | 2413.48 | 6085.09 |
| 2419.48 | 6085.15 | 2423.48 | 6085.09 | 2429.43 | 6084.93 | 2432.48 | 6084.68 | 2435.48 | 6084.25 |
| 2437.48 | 6083.84 | 2443.48 | 6082.91 | 2446.48 | 6082.63 | 2453.49 | 6082.26 | 2458.49 | 6081.81 |
| 2465.49 | 6081.65 | 2470.49 | 6081.35 | 2475.38 | 6081.25 | 2484.71 | 6081.31 | 2492.5  | 6081.29 |
| 2495.5  | 6081.35 | 2500.5  | 6081.6  | 2506.5  | 6081.8  | 2514.5  | 6081.73 | 2518.48 | 6081.8  |
| 2525.5  | 6081.83 | 2528.51 | 6081.93 | 2533.51 | 6082.22 | 2538.95 | 6082.41 | 2542.51 | 6082.47 |
| 2552.51 | 6082.55 | 2555.51 | 6082.5  | 2563.51 | 6082.17 | 2567.61 | 6082.14 | 2573.52 | 6082.23 |
| 2576.52 | 6082.34 | 2581.52 | 6082.62 | 2583.52 | 6082.6  | 2589.52 | 6082.35 | 2594.52 | 6082.34 |
| 2602.52 | 6082.56 | 2610.53 | 6082.43 | 2624.53 | 6082.42 | 2632.1  | 6082.2  | 2645.54 | 6082.17 |
| 2656.54 | 6082.01 | 2665.88 | 6082.04 | 2678.16 | 6082.12 | 2685.55 | 6082.12 | 2690.44 | 6082.16 |
| 2696.55 | 6082.16 | 2702.55 | 6082.1  | 2708.55 | 6082.1  | 2718.55 | 6081.98 | 2723.56 | 6081.96 |
| 2733.43 | 6081.97 | 2742.56 | 6081.83 | 2761.07 | 6081.83 | 2776.57 | 6081.74 | 2792.57 | 6081.8  |
| 2799.96 | 6081.7  | 2812.24 | 6081.64 | 2819.58 | 6081.67 | 2834.76 | 6081.56 | 2842.95 | 6081.64 |
| 2847.59 | 6081.6  | 2867.59 | 6081.67 | 2875.6  | 6081.78 | 2888.6  | 6081.78 | 2897.6  | 6081.9  |
| 2900.6  | 6081.9  | 2908.6  | 6081.76 | 2921.61 | 6081.63 | 2927.91 | 6081.63 | 2934.05 | 6081.67 |
| 2943.61 | 6081.67 | 2953.49 | 6081.63 | 2958.61 | 6081.66 | 2972.62 | 6081.66 | 2985.22 | 6081.56 |
| 3002.77 | 6081.57 | 3012.86 | 6081.63 | 3024.12 | 6081.64 | 3032.31 | 6081.6  | 3037.64 | 6081.64 |
| 3046.72 | 6081.63 | 3055.64 | 6081.55 | 3060.97 | 6081.54 | 3068.13 | 6081.63 | 3077.34 | 6081.62 |
| 3082.65 | 6081.71 | 3089.63 | 6081.78 | 3096.65 | 6081.9  | 3101.65 | 6081.95 | 3115.22 | 6082.03 |
| 3129.55 | 6082.09 | 3144.66 | 6082.09 | 3152.06 | 6082.02 | 3156.67 | 6082.02 | 3169.46 | 6081.94 |
| 3182.77 | 6081.97 | 3193.68 | 6082.02 | 3205.68 | 6082.03 | 3217.57 | 6082.14 | 3227.69 | 6082.16 |
| 3240.09 | 6082.16 | 3262.7  | 6082.12 | 3268.7  | 6082.18 |         |         |         |         |

Manning's n Values      num=      3

| Sta | n Val | Sta     | n Val | Sta    | n Val |
|-----|-------|---------|-------|--------|-------|
| 0   | .06   | 1823.92 | .035  | 1872.5 | .06   |

| Bank | Sta: Left | Right  | Lengths: Left | Channel | Right   | Coeff | Contr. | Expan. |
|------|-----------|--------|---------------|---------|---------|-------|--------|--------|
|      | 1823.92   | 1872.5 | 847.02        | 1566.11 | 1005.44 |       | .1     | .3     |

Ineffective Flow      num=      1

| Sta L | Sta R   | Elev    | Permanent |
|-------|---------|---------|-----------|
| 0     | 1252.37 | 6080.14 | F         |

Blocked Obstructions      num=      1

| Sta L | Sta R  | Elev   |
|-------|--------|--------|
| 3629  | 3268.7 | 6081.2 |

CROSS SECTION

RIVER: Flat Creek  
REACH: 1

RS: 32973

INPUT

Description:

| Station | Elevation | Data   | num=    | 457    |         |        |         |        |         |  |
|---------|-----------|--------|---------|--------|---------|--------|---------|--------|---------|--|
| Sta     | Elev      | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    |  |
| 0       | 6079.94   | 5.8    | 6080    | 13.98  | 6079.96 | 24.89  | 6079.71 | 29.3   | 6079.36 |  |
| 36.92   | 6078.29   | 39.01  | 6078.09 | 46.19  | 6077.75 | 49.07  | 6077.73 | 64.14  | 6078.58 |  |
| 68.32   | 6078.73   | 70.86  | 6078.72 | 78.07  | 6078.41 | 82.1   | 6078.32 | 92.01  | 6078.26 |  |
| 106.22  | 6078.28   | 111.88 | 6078.34 | 124.61 | 6078.4  | 138.1  | 6078.43 | 156.1  | 6078.4  |  |
| 169.7   | 6078.29   | 180.47 | 6078.17 | 191.79 | 6078.14 | 198.15 | 6078.07 | 214.21 | 6077.99 |  |
| 225.7   | 6077.99   | 236.91 | 6077.87 | 260.17 | 6077.78 | 267.35 | 6077.69 | 287.07 | 6077.55 |  |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 291.5   | 6077.48 | 305.19  | 6077.39 | 313.55  | 6077.29 | 323.3   | 6077.11 | 345.59  | 6076.8  |
| 356.98  | 6076.82 | 363.08  | 6076.66 | 378.82  | 6076.53 | 396.1   | 6076.42 | 405.58  | 6076.11 |
| 414.07  | 6075.7  | 417.78  | 6075.61 | 421.32  | 6075.66 | 436.25  | 6076.46 | 439.32  | 6076.52 |
| 443.68  | 6076.4  | 448.97  | 6076.12 | 453.2   | 6076.06 | 459.54  | 6076.13 | 469.06  | 6075.8  |
| 474.34  | 6075.52 | 483.49  | 6075.21 | 487.03  | 6075.18 | 493.38  | 6075.4  | 500.02  | 6075.82 |
| 503.95  | 6075.99 | 513.21  | 6076.26 | 518.75  | 6077.1  | 521.92  | 6077.33 | 528.27  | 6077.15 |
| 532.5   | 6077.15 | 540.16  | 6077.45 | 545.19  | 6077.29 | 550.39  | 6076.86 | 556.3   | 6076.65 |
| 561.41  | 6076.75 | 566.33  | 6076.39 | 571.69  | 6076.09 | 582.19  | 6075.79 | 588.54  | 6075.71 |
| 593.67  | 6075.86 | 599.97  | 6075.82 | 607.84  | 6075.59 | 617.87  | 6075.73 | 625.94  | 6075.38 |
| 637.17  | 6075.25 | 642.46  | 6075.02 | 650.34  | 6074.8  | 658.32  | 6074.25 | 661.49  | 6074.18 |
| 672.38  | 6074.16 | 675.24  | 6074.26 | 680.53  | 6074.63 | 687.93  | 6074.85 | 693.21  | 6075.27 |
| 696.39  | 6075.39 | 711.73  | 6075.45 | 718.81  | 6075.36 | 728.11  | 6075.57 | 735.51  | 6075.58 |
| 740.79  | 6075.68 | 745.02  | 6075.64 | 751.08  | 6075.43 | 764.06  | 6075.63 | 773.9   | 6075.54 |
| 785.2   | 6075.27 | 795.94  | 6075.33 | 803.02  | 6075.17 | 809.32  | 6075.15 | 823.27  | 6075.29 |
| 830.67  | 6075.32 | 840.18  | 6075.69 | 845.67  | 6076.04 | 861.33  | 6076.54 | 865.2   | 6076.52 |
| 870.85  | 6076.34 | 878.25  | 6076.22 | 883.3   | 6075.95 | 892.74  | 6075.53 | 897.47  | 6075.41 |
| 902.57  | 6075.19 | 906.8   | 6075.19 | 912.08  | 6075.75 | 916.35  | 6075.84 | 918.43  | 6075.74 |
| 925.8   | 6075.61 | 929     | 6075.44 | 934.29  | 6074.82 | 940.63  | 6074.17 | 943.8   | 6073.99 |
| 950.2   | 6073.89 | 954.38  | 6074.01 | 959.64  | 6074.4  | 963.57  | 6074.49 | 970.66  | 6074.48 |
| 976.58  | 6074.56 | 980.1   | 6074.73 | 988.21  | 6075.37 | 991.91  | 6075.42 | 997.42  | 6075.26 |
| 1009.36 | 6075.19 | 1015.7  | 6075.37 | 1020.99 | 6075.45 | 1034.74 | 6076.09 | 1040.02 | 6076.08 |
| 1045.76 | 6076.19 | 1053.3  | 6076.22 | 1065.4  | 6076.33 | 1074.54 | 6076.64 | 1084.43 | 6076.65 |
| 1098.1  | 6077.08 | 1106.81 | 6077.07 | 1115.09 | 6076.69 | 1122.5  | 6076.59 | 1128.84 | 6076.78 |
| 1138.36 | 6077.6  | 1141.53 | 6078    | 1147.87 | 6079.02 | 1153.25 | 6080.11 | 1156.33 | 6080.52 |
| 1160.56 | 6080.51 | 1163.73 | 6080.04 | 1170.08 | 6078.82 | 1175.36 | 6077.56 | 1178.43 | 6077.06 |
| 1181.71 | 6076.77 | 1184.73 | 6076.69 | 1203.62 | 6076.87 | 1226.44 | 6077    | 1238.8  | 6077.12 |
| 1244.09 | 6077.13 | 1259.95 | 6077.25 | 1266.58 | 6077.36 | 1282.8  | 6077.55 | 1305.42 | 6077.73 |
| 1312.82 | 6077.76 | 1330.79 | 6077.97 | 1348.43 | 6078.11 | 1364.96 | 6078.13 | 1372.83 | 6078.01 |
| 1397.22 | 6077.08 | 1405.09 | 6076.99 | 1410.09 | 6076.85 | 1423.84 | 6076.6  | 1430.28 | 6076.65 |
| 1443.66 | 6077.01 | 1453.44 | 6077.2  | 1458.73 | 6077.24 | 1464.02 | 6077.18 | 1473.53 | 6077.27 |
| 1484.58 | 6077.23 | 1493.24 | 6077.27 | 1496.79 | 6077.41 | 1499.97 | 6077.73 | 1508.43 | 6078.94 |
| 1514.49 | 6079.71 | 1530.23 | 6081.32 | 1533.8  | 6081.64 | 1540.15 | 6082.05 | 1546.49 | 6082.26 |
| 1553.89 | 6082.32 | 1557.06 | 6082.17 | 1560.24 | 6081.78 | 1563.41 | 6081.02 | 1568.69 | 6079.57 |
| 1575.04 | 6078.19 | 1578.21 | 6077.67 | 1581.38 | 6077.38 | 1587.73 | 6077.01 | 1595.13 | 6076.93 |
| 1607.82 | 6077.05 | 1612.87 | 6077.17 | 1620.74 | 6077.08 | 1625.46 | 6076.85 | 1631.08 | 6076.75 |
| 1638.48 | 6076.83 | 1652.2  | 6076.78 | 1657.73 | 6076.63 | 1667.59 | 6076.66 | 1676.62 | 6076.36 |
| 1686.85 | 6076.24 | 1696.63 | 6075.98 | 1704.95 | 6075.63 | 1715.18 | 6075.65 | 1831.97 | 6075.65 |
| 1842.68 | 6075.78 | 1845.72 | 6075.99 | 1849.76 | 6076.47 | 1852.06 | 6076.6  | 1860.78 | 6076.76 |
| 1867.92 | 6076.61 | 1871.09 | 6076.62 | 1874.16 | 6076.48 | 1877.44 | 6076.1  | 1880.61 | 6075.49 |
| 1882.72 | 6074.94 | 1885.9  | 6074.49 | 1887    | 6073.7  | 1910    | 6073.7  | 1912.33 | 6074.87 |
| 1915.5  | 6075.57 | 1917.62 | 6076.21 | 1920.79 | 6076.94 | 1923.96 | 6077.38 | 1928.19 | 6077.36 |
| 1933.48 | 6076.51 | 1936.33 | 6076.28 | 1947.35 | 6076.24 | 1959.16 | 6075.87 | 1964.67 | 6075.79 |
| 1968.37 | 6075.65 | 2074.1  | 6075.65 | 2075.64 | 6076.02 | 2080.45 | 6076.95 | 2083.62 | 6076.89 |
| 2085.73 | 6076.65 | 2088.91 | 6076.51 | 2093.14 | 6076.56 | 2098.42 | 6076.77 | 2106.33 | 6076.97 |
| 2109    | 6076.89 | 2111.84 | 6076.37 | 2114.28 | 6075.47 | 2117.46 | 6074.5  | 2121.68 | 6074.14 |
| 2124.86 | 6074.36 | 2128.03 | 6075.12 | 2131.51 | 6076.42 | 2133.09 | 6076.86 | 2136.49 | 6077.27 |
| 2143.89 | 6077.47 | 2147.25 | 6077.43 | 2150.4  | 6077.05 | 2153.4  | 6076.4  | 2158.69 | 6075.09 |
| 2161.86 | 6074.56 | 2164.57 | 6074.39 | 2170.08 | 6074.39 | 2177.72 | 6074.72 | 2185.13 | 6074.54 |
| 2188.18 | 6074.81 | 2191.33 | 6075.39 | 2194.64 | 6076.18 | 2199.93 | 6077.72 | 2203.1  | 6078.38 |
| 2206.27 | 6078.76 | 2212.47 | 6078.95 | 2216.85 | 6078.93 | 2226.74 | 6078.45 | 2229.53 | 6078.15 |
| 2234.82 | 6077.27 | 2237.99 | 6077.06 | 2245.32 | 6077.09 | 2250.52 | 6077.02 | 2257.81 | 6077.18 |
| 2267.17 | 6077.61 | 2270.29 | 6077.88 | 2273.33 | 6078.37 | 2276.54 | 6078.57 | 2281.74 | 6078.21 |
| 2291.11 | 6078.09 | 2301.52 | 6078.31 | 2309.42 | 6078.58 | 2312.94 | 6078.62 | 2317.13 | 6078.51 |
| 2322.33 | 6078.09 | 2325.45 | 6077.94 | 2331.7  | 6077.81 | 2338.98 | 6077.86 | 2354.6  | 6077.79 |
| 2363.56 | 6077.91 | 2370.21 | 6077.82 | 2373.33 | 6077.89 | 2381.6  | 6078.31 | 2387.9  | 6078.47 |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 2400.39 | 6078.66 | 2407.67 | 6078.63 | 2416    | 6078.4  | 2419.12 | 6078.38 | 2430.57 | 6078.67 |
| 2437.86 | 6078.77 | 2445.14 | 6078.74 | 2463.58 | 6078.28 | 2467    | 6078.1  | 2472.2  | 6077.6  |
| 2475.28 | 6077.4  | 2479.49 | 6077.4  | 2484.69 | 6077.73 | 2488.85 | 6077.76 | 2497.09 | 6077.23 |
| 2506.55 | 6077.2  | 2515.14 | 6077.24 | 2532.31 | 6077.12 | 2550.26 | 6077.24 | 2558.64 | 6077.25 |
| 2567.41 | 6077.32 | 2577.65 | 6077.51 | 2585.64 | 6077.57 | 2593.74 | 6077.4  | 2606.46 | 6077.44 |
| 2622.07 | 6077.2  | 2629.35 | 6077.27 | 2634.56 | 6077.42 | 2646.39 | 6077.64 | 2650.17 | 6077.66 |
| 2662.66 | 6077.47 | 2677.23 | 6077.43 | 2682.43 | 6077.33 | 2695.96 | 6077.66 | 2701.17 | 6077.97 |
| 2709.49 | 6078.91 | 2713.63 | 6079.16 | 2727.18 | 6079.42 | 2733.43 | 6079.48 | 2741.45 | 6079.48 |
| 2750.08 | 6079.6  | 2754.24 | 6079.56 | 2769.85 | 6079.06 | 2778.01 | 6078.73 | 2786.51 | 6078.68 |
| 2791.71 | 6078.77 | 2802.88 | 6079.3  | 2809.4  | 6079.65 | 2816.04 | 6079.87 | 2820.43 | 6079.93 |
| 2826.28 | 6079.89 | 2832.3  | 6079.73 | 2838.54 | 6079.47 | 2843.56 | 6079.19 | 2851.03 | 6079.19 |
| 2854.06 | 6079.12 | 2859.36 | 6078.84 | 2862.84 | 6078.74 | 2870.15 | 6078.82 | 2880.39 | 6079.2  |
| 2897.69 | 6079.41 | 2921.8  | 6079.78 | 2929.09 | 6079.86 | 2934.29 | 6080.03 | 2938.46 | 6080.07 |
| 2941.58 | 6079.99 | 2949.9  | 6079.61 | 2962.29 | 6079.27 | 2966.26 | 6079.27 | 2971.76 | 6079.43 |
| 2994.46 | 6079.54 | 3003.24 | 6079.52 | 3012.35 | 6079.43 | 3016.4  | 6079.51 | 3021.72 | 6079.83 |
| 3031.03 | 6080.06 | 3047.11 | 6080.09 | 3059.18 | 6080.36 | 3066.47 | 6080.37 | 3072.71 | 6080.29 |
| 3085.14 | 6079.93 | 3094.57 | 6079.48 | 3097.69 | 6079.15 | 3102.89 | 6078.31 | 3106.02 | 6077.95 |
| 3109.14 | 6077.78 | 3117.47 | 6077.71 | 3125.79 | 6077.57 | 3128.67 | 6077.61 | 3134.12 | 6077.88 |
| 3138.28 | 6077.98 | 3146.71 | 6077.72 | 3150.95 | 6077.71 | 3157.01 | 6077.89 | 3160.14 | 6078.14 |
| 3168.46 | 6078.98 | 3174.71 | 6079.48 | 3179.91 | 6079.8  | 3190.32 | 6080.13 | 3197.24 | 6080.16 |
| 3207.99 | 6079.95 | 3219.69 | 6079.59 | 3230.91 | 6078.94 | 3237.15 | 6078.73 | 3244.16 | 6078.65 |
| 3255.89 | 6078.64 | 3263.17 | 6078.71 | 3273.58 | 6078.72 | 3288.15 | 6079.04 | 3292.81 | 6079.19 |
| 3301.59 | 6079.35 | 3311.83 | 6079.81 | 3331.86 | 6079.95 | 3338.1  | 6080.08 | 3343.31 | 6080.27 |
| 3349.55 | 6080.39 | 3356.84 | 6080.3  | 3363.25 | 6080.05 | 3372.45 | 6079.41 | 3377.64 | 6078.95 |
| 3380.78 | 6078.81 | 3387.02 | 6078.71 | 3391.18 | 6078.75 | 3406.89 | 6079.41 | 3412    | 6079.7  |
| 3421.36 | 6079.96 | 3424.44 | 6079.96 | 3431.75 | 6079.78 | 3440.1  | 6079.7  | 3455.15 | 6079.7  |
| 3469.24 | 6079.5  | 3475.63 | 6079.25 | 3483.81 | 6078.69 | 3490.05 | 6078.55 | 3497.56 | 6078.48 |
| 3505.67 | 6078.32 | 3518.44 | 6078.32 | 3522.32 | 6078.36 | 3529.6  | 6078.55 | 3536.48 | 6078.55 |
| 3543.13 | 6078.63 | 3550.42 | 6078.61 | 3560.82 | 6078.38 | 3570.19 | 6078.43 | 3578.52 | 6078.58 |
| 3584.76 | 6078.83 | 3589.97 | 6079.22 | 3596.21 | 6079.56 | 3605.58 | 6079.84 | 3613.9  | 6079.89 |
| 3624.8  | 6079.82 | 3652.19 | 6079.55 |         |         |         |         |         |         |

|           |     |         |      |         |     |     |   |     |
|-----------|-----|---------|------|---------|-----|-----|---|-----|
| Manning's | n   | Values  | num= | 3       |     |     |   |     |
| Sta       | n   | Val     | Sta  | n       | Val | Sta | n | Val |
| 0         | .06 | 1860.78 | .035 | 1920.79 | .06 |     |   |     |

|                      |         |         |           |        |         |        |       |        |        |
|----------------------|---------|---------|-----------|--------|---------|--------|-------|--------|--------|
| Bank Sta:            | Left    | Right   | Lengths:  | Left   | Channel | Right  | Coeff | Contr. | Expan. |
|                      | 1860.78 | 1920.79 |           | 431.73 | 711.11  | 595.34 |       | .1     | .3     |
| Ineffective Flow     |         |         | num=      | 2      |         |        |       |        |        |
| Sta L                | Sta R   | Elev    | Permanent |        |         |        |       |        |        |
| 0                    | 1156.33 | 6080.52 | F         |        |         |        |       |        |        |
| 2142                 | 3652.19 | 6077.2  | F         |        |         |        |       |        |        |
| Blocked Obstructions |         |         | num=      | 1      |         |        |       |        |        |
| Sta L                | Sta R   | Elev    |           |        |         |        |       |        |        |
| 2210                 | 3652.19 | 6078.2  |           |        |         |        |       |        |        |

CROSS SECTION

RIVER: Flat Creek  
 REACH: 1 RS: 32262

INPUT  
 Description:  
 Station Elevation Data num= 474

| Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0       | 6076.77 | 8.26    | 6076.7  | 20.65   | 6076.56 | 32.58   | 6076.25 | 38.93   | 6076.06 |
| 44.21   | 6076    | 49.77   | 6076.01 | 57.64   | 6076.07 | 62.86   | 6076.07 | 67.48   | 6075.99 |
| 79.11   | 6075.88 | 84.39   | 6075.78 | 90.74   | 6075.53 | 100.13  | 6074.89 | 102.37  | 6074.7  |
| 105.54  | 6074.55 | 109.77  | 6074.53 | 112.94  | 6074.57 | 116.66  | 6074.7  | 119.02  | 6074.85 |
| 122.46  | 6074.92 | 125.63  | 6074.6  | 128.8   | 6073.86 | 130.92  | 6073.28 | 134.09  | 6072.74 |
| 137.26  | 6072.49 | 140.44  | 6072.4  | 144.67  | 6072.49 | 147.84  | 6072.73 | 151.01  | 6073.08 |
| 156.3   | 6073.82 | 159.47  | 6074.08 | 163.7   | 6074.13 | 168.99  | 6073.86 | 178.5   | 6073.61 |
| 181.98  | 6073.58 | 185.9   | 6073.65 | 191.19  | 6074.03 | 194.36  | 6074.13 | 198.59  | 6074.18 |
| 204.8   | 6074.35 | 211.28  | 6074.61 | 213.4   | 6074.74 | 216.57  | 6074.83 | 220.54  | 6074.88 |
| 223.69  | 6075.01 | 229.2   | 6075.3  | 239.83  | 6075.5  | 243     | 6075.58 | 246.17  | 6075.76 |
| 251.46  | 6076.21 | 254.63  | 6076.43 | 258.86  | 6076.62 | 270.49  | 6077.08 | 274.84  | 6077.15 |
| 283.18  | 6077.39 | 296.09  | 6077.33 | 301.6   | 6077.2  | 304.75  | 6077.23 | 311.73  | 6077.37 |
| 321.35  | 6077.3  | 331.82  | 6077.25 | 344.88  | 6077.12 | 352.12  | 6077.11 | 358.26  | 6077.02 |
| 363.77  | 6077.02 | 372     | 6077.2  | 379.41  | 6077.25 | 387.38  | 6077.45 | 391.04  | 6077.5  |
| 395.25  | 6077.5  | 399.18  | 6077.43 | 406.9   | 6077.12 | 417.47  | 6077.05 | 433.33  | 6076.72 |
| 436.96  | 6076.58 | 442.85  | 6076.23 | 448.14  | 6075.88 | 451.12  | 6075.76 | 458.71  | 6075.64 |
| 462.14  | 6075.71 | 466.86  | 6075.93 | 473.51  | 6075.81 | 477.88  | 6075.79 | 484.09  | 6076.05 |
| 485.75  | 6076.07 | 488.9   | 6075.95 | 492.83  | 6075.68 | 496.75  | 6075.58 | 499.83  | 6075.44 |
| 502.06  | 6075.26 | 505.23  | 6075.09 | 509.36  | 6074.98 | 512.64  | 6074.94 | 518.8   | 6074.94 |
| 522.15  | 6074.84 | 527.44  | 6074.61 | 530.6   | 6074.51 | 533.76  | 6074.49 | 538.48  | 6074.57 |
| 544.36  | 6074.6  | 550.28  | 6074.79 | 557.05  | 6074.68 | 560.51  | 6074.76 | 562.88  | 6074.76 |
| 568.38  | 6074.63 | 571.85  | 6074.59 | 577.04  | 6074.59 | 584.54  | 6074.72 | 586.65  | 6074.73 |
| 591.94  | 6074.63 | 596.17  | 6074.59 | 603.01  | 6074.46 | 609.31  | 6074.57 | 613.24  | 6074.54 |
| 617.32  | 6074.6  | 622.6   | 6074.9  | 627.41  | 6074.84 | 629.77  | 6074.88 | 635.23  | 6075.37 |
| 637.41  | 6075.44 | 640     | 6075.4  | 644.81  | 6075.11 | 647.54  | 6075.01 | 650.23  | 6074.99 |
| 655.38  | 6075.12 | 659.85  | 6075.06 | 665.18  | 6075.11 | 671.48  | 6075.25 | 674.63  | 6075.26 |
| 679.35  | 6075.18 | 683.28  | 6075.16 | 686.43  | 6075.22 | 689.22  | 6075.35 | 691.94  | 6075.39 |
| 698.74  | 6075.18 | 704.53  | 6075.17 | 714.76  | 6074.64 | 718.7   | 6074.59 | 722     | 6074.73 |
| 724.11  | 6074.88 | 728.14  | 6074.95 | 733.63  | 6074.75 | 741.03  | 6074.63 | 750.55  | 6074.11 |
| 753.72  | 6073.84 | 759.01  | 6073.21 | 761.98  | 6072.97 | 766.41  | 6072.96 | 774.87  | 6073.5  |
| 778.04  | 6073.56 | 782.27  | 6073.57 | 787.95  | 6073.52 | 793.46  | 6073.6  | 813.99  | 6073.71 |
| 822.94  | 6073.92 | 827.3   | 6073.99 | 832.81  | 6074.15 | 839.1   | 6074.04 | 844.48  | 6074.17 |
| 854.17  | 6074.14 | 860.35  | 6074.06 | 873.21  | 6073.97 | 877.44  | 6074.04 | 880.81  | 6074.21 |
| 885.89  | 6074.56 | 892.62  | 6074.7  | 898.13  | 6074.69 | 902.95  | 6074.8  | 910.21  | 6075.04 |
| 915.26  | 6075.13 | 924.1   | 6075.14 | 928.19  | 6075.1  | 933.48  | 6074.9  | 938.76  | 6074.85 |
| 943.77  | 6074.98 | 947.22  | 6074.98 | 954     | 6074.9  | 961.42  | 6074.9  | 968.37  | 6074.7  |
| 979.97  | 6074.67 | 990.99  | 6074.77 | 994.92  | 6074.83 | 1002.79 | 6074.78 | 1007.49 | 6074.81 |
| 1013.81 | 6074.81 | 1021.68 | 6074.87 | 1026.4  | 6074.78 | 1033.93 | 6074.78 | 1038.21 | 6074.72 |
| 1049.79 | 6074.68 | 1057.19 | 6074.76 | 1066.04 | 6074.69 | 1073.05 | 6074.68 | 1078.34 | 6074.73 |
| 1084.51 | 6074.6  | 1091.03 | 6074.64 | 1096.82 | 6074.63 | 1101.17 | 6074.69 | 1109.13 | 6074.69 |
| 1113.76 | 6074.73 | 1121.63 | 6074.71 | 1127.14 | 6074.82 | 1135.01 | 6074.82 | 1144.95 | 6074.96 |
| 1153.41 | 6074.95 | 1160.82 | 6075.08 | 1162.93 | 6075.15 | 1166.1  | 6075.4  | 1169.27 | 6075.81 |
| 1172.45 | 6076.36 | 1174.56 | 6076.91 | 1175.62 | 6077.09 | 1177.73 | 6077.78 | 1178.79 | 6078.01 |
| 1180.91 | 6078.77 | 1181.96 | 6079    | 1184.08 | 6079.69 | 1187.25 | 6080.21 | 1190.42 | 6080.33 |
| 1191.59 | 6080.28 | 1195.99 | 6079.9  | 1200.28 | 6079.19 | 1203.14 | 6078.65 | 1204.58 | 6078.48 |
| 1207.44 | 6077.79 | 1208.87 | 6077.57 | 1211.73 | 6076.95 | 1213.16 | 6076.8  | 1216.02 | 6076.3  |
| 1220.31 | 6075.87 | 1224.11 | 6075.72 | 1229.23 | 6075.68 | 1234.62 | 6075.76 | 1243.91 | 6075.95 |
| 1255.23 | 6076.12 | 1261.81 | 6076.16 | 1283.27 | 6076.41 | 1304.73 | 6076.71 | 1314.74 | 6076.97 |
| 1318.87 | 6077.05 | 1327.62 | 6077.11 | 1334.1  | 6077.11 | 1348.57 | 6077.43 | 1366.96 | 6077.56 |
| 1375.45 | 6077.65 | 1398.78 | 6077.65 | 1405.41 | 6077.61 | 1410.1  | 6077.61 | 1427.77 | 6077.36 |
| 1433.49 | 6077.15 | 1441.21 | 6076.99 | 1444.56 | 6076.89 | 1452.09 | 6076.52 | 1457.82 | 6076.31 |
| 1462.11 | 6076.33 | 1470.69 | 6076.53 | 1475.32 | 6076.8  | 1485.76 | 6076.74 | 1486.47 | 6076.89 |
| 1488.59 | 6076.82 | 1494.25 | 6076.94 | 1502.73 | 6076.94 | 1506.98 | 6076.82 | 1510.51 | 6076.4  |
| 1513.62 | 6075.75 | 1516.48 | 6074.98 | 1519.7  | 6074.29 | 1524.26 | 6073.51 | 1527.05 | 6073.18 |

