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 #: 22-616

Date Approved: June 27, 2022 **Expires: June 27, 2023**

Issued to: Mountain Valley Pipeline, LLC **POC: Matt Hoover**

Company Address: 2200 Energy Drive, 2nd Floor, Canonsburg, PA 15317

Project Address: 3532 Big Isaac Road Salem, WV 26426

Firm: 54017C0260C **Lat/Long: 39.201016N, -80.553280W**

Purpose of development: Pipeline, Renewal of Permit #17-473

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

George C. Eidel

Date: June 27, 2022

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

MVP, LLC
PO BOX 299
CANONSBURG, PA 15317

COPY

DODDRIDGE COUNTY COMMISSION
DODDRIDGE CITY OFF OF EM MGMT
C/O GEORGE EIDEL
SUITE 102
101 CHURCH ST.
WEST UNION, WV 26456-1194

2600 0877-6-7-MAAD
PAGE: 1

PAYMENT SUMMARY

VENDOR NO: 1055847
VOUCHER NO: 0000006641
VOUCHER DATE: 05/03/22

REF. DOC.	REFERENCE NUMBER	REF. DATE	DOCUMENT AMOUNT	DISCOUNT/ADJ AMOUNT	NET AMOUNT
SELLER INVCE	CKRQST042522PM39 232468 PERMIT RENEWAL	04/25/22	1,620.00	0.00	1,620.00
		TOTALS:	1,620.00	0.00	1,620.00

FP#22-616

COPY

(Detach Here)

MVP, LLC
PO BOX 299
CANONSBURG, PA 15317

60-160/433

CHECK DATE: 05/03/2022
CHECK NUMBER: 0000006641

PAY...ONE THOUSAND SIX HUNDRED TWENTY DOLLARS 00 CENTS

$*****1,620.00

TO THE ORDER OF:
DODDRIDGE COUNTY COMMISSION
DODDRIDGE CITY OFF OF EM MGMT
C/O GEORGE EIDEL
SUITE 102
101 CHURCH ST.
WEST UNION, WV 26456-1194

Janice M Brenner

THE BANK OF NEW YORK MELLON
PITTSBURGH, PENNSYLVANIA

⑈0000006641⑈ ⑆043301601⑆ 904⑈0640

FLOODPLAIN PERMIT #22-616

Mountain Valley Pipeline, 3532 Big Isaac Rd, 39.201016, -80.553280

TASK	COMPLETE (DATE)	NOTES
CHECK RECEIVED	5/9/2022	
US ARMY CORP. ENGINEERS (USACE)		
US FISH & WILDLIFE SERVICES (USFWS)		
WV DEPT. NATURAL RESOURCES (WVDNR)		
WV DEPT. ENVIROMENTAL PROTECTION (WVDEP)		
STATE HISTORIC & PRESERVATION OFFICE (SHPO)		
OFFICE of LAND & STREAM (OLS)		
WVDOH		
Elevation Certificate		
DATE OF COMMISSION READING	6/7/2022	
DATE AVAILABLE TO BE GRANTED	6/27/2022	
PERMIT GRANTED		
COMPLETE		

Doddridge County Floodplain Permits

(Week of May 16, 2022)

Please take notice that on the **(16th)** of **(May), 2022, (Mountain Valley Pipeline, LLC)** filed an application for a Floodplain Permit **(#22-616)** to develop land located at or about **(3532 Big Isaac Road); Coordinates: 39.201016, -80.553280**. The Application is on file with the Floodplain Manager of the County and may be inspected or copied during regular business hours in accordance with WV Code Chapter 29B Freedom of Information, Article 1 Public Records and county policy and procedures. Any interested persons who desire to comment shall present the same in writing by **(June 27, 2022)** (20 calendar days after the announcement at the regularly scheduled Doddridge County Commission Meeting) delivered to the Floodplain Manager of the County at 105 Court Street, Suite #3, West Union, WV 26456. **This project is the renewal of permit #19-562 & 21-594, Mountain Valley Pipeline**

GEORGE C. EIDEL, CFM

Doddridge County Floodplain Manager

Mountain Valley PIPELINE LLC

April 25, 2022

Mr. George Eidel
Doddridge County Floodplain Coordinator
Doddridge County Office of Emergency Management
101 Church Street, Suite 102
West Union, WV 26456-2095

Re: Mountain Valley Pipeline Project
Renew Doddridge County Floodplain Permit

Dear Mr. Eidel:

Mountain Valley is respectfully requesting renewal of the previously approved Doddridge County Floodplain Permit. As we discussed, no permanent above ground structures are located in the floodplain. All work, including installation of the pipeline will be temporary. In addition to the pipeline installation, timbermats and pipe will be temporary staged within the floodplain. This work was included in the original application. Included with the is letter is the permit fee of $1,620. This total was based on the total value of construction in the floodplain of approximately $224,000.

If you have questions or need additional information, please do not hesitate to contact me at (724) 873-3009 or via email at mhoover@equitransmidstream.com.

Sincerely,

Matthew S. Hoover
Mountain Valley Pipeline, LLC - Environmental Permitting Supervisor

CC: Project File

Permit# 22-616

Project Name: Mountain Valley Pipeline

Permittees Name: Mountain Valley Pipeline, LLC

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 Robert J. Cox

DATE May 9, 2022

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Applicant Information:

Please provide all pertinent data.

Applicant Information			
Responsible Company Name:	Mountain Valley Pipeline, LLC		
Corporate Mailing Address:	2200 Energy Drive, 2nd Floor		
City: Canonsburg		**State:** PA	**Zip:** 15317
Corporate Point of Contact (POC):	Matt Hoover		
Corporate POC Title:	Permitting Supervisor		
Corporate POC Primary Phone:	412 258-5627		
Corporate POC Primary Email:	mhoover@equitransmidstream.com		
Corporate FEIN: 25-0754685		**Corporate DUNS:** N/A	
Corporate Website:	N/A		
Local Mailing Address:	N/A		
City: N/A		**State:** N/A	**Zip:** N/A
Local Project Manager (PM):	Same as Point of Contact		
Local PM Primary Phone:	Same as Point of Contact		
Local PM Secondary Phone:	Same as Point of Contact		
Local PM Primary Email:	Same as Point of Contact		
Person Filing Application:	Same as Point of Contact		
Applicant Title:	Same as Point of Contact		
Applicant Primary Phone:	(412) 258 5627		
Applicant Secondary Phone:	N/A		
Applicant Primary Email:	Same as Point of Contact		

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Project Narrative:

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

Project Narrative:
One floodplain crossing is located in Doddridge County with approximately 250 linear feet of pipeline construction at Station 1837+00. Temporary aboveground construction within floodplain limits include additional temporary work space (ATWS) utilized for stream crossing support, access roads including stone construction entrances, timber mats and various erosion and sediment control devices (compost filter sock (CFS), silt fence, super silt fence, and erosion matting). Permanent aboveground structures associated with crossings within the floodplain limits will be one service pole associated with the ground bed rectifier systems and mainline valve sites at linear Station 1837+00. It should be noted that the mainline valve site will be placed at the current ground elevation without increasing the current grade. Additionally, construction of permanent roads, temporary roads, or maintenance of existing roads will occur within the floodplain limits. Estimated construction cost is $549,064.

Proposed Development:

Please check all elements of the proposed project thatapply.

DESCRIPTION OF WORK (CHECK ALL APPLICABLE BOXES)

A. STRUCTURAL DEVELOPMENT

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

B. OTHER DEVELOPLMENT ACTIVITIES:

[] Fill [] Mining [] Drilling [X] 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)

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: Please See Attached		
Physical Address/911 Address:		
Decimal Latitude/Longitude: 39.201285, -80.553387		
DMS Latitude/Longitude:		
District:	**Map:**	**Parcel:**
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:**
Location (Lat/Long):		**Approximate Elevation:** **Estimated BFE:**	
Is the development in the floodway? **Yes No**		**Is the development in the floodplain?** **Yes No Zone: _____**	
Notes:			

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Property Owner Data: Mountain Valley provided a non-public list of affected landowners to FERC. FERC requires that this information be filed as privileged to protect the privacy of the landowners. To be consistent with these FERC requirements, the landowner information has been omitted from this application.

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 ___ See attached for property owners/adjacent landowners.

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

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

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

DODDRIDGE COUNTY FLOODPLAIN
LANDOWNER INFORMATION
MOUNTAIN VALLEY PIPELINE

Owner	Address	Legal Description	Mile Post	District	Map	Parcel	Deed Book/Page
Landowners							
Jeffery J Ford	15 Meadow Lane Bridgeport, WV 26330	Meathouse 90.74 AC	34.8	04	11	36	281/665
Adjacent Landowners							
Jeffery J Ford	15 Meadow Lane Bridgeport, WV 26330	BIG Isaac 1 AC	34.8	04	11	31	281/665
Jeffery J Ford	15 Meadow Lane Bridgeport, WV 26330	BIG Isaac 30 AC	34.8	04	11	35	WB41/619
Earl Richards (Life)	544 Independence Road Salem, WV 26426	5.36 AC Meathouse	34.8	04	11	37.7	258/200
Earl Richards (Life)	544 Independence Road Salem, WV 26426	2 AC Meathouse	34.8	04	11	37.6	258/194
John R Clowser	3735 Big Issac Road Salem, WV 26426	1.51 AC Meathouse	34.8	04	11	37.4	305/436
John Russel Clowser	PO Box 98 Lost Creek, WV 26385	77 PO Two Lots Meathouse	34.8	04	11	37.2	296/700
Brett Cox	3611 Haigker Road Monroe, NC, 28110	Meathouse 30.18 AC	34.8	04	11	37.5	316/583

Mountain Valley provided a non-public list of affected landowners to FERC. FERC requires that this information be filed as privileged to protect the privacy of the landowners. To be consistent with these FERC requirements, the landowner information has been omitted from this application.

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:		
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):		
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):		
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

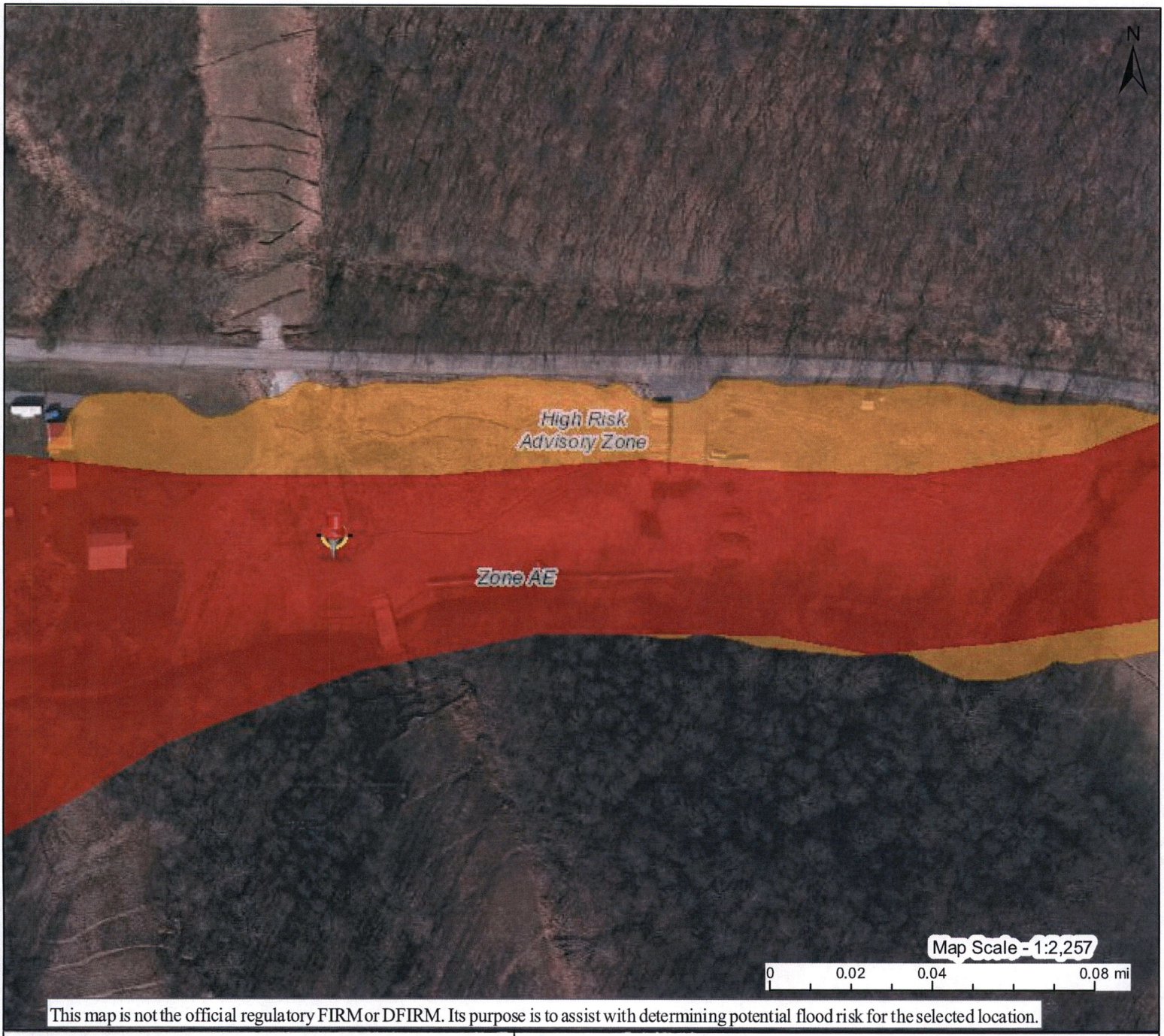
Please read print name, sign and date below:

- 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 of designee may at his or her discretion conduct site visits and document conditions of proposed development pursuant to the permit application.
- I understand that once the Floodplain Permit is granted, the permit will be entered into official public record 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: Robert J. Cooper Date: 05/09/2022

Applicant Printed Name: **Robert J. Cooper. Senior. VP Engineering and Construction MVP**

WV Flood Map



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

HIGH RISK

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

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

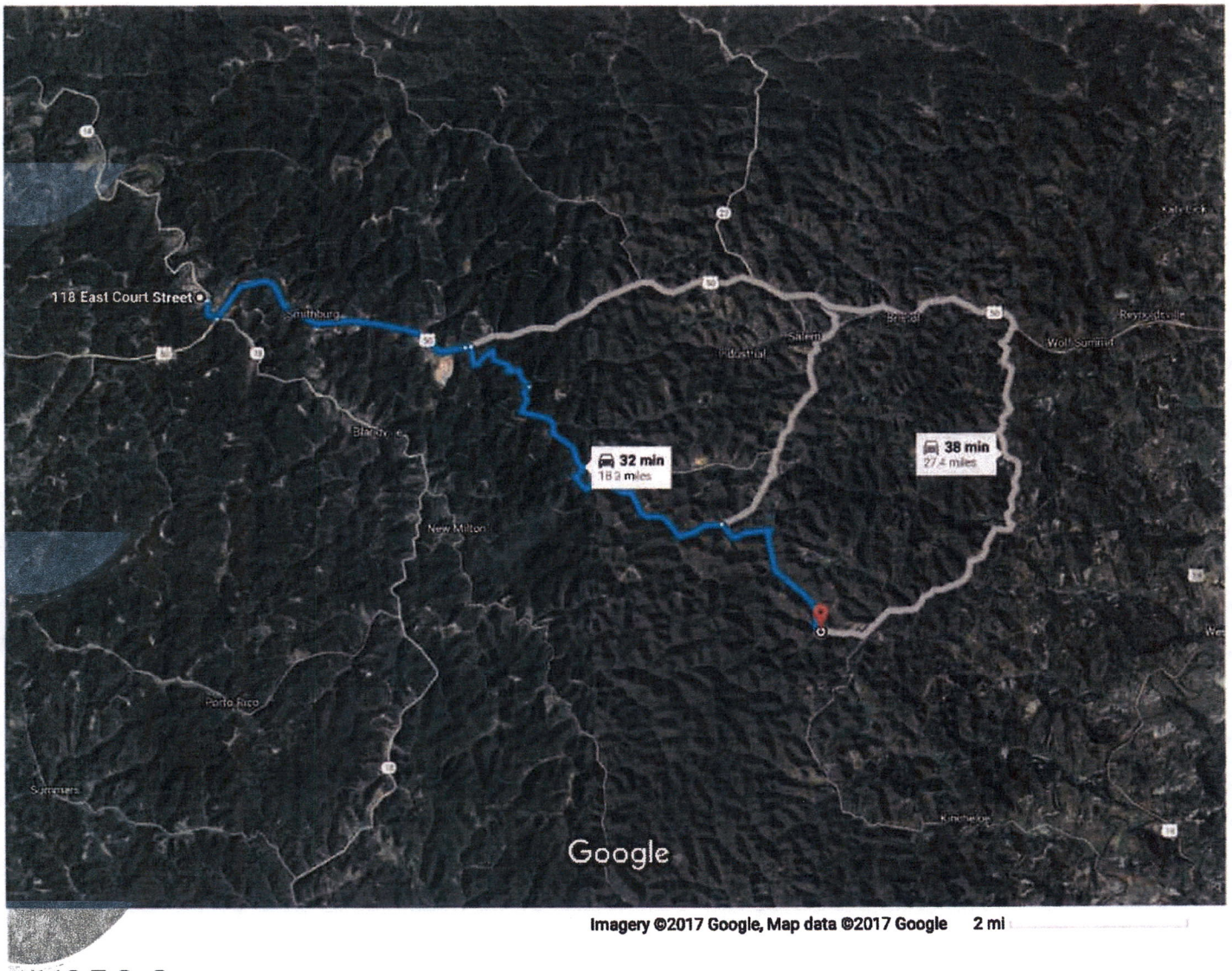
Disclaimer:
The online map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. Refer to the official Flood Insurance Study (FIS) for detailed flood elevation data in flood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

Flood Info Location — *Map created on 5/18/2022*

User Notes

Flood Hazard Area	Location is **WITHIN** the FEMA 100-year floodplain.
Flood Zone	AE
Stream	Laurel Run
Watershed (HUC8)	Little Musringum-Middle Island (5030201)
Flood Height	Flood Height 2 947.0 ft (Source: BFE - Non-Restudy) NAV
Water Depth	About 5.7 ft (Source: HEC-RAS)
Elevation	941.3 ft (Source: FEMA 2018-20) (NAVD88)
Community & ID	Doddridge County (ID: 540024)
FEMA Map & Date	54017C0260C; Effective Date: 10/4/2011
Location (lat, long)	(39.201016, -80.553280) (WGS84)
Parcel ID	09-04-0011-0036-0000
E-911 Address	multiple addresses

Google Maps **118 E Ct St, West Union, WV 26456 to 39.201285, -80.553387** Drive 18.3 miles, 32 min



Imagery ©2017 Google, Map data ©2017 Google 2 mi

118 E Ct St
West Union, WV 26456

Take Railroad St to WV-18 S

1 min (0.2 mi)

1. Head northeast on Cross St toward Court St

52 ft

2. Turn right onto Railroad St

0.2 mi

3. Turn left toward WV-18 S

279 ft

Take US-50 E, Co Rte 15 and Big Isaac to Meathouse Fork in Oak

31 min (18.1 mi)

4. Turn right onto WV-18 S

0.5 mi

5. Turn left onto US-50 E

5.6 mi

6. Turn right at Co Rte 50/35

0.1 mi

7. Continue onto Blacklick Rd

2.1 mi

8. Turn right onto Co Rte 15/Blacklick Rd/Sherwood-Greenbrier Rd
   Continue to follow Co Rte 15

6.3 mi

9. Turn right onto Big Isaac

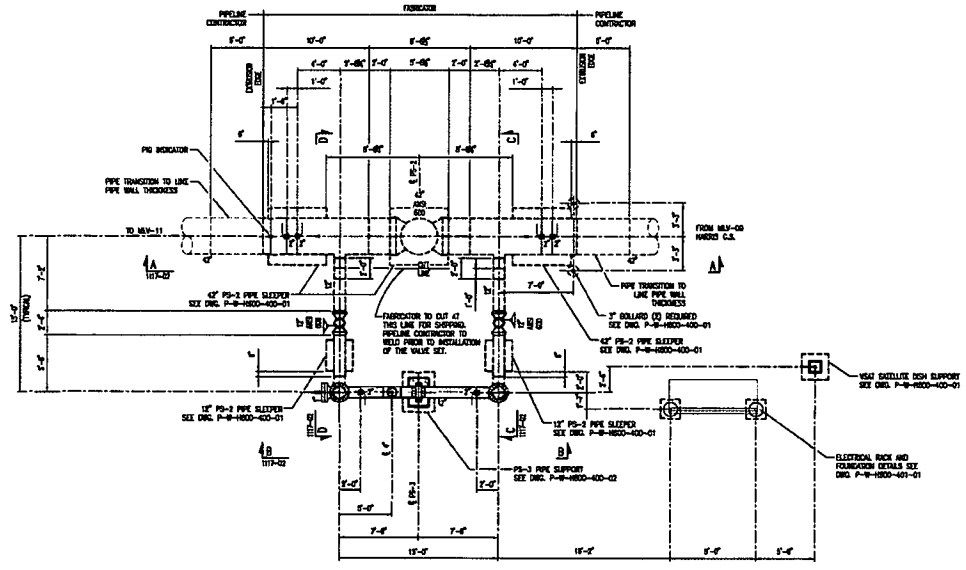
3.4 mi

10. Big Isaac turns left and becomes Meathouse Fork
    Destination will be on the right

436 ft

39.201285, -80.553387

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.



PLAN

DESIGN & TEST DATA

DESIGN PRESSURE 1480 PSIG AT 120°F (.0.6 DESIGN FACTOR)

MAXIMUM HOOP STRESS LEVEL AT 1480 PSIG 50 % SMYS, BASED ON 42" 0.865" WT. X-70 PIPE

MAOP OF 1480 PSIG AT 120°F IS LIMITED BY ANSI 600 COMPONENTS, 42" PIPE, 42" FITTINGS.

MINIMUM TEST PRESSURE 2220 PSIG. MAXIMUM TEST PRESSURE 2243 PSIG.

TEST LIMITED BY ANSI 600 COMPONENTS, TEST PERIOD 8 HOURS.

TEST MEDIUM WATER, SERVICE NATURAL GAS

NONDESTRUCTIVE INSPECTION REQUIREMENTS 100% X-RAY, MAG. PARTICLE FILLET WELDS

WEBSTER COUNTY, WV

REFERENCE DRAWINGS		NO.	DATE	REMARKS	BY	CHK	APPD
Reference Number	Reference Title						
P-W-H600-400-01	PS-2 PIPE SLEEPER AND FOUNDATION DETAILS	-	10/04/2018	ISSUED FOR BID	JDH	KCH	BLS
P-W-H600-400-02	PS-3 AND PS-4 PIPE SUPPORT DETAILS	-					
P-W-H600-401-01	ELECTRICAL EQUIP. RACK & FOUNDATION DETAIL	-					
P-W-H600-1108-10	MLV-10 VALVE SETTING - PLOT PLAN	-					
P-W-H600-1117-02	MLV-10 VALVE SETTING INSTALLATION - SECTION	-					
P-W-H600-1117-03	MLV-10 VALVE SETTING INSTALLATION - PLAN	-					

NO.	DATE	REVISIONS	BY	CHK	APPD
-					

TO THE BEST OF MY KNOWLEDGE, ALL COMPONENTS OF THIS DRAWING ARE DESIGNED IN ACCORDANCE WITH APPLICABLE CODES, LAWS AND SPECIFICATIONS

DRAFT 4/8/2019

NOTE: ANY CHANGES TO THE DESIGN SHOWN ON THIS DRAWING MUST BE APPROVED BY THE DESIGN ENGINEER.

