



# Floodplain Development Permit

## Doddridge County, WV Floodplain Management

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

**Permit #: 20-578**

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

**Issued to: Mark West Liberty Midstream POC: Richard Lowry**

**Company Address: 320 South Drive Suite 200, Bridgeport, WV 26330**

**Project Address: 218 Swisher Lane, West Union, WV 26456**

**Firm: 54017C0145C Lat/Long: 39.275426, -80.689417**

**Purpose of development: Renewal of FP#19-555 Smithburg to Sherwood Pipeline**

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

**Date: 8/10/2020**

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For additional information regarding this permit, please contact  
Doddridge County Floodplain Manager at 304.873.1343, or via email at  
doddridgecountyfpm@gmail.com  
101 Church Street Suite 102; West Union, WV 26456

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**COPY** **COPY** **COPY**

**KLEINFELDER OFFICE CHECKING**  
550 WEST C STREET SUITE 1200  
SAN DIEGO, CA 92101

11622

DATE 7/9/2020 19-10/1250

PAY TO THE ORDER OF Doddridge County Commission

One - thousand 00/100 \$ 1,000.00

**usbank.**

FOR Mark West Smithburg Floodplain Renewal James A.

⑈0⑆⑆622⑈ ⑆⑆25000⑆05⑆ ⑆575⑆9869794⑈

Security Features Included. Details on back.

**COPY** **COPY**

FP # 20-578

**COPY**



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**FLOODPLAIN PERMIT #20-578**

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**Mark West 218 Swisher Ln, Smithburg to Sherwood Pipeline 39.275426, -80.689417**

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



## Doddridge County Floodplain Permits

(Week of July 13, 2020)

Please take notice that on the (10<sup>th</sup>) of (July), 2020, (Mark West ) filed an application for a Floodplain Permit (#20-578) to develop land located at or about (218 Swisher Lane, West Union); Coordinates: 39.275426, -80.689417. The Application is on file with the Floodplain Manager of the County and may be inspected or copied during regular business hours in accordance to WV Code Chapter 29B Freedom of Information, Article 1 Public Records and county policy and procedures. Any interested persons who desire to comment shall present the same in writing by (August 10, 2020) (20 calendar days after the announcement at the regularly scheduled Doddridge County Commission Meeting) delivered to the Floodplain Manager of the County at 105 Court Street, Suite #3, West Union, WV 26456. This project is a renewal of Permit #19-555 Smithburg to Sherwood Pipeline

A handwritten signature in black ink, appearing to read "George C. Eidel".

GEORGE C. EIDEL, CFM

Doddridge County Floodplain Manager



# TRANSMITTAL

To:

Mr. George Eidel  
Floodplain Manager  
105 Court Street, Suite #3  
West Union, WV 26456

Date: July 9, 2020

Reference No: 20200614.001A

cc: Project File

Document Control No. PGH20R113768

Subject:

Floodplain Permit #19-555 Renewal  
MarkWest Liberty Midstream & Resources, LLC  
Smithburg to Sherwood Liquid Lines  
Doddridge County, West Virginia



Attached



Under separate cover

Via:

- Messenger/Courier
- First Class Mail
- FedEx
- United Parcel
- DHL
- Lone Star Overnight
- Freight
- Other

Transmitted:

- As Requested
- For Approval
- For Your Use
- For Review & Comment

Remarks:

Per our July 8, 2020 conversation, on behalf of MarkWest Liberty Midstream & Resources, LLC, Kleinfelder, Inc. is requesting a renewal to the Smithburg to Sherwood Liquid Lines Floodplain Permit #19-555 (expiration date of July 22, 2020) because construction activities have not been completed within the Buckeye Creek floodplain.

Please find the following documents to facilitate your review:

- Attachment 1 – Original Floodplain Permit Approval
- Attachment 2 – Original Floodplain Application
- Attachment 3 – Original No-Rise Certification
- Attachment 4 – Additional Project Permits

In addition, enclosed is a check in the amount of \$1,000.00 for the floodplain renewal fee.

By: **Matt Albright**  
Project Manager

**ATTACHMENT 1**  
**Original Floodplain Permit Approval**



# 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: #19-555**

**Date Approved: July 22, 2019**

**Expires: July 22, 2020**

**Issued to: MarkWest Liberty Midstream & Resources, LLC**

**POC: Richard Lowry**

**Company Address: 320 South View Drive, Suite 200 Bridgeport, WV 26330**

**Project Address: Smithburg to Sherwood Pipeline**

**Firm: 54017C0140C**

**Lat/Long: 39.275426N, -80.689417W**

**Purpose of Development: Pipeline Project**

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

**Date: July 22, 2019**

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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

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**ATTACHMENT 2**  
**Original Floodplain Application**



# TRANSMITTAL

To:

Mr. George Eidel  
Floodplain Manager  
105 Court Street, Suite #3  
West Union, WV 26456

Date: June 26, 2019

Reference No: 20200614.001A

cc: Project File

Document Control No. PGH19097321

<b>Subject:</b>	<b>Floodplain Permit Application MarkWest Liberty Midstream &amp; Resources, LLC Smithburg to Sherwood Liquid Lines Doddridge County, West Virginia</b>
	<input checked="" type="checkbox"/> <b>Attached</b> <input type="checkbox"/> <b>Under separate cover</b>

Via:

- Messenger/Courier
- First Class Mail
- FedEx
- United Parcel
- DHL
- Lone Star Overnight
- Freight
- Other

Transmitted:

- As Requested
- For Approval
- For Your Use
- For Review & Comment

Remarks:

Please find the following documents to facilitate your review of the above referenced application:

- Attachment A – Floodplain Application
- Attachment B – Site Plan
- Attachment C – Location Exhibits

In addition, enclosed is a check in the amount of \$1,000.00 for the floodplain application fee. Calculations used to determine this fee are included as Attachment D.

By: **Matt Albright**  
Project Manager

ATTACHMENT A  
FLOODPLAIN APPLICATION





Permit# 20-578  
Project Smithburg to Sherwood Pipeline Name: \_\_\_\_\_  
Permittees Name: Mark West

## ***Doddridge County, WV***

# Floodplain Development Permit Application

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

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

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

APPLICANT'S SIGNATURE \_\_\_\_\_

DATE 6/26/19

Doddridge County Commercial/Industrial  
Floodplain Development Permit Application

**Applicant Information:**

*Please provide all pertinent data.*

<b>Applicant Information</b>		
Responsible Company Name: MarkWest Liberty Midstream & Resources, LLC		
Corporate Mailing Address: 4600 J. Barry Ct., Suite 500		
City: Canonsburg	State: PA	Zip: 15317
Corporate Point of Contact (POC): Richard Lowry		
Corporate POC Title: Environmental Manager - New Construction		
Corporate POC Primary Phone: (724) 416-0520		
Corporate POC Primary Email: RALowry@marathonpetroleum.com		
Corporate FEIN: 30-0528059	Corporate DUNS: N/A	
Corporate Website: N/A		
Local Mailing Address: 320 South View Dr., Suite 200		
City: Bridgeport	State: WV	Zip: 26330
Local Project Manager (PM): Dustin Vincent		
Local PM Primary Phone: (304) 842-2034		
Local PM Secondary Phone: (304) 638-8134		
Local PM Primary Email: DBVincent@marathonpetroleum.com		
Person Filing Application: Richard Lowry		
Applicant Title: Environmental Manager - New Construction		
Applicant Primary Phone: (724) 416-0520		
Applicant Secondary Phone: (724) 925-8165		
Applicant Primary Email: RALowry@marathonpetroleum.com		



Doddridge County Commercial/Industrial  
Floodplain Development Permit Application

**Proposed Development:**

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

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

**A. STRUCTURAL DEVELOPMENT**

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

**B. OTHER DEVELOPMENT ACTIVITIES:**

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

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Doddridge County Commercial/Industrial  
Floodplain Development Permit Application

**Development Site/Property Information:**

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

Property Designation:   1   of   2  

<b>Site/Property Information:</b>		
Legal Description: Old Route 50 Lot E [BUCKEYE; 218.32 AC] (See Tax Parcel Map for Location)		
Physical Address/911 Address: Old Route 50		
Decimal Latitude/Longitude: 39.275426, -80.689417		
DMS Latitude/Longitude: 39°16' 31.53" -80° 41' 21.90"		
District: 3 - Grant	Map:19	Parcel: 32
Land Book Description: 09-03-0019-0032-0000		
Deed Book Reference: Book 380, Page 69		
Tax Map Reference: N/A		
Existing Buildings/Use of Property: Vacant Commercial Land		

<b>Floodplain Location Data: (to be completed by Floodplain Manager or designee)</b>			
Community:	Number:	Panel:	Suffix:
Location (Lat/Long):		Approximate Elevation:	
		Estimated BFE:	
Is the development in the floodway? <input type="checkbox"/> Yes <input type="checkbox"/> No		Is the development in the floodplain? <input type="checkbox"/> Yes <input type="checkbox"/> No    Zone: _____	
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   2  

Site/Property Information:		
<b>Legal Description:</b> BUCKEYE 178.48 AC; (FARMED) (See Tax Parcel Map for Location)		
<b>Physical Address/911 Address:</b> Old Route 50		
<b>Decimal Latitude/Longitude:</b> 39.277315, -80.690712		
<b>DMS Latitude/Longitude:</b> 39°16' 38.33" -80° 41' 26.56"		
<b>District:</b> 3 - Grant	<b>Map:</b> 19	<b>Parcel:</b> 31
<b>Land Book Description:</b> N/A		
<b>Deed Book Reference:</b> Book 304, Page 355		
<b>Tax Map Reference:</b> 09-03-0019-0031-0000		
<b>Existing Buildings/Use of Property:</b> Active Farm		

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

Doddridge County Commercial/Industrial  
Floodplain Development Permit Application

**Property Owner Data:**

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

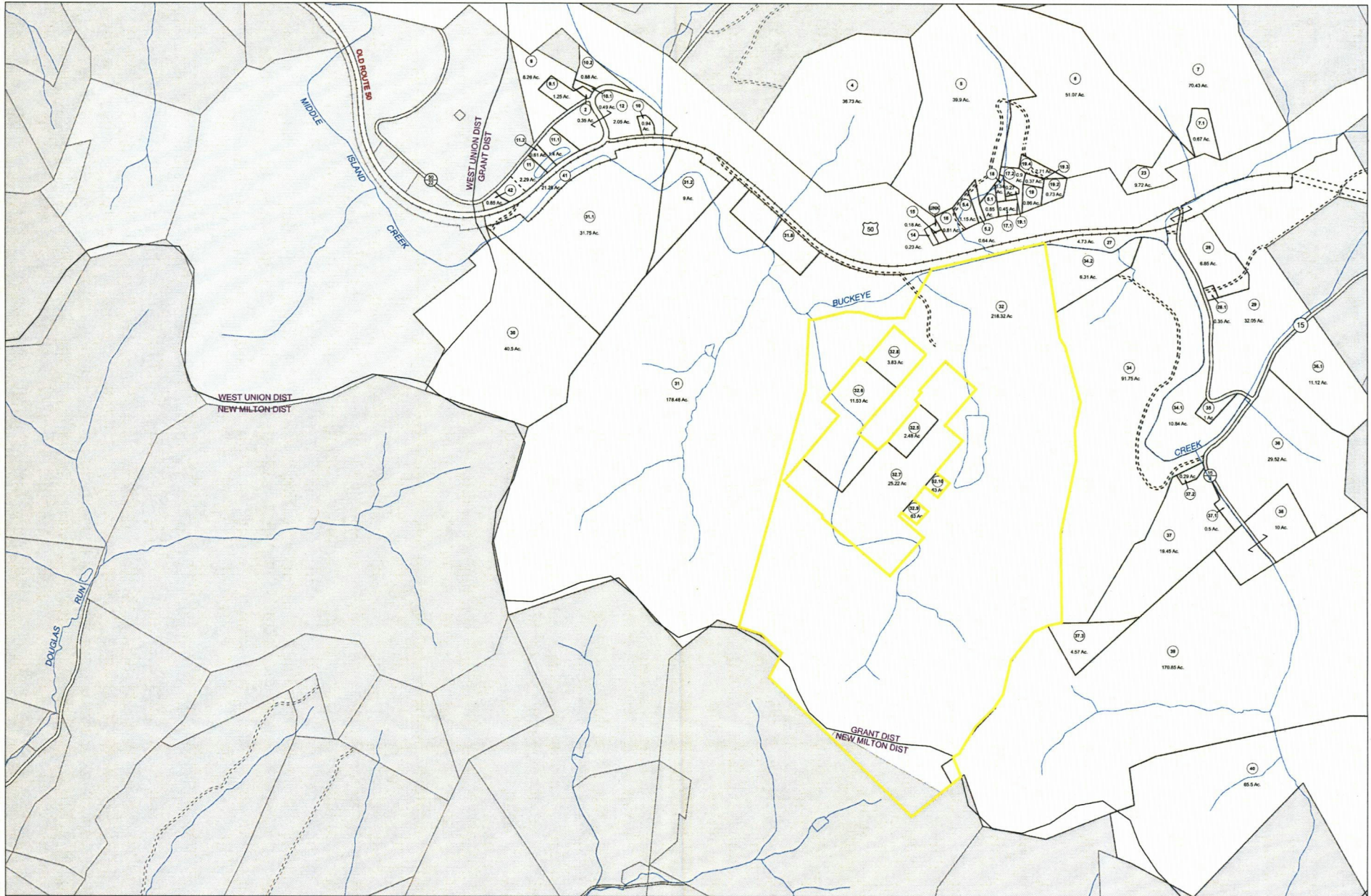
Property Designation:   1   of   2  

<b>Property Owner Data:</b>		
Name of Primary Owner (PO): Sherwood Midstream Holdings LLC		
PO Address: 1515 Arapahoe Street Tower 1		
City: Denver	State: CO	Zip: 80202
PO Primary Phone: N/A		
PO Secondary Phone: N/A		
PO Primary Email: N/A		

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

<b>Mineral Rights Owner Data: (As Applicable)</b>		
Name of Primary Owner (PO): N/A		
PO Address: N/A		
City: N/A	State: N/A	Zip: N/A
PO Primary Phone: N/A		
PO Secondary Phone: N/A		
PO Primary Email: N/A		





	<p><b>FOR TAX PURPOSES ONLY</b></p> <p><b>LANDMARK</b> geospatial</p> <p><small>A Division of LANDMARK Systems LLC</small></p>	<p><b>Legend</b></p> <p>----- District Boundary</p> <p>----- Precinct Line</p> <p>----- Parcel</p> <p>----- Road</p> <p>----- Water</p> <p>----- Other</p>	<p><b>Restriction</b></p> <p>198</p> <p>199</p> <p>200</p> <p>201</p> <p>202</p> <p>203</p> <p>204</p> <p>205</p> <p>206</p> <p>207</p> <p>208</p> <p>209</p> <p>210</p> <p>211</p> <p>212</p> <p>213</p> <p>214</p> <p>215</p> <p>216</p> <p>217</p> <p>218</p>	<p><b>Revisions</b></p> <p>1 LANDMARK 09/01/2016 10</p> <p>2 11</p> <p>3 12</p> <p>4 13</p> <p>5 14</p> <p>6 15</p> <p>7 16</p> <p>8 17</p> <p>9 18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p> <p>26</p> <p>27</p> <p>28</p> <p>29</p> <p>30</p> <p>31</p> <p>32</p> <p>33</p> <p>34</p> <p>35</p> <p>36</p> <p>37</p> <p>38</p> <p>39</p> <p>40</p>	<p>08-16-16</p> <p>08-17-16</p> <p>08-18-16</p> <p>08-19-16</p> <p>08-20-16</p> <p>08-21-16</p> <p>08-22-16</p> <p>08-23-16</p> <p>08-24-16</p> <p>08-25-16</p> <p>08-26-16</p> <p>08-27-16</p> <p>08-28-16</p> <p>08-29-16</p> <p>08-30-16</p> <p>08-31-16</p>	<p><b>DODDRIDGE COUNTY</b></p> <p><b>GRANT</b></p> <p>Assessor's Office</p> <p>David E. Sponaugle, Assessor</p> <p>WEST UNION, WV</p>	<p>District 03 Map No. 19</p> <p>Date of Publication: 02/01/2018</p> <p>Scale: 1"=400'</p>
		<p><b>REPRODUCTION OF TAX MAPS PROHIBITED</b></p> <p>It is unlawful to copy, photograph, scan, photograph, or otherwise reproduce the tax maps. Permission to the provisions of W.Va. Code § 18B-5-5 (2013) no person may reproduce, copy, distribute or sell copies of tax maps prepared by the counties without having first obtained the written permission of the Doddridge County Assessor. In addition to other penalties and civil remedies, any person who, without the written permission of the Doddridge County Assessor, reproduces, copies, distributes, or sells or who allows any other person to reproduce, copy, distribute or sell of tax maps prepared by the Doddridge County Assessor, shall be held liable for the Doddridge County Assessor or Assessor's agent to purchase tax maps in the future.</p>					



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.*

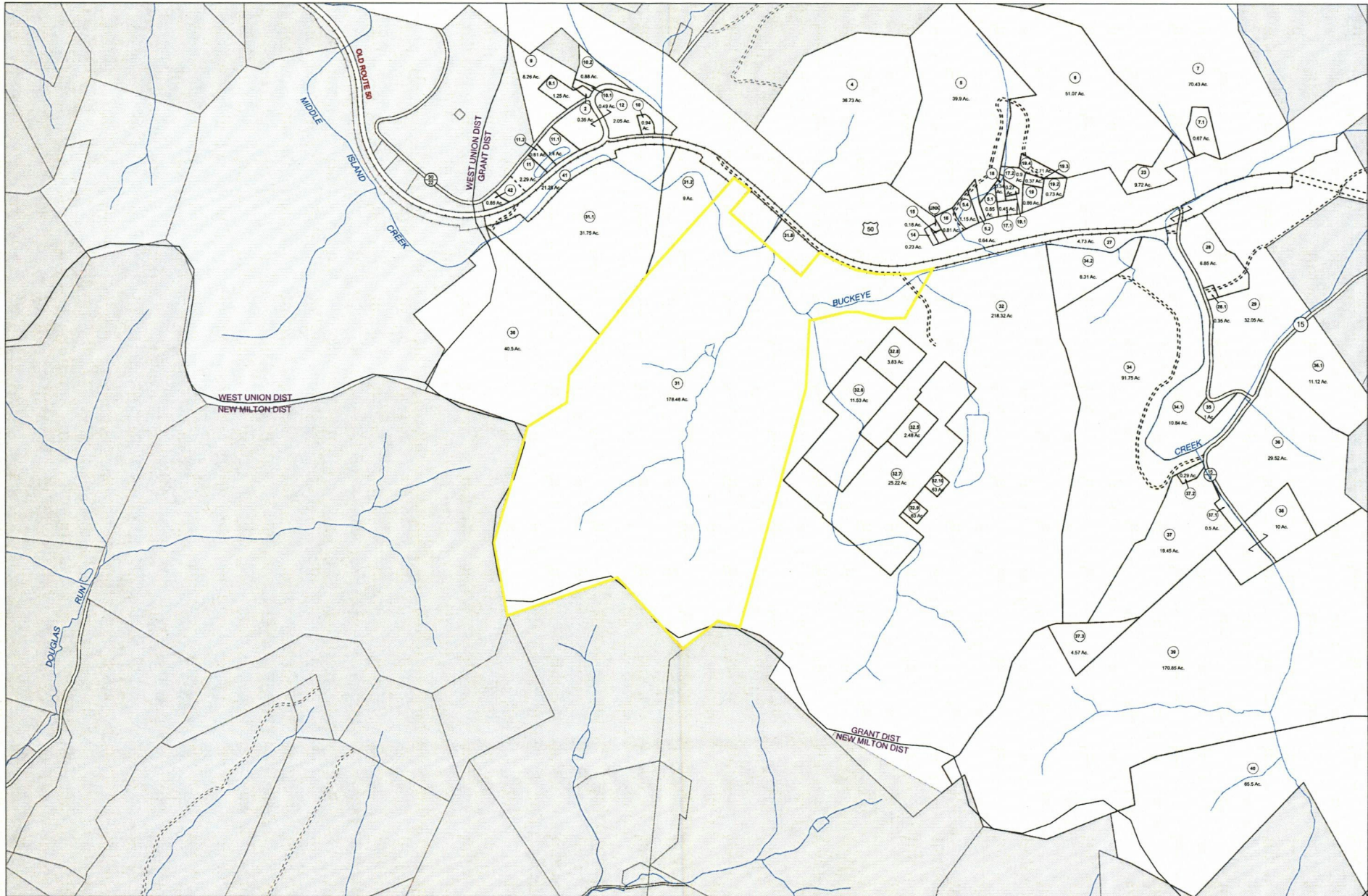
Property Designation:   2   of   2  

<b>Property Owner Data:</b>		
Name of Primary Owner (PO): D&M Powell LLC		
PO Address: 304 Stuart Street		
City: West Union	State: WV	Zip: 26456
PO Primary Phone: N/A		
PO Secondary Phone: N/A		
PO Primary Email: N/A		

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

<b>Mineral Rights Owner Data: (As Applicable)</b>		
Name of Primary Owner (PO): N/A		
PO Address: N/A		
City: N/A	State: N/A	Zip: N/A
PO Primary Phone: N/A		
PO Secondary Phone: N/A		
PO Primary Email: N/A		





<p><b>FOR TAX PURPOSES ONLY</b> <b>LANDMARK geospatial</b></p>	<p><b>Legend</b></p> <ul style="list-style-type: none"> <li>--- District Boundary</li> <li>--- Parcel or Lot Boundary</li> <li>--- Physical Data</li> <li>--- Property</li> <li>--- Road Easement</li> <li>--- National Right of Way</li> <li>--- Road Right of Way</li> <li>--- Water</li> </ul>	<p><b>Restriction</b></p> <p>Reproduction of tax maps prohibited. It is unlawful to copy, photograph, scan, photograph, or otherwise reproduce the tax maps. Pursuant to the provisions of W.Va. Code § 18B-5-5 (2012) no person may reproduce, copy, distribute or sell copies of tax maps prepared by the assessor without having first obtained the written permission of the Doddridge County Assessor. In addition to other penalties and civil remedies, any person who, without the written permission of the Doddridge County Assessor, reproduces, copies, distributes, or sells or who allows the reproduction, copying, distribution or sale of tax maps prepared by the Doddridge County Assessor, shall be held liable to the Doddridge County Assessor or Assessor's agent to purchase tax maps in the future.</p>	<p><b>Revisions</b></p> <table border="1"> <tr> <td>1</td> <td>LANDMARK</td> <td>09/01/2016</td> <td>10</td> <td>19</td> <td>28</td> </tr> <tr> <td>2</td> <td></td> <td></td> <td>11</td> <td>20</td> <td>29</td> </tr> <tr> <td>3</td> <td></td> <td></td> <td>12</td> <td>21</td> <td>30</td> </tr> <tr> <td>4</td> <td></td> <td></td> <td>13</td> <td>22</td> <td>31</td> </tr> <tr> <td>5</td> <td></td> <td></td> <td>14</td> <td>23</td> <td>32</td> </tr> <tr> <td>6</td> <td></td> <td></td> <td>15</td> <td>24</td> <td>33</td> </tr> <tr> <td>7</td> <td></td> <td></td> <td>16</td> <td>25</td> <td>34</td> </tr> <tr> <td>8</td> <td></td> <td></td> <td>17</td> <td>26</td> <td>35</td> </tr> <tr> <td>9</td> <td></td> <td></td> <td>18</td> <td>27</td> <td>36</td> </tr> </table>	1	LANDMARK	09/01/2016	10	19	28	2			11	20	29	3			12	21	30	4			13	22	31	5			14	23	32	6			15	24	33	7			16	25	34	8			17	26	35	9			18	27	36	<p><b>DODDRIDGE COUNTY GRANT</b> Assessor's Office David E. Sponaugle, Assessor WEST UNION, WV</p>	<p>District 03 Map No. 19 Date of Publication: 02/01/2018 Scale: 1"=400'</p>
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Doddridge County Commercial/Industrial  
Floodplain Development Permit Application

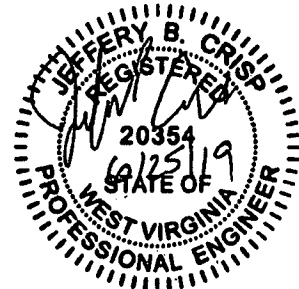
**Contractor Data:**

*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:**   1   of   1  

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

<b>Engineer Firm Information:</b>		
Engineer Firm Name: Kleinfelder, Inc.		
Engineer WV License Number: 20354 (Jeff Crisp)		
Engineer Firm FEIN: 94-1532513	Engineer Firm DUNS: N/A	
Engineer Firm Primary Point of Contact (POC): Matt Albright		
Engineer Firm Primary POC Title: Project Manager		
Engineer Firm Mailing Address: 51 Dutilh Rd., Suite 240		
City: Cranberry Township	State: PA	Zip- 16066
Engineer Firm Office Phone: (724) 772-7072		
Engineer Firm Primary POC Phone: (609) 947-5296		
Engineer Firm Primary POC E- MALbright@kleinfelder.com		



## Adjacent and/or Affected Landowners Data

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

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

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

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

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

## 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 accessroads)*
10. Location and dimensions of any bridge and/or culvert development into floodplain/floodway.
11. Location and dimensions of any storage yard or facility into the floodplain/floodway.
12. Location of any existing utilities and/or proposed utility placement and/or displacement.
13. Location, dimensions and depth of any existing or proposed fill on site.
14. A survey showing the **existing ground elevations** of at least location on the building site. **ELEVATION NOTE:** All vertical datum will reference either NGVD 29 or NAVD 88. Assumed datum will not be acceptable unless the property is located in an area where vertical datum has not been published. For those areas where vertical datum has not been established, a site plan with contours, elevations using assumed datum, high water marks and existing water levels of sloughs, rivers, lakes or streams and proposed lowest floor elevation.



## Applicant

Please read print name, sign and date below:

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

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

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




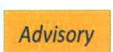

Applicant Printed Name: \_\_\_\_\_



# WV Flood Map



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

<b>HIGH RESOLUTION</b>  1-Percent-Annual-Chance Flood Hazard Area <b>With Base Flood Elevation (BFE)</b>  Regulatory <b>Floodway in AE Zone</b>  1-Percent-Annual-Chance Flood Hazard Area <b>Without BFE</b> (may have Advisory Flood Heights)  1-Percent-Annual-Chance <b>High Risk Advisory</b>	 Flood Info Location <span style="float: right;">Map created on 7/10/2020</span>	
	<b>User Notes</b> <b>Flood Hazard Area</b> Location is <b>WITHIN</b> the FEMA 100-year floodplain. <b>Flood Zone</b> AE <b>Stream</b> Unnamed Tributary 1 to Buckeye Creek <b>Watershed (HUC8)</b> Little Musringum-Middle Island (5030201)	
Download the Full Legend for all flood tool symbols <a href="https://www.mapwv.gov/flood/map/docs/wv_flood_tool_legend.pdf">https://www.mapwv.gov/flood/map/docs/wv_flood_tool_legend.pdf</a>	<b>Flood Height</b> Refer to FIS report for BFE <b>Water Depth</b> <b>Elevation</b> About 816 ft (Source: SAMS 2003)	
<b>Disclaimer:</b> 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 ( <a href="https://www.mapwv.gov/flood">https://www.mapwv.gov/flood</a> ) is supported by FEMA, WV NFIP Office, and WV GIS Technical Center.	<b>Community &amp; ID</b> Doddridge County (ID: 540024) <b>FEMA Map &amp; Date</b> 54017C0145C; Effective Date: 10/4/2011 <b>Location (lat, long)</b> (39.275426, -80.689417) <b>Parcel ID</b> 09-03-0019-0014-0000 <b>E-911 Address</b>	

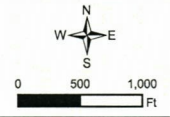


ATTACHMENT B  
SITE PLAN





PROJECT NO.: -  
 DRAWN BY: SMW  
 CHECKED BY: MJA  
 FILE NAME: Smithburg to Sherwood\_LL\_Floodplan



**Doddridge County  
 West Virginia**  
 Aerial Imagery: ESRI

- (3) 12-inch Diameter Steel Natural Gas Liquids Line
- Access Road
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- PEM Wetland
- POW Wetland
- PSS Wetland
- PUB Wetland
- FEMA 100 Year Floodzone
- WV Parcel Boundary

**Attachment B**

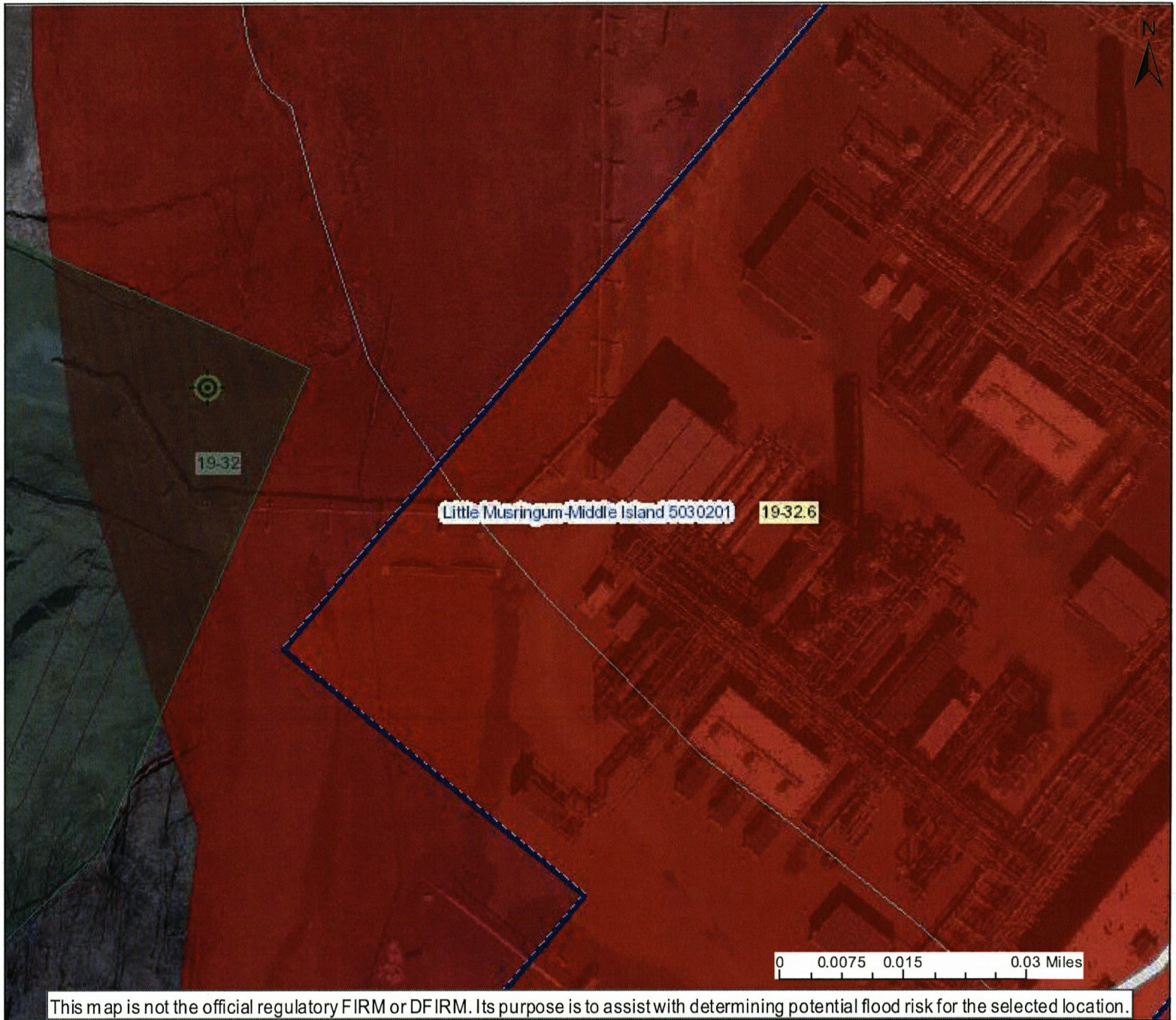
Site Plan  
 Smithburg to Sherwood Liquid Lines  
 MarkWest Liberty Midstream & Resources, LLC

Date: 6/21/2019



ATTACHMENT C  
LOCATION EXHIBIT

# WV Flood Map





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

Map created on 6/24/2019

## Flood Info Location

## User Notes:

-  FEMA Effective Levee-Protec... Area
-  Advisory Zone A or Updated Zone AE

## FEMA Effective Floodplain

-  Floodway
-  Flood Hazard Zone

## Disclaimer:

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

## Flood Hazard Area:

Location is **WITHIN** the FEMA 100-year floodplain.