1530.79 6072.96 1536.51 6072.89 1548.03 6072.89 1562.26 6072.93 1577.69 6072.94  
1584.76 6072.86 1590.42 6072.86 1596.08 6072.97 1598.91 6073.09 1603.75 6073.5  
1608.15 6074.32 1610.91 6074.97 1613.74 6075.29 1615.14 6075.33 1618.06 6075.22  
1626.48 6074.99 1629.12 6075 1638.51 6075.24 1640.95 6075.24 1643.81 6075.15  
1653.83 6074.7 1657.4 6074.47 1658.12 6074 1665.28 6074 1668.28 6074  
1674.57 6074 1676.66 6074 1689.6 6073.76 1695.08 6073 1697.2 6072.92  
1700.74 6073.19 1703.91 6073.28 1708.82 6073.14 1714.88 6073.05 1718.21 6072.88  
1721.24 6072.84 1723.94 6072.94 1728.23 6073.34 1732.59 6073.94 1734.68 6074.31  
1736.79 6074.55 1738.19 6074.62 1742.54 6074.65 1744.58 6074.72 1749.53 6074.99  
1753.57 6075.02 1757.76 6074.82 1760.14 6074.55 1766.15 6074.02 1769.33 6073.57  
1771.74 6073.14 1775.94 6072.6 1780.13 6072.16 1782.93 6071.99 1785.73 6071.89  
1789.13 6071.5 1794.04 6071.5 1801.86 6071.5 1808.93 6071.5 1817.89 6072.08  
1824.09 6072.09 1827.32 6072.25 1829.44 6072.72 1831.56 6073.6 1833.68 6074.62  
1835.8 6075.36 1838.63 6075.86 1841.66 6075.97 1844.45 6075.88 1851.44 6075.17  
1855.56 6075.01 1859.14 6074.95 1869.62 6074 1976.73 6074 1980.04 6074.94  
1982.88 6074.94 1990.05 6075.07 1994.2 6075.34 1997.21 6075.68 2000.07 6075.91  
2002.45 6076.02 2007.22 6076.05 2014 6076.17 2017.84 6076.2 2022.62 6076.48  
2025.61 6076.54 2032.72 6076.54 2035.72 6076.51 2043.54 6076.35 2047.72 6076.24  
2050.72 6076.11 2058.72 6075.55 2064.46 6075.39 2074.43 6075.34 2079.72 6075.27  
2086.72 6075.31 2097.34 6075.5 2116.72 6075.67 2128.22 6075.62 2136.19 6075.69  
2146.15 6075.6 2155.12 6075.61 2160.72 6075.52 2171.06 6075.53 2179.03 6075.42  
2190.72 6075.29 2200.94 6075.29 2211.72 6075.24 2219.87 6075.24 2229.72 6075.18  
2233.82 6075.18 2242.72 6075.24 2251.72 6075.25 2261.71 6075.31 2266.69 6075.31  
2271.67 6075.27 2281.72 6075.27 2293.59 6075.15 2297.57 6075.15 2308.72 6075.3  
2320.72 6075.68 2325.72 6075.89 2328.72 6075.93 2336.43 6075.84 2344.72 6075.81  
2352.72 6075.67 2356.72 6075.67 2361.33 6075.72 2371.29 6075.72 2374.72 6075.68  
2382.72 6075.5 2392.72 6075.48 2396.72 6075.41 2405.72 6075.46 2413.72 6075.47  
2419.11 6075.43 2431.06 6075.43 2436.04 6075.35 2447 6075.26 2453.72 6075.35  
2463.72 6075.29 2468.92 6075.29 2477.89 6075.24 2494.82 6075.24 2501.72 6075.28  
2505.78 6075.27 2520.72 6075.03 2533.67 6074.91 2542.72 6074.88 2550.61 6074.94  
2560.72 6074.94 2569.73 6074.91 2590.45 6074.8 2601.41 6074.63 2605.73 6074.65  
2610.38 6074.73 2617.73 6074.78 2620.73 6074.85 2625.73 6075.16 2629.73 6075.1  
2632.73 6074.84 2635.73 6074.46 2638.73 6073.97 2640.73 6073.5 2641.73 6073.36  
2643.73 6072.83 2644.73 6072.68 2646.73 6072.14 2647.73 6071.98 2650.73 6071.15  
2652.73 6070.42 2655.73 6069.44 2658.73 6068.87 2662.18 6068.72 2870.73 6068.72  
2875.73 6068.79 2880.35 6069.06 2884.33 6069.25 2887.73 6069.15 2892.73 6068.78  
2895.73 6068.72 2950.08 6068.72 2953.73 6068.81 2956.73 6069.18 2959.73 6069.82  
2961.73 6070.31 2964.73 6070.78 2970.73 6071.5 2980.73 6072.51 2982.73 6072.77  
2986.73 6073.16 2988.73 6073.42 2994.73 6074.01 2998.73 6074.36 3003.73 6074.91  
3009.85 6075.48 3015.73 6075.97 3022.73 6076.49 3027.73 6076.89 3031.73 6077.1  
3036.73 6077.51 3039.73 6077.7 3045.72 6077.93 3051.66 6078.01

Manning's n Values num= 3  
Sta n Val Sta n Val Sta n Val  
0 .06 1753.57 .035 1841.66 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
1753.57 1841.66 533.3 647.47 649.67 .3 .5  
Ineffective Flow num= 2  
Sta L Sta R Elev Permanent  
0 1190.42 6080.33 T  
2025.61 3051.66 6076.54 T

CROSS SECTION

RIVER: Flat Creek

REACH: 1

RS: 31615

INPUT

Description: Upstream of Rafter J Bridge

Station Elevation Data num= 450

| Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 194.21  | 6077.83 | 197.58  | 6077.7  | 201.39  | 6077.61 | 210.83  | 6077.49 | 218.15  | 6077.37 |
| 225.58  | 6077.22 | 230.72  | 6077.23 | 237.35  | 6077.13 | 243.3   | 6077.16 | 254.64  | 6077.12 |
| 263.14  | 6077.01 | 272.31  | 6076.81 | 276.84  | 6076.75 | 279.48  | 6076.66 | 290.24  | 6076.53 |
| 295.62  | 6076.53 | 302.85  | 6076.48 | 308.63  | 6076.47 | 315.33  | 6076.37 | 324.52  | 6076.31 |
| 328.85  | 6076.31 | 333.91  | 6076.42 | 341.86  | 6076.5  | 346.91  | 6076.68 | 354.14  | 6076.68 |
| 359.19  | 6076.72 | 364.97  | 6076.9  | 367.79  | 6076.88 | 370.3   | 6076.72 | 372.69  | 6076.48 |
| 375.81  | 6076.35 | 387.5   | 6076.29 | 391.4   | 6076.3  | 399.2   | 6076.42 | 414.56  | 6076.62 |
| 422.01  | 6076.7  | 435.06  | 6076.87 | 444.37  | 6077.01 | 456.08  | 6077.26 | 467.02  | 6077.26 |
| 469.93  | 6077.19 | 481.64  | 6076.78 | 491.12  | 6076.53 | 513.9   | 6076.13 | 515.92  | 6076.07 |
| 526.27  | 6075.88 | 535.7   | 6075.67 | 546.41  | 6075.61 | 550.54  | 6075.56 | 554.11  | 6075.46 |
| 557.2   | 6075.27 | 560.3   | 6074.96 | 563.39  | 6074.52 | 565.37  | 6074.16 | 569.58  | 6073.61 |
| 571.64  | 6073.2  | 574.73  | 6072.68 | 577.82  | 6072.27 | 580.21  | 6072.12 | 581.95  | 6072.12 |
| 585.04  | 6072.45 | 587.1   | 6072.91 | 590.2   | 6073.51 | 592.57  | 6073.77 | 596.69  | 6073.92 |
| 604.11  | 6073.91 | 612.35  | 6073.76 | 620.59  | 6073.97 | 629.65  | 6074.04 | 635.56  | 6073.96 |
| 640.37  | 6073.84 | 647.79  | 6073.93 | 656.85  | 6073.88 | 665.92  | 6073.93 | 674.74  | 6073.94 |
| 683.22  | 6073.78 | 691.47  | 6073.88 | 696.49  | 6073.86 | 700.52  | 6073.92 | 708.76  | 6073.91 |
| 714.54  | 6073.96 | 722.17  | 6074.11 | 731.03  | 6074.31 | 741.74  | 6074.33 | 748.33  | 6074.39 |
| 756.57  | 6074.43 | 763.99  | 6074.52 | 774.53  | 6074.51 | 780.94  | 6074.55 | 788.15  | 6074.32 |
| 790.96  | 6074.32 | 797.78  | 6074.46 | 801.9   | 6074.49 | 807.74  | 6074.48 | 810.84  | 6074.67 |
| 813.93  | 6075.09 | 815.91  | 6075.48 | 819.08  | 6075.96 | 822.18  | 6076.27 | 825.27  | 6076.43 |
| 827.93  | 6076.47 | 832.04  | 6076.45 | 835.58  | 6076.34 | 838.67  | 6076.13 | 847.95  | 6075.38 |
| 851.05  | 6075.09 | 856.2   | 6074.52 | 859.29  | 6074.28 | 865.48  | 6073.89 | 868.57  | 6073.77 |
| 872.78  | 6073.73 | 875.79  | 6073.8  | 880.94  | 6074.05 | 883.49  | 6074.13 | 888.16  | 6074.18 |
| 893.32  | 6074.43 | 895.03  | 6074.47 | 900.53  | 6074.47 | 907.39  | 6074.75 | 913.94  | 6074.93 |
| 919.09  | 6075.24 | 927.34  | 6075.93 | 929.4   | 6075.97 | 931.46  | 6075.9  | 936.62  | 6075.38 |
| 940.74  | 6075.17 | 943.84  | 6074.94 | 945.9   | 6074.7  | 948.99  | 6074.44 | 952.09  | 6074.35 |
| 959.37  | 6074.36 | 968.38  | 6074.55 | 971.67  | 6074.49 | 976.62  | 6074.23 | 981.57  | 6074.14 |
| 984.01  | 6074.15 | 993.11  | 6074.37 | 996.4   | 6074.35 | 1001.57 | 6074.14 | 1006.29 | 6074.09 |
| 1008.76 | 6074    | 1013.95 | 6073.68 | 1017.01 | 6073.6  | 1027.72 | 6073.45 | 1036.63 | 6073.22 |
| 1041.52 | 6073.24 | 1049.74 | 6073.32 | 1056.22 | 6073.52 | 1062.4  | 6073.43 | 1068.93 | 6073.55 |
| 1072.22 | 6073.55 | 1080.96 | 6073.38 | 1084.35 | 6073.37 | 1089.68 | 6073.45 | 1096.07 | 6073.7  |
| 1098.2  | 6073.73 | 1104.34 | 6073.63 | 1109.01 | 6073.61 | 1114.17 | 6073.76 | 1118.43 | 6073.79 |
| 1124.83 | 6073.68 | 1128.02 | 6073.52 | 1131.22 | 6073.3  | 1134.41 | 6072.96 | 1139.74 | 6072    |
| 1141.4  | 6071.88 | 1144    | 6072.02 | 1147.19 | 6072.69 | 1149.32 | 6073.29 | 1152.52 | 6073.99 |
| 1154.99 | 6074.35 | 1157.33 | 6074.52 | 1159.67 | 6074.57 | 1169.56 | 6074.6  | 1177.59 | 6074.44 |
| 1183.05 | 6074.47 | 1185.54 | 6074.42 | 1190.84 | 6074.19 | 1195.51 | 6074.08 | 1200.45 | 6073.84 |
| 1203.65 | 6073.81 | 1207.91 | 6073.84 | 1216.43 | 6073.55 | 1221.23 | 6073.55 | 1225.61 | 6073.47 |
| 1232.92 | 6073.44 | 1244.12 | 6073.32 | 1246.42 | 6073.36 | 1252.51 | 6073.66 | 1257.68 | 6073.78 |
| 1264.84 | 6074.01 | 1269.03 | 6074.2  | 1274.05 | 6074.55 | 1277.64 | 6074.64 | 1281.22 | 6074.62 |
| 1284.81 | 6074.69 | 1289.11 | 6074.85 | 1292.69 | 6074.9  | 1296.99 | 6074.87 | 1304.22 | 6074.88 |
| 1312.84 | 6074.92 | 1316.28 | 6074.78 | 1318.51 | 6074.61 | 1322.81 | 6074.42 | 1331.14 | 6074.41 |
| 1338.58 | 6074.59 | 1344.32 | 6074.89 | 1351.86 | 6075.08 | 1361.93 | 6075.24 | 1369.78 | 6075.18 |
| 1374.02 | 6075.12 | 1378.76 | 6074.97 | 1381.54 | 6075.06 | 1388.88 | 6075.13 | 1394.53 | 6075.01 |
| 1396.47 | 6074.9  | 1400.79 | 6074.79 | 1404.43 | 6074.79 | 1409.35 | 6074.71 | 1412.92 | 6074.73 |
| 1420.94 | 6074.57 | 1426.03 | 6074.62 | 1434.84 | 6074.43 | 1438.48 | 6074.43 | 1447.24 | 6074.31 |
| 1453.39 | 6074.3  | 1459.44 | 6074.37 | 1465.67 | 6074.57 | 1471.43 | 6074.82 | 1476.6  | 6075.14 |
| 1481    | 6075.3  | 1488.33 | 6075.38 | 1494.19 | 6075.32 | 1495.74 | 6075.26 | 1501.79 | 6075.15 |



|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1505.18 | 6075.18 | 1507.83 | 6075.11 | 1511.87 | 6075.13 | 1518.38 | 6075.42 | 1525.98 | 6075.53 |
| 1534.5  | 6075.88 | 1539.63 | 6075.82 | 1545.5  | 6076    | 1546.96 | 6076.01 | 1550.7  | 6075.88 |
| 1552.84 | 6075.89 | 1554.98 | 6076.09 | 1559.26 | 6076.72 | 1561.4  | 6076.76 | 1567.05 | 6076.61 |
| 1570.67 | 6076.38 | 1574.23 | 6076.31 | 1581.72 | 6075.94 | 1584.78 | 6075.88 | 1588.13 | 6075.96 |
| 1589.54 | 6075.91 | 1593.25 | 6075.64 | 1596.69 | 6075.69 | 1601.17 | 6075.95 | 1605.82 | 6076    |
| 1610.18 | 6075.78 | 1612.73 | 6075.76 | 1615.13 | 6075.87 | 1621.28 | 6076.34 | 1624.49 | 6076.46 |
| 1631.42 | 6076.56 | 1637.33 | 6076.6  | 1641.6  | 6076.59 | 1648.02 | 6076.5  | 1650.9  | 6076.36 |
| 1662.03 | 6075.58 | 1669.11 | 6075.38 | 1677.04 | 6075.33 | 1690.34 | 6075.32 | 1695.4  | 6075.5  |
| 1701.01 | 6075.58 | 1708.62 | 6075.53 | 1719.46 | 6075.35 | 1730.8  | 6075.33 | 1735.24 | 6075.35 |
| 1735.8  | 6075.33 | 1741.49 | 6075.11 | 1745.7  | 6075.02 | 1752.5  | 6075.01 | 1758.06 | 6074.85 |
| 1765.52 | 6074.74 | 1772.32 | 6074.77 | 1776.54 | 6074.68 | 1784.69 | 6074.37 | 1794.19 | 6074.21 |
| 1799.9  | 6074.05 | 1808.58 | 6073.97 | 1819.6  | 6073.83 | 1823.6  | 6073.82 | 1831.28 | 6073.71 |
| 1835.62 | 6073.62 | 1839.83 | 6073.61 | 1843.63 | 6073.65 | 1853.15 | 6073.83 | 1857.9  | 6073.76 |
| 1864.66 | 6073.29 | 1869.67 | 6073    | 1871.67 | 6072.75 | 1873.67 | 6072.3  | 1874.67 | 6071.95 |
| 1877.68 | 6071.09 | 1879.68 | 6070.8  | 1881.67 | 6069    | 1896.71 | 6069    | 1898.71 | 6070.77 |
| 1900.69 | 6070.97 | 1903.72 | 6071.71 | 1906.72 | 6072.66 | 1908.72 | 6073.09 | 1910.72 | 6073.39 |
| 1912.73 | 6073.58 | 1915.73 | 6073.63 | 1920.66 | 6073.39 | 1924.74 | 6073.31 | 1927.75 | 6073.18 |
| 1930    | 6072.8  | 2069.79 | 6072.8  | 2160.01 | 6072.8  | 2169.03 | 6073.02 | 2176.39 | 6073.01 |
| 2178.96 | 6073.05 | 2184.64 | 6073.06 | 2189.53 | 6073.02 | 2196.7  | 6073.04 | 2204.75 | 6072.78 |
| 2212.86 | 6072.74 | 2217.97 | 6072.69 | 2231.27 | 6072.76 | 2238.78 | 6072.76 | 2244.27 | 6072.83 |
| 2249.69 | 6072.84 | 2257.06 | 6072.77 | 2266.63 | 6072.78 | 2278.48 | 6072.82 | 2284.18 | 6072.78 |
| 2294.96 | 6072.78 | 2302.42 | 6072.71 | 2313.18 | 6072.81 | 2317.91 | 6072.91 | 2322.89 | 6072.94 |
| 2327.87 | 6072.9  | 2332.72 | 6072.8  | 2342.8  | 6072.69 | 2348.61 | 6072.65 | 2354.32 | 6072.51 |
| 2358.56 | 6072.5  | 2363.4  | 6072.64 | 2371    | 6072.65 | 2384.14 | 6072.81 | 2389.26 | 6072.73 |
| 2391.33 | 6072.62 | 2394.42 | 6072.55 | 2410.87 | 6072.45 | 2420.78 | 6072.58 | 2424.93 | 6072.55 |
| 2426.3  | 6072.6  | 2444.38 | 6072.73 | 2450.77 | 6072.72 | 2458.9  | 6072.6  | 2462.96 | 6072.64 |
| 2466.01 | 6072.76 | 2471.09 | 6073.13 | 2473.68 | 6073.27 | 2475.41 | 6073.29 | 2480.23 | 6073.09 |
| 2492.64 | 6072.89 | 2496.09 | 6072.96 | 2504.61 | 6073.31 | 2509.02 | 6073.42 | 2513.33 | 6073.48 |
| 2527.95 | 6073.53 | 2533.06 | 6073.46 | 2539.15 | 6073.26 | 2544.23 | 6072.98 | 2548.3  | 6072.98 |
| 2552.97 | 6073.21 | 2560.72 | 6073.27 | 2566.58 | 6073.49 | 2573.4  | 6073.96 | 2577.74 | 6074.35 |
| 2586.82 | 6074.9  | 2589.84 | 6075.01 | 2604.8  | 6075.24 | 2608.36 | 6075.24 | 2618.08 | 6075.14 |
| 2621.11 | 6075.13 | 2634.22 | 6075.44 | 2640.47 | 6075.47 | 2646.32 | 6075.54 | 2649.35 | 6075.41 |
| 2655.63 | 6074.63 | 2661.45 | 6074.05 | 2664.47 | 6073.96 | 2670.52 | 6073.97 | 2672.86 | 6074.06 |
| 2677.04 | 6074.33 | 2679.6  | 6074.45 | 2684.17 | 6074.51 | 2687.74 | 6074.51 | 2696.75 | 6074.41 |
| 2705.82 | 6074.18 | 2709.14 | 6074.07 | 2713.89 | 6073.79 | 2719.94 | 6073.53 | 2729.02 | 6073.29 |
| 2741.12 | 6073.24 | 2745.71 | 6073.24 | 2751.06 | 6073.19 | 2767.34 | 6073.18 | 2775.14 | 6073.24 |
| 2780.8  | 6073.24 | 2787.51 | 6073.29 | 2796.55 | 6073.28 | 2802.79 | 6073.21 | 2810.71 | 6073.07 |
| 2820.63 | 6073.08 | 2826.84 | 6073.11 | 2835.92 | 6073.09 | 2838.95 | 6073.06 | 2850.04 | 6072.88 |
| 2858.98 | 6072.83 | 2863.44 | 6072.83 | 2868.79 | 6072.89 | 2876.26 | 6072.87 | 2883.06 | 6073.02 |
| 2893.76 | 6073.15 | 2900.89 | 6073.36 | 2905.35 | 6073.44 | 2911.87 | 6073.41 | 2919.58 | 6073.51 |
| 2936.77 | 6073.84 | 2941.03 | 6073.88 | 2944.84 | 6073.82 | 2952.91 | 6073.59 | 2957.08 | 6073.57 |
| 2961.54 | 6073.69 | 2966.89 | 6073.78 | 2969.05 | 6073.76 | 2976.7  | 6073.38 | 2980.27 | 6073.35 |
| 2987.2  | 6073.46 | 2990.08 | 6073.61 | 2995.27 | 6074.06 | 2998.29 | 6074.26 | 3003.62 | 6074.48 |

|             |        |        |       |
|-------------|--------|--------|-------|
| Manning's n | Values | num=   | 3     |
| Sta         | n Val  | Sta    | n Val |
| 194.21      | .06    | 1857.9 | .035  |
| 1912.73     | .06    |        |       |

|                  |         |         |           |       |         |       |       |        |        |
|------------------|---------|---------|-----------|-------|---------|-------|-------|--------|--------|
| Bank Sta:        | Left    | Right   | Lengths:  | Left  | Channel | Right | Coeff | Contr. | Expan. |
|                  | 1857.9  | 1912.73 |           | 56.45 | 56.46   | 56.45 |       | .3     | .5     |
| Ineffective Flow | num=    | 3       |           |       |         |       |       |        |        |
| Sta L            | Sta R   | Elev    | Permanent |       |         |       |       |        |        |
| 404.26           | 1859.68 | 6075.91 | T         |       |         |       |       |        |        |
| 2177.63          | 2611.96 | 6074.21 | T         |       |         |       |       |        |        |
| 2611.96          | 3006.44 | 6074.95 | T         |       |         |       |       |        |        |

| Sta    | Hi      | Cord | Lo | Cord | Sta    | Hi      | Cord | Lo | Cord | Sta    | Hi      | Cord | Lo | Cord |
|--------|---------|------|----|------|--------|---------|------|----|------|--------|---------|------|----|------|
| 213.74 | 6078.93 |      | 0  |      | 219.21 | 6078.86 |      | 0  |      | 225.96 | 6078.76 |      | 0  |      |
| 230.2  | 6078.72 |      | 0  |      | 231.47 | 6078.69 |      | 0  |      | 234.44 | 6078.66 |      | 0  |      |
| 242.9  | 6078.54 |      | 0  |      | 245.83 | 6078.48 |      | 0  |      | 251.57 | 6078.4  |      | 0  |      |
| 262.73 | 6078.27 |      | 0  |      | 274.75 | 6078.1  |      | 0  |      | 280.41 | 6078.04 |      | 0  |      |
| 283.24 | 6078    |      | 0  |      | 288.5  | 6077.97 |      | 0  |      | 294.82 | 6077.92 |      | 0  |      |
| 296.29 | 6077.92 |      | 0  |      | 301.24 | 6077.88 |      | 0  |      | 305.06 | 6077.86 |      | 0  |      |
| 310.17 | 6077.8  |      | 0  |      | 312.37 | 6077.79 |      | 0  |      | 318.22 | 6077.73 |      | 0  |      |
| 323.25 | 6077.7  |      | 0  |      | 329.42 | 6077.65 |      | 0  |      | 332.83 | 6077.61 |      | 0  |      |
| 337.95 | 6077.58 |      | 0  |      | 342.34 | 6077.54 |      | 0  |      | 351.84 | 6077.52 |      | 0  |      |
| 358.42 | 6077.45 |      | 0  |      | 365.73 | 6077.43 |      | 0  |      | 369.38 | 6077.4  |      | 0  |      |
| 374.98 | 6077.38 |      | 0  |      | 378.16 | 6077.35 |      | 0  |      | 381.81 | 6077.34 |      | 0  |      |
| 393.77 | 6077.27 |      | 0  |      | 405.05 | 6077.24 |      | 0  |      | 411.93 | 6077.19 |      | 0  |      |
| 416.51 | 6077.18 |      | 0  |      | 419.79 | 6077.16 |      | 0  |      | 426.45 | 6077.16 |      | 0  |      |
| 439.75 | 6077.09 |      | 0  |      | 444.73 | 6077.05 |      | 0  |      | 452.42 | 6077.02 |      | 0  |      |
| 457.01 | 6076.98 |      | 0  |      | 463.88 | 6076.95 |      | 0  |      | 467.5  | 5940.54 |      | 0  |      |
| 467.71 | 5933.09 |      | 0  |      | 471.83 | 5970.1  |      | 0  |      | 483.72 | 6076.89 |      | 0  |      |
| 490.27 | 6076.85 |      | 0  |      | 494.6  | 6076.84 |      | 0  |      | 496.66 | 6076.82 |      | 0  |      |
| 502.85 | 6076.8  |      | 0  |      | 508.31 | 6076.77 |      | 0  |      | 515.72 | 6076.71 |      | 0  |      |
| 529.14 | 6076.65 |      | 0  |      | 538.24 | 6076.58 |      | 0  |      | 546.13 | 6076.55 |      | 0  |      |
| 558.09 | 6076.47 |      | 0  |      | 562.22 | 6076.46 |      | 0  |      | 570.28 | 6076.41 |      | 0  |      |
| 570.49 | 6076.4  |      | 0  |      | 576.46 | 6076.37 |      | 0  |      | 582.07 | 6076.33 |      | 0  |      |
| 583.72 | 6076.33 |      | 0  |      | 592.37 | 6076.28 |      | 0  |      | 596.02 | 6076.25 |      | 0  |      |
| 602.75 | 6076.26 |      | 0  |      | 608.38 | 6076.22 |      | 0  |      | 614.32 | 6076.22 |      | 0  |      |
| 614.55 | 6076.21 |      | 0  |      | 620.94 | 6076.21 |      | 0  |      | 624.85 | 6076.2  |      | 0  |      |
| 630.86 | 6076.23 |      | 0  |      | 637.48 | 6076.23 |      | 0  |      | 638.23 | 6076.22 |      | 0  |      |
| 646.58 | 6076.22 |      | 0  |      | 647    | 6076.23 |      | 0  |      | 654.85 | 6076.23 |      | 0  |      |
| 660.63 | 6076.26 |      | 0  |      | 665    | 6076.26 |      | 0  |      | 672.21 | 6076.32 |      | 0  |      |
| 678.83 | 6076.36 |      | 0  |      | 682.96 | 6076.37 |      | 0  |      | 688.75 | 6076.41 |      | 0  |      |
| 691.77 | 6076.42 |      | 0  |      | 697.95 | 6076.46 |      | 0  |      | 701.16 | 6076.49 |      | 0  |      |
| 706.19 | 6076.5  |      | 0  |      | 713.56 | 6076.54 |      | 0  |      | 717.7  | 6076.57 |      | 0  |      |
| 721.83 | 6076.58 |      | 0  |      | 727.62 | 6076.61 |      | 0  |      | 732.58 | 6076.62 |      | 0  |      |
| 743.25 | 6076.66 |      | 0  |      | 749.43 | 6076.67 |      | 0  |      | 752.43 | 6076.69 |      | 0  |      |
| 757.66 | 6076.7  |      | 0  |      | 762.35 | 6076.73 |      | 0  |      | 764.01 | 6076.73 |      | 0  |      |
| 770.62 | 6076.77 |      | 0  |      | 776.41 | 6076.77 |      | 0  |      | 780.31 | 6076.79 |      | 0  |      |
| 783.4  | 6076.79 |      | 0  |      | 789.58 | 6076.82 |      | 0  |      | 794.73 | 6076.82 |      | 0  |      |
|        |         |      |    |      |        |         |      |    |      |        |         |      |    |      |

|         |         |   |         |         |   |         |         |   |
|---------|---------|---|---------|---------|---|---------|---------|---|
| 828.7   | 6076.94 | 0 | 836.78  | 6076.99 | 0 | 848.74  | 6077.03 | 0 |
| 852.38  | 6077.05 | 0 | 855.47  | 6077.05 | 0 | 859.11  | 6077.08 | 0 |
| 864.74  | 6077.07 | 0 | 869.86  | 6077.07 | 0 | 870.69  | 6077.08 | 0 |
| 880.18  | 6077.08 | 0 | 884.3   | 6077.09 | 0 | 890.77  | 6077.13 | 0 |
| 892.54  | 6077.13 | 0 | 897.15  | 6077.16 | 0 | 900.46  | 6077.14 | 0 |
| 904.89  | 6077.14 | 0 | 910.04  | 6077.12 | 0 | 915.19  | 6077.12 | 0 |
| 915.35  | 6077.13 | 0 | 921.37  | 6077.13 | 0 | 926.1   | 6077.09 | 0 |
| 933.72  | 6077.08 | 0 | 937.67  | 6077.05 | 0 | 946.77  | 6077    | 0 |
| 955.04  | 6076.89 | 0 | 960     | 6076.86 | 0 | 963.58  | 6076.85 | 0 |
| 969.93  | 6076.8  | 0 | 975.93  | 6076.77 | 0 | 986.23  | 6076.69 | 0 |
| 989.32  | 6076.68 | 0 | 995.49  | 6076.59 | 0 | 1002.18 | 6076.59 | 0 |
| 1006.31 | 6076.56 | 0 | 1011.28 | 6076.54 | 0 | 1014.03 | 6076.54 | 0 |
| 1020.2  | 6076.49 | 0 | 1027.41 | 6076.41 | 0 | 1036.09 | 6076.41 | 0 |
| 1036.68 | 6076.4  | 0 | 1045.18 | 6076.39 | 0 | 1049.03 | 6076.36 | 0 |
| 1051.8  | 6076.36 | 0 | 1055.93 | 6076.33 | 0 | 1060.9  | 6076.32 | 0 |
| 1066.53 | 6076.28 | 0 | 1068.34 | 6076.28 | 0 | 1074.77 | 6076.24 | 0 |
| 1079.9  | 6076.24 | 0 | 1080.74 | 6076.25 | 0 | 1089.18 | 6076.25 | 0 |
| 1095.36 | 6076.22 | 0 | 1099.76 | 6076.21 | 0 | 1105.66 | 6076.21 | 0 |
| 1109.69 | 6076.18 | 0 | 1117.13 | 6076.15 | 0 | 1121.93 | 6076.12 | 0 |
| 1128.71 | 6076.1  | 0 | 1133.67 | 6076.07 | 0 | 1137.8  | 6076.06 | 0 |
| 1142.72 | 6076.03 | 0 | 1146.07 | 6076.02 | 0 | 1163.76 | 6076.02 | 0 |
| 1176.07 | 6076.07 | 0 | 1176.61 | 6076.08 | 0 | 1182.24 | 6076.06 | 0 |
| 1187.56 | 6076.06 | 0 | 1193.48 | 6076.08 | 0 | 1204.73 | 6076.08 | 0 |
| 1209.48 | 6076.11 | 0 | 1214.37 | 6076.12 | 0 | 1217.58 | 6076.15 | 0 |
| 1220.8  | 6076.16 | 0 | 1228.83 | 6076.21 | 0 | 1236.86 | 6076.21 | 0 |
| 1240.64 | 6076.23 | 0 | 1243.38 | 6076.23 | 0 | 1249.16 | 6076.27 | 0 |
| 1253.08 | 6076.28 | 0 | 1256.01 | 6076.31 | 0 | 1263.32 | 6076.31 | 0 |
| 1271.13 | 6076.34 | 0 | 1274.6  | 6076.34 | 0 | 1280.88 | 6076.37 | 0 |
| 1285.73 | 6076.42 | 0 | 1291.94 | 6076.43 | 0 | 1296.24 | 6076.45 | 0 |
| 1302.35 | 6076.46 | 0 | 1305.65 | 6076.48 | 0 | 1310.88 | 6076.48 | 0 |
| 1311.6  | 6076.49 | 0 | 1317.6  | 6076.49 | 0 | 1320.33 | 6076.51 | 0 |
| 1339.03 | 6076.51 | 0 | 1339.54 | 6076.52 | 0 | 1345.42 | 6076.52 | 0 |
| 1345.95 | 6076.53 | 0 | 1351.42 | 6076.53 | 0 | 1354.63 | 6076.54 | 0 |
| 1361.6  | 6076.6  | 0 | 1367.15 | 6076.63 | 0 | 1373.54 | 6076.71 | 0 |
| 1377.38 | 6076.72 | 0 | 1385.06 | 6076.82 | 0 | 1390.28 | 6076.86 | 0 |
| 1395.19 | 6076.91 | 0 | 1397.09 | 6076.91 | 0 | 1402.75 | 6076.95 | 0 |
| 1409.55 | 6077.01 | 0 | 1411.96 | 6077.04 | 0 | 1419.03 | 6077.08 | 0 |
| 1425    | 6077.13 | 0 | 1428.81 | 6077.18 | 0 | 1434.48 | 6077.2  | 0 |
| 1439.19 | 6077.2  | 0 | 1443.63 | 6077.24 | 0 | 1445.22 | 6077.24 | 0 |
| 1455.49 | 6077.32 | 0 | 1459.94 | 6077.33 | 0 | 1465.04 | 6077.37 | 0 |
| 1469.71 | 6077.36 | 0 | 1482.98 | 6077.36 | 0 | 1483.38 | 6077.37 | 0 |
| 1495.94 | 6077.39 | 0 | 1499.17 | 6077.41 | 0 | 1516.83 | 6077.41 | 0 |
| 1517.45 | 6077.4  | 0 | 1530.28 | 6077.4  | 0 | 1535.44 | 6077.37 | 0 |
| 1543.76 | 6077.39 | 0 | 1546.01 | 6077.37 | 0 | 1556.54 | 6077.37 | 0 |
| 1557.24 | 6077.36 | 0 | 1580.96 | 6077.36 | 0 | 1586.32 | 6077.33 | 0 |
| 1593.18 | 6077.31 | 0 | 1596.19 | 6077.31 | 0 | 1600.7  | 6077.28 | 0 |
| 1607.43 | 6077.25 | 0 | 1613.05 | 6077.26 | 0 | 1613.68 | 6077.25 | 0 |
| 1620.77 | 6077.25 | 0 | 1624.44 | 6077.23 | 0 | 1629.81 | 6077.23 | 0 |
| 1640.79 | 6077.2  | 0 | 1650.26 | 6077.14 | 0 | 1651.98 | 6077.14 | 0 |
| 1658.87 | 6077.09 | 0 | 1663.35 | 6077.07 | 0 | 1671.78 | 6077.06 | 0 |
| 1682.6  | 6077    | 0 | 1689.1  | 6076.98 | 0 | 1696.62 | 6076.9  | 0 |
| 1698.1  | 6076.9  | 0 | 1707.14 | 6076.8  | 0 | 1709.64 | 6076.76 | 0 |
| 1715.65 | 6076.73 | 0 | 1721.66 | 6076.69 | 0 | 1727.66 | 6076.68 | 0 |
| 1738.49 | 6076.61 | 0 | 1745.69 | 6076.57 | 0 | 1753.36 | 6076.56 | 0 |
| 1753.68 | 6076.55 | 0 | 1758.71 | 6076.55 | 0 | 1762.23 | 6076.54 | 0 |

