Addendum No. 1
Conditional Letter of Map Revision
Pulsipher Wash, City of Mesquite
Clark County, Nevada

pril 2024

Prepared for:

City of Mesquite
10 East Mesquite Blvd,
Mesquite, NV 89027

CLOMR prepared by:

Southwest Hydrology & Hydraulics, LLC
PO Box 62233
Boulder City, Nevada 89005

Subcontractor for:
Civil Science Inc
1453 South Dixie Drive #150
St. George, UT 84770

Surveying prepared by:

Civil Science Inc
1453 South Dixie Drive #150
St. George, UT 84770

NATIONAL FLOOD INSURANCE PROGRAM
FEMA PRODUCTION AND TECHNICAL SERVICES CONTRACTOR

February 21, 2024

Douglas B. Blatchford, P.E.
Southwest Hydrology & Hydraulics, LLC
P.O. Box 62233
Boulder City, NV 89006

IN REPLY REFER TO:
Case No.: 24-09-0190R
Community: City of Mesquite, NV
Community No.: 320035

316-AD

Dear Douglas B. Blatchford:

This responds to your request dated December 1, 2023, that the Department of Homeland Security's Federal Emergency Management Agency (FEMA) issue a conditional revision to the Flood Insurance Rate Map (FIRM) for Clark County, Nevada and Incorporated Areas. Pertinent information about the request is listed below.

Identifier:	Pulsipher Wash CLOMR
Flooding Source:	Pulsipher Wash
FIRM Panel(s) Affected:	32003C0386F

The data required to complete our review, which must be submitted within 90 days of the date of this letter, are listed on the enclosed summary.

If we do not receive the required data within 90 days, we will suspend our processing of your request. Any data submitted after 90 days will be treated as an original submittal and will be subject to all submittal/payment procedures, including the flat review and processing fee for requests of this type established by the current fee schedule.

FEMA receives a very large volume of requests and cannot maintain inactive requests for an indefinite period of time. Therefore, we are unable to grant extensions for the submission of required data/fee for revision requests. If a requester is informed by letter that additional data are required to complete our review of a request, the data/fee **must** be submitted within 90 days of the date of the letter. Any fees already paid will be forfeited for any request for which the requested data are not received within 90 days.

If you have general questions about your request, FEMA policy, or the National Flood Insurance Program, please call the FEMA Mapping and Insurance eXchange (FMIX), toll free, at 1-877-FEMA MAP (1-877-336-2627). If you have specific questions concerning your request, please contact your case reviewer, Avalokita Tuladhar, by e-mail at Avalokita.Tuladhar@atkinsrealis.com or by telephone at +1 303-214-0852 or the Revisions Coordinator for your request, Preetham Thotakuri, P.E.,

CFM, at Preetham.Thotakuri@atkinsrealis.com or at (919) 431-5275.

Sincerely,

Daven Patel

Daven Patel, P.E., CFM
PTS Revisions Manager
STARR II

cc: Travis H. Anderson, P.E.
Public Works Director
City of Mesquite

NATIONAL FLOOD INSURANCE PROGRAM
FEMA PRODUCTION AND TECHNICAL SERVICES CONTRACTOR

February 21, 2024

Summary of Additional Data Required to Support a
Conditional Letter of Map Revision (CLOMR)

Case No.: 24-09-0190R

Requestor: Douglas B. Blatchford, P.E.

Community: City of Mesquite, NV

Community No.: 320035

The issues listed below must be addressed before we can continue the review of your request.

1. The submitted application did not include a duplicate effective hydraulic model. The effective model used to produce the Flood Insurance Rate Map (FIRM) must be obtained, reproduced on your equipment, and submitted as the duplicate effective model. As stated in the instructions for Application/Certification Form 2, Section B, Hydraulics, if the effective model is not available, a model must be developed that matches within 0.5 foot the base (1-percent-annual-chance) flood profile published in the Flood Insurance Study (FIS) report. This model should then be submitted as the duplicate effective model. Please submit a duplicate effective hydraulic model for Pulsipher Wash. Please provide paper and digital copies of the input and output files for this model.

2. Paragraph 65.6(a)(2) of the National Flood Insurance Program (NFIP) regulations states that to avoid discontinuities between revised and unrevised flood data, hydraulic analyses must have a logical transition between revised elevations of the base (1-percent-annual-chance) flood and those developed previously for areas not affected by the revision. Our review revealed that the revised conditions hydraulic analysis along Pulsipher Wash does not tie into the effective hydraulic analysis within 0.5 foot at the upstream end of the revised reach. Please provide a revised, revised conditions analysis for Pulsipher Wash that tie into the effective hydraulic analysis within 0.5 foot, or within 0.0 feet if practical.

3. The submitted topographic work map entitled Revised Effective Flood Insurance Rate Map, prepared by Southwest Hydrology & Hydraulics, LLC, signed September 29, 2023, does not provide essential information required to complete our review of this request. Please submit a revised topographic work map, certified by a registered professional engineer, that shows all applicable items listed in Section C of Application/Certification Form 2, entitled "Riverine Hydrology & Hydraulics Form," including the following information:

    a. Boundary delineations of the existing conditions base (1-percent-annual-chance) floodplain, 0.2-percent-annual-chance floodplain, and regulatory floodway;
    b. Boundary delineations of the currently effective base floodplain, 0.2-percent-annual-chance floodplain, and regulatory floodway;
    c. Logical tie-ins between the revised and effective flood hazard boundary delineations;

4. Our review indicates that the proposed project encroaches upon a regulatory floodway and will cause increases in base flood elevations (BFEs), the elevation of the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). Please provide evidence that the proposed project satisfies the requirements of subparagraph 65.12 of the National Flood Insurance Program (NFIP) regulations as stated below:

    a. Evaluation of alternatives, which would not result in any increase in flood levels within the community during the occurrence of the base flood discharge, and an explanation why these alternatives are not feasible.
    b. Documentation of individual legal notice to all impacted property owners, explaining the impact of the proposed action on their property, or please provide information to show that the increases in BFEs occur on property belonging to the requester.
    c. Certification that no structures are located in areas which would be impacted by the increased BFE.

5. Our review shows that an annotated FIRM panel is missing from the CLOMR submittal. Please submit an annotated Flood Insurance Rate Map (FIRM), at the scale of the effective FIRM, that shows the revised boundary delineations of the base (1-percent-annual-chance) floodplain / 0.2 percent annual chance floodplain / regulatory floodway shown on the submitted work map and how they tie into the boundary delineations shown on the effective FIRM at the downstream and upstream ends of the revised reach.

6. Our detailed review shows that Pulsipher Wash Corrected Effective and Revised conditions HEC-RAS hydraulic models have an upstream boundary condition defined. Please remove this boundary condition from the submitted hydraulic model or explain why it is necessary.

7. Our review of the bridge modeling along Pulsipher Wash Corrected Effective and Revised conditions HEC-RAS hydraulic model located at Cross Section 550 named Hafen Road bridge revealed that width of the bridge in corrected and revised models do not match. Please revise the modeling so the bridge with is consistent in Corrected Effective and Revised conditions models or provide an explanation for the discrepancy.

8. Please provide detailed plans for all new or modified flood control structures modeled, certified by a registered professional engineer. The plans should include the following information:

    a. Dimensions (height, width, span, radius, length);
    b. Shape (culverts only);
    c. Material;
    d. Distance between cross sections;
    e. Erosion protection;
    f. Top-of-road elevations – upstream and downstream;
    g. Structure invert elevations –upstream and downstream;
    h. Stream invert elevations – upstream and downstream; and
    i. Cross-section locations

9. The typical contraction and expansion loss coefficients are equal to 0.3 and 0.5, respectively, bridge and culvert. Please revise the submitted hydraulic model so that the contraction and expansion loss coefficients are equal to 0.3 and 0.5, respectively, for two cross sections upstream and one cross section downstream of the culvert or provide an explanation why the contraction and expansion loss coefficients used in the model were chosen.

10. The left encroachment stations in the revised conditions model are within the channel for cross sections 200, 300, 600, 700, 800, 900, 1000, 1200 and 1700. The left encroachment station can be placed at the left channel bank station or outside the bank stations. Please revise the modeling so that the encroachment stations are not inside the bank stations.

11. The right encroachment stations in the revised conditions model are within the channel for cross sections 200, 300, 700, 1000, 1200, 1250, 1650 and 1800. The right encroachment station can be placed at the right channel bank station or outside the bank stations. Please revise the modeling so that the encroachment stations are not inside the bank stations.

12. Our review of the submitted revised conditions HEC-RAS model shows that the left channel bank elevation is higher than the 1-percent-annual-chance water surface elevation for cross sections 200, 600, 700, 800, 900, 1000, 1100, 1200, 1250, 1650 and 1800. Relocate the left channel bank station at or below the 1-percent-annual-chance water surface elevation.

13. Our review of the submitted revised conditions HEC-RAS model shows that the right channel bank elevation is higher than the 1-percent-annual-chance water surface elevation for cross sections 600, 1000, 1250, 1550, 1650, 1700, 1750 and 1800. Relocate the right channel bank station at or below the 1-percent-annual-chance water surface elevation.

14. The 1-percent-annual-chance floodplain in the submitted revised conditions HEC-RAS model is outside of the channel for cross sections 415, 1300, 1350, 1400, 1450 and 1500. Adjust the left encroachment station so that it will be within the floodplain.

15. The 1-percent-annual-chance floodplain in the submitted revised conditions HEC-RAS model is outside of the channel for cross sections 415, 1300, 1350, 1400, 1450, 1500 and 1600. Adjust the right encroachment station so that it will be within the floodplain.

16. The 1-percent annual chance flood in the submitted revised conditions HEC-RAS model is contained within the channel for cross sections 1100, 1600, 1650, 1750 and 1800. Adjust the left encroachment station so that it is the same as the left channel bank station.

17. The 1-percent annual chance flood in the submitted revised conditions HEC-RAS model is contained within the channel for cross sections 900, 1700 and 1750. Adjust the right encroachment station so that it is the same as the right channel bank station.

18. Please provide information that shows that the increase in SFHA and floodway width occurs on property belonging to the requestor or provide individual legal notice from the community to all affected property owners explaining the increase in SFHA and floodway width on their property. Please submit a draft copy of the notification for verification of content, prior to distribution.

19. The submitted CLOMR request involves revising the regulatory floodway for Pulsipher Wash. In accordance with Paragraph 65.7(b)(1) of the National Flood Insurance Program (NFIP) regulations, please submit a copy of the public notice distributed by the City of Mesquite stating its intent to revise the regulatory floodway, or a signed statement by the community official stating that the community has notified all affected property owners of the proposed revision on their property.

Please send the required data and/or fee directly to us at the address shown at the bottom of the first page attention to Avalokita Tuladhar, STARR II. For identification purposes, please include the case number

referenced above on all correspondence.

April 12, 2024

FEMA
LOMC Clearinghouse
3601 Eisenhower Avenue, Suite 500,
Alexandria, VA 22304-6426

RE: Case No.: 24-09-0190R
Pulsipher Wash

Attn: Avalokita Tuladhar, STARR II

Dear Mr. Tuladhar,

Southwest Hydrology & Hydraulics, LLC is in receipt of the comment letter dated February 21, 2024 for the above referenced project, with responses listed as follows:

The comments are addressed as follows:

1. **The submitted application did not include a duplicate effective hydraulic model. The effective model used to produce the Flood Insurance Rate Map (FIRM) must be obtained, reproduced on your equipment, and submitted as the duplicate effective model. As stated in the instructions for Application/Certification Form 2, Section B, Hydraulics, if the effective model is not available, a model must be developed that matches within 0.5 foot the base (1-percent-annual-chance) flood profile published in the Flood Insurance Study (FIS) report. This model should then be submitted as the duplicate effective model. Please submit a duplicate effective hydraulic model for Pulsipher Wash. Please provide paper and digital copies of the input and output files for this model.**

   Response:

   An electronic version of the Duplicate Effective model has been provided with this response, including printed versions of the model report and model output. The electronic Duplicate Effective model was created by entering the latest model data for Pulsipher Wash for LOMR 11-09-4157 eff 12/14/2012. For example, the data entry included, but was not limited to, the exact cross section station/elevation input, bank stations, distance between cross sections, Manning's roughness coefficients, ineffective flow areas, and encroachments. The model results are located in the Appendix and at the \1DUPLICATE EFFECTIVE folder of the attached external thumb drive.

2. **Paragraph 65.6(a)(2) of the National Flood Insurance Program (NFIP) regulations states that to avoid discontinuities between revised and unrevised flood data, hydraulic analyses must have a logical transition between revised elevations of the base (1-percent-annual-chance) flood and those developed previously for areas not affected by the revision. Our review**

revealed that the revised conditions hydraulic analysis along Pulsipher Wash does not tie into the effective hydraulic analysis within 0.5 foot at the upstream end of the revised reach. Please provide a revised, revised conditions analysis for Pulsipher Wash that tie into the effective hydraulic analysis within 0.5 foot, or within 0.0 feet if practical.

Response:

The submitted revised effective model and effective model on record tied vertically within 0.5 ft at RS 19+00. Table 1 summarizes what was submitted:

Table 1 – Upstream tie-in BFE/Floodway Comparisons – September 2023

	Effective [1]	Revised Effective [2]	Difference [2]-[1]
RS 19+00 - BFE	1593.3	1593.28	-.02
RS 19+00 - Floodway	1593.8	1593.78	-.02

The latest model results reflect the changes made to encroachment and bank stations. The latest Revised Effective model in this submittal still ties into the Effective model BFE/Floodway within 0.5 ft, as summarized in Table 2:

Table 2 – Tie-in BFE/Floodway Comparisons -March 2024

	Effective [1]	Revised Effective [2]	Difference [2]-[1]
RS 19+00 - BFE	1593.3	1593.3	0
RS 19+00 - Floodway	1593.8	1593.3	-0.5
RS 2+00 - BFE	1959.2	1959.4	+.2
RS 2+00 - Floodway	1959.9	1959.4	-0.5

BFE and Floodway difference is 0.5 ft which meets the FEMA tie-in criterion.

3. **The submitted topographic work map entitled Revised Effective Flood Insurance Rate Map, prepared by Southwest Hydrology & Hydraulics, LLC, signed September 29, 2023, does not provide essential information required to complete our review of this request. Please submit a revised topographic work map, certified by a registered professional engineer, that shows all applicable items listed in Section C of Application/Certification Form 2, entitled "Riverine Hydrology & Hydraulics Form," including the following information:**

    a. **Boundary delineations of the existing conditions base (1-percent-annual-chance) floodplain, 0.2-percent-annual-chance floodplain, and regulatory floodway;**
    b. **Boundary delineations of the currently effective base floodplain, 0.2-percent-annual- chance floodplain, and regulatory floodway;**
    c. **Logical tie-ins between the revised and effective flood hazard boundary delineations;**

Response:

A revised topographic work map has been provided as Figure 7 and included in the Appendix, and at \4CLOMR REPORT\FIGURES on the attached external thumb drive. The work map includes elevation data such as 2-ft contour information, and shows the delineation of the duplicate effective, corrected effective, and revised effective floodplain boundaries and floodway for the 1-percent and the 0.2% annual chance storm.

The effective and duplicate effective floodplain boundaries were taken directly from the FEMA geospatial data provided to the City of Mesquite, and input as layers on the topographic work map. The corrected and revised effective floodplain and floodway boundaries were defined by the model results.

Logical vertical and horizontal tie-ins occur at the upstream (RS 19+00) and downstream (RS 2+00) project limits (Figure 7). Horizontal floodplain delineations tie-in at Sta 19+00 as this location is immediately south of I-15 at a culvert location. The culvert forces the horizontal alignment of the respective floodplain boundaries to coincide. A logical horizontal tie-in also occurs at the downstream (RS 2+00) project limit, as the existing and proposed topography, conveyance, and flowrates are the same. The Zone AE and Floodway both tie together simultaneously (coincident) at RS 2+00.

Geospatial data for the effective, duplicate effective, corrected effective, and revised effective model outputs (shapefiles) are provided at 5\GIS DATA on the attached external thumb drive.

4. **Our review indicates that the proposed project encroaches upon a regulatory floodway and will cause increases in base flood elevations (BFEs), the elevation of the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). Please provide evidence that the proposed project satisfies the requirements of subparagraph 65.12 of the National Flood Insurance Program (NFIP) regulations as stated below:**

    a. **Evaluation of alternatives, which would not result in any increase in flood levels within the community during the occurrence of the base flood discharge, and an explanation why these alternatives are not feasible.**
    b. **Documentation of individual legal notice to all impacted property owners, explaining the impact of the proposed action on their property, or please provide information to show that the increases in BFEs occur on property belonging to the requester.**
    c. **Certification that no structures are located in areas which would be impacted by the increased BFE.**

Response:

An evaluation of alternatives is included in the Appendix, and is located at 4\CLOMR

REPORT\ATERNATIVE ANALYSIS on the attached external thumb drive.

A sample legal notice to all impacted property owners is also included in the Appendix. The legal notice will be finalized once this project is closer to approval, and the floodplain and floodway limits are no longer subject to change during the comment period of the review process.

A certification that no structures are located in areas which would be impacted by the increased BFE is provided in the Appendix.

5. **Our review shows that an annotated FIRM panel is missing from the CLOMR submittal. Please submit an annotated Flood Insurance Rate Map (FIRM), at the scale of the effective FIRM, that shows the revised boundary delineations of the base (1-percent-annual-chance) floodplain / 0.2 percent annual chance floodplain / regulatory floodway shown on the submitted work map and how they tie into the boundary delineations shown on the effective FIRM at the downstream and upstream ends of the revised reach.**

   Response:

   The annotated FIRM was provided in Figure 6 in the September 2023 submittal, which has been re-submitted at 500 scale, the scale of the FIRM for the project site, panel number 32003C0386F for the City of Mesquite. The published geospatial data for Clark County and the City of Mesquite have been provided again on Figure 6 on a 500-scale layout, including the tie-in locations at RS 2+00 and RS 19+00. The tie-ins were derived from the topographic work map and are indicated on the 500-scale layout. Figure 6 is included in the Appendix and located at 4\CLOMR REPORT\FIGIRES on the attached external thumb drive.

6. **Our detailed review shows that Pulsipher Wash Corrected Effective and Revised conditions HEC- RAS hydraulic models have an upstream boundary condition defined. Please remove this boundary condition from the submitted hydraulic model or explain why it is necessary.**

   Response:

   The upstream boundary condition has been removed and replaced with a normal depth boundary condition based on the existing slope (.005 ft/ft) at RS 19+00 for the upstream tie-in and the existing slope (.003 ft/ft) at RS 2+00 at the downstream tie-in.

7. **Our review of the bridge modeling along Pulsipher Wash Corrected Effective and Revised conditions HEC-RAS hydraulic model located at Cross Section 550 named Hafen Road bridge revealed that width of the bridge in corrected and revised models do not match. Please revise the modeling so the bridge width is consistent in Corrected Effective and Revised conditions models or provide an explanation for the discrepancy.**

   Response:

The width of the bridge changes from existing conditions in the Corrected Effective model vs proposed conditions in the Revised Effective model. In the Corrected Effective model, the existing bridge width is 102 ft, whereas in the Revised Effective model the bridge width is 149.8 ft. This difference in width is because the existing bridge/culvert is being extended to the south of Hafen Road.

8. **Please provide detailed plans for all new or modified flood control structures modeled, certified by a registered professional engineer. The plans should include the following information:**

    a. **Dimensions (height, width, span, radius, length);**
    b. **Shape (culverts only);**
    c. **Material;**
    d. **Distance between cross sections;**
    e. **Erosion protection;**
    f. **Top-of-road elevations – upstream and downstream;**
    g. **Structure invert elevations –upstream and downstream;**
    h. **Stream invert elevations – upstream and downstream; and**
    i. **Cross-section locations**

    Response:

    Plans for construction certified by Kelvin C Smith, licensed engineer in the State of Nevada, C30614, were provided in the September 2023 submittal. These plans include the information listed in the comment. The plans are resubmitted in this April 2024 submittal with the required data highlighted for ease of reference. The plans are located in the Appendix, and at 4\CLOMR REPORT\BRIDGE PLANS on the attached external thumb drive.

9. **The typical contraction and expansion loss coefficients are equal to 0.3 and 0.5, respectively, bridge and culvert. Please revise the submitted hydraulic model so that the contraction and expansion loss coefficients are equal to 0.3 and 0.5, respectively, for two cross sections upstream and one cross section downstream of the culvert or provide an explanation why the contraction and expansion loss coefficients used in the model were chosen.**

    Response:

    The revised effective model has been modified to show contraction and expansion losses of 0.3 and 0.5 for two cross sections upstream and one cross section downstream of the proposed culvert/bridge. Please note that the duplicate effective model does not reflect this change and the duplicate effective model change was reconstructed verbatim from the pdf of the effective model from LOMR.: 11-09-4157 eff 12/14/2012.

10. **The left encroachment stations in the revised conditions model are within the channel for cross sections 200, 300, 600, 700, 800, 900, 1000, 1200 and 1700.**

The left encroachment station can be placed at the left channel bank station or outside the bank stations. Please revise the modeling so that the encroachment stations are not inside the bank stations.

Response:

Modifications made.

11. **The right encroachment stations in the revised conditions model are within the channel for cross sections 200, 300, 700, 1000, 1200, 1250, 1650 and 1800. The right encroachment station can be placed at the right channel bank station or outside the bank stations. Please revise the modeling so that the encroachment stations are not inside the bank stations.**

    Response:

    Modifications made.

12. **Our review of the submitted revised conditions HEC-RAS model shows that the left channel bank elevation is higher than the 1-percent-annual-chance water surface elevation for cross sections 200, 600, 700, 800, 900, 1000, 1100, 1200, 1250, 1650 and 1800. Relocate the left channel bank station at or below the 1-percent-annual-chance water surface elevation.**

    Response:

    Modifications made.

13. **Our review of the submitted revised conditions HEC-RAS model shows that the right channel bank elevation is higher than the 1-percent-annual-chance water surface elevation for cross sections 600, 1000, 1250, 1550, 1650, 1700, 1750 and 1800. Relocate the right channel bank station at or below the 1-percent-annual-chance water surface elevation.**

    Response:

    Modifications made.

14. **The 1-percent-annual-chance floodplain in the submitted revised conditions HEC-RAS model is outside of the channel for cross sections 415, 1300, 1350, 1400, 1450 and 1500. Adjust the left encroachment station so that it will be within the floodplain.**

    Response:

    Modifications made.

15. **The 1-percent-annual-chance floodplain in the submitted revised conditions**

HEC-RAS model is outside of the channel for cross sections 415, 1300, 1350, 1400, 1450, 1500 and 1600. Adjust the right encroachment station so that it will be within the floodplain.

Response:

Modifications made.

16. **The 1-percent annual chance flood in the submitted revised conditions HEC-RAS model is contained within the channel for cross sections 1100, 1600, 1650, 1750 and 1800. Adjust the left encroachment station so that it is the same as the left channel bank station.**

Response:

Modifications made.

17. **The 1-percent annual chance flood in the submitted revised conditions HEC-RAS model is contained within the channel for cross sections 900, 1700 and 1750. Adjust the right encroachment station so that it is the same as the right channel bank station.**

Response:

Modifications made.

18. **Please provide information that shows that the increase in SFHA and floodway width occurs on property belonging to the requestor or provide individual legal notice from the community to all affected property owners explaining the increase in SFHA and floodway width on their property. Please submit a draft copy of the notification for verification of content, prior to distribution.**

Response:

A draft copy of the notification has been provided in the Appendix prior to distribution, and is also located at 4\CLOMR REPORT\NOTICES on the attached external thumb drive.

19. **The submitted CLOMR request involves revising the regulatory floodway for Pulsipher Wash. In accordance with Paragraph 65.7(b)(1) of the National Flood Insurance Program (NFIP) regulations, please submit a copy of the public notice distributed by the City of Mesquite stating its intent to revise the regulatory floodway, or a signed statement by the community official stating that the community has notified all affected property owners of the proposed revision on their property.**

Response:

A draft copy of the statement by the City of Mesquite notifying affected property owners of the proposed revision is provided in the Appendix, and is located at 4\CLOMR REPORT\NOTICES on the attached external thumb drive.

If I can be of further assistance, or if there are questions or concerns, please do not hesitate to contact me at 702-370-9852.

Very truly yours,

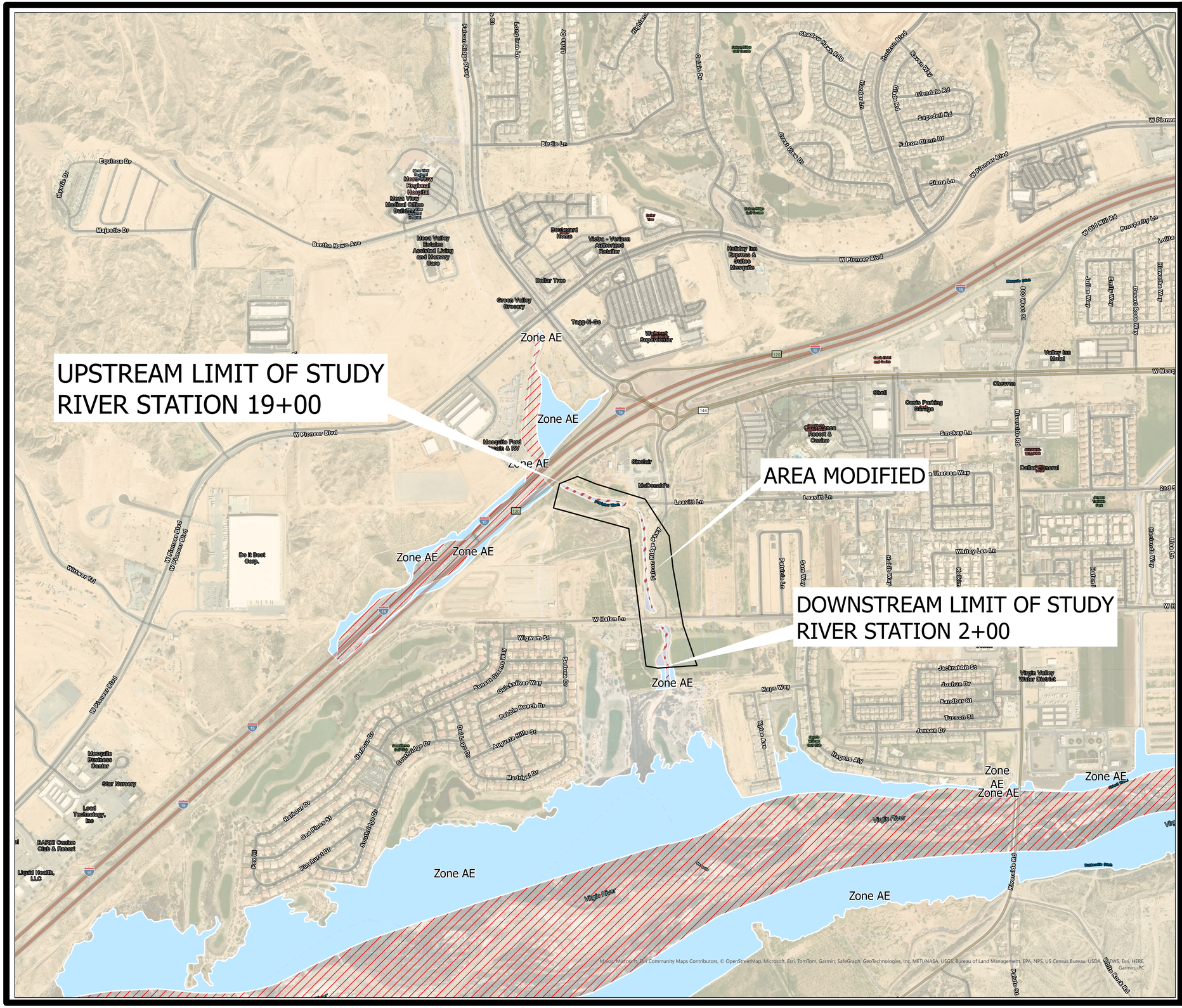
Douglas Blatchford

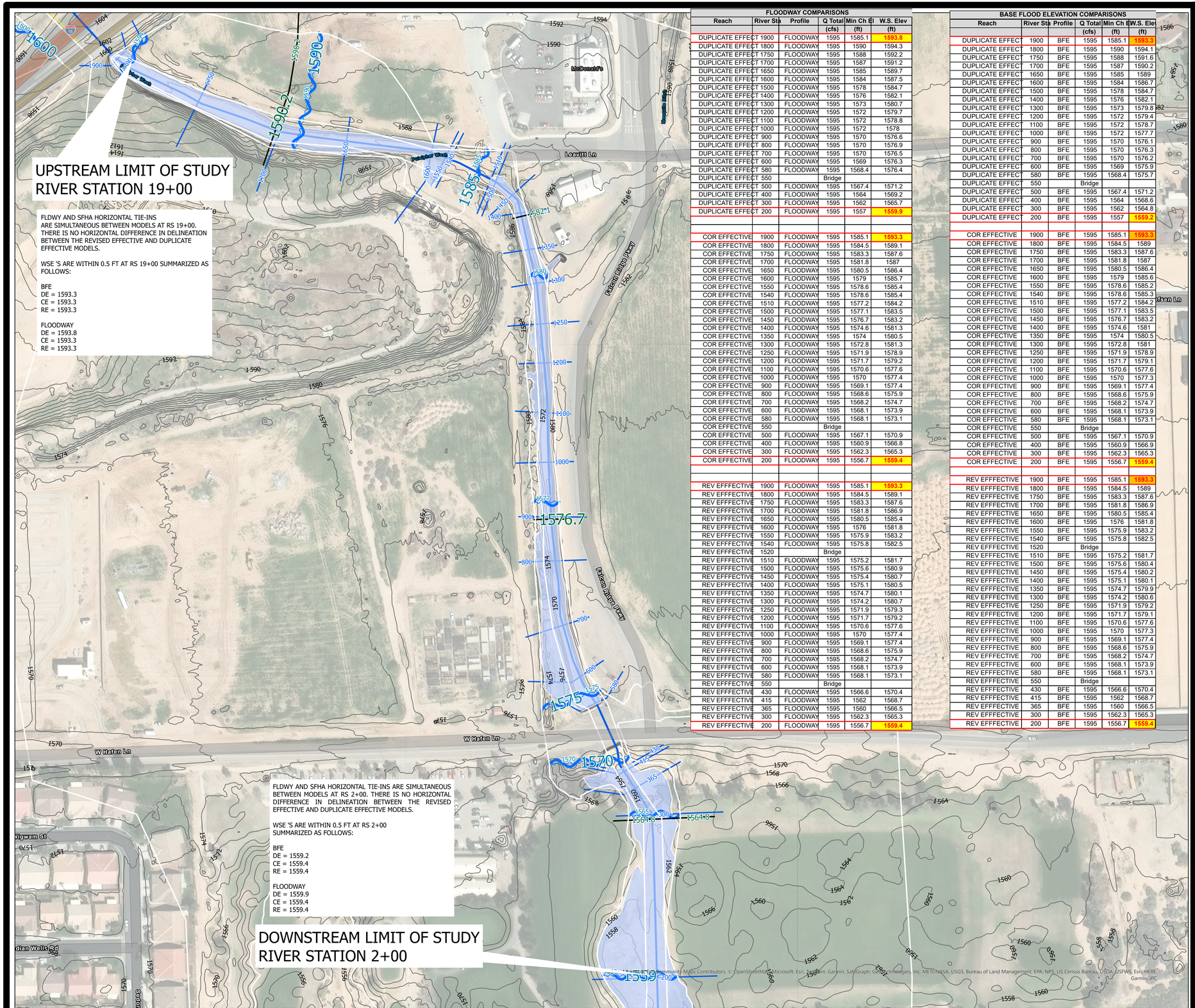
Digitally signed by Douglas Blatchford
Date: 2024.04.12 10:54:53 -07'00'

Douglas B. Blatchford, PE, PH, CFM
President

APPENDIX

FIGURES


UPSTREAM LIMIT OF STUDY
RIVER STATION 19+00
AREA MODIFIED
DOWNSTREAM LIMIT OF STUDY
RIVER STATION 2+00
Zone AE
Zone AE
Zone AE
Zone AE
Zone AE
Zone AE
Zone AE
Zone AE
Zone AE
Zone AE
Zone AE
Zone AE
Virgin River
Virgin River
Falcon Ridge Pkwy
W Pioneer Blvd
Berthe Howe Ave
Birdie Ln
Majestic Dr
Equinox Dr
Mesa View Regional Hospital
Mesa View Medical Office Building
Mesa Valley Estates Assisted Living and Memory Care
Boulevard Home
Vista - Verizon Authorized Retailer
Holiday Inn Express & Suites Mesquite
Dollar Tree
Green Valley Grocery
Tagg-N-Go
Walmart Supercenter
Valley Inn Motel
Shell
Oasis Parking Garage
Chevron
Smokey Ln
Sinclair
McDonald's
Loewitt Ln
Whitney Lee Ln
Dollar General
Mesquite Ford Lincoln & RV
Do It Best Corp.
Whitney Trl
Mesquite Business Center
Star Nursery
Land Technology, Inc
BARK Canine Club & Resort
Liquid Health, LLC
W Hafen Ln
Wigwam St
Sunset Breeze Way
Quicksilver Way
Pebble Beach Dr
Augusta Hills St
Madrigal Dr
Harbour Dr
Sandridge Dr
San Pilar St
Shoreline Dr
Fox Hl
Jackrabbit St
Joshua Dr
Sandbar St
Tucson St
Jonson Dr
Hopes Way
Virgin Valley Water District
Higgins Aly
Riverside Rd
Palm St
South Beach Rd
Falcon Glenn Dr
Glendale Rd
Sagedell Rd
Sierra Ln
Shadow Ranch Rdg
Rolleston Blvd
Raven Way
Hyde Ln
Glen Rd
Crest View Dr
Highland Dr
Keith Dr
Lexington Ln
Falcon Ridge Pkwy
Wyatt Dr
W Old Mill Rd
Prosperity Ln
Lolita
Hawthorne Way
Board Room Way
Jane Way
Judy Way
Emily Way
W Mesq
Smoke Ranch Rd
Mesquite Blvd
Whitney Lee Ln
Hafen Ln
Whitney Ln
Sun Way
Rabbit Ln
Kelly Ave
Kyle Ave
Mesquite Blvd
W Pioneer Blvd
W Pioneer Blvd
W Pioneer Blvd
W Pioneer Blvd
Mesquite Blvd
Mesquite Blvd
Mesquite



FLOODWAY COMPARISONS

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)
DUPLICATE EFFECT	1900	FLOODWAY	1595	1585.1	1593.8
DUPLICATE EFFECT	1800	FLOODWAY	1595	1590	1594.3
DUPLICATE EFFECT	1750	FLOODWAY	1595	1588	1592.2
DUPLICATE EFFECT	1700	FLOODWAY	1595	1587	1591.2
DUPLICATE EFFECT	1650	FLOODWAY	1595	1585	1589.7
DUPLICATE EFFECT	1600	FLOODWAY	1595	1584	1587.5
DUPLICATE EFFECT	1500	FLOODWAY	1595	1578	1584.7
DUPLICATE EFFECT	1400	FLOODWAY	1595	1576	1582.1
DUPLICATE EFFECT	1300	FLOODWAY	1595	1573	1580.7
DUPLICATE EFFECT	1200	FLOODWAY	1595	1572	1579.7
DUPLICATE EFFECT	1100	FLOODWAY	1595	1572	1578.8
DUPLICATE EFFECT	1000	FLOODWAY	1595	1572	1578
DUPLICATE EFFECT	900	FLOODWAY	1595	1570	1576.6
DUPLICATE EFFECT	800	FLOODWAY	1595	1570	1576.9
DUPLICATE EFFECT	700	FLOODWAY	1595	1570	1576.5
DUPLICATE EFFECT	600	FLOODWAY	1595	1569	1576.3
DUPLICATE EFFECT	580	FLOODWAY	1595	1568.4	1576.4
DUPLICATE EFFECT	550		Bridge		
DUPLICATE EFFECT	500	FLOODWAY	1595	1567.4	1571.2
DUPLICATE EFFECT	400	FLOODWAY	1595	1564	1569.2
DUPLICATE EFFECT	300	FLOODWAY	1595	1562	1565.7
DUPLICATE EFFECT	200	FLOODWAY	1595	1557	1559.9
COR EFFECTIVE	1900	FLOODWAY	1595	1585.1	1593.3
COR EFFECTIVE	1800	FLOODWAY	1595	1584.5	1589.1
COR EFFECTIVE	1750	FLOODWAY	1595	1583.3	1587.6
COR EFFECTIVE	1700	FLOODWAY	1595	1581.8	1587
COR EFFECTIVE	1650	FLOODWAY	1595	1580.5	1586.4
COR EFFECTIVE	1600	FLOODWAY	1595	1579	1585.7
COR EFFECTIVE	1550	FLOODWAY	1595	1578.6	1585.4
COR EFFECTIVE	1540	FLOODWAY	1595	1578.6	1585.4
COR EFFECTIVE	1510	FLOODWAY	1595	1577.2	1584.2
COR EFFECTIVE	1500	FLOODWAY	1595	1577.1	1583.5
COR EFFECTIVE	1450	FLOODWAY	1595	1576.7	1583.2
COR EFFECTIVE	1400	FLOODWAY	1595	1574.6	1581.3
COR EFFECTIVE	1350	FLOODWAY	1595	1574	1580.5
COR EFFECTIVE	1300	FLOODWAY	1595	1572.8	1581.3
COR EFFECTIVE	1250	FLOODWAY	1595	1571.9	1578.9
COR EFFECTIVE	1200	FLOODWAY	1595	1571.7	1579.2
COR EFFECTIVE	1100	FLOODWAY	1595	1570.6	1577.6
COR EFFECTIVE	1000	FLOODWAY	1595	1570	1577.4
COR EFFECTIVE	900	FLOODWAY	1595	1569.1	1577.4
COR EFFECTIVE	800	FLOODWAY	1595	1568.6	1575.9
COR EFFECTIVE	700	FLOODWAY	1595	1568.2	1574.7
COR EFFECTIVE	600	FLOODWAY	1595	1568.1	1573.9
COR EFFECTIVE	580	FLOODWAY	1595	1568.1	1573.1
COR EFFECTIVE	550		Bridge		
COR EFFECTIVE	500	FLOODWAY	1595	1567.1	1570.9
COR EFFECTIVE	400	FLOODWAY	1595	1560.9	1566.8
COR EFFECTIVE	300	FLOODWAY	1595	1562.3	1565.3
COR EFFECTIVE	200	FLOODWAY	1595	1556.7	1559.4
REV EFFFECTIVE	1900	FLOODWAY	1595	1585.1	1593.3
REV EFFFECTIVE	1800	FLOODWAY	1595	1584.5	1589.1
REV EFFFECTIVE	1750	FLOODWAY	1595	1583.3	1587.6
REV EFFFECTIVE	1700	FLOODWAY	1595	1581.8	1586.9
REV EFFFECTIVE	1650	FLOODWAY	1595	1580.5	1585.4
REV EFFFECTIVE	1600	FLOODWAY	1595	1576	1581.8
REV EFFFECTIVE	1550	FLOODWAY	1595	1575.9	1583.2
REV EFFFECTIVE	1540	FLOODWAY	1595	1575.8	1582.5
REV EFFFECTIVE	1520		Bridge		
REV EFFFECTIVE	1510	FLOODWAY	1595	1575.2	1581.7
REV EFFFECTIVE	1500	FLOODWAY	1595	1575.6	1580.9
REV EFFFECTIVE	1450	FLOODWAY	1595	1575.4	1580.7
REV EFFFECTIVE	1400	FLOODWAY	1595	1575.1	1580.5
REV EFFFECTIVE	1350	FLOODWAY	1595	1574.7	1580.1
REV EFFFECTIVE	1300	FLOODWAY	1595	1574.2	1580.7
REV EFFFECTIVE	1250	FLOODWAY	1595	1571.9	1579.3
REV EFFFECTIVE	1200	FLOODWAY	1595	1571.7	1579.2
REV EFFFECTIVE	1100	FLOODWAY	1595	1570.6	1577.6
REV EFFFECTIVE	1000	FLOODWAY	1595	1570	1577.4
REV EFFFECTIVE	900	FLOODWAY	1595	1569.1	1577.4
REV EFFFECTIVE	800	FLOODWAY	1595	1568.6	1575.9
REV EFFFECTIVE	700	FLOODWAY	1595	1568.2	1574.7
REV EFFFECTIVE	600	FLOODWAY	1595	1568.1	1573.9
REV EFFFECTIVE	580	FLOODWAY	1595	1568.1	1573.1
REV EFFFECTIVE	550		Bridge		
REV EFFFECTIVE	430	FLOODWAY	1595	1566.6	1570.4
REV EFFFECTIVE	415	FLOODWAY	1595	1562	1568.7
REV EFFFECTIVE	365	FLOODWAY	1595	1560	1566.5
REV EFFFECTIVE	300	FLOODWAY	1595	1562.3	1565.3
REV EFFFECTIVE	200	FLOODWAY	1595	1556.7	1559.4

BASE FLOOD ELEVATION COMPARISONS

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)
DUPLICATE EFFECT	1900	BFE	1595	1585.1	1593.3
DUPLICATE EFFECT	1800	BFE	1595	1590	1594.1
DUPLICATE EFFECT	1750	BFE	1595	1588	1591.6
DUPLICATE EFFECT	1700	BFE	1595	1587	1590.2
DUPLICATE EFFECT	1650	BFE	1595	1585	1589
DUPLICATE EFFECT	1600	BFE	1595	1584	1586.7
DUPLICATE EFFECT	1500	BFE	1595	1578	1584.7
DUPLICATE EFFECT	1400	BFE	1595	1576	1582.1
DUPLICATE EFFECT	1300	BFE	1595	1573	1579.8
DUPLICATE EFFECT	1200	BFE	1595	1572	1579.4
DUPLICATE EFFECT	1100	BFE	1595	1572	1578.7
DUPLICATE EFFECT	1000	BFE	1595	1572	1577.7
DUPLICATE EFFECT	900	BFE	1595	1570	1576.1
DUPLICATE EFFECT	800	BFE	1595	1570	1576.3
DUPLICATE EFFECT	700	BFE	1595	1570	1576.2
DUPLICATE EFFECT	600	BFE	1595	1569	1575.9
DUPLICATE EFFECT	580	BFE	1595	1568.4	1575.7
DUPLICATE EFFECT	550		Bridge		
DUPLICATE EFFECT	500	BFE	1595	1567.4	1571.2
DUPLICATE EFFECT	400	BFE	1595	1564	1568.6
DUPLICATE EFFECT	300	BFE	1595	1562	1564.8
DUPLICATE EFFECT	200	BFE	1595	1557	1559.2
COR EFFECTIVE	1900	BFE	1595	1585.1	1593.3
COR EFFECTIVE	1800	BFE	1595	1584.5	1589
COR EFFECTIVE	1750	BFE	1595	1583.3	1587.6
COR EFFECTIVE	1700	BFE	1595	1581.8	1587
COR EFFECTIVE	1650	BFE	1595	1580.5	1586.4
COR EFFECTIVE	1600	BFE	1595	1579	1585.6
COR EFFECTIVE	1550	BFE	1595	1578.6	1585.2
COR EFFECTIVE	1540	BFE	1595	1578.6	1585.3
COR EFFECTIVE	1510	BFE	1595	1577.2	1584.2
COR EFFECTIVE	1500	BFE	1595	1577.1	1583.5
COR EFFECTIVE	1450	BFE	1595	1576.7	1583.2
COR EFFECTIVE	1400	BFE	1595	1574.6	1581
COR EFFECTIVE	1350	BFE	1595	1574	1580.5
COR EFFECTIVE	1300	BFE	1595	1572.8	1581
COR EFFECTIVE	1250	BFE	1595	1571.9	1578.9
COR EFFECTIVE	1200	BFE	1595	1571.7	1579.1
COR EFFECTIVE	1100	BFE	1595	1570.6	1577.6
COR EFFECTIVE	1000	BFE	1595	1570	1577.3
COR EFFECTIVE	900	BFE	1595	1569.1	1577.4
COR EFFECTIVE	800	BFE	1595	1568.6	1575.9
COR EFFECTIVE	700	BFE	1595	1568.2	1574.7
COR EFFECTIVE	600	BFE	1595	1568.1	1573.9
COR EFFECTIVE	580	BFE	1595	1568.1	1573.1
COR EFFECTIVE	550		Bridge		
COR EFFECTIVE	500	BFE	1595	1567.1	1570.9
COR EFFECTIVE	400	BFE	1595	1560.9	1566.9
COR EFFECTIVE	300	BFE	1595	1562.3	1565.3
COR EFFECTIVE	200	BFE	1595	1556.7	1559.4
REV EFFFECTIVE	1900	BFE	1595	1585.1	1593.3
REV EFFFECTIVE	1800	BFE	1595	1584.5	1589
REV EFFFECTIVE	1750	BFE	1595	1583.3	1587.6
REV EFFFECTIVE	1700	BFE	1595	1581.8	1586.9
REV EFFFECTIVE	1650	BFE	1595	1580.5	1585.4
REV EFFFECTIVE	1600	BFE	1595	1576	1581.8
REV EFFFECTIVE	1550	BFE	1595	1575.9	1583.2
REV EFFFECTIVE	1540	BFE	1595	1575.8	1582.5
REV EFFFECTIVE	1520		Bridge		
REV EFFFECTIVE	1510	BFE	1595	1575.2	1581.7
REV EFFFECTIVE	1500	BFE	1595	1575.6	1580.4
REV EFFFECTIVE	1450	BFE	1595	1575.4	1580.2
REV EFFFECTIVE	1400	BFE	1595	1575.1	1580.1
REV EFFFECTIVE	1350	BFE	1595	1574.7	1579.9
REV EFFFECTIVE	1300	BFE	1595	1574.2	1580.6
REV EFFFECTIVE	1250	BFE	1595	1571.9	1579.2
REV EFFFECTIVE	1200	BFE	1595	1571.7	1579.1
REV EFFFECTIVE	1100	BFE	1595	1570.6	1577.6
REV EFFFECTIVE	1000	BFE	1595	1570	1577.3
REV EFFFECTIVE	900	BFE	1595	1569.1	1577.4
REV EFFFECTIVE	800	BFE	1595	1568.6	1575.9
REV EFFFECTIVE	700	BFE	1595	1568.2	1574.7
REV EFFFECTIVE	600	BFE	1595	1568.1	1573.9
REV EFFFECTIVE	580	BFE	1595	1568.1	1573.1
REV EFFFECTIVE	550		Bridge		
REV EFFFECTIVE	430	BFE	1595	1566.6	1570.4
REV EFFFECTIVE	415	BFE	1595	1562	1568.7
REV EFFFECTIVE	365	BFE	1595	1560	1566.5
REV EFFFECTIVE	300	BFE	1595	1562.3	1565.3
REV EFFFECTIVE	200	BFE	1595	1556.7	1559.4

N

100 50 0 100 200 300 400
US Feet

1" = 100 FT

VERTICAL DATUM :
NORTH AMERICAN VERTICAL DATUM 88 (NAVD 88)

HORIZONTAL DATUM :
NORTH AMERICAN DATUM 83 (NAD 83)
NEVADA STATE PLANE COORDINATES EAST
FEDERAL INFORMATION PROTOCAL STANDARD 2701

DOUGLAS B. BLATCHFORD 12/31/24 Exp. CIVIL STATE OF NEVADA PROFESSIONAL ENGINEER

Douglas Blatchford

Digitally signed by Douglas Blatchford
Date: 2024.04.12 10:54:16 -07'00'

Legend

- RE_RIVER_STATIONS
- RE_RIVER
- 2 FT CONTOURS
- RE_SFHA_ZONE _AE
- S_FLD_HAZ_AR
- S_BFE_Clip2
- FIS CROSS SECTIONS
- S_XS
- S_XS
- S_GEN_STRUCT
- FIS MAPPED BFE

SOUTHWEST HYDROLOGY & HYDRAULICS, LLC
PO BOX 62233
BOULDER CITY, NV 89005
702-370-9852 - www.swh20.net

NO.	DESCRIPTION	DATE	BY	APP DATE	APP

CONDITONAL LETTER OF MAP REVISION
PULSIPHER WASH
HYDRAULIC WORK MAP

DATE:
DESIGNER:
DRAFTER:
CHECKED:
PROJECT NUMBER:

FIGURE 7
SHEET 1 OF 1

HYDRAULICS

EFFECTIVE MODEL

HEC-RAS MODEL: PULSIPHER WASH
CHECK-RAS ANALYSIS OF HEC-RAS MODEL

HEC-RAS Version 4.0.0 March 2008
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
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

****

PROJECT DATA
Project Title: PULSIPHER WASH LOMR
Project File : PULSWASH.prj
Run Date and Time: 8/2/2011 10:25:45 AM

Project in English units

Project Description:

****

PLAN DATA

Plan Title: LOMR
Plan File : f:\Projects\500\550-048\Division\Fctl\Calcs\HEC-RAS-PUL\PULSWASH.p02

Geometry Title: LOMR
Geometry File : f:\Projects\500\550-048\Division\Fctl\Calcs\HEC-RAS-PUL\PULSWASH.g02

Flow Title : LOMR
Flow File : f:\Projects\500\550-048\Division\Fctl\Calcs\HEC-RAS-PUL\PULSWASH.f07

Plan Description:
LOMR Model With New Topo.

Plan Summary Information:
Number of: Cross Sections = 51 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 4 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

Encroachment Data
Equal Conveyance = True
Left Offset = 0
Right Offset = 0

River = RIVER-1 Reach = Reach-1

RS	Profile	Method	Value1	Value2
2600	PF 2	1	1037.67	1062.33
2590	PF 2	1	1040	1100
2500	PF 2	1	1030.12	1106.13
2400	PF 2	1	1293.09	1384.56
2350	PF 2	1	1080	1220.41
2330	PF 2	1	1150	1330.73
2300	PF 2	1	1163.5	1383.27
2200	PF 2	1	1400	1594.9
2100	PF 2	1	1010.56	1206.95
2000.1	PF 2	1	990.1	1094.79
2000	PF 2	1	1044.29	1056.29
1900	PF 2	1	1193.33	1205.33
1800	PF 2	1	1117.33	1148.63
1750	PF 2	1	1278.17	1318.26
1700	PF 2	1	1408.08	1464.52
1650	PF 2	1	1557.78	1600.56
1600	PF 2	1	1462.44	1508.14
1500	PF 2	1	1046	1152.39
1400	PF 2	1	1311.27	1345.71
1300	PF 2	1	1634.75	1667.65
1200	PF 2	1	1624.95	1659.47
1100	PF 2	1	1619.57	1655.53
1000	PF 2	1	1619.06	1659.32
900	PF 2	1	1615.48	1651.44
800	PF 2	1	1601.95	1646.84
700	PF 2	1	1594.24	1641.44
600	PF 2	1	1581.21	1627.65
580	PF 2	1	995	1042.34
500	PF 2	1	1000	1037.34
400	PF 2	1	1501.15	1526.53
300	PF 2	1	1441.01	1481.38
200	PF 2	1	1535.63	1591.46

FLOW DATA

Flow Title: LOMR
Flow File : f:\Projects\500\550-048\Division\Fctl\Calcs\HEC-RAS-PUL\PULSWASH.f07

Flow Data (cfs)

River	Reach	RS	PF 1	PF 2
RIVER-1	Reach-1	3800	867	867
RIVER-1	Reach-1	3020	1723	1723
RIVER-1	Reach-1	2500	1972	1972
RIVER-1	Reach-1	2000	1498	1498
RIVER-1	Reach-1	1900	1595	1595

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
RIVER-1	Reach-1	PF 1	Critical	Critical
RIVER-1	Reach-1	PF 2	Critical	Critical

GEOMETRY DATA

Geometry Title: LOMR
Geometry File : f:\Projects\500\550-048\Division\Fctl\Calcs\HEC-RAS-PUL\PULSWASH.g02

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 3800

INPUT
Description:
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1671	1002.55	1670	1004.98	1669	1007.44	1668	1009.93	1667
1012.44	1666	1014.93	1665	1017.43	1664	1019.96	1663	1022.51	1662
1025.01	1661	1028.37	1660	1033.4	1659	1039.81	1658	1062.59	1657
1109.41	1656	1175.5	1655	1176.9	1654	1182.94	1654	1186.39	1655
1305.1	1656	1372.97	1657	1416.24	1658	1439.98	1659	1445.27	1660
1451.68	1661	1456.68	1662	1462.39	1663	1467.92	1664	1474.06	1665
1480.09	1666	1486.5	1667	1494.56	1668	1506.49	1669	1529.92	1670

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1028.37	.025	1445.27	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1000 1506.49 580 566 553 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1656.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.		0.025	
W.S. Elev (ft)	1656.30	Reach Len. (ft)	580.00	566.00	553.00
Crit W.S. (ft)	1656.30	Flow Area (sq ft)		176.08	
E.G. Slope (ft/ft)	0.009844	Area (sq ft)		176.08	
Q Total (cfs)	867.00	Flow (cfs)		867.00	
Top Width (ft)	230.33	Top Width (ft)		230.33	
Vel Total (ft/s)	4.92	Avg. Vel. (ft/s)		4.92	
Max Chl Dpth (ft)	2.30	Hydr. Depth (ft)		0.76	
Conv. Total (cfs)	8738.2	Conv. (cfs)		8738.2	
Length Wtd. (ft)	566.23	Wetted Per. (ft)		230.81	
Min Ch El (ft)	1654.00	Shear (lb/sq ft)		0.47	
Alpha	1.00	Stream Power (lb/ft s)		2.31	
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)	36.95	42.78	1.50
C & E Loss (ft)	0.09	Cum SA (acres)	10.01	12.43	0.82

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1656.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.		0.025	
W.S. Elev (ft)	1656.30	Reach Len. (ft)	580.00	566.00	553.00
Crit W.S. (ft)	1656.30	Flow Area (sq ft)		176.08	
E.G. Slope (ft/ft)	0.009844	Area (sq ft)		176.08	
Q Total (cfs)	867.00	Flow (cfs)		867.00	
Top Width (ft)	230.33	Top Width (ft)		230.33	
Vel Total (ft/s)	4.92	Avg. Vel. (ft/s)		4.92	
Max Chl Dpth (ft)	2.30	Hydr. Depth (ft)		0.76	
Conv. Total (cfs)	8738.2	Conv. (cfs)		8738.2	
Length Wtd. (ft)	566.23	Wetted Per. (ft)		230.81	
Min Ch El (ft)	1654.00	Shear (lb/sq ft)		0.47	
Alpha	1.00	Stream Power (lb/ft s)		2.31	
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)	14.10	41.50	1.25
C & E Loss (ft)	0.09	Cum SA (acres)	3.19	10.77	0.61

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 3700

INPUT
Description:
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1280.37	1657	1280.37	1655	1281.45	1655	1314.63	1655	1322.87	1654
1330.66	1653	1346.03	1652	1356.88	1651	1360.42	1650	1379.62	1650
1381.69	1651	1386.37	1652	1389	1653	1407.85	1654	1447.99	1655
1471.23	1656	1480.45	1657	1483.65	1658				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1280.37	.024	1314.63	.025	1447.99	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1314.63	1447.99	222.1	225	219.5	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1656.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.024	0.025	0.040
W.S. Elev (ft)	1655.97	Reach Len. (ft)	222.10	225.00	219.50
Crit W.S. (ft)		Flow Area (sq ft)	33.34	414.54	11.01
E.G. Slope (ft/ft)	0.000253	Area (sq ft)	33.34	414.54	11.01
Q Total (cfs)	867.00	Flow (cfs)	31.66	831.31	4.02
Top Width (ft)	190.24	Top Width (ft)	34.26	133.36	22.62
Vel Total (ft/s)	1.89	Avg. Vel. (ft/s)	0.95	2.01	0.37
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)	0.97	3.11	0.49
Conv. Total (cfs)	54487.9	Conv. (cfs)	1990.0	52245.1	252.8
Length Wtd. (ft)	224.44	Wetted Per. (ft)	35.23	134.26	22.64
Min Ch El (ft)	1650.00	Shear (lb/sq ft)	0.01	0.05	0.01
Alpha	1.09	Stream Power (lb/ft s)	0.01	0.10	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	36.73	38.94	1.43
C & E Loss (ft)	0.00	Cum SA (acres)	9.79	10.07	0.68

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

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1656.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.024	0.025	0.040
W.S. Elev (ft)	1655.97	Reach Len. (ft)	222.10	225.00	219.50
Crit W.S. (ft)		Flow Area (sq ft)	33.34	414.54	11.01
E.G. Slope (ft/ft)	0.000253	Area (sq ft)	33.34	414.54	11.01
Q Total (cfs)	867.00	Flow (cfs)	31.66	831.31	4.02
Top Width (ft)	190.24	Top Width (ft)	34.26	133.36	22.62
Vel Total (ft/s)	1.89	Avg. Vel. (ft/s)	0.95	2.01	0.37
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)	0.97	3.11	0.49
Conv. Total (cfs)	54487.9	Conv. (cfs)	1990.0	52245.1	252.8
Length Wtd. (ft)	224.44	Wetted Per. (ft)	35.23	134.26	22.64
Min Ch El (ft)	1650.00	Shear (lb/sq ft)	0.01	0.05	0.01
Alpha	1.09	Stream Power (lb/ft s)	0.01	0.10	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	13.87	37.66	1.18
C & E Loss (ft)	0.00	Cum SA (acres)	2.96	8.41	0.47

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

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 3660

INPUT
Description:
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
961.8	1657	961.8	1653.41	978.2	1653.93	1000	1653	1003.3	1652
1018	1651.91	1018	1647.91	1030	1647.91	1030	1651.91	1044.54	1652
1053.91	1653	1079.15	1654	1085.65	1655	1092.95	1656		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
961.8	.04	1018	.015	1030	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1000	1053.91	42.6	42.6	.3	.5

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1655.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.040	0.033	0.040

W.S. Elev (ft)	1655.87	Reach Len. (ft)	0.05	0.05	0.05
Crit W.S. (ft)	1653.21	Flow Area (sq ft)	88.44	252.60	71.42
E.G. Slope (ft/ft)	*0.000508	Area (sq ft)	88.44	252.60	71.42
Q Total (cfs)	867.00	Flow (cfs)	124.32	651.94	90.74
Top Width (ft)	130.19	Top Width (ft)	38.20	53.91	38.08
Vel Total (ft/s)	2.10	Avg. Vel. (ft/s)	1.41	2.58	1.27
Max Chl Dpth (ft)	7.96	Hydr. Depth (ft)	2.32	4.69	1.88
Conv. Total (cfs)	38449.6	Conv. (cfs)	5513.2	28912.2	4024.2
Length Wtd. (ft)	0.05	Wetted Per. (ft)	40.69	62.11	38.23
Min Ch El (ft)	1647.91	Shear (lb/sq ft)	0.07	0.13	0.06
Alpha	1.24	Stream Power (lb/ft s)	0.10	0.33	0.08
Frctn Loss (ft)		Cum Volume (acre-ft)	36.42	37.22	1.22
C & E Loss (ft)		Cum SA (acres)	9.60	9.58	0.53

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1655.96	Element			
Vel Head (ft)	0.08	Wt. n-Val.	0.040	0.033	0.040
W.S. Elev (ft)	1655.87	Reach Len. (ft)	0.05	0.05	0.05
Crit W.S. (ft)	1653.21	Flow Area (sq ft)	88.44	252.60	71.42
E.G. Slope (ft/ft)	*0.000508	Area (sq ft)	88.44	252.60	71.42
Q Total (cfs)	867.00	Flow (cfs)	124.32	651.94	90.74
Top Width (ft)	130.19	Top Width (ft)	38.20	53.91	38.08
Vel Total (ft/s)	2.10	Avg. Vel. (ft/s)	1.41	2.58	1.27
Max Chl Dpth (ft)	7.96	Hydr. Depth (ft)	2.32	4.69	1.88
Conv. Total (cfs)	38449.6	Conv. (cfs)	5513.2	28912.2	4024.2
Length Wtd. (ft)	0.05	Wetted Per. (ft)	40.69	62.11	38.23
Min Ch El (ft)	1647.91	Shear (lb/sq ft)	0.07	0.13	0.06
Alpha	1.24	Stream Power (lb/ft s)	0.10	0.33	0.08
Frctn Loss (ft)		Cum Volume (acre-ft)	13.56	35.94	0.97
C & E Loss (ft)		Cum SA (acres)	2.78	7.93	0.31

BRIDGE

RIVER: RIVER-1
REACH: Reach-1 RS: 3650

INPUT
Description: Bridge #1
Distance from Upstream XS = .05
Deck/Roadway Width = 42.5
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 8

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
961.8	1653.41	1653.41	978.2	1653.93	1653.93	1000	1654.76
1018	1655	1651.92	1030	1655	1651.92	1044.54	1655.2
1080	1656	1653.53	1092.95	1656			

1651.92
1652

Upstream Bridge Cross Section Data
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
961.8	1657	961.8	1653.41	978.2	1653.93	1000	1653	1003.3	1652
1018	1651.91	1018	1647.91	1030	1647.91	1030	1651.91	1044.54	1652
1053.91	1653	1079.15	1654	1085.65	1655	1092.95	1656		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
961.8	.04	1018	.015	1030	.04

Bank Sta: Left Right Coeff Contr. Expan.
1000 1053.91 .3 .5

Downstream Deck/Roadway Coordinates
num= 5

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
978.2	1653.6	1653	1000	1654.76	1651.78
1025.95	1654.76	1651.78	1200	1655	1651.78

1013.95
1654.76

Downstream Bridge Cross Section Data
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
956.1	1654	956.1	1653	1000	1653	1004.55	1652	1013.95	1651.78
1013.95	1647.78	1025.95	1647.78	1025.95	1651.78	1030.32	1652	1041.18	1653
1056.22	1654								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
956.1	.04	1013.95	.015	1025.95	.04

Bank Sta: Left Right Coeff Contr. Expan.
1000 1030.32 .3 .5

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 = .98
Elevation at which weir flow begins =
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

BRIDGE OUTPUT  Profile #PF 1
*********************************************************************************************
* E.G. US. (ft)          *    1655.96  * Element               *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1655.87  * E.G. Elev (ft)        *    1655.95  *    1655.95  *
* Q Total (cfs)          *     867.00  * W.S. Elev (ft)        *    1655.87  *    1655.28  *
* Q Bridge (cfs)         *     472.60  * Crit W.S. (ft)        *    1655.64  *    1655.28  *
* Q Weir (cfs)           *     394.40  * Max Chl Dpth (ft)     *       7.96  *       7.50  *
* Weir Sta Lft (ft)      *     961.80  * Vel Total (ft/s)      *       4.91  *       3.97  *
* Weir Sta Rgt (ft)      *    1077.92  * Flow Area (sq ft)     *     176.43  *     218.36  *
* Weir Submerg           *       0.00  * Froude # Chl          *       0.32  *       0.37  *
* Weir Max Depth (ft)    *       2.54  * Specif Force (cu ft)  *     523.60  *     522.47  *
* Min El Weir Flow (ft)  *    1653.42  * Hydr Depth (ft)       *       1.57  *       2.18  *
* Min El Prs (ft)        *    1652.00  * W.P. Total (ft)       *     179.21  *     135.51  *
* Delta EG (ft)          *       1.48  * Conv. Total (cfs)     *             *             *
* Delta WS (ft)          *       2.27  * Top Width (ft)        *     112.36  *     100.12  *
* BR Open Area (sq ft)   *      48.00  * Frctn Loss (ft)       *             *             *
* BR Open Vel (ft/s)     *       9.85  * C & E Loss (ft)       *             *             *
* Coef of Q              *             * Shear Total (lb/sq ft) *             *             *
* Br Sel Method          * Press/Weir  * Power Total (lb/ft s)  *             *             *
*********************************************************************************************

Note:    The downstream water surface is above the minimum elevation required for orifice flow.  The
         orifice flow equation was used for pressure flow.
Note:    For the cross section inside the bridge at the upstream end, the water surface and energy have
         been projected from the upstream cross section.  The selected bridge modeling method does
         not compute answers inside the bridge.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Note:    For the cross section inside the bridge at the downstream end, the water surface is based on
         critical depth over the weir.  The energy has been projected.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE OUTPUT  Profile #PF 2
*********************************************************************************************
* E.G. US. (ft)          *    1655.96  * Element               *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1655.87  * E.G. Elev (ft)        *    1655.95  *    1655.95  *
* Q Total (cfs)          *     867.00  * W.S. Elev (ft)        *    1655.87  *    1655.28  *
* Q Bridge (cfs)         *     472.60  * Crit W.S. (ft)        *    1655.64  *    1655.28  *
* Q Weir (cfs)           *     394.40  * Max Chl Dpth (ft)     *       7.96  *       7.50  *
* Weir Sta Lft (ft)      *     961.80  * Vel Total (ft/s)      *       4.91  *       3.97  *
* Weir Sta Rgt (ft)      *    1077.92  * Flow Area (sq ft)     *     176.43  *     218.36  *
* Weir Submerg           *       0.00  * Froude # Chl          *       0.32  *       0.37  *
* Weir Max Depth (ft)    *       2.54  * Specif Force (cu ft)  *     523.60  *     522.47  *
* Min El Weir Flow (ft)  *    1653.42  * Hydr Depth (ft)       *       1.57  *       2.18  *
* Min El Prs (ft)        *    1652.00  * W.P. Total (ft)       *     179.21  *     135.51  *
* Delta EG (ft)          *       1.48  * Conv. Total (cfs)     *             *             *
* Delta WS (ft)          *       2.27  * Top Width (ft)        *     112.36  *     100.12  *
* BR Open Area (sq ft)   *      48.00  * Frctn Loss (ft)       *             *             *
* BR Open Vel (ft/s)     *       9.85  * C & E Loss (ft)       *             *             *
* Coef of Q              *             * Shear Total (lb/sq ft) *             *             *
* Br Sel Method          * Press/Weir  * Power Total (lb/ft s)  *             *             *
*********************************************************************************************

Note:    The downstream water surface is above the minimum elevation required for orifice flow.  The
         orifice flow equation was used for pressure flow.
Note:    For the cross section inside the bridge at the upstream end, the water surface and energy have
         been projected from the upstream cross section.  The selected bridge modeling method does
         not compute answers inside the bridge.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Note:    For the cross section inside the bridge at the downstream end, the water surface is based on
         critical depth over the weir.  The energy has been projected.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 3640

INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   956.1    1654   956.1    1653    1000    1653 1004.55    1652 1013.95 1651.78
 1013.95 1647.78 1025.95 1647.78 1025.95 1651.78 1030.32    1652 1041.18    1653
 1056.22    1654

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
   956.1     .04 1013.95    .015 1025.95     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1000 1030.32             143.1   143.1   143.1             .3       .5

CROSS SECTION OUTPUT  Profile #PF 1
*********************************************************************************************
```

* E.G. Elev (ft)	* 1654.47	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.87	* Wt. n-Val.	* 0.040	* 0.028	* 0.040 *
* W.S. Elev (ft)	* 1653.60	* Reach Len. (ft)	* 143.10	* 143.10	* 143.10 *
* Crit W.S. (ft)	* 1653.60	* Flow Area (sq ft)	* 26.28	* 98.35	* 14.63 *
* E.G. Slope (ft/ft)	*0.006509	* Area (sq ft)	* 26.28	* 98.35	* 14.63 *
* Q Total (cfs)	* 867.00	* Flow (cfs)	* 55.44	* 775.89	* 35.67 *
* Top Width (ft)	* 94.08	* Top Width (ft)	* 43.90	* 30.32	* 19.86 *
* Vel Total (ft/s)	* 6.23	* Avg. Vel. (ft/s)	* 2.11	* 7.89	* 2.44 *
* Max Chl Dpth (ft)	* 5.82	* Hydr. Depth (ft)	* 0.60	* 3.24	* 0.74 *
* Conv. Total (cfs)	* 10746.1	* Conv. (cfs)	* 687.2	* 9616.8	* 442.1 *
* Length Wtd. (ft)	* 143.10	* Wetted Per. (ft)	* 44.50	* 38.44	* 19.93 *
* Min Ch El (ft)	* 1647.78	* Shear (lb/sq ft)	* 0.24	* 1.04	* 0.30 *
* Alpha	* 1.45	* Stream Power (lb/ft s)	* 0.51	* 8.20	* 0.73 *
* Frctn Loss (ft)	* 1.01	* Cum Volume (acre-ft)	* 36.35	* 37.14	* 1.21 *
* C & E Loss (ft)	* 0.05	* Cum SA (acres)	* 9.56	* 9.54	* 0.50 *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 1654.47	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.87	* Wt. n-Val.	* 0.040	* 0.028	* 0.040 *
* W.S. Elev (ft)	* 1653.60	* Reach Len. (ft)	* 143.10	* 143.10	* 143.10 *
* Crit W.S. (ft)	* 1653.60	* Flow Area (sq ft)	* 26.28	* 98.35	* 14.63 *
* E.G. Slope (ft/ft)	*0.006509	* Area (sq ft)	* 26.28	* 98.35	* 14.63 *
* Q Total (cfs)	* 867.00	* Flow (cfs)	* 55.44	* 775.89	* 35.67 *
* Top Width (ft)	* 94.08	* Top Width (ft)	* 43.90	* 30.32	* 19.86 *
* Vel Total (ft/s)	* 6.23	* Avg. Vel. (ft/s)	* 2.11	* 7.89	* 2.44 *
* Max Chl Dpth (ft)	* 5.82	* Hydr. Depth (ft)	* 0.60	* 3.24	* 0.74 *
* Conv. Total (cfs)	* 10746.1	* Conv. (cfs)	* 687.2	* 9616.8	* 442.1 *
* Length Wtd. (ft)	* 143.10	* Wetted Per. (ft)	* 44.50	* 38.44	* 19.93 *
* Min Ch El (ft)	* 1647.78	* Shear (lb/sq ft)	* 0.24	* 1.04	* 0.30 *
* Alpha	* 1.45	* Stream Power (lb/ft s)	* 0.51	* 8.20	* 0.73 *
* Frctn Loss (ft)	* 1.01	* Cum Volume (acre-ft)	* 13.49	* 35.86	* 0.97 *
* C & E Loss (ft)	* 0.05	* Cum SA (acres)	* 2.74	* 7.89	* 0.29 *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 3600

INPUT
Description:
Station Elevation Data num= 12

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1185.66	1651	1192.77	1650	1195.19	1649	1195.3	1648	1195.4	1647
1196.31	1646	1222.7	1646	1244.81	1646	1245.9	1647	1246.87	1648
1274.89	1649	1319.68	1650						

Manning's n Values num= 2

Sta	n Val	Sta	n Val
1185.66	.025	1246.87	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1185.66 1246.87 366.01 370 383 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1649.14	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.03	* Wt. n-Val.	*	* 0.025	* 0.040 *
* W.S. Elev (ft)	* 1648.11	* Reach Len. (ft)	* 366.01	* 370.00	* 383.00 *
* Crit W.S. (ft)	* 1648.11	* Flow Area (sq ft)	*	* 106.20	* 0.17 *
* E.G. Slope (ft/ft)	*0.007625	* Area (sq ft)	*	* 106.20	* 0.17 *
* Q Total (cfs)	* 867.00	* Flow (cfs)	*	* 866.92	* 0.08 *
* Top Width (ft)	* 54.66	* Top Width (ft)	*	* 51.58	* 3.08 *
* Vel Total (ft/s)	* 8.15	* Avg. Vel. (ft/s)	*	* 8.16	* 0.47 *
* Max Chl Dpth (ft)	* 2.11	* Hydr. Depth (ft)	*	* 2.06	* 0.05 *
* Conv. Total (cfs)	* 9929.1	* Conv. (cfs)	*	* 9928.2	* 0.9 *
* Length Wtd. (ft)	* 370.00	* Wetted Per. (ft)	*	* 53.84	* 3.08 *
* Min Ch El (ft)	* 1646.00	* Shear (lb/sq ft)	*	* 0.94	* 0.03 *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 7.66	* 0.01 *
* Frctn Loss (ft)	* 2.90	* Cum Volume (acre-ft)	* 36.30	* 36.80	* 1.19 *
* C & E Loss (ft)	* 0.05	* Cum SA (acres)	* 9.49	* 9.41	* 0.47 *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 1649.14	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.03	* Wt. n-Val.	*	* 0.025	* 0.040 *
* W.S. Elev (ft)	* 1648.11	* Reach Len. (ft)	* 366.01	* 370.00	* 383.00 *
* Crit W.S. (ft)	* 1648.11	* Flow Area (sq ft)	*	* 106.20	* 0.17 *
* E.G. Slope (ft/ft)	*0.007625	* Area (sq ft)	*	* 106.20	* 0.17 *
* Q Total (cfs)	* 867.00	* Flow (cfs)	*	* 866.92	* 0.08 *
* Top Width (ft)	* 54.66	* Top Width (ft)	*	* 51.58	* 3.08 *
* Vel Total (ft/s)	* 8.15	* Avg. Vel. (ft/s)	*	* 8.16	* 0.47 *
* Max Chl Dpth (ft)	* 2.11	* Hydr. Depth (ft)	*	* 2.06	* 0.05 *
* Conv. Total (cfs)	* 9929.1	* Conv. (cfs)	*	* 9928.2	* 0.9 *
* Length Wtd. (ft)	* 370.00	* Wetted Per. (ft)	*	* 53.84	* 3.08 *
* Min Ch El (ft)	* 1646.00	* Shear (lb/sq ft)	*	* 0.94	* 0.03 *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 7.66	* 0.01 *
* Frctn Loss (ft)	* 2.90	* Cum Volume (acre-ft)	* 13.45	* 35.53	* 0.94 *
* C & E Loss (ft)	* 0.05	* Cum SA (acres)	* 2.66	* 7.75	* 0.25 *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 3500

INPUT
Description:
Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1185.43	1649	1191.81	1648	1200.57	1647	1203.67	1646	1203.79	1645
1203.93	1644	1204.11	1643	1271.04	1643	1272.02	1644	1272.99	1645

Manning's n Values num= 2

Sta	n Val	Sta	n Val
1185.43	.025	1272.99	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1185.43 1272.99 392 394 393 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1645.58	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.86	* Wt. n-Val.	*	* 0.025	* *
* W.S. Elev (ft)	* 1644.72	* Reach Len. (ft)	* 392.00	* 394.00	* 393.00 *
* Crit W.S. (ft)	* 1644.72	* Flow Area (sq ft)	*	* 116.69	* *
* E.G. Slope (ft/ft)	*0.008069	* Area (sq ft)	*	* 116.69	* *
* Q Total (cfs)	* 867.00	* Flow (cfs)	*	* 867.00	* *
* Top Width (ft)	* 68.89	* Top Width (ft)	*	* 68.89	* *
* Vel Total (ft/s)	* 7.43	* Avg. Vel. (ft/s)	*	* 7.43	* *
* Max Chl Dpth (ft)	* 1.72	* Hydr. Depth (ft)	*	* 1.69	* *
* Conv. Total (cfs)	* 9652.1	* Conv. (cfs)	*	* 9652.1	* *
* Length Wtd. (ft)	* 394.00	* Wetted Per. (ft)	*	* 71.07	* *
* Min Ch El (ft)	* 1643.00	* Shear (lb/sq ft)	*	* 0.83	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 6.14	* *
* Frctn Loss (ft)	* 3.15	* Cum Volume (acre-ft)	* 36.30	* 35.86	* 1.19 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 9.49	* 8.90	* 0.45 *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 1645.58	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.86	* Wt. n-Val.	*	* 0.025	* *
* W.S. Elev (ft)	* 1644.72	* Reach Len. (ft)	* 392.00	* 394.00	* 393.00 *
* Crit W.S. (ft)	* 1644.72	* Flow Area (sq ft)	*	* 116.69	* *
* E.G. Slope (ft/ft)	*0.008069	* Area (sq ft)	*	* 116.69	* *
* Q Total (cfs)	* 867.00	* Flow (cfs)	*	* 867.00	* *
* Top Width (ft)	* 68.89	* Top Width (ft)	*	* 68.89	* *
* Vel Total (ft/s)	* 7.43	* Avg. Vel. (ft/s)	*	* 7.43	* *
* Max Chl Dpth (ft)	* 1.72	* Hydr. Depth (ft)	*	* 1.69	* *
* Conv. Total (cfs)	* 9652.1	* Conv. (cfs)	*	* 9652.1	* *
* Length Wtd. (ft)	* 394.00	* Wetted Per. (ft)	*	* 71.07	* *
* Min Ch El (ft)	* 1643.00	* Shear (lb/sq ft)	*	* 0.83	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 6.14	* *
* Frctn Loss (ft)	* 3.15	* Cum Volume (acre-ft)	* 13.45	* 34.58	* 0.94 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 2.66	* 7.24	* 0.24 *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 3400

```
INPUT
Description:
Station Elevation Data    num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 1174.01    1645 1182.77    1644 1191.91    1643 1203.38    1642 1203.74    1641
 1204.11    1640 1204.45    1639 1205.66    1638 1267.93    1638  1268.7    1639
  1269.3    1640 1269.92    1641 1270.52    1642

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
*********************************
 1174.01    .025 1270.52     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1174.01 1270.52              347     344     345             .1      .3

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)        * 1640.68  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)         *    0.89  * Wt. n-Val.           *          *    0.025  *          *
* W.S. Elev (ft)        * 1639.79  * Reach Len. (ft)      *  347.00  *  344.00  *  345.00  *
* Crit W.S. (ft)        * 1639.79  * Flow Area (sq ft)    *          *  114.49  *          *
* E.G. Slope (ft/ft)    *0.007925  * Area (sq ft)         *          *  114.49  *          *
* Q Total (cfs)         *  867.00  * Flow (cfs)           *          *  867.00  *          *
* Top Width (ft)        *   65.00  * Top Width (ft)       *          *   65.00  *          *
* Vel Total (ft/s)      *    7.57  * Avg. Vel. (ft/s)     *          *    7.57  *          *
* Max Chl Dpth (ft)     *    1.79  * Hydr. Depth (ft)     *          *    1.76  *          *
* Conv. Total (cfs)     *  9739.3  * Conv. (cfs)          *          *  9739.3  *          *
* Length Wtd. (ft)      *  344.00  * Wetted Per. (ft)     *          *   66.86  *          *
* Min Ch El (ft)        * 1638.00  * Shear (lb/sq ft)     *          *    0.85  *          *
* Alpha                 *    1.00  * Stream Power (lb/ft s) *        *    6.42  *          *
* Frctn Loss (ft)       *    0.70  * Cum Volume (acre-ft)  *  36.30  *  34.81  *    1.19  *
* C & E Loss (ft)       *    0.18  * Cum SA (acres)        *   9.49  *   8.29  *    0.45  *
*************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION OUTPUT  Profile #PF 2
*************************************************************************************************
* E.G. Elev (ft)        * 1640.68  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)         *    0.89  * Wt. n-Val.           *          *    0.025  *          *
* W.S. Elev (ft)        * 1639.79  * Reach Len. (ft)      *  347.00  *  344.00  *  345.00  *
* Crit W.S. (ft)        * 1639.79  * Flow Area (sq ft)    *          *  114.49  *          *
* E.G. Slope (ft/ft)    *0.007925  * Area (sq ft)         *          *  114.49  *          *
* Q Total (cfs)         *  867.00  * Flow (cfs)           *          *  867.00  *          *
* Top Width (ft)        *   65.00  * Top Width (ft)       *          *   65.00  *          *
* Vel Total (ft/s)      *    7.57  * Avg. Vel. (ft/s)     *          *    7.57  *          *
* Max Chl Dpth (ft)     *    1.79  * Hydr. Depth (ft)     *          *    1.76  *          *
* Conv. Total (cfs)     *  9739.3  * Conv. (cfs)          *          *  9739.3  *          *
* Length Wtd. (ft)      *  344.00  * Wetted Per. (ft)     *          *   66.86  *          *
* Min Ch El (ft)        * 1638.00  * Shear (lb/sq ft)     *          *    0.85  *          *
* Alpha                 *    1.00  * Stream Power (lb/ft s) *        *    6.42  *          *
* Frctn Loss (ft)       *    0.70  * Cum Volume (acre-ft)  *  13.45  *  33.53  *    0.94  *
* C & E Loss (ft)       *    0.18  * Cum SA (acres)        *   2.66  *   6.64  *    0.24  *
*************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 3300

INPUT
Description:
Station Elevation Data    num=      19
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
  1144.3    1642 1153.36    1641 1158.42    1640 1162.21    1639 1162.36    1638
 1162.51    1637 1162.62    1636 1162.75    1635  1163.8    1634 1189.67    1633
 1242.25    1633 1242.79    1634 1243.32    1635 1243.87    1636 1244.41    1637
 1244.96    1638 1245.55    1639 1246.13    1640    1251    1641

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
*********************************
  1144.3    .025    1251     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1144.3    1251              49      51      53             .1      .3
Ineffective Flow     num=       1
   Sta L    Sta R    Elev  Permanent
  1144.3 1189.67    1642        F
```

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1637.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.025	
W.S. Elev (ft)	1636.82	Reach Len. (ft)	49.00	51.00	53.00
Crit W.S. (ft)	1635.02	Flow Area (sq ft)		204.99	
E.G. Slope (ft/ft)	*0.000917	Area (sq ft)		293.62	
Q Total (cfs)	867.00	Flow (cfs)		867.00	
Top Width (ft)	81.79	Top Width (ft)		81.79	
Vel Total (ft/s)	4.23	Avg. Vel. (ft/s)		4.23	
Max Chl Dpth (ft)	3.82	Hydr. Depth (ft)		3.75	
Conv. Total (cfs)	28624.3	Conv. (cfs)		28624.3	
Length Wtd. (ft)	51.00	Wetted Per. (ft)		56.93	
Min Ch El (ft)	1633.00	Shear (lb/sq ft)		0.21	
Alpha	1.00	Stream Power (lb/ft s)		0.87	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	36.30	33.20	1.19
C & E Loss (ft)	0.13	Cum SA (acres)	9.49	7.71	0.45

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1637.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.025	
W.S. Elev (ft)	1636.82	Reach Len. (ft)	49.00	51.00	53.00
Crit W.S. (ft)	1635.02	Flow Area (sq ft)		204.99	
E.G. Slope (ft/ft)	*0.000917	Area (sq ft)		293.62	
Q Total (cfs)	867.00	Flow (cfs)		867.00	
Top Width (ft)	81.79	Top Width (ft)		81.79	
Vel Total (ft/s)	4.23	Avg. Vel. (ft/s)		4.23	
Max Chl Dpth (ft)	3.82	Hydr. Depth (ft)		3.75	
Conv. Total (cfs)	28624.3	Conv. (cfs)		28624.3	
Length Wtd. (ft)	51.00	Wetted Per. (ft)		56.93	
Min Ch El (ft)	1633.00	Shear (lb/sq ft)		0.21	
Alpha	1.00	Stream Power (lb/ft s)		0.87	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	13.45	31.92	0.94
C & E Loss (ft)	0.13	Cum SA (acres)	2.66	6.06	0.24

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 3280

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1165.69	1641	1173.74	1640	1182.15	1639	1191.29	1638	1197.14	1637
1201.59	1636	1205.39	1635	1206.42	1634	1207.35	1633	1208.6	1632
1232.89	1632	1261.87	1633	1290.19	1634	1295.73	1635	1319.69	1635
1353.86	1635	1373.83	1636	1395.64	1637	1415.94	1638	1430.06	1639

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1165.69	.04	1205.39	.025	1295.73	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1205.39 1295.73 17.5 17.5 17.5 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
1165.69	1205.39	1655	F
1232.89	1430.06	1655	F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1636.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.57	Wt. n-Val.		0.025	
W.S. Elev (ft)	1635.30	Reach Len. (ft)	17.50	17.50	17.50
Crit W.S. (ft)	1635.30	Flow Area (sq ft)		86.24	
E.G. Slope (ft/ft)	*0.006595	Area (sq ft)	0.17	222.99	18.54
Q Total (cfs)	867.00	Flow (cfs)		867.00	
Top Width (ft)	155.67	Top Width (ft)	1.15	90.34	64.18
Vel Total (ft/s)	10.05	Avg. Vel. (ft/s)		10.05	
Max Chl Dpth (ft)	3.30	Hydr. Depth (ft)		3.14	
Conv. Total (cfs)	10675.8	Conv. (cfs)		10675.8	
Length Wtd. (ft)	17.50	Wetted Per. (ft)		28.69	
Min Ch El (ft)	1632.00	Shear (lb/sq ft)		1.24	
Alpha	1.00	Stream Power (lb/ft s)		12.44	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	36.30	32.90	1.18
C & E Loss (ft)	0.01	Cum SA (acres)	9.49	7.61	0.41

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there

is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1636.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.57	Wt. n-Val.		0.025	
W.S. Elev (ft)	1635.30	Reach Len. (ft)	17.50	17.50	17.50
Crit W.S. (ft)	1635.30	Flow Area (sq ft)		86.24	
E.G. Slope (ft/ft)	*0.006595	Area (sq ft)	0.17	222.99	18.54
Q Total (cfs)	867.00	Flow (cfs)		867.00	
Top Width (ft)	155.67	Top Width (ft)	1.15	90.34	64.18
Vel Total (ft/s)	10.05	Avg. Vel. (ft/s)		10.05	
Max Chl Dpth (ft)	3.30	Hydr. Depth (ft)		3.14	
Conv. Total (cfs)	10675.8	Conv. (cfs)		10675.8	
Length Wtd. (ft)	17.50	Wetted Per. (ft)		28.69	
Min Ch El (ft)	1632.00	Shear (lb/sq ft)		1.24	
Alpha	1.00	Stream Power (lb/ft s)		12.44	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	13.45	31.62	0.93
C & E Loss (ft)	0.01	Cum SA (acres)	2.66	5.95	0.20

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 3275

INPUT
Description: Start of U Channel
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1037.67	1639.64	1037.67	1631.64	1050	1631.49	1062.33	1631.64	1062.33	1639.64

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1037.67	.015	1037.67	.015	1062.33	.015

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1037.67	1062.33	33	33	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1636.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.69	Wt. n-Val.		0.015	
W.S. Elev (ft)	1634.93	Reach Len. (ft)	33.00	33.00	33.00
Crit W.S. (ft)	1634.93	Flow Area (sq ft)		83.02	
E.G. Slope (ft/ft)	*0.003020	Area (sq ft)		83.02	
Q Total (cfs)	867.00	Flow (cfs)		867.00	
Top Width (ft)	24.66	Top Width (ft)		24.66	
Vel Total (ft/s)	10.44	Avg. Vel. (ft/s)		10.44	
Max Chl Dpth (ft)	3.44	Hydr. Depth (ft)		3.37	
Conv. Total (cfs)	15777.2	Conv. (cfs)		15777.2	
Length Wtd. (ft)	33.00	Wetted Per. (ft)		31.24	
Min Ch El (ft)	1631.49	Shear (lb/sq ft)		0.50	
Alpha	1.00	Stream Power (lb/ft s)		5.23	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	36.30	32.84	1.17
C & E Loss (ft)	0.00	Cum SA (acres)	9.49	7.59	0.40

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1636.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.69	Wt. n-Val.		0.015	
W.S. Elev (ft)	1634.93	Reach Len. (ft)	33.00	33.00	33.00
Crit W.S. (ft)	1634.93	Flow Area (sq ft)		83.02	
E.G. Slope (ft/ft)	*0.003020	Area (sq ft)		83.02	
Q Total (cfs)	867.00	Flow (cfs)		867.00	
Top Width (ft)	24.66	Top Width (ft)		24.66	
Vel Total (ft/s)	10.44	Avg. Vel. (ft/s)		10.44	
Max Chl Dpth (ft)	3.44	Hydr. Depth (ft)		3.37	
Conv. Total (cfs)	15777.2	Conv. (cfs)		15777.2	
Length Wtd. (ft)	33.00	Wetted Per. (ft)		31.24	
Min Ch El (ft)	1631.49	Shear (lb/sq ft)		0.50	
Alpha	1.00	Stream Power (lb/ft s)		5.23	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	13.45	31.56	0.93
C & E Loss (ft)	0.00	Cum SA (acres)	2.66	5.93	0.19

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

```
RIVER: RIVER-1
REACH: Reach-1            RS: 3270

INPUT
Description:
Station Elevation Data    num=       5
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 1037.67 1639.12 1037.67 1631.12    1050 1630.88 1062.33 1631.12 1062.33 1639.12

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 1037.67    .015 1037.67    .015 1062.33    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1037.67 1062.33              250     250     250             .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)         * 1636.06  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.70  * Wt. n-Val.            *          *    0.015  *          *
* W.S. Elev (ft)         * 1634.36  * Reach Len. (ft)       *  250.00  *  250.00  *  250.00  *
* Crit W.S. (ft)         * 1634.36  * Flow Area (sq ft)     *          *   82.84  *          *
* E.G. Slope (ft/ft)     *0.003029  * Area (sq ft)          *          *   82.84  *          *
* Q Total (cfs)          *  867.00  * Flow (cfs)            *          *  867.00  *          *
* Top Width (ft)         *   24.66  * Top Width (ft)        *          *   24.66  *          *
* Vel Total (ft/s)       *   10.47  * Avg. Vel. (ft/s)      *          *   10.47  *          *
* Max Chl Dpth (ft)      *    3.48  * Hydr. Depth (ft)      *          *    3.36  *          *
* Conv. Total (cfs)      * 15753.8  * Conv. (cfs)           *          * 15753.8  *          *
* Length Wtd. (ft)       *  250.00  * Wetted Per. (ft)      *          *   31.14  *          *
* Min Ch El (ft)         * 1630.88  * Shear (lb/sq ft)      *          *    0.50  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    5.26  *          *
* Frctn Loss (ft)        *    0.76  * Cum Volume (acre-ft)  *   36.30  *   32.77  *    1.17  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        *    9.49  *    7.57  *    0.40  *
*************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION OUTPUT  Profile #PF 2
*************************************************************************************************
* E.G. Elev (ft)         * 1636.06  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.70  * Wt. n-Val.            *          *    0.015  *          *
* W.S. Elev (ft)         * 1634.36  * Reach Len. (ft)       *  250.00  *  250.00  *  250.00  *
* Crit W.S. (ft)         * 1634.36  * Flow Area (sq ft)     *          *   82.84  *          *
* E.G. Slope (ft/ft)     *0.003029  * Area (sq ft)          *          *   82.84  *          *
* Q Total (cfs)          *  867.00  * Flow (cfs)            *          *  867.00  *          *
* Top Width (ft)         *   24.66  * Top Width (ft)        *          *   24.66  *          *
* Vel Total (ft/s)       *   10.47  * Avg. Vel. (ft/s)      *          *   10.47  *          *
* Max Chl Dpth (ft)      *    3.48  * Hydr. Depth (ft)      *          *    3.36  *          *
* Conv. Total (cfs)      * 15753.8  * Conv. (cfs)           *          * 15753.8  *          *
* Length Wtd. (ft)       *  250.00  * Wetted Per. (ft)      *          *   31.14  *          *
* Min Ch El (ft)         * 1630.88  * Shear (lb/sq ft)      *          *    0.50  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    5.26  *          *
* Frctn Loss (ft)        *    0.76  * Cum Volume (acre-ft)  *   13.45  *   31.50  *    0.93  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        *    2.66  *    5.91  *    0.19  *
*************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 3200

INPUT
Description:
Station Elevation Data    num=       5
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 1037.67 1635.33 1037.67 1627.33    1050 1627.08 1062.33 1627.33 1062.33 1635.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 1037.67    .015 1037.67    .015 1062.33    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1037.67 1062.33              400     400     400             .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)         * 1632.27  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.70  * Wt. n-Val.            *          *    0.015  *          *
* W.S. Elev (ft)         * 1630.57  * Reach Len. (ft)       *  400.00  *  400.00  *  400.00  *
* Crit W.S. (ft)         * 1630.57  * Flow Area (sq ft)     *          *   82.90  *          *
* E.G. Slope (ft/ft)     *0.003021  * Area (sq ft)          *          *   82.90  *          *
* Q Total (cfs)          *  867.00  * Flow (cfs)            *          *  867.00  *          *
* Top Width (ft)         *   24.66  * Top Width (ft)        *          *   24.66  *          *
* Vel Total (ft/s)       *   10.46  * Avg. Vel. (ft/s)      *          *   10.46  *          *
* Max Chl Dpth (ft)      *    3.49  * Hydr. Depth (ft)      *          *    3.36  *          *
* Conv. Total (cfs)      * 15774.5  * Conv. (cfs)           *          * 15774.5  *          *
```

* Length Wtd. (ft)	* 400.00	* Wetted Per. (ft)	*	*	31.14	*		*
* Min Ch El (ft)	* 1627.08	* Shear (lb/sq ft)	*	*	0.50	*		*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	*	5.25	*		*
* Frctn Loss (ft)	* 1.21	* Cum Volume (acre-ft)	*	36.30	* 32.30	*	1.17	*
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	9.49	* 7.43	*	0.40	*

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 1632.27	* Element	*	Left OB	* Channel	*	Right OB	*
* Vel Head (ft)	* 1.70	* Wt. n-Val.	*		* 0.015	*		*
* W.S. Elev (ft)	* 1630.57	* Reach Len. (ft)	*	400.00	* 400.00	*	400.00	*
* Crit W.S. (ft)	* 1630.57	* Flow Area (sq ft)	*		* 82.90	*		*
* E.G. Slope (ft/ft)	*0.003021	* Area (sq ft)	*		* 82.90	*		*
* Q Total (cfs)	* 867.00	* Flow (cfs)	*		* 867.00	*		*
* Top Width (ft)	* 24.66	* Top Width (ft)	*		* 24.66	*		*
* Vel Total (ft/s)	* 10.46	* Avg. Vel. (ft/s)	*		* 10.46	*		*
* Max Chl Dpth (ft)	* 3.49	* Hydr. Depth (ft)	*		* 3.36	*		*
* Conv. Total (cfs)	* 15774.5	* Conv. (cfs)	*		* 15774.5	*		*
* Length Wtd. (ft)	* 400.00	* Wetted Per. (ft)	*		* 31.14	*		*
* Min Ch El (ft)	* 1627.08	* Shear (lb/sq ft)	*		* 0.50	*		*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*		* 5.25	*		*
* Frctn Loss (ft)	* 1.21	* Cum Volume (acre-ft)	*	13.45	* 31.02	*	0.93	*
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	2.66	* 5.77	*	0.19	*

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 3100

INPUT
Description:
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1037.67	1629.25	1037.67	1621.25	1050	1621	1062.33	1621.25	1062.33	1629.25

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1037.67	.015	1037.67	.015	1062.33	.015

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1037.67	1062.33	40	40	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1626.19	* Element	*	Left OB	* Channel	*	Right OB	*
* Vel Head (ft)	* 1.70	* Wt. n-Val.	*		* 0.015	*		*
* W.S. Elev (ft)	* 1624.48	* Reach Len. (ft)	*	40.00	* 40.00	*	40.00	*
* Crit W.S. (ft)	* 1624.48	* Flow Area (sq ft)	*		* 82.84	*		*
* E.G. Slope (ft/ft)	*0.003027	* Area (sq ft)	*		* 82.84	*		*
* Q Total (cfs)	* 867.00	* Flow (cfs)	*		* 867.00	*		*
* Top Width (ft)	* 24.66	* Top Width (ft)	*		* 24.66	*		*
* Vel Total (ft/s)	* 10.47	* Avg. Vel. (ft/s)	*		* 10.47	*		*
* Max Chl Dpth (ft)	* 3.48	* Hydr. Depth (ft)	*		* 3.36	*		*
* Conv. Total (cfs)	* 15758.0	* Conv. (cfs)	*		* 15758.0	*		*
* Length Wtd. (ft)	* 40.00	* Wetted Per. (ft)	*		* 31.13	*		*
* Min Ch El (ft)	* 1621.00	* Shear (lb/sq ft)	*		* 0.50	*		*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*		* 5.26	*		*
* Frctn Loss (ft)	* 0.10	* Cum Volume (acre-ft)	*	36.30	* 31.54	*	1.17	*
* C & E Loss (ft)	* 0.18	* Cum SA (acres)	*	9.49	* 7.20	*	0.40	*

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 1626.19	* Element	*	Left OB	* Channel	*	Right OB	*
* Vel Head (ft)	* 1.70	* Wt. n-Val.	*		* 0.015	*		*
* W.S. Elev (ft)	* 1624.48	* Reach Len. (ft)	*	40.00	* 40.00	*	40.00	*
* Crit W.S. (ft)	* 1624.48	* Flow Area (sq ft)	*		* 82.84	*		*
* E.G. Slope (ft/ft)	*0.003027	* Area (sq ft)	*		* 82.84	*		*
* Q Total (cfs)	* 867.00	* Flow (cfs)	*		* 867.00	*		*
* Top Width (ft)	* 24.66	* Top Width (ft)	*		* 24.66	*		*
* Vel Total (ft/s)	* 10.47	* Avg. Vel. (ft/s)	*		* 10.47	*		*
* Max Chl Dpth (ft)	* 3.48	* Hydr. Depth (ft)	*		* 3.36	*		*
* Conv. Total (cfs)	* 15758.0	* Conv. (cfs)	*		* 15758.0	*		*
* Length Wtd. (ft)	* 40.00	* Wetted Per. (ft)	*		* 31.13	*		*
* Min Ch El (ft)	* 1621.00	* Shear (lb/sq ft)	*		* 0.50	*		*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*		* 5.26	*		*
* Frctn Loss (ft)	* 0.10	* Cum Volume (acre-ft)	*	13.45	* 30.26	*	0.93	*

* C & E Loss (ft)	* 0.18	* Cum SA (acres)	* 2.66	* 5.55	* 0.19	*

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 3080

INPUT
Description:
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1037.67	1628.49	1037.67	1620.49	1050	1620.49	1062.33	1620.49	1062.33	1628.49

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1037.67	.015	1037.67	.015	1062.33	.015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1037.67 1062.33 127.2 127.2 127.2 .1 .3
Blocked Obstructions num= 1

Sta L	Sta R	Elev
1049.67	1050.33	1628.49

Cross Section Lid
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
1037.67	1629.29	1628.49	1062.33	1629.29	1628.49

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1625.88	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.10	* Wt. n-Val.	*	* 0.015	* *
* W.S. Elev (ft)	* 1624.78	* Reach Len. (ft)	* 0.10	* 0.10	* 0.10 *
* Crit W.S. (ft)	* 1623.94	* Flow Area (sq ft)	*	* 102.99	* *
* E.G. Slope (ft/ft)	*0.002126	* Area (sq ft)	*	* 102.99	* *
* Q Total (cfs)	* 867.00	* Flow (cfs)	*	* 867.00	* *
* Top Width (ft)	* 24.00	* Top Width (ft)	*	* 24.00	* *
* Vel Total (ft/s)	* 8.42	* Avg. Vel. (ft/s)	*	* 8.42	* *
* Max Chl Dpth (ft)	* 4.29	* Hydr. Depth (ft)	*	* 4.29	* *
* Conv. Total (cfs)	* 18801.6	* Conv. (cfs)	*	* 18801.6	* *
* Length Wtd. (ft)	* 0.10	* Wetted Per. (ft)	*	* 41.16	* *
* Min Ch El (ft)	* 1620.49	* Shear (lb/sq ft)	*	* 0.33	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 2.80	* *
* Frctn Loss (ft)	* 0.00	* Cum Volume (acre-ft)	* 36.30	* 31.45	* 1.17 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 9.49	* 7.18	* 0.40 *

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 1625.88	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.10	* Wt. n-Val.	*	* 0.015	* *
* W.S. Elev (ft)	* 1624.78	* Reach Len. (ft)	* 0.10	* 0.10	* 0.10 *
* Crit W.S. (ft)	* 1623.94	* Flow Area (sq ft)	*	* 102.99	* *
* E.G. Slope (ft/ft)	*0.002126	* Area (sq ft)	*	* 102.99	* *
* Q Total (cfs)	* 867.00	* Flow (cfs)	*	* 867.00	* *
* Top Width (ft)	* 24.00	* Top Width (ft)	*	* 24.00	* *
* Vel Total (ft/s)	* 8.42	* Avg. Vel. (ft/s)	*	* 8.42	* *
* Max Chl Dpth (ft)	* 4.29	* Hydr. Depth (ft)	*	* 4.29	* *
* Conv. Total (cfs)	* 18801.6	* Conv. (cfs)	*	* 18801.6	* *
* Length Wtd. (ft)	* 0.10	* Wetted Per. (ft)	*	* 41.16	* *
* Min Ch El (ft)	* 1620.49	* Shear (lb/sq ft)	*	* 0.33	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 2.80	* *
* Frctn Loss (ft)	* 0.00	* Cum Volume (acre-ft)	* 13.45	* 30.17	* 0.93 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 2.66	* 5.52	* 0.19 *

Warning: Divided flow computed for this cross-section.

BRIDGE

RIVER: RIVER-1
REACH: Reach-1 RS: 3050

INPUT
Description: Bertha Howe Avenue Bridge
Distance from Upstream XS = .1
Deck/Roadway Width = 127
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
1037.67	1633.33	1627.69	1062.33	1633.33	1627.69

Upstream Bridge Cross Section Data
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1037.67	1628.49	1037.67	1620.49	1050	1620.49	1062.33	1620.49	1062.33	1628.49

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
 1037.67    .015 1037.67    .015 1062.33    .015

Bank Sta: Left   Right    Coeff Contr.   Expan.
       1037.67 1062.33             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
*************************
 1049.67 1050.33 1628.49

Downstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*************************************************
 1037.67 1633.33 1626.67 1062.33 1633.33 1626.67

Downstream Bridge Cross Section Data
Station Elevation Data    num=       5
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*************************************************************************************
 1037.67 1627.47 1037.67 1619.47    1050 1619.47 1062.33 1619.47 1062.33 1627.47

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
 1037.67    .015 1037.67    .015 1062.33    .015

Bank Sta: Left   Right    Coeff Contr.   Expan.
       1037.67 1062.33             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
************************
 1049.67 1050.33 1627.47

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 =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  1

Pier Data
Pier Station     Upstream=    1050    Downstream=    1050
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     .67 1619.38     .67 1629.38
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     .67 1619.38     .67 1629.38

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

BRIDGE OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. US. (ft)           *    1625.88  * Element               *Inside BR US *Inside BR DS *
* W.S. US. (ft)           *    1624.78  * E.G. Elev (ft)        *    1625.88  *    1625.59  *
* Q Total (cfs)           *     867.00  * W.S. Elev (ft)        *    1624.78  *    1624.91  *
* Q Bridge (cfs)          *     867.00  * Crit W.S. (ft)        *    1623.92  *    1622.91  *
* Q Weir (cfs)            *             * Max Chl Dpth (ft)     *       4.29  *       5.44  *
* Weir Sta Lft (ft)       *             * Vel Total (ft/s)      *       8.43  *       6.65  *
* Weir Sta Rgt (ft)       *             * Flow Area (sq ft)     *     102.89  *     130.44  *
* Weir Submerg            *             * Froude # Chl          *       0.72  *       0.50  *
* Weir Max Depth (ft)     *             * Specif Force (cu ft)  *     447.53  *     533.58  *
* Min El Weir Flow (ft)   *    1633.34  * Hydr Depth (ft)       *       4.29  *       5.44  *
* Min El Prs (ft)         *    1627.69  * W.P. Total (ft)       *      36.86  *      40.30  *
* Delta EG (ft)           *      -1.73  * Conv. Total (cfs)     *    20208.1  *    28272.9  *
* Delta WS (ft)           *      -0.13  * Top Width (ft)        *      23.99  *      23.99  *
* BR Open Area (sq ft)    *     172.73  * Frctn Loss (ft)       *       0.16  *       0.00  *
* BR Open Vel (ft/s)      *       8.43  * C & E Loss (ft)       *       0.12  *       0.00  *
* Coef of Q               *             * Shear Total (lb/sq ft) *      0.32  *       0.19  *
* Br Sel Method           *Energy only  * Power Total (lb/ft s)  *      2.70  *       1.26  *
*************************************************************************************************

Warning: Critical depth could not be determined within the specified number of iterations.  The program
         used the iteration with the lowest energy.

BRIDGE OUTPUT  Profile #PF 2
*************************************************************************************************
* E.G. US. (ft)           *    1625.88  * Element               *Inside BR US *Inside BR DS *
* W.S. US. (ft)           *    1624.78  * E.G. Elev (ft)        *    1625.88  *    1625.59  *
* Q Total (cfs)           *     867.00  * W.S. Elev (ft)        *    1624.78  *    1624.91  *
* Q Bridge (cfs)          *     867.00  * Crit W.S. (ft)        *    1623.92  *    1622.91  *
* Q Weir (cfs)            *             * Max Chl Dpth (ft)     *       4.29  *       5.44  *
* Weir Sta Lft (ft)       *             * Vel Total (ft/s)      *       8.43  *       6.65  *
* Weir Sta Rgt (ft)       *             * Flow Area (sq ft)     *     102.89  *     130.44  *
```

* Weir Submerg	*	* Froude # Chl	* 0.72	* 0.50	*
* Weir Max Depth (ft)	*	* Specif Force (cu ft)	* 447.53	* 533.58	*
* Min El Weir Flow (ft)	* 1633.34	* Hydr Depth (ft)	* 4.29	* 5.44	*
* Min El Prs (ft)	* 1627.69	* W.P. Total (ft)	* 36.86	* 40.30	*
* Delta EG (ft)	* -1.73	* Conv. Total (cfs)	* 20208.1	* 28272.9	*
* Delta WS (ft)	* -0.13	* Top Width (ft)	* 23.99	* 23.99	*
* BR Open Area (sq ft)	* 172.73	* Frctn Loss (ft)	* 0.16	* 0.00	*
* BR Open Vel (ft/s)	* 8.43	* C & E Loss (ft)	* 0.12	* 0.00	*
* Coef of Q	*	* Shear Total (lb/sq ft)	* 0.32	* 0.19	*
* Br Sel Method	*Energy only	* Power Total (lb/ft s)	* 2.70	* 1.26	*

Warning: Critical depth could not be determined within the specified number of iterations. The program used the iteration with the lowest energy.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 3020

INPUT
Description:
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1037.67	1627.47	1037.67	1619.47	1050	1619.47	1062.33	1619.47	1062.33	1627.47

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1037.67	.015	1037.67	.015	1062.33	.015

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1037.67	1062.33	150	150	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
1049.67	1050.33	1627.47

Cross Section Lid
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
1037.67	1628.27	1627.47	1062.33	1628.27	1627.47

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1627.61	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 2.71	* Wt. n-Val.	*	* 0.015	* *
* W.S. Elev (ft)	* 1624.91	* Reach Len. (ft)	* 150.00	* 150.00	* 150.00 *
* Crit W.S. (ft)	* 1624.91	* Flow Area (sq ft)	*	* 130.50	* *
* E.G. Slope (ft/ft)	*0.004391	* Area (sq ft)	*	* 130.50	* *
* Q Total (cfs)	* 1723.00	* Flow (cfs)	*	* 1723.00	* *
* Top Width (ft)	* 24.00	* Top Width (ft)	*	* 24.00	* *
* Vel Total (ft/s)	* 13.20	* Avg. Vel. (ft/s)	*	* 13.20	* *
* Max Chl Dpth (ft)	* 5.44	* Hydr. Depth (ft)	*	* 5.44	* *
* Conv. Total (cfs)	* 26001.2	* Conv. (cfs)	*	* 26001.2	* *
* Length Wtd. (ft)	* 150.00	* Wetted Per. (ft)	*	* 45.75	* *
* Min Ch El (ft)	* 1619.47	* Shear (lb/sq ft)	*	* 0.78	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 10.32	* *
* Frctn Loss (ft)	* 0.66	* Cum Volume (acre-ft)	* 36.30	* 31.11	* 1.17 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 9.49	* 7.11	* 0.40 *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 1627.61	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 2.71	* Wt. n-Val.	*	* 0.015	* *
* W.S. Elev (ft)	* 1624.91	* Reach Len. (ft)	* 150.00	* 150.00	* 150.00 *
* Crit W.S. (ft)	* 1624.91	* Flow Area (sq ft)	*	* 130.50	* *
* E.G. Slope (ft/ft)	*0.004391	* Area (sq ft)	*	* 130.50	* *
* Q Total (cfs)	* 1723.00	* Flow (cfs)	*	* 1723.00	* *
* Top Width (ft)	* 24.00	* Top Width (ft)	*	* 24.00	* *
* Vel Total (ft/s)	* 13.20	* Avg. Vel. (ft/s)	*	* 13.20	* *
* Max Chl Dpth (ft)	* 5.44	* Hydr. Depth (ft)	*	* 5.44	* *
* Conv. Total (cfs)	* 26001.2	* Conv. (cfs)	*	* 26001.2	* *
* Length Wtd. (ft)	* 150.00	* Wetted Per. (ft)	*	* 45.75	* *
* Min Ch El (ft)	* 1619.47	* Shear (lb/sq ft)	*	* 0.78	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 10.32	* *
* Frctn Loss (ft)	* 0.66	* Cum Volume (acre-ft)	* 13.45	* 29.83	* 0.93 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 2.66	* 5.45	* 0.19 *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 3000

```
INPUT
Description:
Station Elevation Data    num=       5
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*********************************************************************************
 1037.67 1626.27 1037.67 1618.27    1050 1618.27 1062.33 1618.27 1062.33 1626.27

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 1037.67    .015 1037.67    .015 1062.33    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1037.67 1062.33              350     350     350             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
************************
 1049.67 1050.33 1627.07
Cross Section Lid
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
************************************************
 1037.67 1627.07 1626.27 1062.33 1627.07 1626.27

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)         * 1626.41  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.71  * Wt. n-Val.             *         *    0.015 *          *
* W.S. Elev (ft)         * 1623.71  * Reach Len. (ft)       *  350.00 *  350.00  *  350.00  *
* Crit W.S. (ft)         * 1623.71  * Flow Area (sq ft)     *         *  130.50  *          *
* E.G. Slope (ft/ft)     *0.004391  * Area (sq ft)          *         *  130.50  *          *
* Q Total (cfs)          * 1723.00  * Flow (cfs)            *         * 1723.00  *          *
* Top Width (ft)         *   24.00  * Top Width (ft)        *         *   24.00  *          *
* Vel Total (ft/s)       *   13.20  * Avg. Vel. (ft/s)      *         *   13.20  *          *
* Max Chl Dpth (ft)      *    5.44  * Hydr. Depth (ft)      *         *    5.44  *          *
* Conv. Total (cfs)      * 26000.5  * Conv. (cfs)           *         * 26000.5  *          *
* Length Wtd. (ft)       *  350.00  * Wetted Per. (ft)      *         *   45.75  *          *
* Min Ch El (ft)         * 1618.27  * Shear (lb/sq ft)      *         *    0.78  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *         *   10.33  *          *
* Frctn Loss (ft)        *    1.54  * Cum Volume (acre-ft)   *  36.30  *   30.66  *    1.17  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)         *   9.49  *    7.02  *    0.40  *
*************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION OUTPUT  Profile #PF 2
*************************************************************************************************
* E.G. Elev (ft)         * 1626.41  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.71  * Wt. n-Val.             *         *    0.015 *          *
* W.S. Elev (ft)         * 1623.71  * Reach Len. (ft)       *  350.00 *  350.00  *  350.00  *
* Crit W.S. (ft)         * 1623.71  * Flow Area (sq ft)     *         *  130.50  *          *
* E.G. Slope (ft/ft)     *0.004391  * Area (sq ft)          *         *  130.50  *          *
* Q Total (cfs)          * 1723.00  * Flow (cfs)            *         * 1723.00  *          *
* Top Width (ft)         *   24.00  * Top Width (ft)        *         *   24.00  *          *
* Vel Total (ft/s)       *   13.20  * Avg. Vel. (ft/s)      *         *   13.20  *          *
* Max Chl Dpth (ft)      *    5.44  * Hydr. Depth (ft)      *         *    5.44  *          *
* Conv. Total (cfs)      * 26000.5  * Conv. (cfs)           *         * 26000.5  *          *
* Length Wtd. (ft)       *  350.00  * Wetted Per. (ft)      *         *   45.75  *          *
* Min Ch El (ft)         * 1618.27  * Shear (lb/sq ft)      *         *    0.78  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *         *   10.33  *          *
* Frctn Loss (ft)        *    1.54  * Cum Volume (acre-ft)   *  13.45  *   29.38  *    0.93  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)         *   2.66  *    5.37  *    0.19  *
*************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 2900

INPUT
Description:
Station Elevation Data    num=       5
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*********************************************************************************
 1037.67 1623.47 1037.67 1615.47    1050 1615.47 1062.33 1615.47 1062.33 1623.47

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 1037.67    .015 1037.67    .015 1062.33    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1037.67 1062.33              290     290     290             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
************************
 1049.67 1050.33 1623.47
Cross Section Lid
```

```
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
************************************************
 1037.67 1624.27 1623.47 1062.33 1624.27 1623.47

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)        * 1623.61  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)         *    2.71  * Wt. n-Val.             *         *    0.015 *          *
* W.S. Elev (ft)        * 1620.91  * Reach Len. (ft)        *  290.00 *   290.00 *   290.00 *
* Crit W.S. (ft)        * 1620.91  * Flow Area (sq ft)      *         *   130.50 *          *
* E.G. Slope (ft/ft)    *0.004391  * Area (sq ft)           *         *   130.50 *          *
* Q Total (cfs)         * 1723.00  * Flow (cfs)             *         *  1723.00 *          *
* Top Width (ft)        *   24.00  * Top Width (ft)         *         *    24.00 *          *
* Vel Total (ft/s)      *   13.20  * Avg. Vel. (ft/s)       *         *    13.20 *          *
* Max Chl Dpth (ft)     *    5.44  * Hydr. Depth (ft)       *         *     5.44 *          *
* Conv. Total (cfs)     * 26001.2  * Conv. (cfs)            *         *  26001.2 *          *
* Length Wtd. (ft)      *  290.00  * Wetted Per. (ft)       *         *    45.75 *          *
* Min Ch El (ft)        * 1615.47  * Shear (lb/sq ft)       *         *     0.78 *          *
* Alpha                 *    1.00  * Stream Power (lb/ft s) *         *    10.32 *          *
* Frctn Loss (ft)       *    1.27  * Cum Volume (acre-ft)   *   36.30 *    29.61 *     1.17 *
* C & E Loss (ft)       *    0.00  * Cum SA (acres)         *    9.49 *     6.83 *     0.40 *
*************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION OUTPUT  Profile #PF 2
*************************************************************************************************
* E.G. Elev (ft)        * 1623.61  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)         *    2.71  * Wt. n-Val.             *         *    0.015 *          *
* W.S. Elev (ft)        * 1620.91  * Reach Len. (ft)        *  290.00 *   290.00 *   290.00 *
* Crit W.S. (ft)        * 1620.91  * Flow Area (sq ft)      *         *   130.50 *          *
* E.G. Slope (ft/ft)    *0.004391  * Area (sq ft)           *         *   130.50 *          *
* Q Total (cfs)         * 1723.00  * Flow (cfs)             *         *  1723.00 *          *
* Top Width (ft)        *   24.00  * Top Width (ft)         *         *    24.00 *          *
* Vel Total (ft/s)      *   13.20  * Avg. Vel. (ft/s)       *         *    13.20 *          *
* Max Chl Dpth (ft)     *    5.44  * Hydr. Depth (ft)       *         *     5.44 *          *
* Conv. Total (cfs)     * 26001.2  * Conv. (cfs)            *         *  26001.2 *          *
* Length Wtd. (ft)      *  290.00  * Wetted Per. (ft)       *         *    45.75 *          *
* Min Ch El (ft)        * 1615.47  * Shear (lb/sq ft)       *         *     0.78 *          *
* Alpha                 *    1.00  * Stream Power (lb/ft s) *         *    10.32 *          *
* Frctn Loss (ft)       *    1.27  * Cum Volume (acre-ft)   *   13.45 *    28.34 *     0.93 *
* C & E Loss (ft)       *    0.00  * Cum SA (acres)         *    2.66 *     5.18 *     0.19 *
*************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 2800

INPUT
Description:
Station Elevation Data    num=       5
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 1037.67 1621.15 1037.67 1613.15    1050 1613.15 1062.33 1613.15 1062.33 1621.15

Manning's n Values        num=       3
     Sta    n Val     Sta    n Val     Sta    n Val
*************************************************
 1037.67    .015 1037.67    .015 1062.33    .015

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1037.67 1062.33             250     250     250             .1       .3
Blocked Obstructions      num=       1
   Sta L    Sta R     Elev
************************
 1049.67 1050.33 1621.15
Cross Section Lid
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
************************************************
 1037.67 1621.95 1621.15 1062.33 1621.95 1621.15

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)        * 1621.29  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)         *    2.71  * Wt. n-Val.             *         *    0.015 *          *
* W.S. Elev (ft)        * 1618.59  * Reach Len. (ft)        *  250.00 *   250.00 *   250.00 *
* Crit W.S. (ft)        * 1618.59  * Flow Area (sq ft)      *         *   130.50 *          *
* E.G. Slope (ft/ft)    *0.004391  * Area (sq ft)           *         *   130.50 *          *
* Q Total (cfs)         * 1723.00  * Flow (cfs)             *         *  1723.00 *          *
* Top Width (ft)        *   24.00  * Top Width (ft)         *         *    24.00 *          *
* Vel Total (ft/s)      *   13.20  * Avg. Vel. (ft/s)       *         *    13.20 *          *
* Max Chl Dpth (ft)     *    5.44  * Hydr. Depth (ft)       *         *     5.44 *          *
* Conv. Total (cfs)     * 26000.5  * Conv. (cfs)            *         *  26000.5 *          *
* Length Wtd. (ft)      *  250.00  * Wetted Per. (ft)       *         *    45.75 *          *
* Min Ch El (ft)        * 1613.15  * Shear (lb/sq ft)       *         *     0.78 *          *
* Alpha                 *    1.00  * Stream Power (lb/ft s) *         *    10.33 *          *
```

* Frctn Loss (ft)	* 1.10	* Cum Volume (acre-ft)	* 36.30	* 28.75	* 1.17	*		
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 9.49	* 6.67	* 0.40	*		

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 1621.29	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 2.71	* Wt. n-Val.	*	* 0.015	* *
* W.S. Elev (ft)	* 1618.59	* Reach Len. (ft)	* 250.00	* 250.00	* 250.00 *
* Crit W.S. (ft)	* 1618.59	* Flow Area (sq ft)	*	* 130.50	* *
* E.G. Slope (ft/ft)	*0.004391	* Area (sq ft)	*	* 130.50	* *
* Q Total (cfs)	* 1723.00	* Flow (cfs)	*	* 1723.00	* *
* Top Width (ft)	* 24.00	* Top Width (ft)	*	* 24.00	* *
* Vel Total (ft/s)	* 13.20	* Avg. Vel. (ft/s)	*	* 13.20	* *
* Max Chl Dpth (ft)	* 5.44	* Hydr. Depth (ft)	*	* 5.44	* *
* Conv. Total (cfs)	* 26000.5	* Conv. (cfs)	*	* 26000.5	* *
* Length Wtd. (ft)	* 250.00	* Wetted Per. (ft)	*	* 45.75	* *
* Min Ch El (ft)	* 1613.15	* Shear (lb/sq ft)	*	* 0.78	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 10.33	* *
* Frctn Loss (ft)	* 1.10	* Cum Volume (acre-ft)	* 13.45	* 27.47	* 0.93 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 2.66	* 5.02	* 0.19 *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 2700

INPUT
Description:
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1037.67	1619.15	1037.67	1611.15	1050	1611.15	1062.33	1611.15	1062.33	1619.15

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1037.67	.015	1037.67	.015	1062.33	.015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1037.67 1062.33 381.4 381.4 381.4 .1 .3
Blocked Obstructions num= 1

Sta L	Sta R	Elev
1049.67	1050.33	1619.15

Cross Section Lid
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
1037.67	1619.95	1619.15	1062.33	1619.95	1619.15

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1619.29	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 2.71	* Wt. n-Val.	*	* 0.015	* *
* W.S. Elev (ft)	* 1616.59	* Reach Len. (ft)	* 381.40	* 381.40	* 381.40 *
* Crit W.S. (ft)	* 1616.59	* Flow Area (sq ft)	*	* 130.50	* *
* E.G. Slope (ft/ft)	*0.004391	* Area (sq ft)	*	* 130.50	* *
* Q Total (cfs)	* 1723.00	* Flow (cfs)	*	* 1723.00	* *
* Top Width (ft)	* 24.00	* Top Width (ft)	*	* 24.00	* *
* Vel Total (ft/s)	* 13.20	* Avg. Vel. (ft/s)	*	* 13.20	* *
* Max Chl Dpth (ft)	* 5.44	* Hydr. Depth (ft)	*	* 5.44	* *
* Conv. Total (cfs)	* 26000.5	* Conv. (cfs)	*	* 26000.5	* *
* Length Wtd. (ft)	* 381.40	* Wetted Per. (ft)	*	* 45.75	* *
* Min Ch El (ft)	* 1611.15	* Shear (lb/sq ft)	*	* 0.78	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 10.33	* *
* Frctn Loss (ft)	* 1.68	* Cum Volume (acre-ft)	* 36.30	* 28.00	* 1.17 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 9.49	* 6.53	* 0.40 *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 1619.29	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 2.71	* Wt. n-Val.	*	* 0.015	* *
* W.S. Elev (ft)	* 1616.59	* Reach Len. (ft)	* 381.40	* 381.40	* 381.40 *
* Crit W.S. (ft)	* 1616.59	* Flow Area (sq ft)	*	* 130.50	* *
* E.G. Slope (ft/ft)	*0.004391	* Area (sq ft)	*	* 130.50	* *

* Q Total (cfs)	* 1723.00	* Flow (cfs)	*	* 1723.00	*	*		
* Top Width (ft)	* 24.00	* Top Width (ft)	*	* 24.00	*	*		
* Vel Total (ft/s)	* 13.20	* Avg. Vel. (ft/s)	*	* 13.20	*	*		
* Max Chl Dpth (ft)	* 5.44	* Hydr. Depth (ft)	*	* 5.44	*	*		
* Conv. Total (cfs)	* 26000.5	* Conv. (cfs)	*	* 26000.5	*	*		
* Length Wtd. (ft)	* 381.40	* Wetted Per. (ft)	*	* 45.75	*	*		
* Min Ch El (ft)	* 1611.15	* Shear (lb/sq ft)	*	* 0.78	*	*		
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 10.33	*	*		
* Frctn Loss (ft)	* 1.68	* Cum Volume (acre-ft)	*	13.45	*	26.72	*	0.93 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	2.66	*	4.88	*	0.19 *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 2600

INPUT
Description:
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1037.67	1616.13	1037.67	1608.13	1050	1608.13	1062.33	1608.13	1062.33	1616.13

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1037.67	.015	1037.67	.015	1062.33	.015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1037.67 1062.33 6.4 6.4 6.4 .1 .3
Blocked Obstructions num= 1

Sta L	Sta R	Elev
1049.67	1050.33	1615.54

Cross Section Lid
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
1037.67	1616.37	1615.54	1062.33	1616.37	1615.54

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1616.27	* Element	* Left OB	* Channel	* Right OB *			
* Vel Head (ft)	* 2.71	* Wt. n-Val.	*	* 0.015	*	*		
* W.S. Elev (ft)	* 1613.56	* Reach Len. (ft)	* 6.40	* 6.40	* 6.40 *			
* Crit W.S. (ft)	* 1613.56	* Flow Area (sq ft)	*	* 130.37	*	*		
* E.G. Slope (ft/ft)	*0.004403	* Area (sq ft)	*	* 130.37	*	*		
* Q Total (cfs)	* 1723.00	* Flow (cfs)	*	* 1723.00	*	*		
* Top Width (ft)	* 24.00	* Top Width (ft)	*	* 24.00	*	*		
* Vel Total (ft/s)	* 13.22	* Avg. Vel. (ft/s)	*	* 13.22	*	*		
* Max Chl Dpth (ft)	* 5.43	* Hydr. Depth (ft)	*	* 5.43	*	*		
* Conv. Total (cfs)	* 25967.4	* Conv. (cfs)	*	* 25967.4	*	*		
* Length Wtd. (ft)	* 6.40	* Wetted Per. (ft)	*	* 45.73	*	*		
* Min Ch El (ft)	* 1608.13	* Shear (lb/sq ft)	*	* 0.78	*	*		
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 10.36	*	*		
* Frctn Loss (ft)	* 0.03	* Cum Volume (acre-ft)	* 36.30	* 26.85	* 1.17 *			
* C & E Loss (ft)	* 0.41	* Cum SA (acres)	* 9.49	* 6.32	* 0.40 *			

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 1616.27	* Element	* Left OB	* Channel	* Right OB *			
* Vel Head (ft)	* 2.71	* Wt. n-Val.	*	* 0.015	*	*		
* W.S. Elev (ft)	* 1613.56	* Reach Len. (ft)	* 6.40	* 6.40	* 6.40 *			
* Crit W.S. (ft)	* 1613.56	* Flow Area (sq ft)	*	* 130.37	*	*		
* E.G. Slope (ft/ft)	*0.004403	* Area (sq ft)	*	* 130.37	*	*		
* Q Total (cfs)	* 1723.00	* Flow (cfs)	*	* 1723.00	*	*		
* Top Width (ft)	* 24.00	* Top Width (ft)	*	* 24.00	*	*		
* Vel Total (ft/s)	* 13.22	* Avg. Vel. (ft/s)	*	* 13.22	*	*		
* Max Chl Dpth (ft)	* 5.43	* Hydr. Depth (ft)	*	* 5.43	*	*		
* Conv. Total (cfs)	* 25967.4	* Conv. (cfs)	*	* 25967.4	*	*		
* Length Wtd. (ft)	* 6.40	* Wetted Per. (ft)	*	* 45.73	*	*		
* Min Ch El (ft)	* 1608.13	* Shear (lb/sq ft)	*	* 0.78	*	*		
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 10.36	*	*		
* Frctn Loss (ft)	* 0.04	* Cum Volume (acre-ft)	*	13.45	*	25.58	*	0.93 *
* C & E Loss (ft)	* 0.37	* Cum SA (acres)	*	2.66	*	4.67	*	0.19 *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 2590

INPUT
Description:
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1620	1001.7	1619	1003.5	1618	1005.3	1617	1007.15	1616
1011.55	1615	1029.4	1614	1030.79	1613	1032.35	1612	1033.81	1611
1036.09	1610	1038.6	1609	1041.03	1608	1096.94	1608	1099.19	1609
1101.26	1610	1103.5	1611	1105.42	1612	1106.67	1613	1107.78	1614
1108.53	1615	1108.92	1617	1117.09	1618	1119.76	1619	1134.31	1620

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1029.4	.025	1108.92	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1029.4	1108.92	226	210	201	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1612.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.35	Wt. n-Val.		0.025	
W.S. Elev (ft)	1610.95	Reach Len. (ft)	226.00	210.00	201.00
Crit W.S. (ft)	1610.95	Flow Area (sq ft)		185.10	
E.G. Slope (ft/ft)	*0.006797	Area (sq ft)		185.10	
Q Total (cfs)	1723.00	Flow (cfs)		1723.00	
Top Width (ft)	69.47	Top Width (ft)		69.47	
Vel Total (ft/s)	9.31	Avg. Vel. (ft/s)		9.31	
Max Chl Dpth (ft)	2.95	Hydr. Depth (ft)		2.66	
Conv. Total (cfs)	20899.7	Conv. (cfs)		20899.7	
Length Wtd. (ft)	210.00	Wetted Per. (ft)		70.70	
Min Ch El (ft)	1608.00	Shear (lb/sq ft)		1.11	
Alpha	1.00	Stream Power (lb/ft s)		10.34	
Frctn Loss (ft)	0.93	Cum Volume (acre-ft)	36.30	26.83	1.17
C & E Loss (ft)	0.16	Cum SA (acres)	9.49	6.32	0.40

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1612.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.48	Wt. n-Val.		0.025	
W.S. Elev (ft)	1610.98	Reach Len. (ft)	226.00	210.00	201.00
Crit W.S. (ft)	1610.98	Flow Area (sq ft)		176.22	
E.G. Slope (ft/ft)	*0.007089	Area (sq ft)		176.22	
Q Total (cfs)	1723.00	Flow (cfs)		1723.00	
Top Width (ft)	60.00	Top Width (ft)		60.00	
Vel Total (ft/s)	9.78	Avg. Vel. (ft/s)		9.78	
Max Chl Dpth (ft)	2.98	Hydr. Depth (ft)		2.94	
Conv. Total (cfs)	20464.2	Conv. (cfs)		20464.2	
Length Wtd. (ft)	210.00	Wetted Per. (ft)		64.52	
Min Ch El (ft)	1608.00	Shear (lb/sq ft)		1.21	
Alpha	1.00	Stream Power (lb/ft s)		11.82	
Frctn Loss (ft)	0.95	Cum Volume (acre-ft)	13.45	25.55	0.93
C & E Loss (ft)	0.20	Cum SA (acres)	2.66	4.66	0.19

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 2500

INPUT
Description:
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1618	1001.47	1618	1006.41	1619	1007.75	1619	1009.23	1618
1010.68	1617	1012.11	1616	1013.57	1615	1015.06	1614	1017.29	1613
1023.14	1612	1030.12	1611	1031.16	1610	1032.29	1609	1033.34	1608

1034.47	1607	1035.75	1606	1037.49	1605	1039.23	1604	1041.39	1603
1069.02	1603	1072.56	1604	1078.76	1605	1081.62	1606	1085.08	1607
1089.07	1608	1093.13	1609	1097.18	1610	1101.44	1611	1104.59	1612
1108.07	1613	1112.23	1614	1120.7	1615	1121.77	1616	1123.24	1617

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1037.49	.025	1078.76	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1030.12	1112.23	186.68	179.72	182.96	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1609.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.83	Wt. n-Val.		0.030	
W.S. Elev (ft)	1608.98	Reach Len. (ft)	186.68	179.72	182.96
Crit W.S. (ft)		Flow Area (sq ft)		270.08	
E.G. Slope (ft/ft)	0.003248	Area (sq ft)		270.08	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	60.76	Top Width (ft)		60.76	
Vel Total (ft/s)	7.30	Avg. Vel. (ft/s)		7.30	
Max Chl Dpth (ft)	5.98	Hydr. Depth (ft)		4.45	
Conv. Total (cfs)	34602.3	Conv. (cfs)		34602.3	
Length Wtd. (ft)	179.72	Wetted Per. (ft)		63.40	
Min Ch El (ft)	1603.00	Shear (lb/sq ft)		0.86	
Alpha	1.00	Stream Power (lb/ft s)		6.31	
Frctn Loss (ft)	0.88	Cum Volume (acre-ft)	36.30	25.73	1.17
C & E Loss (ft)	0.10	Cum SA (acres)	9.49	6.00	0.40

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1609.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.83	Wt. n-Val.		0.030	
W.S. Elev (ft)	1608.98	Reach Len. (ft)	186.68	179.72	182.96
Crit W.S. (ft)		Flow Area (sq ft)		270.07	
E.G. Slope (ft/ft)	0.003248	Area (sq ft)		270.07	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	60.76	Top Width (ft)		60.76	
Vel Total (ft/s)	7.30	Avg. Vel. (ft/s)		7.30	
Max Chl Dpth (ft)	5.98	Hydr. Depth (ft)		4.44	
Conv. Total (cfs)	34599.9	Conv. (cfs)		34599.9	
Length Wtd. (ft)	179.72	Wetted Per. (ft)		63.40	
Min Ch El (ft)	1603.00	Shear (lb/sq ft)		0.86	
Alpha	1.00	Stream Power (lb/ft s)		6.31	
Frctn Loss (ft)	0.88	Cum Volume (acre-ft)	13.45	24.48	0.93
C & E Loss (ft)	0.10	Cum SA (acres)	2.66	4.37	0.19

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 2400

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1291.07	1608	1293.09	1608	1300.45	1607	1302.46	1606	1304.44	1605
1306.36	1604	1308.28	1603	1310.28	1602	1335.97	1602	1338.24	1603
1339.94	1604	1342.44	1605	1345.57	1606	1348.73	1607	1351.86	1608
1354.95	1609	1357.99	1610	1360.9	1611	1363.87	1612	1366.81	1613
1369.72	1614	1372.78	1615	1375.77	1616	1378.9	1617	1381.7	1618
1384.56	1619								

Manning's n Values num= 2

Sta	n Val	Sta	n Val
1291.07	.025	1338.24	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1293.09	1384.56	57	71	87	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1608.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.87	Wt. n-Val.		0.029	
W.S. Elev (ft)	1606.96	Reach Len. (ft)	57.00	71.00	87.00
Crit W.S. (ft)	1606.96	Flow Area (sq ft)		179.82	
E.G. Slope (ft/ft)	0.008171	Area (sq ft)		179.82	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	48.09	Top Width (ft)		48.09	
Vel Total (ft/s)	10.97	Avg. Vel. (ft/s)		10.97	
Max Chl Dpth (ft)	4.96	Hydr. Depth (ft)		3.74	
Conv. Total (cfs)	21815.6	Conv. (cfs)		21815.6	
Length Wtd. (ft)	70.77	Wetted Per. (ft)		50.26	
Min Ch El (ft)	1602.00	Shear (lb/sq ft)		1.83	
Alpha	1.00	Stream Power (lb/ft s)		20.02	
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)	36.30	24.81	1.17
C & E Loss (ft)	0.17	Cum SA (acres)	9.49	5.78	0.40

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1608.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.87	Wt. n-Val.		0.029	
W.S. Elev (ft)	1606.96	Reach Len. (ft)	57.00	71.00	87.00
Crit W.S. (ft)	1606.96	Flow Area (sq ft)		179.84	
E.G. Slope (ft/ft)	*0.008169	Area (sq ft)		179.84	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	48.09	Top Width (ft)		48.09	
Vel Total (ft/s)	10.97	Avg. Vel. (ft/s)		10.97	
Max Chl Dpth (ft)	4.96	Hydr. Depth (ft)		3.74	
Conv. Total (cfs)	21818.5	Conv. (cfs)		21818.5	
Length Wtd. (ft)	70.60	Wetted Per. (ft)		50.26	
Min Ch El (ft)	1602.00	Shear (lb/sq ft)		1.82	
Alpha	1.00	Stream Power (lb/ft s)		20.01	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	13.45	23.55	0.93
C & E Loss (ft)	0.25	Cum SA (acres)	2.66	4.15	0.19

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 2350

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1616	1001.37	1615	1002.74	1614	1004.1	1613	1005.55	1612
1009.41	1611	1016.33	1610.26	1018.74	1610	1030.03	1610	1034.36	1611
1049.32	1611	1052.39	1610	1054.54	1609	1057.69	1608	1059.67	1607
1086.56	1606	1115.51	1606	1119.27	1606	1120.19	1606	1130.23	1606
1132.99	1605	1135.85	1604	1138.89	1603	1141.9	1602	1146.76	1601
1165.03	1601	1167.57	1602	1170.34	1603	1173.61	1604	1176.83	1605
1180.02	1606	1183.27	1607	1186.49	1608	1189.52	1609	1192.43	1610
1195.36	1611	1196.13	1611.26	1198.3	1612	1201.25	1613	1204.21	1614
1207.17	1615	1210.1	1616	1213.04	1617	1216.66	1618	1220.41	1619

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1130.23	.025	1167.57	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1130.23 1220.41 64 63 63 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1607.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.29	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	1606.66	Reach Len. (ft)	64.00	63.00	63.00
Crit W.S. (ft)	1606.54	Flow Area (sq ft)	34.35	206.04	
E.G. Slope (ft/ft)	*0.005667	Area (sq ft)	34.35	206.04	
Q Total (cfs)	1972.00	Flow (cfs)	65.31	1906.69	
Top Width (ft)	113.19	Top Width (ft)	61.27	51.92	
Vel Total (ft/s)	8.20	Avg. Vel. (ft/s)	1.90	9.25	
Max Chl Dpth (ft)	5.65	Hydr. Depth (ft)	0.56	3.97	
Conv. Total (cfs)	26195.3	Conv. (cfs)	867.5	25327.8	
Length Wtd. (ft)	63.17	Wetted Per. (ft)	61.29	53.60	
Min Ch El (ft)	1601.00	Shear (lb/sq ft)	0.20	1.36	
Alpha	1.23	Stream Power (lb/ft s)	0.38	12.58	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	36.28	24.49	1.17
C & E Loss (ft)	0.26	Cum SA (acres)	9.45	5.70	0.40

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1608.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.02	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	1606.97	Reach Len. (ft)	64.00	63.00	63.00
Crit W.S. (ft)		Flow Area (sq ft)	48.06	222.72	
E.G. Slope (ft/ft)	*0.004332	Area (sq ft)	48.06	222.72	
Q Total (cfs)	1972.00	Flow (cfs)	112.99	1859.01	
Top Width (ft)	103.18	Top Width (ft)	50.23	52.95	
Vel Total (ft/s)	7.28	Avg. Vel. (ft/s)	2.35	8.35	
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)	0.96	4.21	
Conv. Total (cfs)	29960.1	Conv. (cfs)	1716.6	28243.5	
Length Wtd. (ft)	63.15	Wetted Per. (ft)	50.96	54.69	

* Min Ch El (ft)	* 1601.00	* Shear (lb/sq ft)	*	0.26	*	1.10	*		*		
* Alpha	* 1.24	* Stream Power (lb/ft s)	*	0.60	*	9.19	*		*		
* Frctn Loss (ft)	* 0.23	* Cum Volume (acre-ft)	*	13.42	*	23.22	*	0.93	*		
* C & E Loss (ft)	* 0.15	* Cum SA (acres)	*	2.63	*	4.07	*	0.19	*		

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 2330

INPUT
Description:
Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1616	1046.51	1616	1063.63	1615	1065.45	1614	1067.24	1613
1069.01	1612	1070.85	1611	1073.95	1610	1078.23	1609	1080.88	1608
1083.23	1607	1089.39	1606	1115.44	1605.7	1174.84	1605	1183.19	1605
1200.07	1605	1203.77	1605	1233.21	1606	1239.59	1606	1240.83	1606
1244.52	1607	1246.08	1607	1248.05	1606	1249.9	1605	1251.82	1604
1253.68	1603	1255.52	1602	1257.81	1601	1281.08	1601	1282.63	1602
1285.54	1603	1288.64	1604	1291.75	1605	1294.85	1606	1295.24	1606.12
1297.98	1607	1301.06	1608	1304.02	1609	1306.74	1610	1309.48	1611
1312.22	1612	1315.02	1613	1317.72	1614	1320.5	1615	1323.24	1616
1325.92	1617	1328.33	1618	1330.73	1619				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1249.9	.025	1282.63	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1244.52	1330.73	235	240	222	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1607.45	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.42	* Wt. n-Val.	* 0.040	* 0.031	*	*
* W.S. Elev (ft)	* 1607.03	* Reach Len. (ft)	* 235.00	* 240.00	* 222.00	*
* Crit W.S. (ft)	*	* Flow Area (sq ft)	* 246.95	* 223.50	*	*
* E.G. Slope (ft/ft)	*0.002583	* Area (sq ft)	* 246.95	* 223.50	*	*
* Q Total (cfs)	* 1972.00	* Flow (cfs)	* 618.50	* 1353.50	*	*
* Top Width (ft)	* 214.90	* Top Width (ft)	* 161.35	* 53.54	*	*
* Vel Total (ft/s)	* 4.19	* Avg. Vel. (ft/s)	* 2.50	* 6.06	*	*
* Max Chl Dpth (ft)	* 6.03	* Hydr. Depth (ft)	* 1.53	* 4.17	*	*
* Conv. Total (cfs)	* 38804.9	* Conv. (cfs)	* 12170.7	* 26634.1	*	*
* Length Wtd. (ft)	* 238.03	* Wetted Per. (ft)	* 161.60	* 56.09	*	*
* Min Ch El (ft)	* 1601.00	* Shear (lb/sq ft)	* 0.25	* 0.64	*	*
* Alpha	* 1.54	* Stream Power (lb/ft s)	* 0.62	* 3.89	*	*
* Frctn Loss (ft)	* 0.16	* Cum Volume (acre-ft)	* 36.07	* 24.18	* 1.17	*
* C & E Loss (ft)	* 0.11	* Cum SA (acres)	* 9.28	* 5.62	* 0.40	*

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 1607.62	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.54	* Wt. n-Val.	* 0.040	* 0.031	*	*
* W.S. Elev (ft)	* 1607.09	* Reach Len. (ft)	* 235.00	* 240.00	* 222.00	*
* Crit W.S. (ft)	*	* Flow Area (sq ft)	* 165.71	* 226.67	*	*
* E.G. Slope (ft/ft)	*0.002999	* Area (sq ft)	* 165.71	* 226.67	*	*
* Q Total (cfs)	* 1972.00	* Flow (cfs)	* 483.55	* 1488.45	*	*
* Top Width (ft)	* 148.25	* Top Width (ft)	* 94.52	* 53.73	*	*
* Vel Total (ft/s)	* 5.03	* Avg. Vel. (ft/s)	* 2.92	* 6.57	*	*
* Max Chl Dpth (ft)	* 6.09	* Hydr. Depth (ft)	* 1.75	* 4.22	*	*
* Conv. Total (cfs)	* 36008.0	* Conv. (cfs)	* 8829.5	* 27178.6	*	*
* Length Wtd. (ft)	* 238.61	* Wetted Per. (ft)	* 96.47	* 56.28	*	*
* Min Ch El (ft)	* 1601.00	* Shear (lb/sq ft)	* 0.32	* 0.75	*	*
* Alpha	* 1.37	* Stream Power (lb/ft s)	* 0.94	* 4.95	*	*
* Frctn Loss (ft)	* 0.25	* Cum Volume (acre-ft)	* 13.26	* 22.90	* 0.93	*
* C & E Loss (ft)	* 0.13	* Cum SA (acres)	* 2.52	* 3.99	* 0.19	*

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 2300

INPUT
Description:
Station Elevation Data num= 60

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1619	1001.97	1618	1003.2	1617	1004.55	1616	1005.95	1615
1007.27	1614	1008.69	1613	1010.3	1612	1011.97	1611	1014.13	1610
1018.32	1609	1023.5	1608	1030.44	1607	1039.16	1606	1041.19	1605.6
1044.19	1605	1058.41	1604.13	1060.6	1604	1072.49	1603	1079.21	1603
1084.11	1604	1087.79	1605	1100.7	1605	1125.34	1604	1149.33	1604
1149.99	1604	1187.47	1604	1199.06	1604	1271.41	1604	1273.45	1604
1283.01	1603.19	1285.22	1603	1289.39	1602	1293.61	1602	1296.06	1602
1297.59	1601	1299.25	1600	1303.67	1599	1328.29	1599	1330.08	1600
1332.14	1601	1334.2	1602	1336.96	1603	1340.58	1604	1344.03	1605
1347.34	1606	1351.43	1607	1354.48	1608	1357.2	1609	1359.82	1610
1362.46	1611	1365.05	1612	1367.61	1613	1369.69	1613.8	1370.2	1614

1372.75 1615 1375.34 1616 1378.01 1617 1380.61 1618 1383.27 1619

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1293.61	.025	1330.08	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1271.41 1383.27 320.42 311.55 310.65 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1607.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.040	0.034	
W.S. Elev (ft)	1607.12	Reach Len. (ft)	320.42	311.55	310.65
Crit W.S. (ft)		Flow Area (sq ft)	701.71	437.00	
E.G. Slope (ft/ft)	*0.000313	Area (sq ft)	701.71	437.00	
Q Total (cfs)	1972.00	Flow (cfs)	936.40	1035.60	
Top Width (ft)	322.16	Top Width (ft)	241.78	80.38	
Vel Total (ft/s)	1.73	Avg. Vel. (ft/s)	1.33	2.37	
Max Chl Dpth (ft)	8.12	Hydr. Depth (ft)	2.90	5.44	
Conv. Total (cfs)	*111542.0	Conv. (cfs)	52965.6	58576.4	
Length Wtd. (ft)	316.91	Wetted Per. (ft)	242.27	82.69	
Min Ch El (ft)	1599.00	Shear (lb/sq ft)	0.06	0.10	
Alpha	1.27	Stream Power (lb/ft s)	0.08	0.24	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	33.51	22.36	1.17
C & E Loss (ft)	0.02	Cum SA (acres)	8.20	5.25	0.40

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1607.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.040	0.034	
W.S. Elev (ft)	1607.12	Reach Len. (ft)	320.42	311.55	310.65
Crit W.S. (ft)		Flow Area (sq ft)	337.02	437.48	
E.G. Slope (ft/ft)	*0.000539	Area (sq ft)	337.02	437.48	
Q Total (cfs)	1972.00	Flow (cfs)	609.49	1362.51	
Top Width (ft)	188.31	Top Width (ft)	107.91	80.40	
Vel Total (ft/s)	2.55	Avg. Vel. (ft/s)	1.81	3.11	
Max Chl Dpth (ft)	8.12	Hydr. Depth (ft)	3.12	5.44	
Conv. Total (cfs)	84918.0	Conv. (cfs)	26245.9	58672.1	
Length Wtd. (ft)	314.68	Wetted Per. (ft)	111.03	82.70	
Min Ch El (ft)	1599.00	Shear (lb/sq ft)	0.10	0.18	
Alpha	1.19	Stream Power (lb/ft s)	0.18	0.55	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	11.90	21.07	0.93
C & E Loss (ft)	0.02	Cum SA (acres)	1.98	3.62	0.19

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 2200

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1609	1005.16	1608	1011.92	1607	1047.35	1607	1060.8	1607
1071.4	1606	1077.87	1605	1084.57	1604	1094.26	1603	1116.03	1602
1121.81	1601	1126.68	1600	1175.32	1600	1181.31	1601	1195.36	1601
1199.05	1600	1255.45	1600	1370.28	1601	1372.38	1601	1454	1601
1493.38	1601	1502.82	1601	1504.64	1600	1506.13	1599	1507.62	1598
1513.26	1597	1549.68	1597	1552.37	1598	1554.96	1599	1557.69	1600
1562.2	1601	1566.73	1602	1570.63	1603	1573.43	1604	1576.11	1605
1578.73	1606	1581.03	1607	1583.23	1608	1585.37	1609	1587.38	1610
1589.2	1611	1590.63	1612	1592.04	1613	1593.42	1614	1594.9	1615

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1502.82	.025	1549.68	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1502.82 1594.9 383.01 328.57 273.85 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1607.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.040	0.032	
W.S. Elev (ft)	1607.14	Reach Len. (ft)	383.01	328.57	273.85
Crit W.S. (ft)		Flow Area (sq ft)	2718.63	625.61	
E.G. Slope (ft/ft)	*0.000021	Area (sq ft)	2718.63	625.61	
Q Total (cfs)	1972.00	Flow (cfs)	1445.62	526.38	
Top Width (ft)	570.34	Top Width (ft)	491.83	78.51	
Vel Total (ft/s)	0.59	Avg. Vel. (ft/s)	0.53	0.84	
Max Chl Dpth (ft)	10.14	Hydr. Depth (ft)	5.53	7.97	
Conv. Total (cfs)	*430287.5	Conv. (cfs)	*315431.3	*114856.2	
Length Wtd. (ft)	358.84	Wetted Per. (ft)	492.52	81.13	
Min Ch El (ft)	1597.00	Shear (lb/sq ft)	0.01	0.01	
Alpha	1.14	Stream Power (lb/ft s)	0.00	0.01	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	20.93	18.56	1.17
C & E Loss (ft)	0.00	Cum SA (acres)	5.50	4.68	0.40

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1607.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.040	0.032	
W.S. Elev (ft)	1607.11	Reach Len. (ft)	383.01	328.57	273.85
Crit W.S. (ft)		Flow Area (sq ft)	628.34	623.56	
E.G. Slope (ft/ft)	*0.000108	Area (sq ft)	628.34	623.56	
Q Total (cfs)	1972.00	Flow (cfs)	781.71	1190.29	
Top Width (ft)	181.27	Top Width (ft)	102.82	78.45	
Vel Total (ft/s)	1.58	Avg. Vel. (ft/s)	1.24	1.91	
Max Chl Dpth (ft)	10.11	Hydr. Depth (ft)	6.11	7.95	
Conv. Total (cfs)	*189388.8	Conv. (cfs)	75074.7	*114314.1	
Length Wtd. (ft)	349.07	Wetted Per. (ft)	108.93	81.07	
Min Ch El (ft)	1597.00	Shear (lb/sq ft)	0.04	0.05	
Alpha	1.13	Stream Power (lb/ft s)	0.05	0.10	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	8.35	17.27	0.93
C & E Loss (ft)	0.00	Cum SA (acres)	1.20	3.05	0.19

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 2100

INPUT
Description:
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
953	1608	1000	1601	1013.06	1600	1023.83	1599	1033.3	1598
1040.2	1597	1043.2	1596	1046.03	1595	1051.25	1594	1053.88	1594
1056.33	1595	1058.94	1596	1059.94	1597	1060.67	1598	1075.29	1598.83
1078.2	1599	1087.56	1600	1091.95	1600	1103.88	1599	1107.13	1598
1109.23	1597	1111.33	1596	1116.75	1596	1120.48	1597	1120.85	1597
1124.02	1596	1125.68	1595	1127.35	1594	1132.29	1593	1155.55	1593
1159.58	1593	1160.63	1594	1161.73	1595	1163.48	1596	1167.18	1597
1170.02	1598	1172.71	1599	1175.2	1600	1177.42	1601	1179.65	1602
1182.05	1603	1184.57	1604	1187.21	1605	1189.98	1606	1192.78	1607
1195.62	1608	1198.5	1609	1201.39	1610	1206.95	1611		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
953	.04	1120.48	.025	1163.48	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1120.48	1161.73	67.6	97.6	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1607.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.040	0.025	0.037
W.S. Elev (ft)	1607.11	Reach Len. (ft)	67.60	97.60	97.60
Crit W.S. (ft)		Flow Area (sq ft)	1199.04	557.99	189.27
E.G. Slope (ft/ft)	*0.000028	Area (sq ft)	1199.04	557.99	189.27
Q Total (cfs)	1972.00	Flow (cfs)	878.15	963.65	130.20
Top Width (ft)	234.08	Top Width (ft)	161.48	41.25	31.35
Vel Total (ft/s)	1.01	Avg. Vel. (ft/s)	0.73	1.73	0.69
Max Chl Dpth (ft)	14.11	Hydr. Depth (ft)	7.43	13.53	6.04
Conv. Total (cfs)	*375679.6	Conv. (cfs)	*167292.8	*183582.6	24804.2
Length Wtd. (ft)	88.05	Wetted Per. (ft)	164.73	42.85	33.66
Min Ch El (ft)	1593.00	Shear (lb/sq ft)	0.01	0.02	0.01
Alpha	1.68	Stream Power (lb/ft s)	0.01	0.04	0.01
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	3.71	14.10	0.58
C & E Loss (ft)	0.06	Cum SA (acres)	2.63	4.23	0.30

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1607.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.040	0.025	0.037
W.S. Elev (ft)	1607.10	Reach Len. (ft)	67.60	97.60	97.60
Crit W.S. (ft)		Flow Area (sq ft)	1004.77	557.85	189.16
E.G. Slope (ft/ft)	*0.000030	Area (sq ft)	1004.77	557.85	189.16
Q Total (cfs)	1972.00	Flow (cfs)	839.02	998.16	134.83
Top Width (ft)	182.51	Top Width (ft)	109.92	41.25	31.34
Vel Total (ft/s)	1.13	Avg. Vel. (ft/s)	0.84	1.79	0.71
Max Chl Dpth (ft)	14.10	Hydr. Depth (ft)	9.14	13.52	6.04
Conv. Total (cfs)	*362545.2	Conv. (cfs)	*154250.0	*183508.1	24787.1
Length Wtd. (ft)	88.35	Wetted Per. (ft)	119.60	42.85	33.65
Min Ch El (ft)	1593.00	Shear (lb/sq ft)	0.02	0.02	0.01
Alpha	1.54	Stream Power (lb/ft s)	0.01	0.04	0.01
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	1.17	12.82	0.33
C & E Loss (ft)	0.06	Cum SA (acres)	0.27	2.60	0.09

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 2000.1

```
INPUT
Description:
Station Elevation Data    num=       8
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*********************************************************************************
   990.1     1607 1012.59     1604 1044.29 1601.77 1044.29 1591.77 1056.29 1591.77
 1056.29 1601.69 1094.79     1606 1094.79  1606.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
   990.1    .025 1044.29    .015 1056.29    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1044.29 1056.29                1       1       1            .1      .1

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)         * 1607.07  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.63  * Wt. n-Val.            *   0.025  *   0.015  *   0.025  *
* W.S. Elev (ft)         * 1606.43  * Reach Len. (ft)       *    1.00  *    1.00  *    1.00  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)     *  134.73  *  175.97  *   99.69  *
* E.G. Slope (ft/ft)     *0.000594  * Area (sq ft)          *  134.73  *  175.97  *   99.69  *
* Q Total (cfs)          * 1972.00  * Flow (cfs)            *  376.96  * 1325.86  *  269.18  *
* Top Width (ft)         *  100.45  * Top Width (ft)        *   49.95  *   12.00  *   38.50  *
* Vel Total (ft/s)       *    4.81  * Avg. Vel. (ft/s)      *    2.80  *    7.53  *    2.70  *
* Max Chl Dpth (ft)      *   14.66  * Hydr. Depth (ft)      *    2.70  *   14.66  *    2.59  *
* Conv. Total (cfs)      * 80911.3  * Conv. (cfs)           * 15466.7  * 54400.2  * 11044.3  *
* Length Wtd. (ft)       *    1.00  * Wetted Per. (ft)      *   50.19  *   31.92  *   39.17  *
* Min Ch El (ft)         * 1591.77  * Shear (lb/sq ft)      *    0.10  *    0.20  *    0.09  *
* Alpha                  *    1.76  * Stream Power (lb/ft s) *    0.28  *    1.54  *    0.25  *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)  *    2.68  *   13.27  *    0.25  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)        *    2.46  *    4.17  *    0.22  *
*************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 2
*************************************************************************************************
* E.G. Elev (ft)         * 1607.07  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.63  * Wt. n-Val.            *   0.025  *   0.015  *   0.025  *
* W.S. Elev (ft)         * 1606.43  * Reach Len. (ft)       *    1.00  *    1.00  *    1.00  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)     *  134.73  *  175.97  *   99.69  *
* E.G. Slope (ft/ft)     *0.000594  * Area (sq ft)          *  134.73  *  175.97  *   99.69  *
* Q Total (cfs)          * 1972.00  * Flow (cfs)            *  376.97  * 1325.84  *  269.19  *
* Top Width (ft)         *  100.45  * Top Width (ft)        *   49.95  *   12.00  *   38.50  *
* Vel Total (ft/s)       *    4.81  * Avg. Vel. (ft/s)      *    2.80  *    7.53  *    2.70  *
* Max Chl Dpth (ft)      *   14.66  * Hydr. Depth (ft)      *    2.70  *   14.66  *    2.59  *
* Conv. Total (cfs)      * 80913.8  * Conv. (cfs)           * 15467.7  * 54401.0  * 11045.1  *
* Length Wtd. (ft)       *    1.00  * Wetted Per. (ft)      *   50.19  *   31.92  *   39.17  *
* Min Ch El (ft)         * 1591.77  * Shear (lb/sq ft)      *    0.10  *    0.20  *    0.09  *
* Alpha                  *    1.76  * Stream Power (lb/ft s) *    0.28  *    1.54  *    0.25  *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)  *    0.29  *   11.99  *    0.01  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)        *    0.14  *    2.54  *    0.01  *
*************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 2000

INPUT
Description:
Station Elevation Data    num=       7
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*********************************************************************************
   990.1     1607 1012.59     1604 1044.29 1601.77 1044.29 1591.77 1056.29 1591.77
 1056.29 1601.69 1094.79     1606

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
   990.1    .025 1044.29    .015 1056.29    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1044.29 1056.29          320.07  319.85  303.13            .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   990.1 1044.29    1608       F
 1056.29 1094.79    1608       F

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)         * 1607.01  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.23  * Wt. n-Val.            *          *   0.015  *          *
* W.S. Elev (ft)         * 1605.77  * Reach Len. (ft)       *    0.01  *    0.01  *    0.01  *
* Crit W.S. (ft)         * 1599.63  * Flow Area (sq ft)     *          *  168.01  *          *
* E.G. Slope (ft/ft)     *0.000885  * Area (sq ft)          *  103.25  *  168.01  *   74.40  *
* Q Total (cfs)          * 1498.00  * Flow (cfs)            *          * 1498.00  *          *
* Top Width (ft)         *   93.44  * Top Width (ft)        *   44.98  *   12.00  *   36.46  *
* Vel Total (ft/s)       *    8.92  * Avg. Vel. (ft/s)      *          *    8.92  *          *
* Max Chl Dpth (ft)      *   14.00  * Hydr. Depth (ft)      *          *   14.00  *          *
* Conv. Total (cfs)      * 50362.6  * Conv. (cfs)           *          * 50362.6  *          *
* Length Wtd. (ft)       *    0.01  * Wetted Per. (ft)      *          *   31.92  *          *
* Min Ch El (ft)         * 1591.77  * Shear (lb/sq ft)      *          *    0.29  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    2.59  *          *
```

* Frctn Loss (ft)	*	* Cum Volume (acre-ft)	*	2.67	13.27	0.25
* C & E Loss (ft)	*	* Cum SA (acres)	*	2.46	4.17	0.22

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

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 1607.01	* Element	* Left OB	* Channel	* Right OB
* Vel Head (ft)	* 1.23	* Wt. n-Val.	*	* 0.015	*
* W.S. Elev (ft)	* 1605.77	* Reach Len. (ft)	* 0.01	* 0.01	* 0.01
* Crit W.S. (ft)	* 1599.63	* Flow Area (sq ft)	*	* 168.01	*
* E.G. Slope (ft/ft)	*0.001195	* Area (sq ft)	*	* 168.01	*
* Q Total (cfs)	* 1498.00	* Flow (cfs)	*	* 1498.00	*
* Top Width (ft)	* 12.00	* Top Width (ft)	*	* 12.00	*
* Vel Total (ft/s)	* 8.92	* Avg. Vel. (ft/s)	*	* 8.92	*
* Max Chl Dpth (ft)	* 14.00	* Hydr. Depth (ft)	*	* 14.00	*
* Conv. Total (cfs)	* 43327.0	* Conv. (cfs)	*	* 43327.0	*
* Length Wtd. (ft)	* 0.01	* Wetted Per. (ft)	*	* 40.00	*
* Min Ch El (ft)	* 1591.77	* Shear (lb/sq ft)	*	* 0.31	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 2.79	*
* Frctn Loss (ft)	*	* Cum Volume (acre-ft)	* 0.29	* 11.99	* 0.01
* C & E Loss (ft)	*	* Cum SA (acres)	* 0.14	* 2.54	* 0.01

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

BRIDGE

RIVER: RIVER-1
REACH: Reach-1 RS: 1950

INPUT
Description: I- 15 Bridge
Distance from Upstream XS = .01
Deck/Roadway Width = 319.83
Weir Coefficient = 2.7
Upstream Deck/Roadway Coordinates
num= 6

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
990.1	1606.72 1585.08	1044.29	1606.72 1585.08	1044.29	1606.72 1601.77
1056.29	1606.72 1601.77	1056.29	1606.72 1585.08	1104.82	1606.72 1585.08

Upstream Bridge Cross Section Data
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
990.1	1607	1012.59	1604	1044.29	1601.77	1044.29	1591.77	1056.29	1591.77
1056.29	1601.69	1094.79	1606						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
990.1	.025	1044.29	.015	1056.29	.025

Bank Sta: Left Right Coeff Contr. Expan.
1044.29 1056.29 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
990.1	1044.29	1608	F
1056.29	1094.79	1608	F

Downstream Deck/Roadway Coordinates
num= 6

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
1000	1606.72 1601.77	1104.82	1606.72 1601.77	1193.33	1606.72 1595.08
1205.33	1606.72 1595.08	1221.37	1606.72 1596.89	1251.33	1606.72 1601

Downstream Bridge Cross Section Data
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1179.43	1599	1193.33	1595.08	1193.33	1585.08	1205.33	1585.08	1205.33	1595.08
1251.33	1601								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1179.43	.025	1193.33	.015	1205.33	.025

Bank Sta: Left Right Coeff Contr. Expan.
1193.33 1205.33 .3 .5

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 = .98
Elevation at which weir flow begins = 1606.72
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 = Energy

High Flow Method
Pressure and Weir flow
Submerged Inlet Cd =
Submerged Inlet + Outlet Cd =.8164966

Max Low Cord = 1601.77

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

BRIDGE OUTPUT Profile #PF 1

E.G. US. (ft)	1607.01	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	1605.77	E.G. Elev (ft)	1607.01	1606.80
Q Total (cfs)	1498.00	W.S. Elev (ft)	1605.77	1605.77
Q Bridge (cfs)	1493.05	Crit W.S. (ft)	1599.63	1592.93
Q Weir (cfs)	4.95	Max Chl Dpth (ft)	14.00	20.69
Weir Sta Lft (ft)	1044.29	Vel Total (ft/s)	0.00	10.66
Weir Sta Rgt (ft)	1056.29	Flow Area (sq ft)		140.54
Weir Submerg	0.00	Froude # Chl	0.59	0.48
Weir Max Depth (ft)	0.29	Specif Force (cu ft)	1660.89	2463.70
Min El Weir Flow (ft)	1606.73	Hydr Depth (ft)		
Min El Prs (ft)	1601.77	W.P. Total (ft)	44.00	44.00
Delta EG (ft)	9.65	Conv. Total (cfs)		
Delta WS (ft)	12.51	Top Width (ft)		
BR Open Area (sq ft)	120.00	Frctn Loss (ft)		
BR Open Vel (ft/s)	12.44	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)		
Br Sel Method	Press/Weir	Power Total (lb/ft s)		

Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Note: The downstream water surface is below the minimum elevation for pressure flow. The sluice gate equations were used for pressure flow.
Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
Note: For the cross section inside the bridge at the downstream end, the energy is based on critical depth over the weir. The water surface has been projected.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (ft)	1607.01	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	1605.77	E.G. Elev (ft)	1607.01	1606.98
Q Total (cfs)	1498.00	W.S. Elev (ft)	1605.77	1605.77
Q Bridge (cfs)	1493.05	Crit W.S. (ft)	1599.63	1592.93
Q Weir (cfs)	4.95	Max Chl Dpth (ft)	14.00	20.69
Weir Sta Lft (ft)	1044.29	Vel Total (ft/s)	0.00	0.00
Weir Sta Rgt (ft)	1056.29	Flow Area (sq ft)		
Weir Submerg	0.00	Froude # Chl	0.59	0.48
Weir Max Depth (ft)	0.29	Specif Force (cu ft)	1660.89	2463.70
Min El Weir Flow (ft)	1606.73	Hydr Depth (ft)		
Min El Prs (ft)	1601.77	W.P. Total (ft)	44.00	44.00
Delta EG (ft)	9.59	Conv. Total (cfs)		
Delta WS (ft)	11.94	Top Width (ft)		
BR Open Area (sq ft)	120.00	Frctn Loss (ft)		
BR Open Vel (ft/s)	12.44	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)		
Br Sel Method	Press/Weir	Power Total (lb/ft s)		

Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Note: The downstream water surface is below the minimum elevation for pressure flow. The sluice gate equations were used for pressure flow.
Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
Note: For the cross section inside the bridge at the downstream end, the energy is based on critical depth over the weir. The water surface has been projected.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 1900

INPUT
Description:
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1179.43	1599	1193.33	1595.08	1193.33	1585.08	1205.33	1585.08	1205.33	1595.08
1251.33	1601								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1179.43	.025	1193.33	.015	1205.33	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1193.33 1205.33 38.8 38.8 38.8 .3 .5

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1597.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.10	Wt. n-Val.		0.015	
W.S. Elev (ft)	1593.26	Reach Len. (ft)	38.80	38.80	38.80
Crit W.S. (ft)	1593.26	Flow Area (sq ft)		98.16	
E.G. Slope (ft/ft)	*0.005139	Area (sq ft)		98.16	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	12.00	Top Width (ft)		12.00	

* Vel Total (ft/s)	* 16.25	* Avg. Vel. (ft/s)	*	* 16.25	*	*		
* Max Chl Dpth (ft)	* 8.18	* Hydr. Depth (ft)	*	* 8.18	*	*		
* Conv. Total (cfs)	* 22249.0	* Conv. (cfs)	*	* 22249.0	*	*		
* Length Wtd. (ft)	* 38.80	* Wetted Per. (ft)	*	* 28.36	*	*		
* Min Ch El (ft)	* 1585.08	* Shear (lb/sq ft)	*	* 1.11	*	*		
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 18.04	*	*		
* Frctn Loss (ft)	* 0.21	* Cum Volume (acre-ft)	*	2.67	*	12.39	*	0.25 *
* C & E Loss (ft)	* 1.51	* Cum SA (acres)	*	2.46	*	4.17	*	0.22 *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 1597.41	* Element	*	Left OB	*	Channel	*	Right OB *
* Vel Head (ft)	* 3.58	* Wt. n-Val.	*		*	0.015	*	*
* W.S. Elev (ft)	* 1593.83	* Reach Len. (ft)	*	38.80	*	38.80	*	38.80 *
* Crit W.S. (ft)	* 1593.24	* Flow Area (sq ft)	*		*	105.05	*	*
* E.G. Slope (ft/ft)	*0.004321	* Area (sq ft)	*		*	105.05	*	*
* Q Total (cfs)	* 1595.00	* Flow (cfs)	*		*	1595.00	*	*
* Top Width (ft)	* 12.00	* Top Width (ft)	*		*	12.00	*	*
* Vel Total (ft/s)	* 15.18	* Avg. Vel. (ft/s)	*		*	15.18	*	*
* Max Chl Dpth (ft)	* 8.75	* Hydr. Depth (ft)	*		*	8.75	*	*
* Conv. Total (cfs)	* 24263.2	* Conv. (cfs)	*		*	24263.2	*	*
* Length Wtd. (ft)	* 38.80	* Wetted Per. (ft)	*		*	29.51	*	*
* Min Ch El (ft)	* 1585.08	* Shear (lb/sq ft)	*		*	0.96	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*		*	14.58	*	*
* Frctn Loss (ft)	* 0.22	* Cum Volume (acre-ft)	*	0.29	*	11.11	*	0.01 *
* C & E Loss (ft)	* 0.71	* Cum SA (acres)	*	0.14	*	2.54	*	0.01 *

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 1800

INPUT
Description:
Station Elevation Data num= 32

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1604	1017.58	1603	1024.71	1602	1031.18	1601	1034.87	1600
1036.64	1599	1038.41	1598	1040.44	1597	1043.07	1596	1046.27	1595
1050.71	1594	1054.41	1593.59	1059.85	1593	1115.02	1592	1116.24	1591
1117.33	1590	1148.63	1590	1150.75	1591	1152.41	1592	1153.93	1593
1155.42	1594	1156.91	1595	1158.3	1596	1160.68	1597	1167.6	1597.96
1167.88	1598	1176.94	1599	1181.79	1600	1190.38	1601	1204.71	1602
1220.3	1603	1235.32	1604						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1115.02	.025	1148.63	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1115.02 1160.68 173.79 170.93 148.02 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1595.03	* Element	*	Left OB	*	Channel	*	Right OB *
* Vel Head (ft)	* 1.09	* Wt. n-Val.	*	0.040	*	0.028	*	*
* W.S. Elev (ft)	* 1593.94	* Reach Len. (ft)	*	173.79	*	170.93	*	148.02 *
* Crit W.S. (ft)	* 1593.94	* Flow Area (sq ft)	*	83.70	*	144.36	*	*
* E.G. Slope (ft/ft)	*0.005719	* Area (sq ft)	*	83.70	*	144.36	*	*
* Q Total (cfs)	* 1595.00	* Flow (cfs)	*	281.61	*	1313.39	*	*
* Top Width (ft)	* 104.11	* Top Width (ft)	*	63.80	*	40.32	*	*
* Vel Total (ft/s)	* 6.99	* Avg. Vel. (ft/s)	*	3.36	*	9.10	*	*
* Max Chl Dpth (ft)	* 3.94	* Hydr. Depth (ft)	*	1.31	*	3.58	*	*
* Conv. Total (cfs)	* 21091.1	* Conv. (cfs)	*	3723.8	*	17367.3	*	*
* Length Wtd. (ft)	* 171.71	* Wetted Per. (ft)	*	63.86	*	42.15	*	*
* Min Ch El (ft)	* 1590.00	* Shear (lb/sq ft)	*	0.47	*	1.22	*	*
* Alpha	* 1.43	* Stream Power (lb/ft s)	*	1.57	*	11.13	*	*
* Frctn Loss (ft)	* 0.88	* Cum Volume (acre-ft)	*	2.64	*	12.28	*	0.25 *
* C & E Loss (ft)	* 0.11	* Cum SA (acres)	*	2.43	*	4.15	*	0.22 *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 1596.48	* Element	*	Left OB	*	Channel	*	Right OB *
* Vel Head (ft)	* 2.15	* Wt. n-Val.	*		*	0.025	*	*
* W.S. Elev (ft)	* 1594.33	* Reach Len. (ft)	*	173.79	*	170.93	*	148.02 *
* Crit W.S. (ft)	* 1594.33	* Flow Area (sq ft)	*		*	135.49	*	*
* E.G. Slope (ft/ft)	*0.007701	* Area (sq ft)	*		*	135.49	*	*
* Q Total (cfs)	* 1595.00	* Flow (cfs)	*		*	1595.00	*	*
* Top Width (ft)	* 31.30	* Top Width (ft)	*		*	31.30	*	*

* Vel Total (ft/s)	* 11.77	* Avg. Vel. (ft/s)	*	* 11.77	*	*		
* Max Chl Dpth (ft)	* 4.33	* Hydr. Depth (ft)	*	* 4.33	*	*		
* Conv. Total (cfs)	* 18176.1	* Conv. (cfs)	*	* 18176.1	*	*		
* Length Wtd. (ft)	* 170.99	* Wetted Per. (ft)	*	* 39.96	*	*		
* Min Ch El (ft)	* 1590.00	* Shear (lb/sq ft)	*	* 1.63	*	*		
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 19.19	*	*		
* Frctn Loss (ft)	* 1.22	* Cum Volume (acre-ft)	*	0.29	*	11.00	*	0.01 *
* C & E Loss (ft)	* 0.07	* Cum SA (acres)	*	0.14	*	2.52	*	0.01 *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 1750

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1606	1003.52	1605.53	1007.44	1605	1014.27	1604	1020.21	1603
1022.71	1602	1025.14	1601	1027.53	1600	1029.98	1599	1032.42	1598
1034.75	1597	1037.08	1596	1039.84	1595	1043.65	1594	1048.74	1593
1078.87	1592.12	1082.85	1592	1139.68	1591	1210.43	1590	1214.54	1590
1232.62	1590	1285.16	1590	1286.97	1589	1291.48	1588	1318.26	1588
1319.5	1589	1320.31	1590	1321.08	1591	1321.91	1592	1322.72	1593
1323.62	1594	1325.25	1595	1327	1596	1328.9	1597	1330.81	1598
1332.7	1599	1334.57	1600	1336.57	1601	1338.39	1602	1340.86	1603
1343.68	1604	1346.59	1605	1349.5	1606	1352.46	1607	1359.2	1608

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1285.16	.025	1320.31	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1285.16	1352.46	171.49	169.33	179.87	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1592.34	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.73	* Wt. n-Val.	* 0.040	* 0.026	* *
* W.S. Elev (ft)	* 1591.61	* Reach Len. (ft)	* 171.49	* 169.33	* 179.87 *
* Crit W.S. (ft)	* 1591.61	* Flow Area (sq ft)	* 209.42	* 121.10	* *
* E.G. Slope (ft/ft)	*0.004592	* Area (sq ft)	* 209.42	* 121.10	* *
* Q Total (cfs)	* 1595.00	* Flow (cfs)	* 582.81	* 1012.19	* *
* Top Width (ft)	* 216.57	* Top Width (ft)	* 180.15	* 36.43	* *
* Vel Total (ft/s)	* 4.83	* Avg. Vel. (ft/s)	* 2.78	* 8.36	* *
* Max Chl Dpth (ft)	* 3.61	* Hydr. Depth (ft)	* 1.16	* 3.32	* *
* Conv. Total (cfs)	* 23537.2	* Conv. (cfs)	* 8600.5	* 14936.7	* *
* Length Wtd. (ft)	* 170.23	* Wetted Per. (ft)	* 180.16	* 38.40	* *
* Min Ch El (ft)	* 1588.00	* Shear (lb/sq ft)	* 0.33	* 0.90	* *
* Alpha	* 2.03	* Stream Power (lb/ft s)	* 0.93	* 7.56	* *
* Frctn Loss (ft)	* 0.80	* Cum Volume (acre-ft)	* 2.05	* 11.76	* 0.25 *
* C & E Loss (ft)	* 0.09	* Cum SA (acres)	* 1.95	* 4.00	* 0.22 *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 1594.15	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.93	* Wt. n-Val.	* 0.040	* 0.025	* *
* W.S. Elev (ft)	* 1592.22	* Reach Len. (ft)	* 171.49	* 169.33	* 179.87 *
* Crit W.S. (ft)	* 1592.22	* Flow Area (sq ft)	* 15.51	* 134.68	* *
* E.G. Slope (ft/ft)	*0.006672	* Area (sq ft)	* 15.51	* 134.68	* *
* Q Total (cfs)	* 1595.00	* Flow (cfs)	* 66.63	* 1528.37	* *
* Top Width (ft)	* 40.09	* Top Width (ft)	* 6.99	* 33.10	* *
* Vel Total (ft/s)	* 10.62	* Avg. Vel. (ft/s)	* 4.30	* 11.35	* *
* Max Chl Dpth (ft)	* 4.22	* Hydr. Depth (ft)	* 2.22	* 4.07	* *
* Conv. Total (cfs)	* 19526.7	* Conv. (cfs)	* 815.7	* 18711.0	* *
* Length Wtd. (ft)	* 169.51	* Wetted Per. (ft)	* 9.21	* 37.69	* *
* Min Ch El (ft)	* 1588.00	* Shear (lb/sq ft)	* 0.70	* 1.49	* *
* Alpha	* 1.10	* Stream Power (lb/ft s)	* 3.01	* 16.89	* *
* Frctn Loss (ft)	* 1.01	* Cum Volume (acre-ft)	* 0.26	* 10.47	* 0.01 *
* C & E Loss (ft)	* 0.15	* Cum SA (acres)	* 0.13	* 2.39	* 0.01 *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there

is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 1700

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1597	1002.28	1596	1005.58	1595	1012.08	1594	1037.72	1593
1096.14	1592	1104.18	1591.88	1165.67	1591	1234.36	1590	1301	1589
1345.94	1588.26	1361.37	1588	1363.83	1588	1410.67	1589	1430.15	1589
1432.44	1588	1434.69	1587	1464.52	1587	1468.96	1588	1473.24	1589
1476.62	1590	1480.53	1591	1483.69	1592	1486.72	1593	1489.52	1594
1492.76	1595	1496	1596	1499.24	1597	1502.4	1598	1504.92	1599
1506.8	1600	1508.64	1601	1510.47	1602	1512.25	1603	1514.06	1604
1515.81	1605	1517.41	1606	1519	1607				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1430.15	.025	1464.52	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1430.15	1519	163.66	161.13	154.63	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1590.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.43	Wt. n-Val.	0.040	0.029	
W.S. Elev (ft)	1590.18	Reach Len. (ft)	163.66	161.13	154.63
Crit W.S. (ft)		Flow Area (sq ft)	255.02	126.25	
E.G. Slope (ft/ft)	*0.004825	Area (sq ft)	255.02	126.25	
Q Total (cfs)	1595.00	Flow (cfs)	753.19	841.81	
Top Width (ft)	255.42	Top Width (ft)	208.24	47.18	
Vel Total (ft/s)	4.18	Avg. Vel. (ft/s)	2.95	6.67	
Max Chl Dpth (ft)	3.18	Hydr. Depth (ft)	1.22	2.68	
Conv. Total (cfs)	22961.7	Conv. (cfs)	10842.9	12118.8	
Length Wtd. (ft)	162.08	Wetted Per. (ft)	208.27	47.99	
Min Ch El (ft)	1587.00	Shear (lb/sq ft)	0.37	0.79	
Alpha	1.58	Stream Power (lb/ft s)	1.09	5.28	
Frctn Loss (ft)	0.89	Cum Volume (acre-ft)	1.14	11.28	0.25
C & E Loss (ft)	0.03	Cum SA (acres)	1.18	3.84	0.22

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1592.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.41	Wt. n-Val.	0.040	0.025	
W.S. Elev (ft)	1591.16	Reach Len. (ft)	163.66	161.13	154.63
Crit W.S. (ft)		Flow Area (sq ft)	47.64	138.27	
E.G. Slope (ft/ft)	*0.005305	Area (sq ft)	47.64	138.27	
Q Total (cfs)	1595.00	Flow (cfs)	202.04	1392.96	
Top Width (ft)	56.44	Top Width (ft)	22.07	34.37	
Vel Total (ft/s)	8.58	Avg. Vel. (ft/s)	4.24	10.07	
Max Chl Dpth (ft)	4.16	Hydr. Depth (ft)	2.16	4.02	
Conv. Total (cfs)	21898.8	Conv. (cfs)	2774.0	19124.8	
Length Wtd. (ft)	161.32	Wetted Per. (ft)	24.28	38.95	
Min Ch El (ft)	1587.00	Shear (lb/sq ft)	0.65	1.18	
Alpha	1.24	Stream Power (lb/ft s)	2.76	11.85	
Frctn Loss (ft)	0.96	Cum Volume (acre-ft)	0.13	9.94	0.01
C & E Loss (ft)	0.04	Cum SA (acres)	0.07	2.26	0.01

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 1650

INPUT
Description:
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1611	1008.24	1610	1015.08	1609	1020.16	1608	1023.18	1607
1025.9	1606	1027.82	1605	1029.73	1604	1031.65	1603	1033.58	1602
1035.52	1601	1037.42	1600	1039.38	1599	1041.29	1598	1043.24	1597
1048.3	1596	1056.24	1595	1078.47	1594	1140.38	1593	1199.86	1592
1212.73	1591.78	1258.28	1591	1320.25	1590	1390.53	1589	1471.72	1588
1520.79	1587.04	1523.08	1587	1523.91	1587	1525.73	1588	1527.64	1588
1541.86	1588	1563.09	1588	1574.76	1587	1576.76	1586	1582.3	1585
1600.56	1585	1603.67	1586	1609.52	1587	1614.51	1588	1617.16	1589
1619.96	1590	1622.21	1591	1624.38	1592	1626.5	1593	1628.43	1594
1631.3	1595	1634.46	1596	1654.44	1597	1662.17	1597		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1563.09	.025	1600.56	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1563.09	1634.46	190.68	175.57	185.82	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1589.69	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.69	Wt. n-Val.	0.040	0.030		
W.S. Elev (ft)	1589.01	Reach Len. (ft)	190.68	175.57	185.82	
Crit W.S. (ft)	1589.01	Flow Area (sq ft)	160.49	149.57		
E.G. Slope (ft/ft)	*0.006317	Area (sq ft)	160.49	149.57		
Q Total (cfs)	1595.00	Flow (cfs)	450.32	1144.68		
Top Width (ft)	227.05	Top Width (ft)	172.96	54.09		
Vel Total (ft/s)	5.14	Avg. Vel. (ft/s)	2.81	7.65		
Max Chl Dpth (ft)	4.01	Hydr. Depth (ft)	0.93	2.77		
Conv. Total (cfs)	20068.4	Conv. (cfs)	5665.9	14402.4		
Length Wtd. (ft)	177.70	Wetted Per. (ft)	173.24	54.98		
Min Ch El (ft)	1585.00	Shear (lb/sq ft)	0.37	1.07		
Alpha	1.67	Stream Power (lb/ft s)	1.03	8.21		
Frctn Loss (ft)	1.67	Cum Volume (acre-ft)	0.36	10.77	0.25	
C & E Loss (ft)	0.03	Cum SA (acres)	0.47	3.65	0.22	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1591.57	Element	Left OB	Channel	Right OB	
Vel Head (ft)	1.82	Wt. n-Val.	0.040	0.025		
W.S. Elev (ft)	1589.75	Reach Len. (ft)	190.68	175.57	185.82	
Crit W.S. (ft)	1589.75	Flow Area (sq ft)	9.27	142.91		
E.G. Slope (ft/ft)	*0.006723	Area (sq ft)	9.27	142.91		
Q Total (cfs)	1595.00	Flow (cfs)	33.89	1561.11		
Top Width (ft)	42.78	Top Width (ft)	5.31	37.47		
Vel Total (ft/s)	10.48	Avg. Vel. (ft/s)	3.65	10.92		
Max Chl Dpth (ft)	4.75	Hydr. Depth (ft)	1.75	3.81		
Conv. Total (cfs)	19452.8	Conv. (cfs)	413.4	19039.4		
Length Wtd. (ft)	175.73	Wetted Per. (ft)	7.06	42.59		
Min Ch El (ft)	1585.00	Shear (lb/sq ft)	0.55	1.41		
Alpha	1.07	Stream Power (lb/ft s)	2.02	15.39		
Frctn Loss (ft)	1.59	Cum Volume (acre-ft)	0.03	9.42	0.01	
C & E Loss (ft)	0.04	Cum SA (acres)	0.02	2.13	0.01	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 1600

INPUT
Description:
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1593	1056.43	1592	1122.58	1591	1188.64	1590	1249.15	1589
1313.23	1588	1394.68	1587	1398.17	1586	1398.88	1586	1401.29	1587
1448.19	1587	1451.06	1586	1453.96	1585	1462.44	1584	1483.55	1584
1520.36	1585	1546.05	1585.71	1556.34	1586	1562.87	1586.3	1578.37	1587
1580.19	1588	1582.08	1589	1583.99	1590	1585.95	1591	1587.5	1592
1589.07	1593	1590.62	1594	1592.14	1595	1593.7	1596	1595.17	1597
1596.58	1598	1600.83	1599	1606.01	1600	1611.1	1601	1614.69	1602
1616.93	1603								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1453.96	.025	1483.55	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1448.19	1562.87	157	142	133	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
1556.34	1616.93	1587	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
1394.68	1401.29	1587

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1587.65	Element		Left OB	Channel	Right OB
Vel Head (ft)	0.95	Wt. n-Val.			0.036	
W.S. Elev (ft)	1586.70	Reach Len. (ft)		157.00	142.00	133.00
Crit W.S. (ft)	1586.70	Flow Area (sq ft)			203.85	
E.G. Slope (ft/ft)	*0.015504	Area (sq ft)			207.43	1.75
Q Total (cfs)	1595.00	Flow (cfs)			1595.00	
Top Width (ft)	122.63	Top Width (ft)			113.81	8.81
Vel Total (ft/s)	7.82	Avg. Vel. (ft/s)			7.82	
Max Chl Dpth (ft)	2.70	Hydr. Depth (ft)			1.90	
Conv. Total (cfs)	12809.9	Conv. (cfs)			12809.9	
Length Wtd. (ft)	142.00	Wetted Per. (ft)			107.66	
Min Ch El (ft)	1584.00	Shear (lb/sq ft)			1.83	

* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 14.34	*	*		
* Frctn Loss (ft)	* 0.23	* Cum Volume (acre-ft)	* 0.00	* 10.05	* 0.25	*		
* C & E Loss (ft)	* 0.23	* Cum SA (acres)	* 0.09	* 3.31	* 0.20	*		

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 1589.22	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.67	* Wt. n-Val.	*	* 0.033	* *
* W.S. Elev (ft)	* 1587.54	* Reach Len. (ft)	* 157.00	* 142.00	* 133.00 *
* Crit W.S. (ft)	* 1587.54	* Flow Area (sq ft)	*	* 153.73	* *
* E.G. Slope (ft/ft)	*0.012808	* Area (sq ft)	*	* 153.73	* *
* Q Total (cfs)	* 1595.00	* Flow (cfs)	*	* 1595.00	* *
* Top Width (ft)	* 45.70	* Top Width (ft)	*	* 45.70	* *
* Vel Total (ft/s)	* 10.38	* Avg. Vel. (ft/s)	*	* 10.38	* *
* Max Chl Dpth (ft)	* 3.54	* Hydr. Depth (ft)	*	* 3.36	* *
* Conv. Total (cfs)	* 14093.3	* Conv. (cfs)	*	* 14093.3	* *
* Length Wtd. (ft)	* 142.00	* Wetted Per. (ft)	*	* 52.13	* *
* Min Ch El (ft)	* 1584.00	* Shear (lb/sq ft)	*	* 2.36	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 24.47	* *
* Frctn Loss (ft)	* 0.22	* Cum Volume (acre-ft)	* 0.01	* 8.82	* 0.01 *
* C & E Loss (ft)	* 0.45	* Cum SA (acres)	* 0.01	* 1.96	* 0.01 *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: Critical depth could not be determined within the specified number of iterations. The program used the iteration with the lowest energy.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 1500

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1588	1013.71	1587	1025.92	1586	1041.5	1585	1045.93	1584
1051.42	1583	1084.18	1582	1090.64	1581	1096.18	1580	1100.98	1579
1117.37	1578	1146.16	1578	1147.44	1579	1148.27	1580	1148.93	1581
1149.7	1582	1150.44	1583	1151.12	1584	1151.82	1585	1152.39	1586

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1041.5	.025	1146.16	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1041.5	1152.39	125	113	101	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1584.86	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.19	* Wt. n-Val.	*	* 0.026	* *
* W.S. Elev (ft)	* 1584.67	* Reach Len. (ft)	* 125.00	* 113.00	* 101.00 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 459.80	* *
* E.G. Slope (ft/ft)	*0.000576	* Area (sq ft)	*	* 459.80	* *
* Q Total (cfs)	* 1595.00	* Flow (cfs)	*	* 1595.00	* *
* Top Width (ft)	* 108.62	* Top Width (ft)	*	* 108.62	* *
* Vel Total (ft/s)	* 3.47	* Avg. Vel. (ft/s)	*	* 3.47	* *
* Max Chl Dpth (ft)	* 6.67	* Hydr. Depth (ft)	*	* 4.23	* *
* Conv. Total (cfs)	* 66483.7	* Conv. (cfs)	*	* 66483.7	* *
* Length Wtd. (ft)	* 113.00	* Wetted Per. (ft)	*	* 112.32	* *
* Min Ch El (ft)	* 1578.00	* Shear (lb/sq ft)	*	* 0.15	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 0.51	* *
* Frctn Loss (ft)	* 0.17	* Cum Volume (acre-ft)	* 0.00	* 8.96	* 0.25 *
* C & E Loss (ft)	* 0.22	* Cum SA (acres)	* 0.09	* 2.95	* 0.19 *

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1584.85	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.19	Wt. n-Val.		0.026		
W.S. Elev (ft)	1584.67	Reach Len. (ft)	125.00	113.00	101.00	
Crit W.S. (ft)		Flow Area (sq ft)		458.45		
E.G. Slope (ft/ft)	*0.000566	Area (sq ft)		458.45		
Q Total (cfs)	1595.00	Flow (cfs)		1595.00		
Top Width (ft)	105.59	Top Width (ft)		105.59		
Vel Total (ft/s)	3.48	Avg. Vel. (ft/s)		3.48		
Max Chl Dpth (ft)	6.67	Hydr. Depth (ft)		4.34		
Conv. Total (cfs)	67058.3	Conv. (cfs)		67058.3		
Length Wtd. (ft)	113.00	Wetted Per. (ft)		109.89		
Min Ch El (ft)	1578.00	Shear (lb/sq ft)		0.15		
Alpha	1.00	Stream Power (lb/ft s)		0.51		
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	0.01	7.83	0.01	
C & E Loss (ft)	0.22	Cum SA (acres)	0.01	1.72	0.01	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 1400

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1291.53	1587	1297.66	1586	1302.32	1585	1311.27	1584	1312.95	1583
1313.61	1582	1314.1	1581	1314.53	1580	1314.93	1579	1315.93	1578
1317.87	1577	1320.08	1576	1332.34	1576	1334.31	1577	1335.72	1578
1336.83	1579	1338.1	1580	1339.32	1581	1340.5	1582	1341.8	1583
1343.02	1584	1344.27	1585	1345.71	1586				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1291.53	.04	1311.27	.025	1332.34	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1291.53 1345.71 122.02 161.58 190.42 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1584.47	Element	Left OB	Channel	Right OB	
Vel Head (ft)	2.38	Wt. n-Val.		0.030		
W.S. Elev (ft)	1582.09	Reach Len. (ft)	122.02	161.58	190.42	
Crit W.S. (ft)	1582.09	Flow Area (sq ft)		128.81		
E.G. Slope (ft/ft)	*0.009907	Area (sq ft)		128.81		
Q Total (cfs)	1595.00	Flow (cfs)		1595.00		
Top Width (ft)	27.06	Top Width (ft)		27.06		
Vel Total (ft/s)	12.38	Avg. Vel. (ft/s)		12.38		
Max Chl Dpth (ft)	6.09	Hydr. Depth (ft)		4.76		
Conv. Total (cfs)	16024.7	Conv. (cfs)		16024.7		
Length Wtd. (ft)	161.58	Wetted Per. (ft)		31.98		
Min Ch El (ft)	1576.00	Shear (lb/sq ft)		2.49		
Alpha	1.00	Stream Power (lb/ft s)		30.85		
Frctn Loss (ft)	1.57	Cum Volume (acre-ft)	0.00	8.20	0.25	
C & E Loss (ft)	0.13	Cum SA (acres)	0.09	2.77	0.19	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1584.47	Element	Left OB	Channel	Right OB	
Vel Head (ft)	2.39	Wt. n-Val.		0.030		
W.S. Elev (ft)	1582.08	Reach Len. (ft)	122.02	161.58	190.42	
Crit W.S. (ft)	1582.08	Flow Area (sq ft)		128.68		
E.G. Slope (ft/ft)	*0.009933	Area (sq ft)		128.68		
Q Total (cfs)	1595.00	Flow (cfs)		1595.00		
Top Width (ft)	27.05	Top Width (ft)		27.05		
Vel Total (ft/s)	12.40	Avg. Vel. (ft/s)		12.40		
Max Chl Dpth (ft)	6.08	Hydr. Depth (ft)		4.76		
Conv. Total (cfs)	16003.4	Conv. (cfs)		16003.4		
Length Wtd. (ft)	161.58	Wetted Per. (ft)		31.96		
Min Ch El (ft)	1576.00	Shear (lb/sq ft)		2.50		
Alpha	1.00	Stream Power (lb/ft s)		30.94		
Frctn Loss (ft)	1.21	Cum Volume (acre-ft)	0.01	7.06	0.01	
C & E Loss (ft)	0.31	Cum SA (acres)	0.01	1.54	0.01	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 1300

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1630.46	1582	1632.6	1581	1634.55	1580	1636.49	1579	1638.34	1578
1639.9	1577	1641.33	1576	1642.75	1575	1644.42	1574	1646.14	1573
1656.34	1573	1658.07	1574	1659.77	1575	1661.13	1576	1662.51	1577
1663.8	1578	1665.15	1579	1666.47	1580	1667.71	1581	1668.93	1582
1670.11	1583	1671.28	1584						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1630.46	.04	1642.75	.025	1659.77	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1630.46 1671.28 198.91 176.37 153.42 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1581.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.94	Wt. n-Val.		0.033	
W.S. Elev (ft)	1579.82	Reach Len. (ft)	198.91	176.37	153.42
Crit W.S. (ft)	1579.54	Flow Area (sq ft)		142.61	
E.G. Slope (ft/ft)	*0.009488	Area (sq ft)		142.61	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	31.34	Top Width (ft)		31.34	
Vel Total (ft/s)	11.18	Avg. Vel. (ft/s)		11.18	
Max Chl Dpth (ft)	6.82	Hydr. Depth (ft)		4.55	
Conv. Total (cfs)	16375.0	Conv. (cfs)		16375.0	
Length Wtd. (ft)	176.37	Wetted Per. (ft)		35.40	
Min Ch El (ft)	1573.00	Shear (lb/sq ft)		2.39	
Alpha	1.00	Stream Power (lb/ft s)		26.69	
Frctn Loss (ft)	1.28	Cum Volume (acre-ft)	0.00	7.70	0.25
C & E Loss (ft)	0.36	Cum SA (acres)	0.09	2.66	0.19

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1582.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.35	Wt. n-Val.		0.033	
W.S. Elev (ft)	1580.71	Reach Len. (ft)	198.91	176.37	153.42
Crit W.S. (ft)		Flow Area (sq ft)		170.96	
E.G. Slope (ft/ft)	*0.005824	Area (sq ft)		170.96	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	32.60	Top Width (ft)		32.60	
Vel Total (ft/s)	9.33	Avg. Vel. (ft/s)		9.33	
Max Chl Dpth (ft)	7.71	Hydr. Depth (ft)		5.24	
Conv. Total (cfs)	20900.4	Conv. (cfs)		20900.4	
Length Wtd. (ft)	176.37	Wetted Per. (ft)		37.80	
Min Ch El (ft)	1573.00	Shear (lb/sq ft)		1.64	
Alpha	1.00	Stream Power (lb/ft s)		15.34	
Frctn Loss (ft)	1.04	Cum Volume (acre-ft)	0.01	6.51	0.01
C & E Loss (ft)	0.06	Cum SA (acres)	0.01	1.43	0.01

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 1200

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1624.95	1580	1626.44	1579	1627.97	1578	1629.5	1577	1630.7	1576
1631.99	1575	1633.31	1574	1634.65	1573	1636.15	1572	1646.88	1572
1648.31	1573	1649.99	1574	1651.83	1575	1653.82	1576	1675.3	1577
1680.92	1578	1683	1578.66	1684.06	1579	1687.77	1580	1691.11	1581

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1624.95	.04	1636.15	.025	1646.88	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1624.95 1691.11 111.55 110.23 110.23 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1580.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.76	Wt. n-Val.		0.038	
W.S. Elev (ft)	1579.38	Reach Len. (ft)	111.55	110.23	110.23
Crit W.S. (ft)		Flow Area (sq ft)		228.18	
E.G. Slope (ft/ft)	*0.005691	Area (sq ft)		228.18	

Q Total (cfs)	1595.00	Flow (cfs)			1595.00			
Top Width (ft)	59.57	Top Width (ft)			59.57			
Vel Total (ft/s)	6.99	Avg. Vel. (ft/s)			6.99			
Max Chl Dpth (ft)	7.37	Hydr. Depth (ft)			3.83			
Conv. Total (cfs)	21143.0	Conv. (cfs)			21143.0			
Length Wtd. (ft)	110.23	Wetted Per. (ft)			63.35			
Min Ch El (ft)	1572.00	Shear (lb/sq ft)			1.28			
Alpha	1.00	Stream Power (lb/ft s)			8.95			
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)		0.00	6.95		0.25	
C & E Loss (ft)	0.00	Cum SA (acres)		0.09	2.48		0.19	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1580.96	Element	Left OB		Channel		Right OB	
Vel Head (ft)	1.14	Wt. n-Val.			0.036			
W.S. Elev (ft)	1579.82	Reach Len. (ft)	111.55		110.23		110.23	
Crit W.S. (ft)		Flow Area (sq ft)			186.27			
E.G. Slope (ft/ft)	0.005934	Area (sq ft)			186.27			
Q Total (cfs)	1595.00	Flow (cfs)			1595.00			
Top Width (ft)	34.25	Top Width (ft)			34.25			
Vel Total (ft/s)	8.56	Avg. Vel. (ft/s)			8.56			
Max Chl Dpth (ft)	7.82	Hydr. Depth (ft)			5.44			
Conv. Total (cfs)	20705.3	Conv. (cfs)			20705.3			
Length Wtd. (ft)	110.23	Wetted Per. (ft)			41.41			
Min Ch El (ft)	1572.00	Shear (lb/sq ft)			1.67			
Alpha	1.00	Stream Power (lb/ft s)			14.27			
Frctn Loss (ft)	0.69	Cum Volume (acre-ft)		0.01	5.79		0.01	
C & E Loss (ft)	0.01	Cum SA (acres)		0.01	1.30		0.01	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 1100

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1619.57	1580	1621.29	1579	1622.97	1578	1624.61	1577	1626.31	1576
1628.02	1575	1629.57	1574	1630.8	1573	1632	1572	1645.32	1572
1647.11	1573	1648.89	1574	1650.95	1575	1663.2	1575	1664.69	1575
1667.66	1576	1670.65	1577	1672.81	1578	1675.07	1579	1677.38	1580

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1619.57	.04	1632	.025	1645.32	.04	1677.38	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1619.57 1677.38 102.45 103.7 103.7 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1579.54	Element	Left OB		Channel		Right OB	
Vel Head (ft)	0.80	Wt. n-Val.			0.037			
W.S. Elev (ft)	1578.74	Reach Len. (ft)	102.45		103.70		103.70	
Crit W.S. (ft)		Flow Area (sq ft)			222.50			
E.G. Slope (ft/ft)	0.005023	Area (sq ft)			222.50			
Q Total (cfs)	1595.00	Flow (cfs)			1595.00			
Top Width (ft)	52.77	Top Width (ft)			52.77			
Vel Total (ft/s)	7.17	Avg. Vel. (ft/s)			7.17			
Max Chl Dpth (ft)	6.74	Hydr. Depth (ft)			4.22			
Conv. Total (cfs)	22504.2	Conv. (cfs)			22504.2			
Length Wtd. (ft)	103.70	Wetted Per. (ft)			56.26			
Min Ch El (ft)	1572.00	Shear (lb/sq ft)			1.24			
Alpha	1.00	Stream Power (lb/ft s)			8.89			
Frctn Loss (ft)	0.65	Cum Volume (acre-ft)		0.00	6.38		0.25	
C & E Loss (ft)	0.01	Cum SA (acres)		0.09	2.34		0.19	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1580.26	Element	Left OB		Channel		Right OB	
Vel Head (ft)	1.25	Wt. n-Val.			0.036			
W.S. Elev (ft)	1579.00	Reach Len. (ft)	102.45		103.70		103.70	
Crit W.S. (ft)		Flow Area (sq ft)			177.44			
E.G. Slope (ft/ft)	0.006563	Area (sq ft)			177.44			
Q Total (cfs)	1595.00	Flow (cfs)			1595.00			
Top Width (ft)	34.25	Top Width (ft)			34.25			
Vel Total (ft/s)	8.99	Avg. Vel. (ft/s)			8.99			
Max Chl Dpth (ft)	7.00	Hydr. Depth (ft)			5.18			
Conv. Total (cfs)	19687.7	Conv. (cfs)			19687.7			
Length Wtd. (ft)	103.70	Wetted Per. (ft)			41.11			
Min Ch El (ft)	1572.00	Shear (lb/sq ft)			1.77			
Alpha	1.00	Stream Power (lb/ft s)			15.90			
Frctn Loss (ft)	0.69	Cum Volume (acre-ft)		0.01	5.33		0.01	
C & E Loss (ft)	0.06	Cum SA (acres)		0.01	1.21		0.01	

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 1000

```
INPUT
Description:
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 1619.06    1579  1620.6    1578 1622.05    1577 1623.54    1576 1625.04    1575
 1626.53    1574 1628.01    1573  1629.5    1572 1647.23    1572 1649.07    1573
 1650.89    1574 1652.74    1575 1669.86    1576 1674.48    1577  1677.9    1578
 1681.44    1579

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 1619.06     .04 1647.23    .025 1649.07     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1619.06 1681.44           116.93  118.27  121.55            .1      .3

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)         * 1578.87  * Element                * Left OB * Channel * Right OB *
* Vel Head (ft)          *    0.93  * Wt. n-Val.            *         *   0.040 *          *
* W.S. Elev (ft)         * 1577.95  * Reach Len. (ft)       *  116.93 *  118.27 *  121.55  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)     *         *  206.30 *          *
* E.G. Slope (ft/ft)     *0.008131  * Area (sq ft)          *         *  206.30 *          *
* Q Total (cfs)          * 1595.00  * Flow (cfs)            *         * 1595.00 *          *
* Top Width (ft)         *   57.04  * Top Width (ft)        *         *   57.04 *          *
* Vel Total (ft/s)       *    7.73  * Avg. Vel. (ft/s)      *         *    7.73 *          *
* Max Chl Dpth (ft)      *    5.95  * Hydr. Depth (ft)      *         *    3.62 *          *
* Conv. Total (cfs)      * 17688.9  * Conv. (cfs)           *         * 17688.9 *          *
* Length Wtd. (ft)       *  118.27  * Wetted Per. (ft)      *         *   59.89 *          *
* Min Ch El (ft)         * 1572.00  * Shear (lb/sq ft)      *         *    1.75 *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *         *   13.52 *          *
* Frctn Loss (ft)        *    0.97  * Cum Volume (acre-ft)   *    0.00 *    5.86 *    0.25  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)         *    0.09 *    2.21 *    0.19  *
*************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*************************************************************************************************
* E.G. Elev (ft)         * 1579.50  * Element                * Left OB * Channel * Right OB *
* Vel Head (ft)          *    1.05  * Wt. n-Val.            *         *   0.039 *          *
* W.S. Elev (ft)         * 1578.46  * Reach Len. (ft)       *  116.93 *  118.27 *  121.55  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)     *         *  194.27 *          *
* E.G. Slope (ft/ft)     *0.006780  * Area (sq ft)          *         *  194.27 *          *
* Q Total (cfs)          * 1595.00  * Flow (cfs)            *         * 1595.00 *          *
* Top Width (ft)         *   39.42  * Top Width (ft)        *         *   39.42 *          *
* Vel Total (ft/s)       *    8.21  * Avg. Vel. (ft/s)      *         *    8.21 *          *
* Max Chl Dpth (ft)      *    6.46  * Hydr. Depth (ft)      *         *    4.93 *          *
* Conv. Total (cfs)      * 19370.1  * Conv. (cfs)           *         * 19370.1 *          *
* Length Wtd. (ft)       *  118.27  * Wetted Per. (ft)      *         *   45.24 *          *
* Min Ch El (ft)         * 1572.00  * Shear (lb/sq ft)      *         *    1.82 *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *         *   14.92 *          *
* Frctn Loss (ft)        *    0.86  * Cum Volume (acre-ft)   *    0.01 *    4.88 *    0.01  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)         *    0.01 *    1.12 *    0.01  *
*************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 900

INPUT
Description:
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 1601.29    1579 1615.48    1578 1617.19    1577 1618.89    1576 1620.39    1575
 1621.56    1574  1622.7    1573 1623.85    1572  1627.4    1570 1636.36    1570
 1639.19    1572 1644.13    1573 1649.05    1574 1666.38    1575  1667.9    1576
 1669.58    1577  1672.3    1578

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 1601.29     .04  1627.4    .025 1636.36     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1601.29  1672.3           102.08  103.62  108.33            .1      .3

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)         * 1577.89  * Element                * Left OB * Channel * Right OB *
* Vel Head (ft)          *    1.05  * Wt. n-Val.            *         *   0.038 *          *
* W.S. Elev (ft)         * 1576.84  * Reach Len. (ft)       *  102.08 *  103.62 *  108.33  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)     *         *  193.53 *          *
* E.G. Slope (ft/ft)     *0.008288  * Area (sq ft)          *         *  193.53 *          *
* Q Total (cfs)          * 1595.00  * Flow (cfs)            *         * 1595.00 *          *
* Top Width (ft)         *   51.83  * Top Width (ft)        *         *   51.83 *          *
* Vel Total (ft/s)       *    8.24  * Avg. Vel. (ft/s)      *         *    8.24 *          *
* Max Chl Dpth (ft)      *    6.84  * Hydr. Depth (ft)      *         *    3.73 *          *
* Conv. Total (cfs)      * 17519.9  * Conv. (cfs)           *         * 17519.9 *          *
* Length Wtd. (ft)       *  103.62  * Wetted Per. (ft)      *         *   55.40 *          *
* Min Ch El (ft)         * 1570.00  * Shear (lb/sq ft)      *         *    1.81 *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *         *   14.90 *          *
* Frctn Loss (ft)        *    0.62  * Cum Volume (acre-ft)   *    0.00 *    5.32 *    0.25  *
* C & E Loss (ft)        *    0.13  * Cum SA (acres)         *    0.09 *    2.06 *    0.19  *
*************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.
```

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1578.62	Element	Left OB	Channel	Right OB		
Vel Head (ft)	1.32	Wt. n-Val.		0.037			
W.S. Elev (ft)	1577.30	Reach Len. (ft)	102.08	103.62	108.33		
Crit W.S. (ft)		Flow Area (sq ft)		172.99			
E.G. Slope (ft/ft)	*0.007747	Area (sq ft)		172.99			
Q Total (cfs)	1595.00	Flow (cfs)		1595.00			
Top Width (ft)	34.76	Top Width (ft)		34.76			
Vel Total (ft/s)	9.22	Avg. Vel. (ft/s)		9.22			
Max Chl Dpth (ft)	7.30	Hydr. Depth (ft)		4.98			
Conv. Total (cfs)	18121.1	Conv. (cfs)		18121.1			
Length Wtd. (ft)	103.62	Wetted Per. (ft)		41.07			
Min Ch El (ft)	1570.00	Shear (lb/sq ft)		2.04			
Alpha	1.00	Stream Power (lb/ft s)		18.79			
Frctn Loss (ft)	0.62	Cum Volume (acre-ft)	0.01	4.38	0.01		
C & E Loss (ft)	0.15	Cum SA (acres)	0.01	1.02	0.01		

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 800

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1601.95	1578	1603.41	1577	1604.87	1576	1606.28	1575	1607.03	1574
1607.49	1573	1607.94	1572	1610.31	1570	1622.39	1570	1627.75	1572
1630.97	1573	1649.72	1573	1656.19	1573	1659.75	1574	1663.07	1575
1666.04	1576	1668.67	1577						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1601.95	.04	1610.31	.025	1622.39	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1601.95 1668.67 134 133 133 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1577.14	Element	Left OB	Channel	Right OB		
Vel Head (ft)	0.63	Wt. n-Val.		0.038			
W.S. Elev (ft)	1576.51	Reach Len. (ft)	134.00	133.00	133.00		
Crit W.S. (ft)		Flow Area (sq ft)		249.67			
E.G. Slope (ft/ft)	*0.004536	Area (sq ft)		249.67			
Q Total (cfs)	1595.00	Flow (cfs)		1595.00			
Top Width (ft)	63.25	Top Width (ft)		63.25			
Vel Total (ft/s)	6.39	Avg. Vel. (ft/s)		6.39			
Max Chl Dpth (ft)	6.51	Hydr. Depth (ft)		3.95			
Conv. Total (cfs)	23681.9	Conv. (cfs)		23681.9			
Length Wtd. (ft)	133.00	Wetted Per. (ft)		67.30			
Min Ch El (ft)	1570.00	Shear (lb/sq ft)		1.05			
Alpha	1.00	Stream Power (lb/ft s)		6.71			
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	0.00	4.79	0.25		
C & E Loss (ft)	0.05	Cum SA (acres)	0.09	1.92	0.19		

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1577.86	Element	Left OB	Channel	Right OB		
Vel Head (ft)	0.83	Wt. n-Val.		0.037			
W.S. Elev (ft)	1577.03	Reach Len. (ft)	134.00	133.00	133.00		
Crit W.S. (ft)		Flow Area (sq ft)		218.50			
E.G. Slope (ft/ft)	*0.004705	Area (sq ft)		218.50			
Q Total (cfs)	1595.00	Flow (cfs)		1595.00			
Top Width (ft)	43.47	Top Width (ft)		43.47			
Vel Total (ft/s)	7.30	Avg. Vel. (ft/s)		7.30			
Max Chl Dpth (ft)	7.03	Hydr. Depth (ft)		5.03			
Conv. Total (cfs)	23254.1	Conv. (cfs)		23254.1			
Length Wtd. (ft)	133.00	Wetted Per. (ft)		51.17			
Min Ch El (ft)	1570.00	Shear (lb/sq ft)		1.25			
Alpha	1.00	Stream Power (lb/ft s)		9.16			
Frctn Loss (ft)	0.61	Cum Volume (acre-ft)	0.01	3.92	0.01		
C & E Loss (ft)	0.00	Cum SA (acres)	0.01	0.93	0.01		

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 700

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1594.24	1578	1595.79	1577	1597.29	1576	1598.78	1575	1600.22	1574
1601.71	1573	1603.56	1572	1607.53	1570	1622.94	1570	1628.9	1572
1641.44	1573	1655.8	1573	1658.53	1572	1662.47	1572	1665.1	1573
1667.19	1574	1668.72	1575	1670.24	1576	1671.81	1577		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

1594.24 .04 1607.53 .025 1622.94 .04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1594.24 1671.81 109 119 125 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1576.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.45	Wt. n-Val.		0.037	
W.S. Elev (ft)	1576.15	Reach Len. (ft)	109.00	119.00	125.00
Crit W.S. (ft)		Flow Area (sq ft)		296.04	
E.G. Slope (ft/ft)	*0.003012	Area (sq ft)		296.04	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	73.41	Top Width (ft)		73.41	
Vel Total (ft/s)	5.39	Avg. Vel. (ft/s)		5.39	
Max Chl Dpth (ft)	6.15	Hydr. Depth (ft)		4.03	
Conv. Total (cfs)	29061.7	Conv. (cfs)		29061.7	
Length Wtd. (ft)	119.51	Wetted Per. (ft)		76.71	
Min Ch El (ft)	1570.00	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		3.91	
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	0.00	3.96	0.25
C & E Loss (ft)	0.01	Cum SA (acres)	0.09	1.71	0.19

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1577.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.83	Wt. n-Val.		0.036	
W.S. Elev (ft)	1576.41	Reach Len. (ft)	109.00	119.00	125.00
Crit W.S. (ft)		Flow Area (sq ft)		217.51	
E.G. Slope (ft/ft)	*0.004423	Area (sq ft)		217.51	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	44.77	Top Width (ft)		44.77	
Vel Total (ft/s)	7.33	Avg. Vel. (ft/s)		7.33	
Max Chl Dpth (ft)	6.41	Hydr. Depth (ft)		4.86	
Conv. Total (cfs)	23984.2	Conv. (cfs)		23984.2	
Length Wtd. (ft)	119.00	Wetted Per. (ft)		50.33	
Min Ch El (ft)	1570.00	Shear (lb/sq ft)		1.19	
Alpha	1.00	Stream Power (lb/ft s)		8.75	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	0.01	3.25	0.01
C & E Loss (ft)	0.07	Cum SA (acres)	0.01	0.79	0.01

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 600

INPUT
Description:
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1567.15	1577	1581.21	1576	1582.7	1575	1584.21	1574	1585.7	1573
1587.59	1572	1591.73	1570	1593.77	1569	1610.31	1569	1617.2	1570
1622.17	1572	1623.98	1572.99	1624	1573	1625.86	1574	1627.65	1575
1661.89	1575	1664.15	1574	1666.35	1573	1668.81	1572	1671.47	1571
1675.87	1571	1679.03	1572	1681.85	1573	1683.37	1574	1684.93	1575
1686.5	1576	1688.2	1577						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1567.15	.04	1591.73	.025	1610.31	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1581.21 1627.65 65.6 65.6 65.6 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1576.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.40	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	1575.90	Reach Len. (ft)	65.60	65.60	65.60
Crit W.S. (ft)		Flow Area (sq ft)		241.75	110.75
E.G. Slope (ft/ft)	*0.001959	Area (sq ft)		241.75	110.75
Q Total (cfs)	1595.00	Flow (cfs)		1323.02	271.98
Top Width (ft)	104.98	Top Width (ft)		46.29	58.69
Vel Total (ft/s)	4.52	Avg. Vel. (ft/s)		5.47	2.46
Max Chl Dpth (ft)	6.90	Hydr. Depth (ft)		5.22	1.89
Conv. Total (cfs)	36033.3	Conv. (cfs)		29888.8	6144.5
Length Wtd. (ft)	65.60	Wetted Per. (ft)		49.33	60.68
Min Ch El (ft)	1569.00	Shear (lb/sq ft)		0.60	0.22
Alpha	1.26	Stream Power (lb/ft s)		3.28	0.55
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.00	3.23	0.09
C & E Loss (ft)	0.01	Cum SA (acres)	0.09	1.55	0.11

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1576.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.61	Wt. n-Val.		0.035	
W.S. Elev (ft)	1576.18	Reach Len. (ft)	65.60	65.60	65.60
Crit W.S. (ft)		Flow Area (sq ft)		254.98	
E.G. Slope (ft/ft)	*0.002509	Area (sq ft)		254.98	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	46.44	Top Width (ft)		46.44	
Vel Total (ft/s)	6.26	Avg. Vel. (ft/s)		6.26	

* Max Chl Dpth (ft)	* 7.18	* Hydr. Depth (ft)	*	* 5.49	*	*		
* Conv. Total (cfs)	* 31843.5	* Conv. (cfs)	*	* 31843.5	*	*		
* Length Wtd. (ft)	* 65.60	* Wetted Per. (ft)	*	* 50.88	*	*		
* Min Ch El (ft)	* 1569.00	* Shear (lb/sq ft)	*	* 0.78	*	*		
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 4.91	*	*		
* Frctn Loss (ft)	* 0.04	* Cum Volume (acre-ft)	*	0.01	*	2.61	*	0.01 *
* C & E Loss (ft)	* 0.04	* Cum SA (acres)	*	0.01	*	0.67	*	0.01 *

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 580

INPUT
Description:
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
857.5	1576.11	1000	1575.59	1000	1572.41	1000	1568.41	1037.34	1568.41
1037.34	1572.41	1037.34	1575.59	1187.34	1576.54				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
857.5	.025	1000	.015	1037.34	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1000 1037.34 102.1 102.1 102.1 .3 .5

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1576.24	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 0.53	* Wt. n-Val.	* 0.025 *	0.015 *	0.025 *
* W.S. Elev (ft)	* 1575.71	* Reach Len. (ft)	* 0.01 *	0.01 *	0.01 *
* Crit W.S. (ft)	* 1572.24	* Flow Area (sq ft)	* 1.82 *	272.40 *	1.05 *
* E.G. Slope (ft/ft)	*0.000381	* Area (sq ft)	* 1.82 *	272.40 *	1.05 *
* Q Total (cfs)	* 1595.00	* Flow (cfs)	* 0.31 *	1594.51 *	0.18 *
* Top Width (ft)	* 87.06	* Top Width (ft)	* 31.54 *	37.34 *	18.17 *
* Vel Total (ft/s)	* 5.79	* Avg. Vel. (ft/s)	* 0.17 *	5.85 *	0.17 *
* Max Chl Dpth (ft)	* 7.30	* Hydr. Depth (ft)	* 0.06 *	7.30 *	0.06 *
* Conv. Total (cfs)	* 81730.2	* Conv. (cfs)	* 16.1 *	81704.8 *	9.3 *
* Length Wtd. (ft)	* 0.01	* Wetted Per. (ft)	* 31.54 *	51.70 *	18.17 *
* Min Ch El (ft)	* 1568.41	* Shear (lb/sq ft)	* 0.00 *	0.13 *	0.00 *
* Alpha	* 1.02	* Stream Power (lb/ft s)	* 0.00 *	0.73 *	0.00 *
* Frctn Loss (ft)	*	* Cum Volume (acre-ft)	* 0.00 *	2.84 *	0.00 *
* C & E Loss (ft)	*	* Cum SA (acres)	* 0.06 *	1.49 *	0.05 *

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 1576.70	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 0.46	* Wt. n-Val.	* 0.025 *	0.015 *	0.025 *
* W.S. Elev (ft)	* 1576.24	* Reach Len. (ft)	* 0.01 *	0.01 *	0.01 *
* Crit W.S. (ft)	* 1572.24	* Flow Area (sq ft)	* 3.23 *	292.53 *	3.19 *
* E.G. Slope (ft/ft)	*0.000299	* Area (sq ft)	* 3.23 *	292.53 *	3.19 *
* Q Total (cfs)	* 1595.00	* Flow (cfs)	* 2.28 *	1590.47 *	2.25 *
* Top Width (ft)	* 47.34	* Top Width (ft)	* 5.00 *	37.34 *	5.00 *
* Vel Total (ft/s)	* 5.34	* Avg. Vel. (ft/s)	* 0.71 *	5.44 *	0.70 *
* Max Chl Dpth (ft)	* 7.83	* Hydr. Depth (ft)	* 0.65 *	7.83 *	0.64 *
* Conv. Total (cfs)	* 92275.4	* Conv. (cfs)	* 132.1 *	92013.2 *	130.1 *
* Length Wtd. (ft)	* 0.01	* Wetted Per. (ft)	* 5.64 *	51.70 *	5.62 *
* Min Ch El (ft)	* 1568.41	* Shear (lb/sq ft)	* 0.01 *	0.11 *	0.01 *
* Alpha	* 1.04	* Stream Power (lb/ft s)	* 0.01 *	0.57 *	0.01 *
* Frctn Loss (ft)	*	* Cum Volume (acre-ft)	* 0.00 *	2.20 *	0.00 *
* C & E Loss (ft)	*	* Cum SA (acres)	* 0.01 *	0.61 *	0.01 *

BRIDGE

RIVER: RIVER-1
REACH: Reach-1 RS: 550

INPUT
Description: Hafen Lane Bridge

Distance from Upstream XS = .01
Deck/Roadway Width = 102
Weir Coefficient = 2.7
Upstream Deck/Roadway Coordinates
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
1000	1575.59	1572.41	1037.34	1575.59	1572.41

Upstream Bridge Cross Section Data
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
857.5	1576.11	1000	1575.59	1000	1572.41	1000	1568.41	1037.34	1568.41
1037.34	1572.41	1037.34	1575.59	1187.34	1576.54				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
857.5	.025	1000	.015	1037.34	.015

Bank Sta: Left Right Coeff Contr. Expan.
1000 1037.34 .3 .5

```
Downstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
************************************************
    1000 1575.59 1571.36 1037.34 1575.59 1571.36

Downstream Bridge Cross Section Data
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
     900 1576.11    1000 1575.59    1000 1571.36    1000 1567.36 1037.34 1567.36
 1037.34 1571.36 1037.34 1575.59 1231.44 1576.54

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
************************************************
     900    .025    1000    .015 1037.34    .025

Bank Sta: Left   Right    Coeff Contr.   Expan.
          1000 1037.34             .3       .5

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 =     .98
Elevation at which weir flow begins         = 1575.55
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  2

Pier Data
Pier Station     Upstream= 1012.34    Downstream= 1012.34
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     .67 1569.51     .67    1575
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     .67 1569.51     .67    1575

Pier Data
Pier Station     Upstream=    1025    Downstream=    1025
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     .67 1569.51     .67    1575
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     .67 1569.51     .67    1575

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Yarnell                KVal =    1.25
Selected Low Flow Methods = Yarnell

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =.8164966
           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

BRIDGE OUTPUT  Profile #PF 1
*********************************************************************************************
* E.G. US. (ft)          *    1576.24  * Element               *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1575.71  * E.G. Elev (ft)        *    1576.24  *    1576.24  *
* Q Total (cfs)          *    1595.00  * W.S. Elev (ft)        *    1575.71  *    1575.71  *
* Q Bridge (cfs)         *    1395.78  * Crit W.S. (ft)        *    1572.34  *    1571.29  *
* Q Weir (cfs)           *     199.22  * Max Chl Dpth (ft)     *       7.30  *       8.35  *
* Weir Sta Lft (ft)      *     857.50  * Vel Total (ft/s)      *       6.22  *       6.39  *
* Weir Sta Rgt (ft)      *    1139.49  * Flow Area (sq ft)     *     256.34  *     249.61  *
* Weir Submerg           *       0.00  * Froude # Chl          *       0.69  *       0.64  *
* Weir Max Depth (ft)    *       0.65  * Specif Force (cu ft)  *    1293.59  *    1445.30  *
* Min El Weir Flow (ft)  *    1575.60  * Hydr Depth (ft)       *       2.94  *       3.01  *
* Min El Prs (ft)        *    1572.41  * W.P. Total (ft)       *     183.06  *     178.99  *
* Delta EG (ft)          *       3.12  * Conv. Total (cfs)     *             *             *
* Delta WS (ft)          *       4.52  * Top Width (ft)        *      87.06  *      82.99  *
* BR Open Area (sq ft)   *     144.00  * Frctn Loss (ft)       *             *             *
* BR Open Vel (ft/s)     *       9.69  * C & E Loss (ft)       *             *             *
* Coef of Q              *             * Shear Total (lb/sq ft) *             *             *
* Br Sel Method          * Press/Weir  * Power Total (lb/ft s)  *             *             *
*********************************************************************************************

Warning: Pier drag coefficient of 2.0 assumed for Class B flow.
Warning: The water surface upstream of the bridge computed by the Yarnell method was below critical
         depth.  The Yarnell solution has been disregarded.
Note:    Yarnell answer is not valid if the water surface is above the low chord or if there is weir flow.
         The Yarnell answer has been disregarded.
Note:    Momentum answer is not valid if the water surface is above the low chord or if there is weir
         flow.  The momentum answer has been disregarded.
Note:    The downstream water surface is below the minimum elevation for pressure flow.  The sluice
         gate equations were used for pressure flow.
Note:    For the cross section inside the bridge at the upstream end, the water surface and energy have
         been projected from the upstream cross section.  The selected bridge modeling method does
         not compute answers inside the bridge.
```

Note: For the cross section inside the bridge at the downstream end, the water surface and energy have been projected from the downstream cross section. The selected bridge modeling method does not compute answers inside the bridge.

