

## Floodplain Development Permit

### Doddridge County, WV Floodplain Management

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

**Permit: #22-608** 

Date Approved: March 7, 2022 Expires: March 7, 2023

Issued to: Antero Resources POC: Luz Falcon-Martinez

Company Address: 535 White Oaks Blvd. Bridgeport, WV 26330

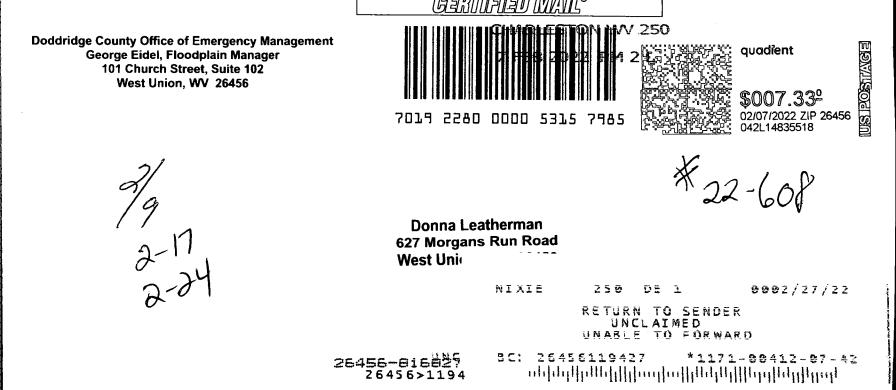
Project Address: Morgans Run Road West Union, WV 26456

Firm: 54017C0140C Lat/Long: 39.286667N, -80.687822W

Purpose of Development: Construction of Early Childhood Academy

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

Date: March 7, 2022



| <br>THE STATE OF ENGLISH SECTION NEWSTRY STATES TO STATES THE TOP OF THE SECTION NEWSTRY STATES THE STA |  |
|--|--|
|  |  |
|  |  |

### SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. ■ Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.
  - Donna@eatherman

Article Addressed to:

## 627 Morgans Run Road West Union, WV 26456



- 9590 9402 4868 9032 9569 98 2. Article Number (Transfer from service label)

### COMPLETE THIS SECTION ON DELIVERY

Service Type

☐ Adult Signature

☐ Certified Mail®

Insured Mail

(over \$500)

☐ Collect on Delivery

☐ Adult Signature Restricted Delivery

☐ Certified Mail Restricted Delivery

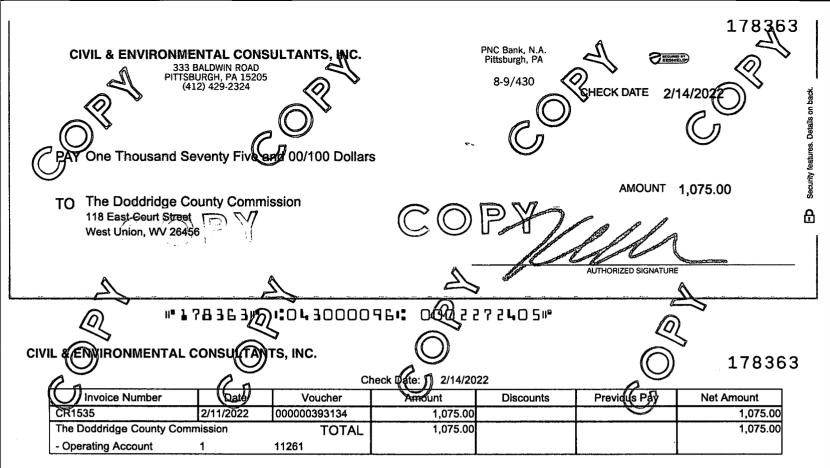
☐ Insured Mail Restricted Delivery

☐ Collect on Delivery Restricted Delivery

- A. Signature ☐ Agent ☐ Addressee
- B. Received by (Printed Name) C. Date of Delivery
- D. Is delivery address different from item 1? ☐ Yes If YES, enter delivery address below: □ No

Delivery

- ☐ Priority Mail Express® ☐ Registered Mail™ ☐ Registered Mail Restricted
- ☐ Return Receipt for Merchandise ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery Domestic Return Receipt



FP\$2-608

FEB18 22 11:138M

### FLOODPLAIN PERMIT #22-608

Antero Resources, Slip Repair, Morgans Run Road, 39.286667, -80.687822

| TASK                    | COMPLETE<br>(DATE) | NOTES |
|-------------------------|--------------------|-------|
| CHECK RECEIVED          | 2/18/2022          |       |
| US ARMY CORP.           |                    |       |
| ENGINEERS (USACE)       |                    |       |
| US FISH & WILDLIFE      |                    |       |
| SERVICES (USFWS)        |                    |       |
| WV DEPT. NATURAL        |                    |       |
| RESOURCES (WVDNR)       |                    | 1     |
| WV DEPT. ENVIROMENTAL   |                    |       |
| PROTECTION (WVDEP)      |                    |       |
| STATE HISTORIC &        |                    |       |
| PRESERVATION OFFICE     |                    |       |
| (SHPO)                  |                    |       |
| OFFICE of LAND & STREAM |                    |       |
| (OLS)                   |                    |       |
| WVDOH                   |                    |       |
| Elevation Certificate   |                    |       |
| DATE OF COMMISSION      |                    |       |
| READING                 | 2/15/2022          |       |
| DATE AVAILABLE TO BE    |                    |       |
| GRANTED                 | 3/7/2022           |       |
| PERMIT GRANTED          |                    |       |
| COMPLETE                |                    |       |
|                         |                    |       |

| 7020 2450 0002 3 | 081 7490  | 7019 2280 0000 5315 7965 |
|------------------|-----------|--------------------------|
| 7019 2280 0000 5 | 3315 7978 | 7019 2280 0000 5315 7992 |

Doddridge County Office of Emergency Management/Floodplain Management 105 Court Street, Suite 3 304-873-1343 doddridgecountyfpm@gmail.com



Dear Sir or Ma'am,

February 7, 2022

You are receiving this letter because you have been identified as a land surface and/or mineral rights owner for property or adjacent property related to the proposed development/project identified by the following page.

No action is required of you. This letter is simply to inform you of the proposed development.

If you would like to comment on this proposed project, or would like additional information, you may contact the Doddridge County Floodplain Manager at the above address.

Respectfully yours,

George Eidel, CFM, OEM Director/Floodplain Manager

|  |  | 1   |
|--|--|---|
| SENDER: COMPLETE THIS SECTION  Complete items 1, 2, and 3. Print your name and address on the reverse so that we can return the card to you. Attach this card to the back of the mailpiece, or on the front if space permits. Article Addressed to:  Rover Pipeline, LLC | A. Signature  B. Received by (Printed Name)  D. Is delivery address different from If YES, enter delivery address be   | Agent Addressee C. Date of Delivery tem 1? Yes  |
| 6051 Wallace Road, Suite 300<br>Wexford, PA 15090  |  |   |
| 9590 9402 4868 9032 9569 74  2. Article Number ( <i>Transfer from service label</i> )  | □ Adult Signature     □ Adult Signature   □     □ Certified Mail®     □ Certified Mail Restricted Delivery     □ Collect on Delivery     □ Collect on Delivery   □   | Priority Mail Express® Registered Mail™ Registered Mail Restricted Delivery Return Receipt for Merchandise Signature Confirmation™ Signature Confirmation Restricted Delivery                               |
| PS Form 3811, July 2015 PSN 7530-02-000-9053   | - · · · · · · · · · · · · · · · · · · ·  | mestic Return Receipt   |
| SENDER: COMPLETE THIS SECTION  Complete items 2, and 3. Print your name and address on the reverse   | COMPLETE THIS SECTION ON E  A. Signature   | DELIVERY  Agent  Addressee  |
| so that we can return the card to you.  Attach this card to the back of the mailpiece, or on the front if space permits.   | B. Received by (Printed Name)  | C. Date of Delivery   |
| 1. Article Addressed to:   | D. Is delivery address different from If YES, enter delivery address   |   |
| Delbert E. Leatherman<br>3009 Dogwood Road<br>Bridgeport, WV 26330   |  |   |
| 9590 9402 4868 9032 9570 01  2. Article Number ( <i>Transfer from service label</i> )  | (3. Service Type  Adult Signature Adult Signature Restricted Delivery Certified Mail® Certified Mail Restricted Delivery Collect on Delivery Insured Mail Insured Mail Insured Mail Restricted Delivery (over \$500) | □ Priority Mail Express®     □ Registered Mail™     □ Registered Mail Restricted Delivery     □ Return Receipt for Merchandise     □ Signature Confirmation    □ Signature Confirmation Restricted Delivery |
| PS Form 3811, July 2015 PSN 7530-02-000-9053   |  | Domestic Return Receipt   |



### **Doddridge County Floodplain Permits**

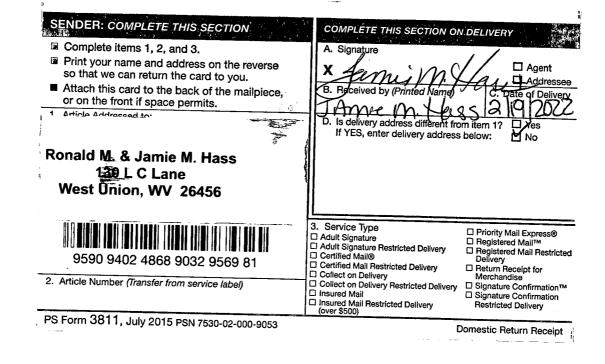
(Week of February 7, 2022)

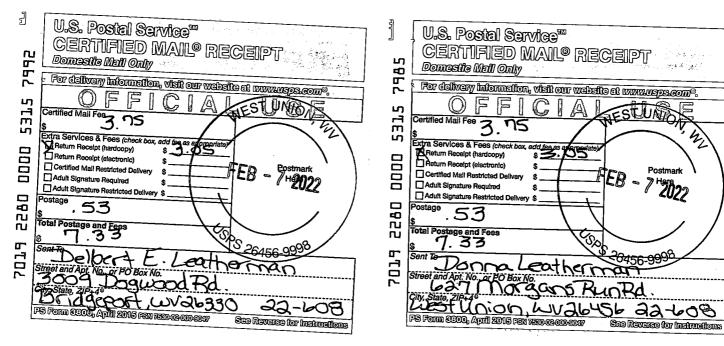
Please take notice that on the (31st) of (January), 2022, (Antero Resources) filed an application for a Floodplain Permit (#22-608) to develop land located at or about (Morgans Run Road); Coordinates: 39.286667, -80.687822. The Application is on file with the Floodplain Manager of the County and may be inspected or copied during regular business hours in accordance to WV Code Chapter 29B Freedom of Information, Article 1 Public Records and county policy and procedures. Any interested persons who desire to comment shall present the same in writing by (March 7, 2022) (20 calendar days after the announcement at the regularly scheduled Doddridge County Commission Meeting) delivered to the Floodplain Manager of the County at 105 Court Street, Suite #3, West Union, WV 26456. This project is

a slip repair

GEORGE C. EIDEL, CFM

**Doddridge County Floodplain Manager** 







### **Doddridge County Floodplain Permits**

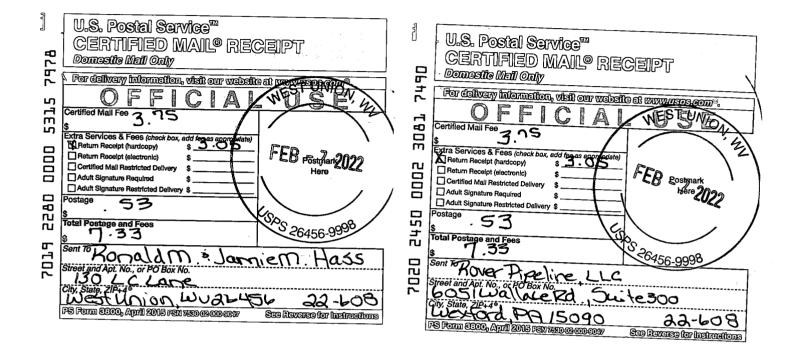
(Week of February 7, 2022)

Please take notice that on the (31st) of (January), 2022, (Antero Resources) filed an application for a Floodplain Permit (#22-608) to develop land located at or about (Morgans Run Road); Coordinates: 39.286667, -80.687822. The Application is on file with the Floodplain Manager of the County and may be inspected or copied during regular business hours in accordance to WV Code Chapter 29B Freedom of Information, Article 1 Public Records and county policy and procedures. Any interested persons who desire to comment shall present the same in writing by (March 7, 2022) (20 calendar days after the announcement at the regularly scheduled Doddridge County Commission Meeting) delivered to the Floodplain Manager of the County at 105 Court Street, Suite #3, West Union, WV 26456. This project is

a slip repair)

GEORGE C. EIDEL, CFM

Doddridge County Floodplain Manager





RM31 22 9:06AM

January 26, 2022

**Doddridge County Commission** Attn: George Eidel, Doddridge County Floodplain Manager 118 East Court Street, Room 102 West Union, WV 26456

Subject:

Antero Resources Corporation

Morgans Run Slips No-Rise Certificate

Doddridge County, West Virginia

CEC Project 316-793

Civil & Environmental Consultants, Inc. (CEC) is pleased to evaluate the potential floodplain impacts for the above referenced project on behalf of Antero Resources Corporation, 535 White Oaks Boulevard, Bridgeport, WV 26330. Antero Resources Corporation is proposing to repair a road slip that has formed in Doddridge County Route 20 (Morgan's Run Road). The project site is located within a Zone A Flood Zone as designated on FEMA's Flood Map 54017C0140C with an effective date of October 4, 2011.

The existing road will be repaired 20 feet past the scarp line in each direction for a total length of repair of 126 feet. The repairs will maintain the contours to near existing condition elevations. The road will be stabilized using plug pile wall, installation of guardrail, re-establishing the road with suitable materials, and providing proper drainage. Appropriate erosion control measures will be utilized to minimize the potential for sediment-laden waters leaving the limit of disturbance. As the site is restored to approximate original contours, the proposed slip repair will not result in a decrease of the available floodplain storage area and will not adversely affect the base flood elevation of Morgans Run.

This no-rise certificate is provided in support of the floodplain development permit application. Your time and effort in reviewing this floodplain development permit application is appreciated. Please feel free to contact Joseph D. Robinson at 304-933-3119 or via e-mail at <u>irobinson@cecinc.com</u> if you have questions or need additional information.

