



west virginia department of environmental protection

Office of Oil and Gas  
601 57<sup>th</sup> Street, S.E.  
Charleston, WV 25304  
(304) 926-0450  
fax: (304) 926-0452

Jim Justice , Governor  
Austin Caperton , Cabinet Secretary  
www.dep.wv.gov

Monday, July 31, 2017  
WELL WORK PERMIT  
Vertical / Plugging

XTO ENERGY, INC.  
810 HOUSTON STREET

FORT WORTH, TX 76102

Re: Permit approval for G. THOMAS 0101  
47-097-03046-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.



James A. Martin  
Chief

Operator's Well Number: G. THOMAS 0101  
Farm Name: CRITES, JOSIE B.  
U.S. WELL NUMBER: 47-097-03046-00-00  
Vertical / Plugging  
Date Issued: 7/31/2017

Promoting a healthy environment.

08/04/2017

## PERMIT CONDITIONS

West Virginia Code §22-6-11 allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

### CONDITIONS

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1. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
2. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.
3. Well work activities shall not constitute a hazard to the safety of persons.

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1) Date 7/13, 2017  
2) Operator's  
Well No. G. Thomas 0101  
3) API Well No. 47-097 - 03046

WW-4B  
Rev. 2/01

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
OFFICE OF OIL AND GAS

APPLICATION FOR A PERMIT TO PLUG AND ABANDON

- 4) Well Type: Oil \_\_\_ / Gas X / Liquid injection \_\_\_ / Waste disposal \_\_\_ /  
(If "Gas, Production X or Underground storage \_\_\_) Deep \_\_\_ / Shallow X
- 5) Location: Elevation 1537' Watershed Buckhannon River (0502000103)  
District Meade County Upshur Quadrangle Adrian
- 6) Well Operator XTO Energy Inc 7) Designated Agent Gary Beall  
Address PO Box 1008 Address PO Box 1008  
Jane Lew, WV 26378 Jane Lew, WV 26378
- 8) Oil and Gas Inspector to be notified Name Bryan Harris  
Address PO Box 157  
Volga, WV 26238
- 9) Plugging Contractor Name \_\_\_\_\_  
Address \_\_\_\_\_

10) Work Order: The work order for the manner of plugging this well is as follows:  
**See attached**

Notification must be given to the district oil and gas inspector 24 hours before permitted work can commence.

Work order approved by inspector Bryan O'Harris Date 7-12-17

08/04/2017

**47-097-03046****Plugging Procedure**

Circulate 6% gel from 4290' to Surface

Cement - 4290' - 4050' = 240' x .0163 = 4 bbl = 20 sks

Perfs - 4204' - 4208'

6% gel - 4050' - 3550'

Cement - 3550' - 3300' = 250' x .0163 = 4.1 bbl = 21 sks

Perfs - 3444' - 3498'

6% gel - 3300' - 2580'

Cement - 2580' - 2000' = 580' x .0163 = 10 bbl = 51 sks

Perfs - 2148' - 2527'

Cut 4.5 casing at estimated 1650' - gel back to surface

Cement 1645' - 1440' = 205' = 6 1/2 hr - 205' x .0410 = 8.4 bbl = 41 sks

Elevation at 1540'

Gel - 1440' - 875'

7" @ 804'

Cement - 875' - 700' = 175' = 38 sks

Gel - 700' - 200'

Cement - 200' - Surface = 200' x .0415 = 8.3 bbls = 40 sks

7" Casing Cemented to Surface

Install well monument

Total sks cement = 211

Bentonite = 2000 lbs

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WR-35

DATE: 9/16/01  
API: 47-097-03046

State of West Virginia  
Division of Environmental Protection  
Section of Oil and Gas

*MT*

Well Operator's Report of Well Work

Farm Name: Garnetta Thomas Operator Well No. D0101

LOCATION: Elevation: 1,540' Quadrangle: Adrian  
District: Meade County: Upshur  
Latitude: 12,000 Feet S. of 38 57 Min. 30 Sec.  
Longitude: 5,940 Feet W. of 80 17 Min. 30 Sec.

Company: Energy Land and Mineral Inc.

Address:	Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. Ft.
<u>PO Box 907</u>	<u>9 5/8"</u>	<u>30'</u>	<u>0'</u>	<u>None</u>
<u>Jane Lew, WV 26378</u>	<u>7"</u>	<u>803.9'</u>	<u>803.9'</u>	<u>To Surf.</u>
Agent: <u>John Haskins</u>	<u>4.5"</u>	<u>0</u>	<u>4296</u>	<u>280</u>
Inspector: <u>Tim Bennett</u>				
Date Permit Issued: <u>3/26/01</u>				
Date Well Work Commenced: <u>3/28/01</u>				
Date Well Work Completed: <u>4/2/01</u>				
Verbal Plugging:				
Date Permission Granted on:				
Rotary X Cable Rig				
Total Depth (ft): <u>4336'</u>				
Fresh Water Depth (ft): <u>70', 476'</u>				
Salt Water Depth (ft): <u>1766', 1784'</u>				

Is coal being mined in the area? No  
Coal Depths (ft): None Reported

OPEN FLOW DATA

Producing formations	Pay zone depth (ft)
<u>Gordon / 5th Sand</u>	<u>2,148'</u>
<u>Elizabeth</u>	<u>2,519'</u>
<u>Bradford</u>	<u>3,444'</u>
<u>Benson</u>	<u>4,204'</u>

Gas: Initial open flow Show Mcf/d. Oil: Initial open flow N/A Bbl/d  
Final open flow 300 Mcf/d. Final open flow N/A Bbl/d  
Time to open flow between initial and final tests: 8 Hours  
Static rock Pressure 570 psig (surface press.) after 24 Hours

NOTE: On back of this form put the following: 1) Details of perforated intervals, fracturing or stimulating, physical change, etc. 2) The well log which is a systematic detailed geological record of all formations, including coal encountered by the wellbore.

Signed: \_\_\_\_\_  
By: [Signature]  
Date: 9/16/01

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Office of Chief  
JUN 24 2004  
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UPS 3046

**HYDRAULIC FRACTURING DETAILS**

STAGE	FORMATION	PERFORATIONS		HOLES	SAND	
		From	To	# of shots	80/100	20/40
1st Stage	Benson	4,204'	4,208'	12	5,000#	30,000#
2nd Stage	Bradford	3,444'	3,498'	12	5,000#	25,000#
3rd Stage	Elizabeth	2,519'	2,527'	12	5,000#	25,000#
4th Stage	Gordon 5th Sand	2,148'	2,274'	12	5,000#	35,000#

**DRILLERS LOG**

FORMATION	FROM	TO
Sand & Shale	Surface	1,452'
Little Lime	1,452'	1,509'
Big Lime	1,509'	1,635'
Sand & Shale	1,635'	1,642'
Big Lime	1,642'	1,728'
Sand & Shale	1,728'	1,731'
Injun	1,731'	1,820'
Sand & Shale	1,820'	1,990'
Gordon	1,990'	2,140'
Sand & Shale	2,140'	2,205'
5th Sand	2,205'	2,261'
Sand & Shale	2,261'	2,720'
Speechley	2,720'	2,854'
Sand & Shale	2,854'	3,056'
Balltown	3,056'	3,078'
Sand & Shale	3,078'	4,138'
Benson	4,138'	4,150'
Sand & Shale	4,150'	4,326'