|         |         |         |         |         |         |         |         |   |
|---------|---------|---------|---------|---------|---------|---------|---------|---|
| 1770.78 | 6076.5  | 0       | 1777.74 | 6076.44 | 0       | 1778.74 | 6076.44 | 0 |
| 1785.03 | 6076.37 | 0       | 1790.73 | 6076.35 | 0       | 1803.08 | 6076.25 | 0 |
| 1806.78 | 6076.24 | 0       | 1812.57 | 6076.19 | 0       | 1817.8  | 6076.17 | 0 |
| 1827.77 | 6076.11 | 0       | 1833.82 | 6076.1  | 0       | 1838.83 | 6076.08 | 0 |
| 1843.92 | 6076.08 | 0       | 1852.85 | 6076    | 0       | 1861.02 | 6075.98 | 0 |
| 1863.86 | 6075.96 | 0       | 1866.87 | 6075.86 | 0       | 1869.46 | 6075.85 |   |
| 1871.07 | 6075.85 | 6073.11 | 1900.02 | 6075.85 | 6072.97 | 1901.62 | 6075.85 |   |
| 1907.56 | 6075.74 | 0       | 1909.46 | 6075.78 | 0       | 1917.06 | 6075.76 | 0 |
| 1923.95 | 6075.73 | 0       | 1935.1  | 6075.65 | 0       | 1943.65 | 6075.65 | 0 |
| 1943.98 | 6075.64 | 0       | 1949.35 | 6075.64 | 0       | 1949.99 | 6075.63 | 0 |
| 1974.03 | 6075.63 | 0       | 1984.49 | 6075.58 | 0       | 1989.05 | 6075.54 | 0 |
| 1998.74 | 6075.44 | 0       | 2003.49 | 6075.41 | 0       | 2007.08 | 6075.37 | 0 |
| 2015.84 | 6075.24 | 0       | 2031.12 | 6075.16 | 0       | 2035.4  | 6075.15 | 0 |
| 2036.17 | 6075.16 | 0       | 2043.41 | 6075.16 | 0       | 2044.24 | 6075.15 | 0 |
| 2053.19 | 6075.15 | 0       | 2053.32 | 6075.16 | 0       | 2059.77 | 6075.16 | 0 |
| 2067.55 | 6075.12 | 0       | 2069.5  | 6075.08 | 0       | 2073.18 | 6075.03 | 0 |
| 2079.78 | 6074.92 | 0       | 2088.95 | 6074.85 | 0       | 2094.59 | 6074.8  | 0 |
| 2099.92 | 6074.78 | 0       | 2102.88 | 6074.78 | 0       | 2106.59 | 6074.76 | 0 |
| 2111.04 | 6074.75 | 0       | 2116.72 | 6074.68 | 0       | 2123.87 | 6074.64 | 0 |
| 2128.85 | 6074.6  | 0       | 2130.33 | 6074.6  | 0       | 2138.16 | 6074.54 | 0 |
| 2148.85 | 6074.52 | 0       | 2155.23 | 6074.49 | 0       | 2160.18 | 6074.45 | 0 |
| 2168.27 | 6074.43 | 0       | 2173.07 | 6074.39 | 0       | 2175.74 | 6074.39 | 0 |
| 2182.14 | 6074.36 | 0       | 2184.83 | 6074.36 | 0       | 2190.46 | 6074.32 | 0 |
| 2195.81 | 6074.32 | 0       | 2202.89 | 6074.29 | 0       | 2207.4  | 6074.29 | 0 |
| 2221.53 | 6074.25 | 0       | 2232.67 | 6074.25 | 0       | 2233.03 | 6074.26 | 0 |
| 2242.74 | 6074.26 | 0       | 2247.23 | 6074.22 | 0       | 2254.33 | 6074.22 | 0 |
| 2254.98 | 6074.21 | 0       | 2261.42 | 6074.21 | 0       | 2266.75 | 6074.2  | 0 |
| 2271.53 | 6074.22 | 0       | 2280.16 | 6074.22 | 0       | 2280.84 | 6074.23 | 0 |
| 2289.32 | 6074.23 | 0       | 2298.87 | 6074.26 | 0       | 2306.79 | 6074.23 | 0 |
| 2311.88 | 6074.22 | 0       | 2324.78 | 6074.22 | 0       | 2329.93 | 6074.24 | 0 |
| 2342.46 | 6074.24 | 0       | 2343.2  | 6074.25 | 0       | 2352.9  | 6074.25 | 0 |
| 2353.65 | 6074.24 | 0       | 2369.71 | 6074.24 | 0       | 2374.53 | 6074.27 | 0 |
| 2380.53 | 6074.28 | 0       | 2380.96 | 6074.29 | 0       | 2386.58 | 6074.3  | 0 |
| 2390.48 | 6074.28 | 0       | 2405.86 | 6074.28 | 0       | 2414.49 | 6074.26 | 0 |
| 2419.71 | 6074.23 | 0       | 2421.93 | 6074.23 | 0       | 2429.32 | 6074.2  | 0 |
| 2437.19 | 6074.16 | 0       | 2440.62 | 6074.13 | 0       | 2452.63 | 6074.13 | 0 |
| 2453.02 | 6074.12 | 0       | 2461.87 | 6074.12 | 0       | 2467.19 | 6074.14 | 0 |
| 2469.8  | 6074.16 | 0       | 2477.87 | 6074.18 | 0       | 2479.89 | 6074.2  | 0 |
| 2488.44 | 6074.22 | 0       | 2494.03 | 6074.27 | 0       | 2499.96 | 6074.29 | 0 |
| 2502.11 | 6074.31 | 0       | 2508.17 | 6074.32 | 0       | 2512.21 | 6074.34 | 0 |
| 2519.44 | 6074.36 | 0       | 2523.87 | 6074.39 | 0       | 2530.07 | 6074.39 | 0 |
| 2530.38 | 6074.4  | 0       | 2535.43 | 6074.4  | 0       | 2541.49 | 6074.36 | 0 |
| 2559.29 | 6074.36 | 0       | 2559.67 | 6074.37 | 0       | 2578.85 | 6074.37 | 0 |
| 2581.43 | 6074.38 | 0       | 2585.43 | 6074.42 | 0       | 2589.4  | 6074.43 | 0 |
| 2595.6  | 6074.47 | 0       | 2600.03 | 6074.48 | 0       | 2608.89 | 6074.53 | 0 |
| 2614.19 | 6074.55 | 0       | 2622.17 | 6074.64 | 0       | 2623.28 | 6074.64 | 0 |
| 2628.33 | 6074.69 | 0       | 2629.34 | 6074.69 | 0       | 2638.11 | 6074.79 | 0 |
| 2642.47 | 6074.86 | 0       | 2647.85 | 6074.93 | 0       | 2652.57 | 6074.98 | 0 |
| 2655.83 | 6075.03 | 0       | 2670.74 | 6075.2  | 0       | 2677.08 | 6075.23 | 0 |
| 2680.62 | 6075.27 | 0       | 2687.91 | 6075.3  | 0       | 2690.36 | 6075.33 | 0 |
| 2698.01 | 6075.37 | 0       | 2701.88 | 6075.36 | 0       | 2710.73 | 6075.38 | 0 |
| 2715.08 | 6075.35 | 0       | 2720.48 | 6075.35 | 0       | 2725.79 | 6075.38 | 0 |
| 2731.99 | 6075.32 | 0       | 2736.69 | 6075.32 | 0       | 2743.89 | 6075.27 | 0 |
| 2746.16 | 6075.27 | 0       | 2752.53 | 6075.22 | 0       | 2757.67 | 6075.22 | 0 |
| 2758.29 | 6075.23 | 0       | 2763.64 | 6075.23 | 0       | 2769.18 | 6075.18 | 0 |





|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1154.99 | 6074.35 | 1157.33 | 6074.52 | 1159.67 | 6074.57 | 1169.56 | 6074.6  | 1177.59 | 6074.44 |
| 1183.05 | 6074.47 | 1185.54 | 6074.42 | 1190.84 | 6074.19 | 1195.51 | 6074.08 | 1200.45 | 6073.84 |
| 1203.65 | 6073.81 | 1207.91 | 6073.84 | 1216.43 | 6073.55 | 1221.23 | 6073.55 | 1225.61 | 6073.47 |
| 1232.92 | 6073.44 | 1244.12 | 6073.32 | 1246.42 | 6073.36 | 1252.51 | 6073.66 | 1257.68 | 6073.78 |
| 1264.84 | 6074.01 | 1269.03 | 6074.2  | 1274.05 | 6074.55 | 1277.64 | 6074.64 | 1281.22 | 6074.62 |
| 1284.81 | 6074.69 | 1289.11 | 6074.85 | 1292.69 | 6074.9  | 1296.99 | 6074.87 | 1304.22 | 6074.88 |
| 1312.84 | 6074.92 | 1316.28 | 6074.78 | 1318.51 | 6074.61 | 1322.81 | 6074.42 | 1331.14 | 6074.41 |
| 1338.58 | 6074.59 | 1344.32 | 6074.89 | 1351.86 | 6075.08 | 1361.93 | 6075.24 | 1369.78 | 6075.18 |
| 1374.02 | 6075.12 | 1378.76 | 6074.97 | 1381.54 | 6075.06 | 1388.88 | 6075.13 | 1394.53 | 6075.01 |
| 1396.47 | 6074.9  | 1400.79 | 6074.79 | 1404.43 | 6074.79 | 1409.35 | 6074.71 | 1412.92 | 6074.73 |
| 1420.94 | 6074.57 | 1426.03 | 6074.62 | 1434.84 | 6074.43 | 1438.48 | 6074.43 | 1447.24 | 6074.31 |
| 1453.39 | 6074.3  | 1459.44 | 6074.37 | 1465.67 | 6074.57 | 1471.43 | 6074.82 | 1476.6  | 6075.14 |
| 1481    | 6075.3  | 1488.33 | 6075.38 | 1494.19 | 6075.32 | 1495.74 | 6075.26 | 1501.79 | 6075.15 |
| 1505.18 | 6075.18 | 1507.83 | 6075.11 | 1511.87 | 6075.13 | 1518.38 | 6075.42 | 1525.98 | 6075.53 |
| 1534.5  | 6075.88 | 1539.63 | 6075.82 | 1545.5  | 6076    | 1546.96 | 6076.01 | 1550.7  | 6075.88 |
| 1552.84 | 6075.89 | 1554.98 | 6076.09 | 1559.26 | 6076.72 | 1561.4  | 6076.76 | 1567.05 | 6076.61 |
| 1570.67 | 6076.38 | 1574.23 | 6076.31 | 1581.72 | 6075.94 | 1584.78 | 6075.88 | 1588.13 | 6075.96 |
| 1589.54 | 6075.91 | 1593.25 | 6075.64 | 1596.69 | 6075.69 | 1601.17 | 6075.95 | 1605.82 | 6076    |
| 1610.18 | 6075.78 | 1612.73 | 6075.76 | 1615.13 | 6075.87 | 1621.28 | 6076.34 | 1624.49 | 6076.46 |
| 1631.42 | 6076.56 | 1637.33 | 6076.6  | 1641.6  | 6076.59 | 1648.02 | 6076.5  | 1650.9  | 6076.36 |
| 1662.03 | 6075.58 | 1669.11 | 6075.38 | 1677.04 | 6075.33 | 1690.34 | 6075.32 | 1695.4  | 6075.5  |
| 1701.01 | 6075.58 | 1708.62 | 6075.53 | 1719.46 | 6075.35 | 1730.8  | 6075.33 | 1735.24 | 6075.35 |
| 1735.8  | 6075.33 | 1741.49 | 6075.11 | 1745.7  | 6075.02 | 1752.5  | 6075.01 | 1758.06 | 6074.85 |
| 1765.52 | 6074.74 | 1772.32 | 6074.77 | 1776.54 | 6074.68 | 1784.69 | 6074.37 | 1794.19 | 6074.21 |
| 1799.9  | 6074.05 | 1808.58 | 6073.97 | 1819.6  | 6073.83 | 1823.6  | 6073.82 | 1831.28 | 6073.71 |
| 1835.62 | 6073.62 | 1839.83 | 6073.61 | 1843.63 | 6073.65 | 1853.15 | 6073.83 | 1857.9  | 6073.76 |
| 1864.66 | 6073.29 | 1869.67 | 6073    | 1871.67 | 6072.75 | 1873.67 | 6072.3  | 1874.67 | 6071.95 |
| 1877.68 | 6071.09 | 1879.68 | 6070.8  | 1881.67 | 6069    | 1896.71 | 6069    | 1898.71 | 6070.77 |
| 1900.69 | 6070.97 | 1903.72 | 6071.71 | 1906.72 | 6072.66 | 1908.72 | 6073.09 | 1910.72 | 6073.39 |
| 1912.73 | 6073.58 | 1915.73 | 6073.63 | 1920.66 | 6073.39 | 1924.74 | 6073.31 | 1927.75 | 6073.18 |
| 1930    | 6072.8  | 2069.79 | 6072.8  | 2160.01 | 6072.8  | 2169.03 | 6073.02 | 2176.39 | 6073.01 |
| 2178.96 | 6073.05 | 2184.64 | 6073.06 | 2189.53 | 6073.02 | 2196.7  | 6073.04 | 2204.75 | 6072.78 |
| 2212.86 | 6072.74 | 2217.97 | 6072.69 | 2231.27 | 6072.76 | 2238.78 | 6072.76 | 2244.27 | 6072.83 |
| 2249.69 | 6072.84 | 2257.06 | 6072.77 | 2266.63 | 6072.78 | 2278.48 | 6072.82 | 2284.18 | 6072.78 |
| 2294.96 | 6072.78 | 2302.42 | 6072.71 | 2313.18 | 6072.81 | 2317.91 | 6072.91 | 2322.89 | 6072.94 |
| 2327.87 | 6072.9  | 2332.72 | 6072.8  | 2342.8  | 6072.69 | 2348.61 | 6072.65 | 2354.32 | 6072.51 |
| 2358.56 | 6072.5  | 2363.4  | 6072.64 | 2371    | 6072.65 | 2384.14 | 6072.81 | 2389.26 | 6072.73 |
| 2391.33 | 6072.62 | 2394.42 | 6072.55 | 2410.87 | 6072.45 | 2420.78 | 6072.58 | 2424.93 | 6072.55 |
| 2426.3  | 6072.6  | 2444.38 | 6072.73 | 2450.77 | 6072.72 | 2458.9  | 6072.6  | 2462.96 | 6072.64 |
| 2466.01 | 6072.76 | 2471.09 | 6073.13 | 2473.68 | 6073.27 | 2475.41 | 6073.29 | 2480.23 | 6073.09 |
| 2492.64 | 6072.89 | 2496.09 | 6072.96 | 2504.61 | 6073.31 | 2509.02 | 6073.42 | 2513.33 | 6073.48 |
| 2527.95 | 6073.53 | 2533.06 | 6073.46 | 2539.15 | 6073.26 | 2544.23 | 6072.98 | 2548.3  | 6072.98 |
| 2552.97 | 6073.21 | 2560.72 | 6073.27 | 2566.58 | 6073.49 | 2573.4  | 6073.96 | 2577.74 | 6074.35 |
| 2586.82 | 6074.9  | 2589.84 | 6075.01 | 2604.8  | 6075.24 | 2608.36 | 6075.24 | 2618.08 | 6075.14 |
| 2621.11 | 6075.13 | 2634.22 | 6075.44 | 2640.47 | 6075.47 | 2646.32 | 6075.54 | 2649.35 | 6075.41 |
| 2655.63 | 6074.63 | 2661.45 | 6074.05 | 2664.47 | 6073.96 | 2670.52 | 6073.97 | 2672.86 | 6074.06 |
| 2677.04 | 6074.33 | 2679.6  | 6074.45 | 2684.17 | 6074.51 | 2687.74 | 6074.51 | 2696.75 | 6074.41 |
| 2705.82 | 6074.18 | 2709.14 | 6074.07 | 2713.89 | 6073.79 | 2719.94 | 6073.53 | 2729.02 | 6073.29 |
| 2741.12 | 6073.24 | 2745.71 | 6073.24 | 2751.06 | 6073.19 | 2767.34 | 6073.18 | 2775.14 | 6073.24 |
| 2780.8  | 6073.24 | 2787.51 | 6073.29 | 2796.55 | 6073.28 | 2802.79 | 6073.21 | 2810.71 | 6073.07 |
| 2820.63 | 6073.08 | 2826.84 | 6073.11 | 2835.92 | 6073.09 | 2838.95 | 6073.06 | 2850.04 | 6072.88 |
| 2858.98 | 6072.83 | 2863.44 | 6072.83 | 2868.79 | 6072.89 | 2876.26 | 6072.87 | 2883.06 | 6073.02 |
| 2893.76 | 6073.15 | 2900.89 | 6073.36 | 2905.35 | 6073.44 | 2911.87 | 6073.41 | 2919.58 | 6073.51 |
| 2936.77 | 6073.84 | 2941.03 | 6073.88 | 2944.84 | 6073.82 | 2952.91 | 6073.59 | 2957.08 | 6073.57 |
| 2961.54 | 6073.69 | 2966.89 | 6073.78 | 2969.05 | 6073.76 | 2976.7  | 6073.38 | 2980.27 | 6073.35 |



2987.2 6073.46 2990.08 6073.61 2995.27 6074.06 2998.29 6074.26 3003.62 6074.48

Manning's n Values num= 3  
Sta n Val Sta n Val Sta n Val  
194.21 .06 1857.9 .035 1912.73 .06

Bank Sta: Left Right Coeff Contr. Expan.  
1857.9 1912.73 .3 .5

Ineffective Flow num= 3  
Sta L Sta R Elev Permanent  
404.26 1859.68 6075.91 T  
2177.63 2611.96 6074.21 T  
2611.96 3006.44 6074.95 T

Blocked Obstructions num= 1  
Sta L Sta R Elev  
3049.97 3003.62 6075.2

Downstream Deck/Roadway Coordinates  
num= 488  
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord  
213.74 6078.93 0 218.18 6078.87 0 223.13 6078.79 0  
230.36 6078.72 0 231.75 6078.69 0 245.69 6078.49 0  
251.26 6078.4 0 257.78 6078.32 0 266.27 6078.23 0  
274.95 6078.1 0 279.7 6078.05 0 283.16 6078 0  
293.13 6077.92 0 299.94 6077.9 0 303.6 6077.87 0  
307.62 6077.82 0 310.91 6077.8 0 316.02 6077.75 0  
319.51 6077.73 0 321.87 6077.7 0 330.64 6077.64 0  
332.52 6077.61 0 335.76 6077.6 0 339.41 6077.56 0  
348.74 6077.52 0 351.11 6077.52 0 355.5 6077.48 0  
361.34 6077.44 0 365.07 6077.43 0 371.02 6077.39 0  
373.04 6077.39 0 377.7 6077.36 0 380.01 6077.36 0  
384 6077.33 0 389.85 6077.31 0 392.06 6077.29 0  
402.76 6077.26 0 407.35 6077.22 0 418.04 6077.16 0  
423.39 6077.15 0 429.55 6077.15 0 433.32 6077.14 0  
436.38 6077.11 0 440.39 6077.09 0 444.92 6077.05 0  
448.6 6077.04 0 456.24 6077 0 462.36 6076.95 0  
467.5 6076.94 0 474 6076.94 0 479.93 6076.91 0  
485.93 6076.87 0 492.43 6076.84 0 494.6 6076.84 0  
500.56 6076.81 0 505.99 6076.77 0 510.57 6076.76 0  
514.69 6076.72 0 518.39 6076.71 0 524.18 6076.68 0  
532.19 6076.62 0 544.03 6076.56 0 555.61 6076.48 0  
559.74 6076.47 0 565.53 6076.43 0 568.84 6076.42 0  
570.28 6076.4 0 577.11 6076.36 0 593.96 6076.27 0  
600.77 6076.26 0 606.88 6076.23 0 613.38 6076.21 0  
622.59 6076.21 0 622.79 6076.22 0 629.21 6076.22 0  
630 6076.23 0 641.61 6076.23 0 642.35 6076.22 0  
651.21 6076.22 0 658.15 6076.25 0 662.29 6076.25 0  
667.06 6076.27 0 678.39 6076.35 0 682.96 6076.37 0  
684.83 6076.39 0 695.37 6076.44 0 698.98 6076.47 0  
704.46 6076.5 0 710.05 6076.52 0 716.48 6076.57 0  
718.52 6076.57 0 724.31 6076.6 0 730.9 6076.62 0  
735.27 6076.62 0 738.37 6076.64 0 746.64 6076.66 0  
749.95 6076.68 0 755.74 6076.69 0 760.48 6076.71 0  
763.84 6076.74 0 771.45 6076.78 0 780.55 6076.79 0  
785.7 6076.81 0 791.3 6076.82 0 796.79 6076.82 0



|         |         |   |         |         |   |         |         |   |
|---------|---------|---|---------|---------|---|---------|---------|---|
| 801.22  | 6076.83 | 0 | 811.97  | 6076.89 | 0 | 814.45  | 6076.89 | 0 |
| 824.59  | 6076.94 | 0 | 827.73  | 6076.94 | 0 | 833.47  | 6076.96 | 0 |
| 839.26  | 6077    | 0 | 843.4   | 6077    | 0 | 849.19  | 6077.04 | 0 |
| 851.67  | 6077.04 | 0 | 857.46  | 6077.07 | 0 | 865.73  | 6077.07 | 0 |
| 869.03  | 6077.06 | 0 | 871.95  | 6077.08 | 0 | 875.03  | 6077.08 | 0 |
| 878.96  | 6077.1  | 0 | 882.37  | 6077.1  | 0 | 888.88  | 6077.12 | 0 |
| 894.98  | 6077.16 | 0 | 905.92  | 6077.13 | 0 | 921.13  | 6077.13 | 0 |
| 929.4   | 6077.07 | 0 | 932.8   | 6077.07 | 0 | 939.33  | 6077.05 | 0 |
| 942.99  | 6077.03 | 0 | 947.1   | 6076.99 | 0 | 951.73  | 6076.96 | 0 |
| 955.04  | 6076.92 | 0 | 961.52  | 6076.86 | 0 | 965.64  | 6076.84 | 0 |
| 972.41  | 6076.77 | 0 | 975.93  | 6076.76 | 0 | 983.99  | 6076.69 | 0 |
| 988.95  | 6076.68 | 0 | 994.46  | 6076.6  | 0 | 997.22  | 6076.58 | 0 |
| 1003.73 | 6076.57 | 0 | 1010.45 | 6076.54 | 0 | 1014.58 | 6076.54 | 0 |
| 1026.99 | 6076.42 | 0 | 1030.3  | 6076.41 | 0 | 1035.65 | 6076.43 | 0 |
| 1038.57 | 6076.46 | 0 | 1044.91 | 6076.38 | 0 | 1049.03 | 6076.36 | 0 |
| 1055.11 | 6076.35 | 0 | 1058.89 | 6076.32 | 0 | 1065.86 | 6076.29 | 0 |
| 1068.34 | 6076.26 | 0 | 1076.83 | 6076.26 | 0 | 1077.43 | 6076.25 | 0 |
| 1090.67 | 6076.25 | 0 | 1094.8  | 6076.22 | 0 | 1100.92 | 6076.22 | 0 |
| 1111.34 | 6076.17 | 0 | 1116.3  | 6076.16 | 0 | 1123.16 | 6076.13 | 0 |
| 1125.22 | 6076.11 | 0 | 1130.34 | 6076.09 | 0 | 1132.43 | 6076.07 | 0 |
| 1138.6  | 6076.04 | 0 | 1146.47 | 6076.02 | 0 | 1163.55 | 6076.02 | 0 |
| 1168.77 | 6076.03 | 0 | 1179.02 | 6076.08 | 0 | 1205.53 | 6076.08 | 0 |
| 1211.96 | 6076.12 | 0 | 1216.77 | 6076.13 | 0 | 1224.81 | 6076.19 | 0 |
| 1232.85 | 6076.2  | 0 | 1233.49 | 6076.21 | 0 | 1242.22 | 6076.23 | 0 |
| 1242.84 | 6076.24 | 0 | 1248.69 | 6076.25 | 0 | 1258.93 | 6076.31 | 0 |
| 1271.13 | 6076.31 | 0 | 1276.91 | 6076.36 | 0 | 1285.27 | 6076.42 | 0 |
| 1289.63 | 6076.42 | 0 | 1294.78 | 6076.45 | 0 | 1302.83 | 6076.46 | 0 |
| 1303.51 | 6076.47 | 0 | 1308.68 | 6076.47 | 0 | 1309.29 | 6076.48 | 0 |
| 1314.53 | 6076.48 | 0 | 1315.07 | 6076.49 | 0 | 1320.33 | 6076.49 | 0 |
| 1326.25 | 6076.51 | 0 | 1340.31 | 6076.51 | 0 | 1340.96 | 6076.52 | 0 |
| 1348.21 | 6076.52 | 0 | 1355.2  | 6076.54 | 0 | 1363.02 | 6076.61 | 0 |
| 1368.01 | 6076.63 | 0 | 1372.99 | 6076.68 | 0 | 1384.35 | 6076.81 | 0 |
| 1389.31 | 6076.86 | 0 | 1391.76 | 6076.87 | 0 | 1402.75 | 6076.96 | 0 |
| 1407.71 | 6077.01 | 0 | 1419.92 | 6077.09 | 0 | 1429.65 | 6077.19 | 0 |
| 1434.74 | 6077.2  | 0 | 1438.15 | 6077.22 | 0 | 1442.61 | 6077.23 | 0 |
| 1450.18 | 6077.29 | 0 | 1460.23 | 6077.33 | 0 | 1464.29 | 6077.36 | 0 |
| 1481.09 | 6077.36 | 0 | 1488.46 | 6077.4  | 0 | 1499.91 | 6077.4  | 0 |
| 1500.51 | 6077.41 | 0 | 1512.42 | 6077.41 | 0 | 1513.07 | 6077.4  | 0 |
| 1521.29 | 6077.4  | 0 | 1521.87 | 6077.41 | 0 | 1527.67 | 6077.4  | 0 |
| 1533.38 | 6077.37 | 0 | 1543.21 | 6077.39 | 0 | 1546.01 | 6077.37 | 0 |
| 1552.75 | 6077.37 | 0 | 1553.21 | 6077.36 | 0 | 1574.3  | 6077.36 | 0 |
| 1574.47 | 6077.37 | 0 | 1588.74 | 6077.33 | 0 | 1592.07 | 6077.31 | 0 |
| 1594.69 | 6077.31 | 0 | 1598.43 | 6077.29 | 0 | 1605.26 | 6077.27 | 0 |
| 1607.43 | 6077.25 | 0 | 1620.77 | 6077.25 | 0 | 1621.31 | 6077.24 | 0 |
| 1630.83 | 6077.21 | 0 | 1634.77 | 6077.21 | 0 | 1638.96 | 6077.19 | 0 |
| 1645.33 | 6077.18 | 0 | 1655.22 | 6077.11 | 0 | 1657.15 | 6077.11 | 0 |
| 1663.17 | 6077.07 | 0 | 1670.06 | 6077.06 | 0 | 1678.59 | 6077.01 | 0 |
| 1690.05 | 6076.97 | 0 | 1695.62 | 6076.91 | 0 | 1699.62 | 6076.89 | 0 |
| 1709.64 | 6076.76 | 0 | 1712.64 | 6076.75 | 0 | 1720.44 | 6076.69 | 0 |
| 1730.67 | 6076.64 | 0 | 1732.67 | 6076.64 | 0 | 1739.44 | 6076.6  | 0 |
| 1743.69 | 6076.59 | 0 | 1746.09 | 6076.57 | 0 | 1749.89 | 6076.57 | 0 |
| 1752.7  | 6076.55 | 0 | 1759.71 | 6076.54 | 0 | 1765.72 | 6076.51 | 0 |
| 1768.88 | 6076.51 | 0 | 1775.53 | 6076.46 | 0 | 1776.74 | 6076.46 | 0 |
| 1783.75 | 6076.38 | 0 | 1790.73 | 6076.35 | 0 | 1796.77 | 6076.3  | 0 |
| 1802.13 | 6076.27 | 0 | 1813.79 | 6076.18 | 0 | 1820.17 | 6076.16 | 0 |