Respectfully submitted,

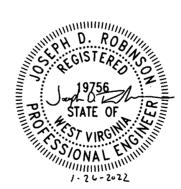
CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Erasmo Rizo

Senior Project Manager

Joseph D. Robinson, PE

Vice Presiden



### ATTACHMENT A

Floodplain Development Permit Application



Permit# 22-608

Morgans Run

Project Name: Slip Repo

Permittees Name: ANT

TEB18 22 11:100M

## Doddridge County, WV

## Floodplain Development **Permit Application**

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

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

- 1. No work may start until a permit is issued.
- 2. The permit may be revoked if any false statements are made herein.
- 3. If revoked, all work must cease until permit is re-issued.
- The permit will expire if no work is commenced within six months of issuance. 4.
- 5. Applicant is hereby informed that other permits may be required to fulfill local, state, and federal requirements.
- Applicant hereby gives consent to the Floodplain Administrator/Manager or his/her representative to make inspections to verify compliance.
- 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 | Daniel Bulian |
|-----------------------|---------------|
| DATE                  | 01.27.2022    |

### **Applicant Information:**

Please provide all pertinent data.

| Applicant Information                                |   |                   |  |  |  |
|--|---|-------------------|--|--|--|
| <b>Responsible Company Name:</b> Antero Resources    | Corporation                                     |                   |  |  |  |
| Corporate Mailing Address: 1615 Wynkoop Stre         | et  |                   |  |  |  |
| City: Denver   | y: Denver State: CO Zip: 80202                  |                   |  |  |  |
| Corporate Point of Contact (POC): Luz Falcon-M       | artinez   |                   |  |  |  |
| Corporate POC Title: Environmental & Regulator       | y Manager                                       |                   |  |  |  |
| Corporate POC Primary Phone: (303) 357-6834          |   |                   |  |  |  |
| Corporate POC Primary Email: lfalcon@anterore        | esources.com                                    |                   |  |  |  |
| Corporate FEIN: 80-0162034                           | Corporate D                                     | UNS:              |  |  |  |
| Corporate Website: https://www.anteroresourc         | es.com/   |                   |  |  |  |
| Local Mailing Address: 535 White Oaks Boulevan       | rd  |                   |  |  |  |
| City: Bridgeport                                     | State: WV                                       | <b>Zip:</b> 26330 |  |  |  |
| Local Project Manager (PM): Mr. Daniel Bulian        | ·   |                   |  |  |  |
| Local PM Primary Phone: Office: (304) 842-4093       | 3   |                   |  |  |  |
| Local PM Secondary Phone: Cell: (304) 579-366        | 6   |                   |  |  |  |
| Local PM Primary Email: dbulian@anteroresour         | ces.com   |                   |  |  |  |
| Person Filing Application: Mr. Daniel Bulian         |   |                   |  |  |  |
| Applicant Title: Environmental Specialist III        | Applicant Title: Environmental Specialist III   |                   |  |  |  |
| Applicant Primary Phone: Office: (304) 842-409       | Applicant Primary Phone: Office: (304) 842-4093 |                   |  |  |  |
| Applicant Secondary Phone: Cell: (304) 579-3666      |   |                   |  |  |  |
| Applicant Primary Email: dbulian@anteroresources.com |   |                   |  |  |  |
|  |   |                   |  |  |  |

### **Project Narrative:**

Describe in detail the proposed development including project name/title, type of development, estimated start and completion timeline, and its potential impact on the floodplain. Use additional copies of this page as needed.

#### **Project Narrative:**

Antero Resources Corporation is proposing to repair a road slip that has formed in Doddridge County Route 20 (Morgan's Run Road). The limit of disturbance (LOD) is 0.16-acre.

The existing road will be repaired 20 feet past the scarp line in each direction for a total length of repair of 126 LF. The repairs will maintain the contours to near existing condition elevations. The road will be stabilized using plug pile wall, installation of guardrail, re-establishing the road with suitable materials, and providing proper drainage. Appropriate erosion control measures will be utilized to minimize the potential for sediment laden waters leaving the LOD.

The project is located within a Federal Emergency Management Agency mapped flood hazard area, as shown on the mapping in Attachment B (FIRM map 54017C0140C); the Site Plans are included as Attachment C.

### **Proposed Development:**

Please check all elements of the proposed project thatapply.

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

### A. STRUCTURAL DEVELOPMENT

|     |               | ACTIV    | <u>ITY</u>      |            |                      | STRUC                      | TURAL TYPE                |
|-----|---------------|----------|-----------------|------------|----------------------|----------------------------|---------------------------|
| []  | New Structure |          | []              | Resider    | ntial (1 – 4 Family) |                            |                           |
| []  |               |          |                 | []         | Resider              | ntial (more than 4 Family) |                           |
| []  | Alteration    | on       |                 |            | []                   | Non-re                     | sidential (floodproofing) |
| []  | Relocati      | on       |                 |            | []                   | Combir                     | ned Use (res. & com.)     |
| Ö   | Demolit       | ion      |                 |            |                      | Replace                    | ement                     |
| []  | Manufa        | actured  | /Mobil Home     |            |                      | ·                          |                           |
| В.  | OTHER         | DEVEL    | OPMENT A        | CTIVITIE   | S:                   |                            |                           |
| []  | Fill          | []       | Mining          | [x]        | Drilling             | []                         | Pipelining                |
| []  | Grading       |          |                 |            |                      |                            |                           |
| [x] | Excavat       | ion (ex  | cept for STRU   | CTURAL D   | EVELOPMEN            | NT checke                  | ed above)                 |
| []  | Waterco       | ourse A  | lteration (incl | uding dre  | dging and ch         | nannel mo                  | odification)              |
| [x] | Drainag       | e Impr   | ovements (inc   | luding cul | vert work)           |                            |                           |
| [x] | Road, St      | reet, o  | r Bridge Const  | truction   |                      |                            |                           |
| []  | Subdivis      | ion (in  | cluding new e   | xpansion)  |                      |                            |                           |
| []  | Individu      | al Wat   | er or Sewer Sy  | /stem      |                      |                            |                           |
| [x] | Other (p      | olease s | specify)        |            |                      |                            |                           |
|     | Slip repa     | air alon | g roadway       |            |                      |                            |                           |
|     |               |          |                 |            |                      |                            |                           |
|     |               |          |                 |            |                      |                            |                           |

### **Development Site/Property Information:**

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

| Property Designation | on:1_ of _2_                      |              |  |
|----------------------|-----------------------------------|--------------|--|
| Site/Property Inform | mation:                           |              |  |
| Legal Description: 8 |                                   |              |  |
|                      |                                   |              |  |
| Physical Address/9   | 11 Address: 130 L C LN, West Uni  | on, WV 26456 |  |
| Decimal Latitude/Lo  | ongitude: 39.286504, -80.688041   |              |  |
| DMS Latitude/Longi   | itude: 39º17'11.41" N, 80º41'16.9 | 5" W         |  |
| District: 3          | Map: 16                           | Parcel: 15.2 |  |
| Land Book Descript   | ion:                              | •            |  |
|                      |                                   |              |  |
| Deed Book Reference  | ce: Deed Book 378 Page 704        |              |  |
|                      |                                   |              |  |
| Tax Map Reference:   | 09-03-0016-0015-0002              |              |  |
|                      |                                   |              |  |
| Existing Buildings/U | Use of Property: Wooded and pas   | tured        |  |
|                      |                                   |              |  |

| Property Designation:2   | _ of _2_               |                                       |                 |          |
|--|------------------------|---------------------------------------|-----------------|----------|
| Clar (December 1 - 5 - march)  |                        | · · · · · · · · · · · · · · · · · · · | <del> </del>    |          |
| Site/Property Information  |                        | <u> </u>                              |                 | <u> </u> |
| Legal Description: Morgan  | s Run 208.53 AC INT    | O&G                                   |                 |          |
|  |                        |                                       |                 |          |
| Physical Address/911 Add   | ress: RT 20 Morgans    | Run Rd, West Un                       | ion, WV         | 26456    |
| Decimal Latitude/Longitud  | le: 39.286686, -80.68  | 8426                                  |                 |          |
| DMS Latitude/Longitude: 3  | 39º17'12.07" N, 80º41  | '18.33" W                             |                 |          |
| District: 3  | Map: 16                |                                       | Parcel:         | 15       |
| Land Book Description:   |                        |                                       |                 |          |
|  |                        |                                       |                 |          |
| Deed Book Reference: Dee   | d Book 214 Page 44     | 4                                     |                 |          |
|  |                        |                                       |                 |          |
| Tax Map Reference: 09-03   | -0016-0015-0000        |                                       |                 |          |
|  |                        |                                       |                 |          |
| Existing Buildings/Use of I  | Property: Wooded and   | d pastured, road                      | ls              |          |
|  |                        |                                       |                 |          |
|  |                        |                                       |                 |          |
| Floodplain Location Data:  | (to be completed by Fl | oodplain Manag                        | er ordes        | ignee)   |
| Community:   | Number:                | Panel:                                |                 | Suffix:  |
| Location (Lat/Long):   |                        | Approximate I                         | Elevation       | 1:       |
| ·  |                        |                                       |                 |          |
| Estimated BFE:   |                        |                                       |                 |          |
| Is the development in the floodway?  Is the development in the floodplain? |                        |                                       | _               |          |
| Yes No   |                        | Yes                                   | U <sub>No</sub> | Zone:    |
| Notes:   |                        |                                       |                 |          |
|  |                        | <u> </u>                              |                 |          |
|  |                        |                                       |                 |          |

### **Property Owner Data:**

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

| Property Designation: _1 of _2           |                                       |              |                                       |
|--|---------------------------------------|--------------|---------------------------------------|
| Property Owner Data:                     |                                       |              | · · · · · · · · · · · · · · · · · · · |
| Name of Primary Owner (PO): Hass Rona    | ld M & Jamie M (Sur                   | v.)          |                                       |
| PO Address: 130 L C Ln                   |                                       |              |                                       |
| City: West Union                         | State: WV                             | Zip: 26456   |                                       |
| PO Primary Phone:                        |                                       |              |                                       |
| PO Secondary Phone:                      |                                       |              |                                       |
| PO Primary Email:                        |                                       | <del>,</del> |                                       |
|  |                                       |              |                                       |
| Surface Rights Owner Data:               | · · · · · · · · · · · · · · · · · · · |              |                                       |
| Name of Primary Owner (PO):              |                                       |              |                                       |
| PO Address:                              |                                       |              |                                       |
| City:                                    | State:                                | Zip:         |                                       |
| PO Primary Phone:                        |                                       |              |                                       |
| PO Secondary Phone:                      |                                       |              |                                       |
| PO Primary Email:                        |                                       | ***          |                                       |
|  |                                       |              |                                       |
| Mineral Rights Owner Data: (As Applicabl | le)                                   |              |                                       |
| Name of Primary Owner (PO):              |                                       |              |                                       |
| PO Address:                              |                                       |              |                                       |
| City:                                    | State:                                | Zip:         |                                       |
| PO Primary Phone:                        | 1                                     | I            |                                       |
| PO Secondary Phone:                      |                                       |              | ,                                     |
| PO Primary Email:                        |                                       |              |                                       |

| Property Designation: _2 of _2       |                          |            |
|--------------------------------------|--------------------------|------------|
|                                      |                          |            |
| Property Owner Data:                 |                          |            |
| Name of Primary Owner (PO): Leathe   | rman, Delbert E. Et. Al. |            |
| PO Address: 3009 Dogwood Rd          |                          |            |
| City: Bridgeport                     | State: WV                | Zip: 26330 |
| PO Primary Phone:                    |                          |            |
| PO Secondary Phone:                  |                          |            |
| PO Primary Email:                    |                          |            |
|                                      |                          |            |
| Surface Rights Owner Data:           | <u> </u>                 |            |
| Name of Primary Owner (PO):          |                          |            |
| PO Address:                          |                          |            |
| City:                                | State:                   | Zip:       |
| PO Primary Phone:                    |                          |            |
| PO Secondary Phone:                  |                          |            |
| PO Primary Email:                    |                          |            |
|                                      |                          |            |
| Mineral Rights Owner Data: (As Appli | cable)                   |            |
| Name of Primary Owner (PO):          |                          |            |
| PO Address:                          |                          |            |
| City:                                | State:                   | Zip:       |
| PO Primary Phone:                    |                          |            |
| PO Secondary Phone:                  |                          |            |
| PO Primary Email:                    | <del></del>              |            |

### **Contractor Data:**

Please provide all pertinent data for contractors and sub---contractors that may be participating in this project. Use additional copies of this page as needed. Designate each page in relation to each property listed above.

| Property Designation: of                             |                   |           |  |  |
|--|-------------------|-----------|--|--|
| Contractor/Sub-Contractor (C/SC) Information         | -                 |           |  |  |
| C/SC Company Name:                                   |                   |           |  |  |
| C/SC WV License Number:                              |                   |           |  |  |
| C/SC FEIN:   | C/SC DUNS:        |           |  |  |
| Local C/SC Point of Contact (POC):                   | •                 |           |  |  |
| Local C/SC POC Title:                                |                   |           |  |  |
| C/SC Mailing Address:                                |                   |           |  |  |
| City:  | State:            | Zip+Code: |  |  |
| Local C/SC Office Phone:                             |                   | •         |  |  |
| Local C/SC POC Phone:                                |                   |           |  |  |
| Local C/SC POC E-Mail:                               |                   |           |  |  |
|  |                   |           |  |  |
|  |                   |           |  |  |
| Engineer Firm Information:                           |                   |           |  |  |
| Engineer Firm Name: Civil & Environmental Co         | onsultants, Inc.  |           |  |  |
| Engineer WV License Number: 0402053304               |                   |           |  |  |
| Engineer Firm FEIN:                                  | Engineer Firm     | DUNS:     |  |  |
| Engineer Firm Primary Point of Contact (POC)         | : Joseph D. Robin | son       |  |  |
| Engineer Firm Primary POC Title: Vice Preside        | ent               |           |  |  |
| Engineer Firm Mailing Address: 120 Genesis Boulevard |                   |           |  |  |
| City: Bridgeport State: WV Zip+Code: 26330           |                   |           |  |  |
| Engineer Firm Office Phone: 304-933-3119             |                   |           |  |  |
| Engineer Firm Primary POC Phone: 304-848-7134        |                   |           |  |  |
| Engineer Firm Primary POC E-Mail: jrobinson@         | cecinc.com        |           |  |  |

### Adjacent and/or Affected Landowners Data

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

| Adjacent Property Owner Data: Upst | ream        |            |  |
|------------------------------------|-------------|------------|--|
| Name of Primary Owner (PO): Leath  | erman Donna |            |  |
| Physical Address: 627 Morgans Run  | Rd          |            |  |
| City: West Union                   | State: WV   | Zip: 26456 |  |
| PO Primary Phone:                  |             |            |  |
| PO Secondary Phone:                |             |            |  |
| PO Primary Email:                  |             |            |  |

| Adjacent Property Owner Data: Downstream    |           |            |
|---|-----------|------------|
| Name of Primary Owner (PO): Rover Pipeline  | LLC       |            |
| Physical Address: 6051 Wallace Rd Suite 300 |           |            |
| City: Wexford                               | State: PA | Zip: 15090 |
| PO Primary Phone:                           |           |            |
| PO Secondary Phone:                         |           |            |
| PO Primary Email:                           |           |            |

#### Site Plan

A Site Plan is an accurate and detailed map of the proposed development for this project. It shows the size, shape, location and special features of the project property, and the size and location of any development planned to the property, especially as that development will impact the floodplain and/or floodway. Site plans show what currently exists on the project property, and any changes or improvements you are proposing to make. A certified and licensed engineering firm should complete site plans.

#### A SITE PLAN MUST CONTAIN THE FOLLOWING INFORMATION:

- 1. Legal description of the parcel, north arrow and scale
- 2. All property lines and their dimensions
- 3. Names of adjacent roads, location ofdriveways
- 4. Location of sloughs, tributaries, streams, rivers, wetlands, ponds, and lakes, with setbacks indicated, and including FEMA floodplain data based on most updated FIRM.
- 5. Location, size, shape of all buildings, existing and proposed, with elevation of lowest floor indicated.
- 6. Location and dimensions of existing or proposed on site sewage systems.
- 7. Location of all propane tanks, fuel tanks or other liquid storage tanks whether above ground or below ground level.
- 8. Location and dimensions of any proposed pipeline placement(s) into floodplain/floodway.
- 9. Location and dimensions of any roadway development into floodplain/floodway. (Includes initial development access roads)
- 10. Location and dimensions of any bridge and/or culvert development into floodplain/floodway.
- 11. Location and dimensions of any storage yard or facility into the floodplain/floodway.
- 12. Location of any existing utilities and/or proposed utility placementand/or displacement.
- 13. Location, dimensions and depth of any existing or proposed fill on site.
- 14. A survey showing the **existing ground elevations** of at least location on the building site. **ELEVATION NOTE**: All vertical datum will reference either NGVD 29 or NAVD 88. Assumed datum will not be acceptable unless the property is located in an area where vertical datum has not been published. For those areas where vertical datum has not been established, a site plan with contours, elevations using assumed datum, high water marks and existing water levels of sloughs, rivers, lakes or streams and proposed lowest floor elevation.