**ELECTRIC LOG**

FORMATION	FROM	TO
Big Lime	1,528	1,600
Big Injun	1,600	1,723
Gordon	2,110	2,134
5th Sand	2,232	2,300
Elizabeth	2,517	2,535
Bradford	3,444	3,540
Benson	4,196	4,210

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WW-4A  
Revised 6-07

1) Date: 7/13/17  
2) Operator's Well Number \_\_\_\_\_  
G. Thomas 0101

WV Department of  
Environmental Protection

3) API Well No.: 47 - 097 - 03046

**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE OF APPLICATION TO PLUG AND ABANDON A WELL**

4) Surface Owner(s) to be served:	5) (a) Coal Operator
(a) Name <u>Gerald Zirkle</u>	Name _____
Address <u>2514 Abbott Rd.</u>	Address _____
<u>Buckhannon, WV 26201</u>	
(b) Name _____	(b) Coal Owner(s) with Declaration
Address _____	Name <u>Roscco, LLC</u>
	Address <u>PO Box 397</u>
	<u>Glenville, WV 26351</u>
(c) Name _____	Name _____
Address _____	Address _____
6) Inspector <u>Bryan Harris</u>	(c) Coal Lessee with Declaration
Address <u>PO Box 157</u>	Name _____
<u>Volga, WV 26238</u>	Address _____
Telephone <u>304-553-6087</u>	

**TO THE PERSONS NAMED ABOVE: You should have received this Form and the following documents:**

- (1) The application to Plug and Abandon a Well on Form WW-4B, which sets out the parties involved in the work and describes the well its and the plugging work order; and
- (2) The plat (surveyor's map) showing the well location on Form WW-6.

The reason you received these documents is that you have rights regarding the application which are summarized in the instructions on the reverses side. However, you are not required to take any action at all.

Take notice that under Chapter 22-6 of the West Virginia Code, the undersigned well operator proposes to file or has filed this Notice and Application and accompanying documents for a permit to plug and abandon a well with the Chief of the Office of Oil and Gas, West Virginia Department of Environmental Protection, with respect to the well at the location described on the attached Application and depicted on the attached Form WW-6. Copies of this Notice, the Application, and the plat have been mailed by registered or certified mail or delivered by hand to the person(s) named above (or by publication in certain circumstances) on or before the day of mailing or delivery to the Chief.



Well Operator XTO Energy Inc.  
 By: [Signature]  
 Title: Regulatory Compliance Technician  
 Address PO Box 1008  
Jane Lew, WV 26378  
 Telephone 304-884-6000

Subscribed and sworn before me this 10<sup>th</sup> day of July 2017  
Yvonne A. Dutches Notary Public  
 My Commission Expires September 26, 2018

**Oil and Gas Privacy Notice**  
 The Office of Oil and Gas processes your personal information, such as name, address and phone number, as a part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use of your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

08/04/2017

9703046P

**Royalty Owners**

**47-097-03046**

Boyd L. Cutright

XTO Energy Inc.

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WA  
Envi:

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WW-9  
(5/16)

API Number 47 - 097 - 03046  
Operator's Well No. G. Thomas 0101

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
OFFICE OF OIL AND GAS  
FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name XTO Energy Inc. OP Code 494487940

Watershed (HUC 10) Buckhannon River (0502000103) Quadrangle Adrian

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes  No

Will a pit be used? Yes  No

If so, please describe anticipated pit waste: Fluids from plugging operations will be put into tanks.

Will a synthetic liner be used in the pit? Yes  No  If so, what ml.?

Proposed Disposal Method For Treated Pit Wastes:

- Land Application (if selected provide a completed form WW-9-GPP)
- Underground Injection ( UIC Permit Number 4707302523, 4708505151, 4708509721 )
- Reuse (at API Number \_\_\_\_\_)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain Meadowbrook Landfill SWF#1032, RES Water Recycling -WMGR123SW005 (PA))

Will closed loop system be used? If so, describe: NA

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. NA - Plugging

-If oil based, what type? Synthetic, petroleum, etc. NA

Additives to be used in drilling medium? NA

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Any solid waste from plugging will be taken to landfill.

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) NA

-Landfill or offsite name/permit number? Meadowbrook Landfill SWF#1032

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on April 1, 2016, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature *Tim Sands*

Company Official (Typed Name) Tim Sands

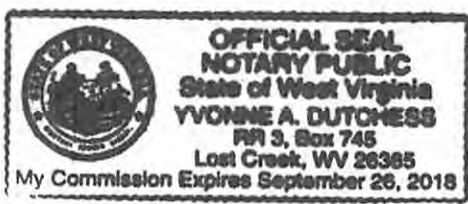
Company Official Title Regulatory Compliance Technician

Subscribed and sworn before me this 10<sup>th</sup> day of July, 20 17

Yvonne A. Dutchess Notary Public

My commission expires September 26, 2018

08/04/2017



Form WW-9

Operator's Well No. G. Thomas 0101

Proposed Revegetation Treatment: Acres Disturbed .59 +/- Prevegetation pH \_\_\_\_\_

Lime 4 Tons/acre or to correct to pH \_\_\_\_\_

Fertilizer type <sup>10-20-20</sup> \_\_\_\_\_

Fertilizer amount 500 lbs/acre

Mulch 2 Tons/acre

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Seed Mixtures

**Temporary**

**Permanent**

Seed Type lbs/acre

Seed Type lbs/acre

Per Plans

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Per Plans			

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, provide water volume, include dimensions (L, W, D) of the pit, and dimensions (L, W), and area in acres, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Byron O'Hara

Comments: \_\_\_\_\_

Title: Inspector

Date: 7-12-17

Field Reviewed?

Yes

No

08/04/2017

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WW-9- GPP  
Rev. 5/16

Page \_\_\_\_\_ of \_\_\_\_\_  
API Number 47 - 097 - 03046  
Operator's Well No. G. Thomas 0101

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
OFFICE OF OIL AND GAS  
GROUNDWATER PROTECTION PLAN

Operator Name: XTO Energy Inc.  
Watershed (HUC 10): Buckhannon River (0502000103) Quad: Adrian  
Farm Name: Crites, Josie B.

1. List the procedures used for the treatment and discharge of fluids. Include a list of all operations that could contaminate the groundwater.

Fluids will not be discharged.

2. Describe procedures and equipment used to protect groundwater quality from the list of potential contaminant sources above.

NA

3. List the closest water body, distance to closest water body, and distance from closest Well Head Protection Area to the discharge area.