## Flood Hazard Zone: A

**Stream:** Unnamed Tributary 1 to Buckeye C

**Watershed (HUC8):** Little Musringum-Middle Island (5030201)

**FEMA Flood Map:** 54017C0140CNFHEFF: 10/4/2011

**Elevation:** About 825 ft (Source: SAMS 2003)

**Community Name:** Doddridge County

**Community ID:** 540024

**Location (long, lat):** (-80.689364, 39.275240)

**Parcel ID:** 09-03-0019-0032-0000

**Address:** multiple addresses



# WV Flood Map



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

Map created on 6/19/2019

## Flood Info Location

## User Notes:

-  FEMA Effective Levee-Protec... Area
-  Advisory Zone A or Updated Zone AE

## FEMA Effective Floodplain

-  Floodway
-  Flood Hazard Zone

## Disclaimer:

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

## Flood Hazard Area:

Location is **WITHIN** the FEMA 100-year floodplain.

## Flood Hazard Zone: AE

**Stream:** Buckeye Creek

**Watershed (HUC8):** Little Musringum-Middle Island (5000000000)

**FEMA Flood Map:** 54017C0140CNFHEFF: 10/4/2011

**Elevation:** About 806 ft (Source: SAMS 2003)

**Community Name:** Doddridge County

**Community ID:** 540024

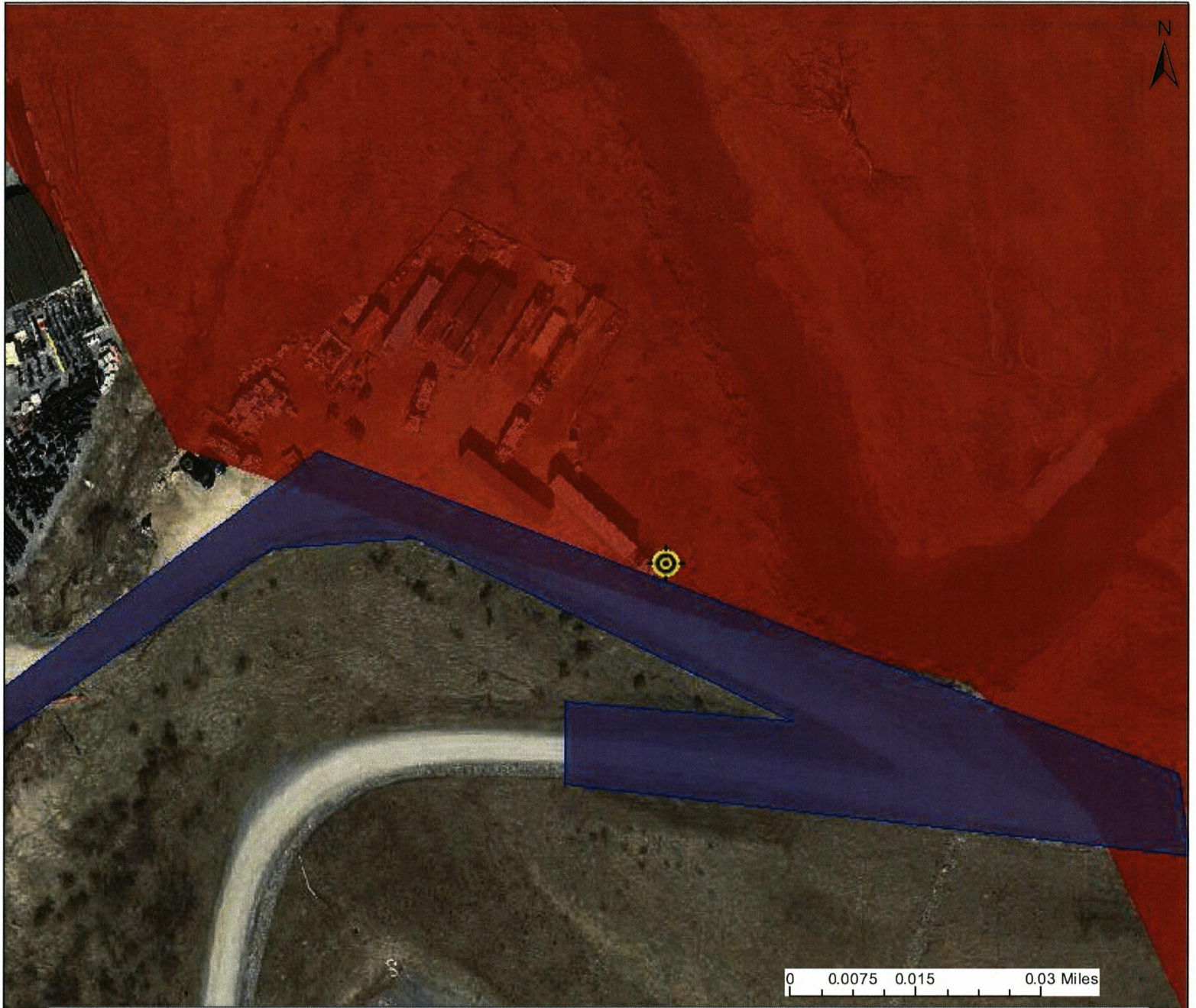
**Location (long, lat):** (-80.689989, 39.276976)

**Parcel ID:** 09-03-0019-0031-0000

**Address:** multiple addresses



# WV Flood Map





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

Map created on 6/19/2019

 Flood Info Location

User Notes:

 FEMA Effective Levee-Protec... Area

 Advisory Zone A or Updated Zone AE

FEMA Effective Floodplain

 Floodway

 Flood Hazard Zone

**Disclaimer:**

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

**Flood Hazard Area:**

Location is **WITHIN** the FEMA 100-year floodplain.

**Flood Hazard Zone:** AE

**Stream:** Buckeye Creek

**Watershed (HUC8):** Little Musringum-Middle Island (50)

**FEMA Flood Map:** 54017C0140CNFHEFF: 10/4/2011

**Elevation:** About 806 ft (Source: SAMS 2003)

**Community Name:** Doddridge County

**Community ID:** 540024

**Location (long, lat):** (-80.690700, 39.277232)

**Parcel ID:** 09-03-0019-0031-0000

**Address:** multiple addresses

ATTACHMENT D  
FEE CALCULATION  
DETAIL SHEETS

**FEE CALCULATION DETAIL SHEET**  
**Smithburg to Sherwood Liquid Lines**

Opinion of Probable Construction Costs - Construction in the Floodplain				
Item	Units	Quantity	Unit Cost	Total Cost
HDD Bore	LF	-	\$ 800.00	\$ -
Erosion Control Blanket	SY	1,485	\$ 2.00	\$ 2,970.00
Silt Fence	LF	-	\$ 3.00	\$ -
Super Silt Fence	LF	387	\$ 7.00	\$ 2,709.00
Wetland and Stream Protection	LS	1	\$ 5,000.00	\$ 5,000.00
Rock Construction Entrance	EA	1	\$ 4,250.00	\$ 4,250.00
<b>Total</b>	-	-	-	<b>\$ 14,929.00</b>

Doddridge County Flood Plain Application Fee Calculator (if in Floodplain)	
Estimated Construction Costs	\$ 14,929.00
Amount over \$100,000	\$ (85,071.00)
Drilling Oil and Gas Well Fee	\$ 1,000.00
\$5 per \$1,000 over \$100,000	\$ -
<b>Amount Due with application</b>	<b>\$ 1,000.00</b>

**ATTACHMENT 3**  
**Original No-Rise Certification**





This is to certify that I am a duly qualified registered professional engineer licensed to practice in the State of West Virginia.

It is further to certify that the attached technical data supports the fact that the proposed Smithburg to Sherwood Liquid Lines Project will not impact the 100-year flood elevations on the Unnamed Tributary 1 to Buckeye Creek or Buckeye Creek at published sections in the Flood Insurance Study for Doddridge County (Community ID 540024) effective 10/04/2011 and will not impact the 100-year flood elevations at unpublished cross-sections in the vicinity of the proposed development.

The project involves the installation of approximately 2.2 miles of three (3) 12-inch diameter steel natural gas liquids lines. No fill is proposed for the project within the floodplain and all grades will be restored to existing conditions once the lines are installed.

Attached are the following documents that support my findings:

Maps of the Project Site from the West Virginia Flood Tool

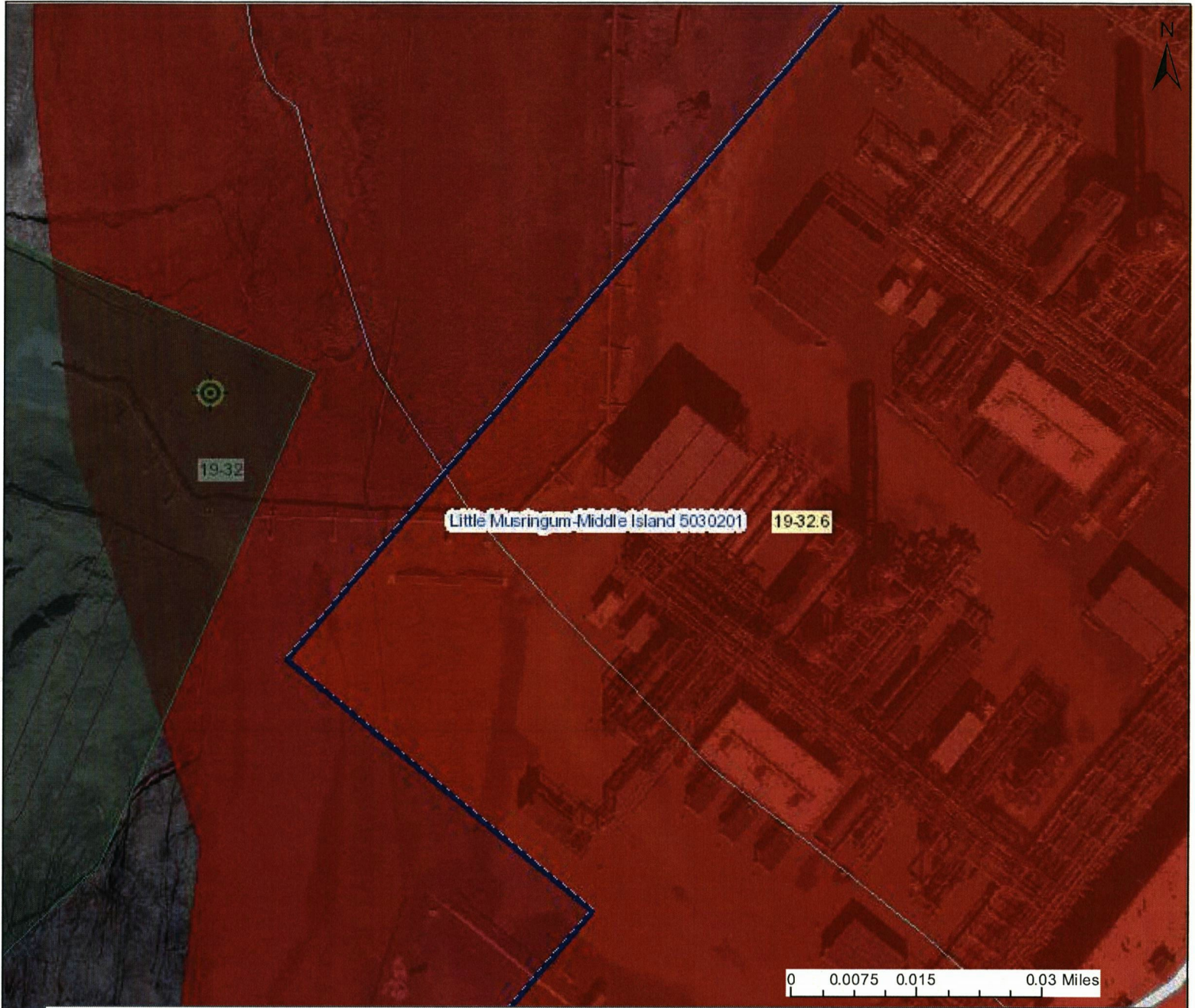
Smithburg to Sherwood Liquid Lines Plan Set dated June 26, 2019, prepared by the Thrasher Group Inc.

Date: 7/1/19  
Signature: [Handwritten Signature]  
Title: Program Manager



# LOCATION EXHIBIT

# WV Flood Map




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


Map created on 6/24/2019

## Flood Info Location

## User Notes:

-  FEMA Effective Levee-Protec... Area
-  Advisory Zone A or Updated Zone AE

## FEMA Effective Floodplain

-  Floodway
-  Flood Hazard Zone

## Disclaimer:

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## Flood Hazard Area:

Location is **WITHIN** the FEMA 100-year floodplain.

## Flood Hazard Zone: A

**Stream:** Unnamed Tributary 1 to Buckeye C

**Watershed (HUC8):** Little Musringum-Middle Island (50

**FEMA Flood Map:** 54017C0140CNFHEFF: 10/4/2011

**Elevation:** About 825 ft (Source: SAMS 2003)

**Community Name:** Doddridge County

**Community ID:** 540024

**Location (long, lat):** (-80.689364, 39.275240)

**Parcel ID:** 09-03-0019-0032-0000

**Address:** multiple addresses



# WV Flood Map



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Map created on 6/19/2019

## Flood Info Location

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-  Advisory Zone A or Updated Zone AE

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-  Flood Hazard Zone

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## Flood Hazard Area:

Location is **WITHIN** the FEMA 100-year floodplain.

**Flood Hazard Zone:** AE

**Stream:** Buckeye Creek

**Watershed (HUC8):** Little Musringum-Middle Island (50)

**FEMA Flood Map:** 54017C0140CNFHEFF: 10/4/2011

**Elevation:** About 806 ft (Source: SAMS 2003)

**Community Name:** Doddridge County

**Community ID:** 540024

**Location (long, lat):** (-80.689989, 39.276976)

**Parcel ID:** 09-03-0019-0031-0000

**Address:** multiple addresses



# WV Flood Map





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Map created on 6/19/2019

## Flood Info Location

## User Notes:

-  FEMA Effective Levee-Protec... Area
-  Advisory Zone A or Updated Zone AE

## FEMA Effective Floodplain

-  Floodway
-  Flood Hazard Zone

## Disclaimer:

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

## Flood Hazard Area:

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Stream: Buckeye Creek

Watershed (HUC8): Little Musringum-Middle Island (50)

FEMA Flood Map: 54017C0140CNFHEFF: 10/4/2011

Elevation: About 806 ft (Source: SAMS 2003)

Community Name: Doddridge County

Community ID: 540024

Location (long, lat): (-80.690700, 39.277232)

Parcel ID: 09-03-0019-0031-0000

Address: multiple addresses

# DESIGN PLANS



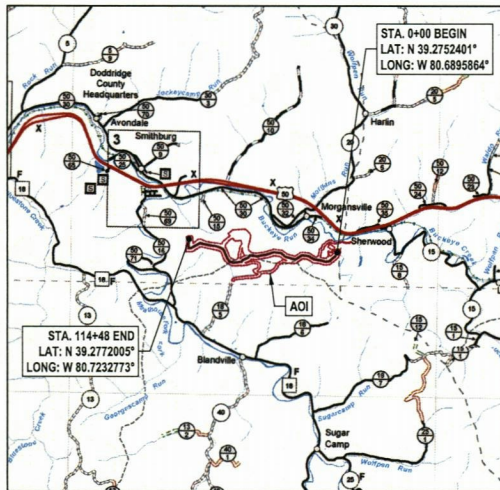
# MARATHON PETROLEUM LOGISTICS (MPLX) / MARKWEST

## ISSUED FOR PERMITTING PLANS FOR THE SMITHBURG TO SHERWOOD LIQUID LINES

### 3 - 12" PIPELINES AFE #LBTY190003

### 101-050-10095

### DODDRIDGE COUNTY, WEST VIRGINIA JUNE 2019



VICINITY MAP  
FULL SCALE: 1"=4,000'  
HALF SCALE: 1"=8,000'



## CONFIDENTIAL BUSINESS INFORMATION

### PLAN REPRODUCTION WARNING

THESE PLANS ARE INTENDED TO BE PLOTTED ON ANS 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.

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### EXISTING INFORMATION SOURCES

BASE CONTOUR DATA PROVIDED BY OTHERS.

ROUTE INFORMATION AND LOCATION PROVIDED BY MARATHON PETROLEUM LOGISTICS (MPLX) / MARKWEST.

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>)

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

**MARKWEST**  
Energy Partners, L.P.

PHONE: (303) 925-9200 | FAX: (303) 290-8769  
1515 ARAPAHOE STREET, TOWER 1, SUITE 1600  
DENVER, CO 80202

**MPLX**

PHONE: (419) 672-6500  
200 EAST HARDIN STREET  
FINDLAY, OH 45840

ALIGNMENT SHEETS PREPARED BY

**THRASHER**

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

THIS PLAN SET DEPICTS THE NECESSARY INFORMATION FOR EROSION AND SEDIMENT CONTROL MEASURES AS REQUIRED BY THE WVDOT FOR STORM WATER PERMITTING PURPOSES.

THE AQUATIC RESOURCES DEPICTED ON THESE DRAWINGS ARE AS PROVIDED TO THE THRASHER GROUP, INC. BY OTHERS. THRASHER WILL NOT ACCEPT ANY LIABILITY FOR THE ACCURACY, OR COMPLETENESS, OF THE AQUATIC RESOURCES DEPICTED ON THESE PLANS.



*D E Ferrell*  
DANIEL E. FERRELL, WV P.E. # 13462

ISSUED FOR PERMITS

DATE: 6/26/2019

BY: *DE*



**WVDOH GENERAL NOTES**

- ALL CONSTRUCTION ON THE DIVISION OF HIGHWAYS RIGHT OF WAY WILL CONFORM TO THE FOLLOWING:
- THE FOLLOWING NOTES APPLY TO ALL PLAN SHEETS:
    - ALL METER SETTINGS ACROSS PAVED ROADS SHALL BE BORED OR NQLED, UNLESS OPEN CUT HAS BEEN APPROVED BY W.V.D.O.H. AND SPECIFICALLY INDICATED ON PLANS.
    - 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.
    - BEDDING SHALL BE PLACED ON ASPHALT SURFACE TO PROTECT THE PAVEMENT WHEN A TRENCHER OR TRACKED VEHICLE IS USED.
    - 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 SPECIFICATIONS AND WILL BE ADHERED TO BY THE CONTRACTOR.
    - ALL DAMAGE TO ROAD SURFACE SHALL BE REPAIRED ACCORDING TO THE WEST VIRGINIA DIVISION OF HIGHWAYS STANDARD SPECIFICATIONS AND DETAILS.
    - 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.
    - TRAFFIC CONTROL SHALL CONFORM TO THE W.V.D.O.H. PUBLICATION "TRAFFIC CONTROL FOR STREET AND HIGHWAY CONSTRUCTION AND MAINTENANCE" OPERATION LATEST EDITION.
    - 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.
    - UTILITY LINES SHALL BE PLACED EITHER AROUND, UNDER OR OVER DRAINAGE CULVERTS AS SHOWN ON PLANS.
    - 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.
    - MAGNETIC MARKING TAPE SHALL BE INSTALLED AT A DEPTH OF 12" TO 18" BELOW THE SURFACE AND DIRECTLY ABOVE ALL LINES OR PIPE.
    - 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.
    - 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.
    - ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED WITHIN SEVEN DAYS OF COMPLETION OF BACK FILL OPERATION.
    - 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.
    - THE W.V.D.O.H. RESERVES THE RIGHT TO RELOCATE WATERLINES, FIRE HYDRANTS, AND VALVES AS DEEMED NECESSARY.
    - 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.
    - 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.
    - 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.
    - ALL ELEVATION GRADES AND DISTANCES SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE PRIOR TO CONSTRUCTION.
    - ALL CONSTRUCTION SHALL MAINTAIN 5' FROM EDGE OF PAVEMENT OR BOTTOM OF DITCH UNLESS NO OTHER PRACTICAL MEANS OF CONSTRUCTION EXISTS.
    - PERFORM ACCEPTABLE REPAIR OF ANY AND ALL SUB-BASE FAILURES THAT ARE CAUSED BY THE CONTRACTOR'S OPERATION ON A DAILY BASIS.
    - PERFORM TOTAL REPAIR AND/OR REPLACEMENT OF ANY DAMAGED ASPHALT SURFACE AS DETERMINED BY THE W.V.D.O.H. REPRESENTATIVE.
    - PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL MAKE A COMPLETE VIDEO SHOWING THE ROAD SURFACE OF ALL ROADS TO BE UTILIZED AND PRESENT IT TO THE UTILITY SUPERVISOR W.V.D.O.H.
    - REMOVE DITCH-LINE OBSTACLES AND/OR RECONSTRUCTION OF THE DITCH-LINE.
    - 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.
    - 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.
    - 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.
    - 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 AREA**

**MISS UTILITY**  
1-800-245-4848  
CONTRACTOR MUST CONTACT 811 BEFORE CONSTRUCTION

**WEST VIRGINIA DIVISION OF HIGHWAYS**  
WVDOH DIST #6  
1 DOT DRIVE  
MOUNDSVILLE, WV 26041-1605  
(304) 843-4000  
(304) 843-4085 FAX  
JOSH NORRIS - UTILITY SUPERVISOR - CROSSINGS  
SHARON FLUHARTY - ENCROACHMENT 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  
KAY OIL COMPANY  
1-304-269-7102  
(GREG KELLY) 1-304-588-7610  
RITCHEE 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**  
NON POWER  
1-800-686-0022

**CABLE**  
AT&T  
1-304-216-4100

**SEWER**  
NO PUBLIC SEWER IN WORK AREA

**WATER**  
NO PUBLIC WATER IN WORK 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

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**GENERAL NOTES**

- 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.
- 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.
- ALL PERMITS MUST BE SECURED PRIOR TO CONSTRUCTION.
- 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.
- ALL PROPOSED PERMANENT FILL TO BE FILLED WITH STONE, NATURAL ROCK, OR A 20" CULVERT TO BE INSTALLED TO MAINTAIN STREAM FLOW.
- ALL WOOD ROAD CROSSINGS TO BE CONSTRUCTED USING AN OPEN CUT CROSSING METHOD UNLESS OTHERWISE SPECIFIED ON THE PLANS. WOOD TO BE NOTIFIED AT LEAST 48 HOURS PRIOR TO ANY WORK WITHIN WOOD R/W.
- ALL CONSTRUCTION TO BE DONE IN THE PROPOSED PIPELINE LIMITS OF DISTURBANCE AS SHOWN.
- ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE STANDARDS AND SPECIFICATIONS PROVIDED IN A SEPARATE BOUND VOLUME.
- CONTRACTOR SHALL FIELD VERIFY EXISTING PIPE TYPES AND O.D. PRIOR TO CONNECTION.
- 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**

- 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/DWMW/STORMWATER/BMP/INDEX.HTML](https://apps.dep.wv.gov/dwmw/stormwater/bmp/index.html)
- EROSION AND SEDIMENT CONTROL MEASURES HAVE BEEN SHOWN ON PLANS AND DETAILED IN SPECIFICATIONS.
- EXPOSED SOILS SHALL BE STABILIZED BY APPLICATION OF EFFECTIVE BMPs THAT PROTECT THE SOIL FROM THE EROSIIVE FORCES OF RAINDROPS, FLOWING WATER, AND WIND.
- CLEARING AND GRUBBING IS TO OCCUR IN THE NOTED LIMITS OF DISTURBANCE (L.O.D.) ONLY.
- 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.
- FOR AREAS INSIDE TMDL WATERSHED, 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 FOURTH DAY AFTER CONSTRUCTION ACTIVITY OR 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.
- 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.
- 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.
- EROSION AND SEDIMENT CONTROLS BMPs SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN (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. WDOEP HAS SUGGESTED THAT RAIN GAUGES WILL BE LOCATED AT ALL WORK TRAILERS AND THROUGHOUT THE WORK AREA TO MONITOR AND RECORD DAILY RAINFALL EVENTS FOR WORK AREAS LOCATED WITHIN A TMDL WATERSHED. LINEAR WORK DOES NOT NECESSARILY HAVE SPECIFIC WORK TRAILER LOCATIONS. MARATHON PETROLEUM LOGISTICS (MPLX) / MARKWEST HAS ONLINE ACCESS TO SEVERAL RAIN GAUGE LOCATIONS IN THE GENERAL AREA OF EACH WORK LOCATION. THIS DATA WILL BE MONITORED AND USED BY INSPECTION PERSONNEL. USE OF ONLINE WEATHER TRACKING TOOLS MAY BE UTILIZED. RAINFALL DATA WILL BE RECORDED ON INSPECTION RECORDS.

**CONSTRUCTION SEQUENCE OF EVENTS**

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

**LEGEND / ABBREVIATIONS**

- EXISTING PIPELINE VENT
- EXISTING GAS WELL (AS NOTED)
- EXISTING GAS METER
- EXISTING PIPELINE MARKER
- EXISTING GAS VALVE
- EXISTING MONUMENT FOUND (AS NOTED)
- EXISTING UTILITY POLE
- EXISTING PIPELINE
- EXISTING WATER LINE
- EXISTING FENCE
- EXISTING OVERHEAD UTILITY
- EXISTING UNDERGROUND UTILITY
- EXISTING TELEPHONE
- EXISTING UNPAVED ROAD
- EXISTING PAVED ROAD
- PROPERTY LINE
- DOH RIGHT-OF-WAY LINE
- PROPOSED PERMANENT RIGHT-OF-WAY
- PROPOSED CONSTRUCTION RIGHT-OF-WAY / LIMITS-OF-DISTURBANCE
- COMPRESSOR WELLS PAD LIMITS-OF-DISTURBANCE
- PRO. MARATHON PETROLEUM LOGISTICS (MPLX) / MARKWEST BASELINE
- PRO. MARATHON PETROLEUM LOGISTICS (MPLX) / MARKWEST GAS LINE
- PRO. MARATHON PETROLEUM LOGISTICS (MPLX) / MARKWEST WATER LINE
- EXISTING GROUND PROFILE
- PROPOSED PIPELINE PROFILE
- CONTOUR
- AREA-OF-INTEREST
- PROPOSED TYPE A BMP (SEE TABLE ON SHEET 19)
- PROPOSED TYPE B BMP (SEE TABLE ON SHEET 19)
- PROPOSED TYPE C BMP (SEE TABLE ON SHEET 19)
- PROPOSED RIGHT-OF-WAY DIVERSION (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 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
- PIPELINE MILE POST
- PROPOSED RIGHT-OF-WAY DIVERSION (PROFILE)
- PROPOSED EARTH TRENCH BREAKER (PROFILE)
- PROPOSED TRENCH PUGH DRAIN (PROFILE)
- PROPOSED GAS LINE MARKER
- PROPOSED TEST STATION
- PROPOSED ANODE
- PROPOSED RECTIFIER
- PROPOSED INSULATION KIT
- PROPOSED AC COUPON
- PARCEL IDENTIFICATION
- \*LEGEND IS TYPICAL. NOT ALL ITEMS IN LEGEND APPEAR IN DRAWING.
- PROPOSED 20' CONSTRUCTION RIGHT-OF-WAY LIMITS-OF-DISTURBANCE
- CONSTRUCTION R/W LIMITS-OF-DISTURBANCE
- PROPOSED CORRIDOR
- CONSTRUCTION R/W LIMITS-OF-DISTURBANCE

PLOT DATE/TIME: 6/26/2019 3:37 PM  
 USER: robert.j.burke  
 LAYOUT FILE: D:\DWG\10085\Markwest\Drawings\Drawing\PLANS\GENERAL NOTES SHEETS.dwg

**THRASHER**  
**IFP**  
ISSUED FOR PERMITTING  
DATE: 06/26/2019  
AFE # LBTY190003

SUMMARY OF MATERIALS (3D)		SUMMARY OF MATERIALS (3D)		GENERAL INFORMATION	
RECP	ROLLED EROSION CONTROL PRODUCT	186,432 SY		1.	FIELD DELINEATION PERFORMED AND PROVIDED BY KLEINFELDER, INC.
T-A	TYPE A BMP	21,134 LF		2.	THIS SHEET IS INTENDED TO BE PLOTTED ON A18 (24" x 36") FOR REDUCTIONS, REFER TO GRAPHIC SCALE.
T-B	TYPE B BMP	8,080 LF		3.	PIPE LENGTHS BASED OFF OF PROPOSED BASELINE OF CORRIDOR. LENGTHS SHOWN ARE PER PIPE, NOT THE TOTAL OF ALL 3 LINES.
OSF	ORANGE SAFETY FENCE	1,042 LF		4.	QUANTITIES ARE BASED OFF OF DELINEATION COMPLETED IN 2017. THE AREA IS BEING RE-DELINEATED FOR THE PROJECT AND QUANTITIES WILL BE UPDATED ACCORDINGLY.
TB	EARTH TRENCH BREAKERS	83	NO.		
RWD	RIGHT-OF-WAY DIVERSIONS	68	NO.		
<b>REVISION</b>					
		1	REVISED PER COMMENTS FROM KLEINFELDER & MARKWEST	06/26/19	R.A.
		2	REVISED PER COMMENTS FROM KLEINFELDER, MARKWEST, & THRASHER	06/26/19	R.A.
NO.	DESCRIPTION	QTY	NO.	DESCRIPTION	DATE BY

**MPLX MARKWEST**  
Energy Partners, L.P.

**SMITHBURG TO SHERWOOD LIQUID LINES GENERAL NOTES**  
3 - 12" PIPELINES

DODDRIDGE COUNTY, WEST VIRGINIA

SHEET 02  
SHT. NAME: 050-10095\SSLL\GNOTS [REV. 2]



**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 DISPOSE OF ALL STUMPS, ROOTS AND LIMBS 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 FRESH 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 48 IN. MINIMUM COVER IN SOIL AND 36 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 JUSTICES 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 USUABLE.

**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 ORCLE 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 PRACTICABLE 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. POSITIONING 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**

**DRY 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.

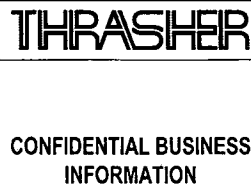
THE RIGHT-OF-WAY SHALL BE DISKED, LIMED, SEEDED AND FERTILIZED DURING THE CLEAN-UP OPERATION. THE CONTRACTOR SHALL FURNISH THE LIME, SEED AND FERTILIZER. SEEDING, FERTILIZING AND MULCHING MUST BE DONE WITHIN 8 DAYS OF FINAL CLEAN UP OR IN ACCORDANCE WITH COMPANY ENVIRONMENTAL REQUIREMENTS.

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

\*SHOULD ANY DISCREPANCIES BETWEEN THE SPECIFICATIONS IN THESE SPECIFICATIONS AND SPECIFICATIONS LISTED IN THE MARKWEST MANUAL, THE MARKWEST MANUAL WILL BE ADHERED TO UNLESS DIRECTED OTHERWISE BY THE MARKWEST PROJECT MANAGER OR THEIR REPRESENTATIVES.

PLOT DATE/TIME: 8/28/2019 3:37 PM

USER: robert.j.kucera



**IFP**

ISSUED FOR PERMITTING

DATE: 06/26/2019

AFE # LBTY190003

**SUMMARY OF MATERIALS (3D)**

NO.	DESCRIPTION	QTY	NO.	DESCRIPTION	DATE BY

**SUMMARY OF MATERIALS (3D)**

NO.	DESCRIPTION	QTY	NO.	DESCRIPTION	DATE BY

**REVISION**

NO.	DESCRIPTION	DATE BY
1	REVISED PER COMMENTS FROM KLEINFELDER & MARKWEST	8/29/19 JAL
3	REVISED PER COMMENTS FROM KLEINFELDER, MARKWEST, & THRASHER	8/29/19 JAL

**GENERAL INFORMATION**

1. FIELD DELINEATION PERFORMED AND PROVIDED BY KLEINFELDER, INC.
2. THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (24" x 36") FOR REFLECTIONS, REFER TO GRAPHIC SCALE.
3. PIPE LENGTHS BASED OFF OF PROPOSED BANKS OF CONCRETE. LENGTHS SHOWN ARE PER PIPE, NOT THE TOTAL OF ALL 3 LINES.
4. QUANTITIES ARE BASED OFF OF DELINEATION COMPLETED IN 2017. THE AREA IS BEING RE-DEVELOPED FOR THE PROJECT AND QUANTITIES WILL BE UPDATED ACCORDINGLY.



