

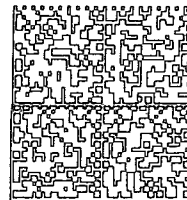
George Eidel  
Doddridge County FloodPlain MGT  
108 Court St., Ste 1  
West Union, WV 26456

**CERTIFIED MAIL™**

CHARLESTON



7014 0150 0001 7356 7832



HASLER

\$006.74<sup>0</sup>

06/24/2016 ZIP 26456  
012E14643162

US POSTAGE

Elizabeth Anne Spencer  
146 Mastons  
West Union, WV

NIXIE

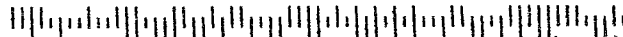
*Handwritten signature: M. Hasler*

250 SE 1

0007/19/16

RETURN TO SENDER  
UNCLAIMED  
UNABLE TO FORWARD

BC: 26456209501 \*0671-00599-25-43



204562645602095

PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT  
OF THE RETURN ADDRESS, FOLD AT DOTTED LINE

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

**Elizabeth Anne Spencer**  
**146 Mastons Rd**  
**West Union, WV 26456**

2. Article Number  
*(Transfer from service label)*

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature  Agent  
 Addressee  
**X**

B. Received by (*Printed Name*) C. Date of Delivery

D. Is delivery address different from item 1?  Yes  
 If YES, enter delivery address below:  No

3. Service Type  
 Certified Mail     Express Mail  
 Registered         Return Receipt for Merchandise  
 Insured Mail         C.O.D.

4. Restricted Delivery? (*Extra Fee*)  Yes



Doddridge County FPM  
108 Court Street, Ste. 1  
West Union, WV 26456

Dear Sir or Ma'am,

You are receiving this letter because you have been identified as a land surface and/or mineral rights owner for property or adjacent property related to the proposed development project identified by the following page.

No action is required of you. This letter is simply to inform you of the proposed development.

If you would like to comment on this proposed project, or would like additional information, you may contact the Doddridge County Floodplain Manager at the above address.

Respectfully yours,

Doddridge County Floodplain Manager  
304-873-2631 or 304-873-1343  
[doddridgecountyfpm@gmail.com](mailto:doddridgecountyfpm@gmail.com)

# Doddridge County Floodplain Permits

(Week of , 2016 )

Please take notice that on the 10<sup>th</sup> day of June, 2016, EQT Production Company filed an application for a Floodplain Permit (#16-426) to develop land located at or about 39.308764, -80.780468. The Application is on file with the Clerk of the County Court and may be inspected or copied during regular business hours. Any interested persons who desire to comment shall present the same in writing by July 25, 2016\_ (20 calendar days after the announcement at the regularly scheduled Doddridge County Commission Meeting) delivered to the Clerk of the County Court at 108 Court Street Ste. 1, West Union, WV 26456. This project is for the addition of a second entrance for an existing truck pad located on Rt18 just south of Tonkin Station

7014 0150 0001 7356 8020

<b>U.S. Postal Service™</b> <b>CERTIFIED MAIL™ RECEIPT</b> <i>(Domestic Mail Only; No Insurance Coverage Provided)</i>	
For delivery information visit our website at <a href="http://www.usps.com">www.usps.com</a>	
<b>OFFICIAL USE</b>	
Postage	\$ .49
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.80
Restricted Delivery Fee (Endorsement Required)	
<b>Total Postage &amp; Fees</b>	<b>\$ 6.74</b>
Sent To Street, Apt. No., or PO Box No. City, State, ZIP+4	
PS Form 3800, August 2006 <span style="float: right;">See Reverse for Instructions</span>	

WEST UNION, WV  
 Postmark Here  
 JUN 25 2016  
 #16-426  
 USPS 26456-9998

7014 0150 0001 7356 8037

<b>U.S. Postal Service™</b> <b>CERTIFIED MAIL™ RECEIPT</b> <i>(Domestic Mail Only; No Insurance Coverage Provided)</i>	
For delivery information visit our website at <a href="http://www.usps.com">www.usps.com</a>	
<b>OFFICIAL USE</b>	
Postage	\$ .49
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.80
Restricted Delivery Fee (Endorsement Required)	
<b>Total Postage &amp; Fees</b>	<b>\$ 6.74</b>
Sent To Street, Apt. No., or PO Box No. City, State, ZIP+4	
PS Form 3800, August 2006 <span style="float: right;">See Reverse for Instructions</span>	

WEST UNION, WV  
 Postmark Here  
 JUN 25 2016  
 #16-426  
 USPS 26456-9998

7014 0150 0001 7356 8105

<b>U.S. Postal Service™</b> <b>CERTIFIED MAIL™ RECEIPT</b> <i>(Domestic Mail Only; No Insurance Coverage Provided)</i>	
For delivery information visit our website at <a href="http://www.usps.com">www.usps.com</a>	
<b>OFFICIAL USE</b>	
Postage	\$ .49
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.80
Restricted Delivery Fee (Endorsement Required)	
<b>Total Postage &amp; Fees</b>	<b>\$ 6.74</b>
Sent To Street, Apt. No., or PO Box No. City, State, ZIP+4	
PS Form 3800, August 2006 <span style="float: right;">See Reverse for Instructions</span>	

WEST UNION, WV  
 Postmark Here  
 JUN 25 2016  
 #16-426  
 USPS 26456-9998

7014 0150 0001 7356 8018

<b>U.S. Postal Service™</b> <b>CERTIFIED MAIL™ RECEIPT</b> <i>(Domestic Mail Only; No Insurance Coverage Provided)</i>	
For delivery information visit our website at <a href="http://www.usps.com">www.usps.com</a>	
<b>OFFICIAL USE</b>	
Postage	\$ .49
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.80
Restricted Delivery Fee (Endorsement Required)	
<b>Total Postage &amp; Fees</b>	<b>\$ 6.74</b>
Sent To Street, Apt. No., or PO Box No. City, State, ZIP+4	
PS Form 3800, August 2006 <span style="float: right;">See Reverse for Instructions</span>	

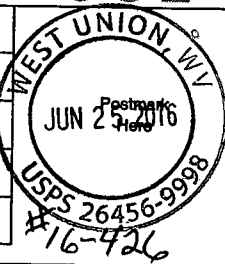
WEST UNION, WV  
 Postmark Here  
 JUN 25 2016  
 #16-426  
 USPS 26456-9998

U.S. Postal Service™  
**CERTIFIED MAIL™ RECEIPT**  
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at [www.usps.com](http://www.usps.com).

**OFFICIAL USE**

Postage	\$ .49
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.80
Restricted Delivery Fee (Endorsement Required)	
<b>Total Postage &amp; Fees</b>	<b>\$ 6.74</b>



Sent To  
Street, Apt. No.,  
or PO Box No.  
City, State, ZIP+4

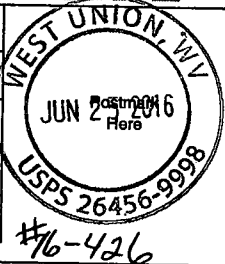
PS Form 3800, August 2006 See Reverse for Instructions

U.S. Postal Service™  
**CERTIFIED MAIL™ RECEIPT**  
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at [www.usps.com](http://www.usps.com).

**OFFICIAL USE**

Postage	\$ .49
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.80
Restricted Delivery Fee (Endorsement Required)	
<b>Total Postage &amp; Fees</b>	<b>\$ 6.74</b>



Sent To  
Street, Apt. No.,  
or PO Box No.  
City, State, ZIP+4

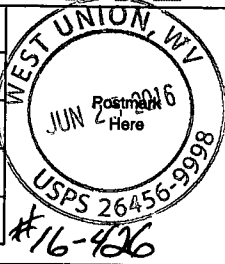
PS Form 3800, August 2006 See Reverse for Instructions

U.S. Postal Service™  
**CERTIFIED MAIL™ RECEIPT**  
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at [www.usps.com](http://www.usps.com).

**OFFICIAL USE**

Postage	\$ .49
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.80
Restricted Delivery Fee (Endorsement Required)	
<b>Total Postage &amp; Fees</b>	<b>\$ 6.74</b>



Sent To  
Street, Apt. No.,  
or PO Box No.  
City, State, ZIP+4

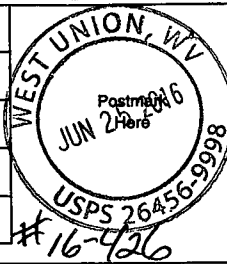
PS Form 3800, August 2006 See Reverse for Instructions

U.S. Postal Service™  
**CERTIFIED MAIL™ RECEIPT**  
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at [www.usps.com](http://www.usps.com).

**OFFICIAL USE**

Postage	\$ .49
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.80
Restricted Delivery Fee (Endorsement Required)	
<b>Total Postage &amp; Fees</b>	<b>\$ 6.74</b>



Sent To  
Street, Apt. No.,  
or PO Box No.  
City, State, ZIP+4

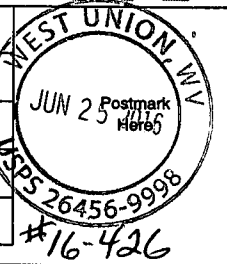
PS Form 3800, August 2006 See Reverse for Instructions

U.S. Postal Service™  
**CERTIFIED MAIL™ RECEIPT**  
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at [www.usps.com](http://www.usps.com).

**OFFICIAL USE**

Postage	\$ .49
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.80
Restricted Delivery Fee (Endorsement Required)	
<b>Total Postage &amp; Fees</b>	<b>\$ 6.74</b>



Sent To  
Street, Apt. No.,  
or PO Box No.  
City, State, ZIP+4

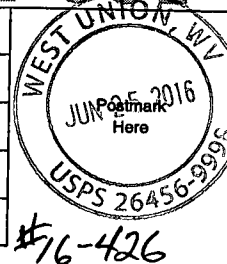
PS Form 3800, August 2006 See Reverse for Instructions

U.S. Postal Service™  
**CERTIFIED MAIL™ RECEIPT**  
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at [www.usps.com](http://www.usps.com).

**OFFICIAL USE**

Postage	\$ .49
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.80
Restricted Delivery Fee (Endorsement Required)	
<b>Total Postage &amp; Fees</b>	<b>\$ 6.74</b>



Sent To  
Street, Apt. No.,  
or PO Box No.  
City, State, ZIP+4

PS Form 3800, August 2006 See Reverse for Instructions

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

**Nelson Bruffy**  
**309 Tonkin Station Rd**  
**West Union, WV 26456**



9590 9402 1888 6104 9675 41

2. Article Number (Transfer from service label)

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature

**X**

Agent

Addressee

B. Received by (Printed Name)

C. Date of Delivery

D. Is delivery address different from item 1?  Yes  
 If YES, enter delivery address below:  No

**3. Service Type**

- |  |   |
|--|---|
| <input type="checkbox"/> Adult Signature                               | <input type="checkbox"/> Priority Mail Express®                     |
| <input type="checkbox"/> Adult Signature Restricted Delivery           | <input type="checkbox"/> Registered Mail™                           |
| <input type="checkbox"/> Certified Mail®                               | <input type="checkbox"/> Registered Mail Restricted Delivery        |
| <input type="checkbox"/> Certified Mail Restricted Delivery            | <input type="checkbox"/> Return Receipt for Merchandise             |
| <input type="checkbox"/> Collect on Delivery                           | <input type="checkbox"/> Signature Confirmation™                    |
| <input type="checkbox"/> Collect on Delivery Restricted Delivery       | <input type="checkbox"/> Signature Confirmation Restricted Delivery |
| <input type="checkbox"/> Insured Mail                                  |   |
| <input type="checkbox"/> Insured Mail Restricted Delivery (over \$500) |   |



**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

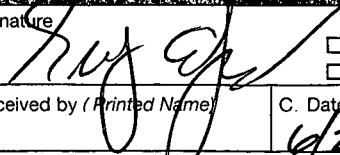
1. Article Addressed to:

**Greg & Denise Edgell**  
**1873 WV Rt. 18**  
**West Union, WV 26456**

2. Article Number

*(Transfer from service label)***COMPLETE THIS SECTION ON DELIVERY**

A. Signature

 Agent Addressee

B. Received by (Printed Name)

C. Date of Delivery

6/27/16

D. Is delivery address different from item 1?  Yes  
 If YES, enter delivery address below:  No

3. Service Type

 Certified Mail Express Mail Registered Return Receipt for Merchandise Insured Mail C.O.D.

4. Restricted Delivery? (Extra Fee)

 Yes



UNITED STATES POSTAL SERVICE

WV 250

27 JUN '16



First-Class Mail  
Postage & Fees Paid  
USPS  
Permit No. G-10

PHIL

- Sender: Please print your name, address, and ZIP+4 in this box •

George Eidel  
Doddridge County OEM/Floodplain Mngr  
108 Court St. Ste 1  
West Union, WV 26456

#16-426



**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

**Michael & Barbara Travis**  
**710 Crystal Lake Rd**  
**West Union, WV 26456**



9590 9402 1888 6104 9675 34

2. Article Number (Transfer from service label)

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature

X *Barbara Travis*  Agent  
 Addressee

B. Received by (Printed Name)

C. Date of Delivery

06/27/16

D. Is delivery address different from item 1?  Yes  
 If YES, enter delivery address below:  No

3. Service Type

- |  |   |
|--|---|
| <input type="checkbox"/> Adult Signature                               | <input type="checkbox"/> Priority Mail Express®                     |
| <input type="checkbox"/> Adult Signature Restricted Delivery           | <input type="checkbox"/> Registered Mail™                           |
| <input type="checkbox"/> Certified Mail®                               | <input type="checkbox"/> Registered Mail Restricted Delivery        |
| <input type="checkbox"/> Certified Mail Restricted Delivery            | <input type="checkbox"/> Return Receipt for Merchandise             |
| <input type="checkbox"/> Collect on Delivery                           | <input type="checkbox"/> Signature Confirmation™                    |
| <input type="checkbox"/> Collect on Delivery Restricted Delivery       | <input type="checkbox"/> Signature Confirmation Restricted Delivery |
| <input type="checkbox"/> Insured Mail                                  |   |
| <input type="checkbox"/> Insured Mail Restricted Delivery (over \$500) |   |

USPS TRACKING#

CHARLESTON



First-Class Mail  
Postage & Fees Paid  
USPS  
Permit No. G-10

9590 9402 1888 6104 9675 34

**United States  
Postal Service**

• Sender: Please print your name, address, and ZIP+4® in this box•

George Eidel  
Doddridge County FloodPlain MGT  
108 Court St., Ste 1  
West Union, WV 26456

#16-426



**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

**Josh & Kimberly Weekley**  
**1925 WV Rt. 18N**  
**West Union, WV 26456**

2. Article Number

*(Transfer from service label)*

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature

**X**

- Agent  
 Addressee

B. Received by (*Printed Name*)

C. Date of Delivery

D. Is delivery address different from item 1?  Yes  
If YES, enter delivery address below:  No

3. Service Type

- Certified Mail     Express Mail  
 Registered         Return Receipt for Merchandise  
 Insured Mail         C.O.D.

4. Restricted Delivery? (*Extra Fee*)

Yes

CHARLESTON  
UNITED STATES POSTAL SERVICE

250  
27 JUN '16

PM 11



First-Class Mail  
Postage & Fees Paid  
USPS  
Permit No. G-10

- Sender: Please print your name, address, and ZIP+4 in this box •

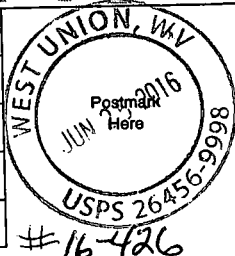
George Eidel  
Doddridge County OEM/Floodplain Mngr  
108 Court St. Ste 1  
West Union, WV 26456



7014 0150 0001 7356 7832

U.S. Postal Service™  
**CERTIFIED MAIL™ RECEIPT**  
 (Domestic Mail Only; No Insurance Coverage Provided)  
 For delivery information visit our website at [www.usps.com](http://www.usps.com)

Postage	\$ .49
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.80
Restricted Delivery Fee (Endorsement Required)	
<b>Total Postage &amp; Fees</b>	<b>\$ 6.74</b>

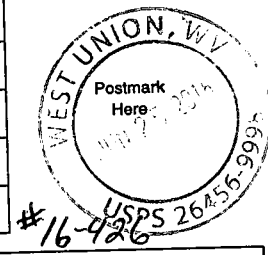


Sent To  
 Street, Apt. No.,  
 or PO Box No.  
 City, State, ZIP+4  
 PS Form 3800, August 2006 See Reverse for Instructions

7014 0150 0001 7356 8006

U.S. Postal Service™  
**CERTIFIED MAIL™ RECEIPT**  
 (Domestic Mail Only; No Insurance Coverage Provided)  
 For delivery information visit our website at [www.usps.com](http://www.usps.com)

Postage	\$ .49
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.80
Restricted Delivery Fee (Endorsement Required)	
<b>Total Postage &amp; Fees</b>	<b>\$ 6.74</b>



Sent To  
 Street, Apt. No.,  
 or PO Box No.  
 City, State, ZIP+4  
 PS Form 3800, August 2006 See Reverse for Instructions

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

**Jeffery Stamm**  
**Rt 5 Box 350**  
**Salem, WV 26426**



9590 9402 1888 6104 9675 27

2. Article Number (Transfer from service label)

PS Form 3811, July 2015 PSN 7530-02-000-9053

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature  
 X *[Signature]*  Agent  Addressee

B. Received by (Printed Name) *Donald H. Stamm* C. Date of Delivery *7/1/16*

D. Is delivery address different from item 1?  Yes  No  
 If YES, enter delivery address below:

3. Service Type
- Adult Signature
  - Adult Signature Restricted Delivery
  - Certified Mail®
  - Certified Mail Restricted Delivery
  - Collect on Delivery
  - Collect on Delivery Restricted Delivery
  - Insured Mail
  - Insured Mail Restricted Delivery (over \$500)
  - Priority Mail Express®
  - Registered Mail™
  - Registered Mail Restricted Delivery
  - Return Receipt for Merchandise
  - Signature Confirmation®
  - Signature Confirmation Restricted Delivery

Domestic Return Receipt

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

**Ralph & Sheila McCutchan**  
**1905 WV Rt. 18**  
**West Union, WV 26456**

2. Article Number (Transfer from service label)

PS Form 3811, February 2004

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature  
 X *[Signature]*  Agent  Addressee

B. Received by (Printed Name) *Ralph P McCutchan* C. Date of Delivery *6-29-16*

D. Is delivery address different from item 1?  Yes  No  
 If YES, enter delivery address below:

3. Service Type
- Certified Mail
  - Express Mail
  - Registered
  - Return Receipt for Merchandise
  - Insured Mail
  - C.O.D.
4. Restricted Delivery? (Extra Fee)  Yes

102595-02-M-1540

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

**Elizabeth Anne Spencer**  
**219 Cedar Run Rd**  
**Friendly, WV 26146**

2. Article Number (Transfer from service label)

PS Form 3811, February 2004

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature  
 X *[Signature]*  Agent  Addressee

B. Received by (Printed Name) C. Date of Delivery *6/29*

D. Is delivery address different from item 1?  Yes  No  
 If YES, enter delivery address below:

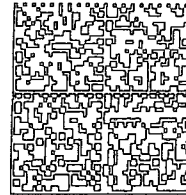
3. Service Type
- Certified Mail
  - Express Mail
  - Registered
  - Return Receipt for Merchandise
  - Insured Mail
  - C.O.D.
4. Restricted Delivery? (Extra Fee)  Yes

102595-02-M-1540

George Eidel  
Doddridge County FloodPlain MGT  
108 Court St., Ste 1  
West Union, WV 26456



7014 0150 0001 7356 8044

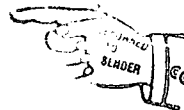


HASLER

\$006.74<sup>0</sup>

06/24/2016 ZIP 26456  
012E14643162

US POSTAGE

 NO SUCH NUMBER

*NSN*

Rebecca Nicholson  
2213 WV Rt. 18N  
West Union, WV 26456

*Change  
Project direction  
on Court  
Security  
Grant*

26456-891613





**CERTIFIED MAIL**  
PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT  
OF THE RETURN ADDRESS, FOLD AT DOTTED LINE

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

**Rebecca Nicholson  
2213 WV Rt. 18N  
West Union, WV 26456**

2. Article Number  
(Transfer from service label)

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature

**X**

- Agent  
 Addressee

B. Received by (Printed Name)

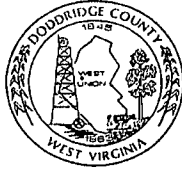
C. Date of Delivery

D. Is delivery address different from item 1?  Yes  
If YES, enter delivery address below:  No

3. Service Type

- Certified Mail     Express Mail  
 Registered     Return Receipt for Merchandise  
 Insured Mail     C.O.D.

4. Restricted Delivery? (Extra Fee)  Yes



Doddridge County FPM  
108 Court Street, Ste. 1  
West Union, WV 26456

Dear Sir or Ma'am,

You are receiving this letter because you have been identified as a land surface and/or mineral rights owner for property or adjacent property related to the proposed development project identified by the following page.

No action is required of you. This letter is simply to inform you of the proposed development.

If you would like to comment on this proposed project, or would like additional information, you may contact the Doddridge County Floodplain Manager at the above address.

Respectfully yours,

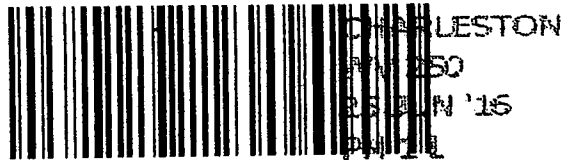
Doddridge County Floodplain Manager  
304-873-2631 or 304-873-1343  
[doddridgecountyfpm@gmail.com](mailto:doddridgecountyfpm@gmail.com)

## **Doddridge County Floodplain Permits**

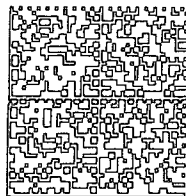
(Week of , 2016 )

Please take notice that on the **10<sup>th</sup>** day of **June, 2016**, **EQT Production Company** filed an application for a Floodplain Permit (**#16-426**) to develop land located at or about **39.308764, -80.780468**. The Application is on file with the Clerk of the County Court and may be inspected or copied during regular business hours. Any interested persons who desire to comment shall present the same in writing by **July 25, 2016**\_ (20 calendar days after the announcement at the regularly scheduled Doddridge County Commission Meeting) delivered to the Clerk of the County Court at 108 Court Street Ste. 1, West Union, WV 26456. **This project is for the addition of a second entrance for an existing truck pad located on Rt18 just south of Tonkin Station**

George Eidel  
Doddrige County FloodPlain MGT  
108 Court St., Ste 1  
West Union, WV 26456



7014 0150 0001 7356 8051



HASLER

\$006.74<sup>0</sup>

06/24/2016 ZIP 26456  
012E14643162

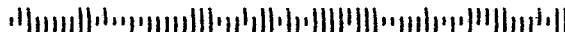
US POSTAGE



*NSW*

Paul & Sharon Weekley  
2373 WV Rt. 18N  
West Union, WV 26456

26456-891873



**CERTIFIED MAIL™**  
PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT  
OF THE RETURN ADDRESS, FOLDED AT DOTTED LINE

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

**Paul & Sharon Weekley**  
**2373 WV Rt. 18N**  
**West Union, WV 26456**

2. Article Number  
*(Transfer from service label)*

**COMPLETE THIS SECTION ON DELIVERY**

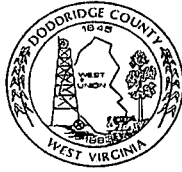
A. Signature  Agent  
**X**  Addressee

B. Received by (*Printed Name*) C. Date of Delivery

D. Is delivery address different from item 1?  Yes  
If YES, enter delivery address below:  No

3. Service Type  
 Certified Mail  Express Mail  
 Registered  Return Receipt for Merchandise  
 Insured Mail  C.O.D.

4. Restricted Delivery? (*Extra Fee*)  Yes



Doddridge County FPM  
108 Court Street, Ste. 1  
West Union, WV 26456

Dear Sir or Ma'am,

You are receiving this letter because you have been identified as a land surface and/or mineral rights owner for property or adjacent property related to the proposed development project identified by the following page.

No action is required of you. This letter is simply to inform you of the proposed development.

If you would like to comment on this proposed project, or would like additional information, you may contact the Doddridge County Floodplain Manager at the above address.

Respectfully yours,

Doddridge County Floodplain Manager  
304-873-2631 or 304-873-1343  
[doddridgecountyfpm@gmail.com](mailto:doddridgecountyfpm@gmail.com)

## **Doddridge County Floodplain Permits**

(Week of , 2016 )

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George Eidel  
Doddridge County FloodPlain MGT  
108 Court St., Ste 1  
West Union, WV 26456

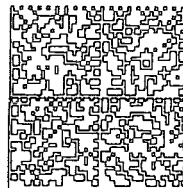
**VERIFIED MAIL™**



7014 0150 0001 7356 8037

CHARLESTON

WV 26450  
JUN '16



HASLER

\$006.74<sup>0</sup>

06/24/2016 ZIP 26456  
012E14643162

US POSTAGE

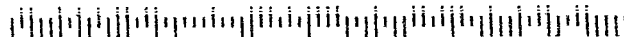
*ASN*

Brandon f  
2213 WV f  
West Union,

NIXIE 250 SE 1 0007/01/16

RETURN TO SENDER  
NO SUCH NUMBER  
UNABLE TO FORWARD

BC: 26456209501 \*0671-00684-25-43





PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT  
OF THE RETURN ADDRESS. FOLD AT DOTTED LINE

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

**Brandon Rogers  
2213 WV Rt. 18N  
West Union, WV 26456**

2. Article Number  
*(Transfer from service label)*

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature

**X**

- Agent  
 Addressee

B. Received by (*Printed Name*)

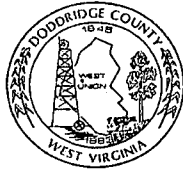
C. Date of Delivery

D. Is delivery address different from item 1?  Yes  
If YES, enter delivery address below:  No

3. Service Type

- Certified Mail     Express Mail  
 Registered         Return Receipt for Merchandise  
 Insured Mail        C.O.D.

