

Doddridge County Sheriff
Flood Plain Ordinance Fund

1006
69-217/515

DATE July 2, 2013

PAY TO THE ORDER OF ANTERO RESOURCES

\$ 3,366.61

Three Thousand Three Hundred and Sixty -Six Dollars and 61/100-----

DOLLARS  Security features included. Details on back.



Ralph Sandora
Beth A. Rogers
[Signature]

MEMO #13-011 Swishe Pad Reimbursement

MP

⑈001006⑈ ⑆051502175⑆ ⑆119649⑈



ANTERO RESOURCES APPALACHIAN
 1625 17th STREET, SUITE 300
 DENVER, COLORADO 80202

Vendor Name	Vendor No.	Date	Check Number	Check Total
DODDRIDGE COUNTY COMMISSION	43312	Jun-18-2013	31806	\$3,491.17

VOUCHER	VENDOR INV #	INV DATE	TOTAL AMOUNT	PRIOR PMTS & DISCOUNTS	NET AMOUNT
06-AP-8214	SWISHERPAD	06/18/13	3,491.17	0.00	3,491.17
FLOOD PLAIN PERMIT - SWISHER PAD					
TOTAL INVOICES PAID					3,491.17

By: BH - MEH - AML
 Asst. Chief Tax Deputy

Michael Headley
 Sheriff of Doddridge County

The Person paying Money into the Treasury shall forthwith file one of these Receipts with the County Clerk

Doddridge County, West Virginia

No. 4767

Date: June 25, 2013
 Customer copy

Received: #13-011 Antero Resources \$3,491.17

In Payment For: 318 Building Permits (LP)

For: 12-Flood Plain Ordinanc Fund #20 Fund

By: BH - MEH - AML
 Asst. Chief Tax Deputy

Michael Headley
 Sheriff of Doddridge County

Doddridge County Flood Plain Refund Calculator (if not in Flood Plain)**Swisher Pad**

Estimated Construction Costs	398,234.00
Amount over \$100,000	298,234.00
Drilling Oil and Gas Well Fee	1,000.00
Deposit for additional charges	1,000.00
\$5 per \$1,000 over \$100,000	1,491.17
Amount Due with application	3,491.17
95% of Application Fee minus \$1,000 deposit	2,366.61
Cost for Permit	124.56
Total Refund (Includes 100% of 1,000 deposit)	\$3,366.61



June 18, 2013

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

Antero Resources
1625 17th Street
Denver, Colorado 80202
Office 303.357.7310
Fax 303.357.7315

Mr. Wellings:

Antero Resources Appalachian Corporation (Antero) would like to submit a Doddridge County Floodplain permit application for our Swisher Pad. Our project is located in Doddridge County, New Milton District and per FIRM map #54107C0235C, this location is not within the floodplain.

Attached you will find the following:

- Doddridge County Floodplain Permit Application
- FIRM Map
- A detailed set of plans signed by a WV licensed professional engineer
- Copies of other required permits
- Site Safety Plan

If you have any questions please feel free to contact me at (303) 357-6820.

Thank you in advance for your consideration.

Sincerely,

Shauna Redican
Permit Representative
Antero Resources Appalachian Corporation

Enclosures

AMERICAN COUNTY, WV
COUNTY CLERK
SHERIFF'S OFFICE

2013 JUN 24 PM 4: 07

FILED

DODDRIDGE COUNTY FLOODPLAIN DEVELOPMENT PERMIT APPLICATION

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

1. No work may start until a permit is issued.
2. The permit may be revoked if any false statements are made herein.
3. If revoked, all work must cease until permit is re-issued.
4. Development shall not be used or occupied until a Certificate of Compliance is issued.
5. The permit will expire if no work is commenced within six months of issuance.
6. Applicant is hereby informed that other permits may be required to fulfill local, state, and federal requirements.
7. Applicant hereby gives consent to the Floodplain Administrator/Manager or his/her representative to make inspections to verify compliance.
8. **I, THE APPLICANT CERTIFY THAT ALL STATEMENTS HEREIN AND IN ATTACHMENTS TO THIS APPLICATION ARE, TO THE BEST OF MY KNOWLEDGE, TRUE AND ACCURATE.**

APPLICANT'S SIGNATURE Shauna Redican

DATE June 18, 2013

SECTION 2: PROPOSE DEVELOPMENT (TO BE COMPLETED BY APPLICANT).

IF THE APPLICANT IS NOT A NATURAL PERSON, THE NAME, ADDRESS, AND TELEPHONE NUMBER OF A NATURAL PERSON WHO SHALL BE APPOINTED BY THE APPLICANT TO RECEIVE NOTICE PURSUANT TO ANY PROVISION OF THE CURRENT DODDRIDGE COUNTY FLOODPLAIN ORDINANCE.

Antero Resources Appalachian Corporation - Shauna Redican, Permit Representative

APPLICANT'S NAME: _____

ADDRESS: 1625 17th Street, Denver, CO 80202

TELEPHONE NUMBER: Contact Shauna Redican: 303-357-6820

BUILDER'S NAME: Antero Resources Appalachian Corporation
ADDRESS: 1625 17th Street, Denver, CO 80202
TELEPHONE NUMBER: (303) 357-7310

ENGINEER'S NAME: White Brothers Consulting, LLC - Timothy T. White
ADDRESS: 447 Call Road, Suite 216
TELEPHONE NUMBER: 304-550-9484

PROJECT LOCATION:

NAME OF SURFACE OWNER/OWNERS (IF NOT THE APPLICANT) Leoan Swisher

ADDRESS OF SURFACE OWNER/OWNERS (IF NOT THE APPLICANT) _____

Route 1, Box 210, New Milton, WV 26411

DISTRICT: New Milton

DATE/FROM WHOM PROPERTY _____

PURCHASED: N/A

LAND BOOK DESCRIPTION: _____

DEED BOOK REFERENCE: WB 33, PG 535

TAX MAP REFERENCE: TM 13, Pcl 9

EXISTING BUILDINGS/USES OF PROPERTY: None

NAME OF AT LEAST ONE ADULT RESIDING IN EACH RESIDENCE LOCATED UPON THE SUBJECT PROPERTY Leoan Swisher

ADDRESS OF AT LEAST ONE ADULT RESIDING IN EACH RESIDENCE LOCATED UPON THE SUBJECT PROPERTY Route 1, Box 210, New Milton, WV 26411

To avoid delay in processing the application, please provide enough information to easily identify the project location.

DESCRIPTION OF WORK (CHECK ALL APPLICABLE BOXES)

A. STRUCTURAL DEVELOPMENT

ACTIVITY

STRUCTURAL TYPE

- New Structure
- Addition
- Alteration
- Relocation
- Demolition
- Manufactured/Mobil Home

- Residential (1 – 4 Family)
- Residential (more than 4 Family)
- Non-residential (floodproofing)
- Combined Use (res. & com.)
- Replacement

B. OTHER DEVELOPMENT ACTIVITIES:

- Fill Mining Drilling Pipelining
 - Grading
 - Excavation (except for STRUCTURAL DEVELOPMENT checked above)
 - Watercourse Altercation (including dredging and channel modification)
 - Drainage Improvements (including culvert work)
 - Road, Street, or Bridge Construction *Access Road Construction as shown on page 6 of
 - Subdivision (including new expansion) attached Swisher Pad Design
 - Individual Water or Sewer System
 - Other (please specify)
-

C. STANDARD SITE PLAN OR SKETCH

1. SUBMIT ALL STANDARD SITE PLANS, IF ANY HAVE BEEN PREPARED.
2. IF STANDARD SITE PLANS HAVE NOT BEEN PREPARED:
SKETCH ON A SEPARATE 8 ½ X 11 INCH SHEET OF PAPER THE SHAPE AND LOCATION OF THE LOT. SHOW THE LOCATION OF THE INTENDED CONSTRUCTION OR LAND USE INDICATING BUILDING SETBACKS, SIZE & HEIGHT. IDENTIFY EXISTING BUILDINGS, STRUCTURES OR LAND USES ON THE PROPERTY.
3. SIGN AND DATE THE SKETCH.

ACTUAL TOTAL CONSTRUCTION COSTS OF THE COMPLETE DEVELOPMENT IRRESPECTIVE OF WHETHER ALL OR ANY PART OF THE SUBJECT PROPOSED CONSTRUCTION PROJECT IS WITHIN THE FLOODPLAIN \$ 398,234.00

*See attached Floodplain Calculation Fee

D. ADJACENT AND/OR AFFECTED LANDOWNER

1. NAME AND ADDRESS OF ALL OWNERS OF SURFACE TRACTS ADJACENT TO THE AREA OF THE SURFACE TRACT (UP & DOWN STREAM) UPON WHICH THE PROPOSED ACTIVITY WILL OCCUR AND ALL OTHER SURFACE OWNERS UP & DOWN STREAM) WHO OWN PROPERTY THAT MAY BE AFFECTED BY FLOODING AS IS DEMONSTRATED BY A FLOODPLAIN STUDY OR SURVEY (IF ONE HAS BEEN COMPLETED).

NAME: N/A _____
ADDRESS: _____

NAME: _____
ADDRESS: _____

NAME: _____
ADDRESS: _____

NAME: _____
ADDRESS: _____

1. NAME AND ADDRESS OF AT LEAST ONE ADULT RESIDING IN EACH RESIDENCE LOCATED UPON ANY ADJACENT PROPERTY AT THE TIME THE FLOODPLAIN PERMIT APPLICATION IS FILED AND THE NAME AND ADDRESS OF AT LEAST ONE ADULT RESIDING IN ANY HOME ON ANY PROPERTY THAT MAY BE AFFECTED BY FLOODING AS IS DEMONSTRATED BY A FLOODPLAIN STUDY OR SURVEY.

NAME: N/A _____
ADDRESS: _____

NAME: _____
ADDRESS: _____

NAME: _____
ADDRESS: _____

NAME: _____
ADDRESS: _____

E. CONFIRMATION FORM

THE APPLICANT ACKNOWLEDGES, AGREES, AND CONFIRMS THAT HE/IT WILL PAY WITHIN 30 DAYS OF RECEIPT OF INVOICE BY THE COUNTY FOR ALL EXPENSES RELATIVE TO THE PERMIT APPLICATION PROCESS GREATER THAN THE REQUIRED DEPOSIT FOR EXPENSES INCLUDING:

- (A) PERSONAL SERVICE OF PROCESS BY THE DODDRIDGE COUNTY SHERIFF AT THE RATES PERMITTED BY LAW FOR SUCH SERVICE.
- (B) SERVICE BY CERTIFIED MAIL RETURN RECEIPT REQUESTED.
- (C) PUBLICATION.

- (D) COURT REPORTING SERVICES AT ANY HEARINGS REQUESTED BY THE APPLICANT.
- (E) CONSULTANTS AND/OR HEARING EXPERTS UTILIZED BY DODDRIDGE COUNTY FLOODPLAIN ADMINISTRATOR/MANAGER OR FLOODPLAIN APPEALS BOARD FOR REVIEW OF MATERIALS AND/OR TESTIMONY REGARDING THE EFFICACY OF GRANTING OR DENYING THE APPLICANT'S FLOODPLAIN PERMIT.

NAME (PRINT): Anthony Smith
 SIGNATURE: [Signature] DATE: 10/24/13

After completing SECTION 2, APPLICANT should submit form to Floodplain Administrator/Manager or his/her representative for review.

SECTION 3: FLOODPLAIN DETERMINATION (to be completed by Floodplain Administrator/Manager or his/her representative)

THE PROPOSED DEVELOPMENT:

THE PROPOSED DEVELOPMENT IS LOCATED ON:

FIRM Panel: 235
 Dated: 10/04/2011

Is **NOT** located in a Specific Flood Hazard Area (Notify applicant that the application review is complete and **NO FLOODPLAIN DEVELOPMENT PERMIT IS REQUIRED**).

Is located in Special Flood Hazard Area.
 FIRM zone designation _____
 100-Year flood elevation is: _____ NGVD (MSL)

Unavailable

The proposed development is located in a floodway.
 FBFM Panel No. _____ Dated _____

See section 4 for additional instructions.

SIGNED

Dan Wellington

DATE

06/24/2013

SECTION 4: ADDITIONAL INFORMATION REQUIRED (To be completed by Floodplain Administrator/Manager or his/her representative)

The applicant must submit the documents checked below before the application can be processed.

- A plan showing the location of all existing structures, water bodies, adjacent roads, lot dimensions and proposed development.
- Development plans, drawn to scale, and specifications, including where applicable: details for anchoring structures, storage tanks, proposed elevation of lowest floor, (including basement or crawl space), types of water resistant materials used below the first floor, details of flood proffing of utilities located below the first floor and details of enclosures below the first floor. Also _____

- Subdivision or other development plans (If the subdivision or development exceeds 50 lots or 5 acres, whichever is the lesser, the applicant must provide 100-year flood elevations if they are not otherwise available).
- Plans showing the extent of watercourse relocation and/or landform alterations.
- Top of new fill elevation _____ Ft. NGVD (MSL).
For floodproofing structures applicant must attach certification from registered engineer or architect.
- Certification from a registered engineer that the proposed activity in a regulatory floodway will not result in any increase in the height of the 100-year flood. A copy of all data and calculations supporting this finding must also be submitted.
- Manufactured homes located in a floodplain area must have a West Virginia Contractor's License and a Manufactured Home Installation License as required by the Federal Emergency Management Agency (FEMA).

Other:

SECTION 5: PERMIT DETERMINATION (To be completed by Floodplain Administrator/Manager or his/her representative)

I have determined that the proposed activity (type is or is not) in conformance with provisions of the Floodplain Ordinance adopted by the County Commission of Doddridge County on May 21, 2013. The permit is issued subject to the conditions attached to and made part of this permit.

SIGNED Don Welton DATE 06/24/2013

If the Floodplain Administrator/Manager found that the above was not in conformance with the provisions of the Doddridge County Floodplain Ordinance and/or denied that application, the applicant may complete an appealing process below.

APPEALS: Appealed to the County Commission of Doddridge County? Yes No
Hearing Date: _____
County Commission Decision - Approved Yes No

CONDITIONS: _____

SECTION 6: AS-BUILT ELEVATIONS (To be submitted by APPLICANT before Certificate of Compliance is issued).

The following information must be provided for project structures. This section must be completed by a registered professional engineer or a licensed land surveyor (or attach a certification to this application).

COMPLETE 1 OR 2 BELOW:

- 1 Actual (As-Built) Elevation of the top of the lowest floor (including basement or crawl space is _____ FT. NGVD (MSL)
- 2 Actual (As Built) elevation of floodproofing is _____ FT. NGVD (MSL)

Note: Any work performed prior to submittal of the above information is at risk of the applicant.

SECTION 7: COMPLIANCE ACTION (To be completed by the Floodplain Administrator/Manager or his/her representative).

The Floodplain Administrator/Manager or his/her representative will complete this section as applicable based on inspection of the project to ensure compliance with the Doddridge County Floodplain Ordinance.

INSPECTIONS:

DATE: _____ BY: _____
DEFICIENCIES ? Y/N

COMMENTS _____

SECTION 8: CERTIFICATE OF COMPLIANCE (To be completed by Floodplain Administrator/Manager or his/her representative).

Certificate of Compliance issued: DATE: _____ BY: _____

**CERTIFICATE OF COMPLIANCE
FOR DEVELOPMENT IN SPECIAL FLOOD HAZARD AREA
(OWNER MUST RETAIN)**

PERMIT NUMBER: _____

PERMIT DATE: _____

PURPOSE –

CONSTRUCTION LOCATION: _____

OWNER'S ADDRESS: _____

**THE FOLLOWING MUST BE COMPLETED BY THE FLOODPLAIN
ADMINISTRATOR/MANAGER OR HIS/HER AGENT.**

**COMPLIANCE IS HEREBY CERTIFIED WITH THE REQUIREMENT OF THE
FLOODPLAIN ORDINANCE ADOPTED BY THE COUNTY COMMISSION OF
DODDRIDGE COUNTY ON MAY 21, 2013.**

SIGNED  DATE 06/24/2013

ANTERO RESOURCES APPALACHIAN CORPORATION

SWISHER PAD

SCHEDULE OF QUANTITIES

CLEARING & GRUBBING, EROSION & SEDIMENT CONTROLS				
	QUANTITY	UNIT		
MOBILIZATION	1.0	EA	\$19,140.00	\$19,140.00
CONSTRUCTION ENTRANCE	1.0	EA	\$3,172.76	\$3,172.76
CLEARING & GRUBBING	9.5	AC	\$4,513.25	\$43,011.27
TREE REMOVAL	2.1	AC	\$2,953.00	\$6,053.65
8" COMPOST FILTER SOCK	0.0	LF		\$0.00
12" COMPOST FILTER SOCK	0.0	LF		\$0.00
18" COMPOST FILTER SOCK	0.0	LF		\$0.00
24" COMPOST FILTER SOCK	2,239.0	LF	\$9.23	\$20,665.97
SUPER SILT FENCE	0.0	LF		\$0.00
9" STRAW WATTLES	0.0	LF		\$0.00
TOTAL				\$92,043.65
SITE				
	QUANTITY	UNIT		
DRILL PAD EXCAVATION	34,333.0	CY	\$3.75	\$128,748.75
ACCESS ROADS EXCAVATION	6,361.0	CY	\$4.16	\$26,461.76
TANK PAD and/or FRAC PIT EXCAVATION	9,557.0	CY	\$4.13	\$39,470.41
TOPSOIL	3,045.0	CY	\$4.09	\$12,454.05
DIVERSION DITCH	815.0	LF	\$4.50	\$3,667.50
ROADSIDE DITCH	850.0	LF	\$3.99	\$3,391.50
TOTAL				\$214,193.97
SUMP(S) PER ANTERO RESOURCES STANDARD DETAIL				
	QUANTITY	UNIT		
INSTALL 102" x 78" x 44" PRE CAST SUMP	4.0	EA	\$844.22	\$3,376.88
VALVE BOX HDPE PIPE (MINIMUM 12" DIAMETER x 48" HEIGHT)	4.0	EA	\$545.50	\$2,182.00
4" PVC CONNECTIVE PIPE (ANTERO SUMP DRAIN DETAIL)	50.0	LF	\$9.42	\$471.00
TOTAL				\$6,029.88
AGGREGATE SURFACING - SPREADING, COMPACTION, and/or INSTALLATION				
	QUANTITY	UNIT		
DRILL PAD AASHTO #1 (8" THICK)	3,170.0	TON	\$2.59	\$8,210.30
DRILL PAD 1 1/2" or 3/4" CRUSHER RUN STONE (2" THICK)	790.0	TON	\$2.89	\$2,283.10
DRILL PAD GEOTEXTILE FABRIC (US 200)	7,100.0	SY	\$1.06	\$7,526.00
ACCESS ROADS 6" OR 4" MINUS CRUSHER RUN AGGREGATE (8" THICK)	1,100.0	TON	\$2.83	\$3,113.00
ACCESS ROAD 1 1/2" OR 3/4" CRUSHER RUN STONE (2" THICK)	275.0	TON	\$2.95	\$811.25
ACCESS ROADS GEOTEXTILE FABRIC (US 200)	2,470.0	SY	\$1.02	\$2,519.40
*INSTALL TENSAR TX190 GEOGRID or EQUIVALENT	1.0	SY		\$0.00
TANK PAD 6" OR 4" MINUS CRUSHER RUN AGGREGATE (8" THICK)	1,815.0	TON	\$2.43	\$4,410.45
TANK PAD 1 1/2" or 3/4" CRUSHER RUN AGGREGATE (2" THICK)	455.0	TON	\$2.56	\$1,164.80
TANK PAD GEOTEXTILE FABRIC (US 200)	4,060.0	SY	\$1.16	\$4,709.60
*INSTALL TENSAR TX190 GEOGRID or EQUIVALENT	1.0	SY		\$0.00
TOTAL				\$34,747.90
ROAD CULVERTS				
	QUANTITY	UNIT		
15" HDPE	0.0	LF		\$0.00
18" HDPE	26.0	LF	\$23.33	\$606.58
24" HDPE	0.0	LF		\$0.00
30" HDPE	0.0	LF		\$0.00
30" RCP	20.0	LF	\$50.00	\$1,000.00
42" HDPE	0.0	LF		\$0.00
48" HDPE	122.0	LF	\$60.00	\$7,320.00
60" HDPE	0.0	LF		\$0.00
R4 RIP RAP (INLETS/OUTLETS)	15.0	TON	\$35.69	\$535.35
AASHTO #1 STONE (DITCH CHECKS)	5.0	TON	\$61.10	\$305.50
DITCH LINING - (ACCESS ROAD) SYNTHETIC MATTING (TRM)	175.0	SY	\$3.45	\$603.75
DITCH LINING - (ACCESS ROAD) RIP RAP	675.0	SY	\$26.28	\$17,739.00
TOTAL				\$28,110.18

ANTERO RESOURCES APPALACHIAN CORPORATION

SWISHER PAD

SCHEDULE OF QUANTITIES

FENCING/GATES				
	QUANTITY	UNIT		
4 FT WOVEN WIRE FARM FENCE w/MINIMUM 10 FT POST SPACING (WOODEN and/or "T" POST	0.0	LF		\$0.00
16 FT DOUBLE GATE	0.0	EA		\$0.00
TOTAL				\$0.00
SEEDING				
	QUANTITY	UNIT		
SITE SEEDING (LIME, FERTILIZER, SEEDING, AND HYDRO-MULCH w/TACK (HYC-2 OR EQUAL))	7.0	AC	\$3,301.25	\$23,108.75
TOTAL				\$23,108.75
UNFORESEEN SITE CONDITIONS				
	QUANTITY	UNIT		
*ROCK CLAUSE - BLASTING	1.0	CY		\$0.00
*ROCK CLAUSE - HOE RAMMING	1.0	CY		\$0.00
*FRENCH DRAINS	1.0	FT		\$0.00
*PHASE 1 FENCING - STEEL CORRUGATED PANELS w/"T" POST (10 FT CENTERS) - WETLAND PROTECTION	1.0	LF		\$0.00
*PHASE 2 FENCING - SILT FENCE AND OR FILTER SOCK OUTSIDE OF PHASE 3 FENCING - WETLAND PROTECTION	1.0	LF		\$0.00
*PHASE 3 FENCING - ORANGE SAFETY FENCE w/"T" POST (10FT CENTERS) - WETLAND PROTECTION	1.0	LF		\$0.00
*SILT FENCE	1.0	LF		\$0.00
*TEMPORARY SEEDING	1.0	AC		\$0.00
*CONSTRUCTION STAKEOUT	1.0	HOUR		\$0.00
* JUTE MATTING - SLOPE MATTING	1.0	SY		\$0.00
TOTAL				\$0.00
	GRAND TOTAL			\$398,234.33
ANTERO RESOURCES WILL SUPPLY THE FOLLOWING:				
102"X 78" X 44" PRE CAST SUMP				
VALVE FOR THE VALVE BOX HDPE PIPE				
AGGREGATE				
GEOTEXTILE FABRIC (US 200) OR EQUIVALENT				
TENSAR TX190 GEOGRID OR EQUIVALENT				
15" HDPE ROAD CULVERT				



Well Site Safety Plan

Antero Resources

Well Name: Josie Unit 1H, Josie Unit 2H, Swisher Unit 1H,
Swisher Unit 2H, and Union Unit 1H

Pad Location: **SWISHER PAD**

Doddridge County/ New Milton District

GPS Coordinates: Lat 39°12'37.7263"/Long 80°39'58.0682"
(NAD83)

Driving Directions:

From W Main St and Neely Ave head west onto W Main St, .4 mile. Turn right onto W Virginia 18 S, 6.8 miles. Turn left onto Co Route 25/ Meathouse Fork 3.8 miles. Turn left onto lease road .1 mile, pad on left.

Approval Sheet

The West Virginia Department of Environmental Protection Office of Oil and Gas has set forth minimum requirements for a Well Site Safety Plan which shall be submitted with each horizontal well application. A horizontal well shall be any well which meets the definition as provided for in Title 35, Series 8, Section 2.2 of the West Virginia Department of Environmental Protection Office of Oil and Gas.

Approved Safety Plans should be maintained and available at the drilling rig at all times and provided to the local emergency planning committee for the emergency planning district in which the well work will occur or to the county office of emergency services at least seven days before commencement of well work or site preparation work that involves any disturbance of land.

The Safety Plan, once approved, may only be modified upon approval by the West Virginia Department of Environmental Protection Office of Oil and Gas ("Office").

This plan has met the requirements of the West Virginia Department of Environmental Protection Office of Oil and Gas Well Site Safety Plan Standards.

Approved this day _____ of month _____, 20__ by

Date: _____

Date: _____

Site Specific Safety Plan

Antero Resources

1.0 Siting Requirements

1.1. Exhibit 1 provides a plan view map showing the well location, access road, pits, flare lines, dwellings, and noting the north and prevailing wind directions.

1.2. Exhibit 2 also provides an area topographical map showing the well site location

2.0 Site Safety Plan

2.1. Safety Meeting

Safety meetings will be conducted as follows:

- Pre-Drilling,
- Pre-Completion,
- Pre-Workover
- Post Accident/Near Miss, and
- As-Needed.

Safety meetings should be held on-site weekly, at a minimum, prior to the beginning of operations, and:

- Includes personnel employed and involved in the operations, and
- Includes the District Oil and Gas Inspector (or other designated Office of Oil and Gas representative, for the pre-spud meeting only).

Typically, contractor of the operator will conduct these safety meetings with Antero Resources personnel participating as needed. Please list the above personnel as a record of attendance using the form found in Appendix A, or one similar. These records may be maintained separate from this plan.

2.2 Personnel and Visitor Log

This log is intended to provide a current headcount of all persons present at the site at any given time. All personnel and visitors must sign in upon entering the site and sign out upon departure. This log, or one similar, is provided in Appendix B and will be maintained at all times by the Drilling Supervisor or Toolpusher.

2.3 Evacuation Plan

The Drilling Supervisor or Toolpusher will establish a muster point at which all persons on site will assemble for personnel safety and verification of headcount. This point will be located at the entrance to the site.

In the event of an emergency requiring the evacuation of personnel, an audible or visual alarm will be sounded. The Drilling Supervisor and/or the Toolpusher will determine if local residents should be evacuated at this time depending on the outcome of their assessment of the situation.

If local resident evacuation is indicated, the Drilling Supervisor and/or the Toolpusher will be responsible for notifying the local impacted residents, or the local authorities will take this responsibility depending on the urgency, availability and direction of the local authorities. Local authorities have indicated that they will take this responsibility typically and will notify of evacuation mandates via television and radio media announcements in addition to public address units on patrol vehicles. In the event that Antero is directed to take this responsibility, notification will be by dispatching a worker to each affected residence to inform them of evacuation requirements and procedures. See section 8.1 for additional information.

Evacuated local residents may be temporarily housed in local hotels depending on the severity and duration of the emergency. Included in Exhibits 1 & 2 are maps and drawings that may assist in the emergency response and evacuation process.

The Drilling Supervisor and/or the Toolpusher will secure the Personnel and Visitor log before evacuating the site in order to perform a headcount at the muster point.

2.4 Emergency Response Personnel

Requesting public emergency response assistance for this location would be accomplished by the Drilling Supervisor or Toolpusher via telephone to Harrison County Dispatch which can be reached by dialing 911. From there, they will dispatch the appropriate and available emergency response agencies depending on the nature and extent of the emergency.

A list of Emergency Contacts, including Antero's 24 hour emergency contact telephone number, any contractors of the operator, the Department, the local oil and gas inspector, and local emergency response units are found in Appendix C. This list will be posted at the well site.

2.5 Local Schools and Public Facilities

In the event of an emergency requiring the evacuation of schools and public facilities the Drilling Supervisor or Toolpusher will make the required notifications unless the local public emergency responders take on this responsibility. Generally, local emergency responders have stated that they will assume this responsibility. Exhibit 3 lists all schools and public facilities, with their contact information, within a one-mile radius of the horizontal well location.

2.6 Material Safety Data Sheets

The Drilling Supervisor or Contractor of the Operator will maintain Material Data Safety Sheets (MSDS) for all materials and chemicals used on the well site. The MSDS sheets should be located in the Company Representatives Office on-site. Copies of the MSDS sheets may also be obtained from the area Safety Coordinator, the operator contact for maintaining MSDSs, by calling the local Antero Resource Office at 304-622-3842.

3.0 Casing Requirements

3.1 Geologic Prognosis

A list of anticipated freshwater, saltwater, oil and gas, hydrogen sulfide, thief zones, and high pressure and high volume zones, including their expected depth are attached to this plan in Exhibit 4, WW-6B.

3.2 Casing and Cementing Program

Exhibit 4 shows the detailed casing and cementing program, which meets the standards of the American Petroleum Institute (API) and employs a minimum of three strings of casing which are of sufficient weight, quantity and quality for the anticipated conditions to be encountered. This casing and cementing program is designed to maintain well control and integrity. The casing setting depths are sufficient to cover and seal off those zones as identified in Exhibit 4.

4.0 BOP Requirements

4.1 BOP Equipment

The following is a list of all BOP equipment with types, sizes and ratings to be utilized and available during the drilling, completion and work-over of the well.

5M system:

- Annular preventer*
- Pipe ram, blind ram, and, if conditions warrant, as specified by the authorized officer, another pipe ram shall also be required*
- A second pipe ram preventer shall be used with a tapered drill string
- Drilling spool, or blowout preventer with 2 side outlets (choke side shall be a 3-inch minimum diameter, kill side shall be at least 2-inch diameter)*
- 3 inch diameter choke line
- 2 choke line valves (3 inch minimum)*
- Kill line (2 inch minimum)
- 2 chokes with 1 remotely controlled from rig floor
- 2 kill line valves and a check valve (2 inch minimum)*
- Upper kelly cock valve with handle available
- When the expected pressures approach working pressure of the system, 1 remote kill line tested to stack pressure (which shall run to the outer edge of the substructure and be unobstructed)
- Lower kelly cock valve with handle available
- Safety valve(s) and subs to fit all drill string connections in use
- Inside BOP or float sub available
- Pressure gauge on choke manifold
- All BOPE connections subjected to well pressure shall be flanged, welded, or clamped*
- Fill-up line above the uppermost preventer.

If repair or replacement of the BOPE is required after testing, this work shall be performed prior to drilling out the casing shoe.

When the BOPE cannot function to secure the hole, the hole shall be secured using cement, retrievable packer or a bridge plug packer, bridge plug, or other acceptable approved method to assure safe well conditions.

Minimum standards for choke manifold equipment.

- i. All choke lines shall be straight lines unless turns use tee blocks or are targeted with
- ii. running tees, and shall be anchored to prevent whip and reduce vibration.
- iii. ii. Choke manifold equipment configuration shall be functionally equivalent to the appropriate example diagram shown in Appendix C. The actual configuration of the chokes may vary.

All valves (except chokes) in the kill line choke manifold, and choke line shall be a type that does not restrict the flow (full opening) and that allows a straight through flow).

Pressure gauges in the well control system shall be a type designed for drilling fluid service

5M and higher system accumulator shall have sufficient capacity to open the hydraulically-controlled gate valve (if so equipped) and close all rams plus the annular preventer (for 3 ram systems add a 50 percent safety factor to compensate for any fluid loss in the control system or preventers) and retain a minimum pressure of 200 psi above precharge on the closing manifold without use of the closing unit pumps. The fluid reservoir capacity shall be double the usable fluid volume of the accumulator system capacity and the fluid level of the reservoir shall be maintained at the manufacturer's recommendations. Two independent sources of power shall be available for powering the closing unit pumps. Sufficient nitrogen bottles are suitable as a backup power source only, and shall be recharged when the pressure falls below manufacturer's specifications.

Accumulator Precharge Pressure Test

This test shall be conducted prior to connecting the closing unit to the BOP stack and at least once every 6 months. The accumulator pressure shall be corrected if the measured precharge pressure is found to be above or below the maximum or minimum limit specified below (only nitrogen gas may be used to precharge):

Power Availability

Power for the closing unit pumps shall be available to the unit at all times so that the pumps shall automatically start when the closing valve manifold pressure has decreased to the pre-set level.

Accumulator Pump Capacity

Each BOP closing unit shall be equipped with sufficient number and sizes of pumps so that, with the accumulator system isolated from service, the pumps shall be capable of opening the hydraulically-operated gate valve (if so equipped), plus closing the annular preventer on the smallest size drill pipe to be used within 2 minutes, and obtain a minimum of 200 psi above specified accumulator precharge pressure.

