Floodplain Development Permit

Doddridge County, WV Floodplain Management

This permit gives approval for the development/ project listed that impacts the FEMA-designated floodplain and/or floodway of Doddridge County, WV, pursuant to the rules and regulations established by all applicable Federal, State and local laws and ordinances, including the Doddridge County Floodplain Ordinance. ***This permit must be posted at the site of work as to be clearly visible and must remain posted during entirety of development.***

Permit #: 20-579

Date Approved: August 10, 2020 **Expires: August 10, 2021**

Issued to: Antero Resources **POC: Tyler Streb**

Company Address: 535 White Oaks BLVD, Bridgeport, WV. 26330

Project Address: Ramseys Ridge Road

Firm: 54095C0300C **Lat/Long: 39.324403, -80.833417**

Purpose of development: Road improvements and upgrades

Issued by: George C. Eidel, Doddridge County FPM (*or designee*)

George C. Eidel

Date: 8/10/2020

For additional information regarding this permit, please contact Doddridge County Floodplain Manager at 304.873.1343, or via email at doddridgecountyfpm@gmail.com
101Church Street Suite102; West Union, WV 26456

ANTERO RESOURCES
1615 WYNKOOP STREET
DENVER, COLORADO 80202

Vendor Name	Vendor No.	Date	Check Number	Check Total
DODDRIDGE COUNTY COMMISSION	43312	Jul-21-2020	219993	$250.00

INV #	INV DATE	DESCRIPTION	AMOUNT	DISCOUNTS	NET AMOUNT
RAMSEYRIDGEROAD	07/07/20	RAMSEY'S RIDGE ROAD PHASE II FEE	250.00	0.00	250.00

FP # 20COPY9

JUL 21 20 8:25AM

TOTAL INVOICES PAID ====>	250.00	0.00	250.00

DETACH AND RETAIN FOR TAX PURPOSES

THIS CHECK HAS A COLORED FACE ON WHITE STOCK AND AN ARTIFICIAL WATERMARK ON THE BACK.

ANTERO RESOURCES
1615 WYNKOOP STREET
DENVER, COLORADO 80202

Wells Fargo
Denver, CO
AP-400

Check No. 219993

11-24
412

Void After 90 Days

CHECK NUMBER	DATE	PAY EXACTLY
219993	Jul-21-2020	$250.00

PAY EXACTLY $250dol00cts
Two Hundred Fifty Dollars and Zero Cents

TO THE ORDER OF
DODDRIDGE COUNTY COMMISSION
108 COURT ST STE 1
WEST UNION, WV 26456

⑈219993⑈ ⑆041203824⑆ 9647481952⑈

Antero Resources
1615 Wynkoop Street
Denver, CO 80202
Office 303.357.7310
Fax 303.357.7315

Dear Mr. Eidel,

Enclosed you will find payment for a Doddridge County Floodplain Development application submitted, on behalf of Antero Resources, for a project involving the removal of a temporary bridge and associated support structures from an Antero well pad access road (Ramseys Ridge Road Phase II Addendum). The included check is in the amount of $250.00 and covers Doddridge County fees for projects with commercial development costs of less than $50,000. Please note, this fee was generated based on an equipment rental (crane) rate of $6,000 per day, for a total of two working days necessary to remove the aforementioned structures.

Check No. 219993
Ramsey's Ridge Road Phase II Addendum- Floodplain Permit Fee

If for any reason you believe the above or enclosed information to be incorrect, please notify me directly at (720) 603-3506.

Your time and assistance is greatly appreciated.

Sincerely,

Tyler Streb
Environmental Specialist
Antero Resources
Office: 303.357.7377
Mobile: 720.603.3506
Tstreb@Anteroresources.com

FLOODPLAIN PERMIT #20-579

Antero Resources, Ramseys Ridge Road, Road Improvement, 39.324403, -80.833417

TASK	COMPLETE (DATE)	NOTES
CHECK RECEIVED	7/20/20	
US ARMY CORP. ENGINEERS (USACE)	7/13/2020	
US FISH & WILDLIFE SERVICES (USFWS)		
WV DEPT. NATURAL RESOURCES (WVDNR)	7/13/2020	
WV DEPT. ENVIROMENTAL PROTECTION (WVDEP)	7/13/2020	
STATE HISTORIC & PRESERVATION OFFICE (SHPO)		
OFFICE of LAND & STREAM (OLS)		
DATE OF COMMISSION READING	7/21/2020	
DATE AVAILABLE TO BE GRANTED	8/10/2020	
PERMIT GRANTED		
COMPLETE		

Doddridge County Floodplain Permits

(Week of July 20, 2020)

Please take notice that on the **(13th)** of **(July), 2020, (Antero Resources)** filed an application for a Floodplain Permit **(#20-579)** to develop land located at or about **(Ramseys Ridge Road); Coordinates: 39.324403, -80.833417**. The Application is on file with the Floodplain Manager of the County and may be inspected or copied during regular business hours in accordance to WV Code Chapter 29B Freedom of Information, Article 1 Public Records and county policy and procedures. Any interested persons who desire to comment shall present the same in writing by **(August 10, 2020)** (20 calendar days after the announcement at the regularly scheduled Doddridge County Commission Meeting) delivered to the Floodplain Manager of the County at 105 Court Street, Suite #3, West Union, WV 26456. **This project is the Ramsys Ridge Road Upgrade Project (renewal of #18-504)**

GEORGE C. EIDEL, CFM

Doddridge County Floodplain Manager

Antero Resources
1515 Wynkoop Street
Denver, CO 80202
Office 303.357.7310
Fax 303.357.7315

July 6, 2020

Doddridge County Commission
Attn: George Eidel, Doddridge County Floodplain Manager
118 East Court Street
West Union, WV 26456

Mr. Eidel:

Antero Resources Corporation would like to submit a Doddridge County Floodplain permit application for our ***Ramseys Ridge Phase II Road Upgrade Addendum***. Although the project was previously approved by Doddridge County, the existing permit (#18-504) has since expired. We are requesting your concurrence to complete construction, as it was originally proposed and permitted. The project is located in Doddridge County beginning at coordinates 39.3245N, 80.8338W and continuing to coordinates 39.3182N, 80.8372W. Per the FIRM Map #54017C105C, this location is **within** the floodplain.

Attached you will find the following:

- Doddridge County Floodplain Permit Application
- WV Flood Tool Map
- FIRM Map
- Floodplain Analysis
- Design Plans

If you have any questions please feel free to contact me at (720) 603-3506

Thank you in advance for your consideration.

Sincerely,

Tyler Streb
Environmental Specialist I
Antero Resources Corporation

Permit# 20-579
Ramseys Ridge
Project Name: Road Upgrade
Permittees Name: ANtero Resources

Doddridge County, WV

Floodplain Development Permit Application

This document is to be used for projects that impact/potentially impact the FEMA---designated floodplain and/or floodway of Doddridge County, WV pursuant to the rules and regulations established by all applicable Federal, State and local laws and ordinances, including the Doddridge County Floodplain Ordinance.

SECTION 1: GENERAL PROVISIONS (APPLICANT TO READ AND SIGN)

1. No work may start until a permit is issued.
2. The permit may be revoked if any false statements are made herein.
3. If revoked, all work must cease until permit is re-issued.
4. The permit will expire if no work is commenced within six months of issuance.
5. Applicant is hereby informed that other permits may be required to fulfill local, state, and federal requirements.
6. Applicant hereby gives consent to the Floodplain Administrator/Manager or his/her representative to make inspections to verify compliance.
7. I THE APPLICANT CERTIFY THAT ALL STATEMENTS HEREIN AND IN ATTACHMENTS TO THIS APPLICATION ARE, TO THE BEST OF MY KNOWLEDGE, TRUE AND ACCURATE.

APPLICANT'S SIGNATURE _____

DATE 7/6/2020

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Applicant Information:

Please provide all pertinent data.

Applicant Information		
Responsible Company Name: Antero Resources Corporation		
Corporate Mailing Address: 1615 Wynkoop Street		
City: Denver	**State: CO**	**Zip: 80202**
Corporate Point of Contact (POC):		
Corporate POC Title:		
Corporate POC Primary Phone:		
Corporate POC Primary Email:		
Corporate FEIN:	**Corporate DUNS:**	
Corporate Website: www.anteroresources.com		
Local Mailing Address: 535 White Oaks Blvd		
City: Bridgeport	**State: WV**	**Zip: 26330**
Local Project Manager (PM):		
Local PM Primary Phone:		
Local PM Secondary Phone:		
Local PM Primary Email:		
Person Filing Application: Tyler Streb		
Applicant Title: Environmental Specialist I		
Applicant Primary Phone: (303) 357-7377		
Applicant Secondary Phone: (720) 603-3506		
Applicant Primary Email: tstreb@anteroresources.com		

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Project Narrative:

Describe in detail the proposed development including project name/title, type of development, estimated start and completion timeline, and its potential impact on the floodplain. Use additional copies of this page as needed.

Project Narrative:
The Ramsey's Ridge Road Phase II Upgrade Project is a proposed road improvement of the
northern end of County Route 11/1 (Ramsey's Ridge Road) to access the Mudlick Pad.
The proposed work also involves the construction of a temporary bridge and access road over
Long Run. This addendum addresses removal of the originally permitted bridge and associated
bin block support structures necessary to temporarily cross Long Run. Mechanical removal will be
conducted using a crane directly from Long Run Road (County Route 26).This portion of the
proposed project is located within the Long Run Zone A Flood Hazard area, according to the Flood
Insurance Rate Map (FIRM) for Doddridge County, Map Panel 54017C0105C with a map revised
date of October 4, 2011. A Hydraulic study was completed for this project. Please see the included
"Long Run Hydraulic and Hydrologic Study".

Proposed Development:

Please check all elements of the proposed project that apply.

DESCRIPTION OF WORK (CHECK ALL APPLICABLE BOXES)

A. STRUCTURAL DEVELOPMENT

	ACTIVITY		STRUCTURAL TYPE
[]	New Structure	[]	Residential (1 – 4 Family)
[]	Addition	[]	Residential (more than 4 Family)
[]	Alteration	[]	Non-residential (floodproofing)
[]	Relocation	[]	Combined Use (res. & com.)
[]	Demolition	[]	Replacement
[]	Manufactured/Mobil Home		

B. OTHER DEVELOPLMENT ACTIVITIES:

[] Fill [] Mining [] Drilling [] Pipelining
[] Grading
[] Excavation (except for STRUCTURAL DEVELOPMENT checked above)
[] Watercourse Alteration (including dredging and channel modification)
[] Drainage Improvements (including culvert work)
[x] Road, Street, or Bridge Construction
[] Subdivision (including new expansion)
[] Individual Water or Sewer System
[X] Other (please specify)

85 LF temporary bridge and bin block structural base initially constructed will be removed.

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Development Site/Property Information:

Please provide physical description of the site/property, along with pertinent ownership (surface and mineral rights) data as applicable. Attach appropriate maps from the WV Flood Tool showing location of proposed development. Use additional copies of this page if development spans multiple property boundaries. Designate each property by number (i.e. Property 1 of 1, Property 2 of 7, etc.)

Property Designation: 1 of 3

Site/Property Information:		
Legal Description: ARNOLDS CREEK 69.09 AC (SURF) ¼ O&G 80 AC		
Physical Address/911 Address: ROUTE 26		
Decimal Latitude/Longitude: 39.324403, -80.833417		
DMS Latitude/Longitude: 39°19'27.85"N, 80°50'0.30"W		
District: 01	**Map: 04**	**Parcel: 7**
Land Book Description:		
Deed Book Reference: Deed Book 197, Page 358		
Tax Map Reference: 09 01 0004 0007 0000		
Existing Buildings/Use of Property: WOODED, HOUSE		

Floodplain Location Data: ***(to be completed by Floodplain Manager or designee)***			
Community:	**Number:**	**Panel:**	**Suffix:**
Location (Lat/Long):		**Approximate Elevation:** **Estimated BFE:**	
Is the development in the floodway? ☐ **Yes** ☐ **No**		**Is the development in the floodplain?** ☐ **Yes** ☐ **No** **Zone:** _____	
Notes:			

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Development Site/Property Information:

Please provide physical description of the site/property, along with pertinent ownership (surface and mineral rights) data as applicable. Attach appropriate maps from the WV Flood Tool showing location of proposed development. Use additional copies of this page if development spans multiple property boundaries. Designate each property by number (i.e. Property 1 of 1, Property 2 of 7, etc.)

Property Designation: 2 of 3

Site/Property Information:		
Legal Description: 4.59 AC LONG RUN		
Physical Address/911 Address: RT 11 OVER 1		
Decimal Latitude/Longitude: 39.323386, -80.833853		
DMS Latitude/Longitude: 39°19'24.19"N, 80°50'1.87"W		
District: 01	**Map: 04**	**Parcel: 7.1**
Land Book Description:		
Deed Book Reference: Deed Book 188, Page 90		
Tax Map Reference: 09 01 0004 0007 0001 0000		
Existing Buildings/Use of Property: EMPTY LOT		

Floodplain Location Data: ***(to be completed by Floodplain Manager or designee)***			
Community:	**Number:**	**Panel:**	**Suffix:**
Location (Lat/Long):		**Approximate Elevation:** **Estimated BFE:**	
Is the development in the floodway? ☐ **Yes** ☐ **No**		**Is the development in the floodplain?** ☐ **Yes** ☐ **No** **Zone:** _____	
Notes:			

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Development Site/Property Information:

Please provide physical description of the site/property, along with pertinent ownership (surface and mineral rights) data as applicable. Attach appropriate maps from the WV Flood Tool showing location of proposed development. Use additional copies of this page if development spans multiple property boundaries. Designate each property by number (i.e. Property 1 of 1, Property 2 of 7, etc.)

Property Designation: 3 of 3

Site/Property Information:		
Legal Description: ARNOLDS CREEK 119.96 AC		
Physical Address/911 Address: ROUTE 11 OVER 1		
Decimal Latitude/Longitude: 39.318222, -80.837178		
DMS Latitude/Longitude: 39°19'05.60"N, 80°50'13.84"W		
District: 01	**Map: 04**	**Parcel: 11.1**
Land Book Description:		
Deed Book Reference: Deed Book 232, Page 152		
Tax Map Reference: 09 01 0004 0011 0001		
Existing Buildings/Use of Property: WOODED, HOUSE		

Floodplain Location Data: ***(to be completed by Floodplain Manager or designee)***			
Community:	**Number:**	**Panel:**	**Suffix:**
Location (Lat/Long):		**Approximate Elevation:** **Estimated BFE:**	
Is the development in the floodway? ☐ **Yes** ☐ **No**		**Is the development in the floodplain?** ☐ **Yes** ☐ **No** **Zone: _____**	
Notes:			

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Property Owner Data:

Please provide data on current site/property landowner(s), both surface and mineral rights (as applicable). Use additional copies of this page as needed. Designate each page in relation to each property listed above.

Property Designation: 1 of 3		

Property Owner Data:		
Name of Primary Owner (PO): CARLIE AND KAREN M. JAMES		
PO Address: 151 KELLEY JAMES LANE		
City: WEST UNION	**State: WV**	**Zip: 26456**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Surface Rights Owner Data:		
Name of Primary Owner (PO):		
PO Address:		
City:	**State:**	**Zip:**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Mineral Rights Owner Data: ***(As Applicable)***		
Name of Primary Owner (PO):		
PO Address:		
City:	**State:**	**Zip:**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Property Owner Data:

Please provide data on current site/property landowner(s), both surface and mineral rights (as applicable). Use additional copies of this page as needed. Designate each page in relation to each property listed above.

Property Designation: 2 of 3		
Property Owner Data:		
Name of Primary Owner (PO): CARLIE JAMES		
PO Address: 151 KELLEY JAMES LANE		
City: WEST UNION	**State: WV**	**Zip: 26456**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Surface Rights Owner Data:		
Name of Primary Owner (PO):		
PO Address:		
City:	**State:**	**Zip:**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Mineral Rights Owner Data: *(As Applicable)*		
Name of Primary Owner (PO):		
PO Address:		
City:	**State:**	**Zip:**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Property Owner Data:

Please provide data on current site/property landowner(s), both surface and mineral rights (as applicable). Use additional copies of this page as needed. Designate each page in relation to each property listed above.

Property Designation: 3 of 3

Property Owner Data:		
Name of Primary Owner (PO): MICHAEL SHEPHERD		
PO Address: 4362 LONG RUN ROAD		
City: GREENWOOD	**State: WV**	**Zip: 26415**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Surface Rights Owner Data:		
Name of Primary Owner (PO):		
PO Address:		
City:	**State:**	**Zip:**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Mineral Rights Owner Data: ***(As Applicable)***		
Name of Primary Owner (PO):		
PO Address:		
City:	**State:**	**Zip:**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Contractor Data:

Please provide all pertinent data for contractors and sub---contractors that may be participating in this project. Use additional copies of this page as needed. Designate each page in relation to each property listed above.

Property Designation: ____ of ____

Contractor/Sub-Contractor (C/SC) Information:		
C/SC Company Name: To be bid		
C/SC WV License Number: TBD		
C/SC FEIN:	**C/SC DUNS:**	
Local C/SC Point of Contact (POC):		
Local C/SC POC Title:		
C/SC Mailing Address:		
City:	**State:**	**Zip-Code:**
Local C/SC Office Phone:		
Local C/SC POC Phone:		
Local C/SC POC E-Mail:		

Engineer Firm Information:		
Engineer Firm Name:		
Engineer WV License Number:		
Engineer Firm FEIN:	**Engineer Firm DUNS:**	
Engineer Firm Primary Point of Contact (POC):		
Engineer Firm Primary POC Title:		
Engineer Firm Mailing Address:		
City:	**State:**	**Zip-Code:**
Engineer Firm Office Phone:		
Engineer Firm Primary POC Phone:		
Engineer Firm Primary POC E-Mail:		

Adjacent and/or Affected Landowners Data

Please provide data for all adjacent and/or affected surface owners (both up and down stream) whose property may be impacted by proposed development as demonstrated by a floodplain study or survey. Use additional copies of this page as needed.

Adjacent Property Owner Data: Upstream		
Name of Primary Owner (PO): LONNIE C. JAMES		
Physical Address: 5813 LONG RUN ROAD		
City: PENNSBORO	**State: WV**	**Zip: 26415**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Adjacent Property Owner Data: Upstream		
Name of Primary Owner (PO):		
Physical Address:		
City:	**State:**	**Zip:**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Adjacent Property Owner Data: Downstream		
Name of Primary Owner (PO): DOUGLAS C. JAMES		
Physical Address: 5716 LONG RUN ROAD		
City: GREENWOOD	**State: WV**	**Zip: 26415**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Adjacent Property Owner Data: Downstream		
Name of Primary Owner (PO):		
Physical Address:		
City:	**State:**	**Zip:**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Site Plan

A Site Plan is an accurate and detailed map of the proposed development for this project. It shows the size, shape, location and special features of the project property, and the size and location of any development planned to the property, especially as that development will impact the floodplain and/or floodway. Site plans show what currently exists on the project property, and any changes or improvements you are proposing to make. **A certified and licensed engineering firm should complete site plans.**

A SITE PLAN MUST CONTAIN THE FOLLOWING INFORMATION:

1. Legal description of the parcel, north arrow and scale
2. All property lines and their dimensions
3. Names of adjacent roads, location of driveways
4. Location of sloughs, tributaries, streams, rivers, wetlands, ponds, and lakes, with setbacks indicated, and including FEMA floodplain data based on most updated FIRM.
5. Location, size, shape of all buildings, existing and proposed, with elevation of lowest floor indicated.
6. Location and dimensions of existing or proposed on-site sewage systems.
7. Location of all propane tanks, fuel tanks or other liquid storage tanks whether above ground or below ground level.
8. Location and dimensions of any proposed pipeline placement(s) into floodplain/floodway.
9. Location and dimensions of any roadway development into floodplain/floodway. *(Includes initial development access roads)*
10. Location and dimensions of any bridge and/or culvert development into floodplain/floodway.
11. Location and dimensions of any storage yard or facility into the floodplain/floodway.
12. Location of any existing utilities and/or proposed utility placement and/or displacement.
13. Location, dimensions and depth of any existing or proposed fill on site.
14. A survey showing the **existing ground elevations** of at least location on the building site. **ELEVATION NOTE**: All vertical datum will reference either NGVD 29 or NAVD 88. Assumed datum will not be acceptable unless the property is located in an area where vertical datum has not been published. For those areas where vertical datum has not been established, a site plan with contours, elevations using assumed datum, high water marks and existing water levels of sloughs, rivers, lakes or streams and proposed lowest floor elevation.

Applicant

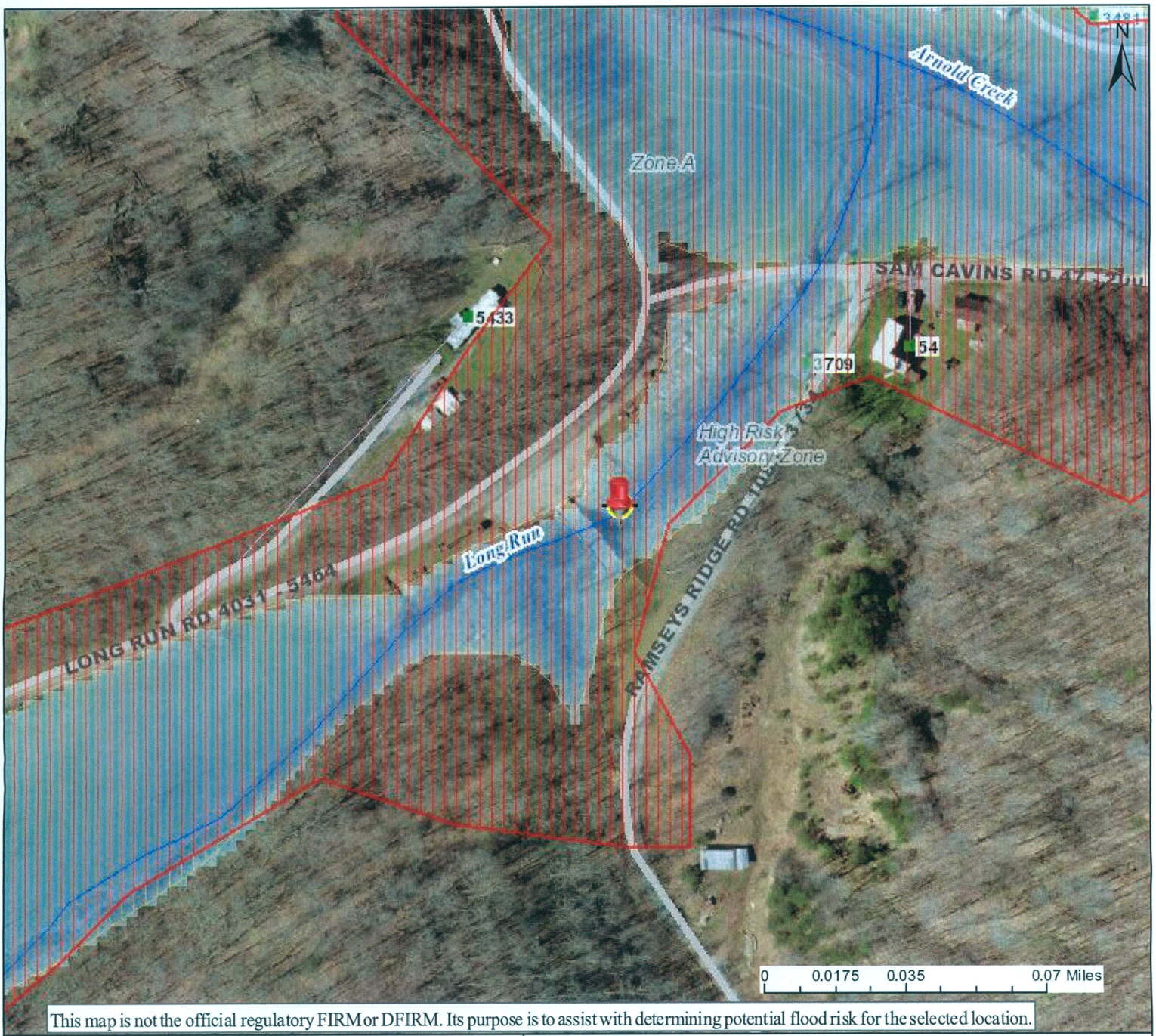
Please read print name, sign and date below:

- I certify that I am authorized to submit this application for the primary project developer.
- I certify that the information included in this application is to the best of my knowledge true and complete.
- I certify that all required Federal, State, and local permits required by law and/or ordinance for the above described development of this project have will be properly attained, are current and valid, and must be presented prior to a Doddridge County Floodplain Permit being issued.
- I understand that if in the course of the development project additional permits become required that were not needed during the initial proposal, the primary developer must notify the Doddridge County Floodplain Manager within 48 hours of such need, and that a "Stop Work" order may be issued for all project work directly impacting the floodplain or floodway, until such time the required additional permits are acquired.
- I understand that once the floodplain permit is submitted, the application will be entered into official public record at the next regularly scheduled Doddridge County Commission meeting after the date of submittal.
- I understand that from the date of submittal of the fully completed permit application, the Doddridge County Floodplain Manager has ninety (90) days to make a determination to either grant or deny said permit application. During this approval period, the Doddridge County Floodplain Manager may, at his or her discretion, conduct a review and/or additional study of provided documentation by means of an independent engineering firm. All costs associated with said review and/or study must be reimbursed to the County before issuance of approved permit.
- I understand that during the approval period, the Doddridge County Floodplain Manager of designee may at his or her discretion conduct site visits and document conditions of proposed development pursuant to the permit application.
- I understand that once the Floodplain Permit is granted, the permit will be entered into official public record. Appeals to the permit may be made no later than twenty (20) days after said issuance. If a valid appeal is submitted, as determined by the Doddridge County Floodplain Manager, a "Stop Work" order will be issued for all project development directly involving the floodplain or floodway. A public hearing by the Doddridge County Appeals Board will be scheduled no less than ten (10) days after the next regularly scheduled Doddridge County Commission meeting.
- I understand that all decisions of the Doddridge County Appeals Board shall be final.
- **I understand issuance of a Floodplain Permit authorizes me to proceed with construction as proposed.**
- In signing this application, the primary developer hereby grants the Doddridge County Floodplain Manager or designee the right to enter onto the above---described location to inspect the development work proposed, in progress, and/or completed.
- I understand that if I do not follow exactly the site---plan submitted and approved by this permit that a "Stop Work" order may be issued by the Doddridge County Floodplain Manager and that I must stop all construction immediately until discrepancies of actual work vs. proposed work is resolved.

Applicant Signature: _____ Date: 7/6/2020

Applicant Printed Name: Tyler Streb

WV Flood Map



This map is not the official regulatory FIRM or DFIRM. Its purpose is to assist with determining potential flood risk for the selected location.

HIGH RISK

Zone AE	1-Percent-Annual-Chance Flood Hazard Area **With Base Flood Elevation** (BFE)
Floodway	Regulatory **Floodway in AE Zone**
Zone A	1-Percent-Annual-Chance Flood Hazard Area **Without BFE** (may have Advisory Flood Heights)
Advisory	1-Percent-Annual-Chance **High Risk Advisory**

Download the Full Legend for all flood tool symbols
https://www.mapwv.gov/flood/map/docs/wv_flood_tool_legend.pdf

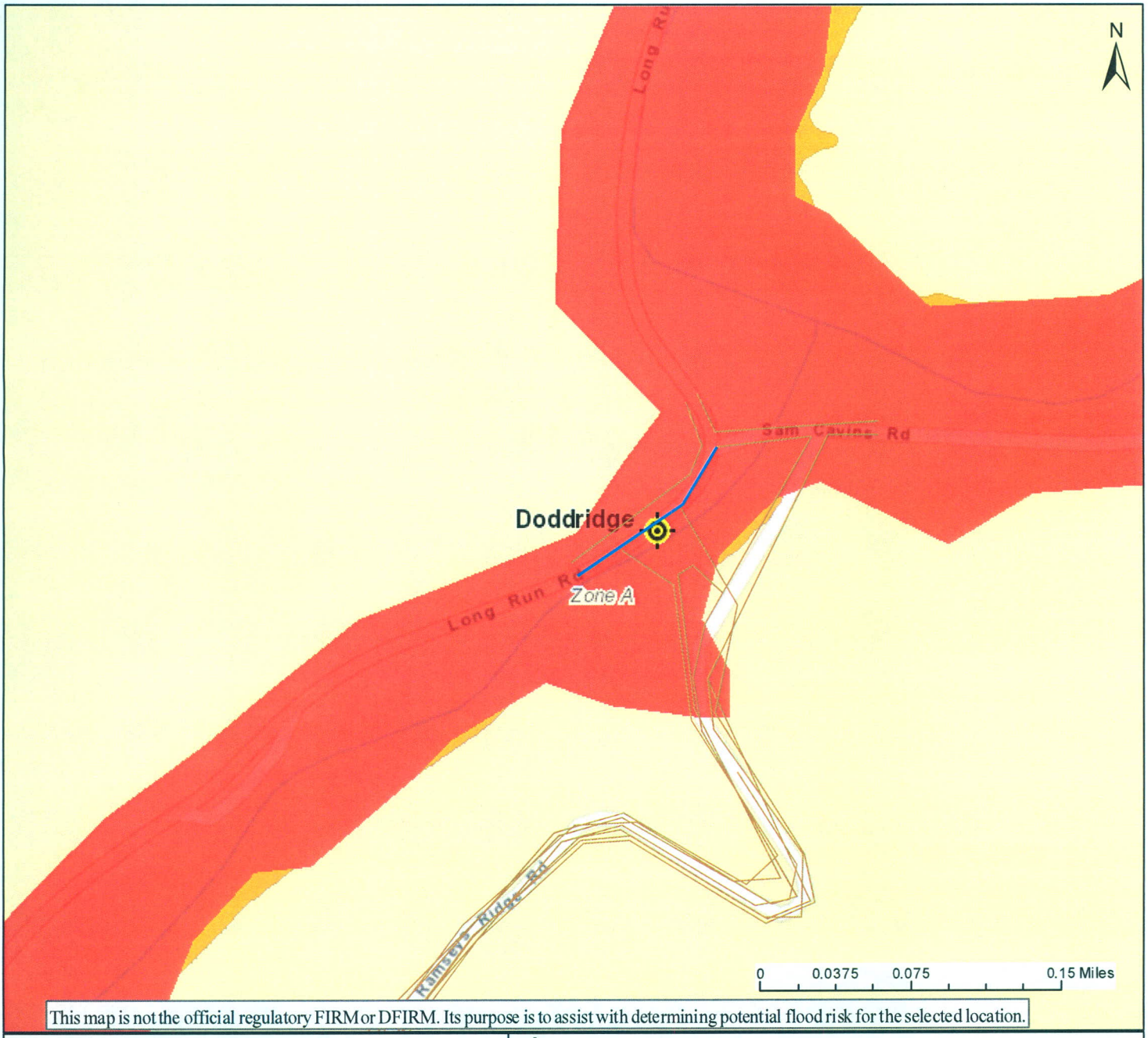
Disclaimer:
The online map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. Refer to the official Flood Insurance Study (FIS) for detailed flood elevation data in flood profiles and data tables. WV Flood Tool (*https://www.mapwv.gov/flood*) is supported by FEMA, WV NFIP Office, and WV GIS Technical Center.

Flood Info Location — *Map created on 7/13/2020*

User Notes

Flood Hazard Area	Location is **WITHIN** the FEMA 100-year floodplain. Advisory Flood Heights available.
Flood Zone	A (Advisory Flood Heights available)
Stream	Short Run
Watershed (HUC8)	Little Musringum-Middle Island (5030201)
Flood Height	About 750 ft (Source: AFH)
Water Depth	About 10.0 ft (Source: HEC-RAS)
Elevation	About 740 ft (Source: SAMS 2003)
Community & ID	Tyler County (ID: 540277)
FEMA Map & Date	54095C0300C; Effective Date: 10/4/2011
Location (lat, long)	(39.324403, -80.833417)
Parcel ID	09-01-0004-0007-0000
E-911 Address	multiple addresses

WV Flood Map - Ramseys Ridge Road Phase II



This map is not the official regulatory FIRM or DFIRM. Its purpose is to assist with determining potential flood risk for the selected location.

HIGH RISK

	Regulatory Floodway
Zone AE	1-Percent-Annual-Chance Flood Hazard Area **With Base Flood Elevation** (BFE)
Zone A	1-Percent-Annual-Chance Flood Hazard Area **Without BFE** (may have Advisory Flood Heights)
Advisory	1-Percent-Annual-Chance Future Conditions (High Risk Advisory Flood Zones)

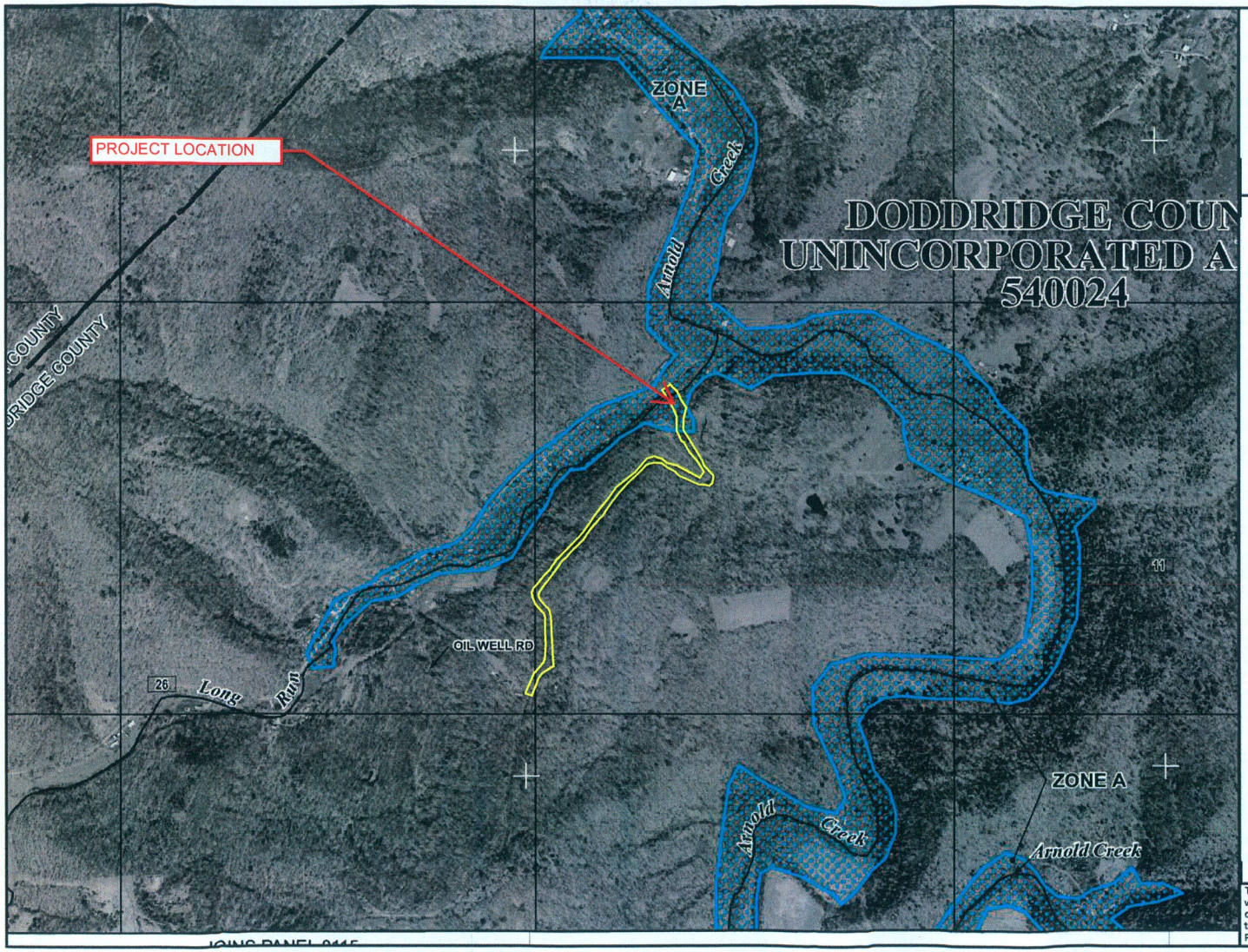
Download the Full Legend for all flood tool symbols
https://www.mapwv.gov/flood/map/docs/wv_flood_tool_legend.pdf

Disclaimer:
The online map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. Refer to the official Flood Insurance Study (FIS) for detailed flood elevation data in flood profiles and data tables. WV Flood Tool (*https://www.MapWV.gov/flood*) is supported by FEMA, WV NFIP Office, and WV GIS Technical Center.

Flood Info Location — *Map created on 7/6/2020*

User Notes

Flood Hazard Area	Location is **WITHIN** the FEMA 100-year floodplain.
Flood Zone	A
Stream	Long Run
Watershed (HUC8)	Little Musringum-Middle Island (5030201)
Flood Height	
Water Depth	
Elevation	About 752 ft (Source: SAMS 2003)
Community & ID	Doddridge County (ID: 540024)
FEMA Map & Date	54017C0105C; Effective Date: 10/4/2011
Location (lat, long)	(39.324490, -80.833689)
Parcel ID	09-01-0004-0007-0000
E-911 Address	multiple addresses



MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0105C

FIRM

FLOOD INSURANCE RATE MAP

DODDRIDGE COUNTY, WEST VIRGINIA AND INCORPORATED AREAS

PANEL 105 OF 325

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
DODDRIDGE COUNTY	540024	0105	C

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

MAP NUMBER
54017C0105C

MAP REVISED
OCTOBER 4, 2011

Federal Emergency Management Agency

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

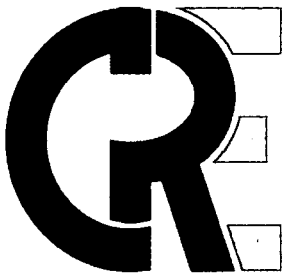
LONG RUN HYDRAULIC AND HYDROLOGIC STUDY

Prepared for:

Triple H Enterprises
9 James Street
West Union, WV
26456

Prepared by:

Cheat Road Engineering, Inc.
100 Hart Field Road, Suite 191
Morgantown, West Virginia 26505
Phone: (304) 212-5480 Fax: (304) 291-6975



Project No. 17-111

January 29, 2018

Contents

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List of Tables

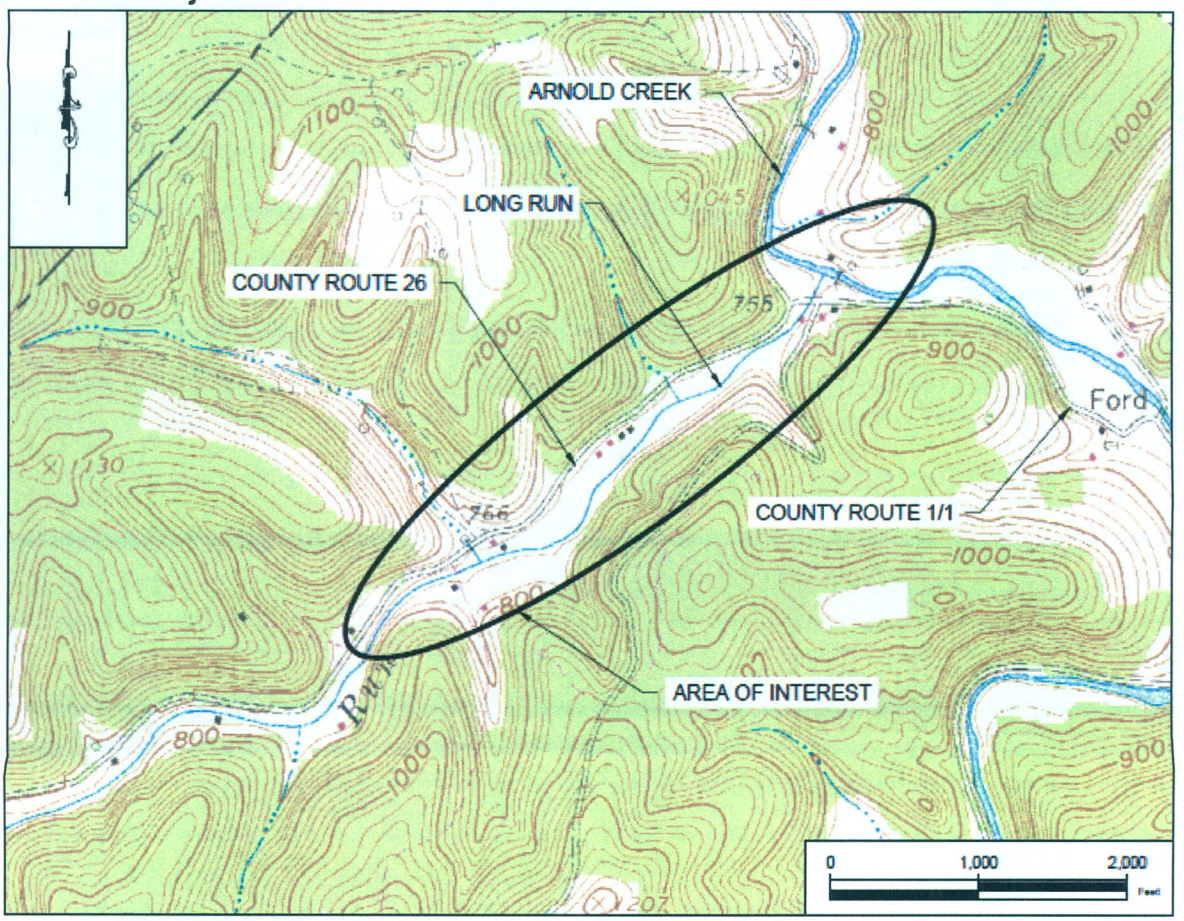
Appendices

I. Introduction

At the request of Triple H Enterprises (Triple H), Cheat Road Engineering Inc. (CRE) has prepared the following Hydrologic and Hydraulic Analysis of Long Run

Long Run is located in Doddridge County WV and flows generally in a North East direction along County Route 26. Long Run flows into Arnold Creek just downstream of where County Route 1/1 crosses over the stream. Arnold Creek flows in a generally North West direction into Middle Island Creek which then flows into the Ohio River. The area of interest for this analysis begins at the confluence of Long Run and Arnold Creek and ends approximately 3,200 feet upstream. The purpose of this study is to determine the effects a new bridge would have on the Long Run Flood Plain and Base Flood Elevation.

A. Project Location



II. Methodology

CRE was provided existing conditions mapping by Triple H. This Mapping included topographical information of the existing ground surface, existing bridge locations and the locations of tributaries within the area of interest. In addition to the information provided by Triple H, USGS maps and aerial photography were used in analyzing the existing conditions of the Long Run floodplain. Rainfall data was gathered from The National Oceanic and Atmospheric Administration (NOAA) database. The storm event used to determine the Base Flood Elevation is the 1% annual storm also known as the 100-YR rain event.

A. Hydrologic Study

Flow rates and boundary conditions were calculated using HydoCad, a hydrology program that utilizes the Technical Release 20 (TR-20), which was developed by the NRCS, to calculate runoff rates based on rainfall data for the region, area of runoff, surface cover and the time of concentration. When compared to the USGS regression equation rates, these flow rates were found to be within the acceptable range of error. The flow rates calculated using HydroCad were greater than the regression equation, thus the HydroCad flow rates were utilized in CRE's hydraulic analyses in an attempt to be conservative in our study. See **Table 1** below for a breakdown of the flow values used at different sections of the stream.

Table 1: River Station Flow Rates

River Station	100-YR Storm Flow Rate (CFS)
3+200.18	2,216.44
30+77.66	2,315.70
31+31.29	2,320.26
11+31.46	2,333.46

B. Hydraulic Study

The United States Corps of Engineers (USACE) Hydrologic Engineering Centers River Analysis System (HEC-RAS) was used to analyze the hydraulic conditions of the stream during the 100-YR flood. The HEC-RAS stream modeling program uses the flow rates calculated during the hydrologic study, in conjunction with, geometric files to create a model showing the water surface extents and Base Flood Elevations.

The base geometric files are created by importing topographic information from the AutoCAD Civil 3D program. Other important geometric information such as the manning's roughness coefficient and stream crossings are then added to create a more complete model of the true field conditions within HEC-RAS.

1. Manning's Roughness Coefficients

From Table 3.1 of the HEC-RAS Hydraulic Reference Manual:

Main Channel:
Clean, straight, full, no rifts or deep pools: 'n' value 0.030
Same as above, but more stones and weeds: 'n' value 0.035
Clean, winding, some pools and shoals: 'n' value 0.040
Same as above, but some weeds and stones: 'n' value 0.045

Floodplain:
Pasture, no brush, high grass: 'n' value 0.035
Scattered brush, heavy weeds: 'n' value 0.050
Light brush and trees, in winter: 'n' value 0.050
Medium to dense brush, in winter: 'n' value 0.070
Heavy stand of timber, few down trees, little undergrowth, and flow below branches: 'n' value 0.100
The Manning's "n" values assigned to the left overbank (LOB), channel, and right overbank (ROB) for each cross-section are as follows:

Left Overbank Channel:	0.040
Main Channel:	0.035
Right Overbank Channel:	0.040

2. Features Relevant to Hydraulic Analysis

There are existing bridges that cross Long Run at approximately section 91.71' and section 28+20.87'.

3. High Water Marks

There are no established landmarks in the project vicinity to determine a historic high water mark for Long Run

III. Summary of Results

A. Analyses Performed

Two HEC-RAS geometry files were created, one for the existing conditions of the study area along Long Run and one adding the proposed Bridge at station 4+44.86. The 100-YR storm event (one percent annual chance occurrence) was analyzed for both conditions and then compared to determine the impact of the proposed bridge.

B. Pre-Construction Analysis

1. WV GIS Tool

The WV Flood Tool GIS program was used to compare and confirm the results of CRE's analysis. The WV Flood Tool uses Flood Insurance Rate Map data to display FEMA's Special Flood Hazard Area and other relevant information, including estimated water surface extents.

Figure 1 shows the approximate Special Flood Hazard Area (SFHA) per the WV Flood Tool GIS application. The red hatching is the special flood hazard area and the blue hatching indicates the approximate water extents per the FEMA flood Mapping.

Figure 2 shows the SFHA as CRE has calculated it.

What both figures show is that just upstream of where Long Run flows into Arnold Creek, Long run is almost completely channelized during the 100-YR storm event. Further upstream, the channel is not as substantial and the area adjacent to the stream is much flatter allowing water to flood the surrounding area. This flat topography continues for most of the length of the area of interest, causing much of the area to be submerged during the 100-yr storm event. There are a few points where the two figures do not completely align but that could be caused by minor differences in flow values or minor topographic variances. It is CREs belief that the similarities between the two figures validate the pre-construction model completed by CRE.

See **Appendix B** for full HEC-RAS profile summary profiles and tables.

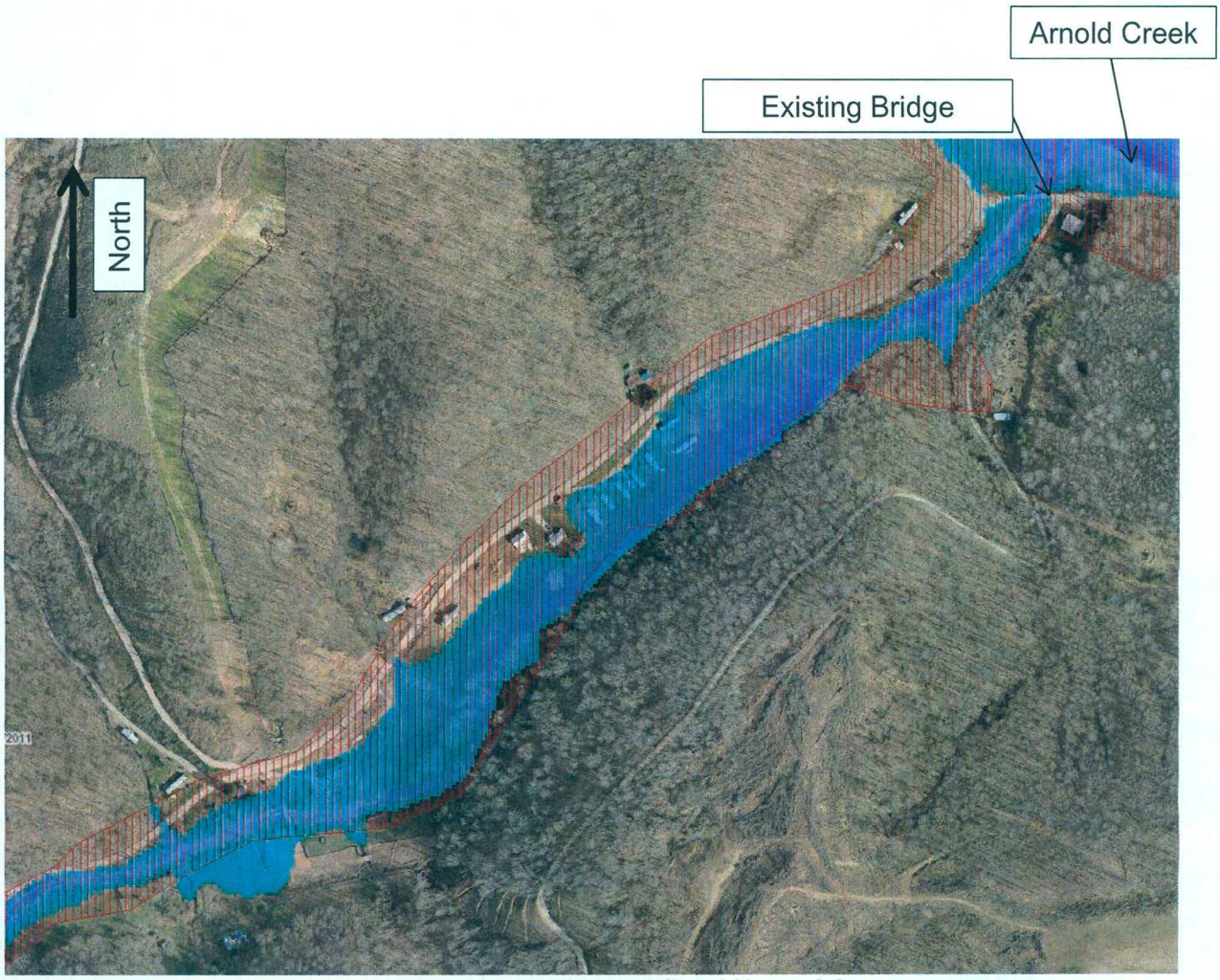


Figure 1: WV Flood Tool Special flood Hazard Area

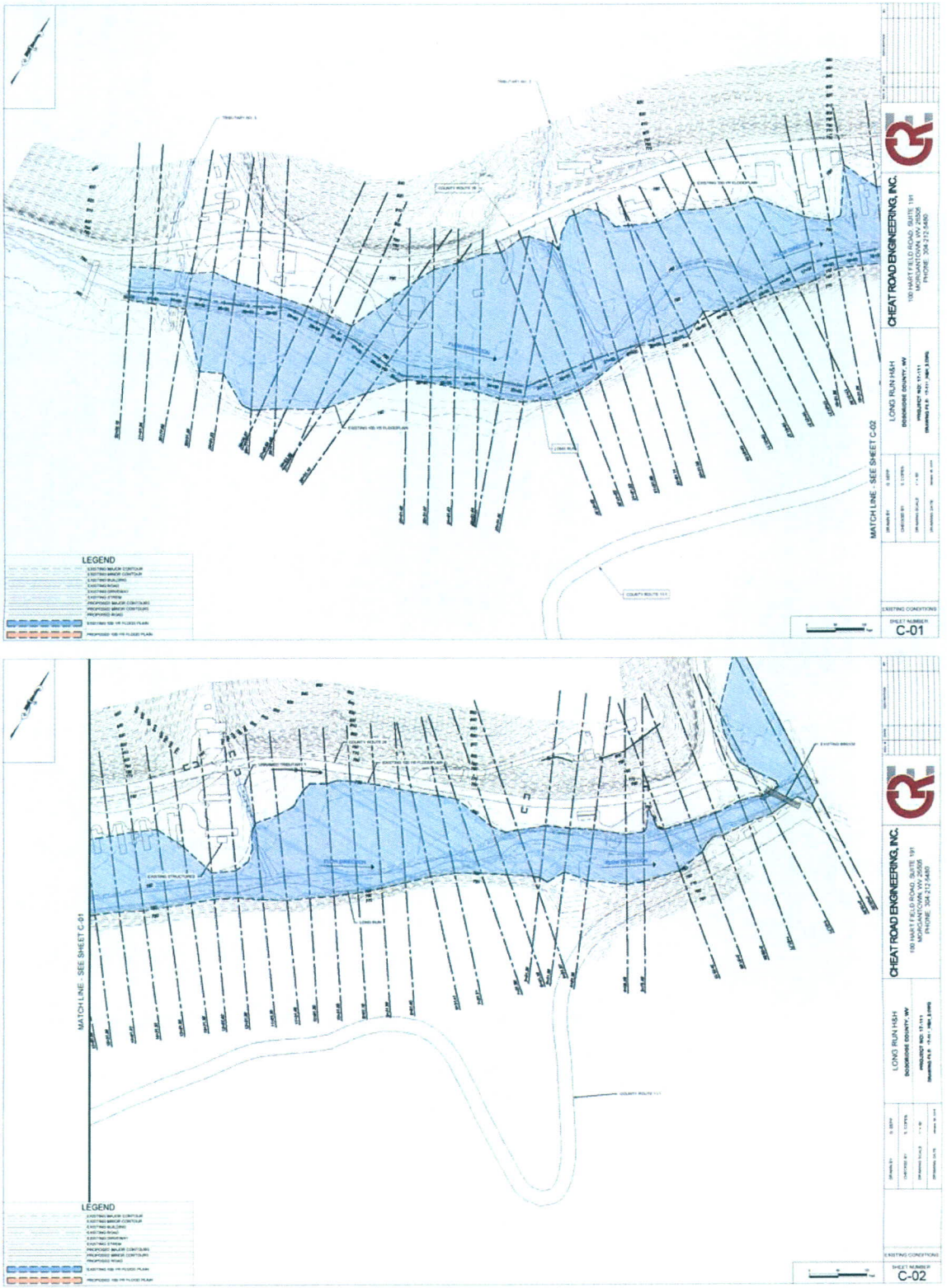


Figure 2: Calculated Pre-Construction Special Flood Hazard Area

C. Post-Construction Analysis

The post-construction analysis was comprised of adding a bridge crossing to the existing conditions geometry file while keeping other variables unchanged. The bridge was added at stream station 4+44.86 based on design drawings provided by Triple H.

See **Appendix B** for full HEC-RAS summary Profiles and Tables.

1. Flood Plain Area

   Figure 3 shows the pre-construction and post-construction Flood Hazard Area as calculated as CRE. The Blue hatch shows the existing Special Flood Hazard Area and the Red Hatch indicates the proposed Special Flood Hazard Area extents.

   The largest increase in the SFHA takes place from stations 9+81.19' to station 11+81.33' where the average increase in the width of the SFHA is increased by, at most, 12 feet with an average increase of around 7 feet. By section 12+31.36 the differences in flood area between the pre and post construction models is negligible and further upstream the model shows that there is no other increase of the SFHA.

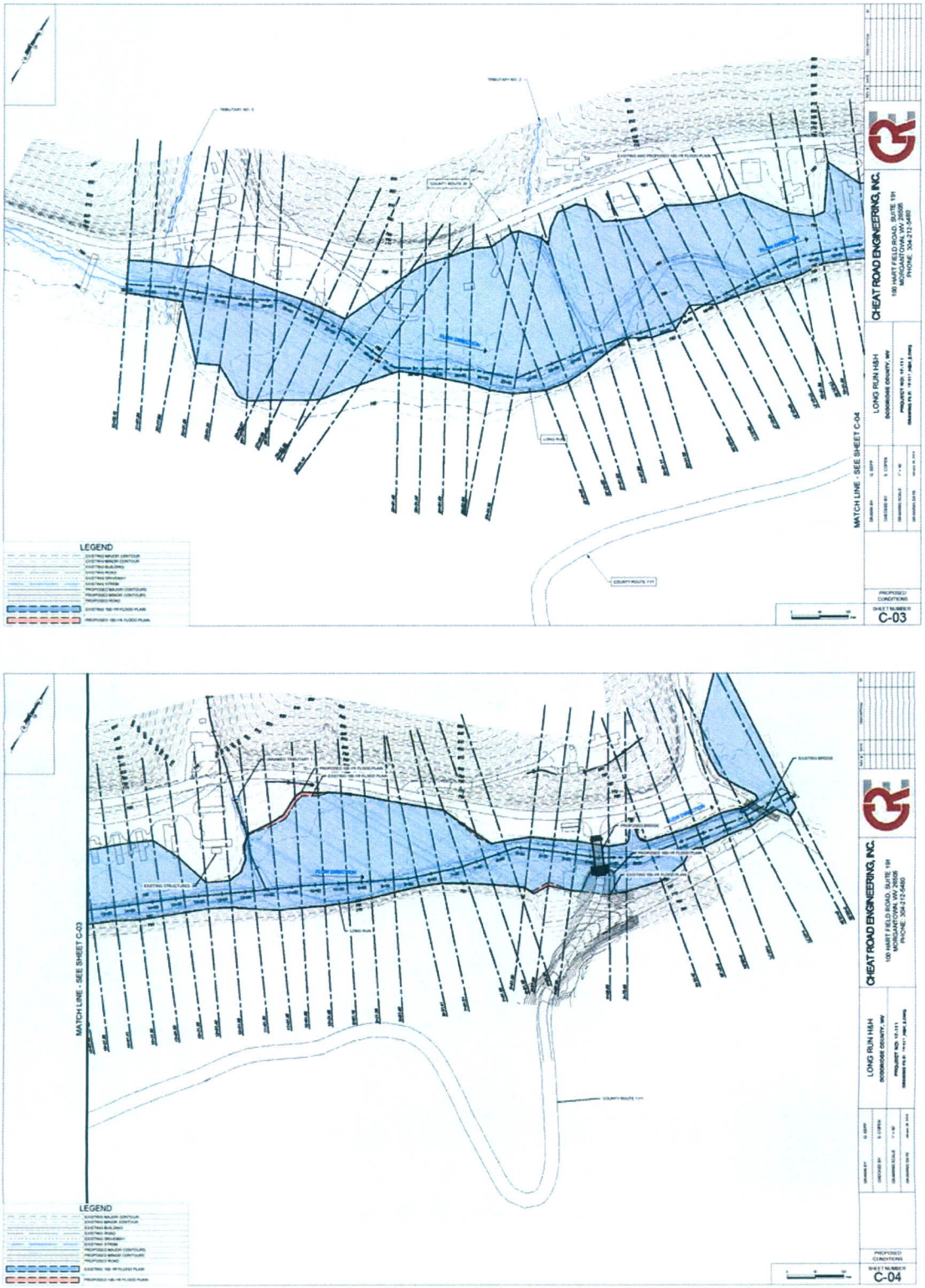


Figure 3: Post-Construction Special Flood Hazard Area

2. Flood Plain Elevation

As shown in **Table 2** below, and in the full H&H data tables in **Appendix B**, the base flood elevation of Long Run has been increased as a result of the installation of the bridge. The largest increase in the B.F.E. is from about 100 feet upstream from the proposed bridge at station 5+31.36', to station 7+31.36' where the B.F.E increases by, approximately 7 inches. Even though this section of the stream has the largest increase in elevation, it does not significantly increase the SFHA due to the stream geometry. During the 100-YR flood event, even with the increase in B.F.E. the water is still contained within the existing channel. The difference in elevations between the two models slowly decreases further upstream, becoming negligible at station 12+31.36'

Table 1 below shows the different flood elevations before and after construction at critical points of Long Run. **Figure 4** on the following page is a graphical representation of the difference in flood elevations during pre and post construction conditions.

Table 2: Flood Elevation Comparison

Stream Station	Existing Base Flood Elevation (EX)	Proposed Base Flood Elevation (PR)	Difference In Water Elevation
4+44.86 (Proposed Bridge)	749.03'	749.03'	+ 0 inches
5+31.36	748.86'	749.45'	+7.1 inches
7+31.36	749.66'	750.07'	+4.9 inches
9+31.36	749.84'	750.22'	+4.6 inches
11+31.46	749.98	750.32	+4.1 inches
12+31.36 (Hydraulic Jump)	748.85	748.85	+0.0 inches
13+31.36	751.19	751.19	+0.0 inches

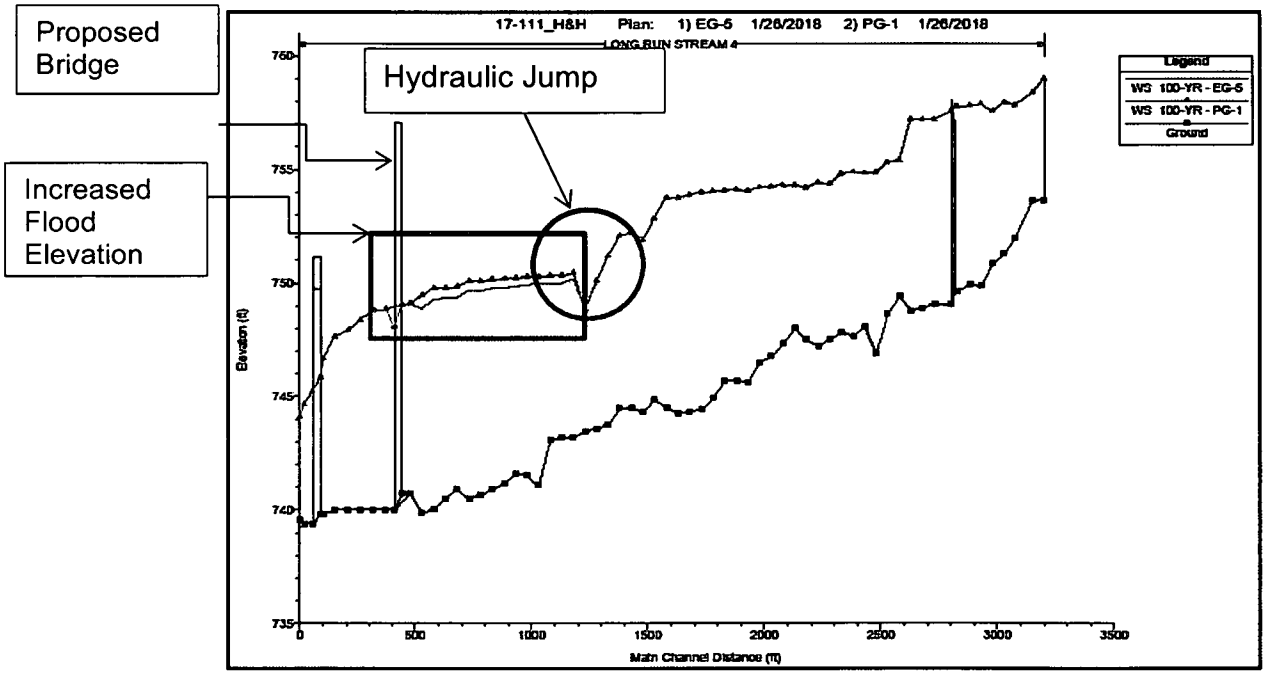


Figure 4: Flood Water Elevation Comparison

IV. Conclusion

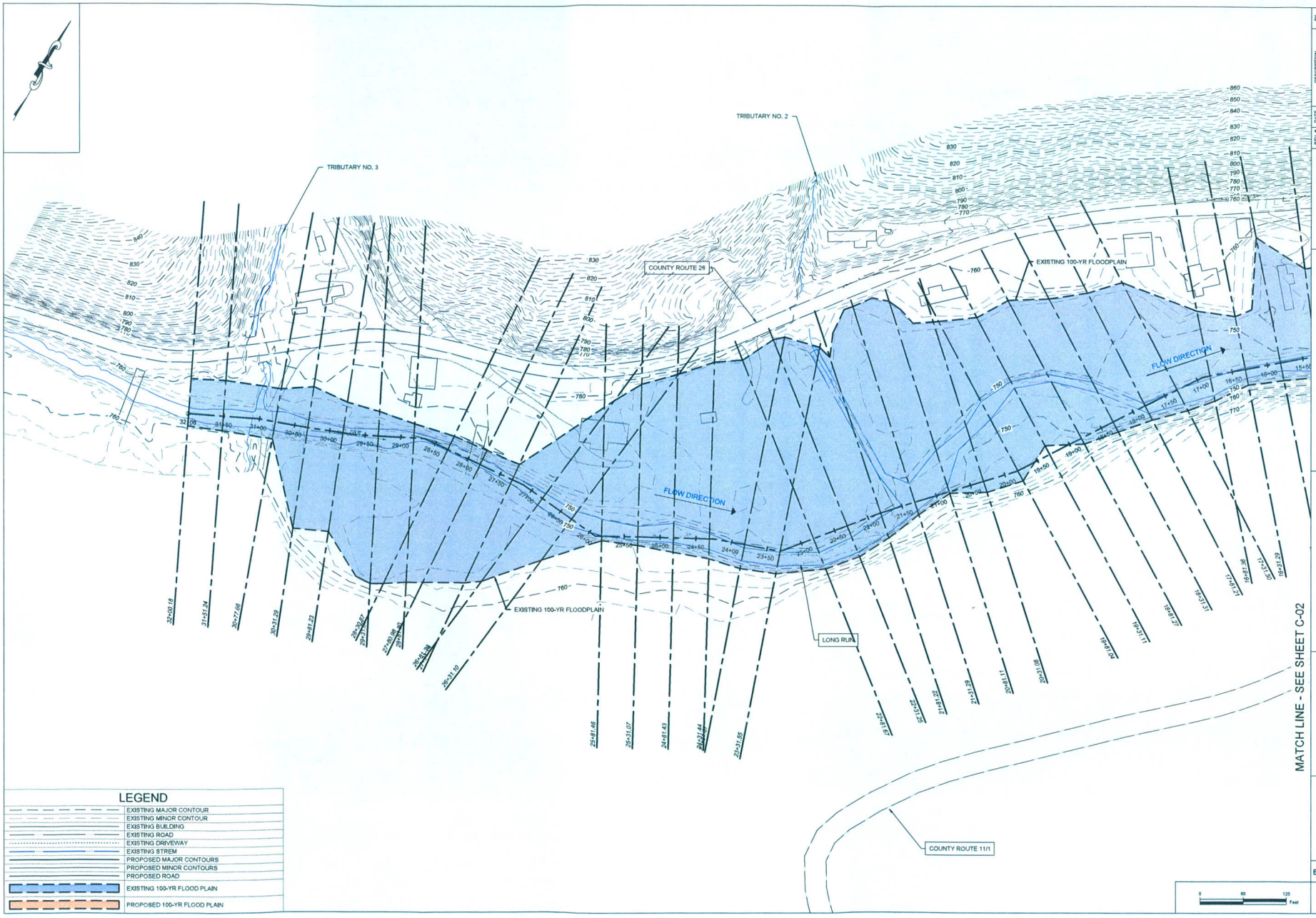
The Doddridge County Floodplain Ordinance **Article IV Section 4.4** states the requirements and regulations for any construction within a "Zone A" floodplain. The Ordinance in **Article IV Section 4.4.D** states: "Within any apportioned Floodplain Zone (Zone A) without a Floodway Area, no new construction or development shall be allowed unless it is demonstrated that the cumulative impact of the proposed development, when combined with all other existing and anticipated development, will not increase the elevation of the 100-year flood more than one (1) foot at any point. **CRE's study shows an increase below that threshold.**

Additionally, in the area of increased base flood elevation, it appears, from the information provided and aerial imaging, that there are no houses or other critical structures that will assume increased risk of flooding as a result of the installation of the proposed bridge.

All calculations and data related to this report are available upon request by contacting CRE.

