

Commercial/Industrial Floodplain Development Permit

Doddridge County, WV Floodplain Management

This permit has been issued to ANTERO RESOURCES , and is for the approved commercial and/or industrial development project associated with this permit that impacts the FEMA-designated floodplain and/or floodway of Doddridge County, WV, pursuant to the rules and regulations established by all applicable Federal, State and local laws and ordinances, including the Doddridge County Floodplain Ordinance. This permit must be posted at the site of work as to be clearly visible, and must remain posted during entirety of development.

Permit: #14-243 Marsden Centralized Freshwater Impoundment

Date Approved: 07/10/2014

Expires: N/A

Issued to: ANTERO RESOURCES

**POC: Emily Kijowski
303-357-7232**

**Company Address: 1615 WYNKOOP ST
DENVER, CO**

Project Address: Greenbrier District

Lat/Long: 39.245960N/80.600106W

Purpose of development: Freshwater Impoundment. Project does NOT impact floodplain.

Issued by: Edwin L. "Bo" Wriston, Doddridge County FPM (or designee)

Date: 07/10/2014

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

Legal Advertisement:
Doddridge County
Floodplain Permit Application

Please take notice that on the 3rd day of July, 2014

Antero Resources

filed an application for a Floodplain Permit to develop land located at or about:

Greenbrier District 39.245960N / 80.600106W

Permit #14-243 Marsden Centralized Freshwater Impoundment

(Note: This project is not within the floodplain)

The Application is on file with the Clerk of the County Court and may be inspected or copied during regular business hours. As this project is outside the FEMA identified floodplain of Doddridge County, Doddridge County Floodplain Management has no regulatory authority.

Any interested persons who desire to comment shall present the same in writing by **August 4, 2014**, delivered to:

Clerk of the County Court

118 E. Court Street, West Union, WV 26456

Beth A Rogers, Doddridge County Clerk

Edwin L. "Bo" Wriston, Doddridge County Flood Plain Manager

#14-243

FILED

2014 JUL -3 PM 1:21



BETH A. JULLI
COUNTY CLERK
DODDRIDGE COUNTY, WV

July 2, 2014

Antero Resources
1615 Wynkoop Street
Denver, CO 80202
Office 303.357.7310
Fax 303.357.7315

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

Mr. Wriston:

Antero Resources Appalachian Corporation (Antero) would like to submit a Doddridge County Floodplain permit application for our Marsden Centralized Fresh Water Impoundment. Our project is located in Doddridge County, Greenbrier District and per FIRM map #54017C0255C, this location is not within the floodplain.

Attached you will find the following:

- Doddridge County Floodplain Permit Application
- Marsden FWI Construction Plans
- FIRM Map
- WV Flood Tool Map

If you have any questions please feel free to contact me at (303) 357-7232.

Thank you in advance for your consideration.

Sincerely,

Emily Kijowski
Permit Representative
Antero Resources Appalachian Corporation

Enclosures

**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 _____



DATE July 2, 2014

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.

APPLICANT'S NAME: Antero Midstream LLC - Randy Kloberdanz,

ADDRESS: 1615 Wynkoop Street, Denver, CO 80202

TELEPHONE NUMBER: Contact Emily Kijowski: (303)-357-7232

BUILDER'S NAME: Antero Midstream LLC
ADDRESS: 1615 Wynkoop Strett, Denver, CO 80202
TELEPHONE NUMBER: (303)-357-7310

ENGINEER'S NAME: L&W Enterprises, Inc.
ADDRESS: PO Box 826, 14 South Grove Street, Petersburg, WV 26847
TELEPHONE NUMBER: (304)-257-4818

PROJECT LOCATION:

NAME OF SURFACE OWNER/OWNERS (IF NOT THE APPLICANT) Richard E. Marsden and Wilma J. Marsden
ADDRESS OF SURFACE OWNER/OWNERS (IF NOT THE APPLICANT) 3107 E. Nance Street, Mesa, Arizona 85213

DISTRICT: Greenbrier

DATE/FROM WHOM PROPERTY

PURCHASED: N/A

LAND BOOK DESCRIPTION: _____

DEED BOOK REFERENCE: Book 229, Page54

TAX MAP REFERENCE: Tax Map 4, Parcel 16

EXISTING BUILDINGS/USES OF PROPERTY: None

NAME OF AT LEAST ONE ADULT RESIDING IN EACH RESIDENCE LOCATED UPON THE SUBJECT PROPERTY See above

ADDRESS OF AT LEAST ONE ADULT RESIDING IN EACH RESIDENCE LOCATED UPON THE SUBJECT PROPERTY _____

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

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

B. OTHER DEVELOPMENT ACTIVITIES:

- | | | | | | | | |
|-------------------------------------|---|--------------------------|--------|--------------------------|----------|--------------------------|------------|
| <input checked="" type="checkbox"/> | Fill | <input type="checkbox"/> | Mining | <input type="checkbox"/> | Drilling | <input type="checkbox"/> | Pipelining |
| <input checked="" type="checkbox"/> | Grading | | | | | | |
| <input type="checkbox"/> | Excavation (except for STRUCTURAL DEVELOPMENT checked above) | | | | | | |
| <input type="checkbox"/> | Watercourse Altercation (including dredging and channel modification) | | | | | | |
| <input type="checkbox"/> | Drainage Improvements (including culvert work) | | | | | | |
| <input checked="" type="checkbox"/> | Road, Street, or Bridge Construction | | | | | | |
| <input type="checkbox"/> | Subdivision (including new expansion) | | | | | | |
| <input type="checkbox"/> | Individual Water or Sewer System | | | | | | |
| <input type="checkbox"/> | 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 \$ N/A-Project is not located within the floodplain