Mountain Valley PIPELINE

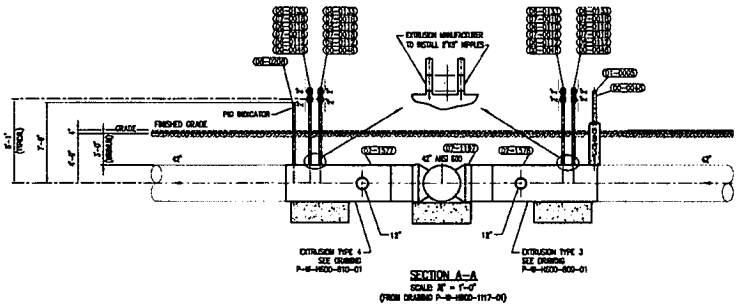
PROJECT ID

DRAWING SCALE: NONE

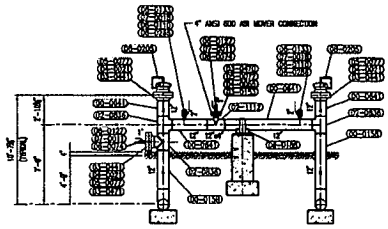
DRAWING TITLE

H600
42" 1480 PSIG ANSI 600
MLV-10 VALVE SETTING INSTALLATION
PLAN

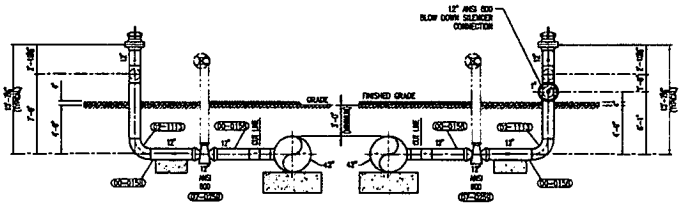
FACILITY	STATE	IDENTIFICATION	NUMBER	SHEET	REVISION
P	W	H600	1117	01	P9



SECTION A–A
SCALE: 3/8" = 1'-0"
(FROM DRAWING P-M-H600-1117-01)



SECTION B–B
SCALE: 3/8" = 1'-0"
(FROM DRAWING P-M-H600-1117-01)



SECTION C–C
SCALE: 3/8" = 1'-0"
(FROM DRAWING P-M-H600-1117-01)

SECTION D–D
SCALE: 3/8" = 1'-0"
(FROM DRAWING P-M-H600-1117-01)

WEBSTER COUNTY, WV

REFERENCE DRAWINGS		BY	DATE	REVISION	BY	CHK	APPD
DRAWING NUMBER	DRAWING TITLE						
P-M-H600-1117-01	MLV-10 INSTALLATION – PLAN	A	6/18/2018	ISSUED FOR BID	JDW	KDB	RJL
P-M-H600-1117-03	MLV-10 INSTALLATION – BILL OF MATERIALS						
P-M-H600-809-01	VALVE SET EXTRUSION TYPE 3						
P-M-H600-810-01	VALVE SET EXTRUSION TYPE 4						

TO THE BEST OF MY KNOWLEDGE, ALL COMPONENTS OF THIS DRAWING ARE DESIGNED IN ACCORDANCE WITH APPLICABLE GUIDELINES AND SPECIFICATIONS

DRAFT

4/6/2018
DATE

NOTE: ANY CHANGES TO THE DESIGN SHOWN ON THIS DRAWING MUST BE APPROVED BY THE DESIGN ENGINEER.

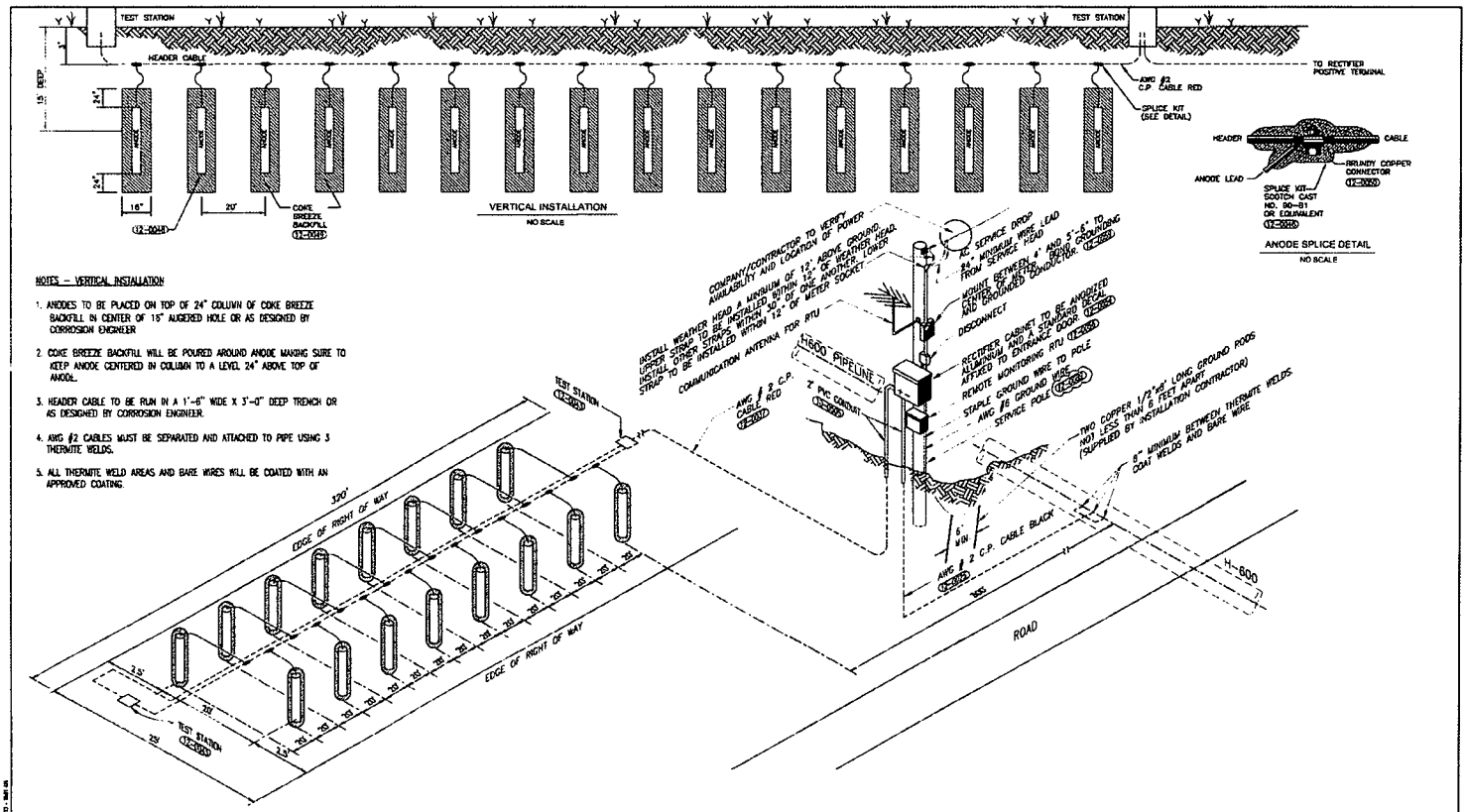
Mountain Valley Pipeline, LLC

PROJECT ID:

DESIGN BASIS: NONE

DRAWING TITLE:
H600
42" 1480 PSIG ANSI 600
MLV–10 VALVE SETTING INSTALLATION
SECTIONS

FACILITY	STATE	IDENTIFICATION	SERIES	SHEET	MVP-HDR
P	W	H600	1117	02	P9



REFERENCE DRAWINGS		NO	DATE	REVISION	BY	CHK	APPD	NO	DATE	REVISION	BY	CHK	APPD
DRAWING NUMBER	DRAWING TITLE	P	5/23/2018	AS-BUILT	JDP			-					
P-HB-H600-01-1204-07	GROUNDBED (16) VERTICAL ANODES - H600	-						-					
-		-						-					
-		-						-					
-		-						-					
-		-						-					
-		-						-					

TO THE BEST OF MY KNOWLEDGE, ALL COMPONENTS OF THIS DRAWING ARE DESIGNED IN ACCORDANCE WITH APPLICABLE GUIDELINES AND SPECIFICATIONS

PAUL LATHI
MECHANICAL DESIGN ENGINEER — DATE

ELECTRICAL DESIGN ENGINEER — DATE

NOTE: ANY CHANGES TO THE DESIGN SHOWN ON THIS DRAWING MUST BE APPROVED BY THE DESIGN ENGINEER.

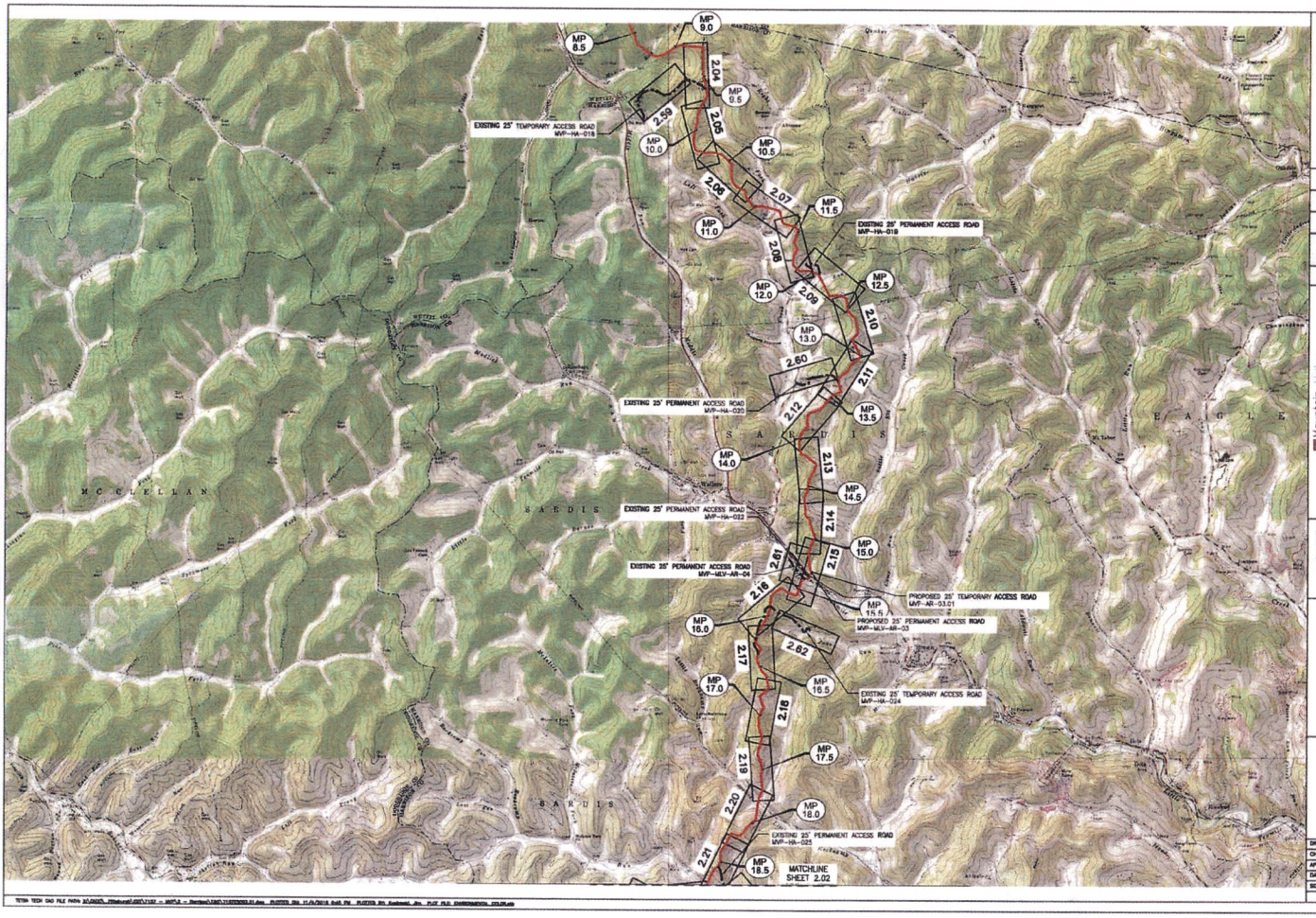
Mountain Valley Pipeline, LLC

PROJECT ID: P6060

DESIGN DETAILS: NONE

DRAWING TITLE:
H600
42" 1480 PSIG ANSI 600
RECTIFIER AND CONVENTIONAL GROUNDBED
INSTALLATION - (16) VERTICAL ANODES

FACILITY	STATE	IDENTIFICATION	MSRS	SHEET	REVISION
P	W	H600-01	1204	06	P



REVISIONS:

NO.	DATE:	DRWN	CHKD	APPR.	DESCRIPTION:

Mountain Valley

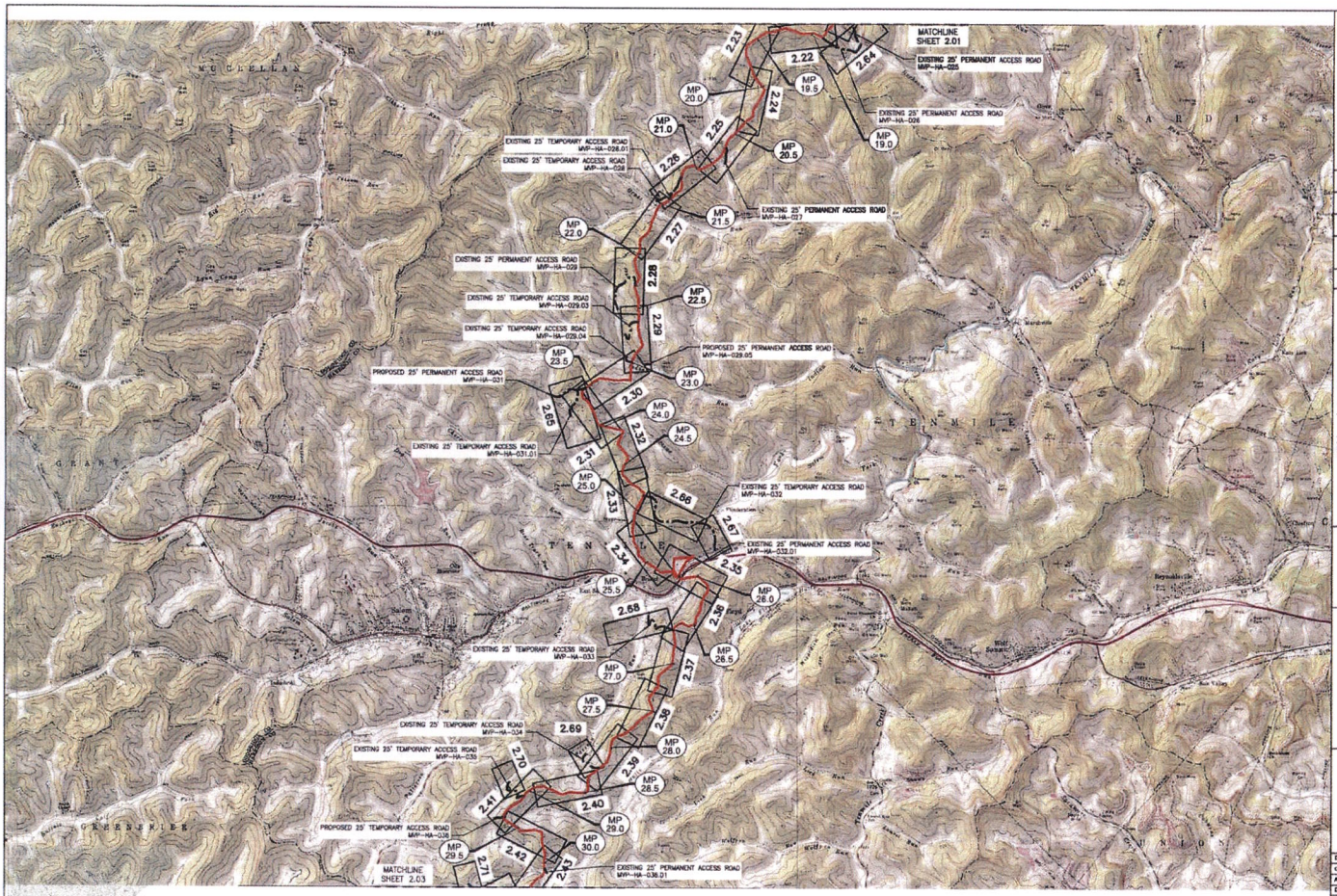
EROSION AND SEDIMENT CONTROL PLANS
MOUNTAIN VALLEY PIPELINE PROJECT – H600 LINE
HARRISON COUNTY, WEST VIRGINIA

MOUNTAIN VALLEY PIPELINE, LLC
2200 ENERGY DRIVE, SUITE 200
CANONSBURG, PA 15317

TETRA TECH
661 ANDERSEN DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

CONSTRUCTION PLANS

DRAWN BY:	KAL
CHECKED BY:	NT
APPROVED BY:	RE
DATE:	2/15/2018
SCALE:	AS SHOWN
SHT. NO.	2.01 OF 2.75



Mountain Valley

EROSION AND SEDIMENT CONTROL PLANS
MOUNTAIN VALLEY PIPELINE PROJECT – H600 LINE
HARRISON & DODDRIDGE COUNTY, WEST VIRGINIA

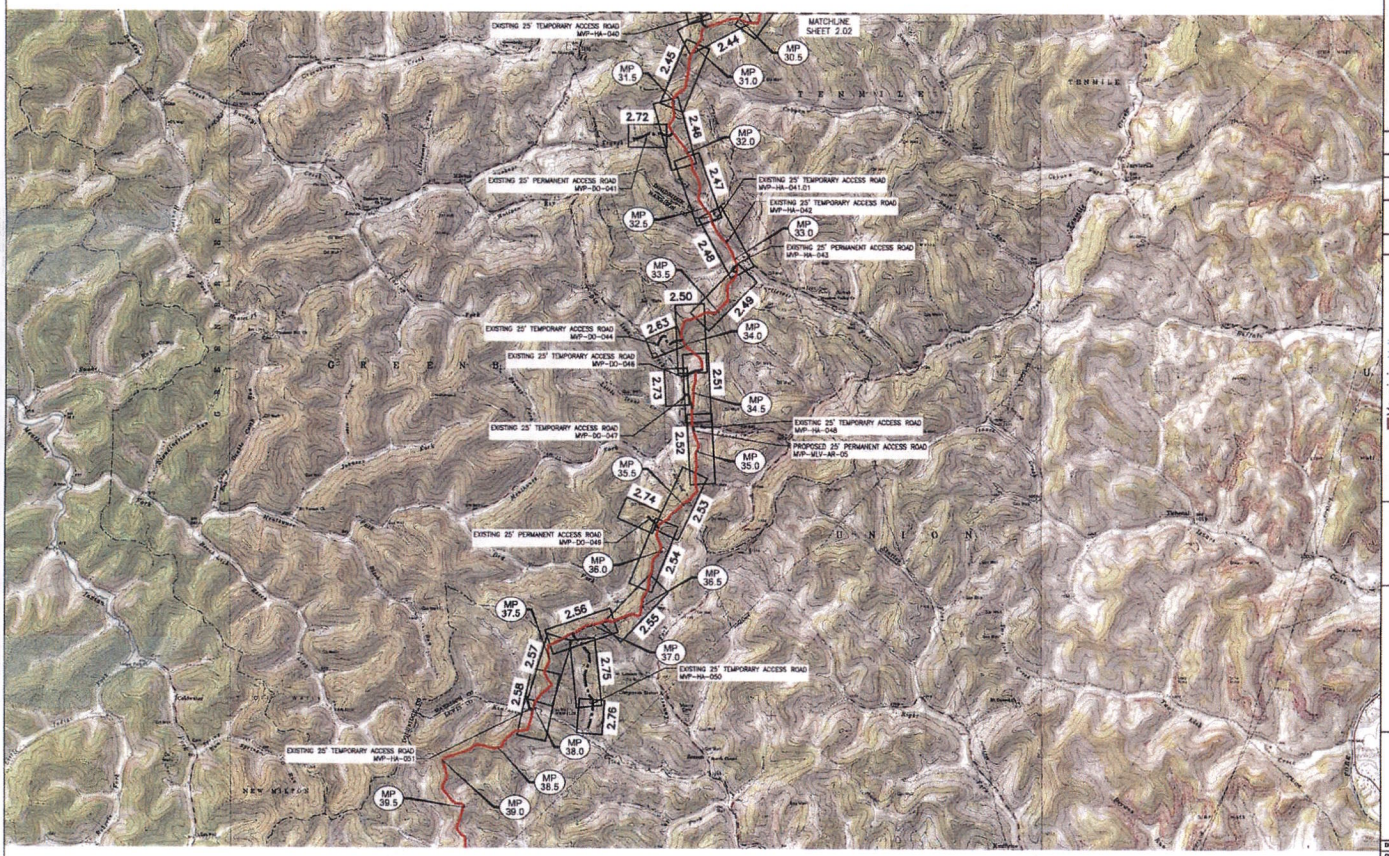
MOUNTAIN VALLEY PIPELINE, LLC
350 SOUTH MAIN STREET, SUITE 200
CHRISTIANSBURG, PA 15317

NO.	DATE:	DRN.	CHKD.	APPR.	DESCRIPTION:
					REVISIONS:

TETRA TECH
661 ANDERSEN DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

CONSTRUCTION PLANS

DRAWN BY:	KAL
CHECKED BY:	HT
APPROVED BY:	RC
DATE:	2/19/2019
SCALE:	AS SHOWN
SHT. NO.	2.02 OF 5.76



NO.	DATE:	DRWN:	CHKD:	APPD.:	DESCRIPTION:
					REVISIONS:

Mountain Valley Project

EROSION AND SEDIMENT CONTROL PLANS
MOUNTAIN VALLEY PIPELINE PROJECT – H500 LINE
HARRISON & DODDRIDGE COUNTY, WEST VIRGINIA

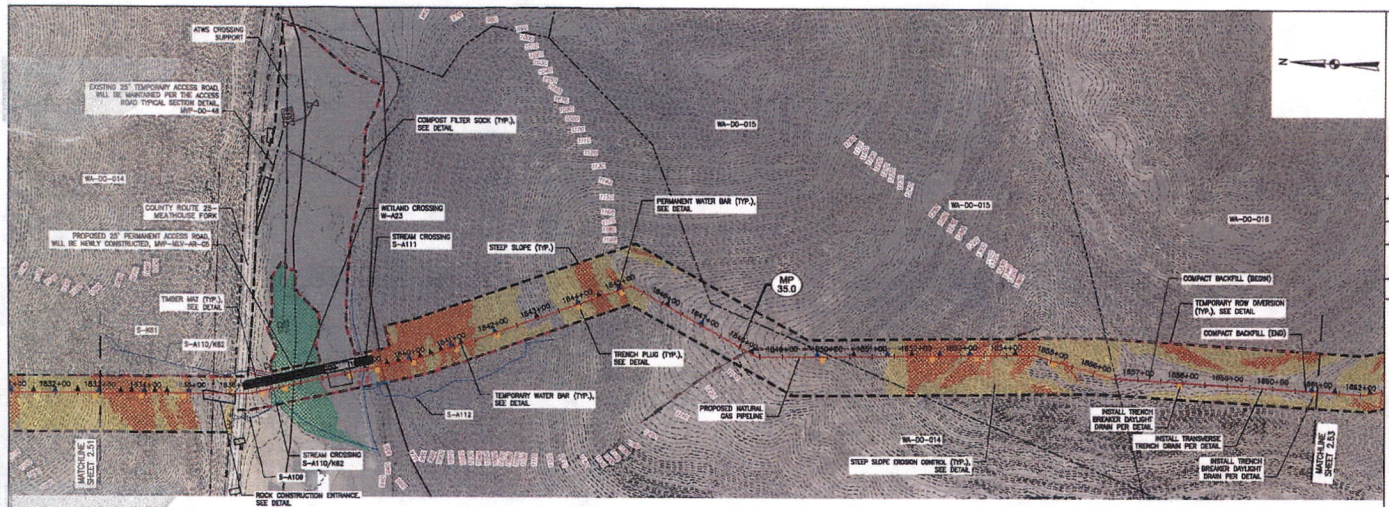
MOUNTAIN VALLEY PIPELINE, LLC
625 LIBERTY AVENUE, SUITE 1700
PITTSBURGH, PA 15222