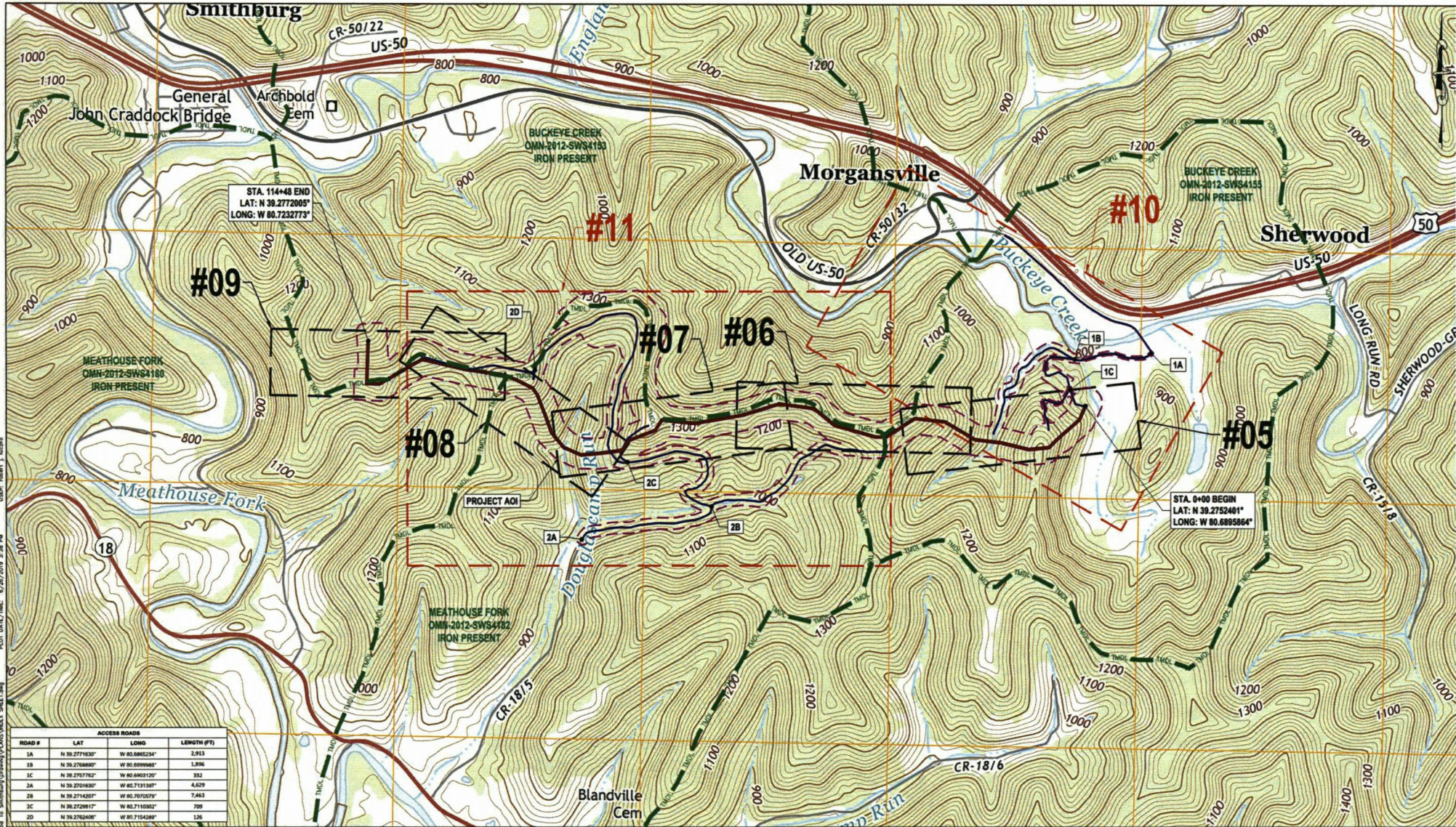
**SMITHBURG TO SHERWOOD LIQUID LINES GENERAL CONSTRUCTION SPECS**

3 - 12" PIPELINES

DODDRIIDGE COUNTY, WEST VIRGINIA

DATE: 8/28/2019 3:37 PM	SCALE: AS SHOWN	SHEET 03
DRAWN BY: JAL	CHECKED BY: JAL	DATE: 8/29/19
SHT. NAME: 050-10095\SSLL\SPCS		REV. 2





STA. 114+48 END  
LAT: N 39.2772095°  
LONG: W 80.7232773°

STA. 0+00 BEGIN  
LAT: N 39.2752401°  
LONG: W 80.6895864°

ROAD #	LAT	LONG	LENGTH (FT)
2A	N 39.2774930°	W 80.6892247°	2,813
1B	N 39.2768800°	W 80.6899880°	1,896
3C	N 39.2757762°	W 80.6903129°	332
3A	N 39.2765830°	W 80.7131907°	4,629
2B	N 39.2742007°	W 80.7070579°	7,463
2C	N 39.2728817°	W 80.7110202°	709
2D	N 39.2726208°	W 80.7154288°	126

**THRASHER**

**IFP**  
ISSUED FOR PERMITTING

DATE: 06/26/2019

AFE # LBTY190003

**CONFIDENTIAL BUSINESS INFORMATION**

**THRASHER**

**IFP**  
ISSUED FOR PERMITTING

DATE: 06/26/2019

AFE # LBTY190003

SUMMARY OF MATERIALS (3D)		
NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)		
NO.	DESCRIPTION	QTY

GENERAL INFORMATION		
NO.	DESCRIPTION	QTY
1	REVISION PER COMMENTS FROM KLEINFELDER & MARKWEST	06/25/19 R.A.
2	REVISION PER COMMENTS FROM KLEINFELDER, MARKWEST, & THRASHER	06/25/19 R.A.

**MPLX MARKWEST**  
Energy Partners, L.P.

**SMITHBURG TO SHERWOOD LIQUID LINES INDEX SHEET**

3 - 12" PIPELINES

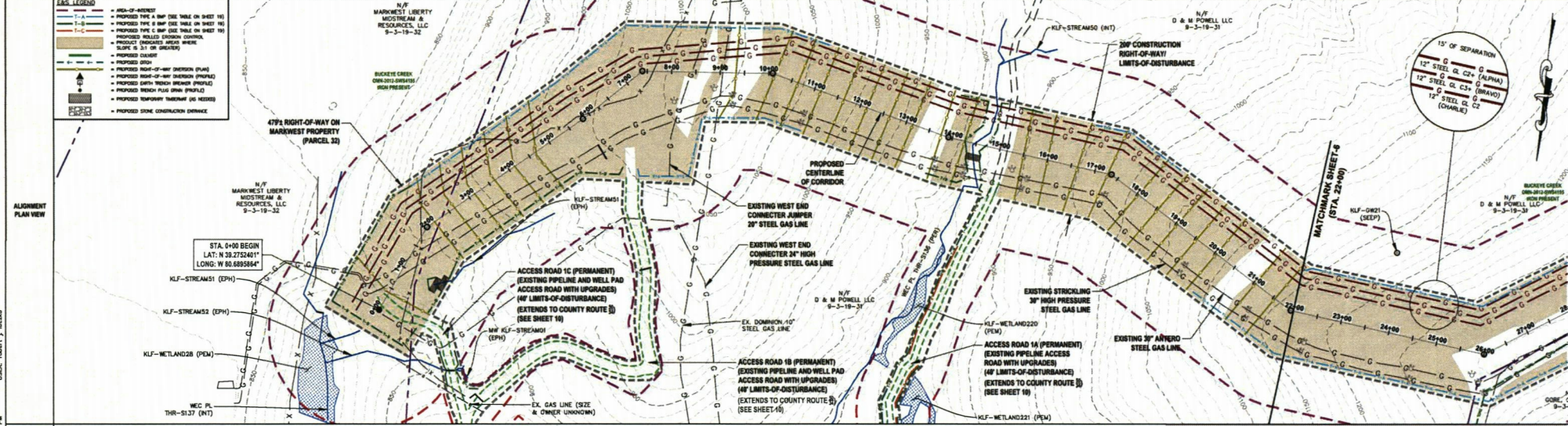
DODDORGE COUNTY, WEST VIRGINIA

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SCALE: AS SHOWN  
PROJECT: 19-0003  
SHEET: 04  
SHT. NAME: 050-10095\SSLL\INDEX REV. 2

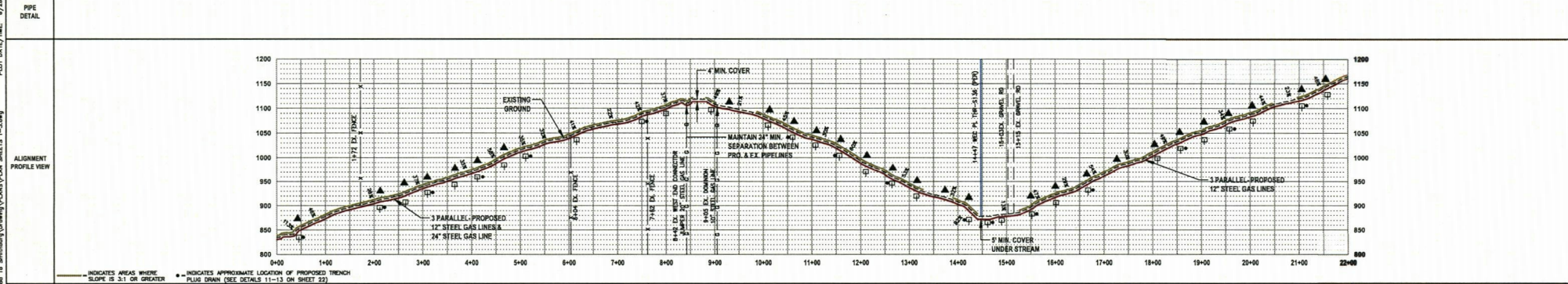
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 USER: robert.j.nozdr



OWNER/SHIP, PARCEL NO. & LENGTH (FT) OF PIPE	DIST.	MARKWEST LIBERTY MIDSTREAM & RESOURCES, LLC 9-3-19-32 HORIZ. DIST. = 232'± SLOPE DIST. = 250'±	2432	D & M POWELL, LLC 9-3-19-31 HORIZ. DIST. = 1,844'± SLOPE DIST. = 2,129'±	2500
P.I. REFLECTION ANGLES	01:00	14:72 EX. FENCE	21:11:44 ANGLE 29° RT	22:13:47 ANGLE 07° LT	22:14:00



DESIGN CLASS	LOCATION
PIPE	DETAIL



**THRASHER**

**IFP**  
ISSUED FOR PERMITTING

DATE: 06/26/2019  
AFE # LBTY190003

**CONFIDENTIAL BUSINESS INFORMATION**

SUMMARY OF MATERIALS (3D)		SUMMARY OF MATERIALS (3D)	
NO.	DESCRIPTION	QTY	NO.
NO. 1	ROLLED EROSION CONTROL PRODUCT	43,317 SY	NO. 1
T-A	TYPE A BMP	1,848 LF	NO. 2
T-B	TYPE B BMP	1,848 LF	NO. 3
T-C	TYPE C BMP	D LF	NO. 4
TB	EARTH TRENCH BREAKERS	32	NO. 5
RWD	RIGHT-OF-WAY DIVERSIONS	28	NO. 6

REVISION		DATE	BY
1	REVISED PER COMMENTS FROM KLEINFELDER & MARKWEST	06/26/19	J.S.L.
2	REVISED PER COMMENTS FROM KLEINFELDER, MARKWEST, & THRASHER	06/26/19	J.S.L.

GENERAL INFORMATION	
1. FIELD DELINEATION PERFORMED AND PROVIDED BY KLEINFELDER, INC.	4. SEE SHEETS 19 & 20 REGARDING WATERWAY MATERIALS AND DIVICES TO BE INSTALLED ON ACCESS ROADS.
2. COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY: HORIZONTAL - NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE; U.S. SURVEY FOOT. VERTICAL - NAVD 83 (GEOIDAL), U.S. SURVEY FOOT.	7. ALL SHEET BARRIERS EXCLUDING ALIGNMENT PLAN VIEW REFERENCE THE ALIGNMENT PROFILE VIEW.
3. ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE POINTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED WITHIN THE POINTED CORRIDOR. THE CORRIDOR WILL BE CORRECTED IN THE FIELD BY MARKWEST PETROLEUM LOGISTICS (MPL) / MARKWEST CONSTRUCTION REPRESENTATIVE.	8. THIS SHEET IS DESIGNED TO BE PLOTTED ON A8D (31" X 34") FOR INDICATIONS REFER TO GRAPHIC SCALE.
4. THE BOUNDARY MARKERS BOUNDARY AND PROPERTY LINES SHOWN ON THIS DRAWING WERE OBTAINED FROM PARTIAL FIELD SURVEY AND RESEARCHED INFORMATION. THESE FROM VARIOUS RECORDS ON FILE AT THE LOCAL COUNTY COURTHOUSE TO OBTAIN A MORE ACCURATE BOUNDARY LINE LOCATION. A FULL PROPERTY SURVEY IS RECOMMENDED.	9. FOR LEGEND/ABBREVIATION INFORMATION, REFER TO THE GENERAL NOTES SHEET.
5. ALL EXISTING FENCES AND ROADS DESTROYED DURING CONSTRUCTION TO BE REPLACED BY CONTRACTOR POST-CONSTRUCTION.	10. PIPE LENGTHS BASED OFF OF PROPOSED BASELINE OF CORRIDOR. LENGTHS SHOWN ARE PER PVP, NOT THE TOTAL OF ALL 3 LINES.
	11. QUANTITIES ARE BASED OFF OF DELINEATION COMPLETED IN 2017. THE AREA TO BEEN RE-DEVELOPED FOR THE PROJECT AND QUANTITIES WILL BE UPDATED AS APPROPRIATE.

**MPLX MARKWEST**  
Energy Partners, L.P.

**SMITHBURG TO SHERWOOD LIQUID LINES**  
STA. 0+00 TO STA. 22+00

3 - 12" PIPELINES

DODDRIE COUNTY, WEST VIRGINIA

DATE: 6/26/2019  
SCALE: AS SHOWN  
DRAWN BY: J.S.L.  
CHECKED BY: J.S.L.

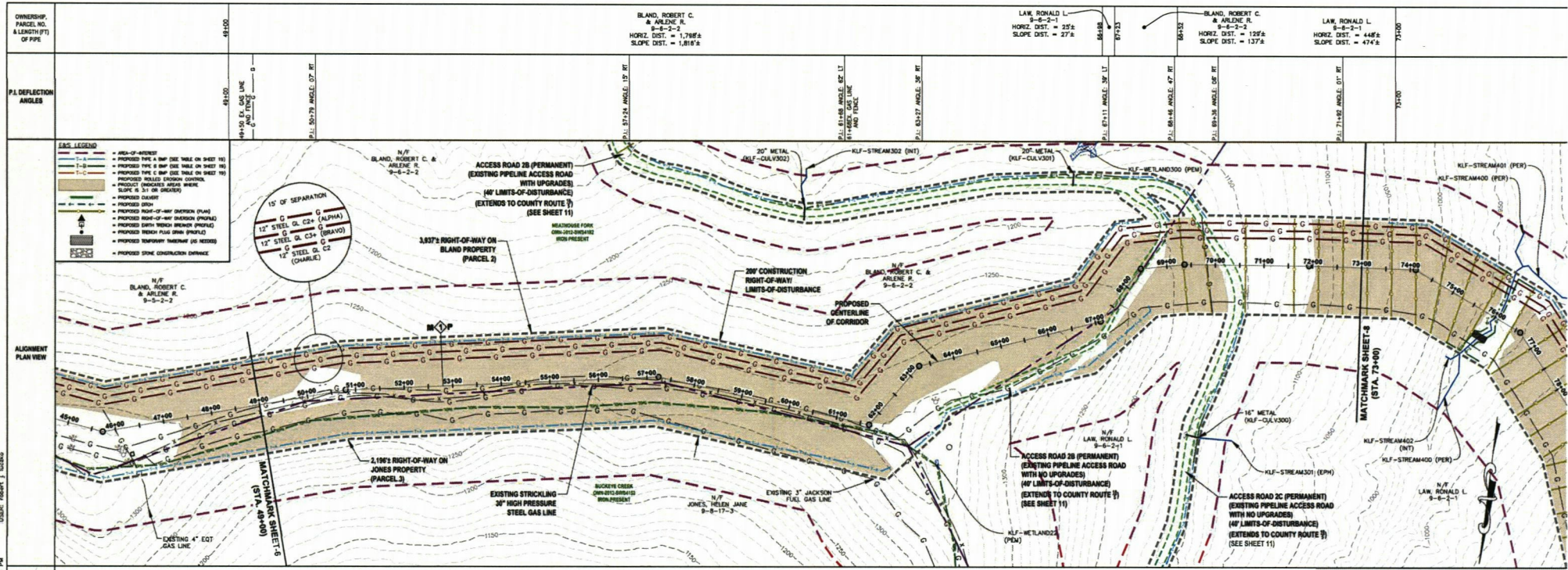
SHT. NAME: 050-10095\SSLL\PLAN1 REV. 2

USER: robert.j.burke  
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 USER: robert.j.burke  
 PLOT DATE/TIME: 6/28/2019 3:45 PM  
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 PLOT DATE/TIME: 6/28/2019 3:45 PM



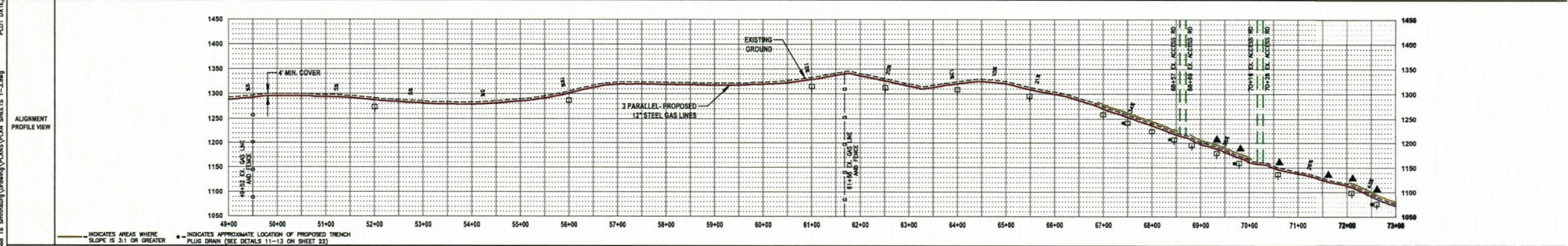






DESIGN CLASS LOCATION

PIPE DETAIL



INDICATES AREAS WHERE SLOPE IS 3:1 OR GREATER

INDICATES APPROXIMATE LOCATION OF PROPOSED TRENCH PLUS DRAWN (SEE DETAILS 11-13 ON SHEET 22)

**THRASHER**

**IFP**

ISSUED FOR PERMITTING

DATE: 06/26/2019

A/E # LBTY190003

CONFIDENTIAL BUSINESS INFORMATION

SUMMARY OF MATERIALS (3D)		SUMMARY OF MATERIALS (3D)	
RECP	ROLLED EROSION CONTROL PRODUCT	NO.	DESCRIPTION
T-A	TYPE A BMP	41,187	SY
T-B	TYPE B BMP	3,839	LF
T-C	TYPE C BMP	283	LF
TB	EARTH TRENCH BREAKERS	16	NO.
RWD	RIGHT-OF-WAY DIVERSIONS	6	NO.

REVISION		DATE	BY
1	REVISD PER COMMENTS FROM KLEINFELDER & MARKWEST	06/26/19	R.A.
2	REVISD PER COMMENTS FROM KLEINFELDER, MARKWEST, & THRASHER	06/26/19	R.A.

- GENERAL INFORMATION**
- FIELD DELINEATION PERFORMED AND PROVIDED BY KLEINFELDER, INC.
  - COORDINATE SYSTEM USED FOR SURVEY AND TOPOGRAPHY: HORIZONTAL - NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE; U.S. SURVEY FOOT; VERTICAL - NAVD 83 U.S. SURVEY FOOT
  - ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE POINTED CORNER. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED WITHIN THE POINTED CORNER. THE POINTED CORNER WILL BE CORRELATED IN THE FIELD BY MARKSMAN PETROLEUM LOGISTICS (MPL) / MARKSMAN CONSTRUCTION REPRESENTATIVE.
  - THE BOUNDARY MONUMENTED POINTS AND PROPERTY LINE 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.
  - ALL EXISTING FENCES AND ROADS DESTROYED DURING CONSTRUCTION TO BE REPLACED BY CONTRACTOR POST-CONSTRUCTION.
  - SEE SHEETS 18 & 20 REGARDING MATERIALS, QUANTITIES AND DIVIDES TO BE INSTALLED ON ACCESS ROAD.
  - ALL SHEET BOUNDS EXCLUDING ALIGNMENT PLAN VIEW REFERENCE THE ALIGNMENT PROFILE VIEW.
  - THIS SHEET IS INTENDED TO BE PLOTTED ON A 24" x 36" FOR REDUCTIONS. REFER TO GRAPHIC SCALE.
  - FOR LEGEND/ABBREVIATION INFORMATION, REFER TO THE GENERAL NOTES SHEET.
  - PIPE LENGTHS BASED OFF OF PROPOSED BENCHMARK OF GROUND LENGTHS SHOWN ARE PER PIPE, NOT THE TOTAL OF ALL LINES.
  - QUANTITIES ARE BASED OFF OF DELINEATION COMPLETED IN 2017. THE AREA IS BEING RE-CALCULATED FOR THE PROJECT AND QUANTITIES WILL BE UPDATED ACCORDINGLY.

**MPLX MARKWEST**  
Energy Partners, L.P.

**SMITHBURG TO SHERWOOD LIQUID LINES**  
STA. 49+00 TO STA. 73+00

3 - 12" PIPELINES

DODDRIEGE COUNTY, WEST VIRGINIA

DATE: 6/26/2019

SCALE: AS SHOWN

DRAWN BY: R.A. (R)

CHECKED BY: R.A. (R)

SHEET 07

SHT. NAME: 050-110095\SSLL\PLAN3

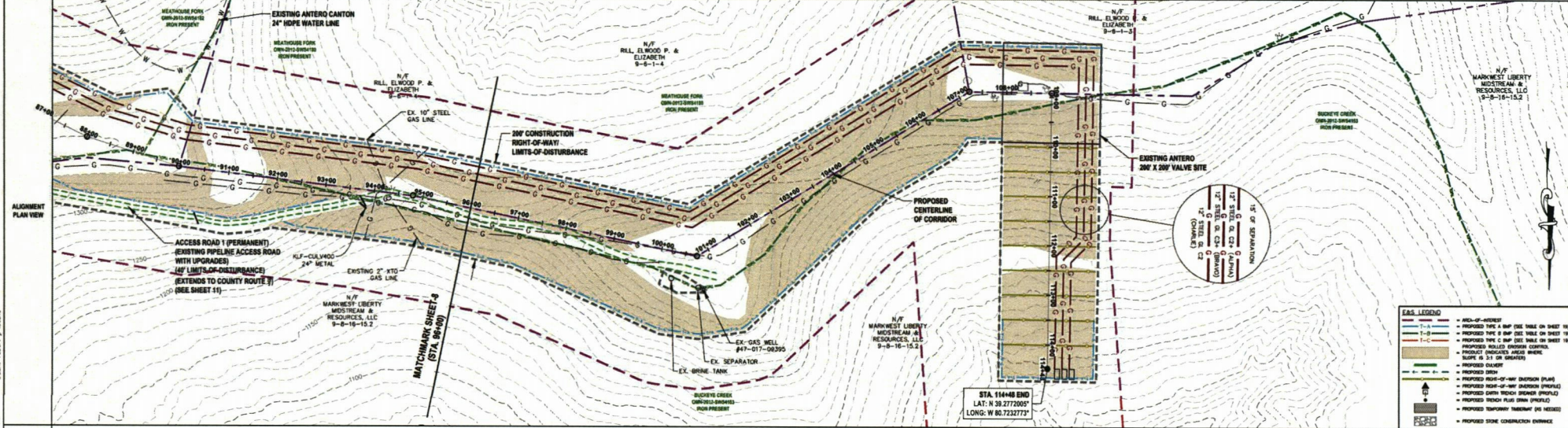
REV. 2



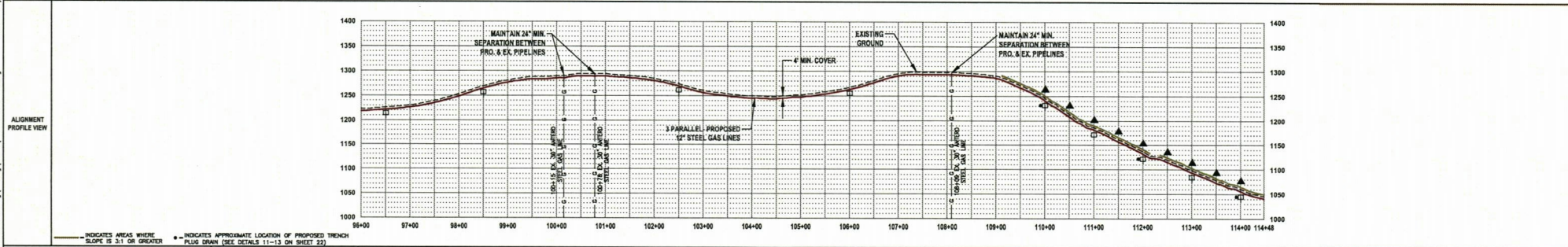




OWNER/SHIP, PARCEL NO. & LENGTH (FT) OF PIPE	81500	MARKWEST LIBERTY MIDSTREAM & RESOURCES, LLC 9-8-16-15.2 RLL, ELWOOD P. & ELIZABETH 9-8-1-4 HORZ. DIST. = 1,123'6" SLOPE DIST. = 1,142'6"	MARKWEST LIBERTY MIDSTREAM & RESOURCES, LLC 9-8-16-15.2 RLL, ELWOOD P. & ELIZABETH 9-8-1-3 HORZ. DIST. = 168'6" SLOPE DIST. = 168'6"	MARKWEST LIBERTY MIDSTREAM & RESOURCES, LLC 9-8-16-15.2 HORZ. DIST. = 257'6" SLOPE DIST. = 614'6"	81500	11448
P.I. DEFLECTION ANGLES	81500	P.I. 100°17.3 ANGLE, 107 FT	P.I. 107°23 ANGLE, 207 FT	P.I. 107°23 ANGLE, 207 FT	11448	11448



DESIGN CLASS	PIPE DETAIL
LOCATION	



**CONFIDENTIAL BUSINESS INFORMATION**

ISSUED FOR PERMITTING

DATE: 06/26/2019

AFE # LBTY190003

SUMMARY OF MATERIALS (3D)		
RECP	ROLLED ENGLISH CONTROL PRODUCT	38,832 SY
T-A	TYPE A BMP	3,071 LF
T-B	TYPE B BMP	0 LF
T-C	TYPE C BMP	0 LF
TR	EARTH TRENCH BREAKERS	0
RWD	RIGHT-OF-WAY DIVERSIONS	9

SUMMARY OF MATERIALS (3D)		
NO.	DESCRIPTION	QTY
1	REVISION FOR COMMENTS FROM KLEINFELDER & MARKWEST	06/26/19 B.A.
2	REVISION FOR COMMENTS FROM KLEINFELDER, MARKWEST, & THRASHER	06/26/19 B.A.

GENERAL INFORMATION		
1.	FIELD DELINEATION PERFORMED AND PROVIDED BY KLEINFELDER, INC.	
2.	COORDINATE SYSTEM LINES FOR SURVEY AND ELEVATION: HORIZONTAL - NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT VERTICAL - NAD 83 (GEOIDAL), U.S. SURVEY FOOT	
3.	ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE PROPERTY CORNER. IF IT IS NOT A CLEAR REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED, INSTALLATION WITHIN THE PROPERTY'S CORNER WILL BE COORDINATED IN THE FIELD BY MARKWEST PETROLEUM LOGISTICS (MPL) / MARKWEST CONSTRUCTION REPRESENTATIVE.	
4.	THE BOUNDARY ADJACENT TO THE PROPERTY LINES SHOWN ON THIS DRAWING WERE OBTAINED FROM AUTOMATIC SURVEY AND ACCURACY IS SUBJECT TO CHECK FROM YOUR LOCAL SURVEY OR THE LOCAL COUNTY COURTHOUSE TO OBTAIN A MORE ACCURATE BOUNDARY LINE LOCATION. A FULL PROPERTY SURVEY IS RECOMMENDED.	
5.	ALL EXISTING FENCES AND ROADS DETERMINED DURING CONSTRUCTION TO BE REPLACED BY CONTRACTOR POST-CONSTRUCTION.	
6.	USE SHEETS 050-10095\SSLL\PLANS AND DITCHES TO BE INSTALLED ON ACCESS ROADS.	
7.	ALL SHEET BANDS EXCLUDING ALIGNMENT PLAN VIEW REFERENCE THE ALIGNMENT PROFILE VIEW.	
8.	THIS SHEET IS INTENDED TO BE PLOTTED ON AHD 8 (24" x 34") FOR REDUCTIVE COPY TO A4 (210 x 297) SCALE.	
9.	FOR LOGGING/ADDITIONAL INFORMATION, REFER TO THE GENERAL NOTES SHEET.	
10.	PIPE LENGTHS SHOWN ARE PER PIPE, NOT THE TOTAL OF ALL 3 LINES.	
11.	QUANTITIES ARE BASED OFF OF DELINEATION COMPLETED IN 2017. THE AREA IS BEING RE-DEVELOPED FOR THE PROJECT AND QUANTITIES WILL BE UPDATED ACCORDINGLY.	

**SMITHSTOWN TO SHERWOOD LIQUID LINES**  
STA. 96+00 TO STA. 114+48

3 - 12" PIPELINES

DODDRIE COUNTY, WEST VIRGINIA

DATE: 6/26/2019  
SCALE: AS SHOWN  
DRAWN BY: B.A. PETER  
CHECKED BY: B.A. PETER  
SHEET 09  
SHT. NAME: 050-10095\SSLL\PLANS

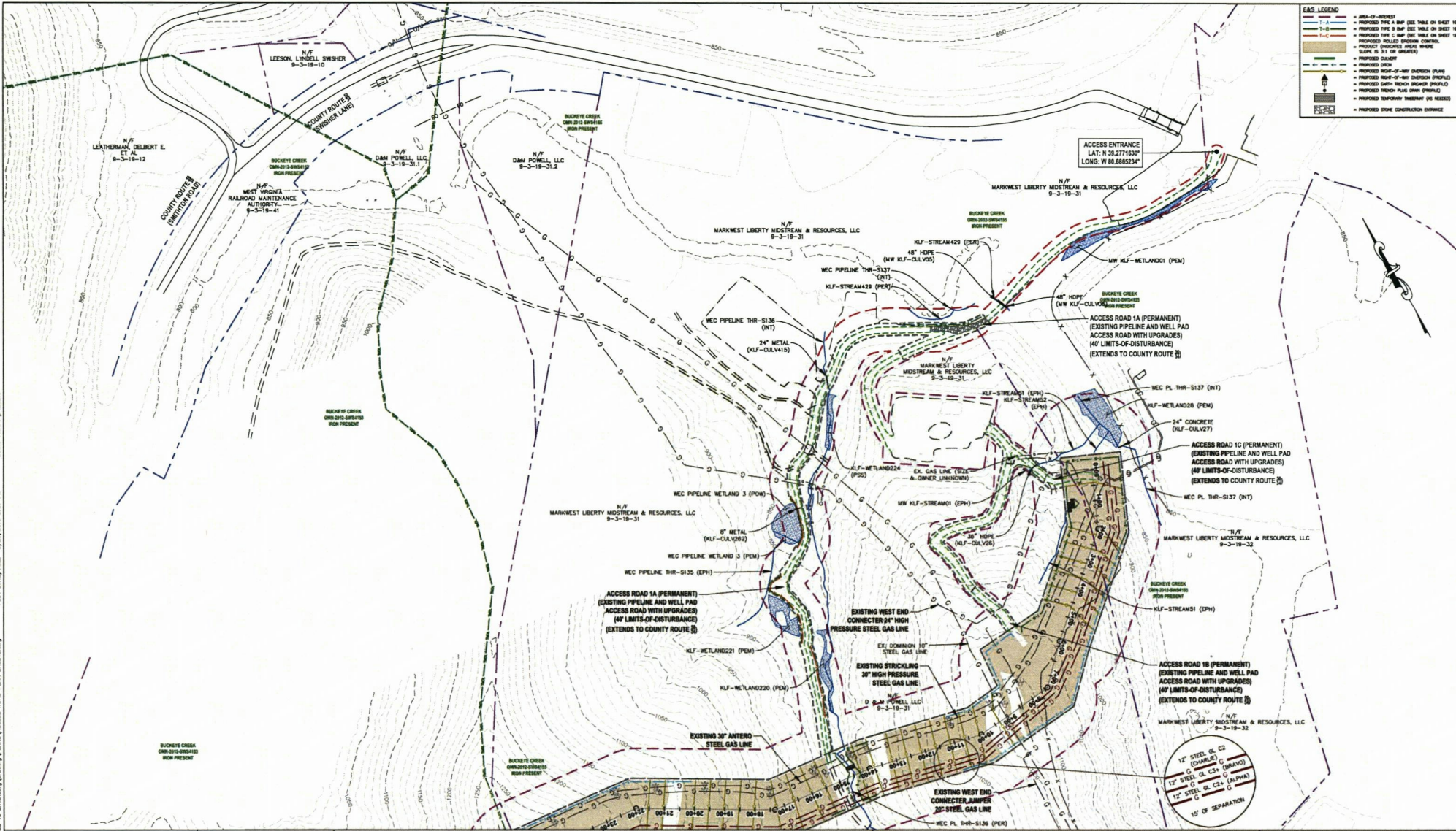
LEFT: 06/26/19 B.A.