D. ADJACENT AND/OR AFFECTED LANDOWNERS:

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: <u>N/A-No properties sharing an</u>	NAME: _____
ADDRESS: <u>immediate common boundary up or</u>	ADDRESS: _____
<u>down stream due to the location</u>	_____
<u>not being in floodplain</u>	_____
NAME: _____	NAME: _____
ADDRESS: _____	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: <u>N/A-No properties sharing an</u>	NAME: _____
ADDRESS: <u>immediate common boundary up</u>	ADDRESS: _____
<u>or down stream due to the location</u>	_____
<u>not being in floodplain</u>	_____
NAME: _____	NAME: _____
ADDRESS: _____	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): Randy Kloberdanz

SIGNATURE:  DATE: July 2, 2014

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: _____

Dated: _____

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.
 BFBM Panel No. _____ Dated _____

See section 4 for additional instructions.

SIGNED _____

DATE _____

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 _____ DATE _____

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** _____

WV Flood Map



Map Created on 7/1/2014

 Location of the mouse click

 **Flood Hazard Zone**
(1% annual chance floodplain)

User Notes:

Disclaimer:

The online map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. To obtain more detailed information in areas where Base Flood Elevations have been determined, users are encouraged to consult the latest Flood Profile data contained in the official flood insurance study. These studies are available online at www.msc.fema.gov.

WV Flood Tool is supported by FEMA, WV NFIP Office, and WV GIS Technical Center
(<http://www.MapWV.gov/flood>)

Flood Hazard Area:

Elevation: N/A

Location (long, lat):

Location (UTM 17N):

FEMA Issued Flood Map:

Contacts:

CRS Information:

Parcel Number:

STATE OF WEST VIRGINIA,
COUNTY OF DODDRIDGE, TO WIT

I, Virginia Nicholson, Editor of THE
HERALD RECORD, a weekly newspaper
published regularly, in Doddridge County,
West Virginia, Do Hereby Certify
That the Accompanying Legal Notice
Entitled:

Floodplain Permit
14-243

Marsden Impoundment

was published in said paper for *2*

successive weeks beginning with the issue

of *July 15th* 2014 and

ending with the issue of

July 22nd 2014 and

that said notice contains *189*

WORD SPACE at *115* cents a word

amounts to the sum of \$ *21.74*

FOR FIRST PUBLICATION, SECOND
PUBLICATION IS 75% OF THE FIRST
PUBLICATION

\$ *16.31*
and each publication thereafter

\$ *38.05* TOTAL

EDITOR

Virginia Nicholson

SWORN TO AND SUBSCRIBED

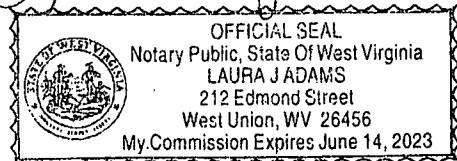
BEFORE ME THIS THE *24th* DAY

OF *July* 2014

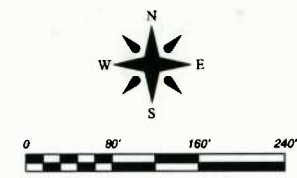
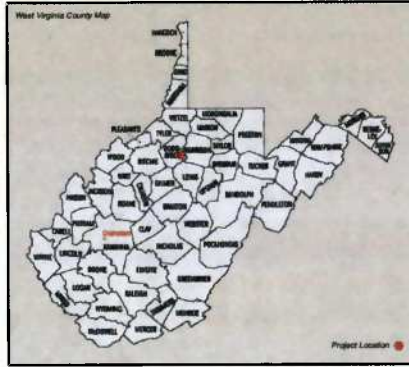
NOTARY PUBLIC

Laura Adams

LEGAL ADVERTISEMENT
Doddridge County
Floodplain Permit Application
Please take notice that on the 3rd day of July, 2014
Antero Resources filed an application for a Floodplain
Permit to develop land located on/about Greenbrier
District 39 245900N/80 600106W Permit #14-243 Marsden
Centralized Freshwater Impoundment (Note: This project
is not within the floodplain)
The Application is on file with the Clerk of the County
Court and may be inspected or copied during regular
business hours. As this project is outside the FEMA
identified floodplain of Doddridge County Doddridge
County Floodplain Management has no regulatory
authority. Any interested persons who desire to comment
shall present the same in writing by August 4, 2014.
Delivered to the
Clerk of the County Court
118 E. Court Street West Union WV 26456
Beth A. Rogers, Doddridge County Clerk
Edwin L. Bo. Wriston, Doddridge County Flood Plain
Manager
7-15-2xb



MARSDEN FRESH WATER IMPOUNDMENT PROJECT LOD OVER FEMA FIRM MAP 54017C0255C ANTERO RESOURCES CORPORATION



SITE LOCATIONS NAD 83		
	LATITUDE	LONGITUDE
Center of FWI (UTM Meters)	N=4344281.13 m	E=534506.79 m
Center of FWI	39.247161	-80.600106
Begin Access Road	39.245960	-80.599437

GREENBRIER DISTRICT
DODDRIDGE COUNTY, WV
UPPER MIDDLE ISLAND CREEK WATERSHED

FLOODPLAIN CONDITIONS	
DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN:	NO
PERMIT NEEDED FROM COUNTY FLOODPLAIN COORDINATOR:	NO
HEC-RAS STUDY COMPLETED:	NO
FLOODPLAIN SHOWN ON DRAWINGS:	YES
FIRM MAP NUMBER(S) FOR SITE:	54017C0255C
ACREAGES OF CONSTRUCTION IN FLOODPLAIN:	NONE



