Floodplain Development Permit

Doddridge County, WV Floodplain Management

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

Permit: #18-521

Date Approved: August 6, 2018 **Expires: August 6, 2019**

Issued to: Antero Midstream, LLC **POC: Rachel McKinney**

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

Project Address: Right Fork Arnolds Creek Road

Firm: 54017C0225C **Lat/Long: 39.244450N, -80.822708W**

Purpose of Development: Pipeline Project

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

George C. Eidel

Date: August 6, 2018

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

SENDER: COMPLETE THIS SECTION

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

1. Article Addressed to:

Eva Greathouse Gawthrop
1982 New Creek Road
Salem, WV 26456

9590 9402 3685 7335 7561 32

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

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* T Gawthrop C. Date of Delivery 7-5-18

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

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

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

SENDER: COMPLETE THIS SECTION

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

1. Article Addressed to:

Zoe Kathryn Walters
9407 Scratch Court
Wilmington, NC 28412

9590 9402 3685 7335 7561 25

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

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* C. Date of Delivery 7-6

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

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

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

SENDER: COMPLETE THIS SECTION

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

1. Article Addressed to:

[redacted] Land & Timber, LLC
25 Sheets Run Road
Marietta, OH 45750

9590 9402 3685 7335 7561 01

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

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Shannon Haessly C. Date of Delivery 7-5-18

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

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☐ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ [redacted]
☐ [redacted]
☐ [redacted]

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

SENDER: COMPLETE THIS SECTION

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

1. Article Addressed to:

Patricia A. Perine
193 Grand Daddy Drive
West Union, WV 26456

9590 9402 3685 7335 7561 49

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

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Ira Perine ☒ Agent ☐ Addressee

B. Received by *(Printed Name)* Ira Perine C. Date of Delivery 7/7/18

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

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

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

SENDER: COMPLETE THIS SECTION

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

1. Article Addressed to:

Charles P. Heaster
2898 Punkin Center Road
West Union, WV 26456

9590 9402 3685 7335 7561 18

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

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Pat Heaster ☐ Agent ☐ Addressee

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

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

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

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

7017 1450 0001 5869 5834

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®

OFFICIAL USE

Certified Mail Fee	$ 3.45
Extra Services & Fees *(check box, add fee as appropriate)*	
☒ Return Receipt (hardcopy)	$ 2.75
☐ Return Receipt (electronic)	$
☐ Certified Mail Restricted Delivery	$
☐ Adult Signature Required	$
☐ Adult Signature Restricted Delivery	$
Postage	$ .50
Total Postage and Fees	$ 6.70

Postmark Here
WEST UNION, WV
JUL - 3 2018
USPS 26456-9993

Sent To: Charles P. Heaster
Street and Apt. No., or PO Box No.: 2898 Punkin Center Rd.
City, State, ZIP+4®: West Union, WV 26456 18-521

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7017 1450 0001 5869 5841

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®

OFFICIAL USE

Certified Mail Fee	$ 3.45
Extra Services & Fees *(check box, add fee as appropriate)*	
☒ Return Receipt (hardcopy)	$ 2.75
☐ Return Receipt (electronic)	$
☐ Certified Mail Restricted Delivery	$
☐ Adult Signature Required	$
☐ Adult Signature Restricted Delivery	$
Postage	$ .50
Total Postage and Fees	$ 6.70

Postmark Here
WEST UNION, WV
JUL - 3 2018
USPS 26456-9998

Sent To: Haessly Land & Timber, LLC
Street and Apt. No., or PO Box No.: 25 Sheets Run Rd.
City, State, ZIP+4®: Marietta, OH 45750 18-521

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7017 1450 0001 5869 5889

U.S. Postal Service
CERTIFIED MAIL RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com.

OFFICIAL USE

Certified Mail Fee $ 3.45
Extra Services & Fees (check box, add fee as appropriate)
- [X] Return Receipt (hardcopy) $ 2.75
- [ ] Return Receipt (electronic) $
- [ ] Certified Mail Restricted Delivery $
- [ ] Adult Signature Required $
- [ ] Adult Signature Restricted Delivery $

Postage $ .50
Total Postage and Fees $ 6.70

WEST UNION, WV JUL - 3 2018 Postmark Here USPS 26456-9998

Sent To: Barbara J. Lover Revocable Living Trust
Street and Apt. No., or PO Box No.: 204 Rose Ln.
City, State, ZIP+4: Port Clinton, OH 43452 18-521

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7017 1450 0001 5869 5872

U.S. Postal Service
CERTIFIED MAIL RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com.

OFFICIAL USE

Certified Mail Fee $ 3.45
Extra Services & Fees (check box, add fee as appropriate)
- [X] Return Receipt (hardcopy) $ 2.75
- [ ] Return Receipt (electronic) $
- [ ] Certified Mail Restricted Delivery $
- [ ] Adult Signature Required $
- [ ] Adult Signature Restricted Delivery $

Postage $ .50
Total Postage and Fees $ 6.70

WEST UNION, WV JUL - 3 2018 Postmark Here USPS 26456-9998

Sent To: Patricia A. Perine
Street and Apt. No., or PO Box No.: 193 Grand Daddy Dr.
City, State, ZIP+4: West Union, WV 26456 18-521

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7017 1450 0001 5869 5858

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com.

OFFICIAL USE

Certified Mail Fee $ 3.45
Extra Services & Fees (check box, add fee as appropriate)
- [X] Return Receipt (hardcopy) $ 2.75
- [ ] Return Receipt (electronic) $
- [ ] Certified Mail Restricted Delivery $
- [ ] Adult Signature Required $
- [ ] Adult Signature Restricted Delivery $

Postage $ .50
Total Postage and Fees $ 6.70

WEST UNION, WV JUL - 3 2018 Postmark Here USPS 26456-9998

Sent To: Zoe Kathryn Walters
Street and Apt. No., or PO Box No.: 9407 Scratch Ct.
City, State, ZIP+4: Wilmington, NC 28412 18-521

PS Form 3800, Apr... See Reverse for Instructions

7017 1450 0001 5869 5865

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com.

OFFICIAL USE

Certified Mail Fee $ 3.45
Extra Services & Fees (check box, add fee as appropriate)
- [X] Return Receipt (hardcopy) $ 2.75
- [ ] Return Receipt (electronic) $
- [ ] Certified Mail Restricted Delivery $
- [ ] Adult Signature Required $
- [ ] Adult Signature Restricted Delivery $

Postage $ .50
Total Postage and Fees $ 6.70

WEST UNION, WV JUL - 3 2018 Postmark Here USPS 26456-9998

Sent To: Eva Greathouse Gawthrop
Street and Apt. No., or PO Box No.: 1983 New Creek Rd.
City, State, ZIP+4: Salem, WV 26426 18-521

PS Form 3800, April 2015 See Reverse for Instructions

7017 1450 0001 5869 5896

U.S. Postal Service
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com.

OFFICIAL USE

Certified Mail Fee $ 3.45
Extra Services & Fees (check box, add fee as appropriate)
- [X] Return Receipt (hardcopy) $ 2.75
- [ ] Return Receipt (electronic) $
- [ ] Certified Mail Restricted Delivery $
- [ ] Adult Signature Required $
- [ ] Adult Signature Restricted Delivery $

Postage $ .50
Total Postage and Fees $ 6.70

WEST UNION, WV JUL - 3 2018 Postmark Here USPS 26456-9998

Sent To: Key Oil Co.
Street and Apt. No., or PO Box No.: 22 Garton Plaza
City, State, ZIP+4: Weston, WV 26452 18-521

PS Form 3800, April 2015 See Reverse for Instructions

SENDER: *COMPLETE THIS SECTION*

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

ara J. Lovern Revocable Living Trust
204 Rose Lane
Port Clinton, OH 43452

9590 9402 3685 7335 7561 56

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

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Henry Cole ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* HENRY COLE C. Date of Delivery 7-6-18

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

3. Service Type

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

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

United States Postal Service

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

Doddridge County Office of Emergency Management
George Eidel, Floodplain Manager
105 Court Street, Suite 3
West Union, WV 26456

18-521

-201205

SENDER: *COMPLETE THIS SECTION*

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

Key Oil Company
22 Garton Plaza
Weston, WV 26452

9590 9402 3685 7335 7561 63

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

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Karen Cook ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Karen Cook

C. Date of Delivery 7/5/18

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

3. Service Type

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

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

United States Postal Service

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

Doddridge County Office of Emergency Management
George Eidel, Floodplain Manager
105 Court Street, Suite 3
West Union, WV 26456

18-521

ANTERO MIDSTREAM LLC
1615 WYNKOOP STREET
DENVER, COLORADO 80202

Vendor Name	Vendor No.	Date	Check Number	Check Total
DODDRIDGE COUNTY COMMISSION	43312	Aug-24-2018	111171	$500.00

INV #	INV DATE	DESCRIPTION	AMOUNT	DISCOUNTS	NET AMOUNT
SS08232018	08/23/18	FLOODPLAIN PERMIT OXFORD 97 PIPELIN	500.00	0.00	500.00

FP# 18-521

SEP 4 18 11:52AM

TOTAL INVOICES PAID ====>	500.00	0.00	500.00

DETACH AND RETAIN FOR TAX PURPOSES

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

ANTERO MIDSTREAM LLC
1615 WYNKOOP STREET
DENVER, COLORADO 80202

Wells Fargo
Denver, CO

800 - AP ACCT WELLS FARGO

Check No. **111171**

11-24
412

Void After 90 Days

CHECK NUMBER	DATE	PAY EXACTLY
111171	Aug-24-2018	$500.00

PAY EXACTLY $500dols00cts
Five Hundred Dollars and Zero Cents

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

⑈111171⑈ ⑆041203824⑆ 9657481710⑈

FLOODPLAIN PERMIT #18-521

Antro Resources, Right Fork Arnolds Creek Rd. 39.2444450N,-80.822708W, OXF 97 Pipeline Project

TASK	COMPLETE (DATE)	NOTES
CHECK RECEIVED	9-4-18	
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)		
DATE OF COMMISSION READING	7/17/2018	
DATE AVAILABLE TO BE GRANTED	8/6/2018	
PERMIT GRANTED		
COMPLETE		

7017 1450 0001 5869 5834

7017 1450 0001 5869 5841

7017 1450 0001 5869 5858

7017 1450 0001 5869 5865

7017 1450 0001 5869 5872

7017 1450 0001 5869 5889

7017 1450 0001 5869 5896

Doddridge County Floodplain Permits

(Week of July 9, 2018)

Please take notice that on the **2nd** of **July, 2018, Antero Resources** filed an application for a Floodplain Permit **(#18-521)** to develop land located at or about **Right Fork of Arnolds Creek; Coordinates: 39.244450N, -80.822708W**. The Application is on file with the Floodplain Manager of the County and may be inspected or copied during regular business hours in accordance to WV Code Chapter 29B Freedom of Information, Article 1 Public Records and county policy and procedures. Any interested persons who desire to comment shall present the same in writing by **August 6, 2018** (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 Oxford 97 Pipeline Project**

GEORGE C. EIDEL, CFM

Doddridge County Floodplain Manager

Antero Midstream Partners LP
Antero Midstream, LLC
535 White Oaks Blvd
Bridgeport, WV 26330
Office 304.842.4100
Fax 304.842.4102

June 18, 2018

Doddridge County Commission
Attn: George Eidel, Doddridge County Floodplain Manager
105 Court Street, Suite 3
West Union, WV 26456

JUL 2 18 8:12AM

Mr. Eidel:

Antero Midstream LLC would like to submit a Doddridge County Floodplain permit application for our ***Oxford 97 Pipeline*** project. Our project is located in Doddridge County beginning at coordinates 39.233411N, 80.803950W, and continues to coordinates 39.244450N, 80.822708W. Per the FIRM Map #54017C0225C, this location is **in** the floodplain.

Attached you will find the following:

- Doddridge County Floodplain Permit Application
- No-Rise Certificate
- WV Flood Tool Map
- FIRM Map
- Design Plans

If you have any questions please feel free to contact me at (304) 842-4008.

Thank you in advance for your consideration.

Sincerely,

Rachel McKinney
Environmental Specialist II
Antero Resources Corporation

Enclosures

Permit# _____

Project Name: _____

Permittees Name: _____

JUL 2 18 8:12AM

Doddridge County, WV

Floodplain Development Permit Application

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

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

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

APPLICANT'S SIGNATURE Brian Swarmer

DATE 6-27-18

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Applicant Information:

Please provide all pertinent data.

Applicant Information		
Responsible Company Name: Antero Midstream LLC		
Corporate Mailing Address: 1615 Wynkoop Street		
City: Denver	**State: CO**	**Zip: 80202**
Corporate Point of Contact (POC):		
Corporate POC Title:		
Corporate POC Primary Phone:		
Corporate POC Primary Email:		
Corporate FEIN:	**Corporate DUNS:**	
Corporate Website: www.anteroresources.com		
Local Mailing Address: 535 White Oaks Blvd		
City: Bridgeport	**State: WV**	**Zip: 26330**
Local Project Manager (PM):		
Local PM Primary Phone:		
Local PM Secondary Phone:		
Local PM Primary Email:		
Person Filing Application: Rachel McKinney		
Applicant Title: Environmental Specialist II		
Applicant Primary Phone: (304) 842-4008		
Applicant Secondary Phone: (304) 641-2396		
Applicant Primary Email: rmckinney@anteroresources.com		

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Project Narrative:

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

Project Narrative:
The Oxford 97 Pipeline project begins west of County Route 11/4 and ends east of County Route 11/3 northeast of Oxford, WV. The proposed work involves the construction of a 16" low pressure steel gas line. A portion of the project is located within the Right Fork Arnold Creek Zone A Flood Hazard Area as shown on the Doddridge County Flood Insurance Rate Map (FIRM) Map Panel 54017C0225C with a map revised date of October 04, 2011. The proposed work that will occur in the floodplain includes the installation of the pipeline, permanent water bars, temporary erosion control measures, and temporary workspace. The material needed to construct the permanent water bars will be excavated from the up-gradient side of the berm. Therefore, a net loss of floodplain storage is not expected. Any and all fill generated for the workspace will be temporary. The pipeline crossing of the Right Fork Arnold Creek Zone A Flood Hazard Area will be performed using open cut construction methods, and the disturbed area will be returned to preconstruction conditions at the conclusion of the work. As a result, the project will not result in a decrease of the available floodplain storage area and will not adversely affect the existing base flood elevation of Right Fork Arnold Creek.

Proposed Development:

Please check all elements of the proposed project that apply.

DESCRIPTION OF WORK (CHECK ALL APPLICABLE BOXES)

A. STRUCTURAL DEVELOPMENT

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

B. OTHER DEVELOPLMENT ACTIVITIES:

[] Fill [] Mining [] Drilling [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: __1__ of __7__

Site/Property Information:		
Legal Description: ARNOLDS CREEK 266.38 AC		
Physical Address/911 Address: ROUTE 11		
Decimal Latitude/Longitude: 39.235622, -80.809517		
DMS Latitude/Longitude: 39° 14' 8.24" N, 80° 48' 34.26" W		
District: 8	**Map: 22**	**Parcel: 10**
Land Book Description:		
Deed Book Reference: DEED BOOK 250, PAGE 625		
Tax Map Reference: 09-08-0022-0010-0000		
Existing Buildings/Use of Property: WOODED, O & G		

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

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Development Site/Property Information:

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

Property Designation: __2__ of __7__

Site/Property Information:		
Legal Description: ARNOLDS CREEK 261 AC 40P		
Physical Address/911 Address: ROUTE 11		
Decimal Latitude/Longitude: 39.240125, -80.802886		
DMS Latitude/Longitude: 39° 14' 24.45" N, 80° 48' 10.39" W		
District: 8	**Map: 19**	**Parcel: 27**
Land Book Description:		
Deed Book Reference: DEED BOOK 158, PAGE 663		
Tax Map Reference: 09-08-0019-0027-0000		
Existing Buildings/Use of Property: WOODED		

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

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Development Site/Property Information:

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

Property Designation: __3__ of __7__

Site/Property Information:		
Legal Description: ARNOLDS CREEK 901.72 AC (SURFACE)		
Physical Address/911 Address: ROUTE 11/4		
Decimal Latitude/Longitude: 39.237633, -80.792603		
DMS Latitude/Longitude: 39° 14' 15.48" N, 80° 47' 33.37" W		
District: 8	**Map: 23**	**Parcel: 1**
Land Book Description:		
Deed Book Reference: DEED BOOK 209, PAGE 188		
Tax Map Reference: 09-08-0023-0001-0000		
Existing Buildings/Use of Property: WOODED		

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

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Development Site/Property Information:

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

Property Designation: __4__ of __7__

Site/Property Information:		
Legal Description: ARNOLDS CREEK 20.97 AC		
Physical Address/911 Address: ROUTE 11		
Decimal Latitude/Longitude: 39.246933, -80.806711		
DMS Latitude/Longitude: 39° 14' 48.96" N, 80° 48' 24.16" W		
District: 8	**Map: 19**	**Parcel: 23**
Land Book Description:		
Deed Book Reference: DEED BOOK 198, PAGE 53		
Tax Map Reference: 09-08-0019-0023-0000		
Existing Buildings/Use of Property: WOODED		

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

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Development Site/Property Information:

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

Property Designation: __5__ of _7__

Site/Property Information:		
Legal Description: R HAND FORK ARNOLDS CREEK 47.8 AC INT O&G		
Physical Address/911 Address: ROUTE 11		
Decimal Latitude/Longitude: 39.245436, -80.811344		
DMS Latitude/Longitude: 39° 14' 43.57" N, 80° 48' 40.84" W		
District: 8	**Map: 19**	**Parcel: 26**
Land Book Description:		
Deed Book Reference: DEED BOOK 210, PAGE 158		
Tax Map Reference: 09-08-0019-0026-0000		
Existing Buildings/Use of Property: WOODED		

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

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Development Site/Property Information:

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

Property Designation: __6__ of __7__

Site/Property Information:		
Legal Description: ARNOLDS CREEK 89 AC		
Physical Address/911 Address: ROUTE 11		
Decimal Latitude/Longitude: 39.243161, -80.816603		
DMS Latitude/Longitude: 39° 14' 35.38" N, 80° 48' 59.77" W		
District: 8	**Map: 19**	**Parcel: 25**
Land Book Description:		
Deed Book Reference: DEED BOOK 254, PAGE 46		
Tax Map Reference: 09-08-0019-0025-0000		
Existing Buildings/Use of Property: WOODED		

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

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Development Site/Property Information:

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

Property Designation: __7__ of _7__

Site/Property Information:		
Legal Description: ARNOLDS CREEK 48 AC		
Physical Address/911 Address: ROUTE 11		
Decimal Latitude/Longitude: 39.241433, -80.820550		
DMS Latitude/Longitude: 39° 14' 29.16" N, 80° 49' 13.98" W		
District: 8	**Map: 22**	**Parcel: 5.4**
Land Book Description:		
Deed Book Reference: DEED BOOK 244, PAGE 137		
Tax Map Reference: 09-08-0022-0005-0004		
Existing Buildings/Use of Property: WOODED, O & G		

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

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Property Owner Data:

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

Property Designation: _1__ of __7_

Property Owner Data:		
Name of Primary Owner (PO): HAESSLY LAND & TIMBER LLC		
PO Address: 25 SHEETS RUN RD		
City: MARIETTA	**State: OH**	**Zip: 45750**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

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

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

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Property Owner Data:

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

Property Designation: _2__ of __7_

Property Owner Data:		
Name of Primary Owner (PO): WALTERS, ZOE KATHRYN		
PO Address: 9407 SCRATCH CT		
City: WILMINGTON	**State: NC**	**Zip: 28412**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

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

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

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Property Owner Data:

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

Property Designation: __3__ of __7__

Property Owner Data:		
Name of Primary Owner (PO): HEASTER, CHARLES P ET AL		
PO Address: 2898 PUNKIN CENTER RD		
City: WEST UNION	**State: WV**	**Zip: 26456**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

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

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

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Property Owner Data:

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

Property Designation: _4__ of __7_

Property Owner Data:		
Name of Primary Owner (PO): PERINE, PATRICIA A		
PO Address: 193 GRAND DADDY DR		
City: WEST UNION	**State: WV**	**Zip: 26456**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

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

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

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Property Owner Data:

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

Property Designation: _5__ of __7_

Property Owner Data:		
Name of Primary Owner (PO): GAWTHROP, EVA GREATHOUSE		
PO Address: 1982 NEW CREEK RD		
City: SALEM	**State: WV**	**Zip: 26456**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

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

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

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Property Owner Data:

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

Property Designation: _6__ of __7_

Property Owner Data:		
Name of Primary Owner (PO): KEY OIL CO.		
PO Address: 22 GARTON PLAZA		
City: WESTON	**State: WV**	**Zip: 26452**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

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

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

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Property Owner Data:

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

Property Designation: _7__ of __7_

Property Owner Data:		
Name of Primary Owner (PO): LOVERN BARBARA J REVOCABLE LIVING TRUST		
PO Address: 204 ROSE LN		
City: PORT CLINTON	**State: OH**	**Zip: 43452**
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

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

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

Doddridge County Commercial/Industrial
Floodplain Development Permit Application

Contractor Data:

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

Property Designation: ____ of ____

Contractor/Sub-Contractor (C/SC) Information:		
C/SC Company Name:		
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): LEGGETT, DOUGLAS G. & SUSAN		
Physical Address: 71 LIGHTHOUSE DR		
City: WEST UNION	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Adjacent Property Owner Data: Upstream		
Name of Primary Owner (PO): KEY OIL CO.		
Physical Address: 22 GARTON PLAZA		
City: WESTON	State: WV	Zip: 26452
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

Adjacent Property Owner Data: Downstream		
Name of Primary Owner (PO): RUSSELL, VERNON D & SHARON L		
Physical Address: 2580 ARNOLDS CREEK RD		
City: WEST UNION	State: WV	Zip: 26456
PO Primary Phone:		
PO Secondary Phone:		
PO Primary Email:		

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

Site Plan

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

A SITE PLAN MUST CONTAIN THE FOLLOWING INFORMATION:

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

Applicant

Please read print name, sign and date below:

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

Applicant Signature: Brian Guarnieros Date: 6-26-18

Applicant Printed Name: Brian Guarnieros

June 08, 2018

Doddridge County Commission
Attn: George Eidel, Doddridge County Floodplain Manager
118 East Court Street, Room 102
West Union, WV 26456

Subject: Antero Midstream, LLC.
Oxford 97 Pipeline (AFE# A07927)
No-Rise Certificate
Doddridge County, West Virginia
CEC Project 182-758

Civil & Environmental Consultants, Inc. (CEC) is pleased to evaluate the potential floodplain impacts for the above-referenced project on behalf of Antero Midstream, LLC., 535 White Oaks Blvd., Bridgeport, WV 26330. Antero Midstream, LLC. proposes to install a 16" low pressure steel gas line. A portion of the proposed project is located within the Right Fork Arnold Creek Zone A Flood Hazard Area, according to the Flood Insurance Rate Map (FIRM) for Doddridge County, map panel 54017C0225C, with a map revised date of October 4, 2011. The proposed work that will take place in the floodplain includes the installation of the pipeline, permanent water bars, temporary erosion control measures, and temporary workspace. The material needed to construct the permanent water bars will be excavated from the up-gradient side of the berm. Therefore, a net loss of floodplain storage is not expected. Any and all fill generated for the workspace will be temporary. The pipeline crossing of the Right Fork Arnold Creek Zone A Flood Hazard Area will be performed using open cut construction methods, and the disturbed area will be returned to preconstruction conditions at the conclusion of the work. As a result, the project will not result in a decrease of the available floodplain storage area and will not adversely affect the existing base flood elevation of Right Fork Arnold Creek.

This no-rise certificate is provided in support of the floodplain development permit application. Your time and effort in reviewing this floodplain development permit application is appreciated. Please feel free to contact me at 304-933-3119 or via e-mail at glinder@cecinc.com or contact Mrs. Rachel McKinney at 304-842-4008 or via e-mail at rmckinney@anteroresources.com if you have questions or need additional information.

Respectfully submitted,

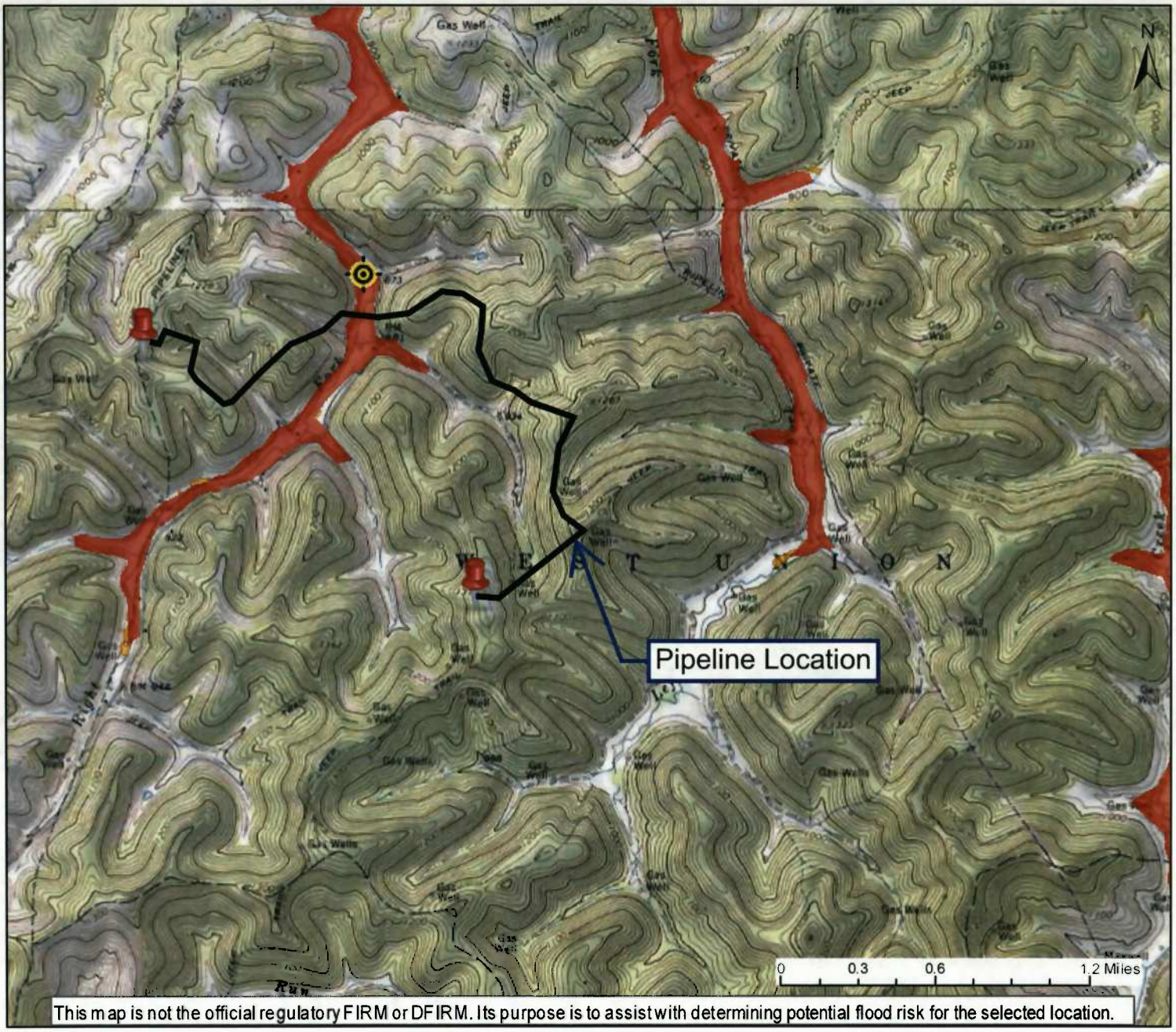
CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Andrew P. Darnell, E.I.T.
Assistant Project Manager

Gregory S. Linder, P.E.
Principal

GREGORY S. LINDER
REGISTERED
15628
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER
6-12-2018

WV Flood Map



Map created on 6/6/2018

Flood Info Location

FEMA Effective Floodplain

- Floodway
- Flood Hazard Zone
- Advisory Zone A or Updated Zone AE

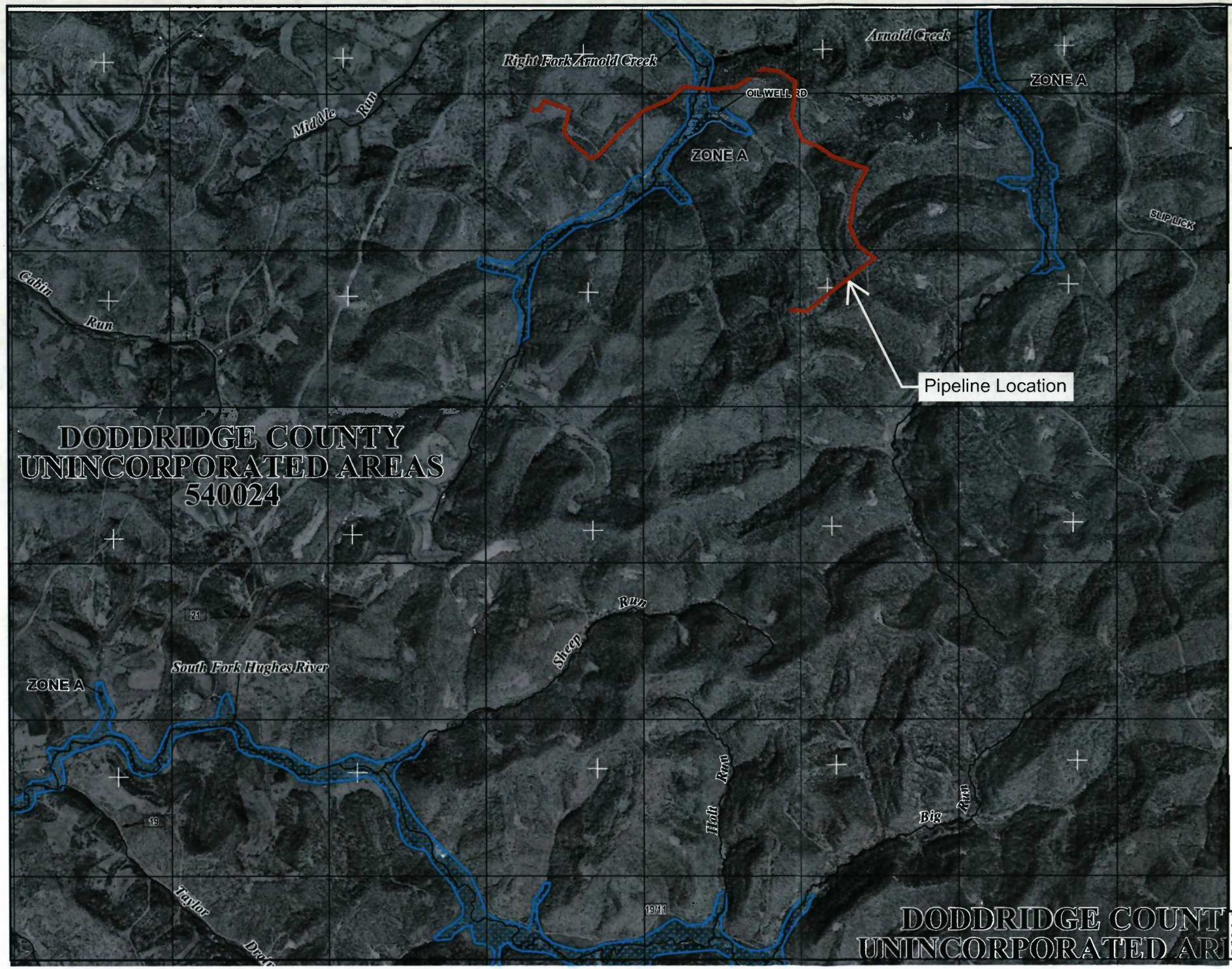
User Notes:
ANTERO MIDSTREAM, LLC
OXFORD 97 PIPELINE
AFE # A07927

Flood Hazard Area:
Location is **WITHIN** the FEMA 100-year floodplain.
Advisory Flood Heights available.

Flood Hazard Zone: A (Advisory A)
Stream: Right Fork Arnold Creek
Watershed (HUC8): Little Musringum-Middle Island (S0302
FEMA Flood Map: 54017C0225C **EFF:** 10/4/2011
Elevation: About 862 ft (Source: SAMS 2003)
Community Name: Doddridge County
Community ID: 540024
Location (long, lat): (-80.810302, 39.247161)
Parcel ID: 09-08-0019-0026-0000
Address: multiple addresses

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.**



MAP SCALE 1" = 2000'

1000 0 2000 4000 FEET

NFIP

PANEL 0225C

FIRM

FLOOD INSURANCE RATE MAP

DODDRIDGE COUNTY, WEST VIRGINIA AND INCORPORATED AREAS

PANEL 225 OF 325

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
DODDRIDGE COUNTY	540024	0225	C

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

MAP NUMBER
54017C0225C

MAP REVISED
OCTOBER 4, 2011

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

ANTERO MIDSTREAM LLC

ISSUED FOR PERMITTING PLANS FOR THE

OXFORD 97 PIPELINE

16" LOW PRESSURE STEEL GAS LINE

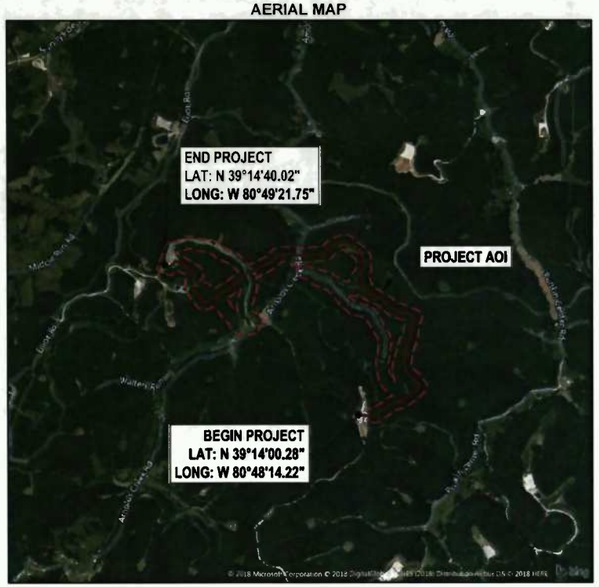
AFE #A07927

101-050-6529

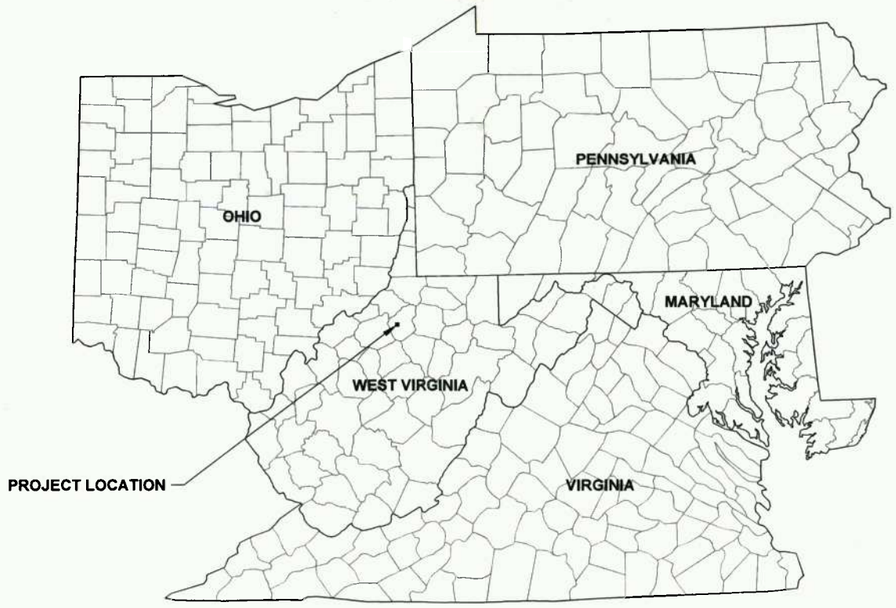
DODDRIDGE COUNTY, WEST VIRGINIA

MAY 2018

AERIAL MAP



VICINITY MAP
FULL SCALE: 1"=2,000'
HALF SCALE: 1"=4,000'



Know what's at stake- Call 811 BEFORE YOU DIG

Antero Midstream Partners LP
PHONE: (303) 357-7310 | FAX: (303) 357-7315
1615 WYNKOOP STREET
DENVER, CO 80202

ALIGNMENT SHEETS PREPARED BY

THRASHER
PHONE: (304) 624-4108 | FAX: (304) 624-7831
600 WHITE OAKS BLVD., P.O. BOX 940
BRIDGEPORT, WV 26330

DANIEL E. FERRELL REGISTERED 13462 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 5/22/2018

DANIEL E. FERRELL, WV P.E. # 13462

EXISTING INFORMATION SOURCES

BASE CONTOUR DATA PROVIDED BY OTHERS.

ROUTE INFORMATION AND LOCATION PROVIDED BY ANTERO.

SUPPLEMENTAL SPOT ELEVATIONS AND ALIGNMENT PROVIDED BY:

THE THRASHER GROUP
600 WHITE OAKS BLVD., P.O. BOX 940
BRIDGEPORT, WV 26330

BENCHMARK:
HORIZONTAL – NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, US SURVEY FOOT
VERTICAL – NAVD 88 (GEOID12B), US SURVEY FOOT

ROAD DESIGNATIONS OBTAINED FROM WV-DOH
(http://www.transportation.wv.gov)

ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO.

PLAN REPRODUCTION WARNING

THESE PLANS ARE INTENDED TO BE PLOTTED ON ANSI D (22" X 34") SHEETS. FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

THESE PLANS HAVE BEEN CREATED FOR FULL COLOR PLOTTING. ANY SET OF THESE PLANS THAT IS NOT PLOTTED IN FULL COLOR SHALL NOT BE CONSIDERED ADEQUATE FOR CONSTRUCTION PURPOSES.

WARNING: INFORMATION MAY BE LOST IN COPYING AND/OR GRAY SCALE PLOTTING.

☑ ISSUED FOR PERMITS DATE: 5/22/2018 BY: D.S.

☐ ISSUED FOR CONSTRUCTION DATE: _____ BY: _____

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CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\COVER SHEET.dwg
PLOT DATE/TIME: 5/22/2018 9:07 AM
USER: jared.d_jenkins

WVDOH GENERAL NOTES

ALL CONSTRUCTION ON THE DIVISION OF HIGHWAYS RIGHT OF WAY WILL CONFORM TO THE FOLLOWING:

THE FOLLOWING NOTES APPLY TO ALL PROJECT PLAN SHEETS:

1. ALL METER SETTINGS ACROSS PAVED ROADS SHALL BE BORED OR MOLED, UNLESS OPEN CUT HAS BEEN APPROVED BY W.V.D.O.H. AND SPECIFICALLY INDICATED ON PLANS.
2. NOTIFICATION OF PROPOSED EXCAVATION, DEMOLITION OR ANY OTHER EARTH DISTURBING ACTIVITIES ARE REQUIRED TO BE PLACED TO MISS UTILITY OF WEST VIRGINIA (1-800-245-4848) NOT LESS THAN FORTY EIGHT (48) BUSINESS HOURS BEFORE ANY SUCH WORK IS TO BEGIN.
3. BEDDING SHALL BE PLACED ON ASPHALT SURFACE TO PROTECT THE PAVEMENT WHEN A TRENCHER OR TRACKED VEHICLE IS USED.
4. THE WEST VIRGINIA DIVISION OF HIGHWAYS PUBLICATIONS "STANDARD SPECIFICATIONS ROADS AND BRIDGES" AND "ACCOMMODATIONS OF UTILITIES ON HIGHWAY RIGHT OF WAY" LATEST EDITION ARE PART OF THE PROJECT SPECIFICATIONS AND WILL BE ADHERED TO BY THE CONTRACTOR.
5. ALL DAMAGE TO ROAD SURFACE SHALL BE REPAIRED ACCORDING TO THE WEST VIRGINIA DIVISION OF HIGHWAYS STANDARD SPECIFICATIONS AND DETAILS.
6. ALL EXISTING DUMP ROCK OR RIP RAP DITCHES DISTURBED BY THE UTILITY LINE CONTRACTOR SHALL BE RESTORED WITH THE SAME SIZE, GRADE AND QUALITY OF ROCK AFTER THE UTILITY LINE HAS BEEN INSTALLED. NEW DUMP ROCK (RIP RAP) IS TO BE PLACED IN ALL LOCATIONS WHERE THE DITCH LINE GRADE IS GREATER THAN 5% AND THERE IS NO EXISTING RIP RAP.
7. TRAFFIC CONTROL SHALL CONFORM TO THE W.V.D.O.H. PUBLICATION "TRAFFIC CONTROL FOR STREET AND HIGHWAY CONSTRUCTION AND MAINTENANCE" OPERATION LATEST EDITION.
8. ALL BACKFILL MATERIAL AND COMPACTION REQUIREMENT SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS IN THE ACCOMMODATION OF UTILITIES ON HIGHWAY RIGHT OF WAY AND ADJUSTMENT AND RELOCATION OF UTILITY FACILITIES ON HIGHWAY PROJECTS AND SUBJECT TO D.O.H. APPROVAL. EVIDENCE OF PROPER COMPACTION BY TESTING WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE TESTING SHALL BE ONE (1) PER DAY OR EVERY 500 LINEAL FEET OR AS DETERMINED BY THE DISTRICT MANAGER (ENGINEER) OR HIS AUTHORIZED REPRESENTATIVE.
9. UTILITY LINES SHALL BE PLACED EITHER AROUND, UNDER OR OVER DRAINAGE CULVERTS AS SHOWN ON PLANS.
10. AGGREGATE SHOULDER STONE IS TO BE PLACED ON THE SHOULDER AT A THICKNESS EQUAL TO 6" OR ITS ORIGINAL THICKNESS WHICHEVER IS GREATER. PAVED SHOULDERS WILL BE PAVED.
11. MAGNETIC MARKING TAPE SHALL BE INSTALLED AT A DEPTH OF 12" TO 18" BELOW THE SURFACE AND DIRECTLY ABOVE ALL LINES OR PIPE.
12. REPAIR TO DRIVEWAYS ON W.V.D.O.H. RIGHT OF WAYS SHALL CONFORM TO THE APPROPRIATE W.V.D.O.H. TYPICAL REPAIR DETAIL.
13. CLEANUP WILL BE ACCOMPLISHED DAILY. RIGHT OF WAYS SHALL CONFORM TO THE APPROPRIATE W.V.D.O.H. REPAIR. ALL CULVERTS AND DRAINAGE DITCHES SHALL BE OPEN AND MAINTAINED DURING CONSTRUCTION. SHOULDERS WILL BE RESTORED AND STABILIZED WITH STONE DAILY WITH APPROPRIATE STONE AT THE DISCRETION OF W.V.D.O.H.
14. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED WITHIN SEVEN DAYS OF COMPLETION OF BACK FILL OPERATION.
15. NO EXCESS EXCAVATION MATERIAL SHALL BE WASTED ON W.V.D.O.H. RIGHT OF WAYS WITHOUT THE AGREEMENT OF THE W.V.D.O.H.
16. THE W.V.D.O.H. RESERVES THE RIGHT TO RELOCATE WATERLINES, FIRE HYDRANTS, AND VALVES AS DEEMED NECESSARY.
17. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING UTILITY COMPANIES, PRIOR TO CONSTRUCTION TO OBTAIN UTILITY LOCATIONS AND PERFORMING EXPLORATORY WORK TO DETERMINE SUBSURFACE MATERIALS AND STRUCTURES THAT MAY AFFECT ITS WORK.
18. PRIOR TO THE START OF ANY WORK WITHIN STATE HIGHWAY RIGHT-OF-WAY, THE CONTRACTOR SHALL GIVE THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION 48 HOURS NOTICE.
19. THE CONTRACTOR IS RESPONSIBLE FOR ANY OFFSITE DISPOSAL REQUIRED. DISPOSAL SHALL BE TO AN ACCEPTABLE LEGAL SITE. CONTRACTOR IS RESPONSIBLE FOR EROSION CONTROL AT DISPOSAL SITES.
20. ALL ELEVATION GRADES AND DISTANCES SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE PRIOR TO CONSTRUCTION.
21. ALL CONSTRUCTION SHALL MAINTAIN 5' FROM EDGE OF PAVEMENT OR BOTTOM OF DITCH UNLESS NO OTHER PRACTICAL MEANS OF CONSTRUCTION EXISTS.
22. PERFORM ACCEPTABLE REPAIR OF ANY AND ALL SUB-BASE FAILURES THAT ARE CAUSED BY THE CONTRACTOR'S OPERATION ON A DAILY BASIS.
23. PERFORM TOTAL REPAIR AND/OR REPLACEMENT OF ANY DAMAGED ASPHALT SURFACE AS DETERMINED BY THE W.V.D.O.H REPRESENTATIVE.
24. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL MAKE A COMPLETE VIDEO SHOWING THE ROAD SURFACE OF THE ENTIRE PROJECT OF ROADS TO BE UTILIZED IN THE CONSTRUCTION OF THE PROJECT AND PRESENT IT TO UTILITY SUPERVISOR W.V.D.O.H.
25. REMOVE DITCH-LINE OBSTACLES AND/OR RECONSTRUCTION OF THE DITCH-LINE.
26. IN THE CASE OF MANHOLES OR VALVES IF AT ALL POSSIBLE SHALL BE PLACED OUTSIDE THE ROADWAY, SHOULDER, OR DITCH LINE IF PLACED IN THE SHOULDER THERE IS TO BE A MINIMUM OF 6 INCHES OF COVER IN THE DITCH LINE THERE IS TO BE 12 INCHES OF COVER BETWEEN THE MANHOLE AND THE INVERT OF THE DITCH.
27. ANY MANHOLES OR VALVES OR VALVE BOXES PLACED IN THE ROADWAY WILL BE ON THE SAME PLANE AS THE ROADWAY AND SET FLUSH WITH ROADWAY.
28. ANY ROADS REQUIRING AN H.L.B.C. OVERLAY, FULL WIDTH OR PARTIAL, SHALL HAVE SHOULDER STONE FROM AN APPROVED SOURCE PLACED AS PER D.O.H. SPECIFICATIONS.
29. THE DEPARTMENT OF HIGHWAYS REQUIRES THERE BE NO WORK WITHIN THE DEPARTMENT'S RIGHT-OF-WAY DURING SNOW AND ICE REMOVAL. THERE MAY BE EXCEPTIONS FOR EMERGENCY AND CASE BY CASE SITUATIONS WITH NOTIFICATION TO THE DEPARTMENT.