BRIDGE OUTPUT Profile #PF 2

E.G. US. (ft)	1576.70	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	1576.24	E.G. Elev (ft)	1576.70	1576.70
Q Total (cfs)	1595.00	W.S. Elev (ft)	1576.24	1576.24
Q Bridge (cfs)	1448.17	Crit W.S. (ft)	1572.34	1571.29
Q Weir (cfs)	146.83	Max Chl Dpth (ft)	7.83	8.88
Weir Sta Lft (ft)	995.00	Vel Total (ft/s)	8.14	0.00
Weir Sta Rgt (ft)	1042.34	Flow Area (sq ft)	195.93	
Weir Submerg	0.00	Froude # Chl	0.58	0.56
Weir Max Depth (ft)	1.11	Specif Force (cu ft)	1308.13	1468.40
Min El Weir Flow (ft)	1575.60	Hydr Depth (ft)	4.14	
Min El Prs (ft)	1572.41	W.P. Total (ft)	144.60	133.34
Delta EG (ft)	3.58	Conv. Total (cfs)		
Delta WS (ft)	5.05	Top Width (ft)	47.34	37.34
BR Open Area (sq ft)	144.00	Frctn Loss (ft)		
BR Open Vel (ft/s)	10.06	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)		
Br Sel Method	Press/Weir	Power Total (lb/ft s)		

Warning: Pier drag coefficient of 2.0 assumed for Class B flow.
Warning: The water surface upstream of the bridge computed by the Yarnell method was below critical depth. The Yarnell solution has been disregarded.
Note: Yarnell answer is not valid if the water surface is above the low chord or if there is weir flow. The Yarnell answer has been disregarded.
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Note: The downstream water surface is below the minimum elevation for pressure flow. The sluice gate equations were used for pressure flow.
Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
Note: For the cross section inside the bridge at the downstream end, the water surface and energy have been projected from the downstream cross section. The selected bridge modeling method does not compute answers inside the bridge.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 500

INPUT
Description:
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
900	1576.11	1000	1575.59	1000	1571.36	1000	1567.36	1037.34	1567.36
1037.34	1571.36	1037.34	1575.59	1231.44	1576.54				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
900	.025	1000	.015	1037.34	.025

Bank Sta: Left 1000 Right 1037.34 Lengths: Left Channel Right 40.6 40.6 40.6 Coeff Contr. .3 Expan. .5

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1573.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.93	Wt. n-Val.		0.015	
W.S. Elev (ft)	1571.19	Reach Len. (ft)	40.60	40.60	40.60
Crit W.S. (ft)	1571.19	Flow Area (sq ft)		142.93	
E.G. Slope (ft/ft)	*0.002718	Area (sq ft)		142.93	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	37.34	Top Width (ft)		37.34	
Vel Total (ft/s)	11.16	Avg. Vel. (ft/s)		11.16	
Max Chl Dpth (ft)	3.83	Hydr. Depth (ft)		3.83	
Conv. Total (cfs)	30595.4	Conv. (cfs)		30595.4	
Length Wtd. (ft)	40.60	Wetted Per. (ft)		45.00	
Min Ch El (ft)	1567.36	Shear (lb/sq ft)		0.54	
Alpha	1.00	Stream Power (lb/ft s)		6.01	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)		2.49	
C & E Loss (ft)	0.30	Cum SA (acres)		1.40	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1573.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.93	Wt. n-Val.		0.015	
W.S. Elev (ft)	1571.19	Reach Len. (ft)	40.60	40.60	40.60
Crit W.S. (ft)	1571.19	Flow Area (sq ft)		142.99	
E.G. Slope (ft/ft)	*0.002714	Area (sq ft)		142.99	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	37.34	Top Width (ft)		37.34	
Vel Total (ft/s)	11.15	Avg. Vel. (ft/s)		11.15	
Max Chl Dpth (ft)	3.83	Hydr. Depth (ft)		3.83	
Conv. Total (cfs)	30615.1	Conv. (cfs)		30615.1	

* Length Wtd. (ft)	* 40.60	* Wetted Per. (ft)	*	* 45.00	* *
* Min Ch El (ft)	* 1567.36	* Shear (lb/sq ft)	*	* 0.54	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 6.01	* *
* Frctn Loss (ft)	* 0.20	* Cum Volume (acre-ft)	*	* 1.80	* *
* C & E Loss (ft)	* 0.17	* Cum SA (acres)	*	* 0.52	* *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 400

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1401.03	1573	1416.44	1572	1433.23	1571	1455.07	1570	1472.49	1569
1487.08	1568	1492.83	1567	1496.2	1566	1499.92	1565	1507.96	1564
1515.18	1564	1521.97	1564	1526.3	1565	1530.56	1566	1535.1	1567
1540.51	1568	1546.78	1569	1554.77	1570	1571.65	1571	1596.55	1572
1609.08	1573								

Manning's n Values num= 1

Sta	n Val
1401.03	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1401.03 1609.08 132.08 134.41 158.2 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 1569.93	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.33	* Wt. n-Val.	*	* 0.030	* *
* W.S. Elev (ft)	* 1568.60	* Reach Len. (ft)	* 132.08	* 134.41	* 158.20 *
* Crit W.S. (ft)	* 1568.60	* Flow Area (sq ft)	*	* 172.57	* *
* E.G. Slope (ft/ft)	*0.009839	* Area (sq ft)	*	* 172.57	* *
* Q Total (cfs)	* 1595.00	* Flow (cfs)	*	* 1595.00	* *
* Top Width (ft)	* 65.95	* Top Width (ft)	*	* 65.95	* *
* Vel Total (ft/s)	* 9.24	* Avg. Vel. (ft/s)	*	* 9.24	* *
* Max Chl Dpth (ft)	* 4.60	* Hydr. Depth (ft)	*	* 2.62	* *
* Conv. Total (cfs)	* 16079.8	* Conv. (cfs)	*	* 16079.8	* *
* Length Wtd. (ft)	* 134.41	* Wetted Per. (ft)	*	* 66.88	* *
* Min Ch El (ft)	* 1564.00	* Shear (lb/sq ft)	*	* 1.59	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 14.65	* *
* Frctn Loss (ft)	* 1.38	* Cum Volume (acre-ft)	*	* 2.35	* *
* C & E Loss (ft)	* 0.12	* Cum SA (acres)	*	* 1.35	* *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 1571.66	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 2.50	* Wt. n-Val.	*	* 0.030	* *
* W.S. Elev (ft)	* 1569.16	* Reach Len. (ft)	* 132.08	* 134.41	* 158.20 *
* Crit W.S. (ft)	* 1569.16	* Flow Area (sq ft)	*	* 125.69	* *
* E.G. Slope (ft/ft)	*0.011470	* Area (sq ft)	*	* 125.69	* *
* Q Total (cfs)	* 1595.00	* Flow (cfs)	*	* 1595.00	* *
* Top Width (ft)	* 25.38	* Top Width (ft)	*	* 25.38	* *
* Vel Total (ft/s)	* 12.69	* Avg. Vel. (ft/s)	*	* 12.69	* *
* Max Chl Dpth (ft)	* 5.16	* Hydr. Depth (ft)	*	* 4.95	* *
* Conv. Total (cfs)	* 14892.9	* Conv. (cfs)	*	* 14892.9	* *
* Length Wtd. (ft)	* 134.41	* Wetted Per. (ft)	*	* 33.97	* *
* Min Ch El (ft)	* 1564.00	* Shear (lb/sq ft)	*	* 2.65	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 33.62	* *
* Frctn Loss (ft)	* 1.47	* Cum Volume (acre-ft)	*	* 1.68	* *
* C & E Loss (ft)	* 0.20	* Cum SA (acres)	*	* 0.49	* *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 300

```
INPUT
Description:
Station Elevation Data    num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 1326.59    1566 1398.97    1565  1411.4    1564  1429.8    1563 1447.74    1562
 1478.25    1562 1494.89    1563 1505.16    1564 1508.73 1564.29  1517.3    1565
 1546.71    1566

Manning's n Values        num=       1
     Sta   n Val
*****************
 1326.59     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1326.59 1546.71           364.63  352.07  359.83            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)         * 1565.69  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.92  * Wt. n-Val.             *          *    0.030  *          *
* W.S. Elev (ft)         * 1564.77  * Reach Len. (ft)        *  364.63  *  352.07  *  359.83  *
* Crit W.S. (ft)         * 1564.77  * Flow Area (sq ft)      *          *  207.18  *          *
* E.G. Slope (ft/ft)     *0.010764  * Area (sq ft)           *          *  207.18  *          *
* Q Total (cfs)          * 1595.00  * Flow (cfs)             *          * 1595.00  *          *
* Top Width (ft)         *  112.79  * Top Width (ft)         *          *  112.79  *          *
* Vel Total (ft/s)       *    7.70  * Avg. Vel. (ft/s)       *          *    7.70  *          *
* Max Chl Dpth (ft)      *    2.77  * Hydr. Depth (ft)       *          *    1.84  *          *
* Conv. Total (cfs)      * 15373.4  * Conv. (cfs)            *          * 15373.4  *          *
* Length Wtd. (ft)       *  352.07  * Wetted Per. (ft)       *          *  112.99  *          *
* Min Ch El (ft)         * 1562.00  * Shear (lb/sq ft)       *          *    1.23  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    9.49  *          *
* Frctn Loss (ft)        *    3.96  * Cum Volume (acre-ft)   *          *    1.76  *          *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)         *          *    1.08  *          *
*************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION OUTPUT  Profile #PF 2
*************************************************************************************************
* E.G. Elev (ft)         * 1567.51  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.82  * Wt. n-Val.             *          *    0.030  *          *
* W.S. Elev (ft)         * 1565.69  * Reach Len. (ft)        *  364.63  *  352.07  *  359.83  *
* Crit W.S. (ft)         * 1565.69  * Flow Area (sq ft)      *          *  147.19  *          *
* E.G. Slope (ft/ft)     *0.010504  * Area (sq ft)           *          *  147.19  *          *
* Q Total (cfs)          * 1595.00  * Flow (cfs)             *          * 1595.00  *          *
* Top Width (ft)         *   40.37  * Top Width (ft)         *          *   40.37  *          *
* Vel Total (ft/s)       *   10.84  * Avg. Vel. (ft/s)       *          *   10.84  *          *
* Max Chl Dpth (ft)      *    3.68  * Hydr. Depth (ft)       *          *    3.65  *          *
* Conv. Total (cfs)      * 15562.9  * Conv. (cfs)            *          * 15562.9  *          *
* Length Wtd. (ft)       *  352.07  * Wetted Per. (ft)       *          *   47.19  *          *
* Min Ch El (ft)         * 1562.00  * Shear (lb/sq ft)       *          *    2.05  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   22.16  *          *
* Frctn Loss (ft)        *    3.71  * Cum Volume (acre-ft)   *          *    1.26  *          *
* C & E Loss (ft)        *    0.10  * Cum SA (acres)         *          *    0.39  *          *
*************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 200

INPUT
Description:
Station Elevation Data    num=      19
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 1408.98    1562 1430.03    1561 1443.63    1560 1456.15    1559 1483.33    1558
 1511.65    1558 1529.54    1558 1535.63    1557 1591.46    1557 1598.86    1558
 1605.41    1559 1611.46    1560 1616.72    1561 1621.82    1562 1626.85    1563
 1633.43    1564 1640.24    1565 1646.85    1566 1659.32    1567

Manning's n Values        num=       1
     Sta   n Val
*****************
 1408.98     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1408.98 1659.32             0       0       0            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)         * 1559.98  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.76  * Wt. n-Val.             *          *    0.030  *          *
* W.S. Elev (ft)         * 1559.22  * Reach Len. (ft)        *          *           *          *
* Crit W.S. (ft)         * 1559.22  * Flow Area (sq ft)      *          *  228.23  *          *
* E.G. Slope (ft/ft)     *0.011742  * Area (sq ft)           *          *  228.23  *          *
* Q Total (cfs)          * 1595.00  * Flow (cfs)             *          * 1595.00  *          *
* Top Width (ft)         *  153.34  * Top Width (ft)         *          *  153.34  *          *
* Vel Total (ft/s)       *    6.99  * Avg. Vel. (ft/s)       *          *    6.99  *          *
* Max Chl Dpth (ft)      *    2.22  * Hydr. Depth (ft)       *          *    1.49  *          *
```

* Conv. Total (cfs)	* 14719.3	* Conv. (cfs)	*	* 14719.3	*	*
* Length Wtd. (ft)	*	* Wetted Per. (ft)	*	* 153.61	*	*
* Min Ch El (ft)	* 1557.00	* Shear (lb/sq ft)	*	* 1.09	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 7.61	*	*
* Frctn Loss (ft)	*	* Cum Volume (acre-ft)	*	*	*	*
* C & E Loss (ft)	*	* Cum SA (acres)	*	*	*	*

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 1561.41	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.48	* Wt. n-Val.	*	* 0.030	* *
* W.S. Elev (ft)	* 1559.93	* Reach Len. (ft)	*	*	* *
* Crit W.S. (ft)	* 1559.93	* Flow Area (sq ft)	*	* 163.48	* *
* E.G. Slope (ft/ft)	*0.010579	* Area (sq ft)	*	* 163.48	* *
* Q Total (cfs)	* 1595.00	* Flow (cfs)	*	* 1595.00	* *
* Top Width (ft)	* 55.83	* Top Width (ft)	*	* 55.83	* *
* Vel Total (ft/s)	* 9.76	* Avg. Vel. (ft/s)	*	* 9.76	* *
* Max Chl Dpth (ft)	* 2.93	* Hydr. Depth (ft)	*	* 2.93	* *
* Conv. Total (cfs)	* 15507.2	* Conv. (cfs)	*	* 15507.2	* *
* Length Wtd. (ft)	*	* Wetted Per. (ft)	*	* 61.69	* *
* Min Ch El (ft)	* 1557.00	* Shear (lb/sq ft)	*	* 1.75	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 17.08	* *
* Frctn Loss (ft)	*	* Cum Volume (acre-ft)	*	*	* *
* C & E Loss (ft)	*	* Cum SA (acres)	*	*	* *

SUMMARY OF MANNING'S N VALUES

River:RIVER-1

Reach	River Sta.	n1	n2	n3	n4
Reach-1	3800	.04	.025	.04	
Reach-1	3700	.024	.025	.04	
Reach-1	3660	.04	.015	.04	
Reach-1	3650	Bridge			
Reach-1	3640	.04	.015	.04	
Reach-1	3600	.025	.04		
Reach-1	3500	.025	.04		
Reach-1	3400	.025	.04		
Reach-1	3300	.025	.04		
Reach-1	3280	.04	.025	.04	
Reach-1	3275	.015	.015	.015	
Reach-1	3270	.015	.015	.015	
Reach-1	3200	.015	.015	.015	
Reach-1	3100	.015	.015	.015	
Reach-1	3080	.015	.015	.015	
Reach-1	3050	Bridge			
Reach-1	3020	.015	.015	.015	
Reach-1	3000	.015	.015	.015	
Reach-1	2900	.015	.015	.015	
Reach-1	2800	.015	.015	.015	
Reach-1	2700	.015	.015	.015	
Reach-1	2600	.015	.015	.015	
Reach-1	2590	.04	.025	.04	
Reach-1	2500	.04	.025	.04	
Reach-1	2400	.025	.04		
Reach-1	2350	.04	.025	.04	
Reach-1	2330	.04	.025	.04	
Reach-1	2300	.04	.025	.04	
Reach-1	2200	.04	.025	.04	
Reach-1	2100	.04	.025	.04	
Reach-1	2000.1	.025	.015	.025	
Reach-1	2000	.025	.015	.025	
Reach-1	1950	Bridge			
Reach-1	1900	.025	.015	.025	
Reach-1	1800	.04	.025	.04	
Reach-1	1750	.04	.025	.04	
Reach-1	1700	.04	.025	.04	
Reach-1	1650	.04	.025	.04	
Reach-1	1600	.04	.025	.04	
Reach-1	1500	.04	.025	.04	
Reach-1	1400	.04	.025	.04	
Reach-1	1300	.04	.025	.04	
Reach-1	1200	.04	.025	.04	
Reach-1	1100	.04	.025	.04	.04
Reach-1	1000	.04	.025	.04	
Reach-1	900	.04	.025	.04	
Reach-1	800	.04	.025	.04	
Reach-1	700	.04	.025	.04	
Reach-1	600	.04	.025	.04	
Reach-1	580	.025	.015	.025	
Reach-1	550	Bridge			
Reach-1	500	.025	.015	.025	
Reach-1	400	.03			
Reach-1	300	.03			
Reach-1	200	.03			

SUMMARY OF REACH LENGTHS

River: RIVER-1

Reach	River Sta.	Left	Channel	Right
Reach-1	3800	580	566	553
Reach-1	3700	222.1	225	219.5
Reach-1	3660	42.6	42.6	42.6
Reach-1	3650	Bridge		
Reach-1	3640	143.1	143.1	143.1
Reach-1	3600	366.01	370	383

*Reach-1	*	3500	*	392*	394*	393*
*Reach-1	*	3400	*	347*	344*	345*
*Reach-1	*	3300	*	49*	51*	53*
*Reach-1	*	3280	*	17.5*	17.5*	17.5*
*Reach-1	*	3275	*	33*	33*	33*
*Reach-1	*	3270	*	250*	250*	250*
*Reach-1	*	3200	*	400*	400*	400*
*Reach-1	*	3100	*	40*	40*	40*
*Reach-1	*	3080	*	127.2*	127.2*	127.2*
*Reach-1	*	3050	*Bridge	*	*	*
*Reach-1	*	3020	*	150*	150*	150*
*Reach-1	*	3000	*	350*	350*	350*
*Reach-1	*	2900	*	290*	290*	290*
*Reach-1	*	2800	*	250*	250*	250*
*Reach-1	*	2700	*	381.4*	381.4*	381.4*
*Reach-1	*	2600	*	6.4*	6.4*	6.4*
*Reach-1	*	2590	*	226*	210*	201*
*Reach-1	*	2500	*	186.68*	179.72*	182.96*
*Reach-1	*	2400	*	57*	71*	87*
*Reach-1	*	2350	*	64*	63*	63*
*Reach-1	*	2330	*	235*	240*	222*
*Reach-1	*	2300	*	320.42*	311.55*	310.65*
*Reach-1	*	2200	*	383.01*	328.57*	273.85*
*Reach-1	*	2100	*	67.6*	97.6*	97.6*
*Reach-1	*	2000.1	*	1*	1*	1*
*Reach-1	*	2000	*	320.07*	319.85*	303.13*
*Reach-1	*	1950	*Bridge	*	*	*
*Reach-1	*	1900	*	38.8*	38.8*	38.8*
*Reach-1	*	1800	*	173.79*	170.93*	148.02*
*Reach-1	*	1750	*	171.49*	169.33*	179.87*
*Reach-1	*	1700	*	163.66*	161.13*	154.63*
*Reach-1	*	1650	*	190.68*	175.57*	185.82*
*Reach-1	*	1600	*	157*	142*	133*
*Reach-1	*	1500	*	125*	113*	101*
*Reach-1	*	1400	*	122.02*	161.58*	190.42*
*Reach-1	*	1300	*	198.91*	176.37*	153.42*
*Reach-1	*	1200	*	111.55*	110.23*	110.23*
*Reach-1	*	1100	*	102.45*	103.7*	103.7*
*Reach-1	*	1000	*	116.93*	118.27*	121.55*
*Reach-1	*	900	*	102.08*	103.62*	108.33*
*Reach-1	*	800	*	134*	133*	133*
*Reach-1	*	700	*	109*	119*	125*
*Reach-1	*	600	*	65.6*	65.6*	65.6*
*Reach-1	*	580	*	102.1*	102.1*	102.1*
*Reach-1	*	550	*Bridge	*	*	*
*Reach-1	*	500	*	40.6*	40.6*	40.6*
*Reach-1	*	400	*	132.08*	134.41*	158.2*
*Reach-1	*	300	*	364.63*	352.07*	359.83*
*Reach-1	*	200	*	0*	0*	0*

****

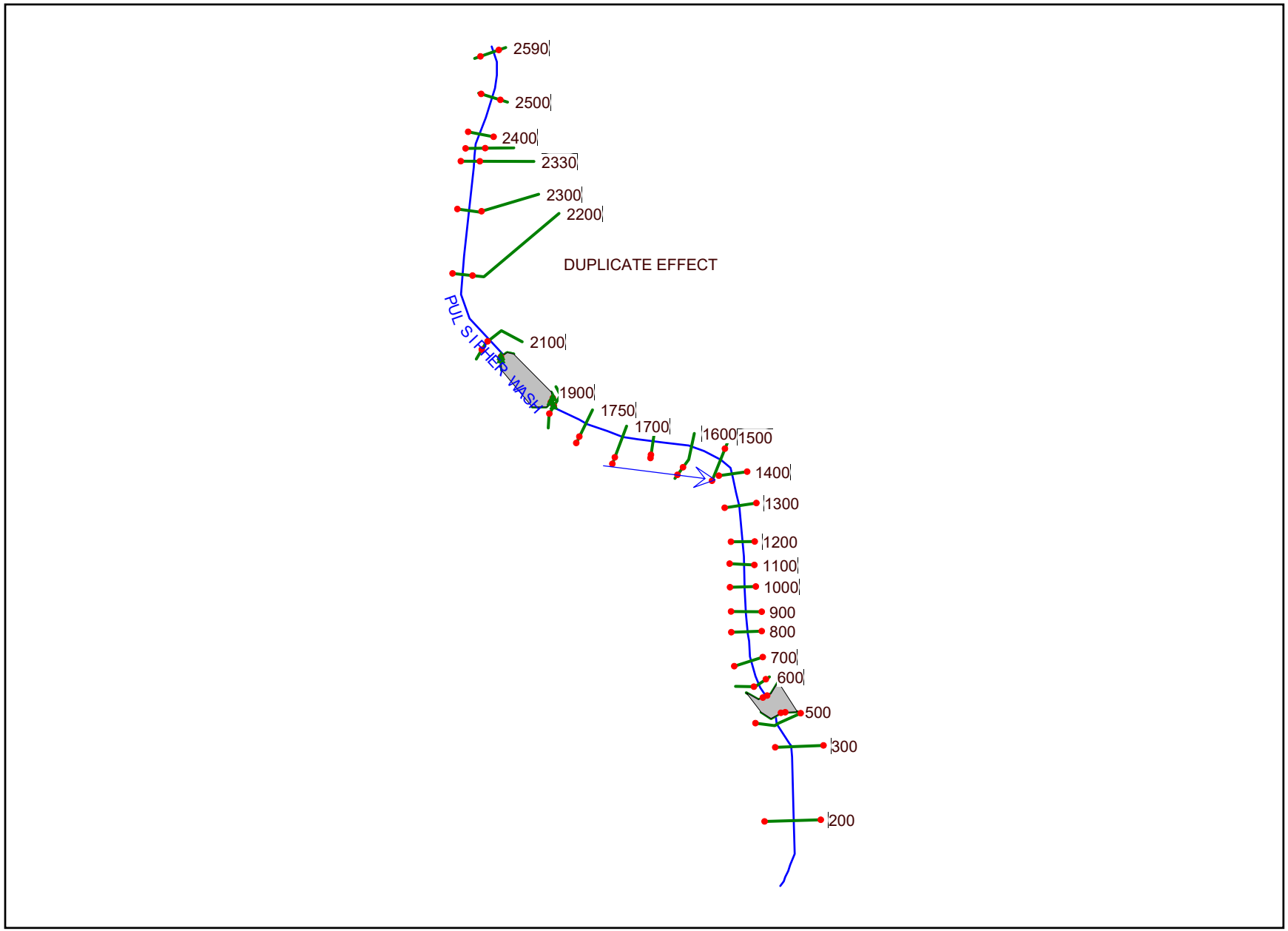
SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: RIVER-1

Reach	River Sta.	Contr.	Expan.
*Reach-1	* 3800	* .1*	.3*
*Reach-1	* 3700	* .1*	.3*
*Reach-1	* 3660	* .3*	.5*
*Reach-1	* 3650	*Bridge *	*
*Reach-1	* 3640	* .3*	.5*
*Reach-1	* 3600	* .1*	.3*
*Reach-1	* 3500	* .1*	.3*
*Reach-1	* 3400	* .1*	.3*
*Reach-1	* 3300	* .1*	.3*
*Reach-1	* 3280	* .1*	.3*
*Reach-1	* 3275	* .1*	.3*
*Reach-1	* 3270	* .1*	.3*
*Reach-1	* 3200	* .1*	.3*
*Reach-1	* 3100	* .1*	.3*
*Reach-1	* 3080	* .1*	.3*
*Reach-1	* 3050	*Bridge *	*
*Reach-1	* 3020	* .1*	.3*
*Reach-1	* 3000	* .1*	.3*
*Reach-1	* 2900	* .1*	.3*
*Reach-1	* 2800	* .1*	.3*
*Reach-1	* 2700	* .1*	.3*
*Reach-1	* 2600	* .1*	.3*
*Reach-1	* 2590	* .1*	.3*
*Reach-1	* 2500	* .1*	.3*
*Reach-1	* 2400	* .1*	.3*
*Reach-1	* 2350	* .1*	.3*
*Reach-1	* 2330	* .1*	.3*
*Reach-1	* 2300	* .1*	.3*
*Reach-1	* 2200	* .1*	.3*
*Reach-1	* 2100	* .1*	.3*
*Reach-1	* 2000.1	* .1*	.1*
*Reach-1	* 2000	* .3*	.5*
*Reach-1	* 1950	*Bridge *	*
*Reach-1	* 1900	* .3*	.5*
*Reach-1	* 1800	* .1*	.3*
*Reach-1	* 1750	* .1*	.3*
*Reach-1	* 1700	* .1*	.3*
*Reach-1	* 1650	* .1*	.3*
*Reach-1	* 1600	* .1*	.3*
*Reach-1	* 1500	* .1*	.3*
*Reach-1	* 1400	* .1*	.3*
*Reach-1	* 1300	* .1*	.3*
*Reach-1	* 1200	* .1*	.3*
*Reach-1	* 1100	* .1*	.3*
*Reach-1	* 1000	* .1*	.3*
*Reach-1	* 900	* .1*	.3*
*Reach-1	* 800	* .1*	.3*

```
*Reach-1          *    700      *        .1*       .3*
*Reach-1          *    600      *        .1*       .3*
*Reach-1          *    580      *        .3*       .5*
*Reach-1          *    550      *Bridge   *         *
*Reach-1          *    500      *        .3*       .5*
*Reach-1          *    400      *        .1*       .3*
*Reach-1          *    300      *        .1*       .3*
*Reach-1          *    200      *        .1*       .3*
************************************************************

Profile Output Table - CHECKRAS
************************************************************************************************************************************************************************************
************************************************************
* Reach       * River Sta     * Froude # Chl * Top Wdth Act * Conv. Total * Prof Delta WS * Left Sta Eff * Enc Sta L * Center Station * Enc Sta R * Rght Sta Eff * Min Ch El * Left Stagn * Right Stagn *
*             *               *             *         (ft) *       (cfs) *          (ft) *         (ft) *       (ft) *           (ft) *         (ft) *         (ft) *       (ft) *          (ft) *
************************************************************************************************************************************************************************************
************************************************************
* Reach-1     * 3800          *       0.99 *       230.33 *      8738.2 *               *      1095.27 *          *        1253.25 *      1325.60 *      1654.00 *
* Reach-1     * 3800          *       0.99 *       230.33 *      8738.2 *          0.00 *      1095.27 *          *        1253.25 *      1325.60 *      1654.00 *
*             *               *            *              *             *               *              *          *                *              *              *
* Reach-1     * 3700          *       0.20 *       190.24 *     54487.9 *               *      1280.37 *          *        1381.31 *      1470.61 *      1650.00 *
* Reach-1     * 3700          *       0.20 *       190.24 *     54487.9 *          0.00 *      1280.37 *          *        1381.31 *      1470.61 *      1650.00 *
*             *               *            *              *             *               *              *          *                *              *              *
* Reach-1     * 3660          *       0.21 *       130.19 *     38449.6 *               *       961.80 *          *        1026.96 *      1091.99 *      1647.91 *
* Reach-1     * 3660          *       0.21 *       130.19 *     38449.6 *          0.00 *       961.80 *          *        1026.96 *      1091.99 *      1647.91 *
*             *               *            *              *             *               *              *          *                *              *              *
* Reach-1     * 3650    BR U  *       0.32 *       112.36 *             *               *       961.80 *          *        1026.96 *      1074.16 *      1647.91 *
* Reach-1     * 3650    BR U  *       0.32 *       112.36 *             *          0.00 *       961.80 *          *        1026.96 *      1074.16 *      1647.91 *
*             *               *            *              *             *               *              *          *                *              *              *
* Reach-1     * 3650    BR D  *       0.37 *       100.12 *             *               *       956.10 *          *        1015.16 *      1056.22 *      1647.78 *
* Reach-1     * 3650    BR D  *       0.37 *       100.12 *             *          0.00 *       956.10 *          *        1015.16 *      1056.22 *      1647.78 *
*             *               *            *              *             *               *              *          *                *              *              *
* Reach-1     * 3640          *       0.77 *        94.08 *     10746.1 *               *       956.10 *          *        1015.16 *      1050.18 *      1647.78 *
* Reach-1     * 3640          *       0.77 *        94.08 *     10746.1 *          0.00 *       956.10 *          *        1015.16 *      1050.18 *      1647.78 *
*             *               *            *              *             *               *              *          *                *              *              *
* Reach-1     * 3600          *       1.00 *        54.66 *      9929.1 *               *      1195.29 *          *        1216.27 *      1249.95 *      1646.00 *
* Reach-1     * 3600          *       1.00 *        54.66 *      9929.1 *          0.00 *      1195.29 *          *        1216.27 *      1249.95 *      1646.00 *
*             *               *            *              *             *               *              *          *                *              *              *
* Reach-1     * 3500          *       1.01 *        68.89 *      9652.1 *               *      1203.83 *          *        1229.21 *      1272.72 *      1643.00 *
* Reach-1     * 3500          *       1.01 *        68.89 *      9652.1 *          0.00 *      1203.83 *          *        1229.21 *      1272.72 *      1643.00 *
*             *               *            *              *             *               *              *          *                *              *              *
* Reach-1     * 3400          *       1.01 *        65.00 *      9739.3 *               *      1204.18 *          *        1222.27 *      1269.18 *      1638.00 *
* Reach-1     * 3400          *       1.01 *        65.00 *      9739.3 *          0.00 *      1204.18 *          *        1222.27 *      1269.18 *      1638.00 *
*             *               *            *              *             *               *              *          *                *              *              *
* Reach-1     * 3300          *       0.38 *        54.64 *     28624.3 *               *      1162.53 *          *        1197.65 *      1244.32 *      1633.00 *
* Reach-1     * 3300          *       0.38 *        54.64 *     28624.3 *          0.00 *      1162.53 *          *        1197.65 *      1244.32 *      1633.00 *
*             *               *            *              *             *               *              *          *                *              *              *
* Reach-1     * 3280          *       1.00 *        27.50 *     10675.8 *               *      1205.39 *          *        1250.56 *      1232.89 *      1632.00 *
* Reach-1     * 3280          *       1.00 *        27.50 *     10675.8 *          0.00 *      1205.39 *          *        1250.56 *      1232.89 *      1632.00 *
*             *               *            *              *             *               *              *          *                *              *              *
* Reach-1     * 3275          *       1.00 *        24.66 *     15777.2 *               *      1037.67 *          *        1050.00 *      1062.33 *      1631.49 *
* Reach-1     * 3275          *       1.00 *        24.66 *     15777.2 *          0.00 *      1037.67 *          *        1050.00 *      1062.33 *      1631.49 *
*             *               *            *              *             *               *              *          *                *              *              *
* Reach-1     * 3270          *       1.01 *        24.66 *     15753.8 *               *      1037.67 *          *        1050.00 *      1062.33 *      1630.88 *
* Reach-1     * 3270          *       1.01 *        24.66 *     15753.8 *          0.00 *      1037.67 *          *        1050.00 *      1062.33 *      1630.88 *
*             *               *            *              *             *               *              *          *                *              *              *
* Reach-1     * 3200          *       1.01 *        24.66 *     15774.5 *               *      1037.67 *          *        1050.00 *      1062.33 *      1627.08 *
* Reach-1     * 3200          *       1.01 *        24.66 *     15774.5 *          0.00 *      1037.67 *          *        1050.00 *      1062.33 *      1627.08 *
*             *               *            *              *             *               *              *          *                *              *              *
* Reach-1     * 3100          *       1.01 *        24.66 *     15758.0 *               *      1037.67 *          *        1050.00 *      1062.33 *      1621.00 *
* Reach-1     * 3100          *       1.01 *        24.66 *     15758.0 *          0.00 *      1037.67 *          *        1050.00 *
```

DUPLICATE EFFECTIVE MODEL


2590
2500
2400
2330
2300
2200
DUPLICATE EFFECT
2100
PUL SIPHER WASH
1900
1750
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
300
200

HEC-RAS Plan: PULSIPHER WASH DUPLICATE EFFECTIVE River: PULSIPHER WASH Reach: DUPLICATE EFFECT

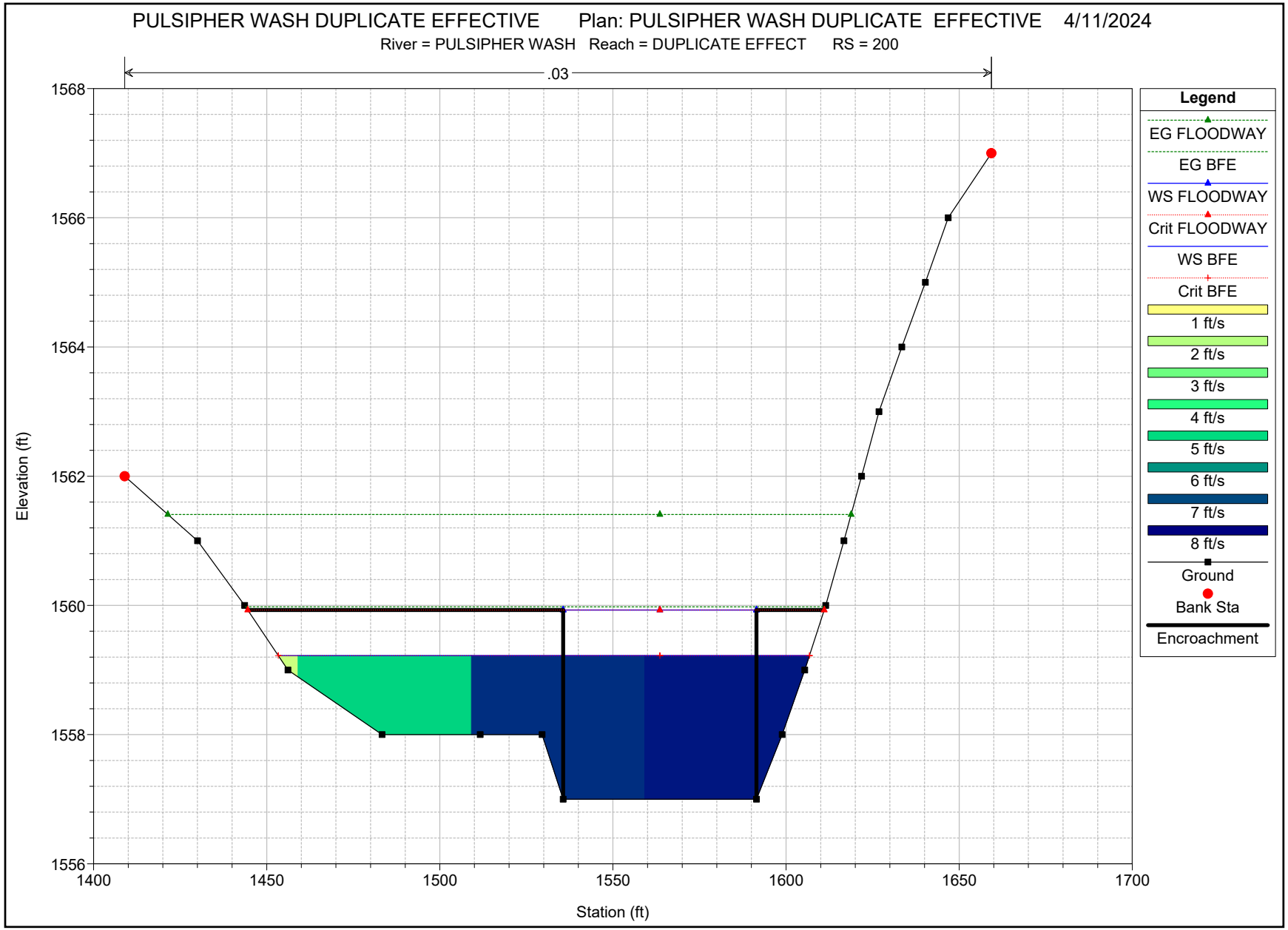
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
DUPLICATE EFFECT	2590	BFE	1723.0	1608.0	1610.9	1610.9	1612.3	0.006804	9.3	185.0	69	1.01
DUPLICATE EFFECT	2590	FLOODWAY	1723.0	1608.0	1611.0	1611.0	1612.5	0.007081	9.8	176.3	60	1.01
DUPLICATE EFFECT	2500	BFE	1972.0	1603.0	1608.9		1609.8	0.002237	7.4	267.8	61	0.62
DUPLICATE EFFECT	2500	FLOODWAY	1972.0	1603.0	1608.9		1609.8	0.002237	7.4	267.8	61	0.62
DUPLICATE EFFECT	2400	BFE	1972.0	1602.0	1606.9	1606.9	1608.8	0.016120	11.0	179.0	48	1.01
DUPLICATE EFFECT	2400	FLOODWAY	1972.0	1602.0	1606.9	1606.9	1608.8	0.016120	11.0	179.0	48	1.01
DUPLICATE EFFECT	2350	BFE	1972.0	1601.0	1606.7	1606.6	1607.9	0.005668	9.3	240.4	113	0.82
DUPLICATE EFFECT	2350	FLOODWAY	1972.0	1601.0	1607.0	1606.6	1608.0	0.004331	8.3	270.8	103	0.72
DUPLICATE EFFECT	2330	BFE	1972.0	1601.0	1607.0		1607.5	0.002580	6.1	470.6	215	0.52
DUPLICATE EFFECT	2330	FLOODWAY	1972.0	1601.0	1607.1		1607.6	0.002997	6.6	392.5	148	0.56
DUPLICATE EFFECT	2300	BFE	1972.0	1599.0	1607.1		1607.2	0.000312	2.4	1139.0	322	0.18
DUPLICATE EFFECT	2300	FLOODWAY	1972.0	1599.0	1607.1		1607.2	0.000539	3.1	774.7	188	0.24
DUPLICATE EFFECT	2200	BFE	1972.0	1597.0	1607.1		1607.1	0.000021	0.8	3344.9	570	0.05
DUPLICATE EFFECT	2200	FLOODWAY	1972.0	1597.0	1607.1		1607.2	0.000108	1.9	1252.1	181	0.12
DUPLICATE EFFECT	2100	BFE	1972.0	1593.0	1607.1		1607.1	0.000028	1.7	1946.6	234	0.08
DUPLICATE EFFECT	2100	FLOODWAY	1972.0	1593.0	1607.1		1607.1	0.000030	1.8	1752.0	183	0.09
DUPLICATE EFFECT	2000.1	BFE	1972.0	1591.8	1606.4		1607.1	0.000594	7.5	410.5	100	0.35
DUPLICATE EFFECT	2000.1	FLOODWAY	1972.0	1591.8	1606.4		1607.1	0.000594	7.5	410.5	100	0.35
DUPLICATE EFFECT	2000	BFE	1498.0	1591.8	1605.8	1599.6	1607.0	0.000885	8.9	168.0	90	0.42
DUPLICATE EFFECT	2000	FLOODWAY	1498.0	1591.8	1605.8	1599.6	1607.0	0.001195	8.9	168.0	12	0.42
DUPLICATE EFFECT	1950		Bridge									
DUPLICATE EFFECT	1900	BFE	1595.0	1585.1	1593.3	1593.3	1597.4	0.005122	16.2	98.3	12	1.00
DUPLICATE EFFECT	1900	FLOODWAY	1595.0	1585.1	1593.8	1593.3	1597.4	0.004313	15.2	105.1	12	0.90
DUPLICATE EFFECT	1800	BFE	1595.0	1590.0	1594.1	1594.1	1596.0	0.007845	11.0	144.7	105	1.00
DUPLICATE EFFECT	1800	FLOODWAY	1595.0	1590.0	1594.3	1594.3	1596.5	0.007639	11.7	135.8	31	0.99
DUPLICATE EFFECT	1750	BFE	1595.0	1588.0	1591.6	1591.6	1592.3	0.004590	8.4	330.6	217	0.81
DUPLICATE EFFECT	1750	FLOODWAY	1595.0	1588.0	1592.2	1592.2	1594.1	0.006662	11.3	150.3	40	0.99

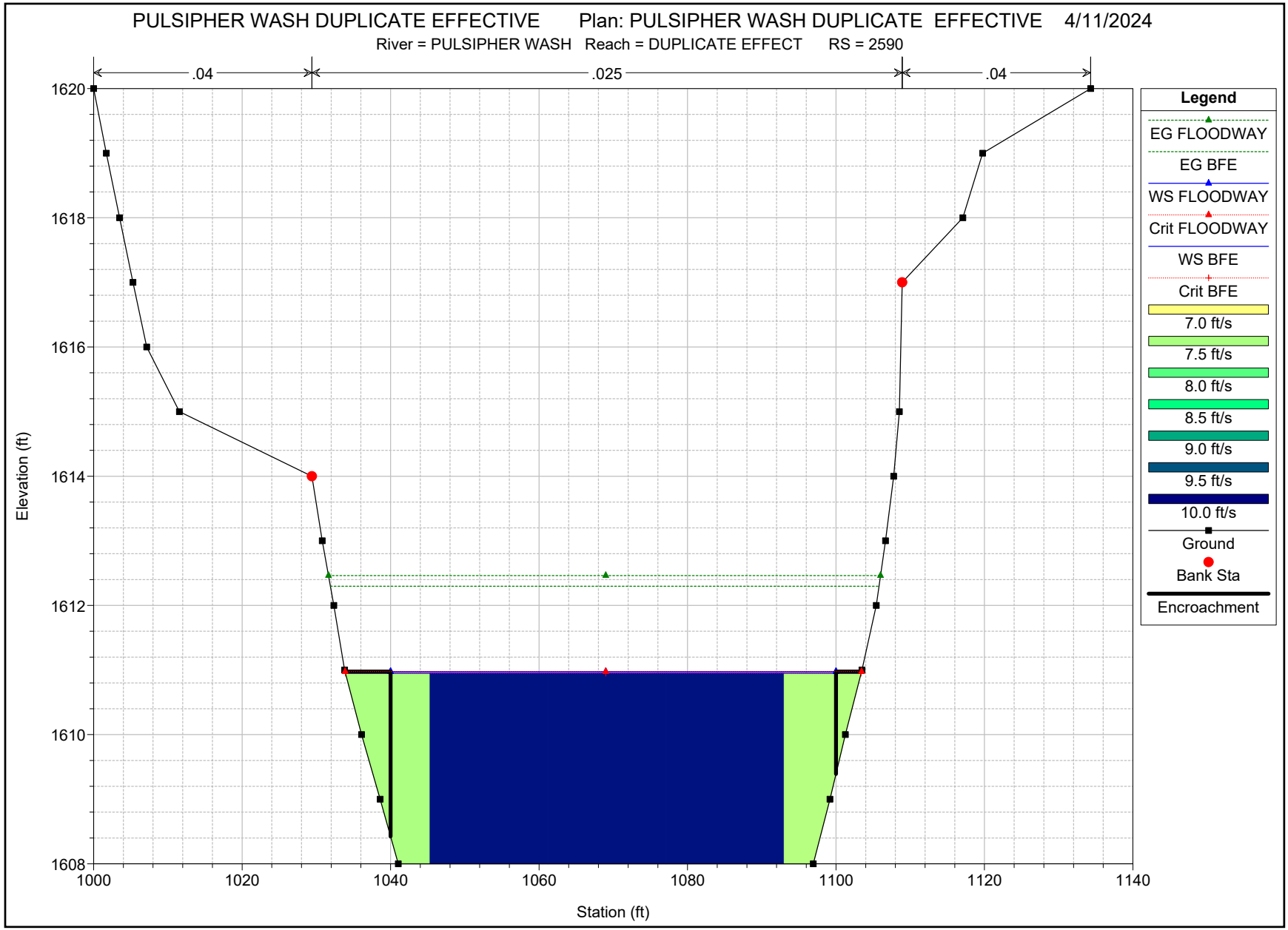
HEC-RAS Plan: PULSIPHER WASH DUPLICATE EFFECTIVE River: PULSIPHER WASH Reach: DUPLICATE EFFECT (Continued)

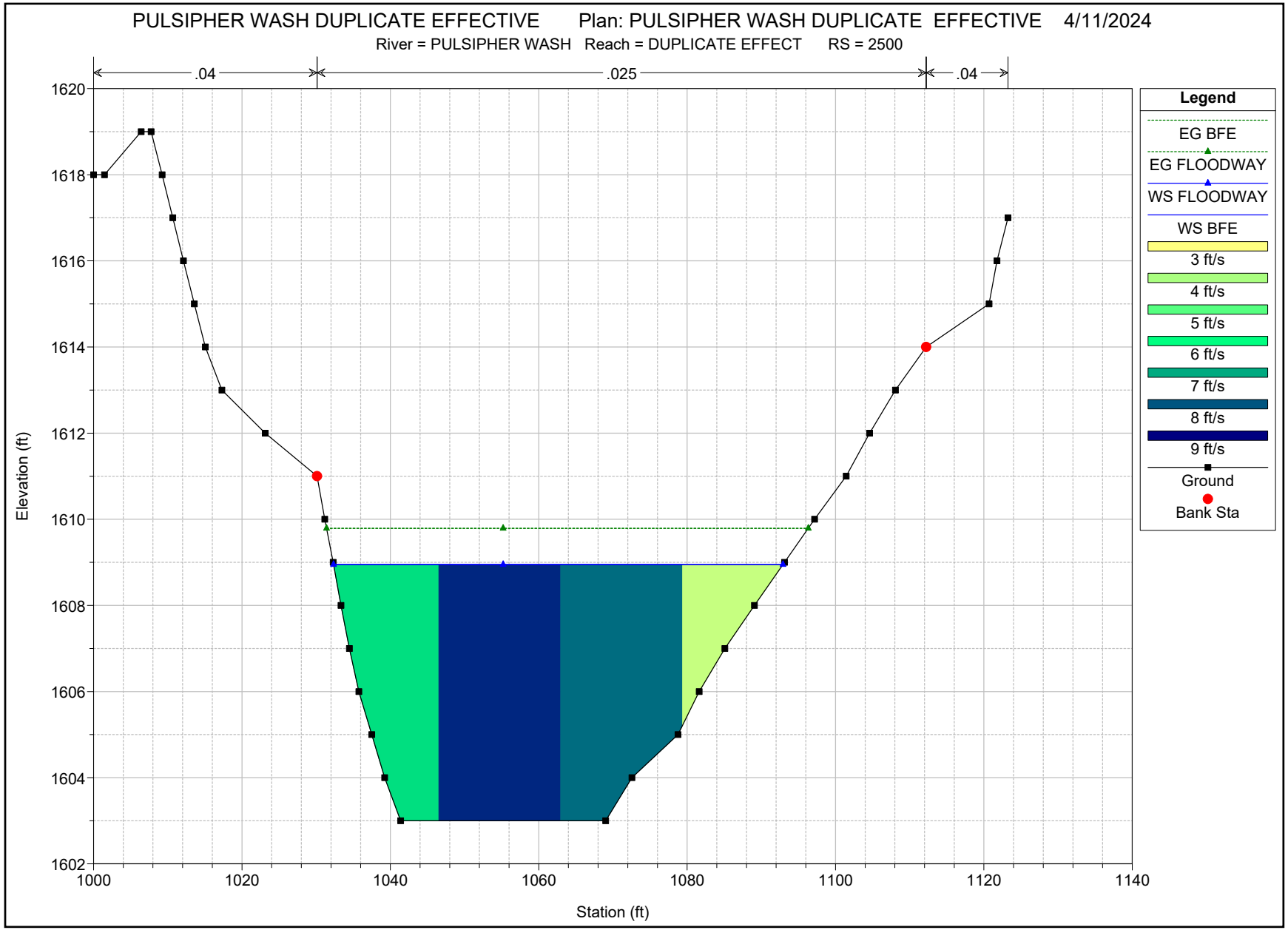
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
DUPLICATE EFFECT	1700	BFE	1595.0	1587.0	1590.2		1590.6	0.004822	6.7	381.4	255	0.72
DUPLICATE EFFECT	1700	FLOODWAY	1595.0	1587.0	1591.2	1591.0	1592.6	0.005234	10.0	186.8	56	0.88
DUPLICATE EFFECT	1650	BFE	1595.0	1585.0	1589.0	1589.0	1589.7	0.006318	7.7	310.0	227	0.81
DUPLICATE EFFECT	1650	FLOODWAY	1595.0	1585.0	1589.7	1589.7	1591.6	0.006813	11.0	151.5	43	0.99
DUPLICATE EFFECT	1600	BFE	1595.0	1584.0	1586.7	1586.7	1587.6	0.014919	7.5	215.5	129	0.97
DUPLICATE EFFECT	1600	FLOODWAY	1595.0	1584.0	1587.5	1587.5	1589.2	0.012876	10.4	153.5	46	1.00
DUPLICATE EFFECT	1500	BFE	1595.0	1578.0	1584.7		1584.9	0.000575	3.5	460.0	109	0.30
DUPLICATE EFFECT	1500	FLOODWAY	1595.0	1578.0	1584.7		1584.9	0.000564	3.5	458.8	106	0.29
DUPLICATE EFFECT	1400	BFE	1595.0	1576.0	1582.1	1582.1	1584.5	0.009900	12.4	128.8	27	1.00
DUPLICATE EFFECT	1400	FLOODWAY	1595.0	1576.0	1582.1	1582.1	1584.5	0.010008	12.4	128.3	27	1.01
DUPLICATE EFFECT	1300	BFE	1595.0	1573.0	1579.8	1579.5	1581.8	0.009522	11.2	142.4	31	0.93
DUPLICATE EFFECT	1300	FLOODWAY	1595.0	1573.0	1580.7		1582.0	0.005947	9.4	169.6	33	0.73
DUPLICATE EFFECT	1200	BFE	1595.0	1572.0	1579.4		1580.1	0.005776	7.0	227.0	59	0.63
DUPLICATE EFFECT	1200	FLOODWAY	1595.0	1572.0	1579.7		1580.9	0.006196	8.7	183.4	34	0.66
DUPLICATE EFFECT	1100	BFE	1595.0	1572.0	1578.7		1579.5	0.005168	7.2	220.3	53	0.62
DUPLICATE EFFECT	1100	FLOODWAY	1595.0	1572.0	1578.8		1580.1	0.007509	9.4	168.9	34	0.74
DUPLICATE EFFECT	1000	BFE	1595.0	1572.0	1577.7		1578.8	0.010322	8.4	190.0	56	0.80
DUPLICATE EFFECT	1000	FLOODWAY	1595.0	1572.0	1578.0		1579.3	0.009265	9.1	174.6	39	0.76
DUPLICATE EFFECT	900	BFE	1595.0	1570.0	1576.1	1576.1	1577.7	0.006826	10.2	156.7	49	1.01
DUPLICATE EFFECT	900	FLOODWAY	1595.0	1570.0	1576.6	1576.3	1578.4	0.005400	10.7	149.3	34	0.89
DUPLICATE EFFECT	800	BFE	1595.0	1570.0	1576.3		1577.0	0.002281	6.7	239.3	63	0.60
DUPLICATE EFFECT	800	FLOODWAY	1595.0	1570.0	1576.9		1577.8	0.002392	7.5	211.7	43	0.60
DUPLICATE EFFECT	700	BFE	1595.0	1570.0	1576.2		1576.6	0.002966	5.4	297.5	73	0.47
DUPLICATE EFFECT	700	FLOODWAY	1595.0	1570.0	1576.5		1577.3	0.004161	7.2	222.1	45	0.57
DUPLICATE EFFECT	600	BFE	1595.0	1569.0	1575.9		1576.3	0.001919	5.4	355.3	105	0.42
DUPLICATE EFFECT	600	FLOODWAY	1595.0	1569.0	1576.3		1576.9	0.002351	6.1	260.6	46	0.46
DUPLICATE EFFECT	580	BFE	1595.0	1568.4	1575.7	1572.2	1576.3	0.000376	5.8	277.5	98	0.38
DUPLICATE EFFECT	580	FLOODWAY	1595.0	1568.4	1576.4	1572.2	1576.8	0.000284	5.4	304.4	47	0.33

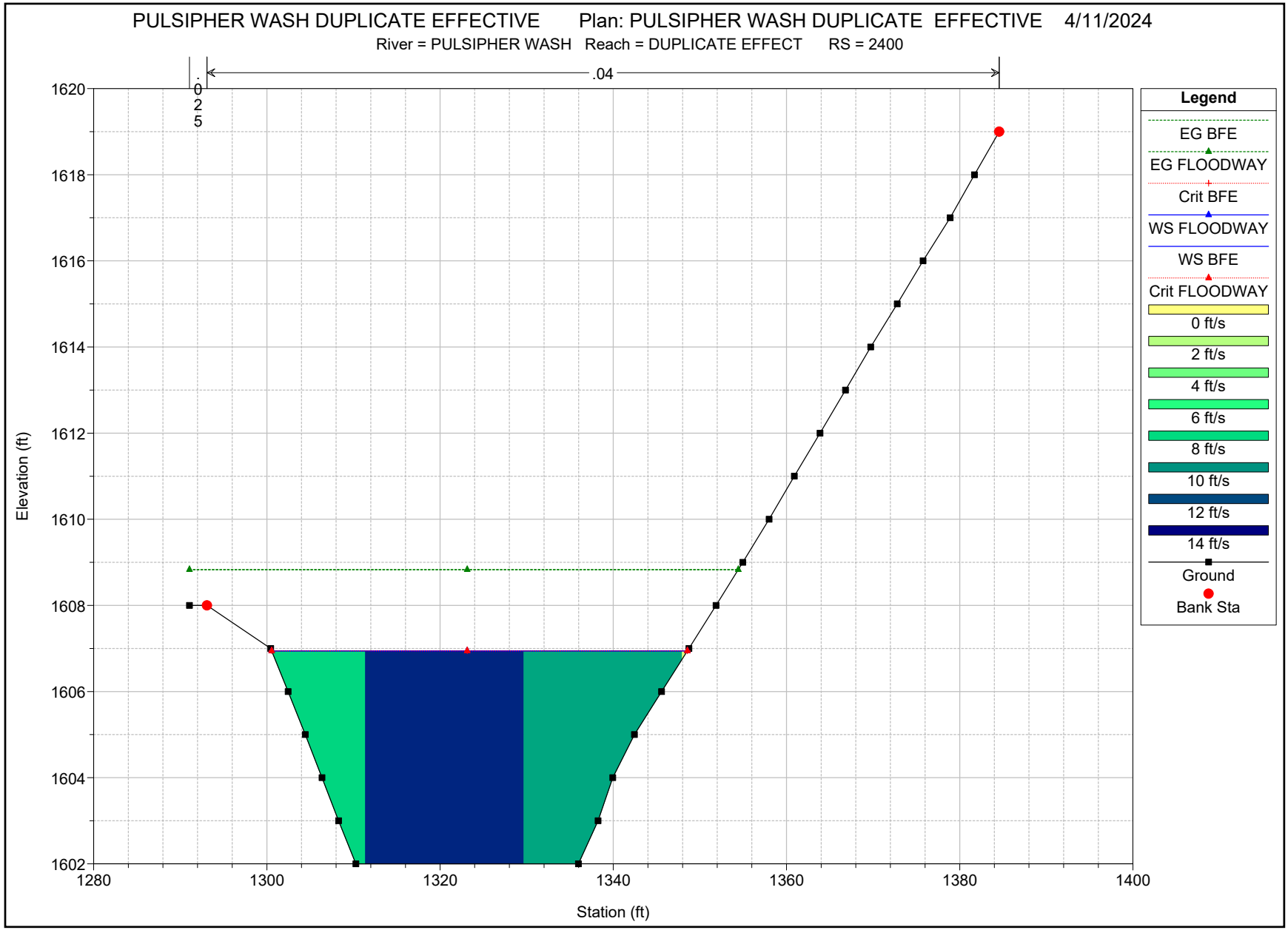
HEC-RAS Plan: PULSIPHER WASH DUPLICATE EFFECTIVE River: PULSIPHER WASH Reach: DUPLICATE EFFECT (Continued)

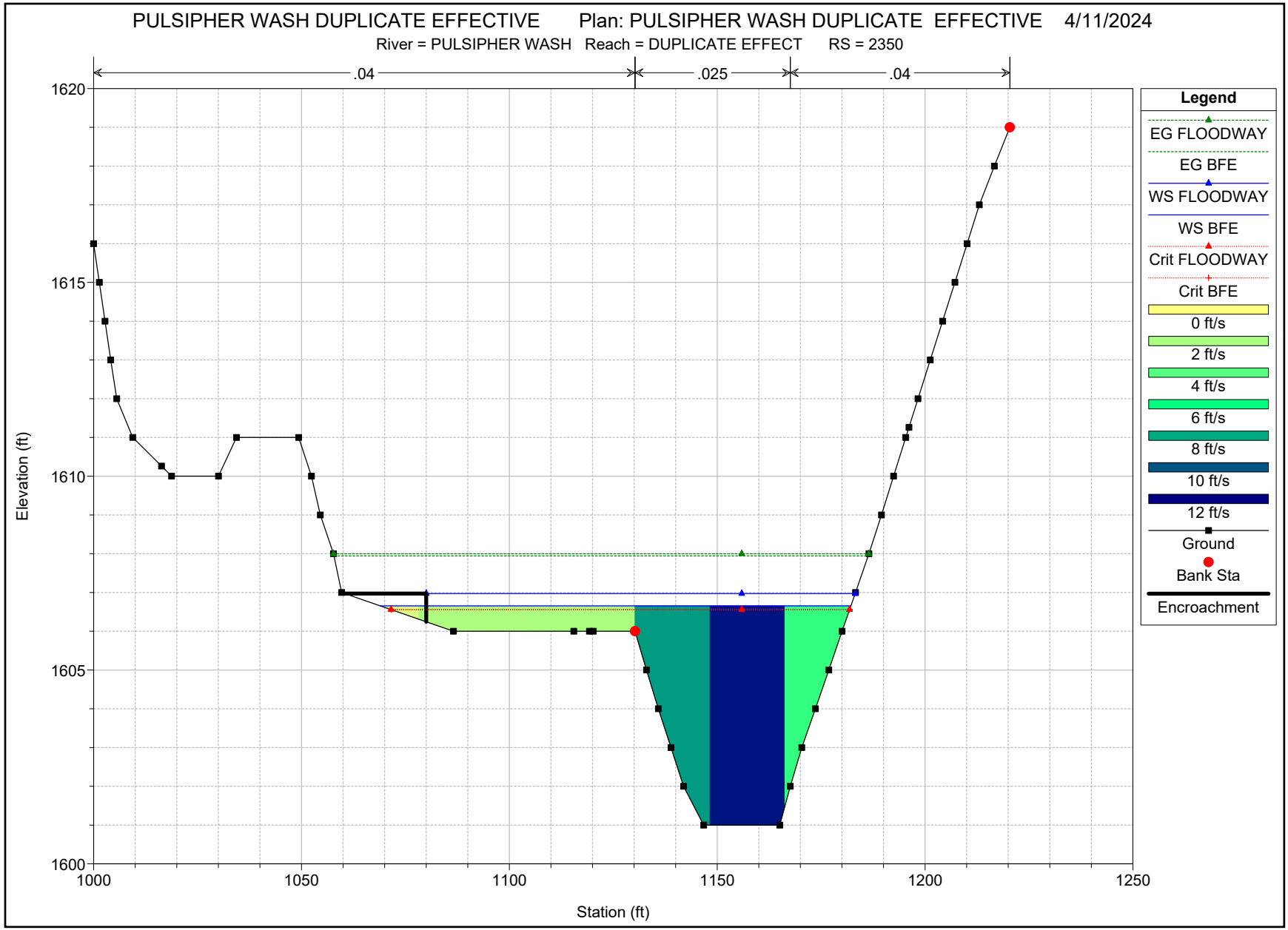
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
DUPLICATE EFFECT	550		Bridge									
DUPLICATE EFFECT	500	BFE	1595.0	1567.4	1571.2	1571.2	1573.1	0.002716	11.2	143.0	37	1.01
DUPLICATE EFFECT	500	FLOODWAY	1595.0	1567.4	1571.2	1571.2	1573.1	0.002708	11.1	143.1	37	1.00
DUPLICATE EFFECT	400	BFE	1595.0	1564.0	1568.6	1568.6	1569.9	0.009819	9.2	172.7	66	1.01
DUPLICATE EFFECT	400	FLOODWAY	1595.0	1564.0	1569.2	1569.2	1571.7	0.011457	12.7	125.7	25	1.00
DUPLICATE EFFECT	300	BFE	1595.0	1562.0	1564.8	1564.8	1565.7	0.010752	7.7	207.3	113	1.00
DUPLICATE EFFECT	300	FLOODWAY	1595.0	1562.0	1565.7	1565.7	1567.5	0.010499	10.8	147.2	40	1.00
DUPLICATE EFFECT	200	BFE	1595.0	1557.0	1559.2	1559.2	1560.0	0.011647	7.0	228.8	153	1.01
DUPLICATE EFFECT	200	FLOODWAY	1595.0	1557.0	1559.9	1559.9	1561.4	0.010579	9.8	163.5	56	1.01

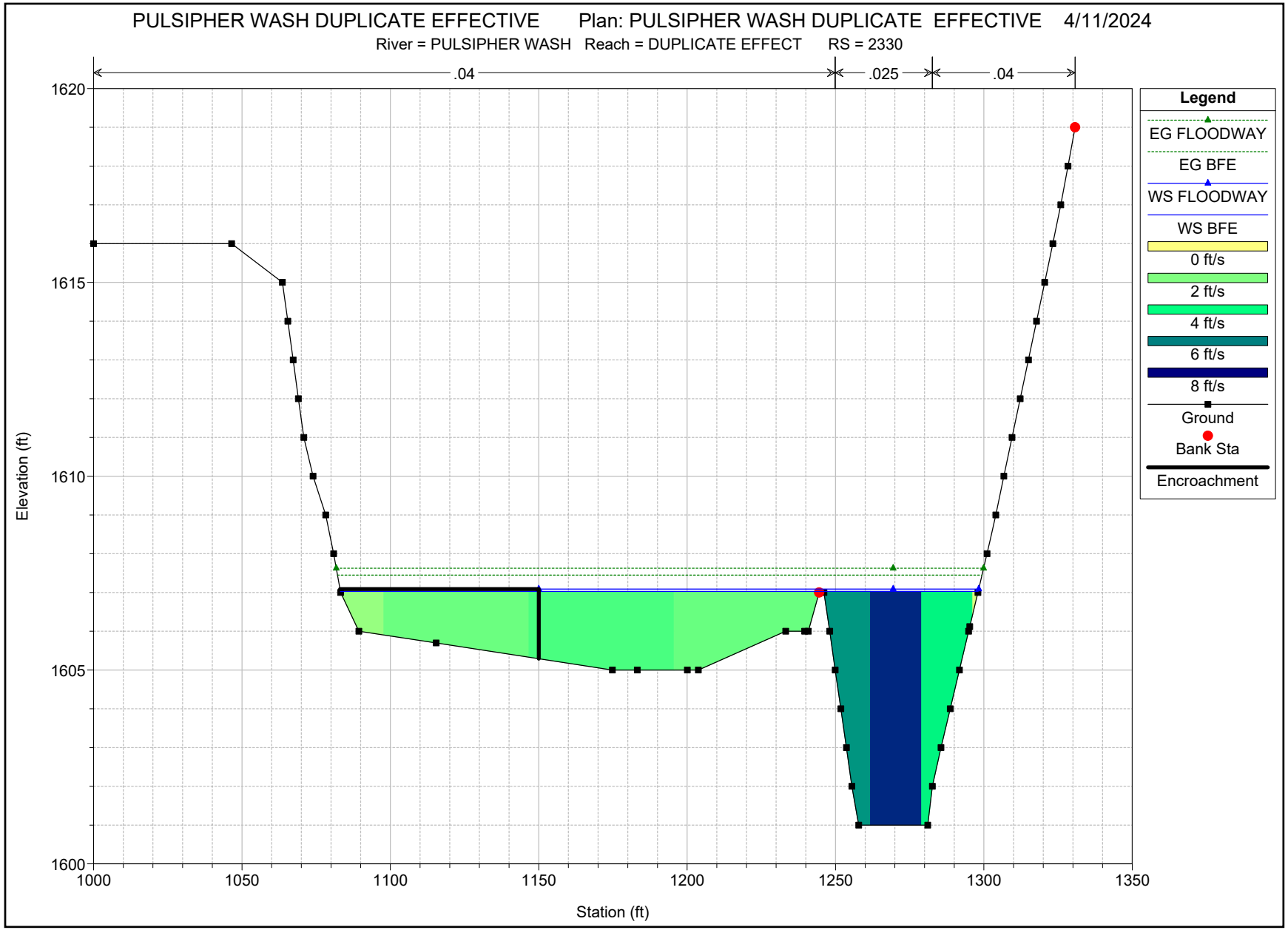

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 200
.03
Elevation (ft)
1568
1566
1564
1562
1560
1558
1556
1400
1450
1500
1550
1600
1650
1700
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
Crit FLOODWAY
WS BFE
Crit BFE
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment

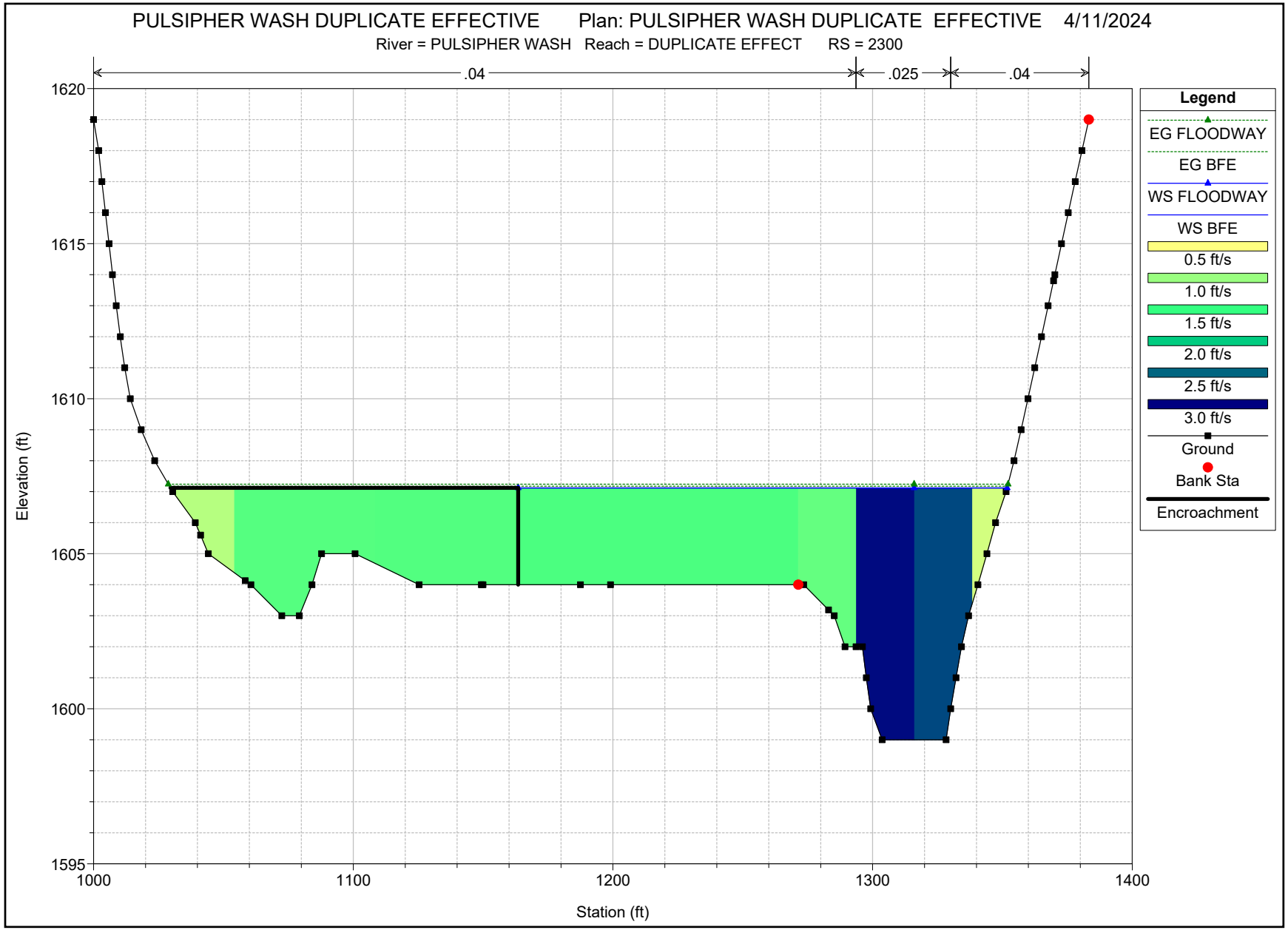

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 2590
.04
.025
.04
Elevation (ft)
1620
1618
1616
1614
1612
1610
1608
1000
1020
1040
1060
1080
1100
1120
1140
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
Crit FLOODWAY
WS BFE
Crit BFE
7.0 ft/s
7.5 ft/s
8.0 ft/s
8.5 ft/s
9.0 ft/s
9.5 ft/s
10.0 ft/s
Ground
Bank Sta
Encroachment

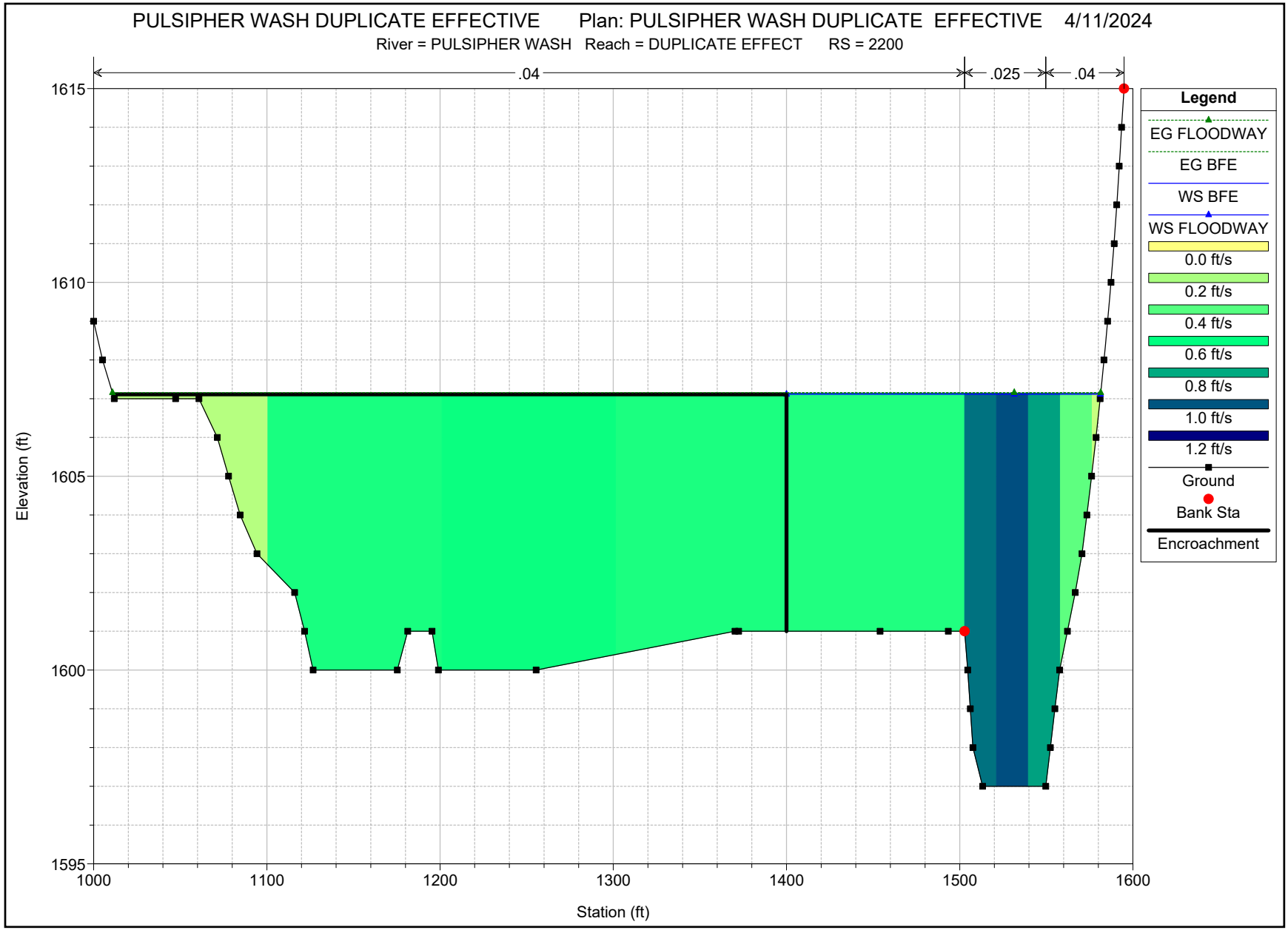

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 2500
.04
.025
.04
Legend
EG BFE
EG FLOODWAY
WS FLOODWAY
WS BFE
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)
1620
1618
1616
1614
1612
1610
1608
1606
1604
1602
1000
1020
1040
1060
1080
1100
1120
1140

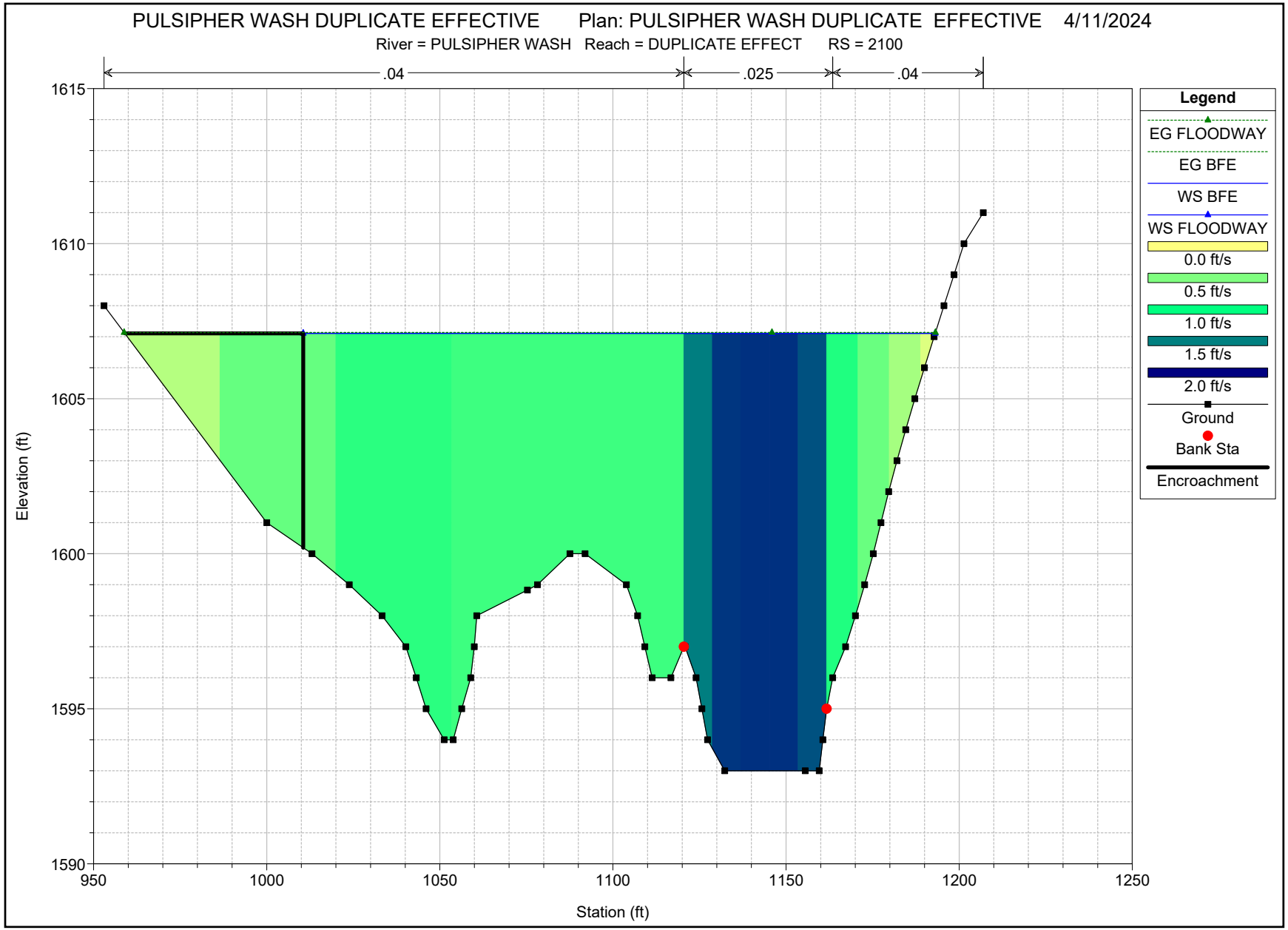

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 2400
.025
.04
Legend
EG BFE
EG FLOODWAY
Crit BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
14 ft/s
Ground
Bank Sta
Elevation (ft)
1620
1618
1616
1614
1612
1610
1608
1606
1604
1602
1280
1300
1320
1340
1360
1380
1400
Station (ft)

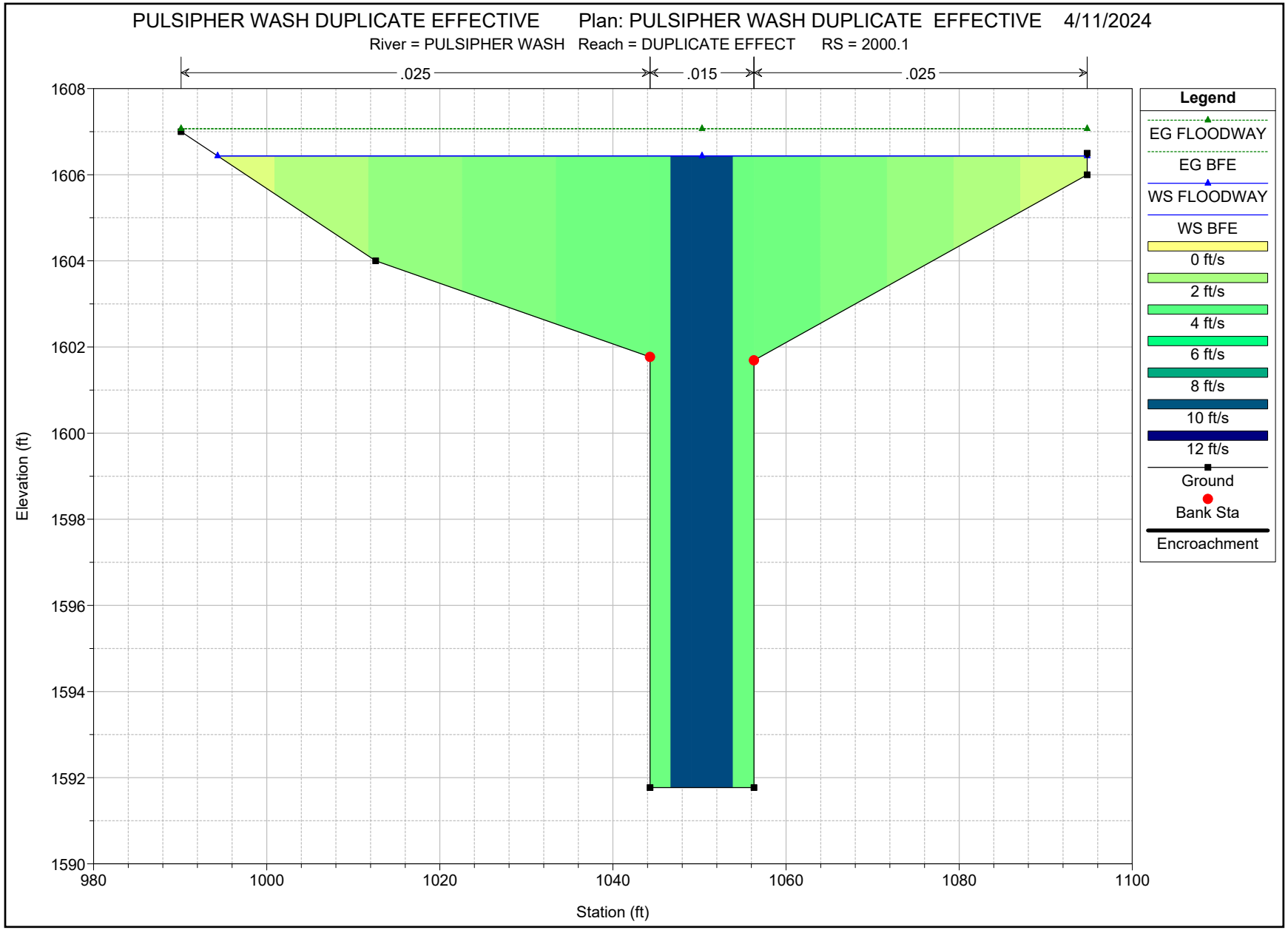

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 2350
.04
.025
.04
1620
1615
1610
1605
1600
Elevation (ft)
1000
1050
1100
1150
1200
1250
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Bank Sta
Encroachment

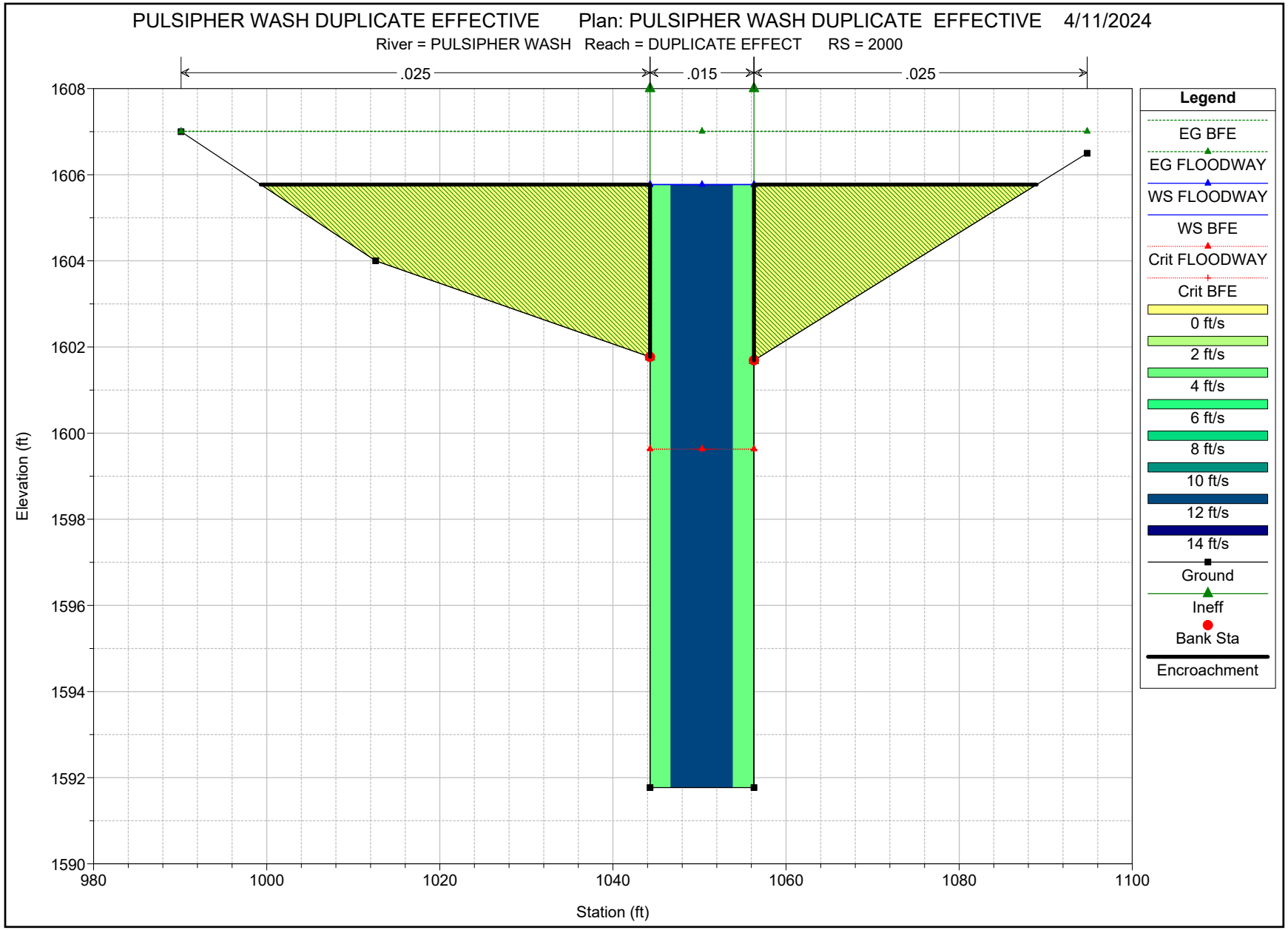

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 2330
.04
.025
.04
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
Elevation (ft)
1620
1615
1610
1605
1600
1000
1050
1100
1150
1200
1250
1300
1350
Station (ft)

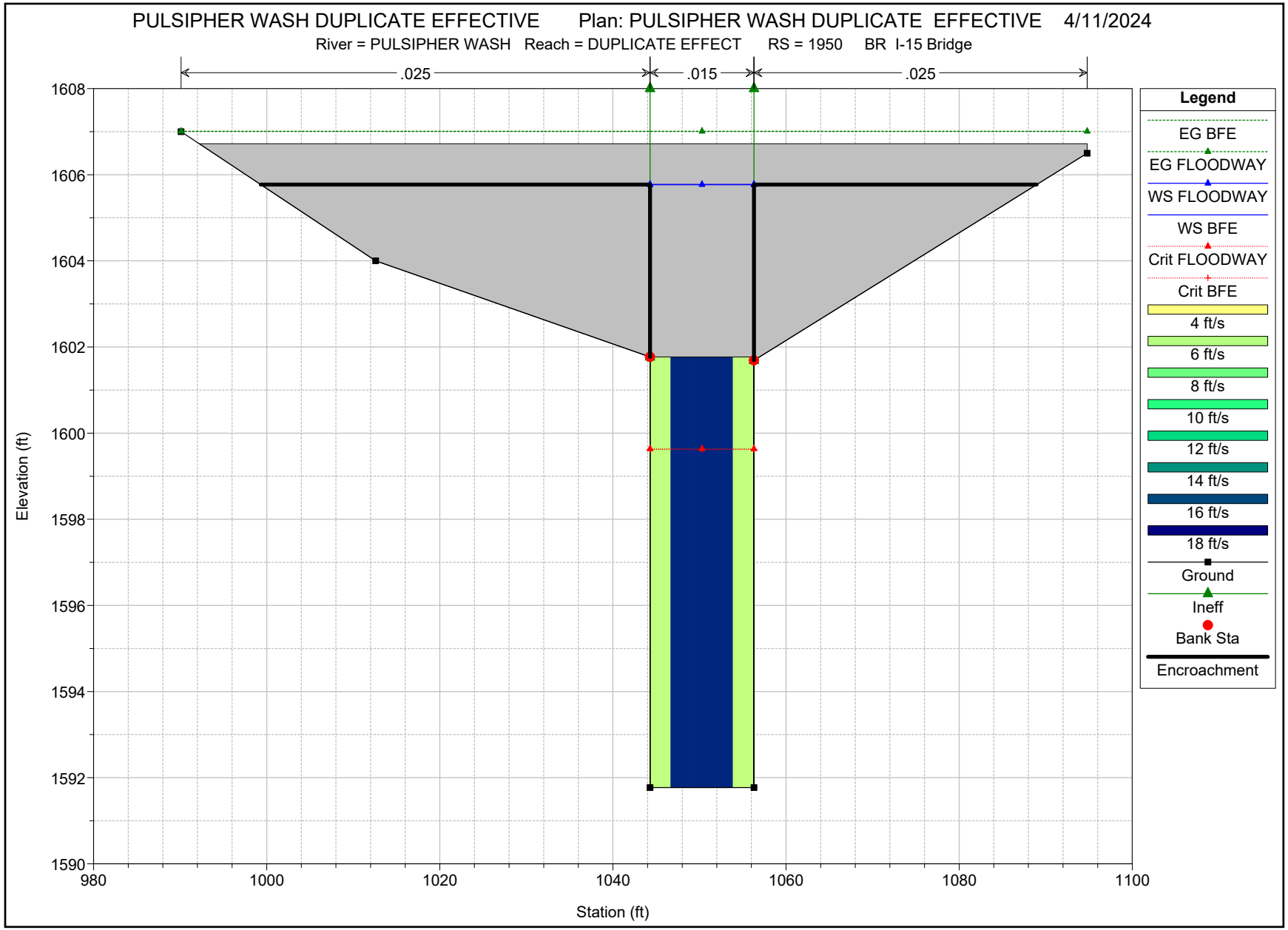

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 2300
.04
.025
.04
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
0.5 ft/s
1.0 ft/s
1.5 ft/s
2.0 ft/s
2.5 ft/s
3.0 ft/s
Ground
Bank Sta
Encroachment
Elevation (ft)
1620
1615
1610
1605
1600
1595
1000
1100
1200
1300
1400
Station (ft)

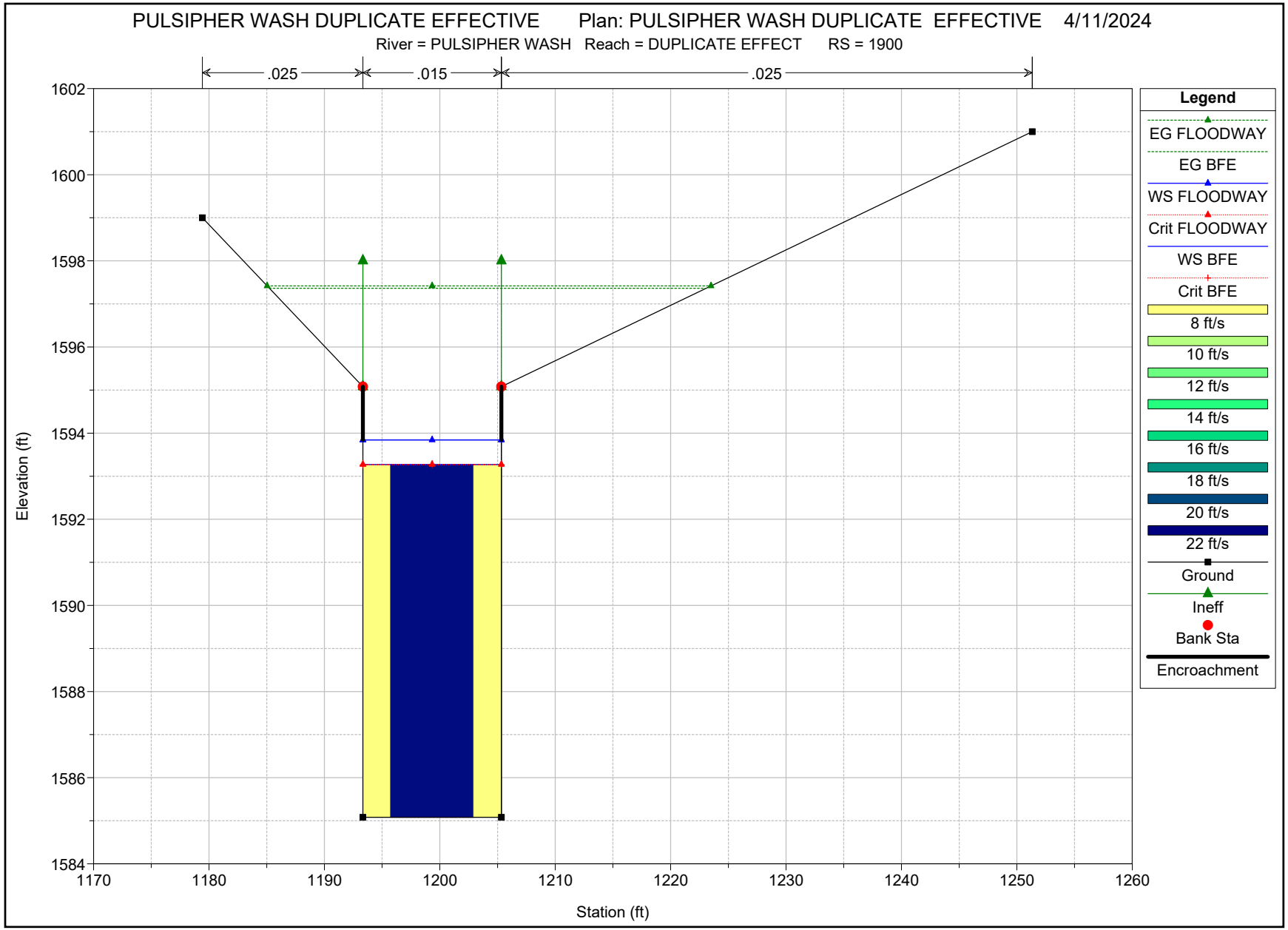

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 2200
.04
.025
.04
Legend
EG FLOODWAY
EG BFE
WS BFE
WS FLOODWAY
0.0 ft/s
0.2 ft/s
0.4 ft/s
0.6 ft/s
0.8 ft/s
1.0 ft/s
1.2 ft/s
Ground
Bank Sta
Encroachment
Elevation (ft)
1615
1610
1605
1600
1595
1000
1100
1200
1300
1400
1500
1600
Station (ft)

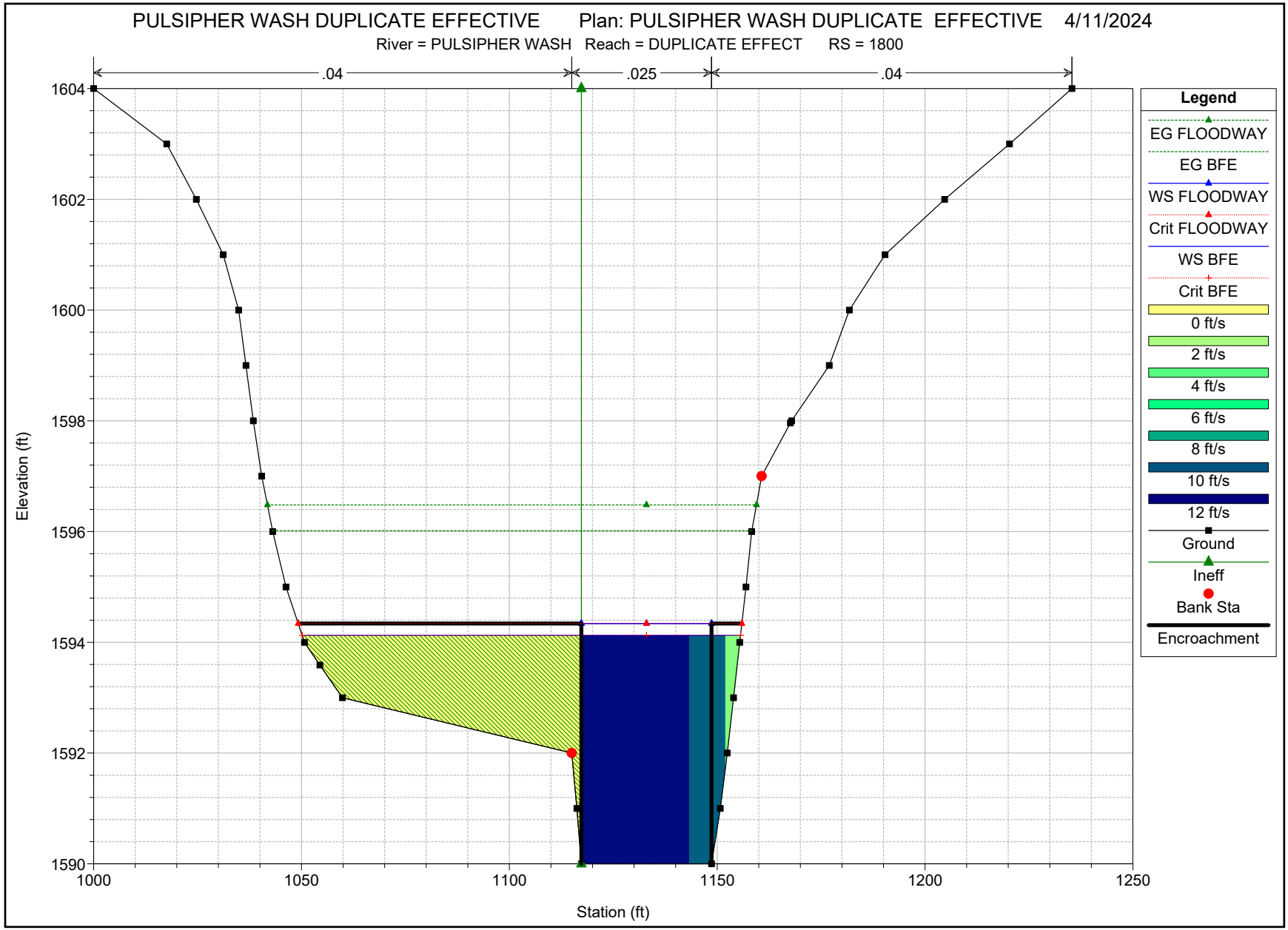

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 2100
.04
.025
.04
Legend
EG FLOODWAY
EG BFE
WS BFE
WS FLOODWAY
0.0 ft/s
0.5 ft/s
1.0 ft/s
1.5 ft/s
2.0 ft/s
Ground
Bank Sta
Encroachment
Elevation (ft)
1615
1610
1605
1600
1595
1590
950
1000
1050
1100
1150
1200
1250
Station (ft)

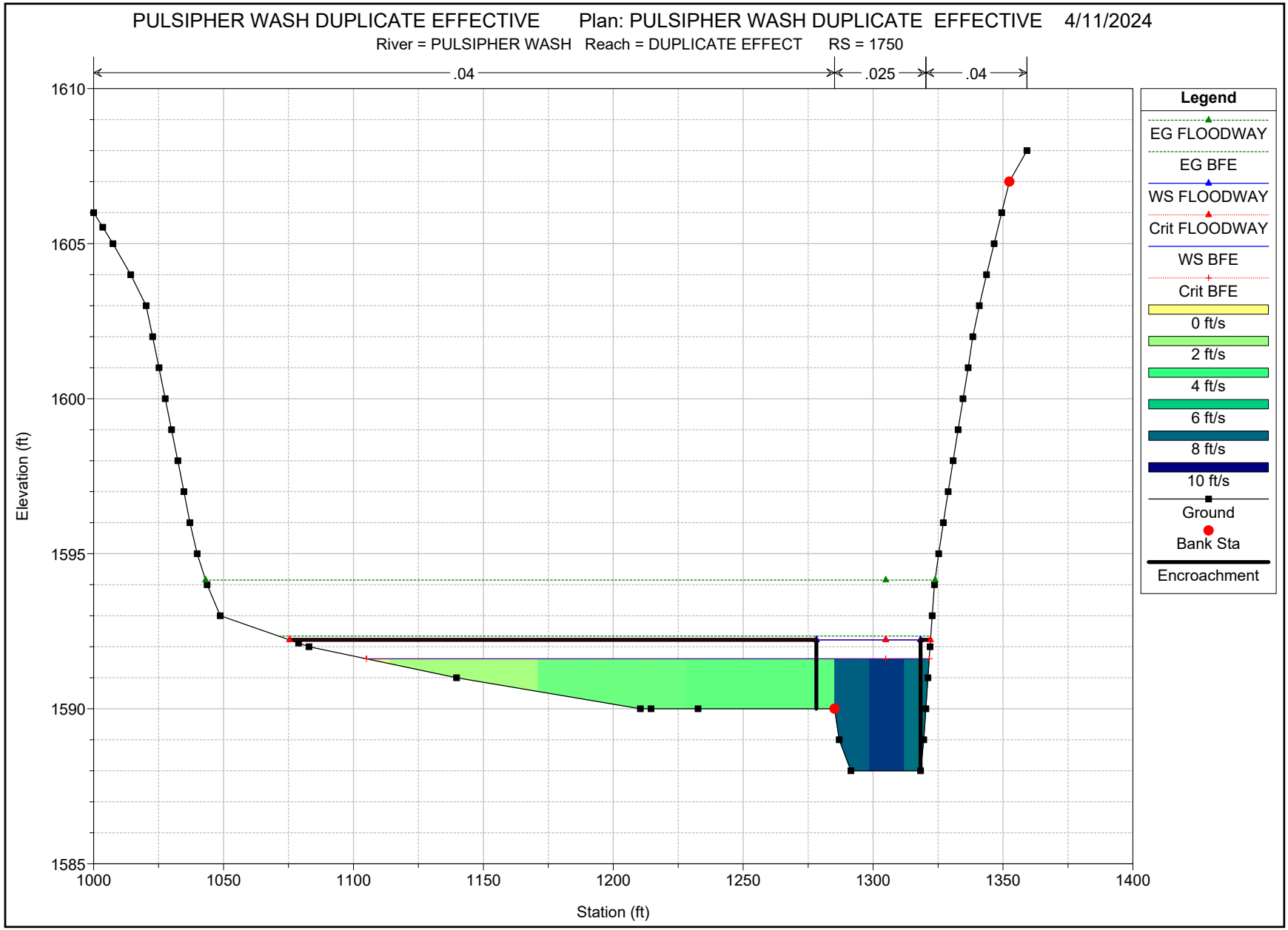

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 2000.1
.025
.015
.025
Elevation (ft)
1608
1606
1604
1602
1600
1598
1596
1594
1592
1590
980
1000
1020
1040
1060
1080
1100
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Bank Sta
Encroachment

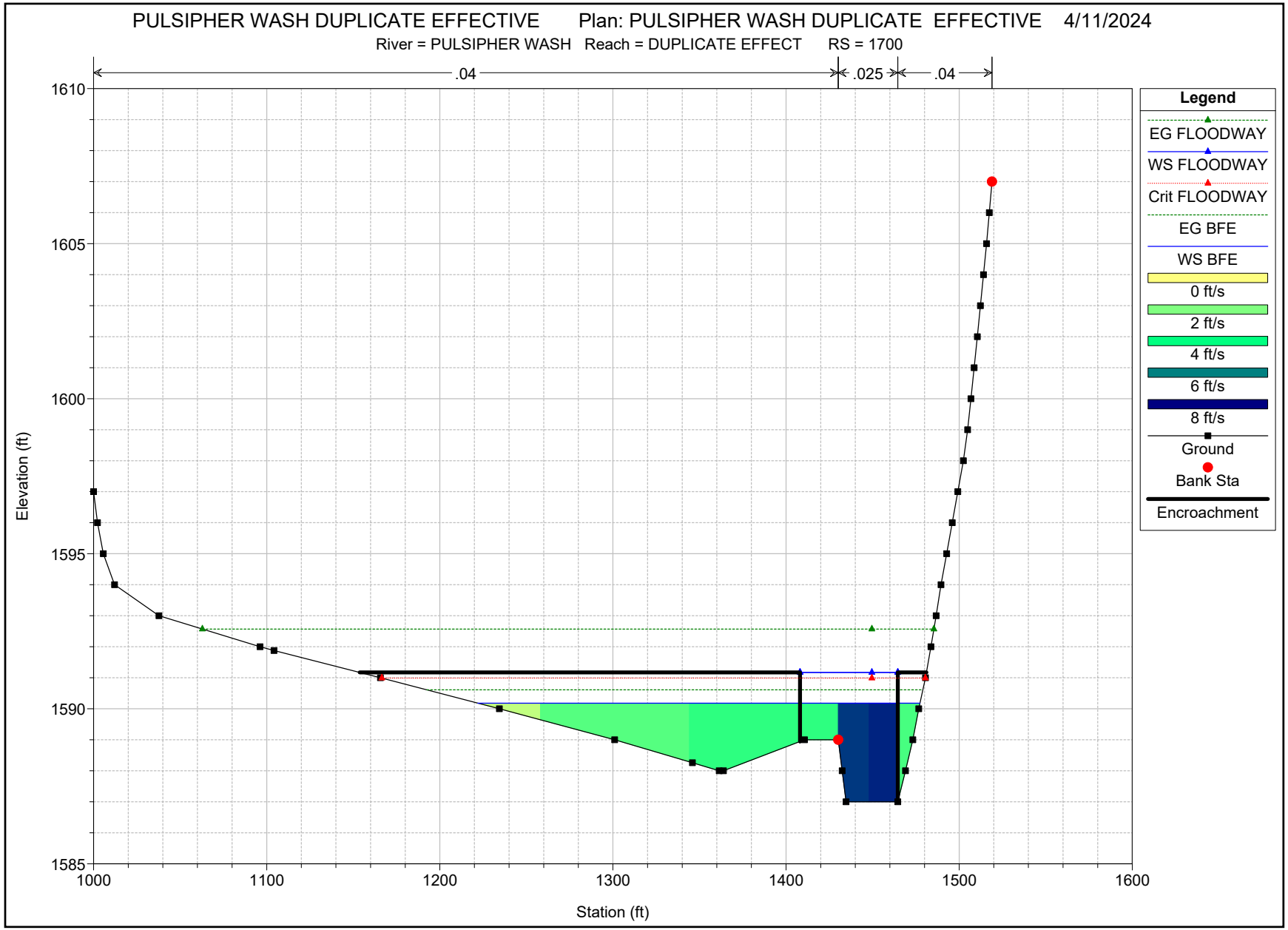

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 2000
.025
.015
.025
Elevation (ft)
1608
1606
1604
1602
1600
1598
1596
1594
1592
1590
980
1000
1020
1040
1060
1080
1100
Station (ft)
Legend
EG BFE
EG FLOODWAY
WS FLOODWAY
WS BFE
Crit FLOODWAY
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
14 ft/s
Ground
Ineff
Bank Sta
Encroachment

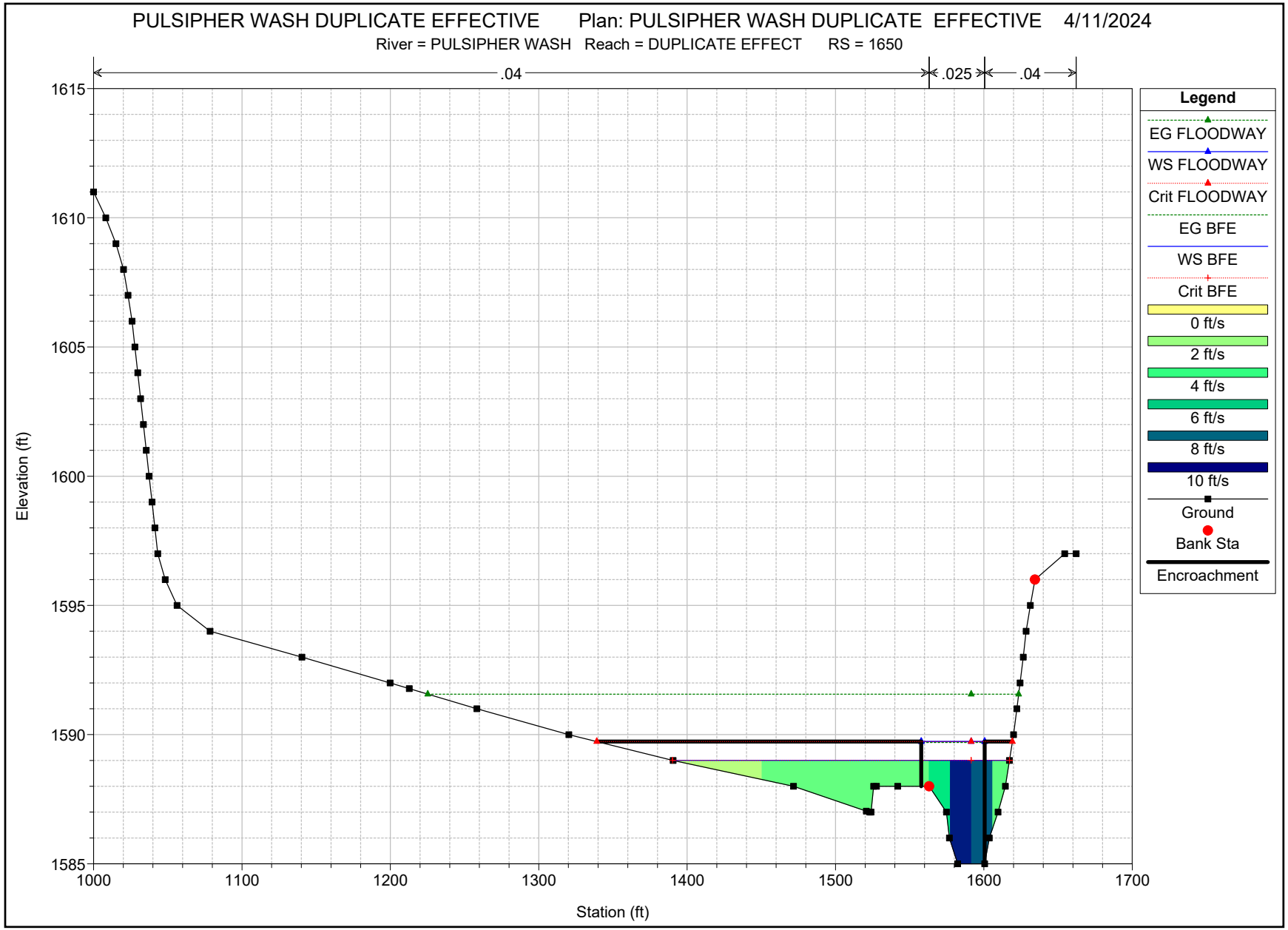

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 1950 BR I-15 Bridge
.025
.015
.025
Elevation (ft)
1608
1606
1604
1602
1600
1598
1596
1594
1592
1590
980
1000
1020
1040
1060
1080
1100
Station (ft)
Legend
EG BFE
EG FLOODWAY
WS FLOODWAY
WS BFE
Crit FLOODWAY
Crit BFE
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
14 ft/s
16 ft/s
18 ft/s
Ground
Ineff
Bank Sta
Encroachment

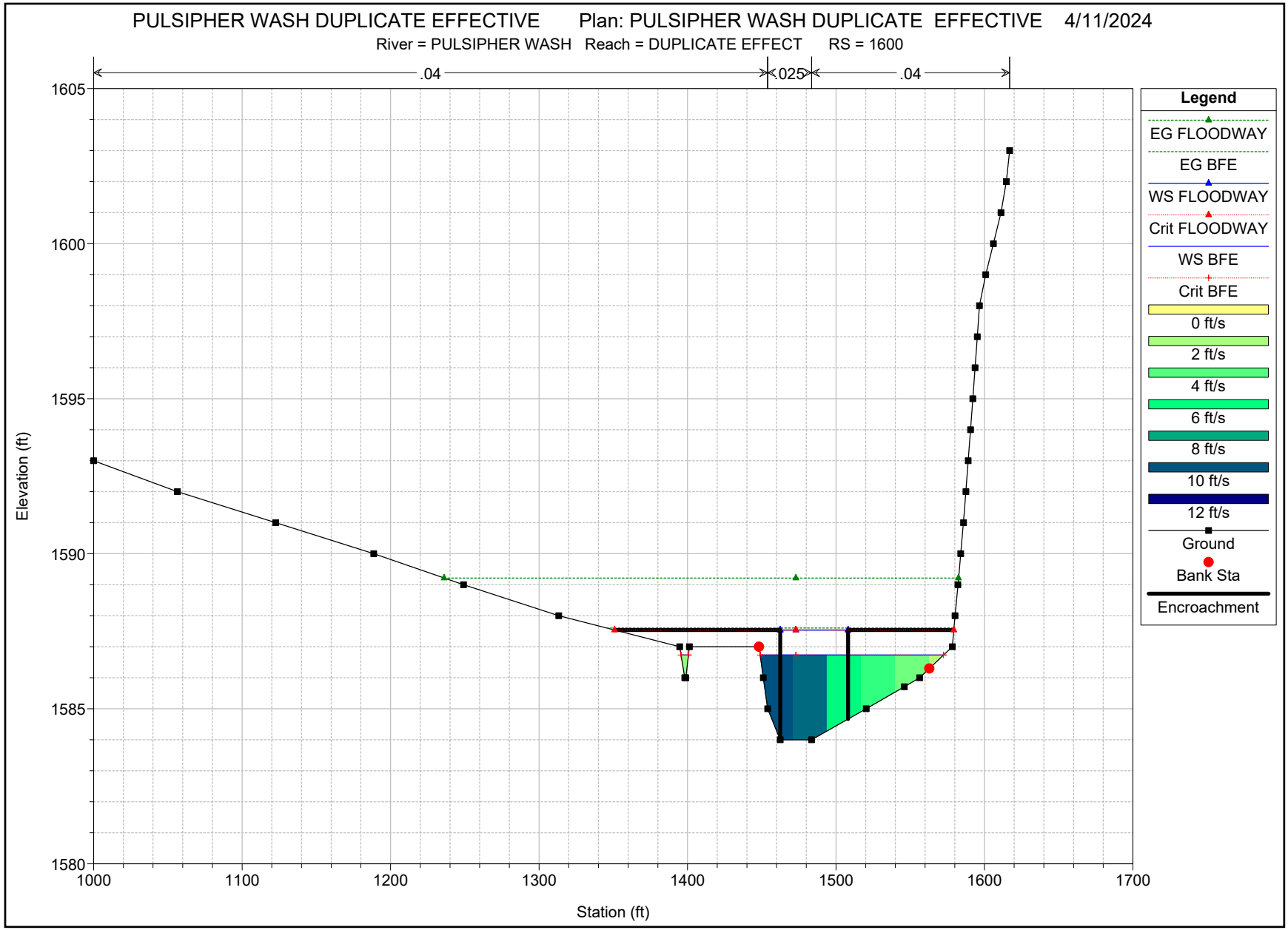

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 1900
.025
.015
.025
Elevation (ft)
Station (ft)
1602
1600
1598
1596
1594
1592
1590
1588
1586
1584
1170
1180
1190
1200
1210
1220
1230
1240
1250
1260
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
Crit FLOODWAY
WS BFE
Crit BFE
8 ft/s
10 ft/s
12 ft/s
14 ft/s
16 ft/s
18 ft/s
20 ft/s
22 ft/s
Ground
Ineff
Bank Sta
Encroachment

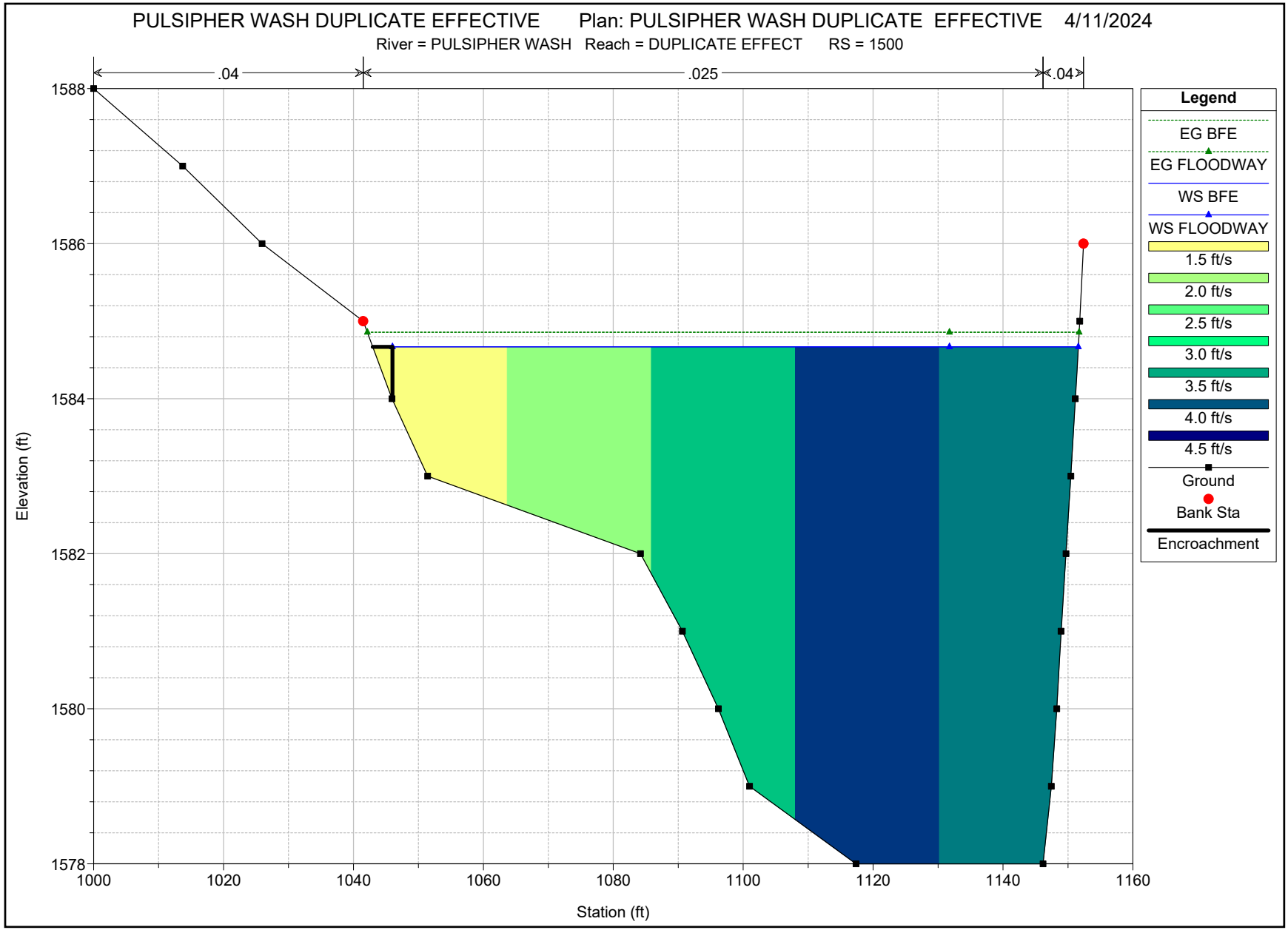

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 1800
.04
.025
.04
1604
1602
1600
1598
1596
1594
1592
1590
Elevation (ft)
1000
1050
1100
1150
1200
1250
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
Crit FLOODWAY
WS BFE
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Ineff
Bank Sta
Encroachment

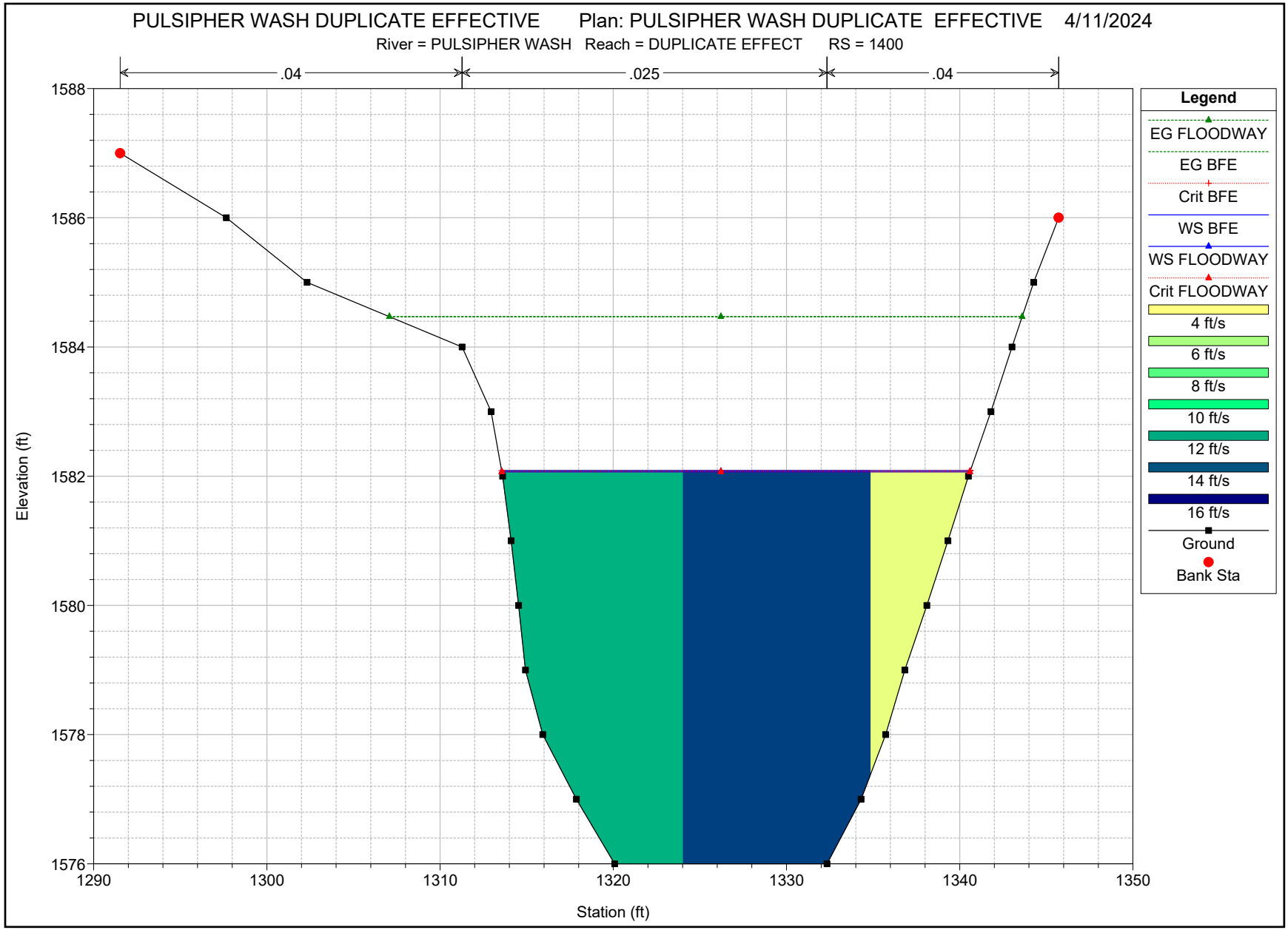

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 1750
.04
.025
.04
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
Crit FLOODWAY
WS BFE
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
Ground
Bank Sta
Encroachment
Elevation (ft)
1610
1605
1600
1595
1590
1585
1000
1050
1100
1150
1200
1250
1300
1350
1400
Station (ft)

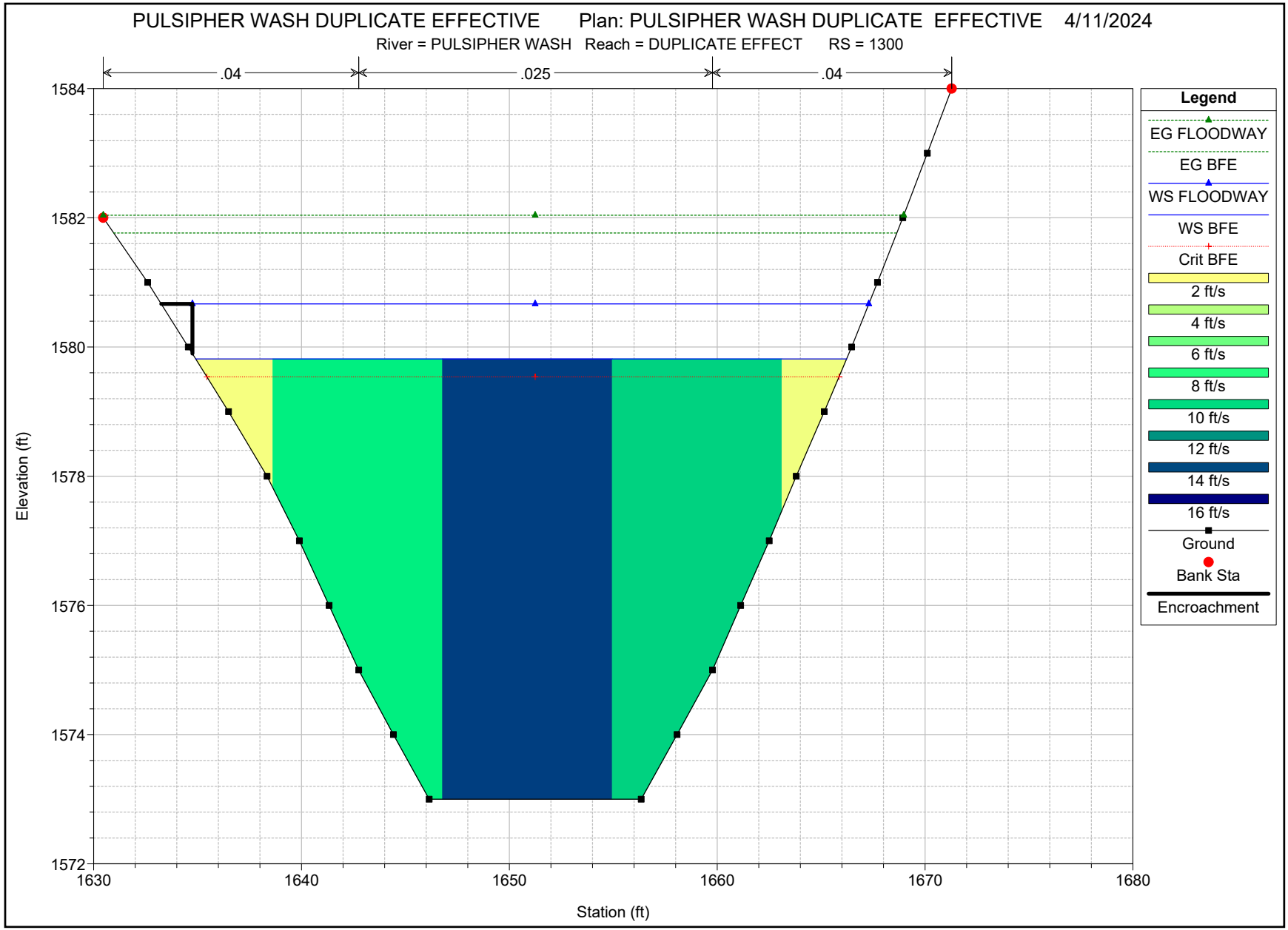

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 1700
.04
.025
.04
Legend
EG FLOODWAY
WS FLOODWAY
Crit FLOODWAY
EG BFE
WS BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
Elevation (ft)
1610
1605
1600
1595
1590
1585
1000
1100
1200
1300
1400
1500
1600
Station (ft)

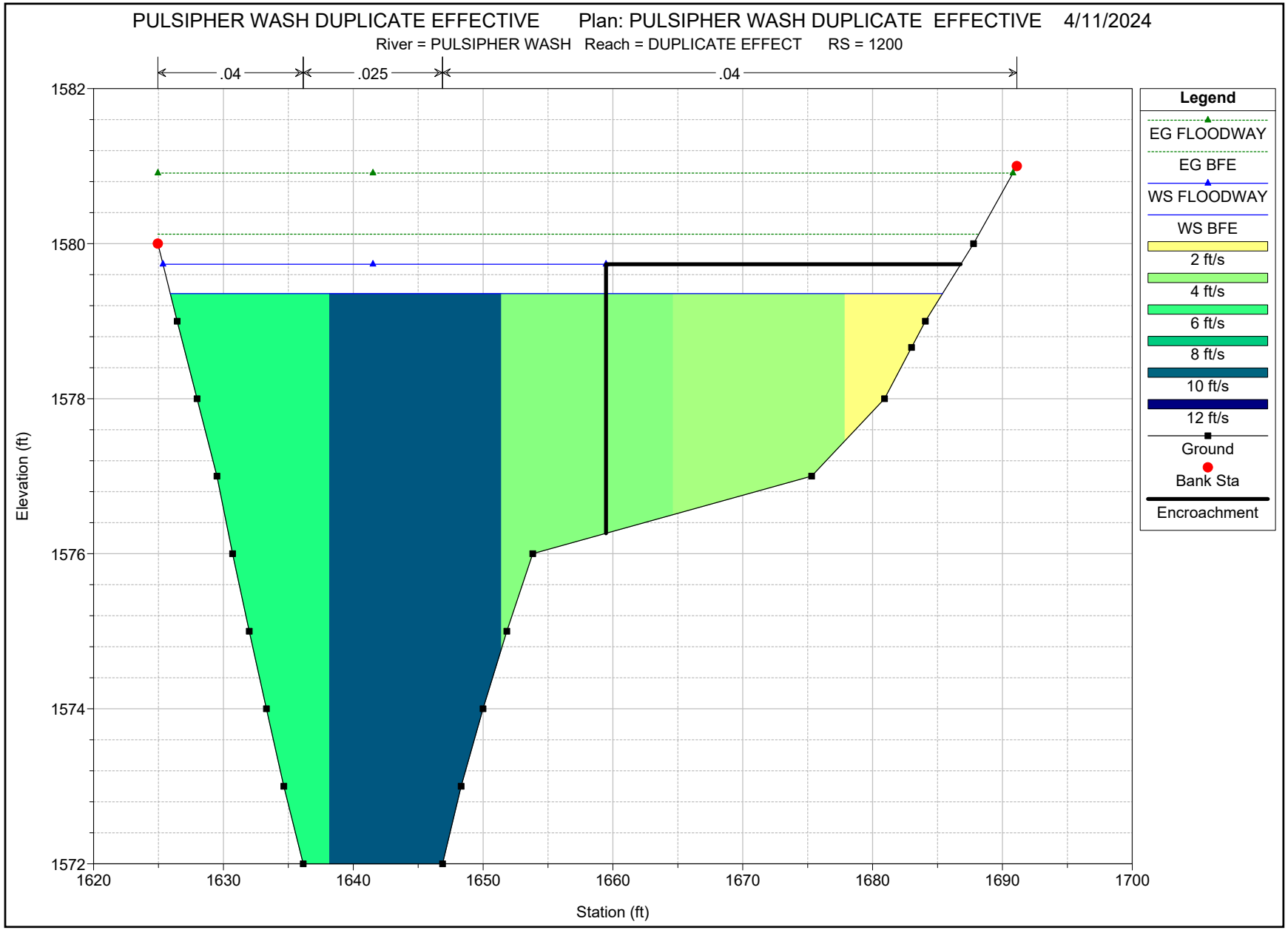

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 1650
.04
.025
.04
Elevation (ft)
1615
1610
1605
1600
1595
1590
1585
1000
1100
1200
1300
1400
1500
1600
1700
Station (ft)
Legend
EG FLOODWAY
WS FLOODWAY
Crit FLOODWAY
EG BFE
WS BFE
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
Ground
Bank Sta
Encroachment

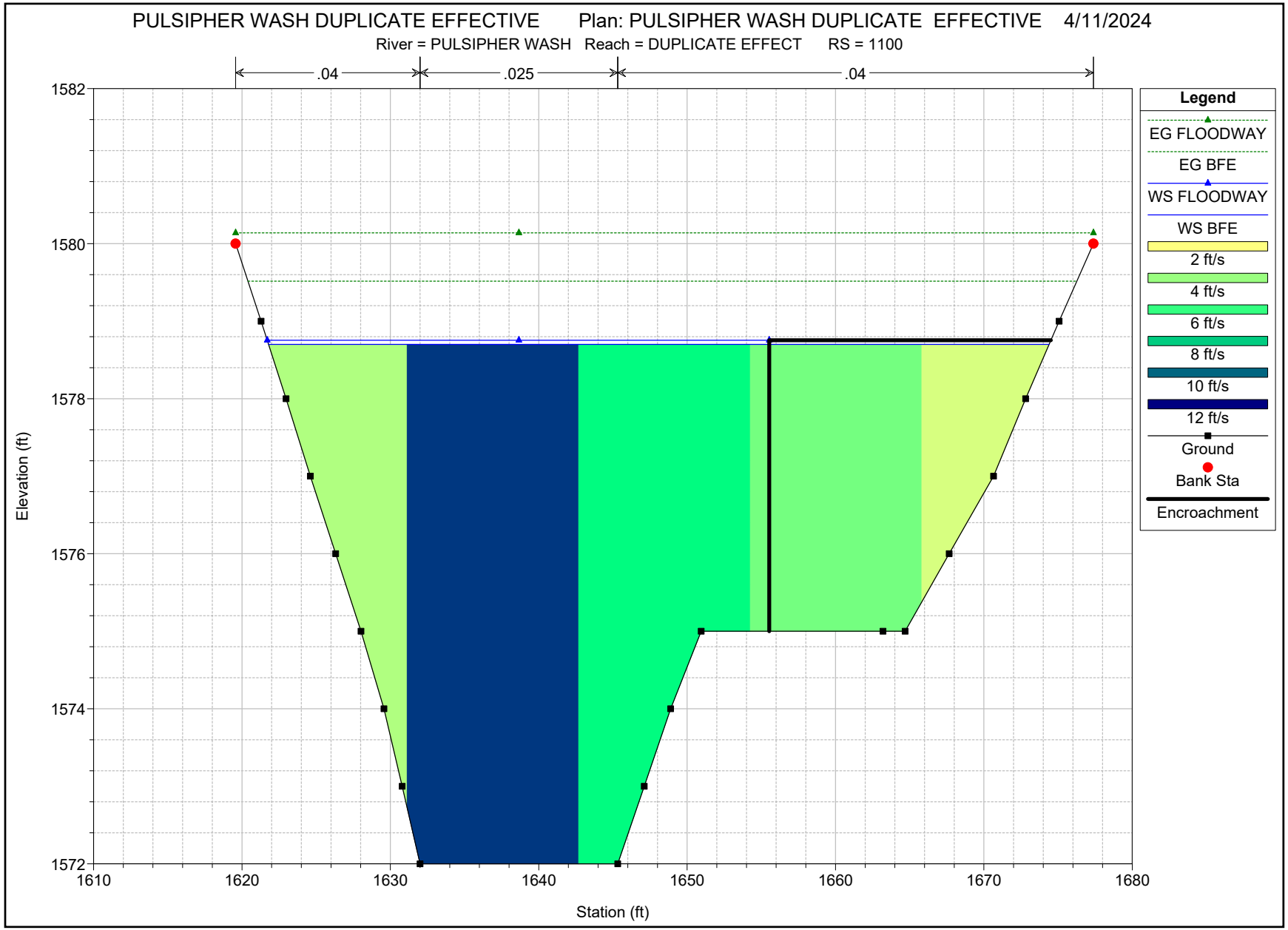

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 1600
.04
.025
.04
Elevation (ft)
1605
1600
1595
1590
1585
1580
1000
1100
1200
1300
1400
1500
1600
1700
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
Crit FLOODWAY
WS BFE
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Bank Sta
Encroachment

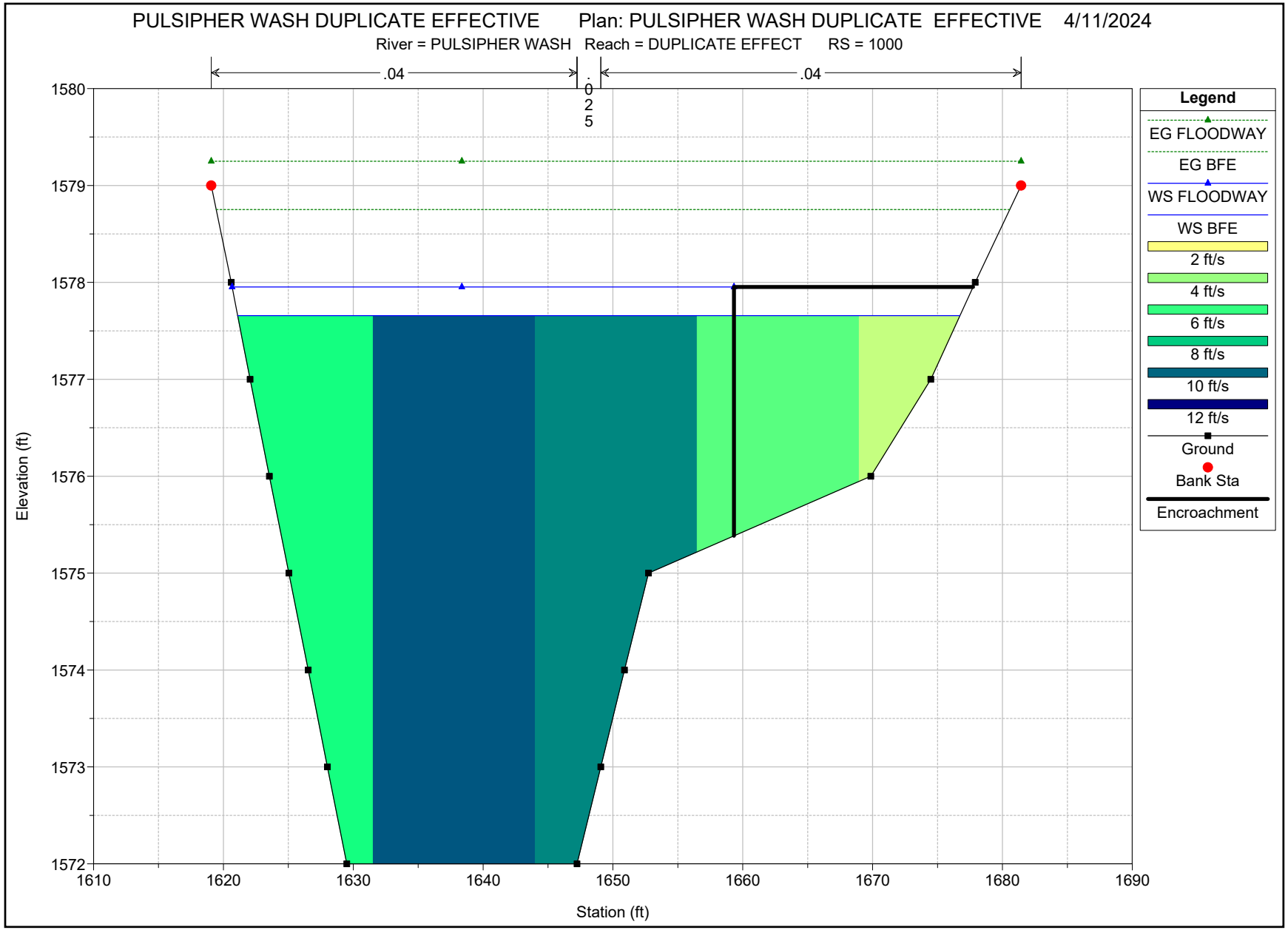

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 1500
.04
.025
.04
Legend
EG BFE
EG FLOODWAY
WS BFE
WS FLOODWAY
1.5 ft/s
2.0 ft/s
2.5 ft/s
3.0 ft/s
3.5 ft/s
4.0 ft/s
4.5 ft/s
Ground
Bank Sta
Encroachment
Elevation (ft)
1588
1586
1584
1582
1580
1578
1000
1020
1040
1060
1080
1100
1120
1140
1160
Station (ft)

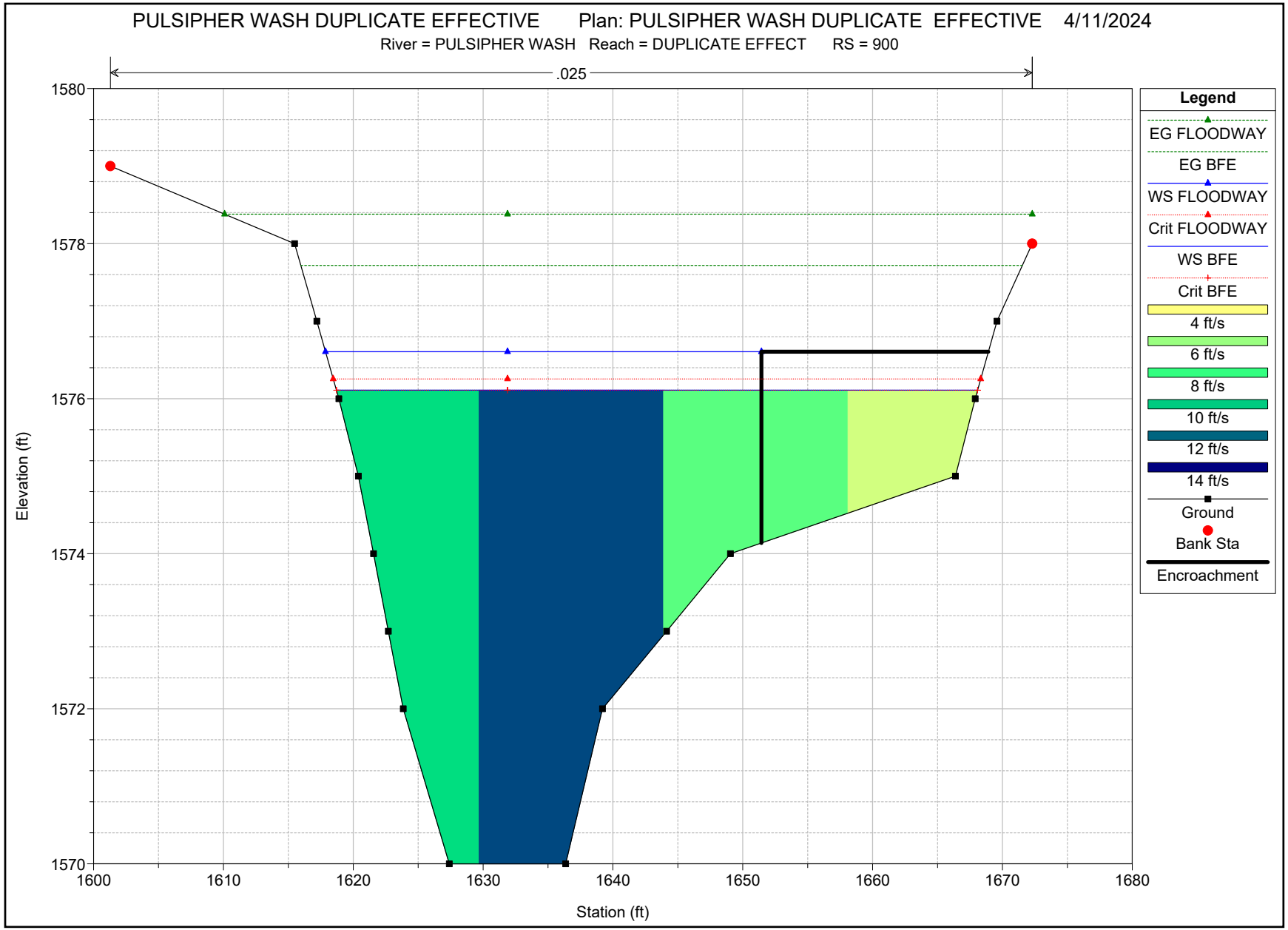

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 1400
.04
.025
.04
Elevation (ft)
1588
1586
1584
1582
1580
1578
1576
1290
1300
1310
1320
1330
1340
1350
Station (ft)
Legend
EG FLOODWAY
EG BFE
Crit BFE
WS BFE
WS FLOODWAY
Crit FLOODWAY
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
14 ft/s
16 ft/s
Ground
Bank Sta

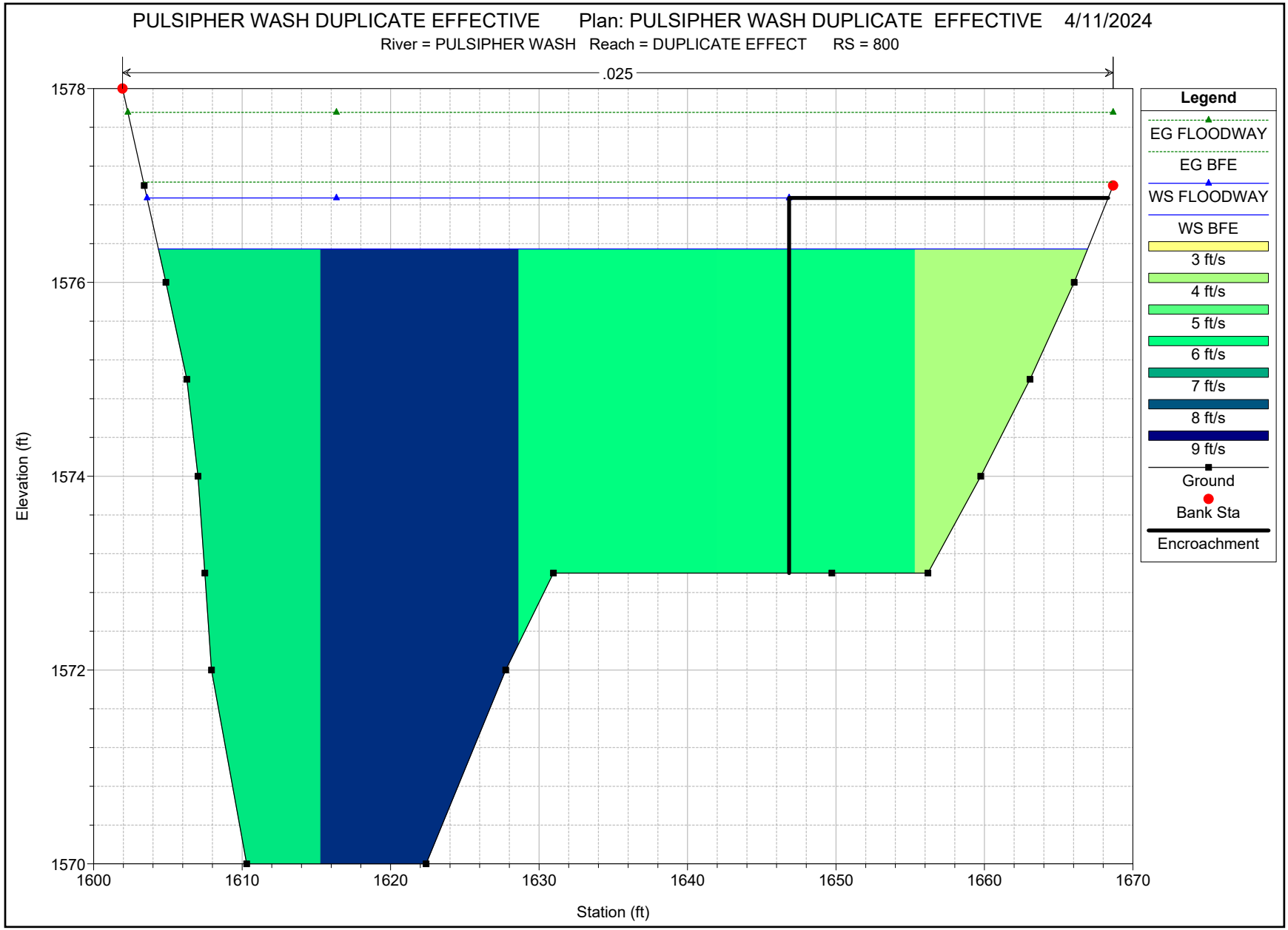

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 1300
.04
.025
.04
1584
1582
1580
1578
1576
1574
1572
Elevation (ft)
1630
1640
1650
1660
1670
1680
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit BFE
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
14 ft/s
16 ft/s
Ground
Bank Sta
Encroachment

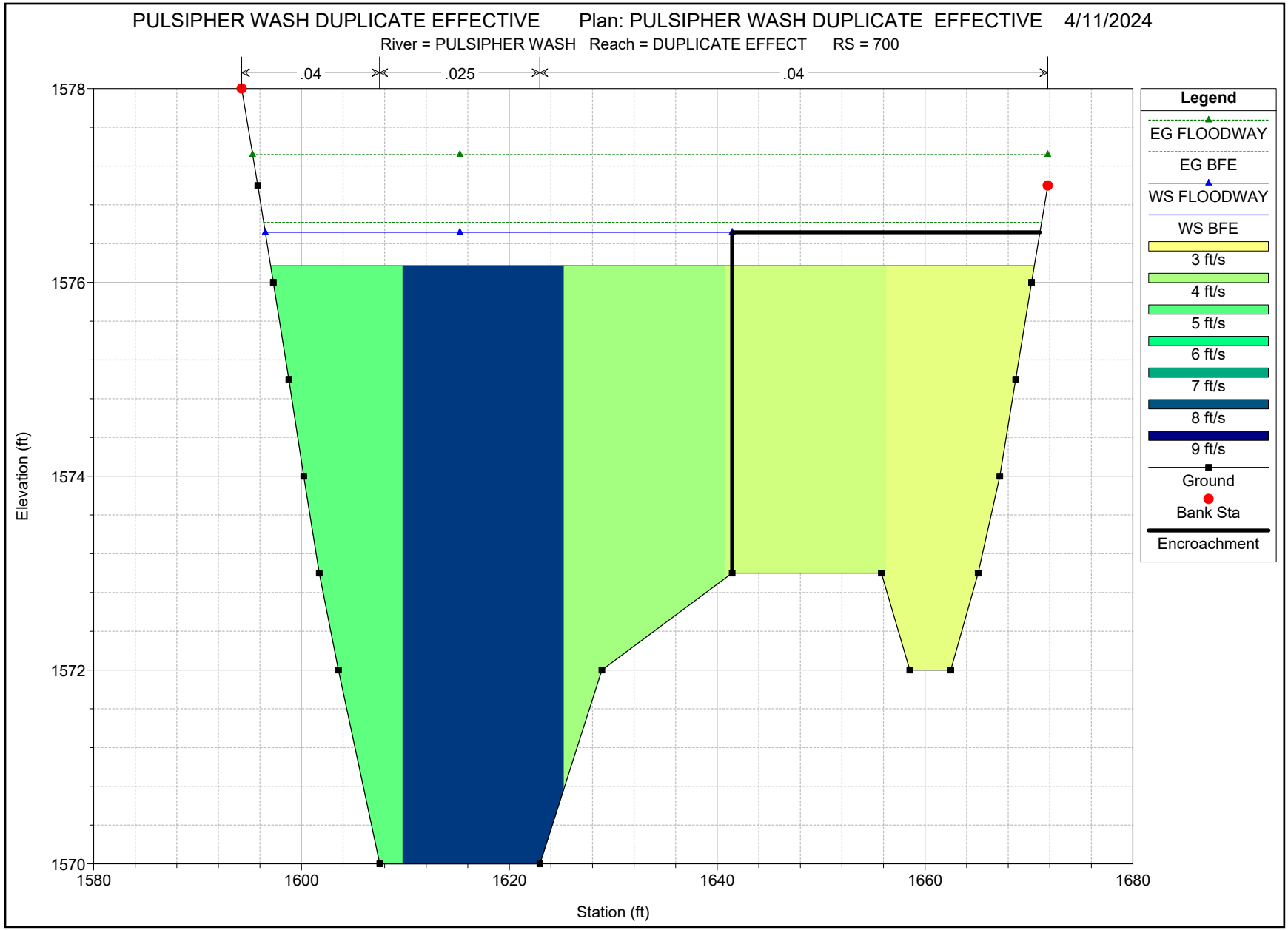

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 1200
.04
.025
.04
Elevation (ft)
1582
1580
1578
1576
1574
1572
1620
1630
1640
1650
1660
1670
1680
1690
1700
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Bank Sta
Encroachment

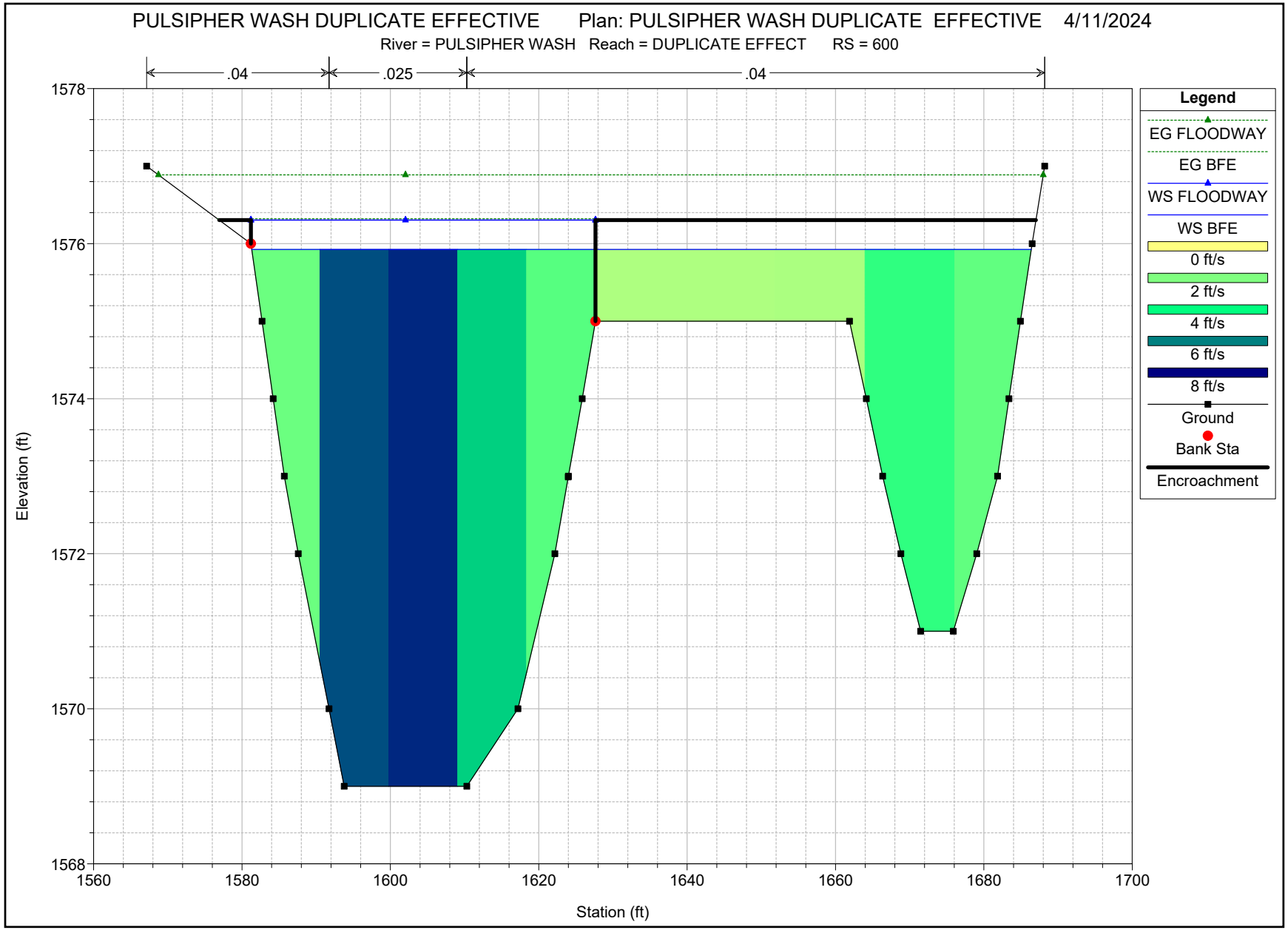

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 1100
.04
.025
.04
Elevation (ft)
1582
1580
1578
1576
1574
1572
1610
1620
1630
1640
1650
1660
1670
1680
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Bank Sta
Encroachment

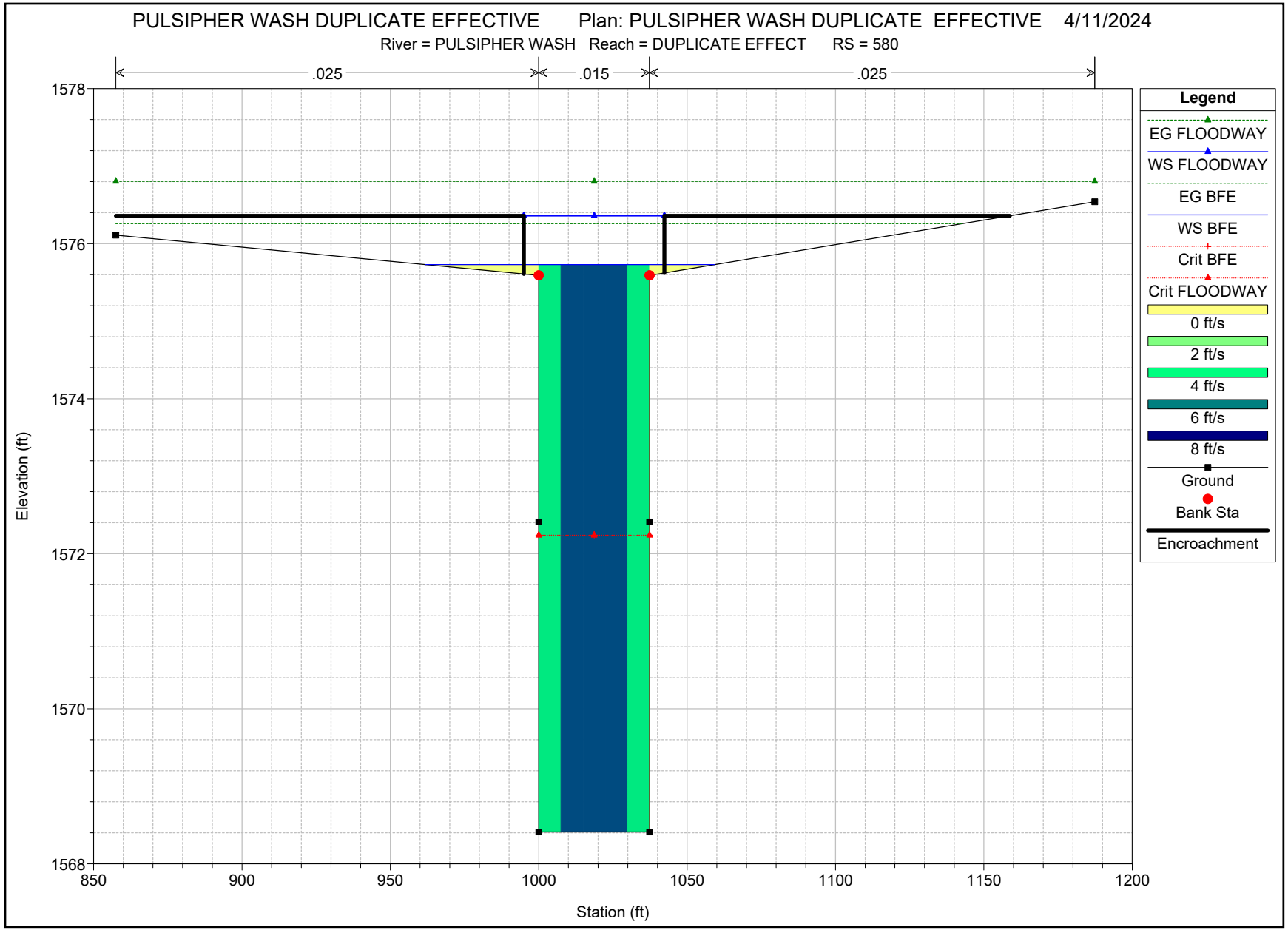

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 1000
.04
.025
.04
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Bank Sta
Encroachment
Elevation (ft)
1580
1579
1578
1577
1576
1575
1574
1573
1572
1610
1620
1630
1640
1650
1660
1670
1680
1690
Station (ft)

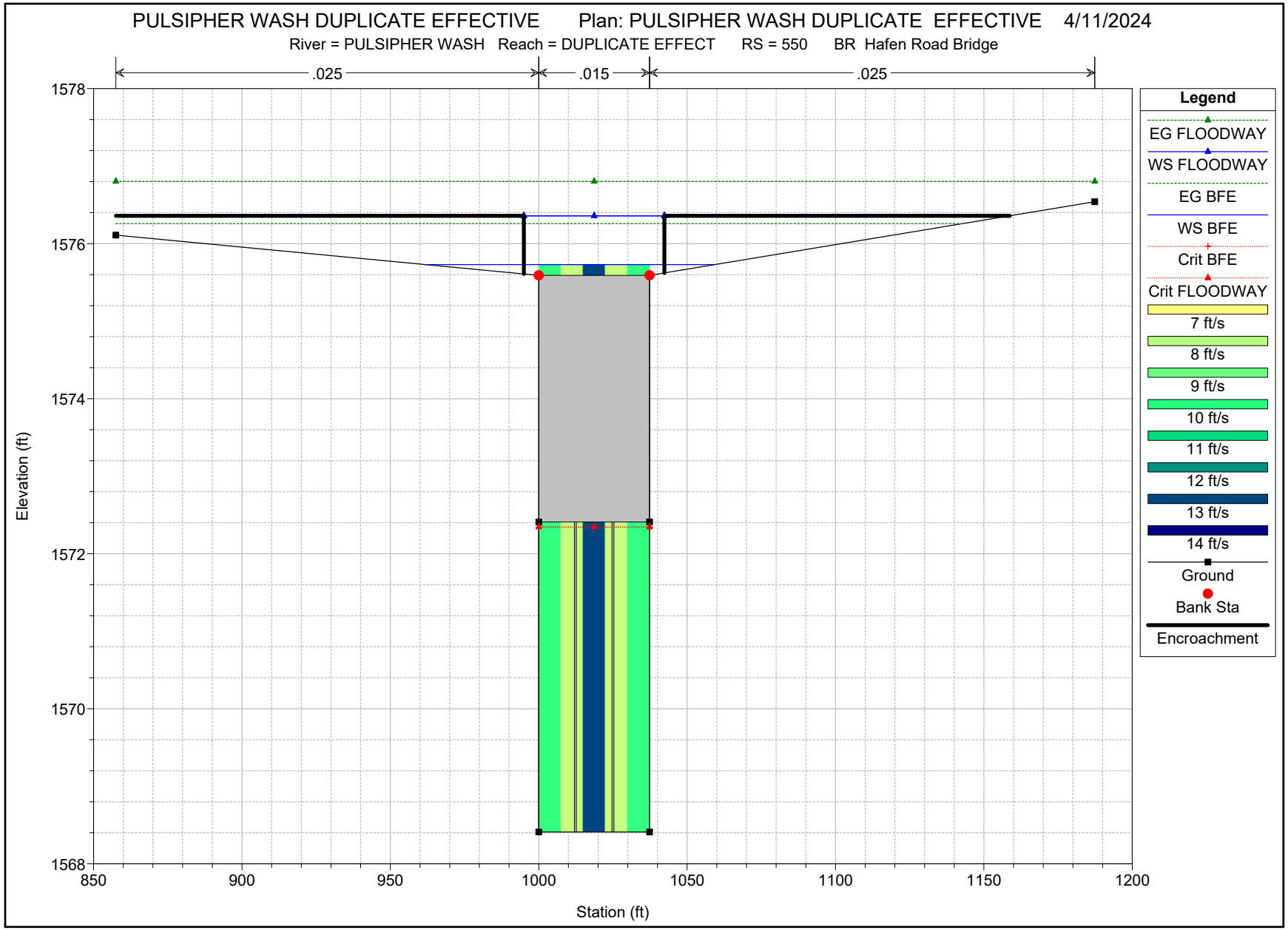

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 900
.025
Elevation (ft)
1580
1578
1576
1574
1572
1570
1600
1610
1620
1630
1640
1650
1660
1670
1680
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
Crit FLOODWAY
WS BFE
Crit BFE
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
14 ft/s
Ground
Bank Sta
Encroachment

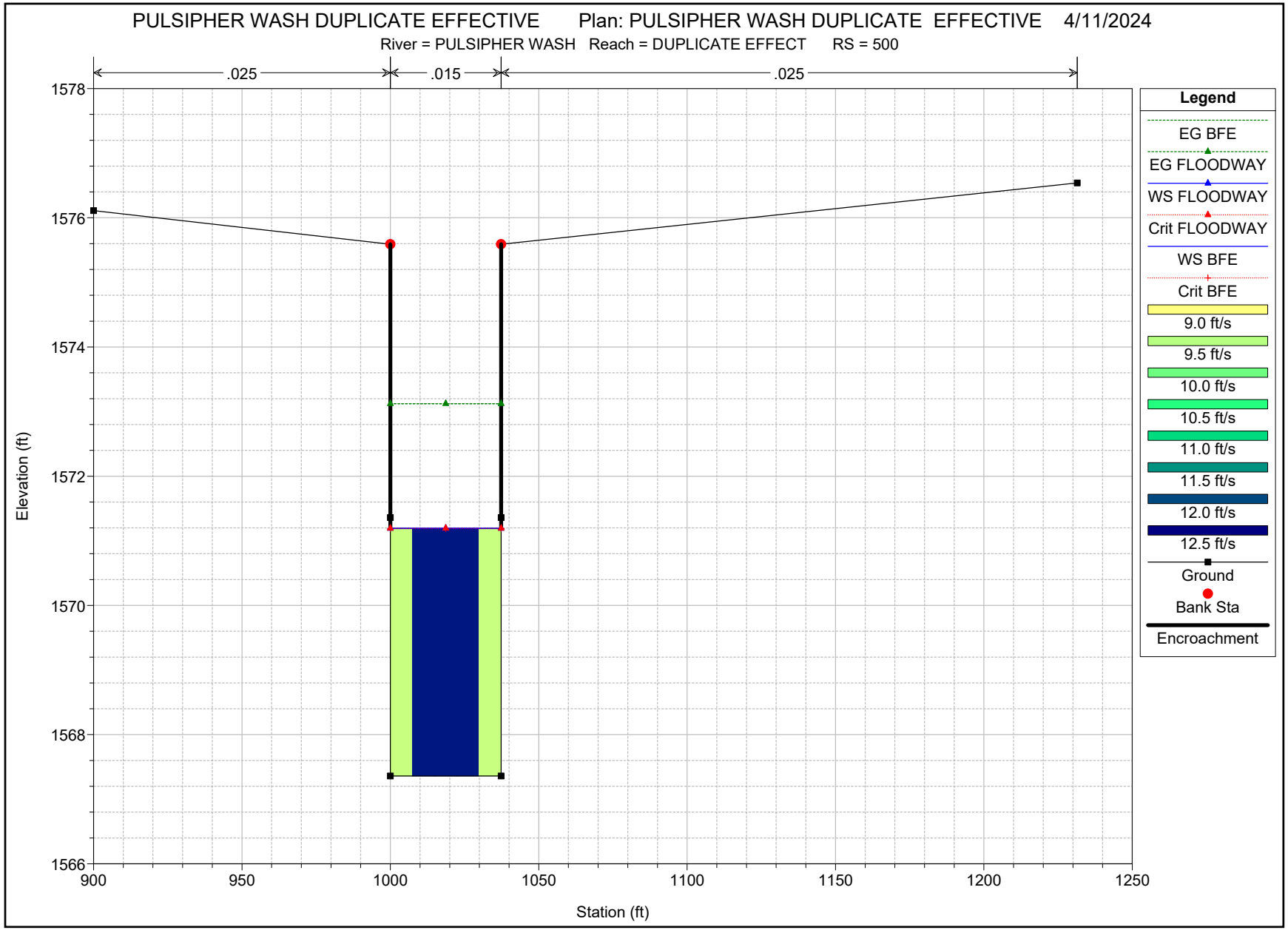

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 800
.025
Elevation (ft)
1578
1576
1574
1572
1570
1600
1610
1620
1630
1640
1650
1660
1670
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Encroachment

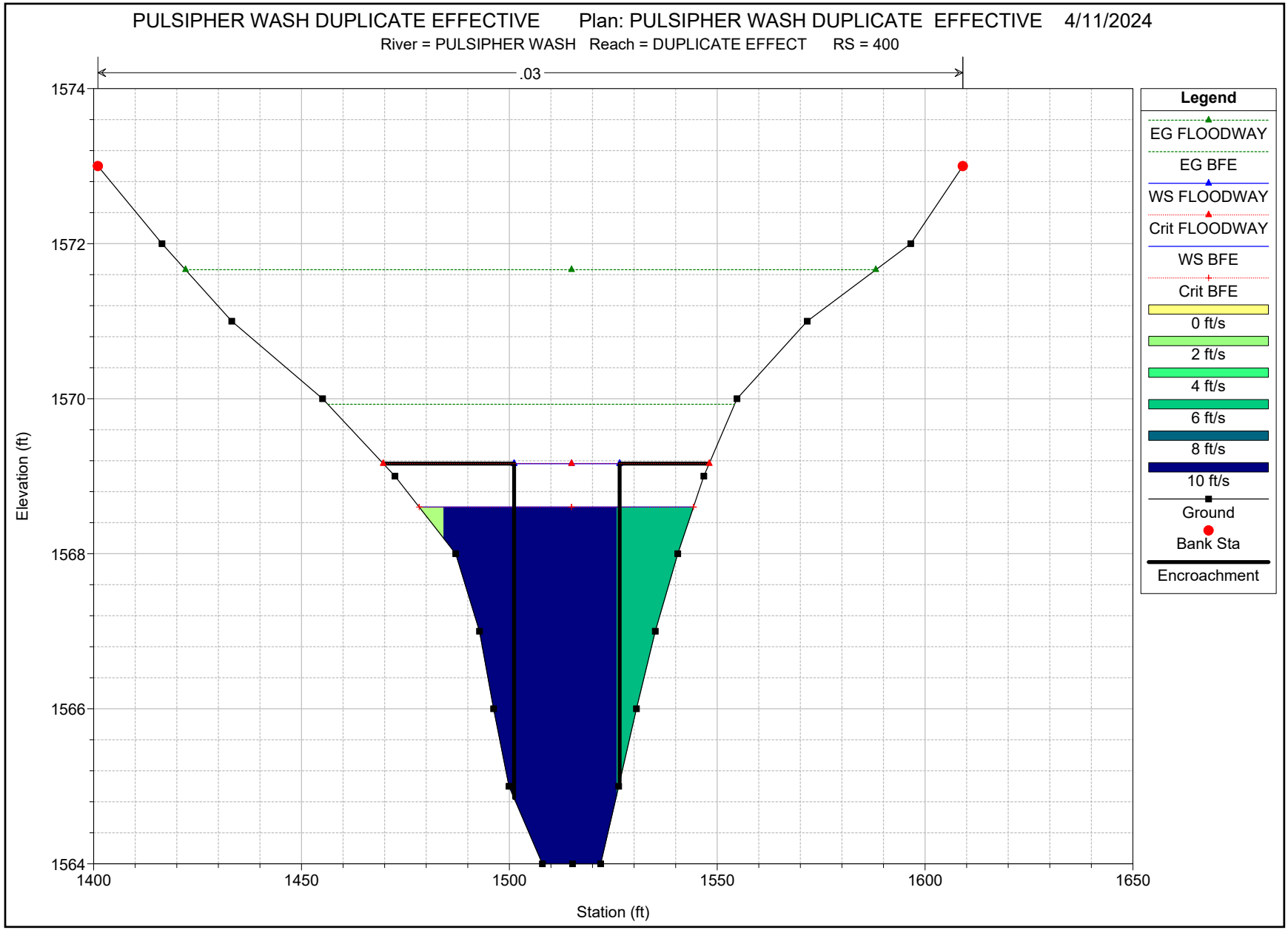

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 700
.04
.025
.04
1578
1576
1574
1572
1570
Elevation (ft)
1580
1600
1620
1640
1660
1680
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Encroachment

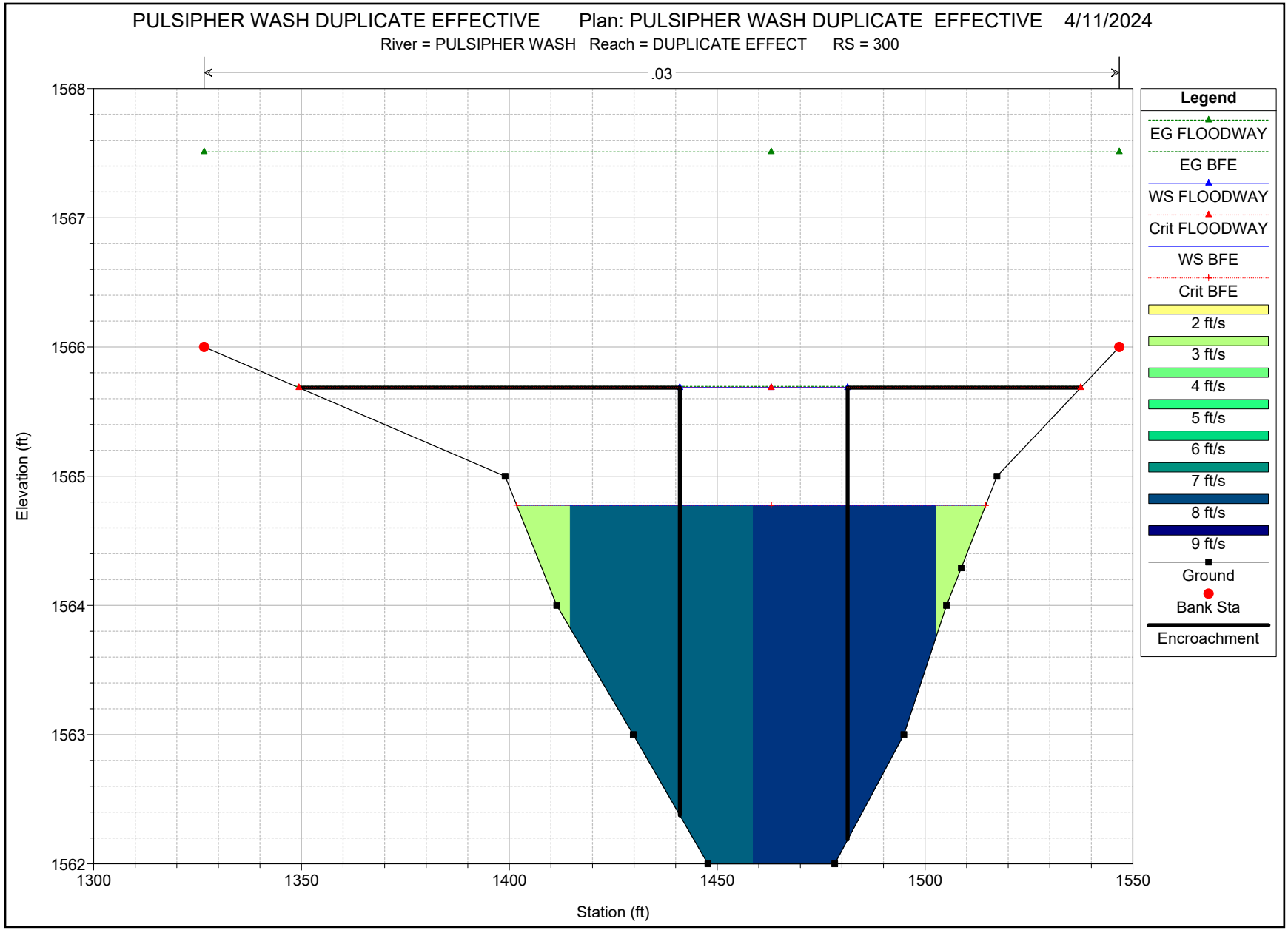

PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 600
.04
.025
.04
Elevation (ft)
1578
1576
1574
1572
1570
1568
1560
1580
1600
1620
1640
1660
1680
1700
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
Ground
Bank Sta
Encroachment


PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 580
.025
.015
.025
1578
1576
1574
1572
1570
1568
Elevation (ft)
850
900
950
1000
1050
1100
1150
1200
Station (ft)
Legend
EG FLOODWAY
WS FLOODWAY
EG BFE
WS BFE
Crit BFE
Crit FLOODWAY
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
Ground
Bank Sta
Encroachment


PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 550 BR Hafen Road Bridge
.025
.015
.025
1578
1576
1574
1572
1570
1568
Elevation (ft)
850
900
950
1000
1050
1100
1150
1200
Station (ft)
Legend
EG FLOODWAY
WS FLOODWAY
EG BFE
WS BFE
Crit BFE
Crit FLOODWAY
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
12 ft/s
13 ft/s
14 ft/s
Ground
Bank Sta
Encroachment


PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 500
.025
.015
.025
Elevation (ft)
1578
1576
1574
1572
1570
1568
1566
900
950
1000
1050
1100
1150
1200
1250
Station (ft)
Legend
EG BFE
EG FLOODWAY
WS FLOODWAY
Crit FLOODWAY
WS BFE
Crit BFE
9.0 ft/s
9.5 ft/s
10.0 ft/s
10.5 ft/s
11.0 ft/s
11.5 ft/s
12.0 ft/s
12.5 ft/s
Ground
Bank Sta
Encroachment


PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 400
.03
Elevation (ft)
1574
1572
1570
1568
1566
1564
1400
1450
1500
1550
1600
1650
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
Crit FLOODWAY
WS BFE
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
Ground
Bank Sta
Encroachment


PULSIPHER WASH DUPLICATE EFFECTIVE Plan: PULSIPHER WASH DUPLICATE EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = DUPLICATE EFFECT RS = 300
.03
Elevation (ft)
1568
1567
1566
1565
1564
1563
1562
1300
1350
1400
1450
1500
1550
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
Crit FLOODWAY
WS BFE
Crit BFE
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Encroachment

HEC-RAS HEC-RAS 6.1.0 September 2021
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
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X           X  X     X    X        X
X     X  X        X    X      X   X    X    X        X
X     X  XXXXXX    XXXX       X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: PULSIPHER WASH DUPLICATE EFFECTIVE
Project File : PULSIPHER_WASH_DUPLICATE_EFECTIVE.prj
Run Date and Time: 4/11/2024 7:22:46 PM

Project in English units

PLAN DATA

Plan Title: PULSIPHER WASH DUPLICATE EFFECTIVE
Plan File : g:\2023\2023_09_PULSIPHER_WASH\FEMA SUBMITTAL - 3APRIL24\1DUPLICATE EFFECTIVE\PULSIPHER_WASH_DUPLICATE_EFECTIVE.p03

Geometry Title: PULSIPHER WASH DUPLICATE EFFECTIVE
Geometry File : g:\2023\2023_09_PULSIPHER_WASH\FEMA SUBMITTAL - 3APRIL24\1DUPLICATE EFFECTIVE\PULSIPHER_WASH_DUPLICATE_EFECTIVE.g05

Flow Title   : PULSIPHER WASH DUPLICATE EFFECTIVE
Flow File   : g:\2023\2023_09_PULSIPHER_WASH\FEMA SUBMITTAL - 3APRIL24\1DUPLICATE EFFECTIVE\PULSIPHER_WASH_DUPLICATE_EFECTIVE.f03

Plan Summary Information:
Number of: Cross Sections =   31   Multiple Openings =   0
            Culverts   =   0   Inline Structures =   0
            Bridges   =   2   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

Encroachment Data
   Equal Conveyance = True
   Left Offset      =        0
   Right Offset     =        0

River = PULSIPHER WASH   Reach = DUPLICATE EFFECT
RS      Profile           Method  Value1  Value2
2590    FLOODWAY               1    1040    1100
2500    FLOODWAY               1 1030.12 1106.13
2400    FLOODWAY               1 1293.09 1384.56
2350    FLOODWAY               1    1080 1220.41
2330    FLOODWAY               1    1150 1330.73
2300    FLOODWAY               1  1163.5 1383.27
2200    FLOODWAY               1    1400  1594.9
2100    FLOODWAY               1 1010.56 1206.95
2000.1  FLOODWAY               1   990.1 1094.79
2000    FLOODWAY               1 1044.29 1056.29
1900    FLOODWAY               1 1193.33 1205.33
1800    FLOODWAY               1 1117.33 1148.63
1750    FLOODWAY               1 1278.17 1318.26
1700    FLOODWAY               1 1408.08 1464.52
1650    FLOODWAY               1 1557.78 1600.56
1600    FLOODWAY               1 1462.44 1508.14
1500    FLOODWAY               1    1046 1152.39
1400    FLOODWAY               1 1311.27 1345.71
1300    FLOODWAY               1 1634.75 1667.65
1200    FLOODWAY               1 1624.95 1659.47
1100    FLOODWAY               1 1619.57 1655.53
1000    FLOODWAY               1 1619.06 1659.32
900     FLOODWAY               1 1615.48 1651.44
800     FLOODWAY               1 1601.95 1646.84
700     FLOODWAY               1 1594.24 1641.44
600     FLOODWAY               1 1581.21 1627.65
580     FLOODWAY               1     995 1042.34
500     FLOODWAY               1    1000 1037.34
400     FLOODWAY               1 1501.15 1526.53
300     FLOODWAY               1 1441.01 1481.38
200     FLOODWAY               1 1535.63 1591.46
```

FLOW DATA

Flow Title: PULSIPHER WASH DUPLICATE EFFECTIVE
Flow File : g:\2023\2023_09_PULSIPHER_WASH\FEMA SUBMITTAL - 3APRIL24\1DUPLICATE EFFECTIVE\PULSIPHER_WASH_DUPLICATE_EFECTIVE.f03

Flow Data (cfs)

River	Reach	RS	BFE	FLOODWAY
PULSIPHER WASH	DUPLICATE EFFECT	2590	1723	1723
PULSIPHER WASH	DUPLICATE EFFECT	2500	1972	1972
PULSIPHER WASH	DUPLICATE EFFECT	2000	1498	1498
PULSIPHER WASH	DUPLICATE EFFECT	1900	1595	1595
PULSIPHER WASH	DUPLICATE EFFECT	300	1595	1595

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
PULSIPHER WASH	DUPLICATE EFFECT	BFE	Critical	Normal S = 0.014
PULSIPHER WASH	DUPLICATE EFFECT	FLOODWAY	Critical	Normal S = 0.014

GEOMETRY DATA

Geometry Title: PULSIPHER WASH DUPLICATE EFFECTIVE
Geometry File : g:\2023\2023_09_PULSIPHER_WASH\FEMA SUBMITTAL - 3APRIL24\1DUPLICATE EFFECTIVE\PULSIPHER_WASH_DUPLICATE_EFECTIVE.g05

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 2590

INPUT
Description:
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1620	1001.7	1619	1003.5	1618	1005.3	1617	1007.15	1616
1011.55	1615	1029.4	1614	1030.79	1613	1032.35	1612	1033.81	1611
1036.09	1610	1038.6	1609	1041.03	1608	1096.94	1608	1099.19	1609
1101.26	1610	1103.5	1611	1105.42	1612	1106.67	1613	1107.78	1614
1108.53	1615	1108.92	1617	1117.09	1618	1119.76	1619	1134.31	1620

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1029.4	.025	1108.92	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1029.4	1108.92	226	210	201	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1612.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.35	Wt. n-Val.		0.025	
W.S. Elev (ft)	1610.95	Reach Len. (ft)	226.00	210.00	201.00
Crit W.S. (ft)	1610.95	Flow Area (sq ft)		185.04	
E.G. Slope (ft/ft)	0.006804	Area (sq ft)		185.04	
Q Total (cfs)	1723.00	Flow (cfs)		1723.00	
Top Width (ft)	69.46	Top Width (ft)		69.46	
Vel Total (ft/s)	9.31	Avg. Vel. (ft/s)		9.31	
Max Chl Dpth (ft)	2.95	Hydr. Depth (ft)		2.66	
Conv. Total (cfs)	20887.9	Conv. (cfs)		20887.9	
Length Wtd. (ft)	210.00	Wetted Per. (ft)		70.69	
Min Ch El (ft)	1608.00	Shear (lb/sq ft)		1.11	
Alpha	1.00	Stream Power (lb/ft s)		10.35	
Frctn Loss (ft)	0.73	Cum Volume (acre-ft)	36.35	26.69	1.18
C & E Loss (ft)	0.15	Cum SA (acres)	9.53	6.31	0.42

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	1029.40	1045.30	173.86	23.22	11.97	10.09	2.04	7.49	0.82	6.17
2	Chan	1045.30	1061.21	464.20	46.91	15.90	26.94	2.95	9.90	1.25	12.40
3	Chan	1061.21	1077.11	464.20	46.91	15.90	26.94	2.95	9.90	1.25	12.40
4	Chan	1077.11	1093.02	464.20	46.91	15.90	26.94	2.95	9.90	1.25	12.40

5	Chan	1093.02	1108.92	156.54	21.09	11.01	9.09	2.03	7.42	0.81
6.04										

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 2500

INPUT
Description:
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1618	1001.47	1618	1006.41	1619	1007.75	1619	1009.23	1618
1010.68	1617	1012.11	1616	1013.57	1615	1015.06	1614	1017.29	1613
1023.14	1612	1030.12	1611	1031.16	1610	1032.29	1609	1033.34	1608
1034.47	1607	1035.75	1606	1037.49	1605	1039.23	1604	1041.39	1603
1069.02	1603	1072.56	1604	1078.76	1605	1081.62	1606	1085.08	1607
1089.07	1608	1093.13	1609	1097.18	1610	1101.44	1611	1104.59	1612
1108.07	1613	1112.23	1614	1120.7	1615	1121.77	1616	1123.24	1617

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1030.12	.025	1112.23	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1030.12	1112.23	186.68	179.72	182.96	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1609.79	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.84	Wt. n-Val.		0.025		
W.S. Elev (ft)	1608.95	Reach Len. (ft)	186.68	179.72	182.96	
Crit W.S. (ft)		Flow Area (sq ft)		267.83		
E.G. Slope (ft/ft)	0.002237	Area (sq ft)		267.83		
Q Total (cfs)	1972.00	Flow (cfs)		1972.00		
Top Width (ft)	60.57	Top Width (ft)		60.57		

Vel Total (ft/s)	7.36	Avg. Vel. (ft/s)		7.36	
Max Chl Dpth (ft)	5.95	Hydr. Depth (ft)		4.42	
Conv. Total (cfs)	41690.4	Conv. (cfs)		41690.4	
Length Wtd. (ft)	179.72	Wetted Per. (ft)		63.19	
Min Ch El (ft)	1603.00	Shear (lb/sq ft)		0.59	
Alpha	1.00	Stream Power (lb/ft s)		4.36	
Frctn Loss (ft)	0.85	Cum Volume (acre-ft)	36.35	25.60	1.18
C & E Loss (ft)	0.10	Cum SA (acres)	9.53	5.99	0.42

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	1030.12	1046.54	391.02	61.38	16.05	19.83	4.32	6.37	0.53	3.40
2	Chan	1046.54	1062.96	835.21	97.66	16.42	42.35	5.95	8.55	0.83	7.10
3	Chan	1062.96	1079.39	659.35	85.27	16.68	33.44	5.19	7.73	0.71	5.52
4	Chan	1079.39	1095.81	86.41	23.52	14.04	4.38	1.74	3.67	0.23	0.86

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 2400

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1291.07	1608	1293.09	1608	1300.45	1607	1302.46	1606	1304.44	1605
1306.36	1604	1308.28	1603	1310.28	1602	1335.97	1602	1338.24	1603
1339.94	1604	1342.44	1605	1345.57	1606	1348.73	1607	1351.86	1608
1354.95	1609	1357.99	1610	1360.9	1611	1363.87	1612	1366.81	1613

1369.72	1614	1372.78	1615	1375.77	1616	1378.9	1617	1381.7	1618
1384.56	1619								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1291.07	.025	1293.09	.04	1384.56	0

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1293.09	1384.56	57	71	87	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1608.83	Element	Left OB	Channel	Right OB	
Vel Head (ft)	1.89	Wt. n-Val.		0.040		
W.S. Elev (ft)	1606.95	Reach Len. (ft)	57.00	71.00	87.00	
Crit W.S. (ft)	1606.95	Flow Area (sq ft)		179.03		
E.G. Slope (ft/ft)	0.016120	Area (sq ft)		179.03		
Q Total (cfs)	1972.00	Flow (cfs)		1972.00		
Top Width (ft)	48.00	Top Width (ft)		48.00		
Vel Total (ft/s)	11.01	Avg. Vel. (ft/s)		11.01		
Max Chl Dpth (ft)	4.95	Hydr. Depth (ft)		3.73		
Conv. Total (cfs)	15531.9	Conv. (cfs)		15531.9		
Length Wtd. (ft)	70.77	Wetted Per. (ft)		50.16		
Min Ch El (ft)	1602.00	Shear (lb/sq ft)		3.59		
Alpha	1.00	Stream Power (lb/ft s)		39.56		
Frctn Loss (ft)	0.63	Cum Volume (acre-ft)	36.35	24.68	1.18	
C & E Loss (ft)	0.18	Cum SA (acres)	9.53	5.77	0.42	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	1293.09	1311.38	239.18	29.43	12.01	12.13	2.72	8.13	2.47	20.04
2	Chan	1311.38	1329.68	1174.74	90.48	18.29	59.57	4.95	12.98	4.98	64.62

3	Chan	1329.68	1347.97	558.03	59.07	19.24	28.30	3.23	9.45	3.09
29.18										
4	Chan	1347.97	1366.27	0.05	0.05	0.62	0.00	0.09	0.89	0.09
0.08										

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 2350

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1616	1001.37	1615	1002.74	1614	1004.1	1613	1005.55	1612
1009.41	1611	1016.33	1610.26	1018.74	1610	1030.03	1610	1034.36	1611
1049.32	1611	1052.39	1610	1054.54	1609	1057.69	1608	1059.67	1607
1086.56	1606	1115.51	1606	1119.27	1606	1120.19	1606	1130.23	1606
1132.99	1605	1135.85	1604	1138.89	1603	1141.9	1602	1146.76	1601
1165.03	1601	1167.57	1602	1170.34	1603	1173.61	1604	1176.83	1605
1180.02	1606	1183.27	1607	1186.49	1608	1189.52	1609	1192.43	1610
1195.36	1611	1196.13	1611.26	1198.3	1612	1201.25	1613	1204.21	1614
1207.17	1615	1210.1	1616	1213.04	1617	1216.66	1618	1220.41	1619

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1130.23	.025	1167.57	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1130.23	1220.41	64	63	63	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1607.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.29	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	1606.66	Reach Len. (ft)	64.00	63.00	63.00
Crit W.S. (ft)	1606.56	Flow Area (sq ft)	34.34	206.04	
E.G. Slope (ft/ft)	0.005668	Area (sq ft)	34.34	206.04	

Q Total (cfs)	1972.00	Flow (cfs)	65.29	1906.71	
Top Width (ft)	113.19	Top Width (ft)	61.27	51.92	
Vel Total (ft/s)	8.20	Avg. Vel. (ft/s)	1.90	9.25	
Max Chl Dpth (ft)	5.65	Hydr. Depth (ft)	0.56	3.97	
Conv. Total (cfs)	26194.0	Conv. (cfs)	867.2	25326.8	
Length Wtd. (ft)	63.17	Wetted Per. (ft)	61.28	53.60	
Min Ch El (ft)	1601.00	Shear (lb/sq ft)	0.20	1.36	
Alpha	1.23	Stream Power (lb/ft s)	0.38	12.59	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	36.33	24.37	1.18
C & E Loss (ft)	0.26	Cum SA (acres)	9.49	5.69	0.42

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	1052.09	1078.14	1.28	1.57	9.18	0.06	0.17	0.82	0.06	0.05
2	LOB	1078.14	1104.18	29.86	15.73	26.05	1.51	0.60	1.90	0.21	0.41
3	LOB	1104.18	1130.23	34.15	17.05	26.05	1.73	0.65	2.00	0.23	0.46
4	Chan	1130.23	1148.27	543.65	65.01	18.81	27.57	3.60	8.36	1.22	10.23
5	Chan	1148.27	1166.30	1173.69	101.67	18.13	59.52	5.64	11.54	1.98	22.91
6	Chan	1166.30	1184.34	189.37	39.36	16.67	9.60	2.48	4.81	0.84	4.02

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 2330

INPUT
Description:
Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1616	1046.51	1616	1063.63	1615	1065.45	1614	1067.24	1613
1069.01	1612	1070.85	1611	1073.95	1610	1078.23	1609	1080.88	1608
1083.23	1607	1089.39	1606	1115.44	1605.7	1174.84	1605	1183.19	1605
1200.07	1605	1203.77	1605	1233.21	1606	1239.59	1606	1240.83	1606
1244.52	1607	1246.08	1607	1248.05	1606	1249.9	1605	1251.82	1604
1253.68	1603	1255.52	1602	1257.81	1601	1281.08	1601	1282.63	1602
1285.54	1603	1288.64	1604	1291.75	1605	1294.85	1606	1295.24	1606.12
1297.98	1607	1301.06	1608	1304.02	1609	1306.74	1610	1309.48	1611
1312.22	1612	1315.02	1613	1317.72	1614	1320.5	1615	1323.24	1616
1325.92	1617	1328.33	1618	1330.73	1619				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1249.9	.025	1282.63	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1244.52	1330.73	235	240	222	.1	.3

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1607.45	Element			
Vel Head (ft)	0.42	Wt. n-Val.	0.040	0.031	
W.S. Elev (ft)	1607.03	Reach Len. (ft)	235.00	240.00	222.00
Crit W.S. (ft)		Flow Area (sq ft)	247.08	223.54	
E.G. Slope (ft/ft)	0.002580	Area (sq ft)	247.08	223.54	
Q Total (cfs)	1972.00	Flow (cfs)	618.76	1353.24	
Top Width (ft)	214.90	Top Width (ft)	161.36	53.55	
Vel Total (ft/s)	4.19	Avg. Vel. (ft/s)	2.50	6.05	
Max Chl Dpth (ft)	6.03	Hydr. Depth (ft)	1.53	4.17	
Conv. Total (cfs)	38824.0	Conv. (cfs)	12182.0	26642.0	
Length Wtd. (ft)	238.03	Wetted Per. (ft)	161.60	56.09	
Min Ch El (ft)	1601.00	Shear (lb/sq ft)	0.25	0.64	
Alpha	1.54	Stream Power (lb/ft s)	0.62	3.89	
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	36.12	24.05	1.18
C & E Loss (ft)	0.11	Cum SA (acres)	9.33	5.61	0.42

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #BFE

Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power

		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	LOB	1048.90	1097.81	20.15	12.32	14.73	1.02	0.84	1.64	0.13	0.22
2	LOB	1097.81	1146.71	159.68	68.93	48.91	8.10	1.41	2.32	0.23	0.53
3	LOB	1146.71	1195.62	270.29	94.53	48.91	13.71	1.93	2.86	0.31	0.89
4	LOB	1195.62	1244.52	168.65	71.31	49.05	8.55	1.46	2.36	0.23	0.55
5	Chan	1244.52	1261.76	340.12	60.14	18.69	17.25	3.49	5.66	0.52	2.93
6	Chan	1261.76	1279.00	767.70	103.94	17.24	38.93	6.03	7.39	0.97	7.17
7	Chan	1279.00	1296.25	245.10	58.93	18.24	12.43	3.42	4.16	0.52	2.16
8	Chan	1296.25	1313.49	0.32	0.53	1.91	0.02	0.29	0.59	0.04	0.03

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 2300

INPUT
Description:
Station Elevation Data num= 60

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1619	1001.97	1618	1003.2	1617	1004.55	1616	1005.95	1615
1007.27	1614	1008.69	1613	1010.3	1612	1011.97	1611	1014.13	1610
1018.32	1609	1023.5	1608	1030.44	1607	1039.16	1606	1041.19	1605.6
1044.19	1605	1058.41	1604.13	1060.6	1604	1072.49	1603	1079.21	1603
1084.11	1604	1087.79	1605	1100.7	1605	1125.34	1604	1149.33	1604
1149.99	1604	1187.47	1604	1199.06	1604	1271.41	1604	1273.45	1604
1283.01	1603.19	1285.22	1603	1289.39	1602	1293.61	1602	1296.06	1602
1297.59	1601	1299.25	1600	1303.67	1599	1328.29	1599	1330.08	1600
1332.14	1601	1334.2	1602	1336.96	1603	1340.58	1604	1344.03	1605
1347.34	1606	1351.43	1607	1354.48	1608	1357.2	1609	1359.82	1610
1362.46	1611	1365.05	1612	1367.61	1613	1369.69	1613.8	1370.2	1614
1372.75	1615	1375.34	1616	1378.01	1617	1380.61	1618	1383.27	1619

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1293.61	.025	1330.08	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1271.41	1383.27	320.42	311.55	310.65	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1607.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.040	0.034	
W.S. Elev (ft)	1607.12	Reach Len. (ft)	320.42	311.55	310.65
Crit W.S. (ft)		Flow Area (sq ft)	701.95	437.08	
E.G. Slope (ft/ft)	0.000312	Area (sq ft)	701.95	437.08	
Q Total (cfs)	1972.00	Flow (cfs)	936.54	1035.46	
Top Width (ft)	322.17	Top Width (ft)	241.79	80.38	
Vel Total (ft/s)	1.73	Avg. Vel. (ft/s)	1.33	2.37	
Max Chl Dpth (ft)	8.12	Hydr. Depth (ft)	2.90	5.44	
Conv. Total (cfs)	111586.4	Conv. (cfs)	52994.3	58592.0	
Length Wtd. (ft)	316.91	Wetted Per. (ft)	242.28	82.69	
Min Ch El (ft)	1599.00	Shear (lb/sq ft)	0.06	0.10	
Alpha	1.27	Stream Power (lb/ft s)	0.08	0.24	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	33.56	22.23	1.18
C & E Loss (ft)	0.02	Cum SA (acres)	8.24	5.24	0.42

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	1000.00	1054.28	32.71	38.06	24.85	1.66	1.54	0.86	0.03	0.03
2	LOB	1054.28	1108.56	215.97	161.82	54.58	10.95	2.98	1.33	0.06	0.08
3	LOB	1108.56	1162.85	220.60	163.55	54.30	11.19	3.01	1.35	0.06	0.08
4	LOB	1162.85	1217.13	233.63	169.26	54.28	11.85	3.12	1.38	0.06	0.08
5	LOB	1217.13	1271.41	233.63	169.26	54.28	11.85	3.12	1.38	0.06	0.08
6	Chan	1271.41	1293.78	114.11	90.67	22.53	5.79	4.05	1.26	0.08	0.10
7	Chan	1293.78	1316.15	490.39	166.26	23.06	24.87	7.43	2.95	0.14	0.41
8	Chan	1316.15	1338.53	413.88	156.22	23.33	20.99	6.98	2.65	0.13	0.35

9	Chan	1338.53	1360.90	17.08	23.93	13.77	0.87	1.80	0.71	0.03
0.02										

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 2200

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1609	1005.16	1608	1011.92	1607	1047.35	1607	1060.8	1607
1071.4	1606	1077.87	1605	1084.57	1604	1094.26	1603	1116.03	1602
1121.81	1601	1126.68	1600	1175.32	1600	1181.31	1601	1195.36	1601
1199.05	1600	1255.45	1600	1370.28	1601	1372.38	1601	1454	1601
1493.38	1601	1502.82	1601	1504.64	1600	1506.13	1599	1507.62	1598
1513.26	1597	1549.68	1597	1552.37	1598	1554.96	1599	1557.69	1600
1562.2	1601	1566.73	1602	1570.63	1603	1573.43	1604	1576.11	1605
1578.73	1606	1581.03	1607	1583.23	1608	1585.37	1609	1587.38	1610
1589.2	1611	1590.63	1612	1592.04	1613	1593.42	1614	1594.9	1615

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1502.82	.025	1549.68	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1502.82	1594.9	383.01	328.57	273.85	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1607.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.040	0.032	
W.S. Elev (ft)	1607.14	Reach Len. (ft)	383.01	328.57	273.85
Crit W.S. (ft)		Flow Area (sq ft)	2719.17	625.69	
E.G. Slope (ft/ft)	0.000021	Area (sq ft)	2719.17	625.69	
Q Total (cfs)	1972.00	Flow (cfs)	1445.66	526.34	
Top Width (ft)	570.35	Top Width (ft)	491.83	78.51	
Vel Total (ft/s)	0.59	Avg. Vel. (ft/s)	0.53	0.84	
Max Chl Dpth (ft)	10.14	Hydr. Depth (ft)	5.53	7.97	
Conv. Total (cfs)	430411.9	Conv. (cfs)	315532.8	114879.1	
Length Wtd. (ft)	358.84	Wetted Per. (ft)	492.53	81.13	
Min Ch El (ft)	1597.00	Shear (lb/sq ft)	0.01	0.01	
Alpha	1.14	Stream Power (lb/ft s)	0.00	0.01	

Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	20.98	18.43	1.18
C & E Loss (ft)	0.00	Cum SA (acres)	5.54	4.67	0.42

Note: Manning's n values were composited to a single value in the main channel.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	1000.00	1100.56	17.99	104.12	89.85	0.91	1.16	0.17	0.00	0.00
2	LOB	1100.56	1201.13	353.54	651.44	100.98	17.93	6.48	0.54	0.01	0.00
3	LOB	1201.13	1301.69	407.82	708.55	100.57	20.68	7.05	0.58	0.01	0.01
4	LOB	1301.69	1402.26	342.21	637.78	100.57	17.35	6.34	0.54	0.01	0.00
5	LOB	1402.26	1502.82	324.10	617.29	100.56	16.44	6.14	0.53	0.01	0.00
6	Chan	1502.82	1521.24	159.52	171.56	19.37	8.09	9.32	0.93	0.01	0.01
7	Chan	1521.24	1539.65	189.97	186.71	18.42	9.63	10.14	1.02	0.01	0.01
8	Chan	1539.65	1558.07	142.57	173.50	18.97	7.23	9.42	0.82	0.01	0.01
9	Chan	1558.07	1576.48	33.62	88.92	19.13	1.70	4.83	0.38	0.01	0.00
10	Chan	1576.48	1594.90	0.66	5.01	5.25	0.03	1.03	0.13	0.00	0.00

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 2100

INPUT
Description:
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
953	1608	1000	1601	1013.06	1600	1023.83	1599	1033.3	1598
1040.2	1597	1043.2	1596	1046.03	1595	1051.25	1594	1053.88	1594
1056.33	1595	1058.94	1596	1059.94	1597	1060.67	1598	1075.29	1598.83
1078.2	1599	1087.56	1600	1091.95	1600	1103.88	1599	1107.13	1598

1109.23	1597	1111.33	1596	1116.75	1596	1120.48	1597	1120.85	1597
1124.02	1596	1125.68	1595	1127.35	1594	1132.29	1593	1155.55	1593
1159.58	1593	1160.63	1594	1161.73	1595	1163.48	1596	1167.18	1597
1170.02	1598	1172.71	1599	1175.2	1600	1177.42	1601	1179.65	1602
1182.05	1603	1184.57	1604	1187.21	1605	1189.98	1606	1192.78	1607
1195.62	1608	1198.5	1609	1201.39	1610	1206.95	1611		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
953	.04	1120.48	.025	1163.48	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1120.48	1161.73	67.6	97.6	.1	.3

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1607.13	Element			
Vel Head (ft)	0.03	Wt. n-Val.	0.040	0.025	0.037
W.S. Elev (ft)	1607.11	Reach Len. (ft)	67.60	97.60	97.60
Crit W.S. (ft)		Flow Area (sq ft)	1199.21	558.04	189.30
E.G. Slope (ft/ft)	0.000028	Area (sq ft)	1199.21	558.04	189.30
Q Total (cfs)	1972.00	Flow (cfs)	878.18	963.61	130.21
Top Width (ft)	234.09	Top Width (ft)	161.48	41.25	31.35
Vel Total (ft/s)	1.01	Avg. Vel. (ft/s)	0.73	1.73	0.69
Max Chl Dpth (ft)	14.11	Hydr. Depth (ft)	7.43	13.53	6.04
Conv. Total (cfs)	375746.6	Conv. (cfs)	167329.1	183607.6	24809.9
Length Wtd. (ft)	88.05	Wetted Per. (ft)	164.74	42.85	33.67
Min Ch El (ft)	1593.00	Shear (lb/sq ft)	0.01	0.02	0.01
Alpha	1.68	Stream Power (lb/ft s)	0.01	0.04	0.01
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	3.75	13.97	0.58
C & E Loss (ft)	0.06	Cum SA (acres)	2.67	4.22	0.32

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	953.00	986.50	16.28	56.32	27.80	0.83	2.05	0.29	0.00	0.00
2	LOB	986.50	1019.99	124.98	206.67	33.71	6.34	6.17	0.60	0.01	0.01
3	LOB	1019.99	1053.49	281.82	338.04	34.07	14.29	10.09	0.83	0.02	0.01

4	LOB	1053.49	1086.98	229.84	301.94	34.88	11.66	9.01	0.76	0.01
0.01										
5	LOB	1086.98	1120.48	225.26	296.25	34.28	11.42	8.84	0.76	0.01
0.01										
6	Chan	1120.48	1128.73	144.32	95.96	8.99	7.32	11.63	1.50	0.02
0.03										
7	Chan	1128.73	1136.98	205.67	115.10	8.32	10.43	13.95	1.79	0.02
0.04										
8	Chan	1136.98	1145.23	210.72	116.38	8.25	10.69	14.11	1.81	0.02
0.04										
9	Chan	1145.23	1153.48	210.72	116.38	8.25	10.69	14.11	1.81	0.02
0.04										
10	Chan	1153.48	1161.73	192.17	114.21	9.04	9.75	13.84	1.68	0.02
0.04										
11	ROB	1161.73	1170.77	82.06	93.60	9.66	4.16	10.35	0.88	0.02
0.01										
12	ROB	1170.77	1179.82	37.39	63.36	9.81	1.90	7.01	0.59	0.01
0.01										
13	ROB	1179.82	1188.86	10.33	29.16	9.71	0.52	3.22	0.35	0.01
0.00										
14	ROB	1188.86	1197.91	0.43	3.18	4.48	0.02	0.75	0.14	0.00
0.00										

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 2000.1

INPUT
Description:
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
990.1	1607	1012.59	1604	1044.29	1601.77	1044.29	1591.77	1056.29	1591.77
1056.29	1601.69	1094.79	1606	1094.79	1606.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
990.1	.025	1044.29	.015	1056.29	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1044.29	1056.29	1	1	.1	.1

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1607.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.63	Wt. n-Val.	0.025	0.015	0.025
W.S. Elev (ft)	1606.44	Reach Len. (ft)	1.00	1.00	1.00
Crit W.S. (ft)		Flow Area (sq ft)	134.77	175.98	99.72
E.G. Slope (ft/ft)	0.000594	Area (sq ft)	134.77	175.98	99.72
Q Total (cfs)	1972.00	Flow (cfs)	377.04	1325.70	269.26
Top Width (ft)	100.46	Top Width (ft)	49.96	12.00	38.50
Vel Total (ft/s)	4.80	Avg. Vel. (ft/s)	2.80	7.53	2.70
Max Chl Dpth (ft)	14.67	Hydr. Depth (ft)	2.70	14.67	2.59
Conv. Total (cfs)	80929.3	Conv. (cfs)	15473.6	54405.5	11050.2
Length Wtd. (ft)	1.00	Wetted Per. (ft)	50.20	31.92	39.18
Min Ch El (ft)	1591.77	Shear (lb/sq ft)	0.10	0.20	0.09
Alpha	1.76	Stream Power (lb/ft s)	0.28	1.54	0.25
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	2.72	13.15	0.26
C & E Loss (ft)	0.06	Cum SA (acres)	2.50	4.16	0.24

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	990.10	1000.94	2.14	2.91	6.66	0.11	0.44	0.74	0.02	0.01
2	LOB	1000.94	1011.78	30.31	17.38	10.93	1.54	1.60	1.74	0.06	0.10
3	LOB	1011.78	1022.61	75.09	29.88	10.87	3.81	2.76	2.51	0.10	0.26
4	LOB	1022.61	1033.45	112.94	38.17	10.86	5.73	3.52	2.96	0.13	0.39
5	LOB	1033.45	1044.29	156.56	46.43	10.86	7.94	4.28	3.37	0.16	0.53
6	Chan	1044.29	1046.69	120.85	35.20	12.40	6.13	14.67	3.43	0.11	0.36
7	Chan	1046.69	1049.09	361.17	35.20	2.40	18.31	14.67	10.26	0.54	5.58
8	Chan	1049.09	1051.49	361.15	35.19	2.40	18.31	14.67	10.26	0.54	5.58
9	Chan	1051.49	1053.89	361.17	35.20	2.40	18.31	14.67	10.26	0.54	5.58
10	Chan	1053.89	1056.29	121.37	35.20	12.32	6.15	14.67	3.45	0.11	0.37

11	ROB	1056.29	1063.99	112.14	33.22	7.75	5.69	4.31	3.38	0.16
0.54										
12	ROB	1063.99	1071.69	77.35	26.58	7.75	3.92	3.45	2.91	0.13
0.37										
13	ROB	1071.69	1079.39	47.92	19.94	7.75	2.43	2.59	2.40	0.10
0.23										
14	ROB	1079.39	1087.09	24.41	13.31	7.75	1.24	1.73	1.83	0.06
0.12										
15	ROB	1087.09	1094.79	7.44	6.67	8.18	0.38	0.87	1.12	0.03
0.03										

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 2000

INPUT
Description:
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
990.1	1607	1012.59	1604	1044.29	1601.77	1044.29	1591.77	1056.29	1591.77
1056.29	1601.69	1094.79	1606.5						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
990.1	.025	1044.29	.015	1056.29	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1044.29	1056.29	320.07	319.85	303.13	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
990.1	1044.29	1608	F
1056.29	1094.79	1608	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1607.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.24	Wt. n-Val.		0.015	
W.S. Elev (ft)	1605.77	Reach Len. (ft)	0.01	0.01	0.01
Crit W.S. (ft)	1599.62	Flow Area (sq ft)		168.01	
E.G. Slope (ft/ft)	0.000885	Area (sq ft)	103.25	168.01	66.66
Q Total (cfs)	1498.00	Flow (cfs)		1498.00	
Top Width (ft)	89.65	Top Width (ft)	44.98	12.00	32.67

Vel Total (ft/s)	8.92	Avg. Vel. (ft/s)		8.92	
Max Chl Dpth (ft)	14.00	Hydr. Depth (ft)		14.00	
Conv. Total (cfs)	50362.6	Conv. (cfs)		50362.6	
Length Wtd. (ft)	0.01	Wetted Per. (ft)		31.92	
Min Ch El (ft)	1591.77	Shear (lb/sq ft)		0.29	
Alpha	1.00	Stream Power (lb/ft s)		2.59	
Frctn Loss (ft)		Cum Volume (acre-ft)	2.71	13.14	0.26
C & E Loss (ft)		Cum SA (acres)	2.50	4.16	0.24

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

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	990.10	1000.94	0.00	0.18	1.64	0.00	0.11	0.00	0.01	0.00
2	LOB	1000.94	1011.78	0.00	10.19	10.93	0.00	0.94	0.00	0.05	0.00
3	LOB	1011.78	1022.61	0.00	22.69	10.87	0.00	2.09	0.00	0.12	0.00
4	LOB	1022.61	1033.45	0.00	30.97	10.86	0.00	2.86	0.00	0.16	0.00
5	LOB	1033.45	1044.29	0.00	39.23	10.86	0.00	3.62	0.00	0.20	0.00
6	Chan	1044.29	1046.69	136.55	33.60	12.40	9.12	14.00	4.06	0.15	0.61
7	Chan	1046.69	1049.09	408.11	33.60	2.40	27.24	14.00	12.14	0.77	9.39
8	Chan	1049.09	1051.49	408.09	33.60	2.40	27.24	14.00	12.14	0.77	9.39
9	Chan	1051.49	1053.89	408.11	33.60	2.40	27.24	14.00	12.14	0.77	9.39
10	Chan	1053.89	1056.29	137.14	33.60	12.32	9.16	14.00	4.08	0.15	0.61
11	ROB	1056.29	1063.99	0.00	27.72	7.76	0.00	3.60	0.00	0.20	0.00
12	ROB	1063.99	1071.69	0.00	20.31	7.76	0.00	2.64	0.00	0.14	0.00
13	ROB	1071.69	1079.39	0.00	12.91	7.76	0.00	1.68	0.00	0.09	0.00
14	ROB	1079.39	1087.09	0.00	5.50	7.76	0.00	0.71	0.00	0.04	0.00
15	ROB	1087.09	1094.79	0.00	0.22	1.88	0.00	0.12	0.00	0.01	0.00

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

BRIDGE

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 1950

INPUT
Description: I-15 Bridge
Distance from Upstream XS = .01
Deck/Roadway Width = 319.83
Weir Coefficient = 2.7
Upstream Deck/Roadway Coordinates
num= 6

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
990.1	1606.72	1585.08	1044.29	1606.72	1585.08	1044.29	1606.72	1601.77
1056.29	1606.72	1601.77	1056.29	1606.72	1585.08	1104.82	1606.72	1585.08

Upstream Bridge Cross Section Data
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
990.1	1607	1012.59	1604	1044.29	1601.77	1044.29	1591.77	1056.29	1591.77
1056.29	1601.69	1094.79	1606.5						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
990.1	.025	1044.29	.015	1056.29	.025

Bank Sta: Left Right Coeff Contr. Expan.
1044.29 1056.29 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
990.1	1044.29	1608	F
1056.29	1094.79	1608	F

Downstream Deck/Roadway Coordinates
num= 6

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
1000	1606.72	1601.77	1104.82	1606.72	1601.77	1193.33	1606.72	1595.08
1205.33	1606.72	1595.08	1221.37	1606.72	1596.89	1251.33	1606.72	1601

Downstream Bridge Cross Section Data
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1179.43	1599	1193.33	1595.08	1193.33	1585.08	1205.33	1585.08	1205.33	1595.08
1251.33	1601								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

```
 1179.43    .025 1193.33    .015 1205.33    .025

Bank Sta: Left   Right    Coeff Contr.   Expan.
       1193.33 1205.33             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 1179.43 1193.33    1598       F
 1205.33 1251.33    1598       F

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 =     .98
Elevation at which weir flow begins         = 1606.72
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 = Energy

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =.8164966
           Max Low Cord                = 1601.77

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

BRIDGE OUTPUT  Profile #BFE

  E.G. US. (ft)               1607.01    Element                Inside BR US  Inside BR DS
  W.S. US. (ft)               1605.77    E.G. Elev (ft)             1607.01       1606.80
  Q Total (cfs)               1498.00    W.S. Elev (ft)             1605.77       1605.77
  Q Bridge (cfs)              1493.03    Crit W.S. (ft)             1599.62       1592.94
  Q Weir (cfs)                   4.97    Max Chl Dpth (ft)            14.00         20.69
  Weir Sta Lft (ft)           1044.29    Vel Total (ft/s)             12.48         12.48
  Weir Sta Rgt (ft)           1056.29    Flow Area (sq ft)           120.00        120.00
  Weir Submerg                   0.00    Froude # Chl                  0.59          0.48
  Weir Max Depth (ft)            0.29    Specif Force (cu ft)       1661.36       2464.17
  Min El Weir Flow (ft)       1606.73    Hydr Depth (ft)
  Min El Prs (ft)             1601.77    W.P. Total (ft)              44.00         44.00
  Delta EG (ft)                  9.64    Conv. Total (cfs)
```

Delta WS (ft)	12.50	Top Width (ft)	
BR Open Area (sq ft)	120.00	Frctn Loss (ft)	
BR Open Vel (ft/s)	12.44	C & E Loss (ft)	
BR Sluice Coef	0.49	Shear Total (lb/sq ft)	
BR Sel Method	Press/Weir	Power Total (lb/ft s)	

Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Note: The downstream water surface is below the minimum elevation for pressure flow. The sluice gate equations were used for pressure flow.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: For the cross section inside the bridge at the downstream end, the energy is based on critical depth over the weir. The water surface has been projected.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 1900

INPUT
Description:
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1179.43	1599	1193.33	1595.08	1193.33	1585.08	1205.33	1585.08	1205.33	1595.08
1251.33	1601								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1179.43	.025	1193.33	.015	1205.33	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1193.33	1205.33	38.8	38.8	38.3	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
1179.43	1193.33	1598	F
1205.33	1251.33	1598	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1597.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.09	Wt. n-Val.		0.015	
W.S. Elev (ft)	1593.27	Reach Len. (ft)	38.80	38.80	38.30
Crit W.S. (ft)	1593.26	Flow Area (sq ft)		98.29	
E.G. Slope (ft/ft)	0.005122	Area (sq ft)		98.29	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	

Top Width (ft)	12.00	Top Width (ft)		12.00	
Vel Total (ft/s)	16.23	Avg. Vel. (ft/s)		16.23	
Max Chl Dpth (ft)	8.19	Hydr. Depth (ft)		8.19	
Conv. Total (cfs)	22286.1	Conv. (cfs)		22286.1	
Length Wtd. (ft)	38.80	Wetted Per. (ft)		28.38	
Min Ch El (ft)	1585.08	Shear (lb/sq ft)		1.11	
Alpha	1.00	Stream Power (lb/ft s)		17.97	
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	2.71	12.26	0.26
C & E Loss (ft)	1.10	Cum SA (acres)	2.50	4.16	0.24

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	1193.33	1195.73	158.38	19.66	10.59	9.93	8.19	8.06	0.59	4.78
2	Chan	1195.73	1198.13	426.09	19.66	2.40	26.71	8.19	21.68	2.62	56.77
3	Chan	1198.13	1200.53	426.07	19.66	2.40	26.71	8.19	21.68	2.62	56.77
4	Chan	1200.53	1202.93	426.09	19.66	2.40	26.71	8.19	21.68	2.62	56.77
5	Chan	1202.93	1205.33	158.38	19.66	10.59	9.93	8.19	8.06	0.59	4.78

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 1800

INPUT
Description:
Station Elevation Data num= 32

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1604	1017.58	1603	1024.71	1602	1031.18	1601	1034.87	1600
1036.64	1599	1038.41	1598	1040.44	1597	1043.07	1596	1046.27	1595
1050.71	1594	1054.41	1593.59	1059.85	1593	1115.02	1592	1116.24	1591
1117.33	1590	1148.63	1590	1150.75	1591	1152.41	1592	1153.93	1593
1155.42	1594	1156.91	1595	1158.3	1596	1160.68	1597	1167.6	1597.96
1167.88	1598	1176.94	1599	1181.79	1600	1190.38	1601	1204.71	1602
1220.3	1603	1235.32	1604						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1115.02	.025	1148.63	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1115.02	1160.68	173.79	170.93	148.02	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
1000	1117.33		F

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1596.02	Element			
Vel Head (ft)	1.89	Wt. n-Val.		0.028	
W.S. Elev (ft)	1594.13	Reach Len. (ft)	173.79	170.93	148.02
Crit W.S. (ft)	1594.13	Flow Area (sq ft)		144.68	
E.G. Slope (ft/ft)	0.007845	Area (sq ft)	95.61	151.84	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	105.47	Top Width (ft)	64.88	40.59	
Vel Total (ft/s)	11.02	Avg. Vel. (ft/s)		11.02	
Max Chl Dpth (ft)	4.13	Hydr. Depth (ft)		3.78	
Conv. Total (cfs)	18007.5	Conv. (cfs)		18007.5	
Length Wtd. (ft)	171.45	Wetted Per. (ft)		39.43	
Min Ch El (ft)	1590.00	Shear (lb/sq ft)		1.80	
Alpha	1.00	Stream Power (lb/ft s)		19.81	
Frctn Loss (ft)	1.01	Cum Volume (acre-ft)	2.67	12.15	0.26
C & E Loss (ft)	0.35	Cum SA (acres)	2.47	4.14	0.24

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	1046.01	1069.01	0.00	16.89	18.94	0.00	0.90	0.00	0.44	0.00
2	LOB	1069.01	1092.02	0.00	34.56	23.01	0.00	1.50	0.00	0.74	0.00
3	LOB	1092.02	1115.02	0.00	44.15	23.01	0.00	1.92	0.00	0.94	0.00
4	Chan	1115.02	1117.33	0.00	7.16	3.06	0.00	3.10	0.00	1.15	0.00
5	Chan	1117.33	1126.00	420.37	35.79	8.67	26.36	4.13	11.75	2.02	23.75
6	Chan	1126.00	1134.67	420.37	35.79	8.67	26.36	4.13	11.75	2.02	23.75
7	Chan	1134.67	1143.34	420.36	35.79	8.67	26.35	4.13	11.75	2.02	23.75
8	Chan	1143.34	1152.01	321.55	32.99	9.11	20.16	3.81	9.75	1.77	17.30
9	Chan	1152.01	1160.68	12.35	4.32	4.31	0.77	1.20	2.86	0.49	1.40

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 1750

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1606	1003.52	1605.53	1007.44	1605	1014.27	1604	1020.21	1603
1022.71	1602	1025.14	1601	1027.53	1600	1029.98	1599	1032.42	1598
1034.75	1597	1037.08	1596	1039.84	1595	1043.65	1594	1048.74	1593
1078.87	1592.12	1082.85	1592	1139.68	1591	1210.43	1590	1214.54	1590

1232.62	1590	1285.16	1590	1286.97	1589	1291.48	1588	1318.26	1588
1319.5	1589	1320.31	1590	1321.08	1591	1321.91	1592	1322.72	1593
1323.62	1594	1325.25	1595	1327	1596	1328.9	1597	1330.81	1598
1332.7	1599	1334.57	1600	1336.57	1601	1338.39	1602	1340.86	1603
1343.68	1604	1346.59	1605	1349.5	1606	1352.46	1607	1359.2	1608

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1285.16	.025	1320.31	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1285.16	1352.46	171.49	169.33	179.87	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1592.34	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.73	Wt. n-Val.	0.040	0.026		
W.S. Elev (ft)	1591.61	Reach Len. (ft)	171.49	169.33	179.87	
Crit W.S. (ft)	1591.61	Flow Area (sq ft)	209.48	121.11		
E.G. Slope (ft/ft)	0.004590	Area (sq ft)	209.48	121.11		
Q Total (cfs)	1595.00	Flow (cfs)	582.92	1012.08		
Top Width (ft)	216.59	Top Width (ft)	180.17	36.43		
Vel Total (ft/s)	4.82	Avg. Vel. (ft/s)	2.78	8.36		
Max Chl Dpth (ft)	3.61	Hydr. Depth (ft)	1.16	3.32		
Conv. Total (cfs)	23543.6	Conv. (cfs)	8604.4	14939.2		
Length Wtd. (ft)	170.23	Wetted Per. (ft)	180.18	38.40		
Min Ch El (ft)	1588.00	Shear (lb/sq ft)	0.33	0.90		
Alpha	2.03	Stream Power (lb/ft s)	0.93	7.55		
Frctn Loss (ft)	0.80	Cum Volume (acre-ft)	2.06	11.62	0.26	
C & E Loss (ft)	0.09	Cum SA (acres)	1.98	3.99	0.24	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	1057.03	1114.06	0.31	0.72	9.07	0.02	0.08	0.42	0.02	0.01

2	LOB	1114.06	1171.10	60.59	36.01	57.04	3.80	0.63	1.68	0.18
0.30										
3	LOB	1171.10	1228.13	233.54	80.91	57.04	14.64	1.42	2.89	0.41
1.17										
4	LOB	1228.13	1285.16	288.48	91.84	57.03	18.09	1.61	3.14	0.46
1.45										
5	Chan	1285.16	1298.62	354.95	43.63	13.83	22.25	3.24	8.14	0.90
7.36										
6	Chan	1298.62	1312.08	432.57	48.60	13.46	27.12	3.61	8.90	1.03
9.21										
7	Chan	1312.08	1325.54	224.56	28.89	11.12	14.08	3.04	7.77	0.74
5.79										

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 1700

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1597	1002.28	1596	1005.58	1595	1012.08	1594	1037.72	1593
1096.14	1592	1104.18	1591.88	1165.67	1591	1234.36	1590	1301	1589
1345.94	1588.26	1361.37	1588	1363.83	1588	1410.67	1589	1430.15	1589
1432.44	1588	1434.69	1587	1464.52	1587	1468.96	1588	1473.24	1589
1476.62	1590	1480.53	1591	1483.69	1592	1486.72	1593	1489.52	1594
1492.76	1595	1496	1596	1499.24	1597	1502.4	1598	1504.92	1599
1506.8	1600	1508.64	1601	1510.47	1602	1512.25	1603	1514.06	1604
1515.81	1605	1517.41	1606	1519	1607				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1430.15	.025	1464.52	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1430.15	1519	163.66	161.13	154.63	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1590.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.43	Wt. n-Val.	0.040	0.029	
W.S. Elev (ft)	1590.18	Reach Len. (ft)	163.66	161.13	154.63
Crit W.S. (ft)		Flow Area (sq ft)	255.10	126.27	
E.G. Slope (ft/ft)	0.004822	Area (sq ft)	255.10	126.27	
Q Total (cfs)	1595.00	Flow (cfs)	753.28	841.72	
Top Width (ft)	255.45	Top Width (ft)	208.27	47.18	
Vel Total (ft/s)	4.18	Avg. Vel. (ft/s)	2.95	6.67	
Max Chl Dpth (ft)	3.18	Hydr. Depth (ft)	1.22	2.68	
Conv. Total (cfs)	22968.6	Conv. (cfs)	10847.5	12121.1	
Length Wtd. (ft)	162.08	Wetted Per. (ft)	208.29	48.00	
Min Ch El (ft)	1587.00	Shear (lb/sq ft)	0.37	0.79	
Alpha	1.58	Stream Power (lb/ft s)	1.09	5.28	
Frctn Loss (ft)	0.89	Cum Volume (acre-ft)	1.15	11.13	0.26
C & E Loss (ft)	0.03	Cum SA (acres)	1.22	3.82	0.24

Note: Manning's n values were composited to a single value in the main channel.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	1172.06	1258.09	9.46	9.67	36.21	0.59	0.27	0.98	0.08	0.08
2	LOB	1258.09	1344.12	274.56	103.15	86.04	17.21	1.20	2.66	0.36	0.96
3	LOB	1344.12	1430.15	469.26	142.28	86.04	29.42	1.65	3.30	0.50	1.64
4	Chan	1430.15	1447.92	369.95	51.98	18.19	23.19	2.93	7.12	0.86	6.12
5	Chan	1447.92	1465.69	420.14	56.38	17.80	26.34	3.17	7.45	0.95	7.11
6	Chan	1465.69	1483.46	51.63	17.90	12.01	3.24	1.54	2.88	0.45	1.29

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 1650

INPUT
Description:

Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1611	1008.24	1610	1015.08	1609	1020.16	1608	1023.18	1607
1025.9	1606	1027.82	1605	1029.73	1604	1031.65	1603	1033.58	1602
1035.52	1601	1037.42	1600	1039.38	1599	1041.29	1598	1043.24	1597
1048.3	1596	1056.24	1595	1078.47	1594	1140.38	1593	1199.86	1592
1212.73	1591.78	1258.28	1591	1320.25	1590	1390.53	1589	1471.72	1588
1520.79	1587.04	1523.08	1587	1523.91	1587	1525.73	1588	1527.64	1588
1541.86	1588	1563.09	1588	1574.76	1587	1576.76	1586	1582.3	1585
1600.56	1585	1603.67	1586	1609.52	1587	1614.51	1588	1617.16	1589
1619.96	1590	1622.21	1591	1624.38	1592	1626.5	1593	1628.43	1594
1631.3	1595	1634.46	1596	1654.44	1597	1662.17	1597		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1563.09	.025	1600.56	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1563.09	1634.46	190.68	175.57 185.82	.1	.3

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1589.69	Element			
Vel Head (ft)	0.69	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	1589.01	Reach Len. (ft)	190.68	175.57	185.82
Crit W.S. (ft)	1589.01	Flow Area (sq ft)	160.47	149.56	
E.G. Slope (ft/ft)	0.006318	Area (sq ft)	160.47	149.56	
Q Total (cfs)	1595.00	Flow (cfs)	450.28	1144.72	
Top Width (ft)	227.04	Top Width (ft)	172.95	54.09	
Vel Total (ft/s)	5.14	Avg. Vel. (ft/s)	2.81	7.65	
Max Chl Dpth (ft)	4.01	Hydr. Depth (ft)	0.93	2.77	
Conv. Total (cfs)	20066.4	Conv. (cfs)	5664.9	14401.5	
Length Wtd. (ft)	177.74	Wetted Per. (ft)	173.23	54.98	
Min Ch El (ft)	1585.00	Shear (lb/sq ft)	0.37	1.07	
Alpha	1.67	Stream Power (lb/ft s)	1.03	8.21	
Frctn Loss (ft)	1.65	Cum Volume (acre-ft)	0.37	10.62	0.26
C & E Loss (ft)	0.02	Cum SA (acres)	0.50	3.64	0.24

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

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

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Manning's n values were composited to a single value in the main channel.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	1337.85	1450.47	30.90	22.46	60.34	1.94	0.37	1.38	0.15	0.20
2	LOB	1450.47	1563.09	419.38	138.01	112.89	26.29	1.23	3.04	0.48	1.47
3	Chan	1563.09	1577.36	133.35	24.43	14.56	8.36	1.71	5.46	0.66	3.61
4	Chan	1577.36	1591.64	520.31	54.98	14.35	32.62	3.85	9.46	1.51	14.30
5	Chan	1591.64	1605.91	437.02	52.95	14.46	27.40	3.71	8.25	1.44	11.92
6	Chan	1605.91	1620.19	54.05	17.20	11.60	3.39	1.53	3.14	0.58	1.84

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 1600

INPUT
Description:
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1593	1056.43	1592	1122.58	1591	1188.64	1590	1249.15	1589
1313.23	1588	1394.68	1587	1398.17	1586	1398.88	1586	1401.29	1587
1448.19	1587	1451.06	1586	1453.96	1585	1462.44	1584	1483.55	1584
1520.36	1585	1546.05	1585.71	1556.34	1586	1562.87	1586.3	1578.37	1587
1580.19	1588	1582.08	1589	1583.99	1590	1585.95	1591	1587.5	1592
1589.07	1593	1590.62	1594	1592.14	1595	1593.7	1596	1595.17	1597
1596.58	1598	1600.83	1599	1606.01	1600	1611.1	1601	1614.69	1602
1616.93	1603								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1453.96	.025	1483.55	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1448.19	1562.87	157	142	133	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1587.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.87	Wt. n-Val.	0.040	0.036	0.040
W.S. Elev (ft)	1586.73	Reach Len. (ft)	157.00	142.00	133.00
Crit W.S. (ft)	1586.73	Flow Area (sq ft)	2.10	211.32	2.07
E.G. Slope (ft/ft)	0.014919	Area (sq ft)	2.10	211.32	2.07
Q Total (cfs)	1595.00	Flow (cfs)	5.16	1586.47	3.38
Top Width (ft)	128.51	Top Width (ft)	5.03	113.91	9.57
Vel Total (ft/s)	7.40	Avg. Vel. (ft/s)	2.46	7.51	1.63
Max Chl Dpth (ft)	2.73	Hydr. Depth (ft)	0.42	1.86	0.22
Conv. Total (cfs)	13058.2	Conv. (cfs)	42.2	12988.4	27.6
Length Wtd. (ft)	142.01	Wetted Per. (ft)	5.28	114.30	9.58
Min Ch El (ft)	1584.00	Shear (lb/sq ft)	0.37	1.72	0.20
Alpha	1.02	Stream Power (lb/ft s)	0.91	12.93	0.33
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	0.01	9.90	0.25
C & E Loss (ft)	0.21	Cum SA (acres)	0.11	3.30	0.22

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	1358.55	1448.19	5.16	2.10	5.28	0.32	0.42	2.46	0.37	0.91
2	Chan	1448.19	1471.13	474.47	47.00	22.52	29.75	2.12	10.09	1.94	19.63

3	Chan	1471.13	1494.06	580.26	61.16	22.94	36.38	2.67	9.49	2.48
23.56										
4	Chan	1494.06	1517.00	299.15	48.97	22.94	18.76	2.14	6.11	1.99
12.14										
5	Chan	1517.00	1539.93	167.58	34.59	22.94	10.51	1.51	4.84	1.40
6.80										
6	Chan	1539.93	1562.87	65.00	19.60	22.95	4.08	0.85	3.32	0.80
2.64										
7	ROB	1562.87	1573.68	3.38	2.07	9.58	0.21	0.22	1.63	0.20
0.33										

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 1500

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	1588	1013.71	1587	1025.92	1586	1041.5	1585	1045.93	1584
1051.42	1583	1084.18	1582	1090.64	1581	1096.18	1580	1100.98	1579
1117.37	1578	1146.16	1578	1147.44	1579	1148.27	1580	1148.93	1581
1149.7	1582	1150.44	1583	1151.12	1584	1151.82	1585	1152.39	1586

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1041.5	.025	1146.16	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1041.5	1152.39	125	113	101	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1584.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.		0.026	
W.S. Elev (ft)	1584.67	Reach Len. (ft)	125.00	113.00	101.00
Crit W.S. (ft)		Flow Area (sq ft)		459.99	
E.G. Slope (ft/ft)	0.000575	Area (sq ft)		459.99	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	108.63	Top Width (ft)		108.63	
Vel Total (ft/s)	3.47	Avg. Vel. (ft/s)		3.47	
Max Chl Dpth (ft)	6.67	Hydr. Depth (ft)		4.23	
Conv. Total (cfs)	66524.2	Conv. (cfs)		66524.2	
Length Wtd. (ft)	113.00	Wetted Per. (ft)		112.33	
Min Ch El (ft)	1578.00	Shear (lb/sq ft)		0.15	
Alpha	1.00	Stream Power (lb/ft s)		0.51	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	0.01	8.80	0.25
C & E Loss (ft)	0.22	Cum SA (acres)	0.11	2.94	0.20

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	1041.50	1063.68	46.09	30.18	20.89	2.89	1.46	1.53	0.05	0.08
2	Chan	1063.68	1085.86	113.14	53.02	22.21	7.09	2.39	2.13	0.09	0.18
3	Chan	1085.86	1108.03	352.16	105.22	22.44	22.08	4.74	3.35	0.17	0.56
4	Chan	1108.03	1130.21	607.29	145.27	22.20	38.07	6.55	4.18	0.23	0.98
5	Chan	1130.21	1152.39	476.31	126.31	24.60	29.86	5.91	3.77	0.18	0.69

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 1400

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1291.53	1587	1297.66	1586	1302.32	1585	1311.27	1584	1312.95	1583
1313.61	1582	1314.1	1581	1314.53	1580	1314.93	1579	1315.93	1578
1317.87	1577	1320.08	1576	1332.34	1576	1334.31	1577	1335.72	1578
1336.83	1579	1338.1	1580	1339.32	1581	1340.5	1582	1341.8	1583
1343.02	1584	1344.27	1585	1345.71	1586				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1291.53	.04	1311.27	.025	1332.34	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1291.53	1345.71	122.02	161.58	190.42	.1	.3

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1584.47	Element			
Vel Head (ft)	2.38	Wt. n-Val.		0.030	
W.S. Elev (ft)	1582.09	Reach Len. (ft)	122.02	161.58	190.42
Crit W.S. (ft)	1582.09	Flow Area (sq ft)		128.85	
E.G. Slope (ft/ft)	0.009900	Area (sq ft)		128.85	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	27.06	Top Width (ft)		27.06	
Vel Total (ft/s)	12.38	Avg. Vel. (ft/s)		12.38	
Max Chl Dpth (ft)	6.09	Hydr. Depth (ft)		4.76	
Conv. Total (cfs)	16030.7	Conv. (cfs)		16030.7	
Length Wtd. (ft)	161.58	Wetted Per. (ft)		31.98	
Min Ch El (ft)	1576.00	Shear (lb/sq ft)		2.49	
Alpha	1.00	Stream Power (lb/ft s)		30.82	
Frctn Loss (ft)	1.57	Cum Volume (acre-ft)	0.01	8.04	0.25
C & E Loss (ft)	0.13	Cum SA (acres)	0.11	2.76	0.20

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #BFE

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	Chan	1313.20	1324.04	601.04	50.93	13.36	37.68	4.86	11.80	2.36	27.80
2	Chan	1324.04	1334.87	932.27	64.30	11.20	58.45	5.93	14.50	3.55	51.43
3	Chan	1334.87	1345.71	61.69	13.61	7.41	3.87	2.37	4.53	1.13	5.14

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 1300

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1630.46	1582	1632.6	1581	1634.55	1580	1636.49	1579	1638.34	1578
1639.9	1577	1641.33	1576	1642.75	1575	1644.42	1574	1646.14	1573
1656.34	1573	1658.07	1574	1659.77	1575	1661.13	1576	1662.5	1577
1663.8	1578	1665.15	1579	1666.47	1580	1667.71	1581	1668.93	1582
1670.11	1583	1671.28	1584						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1630.46	.04	1642.75	.025	1659.77	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1630.46	1671.28	198.91	176.37 153.42	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1581.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.95	Wt. n-Val.		0.033	
W.S. Elev (ft)	1579.82	Reach Len. (ft)	198.91	176.37	153.42
Crit W.S. (ft)	1579.54	Flow Area (sq ft)		142.40	

E.G. Slope (ft/ft)	0.009522	Area (sq ft)		142.40	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	31.32	Top Width (ft)		31.32	
Vel Total (ft/s)	11.20	Avg. Vel. (ft/s)		11.20	
Max Chl Dpth (ft)	6.82	Hydr. Depth (ft)		4.55	
Conv. Total (cfs)	16345.8	Conv. (cfs)		16345.8	
Length Wtd. (ft)	176.37	Wetted Per. (ft)		35.38	
Min Ch El (ft)	1573.00	Shear (lb/sq ft)		2.39	
Alpha	1.00	Stream Power (lb/ft s)		26.80	
Frctn Loss (ft)	1.29	Cum Volume (acre-ft)	0.01	7.54	0.25
C & E Loss (ft)	0.35	Cum SA (acres)	0.11	2.65	0.20

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	1630.46	1638.62	8.11	3.62	4.22	0.51	0.97	2.24	0.51	1.14
2	Chan	1638.62	1646.79	359.25	38.09	9.58	22.52	4.67	9.43	2.36	22.29
3	Chan	1646.79	1654.95	794.79	55.64	8.16	49.83	6.82	14.28	4.05	57.87
4	Chan	1654.95	1663.12	424.23	41.42	9.52	26.60	5.07	10.24	2.59	26.49
5	Chan	1663.12	1671.28	8.63	3.64	3.89	0.54	1.17	2.37	0.56	1.32

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 1200

INPUT

Description:

Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1624.95	1580	1626.44	1579	1627.97	1578	1629.5	1577	1630.7	1576
1631.99	1575	1633.31	1574	1634.65	1573	1636.15	1572	1646.88	1572
1648.31	1573	1649.99	1574	1651.83	1575	1653.82	1576	1675.3	1577
1680.92	1578	1683	1578.66	1684.06	1579	1687.77	1580	1691.11	1581

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1624.95	.04	1636.15	.025	1646.88	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1624.95	1691.11	111.5	110.23	110.23	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1580.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.77	Wt. n-Val.		0.038	
W.S. Elev (ft)	1579.36	Reach Len. (ft)	111.50	110.23	110.23
Crit W.S. (ft)		Flow Area (sq ft)		227.00	
E.G. Slope (ft/ft)	0.005776	Area (sq ft)		227.00	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	59.46	Top Width (ft)		59.46	
Vel Total (ft/s)	7.03	Avg. Vel. (ft/s)		7.03	
Max Chl Dpth (ft)	7.35	Hydr. Depth (ft)		3.82	
Conv. Total (cfs)	20987.5	Conv. (cfs)		20987.5	
Length Wtd. (ft)	110.23	Wetted Per. (ft)		63.24	
Min Ch El (ft)	1572.00	Shear (lb/sq ft)		1.29	
Alpha	1.00	Stream Power (lb/ft s)		9.09	
Frctn Loss (ft)	0.60	Cum Volume (acre-ft)	0.01	6.79	0.25
C & E Loss (ft)	0.00	Cum SA (acres)	0.11	2.47	0.20

Note: Manning's n values were composited to a single value in the main channel.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	1624.95	1638.18	334.83	52.12	14.65	20.99	4.25	6.42	1.28	8.24
2	Chan	1638.18	1651.41	934.11	90.68	14.02	58.56	6.85	10.30	2.33	24.03
3	Chan	1651.41	1664.65	187.34	43.12	13.54	11.75	3.26	4.34	1.15	4.99
4	Chan	1664.65	1677.88	122.77	33.21	13.28	7.70	2.51	3.70	0.90	3.33

5	Chan	1677.88	1691.11	15.95	7.87	7.75	1.00	1.05	2.03	0.37
0.74										

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 1100

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1619.57	1580	1621.29	1579	1622.97	1578	1624.61	1577	1626.31	1576
1628.02	1575	1629.57	1574	1630.8	1573	1632	1572	1645.32	1572
1647.11	1573	1648.89	1574	1650.95	1575	1663.2	1575	1664.69	1575
1667.66	1576	1670.65	1577	1672.81	1578	1675.07	1579	1677.38	1580

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1619.57	.04	1632	.025	1645.32	.04	1677.38	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1619.57	1677.38	102.45	103.7	103.7	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1579.52	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.81	Wt. n-Val.		0.037		
W.S. Elev (ft)	1578.70	Reach Len. (ft)	102.45	103.70	103.70	
Crit W.S. (ft)		Flow Area (sq ft)		220.28		
E.G. Slope (ft/ft)	0.005168	Area (sq ft)		220.28		
Q Total (cfs)	1595.00	Flow (cfs)		1595.00		
Top Width (ft)	52.60	Top Width (ft)		52.60		
Vel Total (ft/s)	7.24	Avg. Vel. (ft/s)		7.24		
Max Chl Dpth (ft)	6.70	Hydr. Depth (ft)		4.19		
Conv. Total (cfs)	22187.2	Conv. (cfs)		22187.2		
Length Wtd. (ft)	103.70	Wetted Per. (ft)		56.08		
Min Ch El (ft)	1572.00	Shear (lb/sq ft)		1.27		
Alpha	1.00	Stream Power (lb/ft s)		9.18		
Frctn Loss (ft)	0.74	Cum Volume (acre-ft)	0.01	6.22	0.25	
C & E Loss (ft)	0.03	Cum SA (acres)	0.11	2.33	0.20	

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	1619.57	1631.13	93.83	26.44	11.11	5.88	2.83	3.55	0.77	2.73
2	Chan	1631.13	1642.69	842.49	77.16	11.82	52.82	6.67	10.92	2.11	22.99
3	Chan	1642.69	1654.26	414.77	58.84	12.31	26.00	5.09	7.05	1.54	10.87
4	Chan	1654.26	1665.82	201.31	42.57	11.62	12.62	3.68	4.73	1.18	5.59
5	Chan	1665.82	1677.38	42.59	15.27	9.21	2.67	1.78	2.79	0.54	1.49

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 1000

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1619.06	1579	1620.6	1578	1622.05	1577	1623.54	1576	1625.04	1575
1626.53	1574	1628.01	1573	1629.5	1572	1647.23	1572	1649.07	1573
1650.89	1574	1652.74	1575	1669.86	1576	1674.48	1577	1677.9	1578
1681.44	1579								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1619.06	.04	1647.23	.025	1649.07	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1619.06	1681.44	116.93	118.27	121.55	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1578.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.09	Wt. n-Val.		0.040	
W.S. Elev (ft)	1577.66	Reach Len. (ft)	116.93	118.27	121.55

Crit W.S. (ft)		Flow Area (sq ft)		190.02		
E.G. Slope (ft/ft)	0.010322	Area (sq ft)		190.02		
Q Total (cfs)	1595.00	Flow (cfs)		1595.00		
Top Width (ft)	55.63	Top Width (ft)		55.63		
Vel Total (ft/s)	8.39	Avg. Vel. (ft/s)		8.39		
Max Chl Dpth (ft)	5.66	Hydr. Depth (ft)		3.42		
Conv. Total (cfs)	15699.5	Conv. (cfs)		15699.5		
Length Wtd. (ft)	118.27	Wetted Per. (ft)		58.35		
Min Ch El (ft)	1572.00	Shear (lb/sq ft)		2.10		
Alpha	1.00	Stream Power (lb/ft s)		17.61		
Frctn Loss (ft)	0.98	Cum Volume (acre-ft)	0.01	5.73	0.25	
C & E Loss (ft)	0.05	Cum SA (acres)	0.11	2.20	0.20	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	1619.06	1631.54	233.45	35.33	12.17	14.64	3.38	6.61	1.87	12.37
2	Chan	1631.54	1644.01	727.38	70.58	12.48	45.60	5.66	10.31	3.65	37.57
3	Chan	1644.01	1656.49	473.87	50.65	13.25	29.71	4.06	9.36	2.46	23.05
4	Chan	1656.49	1668.96	136.43	25.87	12.50	8.55	2.07	5.27	1.33	7.03
5	Chan	1668.96	1681.44	23.87	7.59	7.97	1.50	0.98	3.14	0.61	1.93

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 900

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1601.29	1579	1615.48	1578	1617.19	1577	1618.89	1576	1620.39	1575
1621.56	1574	1622.7	1573	1623.85	1572	1627.4	1570	1636.36	1570
1639.19	1572	1644.13	1573	1649.05	1574	1666.38	1575	1667.9	1576
1669.58	1577	1672.3	1578						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1601.29	.04	1601.29	.025	1672.3	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1601.29	1672.3	102.08	103.62	108.33	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1577.72	Element	Left OB	Channel	Right OB	
Vel Head (ft)	1.61	Wt. n-Val.		0.025		
W.S. Elev (ft)	1576.11	Reach Len. (ft)	102.08	103.62	108.33	
Crit W.S. (ft)	1576.11	Flow Area (sq ft)		156.75		
E.G. Slope (ft/ft)	0.006826	Area (sq ft)		156.75		
Q Total (cfs)	1595.00	Flow (cfs)		1595.00		
Top Width (ft)	49.38	Top Width (ft)		49.38		
Vel Total (ft/s)	10.18	Avg. Vel. (ft/s)		10.18		
Max Chl Dpth (ft)	6.11	Hydr. Depth (ft)		3.17		
Conv. Total (cfs)	19305.4	Conv. (cfs)		19305.4		
Length Wtd. (ft)	103.62	Wetted Per. (ft)		52.55		
Min Ch El (ft)	1570.00	Shear (lb/sq ft)		1.27		
Alpha	1.00	Stream Power (lb/ft s)		12.93		
Frctn Loss (ft)	0.38	Cum Volume (acre-ft)	0.01	5.26	0.25	
C & E Loss (ft)	0.28	Cum SA (acres)	0.11	2.05	0.20	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #BFE

Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power

		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	Chan	1615.49	1629.69	406.00	42.08	12.97	25.45	3.83	9.65	1.38	13.34
2	Chan	1629.69	1643.90	910.18	72.28	14.93	57.06	5.09	12.59	2.06	25.97
3	Chan	1643.90	1658.10	219.64	30.29	14.32	13.77	2.13	7.25	0.90	6.54
4	Chan	1658.10	1672.30	59.18	12.10	10.33	3.71	1.21	4.89	0.50	2.44

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 800

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1601.95	1578	1603.41	1577	1604.87	1576	1606.28	1575	1607.03	1574
1607.49	1573	1607.94	1572	1610.31	1570	1622.39	1570	1627.75	1572
1630.97	1573	1649.72	1573	1656.19	1573	1659.75	1574	1663.07	1575
1666.04	1576	1668.67	1577						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1601.95	.04	1601.95	.025	1668.67	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1601.95	1668.67	134	133	133	.1	.3

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1577.04	Element			
Vel Head (ft)	0.69	Wt. n-Val.		0.025	
W.S. Elev (ft)	1576.35	Reach Len. (ft)	134.00	133.00	133.00
Crit W.S. (ft)		Flow Area (sq ft)		239.35	

E.G. Slope (ft/ft)	0.002281	Area (sq ft)		239.35		
Q Total (cfs)	1595.00	Flow (cfs)		1595.00		
Top Width (ft)	62.58	Top Width (ft)		62.58		
Vel Total (ft/s)	6.66	Avg. Vel. (ft/s)		6.66		
Max Chl Dpth (ft)	6.35	Hydr. Depth (ft)		3.82		
Conv. Total (cfs)	33393.9	Conv. (cfs)		33393.9		
Length Wtd. (ft)	133.00	Wetted Per. (ft)		66.55		
Min Ch El (ft)	1570.00	Shear (lb/sq ft)		0.51		
Alpha	1.00	Stream Power (lb/ft s)		3.41		
Frctn Loss (ft)	0.34	Cum Volume (acre-ft)	0.01	4.79	0.25	
C & E Loss (ft)	0.07	Cum SA (acres)	0.11	1.92	0.20	

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	1601.95	1615.29	313.92	50.00	13.87	19.68	4.57	6.28	0.51	3.22
2	Chan	1615.29	1628.64	654.53	77.41	13.75	41.04	5.80	8.45	0.80	6.78
3	Chan	1628.64	1641.98	273.68	45.49	13.45	17.16	3.41	6.02	0.48	2.90
4	Chan	1641.98	1655.33	266.72	44.64	13.34	16.72	3.35	5.97	0.48	2.85
5	Chan	1655.33	1668.67	86.14	21.81	12.13	5.40	1.88	3.95	0.26	1.01

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 700

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1594.24	1578	1595.79	1577	1597.29	1576	1598.78	1575	1600.22	1574
1601.71	1573	1603.56	1572	1607.53	1570	1622.94	1570	1628.9	1572
1641.44	1573	1655.8	1573	1658.53	1572	1662.47	1572	1665.1	1573
1667.19	1574	1668.72	1575	1670.24	1576	1671.81	1577		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1594.24	.04	1607.53	.025	1622.94	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1594.24	1671.81	109	119	125	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1576.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.45	Wt. n-Val.		0.037	
W.S. Elev (ft)	1576.17	Reach Len. (ft)	109.00	119.00	125.00
Crit W.S. (ft)		Flow Area (sq ft)		297.52	
E.G. Slope (ft/ft)	0.002966	Area (sq ft)		297.52	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	73.48	Top Width (ft)		73.48	
Vel Total (ft/s)	5.36	Avg. Vel. (ft/s)		5.36	
Max Chl Dpth (ft)	6.17	Hydr. Depth (ft)		4.05	
Conv. Total (cfs)	29284.6	Conv. (cfs)		29284.6	
Length Wtd. (ft)	119.52	Wetted Per. (ft)		76.78	
Min Ch El (ft)	1570.00	Shear (lb/sq ft)		0.72	
Alpha	1.00	Stream Power (lb/ft s)		3.85	
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)	0.01	3.97	0.25
C & E Loss (ft)	0.02	Cum SA (acres)	0.11	1.71	0.20

Note: Manning's n values were composited to a single value in the main channel.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	1594.24	1609.75	236.47	48.46	14.42	14.83	3.81	4.88	0.62	3.04
2	Chan	1609.75	1625.27	789.97	94.83	15.64	49.53	6.11	8.33	1.12	9.35
3	Chan	1625.27	1640.78	249.66	61.30	15.75	15.65	3.95	4.07	0.72	2.94
4	Chan	1640.78	1656.30	174.93	49.26	15.55	10.97	3.18	3.55	0.59	2.08
5	Chan	1656.30	1671.81	143.97	43.68	15.42	9.03	3.07	3.30	0.52	1.73

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 600

INPUT
Description:
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1567.15	1577	1581.21	1576	1582.7	1575	1584.21	1574	1585.7	1573
1587.59	1572	1591.73	1570	1593.77	1569	1610.31	1569	1617.2	1570
1622.17	1572	1623.98	1572.99	1624	1573	1625.86	1574	1627.65	1575
1661.89	1575	1664.15	1574	1666.35	1573	1668.81	1572	1671.47	1571
1675.87	1571	1679.03	1572	1681.85	1573	1683.37	1574	1684.93	1575
1686.5	1576	1688.2	1577						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1567.15	.04	1591.73	.025	1610.31	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1581.21	1627.65	65.6	65.6	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1576.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.40	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	1575.93	Reach Len. (ft)	65.60	65.60	65.60
Crit W.S. (ft)		Flow Area (sq ft)		243.00	112.34
E.G. Slope (ft/ft)	0.001919	Area (sq ft)		243.00	112.34
Q Total (cfs)	1595.00	Flow (cfs)		1319.52	275.48
Top Width (ft)	105.06	Top Width (ft)		46.33	58.73
Vel Total (ft/s)	4.49	Avg. Vel. (ft/s)		5.43	2.45
Max Chl Dpth (ft)	6.93	Hydr. Depth (ft)		5.25	1.91
Conv. Total (cfs)	36412.2	Conv. (cfs)		30123.4	6288.9
Length Wtd. (ft)	65.60	Wetted Per. (ft)		49.38	60.73
Min Ch El (ft)	1569.00	Shear (lb/sq ft)		0.59	0.22
Alpha	1.26	Stream Power (lb/ft s)		3.20	0.54
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.01	3.23	0.09
C & E Loss (ft)	0.01	Cum SA (acres)	0.11	1.55	0.12

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #BFE

Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1 Chan	1581.21	1590.50	61.30	26.34	10.63	3.84	2.87	2.33	0.30	0.69

2	Chan	1590.50	1599.79	418.45	61.71	9.66	26.23	6.64	6.78	0.77
5.19										
3	Chan	1599.79	1609.07	475.49	64.32	9.29	29.81	6.93	7.39	0.83
6.13										
4	Chan	1609.07	1618.36	281.52	59.45	9.45	17.65	6.40	4.74	0.75
3.57										
5	Chan	1618.36	1627.65	82.76	31.20	10.35	5.19	3.36	2.65	0.36
0.96										
6	ROB	1627.65	1639.76	14.21	11.21	12.11	0.89	0.93	1.27	0.11
0.14										
7	ROB	1639.76	1651.87	14.21	11.21	12.11	0.89	0.93	1.27	0.11
0.14										
8	ROB	1651.87	1663.98	16.13	12.17	12.31	1.01	1.01	1.33	0.12
0.16										
9	ROB	1663.98	1676.09	158.47	48.60	12.73	9.94	4.01	3.26	0.46
1.49										
10	ROB	1676.09	1688.20	72.46	29.15	11.47	4.54	2.83	2.49	0.30
0.76										

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 580

INPUT
Description:

Station Elevation Data	num=	8							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
857.5	1576.11	1000	1575.59	1000	1572.41	1000	1568.41	1037.34	1568.41
1037.34	1572.41	1037.34	1575.59	1187.34	1576.54				

Manning's n Values	num=	3			
Sta	n Val	Sta	n Val	Sta	n Val
857.5	.025	1000	.015	1037.34	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1000	1037.34	102.1	102.1	.3	.5

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1576.26	Element			
Vel Head (ft)	0.53	Wt. n-Val.	0.025	0.015	0.025
W.S. Elev (ft)	1575.73	Reach Len. (ft)	0.01	0.01	0.01
Crit W.S. (ft)	1572.24	Flow Area (sq ft)	2.68	273.32	1.54

E.G. Slope (ft/ft)	0.000376	Area (sq ft)	2.68	273.32	1.54
Q Total (cfs)	1595.00	Flow (cfs)	0.52	1594.18	0.30
Top Width (ft)	97.71	Top Width (ft)	38.30	37.34	22.07
Vel Total (ft/s)	5.75	Avg. Vel. (ft/s)	0.20	5.83	0.20
Max Chl Dpth (ft)	7.32	Hydr. Depth (ft)	0.07	7.32	0.07
Conv. Total (cfs)	82208.2	Conv. (cfs)	27.0	82165.7	15.6
Length Wtd. (ft)	0.01	Wetted Per. (ft)	38.30	51.70	22.07
Min Ch El (ft)	1568.41	Shear (lb/sq ft)	0.00	0.12	0.00
Alpha	1.03	Stream Power (lb/ft s)	0.00	0.72	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	0.01	2.85	0.00
C & E Loss (ft)		Cum SA (acres)	0.08	1.49	0.06

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	943.00	971.50	0.01	0.18	9.80	0.00	0.02	0.07	0.00	0.00
2	LOB	971.50	1000.00	0.51	2.50	28.50	0.03	0.09	0.20	0.00	0.00
3	Chan	1000.00	1007.47	237.91	54.66	14.65	14.92	7.32	4.35	0.09	0.38
4	Chan	1007.47	1014.94	372.78	54.66	7.47	23.37	7.32	6.82	0.17	1.17
5	Chan	1014.94	1022.40	372.79	54.66	7.47	23.37	7.32	6.82	0.17	1.17
6	Chan	1022.40	1029.87	372.78	54.66	7.47	23.37	7.32	6.82	0.17	1.17
7	Chan	1029.87	1037.34	237.91	54.66	14.65	14.92	7.32	4.35	0.09	0.38
8	ROB	1037.34	1067.34	0.30	1.54	22.07	0.02	0.07	0.20	0.00	0.00

BRIDGE

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 550

INPUT
Description: Hafen Road Bridge
Distance from Upstream XS = .01
Deck/Roadway Width = 102
Weir Coefficient = 2.7
Upstream Deck/Roadway Coordinates
  num= 2

```
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    1000 1575.59 1572.41 1037.34 1575.59 1572.41

Upstream Bridge Cross Section Data
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   857.5 1576.11    1000 1575.59    1000 1572.41    1000 1568.41 1037.34 1568.41
 1037.34 1572.41 1037.34 1575.59 1187.34 1576.54

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   857.5    .025    1000    .015 1037.34    .025

Bank Sta: Left   Right    Coeff Contr.   Expan.
          1000 1037.34             .3       .5

Downstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    1000 1575.59 1571.36 1037.34 1575.59 1571.36

Downstream Bridge Cross Section Data
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     900 1576.11    1000 1575.59    1000 1571.36    1000 1567.36 1037.34 1567.36
 1037.34 1571.36 1037.34 1575.59 1231.44 1576.54

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     900    .025    1000    .015 1037.34    .025

Bank Sta: Left   Right    Coeff Contr.   Expan.
          1000 1037.34             .3       .5

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 =     .98
Elevation at which weir flow begins         = 1575.55
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  2

Pier Data
Pier Station     Upstream= 1012.34    Downstream= 1012.34
Upstream     num=       2
    Width   Elev    Width   Elev
     .67 1569.51     .67    1575
Downstream     num=       2
```

```
    Width   Elev    Width   Elev
     .67 1569.51     .67    1575

Pier Data
Pier Station     Upstream=    1025    Downstream=    1025
Upstream     num=       2
    Width   Elev    Width   Elev
     .67 1569.51     .67    1575
Downstream     num=       2
    Width   Elev    Width   Elev
     .67 1569.71     .67    1575

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Yarnell                KVal =    1.25
Selected Low Flow Methods = Energy

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =.8164966
           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

BRIDGE OUTPUT  Profile #BFE

  E.G. US. (ft)               1576.26    Element                 Inside BR US  Inside BR DS
  W.S. US. (ft)               1575.73    E.G. Elev (ft)              1576.26       1576.26
  Q Total (cfs)               1595.00    W.S. Elev (ft)              1575.73       1575.73
  Q Bridge (cfs)              1397.89    Crit W.S. (ft)              1572.34       1571.29
  Q Weir (cfs)                 197.11    Max Chl Dpth (ft)              7.32          8.37
  Weir Sta Lft (ft)            900.00    Vel Total (ft/s)              10.40         10.42
  Weir Sta Rgt (ft)           1173.86    Flow Area (sq ft)            153.44        153.09
  Weir Submerg                   0.00    Froude # Chl                   0.69          0.65
  Weir Max Depth (ft)            0.67    Specif Force (cu ft)        1293.81       1445.22
  Min El Weir Flow (ft)       1575.60    Hydr Depth (ft)                1.57          1.65
  Min El Prs (ft)             1572.41    W.P. Total (ft)              193.71        188.77
  Delta EG (ft)                  3.14    Conv. Total (cfs)
  Delta WS (ft)                  4.54    Top Width (ft)                97.71         92.77
  BR Open Area (sq ft)         144.00    Frctn Loss (ft)
  BR Open Vel (ft/s)             9.71    C & E Loss (ft)
  BR Sluice Coef                 0.50    Shear Total (lb/sq ft)
```

```
  BR Sel Method            Press/Weir    Power Total (lb/ft s)


Warning: Pier drag coefficient of 2.0 assumed for Class B flow.
Warning: The water surface upstream of the bridge computed by the Yarnell method was below critical depth.  The Yarnell
         solution has been disregarded.
Note:    Yarnell answer is not valid if the water surface is above the low chord or if there is weir flow.  The Yarnell answer
         has been disregarded.
Note:    Momentum answer is not valid if the water surface is above the low chord or if there is weir flow.  The momentum
         answer has been disregarded.
Note:    The downstream water surface is below the minimum elevation for pressure flow.  The sluice gate equations were
         used for pressure flow.
Note:    For the cross section inside the bridge at the upstream end, the water surface and energy have been projected
         from the upstream cross section.  The selected bridge modeling method does not compute answers inside the bridge.
Note:    For the cross section inside the bridge at the downstream end, the water surface and energy have been projected
         from the downstream cross section.  The selected bridge modeling method does not compute answers inside the
         bridge.