4. Restricted Delivery? (*Extra Fee*)     Yes



Doddridge County FPM  
108 Court Street, Ste. 1  
West Union, WV 26456

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Respectfully yours,

Doddridge County Floodplain Manager  
304-873-2631 or 304-873-1343  
[doddridgecountyfpm@gmail.com](mailto:doddridgecountyfpm@gmail.com)

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(Week of , 2016 )

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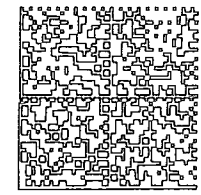
George Eidel  
Doddridge County FloodPlain MGT  
108 Court St., Ste 1  
West Union, WV 26456

**CERTIFIED MAIL**



7014 0150 0001 7356 8020

CHARLESTON  
WV 260  
JUN '16



HASLER

\$006.74<sup>0</sup>

06/24/2016 ZIP 26456  
012E14643162

US POSTAGE

1A

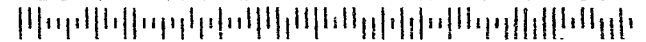
Joyc  
HC 6  
West Unio

NIXIE 250 SE 1 0007/01/16

RETURN TO SENDER  
INSUFFICIENT ADDRESS  
UNABLE TO FORWARD

BC: 26456209501 \*0671-00746-25-43

26456-9560005



PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT  
OF THE RETURN ADDRESS, FOLD AT DOTTED LINE

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
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- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

**Joyce Lapo  
HC 60 Box 5  
West Union, WV 26456**

2. Article Number  
*(Transfer from service label)*

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature

**X**

- Agent  
 Addressee

B. Received by (*Printed Name*)

C. Date of Delivery

D. Is delivery address different from item 1?  Yes  
If YES, enter delivery address below:  No

3. Service Type

- Certified Mail     Express Mail  
 Registered         Return Receipt for Merchandise  
 Insured Mail        C.O.D.

4. Restricted Delivery? (*Extra Fee*)     Yes



Doddridge County FPM  
108 Court Street, Ste. 1  
West Union, WV 26456

Dear Sir or Ma'am,

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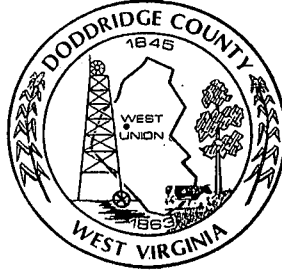
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Doddridge County Floodplain Manager  
304-873-2631 or 304-873-1343  
[doddridgecountyfpm@gmail.com](mailto:doddridgecountyfpm@gmail.com)

## **Doddridge County Floodplain Permits**

(Week of , 2016 )

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# 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 #: 16-426**

**Date Approved: July 25, 2016**

**Expires: July 25, 2017**

**Issued to: EQT Production Company**

**POC: Lacoa Corder**

**Company Address: 120 Professional Place Bridgeport, WV 26330**

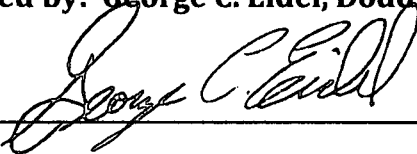
**Project Address: Route 18 West Union, WV 26456**

**Firm: 54017C0120C**

**Lat/Long: 39.308764N, -80.780469W**

**Purpose of development: Second entrance for existing truck pad on Middle Island Creek**

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

  
\_\_\_\_\_

**Date:**

---

For additional information regarding this permit, please contact  
Doddridge County Floodplain Manager at 304.873.2631, or via email at  
doddridgecountyfpm@gmail.com  
118 East Court Street; West Union, WV 26456

---



# Doddridge County, West Virginia

RECEIPT NO: 7259

DATE: 2016/06/22

FROM: BLUE MOUNTAIN ENGINEERING

AMOUNT: \$ 250.00

TWO HUNDRED FIFTY DOLLARS AND 00 CENTS

FOR: #16-426 EQT MIDDLE ISLAND CREEK

00000010406 FP-BUILDING PERMITS

020-318

TOTAL: \$250.00

MICHAEL HEADLEY

SHERIFF & TREASURER

MEC

CLERK

Customer Copy

**BLUE MOUNTAIN ENGINEERING**

10406

DODDRIDGE COUNTY COMMISSION

6/6/2016

250.00

#16-426

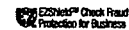
First Exchange Bank EQT MIDDLE ISLAND CREEK

250.00

GREEN SILENTLINK CROWN AND GREEN DIAMOND DISAPPEAR WHEN COPIED. HEAT-SENSITIVE RED LOCK DISAPPEARS WHEN HEATED.

10406

**BLUE MOUNTAIN ENGINEERING**  
GENERAL ACCOUNT  
10125 MASON-DIXON HWY.  
BURTON, WV 26562



6/6/2016

PAY TO THE ORDER OF **DODDRIDGE COUNTY COMMISSION**

\$ \*\*250.00

Two Hundred Fifty and 00/100\*\*\*\*\* DOLLARS

DODDRIDGE COUNTY COMMISSION  
108 COURT STREET, STE 1  
WEST UNION, WV 26456



*Wanda J. Six*  
AUTHORIZED SIGNATURE

Security features. Details on back.

MEMO

EQT MIDDLE ISLAND CREEK

⑈010406⑈ ⑆051501354⑆ 20⑈02309⑈

**BLUE MOUNTAIN ENGINEERING**

DODDRIDGE COUNTY COMMISSION

6/6/2016

10406

250.00

*COPY*

First Exchange Bank EQT MIDDLE ISLAND CREEK

250.00

## **Doddridge County Floodplain Permits**

(Week of , 2016 )

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**LETTER OF TRANSMITTAL**

TO: Doddridge County  
 Commission  
 c/o Floodplain Manager  
 118 East Court Street  
 West Union, WV 26456

**LIST OF ITEMS SUBMITTED**

JUN10 16 1:45PM

Number of Items	Original or Copy	Description
1	1 Original	\$250 Doddridge County Floodplain Permit Fee; Check number: 10406
2	1 Original 1 Copy	EQT Middle Island Creek Truck Pad Doddridge County Floodplain permit and site plan drawings

Submitted By: Kaley Dubois Date: 6-8-2016

Received By: \_\_\_\_\_ Date: \_\_\_\_\_

Print Name: \_\_\_\_\_

Please Sign and Return Via Fax or Email

Fax: (304) 662-6501  
 Email: bmi@bluemtninc.com



**Blue Mountain Inc.**  
11023 Mason Dixon Highway  
Burton, WV 26562  
Ph: (304) 662-6486  
Fax: (304) 662-6501

May 31, 2016

To: Doddridge County Assessor's Office  
c/o Mr. George Eidel  
118 East Court Street, Suite B6  
West Union, WV 26456

JUN10 16 1:45PM

Subject: Doddridge County Floodplain Permit  
EQT Production Company  
Middle Island Creek Truck Pad

Dear Mr. George Eidel,

Enclosed please find one original and one copy of the completed Doddridge County Floodplain Permit and the associated fee for the following project:

Applicant: EQT Production Company

Project Name: Middle Island Creek Truck Pad

Project Description: EQT Production Company is proposing a second entrance for an existing truck pad along SR18. This truck pad entrance will require 15 cubic yards of gravel fill for access.

An H&H Study has been performed by Blue Mountain, Inc. on behalf of EQT Production Company. Please find this attached with the permit package.

Please contact Kaley DuCoeur at 304-662-6486 or [BMI@bluemtninc.com](mailto:BMI@bluemtninc.com) if you have any questions regarding this request.

Respectfully,  
Blue Mountain, Inc.

Kaley DuCoeur  
Environmental Scientist

Enclosures

Cc: L. Corder



Permit# 16-426  
Project Name: Middle Island Creek Truck Pad  
Permittees Name: EQT Prod. Co.

## **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. Development shall not be used or occupied until a Certificate of Compliance is issued.
5. The permit will expire if no work is commenced within six months of issuance.
6. Applicant is hereby informed that other permits may be required to fulfill local, state, and federal requirements.
7. Applicant hereby gives consent to the Floodplain Administrator/Manager or his/her representative to make inspections to verify compliance.
8. 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 \_\_\_\_\_

*Jacobs Lorder*

DATE \_\_\_\_\_

*6/7/16*

Doddridge County Commercial/Industrial  
Floodplain Development Permit Application

**Applicant Information:**

*Please provide all pertinent data.*

<b>Applicant Information</b>		
Responsible Company Name: EQT Production Corporation		
Corporate Mailing Address: 120 Professional Place		
City: Bridgeport	State: WV	Zip: 26330
Corporate Point of Contact (POC): Ms. Lacoa Corder		
Corporate POC Title: Environmental Coordinator		
Corporate POC Primary Phone: (304) 848-0066		
Corporate POC Primary Email: lcorder@eqt.com		
Corporate FEIN:	Corporate DUNS:	
Corporate Website: www.eqt.com		
Local Mailing Address: 120 Professional Place		
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: Ms. Kaley DuCoeur		
Applicant Title: Environmental Scientist		
Applicant Primary Phone: (304) 662-6486		
Applicant Secondary Phone: FAX: (304) 662-6501		
Applicant Primary Email: BMI@BlueMtnInc.com		





Doddridge County Commercial/Industrial  
Floodplain Development Permit Application

**Proposed Development:**

*Please check all elements of the proposed project that apply.*

**DESCRIPTION OF WORK (CHECK ALL APPLICABLE BOXES)**

**A. STRUCTURAL DEVELOPMENT**

- | <u>ACTIVITY</u>                                  | <u>STRUCTURAL TYPE</u>                                    |
|--|---|
| <input type="checkbox"/> New Structure           | <input type="checkbox"/> Residential (1 – 4 Family)       |
| <input type="checkbox"/> Addition                | <input type="checkbox"/> Residential (more than 4 Family) |
| <input type="checkbox"/> Alteration              | <input type="checkbox"/> Non-residential (floodproofing)  |
| <input type="checkbox"/> Relocation              | <input type="checkbox"/> Combined Use (res. & com.)       |
| <input type="checkbox"/> Demolition              | <input type="checkbox"/> Replacement                      |
| <input type="checkbox"/> Manufactured/Mobil Home |   |

**B. OTHER DEVELOPMENT 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)
- Road, Street, or Bridge Construction
- Subdivision (including new expansion)
- Individual Water or Sewer System
- Other (please specify)

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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 1

<b>Site/Property Information:</b>		
<b>Legal Description:</b>		
2.44 AC M I CREEK		
<b>Physical Address/911 Address:</b> W Virginia 18, West Union, WV 26456		
<b>Decimal Latitude/Longitude:</b> 39.308764, -80.780469		
<b>DMS Latitude/Longitude:</b> 39° 18' 31.55"N; 80° 46' 49.69"W		
<b>District:</b> 8	<b>Map:</b> 7	<b>Parcel:</b> 32
<b>Land Book Description:</b>		
<b>Deed Book Reference:</b>		
Book: 110/ Page: 195		
<b>Tax Map Reference:</b>		
West Union		
<b>Existing Buildings/Use of Property:</b>		

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

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: <u>1</u> of <u>1</u>
--

<b>Property Owner Data:</b>		
Name of Primary Owner (PO): CNG TRANSMISSION CORP % DOMINION TRANS		
PO Address: 625 LIBERTY AV MAIL DROP 18-01		
City: PITTSBURGH	State: PA	Zip: 15221
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

<b>Surface Rights Owner Data:</b>		
Name of Primary Owner (PO):		
PO Address:		
City:	State:	Zip:
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

<b>Mineral Rights Owner Data: (As Applicable):</b>		
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.*

<b>Property Designation:</b> ___ of ___		
<b>Contractor/Sub-Contractor (C/SC) Information:</b>		
C/SC Company Name: <b>** To Be Determined**</b>		
C/SC WV License Number:		
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:		

<b>Engineer Firm Information:</b>		
Engineer Firm Name: Blue Mountain, Inc.		
Engineer WV License Number: 449		
Engineer Firm FEIN: 550704426	Engineer Firm DUNS: 805979713	
Engineer Firm Primary Point of Contact (POC): Anthony Ferrell		
Engineer Firm Primary POC Title: Project Designer		
Engineer Firm Mailing Address: 11023 Mason Dixon Hwy		
City: Burton	State: WV	Zip-Code: 26562
Engineer Firm Office Phone: (304) 662-6486		
Engineer Firm Primary POC Phone:		
Engineer Firm Primary POC E-Mail: BMI@BlueMtnInc.com		

# Upstream

## 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.

<b>Adjacent Property Owner Data: Upstream</b>		
Name of Primary Owner (PO): Spencer Elizabeth Anne ETAL		
Physical Address: 146 Mastons Road		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

<b>Adjacent Property Owner Data: Upstream</b>		
Name of Primary Owner (PO): Bruffy Nelson ET UX		
Physical Address: 309 Tonkin Station Rd		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

<b>Adjacent Property Owner Data: Downstream</b>		
Name of Primary Owner (PO): Spencer Elizabeth Anne		
Physical Address: 219 Cedar Run Road		
City: Friendly	State: WV	Zip: 26146
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

<b>Adjacent Property Owner Data: Downstream</b>		
Name of Primary Owner (PO): Hope Natural Gas Co.		
Physical Address: 625 Liberty AV Mail Drop 18-01		
City: Pittsburgh	State: PA	Zip: 15221
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

# Upstream

## 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.

<b>Adjacent Property Owner Data: Upstream</b>		
Name of Primary Owner (PO): Charity Gas Inc.		
Physical Address: 9844 Meathouse Fork Road		
City: Salem	State: WV	Zip: 26426
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

<b>Adjacent Property Owner Data: Upstream</b>		
Name of Primary Owner (PO): Charity Gas Inc.		
Physical Address: Rt. 3 Box 62		
City: Salem	State: WV	Zip: 26426
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

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

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

# Downstream

## 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.*

<b>Adjacent Property Owner Data: Upstream</b>		
Name of Primary Owner (PO): Frank McGill		
Physical Address: 703 Amanda Lea Ln.		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

<b>Adjacent Property Owner Data: Upstream</b>		
Name of Primary Owner (PO): Holland Mary Lou		
Physical Address: 225 Watchung Fork		
City: Westfield	State: NJ	Zip: 07090
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

<b>Adjacent Property Owner Data: Downstream</b>		
Name of Primary Owner (PO): Maxwell Bassell HRS		
Physical Address: PO Box 659		
City: Wichita Falls	State: TX	Zip: 76307
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

<b>Adjacent Property Owner Data: Downstream</b>		
Name of Primary Owner (PO): Lauth Joseph C		
Physical Address: HC 69 Box A		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

# Downstream

## 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.*

<b>Adjacent Property Owner Data: Upstream</b>		
Name of Primary Owner (PO): Edgell Gregory & Denise		
Physical Address: HC 69 Box 2		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

<b>Adjacent Property Owner Data: Upstream</b>		
Name of Primary Owner (PO): Mccutchan Ralph & Shelia		
Physical Address: HC 69 Box 3		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

<b>Adjacent Property Owner Data: Downstream</b>		
Name of Primary Owner (PO): Weekley Joshua & Kimberly		
Physical Address: 1925 WV Route 18N		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

<b>Adjacent Property Owner Data: Downstream</b>		
Name of Primary Owner (PO): Lapo Joyce		
Physical Address: HC 69 Box 5		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		



# Downstream

## 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): Stamm Jeffery		
Physical Address: Rt 5 Box 350		
City: Salem	State: WV	Zip: 26426
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Adjacent Property Owner Data: Upstream		
Name of Primary Owner (PO): Weekly Paul & Sharon		
Physical Address: HC 69 Box 9A		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Adjacent Property Owner Data: Downstream		
Name of Primary Owner (PO): Rogers Brandon		
Physical Address: 2213 WV Rt 18 N		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Adjacent Property Owner Data: Downstream		
Name of Primary Owner (PO): Nicholson Rebecca		
Physical Address: HC 69 Box 9		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

# Downstream

## 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.*

<b>Adjacent Property Owner Data: Upstream</b>		
Name of Primary Owner (PO): Hunt Betty Jean		
Physical Address: 710 Crystal Lake Rd		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

<b>Adjacent Property Owner Data: Upstream</b>		
Name of Primary Owner (PO): Travis Michael & Barbara		
Physical Address: 710 Crystal Lake R.		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

<b>Adjacent Property Owner Data: Downstream</b>		
Name of Primary Owner (PO): Coastal Forest Resources Co.		
Physical Address: PO Box 709		
City: Buckhannon	State: WV	Zip: 26201
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

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

# UPSTREAM

## 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): Spencer Elizabeth Anne ETAL		
Physical Address: 146 Mastons Road		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email: 7014 0150 0001 7356 7832		

Adjacent Property Owner Data: Upstream		
Name of Primary Owner (PO): Spencer Elizabeth Anne		
Physical Address: 219 Cedar Run Road		
City: Friendly	State: WV	Zip: 26146
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email: 7014 0150 0001 7356 8099		

Adjacent Property Owner Data: Downstream		
Name of Primary Owner (PO): Hope Natural Gas Co.		
Physical Address: 625 Liberty AV Mail Drop 18-01		
City: Pittsburgh	State: PA	Zip: 15221
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Adjacent Property Owner Data: Downstream		
Name of Primary Owner (PO): Charity Gas Inc.		
Physical Address: 9844 Meathouse Fork Road		
City: Salem	State: WV	Zip: 26426
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

# UPSTREAM

## 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): Charity Gas Inc.		
Physical Address: Rt. 3 Box 62		
City: Salem	State: WV	Zip: 26462
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):		
Physical Address:		
City:	State:	Zip:
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:		

# DOWNSTREAM

## 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.

<b>Adjacent Property Owner Data: Upstream</b>		
Name of Primary Owner (PO): Edgell Gregory & Denise		
Physical Address: 1873 WV Rt. 18		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone: 7014 0150 0001 7356 8082		
PO Primary Email:		

<b>Adjacent Property Owner Data: Upstream</b>		
Name of Primary Owner (PO): McCutchan Ralph & Shelia		
Physical Address: 1905 WV Rt 18		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone: 7014 0150 0001 7356 8075		
PO Primary Email:		

<b>Adjacent Property Owner Data: Downstream</b>		
Name of Primary Owner (PO): Weekley Joshua & Kimberly		
Physical Address: 1925 WV Route 18N		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email: 7014 0150 0001 7356 8068		

<b>Adjacent Property Owner Data: Downstream</b>		
Name of Primary Owner (PO): Lapo Joyce		
Physical Address: HC 69 Box 5		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone: 7014 0150 0001 7356 8020		
PO Primary Email:		

# DOWNSTREAM

## 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): Stamm Jeffery		
Physical Address: Rt 5 Box 350		
City: Salem	State: WV	Zip: 26426
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email: 7014 0150 0001 7356 8013		

Adjacent Property Owner Data: Upstream		
Name of Primary Owner (PO): Paul & Sharon Weekley		
Physical Address: 2374 WV Rt. 18N		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email: 7014 0150 0001 7356 8051		

Adjacent Property Owner Data: Downstream		
Name of Primary Owner (PO): Rogers Brandon		
Physical Address: 2213 WV Rt. 18 N		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone: 7014 0150 0001 7356 8037		
PO Primary Email:		

Adjacent Property Owner Data: Downstream		
Name of Primary Owner (PO): Nicholson Rebecca		
Physical Address: 2285 WV Route 18		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone: 7014 0150 0001 7356 8044		
PO Primary Email:		

# DOWNSTREAM

## 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): Travis Michael & Barbara		
Physical Address: 710 Crystal Lake R.		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone: 7014 0150 0001 7356 8105		
PO Primary Email:		

Adjacent Property Owner Data: Upstream		
Name of Primary Owner (PO): Coastal Forest Resources Co.		
Physical Address: PO Box 709		
City: Buckhannon	State: WV	Zip: 26201
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Adjacent Property Owner Data: Downstream		
Name of Primary Owner (PO): Bruffy Nelson et ux		
Physical Address: 309 Tonkin Station Road		
City: West Union	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email: 7014 0150 0001 7356 8006		

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 been properly attained, are current and valid, and must be presented with this application before a Doddridge County Floodplain Permit may be 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 or 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 at the next scheduled Doddridge County Commission meeting after the date of issuance. 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. A Certificate of Compliance is required upon substantial completion of the project.
- 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 Wirt County Floodplain Manager and that I must stop all construction immediately until discrepancies of actual work vs. proposed work is resolved.

Applicant Signature: \_\_\_\_\_

*Lacoe Corder*

Date: \_\_\_\_\_

*6/7/16*

Applicant Printed Name: \_\_\_\_\_

*Lacoe Corder*













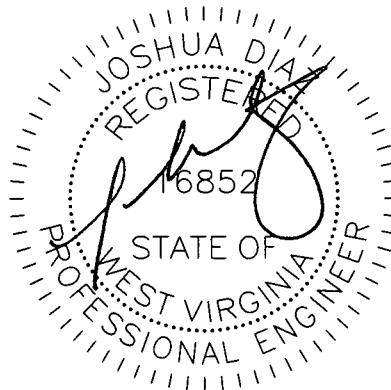




**HYDROLOGIC AND HYDRAULIC ANALYSIS**

**MIDDLE ISLAND CREEK TRUCK  
PAD ADDITIONAL ENTRANCE**

**MAY 2016**



Prepared For:



120 Professional Place  
Professional Building Four  
Bridgeport, WV 26330

Prepared By:

**Blue Mountain, Inc.**  
10125 Mason Dixon Hwy  
Burton, WV 26562



May 26, 2016

# HYDROLOGIC AND HYDRAULIC ANALYSIS

For the

## EQT MIDDLE ISLAND CREEK TRUCK PAD ADDITIONAL ENTRANCE

West Union District,  
Doddridge County, West Virginia

### **A. Purpose**

EQT is proposing a second entrance for an existing truck pad along SR 18. This truck pad entrance will require 12" (maximum) of gravel for access. The appropriate permits are being pursued for this fill. This report identifies the 100 year/ 24 hour rainfall event at the proposed gravel entrance.

### **B. Drainage Area**

The contributing drainage area for the site was analyzed utilizing USGS contours. The attached "Watershed Limits" map shows the watershed limits for this site. This contributing drainage area has been identified as 78,700 acres.

### **C. Runoff Discharge Methods**

Runoff from the contributing drainage area in the existing land use configuration was calculated using the USDA TR-55 method for runoff modeling.

A summary of the Curve Number (CN) tabulations can be found within the attached calculations. The resulting composite CN values were entered into a hydrologic modeling program called Hydraflow Hydrographs. Time of Concentration (T<sub>c</sub>) values were calculated within this program, utilizing sheet flow, shallow concentrated flow and channel flow. A summary of these values can be found within the attached calculations.

Rainfall data was obtained from NOAA Atlas 14, Volume 2, Version 3 and can be found within the supporting calculations attached within this report.



#### **D. Design Storm**

This report analyzes the water elevation of the 100 year/ 24 hour rainfall event at the location of the gravel entrance.

#### **E. Hydrologic Soil Group**

The USDA Natural Resources Conservation Service Soil Survey of this area was researched to identify the soil types present within the contributing drainage area of Beham Run. The soil survey showed the presence of Hydrologic soil groups 'A', 'B', 'C' and 'D' within the drainage area. The attached "Web Soil Survey" shows the soil types present within the drainage area.

#### **F. Peak Discharge**

The peak discharge has been modeled for the 100 year/ 24 hour rainfall event for the contributing drainage area within Hydraflow Hydrographs. The peak discharge for this storm event has been calculated to be 13,866.08 cfs.

#### **G. Hydraulic Analysis**

The computer program Hec-Ras v4.1.0 was used to determine the water surface elevation at the proposed gravel pad. The peak discharge from the 100 year/ 24 hour storm event was used within Hec-Ras. The floodplain limits were mapped using the Hec-Ras program and exported to display on the site plan. Summary output information from Hec-Ras has been provided within the supporting calculations.

#### **H. Results**

This report indicates an existing and proposed water surface elevation of 764.96' for the 100 year/ 24 hour rainfall event at this site. The report indicates an existing water surface elevation of 765.80' and a proposed water surface elevation of 765.81' at the adjoining property immediately upstream. The report indicates an existing and proposed water surface elevation of 762.26' at the adjoining property immediately downstream. Based on these findings, it was determined that the proposed floodplain for the 100 year/ 24 hour rainfall event is insignificantly raised by 0.01' at the upstream.



