



**west virginia** department of environmental protection

Office of Oil and Gas  
601 57th Street SE  
Charleston, WV 25304  
(304) 926-0450  
(304) 926-0452 fax

Earl Ray Tomblin, Governor  
Randy C. Huffman, Cabinet Secretary  
www.dep.wv.gov

July 29, 2014

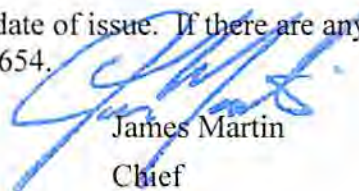
**WELL WORK PLUGGING PERMIT**

**Plugging**

This permit, API Well Number: 47-3300025, issued to XTO ENERGY, INC., 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 all 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.

Upon completion of the plugging well work, the above named operator will reclaim the site according to the provisions of WV Code 22-6-30. The above named operator will also file, as required in WV Code 22-6-23, an affidavit on form WR-38 by two experienced persons in the operator's employment and the Oil and Gas inspector that the work authorized under this permit was performed and a description given. Failure to abide by all statutory and regulatory provisions governing all duties and operations here under may result in suspensions or revocation of this permit and in addition may result in civil and/or criminal penalties being imposed upon the operator.

This permit will expire in two (2) years from date of issue. If there are any questions, please free to contact me at (304) 926-0499 ext. 1654.



James Martin  
Chief

Operator's Well No: 303940 (J.M. BOGGESS HEIRS 1)  
Farm Name: HARBERT, MELISHA A.  
**API Well Number: 47-3300025**  
**Permit Type: Plugging**  
Date Issued: 07/29/2014

## 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.
4. This well is under a consent order and must be plugged within two years of the date of issuance of this permit.

WW-4B  
Rev. 2/01

1) Date 5/20, 2014  
2) Operator's  
Well No. J.M. Boggess Heirs 1  
3) API Well No. 47-033 - 00000

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  / Liquid injection  / Waste disposal  /  
If "Gas, Production  or Underground storage  Deep  / Shallow

5) Location: Elevation 1045' Watershed Tenmile Creek  
District Eagle County Harrison Quadrangle Wallace 7.5'

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 Sam Ward  
Address PO Box 2327  
Buckhannon, WV 26201  
9) Plugging Contractor  
Name \_\_\_\_\_  
Address \_\_\_\_\_

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

RIH down 5' casing and check TD, POOK and run 2" tubing down to estimate depth of 3244', then circulate 6% gel back to surface and pump cement up to 3000', pull tubing up to 2825' and pump cement up to 2650', bottom of 5" casing at 2754' pull tubing up to 2000' and pump cement up to 1800' pull tubing out of well and run CBL to find TOC and free pipe, cut 5" casing estimated at 1400' and pump cement up to 1175', bottom of 6 5/8" casing at 1237' pull 5" casing up to 1025' and pump cement up to 900' elevation at 974' pull casing up to 750' and pump cement to 600' coal seam at 708' to 658' pull casing up to 200' and pump cement to surface

- Cement 3244'-3000' = 244' in 6 1/4" hole
- Cement 2825'-2650' = 175' in 6 1/4" hole
- Cement 2000'-1800' = 200' in 5" casing
- Cement 1400'-1175' = 225' in 7" casing
- Cement 1025'-900' = 125' in 7" casing
- Cement 750'-600' = 150' in 7" casing - coal seam
- Cement 200'-0' = 200' in 7" casing

**MUST TRY TO PULL CASING IF POSSIBLE.**

Notification must be given to the district oil and gas inspector 15 days before permitting work can commence.

Work Order approved by Inspector S. P. Dabowitz

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5/22/2014  
MAY 23 2014

WV Department of  
Environmental Protection  
08/01/2014



Har 25

Charleston

STATE OF WEST VIRGINIA DEPARTMENT OF MINES OIL AND GAS DIVISION

WELL RECORD

Permit No. HAR-25-D HAR-145-B

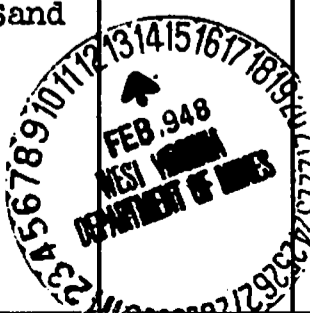
Oil or Gas Well Gas (KIND)

Company V. L. & J. H. Hornor
Address Lumberport, W. Va.
Farm Guy Harbert Acres 170
Location (waters) Tenmile Creek
Well No. 1 Elev. 974
District Eagle County Harrison
The surface of tract is owned in fee by Guy & Sallie Harbert Address R. F. D., Lumberport, W. Va.
Mineral rights are owned by V. L. & J. H. Hornor, Lumberport, W. Va.
Drilling commenced May 31, 1946
Drilling completed Sept. 17, 1947
Date Shot 6/30/47 From 3164 To 3196
With 80 Quarts
Open Flow 15/10ths Water in 1" Inch
Volume 30,000 Cu. Ft.
Rock Pressure 520 lbs. 24 hrs.
Oil bbls., 1st 24 hrs.
Fresh water feet feet
Salt water feet feet

Table with columns: Casing and Tubing, Used in Drilling, Left in Well, Packers. Rows include tubing sizes (16, 18, 10, 8 1/2, 8, 2) and packer details (Kind of Packer, Comb. Hook Wall Anchor, Size of, 3" x 5 3/16" x 1, Depth set, 2797').

CASING CEMENTED SIZE No. Ft. Date
COAL WAS ENCOUNTERED AT FEET INCHES
FEET INCHES FEET INCHES
FEET INCHES FEET INCHES

Main well log table with columns: Formation, Color, Hard or Soft, Top, Bottom, Oil, Gas or Water, Depth Found, Remarks. Includes entries for Little Dunkard, Big Dunkard, Gas Sand, Coal, 1st Salt, 2nd Salt, Little Lime, Pencil Cave, Big Lime, Big Injun, Fifty-Foot, Thirty-Foot, Gordon Stray, Gordon, Fourth, Fifth, Bottom, 2nd Warren Sand, Balltown, and Total Depth.



08/01/2014 RECEIVED Office of Oil and Gas MAY 23 2014 WV Department of Environmental Protection

HAR-25  
~~145~~ ~~145~~

3300025P

V. L. & J. H. Hornor, Company

COMPLETION DATA SHEET

Lumberport, W. Va. Address

No. 2

Well No. 1

FORMATION RECORD

Name	Color	Character	Oil, Gas or Water	Top	Bottom	Thickness	Total Depth	Remarks
Little Dunkard				300	328	28	328	
Big				393	450	57	450	
Gas Sand				610	655	45	655	
First Salt				680	705	25	705	
Second Salt			Water	720	820	100	820	
Little Lime				1205	1220	15	1220	
Pencil Cave				1220	1230	10	1230	
Big Lime			<del>gas</del>	1230	1291	61	1291	
Big Injun			Gas	1291	1370	79	1370	
Fifty Foot			gas	1823	1915	92	1915	
Thirty Foot			gas	1925	1955	30	1955	
Gordon Stray				2065	2095	30	2095	
Gordon			gas	2098	2155	57	2098	
Fourth			gas	2188	2203	15	2203	
Fifth			gas	2261	2269	8	2269	
Bottom							2418.	

shot  
 Well was not shot at No shots feet; well was shot at \_\_\_\_\_ feet.

~~XXXX~~  
 Fresh water at Surface feet; ~~fresh water~~ <sup>salt</sup> ~~water~~ at 735 feet.

producing  
 Well was ~~XXXX~~ hole.

Dec. 18, 1935.  
 Date

Approved V. L. & J. H. Hornor  
 By V. L. Hornor Owner

08/01/2014

NOTE: All bottom formations must be noted as indicated above and all key-rocks and oil and gas sands must be recorded under their proper geological names in the district as well as any local names commonly used in the district for such strata.