#### **Applicant**

Please read print name, sign and date below:

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

| Applicant Signature:    | Daniel Bulian   | Date: 01.27.2022 |
|-------------------------|-----------------|------------------|
| Applicant Printed Name: | Daniel J Bulian | _                |

## ATTACHMENT B

Floodplain Mapping

### National Flood Hazard Layer FIRMette





#### Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT



This map compiles with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown compiles with FEMA's basemap accuracy standards

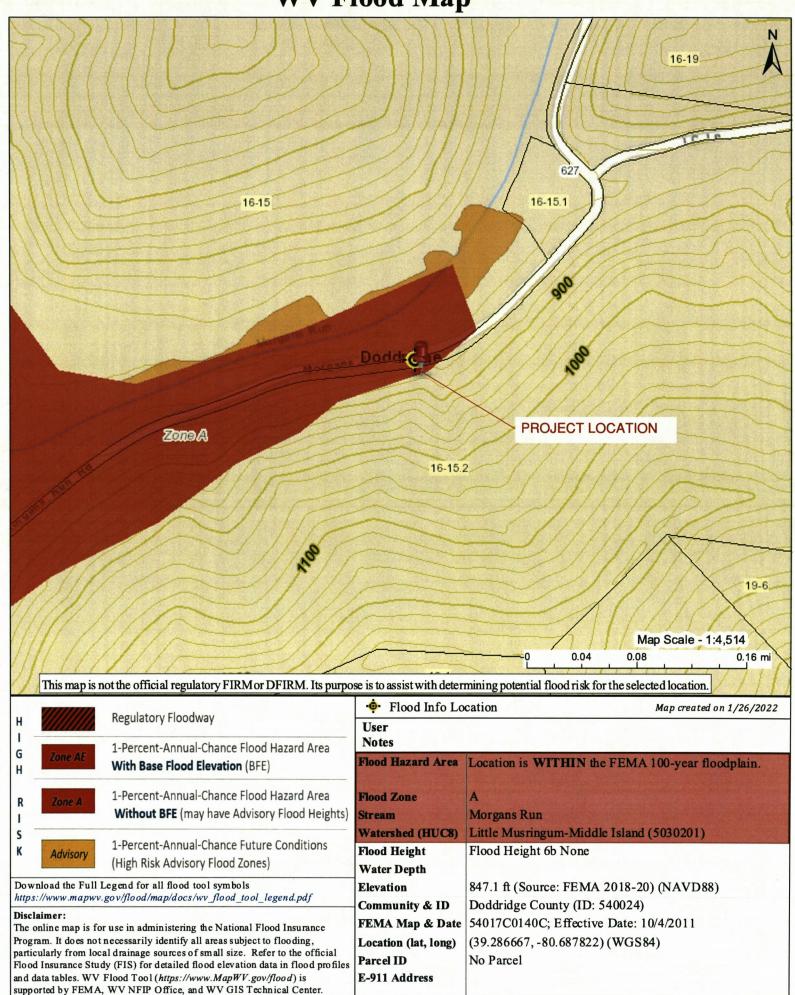
point selected by the user and does not represen

an authoritative property location.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/24/2022 at 9:10 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

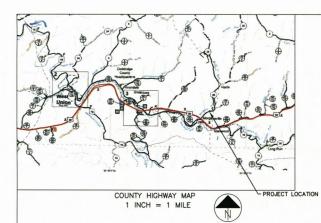
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

### WV Flood Map



## ATTACHMENT C

Site Plans

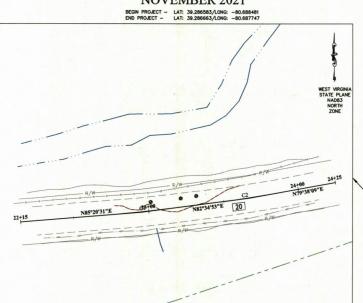


### FINAL DESIGN



### MORGAN'S RUN ROAD SLIP REPAIR - C.R. 20 MP 0.418

MORGANSVILLE, DODDRIDGE COUNTY, WEST VIRGINIA **NOVEMBER 2021** 



| FINAL DESIGN         |
|----------------------|
| <b>ISSUE FOR BID</b> |
| 2021-12-14           |

WEST VIRGINIA DOH DISTRICT MAP

NOT TO SCALE

DISTURBED ACREAGE 0.157 ACRES

SURFACE EASEMENT OUTSIDE RIGHT-OF-WAY
TYPE OF EASEMENT (SF)

SURFACE EASEMENT (SF)



THE GENERAL CONTRACTOR SHALL NOTIFY
ALL UTILITY COMPANIES INVOLVED IN THE
SITE NO MORE THAN TEN DAYS AND NO LESS THAN
THREE DAYS IN ADVANCE OF EXCAVATION. WEST VIRGINIA
STATE LAW REQUIRES 2 WORKING DAYS NOTICE
(824C-1-1 TO 824C-1-8 OF THE WEST VIRGINA CODE).

CALL BEFORE YOU DIG IN WEST VIRGINIA MISS UTILITY: 811 OR 1-800-245-4848

DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN A FLOODPLAIN

INDEX OF SHEETS

| COVER SHEET                        | 1     |
|------------------------------------|-------|
| GENERAL NOTES                      | 2     |
| SUMMARY OF ESTIMATED QUANTITIES    | 3     |
| TYPICAL SECTION AND DETAILS        | 4     |
| CORE BORING LOGS                   | 5     |
| EXISTING CONDITIONS                | 6     |
| PLUG PILE WALL PLAN                | 7     |
| PLUG PILE WALL PROFILE             | 8     |
| MANTENANCE OF TRAFFIC PLAN         |       |
| EROSION & SEDIMENT CONTROL NOTES   | 10-11 |
| EROSION & SEDIMENT CONTROL DETAILS | 12    |
| EROSION & SEDIMENT CONTROL PLAN    | 13    |
|                                    |       |

#### OWNER/DEVELOPER

SEE SHEET 7

#### ENGINEER/SURVEYOR

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

SHEET No. 1

COMENIUS STICILICATIONS AND STANDARD CONSTITUTION DRAWNIGS.
THE WEST UNBOARD OFFRENERS OF TRANSPORTATION STORY OF THE OWNERS, STANDARD SPECIFICATIONS, ROADS AND BRIDGES, ACOPTED 2017, AS AMERICED BY THE WEST UNBOARD OFFRENENS OF TRANSPORTATION, ORIGINO OF INGHINAYS, SUPPLEMENTAL SPECIFICATIONS, GATED LANUARY I, 2021, THE CONTRACT DOCUMENTS AND PIC CONTRACT PAGES AND RESERVED.

THE WEST VIRIGINA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS, STANDARD DETAILS BODG,
VOLUME I ESSUED MAY, 2016, AND VIRLUME 2, ISSUED AMOUNT 2015, ARE APPLICABLE TO THIS WIGHTER. THE CONTRACTOR IS EXPECTED TO HAVE
COPIED OF THE LATEST STANDARD DETAILS BODG AND ANY REVISIONS, WHICH CAM BE FOUND AS:

WHICH THE TOTAL THE CONTRACTOR OF THE PROPERTY OF THE PROP

MATERIALS
ALL MATERIALS USED FOR THE PROJECT SHALL MEET WYDOH SPECIFICATIONS.

ENSTHIS CONDITIONS
TOOGGABET CEITURES, CONTOURS, AND SUPPLY REFERENCE STATIONS USED FOR THIS PROBECT ARE FROM CIVIL & EMPROMENTIAL CONSULTANTS
THE RIED SURPLY CONDUCTED BY 10/2021. DISTINIS GOADS, DRIVEWAYS, AND STRUCTURES SHALL BY VERRIED BY THE CONTRACTOR PRODE TO
CONSTRUCTION, RECESSARY PRECAUTIONS SHALL BE TRANS THE CONTRACTOR OF LOCATE AND PROFICE TOSTISM CUITURE SHOWS AND MAINS, AN
DISCREPANCIES SETWEEN THE PLANS AND ACTUAL RELD CONDITIONS SHALL BE REPORTED TO THE RELD ENGINEER PRIOR TO CONSTRUCTION.

CONTRACTORS RESPONSESS. TO A MEMORY WHICH WOULD WORMALLY BE ROQUED TO COMPLETE THE PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF ME RESPONSESSITY TO PERFORM SUCH WORK. THE CONTRACTOR IS SOLELY RESPONSESS FOR THIS CONSTRUCTION MEMORY, METHOD CONTRACTOR OF ME RESPONSESSITY TO PERFORM SUCH WORK. THE CONTRACTOR IS SOLEDED AND THIS CONTRACTOR MEMORY TO CONTRACTOR OF THE CON

UTILITIES HOTIFICATION
AT LLAST SYMETHYTHING (72) HOURS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS IN AN AREA, THE CONTRACTOR SHALL HOTIFY THE REDICTS
REGISTER, THE REGISTERED UTILITY PROTECTION SERVICE, AND THE OWNERS OF GLOU UNDERGOOUND UTILITY FACULTY SHOWN IN THE PLANS. THE
OWNERS OF THE REGISTERED UTILITY PROTECTION SERVICE, AND THE OWNERS OF GLOU UNDERGOOUND UTILITY FACULTY SHOWN IN THE PLANS. THE
OWNERS OF THE REGISTERED UTILITY FACULTY SHOWN IN THE PLANS THE LOCATION OF THE UNDERGOOUND UTILITY FACULTIES IN THE CONSTRUCTION
AREA IN SUCH AMERICE AS TO HORICANTE THEIR COUNSE FORCHTHE WITH THE APPROXIMATE OFF THE WHORE INSTALLED. THE MARKING COLORITY SHALL BE COORDINATED TO STAY APPROXIMATELY TWO (2) DAYS ANEAD OF THE PLANSED CONSTRUCTION.

WORK UNITS.
THE WORK COMINGS SHOWN ON THESE PLANS ARE FOR PRYSICAL CONSTITUCTION LOCATION ONLY. CONTRACTOR SHALL PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHITHER INSDIC OR OUTS!
THISS WORK LUNITS AT THE CONTRACTOR'S DEPONE.

CONSTRICT ALL ACTIVITIES, EQUIPMENT STORAGE, AND STAGING TO WITHIN THE CONSTRUCTION LIMITS. UNLESS OTHERWISE IDENTIFIED IN THE PLANS OR PROPOSAL. THE CONSTRUCTION LIMITS ARE MAINTAINED WITHIN THE RIGHT OF WAY OR AS NOTED ON THE PLANS.

SUBMER A WHITTEN EQUEST TO THE PROTECT MONITOR TO USE ANY AREA OUTSIDE THESE UNITS. THE DOCUMENT SUBMITTED MIST CLEAR TO DETER AREA OF THE PROTECT AND THE PROTECTION USE AND REST RESTRICTION OF THE AREA AND DEAD OF THESE AREAS FOR DEPOSAD AND WASHE MATERIAL AND CONSTRUCTION OF EMIS, EXCANITON OF BORROW MATERIAL AND PALAMENT OF PORTABLE PLANTS IS PROHIBITED. THE REQUEST MUST BE APPROVED IN WISTING BEFORE THE CONTRACTION RATE PREMISSION OF USE THE AREA.

SHOULDER AND DITCH WORK SHALL NOT BE PERFORMED BEYOND THESE LIMITS.

ANY ITEMS DAMAGED BEYOND THE CONSTRUCTION LIMITS AS DEFINED ABOVE WILL BE REPLACED IN KIND OR AS APPROVED BY THE PROJECT ENGINEER AT NO EXPENSE TO THE PROPERTY OWNER AND ANTERO RESOURCES.

ANY CONSTRUCTION EQUIPMENT THAT MAY DAMAGE ROADWAY INTEGRITY SHALL BE PROHEITED FROM TRAVELING ON ROAD UNLESS PROPER PROTECTION (I.E. STEEL ROAD PLAYES, PLYWOOD, (CT.) IS USED, OR WRITTEN APPROVAL IS OBTAINED FROM STATE, COUNTY, OR LOCAL AUTHORITY. APDAMAGE FROM FAULER TO COMPY WILL RESIALT IN ROAD BEING RECORDITIVEICED AT CONTRACTOR'S DOWNER.

PROTECTION OF RIGHT-OF-WAY LANDSCAPING
CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING FEATURES SCHEDULED TO REMAIN AT NO EXPENSE TO ANTERO

CONTRUCTION NOISE
ACTORISTS AND ADMINIST TO THIS PROJECT MAY BE AFFECTED BY CONSTRUCTION NOISE. IN ORDER TO MINIMIZE ANY ADMENSE
CONSTRUCTION NOISE MARKET, DO NOT OFFERST ROWER-OFFERSTE CONSTRUCTION-THY DEVICES RETWEEN THE HOURS OF 11 PM AND TAM. IN
ADDROIND, DO NOT OFFERST AT ANY THIN ANY DOT OFFERST AND A MAINTER THAT THE MOST CECTATED SUSTRAINITALLY EXCELED THE NOISE CUSTOMA
AND RECESSARILY ATTENDANT TO THE REASONABLE AND EFFICIENT PERFORMANCE OF SUCH EQUIPMENT.

WORK SCHOOL / COORDINATION OF WORK
THE COMPACTION PAIL CONFIDENTIAL TO ADVISE OF CONSTRUCTION SCHOOL AND BUSINESS LOCATED WITHIN THE PROJECT LIMITS TO ADVISE OF CONSTRUCTION SCHOOL AND BUSINESS LOCATED WITHIN THE PROJECT LIMITS TO ADVISE OF CONSTRUCTION SCHOOL ACCESS. THE CONTRACTOR SMALL ALSO CONTACT LOCAL SCHOOLS AND EMERGENCY SERVICES TO COORDINATE ANY TIMES THAT CONSTRUCTION SHOULD BOTT THE PLACE.

MAINTAINING TRAFFC.

"YOWAN'S TRAINS-SHALL BE MAINTAINED AT ALL TIMES DURING NON-WORRING HOURS. THE LANE CLOSURE OF TWO-WAY TRAFFC SHOULD BE AVOIDED, BUT IF NECESSARY, SHALL BE LUMRED TO HO LONGER THAN SO MINISTES FOR THE WEST VIRGINIA MANUAL ON TEMPORARY TRAFFC CONTROL OF STRETES AND INSERMAN'S TOOM CONTROL. THE CONTROL OF THE LANE AND INSERMAN'S TOOM CONTROLCTION, THE CONTROL OF CONTROL OF THE STRETE AND INSERT AND INSERT, SAND INSERT, SAND INSERT, SAND INSERTS, SAND INSERT, SAND INSERTS, S

 $\frac{\textit{elevations}}{\textit{all-elevations}} shown \ \textit{refer to the national geodetic vertical datum of 1988 (ngvd.88)}.$ 

COORDINATES
THE PROJECT DATUM ON THESE PLANS ARE BASED UPON THE NORTH ZONE OF THE WEST VIRGINIA STATE PLANE SYSTEM. THE HORIZONTAL DATUM IS
BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD 83).