**POINT PRECIPITATION FREQUENCY ESTIMATES**

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerals](#)

**PF tabular**

<b>PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)<sup>1</sup></b>										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
<b>5-min</b>	0.332 (0.301-0.367)	0.397 (0.361-0.440)	0.476 (0.432-0.525)	0.536 (0.486-0.592)	0.612 (0.552-0.673)	0.669 (0.602-0.735)	0.723 (0.648-0.792)	0.778 (0.694-0.851)	0.849 (0.754-0.926)	0.900 (0.796-0.981)
<b>10-min</b>	0.517 (0.468-0.570)	0.620 (0.563-0.686)	0.740 (0.671-0.816)	0.828 (0.750-0.913)	0.936 (0.844-1.03)	1.02 (0.912-1.11)	1.09 (0.975-1.19)	1.16 (1.04-1.27)	1.25 (1.11-1.36)	1.31 (1.16-1.43)
<b>15-min</b>	0.633 (0.574-0.698)	0.758 (0.689-0.839)	0.909 (0.824-1.00)	1.02 (0.923-1.12)	1.16 (1.04-1.27)	1.26 (1.13-1.38)	1.35 (1.21-1.48)	1.44 (1.29-1.58)	1.56 (1.38-1.70)	1.64 (1.45-1.79)
<b>30-min</b>	0.838 (0.759-0.924)	1.02 (0.922-1.12)	1.24 (1.13-1.37)	1.41 (1.28-1.56)	1.63 (1.47-1.80)	1.80 (1.61-1.97)	1.95 (1.75-2.14)	2.11 (1.88-2.31)	2.31 (2.05-2.52)	2.46 (2.17-2.68)
<b>60-min</b>	1.02 (0.927-1.13)	1.25 (1.13-1.38)	1.56 (1.42-1.72)	1.80 (1.63-1.99)	2.12 (1.91-2.33)	2.37 (2.13-2.60)	2.61 (2.34-2.86)	2.86 (2.55-3.13)	3.19 (2.83-3.48)	3.45 (3.05-3.76)
<b>2-hr</b>	1.19 (1.07-1.32)	1.44 (1.30-1.61)	1.81 (1.63-2.01)	2.09 (1.87-2.32)	2.47 (2.21-2.73)	2.77 (2.46-3.06)	3.08 (2.73-3.39)	3.39 (2.99-3.73)	3.82 (3.35-4.19)	4.16 (3.62-4.55)
<b>3-hr</b>	1.27 (1.14-1.42)	1.53 (1.38-1.71)	1.92 (1.72-2.13)	2.21 (1.98-2.47)	2.63 (2.34-2.92)	2.95 (2.62-3.27)	3.29 (2.91-3.64)	3.64 (3.20-4.01)	4.12 (3.59-4.53)	4.50 (3.89-4.94)
<b>6-hr</b>	1.51 (1.37-1.68)	1.82 (1.65-2.03)	2.25 (2.04-2.51)	2.60 (2.35-2.89)	3.09 (2.77-3.42)	3.49 (3.11-3.84)	3.90 (3.46-4.28)	4.34 (3.82-4.75)	4.93 (4.31-5.39)	5.42 (4.70-5.91)
<b>12-hr</b>	1.81 (1.64-2.00)	2.16 (1.97-2.39)	2.65 (2.41-2.93)	3.05 (2.76-3.37)	3.62 (3.26-3.98)	4.08 (3.66-4.48)	4.57 (4.07-5.00)	5.09 (4.50-5.55)	5.82 (5.09-6.33)	6.41 (5.56-6.96)
<b>24-hr</b>	2.15 (1.98-2.34)	2.56 (2.36-2.79)	3.10 (2.85-3.38)	3.54 (3.25-3.85)	4.16 (3.81-4.51)	4.65 (4.25-5.05)	5.17 (4.70-5.60)	5.72 (5.17-6.18)	6.46 (5.82-6.97)	7.05 (6.33-7.60)
<b>2-day</b>	2.53 (2.35-2.73)	3.00 (2.78-3.24)	3.60 (3.33-3.89)	4.08 (3.77-4.40)	4.74 (4.38-5.11)	5.27 (4.85-5.67)	5.82 (5.34-6.25)	6.38 (5.83-6.85)	7.13 (6.49-7.65)	7.73 (7.00-8.29)
<b>3-day</b>	2.72 (2.53-2.93)	3.22 (3.00-3.47)	3.85 (3.58-4.14)	4.34 (4.03-4.67)	5.01 (4.64-5.39)	5.55 (5.13-5.95)	6.08 (5.61-6.52)	6.63 (6.09-7.10)	7.36 (6.74-7.88)	7.93 (7.23-8.48)
<b>4-day</b>	2.91 (2.72-3.13)	3.45 (3.22-3.71)	4.09 (3.82-4.40)	4.60 (4.29-4.94)	5.29 (4.91-5.67)	5.82 (5.40-6.23)	6.35 (5.88-6.80)	6.89 (6.36-7.35)	7.60 (6.98-8.10)	8.13 (7.46-8.68)
<b>7-day</b>	3.56 (3.34-3.79)	4.20 (3.93-4.47)	4.92 (4.61-5.24)	5.48 (5.13-5.82)	6.20 (5.80-6.59)	6.75 (6.31-7.17)	7.29 (6.80-7.74)	7.82 (7.27-8.30)	8.50 (7.88-9.01)	9.00 (8.32-9.55)
<b>10-day</b>	4.11 (3.88-4.36)	4.84 (4.56-5.13)	5.62 (5.29-5.94)	6.21 (5.84-6.57)	6.97 (6.55-7.37)	7.54 (7.08-7.97)	8.08 (7.58-8.54)	8.61 (8.06-9.09)	9.27 (8.66-9.79)	9.75 (9.09-10.3)
<b>20-day</b>	5.83 (5.52-6.15)	6.83 (6.48-7.22)	7.81 (7.40-8.25)	8.55 (8.10-9.02)	9.47 (8.96-9.98)	10.1 (9.59-10.7)	10.8 (10.2-11.3)	11.4 (10.7-12.0)	12.1 (11.4-12.7)	12.6 (11.9-13.3)
<b>30-day</b>	7.40 (7.04-7.78)	8.63 (8.22-9.08)	9.76 (9.29-10.3)	10.6 (10.1-11.1)	11.6 (11.1-12.2)	12.4 (11.8-13.0)	13.1 (12.4-13.7)	13.7 (13.0-14.4)	14.4 (13.7-15.2)	15.0 (14.2-15.7)
<b>45-day</b>	9.51 (9.07-9.96)	11.1 (10.6-11.6)	12.4 (11.8-13.0)	13.3 (12.7-14.0)	14.5 (13.8-15.2)	15.3 (14.6-16.1)	16.1 (15.3-16.8)	16.8 (16.0-17.6)	17.6 (16.7-18.4)	18.1 (17.2-19.0)
<b>60-day</b>	11.5 (11.0-12.0)	13.4 (12.8-13.9)	14.8 (14.2-15.5)	15.9 (15.2-16.6)	17.2 (16.4-17.9)	18.1 (17.3-18.9)	18.9 (18.0-19.7)	19.6 (18.7-20.4)	20.4 (19.5-21.3)	21.0 (20.0-21.9)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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**PF graphical**



**POINT PRECIPITATION FREQUENCY ESTIMATES**

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerals](#)

**PF tabular**

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour) <sup>1</sup>										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	3.98 (3.61-4.40)	4.76 (4.33-5.28)	5.71 (5.18-6.30)	6.43 (5.83-7.10)	7.34 (6.62-8.08)	8.03 (7.22-8.82)	8.68 (7.78-9.50)	9.34 (8.33-10.2)	10.2 (9.05-11.1)	10.8 (9.55-11.8)
10-min	3.10 (2.81-3.42)	3.72 (3.38-4.12)	4.44 (4.03-4.90)	4.97 (4.50-5.48)	5.62 (5.06-6.18)	6.09 (5.47-6.68)	6.53 (5.85-7.16)	6.97 (6.22-7.62)	7.48 (6.65-8.17)	7.86 (6.95-8.57)
15-min	2.53 (2.30-2.79)	3.03 (2.76-3.36)	3.64 (3.30-4.01)	4.07 (3.69-4.50)	4.62 (4.17-5.09)	5.02 (4.52-5.52)	5.41 (4.84-5.92)	5.78 (5.15-6.32)	6.23 (5.53-6.80)	6.55 (5.79-7.14)
30-min	1.68 (1.52-1.85)	2.03 (1.84-2.25)	2.49 (2.26-2.74)	2.83 (2.56-3.12)	3.27 (2.94-3.59)	3.59 (3.23-3.94)	3.91 (3.50-4.28)	4.22 (3.76-4.61)	4.61 (4.10-5.03)	4.91 (4.34-5.35)
60-min	1.02 (0.927-1.13)	1.25 (1.13-1.38)	1.56 (1.42-1.72)	1.80 (1.63-1.99)	2.12 (1.91-2.33)	2.37 (2.13-2.60)	2.61 (2.34-2.86)	2.86 (2.55-3.13)	3.19 (2.83-3.48)	3.45 (3.05-3.76)
2-hr	0.595 (0.534-0.662)	0.722 (0.650-0.804)	0.904 (0.813-1.00)	1.04 (0.935-1.16)	1.24 (1.10-1.37)	1.39 (1.23-1.53)	1.54 (1.37-1.69)	1.70 (1.50-1.86)	1.91 (1.67-2.09)	2.08 (1.81-2.27)
3-hr	0.422 (0.380-0.471)	0.510 (0.459-0.570)	0.638 (0.573-0.710)	0.737 (0.660-0.821)	0.875 (0.779-0.971)	0.983 (0.873-1.09)	1.10 (0.968-1.21)	1.21 (1.07-1.34)	1.37 (1.20-1.51)	1.50 (1.30-1.65)
6-hr	0.253 (0.228-0.281)	0.304 (0.275-0.339)	0.376 (0.340-0.419)	0.435 (0.392-0.483)	0.517 (0.463-0.571)	0.582 (0.520-0.642)	0.652 (0.578-0.715)	0.724 (0.638-0.793)	0.824 (0.719-0.900)	0.905 (0.785-0.987)
12-hr	0.150 (0.136-0.166)	0.179 (0.163-0.199)	0.220 (0.200-0.243)	0.253 (0.229-0.279)	0.300 (0.271-0.330)	0.339 (0.304-0.372)	0.379 (0.338-0.415)	0.422 (0.374-0.461)	0.483 (0.422-0.525)	0.532 (0.462-0.578)
24-hr	0.090 (0.082-0.098)	0.107 (0.098-0.116)	0.129 (0.119-0.141)	0.148 (0.136-0.161)	0.173 (0.159-0.188)	0.194 (0.177-0.210)	0.216 (0.196-0.233)	0.238 (0.216-0.257)	0.269 (0.242-0.290)	0.294 (0.264-0.317)
2-day	0.053 (0.049-0.057)	0.063 (0.058-0.068)	0.075 (0.069-0.081)	0.085 (0.079-0.092)	0.099 (0.091-0.106)	0.110 (0.101-0.118)	0.121 (0.111-0.130)	0.133 (0.121-0.143)	0.149 (0.135-0.159)	0.161 (0.146-0.173)
3-day	0.038 (0.035-0.041)	0.045 (0.042-0.048)	0.053 (0.050-0.058)	0.060 (0.056-0.065)	0.070 (0.064-0.075)	0.077 (0.071-0.083)	0.084 (0.078-0.091)	0.092 (0.085-0.099)	0.102 (0.094-0.109)	0.110 (0.100-0.118)
4-day	0.030 (0.028-0.033)	0.036 (0.034-0.039)	0.043 (0.040-0.046)	0.048 (0.045-0.051)	0.055 (0.051-0.059)	0.061 (0.056-0.065)	0.066 (0.061-0.071)	0.072 (0.066-0.077)	0.079 (0.073-0.084)	0.085 (0.078-0.090)
7-day	0.021 (0.020-0.023)	0.025 (0.023-0.027)	0.029 (0.027-0.031)	0.033 (0.031-0.035)	0.037 (0.034-0.039)	0.040 (0.038-0.043)	0.043 (0.040-0.046)	0.047 (0.043-0.049)	0.051 (0.047-0.054)	0.054 (0.050-0.057)
10-day	0.017 (0.016-0.018)	0.020 (0.019-0.021)	0.023 (0.022-0.025)	0.026 (0.024-0.027)	0.029 (0.027-0.031)	0.031 (0.029-0.033)	0.034 (0.032-0.036)	0.036 (0.034-0.038)	0.039 (0.036-0.041)	0.041 (0.038-0.043)
20-day	0.012 (0.012-0.013)	0.014 (0.013-0.015)	0.016 (0.015-0.017)	0.018 (0.017-0.019)	0.020 (0.019-0.021)	0.021 (0.020-0.022)	0.022 (0.021-0.024)	0.024 (0.022-0.025)	0.025 (0.024-0.027)	0.026 (0.025-0.028)
30-day	0.010 (0.010-0.011)	0.012 (0.011-0.013)	0.014 (0.013-0.014)	0.015 (0.014-0.015)	0.016 (0.015-0.017)	0.017 (0.016-0.018)	0.018 (0.017-0.019)	0.019 (0.018-0.020)	0.020 (0.019-0.021)	0.021 (0.020-0.022)
45-day	0.009 (0.008-0.009)	0.010 (0.010-0.011)	0.011 (0.011-0.012)	0.012 (0.012-0.013)	0.013 (0.013-0.014)	0.014 (0.014-0.015)	0.015 (0.014-0.016)	0.016 (0.015-0.016)	0.016 (0.015-0.017)	0.017 (0.016-0.018)
60-day	0.008 (0.008-0.008)	0.009 (0.009-0.010)	0.010 (0.010-0.011)	0.011 (0.011-0.012)	0.012 (0.011-0.012)	0.013 (0.012-0.013)	0.013 (0.013-0.014)	0.014 (0.013-0.014)	0.014 (0.014-0.015)	0.015 (0.014-0.015)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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**PF graphical**







**NOTES TO USERS**

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) Report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only to landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

The projection used in the preparation of this map was Universal Transverse Mercator (UTM) zone 17. The horizontal datum was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following address:

NGS Information Services  
NOAA, NNGS12  
National Geodetic Survey  
SSMC-3, #9202  
1315 East-West Highway  
Silver Spring, Maryland 20910-3282  
(301) 713-3242

To obtain current elevation, description, and/or location information for bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>.

Base map created by the WV Statewide Addressing and Mapping Board (SAMB). Imagery was captured at a scale of 1:24000 in the spring of 2003 for the purpose of producing natural color digital orthophotos at a 2' pixel resolution.

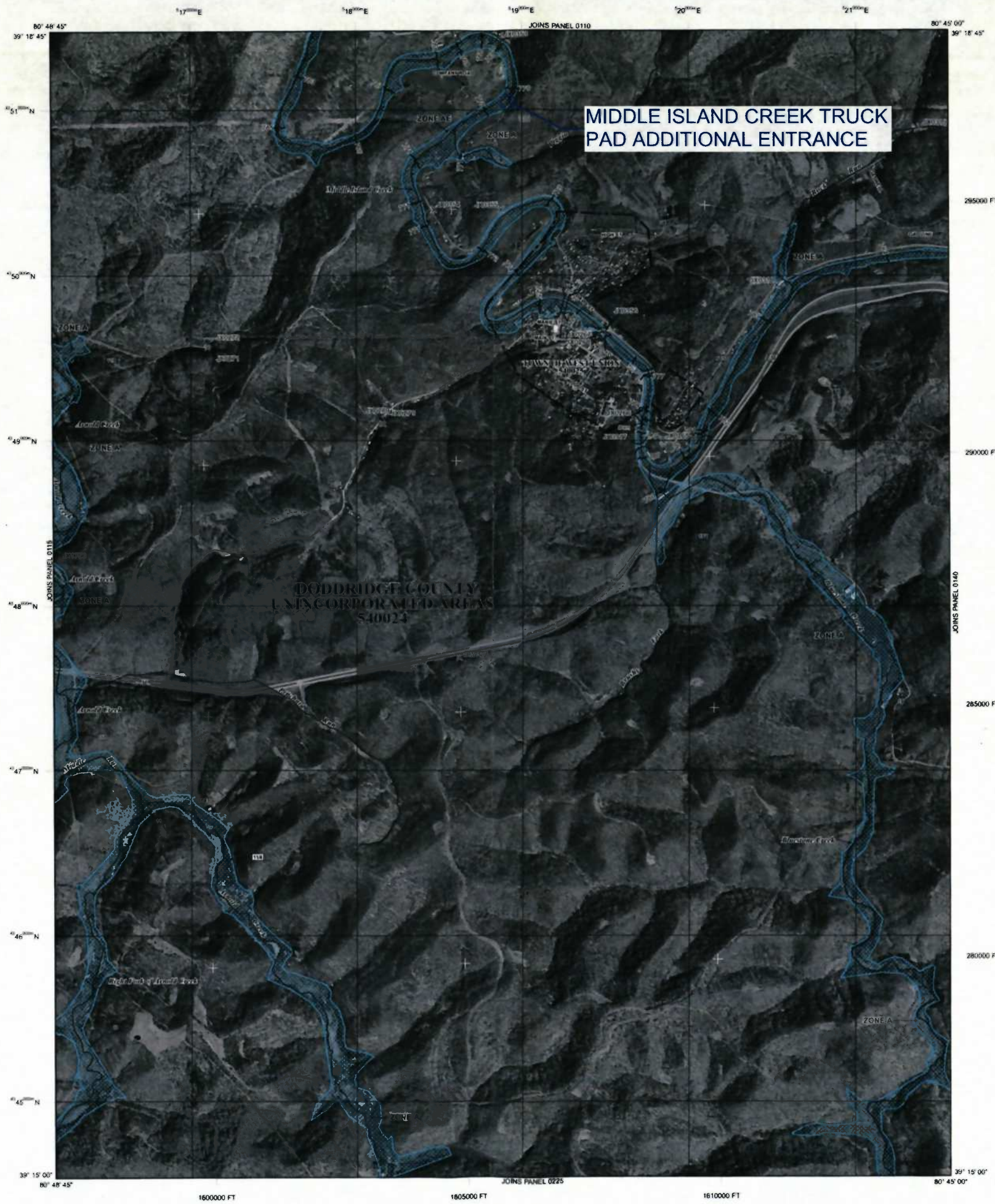
This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables for multiple streams in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed Map Index for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program details for each community as well as a listing of the panels on which each community is located.

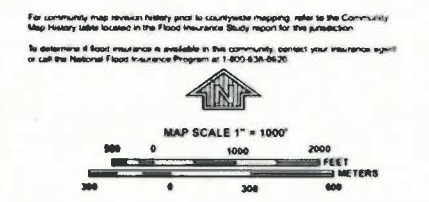
For information on available products associated with this FIRM visit the Map Service Center (MSC) website at <http://www.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have questions about this map, how to order products, or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange (FMIX) at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/loans/mifis>.



**LEGEND**

- SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO FLOODING BY THE 1% ANNUAL CHANCE FLOOD**  
The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AD, AR, ARB, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.
- ZONE A** No Base Flood Elevations determined
  - ZONE AE** Base Flood Elevations determined
  - ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined
  - ZONE AD** Flood depths of 1 to 3 feet (usually flood flow on shaping terrain); average depths determined. For areas of channel flow floodways, velocities also determined
  - ZONE AR** Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently determined to be inoperable. All structures that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood. Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined
  - ZONE ARB** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined
  - ZONE V** Coastal Flood zone with velocity hazard (wave action); no Base Flood Elevations determined
  - ZONE VE** Coastal Flood zone with velocity hazard (wave action); Base Flood Elevations determined
- FLOODWAY AREAS IN ZONE AE**  
The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.
- OTHER FLOOD AREAS**
- ZONE X** Areas determined to be outside the 0.2% annual chance floodplain
  - ZONE D** Areas in which flood hazards are undetermined, but possible
- COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**
- OTHERWISE PROTECTED AREAS (OPAs)**  
CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.
- 1% Annual Chance Floodplain Boundary
  - 0.2% Annual Chance Floodplain Boundary
  - Floodway boundary
  - Zone D boundary
  - CBRS and OPA boundary
  - Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities
  - Base Flood Elevation line and value; elevation in feet
  - (EL 947)
  - Base Flood Elevation value where uniform within zone; elevation in feet
- \*Referenced to the North American Vertical Datum of 1988
- Cross section line
  - Intersect line
  - Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
  - 3160000 FT 3000-foot scale; West Virginia State Plane North Zone (FIPS Zone 4203), Lambert Conformal Conic projection
  - 1000-meter Universal Transverse Mercator grid values; zone 17
  - Bench mark (see explanation in Notes to Users section of the FIRM)
  - MI 5
  - MAP REPOSITORIES
- Refer to Map Repositories list on Map Index
- EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP**  
March 18, 1991
- EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL**  
October 4, 2011: to update corporate limits, to determine Base Flood Elevations, to change Special Flood Hazard Areas, to update map format and to add roads and road names.



**NATIONAL FLOOD INSURANCE PROGRAM**

PANEL 0120C

**FIRM**  
FLOOD INSURANCE RATE MAP  
DODDRIDGE COUNTY,  
WEST VIRGINIA  
AND INCORPORATED AREAS

PANEL 120 OF 325  
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

COMMUNITY	NUMBER	PANEL	SHEET
DODDRIDGE COUNTY	16024	0120C	C
HEBET LUMPKIN TOWNSHIP	16025	0120C	C

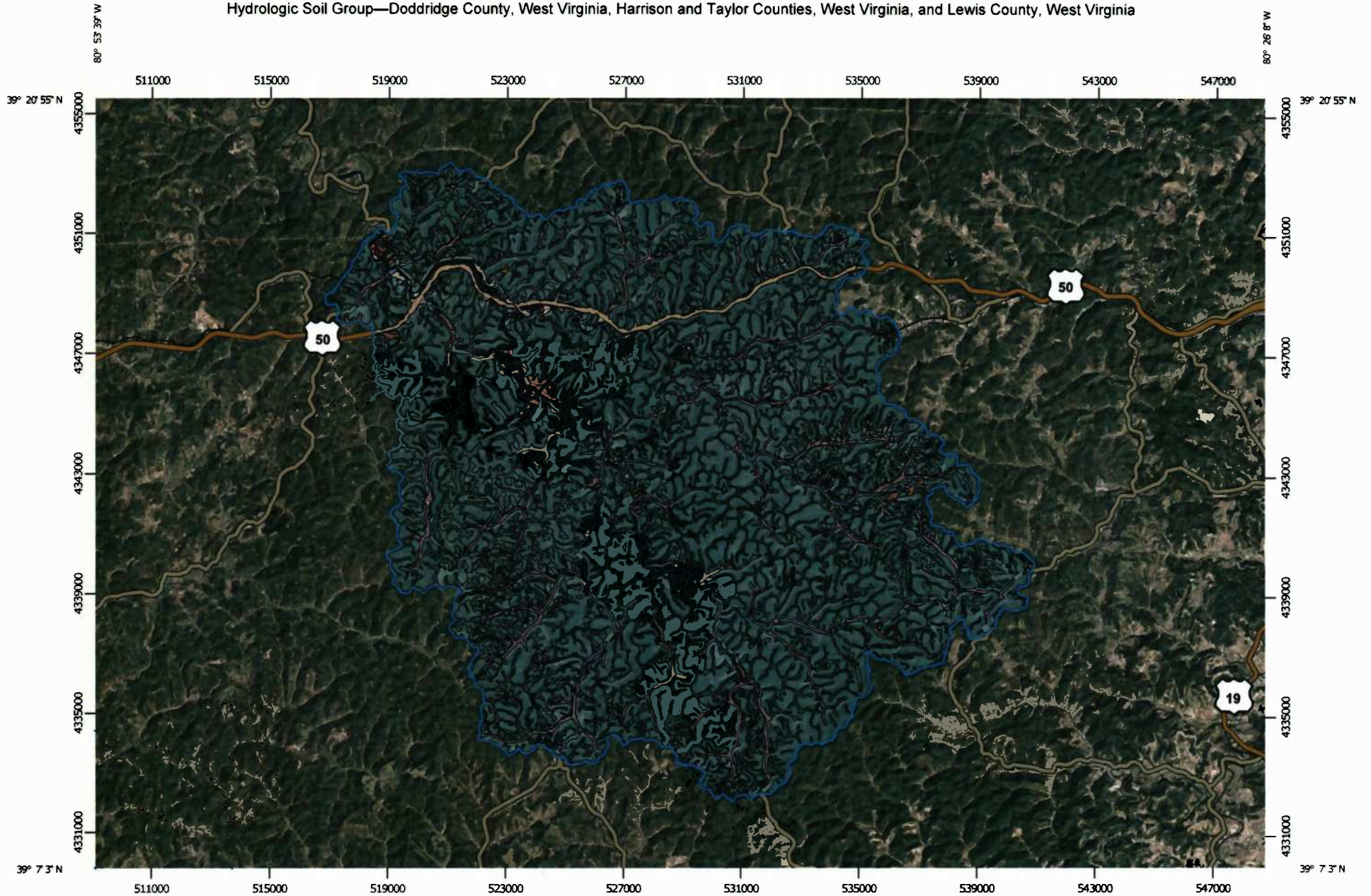
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

**MAP NUMBER**  
54017C0120C  
**MAP REVISED**  
OCTOBER 4, 2011

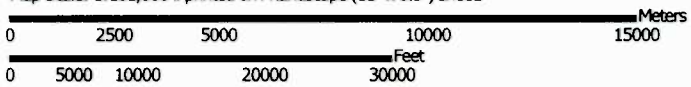
Federal Emergency Management Agency



Hydrologic Soil Group—Doddridge County, West Virginia, Harrison and Taylor Counties, West Virginia, and Lewis County, West Virginia



Map Scale: 1:181,000 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84



## MAP LEGEND

<b>Area of Interest (AOI)</b>		C
Area of Interest (AOI)		C/D
<b>Soils</b>		D
<b>Soil Rating Polygons</b>		Not rated or not available
A		
A/D		
B		
B/D		
C		
C/D		
D		
Not rated or not available		
<b>Soil Rating Lines</b>		
A		
A/D		
B		
B/D		
C		
C/D		
D		
Not rated or not available		
<b>Soil Rating Points</b>		
A		
A/D		
B		
B/D		
<b>Water Features</b>		
Streams and Canals		
<b>Transportation</b>		
Rails		
Interstate Highways		
US Routes		
Major Roads		
Local Roads		
<b>Background</b>		
Aerial Photography		