APPENDIX A

DRAWINGS



REV.#	DATE	DESCRIPTION	BY

CHEAT ROAD ENGINEERING, INC.
100 HART FIELD ROAD, SUITE 191
MORGANTOWN, WV 26505
PHONE: 304-212-5480

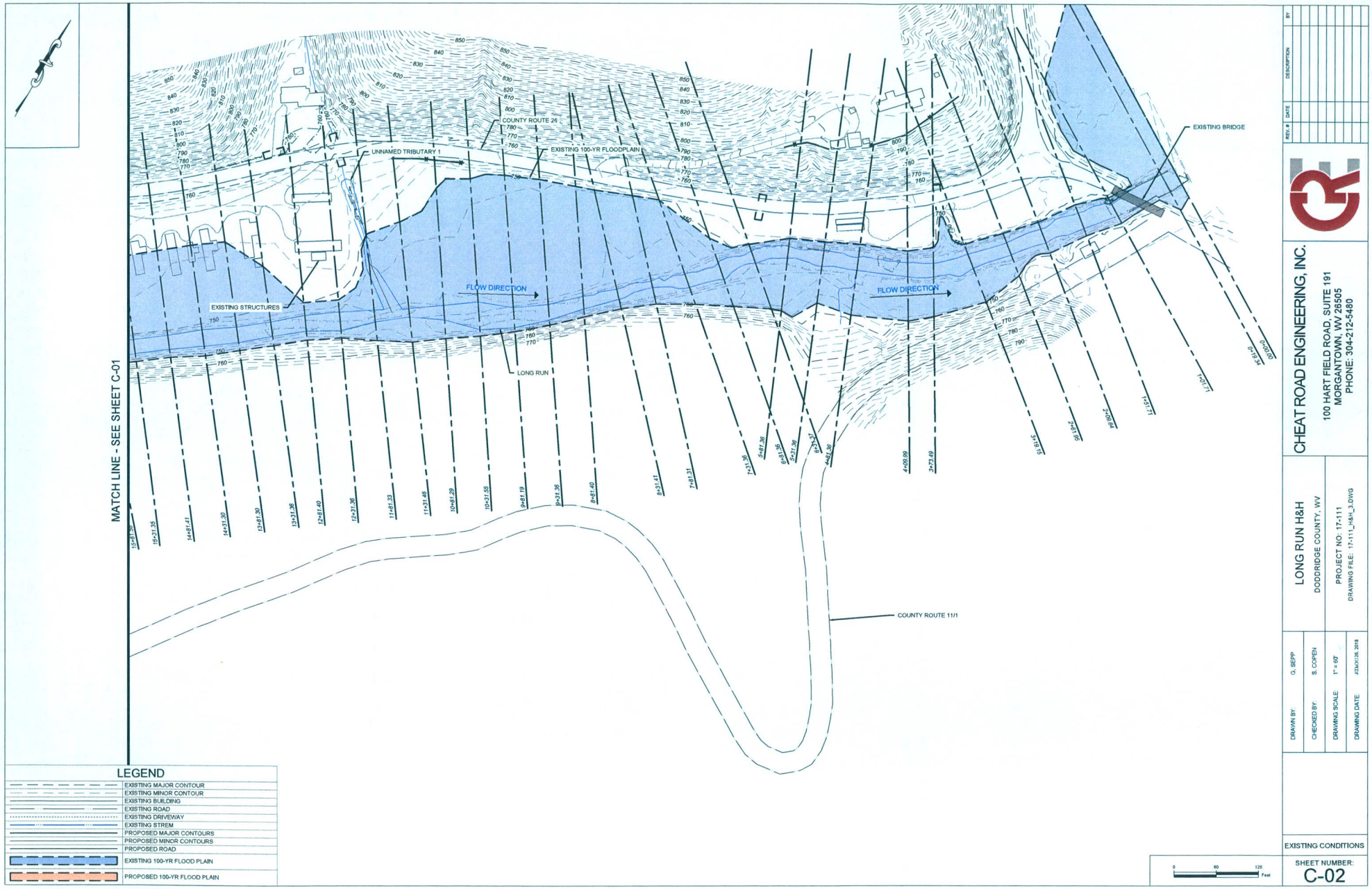
LONG RUN H&H
DODDRIDGE COUNTY, WV

PROJECT NO: 17-111
DRAWING FILE: 17-111_H&H_3.DWG

DRAWN BY: G. SEPP
CHECKED BY: S. COPEN
DRAWING SCALE: 1" = 60'
DRAWING DATE: OCTOBER 2018

EXISTING CONDITIONS

SHEET NUMBER:
C-01



REV.#	DATE	DESCRIPTION	BY

CHEAT ROAD ENGINEERING, INC.
100 HART FIELD ROAD, SUITE 191
MORGANTOWN, WV 26505
PHONE: 304-212-5480

LONG RUN H&H
DODDRIDGE COUNTY, WV

PROJECT NO: 17-111
DRAWING FILE: 17-111_H&H_3.DWG

DRAWN BY:	G. SEPP
CHECKED BY:	S. COPEN
DRAWING SCALE:	1" = 60'
DRAWING DATE:	JANUARY 26, 2018

EXISTING CONDITIONS

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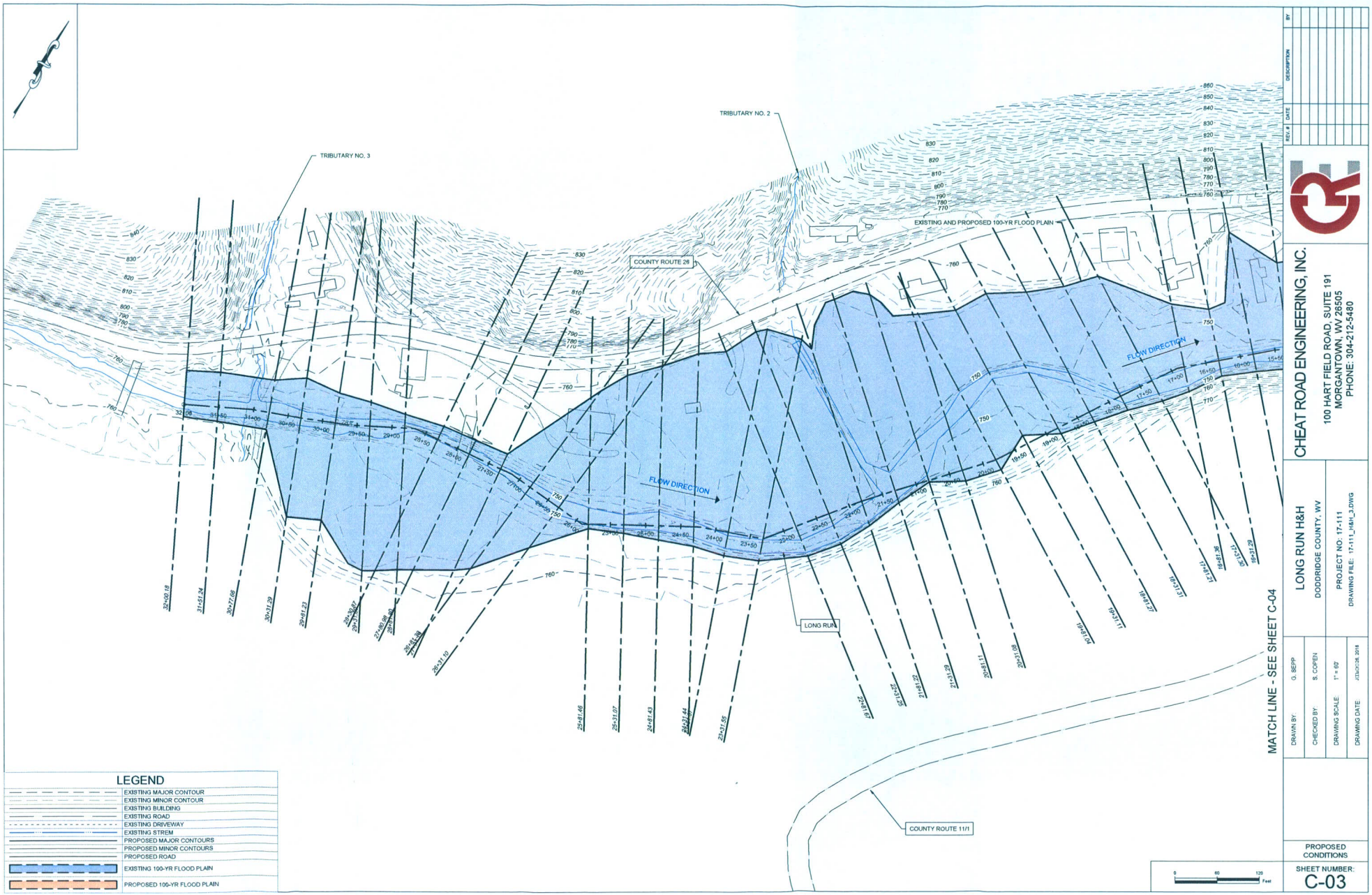

REV.#	DATE	DESCRIPTION	BY

CHEAT ROAD ENGINEERING, INC.
100 HART FIELD ROAD, SUITE 191
MORGANTOWN, WV 26505
PHONE: 304-212-5480

LONG RUN H&H
DODDRIDGE COUNTY, WV

PROJECT NO: 17-111
DRAWING FILE: 17-111_H&H_3.DWG

DRAWN BY: G. SEPP
CHECKED BY: S. COPEN
DRAWING SCALE: 1" = 60'
DRAWING DATE: JANUARY 24, 2018

PROPOSED CONDITIONS

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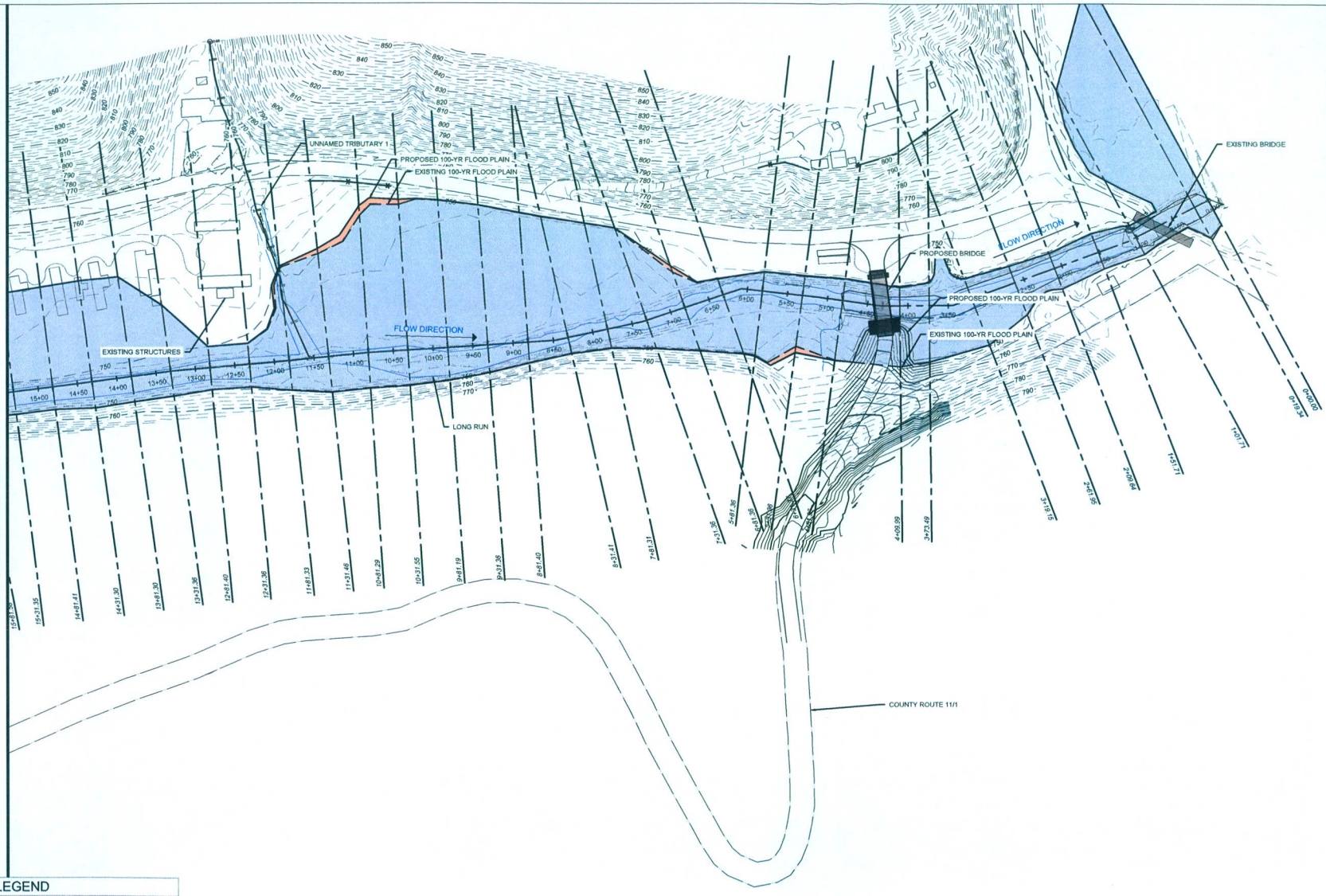


LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING BUILDING
- EXISTING ROAD
- EXISTING DRIVEWAY
- EXISTING STREM
- PROPOSED MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- PROPOSED ROAD
- EXISTING 100-YR FLOOD PLAIN
- PROPOSED 100-YR FLOOD PLAIN

REV.#	DATE	DESCRIPTION	BY

CHEAT ROAD ENGINEERING, INC.
100 HART FIELD ROAD, SUITE 191
MORGANTOWN, WV 26505
PHONE: 304-212-5480

LONG RUN H&H
DODDRIDGE COUNTY, WV

PROJECT NO: 17-111
DRAWING FILE: 17-111_H&H_3.DWG

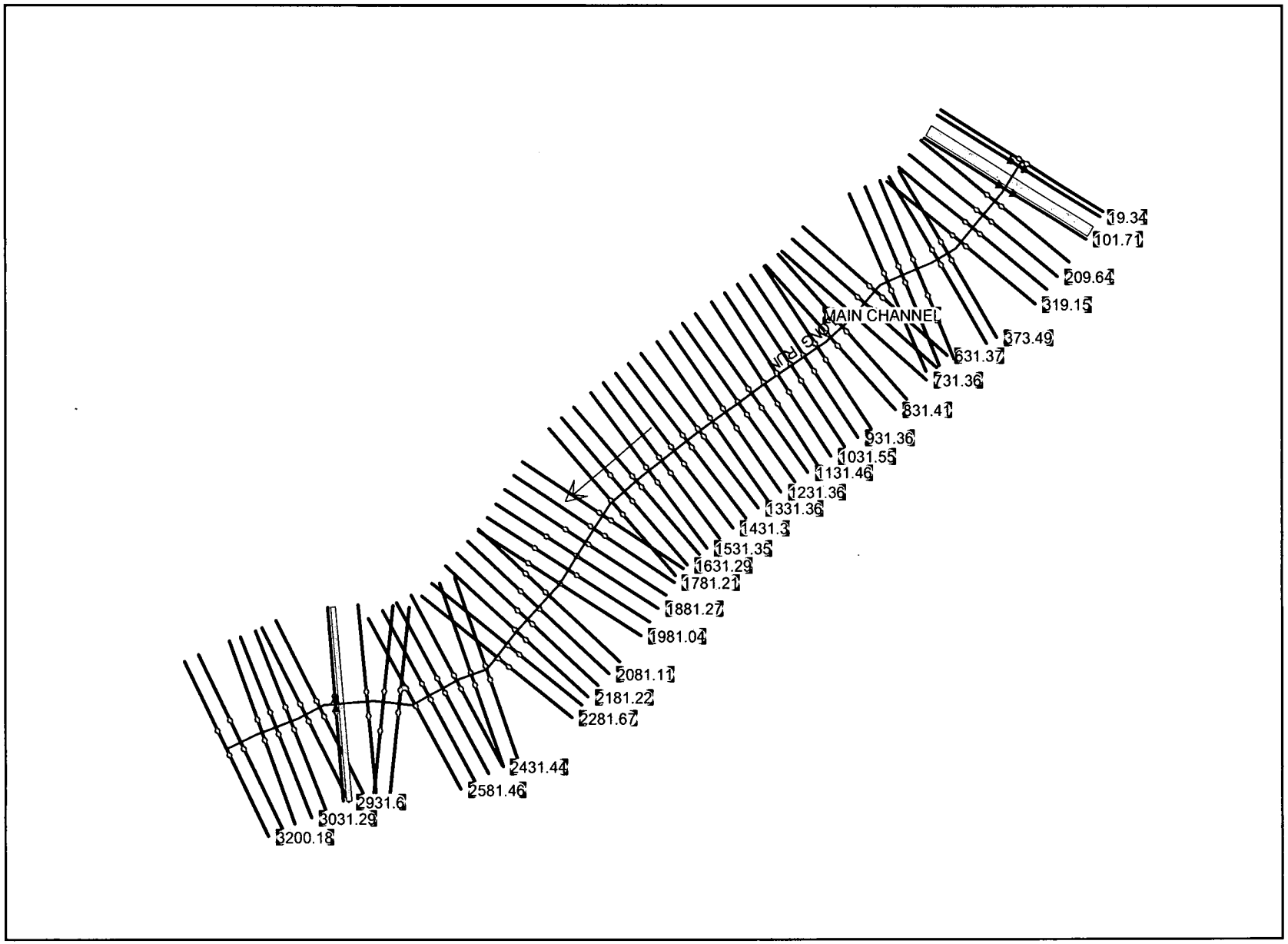
DRAWN BY:	G. SEPP
CHECKED BY:	S. COPEN
DRAWING SCALE:	1" = 60'
DRAWING DATE:	JANUARY 2018

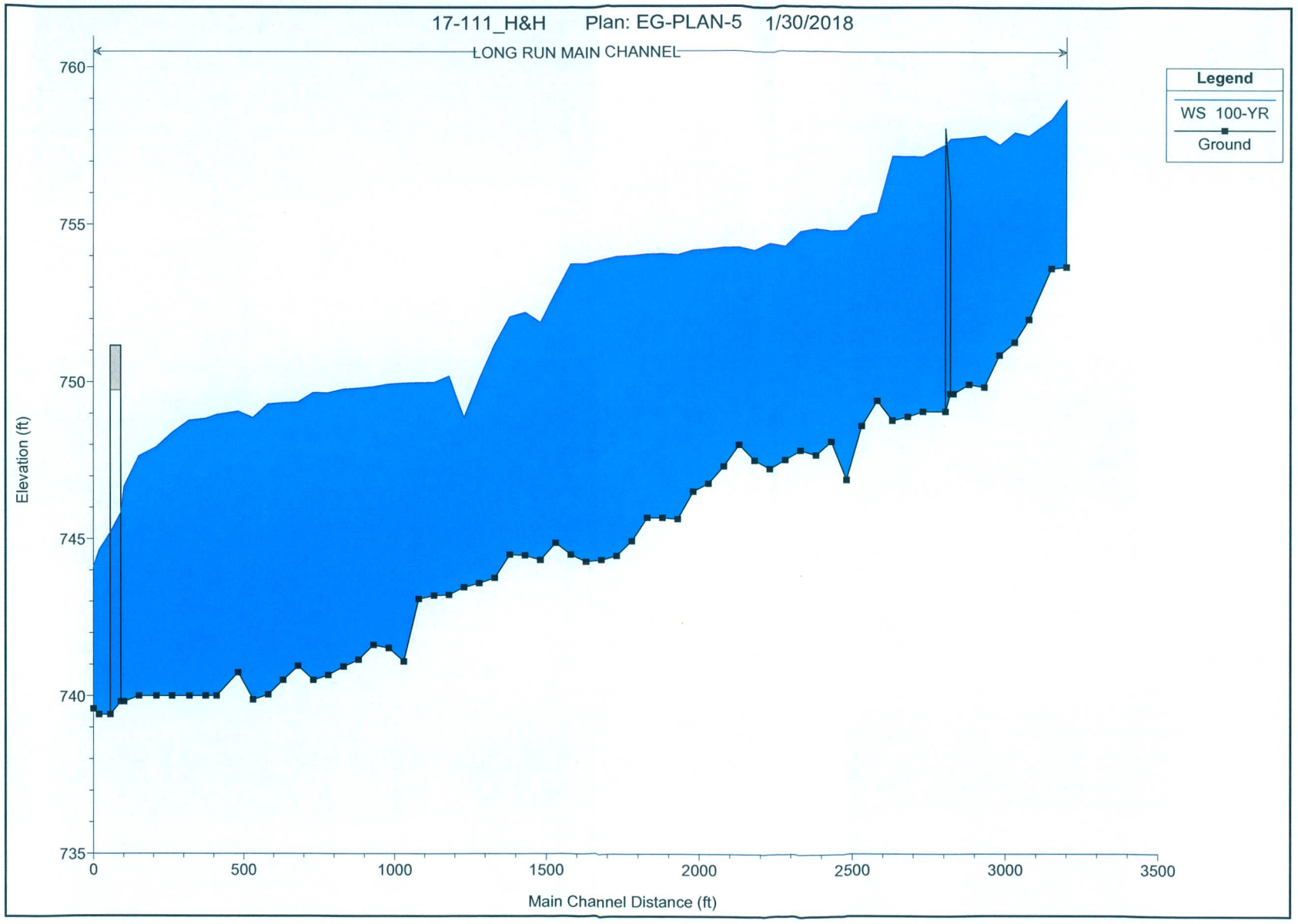
PROPOSED CONDITIONS

SHEET NUMBER:
C-04

APPENDIX B

HEC-RAS DATA


MAIN CHANNEL
19.34
101.71
209.64
319.15
373.49
631.37
731.36
831.41
931.36
1031.55
1131.46
1231.36
1331.36
1431.3
1531.35
1631.29
1781.21
1881.27
1981.04
2081.11
2181.22
2281.67
2431.44
2581.46
2931.6
3031.29
3200.18


17-111_H&H Plan: EG-PLAN-5 1/30/2018
LONG RUN MAIN CHANNEL
Legend
WS 100-YR
Ground
760
755
750
745
740
735
Elevation (ft)
0
500
1000
1500
2000
2500
3000
3500
Main Channel Distance (ft)

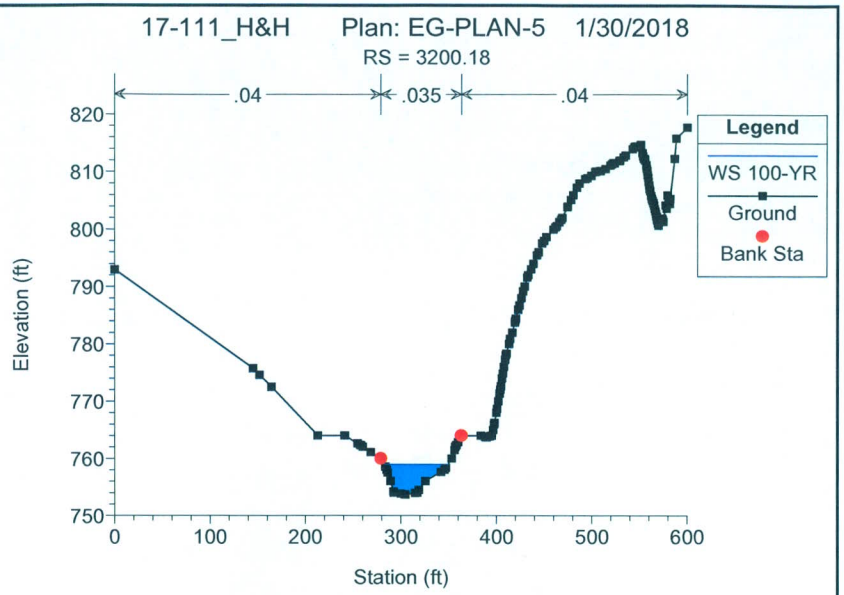
HEC-RAS Plan: EG-5 River: LONG RUN Reach: MAIN CHANNEL Profile: 100-YR

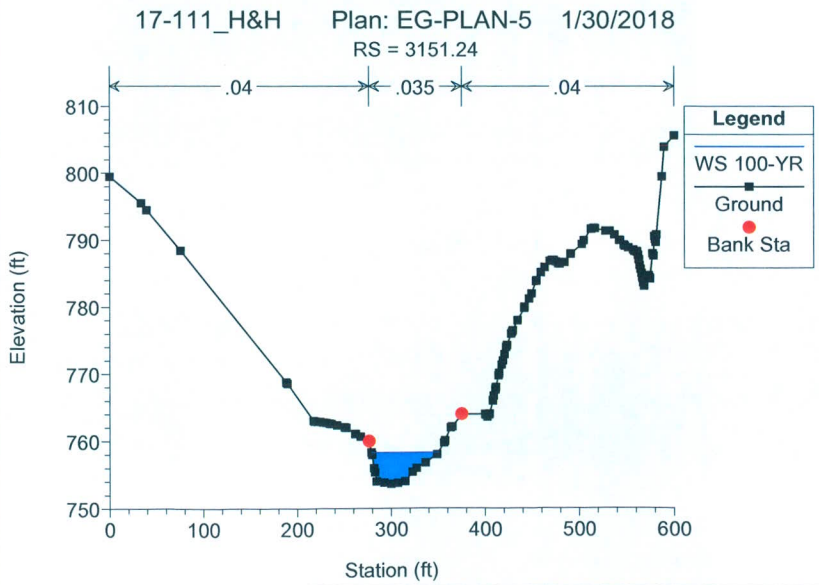
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
MAIN CHANNEL	3200.18	100-YR	2216.44	753.67	758.99	758.83	760.49	0.010951	9.81	225.97	67.21	0.94
MAIN CHANNEL	3151.24	100-YR	2216.44	753.62	758.36	758.36	759.91	0.012670	10.00	221.64	71.36	1.00
MAIN CHANNEL	3077.66	100-YR	2315.70	752.00	757.83	757.29	759.08	0.007709	8.96	259.66	72.30	0.81
MAIN CHANNEL	3031.29	100-YR	2315.70	751.28	757.94	756.77	758.67	0.004143	7.02	387.79	202.89	0.60
MAIN CHANNEL	2981.23	100-YR	2315.70	750.87	757.54	756.59	758.42	0.005259	7.68	343.07	165.37	0.67
MAIN CHANNEL	2931.6	100-YR	2315.70	749.85	757.84		758.09	0.001590	4.84	673.22	244.04	0.38
MAIN CHANNEL	2881.8	100-YR	2315.70	749.94	757.78		758.01	0.001367	4.72	689.46	225.26	0.35
MAIN CHANNEL	2830.87	100-YR	2315.70	749.63	757.74	756.38	757.93	0.001336	4.50	724.72	231.09	0.35
MAIN CHANNEL	2820		Bridge									
MAIN CHANNEL	2731.19	100-YR	2315.70	749.07	757.18		757.60	0.002180	5.64	515.73	184.80	0.45
MAIN CHANNEL	2681.3	100-YR	2315.70	748.91	757.18		757.47	0.001451	4.36	566.74	188.72	0.36
MAIN CHANNEL	2631.1	100-YR	2315.70	748.79	757.19		757.38	0.001031	4.14	785.22	281.10	0.31
MAIN CHANNEL	2581.46	100-YR	2315.70	749.42	755.39	755.13	757.11	0.010015	10.52	220.18	53.99	0.92
MAIN CHANNEL	2531.07	100-YR	2315.70	748.62	755.30	755.30	756.54	0.007307	9.18	297.51	152.96	0.78
MAIN CHANNEL	2481.43	100-YR	2315.70	746.90	754.85	753.99	755.59	0.003509	7.40	404.79	177.05	0.56
MAIN CHANNEL	2431.44	100-YR	2315.70	748.11	754.81		755.35	0.003572	6.97	517.41	278.76	0.56
MAIN CHANNEL	2381.67	100-YR	2315.70	747.68	754.88		755.16	0.001697	5.45	724.51	333.83	0.40
MAIN CHANNEL	2331.55	100-YR	2315.70	747.82	754.79		755.06	0.001863	5.30	706.11	324.68	0.41
MAIN CHANNEL	2281.67	100-YR	2315.70	747.53	754.33		754.90	0.003935	7.36	525.90	317.76	0.58
MAIN CHANNEL	2231.25	100-YR	2315.70	747.24	754.41		754.68	0.001890	5.33	712.95	330.06	0.41
MAIN CHANNEL	2181.22	100-YR	2315.70	747.50	754.19		754.56	0.002272	5.94	604.43	268.67	0.45
MAIN CHANNEL	2131.29	100-YR	2320.26	748.01	754.30		754.42	0.000761	3.51	949.37	308.58	0.27
MAIN CHANNEL	2081.11	100-YR	2320.26	747.32	754.29		754.39	0.000481	2.89	1060.66	284.47	0.21
MAIN CHANNEL	2031.08	100-YR	2320.26	746.77	754.23		754.35	0.000681	3.23	902.21	252.88	0.25
MAIN CHANNEL	1981.04	100-YR	2320.26	746.51	754.20		754.32	0.000776	3.05	882.86	254.52	0.26
MAIN CHANNEL	1931.11	100-YR	2320.26	745.64	754.05		754.26	0.001264	3.92	681.13	204.61	0.33
MAIN CHANNEL	1881.27	100-YR	2320.26	745.68	754.09		754.20	0.000423	2.84	963.33	229.53	0.21
MAIN CHANNEL	1831.31	100-YR	2320.26	745.68	754.07		754.18	0.000340	2.87	997.73	211.34	0.19
MAIN CHANNEL	1781.21	100-YR	2320.26	744.93	754.02		754.15	0.000650	3.67	866.49	201.23	0.25
MAIN CHANNEL	1731.3	100-YR	2320.26	744.46	754.00		754.12	0.000504	3.46	920.04	202.91	0.22
MAIN CHANNEL	1681.36	100-YR	2320.26	744.33	753.88		754.08	0.000752	4.19	689.84	129.68	0.27
MAIN CHANNEL	1631.29	100-YR	2320.26	744.28	753.75		754.03	0.000968	4.26	553.75	98.69	0.31
MAIN CHANNEL	1581.58	100-YR	2320.26	744.50	753.75		753.96	0.000936	4.45	742.78	206.36	0.30
MAIN CHANNEL	1531.35	100-YR	2320.26	744.88	752.84	750.91	753.80	0.003684	8.16	351.21	154.46	0.57
MAIN CHANNEL	1481.41	100-YR	2320.26	744.33	751.89	750.97	753.49	0.006956	10.23	244.68	103.26	0.77
MAIN CHANNEL	1431.3	100-YR	2320.26	744.48	752.21		753.03	0.003122	7.48	373.69	162.71	0.54
MAIN CHANNEL	1381.3	100-YR	2320.26	744.50	752.07		752.87	0.003152	7.55	392.15	159.62	0.55
MAIN CHANNEL	1331.36	100-YR	2320.26	743.76	751.19	750.22	752.61	0.004778	10.02	293.68	116.43	0.68
MAIN CHANNEL	1281.4	100-YR	2320.26	743.59	750.08	750.08	752.23	0.008672	12.21	214.51	54.83	0.90
MAIN CHANNEL	1231.36	100-YR	2320.26	743.46	748.85	749.53	751.59	0.016748	13.36	180.17	55.70	1.18
MAIN CHANNEL	1181.33	100-YR	2320.26	743.21	750.18	748.66	750.49	0.002261	5.32	541.44	156.00	0.44

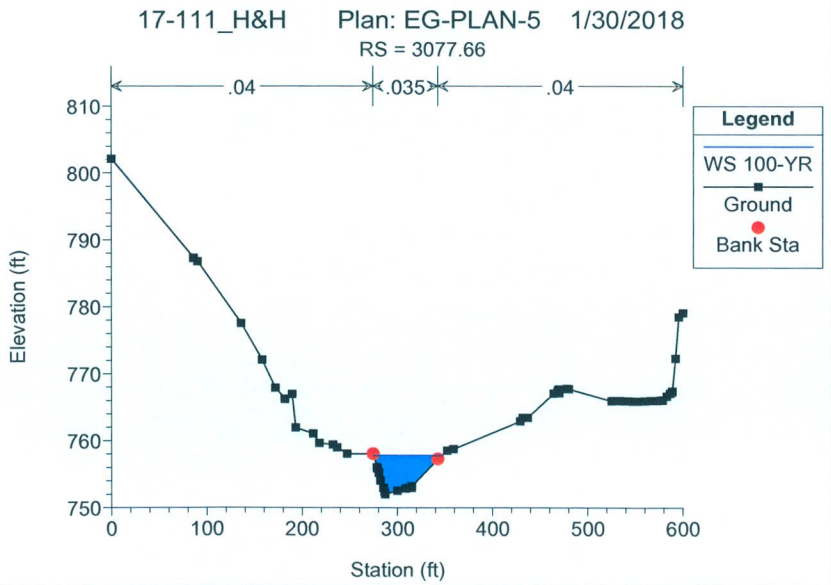
HEC-RAS Plan: EG-5 River: LONG RUN Reach: MAIN CHANNEL Profile: 100-YR (Continued)

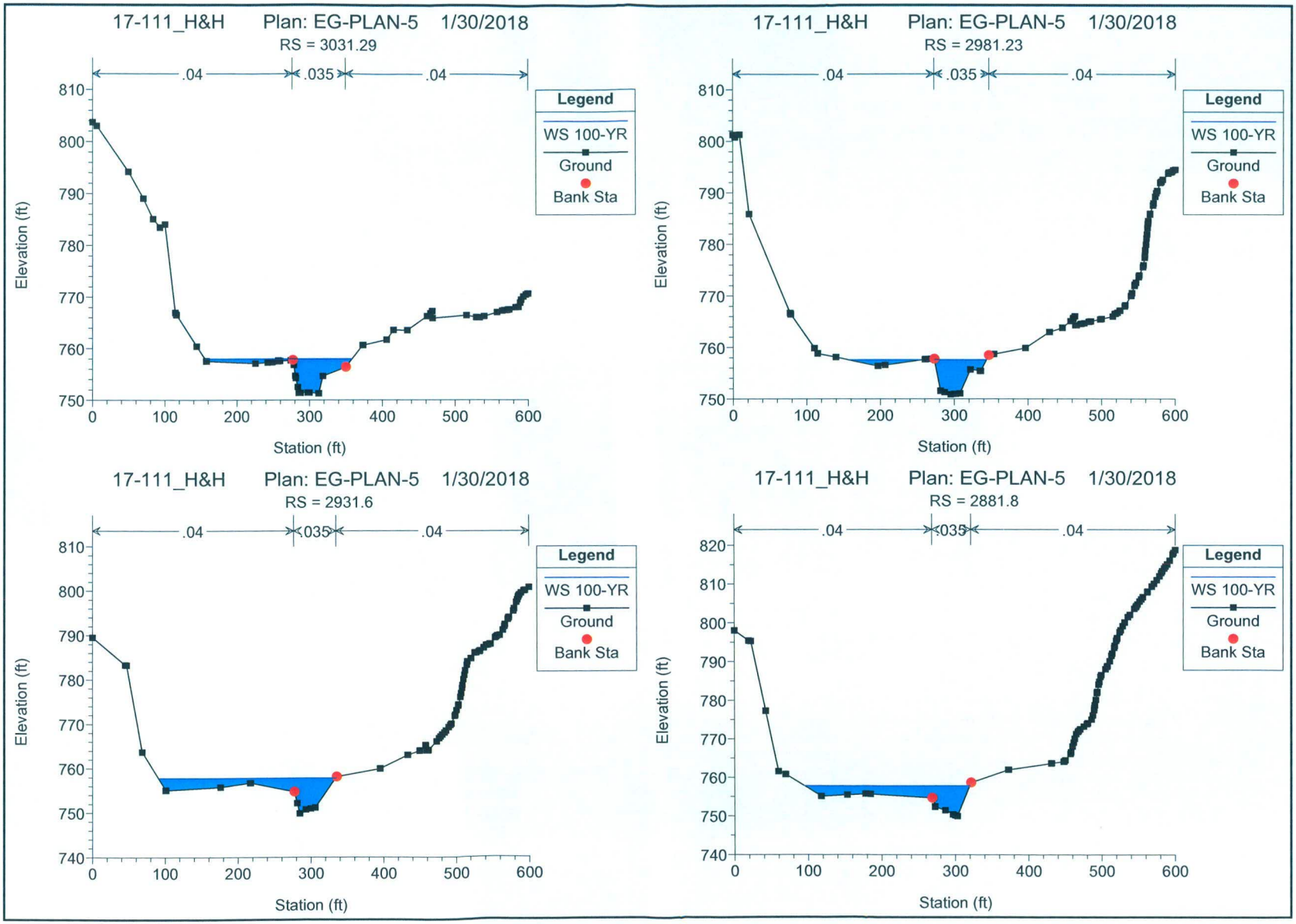
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
MAIN CHANNEL	1131.46	100-YR	2333.46	743.19	749.98		750.37	0.002274	5.63	530.67	176.01	0.45
MAIN CHANNEL	1081.29	100-YR	2333.46	743.08	749.97		750.24	0.001524	5.03	658.86	219.03	0.38
MAIN CHANNEL	1031.55	100-YR	2333.46	741.09	749.96		750.16	0.000991	4.38	759.37	229.28	0.31
MAIN CHANNEL	981.19	100-YR	2333.46	741.52	749.93		750.11	0.000917	4.20	794.97	227.99	0.29
MAIN CHANNEL	931.36	100-YR	2333.46	741.62	749.84		750.05	0.001035	4.58	742.80	212.35	0.31
MAIN CHANNEL	881.4	100-YR	2333.46	741.15	749.80		750.00	0.000940	4.42	738.31	190.14	0.30
MAIN CHANNEL	831.41	100-YR	2333.46	740.93	749.77		749.95	0.000834	4.27	751.65	177.01	0.28
MAIN CHANNEL	781.31	100-YR	2333.46	740.66	749.65		749.91	0.000872	4.74	681.94	161.08	0.30
MAIN CHANNEL	731.36	100-YR	2333.46	740.51	749.66		749.85	0.000640	4.18	768.91	160.09	0.26
MAIN CHANNEL	681.36	100-YR	2333.46	740.95	749.36		749.78	0.001325	5.45	482.10	104.43	0.36
MAIN CHANNEL	631.37	100-YR	2333.46	740.51	749.34		749.69	0.001323	5.18	516.36	99.18	0.35
MAIN CHANNEL	581.36	100-YR	2333.46	740.04	749.30		749.62	0.001152	4.97	547.18	106.19	0.33
MAIN CHANNEL	531.36	100-YR	2333.46	739.88	748.86		749.51	0.002171	6.67	389.95	89.31	0.45
MAIN CHANNEL	481.36	100-YR	2333.46	740.74	749.06		749.32	0.001020	4.11	567.53	103.93	0.31
MAIN CHANNEL	409.99	100-YR	2333.46	740.00	748.96		749.25	0.001034	4.79	573.48	101.99	0.31
MAIN CHANNEL	373.49	100-YR	2333.46	740.00	748.84		749.20	0.001267	5.19	518.48	100.48	0.35
MAIN CHANNEL	319.15	100-YR	2333.46	740.00	748.78		749.13	0.001182	5.13	520.84	89.59	0.34
MAIN CHANNEL	261.95	100-YR	2333.46	740.00	748.37		749.01	0.002036	6.46	375.63	65.80	0.44
MAIN CHANNEL	209.64	100-YR	2333.46	740.00	747.92		748.85	0.003354	7.70	302.90	48.11	0.54
MAIN CHANNEL	151.71	100-YR	2333.46	740.00	747.64		748.63	0.003728	8.00	291.79	47.90	0.57
MAIN CHANNEL	101.71	100-YR	2333.46	739.82	746.66	745.69	748.31	0.007302	10.30	226.57	175.57	0.78
MAIN CHANNEL	91.71		Bridge									
MAIN CHANNEL	19.34	100-YR	2333.46	739.41	744.64	744.88	746.95	0.013661	12.21	192.44	313.18	1.07
MAIN CHANNEL	0	100-YR	2333.46	739.59	744.10	744.88	746.59	0.024168	14.94	267.69	267.45	1.38

No Data for Plot





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WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2981.23
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
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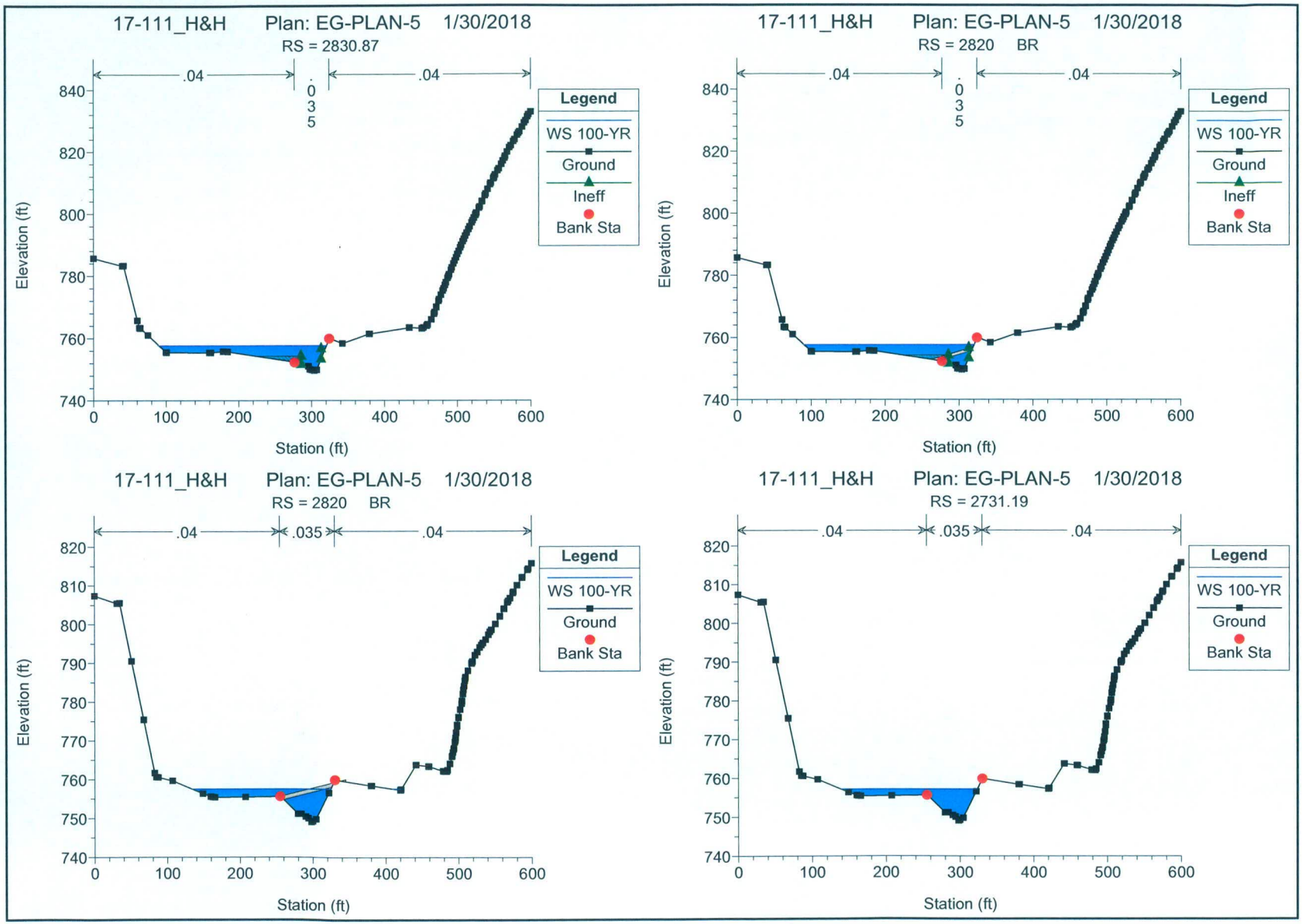
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)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Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2820 BR
.04
.035
.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2820 BR
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
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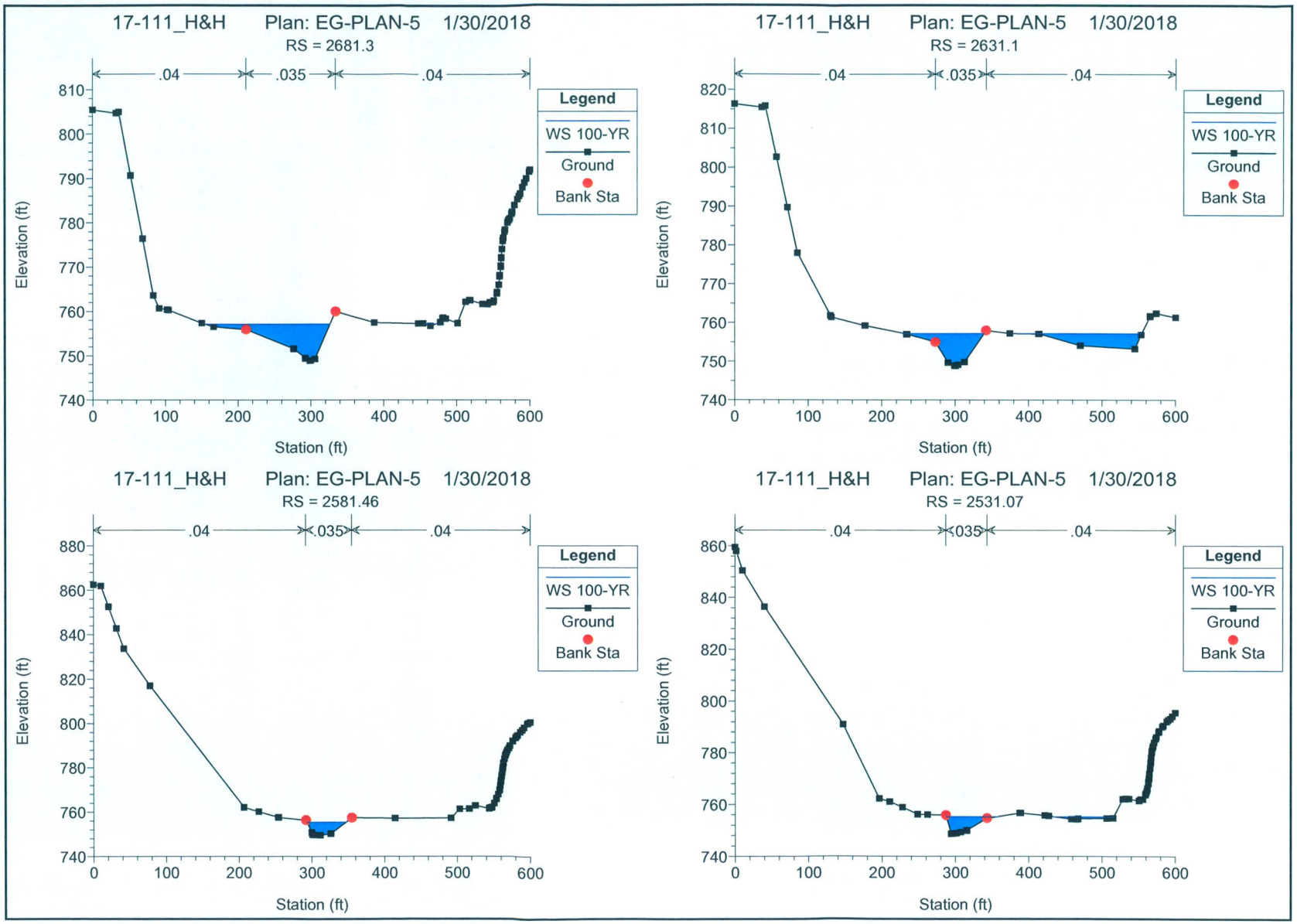
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)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Ground
Bank Sta
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Station (ft)
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RS = 2631.1
.04
.035
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 2581.46
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
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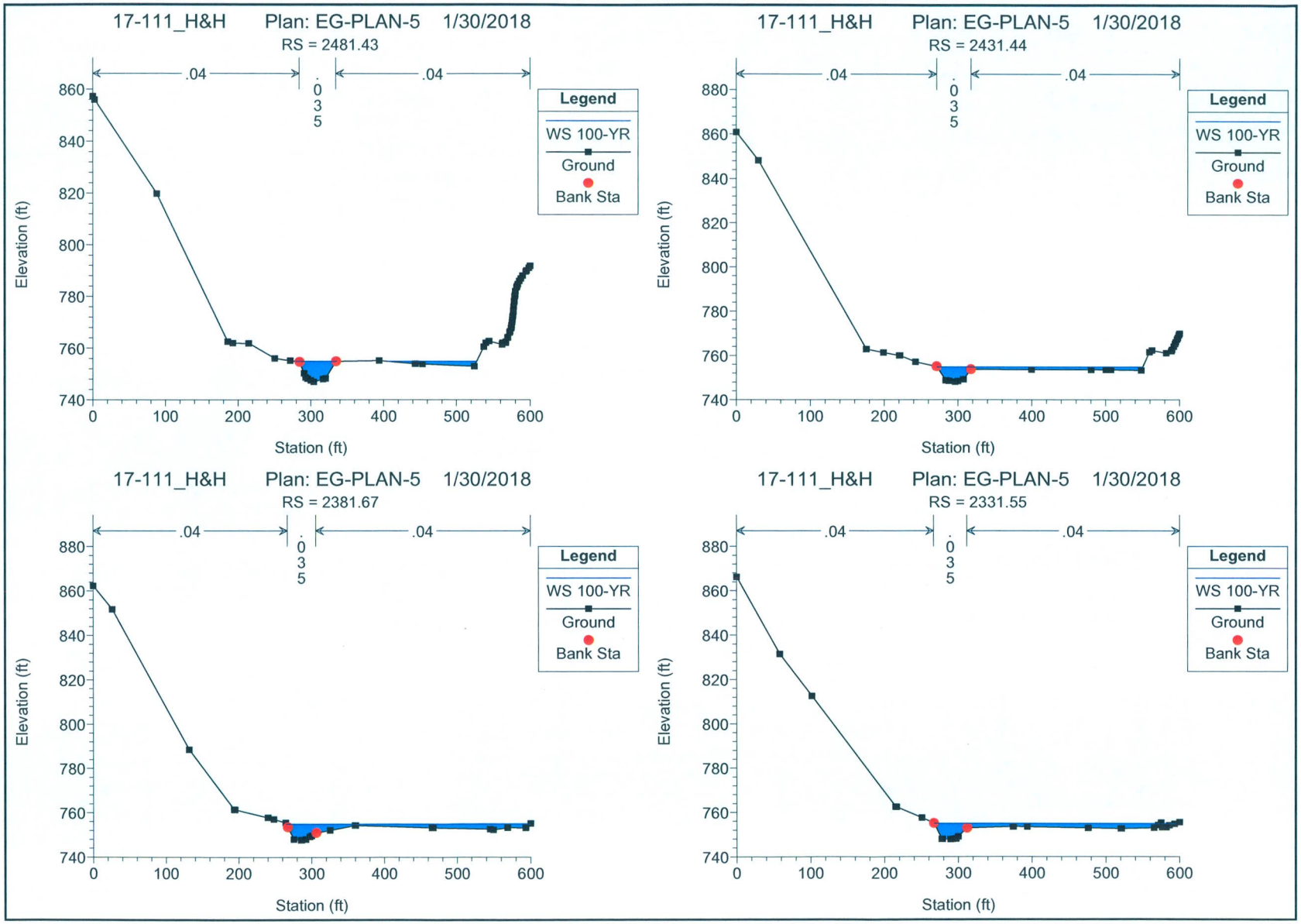
Ground
Bank Sta
Elevation (ft)
Station (ft)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Ground
Bank Sta
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Station (ft)
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RS = 2431.44
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.035
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
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RS = 2381.67
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Legend
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Ground
Bank Sta
Elevation (ft)
Station (ft)
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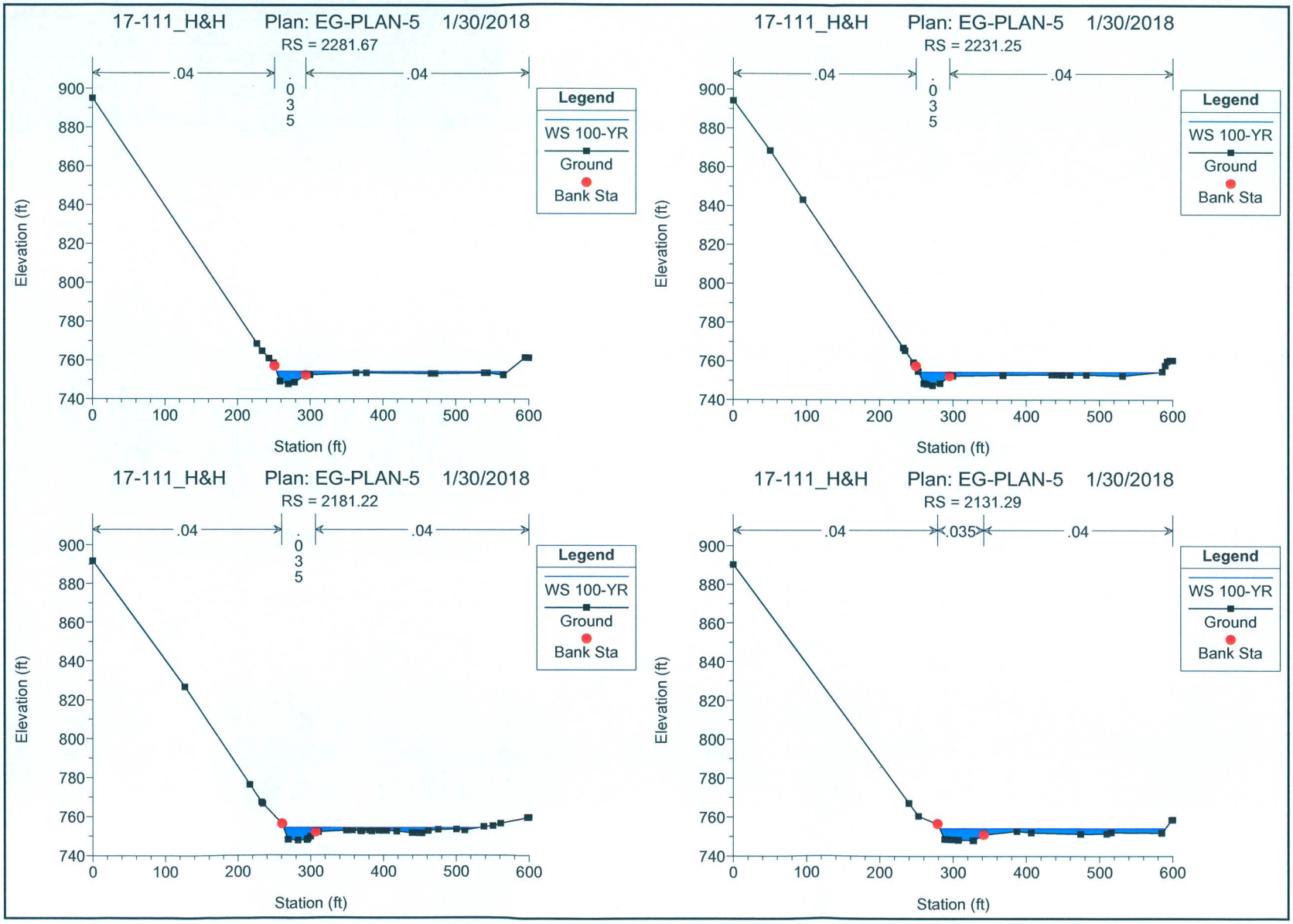
Ground
Bank Sta
Elevation (ft)
Station (ft)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WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
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RS = 2231.25
.04
.035
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
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RS = 2181.22
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
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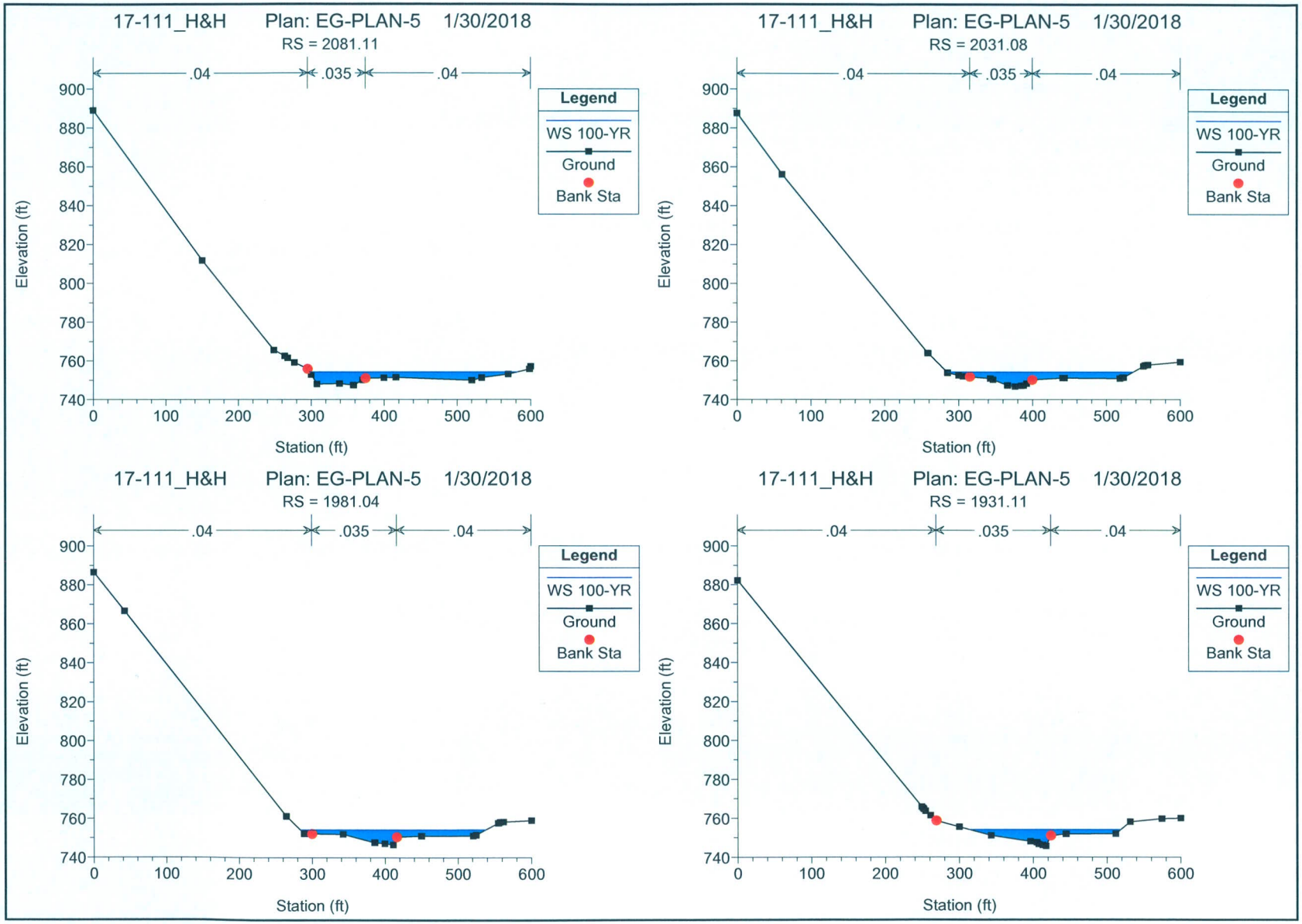
Ground
Bank Sta
Elevation (ft)
Station (ft)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Ground
Bank Sta
Elevation (ft)
Station (ft)
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RS = 2031.08
.04
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WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
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RS = 1981.04
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Legend
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Ground
Bank Sta
Elevation (ft)
Station (ft)
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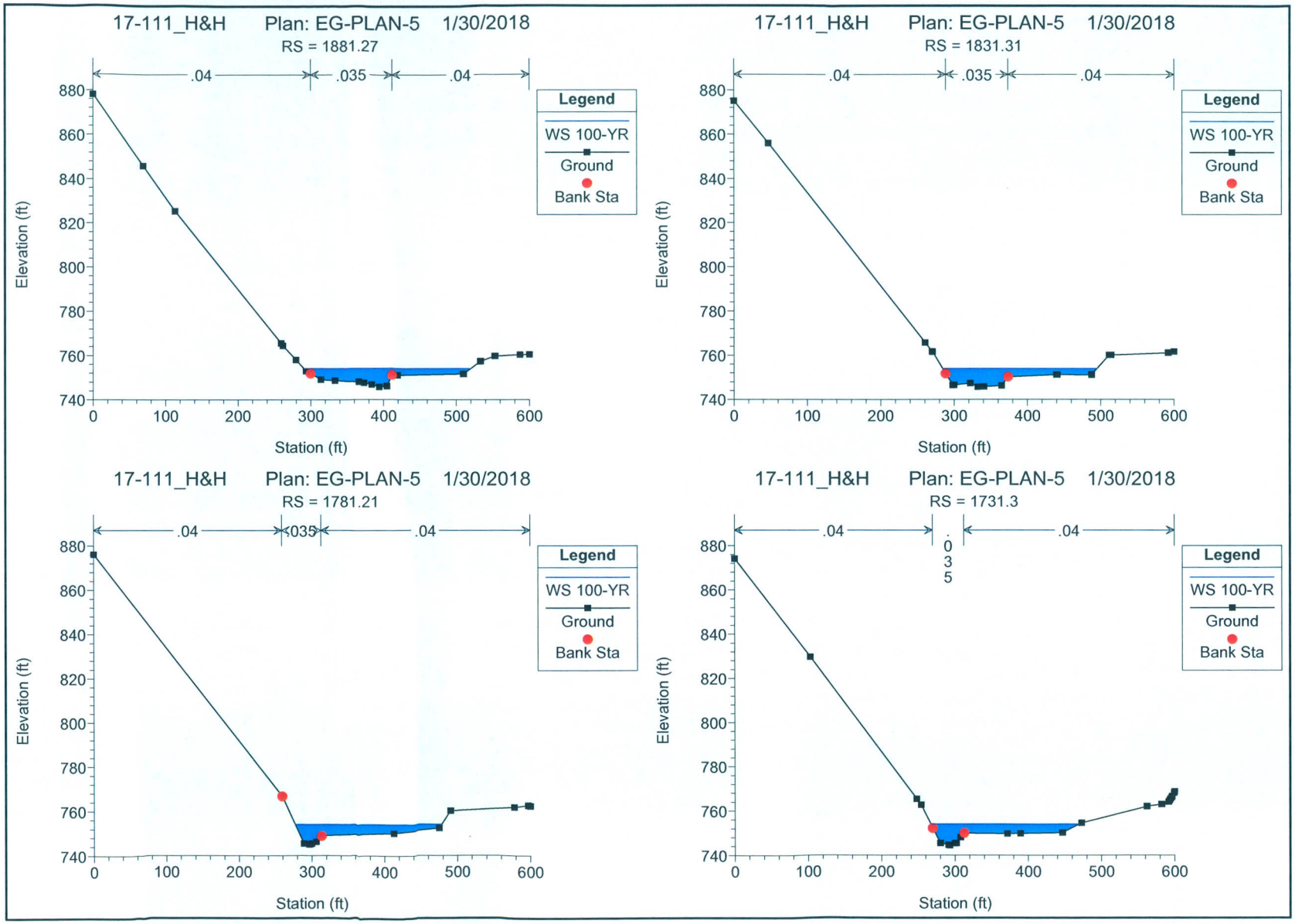
Bank Sta
Elevation (ft)
Station (ft)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Ground
Bank Sta
Elevation (ft)
Station (ft)
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RS = 1831.31
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
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RS = 1781.21
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.035
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
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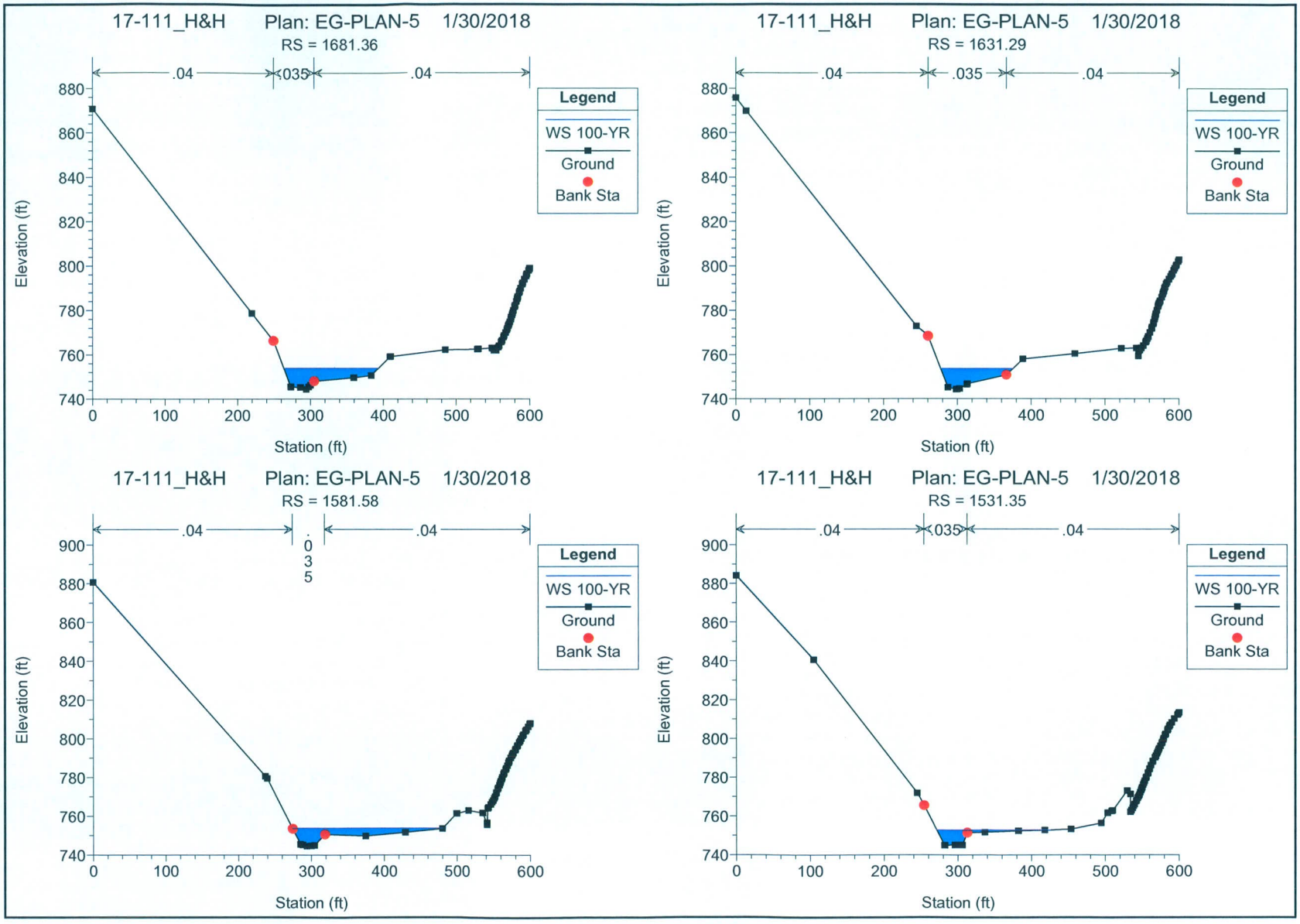
Ground
Bank Sta
Elevation (ft)
Station (ft)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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1631.29
.04
.035
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1581.58
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.035
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
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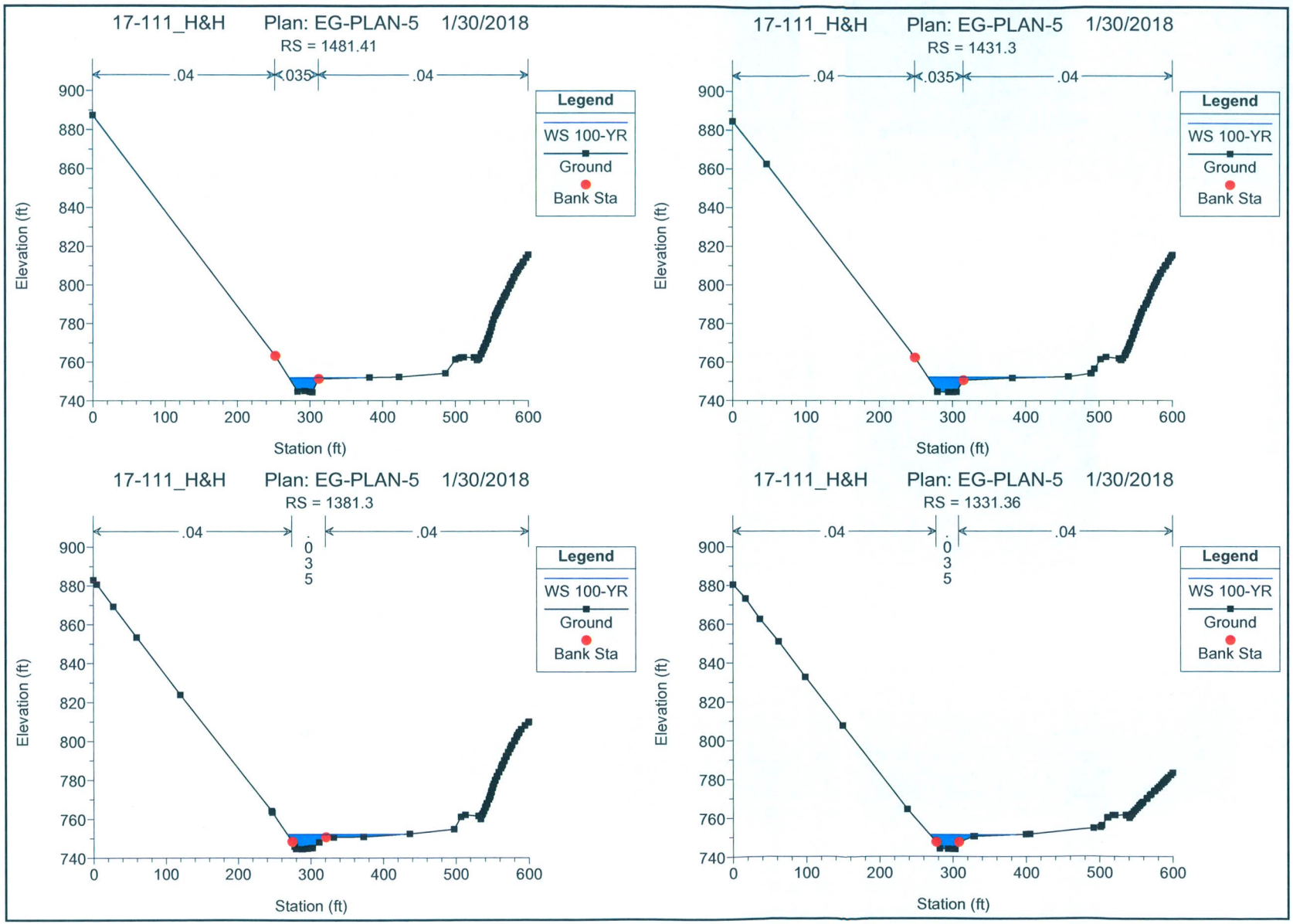
Ground
Bank Sta
Elevation (ft)
Station (ft)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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1431.3
.04
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1381.3
.04
.035
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
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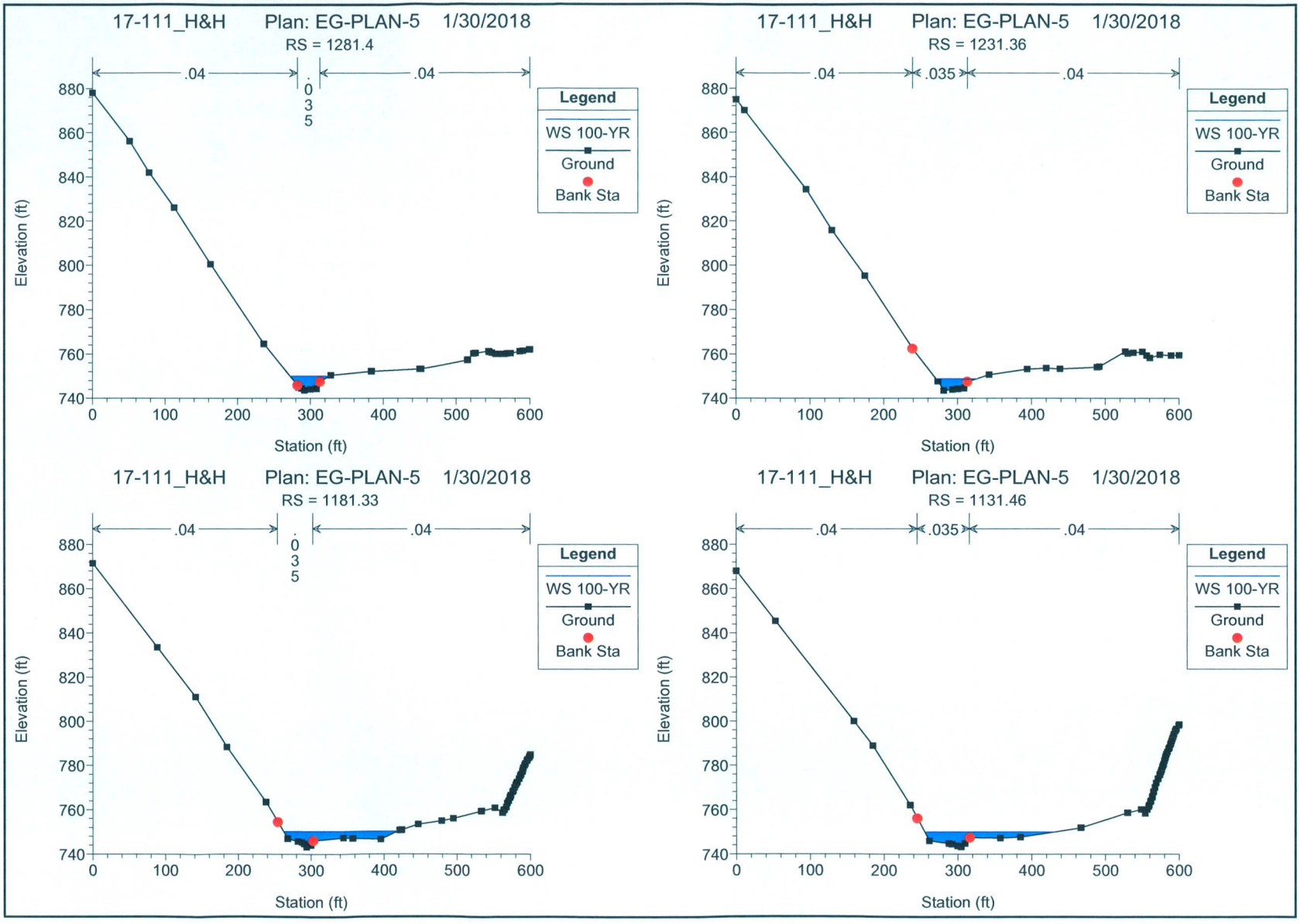
Bank Sta
Elevation (ft)
Station (ft)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Ground
Bank Sta
Elevation (ft)
Station (ft)
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RS = 1231.36
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.035
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1181.33
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
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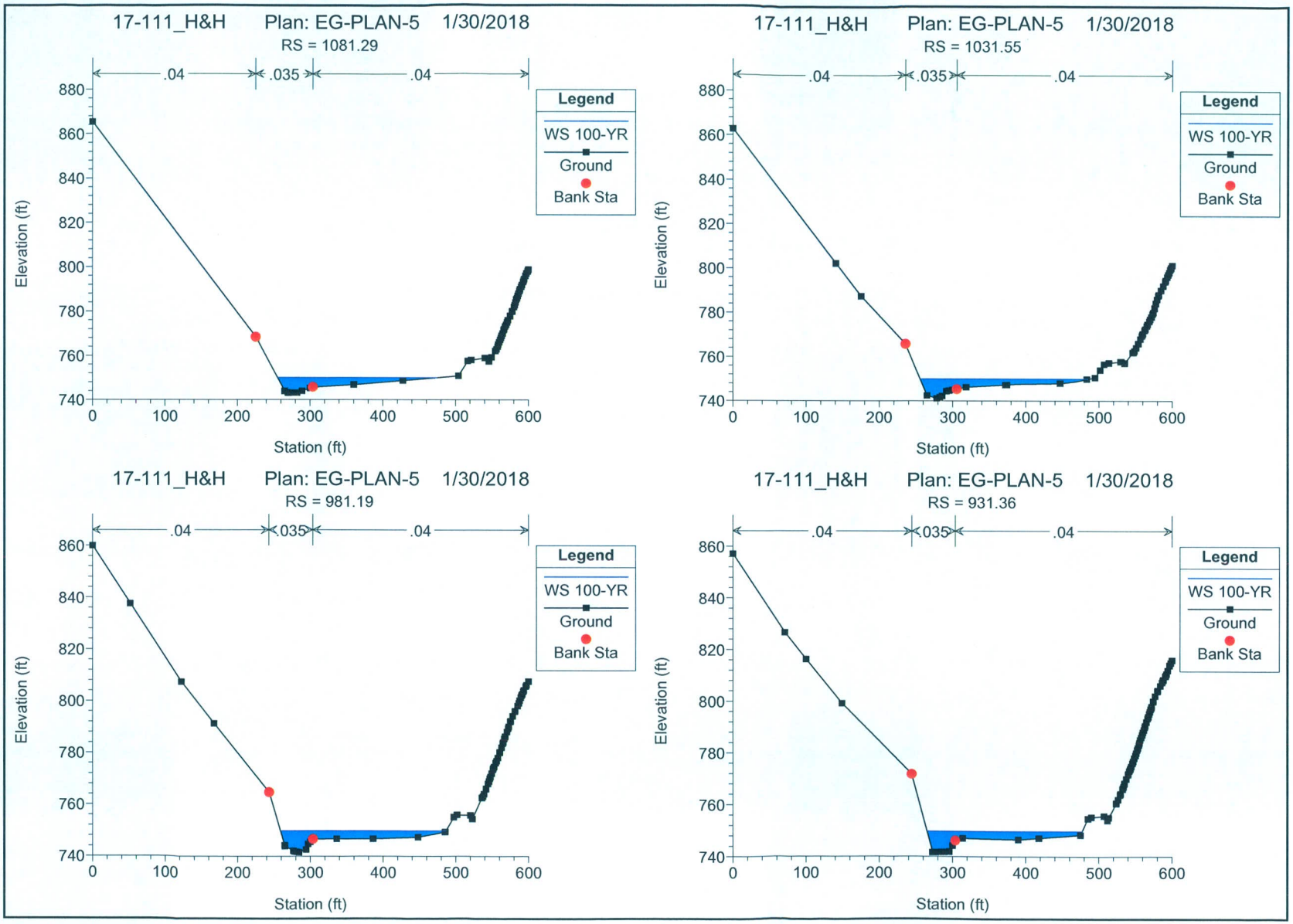
Ground
Bank Sta
Elevation (ft)
Station (ft)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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 1031.55
.04
.035
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 981.19
.04
.035
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
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WS 100-YR
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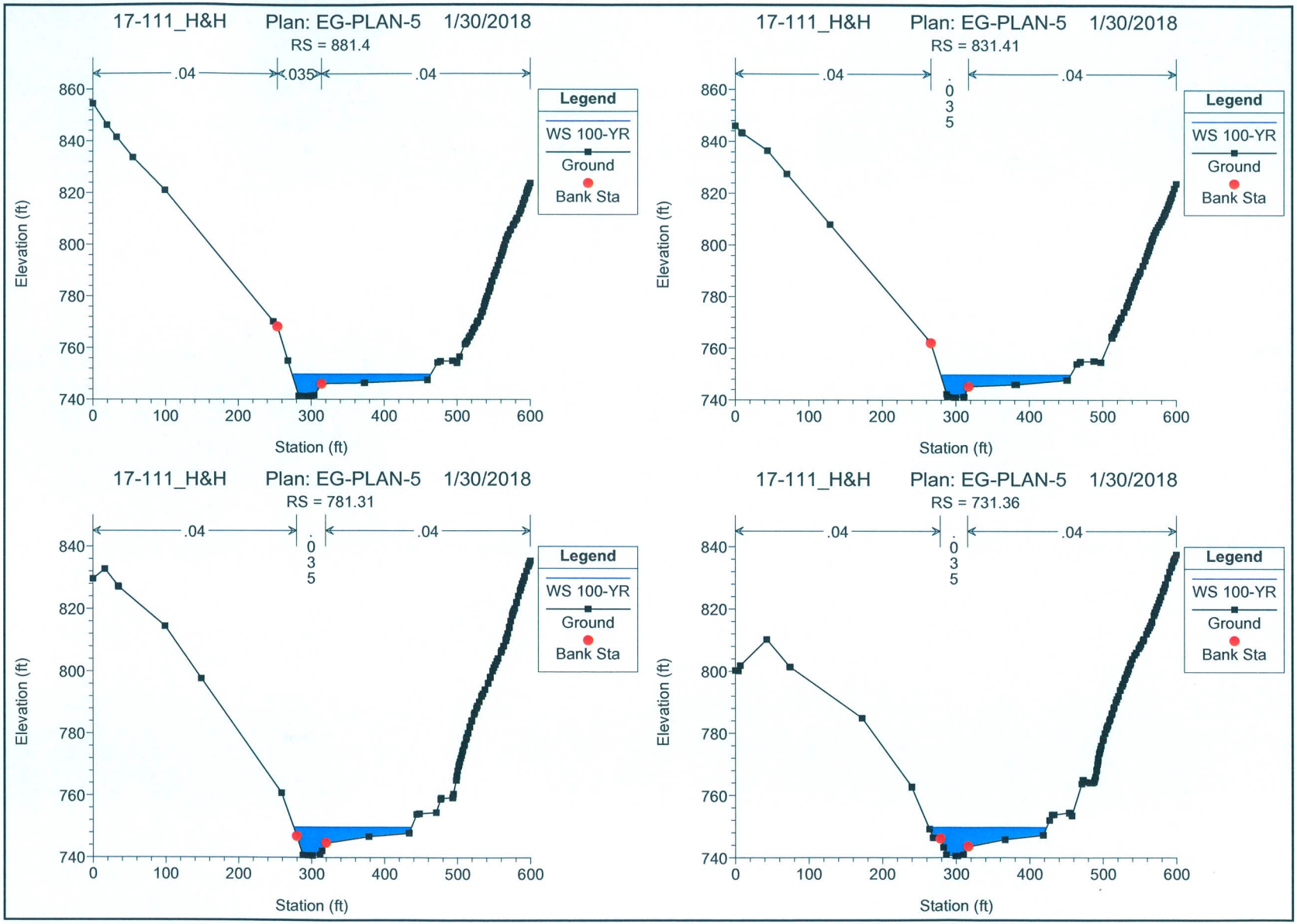
Bank Sta
Elevation (ft)
Station (ft)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Ground
Bank Sta
Elevation (ft)
Station (ft)
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Legend
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Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
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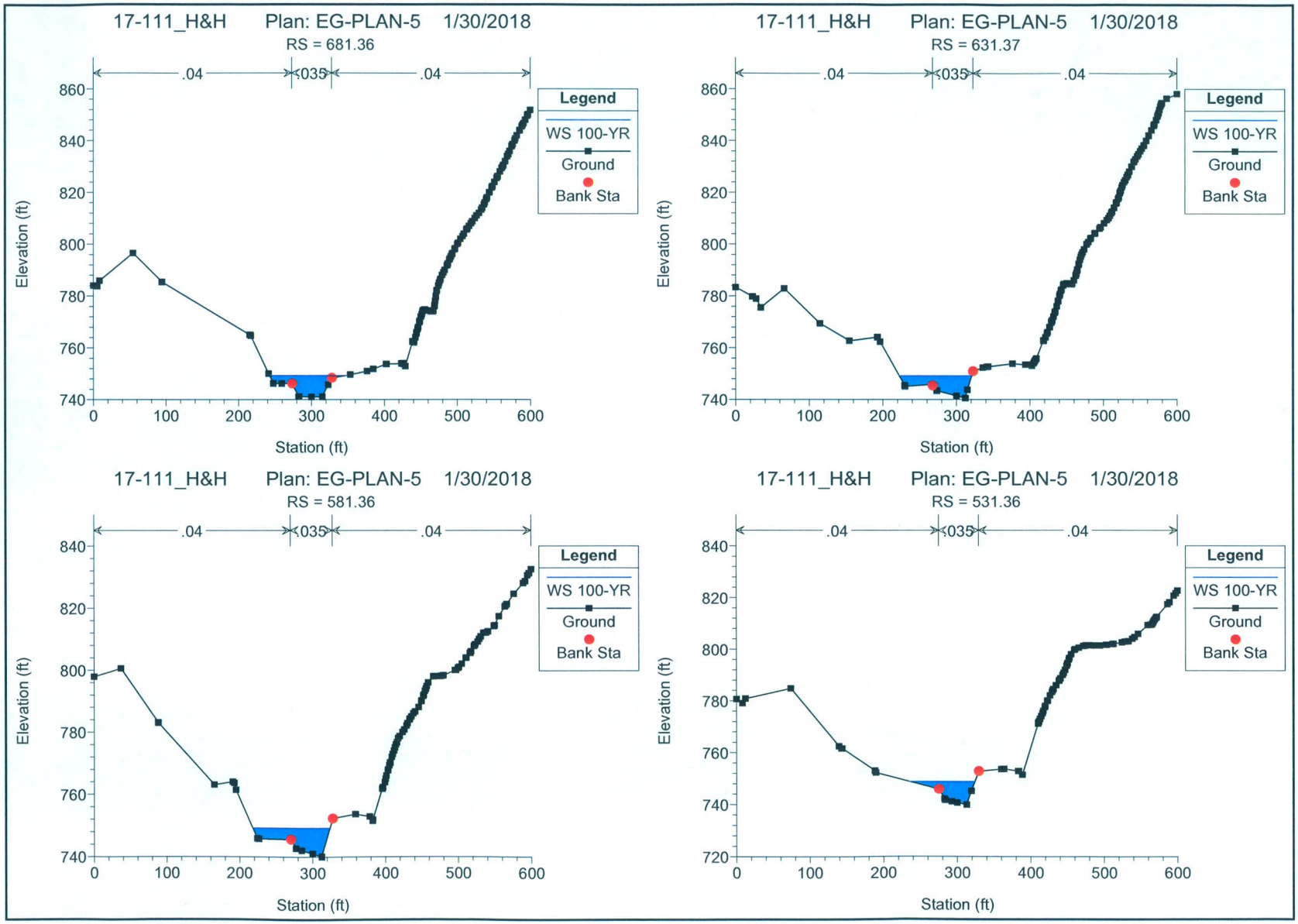
Bank Sta
Elevation (ft)
Station (ft)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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 631.37
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.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 581.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
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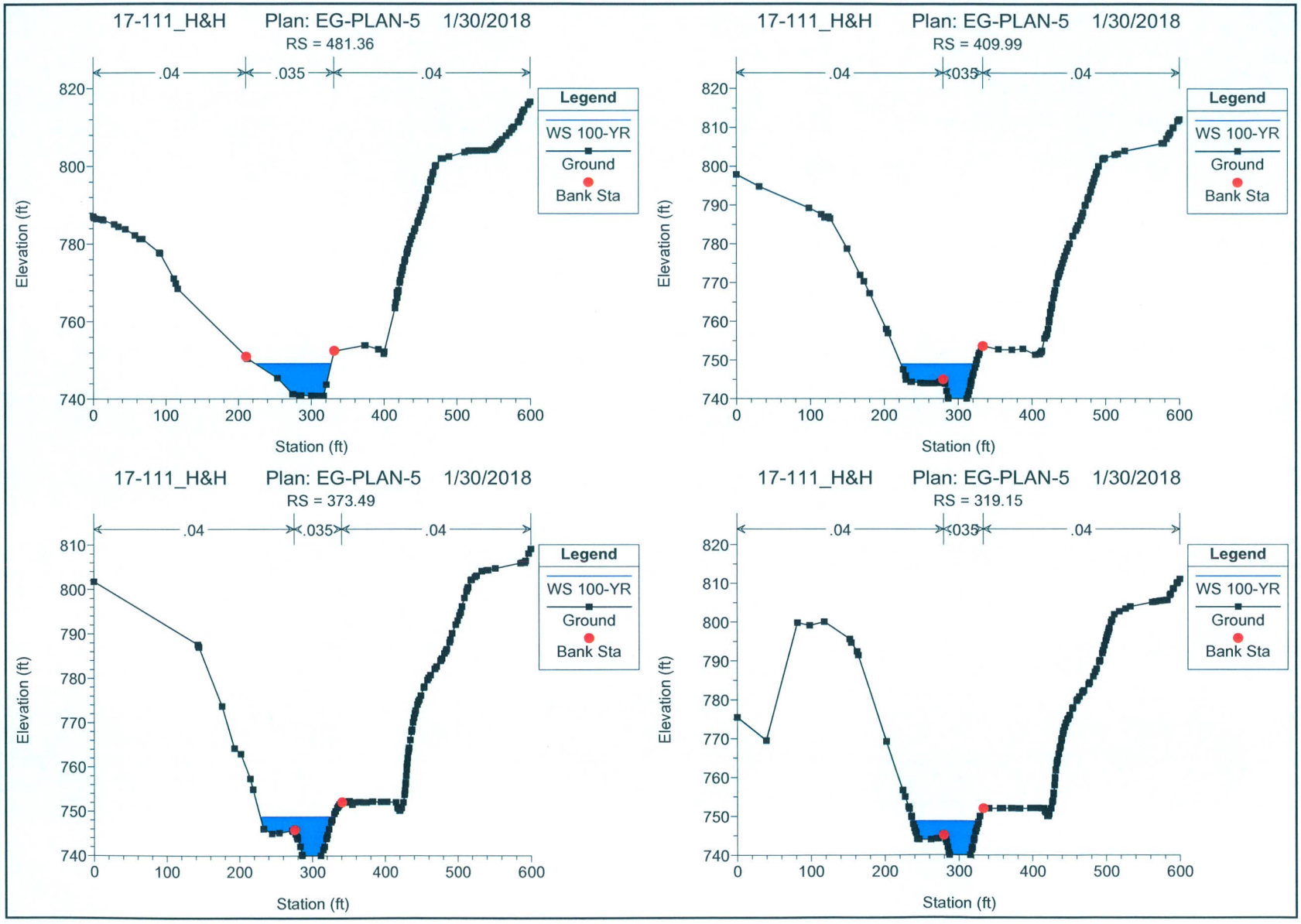
Bank Sta
Elevation (ft)
Station (ft)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Bank Sta
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Station (ft)
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RS = 409.99
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Legend
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Ground
Bank Sta
Elevation (ft)
Station (ft)
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
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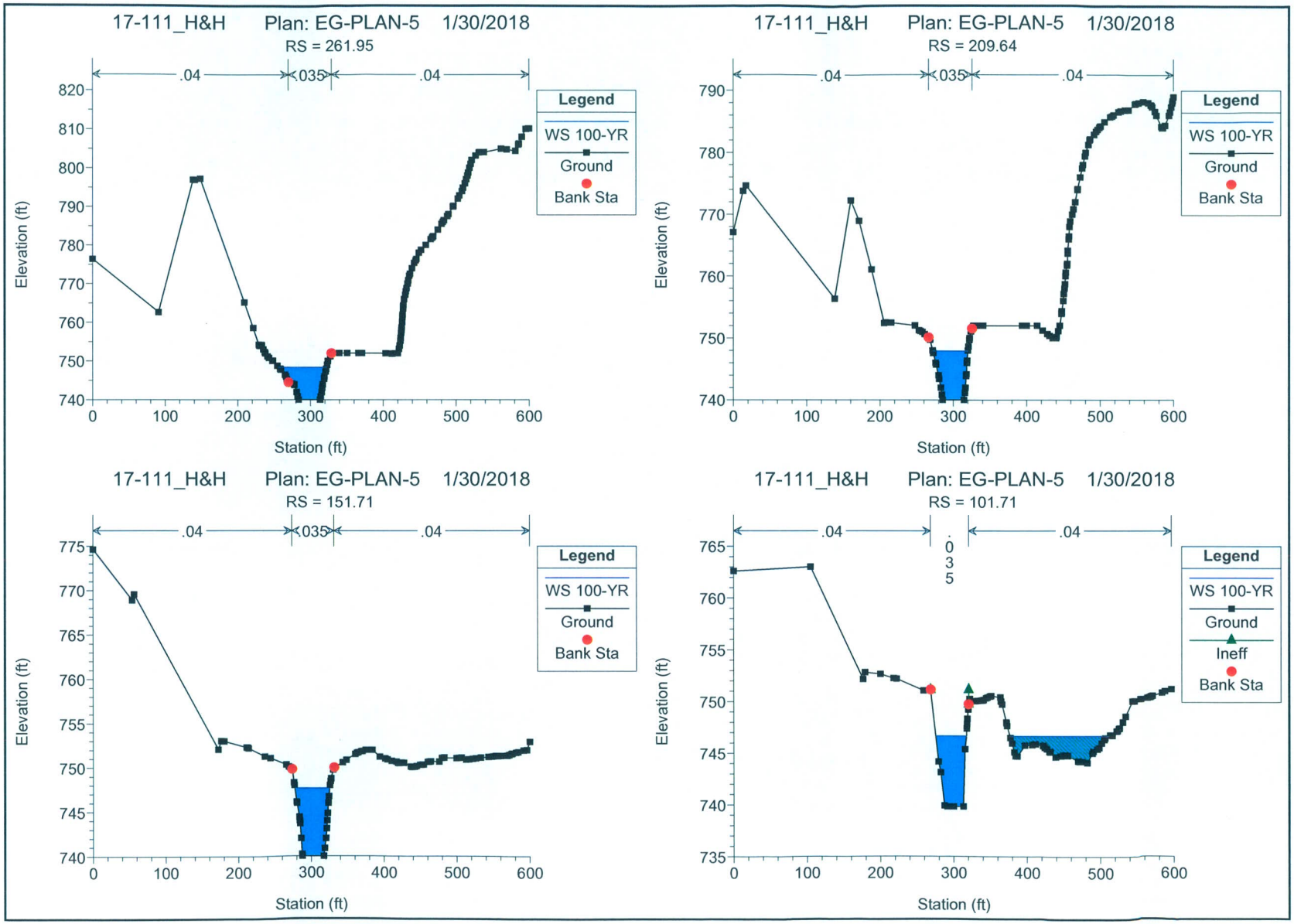
Bank Sta
Elevation (ft)
Station (ft)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Ground
Bank Sta
Elevation (ft)
Station (ft)
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Ground
Bank Sta
Elevation (ft)
Station (ft)
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.035
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
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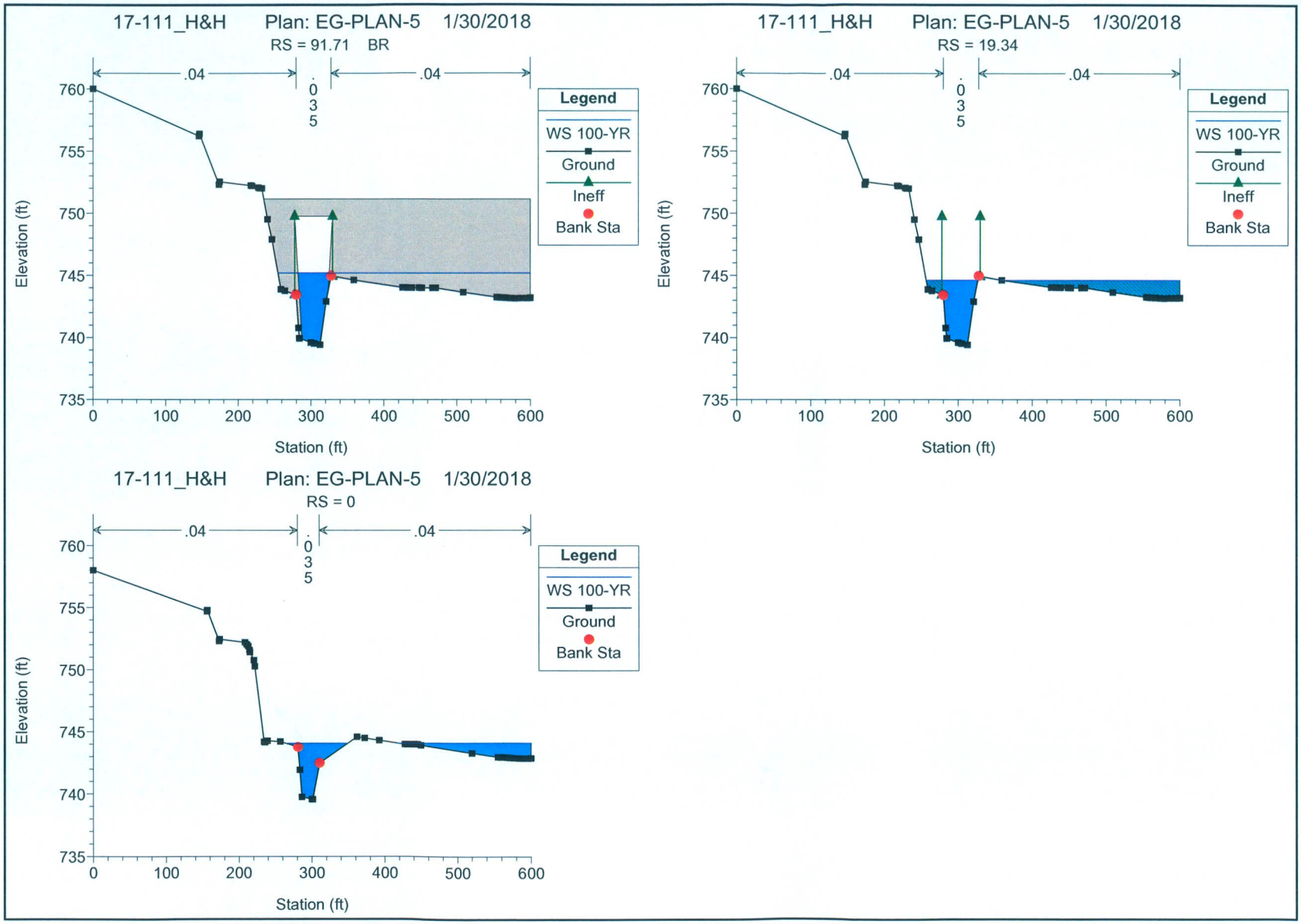
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
760
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750
745
740
735
0
100
200
300
400
500
600
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 19.34
.04
.035
.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
760
755
750
745
740
735
0
100
200
300
400
500
600
Station (ft)
17-111_H&H Plan: EG-PLAN-5 1/30/2018
RS = 0
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
760
755
750
745
740
735
0
100
200
300
400
500
600
Station (ft)