CROSS SECTION


RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT   RS: 500

INPUT
Description:
Station Elevation Data    num=       8
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     900 1576.11    1000 1575.59    1000 1571.36    1000 1567.36 1037.34 1567.36
 1037.34 1571.36 1037.34 1575.59 1231.44 1576.54

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     900    .025    1000    .015 1037.34    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1000 1037.34             40.6    40.6    40.6             .3       .5

CROSS SECTION OUTPUT  Profile #BFE

  E.G. Elev (ft)           1573.12    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               1.93    Wt. n-Val.                           0.015
  W.S. Elev (ft)           1571.19    Reach Len. (ft)           40.60      40.60      40.60
  Crit W.S. (ft)           1571.19    Flow Area (sq ft)                   142.96
  E.G. Slope (ft/ft)      0.002716    Area (sq ft)                        142.96
  Q Total (cfs)            1595.00    Flow (cfs)                         1595.00
  Top Width (ft)             37.34    Top Width (ft)                       37.34
  Vel Total (ft/s)           11.16    Avg. Vel. (ft/s)                     11.16
  Max Chl Dpth (ft)           3.83    Hydr. Depth (ft)                      3.83
  Conv. Total (cfs)        30606.0    Conv. (cfs)                        30606.0
```

Length Wtd. (ft)	40.60	Wetted Per. (ft)	45.00
Min Ch El (ft)	1567.36	Shear (lb/sq ft)	0.54
Alpha	1.00	Stream Power (lb/ft s)	6.01
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	2.50
C & E Loss (ft)	0.30	Cum SA (acres)	1.40

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	1000.00	1007.47	267.92	28.59	11.30	16.80	3.83	9.37	0.43	4.02
2	Chan	1007.47	1014.94	353.05	28.59	7.47	22.13	3.83	12.35	0.65	8.02
3	Chan	1014.94	1022.40	353.05	28.59	7.47	22.13	3.83	12.35	0.65	8.02
4	Chan	1022.40	1029.87	353.05	28.59	7.47	22.13	3.83	12.35	0.65	8.02
5	Chan	1029.87	1037.34	267.92	28.59	11.30	16.80	3.83	9.37	0.43	4.02

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 400

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1401.03	1573	1416.44	1572	1433.23	1571	1455.07	1570	1472.49	1569
1487.08	1568	1492.83	1567	1496.2	1566	1499.92	1565	1507.96	1564
1515.18	1564	1521.97	1564	1526.3	1565	1530.56	1566	1535.1	1567
1540.51	1568	1546.78	1569	1554.77	1570	1571.65	1571	1596.55	1572
1609.08	1573								

Manning's n Values num= 1

Sta	n Val
1401.03	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1401.03	1609.08	132.08	134.41	158.2	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1569.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.33	Wt. n-Val.		0.030	
W.S. Elev (ft)	1568.60	Reach Len. (ft)	132.08	134.41	158.20
Crit W.S. (ft)	1568.60	Flow Area (sq ft)		172.73	
E.G. Slope (ft/ft)	0.009819	Area (sq ft)		172.73	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	66.00	Top Width (ft)		66.00	
Vel Total (ft/s)	9.23	Avg. Vel. (ft/s)		9.23	
Max Chl Dpth (ft)	4.60	Hydr. Depth (ft)		2.62	
Conv. Total (cfs)	16096.6	Conv. (cfs)		16096.6	
Length Wtd. (ft)	134.41	Wetted Per. (ft)		66.93	
Min Ch El (ft)	1564.00	Shear (lb/sq ft)		1.58	
Alpha	1.00	Stream Power (lb/ft s)		14.61	
Frctn Loss (ft)	1.38	Cum Volume (acre-ft)		2.35	
C & E Loss (ft)	0.12	Cum SA (acres)		1.35	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	1442.64	1484.25	1.89	1.22	5.98	0.12	0.20	1.55	0.13	0.19
2	Chan	1484.25	1525.86	1394.63	140.03	42.14	87.44	3.37	9.96	2.04	20.28
3	Chan	1525.86	1567.47	198.49	31.48	18.81	12.44	1.71	6.31	1.03	6.47

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 300

INPUT
Description:
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1326.59	1566	1398.97	1565	1411.4	1564	1429.8	1563	1447.74	1562
1478.25	1562	1494.89	1563	1505.16	1564	1508.73	1564.29	1517.3	1565
1546.71	1566								

Manning's n Values num= 1

Sta	n Val
1326.59	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1326.59	1546.71	364.63	352.07	359.83	.1	.3

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1565.70	Element			
Vel Head (ft)	0.92	Wt. n-Val.		0.030	
W.S. Elev (ft)	1564.78	Reach Len. (ft)	364.63	352.07	359.83
Crit W.S. (ft)	1564.78	Flow Area (sq ft)		207.27	
E.G. Slope (ft/ft)	0.010752	Area (sq ft)		207.27	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	

Top Width (ft)	112.81	Top Width (ft)	112.81
Vel Total (ft/s)	7.70	Avg. Vel. (ft/s)	7.70
Max Chl Dpth (ft)	2.77	Hydr. Depth (ft)	1.84
Conv. Total (cfs)	15382.0	Conv. (cfs)	15382.0
Length Wtd. (ft)	352.07	Wetted Per. (ft)	113.01
Min Ch El (ft)	1562.00	Shear (lb/sq ft)	1.23
Alpha	1.00	Stream Power (lb/ft s)	9.47
Frctn Loss (ft)	3.94	Cum Volume (acre-ft)	1.76
C & E Loss (ft)	0.05	Cum SA (acres)	1.08

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	1370.61	1414.64	19.48	6.52	12.90	1.22	0.51	2.99	0.34	1.01
2	Chan	1414.64	1458.66	704.05	91.78	44.07	44.14	2.08	7.67	1.40	10.72
3	Chan	1458.66	1502.69	854.21	103.08	44.09	53.56	2.34	8.29	1.57	13.00
4	Chan	1502.69	1546.71	17.26	5.88	11.94	1.08	0.49	2.93	0.33	0.97

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: DUPLICATE EFFECT RS: 200

INPUT

Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1408.98	1562	1430.03	1561	1443.63	1560	1456.15	1559	1483.33	1558
1511.65	1558	1529.54	1558	1535.63	1557	1591.46	1557	1598.86	1558
1605.41	1559	1611.46	1560	1616.72	1561	1621.82	1562	1626.85	1563
1633.43	1564	1640.24	1565	1646.85	1566	1659.32	1567		

Manning's n Values num= 1

Sta	n Val
1408.98	.03

Bank Sta: Left	Right	Coeff Contr.	Expan.
1408.98	1659.32	.1	.3

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1559.98	Element			
Vel Head (ft)	0.76	Wt. n-Val.		0.030	
W.S. Elev (ft)	1559.22	Reach Len. (ft)			
Crit W.S. (ft)	1559.22	Flow Area (sq ft)		228.83	
E.G. Slope (ft/ft)	0.011647	Area (sq ft)		228.83	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	153.42	Top Width (ft)		153.42	
Vel Total (ft/s)	6.97	Avg. Vel. (ft/s)		6.97	
Max Chl Dpth (ft)	2.22	Hydr. Depth (ft)		1.49	
Conv. Total (cfs)	14779.1	Conv. (cfs)		14779.1	
Length Wtd. (ft)		Wetted Per. (ft)		153.69	
Min Ch El (ft)	1557.00	Shear (lb/sq ft)		1.08	
Alpha	1.00	Stream Power (lb/ft s)		7.55	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Slope too steep for slope area to converge during supercritical flow calculations (normal depth is below critical depth). Water surface set to critical depth.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	1408.98	1459.05	1.91	1.12	5.71	0.12	0.20	1.71	0.14	0.24
2	Chan	1459.05	1509.12	256.79	50.42	50.08	16.10	1.01	5.09	0.73	3.73
3	Chan	1509.12	1559.18	647.45	87.87	50.15	40.59	1.76	7.37	1.27	9.39

4	Chan	1559.18	1609.25	688.85	89.42	47.74	43.19	1.88	7.70	1.36
10.49										

Warning: Slope too steep for slope area to converge during supercritical flow calculations (normal depth is below critical depth). Water surface set to critical depth.

SUMMARY OF MANNING'S N VALUES

River:PULSIPHER WASH

Reach	River Sta.	n1	n2	n3	n4
DUPLICATE EFFECT	2590	.04	.025	.04	
DUPLICATE EFFECT	2500	.04	.025	.04	
DUPLICATE EFFECT	2400	.025	.04	0	
DUPLICATE EFFECT	2350	.04	.025	.04	
DUPLICATE EFFECT	2330	.04	.025	.04	
DUPLICATE EFFECT	2300	.04	.025	.04	
DUPLICATE EFFECT	2200	.04	.025	.04	
DUPLICATE EFFECT	2100	.04	.025	.04	
DUPLICATE EFFECT	2000.1	.025	.015	.025	
DUPLICATE EFFECT	2000	.025	.015	.025	
DUPLICATE EFFECT	1950	Bridge			
DUPLICATE EFFECT	1900	.025	.015	.025	
DUPLICATE EFFECT	1800	.04	.025	.04	
DUPLICATE EFFECT	1750	.04	.025	.04	
DUPLICATE EFFECT	1700	.04	.025	.04	
DUPLICATE EFFECT	1650	.04	.025	.04	
DUPLICATE EFFECT	1600	.04	.025	.04	
DUPLICATE EFFECT	1500	.04	.025	.04	
DUPLICATE EFFECT	1400	.04	.025	.04	
DUPLICATE EFFECT	1300	.04	.025	.04	
DUPLICATE EFFECT	1200	.04	.025	.04	
DUPLICATE EFFECT	1100	.04	.025	.04	.04
DUPLICATE EFFECT	1000	.04	.025	.04	
DUPLICATE EFFECT	900	.04	.025	.04	
DUPLICATE EFFECT	800	.04	.025	.04	
DUPLICATE EFFECT	700	.04	.025	.04	
DUPLICATE EFFECT	600	.04	.025	.04	
DUPLICATE EFFECT	580	.025	.015	.025	
DUPLICATE EFFECT	550	Bridge			
DUPLICATE EFFECT	500	.025	.015	.025	
DUPLICATE EFFECT	400	.03			
DUPLICATE EFFECT	300	.03			
DUPLICATE EFFECT	200	.03			

SUMMARY OF REACH LENGTHS

River: PULSIPHER WASH

Reach	River Sta.	Left	Channel	Right
DUPLICATE EFFECT	2590	226	210	201
DUPLICATE EFFECT	2500	186.68	179.72	182.96
DUPLICATE EFFECT	2400	57	71	87
DUPLICATE EFFECT	2350	64	63	63
DUPLICATE EFFECT	2330	235	240	222
DUPLICATE EFFECT	2300	320.42	311.55	310.65
DUPLICATE EFFECT	2200	383.01	328.57	273.85
DUPLICATE EFFECT	2100	67.6	97.6	97.6
DUPLICATE EFFECT	2000.1	1	1	1
DUPLICATE EFFECT	2000	320.07	319.85	303.13
DUPLICATE EFFECT	1950	Bridge		
DUPLICATE EFFECT	1900	38.8	38.8	38.3
DUPLICATE EFFECT	1800	173.79	170.93	148.02
DUPLICATE EFFECT	1750	171.49	169.33	179.87
DUPLICATE EFFECT	1700	163.66	161.13	154.63
DUPLICATE EFFECT	1650	190.68	175.57	185.82
DUPLICATE EFFECT	1600	157	142	133
DUPLICATE EFFECT	1500	125	113	101
DUPLICATE EFFECT	1400	122.02	161.58	190.42
DUPLICATE EFFECT	1300	198.91	176.37	153.42
DUPLICATE EFFECT	1200	111.5	110.23	110.23
DUPLICATE EFFECT	1100	102.45	103.7	103.7
DUPLICATE EFFECT	1000	116.93	118.27	121.55
DUPLICATE EFFECT	900	102.08	103.62	108.33
DUPLICATE EFFECT	800	134	133	133
DUPLICATE EFFECT	700	109	119	125
DUPLICATE EFFECT	600	65.6	65.6	65.6
DUPLICATE EFFECT	580	102.1	102.1	102.1
DUPLICATE EFFECT	550	Bridge		
DUPLICATE EFFECT	500	40.6	40.6	40.6
DUPLICATE EFFECT	400	132.08	134.41	158.2
DUPLICATE EFFECT	300	364.63	352.07	359.83
DUPLICATE EFFECT	200			

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: PULSIPHER WASH

Reach	River Sta.	Contr.	Expan.

DUPLICATE EFFECT	2590		.1	.3
DUPLICATE EFFECT	2500		.1	.3
DUPLICATE EFFECT	2400		.1	.3
DUPLICATE EFFECT	2350		.1	.3
DUPLICATE EFFECT	2330		.1	.3
DUPLICATE EFFECT	2300		.1	.3
DUPLICATE EFFECT	2200		.1	.3
DUPLICATE EFFECT	2100		.1	.3
DUPLICATE EFFECT	2000.1		.1	.1
DUPLICATE EFFECT	2000		.3	.5
DUPLICATE EFFECT	1950	Bridge		
DUPLICATE EFFECT	1900		.3	.5
DUPLICATE EFFECT	1800		.1	.3
DUPLICATE EFFECT	1750		.1	.3
DUPLICATE EFFECT	1700		.1	.3
DUPLICATE EFFECT	1650		.1	.3
DUPLICATE EFFECT	1600		.1	.3
DUPLICATE EFFECT	1500		.1	.3
DUPLICATE EFFECT	1400		.1	.3
DUPLICATE EFFECT	1300		.1	.3
DUPLICATE EFFECT	1200		.1	.3
DUPLICATE EFFECT	1100		.1	.3
DUPLICATE EFFECT	1000		.1	.3
DUPLICATE EFFECT	900		.1	.3
DUPLICATE EFFECT	800		.1	.3
DUPLICATE EFFECT	700		.1	.3
DUPLICATE EFFECT	600		.1	.3
DUPLICATE EFFECT	580		.3	.5
DUPLICATE EFFECT	550	Bridge		
DUPLICATE EFFECT	500		.3	.5
DUPLICATE EFFECT	400		.1	.3
DUPLICATE EFFECT	300		.1	.3
DUPLICATE EFFECT	200		.1	.3

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : PULSIPHER WASH DUPLICATE EFFECTIVE

River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 2590 Profile: BFE
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated

water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 2500 Profile: BFE

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 2400 Profile: BFE

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 2350 Profile: BFE

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

Note: Manning's n values were composited to a single value in the main channel.

River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 2330 Profile: BFE

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

Note: Manning's n values were composited to a single value in the main channel.

River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 2300 Profile: BFE

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

Note: Manning's n values were composited to a single value in the main channel.

River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 2200 Profile: BFE

Note: Manning's n values were composited to a single value in the main channel.

River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 2100 Profile: BFE

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 2000.1 Profile: BFE

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 2000 Profile: BFE

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

River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 1950 Profile: BFE

Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.

Note: The downstream water surface is below the minimum elevation for pressure flow. The sluice gate equations were used for pressure flow.

River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 1950 Profile: BFE Upstream

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

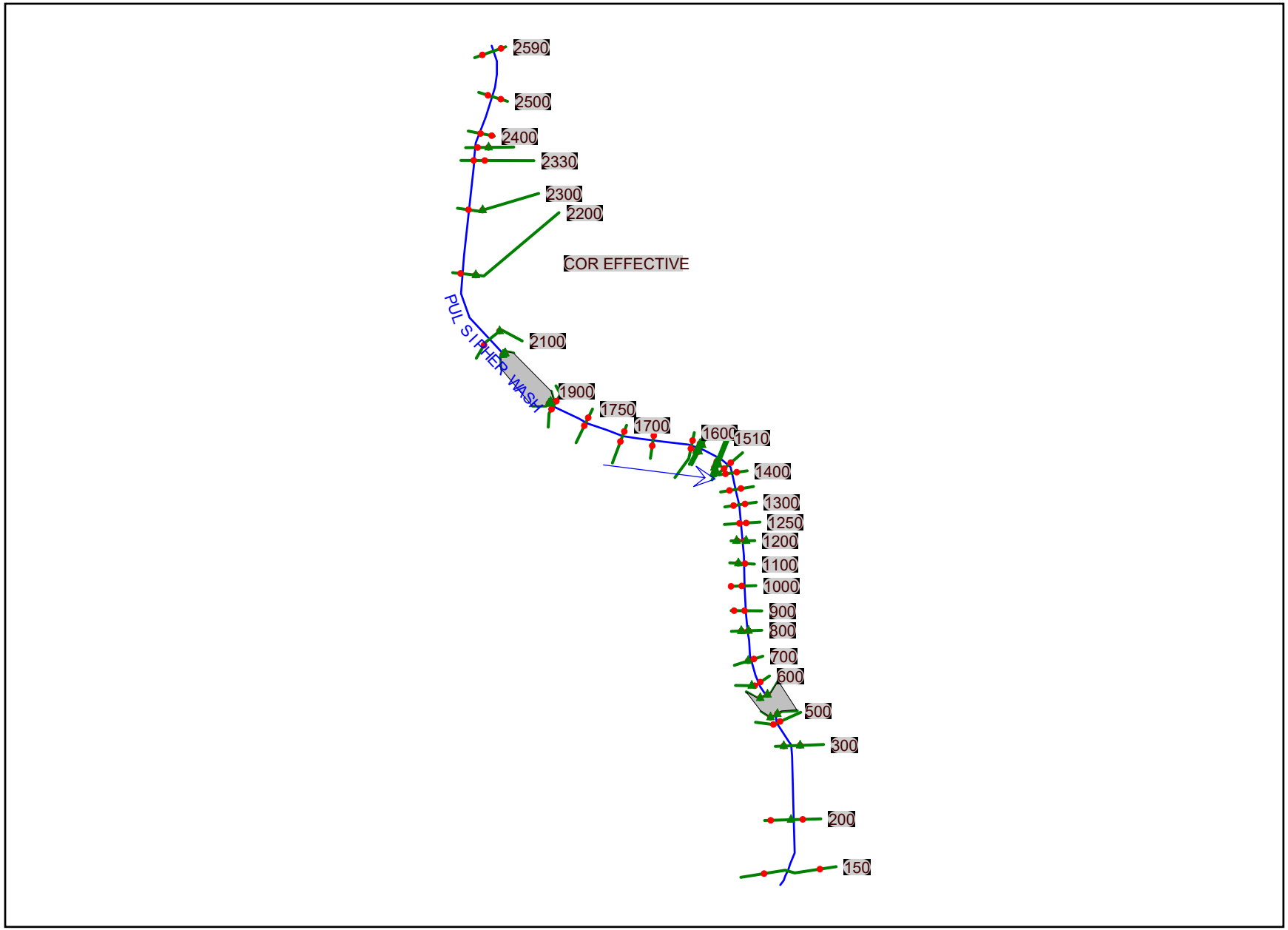
Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from

the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 1950 Profile: BFE Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: For the cross section inside the bridge at the downstream end, the energy is based on critical depth over the weir. The water surface has been projected.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 1900 Profile: BFE
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 1800 Profile: BFE
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 1750 Profile: BFE
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 1700 Profile: BFE
Note: Manning's n values were composited to a single value in the main channel.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 1650 Profile: BFE
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 1600 Profile: BFE
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 1500 Profile: BFE
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 1400 Profile: BFE
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 1300 Profile: BFE
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 1200 Profile: BFE
Note: Manning's n values were composited to a single value in the main channel.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 1100 Profile: BFE
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 1000 Profile: BFE
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 900 Profile: BFE
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 700 Profile: BFE
Note: Manning's n values were composited to a single value in the main channel.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 600 Profile: BFE
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 550 Profile: BFE
Warning: Pier drag coefficient of 2.0 assumed for Class B flow.
Warning: The water surface upstream of the bridge computed by the Yarnell method was below critical depth. The Yarnell solution has been disregarded.
Note: Yarnell answer is not valid if the water surface is above the low chord or if there is weir flow. The Yarnell answer has been disregarded.
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Note: The downstream water surface is below the minimum elevation for pressure flow. The sluice gate equations were used for pressure flow.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 550 Profile: BFE Upstream
Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 550 Profile: BFE Downstream
Note: For the cross section inside the bridge at the downstream end, the water surface and energy have been projected from the downstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 500 Profile: BFE
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 400 Profile: BFE
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 300 Profile: BFE
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: PULSIPHER WASH Reach: DUPLICATE EFFECT RS: 200 Profile: BFE
Warning: Slope too steep for slope area to converge during supercritical flow calculations (normal depth is below critical depth). Water surface set to critical depth.

CORRECTED EFFECTIVE


2590
2500
2400
2330
2300
2200
COR EFFECTIVE
PUL SIPHER WASH
2100
1900
1750
1700
1600
1510
1400
1300
1250
1200
1100
1000
900
800
700
600
500
300
200
150

HEC-RAS Plan: PULSIPHER WASH CORRECTED EFFECTIVE River: PULSIPHER WASH Reach: COR EFFECTIVE

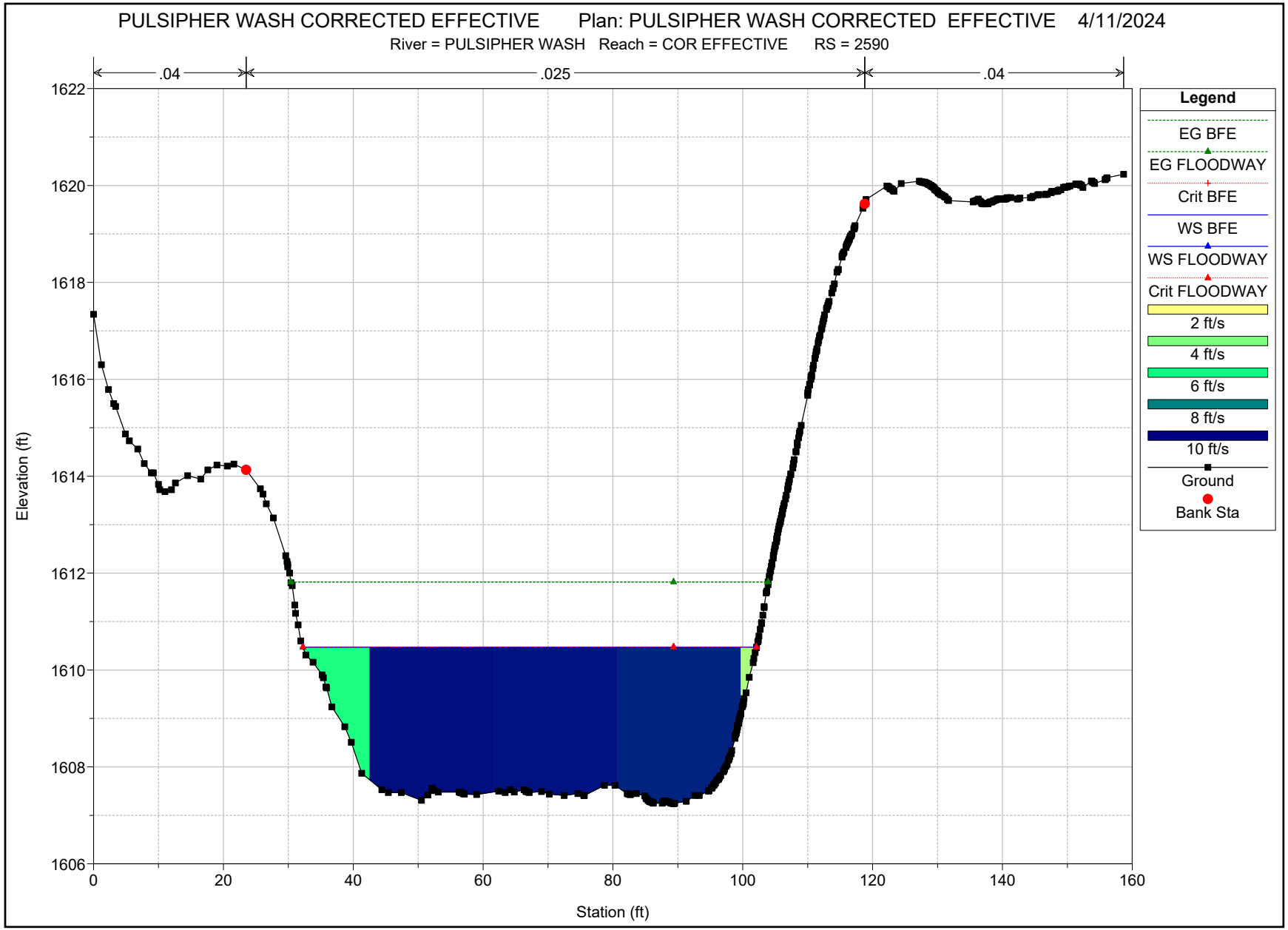
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
COR EFFECTIVE	2590	BFE	1723.0	1607.2	1610.5	1610.5	1611.8	0.006838	9.3	185.3	70	1.01
COR EFFECTIVE	2590	FLOODWAY	1723.0	1607.2	1610.5	1610.5	1611.8	0.006841	9.3	185.3	70	1.01
COR EFFECTIVE	2500	BFE	1972.0	1600.0	1606.6		1608.0	0.003620	9.2	214.5	48	0.77
COR EFFECTIVE	2500	FLOODWAY	1972.0	1600.0	1606.8		1608.0	0.003215	8.8	224.6	50	0.73
COR EFFECTIVE	2400	BFE	1972.0	1599.1	1606.1		1607.3	0.003034	8.8	225.0	50	0.71
COR EFFECTIVE	2400	FLOODWAY	1972.0	1599.1	1606.4		1607.5	0.002609	8.3	238.7	49	0.66
COR EFFECTIVE	2350	BFE	1972.0	1598.8	1606.4	1603.8	1607.0	0.001262	6.5	307.0	131	0.47
COR EFFECTIVE	2350	FLOODWAY	1972.0	1598.8	1606.6	1603.8	1607.2	0.001143	6.2	318.9	53	0.44
COR EFFECTIVE	2330	BFE	1972.0	1598.4	1606.2	1604.5	1606.9	0.001837	7.0	394.0	210	0.56
COR EFFECTIVE	2330	FLOODWAY	1972.0	1598.4	1606.0		1607.1	0.002565	8.2	241.3	50	0.66
COR EFFECTIVE	2300	BFE	1972.0	1597.2	1606.3	1602.4	1606.6	0.000442	4.3	461.3	316	0.29
COR EFFECTIVE	2300	FLOODWAY	1972.0	1597.2	1606.3	1602.4	1606.6	0.000483	4.3	457.5	69	0.29
COR EFFECTIVE	2200	BFE	1972.0	1595.0	1606.3	1600.3	1606.5	0.000197	3.3	607.5	524	0.20
COR EFFECTIVE	2200	FLOODWAY	1972.0	1595.0	1606.3	1600.3	1606.5	0.000222	3.3	601.3	73	0.20
COR EFFECTIVE	2100	BFE	1972.0	1592.5	1606.3	1597.6	1606.4	0.000064	2.1	940.5	218	0.12
COR EFFECTIVE	2100	FLOODWAY	1972.0	1592.5	1606.3	1597.6	1606.4	0.000069	2.1	940.6	97	0.12
COR EFFECTIVE	2000.1	BFE	1972.0	1591.8	1601.2	1601.2	1605.9	0.005171	17.4	113.2	16	1.00
COR EFFECTIVE	2000.1	FLOODWAY	1972.0	1591.8	1601.2	1601.2	1605.9	0.005170	17.4	113.3	16	1.00
COR EFFECTIVE	2000	BFE	1498.0	1585.1	1596.4	1592.9	1598.3	0.001988	11.0	136.3	12	0.58
COR EFFECTIVE	2000	FLOODWAY	1498.0	1585.1	1596.4	1592.9	1598.3	0.001988	11.0	136.3	12	0.58
COR EFFECTIVE	1950		Bridge									
COR EFFECTIVE	1900	BFE	1595.0	1585.1	1593.3	1593.3	1597.4	0.005115	16.2	98.3	12	1.00
COR EFFECTIVE	1900	FLOODWAY	1595.0	1585.1	1593.3	1593.3	1597.4	0.005115	16.2	98.3	12	1.00
COR EFFECTIVE	1800	BFE	1595.0	1584.5	1589.0	1588.6	1590.3	0.004295	9.2	174.4	48	0.83
COR EFFECTIVE	1800	FLOODWAY	1595.0	1584.5	1589.1		1590.4	0.004378	9.1	174.5	46	0.82
COR EFFECTIVE	1750	BFE	1595.0	1583.3	1587.6	1587.6	1589.4	0.006368	10.7	149.6	43	1.00
COR EFFECTIVE	1750	FLOODWAY	1595.0	1583.3	1587.6	1587.6	1589.4	0.006419	10.6	150.1	42	0.99
COR EFFECTIVE	1700	BFE	1595.0	1581.8	1587.0		1587.8	0.002387	7.3	218.8	54	0.63
COR EFFECTIVE	1700	FLOODWAY	1595.0	1581.8	1587.0		1587.8	0.002427	7.3	218.2	52	0.63

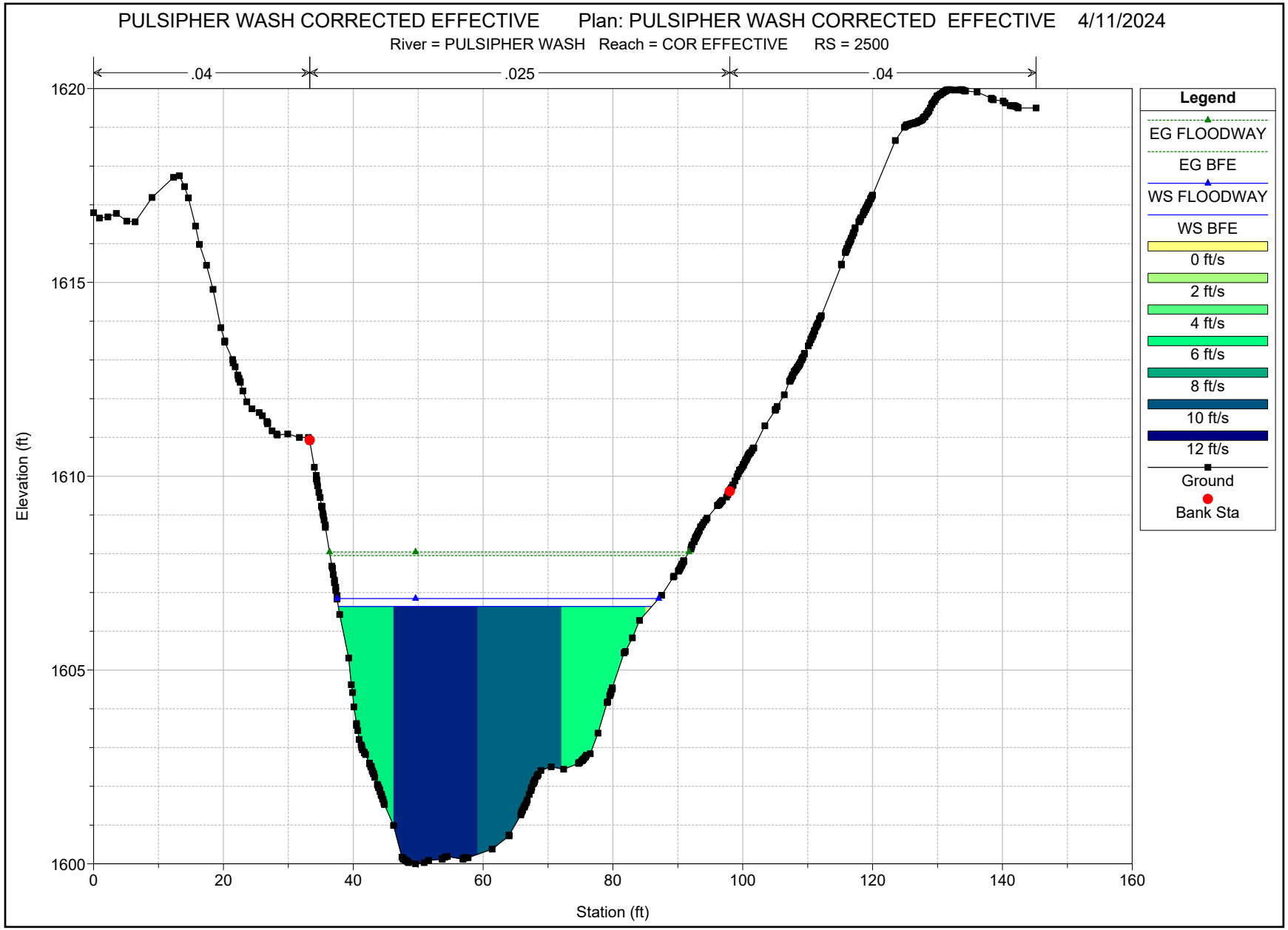
HEC-RAS Plan: PULSIPHER WASH CORRECTED EFFECTIVE River: PULSIPHER WASH Reach: COR EFFECTIVE (Continued)

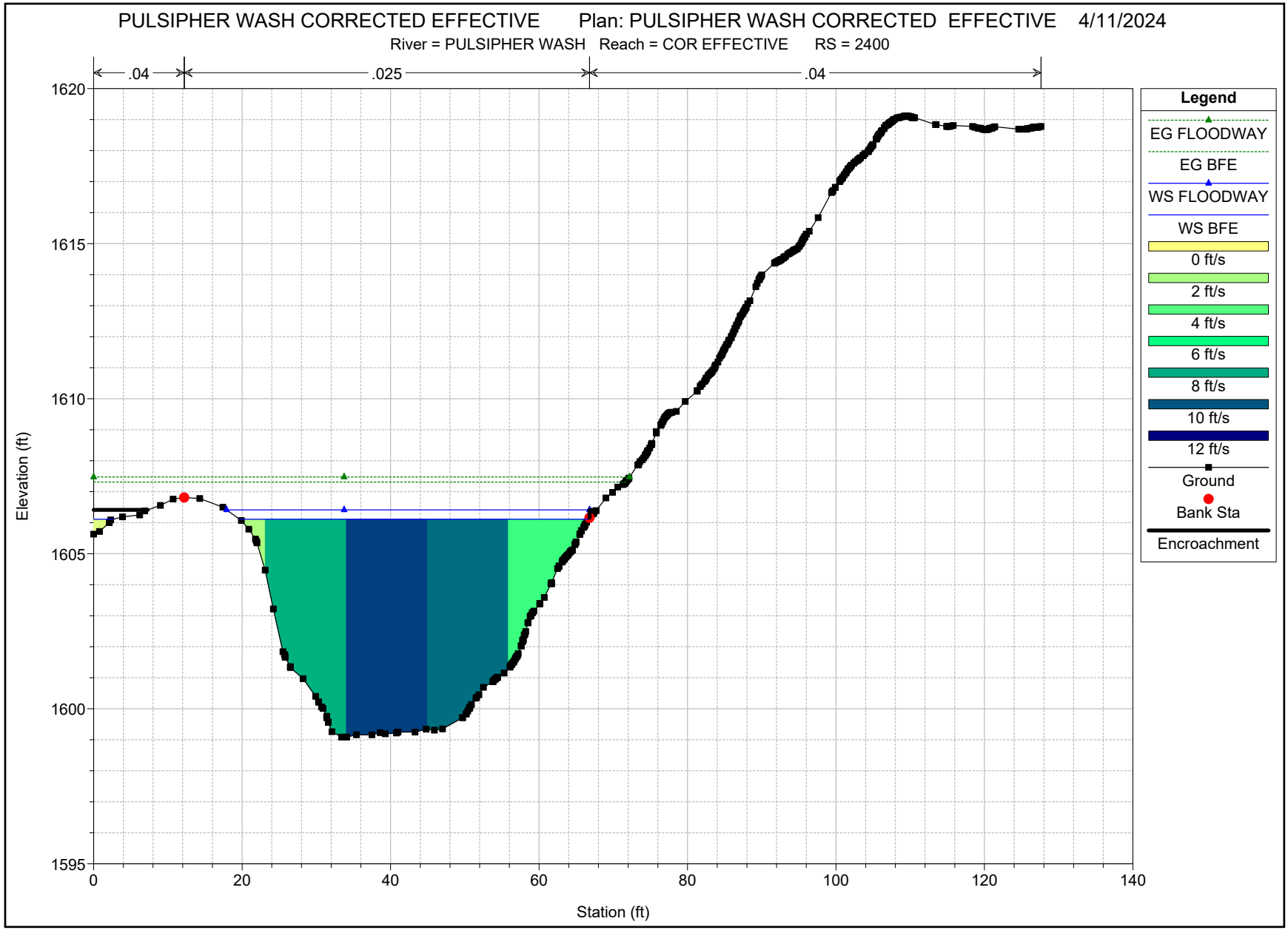
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
COR EFFECTIVE	1650	BFE	1595.0	1580.5	1586.4		1587.4	0.003000	8.0	201.1	52	0.69
COR EFFECTIVE	1650	FLOODWAY	1595.0	1580.5	1586.4		1587.4	0.003168	8.0	198.3	49	0.70
COR EFFECTIVE	1600	BFE	1595.0	1579.0	1585.6	1585.6	1586.7	0.003963	9.1	228.4	104	0.79
COR EFFECTIVE	1600	FLOODWAY	1595.0	1579.0	1585.7	1585.5	1586.7	0.003537	8.7	241.2	105	0.75
COR EFFECTIVE	1550	BFE	1595.0	1578.6	1585.2	1584.4	1586.5	0.003378	9.2	173.0	109	0.76
COR EFFECTIVE	1550	FLOODWAY	1595.0	1578.6	1585.4	1584.4	1586.6	0.003500	8.9	178.9	37	0.72
COR EFFECTIVE	1540	BFE	1595.0	1578.6	1585.3	1584.1	1586.5	0.002499	8.6	185.3	125	0.67
COR EFFECTIVE	1540	FLOODWAY	1595.0	1578.6	1585.4	1584.1	1586.5	0.002779	8.4	190.2	36	0.64
COR EFFECTIVE	1510	BFE	1595.0	1577.2	1584.2	1583.3	1586.1	0.003538	11.1	144.2	104	0.80
COR EFFECTIVE	1510	FLOODWAY	1595.0	1577.2	1584.2	1583.3	1586.1	0.004802	11.0	145.1	24	0.79
COR EFFECTIVE	1500	BFE	1595.0	1577.1	1583.5	1583.5	1586.0	0.006158	12.6	127.0	90	1.00
COR EFFECTIVE	1500	FLOODWAY	1595.0	1577.1	1583.5	1583.5	1586.0	0.007371	12.6	127.0	26	1.00
COR EFFECTIVE	1450	BFE	1595.0	1576.7	1583.2	1583.2	1585.4	0.006602	11.7	136.0	32	1.00
COR EFFECTIVE	1450	FLOODWAY	1595.0	1576.7	1583.2	1583.2	1585.4	0.006676	11.8	135.4	32	1.01
COR EFFECTIVE	1400	BFE	1595.0	1574.6	1581.0	1580.9	1583.1	0.006602	11.7	136.3	32	1.00
COR EFFECTIVE	1400	FLOODWAY	1595.0	1574.6	1581.3	1581.3	1583.7	0.007597	12.5	127.4	26	1.00
COR EFFECTIVE	1350	BFE	1595.0	1574.0	1580.5	1580.5	1582.5	0.006580	11.5	139.1	34	1.00
COR EFFECTIVE	1350	FLOODWAY	1595.0	1574.0	1580.5	1580.5	1582.5	0.006581	11.5	139.1	34	1.00
COR EFFECTIVE	1300	BFE	1595.0	1572.8	1581.0		1581.5	0.001095	5.8	274.5	49	0.43
COR EFFECTIVE	1300	FLOODWAY	1595.0	1572.8	1581.3		1581.8	0.000918	5.5	292.1	50	0.40
COR EFFECTIVE	1250	BFE	1595.0	1571.9	1578.9	1578.9	1581.2	0.006020	12.3	140.0	33	0.96
COR EFFECTIVE	1250	FLOODWAY	1595.0	1571.9	1578.9	1578.9	1581.4	0.007694	12.8	124.7	25	1.01
COR EFFECTIVE	1200	BFE	1595.0	1571.7	1579.1	1578.2	1580.5	0.003721	9.5	169.1	37	0.76
COR EFFECTIVE	1200	FLOODWAY	1595.0	1571.7	1579.2	1578.2	1580.5	0.003671	9.3	171.0	36	0.75
COR EFFECTIVE	1100	BFE	1595.0	1570.6	1577.6	1577.6	1579.9	0.006367	12.2	131.4	46	0.99
COR EFFECTIVE	1100	FLOODWAY	1595.0	1570.6	1577.6	1577.6	1579.9	0.007132	12.2	130.8	28	1.00
COR EFFECTIVE	1000	BFE	1595.0	1570.0	1577.3		1578.7	0.003639	9.6	167.4	36	0.76
COR EFFECTIVE	1000	FLOODWAY	1595.0	1570.0	1577.4		1578.8	0.003758	9.5	167.9	34	0.75

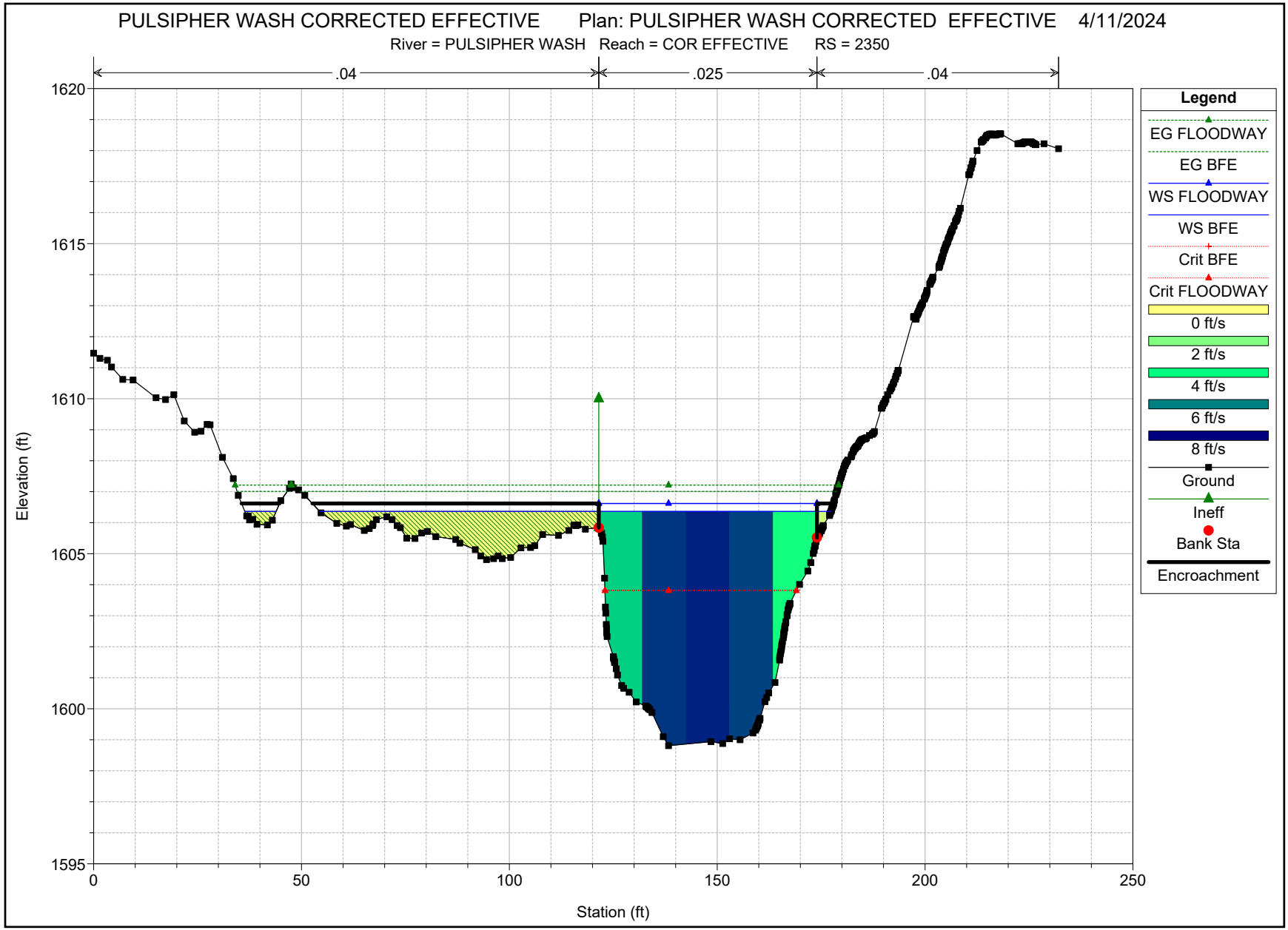
HEC-RAS Plan: PULSIPHER WASH CORRECTED EFFECTIVE River: PULSIPHER WASH Reach: COR EFFECTIVE (Continued)

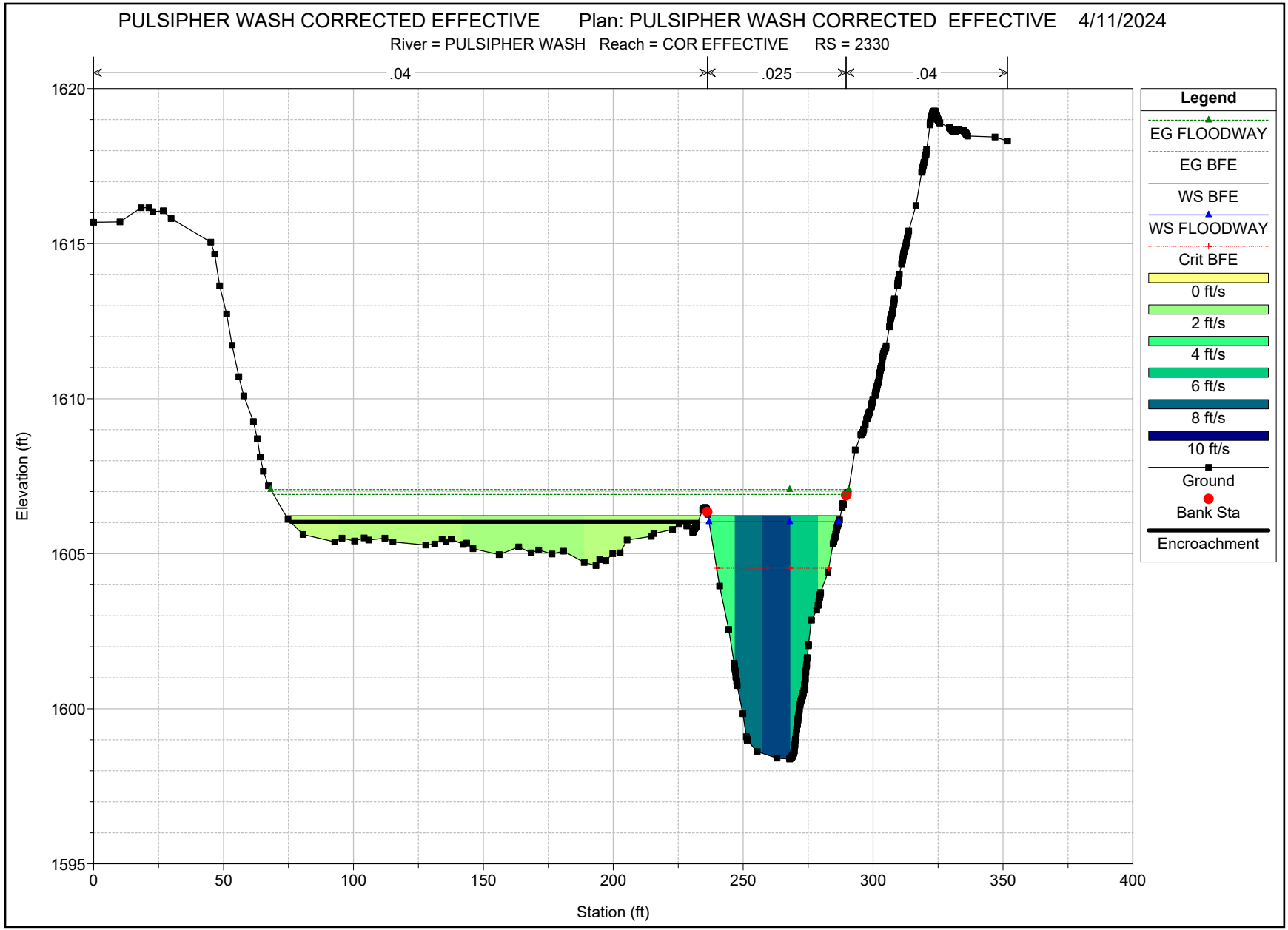
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
COR EFFECTIVE	900	BFE	1595.0	1569.1	1577.4		1578.3	0.002067	7.7	208.8	41	0.58
COR EFFECTIVE	900	FLOODWAY	1595.0	1569.1	1577.4		1578.3	0.002103	7.6	209.2	39	0.58
COR EFFECTIVE	800	BFE	1595.0	1568.6	1575.9	1575.6	1577.9	0.005269	11.3	142.1	57	0.91
COR EFFECTIVE	800	FLOODWAY	1595.0	1568.6	1575.9	1575.6	1577.9	0.005458	11.3	141.9	30	0.91
COR EFFECTIVE	700	BFE	1595.0	1568.2	1574.7	1574.7	1577.0	0.006640	12.2	131.3	50	1.01
COR EFFECTIVE	700	FLOODWAY	1595.0	1568.2	1574.7	1574.7	1577.0	0.006552	12.1	132.2	29	1.00
COR EFFECTIVE	600	BFE	1595.0	1568.1	1573.9	1573.9	1576.0	0.006314	11.7	136.8	49	1.00
COR EFFECTIVE	600	FLOODWAY	1595.0	1568.1	1573.9	1573.9	1576.0	0.006309	11.6	137.2	33	0.99
COR EFFECTIVE	580	BFE	1595.0	1568.1	1573.1	1571.9	1574.2	0.001154	8.4	190.3	39	0.66
COR EFFECTIVE	580	FLOODWAY	1595.0	1568.1	1573.1	1571.9	1574.2	0.001154	8.4	190.3	39	0.66
COR EFFECTIVE	550		Bridge									
COR EFFECTIVE	500	BFE	1595.0	1567.1	1570.9	1570.9	1572.8	0.002698	11.0	144.5	39	1.00
COR EFFECTIVE	500	FLOODWAY	1595.0	1567.1	1570.9	1570.9	1572.8	0.002706	11.0	144.4	39	1.01
COR EFFECTIVE	400	BFE	1595.0	1560.9	1566.9	1566.9	1568.6	0.007962	10.7	155.8	50	0.94
COR EFFECTIVE	400	FLOODWAY	1595.0	1560.9	1566.8	1566.8	1568.7	0.008567	11.0	147.7	40	0.97
COR EFFECTIVE	300	BFE	1595.0	1562.3	1565.3	1565.3	1566.5	0.009842	8.6	184.6	149	1.00
COR EFFECTIVE	300	FLOODWAY	1595.0	1562.3	1565.3	1565.3	1566.5	0.009842	8.6	184.6	80	1.00
COR EFFECTIVE	200	BFE	1595.0	1556.7	1559.4	1559.4	1560.4	0.010169	8.0	199.0	158	0.99
COR EFFECTIVE	200	FLOODWAY	1595.0	1556.7	1559.4	1559.4	1560.4	0.010555	8.1	196.8	156	1.00
COR EFFECTIVE	150	BFE	1595.0	1553.5	1557.2	1556.9	1557.6	0.005006	5.4	293.1	197	0.79
COR EFFECTIVE	150	FLOODWAY	1595.0	1553.5	1557.2	1556.9	1557.6	0.005006	5.4	293.1	197	0.79

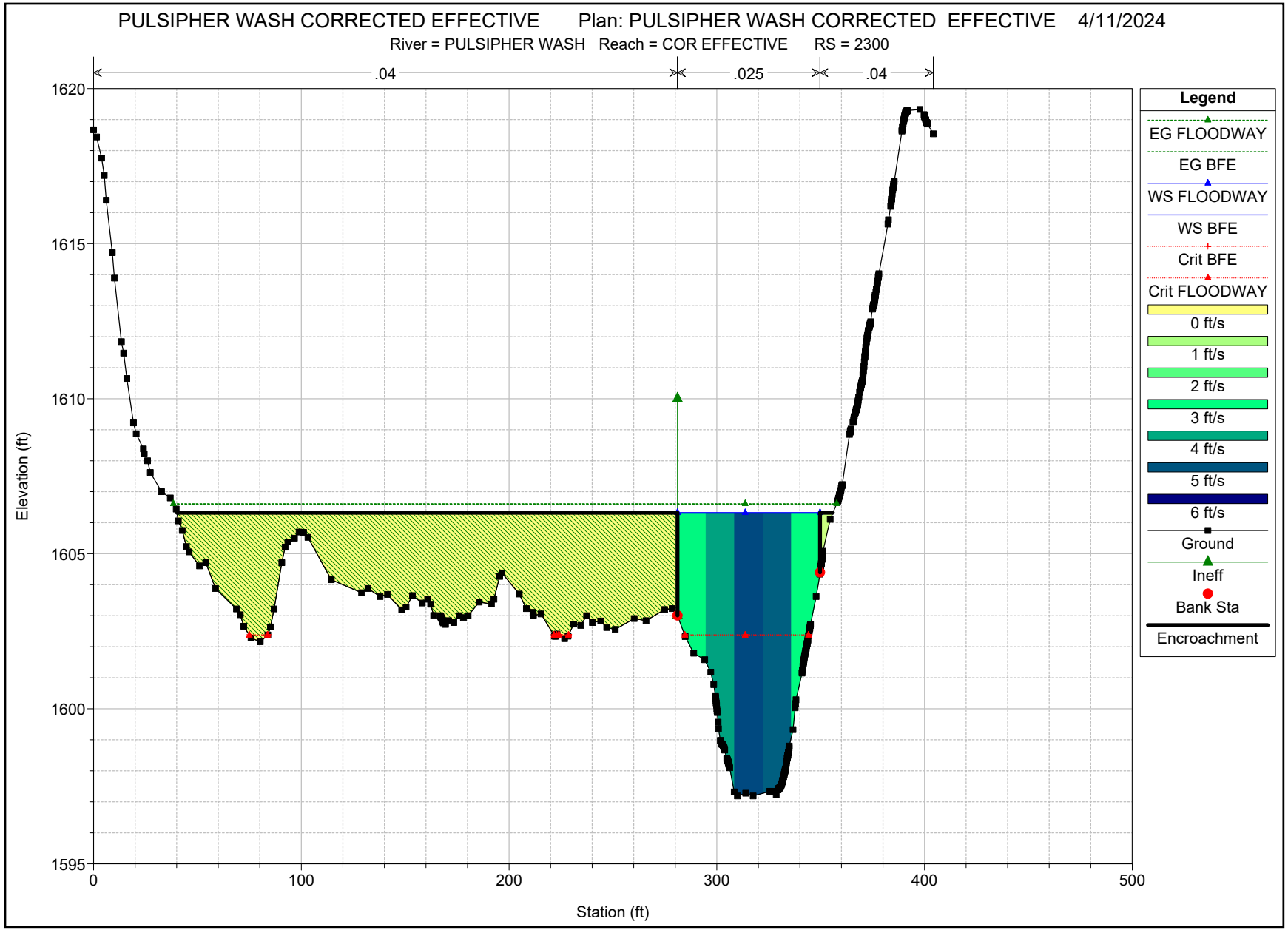

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 2590
.04
.025
.04
Legend
EG BFE
EG FLOODWAY
Crit BFE
WS BFE
WS FLOODWAY
Crit FLOODWAY
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)
1622
1620
1618
1616
1614
1612
1610
1608
1606
0
20
40
60
80
100
120
140
160

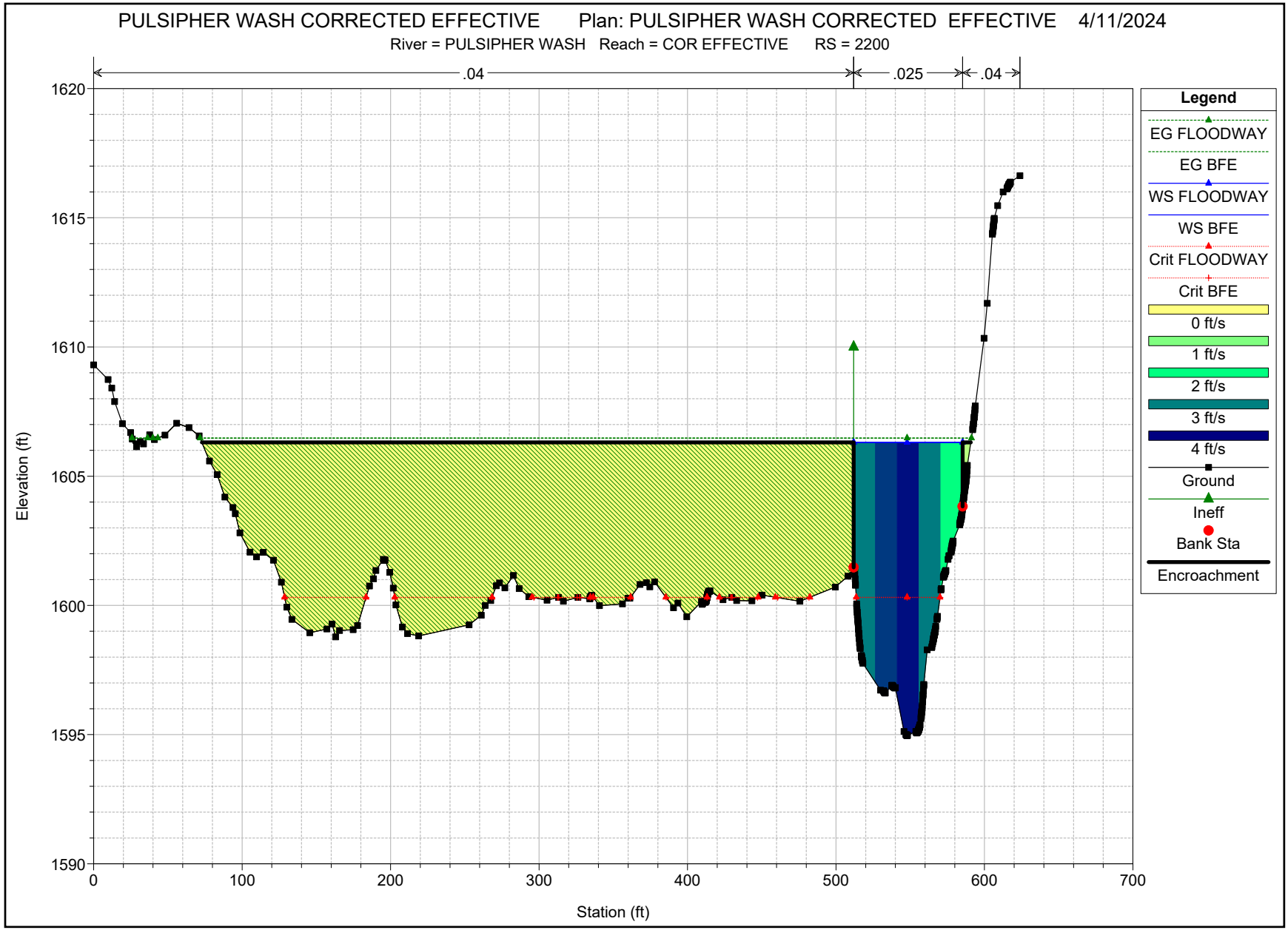

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 2500
.04
.025
.04
Elevation (ft)
1620
1615
1610
1605
1600
0
20
40
60
80
100
120
140
160
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Bank Sta

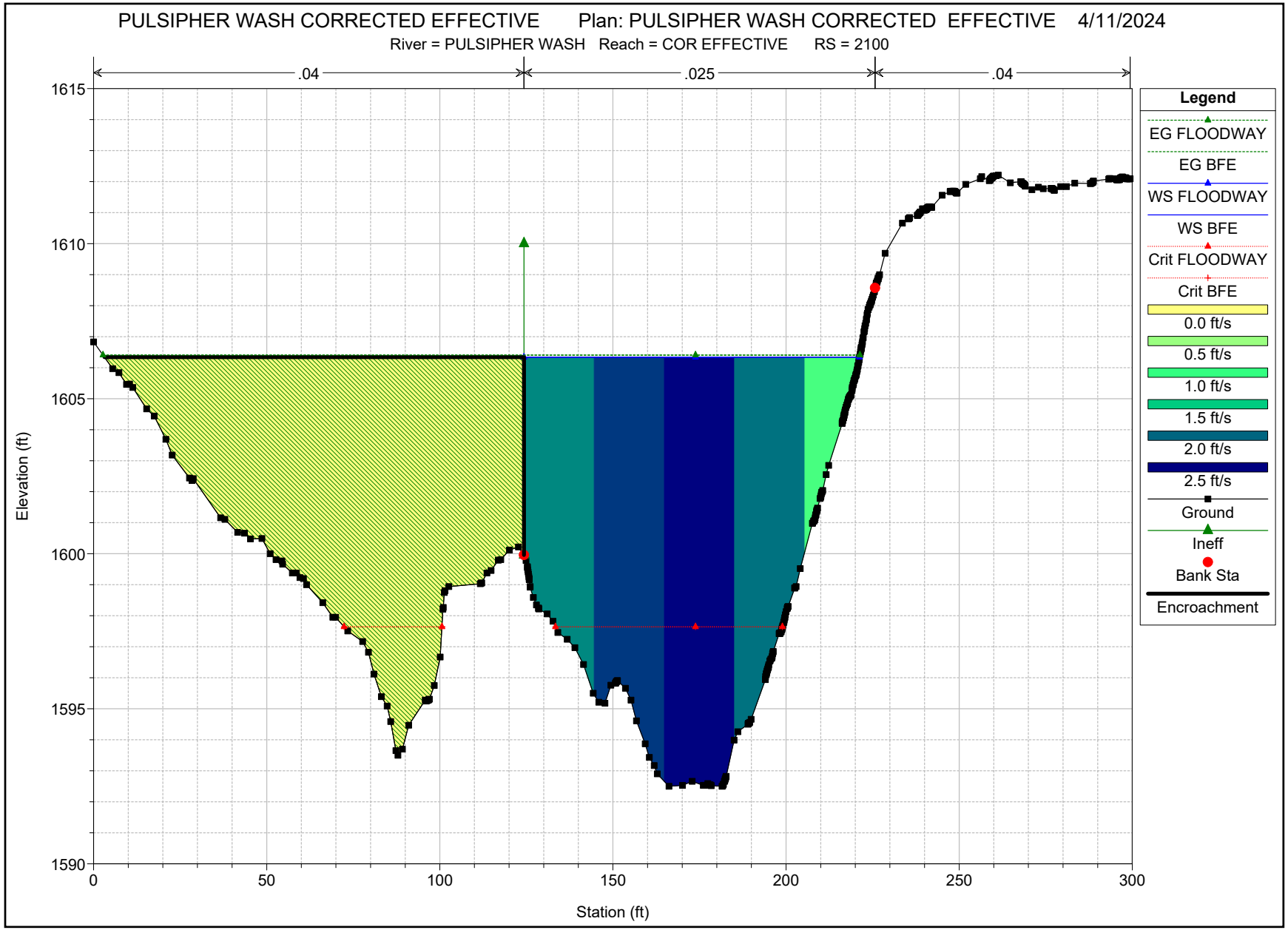

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 2400
.04
.025
.04
1620
1615
1610
1605
1600
1595
Elevation (ft)
0
20
40
60
80
100
120
140
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Bank Sta
Encroachment

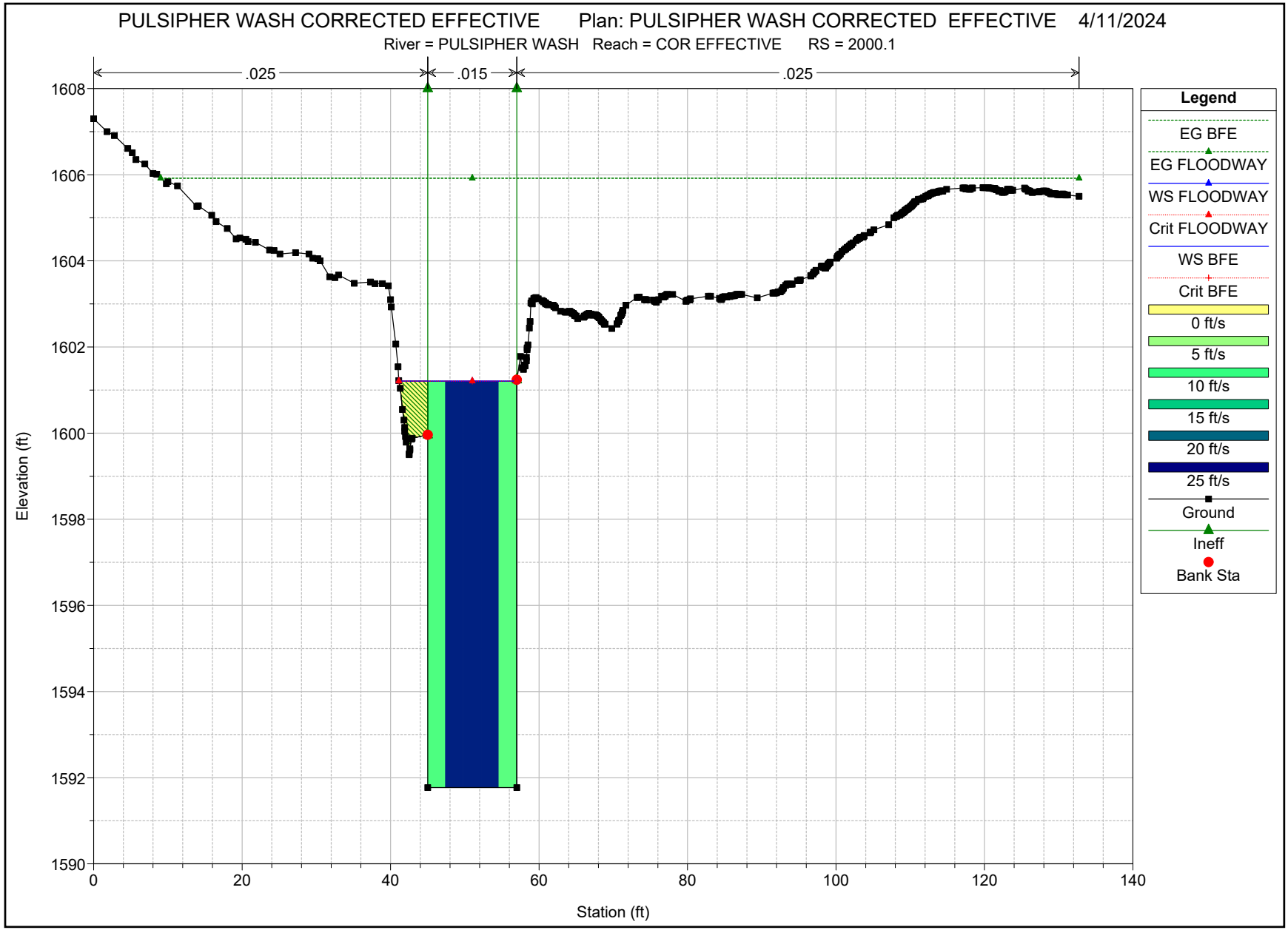

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 2350
.04
.025
.04
1620
1615
1610
1605
1600
1595
Elevation (ft)
0
50
100
150
200
250
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit BFE
Crit FLOODWAY
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
Ground
Ineff
Bank Sta
Encroachment

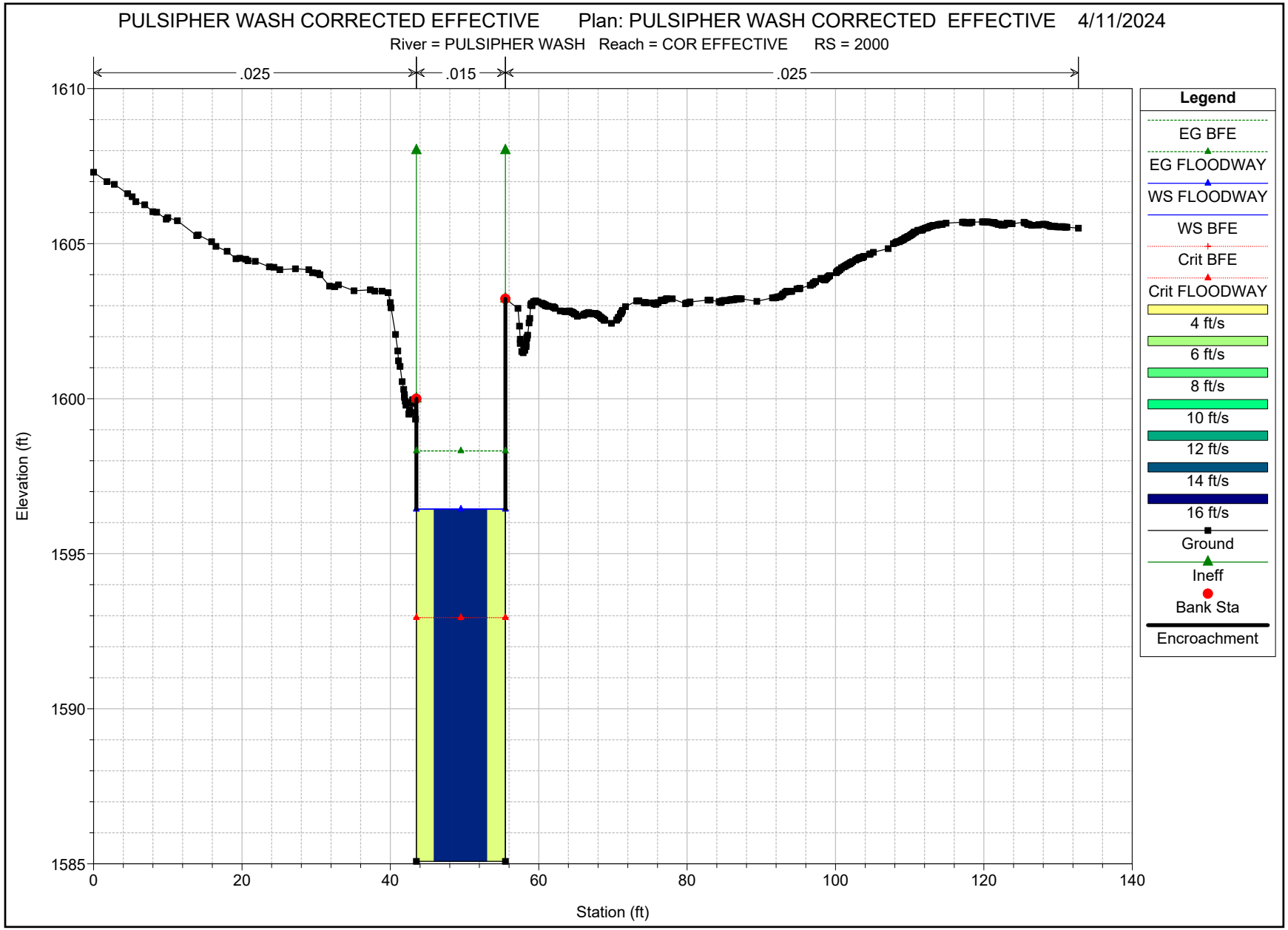

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 2330
.04
.025
.04
Legend
EG FLOODWAY
EG BFE
WS BFE
WS FLOODWAY
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
Ground
Bank Sta
Encroachment
Elevation (ft)
1620
1615
1610
1605
1600
1595
0
50
100
150
200
250
300
350
400
Station (ft)

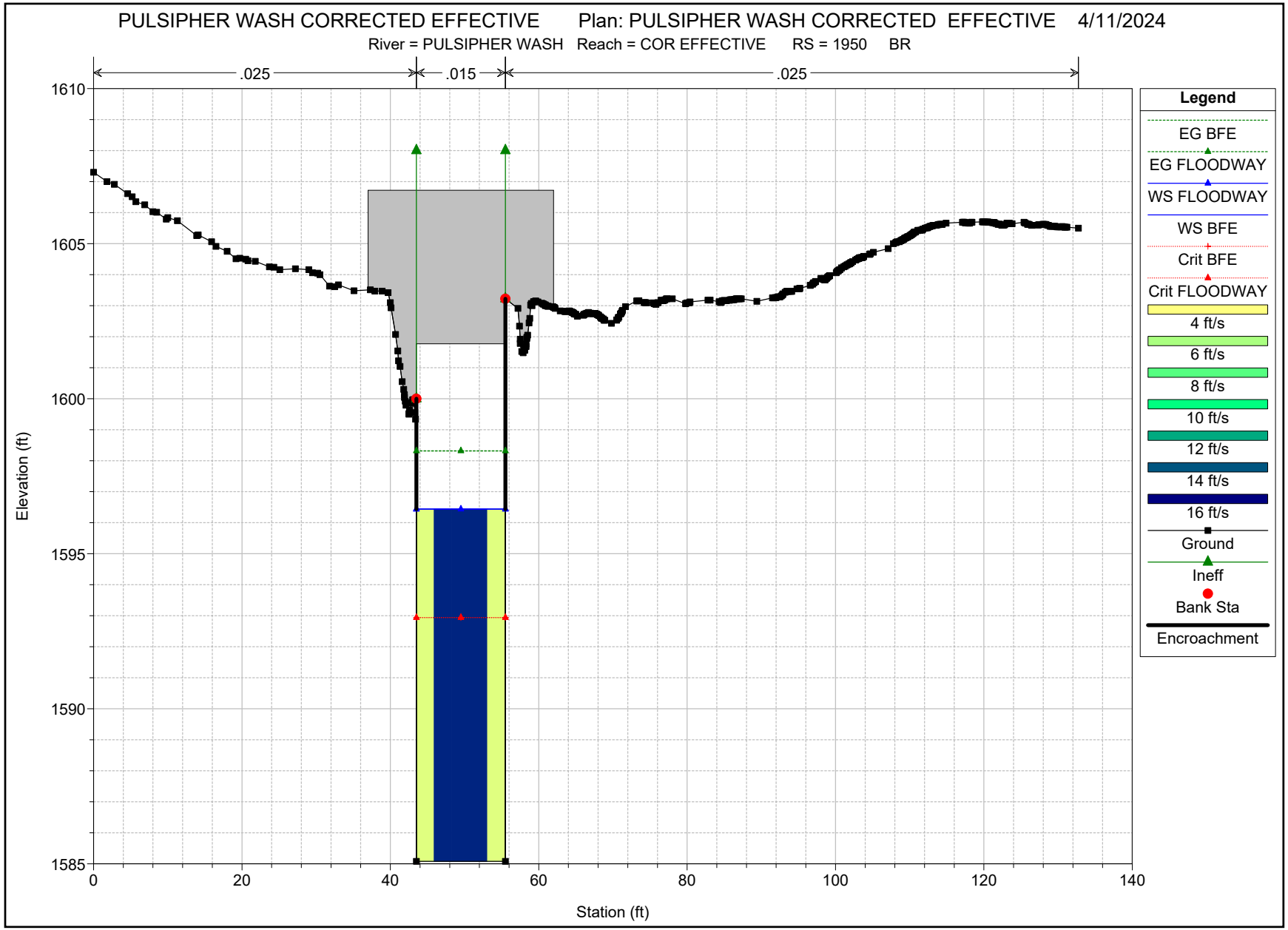

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 2300
.04
.025
.04
1620
1615
1610
1605
1600
1595
Elevation (ft)
0
100
200
300
400
500
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit BFE
Crit FLOODWAY
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Ineff
Bank Sta
Encroachment

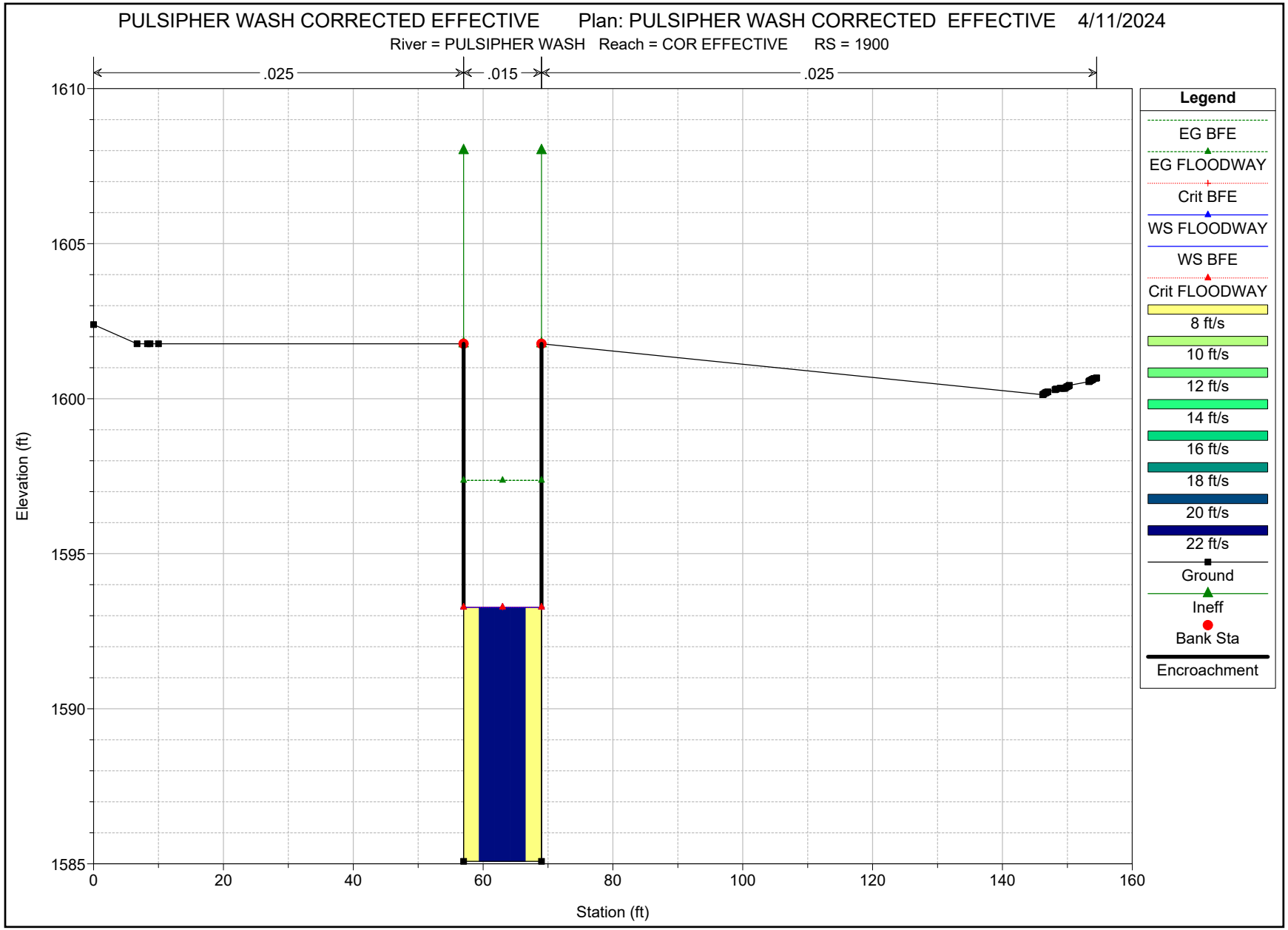

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 2200
.04
.025
.04
Elevation (ft)
1620
1615
1610
1605
1600
1595
1590
0
100
200
300
400
500
600
700
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
Crit BFE
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
Ground
Ineff
Bank Sta
Encroachment

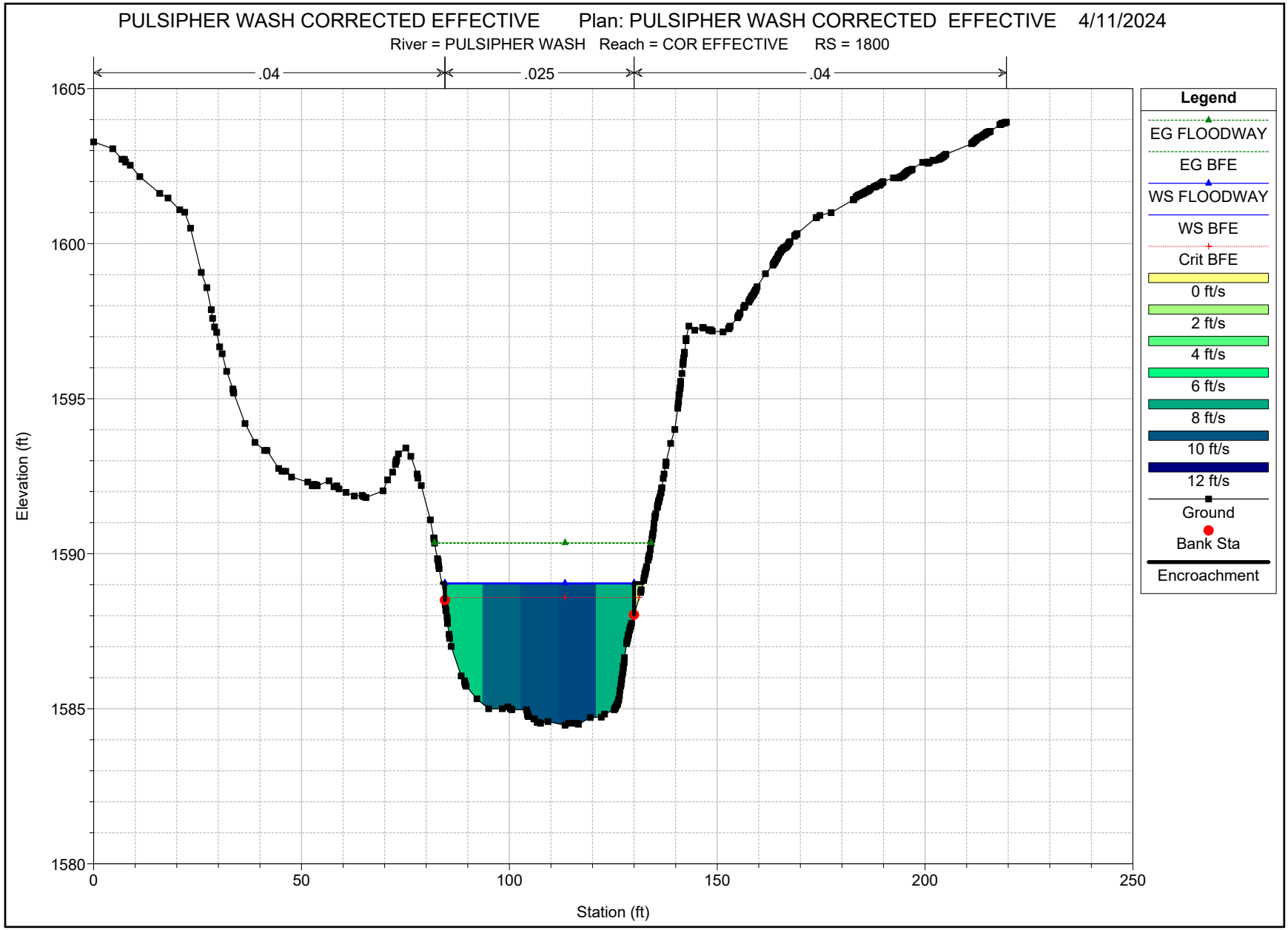

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 2100
.04
.025
.04
1615
1610
1605
1600
1595
1590
Elevation (ft)
0
50
100
150
200
250
300
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
Crit BFE
0.0 ft/s
0.5 ft/s
1.0 ft/s
1.5 ft/s
2.0 ft/s
2.5 ft/s
Ground
Ineff
Bank Sta
Encroachment

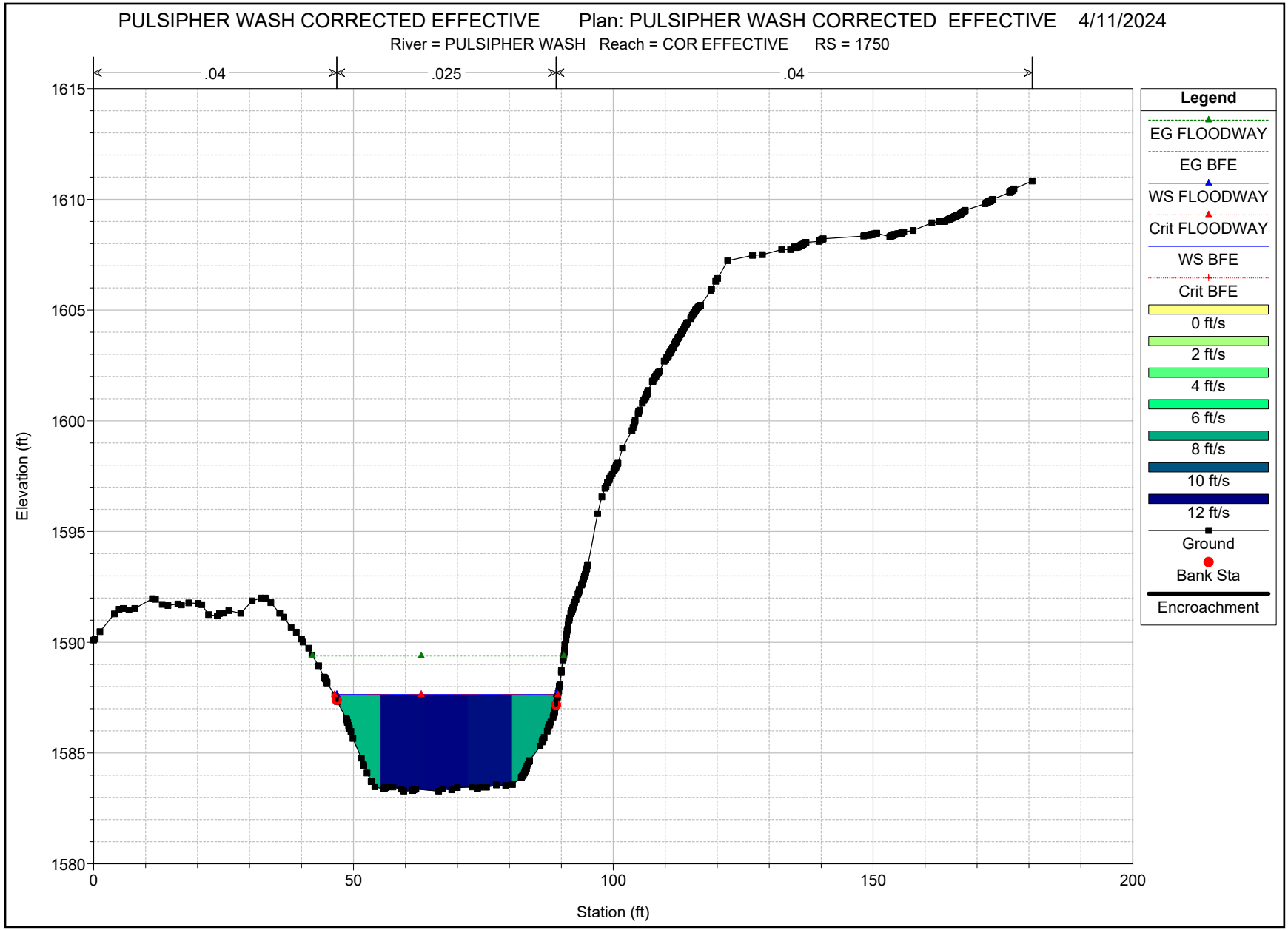

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 2000.1
.025
.015
.025
Elevation (ft)
Station (ft)
1608
1606
1604
1602
1600
1598
1596
1594
1592
1590
0
20
40
60
80
100
120
140
Legend
EG BFE
EG FLOODWAY
WS FLOODWAY
Crit FLOODWAY
WS BFE
Crit BFE
0 ft/s
5 ft/s
10 ft/s
15 ft/s
20 ft/s
25 ft/s
Ground
Ineff
Bank Sta

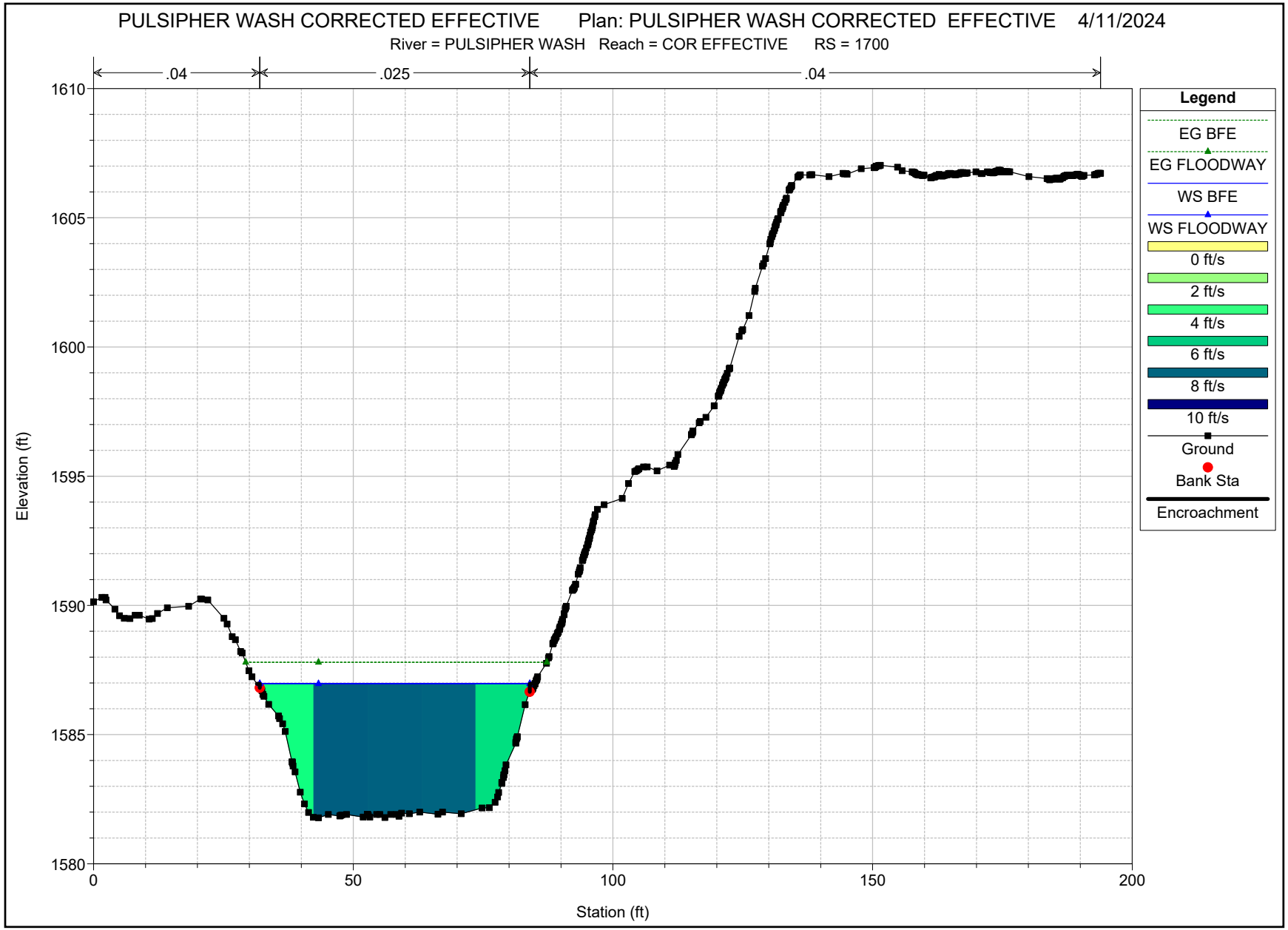

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 2000
.025
.015
.025
Elevation (ft)
1610
1605
1600
1595
1590
1585
0
20
40
60
80
100
120
140
Station (ft)
Legend
EG BFE
EG FLOODWAY
WS FLOODWAY
WS BFE
Crit BFE
Crit FLOODWAY
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
14 ft/s
16 ft/s
Ground
Ineff
Bank Sta
Encroachment

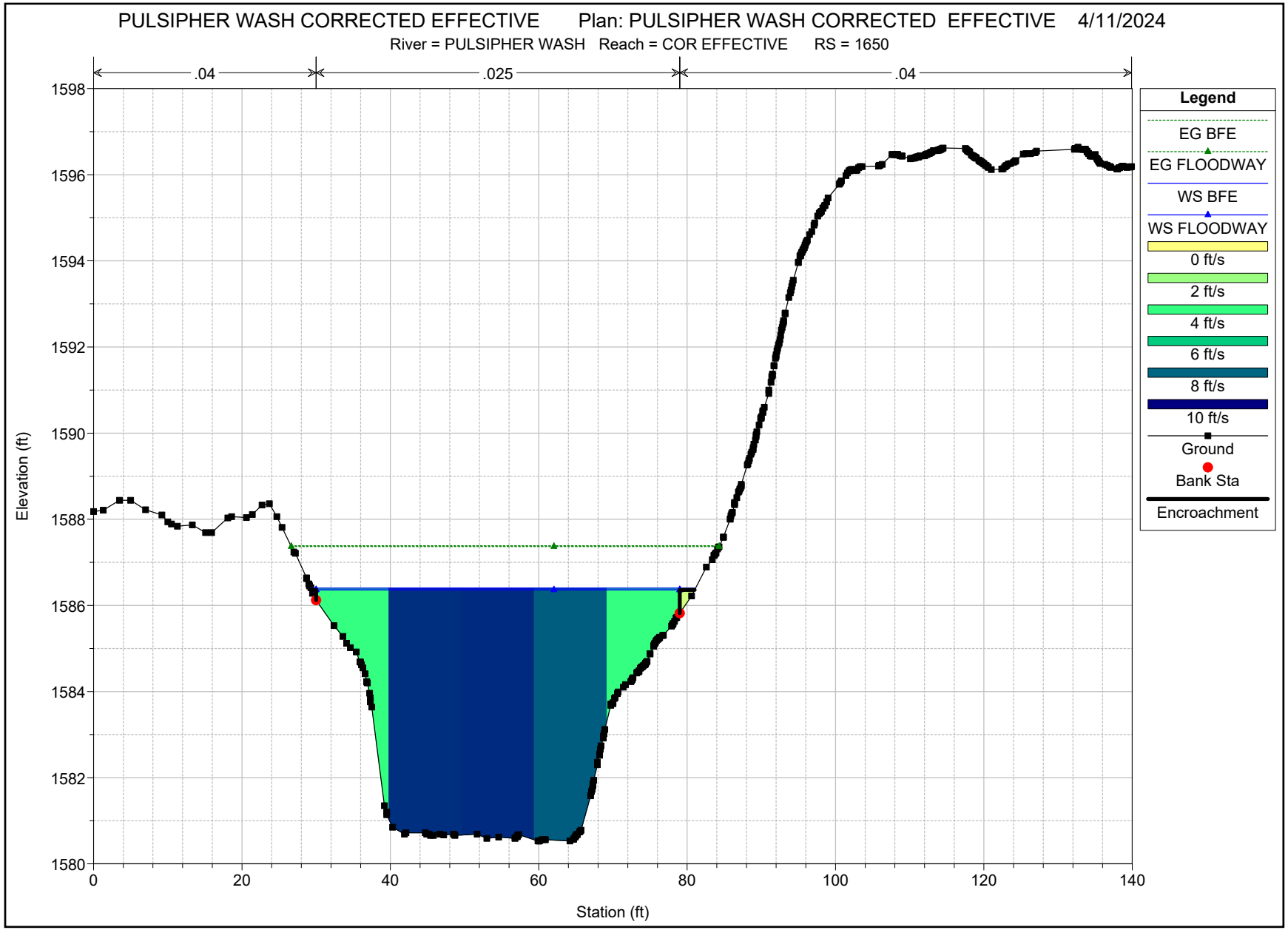

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 1950 BR
.025
.015
.025
1610
1605
1600
1595
1590
1585
Elevation (ft)
0
20
40
60
80
100
120
140
Station (ft)
Legend
EG BFE
EG FLOODWAY
WS FLOODWAY
WS BFE
Crit BFE
Crit FLOODWAY
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
14 ft/s
16 ft/s
Ground
Ineff
Bank Sta
Encroachment

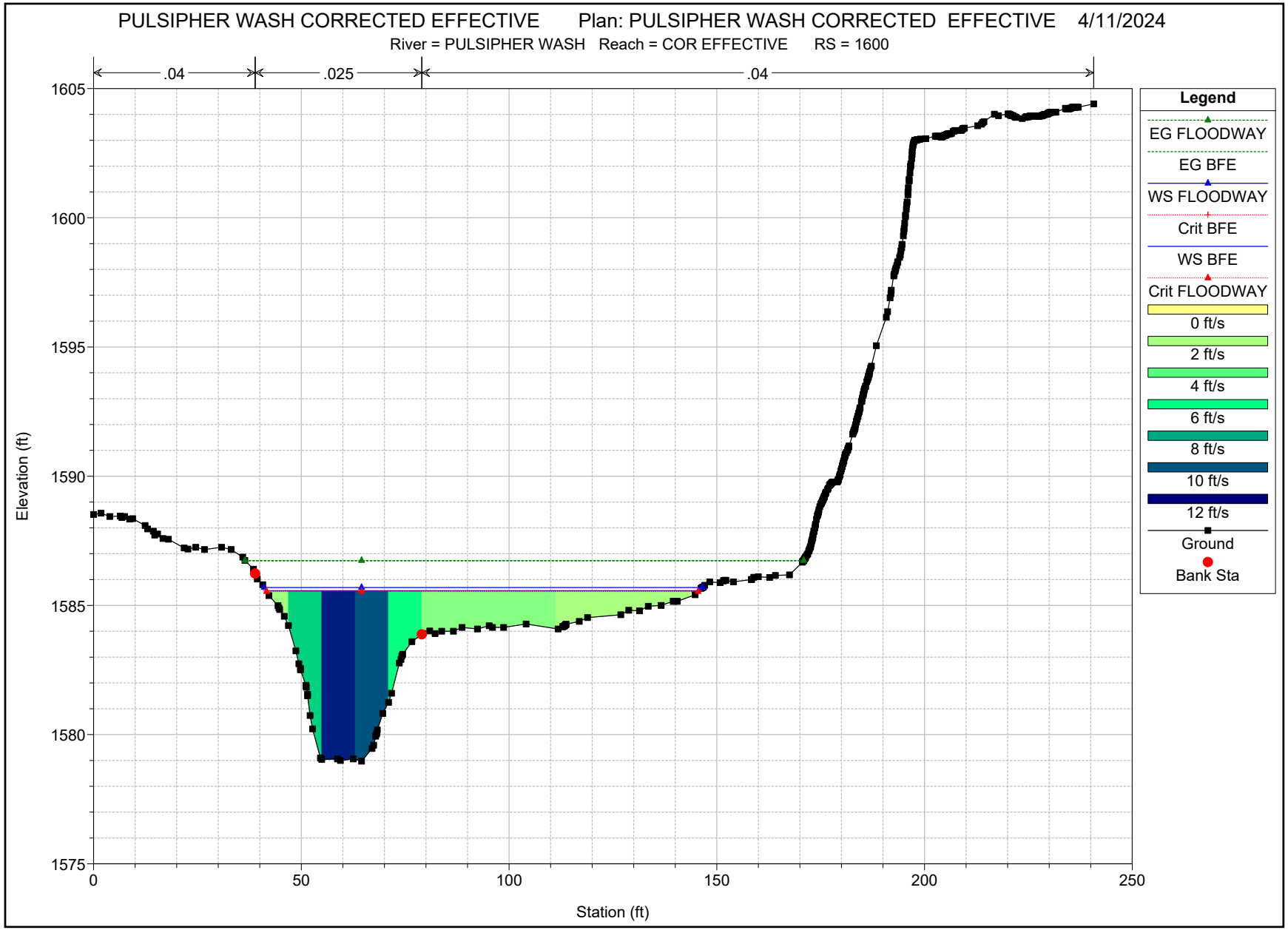

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 1900
.025
.015
.025
Elevation (ft)
1610
1605
1600
1595
1590
1585
0
20
40
60
80
100
120
140
160
Station (ft)
Legend
EG BFE
EG FLOODWAY
Crit BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
8 ft/s
10 ft/s
12 ft/s
14 ft/s
16 ft/s
18 ft/s
20 ft/s
22 ft/s
Ground
Ineff
Bank Sta
Encroachment

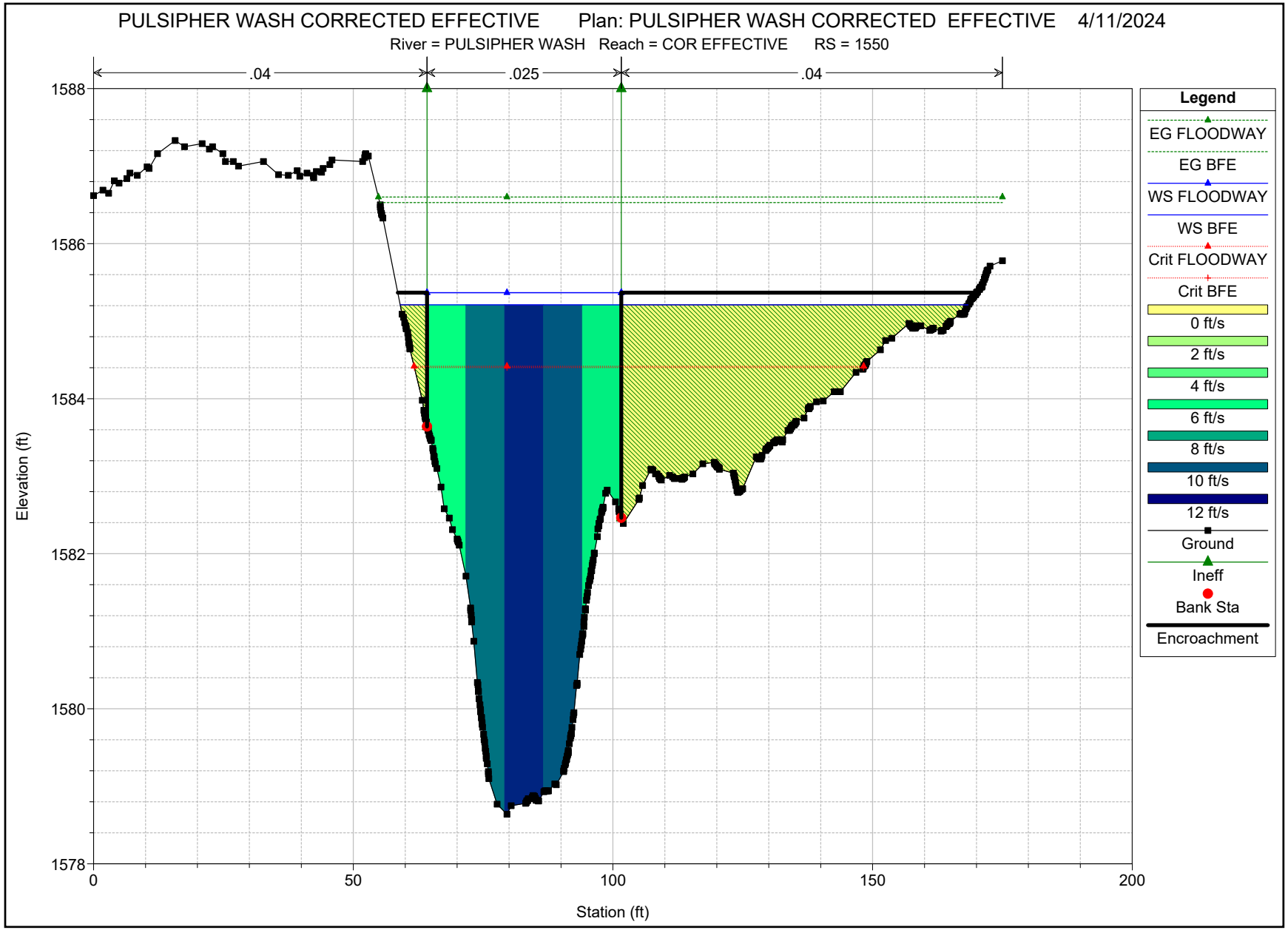

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 1800
.04
.025
.04
1605
1600
1595
1590
1585
1580
Elevation (ft)
0
50
100
150
200
250
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Bank Sta
Encroachment

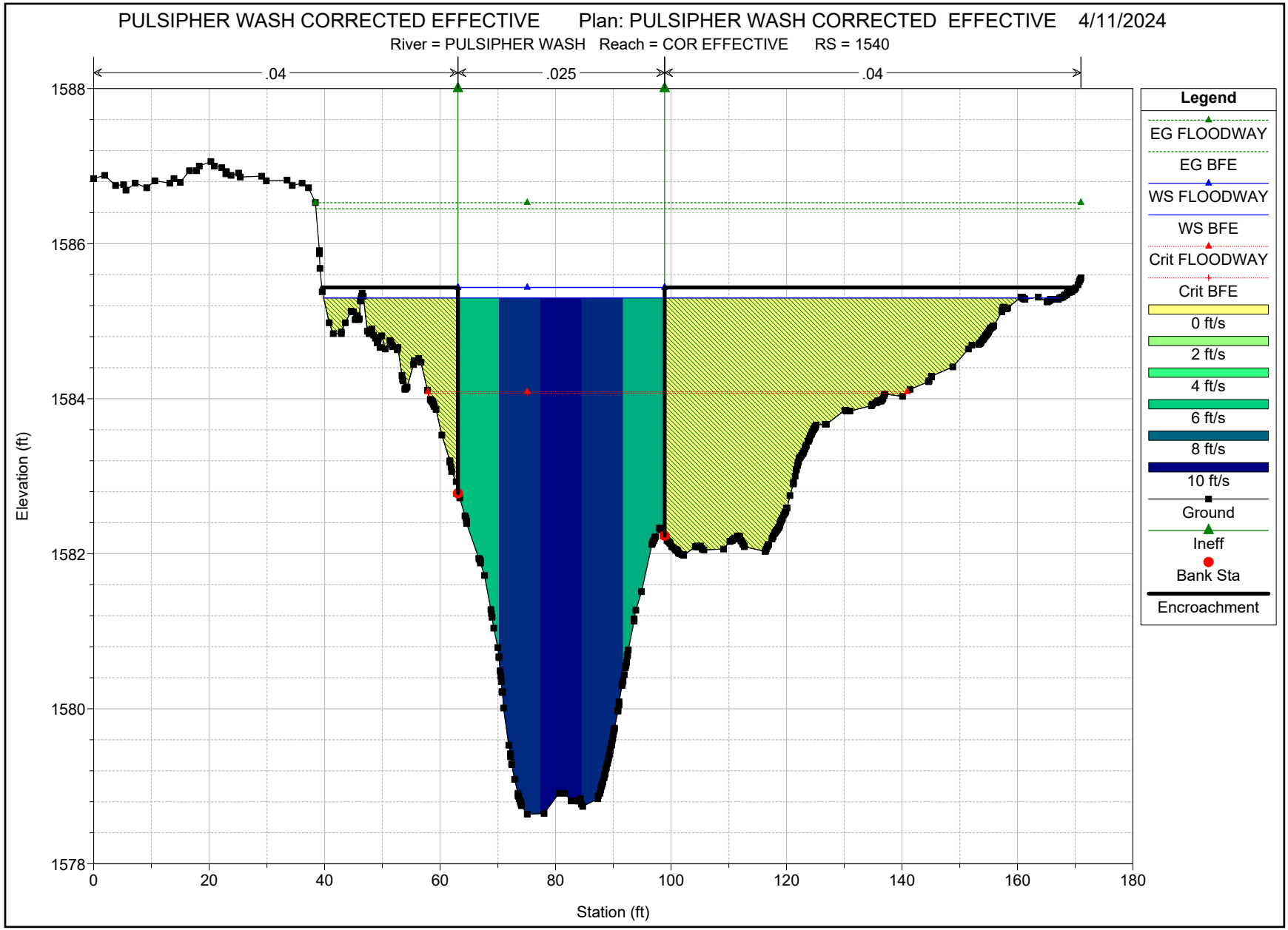

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 1750
.04
.025
.04
Elevation (ft)
1615
1610
1605
1600
1595
1590
1585
1580
0
50
100
150
200
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
Crit FLOODWAY
WS BFE
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Bank Sta
Encroachment

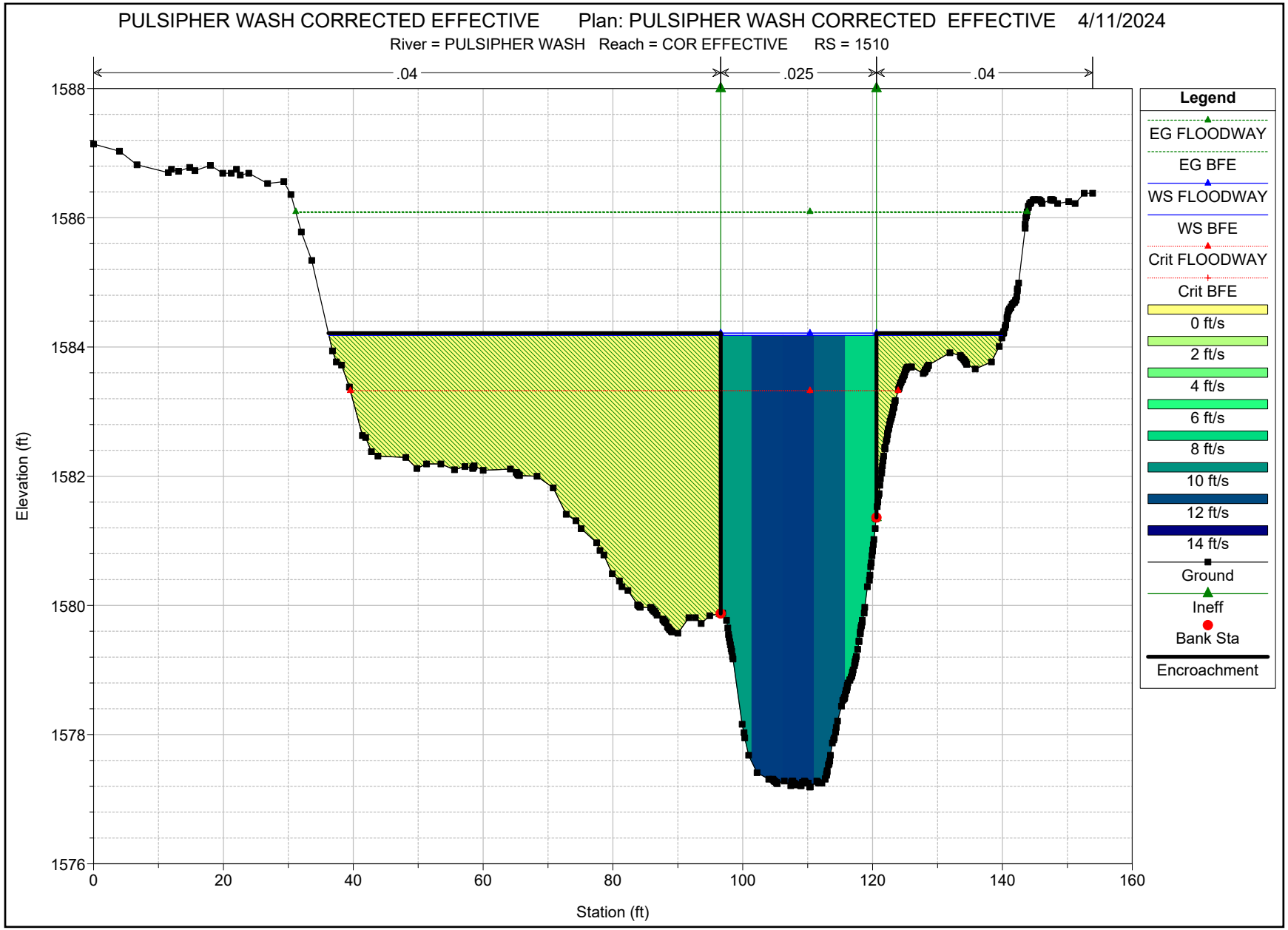

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 1700
.04
.025
.04
Elevation (ft)
1610
1605
1600
1595
1590
1585
1580
0
50
100
150
200
Station (ft)
Legend
EG BFE
EG FLOODWAY
WS BFE
WS FLOODWAY
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
Ground
Bank Sta
Encroachment

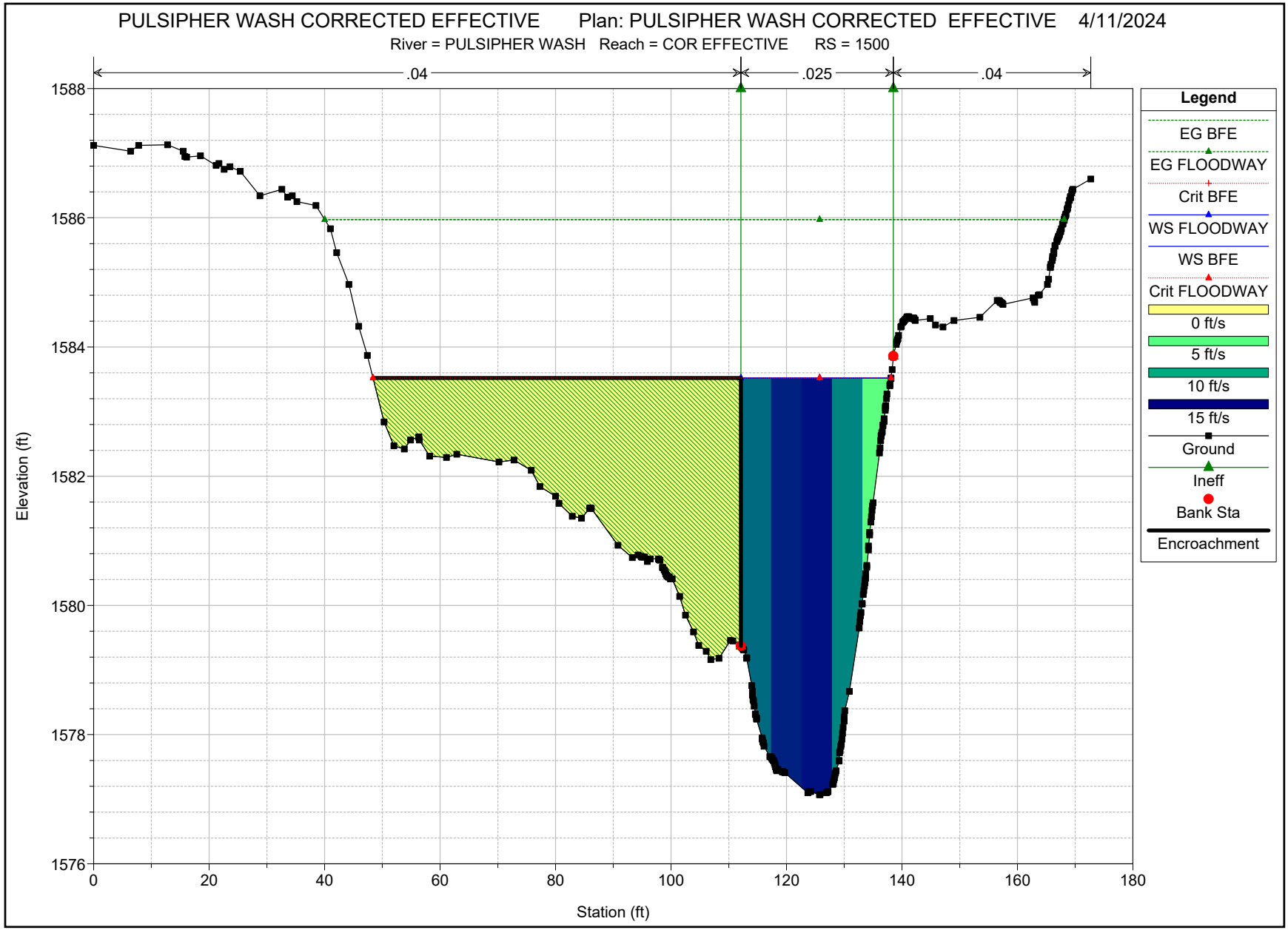

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 1650
.04
.025
.04
Elevation (ft)
1598
1596
1594
1592
1590
1588
1586
1584
1582
1580
0
20
40
60
80
100
120
140
Station (ft)
Legend
EG BFE
EG FLOODWAY
WS BFE
WS FLOODWAY
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
Ground
Bank Sta
Encroachment

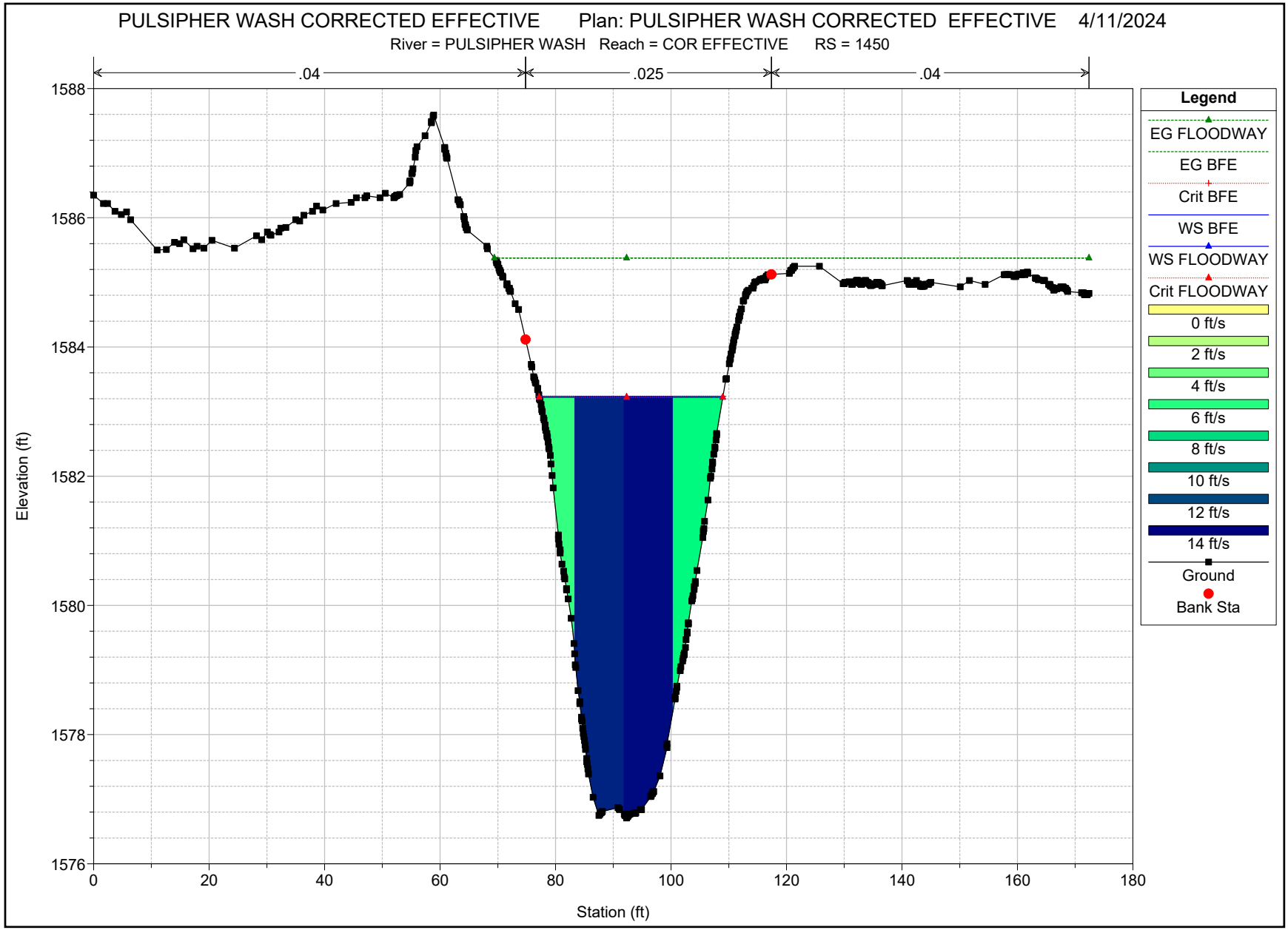

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 1600
.04
.025
.04
Elevation (ft)
1605
1600
1595
1590
1585
1580
1575
0
50
100
150
200
250
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
Crit BFE
WS BFE
Crit FLOODWAY
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Bank Sta

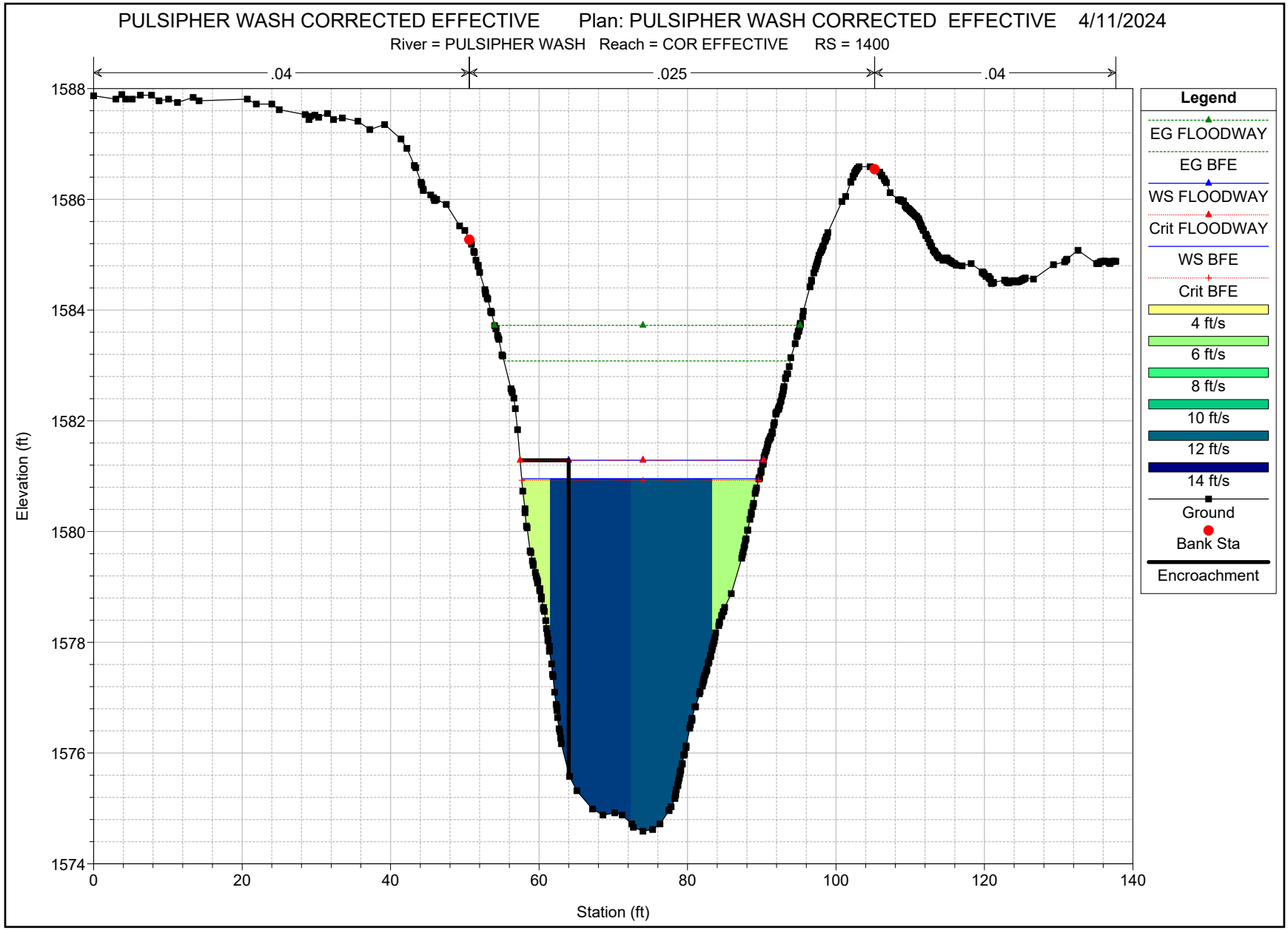

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 1550
.04
.025
.04
1588
1586
1584
1582
1580
1578
Elevation (ft)
0
50
100
150
200
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Ineff
Bank Sta
Encroachment

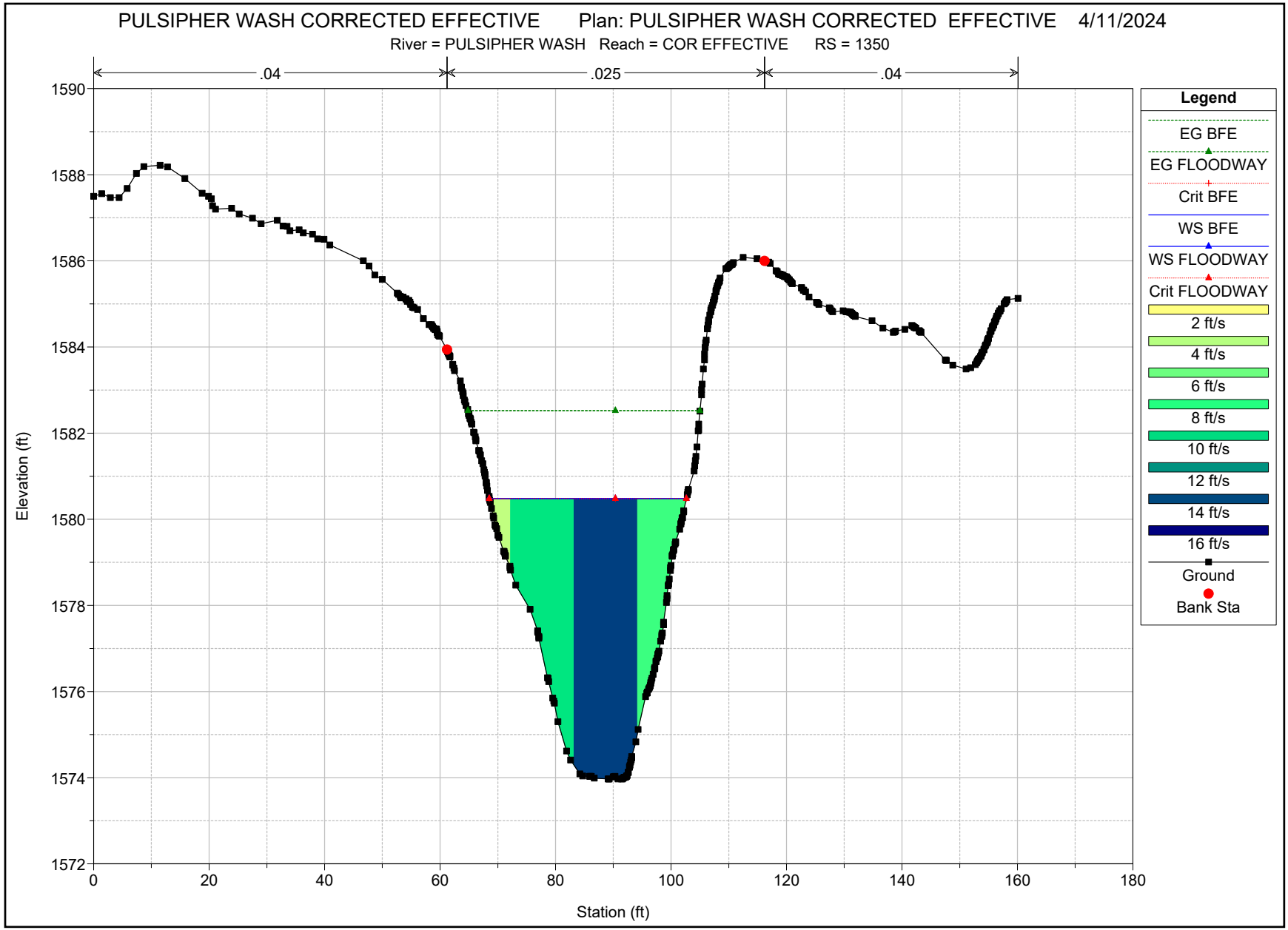

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 1540
.04
.025
.04
Elevation (ft)
1588
1586
1584
1582
1580
1578
0
20
40
60
80
100
120
140
160
180
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
Ground
Ineff
Bank Sta
Encroachment

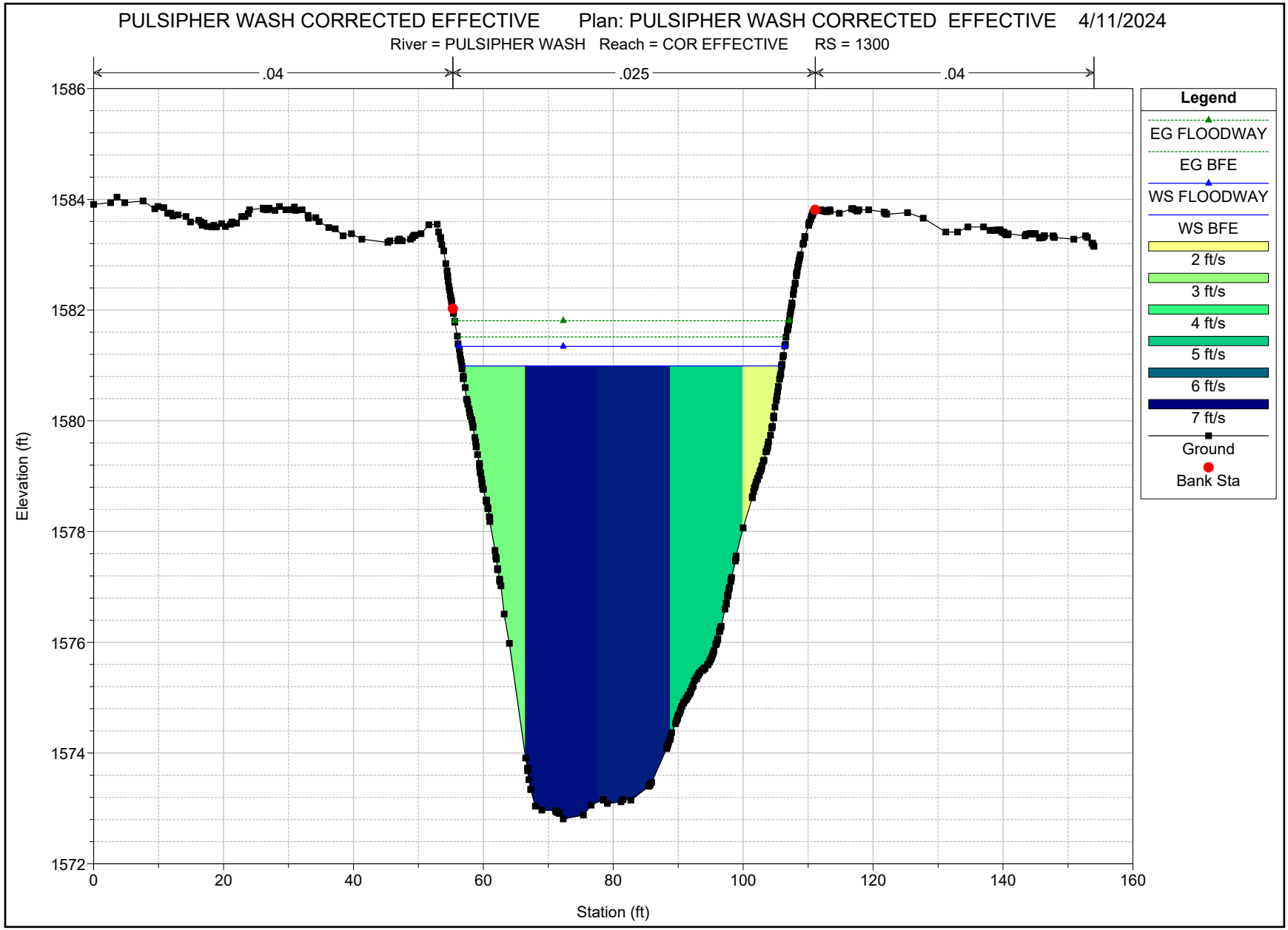

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 1510
.04
.025
.04
Elevation (ft)
1588
1586
1584
1582
1580
1578
1576
0
20
40
60
80
100
120
140
160
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
14 ft/s
Ground
Ineff
Bank Sta
Encroachment

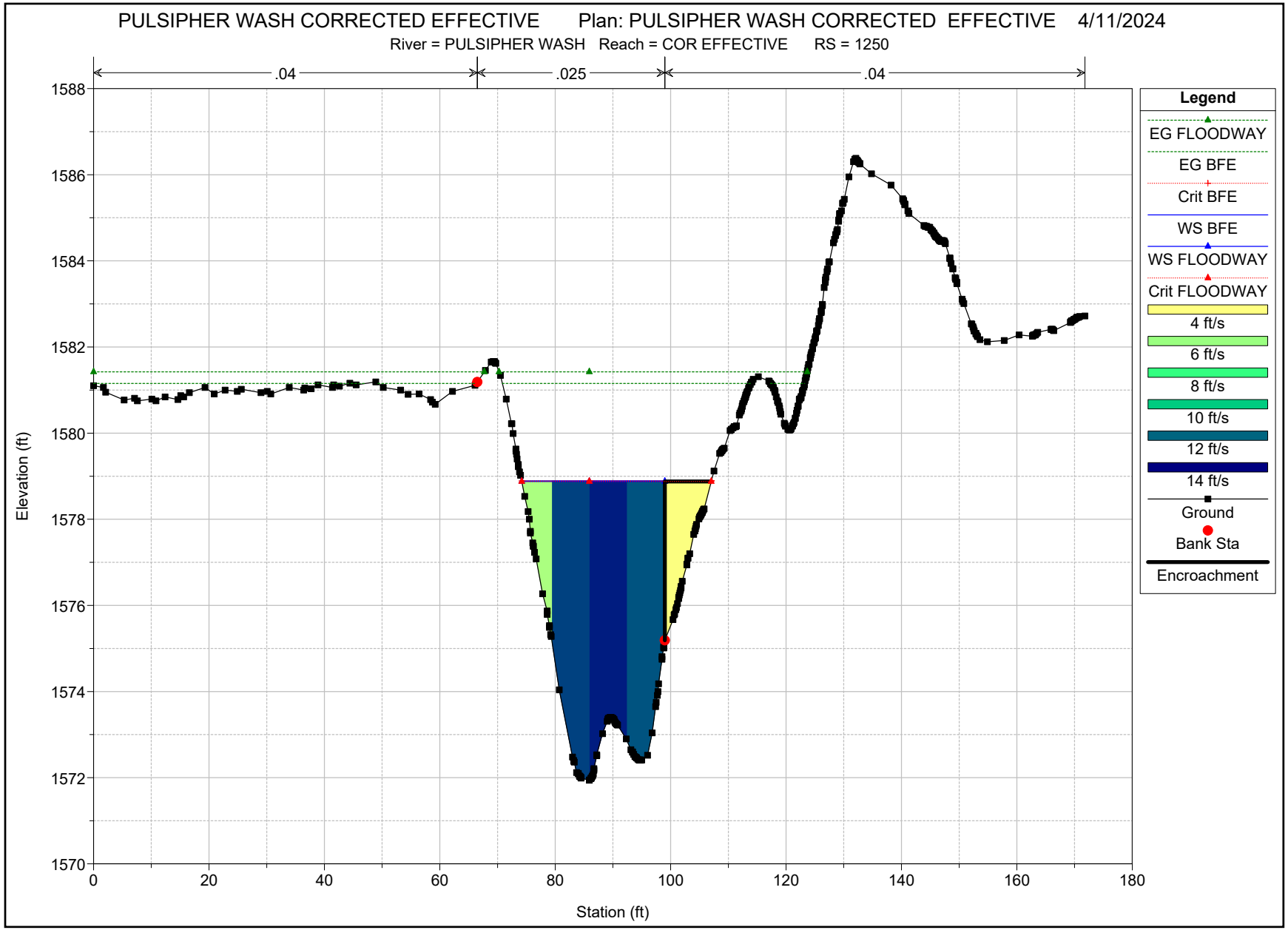

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 1500
.04
.025
.04
Elevation (ft)
1588
1586
1584
1582
1580
1578
1576
0
20
40
60
80
100
120
140
160
180
Station (ft)
Legend
EG BFE
EG FLOODWAY
Crit BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
0 ft/s
5 ft/s
10 ft/s
15 ft/s
Ground
Ineff
Bank Sta
Encroachment

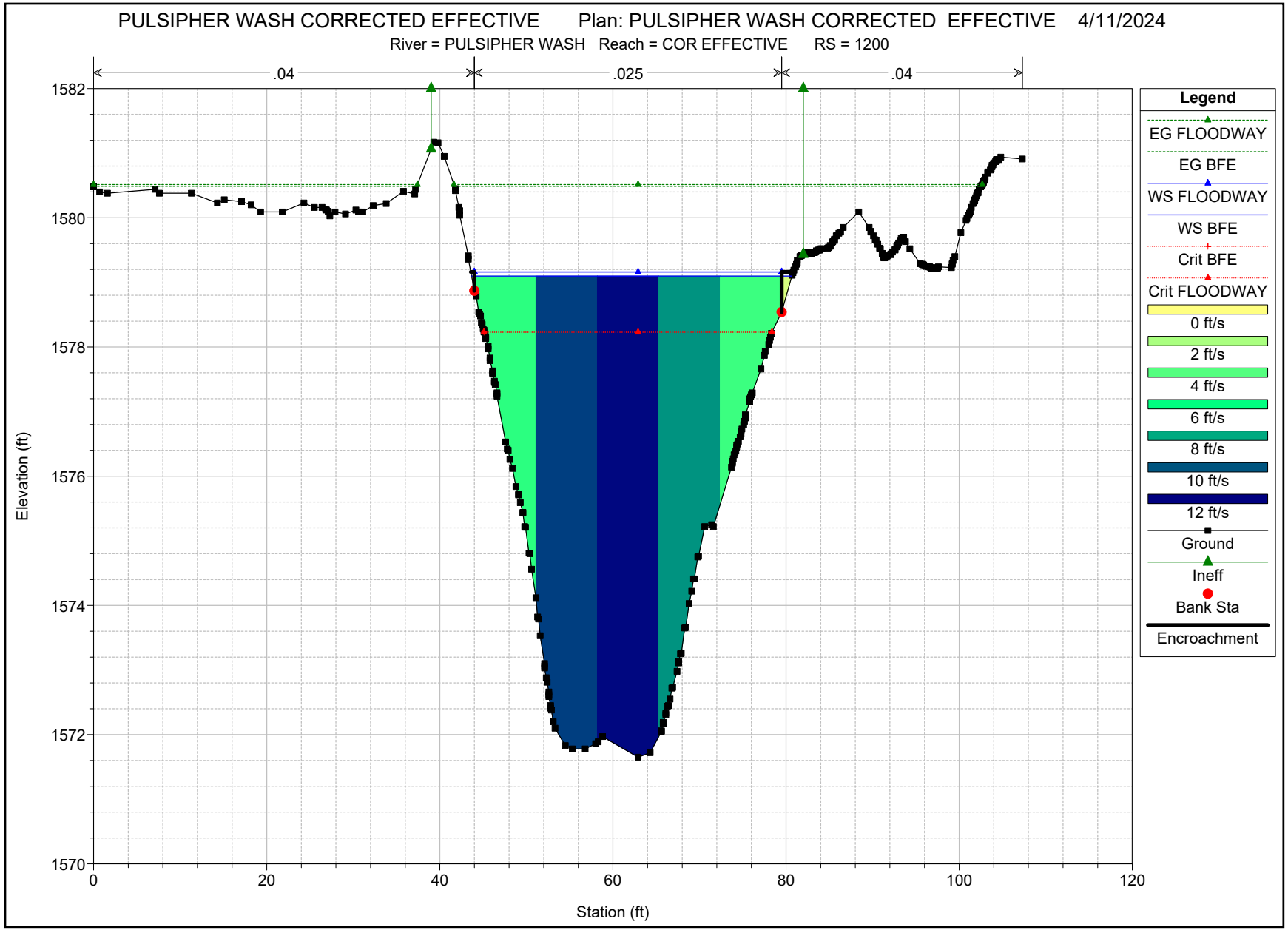

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 1450
.04
.025
.04
Elevation (ft)
1588
1586
1584
1582
1580
1578
1576
0
20
40
60
80
100
120
140
160
180
Station (ft)
Legend
EG FLOODWAY
EG BFE
Crit BFE
WS BFE
WS FLOODWAY
Crit FLOODWAY
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
14 ft/s
Ground
Bank Sta

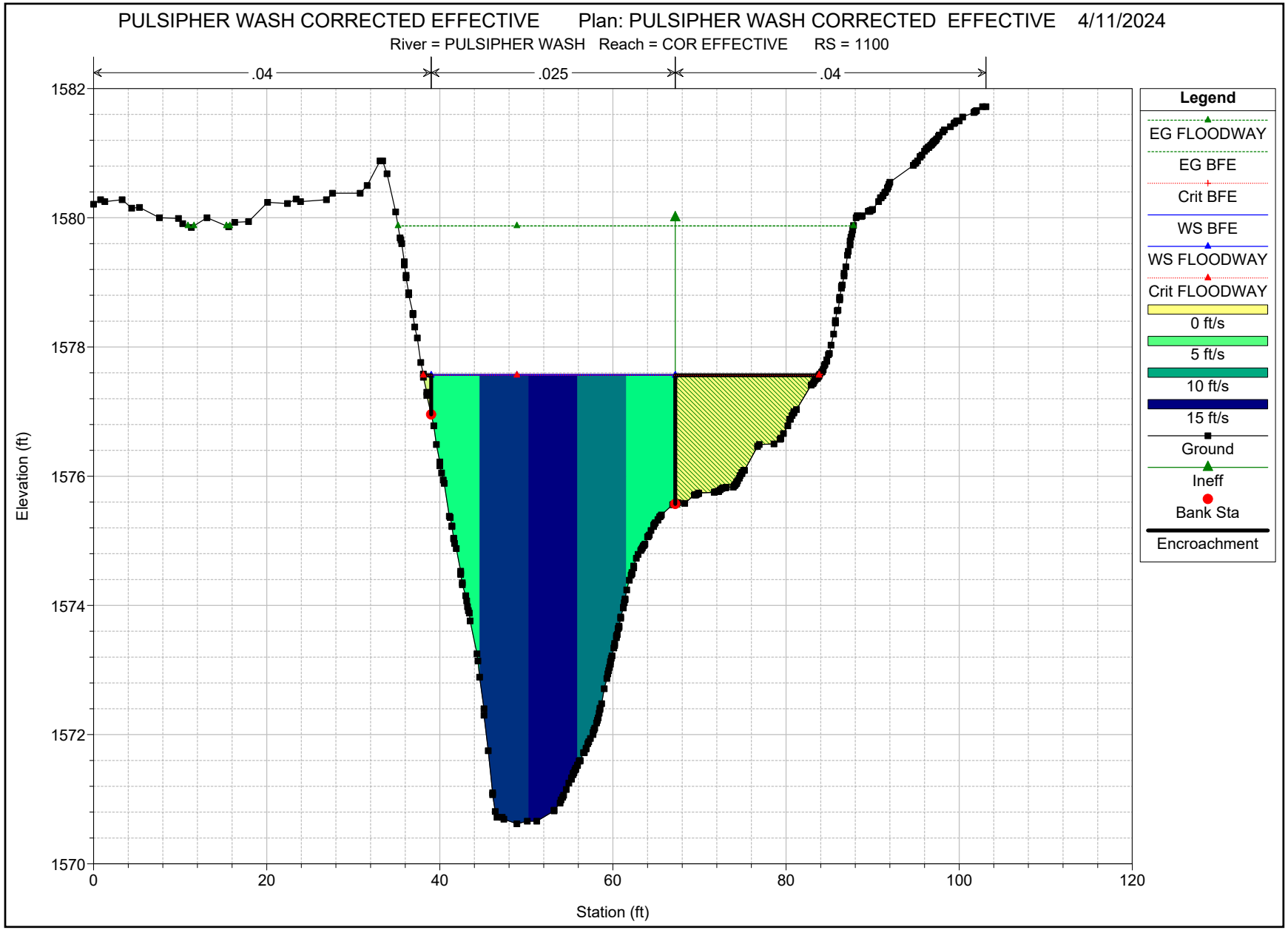

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 1400
.04
.025
.04
Elevation (ft)
1588
1586
1584
1582
1580
1578
1576
1574
0
20
40
60
80
100
120
140
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
Crit FLOODWAY
WS BFE
Crit BFE
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
14 ft/s
Ground
Bank Sta
Encroachment

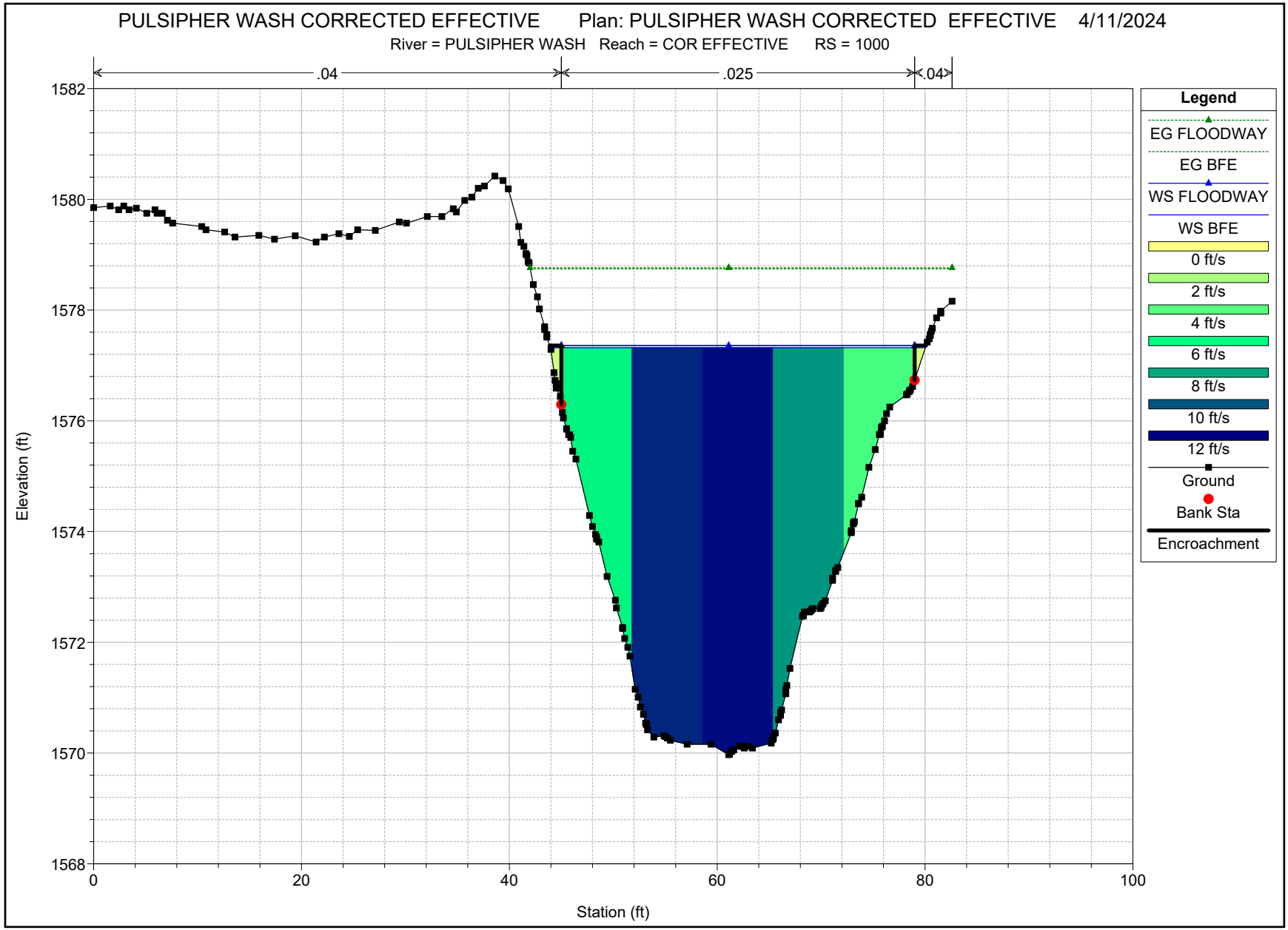

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 1350
.04
.025
.04
Elevation (ft)
Station (ft)
1590
1588
1586
1584
1582
1580
1578
1576
1574
1572
0
20
40
60
80
100
120
140
160
180
Legend
EG BFE
EG FLOODWAY
Crit BFE
WS BFE
WS FLOODWAY
Crit FLOODWAY
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
14 ft/s
16 ft/s
Ground
Bank Sta

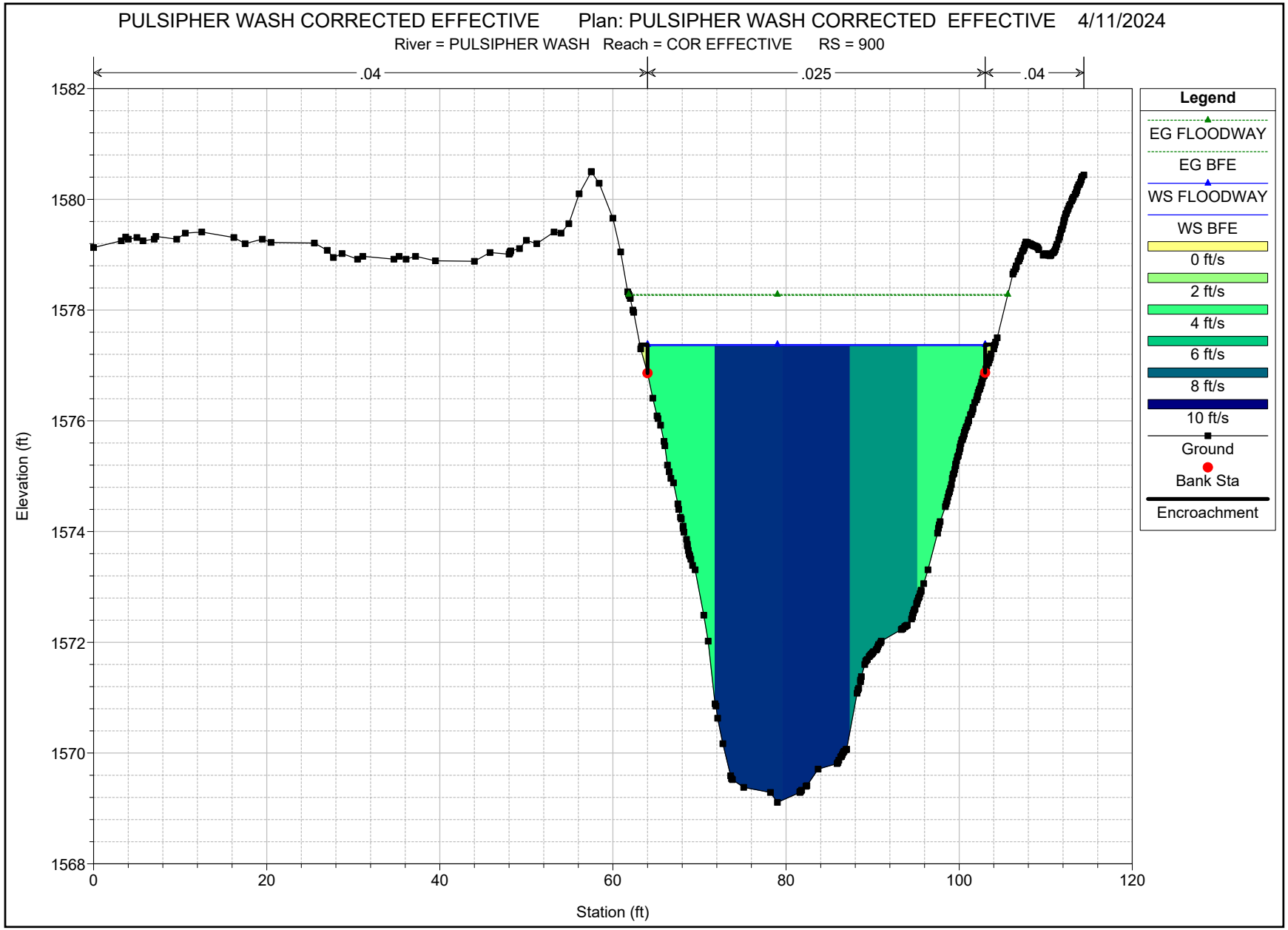

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 1300
.04
.025
.04
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Elevation (ft)
1586
1584
1582
1580
1578
1576
1574
1572
0
20
40
60
80
100
120
140
160
Station (ft)

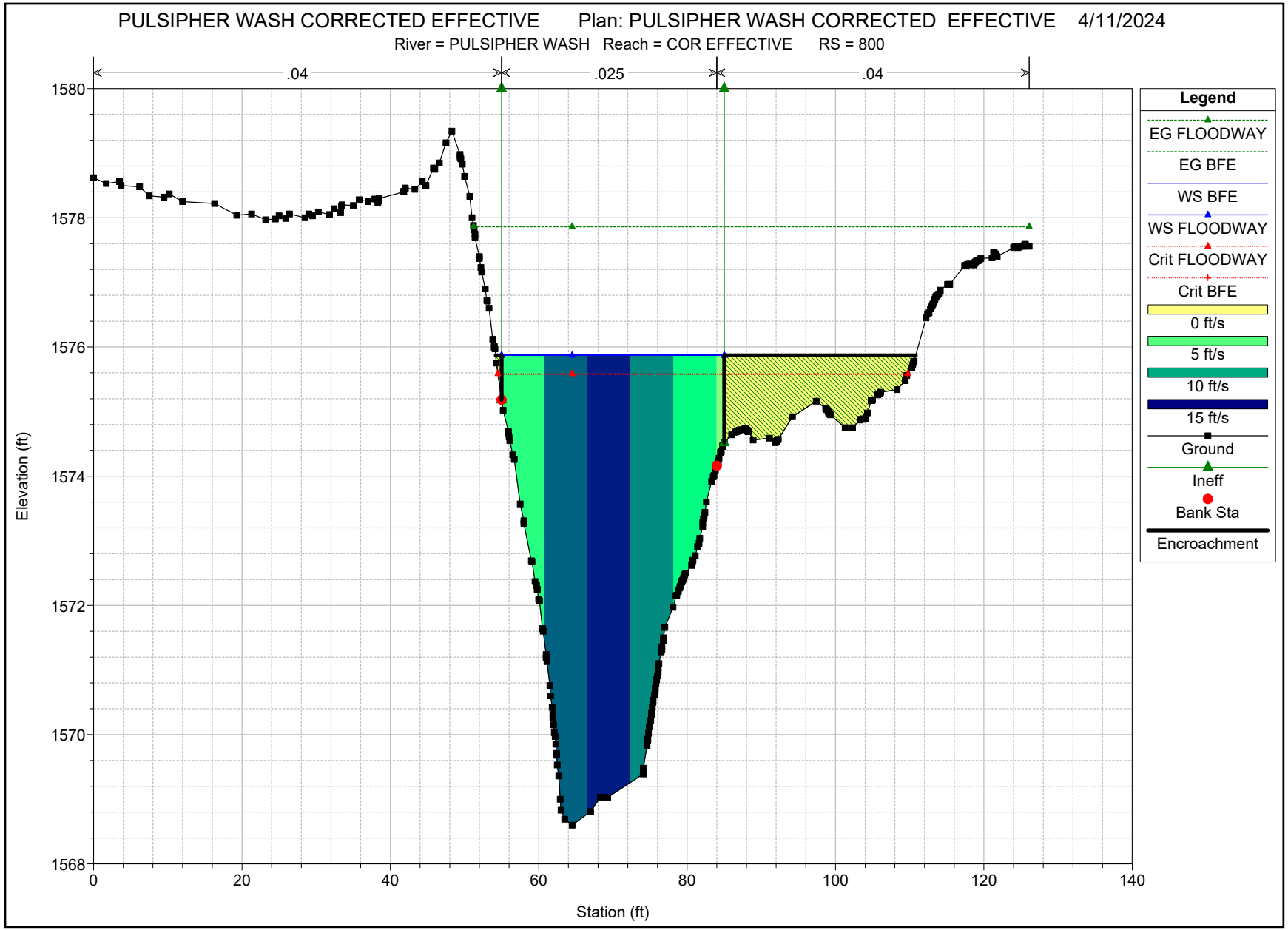

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 1250
.04
.025
.04
Elevation (ft)
1588
1586
1584
1582
1580
1578
1576
1574
1572
1570
0
20
40
60
80
100
120
140
160
180
Station (ft)
Legend
EG FLOODWAY
EG BFE
Crit BFE
WS BFE
WS FLOODWAY
Crit FLOODWAY
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
14 ft/s
Ground
Bank Sta
Encroachment

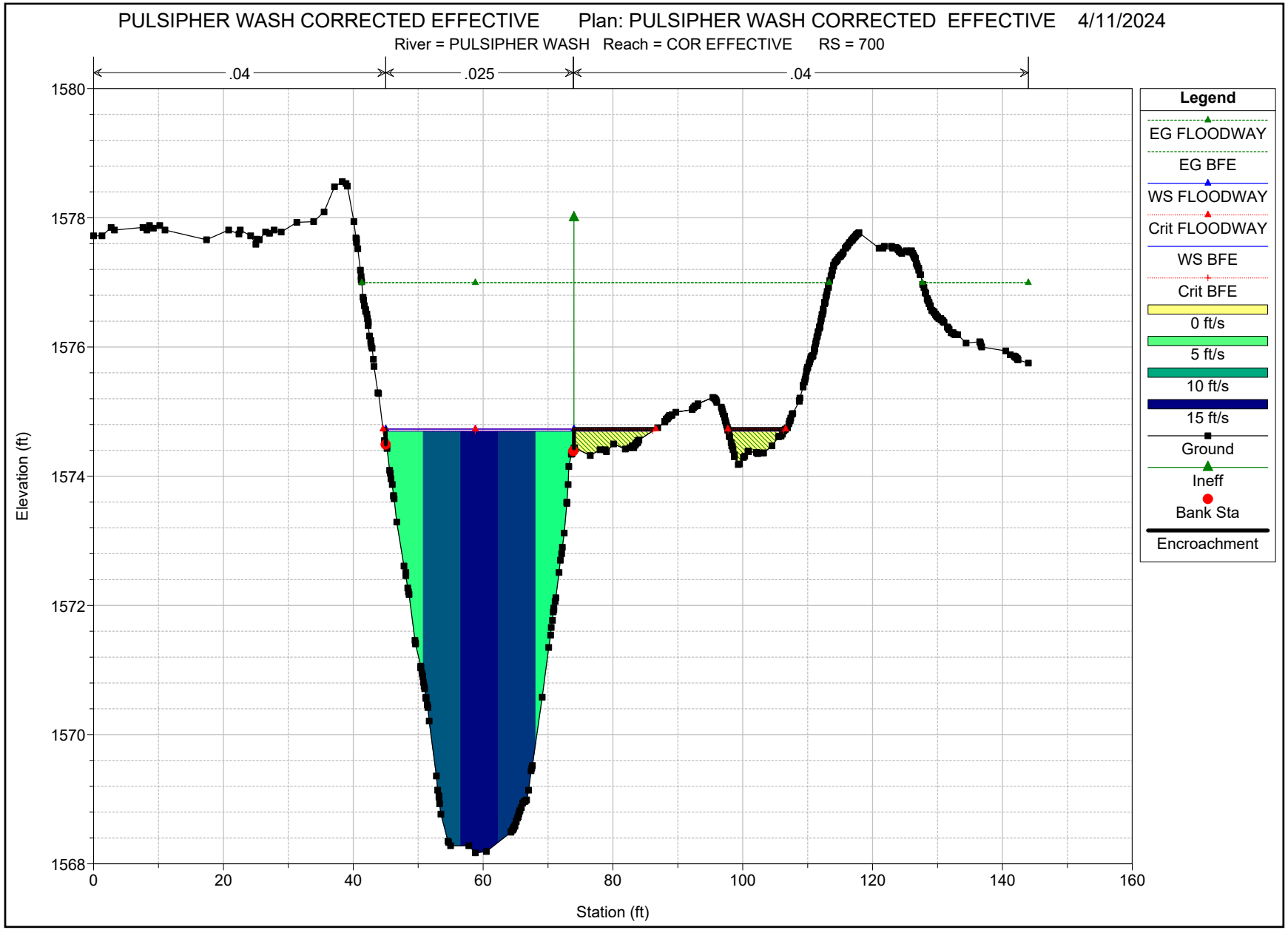

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 1200
.04
.025
.04
1582
1580
1578
1576
1574
1572
1570
Elevation (ft)
0
20
40
60
80
100
120
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit BFE
Crit FLOODWAY
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Ineff
Bank Sta
Encroachment

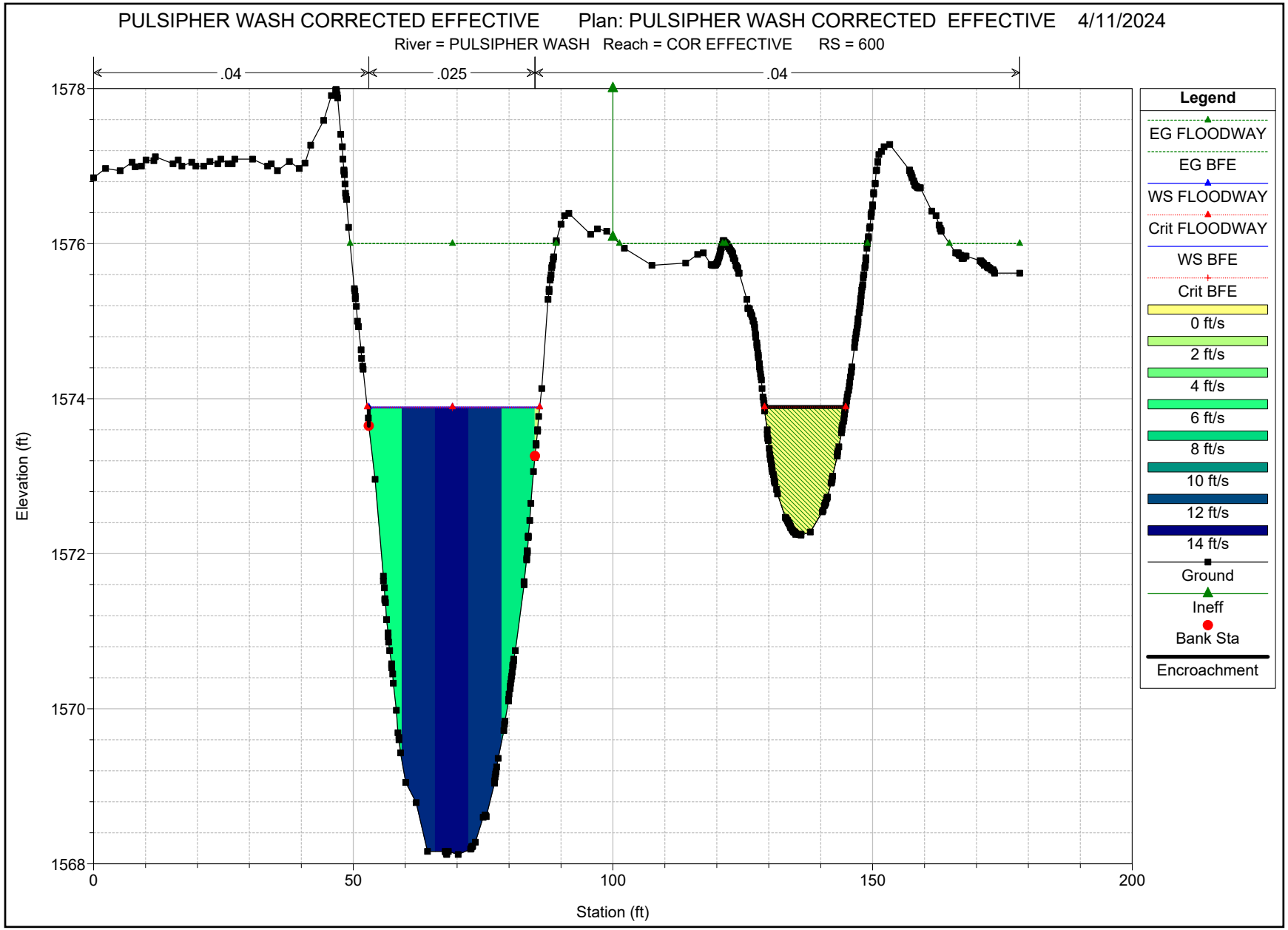

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 1100
.04
.025
.04
1582
1580
1578
1576
1574
1572
1570
Elevation (ft)
0
20
40
60
80
100
120
Station (ft)
Legend
EG FLOODWAY
EG BFE
Crit BFE
WS BFE
WS FLOODWAY
Crit FLOODWAY
0 ft/s
5 ft/s
10 ft/s
15 ft/s
Ground
Ineff
Bank Sta
Encroachment

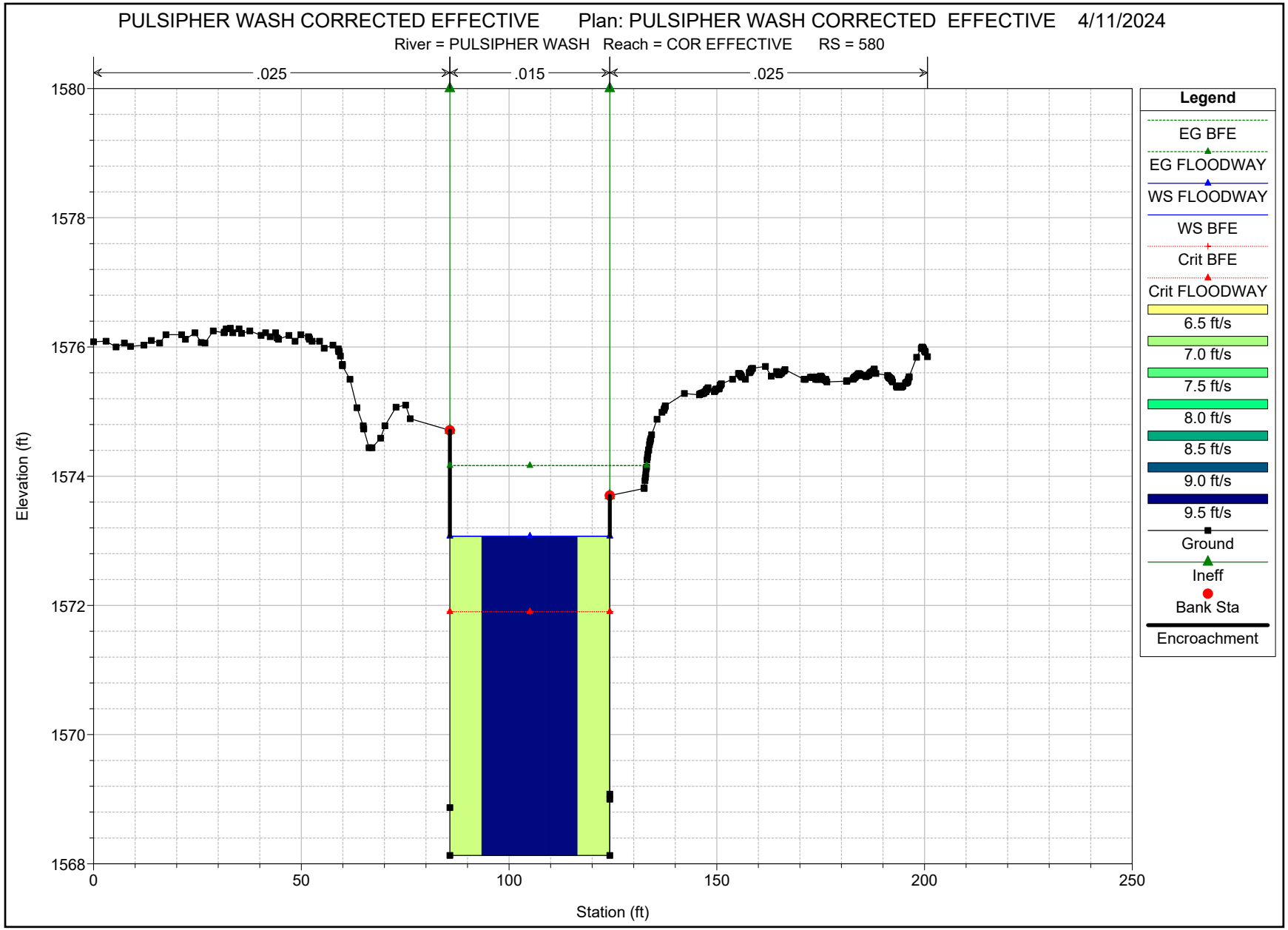

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 1000
.04
.025
.04
Elevation (ft)
1582
1580
1578
1576
1574
1572
1570
1568
0
20
40
60
80
100
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Bank Sta
Encroachment

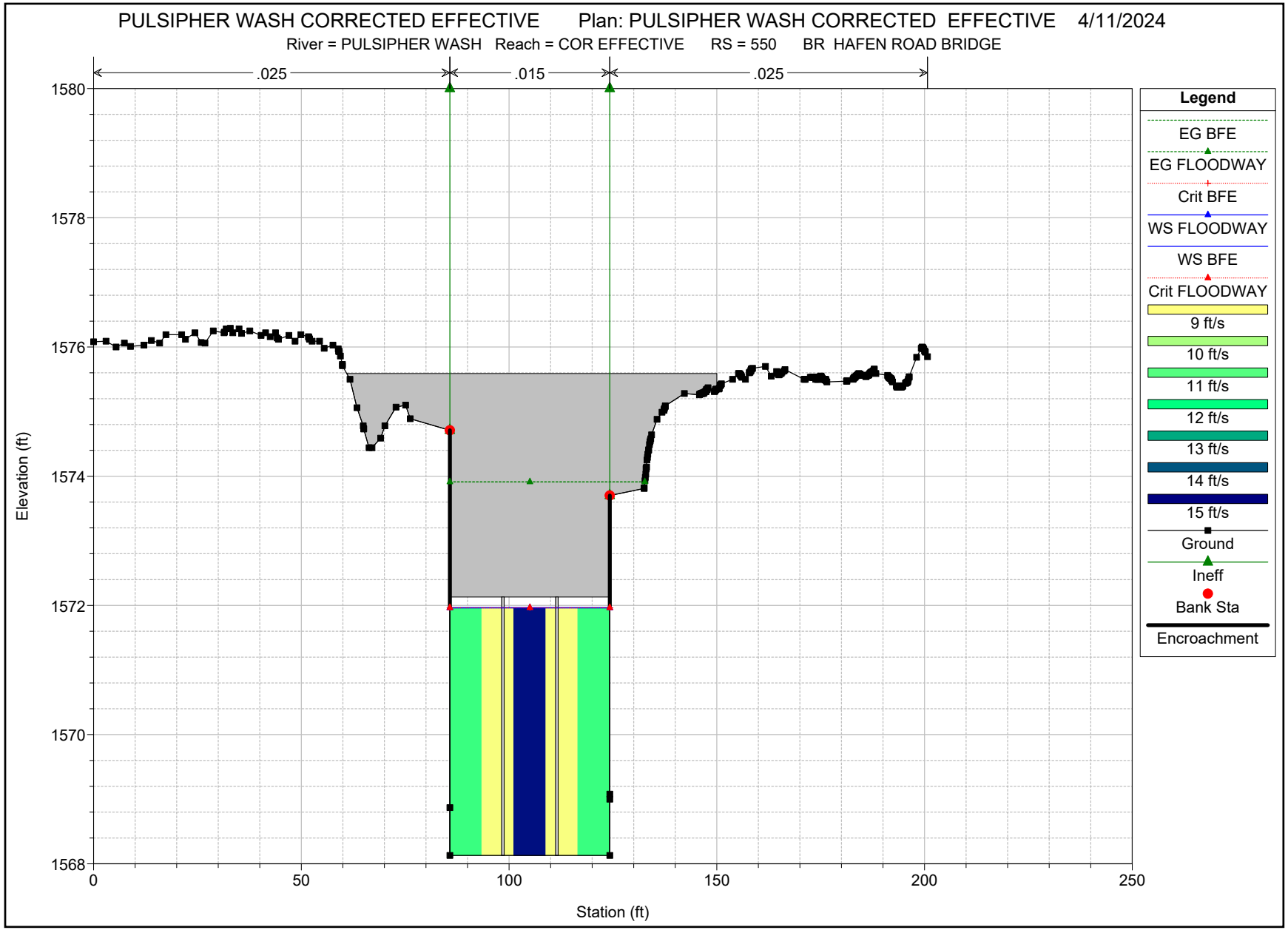

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 900
.04
.025
.04
1582
1580
1578
1576
1574
1572
1570
1568
Elevation (ft)
0
20
40
60
80
100
120
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
Ground
Bank Sta
Encroachment

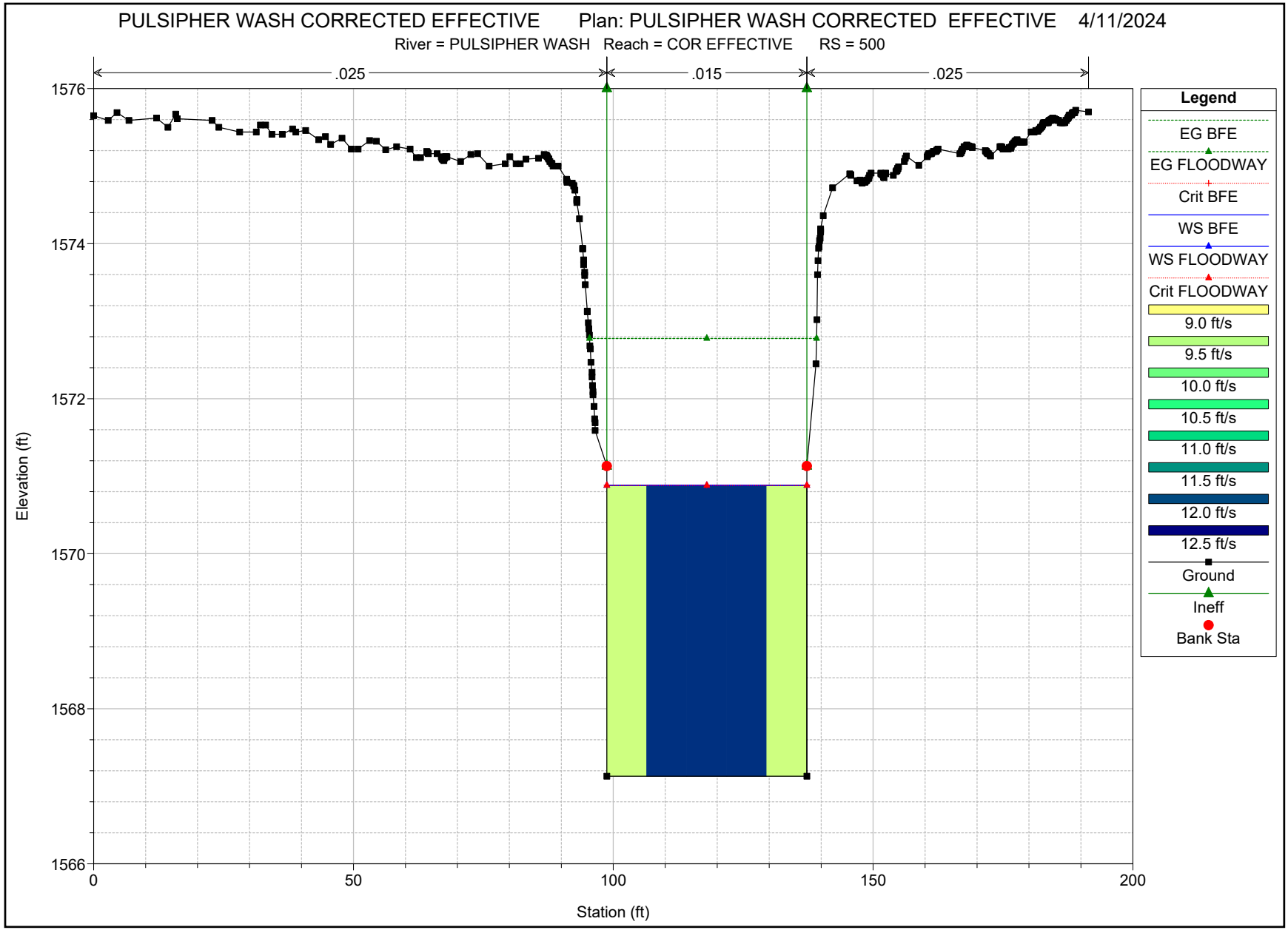

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 800
.04
.025
.04
Elevation (ft)
1580
1578
1576
1574
1572
1570
1568
0
20
40
60
80
100
120
140
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS BFE
WS FLOODWAY
Crit FLOODWAY
Crit BFE
0 ft/s
5 ft/s
10 ft/s
15 ft/s
Ground
Ineff
Bank Sta
Encroachment

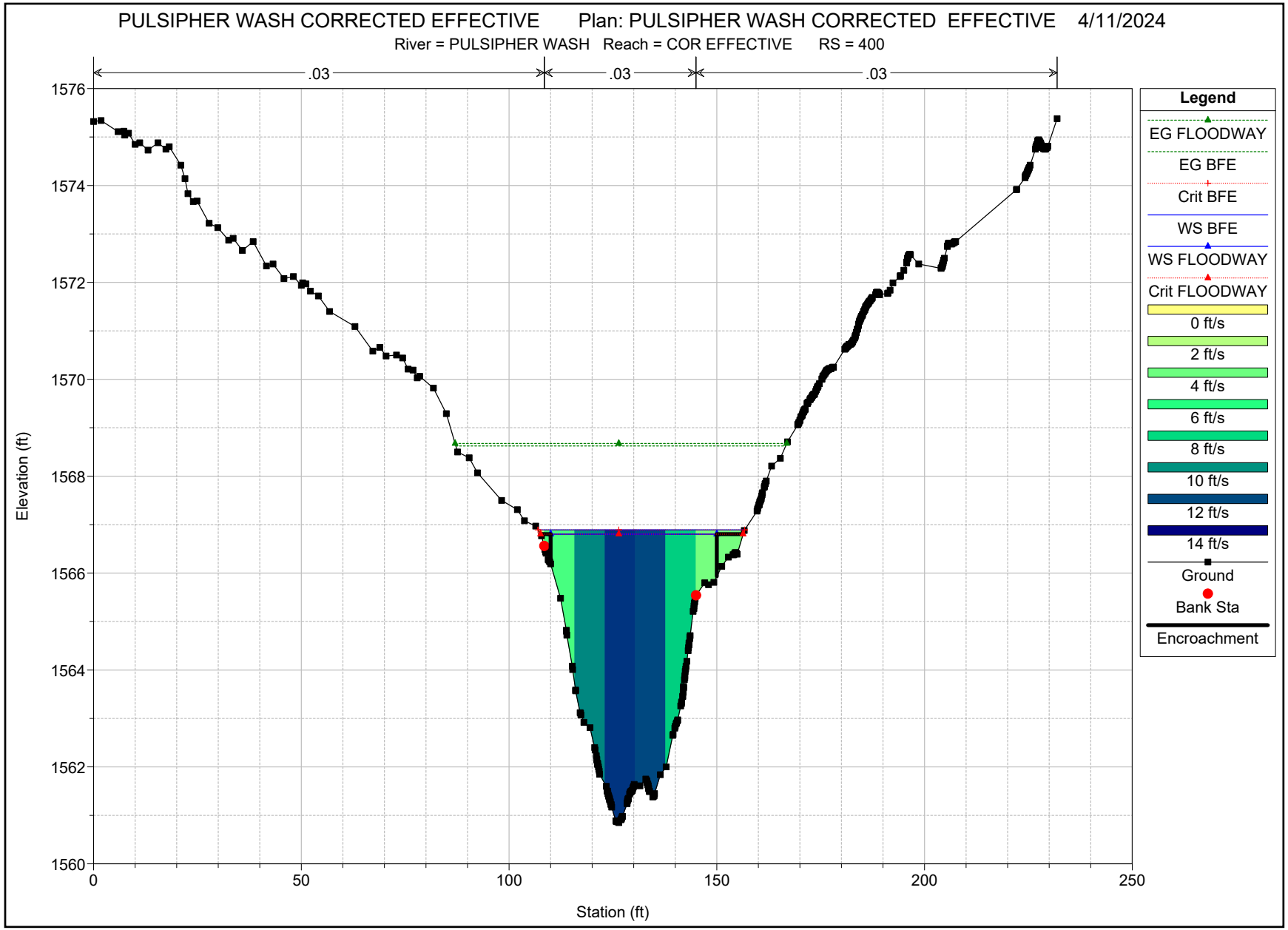

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 700
.04
.025
.04
Elevation (ft)
1580
1578
1576
1574
1572
1570
1568
0
20
40
60
80
100
120
140
160
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
Crit FLOODWAY
WS BFE
Crit BFE
0 ft/s
5 ft/s
10 ft/s
15 ft/s
Ground
Ineff
Bank Sta
Encroachment

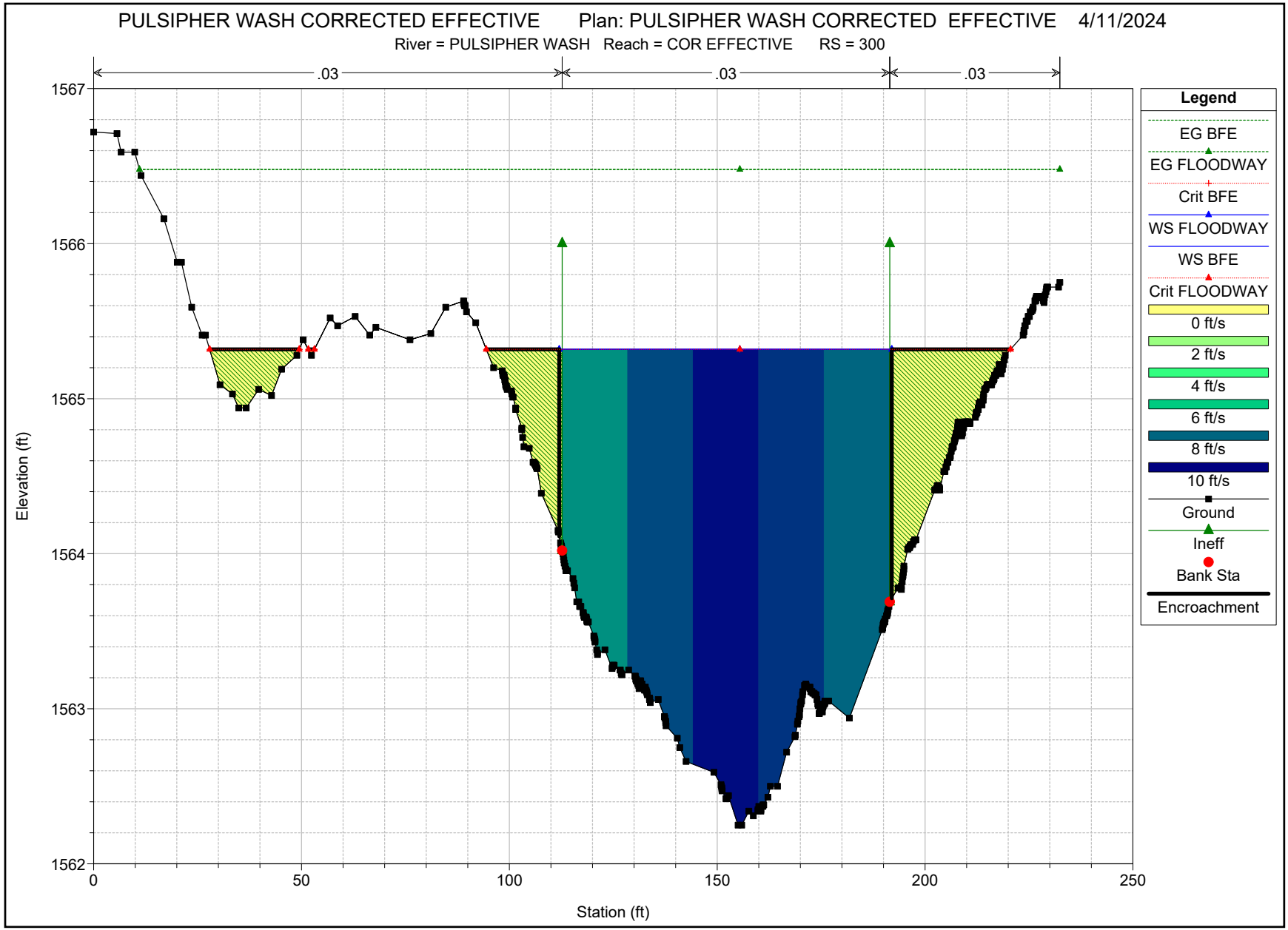

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 600
.04
.025
.04
1578
1576
1574
1572
1570
1568
Elevation (ft)
0
50
100
150
200
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
Crit FLOODWAY
WS BFE
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
14 ft/s
Ground
Ineff
Bank Sta
Encroachment

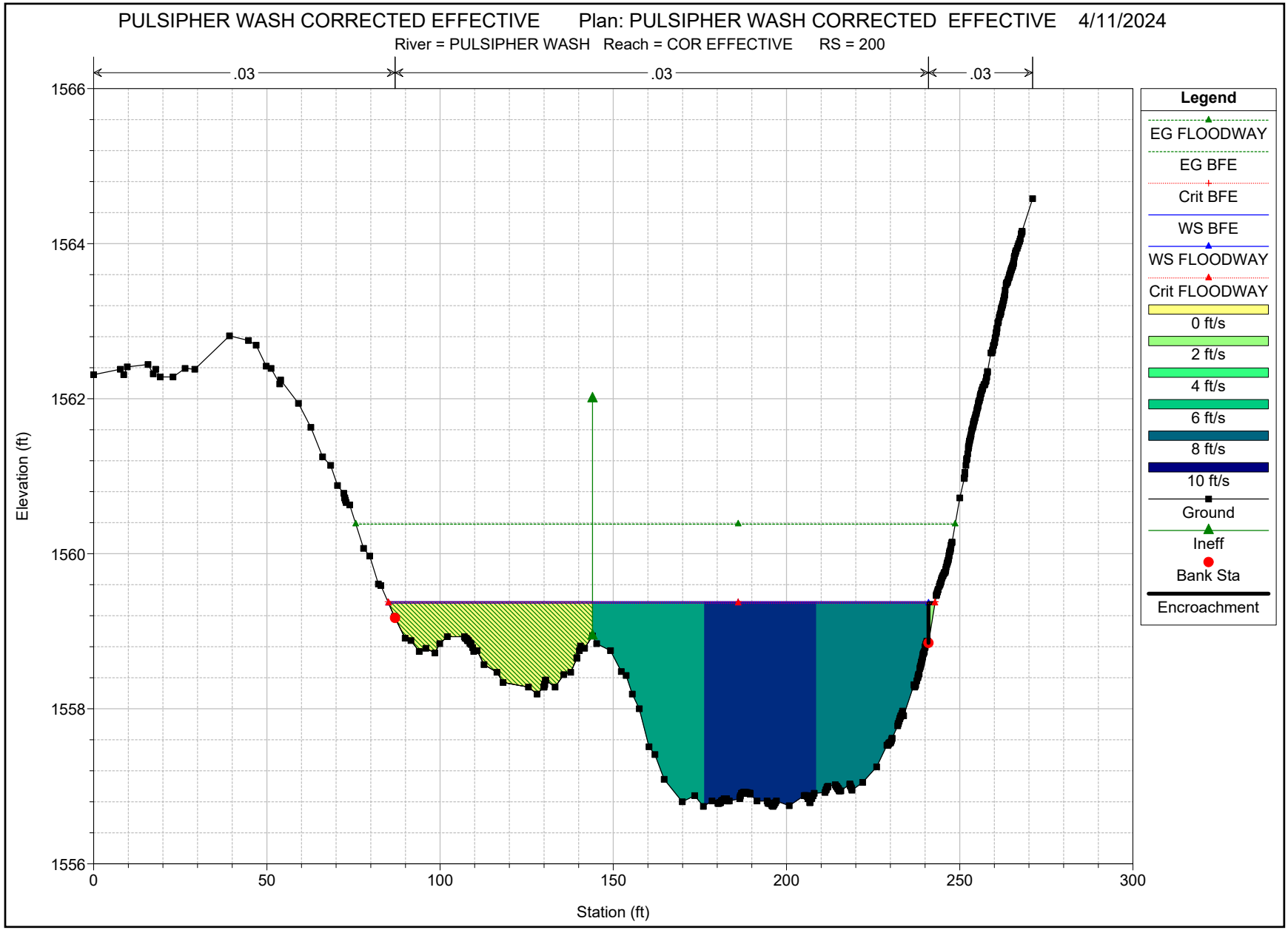

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 580
.025
.015
.025
1580
1578
1576
1574
1572
1570
1568
Elevation (ft)
0
50
100
150
200
250
Station (ft)
Legend
EG BFE
EG FLOODWAY
WS FLOODWAY
WS BFE
Crit BFE
Crit FLOODWAY
6.5 ft/s
7.0 ft/s
7.5 ft/s
8.0 ft/s
8.5 ft/s
9.0 ft/s
9.5 ft/s
Ground
Ineff
Bank Sta
Encroachment

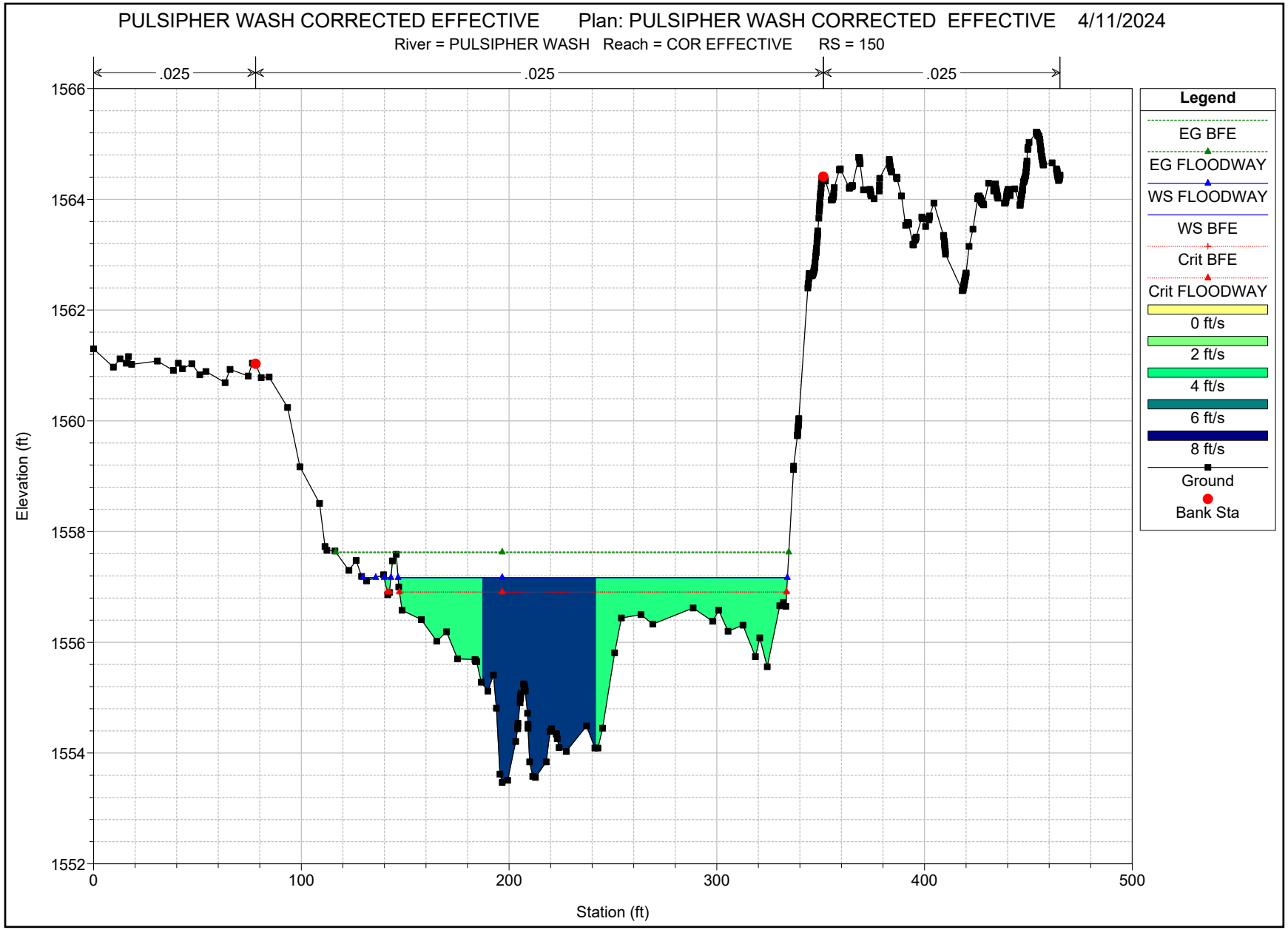

PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 550 BR HAFEN ROAD BRIDGE
.025
.015
.025
1580
1578
1576
1574
1572
1570
1568
Elevation (ft)
0
50
100
150
200
250
Station (ft)
Legend
EG BFE
EG FLOODWAY
Crit BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
9 ft/s
10 ft/s
11 ft/s
12 ft/s
13 ft/s
14 ft/s
15 ft/s
Ground
Ineff
Bank Sta
Encroachment


PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 500
.025
.015
.025
1576
1574
1572
1570
1568
1566
Elevation (ft)
0
50
100
150
200
Station (ft)
Legend
EG BFE
EG FLOODWAY
Crit BFE
WS BFE
WS FLOODWAY
Crit FLOODWAY
9.0 ft/s
9.5 ft/s
10.0 ft/s
10.5 ft/s
11.0 ft/s
11.5 ft/s
12.0 ft/s
12.5 ft/s
Ground
Ineff
Bank Sta


PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 400
.03
.03
.03
1576
1574
1572
1570
1568
1566
1564
1562
1560
Elevation (ft)
0
50
100
150
200
250
Station (ft)
Legend
EG FLOODWAY
EG BFE
Crit BFE
WS BFE
WS FLOODWAY
Crit FLOODWAY
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
14 ft/s
Ground
Bank Sta
Encroachment


PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 300
.03
.03
.03
1567
1566
1565
1564
1563
1562
Elevation (ft)
0
50
100
150
200
250
Station (ft)
Legend
EG BFE
EG FLOODWAY
Crit BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
Ground
Ineff
Bank Sta
Encroachment


PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 200
.03
.03
.03
1566
1564
1562
1560
1558
1556
Elevation (ft)
0
50
100
150
200
250
300
Station (ft)
Legend
EG FLOODWAY
EG BFE
Crit BFE
WS BFE
WS FLOODWAY
Crit FLOODWAY
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
Ground
Ineff
Bank Sta
Encroachment


PULSIPHER WASH CORRECTED EFFECTIVE Plan: PULSIPHER WASH CORRECTED EFFECTIVE 4/11/2024
River = PULSIPHER WASH Reach = COR EFFECTIVE RS = 150
.025
.025
.025
1566
1564
1562
1560
1558
1556
1554
1552
Elevation (ft)
0
100
200
300
400
500
Station (ft)
Legend
EG BFE
EG FLOODWAY
WS FLOODWAY
WS BFE
Crit BFE
Crit FLOODWAY
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
Ground
Bank Sta

HEC-RAS HEC-RAS 6.1.0 September 2021
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
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X           X  X     X    X        X
X     X  X        X    X      X   X    X    X        X
X     X  XXXXXX    XXXX       X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: PULSIPHER WASH CORRECTED EFFECTIVE
Project File : PULSIPHER_WASH_CORRECTED_EFFECTIVE.prj
Run Date and Time: 4/11/2024 11:09:34 PM

Project in English units

PLAN DATA

Plan Title: PULSIPHER WASH CORRECTED EFFECTIVE
Plan File : g:\2023\2023_09_PULSIPHER_WASH\FEMA SUBMITTAL - 3APRIL24\2CORRECTED EFFECTIVE\PULSIPHER_WASH_CORRECTED_EFFECTIVE.p03

Geometry Title: PULSIPHER WASH CORRECTED EFFECTIVE
Geometry File : g:\2023\2023_09_PULSIPHER_WASH\FEMA SUBMITTAL - 3APRIL24\2CORRECTED EFFECTIVE\PULSIPHER_WASH_CORRECTED_EFFECTIVE.g05

Flow Title   : PULSIPHER WASH CORRECTED EFFECTIVE
Flow File   : g:\2023\2023_09_PULSIPHER_WASH\FEMA SUBMITTAL - 3APRIL24\2CORRECTED EFFECTIVE\PULSIPHER_WASH_CORRECTED_EFFECTIVE.f03

Plan Summary Information:
Number of: Cross Sections =   38   Multiple Openings =   0
            Culverts   =   0   Inline Structures =   0
            Bridges   =   2   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

Encroachment Data
   Equal Conveyance = True
   Left Offset      =        0
   Right Offset     =        0

River = PULSIPHER WASH   Reach = COR EFFECTIVE
RS      Profile           Method  Value1  Value2
2590    FLOODWAY               1    23.5   118.8
2500    FLOODWAY               1    33.3      98
2400    FLOODWAY               1    12.2    66.8
2350    FLOODWAY               1   121.5     174
2330    FLOODWAY               1   236.2   289.6
2300    FLOODWAY               1   281.1   349.7
2200    FLOODWAY               1   511.9   585.3
2100    FLOODWAY               1   124.3   225.7
2000.1  FLOODWAY               1    39.7    57.2
2000    FLOODWAY               1    43.5    55.5
1900    FLOODWAY               1      57      69
1800    FLOODWAY               1    84.5     130
1750    FLOODWAY               1    46.8      89
1700    FLOODWAY               1      32      84
1650    FLOODWAY               1      30      79
1600    FLOODWAY               1      38     150
1550    FLOODWAY               1    64.2   101.6
1540    FLOODWAY               1    63.1    98.9
1510    FLOODWAY               1    96.6   120.6
1500    FLOODWAY               1   112.1     150
1450    FLOODWAY               1      64     116
1400    FLOODWAY               1      64     116
1350    FLOODWAY               1      64     116
1300    FLOODWAY               1      54     116
1250    FLOODWAY               1    66.5      99
1200    FLOODWAY               1      44    79.5
1100    FLOODWAY               1      39    67.2
1000    FLOODWAY               1      45      79
900     FLOODWAY               1      64     103
800     FLOODWAY               1      55      85
700     FLOODWAY               1      45      74
600     FLOODWAY               1      53      90
580     FLOODWAY               1   85.75  124.25
500     FLOODWAY               1      98     138
```

400	FLOODWAY	1	110	150
300	FLOODWAY	1	112	192
200	FLOODWAY	1	82	241

FLOW DATA

Flow Title: PULSIPHER WASH CORRECTED EFFECTIVE
Flow File : g:\2023\2023_09_PULSIPHER_WASH\FEMA SUBMITTAL - 3APRIL24\2CORRECTED EFFECTIVE\PULSIPHER_WASH_CORRECTED_EFFECTIVE.f03

Flow Data (cfs)

River	Reach	RS	BFE	FLOODWAY
PULSIPHER WASH	COR EFFECTIVE	2590	1723	1723
PULSIPHER WASH	COR EFFECTIVE	2500	1972	1972
PULSIPHER WASH	COR EFFECTIVE	2000.1	1972	1972
PULSIPHER WASH	COR EFFECTIVE	2000	1498	1498
PULSIPHER WASH	COR EFFECTIVE	1900	1595	1595
PULSIPHER WASH	COR EFFECTIVE	600	1595	1595
PULSIPHER WASH	COR EFFECTIVE	580	1595	1595
PULSIPHER WASH	COR EFFECTIVE	400	1595	1595
PULSIPHER WASH	COR EFFECTIVE	150	1595	1595

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
PULSIPHER WASH	COR EFFECTIVE	BFE	Normal S = 0.003	Normal S = 0.005
PULSIPHER WASH	COR EFFECTIVE	FLOODWAY	Normal S = 0.003	Normal S = 0.005

GEOMETRY DATA

Geometry Title: PULSIPHER WASH CORRECTED EFFECTIVE
Geometry File : g:\2023\2023_09_PULSIPHER_WASH\FEMA SUBMITTAL - 3APRIL24\2CORRECTED EFFECTIVE\PULSIPHER_WASH_CORRECTED_EFFECTIVE.g05

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 2590

INPUT
Description:
Station Elevation Data num= 450

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1617.34	1.2	1616.3	2.3	1615.79	3.1	1615.5	3.4	1615.44
4.9	1614.87	5.5	1614.73	6.8	1614.56	7.8	1614.26	8.9	1614.07
9.2	1614.07	10	1613.83	10.2	1613.72	11	1613.68	12	1613.72
12.6	1613.86	14.5	1614.01	16.5	1613.94	17.6	1614.13	19	1614.23
20.6	1614.21	21.6	1614.25	23.5	1614.13	25.7	1613.74	26.1	1613.63
26.6	1613.43	27.7	1613.14	29.6	1612.36	29.8	1612.24	29.9	1612.18
29.9	1612.13	30.2	1612	30.4	1611.8	30.6	1611.74	31	1611.34
31.1	1611.17	31.5	1610.93	31.9	1610.6	32.7	1610.31	33.8	1610.16
35.2	1609.9	35.4	1609.84	35.8	1609.65	35.9	1609.63	36.7	1609.24
38.7	1608.83	39.7	1608.51	41.3	1607.87	44.4	1607.53	45.4	1607.47
47.4	1607.47	50.5	1607.31	51.5	1607.42	52.1	1607.56	52.2	1607.53
52.3	1607.52	52.4	1607.51	53.1	1607.48	56.3	1607.48	56.5	1607.47
56.6	1607.47	56.9	1607.45	57	1607.45	57.1	1607.45	57.1	1607.44
59	1607.43	62.4	1607.5	63.4	1607.47	64.2	1607.53	64.8	1607.48
66.3	1607.53	66.6	1607.5	66.6	1607.49	66.8	1607.49	67	1607.48
67.1	1607.47	69	1607.49	70.2	1607.44	72.5	1607.41	74.6	1607.45
75.5	1607.41	75.6	1607.41	78.7	1607.62	80.3	1607.62	82.2	1607.45
82.4	1607.44	82.6	1607.43	82.7	1607.43	83.6	1607.45	84.9	1607.4
85.1	1607.35	85.2	1607.34	85.4	1607.31	85.6	1607.29	85.7	1607.28
85.8	1607.28	86	1607.27	86.2	1607.26	86.2	1607.25	87.6	1607.25
87.7	1607.27	87.8	1607.28	87.9	1607.28	88	1607.3	88.2	1607.29
88.3	1607.28	88.4	1607.28	88.6	1607.28	88.9	1607.25	89.1	1607.25
89.2	1607.25	89.3	1607.24	89.4	1607.24	89.5	1607.25	91.3	1607.29
92.6	1607.41	93.3	1607.41	94.7	1607.5	94.8	1607.51	95.2	1607.56
95.2	1607.57	95.3	1607.58	95.5	1607.62	95.6	1607.63	95.7	1607.66
95.8	1607.67	96	1607.72	96.2	1607.74	96.3	1607.75	96.4	1607.78
96.5	1607.81	96.6	1607.82	97	1607.9	97.1	1607.92	97.2	1607.95
97.2	1607.96	97.4	1608.01	97.6	1608.05	97.8	1608.14	97.9	1608.17
98	1608.21	98.2	1608.27	98.3	1608.34	98.8	1608.59	98.8	1608.63
98.9	1608.67	99	1608.7	99.1	1608.76	99.2	1608.82	99.2	1608.85
99.4	1608.9	99.4	1608.95	99.5	1609	99.6	1609.05	99.7	1609.09
99.7	1609.11	99.9	1609.24	100	1609.26	100.1	1609.3	100.1	1609.34
100.2	1609.41	100.5	1609.53	101	1609.85	101.6	1610.15	101.7	1610.24
101.9	1610.36	102.1	1610.46	102.1	1610.47	102.3	1610.58	102.4	1610.61
102.5	1610.7	102.7	1610.84	102.9	1610.96	102.9	1610.97	102.9	1610.98
103.1	1611.13	103.3	1611.29	103.3	1611.31	103.6	1611.59	103.7	1611.62
103.7	1611.63	103.9	1611.76	103.9	1611.82	104.1	1611.91	104.1	1611.94
104.2	1612.02	104.3	1612.05	104.4	1612.14	104.5	1612.18	104.5	1612.19
104.5	1612.22	104.7	1612.31	104.7	1612.37	104.8	1612.44	104.9	1612.5
105	1612.55	105	1612.58	105.2	1612.65	105.2	1612.71	105.3	1612.73
105.3	1612.77	105.4	1612.84	105.5	1612.91	105.6	1612.97	105.7	1613.02
105.8	1613.06	105.8	1613.07	105.9	1613.13	106	1613.2	106.1	1613.23
106.1	1613.28	106.2	1613.33	106.3	1613.39	106.4	1613.44	106.6	1613.53
106.7	1613.61	106.9	1613.73	107	1613.78	107	1613.81	107.1	1613.88
107.2	1613.93	107.4	1614.03	107.4	1614.05	107.7	1614.17	107.8	1614.25
107.8	1614.26	107.9	1614.34	108.2	1614.5	108.2	1614.51	108.4	1614.64
108.4	1614.69	108.6	1614.79	108.7	1614.89	108.8	1614.93	109	1615.05
110	1615.67	110	1615.72	110.1	1615.79	110.3	1615.88	110.3	1615.9
110.5	1616	110.5	1616.05	110.6	1616.06	110.6	1616.09	110.8	1616.22

```
   110.9 1616.29   111.1 1616.43   111.2  1616.5   111.3 1616.57   111.4 1616.59
   111.4 1616.63   111.6 1616.75   111.7  1616.8   111.8 1616.88   111.9 1616.91
   112.1 1617.03   112.2 1617.06   112.3 1617.14   112.4  1617.2   112.5 1617.25
   112.6 1617.33   112.9 1617.44   112.9 1617.47   113.1 1617.51   113.1 1617.53
   113.2 1617.57   113.3 1617.61   113.7 1617.78   113.9 1617.87   113.9 1617.88
   114.1 1617.97   114.5 1618.21   114.7 1618.26   114.7 1618.27   115.3 1618.52
   115.3 1618.55   115.4 1618.59   115.5  1618.6   115.6 1618.63   115.9 1618.72
   115.9 1618.73     116 1618.77   116.1  1618.8   116.2 1618.83   116.3 1618.85
   116.4 1618.88   116.4 1618.89   116.5 1618.93   116.6 1618.96   116.7 1618.96
   116.8    1619   117.1  1619.1   117.2 1619.12   117.2 1619.14   117.3 1619.17
   118.5 1619.53   118.7 1619.61   118.8 1619.62     119 1619.71   122.2 1619.99
   122.3 1619.98   122.4 1619.98   122.5 1619.97   122.6 1619.95   122.7 1619.94
   122.7 1619.93   122.8 1619.93   122.9 1619.93     123 1619.92   123.1 1619.91
   123.2 1619.89   123.3 1619.88   124.4 1620.04   127.2 1620.09   127.4 1620.08
   127.5 1620.08   127.6 1620.07   127.7 1620.07   127.8 1620.06   127.9 1620.06
     128 1620.07   128.1 1620.06   128.2 1620.05   128.3 1620.05   128.4 1620.04
   128.6 1620.03   128.6 1620.02   128.7 1620.02   128.8 1620.01   128.9    1620
     129    1620   129.1 1619.98   129.2 1619.98   129.3 1619.97   129.4 1619.96
   129.5 1619.94   129.6 1619.92   129.6 1619.91   129.8  1619.9   129.9 1619.89
     130 1619.88   130.1 1619.85   130.2 1619.84   130.4 1619.82   130.5 1619.81
   130.7  1619.8     131 1619.78   131.2 1619.76   131.5 1619.72   131.5 1619.71
   131.7 1619.69   135.5 1619.66   135.5 1619.67   135.7 1619.68   135.8 1619.68
   135.9 1619.68     136 1619.69   136.1  1619.7   136.3 1619.72   136.3 1619.71
   136.5 1619.68   136.7 1619.66   136.8 1619.64   136.8 1619.63     137 1619.63
     137 1619.62   137.1 1619.62   137.2 1619.62   137.4 1619.62   137.8 1619.62
   137.8 1619.63     138 1619.65   138.1 1619.66   138.2 1619.66   138.4 1619.66
   138.6 1619.68   138.7 1619.69     139  1619.7   139.2 1619.72   139.4 1619.72
   139.5 1619.72   139.6 1619.72   139.7 1619.72   139.8 1619.72   139.9 1619.72
   140.1 1619.72   140.2 1619.72   140.3 1619.72   140.4 1619.72   140.5 1619.72
   140.6 1619.73   140.7 1619.74   140.7 1619.75   141.3 1619.75   142.3 1619.72
   142.4 1619.72   142.7 1619.74   144.3 1619.75   144.5 1619.75   144.7 1619.78
   145.4  1619.8   145.5 1619.81   145.6 1619.81   146.6 1619.81   146.7 1619.82
   146.8 1619.82   146.9 1619.82   147.5 1619.85   147.6 1619.88   147.7 1619.88
   147.8 1619.88   147.9 1619.88     148 1619.88   148.2 1619.88   148.4 1619.88
   148.5 1619.88   148.6  1619.9   148.8 1619.91     149 1619.91   149.4 1619.96
   149.5 1619.96   149.6 1619.96   149.7 1619.97   149.8 1619.97     150 1619.97
   150.3 1619.99   150.4 1619.99   151.3 1620.02   151.3 1620.03   151.4 1620.03
   151.5 1620.03   151.6 1620.03   151.7 1620.03   151.8 1620.03   151.9 1620.02
     152 1620.01   152.1 1620.01   152.2    1620   152.4 1619.96   153.7 1620.09
   153.8 1620.09   153.9 1620.07     154 1620.06   154.1 1620.06   154.2 1620.04
   155.8 1620.12   155.9 1620.13   156.1 1620.15   156.1 1620.16158.6685 1620.23

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04    23.5    .025   118.8     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          23.5   118.8              252     224     208             .1       .3

CROSS SECTION OUTPUT  Profile #BFE
```

E.G. Elev (ft)	1611.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.34	Wt. n-Val.		0.025	
W.S. Elev (ft)	1610.47	Reach Len. (ft)	252.00	224.00	208.00
Crit W.S. (ft)	1610.47	Flow Area (sq ft)		185.32	
E.G. Slope (ft/ft)	0.006838	Area (sq ft)		185.32	
Q Total (cfs)	1723.00	Flow (cfs)		1723.00	
Top Width (ft)	69.85	Top Width (ft)		69.85	
Vel Total (ft/s)	9.30	Avg. Vel. (ft/s)		9.30	
Max Chl Dpth (ft)	3.23	Hydr. Depth (ft)		2.65	
Conv. Total (cfs)	20835.7	Conv. (cfs)		20835.7	
Length Wtd. (ft)	224.00	Wetted Per. (ft)		71.23	
Min Ch El (ft)	1607.24	Shear (lb/sq ft)		1.11	
Alpha	1.00	Stream Power (lb/ft s)		10.33	
Frctn Loss (ft)	1.06	Cum Volume (acre-ft)	27.34	29.08	0.80
C & E Loss (ft)	0.01	Cum SA (acres)	6.36	6.44	0.82

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1611.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.34	Wt. n-Val.		0.025	
W.S. Elev (ft)	1610.47	Reach Len. (ft)	252.00	224.00	208.00
Crit W.S. (ft)	1610.47	Flow Area (sq ft)		185.29	
E.G. Slope (ft/ft)	0.006841	Area (sq ft)		185.29	
Q Total (cfs)	1723.00	Flow (cfs)		1723.00	
Top Width (ft)	69.85	Top Width (ft)		69.85	
Vel Total (ft/s)	9.30	Avg. Vel. (ft/s)		9.30	
Max Chl Dpth (ft)	3.23	Hydr. Depth (ft)		2.65	
Conv. Total (cfs)	20831.3	Conv. (cfs)		20831.3	
Length Wtd. (ft)	224.00	Wetted Per. (ft)		71.23	
Min Ch El (ft)	1607.24	Shear (lb/sq ft)		1.11	
Alpha	1.00	Stream Power (lb/ft s)		10.33	
Frctn Loss (ft)	0.99	Cum Volume (acre-ft)	0.01	29.18	0.21
C & E Loss (ft)	0.04	Cum SA (acres)	0.02	6.44	0.17

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/fts)
1	Chan	23.50	42.56	78.03	13.94	10.74	4.53	1.35	5.60	0.55	3.10
2	Chan	42.56	61.62	560.09	57.28	19.12	32.51	3.01	9.78	1.28	12.51
3	Chan	61.62	80.68	553.82	56.86	19.09	32.14	2.98	9.74	1.27	12.39
4	Chan	80.68	99.74	525.79	55.63	19.53	30.52	2.92	9.45	1.22	11.49
5	Chan	99.74	118.80	5.28	1.61	2.76	0.31	0.68	3.28	0.25	0.82

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/fts)
1	Chan	23.50	42.56	78.01	13.93	10.74	4.53	1.35	5.60	0.55	3.10
2	Chan	42.56	61.62	560.10	57.28	19.12	32.51	3.01	9.78	1.28	12.51
3	Chan	61.62	80.68	553.82	56.86	19.09	32.14	2.98	9.74	1.27	12.39
4	Chan	80.68	99.74	525.79	55.62	19.53	30.52	2.92	9.45	1.22	11.50

5	Chan	99.74	118.80	5.27	1.61	2.76	0.31	0.68	3.28	0.25
0.82										

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 2500

INPUT
Description:
Station Elevation Data num= 449

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1616.8	.9	1616.66	2.2	1616.69	3.5	1616.78	5.1	1616.58
6.4	1616.56	9	1617.19	12.3	1617.71	13.2	1617.75	14	1617.47
14.6	1617.18	15.7	1616.45	16.3	1615.98	17.4	1615.44	18.4	1614.82
19.6	1613.83	20.2	1613.49	20.2	1613.46	21.4	1613.01	21.5	1612.92
21.8	1612.82	22.2	1612.61	22.3	1612.53	22.4	1612.53	22.4	1612.5
22.6	1612.44	22.6	1612.42	23	1612.2	23.6	1611.92	24.4	1611.74
25.5	1611.64	26	1611.56	26.7	1611.41	26.8	1611.38	26.8	1611.37
26.8	1611.35	27.5	1611.17	28.2	1611.09	28.3	1611.06	29.9	1611.09
31.7	1611	33.1	1611	33.3	1610.93	33.3	1610.92	33.3	1610.9
34	1610.23	34.3	1610.02	34.3	1609.93	34.4	1609.9	34.4	1609.86
34.5	1609.75	34.7	1609.58	34.9	1609.45	35.1	1609.23	35.2	1609.22
35.2	1609.19	35.3	1609.04	35.4	1608.98	35.5	1608.87	35.7	1608.74
35.7	1608.68	36.7	1607.68	36.8	1607.63	36.9	1607.46	37.1	1607.32
37.1	1607.25	37.3	1607.14	37.3	1607.05	37.5	1606.92	37.5	1606.83
37.9	1606.43	39.3	1605.31	39.7	1604.62	39.9	1604.42	40.1	1604.05
40.5	1603.62	40.5	1603.57	40.7	1603.44	40.9	1603.21	41.2	1603.07
41.3	1603.03	41.3	1603	41.4	1602.94	41.7	1602.88	41.7	1602.86
41.9	1602.82	42.5	1602.6	42.5	1602.58	42.7	1602.52	42.7	1602.5
42.8	1602.5	42.9	1602.41	43	1602.38	43.1	1602.32	43.2	1602.32
43.3	1602.23	43.7	1602.05	43.8	1602.02	43.9	1601.97	43.9	1601.96
44.1	1601.91	44.1	1601.87	44.3	1601.8	44.3	1601.78	44.3	1601.77
44.4	1601.75	44.5	1601.67	44.6	1601.66	44.7	1601.58	44.8	1601.53
46.2	1600.99	47.5	1600.17	47.7	1600.13	47.7	1600.12	48	1600.09
48.1	1600.08	48.2	1600.08	48.3	1600.06	48.5	1600.04	48.5	1600.03
49.6	1600	50.9	1600.03	51.6	1600.09	53.7	1600.12	53.7	1600.13
54.1	1600.17	54.5	1600.19	56.9	1600.12	56.9	1600.13	57.1	1600.16