Allegheny Surveys, Inc.
172 Thompson Drive
Bridgeport, WV 26330
(304) 848-5035



L&W ENTERPRISES, INC.
P.O. BOX 828
14 SOUTH GROVE ST.
PETERSBURG, WV 26647
PH: 304-371-4818
FAX: 304-371-2224
EMAIL: L&W@L&WENTRIS.COM

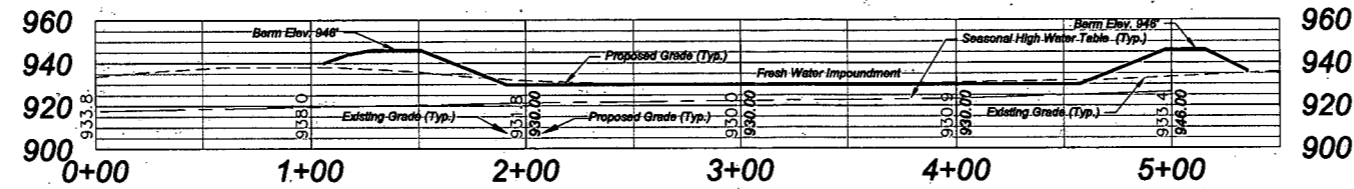


THIS DOCUMENT
PREPARED FOR
ANTERO RESOURCES
CORPORATION

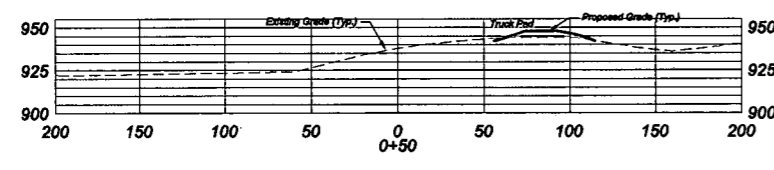
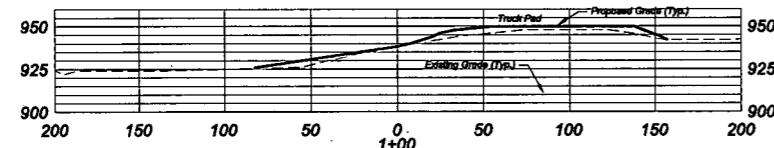
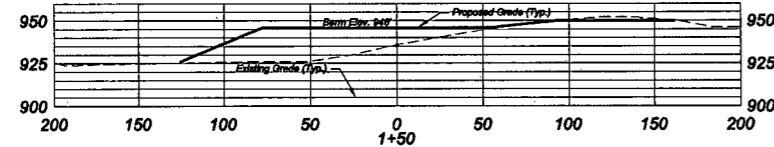
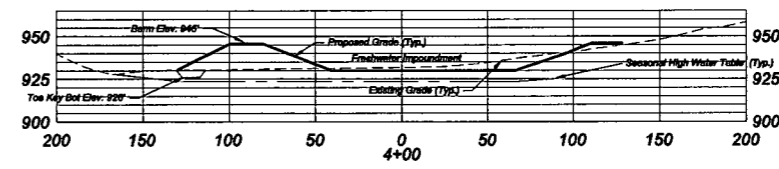
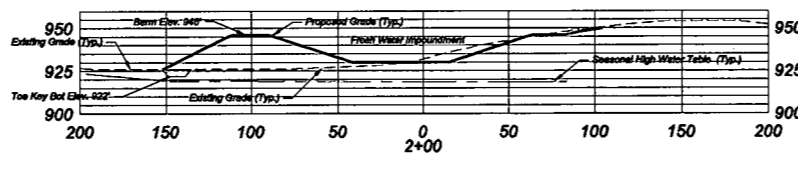
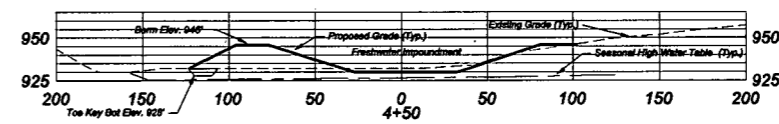
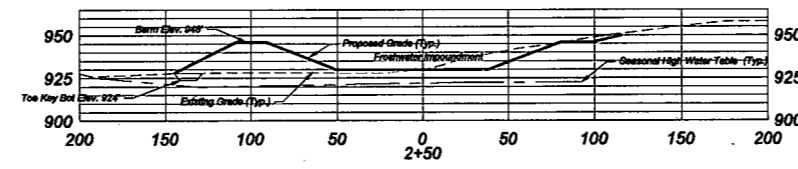
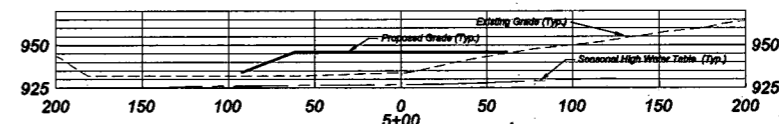
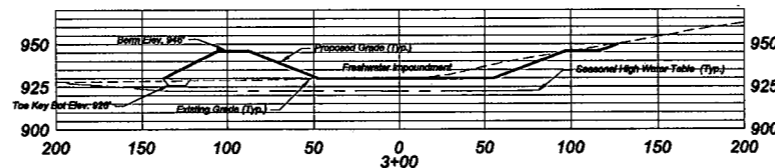
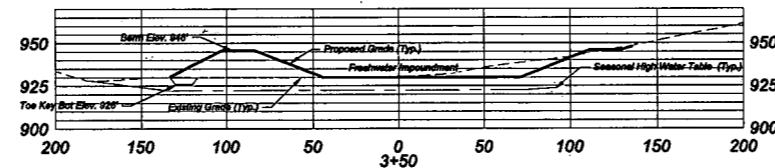
PROJECT LOD OVER FEMA FIRM MAP 54017C0255C
MARSDEN
FRESHWATER IMPOUNDMENT
GREENBRIER DISTRICT
DODDRIDGE COUNTY, WV

