

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 #: 16-438
WVDOH RT.18 BANK STABILIZATION

Date Approved: October 11, 2016

Expires: October 11, 2017

Issued to: WVDOH DISTRICT 4

POC: CHAD SAAS
304-203-6538

Company Address: 2460 Murphy Run Rd, Bridgeport, WV 26330

Project Address: Sugarcamp Run, Blandville area off RT.18

Firm: 54017C0230C

Lat/Long: 39.24680,80.69440

Purpose of development: Repair area with Riprap/stabilize bank

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

Date: October 11, 2016

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 Floodplain Permits

(Week of October 16 , 2016)

Please take notice that on the **6** day of **October, 2016**, WVDOH filed an application for a Floodplain Permit (**#16-438**) to develop land located at or about **Sugarcamp Run, 39.24680, 80.69440**. 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 **November 7, 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 bank stabilization.**



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

Office of the District Engineer/Manager

District Four

Earl Ray Tomblin
Governor

P. O. Box 4220 · Clarksburg, West Virginia 26302 · 304/842-1500

October 4, 2016

MEMORANDUM

TO: Doddridge County Floodplain Coordinator
ATTN: Bo Wriston

FROM: Chad Saas, Environmental Coordinator D4

SUBJECT: Bank Stabilization

PROJECT: Doddridge County Route 18 Milepost 12.85
Doddridge County

This submission is a preliminary notification for the pending project. The project is located within Zone AE on FIRM Map # 54017C0230C. Should you require any additional information, please contact Chad Saas, D-4 Environmental Coordinator at (304) 627-2115, or email at Chad.B.Saas@wv.gov.

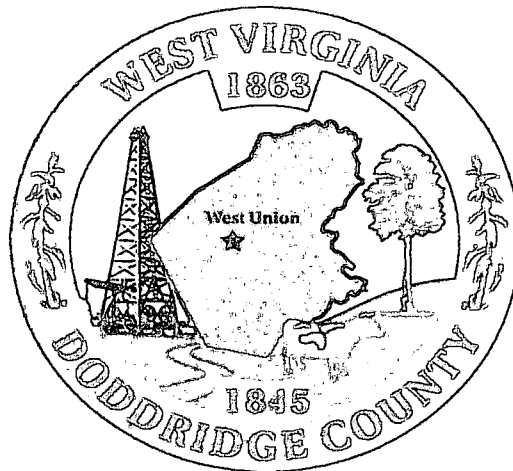
Existing Condition: The subject has an area of stream bank that is eroded and has begun to encroach into the roadway shoulder. The project is located on Sugarcamp Run in the Blandville area of Doddridge County.

Proposed Work: Repair area with Riprap..

Ground Disturbance: The area of disturbance will be very minimal. All slopes will be stabilized with seed, mulch and stone.

Attached: County & highway map, USGS topo map, photos and plans.

~~Emailed
Kevin Sneed
on this
10/5/16
@ 1:40pm
OK, waiting on
Permit~~



Permit# 16-438
Project Name: Rt18 Bank Stabilization
Permittees Name: WV Division of Highways

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 _____

DATE 10-6-16

**Doddridge County Commercial/Industrial
Floodplain Development Permit Application**

Applicant Information:

Please provide all pertinent data.

Applicant Information		
Responsible Company Name: WVDOH		
Corporate Mailing Address: 2460 Murphy Run Rd		
City: Bridgeport	State: WV	Zip: 26330
Corporate Point of Contact (POC): Chad Saas		
Corporate POC Title: WVDOH District 4 Environmental Coordinator		
Corporate POC Primary Phone: 304-203-6538		
Corporate POC Primary Email: chad.b.saas@wv.gov		
Corporate FEIN:	Corporate DUNS:	
Corporate Website:		
Local Mailing Address: 2460 Murphy Run Rd		
City: Bridgeport	State: WV	Zip: 26330
Local Project Manager (PM): Jeff Crislip		
Local PM Primary Phone: 304-873-2771		
Local PM Secondary Phone: 681-622-1325		
Local PM Primary Email: jeff.a.crislip@wv.gov		
Person Filing Application: Chad Saas		
Applicant Title: WVDOH District 4 Environmental Coordinator		
Applicant Primary Phone: 304-203-6538		
Applicant Secondary Phone: 304-627-2115		
Applicant Primary Email: chad.b.saas@wv.gov		