57.3	1600.16	57.7	1600.16	61.4	1600.38	64	1600.72	64	1600.74
65.8	1601.26	65.9	1601.31	66	1601.36	66.1	1601.39	66.3	1601.46
66.3	1601.47	66.4	1601.48	66.5	1601.53	66.7	1601.58	66.8	1601.65
67.1	1601.79	67.4	1601.89	67.4	1601.92	67.5	1601.97	67.7	1602.06
67.8	1602.09	67.9	1602.12	67.9	1602.13	68	1602.17	68.3	1602.26
68.4	1602.28	68.5	1602.31	68.9	1602.41	70.5	1602.5	72.4	1602.44
74.7	1602.59	74.7	1602.6	74.8	1602.61	74.9	1602.62	75.2	1602.66
75.3	1602.67	75.4	1602.69	75.5	1602.71	75.7	1602.75	75.8	1602.76
75.9	1602.8	76.5	1602.84	77.7	1603.37	79.1	1604.16	79.2	1604.18
79.5	1604.34	79.6	1604.37	79.7	1604.42	79.7	1604.45	79.9	1604.51
79.9	1604.53	79.9	1604.54	81.7	1605.44	81.9	1605.48	83	1605.83
84.1	1606.28	87.5	1606.93	89.3	1607.4	89.4	1607.42	90.1	1607.55
90.1	1607.56	90.2	1607.58	90.3	1607.61	90.4	1607.64	90.5	1607.68
90.6	1607.7	90.6	1607.73	90.7	1607.74	90.9	1607.79	90.9	1607.81
90.9	1607.82	92	1608.12	92.1	1608.17	92.1	1608.18	92.2	1608.23
92.5	1608.31	92.5	1608.32	92.7	1608.39	92.7	1608.41	92.8	1608.44
92.9	1608.46	93	1608.5	93.1	1608.53	93.2	1608.57	93.3	1608.59
93.5	1608.68	93.5	1608.69	93.6	1608.7	93.8	1608.75	94	1608.81
94.3	1608.87	94.5	1608.92	96.1	1609.24	96.2	1609.26	96.3	1609.26
96.4	1609.28	96.5	1609.3	96.6	1609.33	96.7	1609.34	96.8	1609.36
96.9	1609.38	97.5	1609.46	97.7	1609.52	97.9	1609.59	98	1609.61
98.1	1609.64	98.1	1609.66	98.2	1609.69	98.3	1609.71	98.5	1609.76
98.5	1609.78	98.8	1609.88	99.1	1609.99	99.3	1610.06	99.3	1610.07
99.5	1610.14	99.5	1610.16	99.7	1610.18	99.9	1610.23	100.1	1610.28
100.1	1610.29	100.1	1610.31	100.3	1610.36	100.4	1610.41	100.5	1610.42
100.6	1610.45	100.7	1610.49	100.8	1610.53	100.9	1610.56	101	1610.58
101.1	1610.6	101.2	1610.61	101.4	1610.66	101.6	1610.72	101.7	1610.73
103.4	1611.3	105	1611.7	105	1611.72	105.1	1611.73	105.3	1611.8
106.4	1612.1	107.2	1612.45	107.3	1612.46	107.4	1612.5	107.5	1612.53
107.6	1612.58	107.7	1612.59	107.7	1612.62	107.9	1612.68	107.9	1612.69
108	1612.71	108.1	1612.73	108.2	1612.75	108.3	1612.77	108.4	1612.81
108.5	1612.82	108.6	1612.85	108.7	1612.87	108.7	1612.88	108.8	1612.9
108.9	1612.94	109.1	1613	109.1	1613.02	109.2	1613.05	109.3	1613.07
109.5	1613.15	109.5	1613.17	110.1	1613.36	110.3	1613.44	110.5	1613.52
110.5	1613.54	110.7	1613.59	110.7	1613.6	110.8	1613.64	110.9	1613.67
111	1613.74	111.1	1613.75	111.1	1613.77	111.3	1613.85	111.4	1613.89
111.5	1613.91	111.6	1613.95	111.8	1614.06	111.9	1614.07	112	1614.11
112.1	1614.14	115.2	1615.45	115.2	1615.47	115.8	1615.77	115.9	1615.8
116	1615.84	116	1615.87	116.1	1615.88	116.3	1615.96	116.3	1615.99
116.5	1616.04	116.6	1616.08	116.7	1616.12	116.7	1616.14	116.9	1616.2
117	1616.26	117.1	1616.28	117.1	1616.29	117.3	1616.38	117.3	1616.41
117.9	1616.56	117.9	1616.57	118.1	1616.61	118.1	1616.63	118.2	1616.67
118.5	1616.74	118.6	1616.8	118.7	1616.81	118.7	1616.83	118.9	1616.87
118.9	1616.88	119	1616.92	119.1	1616.94	119.2	1616.99	119.3	1617.01
119.4	1617.04	119.4	1617.06	119.5	1617.07	119.7	1617.15	119.7	1617.16
119.8	1617.18	119.9	1617.22	120	1617.25	123.5	1618.66	124.9	1619
125.1	1619.03	125.2	1619.06	125.3	1619.07	125.4	1619.06	125.5	1619.06
125.5	1619.07	125.7	1619.08	125.9	1619.09	126	1619.09	126.1	1619.1
126.2	1619.1	126.3	1619.1	126.5	1619.12	126.6	1619.12	126.7	1619.12
126.8	1619.12	127	1619.15	127.1	1619.16	127.2	1619.16	127.3	1619.17

127.5	1619.18	127.5	1619.19	127.7	1619.21	127.8	1619.25	127.9	1619.26
128	1619.27	128.1	1619.28	128.3	1619.34	128.5	1619.38	128.6	1619.41
128.7	1619.43	128.9	1619.5	129.1	1619.58	129.1	1619.59	129.2	1619.62
129.4	1619.66	129.5	1619.67	129.6	1619.71	129.7	1619.72	129.7	1619.73
129.9	1619.78	129.9	1619.8	130	1619.81	130.1	1619.82	130.3	1619.84
130.4	1619.84	130.5	1619.85	130.5	1619.86	130.7	1619.88	130.8	1619.89
130.9	1619.91	131	1619.92	131.1	1619.93	131.2	1619.94	131.3	1619.94
131.4	1619.96	131.5	1619.97	131.7	1619.97	131.9	1619.97	132.1	1619.97
132.5	1619.96	133.4	1619.97	133.5	1619.96	133.6	1619.97	133.7	1619.97
133.8	1619.97	133.9	1619.96	134.1	1619.94	134.3	1619.94	136.1	1619.91
138.3	1619.75	138.3	1619.74	138.4	1619.73	138.5	1619.72	138.6	1619.71
140.1	1619.68	140.4	1619.63	141.2	1619.56	141.4	1619.56	141.5	1619.56
141.7	1619.56	141.8	1619.56	141.8	1619.55	141.9	1619.55	142.1	1619.54
142.2	1619.53	142.4	1619.51	142.4	1619.5145.1847		1619.5		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	33.3	.025	98	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
33.3	98	180	183	184	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1607.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.31	Wt. n-Val.		0.025	
W.S. Elev (ft)	1606.64	Reach Len. (ft)	180.00	183.00	184.00
Crit W.S. (ft)		Flow Area (sq ft)		214.46	
E.G. Slope (ft/ft)	0.003620	Area (sq ft)		214.46	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	48.28	Top Width (ft)		48.28	
Vel Total (ft/s)	9.20	Avg. Vel. (ft/s)		9.20	
Max Chl Dpth (ft)	6.64	Hydr. Depth (ft)		4.44	
Conv. Total (cfs)	32777.3	Conv. (cfs)		32777.3	
Length Wtd. (ft)	183.00	Wetted Per. (ft)		52.01	
Min Ch El (ft)	1600.00	Shear (lb/sq ft)		0.93	
Alpha	1.00	Stream Power (lb/ft s)		8.57	
Frctn Loss (ft)	0.61	Cum Volume (acre-ft)	27.34	28.05	0.80
C & E Loss (ft)	0.03	Cum SA (acres)	6.36	6.13	0.82

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1608.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.20	Wt. n-Val.		0.025	
W.S. Elev (ft)	1606.85	Reach Len. (ft)	180.00	183.00	184.00
Crit W.S. (ft)		Flow Area (sq ft)		224.59	
E.G. Slope (ft/ft)	0.003215	Area (sq ft)		224.59	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	49.55	Top Width (ft)		49.55	

Vel Total (ft/s)	8.78	Avg. Vel. (ft/s)		8.78	
Max Chl Dpth (ft)	6.84	Hydr. Depth (ft)		4.53	
Conv. Total (cfs)	34780.0	Conv. (cfs)		34780.0	
Length Wtd. (ft)	183.00	Wetted Per. (ft)		53.40	
Min Ch El (ft)	1600.00	Shear (lb/sq ft)		0.84	
Alpha	1.00	Stream Power (lb/ft s)		7.41	
Frctn Loss (ft)	0.53	Cum Volume (acre-ft)	0.01	28.13	0.21
C & E Loss (ft)	0.04	Cum SA (acres)	0.02	6.13	0.17

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	33.30	46.24	186.50	29.33	10.73	9.46	3.43	6.36	0.62	3.93
2	Chan	46.24	59.18	934.32	83.86	13.23	47.38	6.48	11.14	1.43	15.96
3	Chan	59.18	72.12	659.32	68.21	13.32	33.43	5.27	9.67	1.16	11.19
4	Chan	72.12	85.06	191.81	32.98	13.80	9.73	2.55	5.82	0.54	3.14
5	Chan	85.06	98.00	0.05	0.08	0.93	0.00	0.09	0.63	0.02	0.01

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	33.30	46.24	189.16	31.12	11.02	9.59	3.56	6.08	0.57	3.45
2	Chan	46.24	59.18	920.73	86.53	13.23	46.69	6.69	10.64	1.31	13.97
3	Chan	59.18	72.12	657.43	70.89	13.32	33.34	5.48	9.27	1.07	9.91
4	Chan	72.12	85.06	204.30	35.66	13.80	10.36	2.76	5.73	0.52	2.97
5	Chan	85.06	98.00	0.38	0.38	2.03	0.02	0.19	1.00	0.04	0.04

CROSS SECTION

RIVER: PULSIPHER WASH

REACH: COR EFFECTIVE RS: 2400

INPUT
Description:
Station Elevation Data num= 449

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1605.63	.8	1605.72	2.1	1606	2.3	1606.09	3.9	1606.19
6.2	1606.25	6.9	1606.38	9	1606.56	10.7	1606.76	12.2	1606.81
14.3	1606.78	17.4	1606.5	19.9	1606.07	20.9	1605.79	21.8	1605.47
21.9	1605.41	22	1605.35	23.1	1604.47	24.2	1603.22	25.5	1601.84
25.7	1601.75	25.8	1601.7	25.8	1601.66	26.5	1601.36	26.5	1601.33
28.2	1600.97	29.9	1600.4	30.3	1600.23	30.3	1600.21	30.7	1600.06
30.9	1600.01	31.4	1599.76	31.4	1599.75	31.4	1599.71	31.6	1599.58
31.6	1599.56	32.1	1599.26	33.4	1599.09	34.1	1599.09	35.4	1599.16
37.5	1599.16	38.6	1599.23	39.3	1599.19	40.8	1599.22	41	1599.25
43.3	1599.25	44.8	1599.34	45.9	1599.31	47	1599.35	49.7	1599.71
49.7	1599.72	50.2	1599.83	50.2	1599.85	50.4	1599.93	50.6	1600.01
50.6	1600.02	50.7	1600.06	50.9	1600.14	51.5	1600.34	51.6	1600.37
51.9	1600.45	52.5	1600.69	53.8	1600.87	53.8	1600.88	53.8	1600.89
54	1600.94	54.1	1600.95	54.2	1600.98	54.3	1601	54.4	1601.01
54.4	1601.02	55.3	1601.15	56.1	1601.34	56.1	1601.37	56.3	1601.42
56.3	1601.44	56.3	1601.45	56.5	1601.49	56.6	1601.52	56.6	1601.53
56.8	1601.6	56.8	1601.62	56.9	1601.66	57	1601.68	57.1	1601.72
57.2	1601.78	57.6	1602.02	57.6	1602.04	57.8	1602.17	57.8	1602.21
57.8	1602.22	57.9	1602.23	58	1602.37	58.1	1602.41	58.2	1602.49
58.5	1602.77	58.5	1602.78	58.8	1602.98	58.9	1603	58.9	1603.01
59.1	1603.09	59.1	1603.1	59.3	1603.15	60.1	1603.38	60.1	1603.4
60.7	1603.59	61.6	1604.03	61.7	1604.03	61.7	1604.04	61.7	1604.07
62.5	1604.52	62.7	1604.59	62.7	1604.61	63.1	1604.73	63.2	1604.77
63.2	1604.78	63.2	1604.79	63.4	1604.82	63.4	1604.84	63.5	1604.87
63.6	1604.89	63.7	1604.92	63.8	1604.95	63.9	1604.96	64	1605
64.2	1605.05	64.2	1605.07	64.4	1605.1	64.4	1605.12	64.5	1605.12
64.8	1605.29	64.9	1605.33	65	1605.38	65.5	1605.62	65.5	1605.64
65.7	1605.73	65.7	1605.75	66	1605.85	66.1	1605.88	66.2	1605.92
66.2	1605.95	66.4	1606.01	66.7	1606.14	66.8	1606.16	67.3	1606.28
67.4	1606.33	67.7	1606.39	69	1606.8	69.9	1606.98	70.6	1607.15
71.3	1607.23	71.3	1607.24	71.4	1607.25	71.5	1607.26	71.6	1607.28
71.7	1607.32	71.7	1607.33	71.8	1607.36	71.9	1607.38	72.1	1607.42
72.1	1607.43	72.1	1607.44	73.3	1607.86	73.4	1607.87	73.4	1607.88
73.6	1607.97	73.9	1608.03	74.1	1608.09	74.3	1608.16	74.3	1608.17
74.4	1608.21	74.5	1608.24	74.6	1608.28	74.6	1608.31	74.7	1608.33
74.9	1608.41	75.1	1608.51	75.2	1608.53	75.2	1608.56	75.8	1608.89
75.8	1608.94	76.4	1609.14	76.4	1609.16	76.5	1609.18	76.6	1609.24
76.7	1609.27	76.8	1609.33	76.9	1609.38	77	1609.41	77.1	1609.43
77.2	1609.46	77.3	1609.48	77.4	1609.52	77.5	1609.53	77.6	1609.54
77.7	1609.56	77.9	1609.56	78.5	1609.59	79.7	1609.91	81.3	1610.24
81.3	1610.26	81.7	1610.39	81.8	1610.43	82	1610.48	82.3	1610.56
82.4	1610.59	82.5	1610.63	82.5	1610.66	82.6	1610.67	82.8	1610.75
82.8	1610.76	83	1610.8	83.1	1610.82	83.2	1610.85	83.3	1610.86
83.4	1610.91	83.6	1610.97	83.7	1611.01	83.7	1611.05	83.8	1611.09

84.1	1611.18	84.3	1611.31	84.5	1611.38	84.6	1611.42	84.7	1611.46
84.8	1611.53	84.9	1611.57	85	1611.61	85.1	1611.67	85.3	1611.74
85.3	1611.75	85.4	1611.76	85.5	1611.81	85.6	1611.87	85.6	1611.88
85.6	1611.89	85.9	1611.96	85.9	1612.01	86.1	1612.09	86.2	1612.15
86.4	1612.23	86.4	1612.27	86.6	1612.35	86.6	1612.38	86.8	1612.45
86.9	1612.5	86.9	1612.52	87.1	1612.63	87.1	1612.66	87.2	1612.68
87.4	1612.73	87.5	1612.78	87.6	1612.83	87.7	1612.86	87.8	1612.91
87.9	1612.93	87.9	1612.95	88.1	1613.06	88.4	1613.16	89.2	1613.61
89.4	1613.72	89.6	1613.83	89.7	1613.85	89.7	1613.87	89.8	1613.92
89.9	1613.95	90	1613.99	91.7	1614.37	91.8	1614.38	91.9	1614.4
92	1614.41	92.2	1614.43	92.2	1614.44	92.3	1614.44	92.4	1614.46
92.5	1614.47	92.6	1614.48	92.6	1614.49	92.9	1614.53	93	1614.55
93	1614.57	93.2	1614.59	93.5	1614.66	93.7	1614.68	93.8	1614.71
94	1614.73	94.2	1614.76	94.3	1614.78	94.3	1614.79	94.5	1614.8
94.5	1614.81	94.7	1614.83	94.8	1614.84	95	1614.9	95.1	1614.94
95.3	1615	95.4	1615.05	95.4	1615.06	95.5	1615.11	95.6	1615.14
95.7	1615.19	95.8	1615.21	95.8	1615.23	96	1615.3	96	1615.31
96.4	1615.4	97.6	1615.84	99.4	1616.65	99.5	1616.68	99.6	1616.71
99.9	1616.81	99.9	1616.82	100.5	1617	100.5	1617.01	100.6	1617.05
100.7	1617.08	100.9	1617.12	100.9	1617.15	101.1	1617.21	101.1	1617.22
101.3	1617.27	101.4	1617.31	101.4	1617.32	101.6	1617.38	101.6	1617.41
101.8	1617.44	101.9	1617.47	102	1617.5	102	1617.51	102.1	1617.53
102.4	1617.59	102.4	1617.6	102.6	1617.64	102.9	1617.68	102.9	1617.7
103	1617.71	103.1	1617.73	103.2	1617.75	103.3	1617.77	103.6	1617.83
103.7	1617.84	103.7	1617.85	103.9	1617.9	103.9	1617.91	104.3	1617.96
104.4	1617.98	104.4	1618.01	104.6	1618.06	104.7	1618.11	104.8	1618.14
104.9	1618.16	104.9	1618.18	105	1618.2	105.4	1618.37	105.5	1618.38
105.5	1618.4	105.6	1618.45	105.7	1618.48	105.8	1618.52	105.8	1618.53
106	1618.56	106.1	1618.59	106.1	1618.62	106.2	1618.65	106.5	1618.71
106.5	1618.72	106.5	1618.74	106.7	1618.8	106.7	1618.81	106.9	1618.83
107	1618.84	107.1	1618.86	107.1	1618.87	107.2	1618.89	107.3	1618.91
107.4	1618.92	107.5	1618.94	107.6	1618.95	107.7	1618.99	107.8	1619
107.9	1619.01	108.2	1619.05	108.3	1619.06	108.4	1619.06	108.5	1619.06
108.7	1619.08	109	1619.09	109.2	1619.11	109.3	1619.12	109.5	1619.12
109.6	1619.11	109.7	1619.11	109.8	1619.11	109.9	1619.1	110	1619.09
110.1	1619.09	110.2	1619.07	110.3	1619.07	110.3	1619.06	110.5	1619.06
110.6	1619.06	113.4	1618.84	113.5	1618.84	114.9	1618.78	115	1618.78
115.1	1618.78	115.3	1618.78	115.5	1618.79	115.8	1618.81	118.4	1618.78
118.7	1618.75	119.1	1618.73	119.2	1618.72	119.5	1618.72	119.7	1618.69
119.9	1618.69	120	1618.69	120	1618.68	120.1	1618.68	120.2	1618.68
120.3	1618.68	120.4	1618.68	120.5	1618.69	120.6	1618.7	120.7	1618.71
120.7	1618.72	121	1618.72	121	1618.73	121.2	1618.75	121.4	1618.77
124.6	1618.69	124.8	1618.69	125	1618.69	125.6	1618.69	125.7	1618.69
125.7	1618.7	125.8	1618.71	126.1	1618.72	126.3	1618.72	126.5	1618.75
126.6	1618.75	126.7	1618.75	126.8	1618.76	127	1618.76	127.1	1618.75
127.2	1618.75	127.3	1618.76	127.4	1618.77	127.6	207 1618.78		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	12.2	.025	66.8	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
12.2	66.8	68	72	73	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1607.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.20	Wt. n-Val.	0.040	0.025	
W.S. Elev (ft)	1606.11	Reach Len. (ft)	68.00	72.00	73.00
Crit W.S. (ft)		Flow Area (sq ft)	0.70	224.30	
E.G. Slope (ft/ft)	0.003034	Area (sq ft)	0.70	224.30	
Q Total (cfs)	1972.00	Flow (cfs)	0.52	1971.49	
Top Width (ft)	49.65	Top Width (ft)	2.66	46.99	
Vel Total (ft/s)	8.76	Avg. Vel. (ft/s)	0.74	8.79	
Max Chl Dpth (ft)	7.02	Hydr. Depth (ft)	0.26	4.77	
Conv. Total (cfs)	35802.6	Conv. (cfs)	9.4	35793.2	
Length Wtd. (ft)	72.00	Wetted Per. (ft)	3.20	50.99	
Min Ch El (ft)	1599.09	Shear (lb/sq ft)	0.04	0.83	
Alpha	1.01	Stream Power (lb/ft s)	0.03	7.32	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	27.34	27.13	0.80
C & E Loss (ft)	0.17	Cum SA (acres)	6.36	5.93	0.82

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1607.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.06	Wt. n-Val.		0.025	
W.S. Elev (ft)	1606.41	Reach Len. (ft)	68.00	72.00	73.00
Crit W.S. (ft)		Flow Area (sq ft)		238.72	
E.G. Slope (ft/ft)	0.002609	Area (sq ft)		238.72	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	48.89	Top Width (ft)		48.89	
Vel Total (ft/s)	8.26	Avg. Vel. (ft/s)		8.26	
Max Chl Dpth (ft)	7.32	Hydr. Depth (ft)		4.88	
Conv. Total (cfs)	38608.5	Conv. (cfs)		38608.5	
Length Wtd. (ft)	72.00	Wetted Per. (ft)		53.18	
Min Ch El (ft)	1599.09	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		6.04	
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	0.01	27.16	0.21
C & E Loss (ft)	0.14	Cum SA (acres)	0.02	5.92	0.17

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	0.00	2.44	0.52	0.69	2.98	0.03	0.28	0.74	0.04	0.03
2	LOB	2.44	4.88	0.00	0.00	0.22	0.00	0.01	0.07	0.00	0.00
3	LOB	4.88	7.32							0.00	0.00
4	LOB	7.32	9.76							0.00	0.00
5	LOB	9.76	12.20							0.00	0.00
6	Chan	12.20	23.12	4.08	2.12	3.92	0.21	0.61	1.93	0.10	0.20
7	Chan	23.12	34.04	443.10	56.50	12.71	22.47	5.17	7.84	0.84	6.60
8	Chan	34.04	44.96	792.26	75.38	10.93	40.18	6.90	10.51	1.31	13.73
9	Chan	44.96	55.88	617.32	65.59	11.23	31.30	6.01	9.41	1.11	10.42
10	Chan	55.88	66.80	114.73	24.71	12.20	5.82	2.30	4.64	0.38	1.78

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	12.20	23.12	6.48	3.42	5.69	0.33	0.66	1.89	0.10	0.19
2	Chan	23.12	34.04	446.07	59.78	12.71	22.62	5.47	7.46	0.77	5.71
3	Chan	34.04	44.96	779.40	78.66	10.93	39.52	7.20	9.91	1.17	11.61

4	Chan	44.96	55.88	613.60	68.87	11.23	31.12	6.31	8.91	1.00
8.90										
5	Chan	55.88	66.80	126.45	27.98	12.62	6.41	2.56	4.52	0.36
1.63										

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

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 2350

INPUT
Description:
Station Elevation Data num= 449

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1611.47	1.5	1611.3	3.3	1611.24	4.3	1611.02	7	1610.62
9.5	1610.6	15	1610.03	17.3	1609.97	19.3	1610.13	21.8	1609.28
24.3	1608.92	25.8	1608.95	27.3	1609.17	28	1609.16	31	1608.11
33.6	1607.42	34.8	1606.88	36.8	1606.22	37.2	1606.21	37.5	1606.09
38.3	1606.11	39.3	1605.95	41.8	1605.93	43	1606.08	45	1606.71
47.1	1607.11	47.5	1607.25	48	1607.13	49.3	1607.06	50.8	1606.88
54.7	1606.32	58.5	1605.98	60.8	1605.89	61.8	1605.94	65.1	1605.75
66.3	1605.81	67.1	1605.91	67.2	1605.96	68	1606.1	70.5	1606.19
71.8	1606.1	73	1605.91	73.8	1605.84	75.3	1605.5	77.3	1605.49
78.9	1605.67	80.3	1605.72	82.3	1605.55	87.1	1605.46	88.1	1605.34
91.8	1605.13	93.1	1604.93	94.5	1604.81	96.2	1604.84	97.3	1604.93
98.3	1604.84	100.3	1604.88	102.8	1605.19	105.1	1605.2	106.1	1605.26
108	1605.62	111.8	1605.59	114.3	1605.75	115.5	1605.92	116	1605.91
116.1	1605.91	116.2	1605.92	116.3	1605.93	116.4	1605.93	116.5	1605.93
118.3	1605.79	121.4	1605.85	121.5	1605.84	121.6	1605.81	121.7	1605.8
122.1	1605.67	122.2	1605.65	122.4	1605.54	122.5	1605.4	122.9	1604.21
123.1	1603.28	123.2	1603.08	123.3	1602.72	123.4	1602.6	123.4	1602.45
123.5	1602.33	125	1601.68	125	1601.65	125.1	1601.61	125.3	1601.52
125.3	1601.49	125.7	1601.29	126	1601.09	127	1600.75	127.5	1600.66
128.8	1600.53	130.5	1600.22	132.8	1600.09	133	1600.07	133	1600.06
133.1	1600.06	133.3	1600.03	133.5	1600.01	133.5	1600	133.8	1599.97
134.3	1599.88	137	1599.1	138.3	1598.81	148.5	1598.94	151.3	1598.88
153	1599.03	155.5	1599	158.6	1599.22	159.2	1599.31	159.4	1599.36
159.4	1599.37	159.5	1599.41	159.6	1599.44	159.7	1599.45	159.8	1599.49
159.9	1599.53	159.9	1599.54	160.1	1599.63	160.2	1599.64	160.3	1599.69
161.5	1600.23	161.9	1600.36	162.4	1600.51	163.9	1600.85	165	1601.57
165	1601.64	165.1	1601.7	165.2	1601.78	165.3	1601.85	165.4	1601.91
165.5	1601.98	165.5	1602.04	165.6	1602.1	165.7	1602.17	165.9	1602.29
166	1602.38	166	1602.44	166.1	1602.49	166.2	1602.58	166.3	1602.62
166.3	1602.67	166.5	1602.77	166.5	1602.81	166.8	1603	166.8	1603.04
167	1603.18	167.1	1603.21	167.2	1603.28	167.3	1603.31	167.3	1603.33

167.5	1603.38	167.5	1603.4	169.8	1604.01	171.8	1604.44	172.5	1604.71
172.5	1604.72	173.1	1605.01	173.3	1605.11	173.3	1605.12	173.5	1605.24
173.5	1605.25	173.6	1605.26	173.8	1605.39	173.8	1605.4	173.8	1605.41
174	1605.52	174.1	1605.53	174.3	1605.58	174.3	1605.59	174.6	1605.63
174.7	1605.68	175	1605.74	175.1	1605.76	175.2	1605.82	175.3	1605.84
175.3	1605.85	175.5	1605.89	175.5	1605.91	177	1606.23	177	1606.25
177.1	1606.28	177.2	1606.32	177.4	1606.37	177.5	1606.41	177.5	1606.44
177.7	1606.5	177.9	1606.56	178	1606.61	178	1606.65	178.1	1606.69
178.2	1606.73	178.5	1606.9	178.6	1606.94	178.7	1606.98	178.8	1607.02
178.9	1607.06	178.9	1607.1	179	1607.14	179.2	1607.2	179.3	1607.24
179.4	1607.29	179.5	1607.36	179.7	1607.43	179.8	1607.47	179.9	1607.52
179.9	1607.54	180	1607.58	180.1	1607.62	180.2	1607.64	180.4	1607.72
180.4	1607.74	180.6	1607.83	180.7	1607.84	180.8	1607.88	180.9	1607.91
181	1607.94	181.2	1607.97	181.4	1608.02	182.2	1608.12	182.3	1608.15
182.4	1608.2	182.7	1608.28	182.7	1608.29	182.8	1608.33	182.9	1608.35
183.1	1608.39	183.2	1608.4	183.3	1608.42	183.4	1608.44	183.5	1608.45
183.6	1608.46	183.7	1608.46	183.8	1608.47	183.9	1608.5	183.9	1608.51
184.1	1608.56	184.2	1608.57	184.3	1608.59	184.4	1608.62	184.5	1608.64
184.6	1608.65	184.7	1608.66	184.8	1608.68	184.9	1608.68	185.2	1608.7
185.3	1608.7	185.4	1608.7	185.5	1608.7	185.5	1608.71	185.7	1608.72
185.8	1608.73	185.9	1608.74	186.6	1608.81	187.3	1608.85	187.3	1608.86
187.5	1608.88	187.6	1608.89	187.8	1608.94	189.5	1609.69	189.6	1609.7
189.8	1609.77	189.8	1609.78	189.8	1609.79	190	1609.84	190.1	1609.85
190.3	1609.9	190.3	1609.91	190.5	1609.97	190.6	1609.98	191	1610.12
191	1610.13	191.5	1610.25	191.8	1610.31	192	1610.37	192	1610.38
192.3	1610.47	192.5	1610.53	192.8	1610.63	193	1610.71	193	1610.72
193.3	1610.81	193.3	1610.82	193.5	1610.9	193.5	1610.91	193.6	1610.91
197.2	1612.63	197.3	1612.65	197.4	1612.64	197.5	1612.63	197.5	1612.62
197.8	1612.56	197.9	1612.59	198.1	1612.7	198.2	1612.73	198.3	1612.76
198.4	1612.79	198.5	1612.83	198.7	1612.9	198.8	1612.93	198.9	1612.95
199	1612.99	199.1	1613.01	199.2	1613.03	199.3	1613.05	199.4	1613.08
199.4	1613.1	199.8	1613.21	199.9	1613.24	199.9	1613.25	200	1613.28
200.1	1613.32	200.2	1613.34	200.3	1613.38	200.4	1613.42	200.4	1613.44
200.5	1613.49	201.1	1613.69	201.2	1613.7	201.3	1613.74	201.4	1613.77
201.5	1613.8	201.7	1613.84	201.7	1613.85	201.8	1613.89	201.9	1613.92
203.3	1614.23	203.4	1614.26	203.4	1614.27	203.5	1614.29	203.6	1614.34
203.8	1614.41	203.9	1614.45	203.9	1614.47	204	1614.51	204.1	1614.56
204.2	1614.59	204.4	1614.68	204.4	1614.71	204.5	1614.75	204.6	1614.79
204.7	1614.81	204.8	1614.86	204.9	1614.89	205	1614.95	205.1	1614.98
205.2	1614.99	205.4	1615.05	205.5	1615.08	205.5	1615.11	205.6	1615.15
205.7	1615.18	205.8	1615.21	205.9	1615.23	206	1615.27	206	1615.29
206.1	1615.32	206.2	1615.36	206.3	1615.38	206.4	1615.41	206.5	1615.43
206.5	1615.46	206.6	1615.48	206.9	1615.56	207	1615.59	207.3	1615.71
207.5	1615.74	207.5	1615.76	207.6	1615.78	207.7	1615.81	207.8	1615.83
208	1615.92	208.2	1616.04	208.5	1616.14	210.5	1617.22	210.6	1617.23
210.8	1617.31	211	1617.43	211	1617.44	211.1	1617.45	211.3	1617.56
211.5	1617.65	211.5	1617.66	212.5	1618	213.5	1618.28	213.6	1618.28
213.8	1618.31	213.8	1618.32	214	1618.34	214	1618.35	214.1	1618.35
214.5	1618.41	214.6	1618.41	214.8	1618.46	214.8	1618.47	215	1618.5
215.1	1618.5	215.3	1618.5	215.5	1618.52	215.5	1618.53	215.7	1618.53

```
   215.8 1618.53     216 1618.53   216.1 1618.53   216.3 1618.53   216.3 1618.52
   216.5  1618.5   216.8  1618.5     217  1618.5   217.1 1618.51   217.2 1618.52
   217.3 1618.53   217.7 1618.53   217.8 1618.53   217.9 1618.54     218 1618.54
   218.2 1618.54   222.3 1618.22   222.5 1618.22   222.7 1618.22   222.8 1618.22
   222.9 1618.22     223 1618.22   223.2 1618.22   223.3 1618.22   223.4 1618.23
   223.5 1618.25   223.7 1618.25   223.9 1618.26   223.9 1618.27     224 1618.28
   224.1 1618.28   225.4 1618.28   225.5 1618.28   225.6 1618.27   225.7 1618.26
   225.9 1618.24     226 1618.23   226.1 1618.22   226.2 1618.22   226.3 1618.22
   226.5 1618.19   226.7 1618.19   228.6 1618.22232.1146 1618.06

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   121.5    .025     174     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         121.5     174               63      63      63             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0   121.5    1610       F

CROSS SECTION OUTPUT  Profile #BFE

  E.G. Elev (ft)           1607.01    Element                   Left OB    Channel   Right OB
  Vel Head (ft)               0.65    Wt. n-Val.                            0.025      0.040
  W.S. Elev (ft)           1606.36    Reach Len. (ft)            63.00      63.00      63.00
  Crit W.S. (ft)           1603.83    Flow Area (sq ft)                    305.54       1.47
  E.G. Slope (ft/ft)      0.001262    Area (sq ft)               54.82     305.54       1.47
  Q Total (cfs)            1972.00    Flow (cfs)                          1970.92       1.08
  Top Width (ft)            130.51    Top Width (ft)             74.64      52.50       3.37
  Vel Total (ft/s)            6.42    Avg. Vel. (ft/s)                      6.45       0.73
  Max Chl Dpth (ft)           7.55    Hydr. Depth (ft)                      5.82       0.44
  Conv. Total (cfs)        55506.8    Conv. (cfs)                        55476.4       30.4
  Length Wtd. (ft)            63.00   Wetted Per. (ft)                     57.22       3.54
  Min Ch El (ft)           1598.81    Shear (lb/sq ft)                      0.42       0.03
  Alpha                       1.01    Stream Power (lb/ft s)                2.71       0.02
  Frctn Loss (ft)             0.10    Cum Volume (acre-ft)       27.30      26.69       0.80
  C & E Loss (ft)             0.00    Cum SA (acres)              6.30       5.85       0.81


Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT  Profile #FLOODWAY

  E.G. Elev (ft)           1607.21    Element                   Left OB    Channel   Right OB
  Vel Head (ft)               0.59    Wt. n-Val.                            0.025
  W.S. Elev (ft)           1606.62    Reach Len. (ft)            63.00      63.00      63.00
  Crit W.S. (ft)           1603.81    Flow Area (sq ft)                    318.95
  E.G. Slope (ft/ft)      0.001143    Area (sq ft)                         318.95
  Q Total (cfs)            1972.00    Flow (cfs)                          1972.00
```

Top Width (ft)	52.50	Top Width (ft)		52.50	
Vel Total (ft/s)	6.18	Avg. Vel. (ft/s)		6.18	
Max Chl Dpth (ft)	7.81	Hydr. Depth (ft)		6.08	
Conv. Total (cfs)	58325.4	Conv. (cfs)		58325.4	
Length Wtd. (ft)	63.00	Wetted Per. (ft)		59.10	
Min Ch El (ft)	1598.81	Shear (lb/sq ft)		0.39	
Alpha	1.00	Stream Power (lb/ft s)		2.38	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	0.01	26.70	0.21
C & E Loss (ft)	0.04	Cum SA (acres)	0.02	5.84	0.17

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

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	24.30	48.60	0.00	2.32	7.65	0.00	0.31	0.00	0.02	0.00
2	LOB	48.60	72.90	0.00	6.59	18.58	0.00	0.36	0.00	0.03	0.00
3	LOB	72.90	97.20	0.00	24.04	24.40	0.00	0.99	0.00	0.08	0.00
4	LOB	97.20	121.50	0.00	21.87	24.38	0.00	0.90	0.00	0.07	0.00
5	Chan	121.50	132.00	236.99	50.00	13.32	12.02	4.76	4.74	0.30	1.40
6	Chan	132.00	142.50	532.26	74.35	10.68	26.99	7.08	7.16	0.55	3.93
7	Chan	142.50	153.00	585.59	78.24	10.51	29.70	7.45	7.48	0.59	4.39
8	Chan	153.00	163.50	501.70	72.06	10.79	25.44	6.86	6.96	0.53	3.66
9	Chan	163.50	174.00	114.38	30.89	11.93	5.80	2.94	3.70	0.20	0.76
10	ROB	174.00	185.62	1.08	1.47	3.54	0.05	0.44	0.73	0.03	0.02

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power

		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	Chan	121.50	132.00	234.88	52.68	14.10	11.91	5.02	4.46	0.27	1.19
2	Chan	132.00	142.50	532.73	77.04	10.68	27.01	7.34	6.92	0.51	3.56
3	Chan	142.50	153.00	584.42	80.92	10.51	29.64	7.71	7.22	0.55	3.97
4	Chan	153.00	163.50	503.07	74.74	10.79	25.51	7.12	6.73	0.49	3.33
5	Chan	163.50	174.00	116.90	33.58	13.03	5.93	3.20	3.48	0.18	0.64

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

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 2330

INPUT
Description:
Station Elevation Data num= 439

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1615.69	10.1	1615.7	18.3	1616.16	21.3	1616.16	22.8	1616.03
26.8	1616.06	29.8	1615.81	45.1	1615.05	46.6	1614.66	48.5	1613.64
51.2	1612.73	53.3	1611.72	55.9	1610.71	57.8	1610.09	61.5	1609.26
63	1608.71	64.1	1608.12	65.3	1607.66	67.3	1607.19	74.8	1606.11
80.6	1605.62	92.8	1605.38	95.6	1605.5	100.4	1605.41	104.1	1605.51
105.9	1605.44	112.1	1605.5	115.2	1605.38	127.8	1605.28	131.3	1605.31
134.1	1605.47	135.6	1605.38	137.6	1605.47	142.3	1605.3	143.6	1605.34
146	1605.16	156.1	1604.97	163.6	1605.22	168.4	1605.03	171.3	1605.12
176.4	1604.99	180.9	1605.08	188.8	1604.72	193.3	1604.62	194.8	1604.81
197.1	1604.78	199.8	1605	202.6	1605.03	205.3	1605.44	214.6	1605.56
215.6	1605.65	222.8	1605.78	225.3	1605.97	228.3	1605.9	228.4	1605.9
230.6	1605.69	230.6	1605.7	230.8	1605.72	230.9	1605.72	230.9	1605.73
231.1	1605.79	231.3	1605.81	231.4	1605.82	231.6	1605.84	231.6	1605.85
231.8	1605.88	231.9	1605.88	231.9	1605.89	232.1	1605.91	234.4	1606.42
234.8	1606.47	235.3	1606.49	235.4	1606.49	235.5	1606.47	235.7	1606.45
235.8	1606.44	235.9	1606.43	235.9	1606.42	236	1606.39	236.1	1606.38
236.2	1606.35	236.3	1606.3	236.4	1606.27	240.9	1603.96	244.4	1602.56
246.5	1601.47	246.5	1601.45	246.6	1601.39	246.7	1601.33	246.7	1601.31
246.9	1601.25	247	1601.19	247	1601.17	247.2	1601.04	247.2	1601.02
247.5	1600.89	247.5	1600.87	247.7	1600.75	249.9	1599.84	251.2	1599.1
251.5	1599.02	251.6	1598.98	255.4	1598.62	263	1598.41	267.9	1598.38
267.9	1598.39	268	1598.4	268.1	1598.41	268.3	1598.43	268.5	1598.43

268.6 1598.44	268.7 1598.44	268.8 1598.46	268.9 1598.47	268.9 1598.48
269 1598.51	269.2 1598.53	269.3 1598.55	269.4 1598.56	269.4 1598.58
269.5 1598.59	269.6 1598.61	269.7 1598.65	269.8 1598.78	269.9 1598.82
269.9 1598.86	270 1598.97	270.1 1599.01	270.3 1599.16	270.4 1599.19
270.4 1599.22	270.6 1599.32	270.6 1599.35	270.8 1599.48	270.9 1599.51
270.9 1599.53	271.1 1599.63	271.1 1599.66	271.1 1599.69	271.3 1599.78
271.4 1599.81	271.4 1599.84	271.6 1599.94	271.6 1599.97	271.6 1600
271.9 1600.12	271.9 1600.14	272.1 1600.21	272.1 1600.22	272.1 1600.23
272.3 1600.28	272.4 1600.29	272.4 1600.3	272.6 1600.34	272.6 1600.36
272.8 1600.4	272.9 1600.42	272.9 1600.43	273.1 1600.49	273.1 1600.5
273.1 1600.52	273.4 1600.6	273.4 1600.62	273.6 1600.73	273.6 1600.75
273.6 1600.78	273.8 1600.92	273.9 1600.94	273.9 1600.97	274.1 1601.16
274.1 1601.19	274.1 1601.22	274.3 1601.37	274.4 1601.4	274.4 1601.43
274.6 1601.62	274.6 1601.65	275.1 1602.03	275.1 1602.05	275.1 1602.08
276.3 1602.86	278.3 1603.18	278.8 1603.34	278.9 1603.34	279.1 1603.47
279.4 1603.59	279.4 1603.6	279.6 1603.68	279.6 1603.69	279.8 1603.75
282.6 1604.4	284.6 1605.32	284.8 1605.4	284.9 1605.41	285.1 1605.47
285.3 1605.53	285.4 1605.54	285.6 1605.63	285.8 1605.74	285.9 1605.75
285.9 1605.76	286.1 1605.84	286.1 1605.85	286.3 1605.9	286.4 1605.91
286.6 1605.97	286.8 1606.03	286.9 1606.03	287.1 1606.09	288.1 1606.49
288.3 1606.61	288.4 1606.62	288.6 1606.59	289.6 1606.87	289.6 1606.88
289.9 1606.91	290.1 1606.96	290.1 1606.97	290.3 1606.97	290.4 1606.98
293.1 1608.35	295.3 1608.83	295.4 1608.84	295.4 1608.85	295.5 1608.87
295.7 1608.88	295.8 1608.9	295.9 1608.91	296 1608.91	296.1 1608.91
296.3 1608.99	296.4 1609.01	296.9 1609.15	297 1609.18	297.5 1609.34
297.7 1609.37	297.8 1609.38	297.9 1609.41	298.1 1609.46	298.2 1609.48
298.3 1609.51	298.4 1609.54	298.5 1609.55	298.7 1609.57	299.3 1609.73
299.4 1609.76	299.4 1609.78	299.5 1609.83	299.6 1609.85	299.7 1609.88
299.9 1609.97	299.9 1609.98	300.7 1610.11	300.8 1610.13	300.9 1610.15
300.9 1610.18	301 1610.22	301.1 1610.26	301.2 1610.28	301.3 1610.31
301.4 1610.33	301.4 1610.35	301.5 1610.39	301.7 1610.44	301.9 1610.51
301.9 1610.52	302.1 1610.55	302.2 1610.61	302.4 1610.71	302.4 1610.75
302.5 1610.8	302.6 1610.84	302.8 1610.92	302.9 1610.96	303 1610.98
303.1 1611	303.2 1611.04	303.3 1611.08	303.4 1611.11	303.5 1611.23
303.7 1611.34	303.8 1611.38	303.9 1611.46	304.2 1611.52	304.3 1611.52
304.4 1611.52	304.4 1611.54	304.5 1611.56	304.6 1611.57	304.7 1611.6
304.9 1611.64	305 1611.71	306.3 1612.32	306.5 1612.47	306.6 1612.53
306.7 1612.57	306.8 1612.59	306.9 1612.64	306.9 1612.66	307.1 1612.69
307.2 1612.72	307.3 1612.74	307.4 1612.77	307.5 1612.83	307.5 1612.86
307.6 1612.91	307.7 1612.96	307.7 1612.99	307.9 1613.04	308 1613.09
308 1613.1	308.1 1613.16	308.2 1613.22	309.4 1613.64	309.5 1613.7
309.5 1613.72	309.6 1613.78	309.7 1613.84	310.1 1614.02	311 1614.34
311 1614.35	311.1 1614.39	311.2 1614.44	311.2 1614.45	311.4 1614.5
311.5 1614.57	311.6 1614.62	311.7 1614.68	311.9 1614.73	312 1614.76
312 1614.77	312.1 1614.8	312.4 1614.88	312.5 1614.91	312.6 1614.94
312.7 1614.99	312.9 1615.05	313.1 1615.14	313.2 1615.2	313.4 1615.27
313.5 1615.31	313.7 1615.41	316.5 1616.23	318.7 1617.3	318.9 1617.34
319 1617.38	319.2 1617.48	319.2 1617.49	319.4 1617.53	319.5 1617.59
319.6 1617.62	319.9 1617.72	319.9 1617.76	320 1617.79	320.2 1617.85
320.4 1617.88	320.4 1617.94	320.6 1618.03	321.9 1618.83	321.9 1618.88

```
     322 1618.92   322.2 1619.01   322.3 1619.04   322.4  1619.1   322.5 1619.11
   322.7 1619.15   322.8 1619.17   322.9 1619.19   322.9 1619.21     323 1619.23
   323.1 1619.25   323.2 1619.26   323.3 1619.26   323.4 1619.26   323.4 1619.27
   323.5 1619.27   323.7 1619.27   323.8 1619.27   323.9 1619.26   323.9 1619.24
   324.1  1619.2   324.2 1619.18   324.4 1619.14   324.5 1619.09   324.6 1619.07
   324.7 1619.05   324.8 1619.03   324.9 1619.01   324.9    1619     325 1618.99
   325.1 1618.98   325.2 1618.97   325.3 1618.96   325.4 1618.95   325.4 1618.94
   325.5 1618.91   325.7 1618.89   329.4 1618.75   329.4 1618.74   329.6 1618.72
   329.8 1618.69   329.9 1618.69   330.1 1618.69   330.2 1618.68   330.4 1618.65
   330.7 1618.62   330.8 1618.62   330.9 1618.62     331 1618.62   331.1 1618.62
   331.5 1618.62   331.8 1618.62   331.9 1618.62   332.1 1618.66   332.2 1618.66
   332.3 1618.68   332.6 1618.68   332.6 1618.69   332.8 1618.69   333.1 1618.69
   333.4 1618.66   333.9 1618.66   334.1 1618.66   334.3 1618.66   334.4 1618.66
   334.6 1618.66   334.6 1618.65   334.9 1618.65   335.1 1618.62   335.6 1618.57
   335.6 1618.56   335.8 1618.54   335.9 1618.54   335.9 1618.53   336.1 1618.51
   336.1  1618.5   336.4 1618.47   346.9 1618.44351.7084 1618.31

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   236.2    .025   289.6     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         236.2   289.6              238     243     234             .1       .3

CROSS SECTION OUTPUT  Profile #BFE

  E.G. Elev (ft)           1606.91    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               0.69    Wt. n-Val.                0.040      0.025
  W.S. Elev (ft)           1606.23    Reach Len. (ft)          238.00     243.00     234.00
  Crit W.S. (ft)           1604.53    Flow Area (sq ft)        142.72     251.29
  E.G. Slope (ft/ft)      0.001837    Area (sq ft)             142.72     251.29
  Q Total (cfs)            1972.00    Flow (cfs)               210.74    1761.27
  Top Width (ft)            210.47    Top Width (ft)           159.52      50.95
  Vel Total (ft/s)            5.00    Avg. Vel. (ft/s)           1.48       7.01
  Max Chl Dpth (ft)           7.84    Hydr. Depth (ft)           0.89       4.93
  Conv. Total (cfs)        46014.8    Conv. (cfs)              4917.3    41097.5
  Length Wtd. (ft)          242.73    Wetted Per. (ft)         159.77      55.06
  Min Ch El (ft)           1598.38    Shear (lb/sq ft)           0.10       0.52
  Alpha                       1.76    Stream Power (lb/ft s)     0.15       3.67
  Frctn Loss (ft)             0.19    Cum Volume (acre-ft)      27.15      26.29       0.80
  C & E Loss (ft)             0.12    Cum SA (acres)             6.13       5.78       0.81


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

CROSS SECTION OUTPUT  Profile #FLOODWAY

  E.G. Elev (ft)           1607.07    Element                  Left OB    Channel   Right OB
```

Vel Head (ft)	1.04	Wt. n-Val.		0.025	
W.S. Elev (ft)	1606.03	Reach Len. (ft)	238.00	243.00	234.00
Crit W.S. (ft)		Flow Area (sq ft)		241.31	
E.G. Slope (ft/ft)	0.002565	Area (sq ft)		241.31	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	49.92	Top Width (ft)		49.92	
Vel Total (ft/s)	8.17	Avg. Vel. (ft/s)		8.17	
Max Chl Dpth (ft)	7.65	Hydr. Depth (ft)		4.83	
Conv. Total (cfs)	38939.2	Conv. (cfs)		38939.2	
Length Wtd. (ft)	243.00	Wetted Per. (ft)		53.94	
Min Ch El (ft)	1598.38	Shear (lb/sq ft)		0.72	
Alpha	1.00	Stream Power (lb/ft s)		5.85	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	0.01	26.29	0.21
C & E Loss (ft)	0.22	Cum SA (acres)	0.02	5.77	0.17

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	47.24	94.48	13.66	12.34	20.51	0.69	0.60	1.11	0.07	0.08
2	LOB	94.48	141.72	53.13	38.92	47.26	2.69	0.82	1.37	0.09	0.13
3	LOB	141.72	188.96	94.22	54.88	47.27	4.78	1.16	1.72	0.13	0.23
4	LOB	188.96	236.20	49.72	36.58	44.73	2.52	0.82	1.36	0.09	0.13
5	Chan	236.20	246.88	99.16	26.07	11.56	5.03	2.51	3.80	0.26	0.98
6	Chan	246.88	257.56	569.78	73.69	11.27	28.89	6.90	7.73	0.75	5.80
7	Chan	257.56	268.24	721.24	83.13	10.69	36.57	7.78	8.68	0.89	7.73
8	Chan	268.24	278.92	337.51	56.04	12.47	17.12	5.25	6.02	0.52	3.10
9	Chan	278.92	289.60	33.57	12.36	9.07	1.70	1.45	2.72	0.16	0.42

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

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	236.20	246.88	105.20	24.05	11.12	5.33	2.40	4.37	0.35	1.51
2	Chan	246.88	257.56	642.06	71.58	11.27	32.56	6.70	8.97	1.02	9.12
3	Chan	257.56	268.24	817.27	81.02	10.69	41.44	7.59	10.09	1.21	12.24
4	Chan	268.24	278.92	374.45	53.93	12.47	18.99	5.05	6.94	0.69	4.81
5	Chan	278.92	289.60	33.03	10.72	8.39	1.67	1.36	3.08	0.20	0.63

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 2300

INPUT
Description:
Station Elevation Data num= 434

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1618.67	1.4	1618.44	3.9	1617.76	5.1	1617.2	6.1	1616.4
9	1614.71	10	1613.89	13.4	1611.84	14.5	1611.47	16	1610.65
19.2	1609.22	20.5	1608.87	24	1608.38	24.4	1608.22	26	1608
27.3	1607.62	32.7	1607	36.9	1606.8	39.8	1606.44	40.8	1606.06
42.7	1605.75	44.7	1605.23	46	1605.06	51	1604.61	54	1604.71
58.7	1603.88	68.8	1603.22	70.6	1603.03	72.3	1602.66	75.8	1602.28
80.2	1602.16	83.9	1602.38	85.1	1602.64	86.9	1603.22	90.6	1604.71
92.2	1605.21	93.5	1605.38	96.7	1605.5	98.9	1605.7	101.1	1605.69
103.2	1605.53	114.4	1604.16	129	1603.74	132.1	1603.88	137.9	1603.62
141.5	1603.69	148.3	1603.19	150.4	1603.28	153.5	1603.65	158.2	1603.41
160.8	1603.53	162.2	1603.37	163.7	1603.01	166.8	1603	167	1602.98
167.1	1602.98	167.2	1602.95	167.4	1602.93	167.4	1602.92	167.6	1602.91
167.7	1602.9	168	1602.83	168.1	1602.81	168.2	1602.8	168.3	1602.77
169.4	1602.72	170.9	1602.84	173.4	1602.78	176	1603	178	1602.94
180.3	1603	185.6	1603.44	191.5	1603.38	192.7	1603.53	195.5	1604.27
196.6	1604.38	204.9	1603.7	208.3	1603.23	211.5	1603.11	211.6	1603.03

211.7	1603	215.4	1603.06	221.9	1602.34	222.3	1602.34
222.4	1602.34	222.9	1602.37	222.9	1602.38	223	1602.39
223.1	1602.41	226.7	1602.26	228.4	1602.34	231.1	1602.73
234.5	1602.69	237.3	1603	240.1	1602.78	244.1	1602.83
247	1602.62	251.1	1602.56	260.2	1602.91	265.9	1602.84
274.9	1603.2	278.5	1603.23	281.1	1603.01	284.8	1602.33
288.9	1601.79	294.2	1601.58	297.1	1601.18	298.5	1600.78
299.4	1600.42	299.4	1600.37	299.5	1600.32	299.6	1600.26
299.7	1600.19	299.7	1600.18	299.9	1600.11	300	1599.99
300.1	1599.93	300.2	1599.88	300.6	1599.57	300.8	1599.36
301.7	1598.98	301.8	1598.97	302.4	1598.87	302.5	1598.85
302.6	1598.85	303.1	1598.79	303.3	1598.78	303.5	1598.74
303.5	1598.73	303.6	1598.71	303.7	1598.69	303.8	1598.67
304.8	1598.39	304.9	1598.38	305	1598.36	305.1	1598.35
305.2	1598.33	305.4	1598.3	305.5	1598.27	305.6	1598.25
305.7	1598.23	305.7	1598.21	306	1598.15	306.2	1598.1
308.4	1597.32	309.9	1597.19	313.9	1597.28	317.5	1597.19
325.5	1597.34	326.9	1597.34	328.6	1597.22	329.5	1597.39
329.7	1597.41	329.8	1597.43	329.9	1597.43	330.1	1597.44
330.3	1597.46	330.7	1597.49	330.8	1597.52	330.9	1597.53
331	1597.54	331.1	1597.56	331.3	1597.58	331.3	1597.59
331.5	1597.64	331.6	1597.66	331.6	1597.68	331.7	1597.7
331.9	1597.76	331.9	1597.78	332.2	1597.81	332.4	1597.88
332.4	1597.89	332.6	1597.93	332.7	1597.95	332.8	1597.99
332.9	1598.01	333	1598.04	333	1598.05	333.2	1598.08
333.4	1598.21	333.5	1598.24	333.7	1598.31	333.9	1598.4
333.9	1598.41	334	1598.44	334.2	1598.49	334.2	1598.5
334.2	1598.51	334.4	1598.58	334.4	1598.6	334.7	1598.7
334.8	1598.74	334.9	1598.8	336.7	1599.33	337.7	1600.03
337.9	1600.17	338.1	1600.29	341	1601.15	341	1601.17
341.2	1601.24	341.2	1601.25	341.3	1601.26	341.5	1601.37
341.5	1601.38	341.7	1601.46	341.8	1601.5	341.9	1601.56
342	1601.59	342.1	1601.65	342.2	1601.69	342.4	1601.74
342.5	1601.78	342.7	1601.85	342.8	1601.89	343	1601.94
343	1601.95	343.3	1602.03	343.5	1602.09	343.5	1602.1
343.5	1602.11	343.7	1602.17	343.8	1602.2	343.8	1602.23
344.1	1602.36	344.4	1602.44	344.4	1602.47	344.5	1602.5
344.7	1602.57	344.8	1602.59	344.8	1602.61	345	1602.68
345	1602.69	345.1	1602.72	347.8	1603.62	349.6	1604.34
349.7	1604.4	349.9	1604.5	350.1	1604.6	350.3	1604.66
350.3	1604.69	350.4	1604.7	350.6	1604.81	350.6	1604.82
350.7	1604.85	350.8	1604.93	350.8	1604.94	350.8	1604.95
351	1605.04	351.1	1605.06	351.1	1605.08	354.6	1606.11
358.2	1606.69	358.4	1606.72	358.6	1606.77	358.6	1606.78
358.7	1606.8	358.9	1606.84	359	1606.87	359	1606.88
359.1	1606.91	359.3	1606.95	359.4	1606.97	359.5	1606.98
359.7	1607.03	359.7	1607.04	359.9	1607.12	360.1	1607.18
360.2	1607.19	360.2	1607.2	360.4	1607.23	363.9	1608.85
364.2	1608.92	364.3	1608.94	364.3	1608.96	364.4	1608.98
364.6	1609.02	365.5	1609.25	365.7	1609.24	365.9	1609.3
366	1609.32	366	1609.36	366.1	1609.39	366.2	1609.43
366.5	1609.53	366.6	1609.55	366.7	1609.56	367	1609.63
367.2	1609.65	367.2	1609.66	367.3	1609.67	367.5	1609.69
367.5	1609.7	367.7	1609.77	367.7	1609.79	367.8	1609.82
367.9	1609.87	368	1609.91	368.1	1609.95	368.3	1610.04
368.4	1610.05	368.7	1610.21	369	1610.3	369	1610.32
369.2	1610.35	369.2	1610.37	369.3	1610.38	369.5	1610.43
369.5	1610.45	369.7	1610.49	369.7	1610.51	369.8	1610.53
369.9	1610.55	370	1610.58	370.3	1610.77	370.4	1610.82
370.5	1610.87	370.6	1610.91	370.8	1611.03	370.8	1611.04
371	1611.19	371.2	1611.33	371.3	1611.35	371.3	1611.38
371.5	1611.49	371.5	1611.54	371.7	1611.66	371.9	1611.78
372	1611.84	372.3	1611.94				

372.3	1611.96	372.5	1612.03	372.6	1612.05	372.8	1612.12	372.8	1612.13
372.9	1612.16	373	1612.21	373.2	1612.28	373.3	1612.29	373.3	1612.3
373.5	1612.33	373.5	1612.34	373.6	1612.37	373.7	1612.38	373.8	1612.41
373.9	1612.42	373.9	1612.43	374.1	1612.48	375	1612.89	375.1	1612.93
375.2	1612.98	375.4	1613.02	375.4	1613.03	375.6	1613.03	375.7	1613.06
375.8	1613.09	375.9	1613.14	376	1613.2	376.1	1613.24	376.1	1613.27
376.3	1613.32	376.3	1613.34	376.3	1613.35	376.6	1613.44	376.8	1613.52
377.1	1613.66	377.2	1613.7	377.3	1613.73	377.4	1613.79	377.7	1613.9
377.8	1613.94	377.9	1613.97	378	1614.03	382.4	1615.63	382.6	1615.77
383.7	1616.2	383.9	1616.32	384	1616.35	384.1	1616.43	384.1	1616.44
384.2	1616.45	384.4	1616.59	384.4	1616.62	384.7	1616.73	384.9	1616.8
385	1616.84	385	1616.86	385.1	1616.91	385.2	1616.94	385.3	1616.98
385.4	1617	389.1	1618.63	389.2	1618.66	389.2	1618.67	389.4	1618.75
389.4	1618.76	389.5	1618.79	389.7	1618.86	389.9	1618.94	389.9	1618.96
390	1618.98	390.1	1619.01	390.2	1619.03	390.3	1619.08	390.4	1619.11
390.5	1619.14	390.6	1619.14	390.7	1619.17	390.8	1619.19	390.9	1619.21
390.9	1619.23	391	1619.23	391.2	1619.25	391.2	1619.26	391.4	1619.27
391.4	1619.28	391.5	1619.28	391.7	1619.28	391.7	1619.29	397.8	1619.33
399.8	1619.16	399.9	1619.13	399.9	1619.12	400	1619.09	400.1	1619.08
400.2	1619.04	400.5	1619	400.6	1618.98	401	1618.91	401.1	1618.9
401.2	1618.89	401.3	1618.88	401.4	1618.86	404.223	1618.54		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	281.1	.025	349.7	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
281.1	349.7	312	308.8	303	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	281.1	1610	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1606.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.		0.025	0.040
W.S. Elev (ft)	1606.31	Reach Len. (ft)	312.00	308.80	303.00
Crit W.S. (ft)	1602.39	Flow Area (sq ft)		456.46	4.82
E.G. Slope (ft/ft)	0.000442	Area (sq ft)	673.53	456.46	4.82
Q Total (cfs)	1972.00	Flow (cfs)		1968.92	3.08
Top Width (ft)	315.67	Top Width (ft)	240.95	68.60	6.12
Vel Total (ft/s)	4.28	Avg. Vel. (ft/s)		4.31	0.64
Max Chl Dpth (ft)	9.12	Hydr. Depth (ft)		6.65	0.79
Conv. Total (cfs)	93813.0	Conv. (cfs)		93666.4	146.6
Length Wtd. (ft)	308.79	Wetted Per. (ft)		71.16	6.51
Min Ch El (ft)	1597.19	Shear (lb/sq ft)		0.18	0.02
Alpha	1.02	Stream Power (lb/ft s)		0.76	0.01
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	24.92	24.31	0.78
C & E Loss (ft)	0.04	Cum SA (acres)	5.03	5.44	0.80

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

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1606.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.		0.025	
W.S. Elev (ft)	1606.32	Reach Len. (ft)	312.00	308.80	303.00
Crit W.S. (ft)	1602.37	Flow Area (sq ft)		457.53	
E.G. Slope (ft/ft)	0.000483	Area (sq ft)		457.53	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	68.60	Top Width (ft)		68.60	
Vel Total (ft/s)	4.31	Avg. Vel. (ft/s)		4.31	
Max Chl Dpth (ft)	9.13	Hydr. Depth (ft)		6.67	
Conv. Total (cfs)	89684.0	Conv. (cfs)		89684.0	
Length Wtd. (ft)	308.80	Wetted Per. (ft)		76.39	
Min Ch El (ft)	1597.19	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.78	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	0.01	24.34	0.21
C & E Loss (ft)	0.04	Cum SA (acres)	0.02	5.44	0.17

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

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	0.00	56.22	0.00	20.27	16.27	0.00	1.26	0.00	0.03	0.00
2	LOB	56.22	112.44	0.00	133.60	56.94	0.00	2.38	0.00	0.06	0.00
3	LOB	112.44	168.66	0.00	150.98	56.39	0.00	2.69	0.00	0.07	0.00
4	LOB	168.66	224.88	0.00	172.19	56.52	0.00	3.06	0.00	0.08	0.00
5	LOB	224.88	281.10	0.00	196.49	56.31	0.00	3.49	0.00	0.10	0.00
6	Chan	281.10	294.82	180.02	58.32	13.83	9.13	4.25	3.09	0.12	0.36
7	Chan	294.82	308.54	385.95	94.20	14.60	19.57	6.87	4.10	0.18	0.73
8	Chan	308.54	322.26	639.74	124.45	13.73	32.44	9.07	5.14	0.25	1.29

9	Chan	322.26	335.98	578.20	118.42	14.11	29.32	8.63	4.88	0.23
1.13										
10	Chan	335.98	349.70	185.01	61.07	14.89	9.38	4.45	3.03	0.11
0.34										
11	ROB	349.70	360.60	3.08	4.82	6.51	0.16	0.79	0.64	0.02
0.01										

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

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	Chan	281.10	294.82	159.75	58.54	17.14	8.10	4.27	2.73	0.10	
0.28											
2	Chan	294.82	308.54	394.31	94.41	14.60	20.00	6.88	4.18	0.20	
0.82											
3	Chan	308.54	322.26	653.00	124.66	13.73	33.11	9.09	5.24	0.27	
1.44											
4	Chan	322.26	335.98	590.27	118.64	14.11	29.93	8.65	4.98	0.25	
1.26											
5	Chan	335.98	349.70	174.67	61.28	16.81	8.86	4.47	2.85	0.11	
0.31											

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

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 2200

INPUT
Description:
Station Elevation Data num= 445

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1609.31	9.7	1608.74	12.2	1608.41	14.1	1607.89	19.4	1607.03
24.9	1606.69	26	1606.44	28.9	1606.14	31.5	1606.34	33.6	1606.25
37.7	1606.6	40.9	1606.42	48	1606.59	55.9	1607.05	64.2	1606.88
71.1	1606.56	78	1605.59	83.2	1605.06	88.4	1604.19	93.8	1603.79
95.4	1603.55	98.5	1602.81	105.3	1602.06	109.7	1601.88	114.2	1602.05
121.1	1601.75	126.4	1600.9	130.1	1599.93	133.5	1599.46	145.6	1598.94

157.1	1599.09	160.6	1599.28	163	1598.78	165.6	1599.03	174.8	1599.06
177.7	1599.22	185.8	1600.75	188.5	1601.03	190.1	1601.35	195.1	1601.78
195.5	1601.75	195.6	1601.75	195.7	1601.75	195.8	1601.75	195.9	1601.75
196.3	1601.76	199.4	1601.28	201.8	1600.67	203.6	1600.02	208	1599.16
211.4	1598.91	218.9	1598.82	252.9	1599.25	261.1	1599.62	263.7	1600
267.5	1600.19	271.2	1600.76	273.4	1600.87	277	1600.68	282.7	1601.16
286.6	1600.65	293.1	1600.34	305.4	1600.2	313.1	1600.31	316.4	1600.16
326.2	1600.31	334.2	1600.25	334.3	1600.28	334.5	1600.31	334.7	1600.34
334.9	1600.34	335	1600.34	335	1600.35	335.2	1600.37	335.4	1600.38
335.5	1600.39	340.7	1599.99	356.2	1600.06	359.9	1600.28	361.2	1600.28
368	1600.81	372.3	1600.88	374.6	1600.72	377.8	1600.91	390.6	1599.91
393.5	1600.09	399.5	1599.56	409.5	1600.15	409.6	1600.15	409.7	1600.09
409.9	1600.04	410.1	1600.08	410.2	1600.09	410.3	1600.1	410.3	1600.09
411.8	1600.12	411.9	1600.13	412.2	1600.14	412.3	1600.15	412.4	1600.17
412.6	1600.17	412.7	1600.19	412.8	1600.25	412.9	1600.27	413.1	1600.3
413.1	1600.31	413.1	1600.32	413.3	1600.36	413.4	1600.4	413.5	1600.41
413.6	1600.43	413.6	1600.44	413.8	1600.48	414	1600.51	414.2	1600.54
414.5	1600.54	414.5	1600.55	414.6	1600.55	414.7	1600.55	414.9	1600.55
415.1	1600.56	423.9	1600.22	429.8	1600.31	433.1	1600.19	443.4	1600.18
450.2	1600.4	475.7	1600.16	499.5	1600.71	508.1	1601.13	511.9	1601.47
512	1601.44	512.1	1601.41	512.2	1601.38	512.3	1601.35	512.6	1601.22
512.6	1601.2	512.9	1601.02	513.1	1600.82	513.1	1600.78	513.9	1600.06
514	1599.98	514	1599.93	514.1	1599.84	514.3	1599.74	514.3	1599.73
514.4	1599.62	514.5	1599.56	514.5	1599.53	514.6	1599.47	514.7	1599.42
514.8	1599.36	514.9	1599.31	515	1599.27	515.1	1599.1	515.2	1599.07
515.4	1598.92	515.4	1598.91	515.4	1598.9	515.5	1598.82	515.6	1598.73
515.6	1598.72	515.9	1598.56	515.9	1598.53	516.1	1598.4	516.2	1598.37
516.3	1598.33	517.1	1598.06	517.2	1598.03	517.2	1598.01	517.3	1597.98
517.4	1597.97	517.6	1597.89	517.7	1597.88	517.7	1597.87	517.9	1597.81
518.1	1597.76	530	1596.72	531.9	1596.69	532	1596.69	532.2	1596.69
532.3	1596.69	532.4	1596.66	532.5	1596.66	532.7	1596.62	532.8	1596.62
532.9	1596.62	533	1596.61	533.2	1596.61	537.5	1596.9	537.7	1596.91
537.8	1596.91	537.8	1596.9	537.9	1596.9	538.1	1596.89	538.2	1596.88
538.3	1596.88	538.4	1596.86	538.6	1596.84	539.3	1596.81	539.5	1596.81
539.7	1596.81	539.8	1596.81	540	1596.81	540	1596.82	545.8	1595.12
547.1	1595	547.3	1595	547.4	1595	547.5	1594.98	547.6	1594.97
547.7	1594.97	547.8	1594.97	547.9	1594.97	548	1594.97	548.1	1594.97
553.8	1595.12	553.9	1595.12	554.1	1595.09	554.2	1595.08	554.3	1595.07
554.4	1595.06	554.6	1595.09	554.8	1595.09	554.9	1595.09	554.9	1595.1
555	1595.11	555.1	1595.12	555.2	1595.13	555.3	1595.13	555.4	1595.14
555.5	1595.16	555.5	1595.17	555.6	1595.19	555.7	1595.2	555.8	1595.21
555.9	1595.22	556.1	1595.26	556.1	1595.27	556.2	1595.28	556.3	1595.31
556.4	1595.31	556.4	1595.32	556.6	1595.37	556.6	1595.38	557.2	1595.62
557.3	1595.68	557.4	1595.72	557.5	1595.76	557.5	1595.8	557.6	1595.84
557.7	1595.89	557.8	1595.9	557.9	1595.95	558	1596.03	558	1596.05
558.1	1596.12	558.3	1596.26	558.4	1596.32	558.4	1596.37	558.6	1596.49
558.6	1596.53	558.7	1596.56	558.9	1596.7	558.9	1596.72	558.9	1596.73
559.1	1596.88	559.1	1596.93	559.1	1596.94	561.4	1598.28	564.5	1598.37
564.6	1598.41	565	1598.51	565.3	1598.59	565.5	1598.65	565.6	1598.69
565.7	1598.71	565.7	1598.73	565.9	1598.78	566.1	1598.84	566.2	1598.84

```
   566.2 1598.85   566.3 1598.88   566.4 1598.91   566.6 1598.96   566.7 1598.97
   566.7 1598.98   566.9 1599.04   566.9 1599.06     567  1599.1   567.2 1599.19
     568 1599.46   568.1  1599.5   568.2 1599.54   568.4 1599.58   570.7  1600.6
   570.9 1600.65   572.3 1601.09   572.5 1601.11   572.6 1601.14   572.7 1601.16
   572.8 1601.17     573 1601.19     573  1601.2   573.2 1601.22   573.2 1601.23
   573.4 1601.28   573.5 1601.28   573.6  1601.3   573.7 1601.31   573.7 1601.32
   573.9 1601.34     574 1601.35   575.5 1601.78     576 1601.91   576.2 1601.93
   577.5 1602.06   577.6  1602.1   577.6 1602.13   577.7 1602.16   577.8 1602.17
   577.9 1602.21     578 1602.22     578 1602.23   578.2  1602.3   578.2 1602.31
   578.2 1602.32   578.5 1602.37   578.5 1602.38   578.7 1602.43   578.7 1602.44
   578.8 1602.45   578.9 1602.49   583.3 1603.12   583.3 1603.13   583.5 1603.18
   583.5 1603.19   583.7 1603.24   583.8 1603.25   583.9 1603.29     584 1603.31
   584.1 1603.33   584.2 1603.35   584.3 1603.38   584.4 1603.41   584.4 1603.42
   584.5 1603.45   584.6  1603.5   584.7 1603.51   584.8 1603.55   584.9 1603.59
   584.9 1603.64     585 1603.68   585.1 1603.71   585.2 1603.78   585.3 1603.81
   585.3 1603.83   585.5 1603.93   585.5 1603.94   585.7 1604.01   585.8 1604.06
   585.8 1604.07     586 1604.16     586 1604.17   586.1 1604.19   586.2 1604.27
   586.3 1604.29   586.3 1604.32   586.4 1604.37   586.5 1604.41   586.6 1604.44
   586.7 1604.46   586.8  1604.5   586.9 1604.55     587 1604.59   587.1 1604.64
   587.2 1604.67   587.3 1604.72   587.4 1604.75   587.5 1604.79   587.5 1604.81
   587.6 1604.84   587.7 1604.92   587.8 1604.94   587.8 1604.95     588 1605.03
     588 1605.04   588.3 1605.21   588.3 1605.22   588.3 1605.24   588.5 1605.42
   592.1  1606.8   592.1 1606.84   592.3 1606.91   592.4 1606.94   592.5 1607.01
   592.6 1607.03   592.8 1607.15   592.8 1607.16   592.9 1607.21     593 1607.28
   593.1 1607.28   593.1 1607.29   593.3 1607.39   593.4 1607.44   593.6 1607.56
   593.6 1607.61   593.8 1607.72   599.7 1610.34   601.9 1611.69   605.3 1614.36
   605.4  1614.4   605.6 1614.47   605.7 1614.53   605.8 1614.58   605.9 1614.62
     606 1614.67     606  1614.7   606.1 1614.75   606.3 1614.81   606.4 1614.88
   606.5 1614.92   606.5 1614.94   606.6 1614.98   608.9 1615.47   612.6    1616
   615.2 1616.12   615.2 1616.13   615.4 1616.15   615.5 1616.17   615.7 1616.19
   615.8  1616.2   616.1 1616.24   616.3 1616.26   616.4 1616.28   616.5 1616.29
   616.6 1616.31   616.7 1616.31   616.7 1616.32   616.9 1616.31     617 1616.32
   617.1 1616.33   617.2 1616.34   617.4 1616.37   617.4 1616.38623.8796 1616.63

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   511.9    .025   585.3     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         511.9   585.3              307   359.7     385             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0   511.9    1610       F

CROSS SECTION OUTPUT  Profile #BFE

  E.G. Elev (ft)           1606.47    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               0.17    Wt. n-Val.                            0.025     0.040
  W.S. Elev (ft)           1606.31    Reach Len. (ft)          307.00     359.70    385.00
  Crit W.S. (ft)           1600.30    Flow Area (sq ft)                   600.93      6.60
```

E.G. Slope (ft/ft)	0.000197	Area (sq ft)	2576.05	600.93	6.60
Q Total (cfs)	1972.00	Flow (cfs)		1968.40	3.60
Top Width (ft)	523.55	Top Width (ft)	444.64	73.40	5.51
Vel Total (ft/s)	3.25	Avg. Vel. (ft/s)		3.28	0.55
Max Chl Dpth (ft)	11.33	Hydr. Depth (ft)		8.19	1.20
Conv. Total (cfs)	140640.7	Conv. (cfs)		140383.9	256.8
Length Wtd. (ft)	359.72	Wetted Per. (ft)		77.12	6.16
Min Ch El (ft)	1594.97	Shear (lb/sq ft)		0.10	0.01
Alpha	1.02	Stream Power (lb/ft s)		0.31	0.01
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	13.28	20.56	0.74
C & E Loss (ft)	0.03	Cum SA (acres)	2.58	4.94	0.76

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

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1606.48	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.		0.025	
W.S. Elev (ft)	1606.31	Reach Len. (ft)	307.00	359.70	385.00
Crit W.S. (ft)	1600.32	Flow Area (sq ft)		601.29	
E.G. Slope (ft/ft)	0.000222	Area (sq ft)		601.29	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	73.40	Top Width (ft)		73.40	
Vel Total (ft/s)	3.28	Avg. Vel. (ft/s)		3.28	
Max Chl Dpth (ft)	11.34	Hydr. Depth (ft)		8.19	
Conv. Total (cfs)	132280.9	Conv. (cfs)		132280.9	
Length Wtd. (ft)	359.70	Wetted Per. (ft)		84.44	
Min Ch El (ft)	1594.97	Shear (lb/sq ft)		0.10	
Alpha	1.00	Stream Power (lb/ft s)		0.32	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.01	20.59	0.21
C & E Loss (ft)	0.03	Cum SA (acres)	0.02	4.93	0.17

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

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	0.00	102.38	0.00	56.80	35.43	0.00	1.62	0.00	0.02	0.00

2	LOB	102.38	204.76	0.00	619.49	103.18	0.00	6.05	0.00	0.07
0.00										
3	LOB	204.76	307.14	0.00	674.53	102.61	0.00	6.59	0.00	0.08
0.00										
4	LOB	307.14	409.52	0.00	621.23	102.55	0.00	6.07	0.00	0.07
0.00										
5	LOB	409.52	511.90	0.00	604.00	102.55	0.00	5.90	0.00	0.07
0.00										
6	Chan	511.90	526.58	357.39	118.51	16.01	18.12	8.07	3.02	0.09
0.27										
7	Chan	526.58	541.26	497.13	139.95	14.79	25.21	9.53	3.55	0.12
0.41										
8	Chan	541.26	555.94	629.62	161.81	14.92	31.93	11.02	3.89	0.13
0.52										
9	Chan	555.94	570.62	364.20	120.21	16.13	18.47	8.19	3.03	0.09
0.28										
10	Chan	570.62	585.30	120.06	60.45	15.28	6.09	4.12	1.99	0.05
0.10										
11	ROB	585.30	593.02	3.60	6.60	6.16	0.18	1.20	0.55	0.01
0.01										

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

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	511.90	526.58	311.20	118.59	20.85	15.78	8.08	2.62	0.08	
0.21											
2	Chan	526.58	541.26	516.14	140.02	14.79	26.17	9.54	3.69	0.13	
0.48											
3	Chan	541.26	555.94	653.61	161.88	14.92	33.14	11.03	4.04	0.15	
0.61											
4	Chan	555.94	570.62	378.17	120.28	16.13	19.18	8.19	3.14	0.10	
0.33											
5	Chan	570.62	585.30	112.89	60.52	17.76	5.72	4.12	1.87	0.05	
0.09											

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

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 2100

INPUT
Description:
Station Elevation Data num= 447

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1606.83	5.5	1605.97	7.3	1605.84	9.5	1605.46	10.4	1605.47
11.3	1605.36	15.3	1604.67	17.5	1604.44	20.9	1603.69	22.7	1603.18
27.7	1602.44	28.4	1602.36	28.8	1602.42	36.7	1601.16	37.9	1601.11
41.6	1600.69	43.6	1600.66	45.3	1600.48	48.6	1600.49	51	1600
52.7	1599.81	54.4	1599.77	54.6	1599.66	57.4	1599.38	58.6	1599.38
59.6	1599.23	60.6	1599.2	61.5	1599	66.2	1598.42	69.1	1597.95
69.9	1597.95	73.4	1597.51	77.7	1597.17	79.4	1596.82	81	1596.12
83.1	1595.39	84.8	1595.09	85.8	1594.59	87.3	1593.65	87.9	1593.5
89.2	1593.7	91	1594.47	95.8	1595.28	95.9	1595.27	96.1	1595.25
96.5	1595.27	96.7	1595.28	96.8	1595.3	97	1595.31	98.4	1595.75
100.1	1596.67	100.9	1598.21	101	1598.27	101.3	1598.75	101.5	1598.81
102.6	1598.94	111.7	1599.03	111.9	1599.05	112.1	1599.06	113.6	1599.38
114.8	1599.46	116.9	1599.79	117.6	1599.81	120.1	1600.12	122.7	1600.22
124.3	1599.96	124.9	1599.78	125.3	1599.58	125.3	1599.55	125.4	1599.48
125.5	1599.41	125.6	1599.34	125.7	1599.26	125.8	1599.2	125.8	1599.16
126.1	1598.94	126.1	1598.92	127	1598.59	127.9	1598.35	128.5	1598.25
128.5	1598.23	128.6	1598.22	131	1598.06	132.7	1597.82	134.1	1597.46
136.8	1597.24	139	1596.97	141.5	1596.43	144.3	1595.5	145.9	1595.21
147.7	1595.18	149.4	1595.76	150.7	1595.82	150.8	1595.83	150.9	1595.86
151	1595.88	151.1	1595.88	151.2	1595.89	151.2	1595.9	151.3	1595.91
153.6	1595.66	155.2	1595.28	156.8	1594.61	159.3	1593.87	160.5	1593.43
161.9	1593.17	162.8	1592.9	166.2	1592.5	170.1	1592.53	172.9	1592.66
176.1	1592.53	176.2	1592.53	176.3	1592.53	176.4	1592.53	177.4	1592.59
178	1592.55	178.1	1592.54	178.3	1592.53	178.4	1592.52	181.5	1592.5
181.7	1592.51	181.8	1592.56	181.9	1592.56	182.2	1592.66	182.3	1592.67
182.4	1592.72	182.5	1592.75	182.6	1592.79	182.7	1592.82	185	1593.99
186.1	1594.26	189	1594.5	189.1	1594.53	189.2	1594.53	189.3	1594.54
189.5	1594.56	189.9	1594.66	194	1595.94	194	1595.95	194.1	1596.04
194.3	1596.11	194.3	1596.13	194.4	1596.16	194.5	1596.21	194.6	1596.25
194.7	1596.28	194.8	1596.32	194.9	1596.34	194.9	1596.36	195	1596.42
195.3	1596.54	195.4	1596.55	195.6	1596.6	195.9	1596.64	196	1596.69
196.1	1596.77	196.2	1596.81	196.3	1596.85	198	1597.42	198.1	1597.43
198.1	1597.44	198.3	1597.43	198.6	1597.48	198.7	1597.54	198.8	1597.56
198.8	1597.58	198.9	1597.62	199	1597.66	199.1	1597.7	199.3	1597.78
199.4	1597.8	199.5	1597.86	199.6	1597.92	199.7	1597.95	199.8	1598.03
200	1598.13	200.3	1598.23	200.4	1598.25	200.4	1598.28	200.6	1598.3
202.5	1598.89	202.5	1598.9	202.9	1598.94	204.1	1599.52	207.6	1600.98
207.7	1600.99	208	1601.05	208	1601.06	208.1	1601.06	208.3	1601.1
208.4	1601.16	208.5	1601.23	208.6	1601.25	208.6	1601.26	208.8	1601.35
208.9	1601.39	208.9	1601.4	209	1601.42	209.1	1601.47	209.8	1601.78
210	1601.82	210.1	1601.87	210.2	1601.93	210.3	1601.98	210.4	1601.99

210.6	1602.04	211.6	1602.55	212.3	1602.85	216.2	1604.2	216.2	1604.23
216.3	1604.27	216.4	1604.3	216.6	1604.38	216.6	1604.39	216.7	1604.44
216.8	1604.46	216.8	1604.49	217	1604.55	217	1604.58	217.1	1604.64
217.3	1604.72	217.5	1604.79	217.7	1604.84	217.8	1604.89	218	1604.97
218	1604.98	218.2	1605.02	218.2	1605.03	218.4	1605.07	218.5	1605.07
218.6	1605.1	218.8	1605.12	218.8	1605.13	219	1605.26	219.1	1605.32
219.1	1605.36	219.3	1605.44	219.4	1605.45	219.5	1605.5	219.6	1605.58
219.7	1605.59	219.8	1605.62	219.9	1605.66	220.1	1605.73	220.2	1605.76
220.2	1605.78	220.3	1605.79	220.4	1605.86	220.5	1605.91	220.6	1605.95
220.7	1606.04	220.8	1606.06	220.8	1606.07	221	1606.17	221.1	1606.25
221.1	1606.29	221.2	1606.34	221.4	1606.43	221.5	1606.51	221.6	1606.57
221.7	1606.61	221.7	1606.63	221.7	1606.65	221.9	1606.73	222	1606.78
222.1	1606.84	222.2	1606.96	222.3	1606.97	222.5	1607.15	222.6	1607.18
222.7	1607.26	222.8	1607.35	223	1607.43	223.2	1607.54	223.2	1607.57
223.4	1607.7	223.5	1607.75	223.7	1607.87	223.7	1607.88	224	1607.95
224.2	1608.01	224.2	1608.02	224.3	1608.04	224.4	1608.08	224.6	1608.13
224.7	1608.15	224.8	1608.2	225	1608.27	225.2	1608.34	225.5	1608.44
225.5	1608.48	225.7	1608.56	225.7	1608.57	225.9	1608.62	225.9	1608.63
226	1608.7	226.1	1608.73	226.3	1608.75	226.3	1608.77	226.4	1608.81
226.6	1608.86	226.6	1608.87	226.6	1608.88	226.8	1608.94	227	1609
228.6	1609.69	233.6	1610.66	235.3	1610.8	235.4	1610.8	235.5	1610.81
235.6	1610.83	235.7	1610.84	237.9	1610.91	238	1610.91	238.1	1610.92
238.2	1610.94	238.4	1610.97	238.5	1610.98	238.7	1611	238.7	1611.01
238.8	1611.02	239.4	1611.12	239.6	1611.12	239.7	1611.11	239.8	1611.11
239.9	1611.08	240	1611.08	240.1	1611.09	240.3	1611.09	240.4	1611.09
240.5	1611.11	240.6	1611.12	240.7	1611.14	240.8	1611.15	240.9	1611.16
241	1611.17	241.1	1611.17	241.2	1611.18	241.4	1611.19	241.5	1611.18
241.6	1611.18	241.7	1611.18	241.8	1611.17	242	1611.17	242.1	1611.17
245.1	1611.56	247.4	1611.68	247.5	1611.69	247.6	1611.68	248	1611.69
248.1	1611.69	248.2	1611.69	248.3	1611.69	248.4	1611.69	248.5	1611.69
248.7	1611.69	249	1611.66	249.1	1611.65	249.2	1611.63	249.4	1611.63
251.9	1611.91	256.1	1612.09	256.5	1612.16	258.7	1612.03	258.9	1612.05
258.9	1612.06	259	1612.08	259.1	1612.09	259.3	1612.11	259.4	1612.12
259.5	1612.12	259.5	1612.13	259.7	1612.15	259.8	1612.17	260	1612.18
260.7	1612.19	261.3	1612.21	264.8	1611.96	267.8	1612	267.9	1612
267.9	1611.99	268	1611.97	268.2	1611.95	268.2	1611.94	268.3	1611.94
268.4	1611.94	268.5	1611.93	268.6	1611.91	268.7	1611.91	268.8	1611.9
269	1611.88	269.1	1611.85	271	1611.74	272.9	1611.82	274.3	1611.77
276.5	1611.78	276.7	1611.78	276.8	1611.78	276.9	1611.77	277	1611.76
277.2	1611.75	277.4	1611.72	277.5	1611.72	279.3	1611.84	281	1611.84
283.4	1611.95	287.9	1611.94	288	1611.94	288.2	1611.95	288.5	1611.97
288.6	1611.98	288.7	1612	288.8	1612.02	293.2	1612.08	293.4	1612.1
293.6	1612.1	294.8	1612.09	295.4	1612.07	295.5	1612.06	295.6	1612.06
295.7	1612.06	295.8	1612.06	296.1	1612.06	296.3	1612.06	296.4	1612.08
296.5	1612.09	296.6	1612.12	296.7	1612.12	296.8	1612.12	296.9	1612.13
297.1	1612.14	297.1	1612.15	297.2	1612.15	297.8	1612.12	298	1612.12
298.1	1612.12	298.2	1612.12	298.3	1612.1	298.4	1612.09	298.5	1612.09
298.6	1612.09	298.7	1612.09	299	1612.09	299.1	1612.09	299.2	1612.09
299.3	1612.09	299.3	802 1612.09						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	124.3	.025	225.7	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
124.3	225.7	108	99.8	104	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	124.3	1610	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1606.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.		0.025	
W.S. Elev (ft)	1606.34	Reach Len. (ft)	108.00	99.80	104.00
Crit W.S. (ft)	1597.64	Flow Area (sq ft)		940.45	
E.G. Slope (ft/ft)	0.000064	Area (sq ft)	791.11	940.45	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	218.03	Top Width (ft)	121.14	96.89	
Vel Total (ft/s)	2.10	Avg. Vel. (ft/s)		2.10	
Max Chl Dpth (ft)	13.84	Hydr. Depth (ft)		9.71	
Conv. Total (cfs)	246958.5	Conv. (cfs)		246958.5	
Length Wtd. (ft)	99.80	Wetted Per. (ft)		101.27	
Min Ch El (ft)	1592.50	Shear (lb/sq ft)		0.04	
Alpha	1.00	Stream Power (lb/ft s)		0.08	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	1.42	14.20	0.71
C & E Loss (ft)	0.46	Cum SA (acres)	0.58	4.24	0.73

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

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

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1606.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.		0.025	
W.S. Elev (ft)	1606.34	Reach Len. (ft)	108.00	99.80	104.00
Crit W.S. (ft)	1597.64	Flow Area (sq ft)		940.59	
E.G. Slope (ft/ft)	0.000069	Area (sq ft)		940.59	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	96.90	Top Width (ft)		96.90	
Vel Total (ft/s)	2.10	Avg. Vel. (ft/s)		2.10	
Max Chl Dpth (ft)	13.84	Hydr. Depth (ft)		9.71	
Conv. Total (cfs)	237160.4	Conv. (cfs)		237160.4	
Length Wtd. (ft)	99.80	Wetted Per. (ft)		107.65	
Min Ch El (ft)	1592.50	Shear (lb/sq ft)		0.04	
Alpha	1.00	Stream Power (lb/ft s)		0.08	

Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.01	14.22	0.21
C & E Loss (ft)	0.46	Cum SA (acres)	0.02	4.23	0.17

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	0.00	24.86	0.00	33.64	22.02	0.00	1.55	0.00	0.01	0.00
2	LOB	24.86	49.72	0.00	124.18	25.06	0.00	5.00	0.00	0.02	0.00
3	LOB	49.72	74.58	0.00	186.21	25.08	0.00	7.49	0.00	0.03	0.00
4	LOB	74.58	99.44	0.00	271.18	26.06	0.00	10.91	0.00	0.04	0.00
5	LOB	99.44	124.30	0.00	175.90	26.29	0.00	7.08	0.00	0.03	0.00
6	Chan	124.30	144.58	327.42	178.61	21.05	16.60	8.81	1.83	0.03	0.06
7	Chan	144.58	164.86	525.90	236.54	20.87	26.67	11.66	2.22	0.05	0.10
8	Chan	164.86	185.14	690.40	277.25	20.64	35.01	13.67	2.49	0.05	0.13
9	Chan	185.14	205.42	382.89	197.64	21.44	19.42	9.75	1.94	0.04	0.07
10	Chan	205.42	225.70	45.39	50.41	17.27	2.30	3.20	0.90	0.01	0.01

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)

1	Chan	124.30	144.58	282.05	178.64	27.43	14.30	8.81	1.58	0.03
0.04										
2	Chan	144.58	164.86	540.41	236.57	20.87	27.40	11.67	2.28	0.05
0.11										
3	Chan	164.86	185.14	709.41	277.28	20.64	35.97	13.67	2.56	0.06
0.15										
4	Chan	185.14	205.42	393.47	197.67	21.44	19.95	9.75	1.99	0.04
0.08										
5	Chan	205.42	225.70	46.66	50.44	17.27	2.37	3.20	0.93	0.01
0.01										

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 2000.1

INPUT
Description:
Station Elevation Data num= 412

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1607.3	1.8	1607	2.8	1606.91	4.6	1606.61	5.2	1606.51
5.7	1606.35	6.9	1606.25	8	1606.03	8.5	1606.01	9.8	1605.79
10	1605.84	11.3	1605.74	13.9	1605.26	14	1605.27	14.1	1605.28
15.9	1605.06	16.5	1604.91	18	1604.75	19.2	1604.51	19.7	1604.53
20.5	1604.5	20.8	1604.45	21.8	1604.43	23.7	1604.25	24.3	1604.24
25.1	1604.16	27.2	1604.19	29	1604.16	29.5	1604.06	30.2	1604.05
30.5	1604	31.8	1603.63	32.5	1603.61	33	1603.67	35.1	1603.48
37.3	1603.51	37.9	1603.47	38.9	1603.47	39.7	1603.42	40	1603.1
40.1	1602.93	40.7	1602.07	41	1601.54	41.1	1601.22	41.3	1601.04
41.6	1600.55	41.8	1600.3	41.9	1600.13	41.9	1600.04	42	1599.92
42.1	1599.79	42.5	1599.5	42.5	1599.52	42.6	1599.61	42.6	1599.64
42.8	1599.86	42.9	1599.88	45	1599.96	45	1591.77	57	1591.77
57	1601.24	57.5	1601.78	57.7	1601.52	57.9	1601.48	58	1601.58
58.1	1601.56	58.1	1601.57	58.3	1601.68	58.3	1601.76	58.4	1601.94
58.4	1601.98	58.5	1602.05	58.7	1602.44	58.8	1602.59	58.9	1603.02
59	1603.07	59.1	1603	59.3	1603.12	59.3	1603.13	59.5	1603.14
59.6	1603.15	59.9	1603.12	60.4	1603.08	60.6	1603.06	60.6	1603.05
60.8	1603.03	60.9	1603.02	60.9	1603	61.1	1602.99	61.2	1602.98
61.3	1602.98	61.9	1602.97	62	1602.94	62.1	1602.94	62.2	1602.91
62.9	1602.83	63.5	1602.82	63.5	1602.81	63.6	1602.81	63.7	1602.81
64.1	1602.83	64.2	1602.82	64.4	1602.8	64.5	1602.78	64.6	1602.78
64.7	1602.76	64.8	1602.73	65	1602.72	65.2	1602.66	66	1602.69

66.1 1602.71	66.1 1602.72	66.3 1602.74	66.4 1602.74	66.5 1602.76
66.7 1602.78	67 1602.76	67.1 1602.75	67.2 1602.74	67.3 1602.74
67.4 1602.75	67.6 1602.75	67.8 1602.73	67.9 1602.71	68 1602.7
68.1 1602.68	68.3 1602.64	68.4 1602.61	68.5 1602.6	68.5 1602.59
68.7 1602.57	68.8 1602.53	68.9 1602.53	69.8 1602.43	70.5 1602.53
70.5 1602.54	70.7 1602.59	70.7 1602.61	70.8 1602.63	71 1602.73
71.1 1602.75	71.2 1602.79	71.2 1602.81	71.3 1602.85	71.7 1602.97
73.2 1603.15	73.3 1603.15	73.5 1603.16	74.2 1603.1	74.3 1603.1
74.4 1603.1	74.5 1603.09	75.4 1603.09	75.5 1603.08	75.6 1603.06
75.7 1603.06	75.8 1603.04	76 1603.09	76.1 1603.1	76.5 1603.18
76.7 1603.16	76.8 1603.16	77 1603.18	77 1603.19	77.2 1603.22
77.3 1603.22	78 1603.22	79.8 1603.06	79.8 1603.07	80 1603.09
80.3 1603.09	80.3 1603.1	80.4 1603.12	82.8 1603.18	83.1 1603.18
84.3 1603.13	84.5 1603.1	84.6 1603.11	84.7 1603.15	84.8 1603.16
85 1603.17	85.1 1603.16	85.3 1603.16	85.7 1603.17	85.8 1603.19
85.9 1603.19	86 1603.19	86.1 1603.19	86.3 1603.19	86.4 1603.2
86.6 1603.22	86.7 1603.22	86.8 1603.22	87 1603.22	87.1 1603.22
87.3 1603.22	89.4 1603.14	91.5 1603.25	91.6 1603.25	91.7 1603.25
91.8 1603.26	91.9 1603.26	92 1603.26	92.2 1603.28	92.3 1603.28
92.4 1603.28	92.5 1603.28	92.7 1603.31	92.8 1603.34	92.9 1603.36
92.9 1603.38	93.2 1603.43	93.4 1603.46	93.5 1603.46	93.6 1603.46
93.8 1603.46	94 1603.46	94.1 1603.46	94.8 1603.54	95 1603.54
95.1 1603.54	95.1 1603.55	95.2 1603.56	96.6 1603.65	96.6 1603.66
96.9 1603.69	97 1603.73	97.1 1603.74	97.3 1603.77	97.3 1603.78
98 1603.87	98.1 1603.88	98.1 1603.87	98.3 1603.85	98.5 1603.83
98.6 1603.83	98.6 1603.84	98.7 1603.87	98.8 1603.88	98.9 1603.91
99 1603.93	99.1 1603.95	99.2 1603.96	99.2 1603.97	100.1 1604.06
100.2 1604.1	100.3 1604.12	100.4 1604.13	100.5 1604.15	100.6 1604.16
100.8 1604.21	100.8 1604.22	101.1 1604.25	101.3 1604.27	101.3 1604.28
101.5 1604.31	101.6 1604.32	101.8 1604.34	101.8 1604.35	101.9 1604.35
102 1604.38	102.1 1604.38	102.1 1604.39	102.3 1604.42	102.7 1604.47
102.9 1604.5	103.1 1604.52	103.2 1604.53	103.2 1604.54	103.3 1604.55
103.4 1604.55	103.5 1604.55	103.6 1604.55	103.7 1604.56	103.8 1604.58
103.8 1604.59	104.6 1604.65	104.6 1604.66	104.7 1604.67	105.1 1604.72
107.1 1604.84	107.8 1605	108.1 1605.03	108.2 1605.04	108.3 1605.06
108.6 1605.06	108.6 1605.07	108.8 1605.09	108.9 1605.11	109 1605.12
109.1 1605.13	109.2 1605.14	109.3 1605.17	109.4 1605.18	109.5 1605.19
109.6 1605.2	109.7 1605.21	109.7 1605.22	109.8 1605.23	110 1605.25
110.1 1605.27	110.2 1605.28	110.3 1605.3	110.4 1605.32	110.5 1605.34
110.6 1605.37	110.7 1605.37	110.8 1605.38	111.1 1605.42	111.1 1605.43
111.4 1605.43	111.6 1605.44	111.7 1605.44	111.8 1605.47	112.1 1605.5
112.3 1605.51	112.4 1605.51	112.5 1605.53	112.7 1605.55	112.8 1605.56
113 1605.57	113.1 1605.58	113.2 1605.59	113.4 1605.59	113.6 1605.59
113.8 1605.61	113.9 1605.61	114 1605.62	114.1 1605.62	114.2 1605.62
114.3 1605.62	114.4 1605.62	114.9 1605.66	117.1 1605.69	117.2 1605.69
117.3 1605.69	117.4 1605.69	117.4 1605.68	117.5 1605.67	117.6 1605.67
117.9 1605.66	118.1 1605.66	118.3 1605.69	118.4 1605.69	119.8 1605.7
119.9 1605.7	120 1605.7	120.2 1605.7	120.5 1605.7	120.6 1605.69
120.8 1605.69	121.1 1605.68	121.2 1605.68	121.3 1605.68	121.4 1605.68
121.4 1605.67	121.6 1605.65	121.9 1605.62	122.1 1605.63	122.1 1605.62

122.4	1605.59	122.6	1605.59	122.7	1605.6	122.8	1605.61	123.1	1605.65
123.1	1605.66	123.2	1605.66	123.3	1605.66	123.4	1605.66	123.5	1605.65
123.5	1605.64	123.6	1605.64	123.8	1605.64	125.4	1605.69	125.5	1605.67
125.6	1605.66	125.9	1605.63	125.9	1605.62	126.1	1605.62	126.4	1605.59
126.5	1605.59	127.3	1605.6	127.4	1605.61	127.5	1605.61	127.9	1605.62
128	1605.62	128.1	1605.62	128.3	1605.62	128.4	1605.61	128.6	1605.59
128.7	1605.59	128.9	1605.56	129	1605.56	129.1	1605.56	129.2	1605.56
129.4	1605.56	129.6	1605.56	129.8	1605.54	129.9	1605.54	130	1605.54
130.1	1605.54	130.2	1605.54	130.3	1605.54	130.4	1605.54	130.5	1605.54
130.5	1605.55	130.6	1605.55	130.8	1605.54	130.9	1605.53	131	1605.53
131.2	1605.53	132.7386	1605.5						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	45	.015	57	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
45	57	.1	.1	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	45	1608	F
57	132.7386	1608	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1605.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.71	Wt. n-Val.		0.015	
W.S. Elev (ft)	1601.21	Reach Len. (ft)	0.10	0.10	0.10
Crit W.S. (ft)	1601.21	Flow Area (sq ft)		113.24	
E.G. Slope (ft/ft)	0.005171	Area (sq ft)	4.57	113.24	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	15.89	Top Width (ft)	3.89	12.00	
Vel Total (ft/s)	17.41	Avg. Vel. (ft/s)		17.41	
Max Chl Dpth (ft)	9.44	Hydr. Depth (ft)		9.44	
Conv. Total (cfs)	27422.5	Conv. (cfs)		27422.5	
Length Wtd. (ft)	0.10	Wetted Per. (ft)		29.63	
Min Ch El (ft)	1591.77	Shear (lb/sq ft)		1.23	
Alpha	1.00	Stream Power (lb/ft s)		21.49	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.43	12.99	0.71
C & E Loss (ft)	1.42	Cum SA (acres)	0.43	4.11	0.73

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The

program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1605.92	Element	Left OB	Channel	Right OB	
Vel Head (ft)	4.71	Wt. n-Val.		0.015		
W.S. Elev (ft)	1601.21	Reach Len. (ft)	0.10	0.10	0.10	
Crit W.S. (ft)	1601.21	Flow Area (sq ft)		113.25		
E.G. Slope (ft/ft)	0.005170	Area (sq ft)	4.57	113.25		
Q Total (cfs)	1972.00	Flow (cfs)		1972.00		
Top Width (ft)	15.89	Top Width (ft)	3.89	12.00		
Vel Total (ft/s)	17.41	Avg. Vel. (ft/s)		17.41		
Max Chl Dpth (ft)	9.44	Hydr. Depth (ft)		9.44		
Conv. Total (cfs)	27426.6	Conv. (cfs)		27426.6		
Length Wtd. (ft)	0.10	Wetted Per. (ft)		29.63		
Min Ch El (ft)	1591.77	Shear (lb/sq ft)		1.23		
Alpha	1.00	Stream Power (lb/ft s)		21.48		
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.01	13.02	0.21	
C & E Loss (ft)	1.42	Cum SA (acres)	0.02	4.10	0.17	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	36.00	45.00	0.00	4.57	4.93	0.00	1.18	0.00	0.30	0.00
2	Chan	45.00	47.40	197.22	22.65	10.59	10.00	9.44	8.71	0.69	6.01
3	Chan	47.40	49.80	530.56	22.65	2.40	26.90	9.44	23.43	3.05	71.37
4	Chan	49.80	52.20	530.56	22.65	2.40	26.90	9.44	23.43	3.05	71.37
5	Chan	52.20	54.60	530.56	22.65	2.40	26.90	9.44	23.43	3.05	71.37

6	Chan	54.60	57.00	183.11	22.65	11.84	9.29	9.44	8.09	0.62
4.99										

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	36.00	45.00	0.00	4.57	4.93	0.00	1.18	0.00	0.30	0.00
2	Chan	45.00	47.40	197.22	22.65	10.59	10.00	9.44	8.71	0.69	6.01
3	Chan	47.40	49.80	530.56	22.65	2.40	26.90	9.44	23.42	3.05	71.35
4	Chan	49.80	52.20	530.56	22.65	2.40	26.90	9.44	23.42	3.05	71.35
5	Chan	52.20	54.60	530.56	22.65	2.40	26.90	9.44	23.42	3.05	71.35
6	Chan	54.60	57.00	183.11	22.65	11.84	9.29	9.44	8.08	0.62	4.99

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH

REACH: COR EFFECTIVE RS: 2000

INPUT
Description:
Station Elevation Data num= 420

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1607.3	1.8	1607	2.8	1606.91	4.6	1606.61	5.2	1606.51
5.7	1606.35	6.9	1606.25	8	1606.03	8.5	1606.01	9.8	1605.79
10	1605.84	11.3	1605.74	13.9	1605.26	14	1605.27	14.1	1605.28
15.9	1605.06	16.5	1604.91	18	1604.75	19.2	1604.51	19.7	1604.53
20.5	1604.5	20.8	1604.45	21.8	1604.43	23.7	1604.25	24.3	1604.24
25.1	1604.16	27.2	1604.19	29	1604.16	29.5	1604.06	30.2	1604.05
30.5	1604	31.8	1603.63	32.5	1603.61	33	1603.67	35.1	1603.48
37.3	1603.51	37.9	1603.47	38.9	1603.47	39.7	1603.42	40	1603.1
40.1	1602.93	40.7	1602.07	41	1601.54	41.1	1601.22	41.3	1601.04
41.6	1600.55	41.8	1600.3	41.9	1600.13	41.9	1600.04	42	1599.92
42.1	1599.79	42.5	1599.5	42.5	1599.52	42.6	1599.61	42.6	1599.64
42.8	1599.86	42.9	1599.88	43	1599.96	43.1	1599.97	43.2	1599.85
43.3	1599.55	43.4	1599.34	43.5	1600	43.5	1585.08	55.5	1585.08
55.5	1603.22	57.2	1602.91	57.4	1602.34	57.5	1601.92	57.5	1601.78
57.7	1601.52	57.9	1601.48	58	1601.58	58.1	1601.56	58.1	1601.57
58.3	1601.68	58.3	1601.76	58.4	1601.94	58.4	1601.98	58.5	1602.05
58.7	1602.44	58.8	1602.59	58.9	1603.02	59	1603.07	59.1	1603
59.3	1603.12	59.3	1603.13	59.5	1603.14	59.6	1603.15	59.9	1603.12
60.4	1603.08	60.6	1603.06	60.6	1603.05	60.8	1603.03	60.9	1603.02
60.9	1603	61.1	1602.99	61.2	1602.98	61.3	1602.98	61.9	1602.97
62	1602.94	62.1	1602.94	62.2	1602.91	62.9	1602.83	63.5	1602.82
63.5	1602.81	63.6	1602.81	63.7	1602.81	64.1	1602.83	64.2	1602.82
64.4	1602.8	64.5	1602.78	64.6	1602.78	64.7	1602.76	64.8	1602.73
65	1602.72	65.2	1602.66	66	1602.69	66.1	1602.71	66.1	1602.72
66.3	1602.74	66.4	1602.74	66.5	1602.76	66.7	1602.78	67	1602.76
67.1	1602.75	67.2	1602.74	67.3	1602.74	67.4	1602.75	67.6	1602.75
67.8	1602.73	67.9	1602.71	68	1602.7	68.1	1602.68	68.3	1602.64
68.4	1602.61	68.5	1602.6	68.5	1602.59	68.7	1602.57	68.8	1602.53
68.9	1602.53	69.8	1602.43	70.5	1602.53	70.5	1602.54	70.7	1602.59
70.7	1602.61	70.8	1602.63	71	1602.73	71.1	1602.75	71.2	1602.79
71.2	1602.81	71.3	1602.85	71.7	1602.97	73.2	1603.15	73.3	1603.15
73.5	1603.16	74.2	1603.1	74.3	1603.1	74.4	1603.1	74.5	1603.09
75.4	1603.09	75.5	1603.08	75.6	1603.06	75.7	1603.06	75.8	1603.04
76	1603.09	76.1	1603.1	76.5	1603.18	76.7	1603.16	76.8	1603.16
77	1603.18	77	1603.19	77.2	1603.22	77.3	1603.22	78	1603.22
79.8	1603.06	79.8	1603.07	80	1603.09	80.3	1603.09	80.3	1603.1
80.4	1603.12	82.8	1603.18	83.1	1603.18	84.3	1603.13	84.5	1603.1
84.6	1603.11	84.7	1603.15	84.8	1603.16	85	1603.17	85.1	1603.16
85.3	1603.16	85.7	1603.17	85.8	1603.19	85.9	1603.19	86	1603.19
86.1	1603.19	86.3	1603.19	86.4	1603.2	86.6	1603.22	86.7	1603.22
86.8	1603.22	87	1603.22	87.1	1603.22	87.3	1603.22	89.4	1603.14
91.5	1603.25	91.6	1603.25	91.7	1603.25	91.8	1603.26	91.9	1603.26
92	1603.26	92.2	1603.28	92.3	1603.28	92.4	1603.28	92.5	1603.28
92.7	1603.31	92.8	1603.34	92.9	1603.36	92.9	1603.38	93.2	1603.43

93.4	1603.46	93.5	1603.46	93.6	1603.46	93.8	1603.46	94	1603.46		
94.1	1603.46	94.8	1603.54	95	1603.54	95.1	1603.54	95.1	1603.55		
95.2	1603.56	96.6	1603.65	96.6	1603.66	96.9	1603.69	97	1603.73		
97.1	1603.74	97.3	1603.77	97.3	1603.78	98	1603.87	98.1	1603.88		
98.1	1603.87	98.3	1603.85	98.5	1603.83	98.6	1603.83	98.6	1603.84		
98.7	1603.87	98.8	1603.88	98.9	1603.91	99	1603.93	99.1	1603.95		
99.2	1603.96	99.2	1603.97	100.1	1604.06	100.2	1604.1	100.3	1604.12		
100.4	1604.13	100.5	1604.15	100.6	1604.16	100.8	1604.21	100.8	1604.22		
101.1	1604.25	101.3	1604.27	101.3	1604.28	101.5	1604.31	101.6	1604.32		
101.8	1604.34	101.8	1604.35	101.9	1604.35	102	1604.38	102.1	1604.38		
102.1	1604.39	102.3	1604.42	102.7	1604.47	102.9	1604.5	103.1	1604.52		
103.2	1604.53	103.2	1604.54	103.3	1604.55	103.4	1604.55	103.5	1604.55		
103.6	1604.55	103.7	1604.56	103.8	1604.58	103.8	1604.59	104.6	1604.65		
104.6	1604.66	104.7	1604.67	105.1	1604.72	107.1	1604.84	107.8	1605		
108.1	1605.03	108.2	1605.04	108.3	1605.06	108.6	1605.06	108.6	1605.07		
108.8	1605.09	108.9	1605.11	109	1605.12	109.1	1605.13	109.2	1605.14		
109.3	1605.17	109.4	1605.18	109.5	1605.19	109.6	1605.2	109.7	1605.21		
109.7	1605.22	109.8	1605.23	110	1605.25	110.1	1605.27	110.2	1605.28		
110.3	1605.3	110.4	1605.32	110.5	1605.34	110.6	1605.37	110.7	1605.37		
110.8	1605.38	111.1	1605.42	111.1	1605.43	111.4	1605.43	111.6	1605.44		
111.7	1605.44	111.8	1605.47	112.1	1605.5	112.3	1605.51	112.4	1605.51		
112.5	1605.53	112.7	1605.55	112.8	1605.56	113	1605.57	113.1	1605.58		
113.2	1605.59	113.4	1605.59	113.6	1605.59	113.8	1605.61	113.9	1605.61		
114	1605.62	114.1	1605.62	114.2	1605.62	114.3	1605.62	114.4	1605.62		
114.9	1605.66	117.1	1605.69	117.2	1605.69	117.3	1605.69	117.4	1605.69		
117.4	1605.68	117.5	1605.67	117.6	1605.67	117.9	1605.66	118.1	1605.66		
118.3	1605.69	118.4	1605.69	119.8	1605.7	119.9	1605.7	120	1605.7		
120.2	1605.7	120.5	1605.7	120.6	1605.69	120.8	1605.69	121.1	1605.68		
121.2	1605.68	121.3	1605.68	121.4	1605.68	121.4	1605.67	121.6	1605.65		
121.9	1605.62	122.1	1605.63	122.1	1605.62	122.4	1605.59	122.6	1605.59		
122.7	1605.6	122.8	1605.61	123.1	1605.65	123.1	1605.66	123.2	1605.66		
123.3	1605.66	123.4	1605.66	123.5	1605.65	123.5	1605.64	123.6	1605.64		
123.8	1605.64	125.4	1605.69	125.5	1605.67	125.6	1605.66	125.9	1605.63		
125.9	1605.62	126.1	1605.62	126.4	1605.59	126.5	1605.59	127.3	1605.6		
127.4	1605.61	127.5	1605.61	127.9	1605.62	128	1605.62	128.1	1605.62		
128.3	1605.62	128.4	1605.61	128.6	1605.59	128.7	1605.59	128.9	1605.56		
129	1605.56	129.1	1605.56	129.2	1605.56	129.4	1605.56	129.6	1605.56		
129.8	1605.54	129.9	1605.54	130	1605.54	130.1	1605.54	130.2	1605.54		
130.3	1605.54	130.4	1605.54	130.5	1605.54	130.5	1605.55	130.6	1605.55		
130.8	1605.54	130.9	1605.53	131	1605.53	131.2	1605.53	132.739	1605.5		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	43.5	.015	55.5	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
43.5	55.5	321.5	321.5	321.5	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	43.5	1608	F

55.5 132.739 1608 F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1598.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.88	Wt. n-Val.		0.015	
W.S. Elev (ft)	1596.44	Reach Len. (ft)	0.10	0.10	0.10
Crit W.S. (ft)	1592.94	Flow Area (sq ft)		136.28	
E.G. Slope (ft/ft)	0.001988	Area (sq ft)		136.28	
Q Total (cfs)	1498.00	Flow (cfs)		1498.00	
Top Width (ft)	12.00	Top Width (ft)		12.00	
Vel Total (ft/s)	10.99	Avg. Vel. (ft/s)		10.99	
Max Chl Dpth (ft)	11.36	Hydr. Depth (ft)		11.36	
Conv. Total (cfs)	33597.0	Conv. (cfs)		33597.0	
Length Wtd. (ft)	0.10	Wetted Per. (ft)		34.71	
Min Ch El (ft)	1585.08	Shear (lb/sq ft)		0.49	
Alpha	1.00	Stream Power (lb/ft s)		5.36	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.43	12.99	0.71
C & E Loss (ft)	0.00	Cum SA (acres)	0.43	4.11	0.73

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

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1598.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.88	Wt. n-Val.		0.015	
W.S. Elev (ft)	1596.44	Reach Len. (ft)	0.10	0.10	0.10
Crit W.S. (ft)	1592.94	Flow Area (sq ft)		136.28	
E.G. Slope (ft/ft)	0.001988	Area (sq ft)		136.28	
Q Total (cfs)	1498.00	Flow (cfs)		1498.00	
Top Width (ft)	12.00	Top Width (ft)		12.00	
Vel Total (ft/s)	10.99	Avg. Vel. (ft/s)		10.99	
Max Chl Dpth (ft)	11.36	Hydr. Depth (ft)		11.36	
Conv. Total (cfs)	33597.0	Conv. (cfs)		33597.0	
Length Wtd. (ft)	0.10	Wetted Per. (ft)		34.71	
Min Ch El (ft)	1585.08	Shear (lb/sq ft)		0.49	
Alpha	1.00	Stream Power (lb/ft s)		5.36	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.01	13.02	0.21
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	4.10	0.17

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

Profile #BFE

Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)

1	Chan	43.50	45.90	129.04	27.26	13.76	8.61	11.36	4.73	0.25
1.16										
2	Chan	45.90	48.30	413.30	27.26	2.40	27.59	11.36	15.16	1.41
21.37										
3	Chan	48.30	50.70	413.31	27.26	2.40	27.59	11.36	15.16	1.41
21.37										
4	Chan	50.70	53.10	413.30	27.26	2.40	27.59	11.36	15.16	1.41
21.37										
5	Chan	53.10	55.50	129.04	27.26	13.76	8.61	11.36	4.73	0.25
1.16										

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

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	Chan	43.50	45.90	129.04	27.26	13.76	8.61	11.36	4.73	0.25	1.16
2	Chan	45.90	48.30	413.30	27.26	2.40	27.59	11.36	15.16	1.41	21.37
3	Chan	48.30	50.70	413.31	27.26	2.40	27.59	11.36	15.16	1.41	21.37
4	Chan	50.70	53.10	413.30	27.26	2.40	27.59	11.36	15.16	1.41	21.37
5	Chan	53.10	55.50	129.04	27.26	13.76	8.61	11.36	4.73	0.25	1.16

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

BRIDGE

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 1950

INPUT
Description:
Distance from Upstream XS = .1
Deck/Roadway Width = 319.83
Weir Coefficient = 2.7
Upstream Deck/Roadway Coordinates
num= 6

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
37	1606.72	1585.08	43.5	1606.72	1585.08	43.5	1606.72	1601.77
55.5	1606.72	1601.77	55.5	1606.72	1585.08	62	1606.72	1585.08

Upstream Bridge Cross Section Data
Station Elevation Data num= 420

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1607.3	1.8	1607	2.8	1606.91	4.6	1606.61	5.2	1606.51
5.7	1606.35	6.9	1606.25	8	1606.03	8.5	1606.01	9.8	1605.79
10	1605.84	11.3	1605.74	13.9	1605.26	14	1605.27	14.1	1605.28
15.9	1605.06	16.5	1604.91	18	1604.75	19.2	1604.51	19.7	1604.53
20.5	1604.5	20.8	1604.45	21.8	1604.43	23.7	1604.25	24.3	1604.24
25.1	1604.16	27.2	1604.19	29	1604.16	29.5	1604.06	30.2	1604.05
30.5	1604	31.8	1603.63	32.5	1603.61	33	1603.67	35.1	1603.48
37.3	1603.51	37.9	1603.47	38.9	1603.47	39.7	1603.42	40	1603.1
40.1	1602.93	40.7	1602.07	41	1601.54	41.1	1601.22	41.3	1601.04
41.6	1600.55	41.8	1600.3	41.9	1600.13	41.9	1600.04	42	1599.92
42.1	1599.79	42.5	1599.5	42.5	1599.52	42.6	1599.61	42.6	1599.64
42.8	1599.86	42.9	1599.88	43	1599.96	43.1	1599.97	43.2	1599.85
43.3	1599.55	43.4	1599.34	43.5	1600	43.5	1585.08	55.5	1585.08
55.5	1603.22	57.2	1602.91	57.4	1602.34	57.5	1601.92	57.5	1601.78
57.7	1601.52	57.9	1601.48	58	1601.58	58.1	1601.56	58.1	1601.57
58.3	1601.68	58.3	1601.76	58.4	1601.94	58.4	1601.98	58.5	1602.05
58.7	1602.44	58.8	1602.59	58.9	1603.02	59	1603.07	59.1	1603
59.3	1603.12	59.3	1603.13	59.5	1603.14	59.6	1603.15	59.9	1603.12
60.4	1603.08	60.6	1603.06	60.6	1603.05	60.8	1603.03	60.9	1603.02
60.9	1603	61.1	1602.99	61.2	1602.98	61.3	1602.98	61.9	1602.97
62	1602.94	62.1	1602.94	62.2	1602.91	62.9	1602.83	63.5	1602.82
63.5	1602.81	63.6	1602.81	63.7	1602.81	64.1	1602.83	64.2	1602.82
64.4	1602.8	64.5	1602.78	64.6	1602.78	64.7	1602.76	64.8	1602.73
65	1602.72	65.2	1602.66	66	1602.69	66.1	1602.71	66.1	1602.72
66.3	1602.74	66.4	1602.74	66.5	1602.76	66.7	1602.78	67	1602.76
67.1	1602.75	67.2	1602.74	67.3	1602.74	67.4	1602.75	67.6	1602.75
67.8	1602.73	67.9	1602.71	68	1602.7	68.1	1602.68	68.3	1602.64
68.4	1602.61	68.5	1602.6	68.5	1602.59	68.7	1602.57	68.8	1602.53
68.9	1602.53	69.8	1602.43	70.5	1602.53	70.5	1602.54	70.7	1602.59
70.7	1602.61	70.8	1602.63	71	1602.73	71.1	1602.75	71.2	1602.79
71.2	1602.81	71.3	1602.85	71.7	1602.97	73.2	1603.15	73.3	1603.15
73.5	1603.16	74.2	1603.1	74.3	1603.1	74.4	1603.1	74.5	1603.09
75.4	1603.09	75.5	1603.08	75.6	1603.06	75.7	1603.06	75.8	1603.04
76	1603.09	76.1	1603.1	76.5	1603.18	76.7	1603.16	76.8	1603.16
77	1603.18	77	1603.19	77.2	1603.22	77.3	1603.22	78	1603.22
79.8	1603.06	79.8	1603.07	80	1603.09	80.3	1603.09	80.3	1603.1
80.4	1603.12	82.8	1603.18	83.1	1603.18	84.3	1603.13	84.5	1603.1
84.6	1603.11	84.7	1603.15	84.8	1603.16	85	1603.17	85.1	1603.16
85.3	1603.16	85.7	1603.17	85.8	1603.19	85.9	1603.19	86	1603.19
86.1	1603.19	86.3	1603.19	86.4	1603.2	86.6	1603.22	86.7	1603.22
86.8	1603.22	87	1603.22	87.1	1603.22	87.3	1603.22	89.4	1603.14
91.5	1603.25	91.6	1603.25	91.7	1603.25	91.8	1603.26	91.9	1603.26
92	1603.26	92.2	1603.28	92.3	1603.28	92.4	1603.28	92.5	1603.28
92.7	1603.31	92.8	1603.34	92.9	1603.36	92.9	1603.38	93.2	1603.43
93.4	1603.46	93.5	1603.46	93.6	1603.46	93.8	1603.46	94	1603.46
94.1	1603.46	94.8	1603.54	95	1603.54	95.1	1603.54	95.1	1603.55

95.2	1603.56	96.6	1603.65	96.6	1603.66	96.9	1603.69	97	1603.73
97.1	1603.74	97.3	1603.77	97.3	1603.78	98	1603.87	98.1	1603.88
98.1	1603.87	98.3	1603.85	98.5	1603.83	98.6	1603.83	98.6	1603.84
98.7	1603.87	98.8	1603.88	98.9	1603.91	99	1603.93	99.1	1603.95
99.2	1603.96	99.2	1603.97	100.1	1604.06	100.2	1604.1	100.3	1604.12
100.4	1604.13	100.5	1604.15	100.6	1604.16	100.8	1604.21	100.8	1604.22
101.1	1604.25	101.3	1604.27	101.3	1604.28	101.5	1604.31	101.6	1604.32
101.8	1604.34	101.8	1604.35	101.9	1604.35	102	1604.38	102.1	1604.38
102.1	1604.39	102.3	1604.42	102.7	1604.47	102.9	1604.5	103.1	1604.52
103.2	1604.53	103.2	1604.54	103.3	1604.55	103.4	1604.55	103.5	1604.55
103.6	1604.55	103.7	1604.56	103.8	1604.58	103.8	1604.59	104.6	1604.65
104.6	1604.66	104.7	1604.67	105.1	1604.72	107.1	1604.84	107.8	1605
108.1	1605.03	108.2	1605.04	108.3	1605.06	108.6	1605.06	108.6	1605.07
108.8	1605.09	108.9	1605.11	109	1605.12	109.1	1605.13	109.2	1605.14
109.3	1605.17	109.4	1605.18	109.5	1605.19	109.6	1605.2	109.7	1605.21
109.7	1605.22	109.8	1605.23	110	1605.25	110.1	1605.27	110.2	1605.28
110.3	1605.3	110.4	1605.32	110.5	1605.34	110.6	1605.37	110.7	1605.37
110.8	1605.38	111.1	1605.42	111.1	1605.43	111.4	1605.43	111.6	1605.44
111.7	1605.44	111.8	1605.47	112.1	1605.5	112.3	1605.51	112.4	1605.51
112.5	1605.53	112.7	1605.55	112.8	1605.56	113	1605.57	113.1	1605.58
113.2	1605.59	113.4	1605.59	113.6	1605.59	113.8	1605.61	113.9	1605.61
114	1605.62	114.1	1605.62	114.2	1605.62	114.3	1605.62	114.4	1605.62
114.9	1605.66	117.1	1605.69	117.2	1605.69	117.3	1605.69	117.4	1605.69
117.4	1605.68	117.5	1605.67	117.6	1605.67	117.9	1605.66	118.1	1605.66
118.3	1605.69	118.4	1605.69	119.8	1605.7	119.9	1605.7	120	1605.7
120.2	1605.7	120.5	1605.7	120.6	1605.69	120.8	1605.69	121.1	1605.68
121.2	1605.68	121.3	1605.68	121.4	1605.68	121.4	1605.67	121.6	1605.65
121.9	1605.62	122.1	1605.63	122.1	1605.62	122.4	1605.59	122.6	1605.59
122.7	1605.6	122.8	1605.61	123.1	1605.65	123.1	1605.66	123.2	1605.66
123.3	1605.66	123.4	1605.66	123.5	1605.65	123.5	1605.64	123.6	1605.64
123.8	1605.64	125.4	1605.69	125.5	1605.67	125.6	1605.66	125.9	1605.63
125.9	1605.62	126.1	1605.62	126.4	1605.59	126.5	1605.59	127.3	1605.6
127.4	1605.61	127.5	1605.61	127.9	1605.62	128	1605.62	128.1	1605.62
128.3	1605.62	128.4	1605.61	128.6	1605.59	128.7	1605.59	128.9	1605.56
129	1605.56	129.1	1605.56	129.2	1605.56	129.4	1605.56	129.6	1605.56
129.8	1605.54	129.9	1605.54	130	1605.54	130.1	1605.54	130.2	1605.54
130.3	1605.54	130.4	1605.54	130.5	1605.54	130.5	1605.55	130.6	1605.55
130.8	1605.54	130.9	1605.53	131	1605.53	131.2	1605.53	132.739	1605.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	43.5	.015	55.5	.025

Bank Sta: Left	Right	Coeff Contr.	Expan.
43.5	55.5	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	43.5	1608	F
55.5	132.739	1608	F

```
Downstream  Deck/Roadway Coordinates
    num=       6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0 1606.72 1601.77      57 1606.72 1601.77      57 1606.72 1595.08
      69 1606.72 1595.08      69 1606.72 1596.89     100 1606.72    1601

Downstream Bridge Cross Section Data
Station Elevation Data    num=      44
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 1602.39     6.7 1601.77     8.3 1601.77     8.7 1601.77      10 1601.77
      57 1601.77      57 1585.08      69 1585.08      69 1601.77   146.2 1600.13
   146.3 1600.14   146.4 1600.16   146.6 1600.19   146.7 1600.19   146.8 1600.21
     147 1600.22   148.1 1600.29   148.2  1600.3   148.3 1600.31   148.9 1600.34
     149 1600.34   149.1 1600.34   149.2 1600.34   149.3 1600.34   149.4 1600.34
   149.5 1600.33   149.6 1600.34   149.7 1600.35   149.9 1600.38     150 1600.39
   150.2 1600.41   150.3 1600.43   153.3 1600.55   153.4 1600.56   153.4 1600.57
   153.5 1600.58   153.6 1600.59   153.7  1600.6   153.8 1600.61   153.9 1600.62
   153.9 1600.63   154.1 1600.65   154.4 1600.66154.5082 1600.67

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025      57    .015      69    .025

Bank Sta: Left   Right    Coeff Contr.   Expan.
            57      69             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0      57    1608       F
      69154.5082    1608       F

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 =     .98
Elevation at which weir flow begins        = 1606.72
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

BRIDGE OUTPUT Profile #BFE

			Inside BR US	Inside BR DS
E.G. US. (ft)	1598.31	Element		
W.S. US. (ft)	1596.44	E.G. Elev (ft)	1598.31	1596.88
Q Total (cfs)	1498.00	W.S. Elev (ft)	1596.44	1593.29
Q Bridge (cfs)	1498.00	Crit W.S. (ft)	1592.94	1592.92
Q Weir (cfs)		Max Chl Dpth (ft)	11.36	8.21
Weir Sta Lft (ft)		Vel Total (ft/s)	10.99	15.20
Weir Sta Rgt (ft)		Flow Area (sq ft)	136.28	98.52
Weir Submerg		Froude # Chl	0.58	0.94
Weir Max Depth (ft)		Specif Force (cu ft)	1285.62	1112.36
Min El Weir Flow (ft)	1606.73	Hydr Depth (ft)	11.36	8.21
Min El Prs (ft)	1601.77	W.P. Total (ft)	34.71	28.42
Delta EG (ft)	0.95	Conv. Total (cfs)	33596.1	22355.1
Delta WS (ft)	3.16	Top Width (ft)	12.00	12.00
BR Open Area (sq ft)	120.00	Frctn Loss (ft)	0.92	0.01
BR Open Vel (ft/s)	15.20	C & E Loss (ft)	0.51	0.00
BR Sluice Coef		Shear Total (lb/sq ft)	0.49	0.97
BR Sel Method	Energy only	Power Total (lb/ft s)	5.36	14.78

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

BRIDGE OUTPUT Profile #FLOODWAY

			Inside BR US	Inside BR DS
E.G. US. (ft)	1598.31	Element		
W.S. US. (ft)	1596.44	E.G. Elev (ft)	1598.31	1596.88
Q Total (cfs)	1498.00	W.S. Elev (ft)	1596.44	1593.29
Q Bridge (cfs)	1498.00	Crit W.S. (ft)	1592.94	1592.92
Q Weir (cfs)		Max Chl Dpth (ft)	11.36	8.21
Weir Sta Lft (ft)		Vel Total (ft/s)	10.99	15.20
Weir Sta Rgt (ft)		Flow Area (sq ft)	136.28	98.52
Weir Submerg		Froude # Chl	0.58	0.94
Weir Max Depth (ft)		Specif Force (cu ft)	1285.62	1112.37
Min El Weir Flow (ft)	1606.73	Hydr Depth (ft)	11.36	8.21
Min El Prs (ft)	1601.77	W.P. Total (ft)	34.71	28.42
Delta EG (ft)	0.95	Conv. Total (cfs)	33596.1	22355.5
Delta WS (ft)	3.16	Top Width (ft)	12.00	12.00
BR Open Area (sq ft)	120.00	Frctn Loss (ft)	0.92	0.01

BR Open Vel (ft/s)	15.20	C & E Loss (ft)	0.51	0.00
BR Sluice Coef		Shear Total (lb/sq ft)	0.49	0.97
BR Sel Method	Energy only	Power Total (lb/ft s)	5.36	14.77

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 1900

INPUT
Description:
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1602.39	6.7	1601.77	8.3	1601.77	8.7	1601.77	10	1601.77
57	1601.77	57	1585.08	69	1585.08	69	1601.77	146.2	1600.13
146.3	1600.14	146.4	1600.16	146.6	1600.19	146.7	1600.19	146.8	1600.21
147	1600.22	148.1	1600.29	148.2	1600.3	148.3	1600.31	148.9	1600.34
149	1600.34	149.1	1600.34	149.2	1600.34	149.3	1600.34	149.4	1600.34
149.5	1600.33	149.6	1600.34	149.7	1600.35	149.9	1600.38	150	1600.39
150.2	1600.41	150.3	1600.43	153.3	1600.55	153.4	1600.56	153.4	1600.57
153.5	1600.58	153.6	1600.59	153.7	1600.6	153.8	1600.61	153.9	1600.62
153.9	1600.63	154.1	1600.65	154.4	1600.66	154.5082	1600.67		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	57	.015	69	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
57	69	19.6	24.7	32	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	57	1608	F
69	154.5082	1608	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1597.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.09	Wt. n-Val.		0.015	
W.S. Elev (ft)	1593.28	Reach Len. (ft)	19.60	24.70	32.00

Crit W.S. (ft)	1593.28	Flow Area (sq ft)		98.34	
E.G. Slope (ft/ft)	0.005115	Area (sq ft)		98.34	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	12.00	Top Width (ft)		12.00	
Vel Total (ft/s)	16.22	Avg. Vel. (ft/s)		16.22	
Max Chl Dpth (ft)	8.19	Hydr. Depth (ft)		8.19	
Conv. Total (cfs)	22301.0	Conv. (cfs)		22301.0	
Length Wtd. (ft)	24.70	Wetted Per. (ft)		28.39	
Min Ch El (ft)	1585.08	Shear (lb/sq ft)		1.11	
Alpha	1.00	Stream Power (lb/ft s)		17.94	
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	0.43	12.13	0.71
C & E Loss (ft)	1.39	Cum SA (acres)	0.43	4.02	0.73

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1597.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.09	Wt. n-Val.		0.015	
W.S. Elev (ft)	1593.28	Reach Len. (ft)	19.60	24.70	32.00
Crit W.S. (ft)	1593.28	Flow Area (sq ft)		98.34	
E.G. Slope (ft/ft)	0.005115	Area (sq ft)		98.34	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	12.00	Top Width (ft)		12.00	
Vel Total (ft/s)	16.22	Avg. Vel. (ft/s)		16.22	
Max Chl Dpth (ft)	8.19	Hydr. Depth (ft)		8.19	
Conv. Total (cfs)	22301.0	Conv. (cfs)		22301.0	
Length Wtd. (ft)	24.70	Wetted Per. (ft)		28.39	
Min Ch El (ft)	1585.08	Shear (lb/sq ft)		1.11	
Alpha	1.00	Stream Power (lb/ft s)		17.94	
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	0.01	12.15	0.21
C & E Loss (ft)	1.40	Cum SA (acres)	0.02	4.02	0.17

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	57.00	59.40	158.34	19.67	10.59	9.93	8.19	8.05	0.59	4.77
2	Chan	59.40	61.80	426.10	19.67	2.40	26.72	8.19	21.67	2.62	56.70
3	Chan	61.80	64.20	426.10	19.67	2.40	26.72	8.19	21.67	2.62	56.70
4	Chan	64.20	66.60	426.11	19.67	2.40	26.72	8.19	21.67	2.62	56.70
5	Chan	66.60	69.00	158.34	19.67	10.59	9.93	8.19	8.05	0.59	4.77

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	57.00	59.40	158.34	19.67	10.59	9.93	8.19	8.05	0.59	4.77
2	Chan	59.40	61.80	426.10	19.67	2.40	26.72	8.19	21.67	2.62	56.70
3	Chan	61.80	64.20	426.10	19.67	2.40	26.72	8.19	21.67	2.62	56.70
4	Chan	64.20	66.60	426.11	19.67	2.40	26.72	8.19	21.67	2.62	56.70
5	Chan	66.60	69.00	158.34	19.67	10.59	9.93	8.19	8.05	0.59	4.77

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 1800

INPUT
Description:
Station Elevation Data num= 451

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1603.28	4.6	1603.06	6.8	1602.72	7.4	1602.72	7.7	1602.63
8.8	1602.53	11.1	1602.16	15.9	1601.62	17.9	1601.47	20.7	1601.09
21.9	1601.01	23.3	1600.5	25.9	1599.07	27.2	1598.58	28.3	1597.87
28.6	1597.59	29.1	1597.31	29.6	1597.14	30.3	1596.67	30.9	1596.45
32	1595.88	33.5	1595.31	33.6	1595.23	33.7	1595.18	36.4	1594.2
38.8	1593.59	41.1	1593.33	41.7	1593.33	44.5	1592.75	45.3	1592.66
46.2	1592.66	47.6	1592.47	51.5	1592.31	52.6	1592.19	52.9	1592.21
53.1	1592.24	53.6	1592.21	53.8	1592.19	56.6	1592.35	57.8	1592.16
58.5	1592.19	59	1592.09	60.7	1591.98	62.7	1591.86	64.6	1591.88
64.9	1591.84	65.5	1591.81	69.6	1592.03	70.7	1592.38	71.9	1592.63
72.6	1592.88	72.7	1592.96	72.8	1592.99	72.8	1593	72.9	1593.04
73.3	1593.22	75.1	1593.41	76.3	1593.14	77.8	1592.57	78	1592.44
78.8	1592.2	81	1591.09	81.8	1590.51	81.9	1590.5	81.9	1590.47
82	1590.34	82.7	1589.84	82.8	1589.8	82.9	1589.74	83	1589.61
83.1	1589.52	84.5	1588.5	84.6	1588.35	84.7	1588.19	84.8	1588.16
85	1587.95	85.1	1587.84	85.1	1587.75	85.5	1587.4	85.6	1587.27
86	1587.01	88.4	1586.06	89.2	1585.9	89.2	1585.89	89.3	1585.84
89.4	1585.78	89.6	1585.73	92.2	1585.32	95	1585	98.3	1585
99.6	1585.06	100.2	1585	100.6	1584.97	104.1	1584.97	104.3	1584.86
104.4	1584.81	104.4	1584.79	104.6	1584.76	104.6	1584.75	105.9	1584.68
106	1584.67	106.7	1584.56	107	1584.56	107.5	1584.53	109.3	1584.59
113.4	1584.47	114.3	1584.53	115.9	1584.53	116.3	1584.53	116.4	1584.53
116.6	1584.5	119.5	1584.72	122.1	1584.73	122.9	1584.83	125.2	1584.97
125.4	1585	125.5	1585.03	125.5	1585.04	125.7	1585.09	125.9	1585.13
126	1585.15	126.1	1585.19	126.3	1585.28	126.3	1585.29	126.5	1585.43
126.6	1585.6	126.8	1585.73	126.9	1585.81	127	1585.93	127	1585.95
127.2	1586.12	127.3	1586.18	127.4	1586.3	127.4	1586.37	127.6	1586.48

127.7 1586.65	128.2 1587.1	128.3 1587.16	128.3 1587.18	128.5 1587.27
128.6 1587.35	128.6 1587.37	128.7 1587.4	128.9 1587.52	129 1587.57
129.2 1587.65	129.2 1587.66	129.2 1587.67	129.4 1587.76	130 1588.03
131.6 1588.75	131.6 1588.77	131.7 1588.84	132.3 1589.14	132.4 1589.22
132.6 1589.32	132.6 1589.37	132.7 1589.39	132.8 1589.46	133 1589.55
133 1589.56	133 1589.58	133.4 1589.79	133.5 1589.88	133.6 1589.9
133.6 1589.92	133.7 1589.97	133.9 1590.13	133.9 1590.17	134.1 1590.33
134.3 1590.47	134.4 1590.57	134.5 1590.63	134.5 1590.65	134.7 1590.8
134.8 1590.99	135 1591.16	135 1591.2	135 1591.22	135.2 1591.29
135.6 1591.49	135.6 1591.53	135.7 1591.59	135.9 1591.66	135.9 1591.68
135.9 1591.69	135.9 1591.7	136.1 1591.78	136.2 1591.83	136.4 1591.94
136.5 1591.97	136.6 1592.1	136.7 1592.13	137 1592.43	137.2 1592.57
137.6 1592.84	137.7 1592.92	137.7 1592.96	138.8 1593.56	139.8 1594.01
140.5 1594.69	140.6 1594.83	140.7 1594.91	140.8 1595.12	140.9 1595.16
141 1595.31	141.1 1595.36	141.2 1595.48	141.2 1595.51	141.2 1595.56
141.5 1595.81	141.7 1596.1	141.8 1596.12	141.8 1596.18	141.9 1596.32
142.1 1596.44	142.1 1596.5	142.5 1596.87	142.5 1596.94	143.2 1597.34
144.6 1597.21	146.5 1597.3	146.6 1597.29	146.7 1597.28	148 1597.21
148.1 1597.22	148.2 1597.21	148.5 1597.22	148.8 1597.18	151.4 1597.15
152.7 1597.25	152.8 1597.27	152.9 1597.28	153 1597.32	153.1 1597.34
154.9 1597.61	155 1597.64	155.1 1597.67	155.2 1597.7	155.4 1597.73
155.5 1597.77	156.4 1597.94	156.4 1597.95	156.6 1597.99	156.6 1598
156.7 1598.01	157.6 1598.12	157.6 1598.13	157.8 1598.18	157.9 1598.2
158.1 1598.24	158.1 1598.25	158.3 1598.3	158.4 1598.31	158.4 1598.32
158.6 1598.34	158.7 1598.36	158.8 1598.39	158.9 1598.41	159 1598.44
159.1 1598.47	159.2 1598.5	159.3 1598.5	159.4 1598.53	159.6 1598.61
161.6 1599.03	163.4 1599.31	163.5 1599.33	163.6 1599.36	163.7 1599.39
163.8 1599.39	163.9 1599.42	164 1599.44	164 1599.45	164.1 1599.47
164.2 1599.49	164.3 1599.51	164.5 1599.55	164.6 1599.59	164.7 1599.61
164.8 1599.64	164.9 1599.67	165.2 1599.72	165.3 1599.77	165.4 1599.78
165.6 1599.81	165.7 1599.82	165.9 1599.84	166 1599.86	166.1 1599.87
166.4 1599.87	166.4 1599.88	166.6 1599.9	166.6 1599.91	166.9 1599.93
167.1 1599.98	167.2 1600	167.3 1600.03	167.4 1600.05	167.5 1600.06
168.6 1600.24	168.7 1600.26	168.9 1600.28	169.1 1600.3	169.1 1600.31
169.2 1600.32	173.8 1600.84	173.9 1600.84	174.7 1600.91	177.4 1601
182.7 1601.41	182.9 1601.43	183.4 1601.5	183.6 1601.53	183.9 1601.56
184.1 1601.56	184.2 1601.56	184.2 1601.57	184.4 1601.59	184.5 1601.59
184.7 1601.59	184.7 1601.6	184.9 1601.62	185 1601.62	185.2 1601.62
185.3 1601.64	185.4 1601.66	185.7 1601.66	185.9 1601.69	186 1601.69
186.1 1601.69	186.2 1601.69	186.3 1601.7	186.3 1601.71	186.5 1601.73
186.6 1601.74	186.7 1601.75	186.7 1601.76	186.9 1601.78	187.7 1601.82
187.9 1601.84	188.1 1601.84	188.2 1601.85	188.5 1601.88	188.6 1601.88
188.7 1601.88	189 1601.88	189.1 1601.9	189.3 1601.92	189.3 1601.93
189.4 1601.94	189.5 1601.95	189.6 1601.96	189.8 1601.98	189.9 1602
192.4 1602.12	193.7 1602.12	193.8 1602.13	194 1602.15	194.3 1602.16
194.4 1602.17	194.6 1602.18	194.7 1602.19	194.8 1602.2	194.9 1602.22
195 1602.23	195.1 1602.24	195.2 1602.25	195.2 1602.26	195.4 1602.28
195.4 1602.29	195.5 1602.29	195.6 1602.31	195.7 1602.31	195.7 1602.32
195.9 1602.34	196 1602.35	196.2 1602.35	196.4 1602.37	196.7 1602.37
196.9 1602.4	199.4 1602.62	200.2 1602.62	200.4 1602.62	200.5 1602.62

200.7	1602.59	200.7	1602.6	200.9	1602.62	201	1602.63
201.9	1602.68	201.9	1602.69	202	1602.69	202.2	1602.69
202.3	1602.69	202.5	1602.69	203.3	1602.72	203.4	1602.73
203.6	1602.74	203.8	1602.76	203.9	1602.78	204.1	1602.78
204.2	1602.79	204.4	1602.81	204.4	1602.82	204.5	1602.82
204.7	1602.84	204.7	1602.85	205	1602.88	211.2	1603.22
211.3	1603.24	211.5	1603.25	211.6	1603.27	211.7	1603.28
211.8	1603.3	212	1603.31	212.1	1603.33	212.2	1603.34
212.3	1603.35	212.5	1603.38	212.6	1603.4	212.7	1603.41
212.8	1603.41	213.2	1603.44	213.5	1603.44	213.8	1603.48
214	1603.5	214.2	1603.5	214.4	1603.53	214.5	1603.53
214.5	1603.54	214.7	1603.56	214.8	1603.57	214.9	1603.59
215.2	1603.59	215.3	1603.6	215.4	1603.61	215.5	1603.62
215.7	1603.62	218	1603.84	218.1	1603.84	218.2	1603.84
218.4	1603.87	218.5	1603.88	218.7	1603.88	218.8	1603.88
219	1603.88	219.2	1603.9	219.2	1603.91	219.4	1603.91
219.5	1603.91	219.56	1603.92				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	84.5	.025	130	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
84.5	130	168	174.6	176	.1	.3

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1590.34	Element			
Vel Head (ft)	1.31	Wt. n-Val.	0.040	0.025	0.040
W.S. Elev (ft)	1589.03	Reach Len. (ft)	168.00	174.60	176.00
Crit W.S. (ft)	1588.59	Flow Area (sq ft)	0.19	173.16	1.07
E.G. Slope (ft/ft)	0.004295	Area (sq ft)	0.19	173.16	1.07
Q Total (cfs)	1595.00	Flow (cfs)	0.16	1593.27	1.56
Top Width (ft)	48.29	Top Width (ft)	0.72	45.50	2.07
Vel Total (ft/s)	9.14	Avg. Vel. (ft/s)	0.87	9.20	1.46
Max Chl Dpth (ft)	4.55	Hydr. Depth (ft)	0.26	3.81	0.52
Conv. Total (cfs)	24336.8	Conv. (cfs)	2.5	24310.5	23.9
Length Wtd. (ft)	174.60	Wetted Per. (ft)	0.89	47.70	2.31
Min Ch El (ft)	1584.47	Shear (lb/sq ft)	0.06	0.97	0.12
Alpha	1.01	Stream Power (lb/ft s)	0.05	8.96	0.18
Frctn Loss (ft)	0.90	Cum Volume (acre-ft)	0.43	12.05	0.71
C & E Loss (ft)	0.05	Cum SA (acres)	0.43	4.01	0.73

CROSS SECTION OUTPUT Profile #FLOODWAY

			Left OB	Channel	Right OB
E.G. Elev (ft)	1590.35	Element			
Vel Head (ft)	1.30	Wt. n-Val.		0.025	
W.S. Elev (ft)	1589.06	Reach Len. (ft)	168.00	174.60	176.00
Crit W.S. (ft)		Flow Area (sq ft)		174.55	
E.G. Slope (ft/ft)	0.004378	Area (sq ft)		174.55	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	45.50	Top Width (ft)		45.50	

Vel Total (ft/s)	9.14	Avg. Vel. (ft/s)		9.14	
Max Chl Dpth (ft)	4.59	Hydr. Depth (ft)		3.84	
Conv. Total (cfs)	24105.4	Conv. (cfs)		24105.4	
Length Wtd. (ft)	174.60	Wetted Per. (ft)		49.28	
Min Ch El (ft)	1584.47	Shear (lb/sq ft)		0.97	
Alpha	1.00	Stream Power (lb/ft s)		8.85	
Frctn Loss (ft)	0.92	Cum Volume (acre-ft)	0.01	12.07	0.21
C & E Loss (ft)	0.05	Cum SA (acres)	0.02	4.00	0.17

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	67.60	84.50	0.16	0.19	0.89	0.01	0.26	0.87	0.06	0.05
2	Chan	84.50	93.60	187.88	26.13	10.06	11.78	2.87	7.19	0.70	5.01
3	Chan	93.60	102.70	350.57	36.53	9.11	21.98	4.01	9.60	1.07	10.31
4	Chan	102.70	111.80	400.48	39.69	9.19	25.11	4.36	10.09	1.16	11.69
5	Chan	111.80	120.90	416.28	40.49	9.11	26.10	4.45	10.28	1.19	12.25
6	Chan	120.90	130.00	238.07	30.33	10.23	14.93	3.33	7.85	0.79	6.24
7	ROB	130.00	147.91	1.56	1.07	2.31	0.10	0.52	1.46	0.12	0.18

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	84.50	93.60	184.77	26.41	10.61	11.58	2.90	7.00	0.68	4.76
2	Chan	93.60	102.70	355.57	36.80	9.11	22.29	4.04	9.66	1.10	10.66
3	Chan	102.70	111.80	405.79	39.96	9.19	25.44	4.39	10.15	1.19	12.07
4	Chan	111.80	120.90	421.71	40.77	9.11	26.44	4.48	10.34	1.22	12.65
5	Chan	120.90	130.00	227.15	30.60	11.26	14.24	3.36	7.42	0.74	5.52

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 1750

INPUT
Description:
Station Elevation Data num= 450

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1590.1	.3	1590.15	1.2	1590.48	4	1591.28	4.9	1591.49
5.7	1591.53	6.8	1591.46	7.9	1591.53	11.3	1591.97	11.9	1591.94
13.2	1591.71	14.3	1591.66	16.2	1591.73	16.9	1591.69	18.3	1591.78
20.1	1591.76	20.8	1591.7	22.1	1591.25	23.8	1591.19	24.2	1591.3
25	1591.32	26	1591.43	28.3	1591.31	30.5	1591.87	32.2	1592
33	1592	33.11	1591.981	34.1	1591.79	35.8	1591.31	36.6	1591.14
38	1590.66	39	1590.46	40	1590.15	40.3	1590.01	41.4	1589.73
42	1589.42	43.3	1588.94	44.3	1588.43	44.4	1588.41	44.4	1588.4
44.5	1588.37	44.6	1588.34	44.8	1588.26	44.9	1588.19	44.9	1588.16
46.4	1587.62	46.8	1587.39	46.9	1587.32	48.6	1586.56	48.7	1586.51
48.8	1586.39	48.9	1586.38	49.1	1586.25	49.1	1586.19	49.2	1586.12
49.5	1585.98	49.9	1585.66	51.5	1584.77	51.9	1584.51	52	1584.43
52.6	1584.1	53.4	1583.74	53.4	1583.71	54.1	1583.48	55.8	1583.38
55.9	1583.4	56	1583.42	56.1	1583.44	56.2	1583.44	56.3	1583.46
56.4	1583.47	57.6	1583.47	59.2	1583.37	59.7	1583.28	61.4	1583.31
61.4	1583.32	61.6	1583.34	61.8	1583.35	61.9	1583.37	62	1583.37
62	1583.38	66.4	1583.28	67.2	1583.38	68.9	1583.34	70	1583.44
72.8	1583.47	73.9	1583.41	74.3	1583.46	75.6	1583.46	77.5	1583.56
79.3	1583.53	80.6	1583.58	82.3	1583.89	82.3	1583.91	82.5	1583.96
82.6	1583.99	82.7	1584.02	82.9	1584.1	83.1	1584.19	83.1	1584.22
83.3	1584.31	83.4	1584.42	83.6	1584.5	83.8	1584.61	83.9	1584.66
85.9	1585.31	86.3	1585.5	86.4	1585.57	86.4	1585.6	86.5	1585.61
86.7	1585.71	87.3	1585.99	87.5	1586.15	87.7	1586.26	87.8	1586.29
88	1586.4	88.4	1586.62	88.5	1586.7	88.6	1586.76	88.7	1586.82
88.7	1586.86	88.7	1586.92	88.9	1587.07	89	1587.17	89.1	1587.27
89.2	1587.45	89.2	1587.48	89.3	1587.56	89.4	1587.71	89.5	1587.8
89.6	1588.02	89.7	1588.08	90	1588.63	90	1588.72	90.3	1589.2
90.4	1589.27	90.5	1589.41	90.6	1589.57	90.6	1589.64	90.7	1589.87
90.7	1589.88	90.9	1590.11	90.9	1590.19	91	1590.35	91.1	1590.5
91.2	1590.58	91.3	1590.77	91.3	1590.78	91.4	1590.97	91.5	1591.01
91.6	1591.1	91.8	1591.29	91.9	1591.31	92	1591.39	92	1591.42
92.2	1591.5	92.2	1591.55	92.3	1591.58	92.4	1591.68	92.5	1591.76
92.6	1591.8	92.8	1591.93	92.8	1591.95	93.2	1592.17	93.3	1592.24
93.4	1592.3	93.5	1592.35	93.5	1592.4	93.9	1592.58	93.9	1592.6
94	1592.64	94.1	1592.7	94.3	1592.84	94.4	1592.96	94.5	1592.99
94.6	1593.06	94.7	1593.16	94.8	1593.26	94.9	1593.32	95	1593.46
95.1	1593.51	97	1595.81	97.8	1596.56	98.4	1596.95	98.6	1597.03
98.9	1597.2	98.9	1597.22	99	1597.22	99.2	1597.32	99.2	1597.36
99.3	1597.41	99.5	1597.51	99.6	1597.52	99.8	1597.61	100.1	1597.75
100.3	1597.82	100.3	1597.84	100.5	1597.9	100.5	1597.93	100.6	1597.97

100.6	1597.98	100.7	1598	100.8	1598.06	100.9	1598.09	101.8	1598.77
103.6	1599.56	103.8	1599.7	104	1599.79	104.1	1599.92	104.2	1600.01
104.8	1600.33	104.8	1600.35	104.9	1600.4	104.9	1600.43	105.1	1600.49
105.6	1600.8	105.9	1600.93	105.9	1600.94	106.1	1601	106.2	1601.05
106.3	1601.08	106.4	1601.18	106.5	1601.19	106.5	1601.23	106.6	1601.29
106.7	1601.37	107.5	1601.77	107.6	1601.78	107.6	1601.79	107.6	1601.8
107.9	1601.91	107.9	1601.94	108.1	1601.99	108.1	1602	108.2	1602.01
108.3	1602.08	108.4	1602.11	108.5	1602.13	108.7	1602.18	108.7	1602.19
108.9	1602.23	109.8	1602.69	110.1	1602.78	110.3	1602.86	110.4	1602.87
110.4	1602.88	110.6	1602.93	110.7	1603.01	110.9	1603.07	110.9	1603.09
110.9	1603.1	111	1603.11	111.1	1603.17	111.2	1603.2	111.3	1603.24
111.4	1603.29	111.5	1603.31	111.5	1603.32	111.7	1603.41	111.7	1603.45
111.9	1603.49	112	1603.54	112	1603.56	112	1603.57	112.1	1603.58
112.4	1603.71	112.5	1603.75	112.6	1603.78	112.7	1603.81	112.9	1603.89
113	1603.93	113.1	1603.96	113.1	1604	113.2	1604.01	113.2	1604.03
113.4	1604.08	113.4	1604.1	113.5	1604.15	113.7	1604.23	113.8	1604.25
113.9	1604.3	114	1604.32	114.1	1604.37	114.1	1604.39	114.3	1604.43
114.3	1604.44	114.9	1604.61	115	1604.68	115.2	1604.76	115.4	1604.81
115.4	1604.83	115.5	1604.86	115.6	1604.9	115.6	1604.91	115.8	1604.98
115.9	1605.03	116	1605.04	116.2	1605.08	116.3	1605.13	116.5	1605.16
116.5	1605.17	116.6	1605.19	116.7	1605.21	116.8	1605.22	118.8	1605.88
118.9	1605.95	119.7	1606.3	120.1	1606.43	122	1607.23	126.8	1607.47
128.7	1607.5	132.4	1607.73	134.1	1607.73	134.8	1607.84	134.8	1607.85
134.9	1607.84	135.2	1607.82	135.4	1607.84	135.6	1607.85	135.7	1607.86
135.8	1607.88	135.9	1607.9	136	1607.9	136	1607.91	136.2	1607.93
136.2	1607.94	136.3	1607.95	136.5	1607.96	136.5	1607.97	136.6	1607.98
136.8	1608.03	136.9	1608.04	137	1608.05	137.1	1608.06	139.6	1608.1
139.7	1608.14	139.9	1608.16	140	1608.17	140.1	1608.19	140.3	1608.2
140.4	1608.22	148.2	1608.34	148.3	1608.36	148.4	1608.37	148.5	1608.38
149	1608.38	149.1	1608.38	149.2	1608.39	149.3	1608.39	149.4	1608.4
149.5	1608.4	149.6	1608.41	149.7	1608.41	149.8	1608.41	149.9	1608.41
150	1608.42	150.1	1608.43	150.2	1608.44	150.4	1608.44	150.6	1608.45
150.7	1608.47	153.2	1608.31	153.4	1608.33	153.5	1608.34	153.5	1608.35
153.7	1608.36	153.7	1608.37	153.8	1608.38	154	1608.41	154.1	1608.41
154.2	1608.41	154.7	1608.44	154.8	1608.44	154.9	1608.44	155	1608.44
155.2	1608.45	155.4	1608.46	155.4	1608.47	155.5	1608.48	155.6	1608.5
155.7	1608.51	155.8	1608.52	155.9	1608.53	157.7	1608.59	161.3	1608.94
162.7	1609	162.9	1609	163.2	1609	163.6	1609	163.7	1609
163.8	1609	164.2	1609.05	164.3	1609.06	164.4	1609.07	164.5	1609.08
164.6	1609.09	164.7	1609.11	164.8	1609.11	164.9	1609.13	165	1609.14
165.1	1609.16	165.2	1609.16	165.3	1609.18	165.5	1609.19	165.6	1609.21
165.7	1609.22	165.8	1609.23	165.9	1609.24	166	1609.25	166.1	1609.26
166.3	1609.28	166.4	1609.29	166.4	1609.3	166.8	1609.33	166.8	1609.34
166.9	1609.36	167	1609.38	167.2	1609.41	167.3	1609.43	167.4	1609.44
167.5	1609.45	167.6	1609.47	167.7	1609.49	167.7	1609.5	171.5	1609.8
171.7	1609.82	171.8	1609.84	171.9	1609.84	171.9	1609.85	172	1609.87
172.1	1609.88	172.2	1609.89	172.4	1609.9	172.4	1609.91	172.5	1609.91
172.6	1609.93	172.7	1609.94	172.9	1609.98	173	1610	176.3	1610.31
176.3	1610.32	176.4	1610.34	176.5	1610.36	176.6	1610.38	176.7	1610.39
176.9	1610.41	176.9	1610.42	177.1	1610.46	177.1	1610.47	180.6	1610.82

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	46.8	.025	89	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
46.8	89	186	186	193	.1	.3

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1589.39	Element			
Vel Head (ft)	1.77	Wt. n-Val.	0.040	0.025	0.040
W.S. Elev (ft)	1587.62	Reach Len. (ft)	186.00	186.00	193.00
Crit W.S. (ft)	1587.62	Flow Area (sq ft)	0.05	149.49	0.08
E.G. Slope (ft/ft)	0.006368	Area (sq ft)	0.05	149.49	0.08
Q Total (cfs)	1595.00	Flow (cfs)	0.03	1594.91	0.06
Top Width (ft)	42.94	Top Width (ft)	0.40	42.20	0.34
Vel Total (ft/s)	10.66	Avg. Vel. (ft/s)	0.63	10.67	0.77
Max Chl Dpth (ft)	4.34	Hydr. Depth (ft)	0.11	3.54	0.23
Conv. Total (cfs)	19988.1	Conv. (cfs)	0.4	19987.0	0.7
Length Wtd. (ft)	186.00	Wetted Per. (ft)	0.46	44.31	0.58
Min Ch El (ft)	1583.28	Shear (lb/sq ft)	0.04	1.34	0.05
Alpha	1.00	Stream Power (lb/ft s)	0.02	14.31	0.04
Frctn Loss (ft)	0.68	Cum Volume (acre-ft)	0.43	11.40	0.71
C & E Loss (ft)	0.28	Cum SA (acres)	0.43	3.83	0.73

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #FLOODWAY

			Left OB	Channel	Right OB
E.G. Elev (ft)	1589.39	Element			
Vel Head (ft)	1.76	Wt. n-Val.		0.025	
W.S. Elev (ft)	1587.63	Reach Len. (ft)	186.00	186.00	193.00
Crit W.S. (ft)	1587.63	Flow Area (sq ft)		150.08	
E.G. Slope (ft/ft)	0.006419	Area (sq ft)		150.08	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	42.20	Top Width (ft)		42.20	
Vel Total (ft/s)	10.63	Avg. Vel. (ft/s)		10.63	
Max Chl Dpth (ft)	4.35	Hydr. Depth (ft)		3.56	

Conv. Total (cfs)	19908.5	Conv. (cfs)		19908.5		
Length Wtd. (ft)	186.00	Wetted Per. (ft)		45.02		
Min Ch El (ft)	1583.28	Shear (lb/sq ft)		1.34		
Alpha	1.00	Stream Power (lb/ft s)		14.20		
Frctn Loss (ft)	0.69	Cum Volume (acre-ft)	0.01	11.42	0.21	
C & E Loss (ft)	0.28	Cum SA (acres)	0.02	3.82	0.17	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	37.44	46.80	0.03	0.05	0.46	0.00	0.11	0.63	0.04	0.02
2	Chan	46.80	55.24	161.80	21.02	9.52	10.14	2.49	7.70	0.88	6.75
3	Chan	55.24	63.68	424.16	35.79	8.48	26.59	4.24	11.85	1.68	19.87
4	Chan	63.68	72.12	426.97	35.87	8.45	26.77	4.25	11.90	1.69	20.08
5	Chan	72.12	80.56	405.21	34.76	8.45	25.41	4.12	11.66	1.64	19.07
6	Chan	80.56	89.00	176.77	22.05	9.40	11.08	2.61	8.02	0.93	7.47
7	ROB	89.00	107.32	0.06	0.08	0.58	0.00	0.23	0.77	0.05	0.04

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	46.80	55.24	160.44	21.14	9.77	10.06	2.50	7.59	0.87	6.58
2	Chan	55.24	63.68	426.05	35.90	8.48	26.71	4.25	11.87	1.70	20.12
3	Chan	63.68	72.12	428.87	35.99	8.45	26.89	4.26	11.92	1.71	20.33
4	Chan	72.12	80.56	407.09	34.88	8.45	25.52	4.13	11.67	1.65	19.31
5	Chan	80.56	89.00	172.55	22.17	9.86	10.82	2.63	7.78	0.90	7.01

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 1700

INPUT
Description:
Station Elevation Data num= 450

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

0	1590.14	1.6	1590.31	2.2	1590.31	2.4	1590.21
4.1	1589.86	5	1589.6	5.9	1589.5	7	1589.49
8	1589.62	8.8	1589.62	10.7	1589.47	11.3	1589.49
12.3	1589.69	14.2	1589.91	18.3	1589.97	20.6	1590.25
20.81	1590.244	22	1590.21	25.1	1589.5	25.7	1589.28
26.7	1588.79	27.3	1588.67	28.3	1588.22	28.6	1588.16
29.9	1587.47	30.5	1587.24	321	1586.814	32.4	1586.7
32.6	1586.56	32.8	1586.48	33.7	1586.17	35.6	1585.72
35.8	1585.62	36.4	1585.42	36.9	1585.12	38.2	1583.95
38.3	1583.94	38.3	1583.9	38.4	1583.79	38.8	1583.56
39.8	1582.77	40.6	1582.32	41.4	1581.99	42.3	1581.8
43.3	1581.78	45.2	1581.91	47.4	1581.85	47.5	1581.86
47.6	1581.88	47.8	1581.89	48.7	1581.91	51.9	1581.81
52.7	1581.92	52.8	1581.91	52.9	1581.88	53.2	1581.81
54.5	1581.91	55.1	1581.91	56.1	1581.79	57.2	1581.91
58.3	1581.91	58.8	1581.84	59.3	1581.96	60.8	1581.94
62.8	1582	66.3	1581.92	67.2	1582	70.8	1581.94
74.8	1582.16	76.2	1582.17	77.3	1582.38	77.8	1582.59
78	1582.76	78.6	1583.11	78.6	1583.15	78.9	1583.34
79	1583.44	79	1583.45	79.2	1583.6	79.4	1583.83
81.3	1584.67	81.3	1584.71	81.4	1584.82	81.5	1584.86
81.5	1584.88	81.6	1584.92	83.1	1586.16	83.9	1586.64
841	1586.658	84.5	1586.75	84.6	1586.8	84.6	1586.81
84.8	1586.89	85	1586.96	85	1586.98	85.2	1587.08
85.3	1587.12	85.4	1587.17	85.5	1587.24	87.2	1587.76
87.6	1587.97	87.7	1588.02	88.4	1588.51	88.5	1588.53
88.5	1588.55	88.7	1588.64	88.7	1588.67	88.9	1588.72
89	1588.77	89.1	1588.8	89.3	1588.91	89.3	1588.92
89.5	1588.97	89.7	1589.07	89.7	1589.11	89.8	1589.17
90	1589.27	90.1	1589.29	90.2	1589.34	90.2	1589.38
90.3	1589.46	90.6	1589.64	90.6	1589.65	90.6	1589.66
90.6	1589.68	90.8	1589.86	90.9	1589.91	91	1589.97
92.2	1590.58	92.3	1590.61	92.4	1590.63	92.5	1590.66
92.6	1590.7	92.8	1590.81	92.8	1590.82	93.3	1591.21
93.5	1591.3	93.6	1591.35	93.6	1591.38	93.7	1591.46
94.1	1591.73	94.2	1591.77	94.3	1591.86	94.5	1591.95
94.5	1591.97	94.6	1592.04	94.7	1592.08	94.9	1592.22
95.1	1592.33	95.2	1592.38	95.3	1592.47	95.3	1592.5
95.4	1592.57	95.5	1592.61	95.6	1592.71	95.7	1592.84
95.9	1592.92	96	1593	96.1	1593.08	96.2	1593.23
96.3	1593.27	96.5	1593.43	96.6	1593.51	97	1593.72
98.3	1593.9	101.8	1594.14	103	1594.72	104.2	1595.18
104.5	1595.21	104.8	1595.25	105	1595.29	105.9	1595.36
106.6	1595.36	108.5	1595.21	110.9	1595.43	111.8	1595.38
111.9	1595.43	112	1595.51	112.2	1595.61	112.5	1595.84
115.1	1596.6	115.1	1596.61	115.3	1596.67	115.4	1596.73
115.4	1596.75	116.6	1597.07	116.8	1597.12	117.9	1597.28
119.5	1597.72	119.5	1597.73	120.3	1598.09	120.3	1598.1
120.4	1598.13	120.5	1598.23	120.7	1598.29	120.7	1598.3
120.8	1598.36	120.9	1598.41	121.1	1598.52	121.1	1598.54
121.3	1598.6	121.3	1598.64	121.5	1598.73	121.6	1598.77
121.7	1598.8	121.8	1598.85	122	1598.98	122.4	1599.15
122.4	1599.16	122.5	1599.19	124.3	1600.41	124.8	1600.62
125	1600.67	126.2	1601.22	127.3	1602.15	127.4	1602.27
128.8	1603.13	129	1603.23	129.4	1603.42	130.2	1603.99
130.3	1604.05	130.4	1604.17	130.6	1604.27	130.7	1604.35
130.8	1604.39	131	1604.5	131.2	1604.6	131.2	1604.65
131.4	1604.72	131.4	1604.74	131.5	1604.82	131.7	1604.93
131.8	1604.94	131.8	1604.97	132.3	1605.19	132.3	1605.22
132.3	1605.23	132.4	1605.26	132.6	1605.35	132.7	1605.41
132.7	1605.42	132.8	1605.49	133.1	1605.6	133.3	1605.71
133.4	1605.76	133.9	1606.07	134	1606.09	134.1	1606.13
134.3	1606.2	134.4	1606.24				

```
   134.4 1606.25   135.6 1606.58   135.8 1606.62     136 1606.66   136.1 1606.66
   137.9 1606.65     138 1606.66   138.1 1606.66   138.2 1606.66   138.3 1606.67
   141.6 1606.59   144.3 1606.72   144.5  1606.7   144.6  1606.7   144.9 1606.71
   145.1 1606.69   147.8  1606.9   150.3 1606.94   150.4 1606.94   150.6 1606.97
   150.7    1607   150.8    1607   151.1 1607.02   151.2 1607.02   151.3 1607.02
   151.5 1607.03   154.8 1606.96   155.7 1606.82   157.6 1606.78   157.7 1606.77
   157.9 1606.76     158 1606.75   158.1 1606.74   158.3  1606.7   158.5 1606.69
   158.5 1606.68   158.6 1606.68   158.7 1606.67   158.8 1606.67   158.9 1606.66
     159 1606.65   159.3 1606.66   159.5 1606.64   159.6 1606.64   159.7 1606.64
   159.7 1606.65   159.8 1606.65   159.9 1606.65   161.2 1606.54   161.2 1606.55
   161.4 1606.56   161.5 1606.57   161.6 1606.57   161.7 1606.58   161.8 1606.58
   161.9 1606.58     162 1606.59   162.1 1606.61   162.2 1606.62   162.3 1606.64
   162.8 1606.68     163 1606.64   163.2 1606.63   163.3 1606.62   163.4 1606.62
   163.5 1606.62   163.6 1606.63   163.8 1606.64   163.9 1606.65     164 1606.65
   164.1 1606.66   164.2 1606.66   164.3 1606.66   164.6 1606.71   164.9 1606.72
   165.1  1606.7   165.2  1606.7   165.3 1606.69   165.4 1606.68   165.5 1606.68
   165.6 1606.69   165.7 1606.69   165.8 1606.68   165.9 1606.67     166 1606.67
   166.1 1606.68   166.2 1606.68   166.3 1606.69   166.5 1606.69   166.5  1606.7
   166.7  1606.7   166.8 1606.71   166.9 1606.71     167 1606.75   167.2 1606.74
   167.3 1606.74   167.4 1606.75   167.6 1606.74   167.8 1606.73   167.8 1606.72
   167.9 1606.73   168.1 1606.73   168.2 1606.74   169.9 1606.78   170.9 1606.71
   171.1 1606.71   172.1 1606.78   172.3 1606.77   172.5 1606.77   172.6 1606.75
   172.7 1606.75   172.9 1606.75   173.1 1606.74   173.2 1606.74   173.4 1606.75
   173.5 1606.76   173.6 1606.78   173.7 1606.78   173.8 1606.79   173.9  1606.8
     174 1606.81   174.3 1606.84   174.4 1606.84   174.5 1606.84   174.6 1606.83
   174.8 1606.79   174.8 1606.78     175 1606.78   175.1 1606.78   175.2 1606.78
   175.3 1606.78   175.5 1606.78   175.6 1606.78   175.8 1606.78   175.9 1606.78
     176 1606.78   176.2 1606.78   176.4 1606.78   180.1 1606.59   183.6 1606.52
   183.8 1606.51   183.9  1606.5   184.1 1606.47   184.2 1606.48   184.3 1606.49
   184.4  1606.5   184.5  1606.5   184.7  1606.5   184.9  1606.5     185 1606.51
   185.1 1606.52   185.2 1606.52   185.4 1606.53   185.5 1606.53   185.8  1606.5
     186  1606.5   186.1  1606.5   186.1 1606.51   186.2 1606.53   186.3 1606.54
   186.4 1606.54   186.6 1606.55   186.8 1606.59   186.9  1606.6     187 1606.62
   187.1 1606.62   187.2 1606.63   187.4 1606.65   187.7 1606.63   187.8 1606.64
   187.9 1606.64     188 1606.64   188.1 1606.65   188.2 1606.65   188.3 1606.64
   188.4 1606.63   188.5 1606.64   188.6 1606.64   188.7 1606.64   189.2 1606.66
   189.2 1606.67   189.4 1606.68   189.5 1606.69   189.7 1606.67   189.8 1606.66
   189.8 1606.65     190 1606.64   190.1 1606.62   190.3  1606.6   190.5 1606.62
   190.7 1606.64   192.7 1606.66   192.8 1606.66     193 1606.68   193.2 1606.69
   193.4 1606.71   193.5 1606.72   193.6 1606.72   193.8 1606.72   193.9 1606.72

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04      32    .025      84     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            32      84            150.2   150.2     160             .1       .3

CROSS SECTION OUTPUT  Profile #BFE
```

E.G. Elev (ft)	1587.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.83	Wt. n-Val.	0.040	0.025	0.040
W.S. Elev (ft)	1586.98	Reach Len. (ft)	150.20	150.20	160.00
Crit W.S. (ft)		Flow Area (sq ft)	0.05	218.59	0.19
E.G. Slope (ft/ft)	0.002387	Area (sq ft)	0.05	218.59	0.19
Q Total (cfs)	1595.00	Flow (cfs)	0.02	1594.88	0.11
Top Width (ft)	53.57	Top Width (ft)	0.57	52.00	1.00
Vel Total (ft/s)	7.29	Avg. Vel. (ft/s)	0.33	7.30	0.57
Max Chl Dpth (ft)	5.20	Hydr. Depth (ft)	0.08	4.20	0.19
Conv. Total (cfs)	32648.6	Conv. (cfs)	0.3	32646.0	2.2
Length Wtd. (ft)	150.20	Wetted Per. (ft)	0.59	54.88	1.07
Min Ch El (ft)	1581.78	Shear (lb/sq ft)	0.01	0.59	0.03
Alpha	1.00	Stream Power (lb/ft s)	0.00	4.33	0.02
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)	0.43	10.62	0.71
C & E Loss (ft)	0.02	Cum SA (acres)	0.42	3.63	0.72

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1587.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.83	Wt. n-Val.		0.025	
W.S. Elev (ft)	1586.97	Reach Len. (ft)	150.20	150.20	160.00
Crit W.S. (ft)		Flow Area (sq ft)		218.23	
E.G. Slope (ft/ft)	0.002427	Area (sq ft)		218.23	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	52.00	Top Width (ft)		52.00	
Vel Total (ft/s)	7.31	Avg. Vel. (ft/s)		7.31	
Max Chl Dpth (ft)	5.19	Hydr. Depth (ft)		4.20	
Conv. Total (cfs)	32375.1	Conv. (cfs)		32375.1	
Length Wtd. (ft)	150.20	Wetted Per. (ft)		55.34	
Min Ch El (ft)	1581.78	Shear (lb/sq ft)		0.60	
Alpha	1.00	Stream Power (lb/ft s)		4.37	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	0.01	10.64	0.21
C & E Loss (ft)	0.02	Cum SA (acres)	0.02	3.62	0.17

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	25.60	32.00	0.02	0.05	0.59	0.00	0.08	0.33	0.01	0.00
2	Chan	32.00	42.40	122.58	26.18	11.80	7.69	2.52	4.68	0.33	1.55
3	Chan	42.40	52.80	433.92	53.19	10.42	27.21	5.11	8.16	0.76	6.21
4	Chan	52.80	63.20	426.31	52.70	10.45	26.73	5.07	8.09	0.75	6.08

5	Chan	63.20	73.60	417.72	51.98	10.41	26.19	5.00	8.04	0.74
5.98										
6	Chan	73.60	84.00	194.34	34.54	11.80	12.18	3.32	5.63	0.44
2.45										
7	ROB	84.00	105.98	0.11	0.19	1.07	0.01	0.19	0.57	0.03
0.02										

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/fts)
1	Chan	32.00	42.40	121.62	26.11	11.95	7.63	2.51	4.66	0.33	1.54
2	Chan	42.40	52.80	435.30	53.12	10.42	27.29	5.11	8.19	0.77	6.33
3	Chan	52.80	63.20	427.66	52.63	10.45	26.81	5.06	8.13	0.76	6.20
4	Chan	63.20	73.60	419.03	51.90	10.41	26.27	4.99	8.07	0.76	6.10
5	Chan	73.60	84.00	191.39	34.46	12.11	12.00	3.31	5.55	0.43	2.39

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 1650

INPUT
Description:
Station Elevation Data num= 446

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1588.18	1.3	1588.21	3.5	1588.44	5	1588.44	7	1588.22
9.2	1588.1	10	1587.94	10.5	1587.89	11.3	1587.84	13.3	1587.87
15.1	1587.69	15.9	1587.69	18.1	1588.03	18.6	1588.06	20.6	1588.04
21.4	1588.11	22.7	1588.33	23.7	1588.36	24.7	1588.06	25.4	1587.81
27	1587.24	27.2	1587.21	28.7	1586.64	28.7	1586.62	29	1586.5
29.1	1586.46	29.1	1586.45	29.3	1586.41	29.5	1586.28	30	1586.12
32.4	1585.53	33.6	1585.28	34.1	1585.12	34.6	1585.02	35.4	1584.92
35.9	1584.69	36	1584.68	36.1	1584.62	36.3	1584.55	36.6	1584.41
36.8	1584.23	36.8	1584.22	36.9	1584.2	37.2	1583.96	37.3	1583.85
37.3	1583.76	37.5	1583.64	39.2	1581.35	39.5	1581.2	39.5	1581.14
40.3	1580.85	41.9	1580.69	42.1	1580.72	44.7	1580.72	44.9	1580.69
45.2	1580.69	45.4	1580.66	45.8	1580.66	46.7	1580.69	47.2	1580.67
48.5	1580.69	48.7	1580.67	48.7	1580.66	51.7	1580.69	53	1580.59
54.6	1580.62	56.8	1580.59	56.8	1580.6	57.1	1580.63	57.1	1580.64

57.2	1580.67	57.3	1580.68	59.9	1580.53	60	1580.53	60.1	1580.53
60.4	1580.56	60.8	1580.56	60.9	1580.56	64.2	1580.53	64.7	1580.57
64.7	1580.58	64.9	1580.62	64.9	1580.63	65	1580.65	65.1	1580.68
65.2	1580.68	65.2	1580.69	65.5	1580.74	65.6	1580.76	65.7	1580.78
67	1581.58	67.1	1581.68	67.2	1581.73	67.3	1581.81	67.3	1581.86
67.4	1581.94	67.9	1582.3	67.9	1582.36	68.2	1582.52	68.2	1582.54
68.2	1582.55	68.3	1582.66	68.4	1582.74	68.7	1582.92	68.7	1582.96
68.8	1583.02	68.9	1583.12	69.7	1583.68	69.7	1583.71	70	1583.72
70	1583.74	70.2	1583.84	70.3	1583.86	70.6	1583.95	70.7	1583.99
71.4	1584.1	71.7	1584.16	72.4	1584.23	72.5	1584.25	72.6	1584.28
72.6	1584.29	72.7	1584.32	73.2	1584.43	73.3	1584.45	73.5	1584.46
73.5	1584.47	73.5	1584.48	73.7	1584.54	73.8	1584.56	73.9	1584.57
74	1584.58	74.1	1584.6	74.3	1584.62	74.4	1584.64	74.4	1584.66
74.5	1584.68	74.6	1584.7	75	1584.87	75	1584.88	75.5	1585.05
75.5	1585.07	75.6	1585.11	75.7	1585.13	75.8	1585.17	75.9	1585.19
76	1585.21	76.1	1585.22	76.2	1585.24	76.3	1585.25	76.3	1585.26
76.7	1585.3	76.8	1585.31	77.9	1585.52	78	1585.55	78.1	1585.57
78.1	1585.58	78.3	1585.63	78.5	1585.71	78.6	1585.72	79	1585.82
80.6	1586.22	82.6	1586.89	83.4	1587.06	83.6	1587.16	83.7	1587.17
83.8	1587.2	83.9	1587.22	84.1	1587.31	84.2	1587.35	84.3	1587.36
84.9	1587.58	84.9	1587.59	85.8	1588	85.8	1588.01	85.9	1588.08
86	1588.13	86.1	1588.16	86.4	1588.34	86.4	1588.37	86.4	1588.39
86.7	1588.5	86.9	1588.63	87	1588.65	87.1	1588.7	87.2	1588.73
87.3	1588.77	87.3	1588.81	88.1	1589.26	88.2	1589.29	88.3	1589.36
88.4	1589.41	88.6	1589.51	88.7	1589.56	88.9	1589.62	88.9	1589.66
89	1589.74	89.2	1589.84	89.3	1589.92	89.3	1589.96	89.4	1590.03
89.7	1590.19	89.9	1590.34	90	1590.35	90	1590.38	90.2	1590.48
90.2	1590.5	90.2	1590.52	90.4	1590.6	91	1590.92	91	1591
91.3	1591.18	91.4	1591.31	91.5	1591.34	91.5	1591.37	91.7	1591.56
91.7	1591.57	91.9	1591.74	92	1591.78	92	1591.82	92.1	1591.91
92.2	1591.97	92.3	1592.05	92.4	1592.09	92.5	1592.17	92.6	1592.27
92.7	1592.39	92.8	1592.45	92.9	1592.53	93	1592.58	93	1592.61
93.2	1592.77	93.2	1592.79	93.7	1593.15	93.9	1593.26	94	1593.32
94.1	1593.4	94.2	1593.48	94.3	1593.55	95	1593.96	95	1593.97
95.2	1594.11	95.3	1594.12	95.3	1594.14	95.4	1594.19	95.5	1594.21
95.6	1594.25	95.7	1594.28	95.8	1594.31	95.9	1594.36	95.9	1594.37
96	1594.42	96.1	1594.45	96.2	1594.48	96.5	1594.61	96.8	1594.68
97.1	1594.83	97.2	1594.88	97.6	1595.04	97.8	1595.1	97.9	1595.12
98	1595.13	98	1595.14	98.1	1595.15	98.3	1595.22	98.3	1595.23
98.5	1595.28	98.6	1595.29	98.8	1595.37	99	1595.46	100.5	1595.78
100.6	1595.8	100.7	1595.83	100.8	1595.86	101.4	1595.98	101.6	1596.04
101.8	1596.09	101.9	1596.09	102	1596.11	102.1	1596.12	102.2	1596.12
102.3	1596.12	102.5	1596.12	102.6	1596.11	102.7	1596.11	102.8	1596.1
102.9	1596.11	103.1	1596.16	103.3	1596.18	103.3	1596.19	103.6	1596.19
105.8	1596.2	105.9	1596.22	106	1596.22	106.3	1596.24	107.6	1596.47
107.7	1596.47	107.9	1596.47	108	1596.47	108.1	1596.47	108.2	1596.47
108.3	1596.47	108.4	1596.47	108.7	1596.44	108.8	1596.44	108.9	1596.44
109	1596.43	110.1	1596.37	110.2	1596.38	110.5	1596.38	110.6	1596.39
110.7	1596.39	110.8	1596.4	110.9	1596.41	111	1596.41	111.1	1596.41
111.2	1596.41	111.2	1596.42	111.4	1596.44	111.5	1596.44	111.6	1596.44

111.7	1596.44	112	1596.44	112.1	1596.46	112.2	1596.47	112.3	1596.47
112.3	1596.48	112.4	1596.48	112.6	1596.49	112.7	1596.5	112.8	1596.51
112.9	1596.52	113	1596.53	113.2	1596.56	113.3	1596.56	113.4	1596.56
113.5	1596.56	113.7	1596.56	113.8	1596.57	113.9	1596.57	114	1596.57
114.1	1596.58	114.1	1596.59	114.2	1596.59	114.3	1596.6	114.4	1596.61
114.5	1596.62	117.5	1596.61	117.6	1596.59	117.7	1596.58	117.8	1596.56
117.8	1596.55	118	1596.54	118	1596.53	118.1	1596.52	118.3	1596.46
118.5	1596.44	118.6	1596.43	118.7	1596.41	118.8	1596.41	118.9	1596.4
118.9	1596.39	119	1596.38	119.3	1596.34	119.4	1596.33	119.4	1596.32
119.5	1596.31	119.6	1596.31	119.7	1596.29	119.8	1596.28	120	1596.26
120	1596.25	120.2	1596.22	120.3	1596.22	120.5	1596.19	120.6	1596.17
121	1596.12	122.4	1596.13	122.6	1596.14	122.8	1596.18	122.9	1596.19
123	1596.21	123.1	1596.22	123.3	1596.25	123.6	1596.26	124	1596.29
124.2	1596.31	124.2	1596.32	124.3	1596.33	125.3	1596.48	125.7	1596.49
126	1596.49	126.1	1596.49	126.2	1596.49	126.3	1596.49	126.9	1596.51
127.1	1596.55	132.2	1596.59	132.3	1596.6	132.3	1596.61	132.4	1596.61
132.6	1596.62	132.7	1596.64	132.9	1596.59	133.2	1596.59	133.3	1596.59
133.4	1596.59	133.5	1596.59	133.6	1596.59	133.7	1596.59	133.9	1596.55
133.9	1596.53	134.1	1596.5	134.1	1596.49	134.3	1596.44	134.4	1596.44
134.5	1596.43	134.7	1596.43	134.7	1596.44	135	1596.47	135.2	1596.38
135.3	1596.36	135.4	1596.33	135.5	1596.31	135.5	1596.3	135.6	1596.28
135.7	1596.26	136.3	1596.24	136.6	1596.22	136.9	1596.19	137	1596.19
137.1	1596.17	137.9	1596.14	138	1596.13	138.2	1596.16	138.3	1596.16
138.5	1596.18	138.7	1596.19	138.7	1596.2	138.9	1596.19	139.3	1596.17
139.3	1596.18	139.5	1596.18	139.6	1596.18	139.7	1596.18	139.8	1596.18
139.9	1596.19								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	30	.025	79	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
30	79	187.1	187.1	187.1	.1	.3

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1587.39	Element			
Vel Head (ft)	0.98	Wt. n-Val.	0.040	0.025	0.040
W.S. Elev (ft)	1586.40	Reach Len. (ft)	187.10	187.10	187.10
Crit W.S. (ft)		Flow Area (sq ft)	0.11	200.37	0.66
E.G. Slope (ft/ft)	0.003000	Area (sq ft)	0.11	200.37	0.66
Q Total (cfs)	1595.00	Flow (cfs)	0.06	1594.34	0.60
Top Width (ft)	51.83	Top Width (ft)	0.69	49.00	2.14
Vel Total (ft/s)	7.93	Avg. Vel. (ft/s)	0.58	7.96	0.91
Max Chl Dpth (ft)	5.87	Hydr. Depth (ft)	0.16	4.09	0.31
Conv. Total (cfs)	29119.2	Conv. (cfs)	1.2	29107.1	11.0
Length Wtd. (ft)	187.10	Wetted Per. (ft)	0.75	52.44	2.22
Min Ch El (ft)	1580.53	Shear (lb/sq ft)	0.03	0.72	0.06
Alpha	1.01	Stream Power (lb/ft s)	0.02	5.69	0.05
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)	0.43	9.89	0.71

C & E Loss (ft)	0.02	Cum SA (acres)	0.42	3.46	0.72

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1587.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.00	Wt. n-Val.		0.025	
W.S. Elev (ft)	1586.36	Reach Len. (ft)	187.10	187.10	187.10
Crit W.S. (ft)		Flow Area (sq ft)		198.34	
E.G. Slope (ft/ft)	0.003168	Area (sq ft)		198.34	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	49.00	Top Width (ft)		49.00	
Vel Total (ft/s)	8.04	Avg. Vel. (ft/s)		8.04	
Max Chl Dpth (ft)	5.83	Hydr. Depth (ft)		4.05	
Conv. Total (cfs)	28336.7	Conv. (cfs)		28336.7	
Length Wtd. (ft)	187.10	Wetted Per. (ft)		53.22	
Min Ch El (ft)	1580.53	Shear (lb/sq ft)		0.74	
Alpha	1.00	Stream Power (lb/ft s)		5.93	
Frctn Loss (ft)	0.63	Cum Volume (acre-ft)	0.01	9.92	0.21
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	3.45	0.17

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	24.00	30.00	0.06	0.11	0.75	0.00	0.16	0.58	0.03	0.02
2	Chan	30.00	39.80	75.14	18.98	11.65	4.71	1.94	3.96	0.31	1.21
3	Chan	39.80	49.60	505.49	55.72	9.86	31.69	5.69	9.07	1.06	9.60
4	Chan	49.60	59.40	519.29	56.57	9.83	32.56	5.77	9.18	1.08	9.89
5	Chan	59.40	69.20	427.14	52.18	10.78	26.78	5.32	8.19	0.91	7.43
6	Chan	69.20	79.00	67.28	16.92	10.32	4.22	1.73	3.98	0.31	1.22
7	ROB	79.00	91.18	0.60	0.66	2.22	0.04	0.31	0.91	0.06	0.05

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)

1	Chan	30.00	39.80	72.73	18.58	11.89	4.56	1.90	3.92	0.31
1.21										
2	Chan	39.80	49.60	507.96	55.31	9.86	31.85	5.64	9.18	1.11
10.19										
3	Chan	49.60	59.40	521.92	56.16	9.83	32.72	5.73	9.29	1.13
10.50										
4	Chan	59.40	69.20	428.87	51.78	10.78	26.89	5.28	8.28	0.95
7.87										
5	Chan	69.20	79.00	63.52	16.52	10.86	3.98	1.69	3.85	0.30
1.16										

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 1600

INPUT
Description:
Station Elevation Data num= 447

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1588.52	1.8	1588.57	3.9	1588.44	6.4	1588.46	6.8	1588.4
7.5	1588.44	8.7	1588.34	9.4	1588.36	12.4	1588.09	13	1587.96
14.4	1587.87	14.7	1587.72	15.4	1587.76	16.7	1587.59	18	1587.56
21.8	1587.22	22.7	1587.18	24.6	1587.25	26.7	1587.16	30.8	1587.25
33.1	1587.16	35.9	1586.87	36.4	1586.74	38.5	1586.4	38.91	1586.231
39.4	1586.02	40.7	1585.8	42.2	1585.38	44.4	1584.99	44.6	1584.91
44.8	1584.84	45.9	1584.58	46.9	1584.22	48.7	1583.24	49.4	1582.74
49.8	1582.56	49.8	1582.51	51.1	1581.91	51.1	1581.88	51.2	1581.83
51.5	1581.56	51.5	1581.5	52.1	1580.74	52.7	1580.22	54.6	1579.1
54.9	1579.04	58.7	1579.06	59.4	1579	62.5	1579.06	64.5	1578.97
67	1579.46	67.4	1579.59	67.9	1579.94	68.1	1580.02	68.2	1580.07
68.3	1580.18	69.6	1580.82	71	1581.25	71.7	1581.6	73.6	1582.77
74	1582.91	74.2	1583.04	74.4	1583.11	76.6	1583.6	791	1583.876
79.3	1583.91	80.9	1584.01	82.2	1583.91	83.8	1584	86.6	1584
88.7	1584.15	92.4	1584.09	95.2	1584.21	96	1584.15	98.7	1584.15
104.1	1584.28	111.8	1584.09	112.9	1584.17	113	1584.19	113.1	1584.19
113.3	1584.2	113.4	1584.22	113.6	1584.25	113.7	1584.26	113.7	1584.27
116.9	1584.38	118.9	1584.53	126.9	1584.64	128.8	1584.81	131.4	1584.79
133.5	1584.97	136.6	1585	139.5	1585.16	139.6	1585.16	139.7	1585.16
140.3	1585.16	140.5	1585.16	144.8	1585.41	146.2	1585.66	146.4	1585.68
146.5	1585.69	146.6	1585.7	146.7	1585.71	146.8	1585.72	147.1	1585.78
148.3	1585.91	150.8	1585.88	151.6	1585.95	151.7	1585.96	151.8	1585.97
151.9	1585.97	152.2	1585.97	154	1585.91	158.3	1586	158.4	1586.01
158.9	1586.09	160	1586.11	162.7	1586.08	164.1	1586.16	167.5	1586.18
170.6	1586.67	170.6	1586.69	170.7	1586.71	170.9	1586.73	170.9	1586.74
170.9	1586.75	171.1	1586.79	171.2	1586.82	171.3	1586.84	171.3	1586.85
171.4	1586.88	171.7	1586.95	171.9	1587	172.1	1587.1	172.2	1587.11
172.2	1587.12	172.3	1587.18	172.5	1587.25	172.5	1587.26	172.6	1587.29

172.7	1587.38	172.8	1587.46	172.9	1587.51	173	1587.57	173.1	1587.62
173.1	1587.67	173.2	1587.75	173.4	1587.86	173.4	1587.87	173.4	1587.88
173.6	1588	173.7	1588.11	173.8	1588.14	174	1588.33	174.2	1588.47
174.3	1588.51	174.4	1588.55	174.5	1588.62	174.6	1588.7	174.8	1588.82
175	1588.91	175.1	1588.93	175.2	1588.97	175.4	1589.03	175.5	1589.08
175.6	1589.1	175.7	1589.16	175.8	1589.17	175.9	1589.21	175.9	1589.22
175.9	1589.23	176.1	1589.31	176.2	1589.35	176.3	1589.38	176.6	1589.48
176.8	1589.53	177.1	1589.64	177.2	1589.66	177.2	1589.67	177.4	1589.69
177.4	1589.7	177.5	1589.72	177.7	1589.76	177.8	1589.76	177.9	1589.77
178.1	1589.78	179	1589.78	179.1	1589.82	179.2	1589.85	179.3	1589.87
179.3	1589.88	179.5	1589.98	179.6	1590.04	179.7	1590.07	179.9	1590.21
180	1590.28	180.2	1590.38	180.2	1590.4	180.2	1590.41	180.4	1590.49
180.4	1590.5	180.5	1590.58	180.6	1590.6	180.7	1590.72	180.9	1590.79
180.9	1590.82	181	1590.87	181.2	1590.92	181.5	1591	181.5	1591.03
181.6	1591.09	181.8	1591.15	181.8	1591.17	182.7	1591.63	182.9	1591.7
183	1591.76	183.1	1591.79	183.2	1591.83	183.3	1591.89	183.4	1591.99
183.6	1592.09	183.6	1592.12	183.6	1592.13	183.8	1592.21	183.9	1592.3
184	1592.33	184.1	1592.43	184.3	1592.5	184.4	1592.6	184.5	1592.65
184.8	1592.89	184.9	1592.9	184.9	1592.91	185	1593.02	185.2	1593.13
185.2	1593.15	185.3	1593.19	185.4	1593.28	185.5	1593.35	185.6	1593.39
185.8	1593.47	185.8	1593.49	186.1	1593.66	186.3	1593.74	186.4	1593.81
186.5	1593.84	186.5	1593.88	186.7	1593.94	186.7	1593.99	186.8	1594.05
187	1594.18	187.2	1594.26	188.4	1595.05	190.8	1596.15	191.1	1596.37
191.7	1596.9	191.9	1597.06	192	1597.2	192.6	1597.75	192.7	1597.82
192.9	1597.93	193	1597.99	193.1	1598.05	193.3	1598.15	193.5	1598.27
193.6	1598.3	194	1598.47	194.2	1598.56	194.3	1598.72	194.5	1598.84
194.6	1598.97	194.9	1599.3	195	1599.48	195.1	1599.58	195.2	1599.79
195.4	1600.04	195.4	1600.1	195.6	1600.33	195.7	1600.5	195.8	1600.61
196	1600.89	196	1600.99	196.1	1601.16	196.3	1601.42	196.3	1601.46
196.3	1601.49	196.5	1601.74	196.6	1601.97	196.7	1602.02	196.7	1602.08
196.9	1602.29	197	1602.45	197	1602.56	197.1	1602.7	197.2	1602.79
197.3	1602.85	197.4	1602.93	197.6	1603	197.9	1603	198	1603
198.1	1603.01	198.2	1603.02	198.3	1603.02	198.4	1603.03	198.7	1603.03
198.8	1603.03	199	1603.05	200.3	1603.06	202.6	1603.16	202.8	1603.16
202.9	1603.15	203.1	1603.16	203.5	1603.15	203.7	1603.14	203.8	1603.14
203.8	1603.15	203.9	1603.14	204	1603.13	204.1	1603.12	204.2	1603.13
204.3	1603.15	204.4	1603.16	204.5	1603.16	204.7	1603.18	204.9	1603.19
205	1603.19	205.1	1603.19	205.2	1603.21	205.3	1603.22	205.4	1603.23
205.6	1603.25	205.8	1603.25	206	1603.25	206.2	1603.25	206.5	1603.27
206.9	1603.34	207.2	1603.36	207.2	1603.37	207.3	1603.38	208.8	1603.38
209	1603.41	209.2	1603.44	209.3	1603.46	209.6	1603.47	212.8	1603.56
213.7	1603.62	214	1603.68	214	1603.69	214.3	1603.72	216.8	1604.01
217.8	1603.95	220.1	1604.02	220.2	1604.01	220.3	1604.01	220.5	1604
220.6	1603.99	220.6	1603.98	220.8	1603.96	220.9	1603.96	221.1	1603.95
221.2	1603.95	221.3	1603.95	221.7	1603.91	221.9	1603.89	222	1603.88
223.5	1603.84	224.3	1603.88	224.5	1603.91	224.6	1603.91	224.7	1603.91
224.8	1603.91	224.9	1603.91	225.1	1603.91	225.3	1603.93	225.4	1603.94
225.5	1603.94	225.7	1603.94	226	1603.94	226.1	1603.94	226.2	1603.94
226.3	1603.94	226.4	1603.94	226.6	1603.94	226.7	1603.94	226.8	1603.94
226.9	1603.94	227	1603.94	227.1	1603.94	227.3	1603.94	227.4	1603.93

227.6	1603.93	227.8	1603.94	227.9	1603.94	228.2	1603.94	228.2	1603.95
228.3	1603.96	228.5	1603.97	228.6	1603.97	228.7	1603.98	228.8	1603.99
228.9	1604	229.1	1604	229.2	1604	229.4	1604	229.5	1604.01
229.6	1604.02	229.7	1604.03	229.8	1604.03	229.9	1604.06	230.1	1604.06
230.1	1604.07	230.2	1604.08	230.5	1604.09	230.6	1604.09	230.7	1604.09
230.8	1604.09	230.9	1604.09	231	1604.09	231.3	1604.09	231.4	1604.09
231.5	1604.09	231.6	1604.09	233.9	1604.24	234	1604.23	234.1	1604.23
234.1	1604.22	234.2	1604.21	234.3	1604.21	234.4	1604.21	234.4	1604.22
234.6	1604.22	234.7	1604.22	234.8	1604.22	234.9	1604.22	235	1604.23
235.1	1604.24	235.3	1604.25	235.6	1604.28	235.7	1604.28	235.9	1604.28
236.1	1604.28	236.2	1604.28	236.3	1604.28	236.4	1604.28	236.7	1604.28
237	1604.28	240.7	1604.41						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	38.9	.025	79	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
38.9	79	39	32.1	16	.1	.3

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1586.73	Element			
Vel Head (ft)	1.16	Wt. n-Val.		0.025	0.040
W.S. Elev (ft)	1585.57	Reach Len. (ft)	39.00	32.10	16.00
Crit W.S. (ft)	1585.57	Flow Area (sq ft)		154.16	74.25
E.G. Slope (ft/ft)	0.003963	Area (sq ft)		154.16	74.25
Q Total (cfs)	1595.00	Flow (cfs)		1408.63	186.37
Top Width (ft)	104.16	Top Width (ft)		37.47	66.69
Vel Total (ft/s)	6.98	Avg. Vel. (ft/s)		9.14	2.51
Max Chl Dpth (ft)	6.60	Hydr. Depth (ft)		4.11	1.11
Conv. Total (cfs)	25335.6	Conv. (cfs)		22375.2	2960.3
Length Wtd. (ft)	31.16	Wetted Per. (ft)		40.40	66.79
Min Ch El (ft)	1578.97	Shear (lb/sq ft)		0.94	0.28
Alpha	1.53	Stream Power (lb/ft s)		8.63	0.69
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	0.43	9.13	0.55
C & E Loss (ft)	0.02	Cum SA (acres)	0.42	3.27	0.57

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #FLOODWAY

			Left OB	Channel	Right OB
E.G. Elev (ft)	1586.74	Element			
Vel Head (ft)	1.04	Wt. n-Val.		0.025	0.040
W.S. Elev (ft)	1585.69	Reach Len. (ft)	39.00	32.10	16.00

Crit W.S. (ft)	1585.54	Flow Area (sq ft)		158.76	82.44	
E.G. Slope (ft/ft)	0.003537	Area (sq ft)		158.76	82.44	
Q Total (cfs)	1595.00	Flow (cfs)		1387.15	207.85	
Top Width (ft)	105.42	Top Width (ft)		37.91	67.51	
Vel Total (ft/s)	6.61	Avg. Vel. (ft/s)		8.74	2.52	
Max Chl Dpth (ft)	6.72	Hydr. Depth (ft)		4.19	1.22	
Conv. Total (cfs)	26820.4	Conv. (cfs)		23325.4	3495.0	
Length Wtd. (ft)	31.05	Wetted Per. (ft)		40.85	67.62	
Min Ch El (ft)	1578.97	Shear (lb/sq ft)		0.86	0.27	
Alpha	1.54	Stream Power (lb/ft s)		7.50	0.68	
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	0.01	9.15	0.03	
C & E Loss (ft)	0.02	Cum SA (acres)	0.02	3.26	0.03	

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	38.90	46.92	7.58	3.31	5.58	0.48	0.61	2.29	0.15	0.34
2	Chan	46.92	54.94	221.20	31.32	9.73	13.87	3.90	7.06	0.80	5.63
3	Chan	54.94	62.96	592.27	52.36	8.02	37.13	6.53	11.31	1.61	18.26
4	Chan	62.96	70.98	466.07	46.38	8.49	29.22	5.78	10.05	1.35	13.59
5	Chan	70.98	79.00	121.52	20.79	8.58	7.62	2.59	5.84	0.60	3.50
6	ROB	79.00	111.34	132.82	46.85	32.37	8.33	1.45	2.84	0.36	1.02
7	ROB	111.34	143.68	53.37	27.12	32.39	3.35	0.84	1.97	0.21	0.41
8	ROB	143.68	176.02	0.17	0.29	2.03	0.01	0.14	0.60	0.03	0.02

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)

1	Chan	38.90	46.92	9.31	4.00	6.03	0.58	0.69	2.33	0.15
0.34										
2	Chan	46.92	54.94	220.13	32.30	9.73	13.80	4.03	6.82	0.73
5.00										
3	Chan	54.94	62.96	577.47	53.34	8.02	36.20	6.65	10.83	1.47
15.89										
4	Chan	62.96	70.98	456.21	47.36	8.49	28.60	5.90	9.63	1.23
11.87										
5	Chan	70.98	79.00	124.04	21.77	8.58	7.78	2.71	5.70	0.56
3.19										
6	ROB	79.00	111.34	144.01	50.80	32.37	9.03	1.57	2.84	0.35
0.98										
7	ROB	111.34	143.68	63.42	31.07	32.39	3.98	0.96	2.04	0.21
0.43										
8	ROB	143.68	176.02	0.41	0.57	2.86	0.03	0.20	0.72	0.04
0.03										

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 1550

INPUT
Description:
Station Elevation Data num= 449

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1586.62	1.8	1586.69	2.9	1586.65	4	1586.81	4.9	1586.78
6.4	1586.84	7	1586.91	8.4	1586.88	10.3	1586.99	10.7	1586.97
12.3	1587.16	15.7	1587.33	17.5	1587.25	20.9	1587.29	22.3	1587.22
22.9	1587.25	24.9	1587.16	25.4	1587.06	26.9	1587.06	27.9	1587
32.7	1587.06	35.6	1586.89	37.5	1586.88	39.2	1586.94	39.7	1586.87
41.1	1586.91	42.3	1586.88	42.3	1586.87	42.4	1586.85	42.9	1586.93
43.9	1586.92	44.2	1586.97	45.5	1587.02	45.9	1587.08	51.8	1587.06
52.2	1587.11	52.3	1587.15	52.4	1587.16	52.9	1587.13	55.2	1586.5
55.2	1586.47	55.3	1586.43	55.4	1586.39	55.5	1586.37	55.7	1586.33
59.4	1585.09	59.7	1585.05	59.9	1584.98	60.1	1584.94	60.2	1584.91
60.2	1584.9	60.5	1584.85	60.6	1584.79	60.7	1584.72	60.8	1584.7
60.9	1584.65	60.9	1584.64	63.3	1583.98	63.6	1583.85	63.7	1583.81
63.8	1583.77	63.9	1583.76	63.9	1583.75	63.9	1583.74	64.1	1583.7
64.1	1583.67	64.2	1583.64	64.4	1583.61	64.4	1583.6	64.4	1583.59
64.5	1583.59	64.6	1583.54	64.7	1583.52	64.8	1583.49	65	1583.47
65	1583.46	65.3	1583.36	65.4	1583.33	65.5	1583.26	65.5	1583.25
65.6	1583.25	65.7	1583.19	65.8	1583.16	66.1	1583.1	66.9	1582.86
67.5	1582.58	68.5	1582.46	69.1	1582.31	70	1582.19	70.1	1582.17
70.2	1582.15	70.4	1582.11	71.7	1581.71	72.6	1581.3	72.6	1581.27
72.7	1581.21	72.8	1581.15	72.8	1581.12	73.2	1580.87	73.9	1580.34
74	1580.31	74.1	1580.23	74.1	1580.22	74.2	1580.13	74.4	1580.05
74.5	1579.99	74.5	1579.96	74.7	1579.89	74.7	1579.88	74.8	1579.82

74.8	1579.8	74.9	1579.76	75.1	1579.67	75.2	1579.6	75.3	1579.57
75.4	1579.49	75.5	1579.45	75.6	1579.39	75.6	1579.36	75.8	1579.29
76	1579.19	76	1579.16	76.1	1579.1	77.7	1578.77	79.6	1578.64
80.4	1578.75	83.2	1578.78	83.3	1578.79	83.4	1578.81	83.5	1578.81
83.6	1578.82	83.7	1578.84	83.8	1578.84	84	1578.84	84.1	1578.84
84.5	1578.86	84.6	1578.88	84.7	1578.88	84.9	1578.87	85	1578.85
85.1	1578.84	85.2	1578.82	85.3	1578.82	85.6	1578.81	85.7	1578.81
86.7	1578.93	86.9	1578.94	87	1578.94	87.1	1578.94	87.3	1578.94
87.4	1578.94	87.6	1578.94	88.8	1579.03	89.1	1579.02	90.5	1579.19
90.5	1579.2	90.6	1579.23	90.8	1579.28	90.9	1579.3	91	1579.34
91.1	1579.35	91.2	1579.39	91.3	1579.41	91.4	1579.43	91.4	1579.44
91.4	1579.46	91.6	1579.55	91.8	1579.62	91.9	1579.65	91.9	1579.66
92	1579.68	92.1	1579.76	92.3	1579.86	92.4	1579.92	92.5	1579.95
93	1580.3	93.1	1580.31	93.1	1580.33	93.6	1580.7	93.8	1580.77
93.9	1580.82	94	1580.87	94.1	1580.94	94.2	1580.96	94.2	1580.97
94.4	1581.06	94.4	1581.12	94.5	1581.18	94.7	1581.27	94.7	1581.28
94.7	1581.29	94.9	1581.4	95	1581.45	95.1	1581.5	95.3	1581.59
95.5	1581.65	95.6	1581.67	95.7	1581.71	95.8	1581.78	95.9	1581.78
96	1581.85	96.1	1581.88	96.2	1581.92	96.4	1582	96.4	1582.01
97	1582.22	97.1	1582.32	97.3	1582.36	97.3	1582.39	97.5	1582.44
97.6	1582.45	97.8	1582.53	97.9	1582.55	98	1582.58	98.1	1582.59
98.1	1582.6	98.6	1582.78	98.9	1582.82	100.5	1582.67	101.1	1582.58
101.2	1582.55	101.2	1582.54	101.4	1582.51	101.4	1582.5	101.61	1582.463
102	1582.39	105	1582.7	105	1582.71	105.1	1582.72	105.7	1582.88
107.3	1583.09	107.4	1583.09	107.6	1583.08	107.7	1583.08	108.2	1583.03
108.4	1583.03	108.5	1583.03	108.8	1583	108.9	1582.99	109	1582.97
109.1	1582.97	109.2	1582.96	109.3	1582.95	110.9	1583.01	111.5	1582.99
111.8	1582.97	111.9	1582.97	113.1	1582.97	113.2	1582.97	113.3	1582.96
113.5	1582.97	113.6	1582.98	113.7	1582.98	113.8	1582.99	115.4	1583.03
117.3	1583.16	119.5	1583.18	119.6	1583.16	119.7	1583.16	119.8	1583.15
119.9	1583.14	120	1583.13	120.1	1583.12	120.2	1583.12	120.4	1583.11
120.5	1583.1	120.5	1583.09	123.2	1583.04	123.3	1583.01	123.4	1583
123.4	1582.99	123.5	1582.95	123.6	1582.92	123.7	1582.88	123.9	1582.82
123.9	1582.81	124.1	1582.79	124.3	1582.8	124.5	1582.81	124.7	1582.83
124.8	1582.83	125	1582.84	127.6	1583.25	127.8	1583.25	127.9	1583.24
128	1583.23	128.1	1583.22	128.2	1583.22	128.3	1583.22	128.4	1583.22
128.5	1583.23	128.6	1583.25	128.7	1583.27	129.4	1583.33	129.5	1583.34
129.5	1583.35	129.6	1583.35	129.8	1583.36	129.9	1583.37	130	1583.38
130.2	1583.39	130.2	1583.4	130.9	1583.43	131	1583.43	131.1	1583.44
131.2	1583.44	131.3	1583.45	131.5	1583.46	131.6	1583.47	131.7	1583.47
131.8	1583.47	131.9	1583.47	132	1583.47	132.1	1583.47	132.2	1583.47
132.3	1583.47	132.5	1583.45	132.6	1583.44	132.7	1583.47	133.7	1583.59
134	1583.59	134.1	1583.61	134.2	1583.61	134.3	1583.63	134.4	1583.64
134.5	1583.65	134.6	1583.66	134.8	1583.66	134.9	1583.66	135.1	1583.68
135.1	1583.69	135.3	1583.7	135.3	1583.71	136.8	1583.75	137.6	1583.87
137.7	1583.87	137.7	1583.88	137.9	1583.89	138	1583.9	139.2	1583.96
140.5	1583.97	142.6	1584.09	142.7	1584.09	142.8	1584.09	142.9	1584.09
143	1584.09	143.1	1584.09	143.2	1584.09	143.3	1584.09	143.4	1584.09
143.7	1584.09	143.8	1584.09	146.8	1584.34	148.1	1584.38	148.2	1584.39
148.3	1584.42	148.4	1584.42	148.5	1584.43	148.6	1584.43	148.6	1584.44

148.7	1584.45	148.8	1584.47	148.9	1584.48	151.5	1584.63	152.5	1584.75
153.7	1584.78	157	1584.97	157.1	1584.96	157.3	1584.94	157.4	1584.94
157.5	1584.94	157.5	1584.93	157.6	1584.93	157.7	1584.91	157.8	1584.91
158	1584.91	158.1	1584.91	158.2	1584.91	158.3	1584.92	158.4	1584.93
158.5	1584.94	158.7	1584.94	159.3	1584.94	161	1584.88	161.2	1584.89
161.3	1584.89	161.6	1584.9	161.6	1584.91	161.7	1584.91	163.2	1584.87
163.3	1584.88	163.4	1584.88	163.6	1584.88	164.1	1584.93	164.2	1584.94
164.3	1584.94	164.5	1584.96	164.5	1584.97	164.7	1584.97	164.8	1584.97
164.9	1584.98	164.9	1584.99	165	1585	166.8	1585.09	167	1585.09
167.1	1585.1	167.2	1585.09	167.3	1585.09	167.5	1585.09	167.6	1585.09
167.7	1585.1	167.8	1585.12	168	1585.16	168.1	1585.18	168.2	1585.19
168.5	1585.22	168.6	1585.23	168.8	1585.25	168.9	1585.28	169.1	1585.29
169.3	1585.3	169.3	1585.31	169.4	1585.32	169.5	1585.32	169.6	1585.34
169.7	1585.34	169.8	1585.34	169.9	1585.35	170	1585.37	170.1	1585.37
170.2	1585.38	170.5	1585.41	170.6	1585.41	170.7	1585.43	170.8	1585.44
171	1585.44	171.1	1585.45	171.1	1585.47	171.3	1585.5	171.5	1585.54
171.6	1585.56	171.7	1585.57	171.8	1585.6	171.9	1585.62	172	1585.65
172.1	1585.65	172.2	1585.66	172.6	1585.71	175	1585.78		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	64.2	.025	101.6	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
64.2	101.6	10	10	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	64.2	1588	F
101.6	175	1588	F

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1586.53	Element			
Vel Head (ft)	1.32	Wt. n-Val.		0.025	
W.S. Elev (ft)	1585.21	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	1584.40	Flow Area (sq ft)		173.05	
E.G. Slope (ft/ft)	0.003378	Area (sq ft)	3.89	173.05	94.31
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	109.35	Top Width (ft)	5.16	37.40	66.80
Vel Total (ft/s)	9.22	Avg. Vel. (ft/s)		9.22	
Max Chl Dpth (ft)	6.57	Hydr. Depth (ft)		4.63	
Conv. Total (cfs)	27442.2	Conv. (cfs)		27442.2	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		39.71	
Min Ch El (ft)	1578.64	Shear (lb/sq ft)		0.92	
Alpha	1.00	Stream Power (lb/ft s)		8.47	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.43	9.01	0.52
C & E Loss (ft)	0.05	Cum SA (acres)	0.42	3.24	0.54

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

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1586.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.23	Wt. n-Val.		0.025	
W.S. Elev (ft)	1585.37	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	1584.42	Flow Area (sq ft)		178.94	
E.G. Slope (ft/ft)	0.003500	Area (sq ft)		178.94	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	37.40	Top Width (ft)		37.40	
Vel Total (ft/s)	8.91	Avg. Vel. (ft/s)		8.91	
Max Chl Dpth (ft)	6.73	Hydr. Depth (ft)		4.78	
Conv. Total (cfs)	26959.9	Conv. (cfs)		26959.9	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		44.34	
Min Ch El (ft)	1578.64	Shear (lb/sq ft)		0.88	
Alpha	1.00	Stream Power (lb/ft s)		7.86	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.01	9.03	0.02
C & E Loss (ft)	0.04	Cum SA (acres)	0.02	3.23	0.02

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

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	51.36	64.20	0.00	3.89	5.47	0.00	0.76	0.00	0.15	0.00
2	Chan	64.20	71.68	113.60	19.24	7.81	7.12	2.57	5.91	0.52	3.07
3	Chan	71.68	79.16	378.49	40.71	8.37	23.73	5.44	9.30	1.03	9.54
4	Chan	79.16	86.64	535.97	48.04	7.51	33.60	6.42	11.16	1.35	15.06
5	Chan	86.64	94.12	426.05	42.93	8.00	26.71	5.74	9.92	1.13	11.23
6	Chan	94.12	101.60	140.89	22.13	8.03	8.83	2.96	6.37	0.58	3.70
7	ROB	101.60	116.28	0.00	34.17	14.76	0.00	2.33	0.00	0.49	0.00
8	ROB	116.28	130.96	0.00	30.69	14.82	0.00	2.09	0.00	0.44	0.00
9	ROB	130.96	145.64	0.00	20.00	14.75	0.00	1.36	0.00	0.29	0.00
10	ROB	145.64	160.32	0.00	7.59	14.74	0.00	0.52	0.00	0.11	0.00
11	ROB	160.32	175.00	0.00	1.86	8.13	0.00	0.23	0.00	0.05	0.00

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

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	64.20	71.68	107.07	20.42	9.54	6.71	2.73	5.24	0.47	2.45
2	Chan	71.68	79.16	387.09	41.89	8.37	24.27	5.60	9.24	1.09	10.11
3	Chan	79.16	86.64	544.24	49.22	7.51	34.12	6.58	11.06	1.43	15.84
4	Chan	86.64	94.12	434.67	44.11	8.00	27.25	5.90	9.85	1.21	11.88
5	Chan	94.12	101.60	121.93	23.31	10.93	7.64	3.12	5.23	0.47	2.44

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

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 1540

INPUT
Description:
Station Elevation Data num= 448

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1586.84	1.9	1586.88	3.8	1586.75	5.2	1586.76	5.6	1586.69
7.2	1586.78	9.2	1586.72	10.6	1586.81	13.2	1586.78	13.9	1586.84
15	1586.79	16.6	1586.94	17.8	1586.94	18.3	1587	20.3	1587.06
20.9	1587	22.2	1586.98	22.9	1586.9	23	1586.93	23.8	1586.88
25.1	1586.91	25.4	1586.86	29.1	1586.87	29.9	1586.81	33.5	1586.82
34.4	1586.75	36.1	1586.78	37.2	1586.72	38.4	1586.53	39.1	1585.91
39.1	1585.87	39.2	1585.68	39.6	1585.38	40.8	1584.98	41.5	1584.84
42.9	1584.84	42.9	1584.86	43.6	1584.98	44.6	1585.13	45	1585.12
45.3	1585.02	45.5	1585.05	45.7	1585.07	45.7	1585.03	45.9	1585.02
46	1585.03	46.2	1585.26	46.3	1585.29	46.4	1585.32	46.5	1585.36
46.7	1585.32	47.4	1584.87	47.7	1584.84	47.8	1584.88	47.9	1584.86
48.2	1584.9	48.5	1584.82	48.8	1584.78	48.9	1584.79	49.1	1584.72
49.2	1584.75	49.6	1584.66	49.9	1584.81	50.5	1584.64	51.3	1584.75
51.4	1584.74	51.5	1584.73	51.7	1584.69	51.8	1584.68	51.8	1584.67
52.6	1584.63	52.7	1584.66	53.4	1584.3	53.5	1584.25	53.6	1584.23
53.9	1584.12	53.9	1584.13	54.1	1584.13	54.1	1584.14	54.3	1584.15

55.4	1584.44	55.5	1584.48	55.5	1584.49	56.3	1584.52	56.7	1584.47
57.8	1584.11	58.3	1583.99	58.4	1583.98	58.5	1583.97	58.6	1583.96
58.7	1583.96	58.8	1583.94	58.9	1583.93	58.9	1583.92	59	1583.9
59.3	1583.86	60.3	1583.53	61.7	1583.2	61.7	1583.18	61.9	1583.12
62	1583.06	62.8	1582.93	63.1	1582.78	63.4	1582.72	64.3	1582.49
64.5	1582.46	64.6	1582.42	64.6	1582.39	66.7	1581.94	66.8	1581.93
66.9	1581.92	67	1581.91	67	1581.88	67.7	1581.72	68.8	1581.28
68.9	1581.23	69	1581.18	69.3	1581.04	70	1580.79	70.2	1580.67
70.2	1580.66	70.4	1580.49	70.5	1580.42	70.6	1580.35	70.7	1580.22
70.8	1580.22	70.8	1580.21	71	1580.01	71.9	1579.53	72.2	1579.42
72.2	1579.38	72.4	1579.29	72.4	1579.28	72.9	1579.09	73.5	1578.91
73.5	1578.88	73.6	1578.87	73.7	1578.84	73.9	1578.81	73.9	1578.8
74	1578.78	74.1	1578.76	74.1	1578.75	75.1	1578.64	78	1578.65
80.6	1578.91	81.6	1578.91	82.7	1578.81	83.7	1578.81	83.8	1578.81
83.9	1578.81	84	1578.81	84.1	1578.82	84.3	1578.84	84.5	1578.77
84.7	1578.74	87.3	1578.84	87.4	1578.88	87.7	1578.91	87.8	1578.95
87.9	1578.99	88	1579.01	88.1	1579.03	88.2	1579.06	88.4	1579.11
88.5	1579.15	88.6	1579.16	88.7	1579.22	88.8	1579.24	88.9	1579.29
89	1579.3	89.1	1579.34	89.1	1579.35	89.2	1579.37	89.3	1579.4
89.4	1579.42	89.5	1579.46	89.5	1579.48	89.7	1579.53	89.7	1579.55
89.8	1579.59	89.9	1579.62	90	1579.67	90.1	1579.71	90.2	1579.74
90.2	1579.75	90.8	1579.97	90.8	1579.98	91	1580.05	91	1580.09
91.5	1580.3	91.6	1580.33	91.7	1580.36	91.9	1580.44	92.1	1580.53
92.2	1580.56	92.3	1580.6	92.4	1580.68	92.4	1580.69	92.5	1580.7
92.6	1580.76	93.6	1581.13	93.6	1581.14	93.6	1581.16	93.9	1581.27
94.9	1581.51	96.7	1582.12	96.8	1582.14	96.9	1582.16	97	1582.17
97.2	1582.2	97.2	1582.21	97.3	1582.22	98	1582.33	98.1	1582.33
98.2	1582.33	98.3	1582.31	98.4	1582.31	98.6	1582.28	98.91	1582.233
99.3	1582.17	99.5	1582.16	99.7	1582.15	99.8	1582.14	99.9	1582.13
100.1	1582.09	100.4	1582.08	100.7	1582.06	100.8	1582.05	100.9	1582.05
101	1582.05	101.1	1582.04	101.2	1582.03	101.3	1582.01	101.5	1582
101.9	1581.99	102	1581.99	102.1	1581.99	102.2	1581.98	104.2	1582.09
104.3	1582.09	104.5	1582.1	104.6	1582.09	104.7	1582.09	104.8	1582.09
104.9	1582.09	105.1	1582.1	105.4	1582.07	105.4	1582.06	105.7	1582.05
109.1	1582.06	110.2	1582.16	110.3	1582.16	110.6	1582.17	110.7	1582.18
110.8	1582.19	110.9	1582.19	111	1582.19	111	1582.2	111.4	1582.22
111.6	1582.23	111.7	1582.23	111.8	1582.22	111.9	1582.22	112.1	1582.17
112.2	1582.16	112.4	1582.13	112.5	1582.12	112.7	1582.1	112.7	1582.09
116.3	1582.03	116.4	1582.04	116.5	1582.06	116.7	1582.09	116.8	1582.11
116.9	1582.12	117.5	1582.19	117.5	1582.2	117.7	1582.22	117.7	1582.23
117.9	1582.26	118	1582.27	118.1	1582.28	118.2	1582.29	118.3	1582.3
118.4	1582.31	118.5	1582.32	118.6	1582.34	118.7	1582.34	118.8	1582.36
118.9	1582.39	118.9	1582.4	119	1582.41	119.1	1582.43	119.2	1582.44
119.3	1582.46	119.5	1582.5	119.7	1582.52	119.8	1582.53	119.9	1582.55
120	1582.59	120.1	1582.59	120.6	1582.75	121.2	1582.9	121.2	1582.91
121.2	1582.92	121.5	1583	121.7	1583.08	121.7	1583.09	121.9	1583.14
122	1583.17	122.1	1583.19	122.2	1583.23	122.3	1583.24	122.4	1583.25
122.6	1583.27	122.8	1583.29	122.8	1583.3	122.9	1583.3	123	1583.32
123.2	1583.35	123.2	1583.36	123.3	1583.38	123.4	1583.39	123.4	1583.4
123.7	1583.45	123.8	1583.45	123.9	1583.47	124	1583.49	124.1	1583.52

124.3	1583.54	124.4	1583.56	124.5	1583.58	124.7	1583.6	124.7	1583.61
124.9	1583.62	124.9	1583.63	125	1583.64	125.1	1583.66	126.7	1583.67
126.8	1583.67	126.9	1583.67	130.1	1583.85	130.3	1583.85	130.4	1583.84
131	1583.84	134.7	1583.91	134.9	1583.93	135.5	1583.95	135.6	1583.95
135.8	1583.96	135.8	1583.97	135.9	1583.97	136.1	1583.97	136.2	1583.97
136.3	1583.97	136.4	1583.97	136.6	1583.99	136.7	1584	136.9	1584.04
137	1584.06	140.1	1584.03	141.4	1584.12	144.6	1584.22	144.7	1584.23
145.1	1584.28	145.1	1584.29	148.8	1584.41	151.5	1584.64	152.1	1584.69
153.3	1584.7	153.4	1584.71	153.5	1584.71	153.6	1584.72	153.7	1584.73
153.8	1584.75	154	1584.76	154.1	1584.77	154.2	1584.78	154.4	1584.8
154.4	1584.81	154.6	1584.82	154.7	1584.83	154.7	1584.84	154.8	1584.84
154.9	1584.85	155	1584.86	155.1	1584.88	155.3	1584.9	155.3	1584.91
155.6	1584.92	155.7	1584.93	155.8	1584.94	155.9	1584.94	157.3	1585.12
157.3	1585.14	157.5	1585.17	157.5	1585.18	157.6	1585.18	157.7	1585.16
157.8	1585.16	158	1585.16	158.1	1585.16	158.3	1585.17	160.6	1585.31
160.7	1585.31	160.9	1585.31	160.9	1585.3	161	1585.29	161.1	1585.29
161.2	1585.29	161.3	1585.28	163.6	1585.31	165.1	1585.25	165.2	1585.25
165.3	1585.26	165.4	1585.26	165.5	1585.26	165.6	1585.27	165.7	1585.28
165.8	1585.28	166	1585.28	167.1	1585.28	167.3	1585.3	167.4	1585.3
167.5	1585.3	167.7	1585.31	167.8	1585.31	167.9	1585.31	168.1	1585.33
168.2	1585.33	168.2	1585.34	168.5	1585.34	168.6	1585.36	168.7	1585.37
168.9	1585.38	169	1585.37	169.2	1585.38	169.4	1585.38	169.6	1585.4
169.8	1585.41	169.9	1585.41	170.1	1585.43	170.5	1585.47	170.7	1585.51
170.8	1585.53	170.9	1585.54	171	1585.56				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	63.1	.025	98.9	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
63.1	98.9	99	99	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	63.1	1588	F
98.9	171	1588	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1586.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.15	Wt. n-Val.		0.025	
W.S. Elev (ft)	1585.30	Reach Len. (ft)	99.00	99.00	99.00
Crit W.S. (ft)	1584.07	Flow Area (sq ft)		185.28	
E.G. Slope (ft/ft)	0.002499	Area (sq ft)	19.38	185.28	113.58
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	125.35	Top Width (ft)	22.85	35.80	66.70
Vel Total (ft/s)	8.61	Avg. Vel. (ft/s)		8.61	
Max Chl Dpth (ft)	6.66	Hydr. Depth (ft)		5.18	
Conv. Total (cfs)	31907.2	Conv. (cfs)		31907.2	
Length Wtd. (ft)	99.00	Wetted Per. (ft)		37.57	
Min Ch El (ft)	1578.64	Shear (lb/sq ft)		0.77	

Alpha	1.00	Stream Power (lb/ft s)		6.62	
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	0.43	8.97	0.49
C & E Loss (ft)	0.07	Cum SA (acres)	0.42	3.24	0.53

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1586.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.09	Wt. n-Val.		0.025	
W.S. Elev (ft)	1585.44	Reach Len. (ft)	99.00	99.00	99.00
Crit W.S. (ft)	1584.09	Flow Area (sq ft)		190.17	
E.G. Slope (ft/ft)	0.002779	Area (sq ft)		190.17	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	35.80	Top Width (ft)		35.80	
Vel Total (ft/s)	8.39	Avg. Vel. (ft/s)		8.39	
Max Chl Dpth (ft)	6.80	Hydr. Depth (ft)		5.31	
Conv. Total (cfs)	30255.1	Conv. (cfs)		30255.1	
Length Wtd. (ft)	99.00	Wetted Per. (ft)		43.43	
Min Ch El (ft)	1578.64	Shear (lb/sq ft)		0.76	
Alpha	1.00	Stream Power (lb/ft s)		6.37	
Frctn Loss (ft)	0.35	Cum Volume (acre-ft)	0.01	8.98	0.02
C & E Loss (ft)	0.08	Cum SA (acres)	0.02	3.23	0.02

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	37.86	50.48	0.00	3.65	10.75	0.00	0.36	0.00	0.05	0.00
2	LOB	50.48	63.10	0.00	15.73	13.12	0.00	1.25	0.00	0.19	0.00
3	Chan	63.10	70.26	154.14	24.59	7.58	9.66	3.43	6.27	0.51	3.17
4	Chan	70.26	77.42	406.24	44.37	7.74	25.47	6.20	9.16	0.89	8.19
5	Chan	77.42	84.58	461.04	46.47	7.19	28.91	6.49	9.92	1.01	10.00

6	Chan	84.58	91.74	398.06	43.33	7.52	24.96	6.05	9.19	0.90
8.25										
7	Chan	91.74	98.90	175.52	26.53	7.54	11.00	3.71	6.62	0.55
3.63										
8	ROB	98.90	113.32	0.00	46.29	14.49	0.00	3.21	0.00	0.50
0.00										
9	ROB	113.32	127.74	0.00	35.78	14.70	0.00	2.48	0.00	0.38
0.00										
10	ROB	127.74	142.16	0.00	19.58	14.45	0.00	1.36	0.00	0.21
0.00										
11	ROB	142.16	156.58	0.00	11.40	14.50	0.00	0.79	0.00	0.12
0.00										
12	ROB	156.58	171.00	0.00	0.53	9.07	0.00	0.06	0.00	0.01
0.00										

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	Chan	63.10	70.26	134.76	25.57	10.23	8.45	3.57	5.27	0.43	2.29
2	Chan	70.26	77.42	421.64	45.34	7.74	26.44	6.33	9.30	1.02	9.45
3	Chan	77.42	84.58	477.74	47.45	7.19	29.95	6.63	10.07	1.14	11.53
4	Chan	84.58	91.74	413.50	44.30	7.52	25.92	6.19	9.33	1.02	9.54
5	Chan	91.74	98.90	147.37	27.51	10.74	9.24	3.84	5.36	0.44	2.38

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 1510

INPUT

Description:
Station Elevation Data num= 337

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1587.14	4	1587.03	6.7	1586.82	11.5	1586.7	12	1586.75
13.1	1586.72	14.8	1586.78	15.6	1586.73	18	1586.81	19.9	1586.69
21.2	1586.69	22	1586.75	22.6	1586.66	23.9	1586.69	26.8	1586.53
29.3	1586.56	30.4	1586.36	32	1585.78	33.6	1585.34	36.8	1583.94
37.4	1583.77	38.2	1583.72	39.4	1583.38	41.4	1582.63	41.9	1582.6
42.8	1582.38	43.8	1582.31	48.1	1582.29	49.8	1582.12	51.3	1582.19
53.5	1582.19	55.6	1582.1	57.2	1582.15	58.4	1582.12	58.4	1582.13
58.5	1582.14	58.6	1582.15	58.6	1582.16	60	1582.09	64.2	1582.11
65.1	1582.06	65.2	1582.05	65.3	1582.03	65.4	1582.02	65.5	1582.02
65.6	1582.01	68.3	1582	70.8	1581.82	72.8	1581.41	74.3	1581.31
75.1	1581.19	77.5	1580.97	78	1580.85	78.6	1580.78	79.9	1580.49
81	1580.38	81.4	1580.29	82.3	1580.23	83.8	1580.01	83.9	1580
84	1579.99	84.1	1579.98	84.2	1579.97	85.8	1579.97	85.9	1579.96
86.1	1579.94	86.1	1579.93	86.3	1579.91	86.4	1579.91	86.6	1579.88
86.8	1579.85	87.7	1579.79	87.7	1579.78	87.8	1579.77	87.9	1579.76
88	1579.75	88	1579.74	88.2	1579.73	88.4	1579.67	88.5	1579.66
88.6	1579.65	88.7	1579.63	88.8	1579.62	89	1579.6	89.1	1579.59
90	1579.57	91.7	1579.81	92.7	1579.81	93.6	1579.72	94.9	1579.84
96.61	1579.874	96.9	1579.88	96.9	1579.86	97.5	1579.77	97.7	1579.65
97.8	1579.55	97.9	1579.5	98	1579.44	98.1	1579.39	98.2	1579.33
98.3	1579.29	98.4	1579.21	98.5	1579.17	99.9	1578.16	100.2	1578.03
100.3	1577.95	100.9	1577.68	102.2	1577.41	104	1577.31	104.6	1577.31
104.7	1577.3	104.8	1577.28	104.9	1577.28	105	1577.27	105.2	1577.26
105.2	1577.25	105.3	1577.24	106.4	1577.28	107.4	1577.21	107.5	1577.26
107.6	1577.28	107.7	1577.28	107.7	1577.27	107.9	1577.25	108	1577.24
108.2	1577.23	108.2	1577.22	108.9	1577.21	109	1577.21	109.2	1577.25
109.2	1577.26	109.5	1577.28	109.6	1577.27	109.8	1577.25	110.1	1577.25
110.3	1577.19	110.4	1577.19	111.4	1577.28	111.5	1577.27	111.6	1577.26
111.7	1577.25	111.8	1577.25	111.9	1577.25	112	1577.25	112.1	1577.25
112.2	1577.25	112.7	1577.31	112.7	1577.32	112.9	1577.37	112.9	1577.39
113	1577.42	113	1577.44	113.2	1577.53	113.3	1577.55	113.4	1577.59
113.5	1577.68	113.8	1577.87	114	1577.92	114.1	1577.95	114.3	1578.04
114.4	1578.11	114.6	1578.21	115.2	1578.44	115.4	1578.53	115.6	1578.55
115.6	1578.56	115.7	1578.57	115.7	1578.58	115.8	1578.63	115.9	1578.68
116	1578.69	116.1	1578.73	116.1	1578.76	116.2	1578.8	116.5	1578.84
116.5	1578.85	116.7	1578.89	116.8	1578.91	116.9	1578.95	116.9	1578.97
117	1579	117.2	1579.07	117.3	1579.11	117.3	1579.13	117.4	1579.17
117.5	1579.21	117.7	1579.32	117.9	1579.44	117.9	1579.45	118.1	1579.56
118.1	1579.59	118.2	1579.66	118.3	1579.69	118.4	1579.74	118.4	1579.77
118.7	1579.88	118.8	1579.97	119.2	1580.29	119.5	1580.39	119.6	1580.47
119.7	1580.6	119.8	1580.66	119.9	1580.77	120	1580.84	120	1580.86
120.1	1580.94	120.2	1581.02	120.4	1581.19	120.5	1581.34	120.6	1581.35
120.6	1581.36	120.7	1581.53	120.8	1581.6	120.9	1581.7	121	1581.73
121.1	1581.86	121.2	1581.96	121.4	1582.05	121.4	1582.1	121.5	1582.16
121.6	1582.24	121.7	1582.31	121.9	1582.42	121.9	1582.43	121.9	1582.45
122.1	1582.54	122.2	1582.57	122.3	1582.64	122.3	1582.66	122.4	1582.72
122.5	1582.74	122.6	1582.8	122.7	1582.85	122.8	1582.88	122.9	1582.91

123	1582.95	123.1	1582.99	123.2	1583.05	123.2	1583.06	123.2	1583.07
123.3	1583.07	123.4	1583.14	123.5	1583.17	124	1583.35	124.1	1583.37
124.2	1583.41	124.3	1583.44	124.4	1583.46	124.6	1583.49	124.6	1583.5
124.6	1583.51	124.8	1583.55	124.9	1583.57	125	1583.61	125.1	1583.65
125.2	1583.66	125.3	1583.68	125.4	1583.69	125.9	1583.69	126	1583.69
127.8	1583.59	128	1583.61	128.1	1583.62	128.1	1583.64	128.3	1583.66
128.4	1583.67	128.4	1583.69	128.6	1583.71	128.6	1583.72	131.9	1583.91
133.5	1583.87	133.6	1583.85	133.7	1583.84	133.8	1583.83	134	1583.81
134.1	1583.8	134.2	1583.78	134.3	1583.77	134.4	1583.75	134.5	1583.73
135.8	1583.66	138.3	1583.77	139.5	1584.01	139.9	1584.14	140.1	1584.21
140.2	1584.22	140.2	1584.24	140.4	1584.3	140.5	1584.34	140.7	1584.44
140.7	1584.46	140.8	1584.5	140.9	1584.55	141	1584.57	141.1	1584.59
141.3	1584.61	141.3	1584.62	141.5	1584.66	141.7	1584.68	141.9	1584.69
142	1584.72	142.1	1584.73	142.2	1584.78	142.3	1584.87	142.3	1584.9
142.5	1584.99	143.5	1585.84	143.5	1585.9	143.6	1586	143.7	1586.03
143.8	1586.09	144	1586.16	144	1586.18	144.2	1586.22	144.3	1586.22
144.4	1586.24	144.7	1586.27	144.8	1586.28	144.9	1586.28	145	1586.28
145.5	1586.28	145.6	1586.28	145.8	1586.27	146	1586.25	146.1	1586.22
147.4	1586.28	147.5	1586.28	147.6	1586.28	147.7	1586.28	147.7	1586.27
147.8	1586.27	147.9	1586.27	148.5	1586.22	150.2	1586.25	151.2	1586.22
152.6	1586.38	153.9	1586.38						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	96.6	.025	120.6	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
96.6	120.6	11.9	11.9	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	96.6	1588	F
120.6	153.9	1588	F

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1586.08	Element			
Vel Head (ft)	1.90	Wt. n-Val.		0.025	
W.S. Elev (ft)	1584.18	Reach Len. (ft)	11.90	11.90	11.90
Crit W.S. (ft)	1583.32	Flow Area (sq ft)		144.21	
E.G. Slope (ft/ft)	0.003538	Area (sq ft)	161.99	144.21	12.34
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	103.76	Top Width (ft)	60.35	24.00	19.41
Vel Total (ft/s)	11.06	Avg. Vel. (ft/s)		11.06	
Max Chl Dpth (ft)	6.99	Hydr. Depth (ft)		6.01	
Conv. Total (cfs)	26814.4	Conv. (cfs)		26814.4	
Length Wtd. (ft)	11.90	Wetted Per. (ft)		26.06	
Min Ch El (ft)	1577.19	Shear (lb/sq ft)		1.22	
Alpha	1.00	Stream Power (lb/ft s)		13.52	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.22	8.60	0.35
C & E Loss (ft)	0.06	Cum SA (acres)	0.32	3.17	0.43

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1586.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.88	Wt. n-Val.		0.025	
W.S. Elev (ft)	1584.22	Reach Len. (ft)	11.90	11.90	11.90
Crit W.S. (ft)	1583.32	Flow Area (sq ft)		145.06	
E.G. Slope (ft/ft)	0.004802	Area (sq ft)		145.06	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	24.00	Top Width (ft)		24.00	
Vel Total (ft/s)	11.00	Avg. Vel. (ft/s)		11.00	
Max Chl Dpth (ft)	7.03	Hydr. Depth (ft)		6.04	
Conv. Total (cfs)	23017.9	Conv. (cfs)		23017.9	
Length Wtd. (ft)	11.90	Wetted Per. (ft)		33.26	
Min Ch El (ft)	1577.19	Shear (lb/sq ft)		1.31	
Alpha	1.00	Stream Power (lb/ft s)		14.38	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	0.01	8.60	0.02
C & E Loss (ft)	0.06	Cum SA (acres)	0.02	3.16	0.02

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	19.32	38.64	0.00	0.84	2.48	0.00	0.35	0.00	0.07	0.00
2	LOB	38.64	57.96	0.00	34.97	19.53	0.00	1.81	0.00	0.40	0.00
3	LOB	57.96	77.28	0.00	45.86	19.42	0.00	2.37	0.00	0.52	0.00
4	LOB	77.28	96.60	0.00	80.31	19.49	0.00	4.16	0.00	0.91	0.00
5	Chan	96.60	101.40	251.65	25.89	5.45	15.78	5.39	9.72	1.05	10.20
6	Chan	101.40	106.20	404.53	32.81	4.83	25.36	6.84	12.33	1.50	18.48
7	Chan	106.20	111.00	413.14	33.31	4.87	25.90	6.94	12.40	1.51	18.76

8	Chan	111.00	115.80	350.08	30.87	5.16	21.95	6.43	11.34	1.32
15.00										
9	Chan	115.80	120.60	175.61	21.32	5.75	11.01	4.44	8.24	0.82
6.74										
10	ROB	120.60	127.26	0.00	7.38	7.42	0.00	1.11	0.00	0.22
0.00										
11	ROB	127.26	133.92	0.00	2.54	6.72	0.00	0.38	0.00	0.08
0.00										
12	ROB	133.92	140.58	0.00	2.41	6.16	0.00	0.40	0.00	0.09
0.00										

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	96.60	101.40	184.78	26.07	9.79	11.58	5.43	7.09	0.80	5.66
2	Chan	101.40	106.20	437.90	32.98	4.83	27.45	6.87	13.28	2.05	27.15
3	Chan	106.20	111.00	447.16	33.48	4.87	28.04	6.98	13.35	2.06	27.55
4	Chan	111.00	115.80	379.17	31.04	5.16	23.77	6.47	12.21	1.80	22.04
5	Chan	115.80	120.60	145.99	21.49	8.61	9.15	4.48	6.79	0.75	5.08

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 1500

INPUT
Description:
Station Elevation Data num= 285

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1587.12	6.4	1587.03	7.8	1587.12	12.8	1587.13	15.5	1587.03
15.8	1586.95	16.1	1586.94	18.5	1586.96	21.2	1586.81	21.7	1586.84

22.6	1586.75	23.6	1586.79	25.4	1586.72	28.8	1586.34	32.6	1586.44
33.6	1586.32	34.4	1586.34	35.2	1586.25	38.5	1586.19	41	1585.83
42.1	1585.46	44.2	1584.97	45.9	1584.32	47.4	1583.87	50.3	1582.84
52	1582.47	53.8	1582.42	54.9	1582.56	56.3	1582.61	56.3	1582.6
56.4	1582.56	58.2	1582.31	61.1	1582.29	62.9	1582.34	70.2	1582.22
72.8	1582.25	75.8	1582.09	77.3	1581.84	80	1581.69	80.6	1581.58
82.9	1581.38	84.5	1581.35	85.9	1581.5	86	1581.51	86.1	1581.5
86.2	1581.5	90.8	1580.93	93.3	1580.74	94.3	1580.78	94.8	1580.76
94.9	1580.75	95	1580.75	95.1	1580.75	95.4	1580.75	95.9	1580.68
96.4	1580.72	97.8	1580.72	97.9	1580.71	98.1	1580.7	98.5	1580.59
98.6	1580.58	98.8	1580.55	99	1580.52	99.1	1580.49	99.2	1580.47
99.3	1580.46	99.4	1580.45	99.5	1580.44	99.6	1580.44	99.7	1580.44
99.9	1580.41	100	1580.41	100.1	1580.41	100.2	1580.41	101.5	1580.14
102.5	1579.85	103.9	1579.59	104.8	1579.38	106.1	1579.29	106.9	1579.16
108.3	1579.18	110.3	1579.46	110.7	1579.45	112	1579.39	112.11	579.373
112.3	1579.34	112.5	1579.32	112.6	1579.31	113.1	1579.19	113.1	1579.18
114	1578.76	114.1	1578.67	114.1	1578.61	114.2	1578.54	114.3	1578.52
114.4	1578.44	114.6	1578.32	114.6	1578.31	114.8	1578.26	114.8	1578.24
115.8	1577.95	115.8	1577.93	115.9	1577.89	116	1577.87	116.1	1577.82
117.1	1577.66	117.2	1577.66	117.3	1577.65	117.5	1577.64	117.5	1577.62
117.7	1577.6	117.8	1577.59	117.9	1577.56	118	1577.53	118.1	1577.5
118.2	1577.47	118.3	1577.45	118.3	1577.44	118.4	1577.45	118.5	1577.46
119.3	1577.43	119.3	1577.42	119.7	1577.41	123.7	1577.1	123.9	1577.12
124.1	1577.12	124.2	1577.12	125.7	1577.07	125.8	1577.07	126.9	1577.1
127.1	1577.11	127.2	1577.12	128	1577.23	128.1	1577.24	128.1	1577.27
128.2	1577.3	128.3	1577.33	128.4	1577.38	128.5	1577.41	128.6	1577.44
129.1	1577.59	129.1	1577.6	129.2	1577.72	129.3	1577.75	129.4	1577.82
129.5	1577.85	129.6	1577.93	129.7	1578.02	129.8	1578.11	130	1578.21
130	1578.27	130.1	1578.37	130.9	1578.67	132.6	1579.65	132.7	1579.75
132.8	1579.84	132.9	1579.89	133.1	1580.02	133.1	1580.03	133.3	1580.17
133.4	1580.23	133.5	1580.3	133.6	1580.35	133.6	1580.4	133.7	1580.42
133.7	1580.49	133.9	1580.59	133.9	1580.62	134.2	1580.86	134.2	1580.92
134.4	1581.09	134.4	1581.13	134.6	1581.29	134.7	1581.37	134.8	1581.47
134.9	1581.54	135	1581.59	136.1	1582.36	136.2	1582.44	136.3	1582.55
136.4	1582.62	136.4	1582.63	136.5	1582.67	136.6	1582.69	136.7	1582.78
136.7	1582.79	136.9	1582.85	136.9	1582.89	137.1	1583.02	137.1	1583.05
137.1	1583.07	137.2	1583.09	137.3	1583.2	137.4	1583.27	137.9	1583.4
137.9	1583.42	138.1	1583.51	138.1	1583.52	138.3	1583.65	138.5	1583.84
138.5	1583.86	139	1584.04	139	1584.06	139.1	1584.08	139.2	1584.11
139.3	1584.13	139.4	1584.18	139.8	1584.31	139.9	1584.32	140.1	1584.38
140.2	1584.39	140.3	1584.4	140.4	1584.41	140.6	1584.43	140.8	1584.45
140.9	1584.47	141.2	1584.47	141.7	1584.44	141.8	1584.44	142	1584.45
142.1	1584.44	142.1	1584.43	142.3	1584.42	142.3	1584.41	144.9	1584.44
145.8	1584.34	147.1	1584.31	149	1584.41	153.5	1584.46	156.5	1584.72
156.8	1584.72	156.9	1584.71	157	1584.69	157.1	1584.69	157.3	1584.68
157.4	1584.67	157.5	1584.66	162.7	1584.76	162.9	1584.74	162.9	1584.72
163	1584.69	163.6	1584.8	163.8	1584.81	165.2	1584.97	165.4	1585.05
165.7	1585.23	165.7	1585.24	165.8	1585.28	166	1585.34	166.1	1585.38
166.1	1585.4	166.3	1585.45	166.3	1585.48	166.5	1585.56	166.5	1585.57
166.8	1585.63	166.9	1585.66	167	1585.68	167.1	1585.7	167.1	1585.71

167.2	1585.72	167.3	1585.74	167.3	1585.75	167.4	1585.78	167.5	1585.79
167.6	1585.83	167.8	1585.9	167.9	1585.91	168.1	1585.96	168.1	1585.98
168.2	1586.01	168.3	1586.03	168.4	1586.05	168.4	1586.06	168.6	1586.13
168.7	1586.15	168.8	1586.2	169	1586.27	169.2	1586.31	169.2	1586.32
169.2	1586.33	169.4	1586.39	169.5	1586.42	169.6	1586.44	172.7	1586.6

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	112.1	.025	138.5	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
112.1	138.5	56	48	39	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	112.1	1588	F
138.5	172.7	1588	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1585.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.45	Wt. n-Val.		0.025	
W.S. Elev (ft)	1583.52	Reach Len. (ft)	56.00	48.00	39.00
Crit W.S. (ft)	1583.52	Flow Area (sq ft)		126.98	
E.G. Slope (ft/ft)	0.006158	Area (sq ft)	135.04	126.98	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	89.72	Top Width (ft)	63.72	26.00	
Vel Total (ft/s)	12.56	Avg. Vel. (ft/s)		12.56	
Max Chl Dpth (ft)	6.45	Hydr. Depth (ft)		4.88	
Conv. Total (cfs)	20324.8	Conv. (cfs)		20324.8	
Length Wtd. (ft)	48.00	Wetted Per. (ft)		28.73	
Min Ch El (ft)	1577.07	Shear (lb/sq ft)		1.70	
Alpha	1.00	Stream Power (lb/ft s)		21.34	
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	0.18	8.56	0.35
C & E Loss (ft)	0.09	Cum SA (acres)	0.30	3.16	0.43

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1585.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.45	Wt. n-Val.		0.025	
W.S. Elev (ft)	1583.52	Reach Len. (ft)	56.00	48.00	39.00
Crit W.S. (ft)	1583.52	Flow Area (sq ft)		126.98	
E.G. Slope (ft/ft)	0.007371	Area (sq ft)		126.98	

Q Total (cfs)	1595.00	Flow (cfs)		1595.00		
Top Width (ft)	26.00	Top Width (ft)		26.00		
Vel Total (ft/s)	12.56	Avg. Vel. (ft/s)		12.56		
Max Chl Dpth (ft)	6.45	Hydr. Depth (ft)		4.88		
Conv. Total (cfs)	18577.6	Conv. (cfs)		18577.6		
Length Wtd. (ft)	48.00	Wetted Per. (ft)		32.88		
Min Ch El (ft)	1577.07	Shear (lb/sq ft)		1.78		
Alpha	1.00	Stream Power (lb/ft s)		22.32		
Frctn Loss (ft)	0.34	Cum Volume (acre-ft)	0.01	8.57	0.02	
C & E Loss (ft)	0.09	Cum SA (acres)	0.02	3.15	0.02	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	44.84	67.26	0.00	19.56	19.08	0.00	1.04	0.00	0.39	0.00
2	LOB	67.26	89.68	0.00	38.81	22.50	0.00	1.73	0.00	0.66	0.00
3	LOB	89.68	112.10	0.00	76.67	22.63	0.00	3.42	0.00	1.30	0.00
4	Chan	112.10	117.38	319.47	26.92	5.71	20.03	5.10	11.87	1.81	21.50
5	Chan	117.38	122.66	455.14	32.42	5.35	28.54	6.14	14.04	2.33	32.70
6	Chan	122.66	127.94	491.90	33.82	5.29	30.84	6.41	14.54	2.46	35.73
7	Chan	127.94	133.22	292.55	26.31	6.16	18.34	4.98	11.12	1.64	18.26
8	Chan	133.22	138.50	35.95	7.50	6.21	2.25	1.54	4.79	0.46	2.22

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	112.10	117.38	236.48	26.92	9.86	14.83	5.10	8.79	1.26	11.04
2	Chan	117.38	122.66	484.75	32.42	5.35	30.39	6.14	14.95	2.79	41.68
3	Chan	122.66	127.94	523.90	33.82	5.29	32.85	6.41	15.49	2.94	45.55
4	Chan	127.94	133.22	311.58	26.31	6.16	19.53	4.98	11.84	1.97	23.27
5	Chan	133.22	138.50	38.29	7.50	6.21	2.40	1.54	5.10	0.56	2.84

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 1450

INPUT
Description:
Station Elevation Data num= 448

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1586.35	1.7	1586.22	2.4	1586.22	3.7	1586.1	4.8	1586.05
5.7	1586.09	6.4	1585.97	11	1585.5	12.6	1585.51	14	1585.62
14.9	1585.6	15.6	1585.66	17.2	1585.52	17.9	1585.56	19.1	1585.53
20.5	1585.65	24.4	1585.53	28.2	1585.72	29.1	1585.66	30.1	1585.78
30.5	1585.74	30.7	1585.73	32.1	1585.78	32.4	1585.84	33.3	1585.85
35	1585.97	35.7	1585.95	36.4	1586.04	37.9	1586.1	38.6	1586.18
39.7	1586.12	42	1586.22	44.6	1586.24	45.5	1586.31	47	1586.31
47.3	1586.34	49.6	1586.31	50.5	1586.38	52	1586.31	52.1	1586.32
52.2	1586.33	52.4	1586.34	52.5	1586.35	52.6	1586.35	53	1586.36
54.7	1586.54	54.8	1586.56	54.8	1586.57	55.1	1586.68	55.2	1586.7
55.3	1586.76	55.7	1586.94	55.8	1587.04	56	1587.1	57.4	1587.27
58.5	1587.47	58.5	1587.49	58.8	1587.57	58.9	1587.59	60.8	1587.09
60.8	1587.08	60.8	1587.06	61	1587	61.1	1586.95	61.1	1586.93
61.2	1586.92	63.1	1586.28	63.3	1586.25	63.4	1586.21	63.5	1586.2
64.1	1586.02	64.2	1585.98	64.3	1585.9	64.4	1585.89	64.5	1585.85

64.7	1585.82	64.7	1585.81	68.1	1585.56	68.2	1585.52	69.7	1585.34
69.8	1585.31	69.8	1585.3	70	1585.28	70	1585.27	70.2	1585.22
70.3	1585.19	70.4	1585.18	70.4	1585.17	70.5	1585.15	70.8	1585.1
70.9	1585.08	71.6	1584.98	71.6	1584.97	71.6	1584.96	71.9	1584.91
72	1584.91	72	1584.9	72.1	1584.87	72.2	1584.86	73	1584.67
73.6	1584.58	74.81	1584.116	75.8	1583.73	75.9	1583.69	76.2	1583.54
76.3	1583.52	76.4	1583.49	76.5	1583.45	76.6	1583.44	76.9	1583.36
76.9	1583.34	77.1	1583.26	77.2	1583.2	77.3	1583.18	77.5	1583.11
77.6	1583.03	77.7	1583	77.9	1582.9	78	1582.87	78.2	1582.79
78.2	1582.76	78.3	1582.71	78.5	1582.66	78.5	1582.62	78.6	1582.6
78.7	1582.53	78.8	1582.45	78.9	1582.42	79.1	1582.32	79.2	1582.19
79.4	1582.01	79.6	1581.82	80.5	1581.09	80.5	1581.03	80.6	1580.95
80.8	1580.86	80.8	1580.81	81.1	1580.64	81.4	1580.53	81.5	1580.44
81.6	1580.41	81.9	1580.26	81.9	1580.25	81.9	1580.24	82.2	1580.1
82.7	1579.8	83.2	1579.41	83.3	1579.25	83.4	1579.08	83.5	1579.04
83.9	1578.68	84.2	1578.51	84.2	1578.48	84.5	1578.27	84.5	1578.24
84.6	1578.21	84.7	1578.1	84.8	1578.02	84.9	1577.97	85	1577.91
85.1	1577.84	85.2	1577.77	85.4	1577.63	85.4	1577.58	85.5	1577.54
85.6	1577.47	85.7	1577.39	86.5	1577.03	87.5	1576.75	87.7	1576.77
87.7	1576.78	87.9	1576.79	88	1576.8	88.1	1576.81	90.8	1576.87
91	1576.85	91.1	1576.84	91.9	1576.77	92	1576.75	92.1	1576.75
92.2	1576.74	92.3	1576.72	92.3	1576.71	92.5	1576.73	92.6	1576.75
92.7	1576.76	92.9	1576.77	93.6	1576.78	93.8	1576.78	93.9	1576.79
94.7	1576.84	94.8	1576.84	94.9	1576.84	96.5	1577.04	96.6	1577.06
96.8	1577.09	96.9	1577.11	97	1577.12	98.1	1577.36	99.3	1577.8
99.3	1577.86	100.7	1578.55	100.7	1578.56	100.7	1578.58	100.9	1578.67
101	1578.73	101	1578.75	101.6	1578.99	101.7	1579.05	102	1579.14
102.1	1579.18	102.2	1579.23	102.3	1579.24	102.3	1579.26	102.5	1579.35
102.6	1579.47	102.8	1579.57	102.8	1579.59	103	1579.71	103	1579.72
103	1579.73	103.6	1580.07	103.7	1580.1	103.8	1580.15	104	1580.25
104	1580.29	104.2	1580.34	104.2	1580.37	104.5	1580.54	105.5	1581.05
105.6	1581.14	105.6	1581.16	105.7	1581.19	105.8	1581.3	106.4	1581.63
106.8	1581.97	106.9	1582	107.1	1582.11	107.2	1582.2	107.2	1582.22
107.4	1582.34	107.6	1582.43	107.6	1582.44	107.6	1582.45	107.8	1582.56
107.9	1582.64	107.9	1582.66	109.5	1583.5	109.6	1583.51	110.1	1583.74
110.2	1583.8	110.3	1583.82	110.4	1583.89	110.6	1583.95	110.6	1583.98
110.7	1584.01	110.8	1584.07	110.9	1584.11	111.1	1584.17	111.1	1584.2
111.2	1584.23	111.3	1584.26	111.4	1584.31	111.7	1584.41	111.8	1584.46
111.8	1584.47	111.9	1584.48	112	1584.54	112.2	1584.59	112.5	1584.71
112.6	1584.72	112.9	1584.79	112.9	1584.81	113	1584.82	113.1	1584.85
113.2	1584.86	113.4	1584.88	114	1584.91	114.1	1584.91	114.2	1584.91
114.3	1584.95	114.5	1585	114.7	1585.01	115.3	1585.03	115.5	1585.05
115.7	1585.04	115.8	1585.05	115.9	1585.05	116	1585.06	116.1	1585.06
116.2	1585.04	116.3	1585.04	116.4	1585.07	116.5	1585.09	116.6	1585.1
116.8	1585.12	117.41	1585.123	120.5	1585.14	120.7	1585.18	120.8	1585.19
120.9	1585.19	121.1	1585.22	121.2	1585.23	121.4	1585.25	125.7	1585.25
129.8	1584.98	129.9	1584.98	130	1584.98	130.1	1585	130.8	1585.01
131.3	1584.98	131.3	1584.97	131.4	1584.97	131.7	1585	131.8	1585
131.9	1585.01	132.1	1585.03	132.2	1585.03	132.3	1585.03	132.4	1585.03
132.5	1585.01	132.6	1585	132.6	1584.99	132.8	1584.98	132.9	1584.97

133	1584.97	133.1	1584.98	133.3	1585	133.5 1585.02	133.6 1585.03
133.7	1585.03	133.8	1585.01	134.1	1585	134.2 1584.99	134.3 1584.98
134.4	1584.97	134.5	1584.96	134.6	1584.95	134.8 1584.96	134.9 1584.96
135	1584.97	135.1	1584.97	135.2	1584.97	135.3 1584.97	135.4 1584.98
135.6	1585	135.7	1584.99	135.9	1585	136.1 1584.99	136.3 1584.98
136.3	1584.97	136.4	1584.97	136.5	1584.95	136.6 1584.95	140.9 1585.03
141	1585.02	141.2	1584.98	141.3	1584.97	141.5 1584.97	141.7 1584.97
141.8	1584.97	142.1	1584.99	142.2	1585	142.5 1585.03	142.8 1584.98
142.9	1584.97	143.2	1584.94	143.4	1584.94	143.5 1584.94	143.6 1584.94
143.8	1584.94	143.9	1584.95	143.9	1584.97	144 1584.97	144.1 1584.97
144.3	1584.97	144.4	1584.97	144.6	1584.97	144.8 1584.99	145 1585
150.1	1584.93	151.7	1585.03	154.4	1584.97	157.7 1585.12	157.8 1585.12
158	1585.12	158.1	1585.12	158.2	1585.12	158.4 1585.12	158.5 1585.12
158.6	1585.12	158.7	1585.12	159.4	1585.09	159.7 1585.09	159.7 1585.1
159.9	1585.12	160	1585.12	160.2	1585.13	160.5 1585.12	160.6 1585.12
160.7	1585.12	160.8	1585.13	161	1585.15	161.1 1585.14	161.3 1585.12
161.7	1585.16	161.8	1585.14	163.1	1585.07	163.2 1585.06	163.3 1585.06
163.6	1585.04	164.5	1585.03	164.6	1585.03	164.7 1585.03	165.4 1584.97
165.5	1584.97	165.6	1584.97	165.6	1584.96	165.7 1584.94	166.1 1584.92
166.3	1584.88	166.4	1584.89	166.8	1584.9	166.9 1584.91	167 1584.91
167.2	1584.91	167.3	1584.91	167.5	1584.93	167.6 1584.92	167.7 1584.92
167.8	1584.93	167.9	1584.93	168	1584.92	168.2 1584.91	168.3 1584.91
168.4	1584.9	168.6	1584.88	168.7	1584.86	171.1 1584.84	171.2 1584.84
171.4	1584.84	171.6	1584.82	171.6	1584.81	171.8 1584.81	171.9 1584.81
172	1584.81	172.1	1584.81	172.4	1584.83		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	74.8	.025	117.4	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
74.8	117.4	50	45	41 .1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1585.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.14	Wt. n-Val.		0.025	
W.S. Elev (ft)	1583.24	Reach Len. (ft)	50.00	45.00	41.00
Crit W.S. (ft)	1583.24	Flow Area (sq ft)		135.96	
E.G. Slope (ft/ft)	0.006602	Area (sq ft)		135.96	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	31.86	Top Width (ft)		31.86	
Vel Total (ft/s)	11.73	Avg. Vel. (ft/s)		11.73	
Max Chl Dpth (ft)	6.53	Hydr. Depth (ft)		4.27	
Conv. Total (cfs)	19629.9	Conv. (cfs)		19629.9	
Length Wtd. (ft)	45.00	Wetted Per. (ft)		35.91	
Min Ch El (ft)	1576.71	Shear (lb/sq ft)		1.56	
Alpha	1.00	Stream Power (lb/ft s)		18.31	
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	0.09	8.42	0.35
C & E Loss (ft)	0.00	Cum SA (acres)	0.26	3.13	0.43

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1585.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.16	Wt. n-Val.		0.025	
W.S. Elev (ft)	1583.22	Reach Len. (ft)	50.00	45.00	41.00
Crit W.S. (ft)	1583.22	Flow Area (sq ft)		135.40	
E.G. Slope (ft/ft)	0.006676	Area (sq ft)		135.40	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	31.80	Top Width (ft)		31.80	
Vel Total (ft/s)	11.78	Avg. Vel. (ft/s)		11.78	
Max Chl Dpth (ft)	6.51	Hydr. Depth (ft)		4.26	
Conv. Total (cfs)	19521.5	Conv. (cfs)		19521.5	
Length Wtd. (ft)	45.00	Wetted Per. (ft)		35.84	
Min Ch El (ft)	1576.71	Shear (lb/sq ft)		1.57	
Alpha	1.00	Stream Power (lb/ft s)		18.55	
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	0.01	8.42	0.02
C & E Loss (ft)	0.03	Cum SA (acres)	0.02	3.12	0.02

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	74.80	83.32	64.82	11.57	7.59	4.06	1.87	5.60	0.63	3.52
2	Chan	83.32	91.84	664.51	50.83	9.35	41.66	5.97	13.07	2.24	29.28
3	Chan	91.84	100.36	710.05	51.72	8.85	44.52	6.07	13.73	2.41	33.09

4	Chan	100.36	108.88	155.62	21.84	9.99	9.76	2.56	7.13	0.90
6.42										
5	Chan	108.88	117.40	0.00	0.00	0.14	0.00	0.03	0.39	0.01
0.00										

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	Chan	74.80	83.32	64.38	11.46	7.56	4.04	1.86	5.62	0.63	3.55
2	Chan	83.32	91.84	665.11	50.68	9.35	41.70	5.95	13.12	2.26	29.64
3	Chan	91.84	100.36	710.77	51.57	8.85	44.56	6.05	13.78	2.43	33.49
4	Chan	100.36	108.88	154.74	21.69	9.99	9.70	2.55	7.13	0.91	6.46
5	Chan	108.88	117.40	0.00	0.00	0.10	0.00	0.02	0.31	0.01	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 1400

INPUT
Description:
Station Elevation Data num= 447

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

0	1587.87	3	1587.81	3.8	1587.89	4.3	1587.81	5.2	1587.81
6.3	1587.88	7.8	1587.88	8.8	1587.78	10.1	1587.81	11.3	1587.75
13.4	1587.84	14.2	1587.78	20.7	1587.81	21.9	1587.72	24	1587.72
25	1587.62	28.5	1587.53	29	1587.44	29.2	1587.5	29.8	1587.52
30.3	1587.48	31.5	1587.55	32.3	1587.44	33.5	1587.47	35.6	1587.41
37.2	1587.26	39.2	1587.35	41.4	1587.09	42.2	1586.92	43.2	1586.61
43.4	1586.57	44.1	1586.31	44.2	1586.28	44.2	1586.26	44.4	1586.18
44.4	1586.16	45.4	1586.08	45.8	1586.03	45.9	1585.98	46	1585.98
46.2	1586	47.5	1585.91	49.3	1585.52	50	1585.44	50.61	1585.273
50.9	1585.19	51.2	1585.06	51.3	1585.04	51.5	1584.9	51.8	1584.81
51.8	1584.79	52	1584.68	52.7	1584.37	52.8	1584.32	52.8	1584.29
53	1584.22	53.1	1584.2	53.5	1583.98	53.5	1583.97	53.6	1583.95
54	1583.72	54.2	1583.67	54.2	1583.66	54.4	1583.54	54.5	1583.5
54.6	1583.47	55	1583.19	55.1	1583.17	56.2	1582.58	56.3	1582.54
56.4	1582.51	56.6	1582.41	56.8	1582.22	57.1	1581.84	57.8	1580.73
58.1	1580.41	58.1	1580.34	58.3	1580.1	58.4	1580.07	58.8	1579.65
58.9	1579.62	59.1	1579.47	59.2	1579.42	59.2	1579.39	59.5	1579.26
59.6	1579.19	59.7	1579.15	59.8	1579.11	59.8	1579.07	60.1	1578.97
60.1	1578.95	60.1	1578.93	60.3	1578.82	60.3	1578.78	60.6	1578.63
60.6	1578.6	60.7	1578.56	60.9	1578.39	61	1578.25	61.1	1578.16
61.2	1578.05	61.2	1578.03	61.4	1577.93	61.4	1577.84	61.7	1577.61
61.8	1577.42	61.9	1577.38	62.1	1577.1	62.3	1576.88	62.4	1576.83
62.4	1576.77	62.5	1576.64	62.7	1576.44	62.8	1576.39	62.9	1576.27
63	1576.17	64.1	1575.58	65.1	1575.32	67.2	1574.99	68.6	1574.88
70.2	1574.92	71.2	1574.88	72.5	1574.72	72.7	1574.66	74	1574.59
75.3	1574.62	76.3	1574.72	77.5	1574.96	77.5	1574.97	77.8	1575.03
78.3	1575.18	78.4	1575.24	78.4	1575.27	78.5	1575.34	78.7	1575.41
78.7	1575.43	78.8	1575.5	78.9	1575.55	79	1575.62	79	1575.66
79.1	1575.69	79.3	1575.8	79.3	1575.81	79.5	1575.96	79.5	1575.97
79.6	1575.98	79.8	1576.1	79.8	1576.13	80.3	1576.45	80.4	1576.51
80.6	1576.59	80.6	1576.63	81	1576.83	81.1	1576.84	81.6	1577.07
81.7	1577.11	82	1577.21	82.1	1577.27	82.2	1577.31	82.2	1577.34
82.3	1577.39	82.4	1577.42	82.5	1577.47	82.6	1577.49	82.6	1577.51
82.8	1577.62	82.8	1577.63	82.9	1577.66	83.1	1577.74	83.1	1577.76
83.1	1577.77	83.3	1577.86	83.3	1577.89	83.4	1577.93	83.5	1577.98
83.6	1578.02	83.7	1578.09	83.8	1578.17	84.2	1578.3	84.3	1578.35
84.3	1578.37	84.6	1578.47	84.6	1578.49	84.8	1578.55	84.9	1578.56
85	1578.63	85.9	1578.88	87.3	1579.52	87.4	1579.58	87.5	1579.63
87.6	1579.71	87.7	1579.75	87.8	1579.84	87.9	1579.87	88.1	1580.02
88.1	1580.03	88.4	1580.22	88.6	1580.31	88.6	1580.35	88.8	1580.45
88.9	1580.51	89.1	1580.69	89.2	1580.74	89.3	1580.79	89.6	1580.95
89.7	1580.96	89.7	1580.98	89.9	1581.07	89.9	1581.09	89.9	1581.1
90.1	1581.21	90.2	1581.22	90.2	1581.25	90.3	1581.34	90.4	1581.38
90.5	1581.43	90.6	1581.46	90.7	1581.51	90.8	1581.57	90.8	1581.58
90.9	1581.63	91	1581.66	91.1	1581.68	91.2	1581.7	91.2	1581.72
91.4	1581.77	91.4	1581.78	91.4	1581.8	91.6	1581.92	91.7	1581.97
91.9	1582.12	91.9	1582.14	92	1582.16	92.2	1582.2	92.3	1582.22
92.3	1582.24	92.4	1582.27	92.5	1582.34	92.6	1582.36	92.7	1582.44
92.8	1582.48	92.9	1582.54	92.9	1582.58	93	1582.62	93.2	1582.76
93.2	1582.78	93.4	1582.85	93.5	1582.85	93.7	1582.98	93.9	1583.14