Date: 7/2/14
Scale: 1" = 80'
Designed By: CKW/CKM
File No. Antero 33-12
Page 1 of 1

FRESH WATER IMPOUNDMENT BASELINE PROFILE AND CROSS SECTIONS



PROFILE
Horizontal & Vertical Scale: 1" = 40'
0' 40' 80' 120'



CROSS SECTIONS
Horizontal & Vertical Scale: 1" = 50'
0' 50' 100' 150'



Allegheny Surveys, Inc.
172 Thompson Drive
Bridgeport, WV 26330
(304) 648-5035



L&W ENTERPRISES, INC.
PO BOX 656
14 SOUTH GROVE ST.
PETERSBURG, WV 25847
TEL: 944-527-4818
FAX: 944-527-2224
EMAIL: KIRK@LWLINE.NET

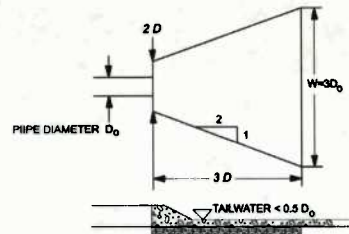


THIS DOCUMENT
PREPARED FOR
ANTERO RESOURCES
APPALACHIAN CORP

FRESH WATER IMPOUNDMENT
BASELINE PROFILE AND CROSS SECTIONS
MARSDEN
FRESHWATER IMPOUNDMENT
GREENBRIER DISTRICT
DODDRIDGE COUNTY, WV

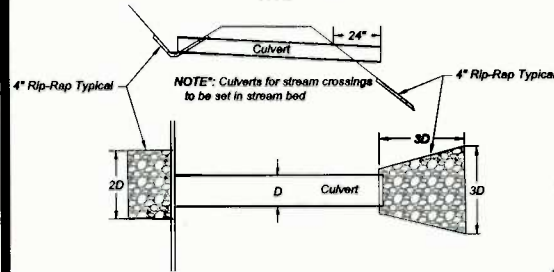
DATE	REVISIONS	Date: 2/7/13
2-15-13	Updated Impoundment Design	Scale: 1" = 50'
		Designed By: CKW/CKM
		File No. Antero 32-12
		Page 6 of 8

DETAILS

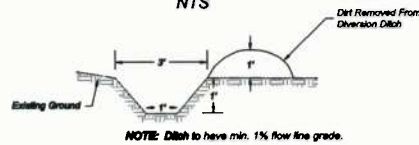


RIP RAP APRON OUTLET PROTECTION
MINIMUM TAILWATER CONDITION

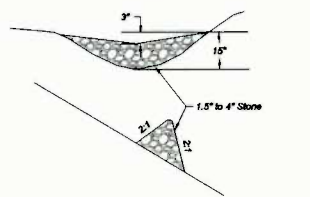
TYPICAL CULVERT & CULVERT INLET AND OUTLET PROTECTION DETAIL
NTS



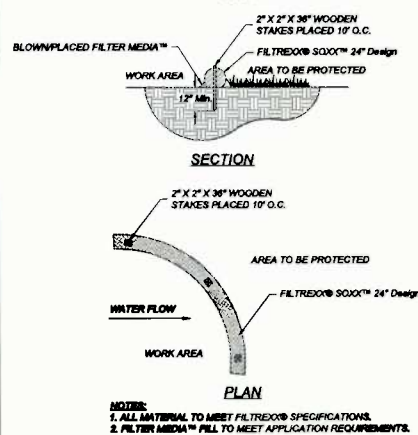
DIVERSION DITCH DETAIL
NTS



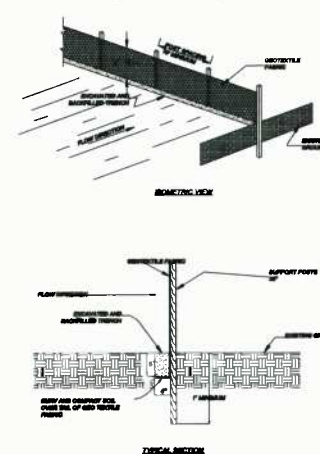
DITCH CHECK DAM DETAIL
SPACING AS INDICATED ON PROFILES
NTS



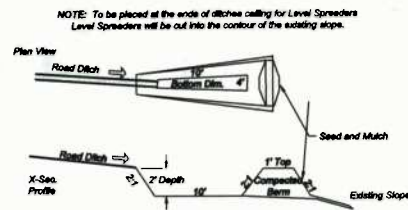
FILTREXX "SOXX" 24" FILTER SOCK DETAIL
NTS



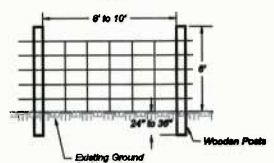
Typical Silt Fence Installation Detail
(Not to Scale)