TETRA TECH
COMPLEX WORLD | CLEAR SOLUTIONS™
661 ANDERSON DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

CONSTRUCTION PLANS

DRAWN BY:	KAL
CHECKED BY:	HT
APPROVED BY:	RE
DATE:	2/19/2016
SCALE:	AS SHOWN
SHT. NO.	2.33 OF 2.76

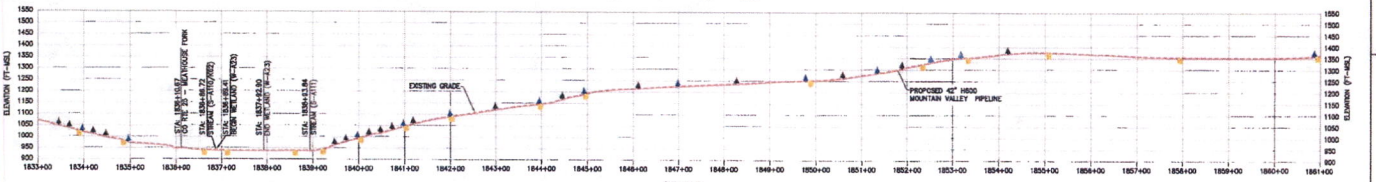
TETRA TECH CAD FILE PATH: [illegible]



PLAN

SCALE: 1" = 100'

100 0 100 200



PROFILE

HORIZONTAL SCALE: SCALE: 1" = 100'

100 0 100 200

VERTICAL SCALE: SCALE: 1" = 200'

200 0 200 400

LEGEND

- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED ACCESS ROAD CENTERLINE
- PROPOSED PIPELINE
- PROPOSED SILT FENCE (SEE NOTE 6)
- PROPOSED SUPER SILT FENCE
- ORANGE CONSTRUCTION SAFETY FENCE
- PROPOSED COMPOST FILTER SOCK
- PROPOSED REINFORCED FILTRATION DEVICE
- PROPOSED TEMPORARY RIGHT OF WAY DIVERSION AND OUTLET
- EXISTING CULVERT
- STREAM
- WETLAND
- POND
- PROPOSED CULVERT WITH OUTLET PROTECTION
- TIMBER MAT
- STEEP SLOPE EROSION CONTROL (SEE NOTE 3)
- STEEP SLOPE (SEE NOTE 5)
- PROPOSED PERMANENT WATER BAR
- PROPOSED TEMPORARY WATER BAR
- PROPOSED BROAD BASED DIP
- PROPOSED TRENCH PLUG
- PROPOSED ROCK CONSTRUCTION ENTRANCE

ACCESS ROAD LEGEND

1. ROCK CONSTRUCTION ENTRANCE
2. WETLAND CROSSING
3. STREAM CROSSING

NOTES:

1. WATERBARS WITHIN AGRICULTURAL AREAS SHALL BE USED AS TEMPORARY FEATURES.
2. NO EROSION CONTROL MATTING SHALL BE INSTALLED IN AGRICULTURAL AREAS.
3. FLEXTERRA OR EQUIVALENT MAY BE USED AS A SUBSTITUTE TO EROSION CONTROL BLANKET AS DIRECTED BY MVP.
4. CONTRACTOR IS RESPONSIBLE TO IDENTIFY ALL UTILITIES. THE UTILITY LINES SHOWN ON THE PLAN ARE FOR INFORMATIONAL PURPOSES ONLY AND DO NOT REPRESENT SURVEYED LINE INFORMATION.
5. SLOPES OF 30' OR GREATER EXIST. CONSTRUCTION FOR STEEP SLOPES TO BE PERFORMED USING STEEP SLOPE TECHNIQUES IDENTIFIED IN THE DETAIL SHEETS.
6. WHERE CONSTRUCTION CONDITIONS PRECLUDE THE USE OF DIVERSION DITCHES DUE TO SITE CONDITIONS THE CONTRACTOR WILL INSTALL SILT FENCE AT THE DIRECTION OF MVP.
7. IMPROVEMENTS TO PERMANENT AND TEMPORARY ACCESS ROADS WILL BE PERFORMED AS NEEDED AND BMP'S MAY BE SUBSTITUTED IF FIELD EVALUATIONS REQUIRE ADJUSTMENTS TO ACCOMODATE FIELD VERIFIED CONDITIONS.
8. WETLANDS AND STREAMS WILL BE CROSSED ACCORDING TO THE APPROPRIATE DETAILS. ACCESS ROADS WILL UTILIZE CULVERTS WHERE THEY EXIST AND NON-CULVERTED STREAMS OR STREAM SEGMENTS WILL BE CROSSED UTILIZING TIMBER MATS, BRIDGING, OR CULVERTS AS DICTATED BY FIELD CONDITIONS DURING CONSTRUCTION.

NO.	DATE:	INIT.	CHKD.	APPD.	DESCRIPTION:
					REVISIONS:

EROSION AND SEDIMENT CONTROL PLANS
MOUNTAIN VALLEY PIPELINE PROJECT – H500 LINE
DODDRIDGE COUNTY, WEST VIRGINIA

MOUNTAIN VALLEY PIPELINE, LLC
800 SOUTHPOINTE BOULEVARD, SUITE 200
CANONSBURG, PA 15317

Vircurton Valley

TETRA TECH
661 ANDERSEN DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

CONSTRUCTION PLANS

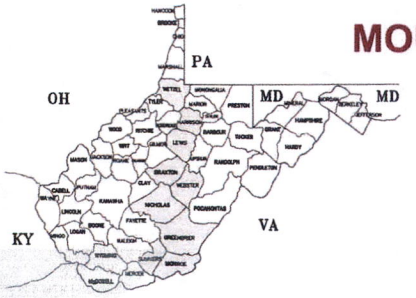
DRAWN BY:	KAL
CHECKED BY:	NT
APPROVED BY:	RS
DATE:	2/16/2016
SCALE:	AS SHOWN
SHT. NO.	3.02 OF 3.76

DIVERSION AND OUTLET
EXISTING CULVERT
STREAM

MOUNTAIN VALLEY PIPELINE, LLC

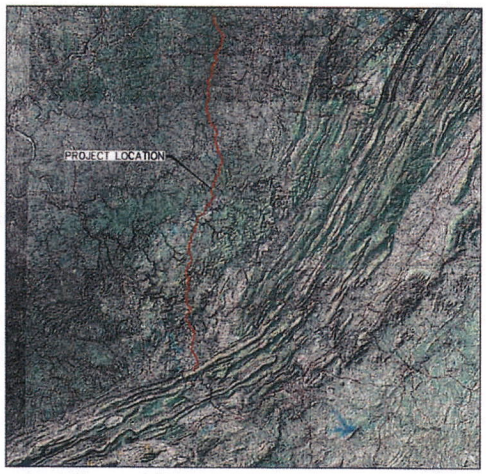
WVDEP GENERAL WATER POLLUTION CONTROL PERMIT
EROSION & SEDIMENT CONTROL PLAN

MVP PIPELINE PROJECT
WETZEL COUNTY TO MONROE COUNTY
NOVEMBER 2016



LOCATION MAP
N.T.S.

SHEET No.	DRAWING INDEX DRAWING TITLE
	GENERAL SET
ES-0.00	COVER SHEET
ES-0.01 TO ES-0.19	EROSION AND SEDIMENT CONTROL DETAILS
ES-0.20 TO ES-0.21	GENERAL NOTES AND LEGEND
	WETZEL COUNTY
ES-1.01	KEY PLAN
ES-1.02 TO ES-1.33	EROSION & SEDIMENT CONTROL PLANS
	HARRISON COUNTY
ES-2.01 TO ES-2.03	KEY PLAN
ES-2.04 TO ES-2.76	EROSION & SEDIMENT CONTROL PLANS
	LEWIS COUNTY
ES-3.01 TO ES-3.03	KEY PLAN
ES-3.04 TO ES-3.79	EROSION & SEDIMENT CONTROL PLANS
	BRAXTON COUNTY
ES-4.01 TO ES-4.02	KEY PLAN
ES-4.03 TO ES-4.50	EROSION & SEDIMENT CONTROL PLANS
	WEBSTER COUNTY
ES-5.01 TO ES-5.04	KEY PLAN
ES-5.05 TO ES-5.99	EROSION & SEDIMENT CONTROL PLANS
	NICHOLAS COUNTY
ES-6.01 TO ES-6.03	KEY PLANS
ES-6.04 TO ES-6.88	EROSION & SEDIMENT CONTROL PLANS
	GREENBRIER COUNTY
ES-7.01	KEY PLAN
ES-7.02 TO ES-7.83	EROSION & SEDIMENT CONTROL PLANS
	SUMMERS COUNTY
ES-8.01	KEY PLAN
ES-8.02 TO ES-8.81	EROSION & SEDIMENT CONTROL PLANS
	MONROE COUNTY
ES-8.01	KEY PLAN
ES-8.02 TO ES-8.59	EROSION & SEDIMENT CONTROL PLANS
	PIPE YARDS
ES-10.01 TO ES-10.07	KEY PLAN
ES-10.08 TO ES-10.24	PIPE YARD PLANS
	LANDSLIDE MITIGATION
ES-11.01	LANDSLIDE MITIGATION LEGEND
ES-11.02 TO ES-11.19	LANDSLIDE MITIGATION PLANS



LOCATION MAP
MVP PIPELINE PROJECT
WETZEL COUNTY, WEST VIRGINIA TO MONROE COUNTY, WEST VIRGINIA

WEST VIRGINIA 811

CALL BEFORE YOU DIG!

THREE DAYS BEFORE YOU DIG

CALL WV ONE CALL
SYSTEM TOLL FREE
811
OR
1-800-245-4848

CONTRACTOR IS RESPONSIBLE TO IDENTIFY ALL UTILITIES. THE UTILITY LINES SHOWN ON THE PLAN ARE FOR INFORMATIONAL PURPOSES ONLY AND DO NOT REPRESENT SURVEYED LINE INFORMATION.

REVISIONS:

NO.	DATE	DRAWN	APPR.	DESCRIPTION

Mountain Valley

EROSION AND SEDIMENT CONTROL PLANS
MOUNTAIN VALLEY PIPELINE PROJECT – HOOD LINE
WETZEL COUNTY THROUGH MONROE COUNTY, WEST VIRGINIA

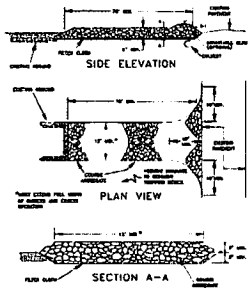
MOUNTAIN VALLEY PIPELINE, LLC
550 SOUTHPOINTE BOULEVARD, SUITE 200
CANONSBURG, PA 15317

TETRA TECH
661 ANDERSEN DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

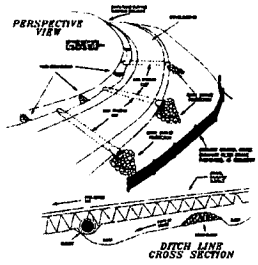
CONSTRUCTION PLANS

DRAWN BY:	KAL
CHECKED BY:	MT
APPROVED BY:	RE
DATE:	3/16/2016
SCALE:	AS SHOWN
SHT. NO.	0.00 OF 0.21

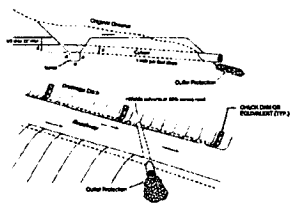
STONE CONSTRUCTION ENTRANCE



STONE CONSTRUCTION ENTRANCE
TAKEN FROM 2006 MANUAL



SEDIMENT AND EROSION CONTROL FOR ACCESS ROADS
TAKEN FROM 2013 MANUAL



NOTE:
1. ROCK CHECK DAMS, FILTER SOCK, OR EQUIVALENT WILL BE INSTALLED UPSTREAM OF THE CULVERT INLETS

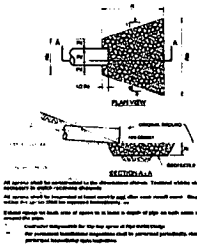
DITCH RELIEF CULVERT
TAKEN FROM 2013 MANUAL

Drainage area (acres)	Table 3.35.1 Average slope of watershed			
	1%	4%	8%	16%
	Culvert diameter (inches)			
1 - 25	24	24	30	30
26 - 30	24	30	36	36
31 - 100	30	36	42	48
101 - 150	30	42	48	48
151 - 200	36	42	48	54
200 - 250	42	48	60	60
251 - 300	42	48	60	60
301 - 350	42	48	60	60
351 - 400	42	54	60	60
401 - 450	42	54	60	72
451 - 500	42	54	66	72
501 - 550	48	60	66	72
551 - 600	48	60	66	72
601 - 640	48	60	72	72

NOTE: MINIMUM CULVERT SIZE SHALL BE 12 INCHES. CULVERT SHALL BE INSTALLED AS INDICATED ON THE DETAIL.

REFERENCE: WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, DIVISION OF WATER AND WASTE MANAGEMENT, EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES MANUAL, 2006.

CULVERT SIZING CHART
TAKEN FROM 2006 MANUAL



All riprap shall be constructed to the dimensions shown. Trashed rocks shall be adjusted or removed to assure uniformity.

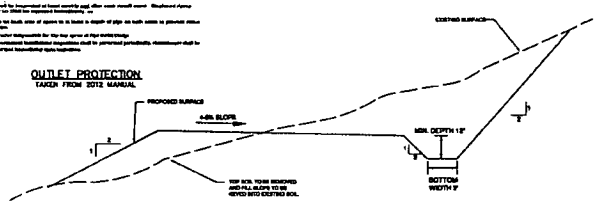
All riprap shall be inspected at least monthly and after each runoff event. Displaced riprap within the top or toe shall be repaired immediately.

Extend riprap to such size of apron as is twice a depth of pipe on each side to prevent stone around the pipe.

Construction backgrounds for the top apron of the entrance.

For permanent installations inspections shall be performed periodically, maintenance shall be performed immediately upon inspection.

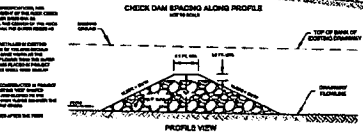
OUTLET PROTECTION
TAKEN FROM 2012 MANUAL

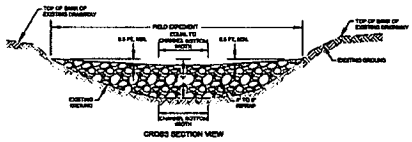


NOTE:
1. INSLOPE WITH DITCH SECTION FOR USE ON STEEP SLOPS AND AREAS WITH POOR SOILS.
2. EROSION CONTROL MATTING TO BE INSTALLED ON CUT AND FILL SLOPES STEEPER THAN 2H:1V
3. ALL DISTURBED AREAS WILL BE IMMEDIATELY SEEDED AND MULCHED.
4. INSTALL DITCH RELIEF CULVERTS AT LOW SPOTS AND APPROPRIATE LOCATIONS.
5. EXISTING MAINTAINED ROADS WILL HAVE STONE APPLIED AND APPROPRIATE SMOOTHING IF RUTTING OCCURS
6. ROADS TO BE GRADED AND MAINTAINED WILL BE WIDENED, GRADED AND/OR STONED AS NECESSARY WITHIN THE LOD TO MAINTAIN SAFE PASSAGE AND RESOURCE PROTECTION.

ACCESS ROAD TYPICAL SECTION
DEVELOPED FROM 2006 MANUAL

NOTES:
1. DETERMINATION OF METHODS OF THE CONSTRUCTION AND ECONOMY CONTROL THE LOCATION AND/OR OF THE ROCK CHECK DAMS SHALL BE MADE BY THE CONTRACTOR AND SHALL BE APPROVED BY THE ENGINEER. THE CONTRACTOR MAY MAKE MINOR CHANGES IN THE LOCATION AND SIZE OF THE ROCK CHECK DAMS AS ORIGINALLY SHOWN ON THE PLANS IF SUCH CHANGES ARE DEEMED NECESSARY BY THE ENGINEER.
2. INSTALLED CHECK DAMS AND SEDIMENT INSTALLED IN EXISTING DRAINAGE DITCHES THAT DRAIN TO THE ROCK CHECK DAMS SHALL BE REMOVED BY THE CONTRACTOR AT THE COMPLETION OF THE PROJECT. THE CONTRACTOR SHALL REMOVE THE ROCK CHECK DAMS AND SEDIMENT FROM THE DITCHES AND RESTORE THE DITCHES TO THEIR ORIGINAL CONDITIONS. THE ROCK CHECK DAMS SHALL BE REMOVED BEFORE THE FINAL STABILIZATION.
3. THE CENTER OF ROCK CHECK DAMS CONSTRUCTED IN PERMANENT CONSTRUCTED TEST WATERS OR EXISTING TEST WATERS SHALL BE CONSTRUCTED AT LEAST 6 INCHES BELOW THE ELEVATION OF THE BOTTOM OF THE ADJACENT TEST WATER TO ENSURE THAT WATER FLOWS THROUGH THE ROCK CHECK DAMS AND NOT AROUND THE TOP OF THE DAM AND NOT AROUND THE SIDES.
4. ROCK CHECK DAMS SHALL BE REMOVED AFTER THE TEMPORARY DIVERSION.





ROCK CHECK CHART

REFERENCES:
WEST VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL, DATED 2006.
WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD MANUAL, DRAFT DATED 3-29-2013
WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD MANUAL, DATED MAY 2013

REVISIONS:

NO.	DATE	DRAWN	CHECKED	APPROVED	DESCRIPTION

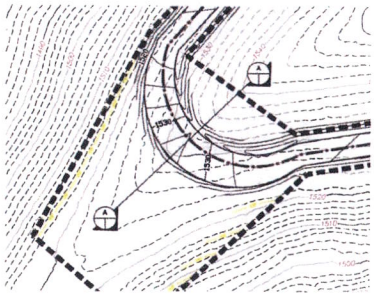
EROSION AND SEDIMENT CONTROL DETAILS
MOUNTAIN VALLEY PIPELINE PROJECT – HOOD LINE
WETZEL COUNTY THROUGH DODDRIDGE COUNTY, WEST VIRGINIA

MOUNTAIN VALLEY PIPELINE, LLC
625 SOUTHPOINTE BOULEVARD, SUITE 200
CANONSBURG, PA 15317

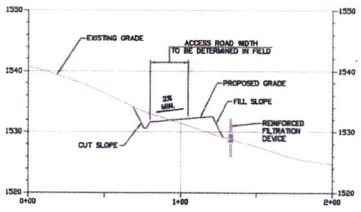
TETRA TECH
661 ANDERSEN DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

CONSTRUCTION PLANS

Drawn BY:	KAL
CHECKED BY:	RT
APPROVED BY:	RE
DATE:	2/14/2014
SCALE:	AS SHOWN
SHT. NO.	5.01 OF 5.01

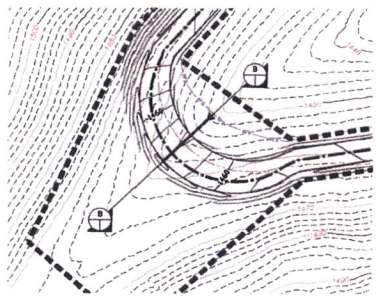


PLAN VIEW
SCALE 1" = 50'

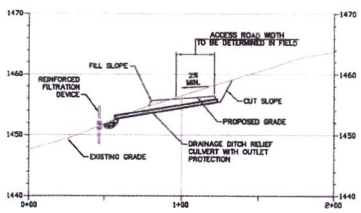


PROFILE VIEW A-A
SCALE 1" = 50'

ATWS VEHICLE TURNING RADIUS
NOSE DETAIL
SCALE AS SHOWN



PLAN VIEW
SCALE 1" = 50'



PROFILE VIEW B-B
SCALE 1" = 50'

ATWS VEHICLE TURNING RADIUS
VALLEY DETAIL
SCALE AS SHOWN

NOTES:

1. ELEVATIONS ARE FOR ILLUSTRATIVE PURPOSES AND ARE NOT SPECIFIC TO EACH SITE. ACTUAL ELEVATIONS WILL BE DETERMINED IN THE FIELD.
2. CUT SLOPES ARE TO BE SEEDED AND MULCHED IMMEDIATELY.

REVISIONS:

NO.	DATE	DRN.	CHKD.	APPD.	DESCRIPTION

EROSION AND SEDIMENT CONTROL DETAILS
MOUNTAIN VALLEY PIPELINE PROJECT – 16000 LINE
METCEL COUNTY THROUGH MONROE COUNTY, WEST VIRGINIA

MOUNTAIN VALLEY PIPELINE, LLC
500 SOUTHPOINTE BOULEVARD, SUITE 200
CANONSBURG, PA 15317

TETRA TECH
661 ANDERSEN DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

CONSTRUCTION PLANS

DRAWN BY:	KAL
CHECKED BY:	HT
APPROVED BY:	RE
DATE:	2/15/2016
SCALE:	AS SHOWN
SHT. NO.	0.02 OF 0.21

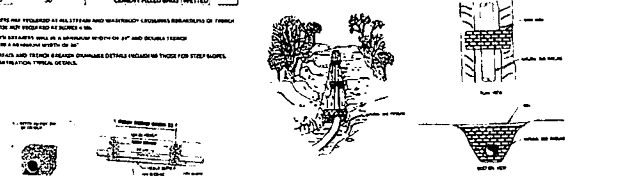
REQUIRED SPACING AND MATERIALS FOR TRENCH BREAKERS		
TRENCH SLOPE (%)	SPACING (FEET)	BREAKER MATERIAL
< THAN 5	*	EARTHEN FILL, SAND, OR CONCRETE FILLED SACKS
5 TO 15	500	EARTHEN FILL, SAND, OR CONCRETE FILLED SACKS
15 TO 25	300	EARTHEN FILL, SAND, OR CONCRETE FILLED SACKS
25 TO 35	200	EARTHEN FILL, SAND, OR CONCRETE FILLED SACKS
35 TO 100	100	EARTHEN FILL, SAND, OR CONCRETE FILLED SACKS
> THAN 100	50	CEMENT FILLED BAGS (WETTED)

NOTES:

*TRENCH BREAKERS ARE REQUIRED AT ALL STREAM AND WATERBODY CROSSINGS [illegible]

** [illegible] TRENCH BREAKERS [illegible] MINIMUM WIDTH OF [illegible] AND DOUBLE TRENCH BREAKERS [illegible] MINIMUM WIDTH OF [illegible]

*** FOR SUBSURFACE AND TRENCH BREAKER DRAINAGE DETAILS INCLUDING THOSE FOR STEEP SLOPES, SEE [illegible] TYPICAL DETAILS.

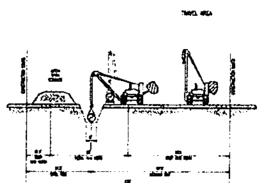


TRENCH BREAKER

NOTE:

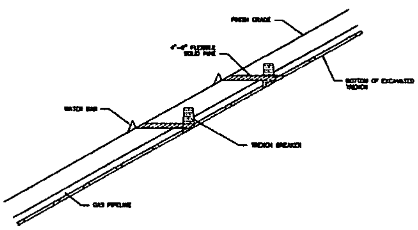
TRENCH PLUG SPACING AND DIMENSIONING TO EQUAL THAT OF TRENCH BREAKERS. SEE TRENCH BREAKER DETAIL THIS SHEET.