Locking Devices

A manual locking device (i.e., hand wheels) or automatic locking devices shall be installed on all systems of 2M or greater. A valve shall be installed in the closing line as close as possible to the annular preventer to act as a locking device. This valve shall be maintained in the open position and shall be closed only when the power source for the accumulator system is inoperative.

Accumulator working pressure rating	Minimum acceptable operating pressure	Desired precharge pressure	Maximum acceptable precharge pressure	Minimum acceptable precharge pressure
1,500 psi	1,500 psi	750 psi	800 psi	700 psi
2,000 psi	2,000 psi	1,000 psi	1,100 psi	900 psi
3,000 psi	3,000 psi	1,000 psi	1,100 psi	900 psi

Remote Controls

Remote controls shall be readily accessible to the driller. Remote controls for all 3M or greater systems shall be capable of closing all preventers. Remote controls for 5M or greater systems shall be capable of both opening and closing all preventers. Master controls shall be at the accumulator and shall be capable of opening and closing all preventers and the choke line valve (if so equipped). No remote control for a 2M system is required.

4.2 Procedure and Schedule for Testing BOP Equipment

Well Control Equipment Testing

- i. Perform all tests described below using clear water or an air..
- ii. Ram type preventers and associated equipment shall be tested to approved stack working pressure if isolated by test plug or to 80 percent of internal yield pressure of casing if BOP stack is not isolated from casing. Pressure shall be maintained for at least 10 minutes or until requirements of test are met, whichever is longer. If a test plug is utilized, no bleed-off of pressure is acceptable. For a test not utilizing a test plug, if a decline in pressure of more than 10 percent in 30 minutes occurs, the test shall be considered to have failed. Valve on casing head below test plug shall be open during test of BOP stack.
- iii. Annular type preventers shall be tested to 70 percent of rated working pressure. Pressure shall be maintained at least 10 minutes or until provisions of test are met, whichever is longer.
- iv. As a minimum, the above test shall be performed:
 - a. when initially installed:
 - b. whenever any seal subject to test pressure is broken:
 - c. following related repairs: and
 - d. 30-day intervals.
- v. Valves shall be tested from working pressure side during BOPE tests with all downstream valves open.
- vi. When testing the kill line valve(s), the check valve shall be held open or the ball removed.
- vii. Annular preventers shall be functionally operated at least weekly.
- viii. Pipe and blind rams shall be activated each trip, however, this function need not be performed more than once a day.
- ix. A BOPE pit level drill shall be conducted weekly for each drilling crew.
- x. Pressure tests shall apply to all related well control equipment.
- xi. All of the above described tests and/or drills shall be recorded in the drilling log.
- xii. For intermediate wellbore drilling phase, the BOP equipment will be pressure and function tested upon initial installation.
- xiii. For the bottom and horizontal wellbore drilling phase, the BOP equipment will be pressure and function tested upon initial installation, weekly, and after each bit trip.

4.3 BOP Installation Schedule

The BOP will be installed after running surface casing as well as after running intermediate casing. BOP equipment shall be installed on the innermost string of casing after the surface casing.

4.4 Well Control Training

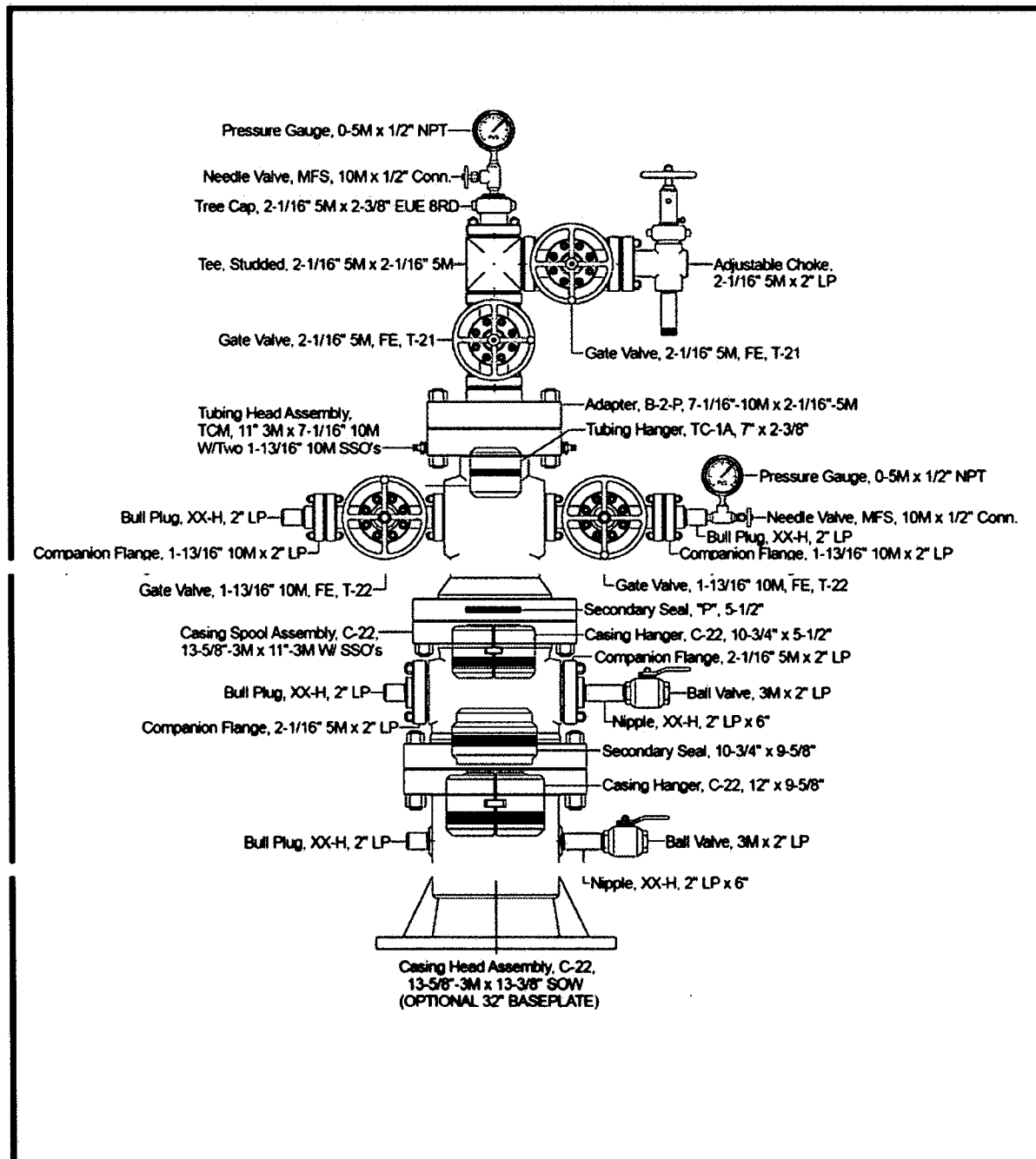
All Drilling Supervisors and Toolpushers used on this well will be IADC trained and certified. A trained person will be present during the drilling operations. Training certificates will be available for review on the location. The list of personnel with said training is provided in Appendix E.

4.5 Drilling Record

The Drilling Supervisor will maintain detailed records of significant drilling events such as lost circulation, hydrogen sulfide gas, fluid entry, kicks and abnormal pressures through the electronic data entry and recording system, Wellview. This system allows the Drilling Supervisor to enter daily reports containing the specified information. The records are then retained electronically at Antero Main Office in Denver, CO.

The Emergency Response Plan for this operating area requires the Drilling Supervisor to notify the district oil and gas inspector or the designated Office of Oil and Gas representative any unusual drilling events such as hydrogen sulfide gas or significant kicks that occur during drilling operations. Any encounter of hydrogen sulfide gas requires immediate notification of the Office of Oil and Gas.

4.6 Schematic and Description of the Wellhead Assembly



5.0 Well Flaring Operations

5.1 Size, Construction and Length of Flare Line

The flare line will be a 4" diameter, steel line that extends 50' from the well. The line will be anchored to the surface of the ground by cross pinning it in place using metal staking at multiple points along the line.

The choke assembly is described in previous section of this document and in drawing "5M Choke Manifold Equipment" BLM drawing Onshore Oil and Gas Order Number 2, Appendix D.

We do not anticipate flaring since we would first attempt to route the flow to the Gas Buster and work the gas kick off from there. Flaring would occur as a last resort or if needed.

5.2 Flare Lighting System

The system for lighting the flare will be an automatic flare igniter using a solar collector panel and battery charger system. A second igniter will be installed as a backup. Should flaring be required or needed.

The Drilling Supervisor will give notification to the local fire department prior to lighting the flare, if practicable, or as soon as possible thereafter.

5.3 Flare Safe Distances

The flare line(s) discharge shall be located not less than 50 feet from the well head, having straight lines unless turns are targeted with running tees, and shall be positioned downwind of rig and trailers. The flare system shall have an effective method for ignition. All flammable material beyond the end of the flare line will be cleared to a minimum distance of 50feet.

5.4 Flare Duration

The flare duration should not exceed the maximum time requirements needed to complete the operation.

6.0 Well Killing Operations

6.1 Mud Mixing Inventory

The following shows the inventory of all materials that will be on-site for the mixing of mud:

- 20 sack of Soda Ash
- 480 sacks of KCL
- 200 sacks of Biolose
- 40 sack of Xan-Plex
- 20 buckets of X-Cide 102
- 3 Drums of KD-40
- 5 Buckets of LD-S
- 15 super sack of MIL Bar
- 100 sacks of Soletex
- 40 Sacks of Graphite
- 300 Sack of Salt

Volume of mixed mud = pit volume + equivalent volume in tanks
= 500 bbls + 500 bbls
= 1000 bbls total

Mixed Mud Weight The mixed mud weight will vary depending on the bottom hole pressures and will calculated and adjusted as we gather more information; we intend to use 12.8 lb – 13.0 lb mud but will adjust the mud weight as information becomes available

Volume of Add'l

Weighting Mat'l Antero will have the necessary materials available to mix up enough mud to weight the mud up 1 lb more than the mud used for drilling; as an estimate, we expect to have 10 pallets of barite on site and 12 pallets of bentonite

Volume Water for Mixing The rig has a 400 bbl rig water tank and the location will have 800 bbls additional in separate tanks.

6.2 Mud Mixing Units

The drilling rig is equipped with 2 mud tanks with agitators and jets such that it can make two pills.

6.3 Kill Procedures

The following paragraph describes the methodology and type of kill procedures that will be used if needed. These procedures are recognized by the IADC.

Once a Kick is detected a prompt shut in of the well is essential. The exact shut in method will be dictated by the operation being performed at the time of the kick, available equipment, plus other extenuating circumstance. The following types of kill operations may be performed to bring the well back under control. The different methods listed below to be used will be determined by the operation being performed at the time of the kick.

Kill Procedures

- 1.) Drillers Method
- 2.) Wait and Weight Method
- 3.) Circulate and Weight Method
- 4.) Concurrent Method
- 5.) Reverse Circulation Method
- 6.) Dynamic Kill Method
- 7.) Bullheading Method
- 8.) Volumetric Method

7.0 Hydrogen Sulfide Operations

7.1 H₂S Monitoring

The equipment and method used for the monitoring, detection and warning of the presence of hydrogen sulfide gas during drilling, completions and work-over operations will be portable electronic gas detection such as BW gas detectors or equivalent. These detectors will be

typically located near the well bore on the drilling rig, outside the data van or on the drillers stand.

7.2 H2S Training

All personnel that will be involved in the drilling operations will be trained in H2S in drilling operations to a minimum of the awareness level. Additional training will be given to the Drilling Supervisors both in H2S and emergency response duties related specifically to air toxins. All of the aforementioned training will be completed prior to spudding the well. These records may be kept separate from this plan.

7.3 Personal Protection Equipment

The following personal protection equipment will be available and in use as needed on location:

- Fire Retardant Clothing (FRC),
- Hardhats,
- safety shoes,
- safety glasses and/or safety goggles/face shields,
- hearing protection earplugs,
- cotton and chemical resistant work gloves, and
- dust mask respirators.

In the event that other hazards are identified or presented during the drilling operation, we will attempt to eliminate the hazard, and if not practical, additional PPE will be provided to mitigate the risk to the worker. In the event that H2S is detected, a hazard assessment will be performed for this exposure along with risk mitigation.

7.4 H2S Notification and Control

The emergency alarm will be audible or visual type which will be detectable by all personnel on location. If dangerous levels of H2S are detected, we will immediately implement our Emergency Response Plan which will provide for site control and evacuation as needed. Generally, the site will be secured such that access is allowed only for trained emergency response personnel. Site security will be accomplished by trained workers stationed at safe points on the perimeter and access road to the site.

If H2S is detected and confirmed, a telephonic notification will be made to the local oil and gas inspector.

8.0 Notification and Protection Zone Standards

8.1 Method of Notification

In an emergency which requires the notification of residents and emergency personnel that may be affected during drilling such as release of H₂S, flaring, etc., the emergency response plan will be immediately implemented. This plan specifies the roles and responsibilities of on-site personnel in case of emergency and addresses emergency notification of potentially affected residents and public emergency response personnel.

In general under the situation presently described, after the activation of the emergency alarm, the on-site personnel will muster for a headcount by the On-Scene Incident Commander which is usually the Drilling Supervisor or Toolpusher. After initial assessment of the situation, the OSIC will notify the public emergency response agency from which direction will be taken. If the agency directs, on-site personnel will notify all local impacted residents of the incident by dispatching a worker by truck to each potentially affected residence. If the public emergency responder does not direct this notification to be made by the operator, then the public response agency will be responsible for this notification. The local emergency responders have, in general, stated that emergency notification of local residents will be accomplished by their means including television and radio announcement as well as public address systems on patrol vehicles. Antero safety coordinators who are located in the field may assist with the notification of local residents.

8.2 Established Protection Zones

Protection zones will be established and maintained based on the nature, extent and severity of the event. These protection zones will be based on those safe distances outlined in the applicable portions of the DOT Emergency Response Guidebook.

Safety Meeting Log

Date: _____ Location(Pad): _____ Well Name: _____

	<u>Name</u>	<u>Organization</u>	<u>Job Title</u>
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____
7.	_____	_____	_____
8.	_____	_____	_____
9.	_____	_____	_____
10.	_____	_____	_____
11.	_____	_____	_____
12.	_____	_____	_____
13.	_____	_____	_____
14.	_____	_____	_____
15.	_____	_____	_____
16.	_____	_____	_____
18.	_____	_____	_____
19.	_____	_____	_____
20.	_____	_____	_____
21.	_____	_____	_____
22.	_____	_____	_____
23.	_____	_____	_____
24.	_____	_____	_____
25.	_____	_____	_____

Appendix C.

EMERGENCY CONTACT LIST AND PHONE NUMBERS

Contact	Phone Number
<p>Designated Person and Incident Commander:</p> <p>John Kawcak, <i>Operations Manager</i> Tim Culberson, <i>Midstream Construction Manager</i> Terry Wyckoff, <i>Midstream Production Manager</i></p>	<p>817.368.1553 John 918.916.0116 Tim 304.991.0720 Terry</p>
<p>Designated Backup Person Incident Commander/Response Coordinator:</p> <p>Mike Ward Ricky Jones Norman Wood Stanley Dudley Jeff Partridge Landon West Tim Henrich Mike Alcorn James Harvey Tim Murrell Delf Martinez Ralph Ybarra Virgil Gaither James Neal</p>	<p>580.276.7484 Mike 580.927.6276 Ricky 903.353.4429 Norman 970.618.7602 Stanley 940.577.2288 Jeff 940.389.0602 Landon 720.530.3059 Tim H. 304.627.7070 Mike 918.916.4340 James 903.256.6040 Tim 970.629.0055 Delf 580.927.5606 Ralph 580.504.2366 Virgil 607.644.8701 James</p>
<p>Frontier #3 Frontier #14 Frontier #17 Frontier #8 Frontier #22 Hall Drilling #3</p>	<p>832.487.7965 Rig Sat Phone 713.758.0662 Rig Sat Phone 713,758.0730 Rig Sat Phone 832.531.7014 Rig Sat Phone 713.758.0893 Rig Sat Phone 713.758.0881 Rig Sat Phone</p>
<p>Antero Resources Denver Office 1625 17th Street, Suite 300 Denver, CO 80202</p>	<p>Office: (303) 357-7310 Fax: 303-357-7315</p>
<p>Environmental Manager Jerry Alberts</p>	<p>Direct: (303) 357-7341 Cell: 720-201-0160 24hr</p>

Contact	Phone Number
Safety Manager Rick Blankenship	Direct: (303) 357-7378 Cell: (720) 235-2775 24hr
Vice President Production Kevin Kilstrom	Direct: (303) 357-7335 Cell: (303) 808-0254 24hr
Federal and State Agencies	
National Response Center	(800) 424-8802
West Virginia Office of Water Resources' Emergency Notification Number, Oil Spill Response	1-800-642-3074
West Virginia Office of Oil and Gas Sam Ward, WVDEP Inspector – Harrison County Joe Taylor, WVDEP Inspector – Tyler County David Cowan, WVDEP Inspector – Ritchie County Douglas Newlon, WVDEP Inspector – Doddridge County	(304) 389-7583 cell Sam Ward (304) 380-7469 cell Joe Taylor (304) 389-3509 cell David Cowan (304) 932-8049 cell Douglas Newlon
Environmental Protection Agency (EPA) Region 3	Phone: 215-814-3231 Fax: 215-814-3163
West Virginia Worker's Compensation	1-888-4WVCOMP 1-304-926-3400
West Virginia Fish and Wildlife Service, Field Office, Elkins, WV	Phone: 304-636-6586 Fax: 304-636-7824
US OSHA Charles Green	1-800-321-OSHA (1-800-321-6742) 304.347.5937
Local Agencies and Responders	
Sheriff/Police/Fire Department	911
Harrison County LEPC	304.624.9700 John Keeling
Hospital- United Hospital Center--Clarksburg	304. 624.2121
Harrison County Emergency and Dispatch Business Office	911 304.623.6559

Contact	Phone Number
Doddridge County Emergency	911 304.873.3253
Doddridge County LEPC	304.782.2124 Roland W. Kniceley
WV Highway Patrol	304,782,2124 doddridgeoes@dishmail.net
Public Water Intakes (see App G for add'l points)	to be determined
Waste Removal	
TK Stanley—Waste Removal, Vac Truck	304.622.6677
Stallion	330.760.4248
Waste Management	
Contractors	
Hall Drilling Services MT Hall	304588 3368
TK Stanley	304.622.6677
Cleanup Crews	
Ryan Environmental	304.641.0244
Water Haulers	
TK Stanley	304.476.0396
Hall Drilling	304.483.8125
Frac Tank Suppliers	
TK Stanley—Frac Tank Rental	304.622.6677
Stallion	330.760.4248
Winch Trucks	
TK Stanley	304.476.9588

Contact	Phone Number
Water Moving/Pumping	
TK Stanley	304.476.0396
Pumping Services—Kill Fluids	
Halliburton—Jane Lew	724.743.6601 Central Dispatch
Light Plants	254.434.1469 Hot Lights- Josh
Wolfpack	304-623-1199.
BOPs	
Blue Dot	304.290.7399
Snubbing Services	Basic Energy- 724-825-2548 Bryan Berlison
Cudd Well Control	713.849.2769 Houston
Wild Well Control	281.353.5481
Roustabout Crews	740.473-1305 Hall Drilling Office 304.588.66474 Hall Drilling- Jack 601.410.7440- TK Stanley Office 724.984.7626- TK Stanley- Brett

WV Emergency Reporting

In the event of a hazardous waste or hazardous material release or emergency, please contact:
1-800-642-3074.

Additional Contact Information

1-800-424-8802 National Response Center

1-304-558-5938 DEP Elkview Emergency Response Unit

Email Contacts:

Mike Dorsey Mike.H.Dorsey@wv.gov

Rusty Joins Rusty.T.Joins@wv.gov

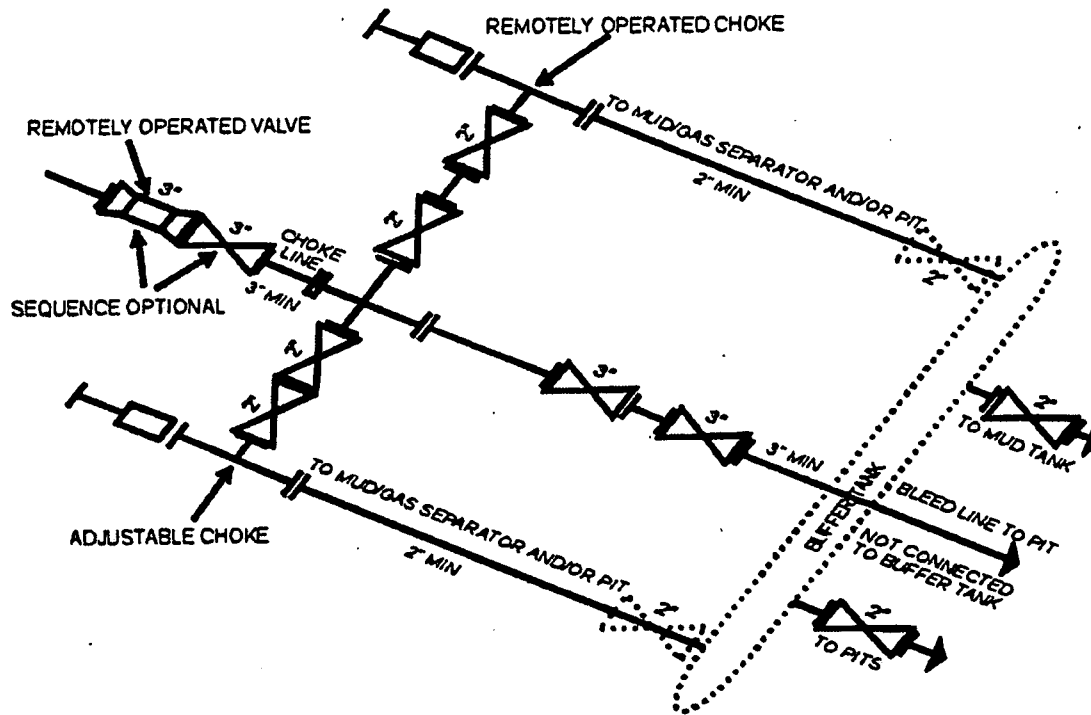
WHERE TO FIND HELP

Doddridge County:

Ambulance, Fire, Law Enforcement Emergencies Call 911
Poison Control Center....1-304-388-4211 or 1-800-222-1222
Emergency Alert System Radio WFBY-FM 106.5

FIRE:	
Doddridge County Ambulance Authority	304-838-5718
Greenwood V.F.D	304-873-3669
McClellan V.F.D	304-782-2774
Smithburg V.F.D	304-873-1493
West Union V.F.D	304-873-1391
B.A.N.C.S V.F.D	304-873-3722
EMS:	
Doddridge County Office of Emergency Service	304-782-2124
Doddridge County EMS	304-873-3330
LAW ENFORCEMENT:	
Doddridge County Sheriff Department	304-873-1000
West Union Police Department	304-873-1107
West Virginia State Police Doddridge County Detachment	304-873-2101
OTHER IMPORTANT NUMBERS:	
W.V. Dept. of Health & Human Resources	304-627-2295
National Response Center (Chemical, Oil Spills & Chemical/Biological Terrorism) (State Emergency Spill Notification)	1-800-424-8802 1-800-642-3074
Allegheny Power	1-800-255-3443
WV State Fire Marshal (Arson Hotline)	304-588-2191 1-800-233-3473
Dominion Hope Gas	1-800-688-4673

Appendix D: Choke Manifold Schematic



SM CHOKE MANIFOLD EQUIPMENT - CONFIGURATION OF CHOKES MAY VARY

Although not required for any of the choke manifold systems, buffer tanks are sometimes installed downstream of the choke assemblies for the purpose of manifolding the bleed lines together. When buffer tanks are employed, valves shall be installed upstream to isolate a failure or malfunction without interrupting flow control. Though not shown on 2M, 3M, 10M, OR 15M drawings, it would also be applicable to those situations.

[54 FR 39528, Sept. 27, 1989]

Appendix E. List of Well Control Trained Personnel

1. John Kawcak- Antero
2. Mike Ward- Drilling Consultant
3. Ricky Jones- Drilling Superintendent
4. Mike Alcorn- Drilling Superintendent
5. Landon West- Completion Consultant
6. Jeff Partridge-Completion Consultant
7. Norman Wood- Drilling Consultant
8. Delf Martinez- Drilling Consultant
9. James Harvey- Drilling Consultant
10. Steve Guffey- Drilling Consultant
11. Tim Murell- Drilling Consultant
12. James Neal-Drilling Consultant
13. Virgil Gaither-Drilling Consultant
14. Ralph Ybarra- Drilling Consultant
15. Bob Belcher- Completion Consultant (Willowbend)
16. Kris Humpert- Completion Consultant (Willowbend)
17. Ronnie Fuller- Completion Consultant (Willowbend)
18. Trevor Lively- Completion Consultant (Willowbend)
19. Trey Armstrong- Completion Consultant (Willowbend)
20. Gary Linn- Completion Consultant (Willowbend)
21. Justin Bowers- Completion Consultant (Willowbend)
22. Michael Petitt- Completion Consultant (Willowbend)
23. Stephen Sanders- Completion Consultant (Willowbend)

Appendix F. List of Hazardous Chemicals used during Phases of Operation:

<u>Chemical Name</u>	<u>Daily Qty. on Location</u>	<u>Storage Container</u>
	<u>Construction</u>	
Diesel Fuel Oil	2000 Gallons	Double Walled Tank
	<u>Drilling</u>	
Airfoam HD	275 gallons	Drum
Alpha 1655	220 gallons	Drum
Aluminum Stearate	150 lbs	Tote
Caustic Soda	1500 lbs	Bag
Claytrol	440 gallons	Drum
Conqor 404	55 gallons	Drum
Diesel Fuel Oil	8000 gallons	Double Walled Tank
Gear Oil	250 gallons	Double Walled Tank
Hydraulic Fluid	250 gallons	Double Walled Tank
KCL (Potassium Chloride)	15000 lbs	Bag
LD-9	100 gallons	Bucket
Lime	2500 lbs	Bag
Mil-Bar	80000 lbs	Super Sack
Mil-Lube	220 gallons	Drum
Milmica	2500 lbs	Bag
Mil-Pac LV	2500 lbs	Bag
Mil-Plug (Walnut Shells)	5000 lbs	Bag
Milstarch	10000 lbs	Bag
Mineral Oil	265 gallons	Tote
Motor Oil	250 gallons	Double Walled Tank
New-Drill	160 gallons	Bucket
Perma-Lose HT	10000 lbs	Bag
Salt	30000 lbs	Super Sack
Soda Ash	1000 lbs	Bag
SWF	265 gallons	Drum
W.O. Defoam	160 gallons	Bucket
Xan-Plex D	1200 lbs	Bag
X-Cide 102	160 gallons	Bucket
	<u>Completions</u>	
15% Hydrochloric Acid	1000 gallons	Acid Tanker
DAP 901 (Scale Inhibitor)	284 gallons	Tote
DAP-923 (Acid Additive)	1.8 gallons	Acid Tanker
Diesel Fuel Oil	8000 gallons	Tanker
DWP-111 (Gel)	4980 gallons	Tote
DWP-204 (Buffer)	496 gallons	Tote
DWP-612 (FR)	1116 gallons	Tote
DWP-901 (Oxide Breaker)	1112 pounds	Bucket
DWP-944 (Biocide)	224 gallons	Tote
Oil 40 (Pump Flush)	300 gallons	Tote
EB-4L(Gel Breaker)	362 gallons	Tote
HCl Acid	1000 gallons	Tanker
KR-153SL(Biocide)	74 gallons	Tote

Appendix F. **CONTINUED**

Completions -CONTINUED

Super Scale Inhibitor	112 gallons	Tote
WFR-3B(Friction Reducer)	372 gallons	Tote

Service/Work over

FR-1100(Friction Reducer)	800 gallons	Bucket
FR-1205(Pipe on Pipe)	265 gallons	Bucket
FR1302(Liquid Beads)	80 gallons	Bucket
FR-1400(Gel Sweep/Friction Reducer)	550 gallons	Tote
76 DynaLife LEP Grease	20 gallons	Bucket
LithoPlex rt. No. 2 grease	2 gallons	Tube
Hi Temp red grease	3 gallons	Tube
50/50 antifreeze	15 gallons	Bucket
Hydraulic oil 68	15 gallons	Bucket
Hydraulic oil 46	25 gallons	Bucket
Premium Lithium grease	1 gallon	Spray Can
P.B. Blaster	2 gallons	Spray Can
Transmission fluid	10 gallons	Bucket
Max-gear	15 gallons	Bucket
Brakleen	3 gallons	Spray Can
Off-road diesel	700 gallons	Double Walled Tank

Reclamation

Diesel Fuel Oil	2000 gallons	Double Walled Bulk Tank
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Salem Compressor Station

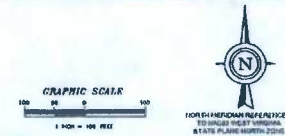
Used Oil	50 barrels	Bulk Tank
Compressor Oil	1600 gallons	Bulk Tank
Engine Oil	1600 gallons	Bulk Tank
Ethylene Glycol	2000 gallons	Bulk Tank
Produced Water	420 barrels	Bulk Tank

Note: The attached list represents anticipated materials used for planned operations on the well site. In the event of an unplanned event on the well site, additional materials may be required. Additional MSDS for any unplanned events will be maintained on the well site in accordance with OSHA CFR 1910.1200 standards.

The Drilling Supervisor or Contractor of the Operator will maintain Material Data Safety Sheets (MSDS) for all materials and chemicals used on the well site in accordance with OSHA CFR 1910.1200 standards. The MSDS should be located in the Company Representative's Office on-site. Copies of the MSDS may also be obtained from the area Safety Coordinator, the operator contact for maintaining MSDS, by calling the local Antero Resource Office at 304-622-3842 or 800-878-1373.

SWISHER DRILL PAD SITE OVERALL SITE PLAN

ANTERO RESOURCES APPALACHIAN CORPORATION

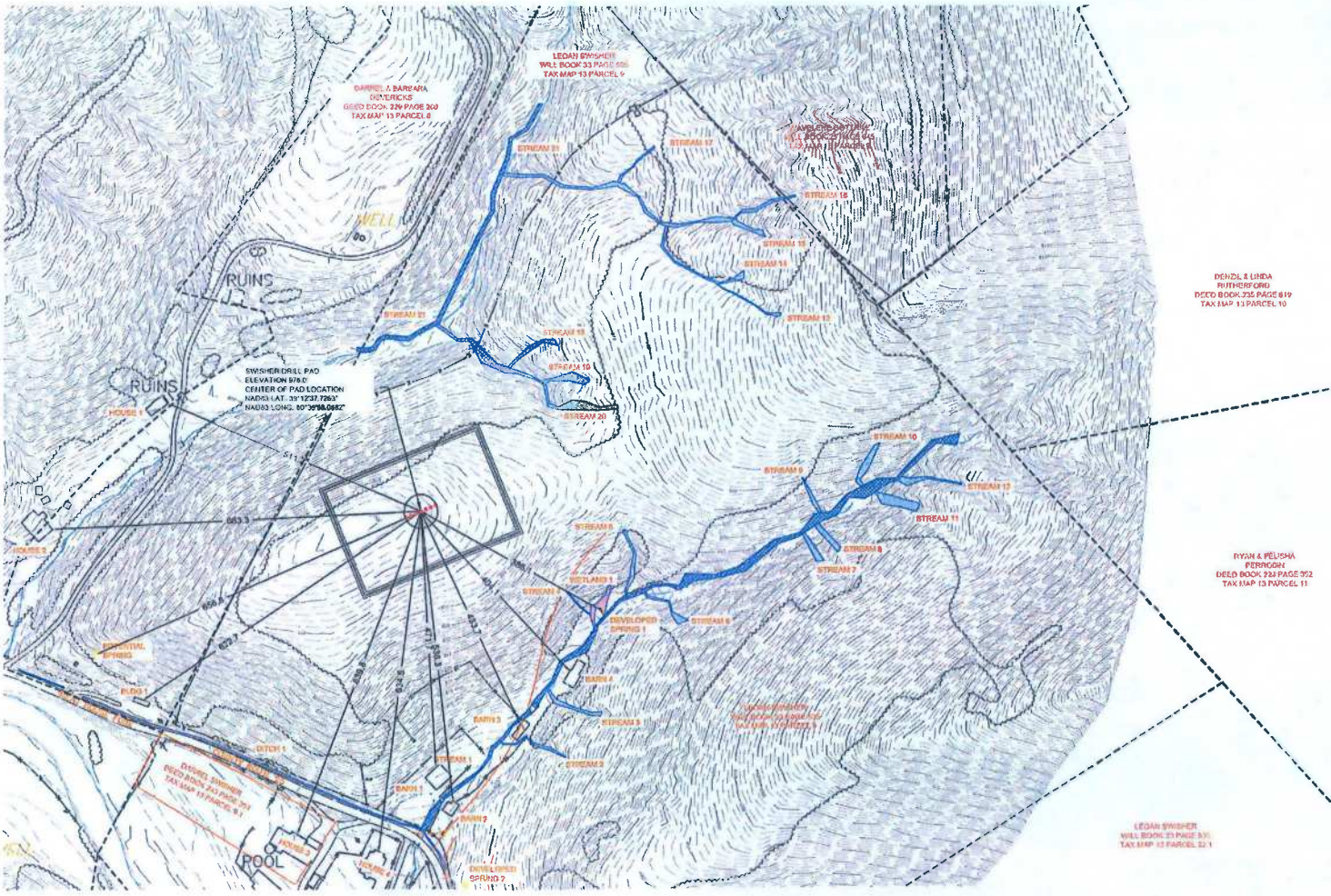


NOTES:

1. THIS SITE IS NOT WITHIN THE 100 YEAR FLOOD PER FIRM PANEL 54017C0235C, DODDRIDGE COUNTY, WV.
2. ALL PROPOSED SLOPES ARE 2:1 EXCEPT WHERE NOTED
3. ALL TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON AERIAL PHOTOGRAPHY PROVIDED BY BLUE MOUNTAIN AERIAL MAPPING WITH A FLIGHT DATE OF 4-10-11.