NA

4. Summarize all activities at your facility that are already regulated for groundwater protection.

NA

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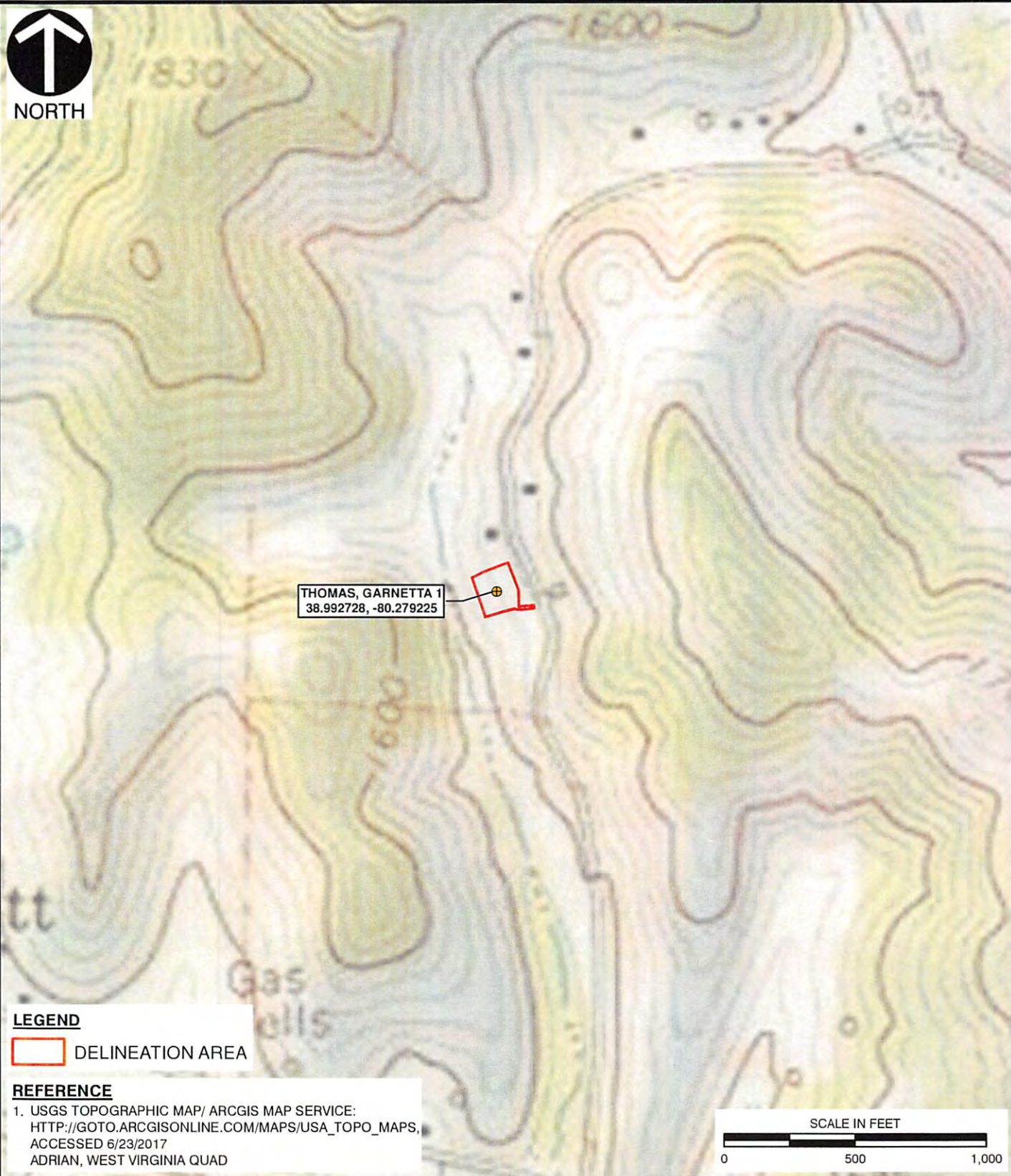
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5. Discuss any existing groundwater quality data for your facility or an adjacent property.

08/04/2017





**LEGEND**

 DELINEATION AREA

**REFERENCE**

1. USGS TOPOGRAPHIC MAP/ ARCGIS MAP SERVICE:  
HTTP://GOTO.ARCGISONLINE.COM/MAPS/USA\_TOPO\_MAPS,  
ACCESSED 6/23/2017  
ADRIAN, WEST VIRGINIA QUAD



**Civil & Environmental Consultants, Inc.**

600 Marketplace Avenue, Suite 200 - Bridgeport, WV 26330-9121  
Ph: 304-933-3119 • Toll: 855-488-9539 • Fax: 304-933-3327  
www.cecinc.com

XTO ENERGY, INC.  
THOMAS, GARNETTA 1 WELL PLUGGING  
UPSHUR COUNTY, WEST VIRGINIA

USGS SITE LOCATION MAP

DRAWN BY: GSK	CHECKED BY: JDK	APPROVED BY: * Hand signature on file SAC*	FIGURE NO: 1
DATE: 06/23/2017	SCALE: 1" = 500'	PROJECT NO: 162-840.0001	08/04/2017

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\\svr-bridgeport\p\2017\162-840-GIS\Maps\Task\_0001\WDSIR\162840\_0001\_FIG1\_WDSIR\_SITE.mxd - 6/23/2017 - 8:41:09 AM (gkuckuck)

97 03046P

WW-7  
8-30-06



West Virginia Department of Environmental Protection  
Office of Oil and Gas

**WELL LOCATION FORM: GPS**

API: 47-097-03046 WELL NO.: G Thomas 0101

FARM NAME: Crites, Josie B.

RESPONSIBLE PARTY NAME: XTO Energy, Inc.

COUNTY: Upshur DISTRICT: Meade

QUADRANGLE: Adrian, WV

SURFACE OWNER: Zirkle, Gerald

ROYALTY OWNER: See attached

UTM GPS NORTHING: 4308739.3

UTM GPS EASTING: 559597.6 GPS ELEVATION: 1537 Ft

The Responsible Party named above has chosen to submit GPS coordinates in lieu of preparing a new well location plat for a plugging permit or assigned API number on the above well. The Office of Oil and Gas will not accept GPS coordinates that do not meet the following requirements:

1. Datum: NAD 1983, Zone: 17 North, Coordinate Units: meters, Altitude: height above mean sea level (MSL) – meters.
2. Accuracy to Datum – 3.05 meters
3. Data Collection Method:

Survey grade GPS  : Post Processed Differential

Real-Time Differential

Mapping Grade GPS  : Post Processed Differential

Real-Time Differential

4. **Letter size copy of the topography map showing the well location.**

I the undersigned, hereby certify this data is correct to the best of my knowledge and belief and shows all the information required by law and the regulations issued and prescribed by the Office of Oil and Gas.