TRENCH PLUG



GRADING ASSUMES TYPE "B" SOIL

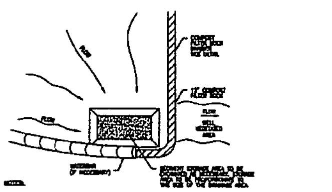
MAINLINE CONSTRUCTION
NON-PARALLEL CONSTRUCTION
NO TOP SOIL SEGREGATION
DEVELOPED FROM 2012 FIELD MANUAL



TRENCH DETAIL
N.T.S.

NOTE:

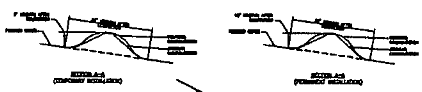
4"-6" FLEXIBLE SOLID PIPE TO BE INSTALLED AT TRENCH BREAKERS ON STEEP SLOPES TO DRAIN SUBSURFACE WATER INTO WATER BARS.

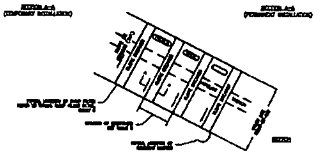


NOTES:

1. SUMP FILTER MAY BE USED IN CONJUNCTION WITH WATERBARS (AS DIRECTED BY OWNER REPRESENTATIVE).
2. SUMP FILTER SHALL BE LOCATED ENTIRELY WITHIN PROPOSED RIGHT OF WAY.
3. SUMP SHOULD BE CHECKED WEEKLY AND AFTER EACH STORMWATER EVENT FOR SEDIMENT ACCUMULATION, PROPER OPERATION, AND COMPOST FILTER SOCK INTEGRITY.
4. ADDITIONAL COMPOST FILTER SOCKS MAY BE NECESSARY BEYOND WHAT IS SHOWN ON DETAIL TO MEET [illegible]

TYPICAL SUMP FILTER





REQUIRED SPACING FOR PERMANENT WATER BARS		
PIPELINE GRADE	[illegible] FROM STREAMS	< 300' FROM STREAMS
5-8%	400	300
9-12%	300	150
13-21%	200	100
22-34%	100	50
35-80%	50	25

NOTE:

PERMANENT WATERBARS ARE REQUIRED AT ALL STREAM, RIVER, AND OTHER WATER-BODY CROSSINGS AS WELL AS UPSLOPE FROM ROADWAY AND ROADSIDE CUT SLOPES.

NOTES:

WATERBARS SHALL BE INSPECTED WEEKLY (DAILY ON ACTIVE ROADS) AND AFTER EACH RUNOFF EVENT. DAMAGED OR ERODED WATERBARS SHALL BE RESTORED TO ORIGINAL DIMENSIONS WITHIN 24 HOURS OF INSPECTION

MAINTENANCE OF WATERBARS SHALL BE PROVIDED UNTIL ROADWAY, SKIDTRAIL, OR RIGHT-OF-WAY HAS ACHIEVED PERMANENT STABILIZATION

WATERBARS ON RETIRED ROADWAYS, SKIDTRAILS, AND RIGHT-OF-WAYS SHALL BE LEFT IN PLACE AFTER PERMANENT STABILIZATION HAS BEEN ACHIEVED

SUMP FILTERS TO BE INSTALLED AT END OF WATERBARS. REFER TO SUMP FILTER DETAIL ON SHEET 2 FOR MORE DETAIL.

OUTLET PROTECTION/COMPOST FILTER SOCK SHOULD BE INSTALLED AT THE OUTLET OF ALL WATERBARS.

WATERBAR INSTALLATION DETAIL

REFERENCES:
WEST VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL, DATED 2006.
WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD MANUAL, DRAFT DATED 7-29-2010.
WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD MANUAL, DATED MAY 2012

TETRA TECH CAD FILE PATH: [illegible]

REVISIONS:

NO.	DATE	DRWN	CHKD	APPD	DESCRIPTION

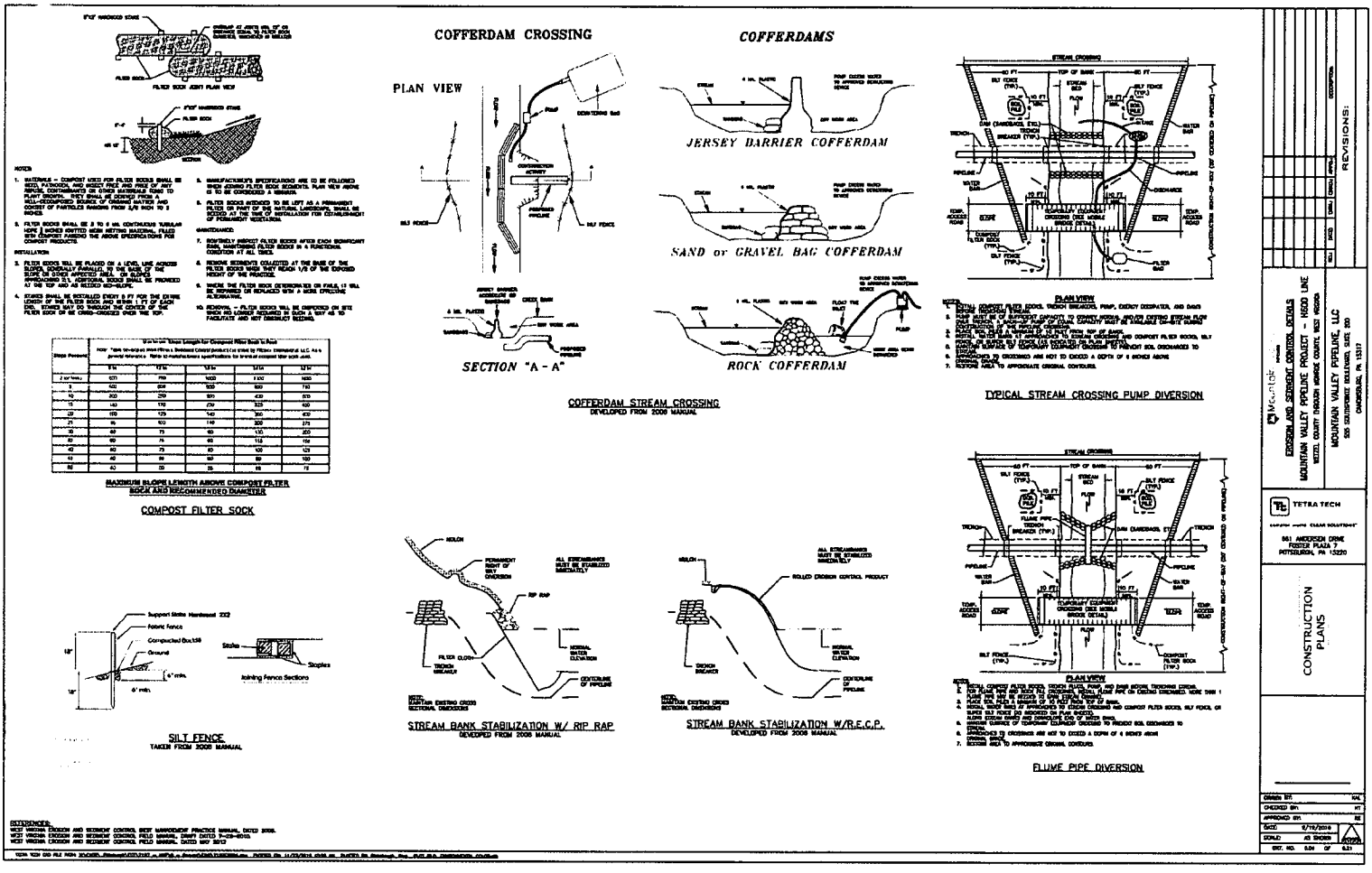
Mountain Valley
EROSION AND SEDIMENT CONTROL DETAILS
MOUNTAIN VALLEY PIPELINE PROJECT - H600 LINE
WETZEL COUNTY THROUGH MONROE COUNTY, WEST VIRGINIA

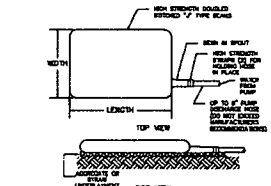
MOUNTAIN VALLEY PIPELINE, LLC
555 SOUTHPOINTE BOULEVARD, SUITE 200
CANONSBURG, PA 15317

TETRA TECH
661 ANDERSEN DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

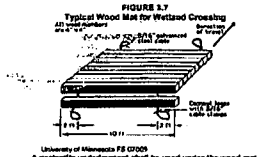
CONSTRUCTION PLANS

DRAWN BY:	KAL
CHECKED BY:	HT
APPROVED BY:	RE
DATE:	2/19/2016
SCALE:	AS SHOWN
SHT. NO.	6.83 OF 6.??

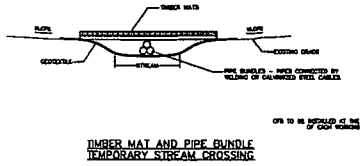

COFFERDAM CROSSING
COFFERDAMS
PLAN VIEW
JERSEY BARRIER COFFERDAM
SAND or GRAVEL BAG COFFERDAM
ROCK COFFERDAM
SECTION "A - A"
COFFERDAM STREAM CROSSING
DEVELOPED FROM 2006 MANUAL
TYPICAL STREAM CROSSING PUMP DIVERSION
COMPOST FILTER SOCK
MAXIMUM SLOPE LENGTH ABOVE COMPOST FILTER SOCK AND RECOMMENDED DIAMETER
SILT FENCE
TAKEN FROM 2006 MANUAL
STREAM BANK STABILIZATION W/ RIP RAP
DEVELOPED FROM 2006 MANUAL
STREAM BANK STABILIZATION W/R.E.C.P.
DEVELOPED FROM 2006 MANUAL
FLUME PIPE DIVERSION
EROSION AND SEDIMENT CONTROL DETAILS
MOUNTAIN VALLEY PIPELINE PROJECT - WEST LINE
WETZEL COUNTY, TAYLOR, MARION, MONROE COUNTY, WEST VIRGINIA
MOUNTAIN VALLEY PIPELINE, LLC
TETRA TECH
CONSTRUCTION PLANS
REVISIONS:



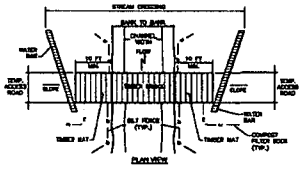
DEWATERING BAG
DEVELOPED FROM 2006 MANUAL



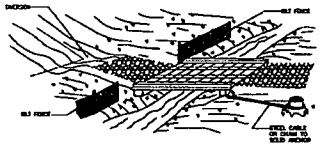
TIMBER MAT/WETLAND CROSSING



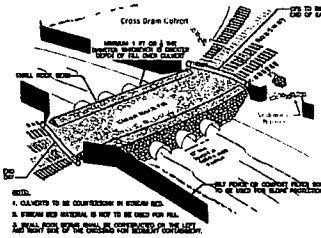
TIMBER MAT AND PIPE BUNDLE
TEMPORARY STREAM CROSSING



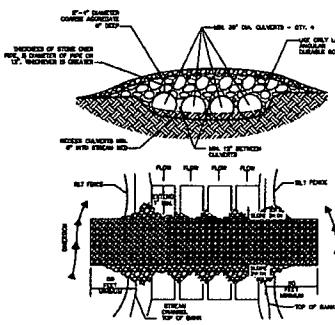
MOBILE BRIDGE



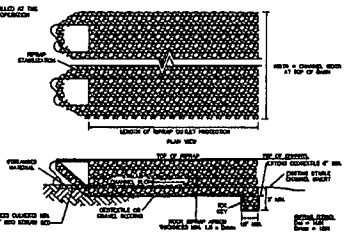
TEMPORARY BRIDGE STREAM CROSSING DETAIL

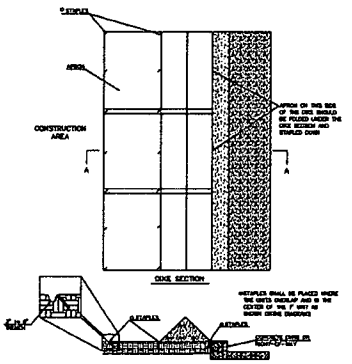


TYPICAL E&S CONTROL FOR STREAM CROSSINGS
TAKEN FROM 2012 MANUAL



CULVERT CROSSING
DEVELOPED FROM 2006 MANUAL





TEMPORARY SILT DIKE INSTALLATION FOR CONTINUOUS BARRIER
SOURCE ACF ENVIRONMENTAL

STREAM CULVERT CROSSING
INLET/OUTLET PROTECTION

REFERENCES:

REVISIONS:

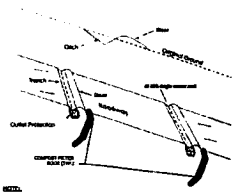
EROSION AND SEDIMENT CONTROL DETAILS
MOUNTAIN VALLEY PIPELINE PROJECT – HOOD LINE
WETZEL COUNTY THROUGH MONROE COUNTY, WEST VIRGINIA

MOUNTAIN VALLEY PIPELINE, LLC
559 JEFFERSONVILLE BOULEVARD, SUITE 200
JEFFERSONVILLE, IN 47130

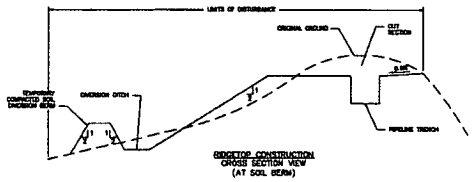
TETRA TECH
661 ANDERSON DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

CONSTRUCTION PLANS

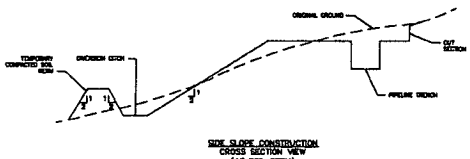
DESIGN BY: KAL
CHECKED BY: AT
APPROVED BY: RE
DATE: 7/14/2015
SCALE: AS SHOWN
SHT. NO. 5.03 OF 5.27



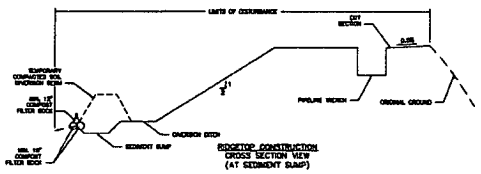
CROSS DRAIN/WATER BAR
TAKEN FROM 2012 MANUAL



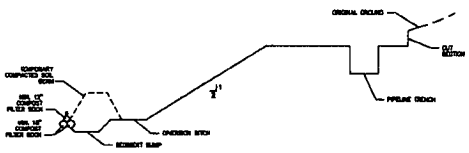
RIDGETOP CONSTRUCTION
CROSS SECTION VIEW
(AT SOIL BERM)



SIDE SLOPE CONSTRUCTION
CROSS SECTION VIEW
(AT SOIL BERM)



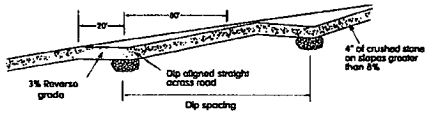
RIDGETOP CONSTRUCTION
CROSS SECTION VIEW
(AT SEDIMENT SUMP)



SIDE SLOPE CONSTRUCTION
CROSS SECTION VIEW
(AT SEDIMENT SUMP)

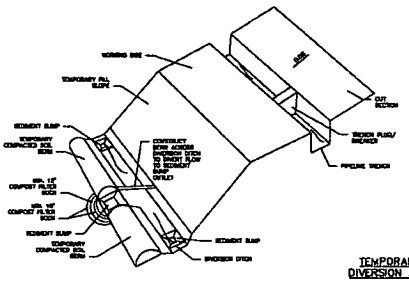
Table II-4 Spacing of Broad-Based Dips

Grade (%)	Distance Between Drains (Ft)
2	300
3	250
4	200
5	150
6	100
7	100
8	100
9	100
10	100



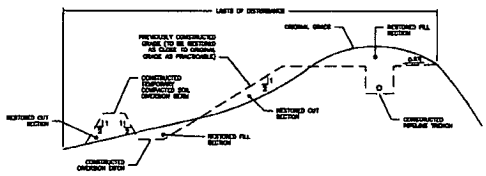
DESIGN CRITERIA:
1. TURNOUTS SHALL EXTEND AS MUCH AREA CAN BE CONSTRUCTED & WILL
2. A FLAT AREA SHALL EXIST AT THE CONSTRUCTED OF THE TURNOUTS TO ALLOW
3. BERM ALONG DIP SHOULD BE ARMORED WITH STONE TO WITHSTAND EXPECTED
4. DOWNSLOPE OUTLET PROTECTION SHALL BE PROVIDED WITH APPROPRIATE SEDIMENT
5. SPACING SHOWN IN TABLE II-4.

BROAD BASED DIP DETAIL
N.T.S.

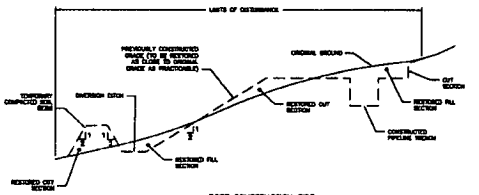


TEMPORARY RIGHT OF WAY
DIVERSION AND OUTLET DETAIL
N.T.S.

NOTES:
1. TEMPORARY RIGHT OF WAY DIVERSION AND OUTLET INTENDED FOR USE OF LESS THAN 50 FEET OF COMPOST FILTER SOCK ALONG STRAIGHT SECTIONS OF RIGHT OF WAY LOCATED NEAR WATER LINES.
2. MULCHING SHALL BE USED TO STABILIZE THE TEMPORARY COMPACTED SOIL BERM, DIVERSION DITCH, AND TEMPORARY FILL SLOPE.
3. REFER TO LANDCARE MITIGATION PLAN DETAILS FOR TRENCH BREAKER OUTLETS AND LOWPOINT DRAINAGE DETAILS.
4. TEMPORARY FILL SLOPE TO BE CONSTRUCTED NO STEEPER THAN 2H:1V.
5. SIDE SLOPES OF TEMPORARY SOIL BERM AND DIVERSION DITCH SHALL BE NO STEEPER THAN 2H:1V.
6. ENDS OF COMPOST FILTER SOCK AT RAMP OUTLET TO BE TURNED UPSLOPE AND BUTTED UP AGAINST THE BERM TO PREVENT FLOW FROM PASSING AROUND COMPOST FILTER SOCK.



POST CONSTRUCTION RIDGETOP
RECLAMATION DETAIL
N.T.S.



POST CONSTRUCTION SIDE
SLOPE RECLAMATION DETAIL
N.T.S.

REFERENCES:
WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD MANUAL, DRAFT DATED 7-08-2014.
WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD MANUAL, DATED MAY 2012

REVISIONS:

NO.	DATE	CHKD	APPVD	DESCRIPTION

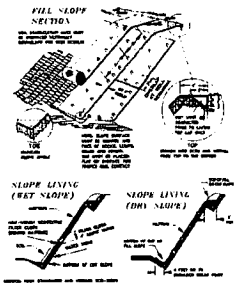
EROSION AND SEDIMENT CONTROL DETAILS
MOUNTAIN VALLEY PIPELINE PROJECT - HG3D LINE
WOOD COUNTY, WEST VIRGINIA

MOUNTAIN VALLEY PIPELINE, LLC
625 LIBERTY AVENUE, SUITE 1700
PITTSBURGH, PA 15222

TETRA TECH
661 ANDERSON DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

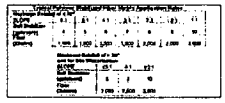
CONSTRUCTION PLANS

Design BY	KJL
CHECKED BY	HT
APPROVED BY	HE
DATE	8/19/2015
SCALE	AS SHOWN
DWG. NO.	6.03 OF 6.21

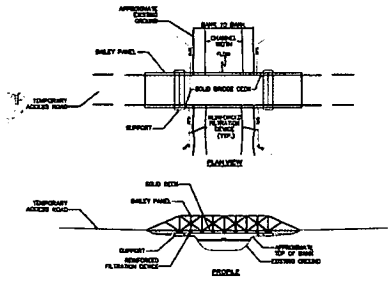


EROSION CONTROL FABRIC BLANKETING FOR PROTECTION ON STEEP SLOPES
TAKEN FROM 2005 MANUAL

BONDED FIBER MATRIX

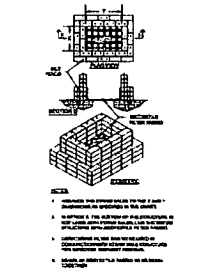


STEEP SLOPE EROSION CONTROL OPTIONS



MODULAR TEMPORARY BAILEY BRIDGE

MINIMUM EXCAVATION DIMENSIONS (FEET)		MINIMUM PUMPING RATE (GALLONS PER MINUTE)
X	Y	
10	20	300
13	26	390
21	39	630
30	56	900
34	64	1,020
37	69	1,110
38	70	1,140



TYPICAL BALE DEWATERING STRUCTURE

REFERENCES:
WEST VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL, DATED 2006.
WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD MANUAL, DRAFT DATED JUNE 2012
WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD MANUAL, DATED MAY 2013

REVISIONS:

NO.	DATE	DRAWN	CHECKED	APPROVED	DESCRIPTION

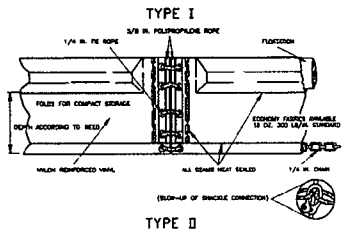
EROSION AND SEDIMENT CONTROL DETAILS
MOUNTAIN VALLEY PIPELINE PROJECT - HEDD LINE
WEXFORD COUNTY THROUGH HARRIS COUNTY, WEST VIRGINIA

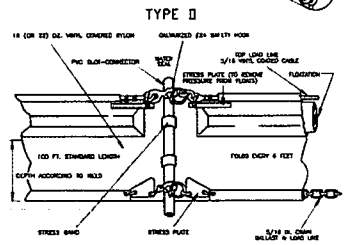
MOUNTAIN VALLEY PIPELINE, LLC
220 SOUTHPOINTE BOULEVARD, SUITE 200
CANONSBURG, PA 15317

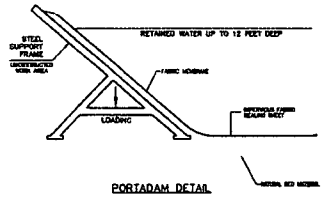
TETRA TECH
661 ANDERSON DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

CONSTRUCTION PLANS

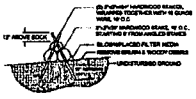
DRAWN BY:	KAL
CHECKED BY:	KT
APPROVED BY:	MS
DATE:	07/15/2013
SCALE:	AS SHOWN
SHT. NO.	5.21





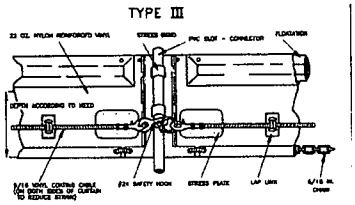


PORTADAM DETAIL

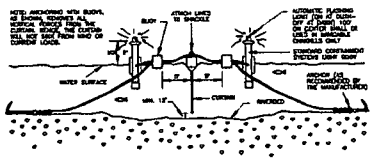


STACKED COMPOST FILTER SOCK DETAIL
CHOICE CROSS SECTION VIEW
(OBTAINED FROM PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL DATED MARCH 2012)

TYPE III

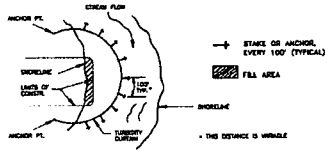


ORIENTATION WHEN INSTALLED
(TIDAL SITUATION - TYPE III)