```
    94.5 1583.39    94.7 1583.52    94.8 1583.54    94.9 1583.61      95 1583.62
      95 1583.63    95.1 1583.69    95.2 1583.74    95.2 1583.75    95.2 1583.76
    95.5 1583.88    95.6 1583.98    96.5 1584.42    96.7 1584.52    96.7 1584.54
      97 1584.67    97.2 1584.74    97.3 1584.79    97.4 1584.83    97.5 1584.87
    97.6 1584.92    97.7 1584.99    97.9 1585.04      98 1585.07    98.1 1585.09
    98.2 1585.13    98.2 1585.14    98.3 1585.16    98.5 1585.24    98.5 1585.25
    98.6 1585.27    98.7 1585.31    98.7 1585.32    98.8 1585.33    98.9  1585.4
   100.8 1585.96   101.3 1586.05     102 1586.31     102 1586.32   102.3  1586.4
   102.3 1586.41   102.3 1586.42   102.5 1586.46   102.5 1586.48   102.6  1586.5
   102.7 1586.52   102.8 1586.54   102.9 1586.56   103.1 1586.59   104.6 1586.59
   105.21586.544   105.9 1586.49   106.1 1586.44   106.2 1586.43   106.2 1586.42
   106.5 1586.37   106.6 1586.34   106.8  1586.3   107.3 1586.12   108.4 1585.99
   108.6 1585.99   108.7 1585.99   108.8 1585.97   108.9 1585.97     109 1585.97
   109.1 1585.97   109.1 1585.96   109.3 1585.89   109.4 1585.88   109.4 1585.87
   109.5 1585.85   109.6 1585.84   109.7 1585.83   109.8 1585.83   109.9 1585.81
     110  1585.8     110 1585.79   110.1 1585.78   110.2 1585.77   110.3 1585.76
   110.4 1585.75   110.4 1585.74   110.6 1585.72   110.7  1585.7   110.9 1585.69
   110.9 1585.68   111.1 1585.65   111.1 1585.64   111.2 1585.62   111.3 1585.58
   111.4 1585.55   111.5 1585.52   111.5 1585.51   111.7 1585.46   111.8 1585.44
   112.1 1585.37   112.1 1585.35   112.2 1585.34   112.4 1585.29   112.6 1585.22
   112.7 1585.21   112.8 1585.16   112.9 1585.15   113.1 1585.08   113.3 1585.06
   113.3 1585.05   113.4 1585.03   113.6    1585   113.7 1584.98   113.7 1584.97
   113.9 1584.95   113.9 1584.94   114.4  1584.9   114.6  1584.9   114.7 1584.91
   114.8 1584.94   114.9 1584.94     115 1584.93     115 1584.92   115.2  1584.9
   115.3 1584.89   115.4 1584.88   115.5 1584.88   115.6 1584.86   115.7 1584.85
   115.9 1584.84     116 1584.84   116.2 1584.81     117  1584.8   118.2 1584.84
   119.7 1584.69   119.7 1584.68   119.8 1584.68   119.9 1584.66     120 1584.65
   120.2 1584.61   120.3 1584.61   120.4 1584.61   120.5 1584.61   120.6 1584.59
   120.6 1584.58   120.7 1584.57   120.8 1584.56   120.9 1584.49     121 1584.48
   121.2 1584.49   121.2  1584.5   122.7 1584.54   122.8 1584.54     123  1584.5
   123.2 1584.49   123.3 1584.49   123.3  1584.5   123.5 1584.51   123.6 1584.52
   123.7 1584.52   123.8 1584.53   123.9 1584.53     124 1584.52   124.1 1584.52
   124.2 1584.52   124.3 1584.51   124.3 1584.52   124.5 1584.51   124.7 1584.52
   124.8 1584.53     125 1584.54   125.1 1584.55   125.2 1584.56   125.3 1584.56
   125.4 1584.57   125.5 1584.58   126.6 1584.56   129.3 1584.82   130.8 1584.87
     131  1584.9   131.1 1584.92   132.6 1585.08   135.1 1584.84   135.3 1584.84
   135.4 1584.84   135.4 1584.85   135.6 1584.87   135.7 1584.87   135.9 1584.88
   136.1 1584.88   136.2 1584.88   136.3 1584.88   136.7 1584.87   136.8 1584.85
   136.9 1584.84   136.9 1584.85   137.1 1584.87   137.2 1584.88   137.4 1584.88
   137.5 1584.88   137.7 1584.88

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04    50.6    .025   105.2     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          50.6   105.2               81      81      81             .1       .3

CROSS SECTION OUTPUT  Profile #BFE
```

E.G. Elev (ft)	1583.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.13	Wt. n-Val.		0.025	
W.S. Elev (ft)	1580.95	Reach Len. (ft)	81.00	81.00	81.00
Crit W.S. (ft)	1580.93	Flow Area (sq ft)		136.32	
E.G. Slope (ft/ft)	0.006602	Area (sq ft)		136.32	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	31.98	Top Width (ft)		31.98	
Vel Total (ft/s)	11.70	Avg. Vel. (ft/s)		11.70	
Max Chl Dpth (ft)	6.36	Hydr. Depth (ft)		4.26	
Conv. Total (cfs)	19630.4	Conv. (cfs)		19630.4	
Length Wtd. (ft)	81.00	Wetted Per. (ft)		36.15	
Min Ch El (ft)	1574.59	Shear (lb/sq ft)		1.55	
Alpha	1.00	Stream Power (lb/ft s)		18.19	
Frctn Loss (ft)	0.53	Cum Volume (acre-ft)	0.09	8.27	0.35
C & E Loss (ft)	0.03	Cum SA (acres)	0.26	3.10	0.43

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1583.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.44	Wt. n-Val.		0.025	
W.S. Elev (ft)	1581.29	Reach Len. (ft)	81.00	81.00	81.00
Crit W.S. (ft)	1581.29	Flow Area (sq ft)		127.41	
E.G. Slope (ft/ft)	0.007597	Area (sq ft)		127.41	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	26.24	Top Width (ft)		26.24	
Vel Total (ft/s)	12.52	Avg. Vel. (ft/s)		12.52	
Max Chl Dpth (ft)	6.70	Hydr. Depth (ft)		4.86	
Conv. Total (cfs)	18300.1	Conv. (cfs)		18300.1	
Length Wtd. (ft)	81.00	Wetted Per. (ft)		33.92	
Min Ch El (ft)	1574.59	Shear (lb/sq ft)		1.78	
Alpha	1.00	Stream Power (lb/ft s)		22.30	
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	0.01	8.29	0.02
C & E Loss (ft)	0.12	Cum SA (acres)	0.02	3.09	0.02

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #BFE

Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)

1	Chan	50.60	61.52	32.90	6.59	5.27	2.06	1.71	4.99	0.52
2.57										
2	Chan	61.52	72.44	780.70	61.00	11.88	48.95	5.59	12.80	2.12
27.08										
3	Chan	72.44	83.36	723.38	58.29	11.90	45.35	5.34	12.41	2.02
25.06										
4	Chan	83.36	94.28	58.02	10.43	7.10	3.64	1.66	5.56	0.61
3.37										

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	Chan	61.52	72.44	612.82	52.83	14.18	38.42	6.26	11.60	1.77	20.49
2	Chan	72.44	83.36	898.30	61.94	11.90	56.32	5.67	14.50	2.47	35.81
3	Chan	83.36	94.28	83.88	12.64	7.84	5.26	1.84	6.64	0.76	5.07

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 1350

INPUT
Description:
Station Elevation Data num= 440

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1587.5	1.4	1587.56	2.9	1587.47	4.4	1587.47	5.8	1587.68
7.4	1588.03	8.7	1588.19	11.5	1588.22	12.8	1588.18	15.8	1587.91
18.8	1587.57	19.9	1587.5	20.4	1587.44	20.6	1587.28	21.1	1587.2
23.9	1587.22	25.2	1587.09	27.5	1586.99	29	1586.86	31.8	1586.94
32.8	1586.81	33.5	1586.8	34	1586.7	35.6	1586.72	36.3	1586.65
37.9	1586.62	38.8	1586.51	39.9	1586.5	40.9	1586.37	46.7	1586
47.7	1585.88	48.7	1585.67	50	1585.57	52.6	1585.25	52.8	1585.22
53.1	1585.18	53.2	1585.14	53.3	1585.14	53.6	1585.16	54.1	1585.12

54.1 1585.11	54.3 1585.06	54.5 1585.08	54.6 1585.08	54.8 1585.04
54.9 1584.99	55.2 1584.93	55.3 1584.92	55.5 1584.91	56.1 1584.87
57.1 1584.66	58.1 1584.52	58.5 1584.52	58.6 1584.49	58.7 1584.47
58.9 1584.44	58.9 1584.43	59.1 1584.41	59.2 1584.4	59.3 1584.42
59.4 1584.41	59.5 1584.36	59.5 1584.33	59.6 1584.28	59.8 1584.27
59.8 1584.26	59.9 1584.25	61.2 1583.94	61.3 1583.9	61.3 1583.89
61.4 1583.86	61.5 1583.83	61.6 1583.8	61.7 1583.79	61.7 1583.77
62.2 1583.6	62.2 1583.58	62.4 1583.51	62.5 1583.45	63.5 1583.21
63.7 1583.07	63.7 1583.06	63.7 1583.04	63.9 1582.96	64 1582.92
64 1582.87	64.2 1582.77	64.3 1582.73	64.5 1582.64	64.8 1582.55
64.9 1582.45	65 1582.44	65 1582.41	65.2 1582.35	65.2 1582.34
65.3 1582.32	65.4 1582.25	65.5 1582.21	65.8 1582.02	65.9 1582.01
66.1 1581.91	66.2 1581.85	66.2 1581.82	66.7 1581.6	66.7 1581.59
66.8 1581.58	66.9 1581.51	67 1581.49	67.2 1581.36	67.4 1581.29
67.6 1581.15	67.7 1581.09	67.8 1581.04	67.8 1581	68 1580.86
68 1580.85	68 1580.84	68.1 1580.77	68.2 1580.67	68.5 1580.53
68.5 1580.49	68.6 1580.44	68.7 1580.39	68.9 1580.25	69.2 1580.08
69.3 1580.03	69.5 1579.87	69.6 1579.84	69.8 1579.78	70 1579.63
70.2 1579.58	71 1579.26	71.1 1579.25	71.2 1579.21	71.3 1579.16
71.3 1579.15	71.3 1579.14	72.1 1578.91	72.1 1578.87	72.2 1578.82
73.1 1578.47	75.6 1577.91	76.9 1577.41	76.9 1577.38	77.1 1577.28
77.1 1577.26	77.1 1577.24	78.6 1576.32	78.7 1576.31	78.8 1576.23
79.5 1575.85	79.7 1575.78	79.8 1575.73	80.4 1575.3	81.9 1574.62
82.6 1574.41	84.2 1574.09	84.7 1574.04	85.9 1574.03	86 1574.03
86.2 1574.03	86.7 1573.99	89.1 1573.97	89.2 1573.97	89.3 1573.97
90 1574.02	90.1 1574.02	90.2 1574.02	90.3 1574.03	90.8 1573.97
91.4 1573.97	91.6 1573.97	91.7 1573.99	91.8 1574	91.9 1574.01
92 1574.01	92.1 1574.01	92.2 1574.02	92.3 1574.03	92.3 1574.04
92.4 1574.05	92.6 1574.12	92.6 1574.13	92.8 1574.24	92.8 1574.26
92.9 1574.29	93 1574.36	93.1 1574.41	93.2 1574.46	93.2 1574.49
93.9 1574.83	94.3 1575.12	95.6 1575.88	95.8 1575.96	95.9 1575.97
95.9 1575.99	96.1 1576.05	96.2 1576.08	96.3 1576.1	96.4 1576.14
96.5 1576.19	96.5 1576.21	96.6 1576.26	96.7 1576.31	96.9 1576.4
97.1 1576.53	97.2 1576.53	97.2 1576.56	97.4 1576.69	97.4 1576.71
97.6 1576.78	97.7 1576.81	97.7 1576.86	97.8 1576.89	97.9 1576.94
98.2 1577.17	98.4 1577.28	98.4 1577.32	98.5 1577.36	98.7 1577.55
98.7 1577.56	98.7 1577.61	99.2 1578.07	99.3 1578.16	99.3 1578.23
99.5 1578.46	99.6 1578.49	99.7 1578.61	99.9 1578.81	99.9 1578.88
100 1578.93	100.2 1579.14	100.2 1579.15	100.2 1579.16	100.3 1579.19
100.4 1579.27	100.4 1579.29	100.5 1579.3	100.7 1579.42	100.8 1579.45
100.8 1579.48	101.5 1579.77	101.7 1579.89	101.7 1579.9	101.8 1579.95
101.9 1580.03	102 1580.04	102.2 1580.17	102.2 1580.2	102.8 1580.57
102.9 1580.63	103 1580.67	103 1580.69	104 1581.12	104.1 1581.24
104.2 1581.36	104.3 1581.46	104.5 1581.68	104.7 1582.05	104.8 1582.07
104.8 1582.21	105 1582.51	105.3 1582.89	105.3 1583.01	105.4 1583.14
105.6 1583.49	105.8 1583.7	105.8 1583.84	105.9 1583.99	106 1584.1
106.1 1584.16	106.3 1584.42	106.3 1584.43	106.4 1584.51	106.5 1584.59
106.5 1584.63	106.7 1584.74	106.9 1584.82	106.9 1584.86	107 1584.91
107.2 1584.97	107.3 1585.04	107.4 1585.08	107.5 1585.11	107.6 1585.18
107.8 1585.28	107.8 1585.3	107.8 1585.31	107.9 1585.36	108 1585.41

108.1	1585.43	108.2	1585.49	108.3	1585.51	108.4	1585.53	108.5	1585.6
109.5	1585.82	109.6	1585.82	109.8	1585.84	109.9	1585.85	110	1585.87
110.1	1585.88	110.2	1585.9	110.3	1585.91	110.4	1585.91	110.5	1585.92
110.6	1585.92	110.6	1585.93	110.8	1585.96	112.5	1586.08	114.9	1586.05
116.21	585.998	116.9	1585.97	116.9	1585.96	117.2	1585.94	118.2	1585.77
118.4	1585.75	118.6	1585.7	118.7	1585.69	118.9	1585.69	118.9	1585.68
119	1585.68	119.1	1585.68	119.3	1585.67	119.3	1585.66	119.4	1585.66
119.6	1585.64	119.8	1585.63	120	1585.63	120.2	1585.6	120.2	1585.59
120.4	1585.56	120.5	1585.56	120.7	1585.52	120.8	1585.5	120.9	1585.49
121	1585.47	122.6	1585.38	122.6	1585.37	122.9	1585.32	123	1585.32
123.3	1585.28	123.9	1585.16	125.2	1585.04	125.3	1585.03	125.4	1585.02
125.6	1584.99	127.4	1584.91	127.5	1584.89	127.6	1584.88	127.8	1584.84
128	1584.82	129.8	1584.84	130.3	1584.82	130.5	1584.82	130.6	1584.82
130.8	1584.81	130.9	1584.81	131.1	1584.81	131.1	1584.8	131.3	1584.78
131.4	1584.76	131.5	1584.75	131.6	1584.74	131.7	1584.73	131.8	1584.73
131.9	1584.72	131.9	1584.71	134.8	1584.61	136.7	1584.44	138.5	1584.34
138.7	1584.35	138.9	1584.37	140.5	1584.41	141.7	1584.5	141.8	1584.49
142	1584.47	142.1	1584.46	142.2	1584.45	142.4	1584.44	143	1584.38
143	1584.37	143.1	1584.36	143.2	1584.35	143.3	1584.34	147.5	1583.7
147.6	1583.69	147.7	1583.69	148.8	1583.58	151.1	1583.49	151.9	1583.52
152.7	1583.59	152.9	1583.63	153	1583.66	153.1	1583.68	153.2	1583.71
153.3	1583.72	153.4	1583.74	153.6	1583.78	153.7	1583.79	153.7	1583.8
153.8	1583.85	153.9	1583.87	153.9	1583.88	154.2	1583.93	154.2	1583.95
154.4	1584.02	154.5	1584.05	154.7	1584.09	154.8	1584.12	154.8	1584.15
154.9	1584.18	155	1584.2	155.2	1584.29	155.4	1584.36	155.4	1584.37
155.4	1584.38	155.6	1584.44	155.7	1584.46	155.7	1584.48	155.9	1584.51
156	1584.58	156.1	1584.59	156.2	1584.62	156.3	1584.66	156.4	1584.71
156.5	1584.72	156.7	1584.77	156.7	1584.79	156.9	1584.83	156.9	1584.84
157	1584.84	157.2	1584.89	157.7	1585	157.8	1585.02	157.9	1585.03
158	1585.05	158	1585.06	158.2	1585.09	158.2	1585.1	160.1	1585.13

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	61.2	.025	116.2	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
61.2	116.2	72	76	77	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1582.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.04	Wt. n-Val.		0.025	
W.S. Elev (ft)	1580.48	Reach Len. (ft)	72.00	76.00	77.00
Crit W.S. (ft)	1580.48	Flow Area (sq ft)		139.14	
E.G. Slope (ft/ft)	0.006580	Area (sq ft)		139.14	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	34.13	Top Width (ft)		34.13	
Vel Total (ft/s)	11.46	Avg. Vel. (ft/s)		11.46	
Max Chl Dpth (ft)	6.51	Hydr. Depth (ft)		4.08	
Conv. Total (cfs)	19662.9	Conv. (cfs)		19662.9	

Length Wtd. (ft)	76.00	Wetted Per. (ft)		37.96	
Min Ch El (ft)	1573.97	Shear (lb/sq ft)		1.51	
Alpha	1.00	Stream Power (lb/ft s)		17.26	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	0.09	8.02	0.35
C & E Loss (ft)	0.46	Cum SA (acres)	0.26	3.03	0.43

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1582.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.04	Wt. n-Val.		0.025	
W.S. Elev (ft)	1580.48	Reach Len. (ft)	72.00	76.00	77.00
Crit W.S. (ft)	1580.48	Flow Area (sq ft)		139.14	
E.G. Slope (ft/ft)	0.006581	Area (sq ft)		139.14	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	34.13	Top Width (ft)		34.13	
Vel Total (ft/s)	11.46	Avg. Vel. (ft/s)		11.46	
Max Chl Dpth (ft)	6.51	Hydr. Depth (ft)		4.08	
Conv. Total (cfs)	19661.3	Conv. (cfs)		19661.3	
Length Wtd. (ft)	76.00	Wetted Per. (ft)		37.95	
Min Ch El (ft)	1573.97	Shear (lb/sq ft)		1.51	
Alpha	1.00	Stream Power (lb/ft s)		17.27	
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	0.01	8.04	0.02
C & E Loss (ft)	0.47	Cum SA (acres)	0.02	3.03	0.02

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	61.20	72.20	12.45	3.36	4.11	0.78	0.91	3.71	0.34	1.24
2	Chan	72.20	83.20	404.20	41.68	12.05	25.34	3.79	9.70	1.42	13.78
3	Chan	83.20	94.20	1001.48	70.12	11.34	62.79	6.37	14.28	2.54	36.27
4	Chan	94.20	105.20	176.87	23.98	10.45	11.09	2.84	7.38	0.94	6.95

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	61.20	72.20	12.45	3.36	4.11	0.78	0.91	3.71	0.34	1.24
2	Chan	72.20	83.20	404.19	41.68	12.05	25.34	3.79	9.70	1.42	13.78
3	Chan	83.20	94.20	1001.50	70.12	11.34	62.79	6.37	14.28	2.54	36.27
4	Chan	94.20	105.20	176.86	23.98	10.45	11.09	2.84	7.38	0.94	6.95

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The

program defaulted to critical depth.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 1300

INPUT
Description:
Station Elevation Data num= 439

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1583.91	2.6	1583.94	3.6	1584.04	4.8	1583.94	7.6	1583.97
9.4	1583.83	9.9	1583.87	10.8	1583.85	11.4	1583.75	11.9	1583.75
12.2	1583.7	13	1583.72	14.2	1583.69	14.9	1583.59	16.2	1583.62
16.5	1583.59	16.7	1583.53	17	1583.57	17.5	1583.51	18.2	1583.5
18.5	1583.53	18.9	1583.5	19.7	1583.56	20.3	1583.51	21.1	1583.55
21.3	1583.59	22	1583.57	22.8	1583.69	23.3	1583.69	23.8	1583.74
24	1583.81	26.1	1583.84	26.1	1583.83	26.3	1583.82	26.6	1583.81
26.9	1583.82	27	1583.84	27.9	1583.8	28.6	1583.87	29.6	1583.81
30.4	1583.81	30.9	1583.86	31.1	1583.8	32.1	1583.81	33	1583.71
33.1	1583.66	34.2	1583.67	34.7	1583.6	36.2	1583.49	37.2	1583.47
38.4	1583.34	39.7	1583.38	41.3	1583.28	45.3	1583.22	45.6	1583.25
46.8	1583.25	47	1583.28	47.1	1583.28	47.5	1583.25	48.8	1583.28
49.1	1583.31	49.1	1583.32	49.3	1583.35	49.4	1583.35	49.5	1583.35
50.4	1583.38	51.6	1583.54	52.9	1583.55	53.1	1583.41	53.4	1583.31
53.4	1583.29	53.6	1583.18	53.9	1583.07	54.2	1582.84	54.4	1582.71
54.5	1582.62	54.5	1582.61	54.6	1582.52	54.7	1582.42	54.8	1582.36
54.9	1582.27	55	1582.23	55.1	1582.17	55.1	1582.14	55.31	582.027
55.4	1581.97	55.4	1581.96	55.4	1581.94	55.6	1581.8	55.6	1581.78
56	1581.53	56.1	1581.39	56.3	1581.29	56.4	1581.19	56.5	1581.11
56.6	1581.06	56.7	1580.99	56.7	1580.94	56.9	1580.81	56.9	1580.78
56.9	1580.76	57.2	1580.6	57.4	1580.39	57.5	1580.36	57.6	1580.3
57.8	1580.21	57.9	1580.14	58	1580.08	58.2	1580.02	58.3	1579.97
58.4	1579.91	58.4	1579.88	58.7	1579.7	58.8	1579.62	58.9	1579.54
58.9	1579.53	59.1	1579.39	59.4	1579.23	59.4	1579.17	59.5	1579.07
59.6	1579.05	59.7	1578.95	59.8	1578.88	59.8	1578.85	59.9	1578.78
60	1578.76	60.4	1578.57	60.4	1578.56	60.5	1578.56	60.5	1578.53
60.7	1578.43	60.7	1578.41	60.9	1578.27	61	1578.24	61	1578.18
61.8	1577.66	61.9	1577.55	62	1577.52	62	1577.5	62.2	1577.33
62.2	1577.32	62.2	1577.31	62.5	1577.14	62.5	1577.1	62.7	1577.02
63.2	1576.51	64	1575.98	66.5	1573.91	66.8	1573.73	66.8	1573.68
67	1573.52	67.3	1573.35	67.3	1573.34	68	1573.04	69	1572.97
71.1	1572.96	71.2	1572.94	71.3	1572.94	71.4	1572.93	71.6	1572.92
71.7	1572.91	72.3	1572.81	75.4	1572.88	76.6	1573.06	78.4	1573.16
78.5	1573.15	79.1	1573.09	81.2	1573.12	81.5	1573.16	82.7	1573.15
85.5	1573.4	85.5	1573.41	85.7	1573.43	85.7	1573.44	85.9	1573.47
88.2	1574.08	88.3	1574.11	88.4	1574.15	88.5	1574.19	88.7	1574.24
88.8	1574.27	88.8	1574.29	89	1574.37	89.6	1574.53	89.7	1574.58
89.8	1574.6	89.9	1574.63	89.9	1574.65	90	1574.69	90.2	1574.72

90.3	1574.76	90.4	1574.79	90.5	1574.84	90.6	1574.85	90.8	1574.9
90.8	1574.91	91	1574.94	91.2	1574.97	91.3	1574.98	91.3	1574.99
91.5	1575.02	91.5	1575.04	91.7	1575.06	91.8	1575.08	91.9	1575.11
91.9	1575.12	92.1	1575.17	92.2	1575.2	92.3	1575.21	92.3	1575.23
92.5	1575.31	92.8	1575.34	92.8	1575.36	93	1575.4	93.1	1575.41
93.2	1575.44	93.3	1575.45	93.6	1575.49	93.7	1575.49	93.8	1575.5
93.9	1575.51	94	1575.53	94.1	1575.53	94.1	1575.54	94.5	1575.59
94.6	1575.6	94.8	1575.64	94.9	1575.68	95	1575.69	95.1	1575.72
95.2	1575.75	95.3	1575.78	95.4	1575.81	95.5	1575.85	95.8	1575.96
95.8	1575.97	95.9	1575.98	96	1576.03	96.1	1576.06	96.3	1576.19
96.4	1576.21	96.5	1576.26	96.6	1576.29	97.2	1576.6	97.4	1576.69
97.4	1576.71	97.6	1576.83	97.6	1576.84	97.6	1576.85	97.7	1576.89
97.8	1576.96	97.9	1576.99	98.1	1577.1	98.1	1577.13	98.2	1577.17
98.8	1577.47	98.9	1577.52	98.9	1577.56	100	1578.07	101.4	1578.61
101.4	1578.63	101.6	1578.72	101.7	1578.79	101.8	1578.8	101.9	1578.84
102	1578.89	102.2	1578.94	102.2	1578.96	102.4	1579.01	102.5	1579.02
102.6	1579.09	102.7	1579.1	102.8	1579.13	102.9	1579.18	102.9	1579.19
103.1	1579.27	103.2	1579.29	103.5	1579.44	103.6	1579.45	103.7	1579.5
103.8	1579.54	103.8	1579.57	103.9	1579.62	104.2	1579.74	104.4	1579.87
104.4	1579.88	104.5	1579.9	104.7	1580.05	104.7	1580.07	104.7	1580.09
104.9	1580.25	105.1	1580.37	105.2	1580.44	105.3	1580.53	105.4	1580.62
105.6	1580.75	105.7	1580.81	105.8	1580.85	105.9	1580.97	105.9	1581
106	1581.02	106.1	1581.15	106.2	1581.18	106.4	1581.35	106.5	1581.38
106.6	1581.51	106.8	1581.63	106.9	1581.66	107	1581.73	107.1	1581.81
107.2	1581.91	107.3	1581.97	107.4	1582.04	107.5	1582.09	107.5	1582.13
107.7	1582.28	107.8	1582.37	108	1582.47	108	1582.49	108.2	1582.62
108.2	1582.66	108.3	1582.7	108.4	1582.78	108.5	1582.83	108.6	1582.9
108.7	1582.95	108.8	1583	109.2	1583.19	109.3	1583.21	109.5	1583.31
109.5	1583.33	110.1	1583.53	110.1	1583.56	110.2	1583.59	110.4	1583.64
110.5	1583.69	110.6	1583.71	110.7	1583.73	110.7	1583.75	110.8	1583.77
111	1583.8	111	1583.81	111.1	1583.81	111.2	1583.81	111.3	1583.81
111.5	1583.81	111.8	1583.81	111.9	1583.81	112	1583.8	112.1	1583.8
112.2	1583.8	112.3	1583.79	112.7	1583.78	112.8	1583.78	112.9	1583.78
113	1583.78	113.2	1583.8	113.3	1583.81	113.3	1583.8	113.4	1583.79
114.8	1583.75	116.7	1583.83	116.8	1583.83	116.9	1583.83	117.2	1583.81
117.3	1583.81	117.5	1583.79	117.6	1583.79	117.8	1583.81	119.3	1583.81
121.7	1583.77	121.8	1583.75	121.9	1583.75	122	1583.74	122.1	1583.73
125.3	1583.76	127.7	1583.66	131.2	1583.41	133	1583.41	134.6	1583.5
137	1583.5	138	1583.44	138.1	1583.44	138.3	1583.44	138.5	1583.44
138.6	1583.44	138.7	1583.44	138.8	1583.44	138.9	1583.44	139.1	1583.44
139.2	1583.44	139.3	1583.45	139.4	1583.45	139.5	1583.45	139.6	1583.44
139.8	1583.41	140	1583.41	140.1	1583.41	140.1	1583.4	140.3	1583.38
140.4	1583.37	140.5	1583.36	140.6	1583.36	140.7	1583.36	140.8	1583.38
143.4	1583.34	143.6	1583.37	143.7	1583.37	143.9	1583.37	144	1583.37
144.1	1583.38	144.2	1583.38	144.3	1583.38	144.4	1583.38	144.5	1583.38
144.6	1583.38	144.7	1583.38	144.8	1583.38	144.9	1583.38	145	1583.38
145.6	1583.3	145.8	1583.31	145.9	1583.31	146.1	1583.31	146.2	1583.32
146.3	1583.34	146.4	1583.34	147.7	1583.34	147.8	1583.33	147.8	1583.32
147.9	1583.31	150.9	1583.28	152.7	1583.34	152.9	1583.32	153	1583.31
153.7	1583.21	153.8	1583.21	153.9	1583.17	154	1583.15		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	55.3	.025	111.1	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
55.3	111.1	90	88	85	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1581.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.52	Wt. n-Val.		0.025	
W.S. Elev (ft)	1580.99	Reach Len. (ft)	90.00	88.00	85.00
Crit W.S. (ft)		Flow Area (sq ft)		274.49	
E.G. Slope (ft/ft)	0.001095	Area (sq ft)		274.49	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	49.20	Top Width (ft)		49.20	
Vel Total (ft/s)	5.81	Avg. Vel. (ft/s)		5.81	
Max Chl Dpth (ft)	8.18	Hydr. Depth (ft)		5.58	
Conv. Total (cfs)	48199.8	Conv. (cfs)		48199.8	
Length Wtd. (ft)	87.94	Wetted Per. (ft)		54.06	
Min Ch El (ft)	1572.81	Shear (lb/sq ft)		0.35	
Alpha	1.00	Stream Power (lb/ft s)		2.02	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	0.09	7.66	0.35
C & E Loss (ft)	0.17	Cum SA (acres)	0.26	2.96	0.43

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1581.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.46	Wt. n-Val.		0.025	
W.S. Elev (ft)	1581.35	Reach Len. (ft)	90.00	88.00	85.00
Crit W.S. (ft)		Flow Area (sq ft)		292.11	
E.G. Slope (ft/ft)	0.000918	Area (sq ft)		292.11	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	50.20	Top Width (ft)		50.20	
Vel Total (ft/s)	5.46	Avg. Vel. (ft/s)		5.46	
Max Chl Dpth (ft)	8.53	Hydr. Depth (ft)		5.82	
Conv. Total (cfs)	52649.5	Conv. (cfs)		52649.5	
Length Wtd. (ft)	88.00	Wetted Per. (ft)		55.32	
Min Ch El (ft)	1572.81	Shear (lb/sq ft)		0.30	
Alpha	1.00	Stream Power (lb/ft s)		1.65	
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	0.01	7.66	0.02
C & E Loss (ft)	0.21	Cum SA (acres)	0.02	2.96	0.02

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	55.30	66.46	109.24	32.71	12.35	6.85	3.35	3.34	0.18	0.60
2	Chan	66.46	77.62	609.73	89.13	11.47	38.23	7.99	6.84	0.53	3.63
3	Chan	77.62	88.78	570.15	85.12	11.31	35.75	7.63	6.70	0.51	3.45
4	Chan	88.78	99.94	283.03	57.44	12.09	17.74	5.15	4.93	0.32	1.60
5	Chan	99.94	111.10	22.85	10.10	6.83	1.43	1.69	2.26	0.10	0.23

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	55.30	66.46	114.90	36.26	12.97	7.20	3.53	3.17	0.16	0.51
2	Chan	66.46	77.62	600.12	93.08	11.47	37.63	8.34	6.45	0.46	3.00
3	Chan	77.62	88.78	563.03	89.07	11.31	35.30	7.98	6.32	0.45	2.85
4	Chan	88.78	99.94	289.53	61.39	12.09	18.15	5.50	4.72	0.29	1.37
5	Chan	99.94	111.10	27.41	12.30	7.46	1.72	1.91	2.23	0.09	0.21

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 1250

INPUT
Description:
Station Elevation Data num= 452

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1581.1	1.7	1581.06	2.1	1580.95	5.3	1580.77	7.1	1580.81
7.6	1580.75	10.1	1580.79	10.8	1580.75	12.4	1580.84	14.6	1580.78
15.1	1580.87	15.6	1580.84	16.6	1580.94	19.3	1581.06	20.9	1580.91
22.8	1581	24.9	1580.97	25.6	1581.02	29	1580.94	30.1	1580.97
30.7	1580.91	33.9	1581.06	36.4	1581	36.6	1581.05	37.7	1581.03
38.9	1581.12	41.4	1581.06	41.6	1581.12	42.6	1581.09	44.4	1581.16
45.5	1581.12	48.9	1581.19	50.2	1581.06	53.2	1581	54.5	1580.9
56.4	1580.91	58.4	1580.78	58.7	1580.72	59.2	1580.67	62.2	1580.97
66.1	1581.11	66.51	581.187	67.91	581.457	68.9	1581.65	69.2	1581.66
69.3	1581.66	69.4	1581.66	69.5	1581.66	69.6	1581.63	69.7	1581.62
70.5	1581.34	71.5	1580.79	72.4	1580.22	72.5	1580.22	72.7	1579.99
73.2	1579.63	73.2	1579.58	73.3	1579.51	73.4	1579.4	73.6	1579.27
73.6	1579.22	73.8	1579.1	74	1579.02	74.7	1578.53	75.3	1578.18
75.5	1578	75.7	1577.72	75.7	1577.68	76.1	1577.45	76.2	1577.38
76.2	1577.37	76.4	1577.23	76.7	1577.08	77.8	1576.27	78.6	1575.87
78.6	1575.79	79	1575.53	79	1575.49	79.2	1575.32	79.3	1575.28
80.7	1574.04	83	1572.48	83.2	1572.4	83.2	1572.38	83.3	1572.36
83.7	1572.12	84	1572.1	84	1572.09	84.2	1572.04	84.2	1572.03
84.3	1572.03	84.4	1572.01	84.5	1572	84.5	1571.99	85.9	1571.94
85.9	1571.95	86.2	1571.98	86.2	1571.99	86.3	1572	86.4	1572.03
86.5	1572.05	86.6	1572.09	86.7	1572.17	86.7	1572.21	87.2	1572.51
87.2	1572.53	88.2	1573.02	89	1573.31	89.1	1573.34	89.1	1573.35
89.2	1573.38	89.4	1573.39	89.5	1573.4	89.7	1573.4	89.8	1573.39
90	1573.38	90.1	1573.36	90.2	1573.35	90.3	1573.31	90.4	1573.28
90.5	1573.26	90.6	1573.25	90.7	1573.23	90.8	1573.22	92.3	1572.9
93.1	1572.65	93.4	1572.6	93.4	1572.59	93.6	1572.54	93.8	1572.49
94	1572.47	94.1	1572.46	94.3	1572.43	94.5	1572.41	94.6	1572.41
94.7	1572.41	94.8	1572.41	95	1572.41	96	1572.52	96.8	1573.04
97.4	1573.65	97.5	1573.75	97.7	1573.91	97.8	1574	97.9	1574.18
98.5	1574.75	98.5	1574.81	98.8	1575.01	98.8	1575.03	98.8	1575.04
99	1575.17	99	1575.19	100.4	1575.67	100.6	1575.78	100.7	1575.8
100.9	1575.9	101	1575.95	101.2	1576.04	101.4	1576.16	101.4	1576.19
101.5	1576.24	101.6	1576.29	101.7	1576.35	101.8	1576.4	101.8	1576.44
102	1576.56	102.8	1576.94	102.8	1576.96	103	1577.09	103	1577.1
103.3	1577.2	104	1577.65	104.2	1577.73	104.3	1577.78	104.4	1577.84
104.5	1577.88	104.9	1578.01	105	1578.05	105.1	1578.07	105.2	1578.09
105.3	1578.11	105.4	1578.14	105.5	1578.16	105.5	1578.18	105.6	1578.2
105.7	1578.23	105.8	1578.24	107.5	1579.12	108.5	1579.53	108.7	1579.55

108.8 1579.58	108.9 1579.59	108.9 1579.6	109 1579.62	109.1 1579.63
109.3 1579.65	110.3 1580.06	110.5 1580.08	110.5 1580.09	110.8 1580.12
111 1580.15	111.1 1580.15	111.2 1580.15	111.3 1580.15	111.4 1580.17
111.9 1580.42	112 1580.47	112.2 1580.51	112.2 1580.52	112.3 1580.56
112.4 1580.62	112.4 1580.63	112.5 1580.69	112.7 1580.73	112.7 1580.74
112.8 1580.78	112.9 1580.82	113 1580.84	113 1580.88	113.1 1580.9
113.2 1580.94	113.3 1580.97	113.5 1581.04	113.6 1581.06	113.6 1581.07
113.8 1581.13	114 1581.18	114.1 1581.19	114.3 1581.25	115.2 1581.31
117 1581.21	117.1 1581.2	117.3 1581.16	117.3 1581.15	117.4 1581.14
117.5 1581.12	117.6 1581.11	117.8 1581.06	117.8 1581.05	1181580.997
118.1 1580.97	118.1 1580.95	118.3 1580.84	118.5 1580.75	118.6 1580.73
118.6 1580.71	118.8 1580.63	118.9 1580.58	119 1580.5	119.1 1580.44
119.7 1580.23	119.8 1580.2	119.9 1580.16	120.3 1580.09	120.5 1580.08
120.6 1580.07	120.6 1580.08	120.7 1580.08	120.8 1580.09	120.9 1580.11
121.1 1580.16	121.1 1580.18	121.3 1580.22	121.4 1580.25	121.6 1580.34
121.6 1580.35	121.8 1580.46	121.9 1580.53	122.1 1580.62	122.1 1580.63
122.3 1580.77	122.3 1580.78	122.3 1580.79	122.5 1580.81	122.6 1580.82
122.6 1580.85	122.8 1580.93	122.8 1580.96	122.9 1580.99	123.1 1581.07
123.2 1581.12	123.3 1581.22	123.4 1581.28	123.5 1581.31	123.6 1581.37
123.7 1581.45	123.8 1581.52	123.9 1581.59	124 1581.6	124.2 1581.74
124.2 1581.76	124.3 1581.82	124.4 1581.87	124.6 1581.96	124.6 1582
124.8 1582.09	124.9 1582.11	125 1582.19	125.1 1582.21	125.1 1582.24
125.3 1582.35	125.3 1582.37	125.4 1582.38	125.6 1582.5	125.7 1582.6
125.8 1582.65	125.8 1582.66	126.1 1582.8	126.1 1582.82	126.1 1582.84
126.3 1582.96	126.3 1582.99	126.6 1583.38	126.8 1583.5	126.8 1583.56
126.9 1583.62	127.1 1583.75	127.2 1583.81	127.4 1583.97	127.5 1583.98
128.2 1584.42	128.4 1584.5	128.6 1584.59	128.6 1584.61	128.8 1584.67
128.8 1584.69	128.9 1584.73	129.1 1584.92	129.1 1584.95	129.3 1585.08
129.3 1585.09	129.3 1585.1	129.6 1585.16	129.8 1585.33	129.8 1585.34
129.9 1585.35	130.1 1585.43	130.9 1585.95	131.7 1586.3	131.9 1586.36
132 1586.35	132.1 1586.38	132.3 1586.34	132.4 1586.32	132.5 1586.3
132.6 1586.28	132.8 1586.26	132.8 1586.25	134.8 1586.02	138.2 1585.76
140.2 1585.44	140.3 1585.41	140.4 1585.4	140.4 1585.38	140.6 1585.32
140.6 1585.31	140.6 1585.3	141.1 1585.16	141.3 1585.1	143.9 1584.82
144.1 1584.81	144.1 1584.8	144.2 1584.8	144.4 1584.8	144.6 1584.78
144.8 1584.78	144.9 1584.78	145.1 1584.73	145.1 1584.72	145.3 1584.7
145.4 1584.69	145.6 1584.65	145.6 1584.64	145.7 1584.62	145.8 1584.59
145.9 1584.58	145.9 1584.57	146 1584.56	146.1 1584.55	146.2 1584.54
146.4 1584.51	146.5 1584.49	146.6 1584.47	146.7 1584.46	146.9 1584.45
147 1584.46	147 1584.47	147.1 1584.47	147.2 1584.47	147.3 1584.46
147.4 1584.46	147.5 1584.43	147.6 1584.4	148.4 1584.07	148.4 1584.06
148.4 1584.05	148.6 1583.94	148.9 1583.82	148.9 1583.81	149.3 1583.61
149.4 1583.59	149.4 1583.57	149.6 1583.5	149.6 1583.47	150.5 1583.11
150.6 1583.06	150.8 1583.01	152.1 1582.54	152.2 1582.53	152.4 1582.47
152.5 1582.43	152.6 1582.38	152.6 1582.37	152.9 1582.32	152.9 1582.3
153.1 1582.26	153.2 1582.24	153.6 1582.17	154.9 1582.12	157.8 1582.15
160.4 1582.28	162.7 1582.25	162.7 1582.26	162.8 1582.27	162.9 1582.28
163 1582.28	163.1 1582.28	163.2 1582.28	163.2 1582.29	163.4 1582.31
163.6 1582.34	165.9 1582.41	166 1582.41	166.1 1582.41	166.2 1582.41
166.3 1582.39	166.4 1582.38	169.3 1582.57	169.3 1582.58	169.4 1582.59

169.5	1582.61	169.6	1582.61	169.8	1582.63	169.9	1582.64	170	1582.64
170.1	1582.65	170.3	1582.67	170.4	1582.69	170.5	1582.69	170.7	1582.69
170.9	1582.71	171.8	1582.72						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	66.5	.025	99	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
66.5	99	84.6	84.6	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1581.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.26	Wt. n-Val.		0.025	0.040
W.S. Elev (ft)	1578.89	Reach Len. (ft)	84.60	84.60	84.60
Crit W.S. (ft)	1578.89	Flow Area (sq ft)		124.97	15.01
E.G. Slope (ft/ft)	0.006020	Area (sq ft)		124.97	15.01
Q Total (cfs)	1595.00	Flow (cfs)		1534.09	60.91
Top Width (ft)	32.87	Top Width (ft)		24.81	8.06
Vel Total (ft/s)	11.39	Avg. Vel. (ft/s)		12.28	4.06
Max Chl Dpth (ft)	6.95	Hydr. Depth (ft)		5.04	1.86
Conv. Total (cfs)	20557.5	Conv. (cfs)		19772.4	785.1
Length Wtd. (ft)	84.60	Wetted Per. (ft)		28.78	8.99
Min Ch El (ft)	1571.94	Shear (lb/sq ft)		1.63	0.63
Alpha	1.12	Stream Power (lb/ft s)		20.04	2.55
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	0.09	7.25	0.33
C & E Loss (ft)	0.26	Cum SA (acres)	0.26	2.89	0.42

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1581.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.54	Wt. n-Val.		0.025	
W.S. Elev (ft)	1578.88	Reach Len. (ft)	84.60	84.60	84.60
Crit W.S. (ft)	1578.88	Flow Area (sq ft)		124.69	
E.G. Slope (ft/ft)	0.007694	Area (sq ft)		124.69	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	24.80	Top Width (ft)		24.80	
Vel Total (ft/s)	12.79	Avg. Vel. (ft/s)		12.79	
Max Chl Dpth (ft)	6.94	Hydr. Depth (ft)		5.03	
Conv. Total (cfs)	18183.6	Conv. (cfs)		18183.6	

Length Wtd. (ft)	84.60	Wetted Per. (ft)		32.44		
Min Ch El (ft)	1571.94	Shear (lb/sq ft)		1.85		
Alpha	1.00	Stream Power (lb/ft s)		23.61		
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)	0.01	7.24	0.02	
C & E Loss (ft)	0.36	Cum SA (acres)	0.02	2.88	0.02	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	73.00	79.50	56.96	10.08	6.64	3.57	1.90	5.65	0.57	3.22
2	Chan	79.50	86.00	490.73	38.58	7.54	30.77	5.94	12.72	1.92	24.47
3	Chan	86.00	92.50	520.87	38.70	6.94	32.66	5.95	13.46	2.09	28.19
4	Chan	92.50	99.00	465.53	37.61	7.65	29.19	5.79	12.38	1.85	22.87
5	ROB	99.00	113.56	60.91	15.01	8.99	3.82	1.86	4.06	0.63	2.55

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)

1	Chan	73.00	79.50	63.39	10.02	6.62	3.97	1.89	6.33	0.73
4.60										
2	Chan	79.50	86.00	548.74	38.51	7.54	34.40	5.92	14.25	2.45
34.97										
3	Chan	86.00	92.50	582.46	38.63	6.94	36.52	5.94	15.08	2.67
40.29										
4	Chan	92.50	99.00	400.41	37.53	11.34	25.10	5.77	10.67	1.59
16.96										

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 1200

INPUT
Description:
Station Elevation Data num= 303

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1580.48	.7	1580.4	1.6	1580.38	7.1	1580.44	7.6	1580.38
11.3	1580.38	14.3	1580.23	15.1	1580.28	17.1	1580.25	18.2	1580.2
19.3	1580.09	21.8	1580.09	24.3	1580.23	25.5	1580.16	26.4	1580.16
26.8	1580.13	26.9	1580.12	27.1	1580.1	27.3	1580.03	27.9	1580.09
29.1	1580.06	30.3	1580.12	30.6	1580.09	31.1	1580.09	32.3	1580.19
33.8	1580.22	35.8	1580.41	37.1	1580.37	37.2	1580.44	39.3	1581.17
39.8	1581.16	40.5	1580.95	41.8	1580.45	41.8	1580.42	42.2	1580.16
42.3	1580.11	42.3	1580.04	43.3	1579.41	43.3	1579.36	44	1578.87
44.2	1578.79	44.5	1578.54	44.6	1578.51	44.7	1578.48	44.8	1578.38
44.9	1578.35	45	1578.28	45.1	1578.26	45.1	1578.23	45.3	1578.16
45.3	1578.13	45.6	1578.01	45.6	1577.97	45.8	1577.83	45.8	1577.79
46.1	1577.63	46.1	1577.6	46.1	1577.58	46.3	1577.47	46.3	1577.45
46.4	1577.42	46.6	1577.29	46.6	1577.27	46.6	1577.24	47.6	1576.53
47.8	1576.42	47.9	1576.4	48.1	1576.26	48.4	1576.12	48.8	1575.84
49.1	1575.72	49.1	1575.71	49.3	1575.59	49.6	1575.44	49.6	1575.43
49.8	1575.22	49.9	1575.21	50.3	1574.81	50.4	1574.8	50.6	1574.56
51.1	1574.12	51.3	1573.82	51.4	1573.79	51.6	1573.53	52.1	1573.1
52.1	1573.06	52.1	1573.03	52.3	1572.88	52.4	1572.81	52.6	1572.66
52.6	1572.62	52.6	1572.59	52.8	1572.45	52.8	1572.41	52.9	1572.38
53.1	1572.2	53.3	1572.1	54.5	1571.83	55.3	1571.78	56.8	1571.78

```
      58 1571.86    58.3 1571.89    58.8 1571.97    62.9 1571.65    64.3 1571.72
    65.6 1572.05    65.6 1572.06    65.8 1572.17    65.8 1572.19    66.1 1572.31
    66.1 1572.33    66.3 1572.44    66.4 1572.45    66.6 1572.55    66.8 1572.72
    66.9 1572.73    67.4 1572.98    67.6 1573.11    67.6 1573.12    67.6 1573.13
    67.8 1573.25    67.9 1573.26    68.3 1573.65    68.4 1573.66    68.8 1574.03
    69.1 1574.22    69.3 1574.41    69.4 1574.41    69.8 1574.75    69.9 1574.76
    70.6 1575.22    71.4 1575.25    71.6 1575.22    73.7 1576.14    73.8  1576.2
    73.8 1576.23    73.9 1576.27      74 1576.33    74.1 1576.36    74.2 1576.39
    74.3 1576.45    74.3 1576.48    74.4  1576.5    74.5 1576.54    74.7 1576.61
    74.8 1576.66    74.8  1576.7    74.9 1576.73    75.1  1576.8    75.2 1576.85
    75.3  1576.9    75.3 1576.95    75.8 1577.15    75.8  1577.2    75.9 1577.23
      76 1577.26    76.1 1577.29    77.1 1577.66    77.5 1577.87    77.6 1577.93
      78 1578.04    78.1  1578.1    78.2 1578.15    78.3 1578.21    79.5 1578.54
    80.7 1579.11    80.8 1579.15    80.9 1579.19    81.1 1579.24    81.2 1579.28
    81.3  1579.3    81.3 1579.34    81.6  1579.4    81.7 1579.4181.79878 1579.42
    81.8 1579.42    82.2 1579.45    82.3 1579.46    82.3 1579.47    82.4 1579.46
    82.5 1579.46    82.6 1579.46    82.9 1579.44      83 1579.46    83.1 1579.46
    83.2 1579.46    83.3 1579.46    83.3 1579.47    83.4 1579.47    83.5 1579.49
    83.7  1579.5    83.8  1579.5    83.9  1579.5      84 1579.52    84.1 1579.52
    84.8 1579.53    84.9 1579.54    85.1 1579.56    85.1 1579.57    85.3 1579.61
    85.3 1579.62    85.4 1579.63    85.6 1579.65    85.6 1579.66    85.6 1579.67
    85.8 1579.72    85.9 1579.73    86.1 1579.76    86.3 1579.78    86.6 1579.85
    88.4 1580.09    89.6 1579.85    89.8 1579.79    89.8 1579.78    90.1 1579.72
    90.3 1579.66    90.4 1579.65    90.6 1579.59    90.8 1579.53    90.9 1579.52
    91.1 1579.45    91.3 1579.39    91.3 1579.38    91.4 1579.38    91.6  1579.4
    91.6 1579.41    91.8 1579.41    92.1 1579.43    92.1 1579.44    92.3 1579.47
    92.6  1579.5    92.6 1579.51    92.8 1579.55    92.8 1579.56    92.9 1579.58
      93 1579.61    93.2 1579.64    93.3 1579.69    93.4 1579.69    93.5  1579.7
    93.6  1579.7    93.8 1579.63    94.3 1579.52    95.5 1579.29    95.7 1579.28
    95.8 1579.28    95.9 1579.27    96.1 1579.25    96.2 1579.25    96.5 1579.24
    96.6 1579.24    96.7 1579.23    96.8 1579.21      97 1579.21    97.1 1579.21
    97.2 1579.21    97.3 1579.21    97.5 1579.22    97.5 1579.23    97.6 1579.24
    99.1 1579.23    99.2 1579.28    99.2 1579.29    99.3 1579.34    99.5  1579.4
   100.2 1579.77   100.8 1579.96   100.9 1579.99   101.1 1580.04   101.2 1580.07
   101.3  1580.1   101.4 1580.16   101.6 1580.22   101.7 1580.24   101.8 1580.26
   101.8 1580.28   101.9 1580.31     102 1580.34   102.1 1580.38   102.2 1580.39
   102.3 1580.44   102.5 1580.48   102.6  1580.5   102.7 1580.52   102.8 1580.54
   102.8 1580.56   102.9 1580.58     103 1580.63   103.3 1580.69   103.3 1580.71
   103.6 1580.74   103.7 1580.76   103.8 1580.79   103.8 1580.81   103.9 1580.82
     104 1580.85   104.2 1580.87   104.3 1580.89   104.3  1580.9   104.4  1580.9
   104.6  1580.9   104.8 1580.94   107.3 1580.91

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04      44    .025    79.5     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            44    79.5              110   109.8     116             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
```

0	39	1582	F
82	107.3	1582	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1580.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.39	Wt. n-Val.	0.040	0.025	0.040
W.S. Elev (ft)	1579.10	Reach Len. (ft)	110.00	109.80	116.00
Crit W.S. (ft)	1578.23	Flow Area (sq ft)	0.04	168.73	0.33
E.G. Slope (ft/ft)	0.003721	Area (sq ft)	0.04	168.73	0.33
Q Total (cfs)	1595.00	Flow (cfs)	0.02	1594.69	0.30
Top Width (ft)	37.00	Top Width (ft)	0.33	35.50	1.18
Vel Total (ft/s)	9.43	Avg. Vel. (ft/s)	0.47	9.45	0.90
Max Chl Dpth (ft)	7.45	Hydr. Depth (ft)	0.11	4.75	0.28
Conv. Total (cfs)	26148.3	Conv. (cfs)	0.3	26143.2	4.9
Length Wtd. (ft)	109.80	Wetted Per. (ft)	0.40	40.09	1.30
Min Ch El (ft)	1571.65	Shear (lb/sq ft)	0.02	0.98	0.06
Alpha	1.00	Stream Power (lb/ft s)	0.01	9.24	0.05
Frctn Loss (ft)	0.52	Cum Volume (acre-ft)	0.09	6.97	0.32
C & E Loss (ft)	0.09	Cum SA (acres)	0.26	2.83	0.41

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1580.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.35	Wt. n-Val.		0.025	
W.S. Elev (ft)	1579.16	Reach Len. (ft)	110.00	109.80	116.00
Crit W.S. (ft)	1578.23	Flow Area (sq ft)		170.96	
E.G. Slope (ft/ft)	0.003671	Area (sq ft)		170.96	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	35.50	Top Width (ft)		35.50	
Vel Total (ft/s)	9.33	Avg. Vel. (ft/s)		9.33	
Max Chl Dpth (ft)	7.51	Hydr. Depth (ft)		4.82	
Conv. Total (cfs)	26325.2	Conv. (cfs)		26325.2	
Length Wtd. (ft)	109.80	Wetted Per. (ft)		41.00	
Min Ch El (ft)	1571.65	Shear (lb/sq ft)		0.96	
Alpha	1.00	Stream Power (lb/ft s)		8.92	
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	0.01	6.95	0.02
C & E Loss (ft)	0.10	Cum SA (acres)	0.02	2.82	0.02

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	39.00	44.00	0.02	0.04	0.40	0.00	0.11	0.47	0.02	0.01
2	Chan	44.00	51.10	87.41	17.49	8.80	5.48	2.46	5.00	0.46	2.31
3	Chan	51.10	58.20	516.53	48.95	8.03	32.38	6.89	10.55	1.42	14.94
4	Chan	58.20	65.30	613.53	51.82	7.15	38.47	7.30	11.84	1.68	19.92
5	Chan	65.30	72.40	313.84	36.70	8.25	19.68	5.17	8.55	1.03	8.83
6	Chan	72.40	79.50	63.38	13.77	7.85	3.97	1.94	4.60	0.41	1.88
7	ROB	79.50	82.00	0.30	0.33	1.30	0.02	0.28	0.90	0.06	0.05

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	44.00	51.10	87.84	17.94	9.09	5.51	2.53	4.90	0.45	2.21
2	Chan	51.10	58.20	516.40	49.40	8.03	32.38	6.96	10.45	1.41	14.74
3	Chan	58.20	65.30	612.86	52.26	7.15	38.42	7.36	11.73	1.67	19.64
4	Chan	65.30	72.40	315.34	37.14	8.25	19.77	5.23	8.49	1.03	8.76
5	Chan	72.40	79.50	62.56	14.22	8.47	3.92	2.00	4.40	0.38	1.69

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 1100

INPUT
Description:
Station Elevation Data num= 337

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1580.21	.8	1580.28	1.3	1580.25	3.3	1580.28	4.4	1580.15
5.3	1580.16	7.6	1580	9.8	1579.99	10.3	1579.91	11.3	1579.85
13.1	1580	15.6	1579.86	16.3	1579.93	17.9	1579.94	20.1	1580.24
22.4	1580.22	23.4	1580.29	23.9	1580.25	26.9	1580.28	27.6	1580.38
30.8	1580.38	31.6	1580.5	33.1	1580.88	33.2	1580.88	33.3	1580.88
33.4	1580.88	33.9	1580.68	34.9	1580.09	35.4	1579.69	35.5	1579.66
35.6	1579.6	35.9	1579.32	35.9	1579.27	36.1	1579.11	36.1	1579.07
36.4	1578.84	36.4	1578.81	36.9	1578.52	36.9	1578.5	37.1	1578.31
37.4	1578.14	37.8	1577.76	38.1	1577.58	38.1	1577.53	38.5	1577.3
38.5	1577.25	39	1576.956	39.3	1576.78	39.6	1576.49	40	1576.22
40	1576.16	40.2	1576.05	40.4	1575.94	40.5	1575.89	41.1	1575.38
41.2	1575.36	41.4	1575.23	41.4	1575.22	41.6	1575.04	41.6	1575.03
41.7	1574.96	41.9	1574.88	42.4	1574.53	42.4	1574.5	42.4	1574.48
42.6	1574.35	42.6	1574.32	43	1574.15	43.1	1574.07	43.2	1573.98
43.3	1573.92	43.4	1573.88	43.5	1573.76	44.3	1573.25	44.4	1573.14
44.6	1572.89	45.1	1572.4	45.1	1572.3	45.6	1571.75	46.1	1571.1
46.1	1571.07	46.4	1570.81	46.6	1570.72	47.2	1570.72	47.4	1570.69
48.9	1570.62	50.1	1570.66	51.2	1570.66	53.2	1570.82	53.2	1570.83
53.9	1570.94	54	1570.99	54.2	1571.03	54.3	1571.06	54.6	1571.15
54.9	1571.25	55.2	1571.31	55.2	1571.33	55.4	1571.38	55.4	1571.4
55.5	1571.41	55.6	1571.45	55.7	1571.46	55.7	1571.48	55.9	1571.52
55.9	1571.53	56.1	1571.59	56.2	1571.59	56.2	1571.6	56.6	1571.72
56.7	1571.72	56.9	1571.78	56.9	1571.79	57.1	1571.86	57.2	1571.89
57.4	1571.94	57.7	1572	57.7	1572.03	57.8	1572.07	57.9	1572.1
58.1	1572.18	58.2	1572.22	58.3	1572.26	58.4	1572.33	58.5	1572.39
58.5	1572.41	58.7	1572.48	59	1572.71	59.3	1572.87	59.4	1572.94
59.5	1572.99	59.6	1573.04	59.7	1573.09	59.7	1573.13	59.8	1573.18
59.9	1573.22	60.1	1573.34	60.2	1573.38	60.2	1573.41	60.4	1573.5
60.4	1573.53	60.5	1573.55	60.6	1573.64	60.7	1573.66	60.7	1573.68
60.9	1573.8	60.9	1573.82	61.2	1573.96	61.2	1573.97	61.3	1574.04
61.4	1574.09	61.4	1574.1	61.6	1574.24	61.9	1574.39	62.1	1574.47
62.2	1574.49	62.2	1574.51	62.4	1574.58	62.4	1574.61	62.7	1574.73
62.9	1574.79	63.2	1574.85	63.3	1574.87	63.4	1574.89	63.5	1574.92
63.6	1574.93	63.7	1574.95	64	1575.06	64.1	1575.07	64.2	1575.09
64.4	1575.16	64.7	1575.22	64.7	1575.24	64.8	1575.26	64.9	1575.28
65.2	1575.32	65.2	1575.33	65.4	1575.37	65.5	1575.38	65.6	1575.4
66.9	1575.56	67	1575.56	67.1	1575.56	67.2	1575.57	67.5	1575.59
68.3	1575.58	69.4	1575.71	69.5	1575.71	69.6	1575.71	69.7	1575.72
69.9	1575.73	69.9	1575.74	71.7	1575.75	71.9	1575.76	72	1575.76
72.1	1575.76	72.2	1575.76	72.2	1575.77	72.4	1575.79	72.6	1575.81
72.7	1575.82	72.8	1575.82	72.9	1575.82	73	1575.82	73.1	1575.83
73.9	1575.83	74	1575.85	74.1	1575.86	74.2	1575.88	74.3	1575.89
74.3	1575.91	74.4	1575.93	74.6	1575.97	74.7	1576.01	74.9	1576.04

74.9	1576.06	75.1	1576.09	75.2	1576.09	76.7	1576.46	76.9	1576.49
78.6	1576.5	79.3	1576.57	79.4	1576.58	79.4	1576.59	79.7	1576.66
80.2	1576.78	80.4	1576.88	80.5	1576.88	80.7	1576.94	80.9	1576.98
80.9	1577	81.2	1577.03	82.9	1577.41	83.1	1577.43	83.2	1577.45
83.3	1577.48	83.4	1577.5	83.6	1577.51	83.7	1577.53	83.8	1577.55
83.8	1577.56	83.9	1577.58	84.1	1577.61	84.2	1577.62	84.3	1577.65
84.4	1577.71	84.5	1577.73	84.7	1577.78	84.7	1577.8	84.9	1577.88
85	1577.9	85.2	1578.03	85.5	1578.2	85.7	1578.37	85.7	1578.38
85.7	1578.41	85.9	1578.56	86	1578.57	86.2	1578.73	86.2	1578.75
86.2	1578.77	86.4	1578.91	86.4	1578.94	86.5	1578.96	86.7	1579.1
86.7	1579.14	86.9	1579.24	87.1	1579.42	87.2	1579.48	87.4	1579.58
87.4	1579.64	87.5	1579.7	87.6	1579.75	87.7	1579.81	87.8	1579.88
88.1	1580	88.2	1580.03	88.3	1580.03	88.7	1580.02	88.8	1580.03
89.5	1580.1	89.6	1580.1	89.7	1580.1	89.7	1580.11	89.9	1580.12
90	1580.13	90.7	1580.25	90.9	1580.31	91	1580.31	91.2	1580.34
91.2	1580.35	91.4	1580.39	91.5	1580.4	91.7	1580.45	91.7	1580.46
91.8	1580.48	91.9	1580.52	92	1580.55	94.7	1580.81	94.9	1580.84
95	1580.85	95.2	1580.88	95.5	1580.94	95.5	1580.95	95.7	1580.97
96	1581.03	96.2	1581.06	96.2	1581.07	96.4	1581.09	96.5	1581.09
96.5	1581.1	96.7	1581.12	96.8	1581.13	96.9	1581.15	97	1581.16
97	1581.17	97.1	1581.18	97.2	1581.19	97.3	1581.2	97.4	1581.22
97.6	1581.26	97.7	1581.28	98.1	1581.33	98.3	1581.36	99	1581.41
99.4	1581.46	99.5	1581.47	99.7	1581.5	99.9	1581.5	100	1581.5
100.4	1581.56	101.7	1581.63	101.8	1581.64	101.9	1581.65	102	1581.66
102.7	1581.72	103.1	1581.72						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	39	.025	67.2	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
39	67.2	106.5	107.2	112	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
67.2	103.1	1580	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1579.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.30	Wt. n-Val.	0.040	0.025	
W.S. Elev (ft)	1577.57	Reach Len. (ft)	106.50	107.20	112.00
Crit W.S. (ft)	1577.57	Flow Area (sq ft)	0.30	131.10	
E.G. Slope (ft/ft)	0.006367	Area (sq ft)	0.30	131.10	21.39
Q Total (cfs)	1595.00	Flow (cfs)	0.36	1594.64	
Top Width (ft)	45.77	Top Width (ft)	0.90	28.20	16.67
Vel Total (ft/s)	12.14	Avg. Vel. (ft/s)	1.22	12.16	
Max Chl Dpth (ft)	6.95	Hydr. Depth (ft)	0.33	4.65	
Conv. Total (cfs)	19989.1	Conv. (cfs)	4.6	19984.5	
Length Wtd. (ft)	107.20	Wetted Per. (ft)	1.14	31.92	
Min Ch El (ft)	1570.62	Shear (lb/sq ft)	0.10	1.63	

Alpha	1.00	Stream Power (lb/ft s)	0.13	19.86	
Frctn Loss (ft)	0.51	Cum Volume (acre-ft)	0.09	6.59	0.29
C & E Loss (ft)	0.26	Cum SA (acres)	0.26	2.75	0.39

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1579.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.31	Wt. n-Val.		0.025	
W.S. Elev (ft)	1577.56	Reach Len. (ft)	106.50	107.20	112.00
Crit W.S. (ft)	1577.56	Flow Area (sq ft)		130.76	
E.G. Slope (ft/ft)	0.007132	Area (sq ft)		130.76	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	28.20	Top Width (ft)		28.20	
Vel Total (ft/s)	12.20	Avg. Vel. (ft/s)		12.20	
Max Chl Dpth (ft)	6.94	Hydr. Depth (ft)		4.64	
Conv. Total (cfs)	18886.5	Conv. (cfs)		18886.5	
Length Wtd. (ft)	107.20	Wetted Per. (ft)		34.52	
Min Ch El (ft)	1570.62	Shear (lb/sq ft)		1.69	
Alpha	1.00	Stream Power (lb/ft s)		20.58	
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	0.01	6.57	0.02
C & E Loss (ft)	0.27	Cum SA (acres)	0.02	2.74	0.02

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power

		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	LOB	31.20	39.00	0.36	0.30	1.14	0.02	0.33	1.22	0.10	0.13
2	Chan	39.00	44.64	105.27	14.88	7.11	6.60	2.64	7.08	0.83	5.88
3	Chan	44.64	50.28	501.11	36.91	6.64	31.42	6.54	13.58	2.21	30.01
4	Chan	50.28	55.92	562.43	37.50	5.81	35.26	6.65	15.00	2.57	38.48
5	Chan	55.92	61.56	317.08	27.73	6.45	19.88	4.92	11.43	1.71	19.53
6	Chan	61.56	67.20	108.74	14.08	5.91	6.82	2.50	7.72	0.95	7.32
7	ROB	67.20	74.38	0.00	13.24	7.24	0.00	1.84	0.00	0.73	0.00
8	ROB	74.38	81.56	0.00	7.64	7.37	0.00	1.06	0.00	0.41	0.00
9	ROB	81.56	88.74	0.00	0.51	2.37	0.00	0.22	0.00	0.09	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	Chan	39.00	44.64	100.89	14.81	7.72	6.33	2.63	6.81	0.85	5.82
2	Chan	44.64	50.28	509.51	36.84	6.64	31.94	6.53	13.83	2.47	34.18
3	Chan	50.28	55.92	571.89	37.43	5.81	35.86	6.64	15.28	2.87	43.83
4	Chan	55.92	61.56	322.07	27.66	6.45	20.19	4.90	11.64	1.91	22.22
5	Chan	61.56	67.20	90.63	14.01	7.90	5.68	2.48	6.47	0.79	5.11

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 1000

INPUT
Description:
Station Elevation Data num= 174

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1579.85	1.6	1579.88	2.4	1579.81	2.9	1579.88	3.4	1579.81
4.1	1579.84	5.1	1579.75	5.9	1579.81	6.1	1579.75	6.6	1579.75
7.1	1579.62	7.6	1579.57	10.4	1579.51	10.8	1579.45	12.6	1579.41
13.6	1579.32	15.9	1579.35	17.4	1579.28	19.4	1579.34	21.4	1579.23
22.2	1579.32	23.6	1579.38	24.6	1579.33	25.4	1579.45	27.1	1579.44
29.4	1579.59	30.1	1579.57	32.1	1579.69	33.5	1579.69	34.6	1579.83
34.9	1579.77	35.7	1579.98	36.4	1580.04	37	1580.2	37.6	1580.24
38.6	1580.42	39.4	1580.34	39.9	1580.19	40.9	1579.51	41.1	1579.22
41.4	1579.15	41.6	1579.02	41.6	1579.01	41.7	1578.99	41.8	1578.87
41.9	1578.85	42.3	1578.46	42.7	1578.24	42.9	1578.02	43.4	1577.7
43.4	1577.65	43.6	1577.56	43.6	1577.51	44	1577.29	44.3	1576.87
44.4	1576.73	44.5	1576.67	44.5	1576.59	44.9	1576.44	451	576.295
45.1	1576.15	45.2	1576.05	45.5	1575.86	45.5	1575.85	45.7	1575.75
45.8	1575.75	45.9	1575.7	46.1	1575.45	46.4	1575.31	47.7	1574.29
48	1574.09	48.3	1573.95	48.4	1573.9	48.4	1573.86	48.6	1573.81
49.4	1573.19	50.2	1572.76	50.3	1572.62	50.9	1572.27	50.9	1572.25
51.1	1572.07	51.4	1571.91	51.6	1571.75	52.1	1571.15	52.4	1571.01
52.6	1570.83	52.9	1570.7	53.1	1570.54	53.2	1570.51	53.3	1570.42
53.9	1570.29	54.9	1570.31	55	1570.3	55.2	1570.27	55.5	1570.23
57.1	1570.16	59.4	1570.16	61.1	1569.97	61.2	1569.98	61.4	1570.03
61.4	1570.04	61.6	1570.06	62.1	1570.12	62.4	1570.12	62.6	1570.09
62.9	1570.12	63.4	1570.09	65.2	1570.18	65.3	1570.24	65.4	1570.26
65.4	1570.29	65.6	1570.36	65.9	1570.6	66.1	1570.68	66.1	1570.73
66.2	1570.78	66.6	1571.07	66.6	1571.15	66.7	1571.22	67	1571.53
68.2	1572.47	68.3	1572.48	68.4	1572.55	68.9	1572.55	69	1572.57
69.1	1572.59	69.2	1572.61	69.9	1572.61	70	1572.63	70	1572.65
70.1	1572.68	70.2	1572.7	70.4	1572.75	71.1	1573.12	71.1	1573.16
71.4	1573.28	71.4	1573.3	71.6	1573.35	72.9	1573.98	72.9	1574

72.9	1574.02	73.1	1574.14	73.1	1574.16	73.2	1574.18	73.6	1574.5
73.6	1574.51	73.9	1574.62	74.6	1575.16	75.2	1575.48	75.6	1575.75
75.7	1575.76	75.8	1575.88	75.9	1575.9	76.1	1576	76.3	1576.13
76.6	1576.25	78.2	1576.47	78.3	1576.49	78.5	1576.53	78.5	1576.54
78.6	1576.56	78.8	1576.62	791	1576.734	80.2	1577.42	80.4	1577.48
80.5	1577.54	80.5	1577.56	80.6	1577.62	80.7	1577.67	81.1	1577.86
81.499	1577.95	81.5	1577.95	81.5	1577.98	82.6	1578.16		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	45	.025	79	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
45	79	117	120.2	120.2	.1	.3

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1578.74	Element			
Vel Head (ft)	1.42	Wt. n-Val.	0.040	0.025	0.040
W.S. Elev (ft)	1577.32	Reach Len. (ft)	117.00	120.20	120.20
Crit W.S. (ft)		Flow Area (sq ft)	0.60	166.51	0.30
E.G. Slope (ft/ft)	0.003639	Area (sq ft)	0.60	166.51	0.30
Q Total (cfs)	1595.00	Flow (cfs)	0.72	1594.01	0.27
Top Width (ft)	36.08	Top Width (ft)	1.06	34.00	1.03
Vel Total (ft/s)	9.53	Avg. Vel. (ft/s)	1.20	9.57	0.90
Max Chl Dpth (ft)	7.35	Hydr. Depth (ft)	0.57	4.90	0.29
Conv. Total (cfs)	26439.5	Conv. (cfs)	12.0	26423.0	4.5
Length Wtd. (ft)	120.20	Wetted Per. (ft)	1.55	38.17	1.18
Min Ch El (ft)	1569.97	Shear (lb/sq ft)	0.09	0.99	0.06
Alpha	1.01	Stream Power (lb/ft s)	0.11	9.49	0.05
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	0.09	6.22	0.26
C & E Loss (ft)	0.15	Cum SA (acres)	0.26	2.67	0.37

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #FLOODWAY

			Left OB	Channel	Right OB
E.G. Elev (ft)	1578.76	Element			
Vel Head (ft)	1.40	Wt. n-Val.		0.025	
W.S. Elev (ft)	1577.36	Reach Len. (ft)	117.00	120.20	120.20
Crit W.S. (ft)		Flow Area (sq ft)		167.85	
E.G. Slope (ft/ft)	0.003758	Area (sq ft)		167.85	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	34.00	Top Width (ft)		34.00	
Vel Total (ft/s)	9.50	Avg. Vel. (ft/s)		9.50	
Max Chl Dpth (ft)	7.39	Hydr. Depth (ft)		4.94	
Conv. Total (cfs)	26016.8	Conv. (cfs)		26016.8	
Length Wtd. (ft)	120.20	Wetted Per. (ft)		39.86	

Min Ch El (ft)	1569.97	Shear (lb/sq ft)		0.99	
Alpha	1.00	Stream Power (lb/ft s)		9.39	
Frctn Loss (ft)	0.33	Cum Volume (acre-ft)	0.01	6.21	0.02
C & E Loss (ft)	0.15	Cum SA (acres)	0.02	2.67	0.02

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	36.00	45.00	0.72	0.60	1.55	0.05	0.57	1.20	0.09	0.11
2	Chan	45.00	51.80	144.72	23.22	8.46	9.07	3.42	6.23	0.62	3.89
3	Chan	51.80	58.60	524.59	47.19	7.21	32.89	6.94	11.12	1.49	16.53
4	Chan	58.60	65.40	577.03	49.06	6.89	36.18	7.21	11.76	1.62	19.04
5	Chan	65.40	72.20	292.91	34.57	7.94	18.36	5.08	8.47	0.99	8.39
6	Chan	72.20	79.00	54.76	12.47	7.68	3.43	1.83	4.39	0.37	1.62
7	ROB	79.00	79.72	0.26	0.27	0.83	0.02	0.38	0.95	0.08	0.07
8	ROB	79.72	80.44	0.01	0.03	0.35	0.00	0.09	0.36	0.02	0.01

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	45.00	51.80	135.98	23.49	9.52	8.53	3.45	5.79	0.58	3.35
2	Chan	51.80	58.60	528.33	47.46	7.21	33.12	6.98	11.13	1.54	17.19
3	Chan	58.60	65.40	580.94	49.33	6.89	36.42	7.25	11.78	1.68	19.79
4	Chan	65.40	72.20	296.02	34.83	7.94	18.56	5.12	8.50	1.03	8.75

5	Chan	72.20	79.00	53.72	12.74	8.30	3.37	1.87	4.22	0.36
1.52										

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 900

INPUT
Description:
Station Elevation Data num= 299

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1579.13	3.2	1579.25	3.7	1579.32	4	1579.28	5	1579.31
5.7	1579.25	7	1579.28	7.2	1579.33	9.6	1579.28	10.6	1579.39
12.5	1579.41	16.2	1579.31	17.5	1579.2	19.5	1579.28	20.5	1579.22
25.5	1579.21	27	1579.08	27.7	1578.95	28.7	1579.02	30.5	1578.92
31.1	1578.97	34.7	1578.92	35.3	1578.97	36.1	1578.92	37.2	1578.97
39.5	1578.89	44	1578.88	45.8	1579.04	48	1579.01	48.1	1579.03
48.1	1579.05	48.2	1579.07	49.2	1579.11	50	1579.26	51.2	1579.2
53.2	1579.41	54	1579.39	54.9	1579.56	56.1	1580.1	57.499	1580.5
57.5	1580.5	58.4	1580.29	60	1579.66	60.9	1579.05	61.7	1578.33
61.8	1578.29	61.9	1578.26	62	1578.21	62.3	1578	62.4	1577.96
63.2	1577.3	64	1576.86	64.6	1576.41	65.1	1576.09	65.2	1576.04
65.5	1575.92	65.9	1575.63	66	1575.55	66.3	1575.2	66.5	1575.08
66.7	1574.96	67	1574.88	67.5	1574.5	67.6	1574.4	67.8	1574.26
67.9	1574.23	68.1	1574.1	68.1	1574.06	68.2	1573.99	68.5	1573.86
68.6	1573.77	68.6	1573.74	68.7	1573.66	68.8	1573.59	68.9	1573.56
69	1573.5	69.2	1573.39	69.5	1573.31	70.5	1572.49	71	1572.02
71.8	1570.89	71.9	1570.85	72.1	1570.63	72.7	1570.17	73.6	1569.59
73.7	1569.54	73.8	1569.52	75.1	1569.38	78.2	1569.29	79	1569.11
81.6	1569.29	81.6	1569.3	81.7	1569.31	81.8	1569.33	82.3	1569.4
82.4	1569.41	83.7	1569.71	85.9	1569.81	86	1569.83	86.1	1569.87
86.3	1569.93	86.4	1569.94	86.5	1569.97	86.6	1570.01	86.7	1570.03
86.9	1570.06	87	1570.07	88.2	1571.08	88.3	1571.14	88.4	1571.17
88.6	1571.29	88.6	1571.32	88.7	1571.38	89.1	1571.6	89.2	1571.66
89.3	1571.68	89.4	1571.69	89.6	1571.74	89.7	1571.76	89.8	1571.78
89.9	1571.79	90	1571.81	90.1	1571.83	90.4	1571.86	90.5	1571.88
90.6	1571.92	90.7	1571.96	90.9	1571.99	91	1572.02	93.3	1572.23
93.4	1572.24	93.5	1572.25	93.7	1572.28	93.8	1572.29	93.9	1572.3
94	1572.31	94.5	1572.42	94.6	1572.46	94.6	1572.49	94.7	1572.53
94.8	1572.58	94.9	1572.6	95.1	1572.69	95.1	1572.71	95.2	1572.75
95.3	1572.8	95.4	1572.82	95.5	1572.88	95.6	1572.92	95.6	1572.94
95.9	1573.06	96.4	1573.31	97.5	1573.97	97.6	1574.06	97.7	1574.12
97.8	1574.18	98.4	1574.45	98.5	1574.5	98.6	1574.55	98.7	1574.62
98.8	1574.69	98.9	1574.72	99	1574.78	99.1	1574.85	99.2	1574.96

99.3	1575.03	99.4	1575.05	99.5	1575.12	99.6	1575.19	99.6	1575.22
99.7	1575.28	99.8	1575.35	99.9	1575.37	100	1575.44	100.1	1575.5
100.1	1575.53	100.2	1575.59	100.3	1575.65	100.4	1575.67	100.5	1575.72
100.6	1575.76	100.6	1575.79	100.7	1575.83	100.8	1575.88	100.9	1575.9
101	1575.96	101.1	1576	101.1	1576.02	101.3	1576.11	101.4	1576.12
101.5	1576.16	101.6	1576.21	101.6	1576.24	101.8	1576.33	102	1576.38
102.1	1576.43	102.1	1576.45	102.2	1576.51	102.3	1576.56	102.4	1576.58
102.5	1576.63	102.6	1576.68	102.6	1576.7	102.7	1576.76	102.8	1576.8
102.9	1576.82	103	1576.87	103.1	1576.92	103.1	1576.94	103.2	1576.99
103.3	1577.04	103.4	1577.05	103.5	1577.1	103.6	1577.14	103.6	1577.16
103.7	1577.21	104	1577.3	104.1	1577.37	104.2	1577.42	104.4	1577.5
106.2	1578.65	106.3	1578.69	106.5	1578.74	106.6	1578.78	106.6	1578.8
106.8	1578.88	106.9	1578.89	107	1578.93	107.1	1578.97	107.1	1578.99
107.3	1579.06	107.4	1579.08	107.498	1579.119	107.5	1579.12	107.6	1579.17
107.6	1579.18	107.7	1579.23	107.8	1579.21	107.9	1579.22	108	1579.2
108.1	1579.2	108.2	1579.2	108.3	1579.19	108.4	1579.18	108.5	1579.17
108.6	1579.16	108.7	1579.16	108.8	1579.15	108.9	1579.15	109	1579.14
109.1	1579.12	109.2	1579.09	109.7	1578.99	109.8	1579	109.9	1579.01
110	1579.02	110.1	1579.01	110.3	1578.99	110.4	1578.99	110.5	1578.98
110.6	1578.99	110.6	1579	110.8	1579.03	110.9	1579.04	111	1579.06
111.1	1579.09	111.2	1579.14	111.3	1579.19	111.5	1579.27	111.6	1579.32
111.7	1579.39	111.8	1579.45	111.9	1579.47	112	1579.53	112.1	1579.59
112.1	1579.62	112.2	1579.67	112.3	1579.73	112.4	1579.75	112.5	1579.8
112.6	1579.83	112.7	1579.88	112.8	1579.91	113	1579.97	113.1	1580
113.1	1580.01	113.2	1580.04	113.4	1580.09	113.5	1580.12	113.6	1580.16
113.6	1580.18	113.7	1580.22	113.8	1580.26	113.9	1580.27	114	1580.31
114.1	1580.35	114.1	1580.37	114.2	1580.41	114.4	1580.44		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	64	.025	103	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
64	103	97	96.4	.1	.3

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1578.27	Element			
Vel Head (ft)	0.91	Wt. n-Val.	0.040	0.025	0.040
W.S. Elev (ft)	1577.36	Reach Len. (ft)	97.00	96.40	96.40
Crit W.S. (ft)		Flow Area (sq ft)	0.22	208.35	0.25
E.G. Slope (ft/ft)	0.002067	Area (sq ft)	0.22	208.35	0.25
Q Total (cfs)	1595.00	Flow (cfs)	0.14	1594.71	0.15
Top Width (ft)	40.95	Top Width (ft)	0.87	39.00	1.08
Vel Total (ft/s)	7.64	Avg. Vel. (ft/s)	0.62	7.65	0.59
Max Chl Dpth (ft)	8.25	Hydr. Depth (ft)	0.26	5.34	0.23
Conv. Total (cfs)	35078.3	Conv. (cfs)	3.0	35072.0	3.3
Length Wtd. (ft)	96.40	Wetted Per. (ft)	1.00	43.72	1.22
Min Ch El (ft)	1569.11	Shear (lb/sq ft)	0.03	0.62	0.03
Alpha	1.00	Stream Power (lb/ft s)	0.02	4.71	0.02

Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	0.09	5.71	0.26
C & E Loss (ft)	0.11	Cum SA (acres)	0.26	2.57	0.36

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1578.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.90	Wt. n-Val.		0.025	
W.S. Elev (ft)	1577.38	Reach Len. (ft)	97.00	96.40	96.40
Crit W.S. (ft)		Flow Area (sq ft)		209.24	
E.G. Slope (ft/ft)	0.002103	Area (sq ft)		209.24	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	39.00	Top Width (ft)		39.00	
Vel Total (ft/s)	7.62	Avg. Vel. (ft/s)		7.62	
Max Chl Dpth (ft)	8.27	Hydr. Depth (ft)		5.37	
Conv. Total (cfs)	34779.2	Conv. (cfs)		34779.2	
Length Wtd. (ft)	96.40	Wetted Per. (ft)		44.74	
Min Ch El (ft)	1569.11	Shear (lb/sq ft)		0.61	
Alpha	1.00	Stream Power (lb/ft s)		4.68	
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	0.01	5.69	0.02
C & E Loss (ft)	0.11	Cum SA (acres)	0.02	2.57	0.02

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	51.20	64.00	0.14	0.22	1.00	0.01	0.26	0.62	0.03	0.02
2	Chan	64.00	71.80	107.47	24.68	10.02	6.74	3.16	4.36	0.32	1.38
3	Chan	71.80	79.60	552.38	61.04	8.28	34.63	7.83	9.05	0.95	8.62
4	Chan	79.60	87.40	555.93	60.50	8.02	34.85	7.76	9.19	0.97	8.95
5	Chan	87.40	95.20	301.09	42.65	8.39	18.88	5.47	7.06	0.66	4.63

6	Chan	95.20	103.00	77.84	19.48	9.00	4.88	2.50	4.00	0.28
1.12										
7	ROB	103.00	105.28	0.15	0.25	1.22	0.01	0.23	0.59	0.03
0.02										

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	
Power											
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft
s)											
1	Chan	64.00	71.80	104.95	24.85	10.54	6.58	3.19	4.22	0.31	
1.31											
2	Chan	71.80	79.60	553.93	61.22	8.28	34.73	7.85	9.05	0.97	
8.79											
3	Chan	79.60	87.40	557.52	60.68	8.02	34.95	7.78	9.19	0.99	
9.13											
4	Chan	87.40	95.20	302.57	42.83	8.39	18.97	5.49	7.06	0.67	
4.73											
5	Chan	95.20	103.00	76.03	19.66	9.51	4.77	2.52	3.87	0.27	
1.05											

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 800

INPUT
Description:
Station Elevation Data num= 302

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1578.62	1.7	1578.53	3.5	1578.56	3.7	1578.5	6.2	1578.48
7.5	1578.34	9.5	1578.32	10.2	1578.37	12	1578.25	16.3	1578.22
19.3	1578.04	21.3	1578.06	23.2	1577.97	24.5	1577.98	25	1578.03
25.9	1577.99	26.4	1578.06	28.5	1578	29	1578.06	29.5	1578.03
30.3	1578.09	31.8	1578.05	32.4	1578.14	33.3	1578.08	33.4	1578.18
33.5	1578.2	35	1578.19	35.8	1578.28	37	1578.25	37.9	1578.29

38.3	1578.23	38.4	1578.26	38.4	1578.27	38.5	1578.3	41.8	1578.4
41.8	1578.41	42	1578.45	42	1578.46	43.3	1578.44	44.3	1578.56
44.7	1578.5	44.8	1578.5	45.8	1578.77	46	1578.75	46.6	1578.85
47.5	1579.16	48.3	1579.34	49.4	1578.98	49.4	1578.94	49.5	1578.91
49.7	1578.83	50	1578.64	50.7	1578.33	51	1578	51.2	1577.88
51.3	1577.81	51.4	1577.75	51.4	1577.69	52	1577.4	52	1577.37
52.2	1577.23	52.3	1577.16	52.8	1576.9	53	1576.72	53.1	1576.71
53.3	1576.6	53.8	1576.12	54	1576.01	54	1575.99	54.1	1575.97
54.3	1575.75	551	1575.182	55.2	1575.02	55.9	1574.7	55.9	1574.67
56	1574.61	56.1	1574.55	56.5	1574.33	56.7	1574.26	57.5	1573.57
58	1573.31	58	1573.27	59	1572.69	59.1	1572.68	59.5	1572.37
59.7	1572.31	59.8	1572.25	59.8	1572.24	60	1572.1	60	1572.09
60.1	1572.07	60.5	1571.64	60.6	1571.6	61	1571.24	61	1571.19
61.1	1571.13	61.5	1570.76	61.6	1570.6	61.8	1570.42	61.9	1570.32
61.9	1570.25	62	1570.15	62.1	1570.03	62.2	1569.97	62.3	1569.85
62.4	1569.71	62.4	1569.68	62.5	1569.53	62.7	1569.36	62.9	1569
63	1568.83	63.5	1568.69	64.5	1568.6	67	1568.81	68.3	1569.03
69.3	1569.03	74.1	1569.39	74.1	1569.48	74.6	1569.83	74.7	1569.91
74.7	1569.93	74.8	1570.02	74.9	1570.12	75.1	1570.22	75.2	1570.31
75.2	1570.33	75.3	1570.42	75.4	1570.5	75.4	1570.53	75.6	1570.61
75.7	1570.67	75.7	1570.72	75.8	1570.78	75.9	1570.85	76	1570.91
76.1	1570.97	76.1	1571.03	76.2	1571.1	76.5	1571.28	76.6	1571.32
76.6	1571.36	76.8	1571.46	76.8	1571.5	77	1571.66	78.1	1571.97
78.5	1572.15	78.6	1572.16	78.8	1572.21	78.8	1572.22	78.8	1572.23
79	1572.27	79.1	1572.3	79.3	1572.36	79.3	1572.38	79.4	1572.39
79.5	1572.42	79.6	1572.44	79.6	1572.45	79.7	1572.48	79.8	1572.5
80.6	1572.62	80.7	1572.66	80.7	1572.67	80.8	1572.7	81.1	1572.77
81.4	1572.91	81.6	1572.96	81.7	1573.04	82.1	1573.22	82.1	1573.28
82.2	1573.34	82.3	1573.39	82.4	1573.44	82.6	1573.6	83.3	1573.92
83.5	1573.99	83.6	1574	83.6	1574.01	83.8	1574.09	83.8	1574.1
84	1574.16	84.1	1574.19	84.2	1574.23	84.3	1574.28	84.5	1574.37
84.6	1574.38	84.8	1574.46	84.8	1574.47	84.999	1574.52	85	1574.52
86	1574.64	86.5	1574.68	86.6	1574.69	86.7	1574.69	87	1574.71
87.2	1574.72	87.8	1574.74	87.9	1574.73	88	1574.72	88.1	1574.71
88.2	1574.7	88.2	1574.69	88.3	1574.69	88.9	1574.56	91.1	1574.59
91.9	1574.52	92	1574.54	92.1	1574.54	92.1	1574.55	92.2	1574.56
92.3	1574.57	94.2	1574.92	97.4	1575.16	98.7	1575.05	98.7	1575.04
98.8	1575.03	99	1575	99.1	1574.98	99.2	1574.97	99.3	1574.95
101.3	1574.75	102.3	1574.75	103.3	1574.87	103.3	1574.88	103.8	1574.88
103.9	1574.89	104.1	1574.89	104.1	1574.92	104.3	1574.98	104.8	1575.17
104.9	1575.17	105	1575.18	105.7	1575.26	105.8	1575.27	106	1575.28
106.1	1575.3	108.3	1575.34	109.4	1575.48	109.6	1575.56	110.3	1575.68
110.4	1575.72	110.5	1575.76	110.6	1575.78	112.2	1576.45	112.4	1576.51
112.5	1576.51	112.6	1576.53	112.8	1576.59	112.9	1576.61	113	1576.64
113.1	1576.66	113.2	1576.68	113.3	1576.71	113.3	1576.73	113.4	1576.74
113.5	1576.77	113.6	1576.78	113.6	1576.79	113.8	1576.81	113.9	1576.82
114.1	1576.86	114.1	1576.88	115.1	1576.97	115.3	1576.97	115.4	1576.97
117.4	1577.26	117.5	1577.26	117.6	1577.26	117.7	1577.27	117.8	1577.28
118	1577.28	118.1	1577.28	118.6	1577.27	118.7	1577.28	118.8	1577.31
118.9	1577.32	119	1577.33	119.1	1577.34	119.2	1577.34	119.3	1577.34

119.4	1577.35	119.6	1577.37	121.1	1577.38	121.3	1577.46	121.4	1577.46
121.6	1577.44	121.6	1577.43	121.8	1577.4	124	1577.54	124.2	1577.55
124.3	1577.55	124.5	1577.54	124.6	1577.54	124.7	1577.55	124.7	1577.56
124.8	1577.56	125.1	1577.56	125.3	1577.56	125.4	1577.57	125.5	1577.58
125.6	1577.59	126.1	1577.56						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	55	.025	84	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
55	84	131 141.6	143	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	55	1580	F
85	126.1	1580	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1577.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.98	Wt. n-Val.		0.025	0.040
W.S. Elev (ft)	1575.88	Reach Len. (ft)	131.00	141.60	143.00
Crit W.S. (ft)	1575.57	Flow Area (sq ft)		140.56	1.53
E.G. Slope (ft/ft)	0.005269	Area (sq ft)	0.29	140.56	25.60
Q Total (cfs)	1595.00	Flow (cfs)		1589.80	5.20
Top Width (ft)	56.65	Top Width (ft)	0.82	29.00	26.83
Vel Total (ft/s)	11.23	Avg. Vel. (ft/s)		11.31	3.41
Max Chl Dpth (ft)	7.28	Hydr. Depth (ft)		4.85	1.53
Conv. Total (cfs)	21973.3	Conv. (cfs)		21901.6	71.7
Length Wtd. (ft)	141.60	Wetted Per. (ft)		33.12	1.08
Min Ch El (ft)	1568.60	Shear (lb/sq ft)		1.40	0.47
Alpha	1.01	Stream Power (lb/ft s)		15.79	1.59
Frctn Loss (ft)	0.83	Cum Volume (acre-ft)	0.09	5.32	0.23
C & E Loss (ft)	0.03	Cum SA (acres)	0.25	2.50	0.33

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

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1577.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.00	Wt. n-Val.		0.025	0.040
W.S. Elev (ft)	1575.87	Reach Len. (ft)	131.00	141.60	143.00
Crit W.S. (ft)	1575.59	Flow Area (sq ft)		140.35	1.52
E.G. Slope (ft/ft)	0.005458	Area (sq ft)		140.35	1.52
Q Total (cfs)	1595.00	Flow (cfs)		1591.95	3.06
Top Width (ft)	30.00	Top Width (ft)		29.00	1.00
Vel Total (ft/s)	11.24	Avg. Vel. (ft/s)		11.34	2.01
Max Chl Dpth (ft)	7.27	Hydr. Depth (ft)		4.84	1.52
Conv. Total (cfs)	21589.7	Conv. (cfs)		21548.3	41.4

Length Wtd. (ft)	141.60	Wetted Per. (ft)		33.81	2.42
Min Ch El (ft)	1568.60	Shear (lb/sq ft)		1.41	0.21
Alpha	1.02	Stream Power (lb/ft s)		16.05	0.43
Frctn Loss (ft)	0.85	Cum Volume (acre-ft)	0.01	5.30	0.02
C & E Loss (ft)	0.03	Cum SA (acres)	0.02	2.49	0.01

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	44.00	55.00	0.00	0.29	1.07	0.00	0.36	0.00	0.09	0.00
2	Chan	55.00	60.80	92.29	14.45	7.04	5.79	2.49	6.39	0.68	4.31
3	Chan	60.80	66.60	464.86	38.27	7.10	29.14	6.60	12.15	1.77	21.52
4	Chan	66.60	72.40	561.18	39.59	5.83	35.18	6.83	14.17	2.23	31.67
5	Chan	72.40	78.20	343.29	31.36	6.81	21.52	5.41	10.95	1.52	16.59
6	Chan	78.20	84.00	128.18	16.88	6.34	8.04	2.91	7.59	0.88	6.65
7	ROB	84.00	85.00	5.20	1.53	1.08	0.33	1.53	3.41	0.47	1.59
8	ROB	85.00	93.22	0.00	10.33	8.29	0.00	1.26	0.00	0.41	0.00
9	ROB	93.22	101.44	0.00	7.45	8.28	0.00	0.91	0.00	0.30	0.00
10	ROB	101.44	109.66	0.00	6.09	8.34	0.00	0.74	0.00	0.24	0.00
11	ROB	109.66	117.88	0.00	0.21	1.22	0.00	0.18	0.00	0.06	0.00

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

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)

1	Chan	55.00	60.80	86.92	14.41	7.72	5.45	2.48	6.03	0.64
3.83										
2	Chan	60.80	66.60	467.32	38.23	7.10	29.30	6.59	12.22	1.83
22.41										
3	Chan	66.60	72.40	564.18	39.55	5.83	35.37	6.82	14.27	2.31
32.98										
4	Chan	72.40	78.20	344.97	31.32	6.81	21.63	5.40	11.01	1.57
17.27										
5	Chan	78.20	84.00	128.55	16.84	6.34	8.06	2.90	7.63	0.90
6.91										
6	ROB	84.00	85.00	3.06	1.52	2.42	0.19	1.52	2.01	0.21
0.43										

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 700

INPUT
Description:
Station Elevation Data num= 444

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1577.72	1.3	1577.72	2.7	1577.85	3.2	1577.81	7.6	1577.85
8.2	1577.81	8.6	1577.88	9.2	1577.84	10.2	1577.88	11	1577.81
17.4	1577.66	20.8	1577.81	22.4	1577.75	22.6	1577.81	24.2	1577.72
25	1577.59	25.2	1577.67	25.5	1577.66	26.5	1577.78	27.1	1577.76
27.8	1577.81	28.9	1577.78	31.3	1577.93	33.9	1577.94	35.5	1578.09
37.1	1578.48	38.3	1578.56	38.9	1578.53	39.1	1578.49	40.1	1577.94
40.4	1577.69	40.5	1577.67	40.5	1577.62	40.7	1577.52	41.1	1577.19
41.2	1577.09	41.2	1577.04	41.3	1577.01	41.5	1576.77	41.6	1576.73
41.7	1576.64	41.9	1576.58	41.9	1576.55	42.1	1576.51	42.2	1576.44
42.3	1576.39	42.3	1576.37	42.3	1576.33	42.5	1576.17	42.7	1576.1
42.7	1576.06	42.8	1576.01	42.9	1575.98	43.1	1575.81	43.2	1575.7
43.8	1575.29	43.9	1575.28	44.8	1574.55	44.9	1574.53	45	1574.49
45.2	1574.43	45.6	1574.09	45.7	1574.05	45.8	1573.96	46	1573.87
46.2	1573.7	46.2	1573.69	46.3	1573.65	46.7	1573.29	47.8	1572.61
48.1	1572.51	48.1	1572.46	48.4	1572.27	48.5	1572.21	48.6	1572.17
49.5	1571.46	49.6	1571.42	49.6	1571.4	50.4	1571.06	50.4	1571.04
50.4	1571.03	50.6	1570.95	50.7	1570.9	50.8	1570.81	50.9	1570.75
51	1570.71	51.2	1570.58	51.2	1570.57	51.2	1570.56	51.4	1570.46
51.5	1570.42	51.7	1570.21	52.8	1569.36	53	1569.14	53.2	1569.05
53.2	1569.03	53.3	1568.93	53.5	1568.77	54.6	1568.35	54.7	1568.33
55	1568.28	57.8	1568.28	58.8	1568.17	60.5	1568.19	64.3	1568.49

64.3	1568.5	64.5	1568.52	64.6	1568.53	64.7	1568.55	64.7	1568.56
64.9	1568.58	64.9	1568.6	65.1	1568.65	65.1	1568.66	65.3	1568.71
65.4	1568.73	65.5	1568.77	65.6	1568.81	65.7	1568.83	65.9	1568.87
66.1	1568.94	66.3	1568.96	66.4	1568.97	66.5	1568.97	66.7	1568.99
67	1569.14	67.4	1569.44	67.5	1569.48	67.6	1569.52	69.1	1570.58
70.1	1571.35	70.4	1571.54	70.5	1571.66	70.7	1571.77	70.8	1571.9
70.9	1571.93	70.9	1571.94	70.9	1571.96	71.1	1572.06	71.2	1572.12
71.7	1572.51	71.9	1572.7	72.1	1572.8	72.2	1572.9	72.5	1573.12
72.9	1573.58	72.9	1573.6	73.1	1573.87	73.2	1574.15	73.6	1574.34
73.7	1574.35	73.8	1574.38	73.9	1574.39	74	1574.43	74.1	1574.44
76.5	1574.32	78	1574.41	78.8	1574.41	79	1574.38	80.1	1574.5
81.9	1574.42	82.6	1574.44	83	1574.47	83	1574.46	83.1	1574.45
83.2	1574.44	83.2	1574.45	83.4	1574.48	83.5	1574.5	83.6	1574.51
83.7	1574.52	83.8	1574.52	83.8	1574.53	83.9	1574.55	84	1574.56
86.9	1574.75	88	1574.84	88	1574.85	88.2	1574.88	88.3	1574.89
88.4	1574.89	88.5	1574.91	88.6	1574.92	88.7	1574.94	88.9	1574.94
89	1574.94	89.1	1574.95	89.7	1574.99	92.2	1575.03	92.4	1575.06
92.6	1575.08	92.7	1575.09	92.8	1575.09	92.9	1575.09	93	1575.09
93.1	1575.12	95.4	1575.22	95.6	1575.21	95.7	1575.2	95.8	1575.19
95.9	1575.17	96	1575.14	96.7	1575.07	96.8	1575.04	96.9	1575
97	1574.96	97.2	1574.93	97.2	1574.91	97.3	1574.86	97.4	1574.83
97.5	1574.79	97.6	1574.76	97.7	1574.73	97.7	1574.71	97.9	1574.65
97.9	1574.63	97.9	1574.62	98	1574.61	98.2	1574.52	98.3	1574.47
98.4	1574.46	98.5	1574.41	98.7	1574.33	98.7	1574.31	98.7	1574.3
99.3	1574.18	99.5	1574.19	100.1	1574.29	100.3	1574.31	100.8	1574.39
100.9	1574.38	102.1	1574.37	102.2	1574.36	102.3	1574.35	103.1	1574.36
103.2	1574.36	104.5	1574.47	105.5	1574.61	105.6	1574.62	105.7	1574.62
105.8	1574.62	105.9	1574.62	106.1	1574.65	106.1	1574.66	106.3	1574.7
106.3	1574.71	106.5	1574.72	106.6	1574.73	106.9	1574.75	107.1	1574.81
107.2	1574.85	107.3	1574.86	107.4	1574.9	107.6	1574.96	107.7	1574.97
108.7	1575.16	108.7	1575.17	108.8	1575.21	109.3	1575.38	109.3	1575.41
109.5	1575.46	109.6	1575.5	109.7	1575.54	109.8	1575.62	109.9	1575.66
110	1575.68	110	1575.69	110.2	1575.74	110.3	1575.77	110.4	1575.81
110.5	1575.84	110.6	1575.86	110.7	1575.85	110.8	1575.86	110.8	1575.87
111	1575.93	111	1575.96	111.1	1575.97	111.1	1575.99	111.2	1576.05
111.3	1576.09	111.4	1576.15	111.5	1576.17	111.6	1576.22	111.6	1576.24
111.8	1576.29	111.8	1576.31	111.9	1576.31	111.9	1576.33	112	1576.4
112.1	1576.44	112.2	1576.5	112.3	1576.51	112.4	1576.56	112.4	1576.59
112.6	1576.67	112.6	1576.68	112.6	1576.69	112.7	1576.69	112.8	1576.77
112.9	1576.8	113	1576.86	113.2	1576.92	113.2	1576.94	113.4	1577.03
113.6	1577.1	113.7	1577.12	113.8	1577.18	113.8	1577.19	114	1577.25
114	1577.27	114.2	1577.31	114.3	1577.32	114.4	1577.33	114.5	1577.34
114.6	1577.36	114.8	1577.39	115	1577.4	115	1577.41	115.1	1577.41
115.2	1577.43	115.4	1577.45	115.5	1577.47	115.8	1577.53	115.9	1577.54
116	1577.56	116.1	1577.56	116.2	1577.58	116.4	1577.61	116.5	1577.62
116.7	1577.64	116.8	1577.65	116.8	1577.66	116.9	1577.66	117	1577.68
117.1	1577.69	117.2	1577.7	117.3	1577.71	117.4	1577.72	117.5	1577.74
117.6	1577.75	117.7	1577.75	117.8	1577.76	117.9	1577.77	121	1577.53
121.3	1577.53	121.4	1577.53	121.5	1577.53	121.6	1577.53	121.8	1577.56
122.9	1577.56	123	1577.55	123.1	1577.54	123.1	1577.53	123.4	1577.54

123.5	1577.54	123.6	1577.54	123.8	1577.53	123.9	1577.51
124	1577.5	124.1	1577.48	124.2	1577.47	124.4	1577.46
124.5	1577.45	125.2	1577.49	125.4	1577.48	125.5	1577.48
125.6	1577.47	125.7	1577.47	125.8	1577.47	126	1577.49
126.2	1577.45	126.3	1577.42	126.4	1577.4	126.5	1577.38
126.6	1577.37	126.7	1577.3	126.8	1577.28	126.9	1577.25
127.1	1577.22	127.1	1577.19	127.3	1577.12	127.4	1577.12
127.7	1576.97	127.9	1576.92	128.1	1576.85	128.1	1576.84
128.2	1576.83	128.4	1576.75	128.5	1576.73	128.5	1576.72
128.7	1576.69	128.7	1576.67	128.9	1576.64	128.9	1576.63
128.9	1576.62	129.1	1576.57	129.2	1576.56	129.4	1576.55
129.5	1576.53	129.7	1576.51	129.7	1576.5	129.8	1576.49
129.9	1576.47	130	1576.47	130	1576.46	130.2	1576.44
130.3	1576.44	130.4	1576.44	130.5	1576.44	130.5	1576.43
130.6	1576.42	130.8	1576.41	130.8	1576.4	130.9	1576.39
131	1576.38	131.5	1576.31	131.6	1576.3	131.7	1576.28
131.8	1576.27	132.1	1576.22	132.3	1576.22	132.4	1576.22
132.5	1576.2	132.6	1576.2	132.7	1576.19	132.9	1576.19
133.1	1576.19	134.4	1576.06	136.5	1576.08	136.6	1576.06
136.7	1576.02	136.8	1576	140.5	1575.94	141.2	1575.88
141.8	1575.86	141.9	1575.85	142	1575.85	142	1575.84
142.1	1575.84	142.3	1575.82	142.3	1575.81	142.4	1575.8
143.9879	1575.75						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	45	.025	73.9	.04

Bank Sta: Left	Right	Lengths: Left Channel		Right	Coeff Contr.	Expan.
45	73.9	118.3	118.3	120	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
74	143.9879	1578	F

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1576.99	Element			
Vel Head (ft)	2.30	Wt. n-Val.	0.040	0.025	0.040
W.S. Elev (ft)	1574.70	Reach Len. (ft)	118.30	118.30	120.00
Crit W.S. (ft)	1574.70	Flow Area (sq ft)	0.05	131.22	0.03
E.G. Slope (ft/ft)	0.006640	Area (sq ft)	0.05	131.22	5.41
Q Total (cfs)	1595.00	Flow (cfs)	0.03	1594.93	0.04
Top Width (ft)	50.05	Top Width (ft)	0.38	28.90	20.77
Vel Total (ft/s)	12.15	Avg. Vel. (ft/s)	0.69	12.15	1.26
Max Chl Dpth (ft)	6.53	Hydr. Depth (ft)	0.13	4.54	0.29
Conv. Total (cfs)	19573.4	Conv. (cfs)	0.4	19572.6	0.4
Length Wtd. (ft)	118.30	Wetted Per. (ft)	0.45	33.01	0.11
Min Ch El (ft)	1568.17	Shear (lb/sq ft)	0.04	1.65	0.11
Alpha	1.00	Stream Power (lb/ft s)	0.03	20.03	0.14
Frctn Loss (ft)	0.77	Cum Volume (acre-ft)	0.09	4.88	0.18
C & E Loss (ft)	0.05	Cum SA (acres)	0.25	2.40	0.25

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: Divided flow computed for this cross-section.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1577.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.26	Wt. n-Val.		0.025	0.040
W.S. Elev (ft)	1574.73	Reach Len. (ft)	118.30	118.30	120.00
Crit W.S. (ft)	1574.73	Flow Area (sq ft)		132.14	0.03
E.G. Slope (ft/ft)	0.006552	Area (sq ft)		132.14	0.03
Q Total (cfs)	1595.00	Flow (cfs)		1594.98	0.02
Top Width (ft)	29.00	Top Width (ft)		28.90	0.10
Vel Total (ft/s)	12.07	Avg. Vel. (ft/s)		12.07	0.55
Max Chl Dpth (ft)	6.56	Hydr. Depth (ft)		4.57	0.32
Conv. Total (cfs)	19705.0	Conv. (cfs)		19704.8	0.2
Length Wtd. (ft)	118.30	Wetted Per. (ft)		33.25	0.41
Min Ch El (ft)	1568.17	Shear (lb/sq ft)		1.63	0.03
Alpha	1.00	Stream Power (lb/ft s)		19.62	0.02
Frctn Loss (ft)	0.76	Cum Volume (acre-ft)	0.01	4.86	0.01
C & E Loss (ft)	0.05	Cum SA (acres)	0.02	2.40	0.01

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	36.00	45.00	0.03	0.05	0.45	0.00	0.13	0.69	0.04	0.03
2	Chan	45.00	50.78	75.78	12.17	6.96	4.75	2.11	6.23	0.72	4.51
3	Chan	50.78	56.56	403.35	32.49	6.60	25.29	5.62	12.41	2.04	25.34
4	Chan	56.56	62.34	555.14	37.36	5.79	34.80	6.46	14.86	2.67	39.73
5	Chan	62.34	68.12	457.05	34.07	6.16	28.66	5.89	13.42	2.29	30.77
6	Chan	68.12	73.90	103.61	15.13	7.50	6.50	2.62	6.85	0.84	5.73

7	ROB	73.90	74.00	0.04	0.03	0.11	0.00	0.29	1.26	0.11
0.14										
8	ROB	74.00	88.00	0.00	2.93	12.18	0.00	0.24	0.00	0.10
0.00										
9	ROB	88.00	102.00	0.00	1.47	4.41	0.00	0.34	0.00	0.14
0.00										
10	ROB	102.00	115.99	0.00	0.99	4.33	0.00	0.23	0.00	0.09
0.00										

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	Chan	45.00	50.78	75.26	12.36	7.20	4.72	2.14	6.09	0.70	4.27
2	Chan	50.78	56.56	403.44	32.68	6.60	25.29	5.65	12.35	2.03	25.01
3	Chan	56.56	62.34	554.59	37.54	5.79	34.77	6.49	14.77	2.65	39.17
4	Chan	62.34	68.12	456.95	34.25	6.16	28.65	5.93	13.34	2.28	30.35
5	Chan	68.12	73.90	104.74	15.31	7.50	6.57	2.65	6.84	0.84	5.71
6	ROB	73.90	74.00	0.02	0.03	0.41	0.00	0.32	0.55	0.03	0.02

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 600

INPUT
Description:
Station Elevation Data num= 447

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1576.85	2.3	1576.97	5.1	1576.94	7.4	1577.05	8	1576.99
9.2	1577	10.1	1577.08	11.6	1577.07	11.9	1577.12	15.3	1577.03
16.3	1577.08	17	1577	18.9	1577.05	19.7	1577	21.2	1577
22.4	1577.06	23.9	1577.03	24.5	1577.09	25.9	1577.03	26.7	1577.03
27.2	1577.09	30.6	1577.09	33.5	1577	34.2	1577.03	35.4	1576.94
37.7	1577.06	39.6	1576.97	40.7	1577.04	41.8	1577.27	44.3	1577.59
45.8	1577.91	46.6	1577.98	46.7	1577.99	46.8	1577.97	46.9	1577.92
47	1577.88	47.6	1577.41	47.9	1577.25	48	1577.09	48.2	1576.95
48.2	1576.94	48.2	1576.93	48.3	1576.89	48.4	1576.77	48.5	1576.65
48.6	1576.61	48.7	1576.57	49.1	1576.21	50.2	1575.42	50.3	1575.39
50.4	1575.32	50.4	1575.29	50.6	1575.19	50.8	1575	51	1574.93
51.5	1574.63	51.6	1574.52	51.8	1574.42	51.9	1574.38	52.9	1573.75
53	1573.65	54.2	1572.96	55.8	1571.71	55.8	1571.65	56	1571.56
56.1	1571.42	56.1	1571.41	56.1	1571.4	56.2	1571.37	56.4	1571.15
56.7	1570.98	56.7	1570.93	56.8	1570.86	57	1570.75	57.4	1570.58
57.4	1570.56	57.4	1570.53	57.6	1570.45	57.7	1570.33	58.3	1569.98
58.6	1569.69	58.8	1569.63	58.8	1569.6	59.1	1569.43	60.1	1569.05
62.1	1568.79	64.3	1568.16	67.7	1568.16	67.8	1568.15	68	1568.13
68	1568.12	68.3	1568.16	70.2	1568.12	72.6	1568.19	72.7	1568.2
72.8	1568.22	72.9	1568.22	73	1568.23	73.5	1568.28	75	1568.6
75.4	1568.63	75.4	1568.62	75.5	1568.62	75.6	1568.61	77.2	1569.04
77.2	1569.07	77.3	1569.12	77.4	1569.16	77.5	1569.19	77.6	1569.25
77.9	1569.36	79	1569.72	79.1	1569.8	79.2	1569.84	79.9	1570.1
79.9	1570.12	80	1570.19	80.2	1570.26	80.2	1570.29	80.3	1570.33
80.4	1570.38	80.5	1570.42	80.6	1570.47	80.7	1570.54	80.7	1570.56
80.8	1570.57	80.9	1570.62	80.9	1570.64	81.2	1570.75	82.9	1571.6
82.9	1571.63	82.9	1571.64	83.4	1571.92	83.4	1571.94	83.5	1572.01
83.5	1572.03	83.5	1572.04	83.7	1572.21	83.7	1572.22	83.7	1572.23
84	1572.43	84.2	1572.65	84.7	1573.06	85	1573.24	85	1573.25
85	1573.26	85.2	1573.4	85.2	1573.41	85.2	1573.42	85.5	1573.58
85.5	1573.6	85.7	1573.77	86.3	1574.13	87.5	1575.28	87.7	1575.38
87.7	1575.41	87.9	1575.53	88	1575.56	88.1	1575.6	88.2	1575.69
88.3	1575.72	88.5	1575.8	88.6	1575.83	89.1	1576.02	89.1	1576.04
90	1576.25	90.7	1576.36	91.5	1576.39	95.7	1576.12	97	1576.19
98.8	1576.16	102.2	1575.94	107.5	1575.72	114	1575.75	116.3	1575.86
117.4	1575.88	118.9	1575.73	119.1	1575.72	119.3	1575.72	119.4	1575.72
119.5	1575.72	119.6	1575.72	119.7	1575.72	119.8	1575.73	119.9	1575.74
120.1	1575.76	120.2	1575.77	120.2	1575.78	120.3	1575.8	120.4	1575.82
120.5	1575.84	120.6	1575.86	120.7	1575.89	120.7	1575.91	120.8	1575.93
120.9	1575.95	121.1	1575.99	121.2	1576.02	121.2	1576.04	121.4	1576.04
121.6	1576.02	121.7	1576	121.8	1576	121.9	1576	122	1575.99
122.2	1575.96	122.3	1575.96	122.4	1575.94	122.5	1575.93	122.7	1575.91
122.8	1575.9	123	1575.88	123	1575.87	123	1575.86	123.2	1575.82
123.2	1575.81	123.3	1575.81	123.5	1575.78	123.7	1575.72	123.8	1575.71
124	1575.69	124	1575.68	124.2	1575.62	124.3	1575.62	125.8	1575.28

126	1575.17	126	1575.16	126.2	1575.16	126.3	1575.16	126.5	1575.11
126.5	1575.1	126.7	1575.08	126.8	1575.06	127	1575.01	127	1575
127.2	1574.96	127.3	1574.92	127.4	1574.84	127.5	1574.82	127.5	1574.79
127.7	1574.72	127.7	1574.69	127.8	1574.66	127.9	1574.59	128	1574.56
128	1574.53	128.2	1574.45	128.2	1574.41	128.3	1574.38	128.4	1574.32
128.5	1574.28	128.6	1574.24	128.7	1574.13	128.9	1574.02	129	1573.98
129.1	1573.94	129.2	1573.89	129.2	1573.84	129.7	1573.6	129.7	1573.54
129.8	1573.49	129.9	1573.46	130.1	1573.36	130.2	1573.28	130.3	1573.23
130.4	1573.21	130.5	1573.16	130.6	1573.12	130.6	1573.1	130.7	1573.06
130.9	1573.02	131	1572.97	131.1	1572.94	131.1	1572.93	131.2	1572.91
131.5	1572.83	131.7	1572.77	133.2	1572.47	133.3	1572.46	133.4	1572.45
133.6	1572.43	133.7	1572.41	133.8	1572.4	133.9	1572.39	134	1572.38
134.1	1572.36	134.2	1572.35	134.2	1572.34	134.3	1572.33	134.5	1572.31
134.6	1572.3	134.7	1572.29	134.8	1572.28	134.9	1572.28	135	1572.28
135.1	1572.27	135.2	1572.26	135.2	1572.25	135.8	1572.25	135.9	1572.25
136	1572.25	136.2	1572.25	136.2	1572.24	138	1572.28	140.3	1572.54
140.5	1572.56	140.7	1572.62	140.8	1572.63	140.9	1572.65	141	1572.66
141	1572.67	141.2	1572.71	141.2	1572.72	141.3	1572.73	142	1572.91
142.1	1572.92	142.2	1572.95	142.2	1572.97	142.3	1573	143.2	1573.26
143.2	1573.29	143.3	1573.32	143.5	1573.38	144	1573.56	144.1	1573.6
144.1	1573.62	144.2	1573.66	144.4	1573.71	144.5	1573.75	144.6	1573.8
144.6	1573.81	144.7	1573.86	144.9	1573.91	144.9	1573.92	145	1573.97
145.1	1574.02	145.2	1574.06	145.4	1574.11	145.5	1574.16	145.6	1574.21
145.7	1574.28	145.9	1574.34	145.9	1574.35	146	1574.41	146.5	1574.66
146.6	1574.73	146.7	1574.78	146.8	1574.83	146.9	1574.86	147	1574.91
147.1	1574.95	147.2	1574.99	147.2	1575.03	147.4	1575.11	147.5	1575.16
147.6	1575.2	147.7	1575.25	147.7	1575.29	147.8	1575.33	147.9	1575.4
148	1575.44	148.1	1575.47	148.2	1575.56	148.3	1575.6	148.5	1575.69
148.6	1575.72	148.7	1575.79	148.7	1575.82	148.9	1575.94	149	1576
149.2	1576.07	149.2	1576.09	149.4	1576.2	149.5	1576.22	149.7	1576.35
149.7	1576.38	149.8	1576.4	150	1576.48	150	1576.5	150.2	1576.64
150.2	1576.66	150.5	1576.77	150.5	1576.78	150.7	1576.94	150.8	1576.95
151	1577.05	151	1577.06	151.2	1577.15	151.7	1577.19	152.2	1577.25
153.3	1577.28	157.1	1576.95	157.1	1576.94	157.3	1576.91	157.4	1576.9
157.5	1576.88	157.6	1576.86	157.6	1576.85	157.9	1576.81	157.9	1576.8
158.1	1576.77	158.1	1576.76	158.2	1576.75	158.4	1576.74	158.6	1576.73
158.7	1576.72	158.9	1576.72	159	1576.72	159.2	1576.72	161.4	1576.42
162.2	1576.36	162.8	1576.24	163	1576.2	163	1576.19	163.2	1576.17
163.2	1576.16	166	1575.88	166.2	1575.88	166.3	1575.88	166.5	1575.88
166.5	1575.87	166.7	1575.85	166.8	1575.85	167	1575.85	167.2	1575.81
167.3	1575.81	167.5	1575.81	167.7	1575.84	168	1575.84	170.7	1575.78
170.8	1575.78	170.9	1575.77	171.1	1575.76	171.2	1575.75	171.4	1575.74
171.5	1575.72	172	1575.72	172.1	1575.7	172.2	1575.69	172.4	1575.69
172.6	1575.68	172.9	1575.66	173.1	1575.66	173.2	1575.66	173.4	1575.64
173.5	1575.62	178.3	1575.62						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	53	.025	85	.04

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            53      85              69    67.6      62             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
     100178.3286    1578       F
```

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1576.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.12	Wt. n-Val.	0.040	0.025	0.040
W.S. Elev (ft)	1573.88	Reach Len. (ft)	69.00	67.60	62.00
Crit W.S. (ft)	1573.88	Flow Area (sq ft)	0.03	136.48	0.27
E.G. Slope (ft/ft)	0.006314	Area (sq ft)	0.03	136.48	18.20
Q Total (cfs)	1595.00	Flow (cfs)	0.02	1594.66	0.32
Top Width (ft)	48.77	Top Width (ft)	0.31	32.00	16.46
Vel Total (ft/s)	11.66	Avg. Vel. (ft/s)	0.55	11.68	1.17
Max Chl Dpth (ft)	5.76	Hydr. Depth (ft)	0.10	4.26	0.31
Conv. Total (cfs)	20072.9	Conv. (cfs)	0.2	20068.7	4.0
Length Wtd. (ft)	67.60	Wetted Per. (ft)	0.39	35.07	1.10
Min Ch El (ft)	1568.12	Shear (lb/sq ft)	0.03	1.53	0.10
Alpha	1.00	Stream Power (lb/ft s)	0.02	17.92	0.11
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	0.09	4.52	0.15
C & E Loss (ft)	0.51	Cum SA (acres)	0.25	2.32	0.20

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1576.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.11	Wt. n-Val.		0.025	0.040
W.S. Elev (ft)	1573.89	Reach Len. (ft)	69.00	67.60	62.00
Crit W.S. (ft)	1573.89	Flow Area (sq ft)		136.89	0.28
E.G. Slope (ft/ft)	0.006309	Area (sq ft)		136.89	0.28
Q Total (cfs)	1595.00	Flow (cfs)		1594.66	0.34
Top Width (ft)	32.90	Top Width (ft)		32.00	0.90
Vel Total (ft/s)	11.63	Avg. Vel. (ft/s)		11.65	1.18
Max Chl Dpth (ft)	5.77	Hydr. Depth (ft)		4.28	0.31

Conv. Total (cfs)	20081.0	Conv. (cfs)		20076.8	4.2
Length Wtd. (ft)	67.60	Wetted Per. (ft)		35.32	1.13
Min Ch El (ft)	1568.12	Shear (lb/sq ft)		1.53	0.10
Alpha	1.00	Stream Power (lb/ft s)		17.78	0.12
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	0.01	4.49	0.01
C & E Loss (ft)	0.51	Cum SA (acres)	0.02	2.32	0.01

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	42.40	53.00	0.02	0.03	0.39	0.00	0.10	0.55	0.03	0.02
2	Chan	53.00	59.40	106.64	15.65	7.91	6.69	2.45	6.81	0.78	5.32
3	Chan	59.40	65.80	433.24	33.68	6.55	27.16	5.26	12.86	2.03	26.06
4	Chan	65.80	72.20	506.61	36.68	6.42	31.76	5.73	13.81	2.25	31.13
5	Chan	72.20	78.60	417.71	33.11	6.63	26.19	5.17	12.62	1.97	24.82
6	Chan	78.60	85.00	130.46	17.36	7.56	8.18	2.71	7.52	0.90	6.80
7	ROB	85.00	100.00	0.32	0.27	1.10	0.02	0.31	1.17	0.10	0.11
8	ROB	100.00	119.58							0.00	0.00
9	ROB	119.58	139.16	0.00	12.90	10.38	0.00	1.29	0.00	0.49	0.00
10	ROB	139.16	158.75	0.00	5.03	5.91	0.00	0.90	0.00	0.34	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical

depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	53.00	59.40	105.09	15.74	8.15	6.59	2.46	6.68	0.76	5.08
2	Chan	59.40	65.80	433.59	33.76	6.55	27.18	5.28	12.84	2.03	26.06
3	Chan	65.80	72.20	506.85	36.76	6.42	31.78	5.74	13.79	2.26	31.12
4	Chan	72.20	78.60	418.07	33.19	6.63	26.21	5.19	12.60	1.97	24.82
5	Chan	78.60	85.00	131.06	17.44	7.56	8.22	2.72	7.52	0.91	6.83
6	ROB	85.00	100.00	0.34	0.28	1.13	0.02	0.31	1.18	0.10	0.12

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH

REACH: COR EFFECTIVE RS: 580

INPUT
Description:
Station Elevation Data num= 271

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1576.08	3	1576.09	5.4	1576	7.4	1576.06	8.9	1576.01
12.1	1576.03	13.9	1576.1	15.9	1576.06	17.4	1576.19	21.2	1576.19
22.1	1576.12	24.4	1576.22	25.9	1576.07	26.8	1576.06	28.8	1576.25
31.4	1576.22	31.5	1576.23	31.9	1576.28	32.9	1576.29	33.5	1576.22
35	1576.28	35.6	1576.21	37.6	1576.25	40.3	1576.18	41.4	1576.22
42.5	1576.16	43.8	1576.22	44.2	1576.14	44.5	1576.12	47	1576.18
48.5	1576.09	49.9	1576.19	51.7	1576.16	51.8	1576.15	51.9	1576.13
52	1576.12	52.6	1576.09	54.4	1576.09	55.5	1575.98	57.6	1576.03
58.9	1575.97	59	1575.94	59	1575.93	59.1	1575.93	59.4	1575.86
59.9	1575.73	59.9	1575.71	61.7	1575.5	63.4	1575.06	64.9	1574.78
65	1574.74	65	1574.73	66.3	1574.44	67	1574.44	69.1	1574.59
70.1	1574.78	72.8	1575.07	75.1	1575.1	76.2	1574.89	85.75	1574.71
85.75	1568.87	85.75	1568.13	124.25	1568.13	124.25	1569	124.25	1569.08
124.25	1573.7	132.5	1573.81	132.5	1573.82	132.7	1573.93	132.8	1573.98
132.9	1574.03	133	1574.11	133	1574.12	133	1574.13	133.1	1574.14
133.2	1574.25	133.3	1574.29	133.4	1574.34	133.6	1574.4	133.6	1574.41
133.8	1574.49	133.9	1574.53	134	1574.55	134.1	1574.58	134.3	1574.64
135.6	1574.88	136.8	1574.99	137.3	1575.02	137.3	1575.03	137.4	1575.05
137.6	1575.08	137.6	1575.09	142.2	1575.28	145.8	1575.26	145.9	1575.27
146	1575.27	146.2	1575.28	146.3	1575.28	146.4	1575.28	146.5	1575.28
146.6	1575.29	146.8	1575.28	146.9	1575.29	147	1575.3	147.2	1575.31
147.3	1575.31	147.4	1575.31	147.4	1575.32	147.5	1575.34	147.6	1575.34
147.7	1575.34	147.7	1575.35	147.9	1575.37	149.4	1575.31	149.6	1575.32
149.7	1575.34	149.8	1575.34	149.9	1575.35	150.5	1575.35	150.6	1575.36
150.8	1575.4	150.8	1575.41	150.9	1575.41	151	1575.42	151.1	1575.43
153.8	1575.5	155.2	1575.59	155.4	1575.59	155.5	1575.58	155.6	1575.58
155.7	1575.56	155.8	1575.56	155.9	1575.55	156	1575.53	156.9	1575.5
157.8	1575.6	157.9	1575.61	158	1575.61	158.2	1575.63	158.2	1575.64
158.3	1575.66	158.4	1575.66	158.6	1575.67	161.7	1575.7	163.1	1575.55
164.4	1575.62	164.6	1575.59	164.8	1575.59	164.9	1575.58	164.9	1575.57
165	1575.57	165.3	1575.59	165.5	1575.59	165.7	1575.61	166.2	1575.63
166.4	1575.65	171	1575.5	171.2	1575.5	171.3	1575.5	172.5	1575.53
172.7	1575.53	173	1575.53	173.1	1575.53	173.2	1575.53	173.3	1575.53
173.4	1575.53	173.5	1575.53	173.6	1575.53	173.8	1575.5	174.1	1575.5
174.2	1575.5	174.3	1575.5	174.4	1575.5	174.6	1575.52	174.7	1575.53
174.8	1575.54	174.9	1575.54	175	1575.55	175.1	1575.55	175.2	1575.53
175.3	1575.52	175.4	1575.51	175.5	1575.5	175.6	1575.5	175.8	1575.5
176	1575.49	176.1	1575.5	176.2	1575.5	176.3	1575.48	176.5	1575.46
181.2	1575.47	181.3	1575.47	181.3	1575.48	182.8	1575.5	182.9	1575.51
183	1575.52	183.1	1575.53	183.2	1575.53	183.3	1575.53	183.5	1575.55
183.7	1575.56	184	1575.58	184.2	1575.59	184.5	1575.58	184.7	1575.56
184.8	1575.56	185.1	1575.56	185.2	1575.56	185.3	1575.56	185.8	1575.55
185.9	1575.54	186	1575.55	186.1	1575.56	186.2	1575.56	186.3	1575.56
186.4	1575.56	186.6	1575.57	186.8	1575.59	187	1575.6	187.1	1575.61

187.4	1575.62	187.6	1575.62	187.7	1575.63	187.8	1575.64	187.9	1575.65
187.9	1575.66	188.3	1575.59	191.1	1575.56	191.2	1575.55	191.3	1575.54
191.4	1575.53	191.5	1575.53	191.5	1575.52	191.7	1575.52	191.8	1575.51
191.9	1575.51	192	1575.5	192.1	1575.49	192.1	1575.48	192.3	1575.46
193.2	1575.4	193.3	1575.38	193.4	1575.38	193.6	1575.38	193.7	1575.38
193.9	1575.38	194	1575.38	194.3	1575.38	194.4	1575.38	194.5	1575.38
194.7	1575.39	194.8	1575.4	195.4	1575.44	195.5	1575.44	195.6	1575.45
195.7	1575.45	195.8	1575.45	195.9	1575.46	196	1575.47	196.1	1575.5
196.3	1575.53	196.3	1575.54	198.1	1575.84	199.2	1575.98	199.4	1576
199.6	1575.99	199.8	1575.97	200	1575.94	200.1	1575.93	200.2	1575.92
200.722	1575.85								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	85.75	.015	124.25	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
85.75	124.25	105.7	105.7	105.7	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	85.75	1580	F
124.25	200.722	1580	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1574.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.09	Wt. n-Val.		0.015	
W.S. Elev (ft)	1573.07	Reach Len. (ft)	0.10	0.10	0.10
Crit W.S. (ft)	1571.90	Flow Area (sq ft)		190.26	
E.G. Slope (ft/ft)	0.001154	Area (sq ft)		190.26	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	38.50	Top Width (ft)		38.50	
Vel Total (ft/s)	8.38	Avg. Vel. (ft/s)		8.38	
Max Chl Dpth (ft)	4.94	Hydr. Depth (ft)		4.94	
Conv. Total (cfs)	46956.4	Conv. (cfs)		46956.4	
Length Wtd. (ft)	0.10	Wetted Per. (ft)		48.38	
Min Ch El (ft)	1568.13	Shear (lb/sq ft)		0.28	
Alpha	1.00	Stream Power (lb/ft s)		2.37	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.09	4.26	0.14
C & E Loss (ft)	0.26	Cum SA (acres)	0.25	2.26	0.19

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

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

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1574.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.09	Wt. n-Val.		0.015	
W.S. Elev (ft)	1573.07	Reach Len. (ft)	0.10	0.10	0.10
Crit W.S. (ft)	1571.90	Flow Area (sq ft)		190.26	
E.G. Slope (ft/ft)	0.001154	Area (sq ft)		190.26	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	38.50	Top Width (ft)		38.50	
Vel Total (ft/s)	8.38	Avg. Vel. (ft/s)		8.38	
Max Chl Dpth (ft)	4.94	Hydr. Depth (ft)		4.94	
Conv. Total (cfs)	46956.4	Conv. (cfs)		46956.4	
Length Wtd. (ft)	0.10	Wetted Per. (ft)		48.38	
Min Ch El (ft)	1568.13	Shear (lb/sq ft)		0.28	
Alpha	1.00	Stream Power (lb/ft s)		2.37	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.01	4.24	0.01
C & E Loss (ft)	0.26	Cum SA (acres)	0.02	2.26	0.01

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	85.75	93.45	258.29	38.05	12.64	16.19	4.94	6.79	0.22	1.47
2	Chan	93.45	101.15	359.47	38.05	7.70	22.54	4.94	9.45	0.36	3.36
3	Chan	101.15	108.85	359.47	38.05	7.70	22.54	4.94	9.45	0.36	3.36
4	Chan	108.85	116.55	359.47	38.05	7.70	22.54	4.94	9.45	0.36	3.36
5	Chan	116.55	124.25	258.29	38.05	12.64	16.19	4.94	6.79	0.22	1.47

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	85.75	93.45	258.29	38.05	12.64	16.19	4.94	6.79	0.22	1.47
2	Chan	93.45	101.15	359.47	38.05	7.70	22.54	4.94	9.45	0.36	3.36
3	Chan	101.15	108.85	359.47	38.05	7.70	22.54	4.94	9.45	0.36	3.36
4	Chan	108.85	116.55	359.47	38.05	7.70	22.54	4.94	9.45	0.36	3.36
5	Chan	116.55	124.25	258.29	38.05	12.64	16.19	4.94	6.79	0.22	1.47

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

BRIDGE

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 550

INPUT
Description: HAFEN ROAD BRIDGE
Distance from Upstream XS = .1
Deck/Roadway Width = 102
Weir Coefficient = 2.7
Upstream Deck/Roadway Coordinates
num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
50	1575.59	1572.13	150	1575.59	1572.13

Upstream Bridge Cross Section Data
Station Elevation Data num= 271

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1576.08	3	1576.09	5.4	1576	7.4	1576.06	8.9	1576.01
12.1	1576.03	13.9	1576.1	15.9	1576.06	17.4	1576.19	21.2	1576.19
22.1	1576.12	24.4	1576.22	25.9	1576.07	26.8	1576.06	28.8	1576.25
31.4	1576.22	31.5	1576.23	31.9	1576.28	32.9	1576.29	33.5	1576.22
35	1576.28	35.6	1576.21	37.6	1576.25	40.3	1576.18	41.4	1576.22
42.5	1576.16	43.8	1576.22	44.2	1576.14	44.5	1576.12	47	1576.18
48.5	1576.09	49.9	1576.19	51.7	1576.16	51.8	1576.15	51.9	1576.13
52	1576.12	52.6	1576.09	54.4	1576.09	55.5	1575.98	57.6	1576.03
58.9	1575.97	59	1575.94	59	1575.93	59.1	1575.93	59.4	1575.86

59.9	1575.73	59.9	1575.71	61.7	1575.5	63.4	1575.06	64.9	1574.78
65	1574.74	65	1574.73	66.3	1574.44	67	1574.44	69.1	1574.59
70.1	1574.78	72.8	1575.07	75.1	1575.1	76.2	1574.89	85.75	1574.71
85.75	1568.87	85.75	1568.13	124.25	1568.13	124.25	1569	124.25	1569.08
124.25	1573.7	132.5	1573.81	132.5	1573.82	132.7	1573.93	132.8	1573.98
132.9	1574.03	133	1574.11	133	1574.12	133	1574.13	133.1	1574.14
133.2	1574.25	133.3	1574.29	133.4	1574.34	133.6	1574.4	133.6	1574.41
133.8	1574.49	133.9	1574.53	134	1574.55	134.1	1574.58	134.3	1574.64
135.6	1574.88	136.8	1574.99	137.3	1575.02	137.3	1575.03	137.4	1575.05
137.6	1575.08	137.6	1575.09	142.2	1575.28	145.8	1575.26	145.9	1575.27
146	1575.27	146.2	1575.28	146.3	1575.28	146.4	1575.28	146.5	1575.28
146.6	1575.29	146.8	1575.28	146.9	1575.29	147	1575.3	147.2	1575.31
147.3	1575.31	147.4	1575.31	147.4	1575.32	147.5	1575.34	147.6	1575.34
147.7	1575.34	147.7	1575.35	147.9	1575.37	149.4	1575.31	149.6	1575.32
149.7	1575.34	149.8	1575.34	149.9	1575.35	150.5	1575.35	150.6	1575.36
150.8	1575.4	150.8	1575.41	150.9	1575.41	151	1575.42	151.1	1575.43
153.8	1575.5	155.2	1575.59	155.4	1575.59	155.5	1575.58	155.6	1575.58
155.7	1575.56	155.8	1575.56	155.9	1575.55	156	1575.53	156.9	1575.5
157.8	1575.6	157.9	1575.61	158	1575.61	158.2	1575.63	158.2	1575.64
158.3	1575.66	158.4	1575.66	158.6	1575.67	161.7	1575.7	163.1	1575.55
164.4	1575.62	164.6	1575.59	164.8	1575.59	164.9	1575.58	164.9	1575.57
165	1575.57	165.3	1575.59	165.5	1575.59	165.7	1575.61	166.2	1575.63
166.4	1575.65	171	1575.5	171.2	1575.5	171.3	1575.5	172.5	1575.53
172.7	1575.53	173	1575.53	173.1	1575.53	173.2	1575.53	173.3	1575.53
173.4	1575.53	173.5	1575.53	173.6	1575.53	173.8	1575.5	174.1	1575.5
174.2	1575.5	174.3	1575.5	174.4	1575.5	174.6	1575.52	174.7	1575.53
174.8	1575.54	174.9	1575.54	175	1575.55	175.1	1575.55	175.2	1575.53
175.3	1575.52	175.4	1575.51	175.5	1575.5	175.6	1575.5	175.8	1575.5
176	1575.49	176.1	1575.5	176.2	1575.5	176.3	1575.48	176.5	1575.46
181.2	1575.47	181.3	1575.47	181.3	1575.48	182.8	1575.5	182.9	1575.51
183	1575.52	183.1	1575.53	183.2	1575.53	183.3	1575.53	183.5	1575.55
183.7	1575.56	184	1575.58	184.2	1575.59	184.5	1575.58	184.7	1575.56
184.8	1575.56	185.1	1575.56	185.2	1575.56	185.3	1575.56	185.8	1575.55
185.9	1575.54	186	1575.55	186.1	1575.56	186.2	1575.56	186.3	1575.56
186.4	1575.56	186.6	1575.57	186.8	1575.59	187	1575.6	187.1	1575.61
187.4	1575.62	187.6	1575.62	187.7	1575.63	187.8	1575.64	187.9	1575.65
187.9	1575.66	188.3	1575.59	191.1	1575.56	191.2	1575.55	191.3	1575.54
191.4	1575.53	191.5	1575.53	191.5	1575.52	191.7	1575.52	191.8	1575.51
191.9	1575.51	192	1575.5	192.1	1575.49	192.1	1575.48	192.3	1575.46
193.2	1575.4	193.3	1575.38	193.4	1575.38	193.6	1575.38	193.7	1575.38
193.9	1575.38	194	1575.38	194.3	1575.38	194.4	1575.38	194.5	1575.38
194.7	1575.39	194.8	1575.4	195.4	1575.44	195.5	1575.44	195.6	1575.45
195.7	1575.45	195.8	1575.45	195.9	1575.46	196	1575.47	196.1	1575.5
196.3	1575.53	196.3	1575.54	198.1	1575.84	199.2	1575.98	199.4	1576
199.6	1575.99	199.8	1575.97	200	1575.94	200.1	1575.93	200.2	1575.92
200.722	1575.85								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	85.75	.015	124.25	.025

Bank Sta: Left Right Coeff Contr. Expan.
85.75 124.25 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	85.75	1580	F
124.25	200.722	1580	F

Downstream Deck/Roadway Coordinates
num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
50	1575.59	1571.13	175	1575.59	1571.13

Downstream Bridge Cross Section Data
Station Elevation Data num= 309

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1575.65	2.8	1575.59	4.5	1575.69	6.8	1575.59	12.1	1575.62
14.3	1575.5	15.8	1575.67	16.1	1575.61	22.8	1575.59	24.1	1575.5
28.1	1575.44	31.3	1575.44	32.1	1575.53	33.1	1575.53	34.3	1575.41
36.3	1575.41	38.3	1575.48	38.9	1575.44	40.8	1575.46	43.3	1575.34
44.6	1575.38	45.6	1575.28	47.8	1575.36	49.6	1575.22	50.9	1575.22
53.1	1575.33	54.4	1575.32	56.2	1575.21	58.3	1575.25	60.9	1575.22
62.1	1575.11	62.9	1575.11	64.1	1575.19	64.2	1575.18	64.3	1575.17
64.4	1575.16	66.1	1575.16	66.9	1575.12	67	1575.1	67.1	1575.09
67.2	1575.09	67.3	1575.08	67.4	1575.07	67.5	1575.1	67.6	1575.11
67.7	1575.12	67.8	1575.12	67.9	1575.12	68	1575.12	70.6	1575.06
72.6	1575.15	73.9	1575.16	76.1	1575	79.2	1575.03	80.1	1575.12
81.3	1575.03	82.1	1575.03	83.2	1575.09	85.6	1575.1	86.7	1575.15
86.8	1575.14	86.9	1575.14	87	1575.14	87.1	1575.14	87.2	1575.13
87.3	1575.12	87.5	1575.1	87.6	1575.09	87.8	1575.06	88.1	1575.04
88.2	1575.03	88.4	1575	89.4	1575	91	1574.83	91	1574.82
91.1	1574.8	91.1	1574.79	92.1	1574.78	92.4	1574.75	92.4	1574.74
92.6	1574.69	93	1574.57	93	1574.56	93	1574.55	93	1574.53
93.5	1574.32	94.1	1573.94	94.1	1573.93	94.3	1573.79	94.3	1573.73
94.5	1573.63	94.5	1573.59	94.6	1573.47	95	1573.13	95	1573.12
95.2	1572.98	95.3	1572.9	95.4	1572.82	95.5	1572.68	95.6	1572.64
95.7	1572.47	95.9	1572.34	95.9	1572.28	96	1572.17	96.1	1572.09
96.1	1572.05	96.3	1571.9	96.4	1571.74	96.5	1571.69	96.5	1571.59
98.75	1571.13	98.75	1567.13	137.25	1567.13	137.25	1571.13	139	1572.45
139.2	1573.02	139.3	1573.6	139.4	1573.78	139.5	1573.94	139.6	1573.96
139.7	1574.04	139.8	1574.07	139.9	1574.15	139.9	1574.17	139.9	1574.19
140.4	1574.36	142.2	1574.72	145.5	1574.9	145.7	1574.89	145.7	1574.88
146.9	1574.81	147	1574.81	147.1	1574.81	147.3	1574.81	147.4	1574.81
147.5	1574.82	147.6	1574.81	147.7	1574.81	147.8	1574.8	147.9	1574.79
147.9	1574.78	148.4	1574.79	148.5	1574.8	148.7	1574.81	148.8	1574.82
149.1	1574.84	149.2	1574.85	149.3	1574.88	149.6	1574.91	151.5	1574.91
151.5	1574.9	151.6	1574.9	151.7	1574.89	151.9	1574.88	152	1574.86
152.1	1574.85	152.4	1574.9	152.4	1574.91	153.9	1574.88	154.4	1574.93
154.5	1574.94	154.6	1574.94	154.7	1574.96	154.7	1574.97	154.8	1574.97
154.9	1574.99	156	1575.06	156.2	1575.1	156.4	1575.13	158.8	1575.01

```
   160.4 1575.12   160.5 1575.14   160.7 1575.16   160.8 1575.16     161 1575.16
   161.1 1575.16   161.2 1575.16   161.3 1575.17   161.6 1575.19   161.7 1575.19
     162 1575.19   162.1 1575.19   162.2  1575.2   162.3 1575.21   162.5 1575.22
   166.7 1575.16   166.9 1575.17     167 1575.19   167.1  1575.2   167.2 1575.22
   167.5 1575.25   167.6 1575.25   167.8 1575.25   167.9 1575.25     168 1575.27
   168.1 1575.27   168.4 1575.26   168.5 1575.25   168.7 1575.25   168.8 1575.25
     169 1575.25   169.1 1575.24   171.6  1575.2   171.7 1575.19   171.8 1575.19
   171.9 1575.17     172 1575.17   172.1 1575.16   172.2 1575.16   172.5 1575.14
   172.6 1575.13   174.4 1575.25   174.5 1575.25   174.6 1575.25   174.7 1575.25
   174.8 1575.24     175 1575.22   175.1 1575.22   175.3 1575.22   175.5 1575.22
   175.6 1575.22   175.7 1575.22   175.9 1575.22     176 1575.22   176.2 1575.24
   176.3 1575.24   176.4 1575.23   176.5 1575.23   176.6 1575.25   176.8 1575.28
     177 1575.29   177.1  1575.3   177.3 1575.32   177.5 1575.33   177.7 1575.34
   177.9 1575.32     178 1575.31   178.1 1575.31   178.2 1575.31   178.3 1575.31
   178.5 1575.31   178.6 1575.31   178.8 1575.31     179 1575.31   179.1 1575.31
   180.4 1575.44   180.5 1575.44   180.7 1575.44   180.8 1575.44   180.9 1575.44
     181 1575.44   181.3 1575.46   181.4 1575.45   181.6 1575.45   181.7 1575.45
   181.9 1575.47     182 1575.48   182.2 1575.49   182.2  1575.5   182.3  1575.5
   182.5 1575.51   182.6 1575.53   182.7 1575.55   182.8 1575.56   183.1 1575.56
   183.2 1575.56   183.3 1575.56   183.5 1575.56   183.6 1575.56   183.7 1575.56
   183.7 1575.57   183.8 1575.58   183.9 1575.59     184 1575.59   184.2 1575.59
   184.2  1575.6   184.4 1575.61   184.6 1575.62   184.8 1575.61   184.9 1575.61
   185.1  1575.6   185.2  1575.6   185.5 1575.59   185.7 1575.59     186 1575.56
   186.2 1575.56   186.3 1575.56   186.4 1575.56   186.6 1575.56   186.7 1575.56
   186.9 1575.56   187.1 1575.59   187.2 1575.59   187.4 1575.61   187.5 1575.62
   187.6 1575.63   187.7 1575.65   187.8 1575.65   187.8 1575.66   188.1 1575.66
   188.2 1575.66   188.3 1575.68   188.4 1575.69   188.5 1575.69   188.6 1575.69
   188.7 1575.69   188.8 1575.69     189 1575.72191.4528  1575.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   98.75    .015  137.25    .025

Bank Sta: Left   Right    Coeff Contr.   Expan.
         98.75  137.25             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0   98.75    1576       F
  137.25191.4528    1576       F

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 =     .98
Elevation at which weir flow begins         = 1575.55
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  2
```

Pier Data
Pier Station   Upstream=   98.5   Downstream=   111.5
Upstream   num=   2
    Width   Elev   Width   Elev
     .67 1569.51   .67   1575
Downstream   num=   2
    Width   Elev   Width   Elev
     .67 1569.51   .67   1575

Pier Data
Pier Station   Upstream=   111.5   Downstream=   124.5
Upstream   num=   2
    Width   Elev   Width   Elev
     .67 1569.51   .67   1575
Downstream   num=   2
    Width   Elev   Width   Elev
     .67 1569.51   .67   1575

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

BRIDGE OUTPUT Profile #BFE

			Inside BR US	Inside BR DS
E.G. US. (ft)	1574.16	Element		
W.S. US. (ft)	1573.07	E.G. Elev (ft)	1573.91	1572.91
Q Total (cfs)	1595.00	W.S. Elev (ft)	1571.96	1570.96
Q Bridge (cfs)	1595.00	Crit W.S. (ft)	1571.96	1570.96
Q Weir (cfs)		Max Chl Dpth (ft)	3.83	3.83
Weir Sta Lft (ft)		Vel Total (ft/s)	11.20	11.20
Weir Sta Rgt (ft)		Flow Area (sq ft)	142.43	142.43
Weir Submerg		Froude # Chl	1.01	1.01
Weir Max Depth (ft)		Specif Force (cu ft)	828.11	828.11
Min El Weir Flow (ft)	1580.01	Hydr Depth (ft)	3.83	3.83
Min El Prs (ft)	1572.13	W.P. Total (ft)	60.16	60.16
Delta EG (ft)	1.39	Conv. Total (cfs)	25063.9	25063.9
Delta WS (ft)	2.19	Top Width (ft)	37.16	37.16
BR Open Area (sq ft)	148.64	Frctn Loss (ft)	0.53	0.01

BR Open Vel (ft/s)	11.20	C & E Loss (ft)	0.05	0.03
BR Sluice Coef		Shear Total (lb/sq ft)	0.60	0.60
BR Sel Method	Energy only	Power Total (lb/ft s)	6.70	6.70

Warning: Pier drag coefficient of 2.0 assumed for Class B flow.
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

BRIDGE OUTPUT Profile #FLOODWAY

E.G. US. (ft)	1574.16	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	1573.07	E.G. Elev (ft)	1573.91	1572.91
Q Total (cfs)	1595.00	W.S. Elev (ft)	1571.96	1570.96
Q Bridge (cfs)	1595.00	Crit W.S. (ft)	1571.96	1570.96
Q Weir (cfs)		Max Chl Dpth (ft)	3.83	3.83
Weir Sta Lft (ft)		Vel Total (ft/s)	11.20	11.20
Weir Sta Rgt (ft)		Flow Area (sq ft)	142.43	142.43
Weir Submerg		Froude # Chl	1.01	1.01
Weir Max Depth (ft)		Specif Force (cu ft)	828.11	828.11
Min El Weir Flow (ft)	1580.01	Hydr Depth (ft)	3.83	3.83
Min El Prs (ft)	1572.13	W.P. Total (ft)	60.16	60.16
Delta EG (ft)	1.39	Conv. Total (cfs)	25063.9	25063.9
Delta WS (ft)	2.19	Top Width (ft)	37.16	37.16
BR Open Area (sq ft)	148.64	Frctn Loss (ft)	0.53	0.01
BR Open Vel (ft/s)	11.20	C & E Loss (ft)	0.05	0.03
BR Sluice Coef		Shear Total (lb/sq ft)	0.60	0.60
BR Sel Method	Energy only	Power Total (lb/ft s)	6.70	6.70

Warning: Pier drag coefficient of 2.0 assumed for Class B flow.
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 500

INPUT
Description:
Station Elevation Data num= 309

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1575.65	2.8	1575.59	4.5	1575.69	6.8	1575.59	12.1	1575.62
14.3	1575.5	15.8	1575.67	16.1	1575.61	22.8	1575.59	24.1	1575.5
28.1	1575.44	31.3	1575.44	32.1	1575.53	33.1	1575.53	34.3	1575.41
36.3	1575.41	38.3	1575.48	38.9	1575.44	40.8	1575.46	43.3	1575.34
44.6	1575.38	45.6	1575.28	47.8	1575.36	49.6	1575.22	50.9	1575.22
53.1	1575.33	54.4	1575.32	56.2	1575.21	58.3	1575.25	60.9	1575.22
62.1	1575.11	62.9	1575.11	64.1	1575.19	64.2	1575.18	64.3	1575.17
64.4	1575.16	66.1	1575.16	66.9	1575.12	67	1575.1	67.1	1575.09
67.2	1575.09	67.3	1575.08	67.4	1575.07	67.5	1575.1	67.6	1575.11
67.7	1575.12	67.8	1575.12	67.9	1575.12	68	1575.12	70.6	1575.06
72.6	1575.15	73.9	1575.16	76.1	1575	79.2	1575.03	80.1	1575.12
81.3	1575.03	82.1	1575.03	83.2	1575.09	85.6	1575.1	86.7	1575.15
86.8	1575.14	86.9	1575.14	87	1575.14	87.1	1575.14	87.2	1575.13
87.3	1575.12	87.5	1575.1	87.6	1575.09	87.8	1575.06	88.1	1575.04
88.2	1575.03	88.4	1575	89.4	1575	91	1574.83	91	1574.82
91.1	1574.8	91.1	1574.79	92.1	1574.78	92.4	1574.75	92.4	1574.74
92.6	1574.69	93	1574.57	93	1574.56	93	1574.55	93	1574.53
93.5	1574.32	94.1	1573.94	94.1	1573.93	94.3	1573.79	94.3	1573.73
94.5	1573.63	94.5	1573.59	94.6	1573.47	95	1573.13	95	1573.12
95.2	1572.98	95.3	1572.9	95.4	1572.82	95.5	1572.68	95.6	1572.64
95.7	1572.47	95.9	1572.34	95.9	1572.28	96	1572.17	96.1	1572.09
96.1	1572.05	96.3	1571.9	96.4	1571.74	96.5	1571.69	96.5	1571.59
98.75	1571.13	98.75	1567.13	137.25	1567.13	137.25	1571.13	139	1572.45
139.2	1573.02	139.3	1573.6	139.4	1573.78	139.5	1573.94	139.6	1573.96
139.7	1574.04	139.8	1574.07	139.9	1574.15	139.9	1574.17	139.9	1574.19
140.4	1574.36	142.2	1574.72	145.5	1574.9	145.7	1574.89	145.7	1574.88
146.9	1574.81	147	1574.81	147.1	1574.81	147.3	1574.81	147.4	1574.81
147.5	1574.82	147.6	1574.81	147.7	1574.81	147.8	1574.8	147.9	1574.79
147.9	1574.78	148.4	1574.79	148.5	1574.8	148.7	1574.81	148.8	1574.82
149.1	1574.84	149.2	1574.85	149.3	1574.88	149.6	1574.91	151.5	1574.91
151.5	1574.9	151.6	1574.9	151.7	1574.89	151.9	1574.88	152	1574.86
152.1	1574.85	152.4	1574.9	152.4	1574.91	153.9	1574.88	154.4	1574.93
154.5	1574.94	154.6	1574.94	154.7	1574.96	154.7	1574.97	154.8	1574.97

```
   154.9 1574.99     156 1575.06   156.2  1575.1   156.4 1575.13   158.8 1575.01
   160.4 1575.12   160.5 1575.14   160.7 1575.16   160.8 1575.16     161 1575.16
   161.1 1575.16   161.2 1575.16   161.3 1575.17   161.6 1575.19   161.7 1575.19
     162 1575.19   162.1 1575.19   162.2  1575.2   162.3 1575.21   162.5 1575.22
   166.7 1575.16   166.9 1575.17     167 1575.19   167.1  1575.2   167.2 1575.22
   167.5 1575.25   167.6 1575.25   167.8 1575.25   167.9 1575.25     168 1575.27
   168.1 1575.27   168.4 1575.26   168.5 1575.25   168.7 1575.25   168.8 1575.25
     169 1575.25   169.1 1575.24   171.6  1575.2   171.7 1575.19   171.8 1575.19
   171.9 1575.17     172 1575.17   172.1 1575.16   172.2 1575.16   172.5 1575.14
   172.6 1575.13   174.4 1575.25   174.5 1575.25   174.6 1575.25   174.7 1575.25
   174.8 1575.24     175 1575.22   175.1 1575.22   175.3 1575.22   175.5 1575.22
   175.6 1575.22   175.7 1575.22   175.9 1575.22     176 1575.22   176.2 1575.24
   176.3 1575.24   176.4 1575.23   176.5 1575.23   176.6 1575.25   176.8 1575.28
     177 1575.29   177.1  1575.3   177.3 1575.32   177.5 1575.33   177.7 1575.34
   177.9 1575.32     178 1575.31   178.1 1575.31   178.2 1575.31   178.3 1575.31
   178.5 1575.31   178.6 1575.31   178.8 1575.31     179 1575.31   179.1 1575.31
   180.4 1575.44   180.5 1575.44   180.7 1575.44   180.8 1575.44   180.9 1575.44
     181 1575.44   181.3 1575.46   181.4 1575.45   181.6 1575.45   181.7 1575.45
   181.9 1575.47     182 1575.48   182.2 1575.49   182.2  1575.5   182.3  1575.5
   182.5 1575.51   182.6 1575.53   182.7 1575.55   182.8 1575.56   183.1 1575.56
   183.2 1575.56   183.3 1575.56   183.5 1575.56   183.6 1575.56   183.7 1575.56
   183.7 1575.57   183.8 1575.58   183.9 1575.59     184 1575.59   184.2 1575.59
   184.2  1575.6   184.4 1575.61   184.6 1575.62   184.8 1575.61   184.9 1575.61
   185.1  1575.6   185.2  1575.6   185.5 1575.59   185.7 1575.59     186 1575.56
   186.2 1575.56   186.3 1575.56   186.4 1575.56   186.6 1575.56   186.7 1575.56
   186.9 1575.56   187.1 1575.59   187.2 1575.59   187.4 1575.61   187.5 1575.62
   187.6 1575.63   187.7 1575.65   187.8 1575.65   187.8 1575.66   188.1 1575.66
   188.2 1575.66   188.3 1575.68   188.4 1575.69   188.5 1575.69   188.6 1575.69
   188.7 1575.69   188.8 1575.69     189 1575.72191.4528  1575.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   98.75    .015  137.25    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         98.75  137.25               37    40.5      35             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0   98.75    1576       F
  137.25191.4528    1576       F

CROSS SECTION OUTPUT  Profile #BFE

  E.G. Elev (ft)           1572.78    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               1.89    Wt. n-Val.                           0.015
  W.S. Elev (ft)           1570.88    Reach Len. (ft)           37.00      40.50      35.00
  Crit W.S. (ft)           1570.88    Flow Area (sq ft)                   144.53
  E.G. Slope (ft/ft)      0.002698    Area (sq ft)                        144.53
  Q Total (cfs)            1595.00    Flow (cfs)                         1595.00
  Top Width (ft)             38.50    Top Width (ft)                       38.50
```

Vel Total (ft/s)	11.04	Avg. Vel. (ft/s)		11.04	
Max Chl Dpth (ft)	3.75	Hydr. Depth (ft)		3.75	
Conv. Total (cfs)	30708.4	Conv. (cfs)		30708.4	
Length Wtd. (ft)	40.44	Wetted Per. (ft)		46.01	
Min Ch El (ft)	1567.13	Shear (lb/sq ft)		0.53	
Alpha	1.00	Stream Power (lb/ft s)		5.84	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	0.09	3.92	0.14
C & E Loss (ft)	0.08	Cum SA (acres)	0.25	2.17	0.19

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1572.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.90	Wt. n-Val.		0.015	
W.S. Elev (ft)	1570.88	Reach Len. (ft)	37.00	40.50	35.00
Crit W.S. (ft)	1570.88	Flow Area (sq ft)		144.39	
E.G. Slope (ft/ft)	0.002706	Area (sq ft)		144.39	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	38.50	Top Width (ft)		38.50	
Vel Total (ft/s)	11.05	Avg. Vel. (ft/s)		11.05	
Max Chl Dpth (ft)	3.75	Hydr. Depth (ft)		3.75	
Conv. Total (cfs)	30663.3	Conv. (cfs)		30663.3	
Length Wtd. (ft)	40.46	Wetted Per. (ft)		46.00	
Min Ch El (ft)	1567.13	Shear (lb/sq ft)		0.53	
Alpha	1.00	Stream Power (lb/ft s)		5.86	
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	0.01	3.89	0.01
C & E Loss (ft)	0.01	Cum SA (acres)	0.02	2.17	0.01

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/fts)
1	Chan	98.75	106.45	269.91	28.91	11.45	16.92	3.75	9.34	0.43	3.97
2	Chan	106.45	114.15	351.72	28.91	7.70	22.05	3.75	12.17	0.63	7.69
3	Chan	114.15	121.85	351.72	28.91	7.70	22.05	3.75	12.17	0.63	7.69
4	Chan	121.85	129.55	351.72	28.91	7.70	22.05	3.75	12.17	0.63	7.69
5	Chan	129.55	137.25	269.91	28.91	11.45	16.92	3.75	9.34	0.43	3.97

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/fts)
1	Chan	98.75	106.45	269.95	28.88	11.45	16.92	3.75	9.35	0.43	3.98
2	Chan	106.45	114.15	351.70	28.88	7.70	22.05	3.75	12.18	0.63	7.72
3	Chan	114.15	121.85	351.70	28.88	7.70	22.05	3.75	12.18	0.63	7.72
4	Chan	121.85	129.55	351.70	28.88	7.70	22.05	3.75	12.18	0.63	7.72
5	Chan	129.55	137.25	269.95	28.88	11.45	16.92	3.75	9.35	0.43	3.98

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 400

INPUT
Description:
Station Elevation Data num= 446

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1575.32	1.8	1575.34	5.9	1575.11	7.3	1575.12	7.5	1575.04
8.4	1575.08	10	1574.85	11.1	1574.88	13.1	1574.73	15.5	1574.88
17.4	1574.75	18.2	1574.8	21	1574.42	22	1574.14	22.7	1573.83
24	1573.67	24.9	1573.68	27.8	1573.22	29.9	1573.13	32.5	1572.87
33.6	1572.91	35.8	1572.66	38.4	1572.84	41.6	1572.34	43.2	1572.38
45.8	1572.08	48.1	1572.12	50	1571.94	50.3	1571.99	51.1	1571.97
52.2	1571.82	54.1	1571.72	56.8	1571.4	62.9	1571.09	67.2	1570.58
68.9	1570.66	70.4	1570.48	72.9	1570.5	74.4	1570.44	75.7	1570.21
76.9	1570.19	77.9	1570.03	78.5	1570.06	81.8	1569.82	84.9	1569.29
87.6	1568.5	90.4	1568.38	92.4	1568.07	98.2	1567.5	102	1567.31
103.7	1567.08	106.4	1566.97	107.8	1566.77	108.4	1566.57	108.5	1566.56
108.6	1566.49	108.8	1566.46	108.8	1566.44	108.9	1566.41	109.4	1566.28
109.6	1566.26	109.7	1566.25	109.8	1566.23	110	1566.19	112.4	1565.48
113.8	1564.82	113.8	1564.8	113.9	1564.72	115.2	1564.08	115.3	1564.01
116	1563.59	116	1563.57	117.1	1563.12	117.2	1563.11	117.3	1563.07
118	1562.92	119.5	1562.81	120.6	1562.4	120.7	1562.35	121	1562.23
121.1	1562.16	121.1	1562.14	121.3	1562.08	121.3	1562.06	121.3	1562.05
121.5	1562	121.6	1561.95	121.7	1561.91	121.8	1561.85	123.4	1561.6
123.6	1561.5	123.7	1561.5	123.8	1561.45	123.9	1561.41	124	1561.39
124.1	1561.36	124.2	1561.34	124.2	1561.32	124.4	1561.28	124.5	1561.23
124.6	1561.22	124.7	1561.17	125.7	1560.89	125.8	1560.87	126	1560.87
126.1	1560.87	126.2	1560.87	126.4	1560.85	126.9	1560.91	127	1560.92
127.1	1560.94	127.2	1560.97	127.3	1560.98	128.4	1561.24	128.4	1561.26
128.5	1561.3	128.6	1561.33	128.7	1561.34	128.7	1561.35	129	1561.44
129.1	1561.46	129.2	1561.48	129.3	1561.48	129.3	1561.49	129.4	1561.5
129.5	1561.5	129.6	1561.51	129.7	1561.52	129.8	1561.56	129.9	1561.58
130	1561.6	130.1	1561.64	131.5	1561.61	132.9	1561.75	133.1	1561.72
133.2	1561.7	133.2	1561.68	133.4	1561.65	133.4	1561.63	133.5	1561.61
133.6	1561.56	133.6	1561.55	133.8	1561.5	133.8	1561.49	134.6	1561.38
134.7	1561.39	134.9	1561.4	134.9	1561.42	135	1561.45	136.4	1561.84
137.8	1562	139.4	1562.65	139.5	1562.67	139.9	1562.8	140	1562.84

140.2 1562.89	140.3 1562.91	140.5 1562.95	140.6 1562.97	141.3 1563.26
141.5 1563.31	141.5 1563.34	141.8 1563.45	141.8 1563.46	141.9 1563.54
142 1563.63	142 1563.64	142 1563.66	142.2 1563.8	142.3 1563.84
142.3 1563.88	142.4 1563.97	142.5 1564.02	142.6 1564.08	142.8 1564.18
143.1 1564.4	143.2 1564.46	143.3 1564.52	143.3 1564.56	143.5 1564.65
143.5 1564.68	143.6 1564.71	144.3 1565.21	144.5 1565.27	144.5 1565.32
144.6 1565.38	144.7 1565.41	144.8 1565.47	145 1565.54	147.1 1565.8
148 1565.76	149.3 1565.81	151.2 1566.14	152.8 1566.33	153.9 1566.38
154.1 1566.38	154.3 1566.41	154.4 1566.41	154.4 1566.42	154.5 1566.42
154.6 1566.42	154.7 1566.41	154.7 1566.4	154.9 1566.39	156.6 1566.88
159.7 1567.28	159.8 1567.32	159.9 1567.35	160.1 1567.4	160.2 1567.41
160.2 1567.42	160.3 1567.46	160.4 1567.48	160.5 1567.5	160.6 1567.52
160.7 1567.54	160.8 1567.59	160.9 1567.62	161 1567.66	161.4 1567.77
161.5 1567.79	161.6 1567.84	161.7 1567.85	161.9 1567.9	163.2 1568.21
165.3 1568.37	167 1568.71	169.5 1569.06	169.5 1569.07	169.7 1569.09
169.7 1569.1	169.8 1569.11	170 1569.15	170 1569.16	170.2 1569.22
170.3 1569.23	170.5 1569.25	170.6 1569.27	170.7 1569.31	170.9 1569.33
170.9 1569.34	171 1569.36	171.1 1569.37	171.2 1569.37	171.2 1569.38
171.3 1569.39	171.7 1569.5	171.8 1569.5	171.8 1569.51	172 1569.53
172.4 1569.58	172.5 1569.59	172.6 1569.61	172.8 1569.62	172.9 1569.64
173 1569.66	173.1 1569.67	173.2 1569.68	173.3 1569.69	173.5 1569.69
173.5 1569.7	173.8 1569.75	174 1569.79	174.2 1569.83	174.3 1569.84
174.3 1569.85	174.4 1569.86	174.7 1569.91	175.3 1570	175.3 1570.01
175.5 1570.06	175.6 1570.07	175.8 1570.09	176 1570.12	176.1 1570.13
176.2 1570.15	176.3 1570.16	176.4 1570.17	176.5 1570.19	176.6 1570.19
176.9 1570.2	176.9 1570.21	177 1570.22	177.1 1570.22	177.2 1570.22
177.3 1570.22	177.5 1570.22	177.8 1570.25	178 1570.25	178.1 1570.25
180.8 1570.62	180.9 1570.63	181 1570.64	181.1 1570.65	181.1 1570.66
181.3 1570.67	181.3 1570.68	181.4 1570.68	181.5 1570.69	181.6 1570.69
181.8 1570.71	181.8 1570.72	182 1570.72	182.1 1570.72	182.3 1570.73
182.4 1570.74	182.5 1570.75	182.6 1570.76	182.7 1570.78	182.9 1570.81
183.2 1570.85	183.3 1570.88	183.3 1570.89	183.4 1570.91	183.6 1570.96
183.6 1570.97	183.8 1571.03	183.9 1571.04	184.1 1571.11	184.1 1571.12
184.1 1571.14	184.3 1571.19	184.4 1571.21	184.5 1571.23	184.6 1571.25
184.7 1571.27	184.8 1571.3	185 1571.32	185 1571.33	185.1 1571.34
185.3 1571.39	185.4 1571.41	185.6 1571.43	185.6 1571.44	185.8 1571.48
185.8 1571.5	185.9 1571.5	186.1 1571.53	186.3 1571.55	186.4 1571.56
186.4 1571.57	186.5 1571.58	186.6 1571.59	186.7 1571.61	186.9 1571.62
187.1 1571.65	187.2 1571.66	187.3 1571.67	187.4 1571.68	187.4 1571.69
188.2 1571.75	188.4 1571.79	188.5 1571.79	188.6 1571.8	188.8 1571.79
188.9 1571.78	189 1571.77	189.1 1571.75	189.2 1571.75	191.1 1571.77
191.2 1571.78	191.7 1571.84	192.4 1571.99	194.1 1572.12	194.2 1572.13
194.2 1572.14	195 1572.25	195.7 1572.4	195.7 1572.41	195.7 1572.42
195.9 1572.49	195.9 1572.5	196 1572.51	196.1 1572.55	196.3 1572.57
196.4 1572.57	196.4 1572.58	196.5 1572.58	196.6 1572.57	198.6 1572.38
204 1572.29	204 1572.3	204.2 1572.32	204.3 1572.34	204.3 1572.36
204.4 1572.39	204.5 1572.41	204.6 1572.45	204.6 1572.46	204.8 1572.5
205.5 1572.74	205.5 1572.75	205.7 1572.8	205.8 1572.81	206 1572.81
206.1 1572.81	206.2 1572.81	206.3 1572.81	206.4 1572.8	206.5 1572.79
206.6 1572.8	206.9 1572.81	207.1 1572.83	207.2 1572.83	207.3 1572.84

```
   207.5 1572.84   222.1 1573.91   222.2 1573.92   224.2 1574.16   224.2 1574.18
   224.3  1574.2   224.4 1574.22   224.6 1574.24   224.7 1574.27   224.8 1574.29
   224.9 1574.31     225 1574.33   225.1 1574.35   225.2 1574.37   225.4 1574.42
   226.7 1574.75   226.8 1574.78   226.8 1574.79   226.9 1574.82     227 1574.85
   227.2 1574.91   227.2 1574.92   227.4 1574.94   227.5 1574.94   227.7 1574.91
   227.9 1574.88     228 1574.86   228.1 1574.83   228.2 1574.81   228.4 1574.79
   228.4 1574.78   228.6 1574.76   228.9 1574.75   229.1 1574.75   229.2 1574.76
   229.4 1574.78   229.5 1574.78   229.5 1574.79   229.6 1574.81   229.7 1574.81
231.9143 1575.38

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03   108.5     .03     145     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         108.5     145              149     129     112             .1       .3
```

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1568.62	Element			
Vel Head (ft)	1.73	Wt. n-Val.	0.030	0.030	0.030
W.S. Elev (ft)	1566.89	Reach Len. (ft)	149.00	129.00	112.00
Crit W.S. (ft)	1566.89	Flow Area (sq ft)	0.22	146.29	9.31
E.G. Slope (ft/ft)	0.007962	Area (sq ft)	0.22	146.29	9.31
Q Total (cfs)	1595.00	Flow (cfs)	0.25	1559.70	35.05
Top Width (ft)	49.73	Top Width (ft)	1.55	36.50	11.69
Vel Total (ft/s)	10.24	Avg. Vel. (ft/s)	1.17	10.66	3.77
Max Chl Dpth (ft)	6.04	Hydr. Depth (ft)	0.14	4.01	0.80
Conv. Total (cfs)	17875.3	Conv. (cfs)	2.8	17479.7	392.8
Length Wtd. (ft)	128.81	Wetted Per. (ft)	1.59	39.04	11.84
Min Ch El (ft)	1560.85	Shear (lb/sq ft)	0.07	1.86	0.39
Alpha	1.06	Stream Power (lb/ft s)	0.08	19.86	1.47
Frctn Loss (ft)	1.14	Cum Volume (acre-ft)	0.09	3.78	0.13
C & E Loss (ft)	0.17	Cum SA (acres)	0.25	2.14	0.19

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #FLOODWAY

			Left OB	Channel	Right OB
E.G. Elev (ft)	1568.68	Element			
Vel Head (ft)	1.87	Wt. n-Val.		0.030	0.030

W.S. Elev (ft)	1566.80	Reach Len. (ft)	149.00	129.00	112.00
Crit W.S. (ft)	1566.80	Flow Area (sq ft)		142.39	5.28
E.G. Slope (ft/ft)	0.008567	Area (sq ft)		142.39	5.28
Q Total (cfs)	1595.00	Flow (cfs)		1572.54	22.46
Top Width (ft)	40.00	Top Width (ft)		35.00	5.00
Vel Total (ft/s)	10.80	Avg. Vel. (ft/s)		11.04	4.26
Max Chl Dpth (ft)	5.95	Hydr. Depth (ft)		4.07	1.06
Conv. Total (cfs)	17232.8	Conv. (cfs)		16990.1	242.7
Length Wtd. (ft)	128.88	Wetted Per. (ft)		38.08	5.90
Min Ch El (ft)	1560.85	Shear (lb/sq ft)		2.00	0.48
Alpha	1.03	Stream Power (lb/ft s)		22.08	2.04
Frctn Loss (ft)	1.18	Cum Volume (acre-ft)	0.01	3.76	0.01
C & E Loss (ft)	0.21	Cum SA (acres)	0.02	2.14	0.01

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	86.80	108.50	0.25	0.22	1.59	0.02	0.14	1.17	0.07	0.08
2	Chan	108.50	115.80	55.95	11.05	7.93	3.51	1.51	5.06	0.69	3.51
3	Chan	115.80	123.10	320.97	31.19	7.72	20.12	4.27	10.29	2.01	20.67
4	Chan	123.10	130.40	520.32	41.38	7.58	32.62	5.67	12.58	2.71	34.14
5	Chan	130.40	137.70	458.92	38.19	7.49	28.77	5.23	12.02	2.54	30.46
6	Chan	137.70	145.00	203.53	24.47	8.33	12.76	3.35	8.32	1.46	12.14
7	ROB	145.00	162.38	35.05	9.31	11.84	2.20	0.80	3.77	0.39	1.47

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	108.50	115.80	51.32	9.72	6.97	3.22	1.68	5.28	0.75	3.94
2	Chan	115.80	123.10	323.52	30.55	7.72	20.28	4.19	10.59	2.12	22.42
3	Chan	123.10	130.40	528.97	40.74	7.58	33.16	5.58	12.99	2.88	37.34
4	Chan	130.40	137.70	465.53	37.55	7.49	29.19	5.14	12.40	2.68	33.25
5	Chan	137.70	145.00	203.19	23.83	8.33	12.74	3.26	8.53	1.53	13.04
6	ROB	145.00	162.38	22.46	5.28	5.90	1.41	1.06	4.26	0.48	2.04

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 300

INPUT

Description:
Station Elevation Data num= 447

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1566.72	5.6	1566.71	6.6	1566.59	9.9	1566.59	11.4	1566.44
16.9	1566.16	20.1	1565.88	21.1	1565.88	23.6	1565.59	26.1	1565.41
26.9	1565.41	30.4	1565.09	33.4	1565.03	34.9	1564.94	36.7	1564.94
39.7	1565.06	42.8	1565.02	45.2	1565.19	48.9	1565.28	50.4	1565.38
52.4	1565.28	56.9	1565.52	58.7	1565.47	62.9	1565.53	66.4	1565.41
67.9	1565.46	76.1	1565.38	81.1	1565.42	84.7	1565.59	89	1565.63
89	1565.62	89.1	1565.61	89.2	1565.6	89.3	1565.6	89.4	1565.6
89.7	1565.56	91.9	1565.49	96.2	1565.2	98.3	1565.18	98.4	1565.16
98.5	1565.15	98.6	1565.15	98.7	1565.15	98.8	1565.14	98.9	1565.12
99	1565.12	99	1565.11	99.1	1565.09	99.2	1565.08	99.3	1565.08
99.4	1565.07	99.5	1565.06	100.5	1565.05	100.6	1565.03	100.8	1565.01
100.9	1565.01	101.5	1564.94	101.5	1564.93	103	1564.81	103	1564.8
103.2	1564.75	103.5	1564.69	104.8	1564.68	105.7	1564.59	105.8	1564.59
105.9	1564.59	106.1	1564.58	106.2	1564.58	106.3	1564.57	106.4	1564.57
106.5	1564.56	106.6	1564.55	106.7	1564.55	107.7	1564.39	111.7	1564.15
111.8	1564.14	112.3	1564.07	112.4	1564.06	112.5	1564.05	112.6	1564.04
112.7	1564.02	112.9	1564	113	1563.98	113.1	1563.96	113.2	1563.94
113.4	1563.92	113.6	1563.9	113.6	1563.89	113.7	1563.89	113.8	1563.89
113.9	1563.89	114	1563.89	115.3	1563.84	115.5	1563.81	115.7	1563.78
116.2	1563.69	116.7	1563.69	116.9	1563.66	117	1563.66	117.2	1563.66
117.7	1563.62	117.8	1563.62	117.9	1563.6	118	1563.59	118.1	1563.59
118.3	1563.59	118.4	1563.59	118.5	1563.59	118.6	1563.58	118.6	1563.57
118.7	1563.56	118.8	1563.56	118.9	1563.56	119	1563.56	120.3	1563.47
120.4	1563.46	120.5	1563.45	120.6	1563.44	120.6	1563.43	121	1563.38
121.2	1563.36	121.2	1563.35	123	1563.38	124.7	1563.26	124.8	1563.27
124.9	1563.28	125	1563.28	125.1	1563.28	125.2	1563.28	126.6	1563.25
126.7	1563.25	126.9	1563.23	127	1563.22	127.1	1563.22	128.7	1563.25
130.2	1563.21	130.3	1563.21	130.4	1563.19	130.5	1563.19	130.5	1563.18
130.8	1563.17	130.9	1563.16	131	1563.16	131.1	1563.15	131.2	1563.13
131.3	1563.15	131.4	1563.17	131.5	1563.18	131.6	1563.18	131.6	1563.17
131.9	1563.16	132	1563.14	132.1	1563.14	132.2	1563.14	132.4	1563.13
132.5	1563.12	132.6	1563.13	132.7	1563.14	132.8	1563.12	132.9	1563.12
133	1563.11	133.1	1563.1	133.2	1563.09	133.7	1563.07	133.7	1563.06
133.8	1563.06	133.9	1563.04	135.8	1563.06	137.3	1562.95	137.4	1562.94
137.6	1562.92	137.6	1562.91	137.7	1562.89	140.4	1562.81	141	1562.75
142.5	1562.66	149.2	1562.59	150.9	1562.51	151	1562.5	151.1	1562.49
151.1	1562.48	151.2	1562.47	152.1	1562.42	152.2	1562.42	152.4	1562.42
152.7	1562.44	155	1562.25	155.9	1562.25	157.6	1562.34	158.7	1562.31
159.8	1562.34	159.8	1562.35	160	1562.37	160.2	1562.35	160.3	1562.35
160.5	1562.34	160.5	1562.35	161	1562.37	161	1562.38	161.2	1562.38
162.2	1562.43	162.8	1562.5	164.5	1562.5	166.7	1562.72	168.7	1562.82
168.8	1562.83	169.3	1562.9	169.4	1562.92	169.7	1562.95	169.8	1562.96
169.9	1563	170.1	1563.03	170.1	1563.04	170.3	1563.05	170.5	1563.09
170.6	1563.11	171	1563.15	171.2	1563.15	171.3	1563.16	171.4	1563.15
171.6	1563.14	171.8	1563.14	172	1563.14	172.1	1563.14	172.3	1563.14
172.3	1563.13	172.5	1563.11	172.7	1563.11	172.8	1563.11	173	1563.1
173.3	1563.1	173.5	1563.09	173.6	1563.09	173.8	1563.09	174	1563.06

174.2	1563.03	174.3	1563.02	174.5	1562.97	174.6	1562.97	174.7	1562.99
174.8	1562.99	175	1562.99	175.1	1562.99	175.2	1562.98	175.3	1562.98
175.4	1563.01	175.5	1563.02	175.6	1563.03	175.7	1563.03	175.8	1563.03
175.9	1563.04	175.9	1563.05	176	1563.05	176.1	1563.05	176.3	1563.05
176.5	1563.05	176.8	1563.05	181.8	1562.94	189.7	1563.51	189.8	1563.52
189.9	1563.54	190	1563.55	190.1	1563.56	190.2	1563.56	190.3	1563.56
190.4	1563.58	190.7	1563.6	190.8	1563.6	190.9	1563.61	191	1563.62
191	1563.63	191.1	1563.64	191.3	1563.66	191.5	1563.69	193.5	1563.78
193.6	1563.78	193.7	1563.78	193.8	1563.78	194	1563.78	194.2	1563.78
194.3	1563.77	194.3	1563.79	194.5	1563.82	194.6	1563.85	194.7	1563.86
194.8	1563.88	194.9	1563.9	194.9	1563.92	195.8	1564.03	195.9	1564.03
196.1	1564.04	196.2	1564.04	196.3	1564.04	196.4	1564.05	196.6	1564.06
197	1564.06	197.2	1564.08	197.5	1564.09	197.6	1564.09	197.7	1564.09
197.8	1564.09	202.3	1564.41	202.4	1564.41	202.6	1564.41	202.7	1564.42
202.8	1564.42	202.9	1564.43	203	1564.44	203.2	1564.44	203.4	1564.43
203.5	1564.42	203.5	1564.41	204.5	1564.53	204.6	1564.53	204.8	1564.53
205	1564.56	205.1	1564.56	205.3	1564.59	205.4	1564.59	205.5	1564.59
205.8	1564.62	206	1564.62	206.1	1564.63	206.3	1564.66	206.5	1564.68
206.5	1564.69	206.6	1564.69	206.7	1564.69	206.8	1564.69	207	1564.72
207.1	1564.73	207.2	1564.74	207.3	1564.75	207.4	1564.76	207.5	1564.77
207.5	1564.78	207.8	1564.81	207.9	1564.82	207.9	1564.84	208	1564.85
208.2	1564.83	208.3	1564.81	208.4	1564.81	208.5	1564.8	208.7	1564.78
208.8	1564.76	208.9	1564.77	209	1564.78	209.2	1564.81	209.3	1564.82
209.4	1564.84	209.5	1564.84	209.6	1564.85	209.7	1564.85	209.8	1564.85
209.9	1564.85	210.2	1564.85	210.3	1564.85	210.4	1564.85	210.6	1564.84
210.8	1564.84	210.8	1564.85	212.1	1564.88	212.3	1564.9	212.3	1564.91
212.5	1564.91	212.8	1564.93	212.8	1564.94	213	1564.96	213	1564.97
213.1	1564.97	213.2	1564.97	213.3	1564.98	213.4	1564.97	213.6	1564.96
213.7	1564.96	214	1564.99	214	1565.01	214.1	1565.03	214.3	1565.06
214.5	1565.06	214.7	1565.07	214.9	1565.09	215	1565.09	215.2	1565.09
215.3	1565.09	215.6	1565.09	215.7	1565.09	215.9	1565.09	216	1565.09
216.2	1565.11	216.3	1565.12	216.4	1565.12	216.5	1565.12	216.6	1565.13
216.7	1565.15	216.8	1565.15	217	1565.15	217.1	1565.16	217.3	1565.18
217.8	1565.22	218	1565.19	218.1	1565.19	218.3	1565.16	218.5	1565.19
218.6	1565.19	218.8	1565.22	219	1565.25	219.1	1565.25	219.3	1565.28
223.6	1565.41	223.8	1565.43	223.8	1565.44	224	1565.47	224.1	1565.47
224.3	1565.5	224.5	1565.5	224.6	1565.5	224.8	1565.53	225	1565.53
225.1	1565.53	225.3	1565.56	225.5	1565.56	225.8	1565.57	225.9	1565.58
226	1565.59	226.4	1565.63	226.5	1565.63	226.6	1565.63	226.6	1565.64
226.7	1565.65	226.8	1565.66	227	1565.66	228.1	1565.66	228.2	1565.65
228.4	1565.64	228.5	1565.63	228.6	1565.62	228.6	1565.64	228.7	1565.65
228.9	1565.67	229.1	1565.69	229.2	1565.71	229.3	1565.72	229.5	1565.72
232.1	1565.72	232.435	1565.75						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	112.7	.03	191.5	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
112.7	191.5	346	355.7	358	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	112.7	1566	F
191.5	232.435	1566	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1566.48	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.16	Wt. n-Val.		0.030	
W.S. Elev (ft)	1565.32	Reach Len. (ft)	346.00	355.70	358.00
Crit W.S. (ft)	1565.32	Flow Area (sq ft)		184.59	
E.G. Slope (ft/ft)	0.009842	Area (sq ft)	15.52	184.59	21.67
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	149.14	Top Width (ft)	41.28	78.80	29.06
Vel Total (ft/s)	8.64	Avg. Vel. (ft/s)		8.64	
Max Chl Dpth (ft)	3.07	Hydr. Depth (ft)		2.34	
Conv. Total (cfs)	16077.6	Conv. (cfs)		16077.6	
Length Wtd. (ft)	355.70	Wetted Per. (ft)		79.16	
Min Ch El (ft)	1562.25	Shear (lb/sq ft)		1.43	
Alpha	1.00	Stream Power (lb/ft s)		12.38	
Frctn Loss (ft)	3.56	Cum Volume (acre-ft)	0.06	3.29	0.09
C & E Loss (ft)	0.05	Cum SA (acres)	0.18	1.97	0.13

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1566.48	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.16	Wt. n-Val.		0.030	
W.S. Elev (ft)	1565.32	Reach Len. (ft)	346.00	355.70	358.00
Crit W.S. (ft)	1565.32	Flow Area (sq ft)		184.59	
E.G. Slope (ft/ft)	0.009842	Area (sq ft)	0.88	184.59	0.81
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	80.00	Top Width (ft)	0.70	78.80	0.50
Vel Total (ft/s)	8.64	Avg. Vel. (ft/s)		8.64	
Max Chl Dpth (ft)	3.07	Hydr. Depth (ft)		2.34	
Conv. Total (cfs)	16077.6	Conv. (cfs)		16077.6	
Length Wtd. (ft)	355.70	Wetted Per. (ft)		79.16	
Min Ch El (ft)	1562.25	Shear (lb/sq ft)		1.43	
Alpha	1.00	Stream Power (lb/ft s)		12.38	
Frctn Loss (ft)	3.62	Cum Volume (acre-ft)	0.00	3.27	0.00

C & E Loss (ft) 0.04 Cum SA (acres) 0.02 1.97 0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	22.54	45.08	0.00	4.55	17.20	0.00	0.26	0.00	0.16	0.00
2	LOB	45.08	67.62	0.00	0.36	5.87	0.00	0.06	0.00	0.04	0.00
3	LOB	67.62	90.16							0.00	0.00
4	LOB	90.16	112.70	0.00	10.61	18.35	0.00	0.58	0.00	0.36	0.00
5	Chan	112.70	128.46	205.09	28.55	15.85	12.86	1.81	7.18	1.11	7.95
6	Chan	128.46	144.22	317.84	37.13	15.83	19.93	2.36	8.56	1.44	12.33
7	Chan	144.22	159.98	441.63	45.19	15.80	27.69	2.87	9.77	1.76	17.18
8	Chan	159.98	175.74	360.31	40.07	15.87	22.59	2.54	8.99	1.55	13.95
9	Chan	175.74	191.50	270.13	33.66	15.81	16.94	2.14	8.03	1.31	10.50
10	ROB	191.50	199.69	0.00	11.19	8.25	0.00	1.37	0.00	0.83	0.00
11	ROB	199.69	207.87	0.00	6.77	8.25	0.00	0.83	0.00	0.50	0.00
12	ROB	207.87	216.06	0.00	3.24	8.29	0.00	0.40	0.00	0.24	0.00
13	ROB	216.06	224.25	0.00	0.47	4.52	0.00	0.10	0.00	0.06	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate

the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	90.16	112.70	0.00	0.88	1.91	0.00	1.25	0.00	0.28	0.00
2	Chan	112.70	128.46	205.09	28.55	15.85	12.86	1.81	7.18	1.11	7.95
3	Chan	128.46	144.22	317.84	37.13	15.83	19.93	2.36	8.56	1.44	12.33
4	Chan	144.22	159.98	441.63	45.19	15.80	27.69	2.87	9.77	1.76	17.18
5	Chan	159.98	175.74	360.31	40.07	15.87	22.59	2.54	8.99	1.55	13.95
6	Chan	175.74	191.50	270.13	33.66	15.81	16.94	2.14	8.03	1.31	10.50
7	ROB	191.50	199.69	0.00	0.81	2.11	0.00	1.62	0.00	0.24	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 200

INPUT
Description:
Station Elevation Data num= 440

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1562.31	7.7	1562.38	8.7	1562.31	9.7	1562.41	15.7	1562.44
17.2	1562.32	17.9	1562.38	19.2	1562.28	22.9	1562.28	26.4	1562.39
29.2	1562.38	39.2	1562.81	44.7	1562.75	46.9	1562.69	49.8	1562.42

51.2	1562.39	53.7	1562.19	54	1562.24	59.1	1561.94	62.7	1561.63
66.1	1561.25	68.4	1561.14	70.4	1560.88	72.2	1560.78	72.4	1560.72
72.5	1560.72	72.7	1560.69	72.9	1560.66	73.9	1560.63	77.9	1560.07
79.7	1559.97	82.2	1559.61	82.9	1559.59	86.8	1559.19	871	1559.172
89.9	1558.91	91.6	1558.88	94	1558.74	95.9	1558.78	98.5	1558.72
99.9	1558.84	102.1	1558.93	107	1558.93	107.2	1558.91	107.5	1558.91
107.7	1558.9	107.8	1558.9	107.9	1558.88	108	1558.88	108.1	1558.88
108.2	1558.88	108.6	1558.85	108.7	1558.84	108.9	1558.84	109	1558.83
109.4	1558.79	109.7	1558.74	110.7	1558.75	112.7	1558.57	116.4	1558.47
118.2	1558.34	125.5	1558.28	128	1558.19	129.9	1558.28	130	1558.28
130	1558.29	130.2	1558.31	130.2	1558.32	130.4	1558.37	130.5	1558.37
133.2	1558.28	135.7	1558.44	137.7	1558.47	139.5	1558.65	139.5	1558.66
140.2	1558.75	140.5	1558.81	141.7	1558.78	144	1558.94	145.2	1558.84
149.2	1558.75	152.3	1558.48	153.7	1558.43	155.5	1558.19	157.5	1558
160.3	1557.51	162	1557.41	164.7	1557.09	169.9	1556.8	173.5	1556.88
176	1556.74	178.5	1556.81	180.2	1556.78	180.3	1556.78	180.4	1556.78
180.5	1556.78	180.7	1556.79	180.8	1556.79	180.9	1556.79	181	1556.79
181.2	1556.81	181.3	1556.81	181.5	1556.82	181.8	1556.82	182	1556.84
182.5	1556.84	182.7	1556.84	183	1556.81	183.2	1556.81	183.5	1556.81
186.5	1556.84	186.6	1556.86	186.7	1556.88	187	1556.91	187.1	1556.91
187.4	1556.91	187.5	1556.92	187.6	1556.92	187.7	1556.92	187.8	1556.92
187.9	1556.92	188	1556.92	188.2	1556.92	188.3	1556.92	188.6	1556.92
188.7	1556.91	188.8	1556.91	188.9	1556.91	189	1556.91	189.3	1556.91
189.4	1556.91	189.5	1556.91	189.5	1556.9	191.5	1556.81	194.4	1556.81
194.6	1556.79	194.7	1556.78	194.9	1556.78	195	1556.78	195.2	1556.78
195.6	1556.77	195.8	1556.75	195.9	1556.75	196.1	1556.74	196.3	1556.76
196.4	1556.76	196.5	1556.78	196.6	1556.78	196.8	1556.79	197.1	1556.81
200.8	1556.75	205.1	1556.88	205.2	1556.88	205.3	1556.88	205.4	1556.88
205.5	1556.88	205.6	1556.88	205.7	1556.88	205.9	1556.87	206	1556.87
206.2	1556.84	206.3	1556.84	206.5	1556.84	206.7	1556.79	206.8	1556.79
207.2	1556.84	207.3	1556.85	207.5	1556.88	207.7	1556.88	208	1556.91
211.1	1556.92	211.4	1556.95	211.5	1556.96	211.7	1556.99	211.9	1556.99
212	1557	214.1	1557.02	214.3	1557	214.5	1557	214.6	1556.99
214.7	1556.98	214.8	1556.97	215	1556.97	215	1556.96	215.2	1556.94
215.3	1556.94	215.7	1556.94	218.3	1557.03	218.3	1557.02	218.4	1557.01
218.5	1557	218.7	1556.98	218.8	1556.97	218.8	1556.96	218.9	1556.95
222	1557.05	226	1557.25	229	1557.53	229.1	1557.53	229.3	1557.53
229.4	1557.54	229.5	1557.55	229.6	1557.56	229.8	1557.56	229.9	1557.56
230	1557.56	230.1	1557.57	230.3	1557.59	230.4	1557.61	230.5	1557.62
232.1	1557.78	232.2	1557.81	232.3	1557.81	232.5	1557.84	232.7	1557.87
232.8	1557.88	233	1557.9	233	1557.91	233.3	1557.94	233.5	1557.97
233.8	1557.91	236.8	1558.31	236.9	1558.29	237	1558.28	237.1	1558.29
237.2	1558.3	237.3	1558.31	237.6	1558.36	237.9	1558.4	238	1558.42
238.1	1558.44	238.3	1558.45	238.5	1558.52	238.6	1558.54	238.7	1558.55
238.8	1558.57	238.9	1558.59	238.9	1558.6	239	1558.61	239.1	1558.63
239.2	1558.65	239.3	1558.67	239.3	1558.68	239.4	1558.7	239.5	1558.71
239.6	1558.72	239.7	1558.73	239.8	1558.74	240	1558.79	240	1558.8
240.2	1558.83	240.3	1558.84	240.5	1558.86	240.5	1558.87	240.7	1558.87
240.8	1558.87	241	1558.85	243.2	1559.46	243.3	1559.47	243.3	1559.48
243.5	1559.5	243.6	1559.51	243.7	1559.53	243.8	1559.54	244.1	1559.58

```
   244.3  1559.6   244.3 1559.61   244.4 1559.62   244.5 1559.63   244.6 1559.64
   244.7 1559.66   244.8 1559.68   244.9 1559.69   245.1 1559.71   245.2 1559.72
   245.4 1559.74   245.5 1559.75   245.6 1559.76   245.8 1559.76   245.9 1559.78
     246  1559.8   246.1 1559.83   246.3 1559.86   246.4 1559.88   246.5 1559.89
   246.6 1559.91   246.7 1559.92   246.8 1559.94   246.9 1559.97   246.9 1559.98
     247 1560.01   247.1 1560.03   247.2 1560.03   247.3 1560.05   247.4 1560.07
   247.5 1560.11   247.7 1560.14   247.8 1560.15     250 1560.72   251.3 1560.97
   251.3 1560.98   251.5 1561.03   251.5 1561.05   251.8 1561.14     252 1561.21
     252 1561.22   252.1 1561.23   252.3 1561.29   252.5 1561.36   252.5 1561.38
   252.6 1561.39   252.7 1561.42   252.8 1561.44   252.8 1561.45   252.9 1561.46
     253 1561.48   253.1  1561.5   253.2 1561.52   253.3 1561.54   253.4 1561.58
   253.5  1561.6   253.7 1561.62   253.8 1561.64   253.9 1561.66   253.9 1561.67
     254 1561.69   254.1 1561.71   254.2 1561.71   254.3 1561.73   254.4 1561.75
   254.5 1561.76   254.6 1561.79   254.8 1561.81   254.9 1561.84     255 1561.86
   255.1 1561.88   255.2 1561.89   255.3 1561.91   255.4 1561.94   255.5 1561.96
   255.6 1561.97   255.7 1561.98   255.9 1562.01   255.9 1562.03     256 1562.05
   256.1 1562.06   256.2 1562.07   256.3  1562.1   256.4 1562.11   256.5 1562.12
   256.6 1562.13   256.7 1562.15     257 1562.18   257.1 1562.18   257.2 1562.18
   257.3 1562.19   257.5 1562.22   257.6 1562.23   257.7 1562.27   257.8 1562.28
     258 1562.34     258 1562.35     259 1562.59   259.3 1562.59   259.5 1562.62
   259.5 1562.63   259.7 1562.68   259.8 1562.69     260 1562.72   260.1 1562.73
   260.2 1562.78   260.3 1562.79   260.5 1562.84   260.5 1562.85   260.6 1562.86
   260.7  1562.9   260.8 1562.91     261 1562.98   261.1 1562.98   261.2    1563
   261.4 1563.05   261.6 1563.08   261.7 1563.09   261.8  1563.1   261.9 1563.12
   261.9 1563.14     262 1563.16   262.1 1563.17   262.2 1563.18   262.3  1563.2
   262.4 1563.21   262.4 1563.22   262.5 1563.23   262.6 1563.26   262.7 1563.27
   262.8  1563.3   262.9 1563.32     263 1563.34   263.1  1563.4   263.4 1563.47
   263.5 1563.49   263.6 1563.49   263.7  1563.5   263.8  1563.5   263.9 1563.52
     264 1563.54   264.2 1563.56   264.3 1563.57   264.4 1563.59   264.4  1563.6
   264.5 1563.61   264.6 1563.62   264.7 1563.64   264.8 1563.65   264.9 1563.66
   264.9 1563.67     265 1563.68   265.1 1563.69   265.2  1563.7   265.3 1563.71
   265.3 1563.72   265.5 1563.74   265.5 1563.75   265.6 1563.77   265.7 1563.82
   265.8 1563.84     266 1563.87   266.1 1563.88   266.2  1563.9   266.3 1563.91
   266.6 1563.94   266.8 1563.97     267    1564   267.3 1564.03   267.5 1564.06
   267.8 1564.12   267.8 1564.13     268 1564.15     268 1564.16 271.039 1564.58

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03      87     .03     241     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            87     241             229   252.6     272             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0     144    1562       F

CROSS SECTION OUTPUT  Profile #BFE

  E.G. Elev (ft)           1560.38    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               1.00    Wt. n-Val.                            0.030      0.030
```

W.S. Elev (ft)	1559.38	Reach Len. (ft)	229.00	252.60	272.00
Crit W.S. (ft)	1559.38	Flow Area (sq ft)		198.52	0.51
E.G. Slope (ft/ft)	0.010169	Area (sq ft)	0.22	241.82	0.51
Q Total (cfs)	1595.00	Flow (cfs)		1593.98	1.02
Top Width (ft)	157.96	Top Width (ft)	2.05	154.00	1.91
Vel Total (ft/s)	8.01	Avg. Vel. (ft/s)		8.03	2.01
Max Chl Dpth (ft)	2.64	Hydr. Depth (ft)		2.05	0.27
Conv. Total (cfs)	15816.6	Conv. (cfs)		15806.5	10.1
Length Wtd. (ft)	252.61	Wetted Per. (ft)		97.40	1.98
Min Ch El (ft)	1556.74	Shear (lb/sq ft)		1.29	0.16
Alpha	1.00	Stream Power (lb/ft s)		10.39	0.33
Frctn Loss (ft)	1.75	Cum Volume (acre-ft)	0.00	1.55	0.00
C & E Loss (ft)	0.16	Cum SA (acres)	0.01	1.02	0.01

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1560.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.02	Wt. n-Val.		0.030	
W.S. Elev (ft)	1559.36	Reach Len. (ft)	229.00	252.60	272.00
Crit W.S. (ft)	1559.36	Flow Area (sq ft)		196.80	
E.G. Slope (ft/ft)	0.010555	Area (sq ft)	0.18	239.10	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	155.88	Top Width (ft)	1.88	154.00	
Vel Total (ft/s)	8.10	Avg. Vel. (ft/s)		8.10	
Max Chl Dpth (ft)	2.62	Hydr. Depth (ft)		2.03	
Conv. Total (cfs)	15524.9	Conv. (cfs)		15524.9	
Length Wtd. (ft)	252.60	Wetted Per. (ft)		97.91	
Min Ch El (ft)	1556.74	Shear (lb/sq ft)		1.32	
Alpha	1.00	Stream Power (lb/ft s)		10.73	
Frctn Loss (ft)	1.77	Cum Volume (acre-ft)	0.00	1.54	
C & E Loss (ft)	0.17	Cum SA (acres)	0.00	1.02	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/fts)
1	LOB	69.60	87.00	0.00	0.22	2.06	0.00	0.11	0.00	0.07	0.00
2	Chan	87.00	115.50	0.00	15.98	28.54	0.00	0.56	0.00	0.36	0.00
3	Chan	115.50	144.00	0.00	27.32	28.58	0.00	0.96	0.00	0.61	0.00
4	Chan	144.00	176.33	368.99	53.77	32.45	23.13	1.66	6.86	1.05	7.22
5	Chan	176.33	208.67	757.80	82.73	32.38	47.51	2.56	9.16	1.62	14.86
6	Chan	208.67	241.00	467.19	62.02	32.56	29.29	1.92	7.53	1.21	9.11
7	ROB	241.00	247.01	1.02	0.51	1.98	0.06	0.27	2.01	0.16	0.33

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/fts)
1	LOB	69.60	87.00	0.00	0.18	1.89	0.00	0.10	0.00	0.06	0.00

2	Chan	87.00	115.50	0.00	15.48	28.54	0.00	0.54	0.00	0.36
0.00										
3	Chan	115.50	144.00	0.00	26.82	28.58	0.00	0.94	0.00	0.62
0.00										
4	Chan	144.00	176.33	368.99	53.19	32.45	23.13	1.65	6.94	1.08
7.49										
5	Chan	176.33	208.67	762.55	82.15	32.38	47.81	2.54	9.28	1.67
15.52										
6	Chan	208.67	241.00	463.46	61.45	33.07	29.06	1.90	7.54	1.22
9.23										

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: COR EFFECTIVE RS: 150

INPUT
Description:
Station Elevation Data num= 448

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1561.3	9.5	1560.97	12.7	1561.12	15.7	1561.04	16.8	1561.16
18.3	1561.02	30.7	1561.08	38.4	1560.91	40.8	1561.04	42.8	1560.94
47.3	1561.03	51.1	1560.83	54.1	1560.89	63.3	1560.69	65.7	1560.93
74.4	1560.81	76.4	1561.04	78	1561.03	80.7	1560.78	84.5	1560.79
93.4	1560.24	99.3	1559.17	108.8	1558.51	111.4	1557.73	112.3	1557.66
116.2	1557.65	122.9	1557.3	126.4	1557.48	129	1557.19	131.4	1557.11
139.6	1557.22	141.6	1556.86	142.4	1556.9	143.9	1557.47	145.7	1557.59
146.9	1557	148.5	1556.58	157.8	1556.41	165.2	1556.02	169.9	1556.19
175.2	1555.7	183.6	1555.69	183.7	1555.68	183.8	1555.67	183.9	1555.66
184	1555.66	184.1	1555.66	184.2	1555.65	184.3	1555.65	184.4	1555.65
186.6	1555.28	189.8	1555.12	192.5	1555.41	193.9	1554.81	195.6	1553.62
196.7	1553.47	199.3	1553.51	203.2	1554.21	204.1	1554.44	204.1	1554.46
204.2	1554.48	204.3	1554.54	205.3	1554.91	205.4	1554.98	205.4	1555
205.5	1555.02	205.6	1555.04	205.7	1555.08	207	1555.25	207.1	1555.24
207.3	1555.22	207.4	1555.2	207.5	1555.19	207.6	1555.16	207.7	1555.15

207.8 1555.12	208.9 1554.72	209.1 1554.52	209.1 1554.49	209.1 1554.45
209.9 1553.84	211.4 1553.58	212.7 1553.56	217.9 1553.84	219.7 1554.39
220.4 1554.44	222.8 1554.35	222.8 1554.34	223.2 1554.26	224.1 1554.1
227.5 1554.03	237.3 1554.49	241.3 1554.09	242.8 1554.09	245 1554.45
250.8 1555.81	254.1 1556.44	263.5 1556.5	269.2 1556.33	288.6 1556.62
298 1556.38	300.9 1556.58	305.4 1556.2	312.6 1556.31	318.6 1555.74
320.7 1556.08	324.3 1555.56	330.3 1556.66	332.1 1556.72	333.2 1556.65
336.9 1559.12	337 1559.18	338.8 1559.73	338.8 1559.74	339 1559.78
339 1559.82	339.1 1559.88	339.2 1559.91	339.3 1559.93	339.4 1560.02
339.5 1560.04	343.8 1562.4	344 1562.45	344 1562.47	344.1 1562.48
344.3 1562.57	344.5 1562.64	344.5 1562.66	344.8 1562.62	344.9 1562.63
345 1562.64	345.1 1562.64	345.2 1562.64	345.3 1562.64	345.4 1562.63
345.5 1562.62	345.6 1562.62	345.8 1562.62	346.1 1562.63	346.2 1562.65
346.3 1562.66	346.4 1562.67	346.5 1562.68	346.7 1562.7	346.8 1562.72
346.9 1562.74	347 1562.75	347.1 1562.77	347.1 1562.78	347.3 1562.86
347.6 1562.96	347.6 1562.97	347.8 1563.03	347.8 1563.05	347.9 1563.08
348 1563.12	348.2 1563.22	348.3 1563.28	348.4 1563.32	348.5 1563.35
348.6 1563.39	348.6 1563.43	349.1 1563.66	349.3 1563.78	349.4 1563.83
349.5 1563.89	349.6 1563.93	349.8 1564.05	349.9 1564.1	350 1564.12
350.2 1564.2	350.3 1564.28	350.6 1564.37	350.6 1564.38	350.8 1564.4
351.1 1564.42	351.2 1564.41	351.3 1564.41	351.4 1564.41	352.3 1564.33
355.1 1563.99	355.2 1563.99	355.4 1563.99	355.7 1564	355.7 1564.01
355.8 1564.02	355.9 1564.03	356 1564.04	356.1 1564.05	356.2 1564.06
356.3 1564.11	356.5 1564.21	359 1564.53	359.1 1564.54	359.2 1564.54
359.3 1564.54	359.5 1564.55	363.8 1564.2	363.9 1564.21	363.9 1564.22
364 1564.22	364.1 1564.22	364.2 1564.22	364.6 1564.23	364.8 1564.23
365 1564.23	365.1 1564.23	365.2 1564.25	365.3 1564.25	368.3 1564.76
368.4 1564.76	368.5 1564.75	368.6 1564.75	368.7 1564.72	368.8 1564.69
368.9 1564.66	369 1564.64	370.6 1564.17	373.6 1564.18	373.7 1564.17
373.8 1564.15	373.9 1564.14	374 1564.13	374.1 1564.09	374.2 1564.08
374.3 1564.06	375.7 1564.01	378.2 1564.15	378.3 1564.26	378.4 1564.38
383 1564.72	383.1 1564.68	383.1 1564.67	383.3 1564.62	383.3 1564.61
383.5 1564.58	383.6 1564.56	384 1564.51	384.2 1564.49	386.5 1564.4
386.6 1564.4	386.6 1564.39	386.8 1564.37	388.9 1564.06	390.9 1563.53
391.6 1563.58	391.7 1563.58	391.9 1563.58	392.1 1563.58	392.2 1563.57
392.3 1563.56	392.4 1563.55	394.4 1563.18	394.5 1563.19	394.6 1563.18
394.7 1563.18	395.4 1563.26	395.5 1563.27	395.6 1563.28	395.7 1563.29
395.9 1563.31	396 1563.32	398.7 1563.68	398.8 1563.66	399 1563.65
400.5 1563.51	402.1 1563.63	402.1 1563.64	402.3 1563.67	402.4 1563.7
404.5 1563.93	409.1 1563.35	409.2 1563.34	409.3 1563.32	409.5 1563.24
409.6 1563.22	409.7 1563.19	409.7 1563.16	409.8 1563.12	410 1563.07
410.1 1563.01	418.1 1562.35	418.5 1562.36	418.5 1562.37	418.7 1562.4
418.9 1562.44	419 1562.44	419 1562.46	419.1 1562.49	419.2 1562.51
419.3 1562.53	419.4 1562.54	419.6 1562.59	419.7 1562.6	419.8 1562.62
419.9 1562.65	420 1562.66	420 1562.67	421.4 1563.15	423.3 1563.46
425.5 1564.01	425.6 1564.02	425.8 1564.04	425.9 1564.05	426 1564.05
426.3 1564.06	426.6 1564.03	426.9 1564.02	427 1564	427.1 1563.99
427.2 1563.98	427.2 1563.97	427.3 1563.96	427.4 1563.95	427.5 1563.95
427.6 1563.94	427.9 1563.92	428.1 1563.92	428.3 1563.91	428.4 1563.91
428.5 1563.9	430.8 1564.29	433.3 1564.16	433.4 1564.15	433.5 1564.17

433.8	1564.21	433.9	1564.24	434	1564.25	434.1	1564.27	434.1	1564.28
434.2	1564.26	434.4	1564.19	434.5	1564.18	434.6	1564.15	434.7	1564.14
434.8	1564.1	434.9	1564.09	435	1564.07	435.1	1564.06	435.2	1564.04
435.3	1564.02	438.5	1563.93	438.6	1563.93	439	1563.94	439.2	1563.97
439.4	1564.03	439.5	1564.04	439.5	1564.05	439.6	1564.09	439.8	1564.13
439.9	1564.14	440.2	1564.18	440.3	1564.17	440.4	1564.16	440.5	1564.16
440.5	1564.15	440.7	1564.13	440.8	1564.12	441	1564.1	441.2	1564.08
441.2	1564.07	443.4	1564.19	446	1563.89	446	1563.9	446.1	1563.92
446.4	1563.99	446.6	1564.05	446.7	1564.08	446.8	1564.09	447	1564.16
447.1	1564.16	447.1	1564.17	447.3	1564.23	447.6	1564.31	447.7	1564.32
447.8	1564.32	447.9	1564.34	448	1564.34	448.1	1564.36	448.2	1564.37
448.3	1564.38	448.4	1564.4	448.6	1564.42	448.6	1564.43	448.7	1564.46
448.8	1564.48	448.8	1564.49	448.9	1564.5	449	1564.57	449.1	1564.6
449.2	1564.63	449.3	1564.69	449.7	1564.9	449.8	1564.92	449.8	1564.94
450.3	1565.03	453.8	1565.21	453.9	1565.21	454.1	1565.21	454.3	1565.19
454.4	1565.17	454.5	1565.16	454.6	1565.15	454.7	1565.15	454.9	1565.14
455	1565.14	455.1	1565.14	455.4	1565.09	455.4	1565.08	455.5	1565.06
455.6	1565.03	455.8	1564.96	455.9	1564.91	456	1564.89	456.1	1564.87
456.2	1564.85	456.2	1564.83	456.4	1564.78	456.4	1564.77	456.5	1564.76
456.6	1564.73	456.7	1564.72	456.7	1564.71	456.9	1564.67	456.9	1564.66
457	1564.66	457.1	1564.63	457.2	1564.62	461.4	1564.66	463.5	1564.55
463.6	1564.53	463.7	1564.53	463.8	1564.51	463.9	1564.48	463.9	1564.47
464	1564.45	464.1	1564.43	464.2	1564.41	464.3	1564.39	464.5	1564.34
464.7	1564.36	464.8	1564.36	464.8	1564.37	465	1564.38	465	1564.39
465.1	1564.41	465.2	1564.43	465.2	1564.44				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	78	.025	351.3	.025

Bank Sta: Left	Right	Coeff Contr.	Expan.
78	351.3	.1	.3

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1557.63	Element			
Vel Head (ft)	0.46	Wt. n-Val.		0.025	
W.S. Elev (ft)	1557.17	Reach Len. (ft)			
Crit W.S. (ft)	1556.91	Flow Area (sq ft)		293.11	
E.G. Slope (ft/ft)	0.005006	Area (sq ft)		293.11	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	196.85	Top Width (ft)		196.85	
Vel Total (ft/s)	5.44	Avg. Vel. (ft/s)		5.44	
Max Chl Dpth (ft)	3.70	Hydr. Depth (ft)		1.49	
Conv. Total (cfs)	22542.1	Conv. (cfs)		22542.1	
Length Wtd. (ft)		Wetted Per. (ft)		199.14	
Min Ch El (ft)	1553.47	Shear (lb/sq ft)		0.46	
Alpha	1.00	Stream Power (lb/ft s)		2.50	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1557.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.46	Wt. n-Val.		0.025	
W.S. Elev (ft)	1557.17	Reach Len. (ft)			
Crit W.S. (ft)	1556.91	Flow Area (sq ft)		293.11	
E.G. Slope (ft/ft)	0.005006	Area (sq ft)		293.11	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	196.85	Top Width (ft)		196.85	
Vel Total (ft/s)	5.44	Avg. Vel. (ft/s)		5.44	
Max Chl Dpth (ft)	3.70	Hydr. Depth (ft)		1.49	
Conv. Total (cfs)	22542.1	Conv. (cfs)		22542.1	
Length Wtd. (ft)		Wetted Per. (ft)		199.14	
Min Ch El (ft)	1553.47	Shear (lb/sq ft)		0.46	
Alpha	1.00	Stream Power (lb/ft s)		2.50	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	78.00	132.66	0.05	0.12	3.04	0.00	0.04	0.41	0.01	0.00
2	Chan	132.66	187.32	153.61	44.83	47.40	9.63	0.95	3.43	0.30	1.01
3	Chan	187.32	241.98	1131.85	158.93	56.07	70.96	2.91	7.12	0.89	6.31
4	Chan	241.98	296.64	188.49	53.76	54.91	11.82	0.98	3.51	0.31	1.07
5	Chan	296.64	351.30	121.01	35.46	37.71	7.59	0.95	3.41	0.29	1.00

Warning: Divided flow computed for this cross-section.