SIZE OF EXISTING BARN, HOUSES AND BUILDING (SF)

- BARN 1: 1100 SF
- BARN 2: 490 SF
- BARN 3: 487 SF
- BARN 4: 942 SF
- BUILDING 1: 247 SF
- HOUSE 1: 681 SF
- HOUSE 2: 1778 SF
- HOUSE 3: 3070 SF
- HOUSE 4: 2730 SF



DATE	BY	TITLE	SCALE
4-9-2011	J. W.

**THIS DOCUMENT
PREPARED FOR
ANTERO RESOURCES
APPALACHIAN CORP**

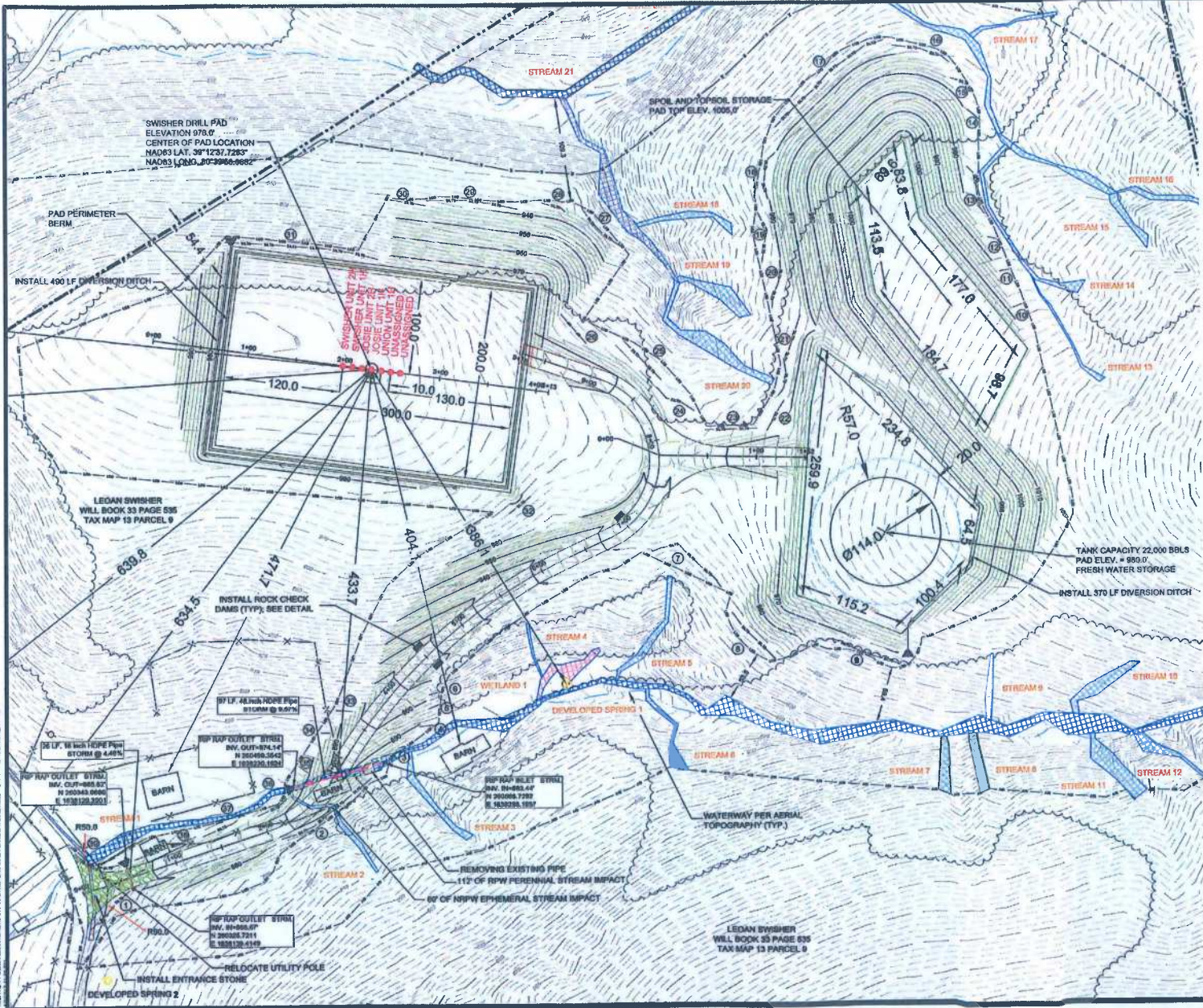
**FINAL SITE DESIGN
OVERALL SITE PLAN
SWISHER DRILL PAD SITE
NEW MILTON DISTRICT
DODDRIDGE COUNTY, WV**

REVISION	DATE	BY

LEGEND

- EXISTING GAS LINE
- EXISTING FENCE LINE
- EXISTING UTILITY POLE
- EXISTING TREE LINE
- NPW EPHEMERAL STREAM
- NPW PERENNIAL STREAM
- NPW INTERMITTENT STREAM
- PNH WETLANDS

PLANNING AND DESIGN SERVICES, INC. 1111 1/2 SOUTH MAIN STREET, SUITE 200, CHARLOTTE, NC 28202



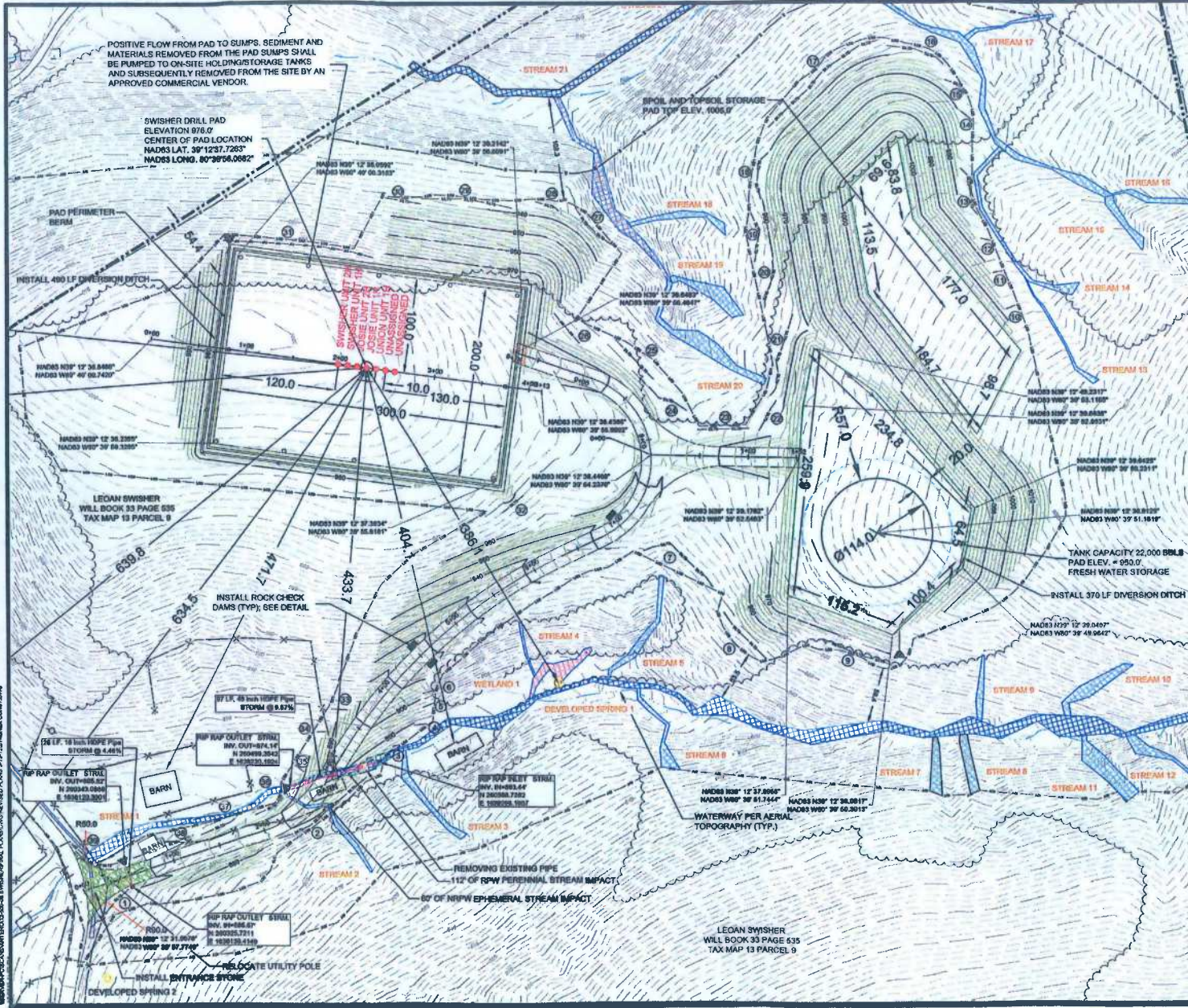
ID NUMBER	SF (LF)	SSF (LF)	SSS (LF)
1	85		
2	114		
3	8		
4	14		
5	14		
6	12		
7	92		
8	67		
9	75		
10	96		
11	10		
12	10		
13	16		
14	16		
15	24		
16	65		
17	150		
18	52		
19	54		
20	80		
21	70		
22	58		
23	53		
24	46		
25	68		
26	49		
27	14		
28	38		
29	65		
30	158		
31	25		
32	17		
33	15		
34	10		
35	12		
36	38		
37	62		
38	80		
TOTALS	0	0	1,897

---	APPROXIMATE PROPERTY LINE
---	LIMITS OF DISTURBANCE
---	AREA OF INTEREST
---	PROPOSED AREA OF INTEREST
---	SILT FENCE
---	DUPER SILT FENCE
---	SILT SOCK
---	EXISTING GAS LINE
---	EXISTING FENCE LINE
---	EXISTING UTILITY POLE
---	EXISTING TREE LINE
---	PROPOSED WOVEN WIRE FENCE
---	HRPW PERENNIAL STREAM
---	HRPW PERENNIAL STREAM
---	PERM WETLANDS
---	HRPW INTERMITTENT
---	POW WETLANDS
---	DITCH
---	SF, SSF AND SILT SOCK INDICATOR

DATE: 4/20/21
 SHEET: 6
 TOTAL SHEETS: 16

THIS DOCUMENT PREPARED FOR ANTERO RESOURCES APPALACHIAN CRIP

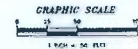
FINAL DESIGN
EROSION & SEDIMENT CONTROL PLAN
SWISHER DRILL PAD SITE
 NEW MILTON DISTRICT
 DODDRIDGE COUNTY, WV



POSITIVE FLOW FROM PAD TO SUMPS. SEDIMENT AND MATERIALS REMOVED FROM THE PAD SUMPS SHALL BE PUMPED TO ON-SITE HOLDING STORAGE TANKS AND SUBSEQUENTLY REMOVED FROM THE SITE BY AN APPROVED COMMERCIAL VENDOR.

SWISHER DRILL PAD
ELEVATION 876.0'
CENTER OF PAD LOCATION
NADES LAT. 39°12'37.7283"
NADES LONG. 80°36'58.0882"

SPOIL AND TOPSOIL STORAGE
PAD TOP ELEV. 1006.0'



NORTH ARROW REFERENCED TO NAD83 NORTH STATE PLANE NORTH ZONE

NOTES

1. THIS SITE IS NOT WITHIN THE 100 YEAR FLOOD PER FROM PANEL 5407C0233C, DODDRIIDGE COUNTY, WV.
2. ALL PROPOSED SLOPES ARE 2:1 EXCEPT WHERE NOTED.
3. ALL TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON AERIAL PHOTOGRAPHY PROVIDED BY BLUE MOUNTAIN AERIAL MAPPING WITH A FLIGHT DATE OF 4-10-11.
4. FILL OVER 50 VERTICAL FEET ON SPOIL PAD NEEDS A 1W BENCH.
5. ALL FILL SLOPES SHALL BE TOE KEYED PER THE DETAIL SHOWN ON THE DETAIL SHEETS.
6. POSITIVE FLOW FROM PAD TO SUMPS. SEDIMENT AND MATERIALS REMOVED FROM THE PAD SUMPS SHALL BE PUMPED TO ON-SITE HOLDING STORAGE TANKS AND SUBSEQUENTLY REMOVED FROM SITE BY AN APPROVED COMMERCIAL VENDOR.
7. ALL ENVIRONMENTAL DELINEATIONS PROVIDED BY ALLSTAR.

DATE	7	15
REVISION		
BY		
CHECKED		
DATE		
BY		
CHECKED		
DATE		
BY		
CHECKED		
DATE		
BY		

Blue Swisher Drilling Inc.
ENGINEERING AND SURVEYING
1100 W. MAIN ST. SUITE 100
MILTON, WV 25951
WWW.BLUE-SWISHER.COM



ANTERO RESOURCES

THIS DOCUMENT PREPARED FOR:
ANTERO RESOURCES
ATLANTA, GA

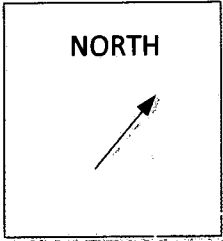
FINAL DESIGN
SITE PLAN
SWISHER DRILL PAD SITE
NEW MILTON DISTRICT
DODDRIIDGE COUNTY, WV

LEGEND

- APPROXIMATE PROPERTY LINE
- LOD LOD LIMITS OF DISTURBANCE
- AOI AOI AREA OF INTEREST
- PAOI PAOI PROPOSED AREA OF INTEREST
- S/LT FENCE S/LT FENCE
- S/SF S/SF SUPER S/LT FENCE
- S/LT S/LT S/LT SOCK
- EXISTING GAS LINE EXISTING GAS LINE
- EXISTING FENCE LINE EXISTING FENCE LINE
- EXISTING UTILITY POLE EXISTING UTILITY POLE
- EXISTING TREE LINE EXISTING TREE LINE
- PROPOSED WOVEN WIRE FENCE PROPOSED WOVEN WIRE FENCE
- NRPV EPHEMERAL STREAM NRPV EPHEMERAL STREAM
- RFW PERENNIAL STREAM RFW PERENNIAL STREAM
- PEM WETLANDS PEM WETLANDS
- RFW INTERMITTENT RFW INTERMITTENT
- POW WETLANDS POW WETLANDS
- DITCH DITCH
- SF, SSF AND S/LT SOCK INDICATOR SF, SSF AND S/LT SOCK INDICATOR

LEGAN SWISHER
WILL BOOK 33 PAGE 635
TAX MAP 13 PARCEL 9

SSP Page 31



PREVAILING WIND
DIRECTION NNE



EXHIBIT 1
SWISHER
PAD

EXHIBIT 1, PAGE 4

DRILLING LAYOUT/FLARE LINES/PREVAILING WINDS

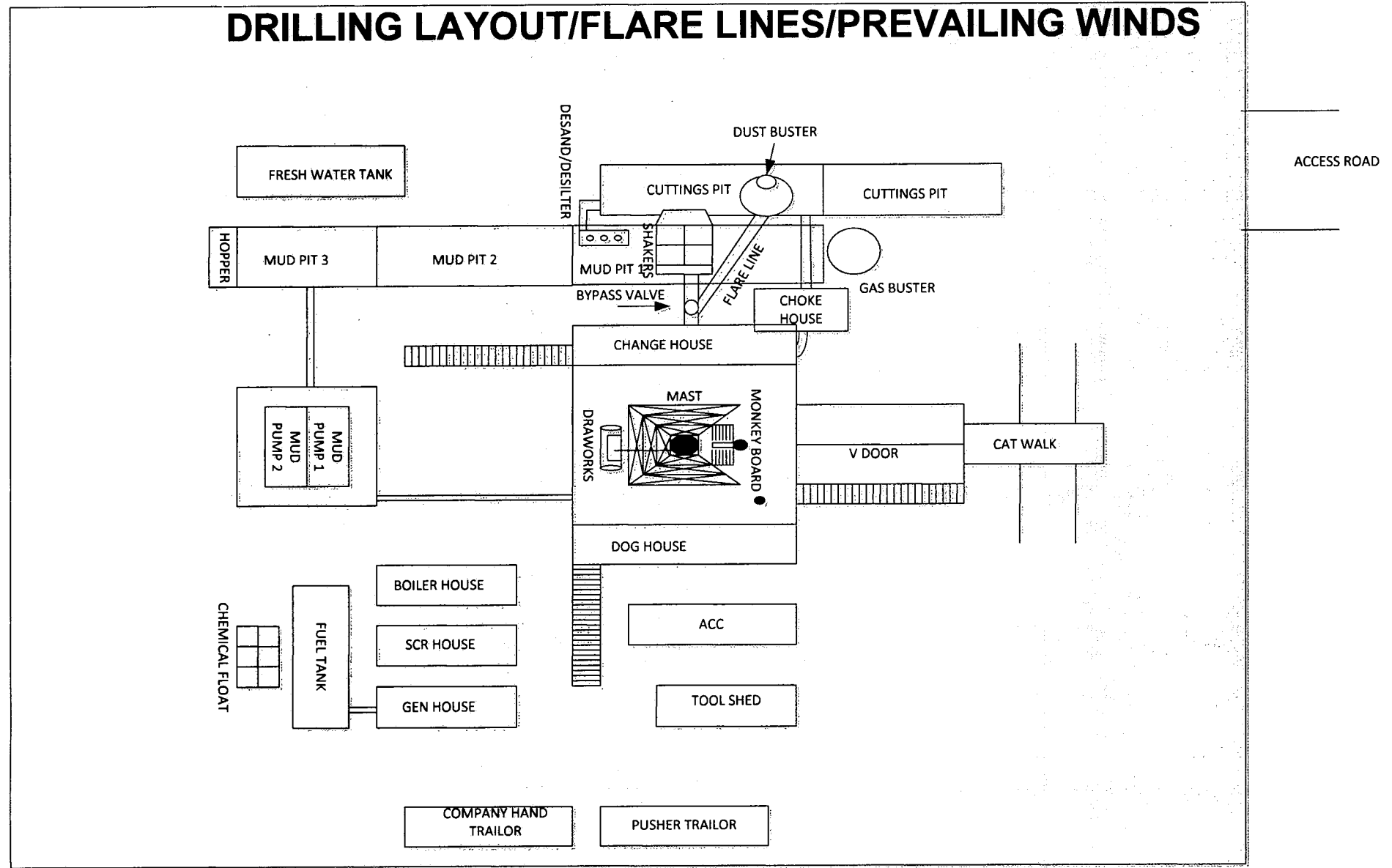
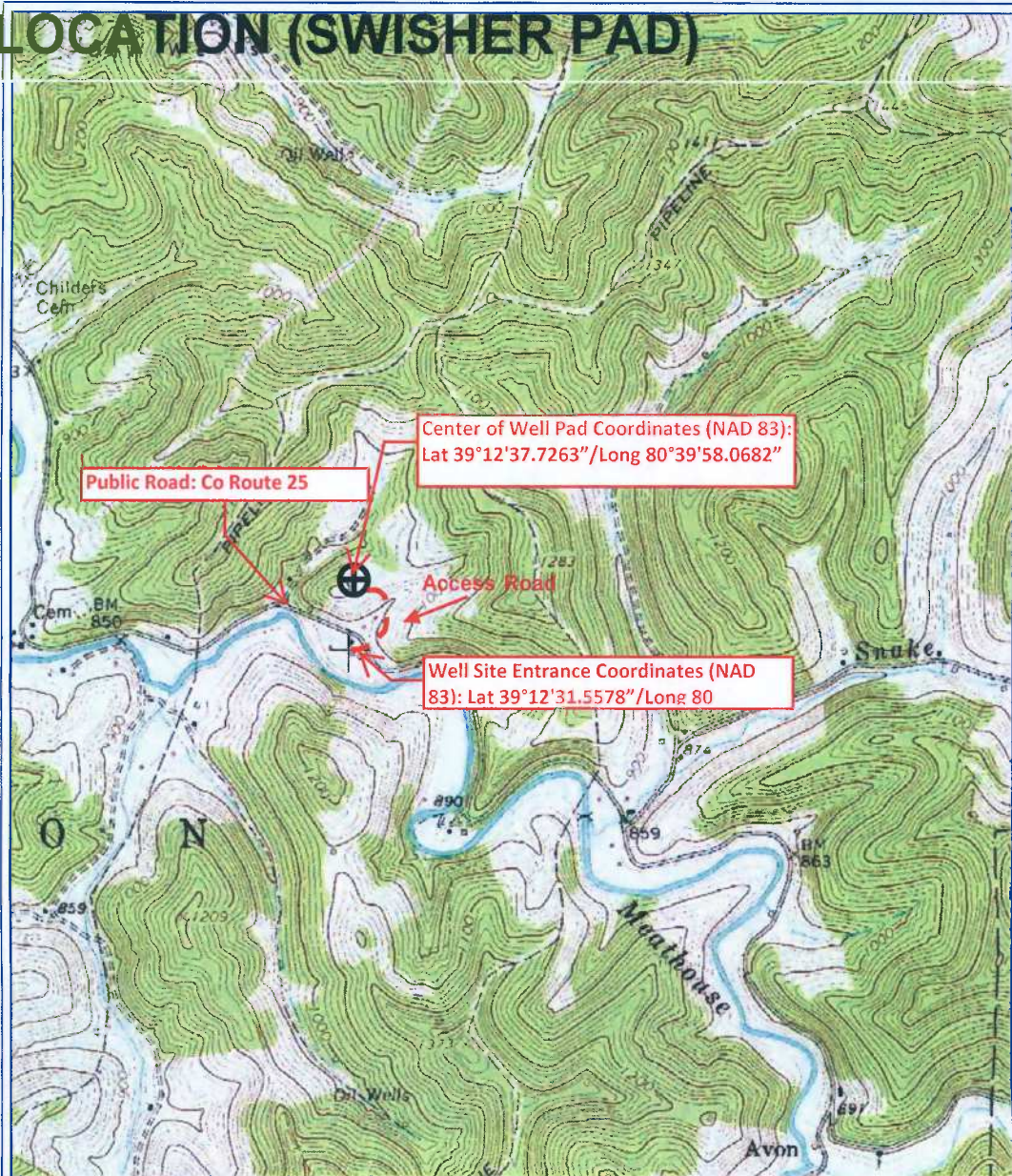


EXHIBIT 2, TOPOGRAPHICAL MAP OF WELL SITE LOCATION (SWISHER PAD)



PETRA 3/19/2013 1:04:09 PM

Antero Resources

Appalachian Basin

Swisher Pad

Doddridge County

Ratio Scale = 1 : 24,000



REMARKS

Quadrangle: New Milton
 Watershed: Meathouse Fork
 District: New Milton

By: TRO

EXHIBIT 3: LIST OF ALL SCHOOLS & PUBLIC FACILITIES WITHIN A ONE-MILE RADIUS OF PROPOSED WELL SITE

Surface Owner	Address	City/State/Zip	Phone Number	District	Tax Map	Parcel	Deed Book/Page
Union Mission Church	no address listed		none availble	New Milton	12	20,23	136/89

EXHIBIT 4.a to SSP- WW-6B FORM

WW - 6B
(3/13)

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: Antero Resources Appalachian Corporation 494488557 017-Doddridge New Milton New Milton
Operator ID County District Quadrangle

2) Operator's Well Number: Swisher Unit 1H Well Pad Name: Swisher Pad

3 Elevation, current ground: -990 Elevation, proposed post-construction: 976'

4) Well Type: (a) Gas Oil Underground Storage
Other _____
(b) If Gas: Shallow Deep
Horizontal

5) Existing Pad? Yes or No: No

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):
Marcellus Shale: 7000' TVD, Anticipated Thickness- 60 Feet, Associated Pressure- 3250#

7) Proposed Total Vertical Depth: 7000' TVD

8) Formation at Total Vertical Depth: Marcellus

9) Proposed Total Measured Depth: 16000' MD

10) Approximate Fresh Water Strata Depths: 38', 164', 173'

11) Method to Determine Fresh Water Depth: Offset well records. Depths have been adjusted according to surface elevations.

12) Approximate Saltwater Depths: None available

13) Approximate Coal Seam Depths: 291'

14) Approximate Depth to Possible Void (coal mine, karst, other): None anticipated

15) Does proposed well location contain coal seams directly overlying or adjacent to an active mine? If so, indicate name and depth of mine: No

16) Describe proposed well work: Drill, perforate, fracture a new horizontal shallow well and complete Marcellus Shale

17) Describe fracturing/stimulating methods in detail:
Antero plans to pump Slickwater into the Marcellus Shale formation in order to ready the well for production. The fluid will be comprised of approximately 99 percent water and sand, with less than 1 percent special-purpose additives as shown in the attached "List of Anticipated Additives Used for Fracturing or Stimulating Well."

18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 9.44 acres

19) Area to be disturbed for well pad only, less access road (acres): 3.39 acres

WW - 6B
(3/13)

20)

CASING AND TUBING PROGRAM

TYPE	Size	New or Used	Grade	Weight per ft.	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill -up (Cu. Ft.)
Conductor	20"	New	H-40	94#	90'	90'	CTS, 86 Cu. Ft.
Fresh Water	13-3/8"	New	J-55/H-40	54.5#/ 48#	310'	310'	CTS, 431 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2550'	2550'	CTS, 1038 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	20#	16000'	16000'	3972 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#		7000'	
Liners							

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield
Conductor	20"	24"	0.438"	1530	Class A	1.18
Fresh Water	13-3/8"	17-1/2"	0.38"/0.33"	2730/1730	Class A	1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	Class A	1.18
Intermediate						
Production	5-1/2"	8-3/4" & 8-1/2"	0.361"	12630	Lead-H/POZ & Tall - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11200		
Liners						

PACKERS

Kind:	N/A			
Sizes:	N/A			
Depths Set:	N/A			

21) Describe centralizer placement for each casing string.

Conductor: no centralizers

Surface Casing: one centralizer 10' above the float shoe, one on the insert float collar and one every 4th joint spaced up the hole to surface.

Intermediate Casing: one centralizer above float joint, one centralizer 5' above float collar and one every 4th collar to surface.

Production Casing: one centralizer at shoe joint and one every 3 joints to top of cement in intermediate casing.

22) Describe all cement additives associated with each cement type.

Conductor: no additives, Class A cement.

Surface: Class A cement with 2% calcium and 1/4 lb flake, 5 gallons of clay treat

Intermediate: Class A cement with 1/4 lb of flake, 5 gallons of clay treat

Production: Lead cement- 50/50 Class H/Poz + 1.5% salt + 1% C-45 + 0.5% C-16a + 0.2% C-12 + 0.45% C-20 + 0.05% C-51

Production: Tail cement- Class H + 45 PPS Calcium Carbonate + 1.0% FL-160 + 0.2% ACGB-47 + 0.05% ACSA-51 + 0.2% ACR-20

23) Proposed borehole conditioning procedures.

Conductor: blowhole clean with air, run casing, 10 bbls fresh water.

Surface: blowhole clean with air, trip to conductor shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate pipe capacity + 40 bbls fresh water followed by 25 bbls bentonite mud, 10 bbls fresh water spacer.

Intermediate: blowhole clean with air, trip to surface casing shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate 40 bbls brine water followed by 10 bbls fresh water and 25 bbls bentonite mud, pump 10 bbls fresh water.

Production: circulate with 14 lb/gal NaCl mud, trip to middle of lateral, circulate, pump high viscosity sweep, trip to base of curve, pump high viscosity sweep, trip to top of curve, trip to bottom, circulate, pump high viscosity sweep, trip out, run casing, circulate 10 bbls fresh water, pump 48 bbls barite pill, pump 10 bbls fresh water followed by 48 bbls mud flush and 10 bbls water.

*Note: Attach additional sheets as needed.

EXHIBIT 4.b to SSP- WW-6B FORM

WW - 6B
(3/13)

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: Antero Resources Appalachian Corporation 494488557 017-Doddridge New Milton New Milton
Operator ID County District Quadrangle

2) Operator's Well Number: Swisher Unit 2H Well Pad Name: Swisher Pad

3 Elevation, current ground: -990 Elevation, proposed post-construction: 976'

4) Well Type: (a) Gas Oil Underground Storage
Other _____
(b) If Gas: Shallow Deep
Horizontal

5) Existing Pad? Yes or No: No

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):

Marcellus Shale: 7000' TVD, Anticipated Thickness- 60 Feet, Associated Pressure- 3250#

7) Proposed Total Vertical Depth: 7000' TVD

8) Formation at Total Vertical Depth: Marcellus

9) Proposed Total Measured Depth: 16100' MD

10) Approximate Fresh Water Strata Depths: 38', 164', 173'

11) Method to Determine Fresh Water Depth: Offset well records. Depths have been adjusted according to surface elevations.

12) Approximate Saltwater Depths: None available

13) Approximate Coal Seam Depths: 291'

14) Approximate Depth to Possible Void (coal mine, karst, other): None anticipated

15) Does proposed well location contain coal seams directly overlying or adjacent to an active mine? If so, indicate name and depth of mine: No

16) Describe proposed well work: Drill, perforate, fracture a new horizontal shallow well and complete Marcellus Shale

17) Describe fracturing/stimulating methods in detail:

Antero plans to pump Slickwater into the Marcellus Shale formation in order to ready the well for production. The fluid will be comprised of approximately 99 percent water and sand, with less than 1 percent special-purpose additives as shown in the attached "List of Anticipated Additives Used for Fracturing or Stimulating Well."

18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 9.44 acres

19) Area to be disturbed for well pad only, less access road (acres): 3.39 acres

20)

CASING AND TUBING PROGRAM

TYPE	Size	New or Used	Grade	Weight per ft.	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill -up (Cu. Ft.)
Conductor	20"	New	H-40	94#	90'	90'	CTS, 86 Cu. Ft.
Fresh Water	13-3/8"	New	J-55/H-40	54.5#/ 48#	315'	315'	CTS, 438 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2555'	2555'	CTS, 1040 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	20#	16100'	16100'	3997 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#		7000'	
Liners							

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield
Conductor	20"	24"	0.438"	1530	Class A	1.18
Fresh Water	13-3/8"	17-1/2"	0.38"/0.33"	2730/1730	Class A	1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	Class A	1.18
Intermediate						
Production	5-1/2"	8-3/4" & 8-1/2"	0.361"	12630	Lead-H/POZ & Tail - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11200		
Liners						

PACKERS

Kind:	N/A			
Sizes:	N/A			
Depths Set:	N/A			

21) Describe centralizer placement for each casing string. Conductor: no centralizers
Surface Casing: one centralizer 10' above the float shoe, one on the insert float collar and one every 4th joint spaced up the hole to surface.
Intermediate Casing: one centralizer above float joint, one centralizer 5' above float collar and one every 4th collar to surface.
Production Casing: one centralizer at shoe joint and one every 3 joints to top of cement in intermediate casing.