UTILITY AGENCIES SERVING PROJECT AREA

MISS UTILITY
1-800-245-4848
TICKET # 1808229452

WEST VIRGINIA DIVISION OF HIGHWAYS
WVDOH DIST #4
P.O. BOX 4220
CLARKSBURG, WV 26301-4220
(304) 842-1500
(304) 842-1564 FAX
MIKE RONCONE - UTILITY SUPERVISOR - CROSSINGS
TARA CARDER - PERMIT SUPERVISOR - TEMP. ACCESSES

GAS
DOMINION TRANSMISSION INC.
1-888-264-8240

ANTERO RESOURCES CORPORATION
1-303-357-7310

ENERGY CORPORATION OF AMERICA (ECA)
1-304-925-6100
(RICK JETT) 1-304-678-7446

KEY OIL COMPANY
1-304-269-7102
(GREG KELLY) 1-304-588-7610

RITCHIE PETROLEUM
1-304-659-2123
(JUSTIN SMITH) 1-304-266-6332

ALLIANCE PETROLEUM CORPORATION (APC)
1-330-493-0440
(GENE DILLON) 1-304-629-9120

POWER
MON POWER
1-800-686-0022

CABLE
AT&T
1-304-216-4100

SEWER
NO PUBLIC SEWER IN PROJECT AREA

WATER
NO PUBLIC WATER IN PROJECT AREA

TELEPHONE
VERIZON TELECOMMUNICATIONS
1-800-275-2355

RESPONSE TEAMS:

NATIONAL RESPONSE CENTER FOR REPORTING CHEMICAL OR OIL SPILLS
1-800-424-8802

STATE EMERGENCY SPILL NOTIFICATION
1-800-642-3074

EMERGENCY AMBULANCE, FIRE, LAW ENFORCEMENT
911

DRAWING INDEX

GENERAL NOTES

1. EXISTING UTILITIES SHOWN ON PLANS WHERE EVIDENCE HAS BEEN FOUND OR PROVIDED BY LOCAL UTILITIES. EXACT DEPTH AND LOCATION OF UTILITY LINES NOT KNOWN. CONTRACTOR TO VERIFY UTILITY LOCATIONS PRIOR TO CROSSING BY CONTACTING MISS UTILITY AT 1-800-245-4848 AND LOCAL UTILITY COMPANIES AS LISTED AND/OR NOT LISTED ON THIS SHEET. CONTRACTOR TO LOCATE WATER AND UTILITY SERVICES BEFORE BORING AND JACKING.
2. IN THE EVENT AN ERROR WITH THE PLANS SEEMS APPARENT, THE MATTER MUST BE TAKEN UP WITH THE ENGINEER FOR REVIEW BEFORE PROCEEDING WITH CONSTRUCTION.
3. ALL PERMITS MUST BE SECURED PRIOR TO CONSTRUCTION.
4. THE CONTRACTOR SHALL COORDINATE ALL STREAM CROSSING INSTALLATIONS PROPOSED SO NOT TO DELAY THE CONSTRUCTION PROCESS. STREAM CROSSINGS ARE TO BE CONSTRUCTED USING AN OPEN CUT CROSSING METHOD UNLESS OTHERWISE SPECIFIED ON THE PLANS.
5. ALL PROPOSED PERMANENT FILL TO BE FILLED WITH STONE, NATURAL ROCK, OR A 20" CULVERT TO BE INSTALLED TO MAINTAIN STREAM FLOW.
6. ALL WVDOH ROAD CROSSINGS TO BE CONSTRUCTED USING AN OPEN CUT CROSSING METHOD UNLESS OTHERWISE SPECIFIED ON THE PLANS. WVDOH TO BE NOTIFIED AT LEAST 48 HOURS PRIOR TO ANY WORK WITHIN WVDOH R/W.
7. ALL CONSTRUCTION TO BE DONE IN THE PROPOSED PIPELINE LIMITS OF DISTURBANCE AS SHOWN.
8. ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE STANDARDS AND SPECIFICATIONS PROVIDED IN A SEPARATE BOUND VOLUME.
9. CONTRACTOR SHALL FIELD VERIFY EXISTING PIPE TYPES AND O.D. PRIOR TO CONNECTION.
10. PROPERTY LINES SHOWN ON PLANS WERE OBTAINED FROM PARTIAL FIELD SURVEY AND RESEARCHED INFORMATION TAKEN FROM VARIOUS RECORDS ON FILE IN THE LOCAL COUNTY COURTHOUSE. TO OBTAIN A MORE ACCURATE BOUNDARY LINE LOCATION, A FULL PROPERTY SURVEY IS RECOMMENDED.

EROSION & SEDIMENT CONTROL NOTES

1. ALL EROSION AND SEDIMENT MEASURES TO BE IN ACCORDANCE WITH WEST VIRGINIA ONLINE BMP MANUAL FOR STANDARD GUIDELINES AND SPECIFICATIONS AVAILABLE AT:
   HTTPS://APPS.DEP.WV.GOV/DWWM/STORMWATER/BMP/INDEX.HTML
2. EROSION AND SEDIMENT CONTROL MEASURES HAVE BEEN SHOWN ON PLANS AND DETAILED IN SPECIFICATIONS.
3. EXPOSED SOILS SHALL BE STABILIZED BY APPLICATION OF EFFECTIVE BMPs THAT PROTECT THE SOIL FROM THE EROSIVE FORCES OF RAINDROPS, FLOWING WATER, AND WIND.
4. CLEARING AND GRUBBING IS TO OCCUR IN THE NOTED LIMITS OF DISTURBANCE (L.O.D.) ONLY.
5. ALL GRADED AREAS THAT ARE AT FINAL GRADE MUST BE SEEDED AND MULCHED WITHIN 7 DAYS AND AREAS THAT WILL NOT BE WORKED AGAIN FOR 21 DAYS OR MORE MUST BE SEEDED AND MULCHED WITHIN 7 DAYS.
6. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOUR DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS PERMANENTLY CEASED. •WHERE THE INITIATION OF STABILIZATION MEASURES BY THE SEVENTH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASES IS PRECLUDED BY SNOW COVER, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS CONDITIONS ALLOW. •WHERE CONSTRUCTION ACTIVITY WILL RESUME ON A PORTION OF THE SITE WITHIN 14 DAYS FROM WHEN ACTIVITIES CEASED, (E.G., THE TOTAL TIME PERIOD THAT CONSTRUCTION ACTIVITY IS TEMPORARILY HALTED IS LESS THAN 14 DAYS) THEN STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE BY THE FOURTH DAY AFTER CONSTRUCTION ACTIVITIES HAVE TEMPORARILY CEASED.
7. AREAS WHERE THE SEED HAS FAILED TO GERMINATE ADEQUATELY (UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70%) WITHIN 30 DAYS AFTER SEEDING AND MULCHING MUST BE RE-SEEDED IMMEDIATELY, OR AS SOON AS WEATHER CONDITIONS ALLOW.
8. 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 WITH BMPs.
9. EROSION AND SEDIMENT CONTROLS BMPs SHALL BE INSPECTED AT LEAST ONCE EVERY FOUR (TMDL WATERSHEDS) CALENDAR DAYS OR EVERY SEVEN (NON-TMDL WATERSHEDS) CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.25 INCHES (TMDL WATERSHEDS) OR GREATER THAN 0.5 INCHES (NON-TMDL WATERSHEDS) PER 24 HOUR PERIOD. ANY NECESSARY OR REQUIRED REPAIRS SHOULD BE MADE IMMEDIATELY. RAIN GAUGES WILL BE LOCATED AT ALL PROJECT TRAILERS AND THROUGHOUT THE PROJECT AREA TO MONITOR AND RECORD DAILY RAINFALL EVENTS.

CONSTRUCTION SEQUENCE OF EVENTS

1. CALL MISS UTILITY (1-800-245-4848)
2. INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES.
3. CONSTRUCTION OF PIPELINE WITH RESTORATIONS.
4. TESTING OF PIPELINE AND APPURTENANCES.
5. PROJECT CLOSE-OUT, PUNCH LIST, CLEAN UP, REPAIRS, FINAL SEEDING AND MULCHING, ETC...

LEGEND / ABBREVIATIONS

- = EXISTING PIPELINE VENT
- = EXISTING WELL (AS NOTED)
- = EXISTING GAS METER
- = EXISTING RECTIFIERS
- = EXISTING PIPELINE MARKER
- = EXISTING GAS VALVE
- = EXISTING MONUMENT FOUND (AS NOTED)
- = EXISTING UTILITY POLE
- G = EXISTING PIPELINE
- W = EXISTING WATER LINE
- X = EXISTING FENCE
- O/U = EXISTING OVERHEAD UTILITY
- UGC = EXISTING UNDERGROUND UTILITY
- = PROPERTY LINE
- = DOH RIGHT-OF-WAY LINE
- = PROPOSED PERMANENT RIGHT-OF-WAY
- = PROPOSED CONSTRUCTION RIGHT-OF-WAY
- LOD = COMPRESSOR LIMITS-OF-DISTURBANCE
- = PROPOSED ANTERO BASELINE
- G = PROPOSED ANTERO GAS LINE
- W = PROPOSED ANTERO WATER LINE
- = EXISTING GROUND PROFILE
- = PROPOSED PIPELINE PROFILE
- 1250 = CONTOUR
- = PROJECT AREA-OF-INTEREST
- SFFB = PROPOSED SMARTFENCE FB ORANGE
- CFS = PROPOSED COMPOST FILTER SOCK
- = PROPOSED PERMANENT WATER BAR (PLAN)
- = PROPOSED ACCESS ROAD DITCH
- = PROPOSED CULVERT
- = DELINEATED CULVERT
- = DELINEATED STREAMS
- = DELINEATED STREAMS (PROPOSED PERMANENT FILL)
- = DELINEATED WETLANDS
- = DELINEATED WETLANDS (PROPOSED PERMANENT FILL)
- = DELINEATED GROUNDWATER SEEP/SPRING
- TMDL = TMDL WATERSHED
- = ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- = ADDITIONAL TEMPORARY WORKSPACE
- = STONE CONSTRUCTION ENTRANCE
- = TEMPORARY TIMBERMAT CROSSING
- = PROPOSED ACCESS ROAD
- M 1 P = PIPELINE MILE POST
- = PROPOSED PERMANENT WATER BAR (PROFILE)
- = PROPOSED EARTH TRENCH BREAKER (PROFILE)
- = PROPOSED TRENCH PLUG DRAIN (PROFILE)
- GM = PROPOSED GAS LINE MARKER
- TS = PROPOSED TEST STATION
- ANO = PROPOSED ANODE
- RECT = PROPOSED RECTIFIER
- IK = PROPOSED INSULATION KIT
- CAT = PROPOSED AC COUPON
- 43-3-4-31.1 = PARCEL IDENTIFICATION

*LEGEND IS TYPICAL. NOT ALL ITEMS IN LEGEND APPEAR IN DRAWING.

PROPOSED 100' CONSTRUCTION RIGHT-OF-WAY

CONSTRUCTION R/W LIMITS-OF-DISTURBANCE
50'
B.L. PROPOSED CORRIDOR
50'
CONSTRUCTION R/W LIMITS-OF-DISTURBANCE

THRASHER

IFP
ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY
①	16" STEEL API 5L PSL-2, X-52, 0.375" WALL, FBE COATED PIPE	13,371 LF
②	16" STEEL API 5L PSL-2, X-52, 0.500" WALL, ARO COATED PIPE	600 LF
RECP	ROLLED EROSION CONTROL PRODUCT	503,132 SF
SFFB-O	SMARTFENCE FB ORANGE	26,351 LF
TB	EARTH TRENCH BREAKERS	79
WB	PERMANENT WATERBARS	134
GM	GAS LINE MARKERS	60
TS	TEST STATIONS	16

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO.
   PROPOSED LOW PRESSURE GAS LINE MAOP = 1,440 psig
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
GENERAL NOTES

PROPOSED 16" LOW PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018	AFE No.:	A07927
SCALE:	AS SHOWN		
DRAWN BY:	JDJ (TTG)	SHEET	02
CHECKED:	JDH (TTG)		

SHT. NAME: 050-6529\OX97PL\GNOTS REV. 2

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CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\GENERAL NOTES SHEETS.dwg
PLOT DATE/TIME: 5/22/2018 9:00 AM
USER: aaron rowe

GENERAL CONSTRUCTION SPECIFICATIONS

1. GRADING

THE CONTRACTOR SHALL GRADE AS NECESSARY TO MITIGATE THE NECESSITY OF ABRUPT OVER-BENDS OR SAG-BENDS. CONTRACTOR SHALL MINIMIZE THE GRADING WHERE PRACTICAL TO PREVENT UNNECESSARY DISTURBANCE AND MINIMIZE WORK REQUIRED TO RETURN THE RIGHT-OF-WAY TO ITS ORIGINAL ELEVATIONS, SLOPES, AND PROFILE AS CLOSELY AS PRACTICAL, BUT CONSISTENT WITH MINIMIZING ABRUPT OVER-BENDS AND SAG-BENDS. GRADED SUBSOIL MATERIALS SHALL BE STOCK PILED SO IT CAN BE RETURNED TO ITS ORIGINAL DEPTH AND LOCATION AS OPPOSED TO SPREAD ALONG THE RIGHT-OF-WAY. THE CONTRACTOR SHALL GRUB, OR OTHERWISE REMOVE AND DISPOSED OF ALL STUMPS, ROOTS AND DEBRIS FOUND TO BE IN THE WAY OF CONSTRUCTION WITH PERMANENT RIGHT-OF-WAY LIMITS. WHEN THE CONTRACTOR IS CUTTING GRADE ALONG OR ACROSS EXISTING PIPELINES, SPOIL OR MATS SHALL BE PLACED OVER THE EXISTING LINES PER THE REQUIREMENTS OF THE OPERATING COMPANY OF THE FOREIGN PIPELINE.

2. COMPANY FOREIGN LINE AND UTILITY CROSSINGS

CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL SUCH CROSSINGS AND NOTIFY THE OWNER PRIOR TO ANY DITCHING ACTIVITY IN THE VICINITY OF THE CROSSINGS. A MINIMUM CLEARANCE OF 12 in., OR AS REQUIRED BY THE OWNER/OPERATOR, SHALL BE MAINTAINED FROM THE FOREIGN CROSSING. THE CONTRACTOR SHALL MAKE ALL REQUIRED "ONE-CALL" NOTIFICATIONS, AND KEEP DOCUMENTATION OF NOTIFICATIONS. THE CONTRACTOR SHALL KEEP THE MARKINGS REFRESHED AS NECESSARY DURING THE LENGTH OF THE CONSTRUCTION ACTIVITIES, MAKING NECESSARY RE-NOTIFICATIONS AS REQUIRED. COMPANY WILL LOCATE AND MARK LOCATIONS OF KNOWN COMPANY-OWNED FACILITIES WITHIN EXISTING OPERATING LOCATIONS.

IN AREAS WHERE UNDERGROUND FACILITIES, SUCH AS PIPELINES, ELECTRICAL LINES, FIBER OPTIC CABLES, ETC. EXISTING, EXCAVATION BY MACHINE SHALL BE LIMITED TO NO CLOSER THAN 2 FEET (IN ANY DIRECTION) TO THE FACILITY. THE FACILITY SHALL THEN BE EXPOSED AND POSITIVELY LOCATED BY HAND EXCAVATION. AFTER THE FACILITY IS EXPOSED, AND ONLY WHILE A COMPANY REPRESENTATIVE IS ON-SITE, EXCAVATION BY MACHINE IS PERMITTED TO WITHIN 1 FOOT (IN ANY DIRECTION) OF THE FACILITY. THE REMAINING EXCAVATION MUST BE HAND DUG.

3. DITCH SPECIFICATIONS

DITCH WIDTH AND DEPTH – UNLESS OTHERWISE STATED ON THE DRAWINGS OR RIGHT-OF-WAY LINE LIST, THE DITCH SHALL BE A MINIMUM OF 12 in. WIDER THAN THE PIPE BEING LAID FOR PIPE DIAMETERS LESS THAN 12 in. AND A MINIMUM OF 18 in. WIDER FOR PIPE DIAMETERS 12 in. AND GREATER AND OF SUCH DEPTH THAT THE PIPE SHALL HAVE 36 in. MINIMUM COVER IN SOIL AND 24 in. IN CONSOLIDATED ROCK, MEASURED FROM THE TOP OF THE PIPE TO THE AVERAGE LEVEL OF THE ORIGINAL OR RESTORED GROUND ON THE TWO SIDES OF THE DITCH, WHICHEVER IS LOWER.

CONSOLIDATED ROCK – CONSOLIDATED ROCK IS DEFINED AS ROCK LAYERS WHERE THE UPPERMOST SURFACE EXISTS AT A HIGHER ELEVATION THAN THE ELEVATION OF THE TOP OF THE PIPE. THIS CONDITION PROVIDES PROTECTION AGAINST DAMAGE FROM EXTERNAL FORCES AND JUSTIFIES COVER.

DITCH GRADING – THE BOTTOM OF THE DITCH SHALL BE CUT TO A UNIFORM GRADE SO THAT THE FULL WIDTH OF THE DITCH SHALL BE AVAILABLE FOR PROVIDING SLACK IN THE LINE WHEN LAID.

BEND EXCAVATIONS – AT OVER-BENDS AND SIDE-BENDS, THE CONTRACTOR SHALL EXCAVATE THE DITCH TO ALLOW PROPER CLEARANCE BETWEEN THE INSIDE BEND OF THE PIPE AND THE BOTTOM OR SIDE OF THE DITCH TO MAINTAIN THE MINIMUM COVER.

ROCK – IN ALL CASES WHERE ROCK, OR ANY BOULDER LARGER THAN TWO in. IN DIAMETER IS ENCOUNTERED IN THE BOTTOM OF THE DITCH, THE DITCH SHALL BE EVENLY PADDED WITH SOIL, SAND OR OTHER PADDING MATERIAL IN ORDER TO PREVENT THE ROCK OR BOULDERS FROM COMING INTO CONTACT WITH THE PIPE COATING.

4. SPOIL BANK

THE SPOIL BANK FROM THE DITCHING OPERATIONS SHALL NOT BE PLACED ON ANY LOOSE DEBRIS OR FOREIGN MATTER WHICH MIGHT BECOME MIXED DURING PADDING AND BACKFILLING OPERATIONS. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN GAPS OR OPENINGS IN THE SPOIL BANK ACROSS CULTIVATED FIELDS, SO THAT EXCESSIVE RAINS DO NOT CAUSE WATER TO BACK UP AND FLOOD CULTIVATED SECTIONS. EXTREME CARE SHALL BE EXERCISED TO KEEP ALL DRAIN DITCHES AND WATER COURSES OPEN AND USEFUL.

5. TEMPORARY BRIDGES

WHEN THE DITCH IS EXCAVATED THROUGH LANDS WHERE LIVESTOCK/WILDLIFE IS CONFINED OR THROUGH AGRICULTURAL FIELDS WHERE THE COMPANY DETERMINES IT IS DESIRABLE FOR THE LANDOWNER OR TENANT TO HAVE A PASSAGEWAY ACROSS THE DITCH, THE CONTRACTOR SHALL PLUG THE DITCH OR PROVIDE SAFE, TEMPORARY BRIDGES FOR CROSSING THE DITCH AND LEAVE AN OPENING IN THE SPOIL BANK.

6. EXCAVATING NEAR IN-SERVICE PIPELINES

WHEN DITCHING PARALLEL TO AN EXISTING PIPELINE IN THE SAME RIGHTS-OF-WAY, NEAR THE EXISTING LINE AND DEEPER THAN THE EXISTING LINE, CARE SHOULD BE TAKEN TO LEAVE SUFFICIENT DISTANCE AND SUPPORT TO ENSURE SAID LINE DOES NOT SLOUGH OFF INTO NEW EXCAVATION. IF PARALLEL LINE IS A COUPLED HIGH PRESSURE LINE, IT IS NOT PERMITTED TO EXPOSE MORE THAN ONE COUPLING AT A TIME. IN ALL INSTANCES, THE WORK SHOULD BE PLANNED SUCH THAT THE EXCAVATION IS OPEN A MINIMUM AMOUNT OF TIME.

7. HAULING AND STRINGING

THE CONTRACTOR SHALL HAUL AND STRING PIPE, CASING AND OTHER MATERIALS TO THE RIGHT-OF- WAY OR WORK AREA. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TRUCKS AND EQUIPMENT FOR THE HAULING AND SPOTTING OF ALL MATERIALS. THE CONTRACTOR SHALL FURNISH SKIDS AND PLACE PIPE ON SKIDS ON THE RIGHT-OF-WAY IN A MANNER WHICH KEEPS BOTH ENDS FREE OF DIRT AND DEBRIS.

8. BENDING

FIELD BENDING – WHERE IT IS NECESSARY TO BEND PIPE, ONLY COLD BENDS SHALL BE EMPLOYED. THE BENDS SHALL BE FREE FROM BUCKLING, FLATTENING, CRACKS OR OTHER EVIDENCE OF MECHANICAL DAMAGE AND ALL BENDS SHALL NOT HAVE A DIFFERENCE BETWEEN THE MAXIMUM AND MINIMUM DIAMETERS IN EXCESS OF 2.5 % OF THE NOMINAL DIAMETER. ALL BENDS SHALL MEET THE CRITERIA SET FORTH IN DOT PART 192.

8. BENDING (CONT'D)

SLACK AND LONGITUDINAL WELDS – ALL OVER-BENDS, SAGS AND SIDE-BENDS SHALL BE MADE TO PROVIDE AN ADEQUATE AMOUNT OF SLACK IN THE PIPELINE. ON PIPE HAVING A LONGITUDINAL WELD, THE LONGITUDINAL WELD MUST BE LOCATED AS NEAR AS PRACTICABLE TO THE NEUTRAL AXIS OF THE BEND.

BENDING MACHINE – EACH BEND SHALL BE MADE USING A COMPANY APPROVED BENDING MACHINE HAVING A FULL CIRCLE BENDING SHOE WITH A NEOPRENE OR URETHANE LINING TO PRODUCE A SMOOTH, SYMMETRICAL BEND, UNLESS SPECIFIED OTHERWISE BY THE COMPANY. ON PIPE CONTAINING A LONGITUDINAL WELD, THE LONGITUDINAL SEAM MUST BE AS NEAR AS PRACTICAL TO NEUTRAL AXIS OF THE BEND UNLESS THE BEND IS MADE WITH AN INTERNAL BENDING MANDREL OR THE PIPE IS 12 in. OR LESS IN OUTSIDE DIAMETER OR HAS A DIAMETER-TO-WALL THICKNESS RATIO LESS THAN 70. IF THE PIPE IS INTERNALLY COATED, THE BEARING SURFACES OF THE MANDREL SHALL BE CONSTRUCTED TO AVOID PERMANENTLY MARKING OR DAMAGING THE INTERNAL COATING. NO APPRECIABLE STRETCHING OR THINNING OF THE PIPE WALL THICKNESS SHALL BE PERMITTED.

BENDING LIMITATION – DEFLECTION SHALL BE LIMITED TO A MAXIMUM OF ONE AND ONE-HALF DEGREES PER PIPE DIAMETER MEASURED LONGITUDINALLY ALONG THE PIPE. A COMPANY ACCEPTED METHOD OF MEASUREMENT SHALL BE USED BY THE CONTRACTOR WHEN MARKING THE PIPE IN PREPARATION FOR MAKING FIELD BENDS. BENDING SHALL NOT BE ALLOWED IN A CIRCUMFERENTIAL WELD AND NOT CLOSER THAN 6 ft. TO AN OPEN END.

9. SWABBING AND CLOSING OPEN ENDS

SWABBING – EACH PIPE JOINT SHALL BE SWABBED AS NECESSARY TO REMOVE ALL DIRT AND FOREIGN MATTER FROM THE INSIDE OF THE PIPE BEFORE THE JOINTS ARE ALIGNED AND WELDED. THE SWABBING OPERATION SHALL NOT BE CARRIED ON MORE THAN FOUR JOINTS AHEAD OF THE FIRING LINE WELDERS OR ALIGNING AND WELDING OPERATIONS.

CLOSING OF PIPE ENDS – WHERE THE LINE IS WELDED IN LONG SECTIONS BY THE FIRING LINE METHOD, THE ENDS OF THE LONG SECTIONS SHALL BE CLOSED AND KEPT CLOSED IN A MANNER APPROVED BY THE COMPANY UNTIL THE LONG SECTIONS ARE FINALLY JOINED. DURING THE LAYING OPERATIONS, CLOSE ATTENTION SHALL BE GIVEN TO OPEN ENDS TO ENSURE A COMPLETELY OPEN AND CLEAN LINE FREE OF ANY OBSTRUCTIONS. ALL REASONABLE PRECAUTIONS SHALL BE TAKEN TO PREVENT WATER FROM ENTERING THE LINE.

PREVENTION OF FOREIGN MATTER IN THE PIPELINE – THE OPEN END OF THE LINE SHALL BE SECURELY CLOSED AT THE END OF EACH DAY'S WORK TO PREVENT ENTRANCE OF SMALL ANIMALS OR THE INTRODUCTION OF FOREIGN MATTER OF ANY NATURE AND SHALL NOT BE REOPENED UNTIL WORK IS RESUMED. ANY OBSTRUCTIONS REMAINING IN THE LINE AFTER THE COMPLETION THEREOF SHALL BE REMOVED.

10. POSITING OF LONGITUDINAL SEAM

IN INSTANCES WHERE PIPE OTHER THAN SEAMLESS IS FURNISHED BY THE COMPANY, THE LONGITUDINAL SEAMS OF SUCH PIPE SHALL BE STAGGERED BY NOT MORE THAN 45°. LONGITUDINAL WELD SEAMS SHALL HAVE A MINIMUM FOUR-INCH CIRCUMFERENTIAL OFFSET BETWEEN ABUTTING JOINTS. UNLESS OTHERWISE SPECIFIED, THE LONGITUDINAL SEAMS ON ADJACENT PIPE SHALL BE STAGGERED, PLACING ONE APPROXIMATELY IN THE 10 O'CLOCK POSITION AND THE OTHER APPROXIMATELY IN THE 2 O'CLOCK POSITION.

11. LOWERING-IN PIPE

OVER-BENDS, SIDE-BENDS AND SAG-BENDS – ALL OVER-BENDS SHALL BE MADE AND INSTALLED TO CLEAR THE HIGH POINT OF THE BOTTOM OF THE DITCH BY AT LEAST 12 IN. AT THE POINT OF BEND. AT SIDE-BENDS, THE PIPE SHALL BE BENT AND LOWERED TO LAY AGAINST THE OUTSIDE WALL AT THE BOTTOM OF THE DITCH. ALL SAG- BENDS SHALL CONTINUOUSLY LIE ON FIRM GROUND AT THE BOTTOM OF THE DITCH.

PIPE SLINGS AND CRADLES – THE CONTRACTOR SHALL PROVIDE PADDED SLINGS FOR HANDLING COATED AND WRAPPED PIPE. THE USE OF BELTING REINFORCED WITH WIRE CABLE SHALL NOT BE PERMITTED. ANY METHOD OF LOWERING-IN WHICH PREVENTS DAMAGE TO THE COATING SHALL BE ACCEPTABLE; HOWEVER, THE USE OF CRADLES IS PREFERRED.

CONDITION OF DITCH – PRIOR TO LOWERING-IN THE CONTRACTOR SHALL PROVIDE, TO THE SATISFACTION OF THE COMPANY, A DITCH WHICH IS FREE FROM EXCESS DEBRIS, LARGE ROCKS AND ROOTS, WELDING RODS, SKIDS OR OTHER SUCH OBJECTS WHICH CAN CAUSE DAMAGE TO THE PIPE AND ITS PROTECTIVE COATING DURING LOWERING-IN OPERATIONS. THE CONTRACTOR SHALL PUMP WATER FROM THE DITCH, BELL HOLES OR OTHER TIE-IN EXCAVATIONS PRIOR TO LOWERING-IN.

ROCK DITCH PADDING – IN ALL CASES WHERE ROCKS 2 in. AND LARGER ARE ENCOUNTERED IN THE BOTTOM OF THE DITCH AND NO ADDITIONAL PIPE COATING PROTECTION IS PROVIDED, THE CONTRACTOR SHALL PROVIDE PADDING MATERIAL PLACED EVENLY AND CONTINUOUSLY TO A MINIMUM DEPTH OF 8 in. ALONG THE BOTTOM OF THE DITCH AS APPROVED BY THE COMPANY.

SUPPORTS – THE CONTRACTOR SHALL CONSTRUCT THE PIPELINE TO LIE ON THE BOTTOM OF THE PIPE TRENCH. ALL BENDS SHALL BE MADE TO FIT THE PIPE DITCH. WHERE PIPE CANNOT BE DIRECTLY SUPPORTED BY THE BOTTOM OF THE TRENCH, SUPPORT SHALL BE PROVIDED BY SANDBAGS OR OTHER COMPANY APPROVED MATERIALS. SANDBAGS SHALL BE PLACED AT POINTS TO PROVIDE STRESS-FREE SUPPORT FOR THE PIPELINE SUBSEQUENT TO BACKFILLING. SPACING INTERVALS FOR SANDBAG SUPPORTS SHALL BE 15 FT. OR LESS AS REQUIRED BY THE COMPANY. SUPPORTS COMPRISED OF MATERIALS OTHER THAN SANDBAGS SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND AT SPACING INTERVALS NO GREATER THAN THE APPROPRIATE MAXIMUM INTERVAL RECOMMENDED BY THE MANUFACTURER. SUPPORT SHALL BE PLACED AT POINTS TO PROVIDE A STRESS-FREE INSTALLATION SUBSEQUENT TO BACKFILL. THE CONTRACTOR SHALL NOT USE ANY SUPPORT METHOD WITHOUT THE PRIOR APPROVAL OF THE COMPANY AND WITHOUT PROVIDING THE COMPANY WITH THE MANUFACTURER'S RECOMMENDED INSTALLATION DIRECTIONS FOR THE SPECIFIC METHOD BEING USED.

TIE-INS – SECTIONS OF THE PIPELINE EXCAVATED FOR TIE-INS SHALL BE SUPPORTED WITH SANDBAGS OR OTHER APPROVED MATERIALS AT INTERVALS INDICATED ABOVE. SUPPORTS SHALL BE PLACED IMMEDIATELY AFTER FINAL TIE-IN TO PROVIDE A STRESS-FREE INSTALLATION SUBSEQUENT TO THE BACKFILLING OPERATION.

12. BACKFILLING

AFTER LOWERING-IN HAS BEEN COMPLETED, BUT BEFORE BACKFILLING, THE DITCH SHALL BE PUMPED DRY IN UPLAND AREAS AND THE LINE SHALL BE INSPECTED TO ENSURE THAT NO SKIDS, BRUSH, STUMPS, TREES, BOULDERS OR DEBRIS ARE IN THE DITCH. NO SUCH MATERIALS OR DEBRIS ARE TO BE BACKFILLED INTO THE DITCH. AFTER THE PIPE HAS BEEN INSPECTED AND APPROVED BY THE COMPANY, AFTER ALL DAMAGE TO THE PROTECTIVE COATING HAS BEEN REPAIRED AND AFTER THE COATING ON THE PIPE HAS HAD SUFFICIENT TIME TO CURE, THEN THE CONTRACTOR SHALL BACKFILL THE DITCH SUFFICIENTLY TO PREVENT FLOATING. THE CONTRACTOR SHALL COMPLETE THE FILLING OF THE DITCH TO PRODUCE A TRIM BACKFILL. EXCAVATED MATERIAL SHALL BE PLACED IN THE DITCH. TOPSOIL, WHERE IT HAS BEEN SEGREGATED, SHALL BE BACKFILLED AS CLOSE AS POSSIBLE TO ITS ORIGINAL LOCATION.

ROCK, TWO INCHES IN DIAMETER AND LARGER, OR LIKE MATERIALS SHALL NOT BE BACKFILLED DIRECTLY ONTO THE PIPE. WHERE SUCH MATERIALS ARE ENCOUNTERED, THE CONTRACTOR SHALL HAUL, IF NECESSARY, SUFFICIENT EARTH OR SAND TO BE BACKFILLED AROUND AND OVER THE PIPE TO FORM A PROTECTIVE PADDING OR CUSHION TO A MINIMUM OF EIGHT INCHES OR, AS OTHERWISE SPECIFIED IN THE SCOPE OF WORK, IN DEPTH BETWEEN THE PIPE AND ANY GRAVEL OR SMALL BROKEN ROCK TO BE BACKFILLED. LARGE ROCK OR BOULDERS IN EXCESS OF 24 in. IN DIAMETER, WIDTH OR LENGTH, SHALL NOT BE BACKFILLED INTO THE DITCH. SUCH ROCK SHALL BE DISPOSED OF PROPERLY.

13. TRENCH BREAKER

THE CONTRACTOR SHALL INSTALL EROSION BREAKERS IN THE DITCH OVER, UNDER AND AROUND THE PIPE TO PROVIDE FULL PROTECTION AGAINST BACKFILL WASHING AT VARIOUS POINTS ALONG THE PIPELINE. BREAKER INSTALLATIONS AND SPACING SHALL COMPLY WITH THE FOLLOWING SPECIFICATIONS AS WELL AS COMPANY, LOCAL, STATE, AND FEDERAL REQUIREMENTS.

- BREAKER MATERIALS SHALL INCLUDE, BUT ARE NOT BE LIMITED TO, DECOMPOSABLE BAGS, SAND AND ANY OTHER MATERIALS REQUIRED TO FACILITATE THE PROPER PLACEMENT OF THE BREAKER MATERIAL IN THE DITCH.
- BREAKER INSTALLATIONS MAY BE COMPRISED OF EITHER A MULTIPLE SANDBAG CONFIGURATION OR BY OTHER APPROVED METHODS. ALL BREAKER INSTALLATIONS SHALL MEET WITH THE APPROVAL OF THE COMPANY.
- BREAKER SIZE IS DEPENDENT ON THE EXTENT AND CONDITION OF THE DITCH IN DEPTH, WIDTH, SLOPE AND GRADE. AT A MINIMUM, BREAKERS SHALL EXTEND THE WIDTH AND DEPTH OF THE DITCH.
- BREAKERS, SHALL BE SPACED ALONG THE DITCH IN ACCORDANCE WITH THE COMPANY'S ENVIRONMENTAL STANDARDS.

14. DIRT PADDING

THE CONTRACTOR SHALL INSTALL ROCK-FREE DIRT PADDING IN AREAS DESIGNATED BY THE COMPANY. TOPSOIL SHALL NOT BE USED FOR PADDING THE DITCH. DIRT PADDING SHALL BE INSTALLED IN THE BOTTOM OF THE DITCH TO A MINIMUM DEPTH OF 8 IN., PRIOR TO LOWERING-IN THE PIPELINE, IF OTHER ACCEPTABLE SUPPORT FOR PROTECTING THE BOTTOM OF THE PIPE IS NOT UTILIZED. A MINIMUM OF 8 in. OF DIRT PADDING SHALL BE INSTALLED AS COVER ON TOP OF THE LINE AS PROTECTION PRIOR TO BACKFILLING. ACCEPTABLE ROCK-FREE PADDING MATERIAL MAY BE OBTAINED DIRECTLY FROM THE SPOIL, OR BY USING A PADDING MACHINE WITH MATERIAL TAKEN DIRECTLY FROM THE SPOIL OR ROCK-FREE PADDING MATERIAL CAN BE HAULED IN BY THE CONTRACTOR.

15. CLEAN-UP

THE CONTRACTOR SHALL KEEP THE RIGHT-OF-WAY CLEAR OF LITTER, SKIDS, DEFECTIVE MATERIALS, AND ALL OTHER CONSTRUCTION DEBRIS IMMEDIATELY BEHIND ITS OPERATIONS, TO THE SATISFACTION OF THE COMPANY. UPON COMPLETION OF THE BACKFILL, THE CONTRACTOR WILL CLEAN THE RIGHT-OF-WAY IN A NEAT AND ACCEPTABLE CONDITION. SURPLUS MATERIALS SHALL BE ASSEMBLED AND DELIVERED BY CONTRACTOR TO A LOCATION DESIGNATED BY THE COMPANY. FENCES SHALL BE RECONSTRUCTED TO THE ORIGINAL LINE AND GATES INSTALLED AS INDICATED BY THE COMPANY. THE CONTRACTOR SHALL FURNISH GATES, FENCING AND POSTS.

THE RIGHT-OF-WAY SHALL BE DISKED, LIMED, SEEDED AND FERTILIZED DURING THE CLEAN-UP OPERATION. THE CONTRACTOR SHALL FURNISH THE LIME, SEED AND FERTILIZER. SEEDING, FERTILIZING AND MULCHING MUST BE DONE WITHIN 6 DAYS OF FINAL CLEAN UP OR IN ACCORDANCE WITH COMPANY ENVIRONMENTAL REQUIREMENTS.

PIPELINE MARKERS SHALL BE INSTALLED AT POINTS DESIGNATED BY THE COMPANY DURING CLEAN-UP OPERATIONS. THE COMPANY SHALL FURNISH LINE AND AERIAL MARKERS.