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:

- | | | | |
|---|---------------------------------|-----------------------------------|-------------------------------------|
| <input type="checkbox"/> Fill | <input type="checkbox"/> Mining | <input type="checkbox"/> Drilling | <input type="checkbox"/> Pipelining |
| <input type="checkbox"/> Grading | | | |
| <input type="checkbox"/> Excavation (except for STRUCTURAL DEVELOPMENT checked above) | | | |
| <input type="checkbox"/> Watercourse Alteration (including dredging and channel modification) | | | |
| <input checked="" type="checkbox"/> Drainage Improvements (including culvert work) | | | |
| <input type="checkbox"/> Road, Street, or Bridge Construction | | | |
| <input type="checkbox"/> Subdivision (including new expansion) | | | |
| <input type="checkbox"/> Individual Water or Sewer System | | | |
| <input type="checkbox"/> Other (please specify) | | | |

**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: ____ of ____

Site/Property Information:

Legal Description: Located along Rt. 18 at milepost 12.85 near the community of Blandville. See maps attached to original email

Physical Address/911 Address: N/A

Decimal Latitude/Longitude: 39.24680 -80.69440

DMS Latitude/Longitude:

District:	Map:	Parcel:
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Land Book Description:

Deed Book Reference:

Tax Map Reference:

Existing Buildings/Use of Property:

Floodplain Location Data: (to be completed by Floodplain Manager or designee)

Community:	Number:	Panel:	Suffix:
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Location (Lat/Long):	Approximate Elevation:
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Estimated BFE:	Is the development in the floodplain?
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Is the development in the floodway? <input type="checkbox"/> Yes <input type="checkbox"/> No	Is the development in the floodplain? <input type="checkbox"/> Yes <input type="checkbox"/> No Zone: _____
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Notes:

**Doddridge County Commercial/Industrial
Floodplain Development Permit Application**

Property Owner Data:

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

Property Designation: ____ of ____

Property Owner Data:		
Name of Primary Owner (PO): WVDOH District 4		
PO Address: Murphy's Run Rd		
City: Bridgeport	State: WV	Zip: 26330
PO Primary Phone: 304-842-1500		
PO Secondary Phone:		
PO Primary Email:		

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

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

Doddridge County Commercial/Industrial Floodplain Development Permit Application

Contractor Data:

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

Property Designation: ____ of ____

Contractor/Sub-Contractor (C/SC) Information:		
C/SC Company Name: N/A		
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:		

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

Adjacent and/or Affected Landowners Data

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

Adjacent Property Owner Data: Upstream		
Name of Primary Owner (PO): N/A		
Physical Address:		
City:	State:	Zip:
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): N/A		
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:		

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:

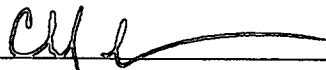
1. Legal description of the parcel, north arrow and scale
2. All property lines and their dimensions
3. Names of adjacent roads, location of driveways
4. Location of sloughs, tributaries, streams, rivers, wetlands, ponds, and lakes, with setbacks indicated, and including FEMA floodplain data based on 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.