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 Environmental Protection

WW-4A  
Revised 6-07

1) Date: 5/20/14  
2) Operator's Well Number  
J.M. Boggess Heirs 1  
3) API Well No.: 47 - 033 - 00025

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

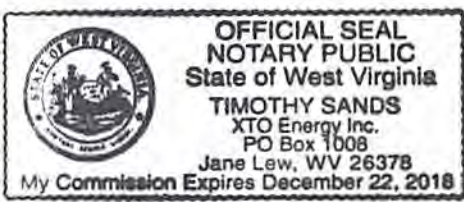
<b>4) Surface Owner(s) to be served:</b>	<b>5) (a) Coal Operator</b>
(a) Name <u>Michael &amp; Melisha Harbert</u> ✓	Name <u>None</u>
Address <u>1004 Reeses Run Rd</u>	Address _____
<u>Lumberport, WV 26386</u>	_____
(b) Name <u>XTO Energy Inc.</u>	(b) Coal Owner(s) with Declaration
Address <u>PO Box 1008</u>	Name <u>Michael &amp; Melisha Harbert</u> ✓
<u>Jane Lew, WV 26378</u>	Address <u>1004 Reeses Run Rd</u>
(c) Name _____	<u>Lumberport, WV 26386</u>
Address _____	Name _____
_____	Address _____
<b>6) Inspector</b> <u>Sam Ward</u>	(c) Coal Lessee with Declaration
Address <u>PO Box 2327</u>	Name <u>None</u>
<u>Buckhannon, WV 26201</u>	Address _____
Telephone <u>304-389-7583</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]  
 Its: Production Superintendent  
 Address PO Box 1008  
Jane Lew, WV 26378  
 Telephone 304-884-6000

Subscribed and sworn before me this 20<sup>th</sup> day of May 2014  
[Signature] Notary Public  
 My Commission Expires 12/22/18

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MAY 23 2014

**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).

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U.S. Postal Service™  
**CERTIFIED MAIL™ RECEIPT**  
(Domestic Mail Only; No Insurance Coverage Provided)

3300025P

For delivery information visit our website at [www.usps.com](http://www.usps.com)

OFFICIAL USE

Postage	\$	
Certified Fee		
Return Receipt Fee (Endorsement Required)		
Restricted Delivery Fee (Endorsement Required)		
Total Postage & Fees	\$	26378

Michael & Melisha Harbert  
1004 Reeses Run Rd.  
Lumberport, WV 26386

Plugging  
APP  
JM Boggs

JANE LEW WV  
MAY 21 2014  
Postmark Here

or Instruction

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WV Department of  
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08/01/2014

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

CONSTRUCTION AND RECLAMATION PLAN AND SITE REGISTRATION APPLICATION FORM  
GENERAL PERMIT FOR OIL AND GAS PIT WASTE DISCHARGE

Operator Name XTO Energy Inc. OP Code 494487940

Watershed Tenmile Creek Quadrangle Wallace 7.5'

Elevation 1045' County Harrison District Ealge

Description of anticipated Pit Waste: Fluids from plugging operations.

Will a synthetic liner be used in the pit? Yes 20 mil

Proposed Disposal Method For Treated Pit Wastes:  
 Land Application  
 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))

*SOLD  
5/22/2014*

Proposed Work For Which Pit Will Be Used:  
 Drilling  Swabbing  
 Workover  Plugging  
 Other (Explain \_\_\_\_\_)

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, 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 *[Signature]*

Company Official (Typed Name) Gary Beall

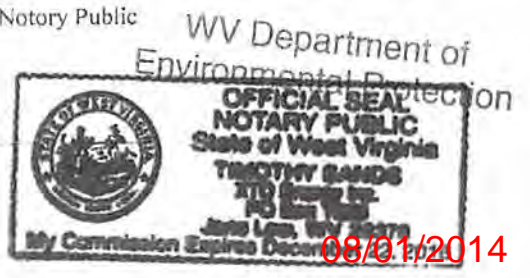
Company Official Title Production Superintendent

Subscribed and sworn before me this 20<sup>th</sup> day of May, 20 14

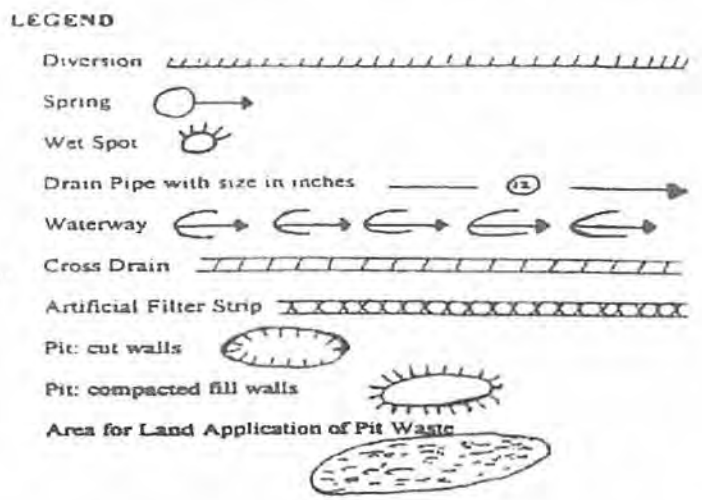
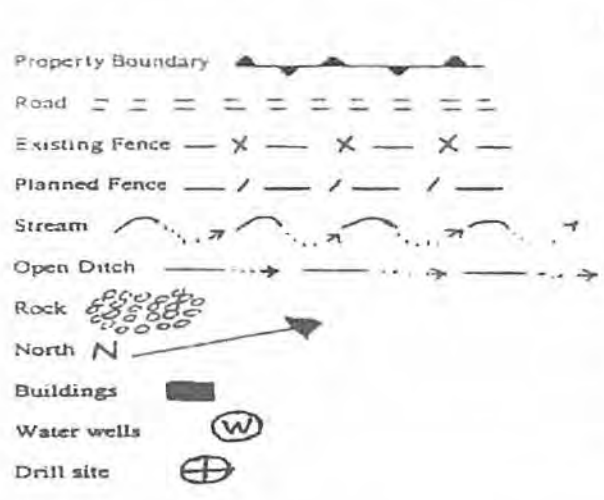
*[Signature]* Notary Public

My commission expires 12/22/18

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MAY 23 2014







Proposed Revegetation Treatment: Acres Disturbed .12 Prevegetation pH \_\_\_\_\_

Lime 3 Tons/acre or to correct to pH \_\_\_\_\_

Fertilizer (10-20-20 or equivalent) 1000 lbs/acre (500 lbs minimum)

Mulch 3 Tons/acre

Seed Mixtures

Seed Type	Area I	lbs/acre	Seed Type	Area II	lbs/acre
Kentucky Bluegrass		20			
Redtop		3			
Birdsfoot Trefoil		10			

Attach: Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [Signature]