THRASHER

IFP

ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO.
2. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
GENERAL CONSTRUCTION SPECS

PROPOSED 16" LOW
PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018
AFE No.:	A07927
SCALE:	AS SHOWN
DRAWN BY:	JDJ (TTG)
CHECKED:	JSH (TTG)

SHEET 03

SHT. NAME: 050-6529\0X97PL\SPECS | REV. 2

ACCESS ROADS			
ROAD #	LAT	LONG	LENGTH (FT)
1	N 39°14'38.83"	W 80°48'34.21"	7,791
2	N 39°14'23.78"	W 80°48'49.10"	6,747

MIDDLE OHIO NORTH
OMN-2012-SWS4134
IRON PRESENT

STA. 85+00 ROAD CROSSING
LAT: N 39°14'43.15"
LONG: W 80°48'35.38"

#08

#09

#10

#07

CO RTE 50/6

CO RTE 11/1

PROJECT AOI

LEFT FORK RUN RD

STA. 134+04 END
LAT: N 39°14'40.02"
LONG: W 80°49'21.75"

#12

#11

#06

WALTER'S RUN RD

MIDDLE OHIO NORTH
OMN-2012-SWS4135
IRON PRESENT

MIDDLE OHIO NORTH
OMN-2012-SWS4133
IRON PRESENT

Arnold Cr

#05

STA. 0+00 BEGIN
LAT: N 39°14'00.28"
LONG: W 80°48'14.22"

CO RTE 11/4

USER: jason rowe
PLOT DATE/TIME: 5/22/2018 9:00 AM
LAYOUT TAB: INDEX
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\INDEX SHEET.dwg

THRASHER

0 500 1000
HORIZ. SCALE IN FEET

IFP
ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO.
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. MAPPING SOURCE: OXFORD, WV USGS 7.5 MINUTE QUADRANGLE DATED 2018.
   WEST UNION, WV USGS 7.5 MINUTE QUADRANGLE DATED 2016.
4. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY:
   HORIZONTAL – NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
   VERTICAL – NAVD 88 (GEOID12B), U.S. SURVEY FOOT
5. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.
6. FOR LEGEND/ABBREVIATION INFORMATION, REFER TO THE GENERAL NOTES SHEET.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
INDEX SHEET

PROPOSED 16" LOW
PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018
AFE No.:	A07927
SCALE:	AS SHOWN
DRAWN BY:	JDJ (TTG)
CHECKED:	JRH (TTG)

SHEET 04

SHT. NAME: 050-6529\0X97PL\INDEX REV. 2

OWNERSHIP, PARCEL NO. & LENGTH (FT) OF PIPE

HAESSLY LAND & TIMBER LLC 9-8-22-10 HORIZ. DIST. = 154'± SLOPE DIST. = 154'±

WALTERS, ZOE KATHRYN 9-8-19-27 HORIZ. DIST. = 546'± SLOPE DIST. = 580'±

WALTERS, ZOE KATHRYN 9-8-19-27 HORIZ. DIST. = 700'± SLOPE DIST. = 757'±

WALTERS, ZOE KATHRYN 9-8-19-27 HORIZ. DIST. = 647'± SLOPE DIST. = 672'±

HEASTER, CHARLES P. 9-8-23-1 HORIZ. DIST. = 53'± SLOPE DIST. = 53'±

STATIONING & P.I. ANGLES

0+00 | P.I. 0+25 ANGLE: 08° LT | P.I. 2+57 ANGLE: 17° LT | P.I. 4+78 ANGLE: 27° LT | 6+23 EX. CONSOL GAS LINE | 7+00 SEPARATION IN PROFILE | P.I. 10+31 ANGLE: 17° RT | P.I. 12+83 ANGLE: 16° LT | 14+00 SEPARATION IN PROFILE | 14+67 EX. CONSOL GAS LINE | P.I. 16+52 ANGLE: 14° LT | 19+04 EX. DOWN FENCE | P.I. 19+13 ANGLE: 75° LT | 20+40 EX. DOWN FENCE | 21+00

ALIGNMENT PLAN VIEW

F&S LEGEND
- = PROJECT AREA-OF-INTEREST
- SFFB = SMARTFENCE FB ORANGE
- = ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- = PROPOSED CULVERT*
- = PROPOSED DITCH
- = PERMANENT WATER BAR (PLAN)
- = PERMANENT WATER BAR (PROFILE)
- = EARTH TRENCH BREAKER (PROFILE)
- = TEMPORARY TIMBERMAT (AS NEEDED)
- = STONE CONSTRUCTION ENTRANCE

N/F HAESSLY LAND & TIMBER LLC 9-8-22-10

MIDDLE OHIO NORTH OMN-2012-SWS4135 IRON PRESENT

STA. 0+00 BEGIN LAT: N 39°14'00.28" LONG: W 80°48'14.22"

EXISTING OXFORD 97 GRAVEL WELL PAD

EXISTING WELL PAD GRAVEL ACCESS ROAD WITH NO UPGRADES (EXTENDS TO COUNTY ROUTE 23/2)

N/F WALTERS, ZOE KATHRYN 9-8-19-27

ACCESS ROAD 1 (EXISTING UNPAVED ROAD WITH PROPOSED UPGRADES) (40' LIMITS-OF-DISTURBANCE) (EXTENDS TO COUNTY ROUTE 11) (SEE SHEET 11)

KLF-STREAM47 (INT)
KLF-STREAM71 (EPH)
KLF-STREAM78 (EPH)
KLF-CULV39 EXISTING 18" METAL CULVERT
KLF-WETLAND65 (PEM)
KLF-STREAM76 (EPH)
KLF-STREAM80 (EPH)
KLF-STREAM85 (EPH)
KLF-WETLAND54 (PEM)
KLF-WETLAND55 (PEM)
MIDDLE OHIO NORTH OMN-2012-SWS4134 IRON PRESENT
MATCHMARK SHEET-06 (STA. 21+00)
KLF-WETLAND07 (PEM)
EX. CONSOL GAS LINE
KLF-GW20 (SEEP)
KLF-WETLAND56 (PEM) PROPOSED PERMANENT FILL INSIDE LIMITS-OF-DISTURBANCE
EX. CONSOL GAS LINE
PROPOSED BASELINE OF CORRIDOR
8,022'± TOTAL RIGHT-OF-WAY ON WALTERS PROPERTY (PARCEL 27)
KLF-STREAM47 (INT)
KLF-STREAM75 (EPH)
EX. CONSOL GAS LINE
MIDDLE OHIO NORTH OMN-2012-SWS4133 IRON PRESENT
PROPOSED 16" LOW PRESSURE STEEL GAS LINE
KLF-STREAM47D (INT)
KLF-STREAM68 (EPH)
KLF-STREAM69 (INT)
KLF-WETLAND60 (PEM)
KLF-WETLAND59 (PEM)
MIDDLE OHIO NORTH OMN-2012-SWS4134 IRON PRESENT
KLF-STREAM71 (EPH)
KLF-STREAM47 (INT)
KLF-STREAM03 (EPH)
KLF-STREAM66 (INT)
KLF-STREAM67 (EPH)
KLF-GW21 (SEEP)
KLF-STREAM66 (EPH)
KLF-WETLAND57 (PEM)
100' CONSTRUCTION RIGHT-OF-WAY/ LIMITS-OF-DISTURBANCE
N/F WALTERS, ZOE KATHRYN 9-8-19-27
N/F HEASTER, CHARLES P ET AL 9-8-23-1

DESIGN CLASS LOCATION

0+00 — CLASS 1 — 7+00 | SEPARATION IN PROFILE | 7+00 — CLASS 1 — 14+00 | SEPARATION IN PROFILE | 14+00 — CLASS 1 — 21+00

PIPE DETAIL

0+00 GM 0+25 | 300' ② | 2+57 GM 3+00 | 3+20 TS | 4+76 GM 4+34' ① 6+23 TS | 7+00 SEPARATION IN PROFILE | 7+00 GM 7+80 | 380' ① | 10+31 GM 10+52 | 10+20' ② 10+72 | 357' ① 12+83 GM | 14+00 SEPARATION IN PROFILE | 14+00 ① 14+45 | 46' | 40' ② | 14+85 15+19 | 16+52 GM 639' ① 19+13 GM | 21+00

ALIGNMENT PROFILE VIEW

EX. WELL PAD ELEV. = 1,334'
5' MIN. COVER UNDER EX. WELL PAD
EXISTING GROUND
PROPOSED 16" LOW PRESSURE STEEL GAS LINE
MAINTAIN 24" MIN. SEPARATION BETWEEN PRO. & EX. PIPELINES
6+23 EX. CONSOL GAS LINE
4" MIN. COVER
5' MIN. COVER UNDER STREAM
14+67 EX. CONSOL GAS LINE
14+80 KLF-WETLAND56 (PEM)
14+65 KLF-WETLAND58 (PEM)
EXISTING GROUND
19+04 EX. DOWN FENCE
20+40 EX. DOWN FENCE
PROPOSED 16" LOW PRESSURE STEEL GAS LINE
5' MIN. COVER UNDER WETLAND

- = INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER
- = INDICATES APPROXIMATE LOCATION OF PROPOSED TRENCH PLUG DRAIN (SEE DETAILS 9-11 ON SHEET 30)

THRASHER

0 100 200 HORIZ. SCALE IN FEET
0 100 200 VERT. SCALE IN FEET

IFP
ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

①	16" STEEL API 5L PSL-2, X-52, 0.375" WALL, FBE COATED PIPE	1,856 LF
②	16" STEEL API 5L PSL-2, X-52, 0.500" WALL, ARO COATED PIPE	360 LF
RECP	ROLLED EROSION CONTROL PRODUCT	109,341 SF
SFFB-O	SMARTFENCE FB ORANGE	1,257 LF
TB	EARTH TRENCH BREAKERS	15
WB	PERMANENT WATERBARS	26
GM	GAS LINE MARKERS	8
TS	TEST STATIONS	4
NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO. PROPOSED LOW PRESSURE GAS LINE MAOP = 1,440 psig
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY: HORIZONTAL - NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT VERTICAL - NAVD 88 (GEOID12B), U.S. SURVEY FOOT
4. ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
5. THE BOUNDARY MONUMENTS FOUND AND PROPERTY LINES SHOWN ON THIS DRAWING WERE OBTAINED FROM PARTIAL FIELD SURVEY AND RESEARCHED INFORMATION TAKEN FROM VARIOUS RECORDS ON FILE IN THE LOCAL COUNTY COURTHOUSE. TO OBTAIN A MORE ACCURATE BOUNDARY LINE LOCATION, A FULL PROPERTY SURVEY IS RECOMMENDED.
6. ALL EXISTING FENCES AND ROADS DISTURBED DURING CONSTRUCTION TO BE REPLACED BY CONTRACTOR POST-CONSTRUCTION.
7. SEE SHEETS 27 & 34 REGARDING WATERBARS, CULVERTS AND DITCHES TO BE INSTALLED ON ACCESS ROADS. SEE SHEET 37 FOR CULVERT AND DITCH SIZING ON ACCESS ROADS. CULVERT AND DITCH DESIGNS ARE BASED ON AVAILABLE MAPPING AND ASSUMED PROPOSED ROAD SURFACE ELEVATIONS.
8. ALL SHEET BANDS EXCLUDING ALIGNMENT PLAN VIEW REFERENCE THE ALIGNMENT PROFILE VIEW.
9. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.
10. FOR LEGEND/ABBREVIATION INFORMATION, REFER TO THE GENERAL NOTES SHEET.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
STA. 0+00 TO STA. 21+00

PROPOSED 16" LOW PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018
AFE No.:	A07927
SCALE:	AS SHOWN
DRAWN BY:	JDJ (TTG)
CHECKED:	JRH (TTG)

SHEET 05

SHT. NAME: 050-6529\0X97PL\PLAN1 REV. 2

LAYOUT TAB: PLAN1
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\PLAN SHEETS 1-3.dwg
PLOT DATE/TIME: 5/22/2018 9:12 AM
USER: aaron rowe

OWNERSHIP, PARCEL NO. & LENGTH (FT) OF PIPE

HEASTER, CHARLES P.
9-8-23-1
HORIZ. DIST. = 1,991'±
SLOPE DIST. = 2,022'±

WALTERS, ZOE KATHRYN
9-8-19-27
HORIZ. DIST. = 109'±
SLOPE DIST. = 113'±

STATIONING & P.I. ANGLES

P.I. 21+03 ANGLE: 16° LT
P.I. 23+85 ANGLE: 23° RT
P.I. 26+03 ANGLE: 22° RT
P.I. 27+73 ANGLE: 15° RT
P.I. 31+51 ANGLE: 05° RT
P.I. 34+74 ANGLE: 08° LT
P.I. 38+43 ANGLE: 10° RT
P.I. 40+02 ANGLE: 87° LT
40+96 EX. DOWN FENCE

ALIGNMENT PLAN VIEW

KLF-STREAM03 (EPH)
KLF-STREAM67 (EPH)
KLF-STREAM66 (INT)
KLF-GW21 (SEEP)
KLF-STREAM66 (EPH)
MIDDLE OHIO NORTH OMN-2012-SWS4134 IRON PRESENT
N/F WALTERS, ZOE KATHRYN 9-8-19-27
KLF-WETLAND57 (PEM)
KLF-WETLAND56 (PEM)
KLF-STREAM65 (EPH)
KLF-WETLAND54 (PEM)
EX. CONSOL GAS LINE
KLF-WETLAND55 (PEM)
KLF-GW20 (SEEP)
ACCESS ROAD 1 (EXISTING UNPAVED ROAD WITH PROPOSED UPGRADES) (40' LIMITS-OF-DISTURBANCE) (EXTENDS TO COUNTY ROUTE 11) (SEE SHEET 11)
PROPOSED BASELINE OF CORRIDOR
EX. CONSOL GAS LINE
KLF-WETLAND07 (PEM)
MIDDLE OHIO NORTH OMN-2012-SWS4133 IRON PRESENT
MATCHMARK SHEET-05 (STA. 21+00)
CULVERT 6 EXISTING METAL CULVERT
CHERWELL 1407 HEASTER S07 (INT)
KLF-GW19 (SEEP)
MIDDLE OHIO NORTH OMN-2012-SWS4134 IRON PRESENT
N/F WALTERS, ZOE KATHRYN 9-8-19-27
CHERWELL 1407 HEASTER W1 (PEM)
CHERWELL 1407 HEASTER S11 (EPH)
CHERWELL 1407 HEASTER S10 (EPH)
KLF-STREAM58 (EPH)
EX. CONSOL GAS LINE
KLF-GW18 (SEEP)
CULVERT 7 EXISTING METAL CULVERT
8,822± TOTAL RIGHT-OF-WAY ON WALTERS PROPERTY (PARCEL 27)
100' CONSTRUCTION RIGHT-OF-WAY/ LIMITS-OF-DISTURBANCE
PROPOSED 16" LOW PRESSURE STEEL GAS LINE
KLF-STREAM09 (EPH)
MATCHMARK SHEET-07 (STA. 42+00)
MIDDLE OHIO NORTH OMN-2012-SWS4134 IRON PRESENT
N/F HEASTER, CHARLES P. ET AL 9-8-23-1
MIDDLE OHIO NORTH OMN-2012-SWS4133 IRON PRESENT

F&S LEGEND
- PROJECT AREA-OF-INTEREST
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- PROPOSED CULVERT*
- PROPOSED DITCH
- PERMANENT WATER BAR (PLAN)
- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- TEMPORARY TIMBERMAT (AS NEEDED)
- STONE CONSTRUCTION ENTRANCE

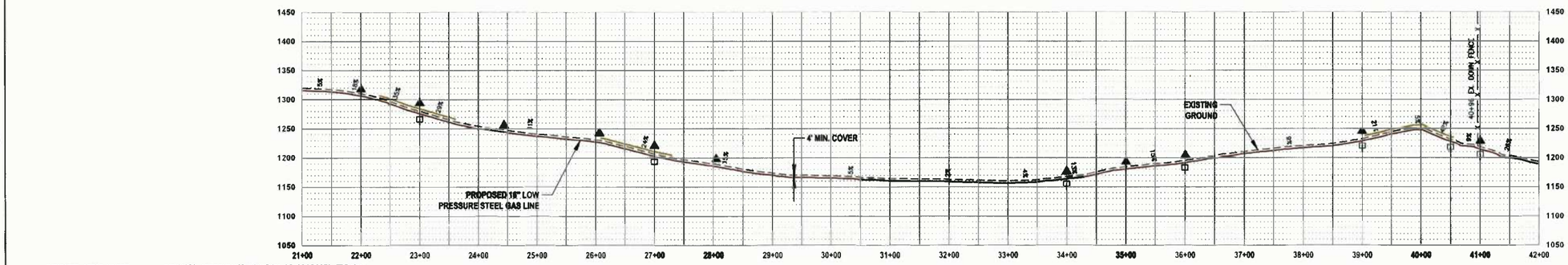
DESIGN CLASS LOCATION

CLASS 1

PIPE DETAIL

2,135'

ALIGNMENT PROFILE VIEW



INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER

INDICATES APPROXIMATE LOCATION OF PROPOSED TRENCH PLUG DRAIN (SEE DETAILS 9-11 ON SHEET 30)

THRASHER

0 100 200
HORIZ. SCALE IN FEET
0 100 200
VERT. SCALE IN FEET

IFP
ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

①	16" STEEL API 5L PSL-2, X-52, 0.375" WALL, FBE COATED PIPE	2,135 LF
RECP	ROLLED EROSION CONTROL PRODUCT	38,746 SF
SFTB-O	SMARTFENCE FB ORANGE ORANGE	2,685 LF
TB	EARTH TRENCH BREAKERS	7
WB	PERMANENT WATERBARS	11
GM	GAS LINE MARKERS	8
TS	TEST STATIONS	1
NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO. PROPOSED LOW PRESSURE GAS LINE MAOP = 1,440 psig
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY: HORIZONTAL – NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT VERTICAL – NAVD 88 (GEOID12B), U.S. SURVEY FOOT
4. ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
5. THE BOUNDARY MONUMENTS FOUND AND PROPERTY LINES SHOWN ON THIS DRAWING WERE OBTAINED FROM PARTIAL FIELD SURVEY AND RESEARCHED INFORMATION TAKEN FROM VARIOUS RECORDS ON FILE IN THE LOCAL COUNTY COURTHOUSE. TO OBTAIN A MORE ACCURATE BOUNDARY LINE LOCATION, A FULL PROPERTY SURVEY IS RECOMMENDED.
6. ALL EXISTING FENCES AND ROADS DISTURBED DURING CONSTRUCTION TO BE REPLACED BY CONTRACTOR POST-CONSTRUCTION.
7. SEE SHEETS 27 & 34 REGARDING WATERBARS, CULVERTS AND DITCHES TO BE INSTALLED ON ACCESS ROADS. SEE SHEET 37 FOR CULVERT AND DITCH SIZING ON ACCESS ROADS. CULVERT AND DITCH DESIGNS ARE BASED ON AVAILABLE MAPPING AND ASSUMED PROPOSED ROAD SURFACE ELEVATIONS.
8. ALL SHEET BANDS EXCLUDING ALIGNMENT PLAN VIEW REFERENCE THE ALIGNMENT PROFILE VIEW.
9. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.
10. FOR LEGEND/ABBREVIATION INFORMATION, REFER TO THE GENERAL NOTES SHEET.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
STA. 21+00 TO STA. 42+00

PROPOSED 16" LOW PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018
SCALE:	AS SHOWN
DRAWN BY:	JDJ (TTG)
CHECKED:	JRH (TTG)
AFE No.:	A07927

SHEET 06

SHT. NAME: 050-6529\OX97PL\PLAN2 REV. 2

LAYOUT TAB: PLAN2
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\PLAN SHEETS 1-3.dwg
PLOT DATE/TIME: 5/22/2018 9:13 AM
USER: aaron rowe

OWNERSHIP, PARCEL NO. & LENGTH (FT) OF PIPE

WALTERS, ZOE KATHRYN
9-8-19-27
HORIZ. DIST. = 2,200'±
SLOPE DIST. = 2,382'±

STATIONING & P.I. ANGLES

P.I. 43+86 ANGLE: 06° LT | P.I. 46+24 ANGLE: 25° RT | P.I. 50+17 ANGLE: 17° LT | 53+24 EX. DTI GAS LINE | P.I. 54+28 ANGLE: 27° RT | P.I. 55+18 ANGLE: 18° RT | P.I. 59+59 ANGLE: 45° RT | P.I. 61+70 ANGLE: 30° LT | 63+73 EX. DTI GAS LINE | P.I. 63+87 ANGLE: 12° RT | P.I. 64+67 ANGLE: 45° LT

ALIGNMENT PLAN VIEW

E&S LEGEND
- PROJECT AREA-OF-INTEREST
- SFFB = SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- PROPOSED CULVERT*
- PROPOSED DITCH
- PERMANENT WATER BAR (PLAN)
- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- TEMPORARY TIMBERMAT (AS NEEDED)
- STONE CONSTRUCTION ENTRANCE

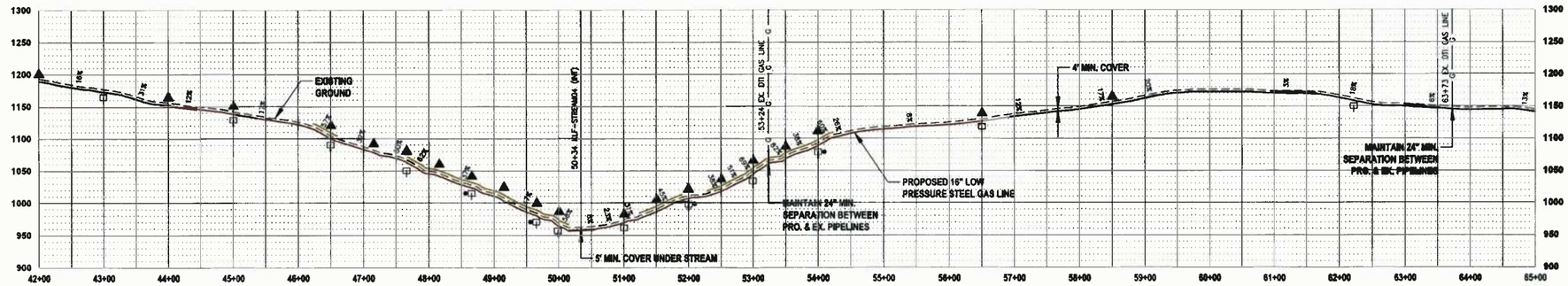
MIDDLE OHIO NORTH OMN-2012-SWS4134 IRON PRESENT
KLF-STREAM08 (EPH)
KLF-STREAM04 (INT)
KLF-STREAM05 (INT)
KLF-GW03 (SPRING)
KLF-WETLAND05 (PEM)
8,022± TOTAL RIGHT-OF-WAY ON WALTERS PROPERTY (PARCEL 27)
ACCESS ROAD 1 (EXISTING UNPAVED ROAD WITH PROPOSED UPGRADES) (40' LIMITS-OF-DISTURBANCE) (EXTENDS TO COUNTY ROUTE 11) (SEE SHEET 11)
100' CONSTRUCTION RIGHT-OF-WAY/ LIMITS-OF-DISTURBANCE
KLF-GW02 (SEEP)
EX. DTI GAS LINE
KLF-GW18 (SEEP)
KLF-GW06 (SEEP)
KLF-WETLAND06 (PEM)
PROPOSED 16" LOW PRESSURE STEEL GAS LINE
KLF-GW07 (SPRING)
KLF-GW05 (SEEP)
KLF-STREAM04 (INT)
KLF-GW04 (SEEP)
KLF-STREAM07 (EPH)
KLF-STREAM08 (EPH)
KLF-STREAM06 (INT)
PROPOSED BASELINE OF CORRIDOR
MATCHMARK SHEET-06 (STA. 42+00)
KLF-STREAM09 (EPH)
N/F WALTERS, ZOE KATHRYN 9-8-19-27
MIDDLE OHIO NORTH OMN-2012-SWS4134 IRON PRESENT
KLF-CULV01A EXISTING 12" METAL CULVERT
N/F WALTERS, ZOE KATHRYN 9-8-19-27
KLF-WETLAND08 (PEM)
MIDDLE OHIO NORTH OMN-2012-SWS4134 IRON PRESENT
KLF-WETLAND52 (PEM)
KLF-WETLAND53 (PEM)
MATCHMARK SHEET-08 (STA. 65+00)
KLF-CULV05 EXISTING 12" METAL CULVERT
KLF-CULV04 EXISTING 12" METAL CULVERT
KLF-STREAM12 (EPH)
KLF-WETLAND09 (PEM)
EX. CONSOL GAS LINE
KLF-WETLAND11 (PEM)
EX. DTI GAS LINE
KLF-STREAM11 (EPH)
KLF-CULV03 EXISTING 12" METAL CULVERT
KLF-WETLAND10 (PEM)
ADDITIONAL TEMPORARY WORKSPACE
1/2" IRON ROD
EX. EQT GAS LINE
EX. DTI GAS LINE
N/F PERINE, PATRICI 9-8-19-23

DESIGN CLASS LOCATION: CLASS 1

PIPE DETAIL

42+00	43+86 GM	45+24 GM	856' ①	50+00 GM	50+14 ②	50+34 GM	50+70 GM	53+24 GM	54+28 GM	55+18 GM	1,486' ①	59+59 GM	61+70 GM	63+73 GM	63+87 GM	64+67 GM	65+00

ALIGNMENT PROFILE VIEW



INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER
INDICATES APPROXIMATE LOCATION OF PROPOSED TRENCH PLUG DRAIN (SEE DETAILS 9-11 ON SHEET 30)

THRASHER

0 100 200
HORIZ. SCALE IN FEET
0 100 200
VERT. SCALE IN FEET

IFP
ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY
①	16" STEEL API 5L PSL-2, X-52, 0.375" WALL, FBE COATED PIPE	2,342 LF
②	16" STEEL API 5L PSL-2, X-52, 0.500" WALL, ARO COATED PIPE	40 LF
RECP	ROLLED EROSION CONTROL PRODUCT	57,749 SF
SFFB-O	SMARTFENCE FB ORANGE ORANGE	2,069 LF
TB	EARTH TRENCH BREAKERS	13
WB	PERMANENT WATERBARS	20
GM	GAS LINE MARKERS	10
TS	TEST STATIONS	3

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO PROPOSED LOW PRESSURE GAS LINE MAOP = 1,440 psig
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY: HORIZONTAL - NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT VERTICAL - NAVD 88 (GEOID12B), U.S. SURVEY FOOT
4. ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
5. THE BOUNDARY MONUMENTS FOUND AND PROPERTY LINES SHOWN ON THIS DRAWING WERE OBTAINED FROM PARTIAL FIELD SURVEY AND RESEARCHED INFORMATION TAKEN FROM VARIOUS RECORDS ON FILE IN THE LOCAL COUNTY COURTHOUSE. TO OBTAIN A MORE ACCURATE BOUNDARY LINE LOCATION, A FULL PROPERTY SURVEY IS RECOMMENDED.
6. ALL EXISTING FENCES AND ROADS DISTURBED DURING CONSTRUCTION TO BE REPLACED BY CONTRACTOR POST-CONSTRUCTION.
7. SEE SHEETS 27 & 34 REGARDING WATERBARS, CULVERTS AND DITCHES TO BE INSTALLED ON ACCESS ROADS. SEE SHEET 37 FOR CULVERT AND DITCH SIZING ON ACCESS ROADS. CULVERT AND DITCH DESIGNS ARE BASED ON AVAILABLE MAPPING AND ASSUMED PROPOSED ROAD SURFACE ELEVATIONS.
8. ALL SHEET RANGES EXCLUDING ALIGNMENT PLAN VIEW REFERENCE THE ALIGNMENT PROFILE VIEW
9. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.
10. FOR LEGEND/ABBREVIATION INFORMATION, REFER TO THE GENERAL NOTES SHEET.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
STA. 42+00 TO STA. 65+00

PROPOSED 16" LOW PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018
SCALE:	AS SHOWN
DRAWN BY:	JDJ (TTG)
CHECKED:	JRH (TTG)
AFE No.:	A07927

SHEET 07

SHT. NAME: 050-6529\0X97PL\PLAN3 | REV. 2

LAYOUT TAB: PLAN3
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\PLAN SHEETS 1-3.dwg
USER: aaron rowe
PLOT DATE/TIME: 5/22/2018 9:13 AM

USER: aaron rowe

PLOT DATE/TIME: 5/22/2018 9:33 AM

CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\PLAN SHEETS 4-6.dwg

LAYOUT TAB: PLAN4

— INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER

● – INDICATES APPROXIMATE LOCATION OF PROPOSED TRENCH PLUG DRAIN (SEE DETAILS 9-11 ON SHEET 30)

THRASHER

0 100 200
HORIZ. SCALE IN FEET

0 100 200
VERT. SCALE IN FEET

IFP

ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY
①	16" STEEL API 5L PSL-2, X-52, 0.375" WALL, FBE COATED PIPE	2,726 LF
②	16" STEEL API 5L PSL-2, X-52, 0.500" WALL, ARO COATED PIPE	80 LF
RECP	ROLLED EROSION CONTROL PRODUCT	91,333 SF
SFFB-O	SMARTFENCE FB ORANGE ORANGE	2,752 LF
TB	EARTH TRENCH BREAKERS	15
WB	PERMANENT WATERBARS	21
GM	GAS LINE MARKERS	15
TS	TEST STATIONS	3

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO. PROPOSED LOW PRESSURE GAS LINE MAOP = 1,440 psig
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY:
   HORIZONTAL – NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
   VERTICAL – NAVD 88 (GEOID12B), U.S. SURVEY FOOT
4. ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
5. THE BOUNDARY MONUMENTS FOUND AND PROPERTY LINES SHOWN ON THIS DRAWING WERE OBTAINED FROM PARTIAL FIELD SURVEY AND RESEARCHED INFORMATION TAKEN FROM VARIOUS RECORDS ON FILE IN THE LOCAL COUNTY COURTHOUSE. TO OBTAIN A MORE ACCURATE BOUNDARY LINE LOCATION, A FULL PROPERTY SURVEY IS RECOMMENDED.
6. ALL EXISTING FENCES AND ROADS DISTURBED DURING CONSTRUCTION TO BE REPLACED BY CONTRACTOR POST-CONSTRUCTION.
7. SEE SHEETS 27 & 34 REGARDING WATERBARS, CULVERTS AND DITCHES TO BE INSTALLED ON ACCESS ROADS. SEE SHEET 37 FOR CULVERT AND DITCH SIZING ON ACCESS ROADS. CULVERT AND DITCH DESIGNS ARE BASED ON AVAILABLE MAPPING AND ASSUMED PROPOSED ROAD SURFACE ELEVATIONS.
8. ALL SHEET BANDS EXCLUDING ALIGNMENT PLAN VIEW REFERENCE THE ALIGNMENT PROFILE VIEW.
9. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.
10. FOR LEGEND/ABBREVIATION INFORMATION, REFER TO THE GENERAL NOTES SHEET.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
STA. 65+00 TO STA. 92+00

PROPOSED 16" LOW
PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE: 5/22/2018	AFE No.: A07927	
SCALE: AS SHOWN	SHEET 08	
DRAWN BY: JDJ (TTG)		
CHECKED: JRH (TTG)		
SHT. NAME: 050-6529\OX97PL\PLAN4	REV. 2	

OWNERSHIP, PARCEL NO. & LENGTH (FT) OF PIPE

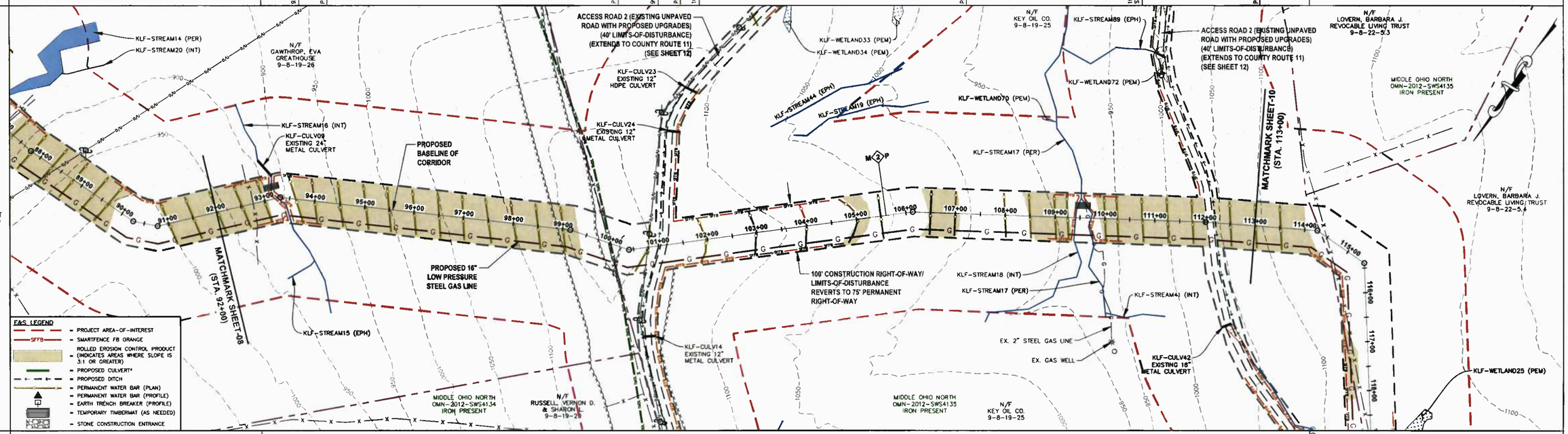
GAWTHROP, EVA GREATHOUSE
9-8-19-26
HORIZ. DIST. = 798'±
SLOPE DIST. = 875'±

KEY OIL CO.
9-8-19-25
HORIZ. DIST. = 1,302'±
SLOPE DIST. = 1,379'±

STATIONING & P.I. ANGLES

92+00 | 92+76 EX. FENCE | P.I. 93+31 ANGLE: 20° RT | P.I. 99+16 ANGLE: 12° RT | 99+97 EX. FENCE | P.I. 100+41 ANGLE: 26° LT | 100+79 EX. OUL | P.I. 108+14 ANGLE: 10° LT | 109+66 EX. 2" STEEL GAS LINE | P.I. 112+01 ANGLE: 68° LT | 113+00

ALIGNMENT PLAN VIEW



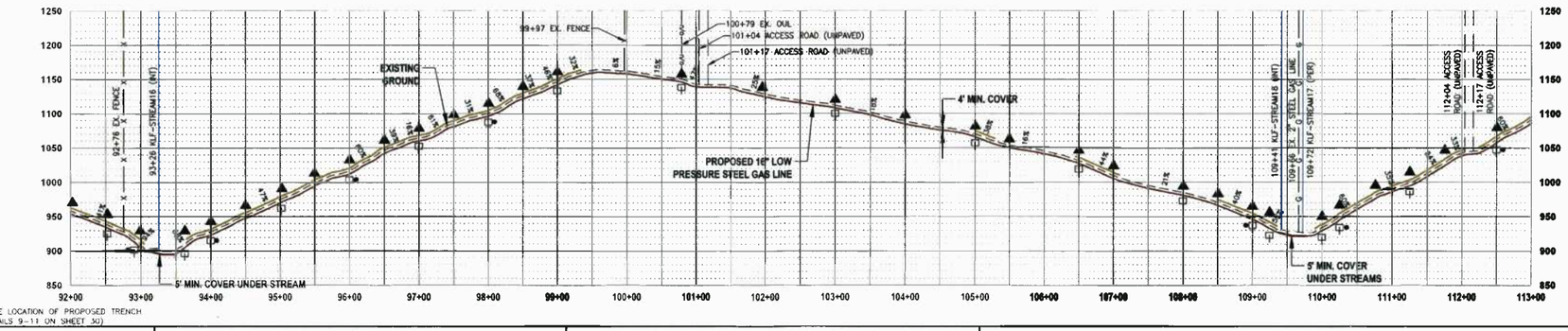
DESIGN CLASS LOCATION

92+00 — CLASS 1 — 113+00

PIPE DETAIL

92+00 | 125' ① | 92+90 GM-10 | 40' ② | 93+50 GM-60 | GM-90 | 99+16 GM-95 | 100+41 GM-100 | 100+79 GM-105 | 1,682' ① | 108+14 GM-110 | 109+15 GM-115 | 109+37 GM-120 | 40' ② | 109+77 TS-95 | 367' ① | 112+01 GM-125 | 113+00

ALIGNMENT PROFILE VIEW



INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER

INDICATES APPROXIMATE LOCATION OF PROPOSED TRENCH PLUG DRAIN (SEE DETAILS 9-11 ON SHEET 30)

THRASHER

0 100 200
HORIZ. SCALE IN FEET
0 100 200
VERT. SCALE IN FEET

IFP
ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

①	16" STEEL API 5L PSL-2, X-52, 0.375" WALL, FBE COATED PIPE	2,174 LF
②	16" STEEL API 5L PSL-2, X-52, 0.500" WALL, ARO COATED PIPE	80 LF
RECP	ROLLED EROSION CONTROL PRODUCT	114,658 SF
SFFB-O	SMARTFENCE FB ORANGE	1,523 LF
TB	EARTH TRENCH BREAKERS	20
WB	PERMANENT WATERBARS	33
GM	GAS LINE MARKERS	10
TS	TEST STATIONS	2
NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	06/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO. PROPOSED LOW PRESSURE GAS LINE MAOP = 1,440 psig
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY: HORIZONTAL – NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
   VERTICAL – NAVD 88 (GEOID12B), U.S. SURVEY FOOT
4. ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
5. THE BOUNDARY MONUMENTS FOUND AND PROPERTY LINES SHOWN ON THIS DRAWING WERE OBTAINED FROM PARTIAL FIELD SURVEY AND RESEARCHED INFORMATION TAKEN FROM VARIOUS RECORDS ON FILE IN THE LOCAL COUNTY COURTHOUSE. TO OBTAIN A MORE ACCURATE BOUNDARY LINE LOCATION, A FULL PROPERTY SURVEY IS RECOMMENDED.
6. ALL EXISTING FENCES AND ROADS DISTURBED DURING CONSTRUCTION TO BE REPLACED BY CONTRACTOR POST-CONSTRUCTION.
7. SEE SHEETS 27 & 34 REGARDING WATERBARS, CULVERTS AND DITCHES TO BE INSTALLED ON ACCESS ROADS. SEE SHEET 37 FOR CULVERT AND DITCH SIZING ON ACCESS ROADS. CULVERT AND DITCH DESIGNS ARE BASED ON AVAILABLE MAPPING AND ASSUMED PROPOSED ROAD SURFACE ELEVATIONS.
8. ALL SHEET BANDS EXCLUDING ALIGNMENT PLAN VIEW REFERENCE THE ALIGNMENT PROFILE VIEW.
9. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.
10. FOR LEGEND/ABBREVIATION INFORMATION, REFER TO THE GENERAL NOTES SHEET.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
STA. 92+00 TO STA. 113+00

PROPOSED 16" LOW PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018
SCALE:	AS SHOWN
DRAWN BY:	JDJ (TTG)
CHECKED:	JRH (TTG)
APE No.:	A07927

SHEET 09

SHT. NAME: 050-6529\0X97PL\PLAN5 REV. 2

PLOT DATE/TIME: 5/22/2018 9:33 AM
USER: aaron rowe
LAYOUT TAB: PLAN5
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-1\Survey\PLANS\PLAN SHEETS 4-6.dwg

OWNERSHIP, PARCEL NO. & LENGTH (FT) OF PIPE

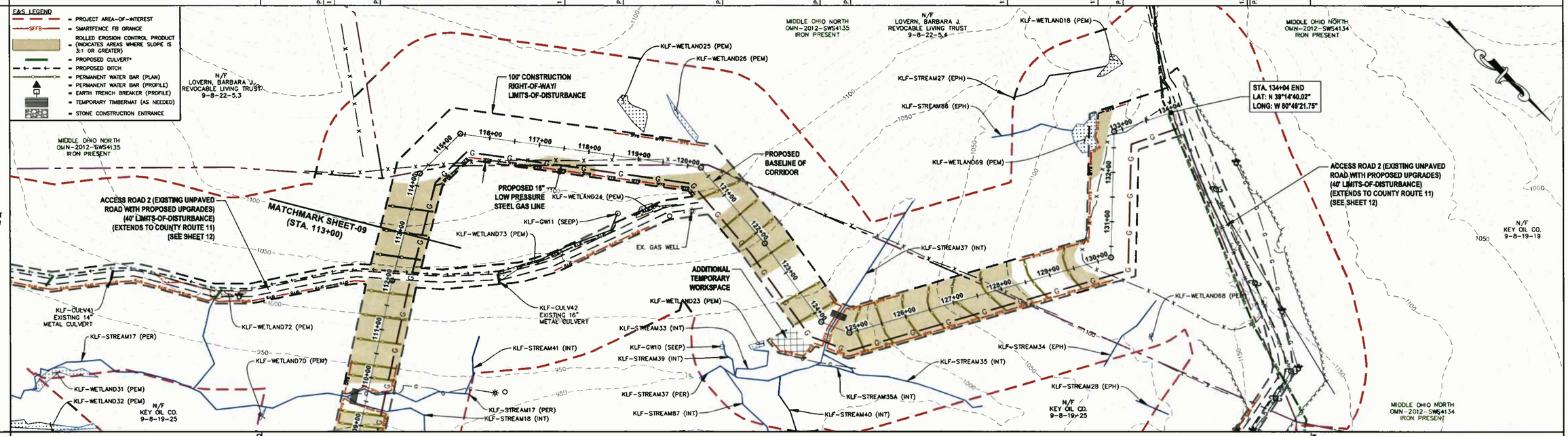
113+00 | KEY OIL CO. 9-8-19-25 HORIZ. DIST. = 133'± SLOPE DIST. = 145'± | 114+33 | LOVERN, BARBARA J. REVOCABLE LIVING TRUST 9-8-22-5.4 HORIZ. DIST. = 555'± SLOPE DIST. = 555'± | 119+88 | KEY OIL CO. 9-8-19-25 HORIZ. DIST. = 800'± SLOPE DIST. = 853'± | 127+88 | LOVERN, BARBARA J. REVOCABLE LIVING TRUST 9-8-22-5.4 HORIZ. DIST. = 616'± SLOPE DIST. = 625'± | 134+04

STATIONING & P.I. ANGLES

113+00 | P.I.: 114+26 ANGLE: 31° RT | 114+48 EX. FENCE | P.I.: 115+40 ANGLE: 53° LT | 119+10 EX. FENCE | P.I.: 120+27 ANGLE: 42° RT | P.I.: 122+27 ANGLE: 05° RT | P.I.: 124+22 ANGLE: 34° LT | P.I.: 124+83 ANGLE: 38° LT | 127+97 EX. FENCE | 129+77 EX. FENCE | P.I.: 130+27 ANGLE: 72° LT | 132+77 EX. FENCE | P.I.: 132+83 ANGLE: 70° RT | 134+04

ALIGNMENT PLAN VIEW

E&S LEGEND
- = PROJECT AREA-OF-INTEREST
- SFFB = SMARTFENCE FB ORANGE
- = ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- = PROPOSED CULVERT*
- = PROPOSED DITCH
- = PERMANENT WATER BAR (PLAN)
- = PERMANENT WATER BAR (PROFILE)
- = EARTH TRENCH BREAKER (PROFILE)
- = TEMPORARY TIMBERMAT (AS NEEDED)
- = STONE CONSTRUCTION ENTRANCE

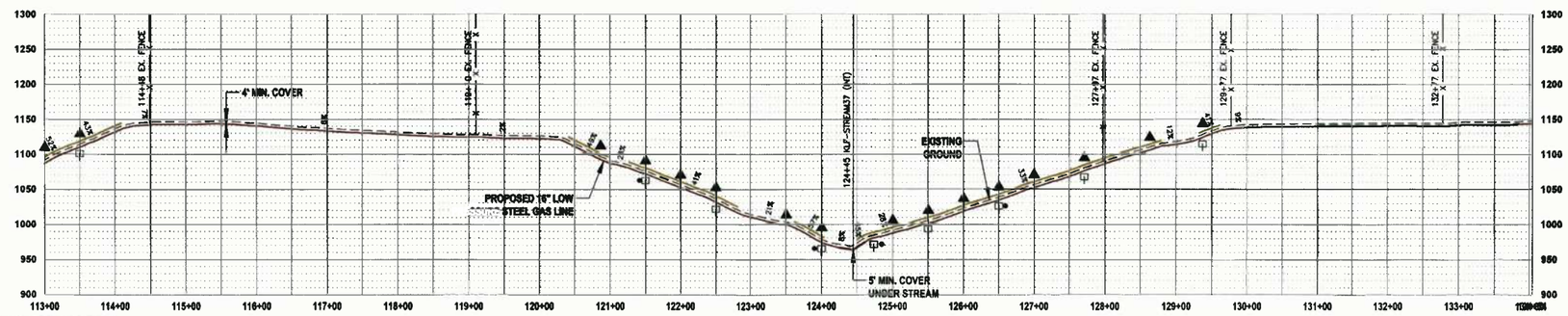


DESIGN CLASS LOCATION: CLASS 1

PIPE DETAIL

113+00 | 114+26 Qal | 115+40 Qal | 1,169' ① | 120+27 Qal | 122+27 Qal | 124+15 Qal | 124+23 ② | 40' | 124+62 Qal | 124+85 | 129+00 Qal | 969' ① | 130+27 Qal | 132+83 Qal | 134+04

ALIGNMENT PROFILE VIEW



— INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER

• INDICATES APPROXIMATE LOCATION OF PROPOSED TRENCH PLUG DRAIN (SEE DETAILS 9-11 ON SHEET 30)

THRASHER

0 100 200
HORIZ. SCALE IN FEET
0 100 200
VERT. SCALE IN FEET

IFP
ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY
①	16" STEEL API 5L PSL-2, X-52, 0.375" WALL, FBE COATED PIPE	2,138 LF
②	16" STEEL API 5L PSL-2, X-52, 0.500" WALL, ARO COATED PIPE	40 LF
RECP	ROLLED EROSION CONTROL PRODUCT	91,305 SF
SFFB-O	SMARTFENCE FB ORANGE	2,231 LF
TB	EARTH TRENCH BREAKERS	9
WB	PERMANENT WATERBARS	16
GM	GAS LINE MARKERS	9
TS	TEST STATIONS	3

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO. PROPOSED LOW PRESSURE GAS LINE MAOP = 1,440 psig
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY: HORIZONTAL – NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
   VERTICAL – NAVD 88 (GEOID12B), U.S. SURVEY FOOT
4. ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
5. THE BOUNDARY MONUMENTS FOUND AND PROPERTY LINES SHOWN ON THIS DRAWING WERE OBTAINED FROM PARTIAL FIELD SURVEY AND RESEARCHED INFORMATION TAKEN FROM VARIOUS RECORDS ON FILE IN THE LOCAL COUNTY COURTHOUSE. TO OBTAIN A MORE ACCURATE BOUNDARY LINE LOCATION, A FULL PROPERTY SURVEY IS RECOMMENDED.
6. ALL EXISTING FENCES AND ROADS DISTURBED DURING CONSTRUCTION TO BE REPLACED BY CONTRACTOR POST-CONSTRUCTION.
7. SEE SHEETS 27 & 34 REGARDING WATERBARS, CULVERTS AND DITCHES TO BE INSTALLED ON ACCESS ROADS. SEE SHEET 37 FOR CULVERT AND DITCH SIZING ON ACCESS ROADS. CULVERT AND DITCH DESIGNS ARE BASED ON AVAILABLE MAPPING AND ASSUMED PROPOSED ROAD SURFACE ELEVATIONS.
8. ALL SHEET BANDS EXCLUDING ALIGNMENT PLAN VIEW REFERENCE THE ALIGNMENT PROFILE VIEW.
9. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" x 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.
10. FOR LEGEND/ABBREVIATION INFORMATION, REFER TO THE GENERAL NOTES SHEET.