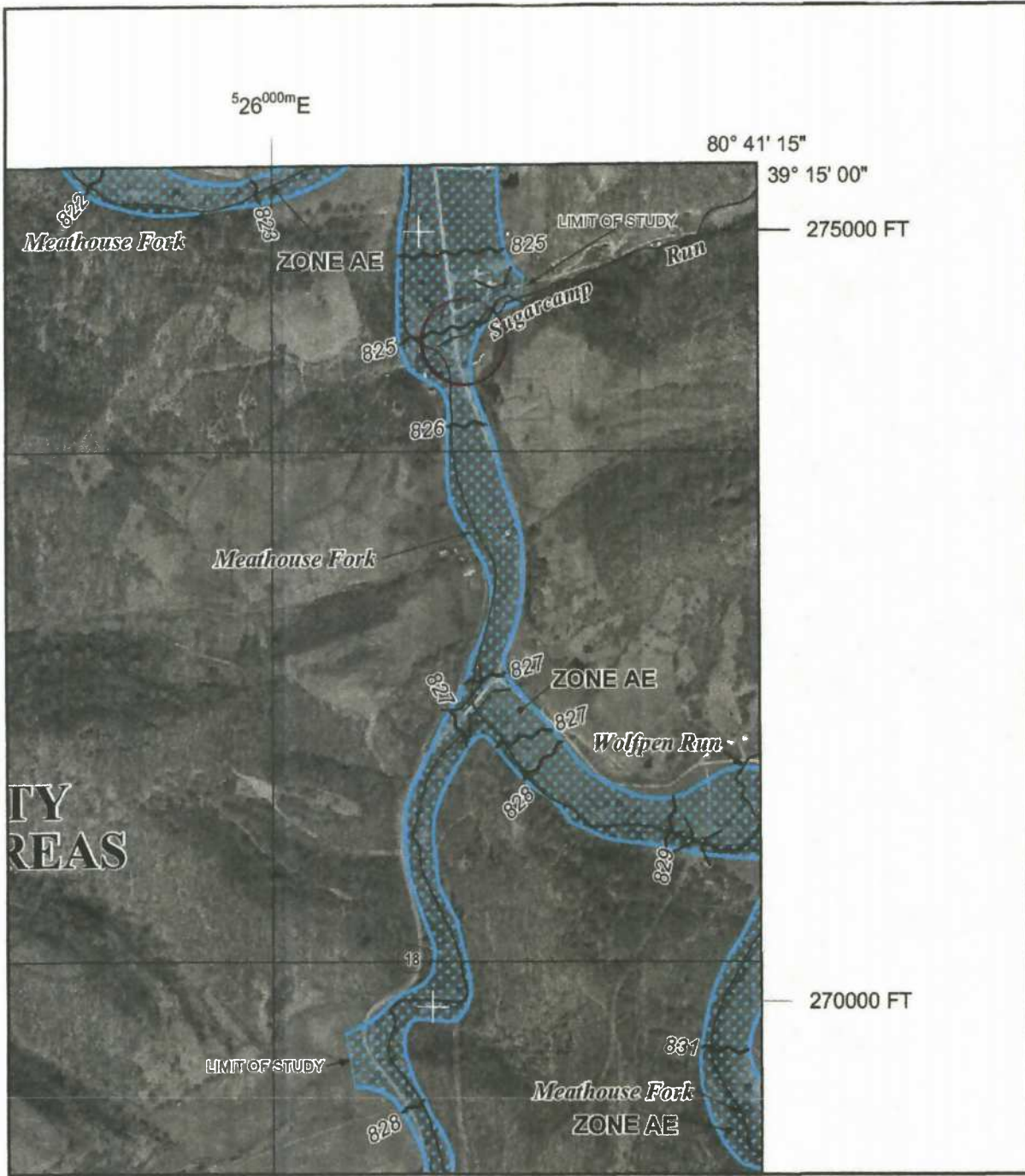
Applicant Signature: _____



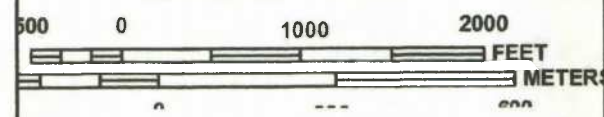
Date: 10-6-16

Applicant Printed Name: _____

Chad Soas



MAP SCALE 1" = 1000'



NATIONAL FLOOD INSURANCE PROGRAM
 FIRM

PANEL 0230C

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

PANEL 230 OF 325
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
DODDRIDGE COUNTY	540024	0230	C