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

Title: \_\_\_\_\_

Date: 5/22/2014

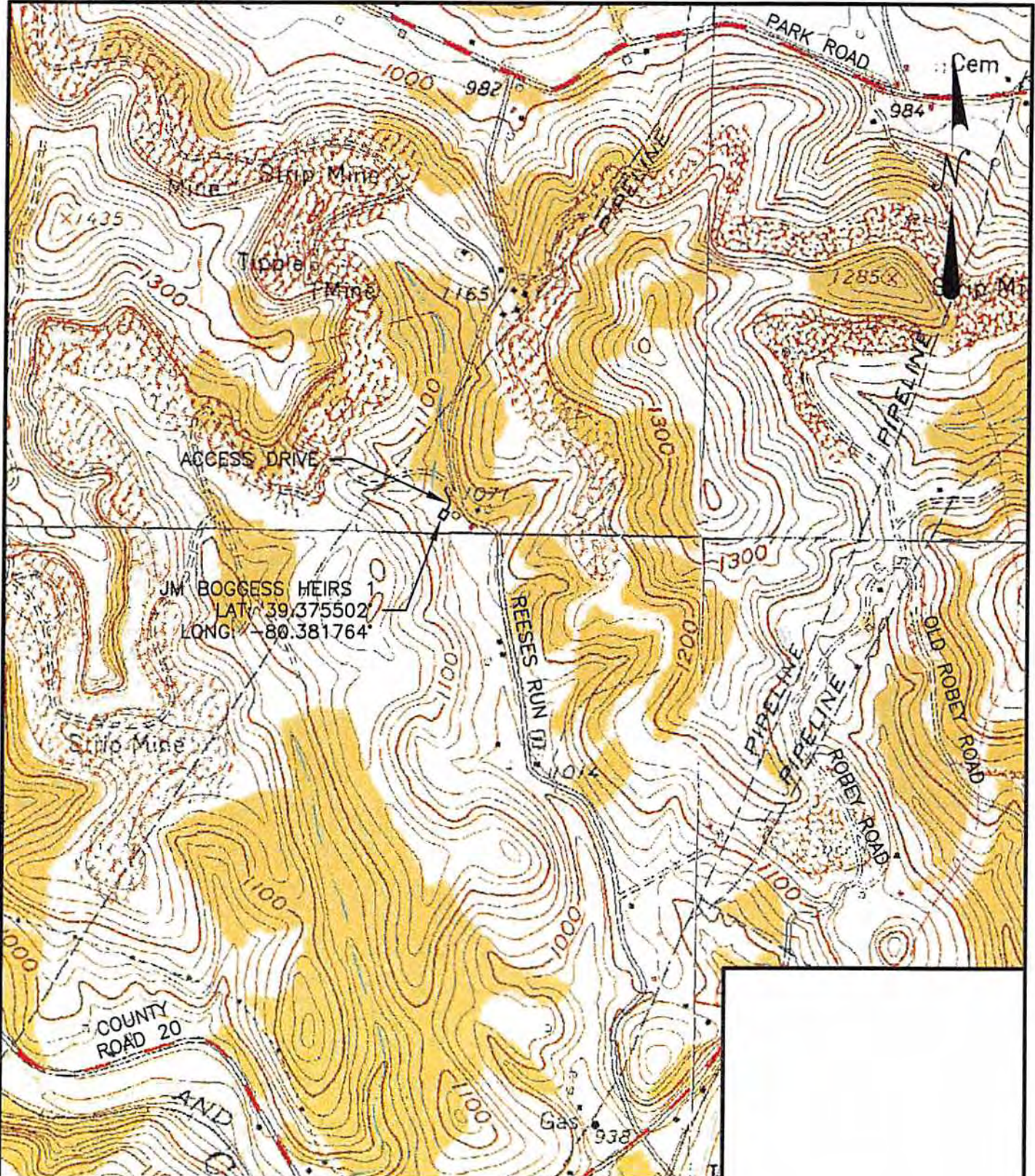
Field Reviewed? ( ) Yes ( X ) No

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MAY 23 2014

WV Department of  
Environmental Protection

08/01/2014



SCALE:  1:1000	DESIGNED BY: JMH	REVISION BY: _____	DATE: _____	DESCRIPTION: _____
	REVIEWED BY: MMV	REVISION BY: _____	DATE: _____	DESCRIPTION: _____
	DRAWN BY: JMH	REVISION BY: _____	DATE: _____	DESCRIPTION: _____
	DATE: 5/08/14	REVISION BY: _____	DATE: _____	DESCRIPTION: _____
	PROJ. NO.:	REVISION BY: _____	DATE: _____	DESCRIPTION: _____
DRAWING NO.:	REVISION BY: _____	DATE: _____	DESCRIPTION: _____	

DRAWING NO. \_\_\_\_\_

SHEET NO. 1

**JM BOGESS HEIRS 1**  
 prepared for  
**XTO ENERGY, INC.**  
*situated*  
**REESES RUN, HARRISON COUNTY, WEST VIRGINIA**  
**UBGB MAP - WALLACE QUADRANGLE**

**Morris Knowles**  
 & Associates, Inc.  
*Surveying Engineers and Land Surveyors*  
 443 Albemarle Drive  
 Columbia, PA 17316  
 Telephone: (717) 499-4822  
 Fax: (717) 499-2990

3300025 A

WW-7  
8-30-06



West Virginia Department of Environmental Protection  
Office of Oil and Gas  
**WELL LOCATION FORM: GPS**

API: 47-033-00025 WELL NO.: 303940 (J. M. Boggess Heirs 1)

FARM NAME: J. M. Boggess Heirs

RESPONSIBLE PARTY NAME: XTO Energy, Inc.

COUNTY: Harrison DISTRICT: Eagle <sup>4</sup>

QUADRANGLE: Wallace 7.5' <sup>65</sup>

SURFACE OWNER: : Melisha A. Harbert

ROYALTY OWNER: Consolidation Gas Supply Corporation, et al.

UTM GPS NORTHING: 4358630

UTM GPS EASTING: 553251 GPS ELEVATION: 318 m (1045 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 X: Post Processed Differential X  
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.

*Stacy Okun*  
Signature  
1/23/14  
Date

PS # 2180  
Title

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MAY 23 2014  
WV Department of  
Environmental Protection  
08/01/2014

3300025P

# EROSION AND SEDIMENT CONTROL PLAN

## JM BOGCESS HEIRS 1

COUNTY ROUTE 20/7  
HARRISON COUNTY, WEST VIRGINIA  
JANUARY 2014

### ENGINEER/SURVEYOR

MORRIS KNOWLES & ASSOCIATES, INC.  
A HAMMONTREE COMPANY  
443 ATHENA DRIVE  
DELMONT, PA 15626

HAMMONTREE & ASSOCIATES LIMITED  
5233 STONEHAM RD  
NORTH CANTON, OH 44720

ATTN: MICHAEL M. VALE PE, CPESC, OPSWC  
PHONE: 724-466-4622 (PA)  
330-499-8917 (OH)

mva@hammontree-engineers.com

### OWNER/DEVELOPER

KTD ENERGY, INC.  
450 INDUSTRIAL PARK ROAD  
JANE LEW, WV 26378

ATTN: TIM SANDS  
PHONE: 304-884-6042

Tim\_Sands@ktdenergy.com

### VICINITY MAP

N.T.S.



### NOTES:

MORRIS KNOWLES & ASSOCIATES, INC. / HAMMONTREE & ASSOCIATES, LIMITED EXPRESSLY RESERVES ITS COMMON LAW COPYRIGHT AND OTHER RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR MANIPULATED IN ANY FORM OR MANNER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT PERMISSION AND CONSENT OF MORRIS KNOWLES & ASSOCIATES, INC./ HAMMONTREE & ASSOCIATES, LIMITED.

THE ENGINEER ASSUMES NO RESPONSIBILITY FOR ANY CHANGES IN DESIGN PLANS UNLESS WRITTEN CONSENT IS GIVEN BY THE ENGINEER. THE CONTRACTOR AND/OR THE OWNER WILL BE HELD RESPONSIBLE FOR ANY FIELD MODIFICATIONS MADE WITHOUT THE WRITTEN CONSENT OF THE ENGINEER AND NECESSARY APPROVALS BY PERMITTING AGENCIES.

THE LOCATION OF EXISTING UTILITIES WERE TAKEN FROM RECORDS AND MARKING PROVIDED BY OTHERS AND DISCOVERED EVIDENCE. THE LOCATIONS SHOWN MAY BE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS, SIZES AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL EXERCISE CARE TO AVOID DAMAGE TO ALL EXISTING UTILITIES.

I DO HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF, THAT THE EROSION AND SEDIMENT CONTROL PLAN AND SITE RESTORATION PLAN AND POST CONSTRUCTION BMPs ARE TRUE AND CORRECT, REPRESENT ACTUAL FIELD CONDITIONS AND ARE IN ACCORDANCE WITH THE 25 PA. CODE CHAPTERS 78 AND 102 OF THE DEPARTMENT'S RULES AND REGULATIONS. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

*Daniel H. Garda* 05-02-14

DANIEL H. GARDA, REGISTERED PROFESSIONAL ENGINEER

DATE

### INDEX OF SHEETS

EROSION AND SEDIMENT CONTROL TITLE SHEET	ES-1
EROSION AND SEDIMENT CONTROL PLAN- OVERALL	ES-2
EROSION AND SEDIMENT CONTROL NOTES	ES-3
EROSION AND SEDIMENT CONTROL DETAILS	ES-4

### ESTIMATED QUANTITIES

	UNITS	ESTM QUANTITY	BD QUANTITY	UNIT PRICE	TOTAL COST
<b>CLEARING &amp; GRUBBING</b>					
CLEARING & GRUBBING	AC	0.00			
<b>EROSION &amp; SEDIMENT CONTROL</b>					
STONE CONSTRUCTION ENTRANCE	EA	1			
PERMANENT SEEDING	SY	393			
TEMPORARY WETLAND MATS	EA	12			