VERIFICATION OF DIMENSIONS.
THE CONTRACTOR IS RESPONSIBLE FOR THE VERIFICATION OF ALL PLAN AND ELEVATION DIMENSIONS PRIOR TO ORDERING MATERIAL FOR CONSTRUCT

MATERIAL WASTE/SPOIL STIE
THERE IS NO MATERIAL WASTE SITE ESTABLISHED FOR THIS PROJECT. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIAL RESPONSIBLY.

ANY EXISTING ITEMS TO BE REMOVED AS INDICATED ON THESE PLANS SHALL BECOME PROPERTY OF THE CONTRACTOR.

CLEAN UP TEMPORARY SOIL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE REMOVED ONCE 70% VEGETATIVE GROWTH IS ESTABLISHED OVER THE ENTIRE

CLASS & CONCRETE: STRUCTURAL STEEL:

MATERIAL SPECIFICATIONS

CATIONS, EXCHT EDITION, DESIGNATED BELOW SHALL GOVERN THE MATERIALS FURNISHED, UNITESS OTHERWISE MOTED.

STRUCTURAL NOTES (CONTINUED)

DBBLED PUIG FILE WALL
THE BRILLED FILE REW WALL SHALL SE CONSTRUCTED WITHIN STRICT ACCORDANCE WITH THE WIST VIRGINA DEPARTMENT OF TRANSPORTATION,
DIVISION OF HIGHWAYS, STANDARD SPECIFICATIONS FOR BROADS AND BRIDGES, ADOPTED 2017, SECTION 614, PRINC WALLS, AND AS AMERICED BY THE
WIST VERSIAND EXEMPLED OF TRANSPORTATION, DIVISION OF HIGHWAYS, UNPERMEDRIGHT AS PROFILED ARTHORN SHATE JUNEWIT 1, TOTAL

WIST VERSIAND EXEMPLED OF TRANSPORTATION, DIVISION OF HIGHWAYS, DIVINERIZED MEMORITHM SHATE AUTHOR 1, TOTAL

THE STANDARD SHATE OF THE SH

PILE REINFORCED SHAFTS SHALL HAVE A MINIMUM EMBEDMENT OF 10 FEET OR 1/3 OF THE LENGTH INTO COMPETENT ROCK. UNREINFORCED SHAFTS (PLUG PILES) SHALL BE TERMINATED AT TOP OF BEDROCK

PROVISIONS SHALL BE MADE BY THE CONTRACTOR FOR TEMPORARY CASING FOR DRILLED SHAFT EXCAVATIONS THAT OO NOT STAY OPEN. THE TEMPORARY CASING SHALL BE INCIDENTAL TO THE PILING BID ITEM.

ALL LOOSE MATERIAL AND WATER IN QUANTITIES THAT COULD AFFECT CONCRETE STRENGTH SHALL BE REMOVED FROM THE BOTTOM OF THE DRILLED SHAFT DECAYATION AS DIRECTED BY THE ENGINEER.

NO ADDITIONAL PAYMENT WILL BE MADE FOR INSTALLED LENGTH OF PILE GREATER THAN THE MINIMUM OF 10° OR 1/3 OF THE PILE LENGTH STRUCTURAL STEEL MAY BE UNCOATED.

PROJECT NOTES

RUCD10 MOBILIZATION (WVDOH 204)

THIS WORK SHALL CONSIST OF THE PERFORMANCE OF CONSTRUCTION PREPARATORY OPERATIONS, INCLUDING THE MOVEMENT OF PERSONNEL AND EQUIPMENT TO THE PROJECT STEE AND FOR THE ESTABLISHMENT OF THE CONTRACTOR'S OFFICES, BUILDINGS AND OTHER FACULTIES IN RECESSARY TO BEGIN WORK AND ASSO THE REMOVED, OF ALL THOSE TERMS AT THE COMMITTERO OF THE PROJECT, THIS TERM WILL BE PAID AS LUMPS YIELD.

RUCD15 CLEARING AND GRUBBING (WVDOH 201)

THIS WORK EMAL COURST OF CLEARING, GRUEBBUR, EXHOUNG, AND ORDISCHING OF ALL TREES, STUMPS, VEGETATION AND DEBIS WITHIN THE CONSTRUCTION BURNES, ASSESSMENT OF ALL VEGETATION OR DEBIS WITHIN THE CONSTRUCTION BURNES OF AS PERSONNESS OF THE PROPERTY BURNESS AS ARE OSSESSMENT OF REMAIN, THIS WORK SHALL ALSO INCLUSE PRESENTATION FROM INJURY OR DEFACEMENT OF ALL VEGETATION AND ORBICTS TO REMAIN, THE CONTRACTION BUILD ER AND ETH CATCHAL GLERATO ARKENING.

RUCD16 CONSTRUCTION LAYOUT (WVDOH 639)

THIS WORK CONSISTS OF ALL CONSTRUCTION SURVEYING, CALCULATIONS, AND STAKING, IN ACCORDANCE WITH THE CONTRACT PLANS. THIS ITEM WILL I PAID AS LUMP SUM. THE LIMIT OF DISTURBANCE WILL BE STAKED AND CONSTRUCTION SUITABLE CONTROL WILL BE PROVIDED BY THE CONSULTANT PRIOR

RUGBIE MAINTAINING TRAFFIC (WYDON 635)
THIS WORS SHALL CONSIST OF ALL INCESSARY MASURES TO MAINTAIN AND TO PROTECT THA FIG. TO PROTECT THE WORK IN PROCESS AND TO MAINTAIN THAT IN THOUGH, ADMINIOR OR ALL INCESSARY OF ALL INCESSA

THIS WORK SHALL CONSIST OF INSTALLING OF THE SMARTFERICE AT THE LOCATIONS SHOWN ON THE CONSTRUCTION PLANS. ALL SMARTFERICE MEDDED FOR THIS ITEM WILL BE PROVIDED BY ANTERO AND THE CONTRACTOR WILL BE PAID FOR THE ACTUAL LINEAR FOOTAGE INSTALLED.

THIS WORK SHALL CONSIST OF EMPOYAL OF ALL PROJECT EROSION AND SEDMENT CONTROL DEVICES AND ALL 40M CONTROLS. E.E.S. REMOVAL MAY OCCUR AFTER 70% UNFFORM VEGETATIVE COVER NAS BEEN ACREEVED. THIS THEM INFOLUDES STABILIZING ANY DISTURBANCE ASSOCIATED WITH THE REMOVAL OF THE ESCONTROLS. THE CONTRACTOR MULE EP AND FOR THE ACTUAL MULRAR FOOTAGE FREMOVED.

RUCD38 MAINTAIN E&S CONTROLS (WVDOH 642)

THIS FIEM IS INCLUDED FOR MAINTERIANCE TO ALL EROSION AND SEDMENT CONTROL DEVICES THROUGHOUT THE PROJECT. THIS MAINTENANCE INCLUDES SEDMENT REMOVAL, DEVICE REPAIR AND DEVICE REPLACEMENT AS NECESSARY TO MAINTAIN EFFECTIVE CONTROLS. THIS ITEM WILL BE PAIR AS LIARY SIM.

RUCISA UNREINFORCED PLUG PRE (WVDOH 614)

NULLS UNRINNINGED VICE PIE (MYDERAS SESSIONAL).

THE STIME IS REQUIRED FOR THE HIS MALADION OF THE UNRELIDENCE PILE OF THE TO BE USED IN THE CONSTRUCTION OF THE FIRST MULL SESSIONAL IN THE STATE OF THE TOWN AND ADMINISTRATION OF THE FIRST MULL SHAFT, ANY TEMPORAT GRADUIC, DECENTATION, EMBANISHMENT, AGGINGATE, DRAINAGE, CASING, SHEETING, ETC., HEEDE TO COMPLETE THE WORK AND ADMINISHMENT OF THE MASS BE CONCRETE CASING SHARE THE MULDED IN THE DISPIECT, THE CONTRACTOR WILL SEE ADMINISHMENT AND ADMINISHMENT OF THE MUST AND ADMINISHMENT OF THE MUST ADMINISH OF THE MUST ADMINISH OF THE MUST ADMINISH ADMINISHMENT OF THE MUST ADMINISH OF THE MUST ADMINISH OF THE MUST ADMINISHMENT OF THE MUST ADMINISH OF THE MUST ADMINISHMENT OF THE MUST ADMINISH OF THE MUST ADMI

RUC155 STEEL PILING (HP12:53) (WVDOH 614)

INCLUSIVE VIEW (INFECTION) INTO A SHAPE AND A SHAPE AND A SHAPE AND A SHAPE AND A SHAPE IN THE CHARGE AND A SHAPE AND A SHAPE

THIS TIEM IS INCLUDED FOR BACKFILL OF THE RETAINING WALL AS SHOWN IN THE CONSTRUCTION PLANS AND SHALL CONSIST OF WYDOH CLASS 9
CRUSHER RUN. ALL STONE NEEDED FOR THIS TIEM WILL BE PROVIDED BY ANTERO AND THE CONTRACTOR WILL BE PAID FOR PLACEMENT BY THE TON.

RUC207 EXCAVATION (WVDOH 207)

ALL TOPSOIL REMOVED FROM THE AREA IS TO BE STOCKPILED AND THEN REPLACED AT A MAX DEPTH OF 6" OVER THE FINAL GRADED SLOPES TO PROVIDE ADEQUATE GRASS GROWTH. HINCH ASSISTED EXCAVATION IS TO BE PERFORMED TO ALTER THE EXISTING GRADE TO MEET THE DESIGN ELEVATIONS SHOWN ON THE PLANS.

THE CONTRACTOR SHALL COMPACT ALL FILL MATERIALS TO NOT LESS THAN 95% OF MAXIMUM DRY DENSITY AND +/-2% OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM DISSO TO PROVIDE STABILITY AND REDUCE SETTLEMENT.

ALL COSTS FOR WORK IN THESE LOCATIONS, INCLUDING CUTS. FILES, BENCHING, REMOVAL, STOCOPTLING AND REPLACEMENTS OF TOPSCIL, SHOULDER AND DITCH GRADING AND FINAL COMPACTION OF THE GOADWAY SUBGRADE IS TO BE INCLUDED IN THE UNIT BIO PRICE AS VIELL AS FINAL COMPACTION OF THE UNDERSONE MACETUR. HAVE INVARIENT WILL BET HE TOTAL HUMBER OF LOCEN YARDIS IN THE PARA QUANTITY.

RUCZ23 DITCH CLEANOUT (WVDOH 229)

THIS WORK INCLUDES CLEANING AND SHAPING OF THE EXISTING OFFCHES ALONG THE PROJECT. ALL DITCHES CUT SHALL BE SEEDED AND MULCHED AS CALLED FOR IN THE PLANS. THE QUANTITY INCLUDES THE FULL INFORM OF DOWNLINES ALONG THE PROJECT, ALL COSTS FOR DITCH CLEANOUT AND DISPOSAL OF MAPRILA ARE TO BE INCLUDED IN THE UNITED PROJECT OF THE CONTRACTION WILL BE PAID BY THE UNITED PROJECT.

THIS ITEM IS INCLUDED FOR AGGREGATES REQUIRED FOR THE MAINTENANCE OF TRAFFIC. AGGREGATE SHALL BE APPLIED AS REQUIRED TO MAINTAIN A SUITABLE TRAVELWAY FOR THE PUBLIC THROUGHOUT THE DUMANDHO OF THE PROJECT. ALL STONE NEEDED FOR THIS ITEM WILL BE PROVIDED BY ANTERO AND THE CONTRACTOR WILL BE PROPERTY OF THE TON.

PROJECT NOTES (CONTINUED)

RUCAL2 AGGREGATE CRUSHER RUN (WYDON CLASS 1) (WYDON 307)
THIS TEM HAS SEEN RUCHDO AS A RIVAL ROADWAY SURFACE IN AREAS AS DESCRIATED AND IS TO BE PLACED AS SHOWN IN THE DETAILS IN THE
CONCRIDUCTION PROCESS. PLACEMENT OF AGGREGATE SHALL BE WITH A PAYER OF SPEADER BOX. AGGREGATE SHALL BE WETTED TO AND IN COMPACTION
THE MAXIMUM LIST THICOMESS FOR AGGREGATE SHALL BE GINCHES. ALL STONE NEEDED FOR THIS ITEM WILL BE PROVIDED BY ANTERO AND THE

RUC413 AGGREGATE SHOULDER STONE (WYDOH CLASS 10) (WYDOH 307)

SIGNED A GORGERANT SHOULDES TONE (WYOCH LASS 10) (WYOCH 1877)

THE TIME IT SO E USED AS SHOULDES TONE ALONG HE LOSS OF THE ALONG HE STORE IT ALED AS SHOWN IN THE DETAIL. THE PLACEMENT HE TIME IT SO ELECT AS SHOWN IN THE DETAIL. THE PLACEMENT HE SHOWN IN THE STAND AS AS TRIVENED, IN A PLACE MATERIAL SHOWN IN A SHOWN IN

RUCAZO ACCESS ROAD GEOTEXTILE FABRIC THIS TIEN IS INCLUDED AS FABRIC FOR SEPARATION AND SHALL BE USED IN ROADWAY CONSTRUCTION AS SHOWN IN THE CONSTRUCTION PLANS. ALL MATERIAL FOR THIS END WILL BE PROTUDED BY ANTERO AND THE CONTRACTION WILL BE PAID FOR PLACEMENT BY THE SQUARE FARD.

RUCHDO MARSHALL HIMA BASE COURSE TYPE 2 (I LUFT @ 3" COMPACTED) (WYDON 40).

PAGE HAN BASE COURSE AS HOWN'N IN THE DETAILS IN THE CONSTRUCTION FLANS, A MARTY CODE SHALL BE PLACED ON THE PAYER TO SHAPE THE
OUTSOE DECO OF THE PAYEMENT TO BE MADIANUM OF SO AS HOWN'N IN THE CITAL IN THE PLANS, ALL ASPHALT PLACED ON THIS 100 SHALL HAVE A
SAMETY FORE. ALL COSTS FOR MATERIALS, LABOR, AND EQUIPMENT IS TO BE INCLUDED IN THE UNIT BID PRICE AND THE CONTRACTOR WILL BE PAID BY
THE TON.