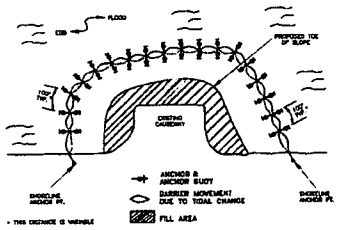


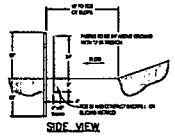
TURBIDITY CURTAIN DETAIL
DEVELOPED FROM ECOS MANUAL

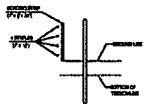
TYPICAL LAYOUTS:
STREAMS, PONDS & LAKES (PROTECTED & NON-TIDAL)

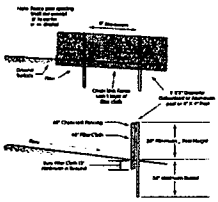


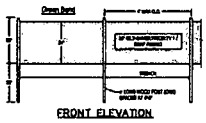
TIDAL WATERS AND/OR HEAVY WIND & WAVE ACTION

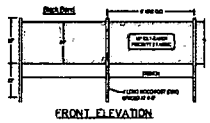












BELTED SILT RETENTION FENCE (BSRF)
TAKEN FROM SILT-SAVER, INC OR EQUAL

NOTE:
THE TYPE OF REINFORCED FILTRATION DEVICE WILL BE SELECTED BASED ON FIELD CONDITIONS DURING CONSTRUCTION

REINFORCED FILTRATION DEVICES (RFD)
(STACKED CFS, SUPER SILT FENCE, BELTED SILT RETENTION FENCE)

REFERENCES:

1. "2.02 VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL, DATED 2003.
WEST VIRGINIA ESCP-CM 112 SEDIMENT CONTROL FIELD MANUAL, DRAFT DATED 7-28-2014.
WEST VIRGINIA CES-CM 140 SEDIMENT CONTROL FIELD MANUAL, DATED MAY 2013

REVISIONS:

NO.	DATE	DRN	CHKD	APPD	DESCRIPTION

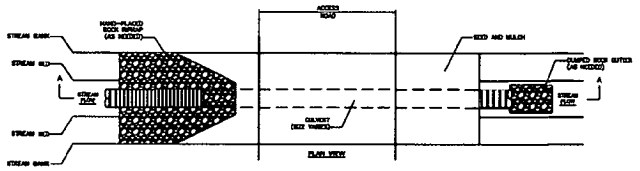
EROSION AND SEDIMENT CONTROL DETAILS
MOUNTAIN VALLEY PIPELINE PROJECT - H500 LINE
WETZEL COUNTY THROUGH MONROE COUNTY, WEST VIRGINIA

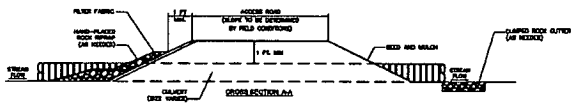
MOUNTAIN VALLEY PIPELINE, LLC
625 LIBERTY AVENUE, SUITE 220
PITTSBURGH, PA 15222

TETRA TECH
661 ANDERSON DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

CONSTRUCTION PLANS

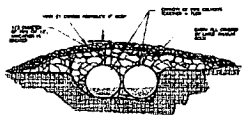
DRAWN BY:	KAL
CHECKED BY:	MT
APPROVED BY:	RE
DATE:	8/19/2016
SCALE:	AS SHOWN
DWG. NO.	0.03
	0



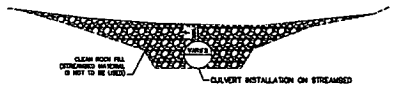


CULVERT SHALL BE DEPRESSED A MINIMUM OF 6 INCHES INTO STREAM BED TO ENSURE UPSTREAM AND DOWNSTREAM CONNECTIVITY

TYPICAL ROAD CROSS-SECTION AT STREAM CROSSING



TEMPORARY CULVERT CROSSING
TAKEN FROM VADEQ 1992 MANUAL



TYPICAL STREAM CROSSING PROFILE – SINGLE CULVERT
TAKEN FROM WVDEP MANUAL

NOTE:
THE CULVERT PIPES, RIPRAP, AND LOCATIONS RELATIVE TO THE PIPELINE ARE SHOWN ON THE EXCEL ENCLOSED AS ATTACHMENT 22-3 TO ERP SUBMITTAL -GA-

REVISIONS:

NO.	DATE	CHKD	APPD	DESCRIPTION

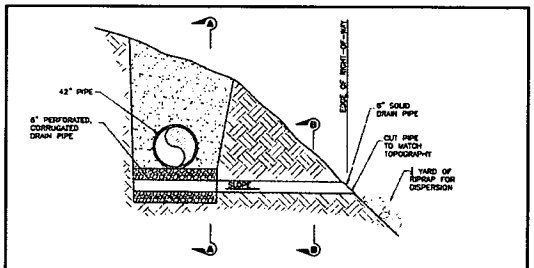
EROSION AND SEDIMENT CONTROL DETAILS
MOUNTAIN VALLEY PIPELINE PROJECT – HUDD LINE

MOUNTAIN VALLEY PIPELINE, LLC
220 SOUTHPOINTE BOULEVARD, SUITE 220
CANONSBURG, PA 15317

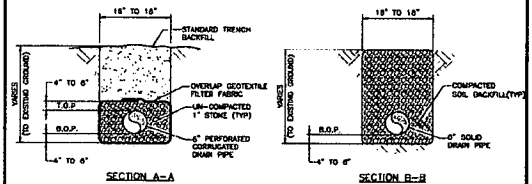
TETRA TECH
661 ANDERSEN DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR MEANS AND METHODS. THIS DETAIL MAY NOT COVER EXPECTED UNDER FIELD CONDITIONS AND REGULATORY REQUIREMENTS

DRAWN BY:	KDL
CHECKED BY:	KS
APPROVED BY:	AB
DATE:	5/15/2016
SCALE:	AS SHOWN
DWG. NO.	0.00 OF 0.00



MAINLINE CROSS SECTION



SECTION A-A SECTION B-B

NOTES

1. LOW POINT DITCH DRAINS SHALL BE INSTALLED AT LOCATIONS SPECIFIED IN THE APPROVED EROSION & SEDIMENTATION CONTROL PLAN, AND AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
2. FILL STONE SHOULD BE 1" AGGREGATE WITHOUT FINES, CRUSHER RUN WITHOUT FINES, OR EQUIVALENT.
3. DRAIN PIPE TO BE CONNECTED USING STANDARD PIPE COLLARS.

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWN	JL	DATE	10/8/2018
CHECKED	MMF	DATE	10/8/2018
APP'D	KDH	DATE	10/8/2018
SCALE	N.T.S.	SHEET	1 OF 1
JOB NO.			
PROJECT ID:	PXXXX		

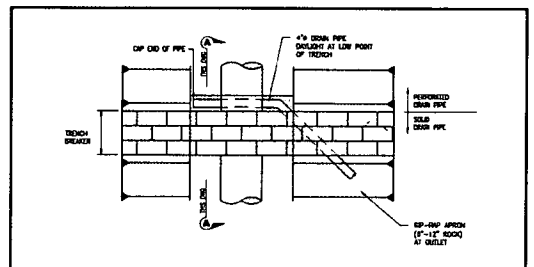
Mountain Valley PIPELINE

DESIGN ENGINEERING

TYPICAL CONSTRUCTION DETAIL

SIDEHILL LOW-POINT DRAIN TYPICAL

DRAWING NO. MVP-24 REV. 0



THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWN	TDD	DATE	2/22/2019
CHECKED	MMF	DATE	2/22/2019
APP'D		DATE	
SCALE	N.T.S.	SHEET	1 OF 1
JOB NO.			
PROJECT ID:	PXXXX		

Mountain Valley PIPELINE

DESIGN ENGINEERING

TYPICAL CONSTRUCTION DETAIL

TRENCH BREAKER DAYLIGHT DRAIN

DRAWING NO. MVP-35 REV. 0

File Path: N:\ACAD\...\MVP-35.dwg

SLIP PREVENTION DETAIL

REVISIONS:

NO.	DESC.	CHK'D	APP'D	DESCRIPTION

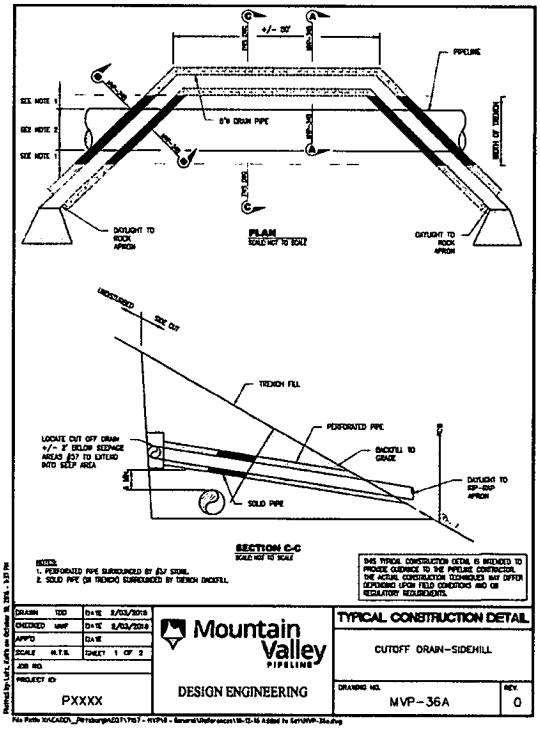
EROSION AND SEDIMENT CONTROL DETAILS
MOUNTAIN VALLEY PIPELINE PROJECT - 42000 LINE

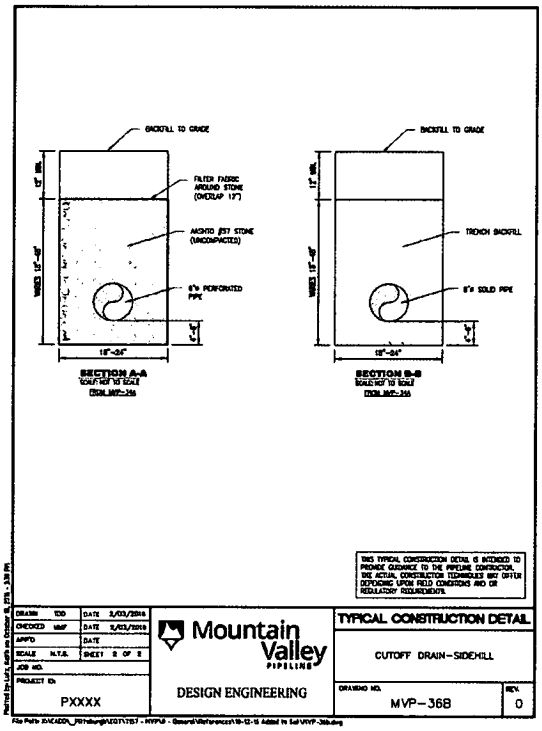
MOUNTAIN VALLEY PIPELINE, LLC
625 SOUTHPOINTE BOULEVARD, SUITE 200
CANONSBURG, PA 15317

TETRA TECH
661 ANDERSEN DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS

DRAWN BY:	KLS
CHECKED BY:	KD
APPROVED BY:	RB
DATE:	2/22/2019
SCALE:	AS SHOWN
SHT NO.	0.10 OF 0.21





SLIP PREVENTION DETAIL

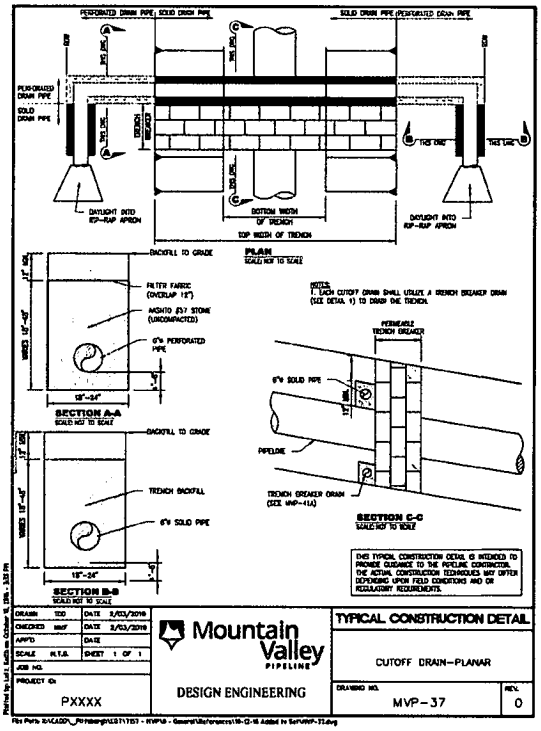
Mountain Valley PIPELINE
EROSION AND SEDIMENT CONTROL DETAILS
MOUNTAIN VALLEY PIPELINE PROJECT - HDDD LINE
MOUNTAIN VALLEY PIPELINE, LLC
625 LIBERTY AVENUE, SUITE 1500
PITTSBURGH, PA 15222
TETRA TECH
661 ANDERSON DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

REVISIONS:

NO.	DATE	APP'D	DESCRIPTION

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWN BY:	KJL
CHECKED BY:	KJ
APPROVED BY:	KE
DATE:	2/03/2016
SCALE:	AS SHOWN
SHT. NO.	0.11 OF 0.21



DRAWN	TDD	DATE	2/03/2016
CHECKED	MAF	DATE	2/03/2016
APP'D		DATE	
SCALE	N.T.S.	SHEET	1 OF 1
JOB NO.			
PROJECT ID:	PXXXX		

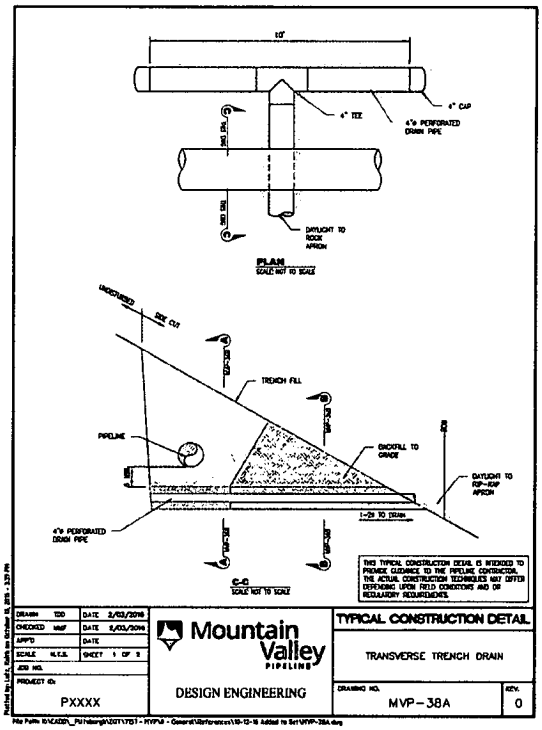
Mountain Valley PIPELINE

DESIGN ENGINEERING

TYPICAL CONSTRUCTION DETAIL

CUTOFF DRAIN–PLANAR

DRAWING NO.	REV.
MVP–37	0



DRAWN	TDD	DATE	2/03/2016
CHECKED	MAF	DATE	2/03/2016
APP'D		DATE	
SCALE	N.T.S.	SHEET	1 OF 1
JOB NO.			
PROJECT ID:	PXXXX		

Mountain Valley PIPELINE

DESIGN ENGINEERING

TYPICAL CONSTRUCTION DETAIL

TRANSVERSE TRENCH DRAIN

DRAWING NO.	REV.
MVP–38A	0

SLIP PREVENTION DETAIL

REVISIONS:

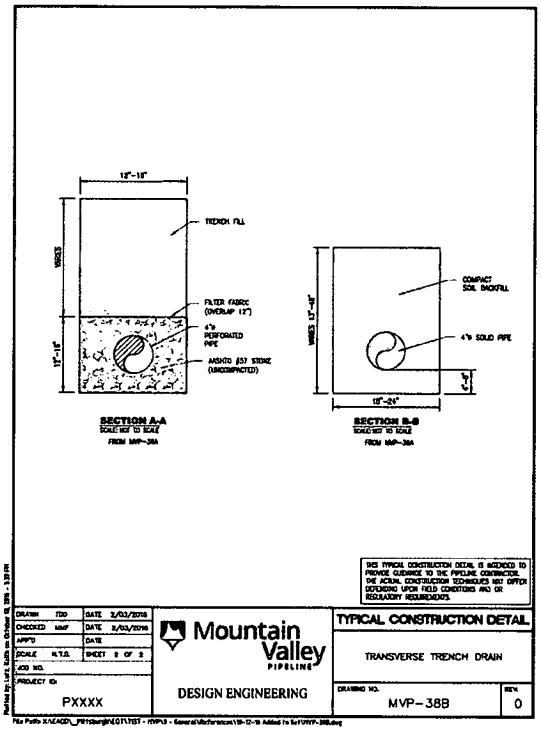
EROSION AND SEDIMENT CONTROL DETAILS
MOUNTAIN VALLEY PIPELINE PROJECT – MAINLINE

MOUNTAIN VALLEY PIPELINE, LLC
625 LIBERTY AVENUE, SUITE 1700
PITTSBURGH, PA 15222

TETRA TECH
841 ANDERSEN DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS

DRAWN BY:	KDL
CHECKED BY:	KT
APPROVED BY:	RR
DATE:	2/15/2016
SCALE:	AS SHOWN
DWG. NO.	6.13 OF 6.21



THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWN	TDD	DATE	2/03/2016
CHECKED	MWF	DATE	2/03/2016
APP'D		DATE	
SCALE	N.T.S.	SHEET	2 OF 2
JOB NO.			
PROJECT ID:	PXXXX		

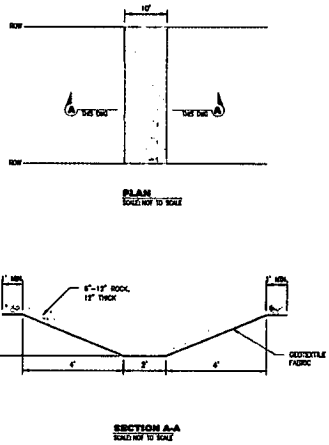
Mountain Valley PIPELINE

DESIGN ENGINEERING

TYPICAL CONSTRUCTION DETAIL

TRANSVERSE TRENCH DRAIN

DRAWING NO. MVP-38B REV. 0



THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWN	TDD	DATE	2/03/2016
CHECKED	MWF	DATE	2/03/2016
APP'D		DATE	
SCALE	N.T.S.	SHEET	1 OF 1
JOB NO.			
PROJECT ID:	PXXXX		

Mountain Valley PIPELINE

DESIGN ENGINEERING

TYPICAL CONSTRUCTION DETAIL

ROCK LINED SWALE

DRAWING NO. MVP-39 REV. 0

SLIP PREVENTION DETAIL

REVISIONS:

NO.	DATE	CHK'D	APP'D	DESCRIPTION

EROSION AND SEDIMENT CONTROL DETAILS
MOUNTAIN VALLEY PIPELINE PROJECT – WOOD LINE

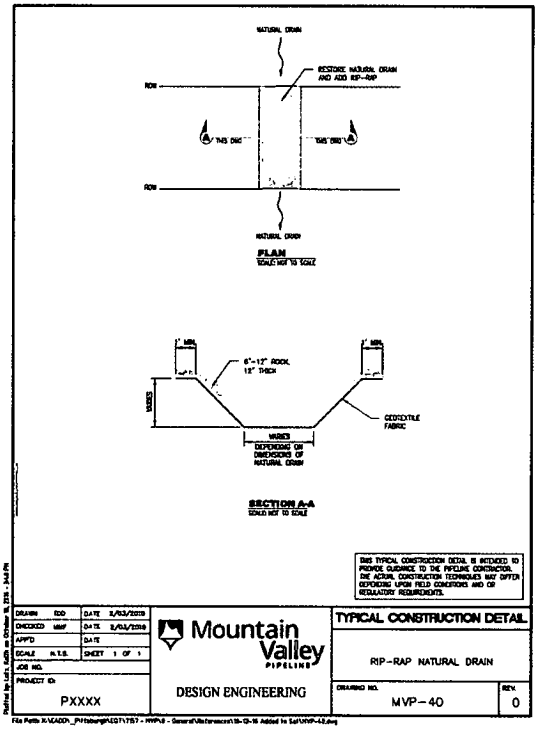
MOUNTAIN VALLEY PIPELINE, LLC
555 EDGEWATER BOULEVARD, SUITE 550
CHARLESTON, PA 15317

TETRA TECH

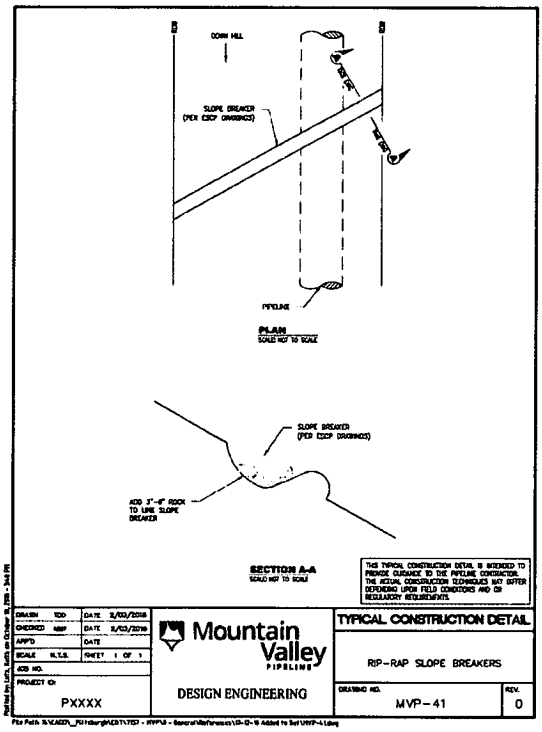
661 ANDERSON DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWN BY:	MJL
CHECKED BY:	EB
APPROVED BY:	EB
DATE:	2/15/2016
SCALE:	AS SHOWN
SHT. NO.	61.5 OF 61.21



DRAWN TDD	DATE 2/03/2016	Mountain Valley PIPELINE	TYPICAL CONSTRUCTION DETAIL
CHECKED MRP	DATE 2/03/2016		RIP-RAP NATURAL DRAIN
APP'D	DATE	DESIGN ENGINEERING	DRAWING NO. MVP-40
SCALE N.T.S.	SHEET 1 OF 1		REV. 0
JOB NO.			
PROJECT ID: PXXXX			



DRAWN TDD	DATE 2/03/2016	Mountain Valley PIPELINE	TYPICAL CONSTRUCTION DETAIL
CHECKED MRP	DATE 2/03/2016		RIP-RAP SLOPE BREAKERS
APP'D	DATE	DESIGN ENGINEERING	DRAWING NO. MVP-41
SCALE N.T.S.	SHEET 1 OF 1		REV. 0
JOB NO.			
PROJECT ID: PXXXX			

SLIP PREVENTION DETAIL

REVISIONS:

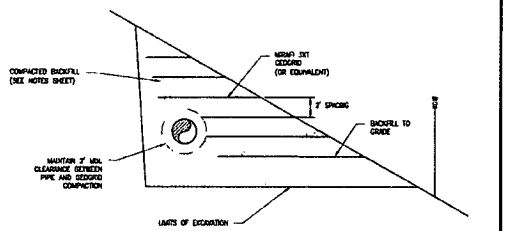
EROSION AND SEDIMENT CONTROL DETAILS
MOUNTAIN VALLEY PIPELINE PROJECT – HS00 LINE

MOUNTAIN VALLEY PIPELINE, LLC
625 LIBERTY AVENUE, SUITE 220
CANONSBURG, PA 15317

TETRA TECH
661 ANDERSEN DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS

DESIGN BY:	KDK
CHECKED BY:	MT
APPROVED BY:	AB
DATE:	2/11/2016
SCALE:	AS SHOWN
SHT. NO.	6.14 OF 6.21



THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWN	TDD	DATE	2/03/2016
CHECKED	MMF	DATE	2/03/2016
APP'D		DATE	
SCALE	N.T.S.	SHEET	1 OF 3
JOB NO.			
PROJECT ID:	PXXXX		

Mountain Valley PIPELINE

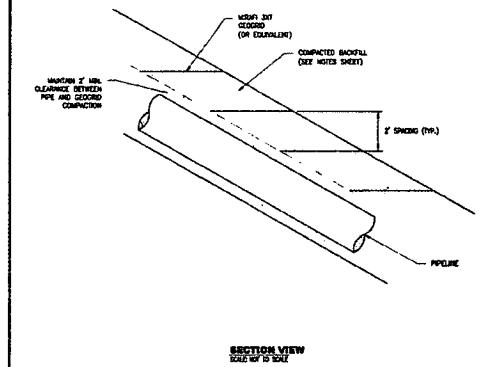
DESIGN ENGINEERING

TYPICAL CONSTRUCTION DETAIL

GEOGRID–SIDEHILL

DRAWING NO. MVP–42A

REV. 0



SECTION VIEW
SCALE NOT TO SCALE

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWN	TDD	DATE	2/03/2016
CHECKED	MMF	DATE	2/03/2016
APP'D		DATE	
SCALE	N.T.S.	SHEET	2 OF 3
JOB NO.			
PROJECT ID:	PXXXX		

Mountain Valley PIPELINE

DESIGN ENGINEERING

SLIDE MITIGATION DETAIL

GEOGRID–PLANAR

DRAWING NO. MVP–42B

REV. 0

SLIP PREVENTION DETAIL

REVISIONS:

NO.	DATE	DESCRIPTION	CHKD	APPVD

EROSION AND SEDIMENT CONTROL DETAILS
MOUNTAIN VALLEY PIPELINE PROJECT – HOOD LINE

MOUNTAIN VALLEY PIPELINE, LLC
625 LIBERTY AVENUE, SUITE 1700
PITTSBURGH, PA 15222

TETRA TECH
661 ANDERSEN DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWN BY:	KDL
CHECKED BY:	ST
APPROVED BY:	RE
DATE:	2/11/2016
SCALE:	AS SHOWN
DWG. NO.	0.10 OF 0.21

COMPACTION NOTES

1) ALL ROCKS LARGER THAN 4 INCHES IN SIZE, AND MORE THAN 1% PERCENT BY VOLUME SHOULD BE REMOVED AND PROPERLY DISPOSED FROM THE BACKFILL MATERIAL.
2) THE SUBGRADE AT THE BASE OF THE EXCAVATION SHOULD BE PROOFROLLED WITH A PNEUMATIC TIRED ROLLER OR VEHICLE.
3) THE EXCAVATED AREA SHALL BE BACKFILLED WITH THE CLEARED EXCAVATED SOIL MATERIAL AND COMPACTED IN PLACE.
4) BACKFILL OPERATIONS SHALL BE PERFORMED WHEN SOIL IS SUITABLE FOR COMPACTION (I.E., NOT IMMEDIATELY FOLLOWING A LARGE RAIN, SNOW, OR ICE EVENT). FROZEN FILL SHALL NOT BE USED.
5) THE BACKFILL SHALL BE PLACED IN COMPACTED LIFTS NO GREATER THAN 12 INCHES.
6) MAINTAIN A MINIMUM 2FT CLEARANCE BETWEEN COMPACTION ACTIVITY AND THE GAS PIPELINE.