|         |         |   |         |         |        |         |         |         |
|---------|---------|---|---------|---------|--------|---------|---------|---------|
| 1826.81 | 6076.12 | 0 | 1828.81 | 6076.12 | 0      | 1833.47 | 6076.09 | 0       |
| 1839.17 | 6076.09 | 0 | 1842.02 | 6076.08 | 0      | 1852.47 | 6076.01 | 0       |
| 1857.86 | 6075.98 | 0 | 1862.92 | 6075.97 | 0      | 1864.87 | 6075.95 | 0       |
| 1869.9  | 6075.85 | 0 | 1871.5  | 6075.85 | 6073.1 | 1900.27 | 6075.85 | 6072.93 |
| 1901.88 | 6075.85 | 0 | 1930.35 | 6075.68 | 0      | 1932.25 | 6075.68 | 0       |
| 1937.95 | 6075.65 | 0 | 1946.99 | 6075.64 | 0      | 1947.45 | 6075.63 | 0       |
| 1955.05 | 6075.63 | 0 | 1955.96 | 6075.62 | 0      | 1960.75 | 6075.63 | 0       |
| 1974.37 | 6075.63 | 0 | 1978.79 | 6075.59 | 0      | 1989.24 | 6075.52 | 0       |
| 1994.94 | 6075.46 | 0 | 1997.06 | 6075.45 | 0      | 2002.54 | 6075.39 | 0       |
| 2007.29 | 6075.35 | 0 | 2013.09 | 6075.28 | 0      | 2014.09 | 6075.28 | 0       |
| 2024.1  | 6075.18 | 0 | 2026.29 | 6075.18 | 0      | 2033.62 | 6075.14 | 0       |
| 2038.96 | 6075.14 | 0 | 2039.19 | 6075.15 | 0      | 2044.75 | 6075.15 | 0       |
| 2052.26 | 6075.13 | 0 | 2056.75 | 6075.16 | 0      | 2059.42 | 6075.16 | 0       |
| 2062.09 | 6075.14 | 0 | 2066.53 | 6075.13 | 0      | 2068.92 | 6075.1  | 0       |
| 2073.95 | 6075    | 0 | 2078.4  | 6074.94 | 0      | 2082.86 | 6074.91 | 0       |
| 2086.56 | 6074.87 | 0 | 2095.47 | 6074.8  | 0      | 2103.68 | 6074.8  | 0       |
| 2109.23 | 6074.77 | 0 | 2115.49 | 6074.7  | 0      | 2130.33 | 6074.59 | 0       |
| 2136.94 | 6074.57 | 0 | 2145.31 | 6074.52 | 0      | 2147.43 | 6074.52 | 0       |
| 2154.34 | 6074.48 | 0 | 2163.7  | 6074.45 | 0      | 2176.48 | 6074.38 | 0       |
| 2180.31 | 6074.38 | 0 | 2187.79 | 6074.34 | 0      | 2189.93 | 6074.34 | 0       |
| 2195.36 | 6074.31 | 0 | 2199.83 | 6074.31 | 0      | 2205.18 | 6074.29 | 0       |
| 2209.77 | 6074.26 | 0 | 2213.21 | 6074.25 | 0      | 2233.39 | 6074.25 | 0       |
| 2237.71 | 6074.26 | 0 | 2244.18 | 6074.23 | 0      | 2248.16 | 6074.22 | 0       |
| 2253.54 | 6074.22 | 0 | 2254.21 | 6074.21 | 0      | 2259.65 | 6074.21 | 0       |
| 2260.01 | 6074.2  | 0 | 2267.21 | 6074.2  | 0      | 2272.07 | 6074.22 | 0       |
| 2277.39 | 6074.22 | 0 | 2278    | 6074.23 | 0      | 2285.2  | 6074.23 | 0       |
| 2285.68 | 6074.24 | 0 | 2293.84 | 6074.24 | 0      | 2295.99 | 6074.26 | 0       |
| 2306.79 | 6074.23 | 0 | 2312.19 | 6074.22 | 0      | 2325.53 | 6074.22 | 0       |
| 2329.55 | 6074.24 | 0 | 2347.22 | 6074.24 | 0      | 2347.68 | 6074.25 | 0       |
| 2352.9  | 6074.25 | 0 | 2356.03 | 6074.26 | 0      | 2358.12 | 6074.24 | 0       |
| 2361.25 | 6074.25 | 0 | 2364.89 | 6074.24 | 0      | 2370.65 | 6074.25 | 0       |
| 2373.56 | 6074.27 | 0 | 2379    | 6074.28 | 0      | 2382.13 | 6074.3  | 0       |
| 2385.78 | 6074.29 | 0 | 2394.66 | 6074.29 | 0      | 2395.42 | 6074.28 | 0       |
| 2405.06 | 6074.28 | 0 | 2405.86 | 6074.27 | 0      | 2411.9  | 6074.27 | 0       |
| 2417.91 | 6074.25 | 0 | 2422.84 | 6074.21 | 0      | 2431.56 | 6074.19 | 0       |
| 2438.85 | 6074.14 | 0 | 2443.28 | 6074.13 | 0      | 2450.61 | 6074.13 | 0       |
| 2451.25 | 6074.12 | 0 | 2463.74 | 6074.12 | 0      | 2471.62 | 6074.17 | 0       |
| 2477.87 | 6074.18 | 0 | 2482.92 | 6074.21 | 0      | 2489.99 | 6074.23 | 0       |
| 2497.3  | 6074.29 | 0 | 2500.09 | 6074.29 | 0      | 2505.14 | 6074.32 | 0       |
| 2508.17 | 6074.32 | 0 | 2512.21 | 6074.34 | 0      | 2515.24 | 6074.34 | 0       |
| 2522.1  | 6074.38 | 0 | 2530.38 | 6074.38 | 0      | 2536.44 | 6074.4  | 0       |
| 2543.35 | 6074.36 | 0 | 2546.89 | 6074.35 | 0      | 2553.09 | 6074.35 | 0       |
| 2557.52 | 6074.33 | 0 | 2567.26 | 6074.34 | 0      | 2571.69 | 6074.37 | 0       |
| 2581.88 | 6074.38 | 0 | 2585.86 | 6074.42 | 0      | 2589.4  | 6074.43 | 0       |
| 2597.03 | 6074.48 | 0 | 2601.8  | 6074.5  | 0      | 2605.11 | 6074.5  | 0       |
| 2611.17 | 6074.52 | 0 | 2618.63 | 6074.6  | 0      | 2623.94 | 6074.64 | 0       |
| 2629.34 | 6074.7  | 0 | 2630.35 | 6074.7  | 0      | 2635.46 | 6074.76 | 0       |
| 2646.51 | 6074.9  | 0 | 2654.94 | 6075.02 | 0      | 2667.34 | 6075.16 | 0       |
| 2669.99 | 6075.2  | 0 | 2674.78 | 6075.22 | 0      | 2677.97 | 6075.25 | 0       |
| 2682.86 | 6075.27 | 0 | 2685.94 | 6075.3  | 0      | 2689.48 | 6075.31 | 0       |
| 2699.02 | 6075.37 | 0 | 2713.39 | 6075.37 | 0      | 2714.16 | 6075.36 | 0       |
| 2725.27 | 6075.36 | 0 | 2730.32 | 6075.35 | 0      | 2734.64 | 6075.32 | 0       |
| 2736.38 | 6075.32 | 0 | 2745.47 | 6075.26 | 0      | 2756.79 | 6075.21 | 0       |
| 2762.1  | 6075.22 | 0 | 2768.3  | 6075.19 | 0      | 2774.75 | 6075.18 | 0       |
| 2779.8  | 6075.15 | 0 | 2782.83 | 6075.15 | 0      | 2786.87 | 6075.17 | 0       |

|         |         |   |         |         |   |         |         |   |
|---------|---------|---|---------|---------|---|---------|---------|---|
| 2795.96 | 6075.18 | 0 | 2799.3  | 6075.16 | 0 | 2802.01 | 6075.16 | 0 |
| 2805.49 | 6075.14 | 0 | 2808.07 | 6075.11 | 0 | 2811.1  | 6075.1  | 0 |
| 2817.89 | 6075.03 | 0 | 2824.09 | 6075.01 | 0 | 2830.29 | 6075    | 0 |
| 2832.95 | 6074.98 | 0 | 2840.39 | 6074.98 | 0 | 2840.92 | 6074.97 | 0 |
| 2848.46 | 6074.97 | 0 | 2852.5  | 6074.99 | 0 | 2863.95 | 6074.97 | 0 |
| 2868.37 | 6074.99 | 0 | 2873.69 | 6075    | 0 | 2880.74 | 6075    | 0 |
| 2886.84 | 6075.03 | 0 | 2889.63 | 6075.03 | 0 | 2894.06 | 6075.06 | 0 |
| 2896.93 | 6075.06 | 0 | 2900.97 | 6075.08 | 0 | 2903.8  | 6075.08 | 0 |
| 2907.03 | 6075.1  | 0 | 2912.65 | 6075.11 | 0 | 2913.09 | 6075.12 | 0 |
| 2918.29 | 6075.12 | 0 | 2918.85 | 6075.13 | 0 | 2939.36 | 6075.13 | 0 |
| 2940    | 6075.14 | 0 | 2946.44 | 6075.14 | 0 | 2950.58 | 6075.13 | 0 |
| 2956.55 | 6075.1  | 0 | 2961.15 | 6075.09 | 0 | 2967.66 | 6075.09 | 0 |
| 2972.61 | 6075.07 | 0 | 2977.9  | 6075.08 | 0 | 2984.85 | 6075.11 | 0 |
| 2996.41 | 6075.11 | 0 | 3000.01 | 6075.1  | 0 | 3003.46 | 6075.06 | 0 |
| 3011.39 | 6074.99 | 0 | 3015.8  | 6074.93 | 0 | 3019.21 | 6074.91 | 0 |
| 3024.26 | 6074.86 | 0 | 3028.31 | 6074.86 | 0 | 3033.36 | 6074.9  | 0 |
| 3037.83 | 6074.89 | 0 | 3042.89 | 6074.84 | 0 | 3059.51 | 6074.85 | 0 |
| 3072.97 | 6074.84 | 0 | 3073.82 | 6074.84 | 0 |         |         |   |

# Downstream Bridge Cross Section Data

| Station | Elevation | Data    | num=    | 450     |         |         |         |         |         |
|---------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|
| Sta     | Elev      | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    | Sta     | Elev    |
| 256.52  | 6077.76   | 270.89  | 6077.23 | 275.72  | 6077.12 | 280.68  | 6077.12 | 289.54  | 6077.05 |
| 298.03  | 6076.88   | 302.89  | 6076.73 | 311.39  | 6076.58 | 314.3   | 6076.57 | 325.32  | 6076.33 |
| 334.15  | 6076.28   | 339.07  | 6076.21 | 346.31  | 6076.24 | 349.79  | 6076.19 | 355.04  | 6076.19 |
| 360.13  | 6076.14   | 367     | 6075.96 | 372.33  | 6075.88 | 379.37  | 6075.84 | 386.41  | 6075.87 |
| 396.48  | 6076.1    | 404.01  | 6076.14 | 409.57  | 6076.22 | 421.2   | 6076.19 | 430.88  | 6076.19 |
| 438.7   | 6076.06   | 444.29  | 6076.1  | 456.8   | 6075.88 | 468.72  | 6075.57 | 482.19  | 6075.38 |
| 493.94  | 6075.29   | 500.18  | 6075.29 | 505     | 6075.25 | 519.72  | 6075.25 | 522.62  | 6075.28 |
| 531.94  | 6075.5    | 540.08  | 6075.83 | 543.28  | 6075.91 | 549.04  | 6075.95 | 553.11  | 6075.9  |
| 557.18  | 6075.91   | 565.12  | 6076.06 | 572.65  | 6076.08 | 577.44  | 6076.14 | 582.42  | 6076.14 |
| 589.75  | 6076.24   | 600.21  | 6076.29 | 605.22  | 6076.29 | 609.29  | 6076.24 | 620.06  | 6075.91 |
| 632.09  | 6075.76   | 634.37  | 6075.7  | 637.69  | 6075.5  | 645.98  | 6074.91 | 654.07  | 6074.6  |
| 659.45  | 6074.27   | 664.64  | 6073.48 | 666.71  | 6073.29 | 668.78  | 6073.24 | 673.62  | 6073.5  |
| 677.08  | 6073.53   | 680.94  | 6073.44 | 684.2   | 6073.49 | 689.52  | 6073.88 | 692.63  | 6073.99 |
| 696.77  | 6074.06   | 702.99  | 6074.3  | 707.81  | 6074.54 | 711.07  | 6074.58 | 715.96  | 6074.56 |
| 720.62  | 6074.63   | 726.84  | 6074.67 | 731.43  | 6074.64 | 738.24  | 6074.68 | 743.42  | 6074.53 |
| 746.53  | 6074.52   | 751.71  | 6074.65 | 758.97  | 6074.59 | 767.22  | 6074.8  | 770.51  | 6074.82 |
| 777.84  | 6074.58   | 780.74  | 6074.54 | 792.14  | 6074.8  | 794.94  | 6074.81 | 799.4   | 6074.74 |
| 804.58  | 6074.93   | 807.69  | 6074.96 | 815.3   | 6074.76 | 822.62  | 6074.8  | 829.46  | 6074.61 |
| 834.84  | 6074.51   | 839.83  | 6074.51 | 847.87  | 6074.65 | 851.12  | 6074.63 | 857.45  | 6074.28 |
| 861.6   | 6074.26   | 866.78  | 6074.44 | 874.04  | 6074.3  | 879.22  | 6074.46 | 883.37  | 6074.35 |
| 889.39  | 6074.04   | 892.7   | 6073.99 | 897.53  | 6074.15 | 900.79  | 6074.18 | 920.33  | 6074.15 |
| 923.59  | 6074.12   | 928.98  | 6074.23 | 932.09  | 6074.25 | 938.31  | 6074.13 | 942.45  | 6074.01 |
| 945.62  | 6074      | 953.72  | 6074.19 | 958     | 6074.19 | 961.11  | 6074.29 | 963.19  | 6074.43 |
| 969.41  | 6074.67   | 971.48  | 6074.71 | 979.77  | 6074.65 | 988.06  | 6074.8  | 989.54  | 6074.79 |
| 994.28  | 6074.92   | 1003.39 | 6075.12 | 1008.27 | 6075.15 | 1018.13 | 6075.13 | 1023.74 | 6075.29 |
| 1026.42 | 6075.2    | 1031.6  | 6074.71 | 1034.71 | 6074.48 | 1038.86 | 6074.26 | 1041.97 | 6074.2  |
| 1047.15 | 6074.37   | 1051.3  | 6074.28 | 1056.48 | 6073.84 | 1060.63 | 6073.75 | 1068.92 | 6073.78 |
| 1073.07 | 6073.65   | 1078.25 | 6073.31 | 1081.36 | 6073.22 | 1093.77 | 6073.14 | 1098.98 | 6072.96 |
| 1104.17 | 6072.96   | 1109.24 | 6073.23 | 1115.57 | 6073.38 | 1118.19 | 6073.4  | 1127.15 | 6073.36 |
| 1140.18 | 6073.13   | 1145.06 | 6073.13 | 1150.58 | 6073.06 | 1154.84 | 6073.05 | 1158.91 | 6072.98 |
| 1163.25 | 6072.99   | 1171.93 | 6072.72 | 1177.15 | 6072.65 | 1182.95 | 6072.62 | 1191.48 | 6072.45 |
| 1197.99 | 6072.14   | 1202.65 | 6071.79 | 1205.76 | 6071.73 | 1213.15 | 6071.85 | 1218.64 | 6071.8  |
| 1222.5  | 6071.88   | 1226.04 | 6071.81 | 1228.18 | 6071.65 | 1234.85 | 6071.31 | 1238.16 | 6071.24 |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1241.8  | 6071.28 | 1247.2  | 6071.46 | 1249.66 | 6071.47 | 1253.95 | 6071.31 | 1258.25 | 6071.24 |
| 1261.47 | 6071.45 | 1263.62 | 6071.76 | 1265.73 | 6071.92 | 1267.27 | 6071.93 | 1271.12 | 6071.72 |
| 1274.35 | 6071.75 | 1279.72 | 6072    | 1287.24 | 6071.97 | 1290.43 | 6072.11 | 1295.83 | 6072.43 |
| 1299.05 | 6072.41 | 1306.82 | 6072.18 | 1309.79 | 6072.27 | 1313.01 | 6072.51 | 1315.06 | 6072.74 |
| 1318.38 | 6073    | 1320.52 | 6073.06 | 1326.7  | 6072.95 | 1329.53 | 6072.86 | 1336.43 | 6072.79 |
| 1348.65 | 6072.41 | 1351.85 | 6072.36 | 1361.88 | 6072.5  | 1368.49 | 6072.78 | 1372.74 | 6072.82 |
| 1380.62 | 6072.82 | 1386.9  | 6072.71 | 1391.34 | 6072.67 | 1402.97 | 6072.28 | 1405.98 | 6072.29 |
| 1410.27 | 6072.4  | 1416.5  | 6072.3  | 1419.46 | 6072.32 | 1425.15 | 6072.53 | 1432.85 | 6072.48 |
| 1437.19 | 6072.54 | 1443.56 | 6072.49 | 1446.24 | 6072.53 | 1452.59 | 6073.01 | 1456.95 | 6073.15 |
| 1461.98 | 6073.22 | 1475.56 | 6073.7  | 1479.72 | 6073.76 | 1487.22 | 6073.74 | 1492.11 | 6073.78 |
| 1506.51 | 6074.04 | 1516.58 | 6074.11 | 1524.49 | 6074.12 | 1528.82 | 6074.18 | 1535.4  | 6074.18 |
| 1543.21 | 6074.3  | 1551.11 | 6074.31 | 1556.44 | 6074.38 | 1559.99 | 6074.5  | 1561.92 | 6074.49 |
| 1567.09 | 6074.58 | 1574.38 | 6074.97 | 1576.8  | 6075.05 | 1582.61 | 6075.11 | 1587.62 | 6075.06 |
| 1591.85 | 6075.13 | 1595.68 | 6075.08 | 1601.14 | 6075.15 | 1604.17 | 6075.1  | 1609.26 | 6075.21 |
| 1612.9  | 6075.14 | 1617.37 | 6075.16 | 1620.08 | 6075.1  | 1628.19 | 6075.13 | 1633.6  | 6075.27 |
| 1636.5  | 6075.25 | 1641.89 | 6075.49 | 1652.54 | 6075.55 | 1657.95 | 6075.65 | 1660.66 | 6075.65 |
| 1666.07 | 6075.77 | 1668.84 | 6075.77 | 1676.1  | 6075.96 | 1681.34 | 6076.05 | 1687.93 | 6076.09 |
| 1693.36 | 6075.98 | 1700.07 | 6076    | 1704.12 | 6075.93 | 1713.33 | 6075.96 | 1718.04 | 6075.91 |
| 1724.65 | 6075.93 | 1730.56 | 6075.8  | 1733.87 | 6075.81 | 1735.8  | 6075.85 | 1738.7  | 6075.92 |
| 1744.11 | 6075.94 | 1753.18 | 6076.32 | 1759.48 | 6076.41 | 1766.25 | 6076.39 | 1769.73 | 6076.34 |
| 1775.6  | 6076.07 | 1777.75 | 6075.9  | 1781.76 | 6075.44 | 1783.76 | 6075.36 | 1790.84 | 6075.73 |
| 1794.65 | 6075.83 | 1804.17 | 6075.97 | 1807.03 | 6075.97 | 1814.65 | 6075.89 | 1819.81 | 6075.94 |
| 1826.82 | 6075.79 | 1837.51 | 6075.43 | 1846.84 | 6075.18 | 1849.85 | 6074.95 | 1853.85 | 6074.57 |
| 1855.85 | 6074.54 | 1859.86 | 6074.64 | 1861.86 | 6074.61 | 1864.87 | 6074.33 | 1867.87 | 6073.66 |
| 1870.85 | 6072.74 | 1874.88 | 6071.24 | 1876.88 | 6070.76 | 1878.88 | 6070.59 | 1881.32 | 6069    |
| 1897.91 | 6069    | 1899.42 | 6070.57 | 1901.32 | 6070.83 | 1903.92 | 6071.63 | 1904.92 | 6072.12 |
| 1906.92 | 6072.8  | 1908.92 | 6073.23 | 1910.85 | 6073.51 | 1919.94 | 6074.6  | 1923.23 | 6074.78 |
| 1945    | 6072    | 2084.86 | 6072    | 2185.04 | 6072    | 2196.01 | 6072.68 | 2200.55 | 6072.7  |
| 2208.57 | 6072.51 | 2211.24 | 6072.49 | 2215.23 | 6072.61 | 2222.54 | 6072.91 | 2226.79 | 6073.03 |
| 2231.75 | 6073.07 | 2239.87 | 6072.9  | 2245.23 | 6072.94 | 2250.19 | 6072.86 | 2252.39 | 6072.77 |
| 2262.87 | 6072.51 | 2271.48 | 6072.6  | 2277.29 | 6072.51 | 2287.09 | 6072.54 | 2292.05 | 6072.53 |
| 2300.2  | 6072.35 | 2310.84 | 6072.31 | 2318.37 | 6072.2  | 2330.19 | 6072.51 | 2343.22 | 6072.68 |
| 2350.03 | 6072.69 | 2353.01 | 6072.63 | 2357.75 | 6072.45 | 2364.16 | 6072.31 | 2370.98 | 6072.21 |
| 2374.29 | 6072.26 | 2379.8  | 6072.44 | 2384.63 | 6072.49 | 2390.79 | 6072.64 | 2394.9  | 6072.79 |
| 2408.55 | 6072.63 | 2416.29 | 6072.49 | 2421.39 | 6072.46 | 2426.46 | 6072.5  | 2436.67 | 6072.3  |
| 2440.95 | 6072.31 | 2445.84 | 6072.24 | 2448.89 | 6072.3  | 2453.75 | 6072.71 | 2457.04 | 6072.91 |
| 2462.27 | 6073.03 | 2470.29 | 6072.98 | 2478.44 | 6073.13 | 2485.57 | 6073.12 | 2490.42 | 6073.23 |
| 2493.83 | 6073.26 | 2497.24 | 6073.19 | 2505.94 | 6072.82 | 2510.02 | 6072.77 | 2516    | 6072.88 |
| 2521.12 | 6073.1  | 2527.34 | 6073.22 | 2528.36 | 6073.31 | 2531.41 | 6073.28 | 2537.48 | 6073.38 |
| 2540.51 | 6073.33 | 2543.53 | 6073.19 | 2548.58 | 6072.73 | 2551.6  | 6072.56 | 2556.22 | 6072.53 |
| 2563.35 | 6072.59 | 2567.74 | 6072.57 | 2579.38 | 6072.41 | 2584.73 | 6072.39 | 2591.13 | 6072.46 |
| 2594.98 | 6072.46 | 2605.22 | 6072.33 | 2613.13 | 6072.36 | 2624.82 | 6072.33 | 2630.16 | 6072.27 |
| 2639.36 | 6072.28 | 2647.09 | 6072.19 | 2652.12 | 6072.25 | 2660.45 | 6072.44 | 2670.63 | 6072.44 |
| 2675.67 | 6072.7  | 2679.71 | 6072.72 | 2687.78 | 6072.38 | 2691.63 | 6072.37 | 2694.84 | 6072.53 |
| 2699.88 | 6072.96 | 2702.91 | 6073.16 | 2705.88 | 6073.16 | 2710.34 | 6073.01 | 2713    | 6073.03 |
| 2718.04 | 6073.25 | 2725.1  | 6073.3  | 2728.13 | 6073.37 | 2733.17 | 6073.7  | 2737.06 | 6073.7  |
| 2739.74 | 6073.52 | 2743.26 | 6073.37 | 2748.3  | 6073.45 | 2757.38 | 6073.49 | 2764.68 | 6073.47 |
| 2771.5  | 6073.68 | 2776.26 | 6073.59 | 2779.82 | 6073.61 | 2782.6  | 6073.82 | 2787.64 | 6074.39 |
| 2790.67 | 6074.61 | 2794.97 | 6074.74 | 2804.6  | 6074.88 | 2808.33 | 6074.88 | 2815.46 | 6074.81 |
| 2820.93 | 6074.59 | 2823.96 | 6074.52 | 2830.01 | 6074.52 | 2834.17 | 6074.33 | 2837.07 | 6073.99 |
| 2842.11 | 6073.04 | 2845.14 | 6072.62 | 2847.53 | 6072.45 | 2851.98 | 6072.35 | 2867.13 | 6072.49 |
| 2870.36 | 6072.48 | 2877.82 | 6072.36 | 2884.48 | 6072.32 | 2893.56 | 6072.39 | 2901.87 | 6072.39 |
| 2910.71 | 6072.3  | 2916.12 | 6072.29 | 2921.8  | 6072.21 | 2929.49 | 6072.05 | 2936.93 | 6072.07 |
| 2952.65 | 6072.27 | 2957.07 | 6072.39 | 2963.16 | 6072.48 | 2969.57 | 6072.49 | 2978.29 | 6072.46 |
| 2987.56 | 6072.47 | 2997.45 | 6072.37 | 3008.55 | 6072.5  | 3018.64 | 6072.54 | 3024.81 | 6072.65 |

3041.84 6073.14 3048.86 6073.25 3053.94 6073.54 3057.77 6073.69 3061 6073.91  
3066.05 6074.4 3075.13 6074.91 3078.15 6075.01 3086.67 6075.08 3093.54 6075.05

Manning's n Values num= 3  
Sta n Val Sta n Val  
256.52 .06 1861.86 .035 1919.94 .06

Bank Sta: Left Right Coeff Contr. Expan.  
1861.86 1919.94 .3 .5

Ineffective Flow num= 5  
Sta L Sta R Elev Permanent  
322.52 1863.65 6075.96 T  
2228.27 2583.58 6074.26 T  
2583.58 2625.95 6074.59 T  
2625.95 2645.8 6074.82 T  
2645.8 3073.42 6075.11 T

Blocked Obstructions num= 1  
Sta L Sta R Elev  
3159.6 3093.54 6075.2

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 = 6071.65  
Energy head used in spillway design =  
Spillway height used in design =  
Weir crest shape = Broad Crested

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Pressure and Weir flow

Submerged Inlet Cd =

Submerged Inlet + Outlet Cd = .8

Max Low Cord =

Additional Bridge Parameters

Add Friction component to Momentum

Do not add Weight component to Momentum

Class B flow critical depth computations use critical depth  
inside the bridge at the upstream end

Criteria to check for pressure flow = Upstream energy grade line

Number of Culverts = 1

Culvert Name Shape Rise Span

Prop RCPs Circular 1.5

FHWA Chart # 1 - Concrete Pipe Culvert

FHWA Scale # 1 - Square edge entrance with headwall

Solution Criteria = Highest U.S. EG

Culvert Upstrm Dist Length Top n Bottom n Depth Blocked Entrance Loss Coef Exit Loss Coef

0 56 .011 .011 0 .2 1

Number of Barrels = 24

Upstream Elevation = 6072.8

Centerline Stations

| Sta. | Sta. | Sta. | Sta. | Sta. | Sta. | Sta. | Sta. | Sta. | Sta. |
|------|------|------|------|------|------|------|------|------|------|
| 1930 | 1940 | 1950 | 1960 | 1970 | 1980 | 1990 | 2000 | 2010 | 2020 |
| 2030 | 2040 | 2050 | 2060 | 2070 | 2080 | 2090 | 2100 | 2110 | 2120 |
| 2130 | 2140 | 2150 | 2160 |      |      |      |      |      |      |

Downstream Elevation = 6072

Centerline Stations

| Sta. | Sta. | Sta. | Sta. | Sta. | Sta. | Sta. | Sta. | Sta. | Sta. |
|------|------|------|------|------|------|------|------|------|------|
| 1945 | 1955 | 1965 | 1975 | 1985 | 1995 | 2005 | 2015 | 2025 | 2035 |
| 2045 | 2055 | 2065 | 2075 | 2085 | 2096 | 2108 | 2121 | 2132 | 2143 |
| 2154 | 2165 | 2175 | 2185 |      |      |      |      |      |      |

Multiple Opening Stagnation Limits

|               | Upstream  |            | Downstream |            |
|---------------|-----------|------------|------------|------------|
| Opening Type  | Sta. Left | Sta. Right | Sta. Left  | Sta. Right |
| Bridge        | 194.21    | 1928       | 256.52     | 1940       |
| Culvert Group | 1905      | 3003.62    | 1908       | 3093.54    |