RIGHT: 06/26/19 B.A.

SHEET 09

REV. 2





**EAS LEGEND**

- AND-OF-ROADSET
- PROPOSED TYPE A BMP (SEE TABLE ON SHEET 10)
- PROPOSED TYPE B BMP (SEE TABLE ON SHEET 10)
- PROPOSED TYPE C BMP (SEE TABLE ON SHEET 10)
- PROPOSED ROLLED STONE CURB
- PROPOSED ROLLED STONE CURB (SLOPE # 3:1 OR GREATER)
- PROPOSED DRAIN
- PROPOSED ROAD-OF-WAY DIVERSION (PLAN)
- PROPOSED ROAD-OF-WAY DIVERSION (PROFILE)
- PROPOSED GRADE (SEE SHEET 10)
- PROPOSED TRENCH PLUS DRAIN (PROFILE)
- PROPOSED TEMPORARY TREATMENT (AS NEEDED)
- PROPOSED STONE CONSTRUCTION ENTRANCE

ACCESS ENTRANCE  
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 LONG: W 80.666234°

USER: robert.j.kudva  
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**THRASHER**

**IFP**  
 ISSUED FOR PERMITTING

DATE: 06/26/2019  
 AFE # LBTY190003

CONFIDENTIAL BUSINESS INFORMATION

SUMMARY OF MATERIALS (3D)		SUMMARY OF MATERIALS (3D)	
T-A	TYPE A BMP	0	LF
T-B	TYPE B BMP	2,083	LF
OSF	ORANGE SAFETY FENCE	694	LF
RWD	RIGHT-OF-WAY DIVERSIONS	0	

SUMMARY OF MATERIALS (3D)		SUMMARY OF MATERIALS (3D)	
NO.	DESCRIPTION	QTY	NO.
<b>REVISION</b>			
1	REVISED PER COMMENTS FROM KLENFELDER & MARKWEST		06/26/19 RJA
2	REVISED PER COMMENTS FROM KLENFELDER, MARKWEST, & THRASHER		06/26/19 RJA

- GENERAL INFORMATION**
- FIELD DELINEATION PERFORMED AND PROVIDED BY KLENFELDER, INC.
  - COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY: HORIZONTAL - NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT; VERTICAL - NAVD 83 (GEOD2011), U.S. SURVEY FOOT
  - ALL ELEVATIONS SHOWN IS HORIZONTAL AND REFERS TO THE BASELINE OF THE PERMITTED CORRIDOR. IT IS NOT A DIRECT REPRESENTATION OF WHAT IS INSTALLED. INSTALLATION WITHIN THE PERMITTED CORRIDOR WILL BE COORDINATED BY THE FIELD BY MARKWEST PETROLEUM LOGISTICS (MPL) / MARKWEST CONSTRUCTION REPRESENTATIVE.
  - THE BOUNDARY MONUMENTS FOUND AND PROPERTY LINES SHOWN ON THIS DRAWING WERE OBTAINED FROM PARTIAL FIELD SURVEY AND RECORDED 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.
  - ALL EXISTING FENCES AND ROADS DISTURBED DURING CONSTRUCTION TO BE REPLACED BY CONSTRUCTOR POST-CONSTRUCTION.
  - SEE SHEETS 19 & 20 REGARDING MATERIALS, DIMENSIONS AND NOTES TO BE INSTALLED ON ACCESS ROADS.
  - THIS SHEET IS INTENDED TO BE PUBLISHED ON A 22" x 34" FOR REDUCTIONS, REFER TO DRAWING SCALE.
  - FOR LEGEND/ABBREVIATION INFORMATION, REFER TO THE GENERAL NOTES SHEET.
  - PIPE LENGTHS BASED OFF OF PROPOSED BASELINE OF CORRIDOR. LENGTHS SHOWN ARE PER PIPE, NOT THE TOTAL OF ALL 3 LINES.
  - QUANTITIES ARE BASED OFF OF DELINEATION COMPLETED IN 2017. THE AREA IS BEING RE-DEVELOPED FOR THE PROJECT AND QUANTITIES WILL BE UPDATED ACCORDINGLY.

**MPLX MARKWEST**  
 Energy Partners, L.P.

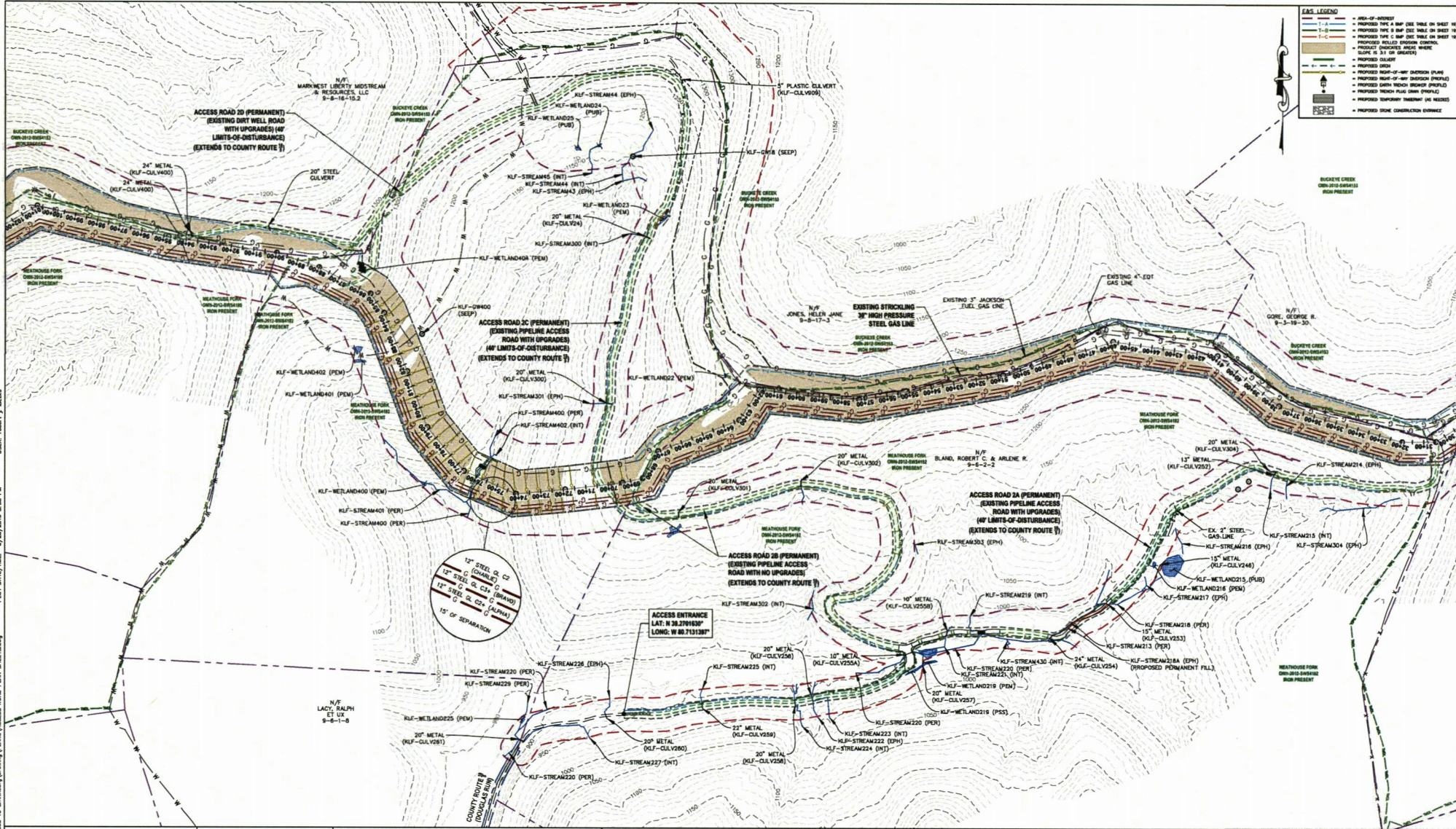
**SMITHBURG TO SHERWOOD LIQUID LINES ACCESS ROAD SHEET**

3 - 12" PIPELINES

DODDRIEGE COUNTY, WEST VIRGINIA

DATE: 6/26/2019  
 SCALE: AS SHOWN  
 DRAWN BY: RJA (175)  
 CHECKED BY: RJA (175)  
 SHEET 10  
 SHT. NAME: 050-10095\SS\LA\RI REV. 2





**EAS LEGEND**

- AREA OF INTEREST
- PROPOSED TYPE A BMP (SEE TABLE ON SHEET 10)
- PROPOSED TYPE B BMP (SEE TABLE ON SHEET 10)
- PROPOSED TYPE C BMP (SEE TABLE ON SHEET 10)
- PROPOSED ROLLER STRIP CONTROL
- PROPOSED CHECKED WEDGE WEARE (SLOPE IS 3:1 OR GREATER)
- PROPOSED CULVERT
- PROPOSED DRAIN
- PROPOSED RIGHT-OF-WAY (DESIGN PLUMB)
- PROPOSED RIGHT-OF-WAY (DESIGN PROFILE)
- PROPOSED DRAIN WHICH SHOULD BE PROFILED
- PROPOSED TRENCH FILL (SEE DRAWING)
- PROPOSED TEMPORARY TREATMENT (AS NEEDED)
- PROPOSED STONE CONSTRUCTION DIVERSION

USER: robert.j.buckey  
 PLOT DATE/TIME: 6/26/2019 3:08 PM  
 LAYOUT: 18x24  
 CAD FILE: R:\050-10095-10095-Access Road Plan Sheets.dwg

**THRASHER**

**IFP**  
ISSUED FOR PERMITTING

DATE: 06/26/2019  
AFE # LBTY190003

**CONFIDENTIAL BUSINESS INFORMATION**

**SUMMARY OF MATERIALS (3D)**

T-A TYPE A BMP	3,708 LF
T-B TYPE B BMP	3,421 LF
OSF ORANGE SAFETY FENCE	348 LF
RWD RIGHT-OF-WAY DIVERSIONS	4

**SUMMARY OF MATERIALS (3D)**

NO.	DESCRIPTION	QTY
1	REVISION PER COMMENTS FROM KLEINFELDER & MARKWEST	06/26/19 R.A.
2	REVISION PER COMMENTS FROM KLEINFELDER, MARKWEST, & THRASHER	06/26/19 R.A.

**GENERAL INFORMATION**

- FIELD DELINEATION PERFORMED AND PROVIDED BY KLEINFELDER, INC.
- COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY: HORIZONTAL - NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT; VERTICAL - NAD 83 (BEG00128), U.S. SURVEY FOOT
- ALL STATIONING SHOWN IS HORIZONTAL AND PERTAINS TO THE BASELINE OF THE POINTED CORNER. IT IS NOT A DIRECT REPRESENTATION OF WHERE THE PIPELINE WILL BE INSTALLED. INSTALLATION WITHIN THE POINTED CORNER WILL BE COORDINATED IN THE FIELD BY MARATHON PETROLEUM LOGISTICS (MPL) / MARKWEST CONSTRUCTION REPRESENTATIVE.
- THE BOUNDARY POINTMENTS SHOWN 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.
- ALL EXISTING FENCES AND ROADS DESTROYED DURING CONSTRUCTION TO BE REPAIRED BY CONTRACTOR POST-CONSTRUCTION.
- SEE SHEETS 18 & 26 REGARDING WATERBARS, CULVERTS AND DITCHES TO BE INSTALLED ON ACCESS ROADS.
- THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (24" x 36") WITH REDUCTIONS, REFER TO DRAWING SCALE.
- FOR LEGEND/ABBREVIATION, REFER TO THE GENERAL NOTES SHEET.
- PIPE LENGTHS BASED OFF OF PROPOSED BASELINE OF CORNER. LENGTHS SHOWN ARE FOR PIPE AND THE TOTAL OF ALL 3 LINES.
- COUNTIES ARE BASED OFF OF DELINEATION COMPLETED IN 2017. THE AREA IS BEING RE-DEVELOPED FOR THE PROJECT AND QUANTITIES WILL BE UPDATED ACCORDINGLY.

**REVISION**

NO.	DESCRIPTION	DATE	BY
1	REVISION PER COMMENTS FROM KLEINFELDER & MARKWEST	06/26/19	R.A.
2	REVISION PER COMMENTS FROM KLEINFELDER, MARKWEST, & THRASHER	06/26/19	R.A.

**MPLX MARKWEST**  
Energy Partners, L.P.

**SMITHBURG TO SHERWOOD LIQUID LINES ACCESS ROAD SHEET**  
3 - 12" PIPELINES

DODDGE COUNTY, WEST VIRGINIA

SHEET 11  
SHT. NAME: 050-10095-VSSLVAR2  
REV. 2







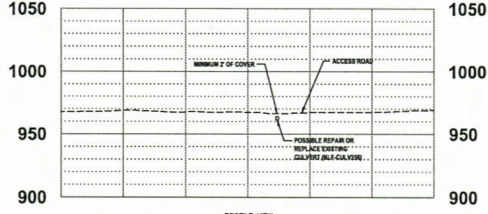
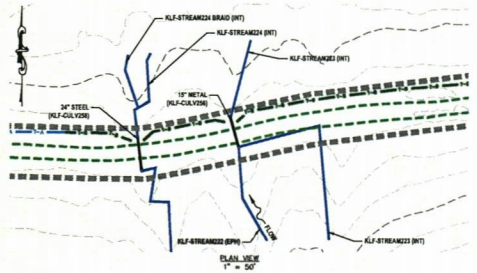




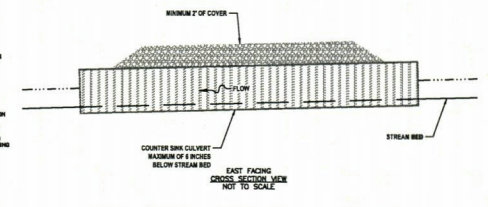




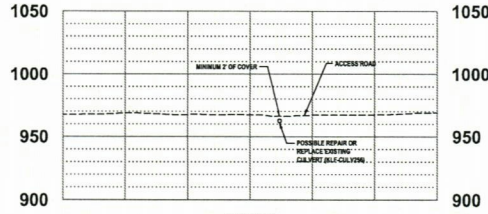
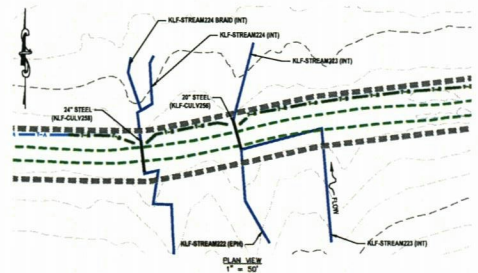
**CULVERT REPAIRATION / REPLACEMENT  
EXISTING CULVERT (KLF-CULV256) @ KLF-STREAM222 (EPH)**



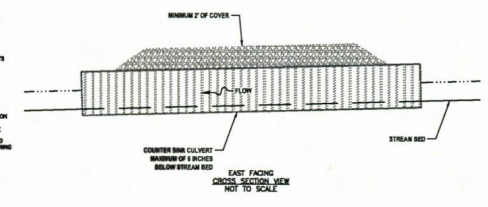
- STREAM INFORMATION:**  
STREAM CLASSIFICATION: INTERMITTENT  
STREAM WIDTH: 5 FT
- NOTES:**  
1. CHANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.  
2. CONTRACTOR TO MAINTAIN POSITIVE DRAINAGE INSTALLING CULVERT WITH A MINIMUM COVER OF 2'.  
3. CULVERT SHALL MEET ALL APPLICABLE AMBRO AND/OR AEM REQUIREMENTS FOR THE SPECIFIED CULVERT TYPE.
- LEGEND:**
- PROPOSED RIGHT-OF-WAY BOUNDARY (PROFILE)
  - PROPOSED EARTH TRENCH BROWNER (PROFILE)
  - PROPOSED TRENCH PLUS SHIM (PROFILE)
  - EXISTING CULVERT (PROFILE)
  - PROPOSED RIGHT-OF-WAY BOUNDARY (PLAN)
  - PROPOSED TYPE A BMP
  - PROPOSED TYPE B BMP
  - PROPOSED ROLLED STONON CONTROL PRODUCT (INDICATES AREA WHERE SLOPE IS 3:1 OR GREATER)
  - DELIMITED STREAMS
  - PROPOSED STREAM PERMANENT FILL
  - PROPOSED METALS PERMANENT FILL
  - EDGE OF PAVEMENT
  - EDGE OF DRIVE/PAVING ROAD
  - PROPOSED CONSTRUCTION RIGHT-OF-WAY LIMITS OF DISTURBANCE
  - BASELINE OF PROPOSED CORRIDOR WITH STATIONING
  - PROPOSED 12\"/>



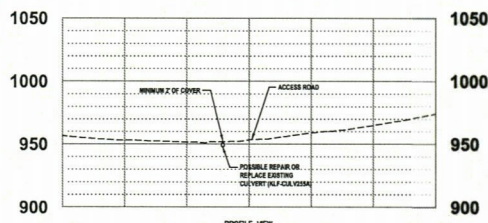
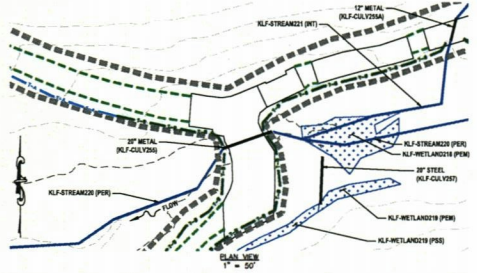
**CULVERT REPAIRATION / REPLACEMENT  
EXISTING CULVERT (KLF-CULV256) @ KLF-STREAM223 (INT)**



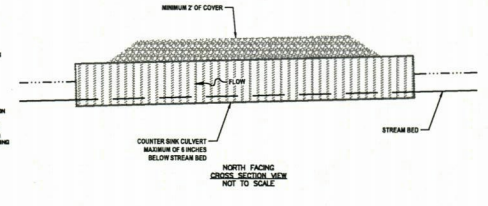
- STREAM INFORMATION:**  
STREAM CLASSIFICATION: INTERMITTENT  
STREAM WIDTH: 5 FT
- NOTES:**  
1. CHANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.  
2. CONTRACTOR TO MAINTAIN POSITIVE DRAINAGE INSTALLING CULVERT WITH A MINIMUM COVER OF 2'.  
3. CULVERT SHALL MEET ALL APPLICABLE AMBRO AND/OR AEM REQUIREMENTS FOR THE SPECIFIED CULVERT TYPE.
- LEGEND:**
- PROPOSED RIGHT-OF-WAY BOUNDARY (PROFILE)
  - PROPOSED EARTH TRENCH BROWNER (PROFILE)
  - PROPOSED TRENCH PLUS SHIM (PROFILE)
  - EXISTING CULVERT (PROFILE)
  - PROPOSED RIGHT-OF-WAY BOUNDARY (PLAN)
  - PROPOSED TYPE A BMP
  - PROPOSED TYPE B BMP
  - PROPOSED ROLLED STONON CONTROL PRODUCT (INDICATES AREA WHERE SLOPE IS 3:1 OR GREATER)
  - DELIMITED STREAMS
  - PROPOSED STREAM PERMANENT FILL
  - PROPOSED METALS PERMANENT FILL
  - EDGE OF PAVEMENT
  - EDGE OF DRIVE/PAVING ROAD
  - PROPOSED CONSTRUCTION RIGHT-OF-WAY LIMITS OF DISTURBANCE
  - BASELINE OF PROPOSED CORRIDOR WITH STATIONING
  - PROPOSED 12\"/>



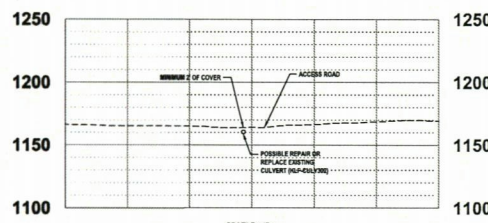
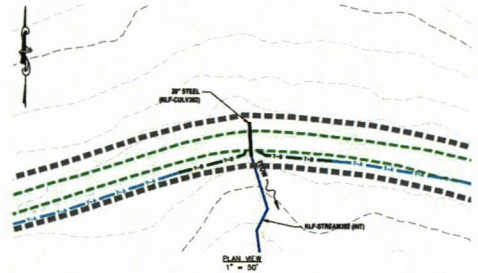
**CULVERT REPAIRATION / REPLACEMENT  
EXISTING CULVERT (KLF-CULV255) @ KLF-STREAM220 (PER)**



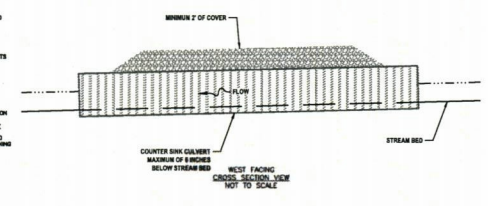
- STREAM INFORMATION:**  
STREAM CLASSIFICATION: PERENNIAL  
STREAM WIDTH: 10 FT
- NOTES:**  
1. CHANGE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.  
2. CONTRACTOR TO MAINTAIN POSITIVE DRAINAGE INSTALLING CULVERT WITH A MINIMUM COVER OF 2'.  
3. CULVERT SHALL MEET ALL APPLICABLE AMBRO AND/OR AEM REQUIREMENTS FOR THE SPECIFIED CULVERT TYPE.
- LEGEND:**
- PROPOSED RIGHT-OF-WAY BOUNDARY (PROFILE)
  - PROPOSED EARTH TRENCH BROWNER (PROFILE)
  - PROPOSED TRENCH PLUS SHIM (PROFILE)
  - EXISTING CULVERT (PROFILE)
  - PROPOSED RIGHT-OF-WAY BOUNDARY (PLAN)
  - PROPOSED TYPE A BMP
  - PROPOSED TYPE B BMP
  - PROPOSED ROLLED STONON CONTROL PRODUCT (INDICATES AREA WHERE SLOPE IS 3:1 OR GREATER)
  - DELIMITED STREAMS
  - PROPOSED STREAM PERMANENT FILL
  - PROPOSED METALS PERMANENT FILL
  - EDGE OF PAVEMENT
  - EDGE OF DRIVE/PAVING ROAD
  - PROPOSED CONSTRUCTION RIGHT-OF-WAY LIMITS OF DISTURBANCE
  - BASELINE OF PROPOSED CORRIDOR WITH STATIONING
  - PROPOSED 12\"/>



**CULVERT REPAIRATION / REPLACEMENT  
EXISTING CULVERT (KLF-CULV302) @ KLF-STREAM302 (INT)**



- STREAM INFORMATION:**  
STREAM CLASSIFICATION: INTERMITTENT  
STREAM WIDTH: 5 FT
- NOTES:**  
1. CHANGE 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 POSITIVE DRAINAGE INSTALLING CULVERT WITH A MINIMUM COVER OF 2'.  
3. CULVERT SHALL MEET ALL APPLICABLE AMBRO AND/OR AEM REQUIREMENTS FOR THE SPECIFIED CULVERT TYPE.
- LEGEND:**
- PROPOSED RIGHT-OF-WAY BOUNDARY (PROFILE)
  - PROPOSED EARTH TRENCH BROWNER (PROFILE)
  - PROPOSED TRENCH PLUS SHIM (PROFILE)
  - EXISTING CULVERT (PROFILE)
  - PROPOSED RIGHT-OF-WAY BOUNDARY (PLAN)
  - PROPOSED TYPE A BMP
  - PROPOSED TYPE B BMP
  - PROPOSED ROLLED STONON CONTROL PRODUCT (INDICATES AREA WHERE SLOPE IS 3:1 OR GREATER)
  - DELIMITED STREAMS
  - PROPOSED STREAM PERMANENT FILL
  - PROPOSED METALS PERMANENT FILL
  - EDGE OF PAVEMENT
  - EDGE OF DRIVE/PAVING ROAD
  - PROPOSED CONSTRUCTION RIGHT-OF-WAY LIMITS OF DISTURBANCE
  - BASELINE OF PROPOSED CORRIDOR WITH STATIONING
  - PROPOSED 12\"/>



**THRASHER**

**CONFIDENTIAL BUSINESS INFORMATION**

**IFP**

ISSUED FOR PERMITTING

DATE: 06/26/2019

A/E # LBTY190003

SUMMARY OF MATERIALS (3D)		
NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)		
NO.	DESCRIPTION	QTY

REVISION		
NO.	DESCRIPTION	DATE
1	REVISED PER COMMENTS FROM KLEINFELDER & WAINWRIGHT	06/26/19 B.A.
2	REVISED PER COMMENTS FROM KLEINFELDER, MARKWEST, & THRASHER	06/26/19 B.A.

**GENERAL INFORMATION**

- FIELD DELINEATION PERFORMED AND PROVIDED BY KLEINFELDER, INC.
- COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY: HORIZONTAL - NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT; VERTICAL - NAVD 83 (GEOIDAL), U.S. SURVEY FOOT
- 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 MARATHON PETROLEUM LOGISTICS (MPLX) / MARKWEST CONSTRUCTION REPRESENTATIVE.
- THIS SHEET IS INTENDED TO BE PLOTTED ON AHS D (22" X 34") FOR REDUCTIONS, REFER TO GRAPHIC SCALE.
- PIPE LENGTHS BASED OFF OF PROPOSED BASELINE OF CORRIDOR. LENGTHS SHOWN ARE PER PIPE, NOT THE TOTAL OF ALL 3 LINES.
- QUANTITIES ARE BASED OFF OF DELINEATION COMPLETED IN 2017. THE AREA IS BEING RE-DELIMITED FOR THE PROJECT AND QUANTITIES WILL BE UPDATED ACCORDINGLY.

**MPLX MARKWEST**  
Energy Partners, L.P.

**SMITHBURG TO SHERWOOD LIQUID LINES  
STREAM & WETLAND CROSSINGS**  
3 - 12" PIPELINES

DODDRIEGE COUNTY, WEST VIRGINIA

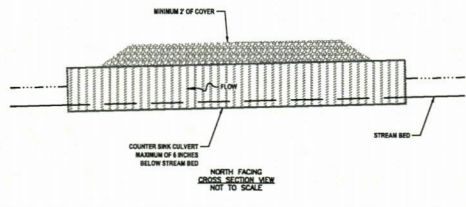
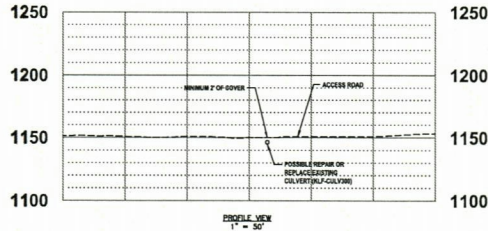
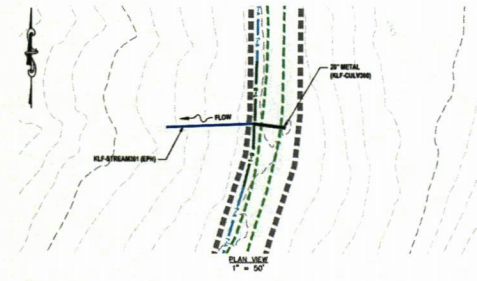
SHEET 15

SHT. NAME: 050-10095/SSLV&WC25 [REV. 2]

LAYOUT FILE: 846203  
 CAD FILE: R:\050-10095\Markwest\SmithburgToSherwood\KLV\STREAM AND WETLAND CROSSING SHEETS.dwg  
 PLOT DATE/TIME: 6/26/2019 4:08 PM  
 USER: robert.j.lucas



**CULVERT REPAIR / REPLACEMENT  
EXISTING CULVERT (KLF-CULV300) @ KLF-STREAM301 (EPH)**



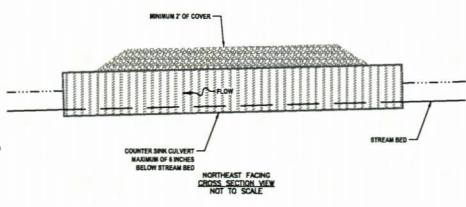
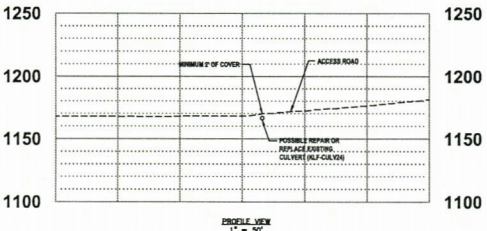
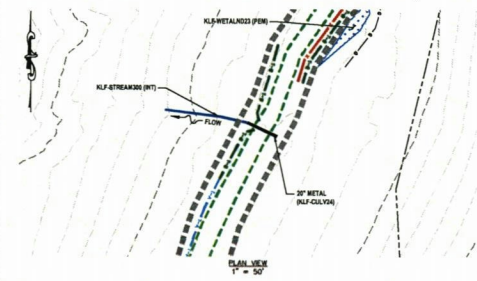
**STREAM INFORMATION**  
STREAM CLASSIFICATION: EPHEMERAL  
STREAM WIDTH: 4.0'

**NOTES**  
1. REMOVE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS ROAD STREAM OR WETLAND.  
2. CONTRACTOR TO MAINTAIN POSITIVE DRAINAGE INSTALLING CULVERT WITH A MINIMUM COVER OF 2'.  
3. CULVERT SHALL MEET ALL APPLICABLE AASHTO AND/OR AEMA REQUIREMENTS FOR THE SPECIFIED CULVERT TYPE.