Signature

Project Manager  
Title

6-28-17  
Date

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9703046A

EROSION AND SEDIMENT CONTROL NARRATIVE

- PROJECT DESCRIPTION: THE PURPOSE OF THIS PROJECT IS TO INSTALL EROSION AND SEDIMENT CONTROL MEASURES FOR THE G. THOMAS 0101 WELL PLUG PROJECT. THE PROJECT IS LOCATED APPROXIMATELY 2778 FEET FROM THE INTERSECTION OF COUNTY ROUTE 30 AND COUNTY ROUTE 18 IN UPPER COUNTY, WEST VIRGINIA. THE PROJECT AREA IS APPROXIMATELY 0.39 ACRES AND IS BOUNDED BY THE WETLAND, CREEK, AND PRODUCTION EQUIPMENT WILL BE REMOVED. ONCE CEMENT PLUGS ARE PLACED WITHIN THE BOREHOLE, THE WELL PAD AREA WILL BE RECLAIMED AND GRADED TO BE CONSISTENT WITH THE GENERAL CHARACTER OF THE IMMEDIATE SURROUNDING LAND. THE SITE WILL BE SEEDING AS REQUIRED, WITH A M&F APPROVED BY THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION. THE PROJECT LIMITS OF DISTURBANCE IS APPROXIMATELY 0.39 ACRES AND THE STUDY AREA FOR THE PROJECT WAS APPROXIMATELY 0.60 ACRES.
- EROSION AND SEDIMENTATION CONTROL MEASURES TO BE USED FOR THIS PROJECT ARE COMPOST FILTER SOCKS, STABILIZED CONSTRUCTION ENTRANCES, AND TIMBER MAT BRIDGES FOR STEEP SLOPES AND WETLAND CROSSINGS (WHEN APPLICABLE). IF PROJECT LIMITS CHANGE FOR REASONS OF CONSTRUCTION, AND ADDITIONAL WATERBODIES AND/OR WETLANDS ARE TO BE CROSSED OR IMPACTED, IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE NECESSARY PERMITS PRIOR TO IMPACTING THESE FEATURES. IF OTHER ACCESSORIES ARE NEEDED OR BETTER ROUTES ARE DETERMINED, OBTAIN THE NECESSARY PERMITS PRIOR TO IMPACTING THESE FEATURES. THE MANUAL SHALL BE ADHERED TO UNLESS OTHERWISE WAIVED OR APPROVED BY A WARRANT. SEE PLANS FOR ALL PROPOSED EROSION AND SEDIMENT CONTROL MEASURES. IT IS THE INTENT OF THESE PLANS TO PROVIDE A WORKABLE BASIS FOR ADEQUATE EROSION AND SEDIMENT PROTECTION ASSOCIATED WITH THE WELL PLOUGHING ACTIVITIES. THIS EROSION AND SEDIMENT CONTROL PLAN MAY VARY FROM STANDARD PIPELINE OR WELL PAD CONTROL MEASURES.
- CRITICAL EROSION AREAS-CONTROL MAINTENANCE: ALL 3:1 SLOPES AND STEEPER SLOPES AND OTHER CONTROLS SHALL BE CONSIDERED CRITICAL EROSION AREAS. THESE AREAS SHALL BE MONITORED AND MAINTAINED DAILY AND AFTER EACH RAINFALL OF 0.5 INCHES OR GREATER. THE LOCAL GOVERNING AUTHORITY WILL HAVE THE AUTHORITY TO RECOMMEND THE PLACEMENT OF ADDITIONAL EROSION CONTROLS IN THESE AREAS IF IT BECOMES EVIDENT DURING CONSTRUCTION THAT THE ONES IN PLACE ARE NOT FUNCTIONING SUFFICIENTLY.
- EROSION AND SEDIMENT CONTROL MEASURES: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO STANDARD STANDARDS AND SPECIFICATIONS OF THE CURRENT WEST VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL. A COPY OF THIS MANUAL FROM THE WVPD WEBSITE AND CONSTRUCT ALL DEVICES BASED ON THE MANUAL OR A HANDBOOK THAT IS COMPARABLE OR EXCEEDS THE SPECIFICATIONS OF THE WEST VIRGINIA MANUAL. THE MANUAL STANDARDS OF THIS MANUAL SHALL BE ADHERED TO UNLESS OTHERWISE WAIVED OR APPROVED BY A WARRANT. SEE PLANS FOR ALL PROPOSED EROSION AND SEDIMENT CONTROL MEASURES. IT IS THE INTENT OF THESE PLANS TO PROVIDE A WORKABLE BASIS FOR ADEQUATE EROSION AND SEDIMENT PROTECTION ASSOCIATED WITH THE WELL PLOUGHING ACTIVITIES. THIS EROSION AND SEDIMENT CONTROL PLAN MAY VARY FROM STANDARD PIPELINE OR WELL PAD CONTROL MEASURES.
- STRUCTURAL STRUCTURES:
  - SILT SOCK/SILT FENCE/SUPER SILT FENCE: WILL BE CONSTRUCTED AS SHOWN ON THE PLANS.
- VEGETATIVE PRACTICE TOPSOIL: TOPSOIL WILL BE STRIPPED FROM THE SITE AND STOCKPILED IN AN AREA DETERMINED IN THE FIELD. UPON THE COMPLETION OF THE PROJECT TOPSOIL WILL BE PLACED ON ALL DISTURBED AREAS AT A MAXIMUM DEPTH OF 4 INCHES. TEMPORARY SEEDING: ALL DISTURBED AREAS LEFT EXPOSED FOR MORE THAN 21 DAYS SHALL BE SEEDING WITH FAST GERMINATING SEED. THE DATE OF YEAR WILL BE THE BASIS FOR THE SEED MIXTURE. PERMANENT SEEDING: ALL SEEDING AREAS WILL BE RESEED, MULCHED AND FERTILIZED AS NEEDED TO OBTAIN AN ADEQUATE STAND OF GRASS. SEEDING SHALL BE PLACED WITHIN SEVEN DAYS AFTER SOIL GRADING FINISH. GRADE, WATER, MULCH, AND RESEED AS NECESSARY TO OBTAIN AN ADEQUATE STAND OF VEGETATION IN THE OPINION OF THE ENGINEER.
- MANAGEMENT STRATEGIES: CONSTRUCTION WILL BE SEQUENCED SO THAT OPERATIONS WILL BEGIN AND END AS SOON AS POSSIBLE. THE JOB SUPERINTENDENT SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES AFTER ACHIEVING ADEQUATE STABILIZATION OF THE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES. CLEARING AND GRUBBING ACTIVITIES SHOULD TAKE INTO CONSIDERATION THE PROTECTION OF NATIVE SOILS. ANY AREAS THAT REQUIRE PRESENTATION OF CRITICAL OR SENSITIVE AREAS AND/OR REQUIRED BUFFERS SHALL BE DELINEATED ON BOTH THE PLANS AND THE SITE.
- CONSTRUCTION ELEMENTS:
  - A. OBTAIN ALL PERMITS AND APPROVALS PRIOR TO CONSTRUCTION
  - B. IF CONSTRUCTION LIMITS NEED TO BE EXPANDED BEYOND THE LIMITS OF DISTURBANCE AREA SHOWN ON THE PLANS, A PRE-CONSTRUCTION ENVIRONMENTAL EVALUATION WILL NEED TO BE CONDUCTED. CONTACT THE ENVIRONMENTAL BIOLOGIST TO CONDUCT A REVIEW ON THE NEW AREAS PRIOR TO CONSTRUCTION.
  - C. INSTALL THE STABILIZED CONSTRUCTION ENTRANCES AT THE ACCESS ROAD. STABILIZED CONSTRUCTION ENTRANCES MAY BE NEEDED AT THE ACCESS ROAD REMOVED ITS USE AT THE TIME THIS PROJECT'S CONSTRUCTION.
  - D. MARK ALL CLEARING LIMITS AND SENSITIVE AREAS SUCH AS STREAMS, WETLANDS, ETC.
  - E. INSTALL ORANGE CONSTRUCTION FENCE NEAR STREAMS, WETLANDS, AND STRUCTURES WITHIN THE LIMITS OF DISTURBANCE TO PROVIDE A PHYSICAL BARRIER TO DETER DISTURBANCE BY CONSTRUCTION ACTIVITIES.