Antero Midstream Partners LP

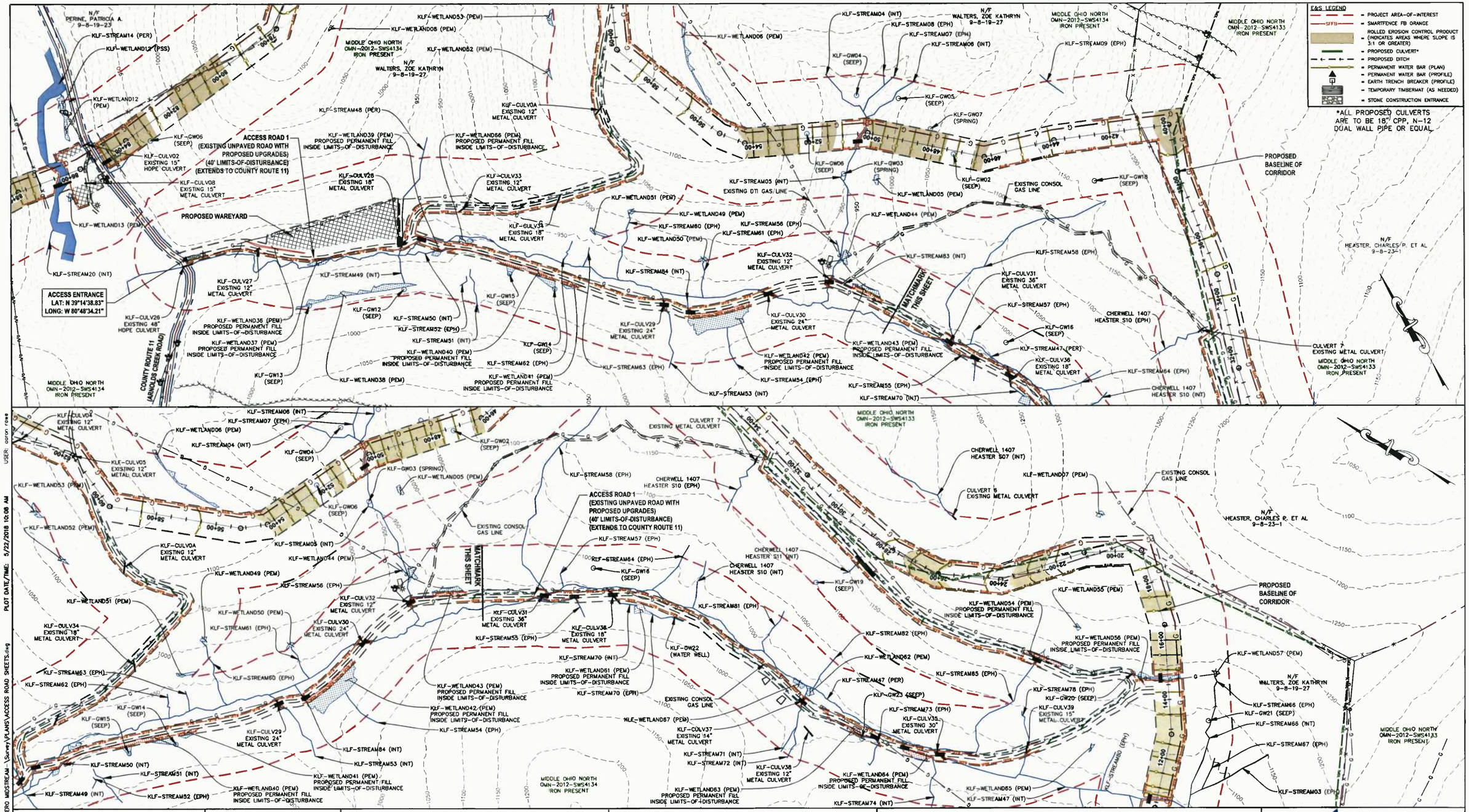
OXFORD 97 PIPELINE
STA. 113+00 TO STA. 134+04

PROPOSED 16" LOW PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018	AFE No.:	A07927
SCALE:	AS SHOWN	SHEET	10
DRAWN BY:	JDJ (TTG)		
CHECKED:	JRH (TTG)		

SHT. NAME: 050-6529\0X97PL\PLAN6 REV. 2

LAYOUT TAB: PLAN6
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\PLAN SHEETS 4-6.dwg
PLOT DATE/TIME: 5/22/2018 9:33 AM
USER: aaron rowe



THRASHER

0 150 300
HORIZ. SCALE IN FEET

IFP
ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY
SFFB-0	SMARTFENCE FB ORANGE	8,887 LF

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO.
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY: HORIZONTAL - NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
   VERTICAL - NAVD 88 (GEOID12B), U.S. SURVEY FOOT
4. ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
5. THE BOUNDARY MONUMENTS FOUND AND PROPERTY LINES SHOWN ON THIS DRAWING WERE OBTAINED FROM PARTIAL FIELD SURVEY AND RESEARCHED INFORMATION TAKEN FROM VARIOUS RECORDS ON FILE IN THE LOCAL COUNTY COURTHOUSE. TO OBTAIN A MORE ACCURATE BOUNDARY LINE LOCATION, A FULL PROPERTY SURVEY IS RECOMMENDED.
6. ALL EXISTING FENCES AND ROADS DISTURBED DURING CONSTRUCTION TO BE REPLACED BY CONTRACTOR POST-CONSTRUCTION.
7. SEE SHEETS 27 & 34 REGARDING WATERBARS, CULVERTS AND DITCHES TO BE INSTALLED ON ACCESS ROADS. SEE SHEET 37 FOR CULVERT AND DITCH SIZING ON ACCESS ROADS. CULVERT AND DITCH DESIGNS ARE BASED ON AVAILABLE MAPPING AND ASSUMED PROPOSED ROAD SURFACE ELEVATIONS.
8. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.
9. FOR LEGEND/ABBREVIATION INFORMATION, REFER TO THE GENERAL NOTES SHEET.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
ACCESS ROAD PLAN SHEET

PROPOSED 16" LOW PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018
SCALE:	AS SHOWN
DRAWN BY:	JDJ (TTG)
CHECKED:	JRH (TTG)
AFE No.:	A07927

SHEET 11

SHT. NAME: 050-6529\0X97PL\AR1 REV. 2

LAYOUT TAB: AR1
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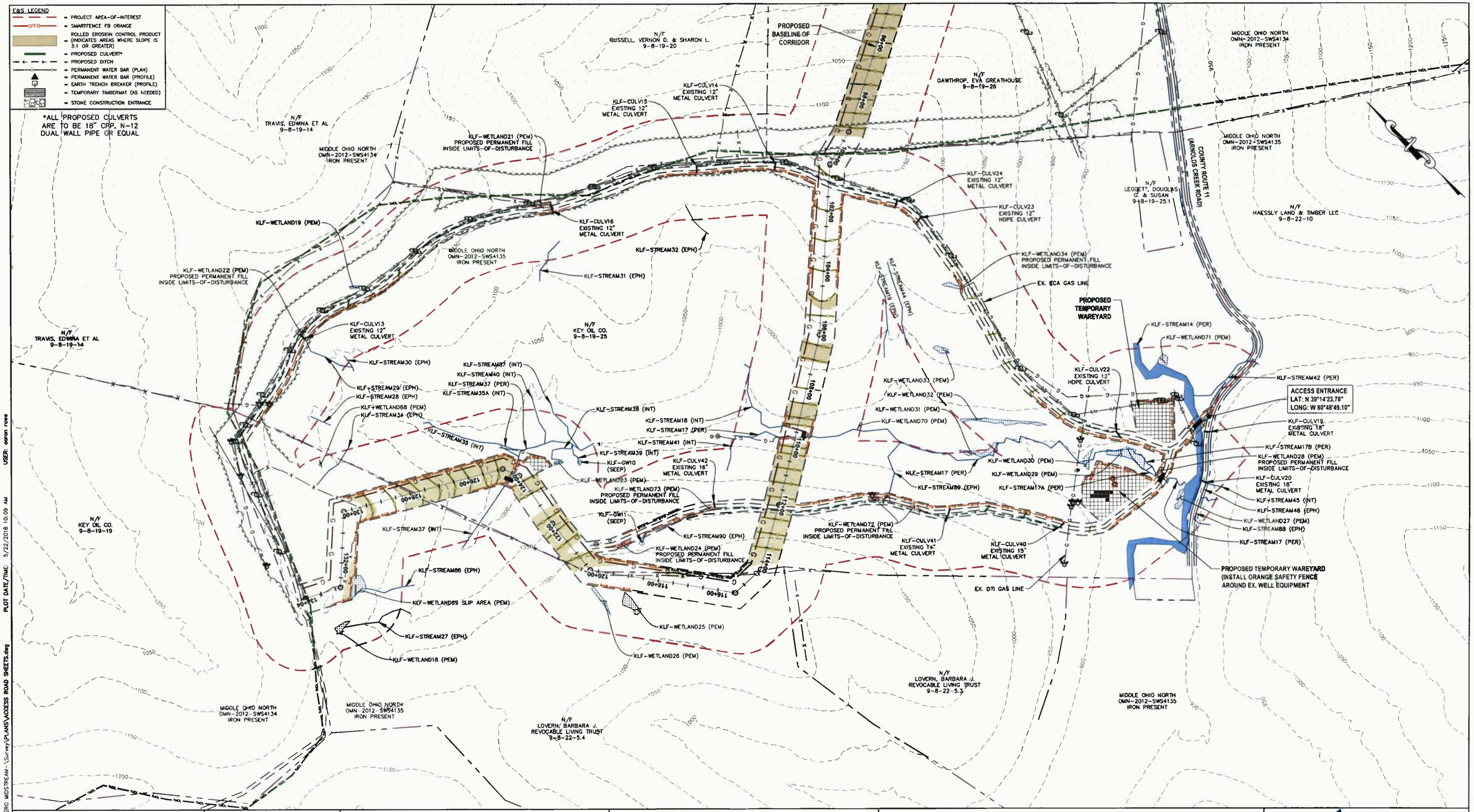
USER: aaron rowe



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CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\ACCESS ROAD SHEETS.dwg
PLOT DATE/TIME: 5/22/2018 10:09 AM
USER: aaron reese

THRASHER

IFP
ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY
SFTB-O	SMARTFENCE FB ORANGE	4,947 LF
WB	PERMANENT WATERBARS	7

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO.
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY: HORIZONTAL – NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
VERTICAL – NAVD 88 (GEOID12B), U.S. SURVEY FOOT
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6. ALL EXISTING FENCES AND ROADS DISTURBED DURING CONSTRUCTION TO BE REPLACED BY CONTRACTOR POST-CONSTRUCTION.
7. SEE SHEETS 27 & 34 REGARDING WATERBARS, CULVERTS AND DITCHES TO BE INSTALLED ON ACCESS ROADS. SEE SHEET 37 FOR CULVERT AND DITCH SIZING ON ACCESS ROADS. CULVERT AND DITCH DESIGNS ARE BASED ON AVAILABLE MAPPING AND ASSUMED PROPOSED ROAD SURFACE ELEVATIONS.
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9. FOR LEGEND/ABBREVIATION INFORMATION, REFER TO THE GENERAL NOTES SHEET.

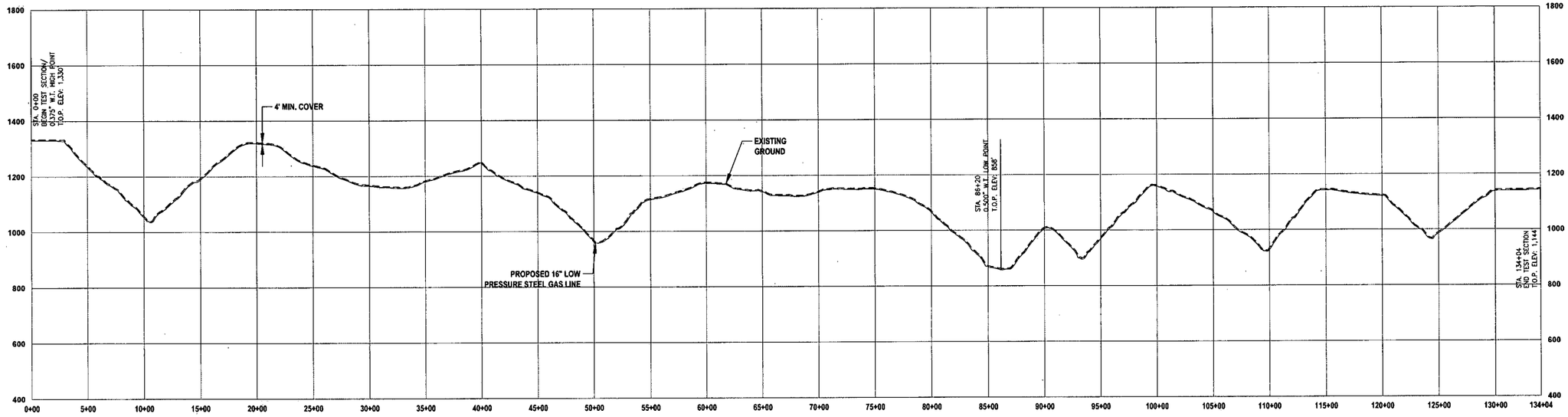
Antero Midstream Partners LP

OXFORD 97 PIPELINE
ACCESS ROAD PLAN SHEET

PROPOSED 16" LOW PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018	AFE No.:	A07927
SCALE:	AS SHOWN		
DRAWN BY:	JDJ (TTG)	SHEET	12
CHECKED:	JRH (TTG)		

SHT. NAME: 050-6529\OX97PL\AR2 REV. 2



HYDROSTATIC TEST	Station	Elevation (ft msl)
Start Point	0+00	1,330
Low Point (0.500 wt X-52)	86+20	858
High Point (0.375 wt X-52)	0+00	1,330
End Point	134+04	1,144
Differential (0.500 wt X-52)	472 ft.	
Static Head Pressure @ 858' (0.500 wt X-52)	204.5176 psi	
Overall Slope Length (3D)	13,971 ft.	

THRASHER

0 500 1000
HORIZ. SCALE IN FEET
0 300 600
VERT. SCALE IN FEET

IFP

ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO.
   PROPOSED LOW PRESSURE GAS LINE MAOP = 1,440 psig
2. REFER TO ANTERO MIDSTREAM PRESSURE TESTING PROCEDURE.
3. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY:
   HORIZONTAL – NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
   VERTICAL – NAVD 88 (GEOID12B), U.S. SURVEY FOOT
4. ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
5. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
HYDROSTATIC TEST PROFILE

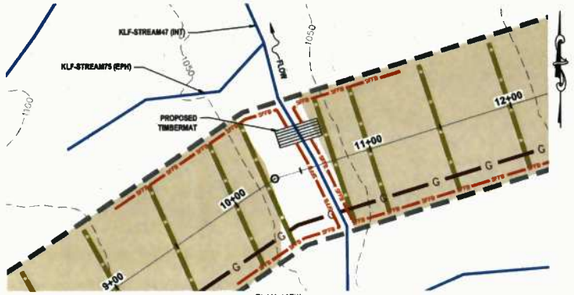
PROPOSED 16" LOW
PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018	AFE No.:	A07927
SCALE:	AS SHOWN		
DRAWN BY:	JDJ (TTC)	SHEET	13
CHECKED:	JRH (TTC)		

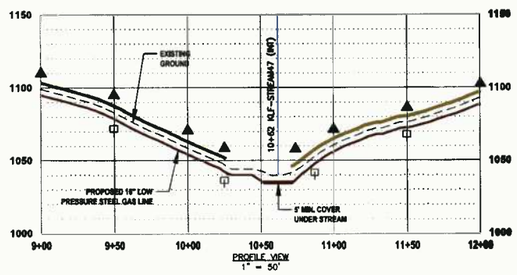
SHT. NAME: 050-6529\OX97PL\HTP REV. 2

LAYOUT TAB: HTP
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\HYDROSTATIC PROFILE SHEET.dwg PLOT DATE/TIME: 5/22/2018 10:14 AM USER: aaron rowe

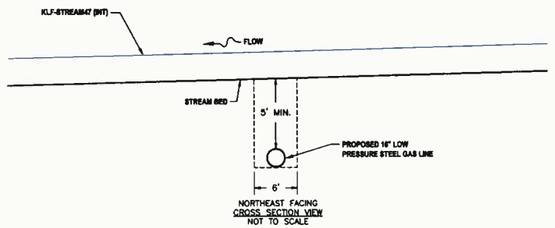
STREAM CROSSING 1
KLF-STREAM47 (INT)



PLAN VIEW
1" = 50'



PROFILE VIEW
1" = 50'



NORTHEAST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 — BASELINE OF PROPOSED CORRIDOR WITH STATIONING

STREAM INFORMATION:

STREAM CLASSIFICATION: INTERMITTENT
STREAM WIDTH: 5.0'
PROPOSED METHOD OF CROSSING: OPEN CUT

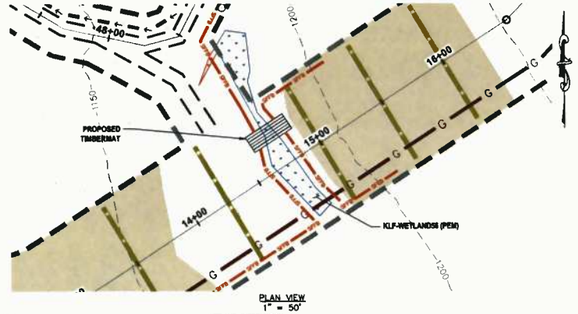
REFERENCES:

LAT: 39°14'03.48" N
LONG: 80°48'02.11" W
SHEET REF: SHEET 05

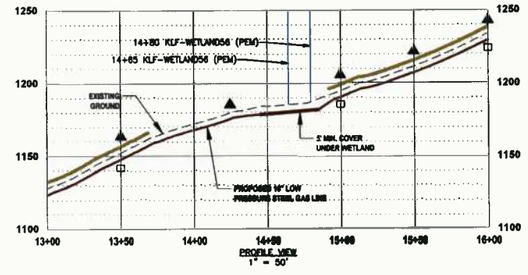
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

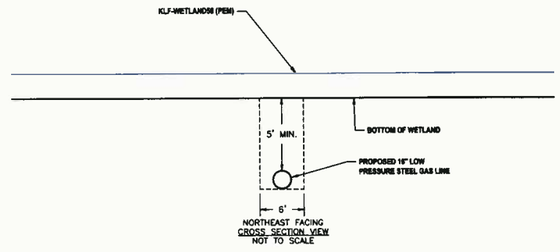
WETLAND CROSSING 1
KLF-WETLAND56 (PEM) (CROSSING 1)



PLAN VIEW
1" = 50'



PROFILE VIEW
1" = 50'



NORTHEAST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 — BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 14.9'
PROPOSED METHOD OF CROSSING: OPEN CUT

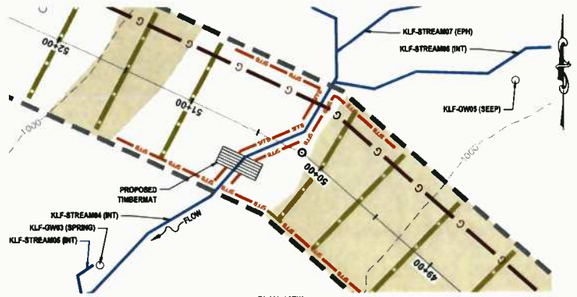
REFERENCES:

LAT: 39°14'05.22" N
LONG: 80°47'57.45" W
SHEET REF: SHEET 05

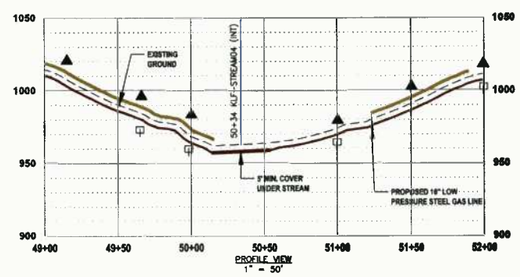
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

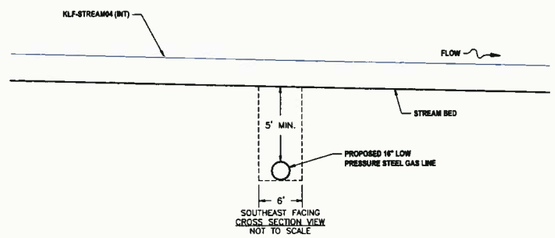
STREAM CROSSING 2
KLF-STREAM04 (INT) (CROSSING 1)



PLAN VIEW
1" = 50'



PROFILE VIEW
1" = 50'



SOUTHEAST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 — BASELINE OF PROPOSED CORRIDOR WITH STATIONING

STREAM INFORMATION:

STREAM CLASSIFICATION: INTERMITTENT
STREAM WIDTH: 8.0'
PROPOSED METHOD OF CROSSING: OPEN CUT

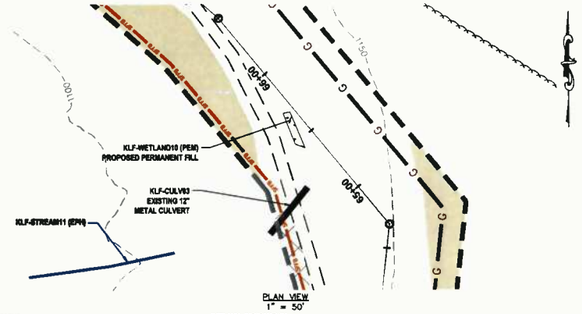
REFERENCES:

LAT: 39°14'31.80" N
LONG: 80°48'06.87" W
SHEET REF: SHEET 07

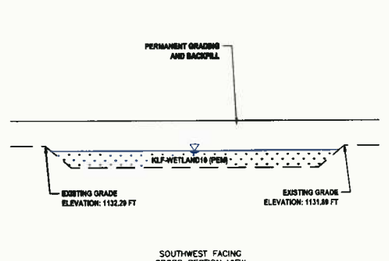
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

WETLAND CROSSING 2
KLF-WETLAND10 (PEM)



PLAN VIEW
1" = 50'



SOUTHWEST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 — BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 28.5'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

REFERENCES:

LAT: 39°14'43.42" N
LONG: 80°48'13.97" W
SHEET REF: SHEET 08

NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

THRASHER

IFP

ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO.
   PROPOSED LOW PRESSURE GAS LINE MAOP = 1,440 psig
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY:
   HORIZONTAL – NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
   VERTICAL – NAVD 88 (GEOID12B), U.S. SURVEY FOOT
4. ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
5. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
STREAM & WETLAND CROSSINGS

PROPOSED 16" LOW
PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

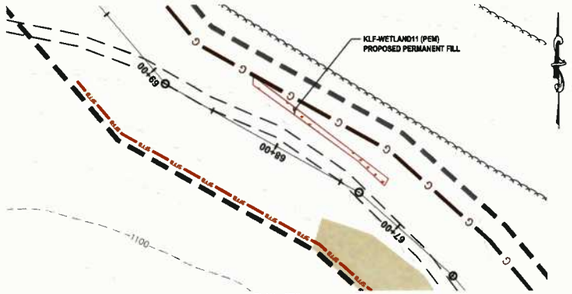
DATE:	5/22/2018
SCALE:	AS SHOWN
DRAWN BY:	JDJ (TTG)
CHECKED:	JRH (TTG)
AFE No.:	A07927

SHEET 14

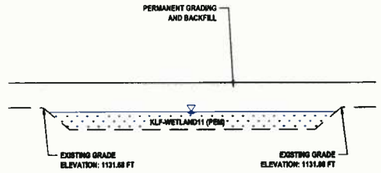
SHT. NAME: 050-6529\OX97PL\S&WC1 REV. 2

PLOT DATE/TIME: 5/22/2018 10:33 AM
USER: aaron rowe
LAYOUT TAB: S&WC1
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\STREAM & WETLAND CROSSING SHEETS.dwg

WETLAND CROSSING 3
KLF-WETLAND11 (PEM)



PLAN VIEW
1" = 50'



SOUTHWEST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 231.1'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

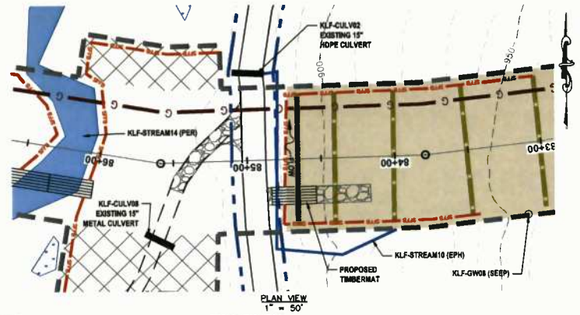
REFERENCES:

LAT: 39°14'45.18" N
LONG: 80°48'15.86" W
SHEET REF: SHEET 08

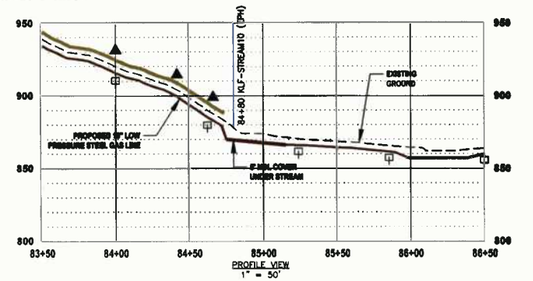
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

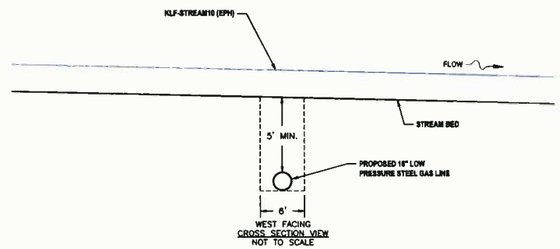
STREAM CROSSING 3
KLF-STREAM10 (EPH)



PLAN VIEW
1" = 50'



PROFILE VIEW
1" = 50'



WEST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

STREAM INFORMATION:

STREAM CLASSIFICATION: EPHEMERAL
STREAM WIDTH: 3.0'
PROPOSED METHOD OF CROSSING: OPEN CUT

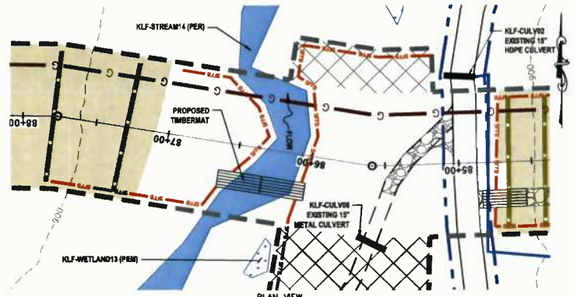
REFERENCES:

LAT: 39°14'43.15" N
LONG: 80°46'35.23" W
SHEET REF: SHEET 09

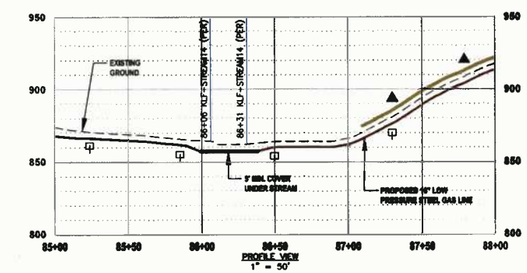
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

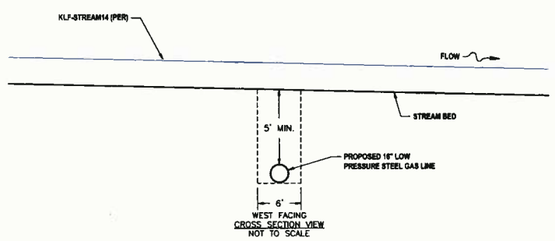
STREAM CROSSING 4
KLF-STREAM14 (PER)



PLAN VIEW
1" = 50'



PROFILE VIEW
1" = 50'



WEST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

STREAM INFORMATION:

STREAM CLASSIFICATION: PERENNIAL
STREAM WIDTH: 35.0'
PROPOSED METHOD OF CROSSING: OPEN CUT

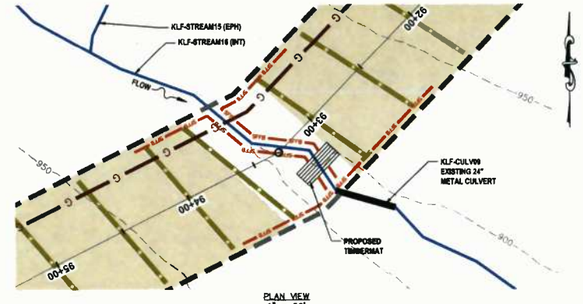
REFERENCES:

LAT: 39°14'43.20" N
LONG: 80°48'36.99" W
SHEET REF: SHEET 09

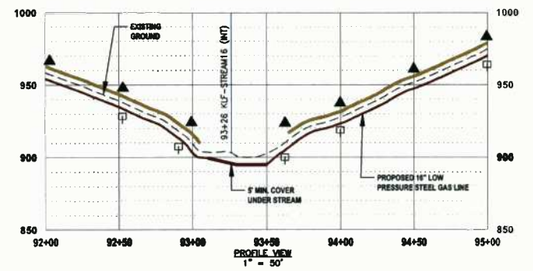
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

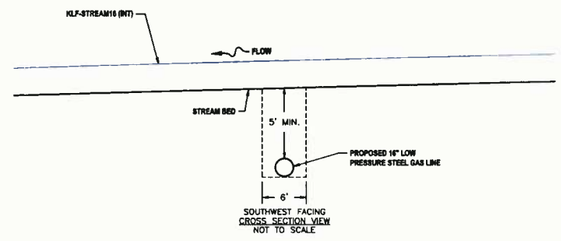
STREAM CROSSING 5
KLF-STREAM16 (INT)



PLAN VIEW
1" = 50'



PROFILE VIEW
1" = 50'



SOUTHWEST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

STREAM INFORMATION:

STREAM CLASSIFICATION: INTERMITTENT
STREAM WIDTH: 7.0'
PROPOSED METHOD OF CROSSING: OPEN CUT

REFERENCES:

LAT: 39°14'41.43" N
LONG: 80°46'44.87" W
SHEET REF: SHEET 09

NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

THRASHER

IFP

ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO.
   PROPOSED LOW PRESSURE GAS LINE MAOP = 1,440 psig
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY:
   HORIZONTAL – NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
   VERTICAL – NAVD 88 (GEOID12B), U.S. SURVEY FOOT
4. ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
5. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
STREAM & WETLAND CROSSINGS

PROPOSED 16" LOW
PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

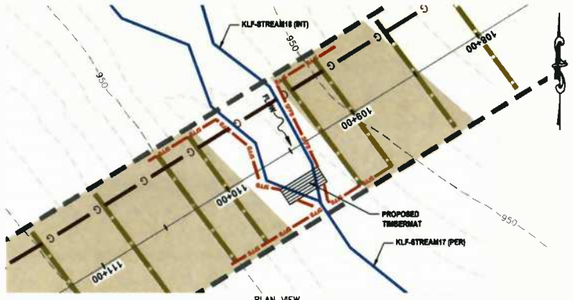
DATE:	5/22/2018
SCALE:	AS SHOWN
DRAWN BY:	JDJ (TTG)
CHECKED:	JRH (TTG)
AFE No.:	A07927

SHEET 15

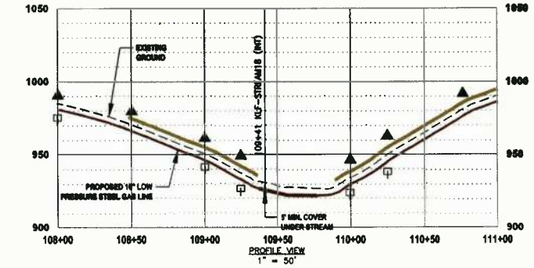
SHT. NAME: 050-6529\0X97PL\S&WC2 | REV. 2

PLOT DATE/TIME: 5/22/2018 10:38 AM
USER: aaron rowe
LAYOUT TAB: S&WC2
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\STREAM & WETLAND CROSSING SHEETS.dwg

STREAM CROSSING 6
KLF-STREAM18 (INT)



PLAN VIEW
1" = 50'



PROFILE VIEW
1" = 50'

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 — BASELINE OF PROPOSED CORRIDOR WITH STATIONING

STREAM INFORMATION:

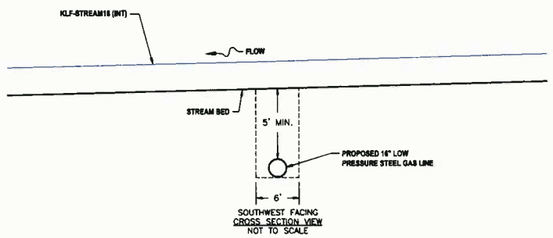
STREAM CLASSIFICATION: INTERMITTENT
STREAM WIDTH: 4.0'
PROPOSED METHOD OF CROSSING: OPEN CUT

REFERENCES:

LAT: 39°14'32.80" N
LONG: 80°49'01.91" W
SHEET REF: SHEET 09

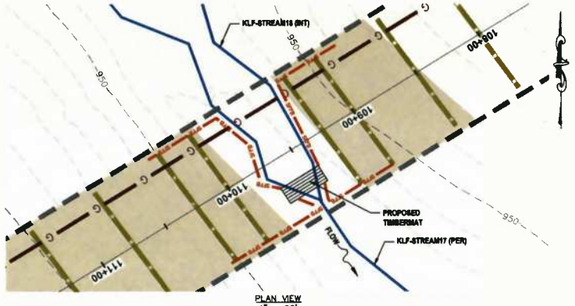
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

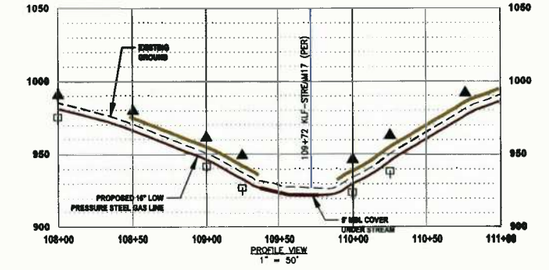


SOUTHWEST FACING
CROSS SECTION VIEW
NOT TO SCALE

STREAM CROSSING 7
KLF-STREAM17 (PER) (CROSSING 1)



PLAN VIEW
1" = 50'



PROFILE VIEW
1" = 50'

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 — BASELINE OF PROPOSED CORRIDOR WITH STATIONING

STREAM INFORMATION:

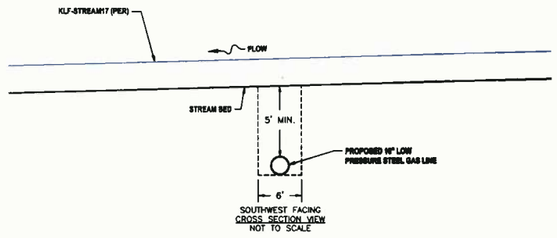
STREAM CLASSIFICATION: PERENNIAL
STREAM WIDTH: 12.0'
PROPOSED METHOD OF CROSSING: OPEN CUT

REFERENCES:

LAT: 39°14'32.84" N
LONG: 80°49'02.24" W
SHEET REF: SHEET 09

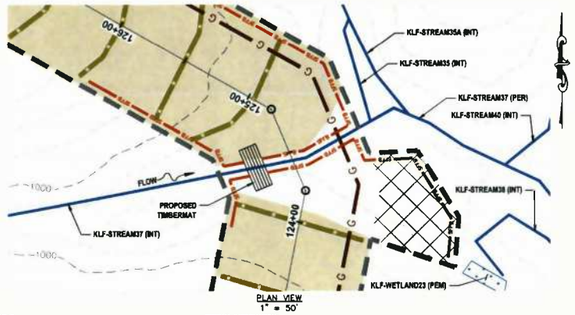
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

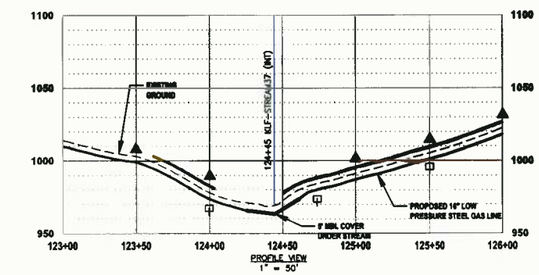


SOUTHWEST FACING
CROSS SECTION VIEW
NOT TO SCALE

STREAM CROSSING 8
KLF-STREAM37 (INT)



PLAN VIEW
1" = 50'



PROFILE VIEW
1" = 50'

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 — BASELINE OF PROPOSED CORRIDOR WITH STATIONING

STREAM INFORMATION:

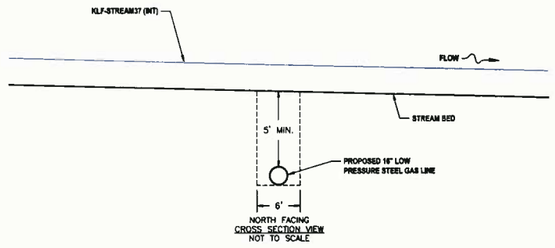
STREAM CLASSIFICATION: INTERMITTENT
STREAM WIDTH: 7.0'
PROPOSED METHOD OF CROSSING: OPEN CUT

REFERENCES:

LAT: 39°14'38.26" N
LONG: 80°49'11.75" W
SHEET REF: SHEET 10

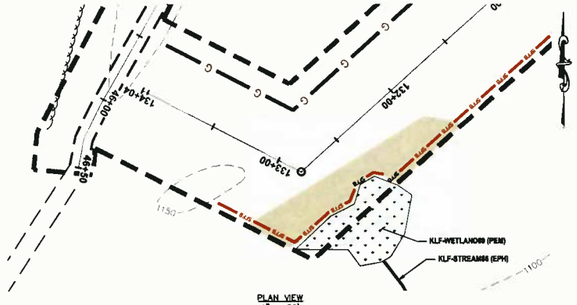
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

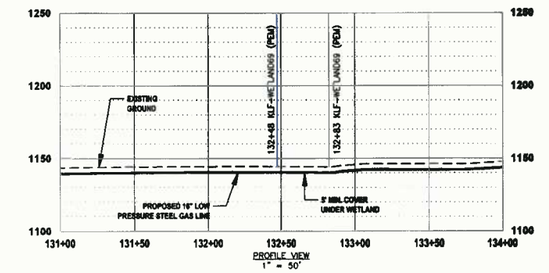


NORTH FACING
CROSS SECTION VIEW
NOT TO SCALE

WETLAND CROSSING 4
KLF-WETLAND69 (PEM)



PLAN VIEW
1" = 50'



PROFILE VIEW
1" = 50'

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 — BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

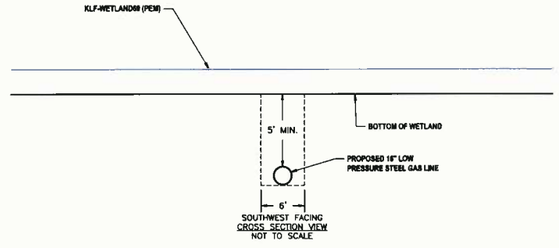
WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 73.6'
PROPOSED METHOD OF CROSSING: OPEN CUT

REFERENCES:

LAT: 39°14'39.21" N
LONG: 80°49'19.83" W
SHEET REF: SHEET 10

NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.



SOUTHWEST FACING
CROSS SECTION VIEW
NOT TO SCALE

THRASHER

IFP

ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO.
   PROPOSED LOW PRESSURE GAS LINE MAOP = 1,440 psig
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY:
   HORIZONTAL – NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
   VERTICAL – NAVD 88 (GEOID12B), U.S. SURVEY FOOT
4. ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
5. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
STREAM & WETLAND CROSSINGS

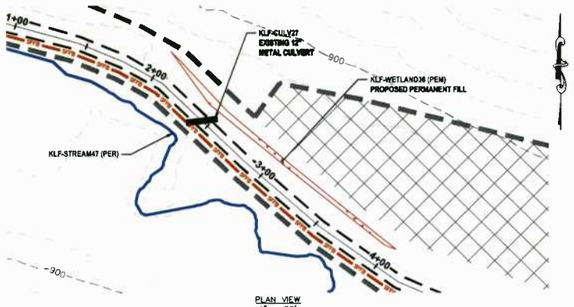
PROPOSED 16" LOW
PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018	AFE No.:	A07927
SCALE:	AS SHOWN		
DRAWN BY:	JDJ (TTG)	SHEET	16
CHECKED:	JRH (TTG)		

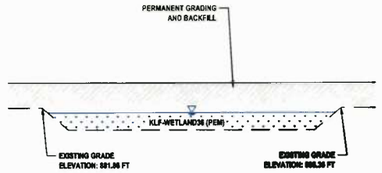
SHT. NAME: 050-6529\OX97PL\S&WC3 REV. 2

PLOT DATE/TIME: 5/22/2018 10:45 AM
USER: aaron rowe
LAYOUT TAB: S&WC3
CAD FILE R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\STREAM & WETLAND CROSSING SHEETS.dwg

WETLAND CROSSING 5
KLF-WETLAND36 (PEM)



PLAN VIEW
1" = 50'



NORTHEAST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 398.5'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

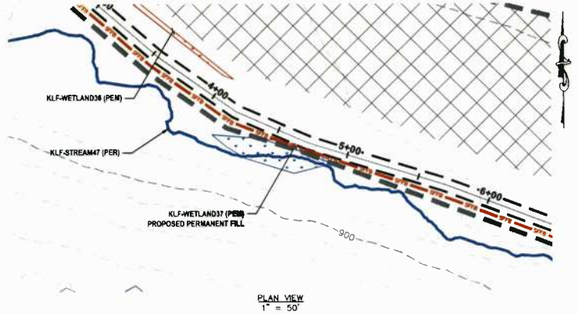
REFERENCES:

LAT: 39°14'37.72" N
LONG: 80°48'30.74" W
SHEET REF: SHEET 11

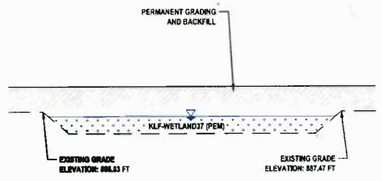
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.

WETLAND CROSSING 6
KLF-WETLAND37 (PEM)



PLAN VIEW
1" = 50'



NORTHEAST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 51.9'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

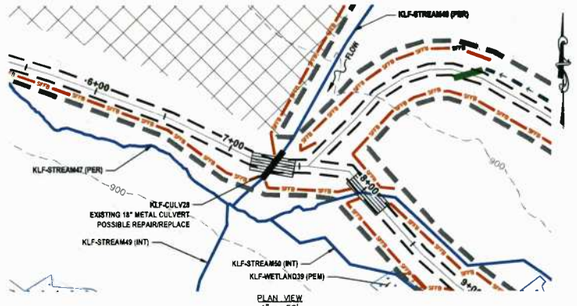
REFERENCES:

LAT: 39°14'36.63" N
LONG: 80°48'29.13" W
SHEET REF: SHEET 11

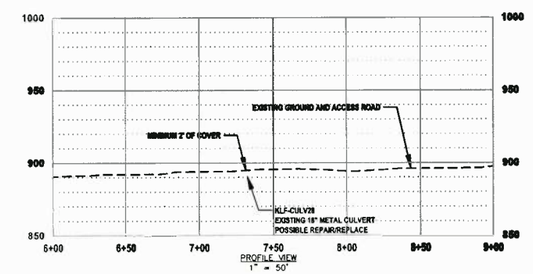
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.

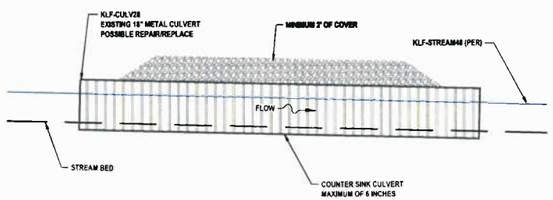
STREAM CROSSING 9
KLF-STREAM48 (PER)



PLAN VIEW
1" = 50'



PROFILE VIEW
1" = 50'



EAST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

STREAM INFORMATION:

STREAM CLASSIFICATION: PERENNIAL
STREAM WIDTH: 3.5'
PROPOSED METHOD OF CROSSING: CULVERT REPARATION/REPLACEMENT

CULVERT INFORMATION:

CULVERT MATERIAL: METAL
CULVERT SIZE: 18"

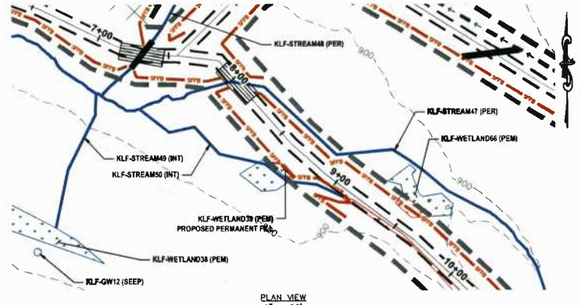
REFERENCES:

LAT: 39°14'35.80" N
LONG: 80°48'25.97" W
SHEET REF: SHEET 11

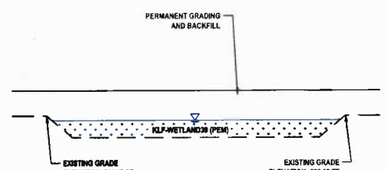
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

WETLAND CROSSING 7
KLF-WETLAND39 (PEM)



PLAN VIEW
1" = 50'



NORTHEAST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 18.4'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

REFERENCES:

LAT: 39°14'35.03" N
LONG: 80°48'24.72" W
SHEET REF: SHEET 11

NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.

THRASHER

IFP

ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO.
   PROPOSED LOW PRESSURE GAS LINE MAOP = 1,440 psig
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY:
   HORIZONTAL – NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
   VERTICAL – NAVD 88 (GEOID12B), U.S. SURVEY FOOT
4. ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
5. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
STREAM & WETLAND CROSSINGS

PROPOSED 16" LOW PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

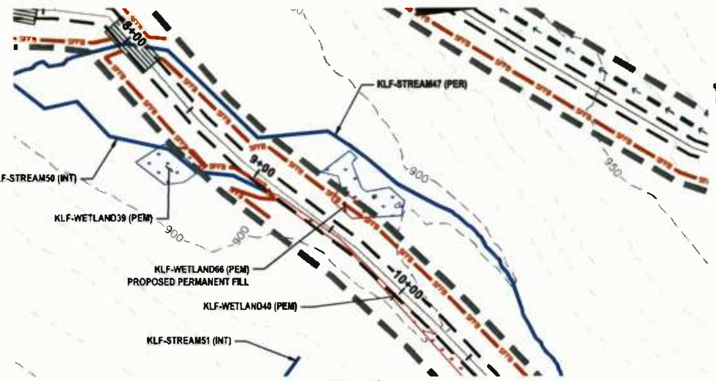
DATE:	5/22/2018 AFE No.: A07927
SCALE:	AS SHOWN
DRAWN BY:	JDJ (TTG)
CHECKED:	JRH (TTG)

SHEET 17

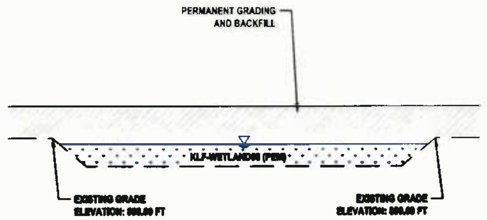
SHT. NAME: 050-6529\0X97PL\S&WC4 REV. 2

PLOT DATE/TIME: 5/22/2018 10:49 AM
USER: aaron rowe
LAYOUT TAB: S&WC4
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\STREAM & WETLAND CROSSING SHEETS.dwg

WETLAND CROSSING 8
KLF-WETLAND66 (PEM)



PLAN VIEW
1" = 50'



NORTHEAST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 25.2'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

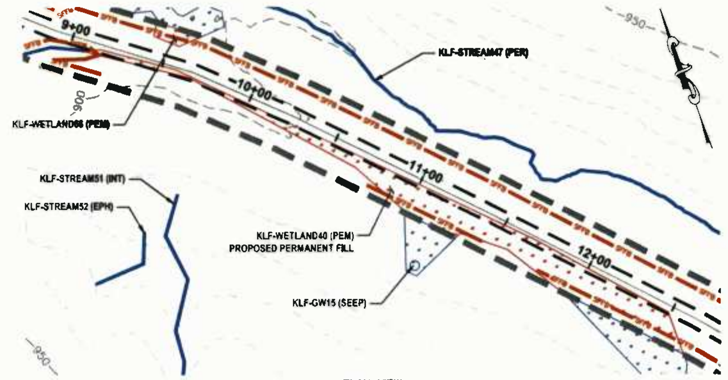
REFERENCES:

LAT: 39°14'37.72" N
LONG: 80°48'30.74" W
SHEET REF: SHEET 11

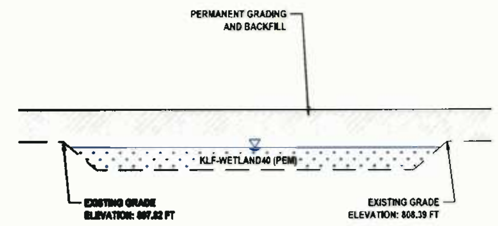
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.