### LEGEND

□	EX MONUMENT BOX	—	GAS LINE
●	PROP. MONUMENT BOX	—	GAS LINE MARKER
○	EX MONUMENT (AS NOTED)	—	GAS METER
●	5/8" BAR W/ H&A CAP (SET)	—	GAS VALVE
●	BENCHMARK (AS NOTED)	—	GAS TANK
—	BOUNDARY LINE	—	GAS WELL
—	CENTER LINE	—	SANITARY SEWER LINE
—	LOT LINE	—	SANITARY SEWER LINE MARKER
—	PROPERTY LINE	—	SANITARY M.H./ C.C.
R/W	RIGHT OF WAY	—	MANHOLE
( )	RECORD BEARINGS & DIST.	—	CLEAN OUT
E.D.P.	EDGE OF PAVEMENT	—	STORM SEWER LINE
F.F.	FINISH FLOOR	—	STORM SEWER LINE MARKER
—	EX CONTOUR LINE	—	STORM CATCH BASIN
—	PROP. CONTOUR LINE	—	STORM CURB INLET
—	CONTOUR LABEL	—	STORM MANHOLE
—	BOLLARD	—	STORM DOWNSPOUT
—	FENCE (AS NOTED)	—	STORM HEADWALL
—	QUARONAL	—	CATCH BASIN
—	WALDOX	—	CURB INLET
—	RAIL ROAD	—	TOP OF GRATE
—	SIGN	—	TOP OF COVER
—	H.C. PARKING SPACE	—	TOP OF CURB
—	DECIDUOUS TREE (AS NOTED)	—	FLOWLINE
—	EVERGREEN TREE (AS NOTED)	—	YARD DRAIN
—	BUSH (AS NOTED)	—	DOWNSPOUT
—	SOIL BORING	—	OVER-HEAD TELEPHONE LINE
—	POLE ANCHOR	—	UNDERGROUND TELEPHONE LINE
—	GUY POLE	—	TELEPHONE LINE MARKER
—	GENERAL POLE	—	TELEPHONE BOX
—	FLAG POLE	—	TELEPHONE MANHOLE
—	LIGHT POLE	—	OVER-HEAD TV LINE
—	LIGHT & POWER POLE	—	UNDERGROUND TV LINE
—	LIGHT, POWER, TELE. POLE	—	TV LINE MARKER
—	LIGHT, POWER, TELE, TV POLE	—	TV/CABLE BOX
—	POWER POLE	—	TV/CABLE MANHOLE
—	TELEPHONE POLE	—	WATER LINE
—	TELEPHONE, LIGHT POLE	—	WATER LINE MARKER
—	TELEPHONE, POWER POLE	—	WATER MANHOLE
—	PULL BOX	—	WATER METER
—	TRAFFIC CONTROL BOX	—	WATER VALVE
—	POLE W/ PED. SIGNAL	—	WATER SPRINKLER
—	POLE W/ TRAFFIC SIGNAL	—	FIRE HYDRANT
—	OVERHEAD ELECTRIC LINE	—	MONITORING WELL
—	UNDERGROUND ELECTRIC LINE		
—	ELECTRIC LINE MARKER		
—	ELECTRIC BOX		
—	ELECTRIC MANHOLE		
—	ELECTRIC METER		
—	FIBER OPTIC LINE		
—	FIBER OPTIC LINE MARKER		

### REQUIRED PERMIT LIST

PERMIT	DATE RECEIVED
NATIONWIDE PERMIT 33	

RECEIVED  
 MORRIS KNOWLES & ASSOCIATES, INC.  
 A HAMMONTREE COMPANY  
 ENGINEERS, PLANNERS & ARCHITECTS  
 443 ATHENA DRIVE  
 DELMONT, PA 15626  
 (724) 466-4622 FAX (724) 466-4640

DATE	BY	DESC.
01/13/14	DH	DESIGN
01/13/14	DH	DESIGN
01/13/14	DH	DESIGN
01/13/14	DH	DESIGN
01/13/14	DH	DESIGN

EROSION & SEDIMENT CONTROL TITLE SHEET  
 JM BOGCESS HEIRS 1  
 KTD ENERGY, INC.  
 COUNTY ROUTE 20/7  
 HARRISON COUNTY, WEST VIRGINIA

ES-1



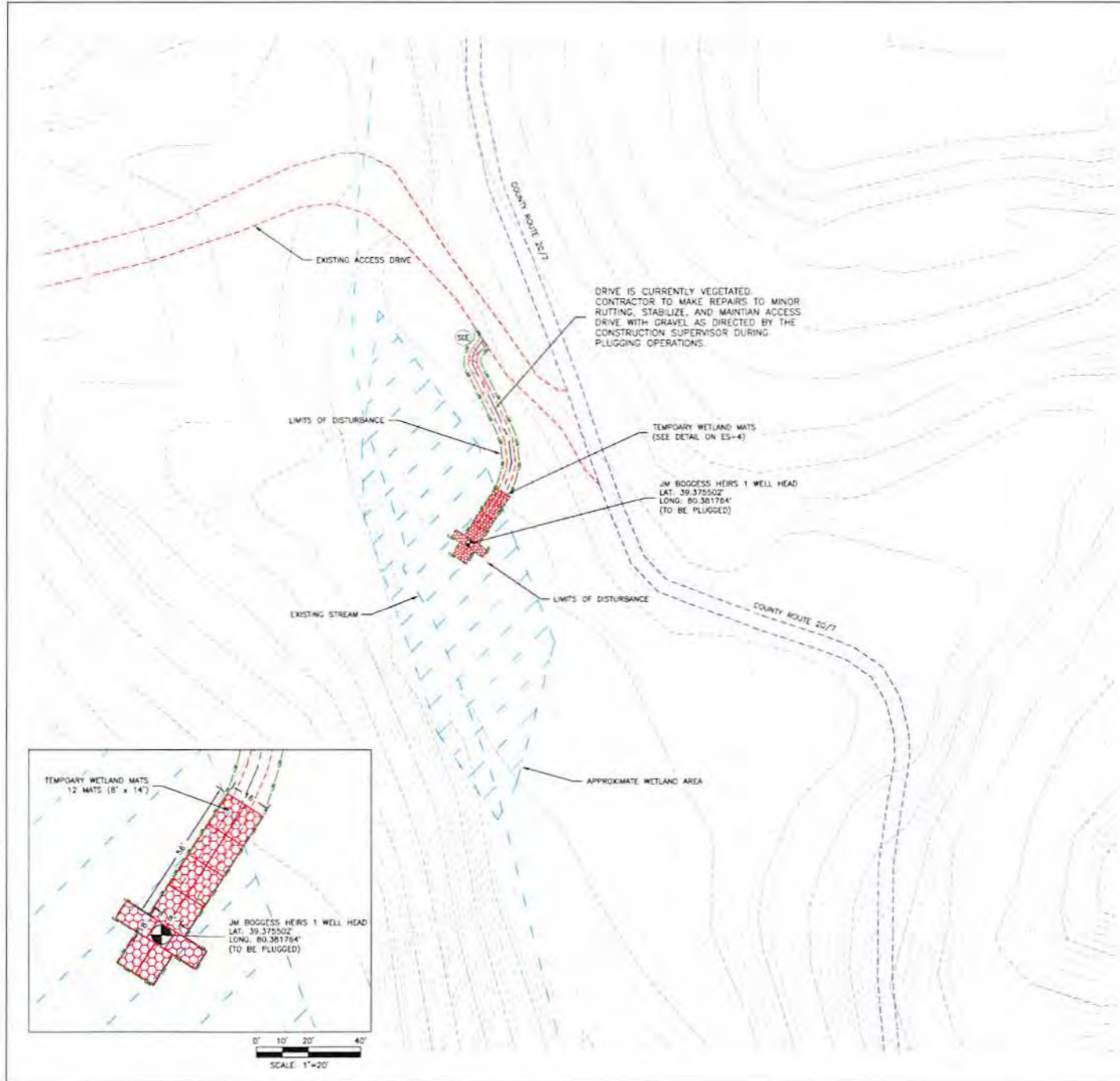
CALL BEFORE YOU DIG  
1-800-245-4848  
WV STATE LAW REQUIRES  
2 WORKING DAYS NOTICE