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power

		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	Chan	78.00	132.66	0.05	0.12	3.04	0.00	0.04	0.41	0.01	0.00
2	Chan	132.66	187.32	153.61	44.83	47.40	9.63	0.95	3.43	0.30	1.01
3	Chan	187.32	241.98	1131.85	158.93	56.07	70.96	2.91	7.12	0.89	6.31
4	Chan	241.98	296.64	188.49	53.76	54.91	11.82	0.98	3.51	0.31	1.07
5	Chan	296.64	351.30	121.01	35.46	37.71	7.59	0.95	3.41	0.29	1.00

Warning: Divided flow computed for this cross-section.

SUMMARY OF MANNING'S N VALUES

River:PULSIPHER WASH

Reach	River Sta.	n1	n2	n3
COR EFFECTIVE	2590	.04	.025	.04
COR EFFECTIVE	2500	.04	.025	.04
COR EFFECTIVE	2400	.04	.025	.04
COR EFFECTIVE	2350	.04	.025	.04
COR EFFECTIVE	2330	.04	.025	.04
COR EFFECTIVE	2300	.04	.025	.04
COR EFFECTIVE	2200	.04	.025	.04
COR EFFECTIVE	2100	.04	.025	.04
COR EFFECTIVE	2000.1	.025	.015	.025
COR EFFECTIVE	2000	.025	.015	.025
COR EFFECTIVE	1950	Bridge		
COR EFFECTIVE	1900	.025	.015	.025
COR EFFECTIVE	1800	.04	.025	.04
COR EFFECTIVE	1750	.04	.025	.04
COR EFFECTIVE	1700	.04	.025	.04
COR EFFECTIVE	1650	.04	.025	.04
COR EFFECTIVE	1600	.04	.025	.04
COR EFFECTIVE	1550	.04	.025	.04
COR EFFECTIVE	1540	.04	.025	.04
COR EFFECTIVE	1510	.04	.025	.04
COR EFFECTIVE	1500	.04	.025	.04
COR EFFECTIVE	1450	.04	.025	.04
COR EFFECTIVE	1400	.04	.025	.04
COR EFFECTIVE	1350	.04	.025	.04
COR EFFECTIVE	1300	.04	.025	.04
COR EFFECTIVE	1250	.04	.025	.04

COR EFFECTIVE	1200	.04	.025	.04
COR EFFECTIVE	1100	.04	.025	.04
COR EFFECTIVE	1000	.04	.025	.04
COR EFFECTIVE	900	.04	.025	.04
COR EFFECTIVE	800	.04	.025	.04
COR EFFECTIVE	700	.04	.025	.04
COR EFFECTIVE	600	.04	.025	.04
COR EFFECTIVE	580	.025	.015	.025
COR EFFECTIVE	550	Bridge		
COR EFFECTIVE	500	.025	.015	.025
COR EFFECTIVE	400	.03	.03	.03
COR EFFECTIVE	300	.03	.03	.03
COR EFFECTIVE	200	.03	.03	.03
COR EFFECTIVE	150	.025	.025	.025

SUMMARY OF REACH LENGTHS

River: PULSIPHER WASH

Reach	River Sta.	Left	Channel	Right
COR EFFECTIVE	2590	252	224	208
COR EFFECTIVE	2500	180	183	184
COR EFFECTIVE	2400	68	72	73
COR EFFECTIVE	2350	63	63	63
COR EFFECTIVE	2330	238	243	234
COR EFFECTIVE	2300	312	308.8	303
COR EFFECTIVE	2200	307	359.7	385
COR EFFECTIVE	2100	108	99.8	104
COR EFFECTIVE	2000.1	.1	.1	.1
COR EFFECTIVE	2000	321.5	321.5	321.5
COR EFFECTIVE	1950	Bridge		
COR EFFECTIVE	1900	19.6	24.7	32
COR EFFECTIVE	1800	168	174.6	176
COR EFFECTIVE	1750	186	186	193
COR EFFECTIVE	1700	150.2	150.2	160
COR EFFECTIVE	1650	187.1	187.1	187.1
COR EFFECTIVE	1600	39	32.1	16
COR EFFECTIVE	1550	10	10	10
COR EFFECTIVE	1540	99	99	99
COR EFFECTIVE	1510	11.9	11.9	11.9
COR EFFECTIVE	1500	56	48	39
COR EFFECTIVE	1450	50	45	41
COR EFFECTIVE	1400	81	81	81
COR EFFECTIVE	1350	72	76	77
COR EFFECTIVE	1300	90	88	85
COR EFFECTIVE	1250	84.6	84.6	84.6

COR EFFECTIVE	1200		110	109.8	116
COR EFFECTIVE	1100		106.5	107.2	112
COR EFFECTIVE	1000		117	120.2	120.2
COR EFFECTIVE	900		97	96.4	96.4
COR EFFECTIVE	800		131	141.6	143
COR EFFECTIVE	700		118.3	118.3	120
COR EFFECTIVE	600		69	67.6	62
COR EFFECTIVE	580		105.7	105.7	105.7
COR EFFECTIVE	550	Bridge			
COR EFFECTIVE	500		37	40.5	35
COR EFFECTIVE	400		149	129	112
COR EFFECTIVE	300		346	355.7	358
COR EFFECTIVE	200		229	252.6	272
COR EFFECTIVE	150				

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: PULSIPHER WASH

Reach	River Sta.	Contr.	Expan.
COR EFFECTIVE	2590	.1	.3
COR EFFECTIVE	2500	.1	.3
COR EFFECTIVE	2400	.1	.3
COR EFFECTIVE	2350	.1	.3
COR EFFECTIVE	2330	.1	.3
COR EFFECTIVE	2300	.1	.3
COR EFFECTIVE	2200	.1	.3
COR EFFECTIVE	2100	.1	.3
COR EFFECTIVE	2000.1	.3	.5
COR EFFECTIVE	2000	.3	.5
COR EFFECTIVE	1950	Bridge	
COR EFFECTIVE	1900	.3	.5
COR EFFECTIVE	1800	.1	.3
COR EFFECTIVE	1750	.1	.3
COR EFFECTIVE	1700	.1	.3
COR EFFECTIVE	1650	.1	.3
COR EFFECTIVE	1600	.1	.3
COR EFFECTIVE	1550	.1	.3
COR EFFECTIVE	1540	.1	.3
COR EFFECTIVE	1510	.1	.3
COR EFFECTIVE	1500	.1	.3
COR EFFECTIVE	1450	.1	.3
COR EFFECTIVE	1400	.1	.3
COR EFFECTIVE	1350	.1	.3
COR EFFECTIVE	1300	.1	.3
COR EFFECTIVE	1250	.1	.3

COR EFFECTIVE	1200		.1	.3
COR EFFECTIVE	1100		.1	.3
COR EFFECTIVE	1000		.1	.3
COR EFFECTIVE	900		.1	.3
COR EFFECTIVE	800		.1	.3
COR EFFECTIVE	700		.1	.3
COR EFFECTIVE	600		.3	.5
COR EFFECTIVE	580		.3	.5
COR EFFECTIVE	550	Bridge		
COR EFFECTIVE	500		.3	.5
COR EFFECTIVE	400		.1	.3
COR EFFECTIVE	300		.1	.3
COR EFFECTIVE	200		.1	.3
COR EFFECTIVE	150		.1	.3

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : PULSIPHER WASH CORRECTED EFFECTIVE

River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 2590 Profile: BFE
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 2590 Profile: FLOODWAY
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 2400 Profile: BFE
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 2400 Profile: FLOODWAY
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 2350 Profile: BFE
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 2350 Profile: FLOODWAY
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 2330 Profile: BFE
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 2330 Profile: FLOODWAY
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 2300 Profile: BFE
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 2300 Profile: FLOODWAY
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 2200 Profile: BFE
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 2200 Profile: FLOODWAY
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 2100 Profile: BFE
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 2100 Profile: FLOODWAY
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 2000.1 Profile: BFE
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The

program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 2000.1 Profile: FLOODWAY
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 2000 Profile: BFE
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 2000 Profile: FLOODWAY
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1950 Profile: BFE Upstream
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1950 Profile: BFE Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1950 Profile: FLOODWAY Upstream
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1950 Profile: FLOODWAY Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1900 Profile: BFE
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was

used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1900 Profile: FLOODWAY
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1750 Profile: BFE
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1750 Profile: FLOODWAY
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1600 Profile: BFE
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1550 Profile: BFE
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1550 Profile: FLOODWAY
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1540 Profile: BFE
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

```
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: COR EFFECTIVE     RS: 1540     Profile: FLOODWAY
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: COR EFFECTIVE     RS: 1510     Profile: BFE
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: COR EFFECTIVE     RS: 1510     Profile: FLOODWAY
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: COR EFFECTIVE     RS: 1500     Profile: BFE
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
             water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
             program defaulted to critical depth.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: COR EFFECTIVE     RS: 1500     Profile: FLOODWAY
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
             water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
             program defaulted to critical depth.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: COR EFFECTIVE     RS: 1450     Profile: BFE
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
             water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
             program defaulted to critical depth.
River: PULSIPHER WASH  Reach: COR EFFECTIVE     RS: 1450     Profile: FLOODWAY
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
             water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
             program defaulted to critical depth.
River: PULSIPHER WASH  Reach: COR EFFECTIVE     RS: 1400     Profile: FLOODWAY
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
             water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
             program defaulted to critical depth.
River: PULSIPHER WASH  Reach: COR EFFECTIVE     RS: 1350     Profile: BFE
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
```

for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1350 Profile: FLOODWAY
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1300 Profile: BFE
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1300 Profile: FLOODWAY
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1250 Profile: BFE
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1250 Profile: FLOODWAY
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1200 Profile: BFE
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1200 Profile: FLOODWAY
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1100 Profile: BFE
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1100 Profile: FLOODWAY
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1000 Profile: BFE
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 1000 Profile: FLOODWAY
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 900 Profile: BFE
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 900 Profile: FLOODWAY
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 800 Profile: BFE
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 800 Profile: FLOODWAY
Warning:The cross section had to be extended vertically during the critical depth calculations.
Warning:The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 700 Profile: BFE
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 700 Profile: FLOODWAY
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The

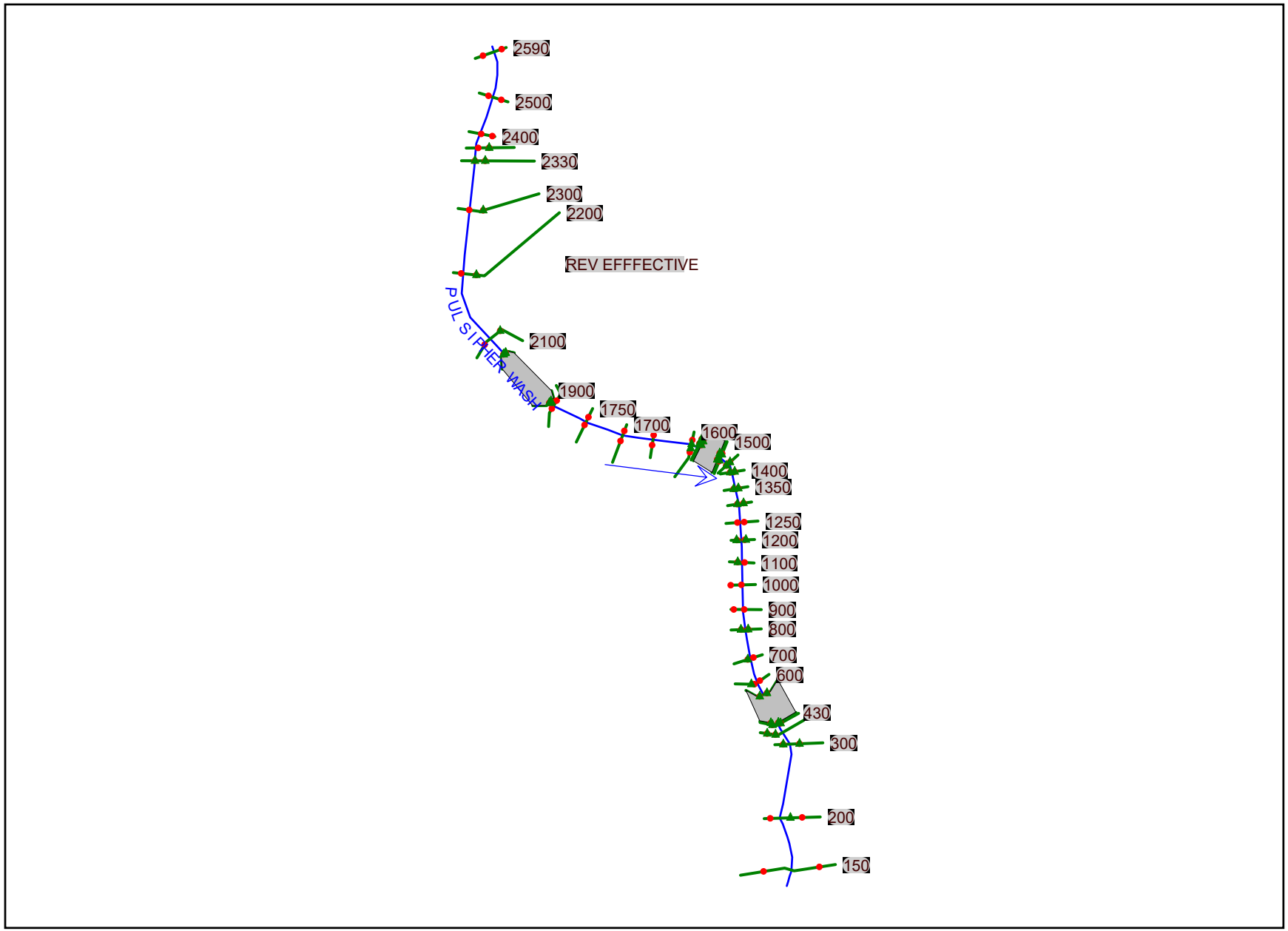
program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 600 Profile: BFE
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 600 Profile: FLOODWAY
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 580 Profile: BFE
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 580 Profile: FLOODWAY
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 550 Profile: BFE
Warning:Pier drag coefficient of 2.0 assumed for Class B flow.
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 550 Profile: BFE Upstream
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was

used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 550 Profile: BFE Downstream
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 550 Profile: FLOODWAY
Warning: Pier drag coefficient of 2.0 assumed for Class B flow.
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 550 Profile: FLOODWAY Upstream
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 550 Profile: FLOODWAY Downstream
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 500 Profile: BFE
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 500 Profile: FLOODWAY
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was

used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 400 Profile: BFE
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 400 Profile: FLOODWAY
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 300 Profile: BFE
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 300 Profile: FLOODWAY
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 200 Profile: BFE
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 200 Profile: FLOODWAY
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 150 Profile: BFE
Warning:Divided flow computed for this cross-section.
River: PULSIPHER WASH Reach: COR EFFECTIVE RS: 150 Profile: FLOODWAY
Warning:Divided flow computed for this cross-section.

REVISED EFFFECTIVE MODE


2590
2500
2400
2330
2300
2200
REV EFFFECTIVE
PUL-SIPHER-WASH
2100
1900
1750
1700
1600
1500
1400
1350
1250
1200
1100
1000
900
800
700
600
430
300
200
150

HEC-RAS Plan: REVISED EFFECTIVE River: PULSIPHER WASH Reach: REV EFFFECTIVE

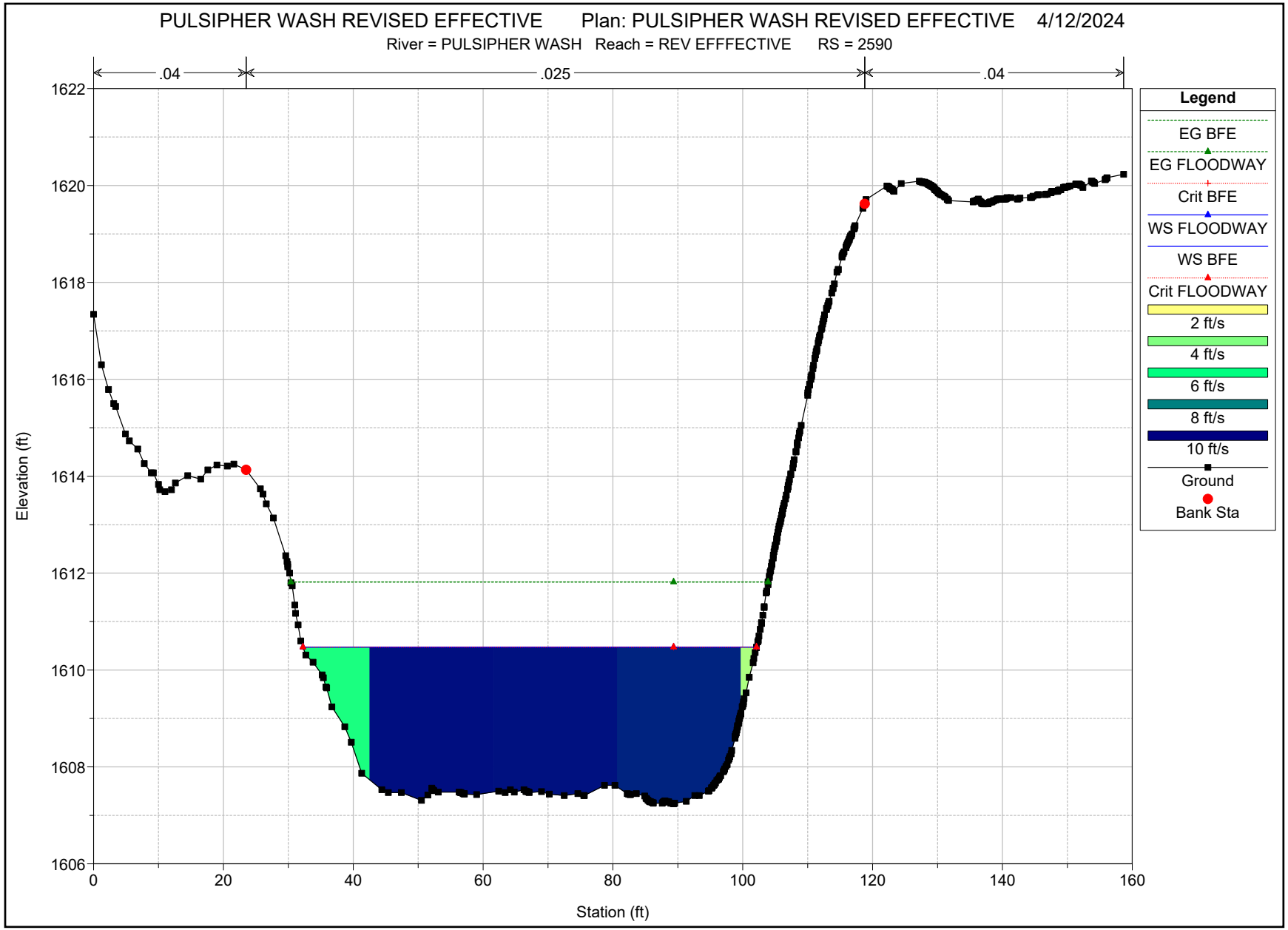
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
REV EFFFECTIVE	2590	BFE	1723.0	1607.2	1610.5	1610.5	1611.8	0.006841	9.3	185.3	70	1.01
REV EFFFECTIVE	2590	FLOODWAY	1723.0	1607.2	1610.5	1610.5	1611.8	0.006841	9.3	185.3	70	1.01
REV EFFFECTIVE	2500	BFE	1972.0	1600.0	1606.8		1608.0	0.003269	8.8	223.2	49	0.73
REV EFFFECTIVE	2500	FLOODWAY	1972.0	1600.0	1606.8		1608.0	0.003215	8.8	224.6	50	0.73
REV EFFFECTIVE	2400	BFE	1972.0	1599.1	1606.4		1607.5	0.002634	8.3	239.3	56	0.66
REV EFFFECTIVE	2400	FLOODWAY	1972.0	1599.1	1606.4		1607.5	0.002609	8.3	238.7	49	0.66
REV EFFFECTIVE	2350	BFE	1972.0	1598.8	1606.6	1603.8	1607.2	0.001108	6.2	319.9	134	0.44
REV EFFFECTIVE	2350	FLOODWAY	1972.0	1598.8	1606.6	1603.8	1607.2	0.001143	6.2	318.9	53	0.44
REV EFFFECTIVE	2330	BFE	1972.0	1598.4	1606.0	1604.6	1607.0	0.002622	8.2	239.3	206	0.66
REV EFFFECTIVE	2330	FLOODWAY	1972.0	1598.4	1606.0	1604.6	1607.1	0.002565	8.2	241.3	50	0.66
REV EFFFECTIVE	2300	BFE	1972.0	1597.2	1606.3	1602.4	1606.6	0.000442	4.3	461.3	316	0.29
REV EFFFECTIVE	2300	FLOODWAY	1972.0	1597.2	1606.3	1602.4	1606.6	0.000483	4.3	457.5	69	0.29
REV EFFFECTIVE	2200	BFE	1972.0	1595.0	1606.3	1600.3	1606.5	0.000197	3.3	607.5	524	0.20
REV EFFFECTIVE	2200	FLOODWAY	1972.0	1595.0	1606.3	1600.3	1606.5	0.000222	3.3	601.3	73	0.20
REV EFFFECTIVE	2100	BFE	1972.0	1592.5	1606.3	1597.6	1606.4	0.000064	2.1	940.5	218	0.12
REV EFFFECTIVE	2100	FLOODWAY	1972.0	1592.5	1606.3	1597.6	1606.4	0.000069	2.1	940.6	97	0.12
REV EFFFECTIVE	2000.1	BFE	1972.0	1591.8	1601.2	1601.2	1605.9	0.005171	17.4	113.2	16	1.00
REV EFFFECTIVE	2000.1	FLOODWAY	1972.0	1591.8	1601.2	1601.2	1605.9	0.005170	17.4	113.3	16	1.00
REV EFFFECTIVE	2000	BFE	1498.0	1591.8	1599.6	1599.6	1603.6	0.004779	15.9	94.4	13	1.00
REV EFFFECTIVE	2000	FLOODWAY	1498.0	1591.8	1599.6	1599.6	1603.6	0.005015	15.9	94.4	12	1.00
REV EFFFECTIVE	1950		Bridge									
REV EFFFECTIVE	1900	BFE	1595.0	1585.1	1593.3	1593.3	1597.4	0.005115	16.2	98.3	12	1.00
REV EFFFECTIVE	1900	FLOODWAY	1595.0	1585.1	1593.3	1593.3	1597.4	0.005115	16.2	98.3	12	1.00
REV EFFFECTIVE	1800	BFE	1595.0	1584.5	1589.0	1588.6	1590.3	0.004295	9.2	174.4	48	0.83
REV EFFFECTIVE	1800	FLOODWAY	1595.0	1584.5	1589.1		1590.4	0.004371	9.1	174.6	46	0.82
REV EFFFECTIVE	1750	BFE	1595.0	1583.3	1587.6	1587.6	1589.4	0.006368	10.7	149.6	43	1.00
REV EFFFECTIVE	1750	FLOODWAY	1595.0	1583.3	1587.6	1587.6	1589.4	0.006434	10.6	150.0	42	0.99

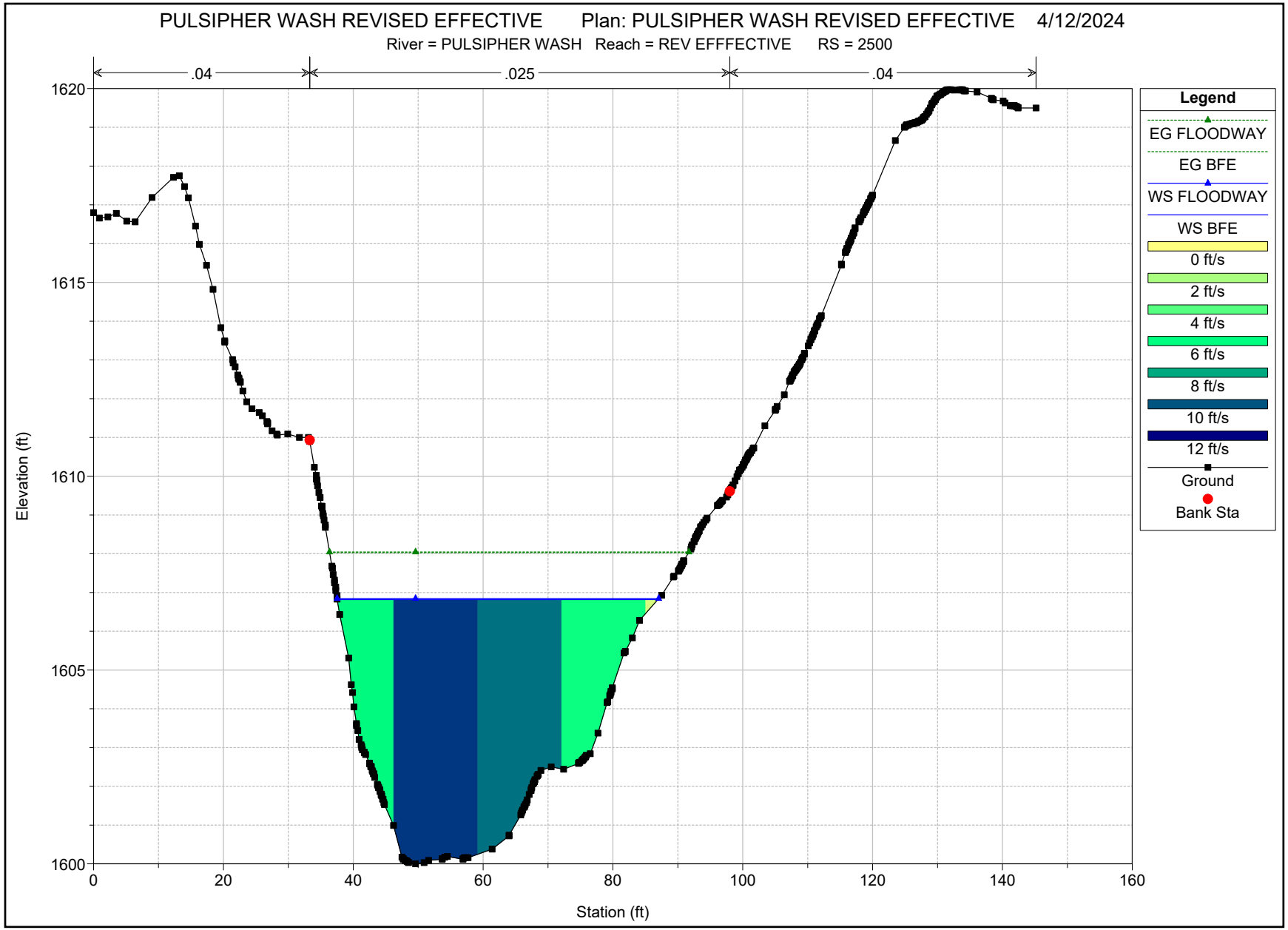
HEC-RAS Plan: REVISED EFFECTIVE River: PULSIPHER WASH Reach: REV EFFFECTIVE (Continued)

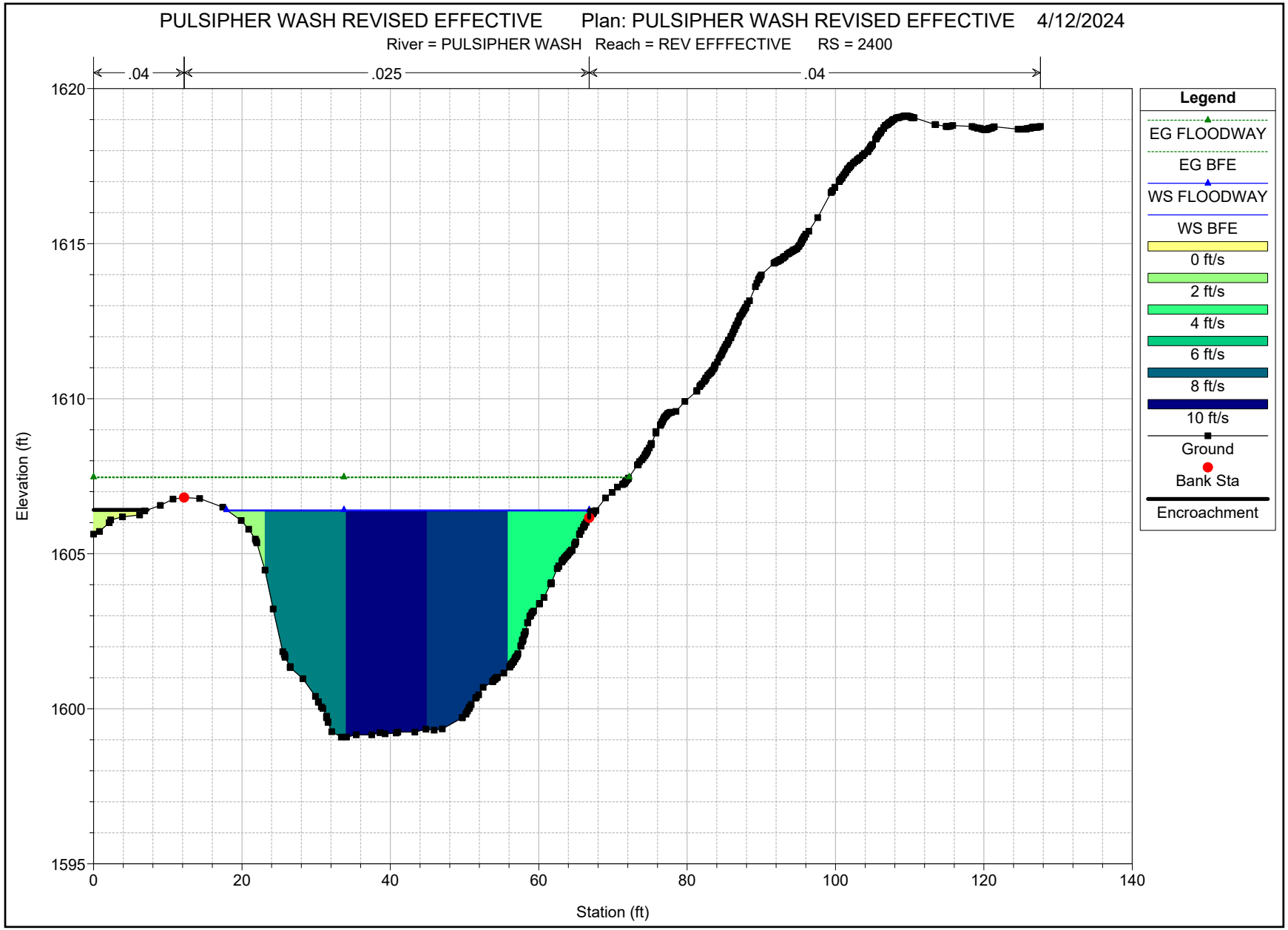
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
REV EFFFECTIVE	1700	BFE	1595.0	1581.8	1586.9		1587.8	0.002510	7.4	215.5	53	0.64
REV EFFFECTIVE	1700	FLOODWAY	1595.0	1581.8	1586.9		1587.8	0.002525	7.4	215.5	52	0.64
REV EFFFECTIVE	1650	BFE	1595.0	1580.5	1585.4	1585.4	1587.1	0.006671	10.5	151.2	44	1.00
REV EFFFECTIVE	1650	FLOODWAY	1595.0	1580.5	1585.4	1585.4	1587.1	0.006671	10.5	151.2	44	1.00
REV EFFFECTIVE	1600	BFE	1595.0	1576.0	1581.8	1581.8	1584.7	0.005049	13.7	116.6	43	1.00
REV EFFFECTIVE	1600	FLOODWAY	1595.0	1576.0	1581.8	1581.8	1584.7	0.005090	13.7	116.3	43	1.00
REV EFFFECTIVE	1550	BFE	1595.0	1575.9	1583.2	1579.9	1583.8	0.000754	6.2	258.1	60	0.40
REV EFFFECTIVE	1550	FLOODWAY	1595.0	1575.9	1583.2	1579.9	1583.8	0.001202	6.2	258.2	35	0.40
REV EFFFECTIVE	1540	BFE	1595.0	1575.8	1582.5	1580.5	1583.7	0.001589	8.5	188.7	48	0.57
REV EFFFECTIVE	1540	FLOODWAY	1595.0	1575.8	1582.5	1580.5	1583.7	0.002686	8.5	188.6	28	0.57
REV EFFFECTIVE	1520		Bridge									
REV EFFFECTIVE	1510	BFE	1595.0	1575.2	1581.7	1579.9	1582.9	0.001754	8.7	183.2	49	0.60
REV EFFFECTIVE	1510	FLOODWAY	1595.0	1575.2	1581.7	1579.9	1582.9	0.002933	8.7	183.0	28	0.60
REV EFFFECTIVE	1500	BFE	1595.0	1575.6	1580.4	1580.3	1582.6	0.004841	11.8	135.1	45	0.95
REV EFFFECTIVE	1500	FLOODWAY	1595.0	1575.6	1580.9	1580.3	1582.7	0.003575	10.8	147.9	35	0.83
REV EFFFECTIVE	1450	BFE	1595.0	1575.4	1580.2	1580.0	1582.3	0.004695	11.7	136.3	45	0.93
REV EFFFECTIVE	1450	FLOODWAY	1595.0	1575.4	1580.7	1580.0	1582.5	0.005232	10.6	150.3	28	0.81
REV EFFFECTIVE	1400	BFE	1595.0	1575.1	1580.1	1579.8	1582.1	0.004352	11.4	139.5	45	0.90
REV EFFFECTIVE	1400	FLOODWAY	1595.0	1575.1	1580.5	1579.8	1582.2	0.005168	10.6	150.9	28	0.80
REV EFFFECTIVE	1350	BFE	1595.0	1574.7	1579.9	1579.3	1581.7	0.003663	10.9	146.9	46	0.84
REV EFFFECTIVE	1350	FLOODWAY	1595.0	1574.7	1580.1	1579.3	1581.8	0.004973	10.4	152.9	28	0.79
REV EFFFECTIVE	1300	BFE	1595.0	1574.2	1580.6	1577.9	1581.2	0.001009	6.5	244.3	60	0.45
REV EFFFECTIVE	1300	FLOODWAY	1595.0	1574.2	1580.7	1578.0	1581.3	0.001437	6.5	247.2	38	0.45
REV EFFFECTIVE	1250	BFE	1595.0	1571.9	1579.2	1578.8	1581.0	0.005021	10.6	150.4	34	0.87
REV EFFFECTIVE	1250	FLOODWAY	1595.0	1571.9	1579.3	1578.8	1581.0	0.004955	10.5	152.3	33	0.85
REV EFFFECTIVE	1200	BFE	1595.0	1571.7	1579.1	1578.2	1580.5	0.003719	9.5	169.1	37	0.76
REV EFFFECTIVE	1200	FLOODWAY	1595.0	1571.7	1579.2	1578.2	1580.5	0.003670	9.3	171.0	36	0.75

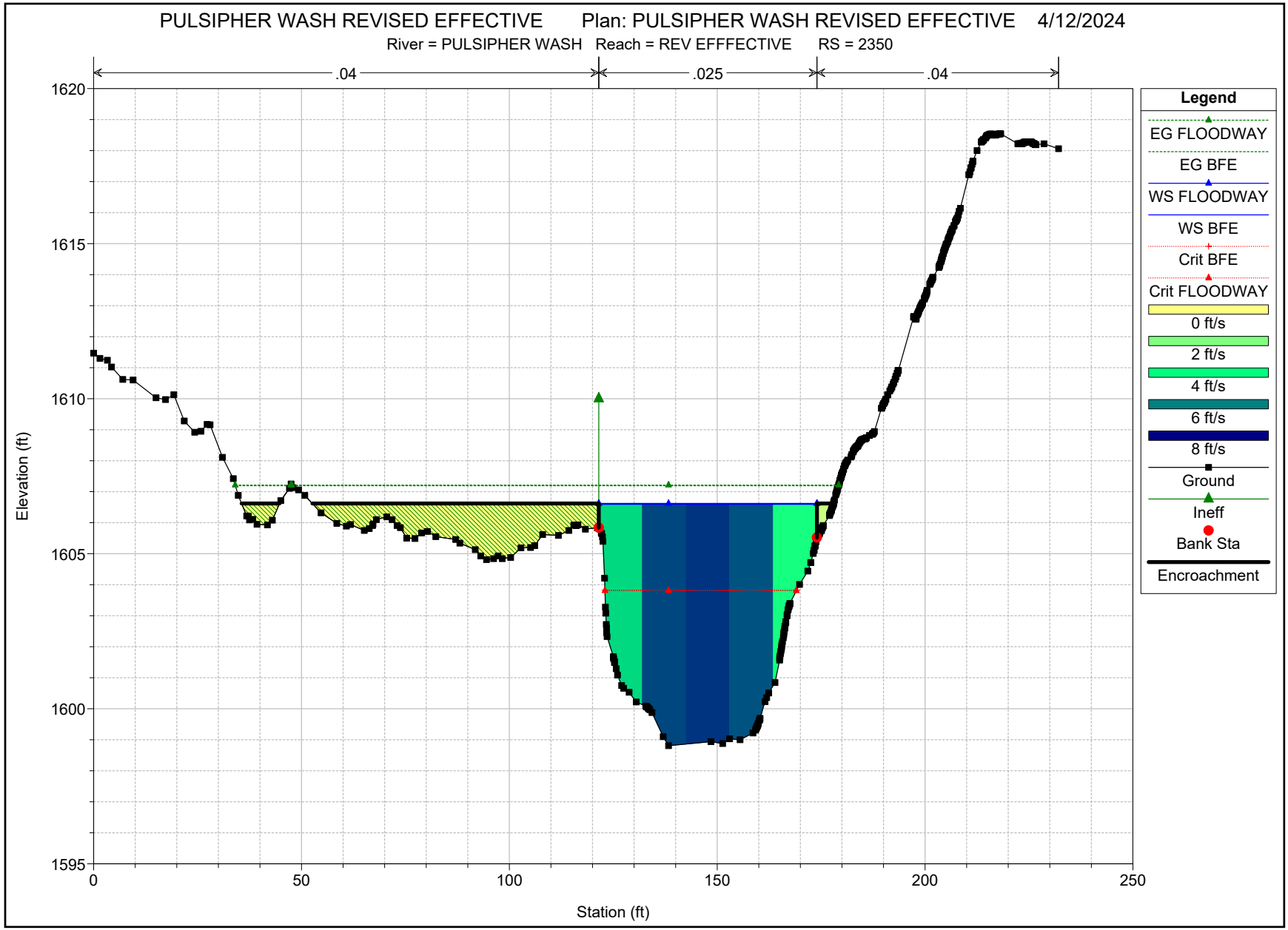
HEC-RAS Plan: REVISED EFFECTIVE River: PULSIPHER WASH Reach: REV EFFFECTIVE (Continued)

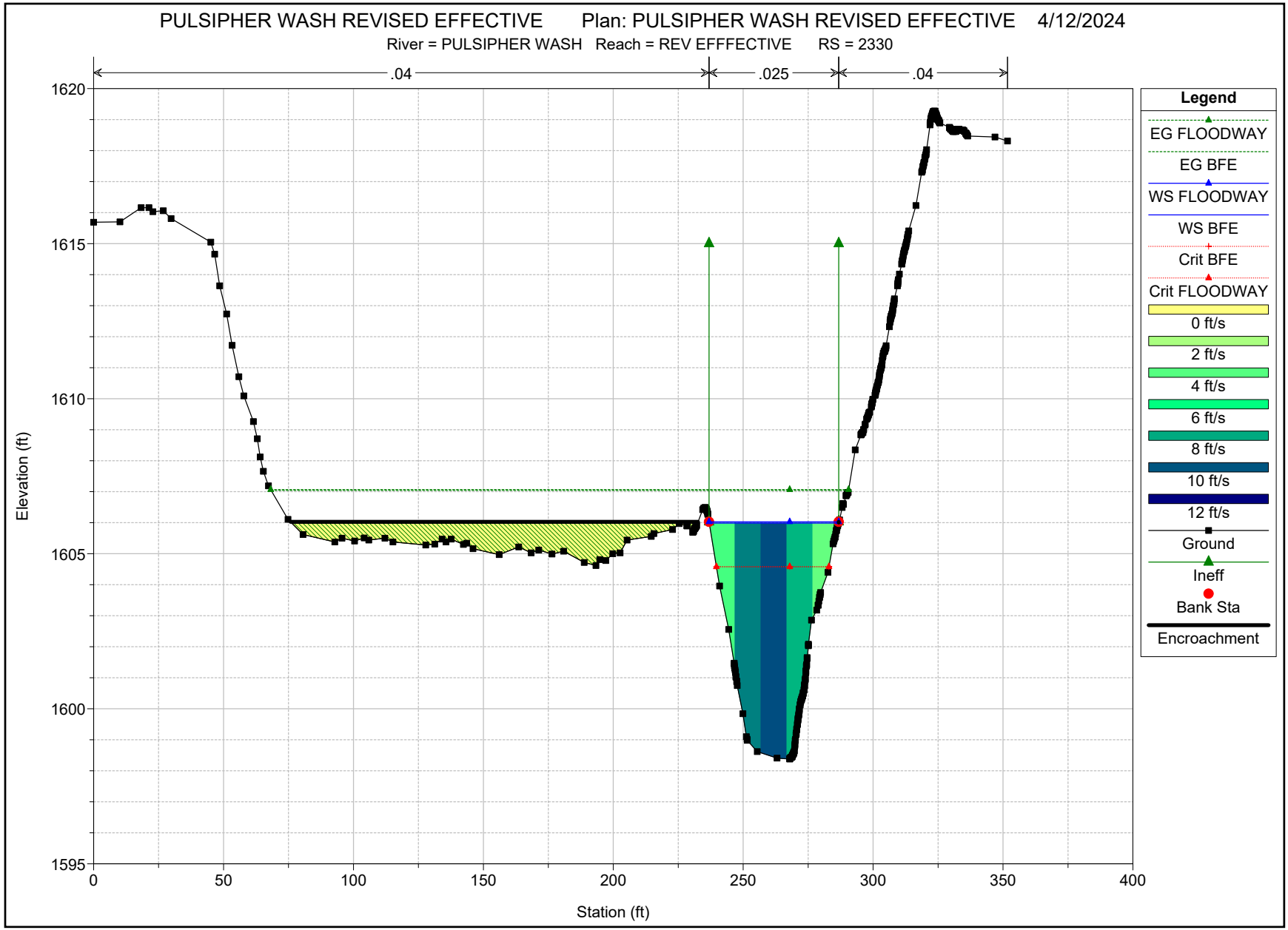
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
REV EFFFECTIVE	1100	BFE	1595.0	1570.6	1577.6	1577.6	1579.9	0.006295	12.1	131.6	46	0.99
REV EFFFECTIVE	1100	FLOODWAY	1595.0	1570.6	1577.6	1577.6	1579.9	0.007049	12.2	131.0	28	1.00
REV EFFFECTIVE	1000	BFE	1595.0	1570.0	1577.3		1578.7	0.003640	9.6	167.4	36	0.76
REV EFFFECTIVE	1000	FLOODWAY	1595.0	1570.0	1577.4		1578.8	0.003758	9.5	167.9	34	0.75
REV EFFFECTIVE	900	BFE	1595.0	1569.1	1577.4		1578.3	0.002068	7.7	208.8	41	0.58
REV EFFFECTIVE	900	FLOODWAY	1595.0	1569.1	1577.4		1578.3	0.002103	7.6	209.2	39	0.58
REV EFFFECTIVE	800	BFE	1595.0	1568.6	1575.9	1575.6	1577.9	0.005347	11.4	141.5	57	0.91
REV EFFFECTIVE	800	FLOODWAY	1595.0	1568.6	1575.9	1575.6	1577.9	0.005458	11.3	141.9	30	0.91
REV EFFFECTIVE	700	BFE	1595.0	1568.2	1574.7	1574.7	1577.0	0.006535	12.1	131.9	51	1.00
REV EFFFECTIVE	700	FLOODWAY	1595.0	1568.2	1574.7	1574.7	1577.0	0.006550	12.1	132.2	29	1.00
REV EFFFECTIVE	600	BFE	1595.0	1568.1	1573.9	1573.9	1576.0	0.006347	11.7	136.6	49	1.00
REV EFFFECTIVE	600	FLOODWAY	1595.0	1568.1	1573.9	1573.9	1576.0	0.006383	11.7	136.7	33	1.00
REV EFFFECTIVE	580	BFE	1595.0	1568.1	1573.1	1571.9	1574.2	0.001154	8.4	190.3	39	0.66
REV EFFFECTIVE	580	FLOODWAY	1595.0	1568.1	1573.1	1571.9	1574.2	0.001154	8.4	190.3	39	0.66
REV EFFFECTIVE	550.		Bridge									
REV EFFFECTIVE	430	BFE	1595.0	1566.6	1570.4	1570.4	1572.3	0.002698	11.0	144.5	39	1.00
REV EFFFECTIVE	430	FLOODWAY	1595.0	1566.6	1570.4	1570.4	1572.3	0.002662	11.0	145.1	39	1.00
REV EFFFECTIVE	415	BFE	1595.0	1562.0	1568.7	1565.4	1569.2	0.000227	5.3	300.5	75	0.36
REV EFFFECTIVE	415	FLOODWAY	1595.0	1562.0	1568.7	1565.4	1569.2	0.000319	5.3	301.4	45	0.36
REV EFFFECTIVE	365	BFE	1595.0	1560.0	1566.5	1566.5	1568.9	0.015869	12.4	129.1	112	1.00
REV EFFFECTIVE	365	FLOODWAY	1595.0	1560.0	1566.5	1566.5	1568.9	0.018345	12.4	129.0	27	1.00
REV EFFFECTIVE	300	BFE	1595.0	1562.3	1565.3	1565.3	1566.5	0.009842	8.6	184.6	149	1.00
REV EFFFECTIVE	300	FLOODWAY	1595.0	1562.3	1565.3	1565.3	1566.5	0.009842	8.6	184.6	80	1.00
REV EFFFECTIVE	200	BFE	1595.0	1556.7	1559.4	1559.4	1560.4	0.010169	8.0	199.0	158	0.99
REV EFFFECTIVE	200	FLOODWAY	1595.0	1556.7	1559.4	1559.4	1560.4	0.010555	8.1	196.8	156	1.00
REV EFFFECTIVE	150	BFE	1595.0	1553.5	1557.5	1556.9	1557.8	0.003006	4.5	351.7	212	0.62
REV EFFFECTIVE	150	FLOODWAY	1595.0	1553.5	1557.5	1556.9	1557.8	0.003006	4.5	351.7	212	0.62

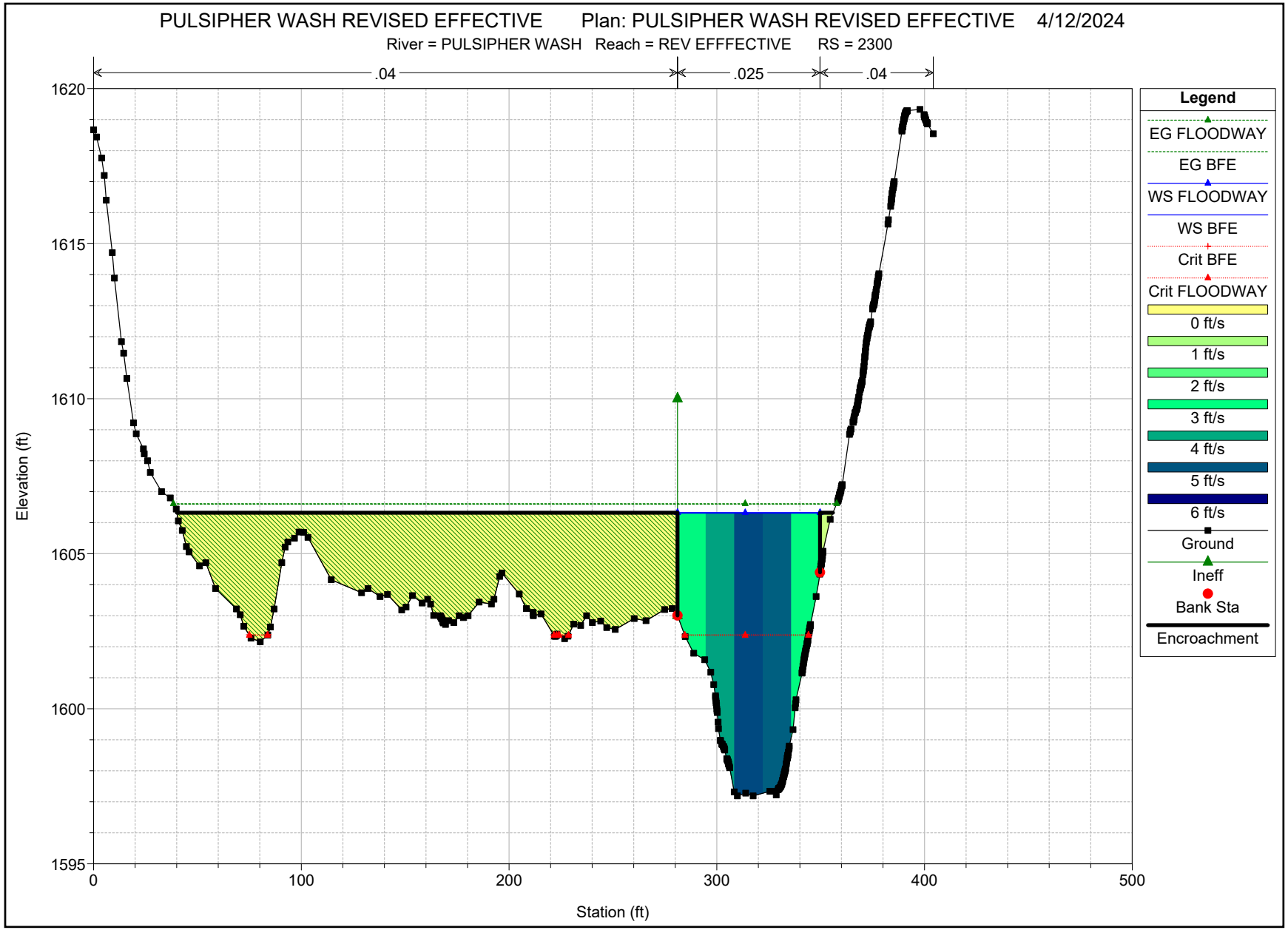

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 2590
.04
.025
.04
Legend
EG BFE
EG FLOODWAY
Crit BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
Ground
Bank Sta
Elevation (ft)
1622
1620
1618
1616
1614
1612
1610
1608
1606
0
20
40
60
80
100
120
140
160
Station (ft)

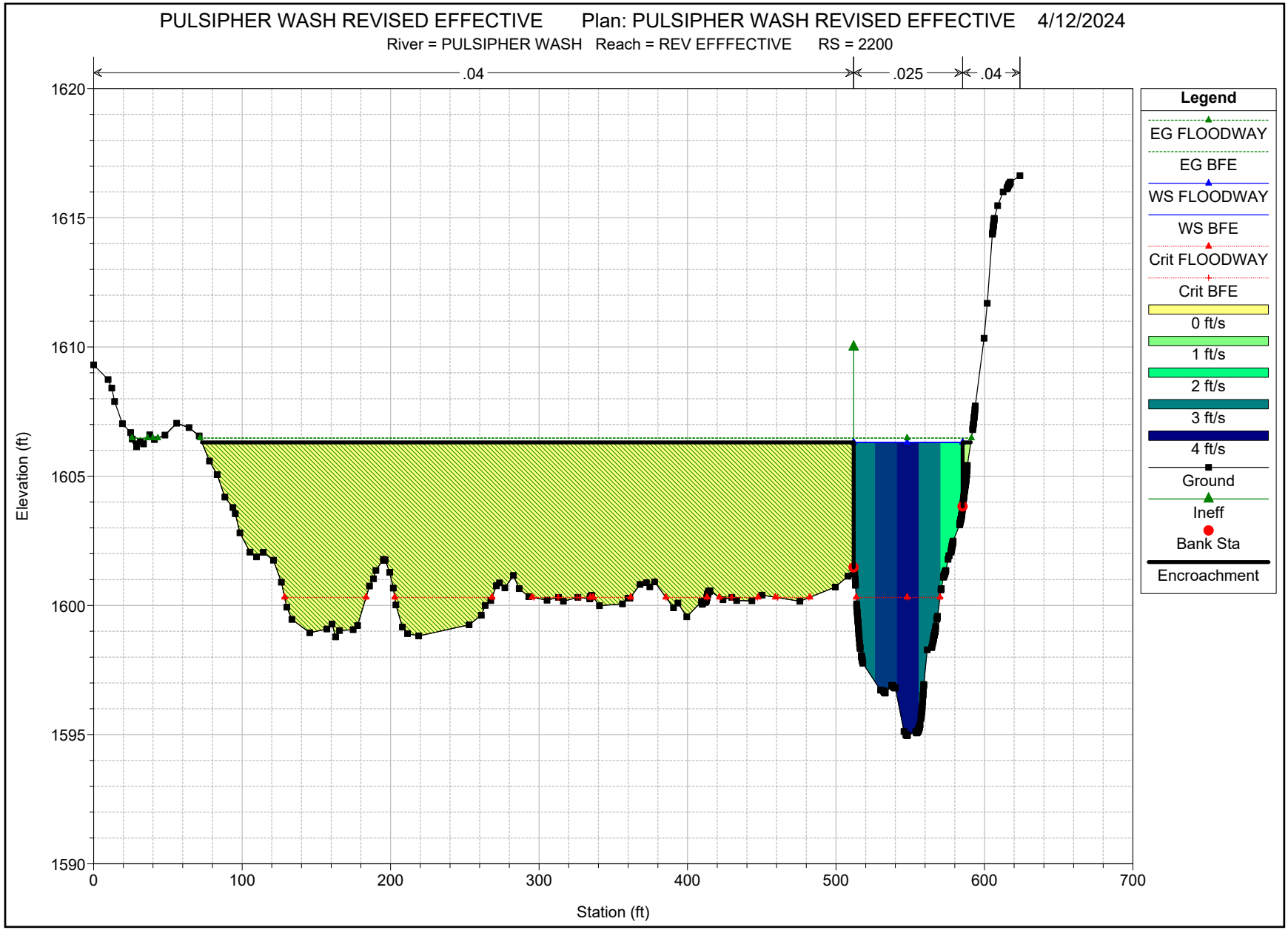

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 2500
.04
.025
.04
Elevation (ft)
1620
1615
1610
1605
1600
0
20
40
60
80
100
120
140
160
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Bank Sta

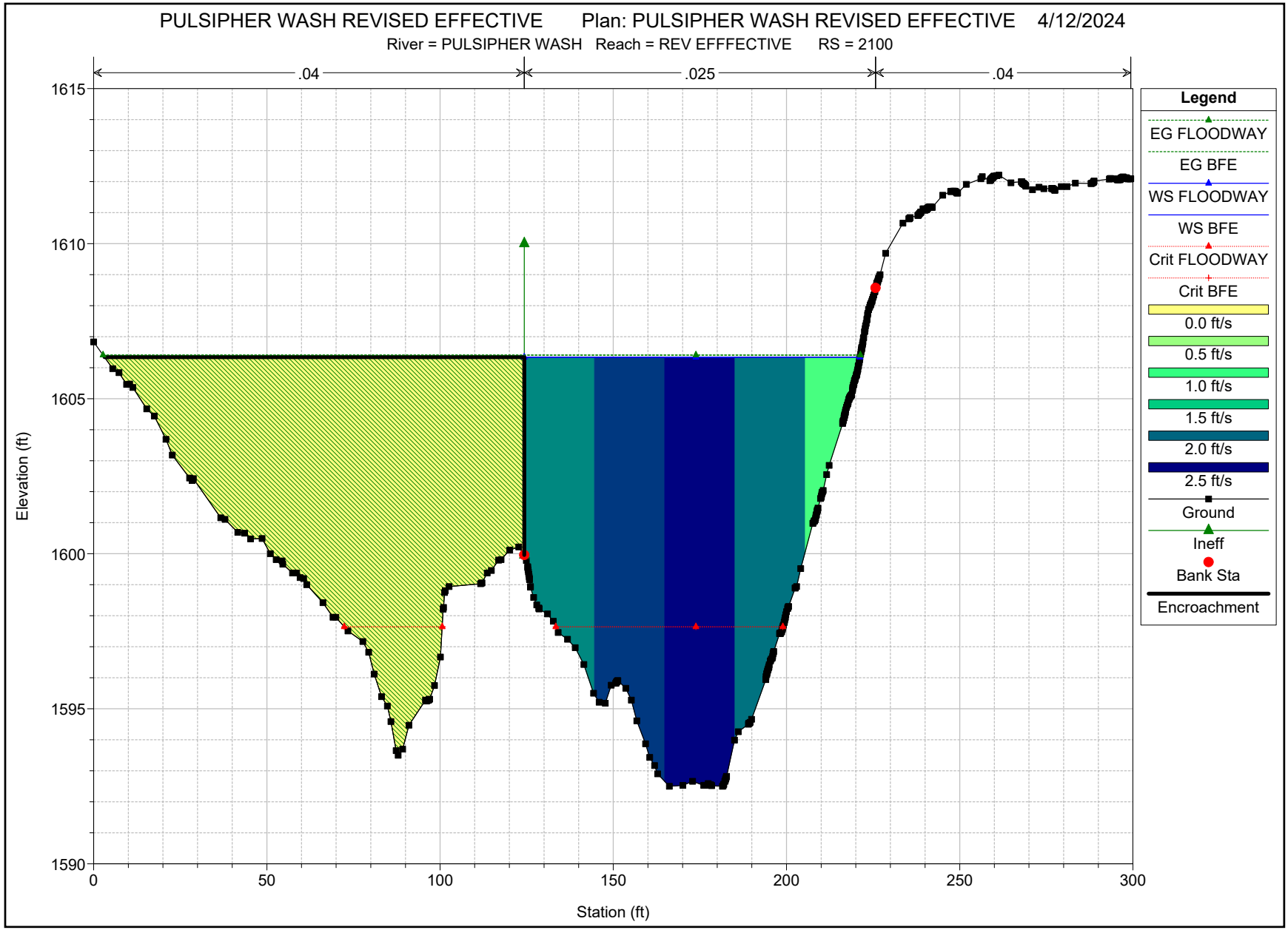

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 2400
.04
.025
.04
1620
1615
1610
1605
1600
1595
Elevation (ft)
0
20
40
60
80
100
120
140
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
Ground
Bank Sta
Encroachment

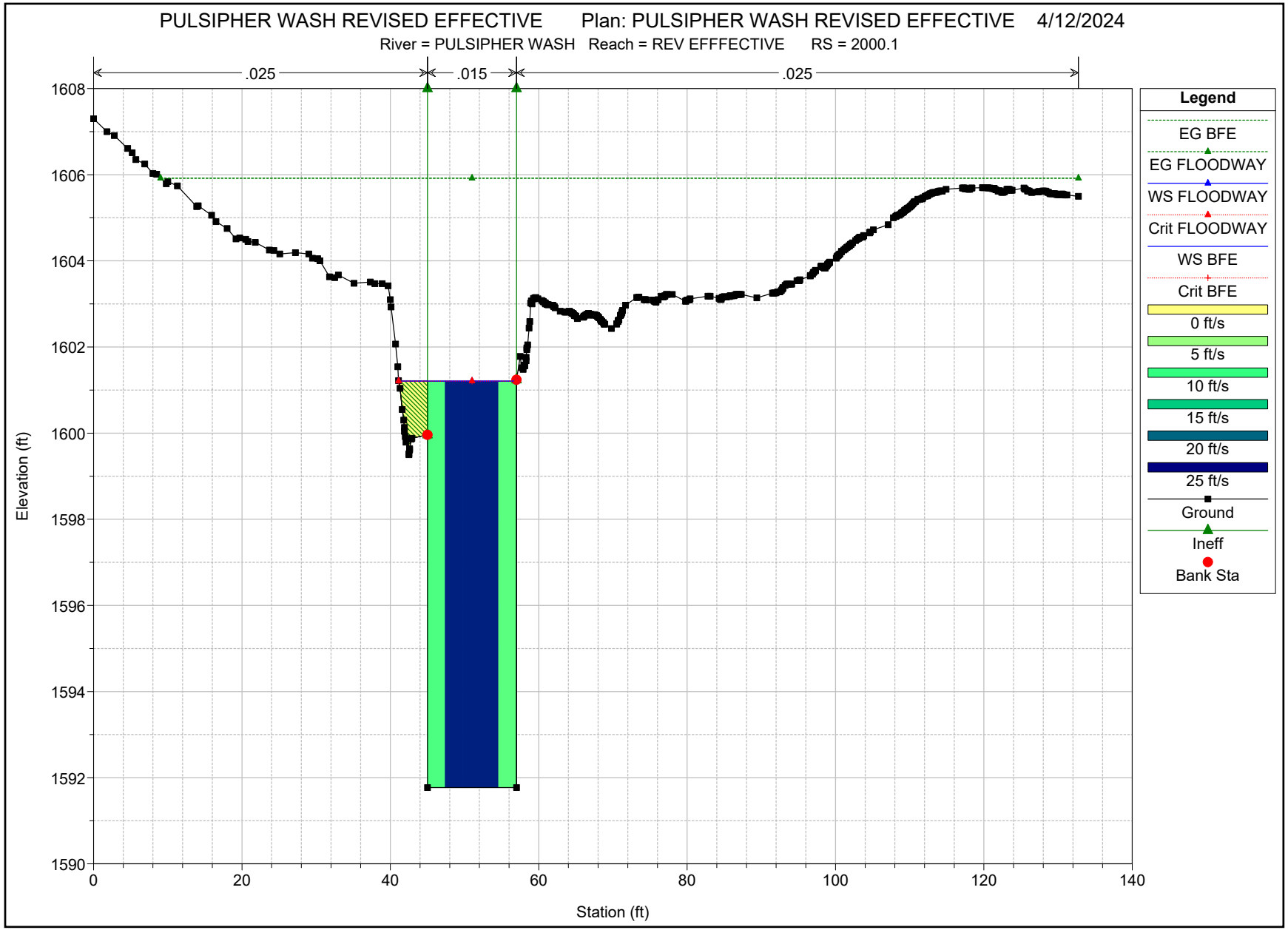

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 2350
.04
.025
.04
1620
1615
1610
1605
1600
1595
Elevation (ft)
0
50
100
150
200
250
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit BFE
Crit FLOODWAY
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
Ground
Ineff
Bank Sta
Encroachment

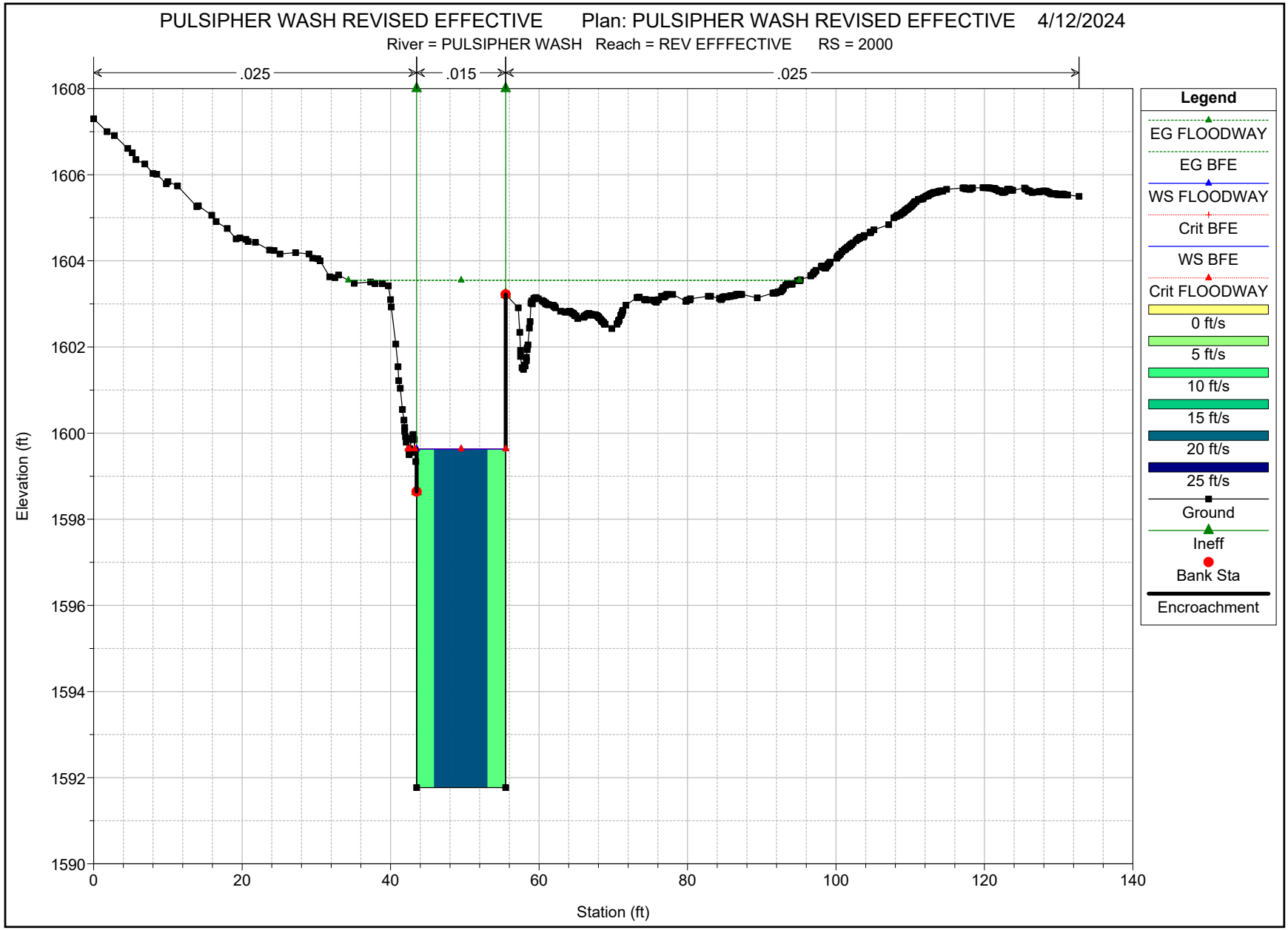

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 2330
.04
.025
.04
Elevation (ft)
1620
1615
1610
1605
1600
1595
0
50
100
150
200
250
300
350
400
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit BFE
Crit FLOODWAY
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Ineff
Bank Sta
Encroachment

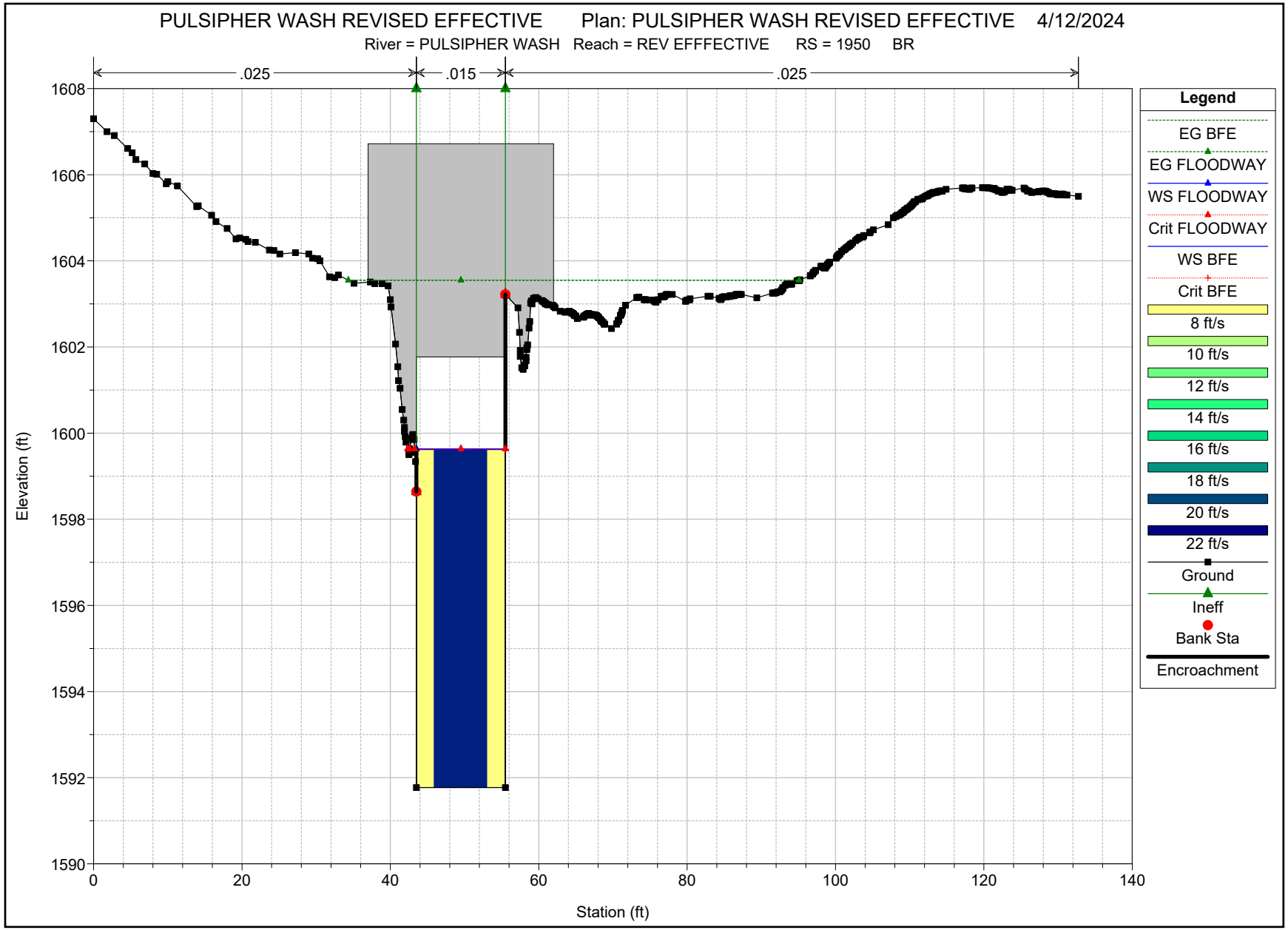

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 2300
.04
.025
.04
1620
1615
1610
1605
1600
1595
Elevation (ft)
0
100
200
300
400
500
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit BFE
Crit FLOODWAY
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Ineff
Bank Sta
Encroachment

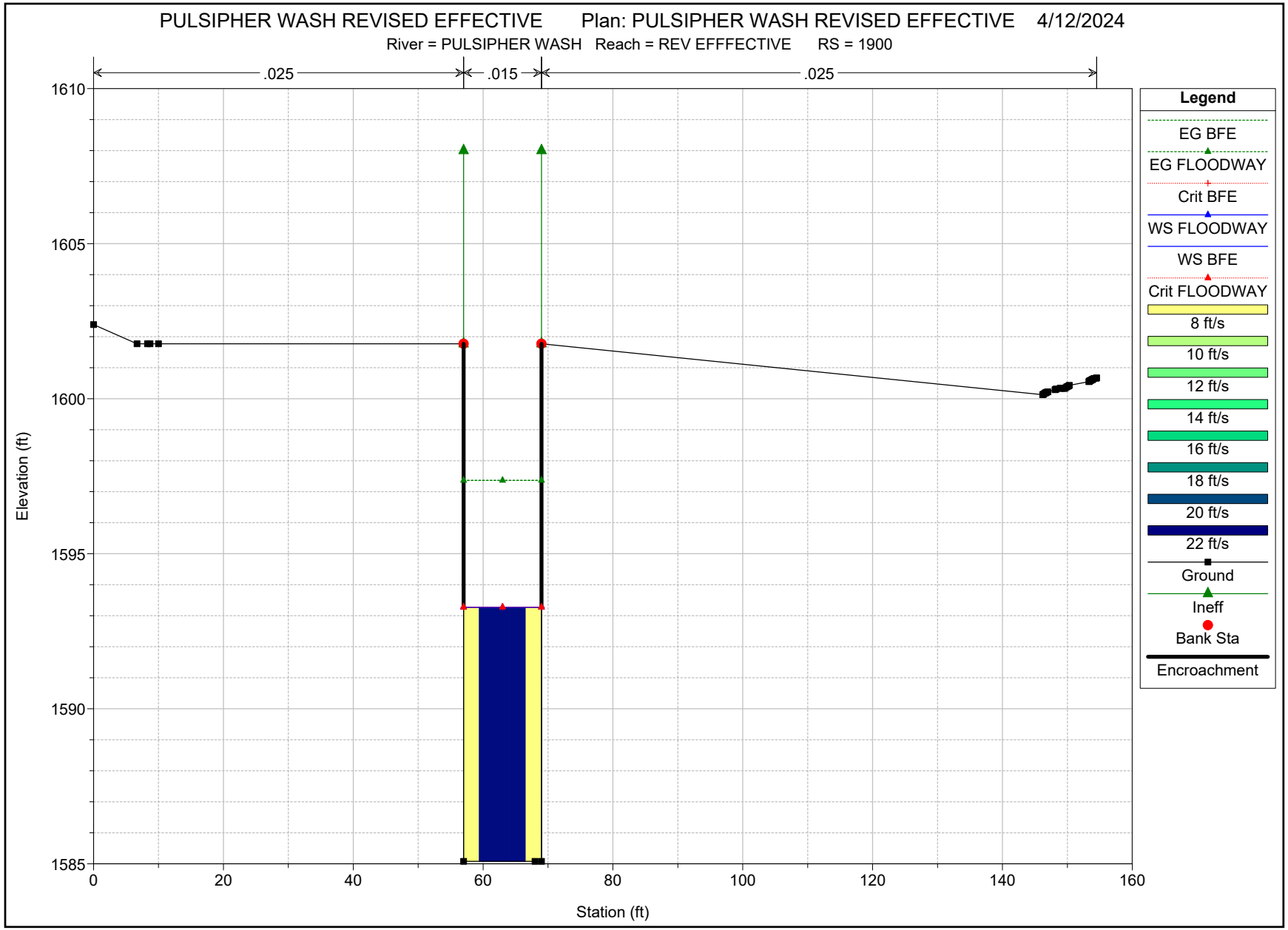

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 2200
.04
.025
.04
Elevation (ft)
1620
1615
1610
1605
1600
1595
1590
0
100
200
300
400
500
600
700
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
Crit BFE
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
Ground
Ineff
Bank Sta
Encroachment

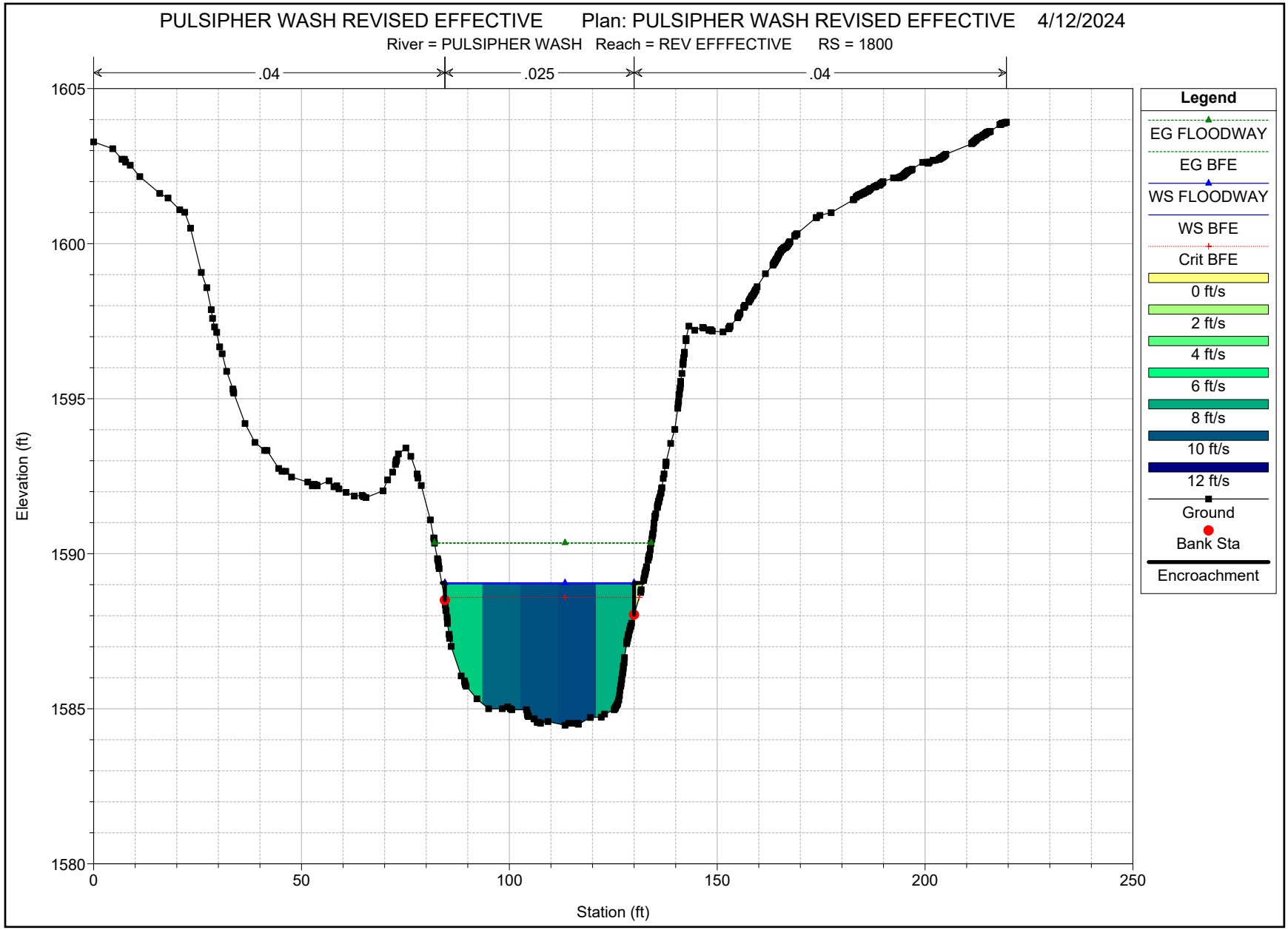

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 2100
.04
.025
.04
1615
1610
1605
1600
1595
1590
Elevation (ft)
0
50
100
150
200
250
300
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
Crit BFE
0.0 ft/s
0.5 ft/s
1.0 ft/s
1.5 ft/s
2.0 ft/s
2.5 ft/s
Ground
Ineff
Bank Sta
Encroachment

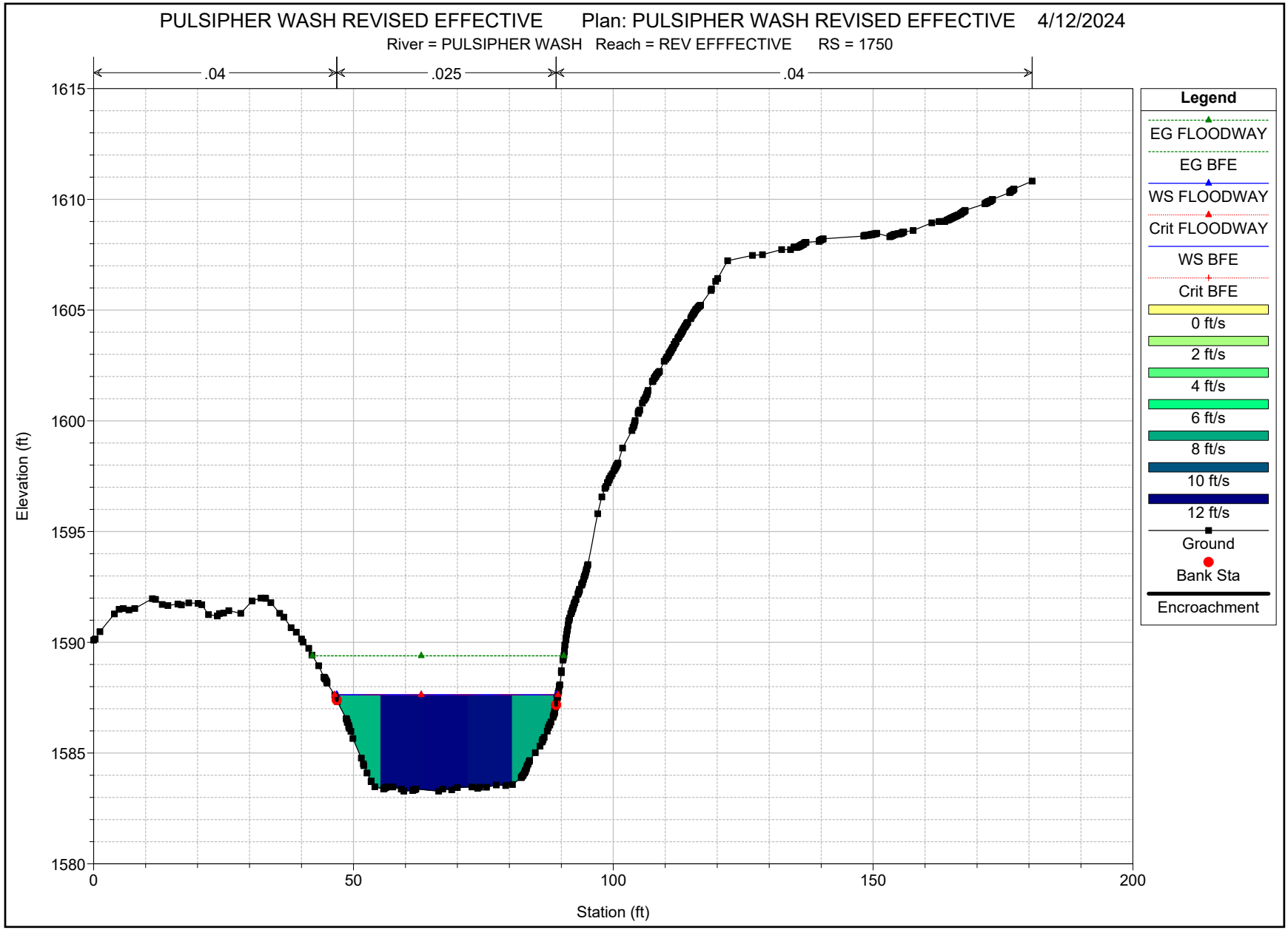

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 2000.1
.025
.015
.025
Elevation (ft)
Station (ft)
1590
1592
1594
1596
1598
1600
1602
1604
1606
1608
0
20
40
60
80
100
120
140
Legend
EG BFE
EG FLOODWAY
WS FLOODWAY
Crit FLOODWAY
WS BFE
Crit BFE
0 ft/s
5 ft/s
10 ft/s
15 ft/s
20 ft/s
25 ft/s
Ground
Ineff
Bank Sta

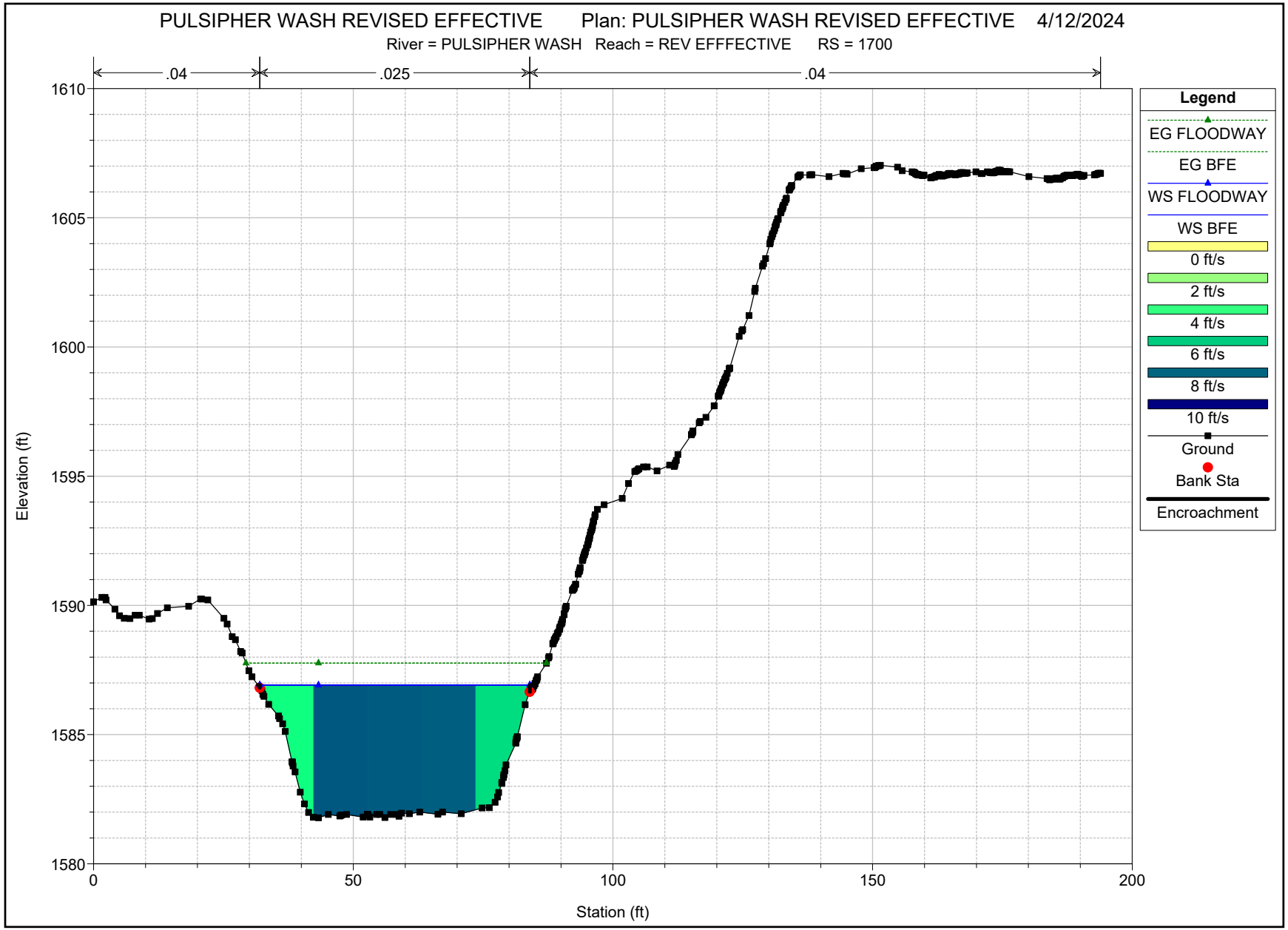

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 2000
.025
.015
.025
Elevation (ft)
Station (ft)
1608
1606
1604
1602
1600
1598
1596
1594
1592
1590
0
20
40
60
80
100
120
140
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
Crit BFE
WS BFE
Crit FLOODWAY
0 ft/s
5 ft/s
10 ft/s
15 ft/s
20 ft/s
25 ft/s
Ground
Ineff
Bank Sta
Encroachment

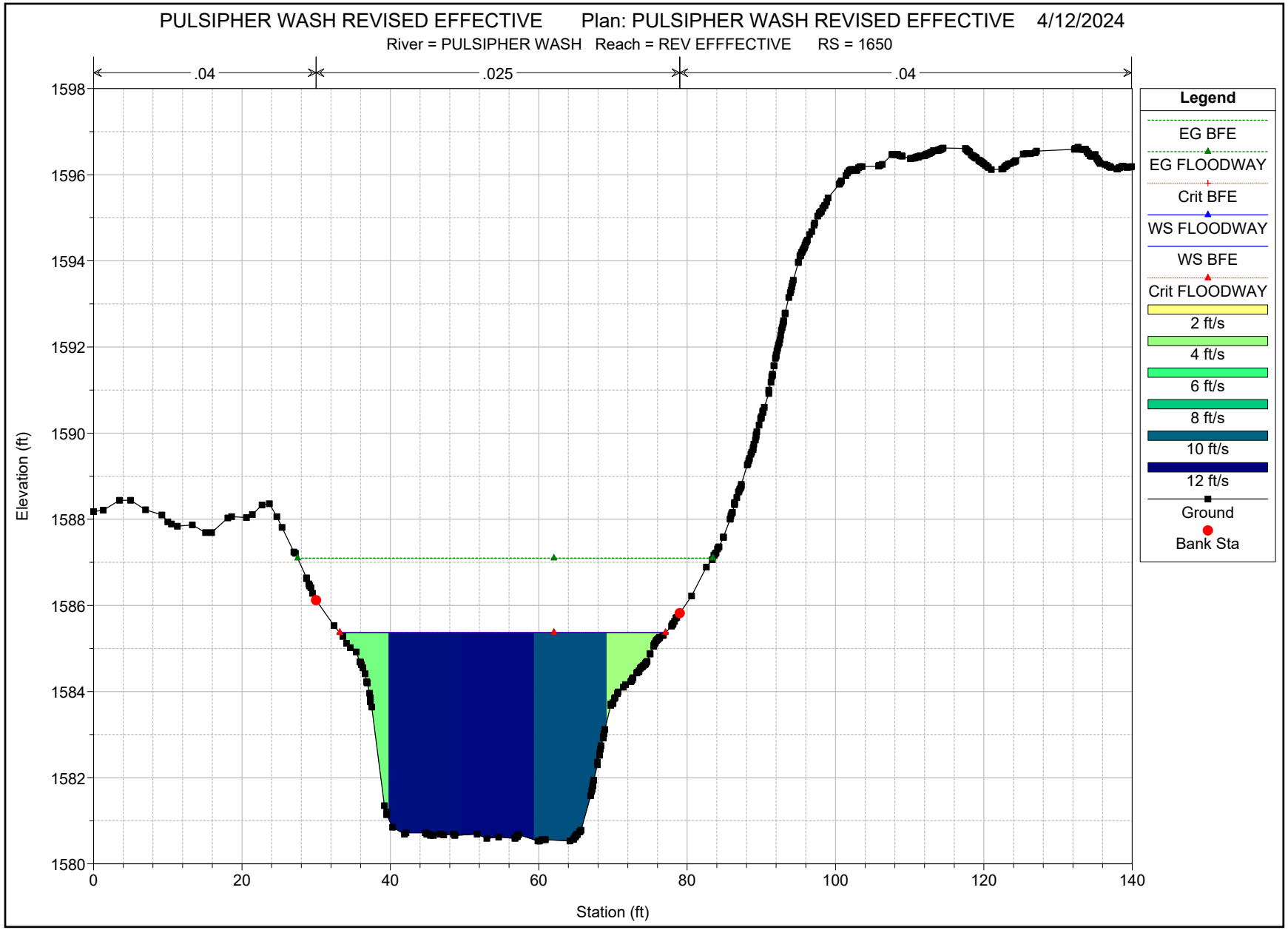

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 1950 BR
.025
.015
.025
Elevation (ft)
Station (ft)
1608
1606
1604
1602
1600
1598
1596
1594
1592
1590
0
20
40
60
80
100
120
140
Legend
EG BFE
EG FLOODWAY
WS FLOODWAY
Crit FLOODWAY
WS BFE
Crit BFE
8 ft/s
10 ft/s
12 ft/s
14 ft/s
16 ft/s
18 ft/s
20 ft/s
22 ft/s
Ground
Ineff
Bank Sta
Encroachment

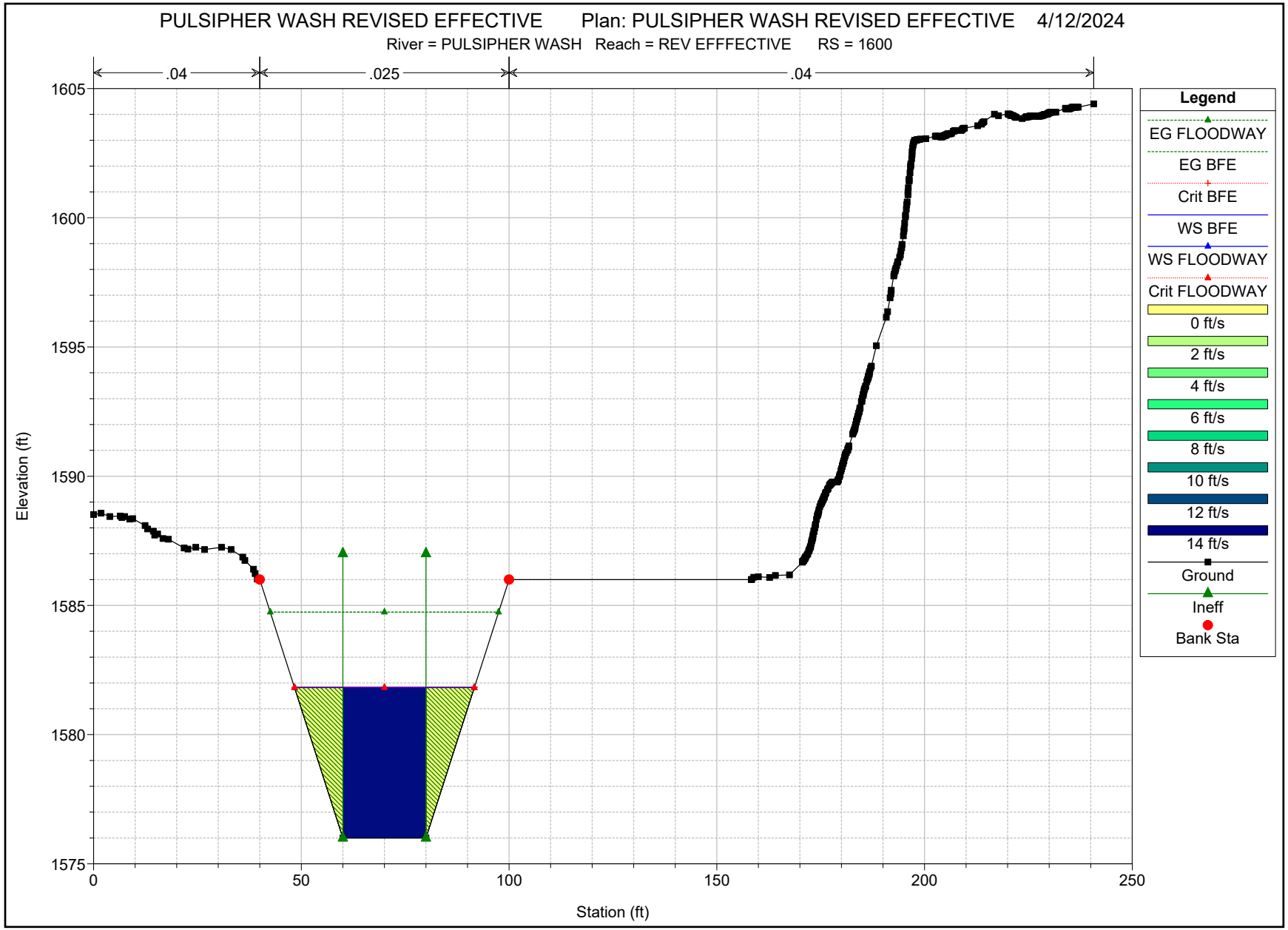

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 1900
.025
.015
.025
1610
1605
1600
1595
1590
1585
Elevation (ft)
0
20
40
60
80
100
120
140
160
Station (ft)
Legend
EG BFE
EG FLOODWAY
Crit BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
8 ft/s
10 ft/s
12 ft/s
14 ft/s
16 ft/s
18 ft/s
20 ft/s
22 ft/s
Ground
Ineff
Bank Sta
Encroachment

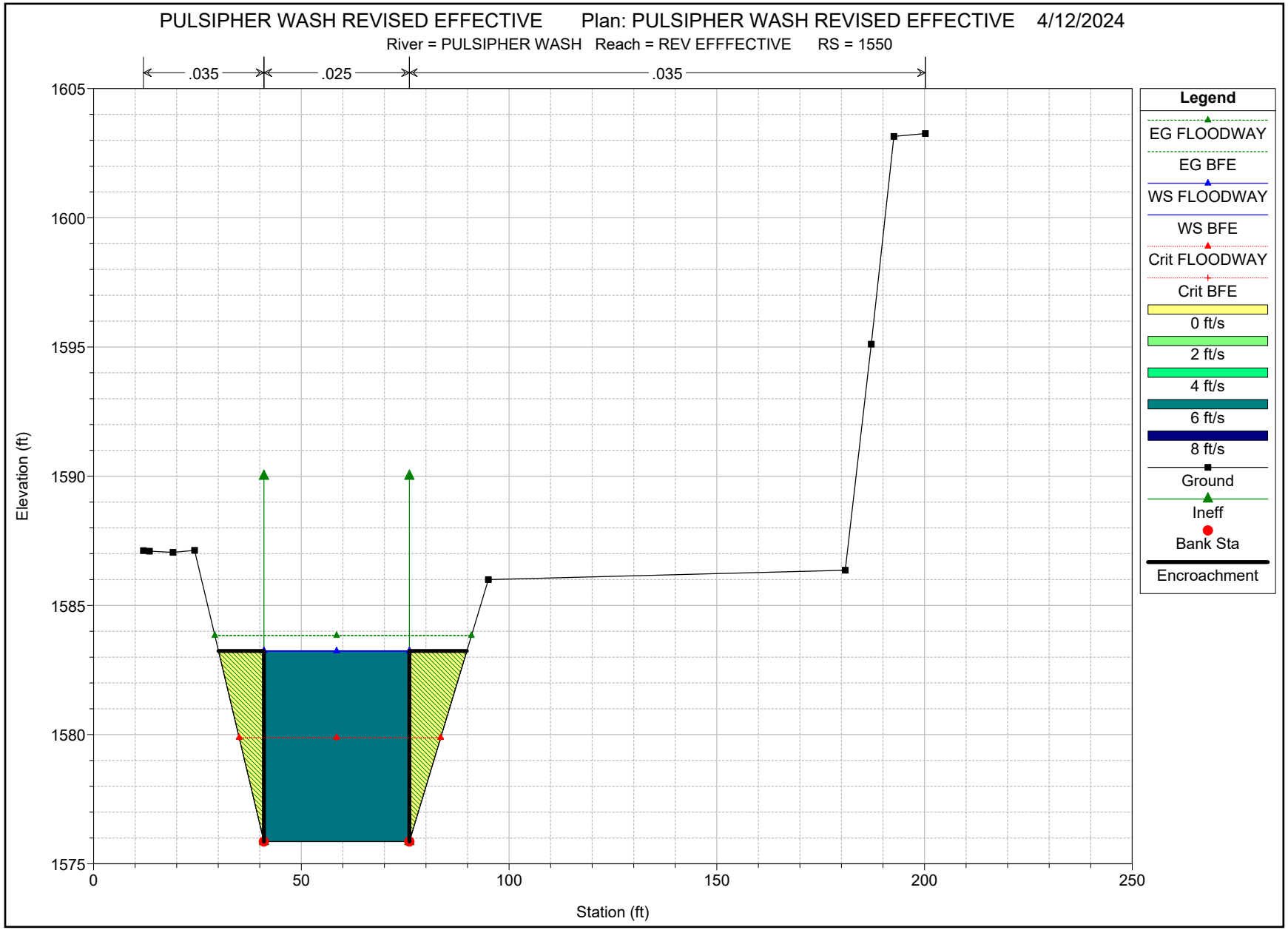

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 1800
.04
.025
.04
1605
1600
1595
1590
1585
1580
Elevation (ft)
0
50
100
150
200
250
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Bank Sta
Encroachment

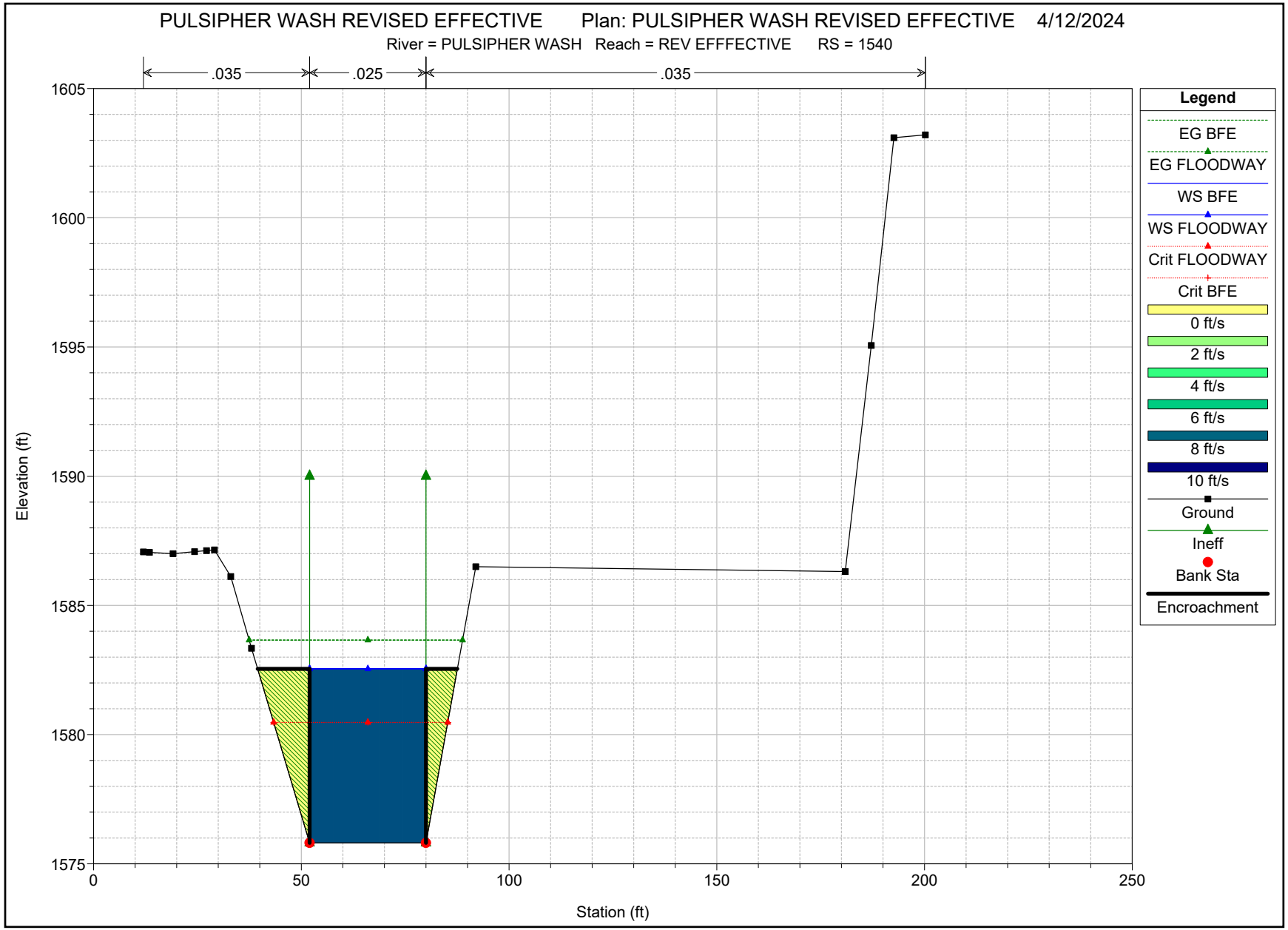

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 1750
.04
.025
.04
Elevation (ft)
1615
1610
1605
1600
1595
1590
1585
1580
0
50
100
150
200
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
Crit FLOODWAY
WS BFE
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Bank Sta
Encroachment

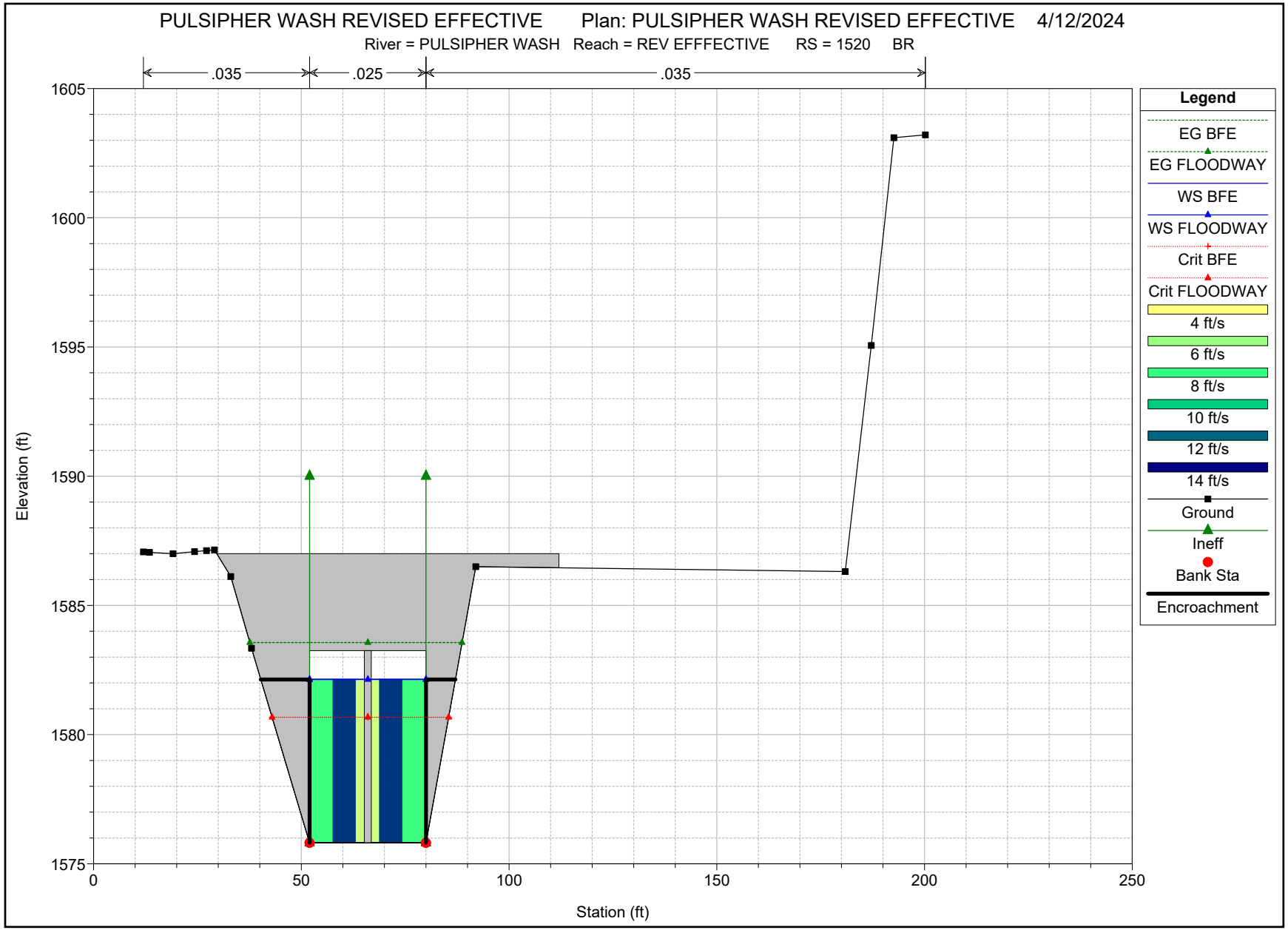

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 1700
.04
.025
.04
Elevation (ft)
1610
1605
1600
1595
1590
1585
1580
0
50
100
150
200
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
Ground
Bank Sta
Encroachment

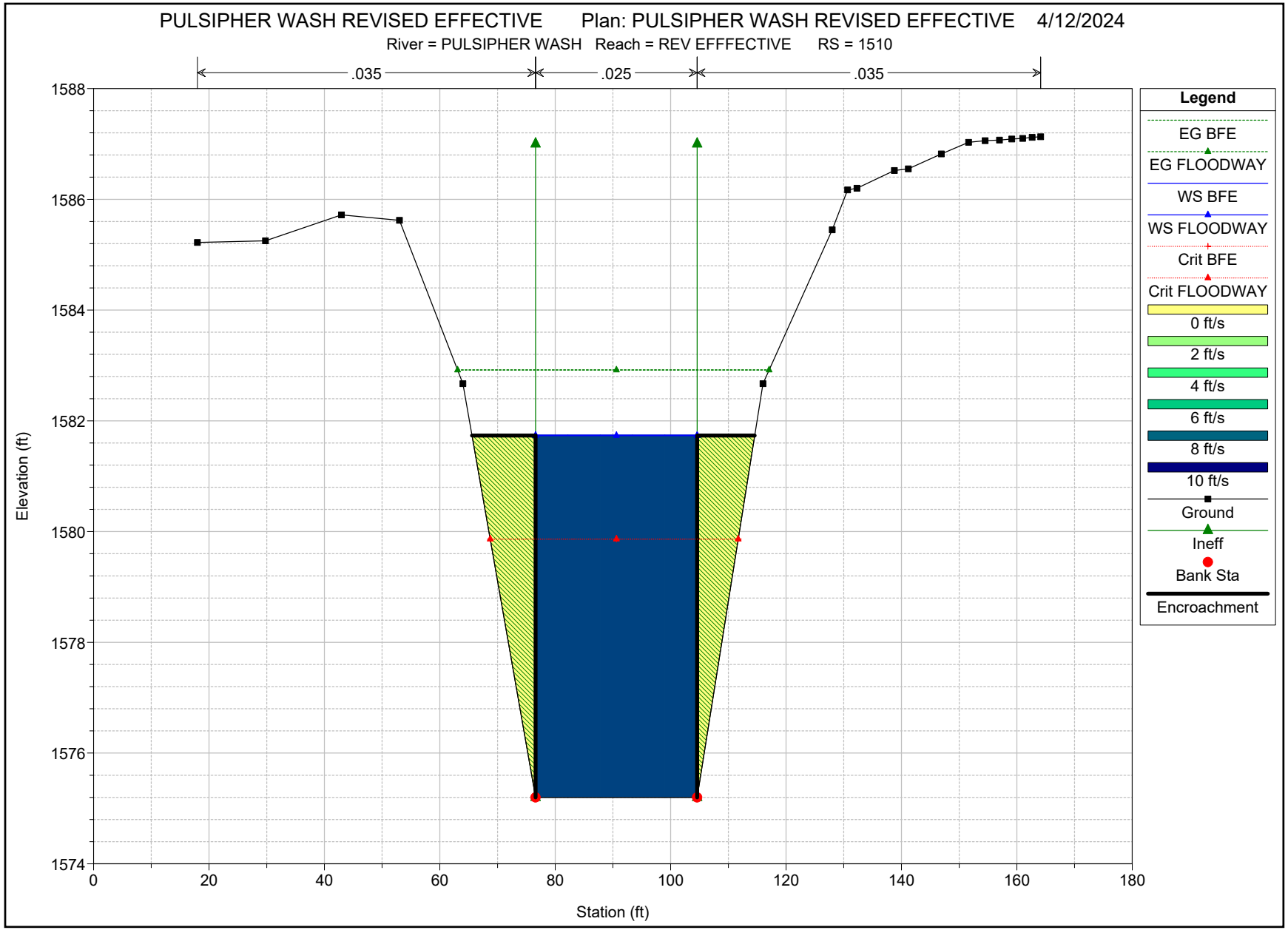

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 1650
.04
.025
.04
Elevation (ft)
1598
1596
1594
1592
1590
1588
1586
1584
1582
1580
0
20
40
60
80
100
120
140
Station (ft)
Legend
EG BFE
EG FLOODWAY
Crit BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Bank Sta

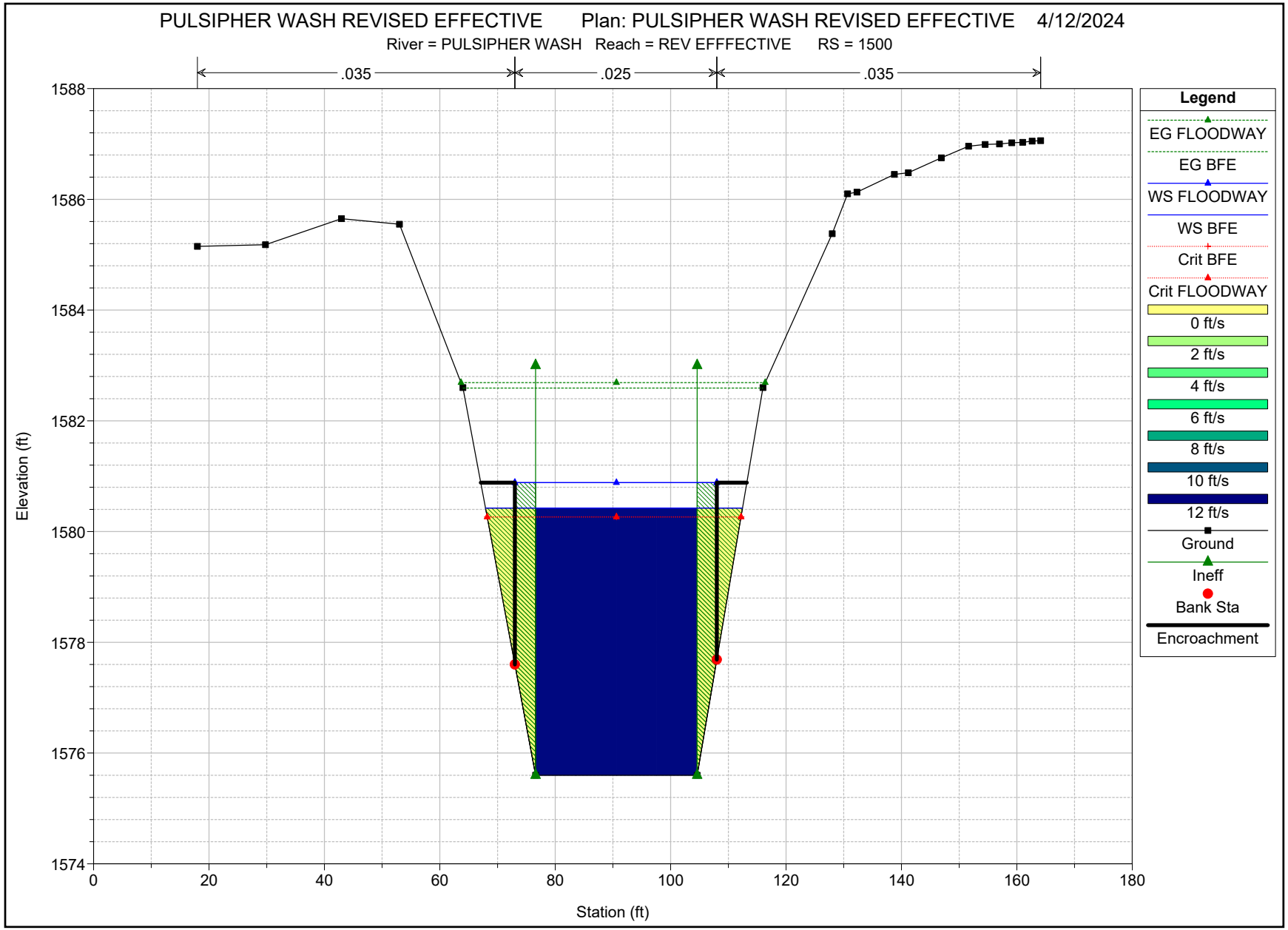

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 1600
.04
.025
.04
Elevation (ft)
1605
1600
1595
1590
1585
1580
1575
0
50
100
150
200
250
Station (ft)
Legend
EG FLOODWAY
EG BFE
Crit BFE
WS BFE
WS FLOODWAY
Crit FLOODWAY
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
14 ft/s
Ground
Ineff
Bank Sta

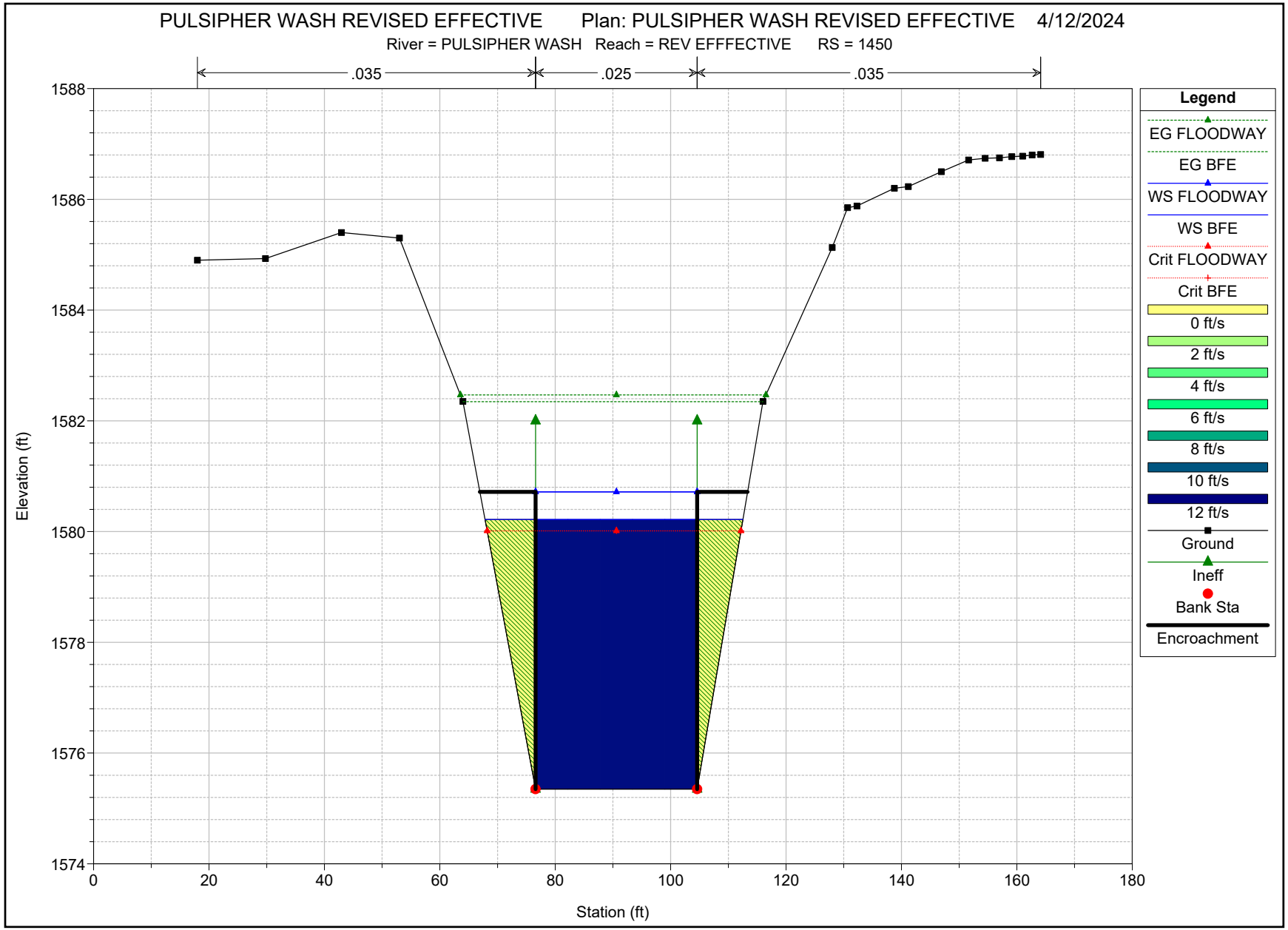

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 1550
.035
.025
.035
Elevation (ft)
1605
1600
1595
1590
1585
1580
1575
0
50
100
150
200
250
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
Ground
Ineff
Bank Sta
Encroachment

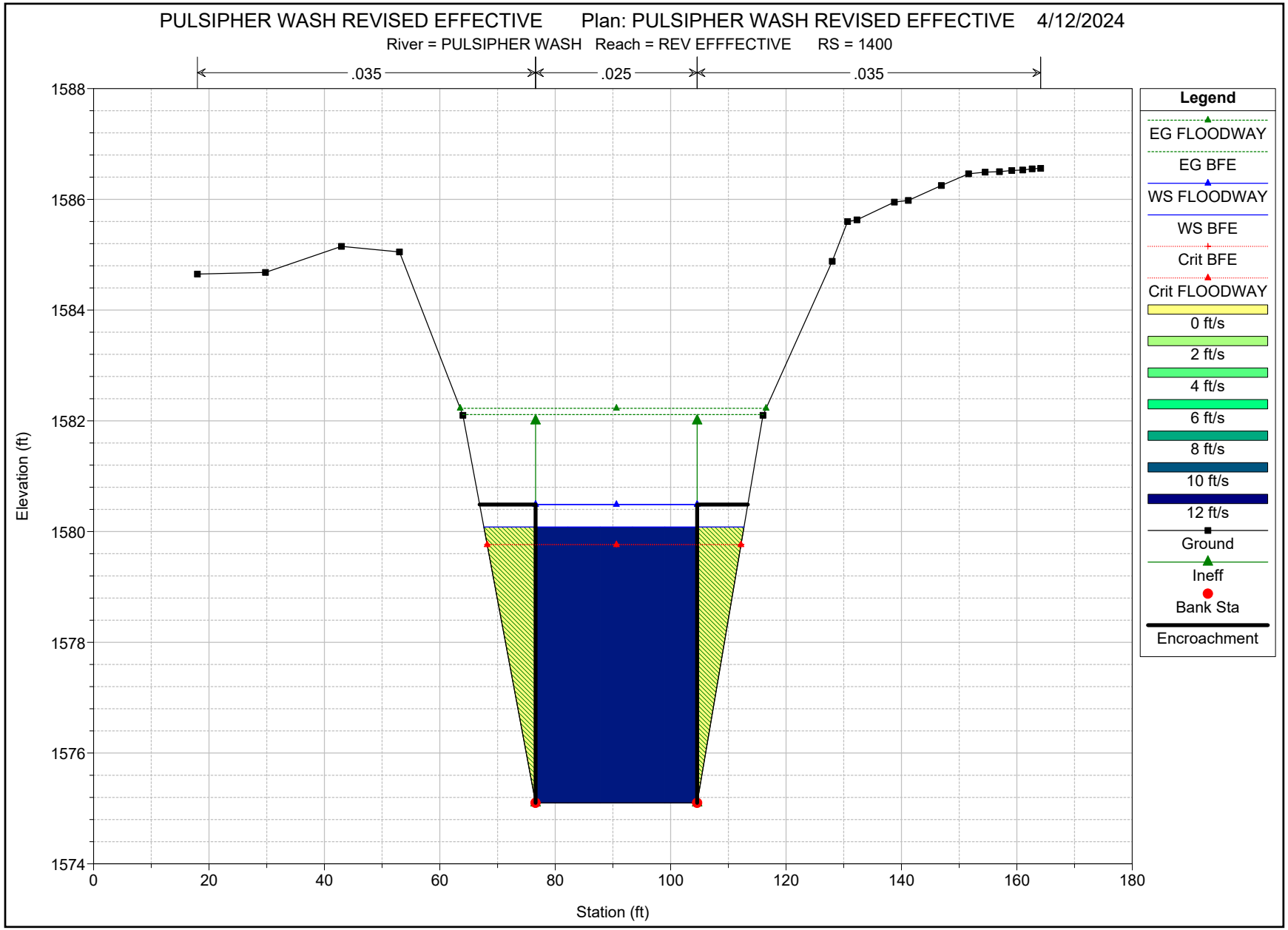

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 1540
.035
.025
.035
Elevation (ft)
1605
1600
1595
1590
1585
1580
1575
0
50
100
150
200
250
Station (ft)
Legend
EG BFE
EG FLOODWAY
WS BFE
WS FLOODWAY
Crit FLOODWAY
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
Ground
Ineff
Bank Sta
Encroachment

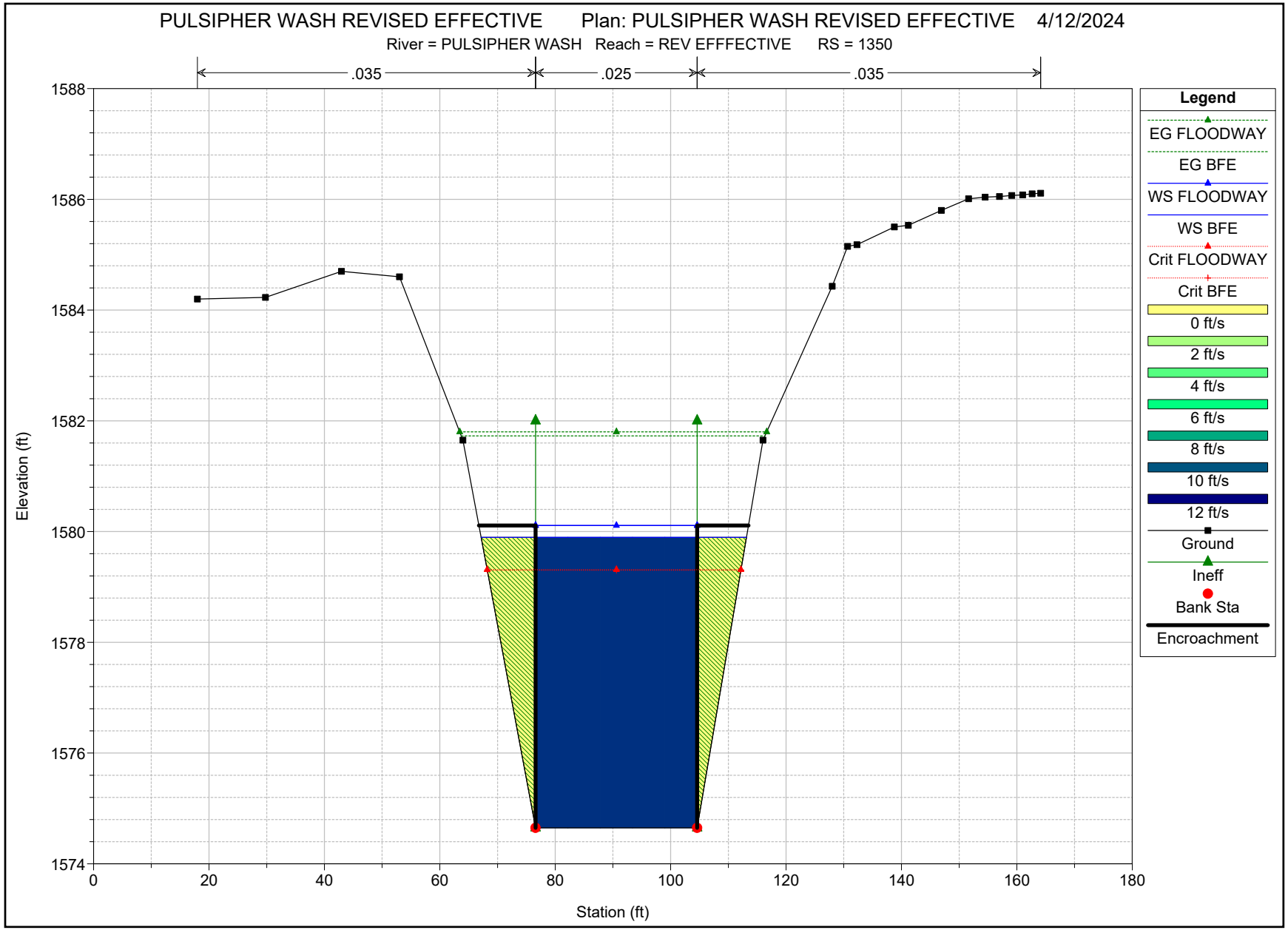

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 1520 BR
.035
.025
.035
1605
1600
1595
1590
1585
1580
1575
Elevation (ft)
0
50
100
150
200
250
Station (ft)
Legend
EG BFE
EG FLOODWAY
WS BFE
WS FLOODWAY
Crit BFE
Crit FLOODWAY
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
14 ft/s
Ground
Ineff
Bank Sta
Encroachment

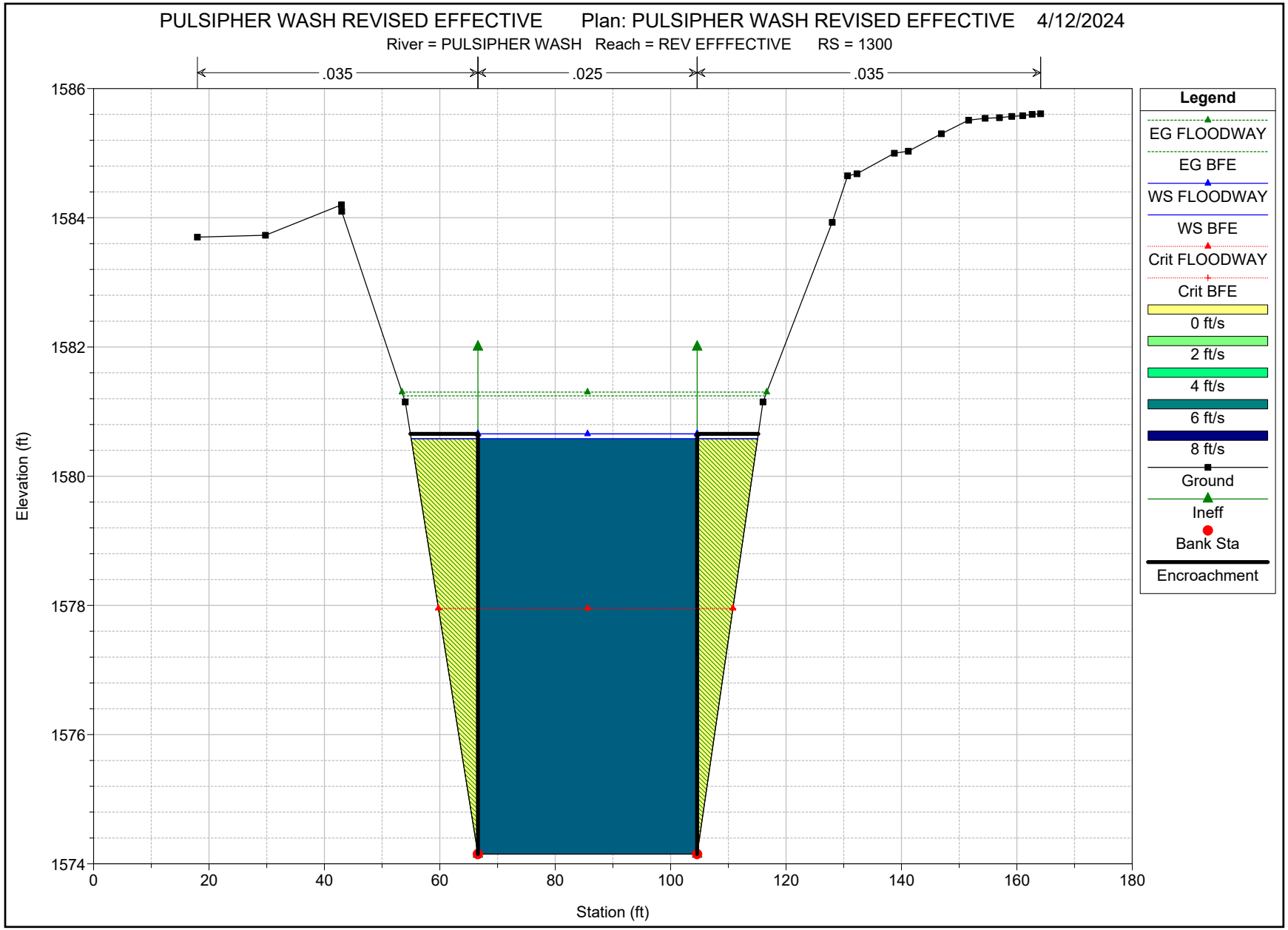

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 1510
.035
.025
.035
Elevation (ft)
Station (ft)
1588
1586
1584
1582
1580
1578
1576
1574
0
20
40
60
80
100
120
140
160
180
Legend
EG BFE
EG FLOODWAY
WS BFE
WS FLOODWAY
Crit BFE
Crit FLOODWAY
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
Ground
Ineff
Bank Sta
Encroachment

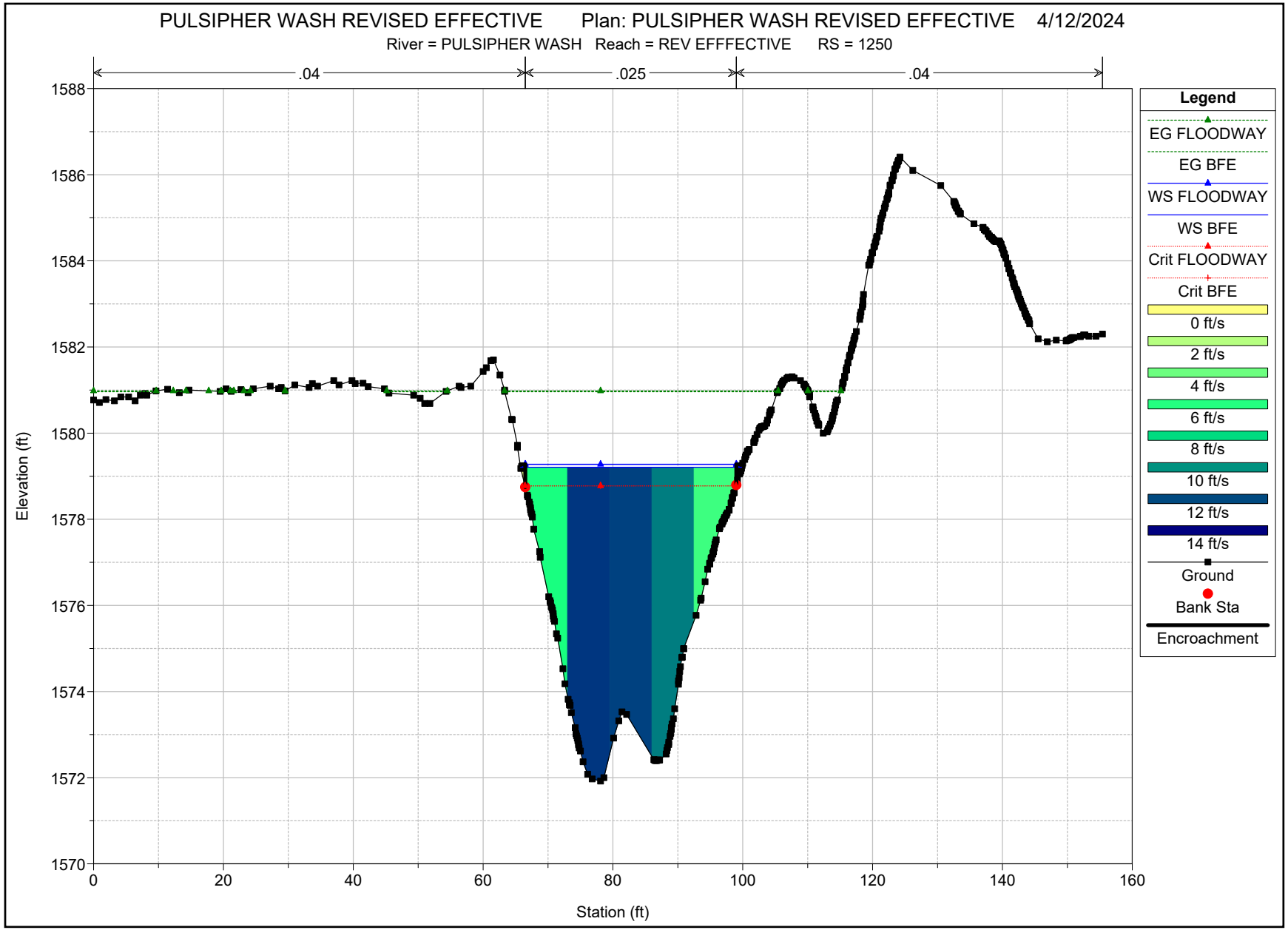

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 1500
.035
.025
.035
Elevation (ft)
Station (ft)
1588
1586
1584
1582
1580
1578
1576
1574
0
20
40
60
80
100
120
140
160
180
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit BFE
Crit FLOODWAY
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Ineff
Bank Sta
Encroachment

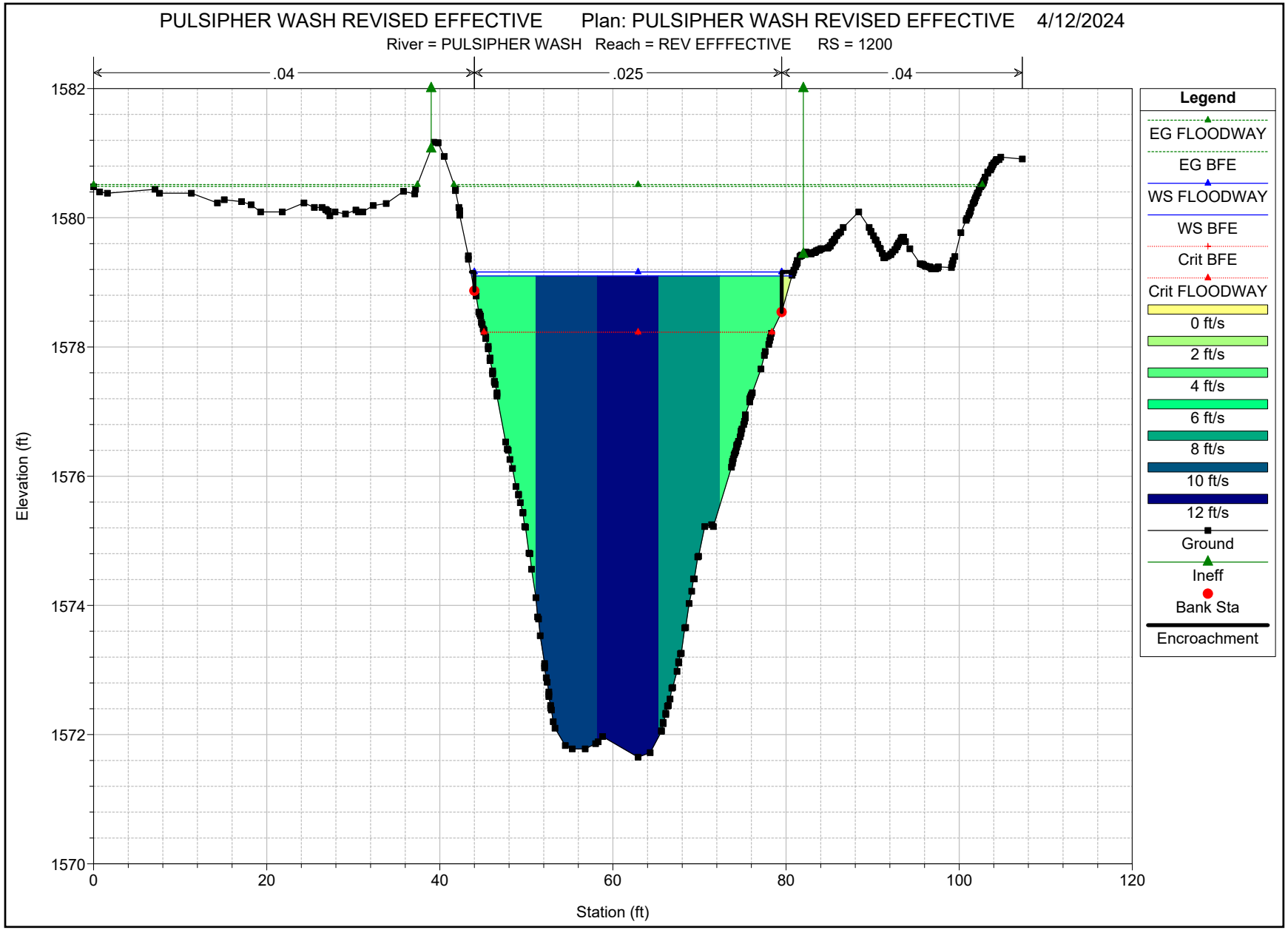

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 1450
.035
.025
.035
Elevation (ft)
Station (ft)
1588
1586
1584
1582
1580
1578
1576
1574
0
20
40
60
80
100
120
140
160
180
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Ineff
Bank Sta
Encroachment

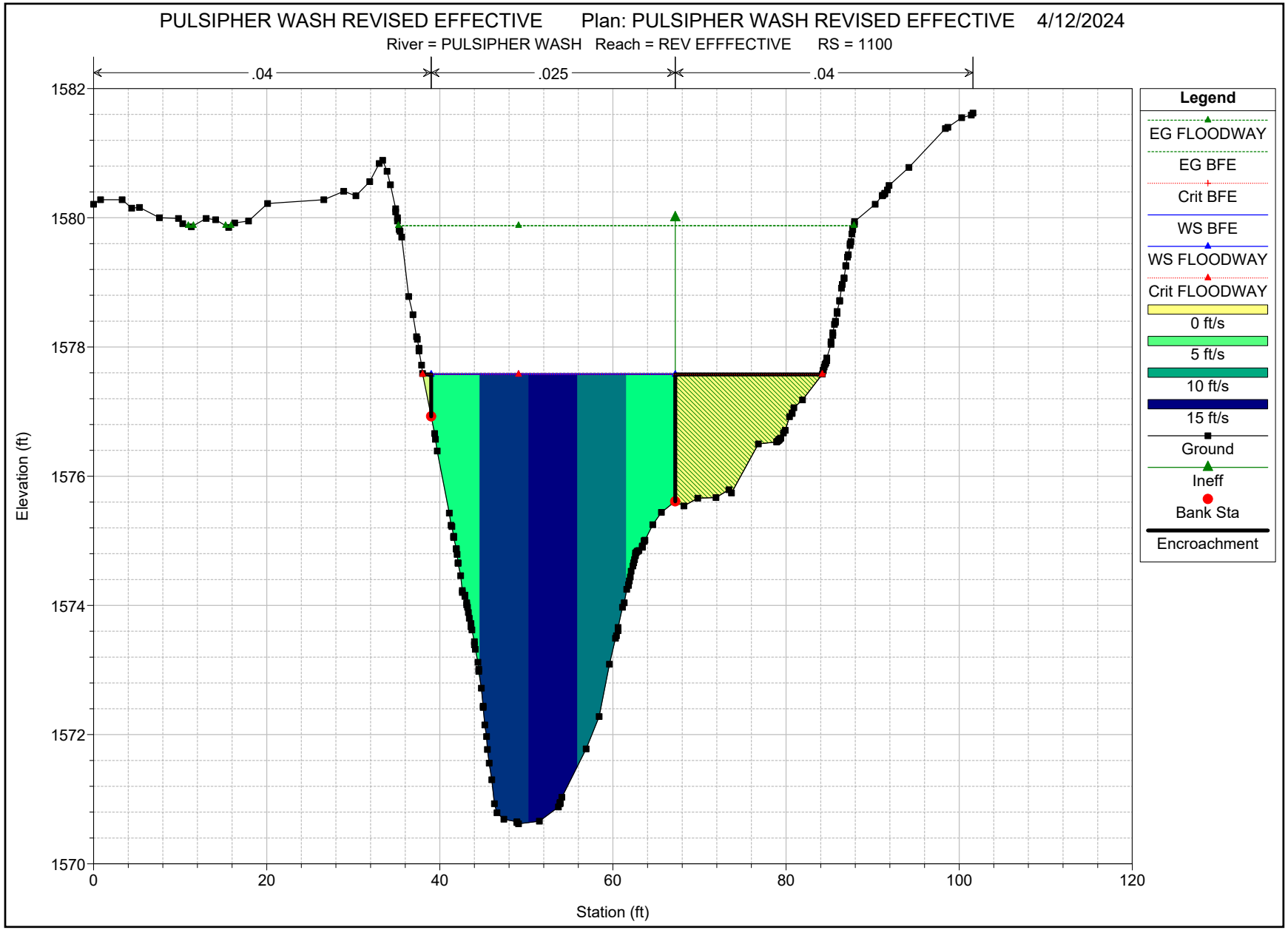

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 1400
.035
.025
.035
Elevation (ft)
Station (ft)
1588
1586
1584
1582
1580
1578
1576
1574
0
20
40
60
80
100
120
140
160
180
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit BFE
Crit FLOODWAY
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Ineff
Bank Sta
Encroachment

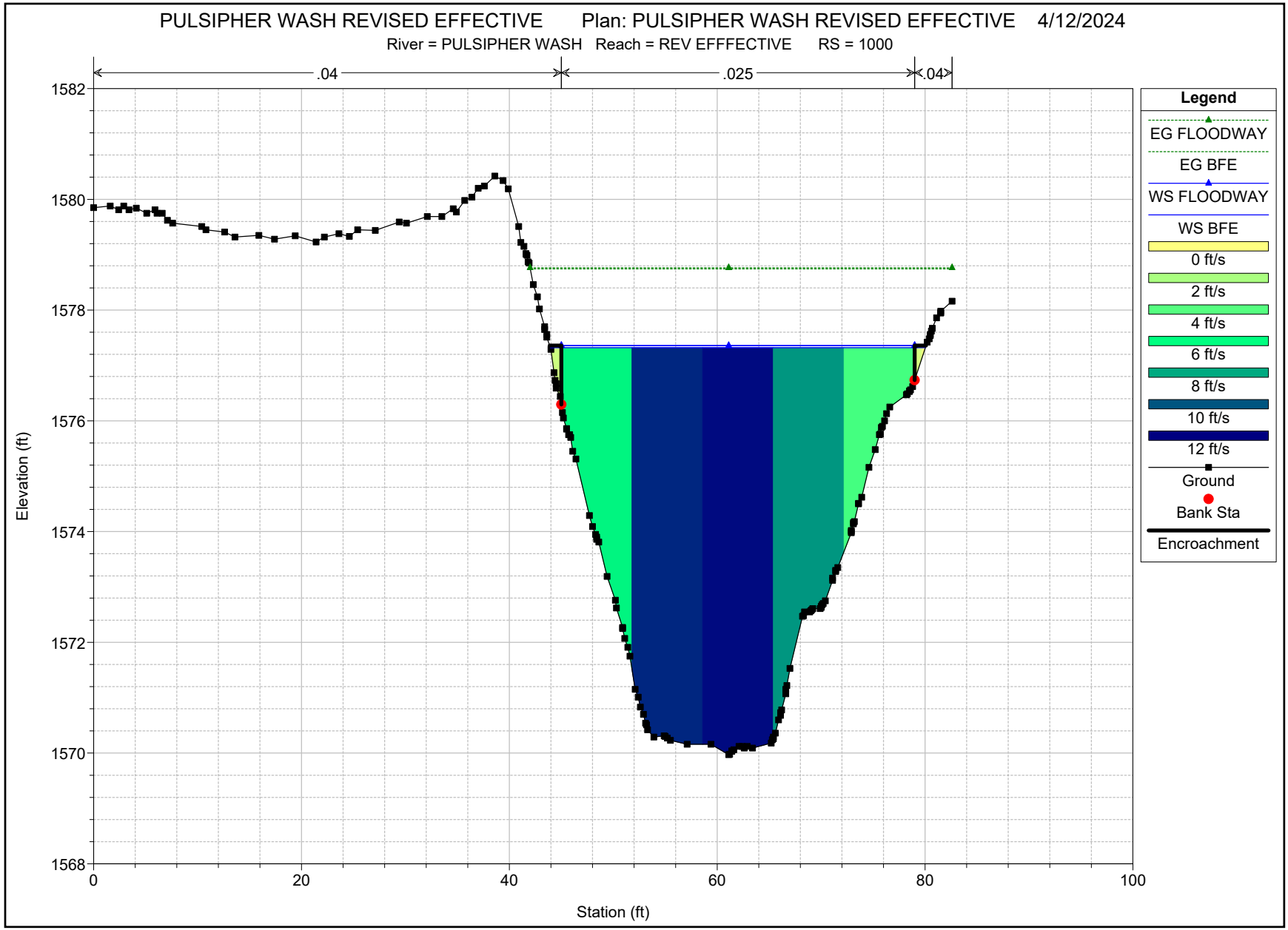

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 1350
.035
.025
.035
Elevation (ft)
Station (ft)
1588
1586
1584
1582
1580
1578
1576
1574
0
20
40
60
80
100
120
140
160
180
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Ineff
Bank Sta
Encroachment

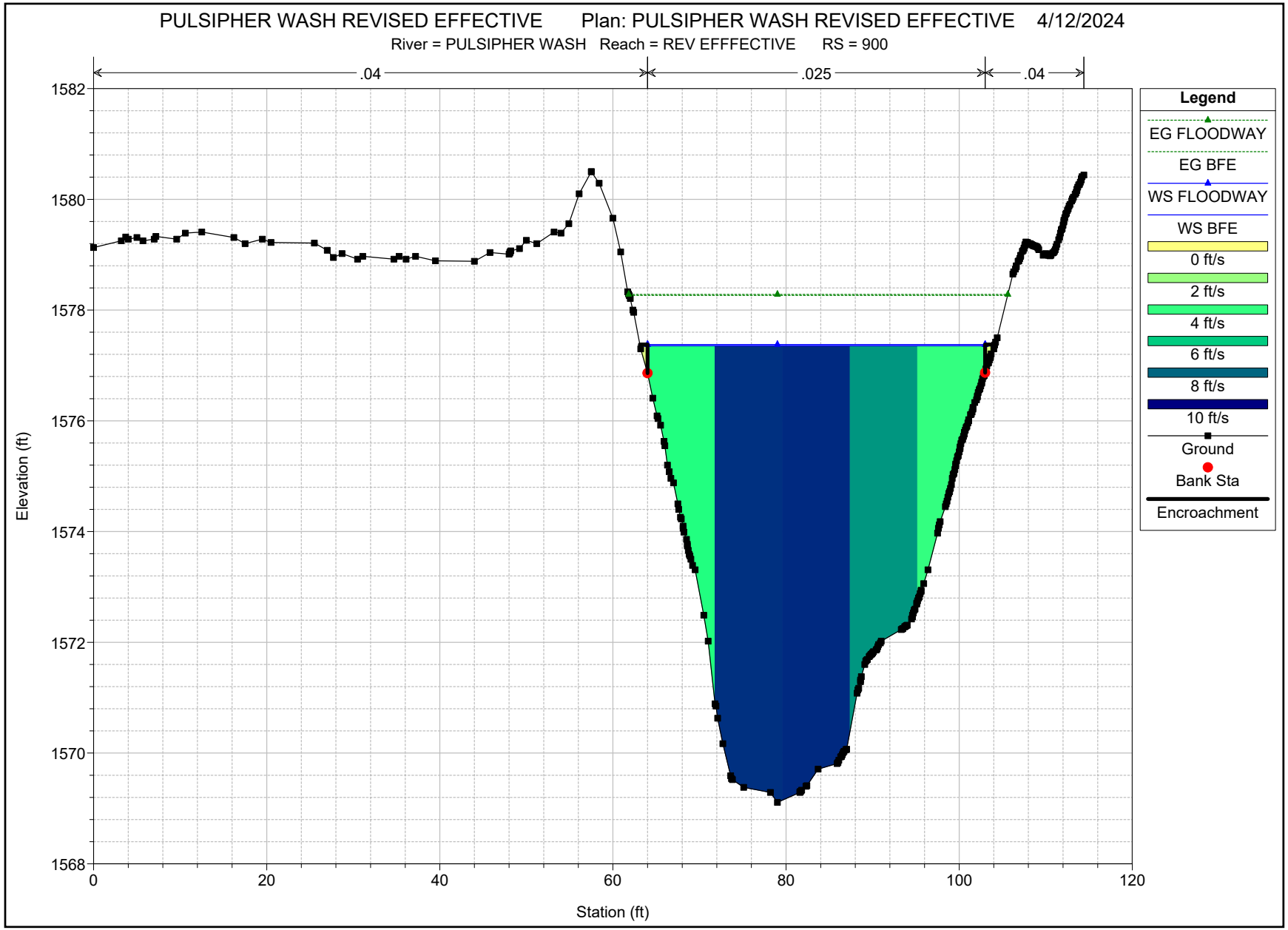

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 1300
.035
.025
.035
Elevation (ft)
Station (ft)
1586
1584
1582
1580
1578
1576
1574
0
20
40
60
80
100
120
140
160
180
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
Ground
Ineff
Bank Sta
Encroachment

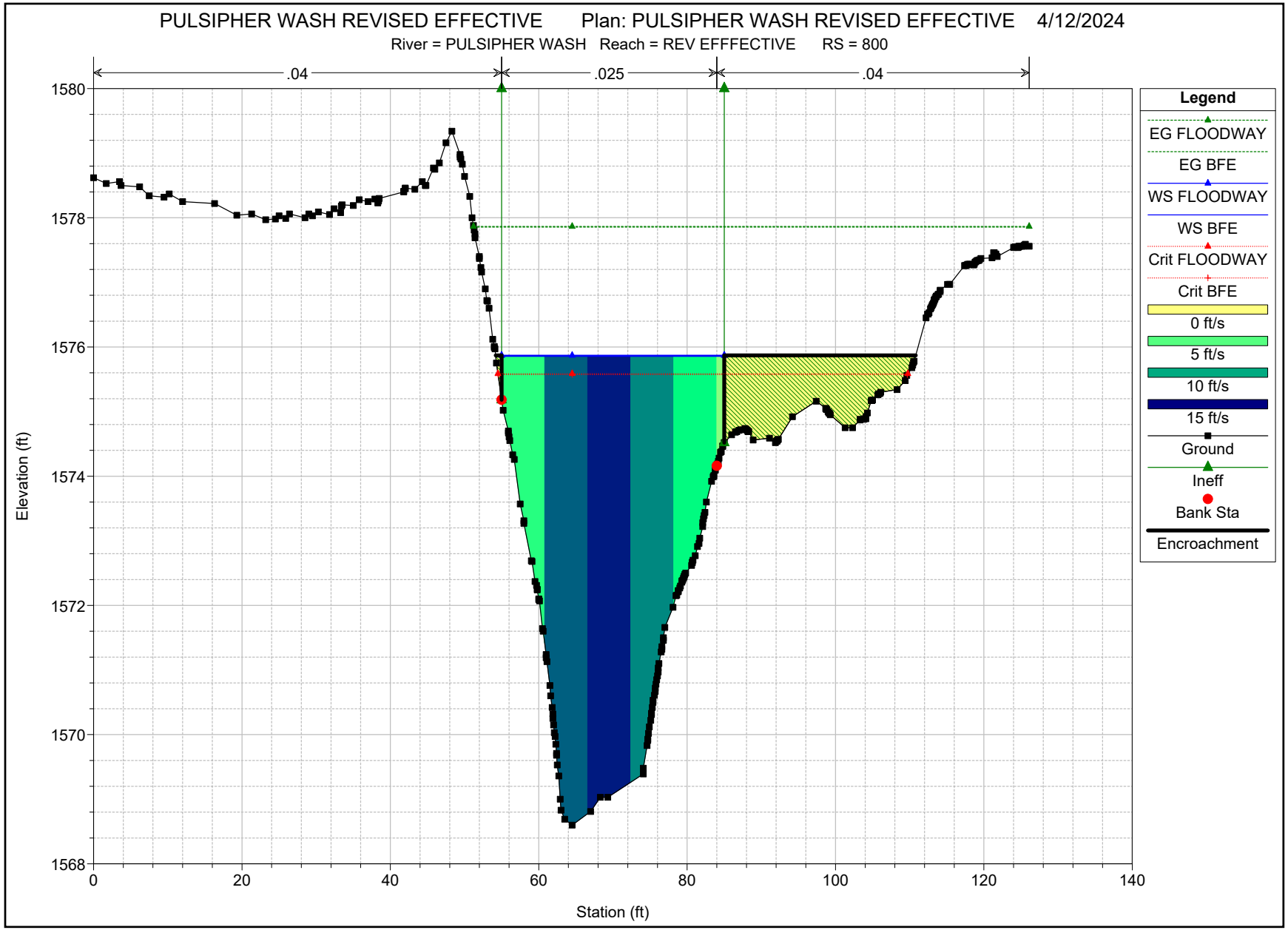

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 1250
.04
.025
.04
Elevation (ft)
Station (ft)
1588
1586
1584
1582
1580
1578
1576
1574
1572
1570
0
20
40
60
80
100
120
140
160
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
14 ft/s
Ground
Bank Sta
Encroachment

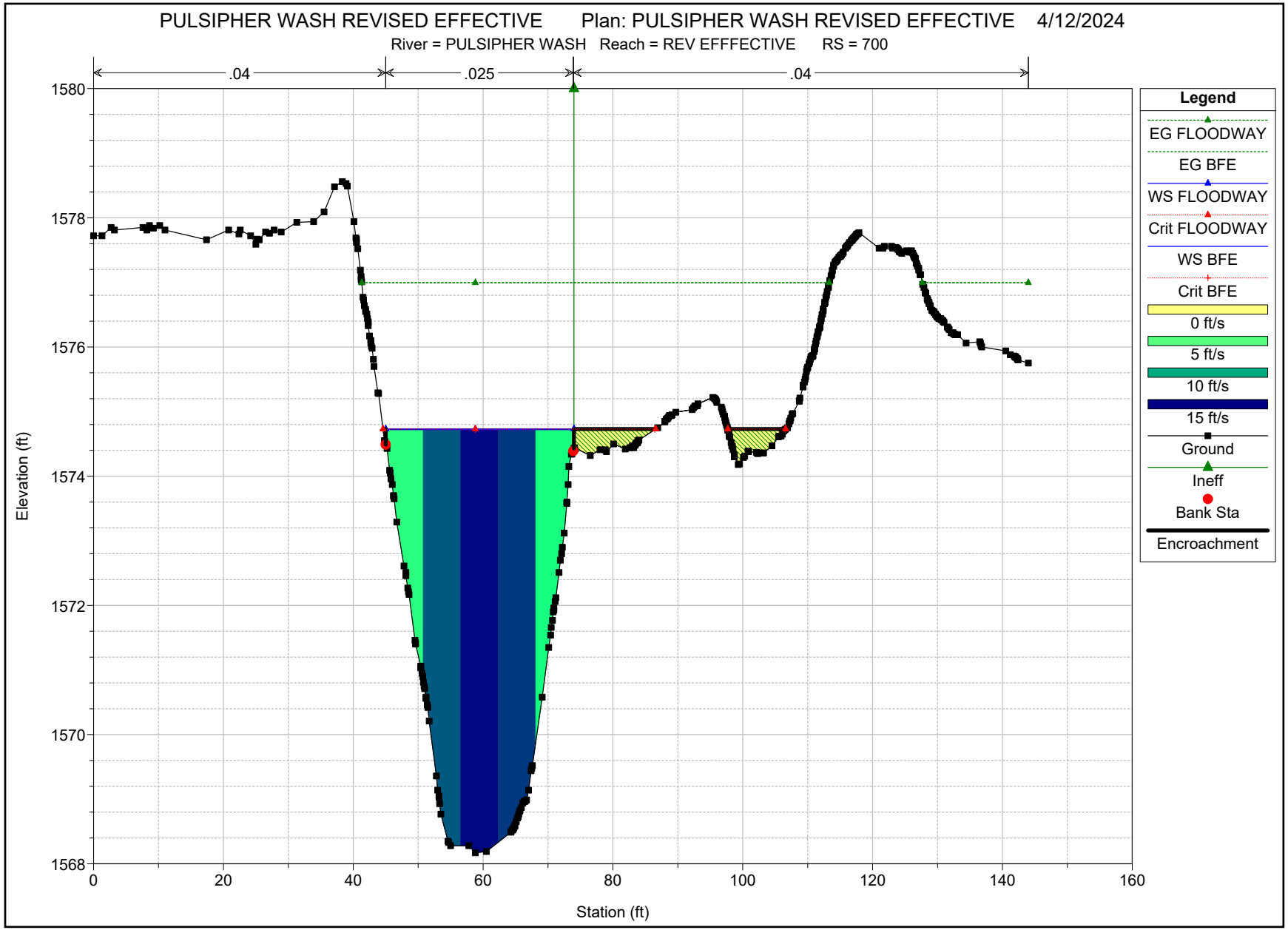

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 1200
.04
.025
.04
1582
1580
1578
1576
1574
1572
1570
Elevation (ft)
0
20
40
60
80
100
120
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit BFE
Crit FLOODWAY
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Ineff
Bank Sta
Encroachment

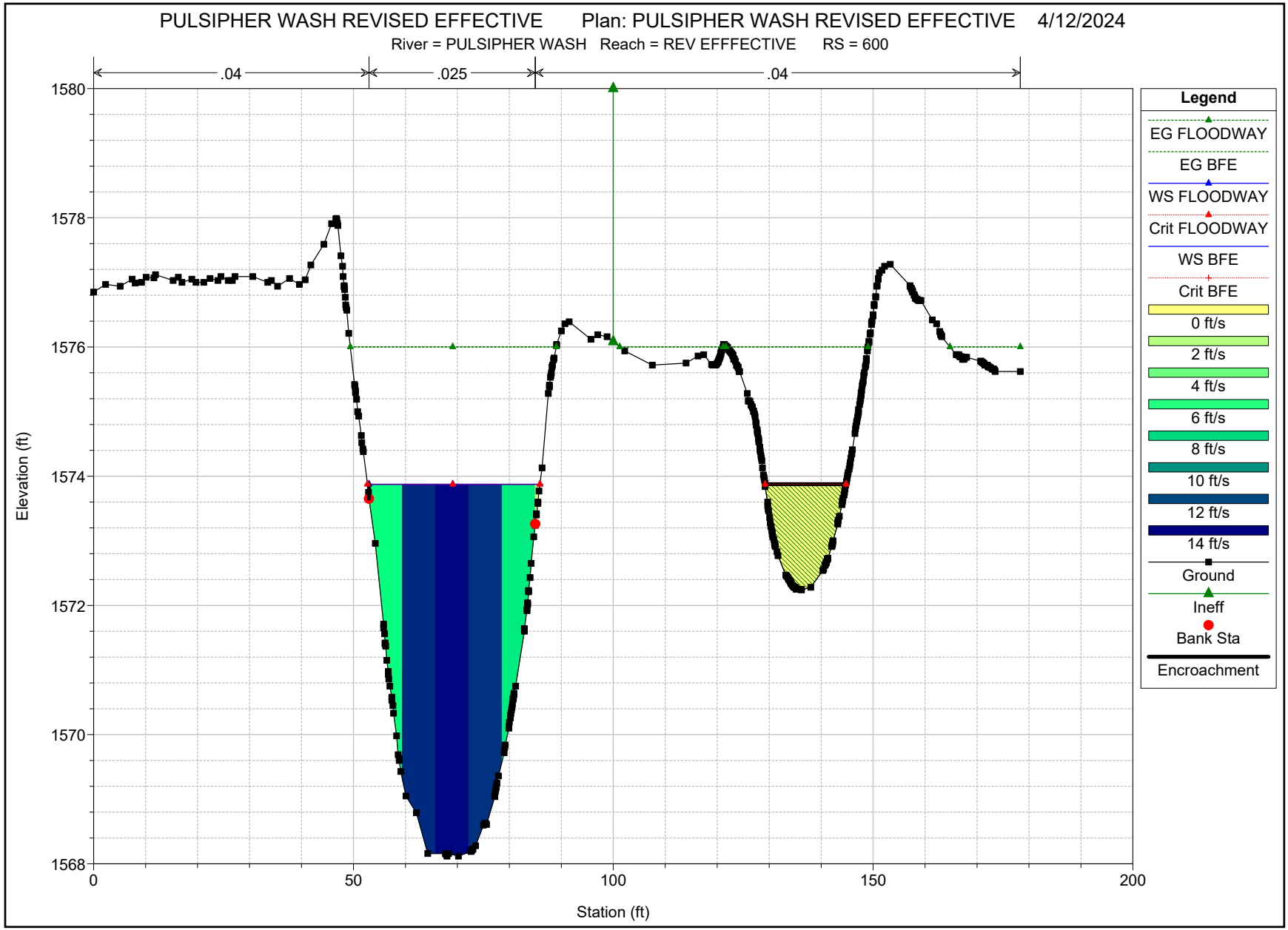

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 1100
.04
.025
.04
Elevation (ft)
1582
1580
1578
1576
1574
1572
1570
0
20
40
60
80
100
120
Station (ft)
Legend
EG FLOODWAY
EG BFE
Crit BFE
WS BFE
WS FLOODWAY
Crit FLOODWAY
0 ft/s
5 ft/s
10 ft/s
15 ft/s
Ground
Ineff
Bank Sta
Encroachment

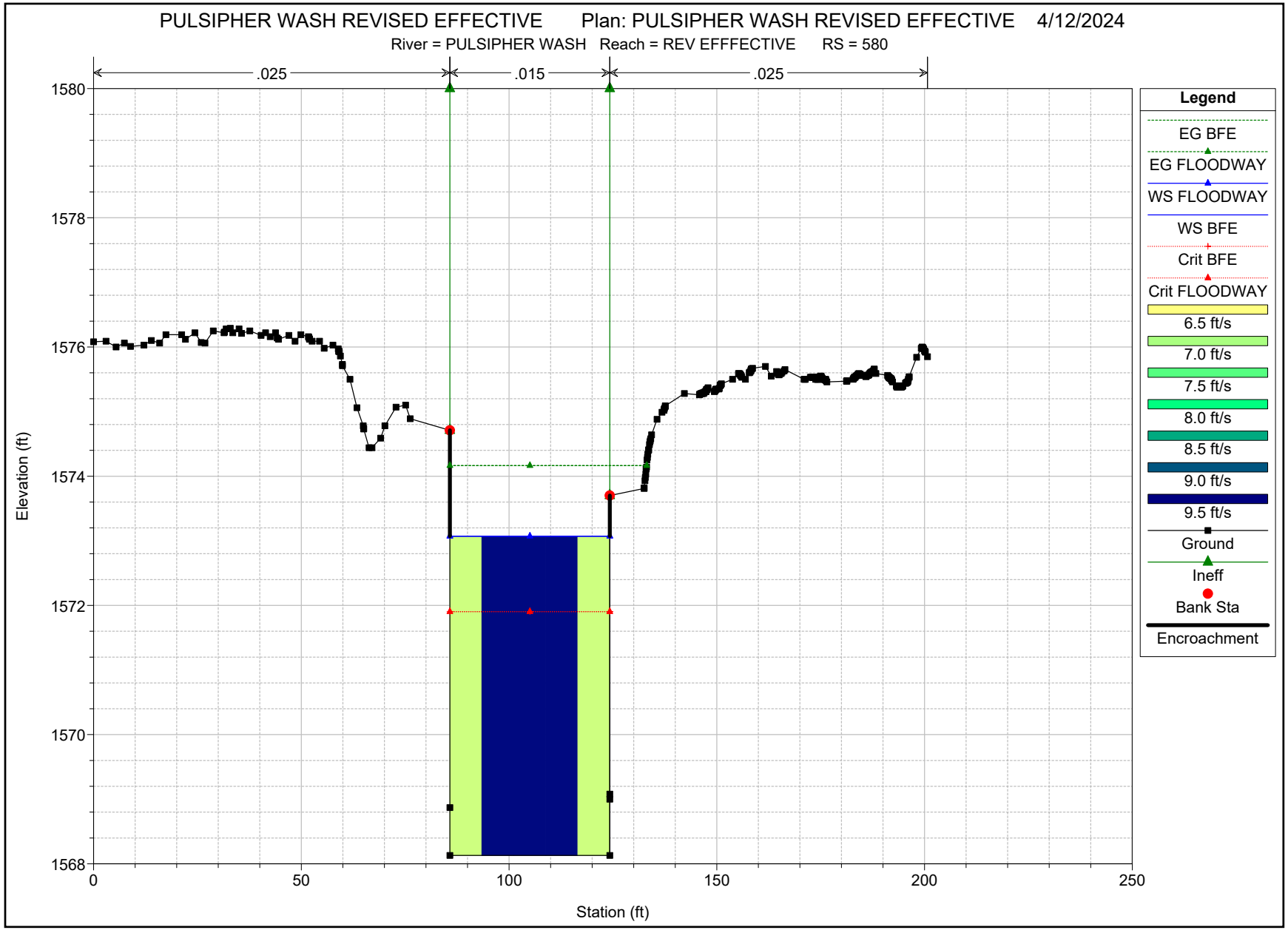

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 1000
.04
.025
.04
1582
1580
1578
1576
1574
1572
1570
1568
Elevation (ft)
0
20
40
60
80
100
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
Ground
Bank Sta
Encroachment

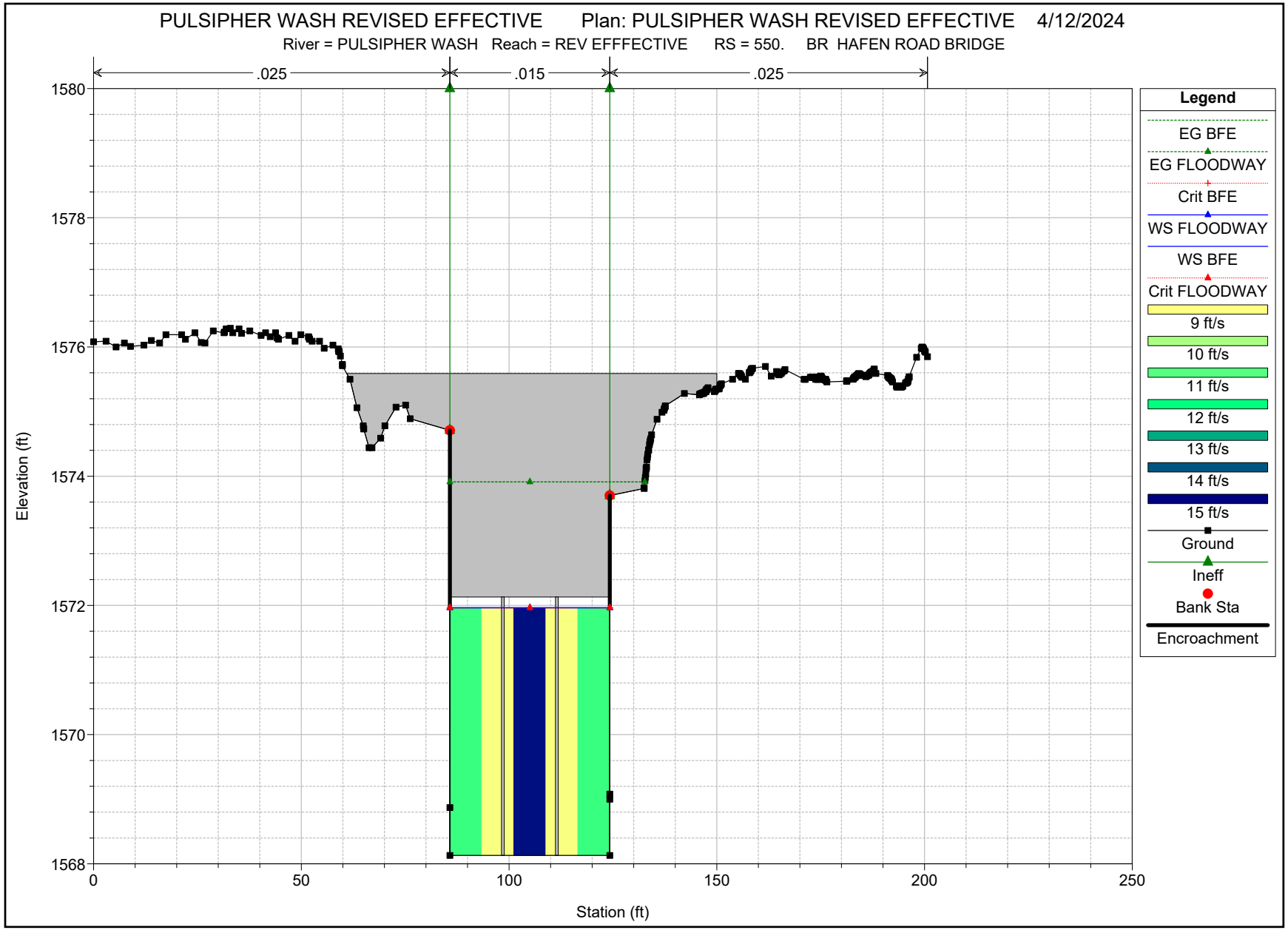

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 900
.04
.025
.04
Elevation (ft)
1582
1580
1578
1576
1574
1572
1570
1568
0
20
40
60
80
100
120
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
Ground
Bank Sta
Encroachment

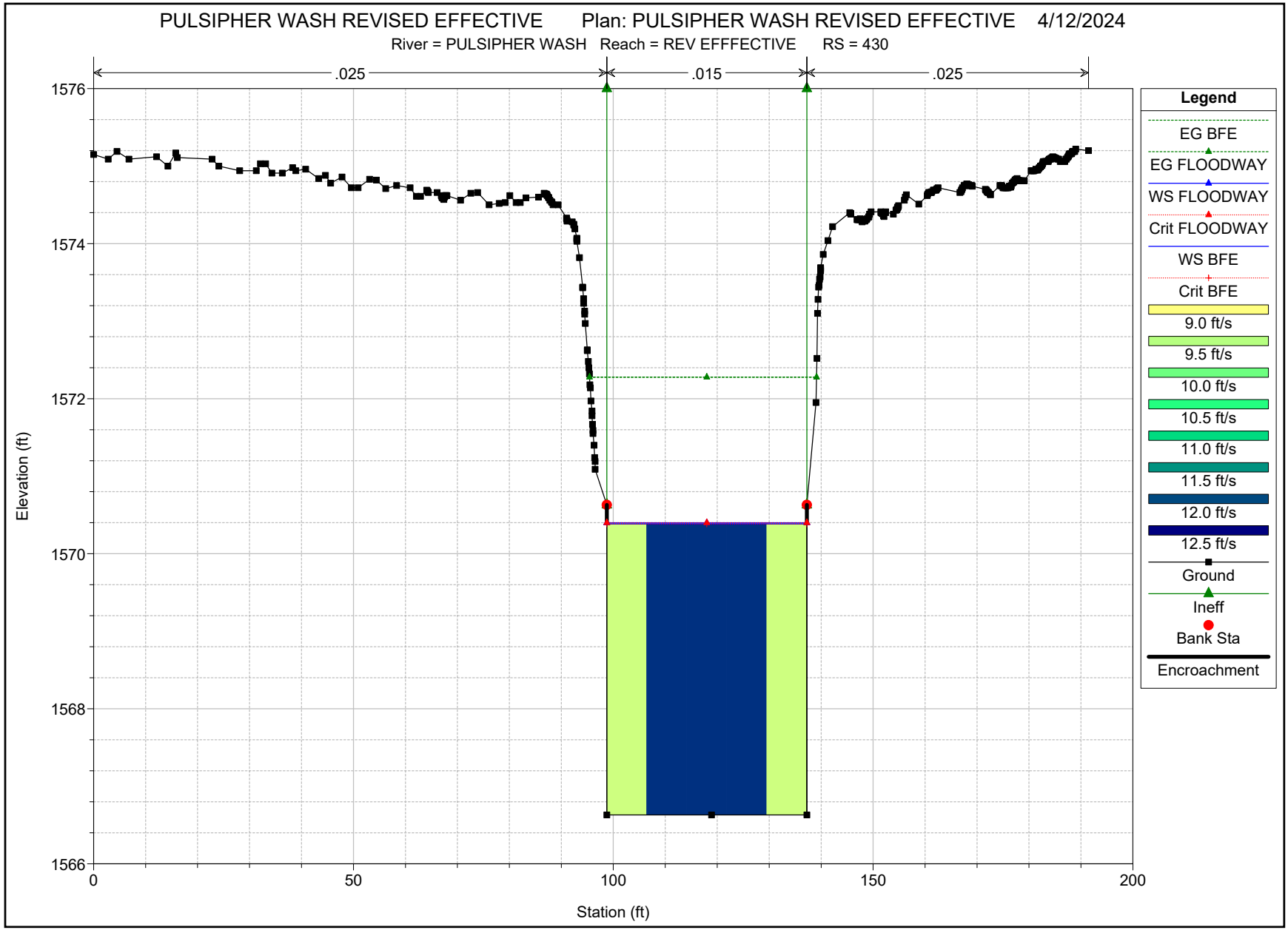

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 800
.04
.025
.04
1580
1578
1576
1574
1572
1570
1568
Elevation (ft)
0
20
40
60
80
100
120
140
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
Crit BFE
0 ft/s
5 ft/s
10 ft/s
15 ft/s
Ground
Ineff
Bank Sta
Encroachment

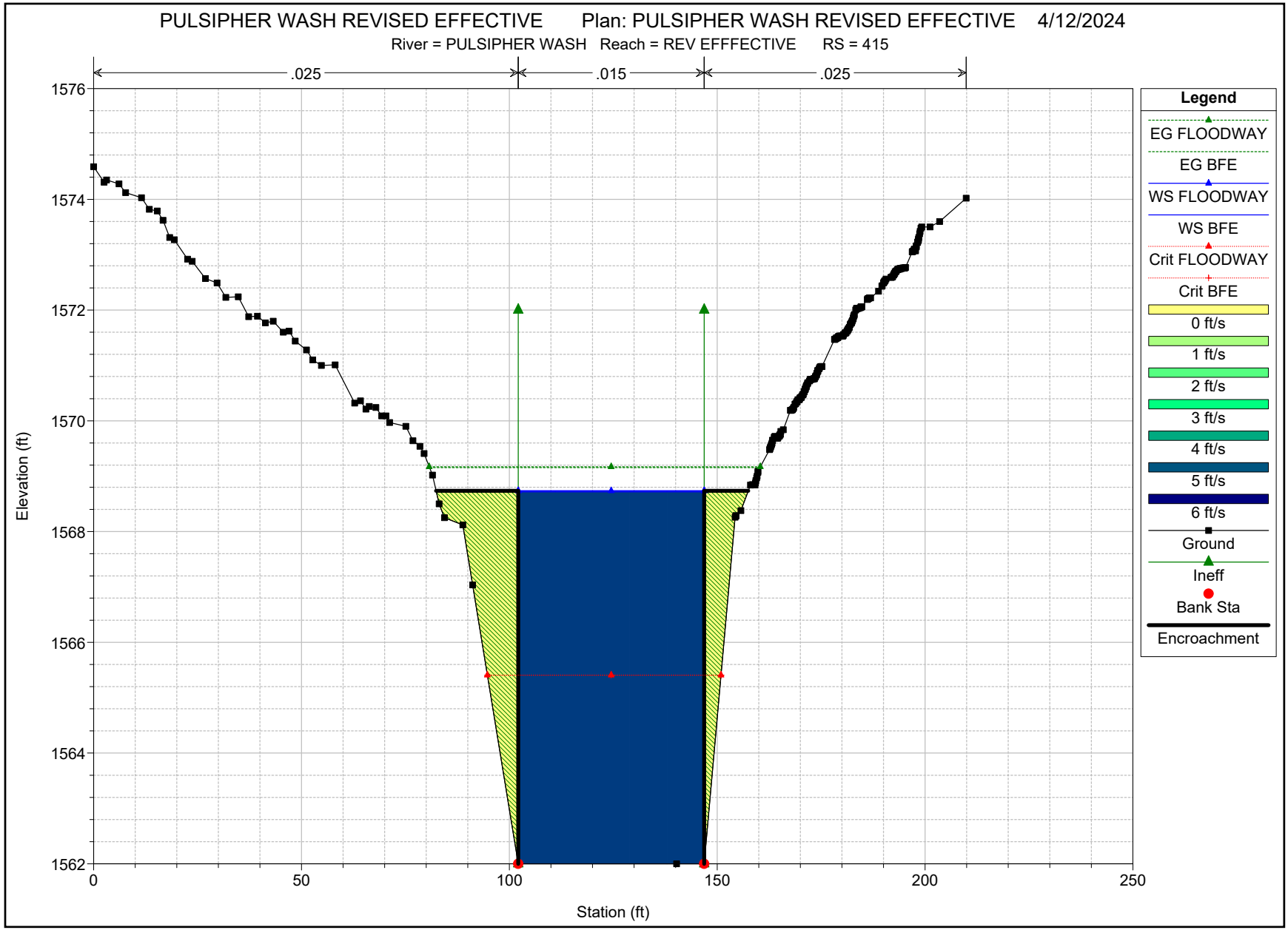

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 700
.04
.025
.04
Elevation (ft)
1580
1578
1576
1574
1572
1570
1568
0
20
40
60
80
100
120
140
160
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
Crit FLOODWAY
WS BFE
Crit BFE
0 ft/s
5 ft/s
10 ft/s
15 ft/s
Ground
Ineff
Bank Sta
Encroachment

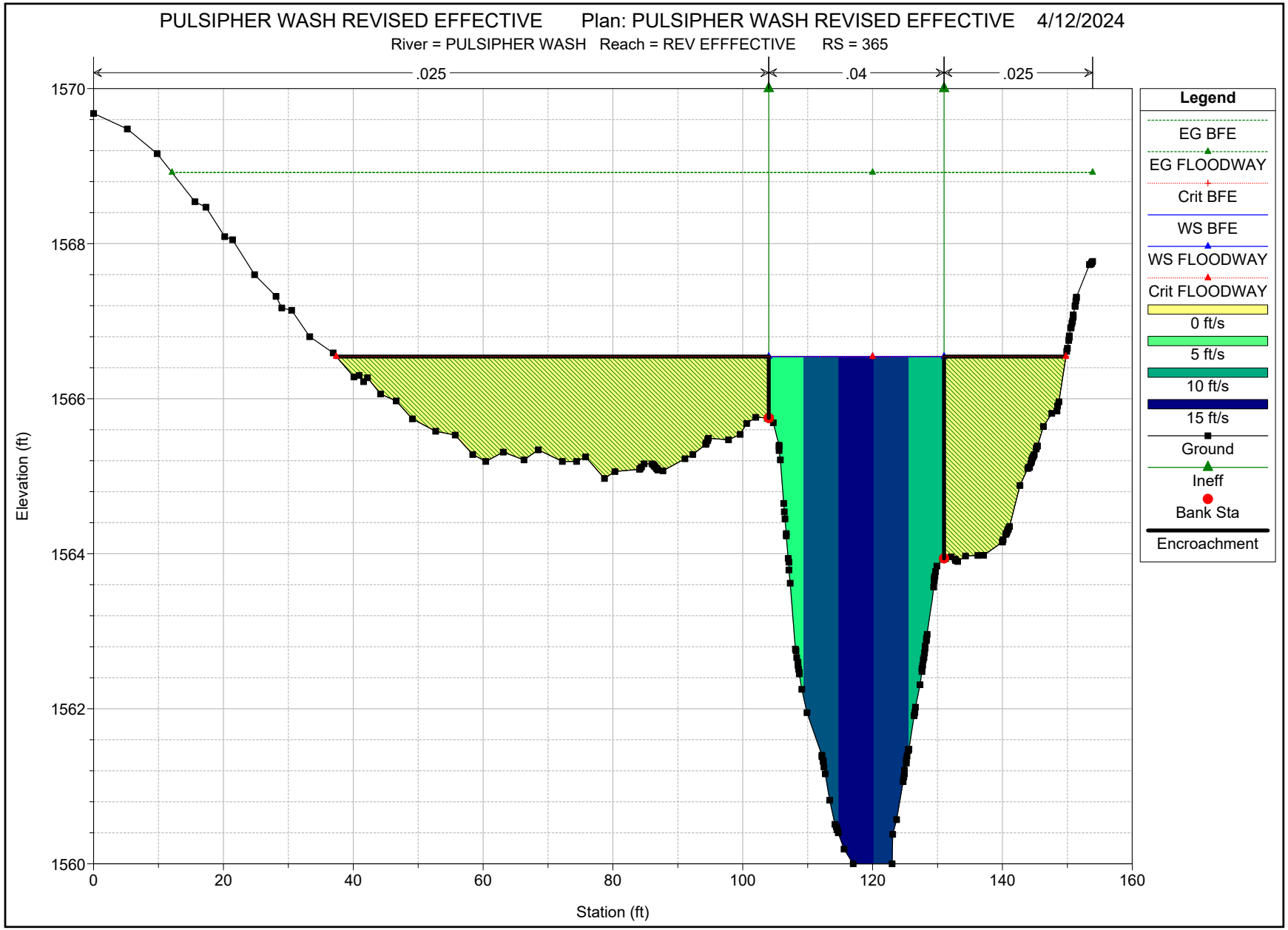

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 600
.04
.025
.04
1580
1578
1576
1574
1572
1570
1568
Elevation (ft)
0
50
100
150
200
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
Crit FLOODWAY
WS BFE
Crit BFE
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
12 ft/s
14 ft/s
Ground
Ineff
Bank Sta
Encroachment

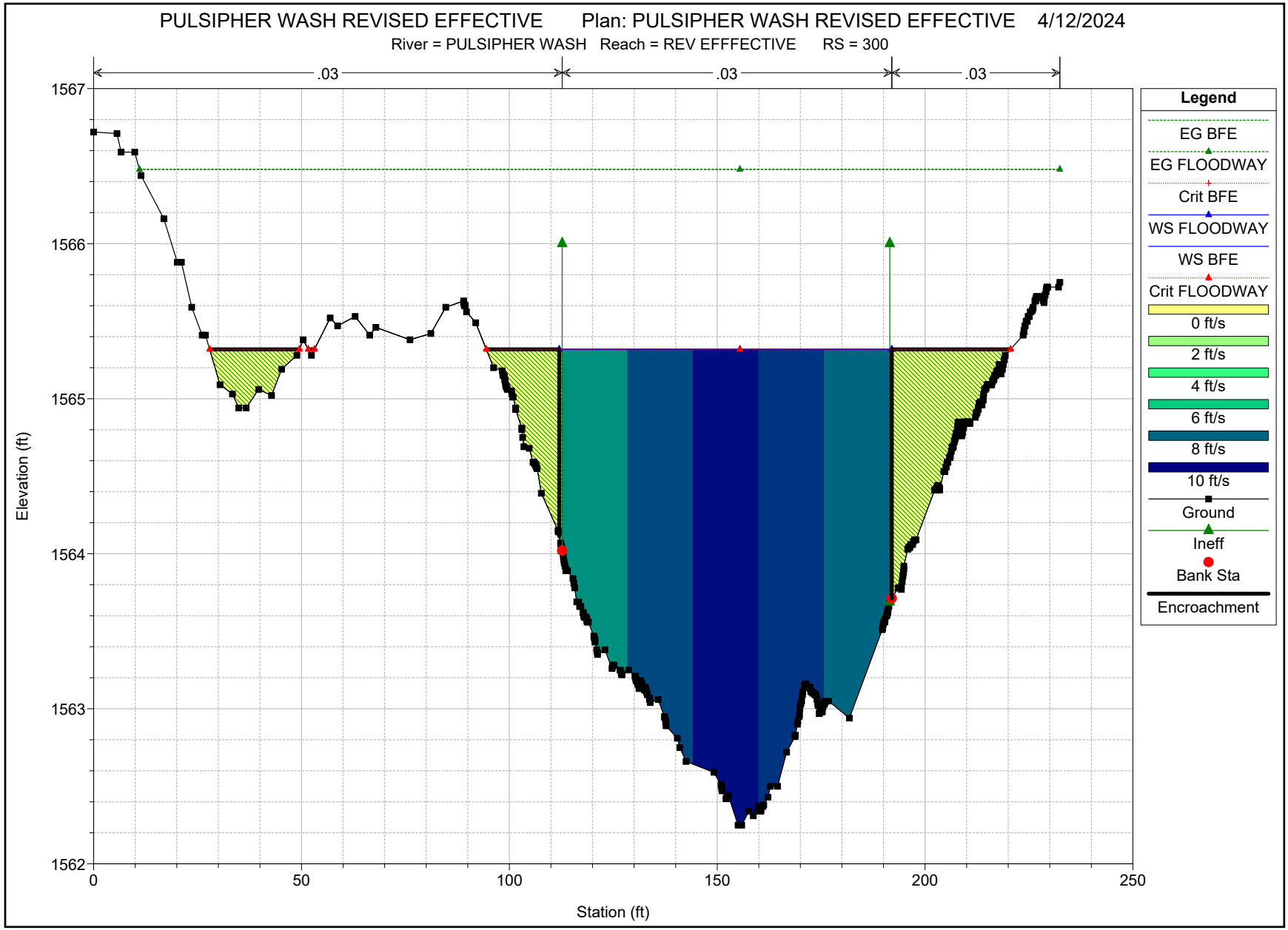

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 580
.025
.015
.025
1580
1578
1576
1574
1572
1570
1568
Elevation (ft)
0
50
100
150
200
250
Station (ft)
Legend
EG BFE
EG FLOODWAY
WS FLOODWAY
WS BFE
Crit BFE
Crit FLOODWAY
6.5 ft/s
7.0 ft/s
7.5 ft/s
8.0 ft/s
8.5 ft/s
9.0 ft/s
9.5 ft/s
Ground
Ineff
Bank Sta
Encroachment

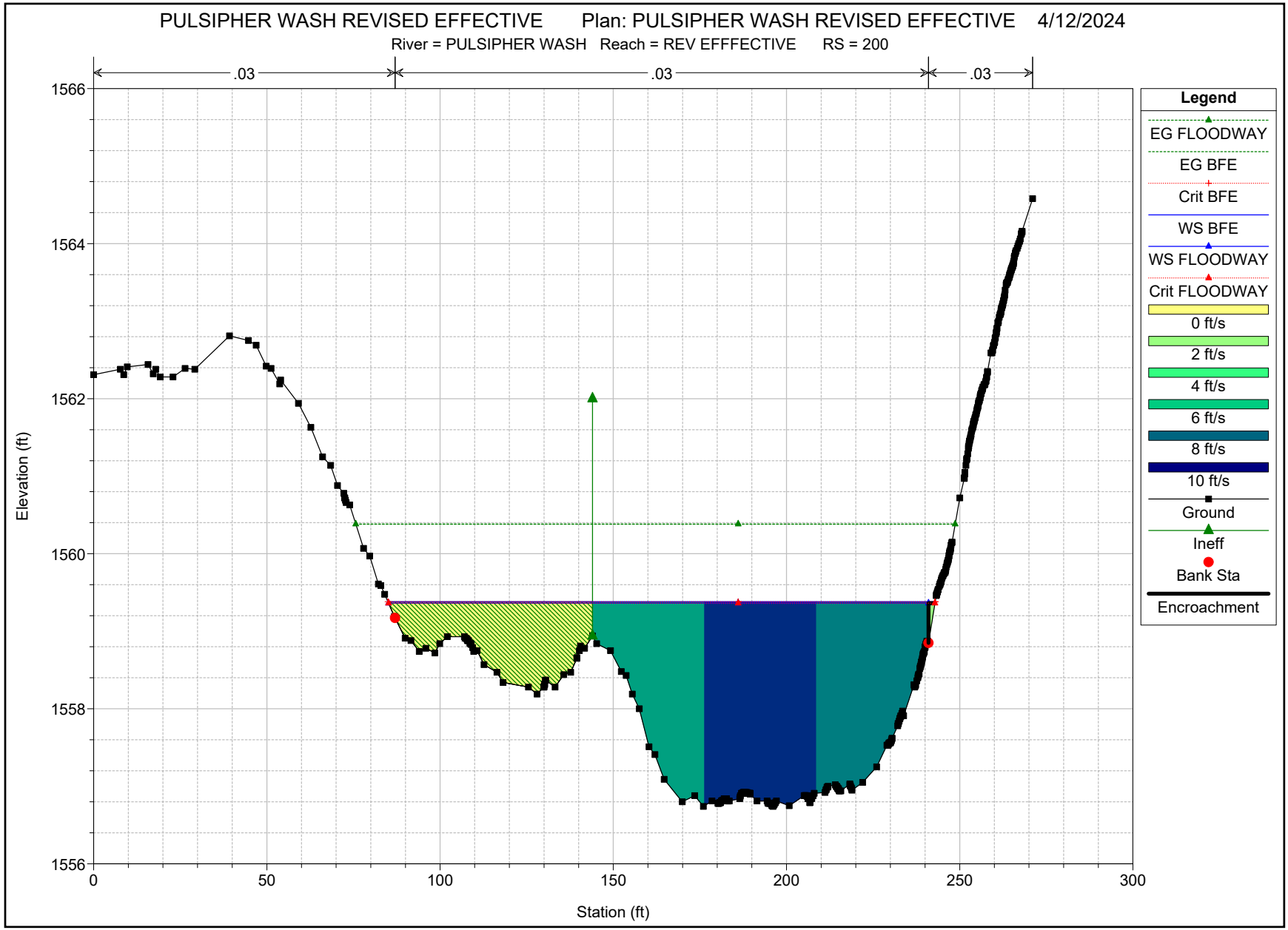

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 550. BR HAFEN ROAD BRIDGE
.025
.015
.025
1580
1578
1576
1574
1572
1570
1568
Elevation (ft)
0
50
100
150
200
250
Station (ft)
Legend
EG BFE
EG FLOODWAY
Crit BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
9 ft/s
10 ft/s
11 ft/s
12 ft/s
13 ft/s
14 ft/s
15 ft/s
Ground
Ineff
Bank Sta
Encroachment

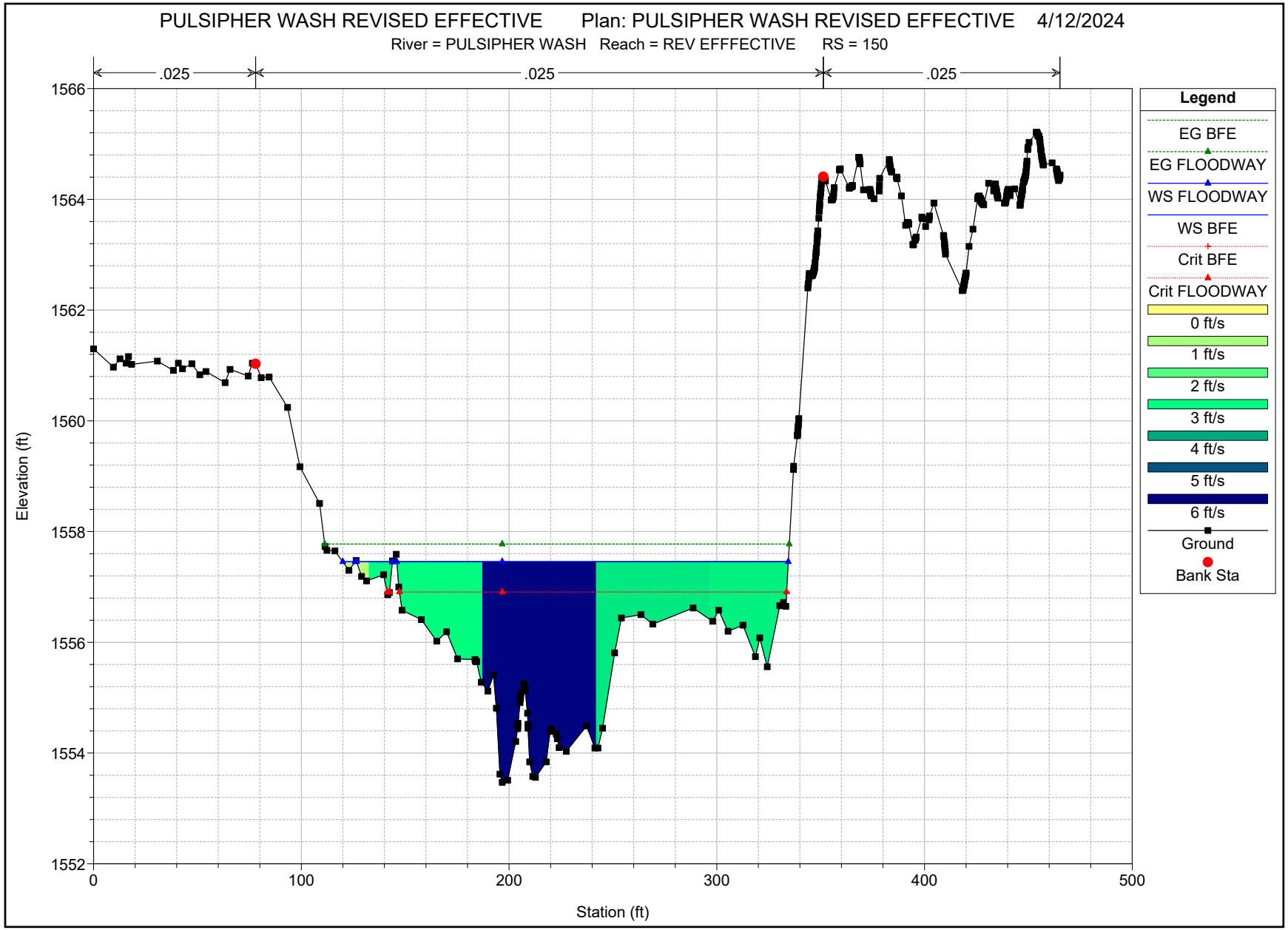

PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 430
.025
.015
.025
1576
1574
1572
1570
1568
1566
Elevation (ft)
0
50
100
150
200
Station (ft)
Legend
EG BFE
EG FLOODWAY
WS FLOODWAY
Crit FLOODWAY
WS BFE
Crit BFE
9.0 ft/s
9.5 ft/s
10.0 ft/s
10.5 ft/s
11.0 ft/s
11.5 ft/s
12.0 ft/s
12.5 ft/s
Ground
Ineff
Bank Sta
Encroachment


PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 415
.025
.015
.025
1576
1574
1572
1570
1568
1566
1564
1562
Elevation (ft)
0
50
100
150
200
250
Station (ft)
Legend
EG FLOODWAY
EG BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
Crit BFE
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Ineff
Bank Sta
Encroachment


PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 365
.025
.04
.025
Elevation (ft)
1570
1568
1566
1564
1562
1560
0
20
40
60
80
100
120
140
160
Station (ft)
Legend
EG BFE
EG FLOODWAY
Crit BFE
WS BFE
WS FLOODWAY
Crit FLOODWAY
0 ft/s
5 ft/s
10 ft/s
15 ft/s
Ground
Ineff
Bank Sta
Encroachment


PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 300
.03
.03
.03
1567
1566
1565
1564
1563
1562
Elevation (ft)
0
50
100
150
200
250
Station (ft)
Legend
EG BFE
EG FLOODWAY
Crit BFE
WS FLOODWAY
WS BFE
Crit FLOODWAY
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
Ground
Ineff
Bank Sta
Encroachment


PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 200
.03
.03
.03
1566
1564
1562
1560
1558
1556
Elevation (ft)
0
50
100
150
200
250
300
Station (ft)
Legend
EG FLOODWAY
EG BFE
Crit BFE
WS BFE
WS FLOODWAY
Crit FLOODWAY
0 ft/s
2 ft/s
4 ft/s
6 ft/s
8 ft/s
10 ft/s
Ground
Ineff
Bank Sta
Encroachment


PULSIPHER WASH REVISED EFFECTIVE Plan: PULSIPHER WASH REVISED EFFECTIVE 4/12/2024
River = PULSIPHER WASH Reach = REV EFFFECTIVE RS = 150
.025
.025
.025
Elevation (ft)
1566
1564
1562
1560
1558
1556
1554
1552
0
100
200
300
400
500
Station (ft)
Legend
EG BFE
EG FLOODWAY
WS FLOODWAY
WS BFE
Crit BFE
Crit FLOODWAY
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta

HEC-RAS HEC-RAS 6.1.0 September 2021
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
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X           X  X     X    X        X
X     X  X        X    X      X   X    X    X        X
X     X  XXXXXX    XXXX       X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: PULSIPHER WASH REVISED EFFECTIVE
Project File : PULSIPHER_WASH_REVISED_EFFECTIVE.prj
Run Date and Time: 4/12/2024 7:19:30 AM

Project in English units

PLAN DATA

Plan Title: PULSIPHER WASH REVISED EFFECTIVE
Plan File : g:\2023\2023_09_PULSIPHER_WASH\FEMA SUBMITTAL - 3APRIL24\3REVISED EFFECTIVE\PULSIPHER_WASH_REVISED_EFFECTIVE.p02

Geometry Title: PULSIPHER WASH REVISED EFFECTIVE
Geometry File : g:\2023\2023_09_PULSIPHER_WASH\FEMA SUBMITTAL - 3APRIL24\3REVISED EFFECTIVE\PULSIPHER_WASH_REVISED_EFFECTIVE.g03

Flow Title : PULSIPHER WASH REVISED EFFECTIVE
Flow File : g:\2023\2023_09_PULSIPHER_WASH\FEMA SUBMITTAL - 3APRIL24\3REVISED EFFECTIVE\PULSIPHER_WASH_REVISED_EFFECTIVE.f04

Plan Summary Information:
Number of: Cross Sections = 39 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 3 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

Encroachment Data
   Equal Conveyance = True
   Left Offset      =        0
   Right Offset     =        0

River = PULSIPHER WASH   Reach = REV EFFFECTIVE
RS      Profile           Method  Value1  Value2
2590    FLOODWAY               1    23.5   118.8
2500    FLOODWAY               1    33.3      98
2400    FLOODWAY               1    12.2    66.8
2350    FLOODWAY               1   121.5     174
2330    FLOODWAY               1  236.87  286.79
2300    FLOODWAY               1   281.1   349.7
2200    FLOODWAY               1   511.9   585.3
2100    FLOODWAY               1   124.3   225.7
2000.1  FLOODWAY               1    39.7    57.2
2000    FLOODWAY               1    43.5    55.5
1900    FLOODWAY               1      57      69
1800    FLOODWAY               1    84.5     130
1750    FLOODWAY               1    46.8      89
1700    FLOODWAY               1      32      84
1650    FLOODWAY               1      30      79
1600    FLOODWAY               1      40     100
1550    FLOODWAY               1      41      76
1540    FLOODWAY               1      52      80
1510    FLOODWAY               1    76.6   104.6
1500    FLOODWAY               1      73     108
1450    FLOODWAY               1    76.6   104.6
1400    FLOODWAY               1    76.6   104.6
1350    FLOODWAY               1    76.6   104.6
1300    FLOODWAY               1    66.6   104.6
1250    FLOODWAY               1    66.5      99
1200    FLOODWAY               1      44    79.5
1100    FLOODWAY               1      39    67.2
1000    FLOODWAY               1      45      79
900     FLOODWAY               1      64     103
800     FLOODWAY               1      55      85
700     FLOODWAY               1      45      74
600     FLOODWAY               1      53      90
580     FLOODWAY               1   85.75  124.25
430     FLOODWAY               1   98.75  137.25
```

415	FLOODWAY	1	102.13	146.87
365	FLOODWAY	1	104	131
300	FLOODWAY	1	112	192
200	FLOODWAY	1	82	241

FLOW DATA

Flow Title: PULSIPHER WASH REVISED EFFECTIVE
Flow File : g:\2023\2023_09_PULSIPHER_WASH\FEMA SUBMITTAL - 3APRIL24\3REVISED EFFECTIVE\PULSIPHER_WASH_REVISED_EFFECTIVE.f04

Flow Data (cfs)

River	Reach	RS	BFE	FLOODWAY
PULSIPHER WASH	REV EFFFECTIVE	2590	1723	1723
PULSIPHER WASH	REV EFFFECTIVE	2500	1972	1972
PULSIPHER WASH	REV EFFFECTIVE	2000.1	1972	1972
PULSIPHER WASH	REV EFFFECTIVE	2000	1498	1498
PULSIPHER WASH	REV EFFFECTIVE	1900	1595	1595
PULSIPHER WASH	REV EFFFECTIVE	580	1595	1595
PULSIPHER WASH	REV EFFFECTIVE	150	1595	1595

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
PULSIPHER WASH	REV EFFFECTIVE	BFE	Normal S = 0.005	Normal S = 0.003
PULSIPHER WASH	REV EFFFECTIVE	FLOODWAY	Normal S = 0.005	Normal S = 0.003

GEOMETRY DATA

Geometry Title: PULSIPHER WASH REVISED EFFECTIVE
Geometry File : g:\2023\2023_09_PULSIPHER_WASH\FEMA SUBMITTAL - 3APRIL24\3REVISED EFFECTIVE\PULSIPHER_WASH_REVISED_EFFECTIVE.g03

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 2590

INPUT
Description:
Station Elevation Data num= 450

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

0	1617.34	1.2	1616.3	2.3	1615.79	3.1	1615.5	3.4	1615.44
4.9	1614.87	5.5	1614.73	6.8	1614.56	7.8	1614.26	8.9	1614.07
9.2	1614.07	10	1613.83	10.2	1613.72	11	1613.68	12	1613.72
12.6	1613.86	14.5	1614.01	16.5	1613.94	17.6	1614.13	19	1614.23
20.6	1614.21	21.6	1614.25	23.5	1614.13	25.7	1613.74	26.1	1613.63
26.6	1613.43	27.7	1613.14	29.6	1612.36	29.8	1612.24	29.9	1612.18
29.9	1612.13	30.2	1612	30.4	1611.8	30.6	1611.74	31	1611.34
31.1	1611.17	31.5	1610.93	31.9	1610.6	32.7	1610.31	33.8	1610.16
35.2	1609.9	35.4	1609.84	35.8	1609.65	35.9	1609.63	36.7	1609.24
38.7	1608.83	39.7	1608.51	41.3	1607.87	44.4	1607.53	45.4	1607.47
47.4	1607.47	50.5	1607.31	51.5	1607.42	52.1	1607.56	52.2	1607.53
52.3	1607.52	52.4	1607.51	53.1	1607.48	56.3	1607.48	56.5	1607.47
56.6	1607.47	56.9	1607.45	57	1607.45	57.1	1607.45	57.1	1607.44
59	1607.43	62.4	1607.5	63.4	1607.47	64.2	1607.53	64.8	1607.48
66.3	1607.53	66.6	1607.5	66.6	1607.49	66.8	1607.49	67	1607.48
67.1	1607.47	69	1607.49	70.2	1607.44	72.5	1607.41	74.6	1607.45
75.5	1607.41	75.6	1607.41	78.7	1607.62	80.3	1607.62	82.2	1607.45
82.4	1607.44	82.6	1607.43	82.7	1607.43	83.6	1607.45	84.9	1607.4
85.1	1607.35	85.2	1607.34	85.4	1607.31	85.6	1607.29	85.7	1607.28
85.8	1607.28	86	1607.27	86.2	1607.26	86.2	1607.25	87.6	1607.25
87.7	1607.27	87.8	1607.28	87.9	1607.28	88	1607.3	88.2	1607.29
88.3	1607.28	88.4	1607.28	88.6	1607.28	88.9	1607.25	89.1	1607.25
89.2	1607.25	89.3	1607.24	89.4	1607.24	89.5	1607.25	91.3	1607.29
92.6	1607.41	93.3	1607.41	94.7	1607.5	94.8	1607.51	95.2	1607.56
95.2	1607.57	95.3	1607.58	95.5	1607.62	95.6	1607.63	95.7	1607.66
95.8	1607.67	96	1607.72	96.2	1607.74	96.3	1607.75	96.4	1607.78
96.5	1607.81	96.6	1607.82	97	1607.9	97.1	1607.92	97.2	1607.95
97.2	1607.96	97.4	1608.01	97.6	1608.05	97.8	1608.14	97.9	1608.17
98	1608.21	98.2	1608.27	98.3	1608.34	98.8	1608.59	98.8	1608.63
98.9	1608.67	99	1608.7	99.1	1608.76	99.2	1608.82	99.2	1608.85
99.4	1608.9	99.4	1608.95	99.5	1609	99.6	1609.05	99.7	1609.09
99.7	1609.11	99.9	1609.24	100	1609.26	100.1	1609.3	100.1	1609.34
100.2	1609.41	100.5	1609.53	101	1609.85	101.6	1610.15	101.7	1610.24
101.9	1610.36	102.1	1610.46	102.1	1610.47	102.3	1610.58	102.4	1610.61
102.5	1610.7	102.7	1610.84	102.9	1610.96	102.9	1610.97	102.9	1610.98
103.1	1611.13	103.3	1611.29	103.3	1611.31	103.6	1611.59	103.7	1611.62
103.7	1611.63	103.9	1611.76	103.9	1611.82	104.1	1611.91	104.1	1611.94
104.2	1612.02	104.3	1612.05	104.4	1612.14	104.5	1612.18	104.5	1612.19
104.5	1612.22	104.7	1612.31	104.7	1612.37	104.8	1612.44	104.9	1612.5
105	1612.55	105	1612.58	105.2	1612.65	105.2	1612.71	105.3	1612.73
105.3	1612.77	105.4	1612.84	105.5	1612.91	105.6	1612.97	105.7	1613.02
105.8	1613.06	105.8	1613.07	105.9	1613.13	106	1613.2	106.1	1613.23
106.1	1613.28	106.2	1613.33	106.3	1613.39	106.4	1613.44	106.6	1613.53
106.7	1613.61	106.9	1613.73	107	1613.78	107	1613.81	107.1	1613.88
107.2	1613.93	107.4	1614.03	107.4	1614.05	107.7	1614.17	107.8	1614.25
107.8	1614.26	107.9	1614.34	108.2	1614.5	108.2	1614.51	108.4	1614.64
108.4	1614.69	108.6	1614.79	108.7	1614.89	108.8	1614.93	109	1615.05
110	1615.67	110	1615.72	110.1	1615.79	110.3	1615.88	110.3	1615.9
110.5	1616	110.5	1616.05	110.6	1616.06	110.6	1616.09	110.8	1616.22
110.9	1616.29	111.1	1616.43	111.2	1616.5	111.3	1616.57	111.4	1616.59

```
   111.4 1616.63   111.6 1616.75   111.7  1616.8   111.8 1616.88   111.9 1616.91
   112.1 1617.03   112.2 1617.06   112.3 1617.14   112.4  1617.2   112.5 1617.25
   112.6 1617.33   112.9 1617.44   112.9 1617.47   113.1 1617.51   113.1 1617.53
   113.2 1617.57   113.3 1617.61   113.7 1617.78   113.9 1617.87   113.9 1617.88
   114.1 1617.97   114.5 1618.21   114.7 1618.26   114.7 1618.27   115.3 1618.52
   115.3 1618.55   115.4 1618.59   115.5  1618.6   115.6 1618.63   115.9 1618.72
   115.9 1618.73     116 1618.77   116.1  1618.8   116.2 1618.83   116.3 1618.85
   116.4 1618.88   116.4 1618.89   116.5 1618.93   116.6 1618.96   116.7 1618.96
   116.8    1619   117.1  1619.1   117.2 1619.12   117.2 1619.14   117.3 1619.17
   118.5 1619.53   118.7 1619.61   118.8 1619.62     119 1619.71   122.2 1619.99
   122.3 1619.98   122.4 1619.98   122.5 1619.97   122.6 1619.95   122.7 1619.94
   122.7 1619.93   122.8 1619.93   122.9 1619.93     123 1619.92   123.1 1619.91
   123.2 1619.89   123.3 1619.88   124.4 1620.04   127.2 1620.09   127.4 1620.08
   127.5 1620.08   127.6 1620.07   127.7 1620.07   127.8 1620.06   127.9 1620.06
     128 1620.07   128.1 1620.06   128.2 1620.05   128.3 1620.05   128.4 1620.04
   128.6 1620.03   128.6 1620.02   128.7 1620.02   128.8 1620.01   128.9    1620
     129    1620   129.1 1619.98   129.2 1619.98   129.3 1619.97   129.4 1619.96
   129.5 1619.94   129.6 1619.92   129.6 1619.91   129.8  1619.9   129.9 1619.89
     130 1619.88   130.1 1619.85   130.2 1619.84   130.4 1619.82   130.5 1619.81
   130.7  1619.8     131 1619.78   131.2 1619.76   131.5 1619.72   131.5 1619.71
   131.7 1619.69   135.5 1619.66   135.5 1619.67   135.7 1619.68   135.8 1619.68
   135.9 1619.68     136 1619.69   136.1  1619.7   136.3 1619.72   136.3 1619.71
   136.5 1619.68   136.7 1619.66   136.8 1619.64   136.8 1619.63     137 1619.63
     137 1619.62   137.1 1619.62   137.2 1619.62   137.4 1619.62   137.8 1619.62
   137.8 1619.63     138 1619.65   138.1 1619.66   138.2 1619.66   138.4 1619.66
   138.6 1619.68   138.7 1619.69     139  1619.7   139.2 1619.72   139.4 1619.72
   139.5 1619.72   139.6 1619.72   139.7 1619.72   139.8 1619.72   139.9 1619.72
   140.1 1619.72   140.2 1619.72   140.3 1619.72   140.4 1619.72   140.5 1619.72
   140.6 1619.73   140.7 1619.74   140.7 1619.75   141.3 1619.75   142.3 1619.72
   142.4 1619.72   142.7 1619.74   144.3 1619.75   144.5 1619.75   144.7 1619.78
   145.4  1619.8   145.5 1619.81   145.6 1619.81   146.6 1619.81   146.7 1619.82
   146.8 1619.82   146.9 1619.82   147.5 1619.85   147.6 1619.88   147.7 1619.88
   147.8 1619.88   147.9 1619.88     148 1619.88   148.2 1619.88   148.4 1619.88
   148.5 1619.88   148.6  1619.9   148.8 1619.91     149 1619.91   149.4 1619.96
   149.5 1619.96   149.6 1619.96   149.7 1619.97   149.8 1619.97     150 1619.97
   150.3 1619.99   150.4 1619.99   151.3 1620.02   151.3 1620.03   151.4 1620.03
   151.5 1620.03   151.6 1620.03   151.7 1620.03   151.8 1620.03   151.9 1620.02
     152 1620.01   152.1 1620.01   152.2    1620   152.4 1619.96   153.7 1620.09
   153.8 1620.09   153.9 1620.07     154 1620.06   154.1 1620.06   154.2 1620.04
   155.8 1620.12   155.9 1620.13   156.1 1620.15   156.1 1620.16158.6685 1620.23

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04    23.5    .025   118.8     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          23.5   118.8              252     224     208             .1       .3