CROSS SECTION

RIVER: Flat Creek

REACH: 1

RS: 31558

INPUT

Description: Downstream of Rafter J Bridge

Station Elevation Data num= 450

| Sta    | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    |
|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|
| 256.52 | 6077.76 | 270.89 | 6077.23 | 275.72 | 6077.12 | 280.68 | 6077.12 | 289.54 | 6077.05 |
| 298.03 | 6076.88 | 302.89 | 6076.73 | 311.39 | 6076.58 | 314.3  | 6076.57 | 325.32 | 6076.33 |
| 334.15 | 6076.28 | 339.07 | 6076.21 | 346.31 | 6076.24 | 349.79 | 6076.19 | 355.04 | 6076.19 |
| 360.13 | 6076.14 | 367    | 6075.96 | 372.33 | 6075.88 | 379.37 | 6075.84 | 386.41 | 6075.87 |
| 396.48 | 6076.1  | 404.01 | 6076.14 | 409.57 | 6076.22 | 421.2  | 6076.19 | 430.88 | 6076.19 |
| 438.7  | 6076.06 | 444.29 | 6076.1  | 456.8  | 6075.88 | 468.72 | 6075.57 | 482.19 | 6075.38 |
| 493.94 | 6075.29 | 500.18 | 6075.29 | 505    | 6075.25 | 519.72 | 6075.25 | 522.62 | 6075.28 |
| 531.94 | 6075.5  | 540.08 | 6075.83 | 543.28 | 6075.91 | 549.04 | 6075.95 | 553.11 | 6075.9  |
| 557.18 | 6075.91 | 565.12 | 6076.06 | 572.65 | 6076.08 | 577.44 | 6076.14 | 582.42 | 6076.14 |
| 589.75 | 6076.24 | 600.21 | 6076.29 | 605.22 | 6076.29 | 609.29 | 6076.24 | 620.06 | 6075.91 |
| 632.09 | 6075.76 | 634.37 | 6075.7  | 637.69 | 6075.5  | 645.98 | 6074.91 | 654.07 | 6074.6  |
| 659.45 | 6074.27 | 664.64 | 6073.48 | 666.71 | 6073.29 | 668.78 | 6073.24 | 673.62 | 6073.5  |
| 677.08 | 6073.53 | 680.94 | 6073.44 | 684.2  | 6073.49 | 689.52 | 6073.88 | 692.63 | 6073.99 |
| 696.77 | 6074.06 | 702.99 | 6074.3  | 707.81 | 6074.54 | 711.07 | 6074.58 | 715.96 | 6074.56 |
| 720.62 | 6074.63 | 726.84 | 6074.67 | 731.43 | 6074.64 | 738.24 | 6074.68 | 743.42 | 6074.53 |
| 746.53 | 6074.52 | 751.71 | 6074.65 | 758.97 | 6074.59 | 767.22 | 6074.8  | 770.51 | 6074.82 |
| 777.84 | 6074.58 | 780.74 | 6074.54 | 792.14 | 6074.8  | 794.94 | 6074.81 | 799.4  | 6074.74 |
| 804.58 | 6074.93 | 807.69 | 6074.96 | 815.3  | 6074.76 | 822.62 | 6074.8  | 829.46 | 6074.61 |
| 834.84 | 6074.51 | 839.83 | 6074.51 | 847.87 | 6074.65 | 851.12 | 6074.63 | 857.45 | 6074.28 |
| 861.6  | 6074.26 | 866.78 | 6074.44 | 874.04 | 6074.3  | 879.22 | 6074.46 | 883.37 | 6074.35 |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 889.39  | 6074.04 | 892.7   | 6073.99 | 897.53  | 6074.15 | 900.79  | 6074.18 | 920.33  | 6074.15 |
| 923.59  | 6074.12 | 928.98  | 6074.23 | 932.09  | 6074.25 | 938.31  | 6074.13 | 942.45  | 6074.01 |
| 945.62  | 6074    | 953.72  | 6074.19 | 958     | 6074.19 | 961.11  | 6074.29 | 963.19  | 6074.43 |
| 969.41  | 6074.67 | 971.48  | 6074.71 | 979.77  | 6074.65 | 988.06  | 6074.8  | 989.54  | 6074.79 |
| 994.28  | 6074.92 | 1003.39 | 6075.12 | 1008.27 | 6075.15 | 1018.13 | 6075.13 | 1023.74 | 6075.29 |
| 1026.42 | 6075.2  | 1031.6  | 6074.71 | 1034.71 | 6074.48 | 1038.86 | 6074.26 | 1041.97 | 6074.2  |
| 1047.15 | 6074.37 | 1051.3  | 6074.28 | 1056.48 | 6073.84 | 1060.63 | 6073.75 | 1068.92 | 6073.78 |
| 1073.07 | 6073.65 | 1078.25 | 6073.31 | 1081.36 | 6073.22 | 1093.77 | 6073.14 | 1098.98 | 6072.96 |
| 1104.17 | 6072.96 | 1109.24 | 6073.23 | 1115.57 | 6073.38 | 1118.19 | 6073.4  | 1127.15 | 6073.36 |
| 1140.18 | 6073.13 | 1145.06 | 6073.13 | 1150.58 | 6073.06 | 1154.84 | 6073.05 | 1158.91 | 6072.98 |
| 1163.25 | 6072.99 | 1171.93 | 6072.72 | 1177.15 | 6072.65 | 1182.95 | 6072.62 | 1191.48 | 6072.45 |
| 1197.99 | 6072.14 | 1202.65 | 6071.79 | 1205.76 | 6071.73 | 1213.15 | 6071.85 | 1218.64 | 6071.8  |
| 1222.5  | 6071.88 | 1226.04 | 6071.81 | 1228.18 | 6071.65 | 1234.85 | 6071.31 | 1238.16 | 6071.24 |
| 1241.8  | 6071.28 | 1247.2  | 6071.46 | 1249.66 | 6071.47 | 1253.95 | 6071.31 | 1258.25 | 6071.24 |
| 1261.47 | 6071.45 | 1263.62 | 6071.76 | 1265.73 | 6071.92 | 1267.27 | 6071.93 | 1271.12 | 6071.72 |
| 1274.35 | 6071.75 | 1279.72 | 6072    | 1287.24 | 6071.97 | 1290.43 | 6072.11 | 1295.83 | 6072.43 |
| 1299.05 | 6072.41 | 1306.82 | 6072.18 | 1309.79 | 6072.27 | 1313.01 | 6072.51 | 1315.06 | 6072.74 |
| 1318.38 | 6073    | 1320.52 | 6073.06 | 1326.7  | 6072.95 | 1329.53 | 6072.86 | 1336.43 | 6072.79 |
| 1348.65 | 6072.41 | 1351.85 | 6072.36 | 1361.88 | 6072.5  | 1368.49 | 6072.78 | 1372.74 | 6072.82 |
| 1380.62 | 6072.82 | 1386.9  | 6072.71 | 1391.34 | 6072.67 | 1402.97 | 6072.28 | 1405.98 | 6072.29 |
| 1410.27 | 6072.4  | 1416.5  | 6072.3  | 1419.46 | 6072.32 | 1425.15 | 6072.53 | 1432.85 | 6072.48 |
| 1437.19 | 6072.54 | 1443.56 | 6072.49 | 1446.24 | 6072.53 | 1452.59 | 6073.01 | 1456.95 | 6073.15 |
| 1461.98 | 6073.22 | 1475.56 | 6073.7  | 1479.72 | 6073.76 | 1487.22 | 6073.74 | 1492.11 | 6073.78 |
| 1506.51 | 6074.04 | 1516.58 | 6074.11 | 1524.49 | 6074.12 | 1528.82 | 6074.18 | 1535.4  | 6074.18 |
| 1543.21 | 6074.3  | 1551.11 | 6074.31 | 1556.44 | 6074.38 | 1559.99 | 6074.5  | 1561.92 | 6074.49 |
| 1567.09 | 6074.58 | 1574.38 | 6074.97 | 1576.8  | 6075.05 | 1582.61 | 6075.11 | 1587.62 | 6075.06 |
| 1591.85 | 6075.13 | 1595.68 | 6075.08 | 1601.14 | 6075.15 | 1604.17 | 6075.1  | 1609.26 | 6075.21 |
| 1612.9  | 6075.14 | 1617.37 | 6075.16 | 1620.08 | 6075.1  | 1628.19 | 6075.13 | 1633.6  | 6075.27 |
| 1636.5  | 6075.25 | 1641.89 | 6075.49 | 1652.54 | 6075.55 | 1657.95 | 6075.65 | 1660.66 | 6075.65 |
| 1666.07 | 6075.77 | 1668.84 | 6075.77 | 1676.1  | 6075.96 | 1681.34 | 6076.05 | 1687.93 | 6076.09 |
| 1693.36 | 6075.98 | 1700.07 | 6076    | 1704.12 | 6075.93 | 1713.33 | 6075.96 | 1718.04 | 6075.91 |
| 1724.65 | 6075.93 | 1730.56 | 6075.8  | 1733.87 | 6075.81 | 1735.8  | 6075.85 | 1738.7  | 6075.92 |
| 1744.11 | 6075.94 | 1753.18 | 6076.32 | 1759.48 | 6076.41 | 1766.25 | 6076.39 | 1769.73 | 6076.34 |
| 1775.6  | 6076.07 | 1777.75 | 6075.9  | 1781.76 | 6075.44 | 1783.76 | 6075.36 | 1790.84 | 6075.73 |
| 1794.65 | 6075.83 | 1804.17 | 6075.97 | 1807.03 | 6075.97 | 1814.65 | 6075.89 | 1819.81 | 6075.94 |
| 1826.82 | 6075.79 | 1837.51 | 6075.43 | 1846.84 | 6075.18 | 1849.85 | 6074.95 | 1853.85 | 6074.57 |
| 1855.85 | 6074.54 | 1859.86 | 6074.64 | 1861.86 | 6074.61 | 1864.87 | 6074.33 | 1867.87 | 6073.66 |
| 1870.85 | 6072.74 | 1874.88 | 6071.24 | 1876.88 | 6070.76 | 1878.88 | 6070.59 | 1881.32 | 6069    |
| 1897.91 | 6069    | 1899.42 | 6070.57 | 1901.32 | 6070.83 | 1903.92 | 6071.63 | 1904.92 | 6072.12 |
| 1906.92 | 6072.8  | 1908.92 | 6073.23 | 1910.85 | 6073.51 | 1919.94 | 6074.6  | 1923.23 | 6074.78 |
| 1945    | 6072    | 2084.86 | 6072    | 2185.04 | 6072    | 2196.01 | 6072.68 | 2200.55 | 6072.7  |
| 2208.57 | 6072.51 | 2211.24 | 6072.49 | 2215.23 | 6072.61 | 2222.54 | 6072.91 | 2226.79 | 6073.03 |
| 2231.75 | 6073.07 | 2239.87 | 6072.9  | 2245.23 | 6072.94 | 2250.19 | 6072.86 | 2252.39 | 6072.77 |
| 2262.87 | 6072.51 | 2271.48 | 6072.6  | 2277.29 | 6072.51 | 2287.09 | 6072.54 | 2292.05 | 6072.53 |
| 2300.2  | 6072.35 | 2310.84 | 6072.31 | 2318.37 | 6072.2  | 2330.19 | 6072.51 | 2343.22 | 6072.68 |
| 2350.03 | 6072.69 | 2353.01 | 6072.63 | 2357.75 | 6072.45 | 2364.16 | 6072.31 | 2370.98 | 6072.21 |
| 2374.29 | 6072.26 | 2379.8  | 6072.44 | 2384.63 | 6072.49 | 2390.79 | 6072.64 | 2394.9  | 6072.79 |
| 2408.55 | 6072.63 | 2416.29 | 6072.49 | 2421.39 | 6072.46 | 2426.46 | 6072.5  | 2436.67 | 6072.3  |
| 2440.95 | 6072.31 | 2445.84 | 6072.24 | 2448.89 | 6072.3  | 2453.75 | 6072.71 | 2457.04 | 6072.91 |
| 2462.27 | 6073.03 | 2470.29 | 6072.98 | 2478.44 | 6073.13 | 2485.57 | 6073.12 | 2490.42 | 6073.23 |
| 2493.83 | 6073.26 | 2497.24 | 6073.19 | 2505.94 | 6072.82 | 2510.02 | 6072.77 | 2516    | 6072.88 |
| 2521.12 | 6073.1  | 2527.34 | 6073.22 | 2528.36 | 6073.31 | 2531.41 | 6073.28 | 2537.48 | 6073.38 |
| 2540.51 | 6073.33 | 2543.53 | 6073.19 | 2548.58 | 6072.73 | 2551.6  | 6072.56 | 2556.22 | 6072.53 |
| 2563.35 | 6072.59 | 2567.74 | 6072.57 | 2579.38 | 6072.41 | 2584.73 | 6072.39 | 2591.13 | 6072.46 |
| 2594.98 | 6072.46 | 2605.22 | 6072.33 | 2613.13 | 6072.36 | 2624.82 | 6072.33 | 2630.16 | 6072.27 |



|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 2639.36 | 6072.28 | 2647.09 | 6072.19 | 2652.12 | 6072.25 | 2660.45 | 6072.44 | 2670.63 | 6072.44 |
| 2675.67 | 6072.7  | 2679.71 | 6072.72 | 2687.78 | 6072.38 | 2691.63 | 6072.37 | 2694.84 | 6072.53 |
| 2699.88 | 6072.96 | 2702.91 | 6073.16 | 2705.88 | 6073.16 | 2710.34 | 6073.01 | 2713    | 6073.03 |
| 2718.04 | 6073.25 | 2725.1  | 6073.3  | 2728.13 | 6073.37 | 2733.17 | 6073.7  | 2737.06 | 6073.7  |
| 2739.74 | 6073.52 | 2743.26 | 6073.37 | 2748.3  | 6073.45 | 2757.38 | 6073.49 | 2764.68 | 6073.47 |
| 2771.5  | 6073.68 | 2776.26 | 6073.59 | 2779.82 | 6073.61 | 2782.6  | 6073.82 | 2787.64 | 6074.39 |
| 2790.67 | 6074.61 | 2794.97 | 6074.74 | 2804.6  | 6074.88 | 2808.33 | 6074.88 | 2815.46 | 6074.81 |
| 2820.93 | 6074.59 | 2823.96 | 6074.52 | 2830.01 | 6074.52 | 2834.17 | 6074.33 | 2837.07 | 6073.99 |
| 2842.11 | 6073.04 | 2845.14 | 6072.62 | 2847.53 | 6072.45 | 2851.98 | 6072.35 | 2867.13 | 6072.49 |
| 2870.36 | 6072.48 | 2877.82 | 6072.36 | 2884.48 | 6072.32 | 2893.56 | 6072.39 | 2901.87 | 6072.39 |
| 2910.71 | 6072.3  | 2916.12 | 6072.29 | 2921.8  | 6072.21 | 2929.49 | 6072.05 | 2936.93 | 6072.07 |
| 2952.65 | 6072.27 | 2957.07 | 6072.39 | 2963.16 | 6072.48 | 2969.57 | 6072.49 | 2978.29 | 6072.46 |
| 2987.56 | 6072.47 | 2997.45 | 6072.37 | 3008.55 | 6072.5  | 3018.64 | 6072.54 | 3024.81 | 6072.65 |
| 3041.84 | 6073.14 | 3048.86 | 6073.25 | 3053.94 | 6073.54 | 3057.77 | 6073.69 | 3061    | 6073.91 |
| 3066.05 | 6074.4  | 3075.13 | 6074.91 | 3078.15 | 6075.01 | 3086.67 | 6075.08 | 3093.54 | 6075.05 |

|             |        |         |       |
|-------------|--------|---------|-------|
| Manning's n | Values | num=    | 3     |
| Sta         | n Val  | Sta     | n Val |
| 256.52      | .06    | 1861.86 | .035  |
|             |        | 1919.94 | .06   |

|                      |         |         |           |        |         |        |       |        |        |  |  |  |  |  |  |
|----------------------|---------|---------|-----------|--------|---------|--------|-------|--------|--------|--|--|--|--|--|--|
| Bank Sta:            | Left    | Right   | Lengths:  | Left   | Channel | Right  | Coeff | Contr. | Expan. |  |  |  |  |  |  |
|                      | 1861.86 | 1919.94 |           | 446.27 | 338.28  | 229.54 |       | .3     | .5     |  |  |  |  |  |  |
| Ineffective Flow     | num=    |         | 5         |        |         |        |       |        |        |  |  |  |  |  |  |
| Sta L                | Sta R   | Elev    | Permanent |        |         |        |       |        |        |  |  |  |  |  |  |
| 322.52               | 1863.65 | 6075.96 | T         |        |         |        |       |        |        |  |  |  |  |  |  |
| 2228.27              | 2583.58 | 6074.26 | T         |        |         |        |       |        |        |  |  |  |  |  |  |
| 2583.58              | 2625.95 | 6074.59 | T         |        |         |        |       |        |        |  |  |  |  |  |  |
| 2625.95              | 2645.8  | 6074.82 | T         |        |         |        |       |        |        |  |  |  |  |  |  |
| 2645.8               | 3073.42 | 6075.11 | T         |        |         |        |       |        |        |  |  |  |  |  |  |
| Blocked Obstructions | num=    |         | 1         |        |         |        |       |        |        |  |  |  |  |  |  |
| Sta L                | Sta R   | Elev    |           |        |         |        |       |        |        |  |  |  |  |  |  |
| 3159.6               | 3093.54 | 6075.2  |           |        |         |        |       |        |        |  |  |  |  |  |  |

CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 31220

INPUT

Description:

|         |           |        |         |        |         |        |         |        |         |  |
|---------|-----------|--------|---------|--------|---------|--------|---------|--------|---------|--|
| Station | Elevation | Data   | num=    | 488    |         |        |         |        |         |  |
| Sta     | Elev      | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    |  |
| 0       | 6089.1    | 2.36   | 6087.98 | 7.69   | 6085.19 | 10.88  | 6083.77 | 14.08  | 6082.83 |  |
| 18.82   | 6081.98   | 21.53  | 6081.26 | 26.61  | 6079.45 | 28.95  | 6078.9  | 30.51  | 6078.75 |  |
| 32.85   | 6078.86   | 35.19  | 6079.36 | 39.87  | 6080.78 | 42.82  | 6081.23 | 47.08  | 6081.39 |  |
| 50.28   | 6081.2    | 53.47  | 6080.73 | 55.6   | 6080.28 | 58.8   | 6079.74 | 61.99  | 6079.35 |  |
| 68.38   | 6078.8    | 71.57  | 6078.6  | 75.83  | 6078.42 | 84.2   | 6077.98 | 90.74  | 6077.76 |  |
| 98.19   | 6077.64   | 105.36 | 6077.69 | 112.03 | 6077.84 | 114.72 | 6077.83 | 119.4  | 6077.69 |  |
| 124.07  | 6077.66   | 132.26 | 6077.87 | 137.33 | 6077.87 | 157.82 | 6077.62 | 166.18 | 6077.59 |  |
| 178.05  | 6077.49   | 181.24 | 6077.43 | 189.76 | 6077.15 | 196.15 | 6077.12 | 203.6  | 6077.16 |  |
| 208.92  | 6077.05   | 215.29 | 6077.01 | 223.09 | 6077.06 | 240.87 | 6077.32 | 251.16 | 6077.42 |  |
| 263.23  | 6077.66   | 269.09 | 6077.68 | 277.67 | 6077.54 | 280.79 | 6077.46 | 286.65 | 6077.23 |  |
| 291.98  | 6076.77   | 294.82 | 6076.57 | 297.94 | 6076.51 | 302.61 | 6076.51 | 306.52 | 6076.43 |  |
| 312.21  | 6076.14   | 317.43 | 6075.77 | 320.72 | 6075.61 | 328.81 | 6075.33 | 336.69 | 6075.19 |  |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 340.46  | 6075.16 | 351.6   | 6075.18 | 356.42  | 6075.11 | 365.77  | 6074.92 | 369.67  | 6074.88 |
| 373.96  | 6074.93 | 388.87  | 6074.89 | 393.84  | 6074.94 | 399.3   | 6074.89 | 403.98  | 6074.74 |
| 409.1   | 6074.67 | 425.81  | 6074.69 | 437.85  | 6074.69 | 439.98  | 6074.71 | 447.64  | 6074.97 |
| 453.09  | 6075.12 | 455.95  | 6075.33 | 461.27  | 6075.86 | 464.46  | 6076.04 | 468.69  | 6076.09 |
| 478.82  | 6075.89 | 491.08  | 6075.51 | 497.47  | 6075.25 | 499.1   | 6075.23 | 507.05  | 6074.92 |
| 509.18  | 6074.76 | 514.51  | 6074.59 | 521.96  | 6074.6  | 530.28  | 6074.52 | 535.57  | 6074.54 |
| 540.42  | 6074.63 | 545.88  | 6074.61 | 552.84  | 6074.66 | 559.13  | 6074.65 | 564.55  | 6074.74 |
| 568.49  | 6074.74 | 576.26  | 6074.57 | 583.72  | 6074.59 | 588.76  | 6074.48 | 593.81  | 6074.45 |
| 599.63  | 6074.55 | 603.57  | 6074.57 | 607.47  | 6074.53 | 615.66  | 6074.56 | 620.72  | 6074.49 |
| 629.3   | 6074.42 | 638.02  | 6074.45 | 643.31  | 6074.37 | 651.13  | 6074.38 | 660.49  | 6074.27 |
| 668.9   | 6074.08 | 677.64  | 6074.01 | 692.45  | 6074.15 | 696.35  | 6074.24 | 698.69  | 6074.37 |
| 704.15  | 6074.91 | 707.38  | 6075.09 | 713.51  | 6075.25 | 720.52  | 6075.33 | 724.42  | 6075.29 |
| 727.46  | 6075.19 | 730.65  | 6074.98 | 735.98  | 6074.55 | 743.43  | 6074.31 | 746.62  | 6074.12 |
| 749.82  | 6073.61 | 753.01  | 6072.67 | 755.14  | 6071.85 | 758.34  | 6070.98 | 761.53  | 6070.6  |
| 764.96  | 6070.56 | 766.52  | 6070.64 | 768.98  | 6070.97 | 774.31  | 6072.36 | 777.44  | 6072.76 |
| 780.56  | 6072.89 | 793.03  | 6072.9  | 800.56  | 6072.99 | 805.51  | 6072.99 | 812.21  | 6073.12 |
| 817.2   | 6073.17 | 824.35  | 6073.17 | 831.8   | 6073.13 | 836.69  | 6073.06 | 839.81  | 6073.08 |
| 846.71  | 6073.21 | 861.72  | 6073.18 | 864.81  | 6073.11 | 870.45  | 6072.91 | 873.33  | 6072.88 |
| 883.47  | 6072.9  | 889.3   | 6072.86 | 898.88  | 6072.99 | 909.53  | 6073.03 | 915.44  | 6072.99 |
| 920.18  | 6073.05 | 927.14  | 6073.31 | 934.02  | 6073.45 | 940.39  | 6073.51 | 944.67  | 6073.45 |
| 954.25  | 6073.16 | 959.57  | 6072.86 | 965.96  | 6072.71 | 970.02  | 6072.79 | 979.8   | 6073.29 |
| 981.93  | 6073.44 | 985.13  | 6073.56 | 989.51  | 6073.58 | 997.9   | 6073.42 | 1002.76 | 6073.36 |
| 1010.68 | 6073.33 | 1014.94 | 6073.26 | 1021.48 | 6073.06 | 1034.73 | 6072.52 | 1040.49 | 6072.19 |
| 1045.82 | 6071.83 | 1050.32 | 6071.7  | 1053.27 | 6071.73 | 1062.02 | 6071.99 | 1069.04 | 6072.09 |
| 1072.44 | 6072.25 | 1077.76 | 6072.68 | 1083.85 | 6072.95 | 1090.54 | 6072.97 | 1097.99 | 6072.94 |
| 1100.12 | 6073    | 1110.36 | 6072.96 | 1115.82 | 6073.23 | 1119.29 | 6073.35 | 1122.05 | 6073.38 |
| 1128.29 | 6073.25 | 1133.75 | 6073.26 | 1136.32 | 6073.22 | 1141.55 | 6073.03 | 1147.1  | 6072.99 |
| 1152.92 | 6072.77 | 1158.75 | 6072.59 | 1164.94 | 6072.69 | 1171.17 | 6072.97 | 1178.19 | 6073.12 |
| 1187.43 | 6073.28 | 1193.78 | 6073.27 | 1199.14 | 6073.19 | 1208.25 | 6073.13 | 1214.83 | 6073.16 |
| 1222.57 | 6073.24 | 1225.72 | 6073.12 | 1231.08 | 6072.64 | 1234.28 | 6072.4  | 1237.45 | 6072.24 |
| 1241.73 | 6072.31 | 1248.36 | 6072.76 | 1253.44 | 6073.27 | 1256.64 | 6073.5  | 1259.83 | 6073.61 |
| 1272.72 | 6073.66 | 1283.9  | 6073.52 | 1296.59 | 6073.16 | 1301.86 | 6073.03 | 1307.27 | 6072.83 |
| 1311.16 | 6072.56 | 1317    | 6072.29 | 1319.92 | 6072.26 | 1327.5  | 6072.09 | 1340.32 | 6072.03 |
| 1344.26 | 6071.98 | 1356.37 | 6071.62 | 1362.46 | 6071.38 | 1371.51 | 6071.37 | 1377.35 | 6071.45 |
| 1381.89 | 6071.4  | 1388.45 | 6071.24 | 1395.09 | 6071.23 | 1397.43 | 6071.33 | 1402.09 | 6071.79 |
| 1404.61 | 6071.84 | 1410.25 | 6071.57 | 1414.91 | 6071.53 | 1418.24 | 6071.59 | 1422.13 | 6071.75 |
| 1422.6  | 6071.76 | 1427.97 | 6071.91 | 1434.72 | 6071.87 | 1438.76 | 6071.81 | 1440.55 | 6071.85 |
| 1442.88 | 6072.13 | 1447.54 | 6073.29 | 1449.87 | 6073.5  | 1453.34 | 6073.37 | 1457.71 | 6072.44 |
| 1461.36 | 6072.02 | 1463.86 | 6071.93 | 1467.36 | 6071.94 | 1472.02 | 6072.1  | 1475.21 | 6072.05 |
| 1486    | 6072.04 | 1491.83 | 6072.21 | 1495.33 | 6072.4  | 1498.82 | 6072.33 | 1506.56 | 6071.91 |
| 1512.39 | 6071.8  | 1515.31 | 6071.85 | 1520.41 | 6071.8  | 1526.8  | 6071.59 | 1530.29 | 6071.58 |
| 1537.28 | 6071.27 | 1540.89 | 6071.21 | 1543.74 | 6071.34 | 1548.68 | 6071.82 | 1551.03 | 6071.95 |
| 1555.93 | 6071.83 | 1558.26 | 6071.61 | 1560.36 | 6071.09 | 1563.42 | 6070.08 | 1566    | 6068.7  |
| 1598    | 6068.7  | 1600.22 | 6069.62 | 1604.88 | 6070.51 | 1607.17 | 6070.84 | 1610.81 | 6071.01 |
| 1618.87 | 6070.78 | 1623.21 | 6070.48 | 1625.39 | 6070.39 | 1628.19 | 6070.48 | 1632.86 | 6070.89 |
| 1640.19 | 6071.07 | 1646.54 | 6071.53 | 1648.72 | 6071.57 | 1654.56 | 6071.52 | 1660.83 | 6071.42 |
| 1663.16 | 6071.53 | 1666.95 | 6071.85 | 1669.14 | 6071.88 | 1672.78 | 6071.8  | 1682.97 | 6071.8  |
| 1692.47 | 6071.84 | 1699.29 | 6071.97 | 1704.43 | 6071.99 | 1710.69 | 6071.88 | 1713.27 | 6071.89 |
| 1719.1  | 6072.02 | 1722.6  | 6071.8  | 1724.54 | 6071.68 | 1728.19 | 6071.54 | 1730.38 | 6071.52 |
| 1736.21 | 6071.64 | 1739.85 | 6071.66 | 1749.21 | 6071.96 | 1753.11 | 6071.89 | 1758.95 | 6071.55 |
| 1766.73 | 6070.7  | 1769.02 | 6070.57 | 1776.21 | 6069.66 | 1778.49 | 6069.53 | 1782.87 | 6069.53 |
| 1790.1  | 6069.31 | 1794.86 | 6069.37 | 1803.28 | 6069.41 | 1809.84 | 6069.34 | 1814.67 | 6069.62 |
| 1817    | 6069.68 | 1821.25 | 6069.65 | 1824.42 | 6069.8  | 1830.98 | 6069.92 | 1836.82 | 6069.81 |
| 1839.15 | 6069.68 | 1844.97 | 6069.56 | 1847.75 | 6069.58 | 1855.04 | 6069.49 | 1860.13 | 6069.34 |
| 1865.25 | 6069.34 | 1870.62 | 6069.27 | 1873.81 | 6069.27 | 1878.37 | 6069.38 | 1883.55 | 6069.33 |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1889.39 | 6069.47 | 1895.09 | 6069.23 | 1898.59 | 6069.28 | 1901.07 | 6069.52 | 1904.41 | 6070.12 |
| 1905.58 | 6070.4  | 1908.27 | 6070.81 | 1910.8  | 6070.97 | 1918.4  | 6071.29 | 1920.73 | 6071.31 |
| 1926.56 | 6071.19 | 1931.59 | 6071.14 | 1939.61 | 6071.15 | 1942.88 | 6071.1  | 1951.28 | 6070.81 |
| 1954.2  | 6070.75 | 1965.02 | 6070.66 | 1973.88 | 6070.67 | 1986.27 | 6070.6  | 1995.75 | 6070.48 |
| 2003.04 | 6070.1  | 2010.33 | 6070    | 2016.3  | 6070.02 | 2021.27 | 6069.97 | 2025.63 | 6070.01 |
| 2028.56 | 6070.11 | 2035.12 | 6070.24 | 2043.19 | 6070.18 | 2049.03 | 6070.09 | 2051.27 | 6070.26 |
| 2056.26 | 6070.88 | 2059.42 | 6071.08 | 2065.01 | 6071.22 | 2073.76 | 6071.2  | 2084.08 | 6071.42 |
| 2089.8  | 6071.77 | 2099.65 | 6072.71 | 2102.92 | 6072.84 | 2106.32 | 6072.85 | 2109.52 | 6072.72 |
| 2112.17 | 6072.49 | 2115.41 | 6072.11 | 2120.11 | 6071.47 | 2123.5  | 6071.17 | 2127.54 | 6071.1  |
| 2130.57 | 6071.17 | 2133.35 | 6071.14 | 2135.62 | 6071.03 | 2139.53 | 6070.94 | 2151.88 | 6070.97 |
| 2157.85 | 6071.15 | 2162.9  | 6071.41 | 2169.98 | 6071.64 | 2175.03 | 6071.91 | 2178.36 | 6072.02 |
| 2186.14 | 6072.13 | 2197.26 | 6072.02 | 2201.39 | 6072.05 | 2209.38 | 6072.03 | 2220.5  | 6072.19 |
| 2228.58 | 6072.18 | 2243.74 | 6072    | 2255.15 | 6071.81 | 2260.92 | 6071.84 | 2273.04 | 6072.08 |
| 2281.12 | 6072.26 | 2293.99 | 6072.4  | 2302.34 | 6072.53 | 2308.11 | 6072.55 | 2316.05 | 6072.65 |
| 2324.57 | 6072.64 | 2338.72 | 6072.78 | 2358.93 | 6072.87 | 2370.04 | 6072.8  | 2379.14 | 6072.66 |
| 2387.22 | 6072.5  | 2398.33 | 6072.42 | 2406.96 | 6072.44 | 2414.03 | 6072.36 | 2421.09 | 6072.33 |
| 2429.91 | 6072.45 | 2452.86 | 6072.47 | 2459.04 | 6072.5  | 2467.87 | 6072.58 | 2477.58 | 6072.55 |
| 2489.93 | 6072.58 | 2502.41 | 6072.55 | 2511.5  | 6072.65 | 2518.57 | 6072.67 | 2521.71 | 6072.73 |
| 2523.47 | 6072.67 | 2530.7  | 6072.67 | 2548.19 | 6072.87 | 2562.02 | 6072.98 | 2573.14 | 6072.96 |
| 2581.73 | 6073.02 | 2590.32 | 6072.99 | 2598.4  | 6072.99 | 2608.2  | 6072.91 | 2615.27 | 6072.91 |
| 2621.64 | 6072.96 | 2626.69 | 6073.09 | 2634.77 | 6073.11 | 2641.03 | 6073.27 | 2646.16 | 6073.27 |
| 2652.34 | 6073.13 | 2663.07 | 6073.12 | 2667.34 | 6073.14 | 2675.28 | 6073.09 | 2683.23 | 6073.22 |
| 2693.82 | 6073.28 | 2700.45 | 6073.28 | 2709.71 | 6073.36 | 2714.6  | 6073.44 | 2721.18 | 6073.46 |
| 2742.89 | 6073.69 | 2749.43 | 6073.72 | 2753.84 | 6073.83 | 2761.78 | 6073.97 | 2765.12 | 6074    |
| 2773.2  | 6073.95 | 2781.29 | 6073.95 | 2790.91 | 6073.82 | 2805.54 | 6073.68 | 2815.62 | 6073.65 |
| 2820.69 | 6073.7  | 2827.77 | 6073.72 | 2835.85 | 6073.82 | 2844.94 | 6073.81 | 2855.05 | 6073.88 |
| 2860.1  | 6073.94 | 2870.2  | 6073.98 | 2882.7  | 6073.99 | 2894.45 | 6074.07 | 2899.24 | 6074.14 |
| 2903.89 | 6074.14 | 2916.24 | 6074.23 | 2927.8  | 6074.24 | 2933.86 | 6074.19 | 2940.07 | 6074.23 |
| 2949.78 | 6074.23 | 2955.07 | 6074.28 | 2971.85 | 6074.28 | 2979.79 | 6074.33 | 2991.46 | 6074.36 |
| 2997.52 | 6074.32 | 3010.65 | 6074.39 | 3027.83 | 6074.39 | 3041.98 | 6074.41 | 3052.76 | 6074.37 |
| 3057.46 | 6074.41 | 3065.41 | 6074.39 | 3076.16 | 6074.42 |         |         |         |         |

|                    |       |         |       |         |       |
|--------------------|-------|---------|-------|---------|-------|
| Manning's n Values |       | num=    |       | 3       |       |
| Sta                | n Val | Sta     | n Val | Sta     | n Val |
| 0                  | .06   | 1555.93 | .035  | 1610.81 | .06   |

|                  |         |         |           |              |         |       |        |        |
|------------------|---------|---------|-----------|--------------|---------|-------|--------|--------|
| Bank Sta:        | Left    | Right   | Lengths:  | Left Channel | Right   | Coeff | Contr. | Expan. |
|                  | 1555.93 | 1610.81 |           | 946.34       | 1146.26 |       | 545.38 |        |
|                  |         |         |           |              |         | .1    |        | .3     |
| Ineffective Flow | num=    |         | 2         |              |         |       |        |        |
| Sta L            | Sta R   | Elev    | Permanent |              |         |       |        |        |
| 0                | 1272.72 | 6073.66 | F         |              |         |       |        |        |
| 2106.32          | 3076.16 | 6072.85 | F         |              |         |       |        |        |