GRAVEL DRAIN NOTES

1) GEOTEXTILE FABRIC SHALL BE TENSILE MINAR 140# OR APPROVED EQUIVALENT.
2) THE GEOTEXTILE FABRIC SHALL BE SECRED UNSTRETCHED PURSUANT TO MANUFACTURERS RECOMMENDATIONS.
3) DO NOT OPERATE CONSTRUCTION EQUIPMENT DIRECTLY ON THE GEOTEXTILE FABRIC.
4) DRAINAGE AGGREGATE SHALL MEET THE REQUIREMENTS OF AASHTO NO. 57 STONE.
5) DRAINAGE AGGREGATE SHALL NOT BE COMPACTED.

GEOGRID NOTES

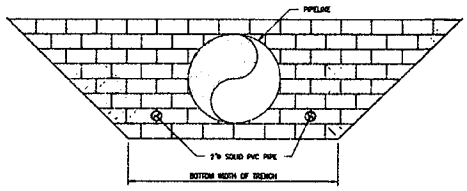
1) GEOGRID REINFORCEMENT SHALL BE TENSATE MINAR 35T OR APPROVED EQUIVALENT.
2) THE GEOGRID MATERIAL SHALL BE STORED UNSTRETCHED PURSUANT TO MANUFACTURERS RECOMMENDATIONS.
3) GEOGRID SHALL BE PLACED HORIZONTALLY OR TAIL BACKFILL WITH THE PRINCIPAL EXTENSION DIRECTION PERPENDICULAR TO THE FACE OF THE SLOPE. ADJACENT PIECES OF PERMANENT GEOGRID SHALL NOT OVERLAP SIDE AND TO BE BUTTED SIDE TO SIDE.
4) REMOVE ALL SLACK IN THE GEOGRID MATERIAL AND ANCHOR AS NECESSARY WITH PINS, OR SACK TO PREVENT SLACK FROM DEVELOPMENT DURING FILL PLACEMENT AND COMPACTION.
5) FILL IS TO BE PLACED AND SPREAD DIRECTLY ON THE GEOGRID MATERIAL WITH HIGHER TIRED EQUIPMENT ONLY. SPEEDS ARE TO BE KEPT SLOW WITH AS FEW STOPS AND TURNS AS POSSIBLE.
6) DO NOT OPERATE TRACKED EQUIPMENT DIRECTLY ON THE GEOGRID MATERIAL.
7) MAINTAIN A MINIMUM 6FT CLEARANCE BETWEEN GEOGRID MATERIAL AND THE GAS PIPELINE.

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

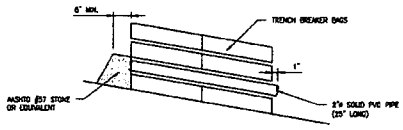
DRAWN TDD	DATE 2/03/2016	TYPICAL CONSTRUCTION DETAIL
CHECKED MAF	DATE 2/03/2016	GEOGRID NOTES
APP'D	DATE	
SCALE N.T.S.	SHEET 3 OF 3	
JOB NO.		
PROJECT ID: PXXXX		DRAWING NO. MVP-42C
		REV. 0

Mountain Valley PIPELINE
DESIGN ENGINEERING

File Path: X:\ACAD_Pittsburgh\ES\Y157 - MVP\2 - General\Reference\16-12-16 Added to Set\MVP-42C.dwg



FRONT VIEW
SCALE: NOT TO SCALE



SECTION VIEW
SCALE: NOT TO SCALE

NOTES:
1. PLACE PVC DRAIN PIPE ON FIRST LAYER OF TRENCH BREAKER BAGS.
2. PLACE PVC DRAIN PIPE EQUIDISTANT FROM THE OUTSIDE EDGE OF THE 30" GAS PIPE AND THE BOTTOM EDGES OF THE TRENCH.
3. EXTEND PVC PIPE THROUGH ENTIRE TRENCH BREAKER AND EXTEND APPROX. 1" PAST END OF BREAKER.
4. AASHTO#57 STONE SHALL BE PLACED TO A MINIMUM 6" THICKNESS UPSLOPE OF THE DRAIN PIPE.

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWN TDD	DATE 6/14/2016	TYPICAL CONSTRUCTION DETAIL
CHECKED MAF	DATE 6/14/2016	TRENCH BREAKER PASS-THROUGH DRAIN
APP'D	DATE	
SCALE N.T.S.	SHEET 1 OF 2	
JOB NO.		
PROJECT ID: PXXXX		DRAWING NO. MVP-43A
		REV. 0

Mountain Valley PIPELINE
DESIGN ENGINEERING

File Path: X:\ACAD_Pittsburgh\EQT\Y157 - MVP\2 - General\Reference\16-12-16 Added to Set\MVP-43A.dwg

REVISIONS:

NO.	DATE	DRWN	CHKD	APP'D	DESCRIPTION

REGIONAL AND STORMWATER CONTROL DETAILS
MOUNTAIN VALLEY PIPELINE PROJECT – HS600 LINE

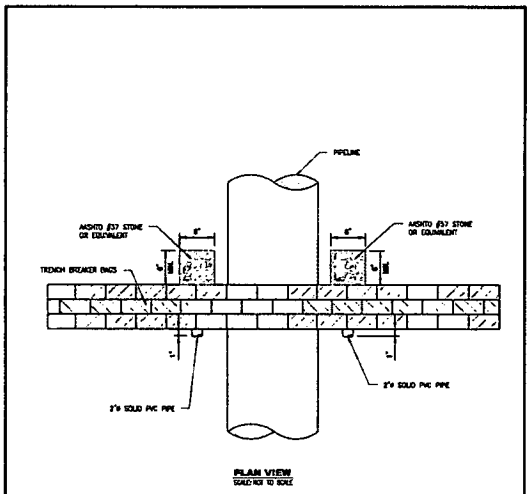
MOUNTAIN VALLEY PIPELINE, LLC
555 SOUTHPOINTE BOULEVARD, SUITE 200
CANONSBURG, PA 15317

TETRA TECH
661 ANDERSEN DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWN BY:	KAL
CHECKED BY:	MF
APPROVED BY:	BK
DATE:	2/16/2018
SCALE:	AS SHOWN
DWG. NO.	0.19 OF 0.21

SLIP PREVENTION DETAIL



PLAN VIEW
SCALE: NOT TO SCALE

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWN: TDD	DATE: 6/14/2016	
CHECKED: MMF	DATE: 6/14/2016	
APP'D:	DATE:	
SCALE: N.T.S.	SHEET: 2 OF 2	
JOB NO.		
PROJECT ID: PXXXX		

Mountain Valley PIPELINE

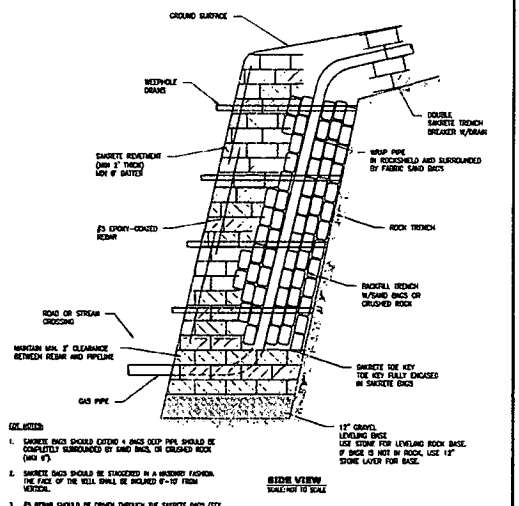
DESIGN ENGINEERING

TYPICAL CONSTRUCTION DETAIL

TRENCH BREAKER
PASS-TROUGH DRAIN

DRAWING NO.: MVP-43B

REV.: 0



FOR NOTES:

1. SACRETE BAGS SHOULD EXTEND 4 BAGS DEEP PIPE SHOULD BE COMPLETELY SURROUNDED BY SAND BAGS, OR CRUSHED ROCK (MIN 6").
2. SACRETE BAGS SHOULD BE STAGGERED IN A HASHWAY FASHION. THE FACE OF THE WALL SHALL BE INCLINED 6°-10° FROM VERTICAL.
3. #5 REBAR SHOULD BE DRIVEN THROUGH THE SACRETE BAGS (SEE DETAIL 1).
4. 3"ø PVC WEEPHOLE DRAINS SHALL BE INSTALLED EVERY 13 FT.

SIDE VIEW
SCALE: NOT TO SCALE

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWN: CL	DATE: 6/29/2016	
CHECKED: MMF	DATE: -	
APP'D:	DATE:	
SCALE: N.T.S.	SHEET: 1 OF 2	
JOB NO.		
PROJECT ID: PXXXX		

Mountain Valley PIPELINE

DESIGN ENGINEERING

TYPICAL CONSTRUCTION DETAIL

SLIDE MITIGATION
HIGHWALL REVETMENT
SIDE VIEW

DRAWING NO.: MVP-44A

REV.: 0

SLIP PREVENTION DETAIL

EROSION AND SEDIMENT CONTROL DETAILS
MOUNTAIN VALLEY PIPELINE PROJECT – HDDD LINE

REVISIONS:

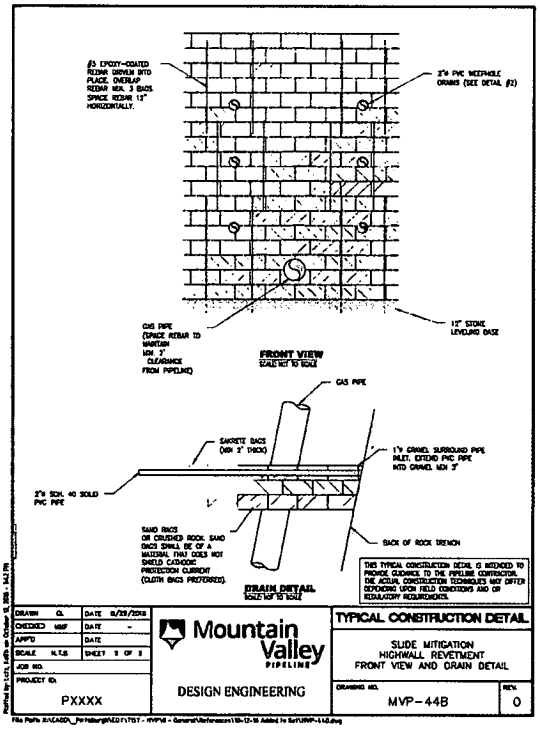
NO.	DATE	APP'D	DESCRIPTION

MOUNTAIN VALLEY PIPELINE, LLC
2200 DUQUESNE BOULEVARD, SUITE 200
CANONSBURG, PA 15317

TETRA TECH
661 ANDERSON DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS

DRAWN BY:	KAL
CHECKED BY:	MT
APPROVED BY:	RS
DATE:	6/15/2016
SCALE:	AS SHOWN
DWG. NO.	0.17
OF	5.21



DRAWN	CL	DATE	8/29/2018
CHECKED	MMF	DATE	-
APP'D		DATE	
SCALE	N.T.S.	SHEET	2 OF 2
JOB NO.			
PROJECT ID:	PXXXX		

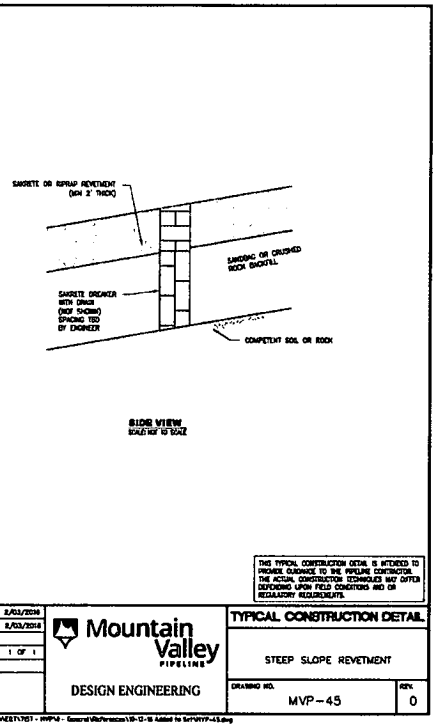
Mountain Valley PIPELINE

DESIGN ENGINEERING

TYPICAL CONSTRUCTION DETAIL

SLIDE MITIGATION
HIGHWALL REVETMENT
FRONT VIEW AND DRAIN DETAIL

DRAWING NO.	REV.
MVP-44B	0



DRAWN	TDD	DATE	8/03/2018
CHECKED	MMF	DATE	8/03/2018
APP'D		DATE	
SCALE	N.T.S.	SHEET	1 OF 1
JOB NO.			
PROJECT ID:	PXXXX		

Mountain Valley PIPELINE

DESIGN ENGINEERING

TYPICAL CONSTRUCTION DETAIL

STEEP SLOPE REVETMENT

DRAWING NO.	REV.
MVP-45	0

SLIP PREVENTION DETAIL

REVISIONS:

NO.	BY	DATE	DESCRIPTION

Mountain Valley PIPELINE

EROSION AND SEDIMENT CONTROL DETAILS
MOUNTAIN VALLEY PIPELINE PROJECT - NS00 LINE

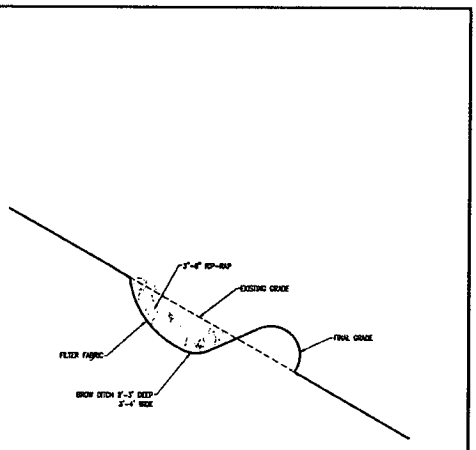
MOUNTAIN VALLEY PIPELINE, LLC
625 LIBERTY AVENUE, SUITE 1700
PITTSBURGH, PA 15222

TETRA TECH

661 ANDERSON DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS.

DRAWN BY:	KDL
CHECKED BY:	MS
APPROVED BY:	MS
DATE:	8/15/2018
SCALE:	AS SHOWN
DWG. NO.	6.15
OF	SLIP



THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS

DRAWN TDO	DATE 7/12/2016	Mountain Valley PIPELINE	TYPICAL CONSTRUCTION DETAIL
CHECKED MAP	DATE 7/13/2016		BROW DITCH DETAIL
APP'D	DATE		
SCALE N.T.S.	SHEET 1 OF 1	DESIGN ENGINEERING	DRAWING NO. MVP-46 REV. 0
JOB NO.			
PROJECT ID PXXXX			

SLIP PREVENTION DETAIL

REVISIONS:

NO.	DATE	DRN	CHKD	APP'D	DESCRIPTION

EROSION AND SEDIMENT CONTROL DETAILS
MOUNTAIN VALLEY PIPELINE PROJECT – WOOD LANE

MOUNTAIN VALLEY PIPELINE, LLC
555 SOUTHPOINTE BOULEVARD, SUITE 200
CANONSBURG, PA 15317

TETRA TECH
661 ANDERSON DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

THIS TYPICAL CONSTRUCTION DETAIL IS INTENDED TO PROVIDE GUIDANCE TO THE PIPELINE CONTRACTOR. THE ACTUAL CONSTRUCTION TECHNIQUES MAY DIFFER DEPENDING UPON FIELD CONDITIONS AND OR REGULATORY REQUIREMENTS

Drawn BY:	KAL
CHECKED BY:	AF
APPROVED BY:	RE
DATE:	2/19/2016
SCALE:	AS SHOWN
SHT. NO.	0.19 OF 0.23

GENERAL CONSTRUCTION SEQUENCE

THE FOLLOWING IS A GENERAL SEQUENCE FOR EARTHMOVING ACTIVITIES ASSOCIATED WITH CONSTRUCTION OF THE PIPELINE:

1. INSTALL TEMPORARY EROSION AND SEDIMENT CONTROLS PRIOR TO EARTH DISTURBANCE. REFER TO BEST MANAGEMENT PRACTICES (BMP) INSTALLATION AND REMOVAL NOTES. APPROPRIATE BMPS SHOULD BE PLACED AROUND SENSITIVE AREAS PRIOR TO EARTH DISTURBANCE. STONE CONSTRUCTION ENTRANCES (SCE) ARE TO BE PROVIDED AT ALL LOCATIONS WHERE ACCESS ROADS AND PIPELINES WILL BE ACCESSING OR CROSSING A PUBLIC ROADWAY.
2. INSTALL TEMPORARY E&S CONTROLS FOR STREAM CROSSINGS AT LOCATIONS SHOWN ON THE E&S PLAN SHEETS. NO EARTH DISTURBANCE ACTIVITIES WITHIN 50 FEET OF STREAM CHANNELS WILL BE PERFORMED UNTIL MATERIALS NEEDED TO COMPLETE THE CROSSING ARE AT THE LOCATION.
3. GENERAL CLEARING AND GRUBBING OF THE TREES AND BRUSH ALONG THE RIGHT-OF-WAY (ROW) FOR PIPELINE TRENCHING MAY COMMENCE TO THE WIDTH SPECIFIED IN THE ROW AGREEMENTS OR CONSTRUCTION ALIGNMENT SHEETS, WHICHEVER IS LESS. SMALLER DEBRIS, SUCH AS BRUSH, ON LANDS, ARE TO BE CHIPPED AND UTILIZED ON-SITE AS PART OF THE SOIL STABILIZATION. UNLESS OTHERWISE DIRECTED BY THE LANDOWNER, LOGS WILL EITHER BE HAULED OFF-SITE OR GIVEN TO THE LANDOWNER UPON THEIR REQUEST. STUMPS AND/OR LOGS WILL BE GROUND, CHIPPED, BROADCAST, OR HAULED OFF-SITE.
4. INSTALL TEMPORARY WATERBARS IMMEDIATELY AFTER INITIAL DISTURBANCE OF THE SOIL IN ACCORDANCE WITH THE WATERBAR SPACING AND SIZING REQUIREMENTS SHOWN ON THE PLAN AND DETAIL SHEETS. WATERBARS WILL BE CONSTRUCTED OF SOIL AND USED TO REDUCE RUNOFF VELOCITY AND DIVERT WATER OFF THE PIPELINE ROW. WATERBARS WILL BE INSTALLED WITH COMPOSITED FILTER SOCK AT THE DISCHARGE END.
5. EXCAVATE PIPELINE TRENCH AND BEGIN GRADING OF PROPOSED METER AND RECTIFIER ANODE BED SITES. THE PROPOSED CONSTRUCTION ROW AND EXTRA WORKSPACE ARE TO BE USED AS A WORK AREA FOR TRENCH EXCAVATION, EQUIPMENT MOVEMENT AND THE TEMPORARY STORAGE OF SOIL STOCKPILES, AS NEEDED. EQUIPMENT, SOIL STOCKPILES AND OTHER MATERIALS ARE TO REMAIN UPSLOPE OF BMPS DURING CONSTRUCTION ACTIVITIES. REFER TO BMP INSTALLATION AND REMOVAL SEQUENCE FOR THE BMPS TO BE USED FOR PROTECTION DURING TRENCH EXCAVATION AND AROUND TEMPORARY SOIL STOCKPILES. SEGREGATION OF TOPSOIL AND SUBSOIL WILL BE PERFORMED WHERE TRENCH EXCAVATION TAKES PLACE IN AN AGRICULTURAL, WETLAND OR RESIDENTIAL AREA.
6. PIPELINE SECTIONS WILL BE TRANSPORTED TO THE WORK AREA AND STRUNG ALONG THE WORKING SIDE OF THE ROW PARALLEL TO THE TRENCH LINE. WELDING CAN OCCUR IN OR OUT OF THE TRENCH. THE PIPELINE WILL BE SENT TO CONFORM TO THE TRENCH CONTOUR, ALIGNED, WELDED AND PLACED ON TEMPORARY SUPPORTS ALONGSIDE THE TRENCH. WELDS WILL BE VISUALLY AND RADIO-GRAPHICALLY INSPECTED AND REPAIRED AS NECESSARY. THE PIPE SECTION WILL BE LOWERED INTO THE TRENCH AND PLACED ON PADDING PER DVP CONSTRUCTION STANDARDS. ANY WATERS ENCOUNTERED DURING CONSTRUCTION WORK WILL BE DEWATERED BY USING PUMPS, HOSES, AND PUMPED FILTER (DEWATERING) BAGS, AND WILL BE DISCHARGED TO A WELL VEGETATED, UPLAND AREA. NO STANDING WATER IS PERMITTED IN PIPE TRENCH AT ANY POINT IN TIME EXCEPT FOR WETLAND AREAS.
7. STREAM PIPELINE CROSSING CONSTRUCTION METHODS WILL BE INSTALLED AT LOCATIONS SHOWN ON THE E&S PLAN SHEETS AND AS SPECIFIED ON DETAIL SHEET. STREAM BANK STABILIZATION WILL BE INSTALLED IMMEDIATELY FOLLOWING COMPLETION OF PIPELINE INSTALLATION AS SHOWN ON THE DETAIL SHEET.
8. INSTALL TRENCH BREAKERS AT LOCATIONS SHOWN ON THE DRAWINGS OR AS DIRECTED BY MVP AND AS SPECIFIED ON THE DETAIL SHEET.
9. THE TRENCH WILL SUBSEQUENTLY BE BACKFILLED WITH SUITABLE EXCAVATED MATERIAL. THE BACKFILL MATERIAL WILL BE SLIGHTLY CROWNED IN UPLAND AREAS TO ALLOW FOR SETTLEMENT THAT MAY OCCUR, CROWNING THE SOIL SLIGHTLY OVER THE PIPELINE WILL HELP PREVENT FUTURE STORM WATER-RELATED PROBLEMS FROM SETTLING OF THE BACKFILLED AREA. NO CROWNING OF SOILS WILL TAKE PLACE IN WETLANDS, STREAMS OR FLOODPLAINS. IN AREAS WHERE TOPSOIL HAS BEEN SEGREGATED, THE SUBSOIL WILL BE REPLACED FIRST, AND THEN THE TOPSOIL WILL BE SPREAD OVER THE AREA FROM WHICH IT WAS REMOVED. DISTURBED AREAS WILL BE RESTORED TO THEIR APPROXIMATE ORIGINAL TOPOGRAPHIC CONTOURS.
10. STABILIZE EXPOSED AND UNWORKED SOILS BY APPLICATION OF EFFECTIVE BMPS THAT PROTECT THE SOIL FROM THE EROSIVE FORCES OF RAINDROPS, FLOWING WATER, AND WIND. AREAS AT FINAL GRADE SHOULD BE SEEDED AND MULCHED OR OTHERWISE STABILIZED WITHIN 7 DAYS AND AREAS THAT WILL NOT BE WORKED AGAIN FOR 21 DAYS OR MORE MUST BE SEEDED AND MULCHED OR OTHERWISE STABILIZED WITHIN 7 DAYS.
11. IN THE UNLIKELY EVENT THAT THERE ARE EXCESS EXCAVATED MATERIALS REMAINING AFTER THE TRENCH HAS BEEN BACKFILLED, THE MATERIAL IS TO BE DISPOSED OF WITHIN THE EXISTING ROW IN AN UPLAND AREA OUTSIDE OF THE 100-YEAR FLOODPLAIN. MATERIAL WILL BE SPREAD IN A THIN LAYER AND TIED INTO EXISTING CONTOURS TO CREATE POSITIVE DRAINAGE FOR STORMWATER RUNOFF.
12. CONSTRUCT PERMANENT WATERBARS AFTER COMPLETION OF GRADING IN ACCORDANCE WITH THE WATERBAR SPACING AND SIZING REQUIREMENTS SHOWN ON PLAN AND DETAIL SHEETS. PERMANENT WATERBARS ARE NOT PERMITTED IN AGRICULTURAL OR PASTURE LANDS.
13. REVEGETATE DISTURBED AREA PER TABLES ON THIS SHEET OR PER LANDOWNER REQUEST. FOR 3:1 OR STEEPER SLOPES THE DISTURBED AREA WILL HAVE EROSION CONTROL FABRIC (BLANKETING, HYDROSEEDING, FLEXTERRA, OR APPROVED EQUAL) INSTALLED AS SHOWN ON DETAIL SHEET. BLANKETING IS NOT PERMITTED IN AGRICULTURAL OR PASTURE LANDS.
14. RE-ESTABLISH APPROPRIATE DRAINAGE IN EXISTING ROAD CHANNELS PRIOR TO SEEDING AND MULCHING.
15. INSPECTION OF ALL EROSION AND SEDIMENTATION CONTROLS WITHIN DISTURBED AREAS WILL BE, AT A MINIMUM, PERFORMED ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCHES PER 24 HOUR PERIOD. REPAIRS OR MAINTENANCE SHALL BE PERFORMED IMMEDIATELY TO BMPS. A FINAL INSPECTION SHALL BE REQUESTED ONCE THERE IS UNIFORM, PERENNIAL 70 PERCENT VEGETATIVE COVERAGE ESTABLISHED. TEMPORARY BMPS WILL BE REMOVED UPON ACHIEVING VEGETATIVE STABILIZATION. THE 70 PERCENT REQUIREMENT REFERS TO THE TOTAL AREA VEGETATED. DISTURBED AREAS NOT ATTAINING A UNIFORM, PERENNIAL 70 PERCENT VEGETATIVE COVERAGE SHALL BE RE-SEEDED AS NEEDED UNTIL UNIFORM, PERENNIAL 70 PERCENT VEGETATIVE COVERAGE IS ESTABLISHED.
16. ALL POLLUTANTS, INCLUDING WASTE MATERIALS AND DEMOLITION DEBRIS THAT OCCUR ON SITE DURING CONSTRUCTION SHALL BE HANDLED AND LEGALLY DISPOSED OF IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF SURFACE WATERS. WOODY DEBRIS MAY BE CHIPPED AND SPREAD ON-SITE.

FOR STREAM CROSSINGS, REFER TO THE FOLLOWING STEPS:

1. INSTALL TEMPORARY EQUIPMENT BRIDGE, BYPASS HOSE, FLUME, PUMP, OR COFFERDAM AS DESCRIBED IN STREAM CROSSING DETAILS WITHIN THE WORK AREA.
2. DEWATER WORK AREA UTILIZING PUMP WATER FILTER BAGS. WHERE POSSIBLE, EXCAVATION WILL BE FROM THE TOP OF THE STREAM BANK. STOCKPILE STREAM BED MATERIAL SEPARATELY FROM OTHER SOILS TO BE USED DURING THE STREAM RESTORATION.
3. INSTALL TRENCH PLUGS, PIPE, AND BACKFILL.
4. STABILIZE CHANNEL EXCAVATION AND STREAM BANKS PRIOR TO REDIRECTING STREAM FLOW. STOCKPILE STREAM BED MATERIAL WILL BE THE LAST MATERIAL RESTORED IN THE STREAM CHANNEL.
5. REMOVE BYPASS HOSE, FLUME, PUMP, AND TEMPORARY DAM AS NEEDED.

IF WORKING WITHIN A WETLAND AREA, FOLLOW THE GENERALIZED CONSTRUCTION SEQUENCE BELOW:

1. INSTALL OTHER SUPER SILT FENCE OR COMPOST FILTER SOCKS ALONG THE PERIMETERS OF THE SITE AS SHOWN ON THE CONSTRUCTION DRAWINGS.
2. MATS, PADS, OR SIMILAR DEVICES WILL BE USED DURING THE CROSSINGS OF WETLANDS. ORIGINAL GRADES THROUGH WETLANDS MUST BE RESTORED AFTER TRENCHING AND BACKFILLING. ANY EXCESS FILL MATERIALS MUST BE REMOVED FROM THE WETLAND AND NOT SPREAD WITHIN WETLANDS.
3. SOIL EXCAVATED FROM WETLAND AREAS WILL BE CAREFULLY REMOVED WITH THE ROOTS INTACT. THIS SOIL SHOULD BE PLACED IN A SEPARATE STOCKPILE TO BE REUSED DURING THE WETLAND SURFACE RESTITUTION.
4. DEWATER WORK AREA UTILIZING PUMP WATER FILTER BAGS.

BMP MAINTENANCE

- TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL BMPS SHALL BE MAINTAINED AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. MAINTENANCE AND REPAIR SHALL BE CONDUCTED IN ACCORDANCE AS STATED IN WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, DIVISION OF WATER AND WASTE MANAGEMENT, EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL, 2006.
- IN NON-AGRICULTURAL AREAS THE VISUAL SURVEY SHALL BE COMPARED TO THE DENSITY AND COVER OF ADJACENT UNDISTURBED LANDS. IN AGRICULTURAL AREAS, THE VISUAL SURVEY SHALL BE COMPARED TO THE ADJACENT UNDISTURBED PORTIONS OF THE SAME FIELD, UNLESS THE EASEMENT AGREEMENT SPECIFIES OTHERWISE.
- WETLANDS ALONG THE PROPOSED PIPELINE ARE EXPECTED TO EXHIBIT VARYING DEGREES OF SATURATION AND WATER ELEVATION, REQUIRING A VARIETY OF PLANT SPECIES TO BE RE-ESTABLISHED. IN UNSATURATED WETLANDS, WOODY VEGETATION WILL BE REPLACED BY SEEDING. SATURATED WETLANDS WILL TYPICALLY BE ALLOWED TO RE-VEGETATE NATURALLY. WETLAND REVEGETATION WILL BE CONSIDERED SUCCESSFUL WHEN THE COVER OF HERBACEOUS AND/OR WOODY SPECIES IS AT LEAST 80 PERCENT OF THE TYPE, DENSITY, AND DISTRIBUTION OF THE VEGETATION IN ADJACENT WETLAND AREAS THAT WERE NOT DISTURBED BY CONSTRUCTION. REVEGETATION EFFORTS WILL CONTINUE UNTIL WETLAND REVEGETATION IS SUCCESSFUL.
- INSPECTION OF ALL EROSION AND SEDIMENTATION CONTROLS WITHIN DISTURBED AREAS WILL BE, AT A MINIMUM, PERFORMED ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT EQUAL TO OR GREATER THAN 0.5 INCHES PER 24 HOUR PERIOD. REPAIRS OR MAINTENANCE SHALL BE PERFORMED IMMEDIATELY TO BMPS. A FINAL INSPECTION SHALL BE REQUESTED ONCE THERE IS UNIFORM, PERENNIAL 70 PERCENT VEGETATIVE COVERAGE ESTABLISHED. TEMPORARY BMPS WILL BE REMOVED UPON ACHIEVING VEGETATIVE STABILIZATION. THE 70 PERCENT REQUIREMENT REFERS TO THE TOTAL AREA VEGETATED AND NOT A PERCENT OF THE SITE. DISTURBED AREAS NOT ATTAINING A UNIFORM, PERENNIAL 70 PERCENT VEGETATIVE COVERAGE SHALL BE RE-SEEDED AS NEEDED UNTIL UNIFORM, PERENNIAL 70 PERCENT VEGETATIVE COVERAGE IS ESTABLISHED.
- TEMPORARY EROSION AND SEDIMENT CONTROL BMPS SHOULD BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY BMPS ARE NO LONGER NEEDED. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON SITE. DISTURBED SOIL RESULTING FROM REMOVAL OF BMPS OR VEGETATION SHALL BE PERMANENTLY STABILIZED.

REFERENCES

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, DIVISION OF WATER AND WASTE MANAGEMENT, EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL, 2006.

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS,WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD MANUAL, MAY 2012.

RECOMMENDED PERMANENT AND TEMPORARY SEED MIXTURES AND FERTILIZER/MULCH FOR REVEGETATION OF UPLAND AREAS

ITEM	UPLANDS	
PERMANENT SEED AND MULCH APPLICATION RATES		
Seed [1]	Kentucky 31 tall fescue	65 pounds per acre
Seed [1]	Empire Birdsfoot Trefoil (1/2 Empire, 1/2 Viking)	5 pounds per acre of inoculated seed
Seed [1]	Redtop	20 pounds per acre
Lime	Agricultural Grade (Pellet Form)	2 Tons per acre without a soil test
Fertilizer	10-20-20	1/2 ton per acre
Mulch	Grass Hay or Cereal Straw	3 tons per acre
TEMPORARY SEED AND MULCH APPLICATION RATES		
Seed [1]	Annual Ryegrass	40 pounds per acre
Mulch	Grass Hay or Cereal Straw	3 tons per acre

REVEGETATION OF WETLAND AREAS

NOTES
1 ALL SEED IS PURE LIVE SEED.
2 UNLESS OTHERWISE REQUESTED BY LANDOWNER IN R.O.W.

ITEM	WETLANDS*	
Seed [1]	Annual Ryegrass	46 pounds per acre

NOTES
1 ALL SEED IS PURE LIVE SEED.
2 DO NOT APPLY MULCH, FERTILIZER, OR LIME IN WETLAND AREAS.

ALTERNATE PERMANENT SEED MIXTURES

ITEM	ALTERNATE NO. 1	
PERMANENT SEED AND MULCH APPLICATION RATES		
Seed [1]	Alsike	18 pounds per acre
Seed [1]	Clover	5 pounds per acre

ITEM	ALTERNATE NO. 2	
PERMANENT SEED APPLICATION RATES		
Seed [1]	Orchard Grass	30 pounds per acre
Seed [1]	Clover	5 pounds per acre

ITEM	ALTERNATE NO. 3 - WILDLIFE SEED MIX	
PERMANENT SEED APPLICATION RATES		
Seed [1]	ERNSX - 250 PA Piedmont Province UPL Mix 25% Indiangrass 25% Little Bluestem 20% Virginia Wildrye 7% Big Bluestem 7% Partridge 7% Switchgrass 1% Deertongue 1% Purple Lovegrass	20 pounds per acre

NOTES
1 ALL SEED IS PURE LIVE SEED.
2 CONTRACTOR TO USE ALTERNATE SEED MIXTURES PER LANDOWNER REQUEST DOCUMENTATION PROVIDED BY MVP.

REVISIONS:

NO.	BY	DATE	DESCRIPTION
1	MSB	12/6/13	APPLY

GENERAL NOTES AND LEGEND
MOUNTAIN VALLEY PIPELINE PROJECT - MOD LINE
WEXFORD COUNTY, PENNSYLVANIA MONROE COUNTY, WEST VIRGINIA

MOUNTAIN VALLEY PIPELINE, LLC
625 LIBERTY AVENUE, SUITE 1700
PITTSBURGH, PA 15222

TETRA TECH
661 ANDERSON DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

CONSTRUCTION PLANS

DRAWN BY	KAL
CHECKED BY	MS
APPROVED BY	MS
DATE	5/13/2013
SCALE	AS SHOWN
DWG. NO.	5.00 OF 5.01

BEST MANAGEMENT PRACTICES (BMP) INSTALLATION & REMOVAL NOTES

TEMPORARY AND PERMANENT BMPS WILL BE USED DURING CONSTRUCTION ACTIVITIES TO AVOID AND/OR MINIMIZE ADVERSE ENVIRONMENTAL EFFECTS OF CONSTRUCTION ACTIVITIES.

THE FOLLOWING ARE GENERAL BMP INSTALLATION NOTES FOR PIPELINE CONSTRUCTION ACTIVITIES.

- A STONE CONSTRUCTION ENTRANCE, SHOWN ON DETAIL SHEET, SHALL BE PROVIDED AT ALL LOCATIONS WHERE CONSTRUCTION TRAFFIC WILL BE ACCESSING A PAVED ROAD DIRECTLY FROM A DISTURBED AREA.
- TEMPORARY SEDIMENT BARRIERS, INCLUDING APPROPRIATELY SIZED SILT FENCE OR COMPOST FILTER SOCK WILL BE PLACED AROUND SOIL STOCKPILES, AS NEEDED.
- APPROPRIATELY SIZED COMPOST FILTER SOCK WILL BE PLACED AROUND WETLANDS AND WATERBODIES IN AND ADJACENT TO THE WORK AREA PRIOR TO ANY TRENCHING ACTIVITIES.
- STOCKPILE SLOPES WILL BE 2:1 OR FLATTER, AND STOCKPILES WILL NOT EXCEED 35 FEET IN HEIGHT.
- TEMPORARY STREAM CROSSINGS SHALL BE INSTALLED AS INDICATED ON THE E&S PLAN SHEETS AND AS PER THE E&S DETAIL SHEETS.
- EXCAVATED TRENCH SPOIL MATERIAL WILL BE USED FOR TEMPORARY RIGHT OF WAY DIVERSIONS AS SHOWN IN THE DETAIL AT THE LOCATIONS INDICATED ON THE PLAN SHEETS.
- WATERBARS WILL BE INSTALLED IMMEDIATELY AFTER INITIAL DISTURBANCE OF THE SOIL OR IN ACCORDANCE WITH THE SPACING AND SIZING REQUIREMENTS SHOWN ON PLAN AND DETAIL SHEET. WATERBARS WILL BE CONSTRUCTED OF SOIL TO REDUCE RUNOFF VELOCITY AND DIVERT WATER OFF THE PIPELINE ROW.
- TRENCH DEWATERING, IF NEEDED, WILL BE CONDUCTED USING A PUMP AND HOSE. WATER WILL BE RELEASED INTO A FILTER BAG THAT WILL BE LOCATED IN A WELL-VEGETATED UPLAND AREA.
- TRENCH BREAKERS WILL BE INSTALLED ON SLOPES ADJACENT TO STREAMS, WETLANDS, AND ROAD CROSSINGS TO PREVENT SUBSURFACE EROSION. TRENCH BREAKERS WILL BE INSTALLED AS SHOWN ON THE DETAILS.
- THE WORK AREA WILL BE BACKFILLED FOLLOWING PIPELINE INSTALLATION OR OTHER EXCAVATION WORK. IN AREAS WHERE TOPSOIL HAS BEEN SEGREGATED, THE SUBSOIL WILL BE REPLACED FIRST, AND THEN THE TOPSOIL WILL BE SPREAD ONCE THE AREA FROM WHICH IT WAS REMOVED. DISTURBED AREAS WILL BE RESTORED TO THEIR ORIGINAL TOPOGRAPHIC CONTOURS.
- PERMANENT WATERBARS WILL BE CONSTRUCTED WITH A TWO PERCENT (TYPICAL) OUTSLOPE TO DIVERT SURFACE FLOW TO A WELL VEGETATED STABLE AREA.
- IMMEDIATELY FOLLOWING BACKFILLING ALL DISTURBED AREAS WILL BE GRADED IN PREPARATION FOR SEEDING AND MULCHING. THE CONSTRUCTION SITE SHOULD BE STABILIZED AS SOON AS POSSIBLE AFTER COMPLETION. ESTABLISHMENT OF FINAL COVER MUST BE INITIATED NO LATER THAN 7 DAYS AFTER REACHING FINAL GRADE. REFER TO TABLES ON THIS SHEET FOR TEMPORARY AND PERMANENT SEEDING SPECIFICATIONS.
- FOR 3:1 OR STEEPER SLOPES THE DISTURBED AREA WILL HAVE EROSION CONTROL BLANKETING INSTALLED AS INDICATED ON DETAIL SHEET.
- TEMPORARY SEDIMENT BARRIERS WILL BE MAINTAINED, UNTIL VEGETATION HAS BECOME ESTABLISHED WITH A UNIFORM COVERAGE OF DENSITY OF 70 PERCENT OR MORE WITHIN THE DISTURBED ROW. ONCE THIS COVERAGE HAS BEEN OBTAINED, APPROPRIATE CONTROLS WILL BE REMOVED FROM THE WORK AREA. AREAS DISTURBED DURING THE REMOVAL OF THE EROSION CONTROLS WILL BE STABILIZED IMMEDIATELY. THE 70 PERCENT REQUIREMENT REFERS TO THE TOTAL AREA VEGETATED AND NOT A PERCENT OF THE SITE.
- ALL WASTE MATERIAL WILL BE TRANSPORTED OFFSITE FOR RECYCLING AND/OR DISPOSAL AT A FACILITY APPROVED TO RECEIVE THE MATERIAL.
- IN NON-AGRICULTURAL AREAS THE VISUAL SURVEY SHALL BE COMPARED TO THE DENSITY AND COVER OF ADJACENT UNDISTURBED LANDS. IN AGRICULTURAL AREAS, THE VISUAL SURVEY SHALL BE COMPARED TO THE ADJACENT UNDISTURBED PORTIONS OF THE SAME FIELD, UNLESS THE EASEMENT AGREEMENT SPECIFIES OTHERWISE.
- WETLANDS ALONG THE PROPOSED PIPELINE ARE EXPECTED TO EXHIBIT VARYING DEGREES OF SATURATION AND WATER ELEVATION, REQUIRING A VARIETY OF PLANT SPECIES TO BE RE-ESTABLISHED. IN UNSATURATED WETLANDS, MOST VEGETATION WILL BE REPLACED BY SEEDING. SATURATED WETLANDS WILL TYPICALLY BE ALLOWED TO RE-VEGETATE NATURALLY. WETLAND REVEGETATION WILL BE CONSIDERED SUCCESSFUL WHEN THE COVER OF HERBACEOUS AND/OR WOODY SPECIES IS AT LEAST 80 PERCENT OF THE TYPE, DENSITY, AND DISTRIBUTION OF THE VEGETATION IN ADJACENT WETLAND AREAS THAT WERE NOT DISTURBED BY CONSTRUCTION. REVEGETATION EFFORTS WILL CONTINUE UNTIL WETLAND REVEGETATION IS SUCCESSFUL.

STREAM CROSSING PROCEDURES

GENERAL PROCEDURES

PROCEDURES THAT WILL BE FOLLOWED AT STREAM CROSSING LOCATIONS INCLUDE THE FOLLOWING:

- MINIMIZE CLEARING AND GRUBBING OF VEGETATION UP TO STREAMS, AS POSSIBLE, UNTIL THE TIME OF THE PIPELINE INSTALLATION;
- ONLY THAT AREA WHICH IS REQUIRED FOR PIPELINE INSTALLATION SHALL BE DISTURBED WITHIN THE PROPOSED LIMIT OF DISTURBANCE OR RIGHT-OF-WAY AT STREAM CROSSINGS; LOCATING STAGING AREAS 50 FEET AWAY FROM THE STREAM, WHERE POSSIBLE;
- STORING CHEMICALS, STORING EQUIPMENT, WASHING EQUIPMENT, OR REFUELING EQUIPMENT MUST BE DONE IN AREAS THAT ARE GREATER THAN 100 FEET AWAY FROM THE STREAM;
- SPOIL PILE PLACEMENT AND BMPS WILL BE MONITORED AT ALL TIMES DURING STREAM CROSSING PROCEDURES; ONCE WORK WITHIN A STREAM AREA IS STARTED, IT WILL BE CONDUCTED CONTINUOUSLY TO COMPLETION; EXPOSED WILL BE PLACED ON NONERODING TYPE OF DISTURBANCE;
- SPOILS FROM STREAM CROSSINGS MUST BE PLACED AT LEAST 10 FEET FROM THE WATER'S EDGE; AND
- CONSTRUCTION EQUIPMENT WILL NOT BE ALLOWED IN THE STREAM CHANNEL WHEN EXCAVATION CAN BE DONE FROM EITHER SIDE OR A TEMPORARY CROSSING WHILE WORKING AT THE STREAM CROSSING.
- SOME OF THE WATERSHEDS CROSSED BY THE PROJECT ARE CLASSIFIED AS WARM WATER OR TROUT STREAMS. REFER TO TABLES IN ATTACHMENT 3 OF THE NARRATIVE FOR A LISTING OF THE STREAMS. IN-STREAM WORK DESIGNATED WARM WATER STREAMS AND THEIR ADJACENT TRIBUTARIES IS RESTRICTED DURING THE FISH SPAWNING SEASON OF APRIL 15 - JUNE 30. IN-STREAM WORK IN DESIGNATED TROUT WATER AND THEIR ADJACENT TRIBUTARIES IS RESTRICTED DURING THE SPAWNING SEASON (SEPTEMBER 16 - MARCH 31ST UNLESS A SPAWNING SEASON WAIVER IS GRANTED FROM THE WEST VIRGINIA DIVISION OF NATURAL RESOURCES). WILDLIFE RESOURCES SECTION. IN STREAM WORK MAY OCCUR DURING THE RESPECTIVE SPAWNING SEASON EPHEMERAL WATERS WITHOUT A WAIVER IF ALL REASONABLE MEASURES ARE TAKEN TO MINIMIZE TURBIDITY AND SEDIMENTATION DOWNSTREAM ASSOCIATED WITH THE PROPOSED PROJECT.