**LEGEND**

▲ PROPOSED RIGHT-OF-WAY SHADER (PROFILE)	▨ PROPOSED ROLLED EROSION CONTROL (PROFILE)	▨ PROPOSED CONSTRUCTION LIMITS OF DISTURBANCE (PROFILE)
□ PROPOSED DRAIN TRENCH BREAKER (PROFILE)	▨ PROPOSED TRENCH PLUG DRAW (PROFILE)	▨ PROPOSED DELINEATED STREAM
○ PROPOSED CULVERT (PROFILE)	▨ PROPOSED CULVERT (PLAN)	▨ PROPOSED STREAM PERMANENT FILL
○ PROPOSED RIGHT-OF-WAY SHADER (PLAN)	▨ PROPOSED TYPE A BMP	▨ PROPOSED TYPE B BMP
▨ PROPOSED ROLLED EROSION CONTROL (SURF IS 31' OR GREATER)	▨ DELINEATED WETLAND	▨ PROPOSED 12\"/>

**CULVERT REPAIR / REPLACEMENT  
EXISTING CULVERT (KLF-CULV24) @ KLF-STREAM300 (INT)**



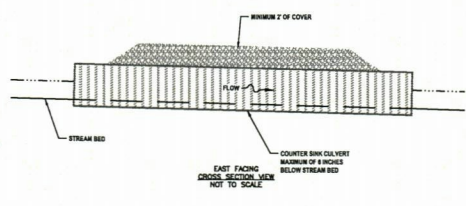
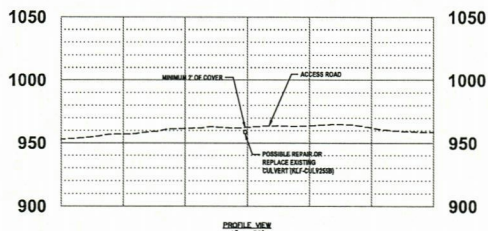
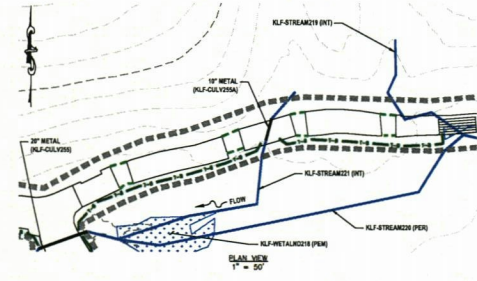
**STREAM INFORMATION**  
STREAM CLASSIFICATION: INTERMITTENT  
STREAM WIDTH: 4.0'

**NOTES**  
1. REMOVE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS ROAD STREAM OR WETLAND.  
2. CONTRACTOR TO MAINTAIN POSITIVE DRAINAGE INSTALLING CULVERT WITH A MINIMUM COVER OF 2'.  
3. CULVERT SHALL MEET ALL APPLICABLE AASHTO AND/OR AEMA REQUIREMENTS FOR THE SPECIFIED CULVERT TYPE.

**LEGEND**

▲ PROPOSED RIGHT-OF-WAY SHADER (PROFILE)	▨ PROPOSED ROLLED EROSION CONTROL (PROFILE)	▨ PROPOSED CONSTRUCTION LIMITS OF DISTURBANCE (PROFILE)
□ PROPOSED DRAIN TRENCH BREAKER (PROFILE)	▨ PROPOSED TRENCH PLUG DRAW (PROFILE)	▨ PROPOSED DELINEATED STREAM
○ PROPOSED CULVERT (PROFILE)	▨ PROPOSED CULVERT (PLAN)	▨ PROPOSED STREAM PERMANENT FILL
○ PROPOSED RIGHT-OF-WAY SHADER (PLAN)	▨ PROPOSED TYPE A BMP	▨ PROPOSED TYPE B BMP
▨ PROPOSED ROLLED EROSION CONTROL (SURF IS 31' OR GREATER)	▨ DELINEATED WETLAND	▨ PROPOSED 12\"/>

**CULVERT REPAIR / REPLACEMENT  
EXISTING CULVERT (KLF-CULV255A) @ KLF-STREAM221 (INT)**



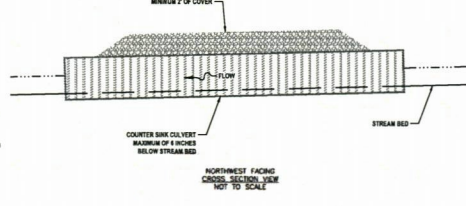
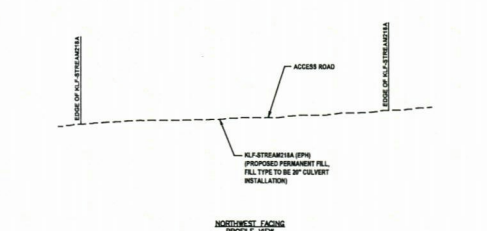
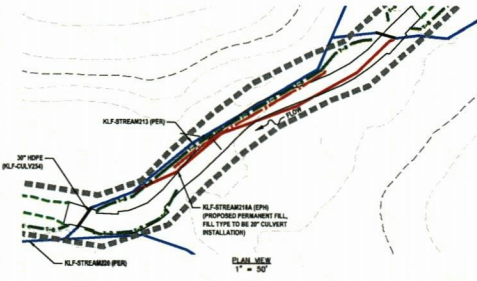
**STREAM INFORMATION**  
STREAM CLASSIFICATION: INTERMITTENT  
STREAM WIDTH: 4.0'

**NOTES**  
1. REMOVE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS ROAD STREAM OR WETLAND.  
2. CONTRACTOR TO MAINTAIN POSITIVE DRAINAGE INSTALLING CULVERT WITH A MINIMUM COVER OF 2'.  
3. CULVERT SHALL MEET ALL APPLICABLE AASHTO AND/OR AEMA REQUIREMENTS FOR THE SPECIFIED CULVERT TYPE.

**LEGEND**

▲ PROPOSED RIGHT-OF-WAY SHADER (PROFILE)	▨ PROPOSED ROLLED EROSION CONTROL (PROFILE)	▨ PROPOSED CONSTRUCTION LIMITS OF DISTURBANCE (PROFILE)
□ PROPOSED DRAIN TRENCH BREAKER (PROFILE)	▨ PROPOSED TRENCH PLUG DRAW (PROFILE)	▨ PROPOSED DELINEATED STREAM
○ PROPOSED CULVERT (PROFILE)	▨ PROPOSED CULVERT (PLAN)	▨ PROPOSED STREAM PERMANENT FILL
○ PROPOSED RIGHT-OF-WAY SHADER (PLAN)	▨ PROPOSED TYPE A BMP	▨ PROPOSED TYPE B BMP
▨ PROPOSED ROLLED EROSION CONTROL (SURF IS 31' OR GREATER)	▨ DELINEATED WETLAND	▨ PROPOSED 12\"/>

**PERMANENT FILL  
KLF-STREAM218A (EPH)**



**STREAM INFORMATION**  
STREAM CLASSIFICATION: EPHEMERAL  
STREAM WIDTH: 4.0'

**NOTES**  
1. REMOVE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS ROAD STREAM OR WETLAND.  
2. CONTRACTOR TO MAINTAIN POSITIVE DRAINAGE INSTALLING CULVERT WITH A MINIMUM COVER OF 2'.  
3. CULVERT SHALL MEET ALL APPLICABLE AASHTO AND/OR AEMA REQUIREMENTS FOR THE SPECIFIED CULVERT TYPE.

**LEGEND**

▲ PROPOSED RIGHT-OF-WAY SHADER (PROFILE)	▨ PROPOSED ROLLED EROSION CONTROL (PROFILE)	▨ PROPOSED CONSTRUCTION LIMITS OF DISTURBANCE (PROFILE)
□ PROPOSED DRAIN TRENCH BREAKER (PROFILE)	▨ PROPOSED TRENCH PLUG DRAW (PROFILE)	▨ PROPOSED DELINEATED STREAM
○ PROPOSED CULVERT (PROFILE)	▨ PROPOSED CULVERT (PLAN)	▨ PROPOSED STREAM PERMANENT FILL
○ PROPOSED RIGHT-OF-WAY SHADER (PLAN)	▨ PROPOSED TYPE A BMP	▨ PROPOSED TYPE B BMP
▨ PROPOSED ROLLED EROSION CONTROL (SURF IS 31' OR GREATER)	▨ DELINEATED WETLAND	▨ PROPOSED 12\"/>

**THRASHER**

**CONFIDENTIAL BUSINESS INFORMATION**

**IFP**

ISSUED FOR PERMITTING

DATE: 06/26/2019

AFE # LBTY190003

**SUMMARY OF MATERIALS (3D)**

NO.	DESCRIPTION	QTY

**SUMMARY OF MATERIALS (3D)**

NO.	DESCRIPTION	QTY

**GENERAL INFORMATION**

- FIELD DELINEATION PERFORMED AND PROVIDED BY KLEINFELDER, INC.
- COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY: HORIZONTAL - NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT; VERTICAL - NAVD 83 (GEOIDAL), U.S. SURVEY FOOT
- 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 MARATHON PETROLEUM LOGISTICS (MPL) & MARKWEST CONSTRUCTION REPRESENTATIVE.
- THIS SHEET IS INTENDED TO BE PLOTTED ON AHS D (24" x 36") FOR REDUCTIONS, REFER TO GRAPHIC SCALE.
- PIPE LENGTHS SHOWN OFF OF DELINEATION BASELINE OF CORRIDOR. LENGTHS SHOWN ARE PER PIPE, NOT THE TOTAL OF ALL 3 LINES.
- QUANTITIES ARE BASED OFF OF DELINEATION COMPLETED IN 2017. THE AREA IS BEING RE-DELINEATED FOR THE PROJECT AND QUANTITIES WILL BE UPDATED ACCORDINGLY.

**MPLX MARKWEST**  
Energy Partners, L.P.

**SMITHBURG TO SHERWOOD LIQUID LINES  
STREAM & WETLAND CROSSINGS**

3 - 12" PIPELINES

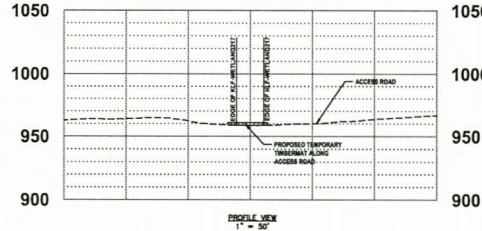
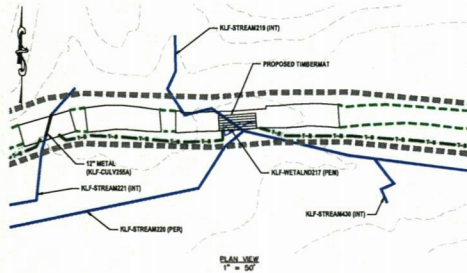
DODDRIIDGE COUNTY, WEST VIRGINIA

SHEET 16

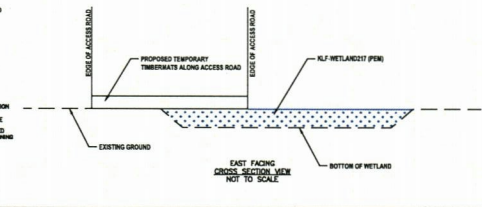
SHT. NAME: 050-10095\SSL\S&W26 REV. 2



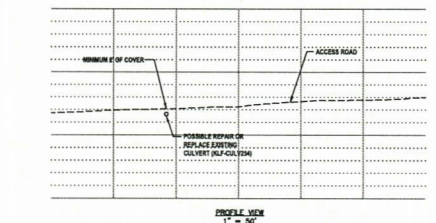
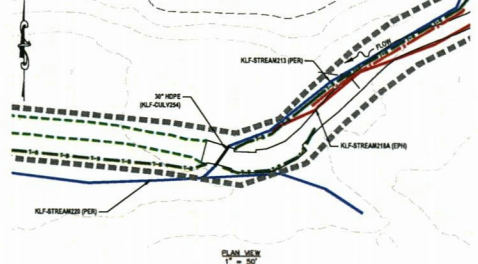
**WETLAND CROSSING  
KLF-WETLAND217 (PEM)**



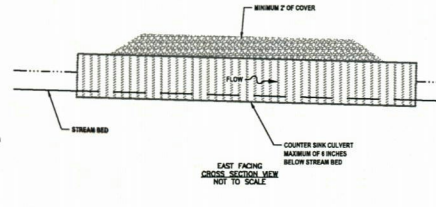
- WETLAND INFORMATION**  
WETLAND CLASSIFICATION: PALUDINESS EMERGENT
- NOTES**  
1. REMOVE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.
- REFERENCES**  
LAD: 26.2700000 \* LAD: 26.2700000 \* SHEET REF: SHEET 11
- LEGEND**
- PROPOSED RIGHT-OF-WAY SHEDDERS (PROFILE)
  - PROPOSED EARTH TRENCH BREAKERS (PROFILE)
  - PROPOSED TRENCH PILE DRUMS (PROFILE)
  - PROPOSED CULVERT (PROFILE)
  - EXISTING CULVERT (PROFILE)
  - PROPOSED RIGHT-OF-WAY SHEDDERS (PLAN)
  - PROPOSED TYPE A BMP
  - PROPOSED TYPE B BMP



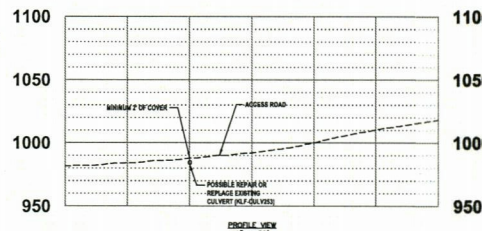
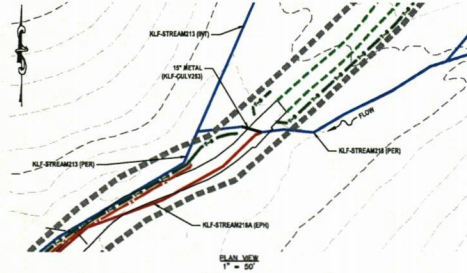
**CULVERT REPAIR / REPLACEMENT  
EXISTING CULVERT (KLF-CULV254) @ KLF-STREAM213 (PER)**



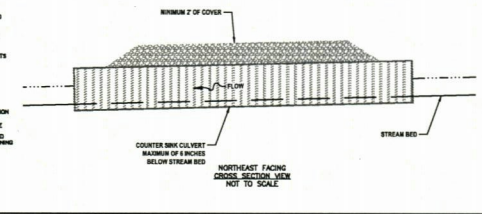
- STREAM INFORMATION**  
STREAM CLASSIFICATION: PERENNIAL  
STREAM WIDTH: 3.0'
- NOTES**  
1. REMOVE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.  
2. CONTRACTOR TO MAINTAIN POSITIVE DRAINAGE INSTALLING CULVERT WITH A MINIMUM COVER OF 2'.  
3. CULVERT SHALL MEET ALL APPLICABLE AASHTO AND/OR AEM REQUIREMENTS FOR THE SPECIFIED CULVERT TYPE.
- REFERENCES**  
LAD: 26.2700000 \* LAD: 26.2700000 \* SHEET REF: SHEET 11
- LEGEND**
- PROPOSED RIGHT-OF-WAY SHEDDERS (PROFILE)
  - PROPOSED EARTH TRENCH BREAKERS (PROFILE)
  - PROPOSED TRENCH PILE DRUMS (PROFILE)
  - PROPOSED CULVERT (PROFILE)
  - EXISTING CULVERT (PROFILE)
  - PROPOSED RIGHT-OF-WAY SHEDDERS (PLAN)
  - PROPOSED TYPE A BMP
  - PROPOSED TYPE B BMP



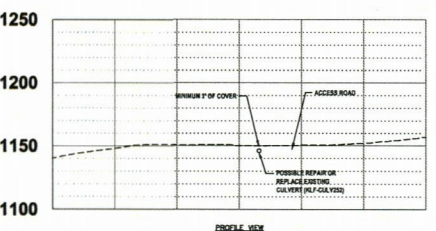
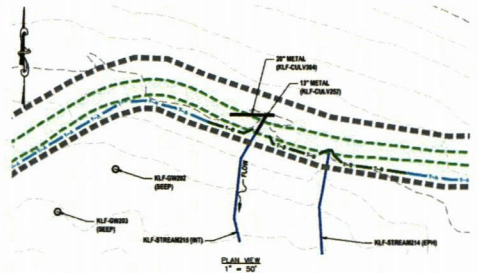
**CULVERT REPAIR / REPLACEMENT  
EXISTING CULVERT (KLF-CULV253) @ KLF-STREAM218 (PER)**



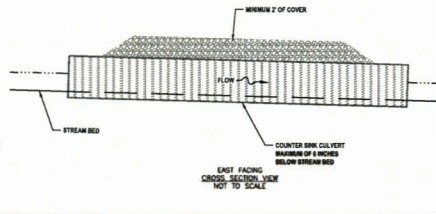
- STREAM INFORMATION**  
STREAM CLASSIFICATION: PERENNIAL  
STREAM WIDTH: 3.0'
- NOTES**  
1. REMOVE SAFETY FENCE TO BE INSTALLED AT THE EDGE OF THE PROPOSED LIMITS OF CONSTRUCTION TO PREVENT ACCESS INTO STREAM OR WETLAND.  
2. CONTRACTOR TO MAINTAIN POSITIVE DRAINAGE INSTALLING CULVERT WITH A MINIMUM COVER OF 2'.  
3. CULVERT SHALL MEET ALL APPLICABLE AASHTO AND/OR AEM REQUIREMENTS FOR THE SPECIFIED CULVERT TYPE.
- REFERENCES**  
LAD: 26.2700000 \* LAD: 26.2700000 \* SHEET REF: SHEET 11
- LEGEND**
- PROPOSED RIGHT-OF-WAY SHEDDERS (PROFILE)
  - PROPOSED EARTH TRENCH BREAKERS (PROFILE)
  - PROPOSED TRENCH PILE DRUMS (PROFILE)
  - PROPOSED CULVERT (PROFILE)
  - EXISTING CULVERT (PROFILE)
  - PROPOSED RIGHT-OF-WAY SHEDDERS (PLAN)
  - PROPOSED TYPE A BMP
  - PROPOSED TYPE B BMP



**CULVERT REPAIR / REPLACEMENT  
EXISTING CULVERT (KLF-CULV252) @ KLF-STREAM215 (INT)**



- STREAM INFORMATION**  
STREAM CLASSIFICATION: INTERMITTENT  
STREAM WIDTH: 1.0'
- NOTES**  
1. REMOVE 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 POSITIVE DRAINAGE INSTALLING CULVERT WITH A MINIMUM COVER OF 2'.  
3. CULVERT SHALL MEET ALL APPLICABLE AASHTO AND/OR AEM REQUIREMENTS FOR THE SPECIFIED CULVERT TYPE.
- REFERENCES**  
LAD: 26.2700000 \* LAD: 26.2700000 \* SHEET REF: SHEET 11
- LEGEND**
- PROPOSED RIGHT-OF-WAY SHEDDERS (PROFILE)
  - PROPOSED EARTH TRENCH BREAKERS (PROFILE)
  - PROPOSED TRENCH PILE DRUMS (PROFILE)
  - PROPOSED CULVERT (PROFILE)
  - EXISTING CULVERT (PROFILE)
  - PROPOSED RIGHT-OF-WAY SHEDDERS (PLAN)
  - PROPOSED TYPE A BMP
  - PROPOSED TYPE B BMP



**THRASHER**

**CONFIDENTIAL BUSINESS INFORMATION**

**IFP**

ISSUED FOR PERMITTING

DATE: 06/26/2019

AFE # LBTY190003

SUMMARY OF MATERIALS (3D)		
NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)		
NO.	DESCRIPTION	QTY

REVISION		
NO.	DESCRIPTION	DATE
1	REVISED PER COMMENTS FROM KLEINFELDER & MARKWEST	06/26/19 A.A.
2	REVISED PER COMMENTS FROM KLEINFELDER, MARKWEST, & THRASHER	06/26/19 A.A.

**GENERAL INFORMATION**

- FIELD DELINEATION PERFORMED AND PROVIDED BY KLEINFELDER, INC.
- COORDINATE SYSTEM USED FOR MAPPING AND TOPOGRAPHY: HORIZONTAL - NAD 83 WEST VIRGINIA STATE PLANE, NORTH ZONE, U.S. SURVEY FOOT; VERTICAL - NAD 83 (GEOIDAL), U.S. SURVEY FOOT.
- 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 MARATHON PETROLEUM LOGISTICS (MPLX) & MARKWEST CONSTRUCTION REPRESENTATIVE.
- THIS SHEET IS INTENDED TO BE PLOTTED ON AHS D (22" x 34") FOR REDUCTIONS, REFER TO GRAPHIC SCALE.
- PIPE LENGTHS BASED OFF OF DELINEATION COMPLETED IN 2017. THE AREA IS BEING RE-DELIMITED FOR THE PROJECT AND QUANTITIES WILL BE UPDATED ACCORDINGLY.

**MPLX MARKWEST**  
Energy Partners, L.P.

**SMITHBURG TO SHERWOOD LIQUID LINES  
STREAM & WETLAND CROSSINGS**  
3 - 12" PIPELINES

DODDRIEGE COUNTY, WEST VIRGINIA

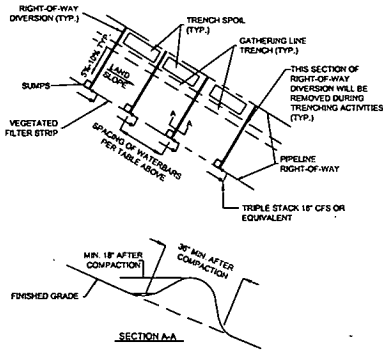
DATE: 06/26/2019  
SCALE: AS SHOWN  
DRAWN BY: J.A. THOMAS  
CHECKED BY: J.E. THOMAS  
SHEET 17  
SHT. NAME: 050-10095/SSL/S&WC2B  
REV. 2



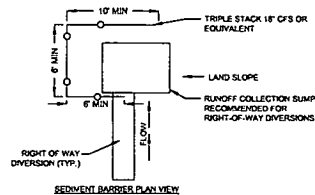


PIPELINE GRADE	> 200' FROM STREAM	< 200' FROM STREAM
2.5%	400	200
4.12%	300	150
13.21%	200	100
22.34%	100	50
25.90%	50	25

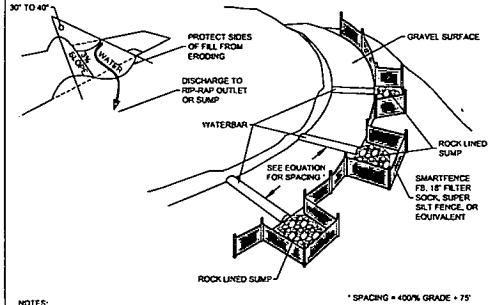
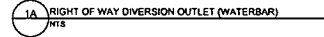
\* IF 8' OFFSET TO RETAIN DIVERSION ON SLOPE IS BETTER THAN 8', THE DIVISION OF WATER AND WASTE MANAGEMENT WILL ALLOW GREATER DISTANCES IN THESE DIMENSIONS ON EXTREME SLOPES



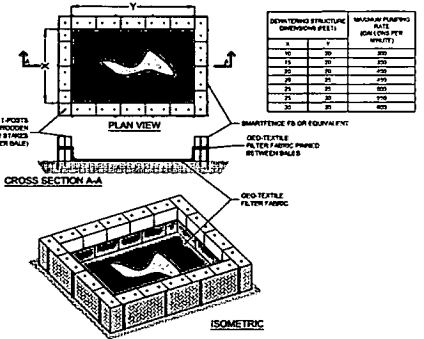
NOTE: SUMPS TO BE USED DURING CONSTRUCTION (TEMPORARY) PER DETAIL 1A. MULTIPLE SUMPS MAY BE USED IF DETERMINED NECESSARY IN THE FIELD.



- NOTES:**
- RIGHT-OF-WAY DIVERSIONS SHOULD BE INSTALLED ACROSS THE ENTIRE RIGHT-OF-WAY ON ALL SLOPES GREATER THAN 0%.
  - 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 WYDEP EAS STANDARDS.
  - 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 WHEN AVAILABLE. RIGHT-OF-WAY DIVERSIONS SHOULD BE ORIENTED SO THAT THE DISCHARGE DOES NOT FLOW BACK INTO THE RIGHT-OF-WAY. TRIPLE STACK 18" CFS OR EQUIVALENT SHOULD BE LOCATED BELOW THE DISCHARGE END OF THE RIGHT-OF-WAY DIVERSIONS.
  - BSFP CAN BE SUBSTITUTED IN PLACE OF SMARTFENCE FB WITH APPROVAL FROM MARATHON PETROLEUM LOGISTICS (MPL) / MARKWEST.
  - SUMPS TO BE USED DURING CONSTRUCTION (TEMPORARY). THE SUMPS WILL BE BACKFILLED UPON FINAL STABILIZATION DURING RESTORATION.
- MAINTENANCE:**
- 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 AS SOON AS CONDITIONS ALLOW.
  - MAINTENANCE OF RIGHT-OF-WAY DIVERSIONS SHALL BE PROVIDED UNTIL RIGHT-OF-WAY HAS ACHIEVED PERMANENT STABILIZATION.
  - RIGHT-OF-WAY DIVERSIONS ON RETIRED RIGHT-OF-WAYS SHALL BE LEFT IN PLACE AFTER PERMANENT STABILIZATION HAS BEEN ACHIEVED.
  - CONTRACTOR SHALL RESTORE ALL WATERBARS AT THE END OF EACH WORKDAY AND PRIOR TO A RAIN EVENT.



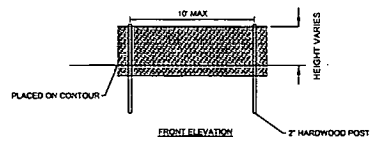
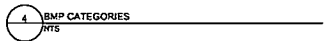
- NOTES:**
- WATERBARS SHOULD BE INSTALLED ACROSS THE ENTIRE ROADWAY ON ALL SLOPES GREATER THAN 5%.
  - WATERBARS SHALL BE PLACED AT 2% TO 4% SLOPE DOWNHILL. THEY SHALL BE SPACED AT THE INCREMENTS AS SHOWN ON THE PLANS, AND IN ACCORDANCE WITH WYDEP EAS STANDARDS.
  - WATERBARS SHOULD BE CONSTRUCTED TO DISCHARGE TO A REPAIR 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.
  - REFER TO WYDEP MANUAL, SECTIONS 3.03-1, 3.35-4, & 3.35-5 FOR MORE INFORMATION.
- MAINTENANCE:**
- WATERBARS SHOULD BE INSPECTED WEEKLY (DAILY ON ACTIVE ROADS) AND AFTER EACH RUNOFF EVENT. DAMAGED OR ERODED WATERBARS SHALL BE RESTORED TO ORIGINAL DIMENSIONS AS SOON AS CONDITIONS ALLOW.
  - MAINTENANCE OF WATERBARS SHALL BE PROVIDED UNTIL ROADWAY, SKIDTRAIL, OR RIGHT-OF-WAY HAS ACHIEVED PERMANENT STABILIZATION.
  - WATERBARS ON RETIRED ROADWAYS, SKIDTRAILS, AND RIGHT-OF-WAYS SHALL BE LEFT IN PLACE AFTER PERMANENT STABILIZATION HAS BEEN ACHIEVED, UNLESS OTHERWISE SPECIFIED BY LANDOWNER STIPULATIONS.



- STRAW BALES SHOULD BE PLACED ON THEIR SIDES WITH THE THREE FACING UP.
- STRAW BALES SHOULD BE STAPLED TWO HIGH WITH GEO-TEXTILE FABRIC PLACED BETWEEN BALES.
- USE OF GEO-TEXTILE FABRIC SHOULD BE WITH FILLING.
- FOR STEEP SLOPES AND DISCHARGES, DRAIN THROUGH BOTH STRAW BALES IN METAL TRENCH AND NON-AVAILABLE WOODEN STAPLES SHOULD BE A MINIMUM OF 2" (2" STAPLES SHOULD BE DEVELOPED AND THE FORMER TYPE OF THE STRAW BALES AS STRUCTURAL SUPPORT AS WELL AS THROUGH THE BALES TO HELP PIN THE GEO-TEXTILE FABRIC IN PLACE.
- DEWATERING STRUCTURES PROTECTING SHOULD BE DESIGNED TO ACCOMMODATE THE SIZE OF THE WATER PUMP BEING UTILIZED.
- DEWATERING STRUCTURE DIMENSIONS MUST BE ADJUSTED TO SUIT THE VARIOUS SIZES OF FILTER BAGS. THOUGH BAGS WITH FOOTING SPECIFICATIONS SHOULD BE USED, THE STRUCTURE SHOULD BE COMPLETELY DIMENSIONED THE BAG IS USED.
- WHEN PLANNING LARGE AMOUNTS OF WATER FOR AN EXTENDED PERIOD OF TIME, BAGS, BELL HOLES, ETC. INTERNAL PLANNING MAY BE NECESSARY TO AVOID OVERFLOWING THE DETERMINED STRUCTURE.
- USE OF MULTIPLE DEWATERING STRUCTURES MAY BE NECESSARY UNDER SPECIAL CIRCUMSTANCES.
- FOR STEEP SLOPES, WHEN PLACING OUT THE TRENCH WITH A HIGH WATER PUMP AT A TRENCH, IT SHOULD BE BY THE DETERMINING STRUCTURE WITH A COMPATIBLE FILTER BAG SHOULD BE APPROPRIATE. FIELD ADJUSTMENTS WILL BE MADE IF FLOW IS OVERWHELMING THE STRUCTURE.
- ADDITIONAL FLOOD CONTROL MAY BE UTILIZED DOWNSTREAM OF DETERMINING STRUCTURES WHERE NECESSARY.
- DEWATERING STRUCTURE WILL BE PLACED TO MAXIMIZE AVAILABLE VEGETATIVE STRIP.



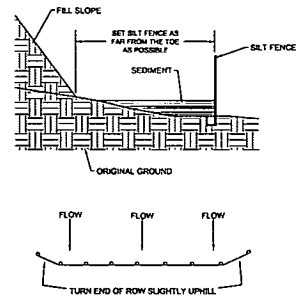
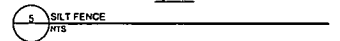
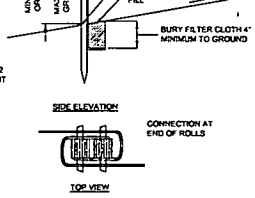
CATEGORY	PRODUCT
TYPE A	1 - SILT SAVER SILT FENCE PRIORITY 2 (BELTED)
	2 - ACF ENVIRONMENTAL FILTRATION BARRIER (SMART FENCE FB) WITH WOOD POSTS
	3 - MEDIUM DUTY WOVEN BELTED WBSF25-6 SILT FENCE 2 STAGE
TYPE B	1 - SILT SAVER SILT FENCE PRIORITY 1 (BELTED)
	2 - ACF ENVIRONMENTAL FILTRATION BARRIER SMART FENCE 36 (SD) WITH WOOD POSTS
	3 - ACF ENVIRONMENTAL FILTRATION BARRIER (SMART FENCE FB) ORANGE WITH WOOD POSTS
	4 - HEAVY DUTY WOVEN BELTED WBSF25-4 SILT FENCE 2 STAGE
TYPE C	1 - ACF ENVIRONMENTAL SMARTFENCE 42
	2 - SUPER SILT FENCE



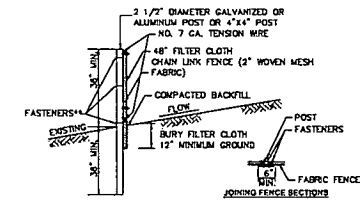
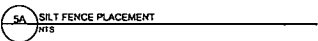
**NOTE:** STANDARD FILTER FABRIC MUST BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER MUST BE EXTENDED AT LEAST 8 FEET UP SLOPE 45 DEGREES TO MAIN BARRIER ALIGNMENT.

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

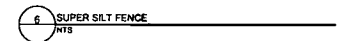
SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.



Slope Percent	Standard Filter Fabric	Standard Filter Fabric	Standard Filter Fabric	Super Silt Fence
2.5%	400	300	200	100
4.12%	300	200	150	75
13.21%	200	150	100	50
22.34%	100	75	50	25
25.90%	50	25	15	12.5



- NOTE:** 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 TOPRAN. 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.



**THRASHER**

**CONFIDENTIAL BUSINESS INFORMATION**

**IFP**

ISSUED FOR PERMITTING

DATE: 06/26/2019

AFE # LBTY190003

NO.	DESCRIPTION	QTY

NO.	DESCRIPTION	QTY

1. ALL BENCH, STRENGTH OF PIPELINE AND MAN CALCULATIONS ALONG WITH ROUTING WERE PROVIDED BY MARATHON PETROLEUM LOGISTICS (MPL) / MARKWEST AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY MARATHON PETROLEUM LOGISTICS (MPL) / MARKWEST.
2. THIS SHEET IS INTENDED TO BE PLACED ON AFS 0 (2" x 34") FOR REDUCTIONS, REFER TO ORIGINAL SCALE.
3. PIPE LINES BASED OFF OF PROPOSED BULKHEAD OF COURSE. LINES SHOWN ARE FOR PERMITS. THE TOTAL OF ALL 3 LINES.
4. QUANTITIES ARE BASED OFF OF QUANTIFICATION COMPLETED IN 2017. THE AREA IS BEING RE-ACQUIRED FOR THE PROJECT AND QUANTITIES WILL BE UPDATED ACCORDINGLY.