THE GENERAL CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES INVOLVED IN THE SITE NO MORE TEN DAYS AND NO LESS THAN 48 HOURS IN ADVANCE OF EXCAVATION  
(WV CHAPTER 24C-1-5, UNDERGROUND FACILITY DAMAGE PREVENTION ACT)



WV Department of  
 Environmental Protection

3300025 P



**ZONING:**

NO ZONING

**WETLANDS:**

WETLANDS LOCATED ON SITE REFERENCE WETLAND DELINEATION REPORT

**FLOOD\_ZONE:**

ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP, MAP NUMBER 5403300040, EFFECTIVE DATE, OCTOBER 2, 2012, THE SUBJECT PROPERTIES LIES WITHIN ZONE X WHICH IS DEFINED ON SAID MAP AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN"

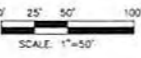
**NOTES:**

1. EROSION CONTROL BLANKETS OR FLEXITERRA TO BE INSTALLED ON ALL CUT AND FILL SLOPES OF 3:1 OR STEEPER

2. WHEREVER SEED AND MULCH IS APPLIED BY HYDROSEEDING METHODS, THE SEED AND MULCH SHOULD BE APPLIED IN SEPARATE APPLICATIONS WITH THE SEED BEING APPLIED FIRST AND THE MULCH SPRIKED ON TOP OF THE SEED. THIS IS TO ENSURE THAT THE SEED MAKES CONTACT WITH THE UNDERLYING SOIL. SOIL PREPARATION SHOULD BE COMPLETED PRIOR TO ADDING SEED TO THE HYDROSEEDING EQUIPMENT. RUNNING SEED THROUGH THE PUMPING SYSTEM CAN RESULT IN EXCESSIVE ABRASION OF THE SEED AND REDUCE THE PERCENTAGE OF PURE LIVE SEED IN THE APPLICATION. THEREFORE ALL SOIL PREPARATION SHOULD BE COMPLETED PRIOR TO THE ARRIVAL OF THE HYDROSEEDER.

**LEGEND**

- (1) INLET PROTECTION
- (2) STONE CONSTRUCTION ENTRANCE
- (3) ROCK FILTER
- (4) ROCK CHANNEL OUTLET PROTECTION
- (5) PERMANENT CHANNEL
- (6) TEMPORARY CHANNEL
- (7) 12" COMPOST FILTER SOCK
- (8) 18" COMPOST FILTER SOCK
- (9) 24" COMPOST FILTER SOCK
- (10) 32" COMPOST FILTER SOCK
- (11) COMPOST FILTER SOCK PYRAMID
- (12) (3) 18" OR (2) 24" W/ (1) 18"



RECEIVED  
 MORRIS KNOWLES ASSOCIATES, INC.  
 OFFICE OF CIVIL ENGINEERING  
 10100 W. STATE STREET, SUITE 200  
 HARRISON, WV 25901  
 TEL: 304.746.1111 FAX: 304.746.1112  
 WWW.MORRISKNOWLES.COM  
 MAY 23 2014

DESIGN	DATE	DESC
DESIGNED BY: JMB	DATE: 01/23/14	DESC: WETLAND DEVELOPMENT PLAN
DRAWN BY: JMB	DATE: 01/23/14	DESC: WETLAND DEVELOPMENT PLAN
FIELD BY: JMB	DATE: 01/23/14	DESC: WETLAND DEVELOPMENT PLAN
CHK BY: JMB	DATE: 01/23/14	DESC: WETLAND DEVELOPMENT PLAN
APP BY: JMB	DATE: 01/23/14	DESC: WETLAND DEVELOPMENT PLAN

EROSION & SEDIMENT CONTROL PLAN - OVERALL  
 JM BOGCESS HEIRS 1  
 870 ENERGY, INC.  
 COUNTY ROUTE 20/7  
 HARRISON COUNTY, WEST VIRGINIA

ES-2

ISSUED DATE: 04-22-14

WV Department of  
 Environmental Protection

33000 25 P

**EROSION AND SEDIMENTATION CONTROL PLAN NOTES:**

- ONLY LIMITED DISTURBANCE WILL BE PERMITTED TO PROVIDE ACCESS TO CHANNELS OF CONVEYANCE AS APPROPRIATE FOR GRADING AND ACCORDING BARRIERS TO CONSTRUCT TRUCK CONTROLS.
- EROSION AND SEDIMENTATION CONTROLS MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE WITHIN THE TRIBUTARY AREAS OF THOSE CONTROLS.
- AFTER SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENTATION CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF THE CONTROLS MUST BE STABILIZED.
- STORMWATER INLETS WHICH DO NOT DISCHARGE TO SEDIMENT TRAPS OR BASINS, MUST BE PROTECTED UNTIL THE TRIBUTARY AREAS ARE STABILIZED.
- SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.
- STOOPPLE HEIGHTS MUST NOT EXCEED 35 FEET. STOOPPLE SLOPES MUST BE 2:1 OR FLATTER.
- ANY DISTURBED AREA ON WHICH ACTIVITY HAS CEASED AND WHICH WILL REMAIN EXPOSED FOR MORE THAN 20 DAYS MUST BE STABILIZED IMMEDIATELY. DURING HIGH-DEVELOPING PERIODS, MULCH MUST BE APPLIED AT THE RECOMMENDED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN ONE YEAR MAY BE STABILIZED IN ACCORDANCE WITH TEMPORARY SEEDING SPECIFICATIONS. DISTURBED AREAS WHICH ARE EITHER AT FINISHED GRADE OR WILL NOT BE REDISTURBED WITHIN ONE YEAR MUST BE STABILIZED IN ACCORDANCE WITH PERMANENT SEEDING SPECIFICATIONS.
- STOOPPLES MUST BE STABILIZED IMMEDIATELY.
- HAY OR STRAW MULCH MUST BE APPLIED AT RATES OF AT LEAST 3.0 TONS PER ACRE.
- UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENTATION CONTROLS MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENTATION CONTROLS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND CORRECTIVE MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, RESEEDING, REGRADING, AND RESETTING.
- THE CONTRACTOR SHALL RECYCLE MATERIALS WHENEVER APPROPRIATE AND WHICH IN ACCORDANCE WITH LOCAL, STATE, & FEDERAL REQUIREMENTS. ALL MATERIAL REMOVED FROM THE SITE SHALL BE DISPOSED OF PROPERLY IN A C&D LANDFILL. IF CLEAN FILL MATERIAL IS REMOVED FROM THE SITE, IT SHALL BE TAKEN TO AN APPROVED C&D LANDFILL OR IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN AN APPROVED E&S PLAN IF OVER 5000 SQUARE FEET OF AREA IS DISTURBED.

**EROSION AND SEDIMENT CONTROL FACILITIES MAINTENANCE SCHEDULE:**

- ALL EROSION AND SEDIMENT CONTROLS SHALL BE MAINTAINED UNTIL A UNIFORM 70% PERIODICAL VEGETATIVE COVER IS ESTABLISHED.

**STONE CONSTRUCTION ENTRANCE:**

- THE STONE CONSTRUCTION ENTRANCES ARE TO BE INSPECTED AT THE END OF EACH WORKING DAY AND REPAIRED IMMEDIATELY.
- THE THICKNESS OF THE ROCK CONSTRUCTION ENTRANCE SHALL BE CONSTANTLY MAINTAINED AT 8".
- A STONE STOOPPLE IS TO BE READILY AVAILABLE ON THE SITE AT ALL TIMES FOR IMMEDIATE REPAIR.

**COMPOST FILTER SOCK:**

- COMPOST FILTER SOCK MUST BE INSTALLED AT LEVEL GRADE, BOTH ENDS OF EACH COMPOST FILTER SOCK SECTION MUST BE AT LEAST 10 FEET UPSLOPE, AT 45 DEGREES TO THE MAIN COMPOST FILTER SOCK ALIGNMENT.
- THE CONTRACTOR SHALL MAINTAIN THE COMPOST FILTER SOCK IN A FUNCTIONAL CONDITION AT ALL TIMES AND IT SHALL BE ROUTINELY REPAIRED.
- WHERE THE SOCK REQUIRES REPAIR, IT WILL BE ROUTINELY REPAIRED.
- THE CONTRACTOR SHALL REMOVE SEDIMENT COLLECTED AT THE BASE OF THE SOCK WHEN IT REACHES 1/2 OF THE EXPOSED HEIGHT OF THE SOCK OR AS DIRECTED BY THE ENGINEER.
- THE COMPOST FROM THE FILTER SOCK WILL BE DISPOSED ON THE SITE WHEN SITE REACHES 70% VEGETATIVE COVER.