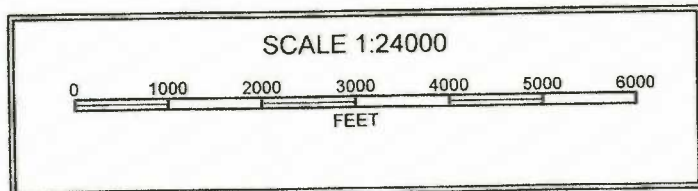
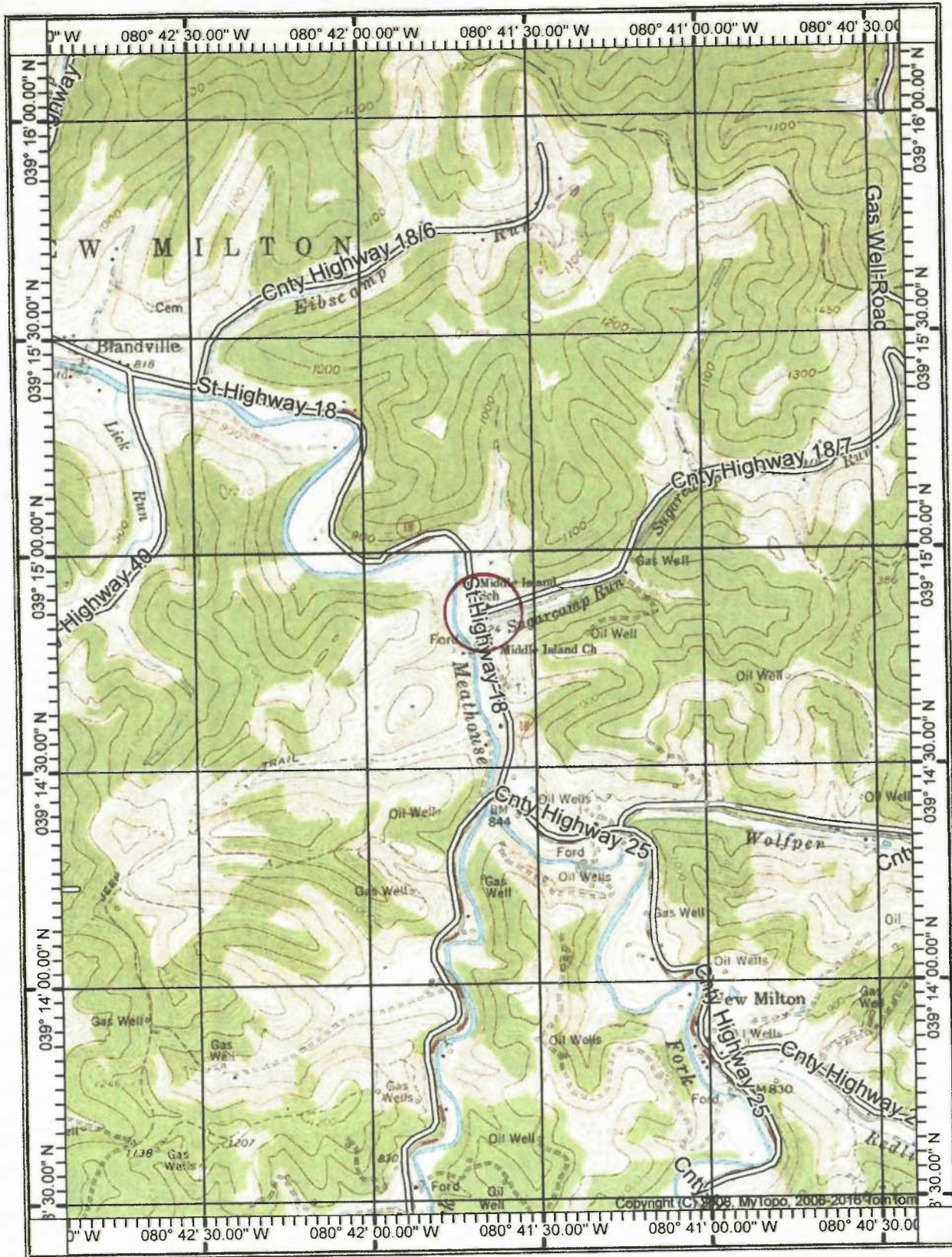
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.