  - F. ADD GRAVEL TO ACCESS ROAD AS NEEDED, BUT NO GRADING OR IMPACTS TO EXISTING DRAINAGE FEATURES ARE TO BE MODIFIED.
  - G. ON A DAILY BASIS, CLEAN THE ROADS THOROUGHLY BY REMOVING TRACKED SEDIMENT BY SHOVELING OR SWEEPING. STREET WASHING TO A WATERCOURSE OR STORM DRAIN SYSTEM IS NOT ALLOWED.
  - H. INSTALL COMPOST FILTER SOCK WHERE SHOWN, PARALLEL TO THE SLOPE AND ON THE DOWN-GRADE SIDE OF THE LIMITS OF DISTURBANCE TO PREVENT SEDIMENTATION FROM LEAVING THE PROJECT AREA.
  - I. CLEAR AND GRUB ALONG THE R-O-W. PRESERVE NATURAL VEGETATION AS MUCH AS POSSIBLE, WITHOUT SIGNIFICANT INTERFERENCE WITH CONSTRUCTION ACTIVITIES.
  - J. USE TAMBER MAT BRIDGES TO CROSS WATERBODIES AND WET AREAS, AS NEEDED.
  - K. RE-ESTABLISH THE GRADE TO THE PRE-CONSTRUCTION CONDITIONS.
  - L. RE-ESTABLISH THE DISTURBED SOILS WITHIN 7 DAYS BY PLACING TEMPORARY SEEDING IF NOT FINAL GRADED, AND PERMANENT SEEDING WITH A MULCH CROP IF FINAL GRADED.
  - M. MULCH AND FERTILIZE AS STATED IN THIS PLAN.
  - N. PLACE ROLLED EROSION CONTROL PRODUCTS (RECP) AND BLANKETS ON TOP OF SEEDING AREAS, ON STEEP SLOPES WHERE SEEDING MAY BE DISPLACED BY RUNOFF. TYPICALLY, SLOPES GREATER THAN 30% NEED TO HAVE AN EROSION CONTROL MAT OR BLANKET PLACED OVER THE SEEDING AREAS. SEED AND PLACE RECP ON THE STEEP SLOPES ADJACENT TO ANY AND ALL STREAMS IMMEDIATELY (WITHIN 7 DAYS) AFTER THE WELL PLUG IS REMOVED.
  - O. MAINTAIN ALL BEST MANAGEMENT PRACTICES (BMP'S) AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION.
  - P. ALL BMP'S SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCHES PER 24 HOUR PERIOD. ANY REQUIRED REPAIRS SHOULD BE MADE IMMEDIATELY. THIS INCLUDES THE REMOVAL OF SEDIMENT THAT IS OVER HALF THE HEIGHT OF THE COMPOST FILTER SOCK (1 DAY PER WEEK OR AS STORM EVENTS REQUIRE).
  - Q. TEMPORARY BMP'S SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY BMP'S ARE NO LONGER NEEDED. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON SITE. DISTURBED SOIL RESULTING FROM REMOVAL OF BMP'S OR VEGETATION SHALL BE PERMANENTLY STABILIZED. FINAL STABILIZATION MEANS THAT ALL SOIL-DISTURBING ACTIVITIES ARE COMPLETED, AND THAT EITHER A PERMANENT VEGETATIVE COVER OF THE TOTAL VEGETATED AREA WITH A DENSITY OF 70% OR GREATER HAS BEEN ESTABLISHED OR THAT THE SURFACE HAS BEEN STABILIZED BY HARD COVER SUCH AS PAVEMENT OR BUILDINGS (WHEN APPLICABLE).
  - R. NEW OR PERMANENT CUTS OR FILL SLOPES ARE TO REMAIN ON-SITE. GRADING SHOULD BE DONE SUCH THAT BEST-CONSTRUCTION CONTOURS SHOULD CROSS WITHIN APPROXIMATE CHANNEL CORNERS AFTER CONSTRUCTION IS COMPLETE. ALL AREAS IN THE LOO THAT WERE VEGETATED IN THE EXISTING CONDITION ARE TO BE VEGETATED AFTER CONSTRUCTION.
- PERMANENT STABILIZATION: ALL AREAS LEFT UNCOVERED BY EITHER BUILDINGS OR PAVEMENT SHALL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY FOLLOWING FINISH GRADING AND WITHIN 7 DAYS. AT NO TIME SHALL LAND LAY DORMANT FOR LONGER THAN 21 DAYS. SEE SEQUENCE OF EVENTS FOR DATES.
- MAINTENANCE AND OTHER CONSIDERATIONS AND GROUND WATER PROTECTION: ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CHECKED DAILY AND AFTER EACH RAINFALL OF 0.5 INCH OR MORE. THEY WILL BE INSPECTED FOR UNDERMINING, DETERIORATION, EROSION AND EXCESS DEPOSITED MATERIAL. ALL DEFECTIVE SOCKS WILL BE CORRECTED IMMEDIATELY. EXCESS MATERIAL WILL BE SPREAD ON THE SITE IN A MANNER WHERE IT IS NOT LIKELY TO ERODE IN THE FUTURE. CLEANING PROCEDURES WILL BE COMPLETED AT REGULAR INTERVALS AND AT LEAST WHEN SEDIMENT REACHES A LEVEL OF CAPACITY OR AS SPECIFIED IN THE METHODS OF CLEANING AND CORRECTIONS WILL BE HANDLED BY THE CONTRACTOR. THE "CEMENT ORIGINATOR PROTECTION PLAN FOR CONSTRUCTION SITES" WILL BE USED AND AVAILABLE ON SITE AT ALL TIMES. AN AREA WILL BE PROVIDED FOR VEHICLES AND EQUIPMENT MAINTENANCE. HAZARDOUS FUEL TANKS WITH APPROVED TANKS WILL BE USED ON THE SITE. PORTABLE SANITARY FACILITIES WILL BE AVAILABLE FOR EMPLOYEES. IF CONCRETE IS USED, EXCESS CONCRETE WILL BE DISPOSED OF PROPERLY AND NOT ALLOWED TO REMAIN ON THE SITE. MACHINERY WILL NOT BE ALLOWED IN LIVE STREAMS. FLUIDS SUCH AS DIESEL FUEL, OIL, GAS, OIL OR ANTIFREEZE WILL BE KEPT IN PROPER CONTAINERS AND ANY SPILLS WILL BE CLEANED AND TAKEN OFF SITE TO A PROPER FACILITY. SOLID OR HAZARDOUS WASTES WILL BE DISPOSED IN ACCORDANCE WITH APPROPRIATE STATE AND FEDERAL REGULATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE CHANGES AND NOTIFY WOODY OF ANY CHANGES TO COME. A FINAL INSPECTION WILL BE MADE AT THE CONCLUSION OF THE PROJECT AND ALL CORRECTIONS MADE BEFORE SIGN-OFF OF THE PROJECT SITE.
- CRITICAL AREAS: THE AREAS SHOWN ALONG THE FIELD DELINEATED STREAMS, WETLANDS, AND PONDS, AS SHOWN ON THE PLANS, ARE DESIGNATED AS CRITICAL AREAS. IF PRESENT, ALL 3:1 SLOPES AND STEEPER SLOPES, DITCHES, AND OTHER CONTROLS SHALL BE CONSIDERED CRITICAL EROSION AREAS. THESE AREAS SHALL BE MONITORED AND MAINTAINED DAILY DURING CONSTRUCTION AND AFTER EACH RAINFALL OF 0.5 INCHES OR GREATER. COMPOST FILTER SOCKS ARE TO BE USED TO PROTECT THESE FIELD DELINEATED AREAS FROM SEDIMENT LEAVING THE SITE. ADDITIONALLY, ORANGE SAFETY FENCE IS RECOMMENDED TO BE INSTALLED AROUND THESE AREAS, TO SERVE AS A PHYSICAL BARRIER, ENSURING THE AREAS ARE NOT DISTURBED. THE LOCAL GOVERNING AUTHORITY WILL HAVE THE AUTHORITY TO RECOMMEND THE PLACEMENT OF ADDITIONAL EROSION CONTROL MEASURES IN THESE AREAS IF IT BECOMES EVIDENT DURING CONSTRUCTION THAT THE ONES IN PLACE ARE NOT FUNCTIONING SUFFICIENTLY.
- MAINTENANCE: PROPERLY TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELLED OR SHIPPED INTO ANY ROADSIDE DITCH, CULVERT OR SURFACE WATER.