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2820 Profile: 100-YR

E.G. US. (ft)	757.93	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	757.74	E.G. Elev (ft)	757.91	757.84
Q Total (cfs)	2315.70	W.S. Elev (ft)	757.73	757.55
Q Bridge (cfs)	237.58	Crit W.S. (ft)	756.18	755.17
Q Weir (cfs)		Max Chl Dpth (ft)	8.10	8.48
Weir Sta Lft (ft)		Vel Total (ft/s)	3.33	4.29
Weir Sta Rgt (ft)		Flow Area (sq ft)	695.89	539.66
Weir Submerg		Froude # Chl	0.21	0.26
Weir Max Depth (ft)		Specif Force (cu ft)	1586.74	1590.88
Min El Weir Flow (ft)	755.37	Hydr Depth (ft)	3.01	2.95
Min El Prs (ft)	755.72	W.P. Total (ft)	324.74	296.93
Delta EG (ft)	0.34	Conv. Total (cfs)	46001.4	33178.3
Delta WS (ft)	0.56	Top Width (ft)	231.07	182.71
BR Open Area (sq ft)	100.38	Frctn Loss (ft)	0.05	0.23
BR Open Vel (ft/s)	2.37	C & E Loss (ft)	0.01	0.01
BR Sluice Coef		Shear Total (lb/sq ft)	0.34	0.55
BR Sel Method	Energy only	Power Total (lb/ft s)	1.13	2.37

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 91.71 Profile: 100-YR

E.G. US. (ft)	748.31	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	746.66	E.G. Elev (ft)	748.24	747.46
Q Total (cfs)	2333.46	W.S. Elev (ft)	745.84	745.20
Q Bridge (cfs)	2333.46	Crit W.S. (ft)	745.84	745.20
Q Weir (cfs)		Max Chl Dpth (ft)	6.02	5.79
Weir Sta Lft (ft)		Vel Total (ft/s)	12.41	12.05
Weir Sta Rgt (ft)		Flow Area (sq ft)	188.02	193.64
Weir Submerg		Froude # Chl	1.00	1.00
Weir Max Depth (ft)		Specif Force (cu ft)	1414.63	1366.89
Min El Weir Flow (ft)	751.16	Hydr Depth (ft)	4.78	4.52
Min El Prs (ft)	749.74	W.P. Total (ft)	43.67	46.48
Delta EG (ft)	1.36	Conv. Total (cfs)	21125.7	21285.1
Delta WS (ft)	2.02	Top Width (ft)	39.36	42.84
BR Open Area (sq ft)	361.29	Frctn Loss (ft)		
BR Open Vel (ft/s)	12.41	C & E Loss (ft)		
BR Sluice Coef		Shear Total (lb/sq ft)	3.28	3.13
BR Sel Method	Momentum	Power Total (lb/ft s)	40.70	37.67

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 3200.18 Profile: 100-YR

E.G. Elev (ft)	760.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.50	Wt. n-Val.		0.035	
W.S. Elev (ft)	758.99	Reach Len. (ft)	48.94	48.94	48.94
Crit W.S. (ft)	758.83	Flow Area (sq ft)		225.97	
E.G. Slope (ft/ft)	0.010951	Area (sq ft)		225.97	
Q Total (cfs)	2216.44	Flow (cfs)		2216.44	
Top Width (ft)	67.21	Top Width (ft)		67.21	
Vel Total (ft/s)	9.81	Avg. Vel. (ft/s)		9.81	
Max Chl Dpth (ft)	5.32	Hydr. Depth (ft)		3.36	
Conv. Total (cfs)	21180.5	Conv. (cfs)		21180.5	
Length Wtd. (ft)	48.94	Wetted Per. (ft)		68.88	
Min Ch El (ft)	753.67	Shear (lb/sq ft)		2.24	
Alpha	1.00	Stream Power (lb/ft s)		22.00	
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	3.73	22.90	14.69
C & E Loss (ft)	0.01	Cum SA (acres)	1.79	4.12	6.74

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 3151.24 Profile: 100-YR

E.G. Elev (ft)	759.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.55	Wt. n-Val.		0.035	
W.S. Elev (ft)	758.36	Reach Len. (ft)	73.58	73.58	73.58
Crit W.S. (ft)	758.36	Flow Area (sq ft)		221.64	
E.G. Slope (ft/ft)	0.012670	Area (sq ft)		221.64	
Q Total (cfs)	2216.44	Flow (cfs)		2216.44	
Top Width (ft)	71.36	Top Width (ft)		71.36	
Vel Total (ft/s)	10.00	Avg. Vel. (ft/s)		10.00	
Max Chl Dpth (ft)	4.74	Hydr. Depth (ft)		3.11	
Conv. Total (cfs)	19691.2	Conv. (cfs)		19691.2	
Length Wtd. (ft)	73.58	Wetted Per. (ft)		73.22	
Min Ch El (ft)	753.62	Shear (lb/sq ft)		2.39	
Alpha	1.00	Stream Power (lb/ft s)		23.94	
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	3.73	22.65	14.69
C & E Loss (ft)	0.09	Cum SA (acres)	1.79	4.04	6.74

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 3077.66 Profile: 100-YR

E.G. Elev (ft)	759.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.25	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	757.83	Reach Len. (ft)	46.37	46.37	46.37
Crit W.S. (ft)	757.29	Flow Area (sq ft)		258.23	1.44
E.G. Slope (ft/ft)	0.007709	Area (sq ft)		258.23	1.44
Q Total (cfs)	2315.70	Flow (cfs)		2313.60	2.11
Top Width (ft)	72.30	Top Width (ft)		67.54	4.75
Vel Total (ft/s)	8.92	Avg. Vel. (ft/s)		8.96	1.46
Max Chl Dpth (ft)	5.83	Hydr. Depth (ft)		3.82	0.30
Conv. Total (cfs)	26375.0	Conv. (cfs)		26351.0	24.0
Length Wtd. (ft)	46.37	Wetted Per. (ft)		69.29	4.79
Min Ch El (ft)	752.00	Shear (lb/sq ft)		1.79	0.14
Alpha	1.01	Stream Power (lb/ft s)		16.07	0.21
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	3.73	22.24	14.69
C & E Loss (ft)	0.16	Cum SA (acres)	1.79	3.92	6.74

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 3031.29 Profile: 100-YR

E.G. Elev (ft)	758.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.73	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	757.94	Reach Len. (ft)	50.06	50.06	50.06
Crit W.S. (ft)	756.77	Flow Area (sq ft)	69.48	311.95	6.36
E.G. Slope (ft/ft)	0.004143	Area (sq ft)	69.48	311.95	6.36
Q Total (cfs)	2315.70	Flow (cfs)	114.15	2189.05	12.50
Top Width (ft)	202.89	Top Width (ft)	121.91	72.59	8.39
Vel Total (ft/s)	5.97	Avg. Vel. (ft/s)	1.64	7.02	1.97
Max Chl Dpth (ft)	6.66	Hydr. Depth (ft)	0.57	4.30	0.76
Conv. Total (cfs)	35976.1	Conv. (cfs)	1773.4	34008.5	194.3
Length Wtd. (ft)	50.06	Wetted Per. (ft)	122.00	75.81	8.52
Min Ch El (ft)	751.28	Shear (lb/sq ft)	0.15	1.06	0.19
Alpha	1.31	Stream Power (lb/ft s)	0.24	7.47	0.38
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	3.69	21.94	14.68
C & E Loss (ft)	0.02	Cum SA (acres)	1.73	3.85	6.73

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2981.23 Profile: 100-YR

E.G. Elev (ft)	758.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.88	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.54	Reach Len. (ft)	49.63	49.63	49.63
Crit W.S. (ft)	756.59	Flow Area (sq ft)	54.61	288.47	
E.G. Slope (ft/ft)	0.005259	Area (sq ft)	54.61	288.47	
Q Total (cfs)	2315.70	Flow (cfs)	101.57	2214.13	
Top Width (ft)	165.37	Top Width (ft)	95.15	70.22	
Vel Total (ft/s)	6.75	Avg. Vel. (ft/s)	1.86	7.68	
Max Chl Dpth (ft)	6.67	Hydr. Depth (ft)	0.57	4.11	
Conv. Total (cfs)	31933.2	Conv. (cfs)	1400.6	30532.6	
Length Wtd. (ft)	49.63	Wetted Per. (ft)	95.18	73.28	
Min Ch El (ft)	750.87	Shear (lb/sq ft)	0.19	1.29	
Alpha	1.24	Stream Power (lb/ft s)	0.35	9.92	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	3.62	21.60	14.68
C & E Loss (ft)	0.19	Cum SA (acres)	1.61	3.77	6.73

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2931.6 Profile: 100-YR

E.G. Elev (ft)	758.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.84	Reach Len. (ft)	49.80	49.80	49.80
Crit W.S. (ft)		Flow Area (sq ft)	386.48	286.74	
E.G. Slope (ft/ft)	0.001590	Area (sq ft)	386.48	286.74	
Q Total (cfs)	2315.70	Flow (cfs)	927.05	1388.65	
Top Width (ft)	244.04	Top Width (ft)	187.10	56.94	
Vel Total (ft/s)	3.44	Avg. Vel. (ft/s)	2.40	4.84	
Max Chl Dpth (ft)	7.99	Hydr. Depth (ft)	2.07	5.04	
Conv. Total (cfs)	58082.1	Conv. (cfs)	23252.2	34829.9	
Length Wtd. (ft)	49.80	Wetted Per. (ft)	187.51	59.25	
Min Ch El (ft)	749.85	Shear (lb/sq ft)	0.20	0.48	
Alpha	1.38	Stream Power (lb/ft s)	0.49	2.33	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	3.37	21.27	14.68
C & E Loss (ft)	0.01	Cum SA (acres)	1.44	3.70	6.73

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2881.8 Profile: 100-YR

E.G. Elev (ft)	758.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.78	Reach Len. (ft)	50.93	50.93	50.93
Crit W.S. (ft)		Flow Area (sq ft)	408.71	280.75	
E.G. Slope (ft/ft)	0.001367	Area (sq ft)	408.71	280.75	
Q Total (cfs)	2315.70	Flow (cfs)	990.34	1325.36	
Top Width (ft)	225.26	Top Width (ft)	174.27	50.99	
Vel Total (ft/s)	3.36	Avg. Vel. (ft/s)	2.42	4.72	
Max Chl Dpth (ft)	7.84	Hydr. Depth (ft)	2.35	5.51	
Conv. Total (cfs)	62628.1	Conv. (cfs)	26783.6	35844.5	
Length Wtd. (ft)	50.93	Wetted Per. (ft)	174.44	53.83	
Min Ch El (ft)	749.94	Shear (lb/sq ft)	0.20	0.45	
Alpha	1.35	Stream Power (lb/ft s)	0.48	2.10	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	2.92	20.94	14.68
C & E Loss (ft)	0.01	Cum SA (acres)	1.24	3.63	6.73

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2830.87 Profile: 100-YR

E.G. Elev (ft)	757.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.74	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	756.38	Flow Area (sq ft)	497.23	227.49	
E.G. Slope (ft/ft)	0.001336	Area (sq ft)	549.07	256.30	
Q Total (cfs)	2315.70	Flow (cfs)	1293.04	1022.66	
Top Width (ft)	231.09	Top Width (ft)	187.33	43.76	
Vel Total (ft/s)	3.20	Avg. Vel. (ft/s)	2.60	4.50	
Max Chl Dpth (ft)	8.11	Hydr. Depth (ft)	2.65	5.20	
Conv. Total (cfs)	63343.9	Conv. (cfs)	35369.9	27974.0	
Length Wtd. (ft)	10.00	Wetted Per. (ft)	187.65	46.15	
Min Ch El (ft)	749.63	Shear (lb/sq ft)	0.22	0.41	
Alpha	1.24	Stream Power (lb/ft s)	0.57	1.85	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	2.36	20.63	14.68
C & E Loss (ft)	0.01	Cum SA (acres)	1.03	3.58	6.73

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2820 BR U Profile: 100-YR

E.G. Elev (ft)	757.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.73	Reach Len. (ft)	16.00	16.00	16.00
Crit W.S. (ft)	756.18	Flow Area (sq ft)	496.74	199.15	
E.G. Slope (ft/ft)	0.002534	Area (sq ft)	538.66	214.94	
Q Total (cfs)	2315.70	Flow (cfs)	1739.93	575.77	
Top Width (ft)	231.07	Top Width (ft)	187.32	43.75	
Vel Total (ft/s)	3.33	Avg. Vel. (ft/s)	3.50	2.89	
Max Chl Dpth (ft)	8.10	Hydr. Depth (ft)	2.65	4.55	
Conv. Total (cfs)	46001.4	Conv. (cfs)	34563.7	11437.7	
Length Wtd. (ft)	16.00	Wetted Per. (ft)	198.16	126.57	
Min Ch El (ft)	749.63	Shear (lb/sq ft)	0.40	0.25	
Alpha	1.02	Stream Power (lb/ft s)	1.39	0.72	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	2.23	20.57	14.68
C & E Loss (ft)	0.01	Cum SA (acres)	0.98	3.57	6.73

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2820 BR D Profile: 100-YR

E.G. Elev (ft)	757.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	757.55	Reach Len. (ft)	73.68	73.68	73.68
Crit W.S. (ft)	755.17	Flow Area (sq ft)	221.81	315.84	2.01
E.G. Slope (ft/ft)	0.004871	Area (sq ft)	221.81	315.84	2.01
Q Total (cfs)	2315.70	Flow (cfs)	860.50	1453.67	1.53
Top Width (ft)	182.71	Top Width (ft)	121.11	49.09	12.51
Vel Total (ft/s)	4.29	Avg. Vel. (ft/s)	3.88	4.60	0.76
Max Chl Dpth (ft)	8.48	Hydr. Depth (ft)	1.83	6.43	0.16
Conv. Total (cfs)	33178.3	Conv. (cfs)	12328.8	20827.6	21.9
Length Wtd. (ft)	73.68	Wetted Per. (ft)	121.20	163.16	12.58
Min Ch El (ft)	749.07	Shear (lb/sq ft)	0.56	0.59	0.05
Alpha	1.03	Stream Power (lb/ft s)	2.16	2.71	0.04
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	2.09	20.48	14.68
C & E Loss (ft)	0.01	Cum SA (acres)	0.93	3.55	6.72

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2731.19 Profile: 100-YR

E.G. Elev (ft)	757.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.18	Reach Len. (ft)	49.89	49.89	49.89
Crit W.S. (ft)		Flow Area (sq ft)	177.58	338.15	
E.G. Slope (ft/ft)	0.002180	Area (sq ft)	177.58	338.15	
Q Total (cfs)	2315.70	Flow (cfs)	408.06	1907.64	
Top Width (ft)	184.80	Top Width (ft)	116.38	68.42	
Vel Total (ft/s)	4.49	Avg. Vel. (ft/s)	2.30	5.64	
Max Chl Dpth (ft)	8.11	Hydr. Depth (ft)	1.53	4.94	
Conv. Total (cfs)	49599.1	Conv. (cfs)	8740.1	40859.0	
Length Wtd. (ft)	49.89	Wetted Per. (ft)	116.44	70.42	
Min Ch El (ft)	749.07	Shear (lb/sq ft)	0.21	0.65	
Alpha	1.35	Stream Power (lb/ft s)	0.48	3.69	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	1.75	19.92	14.68
C & E Loss (ft)	0.04	Cum SA (acres)	0.73	3.45	6.71

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2681.3 Profile: 100-YR

E.G. Elev (ft)	757.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	757.18	Reach Len. (ft)	50.20	50.20	50.20
Crit W.S. (ft)		Flow Area (sq ft)	44.46	518.41	3.86
E.G. Slope (ft/ft)	0.001451	Area (sq ft)	44.46	518.41	3.86
Q Total (cfs)	2315.70	Flow (cfs)	53.26	2260.35	2.08
Top Width (ft)	188.72	Top Width (ft)	57.05	115.28	16.39
Vel Total (ft/s)	4.09	Avg. Vel. (ft/s)	1.20	4.36	0.54
Max Chl Dpth (ft)	8.27	Hydr. Depth (ft)	0.78	4.50	0.24
Conv. Total (cfs)	60800.3	Conv. (cfs)	1398.4	59347.2	54.7
Length Wtd. (ft)	50.20	Wetted Per. (ft)	57.07	117.08	16.42
Min Ch El (ft)	748.91	Shear (lb/sq ft)	0.07	0.40	0.02
Alpha	1.11	Stream Power (lb/ft s)	0.08	1.75	0.01
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	1.63	19.43	14.68
C & E Loss (ft)	0.03	Cum SA (acres)	0.63	3.35	6.70

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2631.1 Profile: 100-YR

E.G. Elev (ft)	757.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	757.19	Reach Len. (ft)	49.64	49.64	49.64
Crit W.S. (ft)		Flow Area (sq ft)	48.42	362.43	374.37
E.G. Slope (ft/ft)	0.001031	Area (sq ft)	48.42	362.43	374.37
Q Total (cfs)	2315.70	Flow (cfs)	60.55	1500.24	754.91
Top Width (ft)	281.10	Top Width (ft)	45.05	66.61	169.44
Vel Total (ft/s)	2.95	Avg. Vel. (ft/s)	1.25	4.14	2.02
Max Chl Dpth (ft)	8.40	Hydr. Depth (ft)	1.07	5.44	2.21
Conv. Total (cfs)	72113.8	Conv. (cfs)	1885.5	46719.4	23508.9
Length Wtd. (ft)	49.64	Wetted Per. (ft)	45.10	68.50	170.34
Min Ch El (ft)	748.79	Shear (lb/sq ft)	0.07	0.34	0.14
Alpha	1.43	Stream Power (lb/ft s)	0.09	1.41	0.29
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	1.57	18.93	14.46
C & E Loss (ft)	0.15	Cum SA (acres)	0.57	3.24	6.60

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2581.46 Profile: 100-YR

E.G. Elev (ft)	757.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.72	Wt. n-Val.		0.035	
W.S. Elev (ft)	755.39	Reach Len. (ft)	50.39	50.39	50.39
Crit W.S. (ft)	755.13	Flow Area (sq ft)		220.18	
E.G. Slope (ft/ft)	0.010015	Area (sq ft)		220.18	
Q Total (cfs)	2315.70	Flow (cfs)		2315.70	
Top Width (ft)	53.99	Top Width (ft)		53.99	
Vel Total (ft/s)	10.52	Avg. Vel. (ft/s)		10.52	
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)		4.08	
Conv. Total (cfs)	23140.2	Conv. (cfs)		23140.2	
Length Wtd. (ft)	50.39	Wetted Per. (ft)		56.53	
Min Ch El (ft)	749.42	Shear (lb/sq ft)		2.44	
Alpha	1.00	Stream Power (lb/ft s)		25.61	
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)	1.55	18.59	14.24
C & E Loss (ft)	0.15	Cum SA (acres)	0.54	3.17	6.50

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2531.07 Profile: 100-YR

E.G. Elev (ft)	756.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.23	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	755.30	Reach Len. (ft)	49.64	49.64	49.64
Crit W.S. (ft)	755.30	Flow Area (sq ft)		236.61	60.90
E.G. Slope (ft/ft)	0.007307	Area (sq ft)		236.61	60.90
Q Total (cfs)	2315.70	Flow (cfs)		2171.53	144.17
Top Width (ft)	152.96	Top Width (ft)		55.61	97.35
Vel Total (ft/s)	7.78	Avg. Vel. (ft/s)		9.18	2.37
Max Chl Dpth (ft)	6.68	Hydr. Depth (ft)		4.26	0.63
Conv. Total (cfs)	27089.4	Conv. (cfs)		25402.9	1686.5
Length Wtd. (ft)	49.64	Wetted Per. (ft)		58.83	97.57
Min Ch El (ft)	748.62	Shear (lb/sq ft)		1.83	0.28
Alpha	1.31	Stream Power (lb/ft s)		16.84	0.67
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	1.55	18.33	14.21
C & E Loss (ft)	0.15	Cum SA (acres)	0.54	3.11	6.44

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2481.43 Profile: 100-YR

E.G. Elev (ft)	755.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.75	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.85	Reach Len. (ft)	49.99	49.99	49.99
Crit W.S. (ft)	753.99	Flow Area (sq ft)	0.54	270.89	133.36
E.G. Slope (ft/ft)	0.003509	Area (sq ft)	0.54	270.89	133.36
Q Total (cfs)	2315.70	Flow (cfs)	0.26	2004.09	311.35
Top Width (ft)	177.05	Top Width (ft)	5.24	50.16	121.66
Vel Total (ft/s)	5.72	Avg. Vel. (ft/s)	0.48	7.40	2.33
Max Chl Dpth (ft)	7.95	Hydr. Depth (ft)	0.10	5.40	1.10
Conv. Total (cfs)	39091.1	Conv. (cfs)	4.4	33830.8	5256.0
Length Wtd. (ft)	49.99	Wetted Per. (ft)	5.24	53.69	122.17
Min Ch El (ft)	746.90	Shear (lb/sq ft)	0.02	1.11	0.24
Alpha	1.47	Stream Power (lb/ft s)	0.01	8.18	0.56
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	1.55	18.04	14.10
C & E Loss (ft)	0.06	Cum SA (acres)	0.54	3.05	6.32

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2431.44 Profile: 100-YR

E.G. Elev (ft)	755.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.54	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.81	Reach Len. (ft)	49.77	49.77	49.77
Crit W.S. (ft)		Flow Area (sq ft)		221.76	295.65
E.G. Slope (ft/ft)	0.003572	Area (sq ft)		221.76	295.65
Q Total (cfs)	2315.70	Flow (cfs)		1546.60	769.10
Top Width (ft)	278.76	Top Width (ft)		46.19	232.57
Vel Total (ft/s)	4.48	Avg. Vel. (ft/s)		6.97	2.60
Max Chl Dpth (ft)	6.70	Hydr. Depth (ft)		4.80	1.27
Conv. Total (cfs)	38746.9	Conv. (cfs)		25878.1	12868.8
Length Wtd. (ft)	49.77	Wetted Per. (ft)		48.66	233.10
Min Ch El (ft)	748.11	Shear (lb/sq ft)		1.02	0.28
Alpha	1.73	Stream Power (lb/ft s)		7.09	0.74
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	1.55	17.76	13.85
C & E Loss (ft)	0.08	Cum SA (acres)	0.54	2.99	6.11

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2381.67 Profile: 100-YR

E.G. Elev (ft)	755.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.88	Reach Len. (ft)	50.12	50.12	50.12
Crit W.S. (ft)		Flow Area (sq ft)	1.36	226.34	496.81
E.G. Slope (ft/ft)	0.001697	Area (sq ft)	1.36	226.34	496.81
Q Total (cfs)	2315.70	Flow (cfs)	1.42	1233.50	1080.78
Top Width (ft)	333.83	Top Width (ft)	2.01	39.18	292.64
Vel Total (ft/s)	3.20	Avg. Vel. (ft/s)	1.04	5.45	2.18
Max Chl Dpth (ft)	7.20	Hydr. Depth (ft)	0.68	5.78	1.70
Conv. Total (cfs)	56216.6	Conv. (cfs)	34.4	29944.8	26237.4
Length Wtd. (ft)	50.12	Wetted Per. (ft)	2.42	41.14	293.08
Min Ch El (ft)	747.68	Shear (lb/sq ft)	0.06	0.58	0.18
Alpha	1.76	Stream Power (lb/ft s)	0.06	3.18	0.39
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	1.54	17.50	13.40
C & E Loss (ft)	0.00	Cum SA (acres)	0.53	2.95	5.81

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2331.55 Profile: 100-YR

E.G. Elev (ft)	755.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.79	Reach Len. (ft)	49.88	49.88	49.88
Crit W.S. (ft)		Flow Area (sq ft)		232.17	473.94
E.G. Slope (ft/ft)	0.001863	Area (sq ft)		232.17	473.94
Q Total (cfs)	2315.70	Flow (cfs)		1229.83	1085.87
Top Width (ft)	324.68	Top Width (ft)		44.35	280.33
Vel Total (ft/s)	3.28	Avg. Vel. (ft/s)		5.30	2.29
Max Chl Dpth (ft)	6.97	Hydr. Depth (ft)		5.23	1.69
Conv. Total (cfs)	53652.7	Conv. (cfs)		28494.2	25158.6
Length Wtd. (ft)	49.88	Wetted Per. (ft)		47.23	281.52
Min Ch El (ft)	747.82	Shear (lb/sq ft)		0.57	0.20
Alpha	1.61	Stream Power (lb/ft s)		3.03	0.45
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	1.54	17.24	12.84
C & E Loss (ft)	0.03	Cum SA (acres)	0.53	2.90	5.49

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2281.67 Profile: 100-YR

E.G. Elev (ft)	754.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.57	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.33	Reach Len. (ft)	50.42	50.42	50.42
Crit W.S. (ft)		Flow Area (sq ft)		199.79	326.11
E.G. Slope (ft/ft)	0.003935	Area (sq ft)		199.79	326.11
Q Total (cfs)	2315.70	Flow (cfs)		1469.47	846.23
Top Width (ft)	317.76	Top Width (ft)		40.62	277.14
Vel Total (ft/s)	4.40	Avg. Vel. (ft/s)		7.36	2.59
Max Chl Dpth (ft)	6.80	Hydr. Depth (ft)		4.92	1.18
Conv. Total (cfs)	36917.1	Conv. (cfs)		23426.4	13490.6
Length Wtd. (ft)	50.42	Wetted Per. (ft)		43.53	277.50
Min Ch El (ft)	747.53	Shear (lb/sq ft)		1.13	0.29
Alpha	1.90	Stream Power (lb/ft s)		8.29	0.75
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	1.54	16.99	12.38
C & E Loss (ft)	0.09	Cum SA (acres)	0.53	2.85	5.17

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2231.25 Profile: 100-YR

E.G. Elev (ft)	754.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.41	Reach Len. (ft)	50.03	50.03	50.03
Crit W.S. (ft)		Flow Area (sq ft)		222.30	490.66
E.G. Slope (ft/ft)	0.001890	Area (sq ft)		222.30	490.66
Q Total (cfs)	2315.70	Flow (cfs)		1184.41	1131.29
Top Width (ft)	330.06	Top Width (ft)		42.46	287.60
Vel Total (ft/s)	3.25	Avg. Vel. (ft/s)		5.33	2.31
Max Chl Dpth (ft)	7.17	Hydr. Depth (ft)		5.24	1.71
Conv. Total (cfs)	53263.1	Conv. (cfs)		27242.4	26020.7
Length Wtd. (ft)	50.03	Wetted Per. (ft)		45.33	287.66
Min Ch El (ft)	747.24	Shear (lb/sq ft)		0.58	0.20
Alpha	1.62	Stream Power (lb/ft s)		3.08	0.46
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	1.54	16.75	11.91
C & E Loss (ft)	0.01	Cum SA (acres)	0.53	2.80	4.84

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2181.22 Profile: 100-YR

E.G. Elev (ft)	754.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.19	Reach Len. (ft)	49.93	49.93	49.93
Crit W.S. (ft)		Flow Area (sq ft)		239.39	365.04
E.G. Slope (ft/ft)	0.002272	Area (sq ft)		239.39	365.04
Q Total (cfs)	2315.70	Flow (cfs)		1422.44	893.26
Top Width (ft)	268.67	Top Width (ft)		44.30	224.37
Vel Total (ft/s)	3.83	Avg. Vel. (ft/s)		5.94	2.45
Max Chl Dpth (ft)	6.69	Hydr. Depth (ft)		5.40	1.63
Conv. Total (cfs)	48584.2	Conv. (cfs)		29843.3	18740.9
Length Wtd. (ft)	49.93	Wetted Per. (ft)		47.58	224.68
Min Ch El (ft)	747.50	Shear (lb/sq ft)		0.71	0.23
Alpha	1.63	Stream Power (lb/ft s)		4.24	0.56
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	1.54	16.48	11.42
C & E Loss (ft)	0.08	Cum SA (acres)	0.53	2.75	4.55

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2131.29 Profile: 100-YR

E.G. Elev (ft)	754.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.30	Reach Len. (ft)	50.18	50.18	50.18
Crit W.S. (ft)		Flow Area (sq ft)		325.00	624.37
E.G. Slope (ft/ft)	0.000761	Area (sq ft)		325.00	624.37
Q Total (cfs)	2320.26	Flow (cfs)		1139.34	1180.92
Top Width (ft)	308.58	Top Width (ft)		60.34	248.25
Vel Total (ft/s)	2.44	Avg. Vel. (ft/s)		3.51	1.89
Max Chl Dpth (ft)	6.29	Hydr. Depth (ft)		5.39	2.52
Conv. Total (cfs)	84133.7	Conv. (cfs)		41313.0	42820.7
Length Wtd. (ft)	50.18	Wetted Per. (ft)		62.73	248.90
Min Ch El (ft)	748.01	Shear (lb/sq ft)		0.25	0.12
Alpha	1.32	Stream Power (lb/ft s)		0.86	0.23
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.54	16.16	10.85
C & E Loss (ft)	0.01	Cum SA (acres)	0.53	2.69	4.27

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2081.11 Profile: 100-YR

E.G. Elev (ft)	754.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.29	Reach Len. (ft)	50.03	50.03	50.03
Crit W.S. (ft)		Flow Area (sq ft)		433.17	627.49
E.G. Slope (ft/ft)	0.000481	Area (sq ft)		433.17	627.49
Q Total (cfs)	2320.26	Flow (cfs)		1251.50	1068.77
Top Width (ft)	284.47	Top Width (ft)		77.04	207.43
Vel Total (ft/s)	2.19	Avg. Vel. (ft/s)		2.89	1.70
Max Chl Dpth (ft)	6.97	Hydr. Depth (ft)		5.62	3.03
Conv. Total (cfs)	105788.8	Conv. (cfs)		57060.0	48728.8
Length Wtd. (ft)	50.03	Wetted Per. (ft)		79.26	207.60
Min Ch El (ft)	747.32	Shear (lb/sq ft)		0.16	0.09
Alpha	1.22	Stream Power (lb/ft s)		0.47	0.15
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.54	15.72	10.13
C & E Loss (ft)	0.00	Cum SA (acres)	0.53	2.61	4.01

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 2031.08 Profile: 100-YR

E.G. Elev (ft)	754.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.23	Reach Len. (ft)	50.04	50.04	50.04
Crit W.S. (ft)		Flow Area (sq ft)	50.41	423.74	428.06
E.G. Slope (ft/ft)	0.000681	Area (sq ft)	50.41	423.74	428.06
Q Total (cfs)	2320.26	Flow (cfs)	66.53	1367.60	886.13
Top Width (ft)	252.88	Top Width (ft)	31.57	84.52	136.80
Vel Total (ft/s)	2.57	Avg. Vel. (ft/s)	1.32	3.23	2.07
Max Chl Dpth (ft)	7.46	Hydr. Depth (ft)	1.60	5.01	3.13
Conv. Total (cfs)	88921.9	Conv. (cfs)	2549.6	52412.0	33960.3
Length Wtd. (ft)	50.04	Wetted Per. (ft)	31.73	85.21	137.15
Min Ch El (ft)	746.77	Shear (lb/sq ft)	0.07	0.21	0.13
Alpha	1.18	Stream Power (lb/ft s)	0.09	0.68	0.27
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.51	15.23	9.52
C & E Loss (ft)	0.00	Cum SA (acres)	0.52	2.52	3.81

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1981.04 Profile: 100-YR

E.G. Elev (ft)	754.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.20	Reach Len. (ft)	49.93	49.93	49.93
Crit W.S. (ft)		Flow Area (sq ft)	27.74	488.71	366.41
E.G. Slope (ft/ft)	0.000776	Area (sq ft)	27.74	488.71	366.41
Q Total (cfs)	2320.26	Flow (cfs)	40.25	1492.52	787.50
Top Width (ft)	254.52	Top Width (ft)	16.35	116.11	122.05
Vel Total (ft/s)	2.63	Avg. Vel. (ft/s)	1.45	3.05	2.15
Max Chl Dpth (ft)	7.69	Hydr. Depth (ft)	1.70	4.21	3.00
Conv. Total (cfs)	83306.3	Conv. (cfs)	1445.1	53587.1	28274.1
Length Wtd. (ft)	49.93	Wetted Per. (ft)	16.70	117.74	122.38
Min Ch El (ft)	746.51	Shear (lb/sq ft)	0.08	0.20	0.14
Alpha	1.10	Stream Power (lb/ft s)	0.12	0.61	0.31
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	1.47	14.71	9.07
C & E Loss (ft)	0.01	Cum SA (acres)	0.49	2.40	3.67

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1931.11 Profile: 100-YR

E.G. Elev (ft)	754.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.05	Reach Len. (ft)	49.84	49.84	49.84
Crit W.S. (ft)		Flow Area (sq ft)		471.18	209.95
E.G. Slope (ft/ft)	0.001264	Area (sq ft)		471.18	209.95
Q Total (cfs)	2320.26	Flow (cfs)		1849.33	470.93
Top Width (ft)	204.61	Top Width (ft)		110.06	94.55
Vel Total (ft/s)	3.41	Avg. Vel. (ft/s)		3.92	2.24
Max Chl Dpth (ft)	8.41	Hydr. Depth (ft)		4.28	2.22
Conv. Total (cfs)	65254.2	Conv. (cfs)		52009.9	13244.3
Length Wtd. (ft)	49.84	Wetted Per. (ft)		112.39	94.88
Min Ch El (ft)	745.64	Shear (lb/sq ft)		0.33	0.17
Alpha	1.15	Stream Power (lb/ft s)		1.30	0.39
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.45	14.16	8.74
C & E Loss (ft)	0.03	Cum SA (acres)	0.48	2.27	3.54

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1881.27 Profile: 100-YR

E.G. Elev (ft)	754.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.09	Reach Len. (ft)	49.96	49.96	49.96
Crit W.S. (ft)		Flow Area (sq ft)	13.10	668.78	281.44
E.G. Slope (ft/ft)	0.000423	Area (sq ft)	13.10	668.78	281.44
Q Total (cfs)	2320.26	Flow (cfs)	12.10	1901.72	406.44
Top Width (ft)	229.53	Top Width (ft)	9.55	111.96	108.02
Vel Total (ft/s)	2.41	Avg. Vel. (ft/s)	0.92	2.84	1.44
Max Chl Dpth (ft)	8.41	Hydr. Depth (ft)	1.37	5.97	2.61
Conv. Total (cfs)	112785.2	Conv. (cfs)	588.0	92440.6	19756.6
Length Wtd. (ft)	49.96	Wetted Per. (ft)	9.87	113.84	108.34
Min Ch El (ft)	745.68	Shear (lb/sq ft)	0.04	0.16	0.07
Alpha	1.21	Stream Power (lb/ft s)	0.03	0.44	0.10
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	1.45	13.50	8.46
C & E Loss (ft)	0.00	Cum SA (acres)	0.47	2.15	3.43

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1831.31 Profile: 100-YR

E.G. Elev (ft)	754.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.07	Reach Len. (ft)	50.10	50.10	50.10
Crit W.S. (ft)		Flow Area (sq ft)	5.46	616.55	375.72
E.G. Slope (ft/ft)	0.000340	Area (sq ft)	5.46	616.55	375.72
Q Total (cfs)	2320.26	Flow (cfs)	3.92	1772.17	544.17
Top Width (ft)	211.34	Top Width (ft)	4.46	85.24	121.63
Vel Total (ft/s)	2.33	Avg. Vel. (ft/s)	0.72	2.87	1.45
Max Chl Dpth (ft)	8.39	Hydr. Depth (ft)	1.22	7.23	3.09
Conv. Total (cfs)	125846.0	Conv. (cfs)	212.8	96118.7	29514.6
Length Wtd. (ft)	50.10	Wetted Per. (ft)	5.09	87.62	122.18
Min Ch El (ft)	745.68	Shear (lb/sq ft)	0.02	0.15	0.07
Alpha	1.26	Stream Power (lb/ft s)	0.02	0.43	0.09
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	1.44	12.77	8.08
C & E Loss (ft)	0.00	Cum SA (acres)	0.47	2.03	3.29

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1781.21 Profile: 100-YR

E.G. Elev (ft)	754.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.02	Reach Len. (ft)	49.91	49.91	49.91
Crit W.S. (ft)		Flow Area (sq ft)		246.93	619.56
E.G. Slope (ft/ft)	0.000650	Area (sq ft)		246.93	619.56
Q Total (cfs)	2320.26	Flow (cfs)		905.15	1415.11
Top Width (ft)	201.23	Top Width (ft)		36.27	164.96
Vel Total (ft/s)	2.68	Avg. Vel. (ft/s)		3.67	2.28
Max Chl Dpth (ft)	9.09	Hydr. Depth (ft)		6.81	3.76
Conv. Total (cfs)	91003.8	Conv. (cfs)		35501.3	55502.4
Length Wtd. (ft)	49.91	Wetted Per. (ft)		39.63	165.44
Min Ch El (ft)	744.93	Shear (lb/sq ft)		0.25	0.15
Alpha	1.17	Stream Power (lb/ft s)		0.93	0.35
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.43	12.27	7.51
C & E Loss (ft)	0.00	Cum SA (acres)	0.46	1.96	3.13

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1731.3 Profile: 100-YR

E.G. Elev (ft)	754.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.00	Reach Len. (ft)	49.94	49.94	49.94
Crit W.S. (ft)		Flow Area (sq ft)	2.56	317.34	600.14
E.G. Slope (ft/ft)	0.000504	Area (sq ft)	2.56	317.34	600.14
Q Total (cfs)	2320.26	Flow (cfs)	1.79	1098.01	1220.46
Top Width (ft)	202.91	Top Width (ft)	2.79	42.83	157.30
Vel Total (ft/s)	2.52	Avg. Vel. (ft/s)	0.70	3.46	2.03
Max Chl Dpth (ft)	9.54	Hydr. Depth (ft)	0.92	7.41	3.82
Conv. Total (cfs)	103348.9	Conv. (cfs)	79.7	48907.6	54361.7
Length Wtd. (ft)	49.94	Wetted Per. (ft)	3.34	45.88	157.61
Min Ch El (ft)	744.46	Shear (lb/sq ft)	0.02	0.22	0.12
Alpha	1.23	Stream Power (lb/ft s)	0.02	0.75	0.24
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.43	11.95	6.81
C & E Loss (ft)	0.01	Cum SA (acres)	0.46	1.92	2.94

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1681.36 Profile: 100-YR

E.G. Elev (ft)	754.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	753.88	Reach Len. (ft)	50.07	50.07	50.07
Crit W.S. (ft)		Flow Area (sq ft)		311.09	378.75
E.G. Slope (ft/ft)	0.000752	Area (sq ft)		311.09	378.75
Q Total (cfs)	2320.26	Flow (cfs)		1304.87	1015.39
Top Width (ft)	129.68	Top Width (ft)		41.56	88.13
Vel Total (ft/s)	3.36	Avg. Vel. (ft/s)		4.19	2.68
Max Chl Dpth (ft)	9.55	Hydr. Depth (ft)		7.49	4.30
Conv. Total (cfs)	84628.6	Conv. (cfs)		47593.4	37035.2
Length Wtd. (ft)	50.07	Wetted Per. (ft)		45.47	88.69
Min Ch El (ft)	744.33	Shear (lb/sq ft)		0.32	0.20
Alpha	1.15	Stream Power (lb/ft s)		1.35	0.54
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.43	11.59	6.25
C & E Loss (ft)	0.01	Cum SA (acres)	0.46	1.87	2.80

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1631.29 Profile: 100-YR

E.G. Elev (ft)	754.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	753.75	Reach Len. (ft)	49.71	49.71	49.71
Crit W.S. (ft)		Flow Area (sq ft)		539.57	14.18
E.G. Slope (ft/ft)	0.000968	Area (sq ft)		539.57	14.18
Q Total (cfs)	2320.26	Flow (cfs)		2299.17	21.09
Top Width (ft)	98.69	Top Width (ft)		89.47	9.22
Vel Total (ft/s)	4.19	Avg. Vel. (ft/s)		4.26	1.49
Max Chl Dpth (ft)	9.47	Hydr. Depth (ft)		6.03	1.54
Conv. Total (cfs)	74558.3	Conv. (cfs)		73880.5	677.8
Length Wtd. (ft)	49.71	Wetted Per. (ft)		93.16	9.72
Min Ch El (ft)	744.28	Shear (lb/sq ft)		0.35	0.09
Alpha	1.03	Stream Power (lb/ft s)		1.49	0.13
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	1.43	11.10	6.02
C & E Loss (ft)	0.02	Cum SA (acres)	0.46	1.80	2.75

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1581.58 Profile: 100-YR

E.G. Elev (ft)	753.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	753.75	Reach Len. (ft)	50.23	50.23	50.23
Crit W.S. (ft)		Flow Area (sq ft)	0.09	303.30	439.39
E.G. Slope (ft/ft)	0.000936	Area (sq ft)	0.09	303.30	439.39
Q Total (cfs)	2320.26	Flow (cfs)	0.03	1348.67	971.56
Top Width (ft)	206.36	Top Width (ft)	0.48	44.11	161.77
Vel Total (ft/s)	3.12	Avg. Vel. (ft/s)	0.31	4.45	2.21
Max Chl Dpth (ft)	9.25	Hydr. Depth (ft)	0.18	6.88	2.72
Conv. Total (cfs)	75847.6	Conv. (cfs)	0.9	44087.1	31759.6
Length Wtd. (ft)	50.23	Wetted Per. (ft)	0.60	47.87	161.89
Min Ch El (ft)	744.50	Shear (lb/sq ft)	0.01	0.37	0.16
Alpha	1.39	Stream Power (lb/ft s)	0.00	1.65	0.35
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	1.43	10.62	5.76
C & E Loss (ft)	0.08	Cum SA (acres)	0.46	1.72	2.65

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1531.35 Profile: 100-YR

E.G. Elev (ft)	753.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.97	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	752.84	Reach Len. (ft)	49.94	49.94	49.94
Crit W.S. (ft)	750.91	Flow Area (sq ft)		263.87	87.34
E.G. Slope (ft/ft)	0.003684	Area (sq ft)		263.87	87.34
Q Total (cfs)	2320.26	Flow (cfs)		2154.19	166.07
Top Width (ft)	154.46	Top Width (ft)		41.70	112.76
Vel Total (ft/s)	6.61	Avg. Vel. (ft/s)		8.16	1.90
Max Chl Dpth (ft)	7.96	Hydr. Depth (ft)		6.33	0.77
Conv. Total (cfs)	38229.3	Conv. (cfs)		35493.1	2736.2
Length Wtd. (ft)	49.94	Wetted Per. (ft)		46.79	112.77
Min Ch El (ft)	744.88	Shear (lb/sq ft)		1.30	0.18
Alpha	1.42	Stream Power (lb/ft s)		10.59	0.34
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	1.43	10.29	5.46
C & E Loss (ft)	0.06	Cum SA (acres)	0.46	1.67	2.49

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1481.41 Profile: 100-YR

E.G. Elev (ft)	753.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.61	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	751.89	Reach Len. (ft)	50.11	50.11	50.11
Crit W.S. (ft)	750.97	Flow Area (sq ft)		223.63	21.05
E.G. Slope (ft/ft)	0.006956	Area (sq ft)		223.63	21.05
Q Total (cfs)	2320.26	Flow (cfs)		2288.59	31.67
Top Width (ft)	103.26	Top Width (ft)		41.08	62.18
Vel Total (ft/s)	9.48	Avg. Vel. (ft/s)		10.23	1.50
Max Chl Dpth (ft)	7.56	Hydr. Depth (ft)		5.44	0.34
Conv. Total (cfs)	27820.9	Conv. (cfs)		27441.2	379.8
Length Wtd. (ft)	50.11	Wetted Per. (ft)		45.51	62.19
Min Ch El (ft)	744.33	Shear (lb/sq ft)		2.13	0.15
Alpha	1.15	Stream Power (lb/ft s)		21.84	0.22
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	1.43	10.01	5.40
C & E Loss (ft)	0.24	Cum SA (acres)	0.46	1.62	2.39

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1431.3 Profile: 100-YR

E.G. Elev (ft)	753.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.82	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	752.21	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)		292.36	81.33
E.G. Slope (ft/ft)	0.003122	Area (sq ft)		292.36	81.33
Q Total (cfs)	2320.26	Flow (cfs)		2185.75	134.51
Top Width (ft)	162.71	Top Width (ft)		48.38	114.33
Vel Total (ft/s)	6.21	Avg. Vel. (ft/s)		7.48	1.65
Max Chl Dpth (ft)	7.73	Hydr. Depth (ft)		6.04	0.71
Conv. Total (cfs)	41528.5	Conv. (cfs)		39121.0	2407.5
Length Wtd. (ft)	50.00	Wetted Per. (ft)		52.25	114.34
Min Ch El (ft)	744.48	Shear (lb/sq ft)		1.09	0.14
Alpha	1.37	Stream Power (lb/ft s)		8.15	0.23
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	1.43	9.71	5.34
C & E Loss (ft)	0.01	Cum SA (acres)	0.46	1.57	2.29

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1381.3 Profile: 100-YR

E.G. Elev (ft)	752.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.80	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	752.07	Reach Len. (ft)	49.94	49.94	49.94
Crit W.S. (ft)		Flow Area (sq ft)	13.48	272.86	105.81
E.G. Slope (ft/ft)	0.003152	Area (sq ft)	13.48	272.86	105.81
Q Total (cfs)	2320.26	Flow (cfs)	39.94	2060.17	220.15
Top Width (ft)	159.62	Top Width (ft)	6.96	46.49	106.18
Vel Total (ft/s)	5.92	Avg. Vel. (ft/s)	2.96	7.55	2.08
Max Chl Dpth (ft)	7.57	Hydr. Depth (ft)	1.94	5.87	1.00
Conv. Total (cfs)	41324.8	Conv. (cfs)	711.3	36692.5	3921.0
Length Wtd. (ft)	49.94	Wetted Per. (ft)	7.97	48.40	106.19
Min Ch El (ft)	744.50	Shear (lb/sq ft)	0.33	1.11	0.20
Alpha	1.46	Stream Power (lb/ft s)	0.99	8.38	0.41
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	1.42	9.39	5.23
C & E Loss (ft)	0.06	Cum SA (acres)	0.45	1.52	2.16

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1331.36 Profile: 100-YR

E.G. Elev (ft)	752.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.42	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	751.19	Reach Len. (ft)	49.96	49.96	49.96
Crit W.S. (ft)	750.22	Flow Area (sq ft)	17.58	209.14	66.95
E.G. Slope (ft/ft)	0.004778	Area (sq ft)	17.58	209.14	66.95
Q Total (cfs)	2320.26	Flow (cfs)	66.61	2096.61	157.03
Top Width (ft)	116.43	Top Width (ft)	9.01	30.97	76.45
Vel Total (ft/s)	7.90	Avg. Vel. (ft/s)	3.79	10.02	2.35
Max Chl Dpth (ft)	7.43	Hydr. Depth (ft)	1.95	6.75	0.88
Conv. Total (cfs)	33566.8	Conv. (cfs)	963.7	30331.3	2271.8
Length Wtd. (ft)	49.96	Wetted Per. (ft)	9.81	33.13	76.69
Min Ch El (ft)	743.76	Shear (lb/sq ft)	0.53	1.88	0.26
Alpha	1.47	Stream Power (lb/ft s)	2.03	18.88	0.61
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	1.40	9.11	5.13
C & E Loss (ft)	0.07	Cum SA (acres)	0.45	1.47	2.06

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1281.4 Profile: 100-YR

E.G. Elev (ft)	752.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.15	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	750.08	Reach Len. (ft)	50.04	50.04	50.04
Crit W.S. (ft)	750.08	Flow Area (sq ft)	22.93	173.79	17.79
E.G. Slope (ft/ft)	0.008672	Area (sq ft)	22.93	173.79	17.79
Q Total (cfs)	2320.26	Flow (cfs)	125.92	2121.23	73.11
Top Width (ft)	54.83	Top Width (ft)	10.62	30.72	13.48
Vel Total (ft/s)	10.82	Avg. Vel. (ft/s)	5.49	12.21	4.11
Max Chl Dpth (ft)	6.49	Hydr. Depth (ft)	2.16	5.66	1.32
Conv. Total (cfs)	24916.0	Conv. (cfs)	1352.2	22778.8	785.1
Length Wtd. (ft)	50.04	Wetted Per. (ft)	11.47	32.04	13.74
Min Ch El (ft)	743.59	Shear (lb/sq ft)	1.08	2.94	0.70
Alpha	1.18	Stream Power (lb/ft s)	5.94	35.85	2.88
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	1.38	8.89	5.08
C & E Loss (ft)	0.06	Cum SA (acres)	0.43	1.44	2.01

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1231.36 Profile: 100-YR

E.G. Elev (ft)	751.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.74	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	748.85	Reach Len. (ft)	50.03	50.03	50.03
Crit W.S. (ft)	749.53	Flow Area (sq ft)		171.12	9.05
E.G. Slope (ft/ft)	0.016748	Area (sq ft)		171.12	9.05
Q Total (cfs)	2320.26	Flow (cfs)		2286.25	34.01
Top Width (ft)	55.70	Top Width (ft)		42.67	13.03
Vel Total (ft/s)	12.88	Avg. Vel. (ft/s)		13.36	3.76
Max Chl Dpth (ft)	5.39	Hydr. Depth (ft)		4.01	0.69
Conv. Total (cfs)	17928.9	Conv. (cfs)		17666.1	262.8
Length Wtd. (ft)	50.03	Wetted Per. (ft)		45.13	13.10
Min Ch El (ft)	743.46	Shear (lb/sq ft)		3.96	0.72
Alpha	1.06	Stream Power (lb/ft s)		52.97	2.71
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	1.37	8.69	5.07
C & E Loss (ft)	0.47	Cum SA (acres)	0.43	1.39	1.99

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1181.33 Profile: 100-YR

E.G. Elev (ft)	750.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	750.18	Reach Len. (ft)	49.87	49.87	49.87
Crit W.S. (ft)	748.66	Flow Area (sq ft)		181.62	359.82
E.G. Slope (ft/ft)	0.002261	Area (sq ft)		181.62	359.82
Q Total (cfs)	2320.26	Flow (cfs)		965.56	1354.70
Top Width (ft)	156.00	Top Width (ft)		40.67	115.33
Vel Total (ft/s)	4.29	Avg. Vel. (ft/s)		5.32	3.76
Max Chl Dpth (ft)	6.97	Hydr. Depth (ft)		4.47	3.12
Conv. Total (cfs)	48793.4	Conv. (cfs)		20305.0	28488.3
Length Wtd. (ft)	49.87	Wetted Per. (ft)		42.50	115.65
Min Ch El (ft)	743.21	Shear (lb/sq ft)		0.60	0.44
Alpha	1.09	Stream Power (lb/ft s)		3.21	1.65
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	1.37	8.49	4.86
C & E Loss (ft)	0.01	Cum SA (acres)	0.43	1.35	1.92

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1131.46 Profile: 100-YR

E.G. Elev (ft)	750.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	749.98	Reach Len. (ft)	50.17	50.17	50.17
Crit W.S. (ft)		Flow Area (sq ft)		292.85	237.82
E.G. Slope (ft/ft)	0.002274	Area (sq ft)		292.85	237.82
Q Total (cfs)	2333.46	Flow (cfs)		1649.48	683.98
Top Width (ft)	176.01	Top Width (ft)		61.10	114.91
Vel Total (ft/s)	4.40	Avg. Vel. (ft/s)		5.63	2.88
Max Chl Dpth (ft)	6.79	Hydr. Depth (ft)		4.79	2.07
Conv. Total (cfs)	48929.8	Conv. (cfs)		34587.6	14342.2
Length Wtd. (ft)	50.17	Wetted Per. (ft)		63.11	114.98
Min Ch El (ft)	743.19	Shear (lb/sq ft)		0.66	0.29
Alpha	1.29	Stream Power (lb/ft s)		3.71	0.84
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	1.37	8.22	4.51
C & E Loss (ft)	0.04	Cum SA (acres)	0.43	1.29	1.79

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1081.29 Profile: 100-YR

E.G. Elev (ft)	750.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	749.97	Reach Len. (ft)	49.74	49.74	49.74
Crit W.S. (ft)		Flow Area (sq ft)		268.00	390.86
E.G. Slope (ft/ft)	0.001524	Area (sq ft)		268.00	390.86
Q Total (cfs)	2333.46	Flow (cfs)		1347.42	986.04
Top Width (ft)	219.03	Top Width (ft)		48.76	170.28
Vel Total (ft/s)	3.54	Avg. Vel. (ft/s)		5.03	2.52
Max Chl Dpth (ft)	6.89	Hydr. Depth (ft)		5.50	2.30
Conv. Total (cfs)	59778.2	Conv. (cfs)		34518.0	25260.2
Length Wtd. (ft)	49.74	Wetted Per. (ft)		50.72	170.33
Min Ch El (ft)	743.08	Shear (lb/sq ft)		0.50	0.22
Alpha	1.38	Stream Power (lb/ft s)		2.53	0.55
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	1.37	7.90	4.15
C & E Loss (ft)	0.02	Cum SA (acres)	0.43	1.23	1.62

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 1031.55 Profile: 100-YR

E.G. Elev (ft)	750.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	749.96	Reach Len. (ft)	50.36	50.36	50.36
Crit W.S. (ft)		Flow Area (sq ft)		316.54	442.83
E.G. Slope (ft/ft)	0.000991	Area (sq ft)		316.54	442.83
Q Total (cfs)	2333.46	Flow (cfs)		1386.89	946.57
Top Width (ft)	229.28	Top Width (ft)		50.16	179.12
Vel Total (ft/s)	3.07	Avg. Vel. (ft/s)		4.38	2.14
Max Chl Dpth (ft)	8.87	Hydr. Depth (ft)		6.31	2.47
Conv. Total (cfs)	74113.9	Conv. (cfs)		44049.5	30064.4
Length Wtd. (ft)	50.36	Wetted Per. (ft)		53.34	179.23
Min Ch El (ft)	741.09	Shear (lb/sq ft)		0.37	0.15
Alpha	1.40	Stream Power (lb/ft s)		1.61	0.33
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	1.37	7.56	3.68
C & E Loss (ft)	0.01	Cum SA (acres)	0.43	1.17	1.42

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 981.19 Profile: 100-YR

E.G. Elev (ft)	750.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	749.93	Reach Len. (ft)	49.83	49.83	49.83
Crit W.S. (ft)		Flow Area (sq ft)		287.25	507.72
E.G. Slope (ft/ft)	0.000917	Area (sq ft)		287.25	507.72
Q Total (cfs)	2333.46	Flow (cfs)		1206.20	1127.26
Top Width (ft)	227.99	Top Width (ft)		45.01	182.99
Vel Total (ft/s)	2.94	Avg. Vel. (ft/s)		4.20	2.22
Max Chl Dpth (ft)	8.41	Hydr. Depth (ft)		6.38	2.77
Conv. Total (cfs)	77040.2	Conv. (cfs)		39823.2	37217.0
Length Wtd. (ft)	49.83	Wetted Per. (ft)		48.68	183.17
Min Ch El (ft)	741.52	Shear (lb/sq ft)		0.34	0.16
Alpha	1.33	Stream Power (lb/ft s)		1.42	0.35
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	1.37	7.21	3.13
C & E Loss (ft)	0.00	Cum SA (acres)	0.43	1.11	1.21