**VEGETATION:**

- THE CONTRACTOR SHALL INSPECT VEGETATED AREAS WEEKLY AND AFTER EACH STORM (RUNOFF) EVENT.
- THE CONTRACTOR SHALL INSPECT THE SITE FOR BELLS OR GULLIES ON CUT OR FILL SLOPES. THE CONTRACTOR SHALL FILL BELLS AND GULLIES, REGRADE DISTURBED AREAS TO PROVIDE A UNIFORM SLOPE, THEN RESEED/MULCH AND REPAIR/REPLACE MATS TO ORIGINAL SPECIFICATIONS.
- THE REPAIRS SHALL BE MADE WITHIN 2 DAYS OF DISCOVERING PROBLEM.

**GRADING NOTES:**

- THE CONTRACTOR SHALL REMOVE ALL EXISTING ASPHALT PAVEMENT AND CONCRETE SLABS FROM THE SITE.
- THE CONTRACTOR SHALL PROOF ROLL THE SITE TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER AND REMOVE ANY SOFT SOFT PRIOR TO THE IMPORTING OF ANY FILL MATERIAL.
- THE CONTRACTOR SHALL REPLACE ALL CURB SECTIONS, SIDEWALKS, AND PAVEMENT, WHICH HAS BEEN CUT AND DISTURBED WITHIN THE RIGHT-OF-WAY WITH WEST VIRGINIA DEPARTMENT OF TRANSPORTATION'S STANDARD MATERIALS.
- THE CONTRACTOR SHALL ADJUST TO GRADE ALL WATER AND GAS VALVES.
- THE CONTRACTOR SHALL COMPACT ALL FILL MATERIALS TO NOT LESS THAN 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D1557 TO PROVIDE STABILITY AND PREVENT SETTLEMENT.
- THE CONTRACTOR SHALL USE WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD MANUAL.
- 

**SITE STABILIZATION INSTALLATION AND MAINTENANCE (TEMPORARY AND PERMANENT):**

- TILL SOIL TO DEPTH OF 2". REMOVE ALL OBJECTS 2" OR LARGER.
- BLEND COMMERCIAL FERTILIZER INTO THE SOIL TO A DEPTH OF 2". FERTILIZER MAY BE DILUTED DURING TILLING.
- SOIL REQUIRED SEED MIXTURE UNIFORMLY ON THE PREPARED AREA BY HYDRAULIC SEEDING EQUIPMENT, HAND SEEDING, OR ANY OTHER APPROPRIATE METHOD.
- AFTER SEEDING ROLL TOPSOILED AREAS THAT ARE TO BE MOWED. USE A ROLLER MOWING NOT MORE THAN 65 LBS./FT. WIDTH.
- FOR PERMANENT SITE STABILIZATION APPLY SLOW RELEASE NITROGEN FERTILIZER TO THE SURFACE OF SEEDING AREAS.
- PLACE MULCH IMMEDIATELY AFTER SEEDING OR WITHIN 48 HOURS AFTER SEEDING IS COMPLETED. PLACE HAY & STRAW UNIFORMLY, IN A CONTINUOUS BLANKET AT THE UNDERLAIN RATE SPECIFIED ABOVE. AN ACCEPTABLE MECHANICAL TROWER MAY BE USED TO APPLY MULCH. MACHINES WHICH CUT MULCH INTO SHORT PIECES WILL NOT BE PERMITTED.
- MAINTENANCE - SATISFACTORILY MAINTAIN GRASS AREAS WITH GRASSING LIMITS, UNTIL THE ENTIRE PROJECT HAS BEEN COMPLETED. MOW AS INDICATED AND WHEN DIRECTED. CONTROL PROMOTED AND NOXIOUS WEED GROWTH BY HERBICIDE SPRAYING OR CUTTING. AFTER THE SEEDING AND SOIL SUPPLEMENT WORK ON A SLOPE HAS BEEN SATISFACTORILY COMPLETED, IF A SLOPE FAILURE OCCURS, ONE WHICH REQUIRES REDRESSING, EXCAVATION, OR ESTABLISHMENT OF A NEW SLOPE, REAPPLY SOIL SUPPLEMENTS, THEN RESEED, AS SPECIFIED FOR THE ORIGINAL TREATMENT.
- A SITE WILL BE CONSIDERED TO BE PERMANENTLY STABILIZED WHEN ALL PERMANENT CONTROL MEASURES AND FACILITIES HAVE BEEN COMPLETED AND ARE OPERATIONAL, TEMPORARY CONTROL MEASURES AND FACILITIES REMOVED, AND UNIFORM 70% PERIODICAL VEGETATION COVER IS ESTABLISHED TO THE POINT WHERE THE SURFACE SOIL IS CAPABLE OF RESISTING EROSION DURING RUNOFF EVENTS. THE STANDARD FOR THIS VEGETATIVE COVER WILL BE A UNIFORM COVERAGE OR DENSITY OF 70% ACROSS THE DISTURBED AREA.
- THE CONTRACTOR SHALL MAINTAIN THE SITE PER THE PROVISIONS OF THIS PLAN UNTIL PERMANENT STABILIZATION IS ESTABLISHED.

**PERMANENT STABILIZATION:**

SPECIES: KENTUCKY BLUEGRASS/ REDTOP/ BROODFOOT TREFL  
 SEED: 8 PURE LIVE SEED: 90%  
 APPLICATION RATE: 20 LBS./ACRE, 3 LBS./ACRE, AND 10 LBS./ACRE, RESPECTIVELY  
 FERTILIZER TYPE: COMMERCIAL FERTILIZER 10-20-20  
 FERTILIZER APPL. RATE: COMMERCIAL - 1000 LBS./ACRE  
 LIMING RATE: 3 TONS/ACRE  
 MULCH TYPE: HAY & STRAW  
 MULCHING RATE: 3 TONS/ACRE  
 ANCHORING MATERIAL: RECYCLED CELLULOSE FIBER/WOOD FIBER MIXTURE  
 ANCHORING METHOD: HYDRAULIC SEEDING EQUIPMENT  
 RATE OF ANCHOR: 310 LBS./1000 SQ. YD.  
 MATERIAL APPLICATION: YEAR AROUND  
 SEEDING SEASON DATES:

**TEMPORARY STABILIZATION:**

SPECIES: ANNUAL RYEGRASS  
 SEED: 8 PURE LIVE SEED: 90%  
 APPLICATION RATE: 40 LBS./ACRE  
 FERTILIZER TYPE: COMMERCIAL FERTILIZER 10-10-10  
 FERTILIZER APPL. RATE: 1000 LBS./ACRE  
 LIMING RATE: 3 TONS/ACRE  
 MULCH TYPE: HAY & STRAW  
 MULCHING RATE: 3 TONS/ACRE

**PERMANENT - STEEP SLOPE:**

SPECIES: KENTUCKY BLUEGRASS/ REDTOP/ BROODFOOT TREFL  
 SEED: 8 PURE LIVE SEED: 90%  
 APPLICATION RATE: 20 LBS./ACRE, 3 LBS./ACRE, & 10 LBS./ACRE, RESPECTIVELY  
 FERTILIZER TYPE: COMMERCIAL FERTILIZER 10-20-20  
 FERTILIZER APPL. RATE: COMMERCIAL - 1000 LBS./ACRE  
 LIMING RATE: 3 TONS/ACRE  
 MULCH TYPE: HAY & STRAW  
 MULCHING RATE: 3 TONS/ACRE  
 ANCHORING MATERIAL: RECYCLED CELLULOSE FIBER/WOOD FIBER MIXTURE  
 ANCHORING METHOD: HYDRAULIC SEEDING EQUIPMENT  
 RATE OF ANCHOR: 310 LBS./1000 SQ. YD.  
 MATERIAL APPLICATION: YEAR AROUND  
 SEEDING DATES:

**GENERAL NOTES:**

- THE GENERAL 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. (BY CHAPTER 24C-1-3, UNDERGROUND FACILITY DAMAGE PROTECTION ACT).
- TRAFFIC SHALL BE MAINTAINED ON ALL ADJOINING STREETS AND DRIVES AT ALL TIMES. TRAFFIC CONTROL SHALL BE MAINTAINED IN ACCORDANCE WITH WVDOT'S REQUIREMENTS.
- CONTRACTOR SHALL VERIFY THE LOCATION AND INVERT ELEVATION OF ALL EXISTING UTILITIES WITH PROPOSED CONNECTIONS PRIOR TO CONSTRUCTION AND GRADING OF THE SITE.