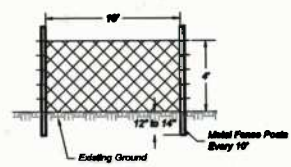
LEVEL SPREADER DETAIL
NTS



TYPICAL WOVEN WIRE FENCE DETAIL
NTS



TYPICAL CONSTRUCTION FENCE DETAIL
NTS



STRAW WATTLE SEDIMENT RETENSION FIBER ROLL (SRFR) INSTALLATION

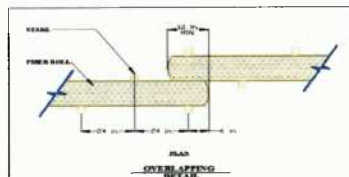
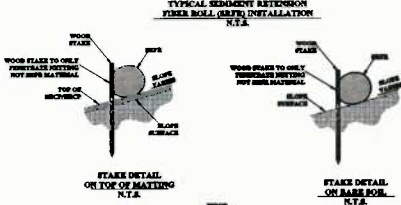
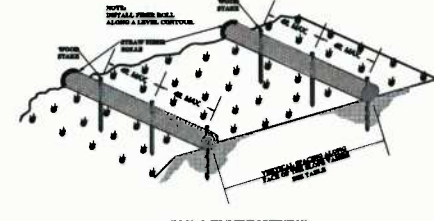
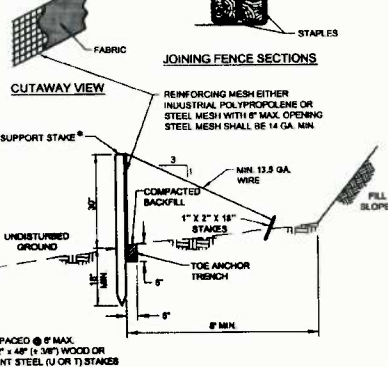


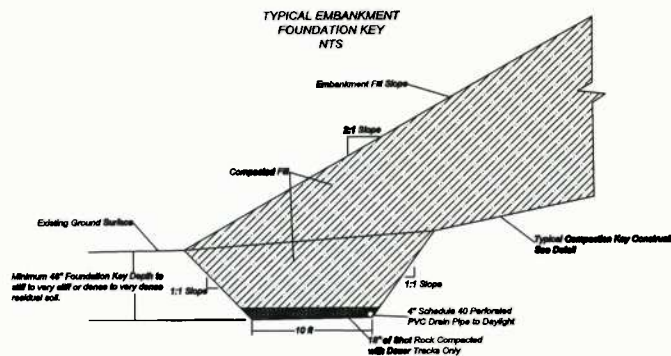
Table 1 Minimal Spacing for SRFR Slope (Silt) Sections

Slope Gradient	Nominal Diameter Spacing (ft)				
	4" dia.	6" dia.	12" dia.	18" dia.	24" dia.
4:1 V	20	30	40	45	50
3:1 V	15	20	30	35	40
2:1 V	10	15	20	25	30
1.5:1 V	5	10	15	20	25

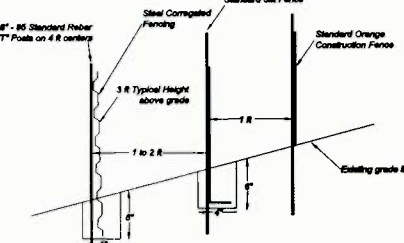
SUPER SILT FENCE TYPICAL DETAIL
NTS



TYPICAL EMBANKMENT FOUNDATION KEY
NTS



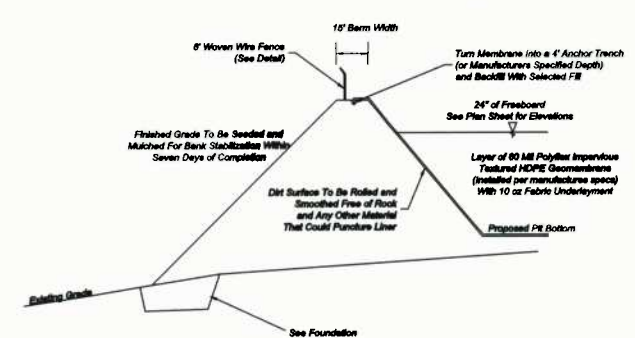
THREE PHASE FENCING FOR PERENNIAL STREAM AND WETLANDS PROTECTION
NTS



ANTERO RESOURCES STANDARD RIBBON COLOR SCHEME

	Yellow Ribbon: Yellow Ribbon used to indicate top of Cuts (C) Cut to be determined at time of stakeout Slope determined by site design
	Yellow & Orange Ribbon: Yellow and Orange Ribbon used to indicate Grade at Top of Pad/Pond/Pit
	Orange Ribbon: Orange Ribbon used to indicate toes of Fills (F) Fill to be determined at time of stakeout Slope determined by site design
	Pink Ribbon: Pink Ribbon used to indicate Top Hole Location Pink Ribbon used to indicate Survey Control Location
	Pink & Black Stripe Ribbon: Pink & Black Stripe Ribbon used to indicate Vertical Cut (VC) at Pad/Pond/Pit corner or edge Pink & Black Stripe Ribbon used to indicate Vertical Fill (VF) at Pad/Pond/Pit corner or edge Vertical Cut/Vertical Fill to be determined at time of stakeout
	Blue & White Stripe Ribbon: Blue & White Stripe Ribbon used to indicate clearing limits/construction limits
	Orange & Black Stripe Ribbon: Orange & Black Stripe Ribbon used to indicate Vertical Cut (VC) at Centerline or edge of access road Orange & Black Stripe Ribbon used to indicate Vertical Fill (VF) at centerline or edge of access road
	Pink & White Stripe Ribbon: Pink & White Stripe Ribbon used to indicate Erosion and Sediment Control Structures Silt Fence (SF) Railroad Filter Fence (RFF) Super Silt Fence (SSF) Filter Sock (FS)
	Orange & White Stripe Ribbon: Orange & White Stripe Ribbon used to indicate Topsoil Stockpile Locations
	Blue Ribbon: Blue Ribbon used to indicate Centerline (CL) Ditch Blue Ribbon used to indicate Bottom (BTM) Sediment Traps