**MPL MARKWEST**

Energy Partners, L.P.

**SMITHBURG TO SHERWOOD LIQUID LINES**

**ESCP DETAILS**

3 - 12" PIPELINES

DODDORIDGE COUNTY, WEST VIRGINIA

SHEET 19

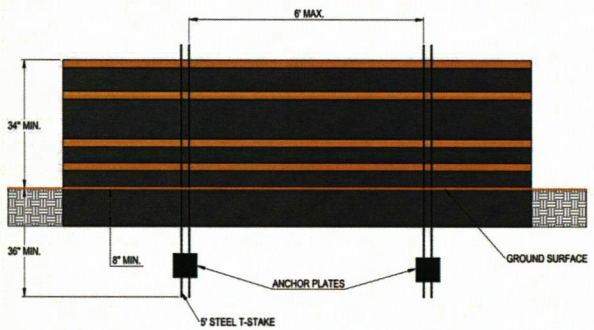
SHT. NAME: 050-10095/SSLV/ESCP2

REV. 2

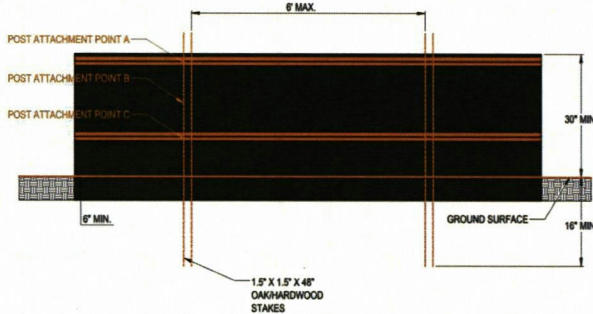




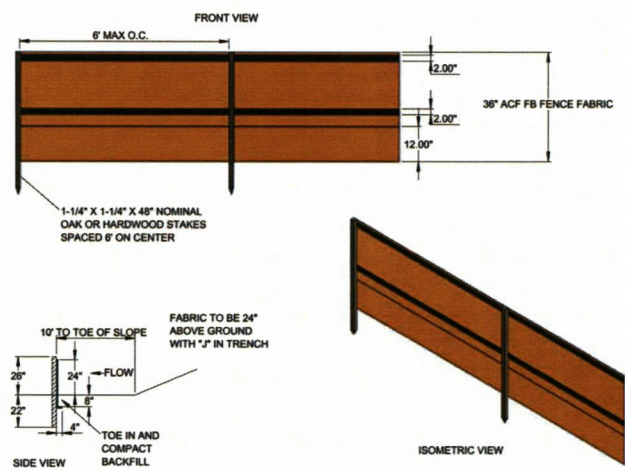
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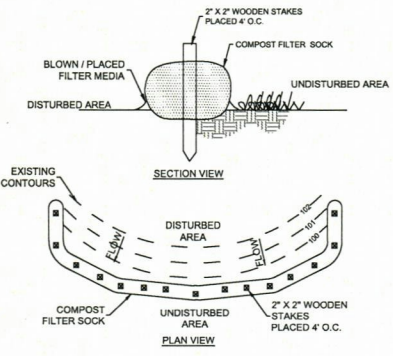
9A ACF ENVIRONMENTAL SMARTFENCE 42  
NTS



9B ACF ENVIRONMENTAL SMARTFENCE 36 (SD) WITH WOOD POSTS  
NTS



9C ACF ENVIRONMENTAL FILTRATION BARRIER (SMARTFENCE FB) WITH WOOD POSTS  
NTS



10 COMPOST FILTER SOCK  
NTS

- CONDITIONS WHERE PRACTICE APPLIES:**
- INSTALL ON DISTURBED AREAS THAT REQUIRE IMMEDIATE EROSION PROTECTION.
  - USE ON SLOPES REQUIRING STABILIZATION UNTIL PERMANENT VEGETATION CAN BE ESTABLISHED.
  - CAN BE USED ALONG THE PERIMETER OF THE PIPELINE, AS A CHECK DAM IN UNLINED DITCHES AND AROUND TEMPORARY STOCKPILES.
  - SOCK CAN BE STAKED TO THE GROUND USING MELLOW CUTTINGS FOR ADDED REVEGETATION.
  - 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.
  - ROLLS ARE A SHORT-TERM SOLUTION TO HELP ESTABLISH NATIVE VEGETATION.
  - ROLLS STORE MOISTURE FOR VEGETATION PLANTED IMMEDIATELY UPSLOPE.

- CONSTRUCTION SPECIFICATIONS:**
- IT IS CRITICAL THAT SOCK IS INSTALLED PERPENDICULAR TO THE FLOW DIRECTION AND PARALLEL TO THE SLOPE CONTOUR.
  - NARROW TRENCHES MAY 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 9 TO 7 INCHES, OR 2/3 TO 2/3 OF THE THICKNESS OF THE SOCK.
  - START CONSTRUCTION OF TRENCHES AND INSTALLING SOCK FROM THE BASE OF THE SLOPE AND WORK UPSLOPE. EXCAVATED MATERIAL SHOULD BE SPREAD EVENLY ALONG THE UPSLOPE 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.
  - INSTALL THE SOCK SNUGLY INTO THE TRENCHES AND ABUT TIGHTLY END TO END. DO NOT OVERLAP THE ENDS.
  - INSTALL STAKES AT EACH END OF THE SOCK, AND AT A MINIMUM OF 4-FOOT CENTERS ALONG THE ENTIRE LENGTH OF THE SOCK.
  - IF REQUIRED, INSTALL PILOT HOLES FOR THE STAKES USING A STRAIGHT BAR TO DRIVE HOLES THROUGH THE SOCK AND INTO THE SOIL.
  - AT A MINIMUM, WOODEN STAKES SHOULD BE APPROXIMATELY 2 X 2 X 24 INCHES. MELLOW CUTTINGS OR 3/8-INCH REBAR CAN ALSO BE USED FOR STAKES.
  - STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE SOCK, LEAVING 2 TO 3 INCHES OF THE STAKE PROTRUDING ABOVE THE SOCK.

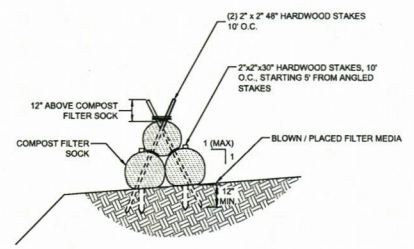
10A COMPOST FILTER SOCK  
NTS

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

Slope Percent	Maximum Slope Length Above Sediment Control for Feet between*				
	5 to 10% and Sediment control	10 to 15% and Sediment control	15 to 20% and Sediment control	20 to 25% and Sediment control	25 to 30% and Sediment control
2 to 5 feet	800 (100)	700 (100)	600 (100)	500 (100)	400 (100)
5	400 (100)	300 (100)	200 (100)	100 (100)	0 (100)
10	200 (100)	100 (100)	0 (100)	0 (100)	0 (100)
15	100 (100)	0 (100)	0 (100)	0 (100)	0 (100)
20	0 (100)	0 (100)	0 (100)	0 (100)	0 (100)
25	0 (100)	0 (100)	0 (100)	0 (100)	0 (100)
30	0 (100)	0 (100)	0 (100)	0 (100)	0 (100)
35	0 (100)	0 (100)	0 (100)	0 (100)	0 (100)
40	0 (100)	0 (100)	0 (100)	0 (100)	0 (100)
45	0 (100)	0 (100)	0 (100)	0 (100)	0 (100)
50	0 (100)	0 (100)	0 (100)	0 (100)	0 (100)

\* Based on a failure point of 20 to 25 ft. For slopes of 20% or greater all values have been reduced by 100 to 200 ft. of slope, unretained walls associated to retaining length of sediment control device, 1 to 2 ft. to 20 mm (3/4 in) size stones.  
\*\* Effective height of sediment control after installation and with constant head from runoff as determined by Ohio State University.

10B COMPOST FILTER SOCK  
NTS



10C TRIPLE STACK FILTER SOCK  
NTS

**THRASHER**  
**CONFIDENTIAL BUSINESS INFORMATION**

**IFP**  
ISSUED FOR PERMITTING  
DATE: 06/26/2019  
AFE # LBTY190003

SUMMARY OF MATERIALS (3D)		
NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)		
NO.	DESCRIPTION	QTY

**GENERAL INFORMATION**

- ALL DESIGN, STRENGTH OF PIPELINE AND MASP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY MARATHON PETROLEUM LOGISTICS (MPL) / MARKWEST AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY MARATHON PETROLEUM LOGISTICS (MPL) / MARKWEST.
- THIS SHEET IS INTENDED TO BE PLOTTED ON ANSI D (22" X 34") FOR REDUCTIONS, REFER TO GRAPHIC SCALE.
- PIPE LENGTHS BASED OFF OF PROPOSED BASELINE OF CORROSION LENGTHS SHOWN ARE PER PIPE, NOT THE TOTAL OF ALL 3 LINES.
- QUANTITIES ARE BASED OFF OF DELINEATION COMPLETED IN 2017. THE AREA IS BEING RE-DELINEATED FOR THE PROJECT AND QUANTITIES WILL BE UPDATED ACCORDINGLY.

**MPLX MARKWEST**  
Energy Partners, L.P.

**SMITHBURG TO SHERWOOD LIQUID LINES ESCP DETAILS**  
3 - 12" PIPELINES

DODDRIE COUNTY, WEST VIRGINIA

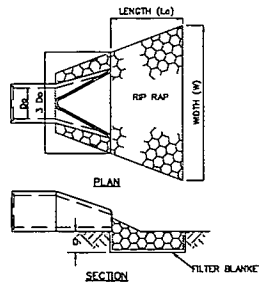
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SCALE: AS SHOWN  
DESIGNED BY: ALL (TJW)  
CHECKED BY: ALL (TJW)

SHEET 21  
SHT. NAME: 050-10095/SSL/ESCP4 REV. 2



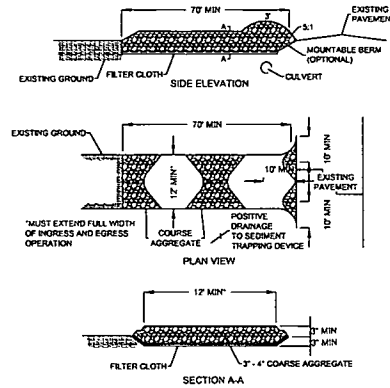






- NOTES:**
- IF FLARED END SECTION IS DISCHARGING INTO DITCH FROM THE SIDE, EXTEND RIP RAP UP DITCH BANK ON OFF-SIDE A MINIMUM OF 4 FEET.
  - USE WOOD RIP RAP GRADATION AND FILTER BLANKET REQUIREMENTS PER SECTION 3.17 OF THE WEST VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL.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

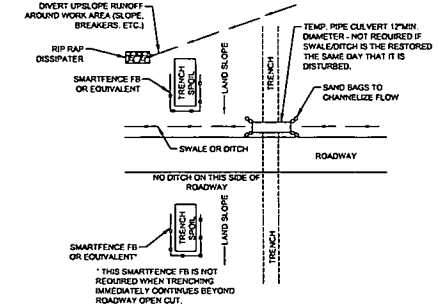
17 RIP RAP APRON  
NTS



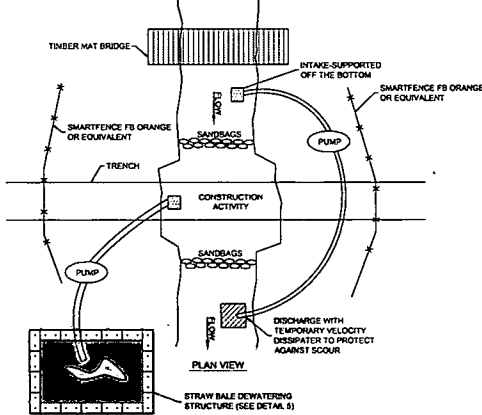
- APPROPRIATE UNDERDRAINS:**
- ALONG THE ENTRANCE AND EXIT AREA OF ALL VENTILATION, EXHAUST, AND OTHER BLACKSMITH EXHAUST, AND
  - ALONG THE ENTRANCE AND EXIT AREA OF ALL VENTILATION, EXHAUST, AND OTHER BLACKSMITH EXHAUST, AND
  - ALONG THE ENTRANCE AND EXIT AREA OF ALL VENTILATION, EXHAUST, AND OTHER BLACKSMITH EXHAUST, AND
  - ALONG THE ENTRANCE AND EXIT AREA OF ALL VENTILATION, EXHAUST, AND OTHER BLACKSMITH EXHAUST, AND

- MAINTENANCE:**
- MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT AND
  - MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT AND
  - MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT AND
  - MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT AND

18 STABILIZED CONSTRUCTION ENTRANCE  
NTS

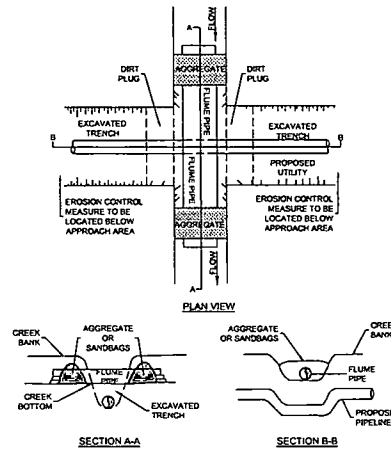


19 OPEN CUT ROAD CROSSING  
NTS

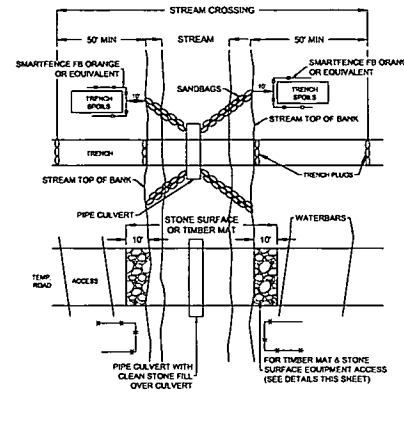


- NOTES:**
- DEWATERING STRUCTURE SHOULD BE PLACED IN WELL VEGETATED STRIP.
  - TOP 6"-12" OF NATURAL STREAM SUBSTRATE SHOULD BE ISOLATED DURING IN-STREAM TRENCHING AND RESTORED UPON COMPLETION OF FINAL STREAM STABILIZATION.
  - ENVIRONMENTAL INSPECTOR MUST VERIFY DAM AND PUMP ANCHOR SETUP.
  - MUST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

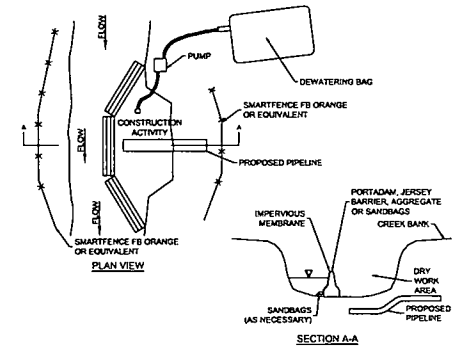
20 OPEN CUT STREAM CROSSING  
NTS



21 FLUME PIPE CROSSING  
NTS



22 FLUMED STREAM CROSSING WITH ACCESS ROAD  
NTS



23 COFFERDAM CROSSING  
NTS

**THRASHER**

**IFP**

ISSUED FOR PERMITTING

DATE: 06/26/2019

A/E # LBTY190003

**SUMMARY OF MATERIALS (3D)**

NO.	DESCRIPTION	QTY

**SUMMARY OF MATERIALS (3D)**

NO.	DESCRIPTION	QTY

**REVISION**

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM KLD/PELLEDO & MARKWEST	6/26/19	RLA
2	REVISED PER COMMENTS FROM KLD/PELLEDO, MARKWEST & THRASHER	6/26/19	RLA

**GENERAL INFORMATION**

- ALL DESIGN, STRENGTH OF PIPELINE AND MATH CALCULATIONS ALONG WITH HOLDING WERE PREPARED BY MARATHON PETROLEUM LOGISTICS (MPL) / MARKWEST AND PROVIDED TO THRASHER FOR HOLDING OF THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR MATHS PROVIDED BY MARATHON PETROLEUM LOGISTICS (MPL) / MARKWEST.
- THIS SHEET IS INTENDED TO BE PRINTED ON A4 (210 x 297) FOR REFERENCE. REFER TO GRAPHIC SCALE.
- PIPE LENGTHS ARE BASED OFF OF PROPOSED BASELINE OF CORRIDOR. LENGTHS SHOWN ARE PER PIPE, NOT THE TOTAL OF ALL 3 LINES.
- QUANTITIES ARE BASED OFF OF QUANTIFICATION COMPLETED IN 2017. THE AREA IS BEING RE-EVALUATED FOR THE PROJECT AND QUANTITIES WILL BE UPDATED ACCORDINGLY.

**MPL MARKWEST**  
Energy Partners, L.P.

**SMITHBURG TO SHERWOOD LIQUID LINES  
ESCP DETAILS**

3 - 12" PIPELINES

DOODRIDGE COUNTY, WEST VIRGINIA

DATE: 06/26/2019  
SCALE: AS SHOWN  
SHEET 23  
SHT. NAME: 050-10095\SSLLV\SC06 REV. 2

**CONFIDENTIAL BUSINESS  
INFORMATION**





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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

29 TEMPORARY SEEDING CHART  
NTS

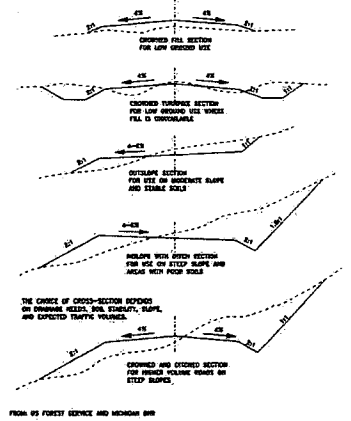
MARATHON PETROLEUM LOGISTICS (MPL) / MARKWEST Default Premium Mix (200 - 275 LBS per Acre)	
Named Variety of Forage Perennial Ryegrass	20%
Named Variety of Forage Tall Fescue (not Fawn)	20%
Claris Timothy	15%
Orchardgrass	10%
Geotail Trifol	10%
Madison Red Clover	5%
Ladino Clover	5%
Kentucky Bluegrass VNS	5%
Albia Clover	5%
Albia	5%
* All seed mixes require double inoculation	
MARATHON PETROLEUM LOGISTICS (MPL) / MARKWEST Default Midline Mix (150 - 175 LBS per Acre)	
Named Variety of Forage Perennial Ryegrass	20%
Claris Timothy	10%
Orchardgrass	10%
Ladino White Clover	20%
Geotail Trifol	10%
Albia	10%
Named Variety of Forage Perennial Ryegrass	10%
Annual Ryegrass	10%
* All seed mixes require double inoculation	
MARATHON PETROLEUM LOGISTICS (MPL) / MARKWEST General Compost 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%
Albia Clover	5%
Geotail Trifol	5%
* All seed mixes require double inoculation	

30 PERMANENT SEEDING CHART  
NTS

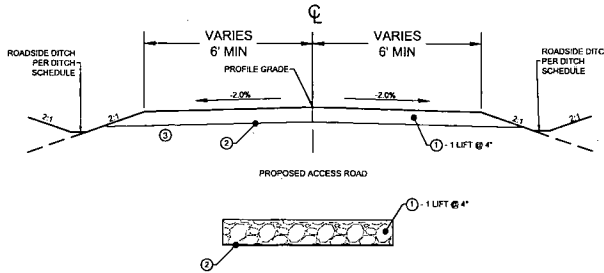
Lime
1.5 tons per acre
10/20/20
200 lbs per acre
Straw Mulching
2 tons per acre

31 LIME, FERTILIZER, AND MULCH CHARTS  
NTS

TYPES OF ROAD CROSS-SECTIONS



32 TYPES OF ROAD CROSS-SECTIONS  
NTS



- LEGEND
- ① 3" CLEAN AGGREGATE (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.

33 ACCESS ROAD TYPICAL SECTION  
NTS

**THRASHER**

**CONFIDENTIAL BUSINESS INFORMATION**

**IFP**

ISSUED FOR PERMITTING

DATE: 06/26/2019

AFE # LBTY190003

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)

NO.	DESCRIPTION	QTY

REVISION

NO.	DESCRIPTION	DATE	BY
1	REVISED PER COMMENTS FROM KLEINFELDER & MARKWEST	06/26/19	ALL
2	REVISED PER COMMENTS FROM KLEINFELDER, MARKWEST, & THRASHER	06/26/19	ALL

GENERAL INFORMATION

1. ALL DESIGN, STRENGTH OF PIPELINE AND MASP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY MARATHON PETROLEUM LOGISTICS (MPL) / MARKWEST AND PROVIDED TO THRASHER FOR REVIEW. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY MARATHON PETROLEUM LOGISTICS (MPL) / MARKWEST.
2. THIS SHEET IS INTENDED TO BE PLOTTED ON AYS D (22" x 34") FOR REDUCTIONS, REFER TO GRAPHIC SCALE.
3. PIPE LENGTHS BASED OFF OF PROPOSED BASELINE OF CORRIDOR. LENGTHS SHOWN ARE PER PIPE, NOT THE TOTAL OF ALL 3 LINES.
4. QUANTITIES ARE BASED OFF OF DELINEATION COMPLETED IN 2017. THE AREA IS BEING RE-DELINEATED FOR THE PROJECT AND QUANTITIES WILL BE UPDATED ACCORDINGLY.

**MPL MARKWEST**  
Energy Partners, L.P.

SMITHBURG TO SHERWOOD LIQUID LINES  
ESCP DETAILS  
3 - 12" PIPELINES

DODDRIDGE COUNTY, WEST VIRGINIA

DATE: 06/26/2019

SCALE: AS SHOWN

DESIGNER: J. BUCKE

SHEET 25

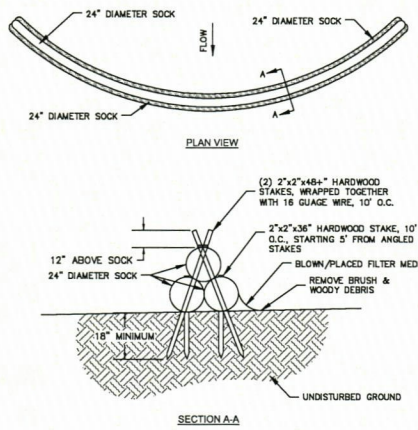
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REV. 2

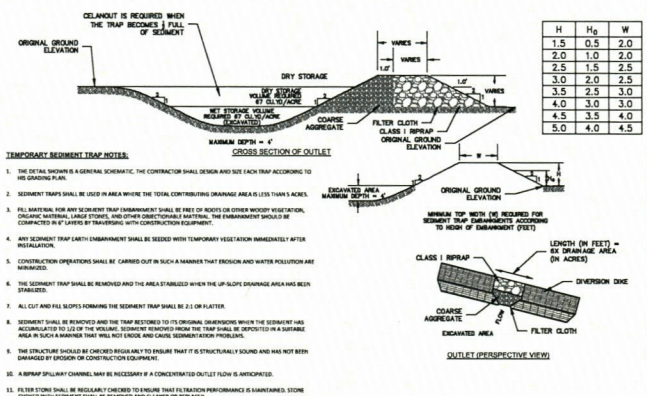




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 CAD FILE: 0501-1005 Markwest - Barnwood To Smithburg/Sherwood/Liquid Lines/ESCP DETAIL SHEETS.dwg



41 TRIPLE STACK FILTER SOCK SEDIMENT TRAP  
NTS



42 TEMPORARY SEDIMENT TRAP  
NTS  
DETAIL PROVIDED BY ANTERO MEDITERRAN LLC

**NOTES:**  
 ON MOST LOCATIONS MARATHON PETROLEUM LOGISTICS (MPLX) / MARKWEST WILL ALSO CONSTRUCT EROSION AND SEDIMENT (EAS) CONTROLS ABOVE AND BEYOND THE EAS 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 EAS 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 MARATHON PETROLEUM LOGISTICS (MPLX) / MARKWEST CONSTRUCTION RELEASE WHICH IS SENT OUT JUST PRIOR TO CONSTRUCTION BEGINNING. THE PHASE I, II, AND III CONTROLS WILL BE CONSTRUCTED AS FOLLOWS:



43A SUPPLEMENTAL 404 CWA BMP CONTROLS  
NTS  
DETAIL PROVIDED BY ANTERO MEDITERRAN LLC



43B SUPPLEMENTAL 404 CWA BMP CONTROLS  
NTS  
DETAIL PROVIDED BY ANTERO MEDITERRAN LLC



43C SUPPLEMENTAL 404 CWA BMP CONTROLS  
NTS  
DETAIL PROVIDED BY ANTERO MEDITERRAN 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.

44 DEFINITIONS  
NTS  
DETAIL PROVIDED BY ANTERO MEDITERRAN LLC

**THRASHER**  
**IFP**  
 ISSUED FOR PERMITTING  
 DATE: 06/26/2019  
 AFE # LBTY190003  
**CONFIDENTIAL BUSINESS INFORMATION**

SUMMARY OF MATERIALS (3D)			SUMMARY OF MATERIALS (3D)		
NO.	DESCRIPTION	QTY	NO.	DESCRIPTION	DATE
1	REVISED PER COMMENTS FROM KLEINFELDER & MARKWEST	06/26/19			
2	REVISED PER COMMENTS FROM KLEINFELDER, MARKWEST, & THRASHER	06/26/19			

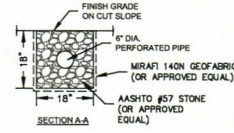
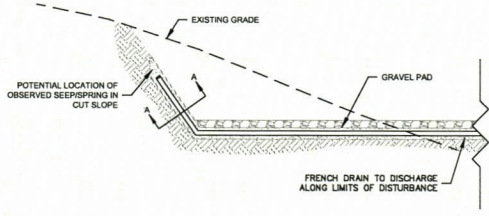
**GENERAL INFORMATION**

- ALL DESIGN, STRENGTH OF PIPELINE AND MAP CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY MARATHON PETROLEUM LOGISTICS (MPLX) / MARKWEST AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY MARATHON PETROLEUM LOGISTICS (MPLX) / MARKWEST.
- THIS SHEET IS INTENDED TO BE PLOTTED ON A8.5 (11" x 17") FOR REDUCTIONS, REFER TO DRAWING SCALE.
- PIPE LENGTHS BASED OFF OF PROPOSED BASELINE OF CORROSION LENGTHS SHOWN ARE PER PIPE, NOT THE TOTAL OF ALL 3 LINES.
- QUANTITIES ARE BASED OFF OF DELINEATION COMPLETED IN 2017. THE AREA IS BEING RE-DEVELOPED FOR THE PROJECT AND QUANTITIES WILL BE UPDATED ACCORDINGLY.

**MPLX MARKWEST**  
 Energy Partners, L.P.  
**SMITHBURG TO SHERWOOD LIQUID LINES**  
**ESCP DETAILS**  
 3 - 12" PIPELINES  
 DODDRIDGE COUNTY, WEST VIRGINIA

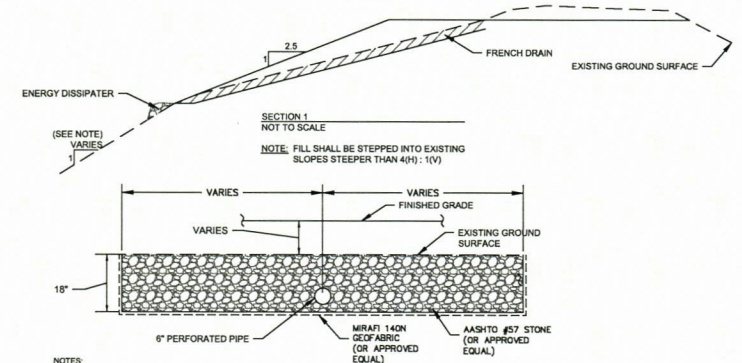
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SHT. NAME: 050-10095/SSL/VESCP10		REV. 2	





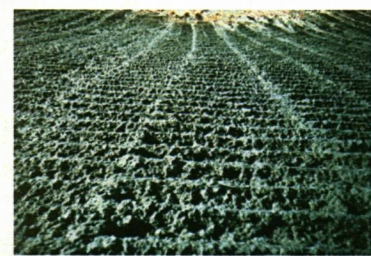
**NOTE:**  
IF EVIDENCE OF A SEEP/SPRING IN A CUT SLOPE IS OBSERVED, THE CONTRACTOR SHOULD INSTALL A FRENCH DRAIN PER DETAIL 36 ABOVE.

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



**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 MIRAF 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.

46 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 5 20" SLOPE	6:1	5:1	4:1	3:1	2:1	1.5:1	1:1
Soil Stabilizer (gal/acre)	4	5	6	7	8	9	10
Fiber (lbs/acre)	1,500	1,500	1,500	1,800	2,000	2,500	3,000

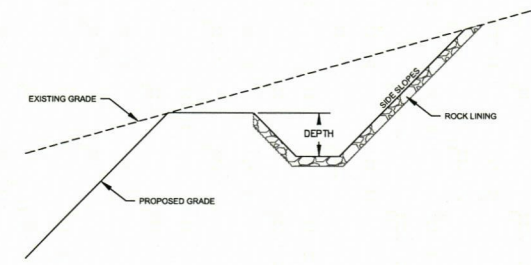
  

Maximum Rainfall of > 20" and for Site Winterization SLOPE	25:1	4:1	3:1
Soil Stabilizer (gal/acre)	6	8	10
Fiber (lbs/acre)	2,000	2,500	3,000

**NOTES:**  
A BONDED FIBER MATRIX (BFM) IS AN EFFECTIVE METHOD OF STABILIZING STEEP SLOPES WHEN USED PROPERLY. BFM+ MAKE USE OF A CROSS-LINKED HYDROGEL TACKIFIER TO BOND THERMALLY PROCESSED WOOD FIBERS. APPLICATION RATES VARY ACCORDING TO SITE CONDITIONS. FOR SLOPES UP TO 3:1 THE BFM SHOULD BE APPLIED AT A RATE OF 3,000 LBS/ACRE. STEEPER SLOPES MAY NEED AS MUCH AS 4,000 LBS/ACRE.  
BFMs SHOULD ONLY BE USED WHEN NO RAIN IS FORECASTED FOR AT LEAST 48 HOURS FOLLOWING 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. BFM+ SHOULD NOT BE APPLIED BETWEEN SEPTEMBER 20 AND APRIL 1.  
A POLYMER STABILIZED FIBER MATRIX (PSFM) CAN ALSO BE AN EFFECTIVE METHOD OF STABILIZING STEEP SLOPES WHEN USED PROPERLY. 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 PILLS 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 STAR STEP GRADING OR BENCHING SHOULD BE APPLIED PRIOR TO THE APPLICATION. MIXING AND APPLICATION RATES SHOULD FOLLOW MANUFACTURERS 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, FOM, OR PSFM SHOULD BE SPRAYED OVER THE AREA AT THE REQUIRED APPLICATION RATE. (SEE ABOVE TABLES)

47 BONDED FIBER MATRIX (HYDROMULCH)  
NTS



**NOTE:**  
DRAINAGE CHANNEL DIMENSIONS AND LINING WILL BE DETERMINED BY ENGINEER AS APPLICABLE.

48 TYPICAL ROCK LINED CHANNEL  
NTS

**THRASHER**  
**IFP**  
ISSUED FOR PERMITTING  
DATE: 06/26/2019  
AFE # LBTY190003

**CONFIDENTIAL BUSINESS INFORMATION**

SUMMARY OF MATERIALS (3D)		
NO.	DESCRIPTION	QTY

SUMMARY OF MATERIALS (3D)		
NO.	DESCRIPTION	QTY

GENERAL INFORMATION		
1.	ALL DESIGN, STRENGTH OF PIPELINE AND MAP CALCULATIONS ALONG WITH ROLTING WERE PREPARED BY MARATHON PETROLEUM LOGISTICS (MPL) / MARKWEST AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY MARATHON PETROLEUM LOGISTICS (MPL) / MARKWEST.	
2.	THIS SHEET IS INTENDED TO BE PLOTTED ON AHS 9 (24" X 36"). FOR REDUCTIONS, REFER TO GRAPHIC SCALE.	
3.	PIPE LENGTHS BASED OFF OF PROPOSED BASELINE OF CORRIDOR. LENGTHS SHOWN ARE PER PIPE, NOT THE TOTAL OF ALL 3 LINES.	
4.	QUANTITIES ARE BASED OFF OF DELINEATION COMPLETED IN 2017. THE AREA IS BEING RE-DELINEATED FOR THE PROJECT AND QUANTITIES WILL BE UPDATED ACCORDINGLY.	