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Doddridge County, West Virginia  
 Survey Area Data: Version 11, Sep 24, 2015

Soil Survey Area: Harrison and Taylor Counties, West Virginia  
 Survey Area Data: Version 9, Sep 24, 2015

Soil Survey Area: Lewis County, West Virginia  
 Survey Area Data: Version 7, Sep 24, 2015

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 1, 1999—Dec 31, 2003

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Doddridge County, West Virginia (WV017)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Ch	Chagrin silt loam, 0 to 3 percent slopes, occasionally flooded	B	1,049.0	1.3%
Co	Cotaco silt loam	B/D	122.6	0.2%
GpE	Gilpin-Peabody silt loams, 25 to 35 percent slopes	D	349.2	0.4%
GsE	Gilpin-Peabody complex, 15 to 35 percent slopes, very stony	C	17,129.0	21.8%
GsF	Gilpin-Peabody complex, 35 to 70 percent slopes, very stony	C	47,862.8	60.8%
GuC	Gilpin-Upshur silt loams, 8 to 15 percent slopes	C	881.2	1.1%
GuD	Gilpin-Upshur silt loams, 15 to 25 percent slopes	C	3,247.5	4.1%
GyD	Gilpin-Upshur-Urban land complex, 15 to 25 percent slopes	C	71.6	0.1%
Ka	Kanawha loam, 0 to 3 percent slopes, rarely flooded	B	383.7	0.5%
Ku	Kanawha-Urban land complex	B	34.0	0.0%
Me	Melvin silt loam, 0 to 3 percent slopes, rarely flooded	B/D	43.3	0.1%
MoB	Monongahela silt loam, 3 to 8 percent slopes	D	74.6	0.1%
MoC	Monongahela silt loam, 8 to 15 percent slopes	D	88.8	0.1%
MuB	Monongahela-Urban land complex, 3 to 8 percent slopes	C	34.3	0.0%
MuC	Monongahela-Urban land complex, 8 to 15 percent slopes		39.9	0.1%
Se	Sensabaugh silt loam, 0 to 3 percent slopes, occasionally flooded	A	2,390.4	3.0%



Hydrologic Soil Group—Doddridge County, West Virginia, Harrison and Taylor Counties, West Virginia, and Lewis County, West Virginia

Hydrologic Soil Group— Summary by Map Unit — Doddridge County, West Virginia (WV017)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
SeB	Sensabaugh silt loam, 3 to 8 percent slopes, rarely flooded	A	2,067.6	2.6%
Su	Sensabaugh-Urban land complex	A	117.2	0.1%
SuB	Sensabaugh-Urban land complex, 3 to 8 percent slopes, rarely flooded	A	56.1	0.1%
Ud	Udorthents, smoothed		841.9	1.1%
VaC	Vandalia silt loam, 8 to 15 percent slopes	C	122.3	0.2%
VaD	Vandalia silt loam, 15 to 25 percent slopes	C	626.0	0.8%
VaE	Vandalia silt loam, 25 to 35 percent slopes	C	53.2	0.1%
VsE	Vandalia silt loam, 15 to 35 percent slopes, very stony	C	694.3	0.9%
VuD	Vandalia-Urban land complex, 15 to 25 percent slopes	C	51.5	0.1%
W	Water		161.1	0.2%
Subtotals for Soil Survey Area			78,593.1	99.9%
Totals for Area of Interest			78,703.4	100.0%

Hydrologic Soil Group— Summary by Map Unit — Harrison and Taylor Counties, West Virginia (WV610)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
GIF	Gilpin silt loam, 35 to 70 percent slopes	C	1.1	0.0%
GuC	Gilpin-Upshur complex, 8 to 15 percent slopes	C	1.8	0.0%
GuC3	Gilpin-Upshur complex, 8 to 15 percent slopes, severely eroded	D	0.6	0.0%
GuD	Gilpin-Upshur complex, 15 to 25 percent slopes	C	4.5	0.0%
GuD3	Gilpin-Upshur complex, 15 to 25 percent slopes, severely eroded	D	1.6	0.0%
GuE	Gilpin-Upshur complex, 25 to 35 percent slopes	C	15.5	0.0%
GuE3	Gilpin-Upshur complex, 25 to 35 percent slopes, severely eroded	C	11.6	0.0%

Hydrologic Soil Group— Summary by Map Unit — Harrison and Taylor Counties, West Virginia (WV610)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
GuF3	Gilpin-Upshur complex, 35 to 70 percent slopes, severely eroded	C	38.2	0.0%
UL	Urban land		10.2	0.0%
VaC	Vandalia silty clay loam, 8 to 15 percent slopes	C	6.4	0.0%
VaD	Vandalia silty clay loam, 15 to 25 percent slopes	C	5.3	0.0%
<b>Subtotals for Soil Survey Area</b>			<b>96.7</b>	<b>0.1%</b>
<b>Totals for Area of Interest</b>			<b>78,703.4</b>	<b>100.0%</b>

Hydrologic Soil Group— Summary by Map Unit — Lewis County, West Virginia (WV041)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
GaD	Gilpin silt loam, 15 to 25 percent slopes	C	0.8	0.0%
GuD	Gilpin-Upshur silt loams, 15 to 25 percent slopes	C	0.7	0.0%
GuE	Gilpin-Upshur silt loams, 25 to 35 percent slopes	C	1.3	0.0%
GwF3	Gilpin-Upshur silt loams, 35 to 70 percent slopes, severely eroded	C	10.9	0.0%
<b>Subtotals for Soil Survey Area</b>			<b>13.6</b>	<b>0.0%</b>
<b>Totals for Area of Interest</b>			<b>78,703.4</b>	<b>100.0%</b>

## Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

**Group A.** Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

**Group B.** Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

**Group C.** Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

**Group D.** Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

## Rating Options

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher

## Weighted CN Values

**PROJECT:** Middle Island Creek Truck Pad  
**DATE:** 5/24/2016  
**PREPARED BY:** AFF

HYDROLOGIC SOIL GROUPS				
COVER TYPE/CONDITION	SOIL NAME	HYDROLOGIC GROUP	AREA (ac.)	CN
Woods	GsF, GsE, GuC, GuD	C	66400	70
Meadow	Ch, Se, SeB, Su, VaD	A/B/C	8500	71
Residential	GyD, MuB, MuC	C	2200	80
Industrial	Co, GpE, Me, VsE	B/C/D	1600	93

**Total Area:** 78700 ac.  
**Weighted CN:** 70.9



# TR55 Tc Worksheet

## Hyd. No. 1

MIC Truck Pad

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
<b>Sheet Flow</b>				
Manning's n-value	= 0.800	0.011	0.011	
Flow length (ft)	= 300.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.56	0.00	0.00	
Land slope (%)	= 25.00	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 36.65</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 36.65</b>
<b>Shallow Concentrated Flow</b>				
Flow length (ft)	= 6025.00	0.00	0.00	
Watercourse slope (%)	= 6.80	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=4.21	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 23.87</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 23.87</b>
<b>Channel Flow</b>				
X sectional flow area (sqft)	= 30.00	100.00	350.00	
Wetted perimeter (ft)	= 23.00	104.00	85.00	
Channel slope (%)	= 0.50	0.50	0.50	
Manning's n-value	= 0.040	0.040	0.040	
Velocity (ft/s)	=3.15	2.57	6.80	
Flow length (ft)	{{0}}47230.0	47230.0	47230.0	
<b>Travel Time (min)</b>	<b>= 250.12</b>	<b>+ 306.81</b>	<b>+ 115.78</b>	<b>= 672.71</b>
<b>Total Travel Time, Tc .....</b>				<b>733.23 min</b>

# Hydrograph Report

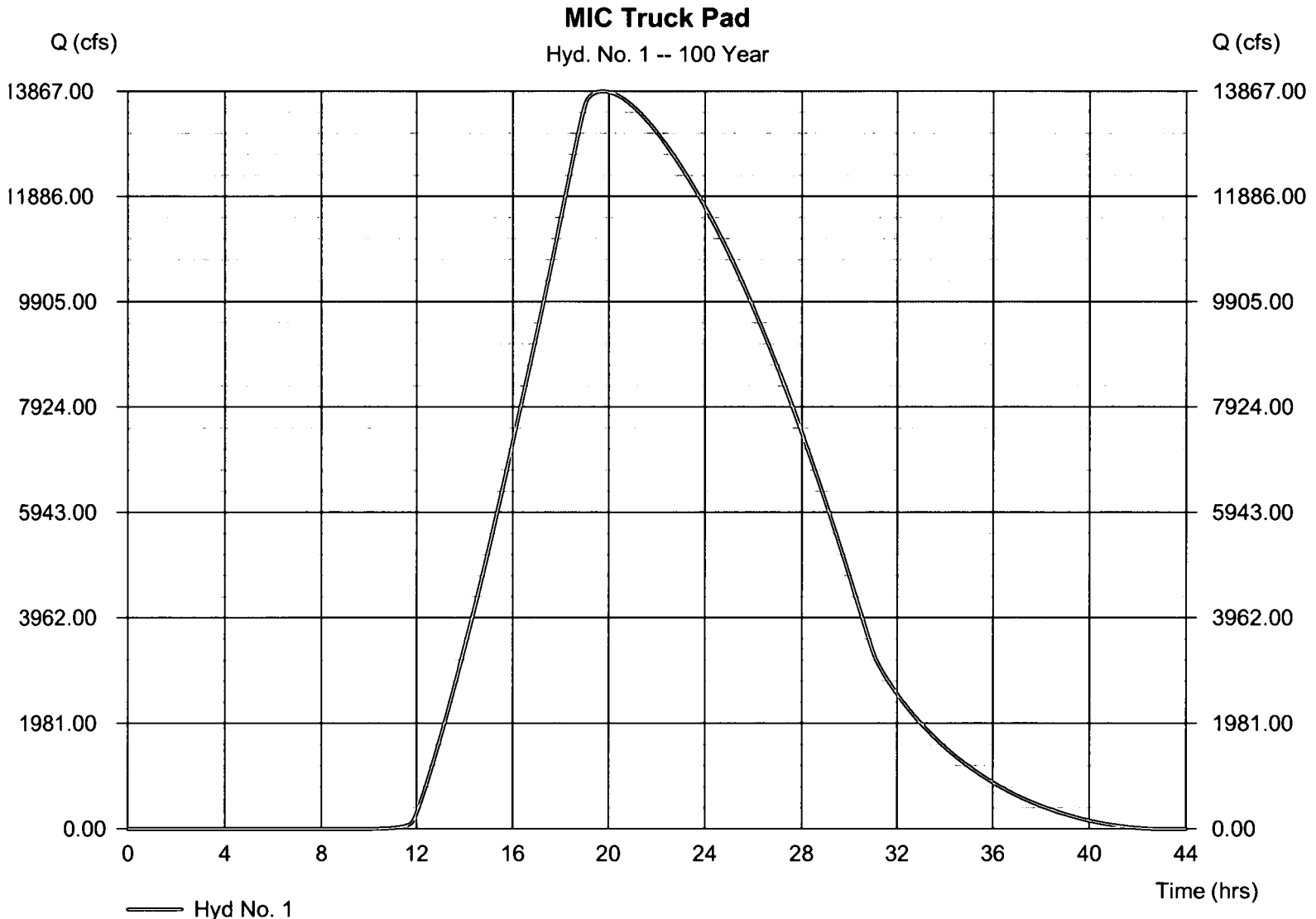
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v10.5

Wednesday, 05 / 25 / 2016

## Hyd. No. 1

MIC Truck Pad

Hydrograph type	= SCS Runoff	Peak discharge	= 13866.08 cfs
Storm frequency	= 100 yrs	Time to peak	= 19.77 hrs
Time interval	= 2 min	Hyd. volume	= 639,215,488 cuft
Drainage area	= 78700.000 ac	Curve number	= 70.9
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 733.20 min
Total precip.	= 5.17 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



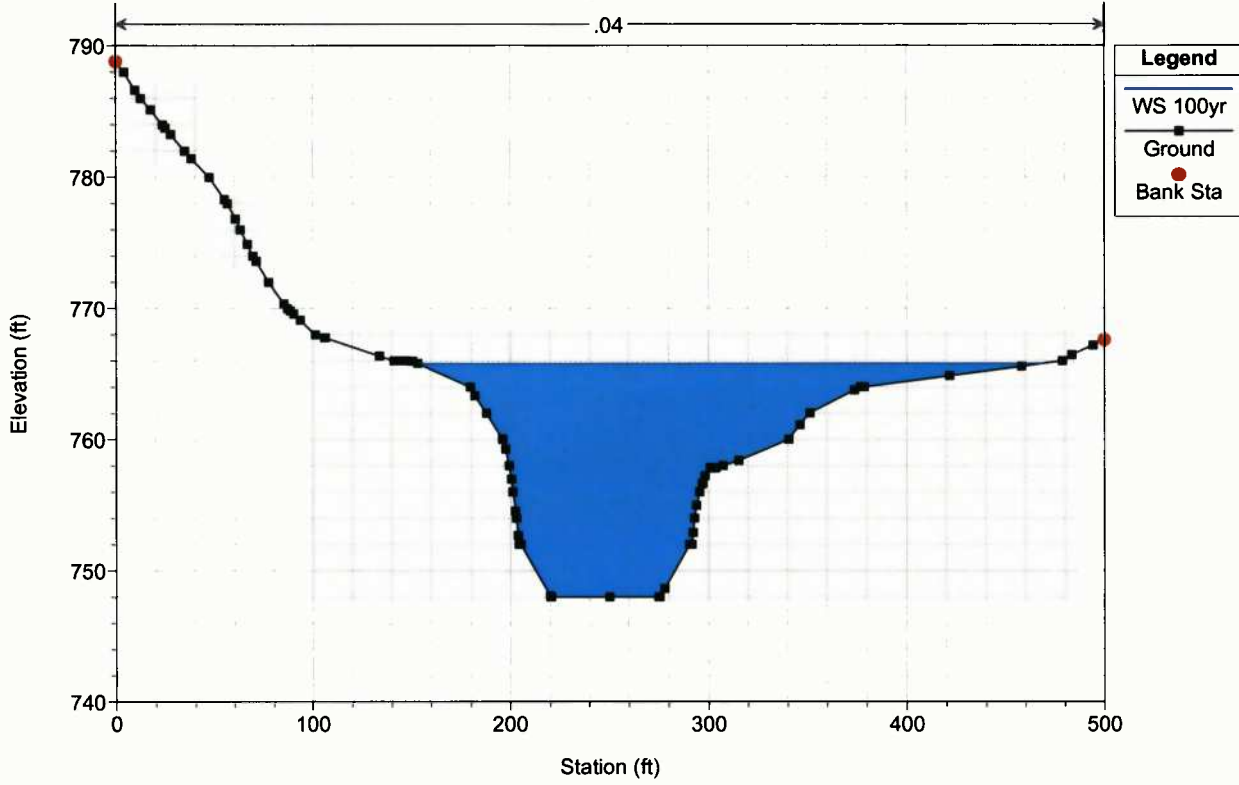
### HEC-RAS SUMMARY OUTPUT - EXISTING CONDITIONS

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
MIC	900	100yr	13866.08	748	765.8		766.41	0.002154	6.24	2222.78	315.43	0.41
MIC	700	100yr	13866.08	748	765.45		766.02	0.001662	6.06	2288.09	278.09	0.37
MIC	525	100yr	13866.08	748	764.96		765.7	0.001826	6.89	2012.62	212.55	0.39
MIC	300	100yr	13866.08	748	764.02		765.18	0.002433	8.67	1598.71	147.67	0.46
MIC	100	100yr	13866.08	748	762.26	759	764.41	0.004998	11.77	1177.71	116.34	0.65

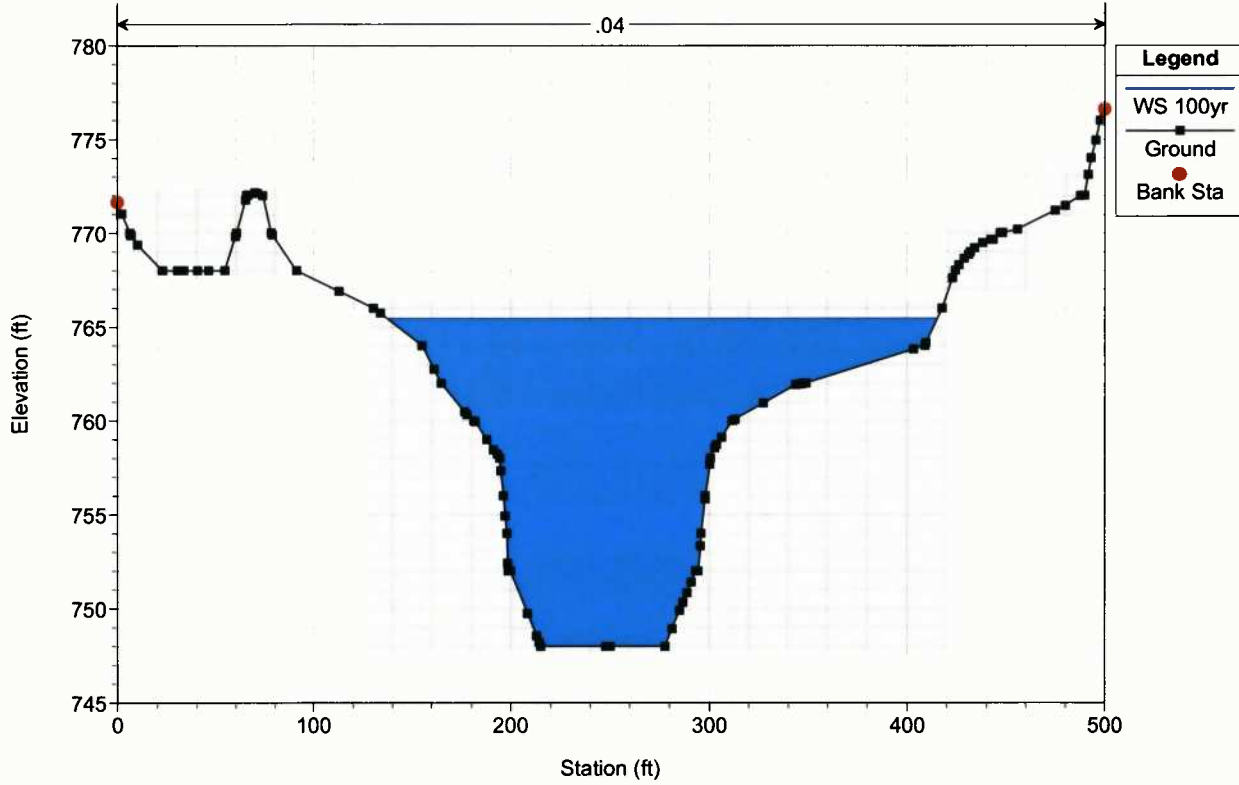
### HEC-RAS SUMMARY OUTPUT - PROPOSED CONDITIONS

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
MIC	900	100yr	13866.08	748	765.81		766.41	0.002153	6.24	2223.72	315.62	0.41
MIC	700	100yr	13866.08	748	765.45		766.02	0.00166	6.06	2288.96	278.14	0.37
MIC	525	100yr	13866.08	748	764.96		765.7	0.001838	6.9	2008.83	212.55	0.4
MIC	300	100yr	13866.08	748	764.02		765.18	0.002433	8.67	1598.71	147.67	0.46
MIC	100	100yr	13866.08	748	762.26	759	764.41	0.004998	11.77	1177.71	116.34	0.65

Middle Island Creek Existing Plan: Middle Island Creek Existing 5/25/2016  
RS = 900

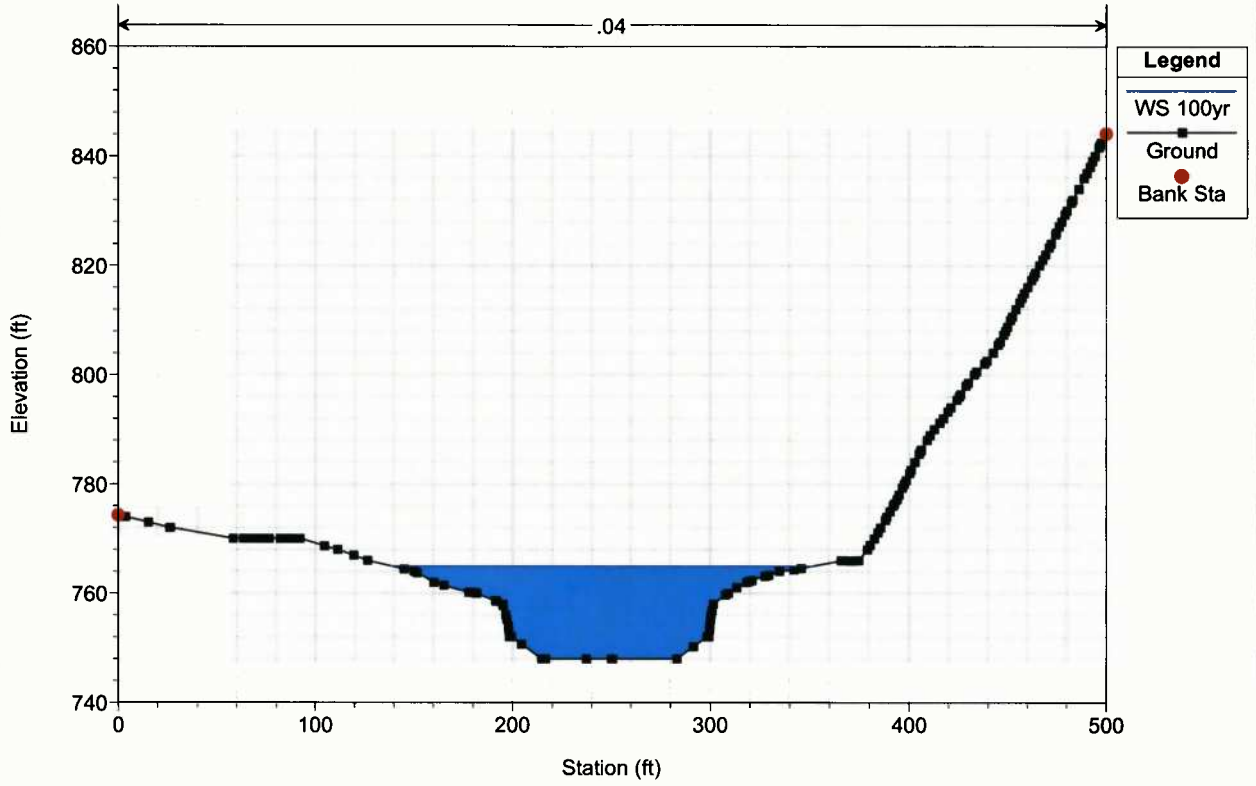


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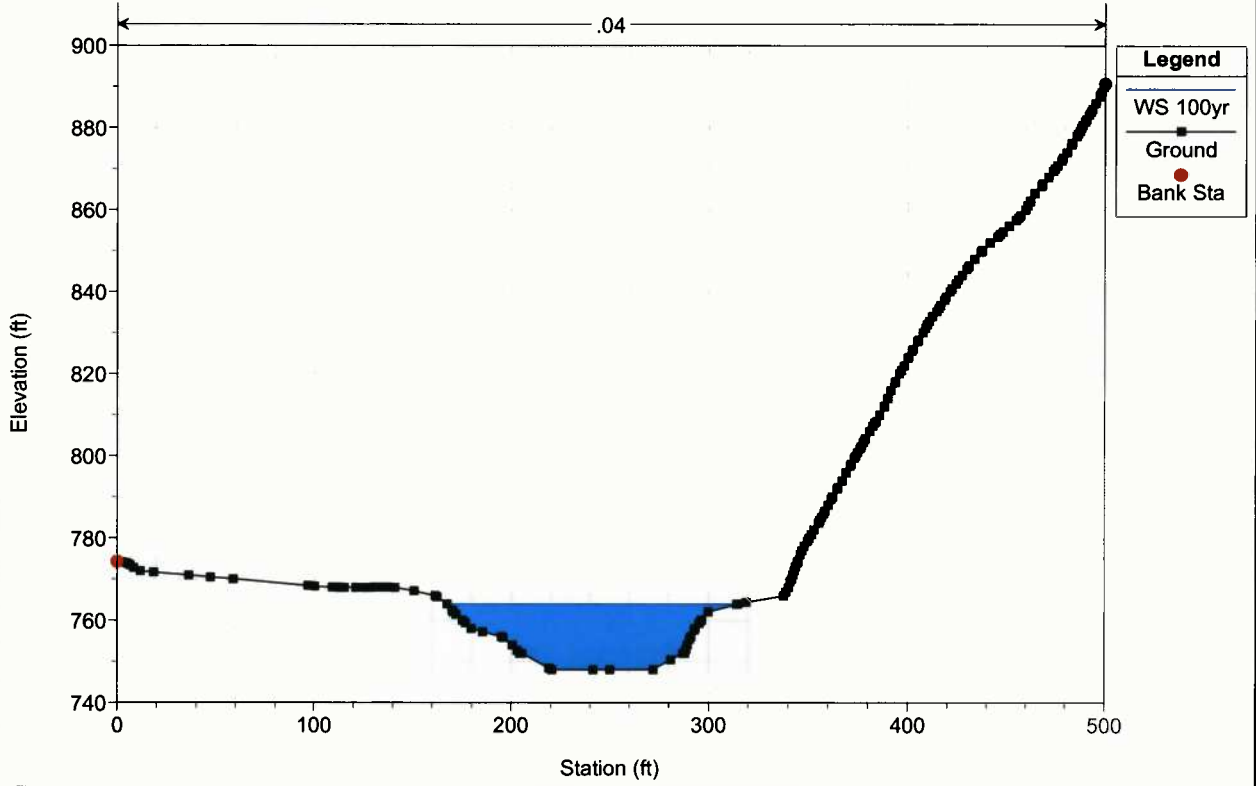