MAP NUMBER
 54017C0230C
MAP REVISED
 OCTOBER 4, 2011

Federal Emergency Management Agency

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





WVDOH MAINTENANCE ACTIVITIES CHECKLIST

Level 2 to be completed by Environmental Coordinator or Assistant Environmental Coordinator

Use the Environmentally Sensitive GIS Layers to Answer Question 1 – 7a

- | | Yes | No | N/A |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Located within Zone 1 GIS layer? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2. Located within Zone 2 AND requires tree removal (>5" DBH) from 4/1 to 11/15? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 3. Located within Zone 3 AND requires tree removal (> ½ acre) from 4/1 to 11/15? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 4. Located within Zone 4 AND requires tree removal (>5" DBH) any time of year? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 5. Located within Zone 5 AND requires additional right of way or easements? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 6. Is there a wetland impact associated with this project?
(Field verify sites located within National Wetland Inventory layer) | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 7. Is the stream listed in WV State 401 Certification, Standard Condition 15? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 8. For bank stabilization, will the quantity of fill below OHW exceed one cubic yard per running foot? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 9. For bank stabilization, will the length below OHW exceed 500 linear feet?* | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| *200 linear feet for Standard Condition 15 streams | | | |
| 10. For rock gutters associated with ditch cross-pipes, will the CY of fill below OHW exceed 10 CY? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11. Will additional right of way or easements be required? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 12. Do you expect this work to alter the hydraulic conditions of the stream?
(i.e., increasing/decreasing flow area, altering inlet/outlet conditions, etc.) | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 13. Is a bridge or bottomless culvert being replaced with a pipe or box culvert? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 14. If the work is near a no mowing or spraying area indicate the reason for designation. | | | |
| | | | |
| 15. If fill is being placed within the 100 year floodplain has the local FEMA coordinator been notified? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. Does this project have federal funding? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |

A **Yes** answer on any of the Level 1 Questions 13 through 15 or any of the Level 2 Questions 1 through 11, 13, or 16 requires submittal to Engineering Division's Environmental Section (DDE) for environmental clearance and to Engineering Division's Technical Section (DDT) for 404/401 authorization. If Level 2, Question 12 is answered **Yes**, a hydraulic analysis shall be performed in accordance with the latest version of the WVDOH Drainage Manual.

Comments (attach additional sheet if necessary): Located within the nLEB layer but no tree removal is needed

Have all answers of **Yes** on Level 1 Questions 1 through 12 been resolved? Yes
If no, submit to DDE for environmental clearance and to DDT for 404/401 authorization.

Reviewed by: Chad Saas

Date: 9-30-16

WVDOH MAINTENANCE ACTIVITIES CHECKLIST
Level 1 to be completed by Project Originator

This checklist is intended ONLY for in stream work that includes replacing or extending a culvert, minor structure repairs consisting of abutment repair or scour repair, placement of rock or clean concrete rubble fill as bank stabilization adjacent to the roadway, or placement of a rock gutter associated with a ditch cross-pipe.

District 4 County Doddridge Route 18 Milepost 12.85

Stream Sugar Camp Run Latitude 39.24680 Longitude 80.69440 (D.D° WGS 84)

Type of work is: bank stabilization culvert replacement or extension
 minor structure repair rock gutter associated with ditch cross-pipe

Total linear feet of stream impact expected? 50'