WETLAND CROSSING 9
KLF-WETLAND40 (PEM)



PLAN VIEW
1" = 50'



NORTHEAST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 722.8'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

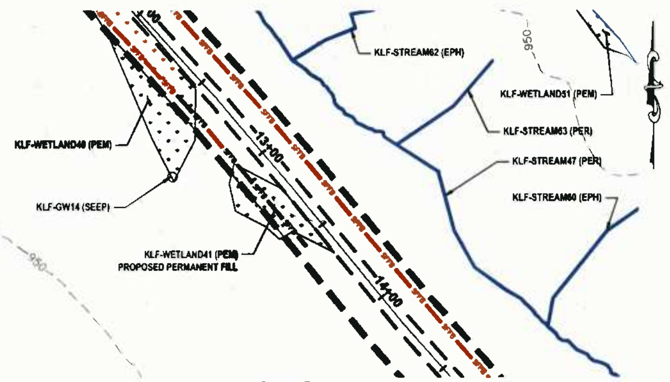
REFERENCES:

LAT: 39°14'33.45" N
LONG: 80°48'22.36" W
SHEET REF: SHEET 11

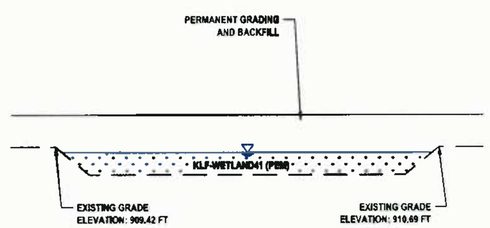
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.

WETLAND CROSSING 10
KLF-WETLAND41 (PEM)



PLAN VIEW
1" = 50'



NORTHEAST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 71.5'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

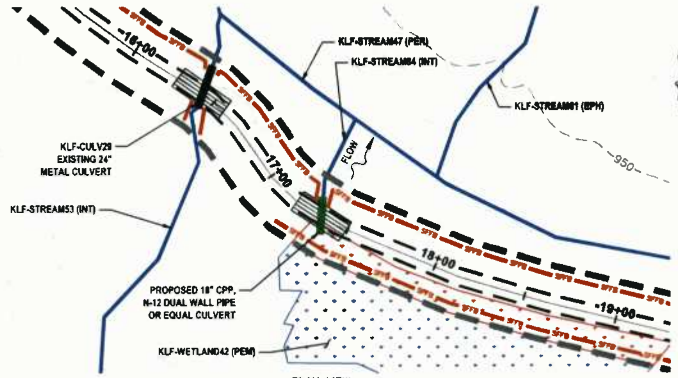
REFERENCES:

LAT: 39°14'31.90" N
LONG: 80°48'20.52" W
SHEET REF: SHEET 11

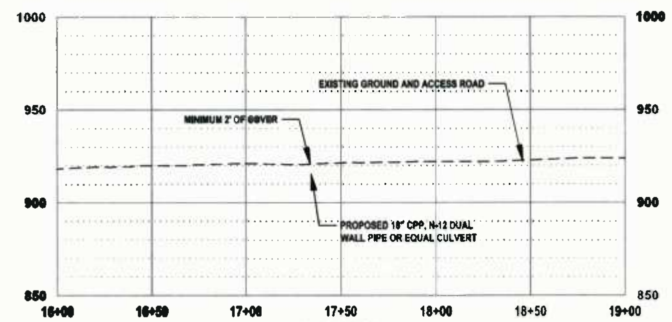
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.

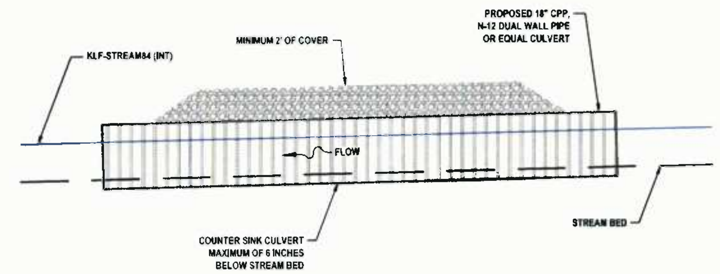
STREAM CROSSING 10
KLF-STREAM84 (INT)



PLAN VIEW
1" = 50'



PROFILE VIEW
1" = 50'



EAST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

STREAM INFORMATION:

STREAM CLASSIFICATION: INTERMITTENT
STREAM WIDTH: 6.0'
PROPOSED METHOD OF CROSSING: CULVERT INSTALLATION

CULVERT INFORMATION:

CULVERT MATERIAL: CPP
CULVERT SIZE: 18"

REFERENCES:

LAT: 39°14'29.20" N
LONG: 80°48'16.76" W
SHEET REF: SHEET 11

NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

THRASHER

IFP
ISSUED FOR PERMITTING

DATE: 05/22/2018
AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO.
   PROPOSED LOW PRESSURE GAS LINE MAOP = 1,440 psig
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY:
   HORIZONTAL – NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
   VERTICAL – NAVD 88 (GEOID12B), U.S. SURVEY FOOT
4. ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
5. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
STREAM & WETLAND CROSSINGS

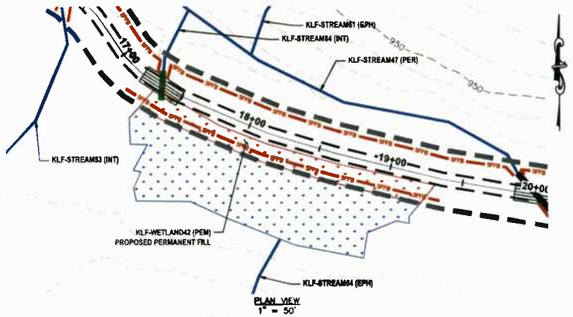
PROPOSED 16" LOW
PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018	AFE No.:	A07927
SCALE:	AS SHOWN	SHEET 18	
DRAWN BY:	JDJ (TTG)		
CHECKED:	JRH (TTG)		

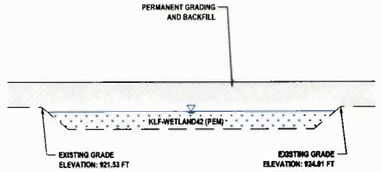
SHT. NAME: 050-6529\OX97PL\S&WC5 — REV. 2

LAYOUT TAB: S&WC5
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\STREAM & WETLAND CROSSING SHEETS.dwg
PLOT DATE/TIME: 5/22/2018 10:54 AM
USER: aaron rowe

WETLAND CROSSING 11
KLF-WETLAND42 (PEM)



PLAN VIEW
1" = 50'



NORTH FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 400.6'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

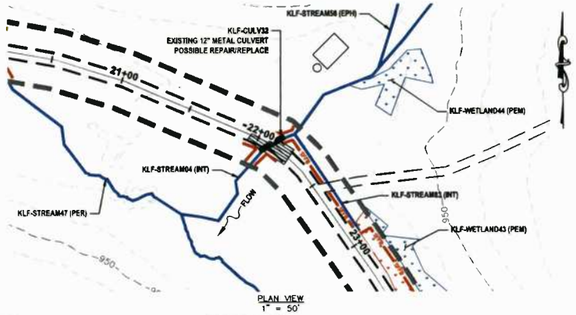
REFERENCES:

LAT: 39°14'28.75" N
LONG: 80°48'15.71" W
SHEET REF: SHEET 11

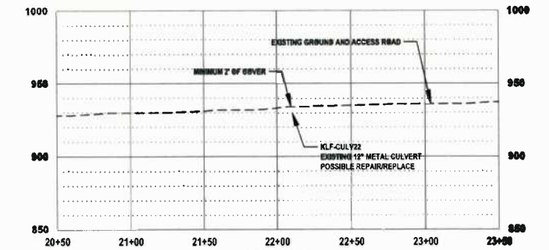
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.

STREAM CROSSING 11
KLF-STREAM04 (INT) (CROSSING 2)



PLAN VIEW
1" = 50'



PROFILE VIEW
1" = 50'

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

STREAM INFORMATION:

STREAM CLASSIFICATION: INTERMITTENT
STREAM WIDTH: 6.0'
PROPOSED METHOD OF CROSSING: CULVERT REPARATION/REPLACEMENT

CULVERT INFORMATION:

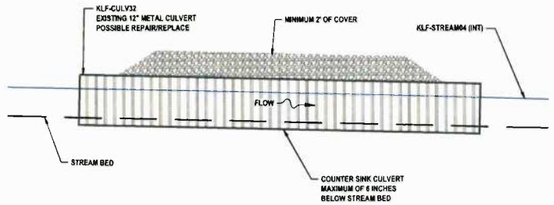
CULVERT MATERIAL: METAL
CULVERT SIZE: 12"

REFERENCES:

LAT: 39°14'27.85" N
LONG: 80°48'11.01" W
SHEET REF: SHEET 11

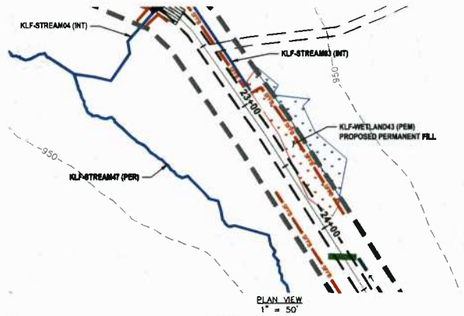
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

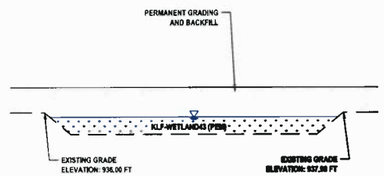


SOUTHEAST FACING
CROSS SECTION VIEW
NOT TO SCALE

WETLAND CROSSING 12
KLF-WETLAND43 (PEM)



PLAN VIEW
1" = 50'



NORTH FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 109.5'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

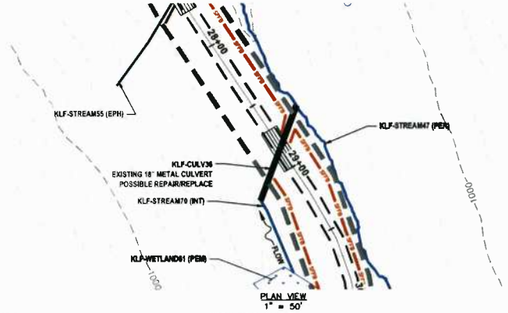
REFERENCES:

LAT: 39°14'26.89" N
LONG: 80°48'09.88" W
SHEET REF: SHEET 11

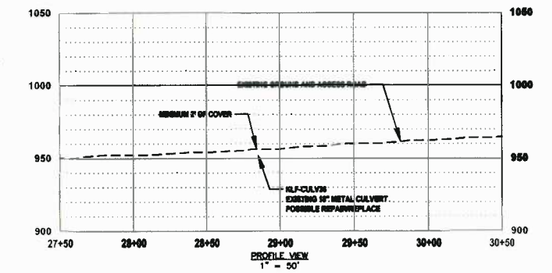
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.

STREAM CROSSING 12
KLF-STREAM70 (INT)



PLAN VIEW
1" = 50'



PROFILE VIEW
1" = 50'

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

STREAM INFORMATION:

STREAM CLASSIFICATION: INTERMITTENT
STREAM WIDTH: 4.0'
PROPOSED METHOD OF CROSSING: CULVERT REPARATION/REPLACEMENT

CULVERT INFORMATION:

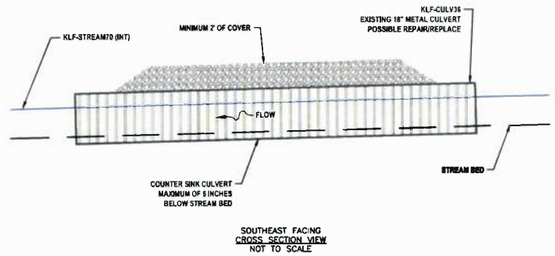
CULVERT MATERIAL: METAL
CULVERT SIZE: 18"

REFERENCES:

LAT: 39°14'22.26" N
LONG: 80°48'06.38" W
SHEET REF: SHEET 11

NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.



SOUTHEAST FACING
CROSS SECTION VIEW
NOT TO SCALE

THRASHER

IFP
ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO.
   PROPOSED LOW PRESSURE GAS LINE MAOP = 1,440 psig
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY:
   HORIZONTAL – NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
   VERTICAL – NAVD 88 (GEOID12B), U.S. SURVEY FOOT
4. ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
5. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
STREAM & WETLAND CROSSINGS

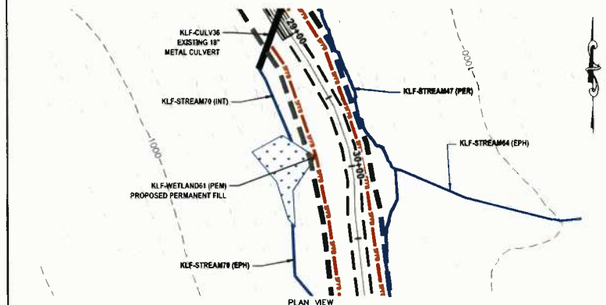
PROPOSED 16" LOW PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

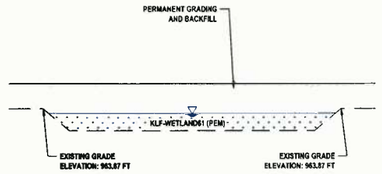
DATE:	5/22/2018	AFE No.:	A07927
SCALE:	AS SHOWN	SHEET	19
DRAWN BY:	JDJ (TTG)		
CHECKED:	JRH (TTG)		

SHT. NAME: 050-6529\OX97PL\S&WC6 REV. 2

LAYOUT TAB: S&WC6
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\STREAM & WETLAND CROSSING SHEETS.dwg
PLOT DATE/TIME: 5/22/2018 10:58 AM
USER: aaron rowe

WETLAND CROSSING 13
KLF-WETLAND61 (PEM)





LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 18" LOW PRESSURE STEEL GAS LINE
- 21+00 — BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 17.4'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

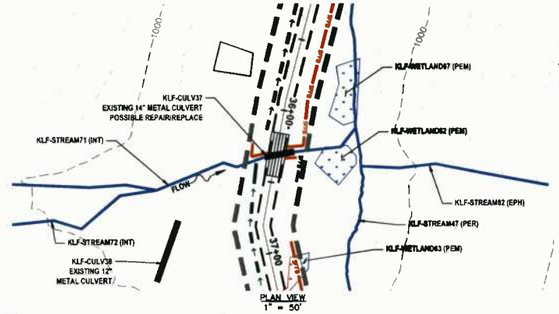
REFERENCES:

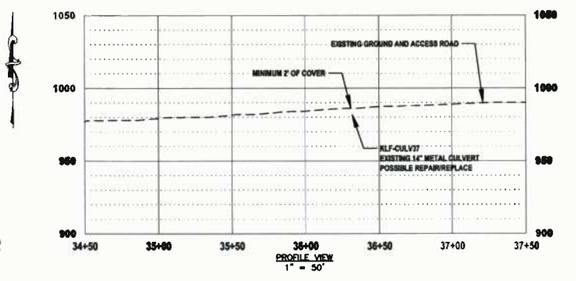
LAT: 39°14'21.32" N
LONG: 80°48'06.05" W
SHEET REF: SHEET 11

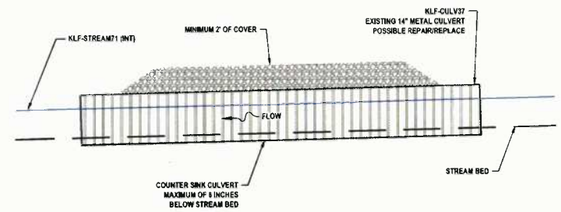
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.

STREAM CROSSING 13
KLF-STREAM71 (INT)







LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 — BASELINE OF PROPOSED CORRIDOR WITH STATIONING

STREAM INFORMATION:

STREAM CLASSIFICATION: INTERMITTENT
STREAM WIDTH: 3.5'
PROPOSED METHOD OF CROSSING: CULVERT REPAIRATION/REPLACEMENT

CULVERT INFORMATION:

CULVERT MATERIAL: METAL
CULVERT SIZE: 14"

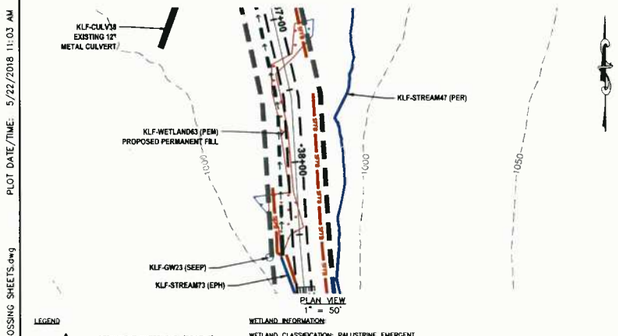
REFERENCES:

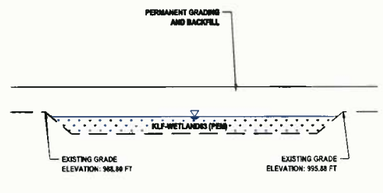
LAT: 39°14'15.10" N
LONG: 80°48'08.18" W
SHEET REF: SHEET 11

NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

WETLAND CROSSING 14
KLF-WETLAND63 (PEM)





LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 18" LOW PRESSURE STEEL GAS LINE
- 21+00 — BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 269.8'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

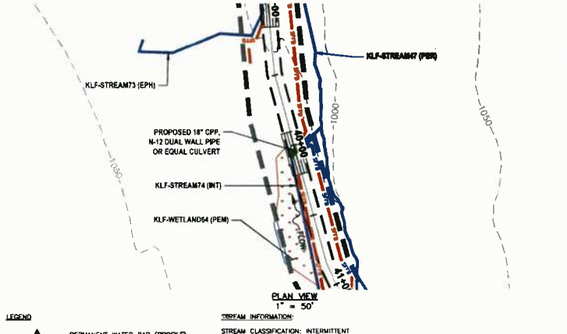
REFERENCES:

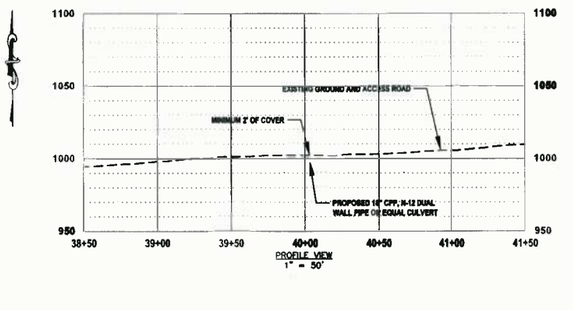
LAT: 39°14'13.64" N
LONG: 80°48'06.15" W
SHEET REF: SHEET 11

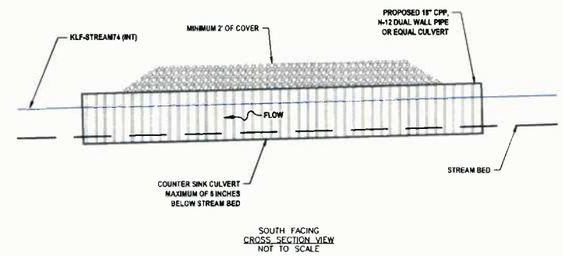
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.

STREAM CROSSING 14
KLF-STREAM74 (INT)







LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 — BASELINE OF PROPOSED CORRIDOR WITH STATIONING

STREAM INFORMATION:

STREAM CLASSIFICATION: INTERMITTENT
STREAM WIDTH: 4.0'
PROPOSED METHOD OF CROSSING: CULVERT INSTALLATION

CULVERT INFORMATION:

CULVERT MATERIAL: CPP
CULVERT SIZE: 18"

REFERENCES:

LAT: 39°14'11.48" N
LONG: 80°48'05.88" W
SHEET REF: SHEET 11

NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

THRASHER

IFP

ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO.
   PROPOSED LOW PRESSURE GAS LINE MAOP = 1,440 psig
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY:
   HORIZONTAL – NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
   VERTICAL – NAVD 88 (GEOID12B), U.S. SURVEY FOOT
4. ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
5. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
STREAM & WETLAND CROSSINGS

PROPOSED 16" LOW
PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

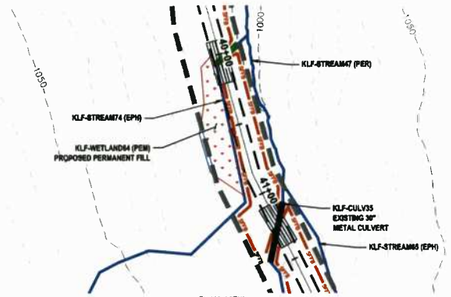
DATE:	5/22/2018
AFE No.:	A07927
SCALE:	AS SHOWN
DRAWN BY:	JDJ (TTG)
CHECKED:	JRH (TTG)

SHEET 20

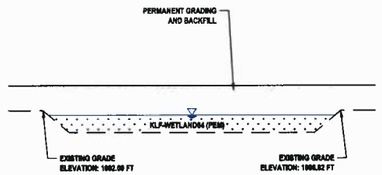
SHT. NAME: 050-6529\0X97PL\S&WC7 | REV. 2

LAYOUT TAB: S&WC7
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\STREAM & WETLAND CROSSING SHEETS.dwg
PLOT DATE/TIME: 5/22/2018 11:03 AM
USER: aaron rowe

WETLAND CROSSING 15
KLF-WETLAND64 (PEM)



PLAN VIEW
1" = 50'



EAST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 98.1'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

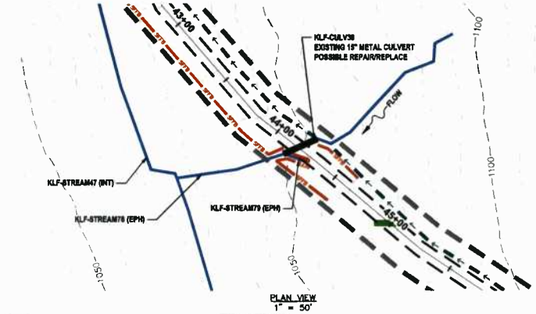
REFERENCES:

LAT: 39°14'11.03" N
LONG: 80°48'05.71" W
SHEET REF: SHEET 11

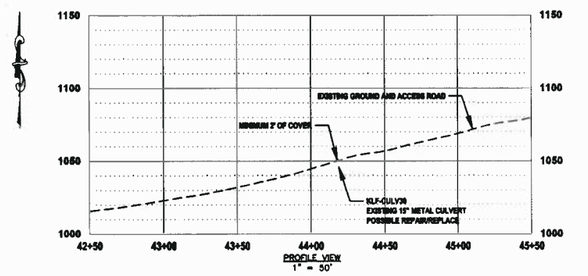
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.

STREAM CROSSING 15
KLF-STREAM78 (EPH)



PLAN VIEW
1" = 50'



PROFILE VIEW
1" = 50'

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

STREAM INFORMATION:

STREAM CLASSIFICATION: EPHEMERAL
STREAM WIDTH: 4.0'
PROPOSED METHOD OF CROSSING: CULVERT REPAIR/REPLACEMENT

CULVERT INFORMATION:

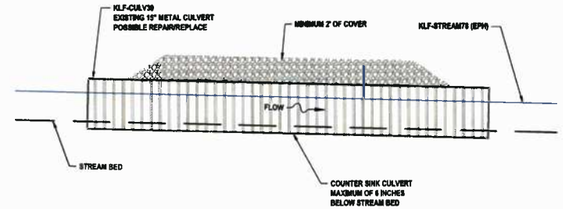
CULVERT MATERIAL: METAL
CULVERT SIZE: 15"

REFERENCES:

LAT: 39°14'13.10" N
LONG: 80°48'06.19" W
SHEET REF: SHEET 11

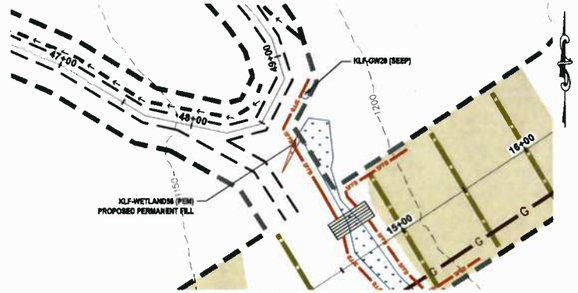
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

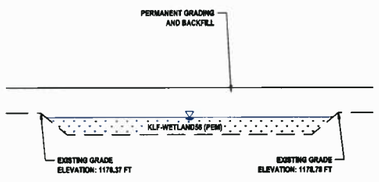


SOUTHEAST FACING
CROSS SECTION VIEW
NOT TO SCALE

WETLAND CROSSING 16
KLF-WETLAND56 (PEM) (CROSSING 2)



PLAN VIEW
1" = 50'



EAST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 28.5'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

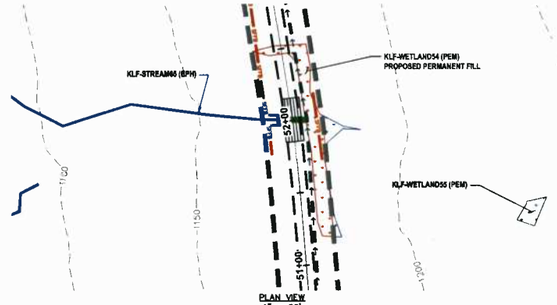
REFERENCES:

LAT: 39°14'05.89" N
LONG: 80°47'58.14" W
SHEET REF: SHEET 11

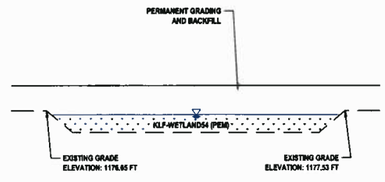
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.

WETLAND CROSSING 17
KLF-WETLAND54 (PEM)



PLAN VIEW
1" = 50'



EAST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 287.8'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

REFERENCES:

LAT: 39°14'09.21" N
LONG: 80°47'39.61" W
SHEET REF: SHEET 11

NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.

THRASHER

IFP

ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO.
   PROPOSED LOW PRESSURE GAS LINE MAOP = 1,440 psig
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY:
   HORIZONTAL – NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
   VERTICAL – NAVD 88 (GEOID12B), U.S. SURVEY FOOT
4. ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
5. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
STREAM & WETLAND CROSSINGS

PROPOSED 16" LOW
PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

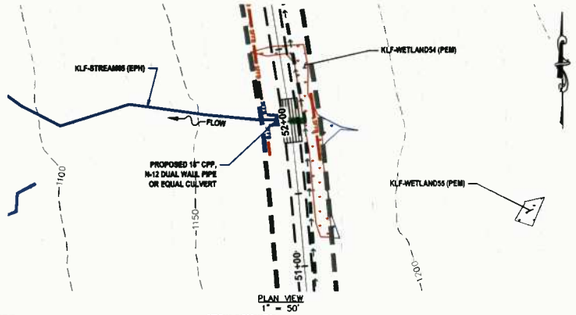
DATE:	5/22/2018
AFE No.:	A07927
SCALE:	AS SHOWN
DRAWN BY:	JDJ (TTG)
CHECKED:	JRH (TTG)

SHEET 21

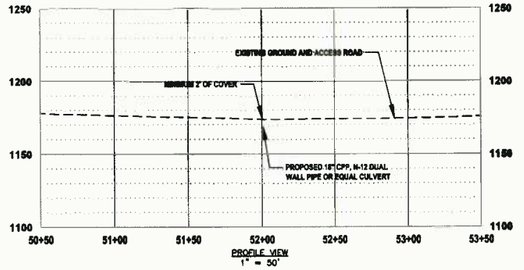
SHT. NAME: 050-6529\OX97PL\S&WC8 REV. 2

LAYOUT TAB: S&WC8
CAD FILE R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\STREAM & WETLAND CROSSING SHEETS.dwg
PLOT DATE/TIME: 5/22/2018 11:06 AM
USER: aaron rowe

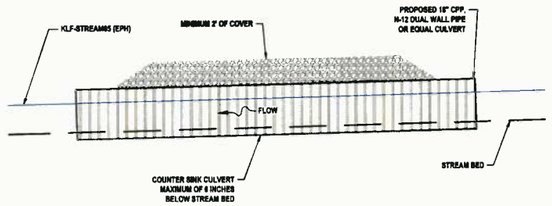
STREAM CROSSING 16
KLF-STREAM65 (EPH)



PLAN VIEW
1" = 50'



PROFILE VIEW
1" = 50'



NORTH FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

STREAM INFORMATION:

STREAM CLASSIFICATION: EPHEMERAL
STREAM WIDTH: 3.0'
PROPOSED METHOD OF CROSSING: CULVERT INSTALLATION

CULVERT INFORMATION:

CULVERT MATERIAL: CPP
CULVERT SIZE: 18"

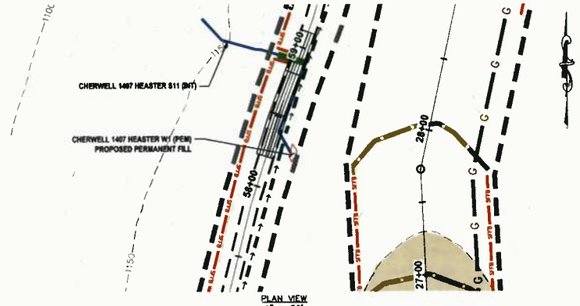
REFERENCES:

LAT: 39°14'09.21" N
LONG: 80°47'50.62" W
SHEET REF: SHEET 11

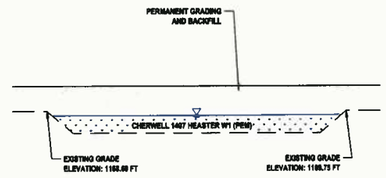
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

WETLAND CROSSING 18
CHERWELL 1407 HEASTER W1 (PEM)



PLAN VIEW
1" = 50'



EAST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 12.3'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

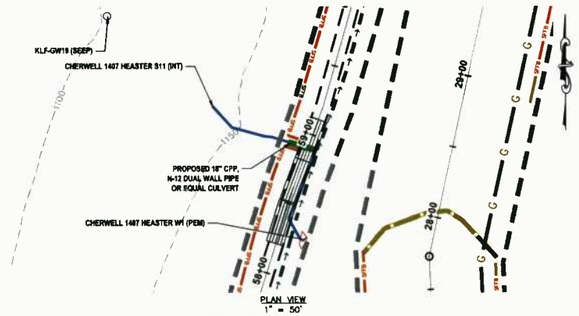
REFERENCES:

LAT: 39°14'15.23" N
LONG: 80°47'50.81" W
SHEET REF: SHEET 11

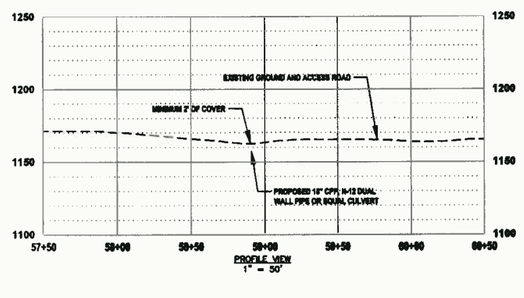
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.

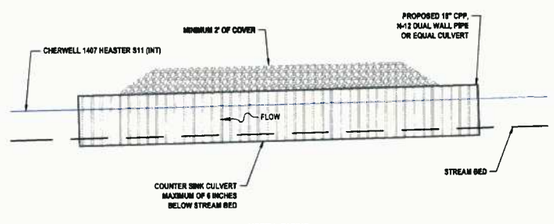
STREAM CROSSING 17
CHERWELL 1407 HEASTER S11 (INT)



PLAN VIEW
1" = 50'



PROFILE VIEW
1" = 50'



NORTH FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

STREAM INFORMATION:

STREAM CLASSIFICATION: INTERMITTENT
STREAM WIDTH: 2.0'
PROPOSED METHOD OF CROSSING: CULVERT INSTALLATION

CULVERT INFORMATION:

CULVERT MATERIAL: CPP
CULVERT SIZE: 18"

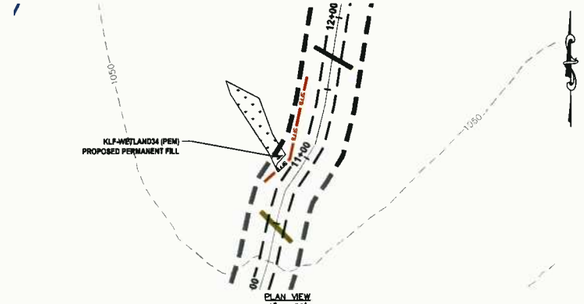
REFERENCES:

LAT: 39°14'15.87" N
LONG: 80°47'50.77" W
SHEET REF: SHEET 11

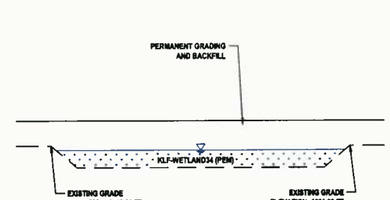
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

WETLAND CROSSING 19
KLF-WETLAND34 (PEM)



PLAN VIEW
1" = 50'



NORTHWEST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 10.5'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

REFERENCES:

LAT: 39°14'32.44" N
LONG: 80°48'52.75" W
SHEET REF: SHEET 12

NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.

THRASHER

IFP
ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	06/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO.
   PROPOSED LOW PRESSURE GAS LINE MAOP = 1,440 psig
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY:
   HORIZONTAL – NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
   VERTICAL – NAVD 88 (GEOID12B), U.S. SURVEY FOOT
4. ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
5. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
STREAM & WETLAND CROSSINGS

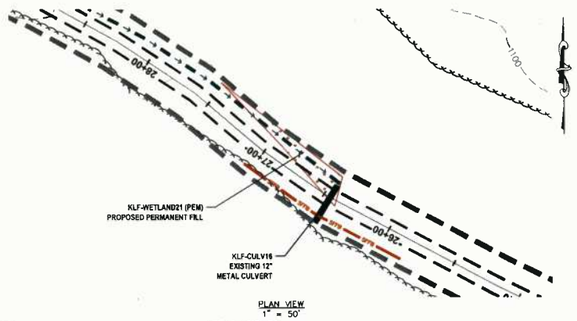
PROPOSED 16" LOW
PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018	AFE No.:	A07927
SCALE:	AS SHOWN		
DRAWN BY:	JDJ (TTG)	SHEET	22
CHECKED:	JDH (TTG)		

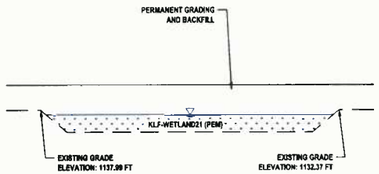
SHT. NAME: 050-6529\0X97PL\S&WC9 REV. 2

LAYOUT TAB: S&WC9
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\STREAM & WETLAND CROSSING SHEETS.dwg
PLOT DATE/TIME: 5/22/2018 11:13 AM
USER: aaron rowe

WETLAND CROSSING 20
KLF-WETLAND21 (PEM)



PLAN VIEW
1" = 50'



NORTHEAST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 104.3'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

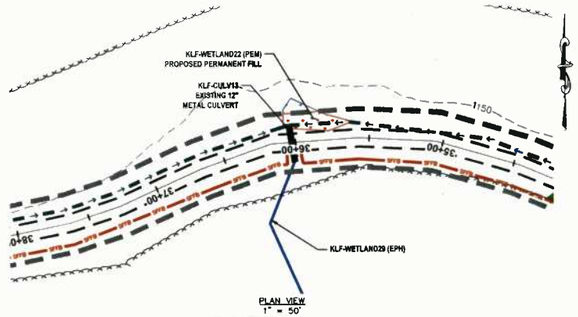
REFERENCES:

LAT: 39°14'44.00" N
LONG: 80°49'02.99" W
SHEET REF: SHEET 12

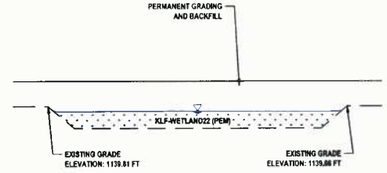
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.

WETLAND CROSSING 21
KLF-WETLAND22 (PEM)



PLAN VIEW
1" = 50'



NORTH FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 47.3'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

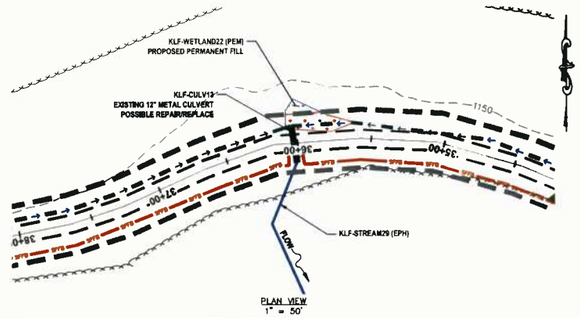
REFERENCES:

LAT: 39°14'46.48" N
LONG: 80°49'13.58" W
SHEET REF: SHEET 12

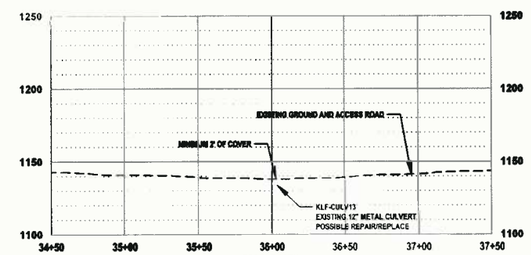
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.

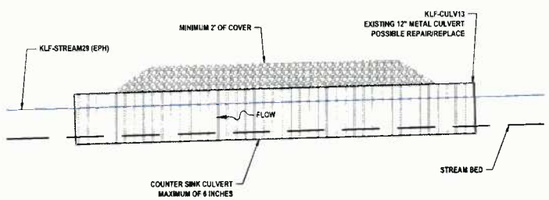
STREAM CROSSING 18
KLF-STREAM29 (EPH)



PLAN VIEW
1" = 50'



PROFILE VIEW
1" = 50'



WEST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

STREAM INFORMATION:

STREAM CLASSIFICATION: EPHEMERAL
STREAM WIDTH: 4.0'
PROPOSED METHOD OF CROSSING: CULVERT REPAIR/REPLACEMENT

CULVERT INFORMATION:

CULVERT MATERIAL: METAL
CULVERT SIZE: 12"

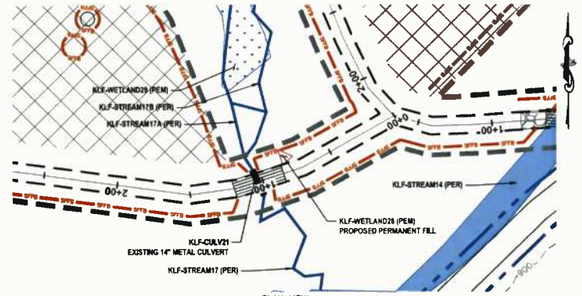
REFERENCES:

LAT: 39°14'46.32" N
LONG: 80°49'14.03" W
SHEET REF: SHEET 12

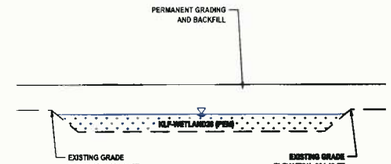
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

WETLAND CROSSING 22
KLF-WETLAND28 (PEM)



PLAN VIEW
1" = 50'



NORTH FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 10.3'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

REFERENCES:

LAT: 39°14'23.54" N
LONG: 80°48'52.18" W
SHEET REF: SHEET 12

NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.

THRASHER

IFP

ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO.
   PROPOSED LOW PRESSURE GAS LINE MAOP = 1,440 psig
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY:
   HORIZONTAL – NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
   VERTICAL – NAVD 88 (GEOID12B), U.S. SURVEY FOOT
4. ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
5. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
STREAM & WETLAND CROSSINGS

PROPOSED 16" LOW
PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

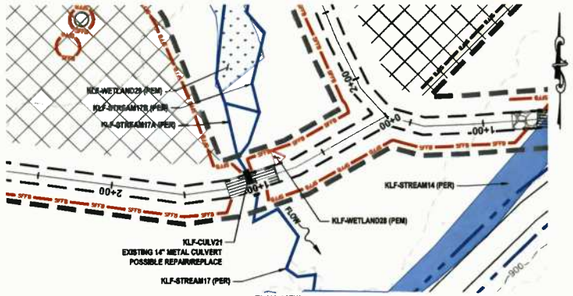
DATE:	5/22/2018
AFE No.:	A07927
SCALE:	AS SHOWN
DRAWN BY:	JDJ (TTG)
CHECKED:	JRH (TTG)

SHEET 23

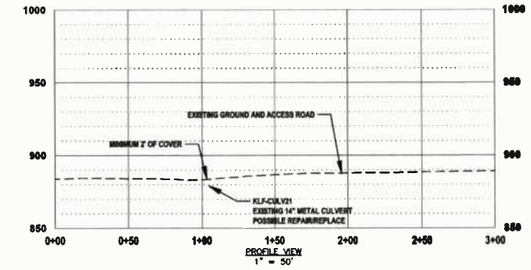
SHT. NAME: 050-6529\0X97PL\S&WC10 REV. 2

LAYOUT TAB: S&WC10
CAD FILE: R:\050-6529-OXFORD 97- ANTERO MIDSTREAM - \Survey\PLANS\STREAM & WETLAND CROSSING SHEETS.dwg
PLOT DATE/TIME: 5/22/2018 11:17 AM
USER: doran rowe

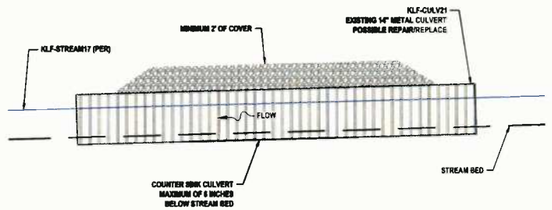
STREAM CROSSING 19
KLF-STREAM17 (PER) (CROSSING 2)



PLAN VIEW
1" = 50'



PROFILE VIEW
1" = 50'



WEST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 — BASELINE OF PROPOSED CORRIDOR WITH STATIONING

STREAM INFORMATION:

STREAM CLASSIFICATION: PERENNIAL
STREAM WIDTH: 8.0'
PROPOSED METHOD OF CROSSING: CULVERT REPAIR/REPLACEMENT

CULVERT INFORMATION:

CULVERT MATERIAL: METAL
CULVERT SIZE: 13"

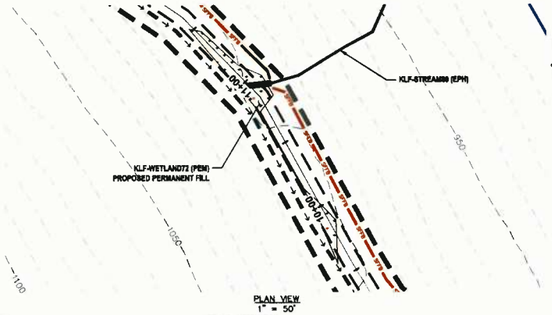
REFERENCES:

LAT: 39°14'23.37" N
LONG: 80°49'52.40" W
SHEET REF: SHEET 12

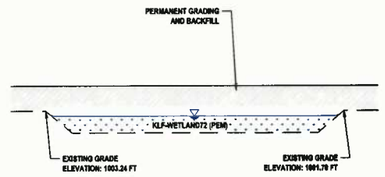
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

WETLAND CROSSING 23
KLF-WETLAND72 (PEM)



PLAN VIEW
1" = 50'



NORTHEAST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 — BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 380.9'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

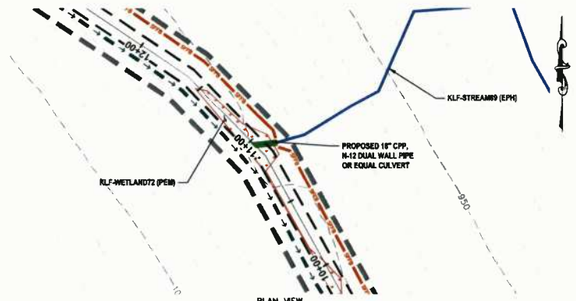
REFERENCES:

LAT: 39°14'28.73" N
LONG: 80°49'01.06" W
SHEET REF: SHEET 12

NOTES:

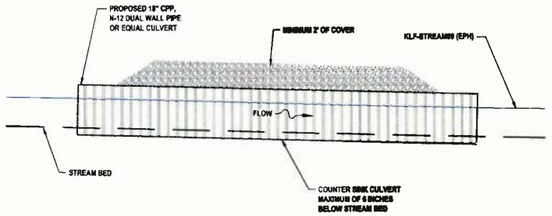
1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.