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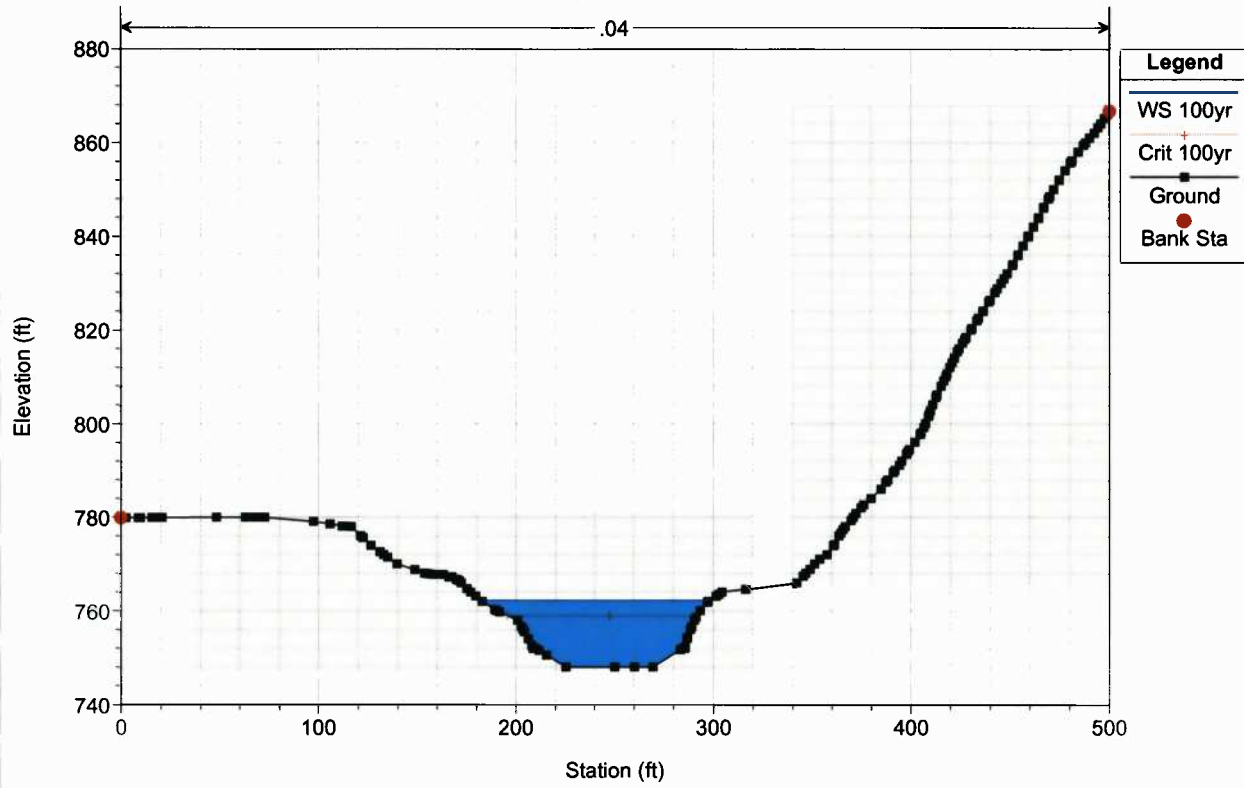
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RS = 300



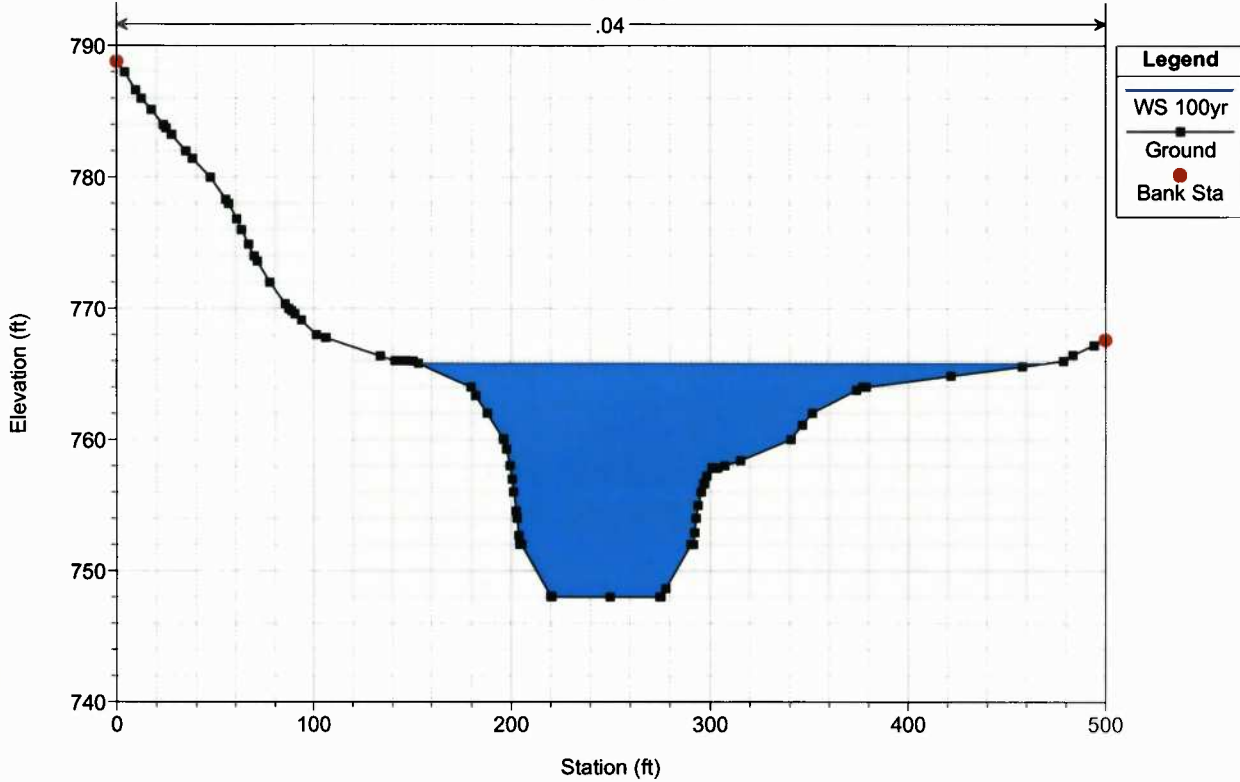
Middle Island Creek Existing

Plan: Middle Island Creek Existing 5/25/2016

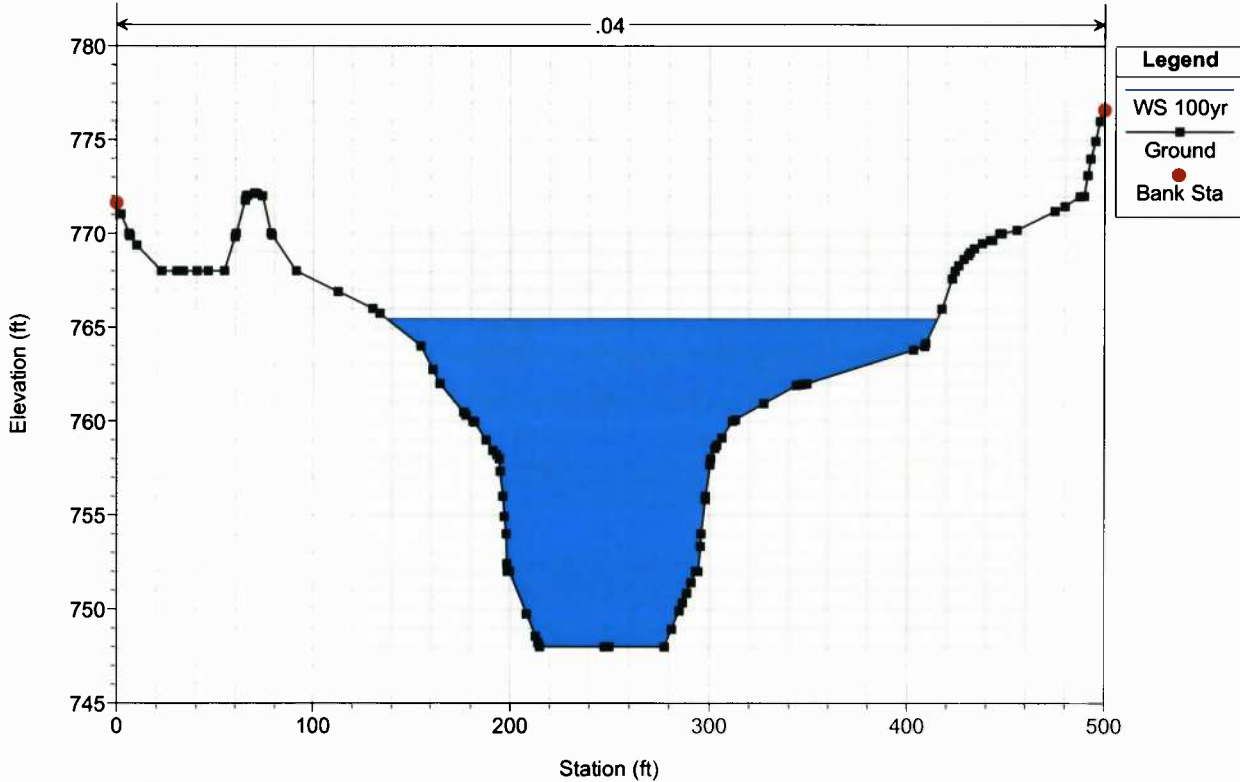
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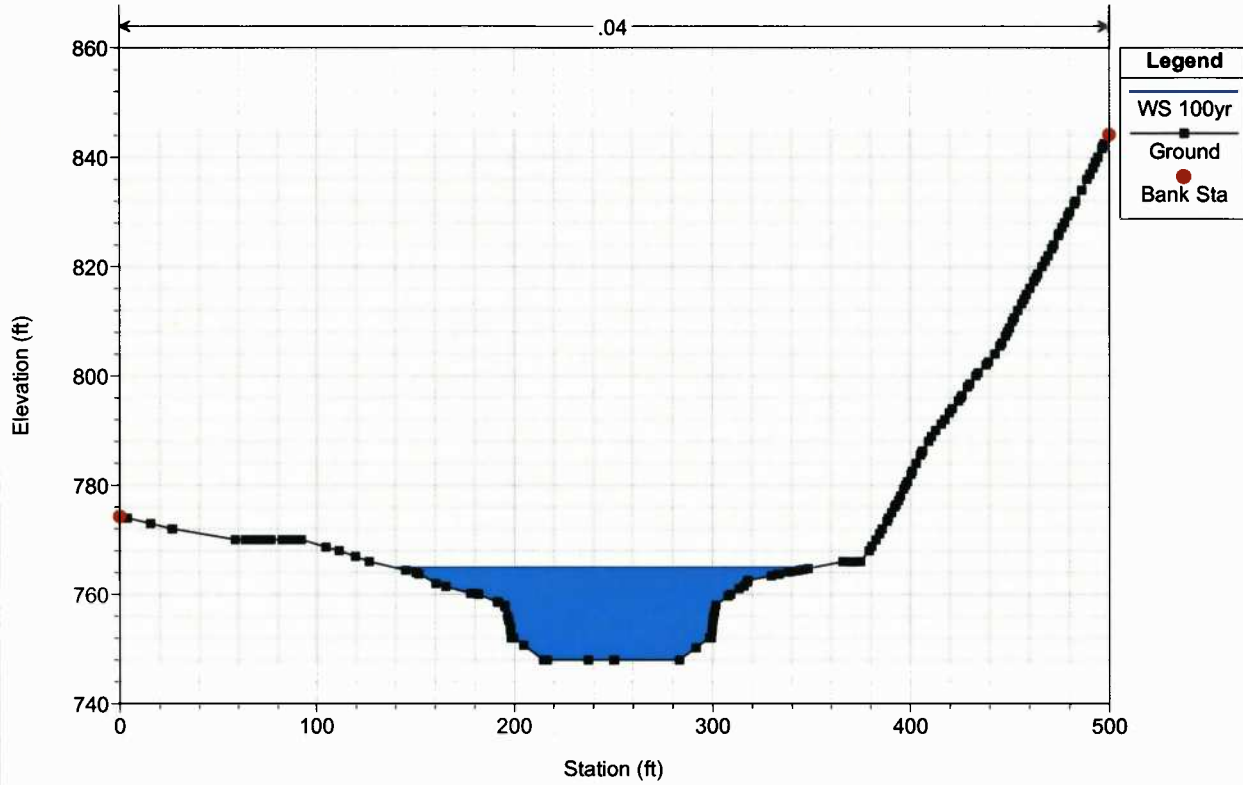
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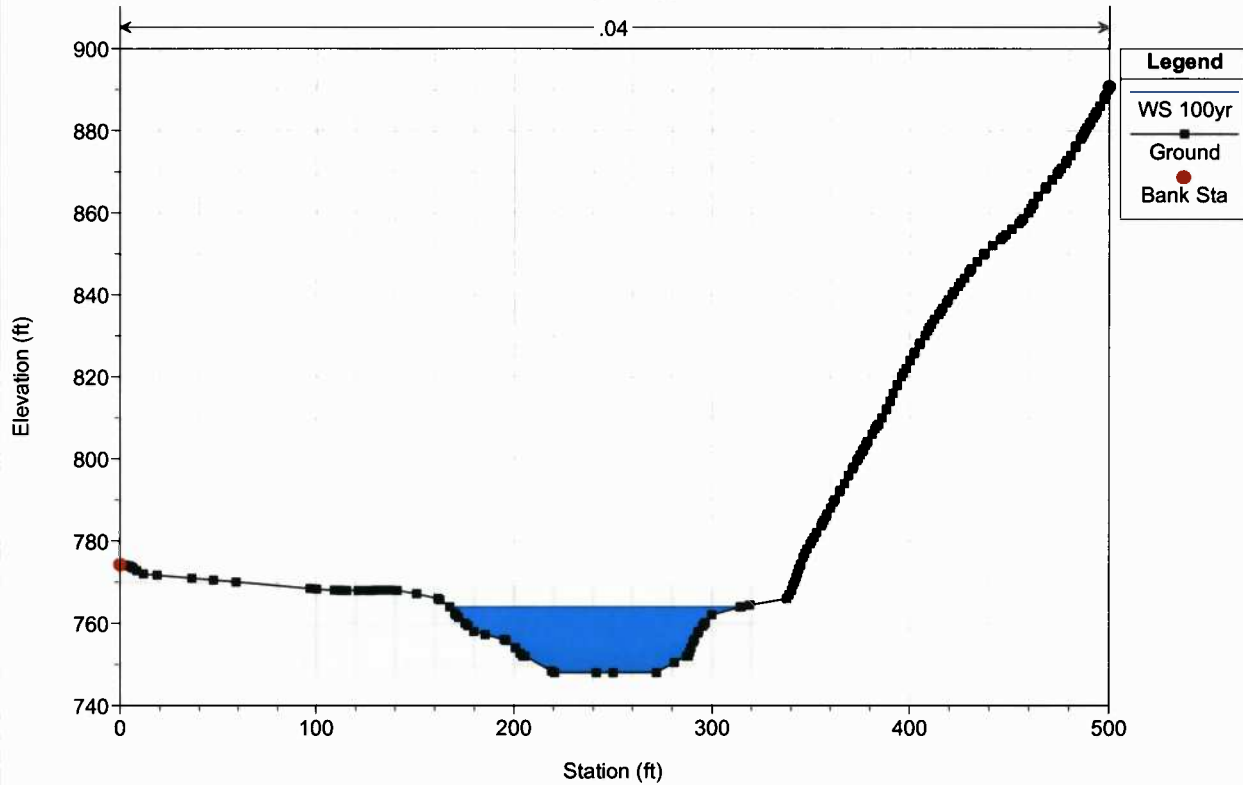
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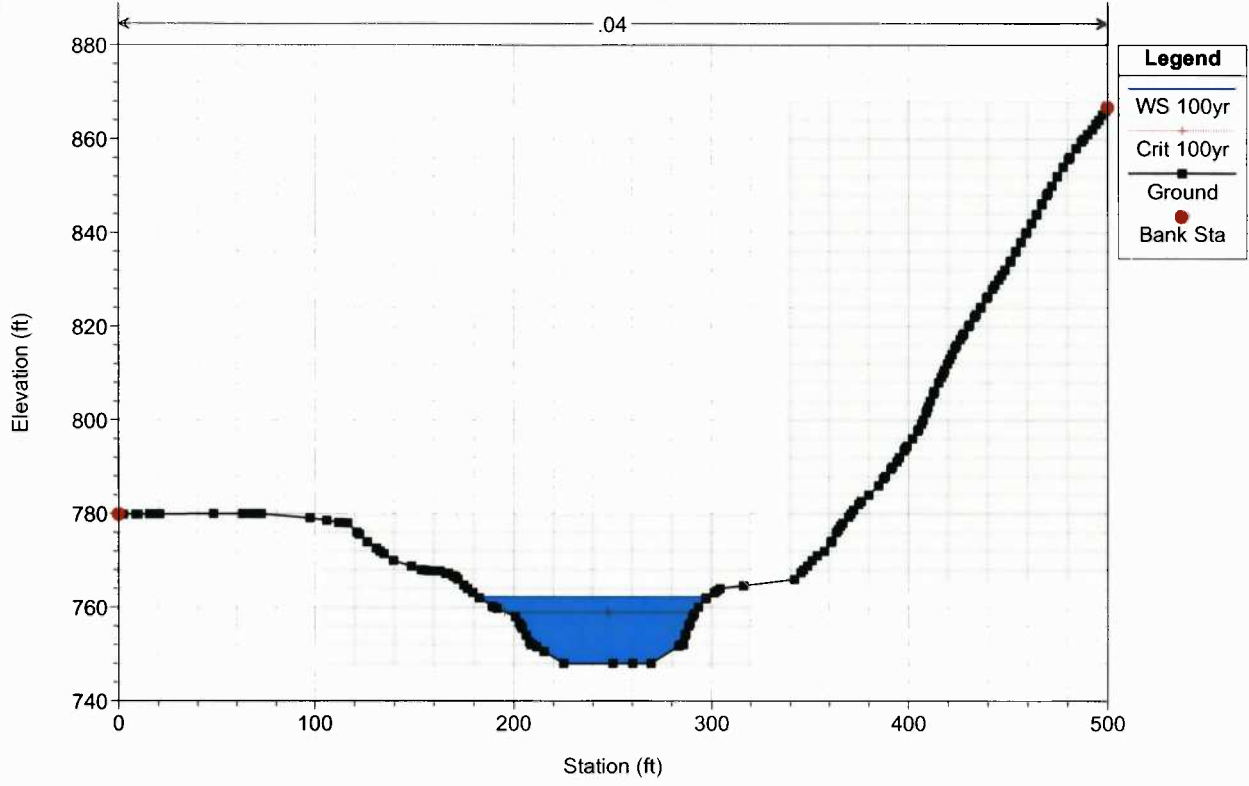
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RS = 525



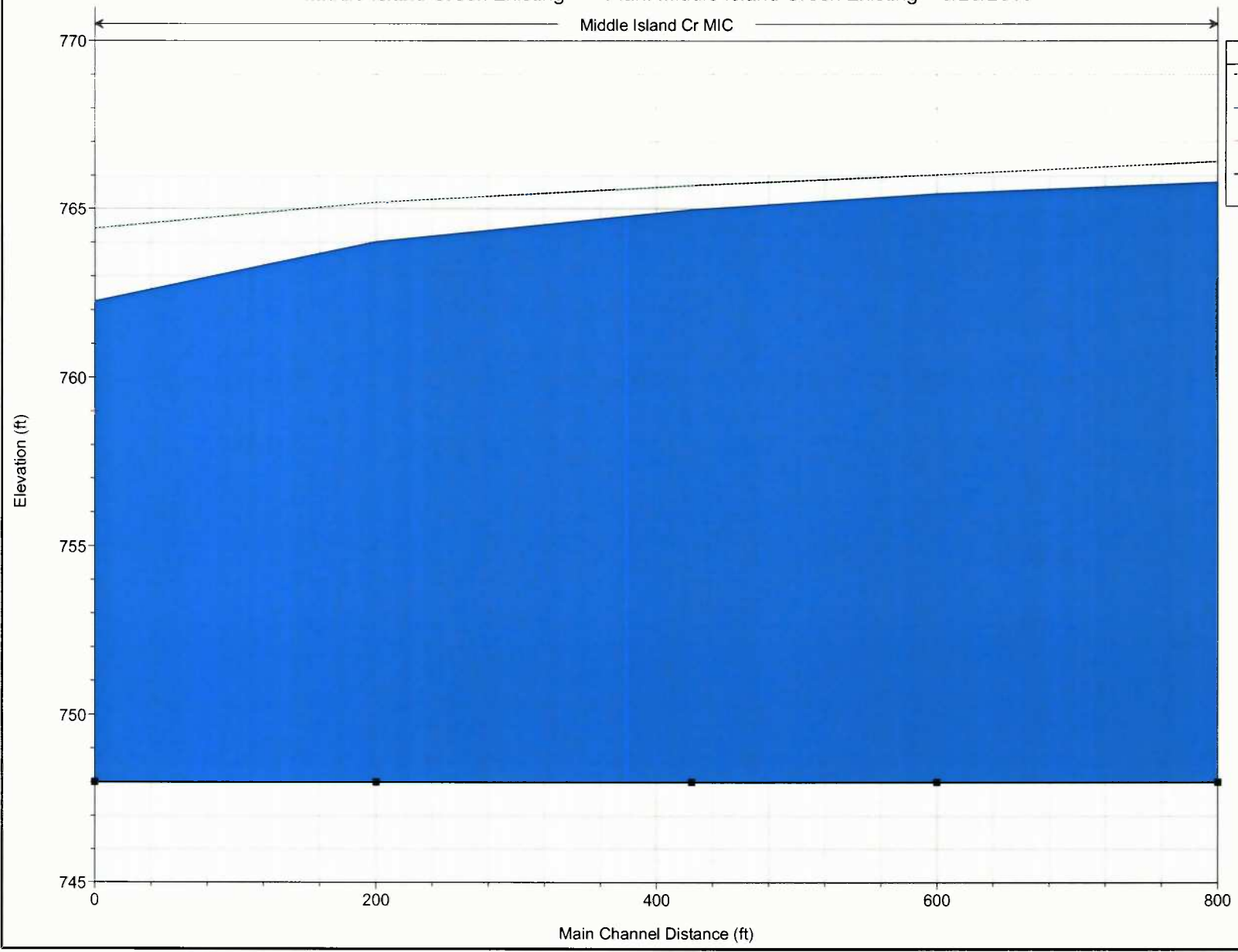
Middle Island Creek Proposed Plan: Middle Island Creek Proposed 5/25/2016  
RS = 300



Middle Island Creek Proposed Plan: Middle Island Creek Proposed 5/25/2016  
RS = 100



Middle Island Cr MIC

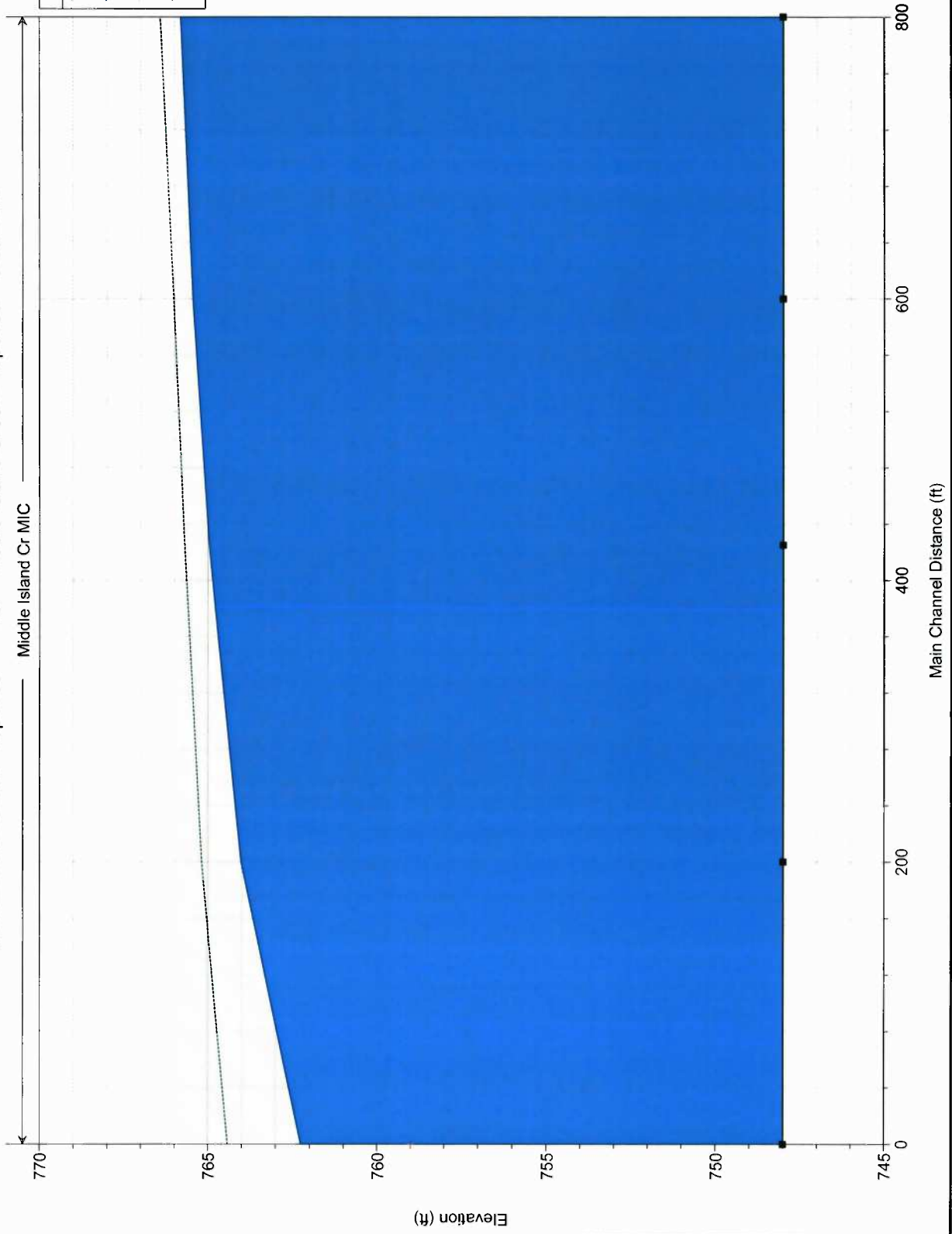


Legend	
EG 100yr	(Dotted line)
WS 100yr	(Dashed line)
Crit 100yr	(Dashed line)
Ground	(Solid line with markers)

Middle Island Creek Proposed Plan: Middle Island Creek Proposed 5/25/2016

Middle Island Cr MIC

Legend	
EG 100yr	.....
WS 100yr	-----
Crit 100yr	-----
Ground	-----



















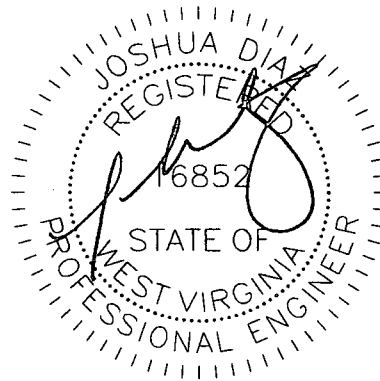


# HYDROLOGIC AND HYDRAULIC ANALYSIS

## MIDDLE ISLAND CREEK TRUCK PAD ADDITIONAL ENTRANCE

JUN24 16 9:52AM

JUNE 2016



***Summary of Findings: Based on the attached H&H analysis, it was determined that the proposed floodplain is insignificantly raised by 0.01' at the upstream, and the floodway will have no-rise upstream or downstream.***

Prepared For:



120 Professional Place  
Professional Building Four  
Bridgeport, WV 26330

Prepared By:

**Blue Mountain, Inc.**  
10125 Mason Dixon Hwy  
Burton, WV 26562



June 22, 2016

# **HYDROLOGIC AND HYDRAULIC ANALYSIS**

For the

## **EQT MIDDLE ISLAND CREEK TRUCK PAD ADDITIONAL ENTRANCE**

West Union District,  
Doddridge County, West Virginia

### **A. Purpose**

EQT is proposing a second entrance for an existing truck pad along SR 18. This truck pad entrance will require 12" (maximum) of gravel for access. The appropriate permits are being pursued for this fill. This report identifies the 100 year/ 24 hour rainfall event at the proposed gravel entrance.