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 931.36 Profile: 100-YR

E.G. Elev (ft)	750.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	749.84	Reach Len. (ft)	49.96	49.96	49.96
Crit W.S. (ft)		Flow Area (sq ft)		266.22	476.59
E.G. Slope (ft/ft)	0.001035	Area (sq ft)		266.22	476.59
Q Total (cfs)	2333.46	Flow (cfs)		1218.28	1115.19
Top Width (ft)	212.35	Top Width (ft)		38.82	173.53
Vel Total (ft/s)	3.14	Avg. Vel. (ft/s)		4.58	2.34
Max Chl Dpth (ft)	8.22	Hydr. Depth (ft)		6.86	2.75
Conv. Total (cfs)	72515.2	Conv. (cfs)		37859.4	34655.8
Length Wtd. (ft)	49.96	Wetted Per. (ft)		43.42	174.02
Min Ch El (ft)	741.62	Shear (lb/sq ft)		0.40	0.18
Alpha	1.37	Stream Power (lb/ft s)		1.81	0.41
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	1.37	6.90	2.56
C & E Loss (ft)	0.00	Cum SA (acres)	0.43	1.07	1.01

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 881.4 Profile: 100-YR

E.G. Elev (ft)	750.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	749.80	Reach Len. (ft)	49.99	49.99	49.99
Crit W.S. (ft)		Flow Area (sq ft)		279.05	459.27
E.G. Slope (ft/ft)	0.000940	Area (sq ft)		279.05	459.27
Q Total (cfs)	2333.46	Flow (cfs)		1232.19	1101.27
Top Width (ft)	190.14	Top Width (ft)		40.41	149.73
Vel Total (ft/s)	3.16	Avg. Vel. (ft/s)		4.42	2.40
Max Chl Dpth (ft)	8.65	Hydr. Depth (ft)		6.91	3.07
Conv. Total (cfs)	76126.2	Conv. (cfs)		40198.6	35927.6
Length Wtd. (ft)	49.99	Wetted Per. (ft)		44.64	150.29
Min Ch El (ft)	741.15	Shear (lb/sq ft)		0.37	0.18
Alpha	1.30	Stream Power (lb/ft s)		1.62	0.43
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.37	6.59	2.03
C & E Loss (ft)	0.00	Cum SA (acres)	0.43	1.02	0.82

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 831.41 Profile: 100-YR

E.G. Elev (ft)	749.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	749.77	Reach Len. (ft)	50.10	50.10	50.10
Crit W.S. (ft)		Flow Area (sq ft)		275.34	476.31
E.G. Slope (ft/ft)	0.000834	Area (sq ft)		275.34	476.31
Q Total (cfs)	2333.46	Flow (cfs)		1176.70	1156.77
Top Width (ft)	177.01	Top Width (ft)		37.72	139.28
Vel Total (ft/s)	3.10	Avg. Vel. (ft/s)		4.27	2.43
Max Chl Dpth (ft)	8.84	Hydr. Depth (ft)		7.30	3.42
Conv. Total (cfs)	80821.7	Conv. (cfs)		40756.0	40065.7
Length Wtd. (ft)	50.10	Wetted Per. (ft)		42.29	139.79
Min Ch El (ft)	740.93	Shear (lb/sq ft)		0.34	0.18
Alpha	1.26	Stream Power (lb/ft s)		1.45	0.43
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.37	6.27	1.49
C & E Loss (ft)	0.01	Cum SA (acres)	0.43	0.98	0.66

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 781.31 Profile: 100-YR

E.G. Elev (ft)	749.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	749.65	Reach Len. (ft)	49.95	49.95	49.95
Crit W.S. (ft)		Flow Area (sq ft)	6.21	312.70	363.02
E.G. Slope (ft/ft)	0.000872	Area (sq ft)	6.21	312.70	363.02
Q Total (cfs)	2333.46	Flow (cfs)	7.68	1481.09	844.68
Top Width (ft)	161.08	Top Width (ft)	4.33	39.75	117.00
Vel Total (ft/s)	3.42	Avg. Vel. (ft/s)	1.24	4.74	2.33
Max Chl Dpth (ft)	8.99	Hydr. Depth (ft)	1.44	7.87	3.10
Conv. Total (cfs)	79008.5	Conv. (cfs)	260.2	50148.2	28600.1
Length Wtd. (ft)	49.95	Wetted Per. (ft)	5.19	42.59	117.54
Min Ch El (ft)	740.66	Shear (lb/sq ft)	0.07	0.40	0.17
Alpha	1.38	Stream Power (lb/ft s)	0.08	1.89	0.39
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.36	5.93	1.01
C & E Loss (ft)	0.02	Cum SA (acres)	0.43	0.93	0.51

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 731.36 Profile: 100-YR

E.G. Elev (ft)	749.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	749.66	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)	43.06	304.30	421.55
E.G. Slope (ft/ft)	0.000640	Area (sq ft)	43.06	304.30	421.55
Q Total (cfs)	2333.46	Flow (cfs)	76.82	1272.46	984.18
Top Width (ft)	160.09	Top Width (ft)	15.61	37.56	106.92
Vel Total (ft/s)	3.03	Avg. Vel. (ft/s)	1.78	4.18	2.33
Max Chl Dpth (ft)	9.15	Hydr. Depth (ft)	2.76	8.10	3.94
Conv. Total (cfs)	92248.0	Conv. (cfs)	3036.9	50303.7	38907.4
Length Wtd. (ft)	50.00	Wetted Per. (ft)	16.46	39.60	107.64
Min Ch El (ft)	740.51	Shear (lb/sq ft)	0.10	0.31	0.16
Alpha	1.30	Stream Power (lb/ft s)	0.19	1.28	0.37
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.34	5.58	0.56
C & E Loss (ft)	0.02	Cum SA (acres)	0.41	0.89	0.38

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 681.36 Profile: 100-YR

E.G. Elev (ft)	749.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	749.36	Reach Len. (ft)	49.99	49.99	49.99
Crit W.S. (ft)		Flow Area (sq ft)	90.04	382.23	9.83
E.G. Slope (ft/ft)	0.001325	Area (sq ft)	90.04	382.23	9.83
Q Total (cfs)	2333.46	Flow (cfs)	243.04	2081.85	8.57
Top Width (ft)	104.43	Top Width (ft)	31.04	54.43	18.96
Vel Total (ft/s)	4.84	Avg. Vel. (ft/s)	2.70	5.45	0.87
Max Chl Dpth (ft)	8.41	Hydr. Depth (ft)	2.90	7.02	0.52
Conv. Total (cfs)	64102.7	Conv. (cfs)	6676.6	57190.8	235.3
Length Wtd. (ft)	49.99	Wetted Per. (ft)	31.93	57.77	18.99
Min Ch El (ft)	740.95	Shear (lb/sq ft)	0.23	0.55	0.04
Alpha	1.16	Stream Power (lb/ft s)	0.63	2.98	0.04
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	1.26	5.18	0.31
C & E Loss (ft)	0.02	Cum SA (acres)	0.39	0.83	0.31

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 631.37 Profile: 100-YR

E.G. Elev (ft)	749.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	749.34	Reach Len. (ft)	50.01	50.01	50.01
Crit W.S. (ft)		Flow Area (sq ft)	164.28	352.09	
E.G. Slope (ft/ft)	0.001323	Area (sq ft)	164.28	352.09	
Q Total (cfs)	2333.46	Flow (cfs)	510.53	1822.93	
Top Width (ft)	99.18	Top Width (ft)	45.99	53.19	
Vel Total (ft/s)	4.52	Avg. Vel. (ft/s)	3.11	5.18	
Max Chl Dpth (ft)	8.83	Hydr. Depth (ft)	3.57	6.62	
Conv. Total (cfs)	64146.7	Conv. (cfs)	14034.5	50112.2	
Length Wtd. (ft)	50.01	Wetted Per. (ft)	47.10	57.36	
Min Ch El (ft)	740.51	Shear (lb/sq ft)	0.29	0.51	
Alpha	1.13	Stream Power (lb/ft s)	0.90	2.63	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	1.11	4.76	0.30
C & E Loss (ft)	0.01	Cum SA (acres)	0.34	0.77	0.30

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 581.36 Profile: 100-YR

E.G. Elev (ft)	749.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	749.30	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)	179.51	367.67	
E.G. Slope (ft/ft)	0.001152	Area (sq ft)	179.51	367.67	
Q Total (cfs)	2333.46	Flow (cfs)	507.07	1826.39	
Top Width (ft)	106.19	Top Width (ft)	52.68	53.51	
Vel Total (ft/s)	4.26	Avg. Vel. (ft/s)	2.82	4.97	
Max Chl Dpth (ft)	9.26	Hydr. Depth (ft)	3.41	6.87	
Conv. Total (cfs)	68745.3	Conv. (cfs)	14938.7	53806.6	
Length Wtd. (ft)	50.00	Wetted Per. (ft)	53.54	57.45	
Min Ch El (ft)	740.04	Shear (lb/sq ft)	0.24	0.46	
Alpha	1.16	Stream Power (lb/ft s)	0.68	2.29	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	0.92	4.35	0.30
C & E Loss (ft)	0.03	Cum SA (acres)	0.29	0.71	0.30

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 531.36 Profile: 100-YR

E.G. Elev (ft)	749.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	748.86	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)	60.48	329.47	
E.G. Slope (ft/ft)	0.002171	Area (sq ft)	60.48	329.47	
Q Total (cfs)	2333.46	Flow (cfs)	137.23	2196.23	
Top Width (ft)	89.31	Top Width (ft)	40.19	49.12	
Vel Total (ft/s)	5.98	Avg. Vel. (ft/s)	2.27	6.67	
Max Chl Dpth (ft)	8.98	Hydr. Depth (ft)	1.50	6.71	
Conv. Total (cfs)	50077.4	Conv. (cfs)	2945.0	47132.4	
Length Wtd. (ft)	50.00	Wetted Per. (ft)	40.30	53.27	
Min Ch El (ft)	739.88	Shear (lb/sq ft)	0.20	0.84	
Alpha	1.18	Stream Power (lb/ft s)	0.46	5.59	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	0.78	3.95	0.30
C & E Loss (ft)	0.12	Cum SA (acres)	0.23	0.65	0.30

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 481.36 Profile: 100-YR

E.G. Elev (ft)	749.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.		0.035	
W.S. Elev (ft)	749.06	Reach Len. (ft)	71.37	71.37	71.37
Crit W.S. (ft)		Flow Area (sq ft)		567.53	
E.G. Slope (ft/ft)	0.001020	Area (sq ft)		567.53	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	103.93	Top Width (ft)		103.93	
Vel Total (ft/s)	4.11	Avg. Vel. (ft/s)		4.11	
Max Chl Dpth (ft)	8.32	Hydr. Depth (ft)		5.46	
Conv. Total (cfs)	73050.8	Conv. (cfs)		73050.8	
Length Wtd. (ft)	71.37	Wetted Per. (ft)		107.50	
Min Ch El (ft)	740.74	Shear (lb/sq ft)		0.34	
Alpha	1.00	Stream Power (lb/ft s)		1.38	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	0.74	3.43	0.30
C & E Loss (ft)	0.00	Cum SA (acres)	0.21	0.56	0.30

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 409.99 Profile: 100-YR

E.G. Elev (ft)	749.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	748.96	Reach Len. (ft)	36.50	36.50	36.50
Crit W.S. (ft)		Flow Area (sq ft)	249.25	324.24	
E.G. Slope (ft/ft)	0.001034	Area (sq ft)	249.25	324.24	
Q Total (cfs)	2333.46	Flow (cfs)	780.10	1553.36	
Top Width (ft)	101.99	Top Width (ft)	57.30	44.69	
Vel Total (ft/s)	4.07	Avg. Vel. (ft/s)	3.13	4.79	
Max Chl Dpth (ft)	8.96	Hydr. Depth (ft)	4.35	7.26	
Conv. Total (cfs)	72579.9	Conv. (cfs)	24264.3	48315.6	
Length Wtd. (ft)	36.50	Wetted Per. (ft)	58.75	49.31	
Min Ch El (ft)	740.00	Shear (lb/sq ft)	0.27	0.42	
Alpha	1.12	Stream Power (lb/ft s)	0.86	2.03	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	0.54	2.70	0.30
C & E Loss (ft)	0.01	Cum SA (acres)	0.16	0.44	0.30

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 373.49 Profile: 100-YR

E.G. Elev (ft)	749.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	748.84	Reach Len. (ft)	54.34	54.34	54.34
Crit W.S. (ft)		Flow Area (sq ft)	155.78	362.70	
E.G. Slope (ft/ft)	0.001267	Area (sq ft)	155.78	362.70	
Q Total (cfs)	2333.46	Flow (cfs)	449.67	1883.79	
Top Width (ft)	100.48	Top Width (ft)	47.37	53.11	
Vel Total (ft/s)	4.50	Avg. Vel. (ft/s)	2.89	5.19	
Max Chl Dpth (ft)	8.84	Hydr. Depth (ft)	3.29	6.83	
Conv. Total (cfs)	65563.0	Conv. (cfs)	12634.2	52928.8	
Length Wtd. (ft)	54.34	Wetted Per. (ft)	48.29	56.91	
Min Ch El (ft)	740.00	Shear (lb/sq ft)	0.26	0.50	
Alpha	1.15	Stream Power (lb/ft s)	0.74	2.62	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	0.37	2.41	0.30
C & E Loss (ft)	0.00	Cum SA (acres)	0.12	0.40	0.30

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 319.15 Profile: 100-YR

E.G. Elev (ft)	749.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	748.78	Reach Len. (ft)	57.20	57.20	57.20
Crit W.S. (ft)		Flow Area (sq ft)	179.97	340.88	
E.G. Slope (ft/ft)	0.001182	Area (sq ft)	179.97	340.88	
Q Total (cfs)	2333.46	Flow (cfs)	585.14	1748.32	
Top Width (ft)	89.59	Top Width (ft)	42.56	47.02	
Vel Total (ft/s)	4.48	Avg. Vel. (ft/s)	3.25	5.13	
Max Chl Dpth (ft)	8.78	Hydr. Depth (ft)	4.23	7.25	
Conv. Total (cfs)	67873.8	Conv. (cfs)	17020.2	50853.6	
Length Wtd. (ft)	57.20	Wetted Per. (ft)	44.30	51.75	
Min Ch El (ft)	740.00	Shear (lb/sq ft)	0.30	0.49	
Alpha	1.11	Stream Power (lb/ft s)	0.97	2.49	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	0.16	1.97	0.30
C & E Loss (ft)	0.03	Cum SA (acres)	0.06	0.34	0.30

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 261.95 Profile: 100-YR

E.G. Elev (ft)	749.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	748.37	Reach Len. (ft)	52.31	52.31	52.31
Crit W.S. (ft)		Flow Area (sq ft)	22.05	353.58	
E.G. Slope (ft/ft)	0.002036	Area (sq ft)	22.05	353.58	
Q Total (cfs)	2333.46	Flow (cfs)	49.91	2283.55	
Top Width (ft)	65.80	Top Width (ft)	13.36	52.44	
Vel Total (ft/s)	6.21	Avg. Vel. (ft/s)	2.26	6.46	
Max Chl Dpth (ft)	8.37	Hydr. Depth (ft)	1.65	6.74	
Conv. Total (cfs)	51714.7	Conv. (cfs)	1106.1	50608.6	
Length Wtd. (ft)	52.31	Wetted Per. (ft)	14.04	57.12	
Min Ch El (ft)	740.00	Shear (lb/sq ft)	0.20	0.79	
Alpha	1.06	Stream Power (lb/ft s)	0.45	5.08	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	0.03	1.52	0.30
C & E Loss (ft)	0.03	Cum SA (acres)	0.03	0.27	0.30

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 209.64 Profile: 100-YR

E.G. Elev (ft)	748.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.92	Wt. n-Val.		0.035	
W.S. Elev (ft)	747.92	Reach Len. (ft)	57.93	57.93	57.93
Crit W.S. (ft)		Flow Area (sq ft)		302.90	
E.G. Slope (ft/ft)	0.003354	Area (sq ft)		302.90	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	48.11	Top Width (ft)		48.11	
Vel Total (ft/s)	7.70	Avg. Vel. (ft/s)		7.70	
Max Chl Dpth (ft)	7.92	Hydr. Depth (ft)		6.30	
Conv. Total (cfs)	40294.3	Conv. (cfs)		40294.3	
Length Wtd. (ft)	57.93	Wetted Per. (ft)		54.61	
Min Ch El (ft)	740.00	Shear (lb/sq ft)		1.16	
Alpha	1.00	Stream Power (lb/ft s)		8.95	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.01	1.12	0.30
C & E Loss (ft)	0.01	Cum SA (acres)	0.02	0.21	0.30

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 151.71 Profile: 100-YR

E.G. Elev (ft)	748.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.99	Wt. n-Val.		0.035	
W.S. Elev (ft)	747.64	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)		291.79	
E.G. Slope (ft/ft)	0.003728	Area (sq ft)		291.79	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	47.90	Top Width (ft)		47.90	
Vel Total (ft/s)	8.00	Avg. Vel. (ft/s)		8.00	
Max Chl Dpth (ft)	7.64	Hydr. Depth (ft)		6.09	
Conv. Total (cfs)	38215.6	Conv. (cfs)		38215.6	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		53.85	
Min Ch El (ft)	740.00	Shear (lb/sq ft)		1.26	
Alpha	1.00	Stream Power (lb/ft s)		10.09	
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	0.01	0.73	0.30
C & E Loss (ft)	0.07	Cum SA (acres)	0.02	0.15	0.30

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 101.71 Profile: 100-YR

E.G. Elev (ft)	748.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.65	Wt. n-Val.		0.035	
W.S. Elev (ft)	746.66	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	745.69	Flow Area (sq ft)		226.57	
E.G. Slope (ft/ft)	0.007302	Area (sq ft)		226.57	199.11
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	175.57	Top Width (ft)		41.53	134.03
Vel Total (ft/s)	10.30	Avg. Vel. (ft/s)		10.30	
Max Chl Dpth (ft)	6.84	Hydr. Depth (ft)		5.46	
Conv. Total (cfs)	27307.4	Conv. (cfs)		27307.4	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		47.37	
Min Ch El (ft)	739.82	Shear (lb/sq ft)		2.18	
Alpha	1.00	Stream Power (lb/ft s)		22.46	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.01	0.43	0.19
C & E Loss (ft)		Cum SA (acres)	0.02	0.10	0.22

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 91.71 BR U Profile: 100-YR

E.G. Elev (ft)	748.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.39	Wt. n-Val.		0.035	
W.S. Elev (ft)	745.84	Reach Len. (ft)	35.00	35.00	35.00
Crit W.S. (ft)	745.84	Flow Area (sq ft)		188.02	
E.G. Slope (ft/ft)	0.012201	Area (sq ft)		188.02	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	39.36	Top Width (ft)		39.36	
Vel Total (ft/s)	12.41	Avg. Vel. (ft/s)		12.41	
Max Chl Dpth (ft)	6.02	Hydr. Depth (ft)		4.78	
Conv. Total (cfs)	21125.7	Conv. (cfs)		21125.7	
Length Wtd. (ft)	35.00	Wetted Per. (ft)		43.67	
Min Ch El (ft)	739.82	Shear (lb/sq ft)		3.28	
Alpha	1.00	Stream Power (lb/ft s)		40.70	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.01	0.38	0.17
C & E Loss (ft)		Cum SA (acres)	0.02	0.09	0.21

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 91.71 BR D Profile: 100-YR

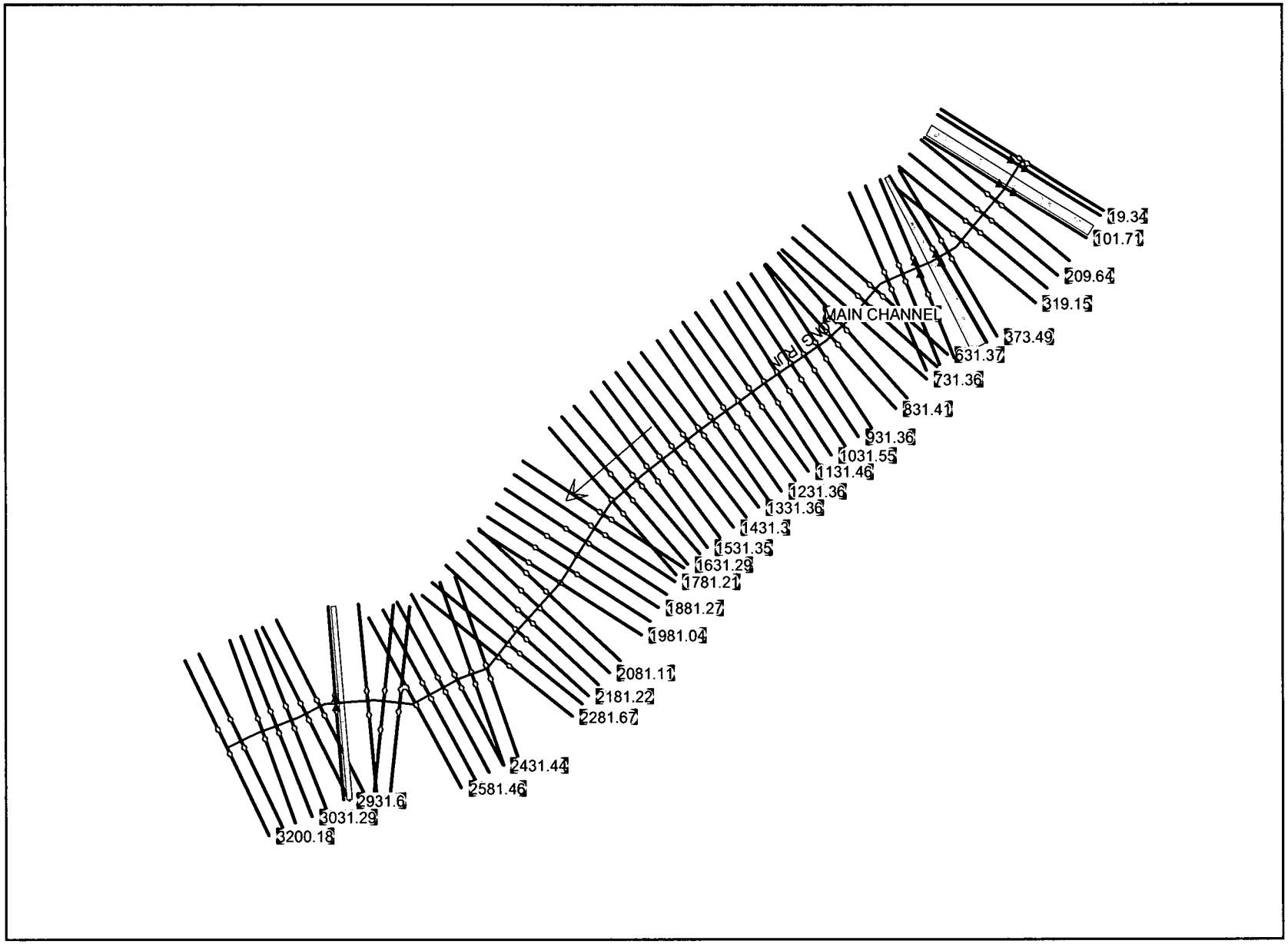
E.G. Elev (ft)	747.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.26	Wt. n-Val.		0.035	
W.S. Elev (ft)	745.20	Reach Len. (ft)	37.37	37.37	37.37
Crit W.S. (ft)	745.20	Flow Area (sq ft)		193.64	
E.G. Slope (ft/ft)	0.012018	Area (sq ft)		193.64	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	42.84	Top Width (ft)		42.84	
Vel Total (ft/s)	12.05	Avg. Vel. (ft/s)		12.05	
Max Chl Dpth (ft)	5.79	Hydr. Depth (ft)		4.52	
Conv. Total (cfs)	21285.1	Conv. (cfs)		21285.1	
Length Wtd. (ft)	37.37	Wetted Per. (ft)		46.48	
Min Ch El (ft)	739.41	Shear (lb/sq ft)		3.13	
Alpha	1.00	Stream Power (lb/ft s)		37.67	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.01	0.23	0.17
C & E Loss (ft)		Cum SA (acres)	0.02	0.06	0.21

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 19.34 Profile: 100-YR

E.G. Elev (ft)	746.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.31	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	744.64	Reach Len. (ft)	19.34	19.34	19.34
Crit W.S. (ft)	744.88	Flow Area (sq ft)	2.30	190.14	
E.G. Slope (ft/ft)	0.013661	Area (sq ft)	21.62	190.14	203.01
Q Total (cfs)	2333.46	Flow (cfs)	11.27	2322.19	
Top Width (ft)	313.18	Top Width (ft)	23.27	47.05	242.86
Vel Total (ft/s)	12.13	Avg. Vel. (ft/s)	4.90	12.21	
Max Chl Dpth (ft)	5.23	Hydr. Depth (ft)	1.20	4.04	
Conv. Total (cfs)	19964.6	Conv. (cfs)	96.5	19868.1	
Length Wtd. (ft)	19.34	Wetted Per. (ft)	1.92	49.24	
Min Ch El (ft)	739.41	Shear (lb/sq ft)	1.02	3.29	
Alpha	1.01	Stream Power (lb/ft s)	5.01	40.22	
Frctn Loss (ft)	0.34	Cum Volume (acre-ft)	0.01	0.07	0.08
C & E Loss (ft)	0.02	Cum SA (acres)	0.01	0.02	0.10

Plan: EG-5 LONG RUN MAIN CHANNEL RS: 0 Profile: 100-YR

E.G. Elev (ft)	746.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.48	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	744.10	Reach Len. (ft)			
Crit W.S. (ft)	744.88	Flow Area (sq ft)	2.48	107.28	157.93
E.G. Slope (ft/ft)	0.024168	Area (sq ft)	2.48	107.28	157.93
Q Total (cfs)	2333.46	Flow (cfs)	4.05	1602.61	726.79
Top Width (ft)	267.45	Top Width (ft)	16.48	29.66	221.32
Vel Total (ft/s)	8.72	Avg. Vel. (ft/s)	1.63	14.94	4.60
Max Chl Dpth (ft)	4.51	Hydr. Depth (ft)	0.15	3.62	0.71
Conv. Total (cfs)	15009.9	Conv. (cfs)	26.1	10308.7	4675.1
Length Wtd. (ft)		Wetted Per. (ft)	16.48	31.50	222.57
Min Ch El (ft)	739.59	Shear (lb/sq ft)	0.23	5.14	1.07
Alpha	2.10	Stream Power (lb/ft s)	0.37	76.75	4.93
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			


MAIN CHANNEL
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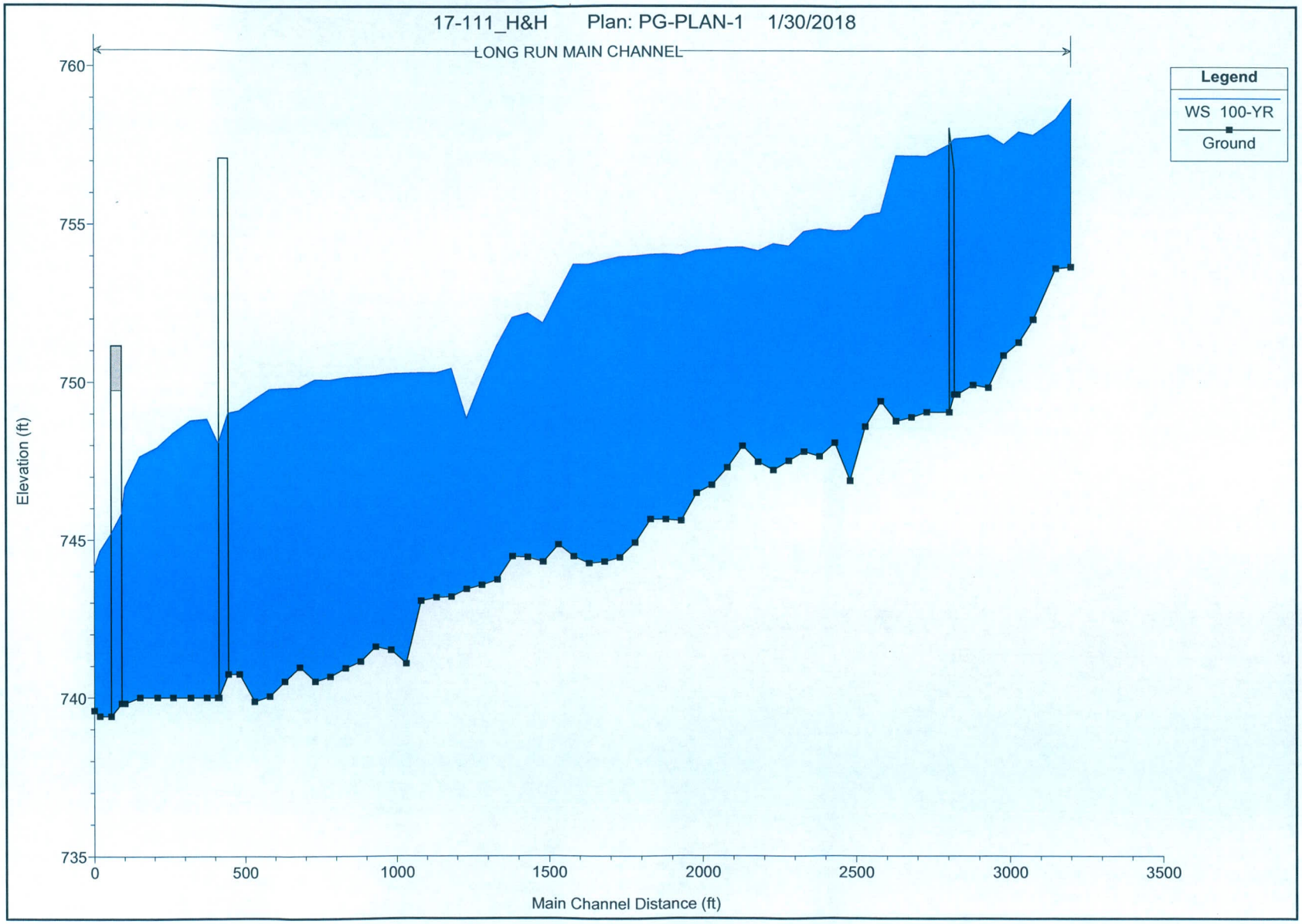
101.71
209.64
319.15
373.49
631.37
731.36
831.41
931.36
1031.55
1131.46
1231.36
1331.36
1431.3
1531.35
1631.29
1781.21
1881.27
1981.04
2081.11
2181.22
2281.67
2431.44
2581.46
2931.6
3031.29
3200.18


17-111_H&H Plan: PG-PLAN-1 1/30/2018
LONG RUN MAIN CHANNEL
Legend
WS 100-YR
Ground
Elevation (ft)
760
755
750
745
740
735
0
500
1000
1500
2000
2500
3000
3500
Main Channel Distance (ft)

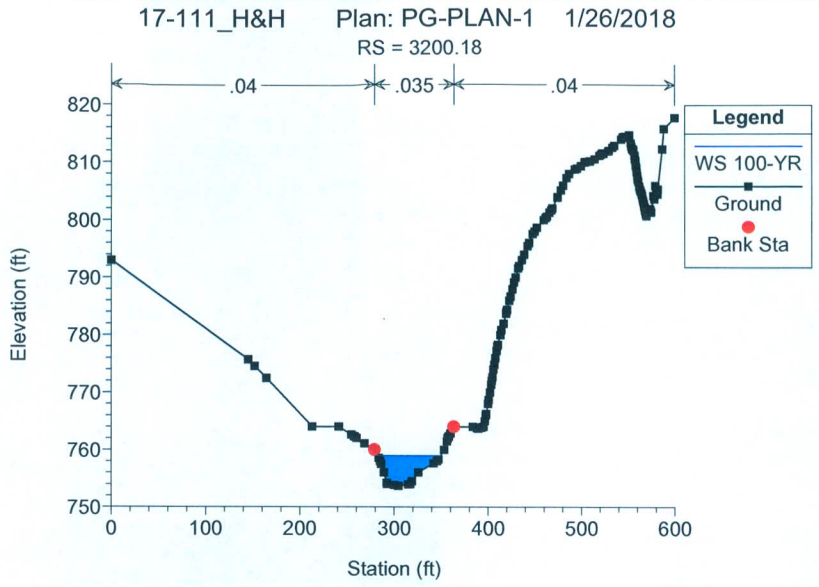
HEC-RAS Plan: PG-1 River: LONG RUN Reach: MAIN CHANNEL Profile: 100-YR

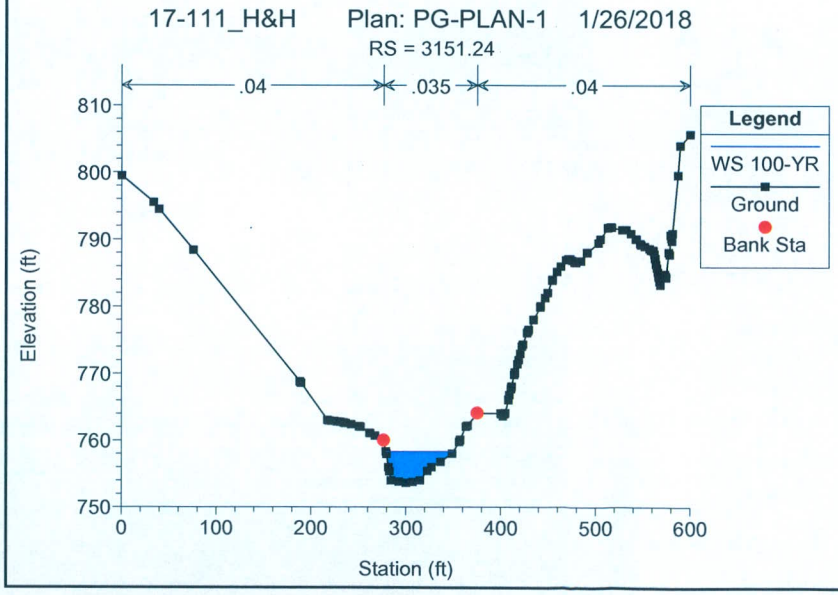
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
MAIN CHANNEL	3200.18	100-YR	2216.44	753.67	758.99	758.83	760.49	0.010951	9.81	225.96	67.21	0.94
MAIN CHANNEL	3151.24	100-YR	2216.44	753.62	758.36	758.36	759.91	0.012670	10.00	221.64	71.36	1.00
MAIN CHANNEL	3077.66	100-YR	2315.70	752.00	757.84	757.29	759.08	0.007689	8.95	259.89	72.33	0.81
MAIN CHANNEL	3031.29	100-YR	2315.70	751.28	757.95	756.77	758.67	0.004123	7.01	388.73	202.94	0.60
MAIN CHANNEL	2981.23	100-YR	2315.70	750.87	757.54	756.59	758.42	0.005229	7.66	344.12	165.93	0.67
MAIN CHANNEL	2931.6	100-YR	2315.70	749.85	757.84		758.10	0.001582	4.83	674.43	244.08	0.38
MAIN CHANNEL	2881.8	100-YR	2315.70	749.94	757.78		758.02	0.001361	4.71	690.62	225.31	0.35
MAIN CHANNEL	2830.87	100-YR	2315.70	749.63	757.74	756.38	757.94	0.001330	4.49	725.96	231.12	0.35
MAIN CHANNEL	2820		Bridge									
MAIN CHANNEL	2731.19	100-YR	2315.70	749.07	757.18		757.60	0.002180	5.64	515.73	184.80	0.45
MAIN CHANNEL	2681.3	100-YR	2315.70	748.91	757.18		757.47	0.001451	4.36	566.74	188.72	0.36
MAIN CHANNEL	2631.1	100-YR	2315.70	748.79	757.19		757.38	0.001031	4.14	785.22	281.10	0.31
MAIN CHANNEL	2581.46	100-YR	2315.70	749.42	755.39	755.13	757.11	0.010015	10.52	220.18	53.99	0.92
MAIN CHANNEL	2531.07	100-YR	2315.70	748.62	755.30	755.30	756.54	0.007307	9.18	297.51	152.96	0.78
MAIN CHANNEL	2481.43	100-YR	2315.70	746.90	754.85	753.99	755.59	0.003509	7.40	404.79	177.05	0.56
MAIN CHANNEL	2431.44	100-YR	2315.70	748.11	754.81		755.35	0.003572	6.97	517.41	278.76	0.56
MAIN CHANNEL	2381.67	100-YR	2315.70	747.68	754.88		755.16	0.001697	5.45	724.51	333.83	0.40
MAIN CHANNEL	2331.55	100-YR	2315.70	747.82	754.79		755.06	0.001863	5.30	706.11	324.68	0.41
MAIN CHANNEL	2281.67	100-YR	2315.70	747.53	754.33		754.90	0.003935	7.36	525.90	317.76	0.58
MAIN CHANNEL	2231.25	100-YR	2315.70	747.24	754.41		754.68	0.001890	5.33	712.95	330.06	0.41
MAIN CHANNEL	2181.22	100-YR	2315.70	747.50	754.19		754.56	0.002272	5.94	604.43	268.67	0.45
MAIN CHANNEL	2131.29	100-YR	2320.26	748.01	754.30		754.42	0.000761	3.51	949.37	308.58	0.27
MAIN CHANNEL	2081.11	100-YR	2320.26	747.32	754.29		754.39	0.000481	2.89	1060.66	284.47	0.21
MAIN CHANNEL	2031.08	100-YR	2320.26	746.77	754.23		754.35	0.000681	3.23	902.21	252.88	0.25
MAIN CHANNEL	1981.04	100-YR	2320.26	746.51	754.20		754.32	0.000776	3.05	882.86	254.52	0.26
MAIN CHANNEL	1931.11	100-YR	2320.26	745.64	754.05		754.26	0.001264	3.92	681.13	204.61	0.33
MAIN CHANNEL	1881.27	100-YR	2320.26	745.68	754.09		754.20	0.000423	2.84	963.33	229.53	0.21
MAIN CHANNEL	1831.31	100-YR	2320.26	745.68	754.07		754.18	0.000340	2.87	997.73	211.34	0.19
MAIN CHANNEL	1781.21	100-YR	2320.26	744.93	754.02		754.15	0.000650	3.67	866.49	201.23	0.25
MAIN CHANNEL	1731.3	100-YR	2320.26	744.46	754.00		754.12	0.000504	3.46	920.04	202.91	0.22
MAIN CHANNEL	1681.36	100-YR	2320.26	744.33	753.88		754.08	0.000752	4.19	689.84	129.68	0.27
MAIN CHANNEL	1631.29	100-YR	2320.26	744.28	753.75		754.03	0.000968	4.26	553.75	98.69	0.31
MAIN CHANNEL	1581.58	100-YR	2320.26	744.50	753.75		753.96	0.000936	4.45	742.78	206.36	0.30
MAIN CHANNEL	1531.35	100-YR	2320.26	744.88	752.84	750.91	753.80	0.003684	8.16	351.21	154.46	0.57
MAIN CHANNEL	1481.41	100-YR	2320.26	744.33	751.89	750.97	753.49	0.006956	10.23	244.68	103.26	0.77
MAIN CHANNEL	1431.3	100-YR	2320.26	744.48	752.21		753.03	0.003122	7.48	373.69	162.71	0.54
MAIN CHANNEL	1381.3	100-YR	2320.26	744.50	752.07		752.87	0.003152	7.55	392.15	159.62	0.55
MAIN CHANNEL	1331.36	100-YR	2320.26	743.76	751.19	750.22	752.61	0.004778	10.02	293.68	116.43	0.68
MAIN CHANNEL	1281.4	100-YR	2320.26	743.59	750.08	750.08	752.23	0.008672	12.21	214.51	54.83	0.90
MAIN CHANNEL	1231.36	100-YR	2320.26	743.46	748.85	749.53	751.59	0.016748	13.36	180.17	55.70	1.18
MAIN CHANNEL	1181.33	100-YR	2320.26	743.21	750.45	748.66	750.72	0.001798	4.89	584.40	158.21	0.40

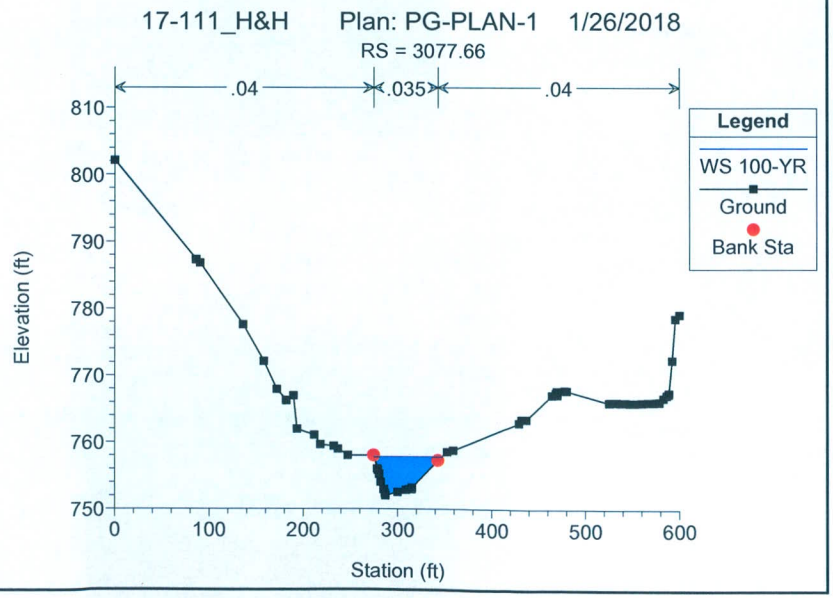
HEC-RAS Plan: PG-1 River: LONG RUN Reach: MAIN CHANNEL Profile: 100-YR (Continued)

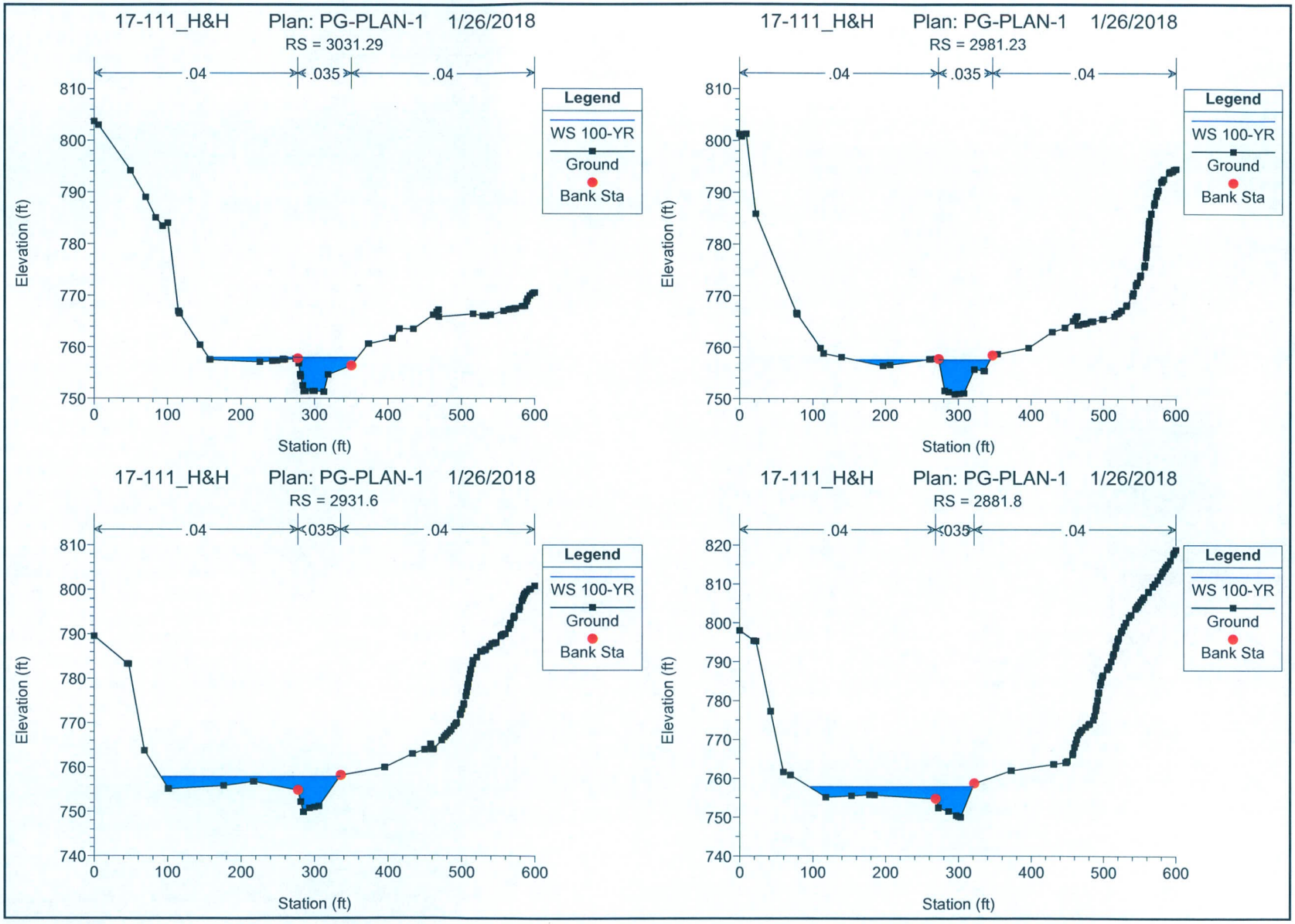
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
MAIN CHANNEL	1131.46	100-YR	2333.46	743.19	750.32		750.63	0.001720	5.09	590.22	182.96	0.40
MAIN CHANNEL	1081.29	100-YR	2333.46	743.08	750.31		750.53	0.001164	4.53	735.27	231.87	0.33
MAIN CHANNEL	1031.55	100-YR	2333.46	741.09	750.30		750.47	0.000764	3.96	839.32	236.19	0.27
MAIN CHANNEL	981.19	100-YR	2333.46	741.52	750.28		750.42	0.000694	3.76	875.39	229.05	0.26
MAIN CHANNEL	931.36	100-YR	2333.46	741.62	750.22		750.38	0.000774	4.07	822.64	213.32	0.27
MAIN CHANNEL	881.4	100-YR	2333.46	741.15	750.18		750.35	0.000716	3.96	811.39	191.33	0.26
MAIN CHANNEL	831.41	100-YR	2333.46	740.93	750.16		750.31	0.000645	3.86	820.86	178.22	0.25
MAIN CHANNEL	781.31	100-YR	2333.46	740.66	750.07		750.27	0.000671	4.30	748.82	162.40	0.26
MAIN CHANNEL	731.36	100-YR	2333.46	740.51	750.07		750.23	0.000503	3.83	834.81	161.54	0.23
MAIN CHANNEL	681.36	100-YR	2333.46	740.95	749.82		750.17	0.001033	5.02	532.34	113.65	0.32
MAIN CHANNEL	631.37	100-YR	2333.46	740.51	749.80		750.10	0.001028	4.74	563.23	100.60	0.32
MAIN CHANNEL	581.36	100-YR	2333.46	740.04	749.78		750.05	0.000892	4.53	598.61	107.69	0.30
MAIN CHANNEL	531.36	100-YR	2333.46	739.88	749.45		749.96	0.001597	5.98	445.15	97.94	0.39
MAIN CHANNEL	481.36	100-YR	2333.46	740.74	749.10	745.54	749.86	0.001625	6.98	334.47	104.33	0.43
MAIN CHANNEL	444.86		Bridge									
MAIN CHANNEL	409.99	100-YR	2333.46	740.00	748.08		749.63	0.003947	10.01	233.22	98.69	0.64
MAIN CHANNEL	373.49	100-YR	2333.46	740.00	748.84		749.20	0.001267	5.19	518.48	100.48	0.35
MAIN CHANNEL	319.15	100-YR	2333.46	740.00	748.78		749.13	0.001182	5.13	520.84	89.59	0.34
MAIN CHANNEL	261.95	100-YR	2333.46	740.00	748.37		749.01	0.002036	6.46	375.63	65.80	0.44
MAIN CHANNEL	209.64	100-YR	2333.46	740.00	747.92		748.85	0.003354	7.70	302.90	48.11	0.54
MAIN CHANNEL	151.71	100-YR	2333.46	740.00	747.64		748.63	0.003728	8.00	291.79	47.90	0.57
MAIN CHANNEL	101.71	100-YR	2333.46	739.82	746.66	745.69	748.31	0.007302	10.30	226.57	175.57	0.78
MAIN CHANNEL	91.71		Bridge									
MAIN CHANNEL	19.34	100-YR	2333.46	739.41	744.64	744.88	746.95	0.013661	12.21	192.44	313.18	1.07
MAIN CHANNEL	0	100-YR	2333.46	739.59	744.10	744.88	746.59	0.024168	14.94	267.69	267.45	1.38

No Data for Plot





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Bank Sta
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Station (ft)
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
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WS 100-YR
Ground
Bank Sta
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Station (ft)
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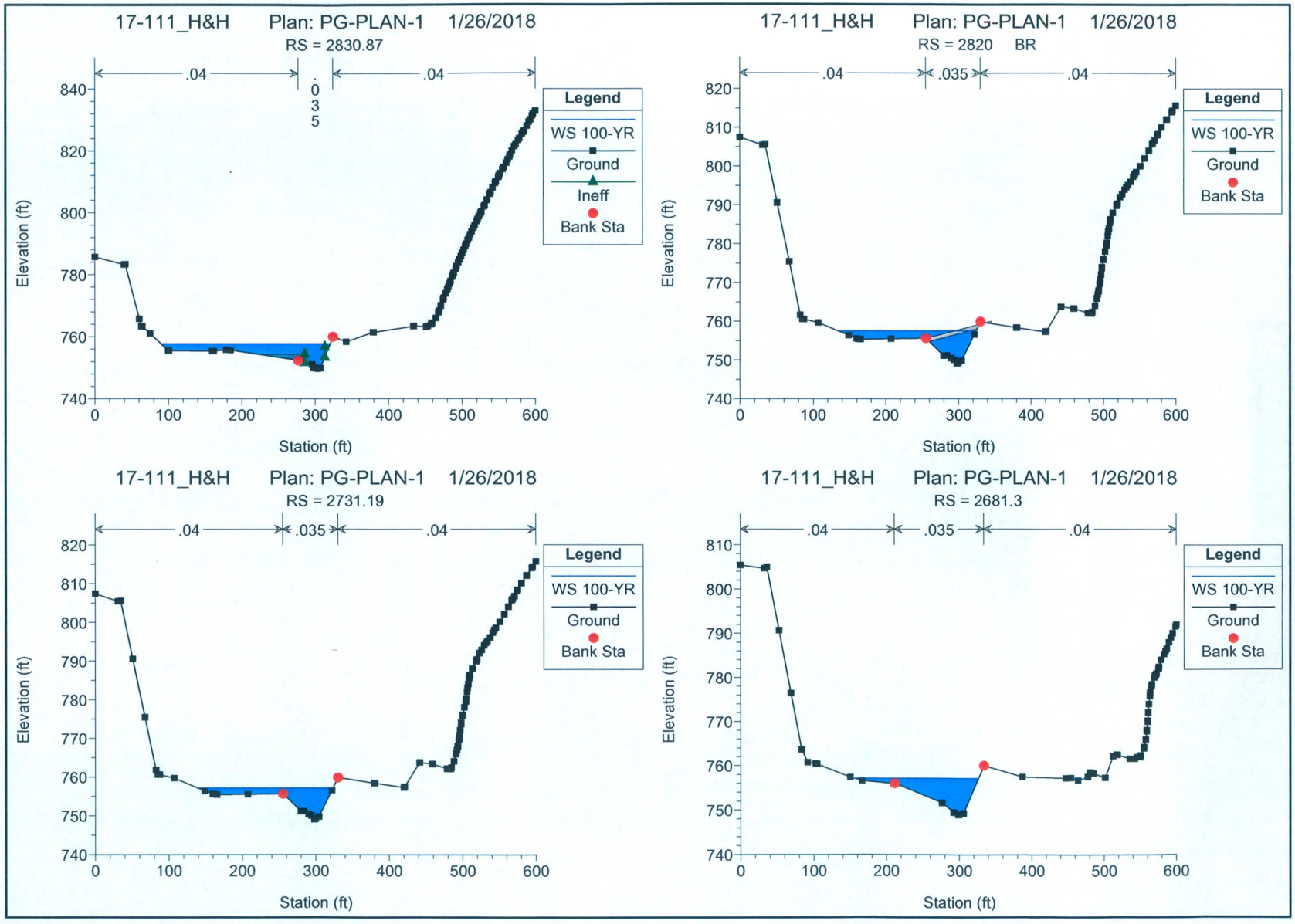
Ground
Bank Sta
Elevation (ft)
Station (ft)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Bank Sta
Elevation (ft)
Station (ft)
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WS 100-YR
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Bank Sta
Elevation (ft)
Station (ft)
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Station (ft)
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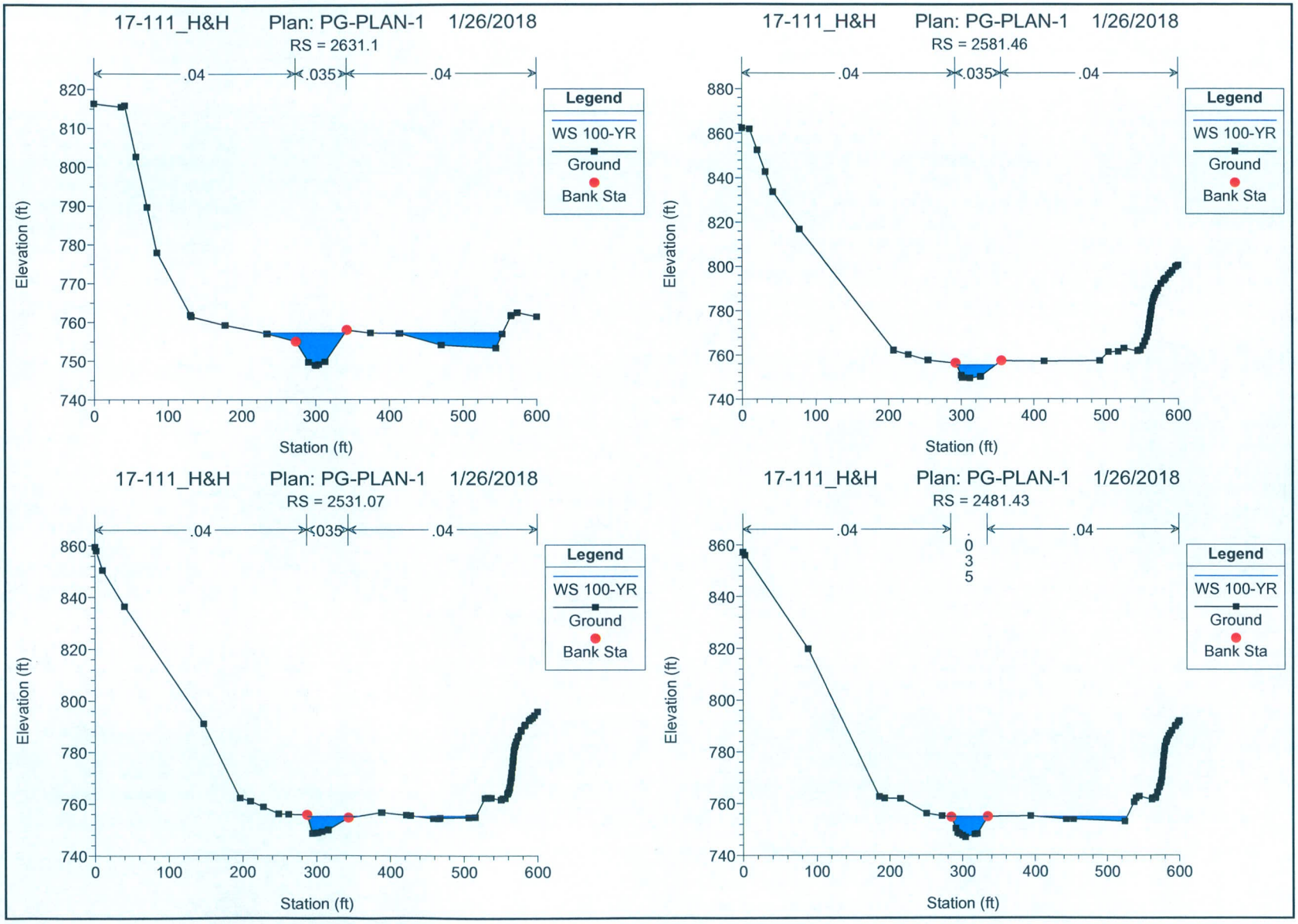
Bank Sta
Elevation (ft)
Station (ft)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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2581.46
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
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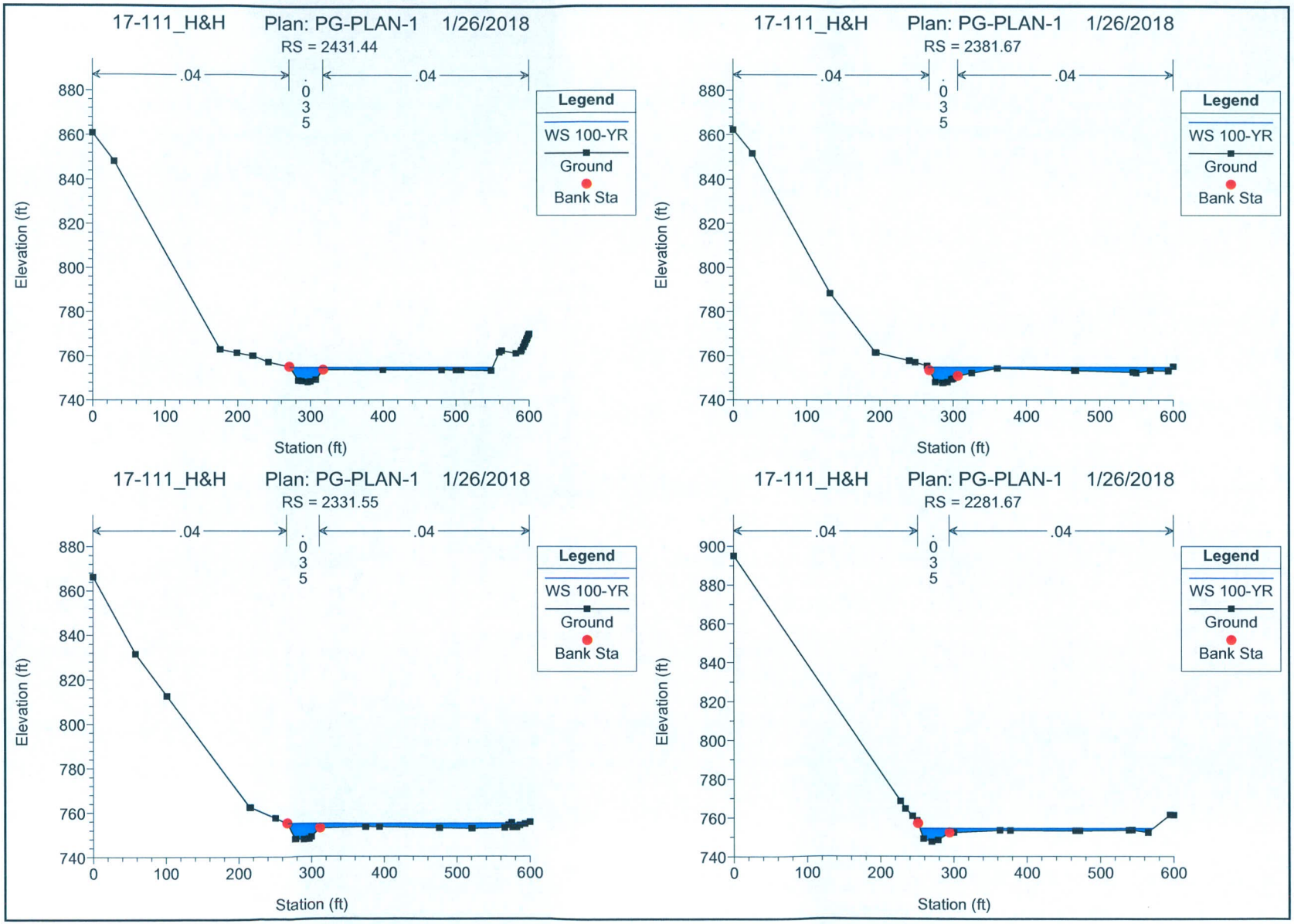
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)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Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 2381.67
.04
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
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RS = 2331.55
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
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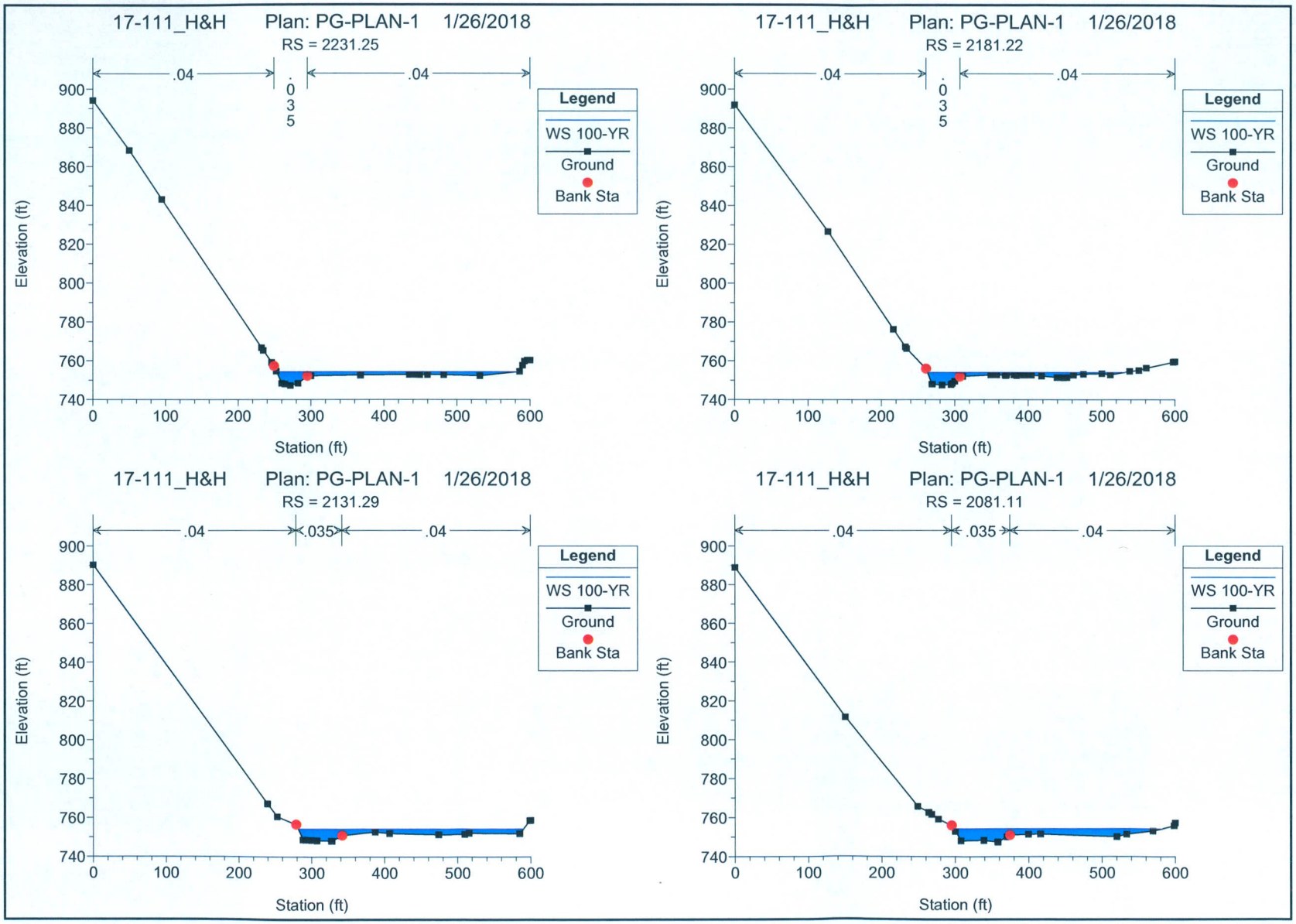
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
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.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
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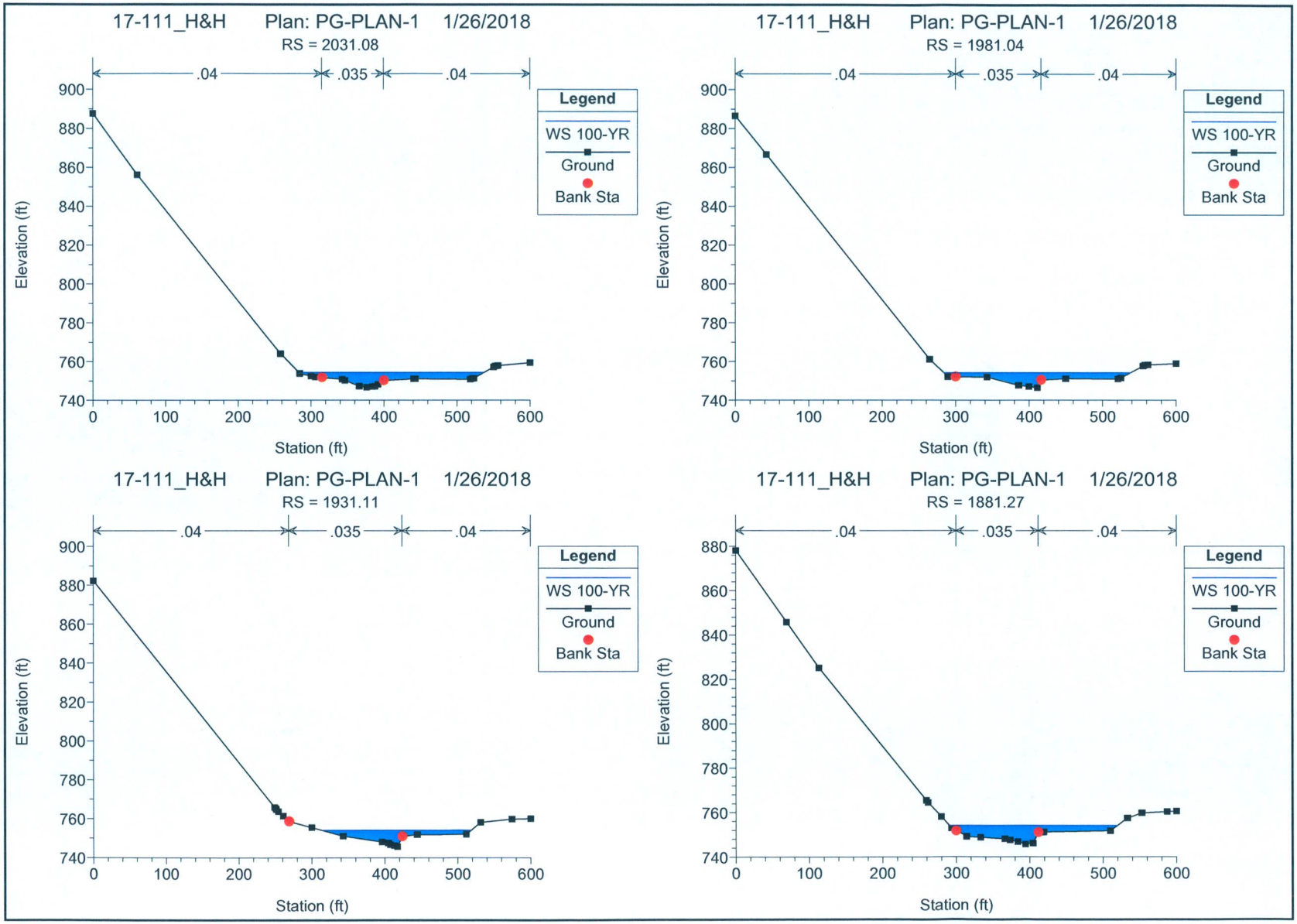
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)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WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1931.11
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
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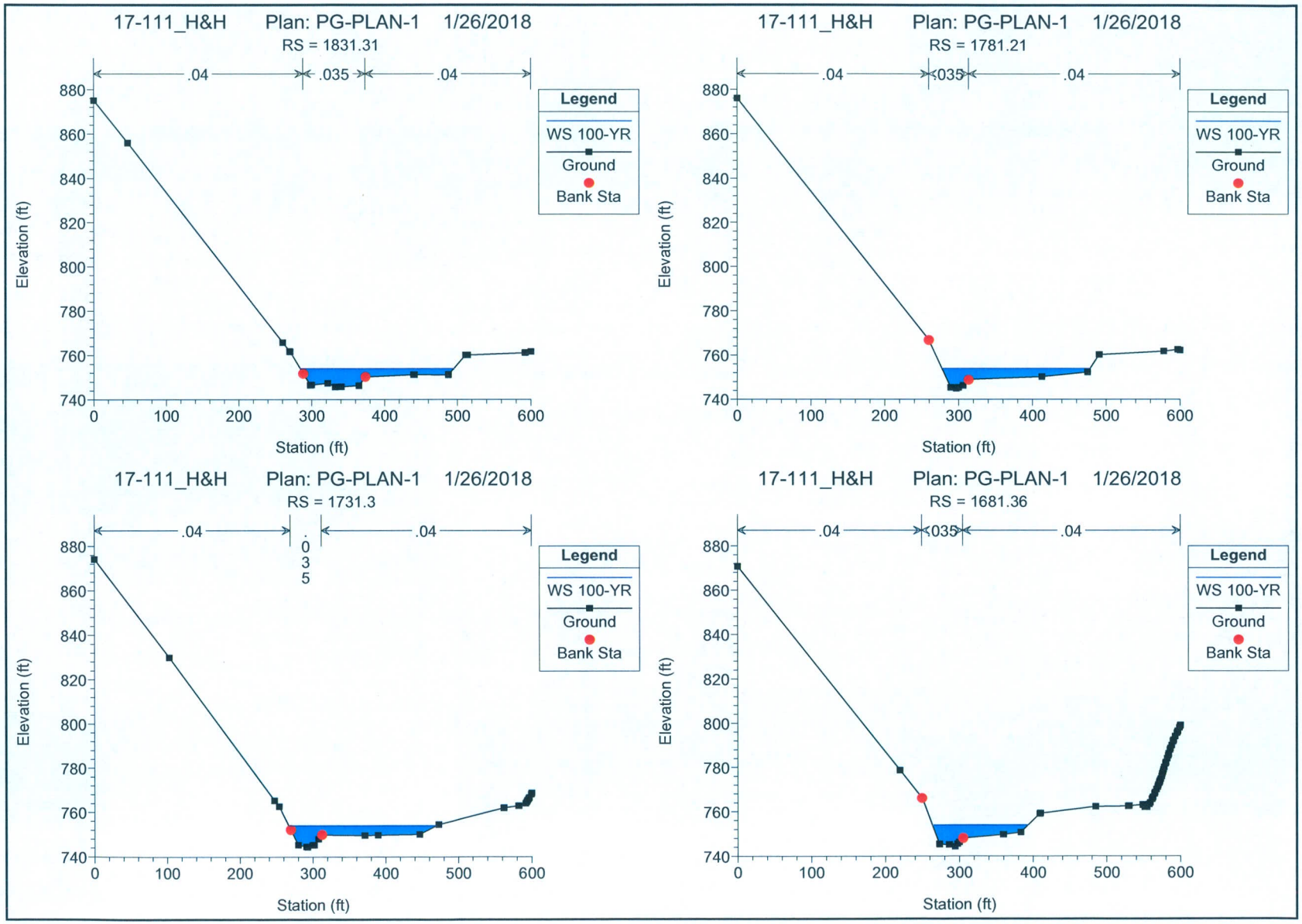
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)