CROSS SECTION OUTPUT  Profile #BFE
```

E.G. Elev (ft)	1611.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.34	Wt. n-Val.		0.025	
W.S. Elev (ft)	1610.47	Reach Len. (ft)	252.00	224.00	208.00
Crit W.S. (ft)	1610.47	Flow Area (sq ft)		185.29	
E.G. Slope (ft/ft)	0.006841	Area (sq ft)		185.29	
Q Total (cfs)	1723.00	Flow (cfs)		1723.00	
Top Width (ft)	69.85	Top Width (ft)		69.85	
Vel Total (ft/s)	9.30	Avg. Vel. (ft/s)		9.30	
Max Chl Dpth (ft)	3.23	Hydr. Depth (ft)		2.65	
Conv. Total (cfs)	20831.3	Conv. (cfs)		20831.3	
Length Wtd. (ft)	224.00	Wetted Per. (ft)		71.23	
Min Ch El (ft)	1607.24	Shear (lb/sq ft)		1.11	
Alpha	1.00	Stream Power (lb/ft s)		10.33	
Frctn Loss (ft)	1.00	Cum Volume (acre-ft)	27.25	29.32	0.66
C & E Loss (ft)	0.04	Cum SA (acres)	6.35	6.45	0.60

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1611.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.34	Wt. n-Val.		0.025	
W.S. Elev (ft)	1610.47	Reach Len. (ft)	252.00	224.00	208.00
Crit W.S. (ft)	1610.47	Flow Area (sq ft)		185.29	
E.G. Slope (ft/ft)	0.006841	Area (sq ft)		185.29	
Q Total (cfs)	1723.00	Flow (cfs)		1723.00	
Top Width (ft)	69.85	Top Width (ft)		69.85	
Vel Total (ft/s)	9.30	Avg. Vel. (ft/s)		9.30	
Max Chl Dpth (ft)	3.23	Hydr. Depth (ft)		2.65	
Conv. Total (cfs)	20831.3	Conv. (cfs)		20831.3	
Length Wtd. (ft)	224.00	Wetted Per. (ft)		71.23	
Min Ch El (ft)	1607.24	Shear (lb/sq ft)		1.11	
Alpha	1.00	Stream Power (lb/ft s)		10.33	
Frctn Loss (ft)	0.99	Cum Volume (acre-ft)	0.01	29.41	0.00
C & E Loss (ft)	0.04	Cum SA (acres)	0.02	6.46	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	23.50	42.56	78.01	13.93	10.74	4.53	1.35	5.60	0.55	3.10
2	Chan	42.56	61.62	560.10	57.28	19.12	32.51	3.01	9.78	1.28	12.51
3	Chan	61.62	80.68	553.82	56.86	19.09	32.14	2.98	9.74	1.27	12.39
4	Chan	80.68	99.74	525.79	55.62	19.53	30.52	2.92	9.45	1.22	11.50
5	Chan	99.74	118.80	5.27	1.61	2.76	0.31	0.68	3.28	0.25	0.82

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	23.50	42.56	78.01	13.93	10.74	4.53	1.35	5.60	0.55	3.10
2	Chan	42.56	61.62	560.10	57.28	19.12	32.51	3.01	9.78	1.28	12.51
3	Chan	61.62	80.68	553.82	56.86	19.09	32.14	2.98	9.74	1.27	12.39
4	Chan	80.68	99.74	525.79	55.62	19.53	30.52	2.92	9.45	1.22	11.50
5	Chan	99.74	118.80	5.27	1.61	2.76	0.31	0.68	3.28	0.25	0.82

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 2500

INPUT
Description:
Station Elevation Data num= 449

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1616.8	.9	1616.66	2.2	1616.69	3.5	1616.78	5.1	1616.58
6.4	1616.56	9	1617.19	12.3	1617.71	13.2	1617.75	14	1617.47
14.6	1617.18	15.7	1616.45	16.3	1615.98	17.4	1615.44	18.4	1614.82
19.6	1613.83	20.2	1613.49	20.2	1613.46	21.4	1613.01	21.5	1612.92
21.8	1612.82	22.2	1612.61	22.3	1612.53	22.4	1612.53	22.4	1612.5
22.6	1612.44	22.6	1612.42	23	1612.2	23.6	1611.92	24.4	1611.74
25.5	1611.64	26	1611.56	26.7	1611.41	26.8	1611.38	26.8	1611.37
26.8	1611.35	27.5	1611.17	28.2	1611.09	28.3	1611.06	29.9	1611.09
31.7	1611	33.1	1611	33.3	1610.93	33.3	1610.92	33.3	1610.9
34	1610.23	34.3	1610.02	34.3	1609.93	34.4	1609.9	34.4	1609.86
34.5	1609.75	34.7	1609.58	34.9	1609.45	35.1	1609.23	35.2	1609.22
35.2	1609.19	35.3	1609.04	35.4	1608.98	35.5	1608.87	35.7	1608.74
35.7	1608.68	36.7	1607.68	36.8	1607.63	36.9	1607.46	37.1	1607.32
37.1	1607.25	37.3	1607.14	37.3	1607.05	37.5	1606.92	37.5	1606.83
37.9	1606.43	39.3	1605.31	39.7	1604.62	39.9	1604.42	40.1	1604.05
40.5	1603.62	40.5	1603.57	40.7	1603.44	40.9	1603.21	41.2	1603.07
41.3	1603.03	41.3	1603	41.4	1602.94	41.7	1602.88	41.7	1602.86
41.9	1602.82	42.5	1602.6	42.5	1602.58	42.7	1602.52	42.7	1602.5
42.8	1602.5	42.9	1602.41	43	1602.38	43.1	1602.32	43.2	1602.32
43.3	1602.23	43.7	1602.05	43.8	1602.02	43.9	1601.97	43.9	1601.96
44.1	1601.91	44.1	1601.87	44.3	1601.8	44.3	1601.78	44.3	1601.77
44.4	1601.75	44.5	1601.67	44.6	1601.66	44.7	1601.58	44.8	1601.53
46.2	1600.99	47.5	1600.17	47.7	1600.13	47.7	1600.12	48	1600.09
48.1	1600.08	48.2	1600.08	48.3	1600.06	48.5	1600.04	48.5	1600.03
49.6	1600	50.9	1600.03	51.6	1600.09	53.7	1600.12	53.7	1600.13
54.1	1600.17	54.5	1600.19	56.9	1600.12	56.9	1600.13	57.1	1600.16
57.3	1600.16	57.7	1600.16	61.4	1600.38	64	1600.72	64	1600.74
65.8	1601.26	65.9	1601.31	66	1601.36	66.1	1601.39	66.3	1601.46

66.3 1601.47	66.4 1601.48	66.5 1601.53	66.7 1601.58	66.8 1601.65
67.1 1601.79	67.4 1601.89	67.4 1601.92	67.5 1601.97	67.7 1602.06
67.8 1602.09	67.9 1602.12	67.9 1602.13	68 1602.17	68.3 1602.26
68.4 1602.28	68.5 1602.31	68.9 1602.41	70.5 1602.5	72.4 1602.44
74.7 1602.59	74.7 1602.6	74.8 1602.61	74.9 1602.62	75.2 1602.66
75.3 1602.67	75.4 1602.69	75.5 1602.71	75.7 1602.75	75.8 1602.76
75.9 1602.8	76.5 1602.84	77.7 1603.37	79.1 1604.16	79.2 1604.18
79.5 1604.34	79.6 1604.37	79.7 1604.42	79.7 1604.45	79.9 1604.51
79.9 1604.53	79.9 1604.54	81.7 1605.44	81.9 1605.48	83 1605.83
84.1 1606.28	87.5 1606.93	89.3 1607.4	89.4 1607.42	90.1 1607.55
90.1 1607.56	90.2 1607.58	90.3 1607.61	90.4 1607.64	90.5 1607.68
90.6 1607.7	90.6 1607.73	90.7 1607.74	90.9 1607.79	90.9 1607.81
90.9 1607.82	92 1608.12	92.1 1608.17	92.1 1608.18	92.2 1608.23
92.5 1608.31	92.5 1608.32	92.7 1608.39	92.7 1608.41	92.8 1608.44
92.9 1608.46	93 1608.5	93.1 1608.53	93.2 1608.57	93.3 1608.59
93.5 1608.68	93.5 1608.69	93.6 1608.7	93.8 1608.75	94 1608.81
94.3 1608.87	94.5 1608.92	96.1 1609.24	96.2 1609.26	96.3 1609.26
96.4 1609.28	96.5 1609.3	96.6 1609.33	96.7 1609.34	96.8 1609.36
96.9 1609.38	97.5 1609.46	97.7 1609.52	97.9 1609.59	98 1609.61
98.1 1609.64	98.1 1609.66	98.2 1609.69	98.3 1609.71	98.5 1609.76
98.5 1609.78	98.8 1609.88	99.1 1609.99	99.3 1610.06	99.3 1610.07
99.5 1610.14	99.5 1610.16	99.7 1610.18	99.9 1610.23	100.1 1610.28
100.1 1610.29	100.1 1610.31	100.3 1610.36	100.4 1610.41	100.5 1610.42
100.6 1610.45	100.7 1610.49	100.8 1610.53	100.9 1610.56	101 1610.58
101.1 1610.6	101.2 1610.61	101.4 1610.66	101.6 1610.72	101.7 1610.73
103.4 1611.3	105 1611.7	105 1611.72	105.1 1611.73	105.3 1611.8
106.4 1612.1	107.2 1612.45	107.3 1612.46	107.4 1612.5	107.5 1612.53
107.6 1612.58	107.7 1612.59	107.7 1612.62	107.9 1612.68	107.9 1612.69
108 1612.71	108.1 1612.73	108.2 1612.75	108.3 1612.77	108.4 1612.81
108.5 1612.82	108.6 1612.85	108.7 1612.87	108.7 1612.88	108.8 1612.9
108.9 1612.94	109.1 1613	109.1 1613.02	109.2 1613.05	109.3 1613.07
109.5 1613.15	109.5 1613.17	110.1 1613.36	110.3 1613.44	110.5 1613.52
110.5 1613.54	110.7 1613.59	110.7 1613.6	110.8 1613.64	110.9 1613.67
111 1613.74	111.1 1613.75	111.1 1613.77	111.3 1613.85	111.4 1613.89
111.5 1613.91	111.6 1613.95	111.8 1614.06	111.9 1614.07	112 1614.11
112.1 1614.14	115.2 1615.45	115.2 1615.47	115.8 1615.77	115.9 1615.8
116 1615.84	116 1615.87	116.1 1615.88	116.3 1615.96	116.3 1615.99
116.5 1616.04	116.6 1616.08	116.7 1616.12	116.7 1616.14	116.9 1616.2
117 1616.26	117.1 1616.28	117.1 1616.29	117.3 1616.38	117.3 1616.41
117.9 1616.56	117.9 1616.57	118.1 1616.61	118.1 1616.63	118.2 1616.67
118.5 1616.74	118.6 1616.8	118.7 1616.81	118.7 1616.83	118.9 1616.87
118.9 1616.88	119 1616.92	119.1 1616.94	119.2 1616.99	119.3 1617.01
119.4 1617.04	119.4 1617.06	119.5 1617.07	119.7 1617.15	119.7 1617.16
119.8 1617.18	119.9 1617.22	120 1617.25	123.5 1618.66	124.9 1619
125.1 1619.03	125.2 1619.06	125.3 1619.07	125.4 1619.06	125.5 1619.06
125.5 1619.07	125.7 1619.08	125.9 1619.09	126 1619.09	126.1 1619.1
126.2 1619.1	126.3 1619.1	126.5 1619.12	126.6 1619.12	126.7 1619.12
126.8 1619.12	127 1619.15	127.1 1619.16	127.2 1619.16	127.3 1619.17
127.5 1619.18	127.5 1619.19	127.7 1619.21	127.8 1619.25	127.9 1619.26
128 1619.27	128.1 1619.28	128.3 1619.34	128.5 1619.38	128.6 1619.41

128.7	1619.43	128.9	1619.5	129.1	1619.58	129.1	1619.59
129.2	1619.62	129.4	1619.66	129.5	1619.67	129.6	1619.71
129.7	1619.72	129.7	1619.73	129.9	1619.78	129.9	1619.8
130	1619.81	130.1	1619.82	130.3	1619.84	130.4	1619.84
130.5	1619.85	130.5	1619.86	130.7	1619.88	130.8	1619.89
130.9	1619.91	131	1619.92	131.1	1619.93	131.2	1619.94
131.3	1619.94	131.4	1619.96	131.5	1619.97	131.7	1619.97
131.9	1619.97	132.1	1619.97	132.5	1619.96	133.4	1619.97
133.5	1619.96	133.6	1619.97	133.7	1619.97	133.8	1619.97
133.9	1619.96	134.1	1619.94	134.3	1619.94	136.1	1619.91
138.3	1619.75	138.3	1619.74	138.4	1619.73	138.5	1619.72
138.6	1619.71	140.1	1619.68	140.4	1619.63	141.2	1619.56
141.4	1619.56	141.5	1619.56	141.7	1619.56	141.8	1619.56
141.8	1619.55	141.9	1619.55	142.1	1619.54	142.2	1619.53
142.4	1619.51	142.4	1619.5	145.1	847	1619.5	

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	33.3	.025	98	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
33.3	98	180	183	184	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1608.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.21	Wt. n-Val.		0.025	
W.S. Elev (ft)	1606.82	Reach Len. (ft)	180.00	183.00	184.00
Crit W.S. (ft)		Flow Area (sq ft)		223.16	
E.G. Slope (ft/ft)	0.003269	Area (sq ft)		223.16	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	49.39	Top Width (ft)		49.39	
Vel Total (ft/s)	8.84	Avg. Vel. (ft/s)		8.84	
Max Chl Dpth (ft)	6.82	Hydr. Depth (ft)		4.52	
Conv. Total (cfs)	34492.7	Conv. (cfs)		34492.7	
Length Wtd. (ft)	183.00	Wetted Per. (ft)		53.21	
Min Ch El (ft)	1600.00	Shear (lb/sq ft)		0.86	
Alpha	1.00	Stream Power (lb/ft s)		7.56	
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	27.25	28.27	0.66
C & E Loss (ft)	0.04	Cum SA (acres)	6.35	6.15	0.60

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1608.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.20	Wt. n-Val.		0.025	
W.S. Elev (ft)	1606.85	Reach Len. (ft)	180.00	183.00	184.00
Crit W.S. (ft)		Flow Area (sq ft)		224.59	
E.G. Slope (ft/ft)	0.003215	Area (sq ft)		224.59	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	49.55	Top Width (ft)		49.55	
Vel Total (ft/s)	8.78	Avg. Vel. (ft/s)		8.78	
Max Chl Dpth (ft)	6.84	Hydr. Depth (ft)		4.53	

Conv. Total (cfs)	34780.0	Conv. (cfs)		34780.0		
Length Wtd. (ft)	183.00	Wetted Per. (ft)		53.40		
Min Ch El (ft)	1600.00	Shear (lb/sq ft)		0.84		
Alpha	1.00	Stream Power (lb/ft s)		7.41		
Frctn Loss (ft)	0.53	Cum Volume (acre-ft)	0.01	28.36	0.00	
C & E Loss (ft)	0.04	Cum SA (acres)	0.02	6.15	0.00	

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	33.30	46.24	188.74	30.87	10.99	9.57	3.54	6.11	0.57	3.51
2	Chan	46.24	59.18	922.62	86.16	13.23	46.79	6.66	10.71	1.33	14.23
3	Chan	59.18	72.12	657.73	70.52	13.32	33.35	5.45	9.33	1.08	10.08
4	Chan	72.12	85.06	202.61	35.29	13.80	10.27	2.73	5.74	0.52	3.00
5	Chan	85.06	98.00	0.31	0.32	1.88	0.02	0.18	0.95	0.04	0.03

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	33.30	46.24	189.16	31.12	11.02	9.59	3.56	6.08	0.57	3.45
2	Chan	46.24	59.18	920.73	86.53	13.23	46.69	6.69	10.64	1.31	13.97
3	Chan	59.18	72.12	657.43	70.89	13.32	33.34	5.48	9.27	1.07	9.91
4	Chan	72.12	85.06	204.30	35.66	13.80	10.36	2.76	5.73	0.52	2.97
5	Chan	85.06	98.00	0.38	0.38	2.03	0.02	0.19	1.00	0.04	0.04

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 2400

INPUT
Description:
Station Elevation Data num= 449

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1605.63	.8	1605.72	2.1	1606	2.3	1606.09	3.9	1606.19
6.2	1606.25	6.9	1606.38	9	1606.56	10.7	1606.76	12.2	1606.81
14.3	1606.78	17.4	1606.5	19.9	1606.07	20.9	1605.79	21.8	1605.47
21.9	1605.41	22	1605.35	23.1	1604.47	24.2	1603.22	25.5	1601.84
25.7	1601.75	25.8	1601.7	25.8	1601.66	26.5	1601.36	26.5	1601.33
28.2	1600.97	29.9	1600.4	30.3	1600.23	30.3	1600.21	30.7	1600.06
30.9	1600.01	31.4	1599.76	31.4	1599.75	31.4	1599.71	31.6	1599.58
31.6	1599.56	32.1	1599.26	33.4	1599.09	34.1	1599.09	35.4	1599.16
37.5	1599.16	38.6	1599.23	39.3	1599.19	40.8	1599.22	41	1599.25
43.3	1599.25	44.8	1599.34	45.9	1599.31	47	1599.35	49.7	1599.71
49.7	1599.72	50.2	1599.83	50.2	1599.85	50.4	1599.93	50.6	1600.01
50.6	1600.02	50.7	1600.06	50.9	1600.14	51.5	1600.34	51.6	1600.37
51.9	1600.45	52.5	1600.69	53.8	1600.87	53.8	1600.88	53.8	1600.89
54	1600.94	54.1	1600.95	54.2	1600.98	54.3	1601	54.4	1601.01
54.4	1601.02	55.3	1601.15	56.1	1601.34	56.1	1601.37	56.3	1601.42
56.3	1601.44	56.3	1601.45	56.5	1601.49	56.6	1601.52	56.6	1601.53
56.8	1601.6	56.8	1601.62	56.9	1601.66	57	1601.68	57.1	1601.72
57.2	1601.78	57.6	1602.02	57.6	1602.04	57.8	1602.17	57.8	1602.21
57.8	1602.22	57.9	1602.23	58	1602.37	58.1	1602.41	58.2	1602.49
58.5	1602.77	58.5	1602.78	58.8	1602.98	58.9	1603	58.9	1603.01
59.1	1603.09	59.1	1603.1	59.3	1603.15	60.1	1603.38	60.1	1603.4
60.7	1603.59	61.6	1604.03	61.7	1604.03	61.7	1604.04	61.7	1604.07
62.5	1604.52	62.7	1604.59	62.7	1604.61	63.1	1604.73	63.2	1604.77
63.2	1604.78	63.2	1604.79	63.4	1604.82	63.4	1604.84	63.5	1604.87
63.6	1604.89	63.7	1604.92	63.8	1604.95	63.9	1604.96	64	1605
64.2	1605.05	64.2	1605.07	64.4	1605.1	64.4	1605.12	64.5	1605.12
64.8	1605.29	64.9	1605.33	65	1605.38	65.5	1605.62	65.5	1605.64
65.7	1605.73	65.7	1605.75	66	1605.85	66.1	1605.88	66.2	1605.92
66.2	1605.95	66.4	1606.01	66.7	1606.14	66.8	1606.16	67.3	1606.28
67.4	1606.33	67.7	1606.39	69	1606.8	69.9	1606.98	70.6	1607.15
71.3	1607.23	71.3	1607.24	71.4	1607.25	71.5	1607.26	71.6	1607.28
71.7	1607.32	71.7	1607.33	71.8	1607.36	71.9	1607.38	72.1	1607.42
72.1	1607.43	72.1	1607.44	73.3	1607.86	73.4	1607.87	73.4	1607.88
73.6	1607.97	73.9	1608.03	74.1	1608.09	74.3	1608.16	74.3	1608.17
74.4	1608.21	74.5	1608.24	74.6	1608.28	74.6	1608.31	74.7	1608.33
74.9	1608.41	75.1	1608.51	75.2	1608.53	75.2	1608.56	75.8	1608.89
75.8	1608.94	76.4	1609.14	76.4	1609.16	76.5	1609.18	76.6	1609.24
76.7	1609.27	76.8	1609.33	76.9	1609.38	77	1609.41	77.1	1609.43
77.2	1609.46	77.3	1609.48	77.4	1609.52	77.5	1609.53	77.6	1609.54
77.7	1609.56	77.9	1609.56	78.5	1609.59	79.7	1609.91	81.3	1610.24
81.3	1610.26	81.7	1610.39	81.8	1610.43	82	1610.48	82.3	1610.56
82.4	1610.59	82.5	1610.63	82.5	1610.66	82.6	1610.67	82.8	1610.75
82.8	1610.76	83	1610.8	83.1	1610.82	83.2	1610.85	83.3	1610.86
83.4	1610.91	83.6	1610.97	83.7	1611.01	83.7	1611.05	83.8	1611.09
84.1	1611.18	84.3	1611.31	84.5	1611.38	84.6	1611.42	84.7	1611.46
84.8	1611.53	84.9	1611.57	85	1611.61	85.1	1611.67	85.3	1611.74

85.3	1611.75	85.4	1611.76	85.5	1611.81	85.6	1611.87	85.6	1611.88
85.6	1611.89	85.9	1611.96	85.9	1612.01	86.1	1612.09	86.2	1612.15
86.4	1612.23	86.4	1612.27	86.6	1612.35	86.6	1612.38	86.8	1612.45
86.9	1612.5	86.9	1612.52	87.1	1612.63	87.1	1612.66	87.2	1612.68
87.4	1612.73	87.5	1612.78	87.6	1612.83	87.7	1612.86	87.8	1612.91
87.9	1612.93	87.9	1612.95	88.1	1613.06	88.4	1613.16	89.2	1613.61
89.4	1613.72	89.6	1613.83	89.7	1613.85	89.7	1613.87	89.8	1613.92
89.9	1613.95	90	1613.99	91.7	1614.37	91.8	1614.38	91.9	1614.4
92	1614.41	92.2	1614.43	92.2	1614.44	92.3	1614.44	92.4	1614.46
92.5	1614.47	92.6	1614.48	92.6	1614.49	92.9	1614.53	93	1614.55
93	1614.57	93.2	1614.59	93.5	1614.66	93.7	1614.68	93.8	1614.71
94	1614.73	94.2	1614.76	94.3	1614.78	94.3	1614.79	94.5	1614.8
94.5	1614.81	94.7	1614.83	94.8	1614.84	95	1614.9	95.1	1614.94
95.3	1615	95.4	1615.05	95.4	1615.06	95.5	1615.11	95.6	1615.14
95.7	1615.19	95.8	1615.21	95.8	1615.23	96	1615.3	96	1615.31
96.4	1615.4	97.6	1615.84	99.4	1616.65	99.5	1616.68	99.6	1616.71
99.9	1616.81	99.9	1616.82	100.5	1617	100.5	1617.01	100.6	1617.05
100.7	1617.08	100.9	1617.12	100.9	1617.15	101.1	1617.21	101.1	1617.22
101.3	1617.27	101.4	1617.31	101.4	1617.32	101.6	1617.38	101.6	1617.41
101.8	1617.44	101.9	1617.47	102	1617.5	102	1617.51	102.1	1617.53
102.4	1617.59	102.4	1617.6	102.6	1617.64	102.9	1617.68	102.9	1617.7
103	1617.71	103.1	1617.73	103.2	1617.75	103.3	1617.77	103.6	1617.83
103.7	1617.84	103.7	1617.85	103.9	1617.9	103.9	1617.91	104.3	1617.96
104.4	1617.98	104.4	1618.01	104.6	1618.06	104.7	1618.11	104.8	1618.14
104.9	1618.16	104.9	1618.18	105	1618.2	105.4	1618.37	105.5	1618.38
105.5	1618.4	105.6	1618.45	105.7	1618.48	105.8	1618.52	105.8	1618.53
106	1618.56	106.1	1618.59	106.1	1618.62	106.2	1618.65	106.5	1618.71
106.5	1618.72	106.5	1618.74	106.7	1618.8	106.7	1618.81	106.9	1618.83
107	1618.84	107.1	1618.86	107.1	1618.87	107.2	1618.89	107.3	1618.91
107.4	1618.92	107.5	1618.94	107.6	1618.95	107.7	1618.99	107.8	1619
107.9	1619.01	108.2	1619.05	108.3	1619.06	108.4	1619.06	108.5	1619.06
108.7	1619.08	109	1619.09	109.2	1619.11	109.3	1619.12	109.5	1619.12
109.6	1619.11	109.7	1619.11	109.8	1619.11	109.9	1619.1	110	1619.09
110.1	1619.09	110.2	1619.07	110.3	1619.07	110.3	1619.06	110.5	1619.06
110.6	1619.06	113.4	1618.84	113.5	1618.84	114.9	1618.78	115	1618.78
115.1	1618.78	115.3	1618.78	115.5	1618.79	115.8	1618.81	118.4	1618.78
118.7	1618.75	119.1	1618.73	119.2	1618.72	119.5	1618.72	119.7	1618.69
119.9	1618.69	120	1618.69	120	1618.68	120.1	1618.68	120.2	1618.68
120.3	1618.68	120.4	1618.68	120.5	1618.69	120.6	1618.7	120.7	1618.71
120.7	1618.72	121	1618.72	121	1618.73	121.2	1618.75	121.4	1618.77
124.6	1618.69	124.8	1618.69	125	1618.69	125.6	1618.69	125.7	1618.69
125.7	1618.7	125.8	1618.71	126.1	1618.72	126.3	1618.72	126.5	1618.75
126.6	1618.75	126.7	1618.75	126.8	1618.76	127	1618.76	127.1	1618.75
127.2	1618.75	127.3	1618.76	127.4	1618.77	127.6207	1618.78		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	12.2	.025	66.8	.04

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

12.2	66.8		68	72	73	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1607.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.07	Wt. n-Val.	0.040	0.025	0.040
W.S. Elev (ft)	1606.38	Reach Len. (ft)	68.00	72.00	73.00
Crit W.S. (ft)		Flow Area (sq ft)	2.10	237.09	0.09
E.G. Slope (ft/ft)	0.002634	Area (sq ft)	2.10	237.09	0.09
Q Total (cfs)	1972.00	Flow (cfs)	1.68	1970.28	0.04
Top Width (ft)	56.44	Top Width (ft)	6.90	48.70	0.85
Vel Total (ft/s)	8.24	Avg. Vel. (ft/s)	0.80	8.31	0.43
Max Chl Dpth (ft)	7.29	Hydr. Depth (ft)	0.30	4.87	0.11
Conv. Total (cfs)	38420.1	Conv. (cfs)	32.8	38386.5	0.8
Length Wtd. (ft)	72.00	Wetted Per. (ft)	7.72	52.73	0.88
Min Ch El (ft)	1599.09	Shear (lb/sq ft)	0.04	0.74	0.02
Alpha	1.02	Stream Power (lb/ft s)	0.04	6.15	0.01
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	27.24	27.30	0.66
C & E Loss (ft)	0.14	Cum SA (acres)	6.34	5.94	0.60

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1607.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.06	Wt. n-Val.		0.025	
W.S. Elev (ft)	1606.41	Reach Len. (ft)	68.00	72.00	73.00
Crit W.S. (ft)		Flow Area (sq ft)		238.72	
E.G. Slope (ft/ft)	0.002609	Area (sq ft)		238.72	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	48.89	Top Width (ft)		48.89	
Vel Total (ft/s)	8.26	Avg. Vel. (ft/s)		8.26	
Max Chl Dpth (ft)	7.32	Hydr. Depth (ft)		4.88	
Conv. Total (cfs)	38608.5	Conv. (cfs)		38608.5	
Length Wtd. (ft)	72.00	Wetted Per. (ft)		53.18	
Min Ch El (ft)	1599.09	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		6.04	
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	0.01	27.38	0.00
C & E Loss (ft)	0.14	Cum SA (acres)	0.02	5.94	0.00

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

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	0.00	2.44	1.27	1.35	3.24	0.06	0.55	0.95	0.07	0.06
2	LOB	2.44	4.88	0.31	0.52	2.44	0.02	0.21	0.60	0.03	0.02
3	LOB	4.88	7.32	0.10	0.24	2.03	0.00	0.12	0.41	0.02	0.01
4	LOB	7.32	9.76							0.00	0.00
5	LOB	9.76	12.20							0.00	0.00
6	Chan	12.20	23.12	6.14	3.25	5.49	0.31	0.65	1.89	0.10	0.18
7	Chan	23.12	34.04	445.08	59.42	12.71	22.57	5.44	7.49	0.77	5.76
8	Chan	34.04	44.96	779.58	78.29	10.93	39.53	7.17	9.96	1.18	11.73
9	Chan	44.96	55.88	613.07	68.51	11.23	31.09	6.27	8.95	1.00	8.98
10	Chan	55.88	66.80	126.40	27.62	12.37	6.41	2.53	4.58	0.37	1.68
11	ROB	66.80	78.96	0.04	0.09	0.88	0.00	0.11	0.43	0.02	0.01

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	12.20	23.12	6.48	3.42	5.69	0.33	0.66	1.89	0.10	0.19
2	Chan	23.12	34.04	446.07	59.78	12.71	22.62	5.47	7.46	0.77	5.71
3	Chan	34.04	44.96	779.40	78.66	10.93	39.52	7.20	9.91	1.17	11.61
4	Chan	44.96	55.88	613.60	68.87	11.23	31.12	6.31	8.91	1.00	8.90
5	Chan	55.88	66.80	126.45	27.98	12.62	6.41	2.56	4.52	0.36	1.63

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

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 2350

INPUT
Description:
Station Elevation Data num= 449

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1611.47	1.5	1611.3	3.3	1611.24	4.3	1611.02	7	1610.62
9.5	1610.6	15	1610.03	17.3	1609.97	19.3	1610.13	21.8	1609.28
24.3	1608.92	25.8	1608.95	27.3	1609.17	28	1609.16	31	1608.11
33.6	1607.42	34.8	1606.88	36.8	1606.22	37.2	1606.21	37.5	1606.09
38.3	1606.11	39.3	1605.95	41.8	1605.93	43	1606.08	45	1606.71
47.1	1607.11	47.5	1607.25	48	1607.13	49.3	1607.06	50.8	1606.88
54.7	1606.32	58.5	1605.98	60.8	1605.89	61.8	1605.94	65.1	1605.75
66.3	1605.81	67.1	1605.91	67.2	1605.96	68	1606.1	70.5	1606.19
71.8	1606.1	73	1605.91	73.8	1605.84	75.3	1605.5	77.3	1605.49
78.9	1605.67	80.3	1605.72	82.3	1605.55	87.1	1605.46	88.1	1605.34
91.8	1605.13	93.1	1604.93	94.5	1604.81	96.2	1604.84	97.3	1604.93
98.3	1604.84	100.3	1604.88	102.8	1605.19	105.1	1605.2	106.1	1605.26
108	1605.62	111.8	1605.59	114.3	1605.75	115.5	1605.92	116	1605.91
116.1	1605.91	116.2	1605.92	116.3	1605.93	116.4	1605.93	116.5	1605.93
118.3	1605.79	121.4	1605.85	121.5	1605.84	121.6	1605.81	121.7	1605.8
122.1	1605.67	122.2	1605.65	122.4	1605.54	122.5	1605.4	122.9	1604.21
123.1	1603.28	123.2	1603.08	123.3	1602.72	123.4	1602.6	123.4	1602.45
123.5	1602.33	125	1601.68	125	1601.65	125.1	1601.61	125.3	1601.52
125.3	1601.49	125.7	1601.29	126	1601.09	127	1600.75	127.5	1600.66
128.8	1600.53	130.5	1600.22	132.8	1600.09	133	1600.07	133	1600.06
133.1	1600.06	133.3	1600.03	133.5	1600.01	133.5	1600	133.8	1599.97
134.3	1599.88	137	1599.1	138.3	1598.81	148.5	1598.94	151.3	1598.88
153	1599.03	155.5	1599	158.6	1599.22	159.2	1599.31	159.4	1599.36
159.4	1599.37	159.5	1599.41	159.6	1599.44	159.7	1599.45	159.8	1599.49
159.9	1599.53	159.9	1599.54	160.1	1599.63	160.2	1599.64	160.3	1599.69
161.5	1600.23	161.9	1600.36	162.4	1600.51	163.9	1600.85	165	1601.57
165	1601.64	165.1	1601.7	165.2	1601.78	165.3	1601.85	165.4	1601.91
165.5	1601.98	165.5	1602.04	165.6	1602.1	165.7	1602.17	165.9	1602.29
166	1602.38	166	1602.44	166.1	1602.49	166.2	1602.58	166.3	1602.62
166.3	1602.67	166.5	1602.77	166.5	1602.81	166.8	1603	166.8	1603.04
167	1603.18	167.1	1603.21	167.2	1603.28	167.3	1603.31	167.3	1603.33
167.5	1603.38	167.5	1603.4	169.8	1604.01	171.8	1604.44	172.5	1604.71
172.5	1604.72	173.1	1605.01	173.3	1605.11	173.3	1605.12	173.5	1605.24
173.5	1605.25	173.6	1605.26	173.8	1605.39	173.8	1605.4	173.8	1605.41
174	1605.52	174.1	1605.53	174.3	1605.58	174.3	1605.59	174.6	1605.63
174.7	1605.68	175	1605.74	175.1	1605.76	175.2	1605.82	175.3	1605.84

175.3 1605.85	175.5 1605.89	175.5 1605.91	177 1606.23	177 1606.25
177.1 1606.28	177.2 1606.32	177.4 1606.37	177.5 1606.41	177.5 1606.44
177.7 1606.5	177.9 1606.56	178 1606.61	178 1606.65	178.1 1606.69
178.2 1606.73	178.5 1606.9	178.6 1606.94	178.7 1606.98	178.8 1607.02
178.9 1607.06	178.9 1607.1	179 1607.14	179.2 1607.2	179.3 1607.24
179.4 1607.29	179.5 1607.36	179.7 1607.43	179.8 1607.47	179.9 1607.52
179.9 1607.54	180 1607.58	180.1 1607.62	180.2 1607.64	180.4 1607.72
180.4 1607.74	180.6 1607.83	180.7 1607.84	180.8 1607.88	180.9 1607.91
181 1607.94	181.2 1607.97	181.4 1608.02	182.2 1608.12	182.3 1608.15
182.4 1608.2	182.7 1608.28	182.7 1608.29	182.8 1608.33	182.9 1608.35
183.1 1608.39	183.2 1608.4	183.3 1608.42	183.4 1608.44	183.5 1608.45
183.6 1608.46	183.7 1608.46	183.8 1608.47	183.9 1608.5	183.9 1608.51
184.1 1608.56	184.2 1608.57	184.3 1608.59	184.4 1608.62	184.5 1608.64
184.6 1608.65	184.7 1608.66	184.8 1608.68	184.9 1608.68	185.2 1608.7
185.3 1608.7	185.4 1608.7	185.5 1608.7	185.5 1608.71	185.7 1608.72
185.8 1608.73	185.9 1608.74	186.6 1608.81	187.3 1608.85	187.3 1608.86
187.5 1608.88	187.6 1608.89	187.8 1608.94	189.5 1609.69	189.6 1609.7
189.8 1609.77	189.8 1609.78	189.8 1609.79	190 1609.84	190.1 1609.85
190.3 1609.9	190.3 1609.91	190.5 1609.97	190.6 1609.98	191 1610.12
191 1610.13	191.5 1610.25	191.8 1610.31	192 1610.37	192 1610.38
192.3 1610.47	192.5 1610.53	192.8 1610.63	193 1610.71	193 1610.72
193.3 1610.81	193.3 1610.82	193.5 1610.9	193.5 1610.91	193.6 1610.91
197.2 1612.63	197.3 1612.65	197.4 1612.64	197.5 1612.63	197.5 1612.62
197.8 1612.56	197.9 1612.59	198.1 1612.7	198.2 1612.73	198.3 1612.76
198.4 1612.79	198.5 1612.83	198.7 1612.9	198.8 1612.93	198.9 1612.95
199 1612.99	199.1 1613.01	199.2 1613.03	199.3 1613.05	199.4 1613.08
199.4 1613.1	199.8 1613.21	199.9 1613.24	199.9 1613.25	200 1613.28
200.1 1613.32	200.2 1613.34	200.3 1613.38	200.4 1613.42	200.4 1613.44
200.5 1613.49	201.1 1613.69	201.2 1613.7	201.3 1613.74	201.4 1613.77
201.5 1613.8	201.7 1613.84	201.7 1613.85	201.8 1613.89	201.9 1613.92
203.3 1614.23	203.4 1614.26	203.4 1614.27	203.5 1614.29	203.6 1614.34
203.8 1614.41	203.9 1614.45	203.9 1614.47	204 1614.51	204.1 1614.56
204.2 1614.59	204.4 1614.68	204.4 1614.71	204.5 1614.75	204.6 1614.79
204.7 1614.81	204.8 1614.86	204.9 1614.89	205 1614.95	205.1 1614.98
205.2 1614.99	205.4 1615.05	205.5 1615.08	205.5 1615.11	205.6 1615.15
205.7 1615.18	205.8 1615.21	205.9 1615.23	206 1615.27	206 1615.29
206.1 1615.32	206.2 1615.36	206.3 1615.38	206.4 1615.41	206.5 1615.43
206.5 1615.46	206.6 1615.48	206.9 1615.56	207 1615.59	207.3 1615.71
207.5 1615.74	207.5 1615.76	207.6 1615.78	207.7 1615.81	207.8 1615.83
208 1615.92	208.2 1616.04	208.5 1616.14	210.5 1617.22	210.6 1617.23
210.8 1617.31	211 1617.43	211 1617.44	211.1 1617.45	211.3 1617.56
211.5 1617.65	211.5 1617.66	212.5 1618	213.5 1618.28	213.6 1618.28
213.8 1618.31	213.8 1618.32	214 1618.34	214 1618.35	214.1 1618.35
214.5 1618.41	214.6 1618.41	214.8 1618.46	214.8 1618.47	215 1618.5
215.1 1618.5	215.3 1618.5	215.5 1618.52	215.5 1618.53	215.7 1618.53
215.8 1618.53	216 1618.53	216.1 1618.53	216.3 1618.53	216.3 1618.52
216.5 1618.5	216.8 1618.5	217 1618.5	217.1 1618.51	217.2 1618.52
217.3 1618.53	217.7 1618.53	217.8 1618.53	217.9 1618.54	218 1618.54
218.2 1618.54	222.3 1618.22	222.5 1618.22	222.7 1618.22	222.8 1618.22
222.9 1618.22	223 1618.22	223.2 1618.22	223.3 1618.22	223.4 1618.23

223.5	1618.25	223.7	1618.25	223.9	1618.26	223.9	1618.27	224	1618.28		
224.1	1618.28	225.4	1618.28	225.5	1618.28	225.6	1618.27	225.7	1618.26		
225.9	1618.24	226	1618.23	226.1	1618.22	226.2	1618.22	226.3	1618.22		
226.5	1618.19	226.7	1618.19	228.6	1618.22	232.1	1146	1618.06			

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	121.5	.025	174	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
121.5	174	63	63	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	121.5	1610	F

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1607.19	Element			
Vel Head (ft)	0.60	Wt. n-Val.		0.025	0.040
W.S. Elev (ft)	1606.59	Reach Len. (ft)	63.00	63.00	63.00
Crit W.S. (ft)	1603.83	Flow Area (sq ft)		317.61	2.31
E.G. Slope (ft/ft)	0.001108	Area (sq ft)	72.33	317.61	2.31
Q Total (cfs)	1972.00	Flow (cfs)		1970.08	1.92
Top Width (ft)	134.13	Top Width (ft)	77.67	52.50	3.97
Vel Total (ft/s)	6.16	Avg. Vel. (ft/s)		6.20	0.83
Max Chl Dpth (ft)	7.78	Hydr. Depth (ft)		6.05	0.58
Conv. Total (cfs)	59235.8	Conv. (cfs)		59178.1	57.7
Length Wtd. (ft)	63.00	Wetted Per. (ft)		57.22	4.19
Min Ch El (ft)	1598.81	Shear (lb/sq ft)		0.38	0.04
Alpha	1.01	Stream Power (lb/ft s)		2.38	0.03
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	27.18	26.84	0.65
C & E Loss (ft)	0.05	Cum SA (acres)	6.27	5.86	0.59

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

CROSS SECTION OUTPUT Profile #FLOODWAY

			Left OB	Channel	Right OB
E.G. Elev (ft)	1607.21	Element			
Vel Head (ft)	0.59	Wt. n-Val.		0.025	
W.S. Elev (ft)	1606.62	Reach Len. (ft)	63.00	63.00	63.00
Crit W.S. (ft)	1603.81	Flow Area (sq ft)		318.95	
E.G. Slope (ft/ft)	0.001143	Area (sq ft)		318.95	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	52.50	Top Width (ft)		52.50	
Vel Total (ft/s)	6.18	Avg. Vel. (ft/s)		6.18	
Max Chl Dpth (ft)	7.81	Hydr. Depth (ft)		6.08	

Conv. Total (cfs)	58325.4	Conv. (cfs)		58325.4		
Length Wtd. (ft)	63.00	Wetted Per. (ft)		59.10		
Min Ch El (ft)	1598.81	Shear (lb/sq ft)		0.39		
Alpha	1.00	Stream Power (lb/ft s)		2.38		
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	0.01	26.92	0.00	
C & E Loss (ft)	0.04	Cum SA (acres)	0.02	5.86	0.00	

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

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	24.30	48.60	0.00	4.21	9.15	0.00	0.47	0.00	0.03	0.00
2	LOB	48.60	72.90	0.00	11.03	20.20	0.00	0.55	0.00	0.04	0.00
3	LOB	72.90	97.20	0.00	29.63	24.40	0.00	1.22	0.00	0.08	0.00
4	LOB	97.20	121.50	0.00	27.45	24.38	0.00	1.13	0.00	0.08	0.00
5	Chan	121.50	132.00	241.26	52.41	13.32	12.23	4.99	4.60	0.27	1.25
6	Chan	132.00	142.50	528.29	76.77	10.68	26.79	7.31	6.88	0.50	3.42
7	Chan	142.50	153.00	579.71	80.65	10.51	29.40	7.68	7.19	0.53	3.82
8	Chan	153.00	163.50	498.79	74.47	10.79	25.29	7.09	6.70	0.48	3.20
9	Chan	163.50	174.00	122.02	33.31	11.93	6.19	3.17	3.66	0.19	0.71
10	ROB	174.00	185.62	1.92	2.31	4.19	0.10	0.58	0.83	0.04	0.03

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

Profile #FLOODWAY

Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power

		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	Chan	121.50	132.00	234.88	52.68	14.10	11.91	5.02	4.46	0.27	1.19
2	Chan	132.00	142.50	532.73	77.04	10.68	27.01	7.34	6.92	0.51	3.56
3	Chan	142.50	153.00	584.42	80.92	10.51	29.64	7.71	7.22	0.55	3.97
4	Chan	153.00	163.50	503.07	74.74	10.79	25.51	7.12	6.73	0.49	3.33
5	Chan	163.50	174.00	116.90	33.58	13.03	5.93	3.20	3.48	0.18	0.64

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

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 2330

INPUT
Description:
Station Elevation Data num= 441

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1615.69	10.1	1615.7	18.3	1616.16	21.3	1616.16	22.8	1616.03
26.8	1616.06	29.8	1615.81	45.1	1615.05	46.6	1614.66	48.5	1613.64
51.2	1612.73	53.3	1611.72	55.9	1610.71	57.8	1610.09	61.5	1609.26
63	1608.71	64.1	1608.12	65.3	1607.66	67.3	1607.19	74.8	1606.11
80.6	1605.62	92.8	1605.38	95.6	1605.5	100.4	1605.41	104.1	1605.51
105.9	1605.44	112.1	1605.5	115.2	1605.38	127.8	1605.28	131.3	1605.31
134.1	1605.47	135.6	1605.38	137.6	1605.47	142.3	1605.3	143.6	1605.34
146	1605.16	156.1	1604.97	163.6	1605.22	168.4	1605.03	171.3	1605.12
176.4	1604.99	180.9	1605.08	188.8	1604.72	193.3	1604.62	194.8	1604.81
197.1	1604.78	199.8	1605	202.6	1605.03	205.3	1605.44	214.6	1605.56
215.6	1605.65	222.8	1605.78	225.3	1605.97	228.3	1605.9	228.4	1605.9
230.6	1605.69	230.6	1605.7	230.8	1605.72	230.9	1605.72	230.9	1605.73
231.1	1605.79	231.3	1605.81	231.4	1605.82	231.6	1605.84	231.6	1605.85
231.8	1605.88	231.9	1605.88	231.9	1605.89	232.1	1605.91	234.4	1606.42
234.8	1606.47	235.3	1606.49	235.4	1606.49	235.5	1606.47	235.7	1606.45
235.8	1606.44	235.9	1606.43	235.9	1606.42	236	1606.39	236.1	1606.38
236.2	1606.35	236.3	1606.3	236.4	1606.27	236.871	1606.029	240.9	1603.96
244.4	1602.56	246.5	1601.47	246.5	1601.45	246.6	1601.39	246.7	1601.33
246.7	1601.31	246.9	1601.25	247	1601.19	247	1601.17	247.2	1601.04
247.2	1601.02	247.5	1600.89	247.5	1600.87	247.7	1600.75	249.9	1599.84
251.2	1599.1	251.5	1599.02	251.6	1598.98	255.4	1598.62	263	1598.41
267.9	1598.38	267.9	1598.39	268	1598.4	268.1	1598.41	268.3	1598.43

268.5 1598.43	268.6 1598.44	268.7 1598.44	268.8 1598.46	268.9 1598.47
268.9 1598.48	269 1598.51	269.2 1598.53	269.3 1598.55	269.4 1598.56
269.4 1598.58	269.5 1598.59	269.6 1598.61	269.7 1598.65	269.8 1598.78
269.9 1598.82	269.9 1598.86	270 1598.97	270.1 1599.01	270.3 1599.16
270.4 1599.19	270.4 1599.22	270.6 1599.32	270.6 1599.35	270.8 1599.48
270.9 1599.51	270.9 1599.53	271.1 1599.63	271.1 1599.66	271.1 1599.69
271.3 1599.78	271.4 1599.81	271.4 1599.84	271.6 1599.94	271.6 1599.97
271.6 1600	271.9 1600.12	271.9 1600.14	272.1 1600.21	272.1 1600.22
272.1 1600.23	272.3 1600.28	272.4 1600.29	272.4 1600.3	272.6 1600.34
272.6 1600.36	272.8 1600.4	272.9 1600.42	272.9 1600.43	273.1 1600.49
273.1 1600.5	273.1 1600.52	273.4 1600.6	273.4 1600.62	273.6 1600.73
273.6 1600.75	273.6 1600.78	273.8 1600.92	273.9 1600.94	273.9 1600.97
274.1 1601.16	274.1 1601.19	274.1 1601.22	274.3 1601.37	274.4 1601.4
274.4 1601.43	274.6 1601.62	274.6 1601.65	275.1 1602.03	275.1 1602.05
275.1 1602.08	276.3 1602.86	278.3 1603.18	278.8 1603.34	278.9 1603.34
279.1 1603.47	279.4 1603.59	279.4 1603.6	279.6 1603.68	279.6 1603.69
279.8 1603.75	282.6 1604.4	284.6 1605.32	284.8 1605.4	284.9 1605.41
285.1 1605.47	285.3 1605.53	285.4 1605.54	285.6 1605.63	285.8 1605.74
285.9 1605.75	285.9 1605.76	286.1 1605.84	286.1 1605.85	286.3 1605.9
286.4 1605.91	286.6 1605.97	286.791606.027	286.8 1606.03	286.9 1606.03
287.1 1606.09	288.1 1606.49	288.3 1606.61	288.4 1606.62	288.6 1606.59
289.6 1606.87	289.6 1606.88	289.9 1606.91	290.1 1606.96	290.1 1606.97
290.3 1606.97	290.4 1606.98	293.1 1608.35	295.3 1608.83	295.4 1608.84
295.4 1608.85	295.5 1608.87	295.7 1608.88	295.8 1608.9	295.9 1608.91
296 1608.91	296.1 1608.91	296.3 1608.99	296.4 1609.01	296.9 1609.15
297 1609.18	297.5 1609.34	297.7 1609.37	297.8 1609.38	297.9 1609.41
298.1 1609.46	298.2 1609.48	298.3 1609.51	298.4 1609.54	298.5 1609.55
298.7 1609.57	299.3 1609.73	299.4 1609.76	299.4 1609.78	299.5 1609.83
299.6 1609.85	299.7 1609.88	299.9 1609.97	299.9 1609.98	300.7 1610.11
300.8 1610.13	300.9 1610.15	300.9 1610.18	301 1610.22	301.1 1610.26
301.2 1610.28	301.3 1610.31	301.4 1610.33	301.4 1610.35	301.5 1610.39
301.7 1610.44	301.9 1610.51	301.9 1610.52	302.1 1610.55	302.2 1610.61
302.4 1610.71	302.4 1610.75	302.5 1610.8	302.6 1610.84	302.8 1610.92
302.9 1610.96	303 1610.98	303.1 1611	303.2 1611.04	303.3 1611.08
303.4 1611.11	303.5 1611.23	303.7 1611.34	303.8 1611.38	303.9 1611.46
304.2 1611.52	304.3 1611.52	304.4 1611.52	304.4 1611.54	304.5 1611.56
304.6 1611.57	304.7 1611.6	304.9 1611.64	305 1611.71	306.3 1612.32
306.5 1612.47	306.6 1612.53	306.7 1612.57	306.8 1612.59	306.9 1612.64
306.9 1612.66	307.1 1612.69	307.2 1612.72	307.3 1612.74	307.4 1612.77
307.5 1612.83	307.5 1612.86	307.6 1612.91	307.7 1612.96	307.7 1612.99
307.9 1613.04	308 1613.09	308 1613.1	308.1 1613.16	308.2 1613.22
309.4 1613.64	309.5 1613.7	309.5 1613.72	309.6 1613.78	309.7 1613.84
310.1 1614.02	311 1614.34	311 1614.35	311.1 1614.39	311.2 1614.44
311.2 1614.45	311.4 1614.5	311.5 1614.57	311.6 1614.62	311.7 1614.68
311.9 1614.73	312 1614.76	312 1614.77	312.1 1614.8	312.4 1614.88
312.5 1614.91	312.6 1614.94	312.7 1614.99	312.9 1615.05	313.1 1615.14
313.2 1615.2	313.4 1615.27	313.5 1615.31	313.7 1615.41	316.5 1616.23
318.7 1617.3	318.9 1617.34	319 1617.38	319.2 1617.48	319.2 1617.49
319.4 1617.53	319.5 1617.59	319.6 1617.62	319.9 1617.72	319.9 1617.76
320 1617.79	320.2 1617.85	320.4 1617.88	320.4 1617.94	320.6 1618.03

321.9	1618.83	321.9	1618.88	322	1618.92	322.2	1619.01
322.3	1619.04	322.4	1619.1	322.5	1619.11	322.7	1619.15
322.8	1619.17	322.9	1619.19	322.9	1619.21	323	1619.23
323.1	1619.25	323.2	1619.26	323.3	1619.26	323.4	1619.26
323.4	1619.27	323.5	1619.27	323.7	1619.27	323.8	1619.27
323.9	1619.26	323.9	1619.24	324.1	1619.2	324.2	1619.18
324.4	1619.14	324.5	1619.09	324.6	1619.07	324.7	1619.05
324.8	1619.03	324.9	1619	325	1618.99	325.1	1618.98
325.2	1618.97	325.3	1618.96	325.4	1618.95	325.4	1618.94
325.5	1618.91	325.7	1618.89	329.4	1618.75	329.4	1618.74
329.6	1618.72	329.8	1618.69	329.9	1618.69	330.1	1618.69
330.2	1618.68	330.4	1618.65	330.7	1618.62	330.8	1618.62
330.8	1618.62	330.9	1618.62	331	1618.62	331.1	1618.62
331.5	1618.62	331.8	1618.62	331.9	1618.62	332.1	1618.66
332.2	1618.66	332.3	1618.68	332.6	1618.68	332.6	1618.69
332.8	1618.69	333.1	1618.69	333.4	1618.66	333.9	1618.66
334.1	1618.66	334.3	1618.66	334.4	1618.66	334.6	1618.66
334.6	1618.65	334.9	1618.65	335.1	1618.62	335.6	1618.57
335.6	1618.56	335.8	1618.54	335.9	1618.54	335.9	1618.53
336.1	1618.51	336.1	1618.5	336.4	1618.47	346.9	1618.44
351.708	1618.31						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	236.87	.025	286.79	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
236.87	286.79	238	243	234	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	236.87	1615	F
286.79	351.708	1615	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1607.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.06	Wt. n-Val.		0.025	
W.S. Elev (ft)	1605.99	Reach Len. (ft)	238.00	243.00	234.00
Crit W.S. (ft)	1604.58	Flow Area (sq ft)		239.31	
E.G. Slope (ft/ft)	0.002622	Area (sq ft)	105.12	239.31	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	205.90	Top Width (ft)	156.19	49.71	
Vel Total (ft/s)	8.24	Avg. Vel. (ft/s)		8.24	
Max Chl Dpth (ft)	7.61	Hydr. Depth (ft)		4.81	
Conv. Total (cfs)	38511.1	Conv. (cfs)		38511.1	
Length Wtd. (ft)	242.99	Wetted Per. (ft)		53.71	
Min Ch El (ft)	1598.38	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		6.01	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	27.06	26.44	0.65
C & E Loss (ft)	0.23	Cum SA (acres)	6.10	5.78	0.59

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross

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

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1607.07	Element	Left OB	Channel	Right OB	
Vel Head (ft)	1.04	Wt. n-Val.		0.025		
W.S. Elev (ft)	1606.03	Reach Len. (ft)	238.00	243.00	234.00	
Crit W.S. (ft)	1604.58	Flow Area (sq ft)		241.31		
E.G. Slope (ft/ft)	0.002565	Area (sq ft)		241.31		
Q Total (cfs)	1972.00	Flow (cfs)		1972.00		
Top Width (ft)	49.92	Top Width (ft)		49.92		
Vel Total (ft/s)	8.17	Avg. Vel. (ft/s)		8.17		
Max Chl Dpth (ft)	7.65	Hydr. Depth (ft)		4.83		
Conv. Total (cfs)	38939.5	Conv. (cfs)		38939.5		
Length Wtd. (ft)	243.00	Wetted Per. (ft)		53.94		
Min Ch El (ft)	1598.38	Shear (lb/sq ft)		0.72		
Alpha	1.00	Stream Power (lb/ft s)		5.85		
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	0.01	26.52	0.00	
C & E Loss (ft)	0.22	Cum SA (acres)	0.02	5.78	0.00	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	47.37	94.75	0.00	7.84	18.51	0.00	0.42	0.00	0.07	0.00
2	LOB	94.75	142.12	0.00	27.81	47.39	0.00	0.59	0.00	0.10	0.00
3	LOB	142.12	189.50	0.00	44.06	47.40	0.00	0.93	0.00	0.15	0.00
4	LOB	189.50	236.87	0.00	25.42	43.09	0.00	0.59	0.00	0.10	0.00
5	Chan	236.87	246.85	103.67	23.53	11.01	5.26	2.38	4.41	0.35	1.54
6	Chan	246.85	256.84	592.84	65.92	10.57	30.06	6.60	8.99	1.02	9.18
7	Chan	256.84	266.82	766.50	75.17	9.99	38.87	7.53	10.20	1.23	12.56

8	Chan	266.82	276.81	449.67	58.22	11.73	22.80	5.83	7.72	0.81
6.27										
9	Chan	276.81	286.79	59.32	16.46	10.41	3.01	1.67	3.60	0.26
0.93										

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	Chan	236.87	246.85	104.87	23.93	11.10	5.32	2.40	4.38	0.35	1.51
2	Chan	246.85	256.84	592.17	66.32	10.57	30.03	6.64	8.93	1.00	8.97
3	Chan	256.84	266.82	764.69	75.57	9.99	38.78	7.57	10.12	1.21	12.26
4	Chan	266.82	276.81	449.77	58.62	11.73	22.81	5.87	7.67	0.80	6.14
5	Chan	276.81	286.79	60.51	16.86	10.55	3.07	1.69	3.59	0.26	0.92

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 2300

INPUT
Description:
Station Elevation Data num= 434

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1618.67	1.4	1618.44	3.9	1617.76	5.1	1617.2	6.1	1616.4
9	1614.71	10	1613.89	13.4	1611.84	14.5	1611.47	16	1610.65
19.2	1609.22	20.5	1608.87	24	1608.38	24.4	1608.22	26	1608

27.3	1607.62	32.7	1607	36.9	1606.8	39.8	1606.44	40.8	1606.06
42.7	1605.75	44.7	1605.23	46	1605.06	51	1604.61	54	1604.71
58.7	1603.88	68.8	1603.22	70.6	1603.03	72.3	1602.66	75.8	1602.28
80.2	1602.16	83.9	1602.38	85.1	1602.64	86.9	1603.22	90.6	1604.71
92.2	1605.21	93.5	1605.38	96.7	1605.5	98.9	1605.7	101.1	1605.69
103.2	1605.53	114.4	1604.16	129	1603.74	132.1	1603.88	137.9	1603.62
141.5	1603.69	148.3	1603.19	150.4	1603.28	153.5	1603.65	158.2	1603.41
160.8	1603.53	162.2	1603.37	163.7	1603.01	166.8	1603	167	1602.98
167.1	1602.98	167.2	1602.95	167.4	1602.93	167.4	1602.92	167.6	1602.91
167.7	1602.9	168	1602.83	168.1	1602.81	168.2	1602.8	168.3	1602.77
169.4	1602.72	170.9	1602.84	173.4	1602.78	176	1603	178	1602.94
180.3	1603	185.6	1603.44	191.5	1603.38	192.7	1603.53	195.5	1604.27
196.6	1604.38	204.9	1603.7	208.3	1603.23	211.5	1603.11	211.6	1603.03
211.7	1603	215.4	1603.06	221.9	1602.34	222.3	1602.34	222.4	1602.34
222.9	1602.37	222.9	1602.38	223	1602.39	223.1	1602.41	226.7	1602.26
228.4	1602.34	231.1	1602.73	234.5	1602.69	237.3	1603	240.1	1602.78
244.1	1602.83	247	1602.62	251.1	1602.56	260.2	1602.91	265.9	1602.84
274.9	1603.2	278.5	1603.23	281.1	1603.01	284.8	1602.33	288.9	1601.79
294.2	1601.58	297.1	1601.18	298.5	1600.78	299.4	1600.42	299.4	1600.37
299.5	1600.32	299.6	1600.26	299.7	1600.19	299.7	1600.18	299.9	1600.11
300	1599.99	300.1	1599.93	300.2	1599.88	300.6	1599.57	300.8	1599.36
301.7	1598.98	301.8	1598.97	302.4	1598.87	302.5	1598.85	302.6	1598.85
303.1	1598.79	303.3	1598.78	303.5	1598.74	303.5	1598.73	303.6	1598.71
303.7	1598.69	303.8	1598.67	304.8	1598.39	304.9	1598.38	305	1598.36
305.1	1598.35	305.2	1598.33	305.4	1598.3	305.5	1598.27	305.6	1598.25
305.7	1598.23	305.7	1598.21	306	1598.15	306.2	1598.1	308.4	1597.32
309.9	1597.19	313.9	1597.28	317.5	1597.19	325.5	1597.34	326.9	1597.34
328.6	1597.22	329.5	1597.39	329.7	1597.41	329.8	1597.43	329.9	1597.43
330.1	1597.44	330.3	1597.46	330.7	1597.49	330.8	1597.52	330.9	1597.53
331	1597.54	331.1	1597.56	331.3	1597.58	331.3	1597.59	331.5	1597.64
331.6	1597.66	331.6	1597.68	331.7	1597.7	331.9	1597.76	331.9	1597.78
332.2	1597.81	332.4	1597.88	332.4	1597.89	332.6	1597.93	332.7	1597.95
332.8	1597.99	332.9	1598.01	333	1598.04	333	1598.05	333.2	1598.08
333.4	1598.21	333.5	1598.24	333.7	1598.31	333.9	1598.4	333.9	1598.41
334	1598.44	334.2	1598.49	334.2	1598.5	334.2	1598.51	334.4	1598.58
334.4	1598.6	334.7	1598.7	334.8	1598.74	334.9	1598.8	336.7	1599.33
337.7	1600.03	337.9	1600.17	338.1	1600.29	341	1601.15	341	1601.17
341.2	1601.24	341.2	1601.25	341.3	1601.26	341.5	1601.37	341.5	1601.38
341.7	1601.46	341.8	1601.5	341.9	1601.56	342	1601.59	342.1	1601.65
342.2	1601.69	342.4	1601.74	342.5	1601.78	342.7	1601.85	342.8	1601.89
343	1601.94	343	1601.95	343.3	1602.03	343.5	1602.09	343.5	1602.1
343.5	1602.11	343.7	1602.17	343.8	1602.2	343.8	1602.23	344.1	1602.36
344.4	1602.44	344.4	1602.47	344.5	1602.5	344.7	1602.57	344.8	1602.59
344.8	1602.61	345	1602.68	345	1602.69	345.1	1602.72	347.8	1603.62
349.6	1604.34	349.7	1604.4	349.9	1604.5	350.1	1604.6	350.3	1604.66
350.3	1604.69	350.4	1604.7	350.6	1604.81	350.6	1604.82	350.7	1604.85
350.8	1604.93	350.8	1604.94	350.8	1604.95	351	1605.04	351.1	1605.06
351.1	1605.08	354.6	1606.11	358.2	1606.69	358.4	1606.72	358.6	1606.77
358.6	1606.78	358.7	1606.8	358.9	1606.84	359	1606.87	359	1606.88
359.1	1606.91	359.3	1606.95	359.4	1606.97	359.5	1606.98	359.7	1607.03

359.7	1607.04	359.9	1607.12	360.1	1607.18	360.2	1607.19	360.2	1607.2
360.4	1607.23	363.9	1608.85	364.2	1608.92	364.3	1608.94	364.3	1608.96
364.4	1608.98	364.6	1609.02	365.5	1609.25	365.7	1609.24	365.9	1609.3
366	1609.32	366	1609.36	366.1	1609.39	366.2	1609.43	366.5	1609.53
366.6	1609.55	366.7	1609.56	367	1609.63	367.2	1609.65	367.2	1609.66
367.3	1609.67	367.5	1609.69	367.5	1609.7	367.7	1609.77	367.7	1609.79
367.8	1609.82	367.9	1609.87	368	1609.91	368.1	1609.95	368.3	1610.04
368.4	1610.05	368.7	1610.21	369	1610.3	369	1610.32	369.2	1610.35
369.2	1610.37	369.3	1610.38	369.5	1610.43	369.5	1610.45	369.7	1610.49
369.7	1610.51	369.8	1610.53	369.9	1610.55	370	1610.58	370.3	1610.77
370.4	1610.82	370.5	1610.87	370.6	1610.91	370.8	1611.03	370.8	1611.04
371	1611.19	371.2	1611.33	371.3	1611.35	371.3	1611.38	371.5	1611.49
371.5	1611.54	371.7	1611.66	371.9	1611.78	372	1611.84	372.3	1611.94
372.3	1611.96	372.5	1612.03	372.6	1612.05	372.8	1612.12	372.8	1612.13
372.9	1612.16	373	1612.21	373.2	1612.28	373.3	1612.29	373.3	1612.3
373.5	1612.33	373.5	1612.34	373.6	1612.37	373.7	1612.38	373.8	1612.41
373.9	1612.42	373.9	1612.43	374.1	1612.48	375	1612.89	375.1	1612.93
375.2	1612.98	375.4	1613.02	375.4	1613.03	375.6	1613.03	375.7	1613.06
375.8	1613.09	375.9	1613.14	376	1613.2	376.1	1613.24	376.1	1613.27
376.3	1613.32	376.3	1613.34	376.3	1613.35	376.6	1613.44	376.8	1613.52
377.1	1613.66	377.2	1613.7	377.3	1613.73	377.4	1613.79	377.7	1613.9
377.8	1613.94	377.9	1613.97	378	1614.03	382.4	1615.63	382.6	1615.77
383.7	1616.2	383.9	1616.32	384	1616.35	384.1	1616.43	384.1	1616.44
384.2	1616.45	384.4	1616.59	384.4	1616.62	384.7	1616.73	384.9	1616.8
385	1616.84	385	1616.86	385.1	1616.91	385.2	1616.94	385.3	1616.98
385.4	1617	389.1	1618.63	389.2	1618.66	389.2	1618.67	389.4	1618.75
389.4	1618.76	389.5	1618.79	389.7	1618.86	389.9	1618.94	389.9	1618.96
390	1618.98	390.1	1619.01	390.2	1619.03	390.3	1619.08	390.4	1619.11
390.5	1619.14	390.6	1619.14	390.7	1619.17	390.8	1619.19	390.9	1619.21
390.9	1619.23	391	1619.23	391.2	1619.25	391.2	1619.26	391.4	1619.27
391.4	1619.28	391.5	1619.28	391.7	1619.28	391.7	1619.29	397.8	1619.33
399.8	1619.16	399.9	1619.13	399.9	1619.12	400	1619.09	400.1	1619.08
400.2	1619.04	400.5	1619	400.6	1618.98	401	1618.91	401.1	1618.9
401.2	1618.89	401.3	1618.88	401.4	1618.86	404.223	1618.54		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	281.1	.025	349.7	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
281.1	349.7	312	308.8	303	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	281.1	1610	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1606.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.		0.025	0.040
W.S. Elev (ft)	1606.31	Reach Len. (ft)	312.00	308.80	303.00

Crit W.S. (ft)	1602.39	Flow Area (sq ft)		456.46	4.82
E.G. Slope (ft/ft)	0.000442	Area (sq ft)	673.53	456.46	4.82
Q Total (cfs)	1972.00	Flow (cfs)		1968.92	3.08
Top Width (ft)	315.67	Top Width (ft)	240.95	68.60	6.12
Vel Total (ft/s)	4.28	Avg. Vel. (ft/s)		4.31	0.64
Max Chl Dpth (ft)	9.12	Hydr. Depth (ft)		6.65	0.79
Conv. Total (cfs)	93813.0	Conv. (cfs)		93666.4	146.6
Length Wtd. (ft)	308.79	Wetted Per. (ft)		71.16	6.51
Min Ch El (ft)	1597.19	Shear (lb/sq ft)		0.18	0.02
Alpha	1.02	Stream Power (lb/ft s)		0.76	0.01
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	24.93	24.50	0.64
C & E Loss (ft)	0.04	Cum SA (acres)	5.02	5.45	0.58

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

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1606.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.		0.025	
W.S. Elev (ft)	1606.32	Reach Len. (ft)	312.00	308.80	303.00
Crit W.S. (ft)	1602.37	Flow Area (sq ft)		457.53	
E.G. Slope (ft/ft)	0.000483	Area (sq ft)		457.53	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	68.60	Top Width (ft)		68.60	
Vel Total (ft/s)	4.31	Avg. Vel. (ft/s)		4.31	
Max Chl Dpth (ft)	9.13	Hydr. Depth (ft)		6.67	
Conv. Total (cfs)	89684.0	Conv. (cfs)		89684.0	
Length Wtd. (ft)	308.80	Wetted Per. (ft)		76.39	
Min Ch El (ft)	1597.19	Shear (lb/sq ft)		0.18	
Alpha	1.00	Stream Power (lb/ft s)		0.78	
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	0.01	24.57	0.00
C & E Loss (ft)	0.04	Cum SA (acres)	0.02	5.45	0.00

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

Profile #BFE

Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1 LOB	0.00	56.22	0.00	20.27	16.27	0.00	1.26	0.00	0.03	0.00

2	LOB	56.22	112.44	0.00	133.60	56.94	0.00	2.38	0.00	0.06
0.00										
3	LOB	112.44	168.66	0.00	150.98	56.39	0.00	2.69	0.00	0.07
0.00										
4	LOB	168.66	224.88	0.00	172.19	56.52	0.00	3.06	0.00	0.08
0.00										
5	LOB	224.88	281.10	0.00	196.49	56.31	0.00	3.49	0.00	0.10
0.00										
6	Chan	281.10	294.82	180.02	58.32	13.83	9.13	4.25	3.09	0.12
0.36										
7	Chan	294.82	308.54	385.95	94.20	14.60	19.57	6.87	4.10	0.18
0.73										
8	Chan	308.54	322.26	639.74	124.45	13.73	32.44	9.07	5.14	0.25
1.29										
9	Chan	322.26	335.98	578.20	118.42	14.11	29.32	8.63	4.88	0.23
1.13										
10	Chan	335.98	349.70	185.01	61.07	14.89	9.38	4.45	3.03	0.11
0.34										
11	ROB	349.70	360.60	3.08	4.82	6.51	0.16	0.79	0.64	0.02
0.01										

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

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	Chan	281.10	294.82	159.75	58.54	17.14	8.10	4.27	2.73	0.10	0.28
2	Chan	294.82	308.54	394.31	94.41	14.60	20.00	6.88	4.18	0.20	0.82
3	Chan	308.54	322.26	653.00	124.66	13.73	33.11	9.09	5.24	0.27	1.44
4	Chan	322.26	335.98	590.27	118.64	14.11	29.93	8.65	4.98	0.25	1.26
5	Chan	335.98	349.70	174.67	61.28	16.81	8.86	4.47	2.85	0.11	0.31

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

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 2200

INPUT
Description:
Station Elevation Data num= 445

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1609.31	9.7	1608.74	12.2	1608.41	14.1	1607.89	19.4	1607.03
24.9	1606.69	26	1606.44	28.9	1606.14	31.5	1606.34	33.6	1606.25
37.7	1606.6	40.9	1606.42	48	1606.59	55.9	1607.05	64.2	1606.88
71.1	1606.56	78	1605.59	83.2	1605.06	88.4	1604.19	93.8	1603.79
95.4	1603.55	98.5	1602.81	105.3	1602.06	109.7	1601.88	114.2	1602.05
121.1	1601.75	126.4	1600.9	130.1	1599.93	133.5	1599.46	145.6	1598.94
157.1	1599.09	160.6	1599.28	163	1598.78	165.6	1599.03	174.8	1599.06
177.7	1599.22	185.8	1600.75	188.5	1601.03	190.1	1601.35	195.1	1601.78
195.5	1601.75	195.6	1601.75	195.7	1601.75	195.8	1601.75	195.9	1601.75
196.3	1601.76	199.4	1601.28	201.8	1600.67	203.6	1600.02	208	1599.16
211.4	1598.91	218.9	1598.82	252.9	1599.25	261.1	1599.62	263.7	1600
267.5	1600.19	271.2	1600.76	273.4	1600.87	277	1600.68	282.7	1601.16
286.6	1600.65	293.1	1600.34	305.4	1600.2	313.1	1600.31	316.4	1600.16
326.2	1600.31	334.2	1600.25	334.3	1600.28	334.5	1600.31	334.7	1600.34
334.9	1600.34	335	1600.34	335	1600.35	335.2	1600.37	335.4	1600.38
335.5	1600.39	340.7	1599.99	356.2	1600.06	359.9	1600.28	361.2	1600.28
368	1600.81	372.3	1600.88	374.6	1600.72	377.8	1600.91	390.6	1599.91
393.5	1600.09	399.5	1599.56	409.5	1600.15	409.6	1600.15	409.7	1600.09
409.9	1600.04	410.1	1600.08	410.2	1600.09	410.3	1600.1	410.3	1600.09
411.8	1600.12	411.9	1600.13	412.2	1600.14	412.3	1600.15	412.4	1600.17
412.6	1600.17	412.7	1600.19	412.8	1600.25	412.9	1600.27	413.1	1600.3
413.1	1600.31	413.1	1600.32	413.3	1600.36	413.4	1600.4	413.5	1600.41
413.6	1600.43	413.6	1600.44	413.8	1600.48	414	1600.51	414.2	1600.54
414.5	1600.54	414.5	1600.55	414.6	1600.55	414.7	1600.55	414.9	1600.55
415.1	1600.56	423.9	1600.22	429.8	1600.31	433.1	1600.19	443.4	1600.18
450.2	1600.4	475.7	1600.16	499.5	1600.71	508.1	1601.13	511.9	1601.47
512	1601.44	512.1	1601.41	512.2	1601.38	512.3	1601.35	512.6	1601.22
512.6	1601.2	512.9	1601.02	513.1	1600.82	513.1	1600.78	513.9	1600.06
514	1599.98	514	1599.93	514.1	1599.84	514.3	1599.74	514.3	1599.73
514.4	1599.62	514.5	1599.56	514.5	1599.53	514.6	1599.47	514.7	1599.42
514.8	1599.36	514.9	1599.31	515	1599.27	515.1	1599.1	515.2	1599.07
515.4	1598.92	515.4	1598.91	515.4	1598.9	515.5	1598.82	515.6	1598.73
515.6	1598.72	515.9	1598.56	515.9	1598.53	516.1	1598.4	516.2	1598.37
516.3	1598.33	517.1	1598.06	517.2	1598.03	517.2	1598.01	517.3	1597.98
517.4	1597.97	517.6	1597.89	517.7	1597.88	517.7	1597.87	517.9	1597.81
518.1	1597.76	530	1596.72	531.9	1596.69	532	1596.69	532.2	1596.69
532.3	1596.69	532.4	1596.66	532.5	1596.66	532.7	1596.62	532.8	1596.62
532.9	1596.62	533	1596.61	533.2	1596.61	537.5	1596.9	537.7	1596.91
537.8	1596.91	537.8	1596.9	537.9	1596.9	538.1	1596.89	538.2	1596.88
538.3	1596.88	538.4	1596.86	538.6	1596.84	539.3	1596.81	539.5	1596.81
539.7	1596.81	539.8	1596.81	540	1596.81	540	1596.82	545.8	1595.12
547.1	1595	547.3	1595	547.4	1595	547.5	1594.98	547.6	1594.97

547.7 1594.97	547.8 1594.97	547.9 1594.97	548 1594.97	548.1 1594.97
553.8 1595.12	553.9 1595.12	554.1 1595.09	554.2 1595.08	554.3 1595.07
554.4 1595.06	554.6 1595.09	554.8 1595.09	554.9 1595.09	554.9 1595.1
555 1595.11	555.1 1595.12	555.2 1595.13	555.3 1595.13	555.4 1595.14
555.5 1595.16	555.5 1595.17	555.6 1595.19	555.7 1595.2	555.8 1595.21
555.9 1595.22	556.1 1595.26	556.1 1595.27	556.2 1595.28	556.3 1595.31
556.4 1595.31	556.4 1595.32	556.6 1595.37	556.6 1595.38	557.2 1595.62
557.3 1595.68	557.4 1595.72	557.5 1595.76	557.5 1595.8	557.6 1595.84
557.7 1595.89	557.8 1595.9	557.9 1595.95	558 1596.03	558 1596.05
558.1 1596.12	558.3 1596.26	558.4 1596.32	558.4 1596.37	558.6 1596.49
558.6 1596.53	558.7 1596.56	558.9 1596.7	558.9 1596.72	558.9 1596.73
559.1 1596.88	559.1 1596.93	559.1 1596.94	561.4 1598.28	564.5 1598.37
564.6 1598.41	565 1598.51	565.3 1598.59	565.5 1598.65	565.6 1598.69
565.7 1598.71	565.7 1598.73	565.9 1598.78	566.1 1598.84	566.2 1598.84
566.2 1598.85	566.3 1598.88	566.4 1598.91	566.6 1598.96	566.7 1598.97
566.7 1598.98	566.9 1599.04	566.9 1599.06	567 1599.1	567.2 1599.19
568 1599.46	568.1 1599.5	568.2 1599.54	568.4 1599.58	570.7 1600.6
570.9 1600.65	572.3 1601.09	572.5 1601.11	572.6 1601.14	572.7 1601.16
572.8 1601.17	573 1601.19	573 1601.2	573.2 1601.22	573.2 1601.23
573.4 1601.28	573.5 1601.28	573.6 1601.3	573.7 1601.31	573.7 1601.32
573.9 1601.34	574 1601.35	575.5 1601.78	576 1601.91	576.2 1601.93
577.5 1602.06	577.6 1602.1	577.6 1602.13	577.7 1602.16	577.8 1602.17
577.9 1602.21	578 1602.22	578 1602.23	578.2 1602.3	578.2 1602.31
578.2 1602.32	578.5 1602.37	578.5 1602.38	578.7 1602.43	578.7 1602.44
578.8 1602.45	578.9 1602.49	583.3 1603.12	583.3 1603.13	583.5 1603.18
583.5 1603.19	583.7 1603.24	583.8 1603.25	583.9 1603.29	584 1603.31
584.1 1603.33	584.2 1603.35	584.3 1603.38	584.4 1603.41	584.4 1603.42
584.5 1603.45	584.6 1603.5	584.7 1603.51	584.8 1603.55	584.9 1603.59
584.9 1603.64	585 1603.68	585.1 1603.71	585.2 1603.78	585.3 1603.81
585.3 1603.83	585.5 1603.93	585.5 1603.94	585.7 1604.01	585.8 1604.06
585.8 1604.07	586 1604.16	586 1604.17	586.1 1604.19	586.2 1604.27
586.3 1604.29	586.3 1604.32	586.4 1604.37	586.5 1604.41	586.6 1604.44
586.7 1604.46	586.8 1604.5	586.9 1604.55	587 1604.59	587.1 1604.64
587.2 1604.67	587.3 1604.72	587.4 1604.75	587.5 1604.79	587.5 1604.81
587.6 1604.84	587.7 1604.92	587.8 1604.94	587.8 1604.95	588 1605.03
588 1605.04	588.3 1605.21	588.3 1605.22	588.3 1605.24	588.5 1605.42
592.1 1606.8	592.1 1606.84	592.3 1606.91	592.4 1606.94	592.5 1607.01
592.6 1607.03	592.8 1607.15	592.8 1607.16	592.9 1607.21	593 1607.28
593.1 1607.28	593.1 1607.29	593.3 1607.39	593.4 1607.44	593.6 1607.56
593.6 1607.61	593.8 1607.72	599.7 1610.34	601.9 1611.69	605.3 1614.36
605.4 1614.4	605.6 1614.47	605.7 1614.53	605.8 1614.58	605.9 1614.62
606 1614.67	606 1614.7	606.1 1614.75	606.3 1614.81	606.4 1614.88
606.5 1614.92	606.5 1614.94	606.6 1614.98	608.9 1615.47	612.6 1616
615.2 1616.12	615.2 1616.13	615.4 1616.15	615.5 1616.17	615.7 1616.19
615.8 1616.2	616.1 1616.24	616.3 1616.26	616.4 1616.28	616.5 1616.29
616.6 1616.31	616.7 1616.31	616.7 1616.32	616.9 1616.31	617 1616.32
617.1 1616.33	617.2 1616.34	617.4 1616.37	617.4 1616.38	623.8 1616.63

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

```
       0     .04   511.9    .025   585.3     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         511.9   585.3              307   359.7     385             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0   511.9    1610       F
```

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1606.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.		0.025	0.040
W.S. Elev (ft)	1606.31	Reach Len. (ft)	307.00	359.70	385.00
Crit W.S. (ft)	1600.30	Flow Area (sq ft)		600.93	6.60
E.G. Slope (ft/ft)	0.000197	Area (sq ft)	2576.05	600.93	6.60
Q Total (cfs)	1972.00	Flow (cfs)		1968.40	3.60
Top Width (ft)	523.55	Top Width (ft)	444.64	73.40	5.51
Vel Total (ft/s)	3.25	Avg. Vel. (ft/s)		3.28	0.55
Max Chl Dpth (ft)	11.33	Hydr. Depth (ft)		8.19	1.20
Conv. Total (cfs)	140640.7	Conv. (cfs)		140383.9	256.8
Length Wtd. (ft)	359.72	Wetted Per. (ft)		77.12	6.16
Min Ch El (ft)	1594.97	Shear (lb/sq ft)		0.10	0.01
Alpha	1.02	Stream Power (lb/ft s)		0.31	0.01
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	13.29	20.75	0.60
C & E Loss (ft)	0.03	Cum SA (acres)	2.56	4.95	0.53

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

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1606.48	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.		0.025	
W.S. Elev (ft)	1606.31	Reach Len. (ft)	307.00	359.70	385.00
Crit W.S. (ft)	1600.32	Flow Area (sq ft)		601.29	
E.G. Slope (ft/ft)	0.000222	Area (sq ft)		601.29	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	73.40	Top Width (ft)		73.40	
Vel Total (ft/s)	3.28	Avg. Vel. (ft/s)		3.28	
Max Chl Dpth (ft)	11.34	Hydr. Depth (ft)		8.19	
Conv. Total (cfs)	132280.9	Conv. (cfs)		132280.9	
Length Wtd. (ft)	359.70	Wetted Per. (ft)		84.44	
Min Ch El (ft)	1594.97	Shear (lb/sq ft)		0.10	
Alpha	1.00	Stream Power (lb/ft s)		0.32	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.01	20.81	0.00
C & E Loss (ft)	0.03	Cum SA (acres)	0.02	4.95	0.00

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

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	0.00	102.38	0.00	56.80	35.43	0.00	1.62	0.00	0.02	0.00
2	LOB	102.38	204.76	0.00	619.49	103.18	0.00	6.05	0.00	0.07	0.00
3	LOB	204.76	307.14	0.00	674.53	102.61	0.00	6.59	0.00	0.08	0.00
4	LOB	307.14	409.52	0.00	621.23	102.55	0.00	6.07	0.00	0.07	0.00
5	LOB	409.52	511.90	0.00	604.00	102.55	0.00	5.90	0.00	0.07	0.00
6	Chan	511.90	526.58	357.39	118.51	16.01	18.12	8.07	3.02	0.09	0.27
7	Chan	526.58	541.26	497.13	139.95	14.79	25.21	9.53	3.55	0.12	0.41
8	Chan	541.26	555.94	629.62	161.81	14.92	31.93	11.02	3.89	0.13	0.52
9	Chan	555.94	570.62	364.20	120.21	16.13	18.47	8.19	3.03	0.09	0.28
10	Chan	570.62	585.30	120.06	60.45	15.28	6.09	4.12	1.99	0.05	0.10
11	ROB	585.30	593.02	3.60	6.60	6.16	0.18	1.20	0.55	0.01	0.01

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

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	511.90	526.58	311.20	118.59	20.85	15.78	8.08	2.62	0.08	0.21
2	Chan	526.58	541.26	516.14	140.02	14.79	26.17	9.54	3.69	0.13	0.48

3	Chan	541.26	555.94	653.61	161.88	14.92	33.14	11.03	4.04	0.15
0.61										
4	Chan	555.94	570.62	378.17	120.28	16.13	19.18	8.19	3.14	0.10
0.33										
5	Chan	570.62	585.30	112.89	60.52	17.76	5.72	4.12	1.87	0.05
0.09										

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

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 2100

INPUT
Description:
Station Elevation Data num= 447

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1606.83	5.5	1605.97	7.3	1605.84	9.5	1605.46	10.4	1605.47
11.3	1605.36	15.3	1604.67	17.5	1604.44	20.9	1603.69	22.7	1603.18
27.7	1602.44	28.4	1602.36	28.8	1602.42	36.7	1601.16	37.9	1601.11
41.6	1600.69	43.6	1600.66	45.3	1600.48	48.6	1600.49	51	1600
52.7	1599.81	54.4	1599.77	54.6	1599.66	57.4	1599.38	58.6	1599.38
59.6	1599.23	60.6	1599.2	61.5	1599	66.2	1598.42	69.1	1597.95
69.9	1597.95	73.4	1597.51	77.7	1597.17	79.4	1596.82	81	1596.12
83.1	1595.39	84.8	1595.09	85.8	1594.59	87.3	1593.65	87.9	1593.5
89.2	1593.7	91	1594.47	95.8	1595.28	95.9	1595.27	96.1	1595.25
96.5	1595.27	96.7	1595.28	96.8	1595.3	97	1595.31	98.4	1595.75
100.1	1596.67	100.9	1598.21	101	1598.27	101.3	1598.75	101.5	1598.81
102.6	1598.94	111.7	1599.03	111.9	1599.05	112.1	1599.06	113.6	1599.38
114.8	1599.46	116.9	1599.79	117.6	1599.81	120.1	1600.12	122.7	1600.22
124.3	1599.96	124.9	1599.78	125.3	1599.58	125.3	1599.55	125.4	1599.48
125.5	1599.41	125.6	1599.34	125.7	1599.26	125.8	1599.2	125.8	1599.16
126.1	1598.94	126.1	1598.92	127	1598.59	127.9	1598.35	128.5	1598.25
128.5	1598.23	128.6	1598.22	131	1598.06	132.7	1597.82	134.1	1597.46
136.8	1597.24	139	1596.97	141.5	1596.43	144.3	1595.5	145.9	1595.21
147.7	1595.18	149.4	1595.76	150.7	1595.82	150.8	1595.83	150.9	1595.86
151	1595.88	151.1	1595.88	151.2	1595.89	151.2	1595.9	151.3	1595.91
153.6	1595.66	155.2	1595.28	156.8	1594.61	159.3	1593.87	160.5	1593.43
161.9	1593.17	162.8	1592.9	166.2	1592.5	170.1	1592.53	172.9	1592.66
176.1	1592.53	176.2	1592.53	176.3	1592.53	176.4	1592.53	177.4	1592.59
178	1592.55	178.1	1592.54	178.3	1592.53	178.4	1592.52	181.5	1592.5
181.7	1592.51	181.8	1592.56	181.9	1592.56	182.2	1592.66	182.3	1592.67
182.4	1592.72	182.5	1592.75	182.6	1592.79	182.7	1592.82	185	1593.99
186.1	1594.26	189	1594.5	189.1	1594.53	189.2	1594.53	189.3	1594.54
189.5	1594.56	189.9	1594.66	194	1595.94	194	1595.95	194.1	1596.04

194.3 1596.11	194.3 1596.13	194.4 1596.16	194.5 1596.21	194.6 1596.25
194.7 1596.28	194.8 1596.32	194.9 1596.34	194.9 1596.36	195 1596.42
195.3 1596.54	195.4 1596.55	195.6 1596.6	195.9 1596.64	196 1596.69
196.1 1596.77	196.2 1596.81	196.3 1596.85	198 1597.42	198.1 1597.43
198.1 1597.44	198.3 1597.43	198.6 1597.48	198.7 1597.54	198.8 1597.56
198.8 1597.58	198.9 1597.62	199 1597.66	199.1 1597.7	199.3 1597.78
199.4 1597.8	199.5 1597.86	199.6 1597.92	199.7 1597.95	199.8 1598.03
200 1598.13	200.3 1598.23	200.4 1598.25	200.4 1598.28	200.6 1598.3
202.5 1598.89	202.5 1598.9	202.9 1598.94	204.1 1599.52	207.6 1600.98
207.7 1600.99	208 1601.05	208 1601.06	208.1 1601.06	208.3 1601.1
208.4 1601.16	208.5 1601.23	208.6 1601.25	208.6 1601.26	208.8 1601.35
208.9 1601.39	208.9 1601.4	209 1601.42	209.1 1601.47	209.8 1601.78
210 1601.82	210.1 1601.87	210.2 1601.93	210.3 1601.98	210.4 1601.99
210.6 1602.04	211.6 1602.55	212.3 1602.85	216.2 1604.2	216.2 1604.23
216.3 1604.27	216.4 1604.3	216.6 1604.38	216.6 1604.39	216.7 1604.44
216.8 1604.46	216.8 1604.49	217 1604.55	217 1604.58	217.1 1604.64
217.3 1604.72	217.5 1604.79	217.7 1604.84	217.8 1604.89	218 1604.97
218 1604.98	218.2 1605.02	218.2 1605.03	218.4 1605.07	218.5 1605.07
218.6 1605.1	218.8 1605.12	218.8 1605.13	219 1605.26	219.1 1605.32
219.1 1605.36	219.3 1605.44	219.4 1605.45	219.5 1605.5	219.6 1605.58
219.7 1605.59	219.8 1605.62	219.9 1605.66	220.1 1605.73	220.2 1605.76
220.2 1605.78	220.3 1605.79	220.4 1605.86	220.5 1605.91	220.6 1605.95
220.7 1606.04	220.8 1606.06	220.8 1606.07	221 1606.17	221.1 1606.25
221.1 1606.29	221.2 1606.34	221.4 1606.43	221.5 1606.51	221.6 1606.57
221.7 1606.61	221.7 1606.63	221.7 1606.65	221.9 1606.73	222 1606.78
222.1 1606.84	222.2 1606.96	222.3 1606.97	222.5 1607.15	222.6 1607.18
222.7 1607.26	222.8 1607.35	223 1607.43	223.2 1607.54	223.2 1607.57
223.4 1607.7	223.5 1607.75	223.7 1607.87	223.7 1607.88	224 1607.95
224.2 1608.01	224.2 1608.02	224.3 1608.04	224.4 1608.08	224.6 1608.13
224.7 1608.15	224.8 1608.2	225 1608.27	225.2 1608.34	225.5 1608.44
225.5 1608.48	225.7 1608.56	225.7 1608.57	225.9 1608.62	225.9 1608.63
226 1608.7	226.1 1608.73	226.3 1608.75	226.3 1608.77	226.4 1608.81
226.6 1608.86	226.6 1608.87	226.6 1608.88	226.8 1608.94	227 1609
228.6 1609.69	233.6 1610.66	235.3 1610.8	235.4 1610.8	235.5 1610.81
235.6 1610.83	235.7 1610.84	237.9 1610.91	238 1610.91	238.1 1610.92
238.2 1610.94	238.4 1610.97	238.5 1610.98	238.7 1611	238.7 1611.01
238.8 1611.02	239.4 1611.12	239.6 1611.12	239.7 1611.11	239.8 1611.11
239.9 1611.08	240 1611.08	240.1 1611.09	240.3 1611.09	240.4 1611.09
240.5 1611.11	240.6 1611.12	240.7 1611.14	240.8 1611.15	240.9 1611.16
241 1611.17	241.1 1611.17	241.2 1611.18	241.4 1611.19	241.5 1611.18
241.6 1611.18	241.7 1611.18	241.8 1611.17	242 1611.17	242.1 1611.17
245.1 1611.56	247.4 1611.68	247.5 1611.69	247.6 1611.68	248 1611.69
248.1 1611.69	248.2 1611.69	248.3 1611.69	248.4 1611.69	248.5 1611.69
248.7 1611.69	249 1611.66	249.1 1611.65	249.2 1611.63	249.4 1611.63
251.9 1611.91	256.1 1612.09	256.5 1612.16	258.7 1612.03	258.9 1612.05
258.9 1612.06	259 1612.08	259.1 1612.09	259.3 1612.11	259.4 1612.12
259.5 1612.12	259.5 1612.13	259.7 1612.15	259.8 1612.17	260 1612.18
260.7 1612.19	261.3 1612.21	264.8 1611.96	267.8 1612	267.9 1612
267.9 1611.99	268 1611.97	268.2 1611.95	268.2 1611.94	268.3 1611.94
268.4 1611.94	268.5 1611.93	268.6 1611.91	268.7 1611.91	268.8 1611.9

```
     269 1611.88   269.1 1611.85     271 1611.74   272.9 1611.82   274.3 1611.77
   276.5 1611.78   276.7 1611.78   276.8 1611.78   276.9 1611.77     277 1611.76
   277.2 1611.75   277.4 1611.72   277.5 1611.72   279.3 1611.84     281 1611.84
   283.4 1611.95   287.9 1611.94     288 1611.94   288.2 1611.95   288.5 1611.97
   288.6 1611.98   288.7    1612   288.8 1612.02   293.2 1612.08   293.4  1612.1
   293.6  1612.1   294.8 1612.09   295.4 1612.07   295.5 1612.06   295.6 1612.06
   295.7 1612.06   295.8 1612.06   296.1 1612.06   296.3 1612.06   296.4 1612.08
   296.5 1612.09   296.6 1612.12   296.7 1612.12   296.8 1612.12   296.9 1612.13
   297.1 1612.14   297.1 1612.15   297.2 1612.15   297.8 1612.12     298 1612.12
   298.1 1612.12   298.2 1612.12   298.3  1612.1   298.4 1612.09   298.5 1612.09
   298.6 1612.09   298.7 1612.09     299 1612.09   299.1 1612.09   299.2 1612.09
   299.3 1612.09299.3802 1612.09

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   124.3    .025   225.7     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         124.3   225.7              108    99.8     104             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0   124.3    1610       F

CROSS SECTION OUTPUT  Profile #BFE

  E.G. Elev (ft)           1606.41    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               0.07    Wt. n-Val.                            0.025
  W.S. Elev (ft)           1606.34    Reach Len. (ft)          108.00      99.80     104.00
  Crit W.S. (ft)           1597.64    Flow Area (sq ft)                    940.45
  E.G. Slope (ft/ft)      0.000064    Area (sq ft)             791.11     940.45
  Q Total (cfs)            1972.00    Flow (cfs)                         1972.00
  Top Width (ft)            218.03    Top Width (ft)           121.14      96.89
  Vel Total (ft/s)            2.10    Avg. Vel. (ft/s)                      2.10
  Max Chl Dpth (ft)          13.84    Hydr. Depth (ft)                      9.71
  Conv. Total (cfs)       246958.5    Conv. (cfs)                       246958.5
  Length Wtd. (ft)            99.80    Wetted Per. (ft)                    101.27
  Min Ch El (ft)           1592.50    Shear (lb/sq ft)                      0.04
  Alpha                       1.00    Stream Power (lb/ft s)                0.08
  Frctn Loss (ft)             0.02    Cum Volume (acre-ft)        1.43      14.39       0.57
  C & E Loss (ft)             0.46    Cum SA (acres)              0.57       4.25       0.51


Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross
         sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
         1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT  Profile #FLOODWAY
```

E.G. Elev (ft)	1606.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.		0.025	
W.S. Elev (ft)	1606.34	Reach Len. (ft)	108.00	99.80	104.00
Crit W.S. (ft)	1597.64	Flow Area (sq ft)		940.59	
E.G. Slope (ft/ft)	0.000069	Area (sq ft)		940.59	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	96.90	Top Width (ft)		96.90	
Vel Total (ft/s)	2.10	Avg. Vel. (ft/s)		2.10	
Max Chl Dpth (ft)	13.84	Hydr. Depth (ft)		9.71	
Conv. Total (cfs)	237160.4	Conv. (cfs)		237160.4	
Length Wtd. (ft)	99.80	Wetted Per. (ft)		107.65	
Min Ch El (ft)	1592.50	Shear (lb/sq ft)		0.04	
Alpha	1.00	Stream Power (lb/ft s)		0.08	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.01	14.45	0.00
C & E Loss (ft)	0.46	Cum SA (acres)	0.02	4.25	0.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	0.00	24.86	0.00	33.64	22.02	0.00	1.55	0.00	0.01	0.00
2	LOB	24.86	49.72	0.00	124.18	25.06	0.00	5.00	0.00	0.02	0.00
3	LOB	49.72	74.58	0.00	186.21	25.08	0.00	7.49	0.00	0.03	0.00
4	LOB	74.58	99.44	0.00	271.18	26.06	0.00	10.91	0.00	0.04	0.00
5	LOB	99.44	124.30	0.00	175.90	26.29	0.00	7.08	0.00	0.03	0.00
6	Chan	124.30	144.58	327.42	178.61	21.05	16.60	8.81	1.83	0.03	0.06
7	Chan	144.58	164.86	525.90	236.54	20.87	26.67	11.66	2.22	0.05	0.10
8	Chan	164.86	185.14	690.40	277.25	20.64	35.01	13.67	2.49	0.05	0.13
9	Chan	185.14	205.42	382.89	197.64	21.44	19.42	9.75	1.94	0.04	0.07
10	Chan	205.42	225.70	45.39	50.41	17.27	2.30	3.20	0.90	0.01	0.01

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	124.30	144.58	282.05	178.64	27.43	14.30	8.81	1.58	0.03	0.04
2	Chan	144.58	164.86	540.41	236.57	20.87	27.40	11.67	2.28	0.05	0.11
3	Chan	164.86	185.14	709.41	277.28	20.64	35.97	13.67	2.56	0.06	0.15
4	Chan	185.14	205.42	393.47	197.67	21.44	19.95	9.75	1.99	0.04	0.08
5	Chan	205.42	225.70	46.66	50.44	17.27	2.37	3.20	0.93	0.01	0.01

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 2000.1

INPUT
Description:
Station Elevation Data num= 412

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1607.3	1.8	1607	2.8	1606.91	4.6	1606.61	5.2	1606.51
5.7	1606.35	6.9	1606.25	8	1606.03	8.5	1606.01	9.8	1605.79
10	1605.84	11.3	1605.74	13.9	1605.26	14	1605.27	14.1	1605.28
15.9	1605.06	16.5	1604.91	18	1604.75	19.2	1604.51	19.7	1604.53
20.5	1604.5	20.8	1604.45	21.8	1604.43	23.7	1604.25	24.3	1604.24
25.1	1604.16	27.2	1604.19	29	1604.16	29.5	1604.06	30.2	1604.05
30.5	1604	31.8	1603.63	32.5	1603.61	33	1603.67	35.1	1603.48
37.3	1603.51	37.9	1603.47	38.9	1603.47	39.7	1603.42	40	1603.1
40.1	1602.93	40.7	1602.07	41	1601.54	41.1	1601.22	41.3	1601.04

41.6 1600.55	41.8 1600.3	41.9 1600.13	41.9 1600.04	42 1599.92
42.1 1599.79	42.5 1599.5	42.5 1599.52	42.6 1599.61	42.6 1599.64
42.8 1599.86	42.9 1599.88	45 1599.96	45 1591.77	57 1591.77
57 1601.24	57.5 1601.78	57.7 1601.52	57.9 1601.48	58 1601.58
58.1 1601.56	58.1 1601.57	58.3 1601.68	58.3 1601.76	58.4 1601.94
58.4 1601.98	58.5 1602.05	58.7 1602.44	58.8 1602.59	58.9 1603.02
59 1603.07	59.1 1603	59.3 1603.12	59.3 1603.13	59.5 1603.14
59.6 1603.15	59.9 1603.12	60.4 1603.08	60.6 1603.06	60.6 1603.05
60.8 1603.03	60.9 1603.02	60.9 1603	61.1 1602.99	61.2 1602.98
61.3 1602.98	61.9 1602.97	62 1602.94	62.1 1602.94	62.2 1602.91
62.9 1602.83	63.5 1602.82	63.5 1602.81	63.6 1602.81	63.7 1602.81
64.1 1602.83	64.2 1602.82	64.4 1602.8	64.5 1602.78	64.6 1602.78
64.7 1602.76	64.8 1602.73	65 1602.72	65.2 1602.66	66 1602.69
66.1 1602.71	66.1 1602.72	66.3 1602.74	66.4 1602.74	66.5 1602.76
66.7 1602.78	67 1602.76	67.1 1602.75	67.2 1602.74	67.3 1602.74
67.4 1602.75	67.6 1602.75	67.8 1602.73	67.9 1602.71	68 1602.7
68.1 1602.68	68.3 1602.64	68.4 1602.61	68.5 1602.6	68.5 1602.59
68.7 1602.57	68.8 1602.53	68.9 1602.53	69.8 1602.43	70.5 1602.53
70.5 1602.54	70.7 1602.59	70.7 1602.61	70.8 1602.63	71 1602.73
71.1 1602.75	71.2 1602.79	71.2 1602.81	71.3 1602.85	71.7 1602.97
73.2 1603.15	73.3 1603.15	73.5 1603.16	74.2 1603.1	74.3 1603.1
74.4 1603.1	74.5 1603.09	75.4 1603.09	75.5 1603.08	75.6 1603.06
75.7 1603.06	75.8 1603.04	76 1603.09	76.1 1603.1	76.5 1603.18
76.7 1603.16	76.8 1603.16	77 1603.18	77 1603.19	77.2 1603.22
77.3 1603.22	78 1603.22	79.8 1603.06	79.8 1603.07	80 1603.09
80.3 1603.09	80.3 1603.1	80.4 1603.12	82.8 1603.18	83.1 1603.18
84.3 1603.13	84.5 1603.1	84.6 1603.11	84.7 1603.15	84.8 1603.16
85 1603.17	85.1 1603.16	85.3 1603.16	85.7 1603.17	85.8 1603.19
85.9 1603.19	86 1603.19	86.1 1603.19	86.3 1603.19	86.4 1603.2
86.6 1603.22	86.7 1603.22	86.8 1603.22	87 1603.22	87.1 1603.22
87.3 1603.22	89.4 1603.14	91.5 1603.25	91.6 1603.25	91.7 1603.25
91.8 1603.26	91.9 1603.26	92 1603.26	92.2 1603.28	92.3 1603.28
92.4 1603.28	92.5 1603.28	92.7 1603.31	92.8 1603.34	92.9 1603.36
92.9 1603.38	93.2 1603.43	93.4 1603.46	93.5 1603.46	93.6 1603.46
93.8 1603.46	94 1603.46	94.1 1603.46	94.8 1603.54	95 1603.54
95.1 1603.54	95.1 1603.55	95.2 1603.56	96.6 1603.65	96.6 1603.66
96.9 1603.69	97 1603.73	97.1 1603.74	97.3 1603.77	97.3 1603.78
98 1603.87	98.1 1603.88	98.1 1603.87	98.3 1603.85	98.5 1603.83
98.6 1603.83	98.6 1603.84	98.7 1603.87	98.8 1603.88	98.9 1603.91
99 1603.93	99.1 1603.95	99.2 1603.96	99.2 1603.97	100.1 1604.06
100.2 1604.1	100.3 1604.12	100.4 1604.13	100.5 1604.15	100.6 1604.16
100.8 1604.21	100.8 1604.22	101.1 1604.25	101.3 1604.27	101.3 1604.28
101.5 1604.31	101.6 1604.32	101.8 1604.34	101.8 1604.35	101.9 1604.35
102 1604.38	102.1 1604.38	102.1 1604.39	102.3 1604.42	102.7 1604.47
102.9 1604.5	103.1 1604.52	103.2 1604.53	103.2 1604.54	103.3 1604.55
103.4 1604.55	103.5 1604.55	103.6 1604.55	103.7 1604.56	103.8 1604.58
103.8 1604.59	104.6 1604.65	104.6 1604.66	104.7 1604.67	105.1 1604.72
107.1 1604.84	107.8 1605	108.1 1605.03	108.2 1605.04	108.3 1605.06
108.6 1605.06	108.6 1605.07	108.8 1605.09	108.9 1605.11	109 1605.12
109.1 1605.13	109.2 1605.14	109.3 1605.17	109.4 1605.18	109.5 1605.19

109.6	1605.2	109.7	1605.21	109.7	1605.22	109.8	1605.23	110	1605.25		
110.1	1605.27	110.2	1605.28	110.3	1605.3	110.4	1605.32	110.5	1605.34		
110.6	1605.37	110.7	1605.37	110.8	1605.38	111.1	1605.42	111.1	1605.43		
111.4	1605.43	111.6	1605.44	111.7	1605.44	111.8	1605.47	112.1	1605.5		
112.3	1605.51	112.4	1605.51	112.5	1605.53	112.7	1605.55	112.8	1605.56		
113	1605.57	113.1	1605.58	113.2	1605.59	113.4	1605.59	113.6	1605.59		
113.8	1605.61	113.9	1605.61	114	1605.62	114.1	1605.62	114.2	1605.62		
114.3	1605.62	114.4	1605.62	114.9	1605.66	117.1	1605.69	117.2	1605.69		
117.3	1605.69	117.4	1605.69	117.4	1605.68	117.5	1605.67	117.6	1605.67		
117.9	1605.66	118.1	1605.66	118.3	1605.69	118.4	1605.69	119.8	1605.7		
119.9	1605.7	120	1605.7	120.2	1605.7	120.5	1605.7	120.6	1605.69		
120.8	1605.69	121.1	1605.68	121.2	1605.68	121.3	1605.68	121.4	1605.68		
121.4	1605.67	121.6	1605.65	121.9	1605.62	122.1	1605.63	122.1	1605.62		
122.4	1605.59	122.6	1605.59	122.7	1605.6	122.8	1605.61	123.1	1605.65		
123.1	1605.66	123.2	1605.66	123.3	1605.66	123.4	1605.66	123.5	1605.65		
123.5	1605.64	123.6	1605.64	123.8	1605.64	125.4	1605.69	125.5	1605.67		
125.6	1605.66	125.9	1605.63	125.9	1605.62	126.1	1605.62	126.4	1605.59		
126.5	1605.59	127.3	1605.6	127.4	1605.61	127.5	1605.61	127.9	1605.62		
128	1605.62	128.1	1605.62	128.3	1605.62	128.4	1605.61	128.6	1605.59		
128.7	1605.59	128.9	1605.56	129	1605.56	129.1	1605.56	129.2	1605.56		
129.4	1605.56	129.6	1605.56	129.8	1605.54	129.9	1605.54	130	1605.54		
130.1	1605.54	130.2	1605.54	130.3	1605.54	130.4	1605.54	130.5	1605.54		
130.5	1605.55	130.6	1605.55	130.8	1605.54	130.9	1605.53	131	1605.53		
131.2	1605.53	132.7386	1605.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	45	.015	57	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
45	57	.1	.1	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	45	1608	F
57	132.7386	1608	F

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1605.92	Element			
Vel Head (ft)	4.71	Wt. n-Val.		0.015	
W.S. Elev (ft)	1601.21	Reach Len. (ft)	0.10	0.10	0.10
Crit W.S. (ft)	1601.21	Flow Area (sq ft)		113.24	
E.G. Slope (ft/ft)	0.005171	Area (sq ft)	4.57	113.24	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	15.89	Top Width (ft)	3.89	12.00	
Vel Total (ft/s)	17.41	Avg. Vel. (ft/s)		17.41	
Max Chl Dpth (ft)	9.44	Hydr. Depth (ft)		9.44	
Conv. Total (cfs)	27422.5	Conv. (cfs)		27422.5	
Length Wtd. (ft)	0.10	Wetted Per. (ft)		29.63	
Min Ch El (ft)	1591.77	Shear (lb/sq ft)		1.23	

Alpha	1.00	Stream Power (lb/ft s)		21.49	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.44	13.18	0.57
C & E Loss (ft)	0.40	Cum SA (acres)	0.42	4.12	0.51

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1605.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.71	Wt. n-Val.		0.015	
W.S. Elev (ft)	1601.21	Reach Len. (ft)	0.10	0.10	0.10
Crit W.S. (ft)	1601.21	Flow Area (sq ft)		113.25	
E.G. Slope (ft/ft)	0.005170	Area (sq ft)	4.57	113.25	
Q Total (cfs)	1972.00	Flow (cfs)		1972.00	
Top Width (ft)	15.89	Top Width (ft)	3.89	12.00	
Vel Total (ft/s)	17.41	Avg. Vel. (ft/s)		17.41	
Max Chl Dpth (ft)	9.44	Hydr. Depth (ft)		9.44	
Conv. Total (cfs)	27426.6	Conv. (cfs)		27426.6	
Length Wtd. (ft)	0.10	Wetted Per. (ft)		29.63	
Min Ch El (ft)	1591.77	Shear (lb/sq ft)		1.23	
Alpha	1.00	Stream Power (lb/ft s)		21.48	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.01	13.24	0.00
C & E Loss (ft)	0.40	Cum SA (acres)	0.02	4.12	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power

		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	LOB	36.00	45.00	0.00	4.57	4.93	0.00	1.18	0.00	0.30	0.00
2	Chan	45.00	47.40	197.22	22.65	10.59	10.00	9.44	8.71	0.69	6.01
3	Chan	47.40	49.80	530.56	22.65	2.40	26.90	9.44	23.43	3.05	71.37
4	Chan	49.80	52.20	530.56	22.65	2.40	26.90	9.44	23.43	3.05	71.37
5	Chan	52.20	54.60	530.56	22.65	2.40	26.90	9.44	23.43	3.05	71.37
6	Chan	54.60	57.00	183.11	22.65	11.84	9.29	9.44	8.09	0.62	4.99

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	LOB	36.00	45.00	0.00	4.57	4.93	0.00	1.18	0.00	0.30	0.00
2	Chan	45.00	47.40	197.22	22.65	10.59	10.00	9.44	8.71	0.69	6.01
3	Chan	47.40	49.80	530.56	22.65	2.40	26.90	9.44	23.42	3.05	71.35
4	Chan	49.80	52.20	530.56	22.65	2.40	26.90	9.44	23.42	3.05	71.35
5	Chan	52.20	54.60	530.56	22.65	2.40	26.90	9.44	23.42	3.05	71.35
6	Chan	54.60	57.00	183.11	22.65	11.84	9.29	9.44	8.08	0.62	4.99

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross

sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 2000

INPUT
Description:
Station Elevation Data num= 420

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1607.3	1.8	1607	2.8	1606.91	4.6	1606.61	5.2	1606.51
5.7	1606.35	6.9	1606.25	8	1606.03	8.5	1606.01	9.8	1605.79
10	1605.84	11.3	1605.74	13.9	1605.26	14	1605.27	14.1	1605.28
15.9	1605.06	16.5	1604.91	18	1604.75	19.2	1604.51	19.7	1604.53
20.5	1604.5	20.8	1604.45	21.8	1604.43	23.7	1604.25	24.3	1604.24
25.1	1604.16	27.2	1604.19	29	1604.16	29.5	1604.06	30.2	1604.05
30.5	1604	31.8	1603.63	32.5	1603.61	33	1603.67	35.1	1603.48
37.3	1603.51	37.9	1603.47	38.9	1603.47	39.7	1603.42	40	1603.1
40.1	1602.93	40.7	1602.07	41	1601.54	41.1	1601.22	41.3	1601.04
41.6	1600.55	41.8	1600.3	41.9	1600.13	41.9	1600.04	42	1599.92
42.1	1599.79	42.5	1599.5	42.5	1599.52	42.6	1599.61	42.6	1599.64
42.8	1599.86	42.9	1599.88	43	1599.96	43.1	1599.97	43.2	1599.85
43.3	1599.55	43.4	1599.34	43.5	1598.64	43.5	1591.77	55.5	1591.77
55.5	1603.22	57.2	1602.91	57.4	1602.34	57.5	1601.92	57.5	1601.78
57.7	1601.52	57.9	1601.48	58	1601.58	58.1	1601.56	58.1	1601.57
58.3	1601.68	58.3	1601.76	58.4	1601.94	58.4	1601.98	58.5	1602.05
58.7	1602.44	58.8	1602.59	58.9	1603.02	59	1603.07	59.1	1603
59.3	1603.12	59.3	1603.13	59.5	1603.14	59.6	1603.15	59.9	1603.12
60.4	1603.08	60.6	1603.06	60.6	1603.05	60.8	1603.03	60.9	1603.02
60.9	1603	61.1	1602.99	61.2	1602.98	61.3	1602.98	61.9	1602.97
62	1602.94	62.1	1602.94	62.2	1602.91	62.9	1602.83	63.5	1602.82
63.5	1602.81	63.6	1602.81	63.7	1602.81	64.1	1602.83	64.2	1602.82
64.4	1602.8	64.5	1602.78	64.6	1602.78	64.7	1602.76	64.8	1602.73
65	1602.72	65.2	1602.66	66	1602.69	66.1	1602.71	66.1	1602.72
66.3	1602.74	66.4	1602.74	66.5	1602.76	66.7	1602.78	67	1602.76
67.1	1602.75	67.2	1602.74	67.3	1602.74	67.4	1602.75	67.6	1602.75
67.8	1602.73	67.9	1602.71	68	1602.7	68.1	1602.68	68.3	1602.64
68.4	1602.61	68.5	1602.6	68.5	1602.59	68.7	1602.57	68.8	1602.53
68.9	1602.53	69.8	1602.43	70.5	1602.53	70.5	1602.54	70.7	1602.59
70.7	1602.61	70.8	1602.63	71	1602.73	71.1	1602.75	71.2	1602.79
71.2	1602.81	71.3	1602.85	71.7	1602.97	73.2	1603.15	73.3	1603.15
73.5	1603.16	74.2	1603.1	74.3	1603.1	74.4	1603.1	74.5	1603.09

75.4	1603.09	75.5	1603.08	75.6	1603.06	75.7	1603.06	75.8	1603.04
76	1603.09	76.1	1603.1	76.5	1603.18	76.7	1603.16	76.8	1603.16
77	1603.18	77	1603.19	77.2	1603.22	77.3	1603.22	78	1603.22
79.8	1603.06	79.8	1603.07	80	1603.09	80.3	1603.09	80.3	1603.1
80.4	1603.12	82.8	1603.18	83.1	1603.18	84.3	1603.13	84.5	1603.1
84.6	1603.11	84.7	1603.15	84.8	1603.16	85	1603.17	85.1	1603.16
85.3	1603.16	85.7	1603.17	85.8	1603.19	85.9	1603.19	86	1603.19
86.1	1603.19	86.3	1603.19	86.4	1603.2	86.6	1603.22	86.7	1603.22
86.8	1603.22	87	1603.22	87.1	1603.22	87.3	1603.22	89.4	1603.14
91.5	1603.25	91.6	1603.25	91.7	1603.25	91.8	1603.26	91.9	1603.26
92	1603.26	92.2	1603.28	92.3	1603.28	92.4	1603.28	92.5	1603.28
92.7	1603.31	92.8	1603.34	92.9	1603.36	92.9	1603.38	93.2	1603.43
93.4	1603.46	93.5	1603.46	93.6	1603.46	93.8	1603.46	94	1603.46
94.1	1603.46	94.8	1603.54	95	1603.54	95.1	1603.54	95.1	1603.55
95.2	1603.56	96.6	1603.65	96.6	1603.66	96.9	1603.69	97	1603.73
97.1	1603.74	97.3	1603.77	97.3	1603.78	98	1603.87	98.1	1603.88
98.1	1603.87	98.3	1603.85	98.5	1603.83	98.6	1603.83	98.6	1603.84
98.7	1603.87	98.8	1603.88	98.9	1603.91	99	1603.93	99.1	1603.95
99.2	1603.96	99.2	1603.97	100.1	1604.06	100.2	1604.1	100.3	1604.12
100.4	1604.13	100.5	1604.15	100.6	1604.16	100.8	1604.21	100.8	1604.22
101.1	1604.25	101.3	1604.27	101.3	1604.28	101.5	1604.31	101.6	1604.32
101.8	1604.34	101.8	1604.35	101.9	1604.35	102	1604.38	102.1	1604.38
102.1	1604.39	102.3	1604.42	102.7	1604.47	102.9	1604.5	103.1	1604.52
103.2	1604.53	103.2	1604.54	103.3	1604.55	103.4	1604.55	103.5	1604.55
103.6	1604.55	103.7	1604.56	103.8	1604.58	103.8	1604.59	104.6	1604.65
104.6	1604.66	104.7	1604.67	105.1	1604.72	107.1	1604.84	107.8	1605
108.1	1605.03	108.2	1605.04	108.3	1605.06	108.6	1605.06	108.6	1605.07
108.8	1605.09	108.9	1605.11	109	1605.12	109.1	1605.13	109.2	1605.14
109.3	1605.17	109.4	1605.18	109.5	1605.19	109.6	1605.2	109.7	1605.21
109.7	1605.22	109.8	1605.23	110	1605.25	110.1	1605.27	110.2	1605.28
110.3	1605.3	110.4	1605.32	110.5	1605.34	110.6	1605.37	110.7	1605.37
110.8	1605.38	111.1	1605.42	111.1	1605.43	111.4	1605.43	111.6	1605.44
111.7	1605.44	111.8	1605.47	112.1	1605.5	112.3	1605.51	112.4	1605.51
112.5	1605.53	112.7	1605.55	112.8	1605.56	113	1605.57	113.1	1605.58
113.2	1605.59	113.4	1605.59	113.6	1605.59	113.8	1605.61	113.9	1605.61
114	1605.62	114.1	1605.62	114.2	1605.62	114.3	1605.62	114.4	1605.62
114.9	1605.66	117.1	1605.69	117.2	1605.69	117.3	1605.69	117.4	1605.69
117.4	1605.68	117.5	1605.67	117.6	1605.67	117.9	1605.66	118.1	1605.66
118.3	1605.69	118.4	1605.69	119.8	1605.7	119.9	1605.7	120	1605.7
120.2	1605.7	120.5	1605.7	120.6	1605.69	120.8	1605.69	121.1	1605.68
121.2	1605.68	121.3	1605.68	121.4	1605.68	121.4	1605.67	121.6	1605.65
121.9	1605.62	122.1	1605.63	122.1	1605.62	122.4	1605.59	122.6	1605.59
122.7	1605.6	122.8	1605.61	123.1	1605.65	123.1	1605.66	123.2	1605.66
123.3	1605.66	123.4	1605.66	123.5	1605.65	123.5	1605.64	123.6	1605.64
123.8	1605.64	125.4	1605.69	125.5	1605.67	125.6	1605.66	125.9	1605.63
125.9	1605.62	126.1	1605.62	126.4	1605.59	126.5	1605.59	127.3	1605.6
127.4	1605.61	127.5	1605.61	127.9	1605.62	128	1605.62	128.1	1605.62
128.3	1605.62	128.4	1605.61	128.6	1605.59	128.7	1605.59	128.9	1605.56
129	1605.56	129.1	1605.56	129.2	1605.56	129.4	1605.56	129.6	1605.56
129.8	1605.54	129.9	1605.54	130	1605.54	130.1	1605.54	130.2	1605.54

```
   130.3 1605.54   130.4 1605.54   130.5 1605.54   130.5 1605.55   130.6 1605.55
   130.8 1605.54   130.9 1605.53     131 1605.53   131.2 1605.53 132.739  1605.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025    43.5    .015    55.5    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          43.5    55.5            321.5   321.5   321.5             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0    43.5    1608       F
    55.5 132.739    1608       F

CROSS SECTION OUTPUT  Profile #BFE

  E.G. Elev (ft)           1603.55    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               3.92    Wt. n-Val.                          0.015
  W.S. Elev (ft)           1599.63    Reach Len. (ft)            0.10       0.10       0.10
  Crit W.S. (ft)           1599.63    Flow Area (sq ft)                     94.36
  E.G. Slope (ft/ft)      0.004779    Area (sq ft)               0.10       94.36
  Q Total (cfs)            1498.00    Flow (cfs)                          1498.00
  Top Width (ft)             12.51    Top Width (ft)             0.51      12.00
  Vel Total (ft/s)           15.88    Avg. Vel. (ft/s)                      15.88
  Max Chl Dpth (ft)           7.86    Hydr. Depth (ft)                       7.86
  Conv. Total (cfs)        21669.3    Conv. (cfs)                         21669.3
  Length Wtd. (ft)                    Wetted Per. (ft)                      26.73
  Min Ch El (ft)           1591.77    Shear (lb/sq ft)                       1.05
  Alpha                       1.00    Stream Power (lb/ft s)                16.72
  Frctn Loss (ft)                     Cum Volume (acre-ft)       0.44       13.18       0.57
  C & E Loss (ft)                     Cum SA (acres)             0.42        4.12       0.51


Warning: The energy equation could not be balanced within the specified number of iterations.  The program used critical
         depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT  Profile #FLOODWAY

  E.G. Elev (ft)           1603.55    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               3.92    Wt. n-Val.                          0.015
  W.S. Elev (ft)           1599.63    Reach Len. (ft)            0.10       0.10       0.10
  Crit W.S. (ft)           1599.63    Flow Area (sq ft)                     94.37
  E.G. Slope (ft/ft)      0.005015    Area (sq ft)                          94.37
  Q Total (cfs)            1498.00    Flow (cfs)                          1498.00
  Top Width (ft)             12.00    Top Width (ft)                        12.00
  Vel Total (ft/s)           15.87    Avg. Vel. (ft/s)                      15.87
  Max Chl Dpth (ft)           7.86    Hydr. Depth (ft)                       7.86
  Conv. Total (cfs)        21152.4    Conv. (cfs)                         21152.4
```

Length Wtd. (ft)	0.10	Wetted Per. (ft)		27.73	
Min Ch El (ft)	1591.77	Shear (lb/sq ft)		1.07	
Alpha	1.00	Stream Power (lb/ft s)		16.92	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.01	13.24	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	4.12	0.00

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

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	34.80	43.50	0.00	0.10	1.43	0.00	0.20	0.00	0.02	0.00
2	Chan	43.50	45.90	160.74	18.87	9.27	10.73	7.86	8.52	0.61	5.17
3	Chan	45.90	48.30	395.69	18.87	2.40	26.41	7.86	20.97	2.35	49.19
4	Chan	48.30	50.70	395.69	18.87	2.40	26.41	7.86	20.97	2.35	49.19
5	Chan	50.70	53.10	395.69	18.87	2.40	26.41	7.86	20.97	2.35	49.19
6	Chan	53.10	55.50	150.19	18.87	10.26	10.03	7.86	7.96	0.55	4.37

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	43.50	45.90	151.25	18.87	10.26	10.10	7.86	8.01	0.58	4.61
2	Chan	45.90	48.30	398.50	18.87	2.40	26.60	7.86	21.11	2.46	51.99
3	Chan	48.30	50.70	398.50	18.87	2.40	26.60	7.86	21.11	2.46	51.99
4	Chan	50.70	53.10	398.50	18.87	2.40	26.60	7.86	21.11	2.46	51.99
5	Chan	53.10	55.50	151.25	18.87	10.26	10.10	7.86	8.01	0.58	4.61

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

BRIDGE

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 1950

INPUT
Description:
Distance from Upstream XS = .1
Deck/Roadway Width = 319.83
Weir Coefficient = 2.7
Upstream Deck/Roadway Coordinates
num= 6

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
37	1606.72	1585.08	43.5	1606.72	1585.08	43.5	1606.72	1601.77
55.5	1606.72	1601.77	55.5	1606.72	1585.08	62	1606.72	1585.08

Upstream Bridge Cross Section Data
Station Elevation Data num= 420

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1607.3	1.8	1607	2.8	1606.91	4.6	1606.61	5.2	1606.51
5.7	1606.35	6.9	1606.25	8	1606.03	8.5	1606.01	9.8	1605.79
10	1605.84	11.3	1605.74	13.9	1605.26	14	1605.27	14.1	1605.28
15.9	1605.06	16.5	1604.91	18	1604.75	19.2	1604.51	19.7	1604.53
20.5	1604.5	20.8	1604.45	21.8	1604.43	23.7	1604.25	24.3	1604.24
25.1	1604.16	27.2	1604.19	29	1604.16	29.5	1604.06	30.2	1604.05
30.5	1604	31.8	1603.63	32.5	1603.61	33	1603.67	35.1	1603.48
37.3	1603.51	37.9	1603.47	38.9	1603.47	39.7	1603.42	40	1603.1
40.1	1602.93	40.7	1602.07	41	1601.54	41.1	1601.22	41.3	1601.04
41.6	1600.55	41.8	1600.3	41.9	1600.13	41.9	1600.04	42	1599.92
42.1	1599.79	42.5	1599.5	42.5	1599.52	42.6	1599.61	42.6	1599.64
42.8	1599.86	42.9	1599.88	43	1599.96	43.1	1599.97	43.2	1599.85
43.3	1599.55	43.4	1599.34	43.5	1598.64	43.5	1591.77	55.5	1591.77
55.5	1603.22	57.2	1602.91	57.4	1602.34	57.5	1601.92	57.5	1601.78
57.7	1601.52	57.9	1601.48	58	1601.58	58.1	1601.56	58.1	1601.57
58.3	1601.68	58.3	1601.76	58.4	1601.94	58.4	1601.98	58.5	1602.05
58.7	1602.44	58.8	1602.59	58.9	1603.02	59	1603.07	59.1	1603
59.3	1603.12	59.3	1603.13	59.5	1603.14	59.6	1603.15	59.9	1603.12
60.4	1603.08	60.6	1603.06	60.6	1603.05	60.8	1603.03	60.9	1603.02
60.9	1603	61.1	1602.99	61.2	1602.98	61.3	1602.98	61.9	1602.97
62	1602.94	62.1	1602.94	62.2	1602.91	62.9	1602.83	63.5	1602.82
63.5	1602.81	63.6	1602.81	63.7	1602.81	64.1	1602.83	64.2	1602.82
64.4	1602.8	64.5	1602.78	64.6	1602.78	64.7	1602.76	64.8	1602.73
65	1602.72	65.2	1602.66	66	1602.69	66.1	1602.71	66.1	1602.72
66.3	1602.74	66.4	1602.74	66.5	1602.76	66.7	1602.78	67	1602.76
67.1	1602.75	67.2	1602.74	67.3	1602.74	67.4	1602.75	67.6	1602.75

67.8	1602.73	67.9	1602.71	68	1602.7	68.1	1602.68	68.3	1602.64
68.4	1602.61	68.5	1602.6	68.5	1602.59	68.7	1602.57	68.8	1602.53
68.9	1602.53	69.8	1602.43	70.5	1602.53	70.5	1602.54	70.7	1602.59
70.7	1602.61	70.8	1602.63	71	1602.73	71.1	1602.75	71.2	1602.79
71.2	1602.81	71.3	1602.85	71.7	1602.97	73.2	1603.15	73.3	1603.15
73.5	1603.16	74.2	1603.1	74.3	1603.1	74.4	1603.1	74.5	1603.09
75.4	1603.09	75.5	1603.08	75.6	1603.06	75.7	1603.06	75.8	1603.04
76	1603.09	76.1	1603.1	76.5	1603.18	76.7	1603.16	76.8	1603.16
77	1603.18	77	1603.19	77.2	1603.22	77.3	1603.22	78	1603.22
79.8	1603.06	79.8	1603.07	80	1603.09	80.3	1603.09	80.3	1603.1
80.4	1603.12	82.8	1603.18	83.1	1603.18	84.3	1603.13	84.5	1603.1
84.6	1603.11	84.7	1603.15	84.8	1603.16	85	1603.17	85.1	1603.16
85.3	1603.16	85.7	1603.17	85.8	1603.19	85.9	1603.19	86	1603.19
86.1	1603.19	86.3	1603.19	86.4	1603.2	86.6	1603.22	86.7	1603.22
86.8	1603.22	87	1603.22	87.1	1603.22	87.3	1603.22	89.4	1603.14
91.5	1603.25	91.6	1603.25	91.7	1603.25	91.8	1603.26	91.9	1603.26
92	1603.26	92.2	1603.28	92.3	1603.28	92.4	1603.28	92.5	1603.28
92.7	1603.31	92.8	1603.34	92.9	1603.36	92.9	1603.38	93.2	1603.43
93.4	1603.46	93.5	1603.46	93.6	1603.46	93.8	1603.46	94	1603.46
94.1	1603.46	94.8	1603.54	95	1603.54	95.1	1603.54	95.1	1603.55
95.2	1603.56	96.6	1603.65	96.6	1603.66	96.9	1603.69	97	1603.73
97.1	1603.74	97.3	1603.77	97.3	1603.78	98	1603.87	98.1	1603.88
98.1	1603.87	98.3	1603.85	98.5	1603.83	98.6	1603.83	98.6	1603.84
98.7	1603.87	98.8	1603.88	98.9	1603.91	99	1603.93	99.1	1603.95
99.2	1603.96	99.2	1603.97	100.1	1604.06	100.2	1604.1	100.3	1604.12
100.4	1604.13	100.5	1604.15	100.6	1604.16	100.8	1604.21	100.8	1604.22
101.1	1604.25	101.3	1604.27	101.3	1604.28	101.5	1604.31	101.6	1604.32
101.8	1604.34	101.8	1604.35	101.9	1604.35	102	1604.38	102.1	1604.38
102.1	1604.39	102.3	1604.42	102.7	1604.47	102.9	1604.5	103.1	1604.52
103.2	1604.53	103.2	1604.54	103.3	1604.55	103.4	1604.55	103.5	1604.55
103.6	1604.55	103.7	1604.56	103.8	1604.58	103.8	1604.59	104.6	1604.65
104.6	1604.66	104.7	1604.67	105.1	1604.72	107.1	1604.84	107.8	1605
108.1	1605.03	108.2	1605.04	108.3	1605.06	108.6	1605.06	108.6	1605.07
108.8	1605.09	108.9	1605.11	109	1605.12	109.1	1605.13	109.2	1605.14
109.3	1605.17	109.4	1605.18	109.5	1605.19	109.6	1605.2	109.7	1605.21
109.7	1605.22	109.8	1605.23	110	1605.25	110.1	1605.27	110.2	1605.28
110.3	1605.3	110.4	1605.32	110.5	1605.34	110.6	1605.37	110.7	1605.37
110.8	1605.38	111.1	1605.42	111.1	1605.43	111.4	1605.43	111.6	1605.44
111.7	1605.44	111.8	1605.47	112.1	1605.5	112.3	1605.51	112.4	1605.51
112.5	1605.53	112.7	1605.55	112.8	1605.56	113	1605.57	113.1	1605.58
113.2	1605.59	113.4	1605.59	113.6	1605.59	113.8	1605.61	113.9	1605.61
114	1605.62	114.1	1605.62	114.2	1605.62	114.3	1605.62	114.4	1605.62
114.9	1605.66	117.1	1605.69	117.2	1605.69	117.3	1605.69	117.4	1605.69
117.4	1605.68	117.5	1605.67	117.6	1605.67	117.9	1605.66	118.1	1605.66
118.3	1605.69	118.4	1605.69	119.8	1605.7	119.9	1605.7	120	1605.7
120.2	1605.7	120.5	1605.7	120.6	1605.69	120.8	1605.69	121.1	1605.68
121.2	1605.68	121.3	1605.68	121.4	1605.68	121.4	1605.67	121.6	1605.65
121.9	1605.62	122.1	1605.63	122.1	1605.62	122.4	1605.59	122.6	1605.59
122.7	1605.6	122.8	1605.61	123.1	1605.65	123.1	1605.66	123.2	1605.66
123.3	1605.66	123.4	1605.66	123.5	1605.65	123.5	1605.64	123.6	1605.64

123.8	1605.64	125.4	1605.69	125.5	1605.67	125.6	1605.66	125.9	1605.63
125.9	1605.62	126.1	1605.62	126.4	1605.59	126.5	1605.59	127.3	1605.6
127.4	1605.61	127.5	1605.61	127.9	1605.62	128	1605.62	128.1	1605.62
128.3	1605.62	128.4	1605.61	128.6	1605.59	128.7	1605.59	128.9	1605.56
129	1605.56	129.1	1605.56	129.2	1605.56	129.4	1605.56	129.6	1605.56
129.8	1605.54	129.9	1605.54	130	1605.54	130.1	1605.54	130.2	1605.54
130.3	1605.54	130.4	1605.54	130.5	1605.54	130.5	1605.55	130.6	1605.55
130.8	1605.54	130.9	1605.53	131	1605.53	131.2	1605.53	132.739	1605.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	43.5	.015	55.5	.025

Bank Sta: Left	Right	Coeff Contr.	Expan.
43.5	55.5	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	43.5	1608	F
55.5	132.739	1608	F

Downstream Deck/Roadway Coordinates

num= 6

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	1606.72	1601.77	57	1606.72	1601.77	57	1606.72	1595.08
69	1606.72	1595.08	69	1606.72	1596.89	100	1606.72	1601

Downstream Bridge Cross Section Data

Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1602.39	6.7	1601.77	8.3	1601.77	8.7	1601.77	10	1601.77
57	1601.77	57	1585.08	68	1585.08	69	1585.08	69	1601.77
146.2	1600.13	146.3	1600.14	146.4	1600.16	146.6	1600.19	146.7	1600.19
146.8	1600.21	147	1600.22	148.1	1600.29	148.2	1600.3	148.3	1600.31
148.9	1600.34	149	1600.34	149.1	1600.34	149.2	1600.34	149.3	1600.34
149.4	1600.34	149.5	1600.33	149.6	1600.34	149.7	1600.35	149.9	1600.38
150	1600.39	150.2	1600.41	150.3	1600.43	153.3	1600.55	153.4	1600.56
153.4	1600.57	153.5	1600.58	153.6	1600.59	153.7	1600.6	153.8	1600.61
153.9	1600.62	153.9	1600.63	154.1	1600.65	154.4	1600.66	154.508	1600.67

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	57	.015	69	.025

Bank Sta: Left	Right	Coeff Contr.	Expan.
57	69	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	57	1608	F
69	154.508	1608	F

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 = .98
Elevation at which weir flow begins = 1606.72
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

BRIDGE OUTPUT Profile #BFE

			Inside BR US	Inside BR DS
E.G. US. (ft)	1603.55	Element		
W.S. US. (ft)	1599.63	E.G. Elev (ft)	1603.55	1596.88
Q Total (cfs)	1498.00	W.S. Elev (ft)	1599.62	1593.29
Q Bridge (cfs)	1498.00	Crit W.S. (ft)	1599.62	1592.92
Q Weir (cfs)		Max Chl Dpth (ft)	7.85	8.21
Weir Sta Lft (ft)		Vel Total (ft/s)	15.90	15.20
Weir Sta Rgt (ft)		Flow Area (sq ft)	94.20	98.52
Weir Submerg		Froude # Chl	1.00	0.94
Weir Max Depth (ft)		Specif Force (cu ft)	1110.14	1112.36
Min El Weir Flow (ft)	1606.73	Hydr Depth (ft)	7.85	8.21
Min El Prs (ft)	1601.77	W.P. Total (ft)	27.70	28.42
Delta EG (ft)	6.19	Conv. Total (cfs)	21103.8	22355.1
Delta WS (ft)	6.36	Top Width (ft)	12.00	12.00
BR Open Area (sq ft)	120.00	Frctn Loss (ft)	1.52	0.01
BR Open Vel (ft/s)	15.90	C & E Loss (ft)	0.17	0.00
BR Sluice Coef		Shear Total (lb/sq ft)	1.07	0.97
BR Sel Method	Energy only	Power Total (lb/ft s)	17.01	14.78

Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate

the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

BRIDGE OUTPUT Profile #FLOODWAY

			Inside BR US	Inside BR DS
E.G. US. (ft)	1603.55	Element		
W.S. US. (ft)	1599.63	E.G. Elev (ft)	1603.55	1596.88
Q Total (cfs)	1498.00	W.S. Elev (ft)	1599.63	1593.29
Q Bridge (cfs)	1498.00	Crit W.S. (ft)	1599.63	1592.92
Q Weir (cfs)		Max Chl Dpth (ft)	7.86	8.21
Weir Sta Lft (ft)		Vel Total (ft/s)	15.88	15.20
Weir Sta Rgt (ft)		Flow Area (sq ft)	94.36	98.52
Weir Submerg		Froude # Chl	1.00	0.94
Weir Max Depth (ft)		Specif Force (cu ft)	1110.14	1112.37
Min El Weir Flow (ft)	1606.73	Hydr Depth (ft)	7.86	8.21
Min El Prs (ft)	1601.77	W.P. Total (ft)	27.73	28.42
Delta EG (ft)	6.19	Conv. Total (cfs)	21148.6	22355.5
Delta WS (ft)	6.36	Top Width (ft)	12.00	12.00
BR Open Area (sq ft)	120.00	Frctn Loss (ft)	1.52	0.01
BR Open Vel (ft/s)	15.88	C & E Loss (ft)	0.16	0.00
BR Sluice Coef		Shear Total (lb/sq ft)	1.07	0.97
BR Sel Method	Energy only	Power Total (lb/ft s)	16.92	14.77

Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 1900

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

0	1602.39	6.7	1601.77	8.3	1601.77	8.7	1601.77	10	1601.77
57	1601.77	57	1585.08	68	1585.08	69	1585.08	69	1601.77
146.2	1600.13	146.3	1600.14	146.4	1600.16	146.6	1600.19	146.7	1600.19
146.8	1600.21	147	1600.22	148.1	1600.29	148.2	1600.3	148.3	1600.31
148.9	1600.34	149	1600.34	149.1	1600.34	149.2	1600.34	149.3	1600.34
149.4	1600.34	149.5	1600.33	149.6	1600.34	149.7	1600.35	149.9	1600.38
150	1600.39	150.2	1600.41	150.3	1600.43	153.3	1600.55	153.4	1600.56
153.4	1600.57	153.5	1600.58	153.6	1600.59	153.7	1600.6	153.8	1600.61
153.9	1600.62	153.9	1600.63	154.1	1600.65	154.4	1600.66	154.508	1600.67

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	57	.015	69	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
57	69	19.6	24.7	32	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	57	1608	F
69	154.508	1608	F

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1597.36	Element			
Vel Head (ft)	4.09	Wt. n-Val.		0.015	
W.S. Elev (ft)	1593.28	Reach Len. (ft)	19.60	24.70	32.00
Crit W.S. (ft)	1593.28	Flow Area (sq ft)		98.34	
E.G. Slope (ft/ft)	0.005115	Area (sq ft)		98.34	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	12.00	Top Width (ft)		12.00	
Vel Total (ft/s)	16.22	Avg. Vel. (ft/s)		16.22	
Max Chl Dpth (ft)	8.19	Hydr. Depth (ft)		8.19	
Conv. Total (cfs)	22301.0	Conv. (cfs)		22301.0	
Length Wtd. (ft)	24.70	Wetted Per. (ft)		28.39	
Min Ch El (ft)	1585.08	Shear (lb/sq ft)		1.11	
Alpha	1.00	Stream Power (lb/ft s)		17.94	
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	0.44	12.47	0.57
C & E Loss (ft)	1.39	Cum SA (acres)	0.42	4.03	0.51

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1597.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.09	Wt. n-Val.		0.015	
W.S. Elev (ft)	1593.28	Reach Len. (ft)	19.60	24.70	32.00
Crit W.S. (ft)	1593.28	Flow Area (sq ft)		98.34	
E.G. Slope (ft/ft)	0.005115	Area (sq ft)		98.34	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	12.00	Top Width (ft)		12.00	
Vel Total (ft/s)	16.22	Avg. Vel. (ft/s)		16.22	
Max Chl Dpth (ft)	8.19	Hydr. Depth (ft)		8.19	
Conv. Total (cfs)	22301.0	Conv. (cfs)		22301.0	
Length Wtd. (ft)	24.70	Wetted Per. (ft)		28.39	
Min Ch El (ft)	1585.08	Shear (lb/sq ft)		1.11	
Alpha	1.00	Stream Power (lb/ft s)		17.94	
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	0.01	12.53	0.00
C & E Loss (ft)	1.40	Cum SA (acres)	0.02	4.03	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	57.00	59.40	158.34	19.67	10.59	9.93	8.19	8.05	0.59	4.77
2	Chan	59.40	61.80	426.10	19.67	2.40	26.72	8.19	21.67	2.62	56.70
3	Chan	61.80	64.20	426.10	19.67	2.40	26.72	8.19	21.67	2.62	56.70
4	Chan	64.20	66.60	426.11	19.67	2.40	26.72	8.19	21.67	2.62	56.70
5	Chan	66.60	69.00	158.34	19.67	10.59	9.93	8.19	8.05	0.59	4.77

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical

depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	57.00	59.40	158.34	19.67	10.59	9.93	8.19	8.05	0.59	4.77
2	Chan	59.40	61.80	426.10	19.67	2.40	26.72	8.19	21.67	2.62	56.70
3	Chan	61.80	64.20	426.10	19.67	2.40	26.72	8.19	21.67	2.62	56.70
4	Chan	64.20	66.60	426.11	19.67	2.40	26.72	8.19	21.67	2.62	56.70
5	Chan	66.60	69.00	158.34	19.67	10.59	9.93	8.19	8.05	0.59	4.77

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 1800

INPUT
Description:
Station Elevation Data num= 451

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1603.28	4.6	1603.06	6.8	1602.72	7.4	1602.72	7.7	1602.63

8.8	1602.53	11.1	1602.16	15.9	1601.62	17.9	1601.47	20.7	1601.09
21.9	1601.01	23.3	1600.5	25.9	1599.07	27.2	1598.58	28.3	1597.87
28.6	1597.59	29.1	1597.31	29.6	1597.14	30.3	1596.67	30.9	1596.45
32	1595.88	33.5	1595.31	33.6	1595.23	33.7	1595.18	36.4	1594.2
38.8	1593.59	41.1	1593.33	41.7	1593.33	44.5	1592.75	45.3	1592.66
46.2	1592.66	47.6	1592.47	51.5	1592.31	52.6	1592.19	52.9	1592.21
53.1	1592.24	53.6	1592.21	53.8	1592.19	56.6	1592.35	57.8	1592.16
58.5	1592.19	59	1592.09	60.7	1591.98	62.7	1591.86	64.6	1591.88
64.9	1591.84	65.5	1591.81	69.6	1592.03	70.7	1592.38	71.9	1592.63
72.6	1592.88	72.7	1592.96	72.8	1592.99	72.8	1593	72.9	1593.04
73.3	1593.22	75.1	1593.41	76.3	1593.14	77.8	1592.57	78	1592.44
78.8	1592.2	81	1591.09	81.8	1590.51	81.9	1590.5	81.9	1590.47
82	1590.34	82.7	1589.84	82.8	1589.8	82.9	1589.74	83	1589.61
83.1	1589.52	84.5	1588.5	84.6	1588.35	84.7	1588.19	84.8	1588.16
85	1587.95	85.1	1587.84	85.1	1587.75	85.5	1587.4	85.6	1587.27
86	1587.01	88.4	1586.06	89.2	1585.9	89.2	1585.89	89.3	1585.84
89.4	1585.78	89.6	1585.73	92.2	1585.32	95	1585	98.3	1585
99.6	1585.06	100.2	1585	100.6	1584.97	104.1	1584.97	104.3	1584.86
104.4	1584.81	104.4	1584.79	104.6	1584.76	104.6	1584.75	105.9	1584.68
106	1584.67	106.7	1584.56	107	1584.56	107.5	1584.53	109.3	1584.59
113.4	1584.47	114.3	1584.53	115.9	1584.53	116.3	1584.53	116.4	1584.53
116.6	1584.5	119.5	1584.72	122.1	1584.73	122.9	1584.83	125.2	1584.97
125.4	1585	125.5	1585.03	125.5	1585.04	125.7	1585.09	125.9	1585.13
126	1585.15	126.1	1585.19	126.3	1585.28	126.3	1585.29	126.5	1585.43
126.6	1585.6	126.8	1585.73	126.9	1585.81	127	1585.93	127	1585.95
127.2	1586.12	127.3	1586.18	127.4	1586.3	127.4	1586.37	127.6	1586.48
127.7	1586.65	128.2	1587.1	128.3	1587.16	128.3	1587.18	128.5	1587.27
128.6	1587.35	128.6	1587.37	128.7	1587.4	128.9	1587.52	129	1587.57
129.2	1587.65	129.2	1587.66	129.2	1587.67	129.4	1587.76	130	1588.03
131.6	1588.75	131.6	1588.77	131.7	1588.84	132.3	1589.14	132.4	1589.22
132.6	1589.32	132.6	1589.37	132.7	1589.39	132.8	1589.46	133	1589.55
133	1589.56	133	1589.58	133.4	1589.79	133.5	1589.88	133.6	1589.9
133.6	1589.92	133.7	1589.97	133.9	1590.13	133.9	1590.17	134.1	1590.33
134.3	1590.47	134.4	1590.57	134.5	1590.63	134.5	1590.65	134.7	1590.8
134.8	1590.99	135	1591.16	135	1591.2	135	1591.22	135.2	1591.29
135.6	1591.49	135.6	1591.53	135.7	1591.59	135.9	1591.66	135.9	1591.68
135.9	1591.69	135.9	1591.7	136.1	1591.78	136.2	1591.83	136.4	1591.94
136.5	1591.97	136.6	1592.1	136.7	1592.13	137	1592.43	137.2	1592.57
137.6	1592.84	137.7	1592.92	137.7	1592.96	138.8	1593.56	139.8	1594.01
140.5	1594.69	140.6	1594.83	140.7	1594.91	140.8	1595.12	140.9	1595.16
141	1595.31	141.1	1595.36	141.2	1595.48	141.2	1595.51	141.2	1595.56
141.5	1595.81	141.7	1596.1	141.8	1596.12	141.8	1596.18	141.9	1596.32
142.1	1596.44	142.1	1596.5	142.5	1596.87	142.5	1596.94	143.2	1597.34
144.6	1597.21	146.5	1597.3	146.6	1597.29	146.7	1597.28	148	1597.21
148.1	1597.22	148.2	1597.21	148.5	1597.22	148.8	1597.18	151.4	1597.15
152.7	1597.25	152.8	1597.27	152.9	1597.28	153	1597.32	153.1	1597.34
154.9	1597.61	155	1597.64	155.1	1597.67	155.2	1597.7	155.4	1597.73
155.5	1597.77	156.4	1597.94	156.4	1597.95	156.6	1597.99	156.6	1598
156.7	1598.01	157.6	1598.12	157.6	1598.13	157.8	1598.18	157.9	1598.2
158.1	1598.24	158.1	1598.25	158.3	1598.3	158.4	1598.31	158.4	1598.32

```
   158.6 1598.34   158.7 1598.36   158.8 1598.39   158.9 1598.41     159 1598.44
   159.1 1598.47   159.2  1598.5   159.3  1598.5   159.4 1598.53   159.6 1598.61
   161.6 1599.03   163.4 1599.31   163.5 1599.33   163.6 1599.36   163.7 1599.39
   163.8 1599.39   163.9 1599.42     164 1599.44     164 1599.45   164.1 1599.47
   164.2 1599.49   164.3 1599.51   164.5 1599.55   164.6 1599.59   164.7 1599.61
   164.8 1599.64   164.9 1599.67   165.2 1599.72   165.3 1599.77   165.4 1599.78
   165.6 1599.81   165.7 1599.82   165.9 1599.84     166 1599.86   166.1 1599.87
   166.4 1599.87   166.4 1599.88   166.6  1599.9   166.6 1599.91   166.9 1599.93
   167.1 1599.98   167.2    1600   167.3 1600.03   167.4 1600.05   167.5 1600.06
   168.6 1600.24   168.7 1600.26   168.9 1600.28   169.1  1600.3   169.1 1600.31
   169.2 1600.32   173.8 1600.84   173.9 1600.84   174.7 1600.91   177.4    1601
   182.7 1601.41   182.9 1601.43   183.4  1601.5   183.6 1601.53   183.9 1601.56
   184.1 1601.56   184.2 1601.56   184.2 1601.57   184.4 1601.59   184.5 1601.59
   184.7 1601.59   184.7  1601.6   184.9 1601.62     185 1601.62   185.2 1601.62
   185.3 1601.64   185.4 1601.66   185.7 1601.66   185.9 1601.69     186 1601.69
   186.1 1601.69   186.2 1601.69   186.3  1601.7   186.3 1601.71   186.5 1601.73
   186.6 1601.74   186.7 1601.75   186.7 1601.76   186.9 1601.78   187.7 1601.82
   187.9 1601.84   188.1 1601.84   188.2 1601.85   188.5 1601.88   188.6 1601.88
   188.7 1601.88     189 1601.88   189.1  1601.9   189.3 1601.92   189.3 1601.93
   189.4 1601.94   189.5 1601.95   189.6 1601.96   189.8 1601.98   189.9    1602
   192.4 1602.12   193.7 1602.12   193.8 1602.13     194 1602.15   194.3 1602.16
   194.4 1602.17   194.6 1602.18   194.7 1602.19   194.8  1602.2   194.9 1602.22
     195 1602.23   195.1 1602.24   195.2 1602.25   195.2 1602.26   195.4 1602.28
   195.4 1602.29   195.5 1602.29   195.6 1602.31   195.7 1602.31   195.7 1602.32
   195.9 1602.34     196 1602.35   196.2 1602.35   196.4 1602.37   196.7 1602.37
   196.9  1602.4   199.4 1602.62   200.2 1602.62   200.4 1602.62   200.5 1602.62
   200.7 1602.59   200.7  1602.6   200.9 1602.62     201 1602.63   201.9 1602.68
   201.9 1602.69     202 1602.69   202.2 1602.69   202.3 1602.69   202.5 1602.69
   203.3 1602.72   203.4 1602.73   203.6 1602.74   203.8 1602.76   203.9 1602.78
   204.1 1602.78   204.2 1602.79   204.4 1602.81   204.4 1602.82   204.5 1602.82
   204.7 1602.84   204.7 1602.85     205 1602.88   211.2 1603.22   211.3 1603.24
   211.5 1603.25   211.6 1603.27   211.7 1603.28   211.8  1603.3     212 1603.31
   212.1 1603.33   212.2 1603.34   212.3 1603.35   212.5 1603.38   212.6  1603.4
   212.7 1603.41   212.8 1603.41   213.2 1603.44   213.5 1603.44   213.8 1603.48
     214  1603.5   214.2  1603.5   214.4 1603.53   214.5 1603.53   214.5 1603.54
   214.7 1603.56   214.8 1603.57   214.9 1603.59   215.2 1603.59   215.3  1603.6
   215.4 1603.61   215.5 1603.62   215.7 1603.62     218 1603.84   218.1 1603.84
   218.2 1603.84   218.4 1603.87   218.5 1603.88   218.7 1603.88   218.8 1603.88
     219 1603.88   219.2  1603.9   219.2 1603.91   219.4 1603.91   219.5 1603.91
  219.56 1603.92

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04    84.5    .025     130     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          84.5     130              168   174.6     176             .1       .3

CROSS SECTION OUTPUT  Profile #BFE
```

E.G. Elev (ft)	1590.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.31	Wt. n-Val.	0.040	0.025	0.040
W.S. Elev (ft)	1589.03	Reach Len. (ft)	168.00	174.60	176.00
Crit W.S. (ft)	1588.59	Flow Area (sq ft)	0.19	173.16	1.07
E.G. Slope (ft/ft)	0.004295	Area (sq ft)	0.19	173.16	1.07
Q Total (cfs)	1595.00	Flow (cfs)	0.16	1593.27	1.56
Top Width (ft)	48.29	Top Width (ft)	0.72	45.50	2.07
Vel Total (ft/s)	9.14	Avg. Vel. (ft/s)	0.87	9.20	1.46
Max Chl Dpth (ft)	4.55	Hydr. Depth (ft)	0.26	3.81	0.52
Conv. Total (cfs)	24336.8	Conv. (cfs)	2.5	24310.5	23.9
Length Wtd. (ft)	174.60	Wetted Per. (ft)	0.89	47.70	2.31
Min Ch El (ft)	1584.47	Shear (lb/sq ft)	0.06	0.97	0.12
Alpha	1.01	Stream Power (lb/ft s)	0.05	8.96	0.18
Frctn Loss (ft)	0.90	Cum Volume (acre-ft)	0.44	12.39	0.57
C & E Loss (ft)	0.05	Cum SA (acres)	0.42	4.02	0.51

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1590.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.30	Wt. n-Val.		0.025	
W.S. Elev (ft)	1589.06	Reach Len. (ft)	168.00	174.60	176.00
Crit W.S. (ft)		Flow Area (sq ft)		174.64	
E.G. Slope (ft/ft)	0.004371	Area (sq ft)		174.64	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	45.50	Top Width (ft)		45.50	
Vel Total (ft/s)	9.13	Avg. Vel. (ft/s)		9.13	
Max Chl Dpth (ft)	4.59	Hydr. Depth (ft)		3.84	
Conv. Total (cfs)	24125.7	Conv. (cfs)		24125.7	
Length Wtd. (ft)	174.60	Wetted Per. (ft)		49.29	
Min Ch El (ft)	1584.47	Shear (lb/sq ft)		0.97	
Alpha	1.00	Stream Power (lb/ft s)		8.83	
Frctn Loss (ft)	0.92	Cum Volume (acre-ft)	0.01	12.45	0.00
C & E Loss (ft)	0.05	Cum SA (acres)	0.02	4.02	0.00

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	67.60	84.50	0.16	0.19	0.89	0.01	0.26	0.87	0.06	0.05
2	Chan	84.50	93.60	187.88	26.13	10.06	11.78	2.87	7.19	0.70	5.01
3	Chan	93.60	102.70	350.57	36.53	9.11	21.98	4.01	9.60	1.07	10.31
4	Chan	102.70	111.80	400.48	39.69	9.19	25.11	4.36	10.09	1.16	11.69

5	Chan	111.80	120.90	416.28	40.49	9.11	26.10	4.45	10.28	1.19
12.25										
6	Chan	120.90	130.00	238.07	30.33	10.23	14.93	3.33	7.85	0.79
6.24										
7	ROB	130.00	147.91	1.56	1.07	2.31	0.10	0.52	1.46	0.12
0.18										

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/fts)
1	Chan	84.50	93.60	184.81	26.43	10.61	11.59	2.90	6.99	0.68	4.75
2	Chan	93.60	102.70	355.58	36.82	9.11	22.29	4.05	9.66	1.10	10.65
3	Chan	102.70	111.80	405.77	39.98	9.19	25.44	4.39	10.15	1.19	12.05
4	Chan	111.80	120.90	421.68	40.79	9.11	26.44	4.48	10.34	1.22	12.63
5	Chan	120.90	130.00	227.17	30.62	11.26	14.24	3.37	7.42	0.74	5.51

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 1750

INPUT
Description:
Station Elevation Data num= 452

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1590.1	.3	1590.15	1.2	1590.48	4	1591.28	4.9	1591.49
5.7	1591.53	6.8	1591.46	7.9	1591.53	11.3	1591.97	11.9	1591.94
13.2	1591.71	14.3	1591.66	16.2	1591.73	16.9	1591.69	18.3	1591.78
20.1	1591.76	20.8	1591.7	22.1	1591.25	23.8	1591.19	24.2	1591.3
25	1591.32	26	1591.43	28.3	1591.31	30.5	1591.87	32.2	1592
33	1592	33.11	1591.981	34.1	1591.79	35.8	1591.31	36.6	1591.14
38	1590.66	39	1590.46	40	1590.15	40.3	1590.01	41.4	1589.73
42	1589.42	43.3	1588.94	44.3	1588.43	44.4	1588.41	44.4	1588.4
44.5	1588.37	44.6	1588.34	44.8	1588.26	44.9	1588.19	44.9	1588.16
46.4	1587.62	46.8	1587.39	46.9	1587.32	48.6	1586.56	48.7	1586.51
48.8	1586.39	48.9	1586.38	49.1	1586.25	49.1	1586.19	49.2	1586.12
49.5	1585.98	49.9	1585.66	51.5	1584.77	51.9	1584.51	52	1584.43
52.6	1584.1	53.4	1583.74	53.4	1583.71	54.1	1583.48	55.8	1583.38
55.9	1583.4	56	1583.42	56.1	1583.44	56.2	1583.44	56.3	1583.46

56.4	1583.47	57.6	1583.47	59.2	1583.37	59.7	1583.28	61.4	1583.31
61.4	1583.32	61.6	1583.34	61.8	1583.35	61.9	1583.37	62	1583.37
62	1583.38	66.4	1583.28	67.2	1583.38	68.9	1583.34	70	1583.44
72.8	1583.47	73.9	1583.41	74.3	1583.46	75.6	1583.46	77.5	1583.56
79.3	1583.53	80.6	1583.58	82.3	1583.89	82.3	1583.91	82.5	1583.96
82.6	1583.99	82.7	1584.02	82.9	1584.1	831	1584.145	83.1	1584.19
83.1	1584.22	83.3	1584.31	83.4	1584.42	83.6	1584.5	83.8	1584.61
83.9	1584.66	851	1585.018	85.9	1585.31	86.3	1585.5	86.4	1585.57
86.4	1585.6	86.5	1585.61	86.7	1585.71	87.3	1585.99	87.5	1586.15
87.7	1586.26	87.8	1586.29	88	1586.4	88.4	1586.62	88.5	1586.7
88.6	1586.76	88.7	1586.82	88.7	1586.86	88.7	1586.92	88.9	1587.07
89	1587.17	89.1	1587.27	89.2	1587.45	89.2	1587.48	89.3	1587.56
89.4	1587.71	89.5	1587.8	89.6	1588.02	89.7	1588.08	90	1588.63
90	1588.72	90.3	1589.2	90.4	1589.27	90.5	1589.41	90.6	1589.57
90.6	1589.64	90.7	1589.87	90.7	1589.88	90.9	1590.11	90.9	1590.19
91	1590.35	91.1	1590.5	91.2	1590.58	91.3	1590.77	91.3	1590.78
91.4	1590.97	91.5	1591.01	91.6	1591.1	91.8	1591.29	91.9	1591.31
92	1591.39	92	1591.42	92.2	1591.5	92.2	1591.55	92.3	1591.58
92.4	1591.68	92.5	1591.76	92.6	1591.8	92.8	1591.93	92.8	1591.95
93.2	1592.17	93.3	1592.24	93.4	1592.3	93.5	1592.35	93.5	1592.4
93.9	1592.58	93.9	1592.6	94	1592.64	94.1	1592.7	94.3	1592.84
94.4	1592.96	94.5	1592.99	94.6	1593.06	94.7	1593.16	94.8	1593.26
94.9	1593.32	95	1593.46	95.1	1593.51	97	1595.81	97.8	1596.56
98.4	1596.95	98.6	1597.03	98.9	1597.2	98.9	1597.22	99	1597.22
99.2	1597.32	99.2	1597.36	99.3	1597.41	99.5	1597.51	99.6	1597.52
99.8	1597.61	100.1	1597.75	100.3	1597.82	100.3	1597.84	100.5	1597.9
100.5	1597.93	100.6	1597.97	100.6	1597.98	100.7	1598	100.8	1598.06
100.9	1598.09	101.8	1598.77	103.6	1599.56	103.8	1599.7	104	1599.79
104.1	1599.92	104.2	1600.01	104.8	1600.33	104.8	1600.35	104.9	1600.4
104.9	1600.43	105.1	1600.49	105.6	1600.8	105.9	1600.93	105.9	1600.94
106.1	1601	106.2	1601.05	106.3	1601.08	106.4	1601.18	106.5	1601.19
106.5	1601.23	106.6	1601.29	106.7	1601.37	107.5	1601.77	107.6	1601.78
107.6	1601.79	107.6	1601.8	107.9	1601.91	107.9	1601.94	108.1	1601.99
108.1	1602	108.2	1602.01	108.3	1602.08	108.4	1602.11	108.5	1602.13
108.7	1602.18	108.7	1602.19	108.9	1602.23	109.8	1602.69	110.1	1602.78
110.3	1602.86	110.4	1602.87	110.4	1602.88	110.6	1602.93	110.7	1603.01
110.9	1603.07	110.9	1603.09	110.9	1603.1	111	1603.11	111.1	1603.17
111.2	1603.2	111.3	1603.24	111.4	1603.29	111.5	1603.31	111.5	1603.32
111.7	1603.41	111.7	1603.45	111.9	1603.49	112	1603.54	112	1603.56
112	1603.57	112.1	1603.58	112.4	1603.71	112.5	1603.75	112.6	1603.78
112.7	1603.81	112.9	1603.89	113	1603.93	113.1	1603.96	113.1	1604
113.2	1604.01	113.2	1604.03	113.4	1604.08	113.4	1604.1	113.5	1604.15
113.7	1604.23	113.8	1604.25	113.9	1604.3	114	1604.32	114.1	1604.37
114.1	1604.39	114.3	1604.43	114.3	1604.44	114.9	1604.61	115	1604.68
115.2	1604.76	115.4	1604.81	115.4	1604.83	115.5	1604.86	115.6	1604.9
115.6	1604.91	115.8	1604.98	115.9	1605.03	116	1605.04	116.2	1605.08
116.3	1605.13	116.5	1605.16	116.5	1605.17	116.6	1605.19	116.7	1605.21
116.8	1605.22	118.8	1605.88	118.9	1605.95	119.7	1606.3	120.1	1606.43
122	1607.23	126.8	1607.47	128.7	1607.5	132.4	1607.73	134.1	1607.73
134.8	1607.84	134.8	1607.85	134.9	1607.84	135.2	1607.82	135.4	1607.84

135.6	1607.85	135.7	1607.86	135.8	1607.88	135.9	1607.9	136	1607.9
136	1607.91	136.2	1607.93	136.2	1607.94	136.3	1607.95	136.5	1607.96
136.5	1607.97	136.6	1607.98	136.8	1608.03	136.9	1608.04	137	1608.05
137.1	1608.06	139.6	1608.1	139.7	1608.14	139.9	1608.16	140	1608.17
140.1	1608.19	140.3	1608.2	140.4	1608.22	148.2	1608.34	148.3	1608.36
148.4	1608.37	148.5	1608.38	149	1608.38	149.1	1608.38	149.2	1608.39
149.3	1608.39	149.4	1608.4	149.5	1608.4	149.6	1608.41	149.7	1608.41
149.8	1608.41	149.9	1608.41	150	1608.42	150.1	1608.43	150.2	1608.44
150.4	1608.44	150.6	1608.45	150.7	1608.47	153.2	1608.31	153.4	1608.33
153.5	1608.34	153.5	1608.35	153.7	1608.36	153.7	1608.37	153.8	1608.38
154	1608.41	154.1	1608.41	154.2	1608.41	154.7	1608.44	154.8	1608.44
154.9	1608.44	155	1608.44	155.2	1608.45	155.4	1608.46	155.4	1608.47
155.5	1608.48	155.6	1608.5	155.7	1608.51	155.8	1608.52	155.9	1608.53
157.7	1608.59	161.3	1608.94	162.7	1609	162.9	1609	163.2	1609
163.6	1609	163.7	1609	163.8	1609	164.2	1609.05	164.3	1609.06
164.4	1609.07	164.5	1609.08	164.6	1609.09	164.7	1609.11	164.8	1609.11
164.9	1609.13	165	1609.14	165.1	1609.16	165.2	1609.16	165.3	1609.18
165.5	1609.19	165.6	1609.21	165.7	1609.22	165.8	1609.23	165.9	1609.24
166	1609.25	166.1	1609.26	166.3	1609.28	166.4	1609.29	166.4	1609.3
166.8	1609.33	166.8	1609.34	166.9	1609.36	167	1609.38	167.2	1609.41
167.3	1609.43	167.4	1609.44	167.5	1609.45	167.6	1609.47	167.7	1609.49
167.7	1609.5	171.5	1609.8	171.7	1609.82	171.8	1609.84	171.9	1609.84
171.9	1609.85	172	1609.87	172.1	1609.88	172.2	1609.89	172.4	1609.9
172.4	1609.91	172.5	1609.91	172.6	1609.93	172.7	1609.94	172.9	1609.98
173	1610	176.3	1610.31	176.3	1610.32	176.4	1610.34	176.5	1610.36
176.6	1610.38	176.7	1610.39	176.9	1610.41	176.9	1610.42	177.1	1610.46
177.1	1610.47	180.6	1610.82						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	46.8	.025	89	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
46.8	89	186	186	193	.1	.3

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1589.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.77	Wt. n-Val.	0.040	0.025	0.040
W.S. Elev (ft)	1587.62	Reach Len. (ft)	186.00	186.00	193.00
Crit W.S. (ft)	1587.62	Flow Area (sq ft)	0.05	149.49	0.08
E.G. Slope (ft/ft)	0.006368	Area (sq ft)	0.05	149.49	0.08
Q Total (cfs)	1595.00	Flow (cfs)	0.03	1594.91	0.06
Top Width (ft)	42.94	Top Width (ft)	0.40	42.20	0.34
Vel Total (ft/s)	10.66	Avg. Vel. (ft/s)	0.63	10.67	0.77
Max Chl Dpth (ft)	4.34	Hydr. Depth (ft)	0.11	3.54	0.23
Conv. Total (cfs)	19988.0	Conv. (cfs)	0.4	19986.9	0.7
Length Wtd. (ft)	186.00	Wetted Per. (ft)	0.46	44.31	0.58
Min Ch El (ft)	1583.28	Shear (lb/sq ft)	0.04	1.34	0.05
Alpha	1.00	Stream Power (lb/ft s)	0.02	14.31	0.04

Frctn Loss (ft)	0.70	Cum Volume (acre-ft)	0.44	11.74	0.57
C & E Loss (ft)	0.27	Cum SA (acres)	0.41	3.84	0.50

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1589.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.76	Wt. n-Val.		0.025	
W.S. Elev (ft)	1587.63	Reach Len. (ft)	186.00	186.00	193.00
Crit W.S. (ft)	1587.63	Flow Area (sq ft)		149.97	
E.G. Slope (ft/ft)	0.006434	Area (sq ft)		149.97	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	42.20	Top Width (ft)		42.20	
Vel Total (ft/s)	10.64	Avg. Vel. (ft/s)		10.64	
Max Chl Dpth (ft)	4.35	Hydr. Depth (ft)		3.55	
Conv. Total (cfs)	19885.0	Conv. (cfs)		19885.0	
Length Wtd. (ft)	186.00	Wetted Per. (ft)		45.01	
Min Ch El (ft)	1583.28	Shear (lb/sq ft)		1.34	
Alpha	1.00	Stream Power (lb/ft s)		14.23	
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	0.01	11.80	0.00
C & E Loss (ft)	0.27	Cum SA (acres)	0.02	3.84	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	37.44	46.80	0.03	0.05	0.46	0.00	0.11	0.63	0.04	0.02
2	Chan	46.80	55.24	161.80	21.02	9.52	10.14	2.49	7.70	0.88	6.75
3	Chan	55.24	63.68	424.16	35.79	8.48	26.59	4.24	11.85	1.68	19.87
4	Chan	63.68	72.12	426.97	35.87	8.45	26.77	4.25	11.90	1.69	20.08
5	Chan	72.12	80.56	405.21	34.76	8.45	25.41	4.12	11.66	1.64	19.07
6	Chan	80.56	89.00	176.77	22.05	9.40	11.08	2.61	8.02	0.93	7.47
7	ROB	89.00	107.32	0.06	0.08	0.58	0.00	0.23	0.77	0.05	0.04

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	46.80	55.24	160.37	21.12	9.76	10.05	2.50	7.59	0.87	6.60
2	Chan	55.24	63.68	426.10	35.88	8.48	26.71	4.25	11.88	1.70	20.17
3	Chan	63.68	72.12	428.92	35.97	8.45	26.89	4.26	11.92	1.71	20.38
4	Chan	72.12	80.56	407.12	34.85	8.45	25.52	4.13	11.68	1.66	19.36
5	Chan	80.56	89.00	172.49	22.15	9.86	10.81	2.62	7.79	0.90	7.03

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 1700

INPUT
Description:
Station Elevation Data num= 450

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1590.14	1.6	1590.31	2.2	1590.31	2.4	1590.21	4.1	1589.86
5	1589.6	5.9	1589.5	7	1589.49	8	1589.62	8.8	1589.62
10.7	1589.47	11.3	1589.49	12.3	1589.69	14.2	1589.91	18.3	1589.97
20.6	1590.25	20.81	590.244	22	1590.21	25.1	1589.5	25.7	1589.28
26.7	1588.79	27.3	1588.67	28.3	1588.22	28.6	1588.16	29.9	1587.47
30.5	1587.24	321	586.814	32.4	1586.7	32.6	1586.56	32.8	1586.48
33.7	1586.17	35.6	1585.72	35.8	1585.62	36.4	1585.42	36.9	1585.12
38.2	1583.95	38.3	1583.94	38.3	1583.9	38.4	1583.79	38.8	1583.56
39.8	1582.77	40.6	1582.32	41.4	1581.99	42.3	1581.8	43.3	1581.78
45.2	1581.91	47.4	1581.85	47.5	1581.86	47.6	1581.88	47.8	1581.89
48.7	1581.91	51.9	1581.81	52.7	1581.92	52.8	1581.91	52.9	1581.88
53.2	1581.81	54.5	1581.91	55.1	1581.91	56.1	1581.79	57.2	1581.91
58.3	1581.91	58.8	1581.84	59.3	1581.96	60.8	1581.94	62.8	1582
66.3	1581.92	67.2	1582	70.8	1581.94	74.8	1582.16	76.2	1582.17
77.3	1582.38	77.8	1582.59	78	1582.76	78.6	1583.11	78.6	1583.15
78.9	1583.34	79	1583.44	79	1583.45	79.2	1583.6	79.4	1583.83
81.3	1584.67	81.3	1584.71	81.4	1584.82	81.5	1584.86	81.5	1584.88
81.6	1584.92	83.1	1586.16	83.9	1586.64	841	586.658	84.5	1586.75
84.6	1586.8	84.6	1586.81	84.8	1586.89	85	1586.96	85	1586.98
85.2	1587.08	85.3	1587.12	85.4	1587.17	85.5	1587.24	87.2	1587.76
87.6	1587.97	87.7	1588.02	88.4	1588.51	88.5	1588.53	88.5	1588.55
88.7	1588.64	88.7	1588.67	88.9	1588.72	89	1588.77	89.1	1588.8
89.3	1588.91	89.3	1588.92	89.5	1588.97	89.7	1589.07	89.7	1589.11

89.8	1589.17	90	1589.27	90.1	1589.29	90.2	1589.34	90.2	1589.38
90.3	1589.46	90.6	1589.64	90.6	1589.65	90.6	1589.66	90.6	1589.68
90.8	1589.86	90.9	1589.91	91	1589.97	92.2	1590.58	92.3	1590.61
92.4	1590.63	92.5	1590.66	92.6	1590.7	92.8	1590.81	92.8	1590.82
93.3	1591.21	93.5	1591.3	93.6	1591.35	93.6	1591.38	93.7	1591.46
94.1	1591.73	94.2	1591.77	94.3	1591.86	94.5	1591.95	94.5	1591.97
94.6	1592.04	94.7	1592.08	94.9	1592.22	95.1	1592.33	95.2	1592.38
95.3	1592.47	95.3	1592.5	95.4	1592.57	95.5	1592.61	95.6	1592.71
95.7	1592.84	95.9	1592.92	96	1593	96.1	1593.08	96.2	1593.23
96.3	1593.27	96.5	1593.43	96.6	1593.51	97	1593.72	98.3	1593.9
101.8	1594.14	103	1594.72	104.2	1595.18	104.5	1595.21	104.8	1595.25
105	1595.29	105.9	1595.36	106.6	1595.36	108.5	1595.21	110.9	1595.43
111.8	1595.38	111.9	1595.43	112	1595.51	112.2	1595.61	112.5	1595.84
115.1	1596.6	115.1	1596.61	115.3	1596.67	115.4	1596.73	115.4	1596.75
116.6	1597.07	116.8	1597.12	117.9	1597.28	119.5	1597.72	119.5	1597.73
120.3	1598.09	120.3	1598.1	120.4	1598.13	120.5	1598.23	120.7	1598.29
120.7	1598.3	120.8	1598.36	120.9	1598.41	121.1	1598.52	121.1	1598.54
121.3	1598.6	121.3	1598.64	121.5	1598.73	121.6	1598.77	121.7	1598.8
121.8	1598.85	122	1598.98	122.4	1599.15	122.4	1599.16	122.5	1599.19
124.3	1600.41	124.8	1600.62	125	1600.67	126.2	1601.22	127.3	1602.15
127.4	1602.27	128.8	1603.13	129	1603.23	129.4	1603.42	130.2	1603.99
130.3	1604.05	130.4	1604.17	130.6	1604.27	130.7	1604.35	130.8	1604.39
131	1604.5	131.2	1604.6	131.2	1604.65	131.4	1604.72	131.4	1604.74
131.5	1604.82	131.7	1604.93	131.8	1604.94	131.8	1604.97	132.3	1605.19
132.3	1605.22	132.3	1605.23	132.4	1605.26	132.6	1605.35	132.7	1605.41
132.7	1605.42	132.8	1605.49	133.1	1605.6	133.3	1605.71	133.4	1605.76
133.9	1606.07	134	1606.09	134.1	1606.13	134.3	1606.2	134.4	1606.24
134.4	1606.25	135.6	1606.58	135.8	1606.62	136	1606.66	136.1	1606.66
137.9	1606.65	138	1606.66	138.1	1606.66	138.2	1606.66	138.3	1606.67
141.6	1606.59	144.3	1606.72	144.5	1606.7	144.6	1606.7	144.9	1606.71
145.1	1606.69	147.8	1606.9	150.3	1606.94	150.4	1606.94	150.6	1606.97
150.7	1607	150.8	1607	151.1	1607.02	151.2	1607.02	151.3	1607.02
151.5	1607.03	154.8	1606.96	155.7	1606.82	157.6	1606.78	157.7	1606.77
157.9	1606.76	158	1606.75	158.1	1606.74	158.3	1606.7	158.5	1606.69
158.5	1606.68	158.6	1606.68	158.7	1606.67	158.8	1606.67	158.9	1606.66
159	1606.65	159.3	1606.66	159.5	1606.64	159.6	1606.64	159.7	1606.64
159.7	1606.65	159.8	1606.65	159.9	1606.65	161.2	1606.54	161.2	1606.55
161.4	1606.56	161.5	1606.57	161.6	1606.57	161.7	1606.58	161.8	1606.58
161.9	1606.58	162	1606.59	162.1	1606.61	162.2	1606.62	162.3	1606.64
162.8	1606.68	163	1606.64	163.2	1606.63	163.3	1606.62	163.4	1606.62
163.5	1606.62	163.6	1606.63	163.8	1606.64	163.9	1606.65	164	1606.65
164.1	1606.66	164.2	1606.66	164.3	1606.66	164.6	1606.71	164.9	1606.72
165.1	1606.7	165.2	1606.7	165.3	1606.69	165.4	1606.68	165.5	1606.68
165.6	1606.69	165.7	1606.69	165.8	1606.68	165.9	1606.67	166	1606.67
166.1	1606.68	166.2	1606.68	166.3	1606.69	166.5	1606.69	166.5	1606.7
166.7	1606.7	166.8	1606.71	166.9	1606.71	167	1606.75	167.2	1606.74
167.3	1606.74	167.4	1606.75	167.6	1606.74	167.8	1606.73	167.8	1606.72
167.9	1606.73	168.1	1606.73	168.2	1606.74	169.9	1606.78	170.9	1606.71
171.1	1606.71	172.1	1606.78	172.3	1606.77	172.5	1606.77	172.6	1606.75
172.7	1606.75	172.9	1606.75	173.1	1606.74	173.2	1606.74	173.4	1606.75

173.5	1606.76	173.6	1606.78	173.7	1606.78	173.8	1606.79	173.9	1606.8		
174	1606.81	174.3	1606.84	174.4	1606.84	174.5	1606.84	174.6	1606.83		
174.8	1606.79	174.8	1606.78	175	1606.78	175.1	1606.78	175.2	1606.78		
175.3	1606.78	175.5	1606.78	175.6	1606.78	175.8	1606.78	175.9	1606.78		
176	1606.78	176.2	1606.78	176.4	1606.78	180.1	1606.59	183.6	1606.52		
183.8	1606.51	183.9	1606.5	184.1	1606.47	184.2	1606.48	184.3	1606.49		
184.4	1606.5	184.5	1606.5	184.7	1606.5	184.9	1606.5	185	1606.51		
185.1	1606.52	185.2	1606.52	185.4	1606.53	185.5	1606.53	185.8	1606.5		
186	1606.5	186.1	1606.5	186.1	1606.51	186.2	1606.53	186.3	1606.54		
186.4	1606.54	186.6	1606.55	186.8	1606.59	186.9	1606.6	187	1606.62		
187.1	1606.62	187.2	1606.63	187.4	1606.65	187.7	1606.63	187.8	1606.64		
187.9	1606.64	188	1606.64	188.1	1606.65	188.2	1606.65	188.3	1606.64		
188.4	1606.63	188.5	1606.64	188.6	1606.64	188.7	1606.64	189.2	1606.66		
189.2	1606.67	189.4	1606.68	189.5	1606.69	189.7	1606.67	189.8	1606.66		
189.8	1606.65	190	1606.64	190.1	1606.62	190.3	1606.6	190.5	1606.62		
190.7	1606.64	192.7	1606.66	192.8	1606.66	193	1606.68	193.2	1606.69		
193.4	1606.71	193.5	1606.72	193.6	1606.72	193.8	1606.72	193.9	1606.72		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	32	.025	84	.04

Bank Sta: Left	Right	Lengths: Left Channel		Right	Coeff Contr.	Expan.
32	84	150.2	150.2	160	.1	.3

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1587.77	Element			
Vel Head (ft)	0.85	Wt. n-Val.	0.040	0.025	0.040
W.S. Elev (ft)	1586.91	Reach Len. (ft)	150.20	150.20	160.00
Crit W.S. (ft)		Flow Area (sq ft)	0.02	215.31	0.13
E.G. Slope (ft/ft)	0.002510	Area (sq ft)	0.02	215.31	0.13
Q Total (cfs)	1595.00	Flow (cfs)	0.00	1594.93	0.07
Top Width (ft)	53.21	Top Width (ft)	0.35	52.00	0.86
Vel Total (ft/s)	7.40	Avg. Vel. (ft/s)	0.24	7.41	0.51
Max Chl Dpth (ft)	5.13	Hydr. Depth (ft)	0.05	4.14	0.15
Conv. Total (cfs)	31834.7	Conv. (cfs)	0.1	31833.2	1.3
Length Wtd. (ft)	150.20	Wetted Per. (ft)	0.36	54.88	0.91
Min Ch El (ft)	1581.78	Shear (lb/sq ft)	0.01	0.61	0.02
Alpha	1.00	Stream Power (lb/ft s)	0.00	4.55	0.01
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	0.44	10.97	0.57
C & E Loss (ft)	0.09	Cum SA (acres)	0.41	3.64	0.50

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1587.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.85	Wt. n-Val.		0.025	
W.S. Elev (ft)	1586.92	Reach Len. (ft)	150.20	150.20	160.00
Crit W.S. (ft)		Flow Area (sq ft)		215.49	
E.G. Slope (ft/ft)	0.002525	Area (sq ft)		215.49	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	52.00	Top Width (ft)		52.00	
Vel Total (ft/s)	7.40	Avg. Vel. (ft/s)		7.40	
Max Chl Dpth (ft)	5.14	Hydr. Depth (ft)		4.14	
Conv. Total (cfs)	31740.3	Conv. (cfs)		31740.3	
Length Wtd. (ft)	150.20	Wetted Per. (ft)		55.24	
Min Ch El (ft)	1581.78	Shear (lb/sq ft)		0.62	
Alpha	1.00	Stream Power (lb/ft s)		4.55	
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	0.01	11.02	0.00
C & E Loss (ft)	0.09	Cum SA (acres)	0.02	3.64	0.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	25.60	32.00	0.00	0.02	0.36	0.00	0.05	0.24	0.01	0.00
2	Chan	32.00	42.40	120.34	25.53	11.80	7.55	2.45	4.71	0.34	1.60
3	Chan	42.40	52.80	435.33	52.54	10.42	27.29	5.05	8.29	0.79	6.55
4	Chan	52.80	63.20	427.61	52.04	10.45	26.81	5.00	8.22	0.78	6.41
5	Chan	63.20	73.60	418.87	51.32	10.41	26.26	4.93	8.16	0.77	6.31
6	Chan	73.60	84.00	192.79	33.88	11.80	12.09	3.26	5.69	0.45	2.56
7	ROB	84.00	105.98	0.07	0.13	0.91	0.00	0.15	0.51	0.02	0.01

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	32.00	42.40	120.05	25.56	11.90	7.53	2.46	4.70	0.34	1.59
2	Chan	42.40	52.80	436.21	52.57	10.42	27.35	5.06	8.30	0.80	6.60
3	Chan	52.80	63.20	428.48	52.08	10.45	26.86	5.01	8.23	0.79	6.46
4	Chan	63.20	73.60	419.73	51.36	10.41	26.32	4.94	8.17	0.78	6.36
5	Chan	73.60	84.00	190.54	33.92	12.06	11.95	3.26	5.62	0.44	2.49

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 1650

INPUT
Description:
Station Elevation Data num= 446

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1588.18	1.3	1588.21	3.5	1588.44	5	1588.44	7	1588.22
9.2	1588.1	10	1587.94	10.5	1587.89	11.3	1587.84	13.3	1587.87
15.1	1587.69	15.9	1587.69	18.1	1588.03	18.6	1588.06	20.6	1588.04
21.4	1588.11	22.7	1588.33	23.7	1588.36	24.7	1588.06	25.4	1587.81
27	1587.24	27.2	1587.21	28.7	1586.64	28.7	1586.62	29	1586.5
29.1	1586.46	29.1	1586.45	29.3	1586.41	29.5	1586.28	30	1586.12
32.4	1585.53	33.6	1585.28	34.1	1585.12	34.6	1585.02	35.4	1584.92
35.9	1584.69	36	1584.68	36.1	1584.62	36.3	1584.55	36.6	1584.41
36.8	1584.23	36.8	1584.22	36.9	1584.2	37.2	1583.96	37.3	1583.85
37.3	1583.76	37.5	1583.64	39.2	1581.35	39.5	1581.2	39.5	1581.14
40.3	1580.85	41.9	1580.69	42.1	1580.72	44.7	1580.72	44.9	1580.69
45.2	1580.69	45.4	1580.66	45.8	1580.66	46.7	1580.69	47.2	1580.67
48.5	1580.69	48.7	1580.67	48.7	1580.66	51.7	1580.69	53	1580.59
54.6	1580.62	56.8	1580.59	56.8	1580.6	57.1	1580.63	57.1	1580.64
57.2	1580.67	57.3	1580.68	59.9	1580.53	60	1580.53	60.1	1580.53
60.4	1580.56	60.8	1580.56	60.9	1580.56	64.2	1580.53	64.7	1580.57
64.7	1580.58	64.9	1580.62	64.9	1580.63	65	1580.65	65.1	1580.68

65.2 1580.68	65.2 1580.69	65.5 1580.74	65.6 1580.76	65.7 1580.78
67 1581.58	67.1 1581.68	67.2 1581.73	67.3 1581.81	67.3 1581.86
67.4 1581.94	67.9 1582.3	67.9 1582.36	68.2 1582.52	68.2 1582.54
68.2 1582.55	68.3 1582.66	68.4 1582.74	68.7 1582.92	68.7 1582.96
68.8 1583.02	68.9 1583.12	69.7 1583.68	69.7 1583.71	70 1583.72
70 1583.74	70.2 1583.84	70.3 1583.86	70.6 1583.95	70.7 1583.99
71.4 1584.1	71.7 1584.16	72.4 1584.23	72.5 1584.25	72.6 1584.28
72.6 1584.29	72.7 1584.32	73.2 1584.43	73.3 1584.45	73.5 1584.46
73.5 1584.47	73.5 1584.48	73.7 1584.54	73.8 1584.56	73.9 1584.57
74 1584.58	74.1 1584.6	74.3 1584.62	74.4 1584.64	74.4 1584.66
74.5 1584.68	74.6 1584.7	75 1584.87	75 1584.88	75.5 1585.05
75.5 1585.07	75.6 1585.11	75.7 1585.13	75.8 1585.17	75.9 1585.19
76 1585.21	76.1 1585.22	76.2 1585.24	76.3 1585.25	76.3 1585.26
76.7 1585.3	76.8 1585.31	77.9 1585.52	78 1585.55	78.1 1585.57
78.1 1585.58	78.3 1585.63	78.5 1585.71	78.6 1585.72	79 1585.82
80.6 1586.22	82.6 1586.89	83.4 1587.06	83.6 1587.16	83.7 1587.17
83.8 1587.2	83.9 1587.22	84.1 1587.31	84.2 1587.35	84.3 1587.36
84.9 1587.58	84.9 1587.59	85.8 1588	85.8 1588.01	85.9 1588.08
86 1588.13	86.1 1588.16	86.4 1588.34	86.4 1588.37	86.4 1588.39
86.7 1588.5	86.9 1588.63	87 1588.65	87.1 1588.7	87.2 1588.73
87.3 1588.77	87.3 1588.81	88.1 1589.26	88.2 1589.29	88.3 1589.36
88.4 1589.41	88.6 1589.51	88.7 1589.56	88.9 1589.62	88.9 1589.66
89 1589.74	89.2 1589.84	89.3 1589.92	89.3 1589.96	89.4 1590.03
89.7 1590.19	89.9 1590.34	90 1590.35	90 1590.38	90.2 1590.48
90.2 1590.5	90.2 1590.52	90.4 1590.6	91 1590.92	91 1591
91.3 1591.18	91.4 1591.31	91.5 1591.34	91.5 1591.37	91.7 1591.56
91.7 1591.57	91.9 1591.74	92 1591.78	92 1591.82	92.1 1591.91
92.2 1591.97	92.3 1592.05	92.4 1592.09	92.5 1592.17	92.6 1592.27
92.7 1592.39	92.8 1592.45	92.9 1592.53	93 1592.58	93 1592.61
93.2 1592.77	93.2 1592.79	93.7 1593.15	93.9 1593.26	94 1593.32
94.1 1593.4	94.2 1593.48	94.3 1593.55	95 1593.96	95 1593.97
95.2 1594.11	95.3 1594.12	95.3 1594.14	95.4 1594.19	95.5 1594.21
95.6 1594.25	95.7 1594.28	95.8 1594.31	95.9 1594.36	95.9 1594.37
96 1594.42	96.1 1594.45	96.2 1594.48	96.5 1594.61	96.8 1594.68
97.1 1594.83	97.2 1594.88	97.6 1595.04	97.8 1595.1	97.9 1595.12
98 1595.13	98 1595.14	98.1 1595.15	98.3 1595.22	98.3 1595.23
98.5 1595.28	98.6 1595.29	98.8 1595.37	99 1595.46	100.5 1595.78
100.6 1595.8	100.7 1595.83	100.8 1595.86	101.4 1595.98	101.6 1596.04
101.8 1596.09	101.9 1596.09	102 1596.11	102.1 1596.12	102.2 1596.12
102.3 1596.12	102.5 1596.12	102.6 1596.11	102.7 1596.11	102.8 1596.1
102.9 1596.11	103.1 1596.16	103.3 1596.18	103.3 1596.19	103.6 1596.19
105.8 1596.2	105.9 1596.22	106 1596.22	106.3 1596.24	107.6 1596.47
107.7 1596.47	107.9 1596.47	108 1596.47	108.1 1596.47	108.2 1596.47
108.3 1596.47	108.4 1596.47	108.7 1596.44	108.8 1596.44	108.9 1596.44
109 1596.43	110.1 1596.37	110.2 1596.38	110.5 1596.38	110.6 1596.39
110.7 1596.39	110.8 1596.4	110.9 1596.41	111 1596.41	111.1 1596.41
111.2 1596.41	111.2 1596.42	111.4 1596.44	111.5 1596.44	111.6 1596.44
111.7 1596.44	112 1596.44	112.1 1596.46	112.2 1596.47	112.3 1596.47
112.3 1596.48	112.4 1596.48	112.6 1596.49	112.7 1596.5	112.8 1596.51
112.9 1596.52	113 1596.53	113.2 1596.56	113.3 1596.56	113.4 1596.56

113.5	1596.56	113.7	1596.56	113.8	1596.57	113.9	1596.57
114	1596.57	114.1	1596.58	114.1	1596.59	114.2	1596.59
114.3	1596.6	114.4	1596.61	114.5	1596.62	117.5	1596.61
117.6	1596.59	117.7	1596.58	117.8	1596.56	117.8	1596.55
118	1596.54	118	1596.53	118.1	1596.52	118.3	1596.46
118.5	1596.44	118.6	1596.43	118.7	1596.41	118.8	1596.41
118.9	1596.4	118.9	1596.39	119	1596.38	119.3	1596.34
119.4	1596.33	119.4	1596.32	119.5	1596.31	119.6	1596.31
119.7	1596.29	119.8	1596.28	120	1596.26	120	1596.25
120.2	1596.22	120.3	1596.22	120.5	1596.19	120.6	1596.17
121	1596.12	122.4	1596.13	122.6	1596.14	122.8	1596.18
122.9	1596.19	123	1596.21	123.1	1596.22	123.3	1596.25
123.6	1596.26	124	1596.29	124.2	1596.31	124.2	1596.32
124.3	1596.33	125.3	1596.48	125.7	1596.49	126	1596.49
126.1	1596.49	126.2	1596.49	126.3	1596.49	126.9	1596.51
127.1	1596.55	132.2	1596.59	132.3	1596.6	132.3	1596.61
132.4	1596.61	132.6	1596.62	132.7	1596.64	132.9	1596.59
133.2	1596.59	133.3	1596.59	133.4	1596.59	133.5	1596.59
133.6	1596.59	133.7	1596.59	133.9	1596.55	133.9	1596.53
134.1	1596.5	134.1	1596.49	134.3	1596.44	134.4	1596.44
134.5	1596.43	134.7	1596.43	134.7	1596.44	135	1596.47
135.2	1596.38	135.3	1596.36	135.4	1596.33	135.5	1596.3
135.6	1596.28	135.7	1596.26	136.3	1596.24	136.6	1596.22
136.9	1596.19	137	1596.19	137.1	1596.17	137.9	1596.14
138	1596.13	138.2	1596.16	138.3	1596.16	138.5	1596.18
138.7	1596.19	138.7	1596.2	138.9	1596.19	139.3	1596.17
139.3	1596.18	139.5	1596.18	139.6	1596.18	139.7	1596.18
139.8	1596.18	139.9	1596.19				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	30	.025	79	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
30	79	187.1	187.1	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1587.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.73	Wt. n-Val.		0.025	
W.S. Elev (ft)	1585.37	Reach Len. (ft)	187.10	187.10	187.10
Crit W.S. (ft)	1585.37	Flow Area (sq ft)		151.20	
E.G. Slope (ft/ft)	0.006671	Area (sq ft)		151.20	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	43.92	Top Width (ft)		43.92	
Vel Total (ft/s)	10.55	Avg. Vel. (ft/s)		10.55	
Max Chl Dpth (ft)	4.84	Hydr. Depth (ft)		3.44	
Conv. Total (cfs)	19528.0	Conv. (cfs)		19528.0	
Length Wtd. (ft)	187.10	Wetted Per. (ft)		47.20	
Min Ch El (ft)	1580.53	Shear (lb/sq ft)		1.33	
Alpha	1.00	Stream Power (lb/ft s)		14.07	
Frctn Loss (ft)	1.08	Cum Volume (acre-ft)	0.44	10.33	0.57
C & E Loss (ft)	0.12	Cum SA (acres)	0.41	3.48	0.50

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1587.10	Element	Left OB	Channel	Right OB	
Vel Head (ft)	1.73	Wt. n-Val.		0.025		
W.S. Elev (ft)	1585.37	Reach Len. (ft)	187.10	187.10	187.10	
Crit W.S. (ft)	1585.37	Flow Area (sq ft)		151.20		
E.G. Slope (ft/ft)	0.006671	Area (sq ft)		151.20		
Q Total (cfs)	1595.00	Flow (cfs)		1595.00		
Top Width (ft)	43.92	Top Width (ft)		43.92		
Vel Total (ft/s)	10.55	Avg. Vel. (ft/s)		10.55		
Max Chl Dpth (ft)	4.84	Hydr. Depth (ft)		3.44		
Conv. Total (cfs)	19528.0	Conv. (cfs)		19528.0		
Length Wtd. (ft)	187.10	Wetted Per. (ft)		47.20		
Min Ch El (ft)	1580.53	Shear (lb/sq ft)		1.33		
Alpha	1.00	Stream Power (lb/ft s)		14.07		
Frctn Loss (ft)	1.09	Cum Volume (acre-ft)	0.01	10.39	0.00	
C & E Loss (ft)	0.12	Cum SA (acres)	0.02	3.48	0.00	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	30.00	39.80	47.32	10.00	8.38	2.97	1.51	4.73	0.50	2.35
2	Chan	39.80	49.60	532.18	45.57	9.86	33.37	4.65	11.68	1.93	22.48

3	Chan	49.60	59.40	549.76	46.42	9.83	34.47	4.74	11.84	1.97
23.28										
4	Chan	59.40	69.20	438.45	42.04	10.78	27.49	4.29	10.43	1.62
16.95										
5	Chan	69.20	79.00	27.29	7.18	8.35	1.71	0.91	3.80	0.36
1.36										

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	
Power											
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft
s)											
1	Chan	30.00	39.80	47.32	10.00	8.38	2.97	1.51	4.73	0.50	
2.35											
2	Chan	39.80	49.60	532.18	45.57	9.86	33.37	4.65	11.68	1.93	
22.48											
3	Chan	49.60	59.40	549.76	46.42	9.83	34.47	4.74	11.84	1.97	
23.28											
4	Chan	59.40	69.20	438.45	42.04	10.78	27.49	4.29	10.43	1.62	
16.95											
5	Chan	69.20	79.00	27.29	7.18	8.35	1.71	0.91	3.80	0.36	
1.36											

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: PULSIPHER WASH

REACH: REV EFFFECTIVE RS: 1600

INPUT
Description:
Station Elevation Data num= 364

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1588.52	1.8	1588.57	3.9	1588.44	6.4	1588.46	6.8	1588.4
7.5	1588.44	8.7	1588.34	9.4	1588.36	12.4	1588.09	13	1587.96
14.4	1587.87	14.7	1587.72	15.4	1587.76	16.7	1587.59	18	1587.56
21.8	1587.22	22.7	1587.18	24.6	1587.25	26.7	1587.16	30.8	1587.25
33.1	1587.16	35.9	1586.87	36.4	1586.74	38.5	1586.4	38.91	1586.231
39.4	1586.02	40	1586	60	1576	80	1576	100	1586
158.3	1586	158.4	1586.01	158.9	1586.09	160	1586.11	162.7	1586.08
164.1	1586.16	167.5	1586.18	170.6	1586.67	170.6	1586.69	170.7	1586.71
170.9	1586.73	170.9	1586.74	170.9	1586.75	171.1	1586.79	171.2	1586.82
171.3	1586.84	171.3	1586.85	171.4	1586.88	171.7	1586.95	171.9	1587
172.1	1587.1	172.2	1587.11	172.2	1587.12	172.3	1587.18	172.5	1587.25
172.5	1587.26	172.6	1587.29	172.7	1587.38	172.8	1587.46	172.9	1587.51
173	1587.57	173.1	1587.62	173.1	1587.67	173.2	1587.75	173.4	1587.86
173.4	1587.87	173.4	1587.88	173.6	1588	173.7	1588.11	173.8	1588.14
174	1588.33	174.2	1588.47	174.3	1588.51	174.4	1588.55	174.5	1588.62
174.6	1588.7	174.8	1588.82	175	1588.91	175.1	1588.93	175.2	1588.97
175.4	1589.03	175.5	1589.08	175.6	1589.1	175.7	1589.16	175.8	1589.17
175.9	1589.21	175.9	1589.22	175.9	1589.23	176.1	1589.31	176.2	1589.35
176.3	1589.38	176.6	1589.48	176.8	1589.53	177.1	1589.64	177.2	1589.66
177.2	1589.67	177.4	1589.69	177.4	1589.7	177.5	1589.72	177.7	1589.76
177.8	1589.76	177.9	1589.77	178.1	1589.78	179	1589.78	179.1	1589.82
179.2	1589.85	179.3	1589.87	179.3	1589.88	179.5	1589.98	179.6	1590.04
179.7	1590.07	179.9	1590.21	180	1590.28	180.2	1590.38	180.2	1590.4
180.2	1590.41	180.4	1590.49	180.4	1590.5	180.5	1590.58	180.6	1590.6
180.7	1590.72	180.9	1590.79	180.9	1590.82	181	1590.87	181.2	1590.92
181.5	1591	181.5	1591.03	181.6	1591.09	181.8	1591.15	181.8	1591.17
182.7	1591.63	182.9	1591.7	183	1591.76	183.1	1591.79	183.2	1591.83
183.3	1591.89	183.4	1591.99	183.6	1592.09	183.6	1592.12	183.6	1592.13
183.8	1592.21	183.9	1592.3	184	1592.33	184.1	1592.43	184.3	1592.5
184.4	1592.6	184.5	1592.65	184.8	1592.89	184.9	1592.9	184.9	1592.91
185	1593.02	185.2	1593.13	185.2	1593.15	185.3	1593.19	185.4	1593.28
185.5	1593.35	185.6	1593.39	185.8	1593.47	185.8	1593.49	186.1	1593.66
186.3	1593.74	186.4	1593.81	186.5	1593.84	186.5	1593.88	186.7	1593.94
186.7	1593.99	186.8	1594.05	187	1594.18	187.2	1594.26	188.4	1595.05
190.8	1596.15	191.1	1596.37	191.7	1596.9	191.9	1597.06	192	1597.2
192.6	1597.75	192.7	1597.82	192.9	1597.93	193	1597.99	193.1	1598.05
193.3	1598.15	193.5	1598.27	193.6	1598.3	194	1598.47	194.2	1598.56
194.3	1598.72	194.5	1598.84	194.6	1598.97	194.9	1599.3	195	1599.48
195.1	1599.58	195.2	1599.79	195.4	1600.04	195.4	1600.1	195.6	1600.33
195.7	1600.5	195.8	1600.61	196	1600.89	196	1600.99	196.1	1601.16
196.3	1601.42	196.3	1601.46	196.3	1601.49	196.5	1601.74	196.6	1601.97
196.7	1602.02	196.7	1602.08	196.9	1602.29	197	1602.45	197	1602.56
197.1	1602.7	197.2	1602.79	197.3	1602.85	197.4	1602.93	197.6	1603
197.9	1603	198	1603	198.1	1603.01	198.2	1603.02	198.3	1603.02

198.4	1603.03	198.7	1603.03	198.8	1603.03	199	1603.05	200.3	1603.06
202.6	1603.16	202.8	1603.16	202.9	1603.15	203.1	1603.16	203.5	1603.15
203.7	1603.14	203.8	1603.14	203.8	1603.15	203.9	1603.14	204	1603.13
204.1	1603.12	204.2	1603.13	204.3	1603.15	204.4	1603.16	204.5	1603.16
204.7	1603.18	204.9	1603.19	205	1603.19	205.1	1603.19	205.2	1603.21
205.3	1603.22	205.4	1603.23	205.6	1603.25	205.8	1603.25	206	1603.25
206.2	1603.25	206.5	1603.27	206.9	1603.34	207.2	1603.36	207.2	1603.37
207.3	1603.38	208.8	1603.38	209	1603.41	209.2	1603.44	209.3	1603.46
209.6	1603.47	212.8	1603.56	213.7	1603.62	214	1603.68	214	1603.69
214.3	1603.72	216.8	1604.01	217.8	1603.95	220.1	1604.02	220.2	1604.01
220.3	1604.01	220.5	1604	220.6	1603.99	220.6	1603.98	220.8	1603.96
220.9	1603.96	221.1	1603.95	221.2	1603.95	221.3	1603.95	221.7	1603.91
221.9	1603.89	222	1603.88	223.5	1603.84	224.3	1603.88	224.5	1603.91
224.6	1603.91	224.7	1603.91	224.8	1603.91	224.9	1603.91	225.1	1603.91
225.3	1603.93	225.4	1603.94	225.5	1603.94	225.7	1603.94	226	1603.94
226.1	1603.94	226.2	1603.94	226.3	1603.94	226.4	1603.94	226.6	1603.94
226.7	1603.94	226.8	1603.94	226.9	1603.94	227	1603.94	227.1	1603.94
227.3	1603.94	227.4	1603.93	227.6	1603.93	227.8	1603.94	227.9	1603.94
228.2	1603.94	228.2	1603.95	228.3	1603.96	228.5	1603.97	228.6	1603.97
228.7	1603.98	228.8	1603.99	228.9	1604	229.1	1604	229.2	1604
229.4	1604	229.5	1604.01	229.6	1604.02	229.7	1604.03	229.8	1604.03
229.9	1604.06	230.1	1604.06	230.1	1604.07	230.2	1604.08	230.5	1604.09
230.6	1604.09	230.7	1604.09	230.8	1604.09	230.9	1604.09	231	1604.09
231.3	1604.09	231.4	1604.09	231.5	1604.09	231.6	1604.09	233.9	1604.24
234	1604.23	234.1	1604.23	234.1	1604.22	234.2	1604.21	234.3	1604.21
234.4	1604.21	234.4	1604.22	234.6	1604.22	234.7	1604.22	234.8	1604.22
234.9	1604.22	235	1604.23	235.1	1604.24	235.3	1604.25	235.6	1604.28
235.7	1604.28	235.9	1604.28	236.1	1604.28	236.2	1604.28	236.3	1604.28
236.4	1604.28	236.7	1604.28	237	1604.28	240.7	1604.41		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	40	.025	100	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
40	100	39 32.1	16	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	60	1587	F
80	240.7	1587	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1584.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.91	Wt. n-Val.		0.025	
W.S. Elev (ft)	1581.83	Reach Len. (ft)	39.00	32.10	16.00
Crit W.S. (ft)	1581.83	Flow Area (sq ft)		116.60	
E.G. Slope (ft/ft)	0.005049	Area (sq ft)		184.57	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	43.32	Top Width (ft)		43.32	

Vel Total (ft/s)	13.68	Avg. Vel. (ft/s)		13.68	
Max Chl Dpth (ft)	5.83	Hydr. Depth (ft)		5.83	
Conv. Total (cfs)	22448.1	Conv. (cfs)		22448.1	
Length Wtd. (ft)	32.10	Wetted Per. (ft)		20.00	
Min Ch El (ft)	1576.00	Shear (lb/sq ft)		1.84	
Alpha	1.00	Stream Power (lb/ft s)		25.14	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.44	9.61	0.57
C & E Loss (ft)	0.69	Cum SA (acres)	0.41	3.29	0.50

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1584.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.92	Wt. n-Val.		0.025	
W.S. Elev (ft)	1581.82	Reach Len. (ft)	39.00	32.10	16.00
Crit W.S. (ft)	1581.82	Flow Area (sq ft)		116.31	
E.G. Slope (ft/ft)	0.005090	Area (sq ft)		183.96	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	43.26	Top Width (ft)		43.26	
Vel Total (ft/s)	13.71	Avg. Vel. (ft/s)		13.71	
Max Chl Dpth (ft)	5.82	Hydr. Depth (ft)		5.82	
Conv. Total (cfs)	22357.3	Conv. (cfs)		22357.3	
Length Wtd. (ft)	32.10	Wetted Per. (ft)		20.00	
Min Ch El (ft)	1576.00	Shear (lb/sq ft)		1.85	
Alpha	1.00	Stream Power (lb/ft s)		25.34	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	0.01	9.67	0.00
C & E Loss (ft)	0.70	Cum SA (acres)	0.02	3.29	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/fts)
1	Chan	40.00	50.00	0.00	0.69	1.86	0.00	0.41	0.00	0.12	0.00
2	Chan	50.00	60.00	0.00	33.30	11.18	0.00	3.33	0.00	0.94	0.00
3	Chan	60.00	70.00	797.50	58.30	10.00	50.00	5.83	13.68	1.84	25.14
4	Chan	70.00	80.00	797.50	58.30	10.00	50.00	5.83	13.68	1.84	25.14
5	Chan	80.00	90.00	0.00	33.30	11.18	0.00	3.33	0.00	0.94	0.00
6	Chan	90.00	100.00	0.00	0.69	1.86	0.00	0.41	0.00	0.12	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/fts)
1	Chan	40.00	50.00	0.00	0.67	1.82	0.00	0.41	0.00	0.12	0.00
2	Chan	50.00	60.00	0.00	33.16	11.18	0.00	3.32	0.00	0.94	0.00
3	Chan	60.00	70.00	797.50	58.16	10.00	50.00	5.82	13.71	1.85	25.34
4	Chan	70.00	80.00	797.50	58.16	10.00	50.00	5.82	13.71	1.85	25.34
5	Chan	80.00	90.00	0.00	33.16	11.18	0.00	3.32	0.00	0.94	0.00
6	Chan	90.00	100.00	0.00	0.67	1.82	0.00	0.41	0.00	0.12	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 1550

INPUT
Description:
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12	1587.12	13.44	1587.1	19.11	1587.05	24.29	1587.13	41	1575.86
76	1575.86	95	1586	180.91	1586.36	187.19	1595.11	192.62	1603.15
200.2	1603.26								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
12	.035	41	.025	76	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
41	76	10	10	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12	41	1590	F
76	200.2	1590	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1583.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.59	Wt. n-Val.		0.025	
W.S. Elev (ft)	1583.23	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	1579.87	Flow Area (sq ft)		258.06	
E.G. Slope (ft/ft)	0.000754	Area (sq ft)	40.30	258.06	50.93
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	59.75	Top Width (ft)	10.93	35.00	13.82
Vel Total (ft/s)	6.18	Avg. Vel. (ft/s)		6.18	
Max Chl Dpth (ft)	7.37	Hydr. Depth (ft)		7.37	
Conv. Total (cfs)	58105.0	Conv. (cfs)		58105.0	

Length Wtd. (ft)	10.00	Wetted Per. (ft)		35.00	
Min Ch El (ft)	1575.86	Shear (lb/sq ft)		0.35	
Alpha	1.00	Stream Power (lb/ft s)		2.14	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.42	9.45	0.56
C & E Loss (ft)	0.16	Cum SA (acres)	0.41	3.26	0.50

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1583.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.59	Wt. n-Val.		0.025	
W.S. Elev (ft)	1583.24	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	1579.88	Flow Area (sq ft)		258.21	
E.G. Slope (ft/ft)	0.001202	Area (sq ft)		258.21	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	35.00	Top Width (ft)		35.00	
Vel Total (ft/s)	6.18	Avg. Vel. (ft/s)		6.18	
Max Chl Dpth (ft)	7.38	Hydr. Depth (ft)		7.38	
Conv. Total (cfs)	46003.2	Conv. (cfs)		46003.2	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		49.75	
Min Ch El (ft)	1575.86	Shear (lb/sq ft)		0.39	
Alpha	1.00	Stream Power (lb/ft s)		2.41	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.01	9.51	0.00
C & E Loss (ft)	0.16	Cum SA (acres)	0.02	3.26	0.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	29.40	35.20	0.00	8.88	6.19	0.00	1.73	0.00	0.07	0.00
2	LOB	35.20	41.00	0.00	31.42	7.00	0.00	5.42	0.00	0.21	0.00
3	Chan	41.00	48.00	319.00	51.61	7.00	20.00	7.37	6.18	0.35	2.14

4	Chan	48.00	55.00	319.00	51.61	7.00	20.00	7.37	6.18	0.35
2.14										
5	Chan	55.00	62.00	319.00	51.61	7.00	20.00	7.37	6.18	0.35
2.14										
6	Chan	62.00	69.00	319.00	51.61	7.00	20.00	7.37	6.18	0.35
2.14										
7	Chan	69.00	76.00	319.00	51.61	7.00	20.00	7.37	6.18	0.35
2.14										
8	ROB	76.00	100.84	0.00	50.93	15.66	0.00	3.69	0.00	0.15
0.00										

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	Chan	41.00	48.00	232.93	51.64	14.38	14.60	7.38	4.51	0.27	1.22
2	Chan	48.00	55.00	376.38	51.64	7.00	23.60	7.38	7.29	0.55	4.04
3	Chan	55.00	62.00	376.38	51.64	7.00	23.60	7.38	7.29	0.55	4.04
4	Chan	62.00	69.00	376.38	51.64	7.00	23.60	7.38	7.29	0.55	4.04
5	Chan	69.00	76.00	232.93	51.64	14.38	14.60	7.38	4.51	0.27	1.22

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 1540

INPUT
Description:

Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12	1587.07	13.44	1587.05	19.11	1587	24.29	1587.08	27.17	1587.12
29.09	1587.15	33.02	1586.12	38	1583.34	52	1575.81	80	1575.81
92	1586.5	180.91	1586.31	187.19	1595.06	192.62	1603.1	200.2	1603.21

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
12	.035	52	.025	80	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
52	80	99	99	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12	52	1590	F
80	200.2	1590	F

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1583.66	Element			
Vel Head (ft)	1.11	Wt. n-Val.		0.025	
W.S. Elev (ft)	1582.55	Reach Len. (ft)	0.90	0.90	0.90
Crit W.S. (ft)	1580.47	Flow Area (sq ft)		188.68	
E.G. Slope (ft/ft)	0.001589	Area (sq ft)	42.21	188.68	25.49
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	48.09	Top Width (ft)	12.53	28.00	7.56
Vel Total (ft/s)	8.45	Avg. Vel. (ft/s)		8.45	
Max Chl Dpth (ft)	6.74	Hydr. Depth (ft)		6.74	
Conv. Total (cfs)	40010.0	Conv. (cfs)		40010.0	
Length Wtd. (ft)	0.90	Wetted Per. (ft)		28.00	
Min Ch El (ft)	1575.81	Shear (lb/sq ft)		0.67	
Alpha	1.00	Stream Power (lb/ft s)		5.65	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.41	9.40	0.55
C & E Loss (ft)	0.09	Cum SA (acres)	0.40	3.25	0.50

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

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

CROSS SECTION OUTPUT Profile #FLOODWAY

			Left OB	Channel	Right OB
E.G. Elev (ft)	1583.66	Element			
Vel Head (ft)	1.11	Wt. n-Val.		0.025	
W.S. Elev (ft)	1582.55	Reach Len. (ft)	0.90	0.90	0.90
Crit W.S. (ft)	1580.47	Flow Area (sq ft)		188.62	
E.G. Slope (ft/ft)	0.002686	Area (sq ft)		188.62	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	28.00	Top Width (ft)		28.00	
Vel Total (ft/s)	8.46	Avg. Vel. (ft/s)		8.46	

Max Chl Dpth (ft)	6.74	Hydr. Depth (ft)		6.74		
Conv. Total (cfs)	30774.7	Conv. (cfs)		30774.7		
Length Wtd. (ft)	0.90	Wetted Per. (ft)		41.47		
Min Ch El (ft)	1575.81	Shear (lb/sq ft)		0.76		
Alpha	1.00	Stream Power (lb/ft s)		6.45		
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.01	9.45	0.00	
C & E Loss (ft)	0.09	Cum SA (acres)	0.02	3.25	0.00	

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

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	36.00	44.00	0.00	5.52	5.14	0.00	1.22	0.00	0.11	0.00
2	LOB	44.00	52.00	0.00	36.70	9.08	0.00	4.59	0.00	0.40	0.00
3	Chan	52.00	57.60	319.00	37.74	5.60	20.00	6.74	8.45	0.67	5.65
4	Chan	57.60	63.20	319.00	37.74	5.60	20.00	6.74	8.45	0.67	5.65
5	Chan	63.20	68.80	319.00	37.74	5.60	20.00	6.74	8.45	0.67	5.65
6	Chan	68.80	74.40	319.00	37.74	5.60	20.00	6.74	8.45	0.67	5.65
7	Chan	74.40	80.00	319.00	37.74	5.60	20.00	6.74	8.45	0.67	5.65
8	ROB	80.00	104.04	0.00	25.49	10.13	0.00	3.37	0.00	0.25	0.00

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

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	52.00	57.60	225.31	37.72	12.34	14.13	6.74	5.97	0.51	3.06

2	Chan	57.60	63.20	381.46	37.72	5.60	23.92	6.74	10.11	1.13
11.42										
3	Chan	63.20	68.80	381.46	37.72	5.60	23.92	6.74	10.11	1.13
11.42										
4	Chan	68.80	74.40	381.46	37.72	5.60	23.92	6.74	10.11	1.13
11.42										
5	Chan	74.40	80.00	225.31	37.72	12.34	14.13	6.74	5.97	0.51
3.06										

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

BRIDGE

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 1520

INPUT
Description:
Distance from Upstream XS = .9
Deck/Roadway Width = 98
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
0	1587		52	1587	1575	52	1587	1583.25
80	1587	1583.25	80	1587	1575	112	1587	

Upstream Bridge Cross Section Data
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12	1587.07	13.44	1587.05	19.11	1587	24.29	1587.08	27.17	1587.12
29.09	1587.15	33.02	1586.12	38	1583.34	52	1575.81	80	1575.81
92	1586.5	180.91	1586.31	187.19	1595.06	192.62	1603.1	200.2	1603.21

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
12	.035	52	.025	80	.035

Bank Sta: Left	Right	Coeff Contr.	Expan.
52	80	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12	52	1590	F
80	200.2	1590	F

Downstream Deck/Roadway Coordinates

```
    num=       6
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0    1586            76.6    1586    1575    76.6    1586 1582.67
   104.6    1586 1582.67   104.6    1586    1575  154.51    1586

Downstream Bridge Cross Section Data
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
      18 1585.22   29.79 1585.25   42.96 1585.72      53 1585.62      64 1582.67
    76.6  1575.2   104.6  1575.2     116 1582.67     128 1585.45  130.67 1586.17
  132.28  1586.2  138.76 1586.52  141.19 1586.55  146.92 1586.82  151.64 1587.03
  154.51 1587.06  156.98 1587.07  159.12 1587.09     161  1587.1  162.65 1587.12
  164.13 1587.13

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
      18    .035    76.6    .025   104.6    .035

Bank Sta: Left   Right    Coeff Contr.   Expan.
          76.6   104.6            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
      18    76.6    1587       F
   104.6  164.13    1587       F

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 =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  1

Pier Data
Pier Station     Upstream=      66    Downstream=    90.6
Upstream     num=       2
    Width   Elev    Width   Elev
    1.67    1575    1.67    1585
Downstream     num=       2
    Width   Elev    Width   Elev
    1.67    1575    1.67    1585

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

BRIDGE OUTPUT Profile #BFE

			Inside BR US	Inside BR DS
E.G. US. (ft)	1583.66	Element		
W.S. US. (ft)	1582.55	E.G. Elev (ft)	1583.56	1583.02
Q Total (cfs)	1595.00	W.S. Elev (ft)	1582.14	1581.65
Q Bridge (cfs)	1595.00	Crit W.S. (ft)	1580.67	1580.05
Q Weir (cfs)		Max Chl Dpth (ft)	6.33	6.45
Weir Sta Lft (ft)		Vel Total (ft/s)	9.57	9.40
Weir Sta Rgt (ft)		Flow Area (sq ft)	166.66	169.70
Weir Submerg		Froude # Chl	0.67	0.65
Weir Max Depth (ft)		Specif Force (cu ft)	1001.91	1012.82
Min El Weir Flow (ft)	1587.01	Hydr Depth (ft)	6.33	6.45
Min El Prs (ft)	1583.25	W.P. Total (ft)	51.65	52.11
Delta EG (ft)	0.74	Conv. Total (cfs)	21631.4	22160.6
Delta WS (ft)	0.81	Top Width (ft)	26.33	26.33
BR Open Area (sq ft)	195.89	Frctn Loss (ft)	0.52	0.00
BR Open Vel (ft/s)	9.57	C & E Loss (ft)	0.03	0.10
BR Sluice Coef		Shear Total (lb/sq ft)	1.10	1.05
BR Sel Method	Energy only	Power Total (lb/ft s)	10.48	9.90

Warning: Pier drag coefficient of 2.0 assumed for Class B flow.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

BRIDGE OUTPUT Profile #FLOODWAY

			Inside BR US	Inside BR DS
E.G. US. (ft)	1583.66	Element		
W.S. US. (ft)	1582.55	E.G. Elev (ft)	1583.56	1583.01
Q Total (cfs)	1595.00	W.S. Elev (ft)	1582.14	1581.64
Q Bridge (cfs)	1595.00	Crit W.S. (ft)	1580.67	1580.05
Q Weir (cfs)		Max Chl Dpth (ft)	6.32	6.44
Weir Sta Lft (ft)		Vel Total (ft/s)	9.58	9.41
Weir Sta Rgt (ft)		Flow Area (sq ft)	166.52	169.52
Weir Submerg		Froude # Chl	0.67	0.65
Weir Max Depth (ft)		Specif Force (cu ft)	1001.42	1012.13
Min El Weir Flow (ft)	1587.01	Hydr Depth (ft)	6.32	6.44
Min El Prs (ft)	1583.25	W.P. Total (ft)	51.63	52.08

Delta EG (ft)	0.74	Conv. Total (cfs)	21606.8	22128.1
Delta WS (ft)	0.81	Top Width (ft)	26.33	26.33
BR Open Area (sq ft)	195.89	Frctn Loss (ft)	0.52	0.00
BR Open Vel (ft/s)	9.58	C & E Loss (ft)	0.02	0.10
BR Sluice Coef		Shear Total (lb/sq ft)	1.10	1.06
BR Sel Method	Energy only	Power Total (lb/ft s)	10.51	9.93

Warning: Pier drag coefficient of 2.0 assumed for Class B flow.
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 1510

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18	1585.22	29.79	1585.25	42.96	1585.72	53	1585.62	64	1582.67
76.6	1575.2	104.6	1575.2	116	1582.67	128	1585.45	130.67	1586.17
132.28	1586.2	138.76	1586.52	141.19	1586.55	146.92	1586.82	151.64	1587.03
154.51	1587.06	156.98	1587.07	159.12	1587.09	161	1587.1	162.65	1587.12
164.13	1587.13								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18	.035	76.6	.025	104.6	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
76.6	104.6	11.9	11.9	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18	76.6	1587	F
104.6	164.13	1587	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1582.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.18	Wt. n-Val.		0.025	
W.S. Elev (ft)	1581.74	Reach Len. (ft)	11.90	11.90	11.90
Crit W.S. (ft)	1579.86	Flow Area (sq ft)		183.18	
E.G. Slope (ft/ft)	0.001754	Area (sq ft)	36.10	183.18	32.66
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	49.02	Top Width (ft)	11.03	28.00	9.98

Vel Total (ft/s)	8.71	Avg. Vel. (ft/s)		8.71	
Max Chl Dpth (ft)	6.54	Hydr. Depth (ft)		6.54	
Conv. Total (cfs)	38084.1	Conv. (cfs)		38084.1	
Length Wtd. (ft)	11.90	Wetted Per. (ft)		28.00	
Min Ch El (ft)	1575.20	Shear (lb/sq ft)		0.72	
Alpha	1.00	Stream Power (lb/ft s)		6.24	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	0.41	9.02	0.55
C & E Loss (ft)	0.30	Cum SA (acres)	0.40	3.19	0.50

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1582.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.18	Wt. n-Val.		0.025	
W.S. Elev (ft)	1581.74	Reach Len. (ft)	11.90	11.90	11.90
Crit W.S. (ft)	1579.86	Flow Area (sq ft)		182.99	
E.G. Slope (ft/ft)	0.002933	Area (sq ft)		182.99	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	28.00	Top Width (ft)		28.00	
Vel Total (ft/s)	8.72	Avg. Vel. (ft/s)		8.72	
Max Chl Dpth (ft)	6.54	Hydr. Depth (ft)		6.54	
Conv. Total (cfs)	29449.1	Conv. (cfs)		29449.1	
Length Wtd. (ft)	11.90	Wetted Per. (ft)		41.07	
Min Ch El (ft)	1575.20	Shear (lb/sq ft)		0.82	
Alpha	1.00	Stream Power (lb/ft s)		7.11	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.01	9.07	0.00
C & E Loss (ft)	0.19	Cum SA (acres)	0.02	3.19	0.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	64.88	76.60	0.00	36.10	12.83	0.00	3.27	0.00	0.31	0.00
2	Chan	76.60	82.20	319.00	36.64	5.60	20.00	6.54	8.71	0.72	6.24

3	Chan	82.20	87.80	319.00	36.64	5.60	20.00	6.54	8.71	0.72
6.24										
4	Chan	87.80	93.40	319.00	36.64	5.60	20.00	6.54	8.71	0.72
6.24										
5	Chan	93.40	99.00	319.00	36.64	5.60	20.00	6.54	8.71	0.72
6.24										
6	Chan	99.00	104.60	319.00	36.64	5.60	20.00	6.54	8.71	0.72
6.24										
7	ROB	104.60	116.51	0.00	32.66	11.94	0.00	3.27	0.00	0.30
0.00										

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	
Power											
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft
s)											
1	Chan	76.60	82.20	227.09	36.60	12.14	14.24	6.54	6.20	0.55	
3.43											
2	Chan	82.20	87.80	380.28	36.60	5.60	23.84	6.54	10.39	1.20	
12.44											
3	Chan	87.80	93.40	380.28	36.60	5.60	23.84	6.54	10.39	1.20	
12.44											
4	Chan	93.40	99.00	380.28	36.60	5.60	23.84	6.54	10.39	1.20	
12.44											
5	Chan	99.00	104.60	227.09	36.60	12.14	14.24	6.54	6.20	0.55	
3.43											

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 1500

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

18	1585.15	29.79	1585.18	42.96	1585.65	53	1585.55	64	1582.6		
73	1577.6	76.6	1575.6	104.6	1575.6	108	1577.688	116	1582.6		
128	1585.38	130.67	1586.1	132.28	1586.13	138.76	1586.45	141.19	1586.48		
146.92	1586.75	151.64	1586.96	154.51	1586.99	156.98	1587	159.12	1587.02		
161	1587.03	162.65	1587.05	164.13	1587.06						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18	.035	73	.025	108	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
73	108	56	48	39	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18	76.6	1583	F
104.6	164.13	1583	F

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1582.59	Element			
Vel Head (ft)	2.17	Wt. n-Val.		0.025	
W.S. Elev (ft)	1580.42	Reach Len. (ft)	56.00	48.00	39.00
Crit W.S. (ft)	1580.26	Flow Area (sq ft)		135.08	
E.G. Slope (ft/ft)	0.004841	Area (sq ft)	7.18	161.70	6.10
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	44.54	Top Width (ft)	5.08	35.00	4.46
Vel Total (ft/s)	11.81	Avg. Vel. (ft/s)		11.81	
Max Chl Dpth (ft)	4.82	Hydr. Depth (ft)		4.82	
Conv. Total (cfs)	22923.3	Conv. (cfs)		22923.3	
Length Wtd. (ft)	48.00	Wetted Per. (ft)		28.00	
Min Ch El (ft)	1575.60	Shear (lb/sq ft)		1.46	
Alpha	1.00	Stream Power (lb/ft s)		17.22	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	0.40	8.97	0.54
C & E Loss (ft)	0.01	Cum SA (acres)	0.40	3.18	0.49

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

CROSS SECTION OUTPUT Profile #FLOODWAY

			Left OB	Channel	Right OB
E.G. Elev (ft)	1582.69	Element			
Vel Head (ft)	1.81	Wt. n-Val.		0.025	
W.S. Elev (ft)	1580.88	Reach Len. (ft)	56.00	48.00	39.00
Crit W.S. (ft)	1580.26	Flow Area (sq ft)		147.94	
E.G. Slope (ft/ft)	0.003575	Area (sq ft)		177.78	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	35.00	Top Width (ft)		35.00	
Vel Total (ft/s)	10.78	Avg. Vel. (ft/s)		10.78	
Max Chl Dpth (ft)	5.28	Hydr. Depth (ft)		5.28	
Conv. Total (cfs)	26675.3	Conv. (cfs)		26675.3	

Length Wtd. (ft)	48.00	Wetted Per. (ft)		28.00		
Min Ch El (ft)	1575.60	Shear (lb/sq ft)		1.18		
Alpha	1.00	Stream Power (lb/ft s)		12.71		
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.01	9.02	0.00	
C & E Loss (ft)	0.02	Cum SA (acres)	0.02	3.18	0.00	

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

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	62.00	73.00	0.00	7.18	5.82	0.00	1.41	0.00	0.37	0.00
2	Chan	73.00	76.60	0.00	13.77	4.12	0.00	3.82	0.00	1.01	0.00
3	Chan	76.60	83.60	398.75	33.77	7.00	25.00	4.82	11.81	1.46	17.22
4	Chan	83.60	90.60	398.75	33.77	7.00	25.00	4.82	11.81	1.46	17.22
5	Chan	90.60	97.60	398.75	33.77	7.00	25.00	4.82	11.81	1.46	17.22
6	Chan	97.60	104.60	398.75	33.77	7.00	25.00	4.82	11.81	1.46	17.22
7	Chan	104.60	108.00	0.00	12.85	3.99	0.00	3.78	0.00	0.97	0.00
8	ROB	108.00	119.23	0.00	6.10	5.23	0.00	1.37	0.00	0.35	0.00

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

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	73.00	76.60	0.00	15.42	7.40	0.00	4.28	0.00	0.47	0.00
2	Chan	76.60	83.60	398.75	36.99	7.00	25.00	5.28	10.78	1.18	12.71
3	Chan	83.60	90.60	398.75	36.99	7.00	25.00	5.28	10.78	1.18	12.71
4	Chan	90.60	97.60	398.75	36.99	7.00	25.00	5.28	10.78	1.18	12.71

5	Chan	97.60	104.60	398.75	36.99	7.00	25.00	5.28	10.78	1.18
12.71										
6	Chan	104.60	108.00	0.00	14.41	7.19	0.00	4.24	0.00	0.45
0.00										

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

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 1450

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18	1584.9	29.79	1584.93	42.96	1585.4	53	1585.3	64	1582.35
76.6	1575.35	104.6	1575.35	116	1582.35	128	1585.13	130.67	1585.85
132.28	1585.88	138.76	1586.2	141.19	1586.23	146.92	1586.5	151.64	1586.71
154.51	1586.74	156.98	1586.75	159.12	1586.77	161	1586.78	162.65	1586.8
164.13	1586.81								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18	.035	76.6	.025	104.6	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
76.6	104.6	50	45	41	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18	76.6	1582	F
104.6	164.13	1582	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1582.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.13	Wt. n-Val.		0.025	
W.S. Elev (ft)	1580.22	Reach Len. (ft)	50.00	45.00	41.00
Crit W.S. (ft)	1580.01	Flow Area (sq ft)		136.33	
E.G. Slope (ft/ft)	0.004695	Area (sq ft)	21.34	136.33	19.30
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	44.69	Top Width (ft)	8.76	28.00	7.93
Vel Total (ft/s)	11.70	Avg. Vel. (ft/s)		11.70	
Max Chl Dpth (ft)	4.87	Hydr. Depth (ft)		4.87	
Conv. Total (cfs)	23277.2	Conv. (cfs)		23277.2	
Length Wtd. (ft)	45.00	Wetted Per. (ft)		28.00	
Min Ch El (ft)	1575.35	Shear (lb/sq ft)		1.43	
Alpha	1.00	Stream Power (lb/ft s)		16.70	

Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.39	8.80	0.53
C & E Loss (ft)	0.03	Cum SA (acres)	0.39	3.15	0.49

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

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1582.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.75	Wt. n-Val.		0.025	
W.S. Elev (ft)	1580.72	Reach Len. (ft)	50.00	45.00	41.00
Crit W.S. (ft)	1580.01	Flow Area (sq ft)		150.27	
E.G. Slope (ft/ft)	0.005232	Area (sq ft)		150.27	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	28.00	Top Width (ft)		28.00	
Vel Total (ft/s)	10.61	Avg. Vel. (ft/s)		10.61	
Max Chl Dpth (ft)	5.37	Hydr. Depth (ft)		5.37	
Conv. Total (cfs)	22051.6	Conv. (cfs)		22051.6	
Length Wtd. (ft)	45.00	Wetted Per. (ft)		38.73	
Min Ch El (ft)	1575.35	Shear (lb/sq ft)		1.27	
Alpha	1.00	Stream Power (lb/ft s)		13.45	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	0.01	8.84	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.02	3.15	0.00

Warning: The cross section had to be extended vertically during the critical depth calculations.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	64.88	76.60	0.00	21.34	10.03	0.00	2.43	0.00	0.62	0.00
2	Chan	76.60	82.20	319.00	27.27	5.60	20.00	4.87	11.70	1.43	16.70
3	Chan	82.20	87.80	319.00	27.27	5.60	20.00	4.87	11.70	1.43	16.70
4	Chan	87.80	93.40	319.00	27.27	5.60	20.00	4.87	11.70	1.43	16.70
5	Chan	93.40	99.00	319.00	27.27	5.60	20.00	4.87	11.70	1.43	16.70
6	Chan	99.00	104.60	319.00	27.27	5.60	20.00	4.87	11.70	1.43	16.70
7	ROB	104.60	116.51	0.00	19.30	9.30	0.00	2.43	0.00	0.61	0.00

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

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	76.60	82.20	238.21	30.05	10.97	14.93	5.37	7.93	0.90	7.09
2	Chan	82.20	87.80	372.86	30.05	5.60	23.38	5.37	12.41	1.75	21.75
3	Chan	87.80	93.40	372.86	30.05	5.60	23.38	5.37	12.41	1.75	21.75
4	Chan	93.40	99.00	372.86	30.05	5.60	23.38	5.37	12.41	1.75	21.75
5	Chan	99.00	104.60	238.21	30.05	10.97	14.93	5.37	7.93	0.90	7.09

Warning: The cross section had to be extended vertically during the critical depth calculations.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 1400

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18	1584.65	29.79	1584.68	42.96	1585.15	53	1585.05	64	1582.1
76.6	1575.1	104.6	1575.1	116	1582.1	128	1584.88	130.67	1585.6
132.28	1585.63	138.76	1585.95	141.19	1585.98	146.92	1586.25	151.64	1586.46
154.51	1586.49	156.98	1586.5	159.12	1586.52	161	1586.53	162.65	1586.55
164.13	1586.56								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18	.035	76.6	.025	104.6	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
76.6	104.6	81	81	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18	76.6	1582	F
104.6	164.13	1582	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1582.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.03	Wt. n-Val.		0.025	
W.S. Elev (ft)	1580.08	Reach Len. (ft)	81.00	81.00	81.00
Crit W.S. (ft)	1579.77	Flow Area (sq ft)		139.47	
E.G. Slope (ft/ft)	0.004352	Area (sq ft)	22.33	139.47	20.20
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	45.08	Top Width (ft)	8.97	28.00	8.11
Vel Total (ft/s)	11.44	Avg. Vel. (ft/s)		11.44	
Max Chl Dpth (ft)	4.98	Hydr. Depth (ft)		4.98	
Conv. Total (cfs)	24178.9	Conv. (cfs)		24178.9	
Length Wtd. (ft)	81.00	Wetted Per. (ft)		28.00	
Min Ch El (ft)	1575.10	Shear (lb/sq ft)		1.35	
Alpha	1.00	Stream Power (lb/ft s)		15.48	
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	0.36	8.66	0.51
C & E Loss (ft)	0.06	Cum SA (acres)	0.38	3.12	0.48

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

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1582.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.74	Wt. n-Val.		0.025	
W.S. Elev (ft)	1580.49	Reach Len. (ft)	81.00	81.00	81.00
Crit W.S. (ft)	1579.76	Flow Area (sq ft)		150.89	
E.G. Slope (ft/ft)	0.005168	Area (sq ft)		150.89	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	28.00	Top Width (ft)		28.00	
Vel Total (ft/s)	10.57	Avg. Vel. (ft/s)		10.57	
Max Chl Dpth (ft)	5.39	Hydr. Depth (ft)		5.39	
Conv. Total (cfs)	22186.3	Conv. (cfs)		22186.3	
Length Wtd. (ft)	81.00	Wetted Per. (ft)		38.78	
Min Ch El (ft)	1575.10	Shear (lb/sq ft)		1.26	
Alpha	1.00	Stream Power (lb/ft s)		13.27	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	0.01	8.69	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	0.02	3.12	0.00

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

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	64.88	76.60	0.00	22.33	10.26	0.00	2.49	0.00	0.59	0.00

2	Chan	76.60	82.20	319.00	27.89	5.60	20.00	4.98	11.44	1.35
15.48										
3	Chan	82.20	87.80	319.00	27.89	5.60	20.00	4.98	11.44	1.35
15.48										
4	Chan	87.80	93.40	319.00	27.89	5.60	20.00	4.98	11.44	1.35
15.48										
5	Chan	93.40	99.00	319.00	27.89	5.60	20.00	4.98	11.44	1.35
15.48										
6	Chan	99.00	104.60	319.00	27.89	5.60	20.00	4.98	11.44	1.35
15.48										
7	ROB	104.60	116.51	0.00	20.20	9.52	0.00	2.49	0.00	0.58
0.00										

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

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	Chan	76.60	82.20	237.98	30.18	10.99	14.92	5.39	7.89	0.89	6.99
2	Chan	82.20	87.80	373.01	30.18	5.60	23.39	5.39	12.36	1.74	21.49
3	Chan	87.80	93.40	373.01	30.18	5.60	23.39	5.39	12.36	1.74	21.49
4	Chan	93.40	99.00	373.01	30.18	5.60	23.39	5.39	12.36	1.74	21.49
5	Chan	99.00	104.60	237.98	30.18	10.99	14.92	5.39	7.89	0.89	6.99

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

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 1350

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18	1584.2	29.79	1584.23	42.96	1584.7	53	1584.6	64	1581.65
76.6	1574.65	104.6	1574.65	116	1581.65	128	1584.43	130.67	1585.15
132.28	1585.18	138.76	1585.5	141.19	1585.53	146.92	1585.8	151.64	1586.01
154.51	1586.04	156.98	1586.05	159.12	1586.07	161	1586.08	162.65	1586.1

164.13 1586.11

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18	.035	76.6	.025	104.6	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
76.6	104.6	72	76	77	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18	76.6	1582	F
104.6	164.13	1582	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1581.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.83	Wt. n-Val.		0.025	
W.S. Elev (ft)	1579.90	Reach Len. (ft)	72.00	76.00	77.00
Crit W.S. (ft)	1579.30	Flow Area (sq ft)		146.87	
E.G. Slope (ft/ft)	0.003663	Area (sq ft)	24.76	146.87	22.41
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	45.98	Top Width (ft)	9.44	28.00	8.54
Vel Total (ft/s)	10.86	Avg. Vel. (ft/s)		10.86	
Max Chl Dpth (ft)	5.25	Hydr. Depth (ft)		5.25	
Conv. Total (cfs)	26354.6	Conv. (cfs)		26354.6	
Length Wtd. (ft)	76.00	Wetted Per. (ft)		28.00	
Min Ch El (ft)	1574.65	Shear (lb/sq ft)		1.20	
Alpha	1.00	Stream Power (lb/ft s)		13.03	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	0.32	8.40	0.47
C & E Loss (ft)	0.35	Cum SA (acres)	0.37	3.07	0.47

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

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

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1581.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.69	Wt. n-Val.		0.025	
W.S. Elev (ft)	1580.11	Reach Len. (ft)	72.00	76.00	77.00
Crit W.S. (ft)	1579.31	Flow Area (sq ft)		152.86	
E.G. Slope (ft/ft)	0.004973	Area (sq ft)		152.86	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	28.00	Top Width (ft)		28.00	
Vel Total (ft/s)	10.43	Avg. Vel. (ft/s)		10.43	
Max Chl Dpth (ft)	5.46	Hydr. Depth (ft)		5.46	
Conv. Total (cfs)	22616.9	Conv. (cfs)		22616.9	

Length Wtd. (ft)	76.00	Wetted Per. (ft)		38.92	
Min Ch El (ft)	1574.65	Shear (lb/sq ft)		1.22	
Alpha	1.00	Stream Power (lb/ft s)		12.72	
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	0.01	8.40	0.00
C & E Loss (ft)	0.31	Cum SA (acres)	0.02	3.07	0.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	64.88	76.60	0.00	24.76	10.80	0.00	2.62	0.00	0.52	0.00
2	Chan	76.60	82.20	319.00	29.37	5.60	20.00	5.25	10.86	1.20	13.03
3	Chan	82.20	87.80	319.00	29.37	5.60	20.00	5.25	10.86	1.20	13.03
4	Chan	87.80	93.40	319.00	29.37	5.60	20.00	5.25	10.86	1.20	13.03
5	Chan	93.40	99.00	319.00	29.37	5.60	20.00	5.25	10.86	1.20	13.03
6	Chan	99.00	104.60	319.00	29.37	5.60	20.00	5.25	10.86	1.20	13.03
7	ROB	104.60	116.51	0.00	22.41	10.02	0.00	2.62	0.00	0.51	0.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	76.60	82.20	237.27	30.57	11.06	14.88	5.46	7.76	0.86	6.66

2	Chan	82.20	87.80	373.48	30.57	5.60	23.42	5.46	12.22	1.70
20.71										
3	Chan	87.80	93.40	373.48	30.57	5.60	23.42	5.46	12.22	1.70
20.71										
4	Chan	93.40	99.00	373.49	30.57	5.60	23.42	5.46	12.22	1.70
20.71										
5	Chan	99.00	104.60	237.27	30.57	11.06	14.88	5.46	7.76	0.86
6.66										

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 1300

INPUT
Description:
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18	1583.7	29.79	1583.73	42.96	1584.2	43	1584.1	54	1581.15
66.6	1574.15	104.6	1574.15	116	1581.15	128	1583.93	130.67	1584.65
132.28	1584.68	138.76	1585	141.19	1585.03	146.92	1585.3	151.64	1585.51
154.51	1585.54	156.98	1585.55	159.12	1585.57	161	1585.58	162.65	1585.6
164.13	1585.61								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18	.035	66.6	.025	104.6	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
66.6	104.6	90	88	85	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18	66.6	1582	F
104.6	164.13	1582	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1581.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.		0.025	
W.S. Elev (ft)	1580.58	Reach Len. (ft)	90.00	88.00	85.00
Crit W.S. (ft)	1577.95	Flow Area (sq ft)		244.35	
E.G. Slope (ft/ft)	0.001009	Area (sq ft)	37.21	244.35	33.67

Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	60.05	Top Width (ft)	11.57	38.00	10.47
Vel Total (ft/s)	6.53	Avg. Vel. (ft/s)		6.53	
Max Chl Dpth (ft)	6.43	Hydr. Depth (ft)		6.43	
Conv. Total (cfs)	50220.0	Conv. (cfs)		50220.0	
Length Wtd. (ft)	88.00	Wetted Per. (ft)		38.00	
Min Ch El (ft)	1574.15	Shear (lb/sq ft)		0.40	
Alpha	1.00	Stream Power (lb/ft s)		2.64	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	0.27	8.05	0.42
C & E Loss (ft)	0.11	Cum SA (acres)	0.35	3.01	0.45

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1581.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.		0.025	
W.S. Elev (ft)	1580.66	Reach Len. (ft)	90.00	88.00	85.00
Crit W.S. (ft)	1577.96	Flow Area (sq ft)		247.18	
E.G. Slope (ft/ft)	0.001437	Area (sq ft)		247.18	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	38.00	Top Width (ft)		38.00	
Vel Total (ft/s)	6.45	Avg. Vel. (ft/s)		6.45	
Max Chl Dpth (ft)	6.50	Hydr. Depth (ft)		6.50	
Conv. Total (cfs)	42069.5	Conv. (cfs)		42069.5	
Length Wtd. (ft)	88.00	Wetted Per. (ft)		51.01	
Min Ch El (ft)	1574.15	Shear (lb/sq ft)		0.43	
Alpha	1.00	Stream Power (lb/ft s)		2.81	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	0.01	8.06	0.00
C & E Loss (ft)	0.11	Cum SA (acres)	0.02	3.01	0.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)

1	LOB	47.16	56.88	0.00	0.96	2.12	0.00	0.52	0.00	0.03
0.00										
2	LOB	56.88	66.60	0.00	36.26	11.12	0.00	3.73	0.00	0.21
0.00										
3	Chan	66.60	74.20	319.00	48.87	7.60	20.00	6.43	6.53	0.40
2.64										
4	Chan	74.20	81.80	319.00	48.87	7.60	20.00	6.43	6.53	0.40
2.64										
5	Chan	81.80	89.40	319.00	48.87	7.60	20.00	6.43	6.53	0.40
2.64										
6	Chan	89.40	97.00	319.00	48.87	7.60	20.00	6.43	6.53	0.40
2.64										
7	Chan	97.00	104.60	319.00	48.87	7.60	20.00	6.43	6.53	0.40
2.64										
8	ROB	104.60	116.51	0.00	33.67	12.29	0.00	3.22	0.00	0.17
0.00										

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	66.60	74.20	244.24	49.44	14.10	15.31	6.50	4.94	0.31	1.55
2	Chan	74.20	81.80	368.84	49.44	7.60	23.12	6.50	7.46	0.58	4.36
3	Chan	81.80	89.40	368.84	49.44	7.60	23.12	6.50	7.46	0.58	4.36
4	Chan	89.40	97.00	368.84	49.44	7.60	23.12	6.50	7.46	0.58	4.36
5	Chan	97.00	104.60	244.24	49.44	14.10	15.31	6.50	4.94	0.31	1.55

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 1250

INPUT
Description:
Station Elevation Data num= 452

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1580.77	.9	1580.71	1.9	1580.78	3.2	1580.75	4.2	1580.84
5.4	1580.84	6.4	1580.75	7.2	1580.88	7.9	1580.92	8.2	1580.88
9.6	1580.98	11.4	1581.02	13.2	1580.94	14.7	1581	19.5	1580.97
20.4	1581.03	21.2	1580.97	22.7	1581.01	23.8	1580.94	24.6	1581.03
27.2	1581.09	28.5	1581.03	28.9	1581.06	29.5	1580.98	31	1581.12
33.2	1581.06	33.7	1581.15	34.5	1581.09	37	1581.22	37.8	1581.12
39.8	1581.22	40.3	1581.15	41.5	1581.16	42.3	1581.08	44.8	1581.03
45.5	1580.93	49.3	1580.88	50.3	1580.81	51	1580.69	51.8	1580.69
54.3	1580.97	56.3	1581.09	56.6	1581.06	58.1	1581.09	60	1581.43
60.5	1581.52	61.2	1581.68	61.6	1581.7	62.6	1581.35	63.3	1581
63.3	1580.97	64.4	1580.32	64.5	1580.31	65.3	1579.72	65.3	1579.67
65.8	1579.18	66.51	1578.746	66.8	1578.56	66.9	1578.52	67.1	1578.4
67.2	1578.35	67.3	1578.27	67.3	1578.22	67.4	1578.16	67.5	1578.12
67.6	1578.05	67.8	1577.77	68.7	1577.25	68.8	1577.12	70.1	1576.2
70.3	1576.11	70.3	1576.09	70.4	1576.06	70.5	1575.97	70.6	1575.94
70.7	1575.89	70.8	1575.81	70.8	1575.75	70.9	1575.68	71	1575.63
71.3	1575.34	71.5	1575.24	72.3	1574.53	72.6	1574.18	73.1	1573.82
73.3	1573.74	73.3	1573.69	73.4	1573.68	73.6	1573.51	74.2	1573.16
74.3	1573.02	74.4	1572.97	74.5	1572.92	74.6	1572.86	74.7	1572.79
74.7	1572.76	74.8	1572.69	75	1572.62	75.4	1572.37	76.1	1572.08
76.8	1571.97	78.1	1571.92	78.6	1572	80.1	1572.92	80.9	1573.32
81.4	1573.53	82.1	1573.47	86.3	1572.42	86.4	1572.41	86.5	1572.4
86.6	1572.4	86.7	1572.4	86.8	1572.4	86.9	1572.41	87.1	1572.41
87.2	1572.41	88.2	1572.55	88.3	1572.63	88.4	1572.7	88.6	1572.77
88.6	1572.82	88.8	1572.96	88.9	1573.03	89	1573.12	89	1573.16
89.1	1573.25	89.3	1573.37	89.5	1573.6	90.1	1574.17	90.1	1574.25
90.2	1574.32	90.3	1574.47	90.4	1574.58	90.6	1574.79	90.7	1574.8
90.9	1574.99	90.9	1575	92.8	1575.77	93.5	1576.12	93.6	1576.17
94.2	1576.55	94.6	1576.84	94.9	1576.96	94.9	1576.97	94.9	1576.98
95.1	1577.09	95.2	1577.11	95.4	1577.19	95.4	1577.22	95.5	1577.25
95.6	1577.33	95.7	1577.42	95.8	1577.47	95.9	1577.52	96.4	1577.78
96.5	1577.82	96.8	1577.89	96.8	1577.91	96.9	1577.94	97	1577.96
97.1	1578	97.2	1578.02	97.2	1578.04	97.4	1578.09	97.5	1578.11
97.6	1578.15	97.9	1578.21	97.9	1578.22	97.9	1578.23	98.2	1578.37
98.2	1578.38	98.4	1578.49	98.4	1578.5	98.4	1578.51	98.6	1578.61
98.7	1578.62	991	1578.794	99.2	1578.91	99.5	1579.05	99.6	1579.08
99.7	1579.12	99.8	1579.18	99.8	1579.19	99.9	1579.25	100	1579.3
100.3	1579.39	100.4	1579.45	100.5	1579.49	100.7	1579.56	100.7	1579.58
100.8	1579.59	101	1579.62	101.7	1579.78	101.7	1579.79	101.8	1579.82
101.9	1579.87	101.9	1579.88	102.2	1579.97	102.5	1580.07	102.6	1580.11
102.7	1580.12	102.8	1580.14	102.9	1580.15	103	1580.15	103.1	1580.15
103.2	1580.16	103.3	1580.16	103.4	1580.17	103.7	1580.23	103.8	1580.3