### **B. Drainage Area**

The contributing drainage area for the site was analyzed utilizing USGS contours. The attached "Watershed Limits" map shows the watershed limits for this site. This contributing drainage area has been identified as 78,700 acres.

### **C. Runoff Discharge Methods**

Runoff from the contributing drainage area in the existing land use configuration was calculated using the USDA TR-55 method for runoff modeling.

A summary of the Curve Number (CN) tabulations can be found within the attached calculations. The resulting composite CN values were entered into a hydrologic modeling program called Hydraflow Hydrographs. Time of Concentration (Tc) values were calculated within this program, utilizing sheet flow, shallow concentrated flow and channel flow. A summary of these values can be found within the attached calculations.

Rainfall data was obtained from NOAA Atlas 14, Volume 2, Version 3 and can be found within the supporting calculations attached within this report.

#### **D. Design Storm**

This report analyzes the water elevation of the 100 year/ 24 hour rainfall event at the location of the gravel entrance.

#### **E. Hydrologic Soil Group**

The USDA Natural Resources Conservation Service Soil Survey of this area was researched to identify the soil types present within the contributing drainage area of Beham Run. The soil survey showed the presence of Hydrologic soil groups 'A', 'B', 'C' and 'D' within the drainage area. The attached "Web Soil Survey" shows the soil types present within the drainage area.

#### **F. Peak Discharge**

The peak discharge has been modeled for the 100 year/ 24 hour rainfall event for the contributing drainage area within Hydraflow Hydrographs. The peak discharge for this storm event has been calculated to be 13,866.08 cfs.

#### **G. Hydraulic Analysis**

The computer program Hec-Ras v4.1.0 was used to determine the water surface elevation at the proposed gravel pad. The peak discharge from the 100 year/ 24 hour storm event was used within Hec-Ras. The floodplain limits were mapped using the Hec-Ras program and exported to display on the site plan. Summary output information from Hec-Ras has been provided within the supporting calculations.

#### **H. Results**

This report indicates an existing and proposed water surface elevation of 764.96' for the 100 year/ 24 hour rainfall event at this site. The report indicates an existing water surface elevation of 765.80' and a proposed water surface elevation of 765.81' at the adjoining property immediately upstream. The report indicates an existing and proposed water surface elevation of 762.26' at the adjoining property immediately downstream. Based on these findings, it was determined that the proposed floodplain is insignificantly raised by 0.01' at the upstream, and the floodway will have no-rise upstream or downstream.



**POINT PRECIPITATION FREQUENCY ESTIMATES**

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerals](#)

**PF tabular**

<b>PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)<sup>1</sup></b>										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.332 (0.301-0.367)	0.397 (0.361-0.440)	0.476 (0.432-0.525)	0.536 (0.486-0.592)	0.612 (0.552-0.673)	0.669 (0.602-0.735)	0.723 (0.648-0.792)	0.778 (0.694-0.851)	0.849 (0.754-0.926)	0.900 (0.796-0.981)
10-min	0.517 (0.468-0.570)	0.620 (0.563-0.686)	0.740 (0.671-0.816)	0.828 (0.750-0.913)	0.936 (0.844-1.03)	1.02 (0.912-1.11)	1.09 (0.975-1.19)	1.16 (1.04-1.27)	1.25 (1.11-1.36)	1.31 (1.16-1.43)
15-min	0.633 (0.574-0.698)	0.758 (0.689-0.839)	0.909 (0.824-1.00)	1.02 (0.923-1.12)	1.16 (1.04-1.27)	1.26 (1.13-1.38)	1.35 (1.21-1.48)	1.44 (1.29-1.58)	1.56 (1.38-1.70)	1.64 (1.45-1.79)
30-min	0.838 (0.759-0.924)	1.02 (0.922-1.12)	1.24 (1.13-1.37)	1.41 (1.28-1.56)	1.63 (1.47-1.80)	1.80 (1.61-1.97)	1.95 (1.75-2.14)	2.11 (1.88-2.31)	2.31 (2.05-2.52)	2.46 (2.17-2.68)
60-min	1.02 (0.927-1.13)	1.25 (1.13-1.38)	1.56 (1.42-1.72)	1.80 (1.63-1.99)	2.12 (1.91-2.33)	2.37 (2.13-2.60)	2.61 (2.34-2.86)	2.86 (2.55-3.13)	3.19 (2.83-3.48)	3.45 (3.05-3.76)
2-hr	1.19 (1.07-1.32)	1.44 (1.30-1.61)	1.81 (1.63-2.01)	2.09 (1.87-2.32)	2.47 (2.21-2.73)	2.77 (2.46-3.06)	3.08 (2.73-3.39)	3.39 (2.99-3.73)	3.82 (3.35-4.19)	4.16 (3.62-4.55)
3-hr	1.27 (1.14-1.42)	1.53 (1.38-1.71)	1.92 (1.72-2.13)	2.21 (1.98-2.47)	2.63 (2.34-2.92)	2.95 (2.62-3.27)	3.29 (2.91-3.64)	3.64 (3.20-4.01)	4.12 (3.59-4.53)	4.50 (3.89-4.94)
6-hr	1.51 (1.37-1.68)	1.82 (1.65-2.03)	2.25 (2.04-2.51)	2.60 (2.35-2.89)	3.09 (2.77-3.42)	3.49 (3.11-3.84)	3.90 (3.46-4.28)	4.34 (3.82-4.75)	4.93 (4.31-5.39)	5.42 (4.70-5.91)
12-hr	1.81 (1.64-2.00)	2.16 (1.97-2.39)	2.65 (2.41-2.93)	3.05 (2.76-3.37)	3.62 (3.26-3.98)	4.08 (3.66-4.48)	4.57 (4.07-5.00)	5.09 (4.50-5.55)	5.82 (5.09-6.33)	6.41 (5.56-6.96)
24-hr	2.15 (1.98-2.34)	2.56 (2.36-2.79)	3.10 (2.85-3.38)	3.54 (3.25-3.85)	4.16 (3.81-4.51)	4.65 (4.25-5.05)	5.17 (4.70-5.60)	5.72 (5.17-6.18)	6.46 (5.82-6.97)	7.05 (6.33-7.60)
2-day	2.53 (2.35-2.73)	3.00 (2.78-3.24)	3.60 (3.33-3.89)	4.08 (3.77-4.40)	4.74 (4.38-5.11)	5.27 (4.85-5.67)	5.82 (5.34-6.25)	6.38 (5.83-6.85)	7.13 (6.49-7.65)	7.73 (7.00-8.29)
3-day	2.72 (2.53-2.93)	3.22 (3.00-3.47)	3.85 (3.58-4.14)	4.34 (4.03-4.67)	5.01 (4.64-5.39)	5.55 (5.13-5.95)	6.08 (5.61-6.52)	6.63 (6.09-7.10)	7.36 (6.74-7.88)	7.93 (7.23-8.48)
4-day	2.91 (2.72-3.13)	3.45 (3.22-3.71)	4.09 (3.82-4.40)	4.60 (4.29-4.94)	5.29 (4.91-5.67)	5.82 (5.40-6.23)	6.35 (5.88-6.80)	6.89 (6.36-7.35)	7.60 (6.98-8.10)	8.13 (7.46-8.68)
7-day	3.56 (3.34-3.79)	4.20 (3.93-4.47)	4.92 (4.61-5.24)	5.48 (5.13-5.82)	6.20 (5.80-6.59)	6.75 (6.31-7.17)	7.29 (6.80-7.74)	7.82 (7.27-8.30)	8.50 (7.88-9.01)	9.00 (8.32-9.55)
10-day	4.11 (3.88-4.36)	4.84 (4.56-5.13)	5.62 (5.29-5.94)	6.21 (5.84-6.57)	6.97 (6.55-7.37)	7.54 (7.08-7.97)	8.08 (7.58-8.54)	8.61 (8.06-9.09)	9.27 (8.66-9.79)	9.75 (9.09-10.3)
20-day	5.83 (5.52-6.15)	6.83 (6.48-7.22)	7.81 (7.40-8.25)	8.55 (8.10-9.02)	9.47 (8.96-9.98)	10.1 (9.59-10.7)	10.8 (10.2-11.3)	11.4 (10.7-12.0)	12.1 (11.4-12.7)	12.6 (11.9-13.3)
30-day	7.40 (7.04-7.78)	8.63 (8.22-9.08)	9.76 (9.29-10.3)	10.6 (10.1-11.1)	11.6 (11.1-12.2)	12.4 (11.8-13.0)	13.1 (12.4-13.7)	13.7 (13.0-14.4)	14.4 (13.7-15.2)	15.0 (14.2-15.7)
45-day	9.51 (9.07-9.96)	11.1 (10.6-11.6)	12.4 (11.8-13.0)	13.3 (12.7-14.0)	14.5 (13.8-15.2)	15.3 (14.6-16.1)	16.1 (15.3-16.8)	16.8 (16.0-17.6)	17.6 (16.7-18.4)	18.1 (17.2-19.0)
60-day	11.5 (11.0-12.0)	13.4 (12.8-13.9)	14.8 (14.2-15.5)	15.9 (15.2-16.6)	17.2 (16.4-17.9)	18.1 (17.3-18.9)	18.9 (18.0-19.7)	19.6 (18.7-20.4)	20.4 (19.5-21.3)	21.0 (20.0-21.9)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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**PF graphical**





**POINT PRECIPITATION FREQUENCY ESTIMATES**

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerials](#)

**PF tabular**

<b>PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)<sup>1</sup></b>										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	3.98 (3.61-4.40)	4.76 (4.33-5.28)	5.71 (5.18-6.30)	6.43 (5.83-7.10)	7.34 (6.62-8.08)	8.03 (7.22-8.82)	8.68 (7.78-9.50)	9.34 (8.33-10.2)	10.2 (9.05-11.1)	10.8 (9.55-11.8)
10-min	3.10 (2.81-3.42)	3.72 (3.38-4.12)	4.44 (4.03-4.90)	4.97 (4.50-5.48)	5.62 (5.06-6.18)	6.09 (5.47-6.68)	6.53 (5.85-7.16)	6.97 (6.22-7.62)	7.48 (6.65-8.17)	7.86 (6.95-8.57)
15-min	2.53 (2.30-2.79)	3.03 (2.76-3.36)	3.64 (3.30-4.01)	4.07 (3.69-4.50)	4.62 (4.17-5.09)	5.02 (4.52-5.52)	5.41 (4.84-5.92)	5.78 (5.15-6.32)	6.23 (5.53-6.80)	6.55 (5.79-7.14)
30-min	1.68 (1.52-1.85)	2.03 (1.84-2.25)	2.49 (2.26-2.74)	2.83 (2.56-3.12)	3.27 (2.94-3.59)	3.59 (3.23-3.94)	3.91 (3.50-4.28)	4.22 (3.76-4.61)	4.61 (4.10-5.03)	4.91 (4.34-5.35)
60-min	1.02 (0.927-1.13)	1.25 (1.13-1.38)	1.56 (1.42-1.72)	1.80 (1.63-1.99)	2.12 (1.91-2.33)	2.37 (2.13-2.60)	2.61 (2.34-2.86)	2.86 (2.55-3.13)	3.19 (2.83-3.48)	3.45 (3.05-3.76)
2-hr	0.595 (0.534-0.662)	0.722 (0.650-0.804)	0.904 (0.813-1.00)	1.04 (0.935-1.16)	1.24 (1.10-1.37)	1.39 (1.23-1.53)	1.54 (1.37-1.69)	1.70 (1.50-1.86)	1.91 (1.67-2.09)	2.08 (1.81-2.27)
3-hr	0.422 (0.380-0.471)	0.510 (0.459-0.570)	0.638 (0.573-0.710)	0.737 (0.660-0.821)	0.875 (0.779-0.971)	0.983 (0.873-1.09)	1.10 (0.968-1.21)	1.21 (1.07-1.34)	1.37 (1.20-1.51)	1.50 (1.30-1.65)
6-hr	0.253 (0.228-0.281)	0.304 (0.275-0.339)	0.376 (0.340-0.419)	0.435 (0.392-0.483)	0.517 (0.463-0.571)	0.582 (0.520-0.642)	0.652 (0.578-0.715)	0.724 (0.638-0.793)	0.824 (0.719-0.900)	0.905 (0.785-0.987)
12-hr	0.150 (0.136-0.166)	0.179 (0.163-0.199)	0.220 (0.200-0.243)	0.253 (0.229-0.279)	0.300 (0.271-0.330)	0.339 (0.304-0.372)	0.379 (0.338-0.415)	0.422 (0.374-0.461)	0.483 (0.422-0.525)	0.532 (0.462-0.578)
24-hr	0.090 (0.082-0.098)	0.107 (0.098-0.116)	0.129 (0.119-0.141)	0.148 (0.136-0.161)	0.173 (0.159-0.188)	0.194 (0.177-0.210)	0.216 (0.196-0.233)	0.238 (0.216-0.257)	0.269 (0.242-0.290)	0.294 (0.264-0.317)
2-day	0.053 (0.049-0.057)	0.063 (0.058-0.068)	0.075 (0.069-0.081)	0.085 (0.079-0.092)	0.099 (0.091-0.106)	0.110 (0.101-0.118)	0.121 (0.111-0.130)	0.133 (0.121-0.143)	0.149 (0.135-0.159)	0.161 (0.146-0.173)
3-day	0.038 (0.035-0.041)	0.045 (0.042-0.048)	0.053 (0.050-0.058)	0.060 (0.056-0.065)	0.070 (0.064-0.075)	0.077 (0.071-0.083)	0.084 (0.078-0.091)	0.092 (0.085-0.099)	0.102 (0.094-0.109)	0.110 (0.100-0.118)
4-day	0.030 (0.028-0.033)	0.036 (0.034-0.039)	0.043 (0.040-0.046)	0.048 (0.045-0.051)	0.055 (0.051-0.059)	0.061 (0.056-0.065)	0.066 (0.061-0.071)	0.072 (0.066-0.077)	0.079 (0.073-0.084)	0.085 (0.078-0.090)
7-day	0.021 (0.020-0.023)	0.025 (0.023-0.027)	0.029 (0.027-0.031)	0.033 (0.031-0.035)	0.037 (0.034-0.039)	0.040 (0.038-0.043)	0.043 (0.040-0.046)	0.047 (0.043-0.049)	0.051 (0.047-0.054)	0.054 (0.050-0.057)
10-day	0.017 (0.016-0.018)	0.020 (0.019-0.021)	0.023 (0.022-0.025)	0.026 (0.024-0.027)	0.029 (0.027-0.031)	0.031 (0.029-0.033)	0.034 (0.032-0.036)	0.036 (0.034-0.038)	0.039 (0.036-0.041)	0.041 (0.038-0.043)
20-day	0.012 (0.012-0.013)	0.014 (0.013-0.015)	0.016 (0.015-0.017)	0.018 (0.017-0.019)	0.020 (0.019-0.021)	0.021 (0.020-0.022)	0.022 (0.021-0.024)	0.024 (0.022-0.025)	0.025 (0.024-0.027)	0.026 (0.025-0.028)
30-day	0.010 (0.010-0.011)	0.012 (0.011-0.013)	0.014 (0.013-0.014)	0.015 (0.014-0.015)	0.016 (0.015-0.017)	0.017 (0.016-0.018)	0.018 (0.017-0.019)	0.019 (0.018-0.020)	0.020 (0.019-0.021)	0.021 (0.020-0.022)
45-day	0.009 (0.008-0.009)	0.010 (0.010-0.011)	0.011 (0.011-0.012)	0.012 (0.012-0.013)	0.013 (0.013-0.014)	0.014 (0.014-0.015)	0.015 (0.014-0.016)	0.016 (0.015-0.016)	0.016 (0.015-0.017)	0.017 (0.016-0.018)
60-day	0.008 (0.008-0.008)	0.009 (0.009-0.010)	0.010 (0.010-0.011)	0.011 (0.011-0.012)	0.012 (0.011-0.012)	0.013 (0.012-0.013)	0.013 (0.013-0.014)	0.014 (0.013-0.014)	0.014 (0.014-0.015)	0.015 (0.014-0.015)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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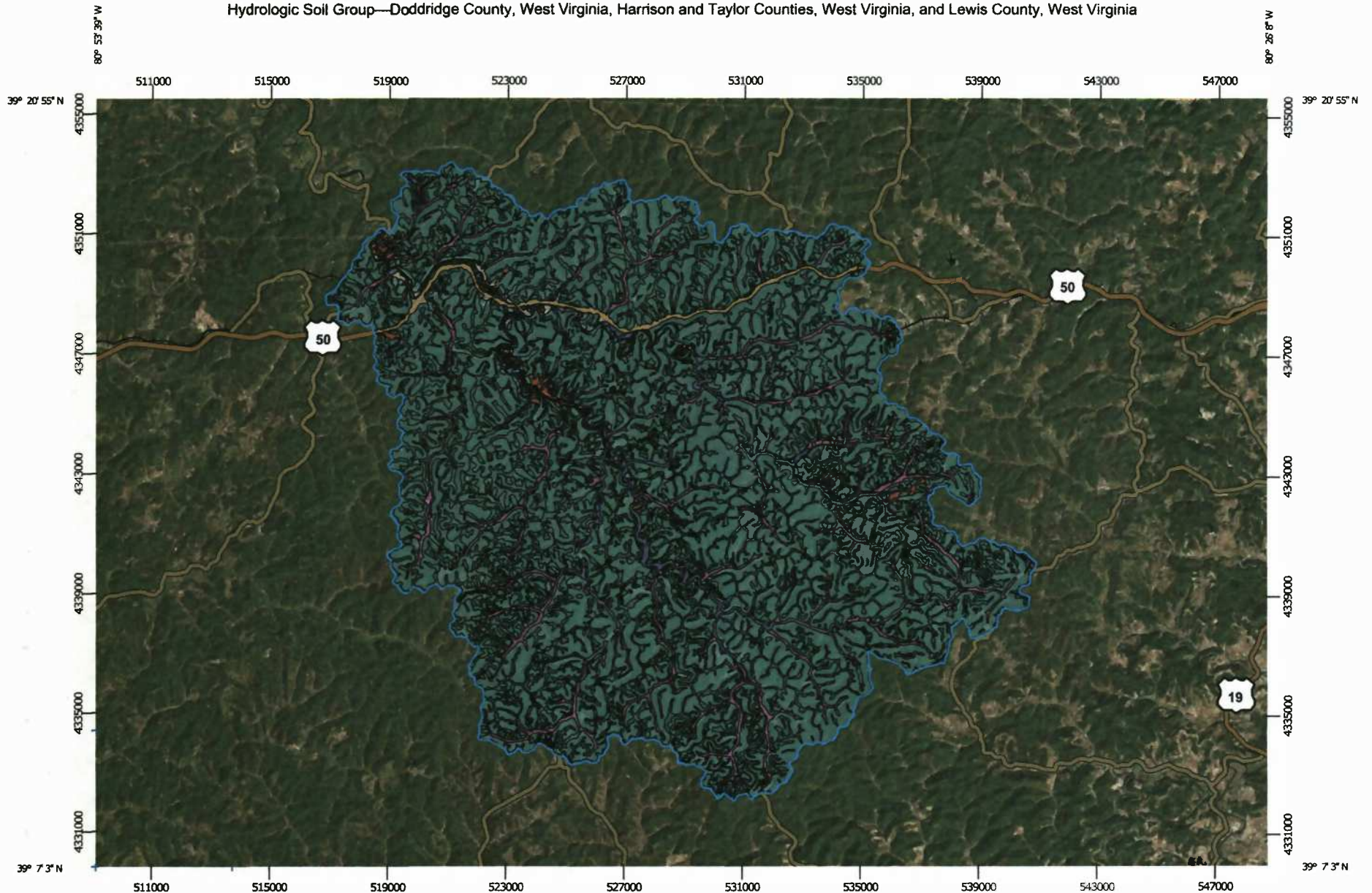
**PF graphical**







Hydrologic Soil Group—Doddridge County, West Virginia, Harrison and Taylor Counties, West Virginia, and Lewis County, West Virginia



Map Scale: 1:181,000 if printed on A landscape (11" x 8.5") sheet.

