BROSTS ARABOMAL WAS MEASURED COURSE TIPE LIL LITT # 1.5" COMPARTED INVOICE HE TO SERVE SER

RUCISIO GUARDINAL, TYPE LACAS II (NVOCON 827).
THIS TITUS SHALL CORRECT OF CONTRACTION OF CHARDINAL THE CONTRIBUTION OF THE CHARDINAL SHALL INCLUDE THE COMPLETE RUPHISHING,
THIS TITUS SHALL CORRECT OF CONTRIBUTION OF CHARDINAL SHALL CORRECT ON THE PLANE. ALL COLARDONAL SHALL BE INSTALLED.
AT A HEIGHT OF 3.5. IN CHICK, SURFIG ALL MINNET HATS AND MATERIALS AT THE LOCATION SHOWN ON THE PLANE. ALL COLARDONAL SHALL BE INSTALLED.
AT A HEIGHT OF 3.5. IN CHICK, SURFIG ALL MINNER, ALL COLARDONAL SHALL BE INTERVED.
AT A HEIGHT OF 3.5. IN CHICK, SURFIG ALL MINNER, ALL COLARDONAL SHALL BE CHARDINAL SHALL BE CONTRACTION OF THE WORK OF ALCH COLARDONAL MEDIT SHAPPORT AND ONESSON OF THE PLANE OF A MINNER WORK OF THE CHARD OF THE MINNER OF THE MINNER

RICEGO CUARDINAL, TYPE LASAS INVOICED RED).
THIS TIME SHALL CORSTST OF CONTINUEDON OF GUARDINAL THE CONSTRUCTION OF THE GUARDINAS SHALL INCLUDE THE COMPLETE FURNISHING,
THIS TIME SHALL CORSTS OF CONTINUEDON OF GUARDINAL THE CONTINUED SHOWN ON THE RAYS, ALL GUARDINAL SHALL BE RETAIN
AT A RESERT OF 31, SHOWES, USING ALL NEW MAIL, ACCORDING TO THE WEST WINGON DEPOSITION OF TRANSPORTATION, OMNOSION OF HORMANS,
STANDARD DETAILS BOOKS, VOLUME 1. USED OR RECYCLED MAL WILL NOT BE FEMANTED. THE FINDS OF EACH GUARDINAL SECTION SHALL BE FLAND
AWAY FROM THE THANK! WAY PER THE PETAL INCLUDED IN THE CONSTRUCTION PLANS, IF ANY GUARDINAL RECTION SHALL BE FLAND
DESIGNATED FOR THE GUARDINAL IT WILL BECOME PROVERTY OF THE CONTINUED CONTINUED.

RECYCLING THE THE WITH BOTH PRICE AND THE CONTINUED CONTINUED AND THE WITH THE PRICE AND THE CONTINUED CONTINUED AND THE WITH THE PRICE AND THE CONTINUED CONTINUED.

<u>Rucses Buffer end Section (nydod 607)</u> Buffer end Sections samal be restalled at the ends of each run of Guardrail Unless otherwise specificed in the construction plans. Parment 18 to be free fach installed.

RIVESTO MAIN SEED AND MILEOTE DEMENSIONAL QUANTITY (MYDON 65.5)
THE WORD WALL OVER ALL OPERATORS CHOICENED AND THE ETHALEMENT OF REMANENT GRASS AND LIGURE VIGETATION, INCLIDING THE RIJUNGWING AND SOMPHIG OF SEED, REPRISHMENT AND APPLYING FERTILER, AGRICULTURA LIBESTORS, AND MULDIO MATERIA APPLIED BY HAND FER THE WATTER OPERATIONS AT LICENSIONS RINGESTOR OF HE PARS. THE CORMINCTOR WILL BE VARD FOR THE ACTION SEEDD AFFECTS.

RUC71S BARBED WIRE FENCE (WYDOH 608) This ITEM has been included in the plans for removal and replacement of farm field fence which has to be removed due to the RIVETS DEMBELD WITHE FERNAL TO THE PLANTS FOR REMOVAL AND REPLACEMENT OF FARM FIELD FENCE WHICH HAS TO BE REMOVED DUE. ID THE TITHS FIRM HAS BEEN RULDEDED IN THE PLANTS FOR REMOVAL AND REPLACEMENT OF FARM FIELD FENCE WHICH HAS TO BE REFLACED WITH DEMBELD AND FAIR FOR ALL FENCE IS FOR EMPRACED WITH SMALAR TYPE FERROM ACCEPTAGE IN TOTAL KANDOWNERS. LOCOSTS FOR ANTERIORS, LAGOA, AND COMPARTED FOR REMOVAL OF DOSTING FENCE AND CONSTRUCTION OF HEW FENCE IS TO BE INCLUDED IN THE UNIT BID PRICE AND THE CONTRACTION WILL BE PAID BY THE UNITAR FOOT

UTILITY CONTACTS FIRST ENERGY POWER STATION BLVD TLLOW BLAND, WY 2612 ABARTA OIL & GAS COMPANY 645) BUCKHANNON PIKE MOUNT CLARE, WV 26408 GREYLOCK PRODUCTION, LUC. 500 CORPORATE LANDENG CHARLESTON, WY 23331 304-925-6100 AT&T TRANSMISSION SOURCES
AATION
NTY ROUTE 20
SLIP REPAIR
NOTES MARKWEST LIBERTY MIDSTREAM & RESOURCES CONTACTS ANTERO RES CORPORA DODDRIDGE COUNT MORGANS RUN GENERAL N WEST VIRGINIA

DIVISION OF HIGHWAY'S

DISTRICT 06

1 DOT DRIVER

MOUNDSYTLE, WY 25041

304-41-4000 MISS UTILITY AMBULANCE, FIRE, LAW ENFORCEMENT charles fitesZX12,WV,US SHEET NO CIVIL AND ENVIRONMENTAL

CONSULTANTS INC.

UREU LINDER, P.E.