TYPICAL EMBANKMENT DETAIL



DATE	REVISIONS	Date: 2/7/13
11-2-12	Updated Sump Detail	Scale: N/A
		Designed By: CKW/CKM
		File No. Antero 32-12
		Page 7 of 8



Allegheny Surveys, Inc.
172 Thompson Drive
Bridgeport, WV 26330
(304) 848-5035



L&W ENTERPRISES, INC.
100 BOX 128
100 BOX 128
PETERSBURG, WV 26157
TEL: 304-375-8418
FAX: 304-375-2224
EMAIL: KIR@LWENT.COM



THIS DOCUMENT
PREPARED FOR
ANTERO RESOURCES
APPALACHIAN CORP

DETAILS
**MARSDEN
FRESHWATER IMPOUNDMENT**
GREENBRIER DISTRICT
DODDRIEGE COUNTY, WV

RECLAMATION PLAN

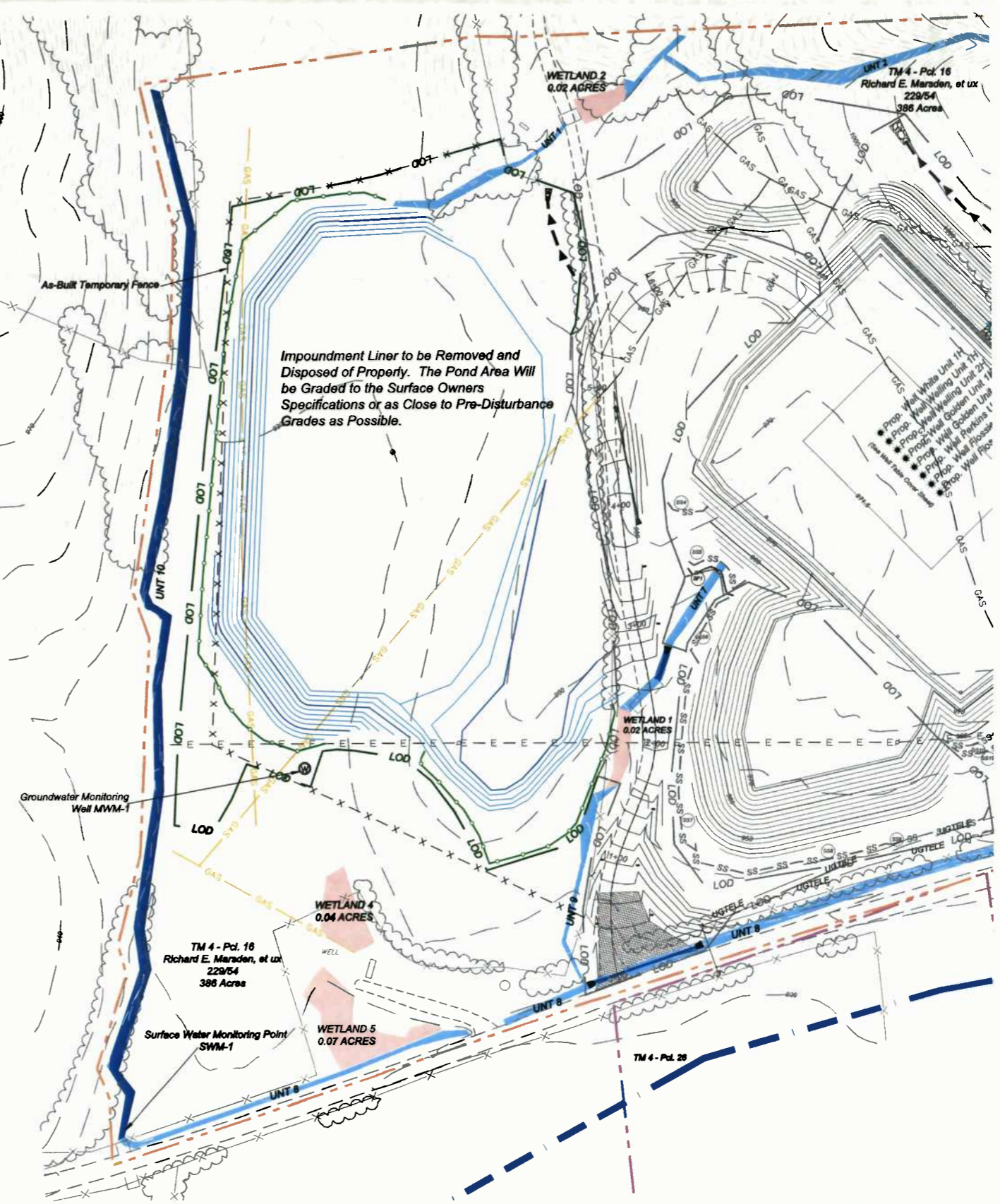


POST CONSTRUCTION DRILLING/FRACTURING REQUIREMENTS:

1. EROSION AND SEDIMENT CONTROLS SHALL BE REPAIRED/RE-ESTABLISHED IN AREAS WHERE AT LEAST 70% TURF HAS NOT BEEN ATTAINED OR EROSION HAS OCCURRED SINCE INITIAL CONSTRUCTION. REPAIRS TO CRITICAL EROSION AREAS (RESURFACING, SEEDING AND MULCH AND/OR SLOPE MATTING) SHALL BE DONE BEFORE DRILLING/FRACTURING OPERATIONS COMMENCE. WY DOG BMP SHALL BE USED FOR EROSION AND SEDIMENT CONTROLS.
2. MAINTENANCE AND OTHER CONSIDERATIONS AND GROUND WATER PROTECTION: ALL EROSION AND SEDIMENT CONTROL AND DRILL PAD CONTAMINATION MEASURES WILL BE CHECKED DAILY AND AFTER EACH RAINFALL OF 0.5 INCHES OR MORE. THEY WILL BE INSPECTED FOR UNDERMINING, DETRIORATION, EROSION AND EXCESS DEPOSITED MATERIAL. ALL DEFICIENCIES WILL BE CORRECTED IMMEDIATELY. EXCESS MATERIAL WILL BE SPREAD ON THE SITE IN A MANNER WHERE IT IS NOT LIKELY TO ERODE IN THE FUTURE. CLEANING PROCEDURES WILL BE COMPLETED AT REGULAR INTERVALS AND AT LEAST WHEN SEDIMENT REACHES CLEAN OUT LEVELS SHOWN. RECORDS OF CLEANING AND CORRECTIONS WILL BE MAINTAINED BY THE CONTRACTOR. THE "GENERIC 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 TRUCKS WITH APPROVED TANKS WILL BE USED ON THIS 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 THIS SITE. MACHINERY WILL NOT BE ALLOWED IN LIVE STREAMS. FLUIDS SUCH AS DIESEL FUEL, GAS, OIL 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.

RECLAMATION CONSTRUCTION SPECIFICATIONS:

1. THE IMPOUNDMENT SHALL BE RECLAIMED TO LANDOWNER'S SPECIFICATIONS OR AS NEAR TO ORIGINAL PRE-DISTURBED GRADES AS POSSIBLE. THE LINER SHALL BE REMOVED AND DISPOSED APPROPRIATELY OR RECYCLED.
2. EROSION AND SEDIMENT CONTROLS SHALL BE REPAIRED/RE-ESTABLISHED PRIOR TO RECLAMATION WORK COMMENCEMENT.
3. THE CONTRACTOR SHALL HAVE ON SITE AT ALL TIMES WHEN CONSTRUCTION IS IN PROGRESS A COMPETENT SUPERINTENDENT THOROUGHLY FAMILIAR WITH THE CONSTRUCTION OF EARTH BERMS AND EMBANKMENTS, THE COMPACTION OF SOILS AND PLACEMENTS OF LINERS.
4. SURFACE WATER SHALL BE DIVERTED AWAY FROM ALL EXCAVATIONS TO PREVENT FLOODING AND SOFTENING OF THE SUB GRADE OR COMPACTED MATERIALS.
5. TOP SOIL SHALL BE STRIPPED AND STOCKPILED WITH APPROPRIATE STABILIZATION AND SILT FENCE TO PREVENT EROSION. THE TOP SOIL SHALL BE REUSED DURING THE RECLAMATION PROCESS OR ON THE FACE OF THE IMPOUNDMENT PRIOR TO SEEDING.
6. TIE CUTS OF 10" MINIMUM WIDE SHALL BE EXCAVATED ON ALL RECEIVING SLOPES TO PROVIDE A BASE FOR THE IMPOUNDMENT BERM. ADDITIONAL TERRACING SHALL BE CONSTRUCTED FOR EACH ADDITIONAL FIFTY (50) VERTICAL FEET OF SLOPE AND SHALL BE A MINIMUM OF TEN (10) FEET WIDE.
7. PRIOR TO PLACING ANY FILL, THE EXPOSED SUB GRADE SHALL BE COMPACTED AND PROOF ROLLED TO PRODUCE A STABLE AND UNYIELDING SITE.
8. ALL FILL SHALL BE PLACED IN LIFTS OF UP TO 18" AND SHALL BE COMPACTED TO 90% OF THE STANDARD PROCTOR DENSITY OF THE SOIL PER ASTM D-498. THE MOISTURE CONTENT SHALL BE CONTROLLED WITHIN PLUS OR MINUS 2% OF THE OPTIMUM TO FACILITATE COMPACTION. THE CONTRACTOR SHALL DO IN-PLACE DENSITY TESTS EVERY LIFT OF SOIL AND SHALL BE DONE IN TWO RANDOM PLACES ON EACH STRAIGHT SIDE OF THE IMPOUNDMENT BERM. RECORDS SHALL BE MAINTAINED OF TEST LOCATION AND RESULTS AND PROVIDED TO THE ENGINEER ON REQUEST. AREAS THAT FAIL FOR COMPACTION SHALL BE REMOVED, RE-COMPACTED AND RETESTED FOR COMPLIANCE. IN LIEU OF MODIFIED PROCTOR TESTING, THE CONTRACTOR MAY PROOF-ROLL THE SOIL EVERY 12" OF SOIL LIFT WITH A LOADED 5 TON TRAXUM DUMP TRUCK. SOIL THAT DEFLECTS UNDER THE REAR WHEELS GREATER THAN 1/2" SHALL BE REMOVED, RE-COMPACTED AND RETESTED. COMPACTION OF SOIL SHALL BE DONE WITH A 5 TON SHEEPS FOOT, OR VIBRATORY ROLLER.
9. TOP SOIL SHALL BE PLACED ON THE FINAL SURFACE AND TRACKED IN WITH DOZERS ONLY AND FERTILIZED, LIMED, SEEDED AND MULCHED AT RATES ESTABLISHED ON SHEET 3 OF THESE PLANS. THE SITE SHALL BE MAINTAINED AND MANAGED TO ESTABLISH A UNIFORM TURF UNTIL 70% OF THE AREA IS ESTABLISHED. AFTER FINAL INSPECTION, ALL EAS CONTROLS SHALL BE REMOVED AND ANY DISTURBED AREAS RESEEDED AND MULCHED.
10. MAINTENANCE AND OTHER CONSIDERATIONS AND GROUND WATER PROTECTION: ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CHECKED DAILY AND AFTER EACH RAINFALL OF 0.5 INCHES OR MORE. THEY WILL BE INSPECTED FOR UNDERMINING, DETRIORATION, EROSION AND EXCESS DEPOSITED MATERIAL. ALL DEFICIENCIES WILL BE CORRECTED IMMEDIATELY. EXCESS MATERIAL WILL BE SPREAD ON THE SITE IN A MANNER WHERE IT IS NOT LIKELY TO ERODE IN THE FUTURE. CLEANING PROCEDURES WILL BE COMPLETED AT REGULAR INTERVALS AND AT LEAST WHEN SEDIMENT REACHES CLEAN OUT LEVELS SHOWN. RECORDS OF CLEANING AND CORRECTIONS WILL BE MAINTAINED BY THE CONTRACTOR. THE "GENERIC 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 TRUCKS WITH APPROVED TANKS WILL BE USED ON THIS 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 THIS SITE. MACHINERY WILL NOT BE ALLOWED IN LIVE STREAMS. FLUIDS SUCH AS DIESEL FUEL, GAS, OIL 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. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE CHANGES AND NOTIFY WRITER OF ANY CHANGES TO GPP. A FINAL INSPECTION WILL BE MADE AT THE CONCLUSION OF THE PROJECT AND ALL CORRECTIONS MADE BEFORE SIGN-OFF OF THE PROJECT SITE.
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 SHOWN.
 - D. REMOVE TOPSOIL AND PLACE AT AN AREA DETERMINED IN THE FIELD WHERE EROSION WILL NOT TAKE PLACE. SILT FENCE SHALL BE CONSTRUCTED AROUND TOPSOIL STOCKPILES.
 - E. GRADING OPERATIONS AS REQUIRED. FILL SLOPES SHALL BE TOPSOILED.
 - G. WHEN FINAL GRADE IS ACHIEVED, TOPSOIL TO BE PLACED ON ALL DISTURBED AREAS NOT LINED. SEED ALL DISTURBED AREAS AS REQUIRED. A SOIL SAMPLE SHOULD BE TAKEN AND TESTED TO DETERMINE RECOMMENDED RATES. IF NO SOILS SAMPLE IS TAKEN THE FOLLOWING RATES SHOULD BE APPLIED AS A MINIMUM: LIME AT A RATE OF 4 TONS PER ACRE, FERTILIZER AT A RATE OF 900 LBS. OF 10-20-10 PER ACRE. SEED WITH 45 LBS. PER ACRE OF TALL FESCUE AND 20 LBS. PER ACRE OF PERENNIAL RYE GRASS.
 - H. LIME, FERTILIZER, AND SEED WILL BE APPLIED BY HAND OR USING A HYDROSEEDER. HYDRO-MULCH PRODUCTS SHALL BE 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 THOSE 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 BUILDINGS OR PAVEMENT SHALL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY FOLLOWING FINISH GRADING AND WITHIN 7 DAYS. AT NO TIME SHALL LAND LAY DORMANT FOR LONGER THAN 21 DAYS.



Impoundment Liner to be Removed and Disposed of Properly. The Pond Area Will be Graded to the Surface Owners Specifications or as Close to Pre-Disturbance Grades as Possible.

Legend		
Existing 2' Contour	Stream Per AllStar	Proposed Check Dam
Existing 10' Contour	Limits of Disturbance	Proposed Culvert W/ Inlet & Outlet Protection
Existing Tree Line	Proposed Diversion Ditch	Proposed Silt Sock or Silt Fence
Existing Utility Line / Pole	Proposed 2' Contour	Proposed 2' Contour
Surface Owner Property Line	Proposed 10' Contour	Proposed 10' Contour
Existing Gas Line CL	Proposed 3-Phase Fence	Proposed Rip-Rap

DATE	REVISIONS
2-15-13	Updated Impoundment Design



Allegheny Surveys, Inc.
172 Thompson Drive
Bridgeport, WV 26330
(304) 848-5035



L&W ENTERPRISES, INC.
P.O. BOX 628
1000 W. MAIN ST.
PETERSBURG, WV 26847
PHONE: 304-357-0411
FAX: 304-357-0424
EMAIL: KEB@LWENTR.COM



THIS DOCUMENT PREPARED FOR ANTERO RESOURCES APPALACHIAN CORP

RECLAMATION PLAN
MARSDEN
FRESHWATER IMPOUNDMENT
GREENBRIER DISTRICT
DODDRIIDGE COUNTY, WV

Date: 1/23/13
Scale: 1" = 50'
Designed By: CKWICKM
File No. Antero 32-12
Page 8 of 8