**DRILL PITS:**

- THE PIT SHALL BE CONSTRUCTED AND MAINTAINED SO AS TO PREVENT SEEPAGE, LEAKAGE, AND OUTFLOWS.
- PITS SHOULD BE CONSTRUCTED BELOW SURFACE GROUND LEVEL, WHEN POSSIBLE. ANY ABOVEGROUND PIT WALLS, AS IS THE CASE WITH PITS CONSTRUCTED IN THE LOWER SLOPE AREAS OF THE WELLDITE, SHALL BE COMPACTED, WITH A SIDE SLOPE BEING MAINTAINED THAT WILL PRESERVE THE STRUCTURAL INTEGRITY. THE FILL MATERIAL SHOULD CONTAIN THE PROPER AMOUNT OF MOISTURE TO ENSURE THAT COMPACTION WILL BE ACHIEVED.
- ALL PITS SHALL BE DESIGNED, CONSTRUCTED, LOCATED, MAINTAINED, AND USED IN ACCORDANCE WITH TITLE 20, CHAPTER 24 AND IN SUCH A MANNER AS TO MINIMIZE ADVERSE ENVIRONMENTAL IMPACTS AND TO ASSURE SAFETY TO THE PUBLIC.

**EROSION CONTROL BLANKETING:**

- EROSION CONTROL BLANKETING TO BE INSTALLED ON ALL SLOPES OF 3:1 GRADING OR STEEPER IN ACCORDANCE WITH EROSION CONTROL BLANKETING DETAIL PROVIDED.
- PROPERLY PREPARE SOIL BEFORE INSTALLING BLANKETS.
- ANCHOR BLANKETS IN A TRENCH AT THE TOP OF SLOPE USING A ROW OF STAPLES/STAKES
- BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
- APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL.
- SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES ACROSS THE WIDTH OF THE BLANKET.
- ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE.
- OVERLAP PARALLEL BLANKETS.
- IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

**HYDRAULICALLY APPLIED BLANKETS:**

- HYDRAULICALLY APPLIED BLANKETS SHOULD NOT BE USED IN AREAS OF CONCENTRATED FLOW (E.G. CHANNELS).
- A BONDED FIBER MATRIX (BFM) CAN BE AN EFFECTIVE METHOD OF STABILIZING STEEP SLOPES WHEN USED PROPERLY. BFMS MAKE USE OF A CROSS-LINKED HYDROCOLLOID TACKIFIER TO BOND THERMALLY PROCESSED WOOD FIBERS. APPLICATION RATES VARY ACCORDING TO SITE CONDITIONS. FOR SLOPES UP TO 30% IN THE BFM SHOULD BE APPLIED AT A RATE OF 3,000 LBS./ACRE. STEEPER SLOPES MAY NEED AS MUCH AS 4,000 LBS./ACRE. IN ANY CASE, MANUFACTURER'S RECOMMENDATIONS SHOULD BE FOLLOWED. BFMS SHOULD ONLY BE USED WHEN NO RAIN IS FORECAST 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 80% EFFECTIVE IN PREVENTING ACCELERATED EROSION. BONDED FIBER MATRIX SHOULD NOT BE APPLIED BETWEEN SEPTEMBER 30 AND APRIL 1. ONCE FIBER MATRICES THAT HAVE BEEN SHOWN TO BE EFFECTIVE IN PREVENTING EROSION ON DISTURBED SURFACES MAY BE USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS IF SUFFICIENT SUPPORTING DOCUMENTATION IS PROVIDED.
- A FLEXIBLE GROWTH MEDIUM (FGM) HAS THE ADDED COMPONENT OF 1/2" BICH LONG, CRUMPED ORGANIC OR MANMADE FIBERS WHICH ADD A MECHANICAL BOND TO THE CHEMICAL BOND PROVIDED BY BFMS. THIS INCREASES THE BLANKET'S RESISTANCE TO BOTH RAINFALL IMPACT AND EROSION DUE TO RUNOFF. UNLIKE DFMS, A FLEXIBLE GROWTH MEDIUM TYPICALLY DOES NOT REQUIRE A CURING TIME TO BE EFFECTIVE. PROPERLY APPLIED, AN FGM MAY BE AS MUCH AS 95% EFFECTIVE.
- 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 DILUDED SEDIMENT THAT WILL SIGNIFICANTLY REDUCE RUNOFF TURBIDITY. PROPERLY APPLIED, A PSFM MAY BE AS MUCH AS 95% EFFECTIVE. PSFMS CAN BE USED IN RE-VEGETATION APPLICATIONS AND FOR SITE REHABILITATION AND/OR PERMANENT SEEDING - FALL PLANTING FOR SPRING GERMINATION - APPLICATIONS. APPLICATION RATES VARY ACCORDING TO SITE CONDITIONS AND THE FOLLOWING APPLICATION RATES ARE SUGGESTED. IN ANY CASE, MANUFACTURER'S RECOMMENDATIONS SHOULD BE FOLLOWED. THE FOLLOWING ARE TYPICAL APPLICATION RATES:

TYPICAL POLYMER STABILIZED FIBER MATRIX APPLICATION RATES

MAXIMUM RAINFALL OF 5' 30"	SLOPE					
	0-1	1-1	1-1	1-1	1-1	1-1
SOIL STABILIZER (lbs/acre)	4	5	6	7	8	10
FIBER (lb/acre)	1,500	1,500	1,500	1,800	2,000	2,500

MAXIMUM RAINFALL OF > 30" AND FOR SITE REHABILITATION	SLOPE		
	1-1	1-1	1-1
SOIL STABILIZER (lbs/acre)	8	8	10
FIBER (lb/acre)	2,000	2,500	3,000

- UNLESS 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" DIAMETER, AND EXISTING BELLS SHOULD BE REMOVED PRIOR TO APPLICATION. TRACKING OR GROOVING OF SLOPES SHOULD BE CONSIDERED TO SLOW WATER FLOWS DURING A STORM EVENT. SLOPE INTERRUPTION DEVICES SUCH AS STAIR STEP GRADING OR BENCHING SHOULD BE APPLIED PRIOR TO THE APPLICATION. MOWING AND APPLICATION RATES SHOULD FOLLOW MANUFACTURER'S RECOMMENDATIONS.
- HYDRAULICALLY APPLIED BLANKETS ARE TYPICALLY APPLIED IN TWO STAGES. UNLESS SPECIFICALLY RECOMMENDED TO BE APPLIED IN ONE APPLICATION BY THE MANUFACTURER, THE SEED MIXTURE AND SOIL AMENDMENTS SHOULD BE APPLIED FIRST. IF THE SEED IS APPLIED AT THE SAME TIME AS THE HYDRAULICALLY APPLIED BLANKET, THE BONDED FIBERS MAY KEEP THE SEED FROM MAKING SUFFICIENT CONTACT WITH THE SOIL TO GERMINATE. AFTER THE SEED MIXTURE IS APPLIED, THE BFM, FGM, OR PSFM SHOULD BE SPRAYED OVER THE AREA AT THE REQUIRED APPLICATION RATE.