22) Describe all cement additives associated with each cement type. _____
Conductor: no additives, Class A cement.
Surface: Class A cement with 2% calcium and 1/4 lb flake, 5 gallons of clay treat
Intermediate: Class A cement with 1/4 lb of flake, 5 gallons of clay treat
Production: Lead cement- 50/50 Class H/Poz + 1.5% salt + 1% C-45 + 0.5% C-16a + 0.2% C-12 + 0.45% C-20 + 0.05% C-51
Production: Tail cement- Class H + 45 PPS Calcium Carbonate + 1.0% FL-160 + 0.2% ACGB-47 + 0.05% ACSA-51 + 0.2% ACR-20

23) Proposed borehole conditioning procedures. Conductor: blowhole clean with air, run casing, 10 bbls fresh water.
Surface: blowhole clean with air, trip to conductor shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate pipe capacity + 40 bbls fresh water followed by 25 bbls bentonite mud, 10 bbls fresh water spacer.
Intermediate: blowhole clean with air, trip to surface casing shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate 40 bbls brine water followed by 10 bbls fresh water and 25 bbls bentonite mud, pump 10 bbls fresh water.
Production: circulate with 14 lb/gal NaCl mud, trip to middle of lateral, circulate, pump high viscosity sweep, trip to base of curve, pump high viscosity sweep, trip to top of curve, trip to bottom, circulate, pump high viscosity sweep, trip out, run casing, circulate 10 bbls fresh water, pump 48 bbls barite pill, pump 10 bbls fresh water followed by 48 bbls mud flush and 10 bbls water.

*Note: Attach additional sheets as needed.

EXHIBIT 4.c to SSP- WW-6B FORM

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: Antero Resources Appalachian Corporation 494488557 017-Doddridge New Milton New Milton
Operator ID County District Quadrangle

2) Operator's Well Number: Josie Unit 1H Well Pad Name: Swisher Pad

3 Elevation, current ground: -990 Elevation, proposed post-construction: 976'

4) Well Type: (a) Gas Oil Underground Storage
Other _____
(b) If Gas: Shallow Deep
Horizontal

5) Existing Pad? Yes or No: No

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):
Marcellus Shale: 7000' TVD, Anticipated Thickness- 60 Feet, Associated Pressure- 3250#

7) Proposed Total Vertical Depth: 7000' TVD

8) Formation at Total Vertical Depth: Marcellus

9) Proposed Total Measured Depth: 15400' MD

10) Approximate Fresh Water Strata Depths: 38', 164', 173'

11) Method to Determine Fresh Water Depth: Offset well records. Depths have been adjusted according to surface elevations.

12) Approximate Saltwater Depths: None available

13) Approximate Coal Seam Depths: 291'

14) Approximate Depth to Possible Void (coal mine, karst, other): None anticipated

15) Does proposed well location contain coal seams directly overlying or adjacent to an active mine? If so, indicate name and depth of mine: No

16) Describe proposed well work: Drill, perforate, fracture a new horizontal shallow well and complete Marcellus Shale

17) Describe fracturing/stimulating methods in detail:
Antero plans to pump Slickwater into the Marcellus Shale formation in order to ready the well for production. The fluid will be comprised of approximately 99 percent water and sand, with less than 1 percent special-purpose additives as shown in the attached "List of Anticipated Additives Used for Fracturing or Stimulating Well."

18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 9.44 acres

19) Area to be disturbed for well pad only, less access road (acres): 3.39 acres

WW - 6B
(3/13)

20)

CASING AND TUBING PROGRAM

TYPE	Size	New or Used	Grade	Weight per ft.	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill -up (Cu. Ft.)
Conductor	20"	New	H-40	94#	90'	90'	CTS, 86 Cu. Ft.
Fresh Water	13-3/8"	New	J-55/H-40	54.5#/ 48#	300'	300'	CTS, 417 CU. Ft.
Coal	9-5/8"	New	J-55	36#	2540'	2540'	CTS, 1034 CU. Ft.
Intermediate							
Production	5-1/2"	New	P-110	20#	15400'	15400'	3810 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#		7000'	
Liners							

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield
Conductor	20"	24"	0.438"	1530	Class A	1.18
Fresh Water	13-3/8"	17-1/2"	0.38"/0.33"	2730/1730	Class A	1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	Class A	1.18
Intermediate						
Production	5-1/2"	8-3/4" & 8-1/2"	0.361"	12630	Lead-H/POZ & Tail - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11200		
Liners						

PACKERS

Kind:	N/A			
Sizes:	N/A			
Depths Set:	N/A			

21) Describe centralizer placement for each casing string. Conductor: no centralizers
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22) Describe all cement additives associated with each cement type. _____
Conductor: no additives, Class A cement.
Surface: Class A cement with 2% calcium and 1/4 lb flake, 5 gallons of clay treat
Intermediate: Class A cement with 1/4 lb of flake, 5 gallons of clay treat
Production: Lead cement- 50/50 Class H/Poz + 1.5% salt + 1% C-45 + 0.5% C-16a + 0.2% C-12 + 0.45% C-20 + 0.05% C-51
Production: Tall cement- Class H + 45 PPS Calcium Carbonate + 1.0% FL-160 + 0.2% ACGB-47 + 0.05% ACSA-51 + 0.2% ACR-20

23) Proposed borehole conditioning procedures. Conductor: blowhole clean with air, run casing, 10 bbls fresh water.
Surface: blowhole clean with air, trip to conductor shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate pipe capacity + 40 bbls fresh water followed by 25 bbls bentonite mud, 10 bbls fresh water spacer.
Intermediate: blowhole clean with air, trip to surface casing shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate 40 bbls brine water followed by 10 bbls fresh water and 25 bbls bentonite mud, pump 10 bbls fresh water.
Production: circulate with 14 lb/gal NaCl mud, trip to middle of lateral, circulate, pump high viscosity sweep, trip to base of curve, pump high viscosity sweep, trip to top of curve, trip to bottom, circulate, pump high viscosity sweep, trip out, run casing, circulate 10 bbls fresh water, pump 48 bbls barite pill, pump 10 bbls fresh water followed by 48 bbls mud flush and 10 bbls water.

*Note: Attach additional sheets as needed.

EXHIBIT 4.d to SSP- WW-6B FORM

WW - 6B
(3/13)

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: Antero Resources Appalachian Corporation 494488557 017-Doddridge New Milton New Milton
Operator ID County District Quadrangle

2) Operator's Well Number: Josie Unit 2H Well Pad Name: Swisher Pad

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4) Well Type: (a) Gas Oil Underground Storage

Other

(b) If Gas: Shallow Deep

Horizontal

5) Existing Pad? Yes or No: No

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):

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13) Approximate Coal Seam Depths: 291'

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17) Describe fracturing/stimulating methods in detail:

Antero plans to pump Slickwater into the Marcellus Shale formation in order to ready the well for production. The fluid will be comprised of approximately 90 percent water and sand, with less than 1 percent special-purpose additives as shown in the attached "List of Anticipated Additives Used for Fracturing or Stimulating Well."

18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 9.44 acres

19) Area to be disturbed for well pad only, less access road (acres): 3.39 acres

20)

CASING AND TUBING PROGRAM

TYPE	Size	New or Used	Grade	Weight per ft.	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill -up (Cu. Ft.)
Conductor	20"	New	H-40	94#	90'	90'	CTS, 86 Cu. Ft.
Fresh Water	13-3/8"	New	J-55/H-40	54.5#/ 48#	305'	305'	CTS, 424 CU. Ft.
Coal	9-5/8"	New	J-55	36#	2545'	2545'	CTS, 1036 CU. Ft.
Intermediate							
Production	5-1/2"	New	P-110	20#	15400'	15400'	3808 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#		7000'	
Liners							

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield
Conductor	20"	24"	0.438"	1530	Class A	1.18
Fresh Water	13-3/8"	17-1/2"	0.38"/0.33"	2730/1730	Class A	1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	Class A	1.18
Intermediate						
Production	5-1/2"	8-3/4" & 8-1/2"	0.361"	12630	Lead-H/POZ & Tall - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11200		
Liners						

PACKERS

Kind:	N/A			
Sizes:	N/A			
Depths Set:	N/A			

21) Describe centralizer placement for each casing string.

Conductor: no centralizers

Surface Casing: one centralizer 10' above the float shoe, one on the insert float collar and one every 4th joint spaced up the hole to surface.

Intermediate Casing: one centralizer above float joint, one centralizer 5' above float collar and one every 4th collar to surface.

Production Casing: one centralizer at shoe joint and one every 3 joints to top of cement in intermediate casing.

22) Describe all cement additives associated with each cement type.

Conductor: no additives, Class A cement.

Surface: Class A cement with 2% calcium and 1/4 lb flake, 5 gallons of clay treat

Intermediate: Class A cement with 1/4 lb of flake, 5 gallons of clay treat

Production: Lead cement- 50/50 Class H/Poz + 1.5% salt + 1% C-45 + 0.5% C-16a + 0.2% C-12 + 0.45% C-20 + 0.05% C-51

Production: Tail cement- Class H + 45 PPS Calcium Carbonate + 1.0% FL-160 + 0.2% ACGB-47 + 0.05% ACSA-51 + 0.2% ACR-20

23) Proposed borehole conditioning procedures.

Conductor: blowhole clean with air, run casing, 10 bbls fresh water.

Surface: blowhole clean with air, trip to conductor shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate pipe capacity + 40 bbls fresh water followed by 25 bbls bentonite mud, 10 bbls fresh water spacer.

Intermediate: blowhole clean with air, trip to surface casing shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate 40 bbls brine water followed by 10 bbls fresh water and 25 bbls bentonite mud, pump 10 bbls fresh water.

Production: circulate with 14 lb/gal NaCl mud, trip to middle of lateral, circulate, pump high viscosity sweep, trip to base of curve, pump high viscosity sweep, trip to top of curve, trip to bottom, circulate, pump high viscosity sweep, trip out, run casing, circulate 10 bbls fresh water, pump 48 bbls barite pill, pump 10 bbls fresh water followed by 48 bbls mud flush and 10 bbls water.

*Note: Attach additional sheets as needed.



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

Office of the District Engineer/Manager
District Four

Earl Ray Tomblin
Governor

P. O. Box 4220 · Clarksburg, West Virginia 26302 · (304) 842-1500

Paul A. Mattox, Jr., P. E.
Secretary of Transportation/
Commissioner of Highways

December 6, 2012

Antero Resources Appalachian Division
1625 17th Street
Denver, CO 80202
Attn: Eugene Simcox

Dear Applicant:

Your approved copy of Permit Number 04-12-0661 for a Drilling Permit is enclosed. A description of the work is on the permit.

Please contact District Four office (telephone 304-842-1575), at least 48 hours in advance of the date you plan to begin work so arrangements can be made to inspect the work authorized by the permit. Failure to comply will result in cancellation of your permit.

A copy of this permit is to be available on the job at all times while the work is in progress for inspection by the West Virginia Division of Highways personnel.

Sincerely,

Greg Phillips
District Manager

A handwritten signature in cursive script, appearing to read "Denise Roncone".

Denise Roncone
Permit Supervisor

GP:DR:sg
Attachments
cc: County
Charleston
Permits

E.E.O./AFFIRMATIVE ACTION EMPLOYER

PERMIT NO. 04-12-0661

PERMIT TO ENTER UPON, UNDER, OVER OR ACROSS THE STATE ROADS OF THE STATE OF WEST VIRGINIA, AS PROVIDED FOR IN SECTION 6, ARTICLE 16, CHAPTER 17; SECTION 9, ARTICLE 16, CHAPTER 17; SECTION 8, ARTICLE 4, CHAPTER 17, WEST VIRGINIA CODE, 1931, AS AMENDED.

THIS PERMIT, Made this 24 day of July 20 12, between the WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS, a statutory corporation hereinafter called DIVISION and Antero Resources Appalachian Division
Address: 1625 17th Street, Denver, CO 80202 Phone No: 303) 357-7310
hereinafter called APPLICANT.

WITNESSETH

In consideration of the hereinafter set out covenants and in accordance with Section 6, Article 16, Chapter 17; or Section 9, Article 16, Chapter 17; or Section 8, Article 4, Chapter 17, of the Official Code of West Virginia, 1931, as amended, and the rules and regulations promulgated thereunder, APPLICANT does hereby apply to enter

Route Type & No. SLS 25 DOH Project No. _____ (if applicable);
at On SLS 25, ^{3.862} Five mile SE of SLS 25 & SLS 18 intersection Mile Post 3.862
in Doddridge County, for the purposes hereinafter set forth and in accordance with the plans and specifications which are attached hereto and made a part hereof: To construct and/or maintain a heavy hauling approach located approximately 5 miles SE of the intersection of SLS 25 & SLS 18. Sight distance is approximately 185 feet to the East and 190 feet to the west, Swisher pad access road. CASE A-5 REQUIRED TRAFFIC CONTROL while approach

APPLICANT further agrees to accept the conditions hereinafter set forth: is in use

- APPLICANT shall deposit with DIVISION the sum of \$ 1,000,000 in the form of an official, certified or cashier's check, or executed bond with surety satisfactory to DIVISION to cover any damage and inspection costs DIVISION may sustain by reason of the granting of this permit, including any expense incurred in restoring said highway to its original condition or the proper repair of any and all damages that may result within one (1) year from the date of the completion of said work.
- APPLICANT agrees to reimburse DIVISION for inspection costs as follows:
 - A. For any inspection costs incurred under this permit.
 - B. At \$ _____ per linear foot for _____ feet of water line installed under this permit
 - C. At \$ _____ per linear foot for _____ feet of sewer line installed under this permit
- APPLICANT shall notify DIVISION at least 48 hours in advance of the date the work will begin. Failure to comply will be cause for cancellation of this permit.
- APPLICANT agrees to protect its employees, equipment and users of the highway at all times in accordance with the current Division of Highways manual "Traffic Control For Street and Highway Construction and Maintenance Operations".
- APPLICANT agrees to comply with all applicable state and federal laws in the performance of work under this permit.
- Supplementary conditions cited on the reverse side of this permit are understood and agreed to be a part hereof.
- The work authorized under this permit shall be completed on or before (Date): July 24, 2013

RECOMMENDED:

[Signature]
Title Permit Supervisor

[Signature]
Signature and Title of Applicant

BOND REQUIREMENT:

BOND NO. LPM 9062891 /DATE 2-21-2012

Attached On File

INSPECTION: Owner/Consultant

Full Time Part Time

Periodic Reimbursable No Cost

AUTHORIZATION NO: _____

APPROVED:

[Signature]
Title DISTRICT MANAGER
West Virginia Division of Highways

PERMIT NO: 04-12-0661

CHAPTER 17 WEST VIRGINIA CODE, 1931

§17-4-8. Use of roadbed by railroad, telephone company, etc.

No railroad or electric or other railway shall be constructed upon the roadbed of any state road, except to cross the same, nor shall any person, firm or corporation enter upon or construct any works in or upon such road, or lay or maintain thereon or thereunder any drainage, sewer or water pipes, gas pipes, electric conduits or other pipes, nor shall any telephone, telegraph or electric line or power pole, or any other structure whatsoever, be erected upon, in or over any portion of a state road, except under such restrictions, conditions and regulations as may be prescribed by the state road commissioner. Whenever any railroad or electric or other railway, heretofore or hereafter constructed, shall cross any state road, it shall be required to keep its own roadbed, and the bed of the road or highway at such crossing, in proper repair, or else to construct and maintain an overhead or undergrade crossing, subject to the approval of the state road commissioner; and the tracks of such railroad or railway at grade crossings shall be so constructed as to give a safe and easy approach to and across the same, and when the construction of such approaches is made necessary by a change in the railroad grade at the grade crossing, the cost shall be upon the railway company.

§17-16-6. Permit by commission or county court for openings in or structures on public roads; franchises and easements of oil, etc., transportation companies.

No opening shall be made in any state or county-district road or highway, nor shall any structure be placed therein or thereover, nor shall any structure, which has been so placed, be changed or removed, except in accordance with a permit from the state road commission or county court, as the case may be. No road or highway shall be dug up for laying or placing pipes, sewers, poles or wires, or for other purposes, and no trees shall be planted or removed or obstructions placed thereon, without the written permit of the commission or county court, or its duly authorized agent, and then only in accordance with the regulations of the commission or court. The work shall be done under the supervision and to the satisfaction of the commission or court; and the entire expense of replacing the highway in as good condition as before shall be paid by the persons to whom the permit was given, or by whom the work was done: **Provided, however,** That nothing herein contained shall be so construed as to prevent any oil or gas company or person having a proper permit or franchise from transporting oil or gasoline along any of the public highways of this state, nor to give such company a franchise without paying to the landowners through whose lands such road passes the usual and customary compensation paid or to be paid to the landowners for such right of way. Any grant or franchise when made shall be construed to give to such company or person only the right to use the easement in such public road.

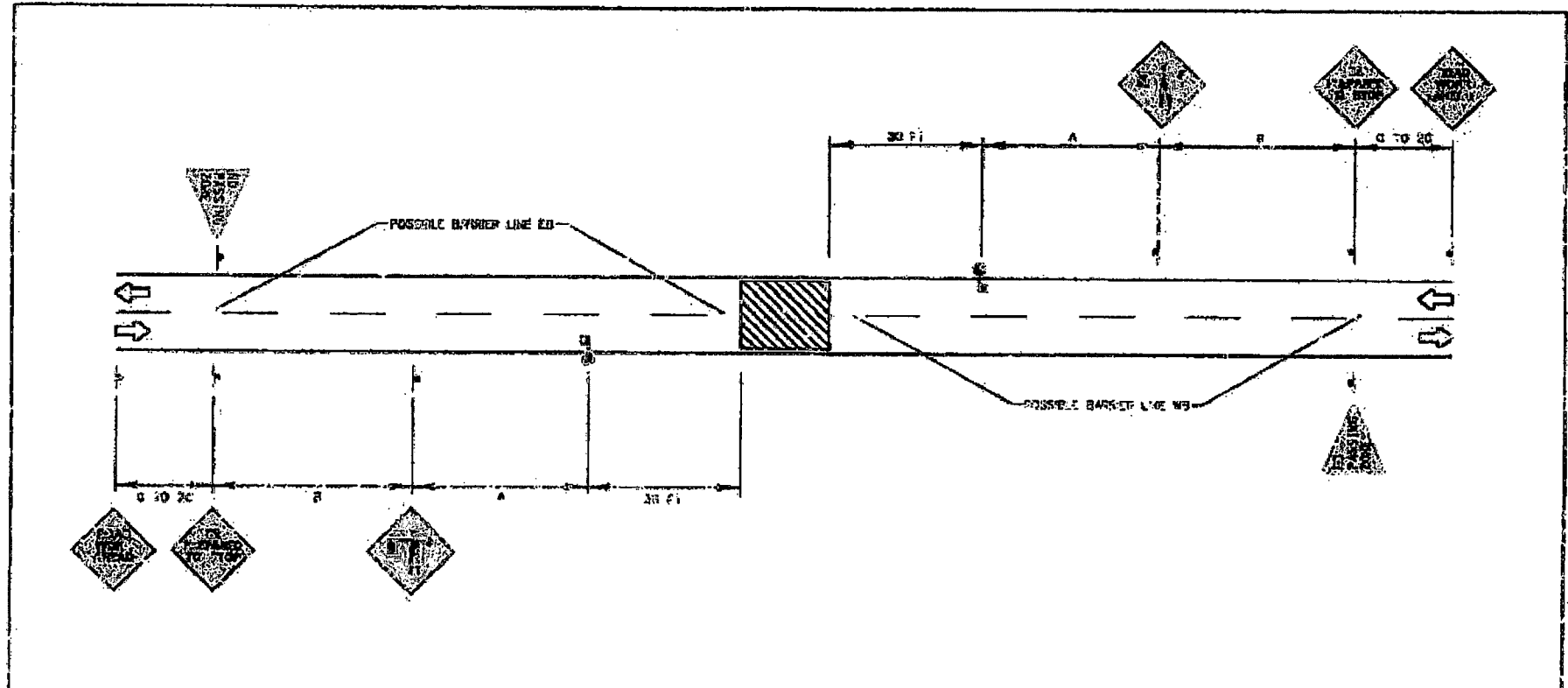
A violation of any provision of this section shall be a misdemeanor, and the person or corporation violating the same shall, upon conviction thereof, be fined not less than twenty-five nor more than one hundred dollars for each offense.

§17-16-9. Private driveways or approaches to roads; obstruction of ditches.

The owner or tenant of land fronting on any state road shall construct and keep in repair all approaches or driveways to and from the same, under the direction of the state road commission, and, likewise, the owner or tenant of land fronting on any county-district road shall construct and keep in repair all approaches or driveways to and from the same, under the direction of the county road engineer, and it shall be unlawful for such owner or tenant to fill up any ditch, or place any material of any kind or character in any ditch, so as in any manner to obstruct or interfere with the purposes for which it was made.

SUPPLEMENTARY CONDITIONS

1. The person, firm or corporation to whom a permit is issued agrees to hold the State of West Virginia and DIVISION harmless on account of any damages to persons or property which may arise during the process of the work authorized by this permit or by reason thereof.
2. Applications for permission to perform work within highway rights of way shall be made on DIVISION'S standard permit form and shall be signed by the authorized representative of the person, firm or corporation applying.
3. The APPLICANT shall give detailed information concerning the work to be performed and the application must include a sketch sufficient to show the nature of the work performed.
4. APPLICANT, his agents, successor, heirs or assigns, contractors or any other person, firm or corporation working under APPLICANT'S real or apparent authority, shall perform the work in a manner satisfactory to DIVISION. Damage to the road resulting at any time from work authorized under this permit shall be repaired by APPLICANT. Unsatisfactory repairs may be corrected by DIVISION or its authorized agent and the cost thereof paid by APPLICANT.
5. DIVISION assumes no liability for damage to the proposed work by reason of construction or maintenance work on the road.
6. This permit is granted subject to removal of the authorized installation by APPLICANT at no cost to DIVISION when required for improvement of the road, and subject to all regulations now or hereafter adopted by DIVISION.
7. Utility installation shall be in accordance with the current manual, "Accommodation of Utilities on Highway Right of Way".
8. Driveways shall be in accordance with the current manual, "Rules and Regulations for Constructing Driveways on State Highway Right-of-Way."
9. DIVISION reserves the right to cancel this permit at any time, should APPLICANT fail to comply with the terms and conditions under which it is granted.
10. This permit is granted only insofar as the DIVISION has a right to do so.



SYMBOLS

- WORK AREA.
- SIGN ON PORTABLE OR PERMANENT SUPPORT.
- FLASOR WITH PADDLE.

GENERAL NOTES

1. CONDITIONS REPRESENTED ARE FOR A PLANNED CLOSURE NOT EXCEEDING 30 MINUTES DURING THE DAYTIME.
2. THE FLASORS SHALL BE IN SIGHT OF EACH OTHER IN LINE OF COMMUNICATION AT ALL TIMES.
3. FLASHING WARNING LIGHTS AND/OR FLAGS MAY BE USED TO CALL ATTENTION TO THE ABOVE WARNING SIGNS, AS HELD ON THE PLANS, AND/OR AS DIRECTED BY THE ENGINEER.

SUGGESTED ADVANCE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS (IN FT)		
	A	B	C
FRESH PAVED SPEED*	500	100	500
ROAD SPEED*	350	150	350
RURAL	500	500	500
URBAN/STATE/GENERAL*	1,000	1,000	1,000

*SPEED CATEGORY TO BE DETERMINED BY WY DOT

TYPICAL APPLICATIONS

SHORT TERM CLOSURE
SHORT TERM UTILITY CROSSING FOR TWO
OR THREE LANE ROADWAYS
PAV. ROAD

CASE A5

TWO-LANE, TWO-WAY TRAFFIC.
SHORT TERM OPERATIONS.
DAYTIME ONLY.

Addendum to Permit 04-12-0661

This addendum, made this 2nd day of November 2012, between the West Virginia Department of Transportation, Division of Highways, a statutory company hereinafter called the Division
and **Antero Resources**

Address: 1625 17th Street, Denver, CO 80202 Phone: 303 357-7310
hereinafter called APPLICANT.

The Applicant has filed with the DIVISION a written application for the following named route and location:

Doddridge County Route 25, Meathouse Fork @ MP 0.00 to 3.862.

Road has extensive surface cracking and edge of pavement damage. Minor Potholes.

- After completion of the project, a joint review of roads will be filmed and evaluated to assure roads have been repaired to existing condition or better.
- No travel on School Bus Routes during their traversing operational hours on above mentioned route on bi-directional roadways where the lane widths are less than 10 ft.
- Pilot Vehicle required for all Oversized Loads on covered roads.
- Repairs that will include "Hot Mix Asphalt" will have the following testing requirement: The supplier will be responsible for testing at the plant; Compaction testing will be as per WV DOH specifications.
- The Division of Highways shall have the right at all times to inspect the work, and if such inspections should reveal that the work is not done according to specifications, upon being so advised by the Division, ANTERO Resources agrees to take immediate corrective actions.

Applicant shall properly repair and maintain any and all damages that may result to said bridges, highways, shoulders and ditches from hauling activities of Applicant, its agents, contractors and employees, to as good a condition prior to commencement of Applicant's operation or as when the permit was issued, as determined by the District Engineer/Manager of the DIVISION having jurisdiction over the work permitted, or pay damages therefore in the amount to sufficiently restore such bridges, roads, highways, shoulders and ditches to original condition; and shall reimburse the DIVISION for all inspection costs incurred by it in connection with said work and repairs of such damages and faithfully comply with all terms and conditions of said permits and save harmless the DIVISION and the State of West Virginia from all losses resulting from the conduct of said work and repairs; provided that all projects covered by this blanket bond have been restored to original or better condition; then this Bond shall be released; or otherwise will remain in full force and effect.

Bond Amount: \$1,000,000.00

Bond Number: LPM9062891 Date: 2/21/2012

Permit: 4-12-1061

Addendum Continued
Conditions and Requirements

County: Dodd

Applicant: Antero

Repairs/Upgrades Necessary for Maintenance Permit

Well Pad: Swisher

Route No.	Route Name	Mile Post	Perform Ditching	Patch Potholes	Clean Culverts	Repair Base Failures	Slip Repair	Overlay Asphalt	Overlay S&C	Stone/Stabilize Roadway	Stone/Repair Shoulders	Bridges Concerns	Ongoing Roadway Maintained	Other	Approach Coordinates:		Comments
															N _____	W _____	
25	Meadow Fork	0.0															Road has extensive surface cracking & some E.P. Damage to potholes
25		3.76															

RECOMMENDATIONS: Full Repair to be done as soon as possible.

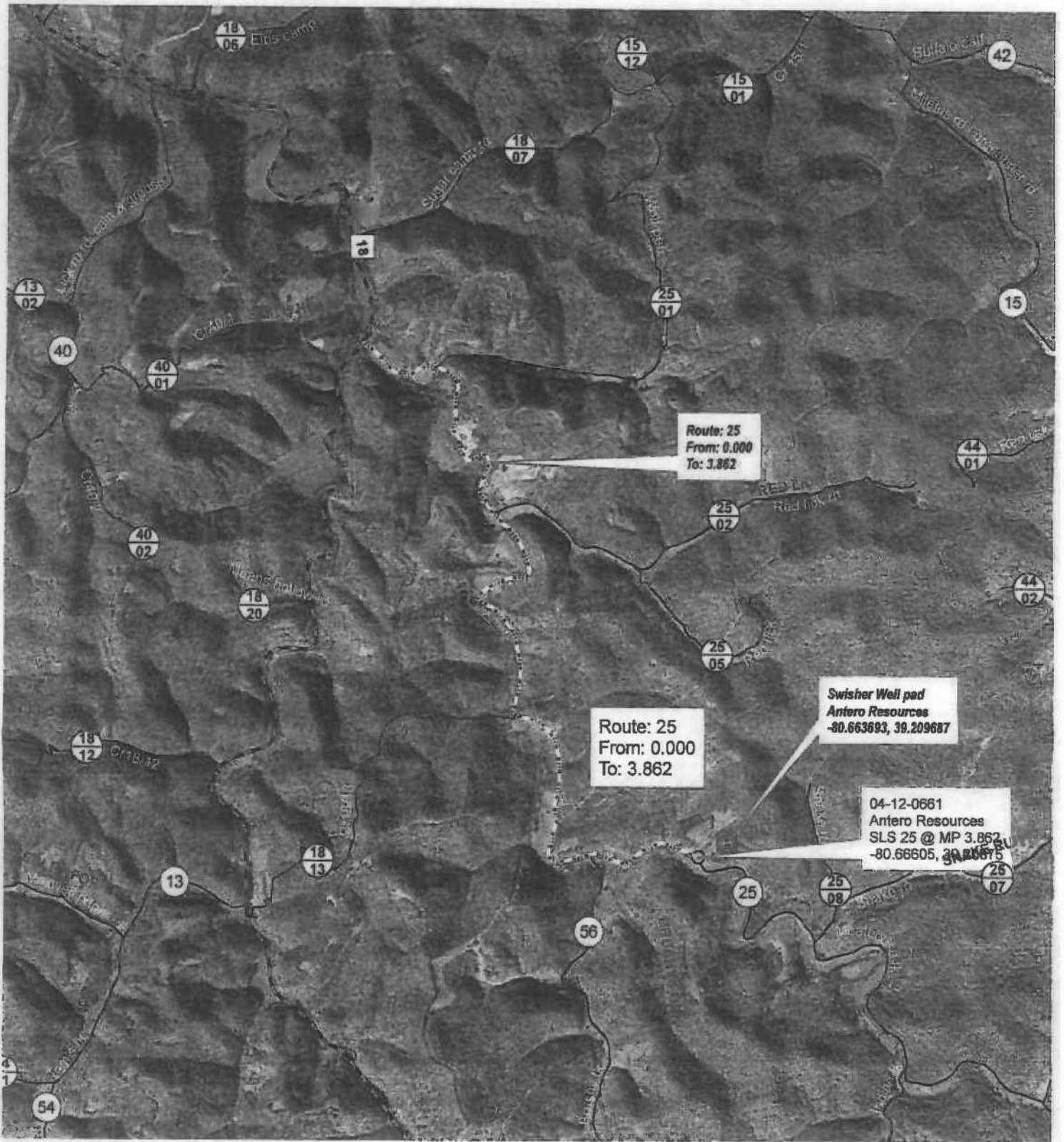
Above routes reviewed for necessary repairs and upgraded required for Maintenance Permit/Agreement.