CROSS SECTION

RIVER: Flat Creek  
REACH: 1 RS: 30074

INPUT

Description:

|         |           |       |         |       |         |       |         |       |         |  |
|---------|-----------|-------|---------|-------|---------|-------|---------|-------|---------|--|
| Station | Elevation | Data  | num=    |       | 489     |       |         |       |         |  |
| Sta     | Elev      | Sta   | Elev    | Sta   | Elev    | Sta   | Elev    | Sta   | Elev    |  |
| 0       | 6074.06   | 3.21  | 6074.01 | 5.5   | 6073.85 | 9.74  | 6073.78 | 14.88 | 6074.19 |  |
| 16.35   | 6074.23   | 20.76 | 6073.99 | 25.17 | 6073.83 | 35.81 | 6073.87 | 44.28 | 6074.18 |  |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 48.12   | 6074.22 | 53.59   | 6074.01 | 60.43   | 6074.25 | 63.9    | 6074.26 | 70.74   | 6074.11 |
| 77.64   | 6073.78 | 83.01   | 6073.63 | 95.96   | 6073.66 | 99.4    | 6073.6  | 105.59  | 6073.39 |
| 109.69  | 6073.13 | 114.84  | 6072.64 | 118.86  | 6072.41 | 126.88  | 6071.64 | 132.61  | 6071.37 |
| 139.1   | 6070.84 | 147.49  | 6070.25 | 157.48  | 6069.81 | 165.1   | 6069.52 | 171.26  | 6069.41 |
| 180.7   | 6069.45 | 187.57  | 6069.67 | 195.7   | 6070.37 | 201.31  | 6070.6  | 204.52  | 6070.79 |
| 212.6   | 6071.55 | 219.64  | 6071.89 | 225.1   | 6071.95 | 233.38  | 6072.28 | 235.67  | 6072.28 |
| 242     | 6072.43 | 247.12  | 6072.61 | 257.43  | 6072.88 | 262.58  | 6072.8  | 267.72  | 6072.93 |
| 272.87  | 6072.64 | 275.81  | 6072.54 | 280.22  | 6072.6  | 288.24  | 6072.56 | 295.66  | 6072.59 |
| 307.81  | 6072.75 | 318.12  | 6072.85 | 322.12  | 6072.85 | 333.14  | 6072.66 | 341.6   | 6072.64 |
| 354.46  | 6072.52 | 364.18  | 6072.51 | 369.89  | 6072.57 | 379.45  | 6072.56 | 384.6   | 6072.44 |
| 391.95  | 6072.43 | 397.83  | 6072.49 | 404     | 6072.47 | 416.2   | 6072.28 | 423.47  | 6072.25 |
| 431.9   | 6072.26 | 439.5   | 6072.14 | 450.38  | 6071.83 | 466.99  | 6071.25 | 470.42  | 6071.07 |
| 479.58  | 6070.46 | 492.64  | 6070.29 | 497.79  | 6070.35 | 502.93  | 6070.32 | 515.43  | 6070.67 |
| 520.81  | 6070.89 | 527.68  | 6071.02 | 538.21  | 6071.04 | 545.56  | 6070.94 | 551.44  | 6071.06 |
| 554.02  | 6071.05 | 559.53  | 6070.88 | 566.61  | 6070.48 | 573.48  | 6069.94 | 579.21  | 6069.14 |
| 582.64  | 6068.87 | 594.07  | 6068.72 | 597.53  | 6068.79 | 600.97  | 6068.96 | 604.4   | 6069.39 |
| 606.57  | 6069.97 | 610.13  | 6071.23 | 613.56  | 6072.26 | 617     | 6072.83 | 620.43  | 6073.05 |
| 623.87  | 6073.11 | 633.03  | 6073.14 | 637.14  | 6073.08 | 649.45  | 6072.62 | 658.02  | 6072.57 |
| 663.17  | 6072.41 | 666.11  | 6072.15 | 669.67  | 6071.7  | 675.4   | 6070.84 | 682.27  | 6070.09 |
| 689.14  | 6069.69 | 695.51  | 6069.57 | 708     | 6069.67 | 713.19  | 6069.67 | 723.5   | 6069.74 |
| 734.46  | 6069.66 | 751.37  | 6069.85 | 760.92  | 6069.83 | 785.33  | 6069.84 | 796.94  | 6069.71 |
| 805.02  | 6069.88 | 808.7   | 6069.9  | 813.96  | 6069.8  | 827.7   | 6069.32 | 838.26  | 6069.29 |
| 846.02  | 6069.13 | 858.79  | 6069.17 | 867.78  | 6069.37 | 876.32  | 6069.4  | 885.88  | 6069.28 |
| 891.83  | 6069.02 | 898.7   | 6069.15 | 903.28  | 6069.15 | 910.87  | 6068.86 | 914.2   | 6068.81 |
| 924.1   | 6068.84 | 929.24  | 6068.78 | 936.77  | 6068.8  | 942.93  | 6068.88 | 950.23  | 6068.87 |
| 966.73  | 6068.8  | 971.99  | 6068.72 | 979.22  | 6068.52 | 983.63  | 6068.5  | 998.33  | 6068.28 |
| 1003.48 | 6068.31 | 1006.42 | 6068.39 | 1012.3  | 6068.85 | 1016.65 | 6068.85 | 1021.85 | 6068.57 |
| 1029.94 | 6068.69 | 1033.83 | 6068.66 | 1037.26 | 6068.49 | 1039.49 | 6068.28 | 1043.9  | 6068.07 |
| 1049.86 | 6068.25 | 1057.13 | 6068.04 | 1064.75 | 6068.02 | 1079.63 | 6068.07 | 1084.21 | 6068.17 |
| 1090.21 | 6068.02 | 1096.81 | 6068.06 | 1098.91 | 6068.01 | 1102.71 | 6067.69 | 1108.26 | 6066.75 |
| 1110.79 | 6066.52 | 1113.73 | 6066.5  | 1116.28 | 6066.61 | 1119.71 | 6067.02 | 1122    | 6067.52 |
| 1125.44 | 6067.92 | 1132.11 | 6068.05 | 1136.89 | 6068.09 | 1143.76 | 6067.83 | 1149.75 | 6067.95 |
| 1162.08 | 6068.13 | 1171.06 | 6068.09 | 1178.11 | 6068.1  | 1181.55 | 6068.04 | 1187.27 | 6068.04 |
| 1194.58 | 6067.83 | 1202.16 | 6067.82 | 1206.34 | 6067.89 | 1212.96 | 6068.22 | 1218.1  | 6068.57 |
| 1221.63 | 6068.69 | 1234.36 | 6068.8  | 1243.39 | 6069.17 | 1248.97 | 6069.48 | 1258.99 | 6069.59 |
| 1266.61 | 6069.56 | 1270.87 | 6069.35 | 1278.89 | 6068.8  | 1283.23 | 6068.36 | 1284.99 | 6068.18 |
| 1289.4  | 6068.04 | 1294.55 | 6068.1  | 1304.08 | 6068.08 | 1309.8  | 6068.16 | 1320.11 | 6068.05 |
| 1330.42 | 6068.03 | 1339.58 | 6068.14 | 1343.79 | 6068.07 | 1353.4  | 6068.12 | 1359.55 | 6068.31 |
| 1366.58 | 6068.28 | 1372.79 | 6068.37 | 1378.51 | 6068.39 | 1383.48 | 6068.5  | 1389.96 | 6068.77 |
| 1395.24 | 6068.84 | 1398.18 | 6068.73 | 1401.86 | 6068.26 | 1407.74 | 6066.9  | 1410    | 6065.7  |
| 1451    | 6065.7  | 1451.91 | 6066.34 | 1456.38 | 6066.72 | 1463.25 | 6067.51 | 1468.98 | 6068.45 |
| 1471.68 | 6068.72 | 1474.7  | 6068.72 | 1479.28 | 6068.36 | 1482.69 | 6068.23 | 1487.3  | 6068.17 |
| 1492.95 | 6068.02 | 1505.27 | 6068.12 | 1511.35 | 6068.28 | 1514.78 | 6068.23 | 1519.36 | 6068.06 |
| 1524.61 | 6067.96 | 1534.25 | 6067.96 | 1545.19 | 6068.15 | 1552.47 | 6067.94 | 1556.01 | 6067.98 |
| 1560.59 | 6068.19 | 1566.31 | 6068.19 | 1572.99 | 6067.96 | 1578.26 | 6067.72 | 1581.94 | 6067.63 |
| 1583.23 | 6067.67 | 1588.55 | 6067.83 | 1593.8  | 6067.91 | 1599.52 | 6067.73 | 1603.78 | 6067.74 |
| 1607.88 | 6067.97 | 1613.54 | 6068.49 | 1616.7  | 6068.7  | 1623.1  | 6068.75 | 1635.59 | 6069.06 |
| 1642.94 | 6069.11 | 1645.33 | 6069.22 | 1652.5  | 6069.97 | 1657.64 | 6070.67 | 1661.32 | 6071    |
| 1664.11 | 6071.08 | 1668.4  | 6071.08 | 1677.66 | 6070.8  | 1683.47 | 6070.42 | 1697.42 | 6069.29 |
| 1701.42 | 6069.28 | 1706.43 | 6069.44 | 1721.43 | 6069.51 | 1729.44 | 6069.41 | 1736.7  | 6069.4  |
| 1746.45 | 6069.34 | 1752.19 | 6069.41 | 1755.45 | 6069.39 | 1763.8  | 6069.05 | 1769.46 | 6069.04 |
| 1777.35 | 6069.19 | 1784.47 | 6069.14 | 1794.48 | 6069.31 | 1802.48 | 6069.58 | 1811.49 | 6069.76 |
| 1833.49 | 6069.92 | 1843.5  | 6070.09 | 1851.88 | 6070.09 | 1856.51 | 6070.13 | 1869.52 | 6070.09 |
| 1876.52 | 6070.02 | 1892.5  | 6069.91 | 1909.95 | 6069.92 | 1915.54 | 6069.89 | 1929.55 | 6069.9  |
| 1935.56 | 6069.87 | 1946.56 | 6069.75 | 1952.54 | 6069.75 | 1967.57 | 6069.88 | 1974.58 | 6069.85 |

|         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1983.51 | 6069.95 | 1991.59 | 6069.93 | 1998.59 | 6069.79 | 2007.6  | 6069.8  | 2018.6  | 6070.05 |
| 2028.61 | 6069.98 | 2035.78 | 6069.86 | 2047.62 | 6070.18 | 2055.62 | 6070.31 | 2077.64 | 6070.52 |
| 2089.01 | 6070.53 | 2097.72 | 6070.48 | 2106.65 | 6070.62 | 2121.66 | 6070.49 | 2129.52 | 6070.27 |
| 2135.67 | 6070.29 | 2141.67 | 6070.18 | 2145.15 | 6070.17 | 2156.68 | 6070.27 | 2160.63 | 6070.38 |
| 2165.47 | 6070.65 | 2173.69 | 6070.92 | 2179.69 | 6071.07 | 2187.7  | 6071.14 | 2196.7  | 6071.04 |
| 2203.71 | 6071.12 | 2213.71 | 6071.11 | 2217.72 | 6071.14 | 2224.72 | 6071.28 | 2235.16 | 6071.42 |
| 2248.71 | 6071.57 | 2268.07 | 6071.61 | 2276.75 | 6071.53 | 2289.76 | 6071.54 | 2307.29 | 6071.47 |
| 2317.77 | 6071.33 | 2329.05 | 6071.38 | 2349.79 | 6071.57 | 2360.8  | 6071.73 | 2371.63 | 6071.78 |
| 2379.38 | 6071.76 | 2396.8  | 6071.83 | 2400.82 | 6071.78 | 2409.83 | 6071.55 | 2415.83 | 6071.6  |
| 2420.83 | 6071.79 | 2432.84 | 6071.86 | 2444.85 | 6072.01 | 2457.85 | 6071.99 | 2460.86 | 6071.95 |
| 2468.42 | 6071.68 | 2478.87 | 6071.54 | 2492.87 | 6071.26 | 2499.88 | 6071.26 | 2504.88 | 6071.44 |
| 2508.88 | 6071.3  | 2513.89 | 6070.77 | 2516.81 | 6070.61 | 2520.69 | 6070.64 | 2523.89 | 6070.75 |
| 2531.9  | 6071.23 | 2534.9  | 6071.31 | 2546.9  | 6071.41 | 2551.91 | 6071.57 | 2552.91 | 6071.35 |
| 2554.56 | 6071.9  | 2559.91 | 6071.92 | 2565.91 | 6071.7  | 2573.92 | 6071.11 | 2584.57 | 6070.97 |
| 2590.37 | 6070.95 | 2595.93 | 6070.82 | 2603.92 | 6070.38 | 2606.83 | 6070.29 | 2610.7  | 6070.34 |
| 2613.94 | 6070.48 | 2622.95 | 6071    | 2627.95 | 6071.41 | 2633.19 | 6071.76 | 2639.96 | 6072.02 |
| 2648.45 | 6072.07 | 2658.13 | 6072.02 | 2664.9  | 6072.09 | 2667.97 | 6072.04 | 2673.61 | 6071.8  |
| 2679.98 | 6071.85 | 2682.98 | 6072.04 | 2688.13 | 6072.53 | 2691.99 | 6072.58 | 2694.99 | 6072.37 |
| 2699.74 | 6071.85 | 2705.99 | 6071.43 | 2713    | 6071.07 | 2716    | 6070.6  | 2718    | 6070.08 |
| 2721    | 6069.49 | 2724.91 | 6069.45 | 2728.01 | 6069.79 | 2734.01 | 6070.83 | 2739.01 | 6071.88 |
| 2742.02 | 6072.34 | 2745.02 | 6072.6  | 2748.14 | 6072.67 | 2753.95 | 6072.54 | 2764.03 | 6072.47 |
| 2770.03 | 6072.24 | 2778.14 | 6071.79 | 2781.33 | 6071.68 | 2799.05 | 6071.5  | 2806.21 | 6071.52 |
| 2812.02 | 6071.59 | 2818.06 | 6071.58 | 2824.06 | 6071.64 | 2831.38 | 6071.79 | 2835.07 | 6071.82 |
| 2845.9  | 6071.77 | 2861.38 | 6071.75 | 2867.19 | 6071.82 | 2872.09 | 6071.78 | 2886.1  | 6071.34 |
| 2893.1  | 6071.24 | 2908.11 | 6071.21 | 2916.11 | 6071.31 | 2923.33 | 6071.27 | 2928.12 | 6071.13 |
| 2935.13 | 6071.08 | 2941.13 | 6070.95 | 2944.13 | 6070.95 | 2953.14 | 6071.11 | 2964.14 | 6071.58 |
| 2975.15 | 6071.69 | 2993.98 | 6071.49 | 3001.72 | 6071.47 | 3006.17 | 6071.53 | 3019.15 | 6071.52 |
| 3027.86 | 6071.4  | 3033.66 | 6071.25 | 3039.18 | 6071.03 | 3049.15 | 6071.08 | 3052.05 | 6071.17 |
| 3060.2  | 6071.7  | 3064.2  | 6071.8  | 3067.54 | 6071.77 | 3073.2  | 6071.54 | 3078.19 | 6071.12 |
| 3084.21 | 6070.81 | 3094.64 | 6070.74 | 3104.32 | 6070.84 | 3109.16 | 6070.94 | 3112.23 | 6071.11 |
| 3117.23 | 6071.54 | 3123.23 | 6071.75 | 3127.23 | 6071.74 | 3133.24 | 6071.44 | 3138.2  | 6070.95 |
| 3141.24 | 6070.77 | 3149.81 | 6070.65 | 3154.25 | 6070.7  | 3160.25 | 6070.97 | 3165.26 | 6071.32 |
| 3168.2  | 6071.42 | 3182.27 | 6071.52 | 3187.27 | 6071.44 | 3195.27 | 6070.91 | 3198.2  | 6070.82 |
| 3206.28 | 6070.83 | 3216.29 | 6070.64 | 3226.27 | 6070.62 | 3241.3  | 6070.41 | 3249.5  | 6070.24 |
| 3261.12 | 6070.05 | 3269.32 | 6070.09 | 3281.44 | 6070.11 | 3298.33 | 6070.18 | 3310.34 | 6070.45 |
| 3313.34 | 6070.59 | 3318.34 | 6070.96 | 3321.13 | 6071.08 | 3328.35 | 6071.13 | 3334.35 | 6071.04 |
| 3345.32 | 6070.77 | 3352.1  | 6070.68 | 3361.37 | 6070.71 | 3369.52 | 6070.83 | 3380.17 | 6070.84 |
| 3390.38 | 6070.72 | 3396.62 | 6070.72 | 3406.39 | 6070.81 | 3413.07 | 6070.91 | 3418.4  | 6070.92 |
| 3423.4  | 6070.99 | 3431.46 | 6071.03 | 3437.41 | 6071    | 3451.79 | 6071.12 | 3458.57 | 6071.27 |
| 3466.43 | 6071.34 | 3477.43 | 6071.57 | 3487.44 | 6071.68 | 3502.12 | 6071.9  | 3511.8  | 6071.95 |
| 3522.45 | 6072.07 | 3531.16 | 6072    | 3539.87 | 6072.01 | 3548.03 | 6071.93 |         |         |

|                                |      |   |
|--------------------------------|------|---|
| Manning's n Values             | num= | 3 |
| Sta n Val Sta n Val Sta n Val  |      |   |
| 0 .06 1395.24 .035 1471.68 .06 |      |   |

|                            |                             |              |        |
|----------------------------|-----------------------------|--------------|--------|
| Bank Sta: Left Right       | Lengths: Left Channel Right | Coeff Contr. | Expan. |
| 1395.24 1471.68            | 722.21 1165.59 701.59       | .1           | .3     |
| Ineffective Flow num=      | 2                           |              |        |
| Sta L Sta R Elev Permanent |                             |              |        |
| 0 1258.99 6069.58 F        |                             |              |        |
| 1664.11 3548.03 6071.08 F  |                             |              |        |
| Blocked Obstructions num=  | 1                           |              |        |
| Sta L Sta R Elev           |                             |              |        |
| 2761 3548.03 6070.2        |                             |              |        |

## CROSS SECTION

RIVER: Flat Creek

REACH: 1

RS: 28908

## INPUT

## Description:

| Station | Elevation | Data | num=   | 20   |
|---------|-----------|------|--------|------|
| Sta     | Elev      | Sta  | Elev   | Sta  |
| 0       | 6072.93   | 9    | 6072.2 | 146  |
| 993     | 6068.2    | 1305 | 6067.2 | 1392 |
| 1495    | 6063.7    | 1500 | 6064.2 | 1996 |
| 2377    | 6064.3    | 2651 | 6065.7 | 2941 |

| Manning's n | Values | num= | 3     |
|-------------|--------|------|-------|
| Sta         | n Val  | Sta  | n Val |
| 0           | .06    | 1467 | .035  |
|             |        | 1495 | .06   |

| Bank Sta: | Left | Right | Lengths:  | Left Channel | Right   | Coeff | Contr. | Expan. |
|-----------|------|-------|-----------|--------------|---------|-------|--------|--------|
|           | 1467 | 1495  | 23238.452 | 8908.262     | 3791.45 | .1    | .3     |        |

Ineffective Flow num= 1

| Sta L | Sta R   | Elev   | Permanent |
|-------|---------|--------|-----------|
| 2140  | 3267.79 | 6065.7 | F         |

## Profile Output Table - Standard Table 2

| Reach | River Sta | Profile   | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Vel Head<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Top Width<br>(ft) |
|-------|-----------|-----------|-------------------|-------------------|------------------|--------------------|--------------------|-----------------|--------------------|------------------|-------------------|
| 1     | 28908     | 10-YR     | 6065.12           | 6065.07           | 0.05             |                    |                    | 18.22           | 128.79             | 652.99           | 856.85            |
| 1     | 28908     | 50-YR     | 6065.31           | 6065.25           | 0.06             |                    |                    | 26.53           | 150.18             | 853.29           | 929.57            |
| 1     | 28908     | 100-YR    | 6065.48           | 6065.42           | 0.06             |                    |                    | 36.88           | 174.72             | 1078.40          | 998.14            |
| 1     | 28908     | 500-YR    | 6065.69           | 6065.62           | 0.07             |                    |                    | 52.33           | 207.06             | 1380.61          | 1078.93           |
| 1     | 30074     | 10-YR     | 6068.86           | 6068.60           | 0.25             | 3.68               | 0.06               | 38.11           | 680.01             | 81.88            | 535.24            |
| 1     | 30074     | 50-YR     | 6069.09           | 6068.80           | 0.29             | 3.70               | 0.07               | 74.43           | 818.30             | 137.26           | 618.28            |
| 1     | 30074     | 100-YR    | 6069.30           | 6068.97           | 0.33             | 3.74               | 0.08               | 118.99          | 966.08             | 204.93           | 705.60            |
| 1     | 30074     | 500-YR    | 6069.56           | 6069.17           | 0.38             | 3.78               | 0.09               | 186.27          | 1156.45            | 297.29           | 787.37            |
| 1     | 31220     | 10-YR     | 6071.42           | 6071.34           | 0.07             | 2.55               | 0.02               | 0.36            | 328.05             | 471.59           | 479.32            |
| 1     | 31220     | 50-YR     | 6071.68           | 6071.60           | 0.08             | 2.58               | 0.02               | 5.73            | 385.40             | 638.87           | 580.57            |
| 1     | 31220     | 100-YR    | 6071.92           | 6071.85           | 0.08             | 2.61               | 0.03               | 18.53           | 440.83             | 830.63           | 706.17            |
| 1     | 31220     | 500-YR    | 6072.25           | 6072.16           | 0.09             | 2.66               | 0.03               | 57.09           | 539.67             | 1043.24          | 938.65            |
| 1     | 31558     | 10-YR     | 6073.08           | 6072.65           | 0.43             | 0.99               | 0.18               |                 | 562.25             | 237.75           | 1009.57           |
| 1     | 31558     | 50-YR     | 6073.30           | 6072.86           | 0.44             | 0.95               | 0.18               |                 | 643.55             | 386.45           | 1146.71           |
| 1     | 31558     | 100-YR    | 6073.50           | 6073.04           | 0.46             | 0.96               | 0.19               |                 | 731.62             | 558.38           | 1248.09           |
| 1     | 31558     | 500-YR    | 6073.72           | 6073.21           | 0.51             | 0.99               | 0.21               |                 | 847.89             | 792.11           | 1356.38           |
| 1     | 31602     | Mult Open |                   |                   |                  |                    |                    |                 |                    |                  |                   |
| 1     | 31615     | 10-YR     | 6074.43           | 6074.33           | 0.10             |                    |                    |                 | 503.51             | 296.49           | 1587.99           |
| 1     | 31615     | 50-YR     | 6074.66           | 6074.57           | 0.09             |                    |                    |                 | 550.82             | 479.18           | 1814.34           |

|   |       |        |         |         |      |      |      |         |        |        |         |
|---|-------|--------|---------|---------|------|------|------|---------|--------|--------|---------|
| 1 | 31615 | 100-YR | 6074.80 | 6074.69 | 0.10 |      |      |         | 641.26 | 648.74 | 1871.90 |
| 1 | 31615 | 500-YR | 6075.15 | 6075.06 | 0.08 |      |      |         | 675.53 | 964.47 | 2018.34 |
| 1 | 32262 | 10-YR  | 6075.08 | 6075.03 | 0.05 | 0.63 | 0.02 | 284.94  | 437.69 | 77.37  | 1583.95 |
| 1 | 32262 | 50-YR  | 6075.33 | 6075.27 | 0.06 | 0.66 | 0.01 | 367.59  | 543.39 | 119.03 | 1843.71 |
| 1 | 32262 | 100-YR | 6075.57 | 6075.50 | 0.07 | 0.76 | 0.01 | 465.22  | 653.42 | 171.36 | 2091.28 |
| 1 | 32262 | 500-YR | 6075.85 | 6075.77 | 0.08 | 0.70 | 0.00 | 616.60  | 781.23 | 242.17 | 2274.61 |
| 1 | 32973 | 10-YR  | 6076.61 | 6076.24 | 0.37 | 1.19 | 0.10 | 138.01  | 478.24 | 183.76 | 949.74  |
| 1 | 32973 | 50-YR  | 6076.79 | 6076.43 | 0.36 | 1.30 | 0.09 | 221.19  | 543.12 | 265.69 | 1030.87 |
| 1 | 32973 | 100-YR | 6076.96 | 6076.72 | 0.24 | 1.34 | 0.05 | 342.53  | 548.53 | 398.94 | 1203.77 |
| 1 | 32973 | 500-YR | 6077.22 | 6077.01 | 0.22 | 1.33 | 0.04 | 496.98  | 633.75 | 509.27 | 1411.00 |
| 1 | 34540 | 10-YR  | 6079.85 | 6079.81 | 0.04 | 3.21 | 0.03 | 379.72  | 252.88 | 167.40 | 1046.52 |
| 1 | 34540 | 50-YR  | 6080.02 | 6079.99 | 0.04 | 3.21 | 0.03 | 498.01  | 293.08 | 238.91 | 1115.72 |
| 1 | 34540 | 100-YR | 6080.19 | 6080.14 | 0.05 | 3.22 | 0.02 | 621.11  | 343.97 | 324.92 | 1165.16 |
| 1 | 34540 | 500-YR | 6080.22 | 6080.18 | 0.04 | 2.97 | 0.02 | 939.24  | 354.62 | 346.14 | 1175.89 |
| 1 | 35470 | 10-YR  | 6081.03 | 6080.96 | 0.07 | 1.17 | 0.01 | 139.08  | 219.73 | 441.20 | 850.95  |
| 1 | 35470 | 50-YR  | 6081.18 | 6081.12 | 0.07 | 1.15 | 0.01 | 206.77  | 244.12 | 579.11 | 875.33  |
| 1 | 35470 | 100-YR | 6081.35 | 6081.29 | 0.07 | 1.16 | 0.01 | 288.44  | 267.70 | 733.86 | 902.52  |
| 1 | 35470 | 500-YR | 6081.47 | 6081.38 | 0.08 | 1.24 | 0.01 | 384.55  | 318.66 | 936.79 | 918.38  |
| 1 | 36595 | 10-YR  | 6084.72 | 6084.08 | 0.64 | 3.53 | 0.17 | 38.57   | 717.83 | 43.60  | 106.14  |
| 1 | 36595 | 50-YR  | 6084.92 | 6084.59 | 0.33 | 2.42 | 0.08 | 110.26  | 695.13 | 224.61 | 850.23  |
| 1 | 36595 | 100-YR | 6085.06 | 6084.69 | 0.38 | 2.45 | 0.09 | 161.25  | 798.08 | 330.67 | 901.27  |
| 1 | 36595 | 500-YR | 6085.23 | 6084.89 | 0.34 | 2.61 | 0.08 | 272.33  | 864.18 | 503.49 | 1130.52 |
| 1 | 37738 | 10-YR  | 6088.61 | 6088.49 | 0.12 | 3.05 | 0.05 | 292.06  | 400.58 | 107.36 | 971.06  |
| 1 | 37738 | 50-YR  | 6088.86 | 6088.38 | 0.48 | 3.90 | 0.04 | 166.90  | 686.90 | 176.20 | 912.19  |
| 1 | 37738 | 100-YR | 6088.79 | 6088.48 | 0.32 | 3.73 | 0.01 | 457.69  | 657.61 | 174.70 | 963.29  |
| 1 | 37738 | 500-YR | 6088.94 | 6088.61 | 0.33 | 3.72 | 0.00 | 699.36  | 730.40 | 210.24 | 1022.64 |
| 1 | 38668 | 10-YR  | 6090.73 | 6090.57 | 0.16 | 1.90 | 0.01 | 419.03  | 335.61 | 45.36  | 1143.76 |
| 1 | 38668 | 50-YR  | 6090.98 | 6090.93 | 0.04 | 2.07 | 0.04 | 680.10  | 255.50 | 94.41  | 1361.53 |
| 1 | 38668 | 100-YR | 6091.02 | 6090.96 | 0.06 | 2.21 | 0.03 | 858.51  | 309.26 | 122.23 | 1380.46 |
| 1 | 38668 | 500-YR | 6091.16 | 6091.10 | 0.06 | 2.21 | 0.03 | 1119.37 | 342.93 | 177.70 | 1464.79 |