17-111_H&H Plan: PG-PLAN-1 1/26/2018
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1781.21
.04
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1731.3
.04
.035
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
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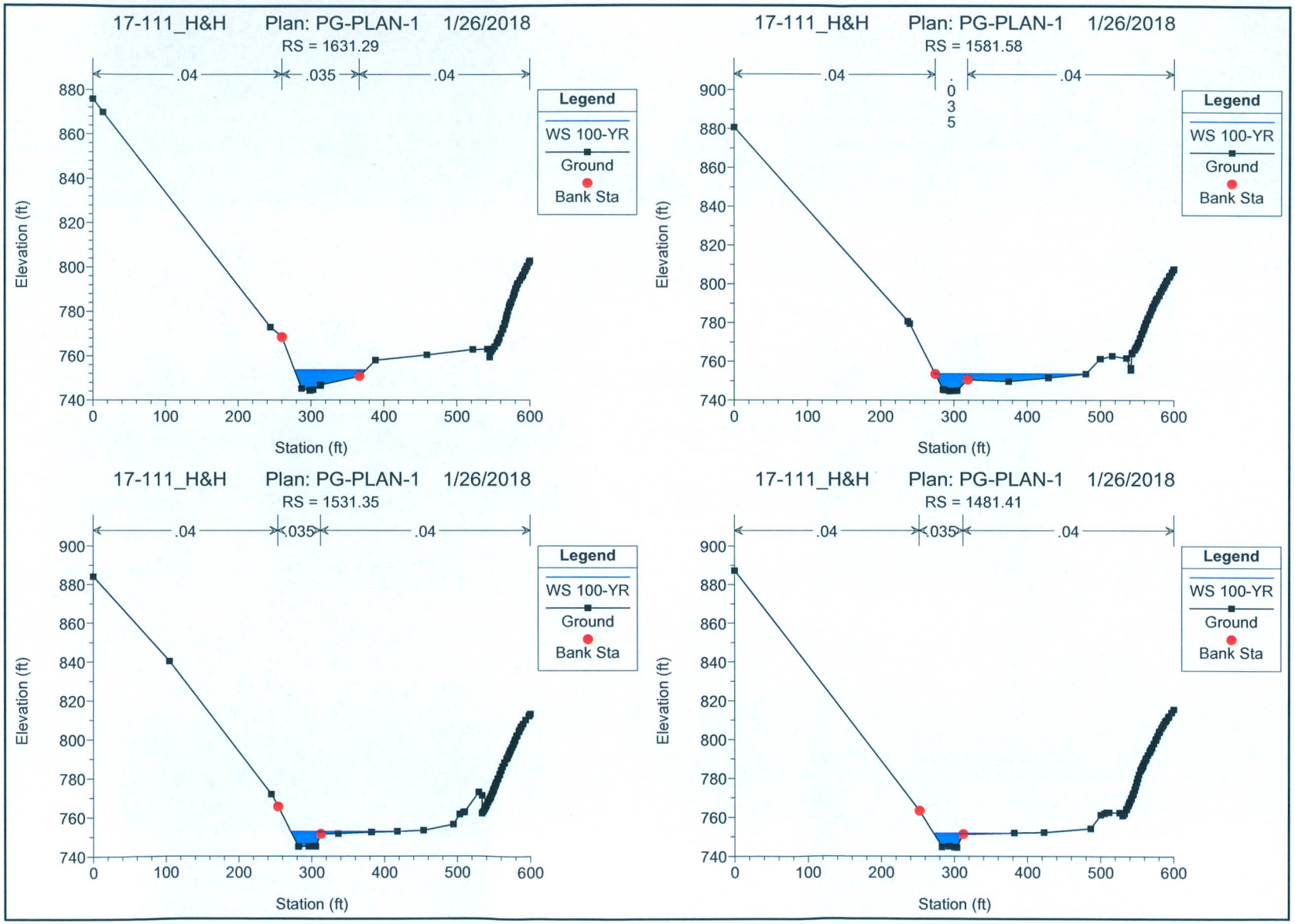
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)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Ground
Bank Sta
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Station (ft)
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RS = 1581.58
.04
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Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1531.35
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
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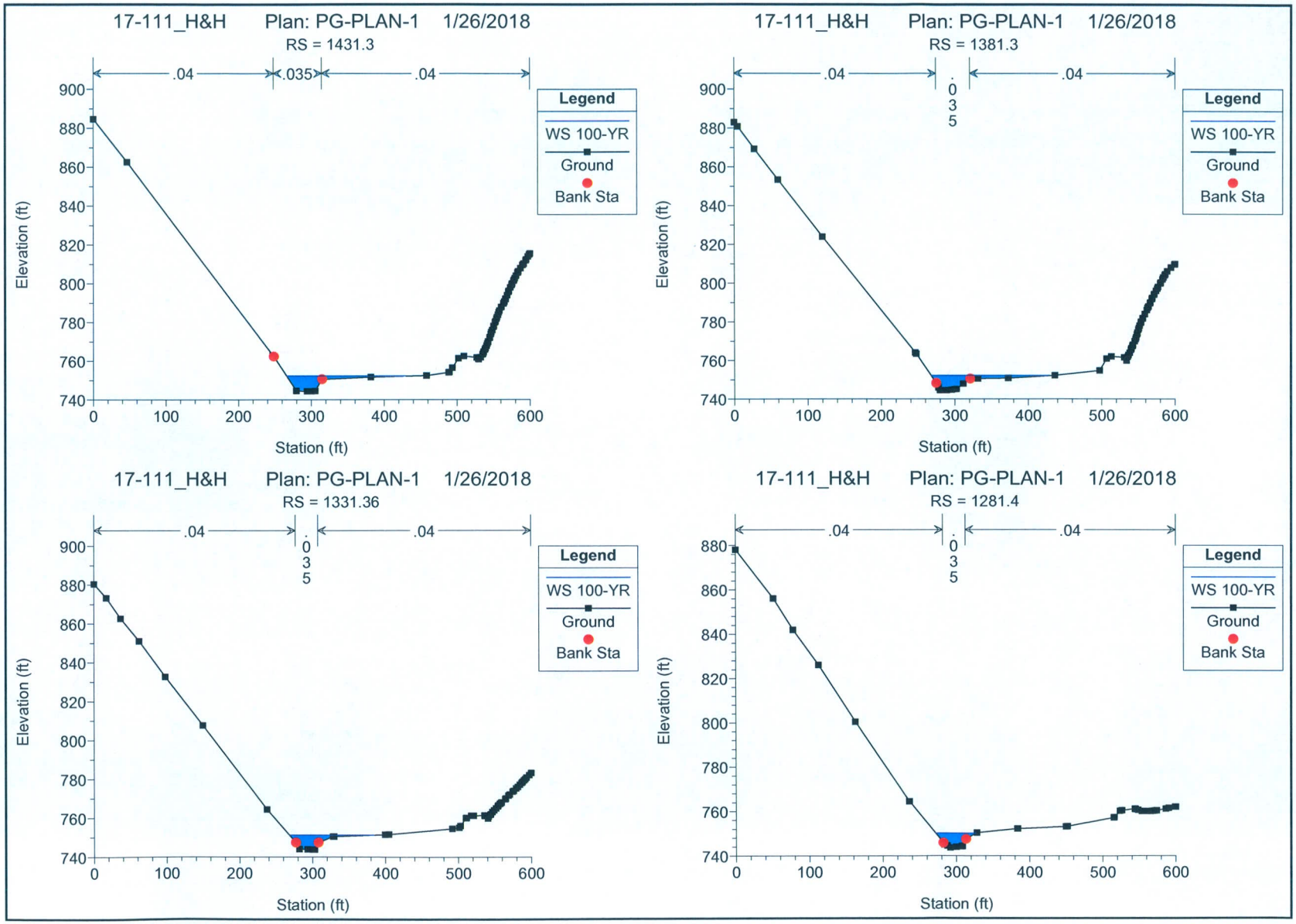
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)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Legend
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Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1381.3
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1331.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1281.4
.04
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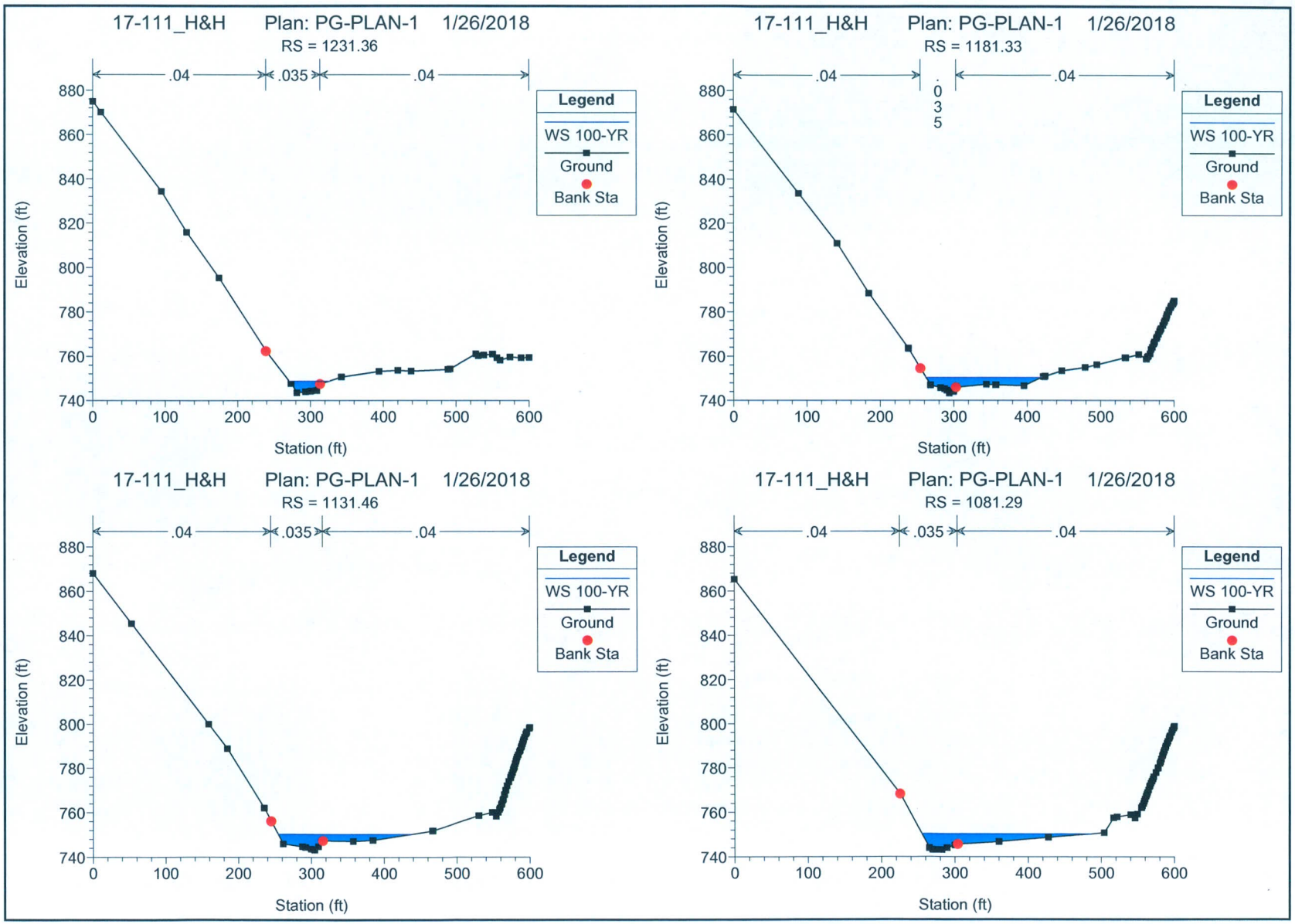
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)


17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1231.36
.04
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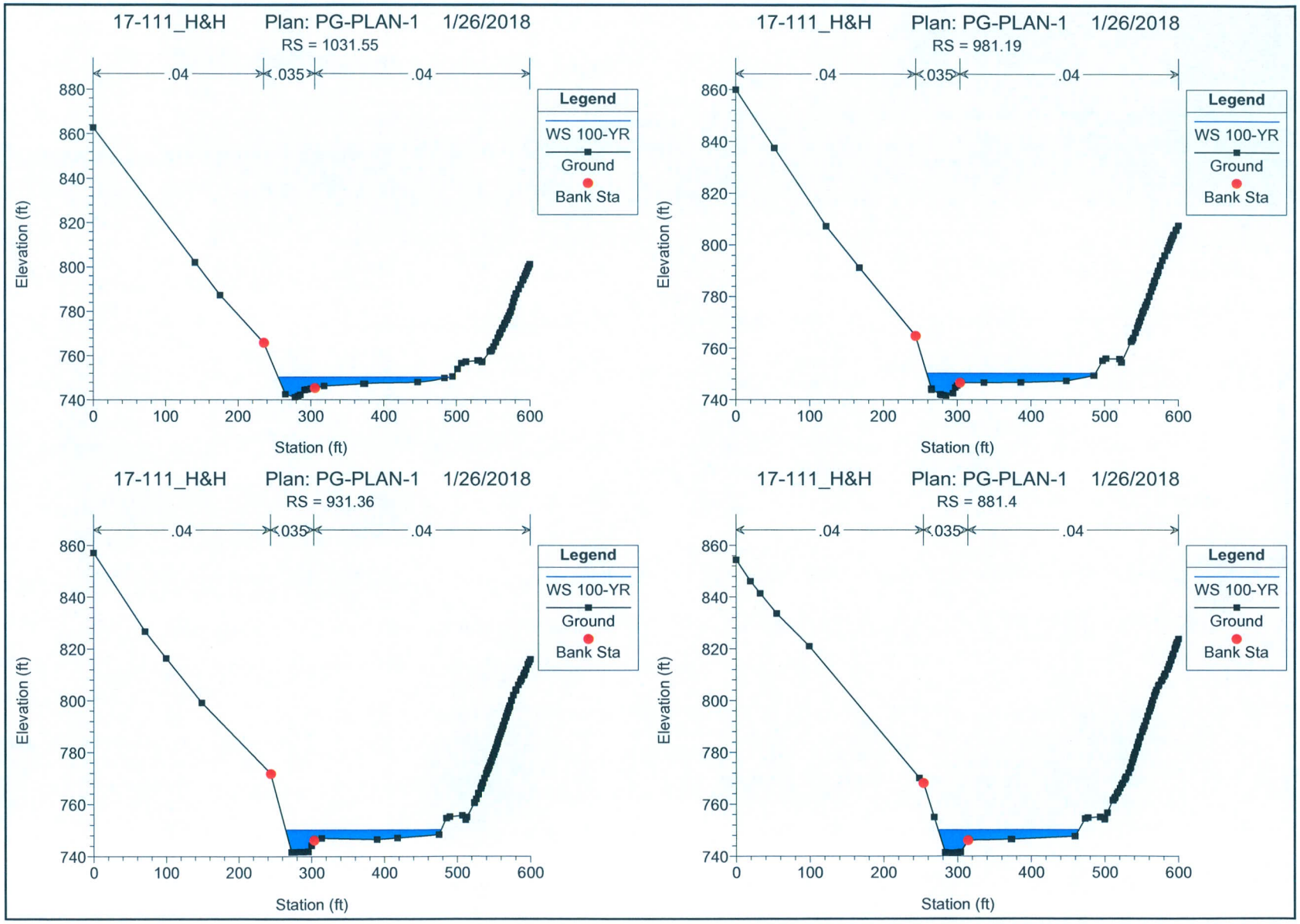
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1181.33
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1131.46
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1081.29
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)


17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 1031.55
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.035
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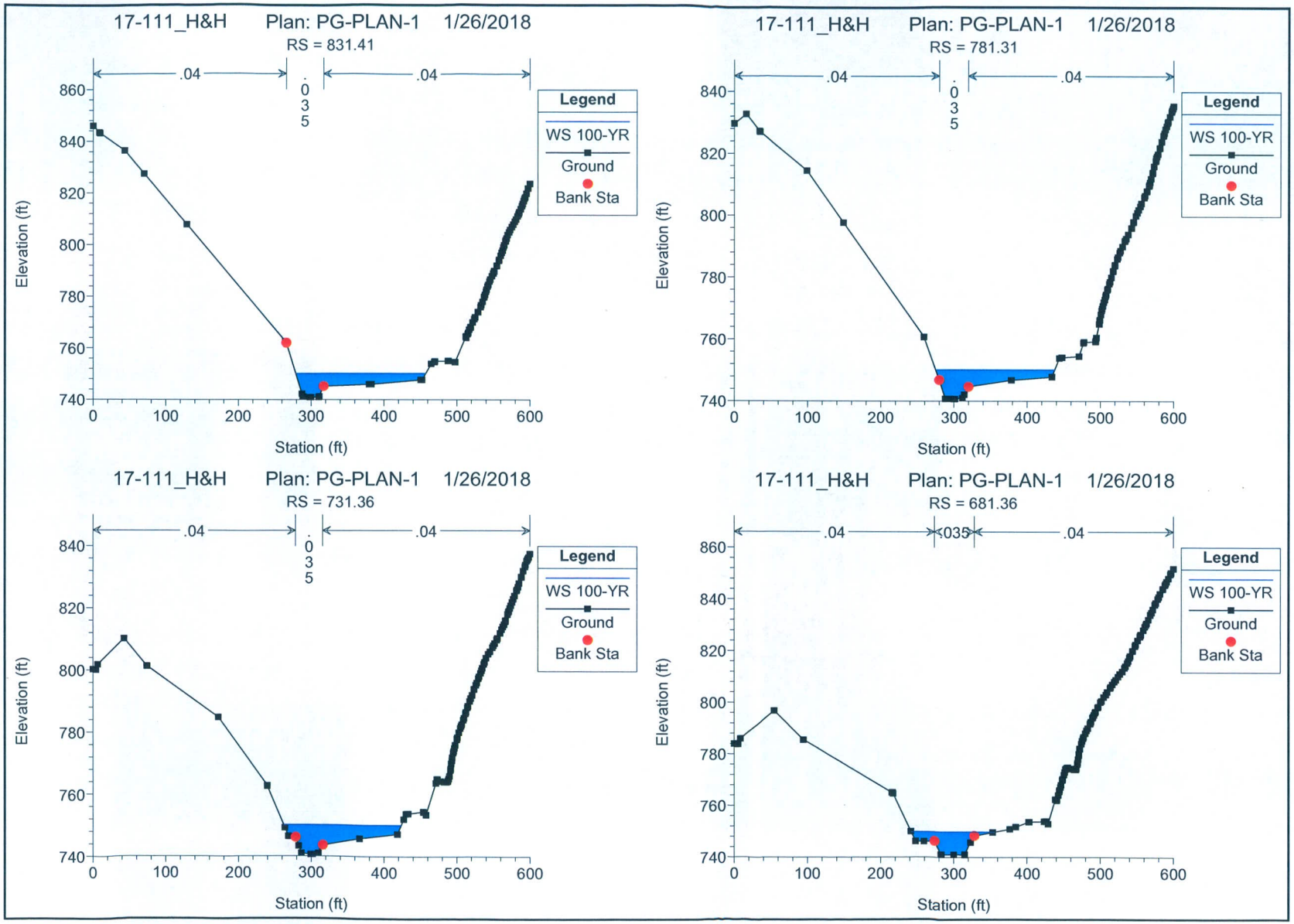
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 981.19
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 931.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 881.4
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)


17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 831.41
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 781.31
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 731.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 681.36
.04
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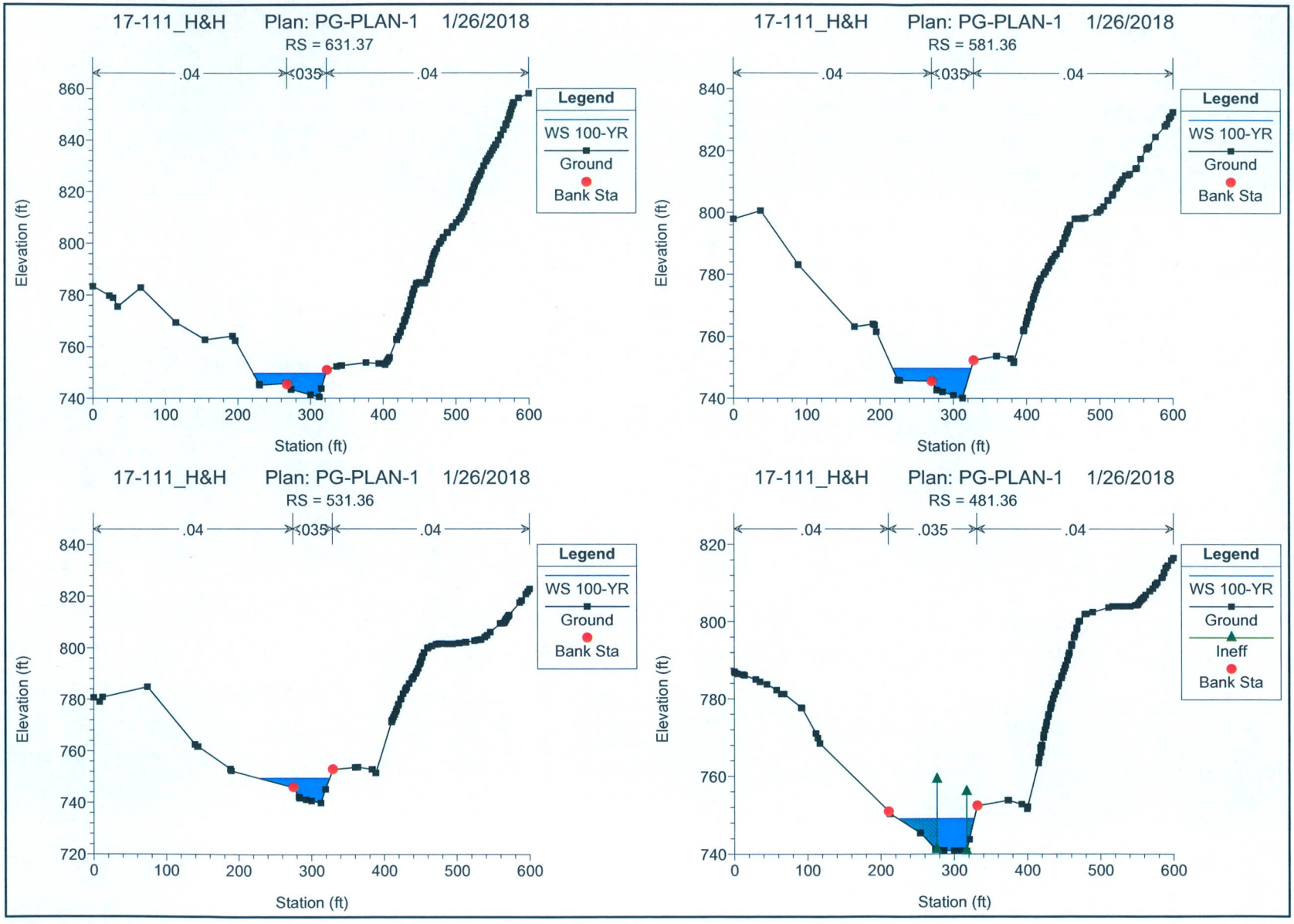
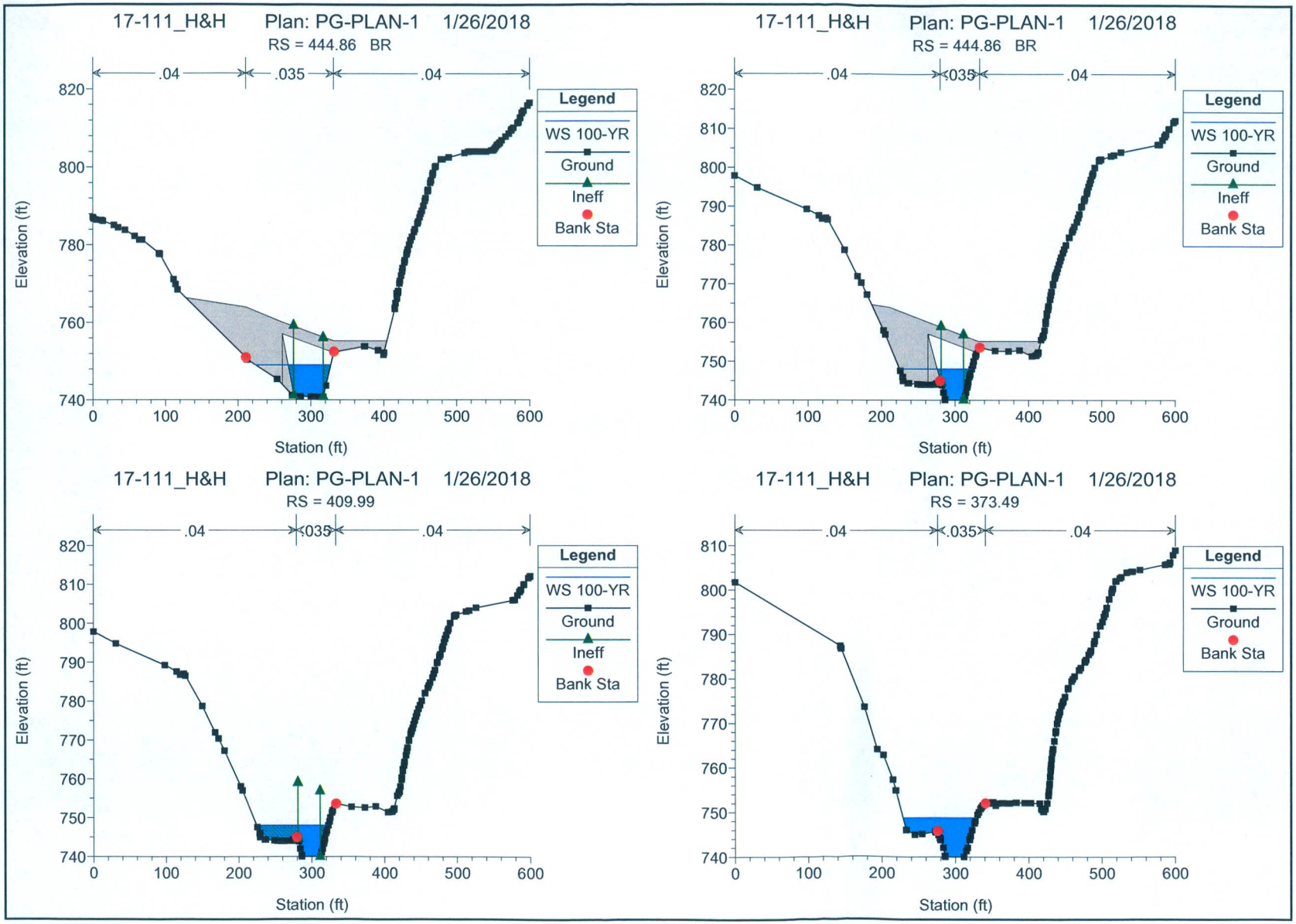
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)


17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 631.37
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 581.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 531.36
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 481.36
.04
.035
.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 444.86 BR
.04
.035
.04
Elevation (ft)
Station (ft)
Legend
WS 100-YR
Ground
Ineff
Bank Sta
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 444.86 BR
.04
.035
.04
Elevation (ft)
Station (ft)
Legend
WS 100-YR
Ground
Ineff
Bank Sta
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 409.99
.04
.035
.04
Elevation (ft)
Station (ft)
Legend
WS 100-YR
Ground
Ineff
Bank Sta
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 373.49
.04
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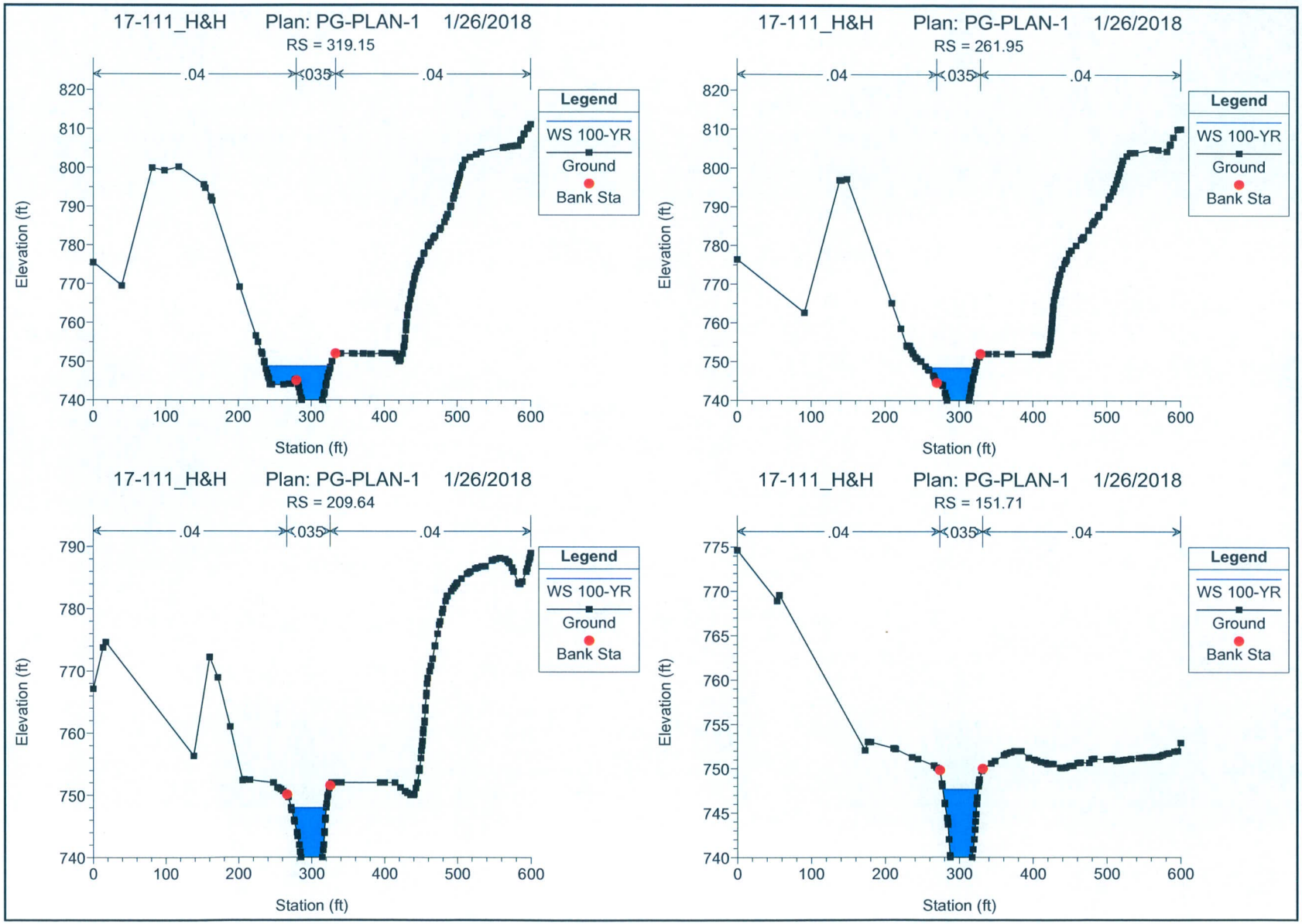
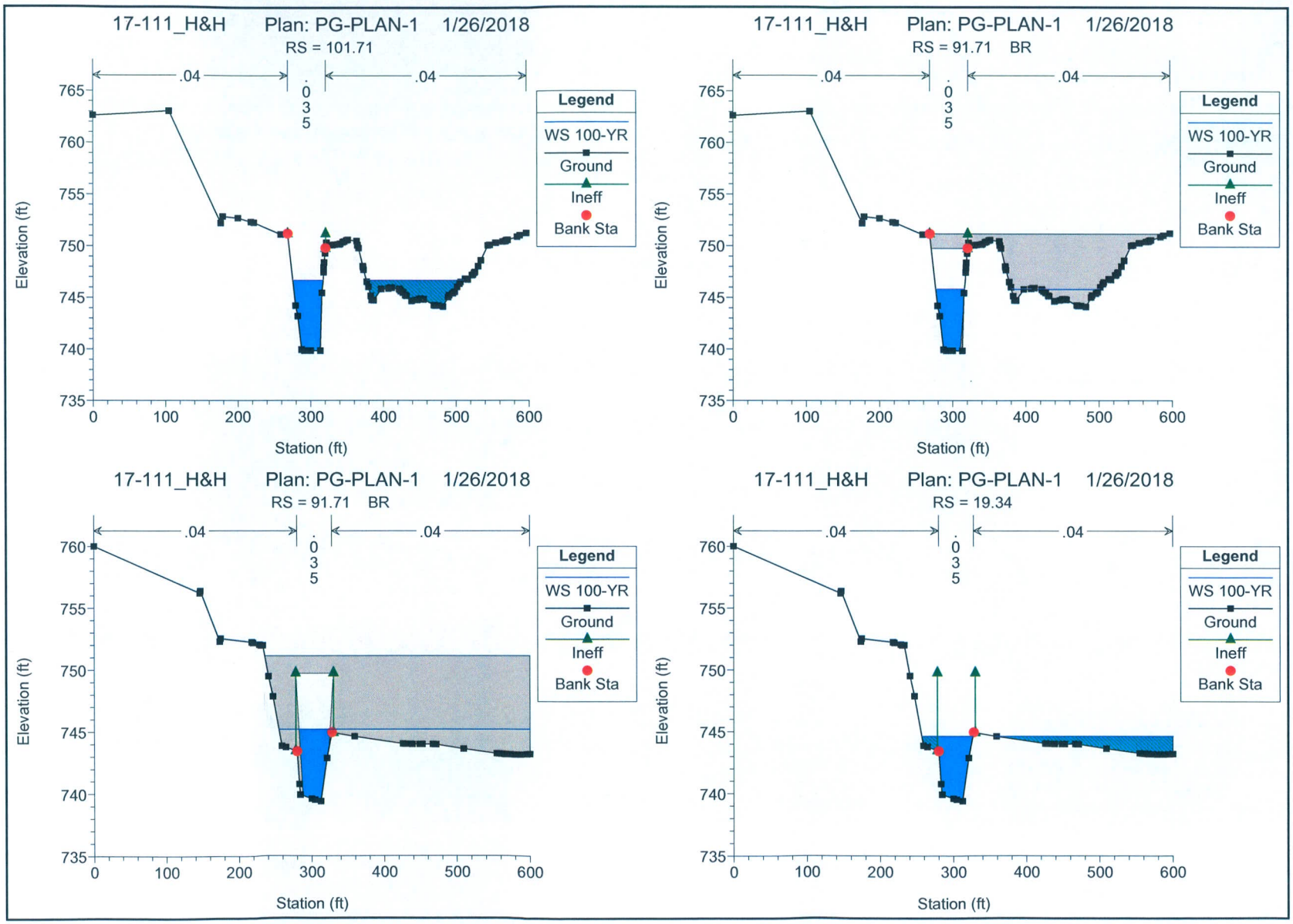
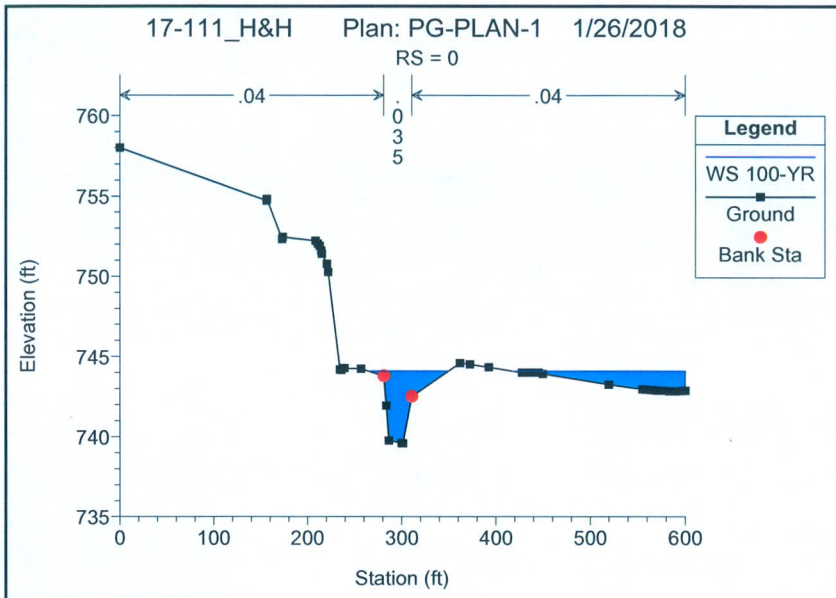
.04
Elevation (ft)
Station (ft)
Legend
WS 100-YR
Ground
Bank Sta


17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 319.15
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 261.95
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 209.64
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 151.71
.04
.035
.04
Legend
WS 100-YR
Ground
Bank Sta
Elevation (ft)
Station (ft)


17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 101.71
.04
.035
.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 91.71 BR
.04
.035
.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 91.71 BR
.04
.035
.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 19.34
.04
.035
.04
Legend
WS 100-YR
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


17-111_H&H Plan: PG-PLAN-1 1/26/2018
RS = 0
.04
.035
.04
760
755
750
745
740
735
Elevation (ft)
0
100
200
300
400
500
600
Station (ft)
Legend
WS 100-YR
Ground
Bank Sta

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2820 Profile: 100-YR

E.G. US. (ft)	757.94	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	757.74	E.G. Elev (ft)	757.92	757.84
Q Total (cfs)	2315.70	W.S. Elev (ft)	757.72	757.55
Q Bridge (cfs)	445.02	Crit W.S. (ft)	756.38	755.17
Q Weir (cfs)		Max Chl Dpth (ft)	8.09	8.48
Weir Sta Lft (ft)		Vel Total (ft/s)	3.49	4.29
Weir Sta Rgt (ft)		Flow Area (sq ft)	662.83	539.66
Weir Submerg		Froude # Chl	0.22	0.26
Weir Max Depth (ft)		Specif Force (cu ft)	1555.12	1590.88
Min El Weir Flow (ft)	755.37	Hydr Depth (ft)	2.89	2.95
Min El Prs (ft)	756.74	W.P. Total (ft)	368.55	296.93
Delta EG (ft)	0.34	Conv. Total (cfs)	40336.7	33178.3
Delta WS (ft)	0.57	Top Width (ft)	229.03	182.71
BR Open Area (sq ft)	142.14	Frctn Loss (ft)	0.06	0.23
BR Open Vel (ft/s)	3.13	C & E Loss (ft)	0.01	0.01
BR Sluice Coef		Shear Total (lb/sq ft)	0.37	0.55
BR Sel Method	Energy only	Power Total (lb/ft s)	1.29	2.37

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 444.86 Profile: 100-YR

E.G. US. (ft)	749.86	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	749.10	E.G. Elev (ft)	749.80	749.64
Q Total (cfs)	2333.46	W.S. Elev (ft)	749.03	748.09
Q Bridge (cfs)	2333.46	Crit W.S. (ft)	745.56	746.10
Q Weir (cfs)		Max Chl Dpth (ft)	8.29	8.09
Weir Sta Lft (ft)		Vel Total (ft/s)	7.05	9.99
Weir Sta Rgt (ft)		Flow Area (sq ft)	331.21	233.65
Weir Submerg		Froude # Chl	0.43	0.64
Weir Max Depth (ft)		Specif Force (cu ft)	1861.53	1638.03
Min El Weir Flow (ft)	756.68	Hydr Depth (ft)	8.15	7.67
Min El Prs (ft)	757.10	W.P. Total (ft)	40.82	32.10
Delta EG (ft)	0.23	Conv. Total (cfs)	56780.6	37256.2
Delta WS (ft)	1.03	Top Width (ft)	58.42	47.31
BR Open Area (sq ft)	437.10	Frctn Loss (ft)	0.08	0.01
BR Open Vel (ft/s)	9.99	C & E Loss (ft)	0.08	0.00
BR Sluice Coef		Shear Total (lb/sq ft)	0.86	1.78
BR Sel Method	Energy only	Power Total (lb/ft s)	6.03	17.80

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 91.71 Profile: 100-YR

E.G. US. (ft)	748.31	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	746.66	E.G. Elev (ft)	748.24	747.46
Q Total (cfs)	2333.46	W.S. Elev (ft)	745.84	745.20
Q Bridge (cfs)	2333.46	Crit W.S. (ft)	745.84	745.20
Q Weir (cfs)		Max Chl Dpth (ft)	6.02	5.79
Weir Sta Lft (ft)		Vel Total (ft/s)	12.41	12.05
Weir Sta Rgt (ft)		Flow Area (sq ft)	188.02	193.64
Weir Submerg		Froude # Chl	1.00	1.00
Weir Max Depth (ft)		Specif Force (cu ft)	1414.63	1366.89
Min El Weir Flow (ft)	751.16	Hydr Depth (ft)	4.78	4.52
Min El Prs (ft)	749.74	W.P. Total (ft)	43.67	46.48
Delta EG (ft)	1.36	Conv. Total (cfs)	21125.7	21285.1
Delta WS (ft)	2.02	Top Width (ft)	39.36	42.84
BR Open Area (sq ft)	361.29	Frctn Loss (ft)		
BR Open Vel (ft/s)	12.41	C & E Loss (ft)		

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 91.71 Profile: 100-YR (Continued)

BR Sluice Coef		Shear Total (lb/sq ft)	3.28	3.13
BR Sel Method	Momentum	Power Total (lb/ft s)	40.70	37.67

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 3200.18 Profile: 100-YR

E.G. Elev (ft)	760.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.50	Wt. n-Val.		0.035	
W.S. Elev (ft)	758.99	Reach Len. (ft)	48.94	48.94	48.94
Crit W.S. (ft)	758.83	Flow Area (sq ft)		225.96	
E.G. Slope (ft/ft)	0.010951	Area (sq ft)		225.96	
Q Total (cfs)	2216.44	Flow (cfs)		2216.44	
Top Width (ft)	67.21	Top Width (ft)		67.21	
Vel Total (ft/s)	9.81	Avg. Vel. (ft/s)		9.81	
Max Chl Dpth (ft)	5.32	Hydr. Depth (ft)		3.36	
Conv. Total (cfs)	21179.9	Conv. (cfs)		21179.9	
Length Wtd. (ft)	48.94	Wetted Per. (ft)		68.88	
Min Ch El (ft)	753.67	Shear (lb/sq ft)		2.24	
Alpha	1.00	Stream Power (lb/ft s)		22.00	
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	3.62	23.14	15.31
C & E Loss (ft)	0.01	Cum SA (acres)	1.76	4.11	6.79

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 3151.24 Profile: 100-YR

E.G. Elev (ft)	759.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.55	Wt. n-Val.		0.035	
W.S. Elev (ft)	758.36	Reach Len. (ft)	73.58	73.58	73.58
Crit W.S. (ft)	758.36	Flow Area (sq ft)		221.64	
E.G. Slope (ft/ft)	0.012670	Area (sq ft)		221.64	
Q Total (cfs)	2216.44	Flow (cfs)		2216.44	
Top Width (ft)	71.36	Top Width (ft)		71.36	
Vel Total (ft/s)	10.00	Avg. Vel. (ft/s)		10.00	
Max Chl Dpth (ft)	4.74	Hydr. Depth (ft)		3.11	
Conv. Total (cfs)	19691.2	Conv. (cfs)		19691.2	
Length Wtd. (ft)	73.58	Wetted Per. (ft)		73.22	
Min Ch El (ft)	753.62	Shear (lb/sq ft)		2.39	
Alpha	1.00	Stream Power (lb/ft s)		23.94	
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	3.62	22.89	15.31
C & E Loss (ft)	0.09	Cum SA (acres)	1.76	4.03	6.79

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 3077.66 Profile: 100-YR

E.G. Elev (ft)	759.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.24	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	757.84	Reach Len. (ft)	46.37	46.37	46.37
Crit W.S. (ft)	757.29	Flow Area (sq ft)		258.44	1.45
E.G. Slope (ft/ft)	0.007689	Area (sq ft)		258.44	1.45
Q Total (cfs)	2315.70	Flow (cfs)		2313.57	2.13
Top Width (ft)	72.33	Top Width (ft)		67.55	4.78
Vel Total (ft/s)	8.91	Avg. Vel. (ft/s)		8.95	1.47
Max Chl Dpth (ft)	5.84	Hydr. Depth (ft)		3.83	0.30
Conv. Total (cfs)	26409.4	Conv. (cfs)		26385.1	24.3
Length Wtd. (ft)	46.37	Wetted Per. (ft)		69.30	4.82
Min Ch El (ft)	752.00	Shear (lb/sq ft)		1.79	0.14
Alpha	1.01	Stream Power (lb/ft s)		16.02	0.21
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	3.62	22.48	15.31
C & E Loss (ft)	0.16	Cum SA (acres)	1.76	3.92	6.78

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 3031.29 Profile: 100-YR

E.G. Elev (ft)	758.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.72	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	757.95	Reach Len. (ft)	50.06	50.06	50.06
Crit W.S. (ft)	756.77	Flow Area (sq ft)	70.05	312.29	6.40
E.G. Slope (ft/ft)	0.004123	Area (sq ft)	70.05	312.29	6.40
Q Total (cfs)	2315.70	Flow (cfs)	115.41	2187.72	12.58
Top Width (ft)	202.94	Top Width (ft)	121.94	72.59	8.41
Vel Total (ft/s)	5.96	Avg. Vel. (ft/s)	1.65	7.01	1.97
Max Chl Dpth (ft)	6.67	Hydr. Depth (ft)	0.57	4.30	0.76
Conv. Total (cfs)	36062.8	Conv. (cfs)	1797.3	34069.7	195.8
Length Wtd. (ft)	50.06	Wetted Per. (ft)	122.02	75.81	8.55
Min Ch El (ft)	751.28	Shear (lb/sq ft)	0.15	1.06	0.19
Alpha	1.31	Stream Power (lb/ft s)	0.24	7.43	0.38
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	3.58	22.18	15.30
C & E Loss (ft)	0.02	Cum SA (acres)	1.70	3.84	6.78

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2981.23 Profile: 100-YR

E.G. Elev (ft)	758.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.87	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.54	Reach Len. (ft)	49.63	49.63	49.63
Crit W.S. (ft)	756.59	Flow Area (sq ft)	55.21	288.91	
E.G. Slope (ft/ft)	0.005229	Area (sq ft)	55.21	288.91	
Q Total (cfs)	2315.70	Flow (cfs)	102.78	2212.92	
Top Width (ft)	165.93	Top Width (ft)	95.67	70.25	
Vel Total (ft/s)	6.73	Avg. Vel. (ft/s)	1.86	7.66	
Max Chl Dpth (ft)	6.67	Hydr. Depth (ft)	0.58	4.11	
Conv. Total (cfs)	32023.2	Conv. (cfs)	1421.4	30601.8	
Length Wtd. (ft)	49.63	Wetted Per. (ft)	95.70	73.31	
Min Ch El (ft)	750.87	Shear (lb/sq ft)	0.19	1.29	
Alpha	1.24	Stream Power (lb/ft s)	0.35	9.85	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	3.51	21.83	15.30
C & E Loss (ft)	0.19	Cum SA (acres)	1.57	3.76	6.77

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2931.6 Profile: 100-YR

E.G. Elev (ft)	758.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.84	Reach Len. (ft)	49.80	49.80	49.80
Crit W.S. (ft)		Flow Area (sq ft)	387.40	287.02	
E.G. Slope (ft/ft)	0.001582	Area (sq ft)	387.40	287.02	
Q Total (cfs)	2315.70	Flow (cfs)	928.46	1387.24	
Top Width (ft)	244.08	Top Width (ft)	187.12	56.96	
Vel Total (ft/s)	3.43	Avg. Vel. (ft/s)	2.40	4.83	
Max Chl Dpth (ft)	7.99	Hydr. Depth (ft)	2.07	5.04	
Conv. Total (cfs)	58221.9	Conv. (cfs)	23343.5	34878.4	
Length Wtd. (ft)	49.80	Wetted Per. (ft)	187.53	59.27	
Min Ch El (ft)	749.85	Shear (lb/sq ft)	0.20	0.48	
Alpha	1.38	Stream Power (lb/ft s)	0.49	2.31	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	3.26	21.50	15.30
C & E Loss (ft)	0.01	Cum SA (acres)	1.41	3.69	6.77

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2881.8 Profile: 100-YR

E.G. Elev (ft)	758.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.78	Reach Len. (ft)	50.93	50.93	50.93
Crit W.S. (ft)		Flow Area (sq ft)	409.60	281.01	
E.G. Slope (ft/ft)	0.001361	Area (sq ft)	409.60	281.01	
Q Total (cfs)	2315.70	Flow (cfs)	991.51	1324.19	
Top Width (ft)	225.31	Top Width (ft)	174.31	51.00	
Vel Total (ft/s)	3.35	Avg. Vel. (ft/s)	2.42	4.71	
Max Chl Dpth (ft)	7.84	Hydr. Depth (ft)	2.35	5.51	
Conv. Total (cfs)	62771.5	Conv. (cfs)	26876.8	35894.7	
Length Wtd. (ft)	50.93	Wetted Per. (ft)	174.48	53.85	
Min Ch El (ft)	749.94	Shear (lb/sq ft)	0.20	0.44	
Alpha	1.35	Stream Power (lb/ft s)	0.48	2.09	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	2.80	21.18	15.30
C & E Loss (ft)	0.01	Cum SA (acres)	1.21	3.63	6.77

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2830.87 Profile: 100-YR

E.G. Elev (ft)	757.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.74	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	756.38	Flow Area (sq ft)	498.23	227.73	
E.G. Slope (ft/ft)	0.001330	Area (sq ft)	550.08	256.54	
Q Total (cfs)	2315.70	Flow (cfs)	1294.02	1021.68	
Top Width (ft)	231.12	Top Width (ft)	187.35	43.77	
Vel Total (ft/s)	3.19	Avg. Vel. (ft/s)	2.60	4.49	
Max Chl Dpth (ft)	8.11	Hydr. Depth (ft)	2.66	5.20	
Conv. Total (cfs)	63504.0	Conv. (cfs)	35486.1	28017.9	
Length Wtd. (ft)	10.00	Wetted Per. (ft)	187.67	46.16	
Min Ch El (ft)	749.63	Shear (lb/sq ft)	0.22	0.41	
Alpha	1.24	Stream Power (lb/ft s)	0.57	1.84	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	2.24	20.87	15.30
C & E Loss (ft)	0.00	Cum SA (acres)	1.00	3.57	6.77

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2820 BR U Profile: 100-YR

E.G. Elev (ft)	757.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.72	Reach Len. (ft)	16.00	16.00	16.00
Crit W.S. (ft)	756.38	Flow Area (sq ft)	478.10	184.73	
E.G. Slope (ft/ft)	0.003296	Area (sq ft)	514.62	212.90	
Q Total (cfs)	2315.70	Flow (cfs)	1740.83	574.88	
Top Width (ft)	229.03	Top Width (ft)	187.28	41.75	
Vel Total (ft/s)	3.49	Avg. Vel. (ft/s)	3.64	3.11	
Max Chl Dpth (ft)	8.09	Hydr. Depth (ft)	2.55	4.42	
Conv. Total (cfs)	40336.7	Conv. (cfs)	30323.1	10013.6	
Length Wtd. (ft)	16.00	Wetted Per. (ft)	240.50	128.04	
Min Ch El (ft)	749.63	Shear (lb/sq ft)	0.41	0.30	
Alpha	1.01	Stream Power (lb/ft s)	1.49	0.92	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	2.12	20.81	15.30
C & E Loss (ft)	0.01	Cum SA (acres)	0.95	3.56	6.77

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2820 BR D Profile: 100-YR

E.G. Elev (ft)	757.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	757.55	Reach Len. (ft)	73.68	73.68	73.68
Crit W.S. (ft)	755.17	Flow Area (sq ft)	221.81	315.84	2.01
E.G. Slope (ft/ft)	0.004871	Area (sq ft)	221.81	315.84	2.01
Q Total (cfs)	2315.70	Flow (cfs)	860.50	1453.67	1.53
Top Width (ft)	182.71	Top Width (ft)	121.11	49.09	12.51
Vel Total (ft/s)	4.29	Avg. Vel. (ft/s)	3.88	4.60	0.76
Max Chl Dpth (ft)	8.48	Hydr. Depth (ft)	1.83	6.43	0.16
Conv. Total (cfs)	33178.3	Conv. (cfs)	12328.8	20827.6	21.9
Length Wtd. (ft)	73.68	Wetted Per. (ft)	121.20	163.16	12.58
Min Ch El (ft)	749.07	Shear (lb/sq ft)	0.56	0.59	0.05
Alpha	1.03	Stream Power (lb/ft s)	2.16	2.71	0.04
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	1.99	20.71	15.30
C & E Loss (ft)	0.01	Cum SA (acres)	0.90	3.54	6.77

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2731.19 Profile: 100-YR

E.G. Elev (ft)	757.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	757.18	Reach Len. (ft)	49.89	49.89	49.89
Crit W.S. (ft)		Flow Area (sq ft)	177.58	338.15	
E.G. Slope (ft/ft)	0.002180	Area (sq ft)	177.58	338.15	
Q Total (cfs)	2315.70	Flow (cfs)	408.06	1907.64	
Top Width (ft)	184.80	Top Width (ft)	116.38	68.42	
Vel Total (ft/s)	4.49	Avg. Vel. (ft/s)	2.30	5.64	
Max Chl Dpth (ft)	8.11	Hydr. Depth (ft)	1.53	4.94	
Conv. Total (cfs)	49599.1	Conv. (cfs)	8740.1	40859.0	
Length Wtd. (ft)	49.89	Wetted Per. (ft)	116.44	70.42	
Min Ch El (ft)	749.07	Shear (lb/sq ft)	0.21	0.65	
Alpha	1.35	Stream Power (lb/ft s)	0.48	3.69	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	1.65	20.16	15.30
C & E Loss (ft)	0.04	Cum SA (acres)	0.70	3.44	6.76

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2681.3 Profile: 100-YR

E.G. Elev (ft)	757.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	757.18	Reach Len. (ft)	50.20	50.20	50.20
Crit W.S. (ft)		Flow Area (sq ft)	44.46	518.41	3.86
E.G. Slope (ft/ft)	0.001451	Area (sq ft)	44.46	518.41	3.86
Q Total (cfs)	2315.70	Flow (cfs)	53.26	2260.35	2.08
Top Width (ft)	188.72	Top Width (ft)	57.05	115.28	16.39
Vel Total (ft/s)	4.09	Avg. Vel. (ft/s)	1.20	4.36	0.54
Max Chl Dpth (ft)	8.27	Hydr. Depth (ft)	0.78	4.50	0.24
Conv. Total (cfs)	60800.3	Conv. (cfs)	1398.4	59347.2	54.7
Length Wtd. (ft)	50.20	Wetted Per. (ft)	57.07	117.08	16.42
Min Ch El (ft)	748.91	Shear (lb/sq ft)	0.07	0.40	0.02
Alpha	1.11	Stream Power (lb/ft s)	0.08	1.75	0.01
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	1.52	19.67	15.29
C & E Loss (ft)	0.03	Cum SA (acres)	0.60	3.34	6.75

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2631.1 Profile: 100-YR

E.G. Elev (ft)	757.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	757.19	Reach Len. (ft)	49.64	49.64	49.64
Crit W.S. (ft)		Flow Area (sq ft)	48.42	362.43	374.37
E.G. Slope (ft/ft)	0.001031	Area (sq ft)	48.42	362.43	374.37
Q Total (cfs)	2315.70	Flow (cfs)	60.55	1500.24	754.91
Top Width (ft)	281.10	Top Width (ft)	45.05	66.61	169.44
Vel Total (ft/s)	2.95	Avg. Vel. (ft/s)	1.25	4.14	2.02
Max Chl Dpth (ft)	8.40	Hydr. Depth (ft)	1.07	5.44	2.21
Conv. Total (cfs)	72113.8	Conv. (cfs)	1885.5	46719.4	23508.9
Length Wtd. (ft)	49.64	Wetted Per. (ft)	45.10	68.50	170.34
Min Ch El (ft)	748.79	Shear (lb/sq ft)	0.07	0.34	0.14
Alpha	1.43	Stream Power (lb/ft s)	0.09	1.41	0.29
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	1.47	19.16	15.08
C & E Loss (ft)	0.15	Cum SA (acres)	0.54	3.23	6.64

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2581.46 Profile: 100-YR

E.G. Elev (ft)	757.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.72	Wt. n-Val.		0.035	
W.S. Elev (ft)	755.39	Reach Len. (ft)	50.39	50.39	50.39
Crit W.S. (ft)	755.13	Flow Area (sq ft)		220.18	
E.G. Slope (ft/ft)	0.010015	Area (sq ft)		220.18	
Q Total (cfs)	2315.70	Flow (cfs)		2315.70	
Top Width (ft)	53.99	Top Width (ft)		53.99	
Vel Total (ft/s)	10.52	Avg. Vel. (ft/s)		10.52	
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)		4.08	
Conv. Total (cfs)	23140.2	Conv. (cfs)		23140.2	
Length Wtd. (ft)	50.39	Wetted Per. (ft)		56.53	
Min Ch El (ft)	749.42	Shear (lb/sq ft)		2.44	
Alpha	1.00	Stream Power (lb/ft s)		25.61	
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)	1.44	18.83	14.86
C & E Loss (ft)	0.15	Cum SA (acres)	0.51	3.17	6.54

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2531.07 Profile: 100-YR

E.G. Elev (ft)	756.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.23	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	755.30	Reach Len. (ft)	49.64	49.64	49.64
Crit W.S. (ft)	755.30	Flow Area (sq ft)		236.61	60.90
E.G. Slope (ft/ft)	0.007307	Area (sq ft)		236.61	60.90
Q Total (cfs)	2315.70	Flow (cfs)		2171.53	144.17
Top Width (ft)	152.96	Top Width (ft)		55.61	97.35
Vel Total (ft/s)	7.78	Avg. Vel. (ft/s)		9.18	2.37
Max Chl Dpth (ft)	6.68	Hydr. Depth (ft)		4.26	0.63
Conv. Total (cfs)	27089.4	Conv. (cfs)		25402.9	1686.5
Length Wtd. (ft)	49.64	Wetted Per. (ft)		58.83	97.57
Min Ch El (ft)	748.62	Shear (lb/sq ft)		1.83	0.28
Alpha	1.31	Stream Power (lb/ft s)		16.84	0.67
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	1.44	18.57	14.83
C & E Loss (ft)	0.15	Cum SA (acres)	0.51	3.10	6.49

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2481.43 Profile: 100-YR

E.G. Elev (ft)	755.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.75	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.85	Reach Len. (ft)	49.99	49.99	49.99
Crit W.S. (ft)	753.99	Flow Area (sq ft)	0.54	270.89	133.36
E.G. Slope (ft/ft)	0.003509	Area (sq ft)	0.54	270.89	133.36
Q Total (cfs)	2315.70	Flow (cfs)	0.26	2004.09	311.35
Top Width (ft)	177.05	Top Width (ft)	5.24	50.16	121.66
Vel Total (ft/s)	5.72	Avg. Vel. (ft/s)	0.48	7.40	2.33
Max Chl Dpth (ft)	7.95	Hydr. Depth (ft)	0.10	5.40	1.10
Conv. Total (cfs)	39091.1	Conv. (cfs)	4.4	33830.8	5256.0
Length Wtd. (ft)	49.99	Wetted Per. (ft)	5.24	53.69	122.17
Min Ch El (ft)	746.90	Shear (lb/sq ft)	0.02	1.11	0.24
Alpha	1.47	Stream Power (lb/ft s)	0.01	8.18	0.56
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	1.44	18.28	14.72
C & E Loss (ft)	0.06	Cum SA (acres)	0.51	3.04	6.36

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2431.44 Profile: 100-YR

E.G. Elev (ft)	755.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.54	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.81	Reach Len. (ft)	49.77	49.77	49.77
Crit W.S. (ft)		Flow Area (sq ft)		221.76	295.65
E.G. Slope (ft/ft)	0.003572	Area (sq ft)		221.76	295.65
Q Total (cfs)	2315.70	Flow (cfs)		1546.60	769.10
Top Width (ft)	278.76	Top Width (ft)		46.19	232.57
Vel Total (ft/s)	4.48	Avg. Vel. (ft/s)		6.97	2.60
Max Chl Dpth (ft)	6.70	Hydr. Depth (ft)		4.80	1.27
Conv. Total (cfs)	38746.9	Conv. (cfs)		25878.1	12868.8
Length Wtd. (ft)	49.77	Wetted Per. (ft)		48.66	233.10
Min Ch El (ft)	748.11	Shear (lb/sq ft)		1.02	0.28
Alpha	1.73	Stream Power (lb/ft s)		7.09	0.74
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	1.44	18.00	14.47
C & E Loss (ft)	0.08	Cum SA (acres)	0.51	2.99	6.16

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2381.67 Profile: 100-YR

E.G. Elev (ft)	755.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.88	Reach Len. (ft)	50.12	50.12	50.12
Crit W.S. (ft)		Flow Area (sq ft)	1.36	226.34	496.81
E.G. Slope (ft/ft)	0.001697	Area (sq ft)	1.36	226.34	496.81
Q Total (cfs)	2315.70	Flow (cfs)	1.42	1233.50	1080.78
Top Width (ft)	333.83	Top Width (ft)	2.01	39.18	292.64
Vel Total (ft/s)	3.20	Avg. Vel. (ft/s)	1.04	5.45	2.18
Max Chl Dpth (ft)	7.20	Hydr. Depth (ft)	0.68	5.78	1.70
Conv. Total (cfs)	56216.6	Conv. (cfs)	34.4	29944.8	26237.4
Length Wtd. (ft)	50.12	Wetted Per. (ft)	2.42	41.14	293.08
Min Ch El (ft)	747.68	Shear (lb/sq ft)	0.06	0.58	0.18
Alpha	1.76	Stream Power (lb/ft s)	0.06	3.18	0.39
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	1.44	17.74	14.02
C & E Loss (ft)	0.00	Cum SA (acres)	0.50	2.94	5.86

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2331.55 Profile: 100-YR

E.G. Elev (ft)	755.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.79	Reach Len. (ft)	49.88	49.88	49.88
Crit W.S. (ft)		Flow Area (sq ft)		232.17	473.94
E.G. Slope (ft/ft)	0.001863	Area (sq ft)		232.17	473.94
Q Total (cfs)	2315.70	Flow (cfs)		1229.83	1085.87
Top Width (ft)	324.68	Top Width (ft)		44.35	280.33
Vel Total (ft/s)	3.28	Avg. Vel. (ft/s)		5.30	2.29
Max Chl Dpth (ft)	6.97	Hydr. Depth (ft)		5.23	1.69
Conv. Total (cfs)	53652.7	Conv. (cfs)		28494.2	25158.6
Length Wtd. (ft)	49.88	Wetted Per. (ft)		47.23	281.52
Min Ch El (ft)	747.82	Shear (lb/sq ft)		0.57	0.20
Alpha	1.61	Stream Power (lb/ft s)		3.03	0.45
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	1.44	17.48	13.46
C & E Loss (ft)	0.03	Cum SA (acres)	0.50	2.89	5.53

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2281.67 Profile: 100-YR

E.G. Elev (ft)	754.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.57	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.33	Reach Len. (ft)	50.42	50.42	50.42
Crit W.S. (ft)		Flow Area (sq ft)		199.79	326.11
E.G. Slope (ft/ft)	0.003935	Area (sq ft)		199.79	326.11
Q Total (cfs)	2315.70	Flow (cfs)		1469.47	846.23
Top Width (ft)	317.76	Top Width (ft)		40.62	277.14
Vel Total (ft/s)	4.40	Avg. Vel. (ft/s)		7.36	2.59
Max Chl Dpth (ft)	6.80	Hydr. Depth (ft)		4.92	1.18
Conv. Total (cfs)	36917.1	Conv. (cfs)		23426.4	13490.6
Length Wtd. (ft)	50.42	Wetted Per. (ft)		43.53	277.50
Min Ch El (ft)	747.53	Shear (lb/sq ft)		1.13	0.29
Alpha	1.90	Stream Power (lb/ft s)		8.29	0.75
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	1.44	17.23	13.00
C & E Loss (ft)	0.09	Cum SA (acres)	0.50	2.84	5.21

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2231.25 Profile: 100-YR

E.G. Elev (ft)	754.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.41	Reach Len. (ft)	50.03	50.03	50.03
Crit W.S. (ft)		Flow Area (sq ft)		222.30	490.66
E.G. Slope (ft/ft)	0.001890	Area (sq ft)		222.30	490.66
Q Total (cfs)	2315.70	Flow (cfs)		1184.41	1131.29
Top Width (ft)	330.06	Top Width (ft)		42.46	287.60
Vel Total (ft/s)	3.25	Avg. Vel. (ft/s)		5.33	2.31
Max Chl Dpth (ft)	7.17	Hydr. Depth (ft)		5.24	1.71
Conv. Total (cfs)	53263.1	Conv. (cfs)		27242.4	26020.7
Length Wtd. (ft)	50.03	Wetted Per. (ft)		45.33	287.66
Min Ch El (ft)	747.24	Shear (lb/sq ft)		0.58	0.20
Alpha	1.62	Stream Power (lb/ft s)		3.08	0.46
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	1.44	16.98	12.53
C & E Loss (ft)	0.01	Cum SA (acres)	0.50	2.79	4.88

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2181.22 Profile: 100-YR

E.G. Elev (ft)	754.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.19	Reach Len. (ft)	49.93	49.93	49.93
Crit W.S. (ft)		Flow Area (sq ft)		239.39	365.04
E.G. Slope (ft/ft)	0.002272	Area (sq ft)		239.39	365.04
Q Total (cfs)	2315.70	Flow (cfs)		1422.44	893.26
Top Width (ft)	268.67	Top Width (ft)		44.30	224.37
Vel Total (ft/s)	3.83	Avg. Vel. (ft/s)		5.94	2.45
Max Chl Dpth (ft)	6.69	Hydr. Depth (ft)		5.40	1.63
Conv. Total (cfs)	48584.2	Conv. (cfs)		29843.3	18740.9
Length Wtd. (ft)	49.93	Wetted Per. (ft)		47.58	224.68
Min Ch El (ft)	747.50	Shear (lb/sq ft)		0.71	0.23
Alpha	1.63	Stream Power (lb/ft s)		4.24	0.56
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	1.44	16.72	12.04
C & E Loss (ft)	0.08	Cum SA (acres)	0.50	2.74	4.59

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2131.29 Profile: 100-YR

E.G. Elev (ft)	754.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.30	Reach Len. (ft)	50.18	50.18	50.18
Crit W.S. (ft)		Flow Area (sq ft)		325.00	624.37
E.G. Slope (ft/ft)	0.000761	Area (sq ft)		325.00	624.37
Q Total (cfs)	2320.26	Flow (cfs)		1139.34	1180.92
Top Width (ft)	308.58	Top Width (ft)		60.34	248.25
Vel Total (ft/s)	2.44	Avg. Vel. (ft/s)		3.51	1.89
Max Chl Dpth (ft)	6.29	Hydr. Depth (ft)		5.39	2.52
Conv. Total (cfs)	84133.7	Conv. (cfs)		41313.0	42820.7
Length Wtd. (ft)	50.18	Wetted Per. (ft)		62.73	248.90
Min Ch El (ft)	748.01	Shear (lb/sq ft)		0.25	0.12
Alpha	1.32	Stream Power (lb/ft s)		0.86	0.23
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.44	16.40	11.47
C & E Loss (ft)	0.01	Cum SA (acres)	0.50	2.68	4.32

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2081.11 Profile: 100-YR

E.G. Elev (ft)	754.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.29	Reach Len. (ft)	50.03	50.03	50.03
Crit W.S. (ft)		Flow Area (sq ft)		433.17	627.49
E.G. Slope (ft/ft)	0.000481	Area (sq ft)		433.17	627.49
Q Total (cfs)	2320.26	Flow (cfs)		1251.50	1068.77
Top Width (ft)	284.47	Top Width (ft)		77.04	207.43
Vel Total (ft/s)	2.19	Avg. Vel. (ft/s)		2.89	1.70
Max Chl Dpth (ft)	6.97	Hydr. Depth (ft)		5.62	3.03
Conv. Total (cfs)	105788.8	Conv. (cfs)		57060.0	48728.8
Length Wtd. (ft)	50.03	Wetted Per. (ft)		79.26	207.60
Min Ch El (ft)	747.32	Shear (lb/sq ft)		0.16	0.09
Alpha	1.22	Stream Power (lb/ft s)		0.47	0.15
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.44	15.96	10.75
C & E Loss (ft)	0.00	Cum SA (acres)	0.50	2.60	4.06

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 2031.08 Profile: 100-YR

E.G. Elev (ft)	754.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.23	Reach Len. (ft)	50.04	50.04	50.04
Crit W.S. (ft)		Flow Area (sq ft)	50.41	423.74	428.06
E.G. Slope (ft/ft)	0.000681	Area (sq ft)	50.41	423.74	428.06
Q Total (cfs)	2320.26	Flow (cfs)	66.53	1367.60	886.13
Top Width (ft)	252.88	Top Width (ft)	31.57	84.52	136.80
Vel Total (ft/s)	2.57	Avg. Vel. (ft/s)	1.32	3.23	2.07
Max Chl Dpth (ft)	7.46	Hydr. Depth (ft)	1.60	5.01	3.13
Conv. Total (cfs)	88921.9	Conv. (cfs)	2549.6	52412.0	33960.3
Length Wtd. (ft)	50.04	Wetted Per. (ft)	31.73	85.21	137.15
Min Ch El (ft)	746.77	Shear (lb/sq ft)	0.07	0.21	0.13
Alpha	1.18	Stream Power (lb/ft s)	0.09	0.68	0.27
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.41	15.47	10.14
C & E Loss (ft)	0.00	Cum SA (acres)	0.48	2.51	3.86

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1981.04 Profile: 100-YR

E.G. Elev (ft)	754.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.20	Reach Len. (ft)	49.93	49.93	49.93
Crit W.S. (ft)		Flow Area (sq ft)	27.74	488.71	366.41
E.G. Slope (ft/ft)	0.000776	Area (sq ft)	27.74	488.71	366.41
Q Total (cfs)	2320.26	Flow (cfs)	40.25	1492.52	787.50
Top Width (ft)	254.52	Top Width (ft)	16.35	116.11	122.05
Vel Total (ft/s)	2.63	Avg. Vel. (ft/s)	1.45	3.05	2.15
Max Chl Dpth (ft)	7.69	Hydr. Depth (ft)	1.70	4.21	3.00
Conv. Total (cfs)	83306.3	Conv. (cfs)	1445.1	53587.1	28274.1
Length Wtd. (ft)	49.93	Wetted Per. (ft)	16.70	117.74	122.38
Min Ch El (ft)	746.51	Shear (lb/sq ft)	0.08	0.20	0.14
Alpha	1.10	Stream Power (lb/ft s)	0.12	0.61	0.31
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	1.36	14.94	9.69
C & E Loss (ft)	0.01	Cum SA (acres)	0.46	2.40	3.71

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1931.11 Profile: 100-YR

E.G. Elev (ft)	754.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.05	Reach Len. (ft)	49.84	49.84	49.84
Crit W.S. (ft)		Flow Area (sq ft)		471.18	209.95
E.G. Slope (ft/ft)	0.001264	Area (sq ft)		471.18	209.95
Q Total (cfs)	2320.26	Flow (cfs)		1849.33	470.93
Top Width (ft)	204.61	Top Width (ft)		110.06	94.55
Vel Total (ft/s)	3.41	Avg. Vel. (ft/s)		3.92	2.24
Max Chl Dpth (ft)	8.41	Hydr. Depth (ft)		4.28	2.22
Conv. Total (cfs)	65254.2	Conv. (cfs)		52009.9	13244.3
Length Wtd. (ft)	49.84	Wetted Per. (ft)		112.39	94.88
Min Ch El (ft)	745.64	Shear (lb/sq ft)		0.33	0.17
Alpha	1.15	Stream Power (lb/ft s)		1.30	0.39
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.35	14.39	9.36
C & E Loss (ft)	0.03	Cum SA (acres)	0.45	2.27	3.59

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1881.27 Profile: 100-YR

E.G. Elev (ft)	754.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.09	Reach Len. (ft)	49.96	49.96	49.96
Crit W.S. (ft)		Flow Area (sq ft)	13.10	668.78	281.44
E.G. Slope (ft/ft)	0.000423	Area (sq ft)	13.10	668.78	281.44
Q Total (cfs)	2320.26	Flow (cfs)	12.10	1901.72	406.44
Top Width (ft)	229.53	Top Width (ft)	9.55	111.96	108.02
Vel Total (ft/s)	2.41	Avg. Vel. (ft/s)	0.92	2.84	1.44
Max Chl Dpth (ft)	8.41	Hydr. Depth (ft)	1.37	5.97	2.61
Conv. Total (cfs)	112785.2	Conv. (cfs)	588.0	92440.6	19756.6
Length Wtd. (ft)	49.96	Wetted Per. (ft)	9.87	113.84	108.34
Min Ch El (ft)	745.68	Shear (lb/sq ft)	0.04	0.16	0.07
Alpha	1.21	Stream Power (lb/ft s)	0.03	0.44	0.10
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	1.34	13.74	9.07
C & E Loss (ft)	0.00	Cum SA (acres)	0.44	2.14	3.47

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1831.31 Profile: 100-YR

E.G. Elev (ft)	754.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.07	Reach Len. (ft)	50.10	50.10	50.10
Crit W.S. (ft)		Flow Area (sq ft)	5.46	616.55	375.72
E.G. Slope (ft/ft)	0.000340	Area (sq ft)	5.46	616.55	375.72
Q Total (cfs)	2320.26	Flow (cfs)	3.92	1772.17	544.17
Top Width (ft)	211.34	Top Width (ft)	4.46	85.24	121.63
Vel Total (ft/s)	2.33	Avg. Vel. (ft/s)	0.72	2.87	1.45
Max Chl Dpth (ft)	8.39	Hydr. Depth (ft)	1.22	7.23	3.09
Conv. Total (cfs)	125846.0	Conv. (cfs)	212.8	96118.7	29514.6
Length Wtd. (ft)	50.10	Wetted Per. (ft)	5.09	87.62	122.18
Min Ch El (ft)	745.68	Shear (lb/sq ft)	0.02	0.15	0.07
Alpha	1.26	Stream Power (lb/ft s)	0.02	0.43	0.09
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	1.33	13.00	8.70
C & E Loss (ft)	0.00	Cum SA (acres)	0.43	2.03	3.34

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1781.21 Profile: 100-YR

E.G. Elev (ft)	754.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	754.02	Reach Len. (ft)	49.91	49.91	49.91
Crit W.S. (ft)		Flow Area (sq ft)		246.93	619.56
E.G. Slope (ft/ft)	0.000650	Area (sq ft)		246.93	619.56
Q Total (cfs)	2320.26	Flow (cfs)		905.15	1415.11
Top Width (ft)	201.23	Top Width (ft)		36.27	164.96
Vel Total (ft/s)	2.68	Avg. Vel. (ft/s)		3.67	2.28
Max Chl Dpth (ft)	9.09	Hydr. Depth (ft)		6.81	3.76
Conv. Total (cfs)	91003.8	Conv. (cfs)		35501.3	55502.4
Length Wtd. (ft)	49.91	Wetted Per. (ft)		39.63	165.44
Min Ch El (ft)	744.93	Shear (lb/sq ft)		0.25	0.15
Alpha	1.17	Stream Power (lb/ft s)		0.93	0.35
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.33	12.51	8.13
C & E Loss (ft)	0.00	Cum SA (acres)	0.43	1.96	3.17