THE FOLLOWING SECTIONS DESCRIBE STREAM CROSSING TECHNIQUES THAT MAY BE USED DURING PIPELINE RELOCATION/INSTALLATION ACTIVITIES. REFER TO THE DETAIL SHEETS AND SWPPP FOR ADDITIONAL INFORMATION.

DRY CROSSING TECHNIQUES:

"DRY" TECHNIQUES WILL BE USED TO PERFORM PIPELINE WORK IN A RELATIVELY DRY WORKING CONDITION OR AROUND THE OPEN EXCAVATION. THESE TECHNIQUES INCLUDE PUMP AROUND AND FLUME PIPE CROSSING METHODS. THE LIMITING FACTORS FOR THESE TECHNIQUES ARE USUALLY STREAM SIZE, FLOW, AND WATER DEPTH.

DIRECTIONAL BORING IS ALSO A TECHNIQUE THAT CAN BE UTILIZED AS IT WILL LESSEN THE IMPACTS ON THE WATERBODIES.

E&S CONTROL MEASURES WILL BE INSTALLED PRIOR TO ANY EARTH DISTURBANCE AND ADDRESSED IF NECESSARY IMMEDIATELY AFTER DISTURBANCE OF THE WATERBODY.

FLUME PIPE METHOD: PLEASE SEE DETAIL SHEETS AND SWPPP FOR MORE INFORMATION ON THE FLUME PIPE METHOD. THIS PROCEDURE INVOLVES CONSTRUCTING TWO BULKHEADS, EITHER SANDBAGS OR PLASTIC DAMS, TO DIRECT THE STREAM FLOW THROUGH A FLUME PIPE PLACED OVER THE TRENCH PRIOR TO EXCAVATION. THE FLUME SHALL BE SIZED AS TO PREVENT BANK EROSION AND BED SCOUR. THE FLUME WILL NOT BE REMOVED DURING TRENCHING, PIPE LAYING OR BACKFILLING.

PUMP AROUND METHOD: PLEASE SEE THE DETAIL SHEETS AND SWPPP FOR MORE INFORMATION ON THE PUMP AROUND METHOD. THIS PROCEDURE INVOLVES CONSTRUCTING TWO BULKHEADS, EITHER SANDBAGS OR PLASTIC DAMS. THE UPSTREAM DAM WILL CAUSE THE WATER TO POND WHERE IT CAN BE PUMPED AROUND THE WORK AREA AND BE DISCHARGED BEHIND THE DOWNSTREAM BULKHEAD. PUMPS OF SUFFICIENT SIZE TO TRANSMIT THE FLOW DOWNSTREAM WILL BE USED. BACKUP PUMPS MUST BE ON-SITE. PUMP INTAKES MUST BE SCREENED. PUMP DISCHARGES MUST NOT CAUSE SCOUR.

TEMPORARY ROAD CROSSINGS:

TEMPORARY ROAD CROSSINGS, CONSISTING OF BRIDGES OF TIMBER MATS OR CLEAN ROCK FILL AND FLUMED TO, WILL BE INSTALLED TO CROSS MINOR OR INTERMEDIATE STREAMS. TIMBER MATS SHALL BE USED TO CROSS SMALLER STREAMS WHERE THE SPAN OF THE MAT WILL STRETCH FROM BANK TO BANK, OTHERWISE IN STREAM SUPPORTS MAY BE INSTALLED. CLEAN ROCK FILL AND FLUMED CROSSINGS WILL BE UTILIZED WHERE IT IS NOT FEASIBLE TO UTILIZE TIMBER MATS. AS AN ALTERNATIVE, PORTABLE BRIDGES MAY BE USED INSTEAD FOR SMALL CROSSINGS. EQUIPMENT WILL NOT BE ALLOWED TO FORD FLOWING STREAMS DURING CONSTRUCTION ACTIVITIES. TEMPORARY ROAD CROSSINGS OF STREAMS MUST MAINTAIN FOR ADEQUATE FLOW DOWNSTREAM.

STREAM BANK STABILIZATION:

PERMANENT STABILIZATION SHALL OCCUR IMMEDIATELY UPON INSTALLATION, BACKFILLING, AND GRADING AT EACH STREAM CROSSING.

LEGEND

- EXISTING CONTOUR (MAJOR)
- EXISTING CONTOUR (MINOR)
- EXISTING PROPERTY LINE
- EXISTING COUNTY LINE
- EXISTING ROAD
- EXISTING UTILITY POLE
- EXISTING GUY ANCHOR
- EXISTING GAS VALVE
- EXISTING GAS WELL
- EXISTING WATER WELL
- EXISTING UNKNOWN WELL
- EXISTING GATE POST
- EXISTING GATE POST
- FEMA 100 YEAR FLOODPLAIN
- EXISTING STREAM
- EXISTING WETLAND
- EXISTING FENCE
- EXISTING WATERLINE
- EXISTING COLUMBIA GAS PIPELINE
- EXISTING MOUNTAINEER GAS PIPELINE
- EXISTING REX GAS PIPELINE
- EXISTING EQT GAS PIPELINE
- EXISTING EAST RESOURCES GAS PIPELINE
- EXISTING DOMINION GAS PIPELINE
- EXISTING UNKNOWN GAS PIPELINE
- EXISTING OVERHEAD ELECTRIC
- PROPOSED CONTOUR (MAJOR)
- PROPOSED CONTOUR (MINOR)
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED ACCESS ROAD CENTERLINE
- PROPOSED PIPELINE
- PROPOSED SILT FENCE (SEE NOTE 6)
- PROPOSED SUPER SILT FENCE
- ORANGE CONSTRUCTION SAFETY FENCE
- PROPOSED COMPOST FILTER SOCK
- PROPOSED REINFORCED FILTRATION DEVICE
- PROPOSED TEMPORARY RIGHT OF WAY DIVERSION AND OUTLET
- PROPOSED CULVERT WITH OUTLET PROTECTION
- TIMBER MAT
- STEEP SLOPE EROSION CONTROL (SEE NOTE 3)
- STEEP SLOPE (SEE NOTE 5)
- PROPOSED WATERBAR
- PROPOSED WATERBAR TEMP
- PROPOSED TRENCH PLUG
- PROPOSED ROCK CONSTRUCTION ENTRANCE
- ROCK CHECK DAM

ACCESS ROAD LEGEND

1. ROCK CONSTRUCTION ENTRANCE
2. WETLAND CROSSING
3. STREAM CROSSING

NOTES:

1. WATERWAYS WITHIN AGRICULTURAL AREAS SHALL BE USED AS TEMPORARY FEATURES.
2. NO EROSION CONTROL MATTING SHALL BE INSTALLED IN AGRICULTURAL AREAS.
3. FLEXTERRA OR EQUIVALENT MAT BE USED AS A SUBSTITUTE TO EROSION CONTROL BLANKET AS DIRECTED BY MVP.
4. CONTRACTOR IS RESPONSIBLE TO IDENTIFY ALL UTILITIES. THE UTILITY LINES SHOWN ON THE PLAN ARE FOR INFORMATIONAL PURPOSES ONLY AND DO NOT REPRESENT SURVEYED LINE INFORMATION.
5. SLOPES OF 30' OR GREATER EXIST. CONSTRUCTION FOR STEEP SLOPES TO BE PERFORMED USING STEEP SLOPE TECHNIQUES IDENTIFIED IN THE DETAIL SHEETS.
6. WHERE CONSTRUCTION CONDITIONS PRECLUDE THE USE OF DIVERSION DITCHES DUE TO SITE CONDITIONS THE CONTRACTOR WILL INSTALL SILT FENCE AT THE DIRECTION OF MVP.
7. IMPROVEMENTS TO PERMANENT AND TEMPORARY ACCESS ROADS WILL BE PERFORMED AS NEEDED AND BMP'S MAY BE SUBSTITUTED BY FIELD EVALUATIONS REQUIRE ADJUSTMENTS TO ACCOMMODATE FIELD VERIFIED CONDITIONS.

REVISIONS:

NO.	BY	DATE	DESCRIPTION
1	KDS	2/16/2016	PER COMMENTS

GENERAL NOTES AND LEGEND
MOUNTAIN VALLEY PIPELINE PROJECT - MOD2 LINE
WEXFORD, COUNTY, MCKEAN MORRIS COUNTY, NJ23 WV2004

MOUNTAIN VALLEY PIPELINE, LLC
555 SOUTHPOINT BOULEVARD, SUITE 200
CANONSBURG, PA 15317

TETRA TECH
661 ANDERSON DRIVE
FOSTER PLAZA 7
PITTSBURGH, PA 15220

CONSTRUCTION PLANS

DRAWN BY:	KDL
CHECKED BY:	MT
APPROVED BY:	RE
DATE:	2/16/2016
SCALE:	AS SHOWN
SHT. NO.	6.01 OF 6.01

Gmail George Eidel <doddridgecountyfpm@gmail.com>

MVP Floodplain Permit Application

3 messages

George Eidel <doddridgecountyfpm@gmail.com> Thu, May 12, 2022 at 1:40 PM
To: "Hoover, Matthew S." <MHoover@equitransmidstream.com>

Matt,

Good afternoon, I am just following up to see if you have sent out a hard copy of the floodplain application to renew for the MVP. I received the check but not the application.

George

--

George C. Eidel, CFM, OEM Director/Floodplain Manager

Doddridge County Office of Emergency Management
101 Church Street Suite 102
West Union, WV 26456-2095
Work Phone:1-304-873-1343
Mobile Phone: 1-304-281-7407
Fax: 1-304-873-1840
doddridgecountyfpm@gmail.com
--

Hoover, Matthew S. <MHoover@equitransmidstream.com> Thu, May 12, 2022 at 2:14 PM
To: George Eidel <doddridgecountyfpm@gmail.com>

Yes – I've asked it to be FedEx today. You should have it tomorrow or Monday. Sorry for the delay.

From: George Eidel <doddridgecountyfpm@gmail.com>
Sent: Thursday, May 12, 2022 1:40 PM
To: Hoover, Matthew S. <MHoover@equitransmidstream.com>
Subject: [EXTERNAL] MVP Floodplain Permit Application

[Quoted text hidden]

George Eidel <doddridgecountyfpm@gmail.com> Thu, May 12, 2022 at 2:25 PM
To: "Hoover, Matthew S." <MHoover@equitransmidstream.com>

No problem, thanks for the update.

[Quoted text hidden]

Gmail George Eidel <doddridgecountyfpm@gmail.com>

Mountain Valley Floodplain Renewal

6 messages

Hoover, Matthew S. <MHoover@equitransmidstream.com> Mon, Apr 11, 2022 at 2:51 PM
To: George Eidel <doddridgecountyfpm@gmail.com>
Cc: "Ashbaugh, Colleen (Contractor)" <CAshbaugh@equitransmidstream.com>

Good Afternoon George,

Hope all is well!

I'm writing to request a renewal of Mountain Valley's floodplain permit in Doddridge County. It is set to expire in May, 2022. Due to permitting constraints the crossings will not be completed by May.

Is there any additional information you need to renew the permit?

Matt Hoover

Environmental Permitting Supervisor

2200 Energy Drive, 2nd Floor

Canonsburg, PA 15317

(412) 258-5627

Doddridge County Floodplain Approval May 2021.pdf
347K

George Eidel <doddridgecountyfpm@gmail.com> Mon, Apr 11, 2022 at 2:59 PM
To: "Hoover, Matthew S." <MHoover@equitransmidstream.com>

Matt,

Not a problem, I will need you to resend a new permit (basically the same one) I will give it a new number and get it through the system. You can email me one and hard copy me the other along with the fees. I will attach a fee schedule. Let me know if you have any questions.

George

[Quoted text hidden]

--

George C. Eidel, CFM, OEM Director/Floodplain Manager

Doddridge County Office of Emergency Management
101 Church Street Suite 102
West Union, WV 26456-2095
Work Phone:1-304-873-1343
Mobile Phone: 1-304-281-7407

Fax: 1-304-873-1840
doddridgecountyfpm@gmail.com
--

2 NEW Floodplain Permit FEES.pdf
107K

Hoover, Matthew S. <MHoover@equitransmidstream.com> Fri, May 6, 2022 at 1:03 PM
To: George Eidel <doddridgecountyfpm@gmail.com>

Hey George,

I've attached the new permit request. You should receive the check within the next few days.

Let me know if you need anything else.

Thanks,
Matt

From: George Eidel <doddridgecountyfpm@gmail.com>
Sent: Monday, April 11, 2022 2:59 PM
To: Hoover, Matthew S. <MHoover@equitransmidstream.com>
Subject: [EXTERNAL] Re: Mountain Valley Floodplain Renewal

[Quoted text hidden]

Doddridge County Floodplain Renewal_2022.pdf
427K

George Eidel <doddridgecountyfpm@gmail.com> Fri, May 6, 2022 at 1:25 PM
To: "Hoover, Matthew S." <MHoover@equitransmidstream.com>

Is a hard copy of the permit application going to be sent as well? I will need it to process it.
[Quoted text hidden]

Hoover, Matthew S. <MHoover@equitransmidstream.com> Fri, May 6, 2022 at 1:44 PM
To: George Eidel <doddridgecountyfpm@gmail.com>

Yes sir. I'll get it in the mail.

[Quoted text hidden]

George Eidel <doddridgecountyfpm@gmail.com> Fri, May 6, 2022 at 1:56 PM

To: "Hoover, Matthew S." <MHoover@equitransmidstream.com>

Great, thanks!

[Quoted text hidden]

INVOICE

The Herald Record LLC
177 MAIN STREET
WEST UNION,WV 26456
United States

Phone:304-873-1600
Fax: 304-666-1017
Mobile: 304-266-2247
TheHeraldRecord.com

Doddridge County OFFICE OF EMERGENCY MANAGEMENT
101 Church Street
West Union, West Virginia 26456
United States

Invoice Number: 3773
Invoice Date: June 6, 2022
Payment Due: June 6, 2022
Amount Due (USD): **$50.71**

Items	Quantity	Price	Amount
Class II Floodplain Permit # 22-616 Run dates: 5/25/22 & 6/1/22	1	$50.71	$50.71
		Total:	$50.71
		Amount Due (USD) :	**$50.71**

George C. Ewell
6/9/22

Doddridge County Floodplain Permits
(Week of May 16, 2022)

Please take notice that on the **(16th)** of **(May), 2022, (Mountain Valley Pipeline, LLC)** filed an application for a Floodplain Permit **(#22-616)** to develop land located at or about **(3532 Big Issac Road). Coordinates: 39.201016, -80.553280.** The Application is on file with the Floodplain Manager of the County and may be inspected or copied during regular business hours in accordance to WV Code Chapter 29B Freedom of Information, Article 1 Public Records and county policy and procedures. Any interested persons who desire to comment shall present the same in writing by **(June 27, 2022)** (20 calendar days after the announcement at the regularly scheduled Doddridge County Commission Meeting) delivered to the Floodplain Manager of the County at 105 Court Street, Suite #3, West Union, WV 26456. **This project is for the renewal of permit #19-562 & 21-594, Mountain Valley Pipeline**

S/George C. Eidel, CFM
Doddridge County Floodplain Manager

STATE of WEST VIRGINIA;
COUNTY OF DODDRIDGE, TO WIT:

I, Tamela B. Beamer, Editor of THE HERALD RECORD, a certified weekly newspaper published regularly in Doddridge County, West Virginia, DO Hereby Certify Upon Oath that the accompanying Legal Notice entitled:

D C Office of Emergency Services
Flood Plain Permit # 22-616 MVP

was published in said paper for 2 successive weeks beginning with the issue of 5/25, 2022 and ending with the issue of 6/1, 2022 that contains 252 word space at .115 cents per word and amounts to the sum of $ 28.98 FOR THE FIRST PUBLICATION.

SECOND PUBLICATION IS 75% OF THE FIRST PUBLICATION and each other publication thereafter$ 21.73 for the TOTAL OF: $ 50.71.

Editor,

Tamela B. Beamer

SWORN TO AND SUBSCRIBED BEFORE ME THIS THE 1st day of July, 2022.

NOTARY PUBLIC

Alice A. Fultz

George C Eidel
6/9/22

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
Alice A. Fultz
826 Crystal Lake Rd.
West Union, WV 26456
My Commission Expires October 11, 20[illegible]

Doddridge County Floodplain Permits
(Week of May 16, 2022)

Please take notice that on the **(16th)** of **(May), 2022, (Mountain Valley Pipeline, LLC)** filed an application for a Floodplain Permit **(#22-616)** to develop land located at or about **(3532 Big Issac Road). Coordinates: 39.201016, -80.553280.** The Application is on file with the Floodplain Manager of the County and may be inspected or copied during regular business hours in accordance to WV Code Chapter 29B Freedom of Information, Article 1 Public Records and county policy and procedures. Any interested persons who desire to comment shall present the same in writing by **(June 27, 2022)** (20 calendar days after the announcement at the regularly scheduled Doddridge County Commission Meeting) delivered to the Floodplain Manager of the County at 105 Court Street, Suite #3, West Union, WV 26456. **This project is for the renewal of permit #19-562 & 21-594, Mountain Valley Pipeline**

S/George C. Eidel, CFM
Doddridge County Floodplain Manager

STATE of WEST VIRGINIA;
COUNTY OF DODDRIDGE, TO WIT:

I, Tamela B. Beamer, Editor of THE HERALD RECORD, a certified weekly newspaper published regularly in Doddridge County, West Virginia, DO Hereby Certify Upon Oath that the accompanying Legal Notice entitled:

D C Office of Emergency Services
Flood Plain Permit # 22-616 MVP

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Editor,

Tamela B. Beamer

SWORN TO AND SUBSCRIBED BEFORE ME THIS THE 1st day of July, 2022.

NOTARY PUBLIC

Alice A. Fultz

George C Eidel
6/9/22

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
Alice A. Fultz
[illegible] Crystal Lake Rd.
West Union, WV 26456
My Commission Expires October 11, 20[illegible]

Gmail

George Eidel <doddridgecountyfpm@gmail.com>

FW: Doddridge County FP permit

2 messages

Hoover, Matthew S. <MHoover@equitransmidstream.com>
To: George Eidel <doddridgecountyfpm@gmail.com>

Hey George,

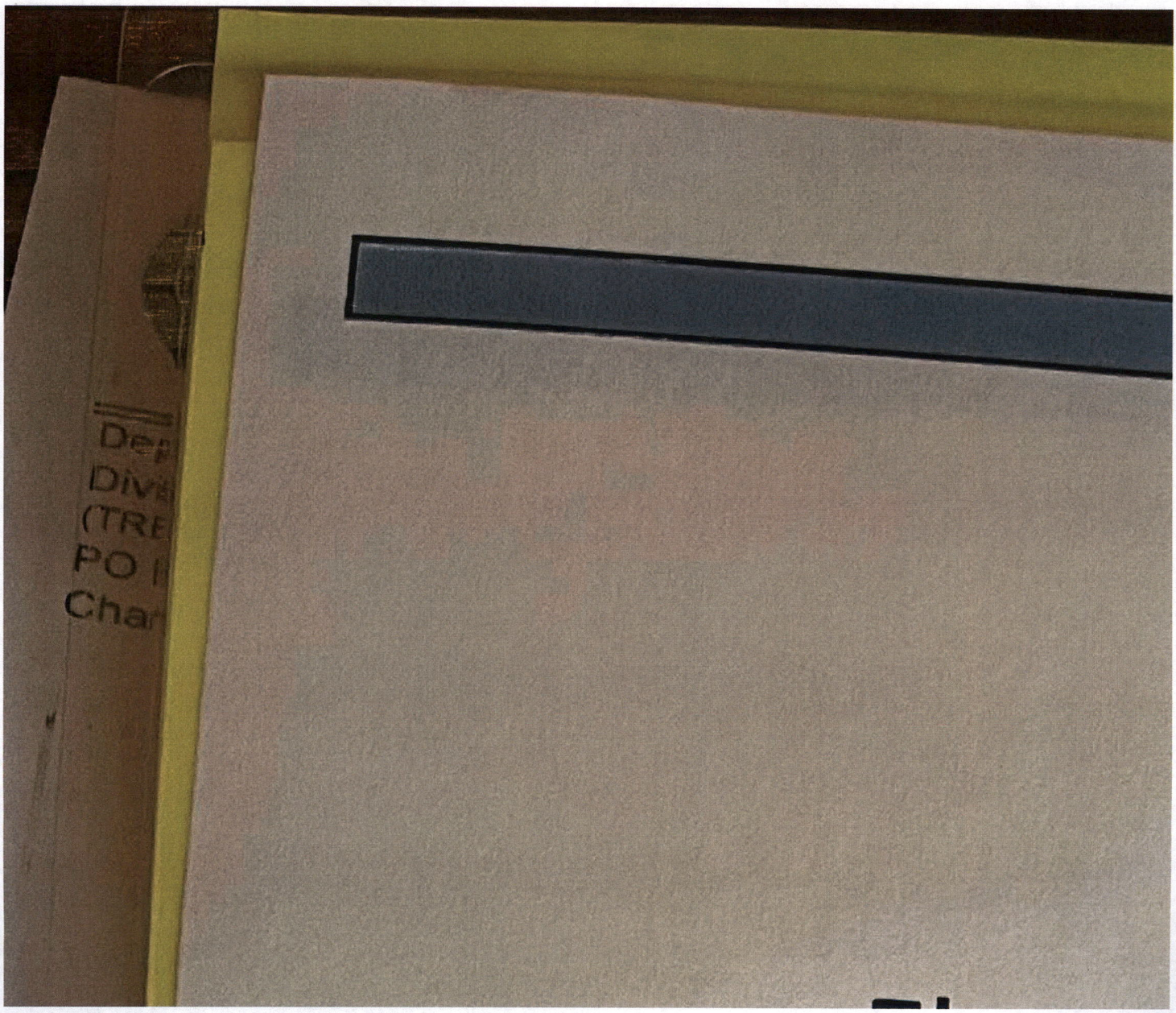
Hope you're summer is going well. I just noticed the floodplain permit is set to expire on June 27, 2022. I'm pretty sure it's typo since it was issued on the same day.

Could you verify that's the case?

Thanks,

Matt

From: Hoover, Matthew S. <MHoover@equitransmidstream.com>
Sent: Tuesday, July 19, 2022 9:12 AM
To: Hoover, Matthew S. <MHoover@equitransmidstream.com>
Subject: Doddridge County FP permit



Gmail **George Eidel <doddridgecountyfpm@gmail.com>**

FW: Doddridge County FP permit

George Eidel <doddridgecountyfpm@gmail.com> Tue, Jul 19, 2022 at 9:36 AM
To: "Hoover, Matthew S." <MHoover@equitransmidstream.com>

Matt,

Sorry about that...lol Yes that is a typo, I'll get you a new one sent out. It should be good until 2023.

George

[Quoted text hidden]

--

George C. Eidel, CFM, OEM Director/Floodplain Manager

Doddridge County Office of Emergency Management
101 Church Street Suite 102
West Union, WV 26456-2095
Work Phone:1-304-873-1343
Mobile Phone: 1-304-281-7407
Fax: 1-304-873-1840
doddridgecountyfpm@gmail.com

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 #: 22-616

Date Approved: June 27, 2022 **Expires: June 27, 2022**

Issued to: Mountain Valley Pipeline, LLC **POC: Matt Hoover**

Company Address: 2200 Energy Drive, 2nd Floor Canonsburg, PA 15317

Project Address: 3532 Big Isaac Road Salem, WV 26426

Firm: 54017C0260C **Lat/Long: 39.201016N, -80.553280W**

Purpose of development: Pipeline Renewal of Permit #17-473

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

George C. Eidel

Date: June 27, 2022

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