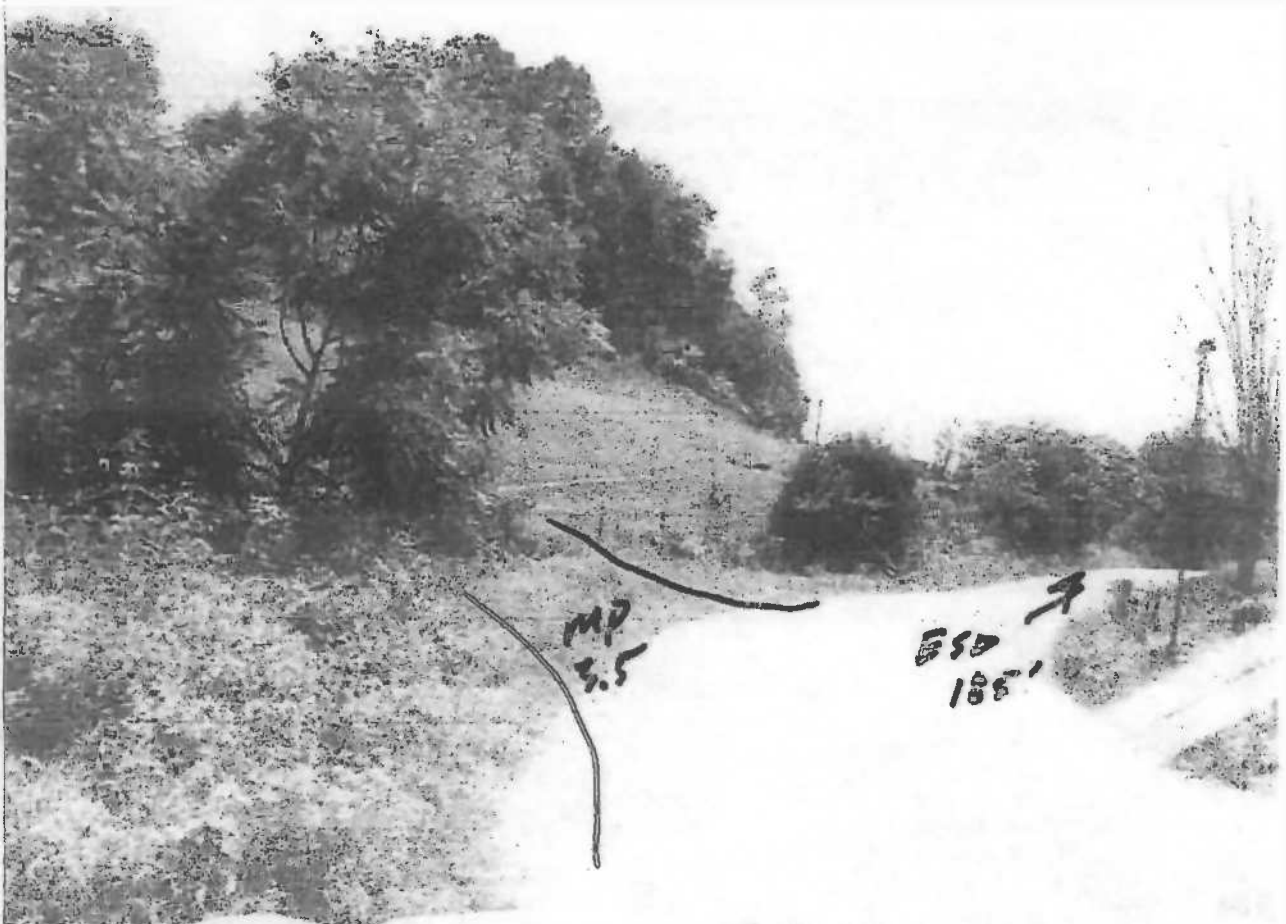
Erin Sweeney
Applicant Representative

11-2-2012
Date

[Signature]
DOH Representative

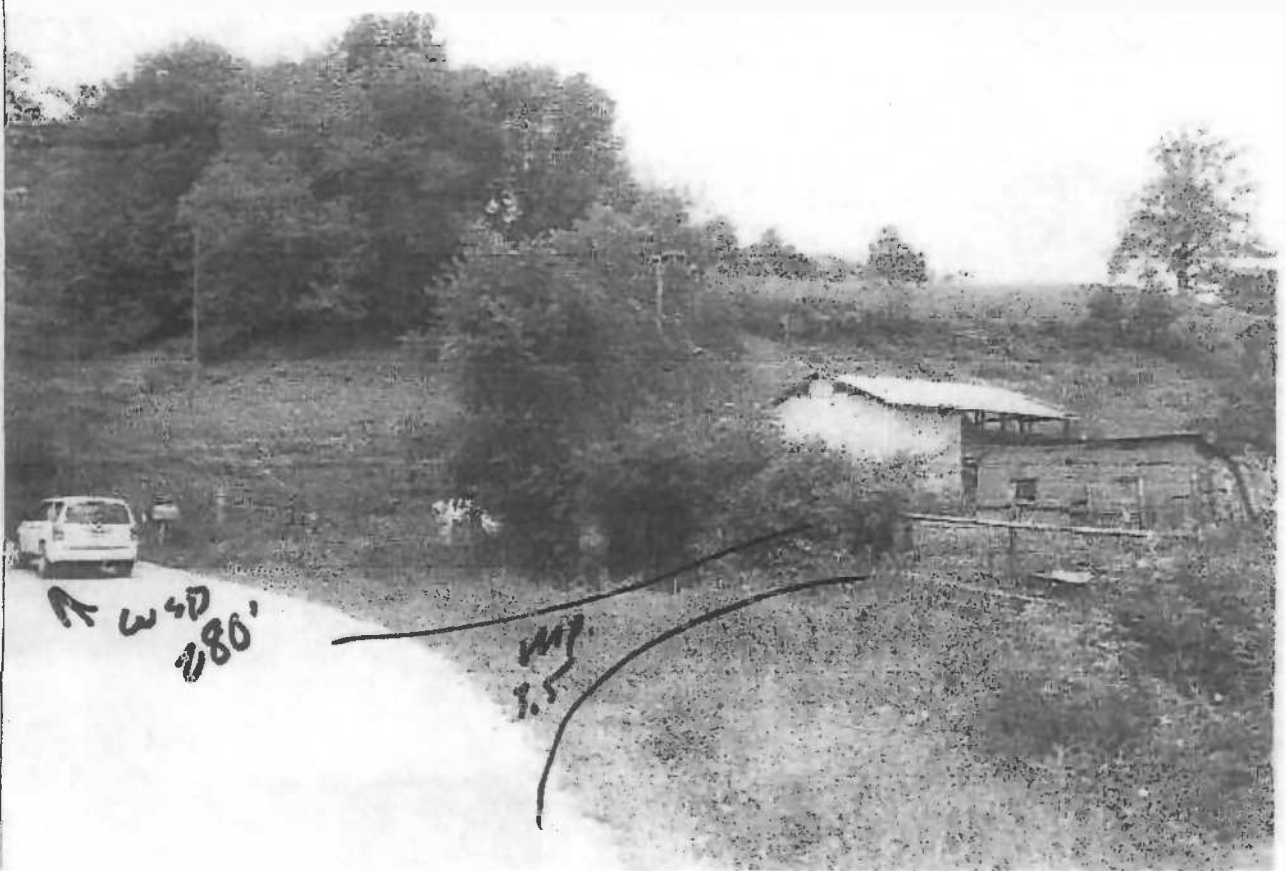
Date

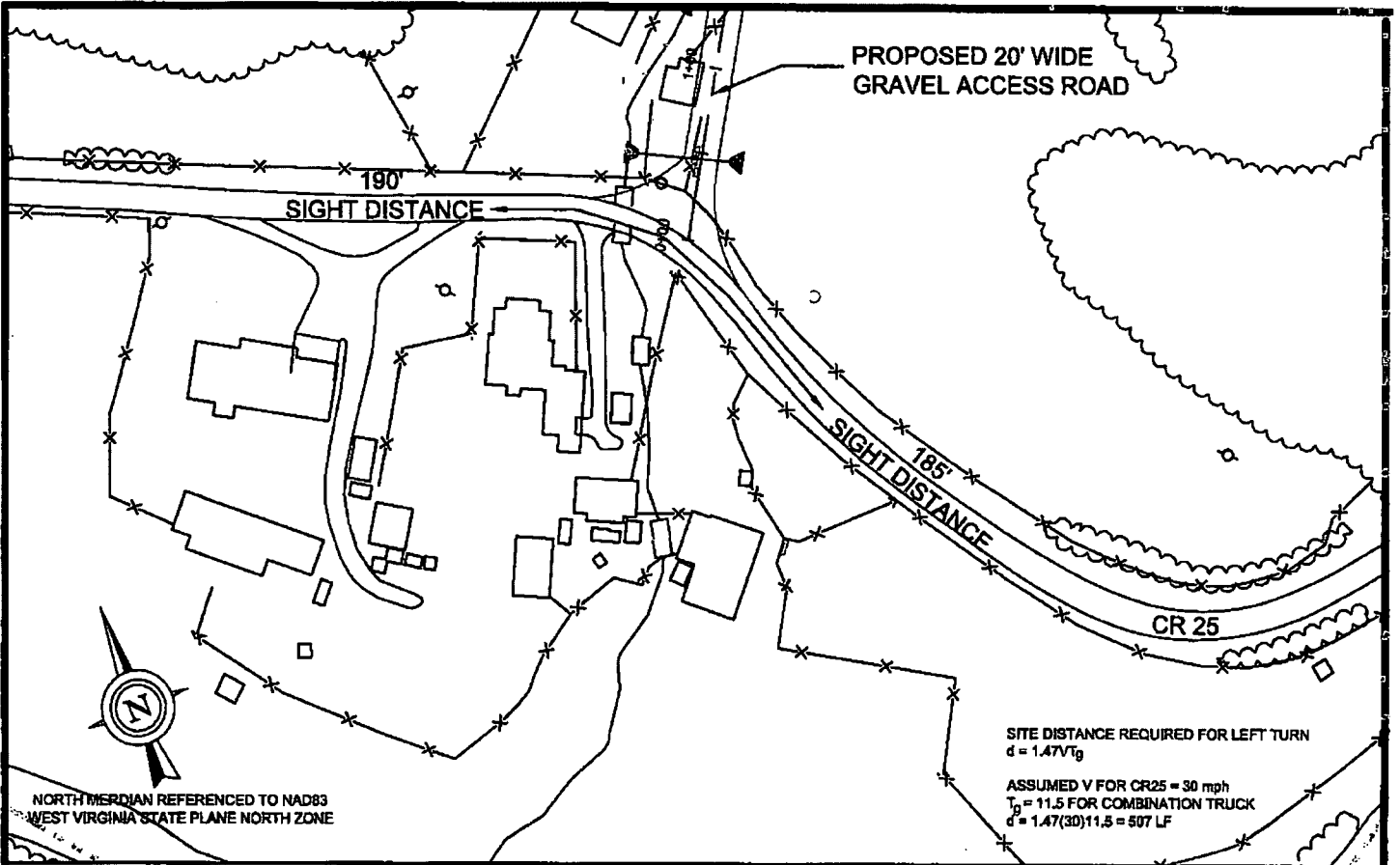




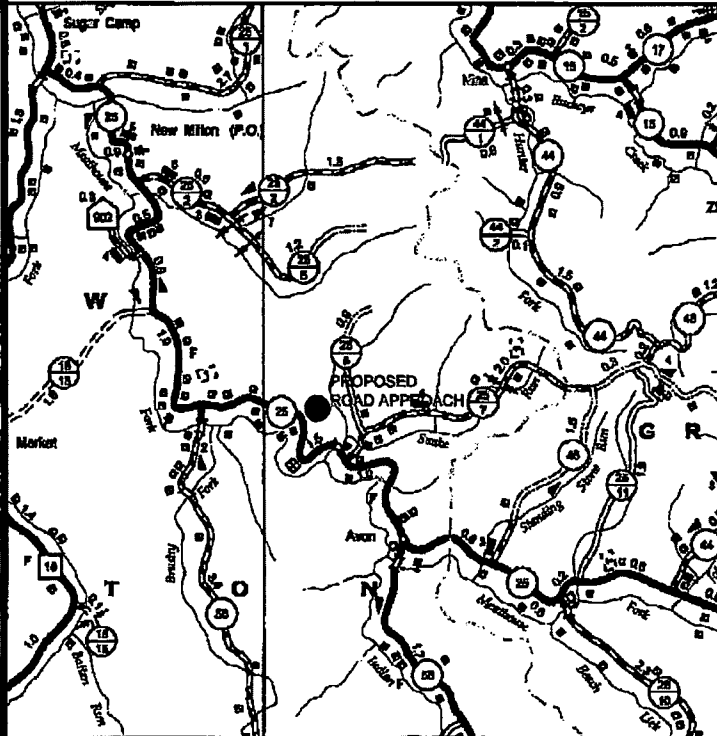
Dodd. Co 25

Max Safe Speed Limit 30 mph

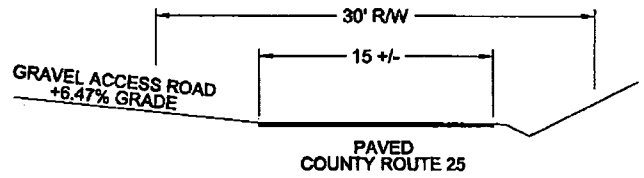




PLAN VIEW OF PROPOSED ROAD APPROACH



VICINITY MAP (NTS)



APPROACH PROFILE

NOTES:
 ALL SPECIFICATIONS AS SET FORTH IN THE "RULES AND REGULATIONS FOR CONSTRUCTION OF DRIVEWAYS ON STATE RIGHT-OF-WAYS" WHICH ARE APPLICABLE WILL BE CARRIED OUT IN FULL.

DRAWN BY: TIMOTHY T. WHITE, P.E.

DATE: 7-19-12

FIELD REVIEW & DATE:

PROJECT NO.:

DRAWINGS
 NOT TO
 SCALE

LOCATION:

PROPOSAL TO UPGRADE AN EXISTING APPROACH AND MAINTAIN AS A 20 FT. WIDE COMMERCIAL APPROACH ON THE NORTH WESTERN SIDE OF CR 25, 5 MILES SOUTHEAST OF THE INTERSECTION WITH CR 18, IN NEW MILTON DISTRICT, DODDRIDGE COUNTY, WEST VIRGINIA

THIS DOCUMENT PREPARED BY:

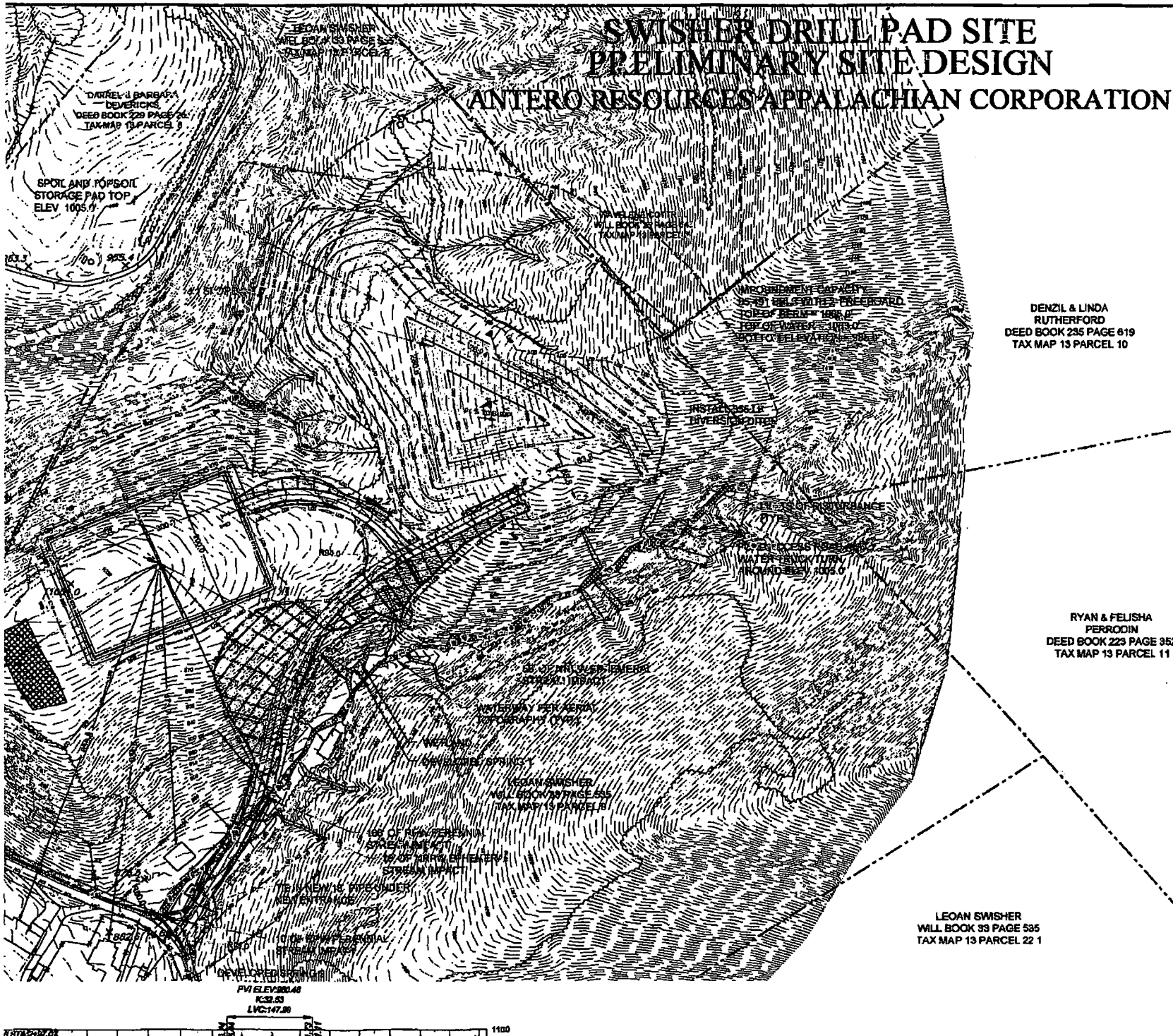
ANTERO RESOURCES
 ANTERO RESOURCES APPALACHIAN CO. LTD.
 ENGINEERING AND SURVEYING
 421 CALL ROAD SUITE 218
 CHARLESTON, WV 25315 1801501-9484
 www.artero-resources.com

THIS DOCUMENT PREPARED FOR:

1625 176 St.
 Denver, CO 80202



04-12-0561



SWISHER DRILL PAD SITE PRELIMINARY SITE DESIGN

ANTERO RESOURCES APPALACHIAN CORPORATION



- NOTES:**
1. THIS SITE IS NOT WITHIN THE 100 YEAR FLOOD PER FIRM PANEL 54017C0235C, DODDRIDGE COUNTY, WV.
 2. ALL PROPOSED SLOPES ARE 2:1 EXCEPT WHERE NOTED
 3. ALL TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON AERIAL PHOTOGRAPHY PROVIDED BY BLUE MOUNTAIN AERIAL MAPPING WITH A FLIGHT DATE OF 4-10-11.

STREAM IMPACTS (LINER FEET)	
DESCRIPTION	LINER FEET
RPW PERENNIAL	176
RPW EPHEMERAL	74
PEM WETLANDS	0
RPW INTERMITTENT	0
TOTAL	250

* GRADING VOLUMES			
DESCRIPTION	CUT (CY)	FILL (CY)	NET (CY)
MAIN ACCESS ROAD TO PAD & IMPOUNDMENT	8,265	8,350	-85
DRILL PAD	28,480	5,649	22,831
IMPOUNDMENT	20,669	30,884	-10,215
SPOIL PADS	0	21,665	-21,665
TOTAL	57,394	66,768	-9,464

* NOTE: VOLUMES CALCULATED ON REMOVAL OF 1" OF TOPSOIL IN DISTURBED AREAS. A 10% SHRINK FACTOR WAS USED ON CUT VOLUMES.

IMPOUNDMENT VOLUMES				
ELEVATION	BARRELS	GALLONS	ACRE-FT	UNINCISED ACRE-FT
885 (BOTTOM)	0	0	0	0
886	746	31,320	0.096	0
888	2,803	117,709	0.361	0
890	5,717	240,127	0.737	0.378
892	9,636	404,717	1.242	0.881
894	14,782	617,478	1.895	1.534
895	21,058	884,372	2.714	2.353
898	29,842	1,211,352	3.717	3.358
1900	38,200	1,604,381	4.824	4.582
1902	49,272	2,069,421	6.351	5.980
1905 (CAPACITY)	55,491	2,330,818	7.152	6.791
1904	62,182	2,612,048	8.016	7.655
1905 (TOP BERM)	69,352	2,912,784	8.939	8.578

LOD AREAS (ACRES)	
DESCRIPTION	AREA
MAIN ACCESS ROAD TO PAD & IMPOUNDMENT	2.41
DRILL PAD	2.69
IMPOUNDMENT AND SPOIL PAD	4.77
TOTAL	9.77

- LEGEND**
- LOD — LOD — LIMITS OF DISTURBANCE
 - ACI — ACI — AREA OF INTEREST
 - PAOI — PAOI — PROPOSED AREA OF INTEREST
 - — — — — EXISTING GAS LINE
 - — — — — EXISTING FENCE LINE
 - — — — — EXISTING UTILITY POLE
 - — — — — EXISTING TREE LINE
 - — — — — RPW EPHEMERAL STREAM
 - — — — — RPW PERENNIAL STREAM

DATE REVISION	SHEET NO.	TOTAL SHEETS
6-12-2012	1	1

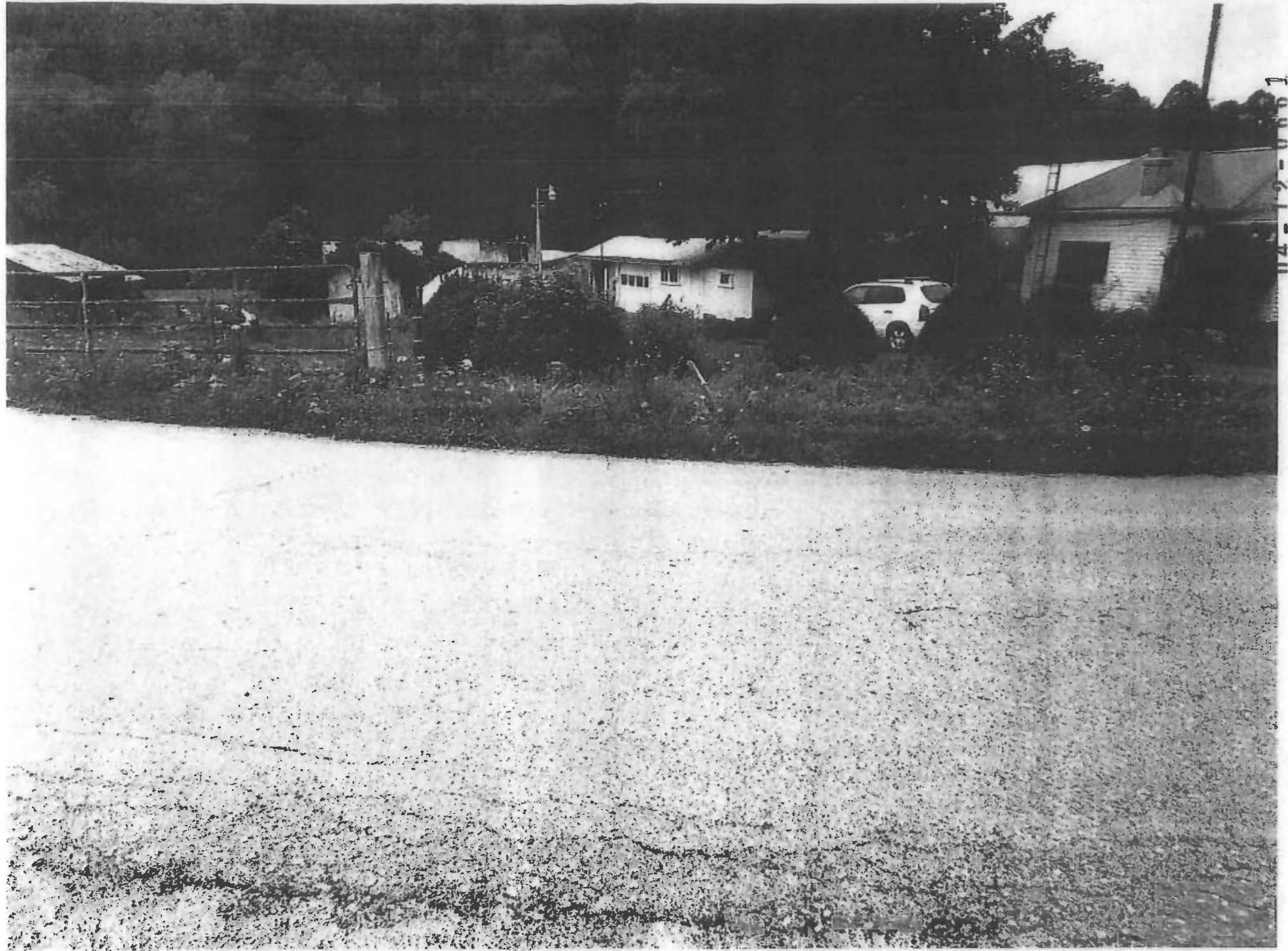
Wildcat Surveying & Consulting, LLC
ENGINEERING AND SURVEYING
100 WEST 4TH STREET
BELL, WV 26001-4984
www.wildcatsurveying.com



THIS DOCUMENT
PREPARED FOR
ANTERO RESOURCES
APPALACHIAN CORP

PRELIMINARY SITE DESIGN
SWISHER DRILL PAD SITE
NEW MILTON DISTRICT
DODDRIDGE COUNTY, WV

04 - 12 - 0661



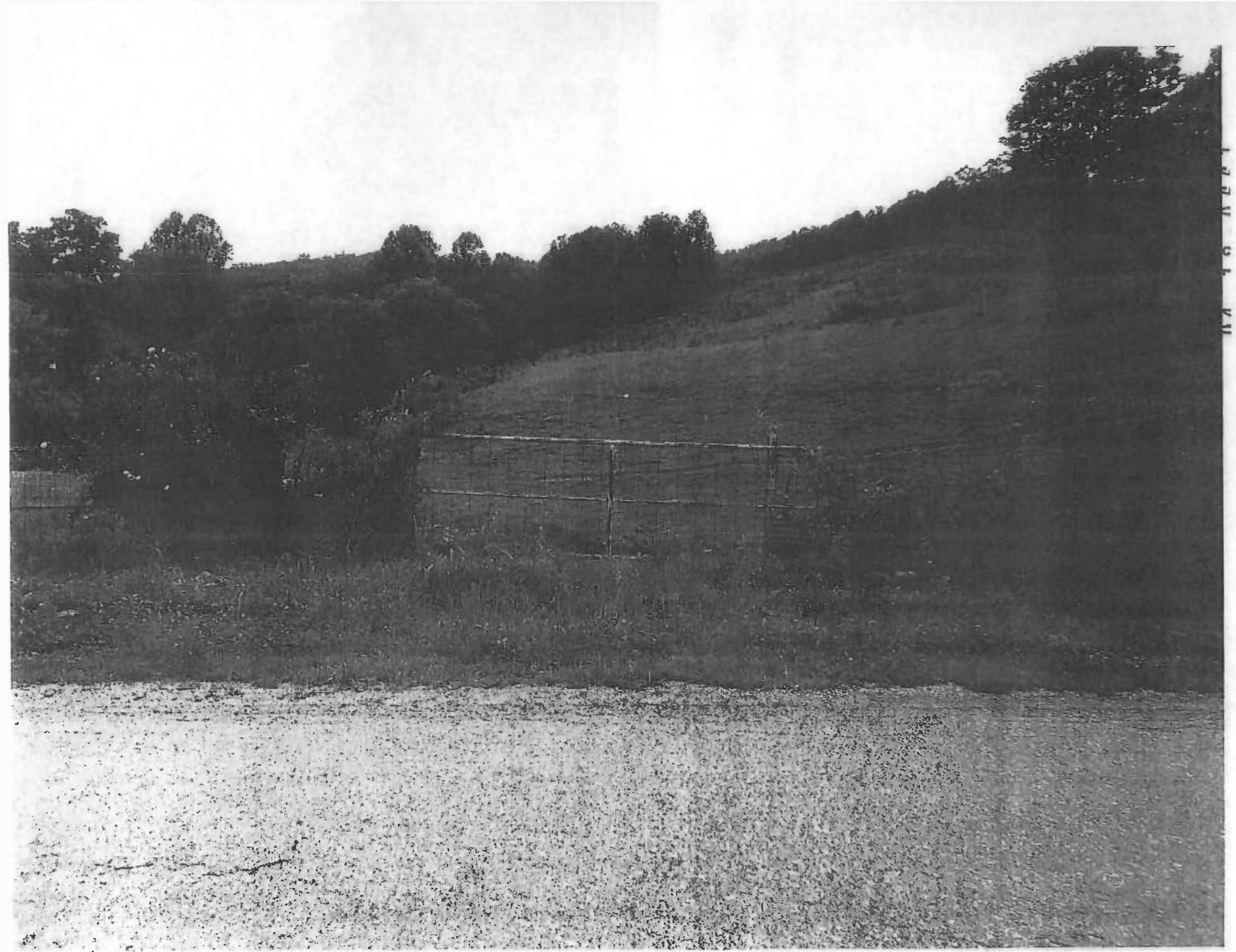
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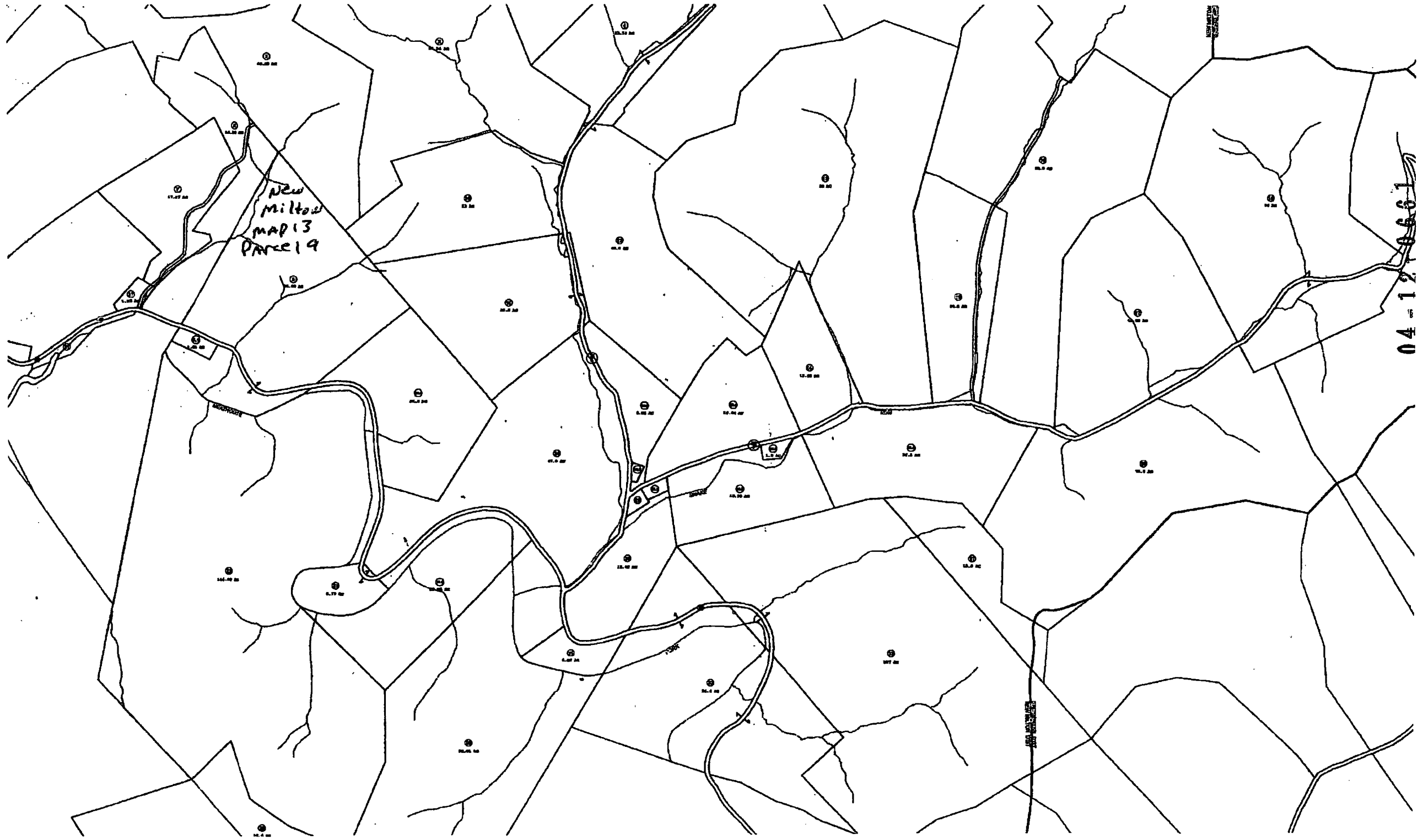
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New Milton
Map 13
Parcel 19

04-12-0661



04-12-0661

Google earth

feet
km

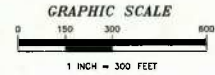


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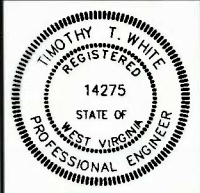


Google earth



DATE SUBMITTED	SHEET NO.	TOTAL SHEETS
6-5-2013	16	15

White Brothers Community, LLC
 ENGINEERING AND SURVEYING
 1001 CHARLESTON AVENUE, SUITE 200
 CHARLESTON, WV 25312
 (304) 550-9484
 www.white-brothers.com