104.1 1580.42	104.2 1580.47	104.2 1580.5	104.4 1580.54	105.3 1580.94
105.4 1580.97	105.7 1581.03	105.7 1581.04	105.9 1581.12	106 1581.14
106.1 1581.17	106.2 1581.2	106.4 1581.23	106.8 1581.27	106.9 1581.28
107 1581.3	107.6 1581.31	107.9 1581.28	108.9 1581.22	109.4 1581.14
109.4 1581.13	109.5 1581.12	109.6 1581.08	109.7 1581.08	109.7 1581.06
109.9 1581.02	110 1580.99	110.1 1580.96	110.3 1580.88	110.3 1580.84
110.8 1580.61	110.8 1580.6	110.9 1580.54	111.1 1580.46	111.2 1580.4
111.3 1580.36	111.4 1580.28	111.6 1580.22	111.7 1580.2	111.7 1580.18
112.4 1580	113 1580.03	113.1 1580.07	113.2 1580.11	113.4 1580.16
113.5 1580.21	113.7 1580.28	113.8 1580.33	113.8 1580.36	113.9 1580.41
114.1 1580.49	114.2 1580.58	114.3 1580.65	114.4 1580.73	114.6 1580.77
115.3 1581.05	115.4 1581.15	115.4 1581.17	115.5 1581.19	115.7 1581.29
115.7 1581.31	115.7 1581.32	115.9 1581.46	116 1581.47	116 1581.52
116.2 1581.63	116.2 1581.64	116.4 1581.77	116.5 1581.79	116.5 1581.81
116.7 1581.92	116.7 1581.94	116.8 1581.97	116.9 1582.04	117 1582.07
117.1 1582.16	117.2 1582.2	117.3 1582.25	117.5 1582.36	118 1582.64
118.1 1582.72	118.1 1582.74	118.2 1582.81	118.4 1582.93	118.5 1582.99
118.5 1583.08	118.6 1583.22	119.4 1583.9	119.5 1583.91	119.6 1583.97
119.7 1584.03	119.7 1584.04	119.9 1584.18	120 1584.19	120 1584.2
120.2 1584.32	120.3 1584.34	120.4 1584.42	120.5 1584.45	120.6 1584.54
120.7 1584.57	121 1584.69	121.1 1584.78	121.1 1584.8	121.2 1584.9
121.3 1584.98	121.3 1584.99	121.5 1585.06	121.6 1585.11	121.8 1585.22
121.9 1585.26	122 1585.32	122.2 1585.43	122.3 1585.46	122.4 1585.53
122.5 1585.56	122.5 1585.59	122.7 1585.74	122.7 1585.76	123 1585.86
123 1585.87	123 1585.88	123.2 1585.97	123.2 1586	123.4 1586.12
123.5 1586.13	123.5 1586.14	123.7 1586.21	123.7 1586.23	123.8 1586.24
123.9 1586.3	124 1586.32	124 1586.34	124.2 1586.39	124.2 1586.41
126.2 1586.1	130.5 1585.75	132.5 1585.38	132.6 1585.36	132.7 1585.33
132.7 1585.3	132.8 1585.28	132.9 1585.24	133 1585.22	133.2 1585.16
133.2 1585.15	133.3 1585.14	133.5 1585.1	133.5 1585.09	135.6 1584.86
137 1584.78	137 1584.77	137.2 1584.72	137.3 1584.72	137.4 1584.7
137.5 1584.69	137.8 1584.63	137.8 1584.62	138 1584.58	138 1584.57
138.2 1584.55	138.3 1584.55	138.3 1584.54	138.4 1584.52	138.5 1584.51
138.6 1584.49	138.7 1584.48	138.8 1584.46	138.9 1584.46	139 1584.45
139.1 1584.46	139.4 1584.46	139.5 1584.46	139.6 1584.43	139.7 1584.4
139.8 1584.38	139.9 1584.31	140 1584.28	140.1 1584.25	140.2 1584.18
140.3 1584.16	140.3 1584.14	140.5 1584.07	140.5 1584.06	140.8 1583.94
140.8 1583.93	141 1583.83	141 1583.81	141.2 1583.72	141.3 1583.72
141.3 1583.71	141.5 1583.61	141.6 1583.57	141.7 1583.49	141.8 1583.47
141.8 1583.45	141.9 1583.4	142.1 1583.34	142.2 1583.31	142.3 1583.27
142.4 1583.23	142.4 1583.2	142.5 1583.16	142.6 1583.11	142.7 1583.11
142.8 1583.06	142.9 1583.01	143 1582.97	143.1 1582.93	143.2 1582.91
143.4 1582.84	143.5 1582.78	143.6 1582.76	143.7 1582.71	143.8 1582.69
144 1582.64	144 1582.62	144.1 1582.61	144.2 1582.54	145.5 1582.19
146.9 1582.12	148.3 1582.16	149.8 1582.14	149.9 1582.15	150 1582.16
150.1 1582.16	150.2 1582.16	150.4 1582.17	150.4 1582.18	150.5 1582.19
150.6 1582.2	150.7 1582.21	150.8 1582.22	151 1582.22	152 1582.24
152 1582.25	152.5 1582.28	152.6 1582.28	152.7 1582.28	153.3 1582.25
154.4 1582.25	155.4 1582.3			

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	66.5	.025	99	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
66.5	99	84.6	84.6	.1	.3

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1580.96	Element			
Vel Head (ft)	1.75	Wt. n-Val.	0.040	0.025	0.040
W.S. Elev (ft)	1579.21	Reach Len. (ft)	84.60	84.60	84.60
Crit W.S. (ft)	1578.77	Flow Area (sq ft)	0.17	150.06	0.17
E.G. Slope (ft/ft)	0.005021	Area (sq ft)	0.17	150.06	0.17
Q Total (cfs)	1595.00	Flow (cfs)	0.15	1594.70	0.14
Top Width (ft)	34.06	Top Width (ft)	0.73	32.50	0.83
Vel Total (ft/s)	10.61	Avg. Vel. (ft/s)	0.90	10.63	0.85
Max Chl Dpth (ft)	7.29	Hydr. Depth (ft)	0.24	4.62	0.21
Conv. Total (cfs)	22509.8	Conv. (cfs)	2.2	22505.6	2.0
Length Wtd. (ft)	84.60	Wetted Per. (ft)	0.86	37.44	0.94
Min Ch El (ft)	1571.92	Shear (lb/sq ft)	0.06	1.26	0.06
Alpha	1.00	Stream Power (lb/ft s)	0.06	13.35	0.05
Frctn Loss (ft)	0.36	Cum Volume (acre-ft)	0.23	7.66	0.39
C & E Loss (ft)	0.11	Cum SA (acres)	0.34	2.94	0.44

CROSS SECTION OUTPUT Profile #FLOODWAY

			Left OB	Channel	Right OB
E.G. Elev (ft)	1580.98	Element			
Vel Head (ft)	1.70	Wt. n-Val.		0.025	
W.S. Elev (ft)	1579.28	Reach Len. (ft)	84.60	84.60	84.60
Crit W.S. (ft)	1578.78	Flow Area (sq ft)		152.28	
E.G. Slope (ft/ft)	0.004955	Area (sq ft)		152.28	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	32.50	Top Width (ft)		32.50	
Vel Total (ft/s)	10.47	Avg. Vel. (ft/s)		10.47	
Max Chl Dpth (ft)	7.36	Hydr. Depth (ft)		4.69	
Conv. Total (cfs)	22658.0	Conv. (cfs)		22658.0	
Length Wtd. (ft)	84.60	Wetted Per. (ft)		38.45	
Min Ch El (ft)	1571.92	Shear (lb/sq ft)		1.23	
Alpha	1.00	Stream Power (lb/ft s)		12.83	
Frctn Loss (ft)	0.36	Cum Volume (acre-ft)	0.01	7.65	0.00
C & E Loss (ft)	0.11	Cum SA (acres)	0.02	2.94	0.00

Profile #BFE

Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power

		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	LOB	53.20	66.50	0.15	0.17	0.86	0.01	0.24	0.90	0.06	0.06
2	Chan	66.50	73.00	114.22	18.00	8.25	7.16	2.77	6.35	0.68	4.34
3	Chan	73.00	79.50	548.62	43.81	7.25	34.40	6.74	12.52	1.90	23.73
4	Chan	79.50	86.00	487.08	39.92	6.86	30.54	6.14	12.20	1.82	22.25
5	Chan	86.00	92.50	378.91	35.96	7.71	23.76	5.53	10.54	1.46	15.41
6	Chan	92.50	99.00	65.88	12.37	7.37	4.13	1.90	5.33	0.53	2.80
7	ROB	99.00	110.28	0.14	0.17	0.94	0.01	0.21	0.85	0.06	0.05

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	Chan	66.50	73.00	112.23	18.44	8.78	7.04	2.84	6.08	0.65	3.95
2	Chan	73.00	79.50	548.66	44.26	7.25	34.40	6.81	12.40	1.89	23.43
3	Chan	79.50	86.00	487.92	40.36	6.86	30.59	6.21	12.09	1.82	21.99
4	Chan	86.00	92.50	380.32	36.41	7.71	23.84	5.60	10.45	1.46	15.27
5	Chan	92.50	99.00	65.87	12.81	7.85	4.13	1.97	5.14	0.50	2.60

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 1200

INPUT
Description:
Station Elevation Data num= 305

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1580.48	.7	1580.4	1.6	1580.38	7.1	1580.44	7.6	1580.38
11.3	1580.38	14.3	1580.23	15.1	1580.28	17.1	1580.25	18.2	1580.2
19.3	1580.09	21.8	1580.09	24.3	1580.23	25.5	1580.16	26.4	1580.16
26.8	1580.13	26.9	1580.12	27.1	1580.1	27.3	1580.03	27.9	1580.09

29.1	1580.06	30.3	1580.12	30.6	1580.09	31.1	1580.09	32.3	1580.19
33.8	1580.22	35.8	1580.41	37.1	1580.37	37.2	1580.44	39.3	1581.17
39.78265	1581.16	39.8	1581.16	40.5	1580.95	41.8	1580.45	41.8	1580.42
42.2	1580.16	42.3	1580.11	42.3	1580.04	43.3	1579.41	43.3	1579.36
44	1578.87	44.2	1578.79	44.5	1578.54	44.6	1578.51	44.7	1578.48
44.8	1578.38	44.9	1578.35	45	1578.28	45.1	1578.26	45.1	1578.23
45.3	1578.16	45.3	1578.13	45.6	1578.01	45.6	1577.97	45.8	1577.83
45.8	1577.79	46.1	1577.63	46.1	1577.6	46.1	1577.58	46.3	1577.47
46.3	1577.45	46.4	1577.42	46.6	1577.29	46.6	1577.27	46.6	1577.24
47.6	1576.53	47.8	1576.42	47.9	1576.4	48.1	1576.26	48.4	1576.12
48.8	1575.84	49.1	1575.72	49.1	1575.71	49.3	1575.59	49.6	1575.44
49.6	1575.43	49.8	1575.22	49.9	1575.21	50.3	1574.81	50.4	1574.8
50.6	1574.56	51.1	1574.12	51.3	1573.82	51.4	1573.79	51.6	1573.53
52.1	1573.1	52.1	1573.06	52.1	1573.03	52.3	1572.88	52.4	1572.81
52.6	1572.66	52.6	1572.62	52.6	1572.59	52.8	1572.45	52.8	1572.41
52.9	1572.38	53.1	1572.2	53.3	1572.1	54.5	1571.83	55.3	1571.78
56.8	1571.78	58	1571.86	58.3	1571.89	58.8	1571.97	62.9	1571.65
64.3	1571.72	65.6	1572.05	65.6	1572.06	65.8	1572.17	65.8	1572.19
66.1	1572.31	66.1	1572.33	66.3	1572.44	66.4	1572.45	66.6	1572.55
66.8	1572.72	66.9	1572.73	67.4	1572.98	67.6	1573.11	67.6	1573.12
67.6	1573.13	67.8	1573.25	67.9	1573.26	68.3	1573.65	68.4	1573.66
68.8	1574.03	69.1	1574.22	69.3	1574.41	69.4	1574.41	69.8	1574.75
69.9	1574.76	70.6	1575.22	71.4	1575.25	71.6	1575.22	73.7	1576.14
73.8	1576.2	73.8	1576.23	73.9	1576.27	74	1576.33	74.1	1576.36
74.2	1576.39	74.3	1576.45	74.3	1576.48	74.4	1576.5	74.5	1576.54
74.7	1576.61	74.8	1576.66	74.8	1576.7	74.9	1576.73	75.1	1576.8
75.2	1576.85	75.3	1576.9	75.3	1576.95	75.8	1577.15	75.8	1577.2
75.9	1577.23	76	1577.26	76.1	1577.29	77.1	1577.66	77.5	1577.87
77.6	1577.93	78	1578.04	78.1	1578.1	78.2	1578.15	78.3	1578.21
79.5	1578.54	80.7	1579.11	80.8	1579.15	80.9	1579.19	81.1	1579.24
81.2	1579.28	81.3	1579.3	81.3	1579.34	81.6	1579.4	81.7	1579.41
81.76313	1579.416	81.79878	1579.42	81.8	1579.42	82.2	1579.45	82.3	1579.46
82.3	1579.47	82.4	1579.46	82.5	1579.46	82.6	1579.46	82.9	1579.44
83	1579.46	83.1	1579.46	83.2	1579.46	83.3	1579.46	83.3	1579.47
83.4	1579.47	83.5	1579.49	83.7	1579.5	83.8	1579.5	83.9	1579.5
84	1579.52	84.1	1579.52	84.8	1579.53	84.9	1579.54	85.1	1579.56
85.1	1579.57	85.3	1579.61	85.3	1579.62	85.4	1579.63	85.6	1579.65
85.6	1579.66	85.6	1579.67	85.8	1579.72	85.9	1579.73	86.1	1579.76
86.3	1579.78	86.6	1579.85	88.4	1580.09	89.6	1579.85	89.8	1579.79
89.8	1579.78	90.1	1579.72	90.3	1579.66	90.4	1579.65	90.6	1579.59
90.8	1579.53	90.9	1579.52	91.1	1579.45	91.3	1579.39	91.3	1579.38
91.4	1579.38	91.6	1579.4	91.6	1579.41	91.8	1579.41	92.1	1579.43
92.1	1579.44	92.3	1579.47	92.6	1579.5	92.6	1579.51	92.8	1579.55
92.8	1579.56	92.9	1579.58	93	1579.61	93.2	1579.64	93.3	1579.69
93.4	1579.69	93.5	1579.7	93.6	1579.7	93.8	1579.63	94.3	1579.52
95.5	1579.29	95.7	1579.28	95.8	1579.28	95.9	1579.27	96.1	1579.25
96.2	1579.25	96.5	1579.24	96.6	1579.24	96.7	1579.23	96.8	1579.21
97	1579.21	97.1	1579.21	97.2	1579.21	97.3	1579.21	97.5	1579.22
97.5	1579.23	97.6	1579.24	99.1	1579.23	99.2	1579.28	99.2	1579.29
99.3	1579.34	99.5	1579.4	100.2	1579.77	100.8	1579.96	100.9	1579.99

101.1	1580.04	101.2	1580.07	101.3	1580.1	101.4	1580.16	101.6	1580.22
101.7	1580.24	101.8	1580.26	101.8	1580.28	101.9	1580.31	102	1580.34
102.1	1580.38	102.2	1580.39	102.3	1580.44	102.5	1580.48	102.6	1580.5
102.7	1580.52	102.8	1580.54	102.8	1580.56	102.9	1580.58	103	1580.63
103.3	1580.69	103.3	1580.71	103.6	1580.74	103.7	1580.76	103.8	1580.79
103.8	1580.81	103.9	1580.82	104	1580.85	104.2	1580.87	104.3	1580.89
104.3	1580.9	104.4	1580.9	104.6	1580.9	104.8	1580.94	107.3	1580.91

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	44	.025	79.5	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
44	79.5	110	109.8	116	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	39	1582	F
82	107.3	1582	F

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1580.49	Element			
Vel Head (ft)	1.39	Wt. n-Val.	0.040	0.025	0.040
W.S. Elev (ft)	1579.10	Reach Len. (ft)	110.00	109.80	116.00
Crit W.S. (ft)	1578.23	Flow Area (sq ft)	0.04	168.75	0.33
E.G. Slope (ft/ft)	0.003719	Area (sq ft)	0.04	168.75	0.33
Q Total (cfs)	1595.00	Flow (cfs)	0.02	1594.69	0.30
Top Width (ft)	37.00	Top Width (ft)	0.33	35.50	1.18
Vel Total (ft/s)	9.43	Avg. Vel. (ft/s)	0.47	9.45	0.90
Max Chl Dpth (ft)	7.45	Hydr. Depth (ft)	0.11	4.75	0.28
Conv. Total (cfs)	26154.0	Conv. (cfs)	0.3	26148.8	4.9
Length Wtd. (ft)	109.80	Wetted Per. (ft)	0.40	40.09	1.30
Min Ch El (ft)	1571.65	Shear (lb/sq ft)	0.02	0.98	0.06
Alpha	1.00	Stream Power (lb/ft s)	0.01	9.24	0.05
Frctn Loss (ft)	0.52	Cum Volume (acre-ft)	0.23	7.35	0.39
C & E Loss (ft)	0.09	Cum SA (acres)	0.33	2.87	0.44

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

CROSS SECTION OUTPUT Profile #FLOODWAY

			Left OB	Channel	Right OB
E.G. Elev (ft)	1580.51	Element			
Vel Head (ft)	1.35	Wt. n-Val.		0.025	
W.S. Elev (ft)	1579.16	Reach Len. (ft)	110.00	109.80	116.00
Crit W.S. (ft)	1578.23	Flow Area (sq ft)		170.97	
E.G. Slope (ft/ft)	0.003670	Area (sq ft)		170.97	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	

Top Width (ft)	35.50	Top Width (ft)		35.50	
Vel Total (ft/s)	9.33	Avg. Vel. (ft/s)		9.33	
Max Chl Dpth (ft)	7.51	Hydr. Depth (ft)		4.82	
Conv. Total (cfs)	26327.2	Conv. (cfs)		26327.2	
Length Wtd. (ft)	109.80	Wetted Per. (ft)		41.00	
Min Ch El (ft)	1571.65	Shear (lb/sq ft)		0.96	
Alpha	1.00	Stream Power (lb/ft s)		8.91	
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	0.01	7.34	0.00
C & E Loss (ft)	0.10	Cum SA (acres)	0.02	2.87	0.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	39.00	44.00	0.02	0.04	0.40	0.00	0.11	0.47	0.02	0.01
2	Chan	44.00	51.10	87.43	17.49	8.80	5.48	2.46	5.00	0.46	2.31
3	Chan	51.10	58.20	516.51	48.95	8.03	32.38	6.89	10.55	1.42	14.93
4	Chan	58.20	65.30	613.50	51.82	7.15	38.46	7.30	11.84	1.68	19.91
5	Chan	65.30	72.40	313.84	36.70	8.25	19.68	5.17	8.55	1.03	8.83
6	Chan	72.40	79.50	63.40	13.78	7.85	3.97	1.94	4.60	0.41	1.88
7	ROB	79.50	82.00	0.30	0.33	1.30	0.02	0.28	0.90	0.06	0.05

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	44.00	51.10	87.85	17.94	9.09	5.51	2.53	4.90	0.45	2.21

2	Chan	51.10	58.20	516.39	49.40	8.03	32.38	6.96	10.45	1.41
14.73										
3	Chan	58.20	65.30	612.85	52.27	7.15	38.42	7.36	11.73	1.67
19.63										
4	Chan	65.30	72.40	315.34	37.15	8.25	19.77	5.23	8.49	1.03
8.76										
5	Chan	72.40	79.50	62.57	14.22	8.47	3.92	2.00	4.40	0.38
1.69										

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 1100

INPUT
Description:
Station Elevation Data num= 194

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1580.21	.8	1580.28	3.3	1580.28	4.4	1580.15	5.3	1580.16
7.6	1580	9.8	1579.99	10.3	1579.91	11.3	1579.86	13	1579.99
14.1	1579.97	15.6	1579.85	16.3	1579.92	17.9	1579.95	20.1	1580.22
26.6	1580.28	28.9	1580.41	30.3	1580.34	31.9	1580.56	33	1580.84
33.4	1580.89	33.9	1580.72	34.3	1580.51	34.9	1580.14	34.9	1580.09
35.1	1580	35.1	1579.95	35.3	1579.82	35.4	1579.79	35.6	1579.7
36.4	1578.78	36.9	1578.5	37.3	1578.16	37.4	1578.12	37.6	1577.98
37.6	1577.94	37.9	1577.72	38	1577.59	391	576.926	39.4	1576.66
39.5	1576.57	39.7	1576.39	41.1	1575.43	41.3	1575.24	41.4	1575.22
41.6	1575.07	41.6	1575.06	41.6	1575.05	41.9	1574.88	41.9	1574.87
42	1574.79	42.1	1574.66	42.1	1574.65	42.4	1574.46	42.6	1574.23
42.6	1574.2	42.9	1574.16	42.9	1574.14	43.1	1574.04	43.1	1574.01
43.2	1573.97	43.3	1573.89	43.4	1573.8	43.6	1573.72	43.6	1573.67
43.7	1573.62	44	1573.44	44	1573.39	44.1	1573.32	44.4	1573.12
44.5	1573.01	44.5	1572.98	44.8	1572.72	45	1572.44	45	1572.42
45.2	1572.15	45.4	1571.97	45.5	1571.77	45.7	1571.56	46	1571.3
46.3	1570.93	46.6	1570.79	47.4	1570.69	48.9	1570.65	48.9	1570.64
49.1	1570.62	51.5	1570.66	53.7	1570.88	53.9	1570.93	53.9	1570.94
53.9	1570.95	54.1	1571.03	56.9	1571.78	58.4	1572.28	59.6	1573.09
60.3	1573.49	60.4	1573.53	60.6	1573.61	60.6	1573.66	61.1	1573.97
61.3	1574.04	61.6	1574.25	61.8	1574.31	61.8	1574.32	61.9	1574.38
62	1574.44	62.1	1574.53	62.3	1574.61	62.4	1574.66	62.5	1574.71
62.6	1574.77	62.6	1574.81	62.7	1574.82	62.8	1574.84	62.9	1574.84
63	1574.85	63.4	1574.9	63.4	1574.91	63.4	1574.92	63.6	1574.99
63.6	1575	63.7	1575.01	64.6	1575.25	65.6	1575.44	67.2	1575.61
68.2	1575.54	69.8	1575.66	71.9	1575.67	73.4	1575.79	73.7	1575.74

```
    76.8  1576.5    78.9 1576.53      79 1576.54    79.1 1576.55    79.2 1576.56
    79.2 1576.57    79.3 1576.58    79.4 1576.59    79.7 1576.67    79.9 1576.71
    80.4 1576.92    80.7 1576.97    80.7 1576.98    80.9 1577.06    81.9 1577.18
    84.2 1577.58    84.3 1577.63    84.3 1577.64    84.4 1577.69    84.5 1577.73
    84.6 1577.75    84.7 1577.79    84.7 1577.83    85.2 1578.04    85.2 1578.08
    85.4 1578.18    85.4 1578.22    85.6 1578.35    85.7 1578.38    85.7  1578.4
    85.9 1578.52    85.9 1578.53    85.9 1578.55    86.2 1578.71    86.2 1578.72
    86.4 1578.91    86.5 1578.97    86.7 1579.06    86.7 1579.07    86.9 1579.25
    86.9 1579.26    87.1 1579.39    87.2 1579.43    87.4 1579.57    87.4  1579.6
    87.5 1579.63    87.6 1579.75  87.6981579.819    87.7 1579.82    87.9  1579.9
    87.9 1579.94    90.3 1580.21    91.1 1580.34    91.2 1580.35    91.4 1580.37
    91.4 1580.38    91.7 1580.43    91.9  1580.5    94.2 1580.78    98.4 1581.38
    98.7  1581.4   100.3 1581.55   101.4 1581.59   101.6 1581.62

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04      39    .025    67.2     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
             39    67.2             106.5   107.2     112             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    67.2   101.6    1580       F

CROSS SECTION OUTPUT  Profile #BFE

  E.G. Elev (ft)           1579.88    Element                  Left OB    Channel   Right OB
  Vel Head (ft)               2.29    Wt. n-Val.                0.040      0.025
  W.S. Elev (ft)           1577.59    Reach Len. (ft)          106.50     107.20     112.00
  Crit W.S. (ft)           1577.59    Flow Area (sq ft)          0.33     131.31
  E.G. Slope (ft/ft)      0.006295    Area (sq ft)               0.33     131.31      21.95
  Q Total (cfs)            1595.00    Flow (cfs)                 0.41    1594.59
  Top Width (ft)             46.20    Top Width (ft)             0.99      28.20      17.01
  Vel Total (ft/s)           12.12    Avg. Vel. (ft/s)           1.25      12.14
  Max Chl Dpth (ft)           6.97    Hydr. Depth (ft)           0.33       4.66
  Conv. Total (cfs)        20103.4    Conv. (cfs)                 5.1    20098.2
  Length Wtd. (ft)          107.20    Wetted Per. (ft)           1.19      31.78
  Min Ch El (ft)           1570.62    Shear (lb/sq ft)           0.11       1.62
  Alpha                       1.00    Stream Power (lb/ft s)     0.13      19.72
  Frctn Loss (ft)             0.50    Cum Volume (acre-ft)       0.23       6.97       0.36
  C & E Loss (ft)             0.26    Cum SA (acres)             0.33       2.79       0.41


Warning: The energy equation could not be balanced within the specified number of iterations.  The program used critical
         depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross
         sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
         the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
```

water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1579.88	Element	Left OB	Channel	Right OB	
Vel Head (ft)	2.30	Wt. n-Val.		0.025		
W.S. Elev (ft)	1577.58	Reach Len. (ft)	106.50	107.20	112.00	
Crit W.S. (ft)	1577.58	Flow Area (sq ft)		131.03		
E.G. Slope (ft/ft)	0.007049	Area (sq ft)		131.03		
Q Total (cfs)	1595.00	Flow (cfs)		1595.00		
Top Width (ft)	28.20	Top Width (ft)		28.20		
Vel Total (ft/s)	12.17	Avg. Vel. (ft/s)		12.17		
Max Chl Dpth (ft)	6.96	Hydr. Depth (ft)		4.65		
Conv. Total (cfs)	18997.2	Conv. (cfs)		18997.2		
Length Wtd. (ft)	107.20	Wetted Per. (ft)		34.39		
Min Ch El (ft)	1570.62	Shear (lb/sq ft)		1.68		
Alpha	1.00	Stream Power (lb/ft s)		20.41		
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	0.01	6.96	0.00	
C & E Loss (ft)	0.27	Cum SA (acres)	0.02	2.79	0.00	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	31.20	39.00	0.41	0.33	1.19	0.03	0.33	1.25	0.11	0.13
2	Chan	39.00	44.64	106.62	15.09	7.15	6.68	2.68	7.06	0.83	5.86
3	Chan	44.64	50.28	499.98	36.94	6.60	31.35	6.55	13.53	2.20	29.78
4	Chan	50.28	55.92	563.77	37.60	5.76	35.35	6.67	14.99	2.57	38.49
5	Chan	55.92	61.56	318.62	27.75	6.34	19.98	4.92	11.48	1.72	19.75

6	Chan	61.56	67.20	105.61	13.93	5.94	6.62	2.47	7.58	0.92
6.99										
7	ROB	67.20	74.08	0.00	13.23	6.91	0.00	1.92	0.00	0.75
0.00										
8	ROB	74.08	80.96	0.00	7.81	7.06	0.00	1.13	0.00	0.43
0.00										
9	ROB	80.96	87.84	0.00	0.91	3.29	0.00	0.28	0.00	0.11
0.00										

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	Chan	39.00	44.64	101.88	15.04	7.80	6.39	2.67	6.78	0.85	5.75
2	Chan	44.64	50.28	508.18	36.89	6.60	31.86	6.54	13.78	2.46	33.90
3	Chan	50.28	55.92	573.04	37.54	5.76	35.93	6.66	15.26	2.87	43.81
4	Chan	55.92	61.56	323.56	27.69	6.34	20.29	4.91	11.68	1.92	22.46
5	Chan	61.56	67.20	88.34	13.88	7.90	5.54	2.46	6.37	0.77	4.92

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 1000

INPUT
Description:
Station Elevation Data num= 174

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1579.85	1.6	1579.88	2.4	1579.81	2.9	1579.88	3.4	1579.81
4.1	1579.84	5.1	1579.75	5.9	1579.81	6.1	1579.75	6.6	1579.75
7.1	1579.62	7.6	1579.57	10.4	1579.51	10.8	1579.45	12.6	1579.41
13.6	1579.32	15.9	1579.35	17.4	1579.28	19.4	1579.34	21.4	1579.23
22.2	1579.32	23.6	1579.38	24.6	1579.33	25.4	1579.45	27.1	1579.44
29.4	1579.59	30.1	1579.57	32.1	1579.69	33.5	1579.69	34.6	1579.83
34.9	1579.77	35.7	1579.98	36.4	1580.04	37	1580.2	37.6	1580.24
38.6	1580.42	39.4	1580.34	39.9	1580.19	40.9	1579.51	41.1	1579.22
41.4	1579.15	41.6	1579.02	41.6	1579.01	41.7	1578.99	41.8	1578.87
41.9	1578.85	42.3	1578.46	42.7	1578.24	42.9	1578.02	43.4	1577.7
43.4	1577.65	43.6	1577.56	43.6	1577.51	44	1577.29	44.3	1576.87
44.4	1576.73	44.5	1576.67	44.5	1576.59	44.9	1576.44	451	576.295
45.1	1576.15	45.2	1576.05	45.5	1575.86	45.5	1575.85	45.7	1575.75
45.8	1575.75	45.9	1575.7	46.1	1575.45	46.4	1575.31	47.7	1574.29
48	1574.09	48.3	1573.95	48.4	1573.9	48.4	1573.86	48.6	1573.81
49.4	1573.19	50.2	1572.76	50.3	1572.62	50.9	1572.27	50.9	1572.25
51.1	1572.07	51.4	1571.91	51.6	1571.75	52.1	1571.15	52.4	1571.01
52.6	1570.83	52.9	1570.7	53.1	1570.54	53.2	1570.51	53.3	1570.42
53.9	1570.29	54.9	1570.31	55	1570.3	55.2	1570.27	55.5	1570.23
57.1	1570.16	59.4	1570.16	61.1	1569.97	61.2	1569.98	61.4	1570.03
61.4	1570.04	61.6	1570.06	62.1	1570.12	62.4	1570.12	62.6	1570.09
62.9	1570.12	63.4	1570.09	65.2	1570.18	65.3	1570.24	65.4	1570.26
65.4	1570.29	65.6	1570.36	65.9	1570.6	66.1	1570.68	66.1	1570.73
66.2	1570.78	66.6	1571.07	66.6	1571.15	66.7	1571.22	67	1571.53
68.2	1572.47	68.3	1572.48	68.4	1572.55	68.9	1572.55	69	1572.57
69.1	1572.59	69.2	1572.61	69.9	1572.61	70	1572.63	70	1572.65
70.1	1572.68	70.2	1572.7	70.4	1572.75	71.1	1573.12	71.1	1573.16
71.4	1573.28	71.4	1573.3	71.6	1573.35	72.9	1573.98	72.9	1574
72.9	1574.02	73.1	1574.14	73.1	1574.16	73.2	1574.18	73.6	1574.5
73.6	1574.51	73.9	1574.62	74.6	1575.16	75.2	1575.48	75.6	1575.75
75.7	1575.76	75.8	1575.88	75.9	1575.9	76.1	1576	76.3	1576.13
76.6	1576.25	78.2	1576.47	78.3	1576.49	78.5	1576.53	78.5	1576.54
78.6	1576.56	78.8	1576.62	791	576.734	80.2	1577.42	80.4	1577.48
80.5	1577.54	80.5	1577.56	80.6	1577.62	80.7	1577.67	81.1	1577.86
81.499	1577.95	81.5	1577.95	81.5	1577.98	82.6	1578.16		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	45	.025	79	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
45	79	117	120.2	120.2	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1578.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.42	Wt. n-Val.	0.040	0.025	0.040
W.S. Elev (ft)	1577.32	Reach Len. (ft)	117.00	120.20	120.20
Crit W.S. (ft)		Flow Area (sq ft)	0.60	166.50	0.30
E.G. Slope (ft/ft)	0.003640	Area (sq ft)	0.60	166.50	0.30
Q Total (cfs)	1595.00	Flow (cfs)	0.72	1594.01	0.27
Top Width (ft)	36.08	Top Width (ft)	1.05	34.00	1.03
Vel Total (ft/s)	9.53	Avg. Vel. (ft/s)	1.20	9.57	0.90
Max Chl Dpth (ft)	7.35	Hydr. Depth (ft)	0.57	4.90	0.29
Conv. Total (cfs)	26437.3	Conv. (cfs)	12.0	26420.8	4.5
Length Wtd. (ft)	120.20	Wetted Per. (ft)	1.55	38.17	1.18
Min Ch El (ft)	1569.97	Shear (lb/sq ft)	0.09	0.99	0.06
Alpha	1.01	Stream Power (lb/ft s)	0.11	9.49	0.05
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	0.23	6.60	0.33
C & E Loss (ft)	0.15	Cum SA (acres)	0.33	2.72	0.39

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1578.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.40	Wt. n-Val.		0.025	
W.S. Elev (ft)	1577.36	Reach Len. (ft)	117.00	120.20	120.20
Crit W.S. (ft)		Flow Area (sq ft)		167.85	
E.G. Slope (ft/ft)	0.003758	Area (sq ft)		167.85	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	34.00	Top Width (ft)		34.00	
Vel Total (ft/s)	9.50	Avg. Vel. (ft/s)		9.50	
Max Chl Dpth (ft)	7.39	Hydr. Depth (ft)		4.94	
Conv. Total (cfs)	26016.8	Conv. (cfs)		26016.8	
Length Wtd. (ft)	120.20	Wetted Per. (ft)		39.86	
Min Ch El (ft)	1569.97	Shear (lb/sq ft)		0.99	
Alpha	1.00	Stream Power (lb/ft s)		9.39	
Frctn Loss (ft)	0.33	Cum Volume (acre-ft)	0.01	6.59	0.00
C & E Loss (ft)	0.15	Cum SA (acres)	0.02	2.72	0.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	36.00	45.00	0.72	0.60	1.55	0.05	0.57	1.20	0.09	0.11
2	Chan	45.00	51.80	144.71	23.22	8.46	9.07	3.42	6.23	0.62	3.89
3	Chan	51.80	58.60	524.60	47.19	7.21	32.89	6.94	11.12	1.49	16.53
4	Chan	58.60	65.40	577.04	49.06	6.89	36.18	7.21	11.76	1.62	19.04
5	Chan	65.40	72.20	292.91	34.56	7.94	18.36	5.08	8.47	0.99	8.39
6	Chan	72.20	79.00	54.75	12.47	7.68	3.43	1.83	4.39	0.37	1.62
7	ROB	79.00	79.72	0.26	0.27	0.83	0.02	0.38	0.95	0.08	0.07
8	ROB	79.72	80.44	0.01	0.03	0.35	0.00	0.09	0.36	0.02	0.01

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	45.00	51.80	135.98	23.49	9.52	8.53	3.45	5.79	0.58	3.35
2	Chan	51.80	58.60	528.33	47.46	7.21	33.12	6.98	11.13	1.54	17.19
3	Chan	58.60	65.40	580.94	49.33	6.89	36.42	7.25	11.78	1.68	19.79
4	Chan	65.40	72.20	296.02	34.83	7.94	18.56	5.12	8.50	1.03	8.75
5	Chan	72.20	79.00	53.72	12.74	8.30	3.37	1.87	4.22	0.36	1.52

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: PULSIPHER WASH

REACH: REV EFFFECTIVE RS: 900

INPUT
Description:
Station Elevation Data num= 299

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1579.13	3.2	1579.25	3.7	1579.32	4	1579.28	5	1579.31
5.7	1579.25	7	1579.28	7.2	1579.33	9.6	1579.28	10.6	1579.39
12.5	1579.41	16.2	1579.31	17.5	1579.2	19.5	1579.28	20.5	1579.22
25.5	1579.21	27	1579.08	27.7	1578.95	28.7	1579.02	30.5	1578.92
31.1	1578.97	34.7	1578.92	35.3	1578.97	36.1	1578.92	37.2	1578.97
39.5	1578.89	44	1578.88	45.8	1579.04	48	1579.01	48.1	1579.03
48.1	1579.05	48.2	1579.07	49.2	1579.11	50	1579.26	51.2	1579.2
53.2	1579.41	54	1579.39	54.9	1579.56	56.1	1580.1	57.499	1580.5
57.5	1580.5	58.4	1580.29	60	1579.66	60.9	1579.05	61.7	1578.33
61.8	1578.29	61.9	1578.26	62	1578.21	62.3	1578	62.4	1577.96
63.2	1577.3	64	1576.86	64.6	1576.41	65.1	1576.09	65.2	1576.04
65.5	1575.92	65.9	1575.63	66	1575.55	66.3	1575.2	66.5	1575.08
66.7	1574.96	67	1574.88	67.5	1574.5	67.6	1574.4	67.8	1574.26
67.9	1574.23	68.1	1574.1	68.1	1574.06	68.2	1573.99	68.5	1573.86
68.6	1573.77	68.6	1573.74	68.7	1573.66	68.8	1573.59	68.9	1573.56
69	1573.5	69.2	1573.39	69.5	1573.31	70.5	1572.49	71	1572.02
71.8	1570.89	71.9	1570.85	72.1	1570.63	72.7	1570.17	73.6	1569.59
73.7	1569.54	73.8	1569.52	75.1	1569.38	78.2	1569.29	79	1569.11
81.6	1569.29	81.6	1569.3	81.7	1569.31	81.8	1569.33	82.3	1569.4
82.4	1569.41	83.7	1569.71	85.9	1569.81	86	1569.83	86.1	1569.87
86.3	1569.93	86.4	1569.94	86.5	1569.97	86.6	1570.01	86.7	1570.03
86.9	1570.06	87	1570.07	88.2	1571.08	88.3	1571.14	88.4	1571.17
88.6	1571.29	88.6	1571.32	88.7	1571.38	89.1	1571.6	89.2	1571.66
89.3	1571.68	89.4	1571.69	89.6	1571.74	89.7	1571.76	89.8	1571.78
89.9	1571.79	90	1571.81	90.1	1571.83	90.4	1571.86	90.5	1571.88
90.6	1571.92	90.7	1571.96	90.9	1571.99	91	1572.02	93.3	1572.23
93.4	1572.24	93.5	1572.25	93.7	1572.28	93.8	1572.29	93.9	1572.3
94	1572.31	94.5	1572.42	94.6	1572.46	94.6	1572.49	94.7	1572.53
94.8	1572.58	94.9	1572.6	95.1	1572.69	95.1	1572.71	95.2	1572.75
95.3	1572.8	95.4	1572.82	95.5	1572.88	95.6	1572.92	95.6	1572.94
95.9	1573.06	96.4	1573.31	97.5	1573.97	97.6	1574.06	97.7	1574.12
97.8	1574.18	98.4	1574.45	98.5	1574.5	98.6	1574.55	98.7	1574.62
98.8	1574.69	98.9	1574.72	99	1574.78	99.1	1574.85	99.2	1574.96
99.3	1575.03	99.4	1575.05	99.5	1575.12	99.6	1575.19	99.6	1575.22
99.7	1575.28	99.8	1575.35	99.9	1575.37	100	1575.44	100.1	1575.5
100.1	1575.53	100.2	1575.59	100.3	1575.65	100.4	1575.67	100.5	1575.72
100.6	1575.76	100.6	1575.79	100.7	1575.83	100.8	1575.88	100.9	1575.9
101	1575.96	101.1	1576	101.1	1576.02	101.3	1576.11	101.4	1576.12
101.5	1576.16	101.6	1576.21	101.6	1576.24	101.8	1576.33	102	1576.38
102.1	1576.43	102.1	1576.45	102.2	1576.51	102.3	1576.56	102.4	1576.58
102.5	1576.63	102.6	1576.68	102.6	1576.7	102.7	1576.76	102.8	1576.8
102.9	1576.82	103	1576.87	103.1	1576.92	103.1	1576.94	103.2	1576.99
103.3	1577.04	103.4	1577.05	103.5	1577.1	103.6	1577.14	103.6	1577.16
103.7	1577.21	104	1577.3	104.1	1577.37	104.2	1577.42	104.4	1577.5

106.2	1578.65	106.3	1578.69	106.5	1578.74	106.6	1578.78	106.6	1578.8
106.8	1578.88	106.9	1578.89	107	1578.93	107.1	1578.97	107.1	1578.99
107.3	1579.06	107.4	1579.08	107.498	1579.119	107.5	1579.12	107.6	1579.17
107.6	1579.18	107.7	1579.23	107.8	1579.21	107.9	1579.22	108	1579.2
108.1	1579.2	108.2	1579.2	108.3	1579.19	108.4	1579.18	108.5	1579.17
108.6	1579.16	108.7	1579.16	108.8	1579.15	108.9	1579.15	109	1579.14
109.1	1579.12	109.2	1579.09	109.7	1578.99	109.8	1579	109.9	1579.01
110	1579.02	110.1	1579.01	110.3	1578.99	110.4	1578.99	110.5	1578.98
110.6	1578.99	110.6	1579	110.8	1579.03	110.9	1579.04	111	1579.06
111.1	1579.09	111.2	1579.14	111.3	1579.19	111.5	1579.27	111.6	1579.32
111.7	1579.39	111.8	1579.45	111.9	1579.47	112	1579.53	112.1	1579.59
112.1	1579.62	112.2	1579.67	112.3	1579.73	112.4	1579.75	112.5	1579.8
112.6	1579.83	112.7	1579.88	112.8	1579.91	113	1579.97	113.1	1580
113.1	1580.01	113.2	1580.04	113.4	1580.09	113.5	1580.12	113.6	1580.16
113.6	1580.18	113.7	1580.22	113.8	1580.26	113.9	1580.27	114	1580.31
114.1	1580.35	114.1	1580.37	114.2	1580.41	114.4	1580.44		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	64	.025	103	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
64	103	97	96.4	.1	.3

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1578.27	Element			
Vel Head (ft)	0.91	Wt. n-Val.	0.040	0.025	0.040
W.S. Elev (ft)	1577.36	Reach Len. (ft)	97.00	96.40	96.40
Crit W.S. (ft)		Flow Area (sq ft)	0.22	208.34	0.25
E.G. Slope (ft/ft)	0.002068	Area (sq ft)	0.22	208.34	0.25
Q Total (cfs)	1595.00	Flow (cfs)	0.14	1594.71	0.15
Top Width (ft)	40.95	Top Width (ft)	0.87	39.00	1.08
Vel Total (ft/s)	7.64	Avg. Vel. (ft/s)	0.62	7.65	0.59
Max Chl Dpth (ft)	8.25	Hydr. Depth (ft)	0.26	5.34	0.23
Conv. Total (cfs)	35075.6	Conv. (cfs)	3.0	35069.3	3.3
Length Wtd. (ft)	96.40	Wetted Per. (ft)	1.00	43.72	1.22
Min Ch El (ft)	1569.11	Shear (lb/sq ft)	0.03	0.62	0.03
Alpha	1.00	Stream Power (lb/ft s)	0.02	4.71	0.02
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	0.23	6.08	0.33
C & E Loss (ft)	0.11	Cum SA (acres)	0.33	2.62	0.38

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1578.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.90	Wt. n-Val.		0.025	
W.S. Elev (ft)	1577.38	Reach Len. (ft)	97.00	96.40	96.40
Crit W.S. (ft)		Flow Area (sq ft)		209.24	
E.G. Slope (ft/ft)	0.002103	Area (sq ft)		209.24	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	39.00	Top Width (ft)		39.00	
Vel Total (ft/s)	7.62	Avg. Vel. (ft/s)		7.62	
Max Chl Dpth (ft)	8.27	Hydr. Depth (ft)		5.37	
Conv. Total (cfs)	34779.2	Conv. (cfs)		34779.2	
Length Wtd. (ft)	96.40	Wetted Per. (ft)		44.74	
Min Ch El (ft)	1569.11	Shear (lb/sq ft)		0.61	
Alpha	1.00	Stream Power (lb/ft s)		4.68	
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	0.01	6.07	0.00
C & E Loss (ft)	0.11	Cum SA (acres)	0.02	2.62	0.00

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	51.20	64.00	0.14	0.22	1.00	0.01	0.26	0.62	0.03	0.02
2	Chan	64.00	71.80	107.46	24.68	10.02	6.74	3.16	4.36	0.32	1.38
3	Chan	71.80	79.60	552.39	61.04	8.28	34.63	7.83	9.05	0.95	8.62
4	Chan	79.60	87.40	555.94	60.50	8.02	34.86	7.76	9.19	0.97	8.95
5	Chan	87.40	95.20	301.09	42.65	8.39	18.88	5.47	7.06	0.66	4.63
6	Chan	95.20	103.00	77.83	19.48	9.00	4.88	2.50	4.00	0.28	1.12
7	ROB	103.00	105.28	0.15	0.25	1.22	0.01	0.23	0.59	0.03	0.02

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	64.00	71.80	104.95	24.85	10.54	6.58	3.19	4.22	0.31	1.31
2	Chan	71.80	79.60	553.93	61.22	8.28	34.73	7.85	9.05	0.97	8.79
3	Chan	79.60	87.40	557.52	60.68	8.02	34.95	7.78	9.19	0.99	9.13
4	Chan	87.40	95.20	302.57	42.83	8.39	18.97	5.49	7.06	0.67	4.73
5	Chan	95.20	103.00	76.03	19.66	9.51	4.77	2.52	3.87	0.27	1.05

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 800

INPUT
Description:
Station Elevation Data num= 302

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1578.62	1.7	1578.53	3.5	1578.56	3.7	1578.5	6.2	1578.48
7.5	1578.34	9.5	1578.32	10.2	1578.37	12	1578.25	16.3	1578.22
19.3	1578.04	21.3	1578.06	23.2	1577.97	24.5	1577.98	25	1578.03
25.9	1577.99	26.4	1578.06	28.5	1578	29	1578.06	29.5	1578.03
30.3	1578.09	31.8	1578.05	32.4	1578.14	33.3	1578.08	33.4	1578.18
33.5	1578.2	35	1578.19	35.8	1578.28	37	1578.25	37.9	1578.29
38.3	1578.23	38.4	1578.26	38.4	1578.27	38.5	1578.3	41.8	1578.4
41.8	1578.41	42	1578.45	42	1578.46	43.3	1578.44	44.3	1578.56
44.7	1578.5	44.8	1578.5	45.8	1578.77	46	1578.75	46.6	1578.85
47.5	1579.16	48.3	1579.34	49.4	1578.98	49.4	1578.94	49.5	1578.91
49.7	1578.83	50	1578.64	50.7	1578.33	51	1578	51.2	1577.88
51.3	1577.81	51.4	1577.75	51.4	1577.69	52	1577.4	52	1577.37
52.2	1577.23	52.3	1577.16	52.8	1576.9	53	1576.72	53.1	1576.71
53.3	1576.6	53.8	1576.12	54	1576.01	54	1575.99	54.1	1575.97
54.3	1575.75	551	575.182	55.2	1575.02	55.9	1574.7	55.9	1574.67
56	1574.61	56.1	1574.55	56.5	1574.33	56.7	1574.26	57.5	1573.57
58	1573.31	58	1573.27	59	1572.69	59.1	1572.68	59.5	1572.37
59.7	1572.31	59.8	1572.25	59.8	1572.24	60	1572.1	60	1572.09

60.1	1572.07	60.5	1571.64	60.6	1571.6	61	1571.24	61	1571.19		
61.1	1571.13	61.5	1570.76	61.6	1570.6	61.8	1570.42	61.9	1570.32		
61.9	1570.25	62	1570.15	62.1	1570.03	62.2	1569.97	62.3	1569.85		
62.4	1569.71	62.4	1569.68	62.5	1569.53	62.7	1569.36	62.9	1569		
63	1568.83	63.5	1568.69	64.5	1568.6	67	1568.81	68.3	1569.03		
69.3	1569.03	74.1	1569.39	74.1	1569.48	74.6	1569.83	74.7	1569.91		
74.7	1569.93	74.8	1570.02	74.9	1570.12	75.1	1570.22	75.2	1570.31		
75.2	1570.33	75.3	1570.42	75.4	1570.5	75.4	1570.53	75.6	1570.61		
75.7	1570.67	75.7	1570.72	75.8	1570.78	75.9	1570.85	76	1570.91		
76.1	1570.97	76.1	1571.03	76.2	1571.1	76.5	1571.28	76.6	1571.32		
76.6	1571.36	76.8	1571.46	76.8	1571.5	77	1571.66	78.1	1571.97		
78.5	1572.15	78.6	1572.16	78.8	1572.21	78.8	1572.22	78.8	1572.23		
79	1572.27	79.1	1572.3	79.3	1572.36	79.3	1572.38	79.4	1572.39		
79.5	1572.42	79.6	1572.44	79.6	1572.45	79.7	1572.48	79.8	1572.5		
80.6	1572.62	80.7	1572.66	80.7	1572.67	80.8	1572.7	81.1	1572.77		
81.4	1572.91	81.6	1572.96	81.7	1573.04	82.1	1573.22	82.1	1573.28		
82.2	1573.34	82.3	1573.39	82.4	1573.44	82.6	1573.6	83.3	1573.92		
83.5	1573.99	83.6	1574	83.6	1574.01	83.8	1574.09	83.8	1574.1		
84	1574.16	84.1	1574.19	84.2	1574.23	84.3	1574.28	84.5	1574.37		
84.6	1574.38	84.8	1574.46	84.8	1574.47	84.999	1574.52	85	1574.52		
86	1574.64	86.5	1574.68	86.6	1574.69	86.7	1574.69	87	1574.71		
87.2	1574.72	87.8	1574.74	87.9	1574.73	88	1574.72	88.1	1574.71		
88.2	1574.7	88.2	1574.69	88.3	1574.69	88.9	1574.56	91.1	1574.59		
91.9	1574.52	92	1574.54	92.1	1574.54	92.1	1574.55	92.2	1574.56		
92.3	1574.57	94.2	1574.92	97.4	1575.16	98.7	1575.05	98.7	1575.04		
98.8	1575.03	99	1575	99.1	1574.98	99.2	1574.97	99.3	1574.95		
101.3	1574.75	102.3	1574.75	103.3	1574.87	103.3	1574.88	103.8	1574.88		
103.9	1574.89	104.1	1574.89	104.1	1574.92	104.3	1574.98	104.8	1575.17		
104.9	1575.17	105	1575.18	105.7	1575.26	105.8	1575.27	106	1575.28		
106.1	1575.3	108.3	1575.34	109.4	1575.48	109.6	1575.56	110.3	1575.68		
110.4	1575.72	110.5	1575.76	110.6	1575.78	112.2	1576.45	112.4	1576.51		
112.5	1576.51	112.6	1576.53	112.8	1576.59	112.9	1576.61	113	1576.64		
113.1	1576.66	113.2	1576.68	113.3	1576.71	113.3	1576.73	113.4	1576.74		
113.5	1576.77	113.6	1576.78	113.6	1576.79	113.8	1576.81	113.9	1576.82		
114.1	1576.86	114.1	1576.88	115.1	1576.97	115.3	1576.97	115.4	1576.97		
117.4	1577.26	117.5	1577.26	117.6	1577.26	117.7	1577.27	117.8	1577.28		
118	1577.28	118.1	1577.28	118.6	1577.27	118.7	1577.28	118.8	1577.31		
118.9	1577.32	119	1577.33	119.1	1577.34	119.2	1577.34	119.3	1577.34		
119.4	1577.35	119.6	1577.37	121.1	1577.38	121.3	1577.46	121.4	1577.46		
121.6	1577.44	121.6	1577.43	121.8	1577.4	124	1577.54	124.2	1577.55		
124.3	1577.55	124.5	1577.54	124.6	1577.54	124.7	1577.55	124.7	1577.56		
124.8	1577.56	125.1	1577.56	125.3	1577.56	125.4	1577.57	125.5	1577.58		
125.6	1577.59	126.1	1577.56								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	55	.025	84	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
55	84	131	141.6	143	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	55	1580	F
85	126.1	1580	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1577.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.00	Wt. n-Val.		0.025	0.040
W.S. Elev (ft)	1575.86	Reach Len. (ft)	131.00	141.60	143.00
Crit W.S. (ft)	1575.57	Flow Area (sq ft)		139.95	1.51
E.G. Slope (ft/ft)	0.005347	Area (sq ft)	0.28	139.95	25.03
Q Total (cfs)	1595.00	Flow (cfs)		1589.88	5.12
Top Width (ft)	56.58	Top Width (ft)	0.80	29.00	26.78
Vel Total (ft/s)	11.28	Avg. Vel. (ft/s)		11.36	3.40
Max Chl Dpth (ft)	7.26	Hydr. Depth (ft)		4.83	1.51
Conv. Total (cfs)	21811.9	Conv. (cfs)		21741.8	70.0
Length Wtd. (ft)	141.60	Wetted Per. (ft)		33.12	1.08
Min Ch El (ft)	1568.60	Shear (lb/sq ft)		1.41	0.47
Alpha	1.01	Stream Power (lb/ft s)		16.03	1.59
Frctn Loss (ft)	0.83	Cum Volume (acre-ft)	0.22	5.70	0.30
C & E Loss (ft)	0.03	Cum SA (acres)	0.33	2.54	0.35

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

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1577.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.00	Wt. n-Val.		0.025	0.040
W.S. Elev (ft)	1575.87	Reach Len. (ft)	131.00	141.60	143.00
Crit W.S. (ft)	1575.59	Flow Area (sq ft)		140.35	1.52
E.G. Slope (ft/ft)	0.005458	Area (sq ft)		140.35	1.52
Q Total (cfs)	1595.00	Flow (cfs)		1591.95	3.06
Top Width (ft)	30.00	Top Width (ft)		29.00	1.00
Vel Total (ft/s)	11.24	Avg. Vel. (ft/s)		11.34	2.01
Max Chl Dpth (ft)	7.27	Hydr. Depth (ft)		4.84	1.52
Conv. Total (cfs)	21589.7	Conv. (cfs)		21548.3	41.4
Length Wtd. (ft)	141.60	Wetted Per. (ft)		33.81	2.42
Min Ch El (ft)	1568.60	Shear (lb/sq ft)		1.41	0.21
Alpha	1.02	Stream Power (lb/ft s)		16.05	0.43
Frctn Loss (ft)	0.84	Cum Volume (acre-ft)	0.01	5.68	0.00
C & E Loss (ft)	0.03	Cum SA (acres)	0.02	2.54	0.00

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/fts)
1	LOB	44.00	55.00	0.00	0.28	1.04	0.00	0.35	0.00	0.09	0.00
2	Chan	55.00	60.80	91.59	14.33	7.04	5.74	2.47	6.39	0.68	4.35
3	Chan	60.80	66.60	465.47	38.15	7.10	29.18	6.58	12.20	1.79	21.87
4	Chan	66.60	72.40	562.01	39.47	5.83	35.24	6.80	14.24	2.26	32.19
5	Chan	72.40	78.20	343.34	31.24	6.81	21.53	5.39	10.99	1.53	16.84
6	Chan	78.20	84.00	127.47	16.76	6.34	7.99	2.89	7.61	0.88	6.71
7	ROB	84.00	85.00	5.12	1.51	1.08	0.32	1.51	3.40	0.47	1.59
8	ROB	85.00	93.22	0.00	10.15	8.29	0.00	1.24	0.00	0.41	0.00
9	ROB	93.22	101.44	0.00	7.27	8.28	0.00	0.88	0.00	0.29	0.00
10	ROB	101.44	109.66	0.00	5.91	8.34	0.00	0.72	0.00	0.24	0.00
11	ROB	109.66	117.88	0.00	0.19	1.16	0.00	0.17	0.00	0.05	0.00

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

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/fts)
1	Chan	55.00	60.80	86.92	14.41	7.72	5.45	2.48	6.03	0.64	3.83
2	Chan	60.80	66.60	467.32	38.23	7.10	29.30	6.59	12.22	1.83	22.41
3	Chan	66.60	72.40	564.18	39.55	5.83	35.37	6.82	14.27	2.31	32.98
4	Chan	72.40	78.20	344.97	31.32	6.81	21.63	5.40	11.01	1.57	17.27
5	Chan	78.20	84.00	128.55	16.84	6.34	8.06	2.90	7.63	0.90	6.91
6	ROB	84.00	85.00	3.06	1.52	2.42	0.19	1.52	2.01	0.21	0.43

Warning: The cross section had to be extended vertically during the critical depth calculations.
Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 700

INPUT
Description:
Station Elevation Data num= 444

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1577.72	1.3	1577.72	2.7	1577.85	3.2	1577.81	7.6	1577.85
8.2	1577.81	8.6	1577.88	9.2	1577.84	10.2	1577.88	11	1577.81
17.4	1577.66	20.8	1577.81	22.4	1577.75	22.6	1577.81	24.2	1577.72
25	1577.59	25.2	1577.67	25.5	1577.66	26.5	1577.78	27.1	1577.76
27.8	1577.81	28.9	1577.78	31.3	1577.93	33.9	1577.94	35.5	1578.09
37.1	1578.48	38.3	1578.56	38.9	1578.53	39.1	1578.49	40.1	1577.94
40.4	1577.69	40.5	1577.67	40.5	1577.62	40.7	1577.52	41.1	1577.19
41.2	1577.09	41.2	1577.04	41.3	1577.01	41.5	1576.77	41.6	1576.73
41.7	1576.64	41.9	1576.58	41.9	1576.55	42.1	1576.51	42.2	1576.44
42.3	1576.39	42.3	1576.37	42.3	1576.33	42.5	1576.17	42.7	1576.1
42.7	1576.06	42.8	1576.01	42.9	1575.98	43.1	1575.81	43.2	1575.7
43.8	1575.29	43.9	1575.28	44.8	1574.55	44.9	1574.53	45	1574.49
45.2	1574.43	45.6	1574.09	45.7	1574.05	45.8	1573.96	46	1573.87
46.2	1573.7	46.2	1573.69	46.3	1573.65	46.7	1573.29	47.8	1572.61
48.1	1572.51	48.1	1572.46	48.4	1572.27	48.5	1572.21	48.6	1572.17
49.5	1571.46	49.6	1571.42	49.6	1571.4	50.4	1571.06	50.4	1571.04
50.4	1571.03	50.6	1570.95	50.7	1570.9	50.8	1570.81	50.9	1570.75
51	1570.71	51.2	1570.58	51.2	1570.57	51.2	1570.56	51.4	1570.46
51.5	1570.42	51.7	1570.21	52.8	1569.36	53	1569.14	53.2	1569.05
53.2	1569.03	53.3	1568.93	53.5	1568.77	54.6	1568.35	54.7	1568.33
55	1568.28	57.8	1568.28	58.8	1568.17	60.5	1568.19	64.3	1568.49
64.3	1568.5	64.5	1568.52	64.6	1568.53	64.7	1568.55	64.7	1568.56
64.9	1568.58	64.9	1568.6	65.1	1568.65	65.1	1568.66	65.3	1568.71
65.4	1568.73	65.5	1568.77	65.6	1568.81	65.7	1568.83	65.9	1568.87
66.1	1568.94	66.3	1568.96	66.4	1568.97	66.5	1568.97	66.7	1568.99
67	1569.14	67.4	1569.44	67.5	1569.48	67.6	1569.52	69.1	1570.58
70.1	1571.35	70.4	1571.54	70.5	1571.66	70.7	1571.77	70.8	1571.9
70.9	1571.93	70.9	1571.94	70.9	1571.96	71.1	1572.06	71.2	1572.12
71.7	1572.51	71.9	1572.7	72.1	1572.8	72.2	1572.9	72.5	1573.12
72.9	1573.58	72.9	1573.6	73.1	1573.87	73.2	1574.15	73.6	1574.34
73.7	1574.35	73.8	1574.38	73.9	1574.39	74	1574.43	74.1	1574.44
76.5	1574.32	78	1574.41	78.8	1574.41	79	1574.38	80.1	1574.5
81.9	1574.42	82.6	1574.44	83	1574.47	83	1574.46	83.1	1574.45

83.2	1574.44	83.2	1574.45	83.4	1574.48	83.5	1574.5	83.6	1574.51
83.7	1574.52	83.8	1574.52	83.8	1574.53	83.9	1574.55	84	1574.56
86.9	1574.75	88	1574.84	88	1574.85	88.2	1574.88	88.3	1574.89
88.4	1574.89	88.5	1574.91	88.6	1574.92	88.7	1574.94	88.9	1574.94
89	1574.94	89.1	1574.95	89.7	1574.99	92.2	1575.03	92.4	1575.06
92.6	1575.08	92.7	1575.09	92.8	1575.09	92.9	1575.09	93	1575.09
93.1	1575.12	95.4	1575.22	95.6	1575.21	95.7	1575.2	95.8	1575.19
95.9	1575.17	96	1575.14	96.7	1575.07	96.8	1575.04	96.9	1575
97	1574.96	97.2	1574.93	97.2	1574.91	97.3	1574.86	97.4	1574.83
97.5	1574.79	97.6	1574.76	97.7	1574.73	97.7	1574.71	97.9	1574.65
97.9	1574.63	97.9	1574.62	98	1574.61	98.2	1574.52	98.3	1574.47
98.4	1574.46	98.5	1574.41	98.7	1574.33	98.7	1574.31	98.7	1574.3
99.3	1574.18	99.5	1574.19	100.1	1574.29	100.3	1574.31	100.8	1574.39
100.9	1574.38	102.1	1574.37	102.2	1574.36	102.3	1574.35	103.1	1574.36
103.2	1574.36	104.5	1574.47	105.5	1574.61	105.6	1574.62	105.7	1574.62
105.8	1574.62	105.9	1574.62	106.1	1574.65	106.1	1574.66	106.3	1574.7
106.3	1574.71	106.5	1574.72	106.6	1574.73	106.9	1574.75	107.1	1574.81
107.2	1574.85	107.3	1574.86	107.4	1574.9	107.6	1574.96	107.7	1574.97
108.7	1575.16	108.7	1575.17	108.8	1575.21	109.3	1575.38	109.3	1575.41
109.5	1575.46	109.6	1575.5	109.7	1575.54	109.8	1575.62	109.9	1575.66
110	1575.68	110	1575.69	110.2	1575.74	110.3	1575.77	110.4	1575.81
110.5	1575.84	110.6	1575.86	110.7	1575.85	110.8	1575.86	110.8	1575.87
111	1575.93	111	1575.96	111.1	1575.97	111.1	1575.99	111.2	1576.05
111.3	1576.09	111.4	1576.15	111.5	1576.17	111.6	1576.22	111.6	1576.24
111.8	1576.29	111.8	1576.31	111.9	1576.31	111.9	1576.33	112	1576.4
112.1	1576.44	112.2	1576.5	112.3	1576.51	112.4	1576.56	112.4	1576.59
112.6	1576.67	112.6	1576.68	112.6	1576.69	112.7	1576.69	112.8	1576.77
112.9	1576.8	113	1576.86	113.2	1576.92	113.2	1576.94	113.4	1577.03
113.6	1577.1	113.7	1577.12	113.8	1577.18	113.8	1577.19	114	1577.25
114	1577.27	114.2	1577.31	114.3	1577.32	114.4	1577.33	114.5	1577.34
114.6	1577.36	114.8	1577.39	115	1577.4	115	1577.41	115.1	1577.41
115.2	1577.43	115.4	1577.45	115.5	1577.47	115.8	1577.53	115.9	1577.54
116	1577.56	116.1	1577.56	116.2	1577.58	116.4	1577.61	116.5	1577.62
116.7	1577.64	116.8	1577.65	116.8	1577.66	116.9	1577.66	117	1577.68
117.1	1577.69	117.2	1577.7	117.3	1577.71	117.4	1577.72	117.5	1577.74
117.6	1577.75	117.7	1577.75	117.8	1577.76	117.9	1577.77	121	1577.53
121.3	1577.53	121.4	1577.53	121.5	1577.53	121.6	1577.53	121.8	1577.56
122.9	1577.56	123	1577.55	123.1	1577.54	123.1	1577.53	123.4	1577.54
123.5	1577.54	123.6	1577.54	123.8	1577.53	123.9	1577.51	124	1577.5
124.1	1577.48	124.2	1577.47	124.4	1577.46	124.5	1577.45	125.2	1577.49
125.4	1577.48	125.5	1577.48	125.6	1577.47	125.7	1577.47	125.8	1577.47
126	1577.49	126.2	1577.45	126.3	1577.42	126.4	1577.4	126.5	1577.38
126.6	1577.37	126.7	1577.3	126.8	1577.28	126.9	1577.25	127.1	1577.22
127.1	1577.19	127.3	1577.12	127.4	1577.12	127.7	1576.97	127.9	1576.92
128.1	1576.85	128.1	1576.84	128.2	1576.83	128.4	1576.75	128.5	1576.73
128.5	1576.72	128.7	1576.69	128.7	1576.67	128.9	1576.64	128.9	1576.63
128.9	1576.62	129.1	1576.57	129.2	1576.56	129.4	1576.55	129.5	1576.53
129.7	1576.51	129.7	1576.5	129.8	1576.49	129.9	1576.47	130	1576.47
130	1576.46	130.2	1576.44	130.3	1576.44	130.4	1576.44	130.5	1576.44
130.5	1576.43	130.6	1576.42	130.8	1576.41	130.8	1576.4	130.9	1576.39

131	1576.38	131.5	1576.31	131.6	1576.3	131.7	1576.28
131.8	1576.27	132.1	1576.22	132.3	1576.22	132.4	1576.22
132.5	1576.2	132.6	1576.2	132.7	1576.19	132.9	1576.19
133.1	1576.19	134.4	1576.06	136.5	1576.08	136.6	1576.06
136.7	1576.02	136.8	1576	140.5	1575.94	141.2	1575.88
141.8	1575.86	141.9	1575.85	142	1575.85	142	1575.84
142.1	1575.84	142.3	1575.82	142.3	1575.81	142.4	1575.81
143.9879	1575.75						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	45	.025	73.9	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
45	73.9	118.3	118.3	120	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
74	143.9879	1580	F

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1576.99	Element			
Vel Head (ft)	2.27	Wt. n-Val.	0.040	0.025	0.040
W.S. Elev (ft)	1574.72	Reach Len. (ft)	118.30	118.30	120.00
Crit W.S. (ft)	1574.72	Flow Area (sq ft)	0.06	131.85	0.03
E.G. Slope (ft/ft)	0.006535	Area (sq ft)	0.06	131.85	5.87
Q Total (cfs)	1595.00	Flow (cfs)	0.04	1594.92	0.04
Top Width (ft)	50.66	Top Width (ft)	0.41	28.90	21.35
Vel Total (ft/s)	12.09	Avg. Vel. (ft/s)	0.72	12.10	1.31
Max Chl Dpth (ft)	6.55	Hydr. Depth (ft)	0.14	4.56	0.31
Conv. Total (cfs)	19729.9	Conv. (cfs)	0.5	19728.9	0.5
Length Wtd. (ft)	118.30	Wetted Per. (ft)	0.48	33.01	0.11
Min Ch El (ft)	1568.17	Shear (lb/sq ft)	0.05	1.63	0.12
Alpha	1.00	Stream Power (lb/ft s)	0.04	19.71	0.15
Frctn Loss (ft)	0.76	Cum Volume (acre-ft)	0.22	5.26	0.25
C & E Loss (ft)	0.04	Cum SA (acres)	0.32	2.45	0.28

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

			Left OB	Channel	Right OB
E.G. Elev (ft)	1577.00	Element			
Vel Head (ft)	2.26	Wt. n-Val.		0.025	0.040
W.S. Elev (ft)	1574.73	Reach Len. (ft)	118.30	118.30	120.00
Crit W.S. (ft)	1574.73	Flow Area (sq ft)		132.15	0.03

E.G. Slope (ft/ft)	0.006550	Area (sq ft)		132.15	0.03
Q Total (cfs)	1595.00	Flow (cfs)		1594.98	0.02
Top Width (ft)	29.00	Top Width (ft)		28.90	0.10
Vel Total (ft/s)	12.07	Avg. Vel. (ft/s)		12.07	0.55
Max Chl Dpth (ft)	6.56	Hydr. Depth (ft)		4.57	0.32
Conv. Total (cfs)	19707.4	Conv. (cfs)		19707.2	0.2
Length Wtd. (ft)	118.30	Wetted Per. (ft)		33.25	0.41
Min Ch El (ft)	1568.17	Shear (lb/sq ft)		1.63	0.03
Alpha	1.00	Stream Power (lb/ft s)		19.62	0.02
Frctn Loss (ft)	0.76	Cum Volume (acre-ft)	0.01	5.24	0.00
C & E Loss (ft)	0.04	Cum SA (acres)	0.02	2.45	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	36.00	45.00	0.04	0.06	0.48	0.00	0.14	0.72	0.05	0.04
2	Chan	45.00	50.78	76.54	12.30	6.96	4.80	2.13	6.22	0.72	4.49
3	Chan	50.78	56.56	403.10	32.62	6.60	25.27	5.64	12.36	2.02	24.92
4	Chan	56.56	62.34	554.33	37.48	5.79	34.75	6.48	14.79	2.64	39.05
5	Chan	62.34	68.12	456.63	34.19	6.16	28.63	5.92	13.35	2.27	30.25
6	Chan	68.12	73.90	104.31	15.26	7.50	6.54	2.64	6.84	0.83	5.68
7	ROB	73.90	74.00	0.04	0.03	0.11	0.00	0.31	1.31	0.12	0.15
8	ROB	74.00	88.00	0.00	3.20	12.51	0.00	0.26	0.00	0.10	0.00
9	ROB	88.00	102.00	0.00	1.56	4.46	0.00	0.36	0.00	0.14	0.00
10	ROB	102.00	115.99	0.00	1.08	4.55	0.00	0.24	0.00	0.10	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: Divided flow computed for this cross-section.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	45.00	50.78	75.27	12.36	7.20	4.72	2.14	6.09	0.70	4.27
2	Chan	50.78	56.56	403.44	32.68	6.60	25.29	5.65	12.35	2.03	25.00
3	Chan	56.56	62.34	554.57	37.54	5.79	34.77	6.50	14.77	2.65	39.16
4	Chan	62.34	68.12	456.95	34.25	6.16	28.65	5.93	13.34	2.27	30.34
5	Chan	68.12	73.90	104.75	15.31	7.50	6.57	2.65	6.84	0.84	5.71
6	ROB	73.90	74.00	0.02	0.03	0.41	0.00	0.32	0.55	0.03	0.02

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 600

INPUT
Description:
Station Elevation Data num= 447

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1576.85	2.3	1576.97	5.1	1576.94	7.4	1577.05	8	1576.99
9.2	1577	10.1	1577.08	11.6	1577.07	11.9	1577.12	15.3	1577.03
16.3	1577.08	17	1577	18.9	1577.05	19.7	1577	21.2	1577
22.4	1577.06	23.9	1577.03	24.5	1577.09	25.9	1577.03	26.7	1577.03
27.2	1577.09	30.6	1577.09	33.5	1577	34.2	1577.03	35.4	1576.94
37.7	1577.06	39.6	1576.97	40.7	1577.04	41.8	1577.27	44.3	1577.59
45.8	1577.91	46.6	1577.98	46.7	1577.99	46.8	1577.97	46.9	1577.92

47	1577.88	47.6	1577.41	47.9	1577.25	48	1577.09	48.2	1576.95
48.2	1576.94	48.2	1576.93	48.3	1576.89	48.4	1576.77	48.5	1576.65
48.6	1576.61	48.7	1576.57	49.1	1576.21	50.2	1575.42	50.3	1575.39
50.4	1575.32	50.4	1575.29	50.6	1575.19	50.8	1575	51	1574.93
51.5	1574.63	51.6	1574.52	51.8	1574.42	51.9	1574.38	52.9	1573.75
53	1573.65	54.2	1572.96	55.8	1571.71	55.8	1571.65	56	1571.56
56.1	1571.42	56.1	1571.41	56.1	1571.4	56.2	1571.37	56.4	1571.15
56.7	1570.98	56.7	1570.93	56.8	1570.86	57	1570.75	57.4	1570.58
57.4	1570.56	57.4	1570.53	57.6	1570.45	57.7	1570.33	58.3	1569.98
58.6	1569.69	58.8	1569.63	58.8	1569.6	59.1	1569.43	60.1	1569.05
62.1	1568.79	64.3	1568.16	67.7	1568.16	67.8	1568.15	68	1568.13
68	1568.12	68.3	1568.16	70.2	1568.12	72.6	1568.19	72.7	1568.2
72.8	1568.22	72.9	1568.22	73	1568.23	73.5	1568.28	75	1568.6
75.4	1568.63	75.4	1568.62	75.5	1568.62	75.6	1568.61	77.2	1569.04
77.2	1569.07	77.3	1569.12	77.4	1569.16	77.5	1569.19	77.6	1569.25
77.9	1569.36	79	1569.72	79.1	1569.8	79.2	1569.84	79.9	1570.1
79.9	1570.12	80	1570.19	80.2	1570.26	80.2	1570.29	80.3	1570.33
80.4	1570.38	80.5	1570.42	80.6	1570.47	80.7	1570.54	80.7	1570.56
80.8	1570.57	80.9	1570.62	80.9	1570.64	81.2	1570.75	82.9	1571.6
82.9	1571.63	82.9	1571.64	83.4	1571.92	83.4	1571.94	83.5	1572.01
83.5	1572.03	83.5	1572.04	83.7	1572.21	83.7	1572.22	83.7	1572.23
84	1572.43	84.2	1572.65	84.7	1573.06	85	1573.24	85	1573.25
85	1573.26	85.2	1573.4	85.2	1573.41	85.2	1573.42	85.5	1573.58
85.5	1573.6	85.7	1573.77	86.3	1574.13	87.5	1575.28	87.7	1575.38
87.7	1575.41	87.9	1575.53	88	1575.56	88.1	1575.6	88.2	1575.69
88.3	1575.72	88.5	1575.8	88.6	1575.83	89.1	1576.02	89.1	1576.04
90	1576.25	90.7	1576.36	91.5	1576.39	95.7	1576.12	97	1576.19
98.8	1576.16	102.2	1575.94	107.5	1575.72	114	1575.75	116.3	1575.86
117.4	1575.88	118.9	1575.73	119.1	1575.72	119.3	1575.72	119.4	1575.72
119.5	1575.72	119.6	1575.72	119.7	1575.72	119.8	1575.73	119.9	1575.74
120.1	1575.76	120.2	1575.77	120.2	1575.78	120.3	1575.8	120.4	1575.82
120.5	1575.84	120.6	1575.86	120.7	1575.89	120.7	1575.91	120.8	1575.93
120.9	1575.95	121.1	1575.99	121.2	1576.02	121.2	1576.04	121.4	1576.04
121.6	1576.02	121.7	1576	121.8	1576	121.9	1576	122	1575.99
122.2	1575.96	122.3	1575.96	122.4	1575.94	122.5	1575.93	122.7	1575.91
122.8	1575.9	123	1575.88	123	1575.87	123	1575.86	123.2	1575.82
123.2	1575.81	123.3	1575.81	123.5	1575.78	123.7	1575.72	123.8	1575.71
124	1575.69	124	1575.68	124.2	1575.62	124.3	1575.62	125.8	1575.28
126	1575.17	126	1575.16	126.2	1575.16	126.3	1575.16	126.5	1575.11
126.5	1575.1	126.7	1575.08	126.8	1575.06	127	1575.01	127	1575
127.2	1574.96	127.3	1574.92	127.4	1574.84	127.5	1574.82	127.5	1574.79
127.7	1574.72	127.7	1574.69	127.8	1574.66	127.9	1574.59	128	1574.56
128	1574.53	128.2	1574.45	128.2	1574.41	128.3	1574.38	128.4	1574.32
128.5	1574.28	128.6	1574.24	128.7	1574.13	128.9	1574.02	129	1573.98
129.1	1573.94	129.2	1573.89	129.2	1573.84	129.7	1573.6	129.7	1573.54
129.8	1573.49	129.9	1573.46	130.1	1573.36	130.2	1573.28	130.3	1573.23
130.4	1573.21	130.5	1573.16	130.6	1573.12	130.6	1573.1	130.7	1573.06
130.9	1573.02	131	1572.97	131.1	1572.94	131.1	1572.93	131.2	1572.91
131.5	1572.83	131.7	1572.77	133.2	1572.47	133.3	1572.46	133.4	1572.45
133.6	1572.43	133.7	1572.41	133.8	1572.4	133.9	1572.39	134	1572.38

```
   134.1 1572.36   134.2 1572.35   134.2 1572.34   134.3 1572.33   134.5 1572.31
   134.6  1572.3   134.7 1572.29   134.8 1572.28   134.9 1572.28     135 1572.28
   135.1 1572.27   135.2 1572.26   135.2 1572.25   135.8 1572.25   135.9 1572.25
     136 1572.25   136.2 1572.25   136.2 1572.24     138 1572.28   140.3 1572.54
   140.5 1572.56   140.7 1572.62   140.8 1572.63   140.9 1572.65     141 1572.66
     141 1572.67   141.2 1572.71   141.2 1572.72   141.3 1572.73     142 1572.91
   142.1 1572.92   142.2 1572.95   142.2 1572.97   142.3    1573   143.2 1573.26
   143.2 1573.29   143.3 1573.32   143.5 1573.38     144 1573.56   144.1  1573.6
   144.1 1573.62   144.2 1573.66   144.4 1573.71   144.5 1573.75   144.6  1573.8
   144.6 1573.81   144.7 1573.86   144.9 1573.91   144.9 1573.92     145 1573.97
   145.1 1574.02   145.2 1574.06   145.4 1574.11   145.5 1574.16   145.6 1574.21
   145.7 1574.28   145.9 1574.34   145.9 1574.35     146 1574.41   146.5 1574.66
   146.6 1574.73   146.7 1574.78   146.8 1574.83   146.9 1574.86     147 1574.91
   147.1 1574.95   147.2 1574.99   147.2 1575.03   147.4 1575.11   147.5 1575.16
   147.6  1575.2   147.7 1575.25   147.7 1575.29   147.8 1575.33   147.9  1575.4
     148 1575.44   148.1 1575.47   148.2 1575.56   148.3  1575.6   148.5 1575.69
   148.6 1575.72   148.7 1575.79   148.7 1575.82   148.9 1575.94     149    1576
   149.2 1576.07   149.2 1576.09   149.4  1576.2   149.5 1576.22   149.7 1576.35
   149.7 1576.38   149.8  1576.4     150 1576.48     150  1576.5   150.2 1576.64
   150.2 1576.66   150.5 1576.77   150.5 1576.78   150.7 1576.94   150.8 1576.95
     151 1577.05     151 1577.06   151.2 1577.15   151.7 1577.19   152.2 1577.25
   153.3 1577.28   157.1 1576.95   157.1 1576.94   157.3 1576.91   157.4  1576.9
   157.5 1576.88   157.6 1576.86   157.6 1576.85   157.9 1576.81   157.9  1576.8
   158.1 1576.77   158.1 1576.76   158.2 1576.75   158.4 1576.74   158.6 1576.73
   158.7 1576.72   158.9 1576.72     159 1576.72   159.2 1576.72   161.4 1576.42
   162.2 1576.36   162.8 1576.24     163  1576.2     163 1576.19   163.2 1576.17
   163.2 1576.16     166 1575.88   166.2 1575.88   166.3 1575.88   166.5 1575.88
   166.5 1575.87   166.7 1575.85   166.8 1575.85     167 1575.85   167.2 1575.81
   167.3 1575.81   167.5 1575.81   167.7 1575.84     168 1575.84   170.7 1575.78
   170.8 1575.78   170.9 1575.77   171.1 1575.76   171.2 1575.75   171.4 1575.74
   171.5 1575.72     172 1575.72   172.1  1575.7   172.2 1575.69   172.4 1575.69
   172.6 1575.68   172.9 1575.66   173.1 1575.66   173.2 1575.66   173.4 1575.64
   173.5 1575.62178.3286 1575.62

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04      53    .025      85     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
            53      85               69    67.6      62             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
     100178.3286    1580       F

CROSS SECTION OUTPUT  Profile #BFE

  E.G. Elev (ft)           1576.00    Element                 Left OB    Channel   Right OB
  Vel Head (ft)               2.13    Wt. n-Val.               0.040      0.025     0.040
  W.S. Elev (ft)           1573.87    Reach Len. (ft)          69.00      67.60     62.00
  Crit W.S. (ft)           1573.87    Flow Area (sq ft)         0.03     136.26      0.27
```

E.G. Slope (ft/ft)	0.006347	Area (sq ft)	0.03	136.26	18.09
Q Total (cfs)	1595.00	Flow (cfs)	0.02	1594.67	0.31
Top Width (ft)	48.72	Top Width (ft)	0.30	32.00	16.43
Vel Total (ft/s)	11.68	Avg. Vel. (ft/s)	0.54	11.70	1.16
Max Chl Dpth (ft)	5.75	Hydr. Depth (ft)	0.10	4.26	0.31
Conv. Total (cfs)	20020.2	Conv. (cfs)	0.2	20016.1	3.9
Length Wtd. (ft)	67.60	Wetted Per. (ft)	0.37	35.07	1.09
Min Ch El (ft)	1568.12	Shear (lb/sq ft)	0.03	1.54	0.10
Alpha	1.00	Stream Power (lb/ft s)	0.02	18.02	0.11
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	0.22	4.89	0.22
C & E Loss (ft)	0.52	Cum SA (acres)	0.32	2.36	0.22

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1576.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.12	Wt. n-Val.		0.025	0.040
W.S. Elev (ft)	1573.88	Reach Len. (ft)	69.00	67.60	62.00
Crit W.S. (ft)	1573.88	Flow Area (sq ft)		136.39	0.27
E.G. Slope (ft/ft)	0.006383	Area (sq ft)		136.39	0.27
Q Total (cfs)	1595.00	Flow (cfs)		1594.68	0.32
Top Width (ft)	32.88	Top Width (ft)		32.00	0.88
Vel Total (ft/s)	11.67	Avg. Vel. (ft/s)		11.69	1.17
Max Chl Dpth (ft)	5.76	Hydr. Depth (ft)		4.26	0.31
Conv. Total (cfs)	19964.6	Conv. (cfs)		19960.6	4.0
Length Wtd. (ft)	67.60	Wetted Per. (ft)		35.30	1.09
Min Ch El (ft)	1568.12	Shear (lb/sq ft)		1.54	0.10
Alpha	1.00	Stream Power (lb/ft s)		18.00	0.12
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	0.01	4.88	0.00
C & E Loss (ft)	0.52	Cum SA (acres)	0.02	2.36	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/fts)
1	LOB	42.40	53.00	0.02	0.03	0.37	0.00	0.10	0.54	0.03	0.02
2	Chan	53.00	59.40	106.41	15.61	7.91	6.67	2.44	6.82	0.78	5.33
3	Chan	59.40	65.80	433.37	33.64	6.55	27.17	5.26	12.88	2.03	26.20
4	Chan	65.80	72.20	506.84	36.64	6.42	31.78	5.72	13.83	2.26	31.31
5	Chan	72.20	78.60	417.81	33.07	6.63	26.20	5.17	12.64	1.98	24.96
6	Chan	78.60	85.00	130.24	17.31	7.56	8.17	2.71	7.52	0.91	6.82
7	ROB	85.00	100.00	0.31	0.27	1.09	0.02	0.31	1.16	0.10	0.11
8	ROB	100.00	119.58							0.00	0.00
9	ROB	119.58	139.16	0.00	12.83	10.37	0.00	1.29	0.00	0.49	0.00
10	ROB	139.16	158.75	0.00	5.00	5.88	0.00	0.89	0.00	0.34	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	53.00	59.40	104.69	15.64	8.13	6.56	2.44	6.69	0.77	5.13
2	Chan	59.40	65.80	433.84	33.66	6.55	27.20	5.26	12.89	2.05	26.38
3	Chan	65.80	72.20	507.35	36.66	6.42	31.81	5.73	13.84	2.28	31.51
4	Chan	72.20	78.60	418.28	33.09	6.63	26.22	5.17	12.64	1.99	25.12
5	Chan	78.60	85.00	130.53	17.34	7.56	8.18	2.71	7.53	0.91	6.88
6	ROB	85.00	100.00	0.32	0.27	1.09	0.02	0.31	1.17	0.10	0.12

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 580

INPUT
Description:
Station Elevation Data num= 271

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1576.08	3	1576.09	5.4	1576	7.4	1576.06	8.9	1576.01
12.1	1576.03	13.9	1576.1	15.9	1576.06	17.4	1576.19	21.2	1576.19
22.1	1576.12	24.4	1576.22	25.9	1576.07	26.8	1576.06	28.8	1576.25
31.4	1576.22	31.5	1576.23	31.9	1576.28	32.9	1576.29	33.5	1576.22
35	1576.28	35.6	1576.21	37.6	1576.25	40.3	1576.18	41.4	1576.22
42.5	1576.16	43.8	1576.22	44.2	1576.14	44.5	1576.12	47	1576.18

48.5	1576.09	49.9	1576.19	51.7	1576.16	51.8	1576.15	51.9	1576.13
52	1576.12	52.6	1576.09	54.4	1576.09	55.5	1575.98	57.6	1576.03
58.9	1575.97	59	1575.94	59	1575.93	59.1	1575.93	59.4	1575.86
59.9	1575.73	59.9	1575.71	61.7	1575.5	63.4	1575.06	64.9	1574.78
65	1574.74	65	1574.73	66.3	1574.44	67	1574.44	69.1	1574.59
70.1	1574.78	72.8	1575.07	75.1	1575.1	76.2	1574.89	85.75	1574.71
85.75	1568.87	85.75	1568.13	124.25	1568.13	124.25	1569	124.25	1569.08
124.25	1573.7	132.5	1573.81	132.5	1573.82	132.7	1573.93	132.8	1573.98
132.9	1574.03	133	1574.11	133	1574.12	133	1574.13	133.1	1574.14
133.2	1574.25	133.3	1574.29	133.4	1574.34	133.6	1574.4	133.6	1574.41
133.8	1574.49	133.9	1574.53	134	1574.55	134.1	1574.58	134.3	1574.64
135.6	1574.88	136.8	1574.99	137.3	1575.02	137.3	1575.03	137.4	1575.05
137.6	1575.08	137.6	1575.09	142.2	1575.28	145.8	1575.26	145.9	1575.27
146	1575.27	146.2	1575.28	146.3	1575.28	146.4	1575.28	146.5	1575.28
146.6	1575.29	146.8	1575.28	146.9	1575.29	147	1575.3	147.2	1575.31
147.3	1575.31	147.4	1575.31	147.4	1575.32	147.5	1575.34	147.6	1575.34
147.7	1575.34	147.7	1575.35	147.9	1575.37	149.4	1575.31	149.6	1575.32
149.7	1575.34	149.8	1575.34	149.9	1575.35	150.5	1575.35	150.6	1575.36
150.8	1575.4	150.8	1575.41	150.9	1575.41	151	1575.42	151.1	1575.43
153.8	1575.5	155.2	1575.59	155.4	1575.59	155.5	1575.58	155.6	1575.58
155.7	1575.56	155.8	1575.56	155.9	1575.55	156	1575.53	156.9	1575.5
157.8	1575.6	157.9	1575.61	158	1575.61	158.2	1575.63	158.2	1575.64
158.3	1575.66	158.4	1575.66	158.6	1575.67	161.7	1575.7	163.1	1575.55
164.4	1575.62	164.6	1575.59	164.8	1575.59	164.9	1575.58	164.9	1575.57
165	1575.57	165.3	1575.59	165.5	1575.59	165.7	1575.61	166.2	1575.63
166.4	1575.65	171	1575.5	171.2	1575.5	171.3	1575.5	172.5	1575.53
172.7	1575.53	173	1575.53	173.1	1575.53	173.2	1575.53	173.3	1575.53
173.4	1575.53	173.5	1575.53	173.6	1575.53	173.8	1575.5	174.1	1575.5
174.2	1575.5	174.3	1575.5	174.4	1575.5	174.6	1575.52	174.7	1575.53
174.8	1575.54	174.9	1575.54	175	1575.55	175.1	1575.55	175.2	1575.53
175.3	1575.52	175.4	1575.51	175.5	1575.5	175.6	1575.5	175.8	1575.5
176	1575.49	176.1	1575.5	176.2	1575.5	176.3	1575.48	176.5	1575.46
181.2	1575.47	181.3	1575.47	181.3	1575.48	182.8	1575.5	182.9	1575.51
183	1575.52	183.1	1575.53	183.2	1575.53	183.3	1575.53	183.5	1575.55
183.7	1575.56	184	1575.58	184.2	1575.59	184.5	1575.58	184.7	1575.56
184.8	1575.56	185.1	1575.56	185.2	1575.56	185.3	1575.56	185.8	1575.55
185.9	1575.54	186	1575.55	186.1	1575.56	186.2	1575.56	186.3	1575.56
186.4	1575.56	186.6	1575.57	186.8	1575.59	187	1575.6	187.1	1575.61
187.4	1575.62	187.6	1575.62	187.7	1575.63	187.8	1575.64	187.9	1575.65
187.9	1575.66	188.3	1575.59	191.1	1575.56	191.2	1575.55	191.3	1575.54
191.4	1575.53	191.5	1575.53	191.5	1575.52	191.7	1575.52	191.8	1575.51
191.9	1575.51	192	1575.5	192.1	1575.49	192.1	1575.48	192.3	1575.46
193.2	1575.4	193.3	1575.38	193.4	1575.38	193.6	1575.38	193.7	1575.38
193.9	1575.38	194	1575.38	194.3	1575.38	194.4	1575.38	194.5	1575.38
194.7	1575.39	194.8	1575.4	195.4	1575.44	195.5	1575.44	195.6	1575.45
195.7	1575.45	195.8	1575.45	195.9	1575.46	196	1575.47	196.1	1575.5
196.3	1575.53	196.3	1575.54	198.1	1575.84	199.2	1575.98	199.4	1576
199.6	1575.99	199.8	1575.97	200	1575.94	200.1	1575.93	200.2	1575.92
200.722	1575.85								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	85.75	.015	124.25	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
85.75	124.25	152.1	152.1	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	85.75	1580	F
124.25	200.722	1580	F

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1574.16	Element			
Vel Head (ft)	1.09	Wt. n-Val.		0.015	
W.S. Elev (ft)	1573.07	Reach Len. (ft)	0.10	0.10	0.10
Crit W.S. (ft)	1571.90	Flow Area (sq ft)		190.26	
E.G. Slope (ft/ft)	0.001154	Area (sq ft)		190.26	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	38.50	Top Width (ft)		38.50	
Vel Total (ft/s)	8.38	Avg. Vel. (ft/s)		8.38	
Max Chl Dpth (ft)	4.94	Hydr. Depth (ft)		4.94	
Conv. Total (cfs)	46956.4	Conv. (cfs)		46956.4	
Length Wtd. (ft)	0.10	Wetted Per. (ft)		48.38	
Min Ch El (ft)	1568.13	Shear (lb/sq ft)		0.28	
Alpha	1.00	Stream Power (lb/ft s)		2.37	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.22	4.64	0.21
C & E Loss (ft)	0.26	Cum SA (acres)	0.32	2.31	0.21

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

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

CROSS SECTION OUTPUT Profile #FLOODWAY

			Left OB	Channel	Right OB
E.G. Elev (ft)	1574.16	Element			
Vel Head (ft)	1.09	Wt. n-Val.		0.015	
W.S. Elev (ft)	1573.07	Reach Len. (ft)	0.10	0.10	0.10
Crit W.S. (ft)	1571.90	Flow Area (sq ft)		190.26	
E.G. Slope (ft/ft)	0.001154	Area (sq ft)		190.26	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	38.50	Top Width (ft)		38.50	
Vel Total (ft/s)	8.38	Avg. Vel. (ft/s)		8.38	
Max Chl Dpth (ft)	4.94	Hydr. Depth (ft)		4.94	
Conv. Total (cfs)	46956.4	Conv. (cfs)		46956.4	
Length Wtd. (ft)	0.10	Wetted Per. (ft)		48.38	
Min Ch El (ft)	1568.13	Shear (lb/sq ft)		0.28	

Alpha	1.00	Stream Power (lb/ft s)		2.37
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.01	4.62
C & E Loss (ft)	0.26	Cum SA (acres)	0.02	2.31

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	85.75	93.45	258.29	38.05	12.64	16.19	4.94	6.79	0.22	1.47
2	Chan	93.45	101.15	359.47	38.05	7.70	22.54	4.94	9.45	0.36	3.36
3	Chan	101.15	108.85	359.47	38.05	7.70	22.54	4.94	9.45	0.36	3.36
4	Chan	108.85	116.55	359.47	38.05	7.70	22.54	4.94	9.45	0.36	3.36
5	Chan	116.55	124.25	258.29	38.05	12.64	16.19	4.94	6.79	0.22	1.47

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	85.75	93.45	258.29	38.05	12.64	16.19	4.94	6.79	0.22	1.47
2	Chan	93.45	101.15	359.47	38.05	7.70	22.54	4.94	9.45	0.36	3.36
3	Chan	101.15	108.85	359.47	38.05	7.70	22.54	4.94	9.45	0.36	3.36
4	Chan	108.85	116.55	359.47	38.05	7.70	22.54	4.94	9.45	0.36	3.36

5	Chan	116.55	124.25	258.29	38.05	12.64	16.19	4.94	6.79	0.22
1.47										

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

BRIDGE

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 550.

INPUT
Description: HAFEN ROAD BRIDGE
Distance from Upstream XS = .1
Deck/Roadway Width = 149.8
Weir Coefficient = 2.7
Upstream Deck/Roadway Coordinates
num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
50	1575.59	1572.13	150	1575.59	1572.13

Upstream Bridge Cross Section Data
Station Elevation Data num= 271

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1576.08	3	1576.09	5.4	1576	7.4	1576.06	8.9	1576.01
12.1	1576.03	13.9	1576.1	15.9	1576.06	17.4	1576.19	21.2	1576.19
22.1	1576.12	24.4	1576.22	25.9	1576.07	26.8	1576.06	28.8	1576.25
31.4	1576.22	31.5	1576.23	31.9	1576.28	32.9	1576.29	33.5	1576.22
35	1576.28	35.6	1576.21	37.6	1576.25	40.3	1576.18	41.4	1576.22
42.5	1576.16	43.8	1576.22	44.2	1576.14	44.5	1576.12	47	1576.18
48.5	1576.09	49.9	1576.19	51.7	1576.16	51.8	1576.15	51.9	1576.13
52	1576.12	52.6	1576.09	54.4	1576.09	55.5	1575.98	57.6	1576.03
58.9	1575.97	59	1575.94	59	1575.93	59.1	1575.93	59.4	1575.86
59.9	1575.73	59.9	1575.71	61.7	1575.5	63.4	1575.06	64.9	1574.78
65	1574.74	65	1574.73	66.3	1574.44	67	1574.44	69.1	1574.59
70.1	1574.78	72.8	1575.07	75.1	1575.1	76.2	1574.89	85.75	1574.71
85.75	1568.87	85.75	1568.13	124.25	1568.13	124.25	1569	124.25	1569.08
124.25	1573.7	132.5	1573.81	132.5	1573.82	132.7	1573.93	132.8	1573.98
132.9	1574.03	133	1574.11	133	1574.12	133	1574.13	133.1	1574.14
133.2	1574.25	133.3	1574.29	133.4	1574.34	133.6	1574.4	133.6	1574.41
133.8	1574.49	133.9	1574.53	134	1574.55	134.1	1574.58	134.3	1574.64
135.6	1574.88	136.8	1574.99	137.3	1575.02	137.3	1575.03	137.4	1575.05
137.6	1575.08	137.6	1575.09	142.2	1575.28	145.8	1575.26	145.9	1575.27
146	1575.27	146.2	1575.28	146.3	1575.28	146.4	1575.28	146.5	1575.28
146.6	1575.29	146.8	1575.28	146.9	1575.29	147	1575.3	147.2	1575.31

147.3	1575.31	147.4	1575.31	147.4	1575.32	147.5	1575.34	147.6	1575.34
147.7	1575.34	147.7	1575.35	147.9	1575.37	149.4	1575.31	149.6	1575.32
149.7	1575.34	149.8	1575.34	149.9	1575.35	150.5	1575.35	150.6	1575.36
150.8	1575.4	150.8	1575.41	150.9	1575.41	151	1575.42	151.1	1575.43
153.8	1575.5	155.2	1575.59	155.4	1575.59	155.5	1575.58	155.6	1575.58
155.7	1575.56	155.8	1575.56	155.9	1575.55	156	1575.53	156.9	1575.5
157.8	1575.6	157.9	1575.61	158	1575.61	158.2	1575.63	158.2	1575.64
158.3	1575.66	158.4	1575.66	158.6	1575.67	161.7	1575.7	163.1	1575.55
164.4	1575.62	164.6	1575.59	164.8	1575.59	164.9	1575.58	164.9	1575.57
165	1575.57	165.3	1575.59	165.5	1575.59	165.7	1575.61	166.2	1575.63
166.4	1575.65	171	1575.5	171.2	1575.5	171.3	1575.5	172.5	1575.53
172.7	1575.53	173	1575.53	173.1	1575.53	173.2	1575.53	173.3	1575.53
173.4	1575.53	173.5	1575.53	173.6	1575.53	173.8	1575.5	174.1	1575.5
174.2	1575.5	174.3	1575.5	174.4	1575.5	174.6	1575.52	174.7	1575.53
174.8	1575.54	174.9	1575.54	175	1575.55	175.1	1575.55	175.2	1575.53
175.3	1575.52	175.4	1575.51	175.5	1575.5	175.6	1575.5	175.8	1575.5
176	1575.49	176.1	1575.5	176.2	1575.5	176.3	1575.48	176.5	1575.46
181.2	1575.47	181.3	1575.47	181.3	1575.48	182.8	1575.5	182.9	1575.51
183	1575.52	183.1	1575.53	183.2	1575.53	183.3	1575.53	183.5	1575.55
183.7	1575.56	184	1575.58	184.2	1575.59	184.5	1575.58	184.7	1575.56
184.8	1575.56	185.1	1575.56	185.2	1575.56	185.3	1575.56	185.8	1575.55
185.9	1575.54	186	1575.55	186.1	1575.56	186.2	1575.56	186.3	1575.56
186.4	1575.56	186.6	1575.57	186.8	1575.59	187	1575.6	187.1	1575.61
187.4	1575.62	187.6	1575.62	187.7	1575.63	187.8	1575.64	187.9	1575.65
187.9	1575.66	188.3	1575.59	191.1	1575.56	191.2	1575.55	191.3	1575.54
191.4	1575.53	191.5	1575.53	191.5	1575.52	191.7	1575.52	191.8	1575.51
191.9	1575.51	192	1575.5	192.1	1575.49	192.1	1575.48	192.3	1575.46
193.2	1575.4	193.3	1575.38	193.4	1575.38	193.6	1575.38	193.7	1575.38
193.9	1575.38	194	1575.38	194.3	1575.38	194.4	1575.38	194.5	1575.38
194.7	1575.39	194.8	1575.4	195.4	1575.44	195.5	1575.44	195.6	1575.45
195.7	1575.45	195.8	1575.45	195.9	1575.46	196	1575.47	196.1	1575.5
196.3	1575.53	196.3	1575.54	198.1	1575.84	199.2	1575.98	199.4	1576
199.6	1575.99	199.8	1575.97	200	1575.94	200.1	1575.93	200.2	1575.92
200.722	1575.85								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	85.75	.015	124.25	.025

Bank Sta: Left	Right	Coeff Contr.	Expan.
85.75	124.25	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	85.75	1580	F
124.25	200.722	1580	F

Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
50	1575.59	1570.63	175	1575.59	1570.63

Downstream Bridge Cross Section Data
Station Elevation Data num= 312

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1575.15	2.8	1575.09	4.5	1575.19	6.8	1575.09	12.1	1575.12
14.3	1575	15.8	1575.17	16.1	1575.11	22.8	1575.09	24.1	1575
28.1	1574.94	31.3	1574.94	32.1	1575.03	33.1	1575.03	34.3	1574.91
36.3	1574.91	38.3	1574.98	38.9	1574.94	40.8	1574.96	43.3	1574.84
44.6	1574.88	45.6	1574.78	47.8	1574.86	49.6	1574.72	50.9	1574.72
53.1	1574.83	54.4	1574.82	56.2	1574.71	58.3	1574.75	60.9	1574.72
62.1	1574.61	62.9	1574.61	64.1	1574.69	64.2	1574.68	64.3	1574.67
64.4	1574.66	66.1	1574.66	66.9	1574.62	67	1574.6	67.1	1574.59
67.2	1574.59	67.3	1574.58	67.4	1574.57	67.5	1574.6	67.6	1574.61
67.7	1574.62	67.8	1574.62	67.9	1574.62	68	1574.62	70.6	1574.56
72.6	1574.65	73.9	1574.66	76.1	1574.578.044651		574.519	79.2	1574.53
80.1	1574.62	81.3	1574.53	82.1	1574.53	83.2	1574.59	85.6	1574.6
86.7	1574.65	86.8	1574.64	86.9	1574.64	87	1574.64	87.1	1574.64
87.2	1574.63	87.3	1574.62	87.5	1574.6	87.6	1574.59	87.8	1574.56
88.1	1574.54	88.2	1574.53	88.4	1574.5	89.4	1574.5	91	1574.33
91	1574.32	91.1	1574.3	91.1	1574.29	92.1	1574.28	92.4	1574.25
92.4	1574.24	92.6	1574.19	93	1574.07	93	1574.06	93	1574.05
93	1574.03	93.5	1573.82	94.1	1573.44	94.1	1573.43	94.3	1573.29
94.3	1573.23	94.5	1573.13	94.5	1573.09	94.6	1572.97	95	1572.63
95	1572.62	95.2	1572.48	95.3	1572.4	95.4	1572.32	95.5	1572.18
95.6	1572.14	95.7	1571.97	95.9	1571.84	95.9	1571.78	96	1571.67
96.1	1571.59	96.1	1571.55	96.3	1571.4	96.4	1571.24	96.5	1571.19
96.5	1571.09	98.75	1570.63	98.75	1566.63118.8973		1566.63	137.25	1566.63
137.25	1570.63	139	1571.95	139.2	1572.52	139.3	1573.1	139.4	1573.28
139.5	1573.44	139.6	1573.46	139.7	1573.54	139.8	1573.57	139.9	1573.65
139.9	1573.67	139.9	1573.69	140.4	1573.86	141.3	1574.04	142.2	1574.22
145.5	1574.4	145.7	1574.39	145.7	1574.38	146.9	1574.31	147	1574.31
147.1	1574.31	147.3	1574.31	147.4	1574.31	147.5	1574.32	147.6	1574.31
147.7	1574.31	147.8	1574.3	147.9	1574.29	147.9	1574.28	148.4	1574.29
148.5	1574.3	148.7	1574.31	148.8	1574.32	149.1	1574.34	149.2	1574.35
149.3	1574.38	149.6	1574.41	151.5	1574.41	151.5	1574.4	151.6	1574.4
151.7	1574.39	151.9	1574.38	152	1574.36	152.1	1574.35	152.4	1574.4
152.4	1574.41	153.9	1574.38	154.4	1574.43	154.5	1574.44	154.6	1574.44
154.7	1574.46	154.7	1574.47	154.8	1574.47	154.9	1574.49	156	1574.56
156.2	1574.6	156.4	1574.63	158.8	1574.51	160.4	1574.62	160.5	1574.64
160.7	1574.66	160.8	1574.66	161	1574.66	161.1	1574.66	161.2	1574.66
161.3	1574.67	161.6	1574.69	161.7	1574.69	162	1574.69	162.1	1574.69
162.2	1574.7	162.3	1574.71	162.5	1574.72	166.7	1574.66	166.9	1574.67
167	1574.69	167.1	1574.7	167.2	1574.72	167.5	1574.75	167.6	1574.75
167.8	1574.75	167.9	1574.75	168	1574.77	168.1	1574.77	168.4	1574.76
168.5	1574.75	168.7	1574.75	168.8	1574.75	169	1574.75	169.1	1574.74
171.6	1574.7	171.7	1574.69	171.8	1574.69	171.9	1574.67	172	1574.67
172.1	1574.66	172.2	1574.66	172.5	1574.64	172.6	1574.63	174.4	1574.75
174.5	1574.75	174.6	1574.75	174.7	1574.75	174.8	1574.74	175	1574.72
175.1	1574.72	175.3	1574.72	175.5	1574.72	175.6	1574.72	175.7	1574.72
175.9	1574.72	176	1574.72	176.2	1574.74	176.3	1574.74	176.4	1574.73

```
   176.5 1574.73   176.6 1574.75   176.8 1574.78     177 1574.79   177.1  1574.8
   177.3 1574.82   177.5 1574.83   177.7 1574.84   177.9 1574.82     178 1574.81
   178.1 1574.81   178.2 1574.81   178.3 1574.81   178.5 1574.81   178.6 1574.81
   178.8 1574.81     179 1574.81   179.1 1574.81   180.4 1574.94   180.5 1574.94
   180.7 1574.94   180.8 1574.94   180.9 1574.94     181 1574.94   181.3 1574.96
   181.4 1574.95   181.6 1574.95   181.7 1574.95   181.9 1574.97     182 1574.98
   182.2 1574.99   182.2    1575   182.3    1575   182.5 1575.01   182.6 1575.03
   182.7 1575.05   182.8 1575.06   183.1 1575.06   183.2 1575.06   183.3 1575.06
   183.5 1575.06   183.6 1575.06   183.7 1575.06   183.7 1575.07   183.8 1575.08
   183.9 1575.09     184 1575.09   184.2 1575.09   184.2  1575.1   184.4 1575.11
   184.6 1575.12   184.8 1575.11   184.9 1575.11   185.1  1575.1   185.2  1575.1
   185.5 1575.09   185.7 1575.09     186 1575.06   186.2 1575.06   186.3 1575.06
   186.4 1575.06   186.6 1575.06   186.7 1575.06   186.9 1575.06   187.1 1575.09
   187.2 1575.09   187.4 1575.11   187.5 1575.12   187.6 1575.13   187.7 1575.15
   187.8 1575.15   187.8 1575.16   188.1 1575.16   188.2 1575.16   188.3 1575.18
   188.4 1575.19   188.5 1575.19   188.6 1575.19   188.7 1575.19   188.8 1575.19
     189 1575.22 191.453  1575.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025   98.75    .015  137.25    .025

Bank Sta: Left   Right    Coeff Contr.   Expan.
         98.75  137.25             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0   98.75    1576       F
  137.25 191.453    1576       F

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 =     .98
Elevation at which weir flow begins         = 1575.55
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  2

Pier Data
Pier Station     Upstream=    98.5    Downstream=   111.5
Upstream     num=       2
    Width   Elev    Width   Elev
     .67 1569.51     .67    1575
Downstream     num=       2
    Width   Elev    Width   Elev
     .67 1569.51     .67    1575

Pier Data
Pier Station     Upstream=   111.5    Downstream=   124.5
```

```
Upstream     num=       2
    Width   Elev    Width   Elev
     .67 1569.51     .67    1575
Downstream     num=       2
    Width   Elev    Width   Elev
     .67 1569.51     .67    1575

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

BRIDGE OUTPUT  Profile #BFE
```

			Inside BR US	Inside BR DS
E.G. US. (ft)	1574.16	Element		
W.S. US. (ft)	1573.07	E.G. Elev (ft)	1573.91	1572.41
Q Total (cfs)	1595.00	W.S. Elev (ft)	1571.96	1570.46
Q Bridge (cfs)	1595.00	Crit W.S. (ft)	1571.96	1570.46
Q Weir (cfs)		Max Chl Dpth (ft)	3.83	3.83
Weir Sta Lft (ft)		Vel Total (ft/s)	11.20	11.20
Weir Sta Rgt (ft)		Flow Area (sq ft)	142.43	142.43
Weir Submerg		Froude # Chl	1.01	1.01
Weir Max Depth (ft)		Specif Force (cu ft)	828.11	828.11
Min El Weir Flow (ft)	1580.01	Hydr Depth (ft)	3.83	3.83
Min El Prs (ft)	1572.13	W.P. Total (ft)	60.16	60.16
Delta EG (ft)	1.89	Conv. Total (cfs)	25063.9	25063.9
Delta WS (ft)	2.69	Top Width (ft)	37.16	37.16
BR Open Area (sq ft)	148.64	Frctn Loss (ft)	0.61	0.01
BR Open Vel (ft/s)	11.20	C & E Loss (ft)	0.00	0.03
BR Sluice Coef		Shear Total (lb/sq ft)	0.60	0.60
BR Sel Method	Energy only	Power Total (lb/ft s)	6.70	6.70

```
Warning: Pier drag coefficient of 2.0 assumed for Class B flow.
Note:    Momentum answer is not valid if the water surface is above the low chord or if there is weir flow.  The momentum
         answer has been disregarded.
Warning: The energy equation could not be balanced within the specified number of iterations.  The program used critical
         depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
```

the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

BRIDGE OUTPUT Profile #FLOODWAY

			Inside BR US	Inside BR DS
E.G. US. (ft)	1574.16	Element		
W.S. US. (ft)	1573.07	E.G. Elev (ft)	1573.91	1572.41
Q Total (cfs)	1595.00	W.S. Elev (ft)	1571.96	1570.46
Q Bridge (cfs)	1595.00	Crit W.S. (ft)	1571.96	1570.46
Q Weir (cfs)		Max Chl Dpth (ft)	3.83	3.83
Weir Sta Lft (ft)		Vel Total (ft/s)	11.20	11.20
Weir Sta Rgt (ft)		Flow Area (sq ft)	142.43	142.43
Weir Submerg		Froude # Chl	1.01	1.01
Weir Max Depth (ft)		Specif Force (cu ft)	828.11	828.11
Min El Weir Flow (ft)	1580.01	Hydr Depth (ft)	3.83	3.83
Min El Prs (ft)	1572.13	W.P. Total (ft)	60.16	60.16
Delta EG (ft)	1.89	Conv. Total (cfs)	25063.9	25063.9
Delta WS (ft)	2.67	Top Width (ft)	37.16	37.16
BR Open Area (sq ft)	148.64	Frctn Loss (ft)	0.61	0.01
BR Open Vel (ft/s)	11.20	C & E Loss (ft)	0.00	0.04
BR Sluice Coef		Shear Total (lb/sq ft)	0.60	0.60
BR Sel Method	Energy only	Power Total (lb/ft s)	6.70	6.70

Warning: Pier drag coefficient of 2.0 assumed for Class B flow.
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 430

INPUT
Description:
Station Elevation Data num= 312

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1575.15	2.8	1575.09	4.5	1575.19	6.8	1575.09	12.1	1575.12
14.3	1575	15.8	1575.17	16.1	1575.11	22.8	1575.09	24.1	1575
28.1	1574.94	31.3	1574.94	32.1	1575.03	33.1	1575.03	34.3	1574.91
36.3	1574.91	38.3	1574.98	38.9	1574.94	40.8	1574.96	43.3	1574.84
44.6	1574.88	45.6	1574.78	47.8	1574.86	49.6	1574.72	50.9	1574.72
53.1	1574.83	54.4	1574.82	56.2	1574.71	58.3	1574.75	60.9	1574.72
62.1	1574.61	62.9	1574.61	64.1	1574.69	64.2	1574.68	64.3	1574.67
64.4	1574.66	66.1	1574.66	66.9	1574.62	67	1574.6	67.1	1574.59
67.2	1574.59	67.3	1574.58	67.4	1574.57	67.5	1574.6	67.6	1574.61
67.7	1574.62	67.8	1574.62	67.9	1574.62	68	1574.62	70.6	1574.56
72.6	1574.65	73.9	1574.66	76.1	1574.578.044651		574.519	79.2	1574.53
80.1	1574.62	81.3	1574.53	82.1	1574.53	83.2	1574.59	85.6	1574.6
86.7	1574.65	86.8	1574.64	86.9	1574.64	87	1574.64	87.1	1574.64
87.2	1574.63	87.3	1574.62	87.5	1574.6	87.6	1574.59	87.8	1574.56
88.1	1574.54	88.2	1574.53	88.4	1574.5	89.4	1574.5	91	1574.33
91	1574.32	91.1	1574.3	91.1	1574.29	92.1	1574.28	92.4	1574.25
92.4	1574.24	92.6	1574.19	93	1574.07	93	1574.06	93	1574.05
93	1574.03	93.5	1573.82	94.1	1573.44	94.1	1573.43	94.3	1573.29
94.3	1573.23	94.5	1573.13	94.5	1573.09	94.6	1572.97	95	1572.63
95	1572.62	95.2	1572.48	95.3	1572.4	95.4	1572.32	95.5	1572.18
95.6	1572.14	95.7	1571.97	95.9	1571.84	95.9	1571.78	96	1571.67
96.1	1571.59	96.1	1571.55	96.3	1571.4	96.4	1571.24	96.5	1571.19
96.5	1571.09	98.75	1570.63	98.75	1566.63118.8973		1566.63	137.25	1566.63
137.25	1570.63	139	1571.95	139.2	1572.52	139.3	1573.1	139.4	1573.28
139.5	1573.44	139.6	1573.46	139.7	1573.54	139.8	1573.57	139.9	1573.65
139.9	1573.67	139.9	1573.69	140.4	1573.86	141.3	1574.04	142.2	1574.22
145.5	1574.4	145.7	1574.39	145.7	1574.38	146.9	1574.31	147	1574.31
147.1	1574.31	147.3	1574.31	147.4	1574.31	147.5	1574.32	147.6	1574.31
147.7	1574.31	147.8	1574.3	147.9	1574.29	147.9	1574.28	148.4	1574.29
148.5	1574.3	148.7	1574.31	148.8	1574.32	149.1	1574.34	149.2	1574.35
149.3	1574.38	149.6	1574.41	151.5	1574.41	151.5	1574.4	151.6	1574.4
151.7	1574.39	151.9	1574.38	152	1574.36	152.1	1574.35	152.4	1574.4
152.4	1574.41	153.9	1574.38	154.4	1574.43	154.5	1574.44	154.6	1574.44
154.7	1574.46	154.7	1574.47	154.8	1574.47	154.9	1574.49	156	1574.56
156.2	1574.6	156.4	1574.63	158.8	1574.51	160.4	1574.62	160.5	1574.64
160.7	1574.66	160.8	1574.66	161	1574.66	161.1	1574.66	161.2	1574.66
161.3	1574.67	161.6	1574.69	161.7	1574.69	162	1574.69	162.1	1574.69
162.2	1574.7	162.3	1574.71	162.5	1574.72	166.7	1574.66	166.9	1574.67
167	1574.69	167.1	1574.7	167.2	1574.72	167.5	1574.75	167.6	1574.75
167.8	1574.75	167.9	1574.75	168	1574.77	168.1	1574.77	168.4	1574.76

168.5	1574.75	168.7	1574.75	168.8	1574.75	169	1574.75	169.1	1574.74
171.6	1574.7	171.7	1574.69	171.8	1574.69	171.9	1574.67	172	1574.67
172.1	1574.66	172.2	1574.66	172.5	1574.64	172.6	1574.63	174.4	1574.75
174.5	1574.75	174.6	1574.75	174.7	1574.75	174.8	1574.74	175	1574.72
175.1	1574.72	175.3	1574.72	175.5	1574.72	175.6	1574.72	175.7	1574.72
175.9	1574.72	176	1574.72	176.2	1574.74	176.3	1574.74	176.4	1574.73
176.5	1574.73	176.6	1574.75	176.8	1574.78	177	1574.79	177.1	1574.8
177.3	1574.82	177.5	1574.83	177.7	1574.84	177.9	1574.82	178	1574.81
178.1	1574.81	178.2	1574.81	178.3	1574.81	178.5	1574.81	178.6	1574.81
178.8	1574.81	179	1574.81	179.1	1574.81	180.4	1574.94	180.5	1574.94
180.7	1574.94	180.8	1574.94	180.9	1574.94	181	1574.94	181.3	1574.96
181.4	1574.95	181.6	1574.95	181.7	1574.95	181.9	1574.97	182	1574.98
182.2	1574.99	182.2	1575	182.3	1575	182.5	1575.01	182.6	1575.03
182.7	1575.05	182.8	1575.06	183.1	1575.06	183.2	1575.06	183.3	1575.06
183.5	1575.06	183.6	1575.06	183.7	1575.06	183.7	1575.07	183.8	1575.08
183.9	1575.09	184	1575.09	184.2	1575.09	184.2	1575.1	184.4	1575.11
184.6	1575.12	184.8	1575.11	184.9	1575.11	185.1	1575.1	185.2	1575.1
185.5	1575.09	185.7	1575.09	186	1575.06	186.2	1575.06	186.3	1575.06
186.4	1575.06	186.6	1575.06	186.7	1575.06	186.9	1575.06	187.1	1575.09
187.2	1575.09	187.4	1575.11	187.5	1575.12	187.6	1575.13	187.7	1575.15
187.8	1575.15	187.8	1575.16	188.1	1575.16	188.2	1575.16	188.3	1575.18
188.4	1575.19	188.5	1575.19	188.6	1575.19	188.7	1575.19	188.8	1575.19
189	1575.22	191.453	1575.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	98.75	.015	137.25	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
98.75	137.25	16	16	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	98.75	1576	F
137.25	191.453	1576	F

CROSS SECTION OUTPUT Profile #BFE

			Left OB	Channel	Right OB
E.G. Elev (ft)	1572.28	Element			
Vel Head (ft)	1.89	Wt. n-Val.		0.015	
W.S. Elev (ft)	1570.38	Reach Len. (ft)	16.00	16.00	16.00
Crit W.S. (ft)	1570.38	Flow Area (sq ft)		144.53	
E.G. Slope (ft/ft)	0.002698	Area (sq ft)		144.53	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	38.50	Top Width (ft)		38.50	
Vel Total (ft/s)	11.04	Avg. Vel. (ft/s)		11.04	
Max Chl Dpth (ft)	3.75	Hydr. Depth (ft)		3.75	
Conv. Total (cfs)	30708.4	Conv. (cfs)		30708.4	
Length Wtd. (ft)	16.00	Wetted Per. (ft)		46.01	
Min Ch El (ft)	1566.63	Shear (lb/sq ft)		0.53	
Alpha	1.00	Stream Power (lb/ft s)		5.84	

Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.22	4.14	0.21
C & E Loss (ft)	0.73	Cum SA (acres)	0.32	2.18	0.21

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1572.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.88	Wt. n-Val.		0.015	
W.S. Elev (ft)	1570.40	Reach Len. (ft)	16.00	16.00	16.00
Crit W.S. (ft)	1570.40	Flow Area (sq ft)		145.14	
E.G. Slope (ft/ft)	0.002662	Area (sq ft)		145.14	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	38.50	Top Width (ft)		38.50	
Vel Total (ft/s)	10.99	Avg. Vel. (ft/s)		10.99	
Max Chl Dpth (ft)	3.77	Hydr. Depth (ft)		3.77	
Conv. Total (cfs)	30912.4	Conv. (cfs)		30912.4	
Length Wtd. (ft)	16.00	Wetted Per. (ft)		46.04	
Min Ch El (ft)	1566.63	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		5.76	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.01	4.12	
C & E Loss (ft)	0.72	Cum SA (acres)	0.02	2.18	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	98.75	106.45	269.91	28.91	11.45	16.92	3.75	9.34	0.43	3.97
2	Chan	106.45	114.15	351.72	28.91	7.70	22.05	3.75	12.17	0.63	7.69
3	Chan	114.15	121.85	351.72	28.91	7.70	22.05	3.75	12.17	0.63	7.69
4	Chan	121.85	129.55	351.72	28.91	7.70	22.05	3.75	12.17	0.63	7.69
5	Chan	129.55	137.25	269.91	28.91	11.45	16.92	3.75	9.34	0.43	3.97

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	98.75	106.45	269.75	29.03	11.47	16.91	3.77	9.29	0.42	3.91
2	Chan	106.45	114.15	351.83	29.03	7.70	22.06	3.77	12.12	0.63	7.59
3	Chan	114.15	121.85	351.83	29.03	7.70	22.06	3.77	12.12	0.63	7.59
4	Chan	121.85	129.55	351.83	29.03	7.70	22.06	3.77	12.12	0.63	7.59
5	Chan	129.55	137.25	269.75	29.03	11.47	16.91	3.77	9.29	0.42	3.91

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 415

INPUT
Description:
Station Elevation Data num= 258

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1574.59	2.5	1574.31	3.1	1574.35	6.1	1574.28	7.7	1574.12
11.5	1574.03	13.4	1573.82	15.3	1573.79	16.7	1573.62	18.3	1573.31
19.4	1573.27	22.6	1572.92	23.7	1572.88	26.9	1572.57	29.7	1572.49
31.8	1572.23	34.8	1572.24	37.3	1571.88	39.4	1571.89	41.3	1571.77
43.2	1571.8	45.6	1571.6	47	1571.62	48.5	1571.44	51.2	1571.28
52.7	1571.1	54.8	1571	58.1	1571.01	62.8	1570.32	64.2	1570.36
65.5	1570.21	66.3	1570.26	67.9	1570.24	69.3	1570.09	70.3	1570.09
71.2	1569.97	75.1	1569.9	76.8	1569.64	78.5	1569.54	79.5	1569.41
81.5	1569.02	83.1	1568.5	84.4	1568.25	88.8	1568.1291.160461567.036		
102.13	1562140.2157		1562	146.87	1562	154.3	1568.26	154.5	1568.28
154.5	1568.29	155.7	1568.38	158	1568.84	158.1	1568.84	158.5	1568.85
159.1	1568.84	159.2	1568.88	159.3	1568.92	159.5	1568.97	159.6	1569
159.8	1569.07	159.8	1569.09	162.6	1569.48	162.7	1569.5	162.8	1569.52
162.9	1569.54	163	1569.56	163.1	1569.58	163.2	1569.6	163.3	1569.64
163.3	1569.65	163.7	1569.7	163.8	1569.71	163.9	1569.72	163.9	1569.71
164.2	1569.69	164.3	1569.69	164.4	1569.69	164.5	1569.69	164.6	1569.69
164.9	1569.72	164.9	1569.73	165.1	1569.74	165.1	1569.75	165.2	1569.76
165.3	1569.81	165.9	1569.84	167.6	1570.19	167.7	1570.19	167.8	1570.19
168	1570.2	168.1	1570.2	168.3	1570.22	168.4	1570.24	168.7	1570.3
168.9	1570.31	169.1	1570.34	169.2	1570.34	169.2	1570.35	169.4	1570.38
169.5	1570.38	169.7	1570.38	169.8	1570.39	169.9	1570.41	170	1570.42
170.2	1570.42	170.3	1570.44	170.5	1570.47	170.6	1570.47	170.7	1570.48
170.9	1570.52	170.9	1570.53	171.1	1570.56	171.2	1570.57	171.2	1570.58
171.4	1570.61	171.4	1570.62	171.5	1570.64	171.7	1570.67	171.8	1570.69
172.2	1570.72	172.4	1570.74	172.4	1570.75	172.5	1570.75	172.7	1570.75
172.9	1570.75	173.2	1570.76	173.3	1570.76	173.4	1570.76	173.6	1570.79
173.7	1570.81	173.9	1570.83	174	1570.86	174.2	1570.89	174.2	1570.9
174.2	1570.91	174.5	1570.94	174.7	1570.97	174.9	1570.98	175.1	1570.98
175.2	1570.98	178.2	1571.47	178.3	1571.47	178.5	1571.48	178.7	1571.49

178.7	1571.5	179	1571.5	179.1	1571.52	179.3	1571.53	179.5	1571.53
179.6	1571.53	179.8	1571.53	179.9	1571.53	180	1571.53	180.2	1571.53
180.3	1571.54	180.4	1571.56	180.7	1571.58	180.8	1571.59	180.9	1571.59
181	1571.59	181.2	1571.62	181.3	1571.62	181.3	1571.63	181.5	1571.65
181.5	1571.66	181.7	1571.68	181.8	1571.69	182	1571.74	182.2	1571.76
182.3	1571.77	182.4	1571.79	182.5	1571.81	182.7	1571.84	182.7	1571.85
182.8	1571.88	182.9	1571.9	183	1571.92	183.3	1572	183.5	1572.02
183.5	1572.03	183.6	1572.03	183.8	1572.03	184	1572.03	184.4	1572.04
184.6	1572.05	184.6	1572.06	184.7	1572.06	184.8	1572.06	186.1	1572.19
186.2	1572.2	186.3	1572.21	186.4	1572.21	186.6	1572.22	186.8	1572.22
186.9	1572.22	188.8	1572.34	189.6	1572.43	189.7	1572.44	190	1572.49
190.1	1572.51	190.2	1572.51	190.3	1572.53	190.4	1572.53	190.6	1572.56
191.8	1572.59	191.9	1572.59	192.1	1572.6	192.2	1572.6	192.4	1572.63
192.5	1572.64	192.6	1572.66	192.7	1572.66	192.8	1572.69	192.9	1572.69
193	1572.7	193.1	1572.71	193.4	1572.73	193.5	1572.74	193.6	1572.74
193.7	1572.74	193.8	1572.74	193.9	1572.74	193.9	1572.75	194.1	1572.75
194.2	1572.75	194.4	1572.75	194.6	1572.76	194.7	1572.76	194.8	1572.76
194.9	1572.76	195	1572.76	195.1	1572.76	195.3	1572.77	196.9	1573.05
197	1573.06	197.1	1573.06	197.2	1573.07	197.4	1573.09	197.4	1573.1
197.5	1573.1	197.6	1573.08	197.7	1573.07	197.7	1573.08	197.9	1573.14
197.9	1573.16	198.2	1573.22	198.2	1573.23	198.4	1573.26	198.4	1573.28
198.5	1573.31	198.7	1573.38	198.8	1573.42	199	1573.48	199.2	1573.5
201.2	1573.5	203.5	1573.6	209.9	1574.02				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	102.13	.015	146.87	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
102.13	146.87	60	60	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	102.13	1572	F
146.87	209.9	1572	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1569.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.44	Wt. n-Val.		0.015	
W.S. Elev (ft)	1568.72	Reach Len. (ft)	60.00	60.00	60.00
Crit W.S. (ft)	1565.41	Flow Area (sq ft)		300.48	
E.G. Slope (ft/ft)	0.000227	Area (sq ft)	51.59	300.48	27.47
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	74.95	Top Width (ft)	19.69	44.74	10.51
Vel Total (ft/s)	5.31	Avg. Vel. (ft/s)		5.31	
Max Chl Dpth (ft)	6.72	Hydr. Depth (ft)		6.72	
Conv. Total (cfs)	105955.8	Conv. (cfs)		105955.8	
Length Wtd. (ft)	60.00	Wetted Per. (ft)		44.74	
Min Ch El (ft)	1562.00	Shear (lb/sq ft)		0.10	
Alpha	1.00	Stream Power (lb/ft s)		0.50	

Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.21	4.06	0.20
C & E Loss (ft)	0.19	Cum SA (acres)	0.32	2.16	0.21

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1569.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.44	Wt. n-Val.		0.015	
W.S. Elev (ft)	1568.74	Reach Len. (ft)	60.00	60.00	60.00
Crit W.S. (ft)	1565.41	Flow Area (sq ft)		301.35	
E.G. Slope (ft/ft)	0.000319	Area (sq ft)		301.35	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	44.74	Top Width (ft)		44.74	
Vel Total (ft/s)	5.29	Avg. Vel. (ft/s)		5.29	
Max Chl Dpth (ft)	6.74	Hydr. Depth (ft)		6.74	
Conv. Total (cfs)	89334.6	Conv. (cfs)		89334.6	
Length Wtd. (ft)	60.00	Wetted Per. (ft)		58.21	
Min Ch El (ft)	1562.00	Shear (lb/sq ft)		0.10	
Alpha	1.00	Stream Power (lb/ft s)		0.55	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.01	4.04	
C & E Loss (ft)	0.19	Cum SA (acres)	0.02	2.16	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	81.70	102.13	0.00	51.59	21.09	0.00	2.62	0.00	0.03	0.00
2	Chan	102.13	111.08	319.00	60.10	8.95	20.00	6.72	5.31	0.10	0.50
3	Chan	111.08	120.03	319.00	60.10	8.95	20.00	6.72	5.31	0.10	0.50
4	Chan	120.03	128.97	319.00	60.10	8.95	20.00	6.72	5.31	0.10	0.50

5	Chan	128.97	137.92	319.00	60.10	8.95	20.00	6.72	5.31	0.10
0.50										
6	Chan	137.92	146.87	319.00	60.10	8.95	20.00	6.72	5.31	0.10
0.50										
7	ROB	146.87	159.48	0.00	27.47	12.84	0.00	2.61	0.00	0.03
0.00										

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity	Shear	Power
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)	(lb/sq ft)	(lb/ft s)
1	Chan	102.13	111.08	250.74	60.27	15.68	15.72	6.74	4.16	0.08	0.32
2	Chan	111.08	120.03	364.51	60.27	8.95	22.85	6.74	6.05	0.13	0.81
3	Chan	120.03	128.97	364.51	60.27	8.95	22.85	6.74	6.05	0.13	0.81
4	Chan	128.97	137.92	364.51	60.27	8.95	22.85	6.74	6.05	0.13	0.81
5	Chan	137.92	146.87	250.74	60.27	15.68	15.72	6.74	4.16	0.08	0.32

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 365

INPUT
Description:
Station Elevation Data num= 191

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1569.68	5.2	1569.48	9.8	1569.16	15.6	1568.54	17.3	1568.47
20.2	1568.09	21.4	1568.05	24.8	1567.6	28.1	1567.32	29	1567.17

```
    30.5 1567.14    33.3  1566.8    36.9 1566.59    40.1 1566.28    40.9  1566.3
    41.6 1566.22    42.2 1566.27    44.2 1566.06    46.6 1565.97    49.1 1565.74
    52.7 1565.58    55.7 1565.53    58.4 1565.28    60.4 1565.19    63.1 1565.31
    66.3 1565.21    68.5 1565.34    72.2 1565.19    74.4 1565.19    75.8 1565.25
    78.7 1564.97    80.3 1565.06    84.1 1565.09    84.2  1565.1    84.4 1565.12
    84.8 1565.16      86 1565.16    86.2 1565.15    86.3 1565.14    86.4 1565.13
    86.5 1565.12    86.7  1565.1    86.8  1565.1    86.9 1565.08    87.7 1565.07
    91.11565.225    92.3 1565.28    94.3 1565.41    94.3 1565.42    94.4 1565.43
    94.6 1565.46    94.6 1565.47    94.7 1565.49    97.8 1565.47    99.6 1565.54
   100.6 1565.68     102 1565.76     1041565.751   104.2 1565.75   104.7 1565.69
   105.6  1565.4   105.6 1565.38   105.6 1565.33   105.8 1565.21   106.3 1564.65
   106.4 1564.54   106.5 1564.45   106.7 1564.26   106.7 1564.23     107 1563.94
   107.1 1563.89   107.1 1563.79   107.3 1563.62   108.1 1562.77   108.2 1562.75
   108.3 1562.66   108.5  1562.6   108.5 1562.56   108.6 1562.51   108.7 1562.47
   108.7 1562.45   109.1 1562.25   109.9 1561.95   112.2  1561.4   112.2 1561.38
   112.4 1561.33   112.4 1561.32   112.5 1561.25   112.7 1561.16   113.4 1560.82
   114.2 1560.51   114.4 1560.48   114.5 1560.44   114.6 1560.44   114.7  1560.4
   115.6 1560.19     117    1560     123    1560   123.1 1560.38   123.7 1560.57
   124.7 1561.06   124.8 1561.12   124.9 1561.16   124.9 1561.21   125.2  1561.3
   125.2 1561.34   125.3 1561.39   125.5 1561.46   125.5 1561.47   125.6 1561.48
   126.4 1561.91   126.5 1561.95   126.6 1562.02   127.3 1562.31   127.6 1562.48
   127.6 1562.52   127.7 1562.56   127.8 1562.63   127.9 1562.66     128 1562.72
   128.1 1562.78   128.1 1562.81   128.3 1562.88   128.3 1562.91   128.4 1562.96
   129.4 1563.57   129.5 1563.65   129.5 1563.69   129.6 1563.71   129.7 1563.77
   129.9 1563.84     131 1563.94   132.1 1563.96   132.7 1563.93   132.8 1563.92
   132.8 1563.91   133.1  1563.9   134.3 1563.97   136.21563.977   137.1 1563.98
     140 1564.15     140 1564.16   140.1 1564.18   140.5 1564.25   140.6 1564.26
   140.7 1564.28   140.9 1564.31   140.9 1564.32   141.1 1564.35   142.7 1564.88
   143.9  1565.1   144.1 1565.11   144.1 1565.12   144.2 1565.12   144.4 1565.17
   144.5 1565.19   144.5 1565.21   144.6 1565.23   144.7 1565.25   144.8 1565.26
   144.9 1565.28   145.2 1565.35   145.3 1565.38   145.4 1565.39   146.3 1565.64
   147.6 1565.81   148.4 1565.84   148.5 1565.91   148.7 1565.96   149.9 1566.61
     150 1566.65   150.2 1566.75   150.3 1566.79   150.3 1566.81   150.5 1566.91
   150.6 1566.92   150.7 1566.97   150.8    1567   150.9 1567.05   150.9 1567.08
   151.2 1567.19   151.2  1567.2   151.3 1567.26   151.4  1567.3   151.4 1567.31
   153.4 1567.73   153.5 1567.73   153.7 1567.74   153.7 1567.75   153.8 1567.76
   153.9 1567.77

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0    .025     104     .04     131    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           104     131               66      83     107             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0     104    1570       F
     131   153.9    1570       F

CROSS SECTION OUTPUT  Profile #BFE
```

E.G. Elev (ft)	1568.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.37	Wt. n-Val.		0.040	
W.S. Elev (ft)	1566.55	Reach Len. (ft)	66.00	83.00	107.00
Crit W.S. (ft)	1566.55	Flow Area (sq ft)		129.13	
E.G. Slope (ft/ft)	0.015869	Area (sq ft)	71.91	129.13	35.53
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	112.43	Top Width (ft)	66.65	27.00	18.78
Vel Total (ft/s)	12.35	Avg. Vel. (ft/s)		12.35	
Max Chl Dpth (ft)	6.55	Hydr. Depth (ft)		4.78	
Conv. Total (cfs)	12661.4	Conv. (cfs)		12661.4	
Length Wtd. (ft)	83.00	Wetted Per. (ft)		30.11	
Min Ch El (ft)	1560.00	Shear (lb/sq ft)		4.25	
Alpha	1.00	Stream Power (lb/ft s)		52.47	
Frctn Loss (ft)	1.02	Cum Volume (acre-ft)	0.13	3.76	0.16
C & E Loss (ft)	0.36	Cum SA (acres)	0.26	2.11	0.19

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1568.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.37	Wt. n-Val.		0.040	
W.S. Elev (ft)	1566.54	Reach Len. (ft)	66.00	83.00	107.00
Crit W.S. (ft)	1566.54	Flow Area (sq ft)		129.03	
E.G. Slope (ft/ft)	0.018345	Area (sq ft)		129.03	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	27.00	Top Width (ft)		27.00	
Vel Total (ft/s)	12.36	Avg. Vel. (ft/s)		12.36	
Max Chl Dpth (ft)	6.54	Hydr. Depth (ft)		4.78	
Conv. Total (cfs)	11776.2	Conv. (cfs)		11776.2	
Length Wtd. (ft)	83.00	Wetted Per. (ft)		33.51	
Min Ch El (ft)	1560.00	Shear (lb/sq ft)		4.41	
Alpha	1.00	Stream Power (lb/ft s)		54.51	
Frctn Loss (ft)	1.09	Cum Volume (acre-ft)	0.01	3.75	
C & E Loss (ft)	0.36	Cum SA (acres)	0.02	2.11	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/fts)
1	LOB	20.80	41.60	0.00	0.77	4.27	0.00	0.18	0.00	0.18	0.00
2	LOB	41.60	62.40	0.00	18.44	20.84	0.00	0.89	0.00	0.88	0.00
3	LOB	62.40	83.20	0.00	28.27	20.83	0.00	1.36	0.00	1.34	0.00
4	LOB	83.20	104.00	0.00	24.44	20.86	0.00	1.17	0.00	1.16	0.00
5	Chan	104.00	109.40	85.64	12.96	6.84	5.37	2.40	6.61	1.88	12.40
6	Chan	109.40	114.80	354.87	28.34	5.73	22.25	5.25	12.52	4.90	61.33
7	Chan	114.80	120.20	522.54	34.99	5.43	32.76	6.48	14.93	6.38	95.26
8	Chan	120.20	125.60	445.19	33.06	6.00	27.91	6.12	13.46	5.46	73.54
9	Chan	125.60	131.00	186.76	19.77	6.11	11.71	3.66	9.44	3.21	30.30
10	ROB	131.00	135.58	0.00	11.90	4.59	0.00	2.60	0.00	2.57	0.00
11	ROB	135.58	140.16	0.00	11.48	4.60	0.00	2.51	0.00	2.47	0.00
12	ROB	140.16	144.74	0.00	8.26	4.75	0.00	1.80	0.00	1.72	0.00
13	ROB	144.74	149.32	0.00	3.83	4.75	0.00	0.84	0.00	0.80	0.00
14	ROB	149.32	153.90	0.00	0.06	0.53	0.00	0.13	0.00	0.11	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate

the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	104.00	109.40	81.83	12.94	7.64	5.13	2.40	6.32	1.94	12.27
2	Chan	109.40	114.80	365.26	28.32	5.73	22.90	5.24	12.90	5.66	72.97
3	Chan	114.80	120.20	537.96	34.97	5.43	33.73	6.48	15.38	7.37	113.37
4	Chan	120.20	125.60	458.31	33.04	6.00	28.73	6.12	13.87	6.31	87.52
5	Chan	125.60	131.00	151.64	19.75	8.71	9.51	3.66	7.68	2.60	19.94

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 300

INPUT
Description:
Station Elevation Data num= 448

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1566.72	5.6	1566.71	6.6	1566.59	9.9	1566.59	11.4	1566.44
16.9	1566.16	20.1	1565.88	21.1	1565.88	23.6	1565.59	26.1	1565.41
26.9	1565.41	30.4	1565.09	33.4	1565.03	34.9	1564.94	36.7	1564.94
39.7	1565.06	42.8	1565.02	45.2	1565.19	48.9	1565.28	50.4	1565.38
52.4	1565.28	56.9	1565.52	58.7	1565.47	62.9	1565.53	66.4	1565.41

67.9	1565.46	76.1	1565.38	81.1	1565.42	84.7	1565.59	89	1565.63
89	1565.62	89.1	1565.61	89.2	1565.6	89.3	1565.6	89.4	1565.6
89.7	1565.56	91.9	1565.49	96.2	1565.2	98.3	1565.18	98.4	1565.16
98.5	1565.15	98.6	1565.15	98.7	1565.15	98.8	1565.14	98.9	1565.12
99	1565.12	99	1565.11	99.1	1565.09	99.2	1565.08	99.3	1565.08
99.4	1565.07	99.5	1565.06	100.5	1565.05	100.6	1565.03	100.8	1565.01
100.9	1565.01	101.5	1564.94	101.5	1564.93	103	1564.81	103	1564.8
103.2	1564.75	103.5	1564.69	104.8	1564.68	105.7	1564.59	105.8	1564.59
105.9	1564.59	106.1	1564.58	106.2	1564.58	106.3	1564.57	106.4	1564.57
106.5	1564.56	106.6	1564.55	106.7	1564.55	107.7	1564.39	111.7	1564.15
111.8	1564.14	112.3	1564.07	112.4	1564.06	112.5	1564.05	112.6	1564.04
112.7	1564.02	112.9	1564	113	1563.98	113.1	1563.96	113.2	1563.94
113.4	1563.92	113.6	1563.9	113.6	1563.89	113.7	1563.89	113.8	1563.89
113.9	1563.89	114	1563.89	115.3	1563.84	115.5	1563.81	115.7	1563.78
116.2	1563.69	116.7	1563.69	116.9	1563.66	117	1563.66	117.2	1563.66
117.7	1563.62	117.8	1563.62	117.9	1563.6	118	1563.59	118.1	1563.59
118.3	1563.59	118.4	1563.59	118.5	1563.59	118.6	1563.58	118.6	1563.57
118.7	1563.56	118.8	1563.56	118.9	1563.56	119	1563.56	120.3	1563.47
120.4	1563.46	120.5	1563.45	120.6	1563.44	120.6	1563.43	121	1563.38
121.2	1563.36	121.2	1563.35	123	1563.38	124.7	1563.26	124.8	1563.27
124.9	1563.28	125	1563.28	125.1	1563.28	125.2	1563.28	126.6	1563.25
126.7	1563.25	126.9	1563.23	127	1563.22	127.1	1563.22	128.7	1563.25
130.2	1563.21	130.3	1563.21	130.4	1563.19	130.5	1563.19	130.5	1563.18
130.8	1563.17	130.9	1563.16	131	1563.16	131.1	1563.15	131.2	1563.13
131.3	1563.15	131.4	1563.17	131.5	1563.18	131.6	1563.18	131.6	1563.17
131.9	1563.16	132	1563.14	132.1	1563.14	132.2	1563.14	132.4	1563.13
132.5	1563.12	132.6	1563.13	132.7	1563.14	132.8	1563.12	132.9	1563.12
133	1563.11	133.1	1563.1	133.2	1563.09	133.7	1563.07	133.7	1563.06
133.8	1563.06	133.9	1563.04	135.8	1563.06	137.3	1562.95	137.4	1562.94
137.6	1562.92	137.6	1562.91	137.7	1562.89	140.4	1562.81	141	1562.75
142.5	1562.66	149.2	1562.59	150.9	1562.51	151	1562.5	151.1	1562.49
151.1	1562.48	151.2	1562.47	152.1	1562.42	152.2	1562.42	152.4	1562.42
152.7	1562.44	155	1562.25	155.9	1562.25	157.6	1562.34	158.7	1562.31
159.8	1562.34	159.8	1562.35	160	1562.37	160.2	1562.35	160.3	1562.35
160.5	1562.34	160.5	1562.35	161	1562.37	161	1562.38	161.2	1562.38
162.2	1562.43	162.8	1562.5	164.5	1562.5	166.7	1562.72	168.7	1562.82
168.8	1562.83	169.3	1562.9	169.4	1562.92	169.7	1562.95	169.8	1562.96
169.9	1563	170.1	1563.03	170.1	1563.04	170.3	1563.05	170.5	1563.09
170.6	1563.11	171	1563.15	171.2	1563.15	171.3	1563.16	171.4	1563.15
171.6	1563.14	171.8	1563.14	172	1563.14	172.1	1563.14	172.3	1563.14
172.3	1563.13	172.5	1563.11	172.7	1563.11	172.8	1563.11	173	1563.1
173.3	1563.1	173.5	1563.09	173.6	1563.09	173.8	1563.09	174	1563.06
174.2	1563.03	174.3	1563.02	174.5	1562.97	174.6	1562.97	174.7	1562.99
174.8	1562.99	175	1562.99	175.1	1562.99	175.2	1562.98	175.3	1562.98
175.4	1563.01	175.5	1563.02	175.6	1563.03	175.7	1563.03	175.8	1563.03
175.9	1563.04	175.9	1563.05	176	1563.05	176.1	1563.05	176.3	1563.05
176.5	1563.05	176.8	1563.05	181.8	1562.94	189.7	1563.51	189.8	1563.52
189.9	1563.54	190	1563.55	190.1	1563.56	190.2	1563.56	190.3	1563.56
190.4	1563.58	190.7	1563.6	190.8	1563.6	190.9	1563.61	191	1563.62
191	1563.63	191.1	1563.64	191.3	1563.66	191.5	1563.69	1921	1563.712

```
   193.5 1563.78   193.6 1563.78   193.7 1563.78   193.8 1563.78     194 1563.78
   194.2 1563.78   194.3 1563.77   194.3 1563.79   194.5 1563.82   194.6 1563.85
   194.7 1563.86   194.8 1563.88   194.9  1563.9   194.9 1563.92   195.8 1564.03
   195.9 1564.03   196.1 1564.04   196.2 1564.04   196.3 1564.04   196.4 1564.05
   196.6 1564.06     197 1564.06   197.2 1564.08   197.5 1564.09   197.6 1564.09
   197.7 1564.09   197.8 1564.09   202.3 1564.41   202.4 1564.41   202.6 1564.41
   202.7 1564.42   202.8 1564.42   202.9 1564.43     203 1564.44   203.2 1564.44
   203.4 1564.43   203.5 1564.42   203.5 1564.41   204.5 1564.53   204.6 1564.53
   204.8 1564.53     205 1564.56   205.1 1564.56   205.3 1564.59   205.4 1564.59
   205.5 1564.59   205.8 1564.62     206 1564.62   206.1 1564.63   206.3 1564.66
   206.5 1564.68   206.5 1564.69   206.6 1564.69   206.7 1564.69   206.8 1564.69
     207 1564.72   207.1 1564.73   207.2 1564.74   207.3 1564.75   207.4 1564.76
   207.5 1564.77   207.5 1564.78   207.8 1564.81   207.9 1564.82   207.9 1564.84
     208 1564.85   208.2 1564.83   208.3 1564.81   208.4 1564.81   208.5  1564.8
   208.7 1564.78   208.8 1564.76   208.9 1564.77     209 1564.78   209.2 1564.81
   209.3 1564.82   209.4 1564.84   209.5 1564.84   209.6 1564.85   209.7 1564.85
   209.8 1564.85   209.9 1564.85   210.2 1564.85   210.3 1564.85   210.4 1564.85
   210.6 1564.84   210.8 1564.84   210.8 1564.85   212.1 1564.88   212.3  1564.9
   212.3 1564.91   212.5 1564.91   212.8 1564.93   212.8 1564.94     213 1564.96
     213 1564.97   213.1 1564.97   213.2 1564.97   213.3 1564.98   213.4 1564.97
   213.6 1564.96   213.7 1564.96     214 1564.99     214 1565.01   214.1 1565.03
   214.3 1565.06   214.5 1565.06   214.7 1565.07   214.9 1565.09     215 1565.09
   215.2 1565.09   215.3 1565.09   215.6 1565.09   215.7 1565.09   215.9 1565.09
     216 1565.09   216.2 1565.11   216.3 1565.12   216.4 1565.12   216.5 1565.12
   216.6 1565.13   216.7 1565.15   216.8 1565.15     217 1565.15   217.1 1565.16
   217.3 1565.18   217.8 1565.22     218 1565.19   218.1 1565.19   218.3 1565.16
   218.5 1565.19   218.6 1565.19   218.8 1565.22     219 1565.25   219.1 1565.25
   219.3 1565.28   223.6 1565.41   223.8 1565.43   223.8 1565.44     224 1565.47
   224.1 1565.47   224.3  1565.5   224.5  1565.5   224.6  1565.5   224.8 1565.53
     225 1565.53   225.1 1565.53   225.3 1565.56   225.5 1565.56   225.8 1565.57
   225.9 1565.58     226 1565.59   226.4 1565.63   226.5 1565.63   226.6 1565.63
   226.6 1565.64   226.7 1565.65   226.8 1565.66     227 1565.66   228.1 1565.66
   228.2 1565.65   228.4 1565.64   228.5 1565.63   228.6 1565.62   228.6 1565.64
   228.7 1565.65   228.9 1565.67   229.1 1565.69   229.2 1565.71   229.3 1565.72
   229.5 1565.72   232.1 1565.72 232.435 1565.75

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03   112.7     .03     192     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         112.7     192               346   355.7     358             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0   112.7    1566       F
   191.5 232.435    1566       F

CROSS SECTION OUTPUT  Profile #BFE

  E.G. Elev (ft)           1566.48    Element                  Left OB    Channel   Right OB
```

Vel Head (ft)	1.16	Wt. n-Val.		0.030	
W.S. Elev (ft)	1565.32	Reach Len. (ft)	346.00	355.70	358.00
Crit W.S. (ft)	1565.32	Flow Area (sq ft)		184.59	
E.G. Slope (ft/ft)	0.009842	Area (sq ft)	15.52	185.40	20.86
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	149.14	Top Width (ft)	41.28	79.30	28.56
Vel Total (ft/s)	8.64	Avg. Vel. (ft/s)		8.64	
Max Chl Dpth (ft)	3.07	Hydr. Depth (ft)		2.34	
Conv. Total (cfs)	16077.6	Conv. (cfs)		16077.6	
Length Wtd. (ft)	355.70	Wetted Per. (ft)		79.16	
Min Ch El (ft)	1562.25	Shear (lb/sq ft)		1.43	
Alpha	1.00	Stream Power (lb/ft s)		12.38	
Frctn Loss (ft)	3.56	Cum Volume (acre-ft)	0.06	3.47	0.09
C & E Loss (ft)	0.05	Cum SA (acres)	0.18	2.01	0.13

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1566.48	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.16	Wt. n-Val.		0.030	
W.S. Elev (ft)	1565.32	Reach Len. (ft)	346.00	355.70	358.00
Crit W.S. (ft)	1565.32	Flow Area (sq ft)		184.59	
E.G. Slope (ft/ft)	0.009842	Area (sq ft)	0.88	185.40	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	80.00	Top Width (ft)	0.70	79.30	
Vel Total (ft/s)	8.64	Avg. Vel. (ft/s)		8.64	
Max Chl Dpth (ft)	3.07	Hydr. Depth (ft)		2.34	
Conv. Total (cfs)	16077.6	Conv. (cfs)		16077.6	
Length Wtd. (ft)	355.70	Wetted Per. (ft)		79.16	
Min Ch El (ft)	1562.25	Shear (lb/sq ft)		1.43	
Alpha	1.00	Stream Power (lb/ft s)		12.38	
Frctn Loss (ft)	3.62	Cum Volume (acre-ft)	0.00	3.45	
C & E Loss (ft)	0.04	Cum SA (acres)	0.02	2.01	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated

water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/fts)
1	LOB	22.54	45.08	0.00	4.55	17.20	0.00	0.26	0.00	0.16	0.00
2	LOB	45.08	67.62	0.00	0.36	5.87	0.00	0.06	0.00	0.04	0.00
3	LOB	67.62	90.16							0.00	0.00
4	LOB	90.16	112.70	0.00	10.61	18.35	0.00	0.58	0.00	0.36	0.00
5	Chan	112.70	128.46	205.09	28.55	15.85	12.86	1.81	7.18	1.11	7.95
6	Chan	128.46	144.22	317.84	37.13	15.83	19.93	2.36	8.56	1.44	12.33
7	Chan	144.22	159.98	441.63	45.19	15.80	27.69	2.87	9.77	1.76	17.18
8	Chan	159.98	175.74	360.31	40.07	15.87	22.59	2.54	8.99	1.55	13.95
9	Chan	175.74	191.50	270.13	33.66	15.81	16.94	2.14	8.03	1.31	10.50
10	Chan	191.50	192.00	0.00	0.81	0.50	0.00	1.62	0.00	0.99	0.00
11	ROB	192.00	200.09	0.00	10.82	8.15	0.00	1.34	0.00	0.81	0.00
12	ROB	200.09	208.17	0.00	6.49	8.17	0.00	0.80	0.00	0.49	0.00
13	ROB	208.17	216.26	0.00	3.14	8.17	0.00	0.39	0.00	0.24	0.00
14	ROB	216.26	224.35	0.00	0.43	4.31	0.00	0.10	0.00	0.06	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	90.16	112.70	0.00	0.88	1.91	0.00	1.25	0.00	0.28	0.00
2	Chan	112.70	128.46	205.09	28.55	15.85	12.86	1.81	7.18	1.11	7.95
3	Chan	128.46	144.22	317.84	37.13	15.83	19.93	2.36	8.56	1.44	12.33
4	Chan	144.22	159.98	441.63	45.19	15.80	27.69	2.87	9.77	1.76	17.18
5	Chan	159.98	175.74	360.31	40.07	15.87	22.59	2.54	8.99	1.55	13.95
6	Chan	175.74	191.50	270.13	33.66	15.81	16.94	2.14	8.03	1.31	10.50
7	Chan	191.50	192.00	0.00	0.81	2.11	0.00	1.62	0.00	0.24	0.00

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 200

INPUT
Description:
Station Elevation Data num= 441

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1562.31	7.7	1562.38	8.7	1562.31	9.7	1562.41	15.7	1562.44
17.2	1562.32	17.9	1562.38	19.2	1562.28	22.9	1562.28	26.4	1562.39
29.2	1562.38	39.2	1562.81	44.7	1562.75	46.9	1562.69	49.8	1562.42
51.2	1562.39	53.7	1562.19	54	1562.24	59.1	1561.94	62.7	1561.63
66.1	1561.25	68.4	1561.14	70.4	1560.88	72.2	1560.78	72.4	1560.72
72.5	1560.72	72.7	1560.69	72.9	1560.66	73.9	1560.63	77.9	1560.07
79.7	1559.97	82.2	1559.61	82.9	1559.59	841	559.477	86.8	1559.19
871	559.172	89.9	1558.91	91.6	1558.88	94	1558.74	95.9	1558.78
98.5	1558.72	99.9	1558.84	102.1	1558.93	107	1558.93	107.2	1558.91

107.5	1558.91	107.7	1558.9	107.8	1558.9	107.9	1558.88
108	1558.88	108.1	1558.88	108.2	1558.88	108.6	1558.85
108.7	1558.84	108.9	1558.84	109	1558.83	109.4	1558.79
109.7	1558.74	110.7	1558.75	112.7	1558.57	116.4	1558.47
118.2	1558.34	125.5	1558.28	128	1558.19	129.9	1558.28
130	1558.28	130	1558.29	130.2	1558.31	130.2	1558.32
130.4	1558.37	130.5	1558.37	133.2	1558.28	135.7	1558.44
137.7	1558.47	139.5	1558.65	139.5	1558.66	140.2	1558.75
140.5	1558.81	141.7	1558.78	144	1558.94	145.2	1558.84
149.2	1558.75	152.3	1558.48	153.7	1558.43	155.5	1558.19
157.5	1558	160.3	1557.51	162	1557.41	164.7	1557.09
169.9	1556.8	173.5	1556.88	176	1556.74	178.5	1556.81
180.2	1556.78	180.3	1556.78	180.4	1556.78	180.5	1556.78
180.7	1556.79	180.8	1556.79	180.9	1556.79	181	1556.79
181.2	1556.81	181.3	1556.81	181.5	1556.82	181.8	1556.82
182	1556.84	182.5	1556.84	182.7	1556.84	183	1556.81
183.2	1556.81	183.5	1556.81	186.5	1556.84	186.6	1556.86
186.7	1556.88	187	1556.91	187.1	1556.91	187.4	1556.91
187.5	1556.92	187.6	1556.92	187.7	1556.92	187.8	1556.92
187.9	1556.92	188	1556.92	188.2	1556.92	188.3	1556.92
188.6	1556.92	188.7	1556.91	188.8	1556.91	188.9	1556.91
189	1556.91	189.3	1556.91	189.4	1556.91	189.5	1556.9
191.5	1556.81	194.4	1556.81	194.6	1556.79	194.7	1556.78
194.9	1556.78	195	1556.78	195.2	1556.78	195.6	1556.77
195.8	1556.75	195.9	1556.75	196.1	1556.74	196.3	1556.76
196.4	1556.76	196.5	1556.78	196.6	1556.78	196.8	1556.79
197.1	1556.81	200.8	1556.75	205.1	1556.88	205.2	1556.88
205.3	1556.88	205.4	1556.88	205.5	1556.88	205.6	1556.88
205.7	1556.88	205.9	1556.87	206	1556.87	206.2	1556.84
206.3	1556.84	206.5	1556.84	206.7	1556.79	206.8	1556.79
207.2	1556.84	207.3	1556.85	207.5	1556.88	207.7	1556.88
208	1556.91	211.1	1556.92	211.4	1556.95	211.5	1556.96
211.7	1556.99	211.9	1556.99	212	1557	214.1	1557.02
214.3	1557	214.5	1557	214.6	1556.99	214.7	1556.98
214.8	1556.97	215	1556.97	215	1556.96	215.2	1556.94
215.3	1556.94	215.7	1556.94	218.3	1557.03	218.3	1557.02
218.4	1557.01	218.5	1557	218.7	1556.98	218.8	1556.97
218.8	1556.96	218.9	1556.95	222	1557.05	226	1557.25
229	1557.53	229.1	1557.53	229.3	1557.53	229.4	1557.54
229.5	1557.55	229.6	1557.56	229.8	1557.56	229.9	1557.56
230	1557.56	230.1	1557.57	230.3	1557.59	230.4	1557.61
230.5	1557.62	232.1	1557.78	232.2	1557.81	232.3	1557.81
232.5	1557.84	232.7	1557.87	232.8	1557.88	233	1557.9
233	1557.91	233.3	1557.94	233.5	1557.97	233.8	1557.91
236.8	1558.31	236.9	1558.29	237	1558.28	237.1	1558.29
237.2	1558.3	237.3	1558.31	237.6	1558.36	237.9	1558.4
238	1558.42	238.1	1558.44	238.3	1558.45	238.5	1558.52
238.6	1558.54	238.7	1558.55	238.8	1558.57	238.9	1558.59
238.9	1558.6	239	1558.61	239.1	1558.63	239.2	1558.65
239.3	1558.67	239.4	1558.7	239.5	1558.71	239.6	1558.72
239.7	1558.73	239.8	1558.74	240	1558.79	240	1558.8
240.2	1558.83	240.3	1558.84	240.5	1558.86	240.5	1558.87
240.7	1558.87	240.8	1558.87	241	1558.85	243.2	1559.46
243.3	1559.47	243.3	1559.48	243.5	1559.5	243.6	1559.51
243.7	1559.53	243.8	1559.54	244.1	1559.58	244.3	1559.6
244.3	1559.61	244.4	1559.62	244.5	1559.63	244.6	1559.64
244.7	1559.66	244.8	1559.68	244.9	1559.69	245.1	1559.71
245.2	1559.72	245.4	1559.74	245.5	1559.75	245.6	1559.76
245.8	1559.76	245.9	1559.78	246	1559.8	246.1	1559.83
246.3	1559.86	246.4	1559.88	246.5	1559.89	246.6	1559.91
246.7	1559.92	246.8	1559.94	246.9	1559.97	246.9	1559.98
247	1560.01	247.1	1560.03	247.2	1560.03	247.3	1560.05

247.4	1560.07	247.5	1560.11	247.7	1560.14	247.8	1560.15
250	1560.72	251.3	1560.97	251.3	1560.98	251.5	1561.03
251.5	1561.05	251.8	1561.14	252	1561.21	252	1561.22
252.1	1561.23	252.3	1561.29	252.5	1561.36	252.5	1561.38
252.6	1561.39	252.7	1561.42	252.8	1561.44	252.8	1561.45
252.9	1561.46	253	1561.48	253.1	1561.5	253.2	1561.52
253.3	1561.54	253.4	1561.58	253.5	1561.6	253.7	1561.62
253.8	1561.64	253.9	1561.66	253.9	1561.67	254	1561.69
254.1	1561.71	254.2	1561.71	254.3	1561.73	254.4	1561.75
254.5	1561.76	254.6	1561.79	254.8	1561.81	254.9	1561.84
255	1561.86	255.1	1561.88	255.2	1561.89	255.3	1561.91
255.4	1561.94	255.5	1561.96	255.6	1561.97	255.7	1561.98
255.9	1562.01	255.9	1562.03	256	1562.05	256.1	1562.06
256.2	1562.07	256.3	1562.1	256.4	1562.11	256.5	1562.12
256.6	1562.13	256.7	1562.15	257	1562.18	257.1	1562.18
257.2	1562.18	257.3	1562.19	257.5	1562.22	257.6	1562.23
257.7	1562.27	257.8	1562.28	258	1562.34	258	1562.35
259	1562.59	259.3	1562.59	259.5	1562.62	259.5	1562.63
259.7	1562.68	259.8	1562.69	260	1562.72	260.1	1562.73
260.2	1562.78	260.3	1562.79	260.5	1562.84	260.5	1562.85
260.6	1562.86	260.7	1562.9	260.8	1562.91	261	1562.98
261.1	1562.98	261.2	1563	261.4	1563.05	261.6	1563.08
261.7	1563.09	261.8	1563.1	261.9	1563.12	261.9	1563.14
262	1563.16	262.1	1563.17	262.2	1563.18	262.3	1563.2
262.4	1563.21	262.4	1563.22	262.5	1563.23	262.6	1563.26
262.7	1563.27	262.8	1563.3	262.9	1563.32	263	1563.34
263.1	1563.4	263.4	1563.47	263.5	1563.49	263.6	1563.49
263.7	1563.5	263.8	1563.5	263.9	1563.52	264	1563.54
264.2	1563.56	264.3	1563.57	264.4	1563.59	264.4	1563.6
264.5	1563.61	264.6	1563.62	264.7	1563.64	264.8	1563.65
264.9	1563.66	264.9	1563.67	265	1563.68	265.1	1563.69
265.2	1563.7	265.3	1563.71	265.3	1563.72	265.5	1563.74
265.5	1563.75	265.6	1563.77	265.7	1563.82	265.8	1563.84
266	1563.87	266.1	1563.88	266.2	1563.9	266.3	1563.91
266.6	1563.94	266.8	1563.97	267	1564	267.3	1564.03
267.5	1564.06	267.8	1564.12	267.8	1564.13	268	1564.15
268	1564.16	271.039	1564.58				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	87	.03	241	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
87	241	229	252.6	272	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	144	1562	F

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1560.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.00	Wt. n-Val.		0.030	0.030
W.S. Elev (ft)	1559.38	Reach Len. (ft)	229.00	252.60	272.00
Crit W.S. (ft)	1559.38	Flow Area (sq ft)		198.52	0.51
E.G. Slope (ft/ft)	0.010169	Area (sq ft)	0.22	241.82	0.51
Q Total (cfs)	1595.00	Flow (cfs)		1593.98	1.02
Top Width (ft)	157.97	Top Width (ft)	2.05	154.00	1.91

Vel Total (ft/s)	8.01	Avg. Vel. (ft/s)		8.03	2.01
Max Chl Dpth (ft)	2.64	Hydr. Depth (ft)		2.05	0.27
Conv. Total (cfs)	15816.6	Conv. (cfs)		15806.5	10.1
Length Wtd. (ft)	252.61	Wetted Per. (ft)		97.40	1.98
Min Ch El (ft)	1556.74	Shear (lb/sq ft)		1.29	0.16
Alpha	1.00	Stream Power (lb/ft s)		10.39	0.33
Frctn Loss (ft)	1.27	Cum Volume (acre-ft)	0.00	1.72	0.00
C & E Loss (ft)	0.20	Cum SA (acres)	0.01	1.06	0.01

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1560.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.02	Wt. n-Val.		0.030	
W.S. Elev (ft)	1559.36	Reach Len. (ft)	229.00	252.60	272.00
Crit W.S. (ft)	1559.36	Flow Area (sq ft)		196.80	
E.G. Slope (ft/ft)	0.010555	Area (sq ft)	0.18	239.10	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	155.88	Top Width (ft)	1.88	154.00	
Vel Total (ft/s)	8.10	Avg. Vel. (ft/s)		8.10	
Max Chl Dpth (ft)	2.62	Hydr. Depth (ft)		2.03	
Conv. Total (cfs)	15524.9	Conv. (cfs)		15524.9	
Length Wtd. (ft)	252.60	Wetted Per. (ft)		97.91	
Min Ch El (ft)	1556.74	Shear (lb/sq ft)		1.32	
Alpha	1.00	Stream Power (lb/ft s)		10.73	
Frctn Loss (ft)	1.29	Cum Volume (acre-ft)	0.00	1.71	
C & E Loss (ft)	0.21	Cum SA (acres)	0.00	1.06	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	69.60	87.00	0.00	0.22	2.06	0.00	0.11	0.00	0.07	0.00
2	Chan	87.00	115.50	0.00	15.98	28.54	0.00	0.56	0.00	0.36	0.00
3	Chan	115.50	144.00	0.00	27.32	28.58	0.00	0.96	0.00	0.61	0.00
4	Chan	144.00	176.33	368.99	53.77	32.45	23.13	1.66	6.86	1.05	7.22
5	Chan	176.33	208.67	757.80	82.73	32.38	47.51	2.56	9.16	1.62	14.86
6	Chan	208.67	241.00	467.19	62.02	32.56	29.29	1.92	7.53	1.21	9.11
7	ROB	241.00	247.01	1.02	0.51	1.98	0.06	0.27	2.01	0.16	0.33

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	LOB	69.60	87.00	0.00	0.18	1.89	0.00	0.10	0.00	0.06	0.00
2	Chan	87.00	115.50	0.00	15.48	28.54	0.00	0.54	0.00	0.36	0.00

3	Chan	115.50	144.00	0.00	26.82	28.58	0.00	0.94	0.00	0.62
0.00										
4	Chan	144.00	176.33	368.99	53.19	32.45	23.13	1.65	6.94	1.08
7.49										
5	Chan	176.33	208.67	762.55	82.15	32.38	47.81	2.54	9.28	1.67
15.52										
6	Chan	208.67	241.00	463.46	61.45	33.07	29.06	1.90	7.54	1.22
9.23										

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: PULSIPHER WASH
REACH: REV EFFFECTIVE RS: 150

INPUT
Description:
Station Elevation Data num= 448

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1561.3	9.5	1560.97	12.7	1561.12	15.7	1561.04	16.8	1561.16
18.3	1561.02	30.7	1561.08	38.4	1560.91	40.8	1561.04	42.8	1560.94
47.3	1561.03	51.1	1560.83	54.1	1560.89	63.3	1560.69	65.7	1560.93
74.4	1560.81	76.4	1561.04	78	1561.03	80.7	1560.78	84.5	1560.79
93.4	1560.24	99.3	1559.17	108.8	1558.51	111.4	1557.73	112.3	1557.66
116.2	1557.65	122.9	1557.3	126.4	1557.48	129	1557.19	131.4	1557.11
139.6	1557.22	141.6	1556.86	142.4	1556.9	143.9	1557.47	145.7	1557.59
146.9	1557	148.5	1556.58	157.8	1556.41	165.2	1556.02	169.9	1556.19
175.2	1555.7	183.6	1555.69	183.7	1555.68	183.8	1555.67	183.9	1555.66
184	1555.66	184.1	1555.66	184.2	1555.65	184.3	1555.65	184.4	1555.65
186.6	1555.28	189.8	1555.12	192.5	1555.41	193.9	1554.81	195.6	1553.62
196.7	1553.47	199.3	1553.51	203.2	1554.21	204.1	1554.44	204.1	1554.46
204.2	1554.48	204.3	1554.54	205.3	1554.91	205.4	1554.98	205.4	1555
205.5	1555.02	205.6	1555.04	205.7	1555.08	207	1555.25	207.1	1555.24
207.3	1555.22	207.4	1555.2	207.5	1555.19	207.6	1555.16	207.7	1555.15
207.8	1555.12	208.9	1554.72	209.1	1554.52	209.1	1554.49	209.1	1554.45
209.9	1553.84	211.4	1553.58	212.7	1553.56	217.9	1553.84	219.7	1554.39

220.4	1554.44	222.8	1554.35	222.8	1554.34	223.2	1554.26	224.1	1554.1
227.5	1554.03	237.3	1554.49	241.3	1554.09	242.8	1554.09	245	1554.45
250.8	1555.81	254.1	1556.44	263.5	1556.5	269.2	1556.33	288.6	1556.62
298	1556.38	300.9	1556.58	305.4	1556.2	312.6	1556.31	318.6	1555.74
320.7	1556.08	324.3	1555.56	330.3	1556.66	332.1	1556.72	333.2	1556.65
336.9	1559.12	337	1559.18	338.8	1559.73	338.8	1559.74	339	1559.78
339	1559.82	339.1	1559.88	339.2	1559.91	339.3	1559.93	339.4	1560.02
339.5	1560.04	343.8	1562.4	344	1562.45	344	1562.47	344.1	1562.48
344.3	1562.57	344.5	1562.64	344.5	1562.66	344.8	1562.62	344.9	1562.63
345	1562.64	345.1	1562.64	345.2	1562.64	345.3	1562.64	345.4	1562.63
345.5	1562.62	345.6	1562.62	345.8	1562.62	346.1	1562.63	346.2	1562.65
346.3	1562.66	346.4	1562.67	346.5	1562.68	346.7	1562.7	346.8	1562.72
346.9	1562.74	347	1562.75	347.1	1562.77	347.1	1562.78	347.3	1562.86
347.6	1562.96	347.6	1562.97	347.8	1563.03	347.8	1563.05	347.9	1563.08
348	1563.12	348.2	1563.22	348.3	1563.28	348.4	1563.32	348.5	1563.35
348.6	1563.39	348.6	1563.43	349.1	1563.66	349.3	1563.78	349.4	1563.83
349.5	1563.89	349.6	1563.93	349.8	1564.05	349.9	1564.1	350	1564.12
350.2	1564.2	350.3	1564.28	350.6	1564.37	350.6	1564.38	350.8	1564.4
351.1	1564.42	351.2	1564.41	351.3	1564.41	351.4	1564.41	352.3	1564.33
355.1	1563.99	355.2	1563.99	355.4	1563.99	355.7	1564	355.7	1564.01
355.8	1564.02	355.9	1564.03	356	1564.04	356.1	1564.05	356.2	1564.06
356.3	1564.11	356.5	1564.21	359	1564.53	359.1	1564.54	359.2	1564.54
359.3	1564.54	359.5	1564.55	363.8	1564.2	363.9	1564.21	363.9	1564.22
364	1564.22	364.1	1564.22	364.2	1564.22	364.6	1564.23	364.8	1564.23
365	1564.23	365.1	1564.23	365.2	1564.25	365.3	1564.25	368.3	1564.76
368.4	1564.76	368.5	1564.75	368.6	1564.75	368.7	1564.72	368.8	1564.69
368.9	1564.66	369	1564.64	370.6	1564.17	373.6	1564.18	373.7	1564.17
373.8	1564.15	373.9	1564.14	374	1564.13	374.1	1564.09	374.2	1564.08
374.3	1564.06	375.7	1564.01	378.2	1564.15	378.3	1564.26	378.4	1564.38
383	1564.72	383.1	1564.68	383.1	1564.67	383.3	1564.62	383.3	1564.61
383.5	1564.58	383.6	1564.56	384	1564.51	384.2	1564.49	386.5	1564.4
386.6	1564.4	386.6	1564.39	386.8	1564.37	388.9	1564.06	390.9	1563.53
391.6	1563.58	391.7	1563.58	391.9	1563.58	392.1	1563.58	392.2	1563.57
392.3	1563.56	392.4	1563.55	394.4	1563.18	394.5	1563.19	394.6	1563.18
394.7	1563.18	395.4	1563.26	395.5	1563.27	395.6	1563.28	395.7	1563.29
395.9	1563.31	396	1563.32	398.7	1563.68	398.8	1563.66	399	1563.65
400.5	1563.51	402.1	1563.63	402.1	1563.64	402.3	1563.67	402.4	1563.7
404.5	1563.93	409.1	1563.35	409.2	1563.34	409.3	1563.32	409.5	1563.24
409.6	1563.22	409.7	1563.19	409.7	1563.16	409.8	1563.12	410	1563.07
410.1	1563.01	418.1	1562.35	418.5	1562.36	418.5	1562.37	418.7	1562.4
418.9	1562.44	419	1562.44	419	1562.46	419.1	1562.49	419.2	1562.51
419.3	1562.53	419.4	1562.54	419.6	1562.59	419.7	1562.6	419.8	1562.62
419.9	1562.65	420	1562.66	420	1562.67	421.4	1563.15	423.3	1563.46
425.5	1564.01	425.6	1564.02	425.8	1564.04	425.9	1564.05	426	1564.05
426.3	1564.06	426.6	1564.03	426.9	1564.02	427	1564	427.1	1563.99
427.2	1563.98	427.2	1563.97	427.3	1563.96	427.4	1563.95	427.5	1563.95
427.6	1563.94	427.9	1563.92	428.1	1563.92	428.3	1563.91	428.4	1563.91
428.5	1563.9	430.8	1564.29	433.3	1564.16	433.4	1564.15	433.5	1564.17
433.8	1564.21	433.9	1564.24	434	1564.25	434.1	1564.27	434.1	1564.28
434.2	1564.26	434.4	1564.19	434.5	1564.18	434.6	1564.15	434.7	1564.14

434.8	1564.1	434.9	1564.09	435	1564.07	435.1	1564.06	435.2	1564.04
435.3	1564.02	438.5	1563.93	438.6	1563.93	439	1563.94	439.2	1563.97
439.4	1564.03	439.5	1564.04	439.5	1564.05	439.6	1564.09	439.8	1564.13
439.9	1564.14	440.2	1564.18	440.3	1564.17	440.4	1564.16	440.5	1564.16
440.5	1564.15	440.7	1564.13	440.8	1564.12	441	1564.1	441.2	1564.08
441.2	1564.07	443.4	1564.19	446	1563.89	446	1563.9	446.1	1563.92
446.4	1563.99	446.6	1564.05	446.7	1564.08	446.8	1564.09	447	1564.16
447.1	1564.16	447.1	1564.17	447.3	1564.23	447.6	1564.31	447.7	1564.32
447.8	1564.32	447.9	1564.34	448	1564.34	448.1	1564.36	448.2	1564.37
448.3	1564.38	448.4	1564.4	448.6	1564.42	448.6	1564.43	448.7	1564.46
448.8	1564.48	448.8	1564.49	448.9	1564.5	449	1564.57	449.1	1564.6
449.2	1564.63	449.3	1564.69	449.7	1564.9	449.8	1564.92	449.8	1564.94
450.3	1565.03	453.8	1565.21	453.9	1565.21	454.1	1565.21	454.3	1565.19
454.4	1565.17	454.5	1565.16	454.6	1565.15	454.7	1565.15	454.9	1565.14
455	1565.14	455.1	1565.14	455.4	1565.09	455.4	1565.08	455.5	1565.06
455.6	1565.03	455.8	1564.96	455.9	1564.91	456	1564.89	456.1	1564.87
456.2	1564.85	456.2	1564.83	456.4	1564.78	456.4	1564.77	456.5	1564.76
456.6	1564.73	456.7	1564.72	456.7	1564.71	456.9	1564.67	456.9	1564.66
457	1564.66	457.1	1564.63	457.2	1564.62	461.4	1564.66	463.5	1564.55
463.6	1564.53	463.7	1564.53	463.8	1564.51	463.9	1564.48	463.9	1564.47
464	1564.45	464.1	1564.43	464.2	1564.41	464.3	1564.39	464.5	1564.34
464.7	1564.36	464.8	1564.36	464.8	1564.37	465	1564.38	465	1564.39
465.1	1564.41	465.2	1564.43	465.2	1564.44				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.025	78	.025	351.3	.025

Bank Sta: Left	Right	Coeff Contr.	Expan.
78	351.3	.1	.3

CROSS SECTION OUTPUT Profile #BFE

E.G. Elev (ft)	1557.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.		0.025	
W.S. Elev (ft)	1557.46	Reach Len. (ft)			
Crit W.S. (ft)	1556.91	Flow Area (sq ft)		351.70	
E.G. Slope (ft/ft)	0.003006	Area (sq ft)		351.70	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	211.67	Top Width (ft)		211.67	
Vel Total (ft/s)	4.54	Avg. Vel. (ft/s)		4.54	
Max Chl Dpth (ft)	3.99	Hydr. Depth (ft)		1.66	
Conv. Total (cfs)	29093.8	Conv. (cfs)		29093.8	
Length Wtd. (ft)		Wetted Per. (ft)		214.19	
Min Ch El (ft)	1553.47	Shear (lb/sq ft)		0.31	
Alpha	1.00	Stream Power (lb/ft s)		1.40	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #FLOODWAY

E.G. Elev (ft)	1557.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.		0.025	
W.S. Elev (ft)	1557.46	Reach Len. (ft)			
Crit W.S. (ft)	1556.91	Flow Area (sq ft)		351.70	
E.G. Slope (ft/ft)	0.003006	Area (sq ft)		351.70	
Q Total (cfs)	1595.00	Flow (cfs)		1595.00	
Top Width (ft)	211.67	Top Width (ft)		211.67	
Vel Total (ft/s)	4.54	Avg. Vel. (ft/s)		4.54	
Max Chl Dpth (ft)	3.99	Hydr. Depth (ft)		1.66	
Conv. Total (cfs)	29093.8	Conv. (cfs)		29093.8	
Length Wtd. (ft)		Wetted Per. (ft)		214.19	
Min Ch El (ft)	1553.47	Shear (lb/sq ft)		0.31	
Alpha	1.00	Stream Power (lb/ft s)		1.40	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.

Profile #BFE

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)
1	Chan	78.00	132.66	1.60	1.94	12.06	0.10	0.16	0.83	0.03	0.02
2	Chan	132.66	187.32	180.15	59.58	52.92	11.29	1.13	3.02	0.21	0.64
3	Chan	187.32	241.98	1040.07	174.57	56.07	65.21	3.19	5.96	0.58	3.48
4	Chan	241.98	296.64	226.69	69.40	54.91	14.21	1.27	3.27	0.24	0.77
5	Chan	296.64	351.30	146.49	46.20	38.23	9.18	1.22	3.17	0.23	0.72

Warning: Divided flow computed for this cross-section.

Profile #FLOODWAY

	Pos	Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	Percent Conv	Hydr Depth(ft)	Velocity (ft/s)	Shear (lb/sq ft)	Power (lb/ft s)

1	Chan	78.00	132.66	1.60	1.94	12.06	0.10	0.16	0.83	0.03
0.02										
2	Chan	132.66	187.32	180.15	59.58	52.92	11.29	1.13	3.02	0.21
0.64										
3	Chan	187.32	241.98	1040.07	174.57	56.07	65.21	3.19	5.96	0.58
3.48										
4	Chan	241.98	296.64	226.69	69.40	54.91	14.21	1.27	3.27	0.24
0.77										
5	Chan	296.64	351.30	146.49	46.20	38.23	9.18	1.22	3.17	0.23
0.72										

Warning: Divided flow computed for this cross-section.

SUMMARY OF MANNING'S N VALUES

River:PULSIPHER WASH

Reach	River Sta.	n1	n2	n3
REV EFFFECTIVE	2590	.04	.025	.04
REV EFFFECTIVE	2500	.04	.025	.04
REV EFFFECTIVE	2400	.04	.025	.04
REV EFFFECTIVE	2350	.04	.025	.04
REV EFFFECTIVE	2330	.04	.025	.04
REV EFFFECTIVE	2300	.04	.025	.04
REV EFFFECTIVE	2200	.04	.025	.04
REV EFFFECTIVE	2100	.04	.025	.04
REV EFFFECTIVE	2000.1	.025	.015	.025
REV EFFFECTIVE	2000	.025	.015	.025
REV EFFFECTIVE	1950	Bridge		
REV EFFFECTIVE	1900	.025	.015	.025
REV EFFFECTIVE	1800	.04	.025	.04
REV EFFFECTIVE	1750	.04	.025	.04
REV EFFFECTIVE	1700	.04	.025	.04
REV EFFFECTIVE	1650	.04	.025	.04
REV EFFFECTIVE	1600	.04	.025	.04
REV EFFFECTIVE	1550	.035	.025	.035
REV EFFFECTIVE	1540	.035	.025	.035
REV EFFFECTIVE	1520	Bridge		
REV EFFFECTIVE	1510	.035	.025	.035
REV EFFFECTIVE	1500	.035	.025	.035
REV EFFFECTIVE	1450	.035	.025	.035
REV EFFFECTIVE	1400	.035	.025	.035
REV EFFFECTIVE	1350	.035	.025	.035
REV EFFFECTIVE	1300	.035	.025	.035
REV EFFFECTIVE	1250	.04	.025	.04
REV EFFFECTIVE	1200	.04	.025	.04

REV EFFFECTIVE	1100	.04	.025	.04
REV EFFFECTIVE	1000	.04	.025	.04
REV EFFFECTIVE	900	.04	.025	.04
REV EFFFECTIVE	800	.04	.025	.04
REV EFFFECTIVE	700	.04	.025	.04
REV EFFFECTIVE	600	.04	.025	.04
REV EFFFECTIVE	580	.025	.015	.025
REV EFFFECTIVE	550.	Bridge		
REV EFFFECTIVE	430	.025	.015	.025
REV EFFFECTIVE	415	.025	.015	.025
REV EFFFECTIVE	365	.025	.04	.025
REV EFFFECTIVE	300	.03	.03	.03
REV EFFFECTIVE	200	.03	.03	.03
REV EFFFECTIVE	150	.025	.025	.025

SUMMARY OF REACH LENGTHS

River: PULSIPHER WASH

Reach	River Sta.	Left	Channel	Right
REV EFFFECTIVE	2590	252	224	208
REV EFFFECTIVE	2500	180	183	184
REV EFFFECTIVE	2400	68	72	73
REV EFFFECTIVE	2350	63	63	63
REV EFFFECTIVE	2330	238	243	234
REV EFFFECTIVE	2300	312	308.8	303
REV EFFFECTIVE	2200	307	359.7	385
REV EFFFECTIVE	2100	108	99.8	104
REV EFFFECTIVE	2000.1	.1	.1	.1
REV EFFFECTIVE	2000	321.5	321.5	321.5
REV EFFFECTIVE	1950	Bridge		
REV EFFFECTIVE	1900	19.6	24.7	32
REV EFFFECTIVE	1800	168	174.6	176
REV EFFFECTIVE	1750	186	186	193
REV EFFFECTIVE	1700	150.2	150.2	160
REV EFFFECTIVE	1650	187.1	187.1	187.1
REV EFFFECTIVE	1600	39	32.1	16
REV EFFFECTIVE	1550	10	10	10
REV EFFFECTIVE	1540	99	99	99
REV EFFFECTIVE	1520	Bridge		
REV EFFFECTIVE	1510	11.9	11.9	11.9
REV EFFFECTIVE	1500	56	48	39
REV EFFFECTIVE	1450	50	45	41
REV EFFFECTIVE	1400	81	81	81
REV EFFFECTIVE	1350	72	76	77
REV EFFFECTIVE	1300	90	88	85

REV EFFFECTIVE	1250	84.6	84.6	84.6
REV EFFFECTIVE	1200	110	109.8	116
REV EFFFECTIVE	1100	106.5	107.2	112
REV EFFFECTIVE	1000	117	120.2	120.2
REV EFFFECTIVE	900	97	96.4	96.4
REV EFFFECTIVE	800	131	141.6	143
REV EFFFECTIVE	700	118.3	118.3	120
REV EFFFECTIVE	600	69	67.6	62
REV EFFFECTIVE	580	152.1	152.1	152.1
REV EFFFECTIVE	550.	Bridge		
REV EFFFECTIVE	430	16	16	16
REV EFFFECTIVE	415	60	60	60
REV EFFFECTIVE	365	66	83	107
REV EFFFECTIVE	300	346	355.7	358
REV EFFFECTIVE	200	229	252.6	272
REV EFFFECTIVE	150			

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: PULSIPHER WASH

Reach	River Sta.	Contr.	Expan.
REV EFFFECTIVE	2590	.1	.3
REV EFFFECTIVE	2500	.1	.3
REV EFFFECTIVE	2400	.1	.3
REV EFFFECTIVE	2350	.1	.3
REV EFFFECTIVE	2330	.1	.3
REV EFFFECTIVE	2300	.1	.3
REV EFFFECTIVE	2200	.1	.3
REV EFFFECTIVE	2100	.1	.3
REV EFFFECTIVE	2000.1	.3	.5
REV EFFFECTIVE	2000	.3	.5
REV EFFFECTIVE	1950	Bridge	
REV EFFFECTIVE	1900	.3	.5
REV EFFFECTIVE	1800	.1	.3
REV EFFFECTIVE	1750	.1	.3
REV EFFFECTIVE	1700	.1	.3
REV EFFFECTIVE	1650	.1	.3
REV EFFFECTIVE	1600	.1	.3
REV EFFFECTIVE	1550	.3	.5
REV EFFFECTIVE	1540	.3	.5
REV EFFFECTIVE	1520	Bridge	
REV EFFFECTIVE	1510	.3	.5
REV EFFFECTIVE	1500	.1	.3
REV EFFFECTIVE	1450	.1	.3
REV EFFFECTIVE	1400	.1	.3

REV EFFFECTIVE	1350		.1	.3
REV EFFFECTIVE	1300		.1	.3
REV EFFFECTIVE	1250		.1	.3
REV EFFFECTIVE	1200		.1	.3
REV EFFFECTIVE	1100		.1	.3
REV EFFFECTIVE	1000		.1	.3
REV EFFFECTIVE	900		.1	.3
REV EFFFECTIVE	800		.1	.3
REV EFFFECTIVE	700		.1	.3
REV EFFFECTIVE	600		.3	.5
REV EFFFECTIVE	580		.3	.5
REV EFFFECTIVE	550.	Bridge		
REV EFFFECTIVE	430		.3	.5
REV EFFFECTIVE	415		.1	.3
REV EFFFECTIVE	365		.1	.3
REV EFFFECTIVE	300		.1	.3
REV EFFFECTIVE	200		.1	.3
REV EFFFECTIVE	150		.1	.3

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : REVISED EFFECTIVE

River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 2590 Profile: BFE
  Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
  Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
  Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
  Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 2590 Profile: FLOODWAY
  Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
  Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
  Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
  Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 2400 Profile: BFE
  Warning: Divided flow computed for this cross-section.
  Warning: The cross-section end points had to be extended vertically for the computed water surface.
  Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

River: PULSIPHER WASH Reach: REV EFFFECTIVE   RS: 2400   Profile: FLOODWAY
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
River: PULSIPHER WASH Reach: REV EFFFECTIVE   RS: 2350   Profile: BFE
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE   RS: 2350   Profile: FLOODWAY
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE   RS: 2330   Profile: BFE
     Warning:Divided flow computed for this cross-section.
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE   RS: 2330   Profile: FLOODWAY
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE   RS: 2300   Profile: BFE
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE   RS: 2300   Profile: FLOODWAY
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE   RS: 2200   Profile: BFE
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE   RS: 2200   Profile: FLOODWAY
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE   RS: 2100   Profile: BFE
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE   RS: 2100   Profile: FLOODWAY
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 2000.1 Profile: BFE
  Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
  Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
  Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
  Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
  Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 2000.1 Profile: FLOODWAY
  Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
  Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
  Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
  Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
  Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 2000 Profile: BFE
  Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
  Warning: Divided flow computed for this cross-section.
  Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 2000 Profile: FLOODWAY
  Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 1950 Profile: BFE
  Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 1950 Profile: BFE Upstream
  Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
  Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
  Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
  Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 1950 Profile: BFE Downstream
  Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 1950 Profile: FLOODWAY
  Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 1950 Profile: FLOODWAY Upstream
  Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 1950 Profile: FLOODWAY Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 1900 Profile: BFE
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 1900 Profile: FLOODWAY
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 1750 Profile: BFE
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 1750 Profile: FLOODWAY
Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning:The cross section had to be extended vertically during the critical depth calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning:The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 1700 Profile: BFE
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 1700 Profile: FLOODWAY
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 1650 Profile: BFE
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 1650 Profile: FLOODWAY
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 1600 Profile: BFE
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 1600 Profile: FLOODWAY
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

```
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
             water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
             program defaulted to critical depth.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1550     Profile: BFE
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1550     Profile: FLOODWAY
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1540     Profile: BFE
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1540     Profile: FLOODWAY
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1520     Profile: BFE
     Warning:Pier drag coefficient of 2.0 assumed for Class B flow.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1520     Profile: BFE Upstream
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1520     Profile: BFE Downstream
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1520     Profile: FLOODWAY
     Warning:Pier drag coefficient of 2.0 assumed for Class B flow.
     Note:   Momentum answer is not valid if the water surface is above the low chord or if there is weir flow.  The momentum
             answer has been disregarded.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1520     Profile: FLOODWAY Upstream
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1520     Profile: FLOODWAY Downstream
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1510     Profile: BFE
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
```

```
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1510     Profile: FLOODWAY
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
             used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1500     Profile: BFE
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1500     Profile: FLOODWAY
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1450     Profile: BFE
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1450     Profile: FLOODWAY
     Warning:The cross section had to be extended vertically during the critical depth calculations.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1400     Profile: BFE
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1400     Profile: FLOODWAY
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1350     Profile: BFE
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1350     Profile: FLOODWAY
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1300     Profile: BFE
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1300     Profile: FLOODWAY
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1200     Profile: BFE
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1200     Profile: FLOODWAY
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 1100     Profile: BFE
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
```

water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

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

River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 1100 Profile: FLOODWAY

Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

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

River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 1000 Profile: BFE

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 1000 Profile: FLOODWAY

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 900 Profile: BFE

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 900 Profile: FLOODWAY

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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

River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 800 Profile: BFE

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

River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 800 Profile: FLOODWAY

Warning:The cross section had to be extended vertically during the critical depth calculations.

Warning:The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

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

River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 700 Profile: BFE

Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning:Divided flow computed for this cross-section.

Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

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

River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 700 Profile: FLOODWAY

Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

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

River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 600 Profile: BFE

Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 600 Profile: FLOODWAY
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 580 Profile: BFE
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 580 Profile: FLOODWAY
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 550. Profile: BFE
Warning:Pier drag coefficient of 2.0 assumed for Class B flow.
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 550. Profile: BFE Upstream
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 550. Profile: BFE Downstream
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 550. Profile: FLOODWAY
Warning:Pier drag coefficient of 2.0 assumed for Class B flow.
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 550. Profile: FLOODWAY Upstream
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 550. Profile: FLOODWAY Downstream
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 430 Profile: BFE
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 430 Profile: FLOODWAY
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 415 Profile: BFE
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 415 Profile: FLOODWAY
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 365 Profile: BFE
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 365 Profile: FLOODWAY
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 300 Profile: BFE
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH Reach: REV EFFFECTIVE RS: 300 Profile: FLOODWAY
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

```
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 200     Profile: BFE
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
             water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
             program defaulted to critical depth.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 200     Profile: FLOODWAY
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
             water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
             program defaulted to critical depth.
     Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, energy was used.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 150     Profile: BFE
     Warning:Divided flow computed for this cross-section.
River: PULSIPHER WASH  Reach: REV EFFFECTIVE     RS: 150     Profile: FLOODWAY
     Warning:Divided flow computed for this cross-section.
```

ALTERNATIVES ANALYSIS

Alternatives Analysis

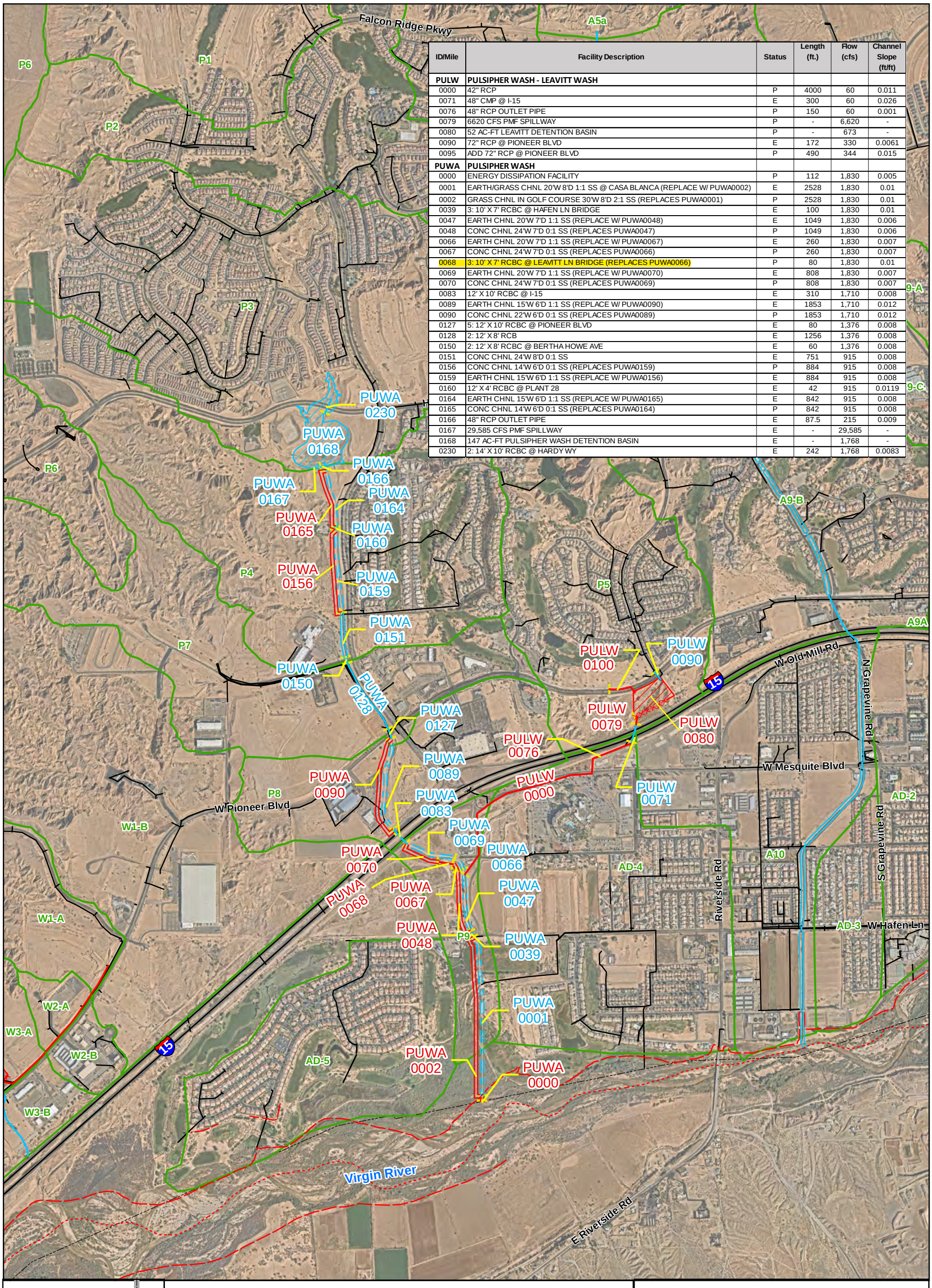
The City of Mesquite and its contractors reviewed several alternatives during the design and construction process. These alternatives included:

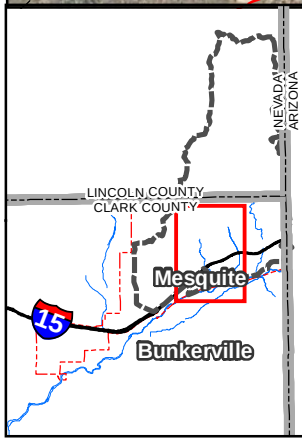
Consideration of a 3 barrel 10'w x 7' h box culvert at Leavitt Lane, which was made part of the Clark County Regional Flood Control District (CCRFCD) 2017 and 2022 Master Plan Update for Mesquite. Several alternatives were considered before adoption in the CCRFCD MPU, including:

- 5ft, 6 ft, and 7 ft high dimensions on the culvert
- A 3 barrel, 11'w x 7'h box culvert

Attached are culvert nomographs for the alternatives, including Figure ES-4 of the CCRFCD 2022 Mesquite MPU for facility PULW 0068, the proposed bridge at Leavitt Lane.

ID/Mile	Facility Description	Status	Length (ft.)	Flow (cfs)	Channel Slope (ft/ft)
PULW	**PULSIPHER WASH - LEAVITT WASH**				
0000	42" RCP	P	4000	60	0.011
0071	48" CMP @ I-15	E	300	60	0.026
0076	48" RCP OUTLET PIPE	P	150	60	0.001
0079	6620 CFS PMF SPILLWAY	P	-	6,620	-
0080	52 AC-FT LEAVITT DETENTION BASIN	P	-	673	-
0090	72" RCP @ PIONEER BLVD	E	172	330	0.0061
0095	ADD 72" RCP @ PIONEER BLVD	P	490	344	0.015
PUWA	**PULSIPHER WASH**				
0000	ENERGY DISSIPATION FACILITY	P	112	1,830	0.005
0001	EARTH/GRASS CHNL 20'W 8'D 1:1 SS @ CASA BLANCA (REPLACE W/ PUWA0002)	E	2528	1,830	0.01
0002	GRASS CHNL IN GOLF COURSE 30'W 8'D 2:1 SS (REPLACES PUWA0001)	P	2528	1,830	0.01
0039	3: 10' X 7' RCBC @ HAFEN LN BRIDGE	E	100	1,830	0.01
0047	EARTH CHNL 20'W 7'D 1:1 SS (REPLACE W/ PUWA0048)	E	1049	1,830	0.006
0048	CONC CHNL 24'W 7'D 0:1 SS (REPLACES PUWA0047)	P	1049	1,830	0.006
0066	EARTH CHNL 20'W 7'D 1:1 SS (REPLACE W/ PUWA0067)	E	260	1,830	0.007
0067	CONC CHNL 24'W 7'D 0:1 SS (REPLACES PUWA0066)	P	260	1,830	0.007
0068	3: 10' X 7' RCBC @ LEAVITT LN BRIDGE (REPLACES PUWA0066)	P	80	1,830	0.01
0069	EARTH CHNL 20'W 7'D 1:1 SS (REPLACE W/ PUWA0070)	E	808	1,830	0.007
0070	CONC CHNL 24'W 7'D 0:1 SS (REPLACES PUWA0069)	P	808	1,830	0.007
0083	12' X 10' RCBC @ I-15	E	310	1,710	0.008
0089	EARTH CHNL 15'W 6'D 1:1 SS (REPLACE W/ PUWA0090)	E	1853	1,710	0.012
0090	CONC CHNL 22'W 6'D 0:1 SS (REPLACES PUWA0089)	P	1853	1,710	0.012
0127	5: 12' X 10' RCBC @ PIONEER BLVD	E	80	1,376	0.008
0128	2: 12' X 8' RCB	E	1256	1,376	0.008
0150	2: 12' X 8' RCBC @ BERTHA HOWE AVE	E	60	1,376	0.008
0151	CONC CHNL 24'W 8'D 0:1 SS	E	751	915	0.008
0156	CONC CHNL 14'W 6'D 0:1 SS (REPLACES PUWA0159)	P	884	915	0.008
0159	EARTH CHNL 15'W 6'D 1:1 SS (REPLACE W/ PUWA0156)	E	884	915	0.008
0160	12' X 4' RCBC @ PLANT 28	E	42	915	0.0119
0164	EARTH CHNL 15'W 6'D 1:1 SS (REPLACE W/ PUWA0165)	E	842	915	0.008
0165	CONC CHNL 14'W 6'D 0:1 SS (REPLACES PUWA0164)	P	842	915	0.008
0166	48" RCP OUTLET PIPE	E	87.5	215	0.009
0167	29,585 CFS PMF SPILLWAY	E	-	29,585	-
0168	147 AC-FT PULSIPHER WASH DETENTION BASIN	E	-	1,768	-
0230	2: 14' X 10' RCBC @ HARDY WY	E	242	1,768	0.0083





- Natural Wash
- Existing Unlined Channel
- Existing Lined Channel
- Existing Spillway/Levee
- Existing Storm Drain
- Channel Bank Protection
- Proposed Vegetation Control
- Proposed Spillway/Levee
- Proposed Lined Channel
- Proposed Storm Drain
- ID/Mile Separator
- Existing Basin
- Proposed Basin
- 2022 Subbasin Boundary
- City of Mesquite
- Local Drainage Facility

N

0 750 1,500 Feet

1 inch=1,500 feet

CITY OF MESQUITE
2022 FLOOD CONTROL MASTER PLAN UPDATE

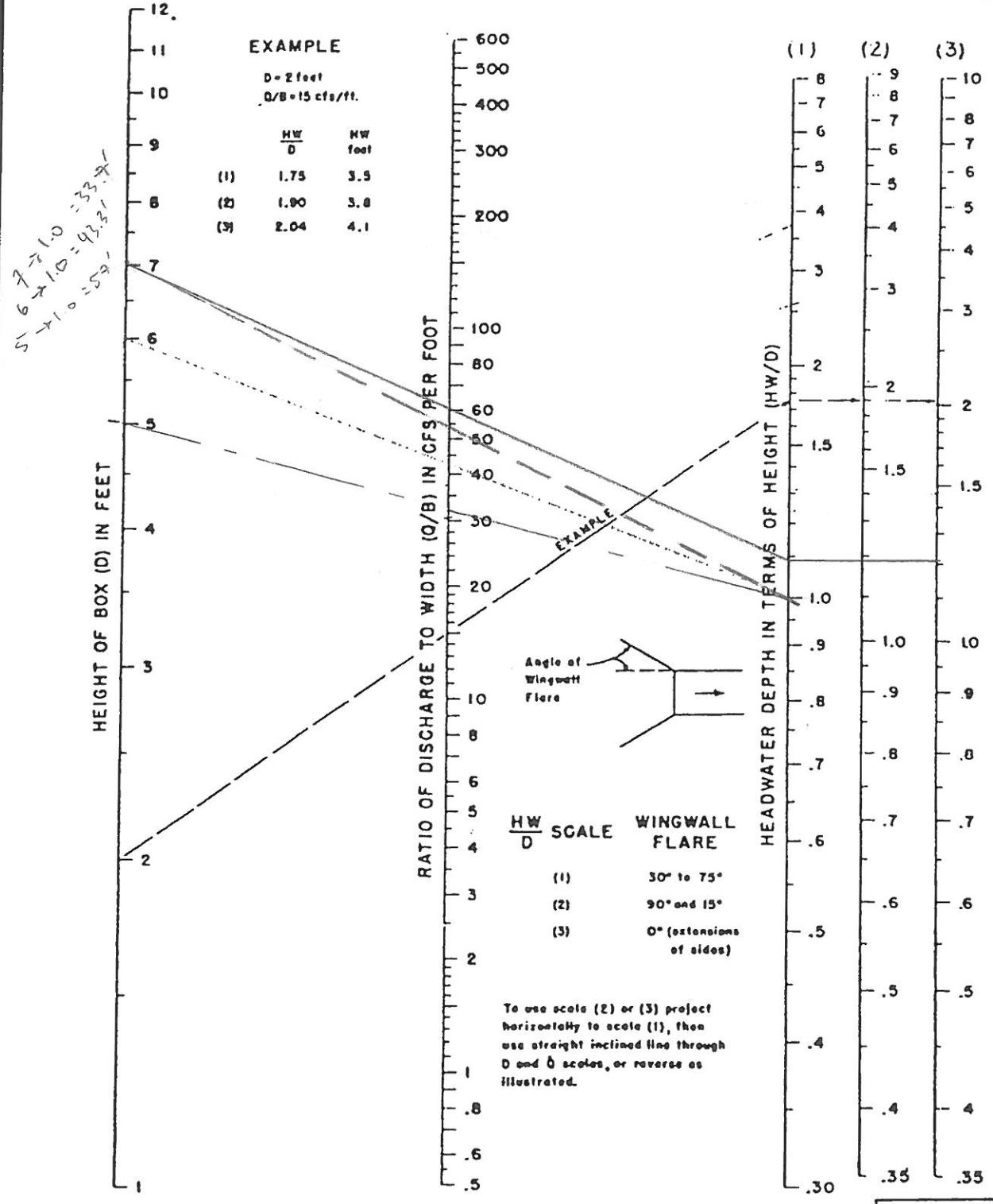
FIGURE ES-4
PULSIPHER WASH WATERSHED FLOOD CONTROL FACILITIES

Mesquite Nevada

REGIONAL FLOOD CONTROL DISTRICT

Prepared By: CCRFCD | **Date: 6/27/2022**

NOMOGRAPH – INLET CONTROL BOX CULVERT



Revision	Date

WRC ENGINEERING

REFERENCE:
USDOT, FHWA, HDS No.5, 1985

FIGURE 1004

NOTICES

The City of Mesquite Community Development Department, in accordance with National Flood Insurance Program regulation 65.7(b)(1), hereby gives notice of the City of Mesquites intent to revise the floodway, generally between a point located approximately 550 feet downstream (south) of East Hafen Road Bridge and upstream (north) to Interstate 15, along Pulsipher Wash. Specifically, the floodway shall be revised from RS 2+00 to RS 19+00, a distance of approximately 2500 ft. As a result of the floodway revision, the floodway shall widen and narrow, with a maximum widening of 45 ft at the upstream limit along the Leavitt Rd bridge alignment (RS 16+00) and maximum narrowing of 35 feet at the downstream limit along the Leavitt Rd bridge alignment (RS 15+00).

In addition, the 1% annual chance water-surface elevations and/or the 1% annual chance floodplain shall be revised from a point located approximately 550 feet downstream (south) of East Hafen Road Bridge and upstream (north) to Interstate 15, along Pulsipher Wash. Specifically, the floodplain shall be revised from RS 2+00 to RS 19+00 feet, a distance of approximately 2500 ft. As a result of the annual 1-% chance water surface elevation shall narrow, with a maximum narrowing of 460 ft at the upstream limit at the East Hafen Rd bridge alignment (RS 6+00).

Maps and detailed analysis of the revision can be reviewed at the City of Mesquite Community Development Department, 10 E Mesquite Blvd, Mesquite, NV, 89027. Interested persons may call Travis Anderson at 702-346-2835 for additional information from 7:30 am to 5 pm, from Monday to Thursday.

May x 2024

[Owners Name and Address]

Re: Notification of Floodway Revision for Pulsipher Wash

Dear [Owner]:

The Flood Insurance Rate Map (FIRM) for a community depicts the floodplain, the area which has been determined to be subject to a 1% (100-year) or greater chance of flooding in any given year. The floodway is the portion of the floodplain that includes the channel of a river or other watercourse and the adjacent land area that must be reserved in order to discharge the base flood without cumulatively increasing the water-surface elevation by more than a designated height.

The City of Mesquite Community Development, in accordance with National Flood Insurance Program regulation 65.7(b)(1), hereby gives notice of the City of Mesquite's intent to revise the floodway, generally between a point located approximately 550 feet downstream (south) of East Hafen Road Bridge and upstream (north) to Interstate 15, along Pulsipher Wash. Specifically, the floodway shall be revised from RS 2+00 to RS 19+00, a distance of approximately 2500 ft. As a result of the floodway revision, the floodway shall widen and narrow, with a maximum widening of 45 ft at the upstream limit along the Leavitt Rd bridge alignment (RS 16+00) and maximum narrowing of 35 feet at the downstream limit along the Leavitt Rd bridge alignment (RS 15+00).

Maps and detailed analysis of the revision can be reviewed at the City of Mesquite Community Development Department, 10 E Mesquite Blvd, Mesquite, NV, 89027. Interested persons may call Travis Anderson at 702-346-2835 for additional information from 7:30 am to 5 pm, from Monday to Thursday.

Sincerely,

Travis Anderson
Director

May x, 2024

[Insert Owner Here]

Re: Notification of increases in 1% (100-year) annual chance water-surface elevations

Dear [Owner]:

The Flood Insurance Rate Map (FIRM) for a community depicts land which has been determined to be subject to a 1% (100-year) or greater chance of flooding in any given year. The FIRM is used to determine flood insurance rates and to help the community with floodplain management.

Southwest Hydrology & Hydraulics, LLC is applying for a Conditional Letter of Map Revision from the Federal Emergency Management Agency (DHS-FEMA) on behalf of the City of Mesquite to revise FIRM 32003C0386F, City of Mesquite, Nevada along Pulsipher Wash. The City of Mesquite is proposing to build a bridge over Pulsipher Wash at Leavitt Lane, and extend the existing bridge at Hafen Road.

The proposed project will result in increases in the 1% annual chance water- surface elevations for Pulsipher Wash with a maximum increase of [x] feet at a point approximately [x] feet [downstream] of [x].

This letter is to inform you of the proposed increases in the 1% annual chance water-surface elevations on your property at Assessor's Parcel No [x] at [insert address] in Mesquite, Nevada.

If you have any questions or concerns about the proposed project or its effect on your property, you may contact the City of Mesquite Community Development Department, 10 E Mesquite Blvd, Mesquite, NV, 89027. Interested persons may call Travis Anderson at 702-346-2835 for additional information from 7:30 am to 5 pm, from Monday to Thursday.

Sincerely,

Southwest Hydrology & Hydraulics, LLC

CERTIFICATION

April 12, 2024

With this letter, I hereby certify that all property owners who are impacted by any increases in the 1% annual chance water surface elevations between the proposed project and the pre-project conditions for Pulsipher Wash have been individually notified of the proposed changes. In addition, I certify that no structures are impacted due to the increased base flood elevations. Please contact me should have questions or concerns regarding these certifications.

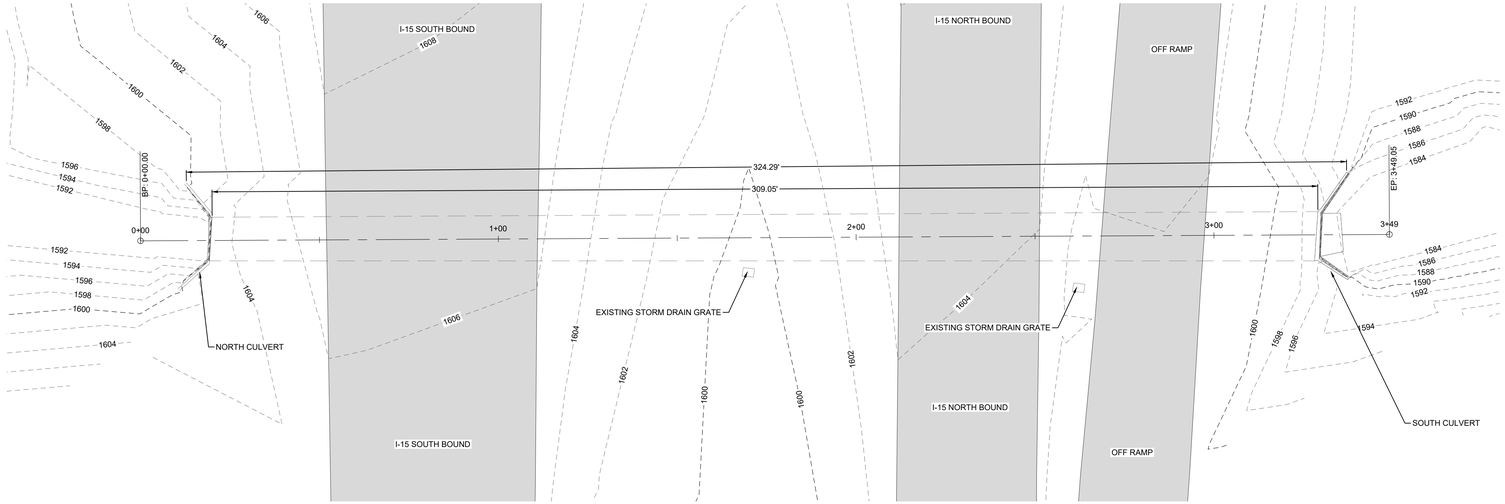
Very truly yours,

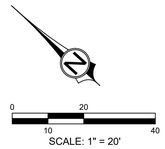
Douglas B. Blatchford, PE, CFM
President, Southwest Hydrology & Hydraulics, LLC

BRIDGE PLANS

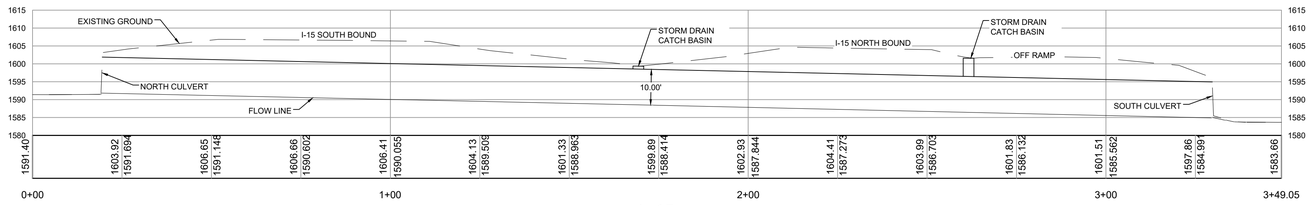
BASIS OF BEARING

NEVADA STATE PLANE COORDINATE SYSTEM, EAST ZONE, NAD83, GEOID18.



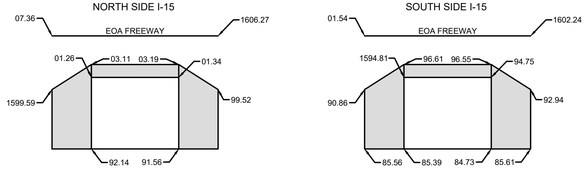


I-15 CULVERT

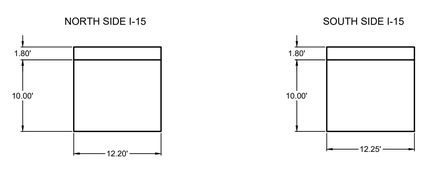


I–15
H: 1”=10’
V: 1”=10’
STA: 0+00 TO STA: 3+49

I-15 CULVERT CROSS SECTION



I-15 CULVERTS ELEVATIONS



I-15 CULVERT DIMENSIONS

CivilScience
1453 S. DIXIE DRIVE, SUITE 150
ST. GEORGE, UT 84770
435.986.0100

PULSIPHER WASH - I-15 CULVERT

TOPOGRAPHIC SURVEY

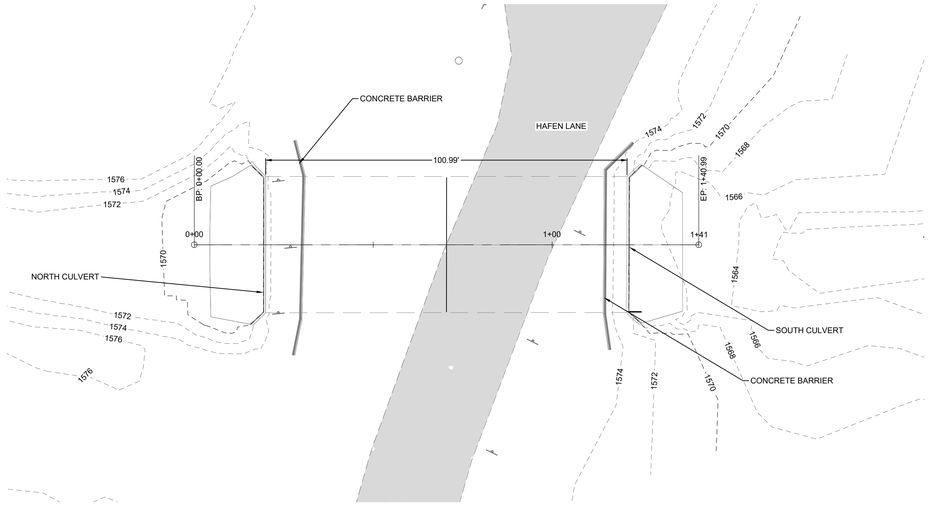
MESQUITE, NEVADA

PROJ. #:	21251
DRAWN BY:	CRS
DATE:	03-14-2024
CHECKED BY:	TRS
SCALE OF SHEET	
HOR SCALE:	1" = 20'

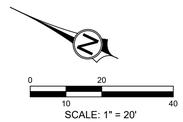
SHEET 1 OF 2

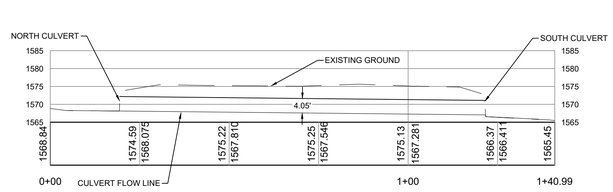
BASIS OF BEARING

NEVADA STATE PLANE COORDINATE
SYSTEM, EAST ZONE, NAD83, GEOID18.



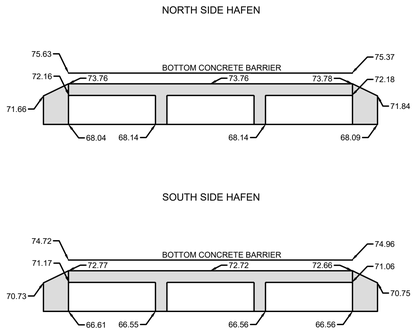
HAFEN CULVERT



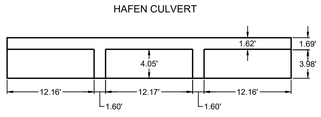


HAFEN LANE
H: 1"=10'
V: 1"=10'
STA: 0+00 TO STA: 1+41

HAFEN CULVERT CROSS SECTION



HAFEN CULVERTS ELEVATIONS



HAFEN CULVERT DIMENSIONS

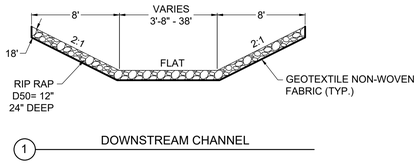
1453 S. DIXIE DRIVE, SUITE 150
ST. GEORGE, UT 84770
435.986.0100
CivilScience

PULSIPHER WASH - HAFEN LANE CULVERT

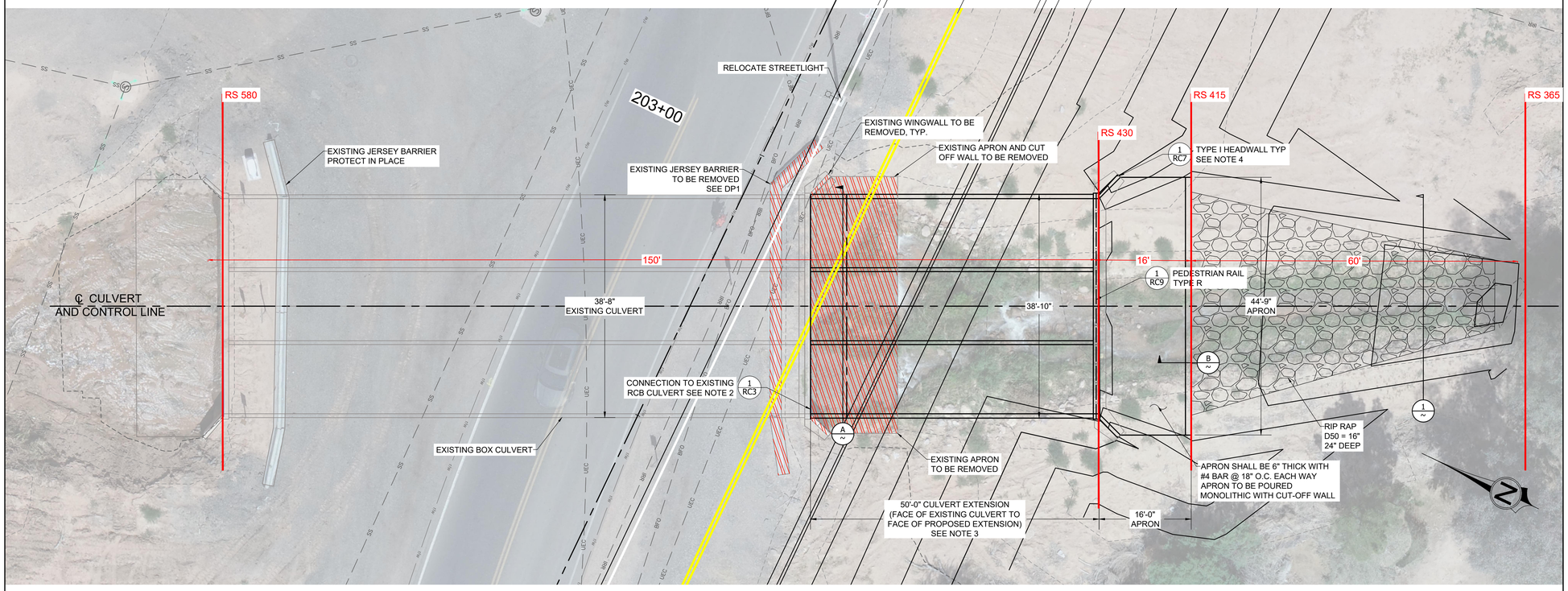
TOPOGRAPHIC SURVEY

MESQUITE, NEVADA

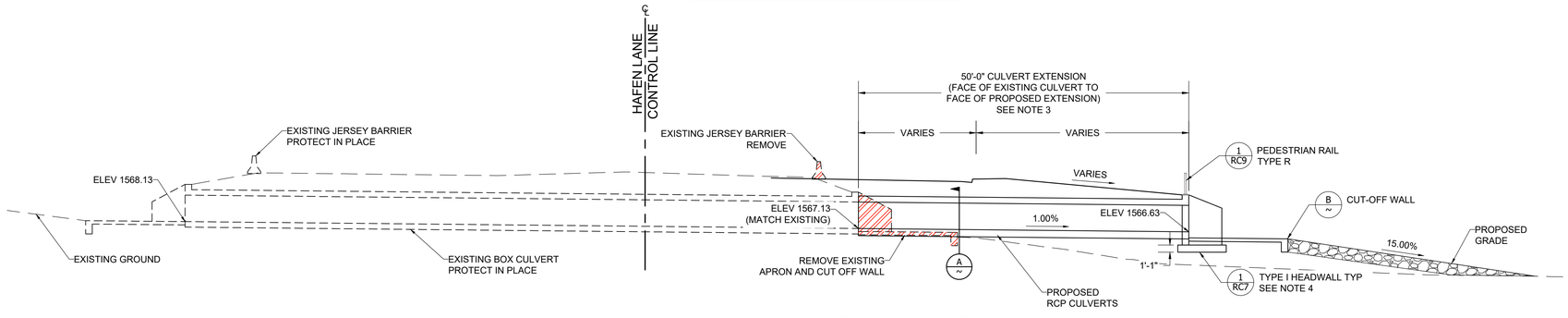
PROJ. #: 21251
DRAWN BY: CRS
DATE: 03-14-2024
CHECKED BY: TRS
SCALE OF SHEET HOR SCALE: 1" = 20'
SHEET 2 OF 2



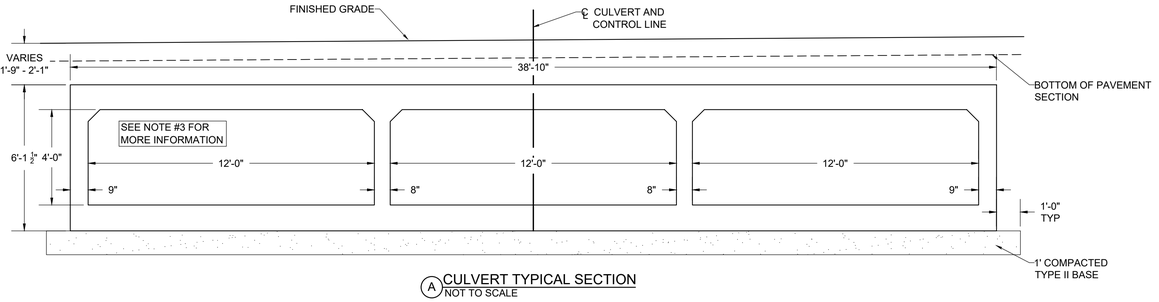
1 DOWNSTREAM CHANNEL



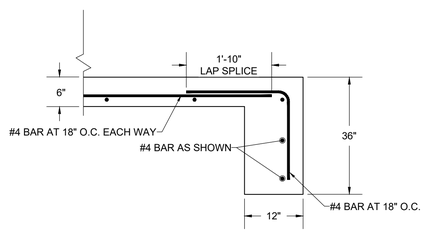
PLAN - HAFEN LANE CULVERT EXTENSION



ELEVATION - HAFEN LANE CULVERT EXTENSION



A CULVERT TYPICAL SECTION
NOT TO SCALE



B SECTION - CUT-OFF WALL
NOT TO SCALE

CULVERT EXTENSION NOTES:

KEY	DET	DESCRIPTION
1	CCA 216	"L" TYPE CURB AND GUTTER
2	CCA 234	SIDEWALK
3	CCA 238	CROSS GUTTER
4	CCA 235	ADA SIDEWALK RAMP
5	CCA 516	4" DOUBLE YELLOW PAVEMENT STRIPING
6	CCA 516	6" RED CURB STRIPING & BLUE REFLECTOR

RCB CULVERT NOTES:

1. SEE NDOT STANDARD PLAN CH-1 (RC2) FOR CULVERT SPECIFICATIONS AND DESIGN CRITERIA.
2. SEE NDOT STANDARD PLAN CH-9 (RC3) FOR CULVERT EXTENSION DETAIL.
3. SEE NDOT STANDARD PLAN CH-3A, CH-3B AND CH-4 (RC4, RC5, AND RC6) FOR CULVERT CONSTRUCTION REQUIREMENTS. NOTE THE ORIGINAL NDOT STANDARD PLANS ARE MODIFIED TO ACCOMMODATE A 4' TALL x 12' SPAN CULVERT. MODIFIED STANDARDS ARE SHOWN IN THE DETAILS REFERENCED.
4. SEE NDOT STANDARD PLAN CH-5A, CH-5B AND CH-5C (RC7, AND RC8) FOR TYPE I HEADWALL CONSTRUCTION REQUIREMENTS.
5. BEDDING OF BOX CULVERT SHALL BE 2" CRUSHED ROCK OVER 4" TYPE II AGGREGATE BASE.
6. BACKFILL SHALL BE GRANULAR BACKFILL OR SELECTED BACKFILL WITH 90% MIN. COMPACTION

0 10 20

CivilScience

PROFESSIONAL ENGINEER - STATE OF NEVADA
KELVIN SMITH
Exp. 6/30/24
4/9/24
CIVIL
No. 0 9 0 5 1 4

NO.	DESCRIPTION	BY	APRV	DATE
	REVISION			

HAFEN LANE - CULVERT PLAN

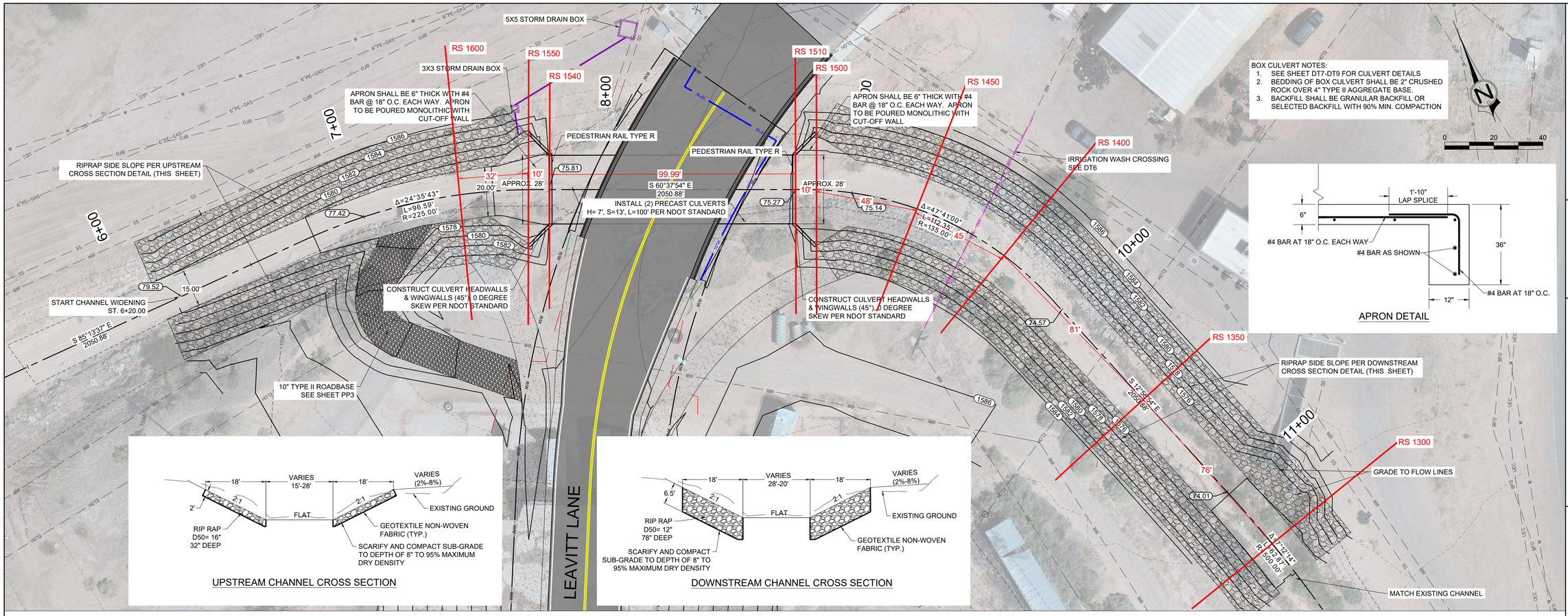
CITY OF MESQUITE LEAVITT AND HAFEN LANE
ROADWAY IMPROVEMENTS
MESQUITE, NEVADA CL-2022-483

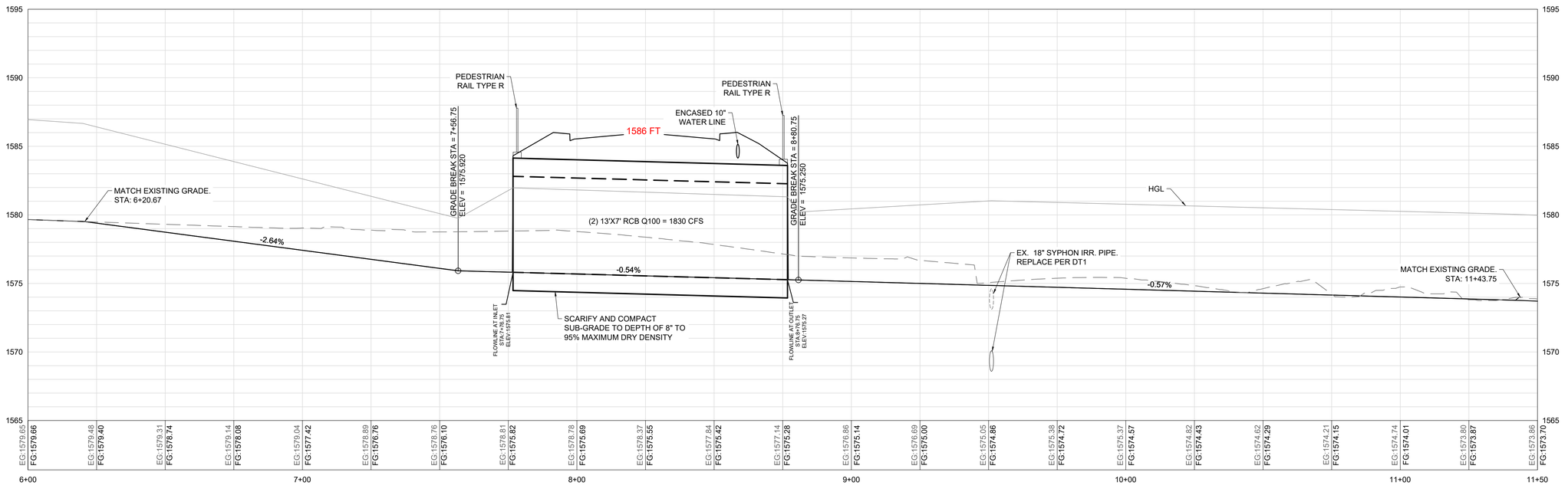
PROJ. #:	Fx. 21251
DRAWN BY:	ABJ
DESIGN BY:	JAH
CHECKED BY:	KCS

SHEET
RC1

1

PLOT: 2024-04-09 11:37 AM
PATH: L:\NEVADA\PROJECTS\ACTIVE 2021\FX21251.00 - MESQUITE, CITY LEAVITT AND HAFEN LANE\800 - CAD\840 - SHEETS\21251_RC.DWG





CivilScience

PROFESSIONAL ENGINEER - STATE OF NEVADA
KELVIN SMITH
6/30/24 Exp.
4/9/24
CIVIL
No. 0305114

NO.	DESCRIPTION	REVISION BY	APR	DATE

LEAVITT LANE - CHANNEL PLAN

CITY OF MESQUITE LEAVITT AND HAFEN LANE
ROADWAY IMPROVEMENTS
MESQUITE, NEVADA CL-2022-483

PROJ. #:	Fx. 21251
DRAWN BY:	ABJ
DESIGN BY:	JAH
CHECKED BY:	KCS

SHEET
CP1

2

PLOT: 2024-04-09 11:33 AM
PATH: L:\NEVADA\PROJECTS\ACTIVE 2021\FX21251.00 - MESQUITE CITY LEAVITT AND HAFEN LANE\800 - CAD\840 - SHEETS\21251_CP.DWG