**MPLX MARKWEST**  
Energy Partners, L.P.

**SMITHBURG TO SHERWOOD LIQUID LINES  
ESCP DETAILS**  
3 - 12" PIPELINES

DODDRIDGE COUNTY, WEST VIRGINIA

SCALE: AS SHOWN  
DATE: 06/26/2019  
DRAWN BY: [Name]  
CHECKED BY: [Name]

SHT. NAME: 050-110095\SL\ESCP11 REV. 2

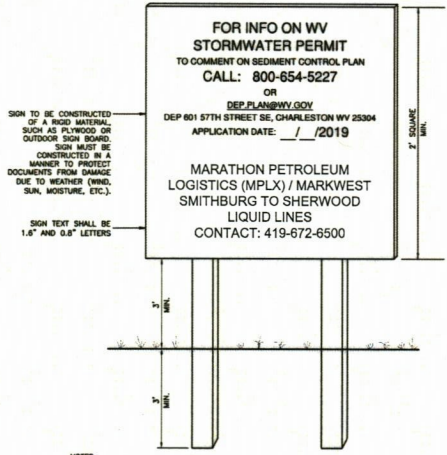
L:\MS\2019\062619\050-110095\Markwest\Barnwood To Smithburg\Drainage\ESCP DETAIL SHEETS.dwg USER: markw1\_j lucado PLOT DATE/TIME: 6/27/2019 4:09 PM





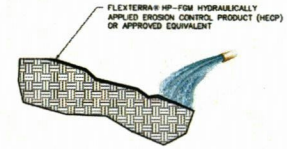


USER: robert.j.lucas  
 PLOT DATE/TIME: 6/27/2019 4:09 PM  
 LAYOUT FILE: ESCP13  
 CAD FILE: W:\050-10095\Markwest\Smithburg\05095\ESCP DETAIL SHEETS.dwg



- NOTES:**
1. THE WV STORMWATER PERMIT SIGN MUST BE LOCATED NEAR THE CONSTRUCTION ENTRANCE OF THE SITE, SUCH THAT IT IS ACCESSIBLE AND VIEWABLE BY THE GENERAL PUBLIC, BUT NOT OBSTRUCTING VIEWS AS TO CAUSE A SAFETY HAZARD. SIGN SHALL BE LOCATED WITHIN THREE MILES OF ACTIVE OPERATIONS. CONTRACTOR SHALL RELOCATE AS WORK PROGRESSES.
  2. ALL POSTED DOCUMENTS MUST BE MAINTAINED IN A CLEARLY READABLE CONDITION AT ALL TIMES THROUGHOUT CONSTRUCTION AND UNTIL THE NOTICE-OF-TERMINATION (N.O.T.) IS FILED FOR THE PERMIT.
  3. CONTRACTOR SHALL POST OTHER STORMWATER AND/OR EROSION AND SEDIMENTATION CONTROL RELATED PERMITS ON THE SIGN AS REQUIRED BY THE GOVERNING AGENCY.
  4. SIGN SHALL BE LOCATED OUTSIDE OF PUBLIC RIGHT-OF-WAY AND EASEMENTS UNLESS APPROVED BY THE GOVERNING AGENCY.
  5. CONTRACTOR IS RESPONSIBLE FOR ENSURING STABILITY OF THE WV STORMWATER PERMIT SIGN.

**DETAIL 38  
WV STORMWATER PERMIT SIGN**  
NOT TO SCALE



**SPECIFICATION: 31.25 14.13 - HIGH PERFORMANCE-FLEXIBLE GROWTH MEDIUM**

THIS SECTION SPECIFIES A HYDRAULICALLY-APPLIED, 100% BIODEGRADABLE, HIGH PERFORMANCE-FLEXIBLE GROWTH MEDIUM (HP-FGM) THAT IS MANUFACTURED IN THE UNITED STATES AND IS COMPOSED OF 100% RECYCLED THERMALLY REFINED DRYING A PRESSURE VESSEL WOOD FIBERS, CRIPPLED INTERLOCKING MESH AND BIODEGRADABLE FIBERS, BOND-PORE GRANULES, NATURALLY DERIVED CROSSLINKED BIOPOLYMER AND WATER ABSORBENTS. THE HP-FGM IS PHYTOBIOLOGICALLY FREE FROM PLASTIC NETTING, REQUIRES NO CURING PERIOD AND UPON APPLICATION FORMS AN INSTANT BOND WITH THE SOIL SURFACE TO CREATE A CONTINUOUS, POROUS, ABSORBENT AND FLEXIBLE EROSION RESISTANT BLANKET THAT ALLOWS FOR RAPID GERMINATION AND ACCELERATED PLANT GROWTH. ALL COMPONENTS OF THE FGM SHALL BE PRE-PACKAGED BY THE MANUFACTURER TO ASSURE BOTH MATERIAL PERFORMANCE AND COMPLIANCE WITH THE FOLLOWING VALUES. NO CHEMICAL ADDITIVES WITH THE EXCEPTION OF FERTILIZER, LIMING AND BIODEGRADABLE MATERIALS SHOULD BE ADDED TO THIS PRODUCT.

1. THERMALLY PROCESSED WITH A PRESSURE VESSEL WOOD FIBER: 85% ± 5%
  - a. HEATED TO A TEMPERATURE GREATER THAN 300 DEGREES FAHRENHEIT (150 DEGREES CELSIUS) FOR 3 MINUTES AT A PRESSURE GREATER THAN 80 PSI (048 KPA)
  - b. CONDENSED BOND POLYMER AND WATER ABSORBENTS: 15% ± 1%
  - c. CRIPPLED MESH WITH BIODEGRADABLE INTERLOCKING FIBERS: 5% ± 1%
  - d. BOND-PORE GRANULES: 4% ± 1%

**INSTALLATION**

STRICTLY COMPLY WITH EQUIPMENT MANUFACTURERS' INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS. USE APPROVED HYDRO-SPRAYING MACHINES WITH FAN-TYPE NOZZLE (90-DEGREE TIPS) TO ACHIEVE OPTIMAL SOIL SURFACE COVERAGE. APPLY HP-FGM FROM OPPOSITE DIRECTIONS TO SOIL SURFACE. ROUGH SURFACES, ROCKY TERRAIN, GUT TRACINGS AND POOLED AREAS MAY REQUIRE HIGHER APPLICATION RATES TO ACHIEVE 100% COVER. SLOPE INTERRUPTER DEVICES OR WATER DIVERSION TECHNIQUES ARE RECOMMENDED WHEN SLOPE LENGTHS EXCEED 100 FEET (30 M). MAXIMUM SLOPE LENGTH IS FOR PRODUCT APPLICATIONS ON A 3:1 TO 1:1 SLOPE. FOR APPLICATION ON STEEPER SLOPES, SLOPE INTERRUPTER LENGTHS MAY NEED TO BE DECREASED BASED ON ACTUAL SITE CONDITIONS. NOT RECOMMENDED FOR CHANNELS OR AREAS WITH CONCENTRATED WATER FLOW. NO CHEMICAL ADDITIVES WITH THE EXCEPTION OF FERTILIZER, LIMING AND BIODEGRADABLE MATERIALS SHOULD BE ADDED TO THIS PRODUCT. TO ENSURE PROPER APPLICATION RATES, MEASURE AND STAKE AREA. FOR MAXIMUM PERFORMANCE, APPLY HP-FGM IN A TWO-STEP PROCESS AS FOLLOWS:

1. STEP ONE: APPLY FERTILIZER WITH SPECIFIED PRESCRIPTIVE AGRONOMIC FORMULATIONS AND 50% OF SEED WITH A SMALL AMOUNT OF HP-FGM FOR VISUAL MATTERING.
2. STEP TWO: MIX BALANCE OF SEED AND APPLY HP-FGM AT A RATE OF 80 LB PER 125 GALLONS (22.83 M<sup>3</sup>) LITERS OF WATER OVER FRESHLY SEEDS SURFACE. CRIPPLED MESH RATES WITH EQUIPMENT MANUFACTURER. DO NOT LEAVE SEEDS SURFACES UNPROTECTED, ESPECIALLY IF PRECIPITATION IS IMMINENT.

**APPLICATION RATES:** THESE APPLICATION RATES ARE FOR STANDARD CONDITIONS. DESIGNERS MAY WANT TO REDUCE RATES TO ENCOURAGE FASTER VEGETATION ESTABLISHMENT OR MAY NEED TO INCREASE APPLICATION RATES ON ROUGH SURFACES. CONSULT APPLICATION AND LOADING CHARTS TO DETERMINE NUMBER OF BAGS TO BE ADDED FOR DESIRED AREA AND APPLICATION RATE.

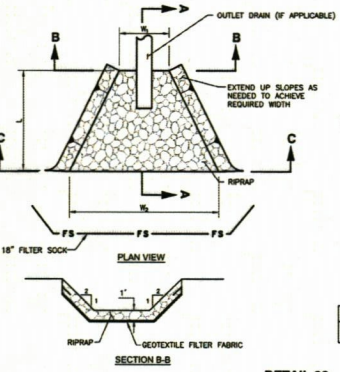
**SLOPE GRADIENT CONDITION**

ENGLISH	SI
1:4 TO 1:1	2000 LBS/AC
1:4 TO 1:1 AND 2:1 TO 1:1	3000 LBS/AC
2:1 TO 1:1 AND 2:1 TO 1:1	4000 LBS/AC
1:1 TO 1:1	5000 LBS/AC
1:1 TO 1:1	6000 LBS/AC
1:1 TO 1:1	7000 LBS/AC
1:1 TO 1:1	8000 LBS/AC
1:1 TO 1:1	9000 LBS/AC
1:1 TO 1:1	10000 LBS/AC

**INSPECTION:** INSPECT HP-FGM AREAS WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM 70% COVERAGE THROUGHOUT THE APPLICATION AREA.

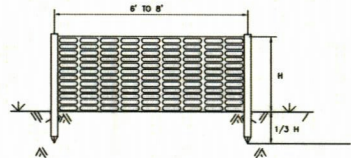
**MAINTENANCE:** RESTORE OR REPLACE DAMAGED OR DISPLACED HP-FGM WITHIN 4 CALENDAR DAYS.

**DETAIL 9B  
HIGH PERFORMANCE - FLEXIBLE GROWTH  
MEDIUM (OR EQUIVALENT APPROVED BY MARKWEST  
ENVIRONMENTAL COORDINATOR AND PROJECT MANAGER)**  
NOT TO SCALE



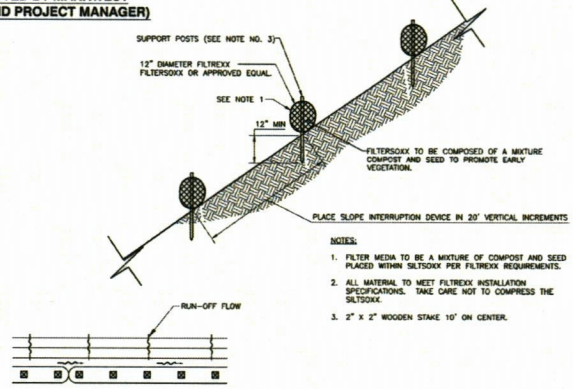
FEATURE	L	W	H	RIPPRAP
OUTLET DRAIN	3	1.5	3	ASHTO #1 OR EQUIVALENT

**DETAIL 28  
RIPPRAP APRON**  
NOT TO SCALE



- NOTES:**
1. POST SELECTION SHOULD BE BASED ON EXISTING STRENGTH NEEDS AND THE LENGTH OF TIME THE FENCE WILL BE IN PLACE. FLEXIBLE FIBERGLASS ROD POSTS ARE RECOMMENDED FOR PARK, ATHLETIC EVENTS AND CROWN CONTROL INSTALLATIONS. METAL T POSTS OR TREATED WOOD POSTS ARE TYPICALLY USED FOR CONSTRUCTION.
  2. POSTS SHOULD BE DRIVEN INTO THE GROUND TO A DEPTH OF 1/3 OF THE HEIGHT OF THE POST. FOR EXAMPLE A 6 FOOT POST SHOULD BE AT LEAST 2 FEET IN THE GROUND.
  3. SPACE POSTS EVERY 6 TO 8 FEET.
  4. SECURE FENCING TO POSTS WITH NYLON CABLE TIES. WOOD STRIPS MAY ALSO BE USED TO PROVIDE ADDITIONAL SUPPORT AND PROTECTION BETWEEN TIES AND POSTS.

**DETAIL 37  
ORANGE CONSTRUCTION FENCE DETAIL**  
NOT TO SCALE



- NOTES:**
1. FILTER MEDIA TO BE A MIXTURE OF COMPOST AND SEED PLACED WITHIN FILTER SOCK PER FILTER SOCK REQUIREMENTS.
  2. ALL MATERIAL TO MEET FILTER SOCK INSTALLATION SPECIFICATIONS. TAKE CARE NOT TO COMPRESS THE FILTER SOCK.
  3. 2" x 2" WOODEN STAKE 10' ON CENTER.

**DETAIL 31  
SLOPE INTERRUPTER**  
NOT TO SCALE

**THRASHER**

**CONFIDENTIAL BUSINESS  
INFORMATION**

**IFP**

ISSUED FOR PERMITTING

DATE: 06/26/2019

AFE # LBTY190003

**SUMMARY OF MATERIALS (3D)**

NO.	DESCRIPTION	QTY

**SUMMARY OF MATERIALS (3D)**

NO.	DESCRIPTION	QTY

**GENERAL INFORMATION**

1. ALL DESIGN, STRENGTH OF PIPELINE AND MASON CALCULATIONS ALONG WITH ROUTING WERE PREPARED BY MARATHON PETROLEUM LOGISTICS (MPLX) / MARKWEST AND PROVIDED TO THRASHER FOR INCLUSION ON THE PLANS. THRASHER ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THESE CALCULATIONS AND/OR ROUTE PROVIDED BY MARATHON PETROLEUM LOGISTICS (MPLX) / MARKWEST.
2. THIS SHEET IS INTENDED TO BE PLOTTED ON A85 D (22" x 34") FOR REDUCTIONS, REFER TO GRAPHIC SCALE.
3. PIPE LENGTHS BASED OFF OF PROPOSED BASELINE OF CORRIDOR. LENGTHS SHOWN ARE PER PIPE, NOT THE TOTAL OF ALL 3 LINES.
4. QUANTITIES ARE BASED OFF OF DELINEATION COMPLETED IN 2017. THE AREA IS BEING RE-DELINEATED FOR THE PROJECT AND QUANTITIES WILL BE UPDATED ACCORDINGLY.

**MPLX MARKWEST**  
Energy Partners, L.P.

**SMITHBURG TO SHERWOOD LIQUID LINES  
ESCP DETAILS**  
3 - 12" PIPELINES

DODDRIDGE COUNTY, WEST VIRGINIA

DATE: 6/26/2019  
SCALE: AS SHOWN  
DRAWN BY: RL/STW  
CHECKED BY: RL/STW  
SHEET 30  
SHT. NAME: 050-10095\SSLL\ESCP13  
REV. 2



**ATTACHMENT 4**  
**Additional Project Permits**



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west virginia department of environmental protection

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

Austin Caperton, Cabinet Secretary  
dep.wv.gov

July 31, 2019

Markwest Liberty Midstream & Resources, LLC  
Rick Lowry  
4600 J Barry Court, Suite 500  
Canonsburg, PA 15317

Re: General Permit Registration No.  
WVR311388  
Smithburg to Sherwood Liquid Lines,  
Doddridge County  
Acres Permitted to be Disturbed (67.0)

Dear Permittee:

You are now authorized to operate under General Permit No. WV0116815 to discharge stormwater associated with Oil and Gas related construction activities. This registration form should be kept with your copy of the General Permit. You should carefully read the contents of the permit and become familiar with all requirements needed to remain in compliance.

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

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

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

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

Promoting a healthy environment.



**4. Permit coverage expires on July 31, 2020.** If you wish to continue an activity authorized by this permit after the expiration date of the permit, provisions for coverage will be made during the public notice process for any new General Permit to be issued at that time.

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

You will be invoiced for your annual permit fees one month prior to the anniversary date of today's date. Failure to submit the annual fee within 90 days of the due date will render your permit void upon the date you are mailed a certified written notice to that effect. Please be advised that a pro-rated annual permit fee may be assessed upon the completion date and proper stabilization.

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

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

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

Your efforts toward preventing the degradation of our natural resources are greatly appreciated. If you have any questions, please contact **Joseph Cochran** at **(304) 926-0499 Ext. 1069** or by email at [joseph.w.cochran@wv.gov](mailto:joseph.w.cochran@wv.gov).

Katheryn Emery, P.E.  
Acting Director

KDE/jc

Cc: DWWM



REPLY TO  
ATTENTION OF

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

August 7, 2019

Regulatory Division  
Energy Resource Branch  
LRH-2019-627-OHR-Douglascamp Run

**NATIONWIDE PERMIT 12 VERIFICATION**

Mr. Rick Lowry  
Mark West Liberty Midstream & Resources LLC  
4600 J. Barry Court, Suite 500  
Cannonsburg, PA 15317

Dear Mr. Lowry:

I refer to a pre-construction notification (PCN) submitted on your behalf by Kleinfelder and additional information received in this office on August 2, 2019 requesting a Department of the Army (DA) authorization to discharge dredged and/or fill material into waters of the United States (U.S.) in conjunction with the Smithburg to Sherwood Liquid Line project. The proposed project is located near Smithburg, Doddridge County, West Virginia. The western terminus of the project is at 39.277246 and -80.723257 and the eastern terminus is at 39.275358 and -80.6894906. The proposal is located within Douglascamp Run and unnamed tributaries and unnamed tributaries of Buckeye Creek. This project has been assigned the following file number: LRH-2019-627-OHR-Douglascamp Run. Please reference this file number on all future correspondence related to this project.

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

The proposed project, as described in the PCN, has been reviewed in accordance with Section 404 and Section 10. Based on your description of the proposed work, and other information available to us, it has been determined that this project will involve activities subject to the requirements of Section 404.

Based on the information provided, you propose to discharge dredged and/or fill material into waters of the U.S. at seventeen separate and distant locations in conjunction with the installation of a 12-inch steel gas pipeline, corrugated metal pipe, and high density polyethylene pipe culverts in conjunction with the installation of 2.2 miles of gas pipeline and associated road crossings (See Table 1). The pipeline and culvert installation activities will result in the discharge of dredged and/or fill material into 1,183 linear feet (0.13 acre) of sixteen (16)



perennial, intermittent, and ephemeral stream channels. To facilitate the installation of the waterlines, the proposal will also include the temporary installation of erosion and sediment control structures and timber mats within waters of the U.S. Upon completion of the construction activities, all temporarily affected streams associated with the gas pipeline installation activities, and their adjacent riparian buffers, will be restored to their pre-construction condition.

Based on the information provided, it has been determined the proposal will meet the criteria of Nationwide Permit (NWP) No. 12 under the January 6, 2017, Federal Register, Issuance and Reissuance of NWPs (82 FR 1860) provided you comply with the terms and conditions of the enclosed material and the enclosed special conditions. A copy of this NWP can also be found on our website at <http://www.lrh.usace.army.mil/Missions/Regulatory.aspx>. Please be aware this NWP verification does not obviate the requirement to obtain any state or local assent required by law for the activities.

This verification is valid until the NWPs are modified, suspended, or revoked. All of the existing NWPs are scheduled to be modified, reissued, or revoked on March 18, 2022. It is incumbent upon you to remain informed of changes to the NWPs. We will issue a public notice when the NWPs are reissued. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant nationwide permit is modified or revoked, you will have twelve (12) months from the date of the modification or revocation of the NWPs to complete the activity under the present terms and conditions of these NWPs.

It is your responsibility to ensure that your work conforms to all of the environmental management conditions listed within the enclosed material. A copy of the NWP and verification letter should be supplied to your project engineer responsible for project activities and a copy must be kept at the site during construction.

Upon completion of the work, the enclosed certification must be signed and returned to this office. If you have any questions concerning the above, please contact Kimberly Courts-Brown at (304) 399-6906 or by email at [Kimberly.d.courtsbrown@usace.army.mil](mailto:Kimberly.d.courtsbrown@usace.army.mil).

Sincerely,



Adam Fannin  
Regulatory Project Manager  
Energy Resource Branch

Enclosure(s)

cc:

Matthew Albright  
Kleinfelder  
51 Dutilh Road, Suite 240  
Cranberry Township, PA 16066



**Special Conditions for the Nationwide Permit No. 12 Verification**  
**MarkWest Liberty Midstream & Resources LLC**  
**LRH-2019-627-OHR-Douglascamp Run**  
**1 of 2**

1. Enclosed in a copy of Nationwide Permit 12, which will be kept at the site during construction. A copy of this nationwide permit verification letter, special conditions, and construction plans must be kept at the site during construction. You will provide a copy of these documents to the project engineer responsible for construction activities.
2. Construction activities will be performed during low flow conditions to the maximum extent practicable. Appropriate site specific best management practices for sediment and erosion control, as described in the West Virginia Department of Environmental Protection's Erosion and Sediment Control Best Management Practice Manual, will be fully implemented during construction activities at the site. All disturbed areas will be seeded or revegetated with native species and approved seed mixes (where practicable) after completion of construction activities for stabilization and to help preclude the establishment of non-native invasive species.
3. The culverts will be countersunk into the sub-pavement of the streambed and the inlets/outlets must be designed to maintain substrate within the bottom of the culverts and must be installed in such a way as to ensure the passage of aquatic species.
4. Upon completion of the gas pipeline installation activities, the stream channels and affected riparian buffers will be restored to their pre-construction conditions, to the maximum extent practicable.
5. Section 7 obligations under the Endangered Species Act must be reconsidered if new information reveals impacts of the project that may affect federally listed species or critical habitat in a manner not previously considered, the proposed project is subsequently modified to include activities which were not considered during the Section 7 consultation with the United States Fish and Wildlife Service, or new species are listed or critical habitat designated that might be affected by the proposed project.
6. In the event any previously unknown historic or archaeological sites or human remains are uncovered while accomplishing the activity authorized by this nationwide permit authorization, the permittee must cease all work in waters of the United States immediately and contact local, state and county law enforcement offices (only contact law enforcement on findings of human remains), the Corps at 304-399-5610 and West Virginia Division of Culture and History at 304-558-0220. The Corps will initiate the Federal, state and tribal coordination required to

comply with the National Historic Preservation Act and applicable state and local laws and regulations. Federally recognized tribes are afforded a government-to-government status as sovereign nations and consultation is required under Executive Order 13175 and 36 CFR Part 800.

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

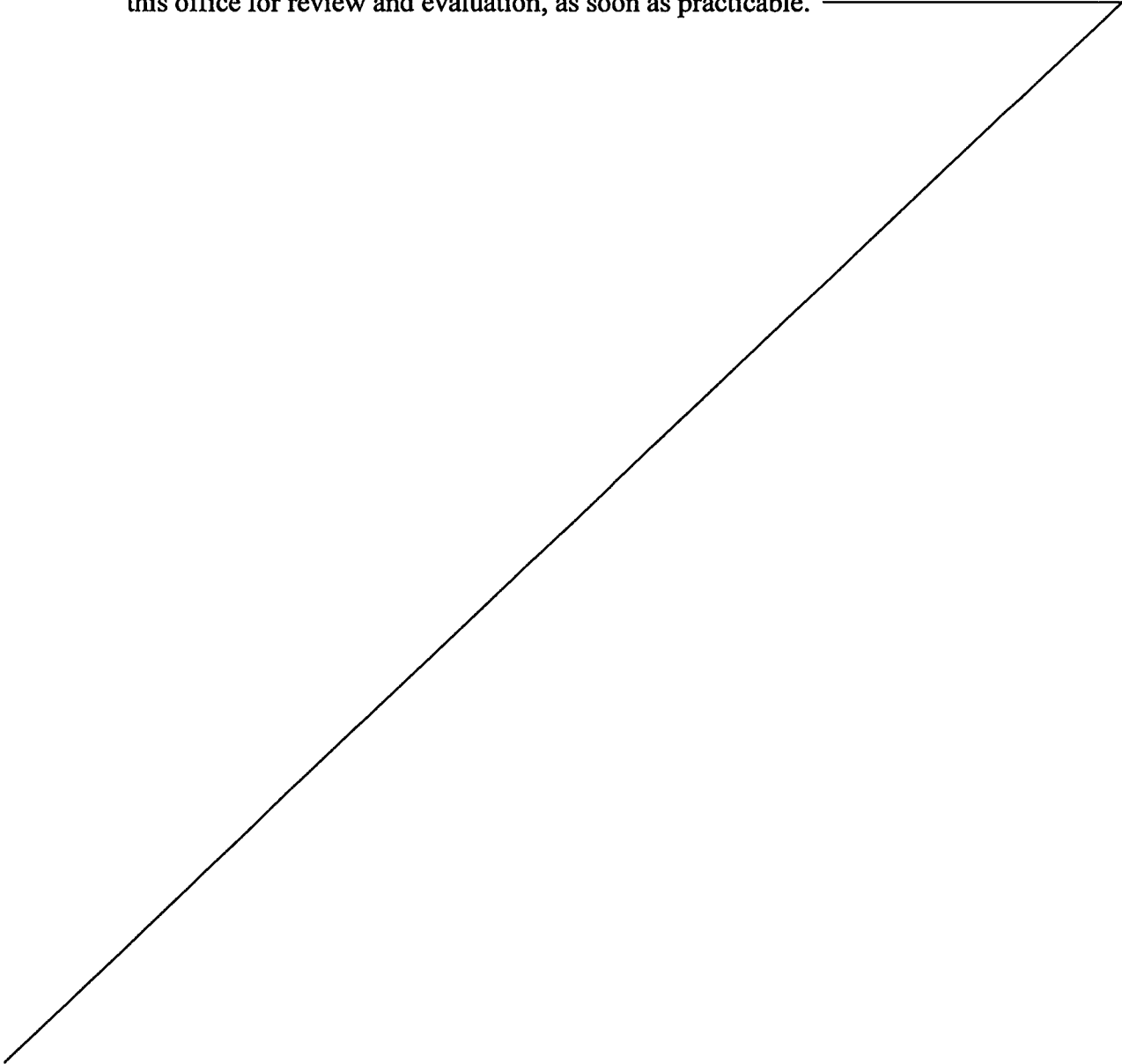




Table 1  
Stream Impacts  
Smithburg to Sherwood Liquid Lines Project  
LRH-2019-627-OHR-Douglascamp Run

Crossing No.	Stream Name	Flow Regime /Classification	Impact Duration	Description of Impact	Impact Length	Impact Acreage
1	KLF 400 Douglascamp Run	Perennial	Temp	3-12" Steel Gas Pipelines Timber Mats	214	0.03
2	WEC S136 UNT Buckeye Creek	Perennial	Temp	3-12" Steel Gas Pipelines Timber Mats	245	0.03
3	WEC S136 UNT Buckeye Creek	Intermittent	Temp	24" Steel Gas Pipeline	174	0.004
4	KLF 300 UNT Douglascamp Run	Intermittent	Perm	20" Metal Culvert Replacement	7	0.001
5	KLF 301 UNT Douglascamp Run	Ephemeral	Perm	20" Metal Culvert Replacement	24	0.006
6	KLF 302 UNT Douglascamp Run	Intermittent	Perm	20" Metal Culvert Replacement	15	0.003
7	KLF 215 UNT Douglascamp Run	Intermittent	Perm	13" Metal Culvert Replacement	24	0.002
8	KLF 218 UNT Douglascamp Run	Perennial	Perm	15" Metal Culvert Replacement	61	0.005
9	KLF 218A UNT Douglascamp Run	Ephemeral	Temp	Installation of E&SC Construction Access	35	0.002
10	KLF 213 UNT Douglascamp Run	Perennial	Perm	30" HDPE Culvert Replacement	68	0.006
11	KLF 220 UNT Douglascamp Run	Perennial	Perm	20' Metal Culvert Replacement	60	0.014
12	KLF 221 UNT Douglascamp Run	Intermittent	Perm	10" Metal Culvert Replacement	53	0.006
13	KLF 222	Ephemeral	Perm	20" Metal Culvert	11	0.001

	UNT Douglascamp Run			Replacement		
14	KLF 223 UNT Douglascamp Run	Intermittent	Perm	20" Metal Culvert Replacement	30	0.002
15	KLF 224 UNT Douglascamp Run	Intermittent	Perm	20" Metal Culvert Replacement	45	0.003
16	KLF 225 UNT Douglascamp Run	Intermittent	Perm	32" HDPE Culvert Replacement	42	0.001



kdcb

Permit Number: LRH-2019-627-OHR-Douglascamp Run

Name of Permittee: MarkWest Liberty Midstream & Resources LLC  
4600 J. Barry Court, Suite 500  
Cannonsburg, PA 15317

Date of Issuance: August 7, 2019

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

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

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

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

---

Signature of Permittee

Date



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

West Virginia Field Office  
90 Vance Drive  
Elkins, West Virginia 26241

Contact Name: Matt Albright

Email Address or Fax Number: MAlbright@kleinfelder.com

FWS File # 2019-i-0856 **All future correspondence should clearly reference this FWS File #.**

Project: MarkWest Liberty Midstream - Smithburg to Sherwood Liquid Lines, Doddridge County, WV

Date of Letter Request: June 20, 2019

This is in response to your letter requesting threatened and endangered species information in regard to the proposed project listed above. These comments are provided pursuant to the Endangered Species Act (ESA, 87 Stat. 884, as amended; 16 U. S. C. 1531 *et seq.*).

We have made a "no effect" determination that the project will not affect federally listed endangered or threatened species. Therefore no biological assessment or further section 7 consultation under the ESA is required with the Fish and Wildlife Service. Should project plans change or amendments be proposed that we have not considered in your proposed action, or if additional information on listed and proposed species becomes available, or if new species become listed or critical habitat is designated, this determination may be reconsidered.

Definitive determinations of the presences of waters of the United States, including wetlands, in the project area and the need for permits, if any, are made by the U.S. Army Corps of Engineers. They may be contacted at Huntington District, Regulatory Branch, 502 Eighth Street, Huntington, West Virginia, 25701, telephone (304) 399-5710.

Amanda Murnane

Date: 8/2/2019

Biologist

Daphne Carlson Boehm (Acting)

Date: 8/2/2019

Field Supervisor





**DIVISION OF NATURAL RESOURCES**

**Wildlife Resources Section  
Elkins Operations Center  
738 Ward Rd., PO Box 67  
Elkins, WV 26241  
Telephone 304-637-0245  
Fax 304-637-0250**

**Stephen S. McDaniel  
Director**

July 10, 2019

Mr. Matthew Albright  
Kleinfelder, Inc.  
51 Dutihl Road, Suite 240  
Cranberry Township, PA 16066

Dear Mr. Albright:

We have reviewed Natural Heritage Program files for information on rare, threatened and endangered (RTE) species and sensitive habitats for the area of the proposed Smithburg to Sherwood Liquid Lines project in Doddridge County, WV.

We have no known records of any RTE species or sensitive habitats within the project area. The Wildlife Resources Section knows of no surveys that have been conducted in the area for rare species or rare species habitat. Consequently, this response is based on information currently available and should not be considered a comprehensive survey of the area under review. This response is valid for two years.

The information provided above is the product of a database search and retrieval. This information does not satisfy other consultation or permitting requirements for disturbances to the natural resources of the state, and further consultation may be required. Additionally, any concurrence requirements for federally listed species must come from the US Fish and Wildlife Service.

Thank you for your inquiry, and should you have any questions please feel free to contact me at the above number, or [barbara.d.sargent@wv.gov](mailto:barbara.d.sargent@wv.gov). Enclosed please find an invoice.