STREAM CROSSING 20
KLF-STREAM89 (EPH)



PLAN VIEW
1" = 50'

PROFILE VIEW
1" = 50'



NORTH FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 — BASELINE OF PROPOSED CORRIDOR WITH STATIONING

STREAM INFORMATION:

STREAM CLASSIFICATION: EPHEMERAL
STREAM WIDTH: 3.0'
PROPOSED METHOD OF CROSSING: CULVERT INSTALLATION

CULVERT INFORMATION:

CULVERT MATERIAL: CPP
CULVERT SIZE: 18"

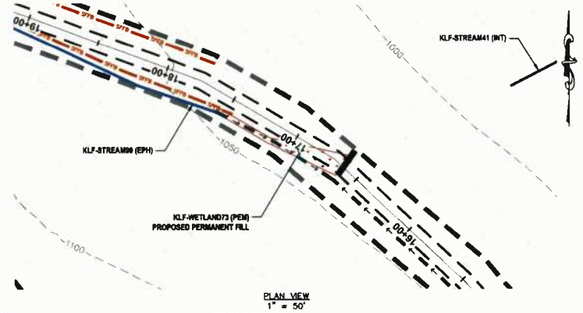
REFERENCES:

LAT: 39°14'29.15" N
LONG: 80°49'01.30" W
SHEET REF: SHEET 12

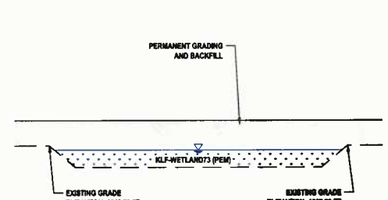
NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
2. CONTRACTOR TO MAINTAIN 5' DEPTH AT STREAM OR WETLAND CROSSING.
3. ANY SLOPES GREATER THAN 3:1 SHALL HAVE ROLLED EROSION CONTROL MATTING INSTALLED DURING FINAL RESTORATION.

WETLAND CROSSING 24
KLF-WETLAND73 (PEM)



PLAN VIEW
1" = 50'



NORTHEAST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

- PERMANENT WATER BAR (PROFILE)
- EARTH TRENCH BREAKER (PROFILE)
- PROPOSED CULVERT (PROFILE)
- EXISTING CULVERT (PROFILE)
- PROPOSED CULVERT (PLAN)
- EXISTING CULVERT (PLAN)
- PERMANENT WATER BAR (PLAN)
- SFFB — SMARTFENCE FB ORANGE
- ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
- DELINEATED STREAM
- DELINEATED WETLAND
- EDGE OF PAVEMENT
- EDGE OF DIRT/GRAVEL ROAD
- CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
- G — PROPOSED 16" LOW PRESSURE STEEL GAS LINE
- 21+00 — BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 200.5'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

REFERENCES:

LAT: 39°14'33.00" N
LONG: 80°49'07.17" W
SHEET REF: SHEET 12

NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.

THRASHER

IFP
ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	DATE	BY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO.
   PROPOSED LOW PRESSURE GAS LINE MAOP = 1,440 psig
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY:
   HORIZONTAL – NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
   VERTICAL – NAVD 88 (GEOID12B), U.S. SURVEY FOOT
4. ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
5. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
STREAM & WETLAND CROSSINGS

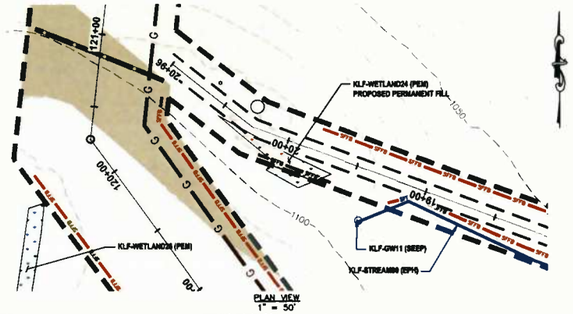
PROPOSED 16" LOW
PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018
SCALE:	AS SHOWN
DRAWN BY:	JDJ (TTG)
CHECKED:	JRH (TTG)
AFE No.:	A07927

SHEET 24

SHT. NAME: 050-6529\0X97PL\S&WC11 REV. 2

PLOT DATE/TIME: 5/22/2018 11:22 AM
USER: aaron rowe
LAYOUT TAB: S&WC11
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-1\Survey\PLANS\STREAM & WETLAND CROSSING SHEETS.dwg



WETLAND CROSSING 25
KLF-WETLAND24 (PEM)

PLAN VIEW
1" = 50'

NORTHEAST FACING
CROSS SECTION VIEW
NOT TO SCALE

LEGEND

▲	PERMANENT WATER BAR (PROFILE)
⍗	EARTH TRENCH BREAKER (PROFILE)
○	PROPOSED CULVERT (PROFILE)
○	EXISTING CULVERT (PROFILE)
▬	PROPOSED CULVERT (PLAN)
▬	EXISTING CULVERT (PLAN)
——•——	PERMANENT WATER BAR (PLAN)
—— SFFB ——	SMARTFENCE FB ORANGE
▨	ROLLED EROSION CONTROL PRODUCT (INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER)
——	DELINEATED STREAM
⁘	DELINEATED WETLAND
——	EDGE OF PAVEMENT
— — —	EDGE OF DIRT/GRAVEL ROAD
▬ ▬ ▬	CONSTRUCTION RIGHT-OF-WAY/ LIMITS OF DISTURBANCE
—— G ——	PROPOSED 16" LOW PRESSURE STEEL GAS LINE
21+00	BASELINE OF PROPOSED CORRIDOR WITH STATIONING

WETLAND INFORMATION:

WETLAND CLASSIFICATION: PALUSTRINE EMERGENT
WETLAND WIDTH: 87.0'
PROPOSED METHOD OF CROSSING: PERMANENT FILL

REFERENCES:

LAT: 39°14'34.08" N
LONG: 80°49'10.59" W
SHEET REF: SHEET 12

NOTES:

1. ORANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.

LAYOUT TAB: S&WC12
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\STREAM & WETLAND CROSSING SHEETS.dwg
PLOT DATE/TIME: 5/22/2018 11:23 AM
USER: aaron rawe

THRASHER

IFP
ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MAOP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY ANTERO AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY ANTERO.
   PROPOSED LOW PRESSURE GAS LINE MAOP = 1,440 psig
2. FIELD DELINEATION PERFORMED AND PROVIDED BY: KLEINFELDER, INC.
3. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY:
   HORIZONTAL – NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT
   VERTICAL – NAVD 88 (GEOID12B), U.S. SURVEY FOOT
4. ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED IN THE FIELD BY ANTERO CONSTRUCTION REPRESENTATIVE.
5. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero
Midstream Partners LP

OXFORD 97 PIPELINE
STREAM & WETLAND CROSSINGS

PROPOSED 16" LOW
PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018	AFE No.:	A07927
SCALE:	AS SHOWN	SHEET 25	
DRAWN BY:	JDJ (TTG)		
CHECKED:	JRH (TTG)		

SHT. NAME: 050-6529\OX97PL\S&WC12 | REV. 2

GENERAL NOTES

1. ANTERO WILL OBTAIN AN ENCROACHMENT PERMIT (FORM MM-109) FROM THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
2. ANY DISCREPANCIES FOUND BETWEEN THE DRAWINGS AND SPECIFICATIONS AND SITE CONDITIONS OR ANY INCONSISTENCIES OR AMBIGUITIES IN DRAWINGS OR SPECIFICATIONS SHALL BE IMMEDIATELY REPORTED TO THE PROJECT MANAGER, IN WRITING, WHO SHALL PROMPTLY ADDRESS SUCH PROBLEMS. WORK DONE BY THE CONTRACTOR AFTER THE DISCOVERY OF SUCH DISCREPANCIES, INCONSISTENCIES OR AMBIGUITIES SHALL BE DONE AT THE CONTRACTOR'S RISK.
3. WORK ON THIS PROJECT SHALL CONFORM TO THE LATEST EDITIONS OF THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (DWWM) EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL. IN THE EVENT OF CONFLICT BETWEEN THE DESIGN, SPECIFICATIONS, OR PLANS, THE MOST STRINGENT WILL GOVERN.
4. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL PUBLIC OR PRIVATE UTILITIES WHICH LIE IN OR ADJACENT TO THE CONSTRUCTION SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR, AT HIS OR HER EXPENSE, OF ALL EXISTING UTILITIES DAMAGED DURING CONSTRUCTION. FORTY-EIGHT HOURS PRIOR TO ANY EXCAVATION THE CONTRACTOR SHALL CALL WEST VIRGINIA 811.
5. INSTALLATION OF CONCRETE, CORRUGATED METAL OR HDPE STORM PIPE SHALL BE IN CONFORMANCE WITH THESE DRAWINGS.
6. **ALL MATERIALS USED FOR FILL OR BACK FILL SHALL BE FREE OF WOOD, ROOTS, ROCKS, BOULDERS, ORGANIC MATERIAL, OR ANY OTHER NON-COMPACTABLE SOIL TYPE MATERIALS. UNSATISFACTORY MATERIALS ALSO INCLUDE MAN MADE FILLS AND REFUSE DEBRIS DERIVED FROM ANY SOURCE.**
7. A PRE-CONSTRUCTION KICK-OFF MEETING SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION.
8. **IF SPRINGS OR SEEPS AND/OR AN ACCUMULATION OF GROUND WATER IS OBSERVED ON A SIDE CUT OR CUT SLOPE PIPE TRENCH, IMMEDIATELY INFORM THE ON-SITE INSPECTOR FOR AN EVALUATION AND CONSIDERATION OF THE INSTALLATION OF A FRENCH DRAIN.**
9. EROSION CONTROL BLANKETS ARE REQUIRED FOR SLOPES OF 3:1 OR GREATER.
10. HYDROMULCH CAN BE UTILIZED AS A SUBSTITUTE TO EROSION CONTROL BLANKETS WITH APPROVAL FROM ANTERO, EXCEPT FOR ON RESTORED STREAM BANKS AND ROAD BANKS. HYDROMULCH SHALL ONLY BE A VALID SUBSTITUTE FOR EROSION CONTROL BLANKETS DURING GRASS GROWING SEASONS.
11. HYDROSTATIC PRESSURE TEST - POTABLE WATER FROM ANTERO APPROVED SOURCES ONLY TO BE USED FOR HYDROTEST. NO DEWATERING IS PERMITTED WITHOUT PRIOR ANTERO APPROVAL AND APPLICABLE PERMITS. NOTIFICATION REQUIRED TO ANTERO ENVIRONMENTAL PRIOR TO HYDROTEST.

EROSION AND SEDIMENT CONTROL PLAN NARRATIVE/CONSTRUCTION SEQUENCES

THE EROSION AND SEDIMENT (E&S) CONTROL MEASURES FOR THE PIPELINE CONSTRUCTION ACTIVITIES CONSIST OF COMPOST FILTER SOCK, SILT FENCE, RIGHT-OF-WAY (ROW) DIVERSIONS, TRENCH BREAKERS (PLUGS), AND TEMPORARY AND PERMANENT SEEDING AND MULCHING. PROJECT AREAS LOCATED WITHIN TOTAL DAILY MAXIMUM LOADS (TMDL) WATERSHEDS MUST SUBSTITUTE SILT FENCE WITH SMARTFENCE SD OR EQUIVALENT AND COMPOST FILTER SOCK WITH SMARTFENCE FB OR EQUIVALENT. BMP SPECIFICATIONS FOR THE E&S CONTROL PLAN (E&SCP) AREA TO BE UTILIZED BY THE CONSTRUCTION CONTRACTOR ACCORDING TO THE PROVIDED PLAN. STRAW/HAY BALES WILL NOT BE USED AS AN E&S CONTROL, HOWEVER, THEY MAY BE ACCEPTABLE TO USE AS A VELOCITY DISSIPATER.

GENERAL CONSTRUCTION SEQUENCE PER PIPELINE SEQUENCE:

1. PRIOR TO BEGINNING LAND DISTURBING ACTIVITIES, CLEARLY MARK ALL CLEARING LIMITS, SENSITIVE AREAS AND THEIR BUFFERS, AND TREES THAT ARE TO BE PRESERVED WITHIN THE CONSTRUCTION AREA. THESE SHALL BE CLEARLY MARKED, BOTH IN THE FIELD AND ON THE PLANS, TO PREVENT DAMAGE AND OFFSITE IMPACTS.
2. INSTALL STONE CONSTRUCTION ENTRANCES AT ALL LOCATIONS WHERE TEMPORARY ACCESS ROADS WILL BE ACCESSING A PAVED ROADWAY.
3. INSTALL TEMPORARY E&S CONTROLS (SILT FENCE, ROW DIVERSIONS, ETC.) PRIOR TO ANY EARTH DISTURBING ACTIVITY, WHICH INCLUDES GRUBBING AND EXCAVATION, TO ENSURE, TO THE MAXIMUM EXTENT PRACTICABLE, THAT NO SIGNIFICANT EROSION OR SEDIMENTATION OCCURS.
4. ROW DIVERSIONS AND/OR OTHER EROSION AND SEDIMENT CONTROL DEVICES WILL BE INSTALLED AS NEEDED. IF CLEARING AND GRUBBING IS REQUIRED, SEE BELOW REGARDING THE MANAGEMENT AND DISPOSAL OF DEBRIS.
5. AFTER ACCESS TO AND ALONG THE PROPOSED UTILITY LINE HAS BEEN PROVIDED, THE GENERAL CLEARING AND GRUBBING OF THE TREES AND BRUSH ALONG THE ROW FOR PIPE TRENCHING MAY COMMENCE TO THE WIDTH SPECIFIED IN THE E&S PLANS. TREES SHALL BE WINDROWED ON LOW SIDE OF RIGHT-OF-WAY. ALL POLLUTANTS, INCLUDING WASTE MATERIALS AND DEMOLITION DEBRIS, THAT OCCUR ON-SITE DURING CONSTRUCTION SHALL BE HANDLED AND DISPOSED OF IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF SURFACE WATERS. WOODY DEBRIS MAY BE CHOPPED AND SPREAD ON-SITE, UNLESS LANDOWNER STIPULATIONS SPECIFY OTHERWISE.
6. MINOR GRADING WITHIN THE ROW WILL BE CONDUCTED WHERE NECESSARY TO PROVIDE AN EVEN SURFACE FOR SAFE AND EFFICIENT OPERATION OF CONSTRUCTION EQUIPMENT. GRADING WILL BE THE MINIMUM AMOUNT NECESSARY AND BMPS WILL BE INSTALLED PROMPTLY. TREE STUMPS, AND LARGE ROCKS AND BOULDERS WILL ALSO BE REMOVED FOR SAFETY AT THIS TIME.
7. EXCAVATE PIPELINE TRENCH. A MINIMUM COVER OF 3' SHALL BE PROVIDED ABOVE PIPELINE AT ALL LOCATIONS EXCEPT FOR WETLANDS AND STREAMS. A MINIMUM COVER OF 5' SHALL BE PROVIDED ALONG PIPELINE AT WETLAND AND STREAM CROSSINGS.
8. THE PROPOSED CONSTRUCTION ROW WILL BE USED AS A WORK AREA FOR TRENCH EXCAVATION, EQUIPMENT MOVEMENT, AND THE STORAGE OF SOIL STOCKPILES, AS NEEDED. EQUIPMENT SOIL STOCKPILES, AND OTHER MATERIALS AREA TO REMAIN UPSLOPE OF BMPS DURING CONSTRUCTION ACTIVITIES.
9. SEGREGATION OF TOPSOIL AND SUBSOIL WILL BE PERFORMED WHERE TRENCH EXCAVATION TAKES PLACE IN AN AGRICULTURAL, WETLAND, OR RESIDENTIAL AREA. IT IS BEST MANAGEMENT PRACTICE TO SALVAGE AND SEGREGATE TOPSOIL WHERE APPLICABLE.
10. TEMPORARY E&S CONTROLS FOR STREAM CROSSINGS SHALL BE INSTALLED AT LOCATIONS SHOWN ON THE E&SCP AND ASSOCIATED DETAIL SHEETS.
11. STREAM AND RIVER PIPELINE CROSSING CONSTRUCTION METHODS WILL BE INSTALLED AT LOCATIONS SHOWN ON THE E&S PLAN SHEETS AND AS SPECIFIED ON THE DETAIL SHEETS. WATERBODIES WILL BE CROSSED WITH TEMPORARY BRIDGES, SUCH AS TIMBER MATS OR APPROVED EQUAL CROSSINGS, PRIOR TO CROSSING THE CONVEYANCE. STREAMBANK STABILIZATION WILL BE PERFORMED IMMEDIATELY FOLLOWING COMPLETION OF THE PIPELINE INSTALLATION.
12. WETLAND CROSSING WIDTHS FOR UTILITY CROSSINGS WILL BE KEPT TO A MINIMUM AND WILL BE STABILIZED BY PLACING TIMBER MATS, RIPRAP, OR PRE-FABRICATED SWAMP MATS, AS SHOWN ON THE DETAIL SHEETS. ALL MATERIALS USED TO STABILIZE ACCESS ROADS IN WETLAND AREAS WILL BE REMOVED FROM THE WETLAND UPON COMPLETION OF THE PIPELINE CONSTRUCTION. A BARRIER (GEOTECH FABRIC) SHOULD BE USED TO PREVENT MIXING OF SOILS.
13. PIPELINE SECTIONS WILL BE TRANSPORTED TO THE WORK AREA AND STRUNG ALONG THE WORKING SIDE OF THE ROW PARALLEL TO THE TRENCH LINE. THE PIPELINE WILL BE BENT 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 MATERIAL LAID ON THE TRENCH BOTTOM TO PROTECT THE PIPE COATING. ANY WETNESS ENCOUNTERED DURING CONSTRUCTION WORK WILL BE DEWATERED BY USING PUMPS, HOSES, AND DEWATERING BAGS, AND WILL BE DISCHARGED TO A WELL-VEGETATED UPLAND AREA.
14. INSTALL TRENCH BREAKERS (PLUGS) AT LOCATIONS AS SHOWN ON THE E&S PLAN SHEETS AND AS SPECIFIED ON THE DETAIL SHEETS.
15. THE TRENCH WILL BE SUBSEQUENTLY 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 STORMWATER-RELATED PROBLEMS FROM THE SETTLING OF THE BACKFILLED AREA. NO CROWNING OF THE SOILS WILL TAKE PLACE IN WETLANDS, STREAMS, OR FLOODPLAINS, DISTURBED AREAS WILL BE RESTORED TO THEIR ORIGINAL TOPOGRAPHIC CONTOURS.
16. EXPOSED AND UNWORKED SOILS SHALL BE STABILIZED BY APPLICATION OF EFFECTIVE BMPS THAT PROTECT THE SOIL FROM EROSIVE FORCES OF RAINDROPS, FLOWING WATER AND WIND. ALL DISTURBED AREAS THAT ARE AT FINAL GRADE MUST BE SEEDED AND MULCHED WITHIN SEVEN DAYS AND AREAS THAT WILL NOT BE WORKED AGAIN FOR 21 DAYS OR MORE MUST BE SEEDED AND MULCHED WITHIN SEVEN DAYS. FOR DISTURBED AREAS WITH SLOPES OF 3:1 OR GREATER, THE AREA WILL BE VERTICALLY TRACKED AND EROSION CONTROL FABRIC SHALL BE INSTALLED AFTER SEED, MULCH, AND SOIL SUPPLEMENTS HAVE BEEN APPLIED. THE TEMPORARY/PERMANENT SEEDING AND MULCH TABLE ON THE DETAIL SHEETS CONSIST OF THE TYPE OF SEED AND APPLICATION RATE THAT SHALL BE APPLIED, INCLUDING THE NURSE CROP THAT SHALL BE USED DURING CERTAIN TIME OF THE YEAR TO PROMOTE STABILIZATION OF THE SOIL UNTIL THE PERENNIAL SEEDLINGS ESTABLISH.
17. IN THE UNLIKELY EVENT THAT THERE ARE EXCESS EXCAVATED MATERIALS REMAINING AFTER THE TRENCH HAS BEEN BACKFILLED, THE MATERIAL WILL BE DISPOSED OF WITHIN THE EXISTING ROW IN AN UPLAND AREA. MATERIAL WILL BE SPREAD IN A THIN LAYER AND TIED INTO EXISTING CONTOURS TO CREATE POSITIVE DRAINAGE FOR STORMWATER RUNOFF.
18. ALL E&S CONTROLS WILL BE INSPECTED, AT A MINIMUM, ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5-INCH PER 24-HOUR PERIOD UNTIL THERE IS A 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.
19. INSPECTION OF ALL EROSION AND SEDIMENTATION CONTROLS IN TMDL WATERSHEDS WITHIN DISTURBED AREAS WILL BE, AT A MINIMUM, PERFORMED ONCE EVERY FOUR CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.25-INCH PER 24-HOUR PERIOD. REPAIRS OR MAINTENANCE SHALL BE PERFORMED IMMEDIATELY TO BMPS. PERMANENT STABILIZATION WILL OCCUR WITHIN 4 DAYS AFTER CONSTRUCTION HAS BEEN COMPLETED. LOCATED A RAIN GAUGE AT THE PROJECT TRAILER TO MONITOR AND RECORD DAILY RAINFALL EVENTS.
20. NO SEDIMENT TRACKING ON THE ROADWAY IS ALLOWED. IN THE EVENT THAT SEDIMENT IS INADVERTENTLY TRACKED ONTO THE ROAD, THE ROAD SHALL BE CLEANED THOROUGHLY BY THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM ROADS BY SHOVELING OR PICKUP SWEEPING AND SHALL BE TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA. STREET WASHING OF SEDIMENTS TO THE STORM DRAIN SYSTEM IS NOT ALLOWED. IF STREET WASH WASTEWATER CAN BE CONTROLLED FROM ENTERING THE STORM DRAINAGE SYSTEM,THEN IT SHALL BE PUMPED BACK ONTO THE SITE, CONTAINED AND DISPOSED OF PROPERLY.
21. CONSTRUCTION ACCESS RESTORATION SHALL BE EQUAL OR BETTER THAN THE PRE-CONSTRUCTION CONDITION AND GRADES THAT WERE ALTERED DURING CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO ORIGINAL GRADES AND MATCH EXISTING DRAINAGE PATTERNS.
22. APPLICABLE PRACTICES INCLUDE, BUT ARE NOT LIMITED TO, TEMPORARY AND PERMANENT SEEDING, SODDING, MULCHING, EROSION CONTROL FABRICS AND MATTING, THE EARLY APPLICATION OF GRAVEL BASE ON AREAS TO BE PAVED, AND DUST CONTROL.
23. SELECTED SOIL STABILIZATION MEASURES SHALL BE APPROPRIATE FOR THE TIME OF YEAR, SITE CONDITIONS, AND ESTIMATED DURATION OF USE.
24. SOIL STOCKPILES MUST BE STABILIZED AND PROTECTED WITH SEDIMENT TRAPPING MEASURES.
25. LINEAR CONSTRUCTION ACTIVITIES SUCH AS RIGHT-OF-WAY AND EASEMENT CLEARING, ROADWAY DEVELOPMENT, PIPELINES, AND TRENCHING FOR UTILITIES, SHALL BE CONDUCTED TO MEET THE SOIL STABILIZATION TIMEFRAME REQUIREMENTS. CONTRACTORS SHALL INSTALL THE BEDDING MATERIALS, ROADBEDS, STRUCTURES, PIPELINES, OR UTILITIES AND RE-STABILIZE THE DISTURBED SOILS SO THAT THE 7-DAY REQUIREMENTS ARE MET.
26. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES, CONSISTENT WITH SAFETY AND SPACE CONSIDERATIONS.

PIPELINE BMPS INSTALLATION AND REMOVAL SEQUENCE

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

INSPECTIONS OF ALL E&S CONTROLS SHALL BE CONDUCTED, AT A MINIMUM, ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5-INCH PER 24-HOUR PERIOD. ALL NECESSARY CLEANING, REPAIR AND/OR MAINTENANCE SHALL BE MADE AS SOON AS POSSIBLE AFTER THE INSPECTION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT INSPECTIONS AND REPAIRS ARE MADE AS OUTLINED HEREIN. ALL SEDIMENT COLLECTED FROM THE MAINTENANCE OF E&S CONTROL MEASURES SHALL BE SPREAD ON-SITE AND SEEDED AND MULCHED, OR DISPOSED OF PROPERLY AT A WV DEPARTMENT OF ENVIRONMENTAL PROTECTION (WVDEP)-APPROVED LOCATION. THE FOLLOWING MAINTENANCE WILL BE PERFORMED UNTIL STABILIZATION HAS BEEN ACHIEVED:

- TEMPORARY EROSION AND SEDIMENT CONTROL BMPS SHOULD BE REMOVED FOLLOWING CONFIRMATION THAT 70 PERCENT PERENNIAL VEGETATIVE COVERAGE IS ESTABLISHED. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON-SITE. DISTURBED SOIL RESULTING FROM REMOVAL OF BMPS OR VEGETATION SHALL BE PERMANENTLY STABILIZED.
- WHENEVER INSPECTION AND/OR MONITORING REVEALS THAT THE BMPs IDENTIFIED IN THE E&SCP ARE INADEQUATE, THE E&SCP SHALL BE MODIFIED, AS APPROPRIATE, IN A TIMELY MANNER.
- MAINTENANCE OF THE E&SCP - THE E&SCP SHALL BE RETAINED ON-SITE. THE E&SCP SHALL BE MODIFIED WHENEVER THERE IS A SIGNIFICANT CHANGE IN THE DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE OF ANY BMP. THE DEP MUST BE NOTIFIED OF ANY CHANGES TO THE CONSTRUCTION SWPPP. DEPENDING ON THE SIGNIFICANCE OF THE REVISION, A PERMIT MODIFICATION MAY NEED TO BE SUBMITTED TO THE DEP.

THE FOLLOWING IS A GENERAL BMP INSTALLATION SEQUENCE FOR PIPELINE CONSTRUCTION ACTIVITIES:

- **A STONE CONSTRUCTION ENTRANCE 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 (NON TMDL WATERSHEDS) OR SMARTFENCE SD (TMDL WATERSHEDS) WILL BE PLACED DOWN SLOPE OF WORK AREAS AND AROUND SOIL STOCKPILES, AS NEEDED.
- APPROPRIATELY SIZED FENCING WILL BE PLACED AROUND WETLANDS AND WATERBODIES ADJACENT TO THE WORK AREA PRIOR TO ANY TRENCHING ACTIVITIES.
- STOCKPILE SLOPES WILL BE TWO TO ONE OR FLATTER, AND STOCKPILES WILL NOT EXCEED 35 FEET IN HEIGHT.
- TEMPORARY STREAM AND WETLAND CROSSINGS SHALL BE INSTALLED AS INDICATED ON THE E&S PLAN SHEETS AND AS PER THE E&S DETAIL SHEETS. FOR ALL OTHER SURFACE OR STORMWATER CONVEYANCES THAT ARE NOT IDENTIFIED ON THE PLAN SHEETS AS STREAMS DUE TO THE LACK OF DEFINED BED AND BANK CONDITIONS, A TEMPORARY BRIDGE SUCH AS A TIMBER MAT OR AN APPROVED EQUAL SHALL BE INSTALLED, PRIOR TO CROSSING THE CONVEYANCE IF THERE IS FLOWING WATER PRESENT AT TIME OF CONSTRUCTION IN THAT AREA.
- TEMPORARY ROW DIVERSIONS WILL BE INSTALLED IMMEDIATELY AFTER INITIAL DISTURBANCE OF THE SOIL IN ACCORDANCE WITH THE DETAILS AND SPACING SIZING REQUIREMENTS. TEMPORARY ROW DIVERSIONS WILL BE CONSTRUCTED OF SOIL TO REDUCE RUNOFF VELOCITY AND DIVERT WATER OFF OF THE PIPELINE ROW. TEMPORARY ROW DIVERSIONS WILL BE MAINTAINED UNTIL PERMANENT ROW DIVERSIONS HAVE BEEN INSTALLED.
- 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 (PLUGS) WILL BE INSTALLED IN SLOPING AREAS GREATER THAN FIVE PERCENT AND ON SLOPES ADJACENT TO STREAMS, WETLANDS, AND ROADS CROSSINGS TO PREVENT SUBSURFACE EROSION. TRENCH BREAKERS (PLUGS) WILL BE INSTALLED IN ACCORDANCE WITH THE SPACING REQUIREMENTS.
- 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 OVER THE AREA FROM WHICH IT WAS REMOVED. DISTURBED AREAS WILL BE RESTORED TO THEIR ORIGINAL TOPOGRAPHIC CONTOURS.
- ROW DIVERSIONS, WHEN REQUIRED, WILL BE CONSTRUCTED WITH A 5 TO 10 PERCENT (TYPICAL) OUTSLOPE WITH COMPOST FILTER SOCK (NON TMDL WATERSHEDS) OR SMARTFENCE FB (TMDL WATERSHEDS), OR AN ACCEPTABLE EQUIVALENT, INSTALLED AT THE DIVERSION OUTLET TO PREVENT ANY SEDIMENT FROM LEAVING THE LIMITS-OF-DISTURBANCE.
- 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 SEVEN DAYS AFTER REACHING FINAL GRADE.
- FOR THREE TO ONE OR STEEPER SLOPES THE DISTURBED AREA WILL BE VERTICALLY TRACKED. EROSION CONTROL FABRIC WILL BE INSTALLED.
- 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 REQUIREMENTS REFERS TO THE TOTAL AREA VEGETATED AND NOT A PERCENT OF THE SITE.
- ALL WASTE MATERIAL WILL BE TRANSPORTED OFF-SITE FOR RECYCLING AND/OR DISPOSAL. WHERE FEASIBLE, CONSTRUCTION WASTE MATERIALS WILL BE RECYCLED OR WILL BE TAKEN TO AN APPROVED FACILITY FOR DISPOSAL. AS STATED PREVIOUSLY, EXCESS SOIL MATERIAL, IF ANY, WILL BE SPREAD AND REVEGETATED WITHIN THE ROW. OFF-SITE SPOIL AND/OR BORROW SITES MUST BE OPERATED UNDER A CURRENT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT.
- EROSION CONTROL BLANKETS SHALL NOT BE INSTALLED ON AGRICULTURAL AREAS EVEN IF SLOPES ARE STEEPER THAN THREE TO ONE. THESE AREAS MAY REQUIRE SPECIAL ATTENTION/RESTORATION UNTIL ADEQUATE GROWTH IS ACHIEVED.
- TEMPORARY STOCKPILES NEED SILT FENCE / SÓCK (SMARTFENCE SD / SMARTFENCE FB WITHIN TMDL WATERSHEDS) PLACED ADJACENT TO ROW.
- CONTRACTOR IS EXPECTED TO MINIMIZE DISTURBANCE WITHIN THE ROW.

MAINTENANCE SCHEDULE

AFTER CONSTRUCTION IS COMPLETED, ALL BMPS WILL BE REMOVED AND ANY LAND DISTURBED BY REMOVAL WILL BE PERMANENTLY STABILIZED. UNLESS OTHERWISE SPECIFIED, ALL MAINTENANCE MUST BE COMPLETED IMMEDIATELY AFTER AN INSPECTION IDENTIFIES THAT A BMP IS NOT FUNCTIONING AS REQUIRED.

- IF DURING CONSTRUCTION, CONCENTRATED FLOW AREAS FORM DUE TO A STORM EVENT AND ANY AREA BECOMES UNSTABLE, THE AREA WILL BE STABILIZED BY PLACING SIZE D50 (FOUR-INCH DIAMETER) STONE IN THE CONCENTRATED FLOW AREAS. ANY REQUIRED REPAIRS OR MAINTENANCE SHALL BE MADE IMMEDIATELY.
- ALL E&S CONTROLS WILL BE INSPECTED, AT A MINIMUM, ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5-INCH PER 24-HOUR PERIOD DURING THE ENTIRE PROJECT.
- INSPECTION OF ALL EROSION AND SEDIMENTATION CONTROLS IN TMDL WATERSHEDS WITHIN DISTURBED AREAS WILL BE, AT A MINIMUM, PERFORMED ONCE EVERY FOUR CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.25-INCH PER 24-HOUR PERIOD. REPAIRS OR MAINTENANCE SHALL BE PERFORMED IMMEDIATELY TO BMPS. PERMANENT STABILIZATION WILL OCCUR WITHIN 4 DAYS AFTER CONSTRUCTION HAS BEEN COMPLETED. RAIN GAUGES WILL BE LOCATED AT ALL PROJECT TRAILERS AND THROUGHOUT THE PROJECT AREA TO MONITOR AND RECORD DAILY RAINFALL EVENTS.
- SEDIMENT MUST BE REMOVED WERE ACCUMULATION REACHES ONE-HALF THE ABOVE GROUND HEIGHT OF A SILT FENCE (ALL TYPES).
- SILT FENCE SECTIONS (ALL TYPES), WHICH HAVE BEEN UNDERMINED OR TOPPED, SHOULD IMMEDIATELY BE REPAIRED.
- REQUIRED REPAIRS OR MAINTENANCE SHALL BE MADE IMMEDIATELY.
- LOGS OF SEDIMENT CONTROL INSPECTION MUST BE KEPT WITH THE INSPECTORS CONSTRUCTION RECORDS AND INCLUDE DATE, TIME, AND CONDITION OF BMPS AND ANY NECESSARY MAINTENANCE. A BMP INSPECTION REPORT IS INCLUDED IN APPENDIX I.
- TEMPORARY AND PERMANENT E&S CONTROL BMPS SHALL BE MAINTAINED AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. MAINTENANCE AND REPAIR SHALL BE CONDUCTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND AFTER ANY STORM EVENT GREATER THAN 0.5-INCH OF RAIN PER 24-HOUR PERIOD.
- TEMPORARY E&S CONTROL BMPS SHOULD BE REMOVED FOLLOWING CONFIRMATION THAT 70 PERCENT PERENNIAL VEGETATIVE COVERAGE IS ESTABLISHED. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON-SITE. DISTURBED SOIL RESULTING FROM REMOVAL OF BMPS OR VEGETATION SHALL BE PERMANENTLY STABILIZED.

MATERIAL WASTE HANDLING AND RECYCLING

1. GARBAGE DISPOSAL IS HANDLED THROUGH ONE OF THE LOCAL WASTE MANAGEMENT PROVIDERS/FACILITIES. THE CONTRACTOR WILL LEASE A DUMPSTER FOR THE DURATION OF THE PROJECT WHICH WILL BE DISPOSED OF AT A LICENSED/PERMITTED MUNICIPAL LANDFILL.
2. THE CONTRACTOR WILL DISPOSE OF ALL SCRAP MATERIAL. THE SCRAP MATERIAL MUST BE REMOVED FROM THE SITE AND DISPOSED OF OR RECYCLED AT A PROPERLY LICENSED/PERMITTED FACILITY. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY PERMITS AND/OR DISPOSAL FEES. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE TO ASSURE THAT ALL MATERIALS ARE HANDLED AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE LAWS, RULES, AND REGULATIONS, INCLUDING BUT NO LIMITED TO THOSE ISSUED BY THE ENVIRONMENTAL PROTECTION AGENCY, WVDEP, AND OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION.
3. CONSTRUCTION WASTE MATERIALS, INCLUDING BUT NOT LIMITED TO BENTONITE, POLY PIPE SHAVINGS, AND SANDBAGS, WILL BE RECYCLED OR WILL BE TAKEN TO THE NEAREST APPROVED FACILITY FOR DISPOSAL. EXCESS SOIL MATERIAL, IF ANY, WILL BE SPREAD AND REVEGETATED WITHIN THE ROW. OFF-SITE SPOIL AND/OR BORROW SITES MUST BE OPERATED UNDER A CURRENT NPDES.

SEEDING

- SEE DETAILS 26-28 FOR TEMPORARY SEEDING, PERMANENT SEEDING, AND MULCHING REQUIREMENTS.
- TEMPORARY SEEDING SCHEDULE - ALL DISTURBED AREAS OUTSIDE OF TMDL WATERSHEDS THAT ARE NOT AT FINAL GRADE OR AREAS THAT WILL NOT BE WORKED IN AGAIN FOR 21 DAYS OR LESS MUST BE SEEDED AND MULCHED WITHIN SEVEN DAYS. ALL DISTURBED AREAS INSIDE OF TMDL WATERSHEDS THAT ARE NOT AT FINAL GRADE OR AREAS THAT WILL NOT BE WORKED IN AGAIN FOR 14 DAYS OR MORE MUST BE SEEDED AND MULCHED WITHIN FOUR DAYS.
- PERMANENT SEEDING SCHEDULE - ALL DISTURBED AREAS OUTSIDE OF TMDL WATERSHEDS THAT ARE AT FINAL GRADE OR AREAS THAT WILL NOT BE WORKED IN AGAIN FOR 21 DAYS OR MORE MUST BE SEEDED AND MULCHED WITHIN SEVEN DAYS. ALL DISTURBED AREAS INSIDE OF TMDL WATERSHEDS THAT ARE AT FINAL GRADE OR AREAS THAT WILL NOT BE WORKED IN AGAIN FOR 14 DAYS OR MORE MUST BE SEEDED AND MULCHED WITHIN FOUR DAYS.

POLLUTANT CONTROLS

- ALL POLLUTANTS, INCLUDING WASTE MATERIALS AND DEMOLITION DEBRIS, THAT OCCUR ON SITE DURING CONSTRUCTION SHALL BE HANDLED AND DISPOSED OF IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF SURFACE WATER. WOODY DEBRIS MAY BE CHOPPED AND SPREAD ON SITE.
- COVER, CONTAINMENT, AND PROTECTION FROM VANDALISM SHALL BE PROVIDED FOR ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCTS, AND NON-INERT WASTES PRESENT ON THE SITE.
- MAINTENANCE AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES INVOLVING OIL CHANGES, HYDRAULIC SYSTEM DRAIN DOWN, SOLVENT AND DE-GREASING CLEANING OPERATIONS, FUEL TANK DRAIN DOWN AND REMOVAL, AND OTHER ACTIVITIES WHICH MAY RESULT IN DISCHARGE OR SPILLAGE OF POLLUTANTS TO THE GROUND OR INTO SURFACE WATER RUNOFF MUST BE CONDUCTED USING SPILL PREVENTION MEASURES, SUCH AS DRIP PANS. CONTAMINATED SURFACES SHALL BE CLEANED IMMEDIATELY FOLLOWING ANY DISCHARGE OR SPILL INCIDENT. EMERGENCY REPAIRS MAY BE PERFORMED ON-SITE USING TEMPORARY PLASTIC PLACED BENEATH AND, IF RAINING, OVER THE VEHICLE.
- APPLICATION OF AGRICULTURAL CHEMICALS INCLUDING FERTILIZERS AND PESTICIDES SHALL BE CONDUCTED IN A MANNER AND AT APPLICATION RATES THAT WILL NOT RESULT IN LOSS OF CHEMICAL TO SURFACE WATER RUNOFF. MANUFACTURERS' RECOMMENDATIONS FOR APPLICATION RATES AND PROCEDURES SHALL BE FOLLOWED.
- BMPS SHALL BE USED TO PREVENT OR TREAT CONTAMINATION OF SURFACE WATER RUNOFF BY PH MODIFYING SOURCES. THESE SOURCES INCLUDE BULK CEMENT, CEMENT KILN DUST, FLY ASH, NEW CONCRETE WASHING AND CURING WATERS, WASTE STREAMS GENERATED FROM CONCRETE GRINDING AND SAWING, EXPOSED AGGREGATE PROCESSES, AND CONCRETE PUMPING AND MIXER WASHOUT WATERS.
- REPORT SPILLAGE OR DISCHARGE OF POLLUTANTS WITHIN 24-HOURS.

THRASHER

IFP

ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

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2. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
ESCP DETAILS

PROPOSED 16" LOW
PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018	AFE No.:	A07927
SCALE:	AS SHOWN	SHEET 26	
DRAWN BY:	JDJ (TTC)		
CHECKED:	JRH (TTC)		

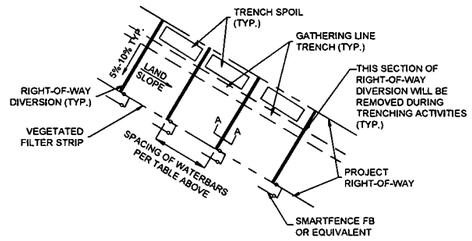
SHT. NAME: 050-6529\OX97PL\ESCP1 | REV. 2

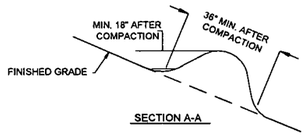
LAYOUT TAB: ESCP1
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\ESCP DETAIL SHEETS.dwg PLOT DATE/TIME: 5/22/2018 11:42 AM USER: aaron rowe

RIGHT-OF-WAY DIVERSION SPACING IN FEET

PIPELINE GRADE	> 200' FROM STREAM	< 200' FROM STREAM
2-5 %	400	200
6-12 %	300	150
13-21 %	200	100
22-34 %	100	50
35-50 %	50	25

* IT IS DIFFICULT TO INSTALL DIVERSIONS ON SLOPES STEEPER THAN 35%. THE DIVISION OF WATER AND WASTE MANAGEMENT WILL ALLOW GREATER DISTANCES BETWEEN DIVERSIONS ON EXTREME SLOPES

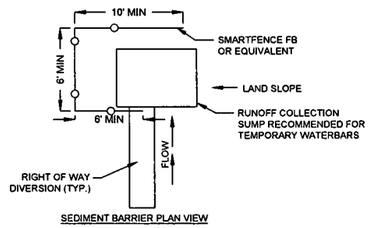




SECTION A-A

NOTE:
SUMPS TO BE USED DURING CONSTRUCTION (TEMPORARY)

1 RIGHT OF WAY DIVERSION OUTLET (WATERBAR)
NTS



SEDIMENT BARRIER PLAN VIEW

NOTES:

1. RIGHT-OF-WAY DIVERSIONS SHOULD BE INSTALLED ACROSS THE ENTIRE RIGHT-OF-WAY ON ALL SLOPES GREATER THAN 5%.

2. RIGHT-OF-WAY DIVERSIONS SHALL BE PLACED AT 5% TO 10% SLOPE DOWNHILL. THEY SHALL BE SPACED AT THE INCREMENTS AS SHOWN IN DETAIL 1, AND IN ACCORDANCE WITH WVDEP E&S STANDARDS.

3. RIGHT-OF-WAY DIVERSIONS SHOULD BE CONSTRUCTED TO DISCHARGE TO A WELL-VEGETATED AREA. RIGHT-OF-WAY DIVERSIONS SHOULD NOT DISCHARGE INTO AN OPEN TRENCH. RIGHT-OF-WAY DIVERSIONS SHOULD BE ORIENTED SO THAT THE DISCHARGE DOES NOT FLOW BACK INTO THE RIGHT-OF-WAY. SMARTFENCE FB OR EQUIVALENT SHOULD BE LOCATED BELOW THE DISCHARGE END OF THE RIGHT-OF-WAY DIVERSIONS.

4. BSRF CAN BE SUBSTITUTED IN PLACE OF SMARTFENCE FB WITH APPROVAL FROM ANTERO.

5. SUMPS TO BE USED DURING CONSTRUCTION (TEMPORARY).

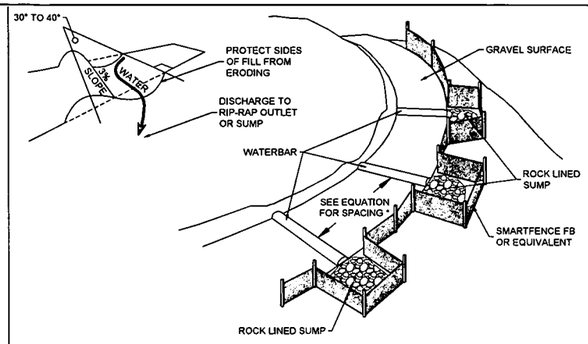
MAINTENANCE:

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

2. MAINTENANCE OF RIGHT-OF-WAY DIVERSIONS SHALL BE PROVIDED UNTIL RIGHT-OF-WAY HAS ACHIEVED PERMANENT STABILIZATION.

3. RIGHT-OF-WAY DIVERSIONS ON RETIRED RIGHT-OF-WAYS SHALL BE LEFT IN PLACE AFTER PERMANENT STABILIZATION HAS BEEN ACHIEVED.

1A RIGHT OF WAY DIVERSION OUTLET (WATERBAR)
NTS



* SPACING = 400/% GRADE + 75'

NOTES:

1. WATERBARS SHOULD BE INSTALLED ACROSS THE ENTIRE ROADWAY ON ALL SLOPES GREATER THAN 5%.

2. WATERBARS SHALL BE PLACED AT 2% TO 4% SLOPE DOWNHILL. THEY SHALL BE SPACED AT THE INCREMENTS AS SHOWN ON THE PLANS, AND IN ACCORDANCE WITH WVDEP E&S STANDARDS.