## HEC-RAS Summary Table





HEC-RAS River: Flat Creek Reach: 1 Profile: 100-YR

| Reach | River Sta | Profile | Plan             | 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)      |              |
| 1     | 28908     | 100-YR  | Duplicate Effect | 1290.00 | 6063.70   | 6065.42   | 6064.86   | 6065.48   | 0.003545   | 3.63     | 764.18    | 998.14    | 0.49         |
| 1     | 28908     | 100-YR  | Corr Eff add XS  | 1290.00 | 6063.70   | 6065.42   | 6064.86   | 6065.48   | 0.003545   | 3.63     | 764.18    | 998.14    | 0.49         |
| 1     | 28908     | 100-YR  | Prop Option 1    | 1290.00 | 6063.70   | 6065.42   | 6064.86   | 6065.48   | 0.003545   | 3.63     | 764.18    | 998.14    | 0.49         |
| 1     | 28908     | 100-YR  | Prop Option 2    | 1290.00 | 6063.70   | 6065.42   | 6064.86   | 6065.48   | 0.003545   | 3.63     | 764.18    | 998.14    | 0.49         |
| 1     | 28908     | 100-YR  | Prop Option 3    | 1290.00 | 6063.70   | 6065.42   | 6064.86   | 6065.48   | 0.003545   | 3.63     | 764.18    | 998.14    | 0.49         |
| 1     | 28908     | 100-YR  | Corrected Eff    | 1290.00 | 6063.70   | 6065.42   | 6064.86   | 6065.48   | 0.003545   | 3.63     | 764.18    | 998.14    | 0.49         |
| 1     | 30074     | 100-YR  | Duplicate Effect | 1290.00 | 6065.70   | 6068.86   | 6068.20   | 6069.32   | 0.005064   | 6.51     | 352.89    | 434.38    | 0.65         |
| 1     | 30074     | 100-YR  | Corr Eff add XS  | 1290.00 | 6065.70   | 6068.86   | 6068.71   | 6069.30   | 0.004853   | 5.26     | 403.18    | 705.60    | 0.60         |
| 1     | 30074     | 100-YR  | Prop Option 1    | 1290.00 | 6065.70   | 6068.86   | 6068.71   | 6069.30   | 0.004853   | 5.26     | 403.18    | 705.60    | 0.60         |
| 1     | 30074     | 100-YR  | Prop Option 2    | 1290.00 | 6065.70   | 6068.86   | 6068.71   | 6069.30   | 0.004853   | 5.26     | 403.18    | 705.60    | 0.60         |
| 1     | 30074     | 100-YR  | Prop Option 3    | 1290.00 | 6065.70   | 6068.86   | 6068.71   | 6069.30   | 0.004853   | 5.26     | 403.18    | 705.60    | 0.60         |
| 1     | 30074     | 100-YR  | Corrected Eff    | 1290.00 | 6065.70   | 6068.86   | 6068.71   | 6069.30   | 0.004853   | 5.26     | 403.18    | 705.60    | 0.60         |
| 1     | 31220     | 100-YR  | Duplicate Effect | 1290.00 | 6068.70   | 6071.78   | 6071.05   | 6071.87   | 0.001893   | 3.91     | 749.46    | 730.59    | 0.39         |
| 1     | 31220     | 100-YR  | Corr Eff add XS  | 1290.00 | 6068.70   | 6071.85   | 6070.83   | 6071.92   | 0.001940   | 3.33     | 749.28    | 706.17    | 0.38         |
| 1     | 31220     | 100-YR  | Prop Option 1    | 1290.00 | 6068.70   | 6071.85   | 6070.83   | 6071.92   | 0.001940   | 3.33     | 749.28    | 706.17    | 0.38         |
| 1     | 31220     | 100-YR  | Prop Option 2    | 1290.00 | 6068.70   | 6071.85   | 6070.83   | 6071.92   | 0.001940   | 3.33     | 749.28    | 706.17    | 0.38         |
| 1     | 31220     | 100-YR  | Prop Option 3    | 1290.00 | 6068.70   | 6071.85   | 6070.83   | 6071.92   | 0.001940   | 3.33     | 749.28    | 706.17    | 0.38         |
| 1     | 31220     | 100-YR  | Corrected Eff    | 1290.00 | 6068.70   | 6071.85   | 6070.83   | 6071.92   | 0.001940   | 3.33     | 749.28    | 706.17    | 0.38         |
| 1     | 31558     | 100-YR  | Duplicate Effect | 1290.00 | 6068.83   | 6074.70   | 6074.70   | 6074.99   | 0.002547   | 6.85     | 864.08    | 1255.68   | 0.50         |
| 1     | 31558     | 100-YR  | Corr Eff add XS  | 1290.00 | 6069.00   | 6073.70   | 6073.70   | 6075.19   | 0.013332   | 9.78     | 131.93    | 1417.66   | 1.00         |
| 1     | 31558     | 100-YR  | Prop Option 1    | 1290.00 | 6069.00   | 6073.70   | 6073.70   | 6075.19   | 0.013332   | 9.78     | 131.93    | 1417.66   | 1.00         |
| 1     | 31558     | 100-YR  | Prop Option 2    | 1290.00 | 6069.00   | 6073.04   | 6073.04   | 6073.50   | 0.007558   | 7.00     | 376.08    | 1248.09   | 0.75         |
| 1     | 31558     | 100-YR  | Prop Option 3    | 1290.00 | 6069.00   | 6073.04   | 6073.04   | 6073.50   | 0.007558   | 7.00     | 376.08    | 1248.09   | 0.75         |
| 1     | 31558     | 100-YR  | Corrected Eff    | 1290.00 | 6069.00   | 6073.70   | 6073.70   | 6075.19   | 0.013332   | 9.78     | 131.93    | 1417.66   | 1.00         |
| 1     | 31602     |         | Bridge           |         |           |           |           |           |            |          |           |           |              |
| 1     | 31615     | 100-YR  | Duplicate Effect | 1290.00 | 6068.84   | 6075.05   | 6074.68   | 6075.14   | 0.001023   | 4.44     | 1303.47   | 1289.22   | 0.32         |
| 1     | 31615     | 100-YR  | Corr Eff add XS  | 1290.00 | 6069.00   | 6074.71   | 6074.70   | 6075.19   | 0.004032   | 6.07     | 397.80    | 1875.73   | 0.57         |
| 1     | 31615     | 100-YR  | Prop Option 1    | 1290.00 | 6069.00   | 6074.71   | 6074.70   | 6075.19   | 0.004032   | 6.07     | 397.80    | 1875.73   | 0.57         |
| 1     | 31615     | 100-YR  | Prop Option 2    | 1290.00 | 6069.00   | 6074.69   | 6073.66   | 6074.80   | 0.001438   | 3.55     | 863.23    | 1871.90   | 0.34         |
| 1     | 31615     | 100-YR  | Prop Option 3    | 1290.00 | 6069.00   | 6074.69   | 6073.66   | 6074.80   | 0.001438   | 3.55     | 863.23    | 1871.90   | 0.34         |
| 1     | 31615     | 100-YR  | Corrected Eff    | 1290.00 | 6069.00   | 6074.71   | 6074.70   | 6075.19   | 0.004032   | 6.07     | 397.80    | 1875.73   | 0.57         |
| 1     | 32262     | 100-YR  | Corr Eff add XS  | 1290.00 | 6071.50   | 6076.07   |           | 6076.12   | 0.000617   | 2.30     | 957.39    | 2424.51   | 0.22         |
| 1     | 32262     | 100-YR  | Prop Option 1    | 1290.00 | 6071.50   | 6075.98   |           | 6076.03   | 0.000524   | 2.46     | 1068.61   | 2377.78   | 0.22         |
| 1     | 32262     | 100-YR  | Prop Option 2    | 1290.00 | 6071.50   | 6075.55   |           | 6075.64   | 0.001268   | 3.06     | 702.54    | 2099.78   | 0.32         |
| 1     | 32262     | 100-YR  | Prop Option 3    | 1290.00 | 6071.50   | 6075.50   |           | 6075.57   | 0.001032   | 2.74     | 833.08    | 2091.28   | 0.28         |
| 1     | 32973     | 100-YR  | Duplicate Effect | 1290.00 | 6073.70   | 6076.67   | 6075.80   | 6076.74   | 0.001834   | 3.76     | 838.29    | 1586.14   | 0.38         |
| 1     | 32973     | 100-YR  | Corr Eff add XS  | 1290.00 | 6073.70   | 6076.90   | 6076.90   | 6077.28   | 0.010286   | 6.42     | 391.46    | 1308.80   | 0.83         |
| 1     | 32973     | 100-YR  | Prop Option 1    | 1290.00 | 6073.70   | 6076.62   | 6076.62   | 6076.93   | 0.009686   | 6.15     | 410.72    | 1131.61   | 0.80         |
| 1     | 32973     | 100-YR  | Prop Option 2    | 1290.00 | 6073.70   | 6076.98   | 6076.90   | 6077.31   | 0.008543   | 6.01     | 437.51    | 1371.01   | 0.76         |
| 1     | 32973     | 100-YR  | Prop Option 3    | 1290.00 | 6073.70   | 6076.72   | 6076.58   | 6076.96   | 0.008077   | 5.49     | 448.06    | 1203.77   | 0.73         |
| 1     | 32973     | 100-YR  | Corrected Eff    | 1290.00 | 6073.70   | 6077.67   | 6076.90   | 6077.72   | 0.001154   | 2.71     | 1055.34   | 1730.58   | 0.30         |
| 1     | 34540     | 100-YR  | Duplicate Effect | 1290.00 | 6077.20   | 6079.84   | 6079.71   | 6080.08   | 0.005572   | 6.06     | 568.37    | 1088.40   | 0.66         |
| 1     | 34540     | 100-YR  | Corr Eff add XS  | 1290.00 | 6077.02   | 6080.21   | 6079.54   | 6080.25   | 0.001125   | 2.61     | 1225.69   | 1179.50   | 0.29         |
| 1     | 34540     | 100-YR  | Prop Option 1    | 1290.00 | 6077.02   | 6080.33   | 6079.49   | 6080.35   | 0.000626   | 2.00     | 1546.81   | 1195.45   | 0.22         |
| 1     | 34540     | 100-YR  | Prop Option 2    | 1290.00 | 6077.02   | 6080.20   | 6079.54   | 6080.23   | 0.001180   | 2.66     | 1204.39   | 1177.66   | 0.30         |
| 1     | 34540     | 100-YR  | Prop Option 3    | 1290.00 | 6077.02   | 6080.14   | 6079.49   | 6080.19   | 0.001422   | 2.87     | 1085.11   | 1165.16   | 0.32         |
| 1     | 34540     | 100-YR  | Corrected Eff    | 1290.00 | 6077.02   | 6079.85   | 6079.54   | 6079.99   | 0.004241   | 4.56     | 643.35    | 919.88    | 0.55         |
| 1     | 35470     | 100-YR  | Duplicate Effect | 1290.00 | 6079.10   | 6081.53   | 6080.86   | 6081.57   | 0.001234   | 2.70     | 982.88    | 942.36    | 0.30         |
| 1     | 35470     | 100-YR  | Corr Eff add XS  | 1290.00 | 6079.10   | 6081.24   | 6080.86   | 6081.32   | 0.002723   | 3.68     | 754.58    | 895.72    | 0.44         |
| 1     | 35470     | 100-YR  | Prop Option 1    | 1290.00 | 6079.10   | 6081.09   | 6080.86   | 6081.20   | 0.004413   | 4.47     | 640.59    | 871.89    | 0.56         |
| 1     | 35470     | 100-YR  | Prop Option 2    | 1290.00 | 6079.10   | 6081.25   | 6080.86   | 6081.32   | 0.002668   | 3.65     | 759.85    | 896.81    | 0.44         |
| 1     | 35470     | 100-YR  | Prop Option 3    | 1290.00 | 6079.10   | 6081.29   | 6080.86   | 6081.35   | 0.002399   | 3.50     | 787.42    | 902.52    | 0.42         |
| 1     | 35470     | 100-YR  | Corrected Eff    | 1290.00 | 6079.10   | 6081.47   | 6080.86   | 6081.51   | 0.001455   | 2.88     | 930.65    | 931.81    | 0.33         |
| 1     | 36595     | 100-YR  | Duplicate Effect | 1290.00 | 6081.20   | 6084.69   | 6084.69   | 6085.06   | 0.004021   | 6.19     | 528.30    | 901.27    | 0.58         |
| 1     | 36595     | 100-YR  | Corr Eff add XS  | 1290.00 | 6081.20   | 6084.69   | 6084.69   | 6085.06   | 0.004021   | 6.19     | 528.30    | 901.27    | 0.58         |
| 1     | 36595     | 100-YR  | Prop Option 1    | 1290.00 | 6081.20   | 6084.69   | 6084.69   | 6085.06   | 0.004021   | 6.19     | 528.30    | 901.27    | 0.58         |
| 1     | 36595     | 100-YR  | Prop Option 2    | 1290.00 | 6081.20   | 6084.69   | 6084.69   | 6085.06   | 0.004021   | 6.19     | 528.30    | 901.27    | 0.58         |
| 1     | 36595     | 100-YR  | Prop Option 3    | 1290.00 | 6081.20   | 6084.69   | 6084.69   | 6085.06   | 0.004021   | 6.19     | 528.30    | 901.27    | 0.58         |
| 1     | 36595     | 100-YR  | Corrected Eff    | 1290.00 | 6081.20   | 6084.69   | 6084.69   | 6085.06   | 0.004021   | 6.19     | 528.30    | 901.27    | 0.58         |
| 1     | 37738     | 100-YR  | Duplicate Effect | 1290.00 | 6084.70   | 6088.48   | 6088.19   | 6088.79   | 0.003655   | 6.22     | 616.92    | 963.29    | 0.56         |
| 1     | 37738     | 100-YR  | Corr Eff add XS  | 1290.00 | 6084.70   | 6088.48   | 6088.19   | 6088.79   | 0.003655   | 6.22     | 616.92    | 963.29    | 0.56         |
| 1     | 37738     | 100-YR  | Prop Option 1    | 1290.00 | 6084.70   | 6088.48   | 6088.19   | 6088.79   | 0.003655   | 6.22     | 616.92    | 963.29    | 0.56         |
| 1     | 37738     | 100-YR  | Prop Option 2    | 1290.00 | 6084.70   | 6088.48   | 6088.19   | 6088.79   | 0.003655   | 6.22     | 616.92    | 963.29    | 0.56         |
| 1     | 37738     | 100-YR  | Prop Option 3    | 1290.00 | 6084.70   | 6088.48   | 6088.19   | 6088.79   | 0.003655   | 6.22     | 616.92    | 963.29    | 0.56         |
| 1     | 37738     | 100-YR  | Corrected Eff    | 1290.00 | 6084.70   | 6088.48   | 6088.19   | 6088.79   | 0.003655   | 6.22     | 616.92    | 963.29    | 0.56         |

HEC-RAS River: Flat Creek Reach: 1 Profile: 100-YR (Continued)

| Reach | River Sta | Profile | Plan             | 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)      |              |
| 1     | 38668     | 100-YR  | Duplicate Effect | 1290.00 | 6089.10   | 6090.96   |           | 6091.02   | 0.002776   | 3.39     | 910.77    | 1380.46   | 0.44         |
| 1     | 38668     | 100-YR  | Corr Eff add XS  | 1290.00 | 6089.10   | 6090.96   |           | 6091.02   | 0.002776   | 3.39     | 910.77    | 1380.46   | 0.44         |
| 1     | 38668     | 100-YR  | Prop Option 1    | 1290.00 | 6089.10   | 6090.96   |           | 6091.02   | 0.002776   | 3.39     | 910.77    | 1380.46   | 0.44         |
| 1     | 38668     | 100-YR  | Prop Option 2    | 1290.00 | 6089.10   | 6090.96   |           | 6091.02   | 0.002776   | 3.39     | 910.77    | 1380.46   | 0.44         |
| 1     | 38668     | 100-YR  | Prop Option 3    | 1290.00 | 6089.10   | 6090.96   |           | 6091.02   | 0.002776   | 3.39     | 910.77    | 1380.46   | 0.44         |
| 1     | 38668     | 100-YR  | Corrected Eff    | 1290.00 | 6089.10   | 6090.96   |           | 6091.02   | 0.002776   | 3.39     | 910.77    | 1380.46   | 0.44         |



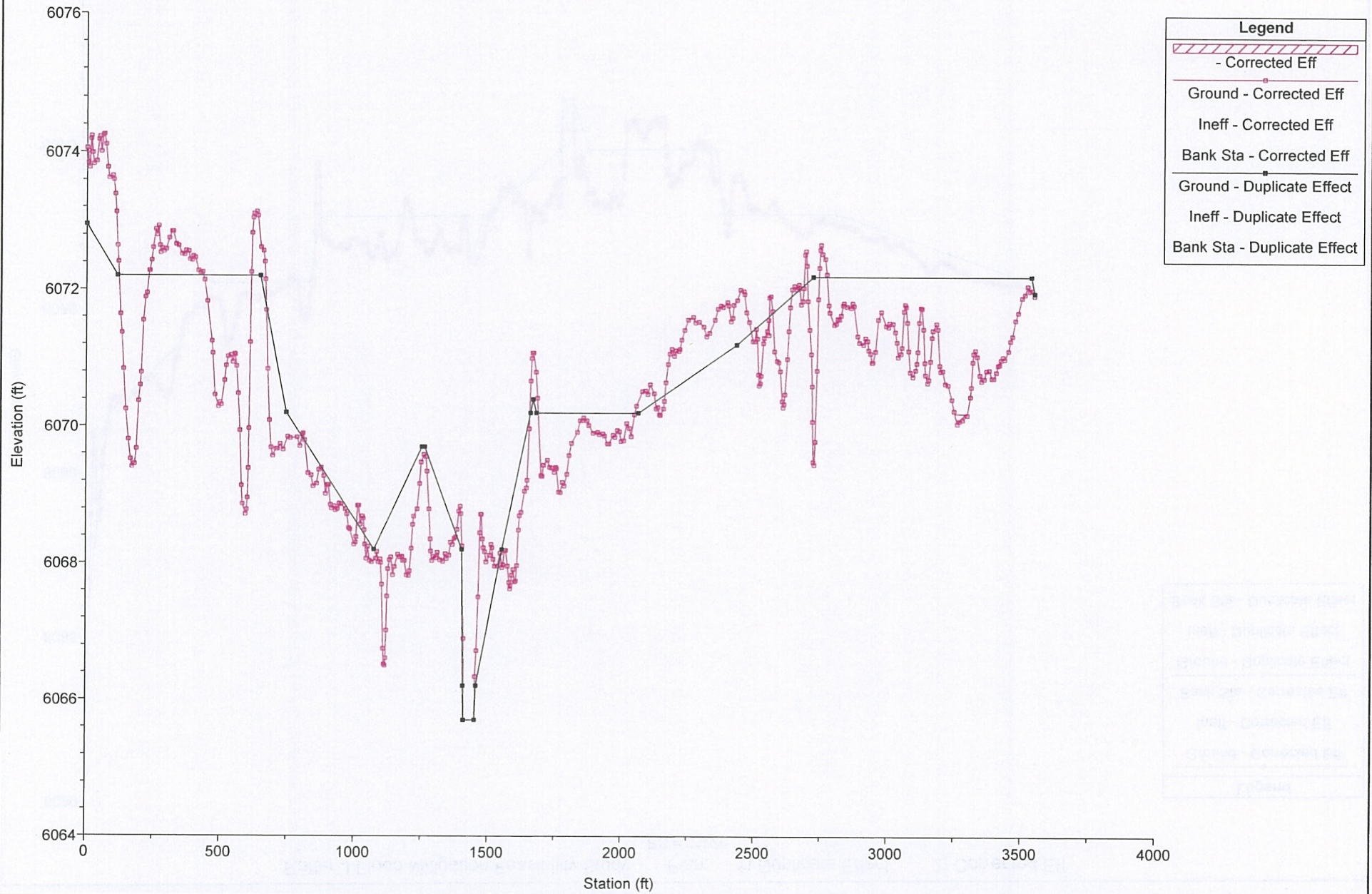
**HEC-RAS Cross Section Plots  
Duplicate Effect vs. Corrected Effective**



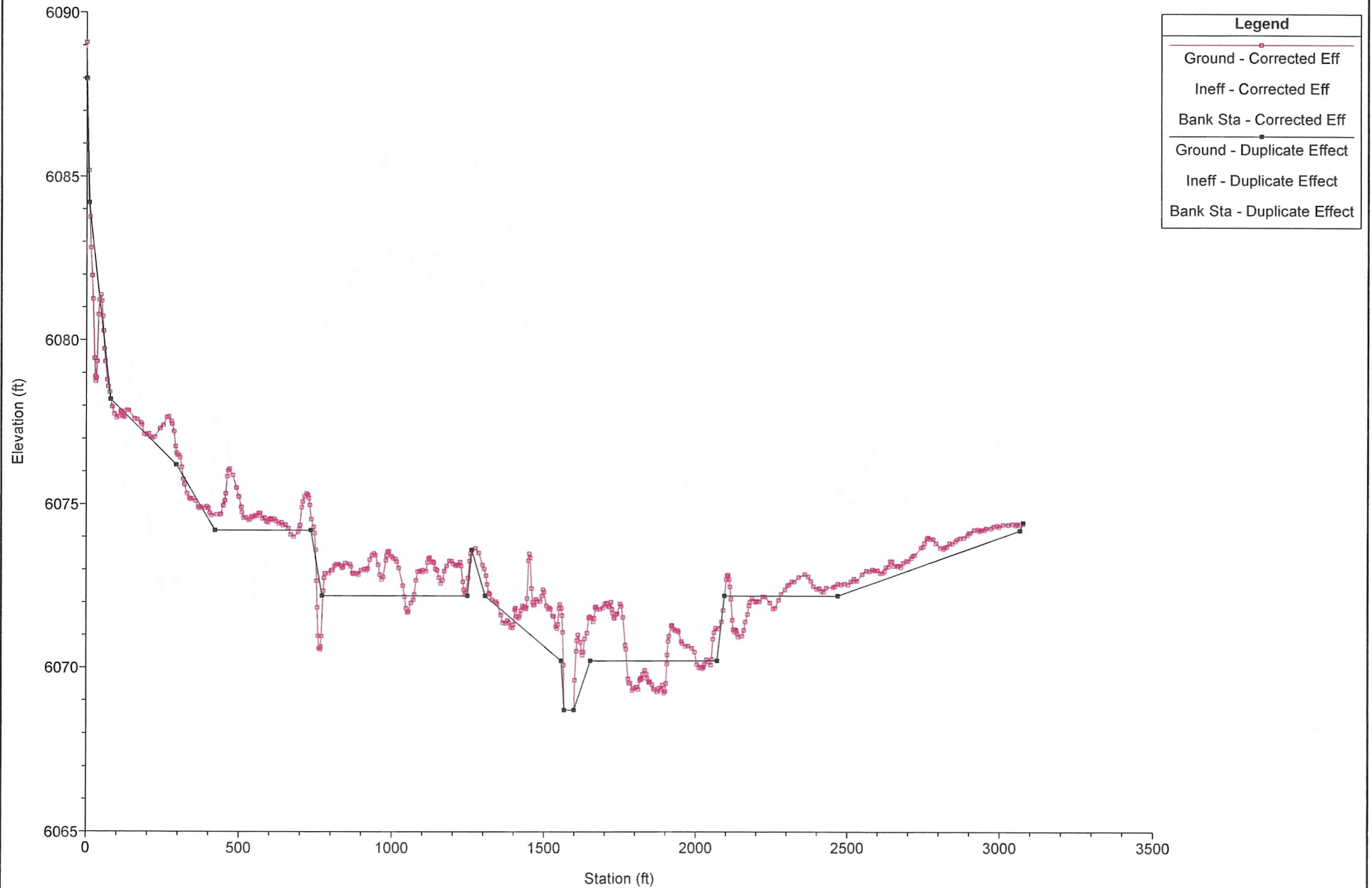




Rafter J Flood Mitigation Feasibility Study    Plan:    1) Duplicate Effect    2) Corrected Eff  
 RS = 30074

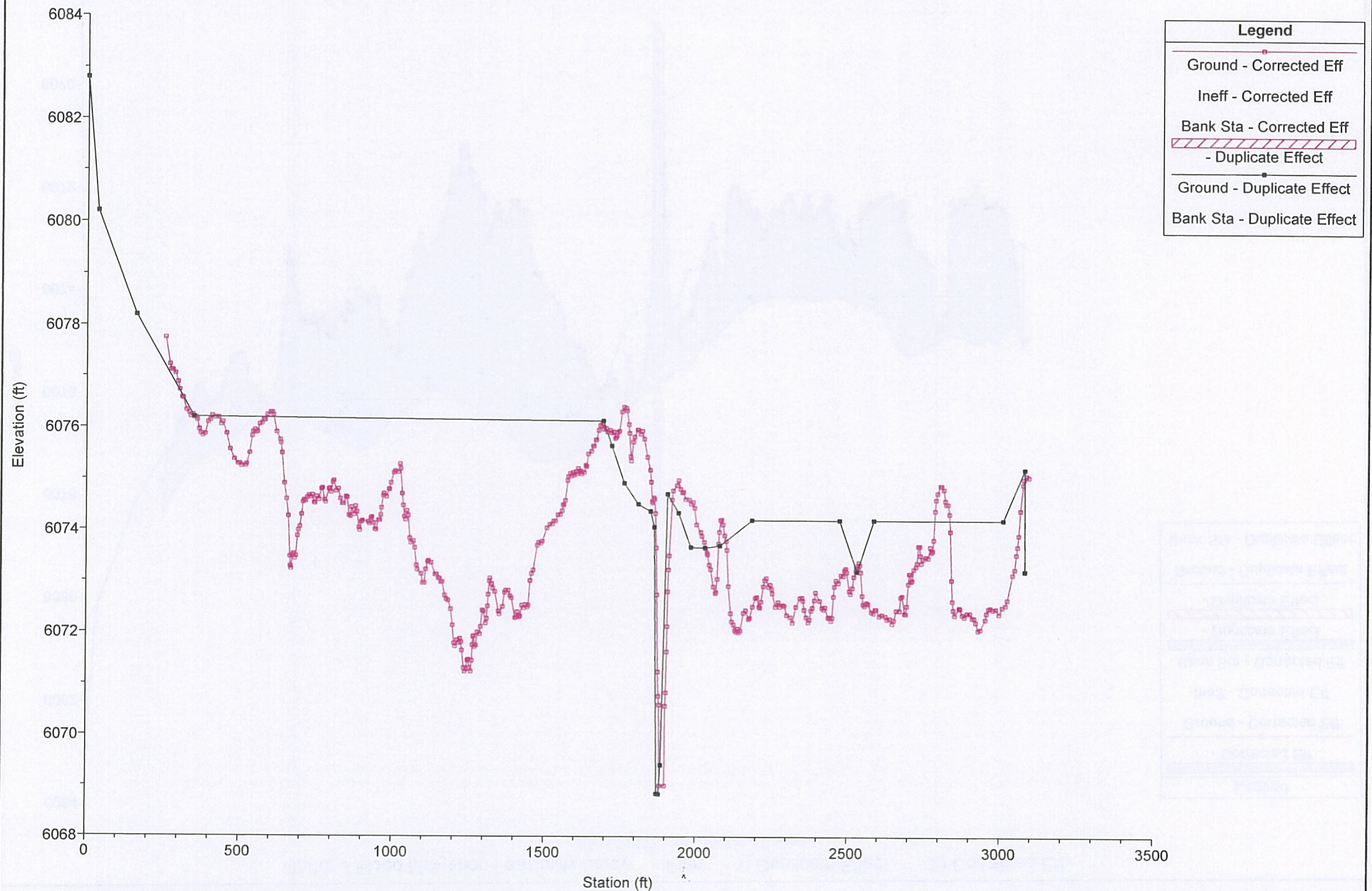


Rafter J Flood Mitigation Feasibility Study    Plan:    1) Duplicate Effect    2) Corrected Eff  
RS = 31220



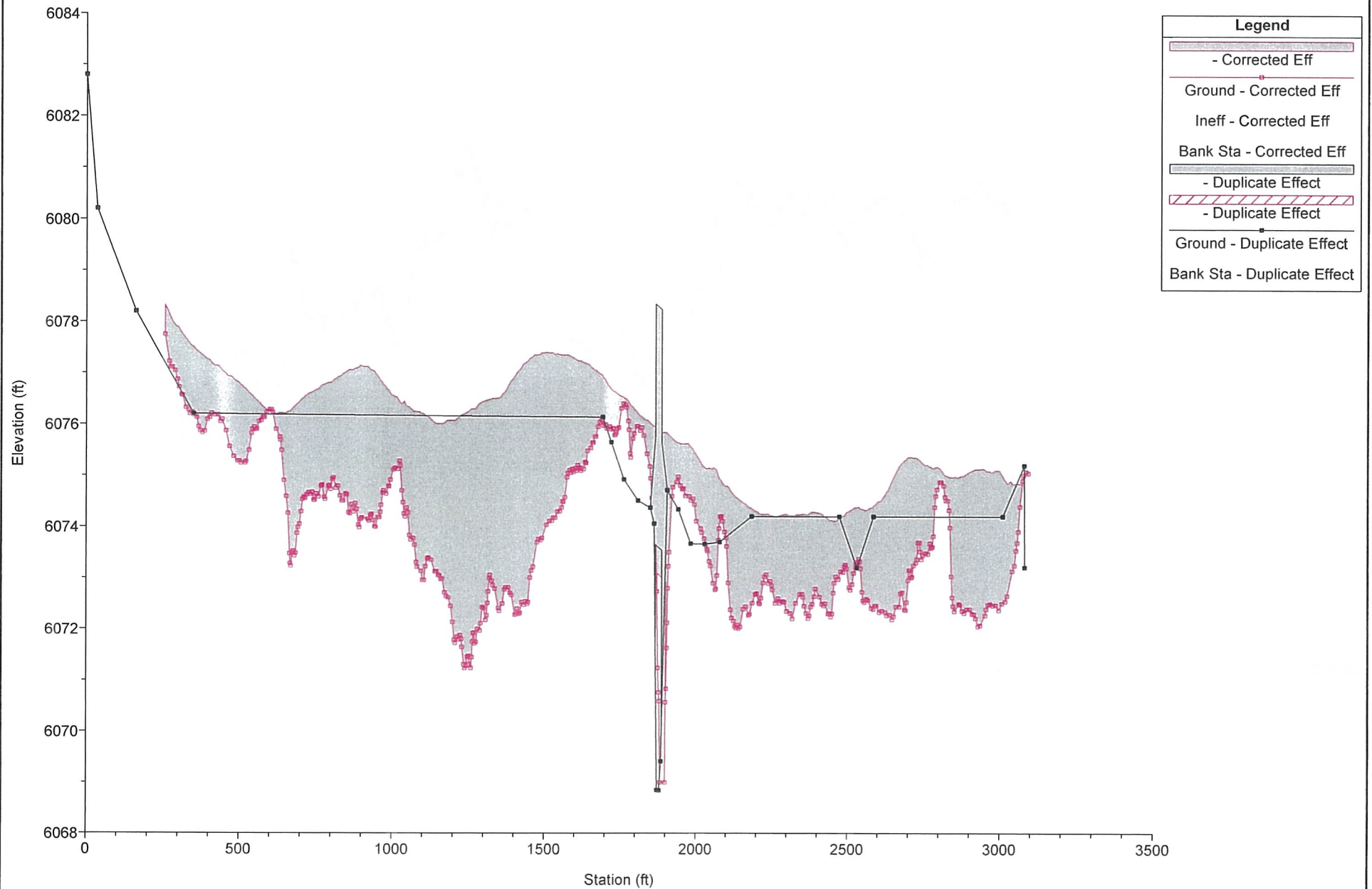


Rafter J Flood Mitigation Feasibility Study    Plan:    1) Duplicate Effect    2) Corrected Eff  
RS = 31558    Downstream of Rafter J Bridge

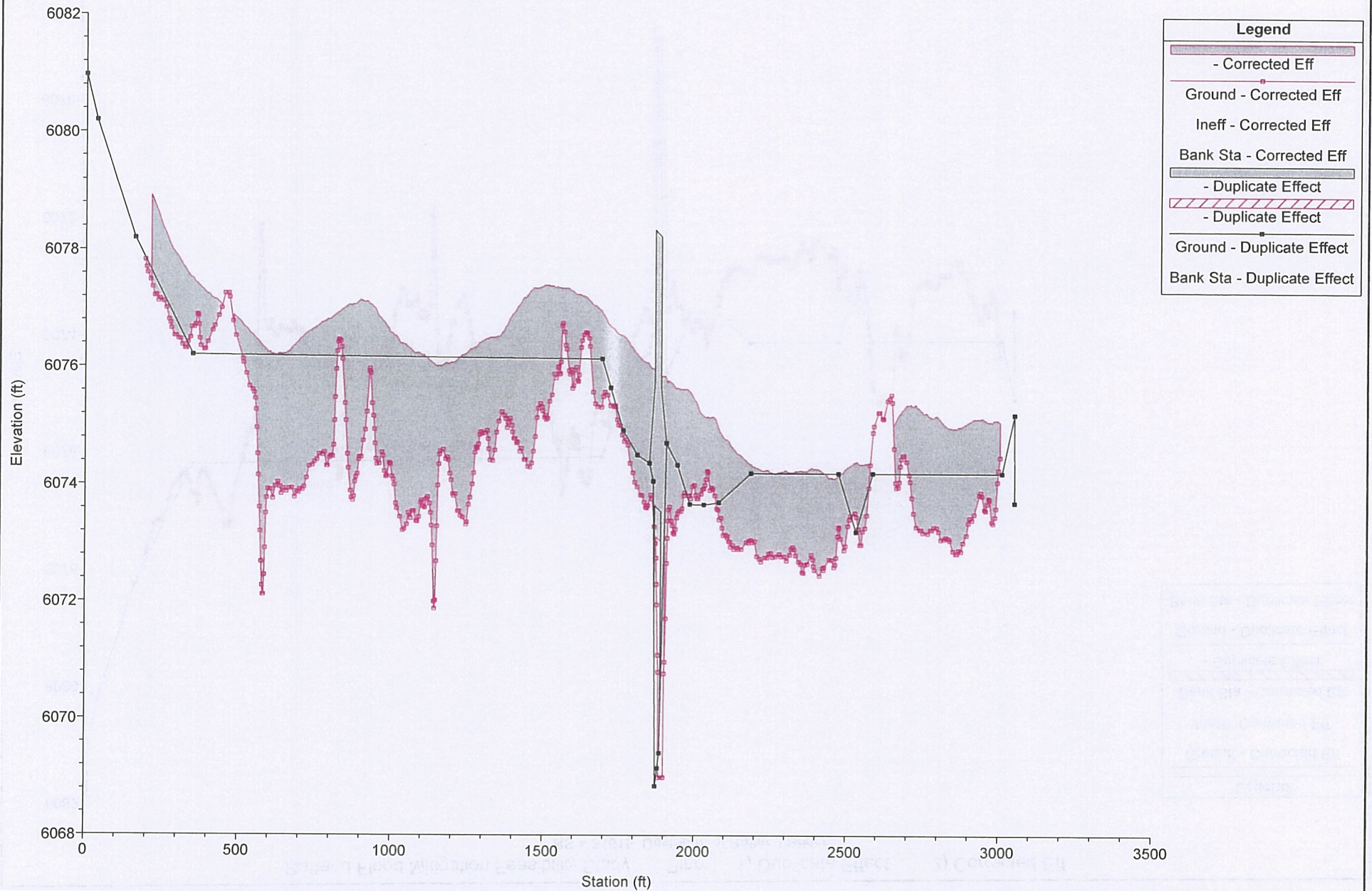




Rafter J Flood Mitigation Feasibility Study    Plan:    1) Duplicate Effect    2) Corrected Eff  
RS = 31602    BR Rafter J Bridge