Sincerely,

Barbara Sargent  
Environmental Resources Specialist  
Environmental Coordination  
Operations Unit

enclosure

S:\Monthly\BSargent\Invoices\Kleinfelder2.doc



**DIVISION OF NATURAL RESOURCES**  
324 4th Avenue, Room 342  
South Charleston, West Virginia 25303-1228  
Telephone 304-558-3225  
Fax 304-558-6048  
TDD 304-558-1439  
TDD 800-354-6087

**Stephen S. McDaniel**  
Director

July 3, 2019

Division of Natural Resources  
Office of Land and Streams  
**LICENSE and RIGHT of ENTRY**

**Re: LS-19-VI/09-1384**

MarkWest Liberty Midstream and Resources, LLC  
Richard Lowry  
c/o Kleinfelder, Inc.  
Attention: Matthew Albright  
51 Dutilh Road, Suite 240  
Cranberry Township, PA 16066

Dear Mr. Lowry:

The West Virginia Division of Natural Resources (WVDNR) hereby grants to you for a term of ten (10) years, from the date hereof, a License and Right of Entry to install and maintain a culvert crossing of various sizes at ten (10) separate locations and a culvert of various sizes or timber mat crossing at five (5) separate locations (see Exhibit A) (Smithburg to Sherwood Liquid Lines) along unnamed tributaries of Douglascamp Run and unnamed tributaries of Buckeye Creek, near West Union in Doddridge County, West Virginia.

The issuance of this License and Right of Entry by the WVDNR does not preclude the necessity to obtain permits from the U.S. Army Corps of Engineers (USACE), W.V. Department of Environmental Protection (WVDEP), or the W.V. Division of Homeland Security and Emergency Management (WVDHSEM). The Right of Entry does not negate the need to comply with the West Virginia Water Pollution Control Act and/or the State Environmental Quality Board's administrative regulations.

The applicant must contact the following agencies and abide by the following conditions:

1. The USACE may require either an Individual Clean Water Act 404 permit or a Nationwide Permit. Contact the Huntington District (304-399-5210) or the Pittsburgh District (412-395-7155) from more information. Information can also be found at <http://www.lrh.usace.army.mil/Missions/Regulatory.aspx>
2. The WVDEP (304-926-0499) may require the following permits:
  - a. A Clean Water Act Section 401 Water Quality Certification  
<http://www.dep.wv.gov/WWE/Programs/Pages/401Certification.aspx>

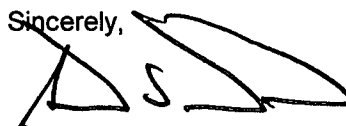


- b. Construction Stormwater Site Registration and Notice of Intent. Not needed if disturbance less than 1-acre [http://dep.wv.gov/WWE/Programs/stormwater/Pages/sw\\_home.aspx](http://dep.wv.gov/WWE/Programs/stormwater/Pages/sw_home.aspx)
3. The WVDEP Erosion and Sediment Control Best Management Practice Manual, Revised 2016, must be followed. Copies of those guidelines are available from the Division of Water and Waste Management, (304) 926-0495 or at [http://www.dep.wv.gov/WWE/Programs/stormwater/csw/Pages/ESC\\_BMP.aspx](http://www.dep.wv.gov/WWE/Programs/stormwater/csw/Pages/ESC_BMP.aspx)
4. The WVDHSEM may require a Floodplain Permit. WVDHSEM can be contacted at: (304) 957-2571
5. No in-stream work during the cold water and warm water fish spawning seasons (September 15-March 31 and April 1- June 30, respectively). If in-stream impacts cannot be avoided during the applicable fish spawning season, contact the WVDNR Environmental Coordination Unit at (304) 637-0245.
6. Threatened or Endangered aquatic species identified by the U.S. Fish and Wildlife Service are listed in Appendix A of the 2017 USACE Nationwide Permits. The U.S. Fish and Wildlife Service Field Office should be contacted (304) 636-6568 for any activity in waterways listed in Appendix A. <http://www.lrp.usace.army.mil/Portals/72/docs/regulatory/2017%20Public%20Notices/West%20Virginia%20-%20NWP%20March%202017%20PN.pdf?ver=2017-03-22-095505-870>
7. Survey requirements for streams with mussel populations are described in the West Virginia Mussel Survey Protocols. Contact the WVDNR Environmental Coordination Unit for information concerning mussels at (304) 637-0245. <http://www.wvdnr.gov/Mussels/West%20Virginia%20Mussel%20Survey%20Protocols%20APR2016.pdf>

Additionally, this Right of Entry does not provide for the applicant to work outside the requested boundaries. The State does not assume any liability for the applicant's/landowner's construction activities. By accepting this Right of Entry, the applicant/landowner assumes liability for any/all damages caused by this activity to both upstream and downstream landowners. This License and Right of Entry does not grant any rights or privileges, or permission to enter upon, or to cross the property of any other person, nor is permission granted to remove any material that lies upon the property of any other persons. Work should be completed in as brief a period as possible and within one year from the date of this letter. **In the event the applicant fails or refuses to comply with any of the terms or conditions herein, this License and Right of Entry will be canceled and considered null and void and the WVDNR may reject further applications.**

Your payment is now due and payable in the amount of \$1500.00 to the Division of Natural Resources covering the first year's annual fee of this agreement. Your agreement will be effective upon receipt of your payment in full. You must notify this office in writing when this installation has been transferred or removed.

Sincerely,



Stephen S. McDaniel  
Director

MarkWest Liberty Midstream and Resources, LLC  
LS-19-VI/09-1384  
Page 3  
July 3, 2019

cc: Office of Land and Streams

pc: DNR Fish Biologist  
Jeremy Bandy, Environmental Enforcement  
DNR Conservation Officers  
Danielle Elliott, WV DNR Coordination Unit



**DIVISION OF NATURAL RESOURCES**  
324 4th Avenue, Room 342  
South Charleston, West Virginia 25303-1228  
Telephone 304-558-3225  
Fax 304-558-6048  
TDD 304-558-1439  
TDD 800-354-6087

**Stephen S. McDaniel**  
Director

July 3, 2019

Division of Natural Resources  
Office of Land and Streams  
**LICENSE and RIGHT of ENTRY**

**Re: P-19-VI/09-1383**

MarkWest Liberty Midstream and Resources, LLC  
Richard Lowry  
c/o Kleinfelder, Inc.  
Attention: Matthew Albright  
51 Dutilh Road, Suite 240  
Cranberry Township, PA 16066

Dear Mr. Lowry:

The West Virginia Division of Natural Resources (WVDNR) hereby grants to you for a term of ten (10) years, from the date hereof, a License and Right of Entry to construct, replace, cover, repair, operate, maintain, use and remove three (3) twelve inch (12") steel pipelines at two (2) separate locations (Smithburg to Sherwood Liquid Lines) along Douglascamp Run and an unnamed tributary of Buckeye Creek, West Union, New Milton, and Grant District in Doddridge County, West Virginia, as shown on the map attached hereto as Exhibit A.

The issuance of this License and Right of Entry by the WVDNR does not preclude the necessity to obtain permits from the U.S. Army Corps of Engineers (USACE), W.V. Department of Environmental Protection (WVDEP), or the W.V. Division of Homeland Security and Emergency Management (WVDHSEM). The Right of Entry does not negate the need to comply with the West Virginia Water Pollution Control Act and/or the State Environmental Quality Board's administrative regulations.

The applicant must contact the following agencies and abide by the following conditions:

1. The USACE may require either an Individual Clean Water Act 404 permit or a Nationwide Permit. Contact the Huntington District (304-399-5210) or the Pittsburgh District (412-395-7155) from more information. Information can also be found at <http://www.lrh.usace.army.mil/Missions/Regulatory.aspx>
2. The WVDEP (304-926-0499) may require the following permits:
  - a. A Clean Water Act Section 401 Water Quality Certification  
<http://www.dep.wv.gov/WWE/Programs/Pages/401Certification.aspx>



- b. Construction Stormwater Site Registration and Notice of Intent. Not needed if disturbance less than 1-acre [http://dep.wv.gov/WWE/Programs/stormwater/Pages/sw\\_home.aspx](http://dep.wv.gov/WWE/Programs/stormwater/Pages/sw_home.aspx)
3. The WVDEP Erosion and Sediment Control Best Management Practice Manual, Revised 2016, must be followed. Copies of those guidelines are available from the Division of Water and Waste Management, (304) 926-0495 or at [http://www.dep.wv.gov/WWE/Programs/stormwater/csw/Pages/ESC\\_BMP.aspx](http://www.dep.wv.gov/WWE/Programs/stormwater/csw/Pages/ESC_BMP.aspx)
4. The WVDHSEM may require a Floodplain Permit. WVDHSEM can be contacted at: (304) 957-2571
5. No in-stream work during the cold water and warm water fish spawning seasons (September 15-March 31 and April 1- June 30, respectively). If in-stream impacts cannot be avoided during the applicable fish spawning season, contact the WVDNR Environmental Coordination Unit at (304) 637-0245.
6. Threatened or Endangered aquatic species identified by the U.S. Fish and Wildlife Service are listed in Appendix A of the 2017 USACE Nationwide Permits. The U.S. Fish and Wildlife Service Field Office should be contacted (304) 636-6568 for any activity in waterways listed in Appendix A. <http://www.lrp.usace.army.mil/Portals/72/docs/regulatory/2017%20Public%20Notices/West%20Virginia%20-%20NWP%20March%202017%20PN.pdf?ver=2017-03-22-095505-870>
7. Survey requirements for streams with mussel populations are described in the West Virginia Mussel Survey Protocols. Contact the WVDNR Environmental Coordination Unit for information concerning mussels at (304) 637-0245. <http://www.wvdnr.gov/Mussels/West%20Virginia%20Mussel%20Survey%20Protocols%20APR2016.pdf>

Additionally, this Right of Entry does not provide for the applicant to work outside the requested boundaries. The State does not assume any liability for the applicant's/landowner's construction activities. By accepting this Right of Entry, the applicant/landowner assumes liability for any/all damages caused by this activity to both upstream and downstream landowners. This License and Right of Entry does not grant any rights or privileges, or permission to enter upon, or to cross the property of any other person, nor is permission granted to remove any material that lies upon the property of any other persons. Work should be completed in as brief a period as possible and within one year from the date of this letter. **In the event the applicant fails or refuses to comply with any of the terms or conditions herein, this License and Right of Entry will be canceled and considered null and void and the WVDNR may reject further applications.**

Your payment in the amount of \$1050.00 is now due and payable to the Division of Natural Resources covering the (10) ten-year fee of this agreement. Your agreement will be effective upon receipt of your payment in full. You must notify this office in writing when this installation has been transferred or removed.

Sincerely,



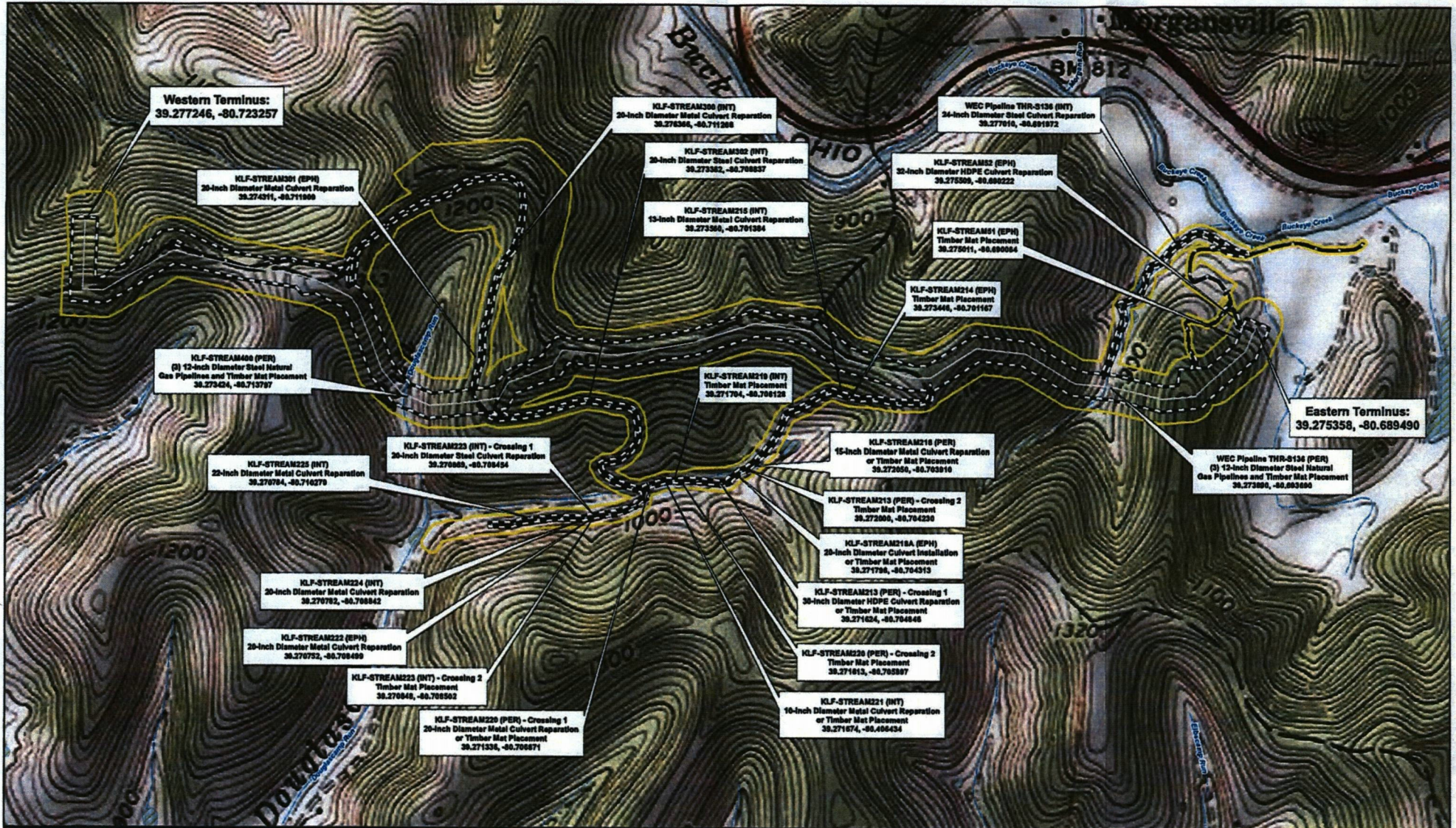
Stephen S. McDaniel  
Director

MarkWest Liberty Midstream and Resources, LLC  
P-19-VI/09-1383  
Page 3  
July 3, 2019

cc: Office of Land and Streams

pc: DNR Fish Biologist  
Jeremy Bandy, Environmental Enforcement  
DNR Conservation Officers  
Danielle Elliot, WV DNR Coordination Unit





<p>PROJECT NO. - DRAWN BY: SMW CHECKED BY: MJA FILE NAME: DoddridgeProposed_LSA_Fig1</p>		<p>Doddridge County West Virginia</p> <p>Aerial Imagery ESRI</p>	<p>AOI (178.4 ac) — NHD Stream</p> <p>LOD (67.0 ac) NWI Wetland</p> <p>Pipeline</p> <p>Access Road</p>	<p><b>Figure 1</b></p> <p>USGS Topographic Map Smithburg to Sherwood Liquid Lines MarkWest Liberty Midstream &amp; Resources, LLC</p> <p>Date: 6/24/2019</p>
				<p>DATE: 6/24/2019</p>





**DIVISION OF NATURAL RESOURCES**  
324 4th Avenue, Room 342  
South Charleston, West Virginia 25303-1228  
Telephone 304-558-3225  
Fax 304-558-6048  
TDD 304-558-1439  
TDD 800-354-6087

**Stephen S. McDaniel**  
Director

July 3, 2019

Division of Natural Resources  
Office of Land and Streams  
**LICENSE and RIGHT of ENTRY**

**Re: R-19-VI/09-1385**

MarkWest Liberty Midstream and Resources, LLC  
Richard Lowry  
c/o Kleinfelder, Inc.  
Attention: Matthew Albright  
51 Dutilh Road, Suite 240  
Cranberry Township, PA 16066

Dear Mr. Lowry:

The West Virginia Division of Natural Resources (WVDNR) hereby grants to you for a term of one (1) year, from the date hereof, a License and Right of Entry to install and maintain a timber mat crossing at eight (8) separate locations (Smithburg to Sherwood Liquid Lines) along Douglascamp Run, unnamed tributaries of Douglascamp Run and unnamed tributaries of Buckeye Creek, near West Union in Doddridge County, West Virginia.

The issuance of this License and Right of Entry by the WVDNR does not preclude the necessity to obtain permits from the U.S. Army Corps of Engineers (USACE), W.V. Department of Environmental Protection (WVDEP), or the W.V. Division of Homeland Security and Emergency Management (WVDHSEM). The Right of Entry does not negate the need to comply with the West Virginia Water Pollution Control Act and/or the State Environmental Quality Board's administrative regulations.

The applicant must contact the following agencies and abide by the following conditions:

1. The USACE may require either a Clean Water Act 404 permit or a Nationwide Permit. Contact the Huntington District (304-399-5210) or the Pittsburgh District (412-395-7155) from more information. Information can also be found at <http://www.lrh.usace.army.mil/Missions/Regulatory.aspx>
2. The WVDEP (304-926-0499) may require the following permits:
  - a. A Clean Water Act Section 401 Water Quality Certification  
<http://www.dep.wv.gov/WWE/Programs/Pages/401Certification.aspx>

- b. Construction Stormwater Site Registration and Notice of Intent. Not needed if disturbance less than 1-acre [http://dep.wv.gov/WWE/Programs/stormwater/Pages/sw\\_home.aspx](http://dep.wv.gov/WWE/Programs/stormwater/Pages/sw_home.aspx)
3. The WVDEP Erosion and Sediment Control Best Management Practice Manual, Revised 2016, must be followed. Copies of those guidelines are available from the Division of Water and Waste Management, (304) 926-0495 or at [http://www.dep.wv.gov/WWE/Programs/stormwater/csw/Pages/ESC\\_BMP.aspx](http://www.dep.wv.gov/WWE/Programs/stormwater/csw/Pages/ESC_BMP.aspx)
4. The WVDHSEM may require a Floodplain Permit. WVDHSEM can be contacted at: (304) 957-2571
5. No in-stream work during the cold water and warm water fish spawning seasons (September 15-March 31 and April 1- June 30, respectively). If in-stream impacts cannot be avoided during the applicable fish spawning season, contact the WVDNR Environmental Coordination Unit at (304) 637-0245.
6. Threatened or Endangered aquatic species identified by the U.S. Fish and Wildlife Service are listed in Appendix A of the 2017 USACE Nationwide Permits. The U.S. Fish and Wildlife Service Field Office should be contacted (304) 636-6568 for any activity in waterways listed in Appendix A. <http://www.lrp.usace.army.mil/Portals/72/docs/regulatory/2017%20Public%20Notices/West%20Virginia%20-%20NWP%20March%202017%20PN.pdf?ver=2017-03-22-095505-870>
7. Survey requirements for streams with mussel populations are described in the West Virginia Mussel Survey Protocols. Contact the WVDNR Environmental Coordination Unit for information concerning mussels at (304) 637-0245. <http://www.wvdnr.gov/Mussels/West%20Virginia%20Mussel%20Survey%20Protocols%20APR2016.pdf>

Additionally, this Right of Entry does not provide for the applicant to work outside the requested boundaries. The State does not assume any liability for the applicant's/landowner's construction activities. By accepting this Right of Entry, the applicant/landowner assumes liability for any/all damages caused by this activity to both upstream and downstream landowners. This License and Right of Entry does not grant any rights or privileges, or permission to enter upon, or to cross the property of any other person, nor is permission granted to remove any material that lies upon the property of any other persons. Work should be completed in as brief a period as possible and within one year from the date of this letter. **In the event the applicant fails or refuses to comply with any of the terms or conditions herein, this License and Right of Entry will be canceled and considered null and void and the WVDNR may reject further applications.**

Your check in the amount of \$800.00 is now due and payable to the Division of Natural Resources covering the one-time fee for this agreement. Your agreement will be effective upon receipt of your payment in full and is valid until construction is complete or one year from the date of this permit, whichever is sooner.

Sincerely,



Stephen S. McDaniel  
Director

MarkWest Liberty Midstream and Resources, LLC  
R-19-VI/09-1385  
Page 3  
July 3, 2019

cc: Office of Land and Streams

pc: DNR Fish Biologist  
Jeremy Bandy, Environmental Enforcement  
DNR Conservation Officers  
Danielle Elliott, WV DNR Coordination Unit



## Matthew Albright

---

**From:** Bennett, Danny A <Danny.A.Bennett@wv.gov>  
**Sent:** Friday, February 21, 2020 1:07 PM  
**To:** Matthew Albright  
**Cc:** Wakeford, Anne M  
**Subject:** FW: [External] MarkWest Liberty Midstream & Resources, LLC: Smithburg to Sherwood Liquid Lines - 2020 Fish Spawning Season Waiver Request  
**Attachments:** 20200124\_Smithburg to Sherwood LL\_FSW-Final.pdf

### External Email.

---

Matthew,

The referenced requested spawning waivers have been approved.

---

**From:** Taylor, Nate D  
**Sent:** Tuesday, February 18, 2020 3:29 PM  
**To:** Wakeford, Anne M; Bennett, Danny A  
**Subject:** FW: [External] MarkWest Liberty Midstream & Resources, LLC: Smithburg to Sherwood Liquid Lines - 2020 Fish Spawning Season Waiver Request

Anne and Danny,

I recommend spawning waivers be issued for all of these pipeline crossings and culvert replacements due to duration of instream work, and location. I cannot make any approval recommendation on the attached pdf.

Thanks,

*Nate Taylor*

West Virginia Division of Natural Resources  
Fisheries Biologist  
District 6  
2311 Ohio Avenue  
Parkersburg, WV 26101  
(304) 420-4550

**From:** Elliott, Danielle A <Danielle.A.Elliott@wv.gov>  
**Sent:** Monday, January 27, 2020 8:45 AM  
**To:** Taylor, Nate D <Nate.D.Taylor@wv.gov>  
**Subject:** FW: [External] MarkWest Liberty Midstream & Resources, LLC: Smithburg to Sherwood Liquid Lines - 2020 Fish Spawning Season Waiver Request

Hi Nate,  
Please review the attached and let me know if you have any questions or concerns.

Thank you,

**Danielle A. Elliott**

West Virginia Division of Natural Resources  
Wildlife Resources Section  
Coordination Unit  
Office: 304-637-0245  
Mobile: 304-550-5057

---

**From:** Matthew Albright [<mailto:MAlbright@kleinfelder.com>]  
**Sent:** Friday, January 24, 2020 12:05 PM  
**To:** Elliott, Danielle A  
**Cc:** Lowry, Richard A.  
**Subject:** [External] MarkWest Liberty Midstream & Resources, LLC: Smithburg to Sherwood Liquid Lines - 2020 Fish Spawning Season Waiver Request

CAUTION: External email. Do not click links or open attachments unless you verify sender.

Hi Danielle,

On behalf of MarkWest Liberty Midstream & Resources, LLC (MarkWest), Kleinfelder is submitting the attached Fish Spawning Waiver Request for the 2020 spawning season for perennial and intermittent stream crossings associated with the Smithburg to Sherwood Liquid Lines for your review. Please address your response to Rick Lowry of MarkWest. He is cc'd on the email and his contact information is located below.

Rick Lowry  
Environmental Manager  
G&P - Environmental - Liberty  
4600 J. Barry Court, Suite 500  
Canonsburg, PA 15317  
Office: 724-416-0520  
Email: [RALowry@marathonpetroleum.com](mailto:RALowry@marathonpetroleum.com)

Thanks,

**Matt Albright**  
Project Manager  
51 Dutilh Rd., Suite 240  
Cranberry Township, PA 16066  
m | 609.947.5296



*This email may contain confidential information. If you have received this email—including any attachments—in error, please notify the sender promptly and delete the email and any attachments from all of your systems.*

Instructions: Complete the data fields shown in red for proposed stream impacts. Once the appropriate information has been received, the applicable WVDNR Fisheries Biologists will be contacted for review. For more information, contact Danielle A. Elliott@dwr.gov or call the WVDNR Coordination Unit at the Elkus Operations Center at 304-637-0244.

### Fish Spawning Waiver Request- Smithburg to Sherwood Liquid Lines

Submitted By: Kleinfelder, Inc., Date: January 24, 2020

Project ID	Stream Name	Stream Regime	County	Latitude	Longitude	Temporary or Permanent	Proposed Date of Impact	Duration of In-Stream Impact (Working Days)*	Purpose for Impact	Width of Stream	Watershed Drainage Area (square miles)**	Linear Feet of Impact	WHICHEVER APPLIES: Linear Feet of Bank Work, Culvert/Bridge Width OR Length/Pipeline Size	Riparian Revegetation Plus Permanent Treatment	WVDNR Office of Land and Streams Right of Entry License Number	Comments/Rationale for Waiver Request	WVDNR Fishery Approval/ Denial	
1	KLF-STREAM400 (PER)	Douglascamp Run	Perennial	Doddridge	39.273424	-80.713797	Temporary	Sometime Between April 1 & June 15	3 days per pipeline	FBI/Pipe	6'	0.149	214	(3) 12-inch Diameter Steel Natural Gas Liquids Pipelines - Open Cut	Seed & Mulch/Permanently Herbaceous Layer-mowed Regularly	P-19-VI/09-1383	Temporary Crossings for Pipeline Installations; each pipeline crossing will be completed within 72 hours	
2	WEC Pipeline THR-S136 (PER)	UNT to Buckeye Creek	Perennial	Doddridge	39.273690	-80.693690	Temporary	Sometime Between April 1 & June 15	3 days per pipeline	FBI/Pipe	5'	0.176	245	(3) 12-inch Diameter Steel Natural Gas Liquids Pipelines - Open Cut	Seed & Mulch/Permanently Herbaceous Layer-mowed Regularly	P-19-VI/09-1383	Temporary Crossings for Pipeline Installations; each pipeline crossing will be completed within 72 hours	
3	WEC Pipeline THR-S136 (INT)	UNT to Buckeye Creek	Intermittent	Doddridge	39.277010	-80.691972	Permanent	Sometime Between April 1 & June 15	3 days	Grading/Backfill	3'	0.176	58	Culvert Repairation- Existing 24" Steel	Seed & Mulch/Permanently Herbaceous Layer-mowed Regularly	LS-19-VI/09-1384	Repairation of an existing culvert	
4	KLF-STREAM300 (INT)	UNT to Douglascamp Run	Intermittent	Doddridge	39.276366	-80.711268	Permanent	Sometime Between April 1 & June 15	3 days	Grading/Backfill	6'	0.015	7	Culvert Repairation- Existing 20" Metal	Seed & Mulch/Permanently Herbaceous Layer-mowed Regularly	LS-19-VI/09-1384	Repairation of an existing culvert	
5	KLF-STREAM302 (INT)	UNT to Douglascamp Run	Intermittent	Doddridge	39.273362	-80.706837	Permanent	Sometime Between April 1 & June 15	3 days	Grading/Backfill	5'	0.035	3	Culvert Repairation- Existing 20" Metal	Seed & Mulch/Permanently Herbaceous Layer-mowed Regularly	LS-19-VI/09-1384	Repairation of an existing culvert	
6	KLF-STREAM215 (INT)	UNT to Douglascamp Run	Intermittent	Doddridge	39.273560	-80.701384	Permanent	Sometime Between April 1 & June 15	3 days	Grading/Backfill	4'	0.027	24	Culvert Repairation- Existing 13" Metal	Seed & Mulch/Permanently Herbaceous Layer-mowed Regularly	LS-19-VI/09-1384	Repairation of an existing culvert	
7	KLF-STREAM218 (PER)	UNT to Douglascamp Run	Perennial	Doddridge	39.272050	-80.703910	Permanent	Sometime Between April 1 & June 15	3 days	Grading/Backfill	3.5'	0.303	61	Culvert Repairation- Existing 15" Metal	Seed & Mulch/Permanently Herbaceous Layer-mowed Regularly	LS-19-VI/09-1384	Repairation of an existing culvert	
8	KLF-STREAM213 (PER) - Crossing 1	UNT to Douglascamp Run	Perennial	Doddridge	39.271624	-80.704313	Permanent	Sometime Between April 1 & June 15	3 days	Grading/Backfill	4'	0.303	68	Culvert Repairation- Existing 30" HDPE	Seed & Mulch/Permanently Herbaceous Layer-mowed Regularly	LS-19-VI/09-1384	Repairation of an existing culvert	
9	KLF-STREAM220 (PER) - Crossing 1	UNT to Douglascamp Run	Perennial	Doddridge	39.271336	-80.706871	Permanent	Sometime Between April 1 & June 15	3 days	Grading/Backfill	10'	0.303	60	Culvert Repairation- Existing 20" Metal	Seed & Mulch/Permanently Herbaceous Layer-mowed Regularly	LS-19-VI/09-1384	Repairation of an existing culvert	
10	KLF-STREAM221 (INT)	UNT to Douglascamp Run	Intermittent	Doddridge	39.271674	-80.706434	Permanent	Sometime Between April 1 & June 15	3 days	Grading/Backfill	5'	0.037	53	Culvert Repairation- Existing 10" Metal	Seed & Mulch/Permanently Herbaceous Layer-mowed Regularly	LS-19-VI/09-1384	Repairation of an existing culvert	
11	KLF-STREAM223 (INT) - Crossing 1	UNT to Douglascamp Run	Intermittent	Doddridge	39.270869	-80.708454	Permanent	Sometime Between April 1 & June 15	3 days	Grading/Backfill	3'	0.028	30	Culvert Repairation- Existing 20" Steel	Seed & Mulch/Permanently Herbaceous Layer-mowed Regularly	LS-19-VI/09-1384	Repairation of an existing culvert	
12	KLF-STREAM224 (INT)	UNT to Douglascamp Run	Intermittent	Doddridge	39.270782	-80.708842	Permanent	Sometime Between April 1 & June 15	3 days	Grading/Backfill	5'	0.054	52	Culvert Repairation- Existing 20" Metal	Seed & Mulch/Permanently Herbaceous Layer-mowed Regularly	LS-19-VI/09-1384	Repairation of an existing culvert	
13	KLF-STREAM225 (INT)	UNT to Douglascamp Run	Intermittent	Doddridge	39.270784	-80.710279	Permanent	Sometime Between April 1 & June 15	3 days	Grading/Backfill	3'	0.022	3	Culvert Repairation- Existing 22" Metal	Seed & Mulch/Permanently Herbaceous Layer-mowed Regularly	LS-19-VI/09-1384	Repairation of an existing culvert	
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Note: \* Duration of In-Stream Impact (Working Days) is the amount of time it takes to complete any in stream work. For example: constructing a cofferdam may take approximately 12 hours, while any work done inside of the cofferdam is considered "in the dry".

\*\* Watershed Drainage Area can be found at <http://tags.dep.wv.gov/streamflow>



# 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 (10th) of (July), 2020, (Mark West) filed an application for a Floodplain Permit (#20-578) to develop land located at or about (218 Swisher Lane, West Union); Coordinates: 39.275426, -80.689417. The Application is on file with the Floodplain Manager of the County and may be inspected or copied during regular business hours in accordance to WV Code Chapter 29B Freedom of Information, Article 1 Public Records and county policy and procedures. Any interested persons who desire to comment shall present the

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


**George Eidel, Doddridge County Floodplain  
Manager & Doddridge County Commission**

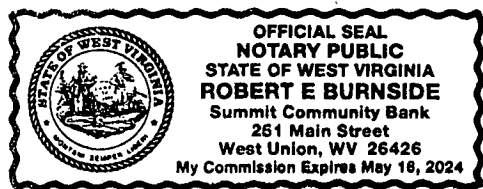
Given under my hand this Friday, July 24, 2020

The publisher's fee for said publication is:  
**\$ 31.05 1st Run/\$ 23.29 Subsequent Runs**  
**This Legal Ad Total: \$ 54.34**

  
Michael D. Zorn  
Publisher of The Doddridge Independent

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

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



### Floodplain Public Notice • Legal Notice

Please take notice that on the (10th) of (July), 2020, (Mark West) filed an application for a Floodplain Permit (#20-578) to develop land located at or about (218 Swisher Lane, West Union); Coordinates: 39.275426, -80.689417. The Application is on file with the Floodplain Manager of the County and may be inspected or copied during regular business hours in accordance to WV Code Chapter 29B Freedom of Information, Article 1 Public Records and county policy and procedures. Any interested persons who desire to comment shall present the same in writing by (August 10, 2020) (20 calendar days after the announcement at the regularly scheduled Doddridge County Commission Meeting) delivered to the Floodplain Manager of the County at 105 Court Street, Suite #3, West Union, WV 26456. This project is a renewal of Permit #19-555 Smithburg to Sherwood Pipeline 7/17-7/24