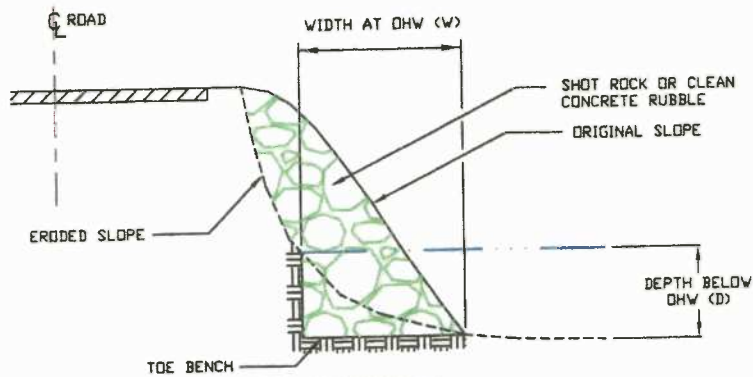
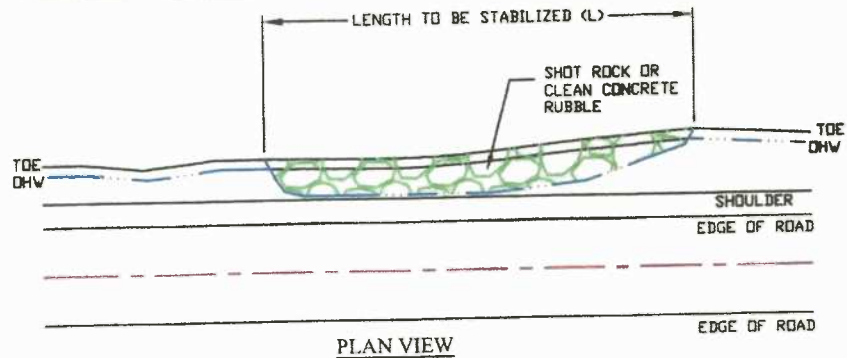
	Yes	No	N/A
1. Are you planning to change the type or size of structure at this site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Does this project involve multiple bank stabilizations on the same stream?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. Do you expect to need temporary fill (i.e. cofferdams, detours, etc.)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4. Will you be working in or adjacent to a state or national park or forest?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5. Will a waste or borrow site be needed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
6. Will there be in stream work April to June or September to February?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7. Will you be working in or near a marked "No Mowing or Spray" area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
8. Does there appear to be a potential wetland on or adjacent to the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
9. Do you anticipate the removal of any trees to complete this project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
10. Will additional right of way or easements be required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
11. Will in stream work be required beyond 50 feet of the structure?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12. Will this project require fill to be placed within the 100 year floodplain?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
13. Is the structure 20' or longer?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14. Does the structure have stone abutments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15. Is the structure a concrete arch?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

For culvert replacements/extensions, bank stabilizations, and outfalls complete the necessary typical drawing. For minor structure repairs provide plan and profile views showing the proposed repair work and any cofferdams needed to complete the repair work. Include the length of impact, acres of impact, and cubic yards of fill for material placed below OHW on the plan view. Attach the drawing(s) along with a location map and pictures to this checklist and submit the information to the District Environmental Coordinator. Retain a copy of this information for your file. **Work cannot begin until the appropriate authorization has been obtained.** Upon completion of the work, submit post-construction pictures to the District Environmental Coordinator.

Comments (attach additional sheet if necessary): _____

Contact: Chad Saas Date: 9-30-16

BANK STABILIZATION TYPE 1

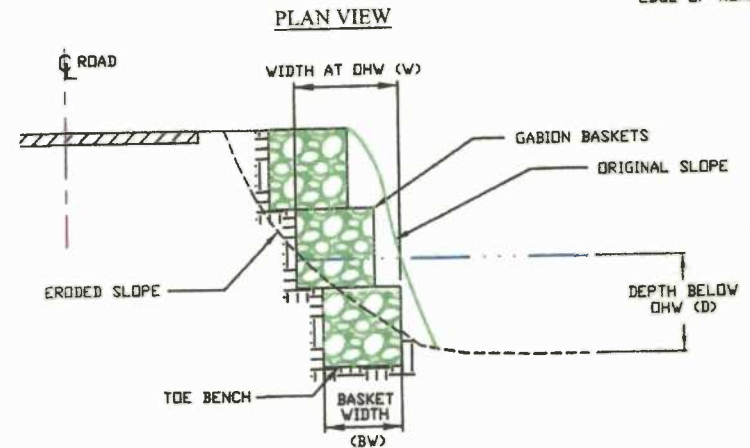
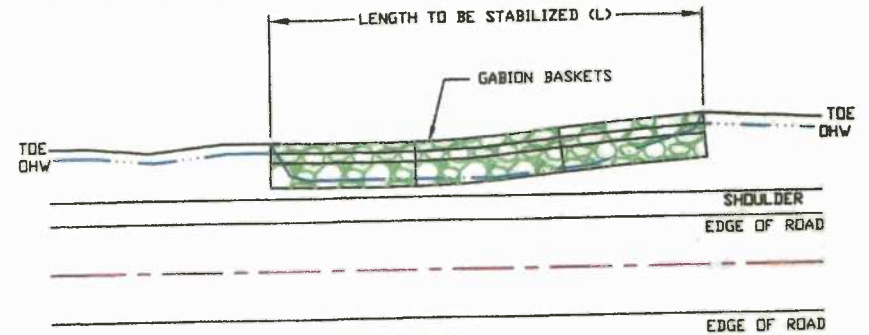