304-841-7104

glinder@ceclus.com ANTERO RESOURCES
JOIN DEPOY
740-460-1087

altents, ev rose

Bh -

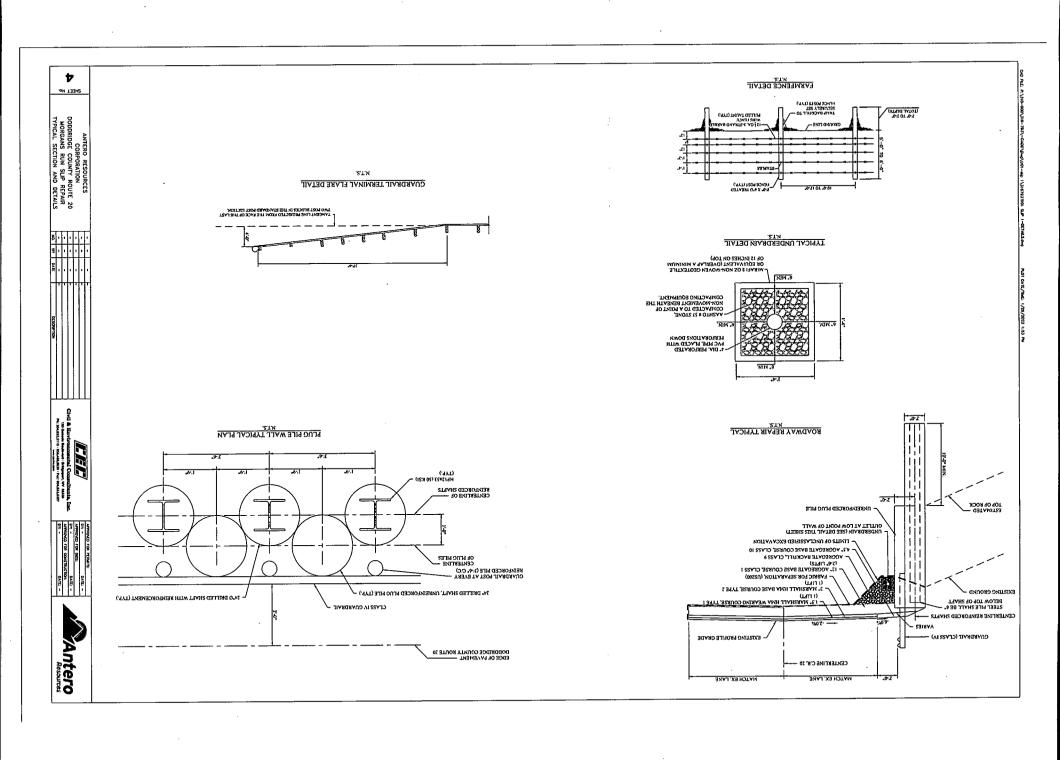
ero

7

2

# PAGE INTENTIONALLY LEFT BLANK FOR SUMMARY OF ESTIMATED QUANTITIES

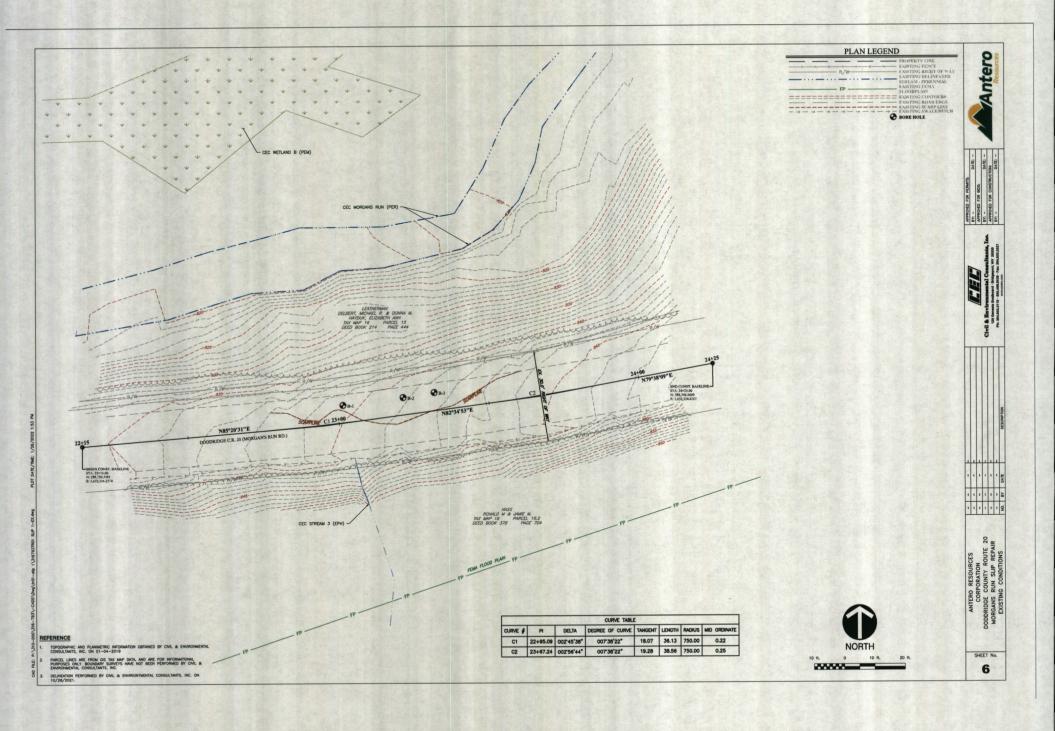
TO BE ADDED AFTER BIDDING

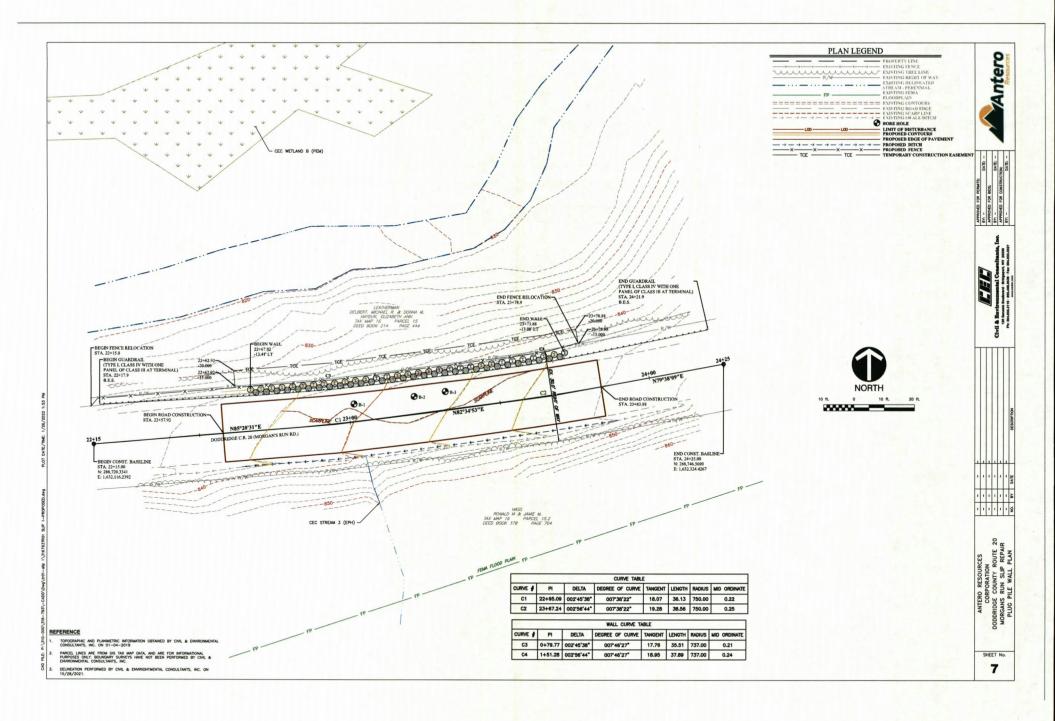


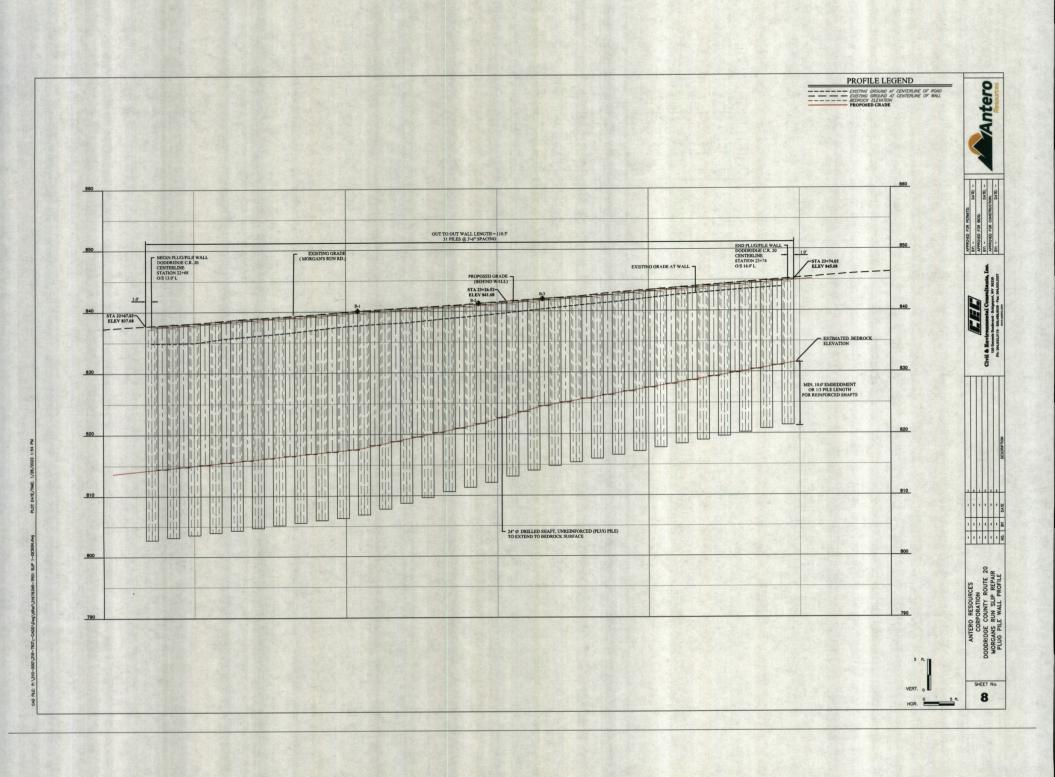
|                  |              |  | PROJECT   |            |       |        |                             |                      |          |      |                |                  |
|------------------|--------------|--|-----------|------------|-------|--------|-----------------------------|----------------------|----------|------|----------------|------------------|
|                  |              |  | PROJECT : |            |       |        |                             |                      |          |      |                |                  |
|                  |              |  | GROUND I  |            |       | 500    | <u> </u>                    | BAC)                 | DELL.    | Aven | Octro          | ـــ              |
|                  |              | HIS CONTRACTOR Environmentagend Statutes, IV.  |           |            |       |        |                             |                      |          |      |                |                  |
|                  |              | NG METHOD Horse State Augus & NO Com   |           |            |       |        | UHO                         |                      |          |      |                |                  |
| CEC I            | <u>න ම</u>   | CHECKET BY JUN   |           |            |       |        | OR THE                      | 25 b 8               | B        |      |                |                  |
| MUTTE            | <u>`</u>     |  | AFT       | RD         | BULL  |        |                             | _                    | =        | _    | _              |                  |
|                  | l I          |  | - 1       | - 1        | · 25  | *      | _                           | z                    | Ι.       |      | N VAL          |                  |
| PLEVATION<br>(P) | Ĕ            | AMÉRICA, DESCRIPTIÓN   | lē        |            | F     | É 5    | BLOW<br>COUNTS<br>(N VALUE) | POCKET PEN.<br>(bit) | Н        | ħ.   | <del></del> 89 | ų                |
| ã٤               | 100          | BATEOR DESCRIPTION   | lë        | £          | 52    | (MODE) | 異質素                         | 150                  | L        | 29_4 |                |                  |
| ಕ                | ľ            |  | 1         | -          | 3*    | ž.     | 9.5                         | ž                    | 01       |      |                | HT (No!          |
| _                |              | (PAVEMENT)   | -         | ٩          | VI ss | -      |                             | ļ-                   | _        | 25.4 | - 69           | _ m              |
|                  |              |  | ŀ         | - 1        | A :-  | 17     | 90                          | Į                    |          | 1 1  |                | 1                |
|                  |              |  | ł         | - 1        |       |        |                             | ŀ                    | 1        | 1 1  |                | 1                |
|                  |              |  | ł         | 4          | XI 😘  | 17     | 634                         | 1                    |          | 1 1  | - 1            | 1                |
| £35              | 333          | Grown GRAVIOL (ROCK)   |           | . 1        |       |        |                             | 1                    | Ш        | 1 1  |                | - 1              |
|                  | <b>33</b>    | Brown to dark troom sandy CLAY, with rest fregments, morel made on earl to cott, (COLLUNIAL BOIL)                | `   F     | -          | V ss  |        | 234                         | 1                    | H        |      |                |                  |
|                  | <b>33</b>    |  | 1         | - 1        | N 3   |        | (r)                         | 1                    | 11       | 1 1  |                | ŧ                |
|                  | WA.          |  | t         | 1          | _     | _      | _                           | 1                    | М        | 1 1  |                | - 1              |
|                  |              |  | T.        | - 1        | χįş   | 20     | 8.7.8<br>(13)               | ľ                    | ŀ        | 1    |                | å                |
| <b>639</b>       | W.           |  | - t       | . 1        |       |        |                             | 1                    | П        | 1 1  |                | 4                |
|                  |              | , Black decomposed SANDSTONE FRAGMENTS, mess, lose   | . 7       | -          | y] ss | 100    | 944                         | 1.0                  | I.       |      |                | 7                |
|                  | <b>1994</b>  | (COLLUMAL SCIL)  Brown to disk troom sandy CLAY, with rock treatments, most                                      | -4        | - 1        | A.s.  |        | (8)                         | ļ '~                 | ١T       | )    | - 1            | The second       |
|                  |              | riedum str. (RESIDUAL SOL)   | - 11      | - 1        |       |        |                             | 1                    | П        | 1 1  |                | - 1              |
|                  | <b>888</b>   | Rectant from and brown CLAY, trace objective insprents, it<br>to win self-controlled, SCEL)                      | ***       | 1          |       |        |                             | l                    |          | 1 1  |                | ġ                |
| 22               |              |  | - t.      | n Î        |       |        |                             |                      | Ш        | 1 1  |                | Service.         |
|                  | <b>888</b> 1 |  |           |            | V 55  | 120    | 245                         | 275                  | П        | 1 7  |                | 寸                |
|                  | <b>1888</b>  |  | ı         | 1          | 14.6  |        | (9)                         | ļ***                 | ΙŢ       | 1    |                | 4                |
|                  | <b>1</b>     |  | Ī         | 1          |       |        |                             | l                    | П        | 1 1  | 1              |                  |
|                  | <b>888</b>   |  | Ī         | 1          |       |        |                             | l                    | Н        | 1 1  | - 1            | 4                |
| 120              |              |  | 1:        | <b>o</b> 1 |       |        |                             | ١.                   |          | 1 1  | -              | 9                |
|                  |              | Brown and gray decomposed SPALE, with decomposed days:<br>etc. (RESEQUAL SOL)                                    | m•. [     |            | VI\$  | i      | 7.6.5                       | 1                    | П        |      |                | $\neg$           |
| -                |              | Augus Refuse at 22.0 kees.   | Ĺ         | 1          | N 7   |        | (11)                        | 1                    | Ι-       |      | - 1            | redunia creatina |
|                  |              | Dark brost and tray SANDY SHALE INTERREDICED WITH  | $-\tau$   | ]          | П.    | Г      |                             | Ι.                   |          | 1 1  | - 1            | - 1              |
|                  |              | CLAYSTONE, frosh to moderately weathered, very broken to a<br>broken, and to receive hard                        | Ayrı      | ]          | ΝĐ    | (31)   |                             |                      |          |      |                | - 1              |
| 815              |              |  | Ĺ         | 6          | ш     | ı. '   |                             |                      |          |      |                |                  |
|                  |              | Restan brown, gray and stack EARDY SAME STEETSETCH<br>WITH CLAYSTONE, least to stigling mediward, bother to stig | - T       | 1          | П     |        |                             |                      | Г        | 1 1  |                | 7                |
| -                | ▤            | Digital stop to weighturning   | · (       | 1          | 11    |        |                             | i                    | 1        |      |                | del to find the  |
| -                |              |  | - 1       | 1          | 70    | 100    |                             | ] .                  | 1        | 1 1  |                | •                |
|                  |              |  | Ĺ         | 1          | 11    |        |                             | 1                    |          | 1 1  |                | - Johnson        |
| <b>910</b>       |              |  | نا۔۔۔     | اے         | ш_    | Ш      |                             | 1                    | <u> </u> | i i  | i              | _1               |
|                  | -            | Redden brown, gray and black SANDY BYALE BYTEPSEDDE<br>WITH CLAYSTONE, hash to signify weathered, broken to sig  | Pro L     | 1          | жэ.   | 100    |                             | 1                    |          | 1 1  |                | - 4              |
|                  | 圔            | broken polit tu medium naro  |           | 1          | 3     | (62)   |                             | 1                    | ŀ        | 1 1  |                | - Approximate    |
|                  |              | Bottom of horing at \$2.0 feet.  |           |            |       |        |                             |                      |          |      |                |                  |

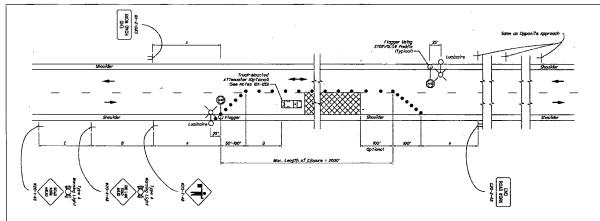
| A         | 7            | ON & Embramental Consultants, Inc.<br>970 Marketalann Avenue, Sulin 200<br>Bridgepar, VIV 20330       |  |      |       |          | ВС       | Rib     | ig N  |          | ER E |                |
|-----------|--------------|---|--|------|-------|----------|----------|---------|-------|----------|------|----------------|
|           |              |   | PROJEC   |      |       |          |          |         |       |          |      |                |
|           |              | umitr italia  |  |      |       |          | to Corri |         | _     |          | ·    |                |
|           |              | TED SYLVES COMPLETED SYSSIE   |  |      |       | 1.24     |          | BACK    | arr 7 | 200 (3.4 | UTK. | _              |
|           |              | JAG CONTRACTOR Entraprise Provided Solutions, Inc.  |  |      |       |          |          |         |       |          |      |                |
|           | EP 1         |   |  |      |       |          |          |         |       |          |      |                |
| HOTE      |              | CHECKED BY LAT  |  |      |       |          |          |         |       |          |      |                |
| -         | -            |   |  |      | -     | =        |          | _       |       |          |      | =              |
| z.        | ۱. ا         |   |  |      | ٣.    | 15       | -87      | ž       | 1 6   |          |      |                |
| ELEVATION | SEAL PHIC    | MATERIAL DESCRIPTION  | - 1  | Ē.   | -25   | E R      | 353      | Es      | 9     | , K      | ; ¥  | _              |
| 19"       | ₹≃           |   | - 1  | 8-   | 鬟     | B€       | # E 2    | 8 -     | 20    |          |      |                |
| 1 "       | 1            |   |  |      | ą.    | E.       | 1        | ×       | D FRN |          |      |                |
| 840       |              | (PAYEMENT)  |  | - 1  | V/ e≋ | 100      | 45-23-12 | i       |       | 1        | i i  | -              |
|           |              |   |  | - 3  | W :   | 1.50     | 160)     | 1       |       | 1        | 4    | ı              |
| L.        |              |   | . 1  |      | 7 -   | ١.       | A.       | ļ       |       | -1/      | 1    | 1              |
| L.        |              |   |  |      | XΫ́   | 100      | 42-00    |         | 1     | 1        | 1    | I              |
| ١.        | 1233         | GRALES, prace septem bugginests, molts, medium donse, (F  | en [   | 5    |       | _        |          | ı       | L.    | /1       | 1    | L              |
| 835       | 1888         |   |  |      | Χæ    | 67       | 15-12-10 | İ       | 1 7   | 4        | 1 1  | į              |
|           |              | Brown soney CLAY, extr. very std. (PERIDIAL SOR.)   | $\neg$   | . :  |       | t        | 1        | 1       | 1 1   | è        | 1 1  | ŧ              |
| ١.        | w            |   | 1  | . 1  | V/ 33 | 1        | 247      | 1       | 1     | 1        |      | 1              |
| ١.        | <b>1000</b>  |   |  |      | A     | 12       | (26)     | 1       | 1.7   | ij       | 1 1  | į              |
| ١.        | w            | Resident brown specify CLAY, have mode, mode, etch to stat. (RESERVAL SCOL)                           | ļ  | 10   | L.    | <u> </u> |          | 1       | /i    |          | 1 3  | <u> </u>       |
| 250       | K.           |   | 1  | . :  | χε    | 25       |          |         | ¥ ï   | 7        | 1    | 1              |
| ١.        |              | -   |  | . :  | -     | 1        |          | 1       | II i  | d        | 1    |                |
| ⊦ ⋅       | w            |   | - 1  |      | i     |          |          |         | 11 1  | 2        | 1.   | 1              |
| ١.        | 88           |   |  |      |       |          | l        |         | 11 1  | 4        | 1 3  | •              |
|           | <b>1</b> 226 |   |  | 15   | ٠.    | _        |          | 1       | Н÷    | _إ_      |      |                |
| 22.       | W/           |   |  |      | ΧŞ    | 100      | 446      | 1.25    | 1     | 1.       | 1 2  | å              |
| ł ·       |              |   | ATTORNAMS —  B. C. SCOPPTON  B |      |       |          |          |         |       |          |      |                |
| ŀ         |              |   |  |      |       |          | l        |         | 1     | 4        | 1 3  |                |
| ŀ         | 222          | Acuter Perfundi at 19 2 feet  | E E E E E E E E E E E E E E E E E E E  |      |       |          |          |         |       |          |      |                |
|           | $\pm$        | Light gray and figure brown LEVESTONE, starting washington to<br>condensately weathered, broken, hand | ال •   | 20   | Ηï    | - Oi     | l        |         | +     |          | -    | <del>} -</del> |
| 1.00      | <b>200</b>   | Reside brown CLAYSTONE, station was mad to product  | · ]  | . 7  | 11    | 1        | 1        |         | 1     | 4        | 1    | į              |
| 1         |              | Light one and brown GLAYSTONE BYTERRESONED WITH S   | WYOT   |      | Νò    | 95       | l        |         |       | 1        |      | ł              |
| ŀ.        |              | SHALL from to regardy weight and a digitally broken to very bit<br>very suff to soft                  | ion.   |      | 11 '  | 401      | l        |         |       | įį.      | 1    | 1              |
| 1         |              | A) M. D. M.   | ì  | "۔"  | ш     | 1        | 1        |         |       | 7        |      | Į              |
| 215       |              |   | ì  | - 25 | H     | 1        | 1        |         |       | 1        |      | Н              |
|           |              |   | Ì  |      | II 💮  | 1        | 1        | l       |       | 200      | 1    | i              |
|           |              |   | ı  | • •  | ЖO    | 5        | 1        | 1       | 1     | 1        | 1    | i              |
|           |              |   | - 1  |      | П,    | 1,000    | l        | l       |       | 4        | 1    | i              |
| [ ]       |              |   | ì  |      | II I  | 1        | l        | 1       | 1     | 1        | 1 3  | i              |
|           |              | Bottom of corang at 20 0 test.  |  |      |       | Т        | 1        | 1       | - 1   | -1       |      | П              |
|           |              |   |  |      | ı     | 1        | l        | 1       | [     | 4        |      | 1              |
|           |              |   |  |      | ı     | l        | 1        | 1       | 1     | ł        | 1    | ļ              |
| _         |              |   |  |      |       | ١.       | <u> </u> | <u></u> |       | 1        | 1    | <u>!</u>       |
|           |              |   |  |      |       |          |          |         |       |          |      |                |