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1731.3 Profile: 100-YR

E.G. Elev (ft)	754.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	754.00	Reach Len. (ft)	49.94	49.94	49.94
Crit W.S. (ft)		Flow Area (sq ft)	2.56	317.34	600.14
E.G. Slope (ft/ft)	0.000504	Area (sq ft)	2.56	317.34	600.14
Q Total (cfs)	2320.26	Flow (cfs)	1.79	1098.01	1220.46
Top Width (ft)	202.91	Top Width (ft)	2.79	42.83	157.30
Vel Total (ft/s)	2.52	Avg. Vel. (ft/s)	0.70	3.46	2.03
Max Chl Dpth (ft)	9.54	Hydr. Depth (ft)	0.92	7.41	3.82
Conv. Total (cfs)	103348.9	Conv. (cfs)	79.7	48907.6	54361.7
Length Wtd. (ft)	49.94	Wetted Per. (ft)	3.34	45.88	157.61
Min Ch El (ft)	744.46	Shear (lb/sq ft)	0.02	0.22	0.12
Alpha	1.23	Stream Power (lb/ft s)	0.02	0.75	0.24
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.33	12.18	7.43
C & E Loss (ft)	0.01	Cum SA (acres)	0.43	1.91	2.99

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1681.36 Profile: 100-YR

E.G. Elev (ft)	754.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	753.88	Reach Len. (ft)	50.07	50.07	50.07
Crit W.S. (ft)		Flow Area (sq ft)		311.09	378.75
E.G. Slope (ft/ft)	0.000752	Area (sq ft)		311.09	378.75
Q Total (cfs)	2320.26	Flow (cfs)		1304.87	1015.39
Top Width (ft)	129.68	Top Width (ft)		41.56	88.13
Vel Total (ft/s)	3.36	Avg. Vel. (ft/s)		4.19	2.68
Max Chl Dpth (ft)	9.55	Hydr. Depth (ft)		7.49	4.30
Conv. Total (cfs)	84628.6	Conv. (cfs)		47593.4	37035.2
Length Wtd. (ft)	50.07	Wetted Per. (ft)		45.47	88.69
Min Ch El (ft)	744.33	Shear (lb/sq ft)		0.32	0.20
Alpha	1.15	Stream Power (lb/ft s)		1.35	0.54
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.32	11.82	6.87
C & E Loss (ft)	0.01	Cum SA (acres)	0.43	1.86	2.85

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1631.29 Profile: 100-YR

E.G. Elev (ft)	754.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	753.75	Reach Len. (ft)	49.71	49.71	49.71
Crit W.S. (ft)		Flow Area (sq ft)		539.57	14.18
E.G. Slope (ft/ft)	0.000968	Area (sq ft)		539.57	14.18
Q Total (cfs)	2320.26	Flow (cfs)		2299.17	21.09
Top Width (ft)	98.69	Top Width (ft)		89.47	9.22
Vel Total (ft/s)	4.19	Avg. Vel. (ft/s)		4.26	1.49
Max Chl Dpth (ft)	9.47	Hydr. Depth (ft)		6.03	1.54
Conv. Total (cfs)	74558.3	Conv. (cfs)		73880.5	677.8
Length Wtd. (ft)	49.71	Wetted Per. (ft)		93.16	9.72
Min Ch El (ft)	744.28	Shear (lb/sq ft)		0.35	0.09
Alpha	1.03	Stream Power (lb/ft s)		1.49	0.13
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	1.32	11.33	6.64
C & E Loss (ft)	0.02	Cum SA (acres)	0.43	1.79	2.79

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1581.58 Profile: 100-YR

E.G. Elev (ft)	753.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	753.75	Reach Len. (ft)	50.23	50.23	50.23
Crit W.S. (ft)		Flow Area (sq ft)	0.09	303.30	439.39
E.G. Slope (ft/ft)	0.000936	Area (sq ft)	0.09	303.30	439.39
Q Total (cfs)	2320.26	Flow (cfs)	0.03	1348.67	971.56
Top Width (ft)	206.36	Top Width (ft)	0.48	44.11	161.77
Vel Total (ft/s)	3.12	Avg. Vel. (ft/s)	0.31	4.45	2.21
Max Chl Dpth (ft)	9.25	Hydr. Depth (ft)	0.18	6.88	2.72
Conv. Total (cfs)	75847.6	Conv. (cfs)	0.9	44087.1	31759.6
Length Wtd. (ft)	50.23	Wetted Per. (ft)	0.60	47.87	161.89
Min Ch El (ft)	744.50	Shear (lb/sq ft)	0.01	0.37	0.16
Alpha	1.39	Stream Power (lb/ft s)	0.00	1.65	0.35
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	1.32	10.85	6.38
C & E Loss (ft)	0.08	Cum SA (acres)	0.43	1.71	2.70

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1531.35 Profile: 100-YR

E.G. Elev (ft)	753.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.97	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	752.84	Reach Len. (ft)	49.94	49.94	49.94
Crit W.S. (ft)	750.91	Flow Area (sq ft)		263.87	87.34
E.G. Slope (ft/ft)	0.003684	Area (sq ft)		263.87	87.34
Q Total (cfs)	2320.26	Flow (cfs)		2154.19	166.07
Top Width (ft)	154.46	Top Width (ft)		41.70	112.76
Vel Total (ft/s)	6.61	Avg. Vel. (ft/s)		8.16	1.90
Max Chl Dpth (ft)	7.96	Hydr. Depth (ft)		6.33	0.77
Conv. Total (cfs)	38229.3	Conv. (cfs)		35493.1	2736.2
Length Wtd. (ft)	49.94	Wetted Per. (ft)		46.79	112.77
Min Ch El (ft)	744.88	Shear (lb/sq ft)		1.30	0.18
Alpha	1.42	Stream Power (lb/ft s)		10.59	0.34
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	1.32	10.53	6.08
C & E Loss (ft)	0.06	Cum SA (acres)	0.43	1.66	2.54

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1481.41 Profile: 100-YR

E.G. Elev (ft)	753.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.61	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	751.89	Reach Len. (ft)	50.11	50.11	50.11
Crit W.S. (ft)	750.97	Flow Area (sq ft)		223.63	21.05
E.G. Slope (ft/ft)	0.006956	Area (sq ft)		223.63	21.05
Q Total (cfs)	2320.26	Flow (cfs)		2288.59	31.67
Top Width (ft)	103.26	Top Width (ft)		41.08	62.18
Vel Total (ft/s)	9.48	Avg. Vel. (ft/s)		10.23	1.50
Max Chl Dpth (ft)	7.56	Hydr. Depth (ft)		5.44	0.34
Conv. Total (cfs)	27820.9	Conv. (cfs)		27441.2	379.8
Length Wtd. (ft)	50.11	Wetted Per. (ft)		45.51	62.19
Min Ch El (ft)	744.33	Shear (lb/sq ft)		2.13	0.15
Alpha	1.15	Stream Power (lb/ft s)		21.84	0.22
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	1.32	10.25	6.02
C & E Loss (ft)	0.24	Cum SA (acres)	0.43	1.61	2.44

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1431.3 Profile: 100-YR

E.G. Elev (ft)	753.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.82	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	752.21	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)		292.36	81.33
E.G. Slope (ft/ft)	0.003122	Area (sq ft)		292.36	81.33
Q Total (cfs)	2320.26	Flow (cfs)		2185.75	134.51
Top Width (ft)	162.71	Top Width (ft)		48.38	114.33
Vel Total (ft/s)	6.21	Avg. Vel. (ft/s)		7.48	1.65
Max Chl Dpth (ft)	7.73	Hydr. Depth (ft)		6.04	0.71
Conv. Total (cfs)	41528.5	Conv. (cfs)		39121.0	2407.5
Length Wtd. (ft)	50.00	Wetted Per. (ft)		52.25	114.34
Min Ch El (ft)	744.48	Shear (lb/sq ft)		1.09	0.14
Alpha	1.37	Stream Power (lb/ft s)		8.15	0.23
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	1.32	9.95	5.96
C & E Loss (ft)	0.01	Cum SA (acres)	0.43	1.56	2.34

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1381.3 Profile: 100-YR

E.G. Elev (ft)	752.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.80	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	752.07	Reach Len. (ft)	49.94	49.94	49.94
Crit W.S. (ft)		Flow Area (sq ft)	13.48	272.86	105.81
E.G. Slope (ft/ft)	0.003152	Area (sq ft)	13.48	272.86	105.81
Q Total (cfs)	2320.26	Flow (cfs)	39.94	2060.17	220.15
Top Width (ft)	159.62	Top Width (ft)	6.96	46.49	106.18
Vel Total (ft/s)	5.92	Avg. Vel. (ft/s)	2.96	7.55	2.08
Max Chl Dpth (ft)	7.57	Hydr. Depth (ft)	1.94	5.87	1.00
Conv. Total (cfs)	41324.8	Conv. (cfs)	711.3	36692.5	3921.0
Length Wtd. (ft)	49.94	Wetted Per. (ft)	7.97	48.40	106.19
Min Ch El (ft)	744.50	Shear (lb/sq ft)	0.33	1.11	0.20
Alpha	1.46	Stream Power (lb/ft s)	0.99	8.38	0.41
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	1.32	9.63	5.85
C & E Loss (ft)	0.06	Cum SA (acres)	0.42	1.51	2.21

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1331.36 Profile: 100-YR

E.G. Elev (ft)	752.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.42	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	751.19	Reach Len. (ft)	49.96	49.96	49.96
Crit W.S. (ft)	750.22	Flow Area (sq ft)	17.58	209.14	66.95
E.G. Slope (ft/ft)	0.004778	Area (sq ft)	17.58	209.14	66.95
Q Total (cfs)	2320.26	Flow (cfs)	66.61	2096.61	157.03
Top Width (ft)	116.43	Top Width (ft)	9.01	30.97	76.45
Vel Total (ft/s)	7.90	Avg. Vel. (ft/s)	3.79	10.02	2.35
Max Chl Dpth (ft)	7.43	Hydr. Depth (ft)	1.95	6.75	0.88
Conv. Total (cfs)	33566.8	Conv. (cfs)	963.7	30331.3	2271.8
Length Wtd. (ft)	49.96	Wetted Per. (ft)	9.81	33.13	76.69
Min Ch El (ft)	743.76	Shear (lb/sq ft)	0.53	1.88	0.26
Alpha	1.47	Stream Power (lb/ft s)	2.03	18.88	0.61
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	1.30	9.35	5.75
C & E Loss (ft)	0.07	Cum SA (acres)	0.41	1.46	2.10

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1281.4 Profile: 100-YR

E.G. Elev (ft)	752.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.15	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	750.08	Reach Len. (ft)	50.04	50.04	50.04
Crit W.S. (ft)	750.08	Flow Area (sq ft)	22.93	173.79	17.79
E.G. Slope (ft/ft)	0.008672	Area (sq ft)	22.93	173.79	17.79
Q Total (cfs)	2320.26	Flow (cfs)	125.92	2121.23	73.11
Top Width (ft)	54.83	Top Width (ft)	10.62	30.72	13.48
Vel Total (ft/s)	10.82	Avg. Vel. (ft/s)	5.49	12.21	4.11
Max Chl Dpth (ft)	6.49	Hydr. Depth (ft)	2.16	5.66	1.32
Conv. Total (cfs)	24916.0	Conv. (cfs)	1352.2	22778.8	785.1
Length Wtd. (ft)	50.04	Wetted Per. (ft)	11.47	32.04	13.74
Min Ch El (ft)	743.59	Shear (lb/sq ft)	1.08	2.94	0.70
Alpha	1.18	Stream Power (lb/ft s)	5.94	35.85	2.88
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	1.28	9.13	5.70
C & E Loss (ft)	0.06	Cum SA (acres)	0.40	1.43	2.05

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1231.36 Profile: 100-YR

E.G. Elev (ft)	751.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.74	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	748.85	Reach Len. (ft)	50.03	50.03	50.03
Crit W.S. (ft)	749.53	Flow Area (sq ft)		171.12	9.05
E.G. Slope (ft/ft)	0.016748	Area (sq ft)		171.12	9.05
Q Total (cfs)	2320.26	Flow (cfs)		2286.25	34.01
Top Width (ft)	55.70	Top Width (ft)		42.67	13.03
Vel Total (ft/s)	12.88	Avg. Vel. (ft/s)		13.36	3.76
Max Chl Dpth (ft)	5.39	Hydr. Depth (ft)		4.01	0.69
Conv. Total (cfs)	17928.9	Conv. (cfs)		17666.1	262.8
Length Wtd. (ft)	50.03	Wetted Per. (ft)		45.13	13.10
Min Ch El (ft)	743.46	Shear (lb/sq ft)		3.96	0.72
Alpha	1.06	Stream Power (lb/ft s)		52.97	2.71
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	1.26	8.93	5.69
C & E Loss (ft)	0.49	Cum SA (acres)	0.40	1.39	2.04

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1181.33 Profile: 100-YR

E.G. Elev (ft)	750.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	750.45	Reach Len. (ft)	49.87	49.87	49.87
Crit W.S. (ft)	748.66	Flow Area (sq ft)		192.81	391.59
E.G. Slope (ft/ft)	0.001798	Area (sq ft)		192.81	391.59
Q Total (cfs)	2320.26	Flow (cfs)		942.93	1377.33
Top Width (ft)	158.21	Top Width (ft)		41.17	117.04
Vel Total (ft/s)	3.97	Avg. Vel. (ft/s)		4.89	3.52
Max Chl Dpth (ft)	7.24	Hydr. Depth (ft)		4.68	3.35
Conv. Total (cfs)	54714.1	Conv. (cfs)		22235.3	32478.8
Length Wtd. (ft)	49.87	Wetted Per. (ft)		43.07	117.38
Min Ch El (ft)	743.21	Shear (lb/sq ft)		0.50	0.37
Alpha	1.08	Stream Power (lb/ft s)		2.46	1.32
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	1.26	8.72	5.46
C & E Loss (ft)	0.00	Cum SA (acres)	0.40	1.34	1.96

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1131.46 Profile: 100-YR

E.G. Elev (ft)	750.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	750.32	Reach Len. (ft)	50.17	50.17	50.17
Crit W.S. (ft)		Flow Area (sq ft)		313.21	277.02
E.G. Slope (ft/ft)	0.001720	Area (sq ft)		313.21	277.02
Q Total (cfs)	2333.46	Flow (cfs)		1593.82	739.64
Top Width (ft)	182.96	Top Width (ft)		61.63	121.33
Vel Total (ft/s)	3.95	Avg. Vel. (ft/s)		5.09	2.67
Max Chl Dpth (ft)	7.13	Hydr. Depth (ft)		5.08	2.28
Conv. Total (cfs)	56268.6	Conv. (cfs)		38433.0	17835.6
Length Wtd. (ft)	50.17	Wetted Per. (ft)		63.74	121.40
Min Ch El (ft)	743.19	Shear (lb/sq ft)		0.53	0.24
Alpha	1.28	Stream Power (lb/ft s)		2.68	0.65
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	1.26	8.43	5.07
C & E Loss (ft)	0.03	Cum SA (acres)	0.40	1.28	1.83

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1081.29 Profile: 100-YR

E.G. Elev (ft)	750.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	750.31	Reach Len. (ft)	49.74	49.74	49.74
Crit W.S. (ft)		Flow Area (sq ft)		284.62	450.65
E.G. Slope (ft/ft)	0.001164	Area (sq ft)		284.62	450.65
Q Total (cfs)	2333.46	Flow (cfs)		1290.70	1042.76
Top Width (ft)	231.87	Top Width (ft)		49.31	182.56
Vel Total (ft/s)	3.17	Avg. Vel. (ft/s)		4.53	2.31
Max Chl Dpth (ft)	7.23	Hydr. Depth (ft)		5.77	2.47
Conv. Total (cfs)	68408.8	Conv. (cfs)		37838.8	30570.1
Length Wtd. (ft)	49.74	Wetted Per. (ft)		51.36	182.62
Min Ch El (ft)	743.08	Shear (lb/sq ft)		0.40	0.18
Alpha	1.37	Stream Power (lb/ft s)		1.83	0.41
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	1.26	8.09	4.65
C & E Loss (ft)	0.01	Cum SA (acres)	0.40	1.22	1.65

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 1031.55 Profile: 100-YR

E.G. Elev (ft)	750.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	750.30	Reach Len. (ft)	50.36	50.36	50.36
Crit W.S. (ft)		Flow Area (sq ft)		333.85	505.47
E.G. Slope (ft/ft)	0.000764	Area (sq ft)		333.85	505.47
Q Total (cfs)	2333.46	Flow (cfs)		1321.54	1011.92
Top Width (ft)	236.19	Top Width (ft)		50.59	185.60
Vel Total (ft/s)	2.78	Avg. Vel. (ft/s)		3.96	2.00
Max Chl Dpth (ft)	9.21	Hydr. Depth (ft)		6.60	2.72
Conv. Total (cfs)	84408.7	Conv. (cfs)		47804.4	36604.3
Length Wtd. (ft)	50.36	Wetted Per. (ft)		53.90	185.71
Min Ch El (ft)	741.09	Shear (lb/sq ft)		0.30	0.13
Alpha	1.37	Stream Power (lb/ft s)		1.17	0.26
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.26	7.74	4.11
C & E Loss (ft)	0.01	Cum SA (acres)	0.40	1.16	1.44

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 981.19 Profile: 100-YR

E.G. Elev (ft)	750.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	750.28	Reach Len. (ft)	49.83	49.83	49.83
Crit W.S. (ft)		Flow Area (sq ft)		303.15	572.24
E.G. Slope (ft/ft)	0.000694	Area (sq ft)		303.15	572.24
Q Total (cfs)	2333.46	Flow (cfs)		1139.94	1193.52
Top Width (ft)	229.05	Top Width (ft)		45.37	183.69
Vel Total (ft/s)	2.67	Avg. Vel. (ft/s)		3.76	2.09
Max Chl Dpth (ft)	8.76	Hydr. Depth (ft)		6.68	3.12
Conv. Total (cfs)	88566.9	Conv. (cfs)		43266.7	45300.2
Length Wtd. (ft)	49.83	Wetted Per. (ft)		49.18	183.95
Min Ch El (ft)	741.52	Shear (lb/sq ft)		0.27	0.13
Alpha	1.29	Stream Power (lb/ft s)		1.00	0.28
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.26	7.37	3.49
C & E Loss (ft)	0.00	Cum SA (acres)	0.40	1.10	1.23

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 931.36 Profile: 100-YR

E.G. Elev (ft)	750.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	750.22	Reach Len. (ft)	49.96	49.96	49.96
Crit W.S. (ft)		Flow Area (sq ft)		280.84	541.80
E.G. Slope (ft/ft)	0.000774	Area (sq ft)		280.84	541.80
Q Total (cfs)	2333.46	Flow (cfs)		1142.66	1190.80
Top Width (ft)	213.32	Top Width (ft)		39.18	174.15
Vel Total (ft/s)	2.84	Avg. Vel. (ft/s)		4.07	2.20
Max Chl Dpth (ft)	8.60	Hydr. Depth (ft)		7.17	3.11
Conv. Total (cfs)	83861.7	Conv. (cfs)		41065.9	42795.9
Length Wtd. (ft)	49.96	Wetted Per. (ft)		43.94	174.74
Min Ch El (ft)	741.62	Shear (lb/sq ft)		0.31	0.15
Alpha	1.31	Stream Power (lb/ft s)		1.26	0.33
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1.26	7.03	2.85
C & E Loss (ft)	0.00	Cum SA (acres)	0.40	1.06	1.02

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 881.4 Profile: 100-YR

E.G. Elev (ft)	750.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	750.18	Reach Len. (ft)	49.99	49.99	49.99
Crit W.S. (ft)		Flow Area (sq ft)		294.61	516.78
E.G. Slope (ft/ft)	0.000716	Area (sq ft)		294.61	516.78
Q Total (cfs)	2333.46	Flow (cfs)		1167.63	1165.83
Top Width (ft)	191.33	Top Width (ft)		40.82	150.51
Vel Total (ft/s)	2.88	Avg. Vel. (ft/s)		3.96	2.26
Max Chl Dpth (ft)	9.03	Hydr. Depth (ft)		7.22	3.43
Conv. Total (cfs)	87203.6	Conv. (cfs)		43635.5	43568.1
Length Wtd. (ft)	49.99	Wetted Per. (ft)		45.21	151.15
Min Ch El (ft)	741.15	Shear (lb/sq ft)		0.29	0.15
Alpha	1.26	Stream Power (lb/ft s)		1.15	0.34
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.26	6.70	2.24
C & E Loss (ft)	0.00	Cum SA (acres)	0.40	1.01	0.84

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 831.41 Profile: 100-YR

E.G. Elev (ft)	750.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.		0.035	0.040
W.S. Elev (ft)	750.16	Reach Len. (ft)	50.10	50.10	50.10
Crit W.S. (ft)		Flow Area (sq ft)		290.12	530.74
E.G. Slope (ft/ft)	0.000645	Area (sq ft)		290.12	530.74
Q Total (cfs)	2333.46	Flow (cfs)		1119.56	1213.91
Top Width (ft)	178.22	Top Width (ft)		38.15	140.08
Vel Total (ft/s)	2.84	Avg. Vel. (ft/s)		3.86	2.29
Max Chl Dpth (ft)	9.23	Hydr. Depth (ft)		7.61	3.79
Conv. Total (cfs)	91850.6	Conv. (cfs)		44068.4	47782.2
Length Wtd. (ft)	50.10	Wetted Per. (ft)		42.87	140.67
Min Ch El (ft)	740.93	Shear (lb/sq ft)		0.27	0.15
Alpha	1.22	Stream Power (lb/ft s)		1.05	0.35
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.26	6.37	1.64
C & E Loss (ft)	0.01	Cum SA (acres)	0.40	0.96	0.67

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 781.31 Profile: 100-YR

E.G. Elev (ft)	750.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	750.07	Reach Len. (ft)	49.95	49.95	49.95
Crit W.S. (ft)		Flow Area (sq ft)	8.13	329.14	411.55
E.G. Slope (ft/ft)	0.000671	Area (sq ft)	8.13	329.14	411.55
Q Total (cfs)	2333.46	Flow (cfs)	9.65	1414.84	908.98
Top Width (ft)	162.40	Top Width (ft)	4.95	39.75	117.70
Vel Total (ft/s)	3.12	Avg. Vel. (ft/s)	1.19	4.30	2.21
Max Chl Dpth (ft)	9.41	Hydr. Depth (ft)	1.64	8.28	3.50
Conv. Total (cfs)	90080.7	Conv. (cfs)	372.4	54618.2	35090.1
Length Wtd. (ft)	49.95	Wetted Per. (ft)	5.94	42.59	118.35
Min Ch El (ft)	740.66	Shear (lb/sq ft)	0.06	0.32	0.15
Alpha	1.35	Stream Power (lb/ft s)	0.07	1.39	0.32
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.26	6.01	1.10
C & E Loss (ft)	0.01	Cum SA (acres)	0.39	0.92	0.52

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 731.36 Profile: 100-YR

E.G. Elev (ft)	750.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	750.07	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)	49.61	319.69	465.51
E.G. Slope (ft/ft)	0.000503	Area (sq ft)	49.61	319.69	465.51
Q Total (cfs)	2333.46	Flow (cfs)	83.46	1225.37	1024.64
Top Width (ft)	161.54	Top Width (ft)	16.34	37.56	107.64
Vel Total (ft/s)	2.80	Avg. Vel. (ft/s)	1.68	3.83	2.20
Max Chl Dpth (ft)	9.56	Hydr. Depth (ft)	3.04	8.51	4.32
Conv. Total (cfs)	104004.2	Conv. (cfs)	3719.7	54615.5	45668.9
Length Wtd. (ft)	50.00	Wetted Per. (ft)	17.30	39.60	108.47
Min Ch El (ft)	740.51	Shear (lb/sq ft)	0.09	0.25	0.13
Alpha	1.27	Stream Power (lb/ft s)	0.15	0.97	0.30
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	1.22	5.64	0.60
C & E Loss (ft)	0.02	Cum SA (acres)	0.38	0.87	0.39

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 681.36 Profile: 100-YR

E.G. Elev (ft)	750.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	749.82	Reach Len. (ft)	49.99	49.99	49.99
Crit W.S. (ft)		Flow Area (sq ft)	104.52	407.31	20.50
E.G. Slope (ft/ft)	0.001033	Area (sq ft)	104.52	407.31	20.50
Q Total (cfs)	2333.46	Flow (cfs)	270.04	2043.26	20.16
Top Width (ft)	113.65	Top Width (ft)	31.82	54.43	27.40
Vel Total (ft/s)	4.38	Avg. Vel. (ft/s)	2.58	5.02	0.98
Max Chl Dpth (ft)	8.87	Hydr. Depth (ft)	3.28	7.48	0.75
Conv. Total (cfs)	72610.9	Conv. (cfs)	8403.0	63580.6	627.3
Length Wtd. (ft)	49.99	Wetted Per. (ft)	32.83	57.77	27.44
Min Ch El (ft)	740.95	Shear (lb/sq ft)	0.21	0.45	0.05
Alpha	1.19	Stream Power (lb/ft s)	0.53	2.28	0.05
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	1.14	5.22	0.32
C & E Loss (ft)	0.02	Cum SA (acres)	0.35	0.82	0.32

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 631.37 Profile: 100-YR

E.G. Elev (ft)	750.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	749.80	Reach Len. (ft)	50.01	50.01	50.01
Crit W.S. (ft)		Flow Area (sq ft)	186.07	377.16	
E.G. Slope (ft/ft)	0.001028	Area (sq ft)	186.07	377.16	
Q Total (cfs)	2333.46	Flow (cfs)	545.79	1787.67	
Top Width (ft)	100.60	Top Width (ft)	46.91	53.69	
Vel Total (ft/s)	4.14	Avg. Vel. (ft/s)	2.93	4.74	
Max Chl Dpth (ft)	9.29	Hydr. Depth (ft)	3.97	7.03	
Conv. Total (cfs)	72783.2	Conv. (cfs)	17023.9	55759.2	
Length Wtd. (ft)	50.01	Wetted Per. (ft)	48.14	58.04	
Min Ch El (ft)	740.51	Shear (lb/sq ft)	0.25	0.42	
Alpha	1.12	Stream Power (lb/ft s)	0.73	1.98	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	0.97	4.77	0.30
C & E Loss (ft)	0.01	Cum SA (acres)	0.31	0.76	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 581.36 Profile: 100-YR

E.G. Elev (ft)	750.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	749.78	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)	205.06	393.54	
E.G. Slope (ft/ft)	0.000892	Area (sq ft)	205.06	393.54	
Q Total (cfs)	2333.46	Flow (cfs)	549.87	1783.59	
Top Width (ft)	107.69	Top Width (ft)	53.58	54.11	
Vel Total (ft/s)	3.90	Avg. Vel. (ft/s)	2.68	4.53	
Max Chl Dpth (ft)	9.74	Hydr. Depth (ft)	3.83	7.27	
Conv. Total (cfs)	78146.8	Conv. (cfs)	18414.9	59731.9	
Length Wtd. (ft)	50.00	Wetted Per. (ft)	54.56	58.22	
Min Ch El (ft)	740.04	Shear (lb/sq ft)	0.21	0.38	
Alpha	1.14	Stream Power (lb/ft s)	0.56	1.71	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.74	4.33	0.30
C & E Loss (ft)	0.02	Cum SA (acres)	0.25	0.70	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 531.36 Profile: 100-YR

E.G. Elev (ft)	749.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.52	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	749.45	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)	86.49	358.66	
E.G. Slope (ft/ft)	0.001597	Area (sq ft)	86.49	358.66	
Q Total (cfs)	2333.46	Flow (cfs)	189.64	2143.82	
Top Width (ft)	97.94	Top Width (ft)	48.06	49.89	
Vel Total (ft/s)	5.24	Avg. Vel. (ft/s)	2.19	5.98	
Max Chl Dpth (ft)	9.57	Hydr. Depth (ft)	1.80	7.19	
Conv. Total (cfs)	58393.1	Conv. (cfs)	4745.5	53647.6	
Length Wtd. (ft)	50.00	Wetted Per. (ft)	48.19	54.23	
Min Ch El (ft)	739.88	Shear (lb/sq ft)	0.18	0.66	
Alpha	1.21	Stream Power (lb/ft s)	0.39	3.94	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	0.58	3.90	0.30
C & E Loss (ft)	0.02	Cum SA (acres)	0.19	0.64	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 481.36 Profile: 100-YR

E.G. Elev (ft)	749.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.76	Wt. n-Val.		0.035	
W.S. Elev (ft)	749.10	Reach Len. (ft)	36.50	36.50	36.50
Crit W.S. (ft)	745.54	Flow Area (sq ft)		334.47	
E.G. Slope (ft/ft)	0.001625	Area (sq ft)		571.92	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	104.33	Top Width (ft)		104.33	
Vel Total (ft/s)	6.98	Avg. Vel. (ft/s)		6.98	
Max Chl Dpth (ft)	8.36	Hydr. Depth (ft)		8.23	
Conv. Total (cfs)	57894.6	Conv. (cfs)		57894.6	
Length Wtd. (ft)	36.50	Wetted Per. (ft)		40.63	
Min Ch El (ft)	740.74	Shear (lb/sq ft)		0.83	
Alpha	1.00	Stream Power (lb/ft s)		5.83	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	0.53	3.36	0.30
C & E Loss (ft)	0.00	Cum SA (acres)	0.17	0.55	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 444.86 BR U Profile: 100-YR

E.G. Elev (ft)	749.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.77	Wt. n-Val.		0.035	
W.S. Elev (ft)	749.03	Reach Len. (ft)	32.00	32.00	32.00
Crit W.S. (ft)	745.56	Flow Area (sq ft)		331.21	
E.G. Slope (ft/ft)	0.001689	Area (sq ft)		401.84	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	58.42	Top Width (ft)		58.42	
Vel Total (ft/s)	7.05	Avg. Vel. (ft/s)		7.05	
Max Chl Dpth (ft)	8.29	Hydr. Depth (ft)		8.15	
Conv. Total (cfs)	56780.6	Conv. (cfs)		56780.6	
Length Wtd. (ft)	32.00	Wetted Per. (ft)		40.82	
Min Ch El (ft)	740.74	Shear (lb/sq ft)		0.86	
Alpha	1.00	Stream Power (lb/ft s)		6.03	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	0.53	2.96	0.30
C & E Loss (ft)	0.08	Cum SA (acres)	0.17	0.48	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 444.86 BR D Profile: 100-YR

E.G. Elev (ft)	749.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.55	Wt. n-Val.		0.035	
W.S. Elev (ft)	748.09	Reach Len. (ft)	2.87	2.87	2.87
Crit W.S. (ft)	746.10	Flow Area (sq ft)		233.65	
E.G. Slope (ft/ft)	0.003923	Area (sq ft)	5.67	285.91	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	47.31	Top Width (ft)	3.99	43.32	
Vel Total (ft/s)	9.99	Avg. Vel. (ft/s)		9.99	
Max Chl Dpth (ft)	8.09	Hydr. Depth (ft)		7.67	
Conv. Total (cfs)	37256.2	Conv. (cfs)		37256.2	
Length Wtd. (ft)	2.87	Wetted Per. (ft)		32.10	
Min Ch El (ft)	740.00	Shear (lb/sq ft)		1.78	
Alpha	1.00	Stream Power (lb/ft s)		17.80	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.53	2.70	0.30
C & E Loss (ft)	0.00	Cum SA (acres)	0.16	0.44	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 409.99 Profile: 100-YR

E.G. Elev (ft)	749.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.56	Wt. n-Val.		0.035	
W.S. Elev (ft)	748.08	Reach Len. (ft)	36.50	36.50	36.50
Crit W.S. (ft)		Flow Area (sq ft)		233.22	
E.G. Slope (ft/ft)	0.003947	Area (sq ft)	199.47	285.37	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	98.69	Top Width (ft)	55.39	43.30	
Vel Total (ft/s)	10.01	Avg. Vel. (ft/s)		10.01	
Max Chl Dpth (ft)	8.08	Hydr. Depth (ft)		7.66	
Conv. Total (cfs)	37143.2	Conv. (cfs)		37143.2	
Length Wtd. (ft)	36.50	Wetted Per. (ft)		32.10	
Min Ch El (ft)	740.00	Shear (lb/sq ft)		1.79	
Alpha	1.00	Stream Power (lb/ft s)		17.91	
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	0.52	2.69	0.30
C & E Loss (ft)	0.36	Cum SA (acres)	0.16	0.44	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 373.49 Profile: 100-YR

E.G. Elev (ft)	749.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	748.84	Reach Len. (ft)	54.34	54.34	54.34
Crit W.S. (ft)		Flow Area (sq ft)	155.78	362.70	
E.G. Slope (ft/ft)	0.001267	Area (sq ft)	155.78	362.70	
Q Total (cfs)	2333.46	Flow (cfs)	449.67	1883.79	
Top Width (ft)	100.48	Top Width (ft)	47.37	53.11	
Vel Total (ft/s)	4.50	Avg. Vel. (ft/s)	2.89	5.19	
Max Chl Dpth (ft)	8.84	Hydr. Depth (ft)	3.29	6.83	
Conv. Total (cfs)	65563.0	Conv. (cfs)	12634.2	52928.8	
Length Wtd. (ft)	54.34	Wetted Per. (ft)	48.29	56.91	
Min Ch El (ft)	740.00	Shear (lb/sq ft)	0.26	0.50	
Alpha	1.15	Stream Power (lb/ft s)	0.74	2.62	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	0.37	2.41	0.30
C & E Loss (ft)	0.00	Cum SA (acres)	0.12	0.40	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 319.15 Profile: 100-YR

E.G. Elev (ft)	749.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	748.78	Reach Len. (ft)	57.20	57.20	57.20
Crit W.S. (ft)		Flow Area (sq ft)	179.97	340.88	
E.G. Slope (ft/ft)	0.001182	Area (sq ft)	179.97	340.88	
Q Total (cfs)	2333.46	Flow (cfs)	585.14	1748.32	
Top Width (ft)	89.59	Top Width (ft)	42.56	47.02	
Vel Total (ft/s)	4.48	Avg. Vel. (ft/s)	3.25	5.13	
Max Chl Dpth (ft)	8.78	Hydr. Depth (ft)	4.23	7.25	
Conv. Total (cfs)	67873.8	Conv. (cfs)	17020.2	50853.6	
Length Wtd. (ft)	57.20	Wetted Per. (ft)	44.30	51.75	
Min Ch El (ft)	740.00	Shear (lb/sq ft)	0.30	0.49	
Alpha	1.11	Stream Power (lb/ft s)	0.97	2.49	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	0.16	1.97	0.30
C & E Loss (ft)	0.03	Cum SA (acres)	0.06	0.34	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 261.95 Profile: 100-YR

E.G. Elev (ft)	749.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	748.37	Reach Len. (ft)	52.31	52.31	52.31
Crit W.S. (ft)		Flow Area (sq ft)	22.05	353.58	
E.G. Slope (ft/ft)	0.002036	Area (sq ft)	22.05	353.58	
Q Total (cfs)	2333.46	Flow (cfs)	49.91	2283.55	
Top Width (ft)	65.80	Top Width (ft)	13.36	52.44	
Vel Total (ft/s)	6.21	Avg. Vel. (ft/s)	2.26	6.46	
Max Chl Dpth (ft)	8.37	Hydr. Depth (ft)	1.65	6.74	
Conv. Total (cfs)	51714.7	Conv. (cfs)	1106.1	50608.6	
Length Wtd. (ft)	52.31	Wetted Per. (ft)	14.04	57.12	
Min Ch El (ft)	740.00	Shear (lb/sq ft)	0.20	0.79	
Alpha	1.06	Stream Power (lb/ft s)	0.45	5.08	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	0.03	1.52	0.30
C & E Loss (ft)	0.03	Cum SA (acres)	0.03	0.27	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 209.64 Profile: 100-YR

E.G. Elev (ft)	748.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.92	Wt. n-Val.		0.035	
W.S. Elev (ft)	747.92	Reach Len. (ft)	57.93	57.93	57.93
Crit W.S. (ft)		Flow Area (sq ft)		302.90	
E.G. Slope (ft/ft)	0.003354	Area (sq ft)		302.90	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	48.11	Top Width (ft)		48.11	
Vel Total (ft/s)	7.70	Avg. Vel. (ft/s)		7.70	
Max Chl Dpth (ft)	7.92	Hydr. Depth (ft)		6.30	
Conv. Total (cfs)	40294.3	Conv. (cfs)		40294.3	
Length Wtd. (ft)	57.93	Wetted Per. (ft)		54.61	
Min Ch El (ft)	740.00	Shear (lb/sq ft)		1.16	
Alpha	1.00	Stream Power (lb/ft s)		8.95	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	0.01	1.12	0.30
C & E Loss (ft)	0.01	Cum SA (acres)	0.02	0.21	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 151.71 Profile: 100-YR

E.G. Elev (ft)	748.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.99	Wt. n-Val.		0.035	
W.S. Elev (ft)	747.64	Reach Len. (ft)	50.00	50.00	50.00
Crit W.S. (ft)		Flow Area (sq ft)		291.79	
E.G. Slope (ft/ft)	0.003728	Area (sq ft)		291.79	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	47.90	Top Width (ft)		47.90	
Vel Total (ft/s)	8.00	Avg. Vel. (ft/s)		8.00	
Max Chl Dpth (ft)	7.64	Hydr. Depth (ft)		6.09	
Conv. Total (cfs)	38215.6	Conv. (cfs)		38215.6	
Length Wtd. (ft)	50.00	Wetted Per. (ft)		53.85	
Min Ch El (ft)	740.00	Shear (lb/sq ft)		1.26	
Alpha	1.00	Stream Power (lb/ft s)		10.09	
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	0.01	0.73	0.30
C & E Loss (ft)	0.07	Cum SA (acres)	0.02	0.15	0.30

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 101.71 Profile: 100-YR

E.G. Elev (ft)	748.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.65	Wt. n-Val.		0.035	
W.S. Elev (ft)	746.66	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	745.69	Flow Area (sq ft)		226.57	
E.G. Slope (ft/ft)	0.007302	Area (sq ft)		226.57	199.11
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	175.57	Top Width (ft)		41.53	134.03
Vel Total (ft/s)	10.30	Avg. Vel. (ft/s)		10.30	
Max Chl Dpth (ft)	6.84	Hydr. Depth (ft)		5.46	
Conv. Total (cfs)	27307.4	Conv. (cfs)		27307.4	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		47.37	
Min Ch El (ft)	739.82	Shear (lb/sq ft)		2.18	
Alpha	1.00	Stream Power (lb/ft s)		22.46	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.01	0.43	0.19
C & E Loss (ft)		Cum SA (acres)	0.02	0.10	0.22

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 91.71 BR U Profile: 100-YR

E.G. Elev (ft)	748.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.39	Wt. n-Val.		0.035	
W.S. Elev (ft)	745.84	Reach Len. (ft)	35.00	35.00	35.00
Crit W.S. (ft)	745.84	Flow Area (sq ft)		188.02	
E.G. Slope (ft/ft)	0.012201	Area (sq ft)		188.02	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	39.36	Top Width (ft)		39.36	
Vel Total (ft/s)	12.41	Avg. Vel. (ft/s)		12.41	
Max Chl Dpth (ft)	6.02	Hydr. Depth (ft)		4.78	
Conv. Total (cfs)	21125.7	Conv. (cfs)		21125.7	
Length Wtd. (ft)	35.00	Wetted Per. (ft)		43.67	
Min Ch El (ft)	739.82	Shear (lb/sq ft)		3.28	
Alpha	1.00	Stream Power (lb/ft s)		40.70	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.01	0.38	0.17
C & E Loss (ft)		Cum SA (acres)	0.02	0.09	0.21

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 91.71 BR D Profile: 100-YR

E.G. Elev (ft)	747.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.26	Wt. n-Val.		0.035	
W.S. Elev (ft)	745.20	Reach Len. (ft)	37.37	37.37	37.37
Crit W.S. (ft)	745.20	Flow Area (sq ft)		193.64	
E.G. Slope (ft/ft)	0.012018	Area (sq ft)		193.64	
Q Total (cfs)	2333.46	Flow (cfs)		2333.46	
Top Width (ft)	42.84	Top Width (ft)		42.84	
Vel Total (ft/s)	12.05	Avg. Vel. (ft/s)		12.05	
Max Chl Dpth (ft)	5.79	Hydr. Depth (ft)		4.52	
Conv. Total (cfs)	21285.1	Conv. (cfs)		21285.1	
Length Wtd. (ft)	37.37	Wetted Per. (ft)		46.48	
Min Ch El (ft)	739.41	Shear (lb/sq ft)		3.13	
Alpha	1.00	Stream Power (lb/ft s)		37.67	
Frctn Loss (ft)		Cum Volume (acre-ft)	0.01	0.23	0.17
C & E Loss (ft)		Cum SA (acres)	0.02	0.06	0.21

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 19.34 Profile: 100-YR

E.G. Elev (ft)	746.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.31	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	744.64	Reach Len. (ft)	19.34	19.34	19.34
Crit W.S. (ft)	744.88	Flow Area (sq ft)	2.30	190.14	
E.G. Slope (ft/ft)	0.013661	Area (sq ft)	21.62	190.14	203.01
Q Total (cfs)	2333.46	Flow (cfs)	11.27	2322.19	
Top Width (ft)	313.18	Top Width (ft)	23.27	47.05	242.86
Vel Total (ft/s)	12.13	Avg. Vel. (ft/s)	4.90	12.21	
Max Chl Dpth (ft)	5.23	Hydr. Depth (ft)	1.20	4.04	
Conv. Total (cfs)	19964.6	Conv. (cfs)	96.5	19868.1	
Length Wtd. (ft)	19.34	Wetted Per. (ft)	1.92	49.24	
Min Ch El (ft)	739.41	Shear (lb/sq ft)	1.02	3.29	
Alpha	1.01	Stream Power (lb/ft s)	5.01	40.22	
Frctn Loss (ft)	0.34	Cum Volume (acre-ft)	0.01	0.07	0.08
C & E Loss (ft)	0.02	Cum SA (acres)	0.01	0.02	0.10

Plan: PG-1 LONG RUN MAIN CHANNEL RS: 0 Profile: 100-YR

E.G. Elev (ft)	746.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.48	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	744.10	Reach Len. (ft)			
Crit W.S. (ft)	744.88	Flow Area (sq ft)	2.48	107.28	157.93
E.G. Slope (ft/ft)	0.024168	Area (sq ft)	2.48	107.28	157.93
Q Total (cfs)	2333.46	Flow (cfs)	4.05	1602.61	726.79
Top Width (ft)	267.45	Top Width (ft)	16.48	29.66	221.32
Vel Total (ft/s)	8.72	Avg. Vel. (ft/s)	1.63	14.94	4.60
Max Chl Dpth (ft)	4.51	Hydr. Depth (ft)	0.15	3.62	0.71
Conv. Total (cfs)	15009.9	Conv. (cfs)	26.1	10308.7	4675.1
Length Wtd. (ft)		Wetted Per. (ft)	16.48	31.50	222.57
Min Ch El (ft)	739.59	Shear (lb/sq ft)	0.23	5.14	1.07
Alpha	2.10	Stream Power (lb/ft s)	0.37	76.75	4.93
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Floodplain Development Permit

Doddridge County, WV Floodplain Management

This permit gives approval for the development/ project listed that impacts the FEMA-designated floodplain and/or floodway of Doddridge County, WV, pursuant to the rules and regulations established by all applicable Federal, State and local laws and ordinances, including the Doddridge County Floodplain Ordinance. This permit must be posted at the site of work as to be clearly visible and must remain posted during entirety of development.

Permit #: 18-504

Date Approved: April 2, 2018 **Expires: April 2, 2019**

Issued to: Antero Resources Corporation **POC: Rachel McKinney**

Company Address: 535 White Oaks Blvd. Bridgeport, WV 26330

Project Address: Ramsey's Ridge

Firm: 54017C0105C **Lat/Long: 39.324403N,-80.833417W**

Purpose of development: Road Upgrade and Temporary Bridge

Issued by: George C. Eidel, Doddridge County FPM (*or designee*)

George C. Eidel

Date: April 2, 2018

For additional information regarding this permit, please contact Doddridge County Floodplain Manager at 304.873.1343, or via email at doddridgecountyfpm@gmail.com
105Court Street Suite3; West Union, WV 26456

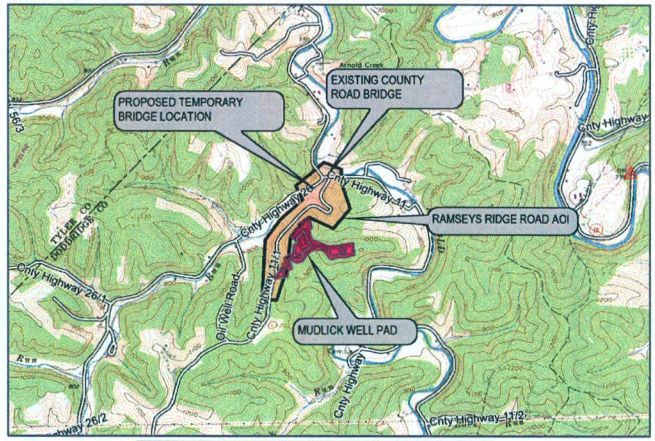
RAMSEY'S RIDGE ROAD PHASE II
COUNTY ROAD 11/1 ROAD IMPROVEMENT
ACCESSING THE MUDLICK PAD

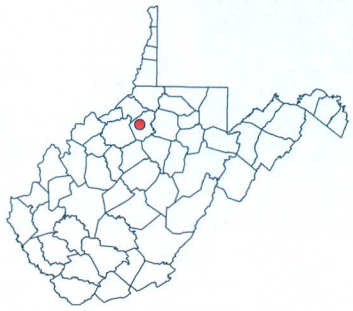
ROAD RECONSTRUCTION PLANS,
EROSION & SEDIMENT CONTROL PLANS

CENTRAL DISTRICT, DODDRIDGE COUNTY, WEST VIRGINIA

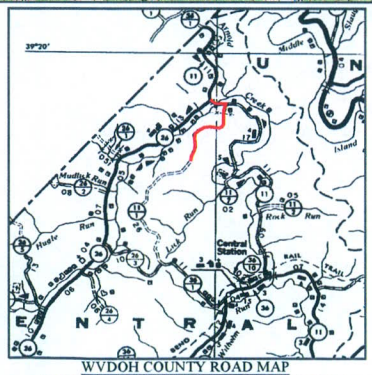
ANTERO RESOURCE CORPORATION

USGS WEST UNION, WV QUAD MAP





WEST VIRGINIA COUNTY MAP
CENTRAL DISTRICT, DODDRIDGE COUNTY, WEST VIRGINIA
SCALE: N.T.S.



WVDOH COUNTY ROAD MAP
CENTRAL DISTRICT, DODDRIDGE COUNTY, WEST VIRGINIA
PROJECT LOCATION
SCALE: N.T.S.

WEST VIRGINIA STATE PLANE COORDINATE SYSTEM
NORTH ZONE, NAD83
ELEVATIONS BASED ON NAVD88
ESTABLISHED BY SURVEY GRADE GPS & OPUS POST-PROCESSING

PROJECT CONTACTS

ANTERO RESOURCES
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304-842-4716

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304-859-4209

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WETLAND DELINEATOR
ALLStar Ecology
1582 Meadowdale Road,
Fairmont, WV 26554
304-816-3490

DRAWING INDEX

FINAL

ANTHONY BAUMGARD, P.E. NO. WV 14049

STREAMS

(LINEAR FEET)

STREAM	LOCATION	STREAM CLASSIFICATION	LENGTH OF PERMANENT IMPACT (FT)	LENGTH OF TEMPORARY IMPACT (FT)	TOTAL LENGTH OF IMPACT (FT)
STREAM 1	STA 35+31	INT	0	0	0
STREAM 2	STA 33+07	INT/EPH	0	10	10
STREAM 3	STA 33+19	EPH	3	11	14
STREAM 4	STA 31+50	INT/EPH	0	0	0
STREAM 5	STA 31+30	EPH	0	0	0
STREAM 6	STA 31+27	INT/EPH	24	10	34
STREAM 7	STA 30+06	EPH	0	0	0
STREAM 8	STA 28+92	EPH	0	15	15
STREAM 9	STA 29+19	EPH	12	6	18
STREAM 10	STA 23+64	INT	22	10	32
STREAM 11	STA 23+14	EPH	0	0	0
STREAM 12	STA 23+15	INT	11	9	20
STREAM 13	STA 21+08	INT	0	14	14
STREAM 14	STA 8+57	EPH	0	0	0
STREAM 15	STA 8+85	EPH	0	0	0
STREAM 16	STA 8+26 TO 7+87	PER	94	50	144
STREAM 17	STA 0+94	PER	0	85	85
STREAM 18	STA 0+87	EPH	0	0	0
STREAM 19	STA 0+87	PER	0	0	0
JUR 1	STA 29+20 TO 33+19	JUR	440	0	440
JUR 2	STA 23+43 TO 23+70	JUR	28	0	28

EPH = EPHEMERAL
INT = INTERMITTENT
PER = PERENNIAL
JUR = JURISDICTIONAL

WETLANDS

(SQUARE FEET)

WETLAND	LOCATION	COWARDIN CLASSIFICATION	AREA WITHIN AREA OF INTEREST (AOI) (SQFT)	AREA IN ACRES	AREA WITHIN LIMITS OF DISTURBANCE (LOD)(SQFT)
WETLAND #1	STA 23+50 TO 23+86	PEM	420	0.01	0
WETLAND #2	STA 8+6 TO 8+68	PEM	66	0.001	5

NEW ROAD TOTAL AREA (INCLUDES PROP. BRDGE AND WIDENING)	0.532 Ac
EXISTING ROAD AREA (INCLUDES EXISTING TRAVEL CR 11/1)	1.150 Ac
UPGRADE ROAD DISTURBANCE (INCLUDES TEMP. BRIDGE)	2.812 Ac
STAGING AREA DISTURBANCE	0 Ac
ACCESS ROAD OF BORROWED AREA	0.734 Ac
BORROW AREA	6.302 Ac
TREE CLEARING AREA	2.33 Ac
TOTAL DISTURBANCE	5.152 Ac

FLOODPLAIN CONDITIONS

DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN	YES
PERMIT NEEDED FOR FLOODPLAIN COORDINATOR	YES
HEC-RAS STUDY COMPLETED	N/A
DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN	YES
FIRM MAP NUMBER(S) FOR SITE	54017C105C
ACREAGE OF CONSTRUCTION IN FLOODPLAIN	0.41 AC.

SITE LOCATIONS (NAD83)

BEGIN ROAD IMPROVEMENT	N 303115.16	E 1591205.98
END ROAD IMPROVEMENT	N 300606.28	E 1590062.98
BEGIN ACCESS ROAD	N 300842.11	E 1590211.09
	LATITUDE	LONGITUDE
BEGIN ROAD	39.3245°	-80.8338°
BEGIN ACCESS ROAD	39.3182°	-80.8372°

MISS Utility of West Virginia
1-800-245-4848
West Virginia State Law
(Section XXV, Chapter 24-C)
Requires that you call two business days before you dig in the state of West Virginia
IT'S THE LAW!!!

811 Know what's below. Call before you dig.

REVISION

DATE	
8-17-2017	ENVIRONMENTAL CHANGES PER ALLSTAR ECOLOGY
10-11-2017	ENVIRONMENTAL CHANGES PER ALLSTAR ECOLOGY
03-23-2018	ENVIRONMENTAL CHANGES PER ALLSTAR ECOLOGY/WVDEP
05-23-2018	REVISED QUANTITIES AND SOME DETAILS

COVER SHEET

COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 1 OF 33
DWG:

ANTERO RESOURCES
RAMSEY'S RIDGE ROAD UPGRADE
SCHEDULE OF QUANTITIES

			RAMSEY'S RIDGE ROAD UPGRADE			
	RUC000	CLEARING & GRUBBING; EROSION & SEDIMENT CONTROLS				
			QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
IDC060	RUC010	MOBILIZATION	1.0	LS		$0.00
IDC060	RUC012	CONSTRUCTION ENTRANCE (INCLUDES AGGREGATE - AASHTO NO. 4)	1.00	EA		$0.00
IDC060	RUC014	TRAFFIC CONTROL - (TEMPORARY SIGNAGE)	1.0	LS		$0.00
IDC060	RUC015	CLEARING AND GRUBBING (INCLUDES CLEARING LIMITS)	1.00	LS		$0.00
IDC060	RUC016	CONSTRUCTION LAYOUT	1.0	LS		$0.00
IDC060	RUC018	MAINTAINING TRAFFIC (INCLUDES FLAGGERS AND PILOT VEHICLES)	1.0	LS		$0.00
IDC060	RUC082	REMOVE/REPLACE MAILBOX	1.0	EA		$0.00
IDC060	RUC034	8" COMPOST FILTER SOCK (ENGINEERED ONLY, 1925 LF OF 404 INSTALLED BY OTHERS)	3,640.0	LF		$0.00
IDC060	RUC020	12" COMPOST FILTER SOCK (ENGINEERED ONLY, FOR BORROW AREA)	750.0	LF		$0.00
IDC060	RUC038	E&S MAINTENANCE (INCLUDES ENGINEERED AND 404 CONTROLS)	1.0	LS		$0.00
IDC060	RUC037	E&S REMOVAL (INCLUDES ENGINEERED AND 404 CONTROLS)	6,315.0	LF		$0.00
		TOTAL				$0.00
	RUC100	RETAINING & BRIDGE STRUCTURES				
			QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
IDC060	RUC110	CONCRETE BIN BLOCKS	178.0	EA		$0.00
IDC060	RUC130	BRIDGE (TEMPORARY ADM BRIDGE - 80 FEET)	1.0	LS		$0.00
IDC060	RUC140	BRIDGE ABUTMENTS (FOUR (4) EA. 4 FT. X 10 FT. TIMBER MATS)	4.0	EA		$0.00
IDC060	RUC140	**AGGREGATE BACKFILL (BEHIND BIN BLOCKS, NO. 57 AGGEGATE)	375.0	TN		$0.00
IDC060	RUC140	**BEARING PLATES (INCLUDES ANCHORS)	2.0	EA		$0.00
		TOTAL				$0.00
	RUC200	SITE - UNCLASSIFIED EXCAVATION				
			QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
IDC060	RUC207	EXCAVATION FOR ROAD SHAPING	3,000.0	CY		$0.00
IDC060	RUC213	BORROW SITE	5,000.0	CY		$0.00
IDC060	RUC220	TOPSOIL STOCKPILES	750.0	CY		$0.00
IDC060	RUC222	LINEAR GRADING	865.0	LF		$0.00
IDC060	RUC208	UNDERCUT EXCAVATION (BASE FAILURES)	100.0	CY		$0.00
IDC060	RUC212	EMBANKMENT FOR ROAD SHAPING AND BRIDGE	3,080.0	CY		$0.00
		TOTAL				$0.00
	RUC400	AGGREGATE SURFACING - SPREADING, COMPACTION, and/or INSTALLATION				
			QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
IDC060	RUC409	MAINTENANCE AGGREGATE (WVDOH 307, CLASS 1 CRUSHER)	10.0	TN		$0.00
IDC060	RUC409	ROAD AGGREGATE (WVDOH 307, OVER NEW EMBANKMENT FOR TEMPORARY BRIDGE, CLASS 1 CRUSHER)	317.0	TN		$0.00
IDC060	RUC410	BASE FAILURE REPAIR (INCLUDE 3" STONE BACKFILL, CLASS 9)	180.0	TN		$0.00
IDC060	RUC410	AGGREGATE BASE (WVDOH 307, OVER NEW EMBANKMENT FOR TEMPORARY BRIDGE, CLASS 9)	434.0	TN		$0.00
IDC060	RUC412	AGGREGATE CRUSHER RUN (WVDOH 307, CLASS 1)	10.0	TN		$0.00
IDC060	RUC413	SHOULDER STONE, CLASS 1 CRUSHER, @1.8 TON/CY	243.0	TN		$0.00
IDC060	RUC415	FDR(12" MIN.) 8% RATIO @ 94 PSY	8,901.0	SY		$0.00
IDC060	RUC495	HMA (3 INCH WEARING, SUPERPAVE -WEARING IV) @1.5 TON/CY	924.0	TN		$0.00
IDC060	RUC496	TACK COAT (0.05 GAL/SY)	375.0	GAL		$0.00
IDC060	RUC450	DUST CONTROL - WATER	1.0	MGAL		$0.00
		TOTAL				$0.00
	RUC500	ROAD CULVERTS - DITCH LINE - GUARDRAIL				
			QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
IDC060	RUC515	18"STORM DRAINAGE PIPE (HDPE)	299.0	LF		$0.00
IDC060	RUC515	18"STORM DRAINAGE PIPE (HDPE) TEMPORARY CULVERT FOR BORROW AREA	30.0	LF		$0.00
IDC060	RUC525	30" STORM DRAINAGE PIPE (HDPE)	90.0	LF		$0.00
IDC060	RUC548	REMOVE EXISTING PIPE	35.0	LF		$0.00
IDC060	RUC549	CLEANOUT EXISTING INLET	1.0	EA		$0.00
IDC060	RUC550	RIP RAP (INLETS/OUTLETS) (D_{50} STONE = 6)	16.0	TN		$0.00
IDC060	RUC555	DITCH CHECKS (AASHTO #1 STONE)	1.0	TN		$0.00
IDC060	RUC555	DITCH CHECKS (AASHTO #1 STONE) FOR BORROW SITE	21.0	TN		$0.00
IDC060	RUC562	DITCH LINING - (ACCESS ROAD) SYNTHETIC MATTING (TRM)	33.0	SY		$0.00
		TOTAL				$0.00
	RUC600	SEEDING				
			QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
IDC060	RUC610	SITE SEEDING (HYDRO SEEDING -WITH HAY MULCH w/TACK) ANTERO SPEC	4.00	AC		$0.00
IDC060	RUC625	TEMPORARY SEEDING	4.00	AC		$0.00
		TOTAL				$0.00
	RUC800	EXISTING UTILITIES RELOCATION				
			QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
IDC060	RUC871	INSTALL TEMP WOOD TIMBER MATS FOR AIR BRIDGE	2.0	EA		$0.00
		TOTAL				$0.00
		UNFORESEEN SITE CONDITIONS				
			QUANTITY	UNIT	UNIT PRICE	FINAL PRICE
		TOTAL				#REF!

GRAND TOTAL $0.00

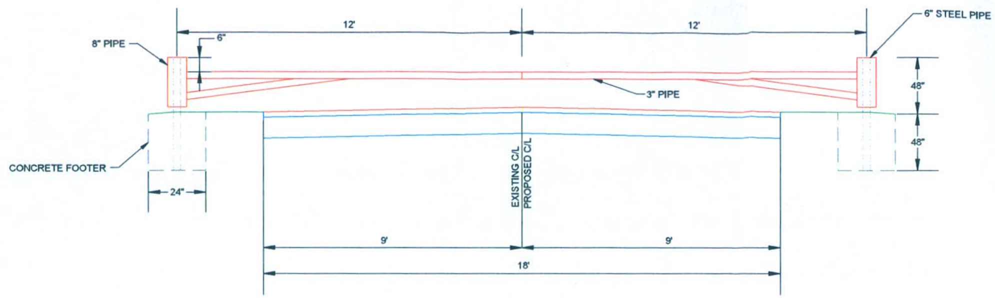
**ANTERO RESOURCES WILL PROVIDE THE FOLLOWING:

- TX 190 GEOGRID OR EQUIVALENT
- GEOTEXTILE FABRIC (US 200) OR EQUIVALENT
- ALL GAS LINE UTILITY RELOCATION MATERIALS (HDPE PIPE, FITTINGS, VALVES, TEST STANDS, WIRE, MARKERS, WARNING TAPE)
- ALL STEEL CASING PIPE
- ALL HDPE CULVERT PIPE
- ALL PVC CONNECTIVE PIPE
- ALL SSF, SF, WATTLES
- ALL SEDIMENT CAGES
- ALL FRAC TANKS & POTABLE WATER FOR SEEDING/COMPACTION/DUST CONTROL

**ITEMS NOT PROVIDE BY ANTERO

- CONCRETE TRENCH DRAIN (CONTRACTOR PROVIDE PURCHASE/DELIVERY/INSTALLATION)
- DROP INLET
- ALL AGGREGATE

5/31/2018 1 of 1



TYPICAL GATE DETAIL

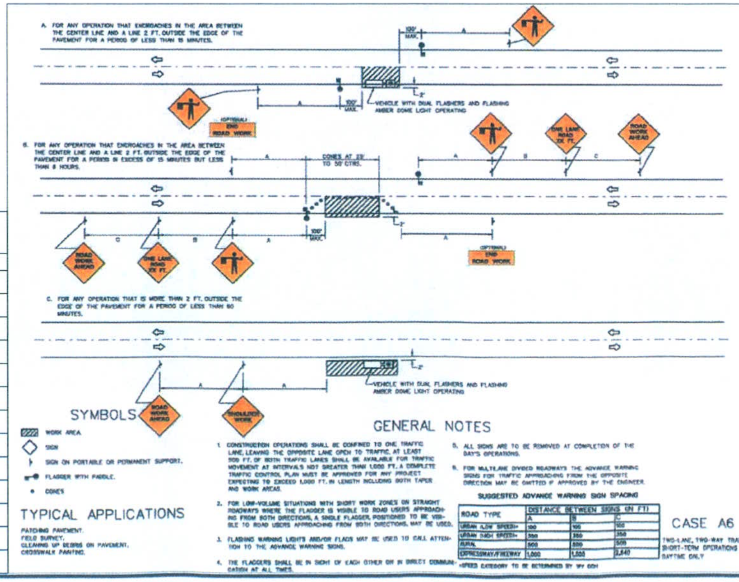
N.T.S.

RAMSEY RIDGE
COUNTY ROAD 11/1
SUMMARY OF ESTIMATED QUANTITIES
ANTERO RESOURCES CORPORATION

CUT/FLL CHART				
AREA	CUT	WASTE	FILL	BORROW
ROAD	3000	3000	3080	5000
BORROW	5000	N/A	N/A	N/A

PARCEL LISTING

TM/PCL	OWNER	DB/PG
4/6	LONNIE C JAMES	181/5
4/7	CARLIE & KAREN M JAMES	197/358
4/7.1	CARLIE JAMES	0188/090
4/11.1	MICHAEL SHEPHERD	232/152
4/11.2	BRIAN MICHAEL JAMES	AB 41/347



REVISION | DATE

THIS PLAN PREPARED FOR ANTERO RESOURCES APPALACHIAN GROUP

SCHEDULE OF QUANTITIES

COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 2 OF 33

DWG:

CONSTRUCTION SPECIFICATIONS

1. WORK ON THIS PROJECT SHALL CONFORM TO THE LATEST EDITION OF THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS (2017) AND THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, WATER AND WASTE E&S CONTROL BMP MANUAL (2006). IN THE EVENT OF CONFLICT BETWEEN THE DESIGN, SPECIFICATIONS OR PLANS, THE MOST STRINGENT WILL GOVERN.

2. THE CONSTRUCTION DOCUMENTS SHOW THE EXISTING AND NEW UPGRADES, ETC. THAT ALL CUT AND FILL ESTIMATES ARE BASED UPON,THE ENGINEERS ESTIMATES OF THE QUANTITIES ARE ONLY ESTIMATES AND MAY CHANGE BASED ON ACTUAL FIELD CONDITIONS.

3. THE GRADES, BERMS, DEPTHS, AND DIMENSIONS MAY CHANGE BASED ON ACTUAL FIELD CONDITIONS. THE ENGINEER RESERVES THE RIGHT TO CHANGE GRADES, DEPTHS, AND DIMENSIONS AS NECESSARY TO MEET FIELD CONDITIONS.

4. THE CONTRACTOR SHALL PROVIDE THE ENGINEER ALL REASONABLE FACILITIES AND PROVIDE INFORMATION AND SAMPLES AS REQUIRED BY THE ENGINEER FOR PROPER MONITORING AND TESTING OF MATERIAL WORKMANSHIP.

5. THE CONTRACTOR SHALL HAVE ON SITE AT ALL TIMES WHEN CONSTRUCTION IS IN PROGRESS, A COMPETENT SUPERINTENDENT THOROUGHLY FAMILIAR WITH THE CONSTRUCTION OF ROADS, EMBANKMENTS AND THE COMPACTION OF SOILS AND STONE.

6. CLEARING AND GRUBBING SHALL REMOVE ALL BRUSH, TRESS, ROOTS, STUMPS, FENCES, SIGNS OR ANY OTHER MATERIALS THAT IS NOT TO BE REUSED FOR THE CONSTRUCTION. SOME STUMPS MAY REMAIN AT THE APPROVAL OF THE ENGINEER. NO CLEANING DEBRIS SHALL BE BURIED ON-SITE.

7. TOP SOIL SHALL BE STRIPPED AND STOCKPILE WITH APPROPRIATE STABILIZATION AND SILT FENCE TO PREVENT EROSION. THE TOP SOIL SHALL BE REUSED DURING THE RECLAMATION PROCESS.

8. PRIOR TO PLACING ANY FILL ON UNPAVED ROAD SURFACES, ROAD SURFACE SHALL BE SACRIFICED TO A MINIMUM DEPTH OF 12 INCHES. THE SCARIFIED MATERIAL SHALL BE GRADED TO A MINIMUM 2% CROWN AND COMPACTED WITH STEEL DRUM ROLLER. PLACE GEO-TEXTILE STABILIZATION FABRIC OVER COMPACTED SUBGRADE AND PLACE COMPACTED LIFTS OF CITED GRADATIONS OF LIMESTONE. GEOGRID MAY BE SUBSTITUTED FOR GEOTEXTILE FABRIC. LIFTS SHALL BE A MINIMUM OF 12 INCHES OF AASHTO NO. 1 LIMESTONE (3 INCH) WITH 3 INCHES OF 1.5 INCHES OF CRUSHER RUN OR WASHED LIMESTONE. IN AREAS WHERE NO FILL IS SHOWN, 11 INCHES MINIMUM OF ROAD SURFACE SHALL BE SCARIFIED AND REMOVED. SUCH AREAS SHALL BE BACKFILLED AND COMPACTED WITH THE 8 INCHES OF AASHTO NO.1 (3 INCH LIMESTONE) AND 3 INCHES OF CLASS 1 (1.5 INCH CRUSHER RUN OR WASHED LIMESTONE) ALL ON GEOTEXTILE FABRIC OR GEOGRID. ALL REMOVED MATERIAL SHALL BE STOCKPILED FOR USE ON THE JOB OR PROPERLY DISPOSED OF OFF SITE.

9. ALL FILL SHALL BE UNIFORMLY GRADED, SOIL FREE FROM AGGREGATE EXCEEDING 6". THE FILL SHALL BE FREE OF ALL ORGANIC MATERIAL, STUMPS, BRUSH, OR OTHER DELETERIOUS MATTER.

10. ALL FILL SHALL BE PLACED IN LIFTS AT A MAXIMUM UNCOMPACTED DEPTH OF 12" OR 8" MAXIMUM OF COMPACTED LIFTS AND SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST METHOD (ASTM D-698).THE MOISTURE CONTENT SHALL BE CONTROLLED TO FACILITATE COMPACTION. IN-PLACE DENSITY TESTS SHALL BE PERFORMED ON EACH LIFT OF SOIL. RECORDS OF FIELD DENSITY TESTS SHALL BE MAINTAINED OF TEST LOCATION WITH RESULTS AND COPIES KEPT ON SITE BY THE CONTRACTOR AND PROVIDED DAILY TO THE ENGINEER BY THE COMPACTION TECHNICIAN. AREAS THAT FAIL COMPACTION TESTING SHALL BE REMOVED AND/OR RECOMPACTED AND RETESTED FOR COMPLIANCE. COMPACTION OF SOIL SHALL BE ACHIEVED BY USE OF A SHEEPSFOOT OR TAMPING FOOT ROLLER.

11. ON SITE MATERIAL SHALL BE USED TO THE MAXIMUM EXTENT POSSIBLE. ANY IMPORTED FILL SHALL BE CERTIFIED BY THE CONTRACTOR TO BE CLEAR OF ALL HAZARDOUS SUBSTANCES OR MATERIALS. IF MATERIAL IS ENCOUNTERED THAT CANNOT BE RIPPED BY A CAT D-6 WITH A SINGLE TOOTH RIPPER, THEN THE CONTRACTOR SHALL CONTACT THE ENGINEER WHO WILL VISIT THE SITE AND DETERMINE IF THE MATERIAL MAY BE USED AS IS OR MUST BE REMOVED BY OTHER MEANS. IF UNSUITABLE SOILS IN THE SUBGRADE ARE FOUND THEY SHALL BE REMOVED AND REPLACED WITH THE APPROPRIATE FILL AT THE ENGINEER'S DIRECTION.

12. IF SPRINGS OR SEEPS ARE ENCOUNTERED, SUBSURFACE DRAINAGE FEATURES SHALL BE INSTALLED PRIOR TO FILL PLACEMENT. CONTACT ENGINEER FOR ELEVATION AND RECOMMENDATION OF CORRECTIVE MEASURES.

13. ANY SOFT AREAS SHALL BE OVER-EXCAVATED TO A FIRM MATERIAL AND BACKFILLED WITH AASHTO NO. 1(3") STONE.

14. FILL REQUIRED TO OBTAIN DESIGN GRADES SHALL BE PLACED AS CONTROLLED, COMPACTED FILL. THE FILL SHALL BE FREE OF TRASH, WOOD, TOPSOIL, ORGANICS, COAL, COAL MINE REFUSE, FROZEN MATERIAL, AND PIECES OF ROCK GREATER THAN 6" IN ANY DIMENSION.

15. DURING PLACEMENT OF MATERIAL, FILL SHOULD NOT BE PLACED ON SURFACES THAT ARE MUDDY OR FROZEN, OR HAVE NOT BEEN APPROVED PRIOR PROOF-ROLLING. FREE WATER SHALL BE PREVENTED FROM APPEARING ON THE SURFACE DURING OR SUBSEQUENT TO COMPACTION OPERATIONS.

16. SOIL MATERIAL WHICH IS REMOVED BECAUSE IT IS TOO WET TO PERMIT PROPER COMPACTION MAY BE SPREAD AND ALLOWED TO DRY. DRYING CAN BE FACILITATED BY DISCING, HARROWING OR BLENDING UNTIL THE MOISTURE CONTENT IS REDUCED TO AN ACCEPTABLE LEVEL. WHEN THE SOIL IS TOO DRY, WATER MAY BE UNIFORMLY APPLIED TO THE LAYER TO BE COMPACTED.

17. THE FILL OUTSLOPES SHALL BE OVERBUILT AND TRIMMED BACK TO DESIGN CONFIGURATIONS TO VERIFY PROPER COMPACTION.

18. GRANULAR MATERIALS, SUCH AS AASHTO NO. 57 STONE SHALL BE COMPACTED TO 95% OF ITS RELATIVE DENSITY, AS DETERMINED BY ASTM D-4253 AND D-4254 TEST METHODS.

19. PHOTOGRAPHIC DOCUMENTATION SHALL BE TAKEN BY THE CONTRACTOR AND PROVIDED TO THE ENGINEER OF THE FOLLOWING ACTIVITIES: 1. SITE AFTER CLEARING AND GRUBBING. 2. DAILY PHOTOS OF CUT AND FILL OPERATIONS.

20. ALL WOOD WASTE SHALL BE CHIPPED, LEGALLY HAULED OFF OR LEGALLY BURNED ON SITE.

21. SUPER SILT FENCE MAY BE SUBSTITUTED FOR SILT SOCKS LARGER THAN 24" IN DIAMETER.

GENERAL NOTES

1. ANY DISCREPANCIES FOUND BETWEEN THE DRAWINGS AND SPECIFICATIONS AND SITE CONDITIONS OR ANY INCONSISTENCIES OR AMBIGUITIES IN DRAWINGS OR SPECIFICATIONS SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER, IN WRITING, WHO SHALL PROMPTLY ADDRESS SUCH PROBLEMS. WORK DONE BY THE CONTRACTOR AFTER THE DISCOVERY OF SUCH DISCREPANCIES, INCONSISTENCIES, OR AMBIGUITIES SHALL BE DONE AT THE CONTRACTORS RISK.

2. WORK ON THIS PROJECT SHALL CONFORM TO THE LATEST EDITIONS OF THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION WATER AND WASTE E&S CONTROL BMP MANUAL (2006). IN THE EVENT OF CONFLICT BETWEEN THE DESIGN, SPECIFICATIONS, OR PLANS, THE MOST STRINGENT WILL GOVERN.

3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED DAILY, RELOCATED WHEN NECESSARY AND SHALL BE CHECKED AFTER EVERY RAINFALL. SEEDED AREAS SHALL BE CHECKED REGULARLY AND SHALL BE WATERED, FERTILIZED, RESEEDED AND MULCHED AS NECESSARY TO OBTAIN A DENSE STAND OF GRASS.

4. THE DRAIN INLETS SHALL BE PROTECTED FROM SILTATION. INEFFECTIVE PROTECTION DEVICES SHALL BE REPLACED AND THE INLET CLEANED. FLUSHING IS NOT AN ACCEPTABLE MEANS OF CLEANING.

5. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL PUBLIC OR PRIVATE UTILITIES WHICH LIE IN OR ADJACENT TO THE CONSTRUCTION SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR, AT HIS OR HER EXPENSE, OF ALL EXISTING UTILITIES DAMAGED DURING CONSTRUCTION. FORTY-EIGHT HOURS PRIOR TO ANY EXCAVATION THE CONTRACTOR SHALL CALL MISS UTILITY AT (800)245-4848.

6. INSTALLATION OF CONCRETE, CORRUGATED METAL, STEEL CASING PIPE OR HDPE PIPE SHALL BE IN CONFORMANCE WITH THE PLANS AND SPECIFICATIONS.