3. WATERBARS SHOULD BE CONSTRUCTED TO DISCHARGE TO A RIP-RAP OUTLET OR SUMP. WATERBARS SHOULD BE ORIENTED SO THAT THE DISCHARGE DOES NOT FLOW BACK INTO THE ROADWAY. SMARTFENCE FB OR EQUIVALENT SHOULD BE LOCATED BELOW THE DISCHARGE END OF THE WATERBARS.

4. REFER TO WVDEP MANUAL SECTIONS 3.03-1, 3.35-6, & 3.35-7 FOR MORE INFORMATION.

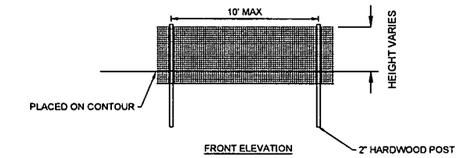
MAINTENANCE:

1. 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.

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

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

2 ACCESS ROAD WATERBARS
NTS

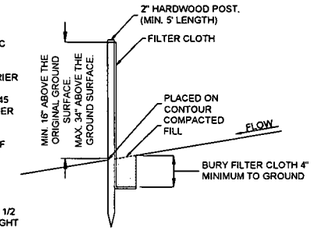


FRONT ELEVATION

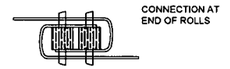
NOTE:
STANDARD FILTER FABRIC MUST BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER MUST BE EXTENDED AT LEAST 8 FEET UP SLOPE 45 DEGREES TO MAIN BARRIER ALIGNMENT.

THE MAXIMUM LENGTH OF SLOPE ABOVE A ROW OF SILT FENCE IS 110'.

SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.

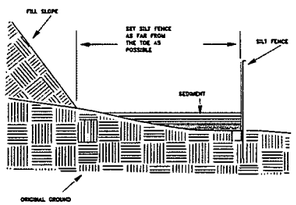


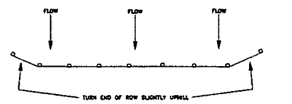
SIDE ELEVATION



TOP VIEW

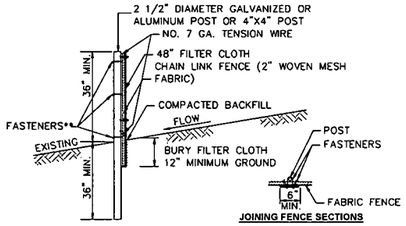
3 SILT FENCE
NTS





Slope - Percent	Maximum Slope Length (ft) Above Fence		
	Standard (18" High) Silt Fence	Reinforced (30" High) Silt Fence	Super Silt Fence
2 (or less)	150	500	1000
5	100	250	500
10	50	150	325
15	35	100	215
20	25	70	175
25	20	55	135
30	15	45	100
35	15	40	85
40	15	35	75
45	10	30	60
50	10	25	50

3A SILT FENCE PLACEMENT
NTS



JOINING FENCE SECTIONS

* POSTS SPACED @ 10' MAX. USE 2 1/2" DIA. GALVANIZED OR ALUMINUM POSTS OR 4" x 4" POST.

** CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE FENCE POST WITH WIRE TIES OR STAPLES. GEOTEXTILE FABRIC SHALL BE FASTENED SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID-SECTIONS.

NO. 7 GA. TENSION WIRE INSTALLED HORIZONTALLY AT TOP AND BOTTOM OF CHAIN-LINK FENCE.

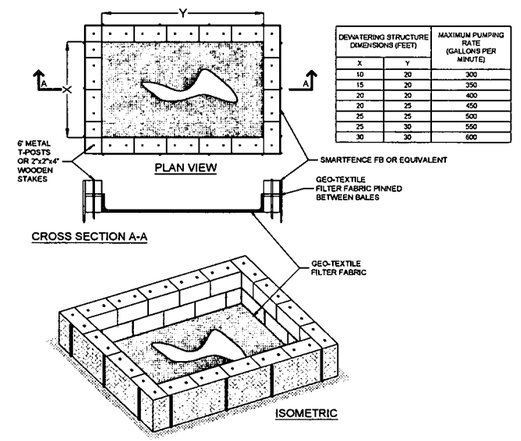
FILTER FABRIC FENCE SHOULD BE PLACED AS CLOSE TO THE CONTOUR AS POSSIBLE.

THE LENGTH OF SLOPE ABOVE THE FENCE SHALL NOT EXCEED 400 FEET IN STEEP TERRAIN. IN FLATTER AREAS THE LENGTH CAN BE EXTENDED WITH THE APPROVAL OF THE ENGINEER.

NO SECTION OF SILT FENCE SHOULD EXCEED A GRADE OF 5% FOR MORE THAN A DISTANCE OF 20 FEET.

SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.

4 SUPER SILT FENCE
NTS



DEWATERING STRUCTURE DIMENSIONS (FEET)		MAXIMUM PUMPING RATE (GALLONS PER MINUTE)
X	Y	
10	20	300
15	20	350
20	20	400
20	25	450
25	25	500
25	30	550
30	30	600

PLAN VIEW

CROSS SECTION A-A

ISOMETRIC

5 STRAW BALE DEWATERING
NTS

1. STRAW BALES SHOULD BE PLACED ON THEIR SIDES WITH THE TWINE FACING OUT.
2. STRAW BALES SHOULD BE STACKED TWO HIGH WITH GEO-TEXTILE FABRIC PINNED BETWEEN BALES.
3. SEAMS OF GEOTEXTILE FABRIC SHOULD BE SEWN TOGETHER.
4. 6 FOOT METAL T-POSTS ARE RECOMMENDED, DRIVEN THROUGH BOTH STRAW BALES. IF METAL T-POSTS ARE NOT AVAILABLE, WOODEN STAKES SHOULD BE A MINIMUM OF 2"X2"X 4'. STAKES SHOULD BE DRIVEN AROUND THE PERIMETER OF THE STRAW BALES AS STRUCTURAL SUPPORT AS WELL AS THROUGH THE BALES TO HELP PIN THE GEO-TEXTILE FABRIC IN PLACE.
5. DEWATERING STRUCTURES DIMENSIONS SHOULD BE DESIGNED TO ACCOMMODATE THE SIZE OF THE WATER PUMP BEING UTILIZED.
6. DEWATERING STRUCTURE DIMENSIONS MAY NEED TO BE ADJUSTED TO SUIT THE VARIOUS SIZES OF FILTER BAGS, THOUGH SQUARE FOOTAGE SPECIFICATIONS SHOULD STILL BE MAINTAINED. THE STRUCTURE SHOULD COMPLETELY ENCOMPASS THE BAG BEING UTILIZED.
7. WHEN PUMPING LARGE AMOUNTS OF WATER FOR AN EXTENDED PERIOD OF TIME, (LARGE BELL HOLES, ETC.) INTERVAL PUMPING MAY BE NECESSARY, TO AVOID OVERPOWERING THE DEWATERING STRUCTURE.
8. USE OF MULTIPLE DEWATERING STRUCTURES MAY BE NECESSARY UNDER SPECIAL CIRCUMSTANCES.
9. FOR STREAM CROSSINGS, WHEN PUMPING OUT THE TRENCH WITH A 2 INCH TRASH PUMP AT ½ THROTTLE, A STANDARD 10' BY 10' DEWATERING STRUCTURE WITH A COMPARABLE FILTER BAG SHOULD BE ADEQUATE. FIELD ADJUSTMENTS WILL BE MADE IF FLOW IS OVERPOWERING THE STRUCTURE.
10. ADDITIONAL EROSION CONTROLS MAY BE UTILIZED DOWNSLOPE OF DEWATERING STRUCTURES WHERE NEEDED.
11. DEWATERING STRUCTURE WILL BE PLACED TO MAXIMIZE AVAILABLE VEGETATIVE STRIP.

5A STRAW BALE DEWATERING
NTS

THRASHER

IFP

ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

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NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
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Antero Midstream Partners LP

OXFORD 97 PIPELINE ESCP DETAILS

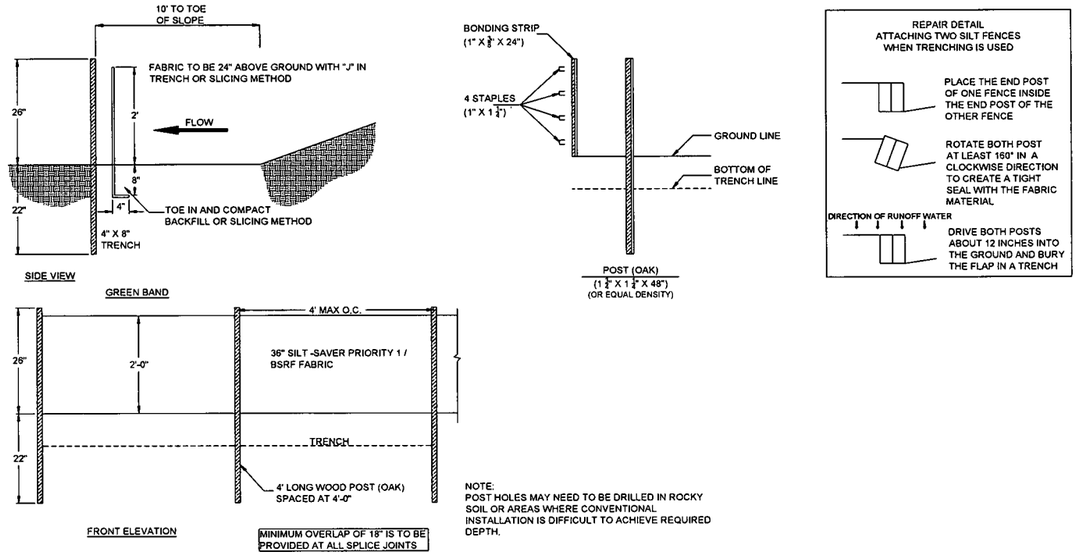
PROPOSED 16" LOW PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018
AFE No.:	A07927
SCALE:	AS SHOWN
DRAWN BY:	JDJ (TTG)
CHECKED:	JPH (TTG)

SHEET 27

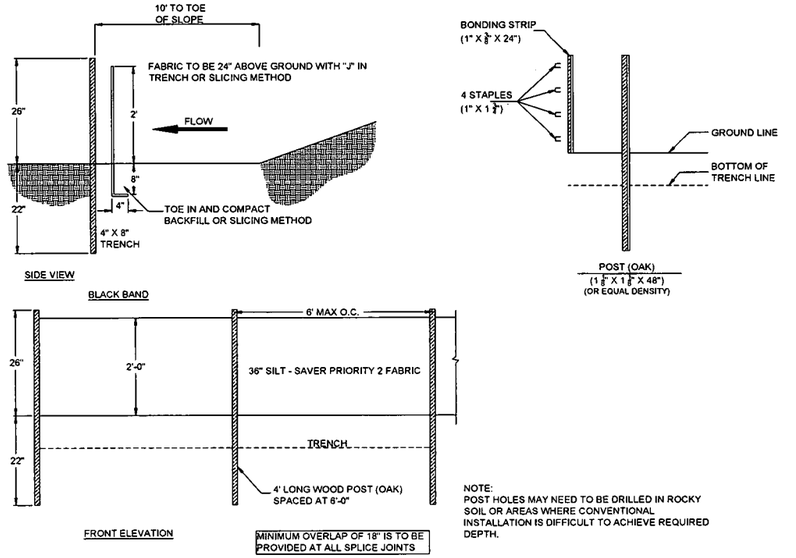
SHT. NAME: 050-6529\OX97PL\ESCP2 REV. 2

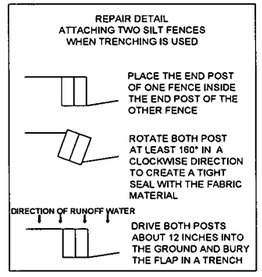
LAYOUT TAB: ESCP2
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\ESCP DETAIL SHEETS.dwg PLOT DATE/TIME: 5/22/2018 11:42 AM USER: doron rowe



NOTE:
POST HOLES MAY NEED TO BE DRILLED IN ROCKY SOIL OR AREAS WHERE CONVENTIONAL INSTALLATION IS DIFFICULT TO ACHIEVE REQUIRED DEPTH.

6A SILT SAVER SILT FENCE PRIORITY 1
NTS





NOTE:
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6B SILT SAVER SILT FENCE PRIORITY 2
NTS

THRASHER

IFP
ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
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Antero Midstream Partners LP

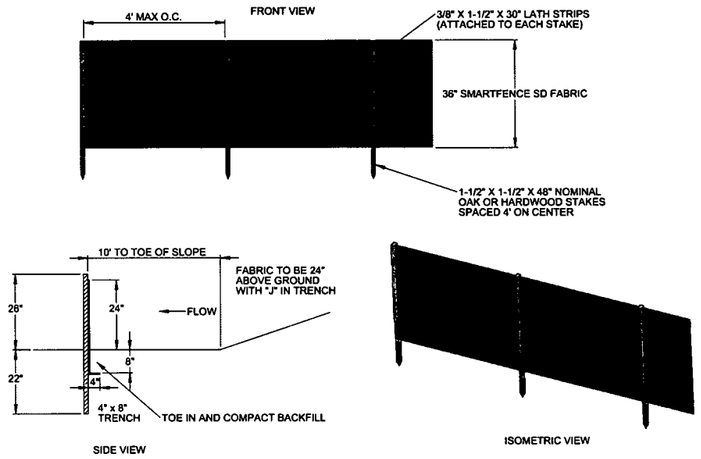
OXFORD 97 PIPELINE ESCP DETAILS

PROPOSED 16" LOW PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

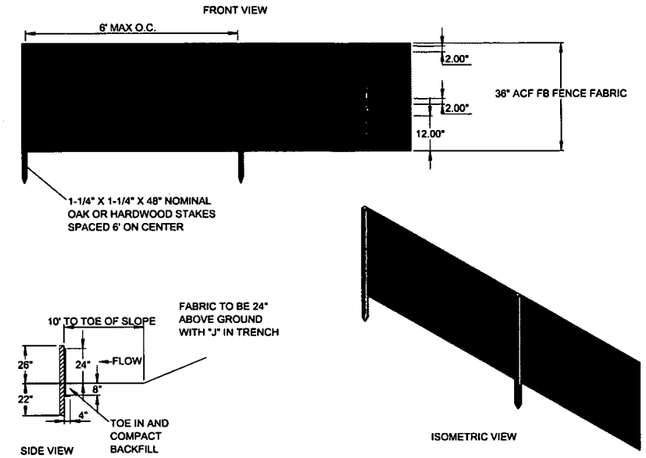
DATE:	5/22/2018
SCALE:	AS SHOWN
DRAWN BY:	JDJ (TTG)
CHECKED:	JRH (TTG)
AFE No.:	A07927

SHEET 28

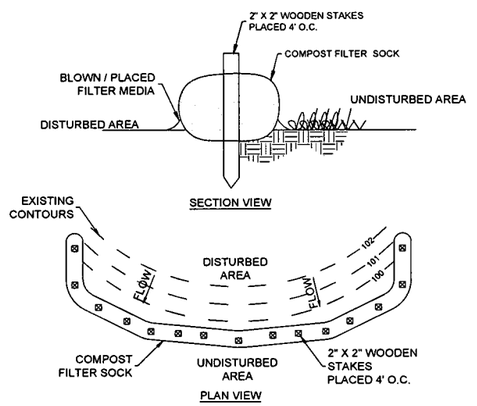
SHT. NAME: 050-6529\0X97PL\ESCP3 REV. 2



7A ACF ENVIRONMENTAL SMARTFENCE 36 (SD) WITH WOOD POSTS
NTS



7B ACF ENVIRONMENTAL FILTRATION BARRIER (SMARTFENCE FB) WITH WOOD POSTS
NTS



8 COMPOST FILTER SOCK
NTS

CONDITIONS WHERE PRACTICE APPLIES:

1. INSTALL ON DISTURBED AREAS THAT REQUIRE IMMEDIATE EROSION PROTECTION.
2. USE ON SLOPES REQUIRING STABILIZATION UNTIL PERMANENT VEGETATION CAN BE ESTABLISHED.
3. CAN BE USED ALONG THE PERIMETER OF A PROJECT, AS A CHECK DAM IN UNLINED DITCHES AND AROUND TEMPORARY STOCKPILES
4. SOCK CAN BE STAKED TO THE GROUND USING WILLOW CUTTINGS FOR ADDED REVEGETATION
5. EROSION CAN OCCUR BENEATH AND BETWEEN SOCK IF NOT PROPERLY ENTRENCHED, ALLOWING WATER TO PASS BELOW AND BETWEEN SOCKS. IT IS THEREFORE VERY IMPORTANT TO INSTALL SOCKS CORRECTLY.
6. THEY CAN REPLACE SEDIMENT FENCE ON STEEP SLOPES.
7. ROLLS ARE A SHORT-TERM SOLUTION TO HELP ESTABLISH NATIVE VEGETATION
8. ROLLS STORE MOISTURE FOR VEGETATION PLANTED IMMEDIATELY UPSLOPE.
9. PLASTIC NETTING WILL EVENTUALLY PHOTO-DEGRADE, ELIMINATING THE NEED FOR RETRIEVAL OF MATERIALS AFTER THE FIBER OR STRAW HAS BROKEN DOWN.

CONSTRUCTION SPECIFICATIONS:

1. IT IS CRITICAL THAT SOCK IS INSTALLED PERPENDICULAR TO THE FLOW DIRECTION AND PARALLEL TO THE SLOPE CONTOUR.
2. NARROW TRENCHES SHOULD BE DUG ACROSS THE SLOPE, ON CONTOUR, TO A DEPTH OF 3 TO 5 INCHES ON CLAY SOILS AND SOILS WITH GRADUAL SLOPES. ON LOOSE SOILS, STEEP SLOPES, AND DURING HIGH RAINFALL EVENTS, THE TRENCHES SHOULD BE DUG TO A DEPTH OF 5 TO 7 INCHES, OR ½ TO 2/3 OF THE THICKNESS OF THE SOCK.
3. START CONSTRUCTION OF TRENCHES AND INSTALLING SOCK FROM THE BASE OF THE SLOPE AND WORK UPHILL. EXCAVATED MATERIAL SHOULD BE SPREAD EVENLY ALONG THE UPHILL SLOPE AND COMPACTED USING HAND TAMPING OR OTHER METHOD. CONSTRUCT TRENCHES AT CONTOUR INTERVALS OF 3 TO 30 FEET APART DEPENDING ON THE STEEPNESS OF THE SLOPE, SOIL TYPE, AND RAINFALL. THE STEEPER THE SLOPE THE CLOSER TOGETHER THE TRENCHES SHOULD BE CONSTRUCTED.
4. INSTALL THE SOCK SNUGLY INTO THE TRENCHES AND ABUT TIGHTLY END TO END. DO NOT OVERLAP THE ENDS.
5. INSTALL STAKES AT EACH END OF THE SOCK, AND AT 4-FOOT CENTERS ALONG THE ENTIRE LENGTH OF THE SOCK.
6. IF REQUIRED, INSTALL PILOT HOLES FOR THE STAKES USING A STRAIGHT BAR TO DRIVE HOLES THROUGH THE SOCK AND INTO THE SOIL.
7. AT A MINIMUM, WOODEN STAKES SHOULD BE APPROXIMATELY 2 X 2 X 24 INCHES. WILLOW CUTTINGS OR 3/8-INCH REBAR CAN ALSO BE USED FOR STAKES.
8. STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE SOCK, LEAVING 2 TO 3 INCHES OF THE STAKE PROTRUDING ABOVE THE SOCK.

8A COMPOST FILTER SOCK
NTS

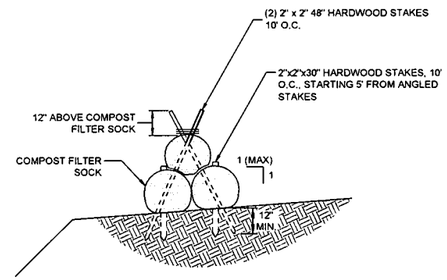
MAINTENANCE:

1. INSPECT SOCK AT LEAST ONCE A WEEK AND AFTER EACH RAIN EVENT GREATER THAN 0.5 INCH.
2. REPAIR OR REPLACE SPLIT, TORN, RAVELING, OR SLUMPING SOCK.
3. REMOVE SEDIMENT ACCUMULATIONS WHEN EXCEEDING ½ THE HEIGHT BETWEEN THE TOP OF THE SOCK AND THE GROUND SURFACE.
4. REPAIR ANY RILLS OR GULLIES PROMPTLY.
5. RESEED OR REPLANT VEGETATION IF NECESSARY UNTIL THE SLOPE IS STABILIZED

Slope Percent	Maximum Slope Length Above Sediment Control in Feet (meters)*				
	8 in (200 mm) Sediment control	12 in (300 mm) Sediment control	18 in (450 mm) Sediment control	24 in (600mm) Sediment control	32 in (800mm) Sediment control
	6.5 in (165 mm)**	8.5 in (240 mm) **	14.5 in (360 mm) **	19 in (480 mm) **	26 in (650 mm) **
2 (or less)	600 (180)	750 (225)	1000 (300)	1300 (400)	1650 (500)
5	400 (120)	500 (150)	550 (165)	650 (200)	750 (225)
10	200 (60)	250 (75)	300 (90)	400 (120)	500 (150)
15	140 (42)	170 (50)	200 (60)	275 (100)	450 (140)
20	100 (30)	125 (38)	140 (42)	250 (80)	400 (120)
25	80 (24)	100 (30)	110 (33)	200 (60)	275 (85)
30	60 (18)	75 (23)	90 (27)	130 (40)	200 (60)
35	60 (18)	75 (23)	80 (24)	115 (35)	150 (45)
40	60 (18)	75 (23)	80 (24)	100 (30)	125 (38)
45	40 (12)	50 (15)	60 (18)	80 (24)	100 (30)
50	40 (12)	50 (15)	55 (17)	65 (20)	75 (23)

* Based on a failure point of 36 in (0.9 m) super silt fence (wire reinforced) at 1000 ft (300 m) of slope, watershed width equivalent to receiving length of sediment control device, 1 in/24 hr (25 mm/24 hr) rain event.
** Effective height of Sediment control after installation and with constant head from runoff as determined by Ohio State University.

8B COMPOST FILTER SOCK
NTS



8C TRIPLE STACK FILTER SOCK
NTS

THRASHER

IFP
ISSUED FOR PERMITTING
DATE: 05/22/2018
AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

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2. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero Midstream Partners LP

OXFORD 97 PIPELINE ESCP DETAILS

PROPOSED 16" LOW PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018	AFE No.:	A07927
SCALE:	AS SHOWN		
DRAWN BY:	JDJ (TTG)	SHEET	29
CHECKED:	JRH (TTG)		

SHT. NAME: 050-6529\0X97PL\ESCP4 REV. 2

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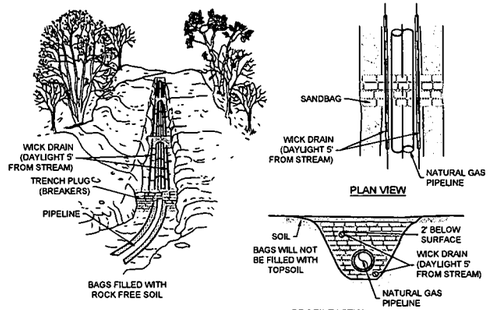
USER: aaron rowe

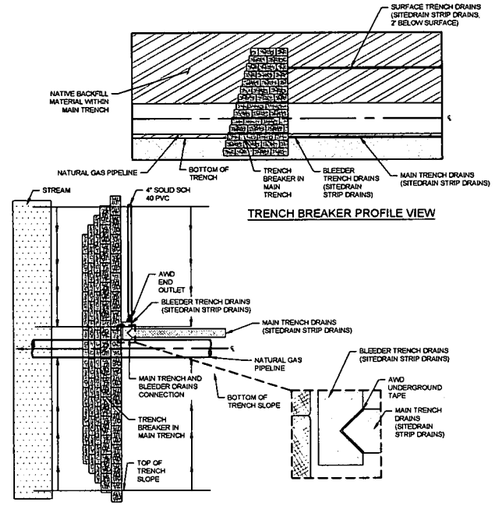


TRENCH BREAKER (PLUG) SPACING (FEET)

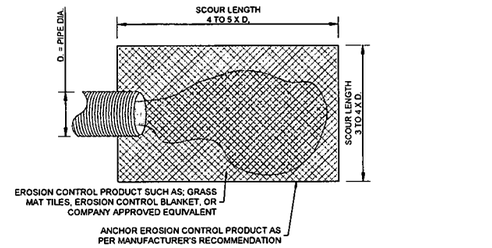
ALIGNMENT SLOPE %*	SPACING L (FT)	PLUG MATERIAL
< 5 %	1,000	** EARTH FILLED SACKS
5-15 %	500	** EARTH FILLED SACKS
15-25 %	300	** EARTH FILLED SACKS
25-35 %	200	** EARTH FILLED SACKS
35-100 %	100	** EARTH FILLED SACKS
>100 %	50	*** USE CEMENT FILLED BAGS (WETTED) OR MORTARED STONE

* TRENCH BREAKERS (PLUGS) ARE REQUIRED AT ALL STREAM, RIVER, OR WATER-BODY CROSSINGS REGARDLESS OF TRENCH SLOPE.
** TOP SOIL MAY NOT BE USED TO FILL SACKS. TRENCH BREAKERS (PLUGS) WITH CEMENT FILLED SACKS SHALL BE INSTALLED AND ALLOWED TO CURE WITHOUT ANY SURFACE WATER COMING INTO CONTACT WITH THEM. CONTRACTOR SHALL VERIFY CEMENT HAS CURED AND HARDENED PRIOR TO REMOVING ANY BMPs AROUND THE TRENCH BREAKER (PLUG) AREA.
*** TRENCH BREAKERS WITH CEMENT FILLED SACKS SHALL BE INSTALLED AND ALLOWED TO CURE WITHOUT ANY SURFACE WATER COMING INTO CONTACT WITH THEM. CONTRACTOR SHALL VERIFY CEMENT HAS CURED AND HARDENED PRIOR TO REMOVING ANY BMPs AROUND THE TRENCH BREAKER AREA.

9 PERMANENT TRENCH BREAKER
NTS



10 AMERICAN WICK DRAIN DETAIL
NTS



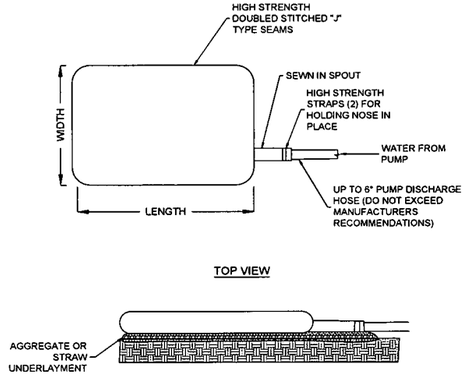
NOTES:
1) PREPARE SOIL BEFORE INSTALLING EROSION CONTROL PRODUCTS. INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.

2) FOR CULVERT AND OUTFALL APPLICATIONS, SCOUR PROTECTION SHOULD EXTEND A MINIMUM WIDTH OF 3-4 TIMES THE PIPE DIAMETER AND A MINIMUM LENGTH OF 4-5 TIMES THE PIPE DIAMETER (SEE PLAN VIEW). WITH STEEPER CHANNEL GRADIENTS, THE LENGTH OF SCOUR PROTECTION MAY NEED TO BE EXTENDED.

3) PLACE STAPLES/ANCHORS IN THE APPROPRIATE PATTERN. IN SOFT OR HIGHLY ERODIBLE SOILS, PERCUSSION EARTH ANCHORS MAY BE REQUIRED.

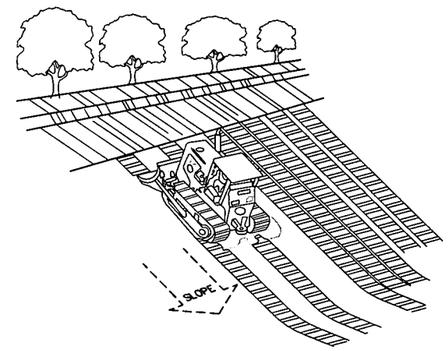
(SEE MANUFACTURERS RECOMMENDATIONS FOR ADDITIONAL INSTALLATION INSTRUCTIONS).

11 TRENCH PLUG DRAIN OUTFALL EROSION PROTECTION DETAIL
NTS



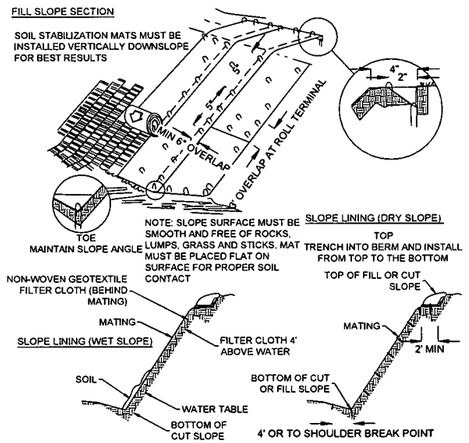
NOTES:
1. UTILIZE VEGETATED STRIP WHERE APPLICABLE.
2. MAXIMIZE DISTANCE BETWEEN LOCATION OF FILTER BAG AND AQUATIC FEATURE.
3. FILTER BAG MUST BE PLACED ON FLAT SURFACE.

12 FILTER BAG
NTS



TRACKING SLOPE IS DONE BY RUNNING TRACKED MACHINERY UP AND DOWN THE SLOPE, LEAVING TREAD MARKS PARALLEL TO THE CONTOUR. (NOTE: IF A BULLDOZER IS USED, THE BLADE SHOULD BE UP). CARE SHOULD BE EXERCISED ON SOILS HAVING A HIGH CLAY CONTENT TO AVOID OVER-COMPACTION.

13 TRACKING
NTS



14 ROLLED EROSION CONTROL PRODUCTS
NTS

LAYOUT TAB: ESCP5
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PLOT DATE/TIME: 5/22/2018 11:42 AM
USER: aaron rowe

THRASHER

IFP
ISSUED FOR PERMITTING
DATE: 05/22/2018
AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

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NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

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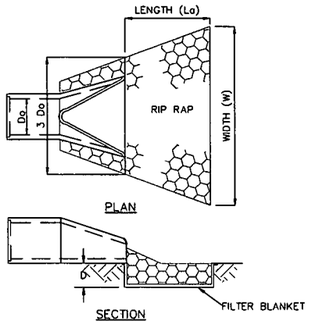
Antero Midstream Partners LP

OXFORD 97 PIPELINE ESCP DETAILS

PROPOSED 16" LOW PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

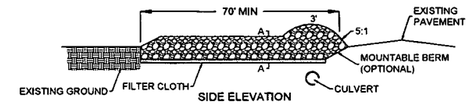
DATE:	5/22/2018	AFE No.:	A07927
SCALE:	AS SHOWN		
DRAWN BY:	JDJ (TTC)	SHEET	30
CHECKED:	JDH (TTC)		

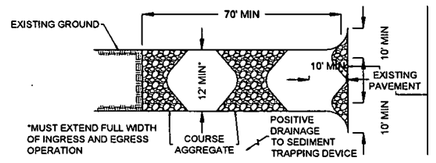
SHT. NAME: 050-6529\OX97PL\ESCP5 REV. 2

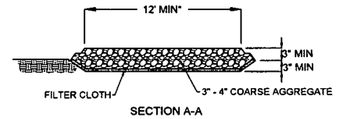


NOTES:
1. IF FLARED END SECTION IS DISCHARGING INTO DITCH FROM THE SIDE, EXTEND RIP RAP UP DITCH BANK ON OFF-SIDE A MINIMUM OF 4 FEET.
2. USE WVDEP RIP RAP GRADATION AND FILTER BLANKET REQUIREMENTS PER SECTION 3.17 OF THE WEST VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL.
3. A SUITABLE NON-WOVEN GEOTEXTILE FABRIC, USED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS, MAY BE SUBSTITUTED FOR FILTER BLANKET STONE UNDER THE RIPRAP.
4. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6".

15 RIP RAP APRON
NTS



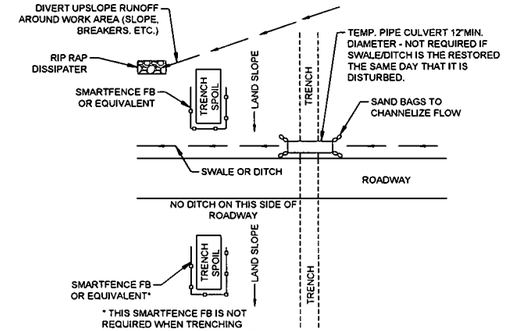




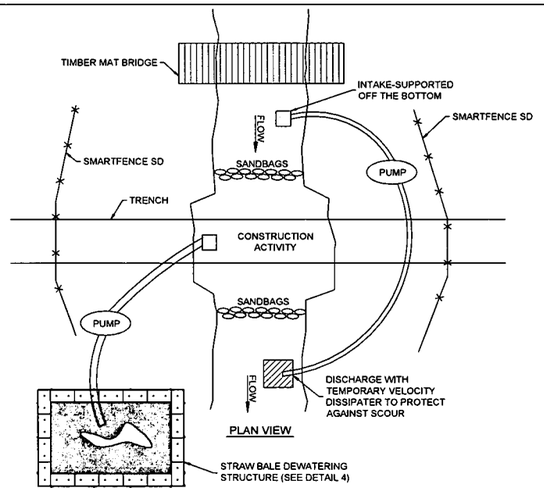
CONSTRUCTION SPECIFICATIONS
1. CLEAR THE ENTRANCE AND EXIT AREA OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL AND PROPERLY GRADE IT.
2. PLACE THE 3 INCH CRUSHED ROCK TO MATCH FINISHED GRADE AT THE ROADWAY AND SMOOTH IT.
3. PROVIDE DRAINAGE WHERE NEEDED TO CARRY WATER TO A SEDIMENT TRAP OR OTHER SUITABLE OUTLET.
4. IT IS RECOMMENDED TO HAVE A STOCKPILE OF STONE ONSITE.

MAINTENANCE:
MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP-DRESSING WITH ADDITIONAL 3 INCH CRUSHED ROCK. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.
MAINTENANCE SHOULD BE PROVIDED DAILY, BUT AT A MINIMUM EVERY SEVEN DAYS AND AFTER EVERY RAIN OF 0.5 INCH OR GREATER.

16 STABILIZED CONSTRUCTION ENTRANCE
NTS

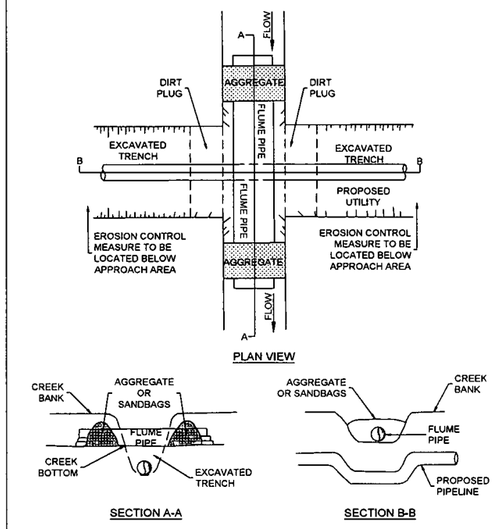


17 OPEN CUT ROAD CROSSING
NTS

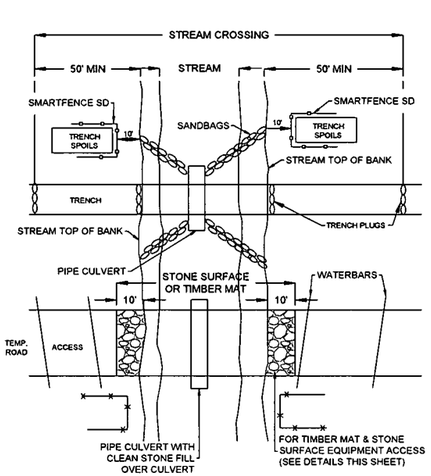


NOTES:
1. DEWATERING STRUCTURE SHOULD BE PLACED IN WELL VEGETATED STRIP.
2. TOP 6"-12" OF NATURAL STREAM SUBSTRATE SHOULD BE ISOLATED DURING IN-STREAM TRENCHING AND RESTORED UPON COMPLETION OF FINAL STREAM STABILIZATION.
3. ENVIRONMENTAL INSPECTOR MUST VERIFY DAM AND PUMP AROUND SETUP.
4. MUST BE A MINIMUM OF 5 FEET OF COVER FROM TOP OF PIPE TO NATURAL GROUND.
5. PIPE SAG SECTION SHOULD BE WELDED PRIOR TO TRENCHING ACTIVITY COMMENCES.
6. ACCUMULATION OF TRENCH WATER MUST BE PUMPED TO DEWATERING STRUCTURE.
7. IN-STREAM WORK MUST BE COMPLETED WITHIN 24 HOURS (HIGH WATER MARK TO HIGH WATER MARK)
8. STREAM BUFFER AREA MUST BE RESTORED WITHIN 72 HOURS.

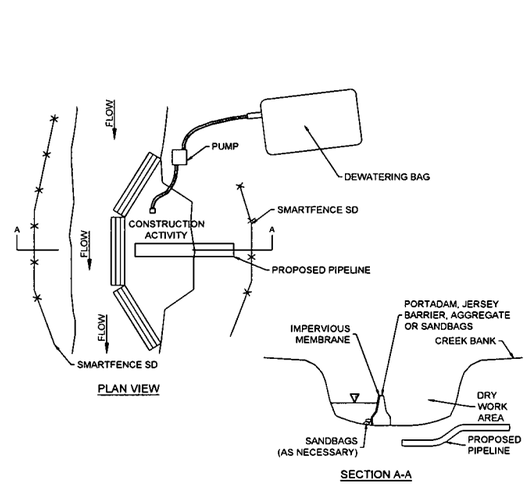
18 OPEN CUT STREAM CROSSING
NTS



19 FLUME PIPE CROSSING
NTS



20 FLUMED STREAM CROSSING WITH ACCESS ROAD
NTS



21 COFFERDAM CROSSING
NTS

THRASHER

IFP
ISSUED FOR PERMITTING
DATE: 05/22/2018
AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

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Antero Midstream Partners LP

OXFORD 97 PIPELINE ESCP DETAILS

PROPOSED 16" LOW PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018 AFE No.: A07927
SCALE:	AS SHOWN
DRAWN BY:	JDJ (TTC)
CHECKED:	JRH (TTC)

SHEET 31

SHT. NAME: 050-6529\0X97PL\ESCP6 REV. 2

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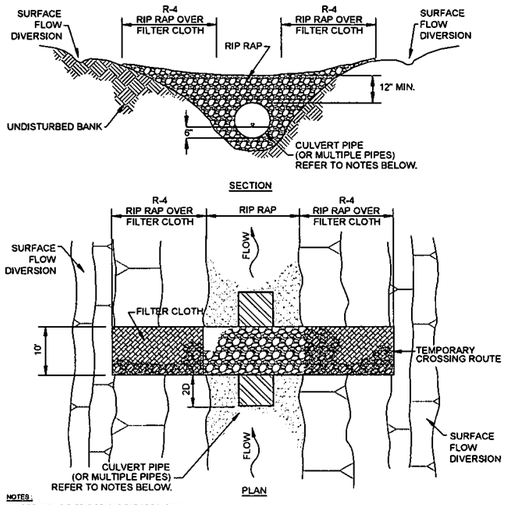
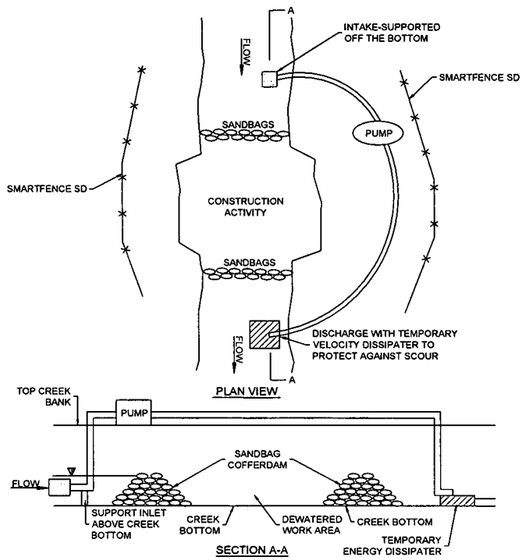
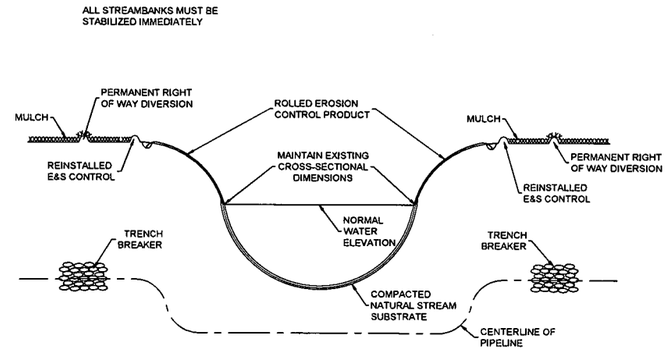


NOTES:
1. PIPE SHOULD EXTEND BEYOND TOE OF ROADWAY.
2. ROADWAY SHOULD BE DEPRESSED OVER CULVERT TO ALLOW FOR OVERFLOW.
3. CLEAN ROCK FILL SHALL BE USED TO GUARD AGAINST EROSION AND SEDIMENTATION. STREAMBED MATERIAL IS NOT TO BE USED.
4. MINIMUM SIZE DIAMETER CULVERT TO BE INSTALLED IS 12 INCHES.
5. APPROACHES TO CROSSINGS ARE NOT TO EXCEED A DEPTH OF 6 INCHES ABOVE ORIGINAL GRADE.
6. PROPER EROSION AND SEDIMENTATION CONTROL MEASURES MUST BE INSTALLED.

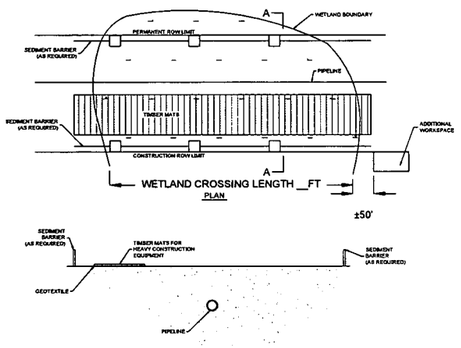
22 ROCK FLUME BRIDGE
NTS



23 DAM & PUMP AROUND
NTS

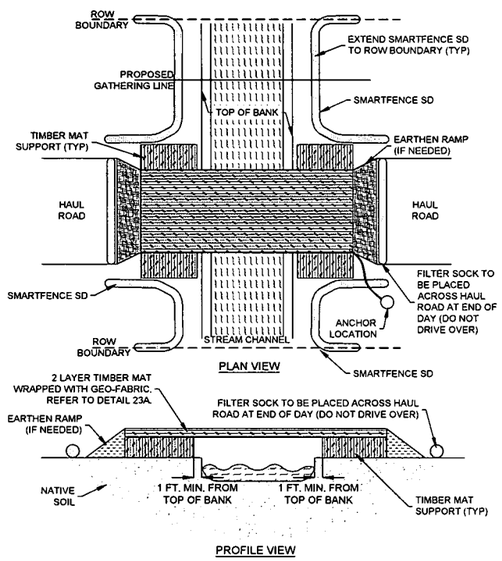


24 STREAM BANK STABILIZATION
NTS

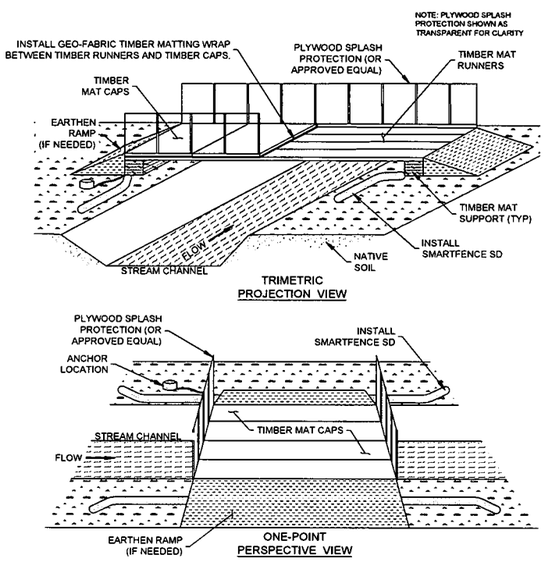


GENERAL CONSTRUCTION SEQUENCE NOTES:
1. INSTALL TEMPORARY EROSION AND SEDIMENT CONTROLS PRIOR TO EARTH DISTURBANCE.
2. SEDIMENT BARRIERS WILL BE INSTALLED AT THE EDGE OF THE ROW.
3. WORKING SIDE WILL BE STABILIZED WITH PRE-FABRICATED MATS, AS NEEDED TO PROVIDE A FIRM SURFACE FOR CONSTRUCTION EQUIPMENT, FOR ALL DELINEATED WETLAND AREAS. GEOTEXTILE SHALL BE PLACED UNDER THE MATS TO PREVENT MOVEMENT OR PUMPING OF THE SOIL THROUGH THE MATS.
4. WETLAND MATERIAL WILL BE STRIPPED, SEGREGATED, AND RESTORED UPON COMPLETION OF THE CROSSING.