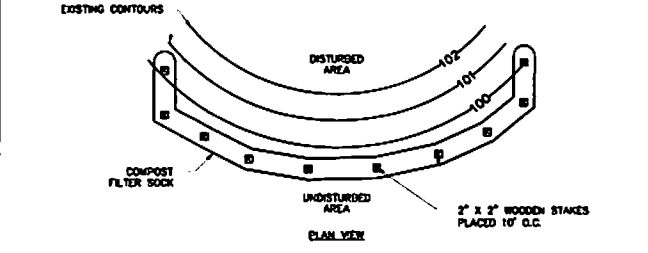
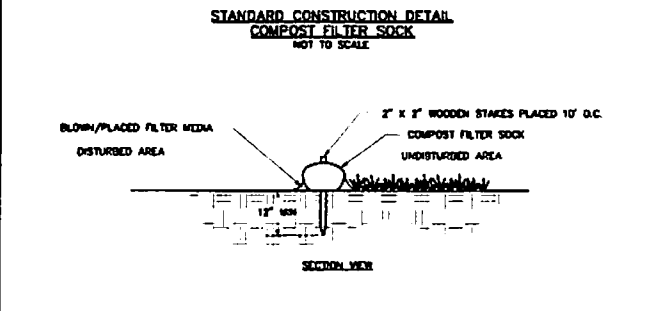
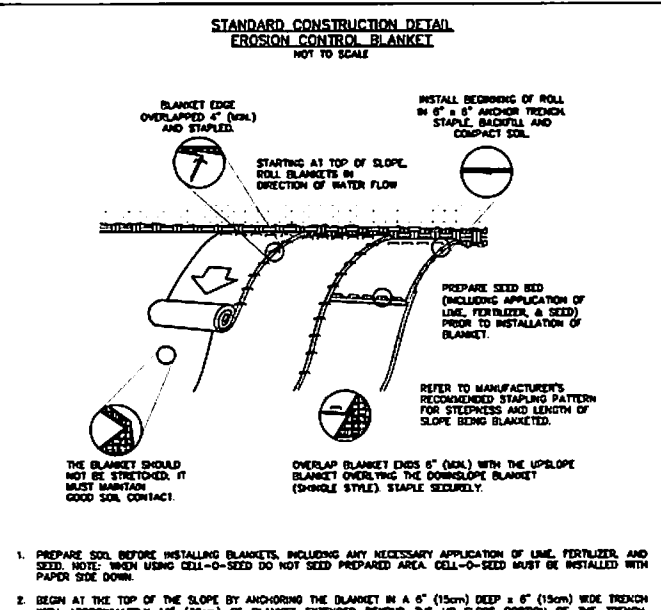
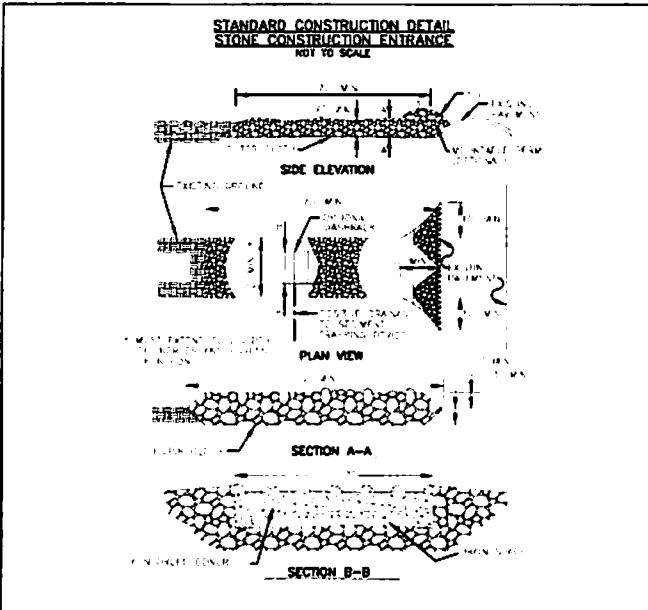
RECEIVED  
 OFFICE OF THE SUPERVISOR OF HIGHWAYS  
 WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
 1000 UNIVERSITY AVENUE, MARTINSBURG, WV 26150  
 PHONE: (304) 261-1000  
 FAX: (304) 261-1000

DATE:	BY:	DATE:	BY:	DATE:	BY:
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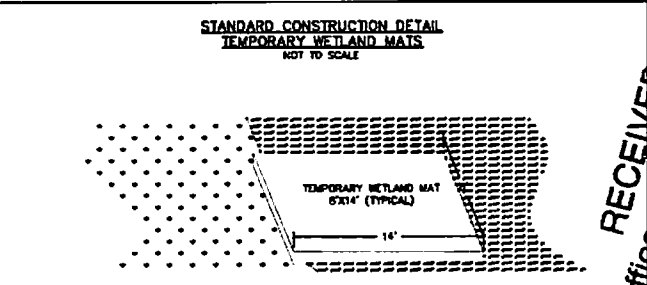
EROSION & SEDIMENT CONTROL NOTES  
 JM BOGGS HEINS 1  
 1710 DREYER, INC.  
 CHARLOTTE, NC 28217  
 HARRISON COUNTY, WEST VIRGINIA

WV Department of  
 Environmental Protection

330003A



- NOTES:
- ALL MATERIAL TO MEET DEP SPECIFICATIONS.
  - FILTER SOCK/COMPOST/SOIL/ROCK/SEED FILL TO MEET DEP REQUIREMENTS.
  - FILTER SOCK DEPICTED IS FOR MODERATE SLOPES. GREATER SLOPES MAY REQUIRE LARGER SOCKS PER THE ENGINEER.
  - COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.



NOTES:

ALLOWS FOR MINIMAL WETLAND IMPACT DURING CONSTRUCTION AND QUICK RESTORATION TO PRE-CONSTRUCTION CONDITIONS.

USE WETLAND MATS FROM PALMERSTON GROUP, MABEY INC., OR APPROVED EQUIVALENT.

- CONSTRUCTION SEQUENCE, IN BODGES HEIRS 1:
- STAGE 1: INSTALL ROCK CONSTRUCTION ENTRANCE AT COUNTY ROAD 20/7.
    - EXCAVATE FUR AND FORM ENTRANCE.
    - IMMEDIATELY STABILIZE ENTRANCE WITH ROCK.
  - STAGE 2: INSTALL TEMPORARY WETLAND MATS PER PLAN.
  - STAGE 3: STABILIZE, REPAIR, AND MAINTAIN ACCESS DRIVE WITH GRAVEL AS NEEDED.
  - STAGE 4: WHEN PLOUGHING OPERATIONS ARE COMPLETE, REMOVE TEMPORARY WETLAND MATS.
  - STAGE 5: RECLAIM EXISTING DRIVE.
  - STAGE 6: SEED AND MULCH.
    - SEED/MULCH EXISTING ACCESS DRIVE AREA WITH SPECIFIED SEEDING MIXTURE. ALL E & S CONTROL FACILITIES SHALL BE MAINTAINED AND KEPT FUNCTIONAL UNTIL SITE STABILIZATION IS COMPLETE.

RECEIVED

OFFICE OF THE COMMISSIONER OF ENVIRONMENTAL PROTECTION

JAN 10 2014

DESIGNED BY:	DATE:	DESIGNED BY:	DATE:
DRAWN BY:	DATE:	DRAWN BY:	DATE:
CHECKED BY:	DATE:	CHECKED BY:	DATE:
IN CHARGE:	DATE:	IN CHARGE:	DATE:
SCALE:		SCALE:	
HORIZ:		HORIZ:	
VERT:		VERT:	
CONTOUR INT:		CONTOUR INT:	

EROSION & SEDIMENT CONTROL DETAILS  
 JM BOGGESS HEIRS 1  
 3700 DORSET, INC.  
 COUNTY ROAD 20/7  
 HANCOCK COUNTY, WEST VIRGINIA

ES-4

WV Department of  
Environmental Protection

3300025P



WVDEP  
Office of Oil & Gas  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304-2345

CK 1174  
1000

Re: Application to Plug and Abandon  
JM Boggess Heirs 1  
Eagle District  
Harrison County, WV

To Whom It May Concern:

In accordance with Article 22-6-23 of the West Virginia State Code regarding oil and gas operations, please find the attached application for the plugging and abandonment of the subject well. Notices of our intention to plug this wellbore have been sent to the surface owner, coal owners with declarations recorded, and coal operators associated with this well. Copies of the certified mail receipts are attached for your records. If you have any questions or need additional information, please feel free to contact me at 304-884-6000.

Sincerely,

A handwritten signature in black ink, appearing to read 'GB' with a stylized flourish.

Gary Beall  
PO Box 1008  
Jane Lew, WV 26378

GB/tps

RECEIVED  
Office of Oil and Gas  
MAY 23 2014  
WV Department of  
Environmental Protection

08/01/2014