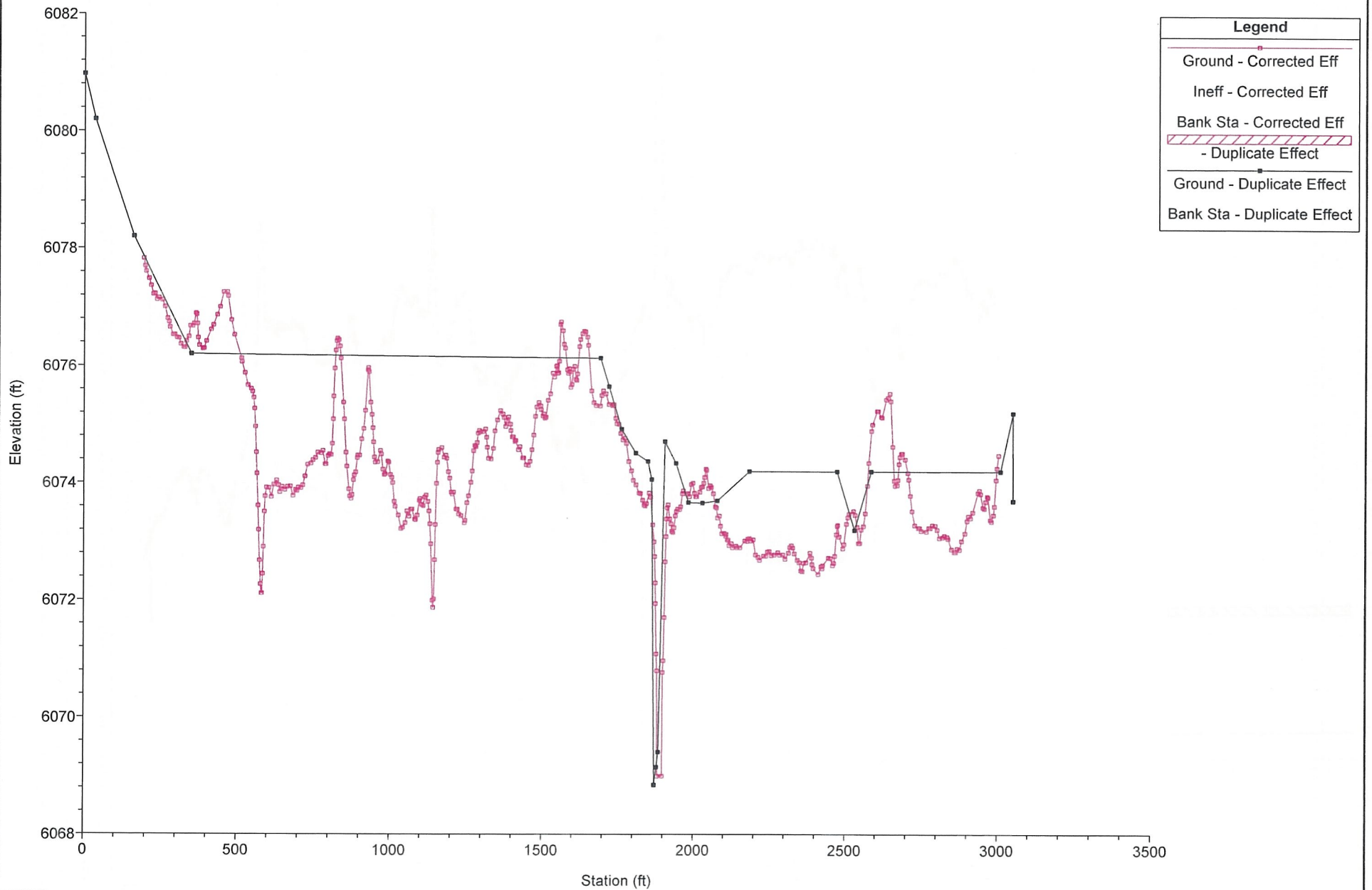


Rafter J Flood Mitigation Feasibility Study Plan: 1) Duplicate Effect 2) Corrected Eff  
RS = 31602 BR Rafter J Bridge





Rafter J Flood Mitigation Feasibility Study    Plan:    1) Duplicate Effect    2) Corrected Eff  
RS = 31615 Upstream of Rafter J Bridge

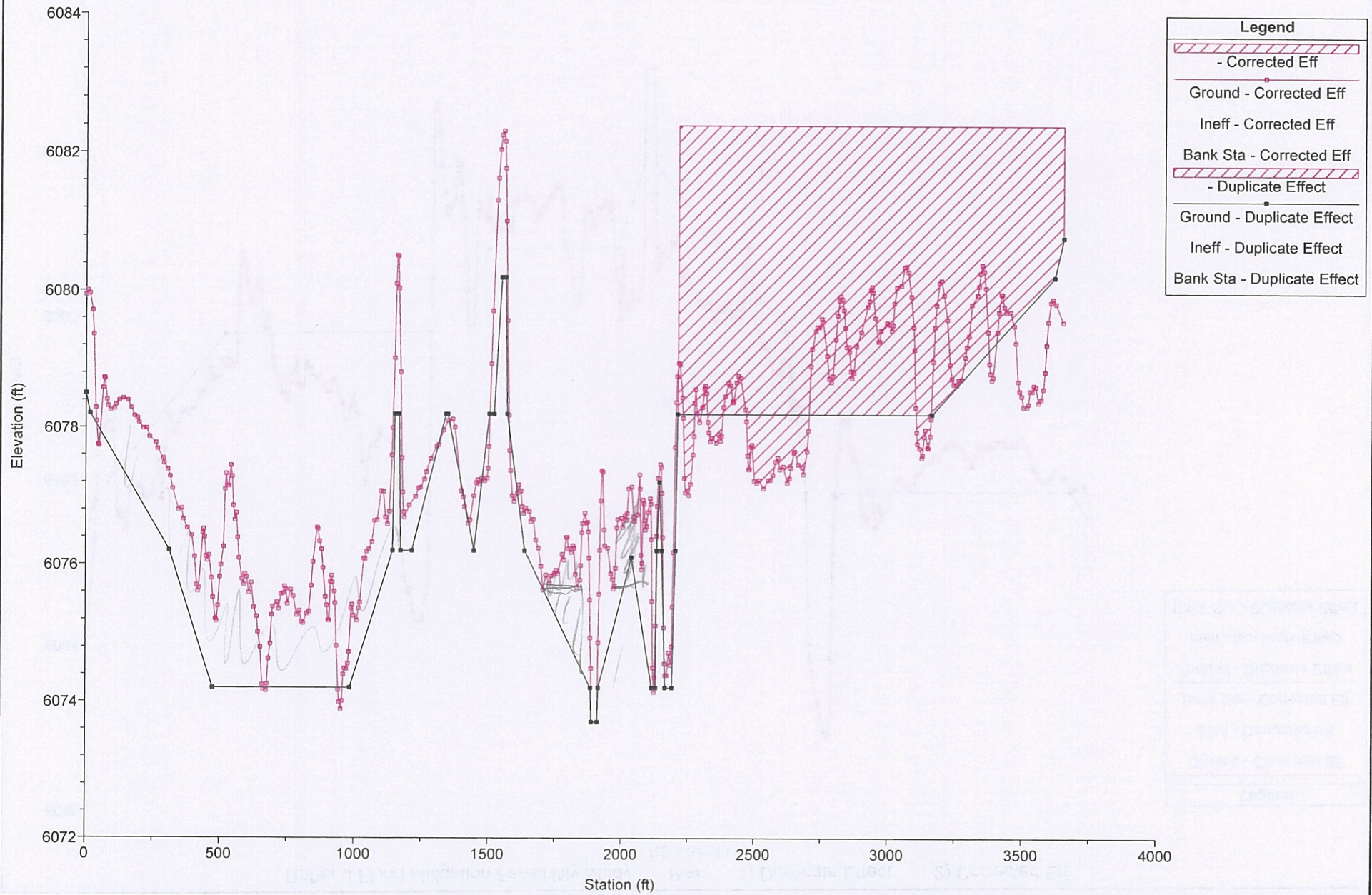


| Rafter J Flood Mitigation Feasibility Study | Plan:      | 1) Duplicate Effect | 2) Corrected Eff |
|---------------------------------------------|------------|---------------------|------------------|
|                                             | RS = 32973 |                     |                  |

RS = 32973

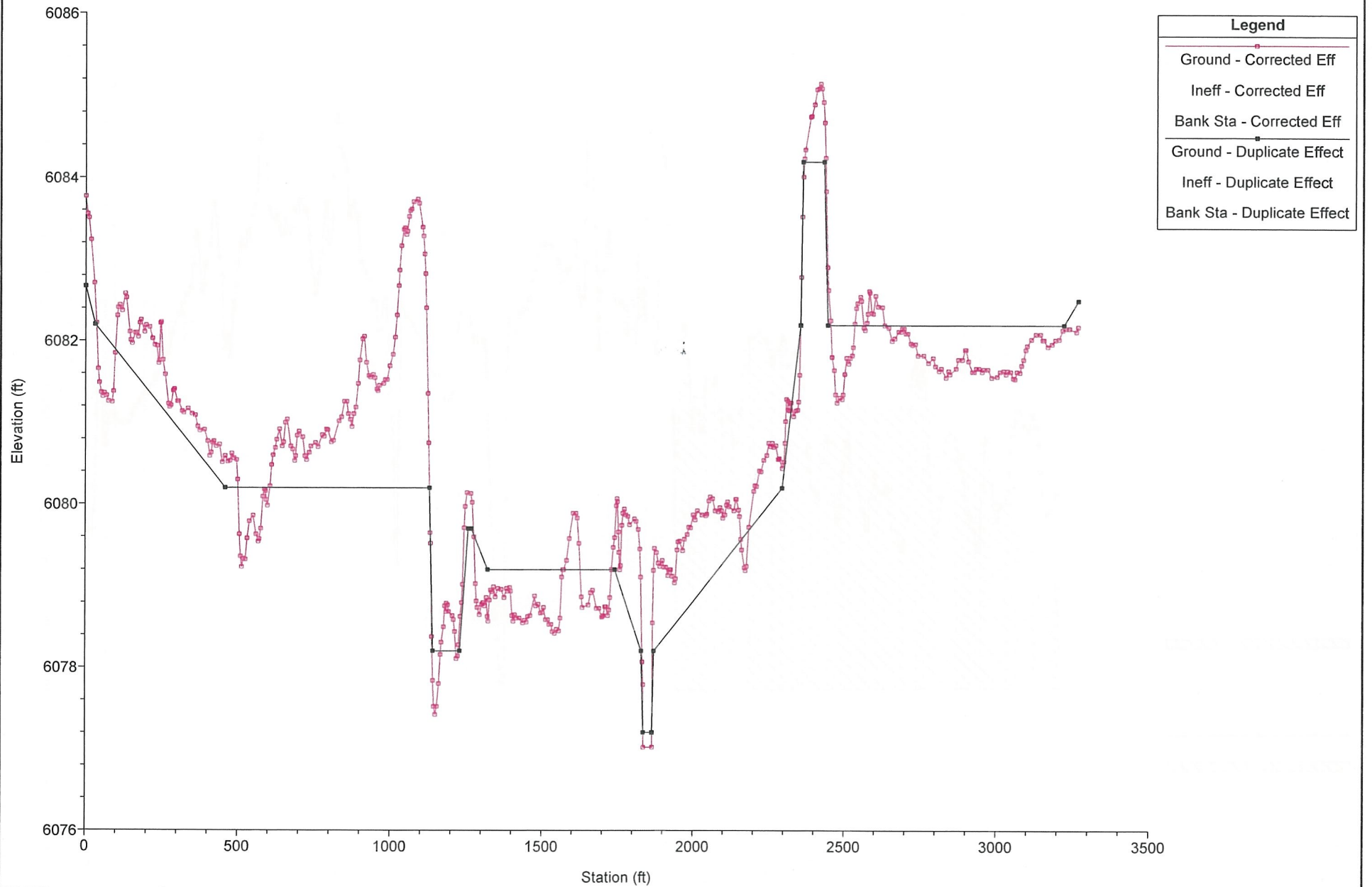
Plan: 1) Duplicate Effect

2) Corrected Eff



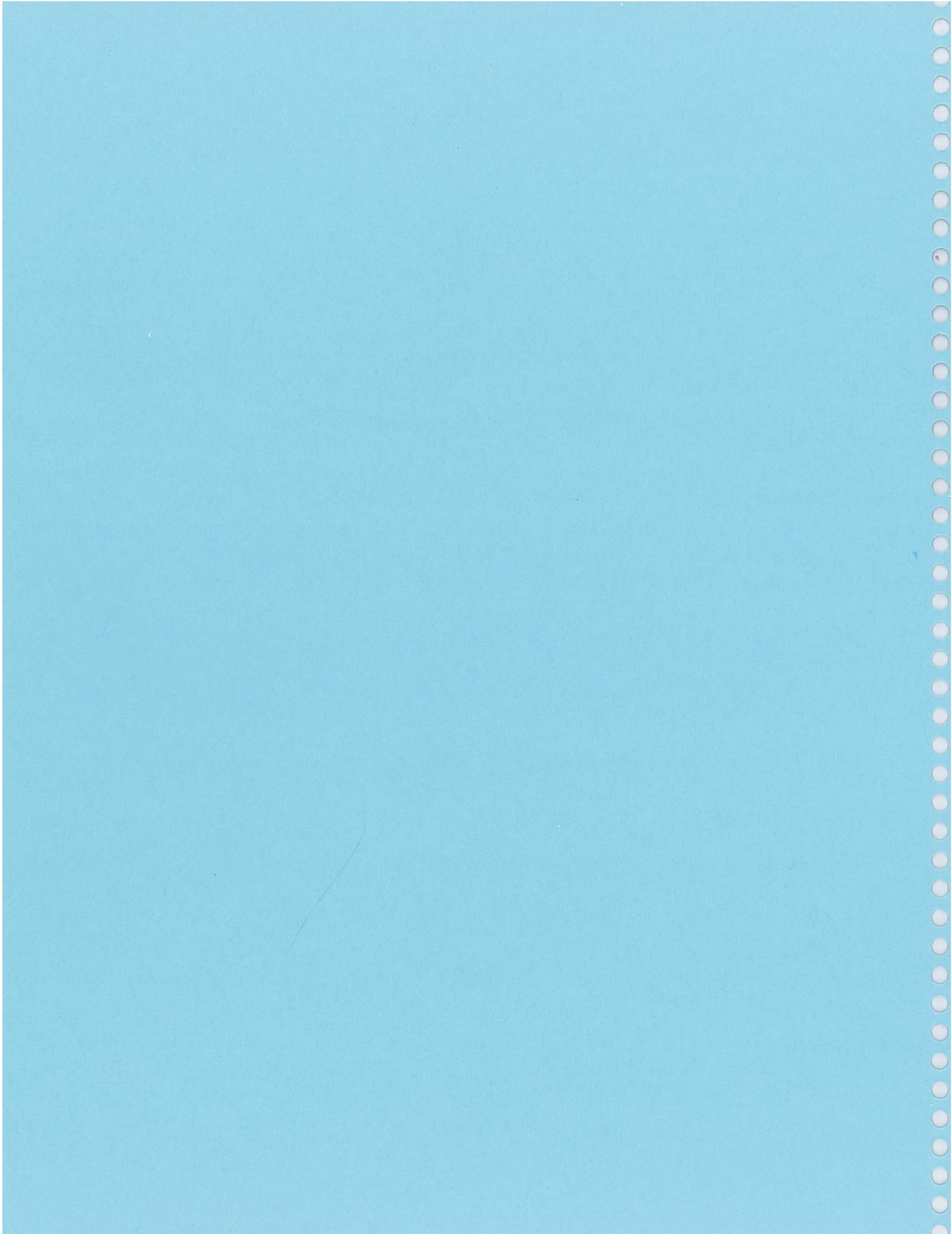


Rafter J Flood Mitigation Feasibility Study    Plan:    1) Duplicate Effect    2) Corrected Eff  
RS = 34540



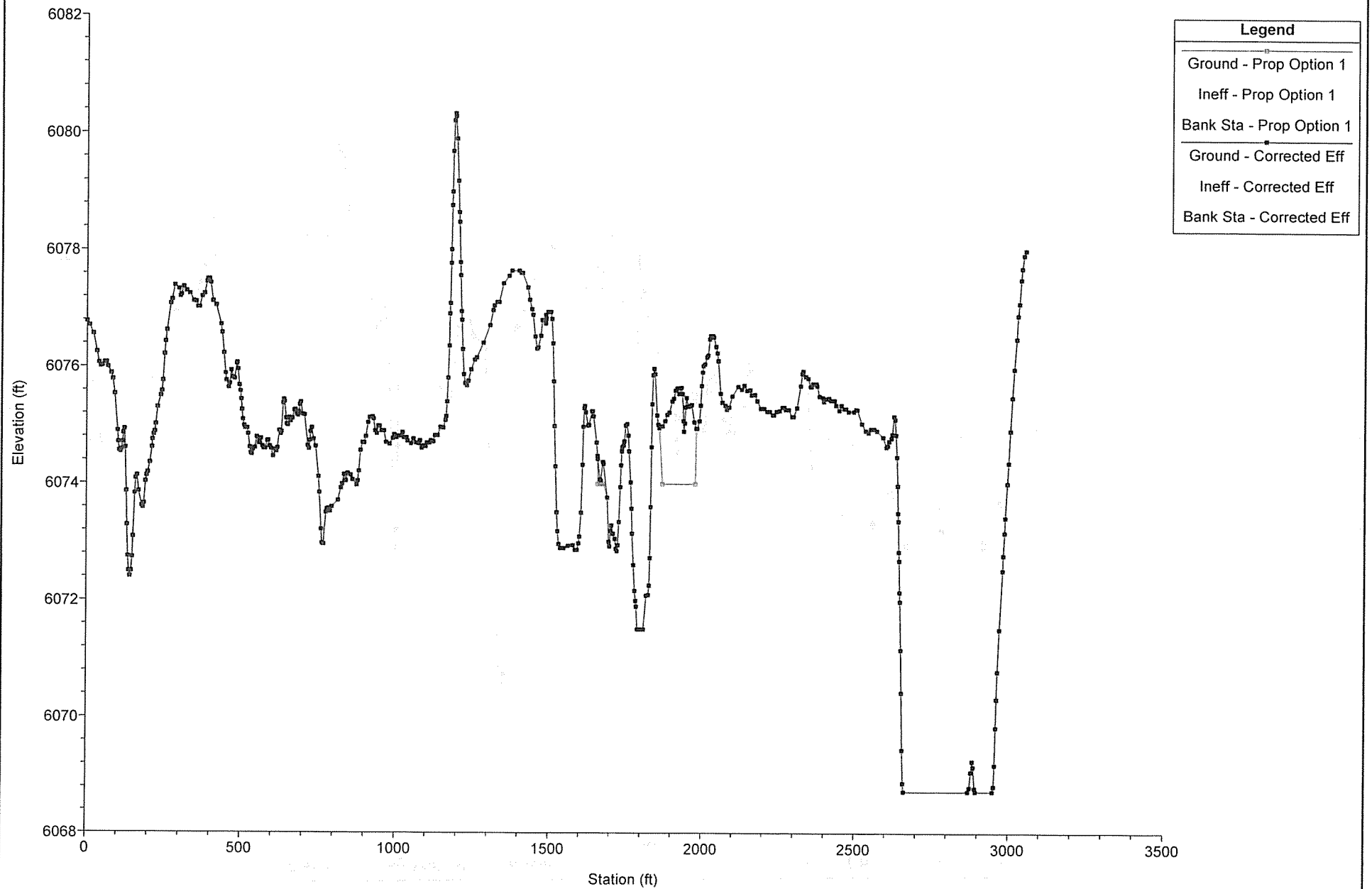
**HEC-RAS Cross Section Plots  
Corrected Effective vs. Post-Project - Option 1**



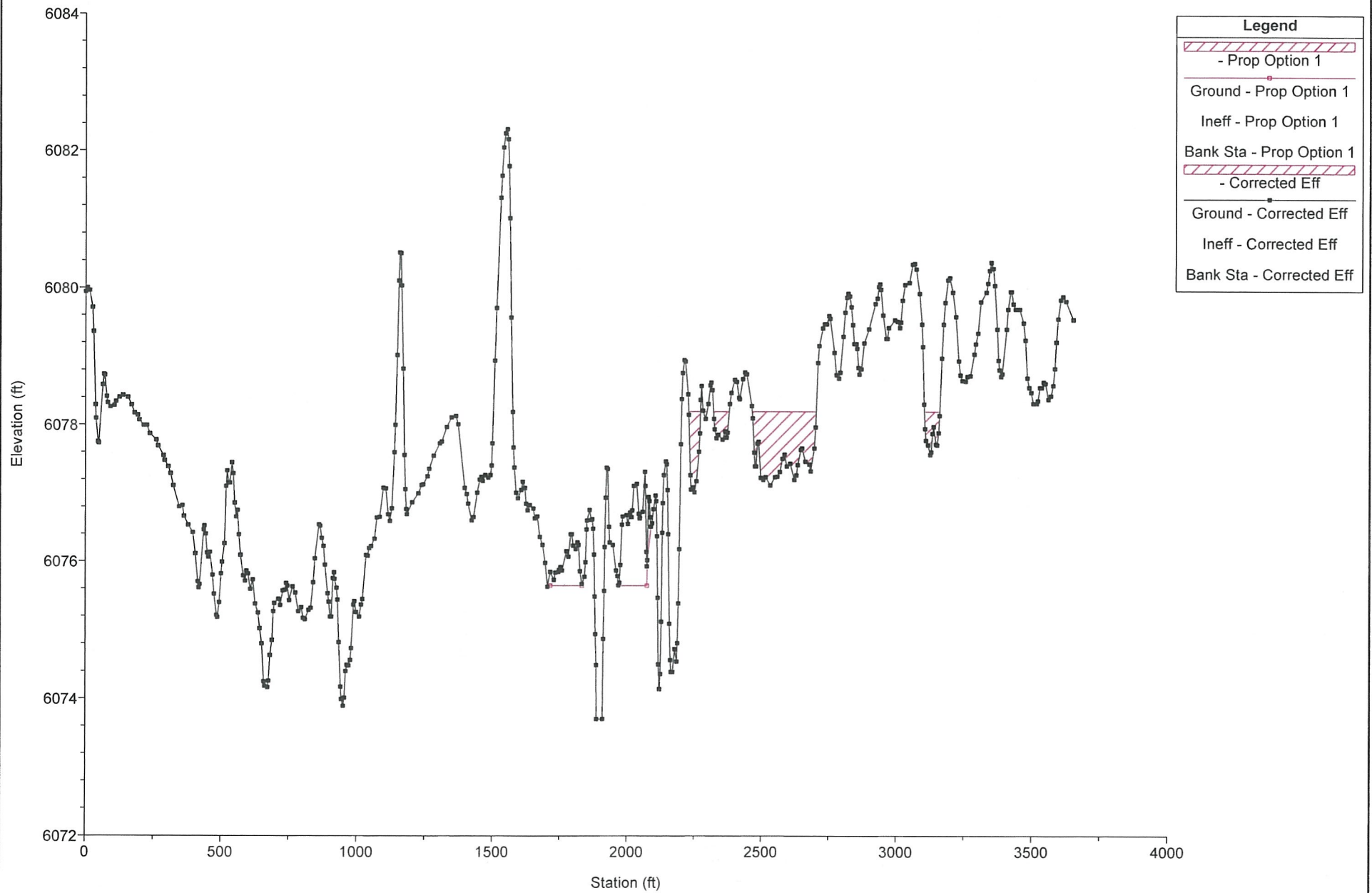




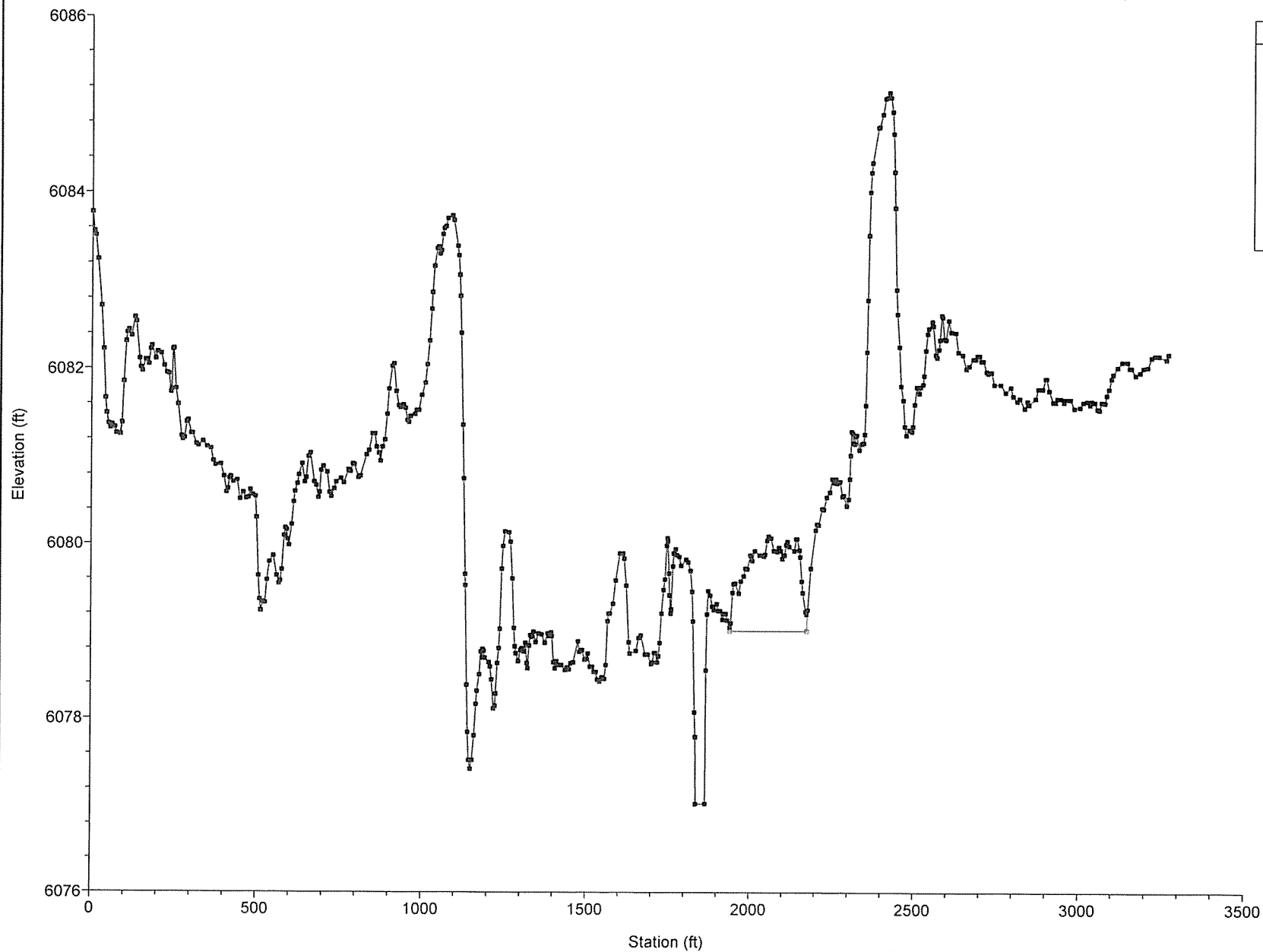
Rafter J Flood Mitigation Feasibility Study    Plan:    1) Corrected Eff    2) Prop Option 1  
RS = 32262



Rafter J Flood Mitigation Feasibility Study    Plan:    1) Corrected Eff    2) Prop Option 1  
RS = 32973



Rafter J Flood Mitigation Feasibility Study    Plan:    1) Corrected Eff    2) Prop Option 1  
RS = 34540





**Site Plans**  
**Illustrating 3 Flood Mitigation Options**







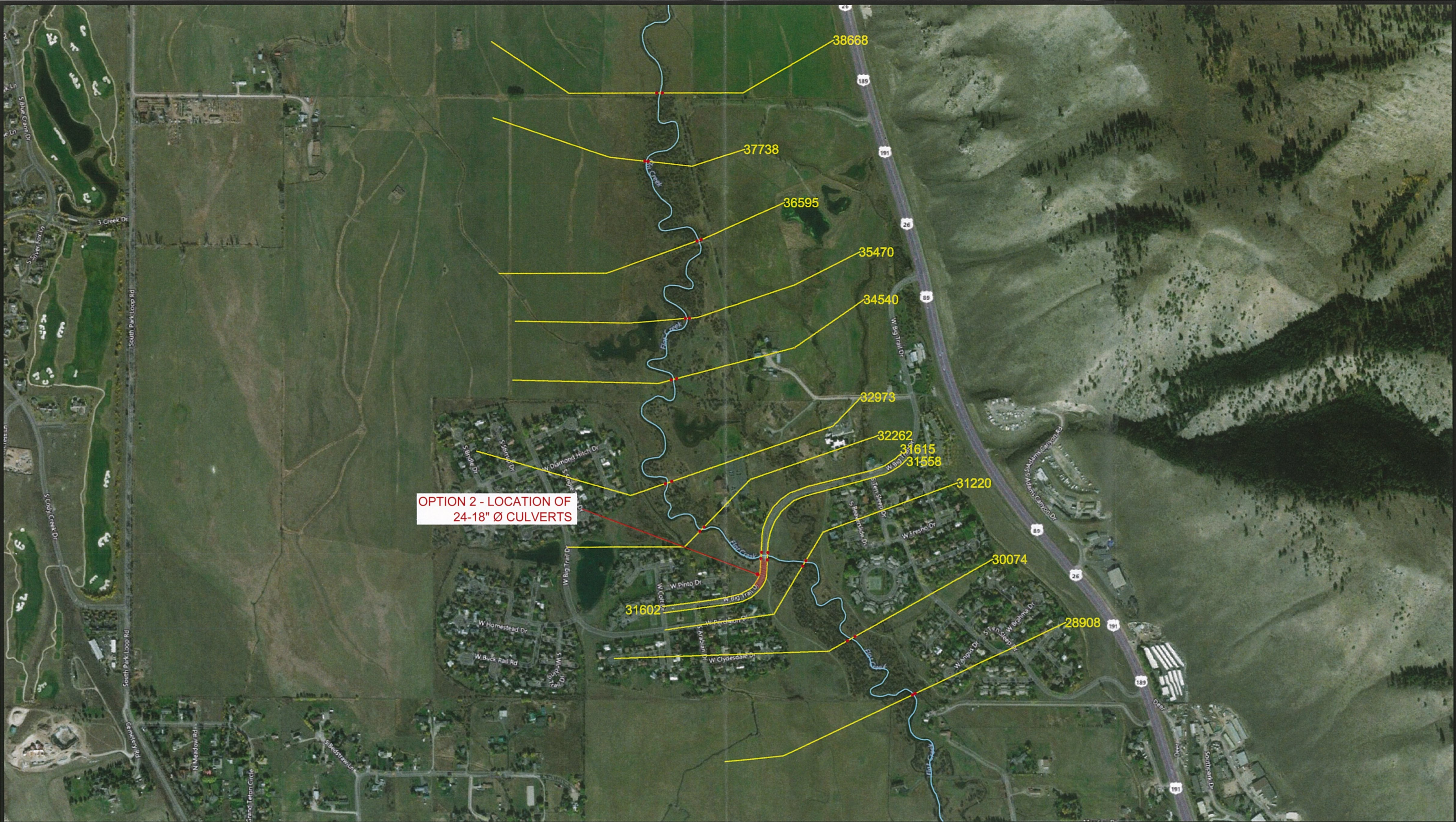




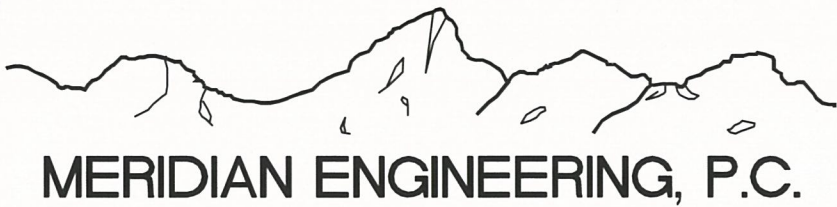




Path\\Filename: C:\\Land Projects 2009\\18-585\\dwg\\Mer Flat Cr Feasibility Study Opt 2 070618.dwg\\800 Scale Site Plan



|              |        |
|--------------|--------|
| DRAWN BY:    | DKS    |
| DATE:        | 7-6-18 |
| DESIGNED BY: |        |
| DATE:        |        |
| APPROVED BY: |        |
| DATE:        |        |



RAFTER J RANCH  
TETON COUNTY, WYOMING

FLAT CREEK  
HEC-RAS CROSS SECTION  
LAYOUT & OPTION 2









**MERIDIAN ENGINEERING, P.C.**

## FLAT CREEK HEC-RAS CROSS SECTION LAYOUT & OPTION 3