0 2500 5000 10000 15000 Meters

0 5000 10000 20000 30000 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge ticks: UTM Zone 17N WGS84



## MAP LEGEND

<b>Area of Interest (AOI)</b>		 C	C
	Area of Interest (AOI)	 C/D	C/D
<b>Soils</b>		 D	D
<b>Soil Rating Polygons</b>		 Not rated or not available	Not rated or not available
	A	<b>Water Features</b>	
	A/D		Streams and Canals
	B	<b>Transportation</b>	
	B/D		Rails
	C		Interstate Highways
	C/D		US Routes
	D		Major Roads
	Not rated or not available		Local Roads
<b>Soil Rating Lines</b>		<b>Background</b>	
	A		Aerial Photography
	A/D		
	B		
	B/D		
	C		
	C/D		
	D		
	Not rated or not available		
<b>Soil Rating Points</b>			
	A		
	A/D		
	B		
	B/D		

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Doddridge County, West Virginia  
 Survey Area Data: Version 11, Sep 24, 2015

Soil Survey Area: Harrison and Taylor Counties, West Virginia  
 Survey Area Data: Version 9, Sep 24, 2015

Soil Survey Area: Lewis County, West Virginia  
 Survey Area Data: Version 7, Sep 24, 2015

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 1, 1999—Dec 31, 2003

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Doddridge County, West Virginia (WV017)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Ch	Chagrin silt loam, 0 to 3 percent slopes, occasionally flooded	B	1,049.0	1.3%
Co	Cotaco silt loam	B/D	122.6	0.2%
GpE	Gilpin-Peabody silt loams, 25 to 35 percent slopes	D	349.2	0.4%
GsE	Gilpin-Peabody complex, 15 to 35 percent slopes, very stony	C	17,129.0	21.8%
GsF	Gilpin-Peabody complex, 35 to 70 percent slopes, very stony	C	47,862.8	60.8%
GuC	Gilpin-Upshur silt loams, 8 to 15 percent slopes	C	881.2	1.1%
GuD	Gilpin-Upshur silt loams, 15 to 25 percent slopes	C	3,247.5	4.1%
GyD	Gilpin-Upshur-Urban land complex, 15 to 25 percent slopes	C	71.6	0.1%
Ka	Kanawha loam, 0 to 3 percent slopes, rarely flooded	B	383.7	0.5%
Ku	Kanawha-Urban land complex	B	34.0	0.0%
Me	Melvin silt loam, 0 to 3 percent slopes, rarely flooded	B/D	43.3	0.1%
MoB	Monongahela silt loam, 3 to 8 percent slopes	D	74.6	0.1%
MoC	Monongahela silt loam, 8 to 15 percent slopes	D	88.8	0.1%
MuB	Monongahela-Urban land complex, 3 to 8 percent slopes	C	34.3	0.0%
MuC	Monongahela-Urban land complex, 8 to 15 percent slopes		39.9	0.1%
Se	Sensabaugh silt loam, 0 to 3 percent slopes, occasionally flooded	A	2,390.4	3.0%

<b>Hydrologic Soil Group— Summary by Map Unit — Doddridge County, West Virginia (WV017)</b>				
<b>Map unit symbol</b>	<b>Map unit name</b>	<b>Rating</b>	<b>Acres in AOI</b>	<b>Percent of AOI</b>
SeB	Sensabaugh silt loam, 3 to 8 percent slopes, rarely flooded	A	2,067.6	2.6%
Su	Sensabaugh-Urban land complex	A	117.2	0.1%
SuB	Sensabaugh-Urban land complex, 3 to 8 percent slopes, rarely flooded	A	56.1	0.1%
Ud	Udorthents, smoothed		841.9	1.1%
VaC	Vandalia silt loam, 8 to 15 percent slopes	C	122.3	0.2%
VaD	Vandalia silt loam, 15 to 25 percent slopes	C	626.0	0.8%
VaE	Vandalia silt loam, 25 to 35 percent slopes	C	53.2	0.1%
VsE	Vandalia silt loam, 15 to 35 percent slopes, very stony	C	694.3	0.9%
VuD	Vandalia-Urban land complex, 15 to 25 percent slopes	C	51.5	0.1%
W	Water		161.1	0.2%
<b>Subtotals for Soil Survey Area</b>			<b>78,593.1</b>	<b>99.9%</b>
<b>Totals for Area of Interest</b>			<b>78,703.4</b>	<b>100.0%</b>

<b>Hydrologic Soil Group— Summary by Map Unit — Harrison and Taylor Counties, West Virginia (WV610)</b>				
<b>Map unit symbol</b>	<b>Map unit name</b>	<b>Rating</b>	<b>Acres in AOI</b>	<b>Percent of AOI</b>
GIF	Gilpin silt loam, 35 to 70 percent slopes	C	1.1	0.0%
GuC	Gilpin-Upshur complex, 8 to 15 percent slopes	C	1.8	0.0%
GuC3	Gilpin-Upshur complex, 8 to 15 percent slopes, severely eroded	D	0.6	0.0%
GuD	Gilpin-Upshur complex, 15 to 25 percent slopes	C	4.5	0.0%
GuD3	Gilpin-Upshur complex, 15 to 25 percent slopes, severely eroded	D	1.6	0.0%
GuE	Gilpin-Upshur complex, 25 to 35 percent slopes	C	15.5	0.0%
GuE3	Gilpin-Upshur complex, 25 to 35 percent slopes, severely eroded	C	11.6	0.0%

<b>Hydrologic Soil Group— Summary by Map Unit — Harrison and Taylor Counties, West Virginia (WV610)</b>				
<b>Map unit symbol</b>	<b>Map unit name</b>	<b>Rating</b>	<b>Acres in AOI</b>	<b>Percent of AOI</b>
GuF3	Gilpin-Upshur complex, 35 to 70 percent slopes, severely eroded	C	38.2	0.0%
UL	Urban land		10.2	0.0%
VaC	Vandalia silty clay loam, 8 to 15 percent slopes	C	6.4	0.0%
VaD	Vandalia silty clay loam, 15 to 25 percent slopes	C	5.3	0.0%
<b>Subtotals for Soil Survey Area</b>			<b>96.7</b>	<b>0.1%</b>
<b>Totals for Area of Interest</b>			<b>78,703.4</b>	<b>100.0%</b>

<b>Hydrologic Soil Group— Summary by Map Unit — Lewis County, West Virginia (WV041)</b>				
<b>Map unit symbol</b>	<b>Map unit name</b>	<b>Rating</b>	<b>Acres in AOI</b>	<b>Percent of AOI</b>
GaD	Gilpin silt loam, 15 to 25 percent slopes	C	0.8	0.0%
GuD	Gilpin-Upshur silt loams, 15 to 25 percent slopes	C	0.7	0.0%
GuE	Gilpin-Upshur silt loams, 25 to 35 percent slopes	C	1.3	0.0%
GwF3	Gilpin-Upshur silt loams, 35 to 70 percent slopes, severely eroded	C	10.9	0.0%
<b>Subtotals for Soil Survey Area</b>			<b>13.6</b>	<b>0.0%</b>
<b>Totals for Area of Interest</b>			<b>78,703.4</b>	<b>100.0%</b>



## Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

## Rating Options

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher

## Weighted CN Values

**PROJECT:** Middle Island Creek Truck Pad  
**DATE:** 5/24/2016  
**PREPARED BY:** AFF

HYDROLOGIC SOIL GROUPS				
COVER TYPE/CONDITION	SOIL NAME	HYDROLOGIC GROUP	AREA (ac.)	CN
Woods	GsF, GsE, GuC, GuD	C	66400	70
Meadow	Ch, Se, SeB, Su, VaD	A/B/C	8500	71
Residential	GyD, MuB, MuC	C	2200	80
Industrial	Co, GpE, Me, VsE	B/C/D	1600	93

**Total Area:** 78700 ac.  
**Weighted CN:** 70.9



**Blue Mountain Inc.**

**bmi@bluemtninc.com 304.662.6486**

**www.bluemtninc.com**

# TR55 Tc Worksheet

## Hyd. No. 1

MIC Truck Pad

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
<b>Sheet Flow</b>				
Manning's n-value	= 0.800	0.011	0.011	
Flow length (ft)	= 300.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.56	0.00	0.00	
Land slope (%)	= 25.00	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 36.65</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 36.65</b>
<b>Shallow Concentrated Flow</b>				
Flow length (ft)	= 6025.00	0.00	0.00	
Watercourse slope (%)	= 6.80	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=4.21	0.00	0.00	
<b>Travel Time (min)</b>	<b>= 23.87</b>	<b>+ 0.00</b>	<b>+ 0.00</b>	<b>= 23.87</b>
<b>Channel Flow</b>				
X sectional flow area (sqft)	= 30.00	100.00	350.00	
Wetted perimeter (ft)	= 23.00	104.00	85.00	
Channel slope (%)	= 0.50	0.50	0.50	
Manning's n-value	= 0.040	0.040	0.040	
Velocity (ft/s)	=3.15	2.57	6.80	
Flow length (ft)	{{0}}47230.0	47230.0	47230.0	
<b>Travel Time (min)</b>	<b>= 250.12</b>	<b>+ 306.81</b>	<b>+ 115.78</b>	<b>= 672.71</b>
<b>Total Travel Time, Tc .....</b>				<b>733.23 min</b>

# Hydrograph Report

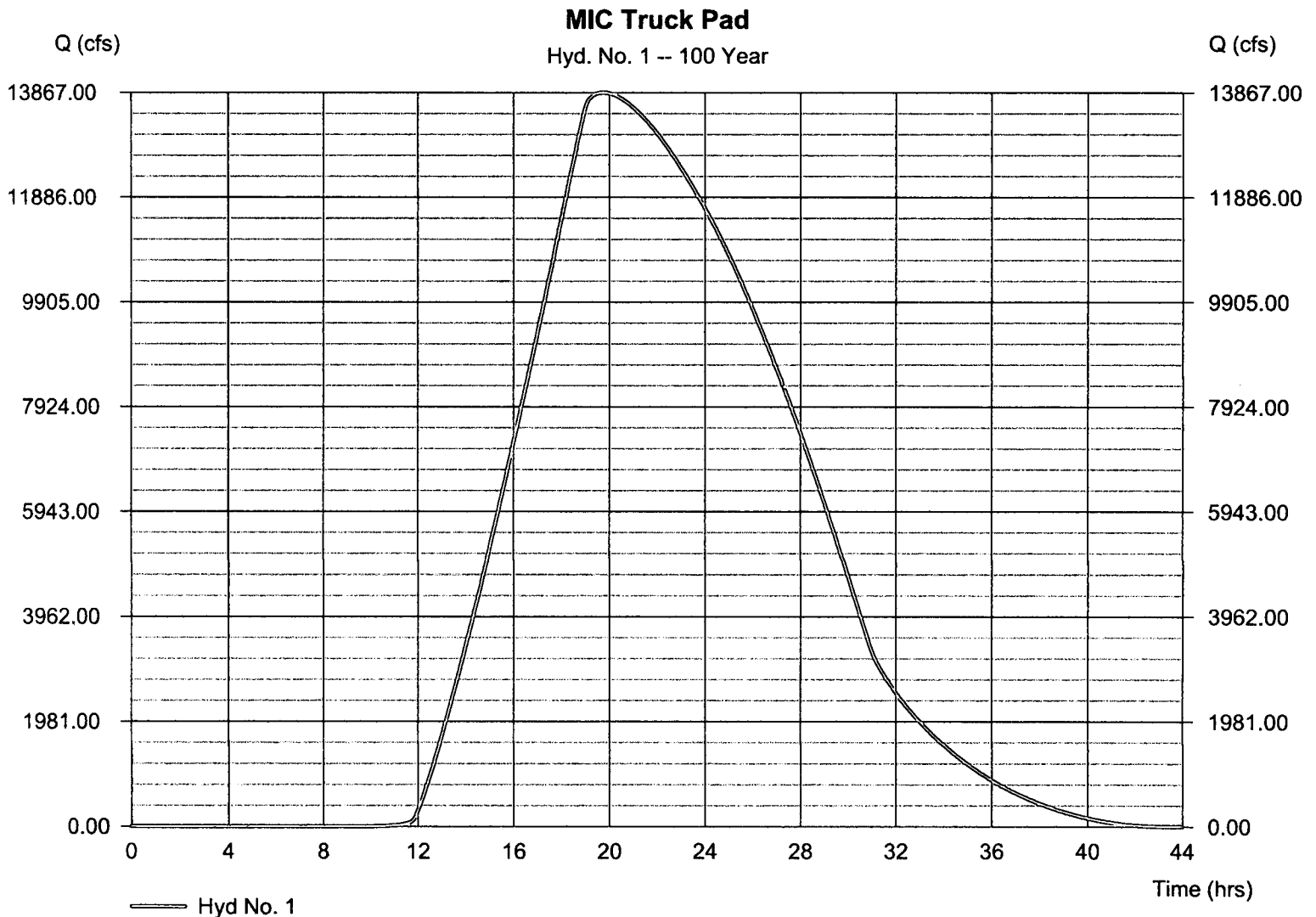
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2016 by Autodesk, Inc. v10.5

Wednesday, 05 / 25 / 2016

## Hyd. No. 1

MIC Truck Pad

Hydrograph type	= SCS Runoff	Peak discharge	= 13866.08 cfs
Storm frequency	= 100 yrs	Time to peak	= 19.77 hrs
Time interval	= 2 min	Hyd. volume	= 639,215,488 cuft
Drainage area	= 78700.000 ac	Curve number	= 70.9
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 733.20 min
Total precip.	= 5.17 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



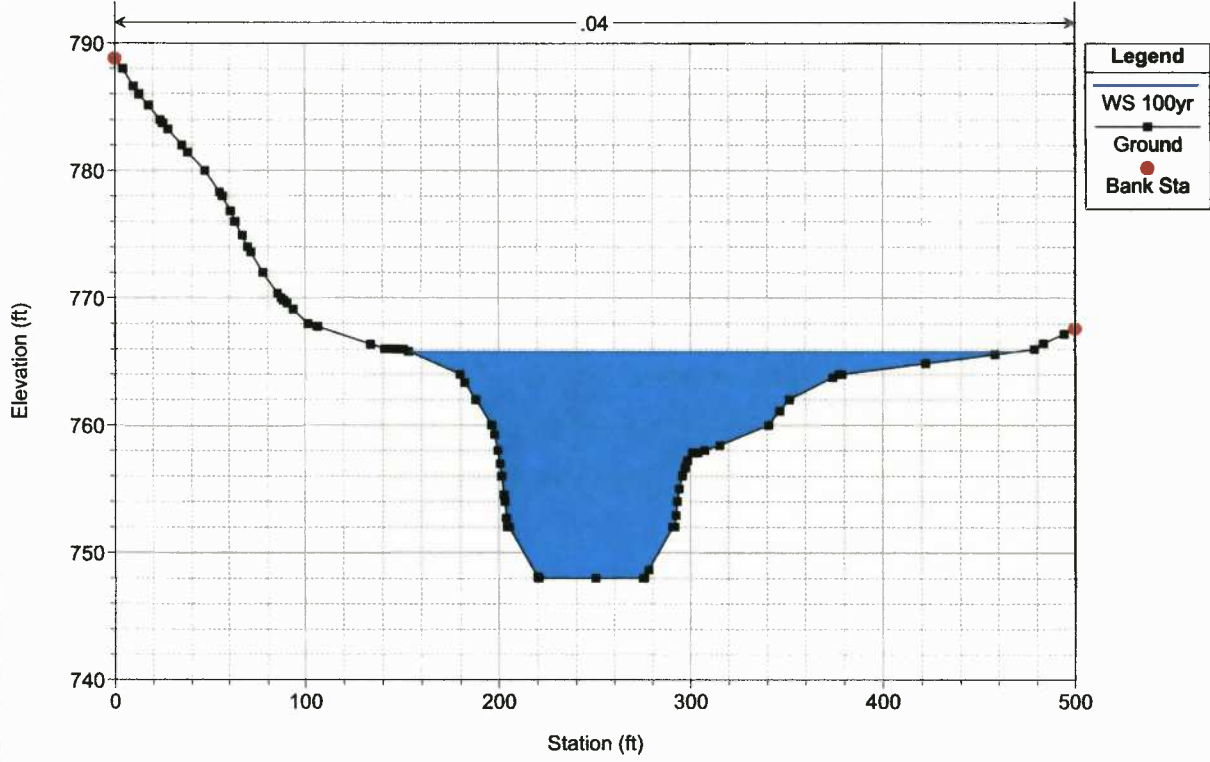
### HEC-RAS SUMMARY OUTPUT - EXISTING CONDITIONS

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
MIC	900	100yr	13866.08	748	765.8		766.41	0.002154	6.24	2222.78	315.43	0.41
MIC	700	100yr	13866.08	748	765.45		766.02	0.001662	6.06	2288.09	278.09	0.37
MIC	525	100yr	13866.08	748	764.96		765.7	0.001826	6.89	2012.62	212.55	0.39
MIC	300	100yr	13866.08	748	764.02		765.18	0.002433	8.67	1598.71	147.67	0.46
MIC	100	100yr	13866.08	748	762.26	759	764.41	0.004998	11.77	1177.71	116.34	0.65

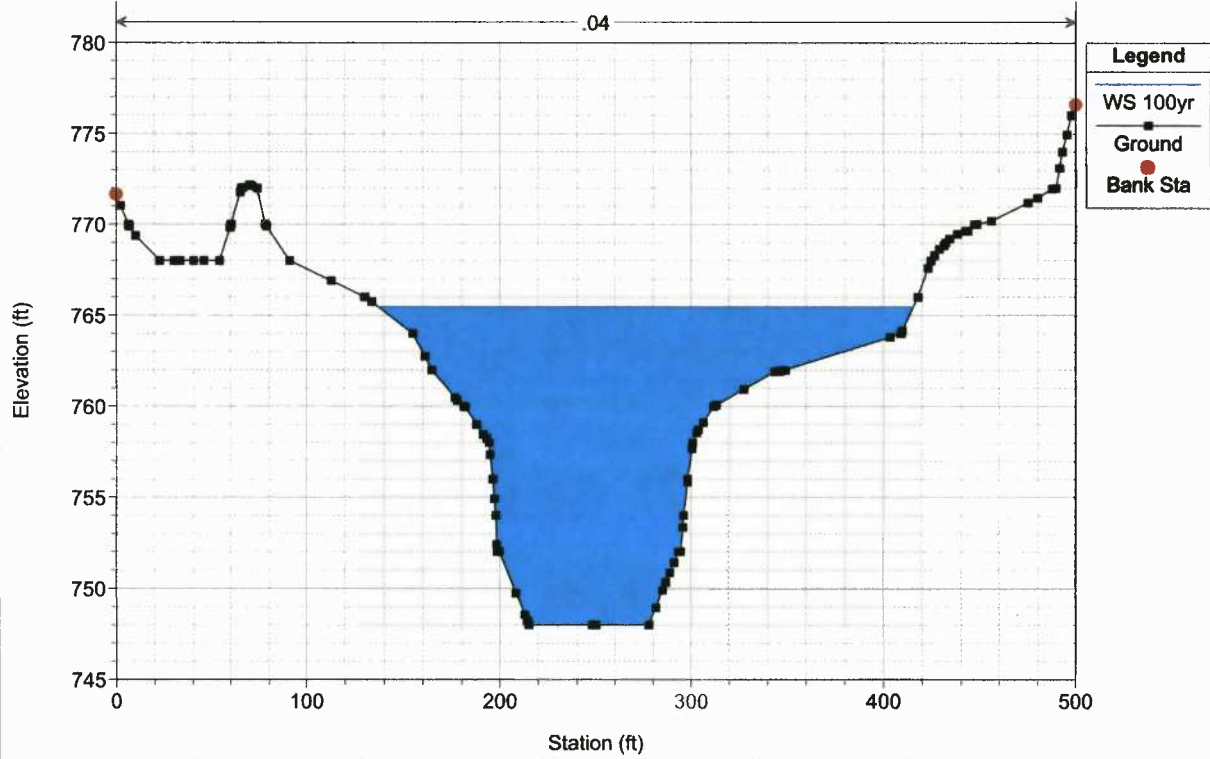
### HEC-RAS SUMMARY OUTPUT - PROPOSED CONDITIONS

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
MIC	900	100yr	13866.08	748	765.81		766.41	0.002153	6.24	2223.72	315.62	0.41
MIC	700	100yr	13866.08	748	765.45		766.02	0.00166	6.06	2288.96	278.14	0.37
MIC	525	100yr	13866.08	748	764.96		765.7	0.001838	6.9	2008.83	212.55	0.4
MIC	300	100yr	13866.08	748	764.02		765.18	0.002433	8.67	1598.71	147.67	0.46
MIC	100	100yr	13866.08	748	762.26	759	764.41	0.004998	11.77	1177.71	116.34	0.65

Middle Island Creek Existing Plan: Middle Island Creek Existing 5/25/2016  
RS = 900

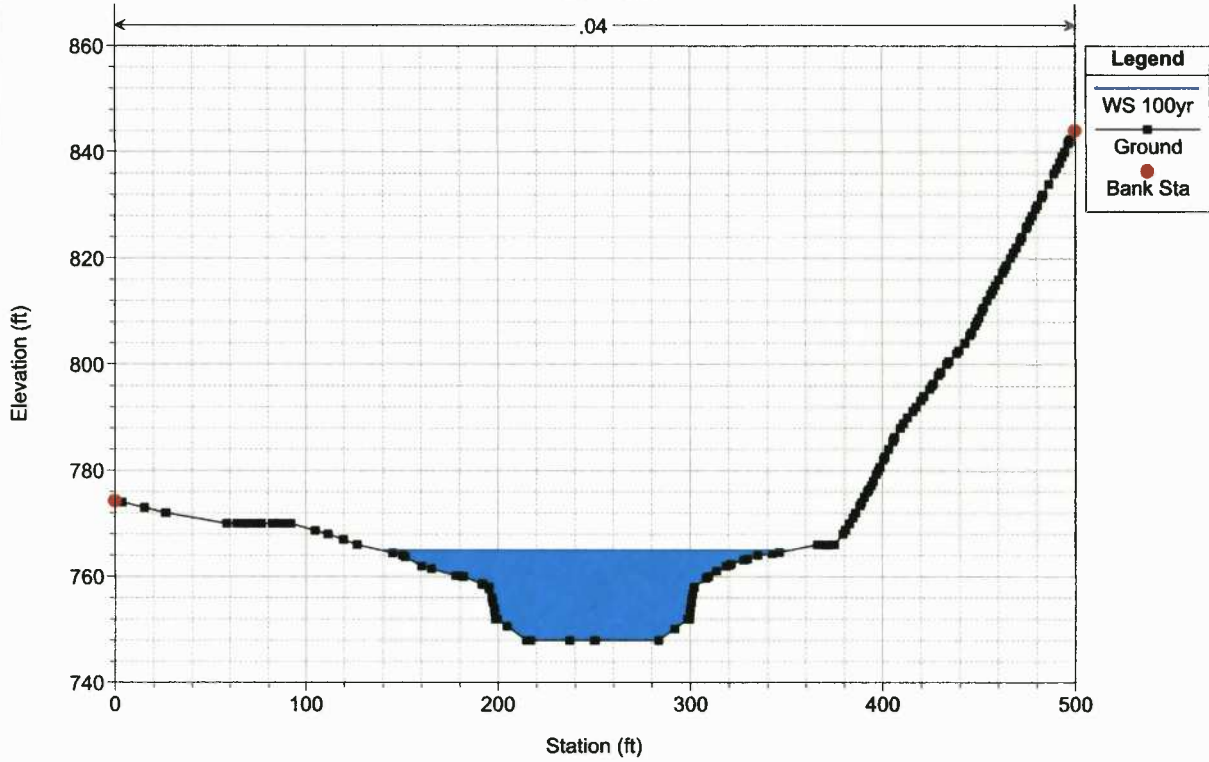


Middle Island Creek Existing Plan: Middle Island Creek Existing 5/25/2016  
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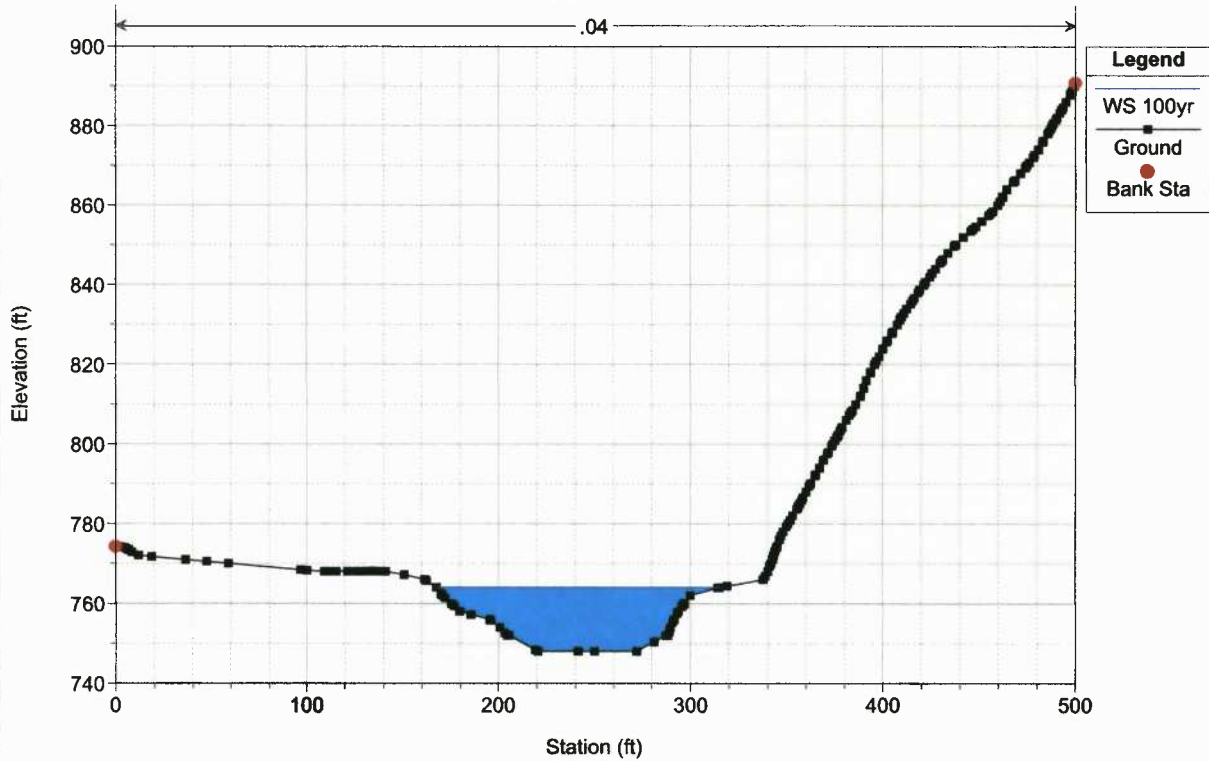