THIS DOCUMENT PREPARED FOR ANTERO RESOURCES APPALACHIAN CORP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0235C

FIRM
FLOOD INSURANCE RATE MAP
DODDRIDGE COUNTY,
WEST VIRGINIA
AND INCORPORATED AREAS

PANEL 235 OF 325
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SHEET
DODDRIDGE COUNTY	540024	0235	C

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

MAP NUMBER
54017C0235C
MAP REVISED
OCTOBER 4, 2011
 Federal Emergency Management Agency

FINAL DESIGN
 SITE PLAN FLOOD EXHIBIT
SWISHER DRILL PAD SITE
 NEW MILTON DISTRICT
 DODDRIDGE COUNTY, WV

LEGEND

	APPROXIMATE PROPERTY LINE
	LIMITS OF DISTURBANCE
	AREA OF INTEREST
	PROPOSED AREA OF INTEREST
	SILT FENCE
	SUPER SILT FENCE
	SILT SOCK
	EXISTING GAS LINE
	EXISTING FENCE LINE
	EXISTING UTILITY POLE
	EXISTING TREE LINE
	PROPOSED WOVEN WIRE FENCE
	NRPW EPHEMERAL STREAM
	RPW PERENNIAL STREAM
	PEM WETLANDS
	RPW INTERMITTENT
	POW WETLANDS
	DITCH
	SF, SSF AND SILT SOCK INDICATOR

NUMBER	REVISION	DATE	BY
24			

CONSTRUCTION SPECIFICATIONS

- 1. THE TASK PLAN AND DRAIN SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND THE SCOPE OF WORK AND SHALL CONFORM GENERALLY WITH THE GRADES, BEHNS, DEPTHS AND DIMENSIONS SHOWN.
2. THE CONSTRUCTION DOCUMENTS SHOW THE EXISTING AND NEW GRADES AND BEHNS, ETC. THAT ALL CUT AND FILL ESTIMATES ARE BASED UPON THE ENGINEER'S ESTIMATES OF THE QUANTITIES ARE ONLY ESTIMATES AND MAY CHANGE BASED ON ACTUAL FIELD CONDITIONS.
3. THE GRADES, BEHNS, DEPTHS, AND DIMENSIONS MAY CHANGE BASED ON ACTUAL FIELD CONDITIONS. THE ENGINEER RESERVES THE RIGHT TO CHANGE GRADES, BEHNS, DEPTHS AND DIMENSIONS AS NECESSARY TO MEET FIELD CONDITIONS.
4. THE CONTRACTOR SHALL PROVIDE THE ENGINEER ALL REASONABLE FACILITIES AND PROVIDE INFORMATION AND SAMPLES AS REQUIRED BY THE ENGINEER FOR PROPER MONITORING AND TESTING OF MATERIAL WORKMANSHIP.
5. THE CONTRACTOR SHALL HAVE ON SITE AT ALL TIMES WHEN CONSTRUCTION IS IN PROGRESS A COMPETENT SUPERVISOR THOROUGHLY FAMILIAR WITH THE CONSTRUCTION OF EARTH BEHNS AND DIMENSIONS, THE CONSTRUCTION OF BEHNS AND PLACEMENTS OF LIVES.
6. THE CONTRACTOR SHALL INSTALL 24" SBT SOCK OR SBT FENCE PRIOR TO CLEARING AND OPERATIONS AS SHOWN ON THE DRAWINGS IN ACCORDANCE WITH WY DEP BEST MANAGEMENT PRACTICES MANUAL, CHAPTER 3, SURFACE WATER SHALL BE DIVERTED AWAY FROM ALL EXCAVATIONS AND THE FACE OF ALL FILLS TO PREVENT FLOODING AND BODING OF THE SURFACE OF COMPACTED MATERIALS.
7. CLEARING AND CRIBBING SHALL REMOVE ALL BRUSH, TREES, ROOTS, STUMPS, FENCES, SIGNS OR ANY OTHER MATERIAL THAT IS NOT TO BE REUSED FOR THE CONSTRUCTION. SOIL STUMPS MAY REMAIN AT THE APPROVAL OF THE ENGINEER. NO CLEARING DEBRIS SHALL BE BURIED ON-SITE WITHOUT THE LANDOWNER'S AND ENGINEER'S WRITTEN PERMISSION. ANY DEBRIS BURIAL SITE SHALL BE SEED AND MULCHED.
8. TOP SOIL SHALL BE STRIPPED AND STOCKPILED WITH APPROPRIATE STABILIZATION AND SBT FENCE TO PREVENT EROSION. THE TOP SOIL SHALL BE REUSED DURING THE RECONSTRUCTION PROCESS ON OR ON THE FACE OF THE TASK PLAN OR DRAIN.
9. TOP CUTS OF 12" MINIMUM WIDTH SHALL BE EXCAVATED OR ALL RECEIVING SLOPES TO PROVIDE A BASE FOR THE TASK PLAN OR DRAIN.
10. PRIOR TO PLACING ANY FILL, THE EXPOSED SURFACE SHALL BE COMPACTED AND PROOF ROLLED TO PROVIDE A STABLE AND UNIFORM SITE.
11. FRAC PIT BEHNS SHALL BE UNIFORMLY GRADED 5% FREE FROM AGGREGATE EXCEEDING 6". THE FILL SHALL BE FREE OF ALL ORGANIC MATERIAL, STUMPS, TRUNKS, OR OTHER CELEBRATORY MATERIAL.
12. ALL FILL SHALL BE PLACED BY LOOSE LOTS OF UP TO 12" AND SHALL BE COMPACTED TO AT LEAST 90% OF THE LABORATORY MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST METHOD (ASTM D 1557). THE MOISTURE CONTENT SHALL BE APPROPRIATE AS DETERMINED BY THE STANDARD PROCTOR TEST TO FACILITATE CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR THE ORIGINAL SOIL TEST AND PROVIDING A COPY OF THE RESULTS WITH MOISTURE-DENSITY CURVE TO THE ENGINEER. THE CONTRACTOR SHALL DO IN-PLACE DENSITY TESTS EVERY THIRD LOT OF SOIL AND SHALL BE DONE IN TWO RANDOM PLACES ON EACH STRAIGHT SIDE OF THE PAD OR DRAIN FILL. DENSITY TESTS FOR COMPACTED FILL SHALL BE PERFORMED IN ACCORDANCE WITH ASTM D 2922 (NUCLEAR METHOD). RECORDS SHALL BE MAINTAINED OF TEST LOCATIONS AND RESULTS AND PROVIDED TO THE ENGINEER ON REQUEST. AREAS THAT FAIL FOR CONSTRUCTION SHALL BE REWORKED, RE-COMPACTED AND RE-TESTED FOR COMPLIANCE. COMPACTION OF SOIL SHALL BE DONE WITH AN AIRBORNE POWERED ROLLER. A SHEEPS FOOT ROLLER SHALL BE USED ON CLAYEY TYPE SOILS. WHEREAS A SHEEPS FOOT ROLLER SHALL BE USED ON GRANULAR TYPE SOILS, AND SHALL BE USED TO PROVIDE A SMOOTH FINISHED SURFACE ON FILLS PRIOR TO PLACING GEOTEXTILE FABRICS.
13. ON-SITE FILL SHALL BE USED TO THE MAXIMUM EXTENT POSSIBLE. ANY IMPORTED FILL SHALL BE CERTIFIED BY THE CONTRACTOR TO BE CLEAR OF ALL HAZARDOUS SUBSTANCES OR MATERIALS. IF MATERIAL IS EXCAVATED THAT CANNOT BE REUSED AS A FILL OR AS A SINGLE TROUGH FILL, THEN THE CONTRACTOR SHALL CONTACT THE ENGINEER WHO WILL VISIT THE SITE AND DETERMINE IF THE MATERIAL MAY BE USED AS IS OR MUST BE REMOVED BY OTHER MEANS. IF UNSUITABLE SOILS IN THE SUBGRADE ARE FOUND, THEY SHALL BE REMOVED AND REPLACED WITH APPROPRIATE FILL AT THE CONTRACTOR'S EXPENSE AND THE ENGINEER'S DIRECTION.
14. IF SPRINGS OR SEEPS ARE ENCOUNTERED, SURFACE DRAINAGE FEATURES SHALL BE INSTALLED PRIOR TO FILL PLACEMENT, CONTACT ENGINEER FOR EVALUATION AND RECOMMENDATION OF CORRECTIVE MEASURES.
15. THE FILL TOE FOR ALL FILL EMBANKMENTS SHALL BE BENT OR KEVED INTO THE NATURAL SOIL. ALL FILL TOES SHALL BE SUPPORTED BY COMPETENT BEDROCK OR SOIL MATERIAL.
16. FILL PLACED AGAINST EXISTING SLOPES SHALL BE BENT INTO THE EXISTING MATERIAL DURING FILL PLACEMENT TO REDUCE THE POTENTIAL FOR DEVELOPMENT OF A SMOOTH INTERFACE BETWEEN THE FILL AND EXISTING SLOPE.
17. ANY SOFT AREAS SHALL BE OVER-EXCAVATED TO A FIRM MATERIAL AND BACKFILLED WITH A WELL COMPACTED STRUCTURAL FILL.
18. FILL REQUIRED TO OBTAIN DESIRED GRADES SHALL BE PLACED AS CONTROLLED, COMPACTED FILL. THE FILL SHALL BE FREE OF TRASH, WOOD, TOPSOIL, ORGANICS, COAL, OAK NINE REFUSE, FROZEN MATERIAL, AND PIECES OF ROCK GREATER THAN 6" IN ANY DIMENSION.
19. UNIFORM PLACEMENT OF MATERIAL, MIXTURE OR AERATE EACH LAYER OF FILL, AS NECESSARY, TO OBTAIN THE REQUIRED COMPACTION. FILL SHOULD NOT BE PLACED ON SURFACES THAT ARE MOIST OR FROZEN, OR HAVE NOT BEEN APPROVED BY PRIOR PROOF-ROLLING. FREE WATER SHALL BE PREVENTED FROM APPEARING ON THE SURFACE DURING OR SUBSEQUENT TO COMPACTION OPERATIONS.
20. SOIL MATERIAL WHICH IS REMOVED BECAUSE IT IS TOO DRY TO PERMIT PROPER COMPACTION MAY BE SPREAD AND ALLOWED TO DRY OUTSIDE OR BE FACILITATED BY DESIGN OR MOUNDING UNTIL THE MOISTURE CONTENT IS ADJUSTED TO AN ACCEPTABLE LEVEL. WHEN THE SOIL IS TOO DRY, WATER MAY BE UNIFORMLY APPLIED TO THE LAYER TO BE COMPACTED.
21. THE FILL SLOPES SHALL BE OVERBUILT AND TROWED BACK TO DESIRED CONTOURS TO VERIFY PROPER COMPACTION.
22. GRANULAR MATERIALS, SUCH AS ASTM NO. 57 STONE, SHALL BE COMPACTED TO 90% OF ITS RELATIVE DENSITY, AS DETERMINED BY ASTM D 4253 AND D 4254 TEST METHODS.
23. THE SURFACE OF THE FRAC PIT SHALL BE BOTH BOTH SMOOTH DRUM ROLLED AND FREE OF HYDROLOGIC OR SHARP ROCKS IN ORDER TO RECEIVE THE LINER.
24. PRIOR TO THE LINER INSTALLATION, THE CONTRACTOR SHALL CONTACT THE SURVEYOR TO DO AN AS-BUILT SURVEY OF THE TASK PLAN TO ENSURE CONFORMANCE WITH THE ENGINEER'S DRAWINGS. THE SURVEYOR SHALL PROVIDE THE INFORMATION TO THE ENGINEER WHO SHALL MAKE CORRECTIONS ON ANY VARIATION FROM THE DRAWINGS AND INSTRUCT THE CONTRACTOR TO DO CORRECTIVE WORK.
25. PAD LINER SHALL BE POLYETHYLENE TEREPHTHALATE (PET) GEOTEXTILE, 40ML, INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. THE TOP OF THE LINER SHALL BE TURNED DOWN INTO A 4" ANCHOR TRENCH AT THE TOP OF THE BEHNS AND BACKFILLED WITH SELECT FILL AS SHOWN ON THE DRAWINGS OR AS ALLOWED BY THE LINER MANUFACTURER.
26. PHOTOGRAPHIC DOCUMENTATION SHALL BE TAKEN BY THE CONTRACTOR AND PROVIDED TO THE ENGINEER OF THE FOLLOWING: 1. SITE AFTER CLEARING AND CRIBBING; 2. THE SITE AFTER TOPSOIL REMOVAL; 3. TOP SOIL AND INSPECTION TRENCH CONSTRUCTION; 4. DAILY PHOTOS OF CUT AND FILL OPERATIONS; 5. PROOF-ROLLING TESTS.
27. PRIOR TO AS-BUILT CERTIFICATION, THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH A COMPLETE BINDER THAT INCLUDES ALL PHOTO DOCUMENTATION, ALL COMPACTION TEST REPORTS, RESULTS AND MAPS, AND A REPORT OF ALL CUT AND FILL VOLUMES IN CUBIC YARDS.

GENERAL NOTES

- 1. ANY DISCREPANCIES FOUND BETWEEN THE DRAWINGS AND SPECIFICATIONS AND THE CONDITIONS OR ANY INCONSISTENCIES OR AMBIGUITIES IN DRAWINGS OR SPECIFICATIONS SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER OR WRITING WHO SHALL PROMPTLY ADDRESS SUCH DISCREPANCIES. WORK DONE BY THE CONTRACTOR AFTER THE ADOPTION OF SUCH DISCREPANCIES, INCONSISTENCIES, OR AMBIGUITIES SHALL BE DONE AT THE CONTRACTOR'S RISK.
2. WORK ON THIS PROJECT SHALL CONFORM TO THE LATEST EDITIONS OF THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE HANDBOOK. IN THE EVENT OF CONFLICT BETWEEN THE DESIGN SPECIFICATIONS OR PLANS, THE MOST STRINGENT WILL GOVERN.
3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED DAILY, RELOCATED WHEN NECESSARY AND SHALL BE CHECKED AFTER EVERY RAINFALL. SEEDING AREAS SHALL BE CHECKED REGULARLY AND SHALL BE WATERED, FERTILIZED, RESEEDED AND MULCHED AS NECESSARY TO OBTAIN A DENSE STAND OF GRASS.
4. ALL DRAIN BURTS SHALL BE PROTECTED FROM SALTATION. INEFFECTIVE PROTECTION DEVICES SHALL BE REPLACED AND THE INLET CLEANED. FLUSHING IS NOT AN ACCEPTABLE MEANS OF CLEANING.
5. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL PUBLIC OR PRIVATE UTILITIES WHICH ARE IN OR ADJACENT TO THE CONSTRUCTION SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR, AT HIS OR HER EXPENSE, OF ALL EXISTING UTILITIES DAMAGED DURING CONSTRUCTION. FORTY-EIGHT HOURS PRIOR TO ANY EXCAVATION THE CONTRACTOR SHALL CALL MISS UTILITY AT (800) 452-7001.
6. INSTALLATION OF CONCRETE, CORRUGATED METAL, OR HOPE STORM PIPE SHALL BE IN CONFORMANCE WITH THESE DRAWINGS.
7. ALL MATERIALS USED FOR FILL OR BACK FILL SHALL BE FREE OF WOOD, ROOTS, ROCKS, Boulders OR ANY OTHER NON-ACCEPTABLE SOIL TYPE MATERIALS. UNSATISFACTORY MATERIALS ALSO INCLUDE MAN WARE FILLS AND REFUSE DEBRIS DERIVED FROM ANY SOURCE.
8. MATERIALS USED TO FILL AROUND DRAINAGE STRUCTURES IN UTILITY TRENCHES OR ANY OTHER DEPRESSION REQUIRED TO BE COMPACTED TO 90% OF MAXIMUM DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST AS SET FORTH IN ASTM STANDARD D-998. THE CONTRACTOR SHALL PRIOR TO ANY OPERATIONS INVOLVING FILLING OR BACK FILLING, SUBMIT THE RESULTS OF THE PROCTOR TEST TOGETHER WITH A CERTIFICATION THAT THE SOIL TESTED IS REPRESENTATIVE OF THE MATERIALS TO BE USED ON THE PROJECT. THE TESTS SHALL BE CONDUCTED BY A QUALIFIED MATERIALS TESTING LABORATORY AND THE CERTIFICATION MADE BY A LICENSED PROFESSIONAL ENGINEER REPRESENTING THE LABORATORY. THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THESE TESTS AND THEIR SUBMITTALS.
9. FILL SHALL BE PLACED IN LIFTS AT A MAXIMUM UNCOMPACTED DEPTH OF 12-INCHES WITH SOIL FREE FROM AGGREGATE EXCEEDING 6".
10. ALL TEST RESULTS SHALL BE SUBMITTED TO THE ENGINEER. FAILURE TO CONDUCT DENSITY TESTS SHALL BE CAUSE FOR NON-ACCEPTANCE OF THE FACILITY. TESTS SHALL BE CONDUCTED AT THE SOLE COST OF THE CONTRACTOR OR HIS AGENT.
11. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION.
12. SATISFACTORY MATERIALS FOR USE AS FILL FOR PAD AREAS INCLUDE MATERIALS CLASSIFIED BY ASTM D-2957 AS GW, GP, GM, GC, SW, SP, SU, SC, ML, AND CL GROUPS. THE MOISTURE CONTENT SHALL BE CONTROLLED WITHIN PLUS OR MINUS 4% OF THE OPTIMUM TO FACILITATE COMPACTION. GENERALLY, UNSATISFACTORY MATERIALS INCLUDE MATERIALS CLASSIFIED BY ASTM D-2957 AS PT, CY, HT, CL, CH AND ANY SOIL TOO WET TO FACILITATE COMPACTION. GW AND MH SOILS MAY BE USED SUBJECT TO APPROVAL OF THE ENGINEER. SOILS SHALL HAVE A MINIMUM DRY DENSITY OF 92 LB/CF PER ASTM D-693, AND SHALL HAVE A PLASTICITY INDEX LESS THAN 17.
13. CONTRACTOR SHALL SUSAIN AND ADHERE TO A GENERAL GROUNDWATER PROTECTION PLAN.

EROSION CONTROL NOTES

- 1. THE CONTRACTOR SHALL ARRANGE FOR A PRE-CONSTRUCTION CONFERENCE WITH THE APPROPRIATE EROSION AND SEDIMENT CONTROL INSPECTOR 40 HOURS PRIOR TO BEGINNING WORK.
2. 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 ALL CONSTRUCTION.
3. 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, RESEEDED AND MULCHED AS NECESSARY TO OBTAIN A DENSE STAND OF GRASS.
4. ALL DISTURBED AREAS NOT PAVED OR BUILT UPON ARE TO BE REVEGETATED AND HYDRO-SEEDING WITH STRAW AND COTTON PRODUCE WITH TACK AGENTS BY THE CONTRACTOR IN ACCORDANCE WITH THE CURRENT WEST VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL.
5. ALL DRAIN INLETS SHALL BE PROTECTED FROM SALTATION. INEFFECTIVE PROTECTION DEVICES SHALL BE IMMEDIATELY REPLACED AND THE INLET CLEANED. FLUSHING IS NOT AN ACCEPTABLE METHOD OF CLEANING.
6. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO EXPOSED 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 EXPOSED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN EXPOSED (UNDISTURBED) FOR LONGER THAN 21 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.
7. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING DEVICES.
8. SEDIMENT BASINS AND TRAPS, INLETTER DICES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE WORKING LAND DISTURBANCE TAKES PLACE.
9. STABILIZATION MEASURES SHALL BE APPLIED TO EARLY EROSION STRUCTURES SUCH AS IMPROVEMENTS, DICES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
10. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DESTRUCTION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
11. ALL DISTURBED AREAS NOT PAVED OR BUILT UPON SHALL BE HYDRO-SEEDING AND FERTILIZED. PERFORM TREATMENT TOP SOILS, SEEDING AND FERTILIZING AS SOON AFTER FINISH GRADING AS POSSIBLE. SEEDING SHALL COMPLY WITH THE FOLLOWING:
A. TOPSOIL - 4 inch MINIMUM FOR PERMANENT TURF.
B. FERTILIZER - 500 LBS. PER ACRE OF 50-20-10 STRATIFIER OR EQUIVALENT FERTILIZER OF DIFFERENT ANALYSIS WORK INTO SOIL PRIOR TO SEEDING.
C. LIVE (PERMANENT SEEDING) - AGRICULTURAL LIVE BREAD AT RATE OF 4 TONS PER ACRE, WORK INTO SOIL PRIOR TO SEEDING.
D. MULCH - WOOD CHIP OR CHIPPED BIRCH AT RATE OF 2 TONS PER ACRE, HYDRO-MULCH AT RATE OF 30 BALES PER ACRE.
E. SEED - 45 LBS. PER ACRE TALL FESCUE AND 30 LBS. PER ACRE PERENNIAL RYE GRASS. TO BE SEEDING HYDRO-SEEDER.

EROSION AND SEDIMENT CONTROL NARRATIVE

- 1. PROJECT DESCRIPTION: THE PURPOSE OF THIS PROJECT IS TO GRADE AND INSTALL EROSION AND SEDIMENT CONTROL MEASURES IN PREPARATION FOR THE CONSTRUCTION OF A GAS WELL PAD NEAR FLAMINGO, WEST VIRGINIA IN DODDRIDGE COUNTY. THE CONSTRUCTION INCLUDES TWO ACCESS ROADS, ONE TASK PLAN PAD, DRILL PAD, STORM WATER CONTROLS, AND MISCELLANEOUS WORK. THE TOTAL APPROPRIATE LAND DISTURBANCE ASSOCIATED WITH THIS PROJECT IS 9.44 ACRES.
2. EXISTING SITE CONDITIONS: THE EXISTING SITE IS PREDOMINANTLY PASTURE FIELDS WITH SOME UPLAND HARDWOODS GROWING TO MODERATELY STEEP TOPOGRAPHY WITH 10% TO 20% SLOPES. NO EROSION IS NOTICED ON SITE, OR IN ANY NATURAL DRAINAGE WAYS.
3. ADJACENT PROPERTIES: THE SITE IS BORDERED ON ALL SIDES BY UPLAND HARDWOODS AND PASTURE FIELDS.
4. SOILS: NO SOIL STUDIES OR SURFACE INVESTIGATIONS WERE PERFORMED FOR THIS PROJECT.
5. OFF SITE AREAS: THERE SHALL BE NO DORMANT AREA OUTSIDE OF THE PROPOSED GRADING AND CONSTRUCTION AREA.
6. CRITICAL EROSION AREAS-CONTROL MAINTENANCE: ALL 2% SLOPES AND STEEPER, DITCHES AND OTHER CONTROL AREAS SHALL BE CONSIDERED CRITICAL EROSION AREAS. THESE AREAS SHALL BE MONITORED & MAINTAINED DAILY AND AFTER EACH RAIN FALL OF 0.5 INCHES OR GREATER. THE LOCAL GOVERNING AUTHORITY WILL HAVE THE AUTHORITY TO RECONSTRUCT THE PLACEMENT OF ADJACENT EROSION CONTROL MEASURES IN THESE AREAS IF IT BECOMES EVIDENT DURING CONSTRUCTION THAT THE ONES IN PLACE ARE NOT FUNCTIONING SUFFICIENTLY.
7. EROSION AND SEDIMENT CONTROL MEASURES: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO WEST VIRGINIA STANDARDS AND SPECIFICATIONS OF THE CURRENT WEST VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL. THE CONTRACTOR SHALL OBTAIN A COPY OF THIS MANUAL FROM THE LOCAL GOVERNING AUTHORITY. ALL DEVICES SHOWN ON THE MANUAL OR A HANDBOOK THAT IS CONSISTENT OR EXCEEDS THE SPECIFICATIONS OF THE WEST VIRGINIA MANUAL, THE LATEST EDITION OF THIS MANUAL SHALL BE ADHERED TO UNLESS OTHERWISE NOTED OR APPROVED BY A WAIVER; SEE PLANS FOR ALL PROPOSED EROSION AND SEDIMENT CONTROL MEASURES.
8. STRUCTURAL PRACTICES:
- DIVERSION DITCHES WILL BE CONSTRUCTED AS SHOWN ON THE PLANS.
- DIVERSION BEHNS WILL BE CONSTRUCTED AS SHOWN ON THE PLANS.
- OUTLET PROTECTION WILL BE CONSTRUCTED AS SHOWN ON THE PLANS.
- 24" SBT SOX (GRATER SBT DEVICE) WILL BE CONSTRUCTED AS SHOWN ON THE PLANS.
- SUPER SOX DEVICE MAY BE SUBSTITUTED FOR FILTER SOX LARGER THAN 24".
9. VEGETATIVE PRACTICE: REVEGETATION 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 MINIMUM DEPTH OF 4 INCHES. TEMPORARY SEEDING: ALL EXPOSED AREAS LEFT DORMANT FOR MORE THAN 21 DAYS SHALL BE SEEDING WITH A FAST GERMINATING SEED. THE TIME OF YEAR WILL BE THE BASIS FOR THE SEED SELECTION. PERMANENT SEEDING: ALL SEEDING AREAS WILL BE SEEDING, MULCHED AND FERTILIZED AS NEEDED TO OBTAIN AN ADEQUATE STAND OF GRASS. PERMANENT SEEDING SHALL BE PLACED WITHIN 30 DAYS UPON ACHIEVING FINAL GRADE. WATER, NUTRITA, AND PESTICIDES AS NECESSARY TO OBTAIN AN ADEQUATE STAND OF VEGETATION IN THE ORDER OF THE ENGINEER.
10. MANAGEMENT STRATEGIES: CONSTRUCTION WILL BE SEQUENCED SO THAT GRADING OPERATIONS WILL BEGIN AND END AS SOON AS POSSIBLE. THE JOB SUPERVISOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES. AFTER ACHIEVING ADEQUATE STABILIZATION THE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AND ANY AREAS DISTURBED DURING THIS PROCESS SHALL BE STABILIZED.
11. SEQUENCE OF EVENTS:
A. A PRE-CONSTRUCTION CONFERENCE WILL BE HELD ON SITE WITH CONTRACTOR TO REVIEW THE CONSTRUCTION DRAWINGS AND PROVIDE ANY REQUESTED GUIDANCE.
B. CONSTRUCT THE CONSTRUCTION ENTRANCE.
C. CONSTRUCT ALL PROPOSED SEDIMENT CONTROL DEVICES AS SOON AS CLEARING AND GRADING OPERATIONS ALLOW. DIVERSIONS AND SEDIMENT BARRIERS SHALL BE SEEDING AND MULCHED IMMEDIATELY.
D. CLEAR AND GRUB, REMOVE TOPSOIL AND PLACE AT AN AREA DETERMINED IN THE FIELD WHERE EROSION WILL NOT TAKE PLACE. TOPSOIL STOCKPILES TO BE SEEDING AND MULCHED. SBT FENCE SHALL BE CONSTRUCTED AROUND TOPSOIL STOCKPILES.
E. GRADING OPERATIONS AS REQUIRED. CUT SLOPES AND FILL SLOPES SHALL BE TOPSOILED AS FITTED. DITCH LINES SHALL BE CLEANED. ALL DITCHES WILL HAVE AT LEAST GRASS LINER PROTECTION OR GREATER BASED ON DITCH SLOPE WITH THE FOLLOWING DETERMINATION: 0 TO 4% - ORGANIC MATTE MATTING, 4 TO 10% - SYNTHETIC MATTING (TMA), AND 10% TO 20% - PERMAN.
F. CULVERT INLET AND OUTLET PROTECTION SHALL BE CONSTRUCTED IMMEDIATELY UPON PLACEMENT OF INLETS AND OUTLETS. INSTALLATION OF NATURAL AND/OR RIP RAP TO OCCUR OVER DITCHES ARE CONSTRUCTED.
G. WHEN FINAL GRADE IS ACHIEVED, TOPSOIL TO BE PLACED ON ALL DISTURBED AREAS NOT UNDER STOCKPILED OR DISTURBED AREAS AS REQUIRED. SOIL SAMPLES SHOULD BE TAKEN AND TESTED TO DETERMINE RECOMMENDED RATES. IF NO SOIL SAMPLE IS TAKEN THE FOLLOWING RATES SHOULD BE APPLIED AS A MINIMUM: LIVE AT A RATE OF 4 TONS PER ACRE, FERTILIZER AT A RATE OF 500 LBS. OF 50-20-10 PER ACRE, SEED WITH 45 LBS. PER ACRE OF TALL FESCUE AND 30 LBS. PER ACRE OF PERENNIAL RYE GRASS.
H. LIVE, FERTILIZER, AND SEED WILL BE APPLIED BY USING A HYDRO-SEEDER. HYDRO-MULCH PRODUCTS SHALL BE MIXED AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
I. FINAL SEEDING MUST OCCUR WITHIN 7 DAYS OF FINAL GRADING.
J. WHEN SITE IS STABILIZED, ALL EROSION AND SEDIMENT CONTROL MEASURES CAN BE REMOVED AND REPAIR/STABILIZE EXPOSED AREAS IN ACCORDANCE WITH STATE STANDARDS.
K. MAKE MODIFICATIONS FOR PERMANENT STORM WATER MANAGEMENT.
L. FINAL SITE INSPECTION.
12. PERMANENT STABILIZATION: ALL AREAS LEFT UNCOVERED BY EITHER EROSION OR SEDIMENT CONTROL MEASURES WILL BE CHECKED DAILY AND AFTER EACH RAINFALL OF 0.5 INCH OR MORE. THEY WILL BE RECHECKED FOR UNSTABILIZED, DESTABILIZED, EROSION AND EXCESS DEPOSITED MATERIAL. ALL EROSION AREAS WILL BE CORRECTED IMMEDIATELY. EXCESS MATERIAL WILL BE SPREAD ON THE SITE IN A MANNER WHICH IT IS NOT LIKELY TO GRADE IN THE FUTURE. CLEANUP PROCEDURES WILL BE COMPLETED AT REGULAR INTERVALS AND AT LEAST WHEN SEDIMENT REACHES 33% OF CAPACITY, OR AS SHOWN ON APPLICABLE DETAILS. RECORDS OF CLEANUP AND CORRECTIONS WILL BE MAINTAINED BY THE CONTRACTOR. THE "GENERAL GROUNDWATER PROTECTION PLAN FOR CONSTRUCTION SITES" WILL BE USED AND AVAILABLE ON SITE AT ALL TIMES. AN AREA WILL BE PROVIDED FOR VEHICLE AND EQUIPMENT MAINTENANCE. MOBILE 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. HAZARDOUS LIQUIDS WILL NOT BE ALLOWED IN THE STREAMS. FLUIDS SUCH AS OIL, GREASE, OR ANTIFREEZE WILL BE KEPT IN PROPER CONTAINERS AND ANY SPILLAGE 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. IF THE CONTRACTOR'S RESPONSIBILITY TO MAKE CHANGES AND NOTIFY WDEP ON ANY CHANGES TO GPS, A FINAL INSPECTION WILL BE MADE AT THE COMPLETION OF THE PROJECT AND ALL CORRECTIONS MADE BEFORE SIGN-OFF OF THE PROJECT SITE.

APPROVED WDEP OOG 5/29/2013

SWISHER DRILL PAD SITE GENERAL NOTES NEW MILTON DISTRICT DODDRIDGE COUNTY, WY. Includes logos for WY Dept of Environment and Natural Resources, ANTERO RESOURCES, and a table with columns for DATE and REVIEW.