| PO.              | ECT M          | MIER SESSE   | PROJECT       | LOC    | ATION                 | D-11        | dae Courte                   |             |                |                |
|------------------|----------------|--|---------------|--------|-----------------------|-------------|------------------------------|-------------|----------------|----------------|
|                  |                | TED 57516 COMPLETED 5/25/19  |               |        |                       |             | B                            |             | FL ANY COM     |                |
|                  |                | AND CONTRACTOR Engineerable Prograted Soldiers, Inc.   |               |        |                       |             |                              |             | 1.3.           |                |
|                  |                | ING METHOD HOTOV Barn Arger & NO Com   |               |        |                       |             | una –                        |             |                |                |
|                  |                |  |               |        |                       |             | 10 £/12m                     |             |                |                |
|                  |                | ASCHÉCKED ÉT <u>LH</u>   |               |        |                       |             | 105/109                      | 530.5       | т.             |                |
| WOTE.            | <u>-</u>       |  |               | TERC   | نست                   | <u></u>     |                              | _           | _              | _              |
| ELEVATION<br>(10 | DRAWING<br>LNG | swindraw.catiscrephicki  |               | 14 gg  | BANDLE TYPE<br>MANSER | RECOVERY N. | BLOW,<br>COUNTS<br>(N VALUE) | POCKET PEN. | P NO N         | a m<br>british |
|                  |                | (PAYEMENT)   | 1             |        | 55                    | 100         | 40-21-17                     | Ī           | 1 2            |                |
| 540              | 2000           | Brown arrely CLAY, trace construct, more, morbers and office. 678.   | <del>n </del> | 1      | 'Y'                   | -           | (444)                        | 1           |                | 6.4            |
|                  |                |  |               |        | X                     | 89          | 3-2-4<br>(II)                | ١,          | 1              |                |
| 1                |                | Reddish brown and brown partly CLAY, with sandbloth fings<br>http:// 455. (RESIDAIAL BOR)                            | menes.        | 9      | VI ss                 | 100         | 346                          | ١,          |                | $\vdash$       |
| 836              |                | Raction traven wat gray CLAY, was decomposed daystane.   |               | 1      | N s                   | 100         | (10)                         | ١,          | <b>       </b> | 1 1            |
| 1                |                | WY ME PERCUAL BOLD   | .             |        | X ss                  | 10          | 3-12-6                       | 1           | 1              |                |
| - 4              | <b>W</b>       | Shown, gray, and less chargery SAMED, with sercinians fragments makes. (FESSEXIA), 808.)                             | • <i>r</i> t  | 10     | -                     | 1           |                              | 1           |                |                |
| ۇنە<br>ۋىھ       |                | Surgardy and gray CLAY, with decomposed degrades, motor<br>\$\frac{1}{2}\text{ (PESHOURL BOIL)}\$                    | 1             |        | χis                   | 100         | 8-8-10<br>.(18)              | 3.5         |                |                |
|                  |                | Tim and dart gray oricination \$49077 SHALE, dry, hard,<br>(BEDROCK)   |               |        |                       | Γ           |                              |             |                |                |
| -                |                |  |               | 15     | χįss                  | 100         | 25.77.43<br>(70)             | i           |                | <u> </u>       |
| 625              |                |  | - 1           | . 4    |                       | 1           | 1127                         | ſ           |                | 1              |
| 949              | ≡              | Auger Pictures is 17 mile.   |               |        |                       |             | į.                           | ŀ           |                | 1.1            |
| ļ                |                | Reddech trown and brown CLAYSTONE, abythy newthered<br>which ship weethered, algority broken to why tiroken, wary so | e e           | 20     | Νį                    | 39          |                              |             |                |                |
| i20              |                |  |               |        | NO<br>2               | 50<br>(7)   |                              |             |                |                |
| h15              |                |  |               | 75     |                       |             |                              |             | i i            | H              |
|                  |                | Light gary and gray SANDY SANLE, break to slightly wanter<br>stightly broken to broken, with                         | w.            | ,<br>, | 35.3                  | 160         |                              |             |                |                |
|                  |                | Buttorn of boring at 30.0 feet.  |               |        |                       |             |                              |             | independent.   |                |









| 1                          | DISTANCE | DISTANCE BETHEEN SIGNS (FT) |     |  |  |  |  |
|----------------------------|----------|-----------------------------|-----|--|--|--|--|
| POAD TYPE                  |          | В                           | С   |  |  |  |  |
| Two-Lane<br>(£ 40 MHz      | 100      | 100                         | 100 |  |  |  |  |
| 1 vo-Lane<br>(45-60 MP10   | 350      | 350                         | 356 |  |  |  |  |
| T=ro-1.one<br>(\$5-60 LEND | 500      | 500                         | 500 |  |  |  |  |

|     | 144                     | SLE II                    |  |
|-----|-------------------------|---------------------------|--|
|     | SPEED<br>LIMIT<br>DAPHO | BUFFER<br>BU (FT)<br>MIN. |  |
| 1 . | 25                      | 85                        |  |
|     | 30                      | 200                       |  |
| ٦.  | 35                      | 250                       |  |
|     | 40                      | 305                       |  |
|     | 45                      | 360                       |  |
|     | 50                      | 425                       |  |
|     | 55                      | 495                       |  |
|     | 80                      | 570                       |  |
|     |                         |                           |  |

## NOTES:

#### FLAGGERS

LEGEND

. . .

HORY AREA

DRIAIS/COHES

HADON VEHICLE

RECTION OF TRAVEL

1. Flaggers, one for each direction, shall be used to control traffic continuously for as long as a one lane operation is in effect. The flaggers shall have 2-way, handheld communication to be able to communicate with each other at all times. Flaggers are not permitted to have vehicles.

#### LENGTH OF CLOSURE

2. Several small work areas close together should be combined into one work zone. However, the closure shall not be more than 2000' long unless approved by the Engineer. The minimum length between closures shall be 2000'. Only one side of the road shall be closed in any one work zone.

#### SIGN LOCATION AND SPACING

- 3A. The minimum spacing between work zone signs is shown in Table I. Maximum spacing should not be greater than 1.5 times the distances shown in Table I.
- 3B. Sign spacing should be adjusted to avoid conflict with existing signs. Minimum spacing to existing signs shall be 200' for speeds of 45 mph or less and a minimum of 400' for speeds of 50 mph or greater.
- 3C. The location of the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment.

#### ADJUSTMENTS FOR SIGHT DISTANCE

4. The location of the flagger station and the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment.

#### BASIC SIGNING

- 5A. ROAD WORK AHEAD (W20-1) signs shall be provided on entrance ramps or roadways entering the work limits.
- 5B. END ROAD WORK (G20-2) signs are only required for lane closures of more than 1 day. It is intended that these signs be placed on the mainline, on all exist ramps, and on roadways exiting the work limits.
- 5C. Overlapping of the signing for adjacent projects should be avoided where the messages could be confusing. Any ROAD WORK AHEAD (W20-1) or END ROAD WORK (G20-2) sign shall be omitted or covered during the period when both projects are active.

#### SIGNING DETAILS

- 6A. The Advisory Speed (W13-1P) plaque shall be used when specified in the plan.
- 36" warning signs may be used when the approach speed limit is 40 mph or less.

#### FLASHING WARNING LIGHTS

Type A flashing warning lights shown on the ROAD WORK AHEAD (W20-1) signs and on the LANE CLOSED AHEAD (W20-5) signs are required whenever a night lane closure is necessary.

#### DRUMS / CONES

- 8A. Drum spacing shall be as follows:
  - a) Spacing along the closure shall be 40' center-to-center
  - b) Spacing along the approach taper shall be 10'
- 8B. Cones may be substituted for drums as follows:
  - a) Cones used for daytime traffic control shall have a minimum height of 28".
  - h) Cones used for nighttime traffic control shall have a minimum height of 42".
  - c) Use of cones at night shall be prohibited along tapers.
- BC. Provisions shall be made to stabilize the cones and drums to prevent them from blowing over.
- 8D. A minimum of two drums shall be used to close the paved shoulder

#### (RESERVED FOR FUTURE USE)

9A. (Intentionally blank)

#### AREA ILLUMINATION

- 10A. Adequate area illumination of each flagger station shall be provided at night. Use of portable flood lighting is acceptable. Luminaries shall be located adjacent to each flagger station.
- 10B. To ensure the adequacy of floodlight placement and the elimination of glare, the Contractor and the Engineer shall drive through the worksite each night when the lighting is in place. Light placement and shielding shall be adjusted to the satisfaction of the Engineer.

#### INTERSECTION / DRIVEWAY ACCESS

- 11. Within the length of closure, provision shall be made to control traffic entering from intersecting streets and major drives as necessary to prevent wrong—way movements and to keep vehicles off of new povement not ready for traffic. The contractor shall.
  - a) Place across the closed lane, either three drums
  - (cones) or barricades, and/or b) Provide an additional flagger at every public street intersection and major driveway.

Drums (cones) placed across the closed lane shall be located 25' beyond the projected pavement edges of the driveway or cross highway, as shown in Standard Construction Drawings (SCDs MT-97.11 or MT-97.12. For barricades, see SCD MT-101.60

Existing STOP signs shall be relocated as necessary to assure proper location for the traffic conditions.

The method of control shall be subject to the approval of the Engineer.

#### SHADOW VEHICLE

- 12A. The shadow vehicle shall be in place and unoccupied whenever workers are in the work area. This vehicle shall be removed from the pavement whenever workers are not in the work area.
- 12B. The shadow vehicle shall be equipped with a high-intensity yellow rotating, flashing, oscillating, or strobe light(s)
- 12C. The vehicle shall be equipped with a truck-mounted attenuator when called for in the plans.
- 12D. Other protective devices may be used in lieu of the shadow vehicle shown when approved by the Engineer.

#### CHIP SEAL OPERATIONS

13. For chip seal operations, additional signing shall be incorporated in the advance warning area.

#### EROSION CONTROL NOTES

- 1. EROSION AND SEDIMENT CONTROL NEEDS-60PS (ANTERO INSTALLED BROSION AND SEDIMENT CONTROLS) WILL BE INSTALLED BEFORE ANY WORK IS TO TAKE PLACE. THESE CONTROLS MAY YARY AND CONTRACTOR SHALL CONFIRM WITH ANTERO RESOURCES THAT ALL 40PS ARE IN PLACE AND PUNCTIONAL BEFORE HEY COMMENCE WITH CONSTRUCTION.
- ALL PROPERTIES ADJACENT TO THE SITE OF SOIL-DISTURBING ACTIVITY SHALL BE PROTECTED TO THE MAXIMUM EXTENT PRACTICABLE. FROM SOIL GROSION AND SEDIMENT RUNOFF AND DEARHAGE, INCLUDING, BUT NOT LIMITED TO PRIVATE PROPERTIES, NATURAL AND ARTIFICIAL WATERWAYS. WITCH ALMOST SCHOOL SEVERS AND PRESIDE LANDS.
- 3. CONSTRUCTION SITE EROSION AND SEDIMENT CONTROL PRACTICES USED TO SATISFY THIS REQUIREMENT SHALL CONFORM, AS A MINIMUM, TO STATE OF WEST VERGINA STANDARDS AS SET FORTH IN THE MOST-CURRENT EDITION OF THE WEST VERGINA BEST MANAGEMENT PRACTICES MANUAL, DEPIRED BY THE WEST VIRGINAL OF ARTMENT OF ENVIONMENTAL PROTECTION.
- 4. CIVIL & ENVIRONMENTAL CONSULTANTS INC. ANTICIPATES OBTAINING, WITH A REASONABLE DEGREE OF CERTAINTY EROSION AND SEDIMED CONTROL PLAN APPROVIALS IN ACCORDANCE WITH THISE RULES, AND ALL OTHER NECESSARY PERMITS AND OR APPROVIALS PROM FEDERAL STATE, ANDRO COUNTY AGENCIES. IR REQUIREMENTS VARY, THE MOST STRINGENT REQUIREMENTS SIALL BE POLICED.
- 5. EROSION AND SEDIMENT CONTROL PRACTICES AT THE SITE, AND AS IDENTIFIED IN THE ESC PLAN SHALL COMPLY WITH THE FOLLOWING:
- 5.1. AN APPROVED EROSION AND SEDIMENT CONTROL PLAN OR APPROVAL LETTER FROM THE WV DEP SHALL BE LOCATED ON SITE FOR REVIEW.
- LIMITS TO CLEARING AND GRADING SHALL BE SHOWN ON ESC PLANS. LIMITS TO CLEARING AND GRADING SHALL BE CLEARLY MARKED ON SITE WITH SIGNAGE, FLAGGING, AND/OR FENCING ETC.
- INSTALLING EROSION AND SEDIMENT PERIMETER CONTROLS AS A FIRST ACTION OF CONSTRUCTION AS SPECIFIED BY CONSTRUCTION SEQUENCE. THIS SHALL INCLUDE AND IS NOT LIMITED TO PROTECTIVE BMYS FOR STREAM CORRIDORS AND CROSSINGS, WETLANDS, SITE ENTRANCS, SEDIMENT TRAYS & BASINS, BARRIERS, AND DIVERSION DIKES.
- CONCENTRATED STORM WATER RUNOFF SHALL PASS THROUGH A SEDIMENT CONTROL DEVICE BEFORE EXITING THE SITE BOUNDARIES. CONCENTRATED RUNOFF FROM BARE SOIL AREAS SHALL BE DIVERTED NOTO A SETTLING POND OR SEDIMENT CONTROL STRUCTURE. OR OTHER APPROVED SEDIMENT BARRIER BEFORE LEAVING THE STRUCTURE.
- EARTHEN STRUCTURES SUCH AS DAMS, BASINS, STREAM MODIFICATIONS AND WATER DIVERSIONS SHALL BE SEEDED AND MULCHED WITH IN FOUR (4) DAYS OF THE COMPLETION OF INSTALLATION, DAMS SHALL CONFORM TO THE WEST VIRGINIA DAM SAFETY LAWS (WV CODE CHAPTER 22. ARTICLE 14, DAM CONTROL AND SAFETY ACT)
- STABILIZATION OF CRITICAL ABEAS WITHIN SPEET OF ANY STREAMOR WETLAND SHALL BE TEMPORABLY STABILIZED WITHIN TWO (2) DAYS OF DESTINEANCE IF AREAS WILL REMAIN INCLUME FOR SENSING 1) AND SOR GOMERS, CONSTRUCTION WEIRLES SHALL AND STREAMS CONSTRUCTION OF THE AREA WILL REMAIN INCLUME FOR STREAM OF ANY MIST BE CROSSED BY CONSTRUCTION VEHICLES REPEATEBLY DURING CONSTRUCTION, A THEMPORARY STREAM CROSSING SHALL BE CONSTRUCTION ACTION OF THE SPECIFICATIONS IN THE WEST VIRGINIA REST MANAGEMENT PRACTICES MANUAL CONSTRUCTION OF BRIDGES, CULVER'S OR SERMENT CONTROL STRUCTURES SHALL NOT PLACE SOIL, DEBBERS AND OTHER TIMES PRACTICAL HER METABLE. AND OR CLOSE FOR THE WATER RESCURCES IS SUCIAL MANNER THAT IT THAT
- STORM SEWER INLETS SHALL BE PROTECTED SO THAT SEDMENT-LADEN RINOFF WILL NOT ENTER THE STORM SEWER SYSTEM WITHOUT FIRST BERNO FILTERED ANDOR TREATED. SANITARY SEWER MANHOLES SHALL BE PROTECTED SO THAT NO STORM RUNOFF WILL ENTER THE SANITARY SERVER SYSTEM. 5.7.
- REVIGENTIS EQUE TEMPORARY SOIL STABILIZATION SHALL OCCUR WITHIN FOUR (6) DAYS AFTER ROUGH GRADING IF THE RARA WILL REMAIN DLE IONGER THAN FORETEN (6) DAYS FERMANINTS OIL STREAME LEATON SHALL BE INSTALLED WITHINFOUR (6) DAYS AFTER THALL GRADE IS REACHED ON ANY PORTION OF THE SITE. FERMANINT VIGIETATION IS A GROUND COVER DENSE ENOUGH TO COVER 89% OF THE SOIL SUPPLACE AND MATUTEE BOOKING TO SURVIVE WITHIN EVALUATION CONTITIONS.
- SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED TO PREVENT SOIL LOSS. STABILIZATION SHALL BE REQUIRED IF STOCKPILES ARE LOCATED WITHIN CRITICAL AREAS NEAR STREAMS OR WETLANDS, OR IF DETERMINED BY THE WV DEP THAT SEDIMENT FROM STOCKPILES
- UNSTABLE SOILS PRONE TO SLIPPING OR SLOUGHING SHALL NOT BE CLEARED, GRADED, EXCAVATED, FILLED OR HAVE LOADS IMPOSED UPON THEM UNKERS THE WORK BY FLANNED BY A QUALIFIED PROFESSIONAL ENGINEER. AND INSTALLED THE ACCORDANCE WITH THE ESC PLAN CUT AND ADMINISTRATION OF THE STOP WATER DEVISIONS OF THE STOP WATER STOP REPORTS OF THE STOP WATER STOP REPORTS OF THE STOP WATER STOP BETTER TO THE BASE OF THE SLOPE WAY BE STOP WATER STOP BY THE STOP BY THE BORDOWS AND STABILITY.
- SOIL SHALL BE REMOVED FROM PAYED SURFACES AND/OR PUBLIC ROADS AT THE END OF EACH DAY IN SUCH A MANNER THAT DOES NOT CREATE OFF-SITE SEDIMENTATION IN ORDER TO ENSURE SAFETY AND ABATE OFF-SITE SOIL LOSS. COLLECTED SEDIMENTS SHALL BE PLACED IN A STABLE LOCATION.
- 5.12. STABILIZED DISTURBED OR MODIFIED DRAINAGE WAYS REDUCE EROSION EFFECTS OF STORM WATER BY USING AND/OR MAINTAINING GRASSED SWALES, INFILTRATED STRUCTURES, OR WATER DIVERSIONS.
- SEDIMENT AND EROSION CONTROLS SHALL BE INSPECTED ONCE EVERY FOUR (4) DAYS AND WITHIN 24 HOURS OF A 0.25" OR GREATER
  RAIDFALL EVENT. ANTERO WILL UTILIZE THE INBAREST WEATHER CAUGE VIA WEATHER UNDERGROUND OR NOA.A A WRITTEN LOG OF THESE
  INSPECTIONS AND IMPROVEMENTS TO CONTROLS SHALL BE REFOR ON SITE. THE INSPECTIONS SHALL INCLUDE THE DATE OF INSPECTION, NAM
  OF INSPECTOR, WEATHER CONDITIONS, OBSERVATIONS, ACTIONS TAKEN TO CORRECT THE PROBLEMS AND THE DATE OF OVERECTIVE
  THE OFFICE OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OWNER OWNER.
- TRESCUES FOR UNDERGOUND UTLITY LINES AND PIRES SHALL BE TEMPORABLY STABLIZED WITHIN FOUR (4) DAYS IF THEY ARE TO REMAIN DIACTIF FOR THIRTY DAYS OF, TRENCH PROVIDED REVIEWS SHALL EIGETRAGE NA MANNER THAT FILTERS SOIL ALDEW WATER BEFORE DISCHARGING IT TO A RECEIVING DRAINAGE DITCH OR FOND. IF SEEDING, MULCHING, OR OTHER BOSION AND SEDIMENT CONTROL MRASURES WERE PREVIOUSLY NOTALLED, THESE PROFECTIVE MEASURES SHALL BE REPROTALLED.
- 5.15. DISTURBED AREAS WHICH WILL REMAIN UNWORKED FOR A PERIOD OF 14 DAYS OR MORE SHALL BE STABILIZED WITH SEEDING AND MULCHING OR OTHER APPROPRIATE MEANS WITHIN FOUR (4) DAYS.
- SOLID, SANITARY AND TOXIC WASTE MUST BE DISPOSED OF IN A PROPER MANNER IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS. IT IS PROHIBITED TO BURN, BURN OR FOUR OUT ONTO THE GROUND OR INTO THE STORM SEWER, ANY SOLVENTS, FAINTS, SANIS, GASOLINE DISSEL FUEL, USED MOTRO GIL, HUPRAULC FALID, ANTEREZEZ, CEMENT CURING COMPUTOR OF OTHER STORM AND THE PROPERTY OF T
- OFF-SITE VEHICLE TRACKING OF SEDIMENT SHALL BE MINIMIZED. CONSTRUCTION VEHICLES ARE LIMITED TO THE CONSTRUCTION ACCESS ROADS) NOTED ON THE FLAN. OFFSITE SEDIMENT TRACKING SHALL BE CONTROLLED BY REQULARLY SCHEDULED SWEEPING OF OFFSITE ACCESS ROADS AND MAINTENANCE OF ROCK CONSTRUCTION SETTAMAN.
- ALL EROSION AND SEDIMENT CONTROL PRACTICES MUST MEET THE STANDARDS AND SPECIFICATIONS OF THE WEST VIRGINIA BEST MANAGEMENT PRACTICES MANUAL (LATEST EDITION)
- 5.19. OTHER EROSION AND SEDIMENT CONTROL ITEMS MAY BE NECESSARY DUE TO THE ENVIRONMENTAL CONDITIONS.
- WINTERIZATION: ANY DISTURBED AREA THAT IS NOT GOING TO BE WORKED FOR 14 DAYS OR MORE MUST BE SEEDED AND MULCHED BY NOVEMBER 1 OR MUST HAVE A DORMANT SEEDING OR MULCH COVER APPLIED BETWEEN NOVEMBER 1 AND MARCH 1. 5.20.
- 5.21. CONCRETE CEMENT IS TO BE TAKEN BACK TO PLANT FOR WASHOUT AND RECYCLING OR DESIGNATED AREAS ON SITE FOR CONCRETE WASHOUT ARE TO BE USED.