7. ALL MATERIAL S USED FOR FILL OR BACK FILL SHALL BE FREE OF WOOD, ROOTS, ROCKS, BOULDERS, OR ANY OTHER NON-COMPACTABLE SOIL TYPE MATERIALS. UNSATISFACTORY MATERIALS ALSO INCLUDE MAN MADE FILLS AND REFUSE DEBRIS DERIVED FROM ANY SOURCE.

8. MATERIALS USED TO FILL AROUND DRAINAGE STRUCTURE, IN UTILITY TRENCHES OR ANY OTHER DEPRESSION REQUIRING FILL OR BACK FILL SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST AS SET FORTH IN ASTM STANDARD D-698. FLOWABLE FILL/LEAN CONCRETE SHALL BE USED ON ROAD CROSSING AROUND CULVERTS AS SHOWN IN DETAILS.

9. FILL SHALL BE PLACED IN LIFTS AT A MAXIMUM UNCOMPACTED DEPTH OF 12 INCHES OR 8 INCHES MAXIMUM COMPACTED LIFTS WITH SOIL FREE AGGREGATES EXCEEDING 6". AFTER COMPACTION, EACH LIFT MUST PASS A 95% COMPACTION BASED ON TEST RESULTS FROM A STANDARD PROCTOR DENSITY TEST OF THE ACTUAL SOILS USED IN SPECIFIC ENGINEERED FILL SITES. EACH LIFT SHALL BE TESTED FOR COMPACTION, WITH A MINIMUM OF TWO TESTS PER LIFT PER ACRE OF FILL. ALL TEST RESULTS SHALL BE MAINTAINED ON SITE AND AVAILABLE FOR REVIEW.

10. ALL TEST RESULTS SHALL BE SUBMITTED DAILY TO THE ENGINEER BY THE COMPACTION TECHNICIAN. FAILURE TO CONDUCT DENSITY TESTS SHALL BE CAUSE FOR NON -ACCEPTANCE OF THE FACILITY.

11. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION.

12. CONTRACTOR SHALL SUBMIT AND ADHERE TO A GENERAL GROUNDWATER PROTECTION PLAN.

EROSION CONTROL NOTES

1. THE CONTRACTOR SHALL ARRANGE FOR A PRE-CONSTRUCTION CONFERENCE WITH THE APPROPRIATE EROSION AND SEDIMENT CONTROL INSPECTOR 48 HOURS PRIOR TO BEGINNING WORK.

2. ALL EROSION CONTROL DEVICES AS SHOWN OR AS REQUIRED, ARE TO BE CONSTRUCTED TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE WEST VIRGINIA AND WATER E&S CONTROL BMP MANUAL (2006) AND ARE TO BE PLACED PRIOR TO ALL CONSTRUCTION.

3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED CONTINUOUSLY, RELOCATED WHEN AND AS NECESSARY AND SHALL BE CHECKED AFTER EVERY RAINFALL. SEEDED AREA SHALL BE CHECKED REGULARLY AND SHALL BE WATERED, FERTILIZED, RESEEDED AND MULCHED AS NECESSARY TO OBTAIN AND MAINTAIN A DENSE STAND OF GRASS.

4. ALL DISTURBED AREA NOT PAVED OR BUILT UPON ARE TO BE FERTILIZED AND HYDRO-SEEDED WITH STRAW AND COTTON PRODUCT WITH TACK AGENTS BY THE CONTRACTOR IN ACCORDANCE WITH THE CURRENT WEST VIRGINIA WATER AND WASTE E&S CONTROL BMP MANUAL (2006).

5. ALL DRAIN AND CULVERT INLETS SHALL BE PROTECTED FROM SILTATION. INEFFECTIVE PROTECTION DEVICES SHALL BE IMMEDIATELY REPLACED AND THE INLET CLEANED. FLUSHING IS NOT AN ACCEPTABLE METHOD OF CLEANING.

6. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREA WITHIN FOUR DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN FOUR DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE LEFT DORMANT FOR MORE THAN 21 MONTHS.

7. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES SHALL BE STABILIZED AND PROTECTED WITH SEDIMENT TRAPPING MEASURES.

8. SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND DISTURBING ACTIVITY AND SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCES TAKES PLACE.

9. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS WATER CONTAINMENT PADS IMMEDIATELY AFTER INSTALLATION.

10. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.

11. ALL DISTURBED AREAS NOT PAVED OR BUILT UPON SHALL BE HYDRO-SEEDED AND FERTILIZED. PERFORM PERMANENT TOP SOILING, SEEDING AND FERTILIZING AS SOON AFTER FINISH GRADING AS POSSIBLE. SEEDING SHALL COMPLY WITH THE FOLLOWING.

A. TOPSOIL-4 INCH MINIMUM FOR PERMANENT TURF. TOPSOIL SHALL NOT BE REQUIRED ON CUT SLOPES STEEPER THAN 1:1.

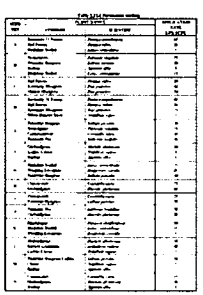
B. FERTILIZER- 500 POUNDS PER ACRES OF 12-20-20 FERTILIZER OR EQUIVALENT POUNDAGE OF DIFFERENT ANALYSIS. WORK INTO SOIL PRIOR TO SEEDING.

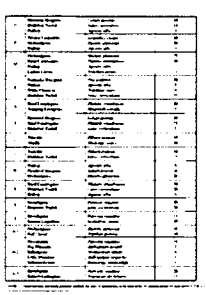
C. LIME (PERMANENT SEEDING) - AGRICULTURAL LIME SPREAD AT RATE OF 4 TONS/ACRE. WORK INTO SOIL PRIOR TO SEEDING.

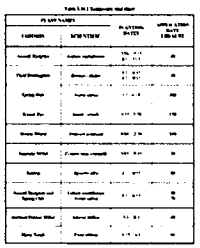
D. MULCH-WOOD FIBER OR CHOPPED STRAW AT RATE OF 2 TONES PER ACRE. HYDRO-MULCH RATE OF 33 BALES PER ACRE.

E. SEED-45 LBS PER ACRE TALL FESCUE AND 20 LBS PER ACRE PERENNIAL RYE GRASS. TO BE SEEDED BY HYDRO-SEEDER.

THE ABOVE NOTES ARE A MINIMUM TO ADDRESS CONTROL OF EROSION AND SEDIMENTATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL ADDITIONAL CONTROL MEASURES IN ACCORDANCE WITH BMP'S AS NECESSARY TO STABILIZE CONSTRUCTION AREA AND ELIMINATE ALL SEDIMENT FROM LEAVING OR BEING DISCHARGED OFF SITE.







EROSION AND SEDIMENT CONTROL NARRATIVE

1. PROJECT DESCRIPTION: THE PURPOSE OF THIS PROJECT IS TO RECONSTRUCT APPROXIMATELY 3,500 LF OF THE EXISTING RAMSEY RIDGE ROAD AND 200 LF OF TEMPORARY ROAD WITH A TEMPORARY BRIDGE. THE RECONSTRUCTION SHALL CONSISTS OF THE CLEANING, REPAIR, OR REPLACEMENT OF EXISTING ROAD AND DRIVEWAY CULVERTS. THE CLEANING AND GRADING OF EXISTING DITCH LINES. THE WIDENING AND IMPROVEMENT OF THE ROAD, ITS VERTICAL AND HORIZONTAL ALIGNMENT, AS WELL AS THE ROAD SIDE SLOPES, FOR THE PURPOSE OF PROVIDING IMPROVED AND SAFER ACCESS TO PLANNED WELL SITES.

2. EXISTING SITE CONDITIONS: THE EXISTING SITE IS UPLAND HARDWOODS WITH MODERATE TO STEEP TOPOGRAPHY WITH 5% TO 50% SLOPES. NO EROSION IS NOTICED ON SITE, OR ANY NATURAL DRAINAGE WAYS.

3. ADJACENT PROPERTY: THE SITE IS BORDERED BY UPLAND HARDWOODS, RESIDENCES AND FIELDS.

4. SOILS: NO SOIL STUDY AND WAS PERFORMED FOR THIS PROJECT.

5. OFF SITE AREAS: THERE SHALL BE NO BORROW AREA OUTSIDE OF THE PROPOSED GRADING AND CONSTRUCTION AREA.

6. CRITICAL EROSION AREAS-CONTROL MAINTENANCE: ALL 3:1 SLOPES AND STEEPER, DITCHES AND OTHER CONTROLS SHALL BE CONSIDERED CRITICAL EROSION AREAS. THESE AREAS SHALL BE MONITORED AND MAINTAINED DAILY DURING CONSTRUCTION AND AFTER EACH RAIN FALL OF 0.5 INCHES OR GREATER. THE LOCAL GOVERNING AUTHORITY WILL HAVE THE AUTHORITY TO RECOMMEND THE PLACEMENT OF ADDITIONAL EROSION CONTROL MEASURES IN THESE AREAS IF IT BECOMES EVIDENT DURING CONSTRUCTION THAT THE ONES IN PLACE ARE NOT FUNCTIONING SUFFICIENTLY.

7. EROSION AND SEDIMENT CONTROL MEASURES: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE CURRENT WEST VIRGINIA WATER AND WASTE E&S CONTROL BMP MANUAL (2006). THE CONTRACTOR SHALL OBTAIN A COPY OF THIS MANUAL FROM WVDEP WEBSITE AND CONSTRUCT ALL DEVICES BASED ON THIS MANUAL OR A HANDBOOK THAT IS COMPARABLE OR EXCEEDS THE SPECIFICATIONS OF THE WEST VIRGINIA MANUAL. THE MINIMUM STANDARDS OF THIS MANUAL SHALL BE ADHERED TO UNLESS OTHERWISE WAIVED OR APPROVED BY A VARIANCE. SEE PLANS FOR ALL PROPOSED EROSION AND SEDIMENT CONTROL MEASURES.

8. STRUCTURAL PRACTICES:

-OUTLET PROTECTION: WILL BE CONSTRUCTED AS SHOWN ON THE PLANS.

-BELTED SILT RETENTION FENCE: WILL BE CONSTRUCTED AS SHOWN ON THE PLANS.

9. VEGETATIVE PRACTICE TOPSOILING: TOPSOIL WILL BE STRIPPED FROM THE SITE AND STOCKPILED IN AN AREA AS SHOWN BY THE PLANS. UPON THE COMPLETION OF THE PROJECT TOPSOIL WILL BE PLACED ON ALL DISTURBED AREAS AT A MINIMUM DEPTH OF 4 INCHES. TEMPORARY SEEDING: ALL DENUDED AREAS LEFT DORMANT FOR MORE THAN 14 DAYS SHALL BE SEEDED WITH A FAST GERMINATING SEED. THE TIME OF YEAR WILL BE THE BASIS FOR THE SEED MIXTURE. PERMANENT SEEDING: ALL SEEDED AREAS WILL BE RESEEDED, MULCHED AND FERTILIZED AS NEEDED TO OBTAIN AN ADEQUATE STAND OF GRASS. PERMANENT SEEDING SHALL BE PLACED WITHIN SEVEN DAYS UPON ACHIEVING FINAL GRADE. WATER, MULCH, AND RESEED AS NECESSARY TO OBTAIN AN ADEQUATE STAND OF VEGETATION, IN THE OPINION OF THE ENGINEER.

10. MANAGEMENT STRATEGIES: CONSTRUCTION WILL BE SEQUENCED SO THAT GRADING OPERATIONS WILL BEGIN AND END AS SOON AS POSSIBLE. THE JOB SUPERINTENDENT SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES. AFTER ACHIEVING ADEQUATE STABILIZATION THE TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL BE REMOVED AND ANY AREAS DISTURBED DURING THIS PROCESS SHALL BE STABILIZED.

11. SEQUENCE OF EVENTS:

A. A PRE-CONSTRUCTION CONFERENCE WILL BE HELD ON SITE WITH CONTRACTOR TO REVIEW THE CONSTRUCTION DRAWINGS AND PROVIDE ANY REQUESTED GUIDANCE.

B. CONSTRUCT ALL PROPOSED SEDIMENT CONTROL DEVICES BEFORE CLEARING AND GRUBBING OPERATIONS. DIVERSIONS AND SEDIMENT BASINS SHALL BE SEEDED AND MULCHED IMMEDIATELY.

C. CLEAR AND GRUB, REMOVE TOPSOIL AND PLACE AT AN AREA WHERE EROSION WILL NOT TAKE PLACE. TOPSOIL STOCKPILES TO BE SEEDED AND MULCHED. SEDIMENT CONTROL SHALL BE CONSTRUCTED AROUND TOPSOIL STOCKPILES.

D. GRADING OPERATION AS REQUIRED. CUT SLOOPS SHALL BE TOPSOILED AS NEEDED. DITCH LINES SHALL BE CONSTRUCTED. ALL DITCHES WILL HAVE AT LEAST GRASS LINING PROTECTION OR GREATER.

E. CULVERT INLET AND OUTLET PROTECTION SHALL BE CONSTRUCTED IMMEDIATELY UPON PLACEMENT OF CULVERTS. INSTALLATION OF MATTING AND/OR RIPRAP TO OCCUR ONCE DITCHES ARE CONSTRUCTED.

F. WHEN FINAL GRADE IS ACHIEVED, TOPSOIL IS TO BE PLACED ON ALL DISTURBED AREAS NOT LINED. HYDROSEED ALL DISTURBED AREAS AS REQUIRED. A SOIL SAMPLE SHOULD BE TAKEN AND TESTED TO DETERMINE RECOMMENDED RATES. IF NO SOIL SAMPLES IS TAKEN, THE FOLLOWING RATES SHOULD BE APPLIED AS A MINIMUM: LIME AT A RATE OF 4 TONS PER ACRE, FERTILIZE AT A RATE OF 500 LBS OF 12-20-20 PER ACRE, SEED WITH 45 LBS PER ACRE OF TALL FESCUE AND 20 LBS PER ACRE OF PERENNIAL RYE GRASS.

G. LIME, FERTILIZER, AND SEED WILL BE APPLIED BY USING A HYDRO-SEEDER. HYDRO-MULCH PRODUCTS SHALL BE MIXED AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

H. FINAL SEEDING MUST OCCUR WITHIN 4 DAYS OF FINAL GRADING.

I. WHEN SITE IS STABILIZED, ALL EROSION AND SEDIMENT CONTROL MEASURE CAN BE REMOVED AND REPAIR/STABILIZE THOSE AREAS IN ACCORDANCE WITH STATE STANDARDS.

J. MAKE MODIFICATION FOR PERMANENT STORM WATER MANAGEMENT.

K. FINAL SITE INSPECTION.

12. PERMANENT STABILIZATION: ALL AREAS LEFT UNCOVERED BY EITHER BUILDINGS OR PAVEMENT SHALL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY FOLLOWING FINISH GRADING AND WITHIN 4 DAYS. AT NO TIME SHALL LAND LAY DORMANT LONGER THAN 14 DAYS.

13. MAINTENANCE AND OTHER CONSIDERATION AND GROUND WATER PROTECTION: ALL E&S CONTROL MEASURES WILL BE INSPECTED EVERY 7 CALENDAR DAYS FOR DISTURBED AREAS, 7 DAYS FOR STABILIZED AREAS, AND AFTER EVERY STORM EVENT OF 0.25 INCHES OR GREATER WITH A 24-HOUR PERIOD. THEY WILL BE INSPECTED FOR UNDERMINING, DETERIORATION, EROSION AND EXCESS DEPOSITED MATERIAL. ALL DEFICIENCIES WILL BE CORRECTED IMMEDIATELY. EXCESS MATERIAL WILL BE SPREAD ON THE SITE IN A MANNER WHERE IT IS NOT LIKELY TO ERODE IN THE FUTURE. CLEANING PROCEDURES WILL BE COMPLETED AT REGULAR INTERVALS AND AT LEAST WHEN SEDIMENT REACHES 33% OF CAPACITY, OR AS SHOWN ON APPLICABLE DETAILS. RECORDS OF CLEANING AND CORRECTIONS WILL BE MAINTAINED BY THE CONTRACTOR. THE :GENERIC GROUNDWATER PROTECTION PLAN FOR CONSTRUCTION SITES" WILL BE USED AND AVAILABLE ON SITES AT ALL TIMES. AN AREA WILL BE PROVIDED FOR VEHICLE AND EQUIPMENT MAINTENANCE. MOBIL FUEL TRUCKS WITH APPROVED TANKS WILL BE USED ON THE SITE. PORTABLE SANITARY FACILITIES WILL BE AVAILABLE FOR EMPLOYEES. IF CONCRETE IS USED, EXCESS CONCRETE WILL BE DISPOSED OF PROPERLY AND NOT ALLOWED TO REMAIN ON THIS SITE. MACHINERY WILL NOT BE ALLOWED IN LIVE STREAMS. FLUIDS SUCH AS FUEL, GAS, OIL OR ANTIFREEZE WILL BE KEPT IN PROPER CONTAINERS AND ANY SPILLAGE WILL BE CLEANED AND TAKEN OFF SITE TO A PROPER FACILITY. SOLID OR HAZARDOUS WASTES WILL BE DISPOSED IN ACCORDANCE WITH APPROPRIATE STATE AND FEDERAL REGULATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY MAKE CHANGES AND NOTIFY WVDEP OF ANY CHANGES TO GPP. A FINAL INSPECTION WILL BE MADE AT THE CONCLUSION OF THE PROJECT AND ALL CORRECTIONS MADE BEFORE SIGN-OFF OF THE PROJECT SITE.

Triple H enterprises

REVISIONS

DATE

Antero

GENERAL NOTES

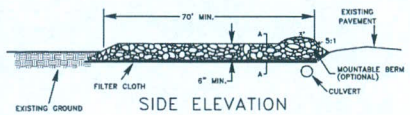
COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 3 OF 33

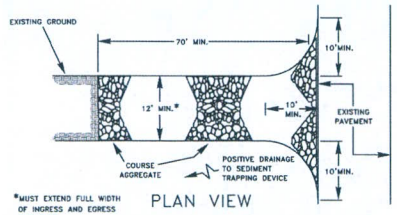
DWG:

FIGURE 3.02.1

STONE CONSTRUCTION ENTRANCE

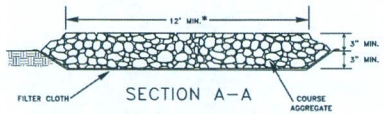


SIDE ELEVATION



*MUST EXTEND FULL WIDTH OF INGRESS AND EGRESS OPERATION

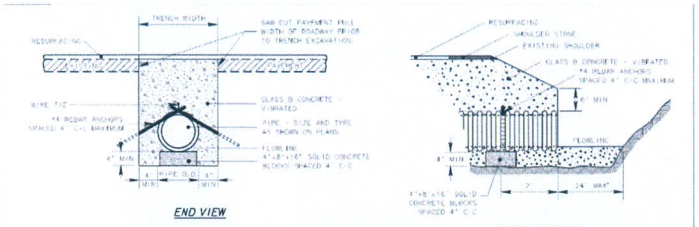
PLAN VIEW



SECTION A–A

SOURCE: ADAPTED from 1983 Maryland Standards for Soil Erosion and Sediment Control and Va. DSWC

NOTE!
THE CONSTRUCTION ENTRANCE IS LOCATED AT THE ACCESS ROAD TO THE BORROW AREA NEAR STATION 34+00

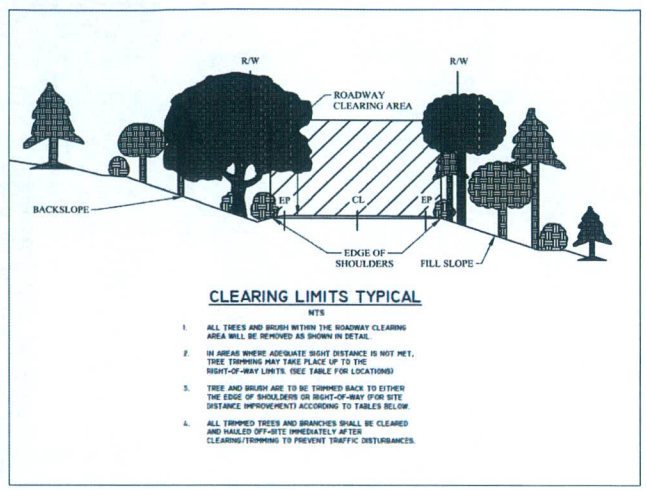


END VIEW

CROSS SECTION

NOTES:
(a) The entire length of the pipe shall be enclosed at the proper alignment and grade prior to placement of concrete backfill. Additional anchors shall be provided, as necessary, to prevent movement of pipe during placement and vibration of concrete backfill.
(b) Type F Trench shall extend longitudinally from inlet structure to outlet structure. Where an inlet structure is involved, excavate trench full length to the back of existing ditch and backfill with concrete to the flowline of pipe. Type F trench shall be filled vertically from 4.18' below the flowline of the pipe to the top of the existing pavement and shoulder.
(c) The pipe trench on the outlet end beyond the edge of the shoulder, may be backfilled with suitable random material.
(d) Concrete testing shall not be required when Type F Trench is constructed using concrete from a WVDOH approved source.
(e) All Class B Concrete backfill shall be vibrated for consolidation.
(f) All steel plates used for maintenance of traffic shall be removed within twenty four (24) hours.
(g) Existing pipe shall become the property of the Contractor and be removed from the project. OR If abandoned in place shall be completely filled with Controlled Low Strength Material, Type A.
(h) All costs associated with trench excavation, concrete blocks, rebar anchors, necessary concrete form work, concrete backfill, random material backfill, steel plates for maintenance of traffic, and existing pipe removal or abandonment shall be incidental to Item 604000 - Corrugated Polyethylene Pipe, in Type F Trench.
(i) Refer to Typical Sections for asphalt and shoulder details.

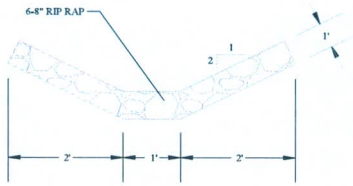
THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS	Public Roads Distr.	State Proj. No.	State Project No.	Federal Project No.	County
TYPE F PIPE TRENCH	W.V.	4			



CLEARING LIMITS TYPICAL

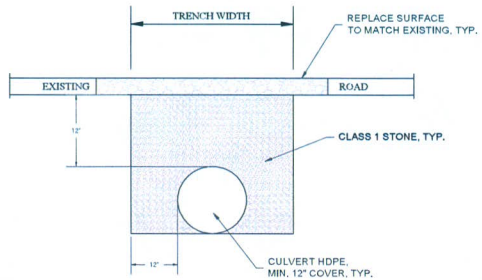
NTS

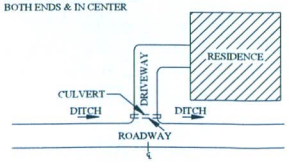
1. ALL TREES AND BRUSH WITHIN THE ROADWAY CLEARING AREA WILL BE REMOVED AS SHOWN IN DETAIL.
2. IN AREAS WHERE ADEQUATE SIGHT DISTANCE IS NOT MET, TREE TRIMMING MAY TAKE PLACE UP TO THE RIGHT-OF-WAY LIMITS. (SEE TABLE FOR LOCATIONS)
3. TREE AND BRUSH ARE TO BE TRIMMED BACK TO EITHER THE EDGE OF SHOULDERS OR RIGHT-OF-WAY (FOR SITE DISTANCE IMPROVEMENT) ACCORDING TO TABLES BELOW.
4. ALL TRIMMED TREES AND BRANCHES SHALL BE CLEARED AND HAULED OFF-SITE IMMEDIATELY AFTER CLEARING/TRIMMING TO PREVENT TRAFFIC DISTURBANCES.



CHANNEL RECONSTRUCTION SECTION

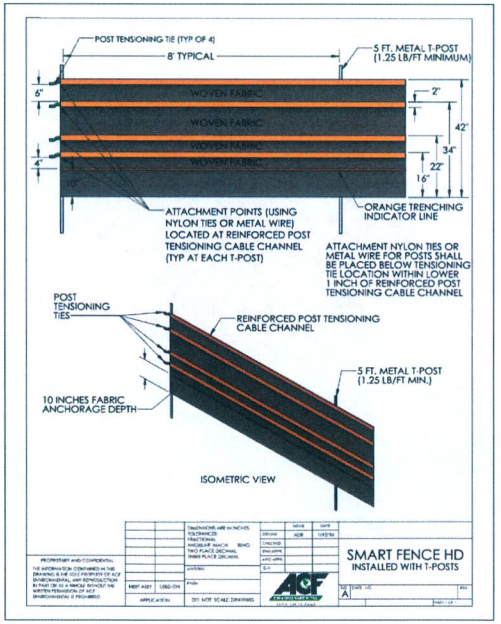
N.T.S.





DRIVEWAY REPLACEMENT CULVERT

N.T.S.



BELTED SILT RETENTION FENCE (TYP.)

N.T.S. USE SMART FENCE HD OR EQUAL

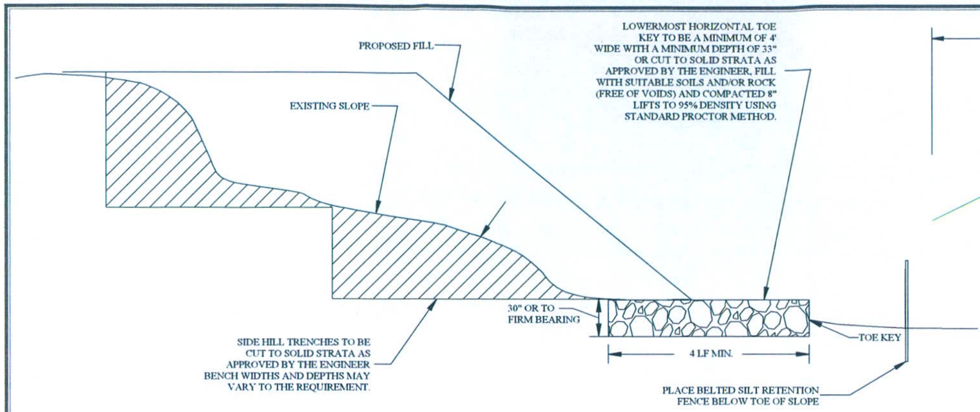
REVISION
DATE: 05-29-2018
REVISED DRIVEWAY CULVERT SECTIONS

DETAILS SHEET 1

COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

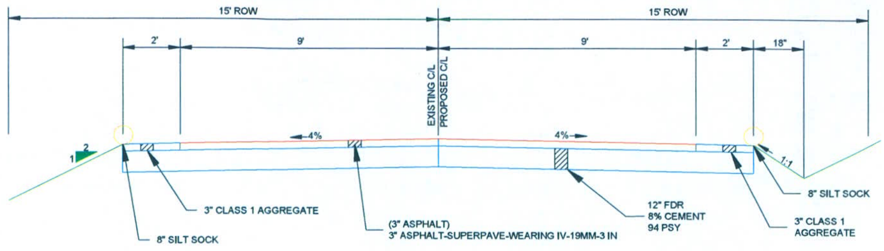
JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 4 OF 33

DWG:



ROAD FILL DETAIL (TYP.)

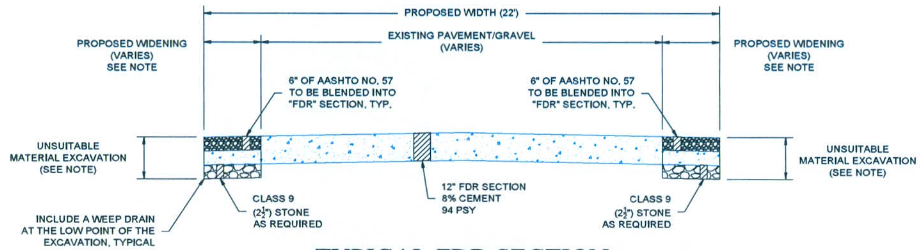
N.T.S.



TYPICAL ROAD SECTION

0+09 TO 36+96 N.T.S.

OUTLET PROTECTION CHART				
PIPE "D"	2D	3D	CY ROCK	BSF (LENGTH)
12	24"	36"	0.278	60"
15	30"	45"	0.434	75"
18	36"	54"	0.625	90"
24	48"	72"	1.111	120"
30	60"	90"	1.736	150"
36	72"	108"	2.499	180"
48	96"	144"	4.444	240"

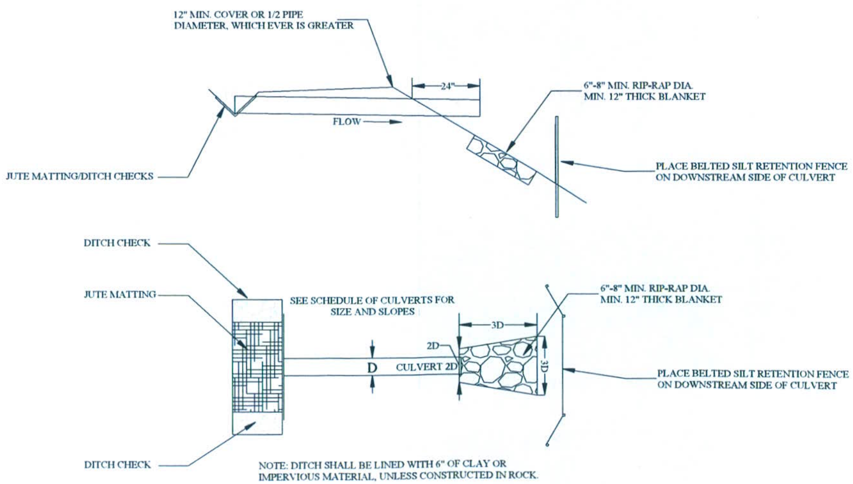


TYPICAL FDR SECTION

0+09 TO 36+50 N.T.S.

NOTE!

AREAS OUTSIDE OF THE EXISTING EDGES OF THE ROAD THAT ARE INCLUDED IN THE PROPOSED WIDENING SHALL BE PROOF-ROLLED AT EXISTING MOISTURE CONTENTS USING A FULLY0LOADED TRI-AXLE OR OFF-ROAD DUMP TRUCK TO DELINEATE UNSUITABLE MATERIAL. IF THE PROPOSED WIDENED AREA OUTSIDE OF THE EXISTING ROAD DISPLAYS ELASTICITY OR DEFORMATION DURING THE PROOF ROLL, THE DEFLECTING MATERIAL SHOULD BE OVER EXCAVATED TO THE DEPTH OF THE PROPOSED FULL DEPTH RECLAMATION (FDR) SECTION. THIS MATERIAL CAN BE BLENDED WITH AASHTO NO. 57 STONE AND USED IN THE FDR SECTION. IF DEEPER OVEREXCAVATION IS REQUIRED TO ACHIEVE SUITABLE MATERIAL, THE OVEREXCAVATED MATERIAL BELOW THE PROPOSED FDR SECTION SHALL BE REPLACED WITH AASHTO NO. 3 STONE. THE OVEREXCAVATION SHALL HAVE A MINIMUM DEPTH OF 3 FEET FROM THE EXISTING GROUND SURFACE. THE QUANTITIES REPRESENTED IN THE WIDENING MATERIAL QUANTITIES TABLE ARE BASED ON AN ASSUMED 18 INCH OVER EXCAVATION.



TYPICAL DITCH RELIEF CULVERT & CULVERT INLET/OUTLET PROTECTION DETAIL

N.T.S.

PROJECT CALCULATIONS:

PROJECT LENGTH: STA. 0+09 TO STA. 36+50 = 3641 LF

"FDR" @ 12" DEPTH: 3641 LF X 22.0 FT. WIDE = 80,102 SF; 80,102 SF/9 SF/SY = 8901 SY

PAVEMENT:

ASPHALT COURSE: 3641 LF X 18.25 FT. WIDE = 66,449 SF; 66,449 SF X 3" DEPTH/ 12"/FT. = 16,612 CF
16,612 CF/ 27CF/CY = 616 CY; 616 CY X 1.5 TONS/CY = 924 TONS

TACK COAT: 0.05 GAL/SY X 3641 LF X 18.5 FT. / 9 SF/SY = 375 GALLONS

BERMS: 3" DEPTH/ 12"/FT. X 24" WIDTH/ 12"/FT. X 3641 LF X 2 (SIDES) = 3641 CF
3641 CF/ 27 CF/CY = 135 CY; 135 CY X 1.8 TONS/CY = 243 TONS

NEW ROAD FOR TEMPORARY BRIDGE: STA 0+09 TO STA. 5+00 – 80 FT (BRIDGE) = 411 LF

BASE AGGREGATE (207): 1 FT. X 411 LF X 19 FT. = 7809 CF; 7809 CF/ 27 CF/CY = 290 CY; 290 CY X 1.5 TONS/CY = 434 TONS

TOP AGGREGATE (307): 9"/12"/FT X 411 LF X 18.5 FT. = 5703 CF; 5703 CF/ 27 CF/CY = 212 CY; 212 CY X 1.5 TONS/CY = 317 TONS

TripleH enterprises

DATE	REVISION
03-22-2018	ENVIRONMENTAL CHANGES PER ALLSTAR ECOLOGY/WVDEP
05-29-2018	REVISED CROSS SECTIONS

Antero

THIS PLAN PREPARED FOR ANTERO RESOURCES APPALACHIAN GROUP

DETAILS SHEET 2

COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 5 OF 33

DWG:

STREAMS

(LINEAR FEET)

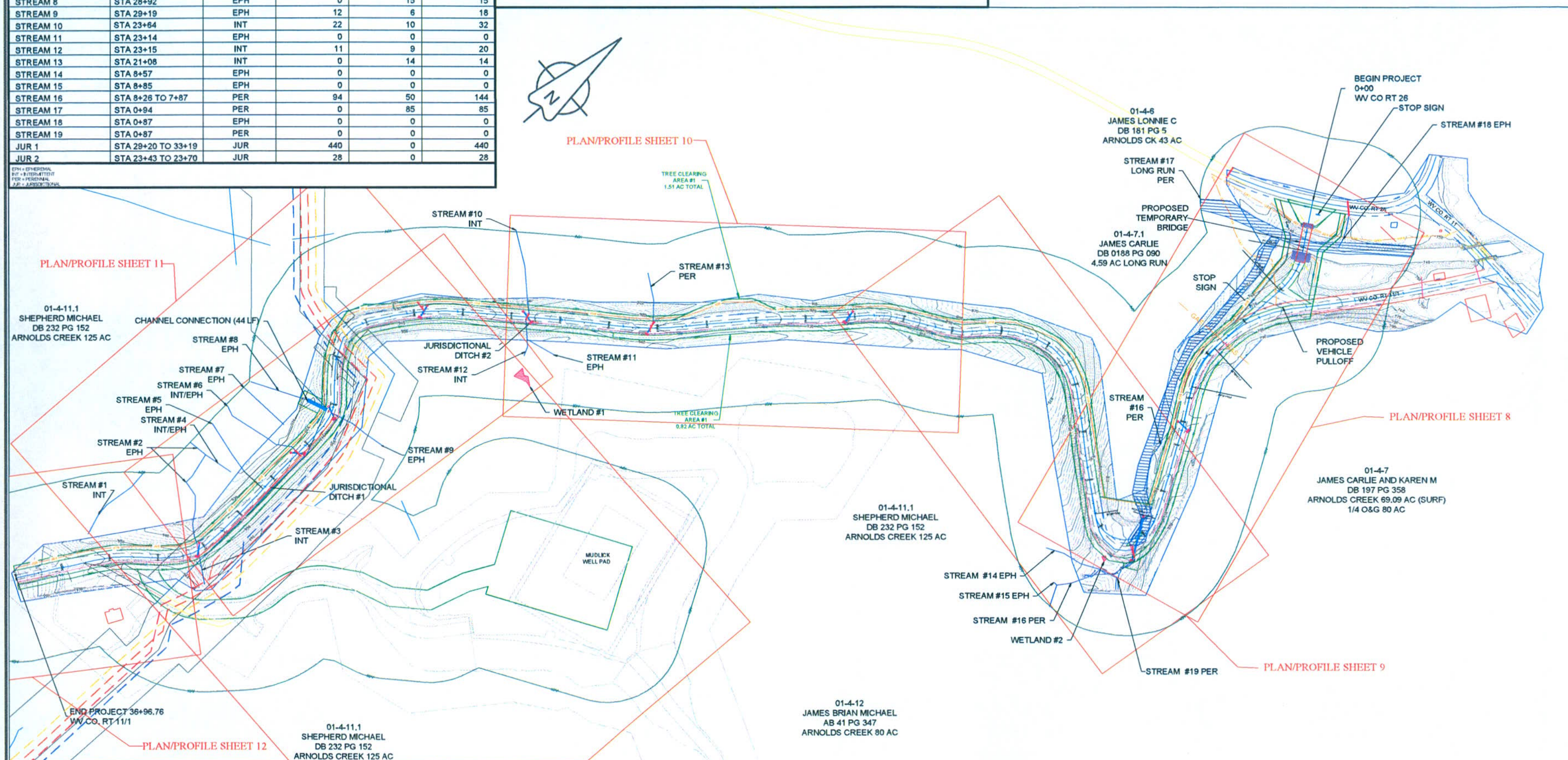
STREAM	LOCATION	STREAM CLASSIFICATION	LENGTH OF PERMANENT IMPACT (FT)	LENGTH OF TEMPORARY IMPACT (FT)	TOTAL LENGTH OF IMPACT (FT)
STREAM 1	STA 35+31	INT	0	0	0
STREAM 2	STA 33+07	INT/EPH	0	10	10
STREAM 3	STA 33+19	EPH	3	11	14
STREAM 4	STA 31+50	INT/EPH	0	0	0
STREAM 5	STA 31+30	EPH	0	0	0
STREAM 6	STA 31+27	INT/EPH	24	10	34
STREAM 7	STA 30+06	EPH	0	0	0
STREAM 8	STA 28+92	EPH	0	15	15
STREAM 9	STA 29+19	EPH	12	6	18
STREAM 10	STA 23+64	INT	22	10	32
STREAM 11	STA 23+14	EPH	0	0	0
STREAM 12	STA 23+15	INT	11	9	20
STREAM 13	STA 21+08	INT	0	14	14
STREAM 14	STA 8+57	EPH	0	0	0
STREAM 15	STA 8+85	EPH	0	0	0
STREAM 16	STA 8+26 TO 7+87	PER	94	50	144
STREAM 17	STA 0+94	PER	0	85	85
STREAM 18	STA 0+87	EPH	0	0	0
STREAM 19	STA 0+87	PER	0	0	0
JUR 1	STA 29+20 TO 33+19	JUR	440	0	440
JUR 2	STA 23+43 TO 23+70	JUR	28	0	28

EPH = EPHEMERAL
INT = INTERMITTENT
PER = PERENNIAL
JUR = JURISDICTIONAL

WETLANDS

(SQUARE FEET)

WETLAND	LOCATION	COWARDIN CLASSIFICATION	AREA WITHIN AREA OF INTEREST (AOI) (SQFT)	AREA IN ACRES	AREA WITHIN LIMITS OF DISTURBANCE (LOD)(SQFT)
WETLAND #1	STA 23+50 TO 23+86	PEM	420	0.01	0
WETLAND #2	STA 8+6 TO 8+68	PEM	66	0.001	5



LEGEND

R/W	EXISTING RIGHT OF WAY		EDGE OF GRAVEL
℄	EXISTING CENTERLINE WV CO. RT 11/1		EDGE OF PAVEMENT
℄	PROPOSED CENTERLINE WV CO. RT. 11/1		STREAM-EPHEMERAL
GAS	GAS LINE		STREAM-INTERMITTENT
AOI	AREA OF INTEREST		STREAM-PERENNIAL
LOD	LIMITS OF DISTURBANCE		WETLANDS
BSF	BELTED SILT RETENTION FENCE		DITCHES

100 0 100

TripleH enterprises

REVISION

DATE

Antero

THIS PLAN PREPARED FOR ANTERO RESOURCES APPALACHIAN GROUP

ENVIRONMENTAL

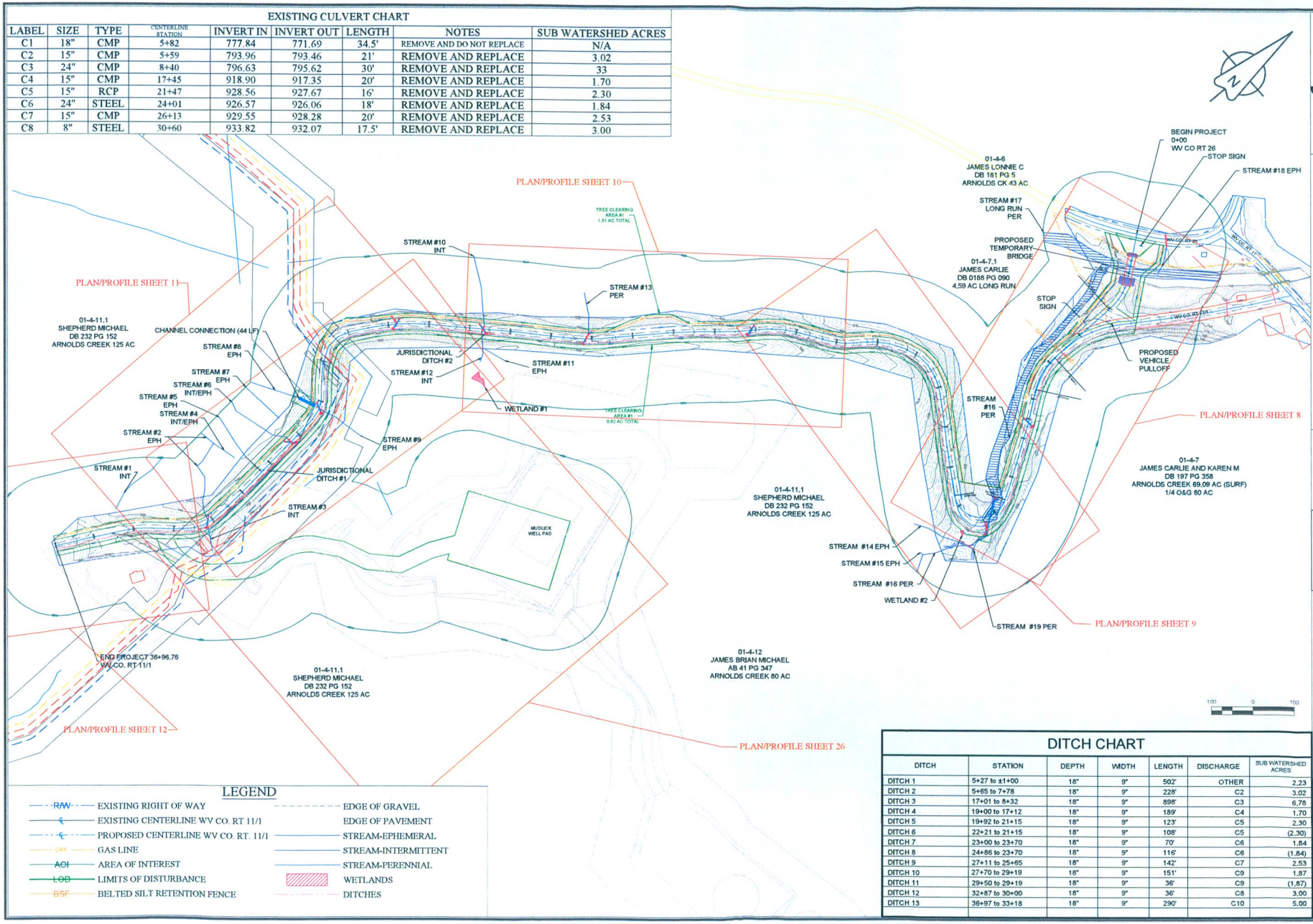
COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY RIDGE
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 6 OF 33

DWG:

EXISTING CULVERT CHART

LABEL	SIZE	TYPE	CENTERLINE STATION	INVERT IN	INVERT OUT	LENGTH	NOTES	SUB WATERSHED ACRES
C1	18"	CMP	5+82	777.84	771.69	34.5'	REMOVE AND DO NOT REPLACE	N/A
C2	15"	CMP	5+59	793.96	793.46	21'	REMOVE AND REPLACE	3.02
C3	24"	CMP	8+40	796.63	795.62	30'	REMOVE AND REPLACE	33
C4	15"	CMP	17+45	918.90	917.35	20'	REMOVE AND REPLACE	1.70
C5	15"	RCP	21+47	928.56	927.67	16'	REMOVE AND REPLACE	2.30
C6	24"	STEEL	24+01	926.57	926.06	18'	REMOVE AND REPLACE	1.84
C7	15"	CMP	26+13	929.55	928.28	20'	REMOVE AND REPLACE	2.53
C8	8"	STEEL	30+60	933.82	932.07	17.5'	REMOVE AND REPLACE	3.00



LEGEND

- EXISTING RIGHT OF WAY
- EXISTING CENTERLINE WV CO. RT 11/1
- PROPOSED CENTERLINE WV CO. RT. 11/1
- GAS LINE
- AREA OF INTEREST
- LIMITS OF DISTURBANCE
- BELTED SILT RETENTION FENCE
- EDGE OF GRAVEL
- EDGE OF PAVEMENT
- STREAM-EPHEMERAL
- STREAM-INTERMITTENT
- STREAM-PERENNIAL
- WETLANDS
- DITCHES

DITCH CHART

DITCH	STATION	DEPTH	WIDTH	LENGTH	DISCHARGE	SUB WATERSHED ACRES
DITCH 1	5+27 to ±1+00	18"	9'	502'	OTHER	2.23
DITCH 2	5+65 to 7+78	18"	9'	228'	C2	3.02
DITCH 3	17+01 to 8+32	18"	9'	898'	C3	6.78
DITCH 4	19+00 to 17+12	18"	9'	189'	C4	1.70
DITCH 5	19+92 to 21+15	18"	9'	123'	C5	2.30
DITCH 6	22+21 to 21+15	18"	9'	108'	C5	(2.30)
DITCH 7	23+00 to 23+70	18"	9'	70'	C6	1.84
DITCH 8	24+86 to 23+70	18"	9'	116'	C6	(1.84)
DITCH 9	27+11 to 25+65	18"	9'	142'	C7	2.53
DITCH 10	27+70 to 29+19	18"	9'	151'	C9	1.87
DITCH 11	29+50 to 29+19	18"	9'	36'	C9	(1.87)
DITCH 12	32+87 to 30+00	18"	9'	36'	C8	3.00
DITCH 13	36+97 to 33+18	18"	9'	290'	C10	5.00

TripleH enterprises

REVISION

DATE

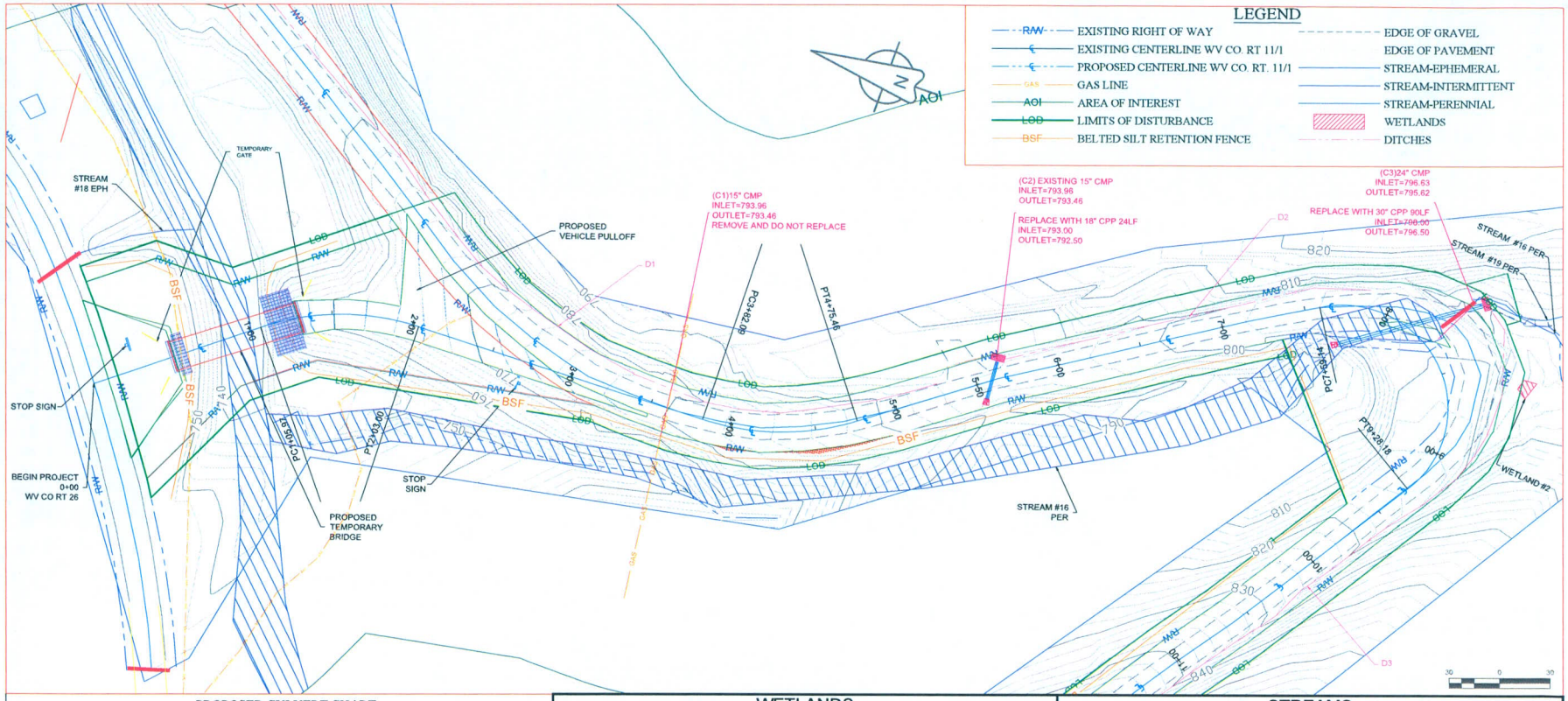
Antero

OVERALL

COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 7 OF 33

DWG:



PROPOSED CULVERT CHART

LABEL	SIZE	TYPE	CENTERLINE STATION	INVERT IN	INVERT OUT	LENGTH	NOTES
C1	18"	CMP	5+82	777.84	771.69	34.5'	REMOVE AND DO NOT REPLACE

WETLANDS

(SQUARE FEET)

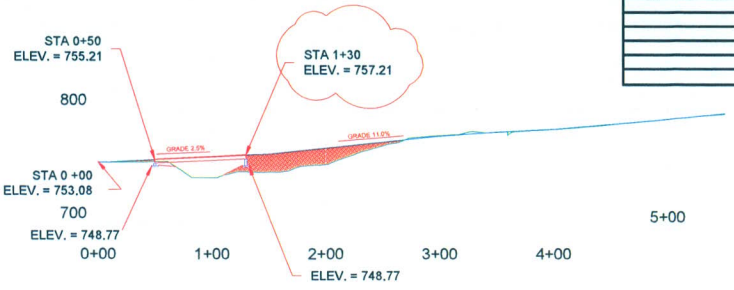
WETLAND	LOCATION	COWARDIN CLASSIFICATION	AREA WITHIN AREA OF INTEREST (AOI) (SQFT)	AREA IN ACRES	AREA WITHIN LIMITS OF DISTURBANCE (LOD)(SQFT)
WETLAND #1	STA 23+50 TO 23+86	PEM	420	0.01	0
WETLAND #2	STA 8+6 TO 8+68	PEM	66	0.001	5

STREAMS

(LINEAR FEET)

STREAM	LOCATION	STREAM CLASSIFICATION	LENGTH OF PERMANENT IMPACT (FT)	LENGTH OF TEMPORARY IMPACT (FT)	TOTAL LENGTH OF IMPACT (FT)
STREAM 1	STA 35+31	INT	0	10	10
STREAM 2	STA 33+07	INT/EPH	0	10	10
STREAM 3	STA 33+19	EPH	3	11	14
STREAM 4	STA 31+50	INT/EPH	0	0	0
STREAM 5	STA 31+30	EPH	0	0	0
STREAM 6	STA 31+27	INT/EPH	24	10	34
STREAM 7	STA 30+06	EPH	0	0	0
STREAM 8	STA 28+92	EPH	0	15	15
STREAM 9	STA 29+19	EPH	12	6	18
STREAM 10	STA 23+64	INT	22	10	32
STREAM 11	STA 23+14	EPH	0	0	0
STREAM 12	STA 23+15	INT	11	9	20
STREAM 13	STA 21+08	INT	0	14	14
STREAM 14	STA 8+57	EPH	0	0	0
STREAM 15	STA 8+85	EPH	0	0	0
STREAM 16	STA 8+26 TO 7+87	PER	94	50	144
STREAM 17	STA 0+94	PER	0	85	85
STREAM 18	STA 0+87	EPH	0	0	0
STREAM 19	STA 0+87	PER	0	0	0
JUR 1	STA 29+20 TO 33+19	JUR	440	0	440
JUR 2	STA 23+43 TO 23+79	JUR	28	0	28

INT = INTERMITTENT
PER = PERENNIAL
JUR = JURISDICTIONAL



TripleH enterprises

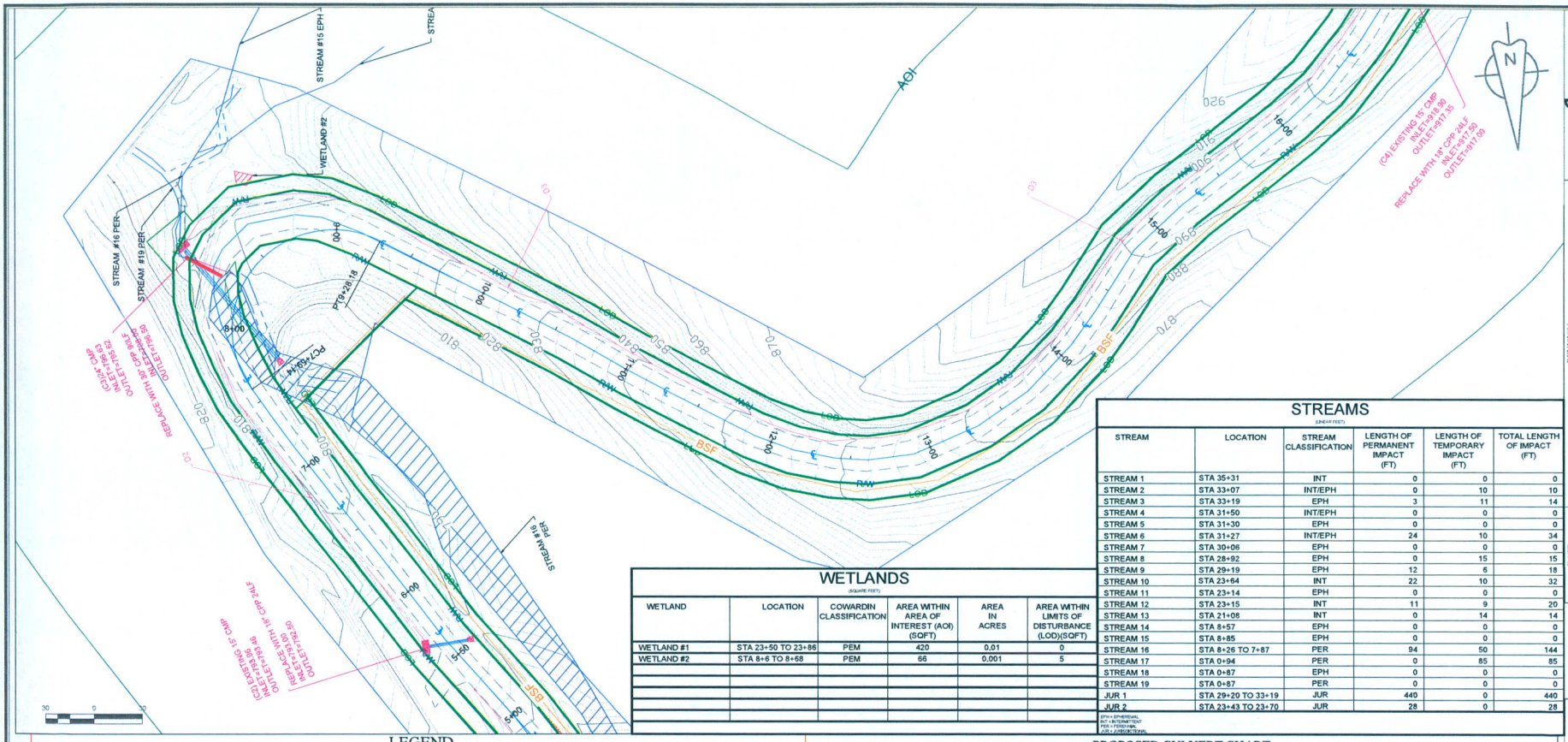
REVISION: ENVIRONMENTAL CHANGES PER ALLSTAR ECOLOGY/WVDEP
DATE: 03-22-2018
LOWERED FORWARD BRIDGE ABUTMENT 2 FT. TO 757.21 FT
07-15-2018

Antero

PROPOSED BRIDGE PROFILE

COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 8 OF 33
DWG:



WETLANDS

(SQUARE FEET)

WETLAND	LOCATION	COWARDIN CLASSIFICATION	AREA WITHIN AREA OF INTEREST (AOI) (SQFT)	AREA IN ACRES	AREA WITHIN LIMITS OF DISTURBANCE (LOD)(SQFT)
WETLAND #1	STA 23+50 TO 23+86	PEM	420	0.01	0
WETLAND #2	STA 8+6 TO 8+68	PEM	66	0.001	5

STREAMS

(LINEAR FEET)

STREAM	LOCATION	STREAM CLASSIFICATION	LENGTH OF PERMANENT IMPACT (FT)	LENGTH OF TEMPORARY IMPACT (FT)	TOTAL LENGTH OF IMPACT (FT)
STREAM 1	STA 35+31	INT	0	0	0
STREAM 2	STA 33+07	INT/EPH	0	10	10
STREAM 3	STA 33+19	EPH	3	11	14
STREAM 4	STA 31+50	INT/EPH	0	0	0
STREAM 5	STA 31+30	EPH	0	0	0
STREAM 6	STA 31+27	INT/EPH	24	10	34
STREAM 7	STA 30+06	EPH	0	0	0
STREAM 8	STA 28+92	EPH	0	15	15
STREAM 9	STA 29+19	EPH	12	6	18
STREAM 10	STA 23+64	INT	22	10	32
STREAM 11	STA 23+14	EPH	0	0	0
STREAM 12	STA 23+15	INT	11	9	20
STREAM 13	STA 21+08	INT	0	14	14
STREAM 14	STA 8+57	EPH	0	0	0
STREAM 15	STA 8+85	EPH	0	0	0
STREAM 16	STA 8+26 TO 7+87	PER	94	50	144
STREAM 17	STA 0+94	PER	0	85	85
STREAM 18	STA 0+87	EPH	0	0	0
STREAM 19	STA 0+87	PER	0	0	0
JUR 1	STA 29+20 TO 33+19	JUR	440	0	440
JUR 2	STA 23+43 TO 23+70	JUR	28	0	28

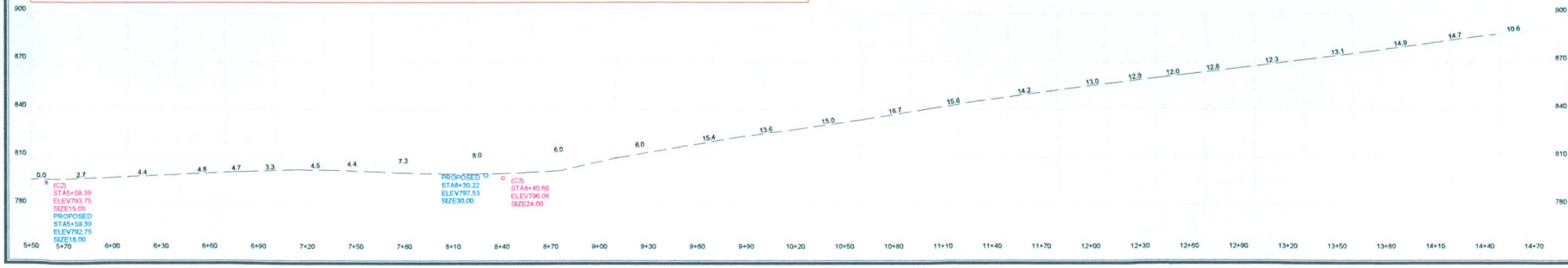
EPH = EPHEMERAL
INT = INTERMITTENT
PER = PERENNIAL
JUR = JURISDICTIONAL

LEGEND

- RW — EXISTING RIGHT OF WAY
- ℄ — EXISTING CENTERLINE WV CO. RT 11/1
- ℄ — PROPOSED CENTERLINE WV CO. RT. 11/1
- GAS — GAS LINE
- WETLANDS
- EDGE OF GRAVEL
- EOP — EDGE OF PAVEMENT
- STREAM-EPHEMERAL
- STREAM-INTERMITTENT
- DITCHES
- AOI — AREA OF INTEREST
- LOD — LIMITS OF DISTURBANCE
- BSF — BELTED SILT RET. FENCE
- STREAM-PERENNIAL

PROPOSED CULVERT CHART

LABEL	SIZE	TYPE	CENTERLINE STATION	INVERT IN	INVERT OUT	LENGTH	NOTES	SUB WATERSHED (ACRES)
C2	18"	CPP	5+59	793.00	792.50	32'	REMOVE AND REPLACE	3.02
C3	30"	CPP	8+40	798.00	796.50	90'	REMOVE AND REPLACE	33



REVISION:

DATE	
03-22-2018	ENVIRONMENTAL CHANGES PER ALLSTAR ECOLOGY/WVDEP
05-31-2018	REVISED CULVERT LENGTHS

Triple H enterprises

Antero

THIS PLAN PREPARED FOR ANTERO RESOURCES APPALACHIAN CORP.

PROFILE SHEET 1

COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 9 OF 33

DWG:

STREAMS

(LINEAR FEET)

STREAM	LOCATION	STREAM CLASSIFICATION	LENGTH OF PERMANENT IMPACT (FT)	LENGTH OF TEMPORARY IMPACT (FT)	TOTAL LENGTH OF IMPACT (FT)
STREAM 1	STA 35+31	INT	0	0	0
STREAM 2	STA 33+07	INT/EPH	0	10	10
STREAM 3	STA 33+19	EPH	3	11	14
STREAM 4	STA 31+50	INT/EPH	0	0	0
STREAM 5	STA 31+30	EPH	0	0	0
STREAM 6	STA 31+27	INT/EPH	24	10	34
STREAM 7	STA 30+06	EPH	0	0	0
STREAM 8	STA 28+92	EPH	0	15	15
STREAM 9	STA 29+19	EPH	12	6	18
STREAM 10	STA 23+64	INT	22	10	32
STREAM 11	STA 23+14	EPH	0	0	0
STREAM 12	STA 23+15	INT	11	9	20
STREAM 13	STA 21+08	INT	0	14	14
STREAM 14	STA 8+57	EPH	0	0	0
STREAM 15	STA 8+85	EPH	0	0	0
STREAM 16	STA 8+26 TO 7+87	PER	94	50	144
STREAM 17	STA 0+94	PER	0	85	85
STREAM 18	STA 0+87	EPH	0	0	0
STREAM 19	STA 0+87	PER	0	0	0
JUR 1	STA 29+20 TO 33+19	JUR	440	0	440
JUR 2	STA 23+43 TO 23+70	JUR	28	0	28

EPH = EPHEMERAL
INT = INTERMITTENT
PER = PERENNIAL
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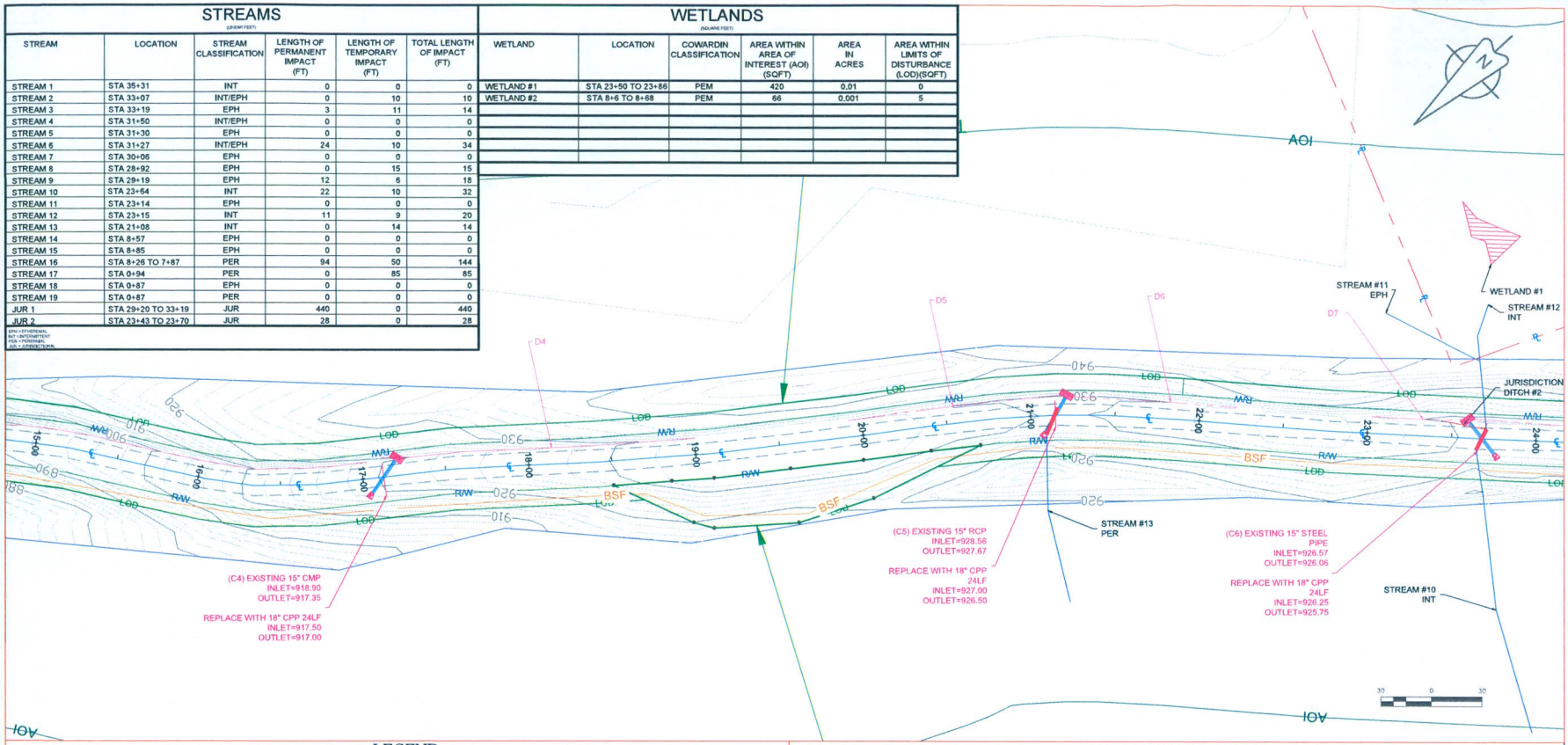
WETLANDS

(SQUARE FEET)

WETLAND	LOCATION	COWARDIN CLASSIFICATION	AREA WITHIN AREA OF INTEREST (AOI) (SQFT)	AREA IN ACRES	AREA WITHIN LIMITS OF DISTURBANCE (LOD)(SQFT)
WETLAND #1	STA 23+50 TO 23+86	PEM	420	0.01	0
WETLAND #2	STA 8+6 TO 8+68	PEM	66	0.001	5

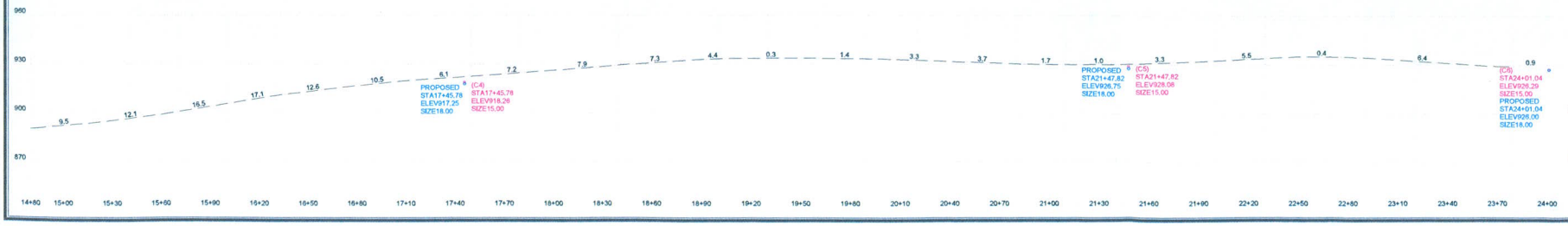


LEGEND

- RW — EXISTING RIGHT OF WAY
- ℄ — EXISTING CENTERLINE WV CO. RT 11/1
- ℄ — PROPOSED CENTERLINE WV CO. RT. 11/1
- GAS — GAS LINE
- WETLANDS
- EDGE OF GRAVEL
- EDGE OF PAVEMENT
- STREAM-EPHEMERAL
- STREAM-INTERMITTENT
- DITCHES
- AOI — AREA OF INTEREST
- LOD — LIMITS OF DISTURBANCE
- BSF — BELTED SILT RET. FENCE
- STREAM-PERENNIAL

PROPOSED CULVERT CHART

LABEL	SIZE	TYPE	CENTERLINE STATION	INVERT IN	INVERT OUT	LENGTH	NOTES	SUB WATERSHED (ACRES)
C4	18"	CPP	17+45	918.50	918.00	30'	REMOVE AND REPLACE	1.70
C5	18"	CPP	21+47	927.25	926.50	34'	REMOVE AND REPLACE	2.30
C6	18"	CPP	24+01	926.25	925.75	38'	REMOVE AND REPLACE	1.84



REVISION

DATE	
03-22-2018	ENVIRONMENTAL CHANGES PER ALLSTAR ECOLOGY/WVDEP
05-31-2018	REVISED CULVERT LENGTHS

Triple H enterprises

Antero

THIS PLAN PREPARED FOR ANTERO RESOURCES APPALACHIAN CORP.