25 TYPICAL EROSION AND SEDIMENT CONTROL FOR WETLAND CROSSINGS
NTS



26 TYPICAL EROSION AND SEDIMENT CONTROL FOR STREAM CROSSINGS
NTS



26A TYPICAL EROSION AND SEDIMENT CONTROL FOR STREAM CROSSINGS
NTS

CONSTRUCTION SPECIFICATIONS AND GENERAL SPECIFICATIONS:

1. CROSSING ALIGNMENT SHALL BE AT RIGHT ANGLE TO THE STREAM. WHERE THE APPROACH CONDITIONS DICTATE, THE CROSSING MAY VARY 15 DEGREES FROM THE LINE DRAWN PERPENDICULAR TO THE CENTERLINE OF THE STREAM.
2. TIMBER MATTING RUNNERS SHALL BE PLACED PERPENDICULAR TO STREAM AND ADJACENT TO ONE ANOTHER.
3. TIMBER MATTING CAPS SHALL BE PLACED PARALLEL TO STREAM AND ADJACENT TO ONE ANOTHER FOR THE ENTIRE SPAN OF THE BRIDGE.
4. TIMBER MATTING CAPS SHALL BE WRAPPED UNDERNEATH AND ALONG THE SIDES OF TIMBER MAT WITH GEO-FABRIC MATERIAL OR APPROVED EQUAL. EXTEND GEO-FABRIC MATERIAL AT MINIMUM 5 FEET ON EITHER SIDE TO ALLOW ENOUGH MATERIAL TO WRAP UP AND TIE INTO PLYWOOD SPLASH PROTECTION FENCING (OR APPROVED EQUAL) TO CONTROL SEDIMENT FROM ENTERING STREAM.
5. PLYWOOD SPLASH PROTECTION FENCING (OR APPROVED EQUAL) SHALL BE SECURELY ATTACHED ALONG THE OUTER SIDES OF TIMBER MATTING TO CONTROL SEDIMENT COLLECTION AND ALLOW GEO-FABRIC MATERIAL TO BE STAPLED TO OUTSIDE OF PLYWOOD.
6. BRIDGE SHALL BE CONSTRUCTED MINIMUM 1 FOOT OUTSIDE TOP OF BANK.
7. BRIDGE SHALL BE SECURELY ANCHORED AT ONLY ONE END USING STEEL CABLE OR CHAIN. ACCEPTABLE ANCHORS ARE LARGE TREES, LARGE BOULDERS, OR DRIVEN STEEL ANCHORS. ANCHORING SHALL BE SUFFICIENT TO PREVENT THE BRIDGE FROM FLOATING DOWNSTREAM.
8. ALL AREAS DISTURBED DURING BRIDGE INSTALLATION SHALL BE STABILIZED IMMEDIATELY.
9. PLYWOOD SPLASH PROTECTION (OR APPROVED EQUAL) SHALL BE WELL MAINTAINED, CLEARING SEDIMENT WHEN NECESSARY.
10. FILTER SOCK SHALL BE PLACED ALONG BOTH ENTRANCES OF THE BRIDGE WHEN NOT IN USE FOR MORE THAN 24 HOURS AND/OR PRIOR TO PRECIPITATION EVENTS. DO NOT DRIVE OVER FILTER SOCK.

THRASHER

IFP
ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

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2. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero Midstream Partners LP

OXFORD 97 PIPELINE ESCP DETAILS

PROPOSED 16" LOW PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018	AFE No.:	A07927
SCALE:	AS SHOWN	SHEET	32
DRAWN BY:	JDJ (TTG)		
CHECKED:	JRH (TTG)		

SHT. NAME: 050-6529\0X97PL\ESCP7 REV. 2

LAYOUT TAB: ESCP7
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-1\Survey\PLANS\ESCP DETAIL SHEETS.dwg PLOT DATE/TIME: 5/22/2018 11:42 AM USER: aaron rowe

Temporary Stabilization Seeding		
March 15 – September 15	Annual Rye	250 – 350 lbs per acre
September 15 – March 15	Annual Winter Wheat	100 – 125 lbs per acre

27 TEMPORARY SEEDING CHART
NTS

Antero Midstream Default Pasture Mix (200 - 225 LBS per Acre)	
Named Variety of Forage Perennial Ryegrass	20%
Named Variety of Forage Tall Fescue (not Fawn)	20%
Climax Timothy	15%
Orchardgrass	10%
Birdsfoot Trefoil	10%
Medium Red Clover	5%
Ladino Clover	5%
Kentucky Bluegrass VNS	5%
Alsike Clover	5%
Alfalfa	5%
** All seed mixes require double inoculation*	
Antero Midstream Default Wildlife Mix (150 - 175 LBS per Acre)	
Medium Red Clover	20%
Buckwheat	10%
Oats (Spring & Summer) or Wheat (Fall & Winter)	10%
Ladino White Clover	20%
Birdsfoot Trefoil	10%
Alfafa	10%
Named Variety of Forage Perennial Ryegrass	10%
Annual Ryegrass	10%
** All seed mixes require double inoculation*	
Antero Midstream General Contractor Mix (200 - 250 LBS per Acre)	
Named Variety of Forage Tall Fescue (not Fawn)	50%
Named Variety of Forage Perennial Ryegrass	20%
Annual Ryegrass	15%
Ladino Clover	5%
Alsike Clover	5%
Birdsfoot Trefoil	5%
** All seed mixes require double inoculation*	

28 PERMANENT SEEDING CHART
NTS

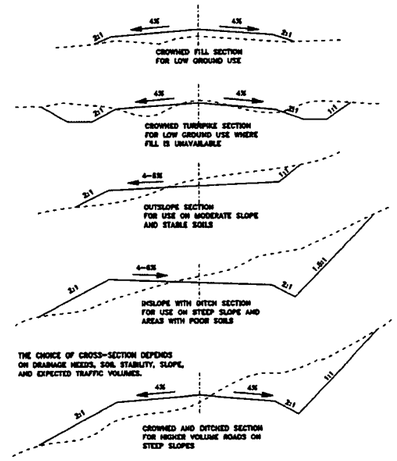
Lime
Pelletized
1.5 tons per acre

Fertilizer
10/20/20
200 lbs per acre

Straw Mulching
2 tons per acre

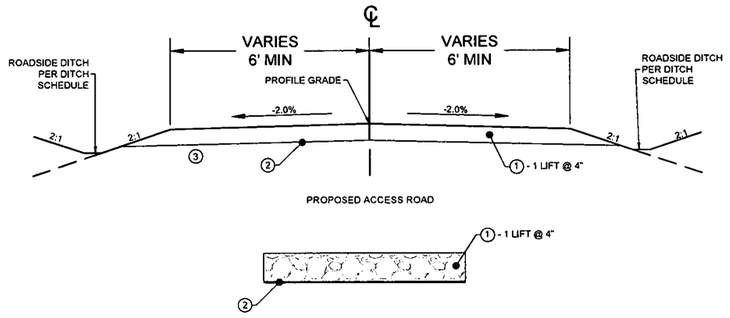
29 LIME, FERTILIZER, AND MULCH CHARTS
NTS

TYPES OF ROAD CROSS-SECTIONS



FROM: US FOREST SERVICE AND MICHIGAN DNR

30 TYPES OF ROAD CROSS-SECTIONS
NTS



LEGEND

1. 3" CLEAN AGGREAGTE (OR APPROVED EQUAL)
2. GEOTEXTILE FABRIC
3. COMPACTED SUBGRADE (EXISTING GROUND)

NOTES

1. TIE TO EXISTING ROAD.
2. ALL DITCHES SHALL BE VEGETATED OR ROCK-LINED BASED ON DITCH SLOPE OR AS SHOWN ON THESE PLANS.
3. EXCAVATE A MINIMUM OF 1' INTO EXISTING ACCESS ROAD IN PROPOSED WIDENING AREAS.

31 ACCESS ROAD TYPICAL SECTION
NTS

THRASHER

IFP
ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

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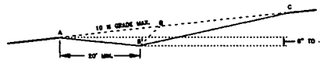
Antero Midstream Partners LP

OXFORD 97 PIPELINE ESCP DETAILS

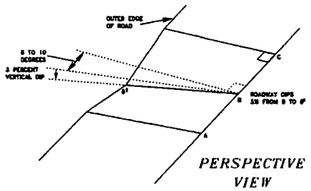
PROPOSED 16" LOW PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018	AFE No.:	A07927
SCALE:	AS SHOWN		
DRAWN BY:	JDJ (TTG)	SHEET	33
CHECKED:	JRH (TTG)		
SHT. NAME: 050-6529\OX97PL\ESCP8			REV. 2

LAYOUT TAB: ESCP8
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\ESCP DETAIL SHEETS.dwg PLOT DATE/TIME: 5/22/2018 11:42 AM USER: aaron rowe



CROSS-SECTION



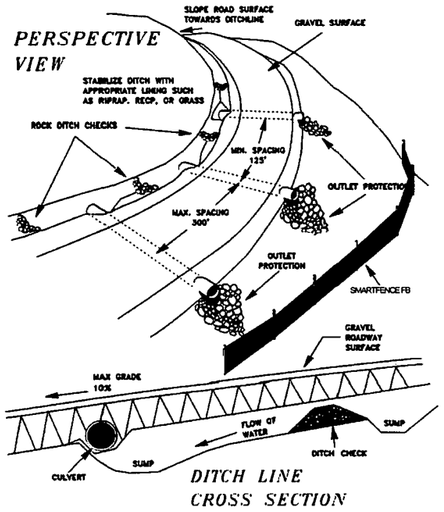
PERSPECTIVE VIEW

SPACING = 400/% GRADE + 75'

Table 3.35.1

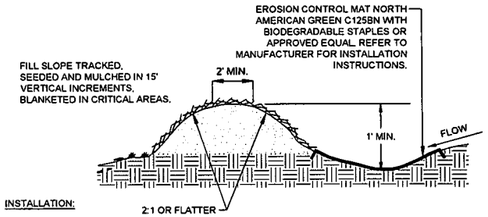
Drainage Area (Acres)	Average Slope of Watershed			
	2%	4%	8%	16%
	Culvert Size			
1-25	24	24	30	30
26-50	24	30	36	36
51-100	30	36	42	48
101-150	36	42	48	48
151-200	36	42	48	54
200-250	42	48	60	60
251-300	42	48	60	60
301-350	42	48	60	60
351-400	42	54	60	60
401-450	42	54	60	72
451-500	42	54	66	72
501-550	48	60	66	72
551-600	48	60	66	72
601-650	48	60	72	72

32 BROAD-BASE DIP
NTS



DITCH LINE CROSS SECTION

33 EROSION AND SEDIMENT CONTROL FOR ACCESS ROADS AND DRIVEWAYS
NTS



INSTALLATION:

1. WHEN CLEARING THE LOCATION FOR THE DIVERSION, ONLY CLEAR ENOUGH ROOM FOR CONSTRUCTION AND MAINTENANCE EQUIPMENT ACCESS. DO NOT CLEAR ANY ADDITIONAL AREA UNTIL ALL EROSION CONTROL DEVICES ARE IN PLACE
2. REMOVE ALL STUMPS, ROOTS, AND OTHER DEBRIS AND DISPOSE OF THEM PROPERLY.
3. INSTALL DIVERSION AND COMPACT AS SHOWN IN DETAIL INSURE POSITIVE DRAINAGE DURING CONSTRUCTION OF BERM.
4. SCARIFY, SEED, MULCH AND TACK DISTURBED AREAS IMMEDIATELY UPON COMPLETION OF BERM
5. INSTALL EROSION CONTROL MAT NORTH AMERICAN GREEN C125N PER MANUFACTURER'S RECOMMENDATIONS AND KEY INTO SIDES OF CHANNEL TO PREVENT WATER FROM UNDERMINING OR DAMAGING CHANNEL LINER.

NOTES:

1. TEMPORARY BERMS SHALL BE PLACED, MAINTAINED, AND ADJUSTED CONTINUOUSLY UNTIL 90% VEGETATIVE GROWTH IS ESTABLISHED ON THE EXTERIOR SLOPES WITH PERMANENT STORM DRAINAGE FACILITIES FUNCTIONING.
2. BERMS SHALL OUTLET TO SLOPE PIPES, CHANNELS, OR OTHER APPROVED MEANS OF CONVEYING RUNOFF TO A SEDIMENT TRAP, SEDIMENT BASIN, OR COLLECTOR CHANNEL.
3. CHANNEL BEHIND BERM SHALL HAVE POSITIVE GRADE TO OUTLET AND AN APPROPRIATE PROTECTIVE LINNING.
4. BERM SHALL BE ADEQUATELY COMPACTED TO PREVENT FAILURE.
5. AN ACCEPTABLE ALTERNATIVE TO TOP-OF-SLOPE BERM IS TO CONTINUOUSLY GRADE THE TOP OF FILL TO DIRECT RUNOFF AWAY FROM THE FILLSLOPE TO A COLLECTOR CHANNEL, SEDIMENT TRAP, OR SEDIMENT BASIN.

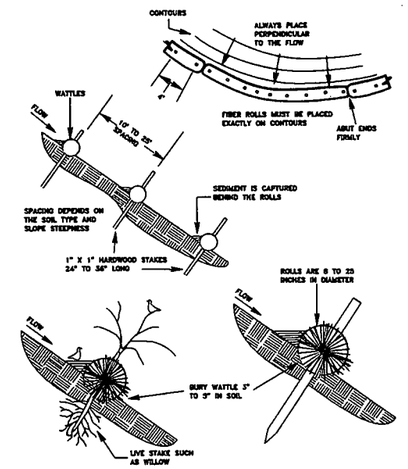
MAINTENANCE:

INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS. REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND APPROPRIATELY STABILIZE IT.

34 TEMPORARY DIVERSION BERM FOR OFFSITE WATER
NTS

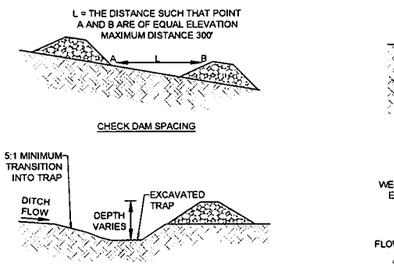
FIGURE 3.08.1

WATTLES

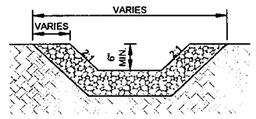


ADAPTED FROM JOHN MCCULLAGH, SALIX AND OREGON DEQ

35 WATTLES
NTS

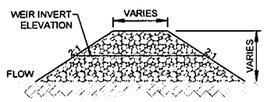


CHECK DAM SPACING



ELEVATION

CHECK DAM WITH SUMP

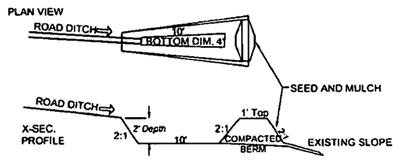


CROSS SECTION

NOTES:

DITCH CHECKS WILL BE CONSTRUCTED IN CHANNELS TO MINIMIZE EROSION. THE CONSTRUCTION OF THE DITCH CHECK WILL FOLLOW THE GUIDELINES ABOVE. DITCH CHECKS WILL BE CONSTRUCTED SO THAT THE ELEVATION OF THE TOP OF THE DOWNSTREAM DITCH CHECK IS EQUAL TO THE ELEVATION OF THE BASE OF THE DITCH CHECK ABOVE. THIS CREATES A SITUATION WHERE THE CHANNEL HAS NO CHANNELIZED FLOW PER SAY. THE WATER FLOWING DOWN THE DITCH WILL CASCADE FROM THE POOL CREATED BY ONE DITCH CHECK INTO THE POOL CREATED BY THE DOWNSTREAM DITCH CHECK THIS DISSIPATES ENERGY AND SLOWS THE WATER FLOW REDUCING EROSION AND ALLOWING ANY SEDIMENT IN THE DRAINAGE TO FALL OUT.

36 ROCK CHECK DAM
NTS



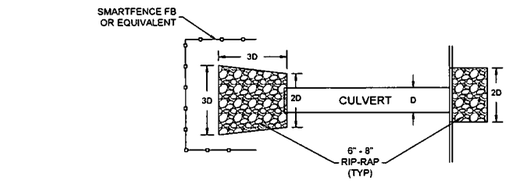
LEVEL SPREADER DETAIL
N.T.S.

NOTE: TO BE PLACED AT THE ENDS OF DITCHES CALLING FOR LEVEL SPREADERS LEVEL SPREADERS WILL BE CUT INTO THE CONTOUR OF THE EXISTING SLOPE.

NOTES:

LEVEL SPREADER TO BE CONSTRUCTED IN AREAS WHERE A CULVERT OR CHANNEL MUST EMPTY ONTO GROUND WITH NO ASSOCIATES CHANNELIZED FLOW. THE PURPOSE OF THE LEVEL SPREADER IS TO DISSIPATE ENERGY AND SPREAD THE FLOW OUT OVER A SIGNIFICANT AREA. THIS WILL TAKE A CHANNELIZED FLOW AND ESSENTIALLY CONVERT IT BACK TO A SHEET FLOW OVER THE GROUND SURFACE. THE SHEET FLOW WILL HAVE LESS CHANCE FOR EROSION CONSIDERING THE LOWER VELOCITIES AND FLOW VOLUMES IN ANY PARTICULAR AREA. THEY MAY BE CONSTRUCTED MUCH LIKE A SUMP WHERE THE CHANNEL OR CULVERT EMPTIES INTO THE SUMP AND THEN OVERTOPS THE BERMED AREA, BUT THEY MAY OFTEN CONTAIN GRAVEL IN THE SUMPED AREA. THEY WILL ALLOWS BE CONSTRUCTED ALONG THE GROUND CONTOUR.

37 LEVEL SPREADER
NTS
DETAIL PROVIDED BY ANTERO MIDSTREAM LLC



NOTES:

1. 2% MINIMUM SLOPE EXCEPT WHERE NOTED ON PLANS.
* CULVERTS IN STREAMS SHALL BE LAID AT 0% AND COUNTERSUNK.

INLET AND OUTLET PROTECTION IS ESSENTIALLY GRAVELS AND/OR RIP RAP PLACED AT BOTH THE INLET AND OUTLET SIDES OF CULVERTS. THE GRAVELS WILL HELP TO SLOW THE FLOW OF WATER, AND DISSIPATE ENERGY. THIS WILL IN TURN DECREASE THE CHANCES OF EROSION AND ALSO ALLOW ANY SEDIMENT IN THE WATER TO SETTLE OUT.

38 TYPICAL CULVERT & CULVERT INLET/OUTLET PROTECTION
NTS

LAYOUT TAB: ESCP9
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\ESCP DETAIL SHEETS.dwg
PLOT DATE/TIME: 5/22/2018 11:42 AM
USER: aaron rowe

THRASHER

IFP
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Antero Midstream Partners LP

OXFORD 97 PIPELINE
ESCP DETAILS

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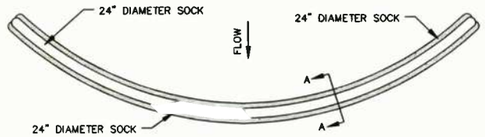
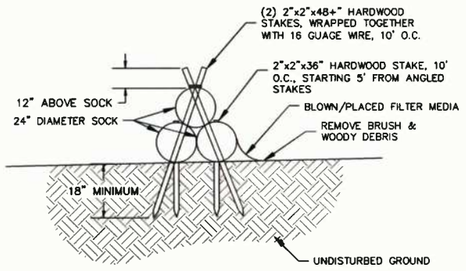
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018	AFE No.:	A07927
SCALE:	AS SHOWN		
DRAWN BY:	JDJ (TTC)	SHEET	34
CHECKED:	JSH (TTC)		

SHT. NAME: 050-6529\OX97PL\ESCP9 REV. 2

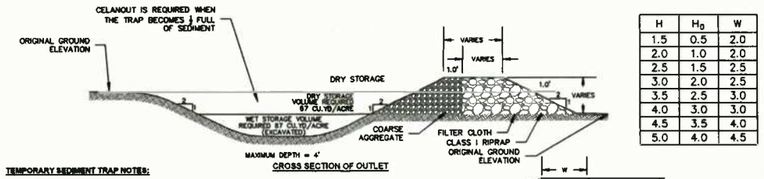


PLAN VIEW

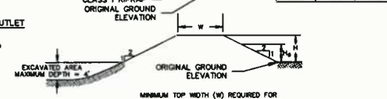


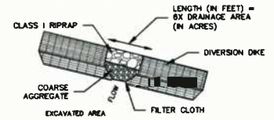
SECTION A-A

39 TRIPLE STACK FILTER SOCK SEDIMENT TRAP
NTS



H	H_D	W
1.5	0.5	2.0
2.0	1.0	2.0
2.5	1.5	2.5
3.0	2.0	2.5
3.5	2.5	3.0
4.0	3.0	3.0
4.5	3.5	4.0
5.0	4.0	4.5





TEMPORARY SEDIMENT TRAP NOTES:

1. THE DETAIL SHOWN IS A GENERAL SCHEMATIC. THE CONTRACTOR SHALL DESIGN AND SIZE EACH TRAP ACCORDING TO HIS GRADING PLAN.
2. SEDIMENT TRAPS SHALL BE USED IN AREA WHERE THE TOTAL CONTRIBUTING DRAINAGE AREA IS LESS THAN 5 ACRES.
3. FILL MATERIAL FOR ANY SEDIMENT TRAP EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHOULD BE COMPACTED IN 8" LAYERS BY TRAVERSING WITH CONSTRUCTION EQUIPMENT.
4. ANY SEDIMENT TRAP EARTH EMBANKMENT SHALL BE SEEDED WITH TEMPORARY VEGETATION IMMEDIATELY AFTER INSTALLATION.
5. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE MINIMIZED.
6. THE SEDIMENT TRAP SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE UP-SLOPE DRAINAGE AREA HAS BEEN STABILIZED.
7. ALL CUT AND FILL SLOPES FORMING THE SEDIMENT TRAP SHALL BE 2:1 OR FLATTER.
8. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 OF THE VOLUME. SEDIMENT REMOVED FROM THE TRAP SHALL BE DEPOSITED IN A SUITABLE AREA IN SUCH A MANNER THAT WILL NOT ERODE AND CAUSE SEDIMENTATION PROBLEMS.
9. THE STRUCTURE SHOULD BE CHECKED REGULARLY TO ENSURE THAT IT IS STRUCTURALLY SOUND AND HAS NOT BEEN DAMAGED BY EROSION OR CONSTRUCTION EQUIPMENT.
10. A RIPRAP SPILLWAY CHANNEL MAY BE NECESSARY IF A CONCENTRATED OUTLET FLOW IS ANTICIPATED.
11. FILTER STONE SHALL BE REGULARLY CHECKED TO ENSURE THAT FILTRATION PERFORMANCE IS MAINTAINED. STONE CHOKED WITH SEDIMENT SHALL BE REMOVED AND CLEANED OR REPLACED.

NOTES:
TEMPORARY SEDIMENT TRAPS ARE ESSENTIALLY SMALL SEDIMENT PONDS. THEY GIVE THE WATER A PLACE TO POOL AND SLOW DOWN THIS REDUCES THE CHANCES OF ADDITIONAL EROSION WHILE ALLOWING ANY SEDIMENT IN THE WATER TO SETTLE OUT. THE OUTLET IS DESIGNED OUT OF GRAVELS OF DIFFERENT DIMENSIONS WHICH CREATES A FILTER AS WELL.

39 TEMPORARY SEDIMENT TRAP
NTS
DETAIL PROVIDED BY ANTERO MIDSTREAM LLC

NOTES:
ON MOST LOCATIONS ANTERO WILL ALSO CONSTRUCT EROSION AND SEDIMENT (E&S) CONTROLS ABOVE AND BEYOND THE E&S CONTROLS LISTED ON THE PLAN SHEETS. THESE CONTROLS WILL BE CATEGORIZED AS PHASE I, PHASE II, AND PHASE III CONTROLS. THESE CONTROLS WILL BE INSTALLED TO BOTH PROVIDE EXTRA E&S PROTECTION, AND TO ELIMINATE THE CHANCES OF MATERIALS SUCH AS SOIL OR GRAVEL BEING PLACED IN A STREAM OR WETLAND. THE SITE PLANS AND DELINEATIONS ARE REVIEWED AND THESE CONTROLS ARE SPECIFIED IN ANTERO'S CONSTRUCTION RELEASE WHICH IS SENT OUT JUST PRIOR TO CONSTRUCTION BEGINNING. THE PHASE I, II, AND III CONTROLS WILL BE CONSTRUCTED AS FOLLOWS:

PHASE I:
THIS IS ESSENTIALLY ORANGE SAFETY FENCE LIKE SHOWN ABOVE. THIS MEASURE IS PUT IN PLACE TO LET CONTRACTORS KNOW THAT NO WORK IS TAKE PLACE BEYOND THIS POINT. THIS CONTROL IS TYPICALLY UTILIZED WHEN THERE IS A WETLAND OR STREAM LOCATED IN THE AREA BUT NOT WITHIN APPROXIMATELY 100 FEET OF THE DISTURBANCE.

41A SUPPLEMENTAL 404 CWA BMP CONTROLS
NTS
DETAIL PROVIDED BY ANTERO MIDSTREAM LLC

PHASE II:
THIS CONTROL CONSISTS OF TYPICAL SILT FENCE, SUPER SILT FENCE, OR FILTER SOXX. THIS CONTROL WILL BE INSTALLED AS DESCRIBED IN THE PREVIOUS SECTIONS. THIS CONTROL WILL TYPICALLY BE USED WHEN WETLANDS OR STREAMS ARE LOCATED WITHIN 100 FEET OF THE DISTURBED AREA.

41B SUPPLEMENTAL 404 CWA BMP CONTROLS
NTS
DETAIL PROVIDED BY ANTERO MIDSTREAM LLC

PHASE III:
THIS CONTROL CONSISTS OF METAL Q-DECKING WHICH IS STOOD ON ITS EDGE AND SECURED TO METAL POSTS. THIS CONTROL IS USE TO PREVENT SOILS OR GRAVELS FROM ENTERING STREAMS OR WETLANDS DURING CONSTRUCTION. THE DECKING CAN BE BURIED OR USED IN CONJUNCTION WITH OTHER E&S METHODS. THIS CONTROL IS USED IN AREAS WHERE STREAMS OR WETLANDS ARE WITHIN APPROXIMATELY 50 FEET OF THE DISTURBED AREA. IF THE METAL DECKING IS BURIED NO OTHER E&S CONTROLS ARE REQUIRED, BUT IF THE DECKING IS PLACED ON TOP OF THE GROUND SURFACE AND ADDITIONAL E&S CONTROL SUCH AS SILT FENCE OR SILT SOXX WILL BE USED TO PROTECT THE GAPS BETWEEN THE BOTTOM OF THE DECKING AND THE UNEVEN GROUND SURFACE.

*NOTE THAT THE DISTANCES MENTIONED IN THE PHASE I, II, AND III CONTROLS ARE A GUIDELINE NOT A RULE FOR THE DECISION OF WHEN AND WHERE TO USE THESE CONTROLS.

41C SUPPLEMENTAL 404 CWA BMP CONTROLS
NTS
DETAIL PROVIDED BY ANTERO MIDSTREAM LLC

DEFINITIONS:

RIP RAP - LOOSE STONE USED TO FORM A FOUNDATION FOR A BREAKWATER OR OTHER STRUCTURE. THIS STONE IS TYPICALLY 3 INCHES OR GREATER IN DIAMETER.

FILTER CLOTH - TYPICALLY TYPAR OR ANOTHER SUCH MATERIAL (USUALLY WOVEN) WHICH IS DESIGNED TO ALLOW WATER TO FLOW BUT RETAIN SEDIMENT.

AGGREGATE - TERM USED TO IDENTIFY ANY TYPE SOLID DENSE MATERIAL USED DURING CONSTRUCTION TYPICALLY GRAVELS, SANDS, AND STONES.

EMBANKMENT - A WALL OR BANK OF EARTH OR STONE.

CLASS 1 RIP RAP - TYPICAL RIP RAP WITH STONES OF A DIAMETER BETWEEN 8 AND 18 INCHES.

42 DEFINITIONS
NTS
DETAIL PROVIDED BY ANTERO MIDSTREAM LLC

THRASHER

IFP
ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

GENERAL INFORMATION

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2. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero Midstream Partners LP

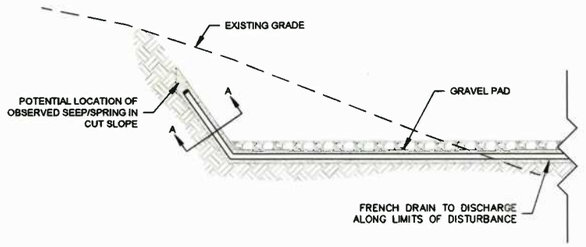
OXFORD 97 PIPELINE
ESCP DETAILS

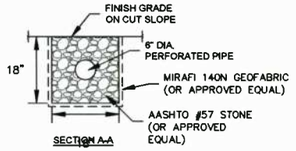
PROPOSED 16" LOW PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018	AFE No.:	A07927
SCALE:	AS SHOWN		
DRAWN BY:	JDJ (TTG)	SHEET	35
CHECKED:	JRH (TTG)		

SHT. NAME: 050-6529\OX97PL\ESCP10 REV. 2

LAYOUT TAB: ESCP10
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\ESCP DETAIL SHEETS.dwg
PLOT DATE/TIME: 5/22/2018 11:42 AM
USER: aaron rowe

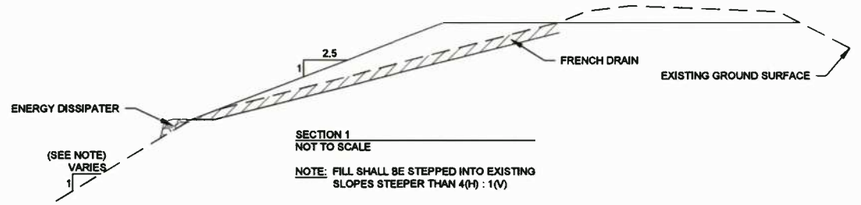




NOTE:

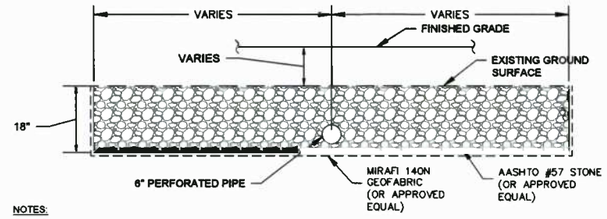
IF EVIDENCE OF A SEEP/SPRING IN A CUT SLOPE IS OBSERVED, THE CONTRACTOR SHOULD INSTALL A FRENCH DRAIN PER DETAIL 36 ABOVE.

43 FRENCH DRAIN AT OBSERVED SEEP/SPRING IN CUT SLOPES
NTS



SECTION 1
NOT TO SCALE

NOTE: FILL SHALL BE STEPPED INTO EXISTING SLOPES STEEPER THAN 4(H) : 1(V)



NOTES:

1. WHERE SPRINGS OR SEEPS ARE ENCOUNTERED DURING CONSTRUCTION, DRAINABLE FILL AND PERFORATED PIPES (FRENCH DRAINS) SHOULD BE INSTALLED TO PROVIDE A DRAINAGE PATH FOR SEEPAGE FROM THE EXISTING SLOPE.

2. THE FRENCH DRAIN SHOULD CONSIST OF A 6 INCH DIAMETER PERFORATED PIPE SURROUNDED BY DRAINABLE FILL, INSTALLED IN AN 18 INCH DEEP TRENCH ALONG THE EXISTING DRAINAGE FEATURE OR SEEP. PRIOR TO DRAINABLE FILL PLACEMENT, THE TRENCH SHOULD BE LINED WITH A LAYER OF GEOFABRIC SUCH AS MIRAFI 140N, OR APPROVED EQUAL, WITH SUFFICIENT OVERLAP TO PROVIDE AN ENVELOP AROUND THE PIPE TRENCH TO PREVENT THE MIGRATION OF FINES INTO THE FRENCH DRAIN.

3. THE FRENCH DRAIN SHOULD DAYLIGHT BEYOND THE TOE OR SIDE OF THE SLOPE AND EXTEND UP TO THE CREST OF THE SLOPE TO FACILITATE DRAINAGE THROUGH THE FILL SECTION. THE AS-BUILT WIDTH OF THE FRENCH DRAIN SHOULD BE A FUNCTION OF THE WIDTH OF THE SPRING, SEEP OR DRAINAGE FEATURE OBSERVED DURING CONSTRUCTION.

4.THE FRENCH DRAIN SHOULD BE CONSTRUCTED TO SPAN THE ENTIRE WIDTH OF THE OBSERVED SPRING OR SEEP.

44 FRENCH DRAIN AND DRAINABLE FILL SECTION AT OBSERVED SEEP/SPRING OR EXISTING DRAINAGE FEATURE LOCATION
NTS

Typical Polymer Stabilized Fiber Matrix Application Rates

Maximum Rainfall of ≤ 20"							
SLOPE	6:1	5:1	4:1	3:1	2:1	1.5:1	1:1
Soil Stabilizer (gals/acre)	4	5	6	7	8	9	10
Fiber (lb/acre)	1,500	1,500	1,500	1,800	2,000	2,500	3,000

Maximum Rainfall of > 20" and for Site Winterization			
SLOPE	≤5:1	4:1	≥3:1
Soil Stabilizer (gals/acre)	6	8	10
Fiber (lb/acre)	2,000	2,500	3,000

NOTES:

A BONDED FIBER MATRIX (BMF) IS AN EFFECTIVE METHOD OF STABILIZING STEEP SLOPES WHEN USED PROPERLY. BMFs MAKE USE OF A CROSS-LINKED HYDROCOLLOID TACKIFIER TO BOND THERMALLY PROCESSED WOOD FIBERS. APPLICATION RATES VARY ACCORDING TO SITE CONDITIONS. FOR SLOPES UP TO 3H:1V THE BFM SHOULD BE APPLIED AT A RATE OF 3,000 LB/ACRE. STEEPER SLOPES MAT NEED AS MUCH AS 4,000 LB/ACRE.

BFMs SHOULD ONLY BE USED WHEN NO RAIN IS FORECASTED FOR AT LEAST 48 HOURS FOLLOWNG THE APPLICATION. THIS IS TO ALLOW THE TACKIFIER SUFFICIENT TIME TO CURE PROPERLY. ONCE PROPERLY APPLIED, A BFM IS TYPICALLY 90% EFFECTIVE IN PREVENTING ACCELERATED EROSION. BFMs SHOULD NOT BE APPLIED BETWEEN SEPTEMBER 30 AND APRIL 1.

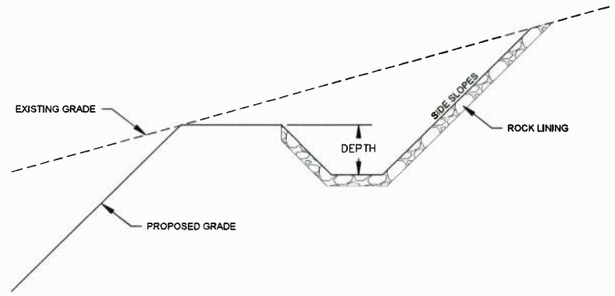
A POLYMER STABILIZED FIBER MATRIX (PSFM) CAN ALSO BE AN EFFECTIVE METHOD OF STABILIZING STEEP SLOPES WHEN USED PROPERTY. PSFMs MAKE USE OF A LINEAR SOIL STABILIZING TACKIFIER THAT WORKS DIRECTLY ON SOIL TO MAINTAIN SOIL STRUCTURE, MAINTAIN PORE SPACE CAPACITY AND FLOCCULATE DISLODGED SEDIMENT THAT WILL SIGNIFICANTLY REDUCE RUNOFF TURBIDITY, PROPERLY APPLIED, A PSFM MAY BE AS MUCH AS 99% EFFECTIVE.

NOTES:

UNLIKE ROLLED BLANKETS, THERE IS NO NEED TO SMOOTH THE SLOPE PRIOR TO APPLICATION OF HYDRAULICALLY APPLIED BLANKETS. IN FACT SOME ROUGHENING OF THE SURFACE, EITHER NATURAL OR MECHANICALLY INDUCED, IS PREFERABLE. HOWEVER, LARGE ROCKS, THOSE > 9 INCHES, AND EXISTING RILLS SHOULD BE REMOVED PRIOR TO APPLICATION. TRACKING OR GROOVING OF SLOPES SHOULD BE CONSIDERED TO SLOW WATER FLOWS DURING A STORM EVENT. SLOPE INTERRUPTION DEVICES SUCH AS STAIR STEP GRADING OR BENCHING SHOULD BE APPLIED PRIOR TO THE APPLICATION. MIXING AND APPLICATION RATES SHOULD FOLLOW MANUFACTURER'S RECOMMENDATIONS.

HYDRAULICALLY APPLIED BLANKETS ARE TYPICALLY APPLIED IN TWO STAGES. UNLESS SPECIFICALLY RECOMMENDED TO BE APPLIED IN ONE APPLICATION BY THE MANUFACTURER. THE SEED MIXTURE AND SOIL AMENDMENTS SHOULD BE APPLIED FIRST. IF THE SEED IS APPLIED AT THE SAME TIME AS THE HYDRAULICALLY APPLIED BLANKET, THE BONDED FIBERS MAY KEEP THE SEED FROM MAKING SUFFICIENT CONTACT WITH THE SOIL TO GERMINATE. AFTER THE SEED MIXTURE IS APPLIED, THE BFM, FGM, OR PSFM SHOULD BE SPRAYED OVER THE AREA AT THE REQUIRED APPLICATION RATE. (SEE ABOVE TABLES)

45 BONDED FIBER MATRIX (HYDROMULCH)
NTS



NOTE:

DRAINAGE CHANNEL DIMENSIONS AND LINING WILL BE DETERMINED BY ENGINEER AS APPLICABLE.

46 TYPICAL ROCK LINED CHANNEL
NTS

THRASHER

IFP
ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM THRASHER, KLEINFELDER & NATIONAL	05/14/18	JDJ
2	REVISED PER COMMENTS FROM ANTERO	05/22/18	JDJ

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2. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero Midstream Partners LP

OXFORD 97 PIPELINE ESCP DETAILS

PROPOSED 16" LOW PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018	AFE No.:	A07927
SCALE:	AS SHOWN		
DRAWN BY:	JDJ (TTC)	SHEET	36
CHECKED:	JRH (TTC)		

SHT. NAME: 050-6529\0X97PL\ESCP11 REV. 2

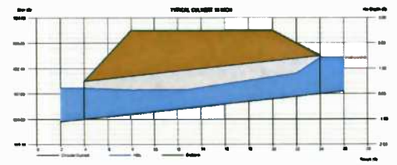
LAYOUT TAB: ESCP11
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\ESCP DETAIL SHEETS.dwg
PLOT DATE/TIME: 5/22/2018 11:43 AM
USER: aaron rowe

Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. — Saturday, May 5 2018

TYPICAL CULVERT 18 INCH

Invert Elev Dn (ft)	= 920.00	Calculations	
Pipe Length (ft)	= 20.00	Qmin (cfs)	= 6.10
Slope (%)	= 5.00	Qmax (cfs)	= 6.10
Invert Elev Up (ft)	= 921.00	Tailwater Elev (ft)	= (dc+D)/2
Rise (in)	= 18.0		
Shape	= Circular	Highlighted	
Span (in)	= 18.0	Qtotal (cfs)	= 6.10
No. Barrels	= 1	Qpipe (cfs)	= 6.10
n-Value	= 0.012	Qovertop (cfs)	= 0.00
Culvert Type	= Circular Culvert	Veloc Dn (ft/s)	= 3.94
Culvert Entrance	= Smooth tapered inlet throat	Veloc Up (ft/s)	= 5.15
Coeff. K,M,c,Y,k	= 0.534, 0.555, 0.0196, 0.9, 0.2	HGL Dn (ft)	= 921.23
		HGL Up (ft)	= 921.95
Embankment		Hw Elev (ft)	= 922.42
Top Elevation (ft)	= 923.50	Hw/D (ft)	= 0.95
Top Width (ft)	= 12.00	Flow Regime	= Inlet Control
Crest Width (ft)	= 0.00		



NOTES

1. CROSS-DRAINAGE CULVERTS ARE SPACED APART AT LEAST 125' AND NO MORE THAN 300'.
2. CULVERT SPACING = 400/PERCENT GRADE + 75'.
3. OUTLET PROTECTION MUST BE INSTALLED AT EACH CULVERT.

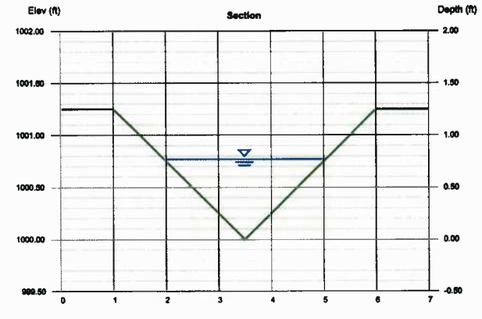
TYPICAL 18" CULVERT
NTS

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. — Saturday, May 5 2018

TYPICAL DITCH

Triangular		Highlighted	
Side Slopes (z:1)	= 2.00, 2.00	Depth (ft)	= 0.77
Total Depth (ft)	= 1.25	Q (cfs)	= 5.910
		Area (sqft)	= 1.19
Invert Elev (ft)	= 1000.00	Velocity (ft/s)	= 4.96
Slope (%)	= 4.33	Wetted Perim (ft)	= 3.44
N-Value	= 0.030	Crit Depth, Yc (ft)	= 0.89
		Top Width (ft)	= 3.08
Calculations		EGL (ft)	= 1.16
Compute by:	Known Q		
Known Q (cfs)	= 5.91		



TYPICAL DITCH
NTS

LAYOUT TAB: CULV1
CAD FILE: R:\050-6529-OXFORD 97-ANTERO MIDSTREAM-\Survey\PLANS\CULVERT & CHANNEL REPORT SHEETS.dwg
PLOT DATE/TIME: 5/22/2018 11:43 AM
USER: aaron rawe

THRASHER

IFP
ISSUED FOR PERMITTING

DATE: 05/22/2018

AFE # A07927

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

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NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
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2. CULVERT AND DITCH DESIGNS ARE BASED ON AVAILABLE MAPPING AND ASSUMED PROPOSED ROAD SURFACE ELEVATIONS.
3. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" x 34"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.

Antero Midstream Partners LP

OXFORD 97 PIPELINE
CULVERT & CHANNEL REPORTS

PROPOSED 16" LOW
PRESSURE STEEL GAS LINE
DODDRIDGE COUNTY, WEST VIRGINIA

DATE:	5/22/2018	AFE No.:	A07927
SCALE:	AS SHOWN		
DRAWN BY:	JDJ (TTG)	SHEET	37
CHECKED:	JRH (TTG)		

SHT. NAME: 050-6529\OX97PL\CULV1 — REV. 2

The Doddridge Independent

The Doddridge Independent

PUBLISHER'S CERTIFICATE

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

Please take notice that on the 2nd of July, 2018, Antero Resources filed an application for a Floodplain Permit (#18-521) to develop land located at or about Right Fork of Arnolds Creek; Coordinates: 39.244450N, -80.822708W. 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 298 Freedom of Information, Article 1 Public Records and county policy and procedures. Any interested persons who desire to

was published in The Doddridge Independent
2 times commencing on Friday, July 6, 2018 and
Ending on Friday, July 13, 2018 at the request of:

George Eidel, Doddridge County Floodplain Manager& Doddridge County Commission

Given under my hand this Friday, July 13, 2018

The publisher's fee for said publication is:

$ 29.31 1st Run/$ 21.98 Subsequent Runs

This Legal Ad Total: $ 51.29

Michael D. Zorn
Publisher of The Doddridge Independent

Subscribed to and sworn to before me on

this date: 7 / 13 / 18

John W. See

Notary Public in and for Doddridge County
My Commission expires on

The 23 day of Aug 20 22

Floodplain Public Notice & Legal Notice

Please take notice that on the 2nd of July, 2018, Antero Resources filed an application for a Floodplain Permit (#18-521) to develop land located at or about Right Fork of Arnolds Creek; Coordinates: 39.244450N, -80.822708W. 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 298 Freedom of Information, Article 1 Public Records and county policy and procedures. Any interested persons who desire to comment shall present the same in writing by August 6, 2018 (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 Oxford 97 Pipeline Project

C2 07/06 - 07/13

OFFICIAL SEAL
Notary Public, State of West Virginia
JOHN W SEE
169 Flanigan Avenue
Salem, WV 26426
My commission expires August 23, 2022