GENERAL EROSION CONTROL NOTES

- THE CONTRACTOR SHALL ARRANGE FOR A PRE-CONSTRUCTION CONFERENCE WITH THE APPROPRIATE EROSION AND SEDIMENT CONTROL INSPECTOR 48 HOURS PRIOR TO BEGINNING WORK.
- ALL EROSION CONTROL DEVICES AS SHOWN OR AS REQUIRED, ARE TO BE CONSTRUCTED TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE WEST VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL AND ARE TO BE IN PLACE PRIOR TO WORK.
- EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED CONTINUOUSLY, RELOCATED WHEN AND AS NECESSARY AND SHALL BE CHECKED AFTER EVERY RAINFALL. SEEDING AREAS SHALL BE CHECKED REGULARLY AND SHALL BE WATERED, FERTILIZED, RE-SEEDING AND MULCHED AS NECESSARY TO MAINTAIN A DENSE STAND OF GRASS.
- ALL DRAIN MILES SHALL BE PROTECTED FROM SLITATION. INEFFECTIVE PROTECTION DEVICES SHALL BE IMMEDIATELY REPLACED AND THE MILE CLEANED. FLOUGHING IS NOT AN ACCEPTABLE METHOD OF CLEANING.
- PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DISTURBED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DISTURBED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 21 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE DORMANT FOR MORE THAN 30 MONTHS.
- DURING THE CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES.
- SEDIMENT BASINS AND TRAPS, PERMITS DRINK SEDIMENT OVERBAYS AND OTHER MEASURES ATTACHED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPLSLOPE LAND DISTURBANCE TAKES PLACE.
- ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER. TRAPPED SEDIMENT AND THE DISTURBED SOIL RESULTING FROM THE DEPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
- ALL DISTURBED AREAS NOT PAVED OR BUILT UPON SHALL BE HYDRO-SEEDING AND FERTILIZED, PERFORM PERMANENT TOP SOILING, SEEDING AND FERTILIZING AS SOON AFTER OBTAINING FINAL GRADE AS POSSIBLE. SEEDING SHALL COMPLY WITH THE FOLLOWING:
  - A. TOPSOIL - 4 INCH MINIMUM FOR PERMANENT TURF
  - B. FERTILIZER - 500 POUNDS PER ACRE OF 10-20-20 FERTILIZER OR EQUIVALENT POUNDAGE OF DIFFERENT ANALYSIS. WORK INTO SOIL PRIOR TO SEEDING.
  - C. LIME (PERMANENT SEEDING) - AGRICULTURAL LIME SPREAD AT RATE OF 4 TONS/ACRE, WORK INTO SOIL PRIOR TO SEEDING.
  - D. MULCH - WOOD FIBER OR CHOPPED STRAW AT RATE OF 2 TONS PER ACRE, HYDRO-MULCH AT RATE OF 30 BALES PER ACRE.
  - E. SEED - SEE DETAIL SEEDING CHARTS TO BE SEEDING BY HYDRO-SEEDER.

GENERAL RECLAIMATION NOTES

- THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES INVOLVED IN THE SITE NO MORE THAN TEN DAYS AND NO LESS THAN THREE DAYS IN ADVANCE OF EXCAVATION EXCLUDING SATURDAY, SUNDAY, AND FEDERAL OR STATE HOLIDAYS. CONTACT MISS UTILITY OF WV AT 811.
- TRAFFIC SHALL BE MAINTAINED ON ALL ADJOINING STREETS AND DRIVES AT ALL TIMES IN ACCORDANCE WITH WOODT REQUIREMENTS.
- DISTURBED AREAS CREATED DUE TO WELL PLUG REMOVAL SHALL BE RECLAIMED, MULCHED, AND SEEDING TO REDUCE EROSION AND SEDIMENTATION.
- API IDENTIFICATION NUMBERS SHALL BE DISPLAYED AT THE WELL IN ACCORDANCE WITH STATE REQUIREMENTS.
- LANDOWNERS SHALL BE GIVEN ADEQUATE NOTICE THAT CERTAIN SPECIFIED ACTIVITIES WILL BE OCCURRING ON THEIR PROPERTY.

SPECIES/MIXTURE	SEEDING RATE (LBS/AC)	SOIL DRAINAGE PREFERENCE	PH RANGE
CROWNVETCH/ TALL FESCUE	10 - 15	WELL - MOD. WELL	5.0 - 7.5
CROWNVETCH/ PERENNIAL RYEGRASS	10 - 15	WELL - MOD. WELL	5.0 - 7.5
FLATPEA OR PERENNIAL PEA	20	WELL-MOD. WELL	4.0-6.0
LAMMO CLOVER/ SERICA LESPEDEZA/ TALL FESCUE	30	WELL - MOD. WELL	4.5 - 7.5
TALL FESCUE/ REDTOP	3	WELL - MOD. WELL	5.0 - 7.5
CROWNVETCH/ TALL FESCUE/ REDTOP	10	WELL - MOD. WELL	5.0 - 7.5
TALL FESCUE/ BROODING TROFOL/ REDTOP	40	WELL - MOD. WELL	5.0 - 7.5
SERICA LESPEDEZA/ TALL FESCUE/ REDTOP	25	WELL - MOD. WELL	4.5 - 7.5
TALL FESCUE/ CREEPING RED	30	WELL - MOD. WELL	5.0 - 7.5
TALL FESCUE	30	WELL - POORLY	4.5 - 7.5
PERENNIAL RYEGRASS/ TALL FESCUE/ LATHCO FLATPEA*	18	WELL - POORLY	6.0-6.8
ANNUAL RYEGRASS/ CUMAC TIMOTHY/ BESTFOR INTERMEDIATE RYEGRASS/ POTIOWIC ORNAMENTALGRASS/ MEDIUM RED CLOVER (COATED)	30 20 15 10	WELL - MOD. WELL	6.0 - 7.0