PROFILE SHEET 2

COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 10 OF 33

DWG:

STREAMS

(LINEAR FEET)

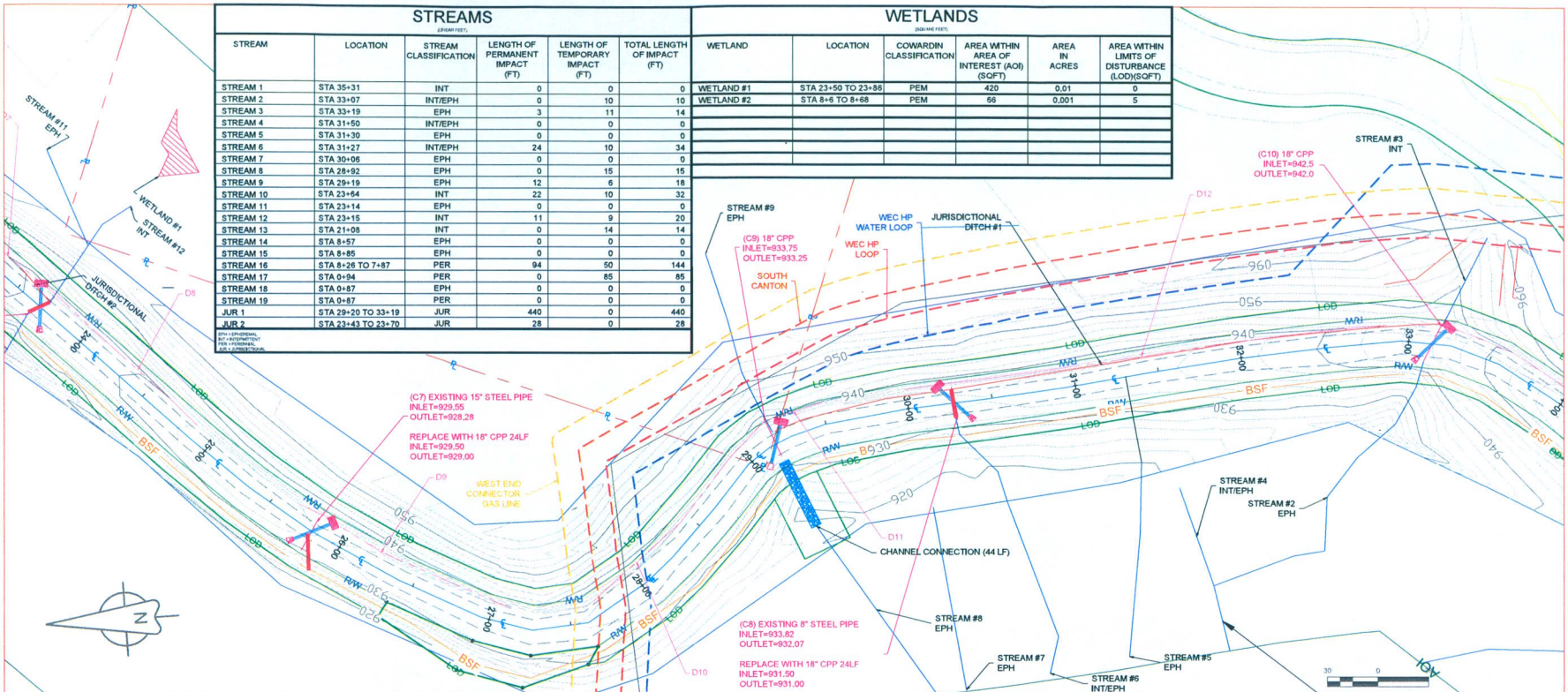
STREAM	LOCATION	STREAM CLASSIFICATION	LENGTH OF PERMANENT IMPACT (FT)	LENGTH OF TEMPORARY IMPACT (FT)	TOTAL LENGTH OF IMPACT (FT)
STREAM 1	STA 35+31	INT	0	0	0
STREAM 2	STA 33+07	INT/EPH	0	10	10
STREAM 3	STA 33+19	EPH	3	11	14
STREAM 4	STA 31+50	INT/EPH	0	0	0
STREAM 5	STA 31+30	EPH	0	0	0
STREAM 6	STA 31+27	INT/EPH	24	10	34
STREAM 7	STA 30+06	EPH	0	0	0
STREAM 8	STA 28+92	EPH	0	15	15
STREAM 9	STA 29+19	EPH	12	6	18
STREAM 10	STA 23+64	INT	22	10	32
STREAM 11	STA 23+14	EPH	0	0	0
STREAM 12	STA 23+15	INT	11	9	20
STREAM 13	STA 21+08	INT	0	14	14
STREAM 14	STA 8+57	EPH	0	0	0
STREAM 15	STA 8+85	EPH	0	0	0
STREAM 16	STA 8+26 TO 7+87	PER	94	50	144
STREAM 17	STA 0+94	PER	0	85	85
STREAM 18	STA 0+87	EPH	0	0	0
STREAM 19	STA 0+87	PER	0	0	0
JUR 1	STA 29+20 TO 33+19	JUR	440	0	440
JUR 2	STA 23+43 TO 23+70	JUR	28	0	28

EPH = EPHEMERAL
INT = INTERMITTENT
PER = PERENNIAL
JUR = JURISDICTIONAL

WETLANDS

(SQUARE FEET)

WETLAND	LOCATION	COWARDIN CLASSIFICATION	AREA WITHIN AREA OF INTEREST (AOI) (SQFT)	AREA IN ACRES	AREA WITHIN LIMITS OF DISTURBANCE (LOD)(SQFT)
WETLAND #1	STA 23+50 TO 23+86	PEM	420	0.01	0
WETLAND #2	STA 8+6 TO 8+68	PEM	66	0.001	5



LEGEND

- RW — EXISTING RIGHT OF WAY
- ℄ — EXISTING CENTERLINE WV CO. RT 11/1
- ℄ — PROPOSED CENTERLINE WV CO. RT. 11/1
- GAS — GAS LINE
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- EDGE OF GRAVEL
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- STREAM-EPHEMERAL
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- STREAM-PERENNIAL

PROPOSED CULVERT CHART

LABEL	SIZE	TYPE	CENTERLINE STATION	INVERT IN	INVERT OUT	LENGTH	NOTES	SUB WATERSHED (ACRES)
C7	18"	CPP	26+13	929.25	928.75	34'	REMOVE AND REPLACE	2.53
C8	18"	CPP	30+60	931.25	930.75	51'	REMOVE AND REPLACE	3.00
C9	18"	CPP	29+17	932.25	931.75	38'	NEW ADDITION	3.24
C10	18"	CPP	33+14	942.50	942.00	42'	NEW ADDITION	5.00

TripleH enterprises

REVISION:

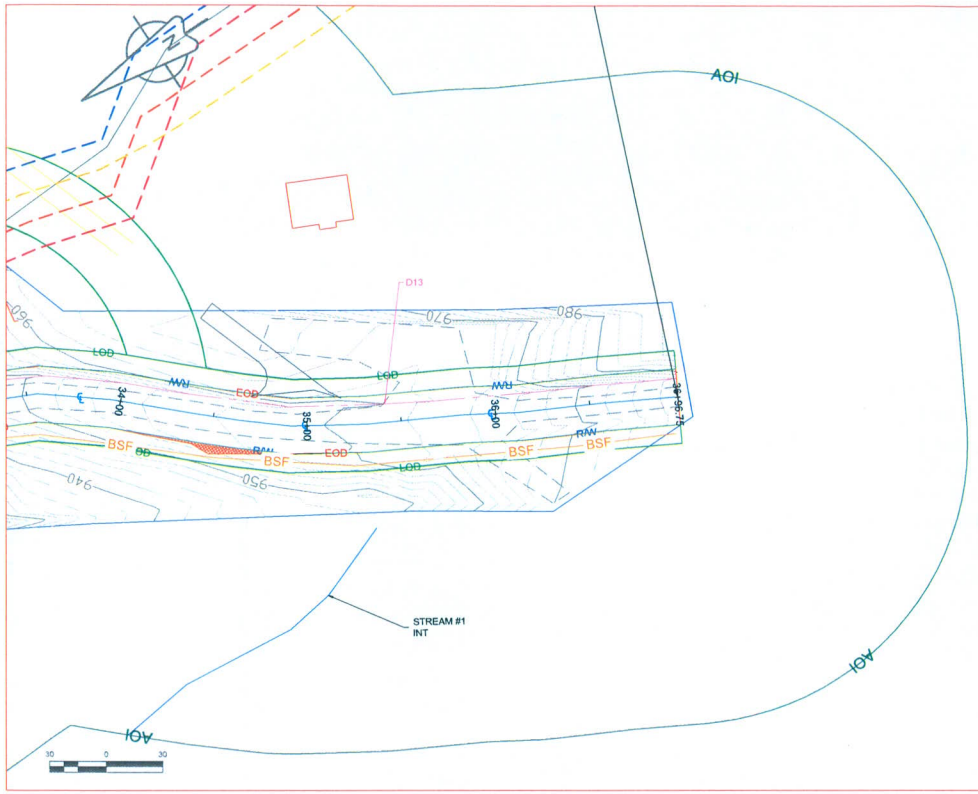
DATE:	
03-22-2018	ENVIRONMENTAL CHANGES PER ALLSTAR ECOLOGY/WVDEP
05-31-2018	REVISED CULVERT LENGTHS

Antero Resources

PROFILE SHEET 3

COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 11 OF 33
DWG:



STREAMS

(LINEAR FEET)

STREAM	LOCATION	STREAM CLASSIFICATION	LENGTH OF PERMANENT IMPACT (FT)	LENGTH OF TEMPORARY IMPACT (FT)	TOTAL LENGTH OF IMPACT (FT)
STREAM 1	STA 35+31	INT	0	0	0
STREAM 2	STA 33+07	INT/EPH	0	10	10
STREAM 3	STA 33+19	EPH	3	11	14
STREAM 4	STA 31+50	INT/EPH	0	0	0
STREAM 5	STA 31+30	EPH	0	0	0
STREAM 6	STA 31+27	INT/EPH	24	10	34
STREAM 7	STA 30+06	EPH	0	0	0
STREAM 8	STA 28+92	EPH	0	15	15
STREAM 9	STA 29+19	EPH	12	6	18
STREAM 10	STA 23+64	INT	22	10	32
STREAM 11	STA 23+14	EPH	0	0	0
STREAM 12	STA 23+15	INT	11	9	20
STREAM 13	STA 21+08	INT	0	14	14
STREAM 14	STA 8+57	EPH	0	0	0
STREAM 15	STA 8+85	EPH	0	0	0
STREAM 16	STA 8+26 TO 7+87	PER	94	50	144
STREAM 17	STA 0+94	PER	0	85	85
STREAM 18	STA 0+87	EPH	0	0	0
STREAM 19	STA 0+87	PER	0	0	0
JUR 1	STA 29+20 TO 33+19	JUR	440	0	440
JUR 2	STA 23+43 TO 23+70	JUR	28	0	28

EPH = EPHEMERAL
INT = INTERMITTENT
PER = PERENNIAL
JUR = JURISDICTIONAL

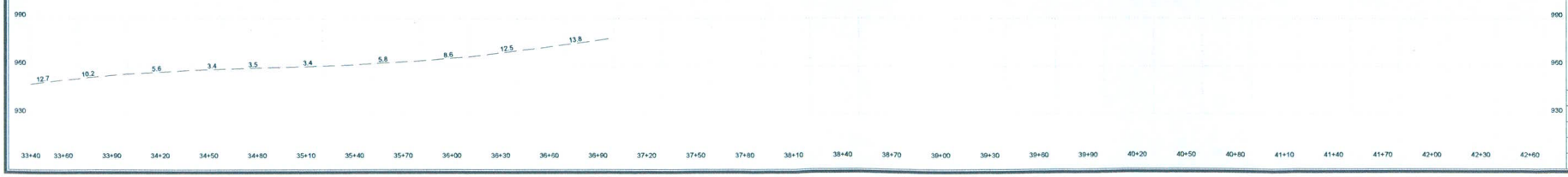
WETLANDS

(SQUARE FEET)

WETLAND	LOCATION	COWARDIN CLASSIFICATION	AREA WITHIN AREA OF INTEREST (AOI) (SQFT)	AREA IN ACRES	AREA WITHIN LIMITS OF DISTURBANCE (LOD)(SQFT)
WETLAND #1	STA 23+50 TO 23+86	PEM	420	0.01	0
WETLAND #2	STA 8+6 TO 8+68	PEM	66	0.001	5

LEGEND

- RW — EXISTING RIGHT OF WAY
- ℄ — EXISTING CENTERLINE WV CO. RT 11/1
- ℄ — PROPOSED CENTERLINE WV CO. RT. 11/1
- GAS — GAS LINE
- AOI — AREA OF INTEREST
- LOD — LIMITS OF DISTURBANCE
- BSF — BELTED SITE RETENTION FENCE
- EDGE OF GRAVEL
- EDGE OF PAVEMENT
- STREAM-EPHEMERAL
- STREAM-INTERMITTENT
- STREAM-PERENNIAL
- WETLANDS
- DITCHES



REVISION: ENVIRONMENTAL CHANGES PER ALLSTAR ECOLOGY/WVDEP

DATE: 03-22-2018

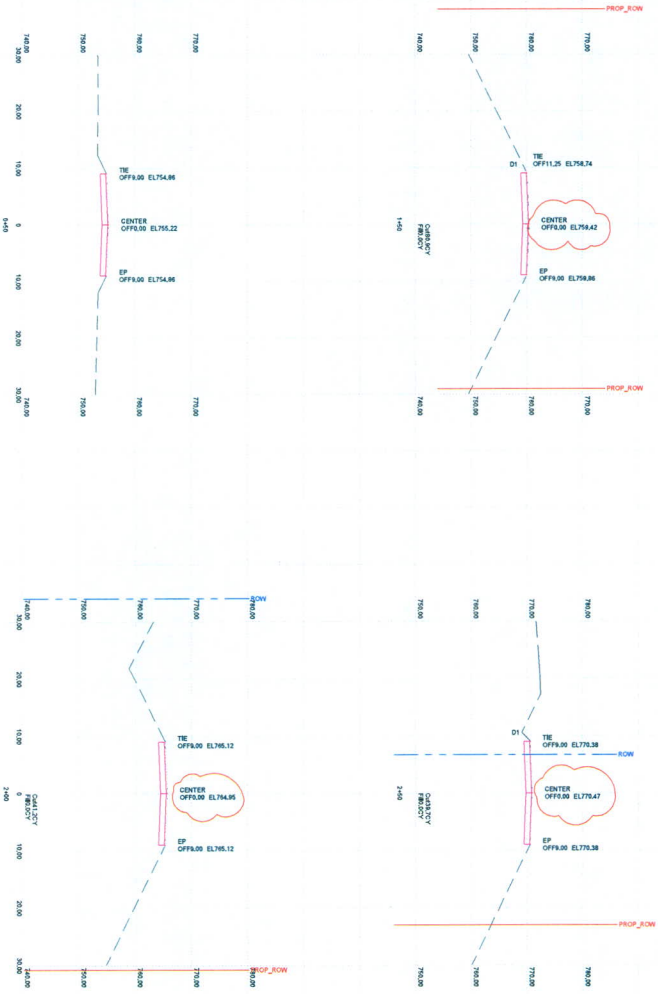
PREPARED FOR: ANTERO RESOURCES APPALACHIAN CORP.

PROFILE SHEET 4

COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 12 OF 33

DWG:



PROPOSED PROFILE

EXISTING GROUND

CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

DATE	REVISION
07-15-2018	LOWERED FORWARD BRIDGE ABUTMENT 2 FT. TO 757.21 FT

JOB: RAMSEY

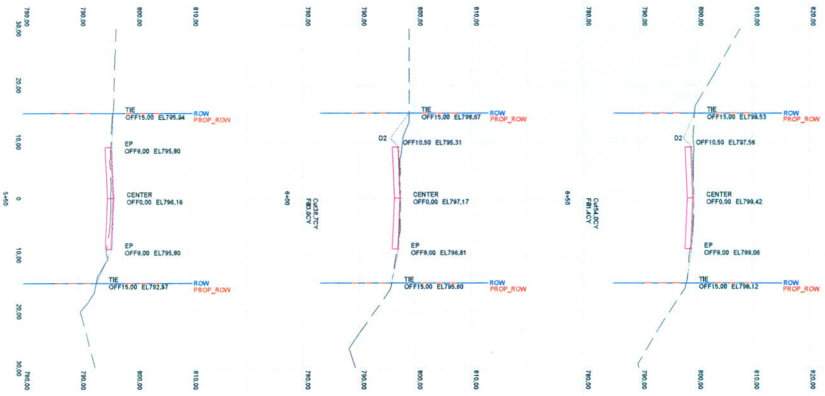
DATE: 6/7/2016

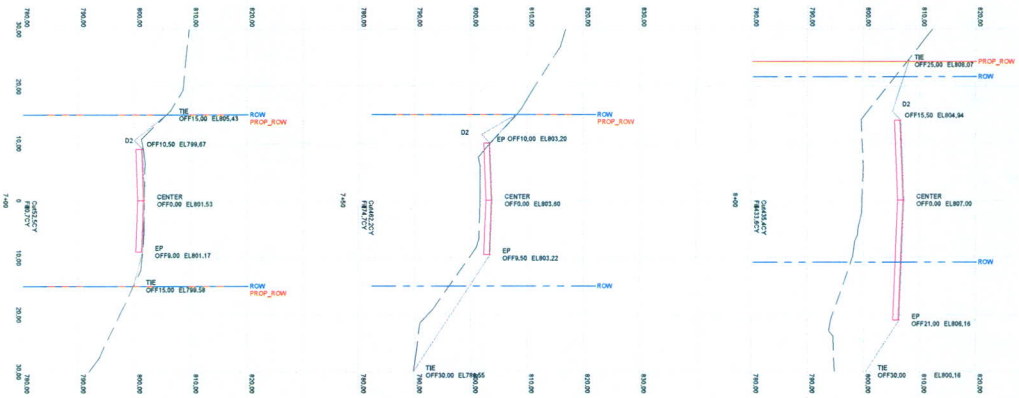
DRAWN BY: ADS

SCALE: AS SHOWN

SHEET: 13 OF 33

DWG:





PROPOSED PROFILE

EXISTING GROUND

CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

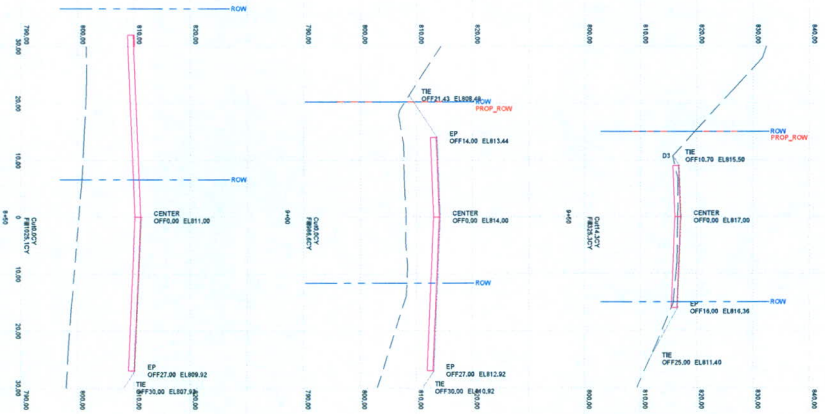
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

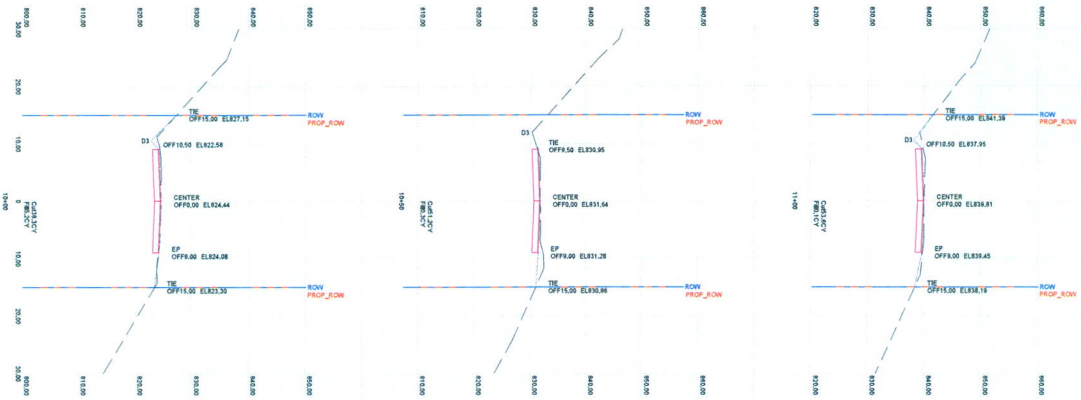
THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

DATE	REVISION

SHEET: 15 OF 33
SCALE: AS SHOWN
DRAWN BY: ADS
DATE: 6/7/2016
JOB: RAMSEY

DWG:





PROPOSED PROFILE

EXISTING GROUND

CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

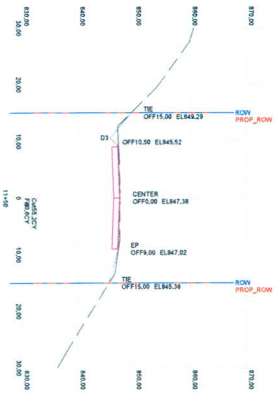
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

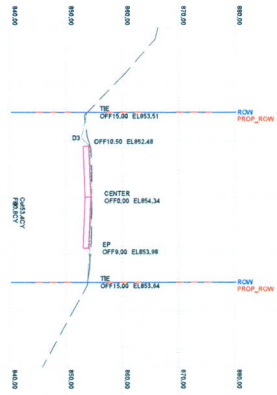
THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

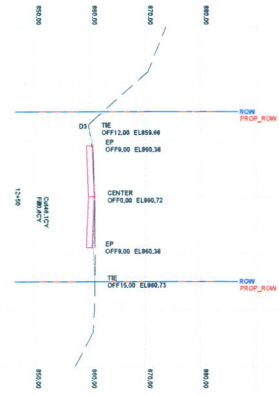
DATE	REVISION

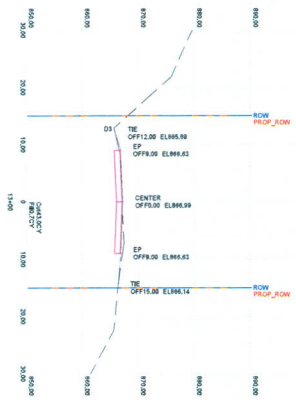
JOB: RAMSEY
DATE: 9/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 16 OF 33

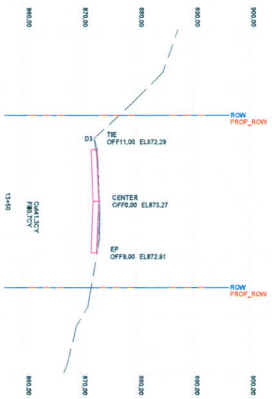
DWG:

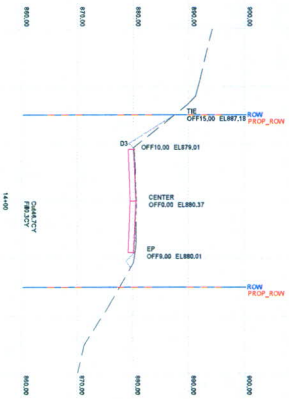












PROPOSED PROFILE

EXISTING GROUND

CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

Antero Resources

THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

DATE	REVISION

TripleH enterprises

JOB: RAMSEY

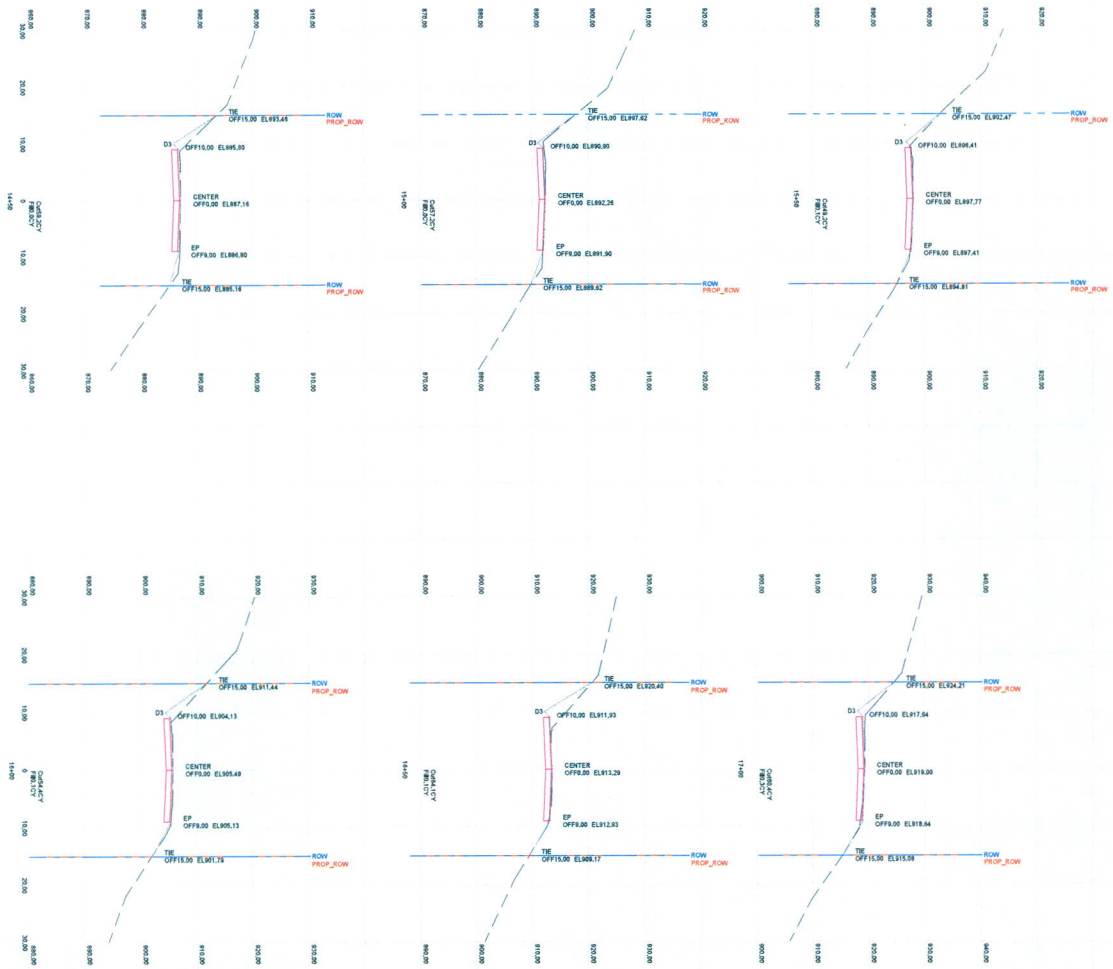
DATE: 6/7/2016

DRAWN BY: ADS

SCALE: AS SHOWN

SHEET: 17 OF 33

DWG:



PROPOSED PROFILE

EXISTING GROUND

CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY

DATE: 6/7/2016

DRAWN BY: ADS

SCALE: AS SHOWN

SHEET: 18 OF 33

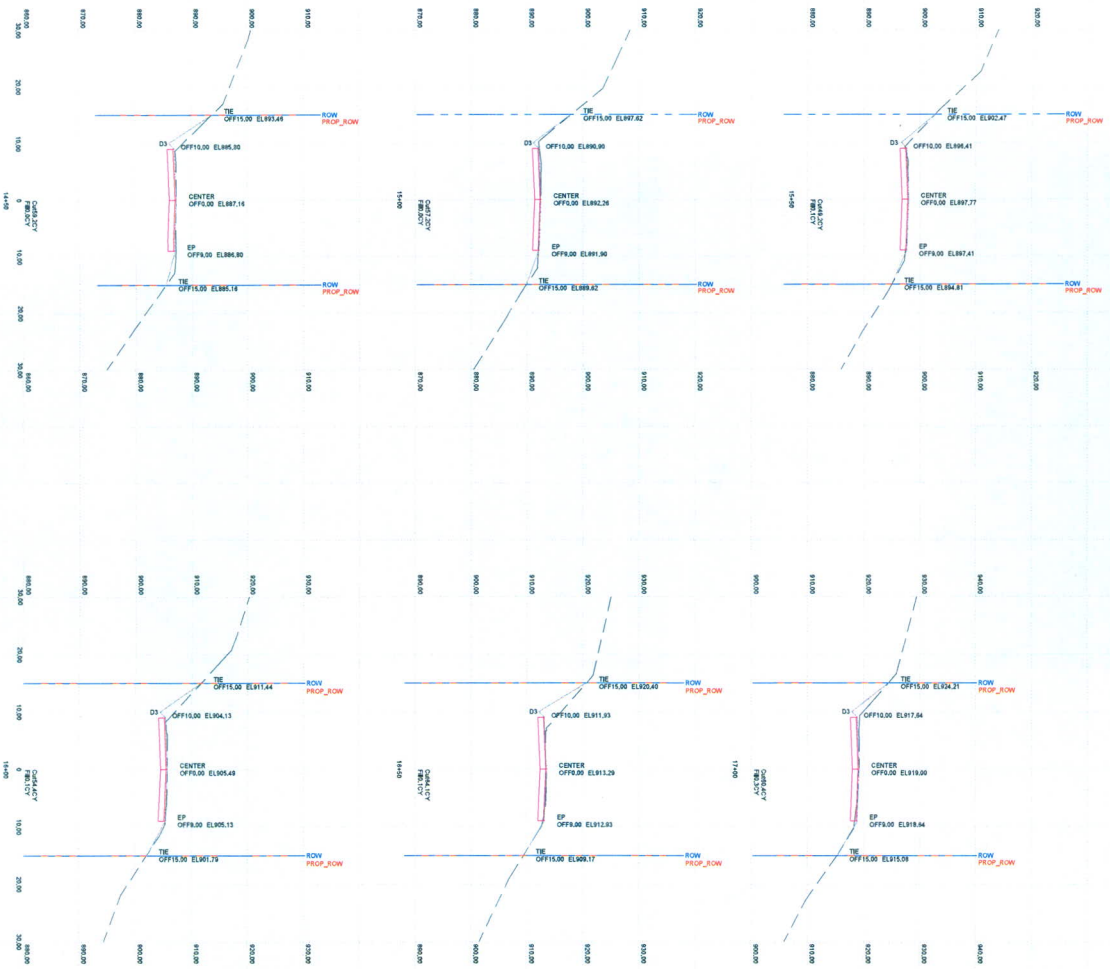
Antero Resources

THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

DATE	REVISION

TripleH enterprises

DWG:



PROPOSED PROFILE

EXISTING GROUND

CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY

DATE: 6/7/2016

DRAWN BY: ADS

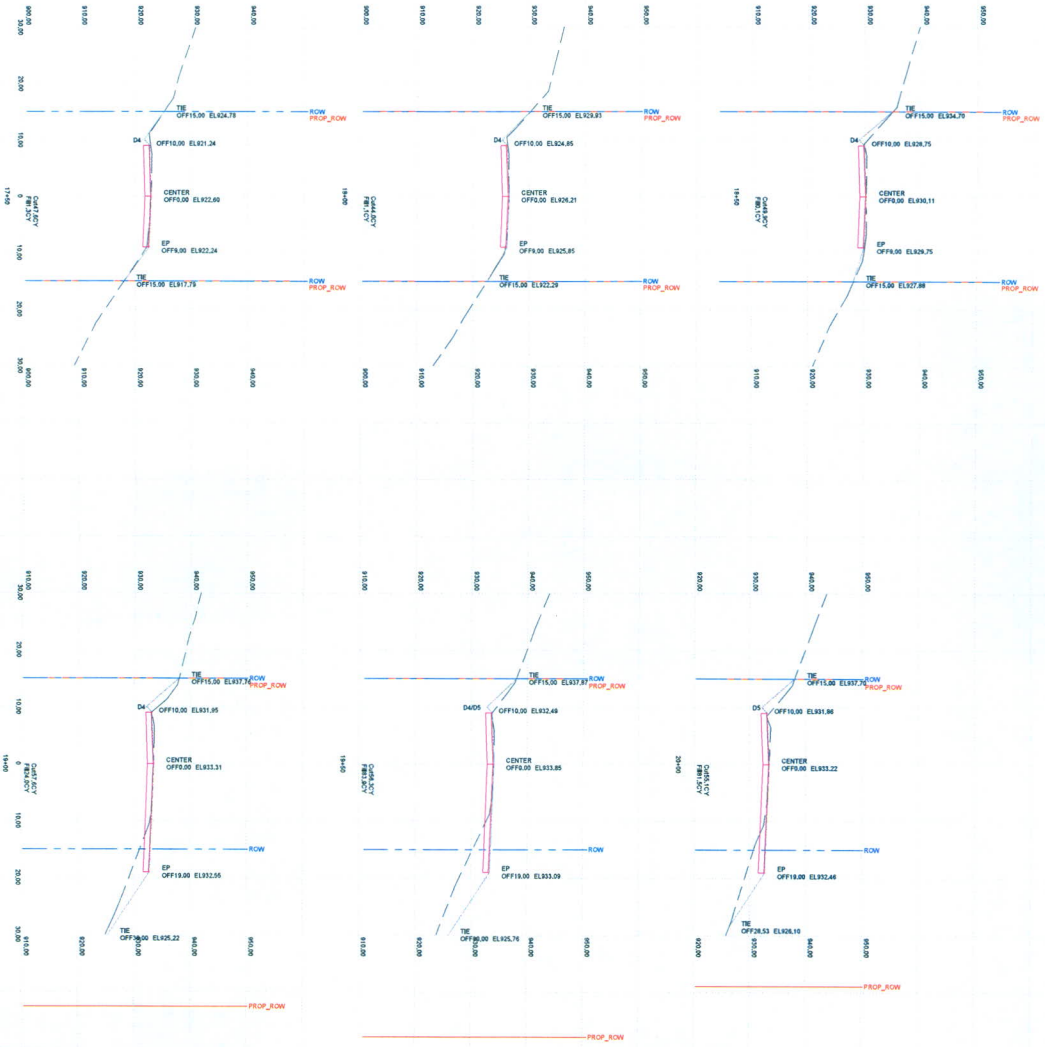
SCALE: AS SHOWN

SHEET: 18 OF 33

THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

DATE	REVISION

DWG:



CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 19 OF 33

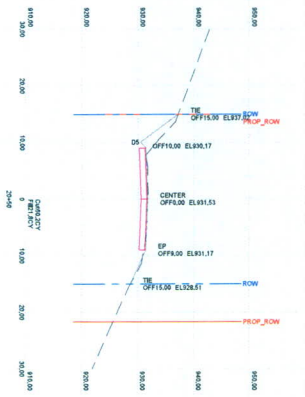
Antero Resources

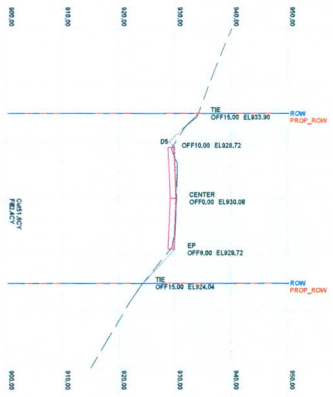
THIS PLAN PREPARED FOR ANTERO RESOURCES APPALACHIAN GROUP

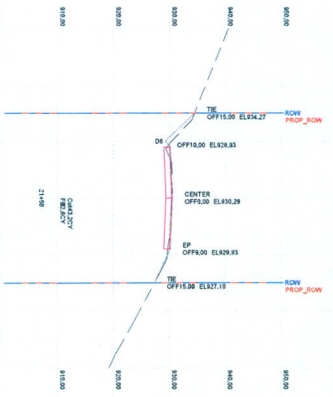
DATE	REVISION

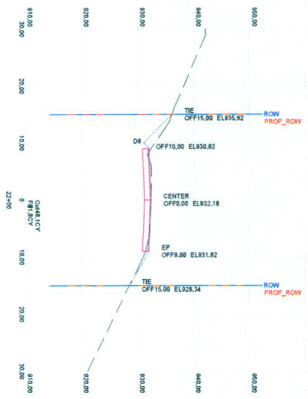
Triple H enterprises

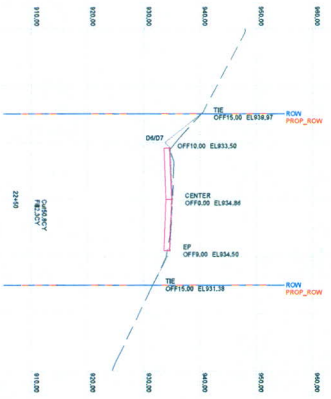
DWG:

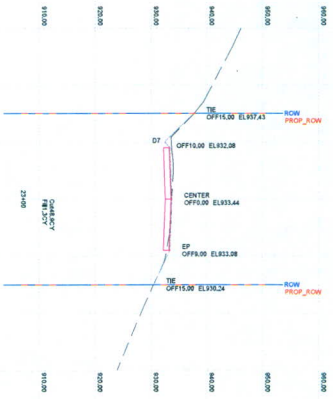












PROPOSED PROFILE

EXISTING GROUND

CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

Antero Resources

THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

DATE	REVISION

TripleH enterprises

JOB: RAMSEY

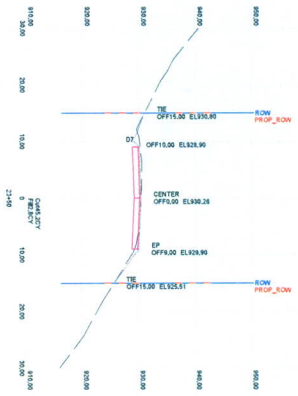
DATE: 6/7/2016

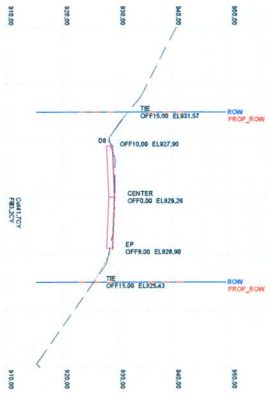
DRAWN BY: ADS

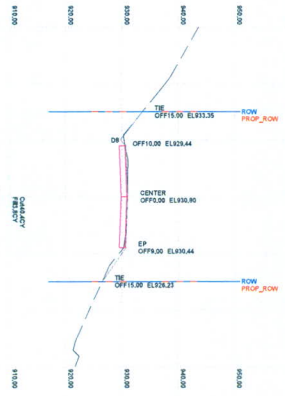
SCALE: AS SHOWN

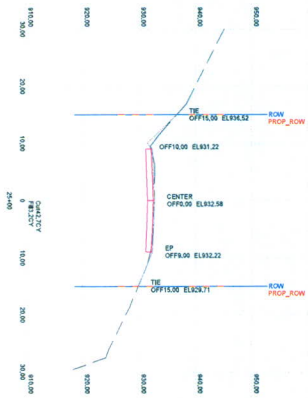
SHEET 20 OF 33

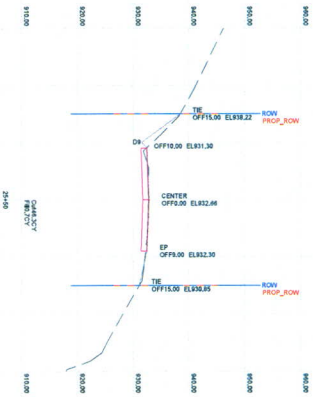
DWG:

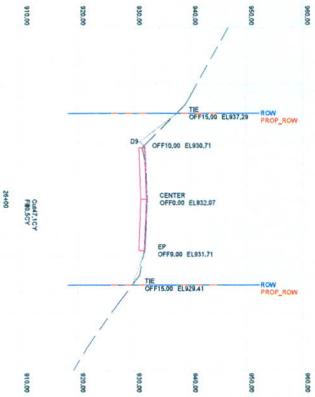












PROPOSED PROFILE

EXISTING GROUND

CROSS SECTION

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

Antero Resources

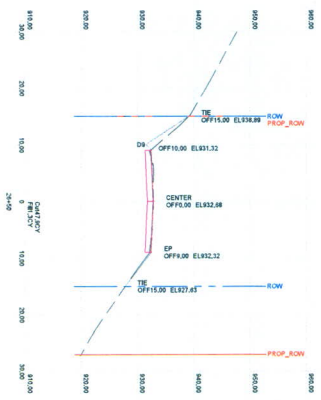
THIS PLAN PREPARED FOR:
ANTERO RESOURCES
APPALACHIAN GROUP

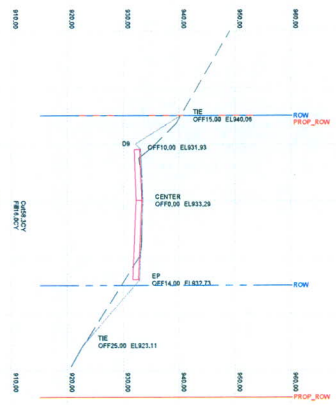
DATE	REVISION

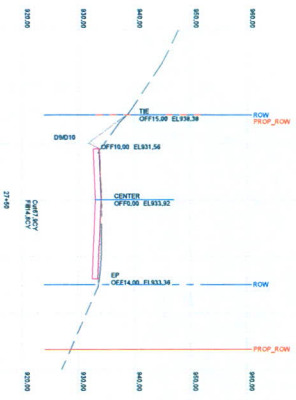
TripleH enterprises

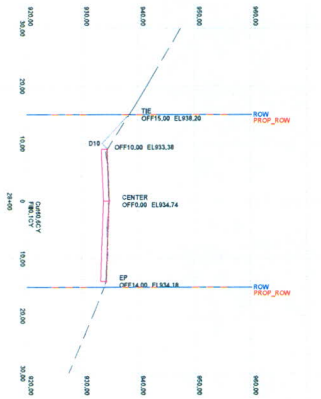
JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 21 OF 33

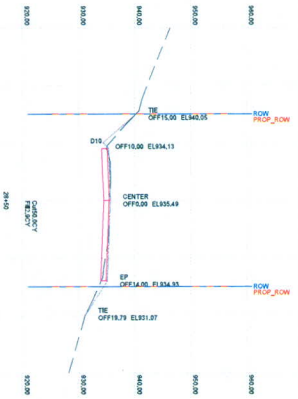
DWG:

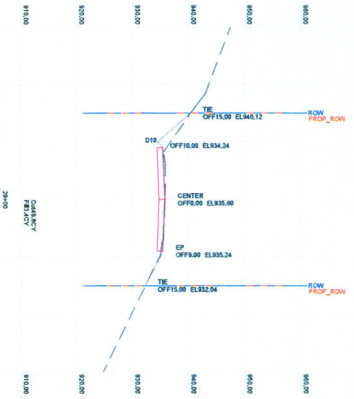












PROPOSED PROFILE

EXISTING GROUND

CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

Antero Resources

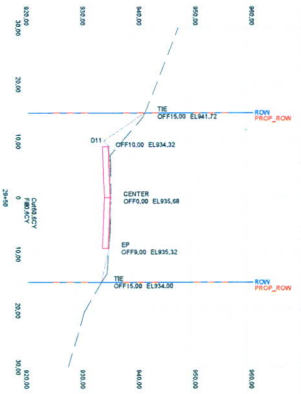
THIS PLAN PREPARED FOR ANTERO RESOURCES APPALACHIAN GROUP

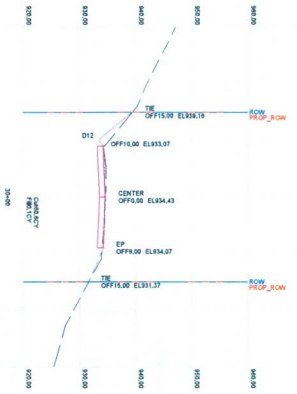
DATE	REVISION

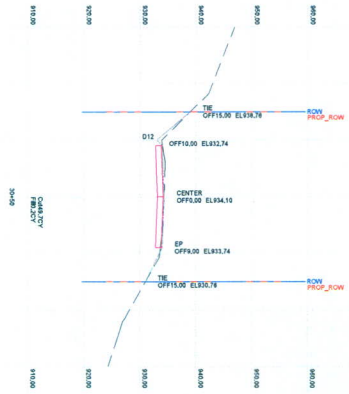
TripleH enterprises

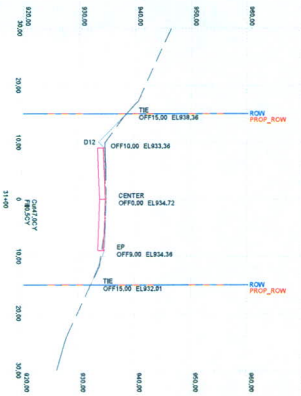
JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 22 OF 33

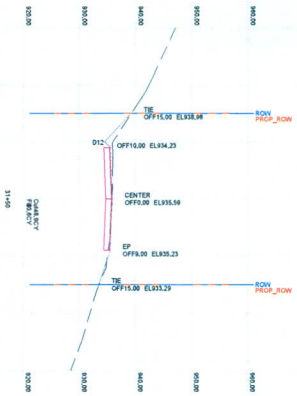
DWG:

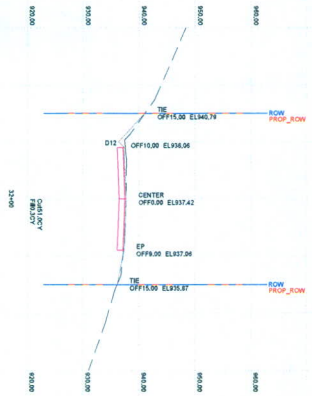












PROPOSED PROFILE

EXISTING GROUND

CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

Antero Resources

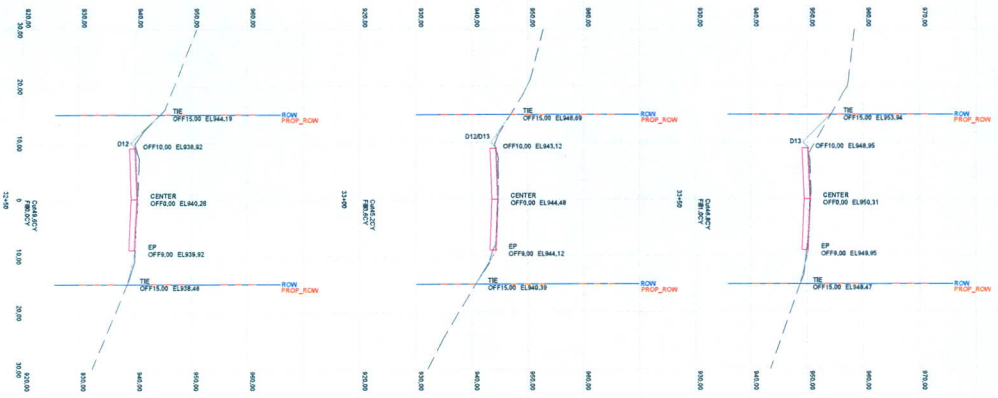
THIS PLAN PREPARED FOR ANTERO RESOURCES APPALACHIAN GROUP

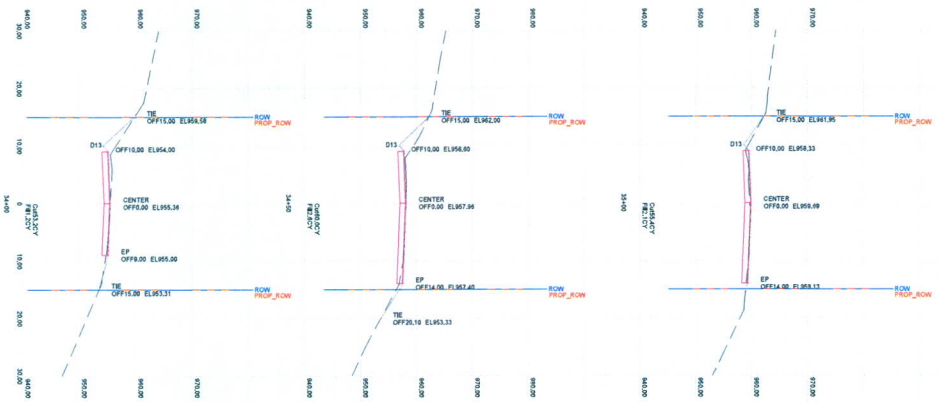
DATE	REVISION

TripleH enterprises

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET 23 OF 33

DWG:





PROPOSED PROFILE

EXISTING GROUND

CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT

ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

THIS PLAN PREPARED FOR ANTERO RESOURCES APPALACHIAN GROUP

DATE	REVISION

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 24 OF 33

DWG:

DIVISION OF NATURAL RESOURCES
324 Fourth Avenue, Room 200
South Charleston WV 25303-1228
TDD (304) 558-1439
TDD 1-800-354-6087
Fax (304) 558-6048
Telephone (304) 558-3225

Jim Justice
Governor

Stephen S. McDaniel
Director

November 15, 2017
Division of Natural Resources
RIGHT OF ENTRY

Re: R-17-VI/09-1915

Antero Resources Corporation
Tyler Thigpen
c/o AllStar Ecology, LLC
Attention: Ernie Smith
1582 Meadowdale Road
Fairmont, WV 26554-

Dear Mr. Thigpen:

The Division of Natural Resources hereby grants to you for a period of one (1) year a Right of Entry to you for the purpose of installing ten feet (10') and fourteen feet (14') of erosion and sediment controls and returning the channels to original contours at separate locations; and a temporary impact of fifteen feet (15') from the connection of a stream channel with a net increase of forty-forty feet (44') of stream channel (Ramseys Ridge Road) along unnamed tributaries of Long Run near West Union in Doddridge County, West Virginia.

This Right of Entry is subject to the following terms and conditions:

1. No in stream work during the fish-spawning season (April 1-June 30).

2. Work should be completed as quickly as possible during low flows in designated work areas only.

3. Any streambed disturbance should be restricted to the immediate area. In stream use of equipment should be kept to a minimum.

4. All shore areas disturbed by this operation must be reshaped, seeded and mulched immediately upon completion of work. The prompt establishment of vegetative cover will reduce future damage from high water levels.

5. Average width and depth of the new channel should be the same as existing channel.

6. All stream channel relocations should involve NRCS (formerly SCS) consultation for best construction standards and procedures. Must allow for passage of at least ten-year flow.

7. River gravel may not be used to stabilize banks.

8. An adequate upstream barrier should be maintained between the old and new channel prior to filling the new channel.

9. Water should not be allowed to enter the new channel until construction is completed and banks stabilized.

10. Best management practices should be followed; measures such as hay bales must be used to reduce downstream siltation.

11. The State's issuance of this Right-of-Entry does not provide for the applicant to work outside the requested boundaries nor does the State assume any liability for the applicant's/landowner's construction activities. By accepting this Right-of-Entry, the applicant/landowner assumes liability for any/all damages caused by this activity to both upstream and downstream landowners.

Guidelines of Best Management Practices for Sediment and Erosion Control as outlined by the Section of Water Resources, Division of Environmental Protection must be followed. Copies of those guidelines are available from the Section of Water Resources, Telephone No. (304) 926-0440.

The issuance of this Right of Entry by the Division of Natural Resources does not preclude the necessity for you to obtain a permit from the U.S. Corps of Engineers District Office, Permit Section, or any other state or federal permits which may be required by law, nor does this Right of Entry negate the need to comply with the West Virginia Water Pollution Control Act and/or the State Environmental Quality Board's administrative regulations, applicant is also responsible for determining if the proposed activity is located within an identified flood plain and it is the applicant's responsibility for contacting the local governmental agency in charge of that program and obtaining a flood plain development permit for it. This Right of Entry does not grant any rights or privileges, or permission to enter upon or to cross the property of any other person, nor is permission granted to remove any material that lies upon the property of any other persons. Work should be completed in as brief a period as possible and within one year from the date of this letter. In the event you fail or refuse to comply with any of the terms or conditions herein, this Right of Entry will be canceled and considered null and void and the Division will reject further applications.

Your payment is now due and payable in the amount of $300.00 to the Division of Natural Resources covering the one-time fee of this agreement. Your agreement will be effective upon receipt of your payment in full.

Sincerely,

Joe T. Scarberry, Supervisor
Office of Land and Streams

JTS: cb

DIVISION OF NATURAL RESOURCES
324 Fourth Avenue, Room 200
South Charleston WV 25303-1228
TDD (304) 558-1439
TDD 1-800-354-6087
Fax (304) 558-6048
Telephone (304) 558-3225

Jim Justice
Governor

Stephen S. McDaniel
Director

November 15, 2017
Division of Natural Resources
RIGHT OF ENTRY

Re: LS-17-VI/09-1916

Antero Resources Corporation
Tyler Thigpen
c/o AllStar Ecology, LLC
Attention: Ernie Smith
1582 Meadowdale Road
Fairmont, WV 26554-

Dear Mr. Thigpen:

The Division of Natural Resources hereby grants to you for a period of ten (10) years from the date hereof, a Right of Entry for the purpose of installing and maintaining a temporary bridge and culverts of various sizes with additional impacts from construction activities (see Exhibit A - B) at six (6) separate locations (Ramseys Ridge Road) along Long Run and unnamed tributaries of Long Run near West Union in Doddridge County, West Virginia.

This Right of Entry is subject to the following terms and conditions:

1. No in stream work during the fish-spawning season (April 1-June 30).
2. Work should be completed as quickly as possible during low flows in designated work areas only.
3. Any stream bed disturbance should be restricted to the immediate area. In stream use of equipment should be kept to a minimum.
4. All shore areas disturbed by this operation must be reshaped, seeded and mulched immediately upon completion of work. The prompt establishment of vegetative cover will reduce future damage from high water levels.
5. Green concrete must not be put in the stream (highly toxic to aquatic life).

6. Guidance should be obtained from NRCS (formerly SCS) and a registered engineer for the design and construction. Must allow for passage of at least ten-year flood flow.

7. Best management practices should be followed; measures such as hay bales must be used to reduce downstream siltation.

8. River gravel may not be used to stabilize bank

9. Applicant is responsible for removing debris from in and around the installation periodically to prevent stream flow obstruction.

10. Durable head walls of logs, rock, or concrete shall be constructed at both the upstream and downstream ends of crossing to prevent erosion of fill material into the stream.

11. The State's issuance of this Right-of-Entry does not provide for the applicant to work outside the requested boundaries nor does the State assume any liability for the applicant's/landowner's construction activities. By accepting this Right-of-Entry, the applicant/landowner assumes liability for any/all damages caused by this activity to both upstream and downstream landowners.

Guidelines of Best Management Practices for Sediment and Erosion Control as outlined by the Section of Water Resources, Division of Environmental Protection must be followed. Copies of those guidelines are available from the Section of Water Resources, 601 57th Street S.E., Charleston, West Virginia 25304-2345, Telephone No. (304) 926-0440.

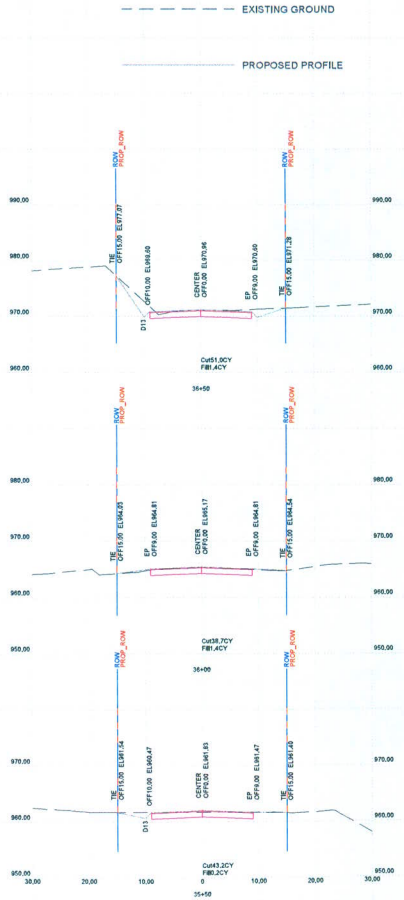
The issuance of this Right of Entry by the Division of Natural Resources does not preclude the necessity to obtain a permit from the Corps of Engineers or any other state or federal permits which may be required by law, nor does this Right of Entry negate the need to comply with the West Virginia Water Pollution Control Act and/or the State Environmental Quality Board's administrative regulations, applicant is also responsible for determining if the proposed activity is located within an identified flood plain and it is the applicant's responsibility for contacting the local governmental agency in charge of that program and obtaining a flood plain development permit for it. This Right of Entry does not grant any rights or privileges, or permission to enter upon or to cross the property of any other person, nor is permission granted to remove any material that lies upon the property of any other persons. Work should be completed in as brief a period as possible and within one year from the date of this letter. In the event you fail or refuse to comply with any of the terms or conditions herein, this Right of Entry will be canceled and considered null and void and the Division will reject further applications.

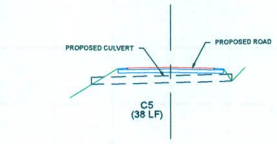
Your payment is now due and payable in the amount of $700.00 to the Division of Natural Resources covering the first year's annual fee of this agreement. Your agreement will be effective upon receipt of your payment in full. You must notify this office in writing when this installation has been removed.

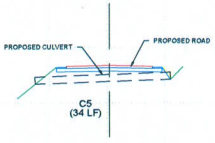
Sincerely,

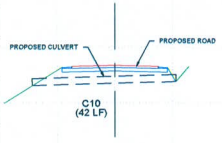
Joe T. Scarberry, Supervisor
Office of Land and Streams

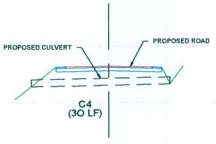
JTS: cb

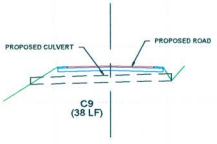


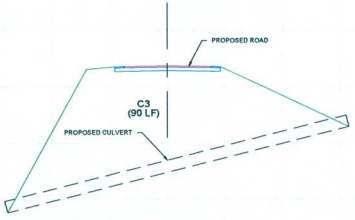


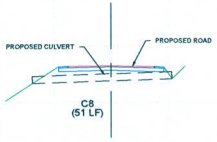


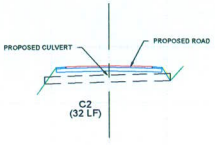


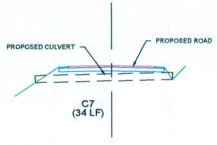












CULVERT PROFILES

TripleH enterprises

REVISION:

DATE:

Antero

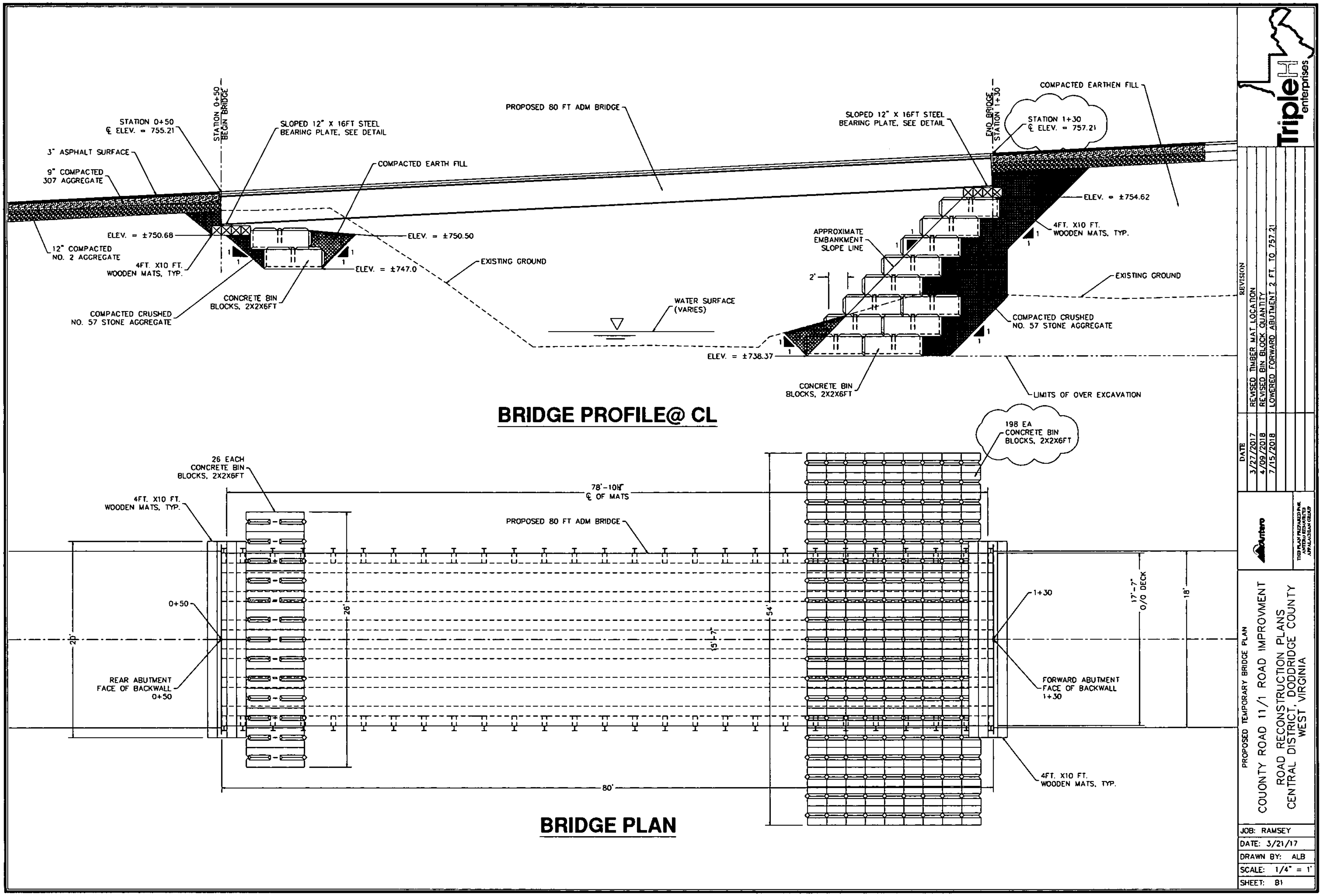
THESE PLANS PREPARED BY:
TRIPLE H ENTERPRISES, LLC
APPALACHIAN GROUP

CROSS SECTIONS

COUNTY ROAD 11/1 ROAD IMPROVEMENT
ROAD RECONSTRUCTIONS PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA

JOB: RAMSEY
DATE: 6/7/2016
DRAWN BY: ADS
SCALE: AS SHOWN
SHEET: 25 OF 33

DWG:


STATION 0+50
℄ ELEV. = 755.21
STATION 0+50 BEGIN BRIDGE
3" ASPHALT SURFACE
9" COMPACTED 307 AGGREGATE
SLOPED 12" X 16FT STEEL BEARING PLATE, SEE DETAIL
COMPACTED EARTH FILL
PROPOSED 80 FT ADM BRIDGE
ELEV. = ±750.68
ELEV. = ±750.50
12" COMPACTED NO. 2 AGGREGATE
4FT. X10 FT. WOODEN MATS, TYP.
ELEV. = ±747.0
EXISTING GROUND
CONCRETE BIN BLOCKS, 2X2X6FT
COMPACTED CRUSHED NO. 57 STONE AGGREGATE
WATER SURFACE (VARIES)
END BRIDGE STATION 1+30
STATION 1+30
℄ ELEV. = 757.21
COMPACTED EARTHEN FILL
ELEV. = ±754.62
APPROXIMATE EMBANKMENT SLOPE LINE
2'
ELEV. = ±738.37
LIMITS OF OVER EXCAVATION
BRIDGE PROFILE@ CL
198 EA CONCRETE BIN BLOCKS, 2X2X6FT
26 EACH CONCRETE BIN BLOCKS, 2X2X6FT
78'-10½"
℄ OF MATS
0+50
REAR ABUTMENT FACE OF BACKWALL 0+50
26'
54'
51'-7"
1+30
17'-7" O/O DECK
18'
FORWARD ABUTMENT FACE OF BACKWALL 1+30
80'
BRIDGE PLAN
Triple H enterprises
REVISION
REVISED TIMBER MAT LOCATION
REVISED BIN BLOCK QUANTITY
LOWERED FORWARD ABUTMENT 2 FT. TO 757.21
DATE
3/27/2017
4/09/2018
7/15/2018
Antero
PROPOSED TEMPORARY BRIDGE PLAN
COUONTY ROAD 11/1 ROAD IMPROVMENT
ROAD RECONSTRUCTION PLANS
CENTRAL DISTRICT, DODDRIDGE COUNTY
WEST VIRGINIA
JOB: RAMSEY
DATE: 3/21/17
DRAWN BY: ALB
SCALE: 1/4" = 1'
SHEET: B1

west virginia department of environmental protection

Division of Water and Waste Management
601 57th Street SE
Charleston, West Virginia 25304-2345
Phone: 304-926-0495
Fax: 304-926-0496

Austin Caperton, Cabinet Secretary
www.dep.wv.gov

March 29, 2018

TYLER THIGPEN
ANTERO RESOURCES APPALACHIAN CORPORATION
1615 WYNKOOP ST
DENVER, CO 80202

Re: General Permit Registration No. WVR310973
Ramsey's Ridge Road Phase II, Doddridge County,
Disturbed Acres (5.15)

Dear Permittee:

Attached is a copy of your completed registration form for your activity with the above assigned registration number. You are now authorized to operate under General Permit No. WV0116815. This registration form should be kept with your copy of the General Permit. You should carefully read the contents of the permit and become familiar with all requirements needed to remain in compliance.

Although you should be aware of all the terms and conditions of this permit, we wish to advise you of the following important requirements:

1. In accordance with Section G.4 of the General Permit, you have developed a complete storm water pollution prevention plan. This plan is to be retained on site and be available for review by the Director or the Director's authorized representative as of the date of your coverage by the General Permit, which is the date of this letter.

2. The erosion control measures approved by this agency for this project shall be maintained in proper condition to individually and collectively perform the functions for which they were designed. In order to ensure the efficiency and proper maintenance of these measures, the permittee shall make sufficiently frequent, periodic inspections to detect any impairment of the designed stability, capacity or environmental requirements of the approved measures. The permittee shall take immediate steps to correct any such impairment found to exist.

3. If this Stormwater Pollution Prevention Plan (SWPPP) proves to be ineffective in controlling erosion and the sediment in storm water discharges associated with industrial/construction activities, or site conditions change, the Permittee shall amend the SWPPP and install appropriate sediment and/or control devices in accordance with Section G.4.c) of this permit and the application instructions

4. The current General Permit expires on May 13, 2018. If you wish to continue an activity regulated by this permit after the expiration date of the permit, provisions for coverage will be made during the public notice process for any new General Permit to be issued at that time.

5. Final stabilization means disturbed areas shall be covered by the appropriate permanent protection. Final stabilization includes: pavement; buildings; stable waterways (riprap, concrete, grass or pipe); a healthy, vigorous stand of perennial grass that uniformly covers at least 70 percent of the ground; stable outlet channels with velocity dissipation which directs site runoff to a natural watercourse; and any other approved structure or material.

Your annual permit fee has been assessed as $250.00. You will be invoiced by this agency one month prior to the anniversary date of your original approval date. Failure to submit the annual fee within 90 days of the due date will render your permit void upon the date you are mailed a certified written notice to that effect. Please be advised that a pro-rated annual permit fee may be assessed upon the completion date and proper stabilization.

Issuance of this approval of the General Permit registration does not authorize any injury to persons or property or invasion of other private rights, or any infringement of federal, state or local law or rules.

The validity of this General Permit Registration is contingent upon payment of the applicable annual permit fee, as required by Chapter 22, Article 11, Section 10 of the Code of West Virginia.

Your efforts toward preventing the degradation of our natural resources are greatly appreciated. If you have any questions, please contact Sharon Mullins of this Division at (304) 926-0499 extension 1132 or at sharon.a.mullins@wv.gov.

Scott G. Mandirola
Director
WV DEP-Division of Water & Waste Mgt.
601 57th St SE
Charleston, WV 25304-2345
Phone: (304) 926-0495
Fax: (304) 926-0463

DEPARTMENT OF THE ARMY
HUNTINGTON DISTRICT, CORPS OF ENGINEERS
502 EIGHTH STREET
HUNTINGTON, WEST VIRGINIA 25701-2070

REPLY TO

November 13, 2017

Regulatory Division
Energy Resource Branch
LRH-2017-00920-OHR-Long Run

NATIONWIDE PERMIT NO. 14 VERIFICATION

Tyler Thigpen
Antero Resources Corporation
1615 Wynkoop Street
Denver, Colorado 80202

Dear Mr. Thigpen:

I refer to the Pre-Construction Notification (PCN) received in this office on October 30, 2017 concerning a proposal to discharge dredged and/or fill material into approximately 854 linear feet of eleven (11) streams, one (1) watershed, and two (2) ditches, at nine (9) single and complete location, in association with the Ramsey's Ridge Road Phase II project. The proposed project is located in Doddridge County, West Virginia approximately 3.6 miles northwest of West Union. Proposed stream impacts include Long Run and unnamed tributaries of Long Run. The site is located in the Long Run watershed. Long Run is a tributary of Arnold Creek, which is a tributary of Middle Island Creek (HUC# 05030201) of the Ohio River, a traditional navigable water. Your PCN has been assigned the following file number: LRH-2017-00920-OHR-Long Run. Please reference this number on all future correspondence related to this project.

The United States Army Corps of Engineers' (Corps) authority to regulate waters of the United States is based on the definitions and limits of jurisdiction contained in 33 CFR 328 and 33 CFR 329. Section 404 of the Clean Water Act (Section 404) requires a Department of the Army (DA) permit be obtained prior to discharging dredged or fill material into waters of the United States, including wetlands. Section 10 of the Rivers and Harbors Act of 1899 (Section 10) requires a DA permit be obtained for any work in, on, over or under a navigable water.

The proposed project, as described in the submitted information, has been reviewed in accordance with Section 404 and Section 10. Based on your description of the proposed work, and other information available to us, it has been determined that this project will not involve activities subject to the requirements of Section 10. However, this project will include the discharge of dredged or fill material into waters of the United States subject to the requirements of Section 404.

In the submitted PCN materials received in this office on October 30, 2017, you have requested a DA authorization for the discharge dredged and/or fill material into approximately 854 linear feet (0.374 acre) of 11 (11) streams, one (1) watershed, and two (2) ditches, at nine (9) single and complete project locations, in association with the Ramsey's Ridge Road Phase II project. We have determined these proposed discharge of dredged and/or fill material into waters of the United States associated with the nine (9) single and complete projects meet the criteria for Nationwide Permit Number (NWP) No. 14 under the January 6, 2017, Federal Register, Issuance of NWPs (82 FR 1860)

provided you comply with all terms and conditions of the enclosed material, the enclosed special conditions, and the 401 Water Quality Certification (401 WQC) issued by the West Virginia Department of Environmental Protection. Please be aware this NWP verification does not obviate the requirement to obtain any local, state or federal assent required by law for the activities.

This verification is valid until the expiration date of the NWPs, unless the NWP authorization is modified, suspended, or revoked. The verification will remain valid if the NWP authorization is reissued without modification or the activity complies with any subsequent modification of the NWP authorization. All of the existing NWPs are scheduled to be modified, reissued, or revoked on March 18, 2022. Prior to this date, it is not necessary to contact this office for re-verification of your project unless the plans for the proposed activity are modified. Furthermore, if you commence or under contract to commence this activity before March 18, 2022, you will have twelve (12) months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this NWP.

Enclosed is a copy of the NWPs and the 401 WQC to be kept at the project site during construction. You shall supply a copy of these documents to your project engineer responsible for construction activities.

Upon completion of the work, the enclosed certification must be signed and returned to this office. If you have any questions concerning the above, please contact Erika Thorsell of the Energy Resource Branch at 304-399-6902, by mail at the above address, or by email at: Erika.L.Thorsell@usace.army.mil.

Sincerely,

FANNIN.ADAM.E.1386572271

Digitally signed by FANNIN.ADAM.E.1386572271
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=FANNIN.ADAM.E.1386572271
Date: 2017.11.13 15:01:13 -05'00'

Adam E. Fannin
Project Manager
Energy Resource Branch

Enclosures

cc (via e-mail):
Ernie Smith
AllStar Ecology, LLC
1582 Meadowdale Road
Fairmont, West Virginia 26554

SPECIAL CONDITIONS FOR THE NATIONWIDE PERMIT NO. 14 VERIFICATION FOR Ramsey's Ridge Road Phase II Project LRH-2017-00920-LKR

1 of 2

1. Enclosed is a copy of Nationwide Permit 14, which will be kept at the site during construction. A copy of the nationwide permit verification, special conditions, and the enclosed construction plans must be kept at the site during construction. The permittee will supply a copy of these documents to their project engineer responsible for construction activities.

2. Upon completion of the activity authorized by this nationwide permit verification, the enclosed certification must be signed and returned to this office along with as-built drawings showing the location and configuration, as well as all pertinent dimensions and elevations of the activity authorized under this nationwide permit verification.

3. Construction activities will be performed during low flow conditions to the greatest extent practicable. Additionally, appropriate site specific best management practices for sediment and erosion control will be fully implemented during construction activities at the site.

4. No area for which grading has been completed will be unseeded or unmulched for longer than 14 days. All disturbed areas will be seeded and/or revegetated with native species and approved seed mixes (where practicable) after completion of construction activities for stabilization and to help preclude the establishment of non-native invasive species

5. Should new information regarding the scope and/or impacts of the project become available that was not submitted to this office during our review of the proposal, the permittee must submit written information concerning proposed modification(s) to this office for review and evaluation, as soon as practicable.

6. In the event any previously unknown historic or archaeological sites or human remains are uncovered while accomplishing the activity authorized by this nationwide permit authorization, the permittee must cease all work in waters of the United States immediately and contact local, state and county law enforcement offices (only contact law enforcement on findings of human remains), the Corps at 304-399-5210 and West Virginia State Historic Preservation Office at 304-558-0220. The Corps will initiate the Federal, state and tribal coordination required to comply with the National Historic Preservation Act and applicable state and local laws and regulations. Federally recognized tribes are afforded a government-to-government status as sovereign nations and consultation is required under Executive Order 13175 and 36 CFR Part 800.

SPECIAL CONDITIONS FOR THE NATIONWIDE PERMIT NO. 14 VERIFICATION FOR Ramsey's Ridge Road Phase II Project LRH-2017-00920-LKR

7. Section 7 obligations under Endangered Species Act must be reconsidered if new information reveals impacts of the project that may affect federally listed species or critical habitat in a manner not previously considered, the proposed project is subsequently modified to include activities which were not considered during Section 7 consultation with the United States Fish and Wildlife Service, or new species are listed or critical habitat designated that might be affected by the subject project.

RD-E-ELT

Permit Number: LRH -2017-00920-OHR-UNT to Long Run

Name of Permittee: Tyler Thigpen
Antero Resources Corporation
1615 Wynkoop Street
Denver, Colorado 80202

Date of Issuance: 11/13/2017

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

Huntington District
U.S. Army Corps of Engineers
502 8th Street
Huntington, West Virginia 25701-2070
Attn: RD-E-ELT

Please note that your permitted activity is subject to a compliance inspection by an United States Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

_____ _____

Signature of Permittee Date

The Doddridge Independent

The Doddridge Independent

PUBLISHER'S CERTIFICATE

I, Michael D. Zorn, Publisher of The Doddridge Independent, A newspaper of general circulation published in the town of West Union, Doddridge County, West Virginia, do hereby certify that:

Please take notice that on the (13th) of (July), 2020, (Antero Resources) filed an application for a Floodplain Permit (#20-579) to develop land located at or about (Ramseys Ridge Road); Coordinates: 39.324403, -80.833417. The Application is on file with the Floodplain Manager of the County and may be inspected or copied during regular business hours in accordance to WV Code Chapter 29B Freedom of Information, Article 1 Public Records and county policy and procedures. Any interested persons who desire to comment shall present the

was published in The Doddridge Independent
2 times commencing on Friday, July 17, 2020 and
Ending on Friday, July 24, 2020 at the request of:

George Eidel, Doddridge County Floodplain Manager& Doddridge County Commission

Given under my hand this Friday, July 24, 2020

The publisher's fee for said publication is:

$ 31.05 1st Run/$ 23.29 Subsequent Runs

This Legal Ad Total: $ 54.34

Michael D. Zorn
Publisher of The Doddridge Independent

Subscribed to and sworn to before me on
this date: 7/24/20

Robert E Burnside

Notary Public in and for Doddridge County
My Commission expires on
The 16 day of May 2024

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
ROBERT E BURNSIDE
Summit Community Bank
251 Main Street
West Union, WV 26426
My Commission Expires May 16, 2024

Floodplain Public Notice • Legal Notice

Please take notice that on the (13th) of (July), 2020, (Antero Resources) filed an application for a Floodplain Permit (#20-579) to develop land located at or about (Ramseys Ridge Road); Coordinates: 39.324403, -80.833417. The Application is on file with the Floodplain Manager of the County and may be inspected or copied during regular business hours in accordance to WV Code Chapter 29B Freedom of Information, Article 1 Public Records and county policy and procedures. Any interested persons who desire to comment shall present the same in writing by (August 10, 2020) (20 calendar days after the announcement at the regularly scheduled Doddridge County Commission Meeting) delivered to the Floodplain Manager of the County at 105 Court Street, Suite #3, West Union, WV 26456. This project is the Ramseys Ridge Road Upgrade Project (renewal of #18-504) 7/17-7/24