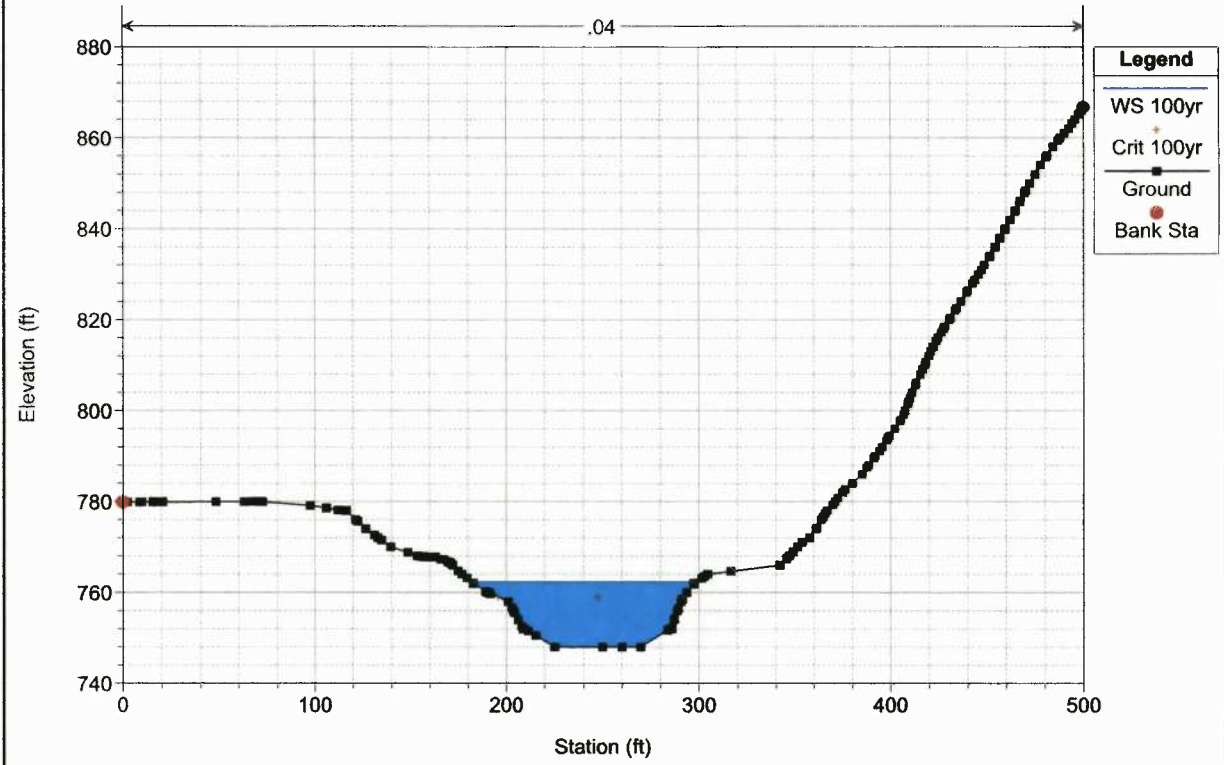
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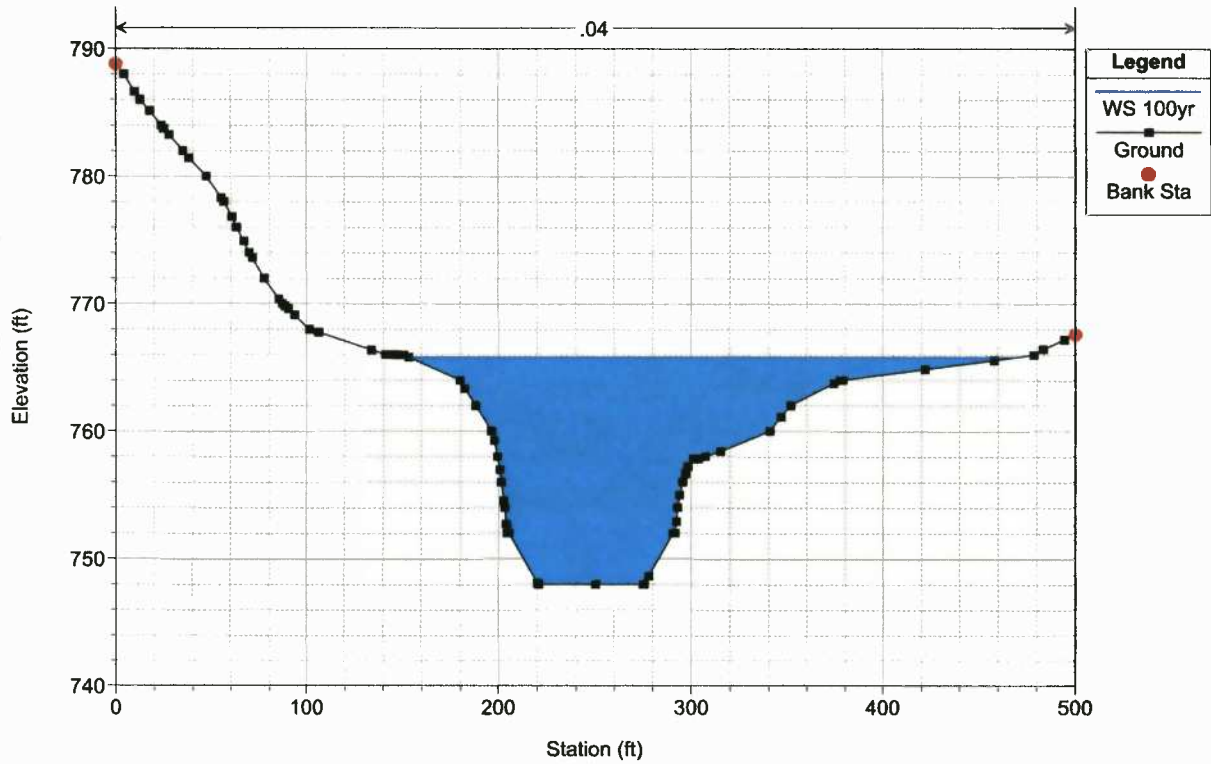
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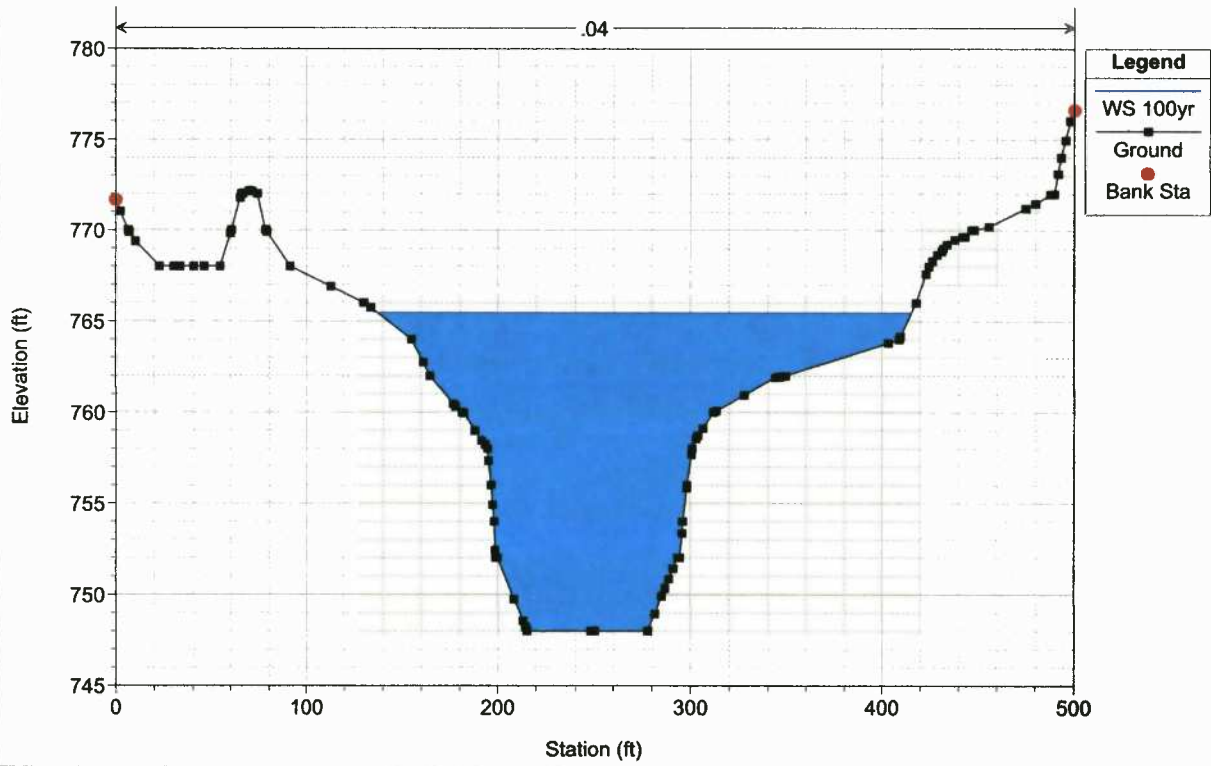
Middle Island Creek Existing    Plan: Middle Island Creek Existing    5/25/2016  
RS = 100



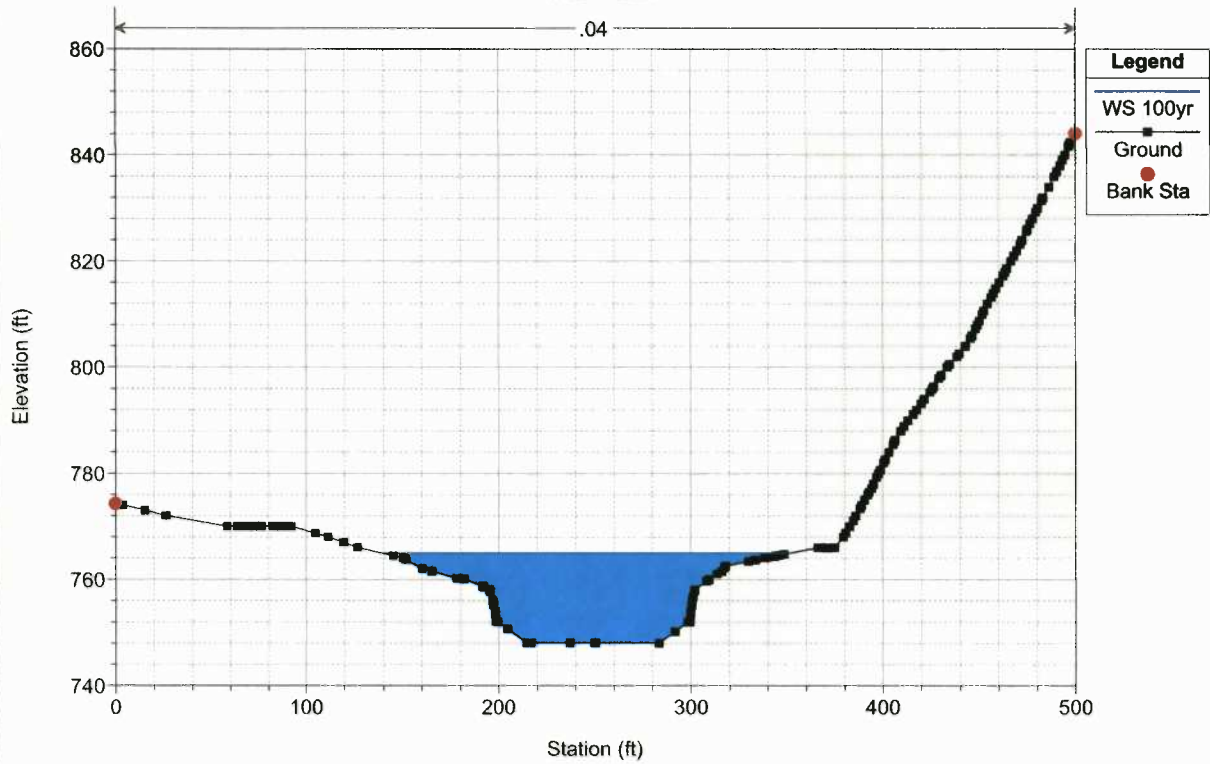
Middle Island Creek Proposed Plan: Middle Island Creek Proposed 5/25/2016  
RS = 900



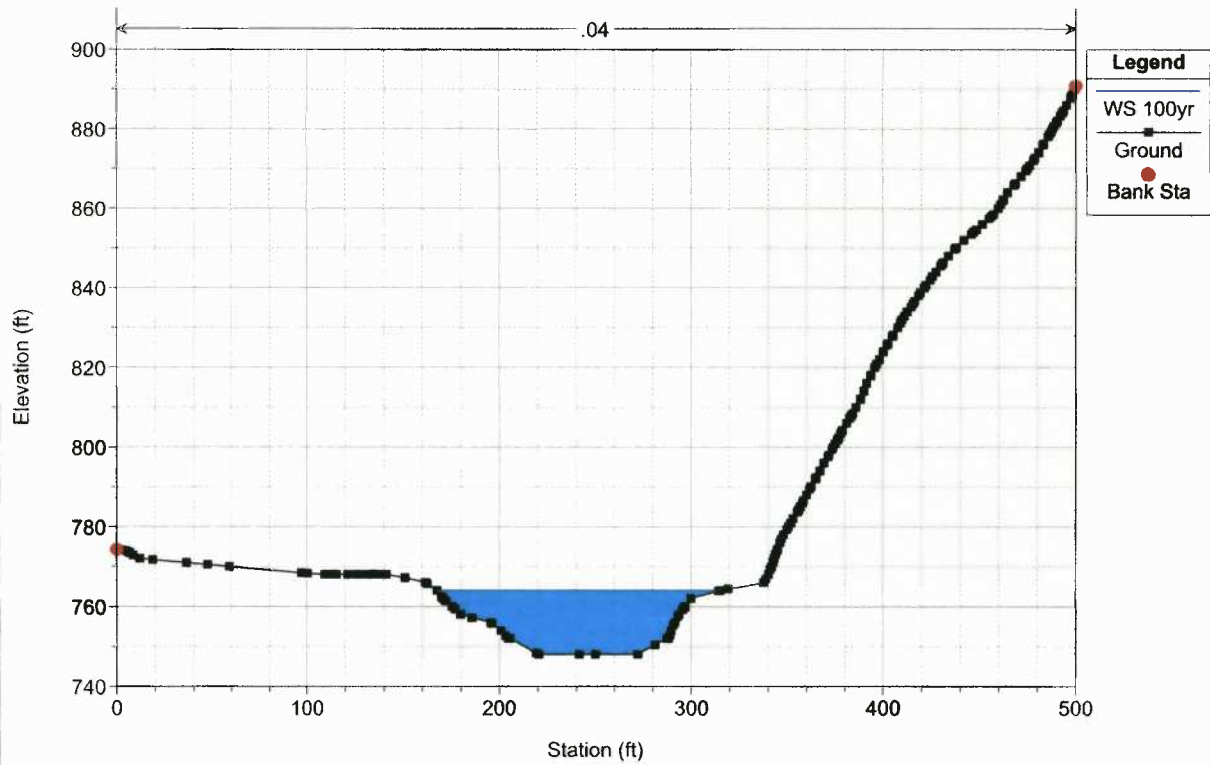
Middle Island Creek Proposed Plan: Middle Island Creek Proposed 5/25/2016  
RS = 700



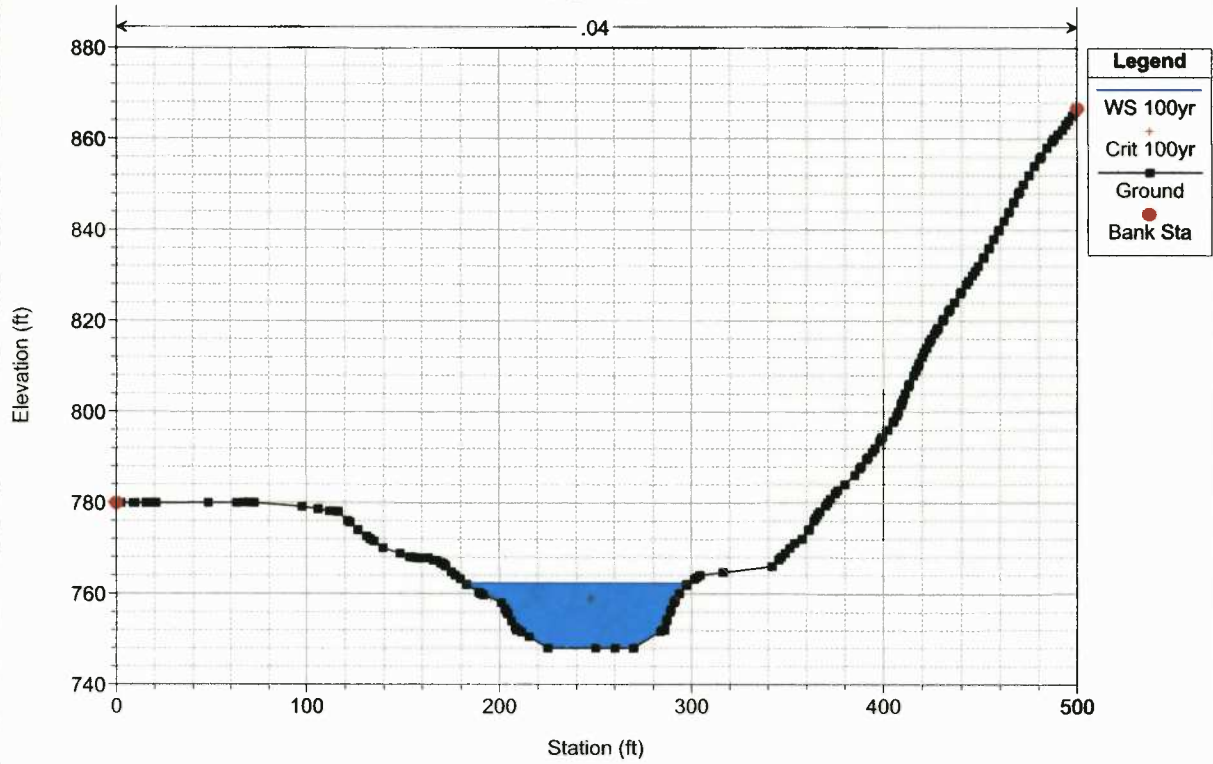
Middle Island Creek Proposed Plan: Middle Island Creek Proposed 5/25/2016  
RS = 525



Middle Island Creek Proposed Plan: Middle Island Creek Proposed 5/25/2016  
RS = 300



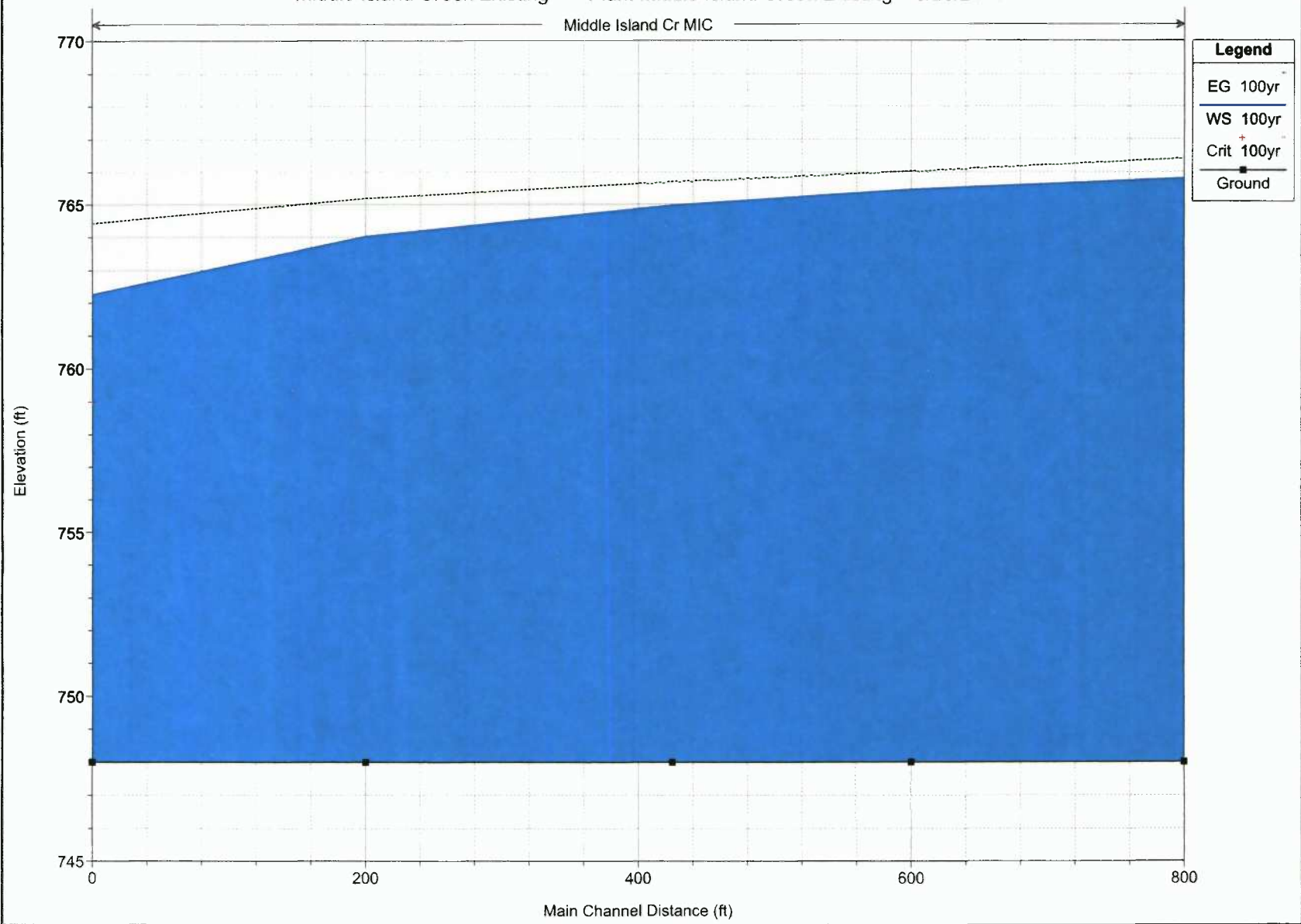
Middle Island Creek Proposed Plan: Middle Island Creek Proposed 5/25/2016  
RS = 100





Middle Island Creek Existing Plan: Middle Island Creek Existing 5/25/2016

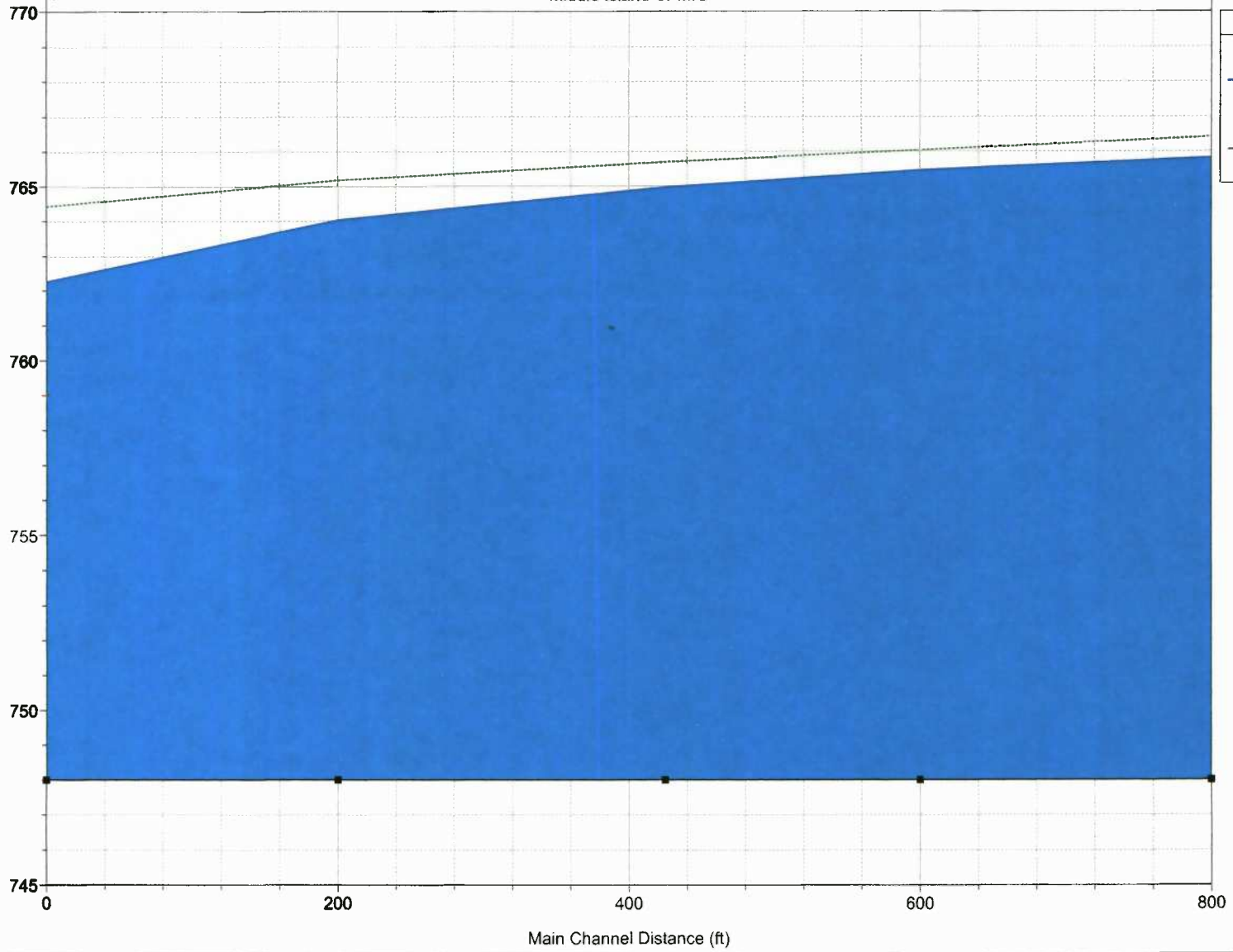
Middle Island Cr MIC





Middle Island Cr MIC

Elevation (ft)



Legend	
EG 100yr	—
WS 100yr	—
Crit 100yr	—
Ground	—