NOTE: MIXTURES LISTED IN BOLD ARE SUITABLE FOR USE IN SHADED WOODLAND SETTINGS; THOSE IN ITALICS ARE SUITABLE FOR USE IN FILTER STRIPS

NOTE: FOR UNPREPARED SEEDBEDS OR SEEDING OUTSIDE THE OPTIMUM TIMEFRAMES, ADD 50% MORE SEED TO THE SPECIFIED RATE

\* LATHCO FLATPEA IS POTENTIALLY POISONOUS TO SOME LIVESTOCK ALL LEGUMES SHOULD BE PLANTED WITH PROPER INOCULANTS PRIOR TO SEEDING

\*\* SWISHER MEADOW MIX

SPECIES	SEEDING RATE (LBS/AC)	OPTIMUM SEEDING DATES	DRAINAGE	PH RANGE
ANNUAL RYEGRASS	40	3/1 - 6/15 OR 8/15 - 9/15	WELL - POORLY	5.5 - 7.5
FIELD BROMEGRASS	40	3/1 - 6/15 OR 8/15 - 9/15	WELL - MOD. WELL	6.0 - 7.0
SPRING OATS	90	3/1 - 6/15	WELL - POORLY	5.5 - 7.0
SUDANGRASS	40	5/15 - 8/15	WELL - POORLY	5.5 - 7.5
WINTER RYE	160	8/15 - 10/15	WELL - POORLY	5.5 - 7.5
WINTER WHEAT	180	8/15 - 11/15	WELL - MOD. WELL	5.5 - 7.0
JAPANESE MILLET	30	6/15 - 8/15	WELL	4.5 - 7.0
REDTOP	5	3/1 - 6/15	WELL	4.0 - 7.5
ANNUAL RYEGRASS	28	3/1 - 6/15	WELL - POORLY	5.5 - 7.5
SPRING OATS	64	3/1 - 6/15	WELL - POORLY	5.5 - 7.5

NOTE: THESE RATES SHOULD BE INCREASED BY 50% IF PLANTED APRIL 15 - AUGUST 1 AND OCTOBER 1 - MARCH 1

REVISION RECORD

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600 Marlborough Ave - Suite 200 - Bridgeport, WV 26330  
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XTO ENERGY, INC.  
G. THOMAS 0101 WELL PLUG  
UPSHUR COUNTY, WV

EROSION & SEDIMENT CONTROL PLAN NOTES

DATE: 05/14/2018  
DRAWN BY: JAMES BY  
CHECKED BY: AS SHOWN  
PROJECT NO: 18-0001  
APPROVED BY:

DRAWING NO: 2  
SHEET: 2 OF 4



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Office of Oil and Gas  
JUL 17 2017  
WV Department of  
Environmental Protection



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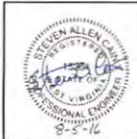
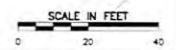


LEGEND

	EXISTING ROAD
	EXISTING ROAD CENTERLINE
	EXISTING STREAM
	EXISTING WETLAND
	PROPOSED CONSTRUCTION ENTRANCE
	PROPOSED TIMBER MAT
	DELINATION STUDY AREA
	PROPOSED LIMITS OF DISTURBANCE
	PROPOSED 12" COMPOST FILTER SOCK
	PROPOSED ORANGE CONSTRUCTION SAFETY FENCE
	WELL HEAD



NOTE:  
 EXISTING ACCESS DRIVE SURFACE AND WELL HEAD AREA IS CURRENTLY VEGATED/BARE GROUND. CONTRACTOR TO MAKE ANY NECESSARY REPAIRS CAUSED BY PLUGGING ACTIVITIES AS INSTRUCTED BY THE CONSTRUCTION SUPERVISOR. ONCE PLUGGING OPERATIONS ARE COMPLETE ALL DISTURBED AREAS ARE TO BE SEEDED AND STABILIZED



EROSION & SEDIMENT CONTROL PLAN

DATE	AUG 2016	DRAWN BY	ROB
DWG SCALE	AS SHOWN	CHECKED BY	ZND
PROJECT NO.	182-840	APPROVED BY	SAC
SHEET	3	OF	4

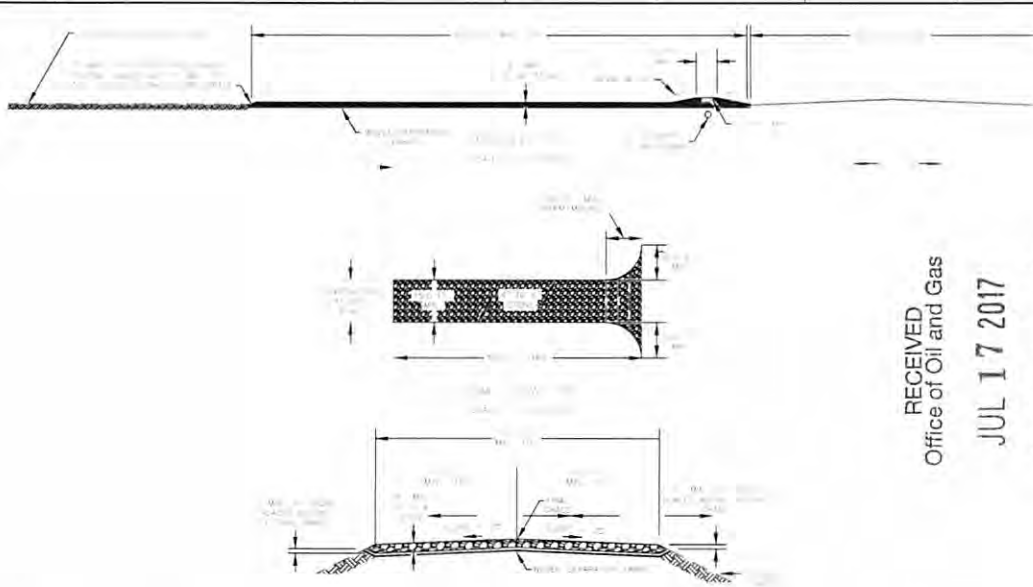
XTO ENERGY, INC.  
 G. THOMAS 0101 WELL PLUG  
 UPSHUR COUNTY, WV

**CEL**  
 Civil & Environmental Consultants, Inc.  
 600 Marketplace Ave - Suite 200 - Bridgport, WV 26330  
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 www.celinc.com