SWISHER DRILL PAD SITE EXISTING CONDITIONS PLAN ANTERO RESOURCES APPALACHIAN CORPORATION



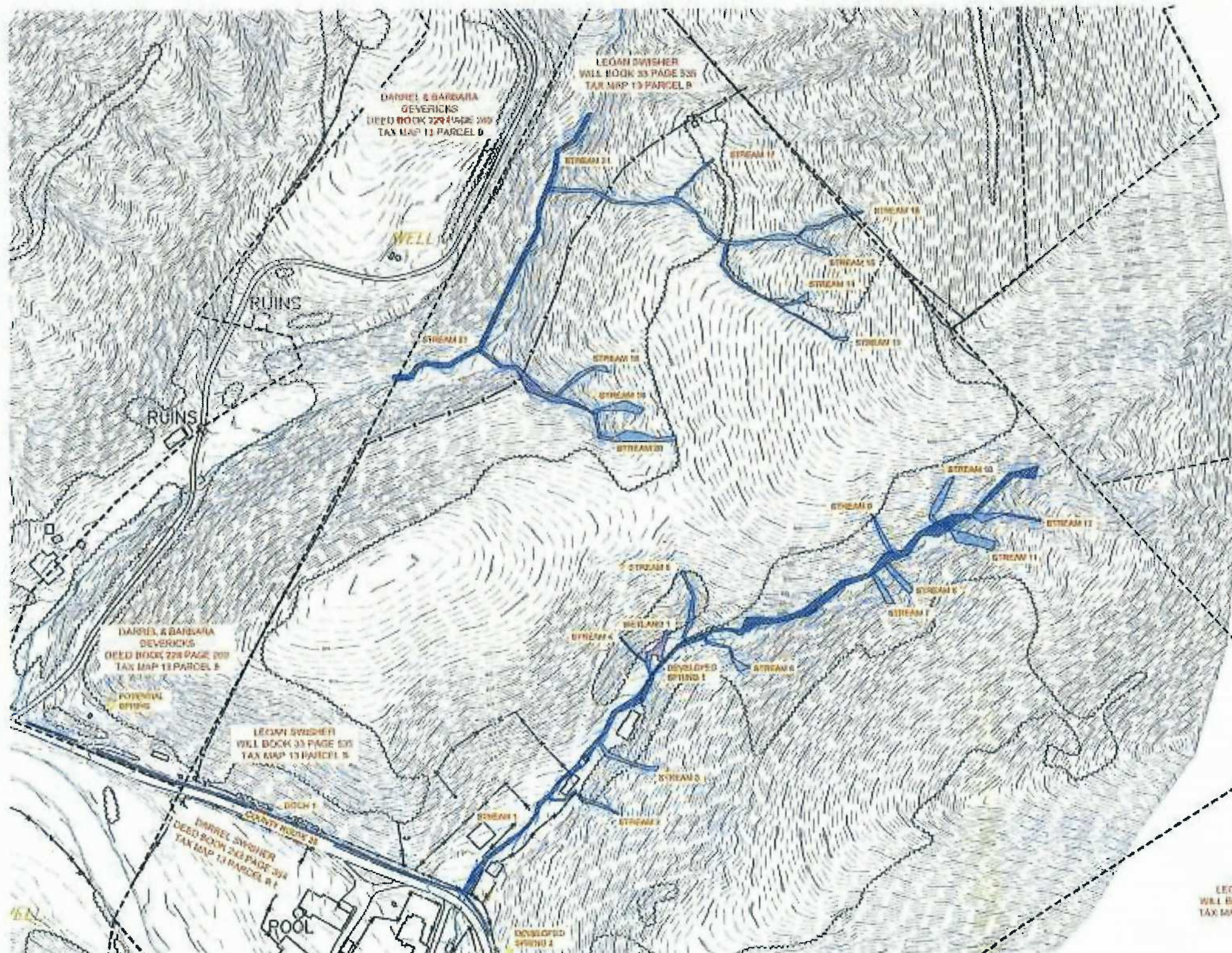
NORTH IS QUADRANT POINT
TO MATCH WEST VIRGINIA
STATE PLANE NORTH ZONE

NOTES

1. THIS SITE IS NOT WITHIN THE 100 YEAR FLOOD PER FIRM PANEL 8401 R03279C DODDRIDGE COUNTY, WV
2. ALL PROPOSED SLOPES ARE 2:1 EXCEPT WHERE NOTED
3. ALL TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON AERIAL PHOTOGRAPHY PROVIDED BY BLUE MOUNTAIN AERIAL MAPPING WITH A FLIGHT DATE OF 4-10-11.

**APPROVED
WVDEP OOG**

SAY 5/29/2013



DENZE, & LINDA
RUTHERFORD
DEED BOOK 235 PAGE 610
TAX MAP 13 PARCEL 10

RYAN & PELSMA
PERRIDIN
DEED BOOK 223 PAGE 392
TAX MAP 13 PARCEL 11

LEON SWISHER
WILL BOOK 33 PAGE 535
TAX MAP 13 PARCEL 22 1

DATE REVISION	FIGURE NO.	SHEET NO.
4-8-2013	4	11

W.B. SURVEYING AND SURVEYING
 101 CALL ROAD SUITE 217
 CHARLESTON, WV 25312
 (304) 263-0404
 www.wb-surveying.com



THIS DOCUMENT
PREPARED FOR
ANTERO RESOURCES
APPALACHIAN CORP.

FINAL SITE DESIGN
EXISTING CONDITIONS
SWISHER DRILL PAD SITE
NEW MILTON DISTRICT
DODDRIDGE COUNTY, WV

NO.	DATE

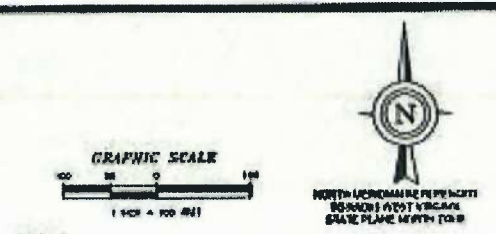
LEGEND

- EXISTING GAS LINE
- EXISTING FENCE LINE
- EXISTING UTILITY POLE
- EXISTING TREE LINE
- RPPM PERMANENT STREAM
- RPPM PERENNIAL STREAM
- RPPM INTERMITTENT STREAM
- RCM WETLANDS

SWISHER DRILL PAD SITE EXISTING CONDITIONS PLAN 11/11/2013 11:00 AM

SWISHER DRILL PAD SITE OVERALL SITE PLAN

ANTERO RESOURCES APPALACHIAN CORPORATION

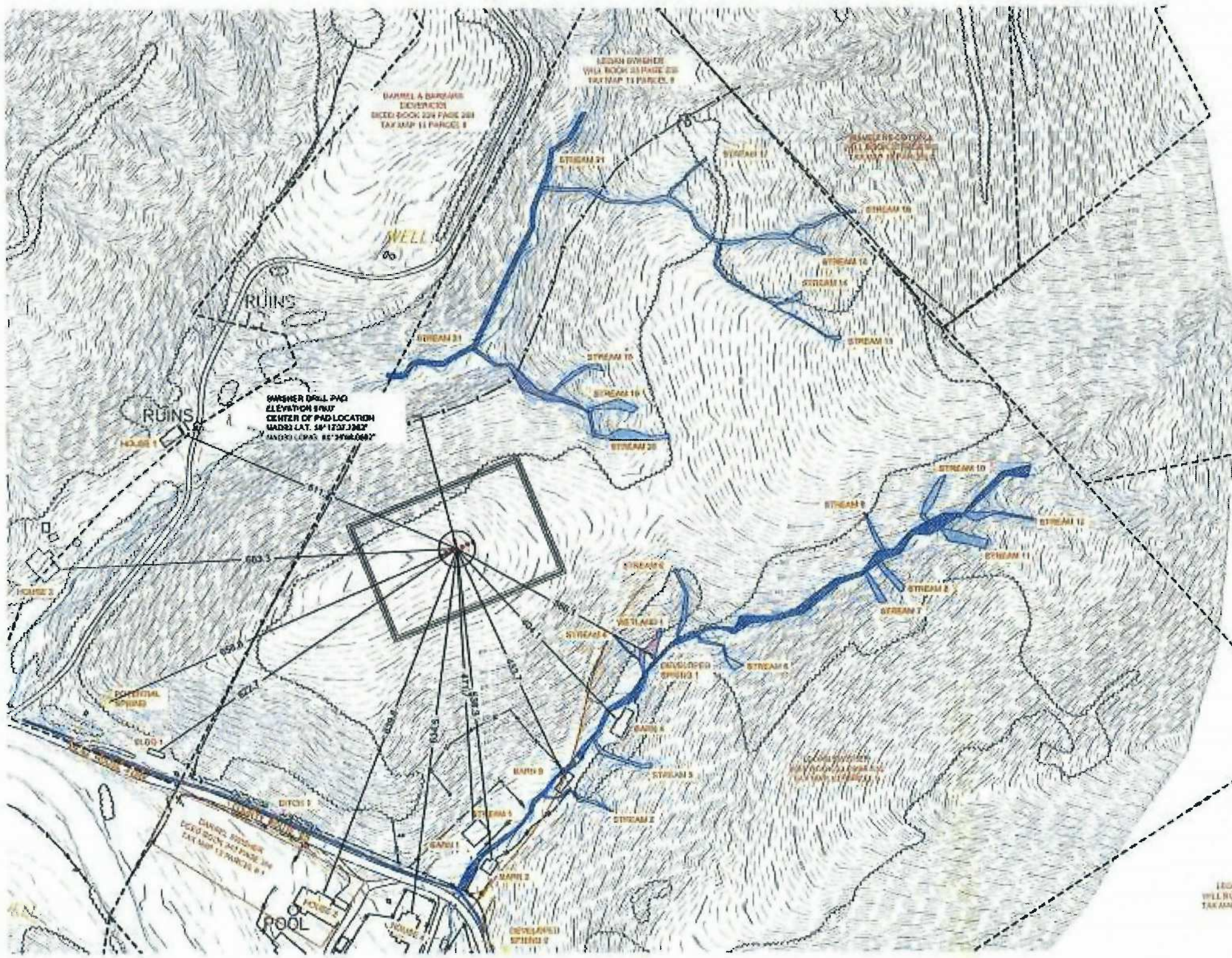


NOTES:

1. THIS SITE IS NOT WITHIN THE 100 YEAR FLOOD PER FIRM PANEL 0401/0259C DODDRIDGE COUNTY, WV.
2. ALL PROPOSED SLOPES ARE 2:1 EXCEPT WHERE NOTED.
3. ALL TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON AERIAL PHOTOGRAPHY PROVIDED BY BLUE MOUNTAIN AERIAL MAPPING WITH A FLIGHT DATE OF 4-10-11.

DATE REVISION	BY	DATE
4/20/13	B	13

W.B. Blue Mountain Aerial Mapping, LLC
ENGINEERING AND SURVEYING
11701 MAIN ROAD, SUITE 214
CHARLESTON, WV 25312
304.526.0404
www.bm-aerial.com



SIZE OF EXISTING BARN, HOUSES AND BUILDINGS (SFT)

- BARN 1: 1190 SF
- BARN 2: 400 SF
- BARN 3: 467 SF
- BARN 4: 942 SF
- BUILDING 1: 247 SF
- HOUSE 1: 661 SF
- HOUSE 2: 1776 SF
- HOUSE 3: 2070 SF
- HOUSE 4: 2720 SF

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WVDEP OOG

SAY 5/29/2013

RYAN & FELISA
PETERSON
DEED BOOK 335 PAGE 809
TAX MAP 13 PARCEL 10

RYAN & FELISA
PETERSON
DEED BOOK 223 PAGE 259
TAX MAP 13 PARCEL 11

LEIGH SWISHER
WILL BOOK 33 PAGE 219
TAX MAP 11 PARCEL 9

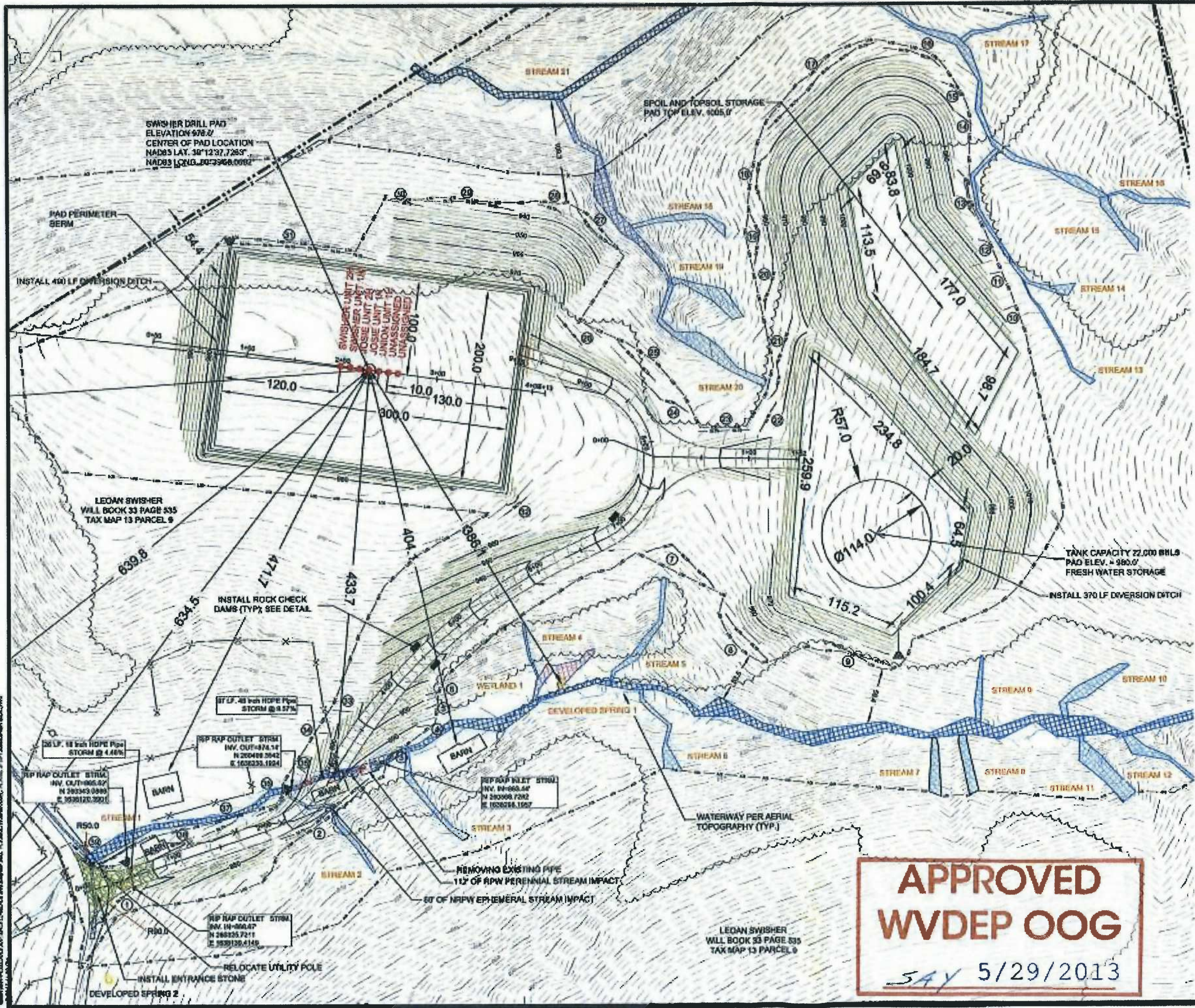


THIS DOCUMENT
PREPARED FOR
ANTERO RESOURCES
APPALACHIAN CORP

**FINAL SITE DESIGN
OVERALL SITE PLAN
SWISHER DRILL PAD SITE
NEW MILTON DISTRICT
DODDRIDGE COUNTY, WV**

NO.	REVISION	DATE	BY

REVISIONS TO SWISHER DRILL PAD SITE OVERALL SITE PLAN



ID NUMBER	SF (LF)	SSF (LF)	SSS (B.F)
1			35
2			154
3			8
4			14
5			14
6			12
7			92
8			66
9			70
10			18
11			10
12			10
13			85
14			15
15			25
16			100
17			10
18			54
19			50
20			30
21			30
22			30
23			53
24			9
25			35
26			41
27			34
28			27
29			31
30			31
31			160
32			28
33			17
34			10
35			12
36			35
37			60
38			68
39			50
TOTALS	0	0	1,187

---	---	---	APPROXIMATE PROPERTY LINE
---	---	---	LIMITS OF DISTURBANCE
---	---	---	AREA OF INTEREST
---	---	---	PROPOSED AREA OF INTEREST
---	---	---	SILT FENCE
---	---	---	SUPER SILT FENCE
---	---	---	SILT SOCK
---	---	---	EXISTING GAS LINE
---	---	---	EXISTING FENCE LINE
---	---	---	EXISTING UTILITY POLE
---	---	---	EXISTING TREE LINE
---	---	---	PROPOSED WETLAND FENCE
---	---	---	NEW EPHEMERAL STREAM
---	---	---	NEW PERENNIAL STREAM
---	---	---	POW WETLANDS
---	---	---	RPW WETLANDS
---	---	---	POW WETLANDS
---	---	---	DITCH
---	---	---	SF, SSF AND SILT SOCK INDICATOR

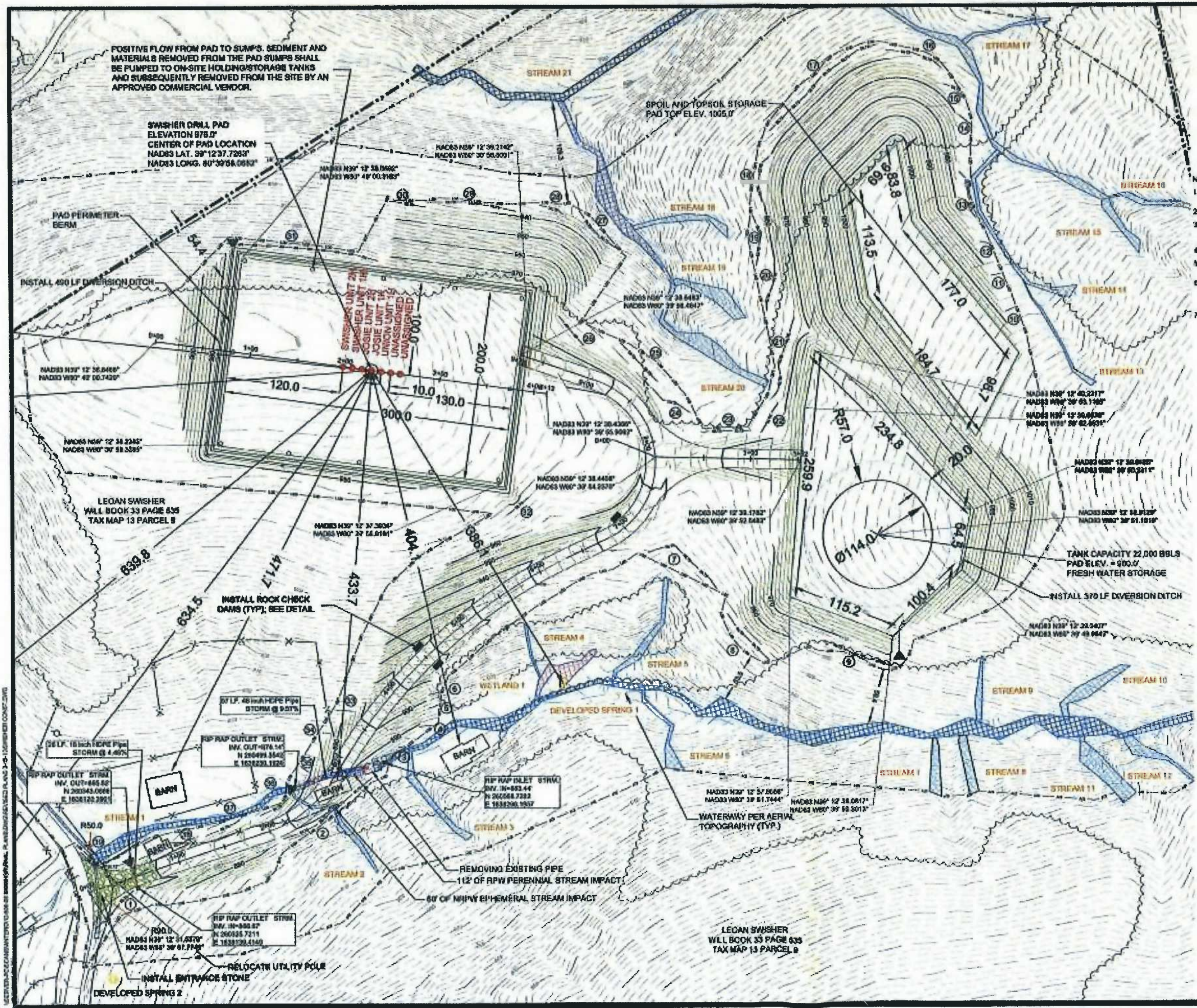
APPROVED
WVDEP OOG
 SAY 5/29/2013

DATE SUBMITTED	SHEET NO.	TOTAL SHEETS	
4/29/13	2	18	

THIS DOCUMENT PREPARED FOR ANTERO RESOURCES BY APALACHIAN CORP.

FINAL DESIGN
EROSION & SEDIMENT CONTROL PLAN
SWISHER DRILL PAD SITE
 NEW MILTON DISTRICT
 DODDRIIDGE COUNTY, WV

DATE	BY
REVISION	BY



POSITIVE FLOW FROM PAD TO SWISHER. SEDIMENT AND MATERIALS REMOVED FROM THE PAD SWISHER SHALL BE PUMPED TO ON-SITE HOLDING/STORAGE TANKS AND SUBSEQUENTLY REMOVED FROM THE SITE BY AN APPROVED COMMERCIAL VENDOR.

SWISHER DRILL PAD
ELEVATION 878.0'
CENTER OF PAD LOCATION
NAD83 LAT. 39°12'37.7283"
NAD83 LONG. 80°39'56.0681"

SPOIL AND TOPSOIL STORAGE
PAD TOP ELEV. 1005.0'



NOTES:

1. THIS SITE IS NOT WITHIN THE 100 YEAR FLOOD PER FIRM PANEL 5407C0232C, DODDRIDGE COUNTY, WV
2. ALL PROPOSED SLOPES ARE 3:1 EXCEPT WHERE NOTED
3. ALL TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON AERIAL PHOTOGRAPHY PROVIDED BY BLUE MOUNTAIN AERIAL MAPPING WITH A FLIGHT DATE OF 4-10-11.
4. FILL OVER 50 VERTICAL FEET ON SPOIL PAD NEEDS A 10' HENCH
5. ALL FILL SLOPES SHALL BE TOE KEYED PER THE DETAIL SHOWN ON THE DETAIL SHEETS
6. POSITIVE FLOW FROM PAD TO SWISHER. SEDIMENT AND MATERIALS REMOVED FROM THE PAD SWISHER SHALL BE PUMPED TO ON-SITE HOLDING/STORAGE TANKS AND SUBSEQUENTLY REMOVED FROM SITE BY AN APPROVED COMMERCIAL VENDOR.
7. ALL ENVIRONMENTAL DELINEATIONS PROVIDED BY ALLSTAR

**APPROVED
WVDEP OOG**

SAY 5/29/2013

LEGEND

	APPROXIMATE PROPERTY LINE
	LIMITS OF DISTURBANCE
	AREA OF INTEREST
	PROPOSED AREA OF INTEREST
	6 FT FENCE
	SUPER 6 FT FENCE
	SILT SOCK
	EXISTING GAS LINE
	EXISTING FENCE LINE
	EXISTING UTILITY POLE
	EXISTING TREE LINE
	PROPOSED WOVEN WIRE FENCE
	MRPW EPHEMERAL STREAM
	RPRW PERENNIAL STREAM
	RPRW WETLANDS
	RPRW INTERMITTENT
	POW WETLANDS
	DITCH
	SP, SBP AND BLT ROCK INDICATOR

FINAL DESIGN
 SITE PLAN
SWISHER DRILL PAD SITE
 NEW MILTON DISTRICT
 DODDRIDGE COUNTY, WV

DATE	SHEET	TOTAL SHEETS
4-8-2013	7	15

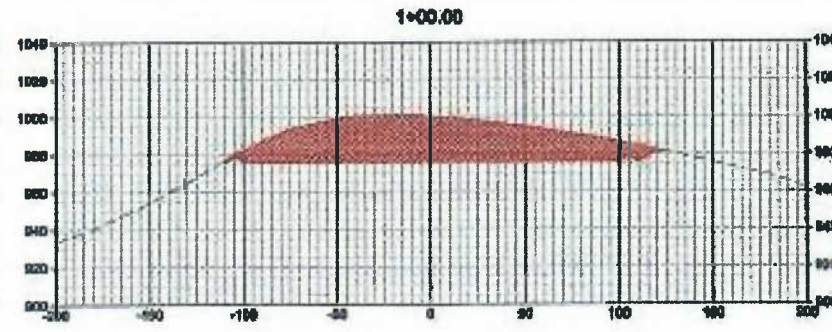
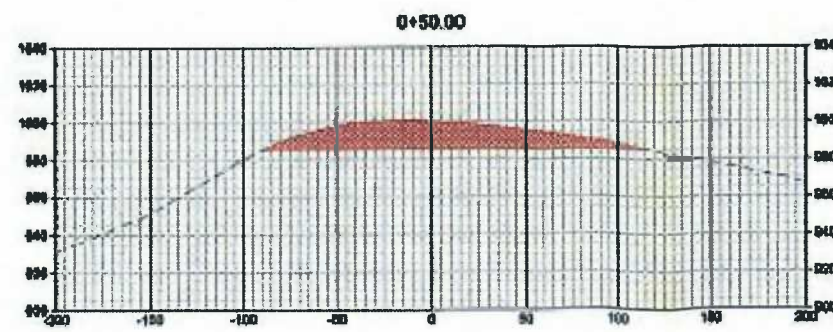
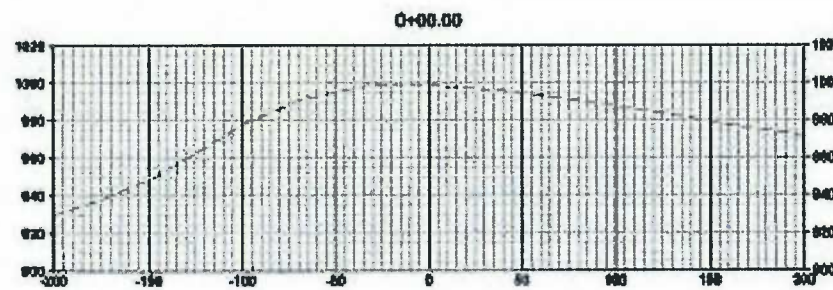
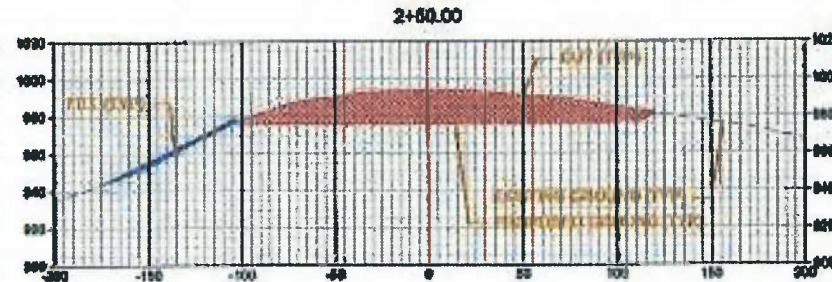
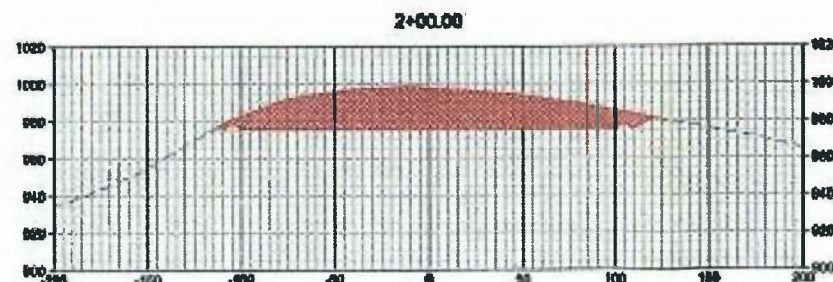
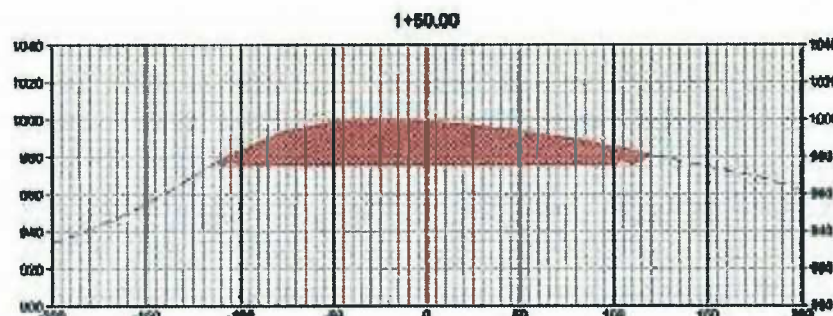
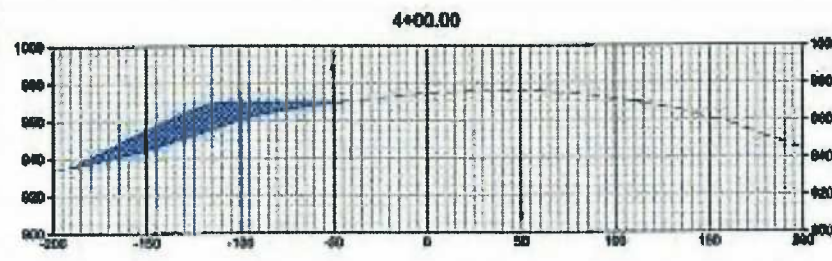
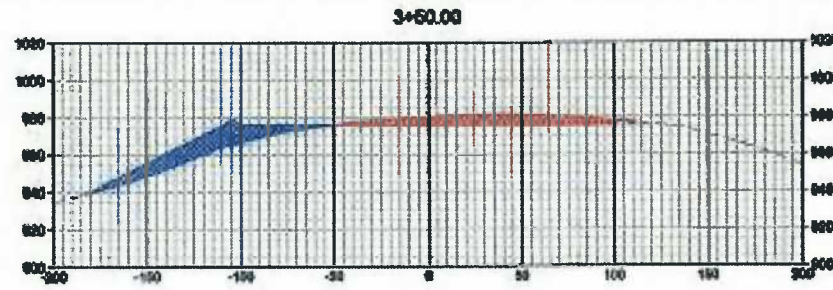
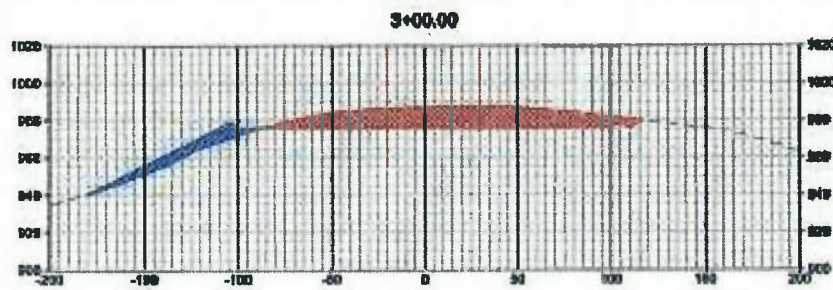
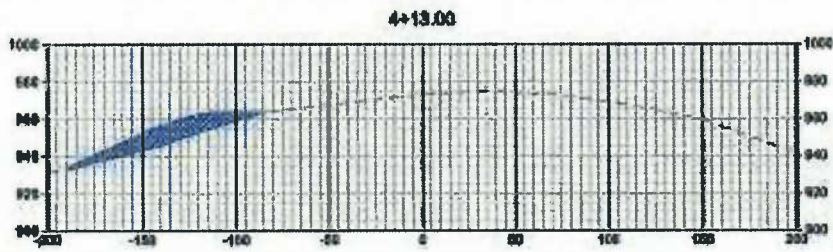
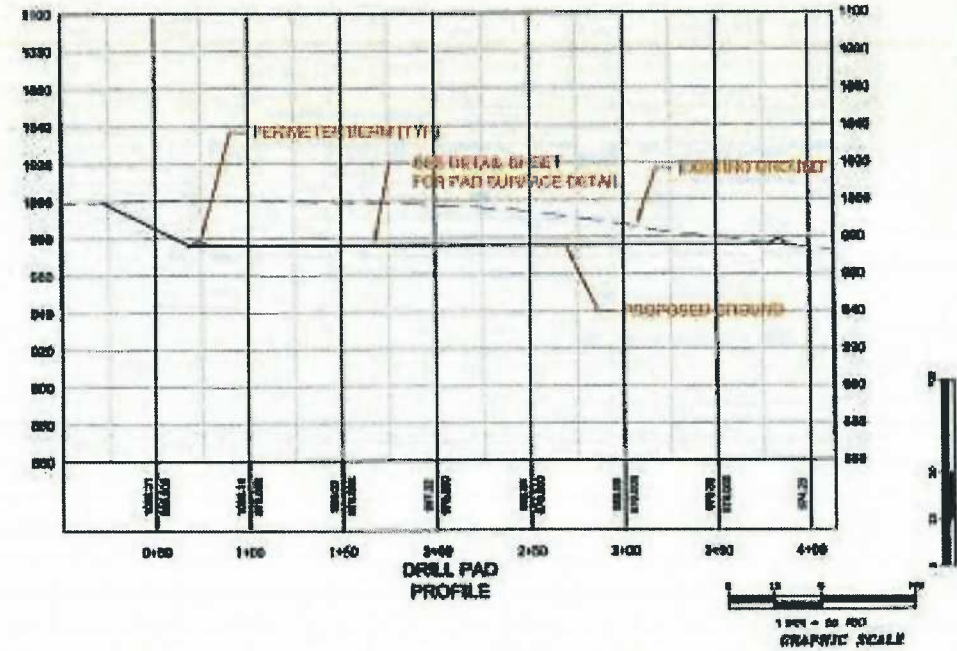
W.B. Swisher Consulting, Inc.
 ENGINEERING AND SURVEYING
 440 CALL ROAD, SUITE 115
 CHARLESTON, WV 25301
 WWW.WB-SWISHER.COM