TYPICAL SECTION

BANK STABILIZATION ALONG ONE BANK
 $CY = L * W * D / 27$
 ACRES OF IMPACT = $L * W / 43560$

BANK STABILIZATION ALONG BOTH BANKS
 LL, WL, DL = LENGTH, WIDTH, DEPTH - LEFT BANK
 LR, WR, DR = LENGTH, WIDTH, DEPTH - RIGHT BANK
 $CY = (LL * WL * DL + LR * WR * DR) / 27$
 ACRES OF IMPACT = $(LL * WL + LR * WR) / 43560$

BANK STABILIZATION TYPE 2



TYPICAL SECTION

BANK STABILIZATION ALONG ONE BANK
 $CY = L * BW * D / 27$
 ACRES OF IMPACT = $L * W / 43560$

BANK STABILIZATION ALONG BOTH BANKS
 LL, WL, DL = LENGTH, WIDTH, DEPTH - LEFT BANK
 LR, WR, DR = LENGTH, WIDTH, DEPTH - RIGHT BANK
 $CY = (LL * BW * DL + LR * BW * DR) / 27$
 ACRES OF IMPACT = $(LL * WL + LR * WR) / 43560$

LEFT AND RIGHT BANKS ARE BASED ON LOOKING DOWNSTREAM

DRAWING NOT TO SCALE

STREAM NAME	Sugarcamp Run			TYPE 1 <input checked="" type="checkbox"/>
				TYPE 2 <input type="checkbox"/>
BANK STABILIZATION BELOW OHW - LEFT BANK	LENGTH (L)	WIDTH AT OHW (W)	DEPTH BELOW OHW (D)	
	50'	3'	1.5	
BANK STABILIZATION BELOW OHW - RIGHT BANK	LENGTH (L)	WIDTH AT OHW (W)	DEPTH BELOW OHW (D)	
	50'	3'	1.5	
TOTAL LENGTH BELOW OHW	TOTAL ACRES OF IMPACT BELOW OHW	TOTAL CY OF FILL BELOW OHW	CY/RUNNING FT	
100'	0.00688705	16.66	.166	

**WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 PROPOSED BANK STABILIZATION**

DISTRICT D-4
 COUNTY Doddridge

ROUTE 18
 MILEPOST 12.85

Project #

Project Name:

WV Route 18 MP 12.85

USGS Quad: Smithburg

REQUIRED FILL QUANTITIES FOR 404 NATIONWIDE PERMITS (Below OHW of Stream)

Type of Work/Materials	Length	Width	Height	CY/ Running Foot	Linear Feet of Impact	Acres of Impact	Cubic Yards of Fill	
							Rock	Concrete
NWP 12 (Utility Line Activities)								
Permanent Fill								

Temporary Fill								
Cofferdams (Type #)								
Temporary Construction Access								
NWP 13 (Bank Stabilization)	100			0.166	50	0.00688705	16.66	
NWP 18 (Minor Discharges)								
NWP 33 (Temporary Construction)								
Cofferdams (Type #)								
Detour								
Temporary Construction Access								
Other								
Permanent Total				0.166	50	0.00688705	16.66	0
Temporary Total						0	0	0

Stream Name - Sugarcamp Run

Nearest Town, City, Municipality, etc.

Blandville

Latitude - 39.24680

Longitude --80.69440