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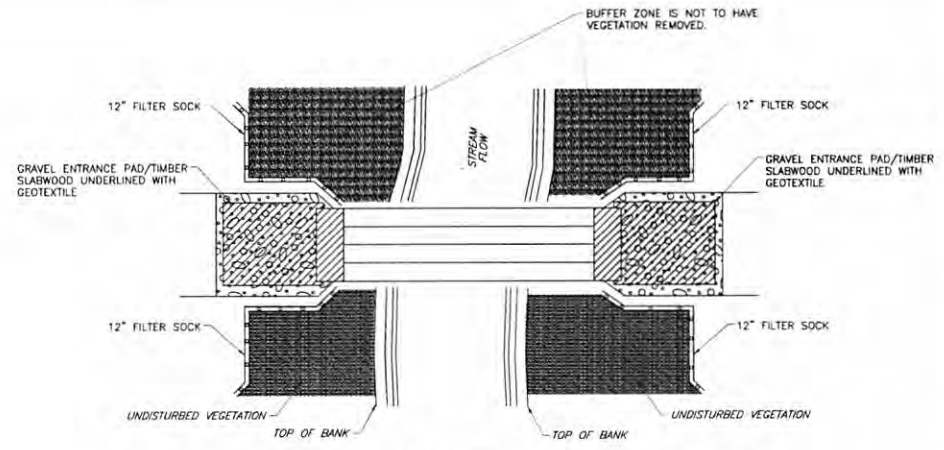
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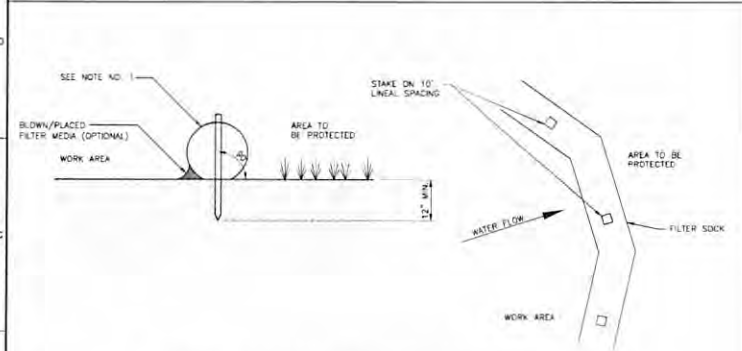
**DETAIL 1**  
**STABILIZED CONSTRUCTION ENTRANCE**  
NOT TO SCALE

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JUL 17 2017  
WV Department of  
Environmental Protection



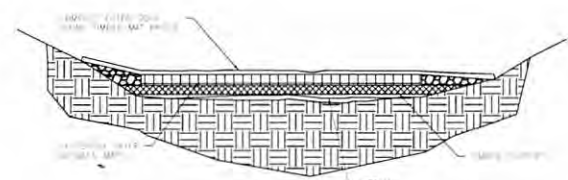
- NOTES:
- 1.) ONLY CLEARING EQUIPMENT AND EQUIPMENT NECESSARY FOR INSTALLATION OF EQUIPMENT BRIDGES MAY CROSS WATER BODIES PRIOR TO BRIDGE INSTALLATION. LIMIT THE CROSSING OF EACH WATER BODY TO ONE PER PIECE OF CLEARING EQUIPMENT.
  - 2.) INSTALL 12" FILTER SOCK ACROSS THE DISTURBED AREA OF THE RIGHT - OF - WAY.
  - 3.) APPLY GEO - TEXTILE UNDER ENTRANCE PADS.
  - 4.) EXCESS MUD IS TO BE REMOVED FROM THE ENTRANCE PADS AND MATS DURING CONSTRUCTION.
  - 5.) SECURE GEO-TEXTILE TO UNDER SIDE OF TIMBER MATS AND WRAP/SECURE TO SIDES TO PREVENT SEDIMENT/MUD FROM MIGRATION THROUGH MATS TO PROTECTED AREA BELOW.
  - 6.) DURING FINAL CLEAN UP WHEN MATS, CULVERT, CLEAN ROCK FILL, ETC. ARE REMOVED, INSTALL FILTER FENCE ACROSS THE ENTIRE RIGHT - OF -WAY ON BOTH SIDES OF STREAM.

**DETAIL 2**  
**TEMPORARY TIMBER MAT STREAM CROSSING DETAIL**  
NOT TO SCALE



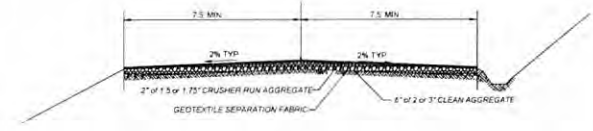
- NOTE:
1. COMPOST FILTER SOCK TO BE FILTEREX SUTSOXK OR APPROVED EQUIVALENT
  2. 12", 18", 24", and 32" COMPOST FILTER SOCK TO BE USED - SEE PLAN SHEET FOR SIZES AND LOCATIONS
  3. ACCUMULATED SEDIMENT SHALL BE REMOVED AND DEPOSED BY WHEN IT REACHES 1/2 THE ABOVE DRIVING HEIGHT OF THE COMPOST FILTER SOCK.
  4. COMPOST FILTER SOCK SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED COMPOST FILTER SOCK SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
  5. COMPOST FILTER SOCK SHALL BE INSTALLED ON THE CONTOUR, PERPENDICULAR TO FLOW.

**DETAIL 3**  
**COMPOST FILTER SOCK**  
NOT TO SCALE



- NOTE:
1. REMOVE DIRT FROM BRIDGE DECK AND PLACE IN SPILL AREA.
  2. BRIDGES SHOULD BE SECURELY ANCHORED AT ONLY ONE END USING STEEL CABLE OR CHAIN. ANCHORING AT ONLY ONE END WILL PREVENT CHANNEL OBSTRUCTION IN THE EVENT THAT FLOODWATERS FLOOD THE BRIDGE. ACCEPTABLE ANCHORS ARE LARGE TREES, LARGE BOULDER, OR DRIVEN STEEL ANCHORS. ANCHORS SHALL BE SUFFICIENT TO PREVENT THE BRIDGE FROM FLOATING DOWNSTREAM AND POSSIBLY CAUSING AN OBSTRUCTION TO THE FLOW.
  3. ALLOW FOR ANIMAL WETLAND IMPACT DURING CONSTRUCTION AND QUICK RESTORATION TO PRE-CONSTRUCTION CONDITIONS.

**DETAIL 4**  
**TIMBER MAT BRIDGE FOR WETLAND CROSSING**  
NOT TO SCALE



- NOTES:
- EXISTING ACCESS DRIVE IS CURRENTLY VEGETATED. THE CONTRACTOR SHALL MAKE REPAIRS TO MINOR RUTTING WITHIN THE ACCESS ROAD PER THIS DETAIL OR AS INSTRUCTED BY THE CONSTRUCTION SUPERVISOR. THE ACCESS ROAD IS TO BE STABILIZED AND MAINTAINED THROUGHOUT CONSTRUCTION AS DIRECTED BY THE CONSTRUCTION SUPERVISOR. ONCE THE WORK IS COMPLETE, ANY DISTURBED AREAS MUST BE SEEDED AND STABILIZED IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL PLAN NOTES.

**DETAIL 5**  
**TYPICAL CONSTRUCTION ACCESS ROAD REPAIR**  
NOT TO SCALE

NO.	DATE	REVISION RECORD	DESCRIPTION

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**XTO ENERGY, INC.**  
**G. THOMAS 0101 WELL PLUG**  
**UPSHUR COUNTY, WV**

DATE	BY	REVISION	DESCRIPTION
AUG 2016	JRW/MT	R00	
		ZND	
		102-R40	

DRAWING NO. **4**

SHEET 4 OF 4