THIS DOCUMENT
PREPARED FOR
ANTERO RESOURCES
AN/ALACRASH LTRIF

NO.	DATE	BY	REVISION

APPROVED
WVDEP OOG
SAY 5/29/2013



DATE	SHEET	TOTAL
4-28-13	8	18

W B
W.B. Engineering & Surveying, Inc.
ENGINEERING AND SURVEYING
417 CALL ROAD, SUITE 216
CHARLESTON, WV 25301
www.wb-engineers.com

ANTERO RESOURCES

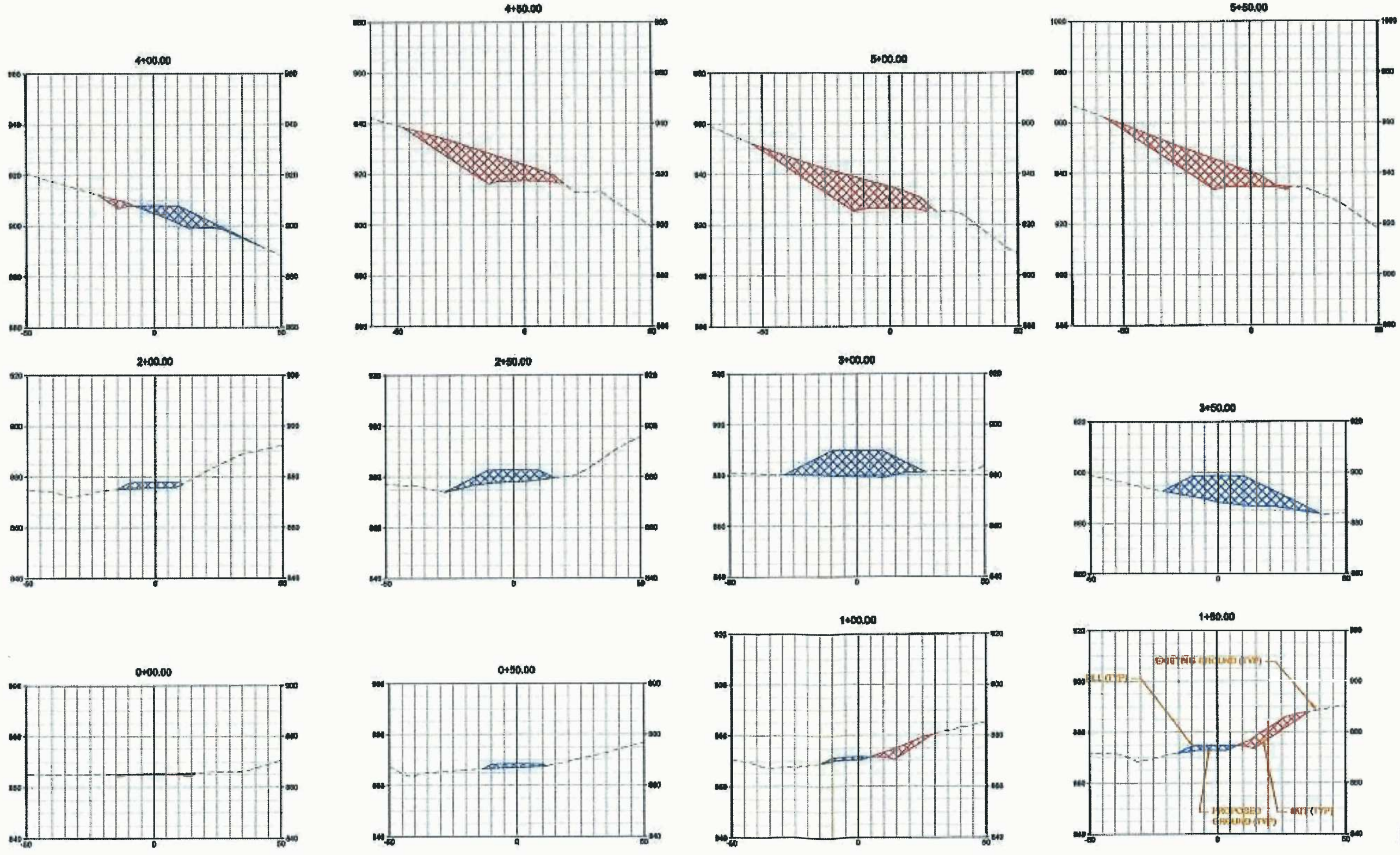
THIS DOCUMENT PREPARED FOR ANTERO RESOURCES AT ALATHAN CAMP

FINAL DESIGN
DRILL PAD PROFILE & CROSS SECTIONS
SWISHER DRILL PAD SITE
NEW MILTON DISTRICT
DODDRIDGE COUNTY, WV


NO.	REVISION	DATE	BY

DRAWING: 130000001001001-03-00 SWISHER DRILL PAD SITE - 130000001001001-03-00


APPROVED
WVDEP OOG
SAY 5/29/2013




DATE SUBMITTED	SHEET NO.	TOTAL SHEETS	
5/29/13	15	15	



W.B. ENGINEERING AND SURVEYING
 441 CALLOWAY AVENUE, SUITE 110
 CHARLESTON, WV 25302-2406
 www.wb-engineering.com



TIMOTHY T. WHITE
 REGISTERED PROFESSIONAL ENGINEER
 CIVIL
 No. 12456



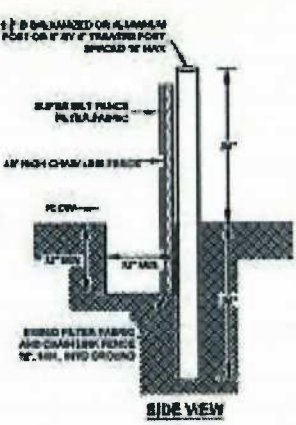
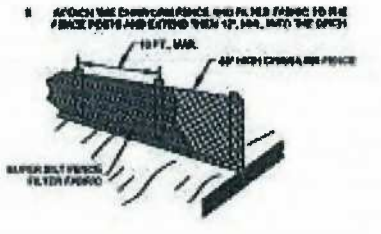
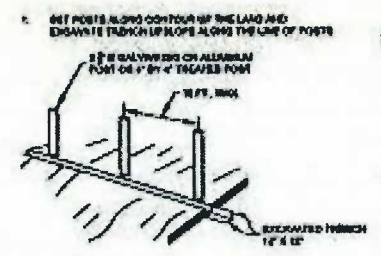
ANTERO RESOURCES

THIS DOCUMENT PREPARED FOR
 ANTERO RESOURCES
 ANWALACTRADA CORP.

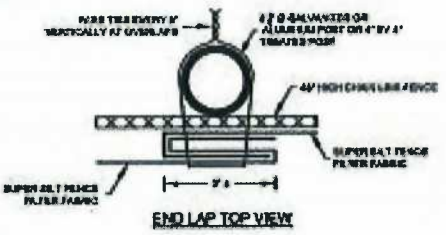
FINAL DESIGN
 ROAD CROSS SECTIONS
 SWISHER DRILL PAD SITE
 NEW MILTON DISTRICT
 DODDRIDGE COUNTY, WV

	DATE

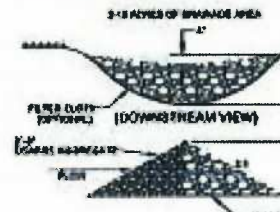
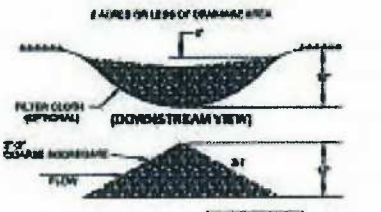
SHEET FOR PROPOSED INTERSECTION OF SWISHER DRILL PAD WITH STATE ROUTE 101, SWISHER ROAD, DODDRIDGE COUNTY, WV



SYMBOL

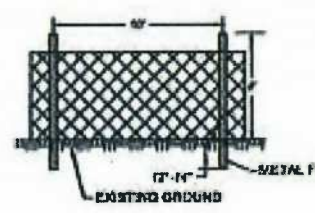


SILT FENCE DETAIL
 N.T.S.

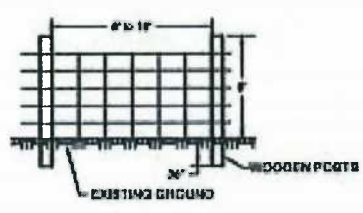


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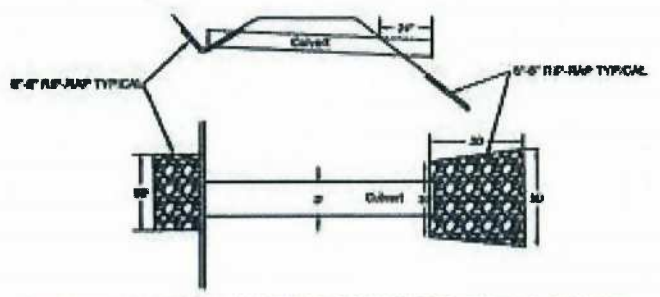
DITCH CHECK DAM DETAIL
 SPACING AS INDICATED ON PROFILES
 N.T.S.



TYPICAL CONSTRUCTION FENCE DETAIL
 N.T.S.



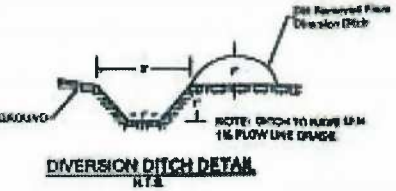
TYPICAL WOVEN WIRE FENCE DETAIL
 N.T.S.



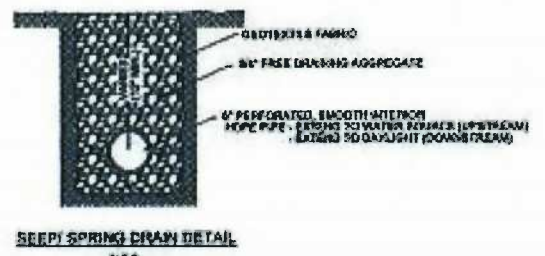
TYPICAL CULVERT & CULVERT INLET/OUTLET PROTECTION DETAIL
 N.T.S.



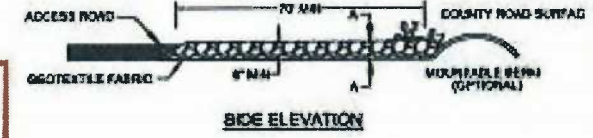
RIP-RAP APRON OUTLET PROTECTION
 MINIMUM TAILWATER CONDITION
 N.T.S.



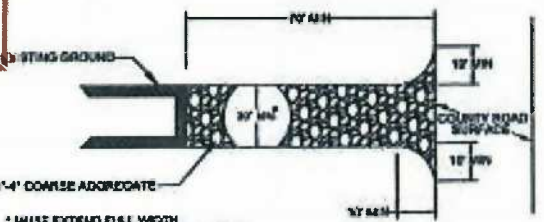
DIVERSION DITCH DETAIL
 N.T.S.



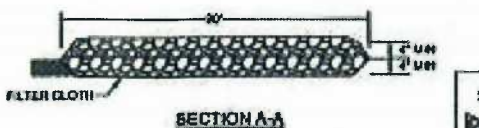
SEEPY SPRING DRAIN DETAIL
 N.T.S.



SIDE ELEVATION

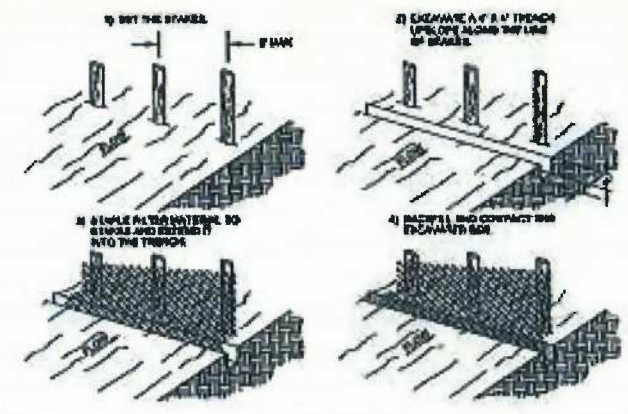


PLAN VIEW



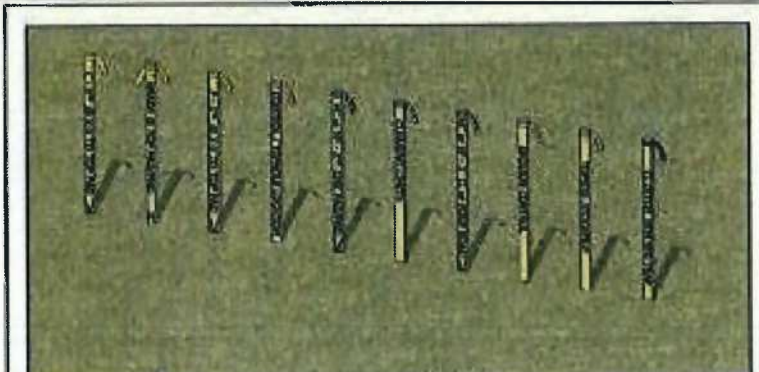
SECTION A-A

STONE CONSTRUCTION ENTRANCE DETAIL
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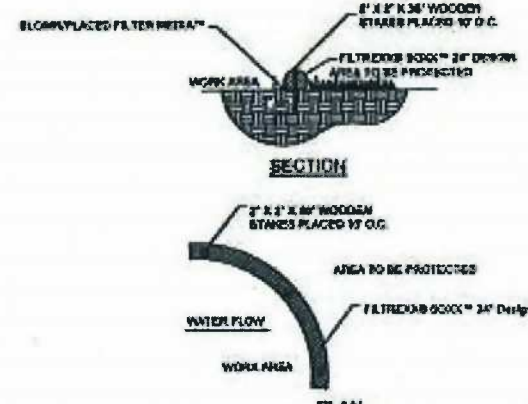
CONSTRUCTION OF SILT FENCE
 (WITHOUT WIRE SUPPORT)
 N.T.S.

SYMBOL



	Yellow Ribbon: Yellow Ribbon used to indicate top of Core (C) Can be discontinued at time of placement. Slope determined by site design.
	Yellow & Orange Ribbon: Yellow and Orange Ribbon used to indicate Grade at Top of Pad/Foundation.
	Orange Ribbon: Orange Ribbon used to indicate base of (2' dia) (2') (2') to be discontinued at time of placement. Slope determined by site design.
	Pink Ribbon: Pink Ribbon used to indicate Top of Main Foundation. (2' dia) (2') (2') to be discontinued at time of placement.
	Pink & Black Strips Ribbon: Pink & Black Strips Ribbon used to indicate Vertical Cur (VC) at Pad/Foundation corner or edge. Pink & Black Strips Ribbon used to indicate Vertical Cur (VC) at Pad/Foundation corner or edge. Vertical Cur (VC) to be discontinued at time of placement.
	Blue & White Strips Ribbon: Blue & White Strips Ribbon used to indicate existing foundation location.
	Orange & Black Strips Ribbon: Orange & Black Strips Ribbon used to indicate Vertical Cur (VC) at corner or edge of access road. Orange & Black Strips Ribbon used to indicate Vertical Cur (VC) at corner or edge of access road.
	Pink & White Strips Ribbon: Pink & White Strips Ribbon used to indicate foundation location. (2' dia) (2') (2') to be discontinued at time of placement.
	Orange & White Strips Ribbon: Orange & White Strips Ribbon used to indicate existing foundation location.
	Blue Ribbon: Blue Ribbon used to indicate Center of (2' dia) (2') (2') to be discontinued at time of placement.

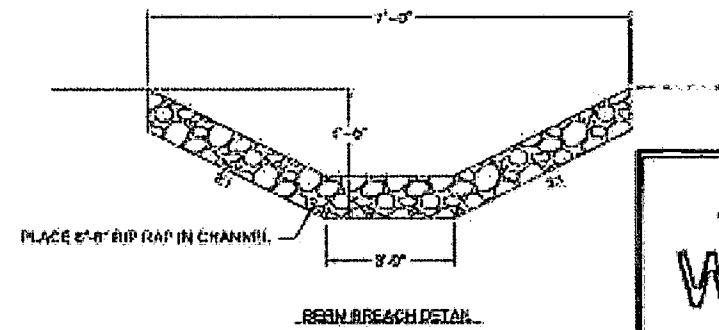
ANTERO RESOURCES STANDARD RIBBON COLOR SCHEME



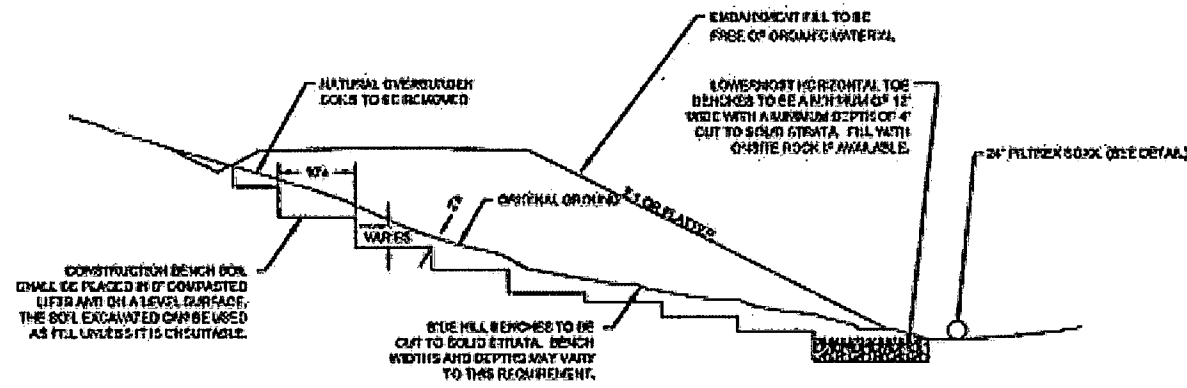
FILTREXX "SOXX" 24" FILTER SOCK DETAIL
 N.T.S.

FINAL SITE DESIGN
CONSTRUCTION DETAILS
SWISHER DRILL PAD SITE
 NEW MILTON DISTRICT
 DODDRIDGE COUNTY, WY

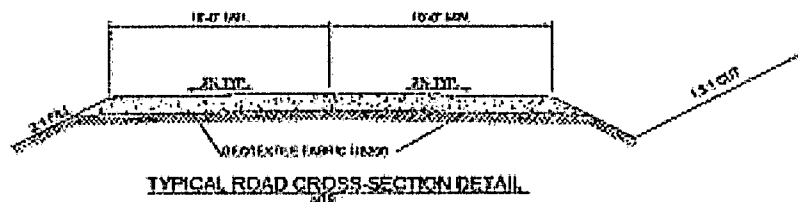
SHEET NO. 12
 DATE: 5/29/2013



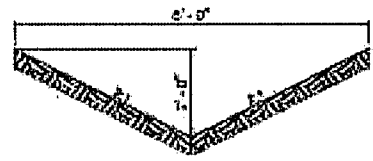
APPROVED
WVDEP OOG
SAY 5/29/2013



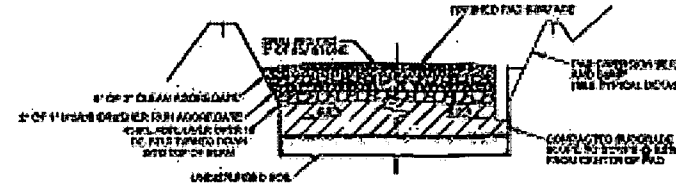
EMBAIMENT FILL BENCH DETAIL (TYP.)
N.T.S.



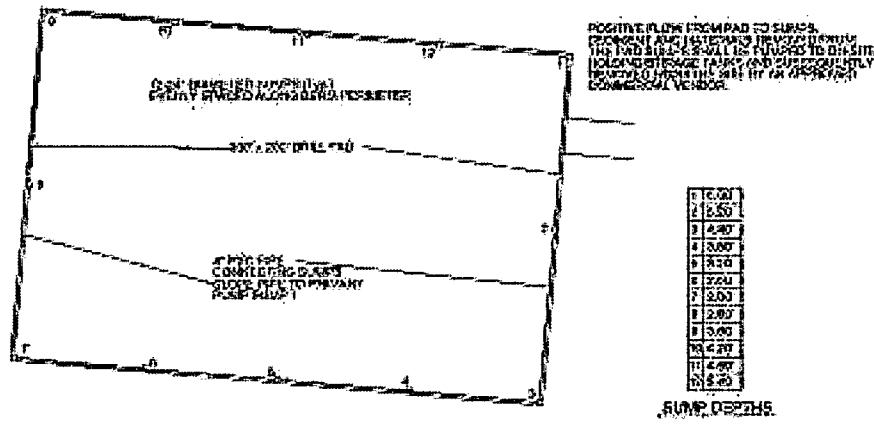
TYPICAL ROAD CROSS-SECTION DETAIL
N.T.S.



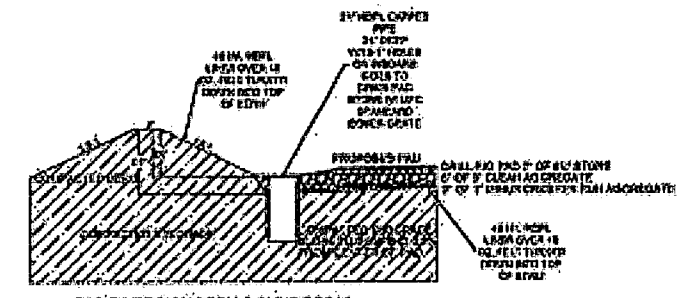
TYPICAL ROAD DITCH DETAIL
N.T.S.



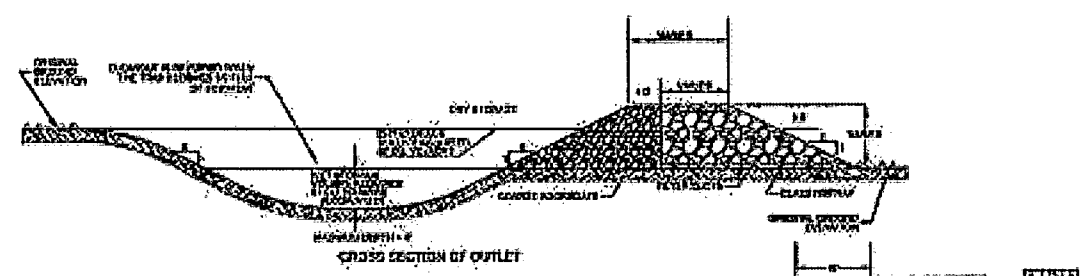
TYPICAL PAD CROSS-SECTION DETAIL
N.T.S.



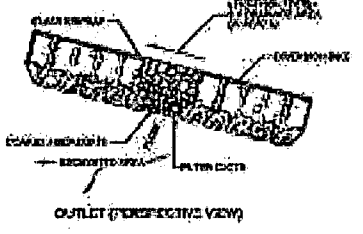
DRILL PAD SUMP PLANNING DETAIL
N.T.S.



PAD OVER EMBANKMENT & SUMP DETAIL
N.T.S.



- TEMPORARY DEPOSIT STRUCTURE**
1. THE STRUCTURE SHALL BE CONSTRUCTED TO BE FREE OF ORGANIC MATERIAL.
 2. SOAK AWAYS SHALL BE INSTALLED WHERE THE TOTAL CONTAMINANT LOAD EXCEEDS THE CAPACITY OF THE STRUCTURE.
 3. THE STRUCTURE SHALL BE CONSTRUCTED TO BE FREE OF ORGANIC MATERIAL AND SHALL BE CONSTRUCTED TO BE FREE OF ORGANIC MATERIAL.
 4. THE STRUCTURE SHALL BE CONSTRUCTED TO BE FREE OF ORGANIC MATERIAL AND SHALL BE CONSTRUCTED TO BE FREE OF ORGANIC MATERIAL.
 5. THE STRUCTURE SHALL BE CONSTRUCTED TO BE FREE OF ORGANIC MATERIAL AND SHALL BE CONSTRUCTED TO BE FREE OF ORGANIC MATERIAL.
 6. THE STRUCTURE SHALL BE CONSTRUCTED TO BE FREE OF ORGANIC MATERIAL AND SHALL BE CONSTRUCTED TO BE FREE OF ORGANIC MATERIAL.
 7. ALL CUT AND FILL SHALL BE FREE OF ORGANIC MATERIAL AND SHALL BE CONSTRUCTED TO BE FREE OF ORGANIC MATERIAL.
 8. THE STRUCTURE SHALL BE CONSTRUCTED TO BE FREE OF ORGANIC MATERIAL AND SHALL BE CONSTRUCTED TO BE FREE OF ORGANIC MATERIAL.
 9. THE STRUCTURE SHALL BE CONSTRUCTED TO BE FREE OF ORGANIC MATERIAL AND SHALL BE CONSTRUCTED TO BE FREE OF ORGANIC MATERIAL.
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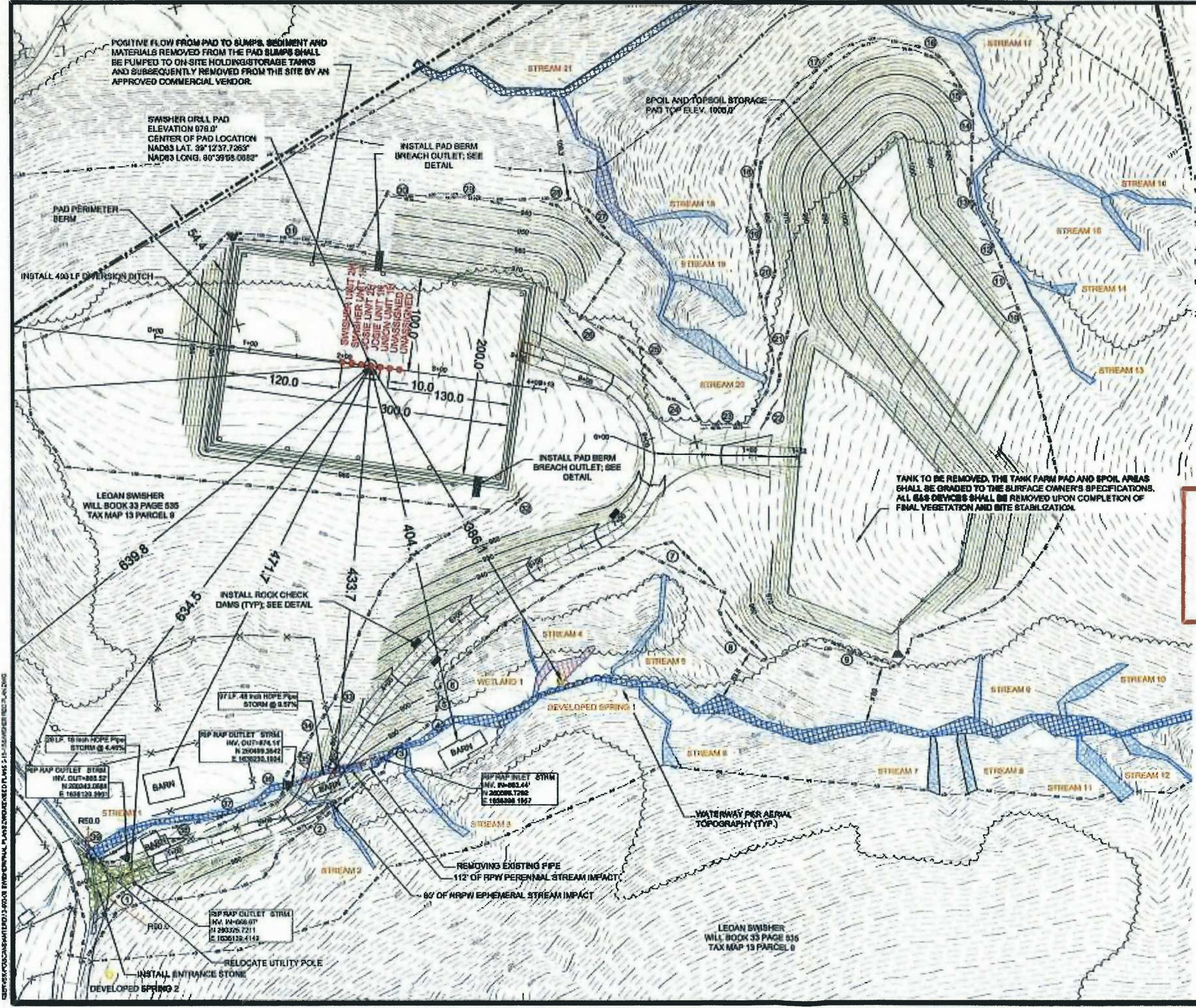


OUTLET (PERSPECTIVE VIEW)

DATE	BY	APP. BY	SCALE
05/29/13	CCM	CC	1/8"

ANTERO RESOURCES

FINAL SITE DESIGN
CONSTRUCTION DETAILS
SWISHER DRILL PAD SITE
 NEW MILTON DISTRICT
 DODDRIDGE COUNTY, WV



- NOTES**
1. THIS SITE IS NOT WITHIN THE 100 YEAR FLOOD PER FIRM PANEL 54017C033C, DODDRIDGE COUNTY, WV.
 2. ALL PROPOSED SLOPES ARE 2:1 EXCEPT WHERE NOTED.
 3. ALL TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON AERIAL PHOTOGRAPHY PROVIDED BY BLUE MOUNTAIN AERIAL MAPPING WITH A FLIGHT DATE OF 4-10-11.
 4. FILL OVER 50 VERTICAL FEET ON SPOIL PAD NEEDS A 5% BENCH.
 5. ALL FILL SLOPES SHALL BE TOE KEPT PER THE DETAIL SHOWN ON THE DETAIL SHEETS.
 6. POSITIVE FLOW FROM PAD TO BUMPS, SEDIMENT AND MATERIALS REMOVED FROM THE PAD BUMPS SHALL BE PUMPED TO ON-SITE HOLDING/STORAGE TANKS AND SUBSEQUENTLY REMOVED FROM SITE BY AN APPROVED COMMERCIAL VENDOR.
 7. ALL ENVIRONMENTAL DELINEATIONS PROVIDED BY ALLSTAR.

**APPROVED
WVDEP OOG**

SAY 5/29/2013

LEGEND

	APPROXIMATE PROPERTY LINE
	LIMITS OF DISTURBANCE
	AREA OF INTEREST
	PROPOSED AREA OF INTEREST
	BILT FENCE
	DUPER BILT FENCE
	BILT SOCK
	EXISTING GAS LINE
	EXISTING FENCE LINE
	EXISTING UTILITY POLE
	EXISTING TREE LINE
	PROPOSED WOODEN WARE FENCE
	MRPW EPHEMERAL STREAM
	MRPW PERENNIAL STREAM
	PEW WETLAND
	RPW1/SPERMITTENT
	POW WETLAND
	DITCH
	5% 55' AND SILT SOCK INDICATOR

DATE SUBMITTED	SHEET NO.	TOTAL SHEETS
4/20/13	15	15

THIS DOCUMENT PREPARED FOR ANTERO RESOURCES APPROXIMATE DATE

FINAL DESIGN

RECLAMATION PLAN

SWISHER DRILL PAD SITE

NEW MILTON DISTRICT

DODDRIDGE COUNTY, WV

NO.	DATE	BY	CHKD.	APP.	SITE