#### ADDITIONAL CONSTRUCTION SITE POLLUTION CONTROLS

- CONSTRUCTION PERSONNEL, INCLUDING SUBCONTRACTORS WHO MAY USE OR HANDLE HAZARDOUS OR TOXIC MATERIALS, SHALL BE MADE AWARE OF THE FOLLOWING GENERAL GUIDELINES REGARDING DISYOSAL AND HANDLING OF HAZARDOUS AND CONSTRUCTION WASTES.

  \*FOLLOW LABEL DIRECTIONS FOR DISYOSAL "RESPECTABLE" AND FROM THE STAN AND CANS WHEE DISYOSONIGH TRASH.

  \*FOLLOW LABEL DIRECTIONS FOR DISYOSAL "RESPROVED TO WASTE WASTES WHEEVER POSSIBLE "BOOKT FOUR BIT OF WASTES WASTES WHEEVER POSSIBLE "BOOKT FOUR BIT ON ATTEMAYS, STORM DRAINS OR ONTO THE GROUND "BOOKT FOUR BIT ON ATTEMAYS, STORM DRAINS OR ONTO THE GROUND "BOOKT FOUR BIT ON ATTEMAYS, STORM DRAINS OR ONTO THE GROUND "BOOKT FOUR BIT ON ATTEMAYS, STORM DRAINS OR ONTO THE GROUND "BOOKT FOUR BIT ON ATTEMAYS, STORM DRAINS OR ONTO THE GROUND "BOOKT FOUR BIT OF THE SINK, FLOOR DRAIN OR SEPTIC TANKS."

  \*\*ONT FOUR BIT OF THE SINK, FLOOR DRAIN OR SEPTIC TANKS.\*\*

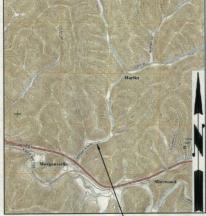
- CONT ANSES SHALLD BE PROVIDED FOR THE PROPER COLLECTION OF ALL WASTE MATERIAL INCLUDING CONSTRUCTION DEBIRS, TRANSL PETROLICUM PRODUCTS AND ANY HAZABORS MATERIAL SUSED ON-SITE CONTINUES SHALL BE COVERED AND NOT LEARING, ALW SATE MATERIAL SHALL BE DISPOSED OF AT FACILITIES APPROVED FOR THAT MATERIAL HANDLING CONSTRUCTION DEMOLITION AND DEBRIS (CDAD) WASTE MASTE BUSINESSONS OF AT A WIST VIRGINAL DEP APPROVIDE OAD ALMOFFLE.
- NO CONSTRUCTION RELATED WASTE MATERIALS ARE TO BE BURIED ON-SITE BY EXCEPTION, CLEAN FILL (BRICK, HARDENED CONCRETE, SOIL) MAY BE UTILIZED IN A WAY WHICH DOES NOT EXCROCH UPON NATURAL WETLANDS, STREAMS OR FLOODPLAINS OR RESULT IN THE CONTAINATION OF WATERS OF THE STATE.
- HANDLING CONSTRUCTION CHEMICALS: MIXING, PUMPING, TRANSFERRING OR OTHER HANDLING OF CONSTRUCTION CHEMICALS SUCH AS FERTILEER, LIME, ASPHALT, CONCRETE DRYING COMPOUNDS, AND ALL OTHER POTENTIALLY HAZARDOUS MATERIALS SHALL BE FERFORMED IN AN AREA AWAY FROM ANY WATEROOUSE, DICTION SOTTOM FOR ANY AREA OF A STORM AND ANY AND A STORM A STORM A STORM AND A STORM A STO
- EQUIDMENT FUELING AND MAINTENANCE, OIL CHANGING, ETC. SHALL BE PERFORMED AWAY FROM WATERCOURSES, DITCHES OR STORM DRAINS, IN AN AREA DESIGNATED DOR THAT PURPOSE. THE DESIGNATED AREA SHALL BE EQUIPPED FOR RECYCLING OIL AND CATCHING SPILLS. SECONDARY CONTAINMENT SHALL BE ERVOLVED FOR ALL FUEL OIL STOKAGE TANKS. THISSE, AREAS MUST BE IN SENCETED EVER YOU ALL OAY'S AND WITHIN 32 MISS OF A LOS INCLING ORDER TANKET, THE AREA BREAD SHALL BE RESYCLED FOR YOUR OAY'S AND WITHIN 32 MISS OF A LOS INCLING ORDER TANKET, THE AREA BREAD SHALL B
- CONCERT WAREN WATER SHALL NOT BE ALLOWED TO FLOW TO STREAM, DITCHES, STORM DEADS, OR ANY OTHER WATER CONVEYANCE, A SURP OF TURNING WYDERTH, GOOD RECHARGE SHALLE CONSTRUCTED IN PREED TO CONTINUE OF USERS AND ANY WATER. FIELD THE OR OTHER SURSURANCE DEADNACE STRUCTURES WITHIN 19°F. OF THE SUMP SHALL BE CUT AND PLUGGED FOR SMALL PROJECTS, TRUCK CHUTES MAY BE RINBED MAY FROM ANY WATER CONVEYANCES.
- SPILL REPORTING REQUIREMENTS: SPILLS ON PAVEMENT SHALL BE ABSORBED WITH SAWDUST OR KITTY LITTER AND DISPOSED OF WITH THE TRANS AT A LICENSED SAWTRAY LANDPILL RAZARDOUS OR NOUSTRIAL WASTES SUCH AS MOST SOLVENS, GOOD, BE CHARLES AND AND A SOLVENS, GOOD, BE CHARLES AND AND A SOLVENS, GOOD, BE CHARLES AND A SOLVENS, GOOD, BE CHARLES AND A SOLVENS, GOOD, BE CHARLES AND A SOLVENS, GOOD AND A SOLVENS OF A SOLVEN
- CONTANIANTED SOILS. IN SILEST ANCES SICH AS OIL, DIESEL PULL, HYDRAULE C'HLID, ANTIFREZE, ETC. ARE SPILLED, LEADED, OR RELEASED ONTO THE SOIL, HE SOIL SHOULD BE DICU THAN DISPOSIDED OF AT A LEADED ANTIFACT HANDPLIC AND THE APPROVED PETROLEUM CONTAININATED SOIL REINEBLATION FACILITY, 600T A CONSTRUCTION DEBOLIC LANDFILL, NOTE THAT STORM WATER FRAINT ASSOCIATED WHITE CONTAININATED SOIL SENDENTO SOIL SENDENTO THE AUTHORIZED HOURDER WEST VIRGINIANS GENERAL STORM WATER FRAINT ASSOCIATED.
- 9. OPEN BURNING: NO MATERIALS CONTAINING RÜBBER, GREASE, ASPHALT, ÖR PETROLEUM PRODUCTS, SUCH AS TIBES, AUTO PART, PLASTITS OR PLASTIC COAFED WIRE MAY BE BURNED UVALCESS, OPEN BURNING IN OTH LOWED IN RESTRUCTED ABLAS, WIECH ABE DEFENDE AS IN WITTEN COUNTRY OF THE PROPERTY OF THE PRO
- DUST CONTROL OR DUST SUPPRESSANTS SHALL BE USED TO PREVENT NUISANCE CONDITIONS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND IN A MANNER, WHICH PREVENTS A DISCHARGE TO WATERS OF THE STATE. SUFFICIENT DISTANCE MUST BE PROVIDED SPECIFICAL INFO. AND AN ADMINISTRATION OF THE SHORT THE WATER WAY. APPLICATION (EXCLUDING WATER) MAY NOT OCCUR.
  WHEN RAIN IS IMMINENT AS NOTED IN THE SHORT TERM FORECAST. USED OIL MAY NOT BE APPLIED FOR DUST CONTROL.
- 11. OTHER AIR PERMITTING REQUIREMENTS: CERTAIN ACTIVITIES ASSOCIATED WITH CONSTRUCTION WILL REQUIRE AIR PERMITS INCLUDING BUT NOT LIMITED TO: MOBILE CONCRETE BATCH FLANTS, MOBILE ASPHALT FLANTS, CONCRETE (EXISTERS, LARGE ENDRATORS, ECT. THESE ACTIVITIES WILL REQUIRE SPECIFIC WEST VIRGINAL DEP HAY PERMITS FOR INSTALLATION AND OPERATORS MUST SEEK AUTHORIZATION FROM THE CORRESPONDING DISTRICT OF WEST VIRGINAL DEP FOR DEMOLITION OF ALL COMMERCIAL SITES, A NOTIFICATION FOR RESTORATION AND DEMOLITION MIST BE SIGNATIFIED TO WEST VIRGINAL DEP FOR DEMOLITION OF ALL COMMERCIAL SITES, A NOTIFICATION FOR RESTORATION AND DEMOLITION MIST BE SIGNATIFIED TO WEST VIRGINAL DEPT DEMOLITION OF ALL COMMERCIAL SITES, A NOTIFICATION FOR RESTORATION AND DEMOLITION MIST BE SIGNATIFIED TO WEST VIRGINAL DEPT DEMOLITION OF ALL COMMERCIAL SITES, A NOTIFICATION FOR RESTORATION AND DEMOLITION MIST BE SIGNATIFIED TO WEST VIRGINAL DEPT DEMOLITION OF ALL COMMERCIAL SITES, A NOTIFICATION OF ALL COMMERCIAL SITES AND ALL COMMERCIAL SITES.
- 12. PROCESS WASTE WATERLEACHATE MANAGEMENT: WEST VIRGINIA DEPS CONSTRUCTION GENERAL FERMIT ONLY ALLOWS THE DISCHARGE OF STORM WATER AND DOES NOT INCLUDE OTHER WASTE STREAMS DISCHARGES SUCH AS VEHICLE ANDOR EQUIPMENT WAS SHINKING, OWNETS ESSING, OWNETS AND THE MANDE AND THE

- PRIOR TO COMMENCEMENT OF ANY EARTH DISTURBANCE ACTIVITY, INCLUDING CLEARING, GRUBBING, AND GRADING, THE REGISTRANT SHALL CLEARLY DELIVED AT SEASON THE LIMITS OF CLEARING, AND TREES THAT ARE TO BE CONSERVED WITHIN THE PROJECT SITE. INSTALL APPROPRIATE BARRIERS WHERE EQUIPMENT MAY NOT BE PARKED, STAGED, OPERATED, OR LOCATED FOR ANY PURPOSES.
- 2. TREE CLEARING THIS IS THE FIRST ACTIVITY TO TAKE PLACE AT THE SITE, AND SHALL PROVIDE BMPS TO MINIMIZE ACCELERATED EROSION SEDIMENTATION DUE TO INCREASED RUNOFF FROM CLEARED AREAS.
- SEDIMENT BARRIERS INSTALL PERIMETER BMPS PRIOR TO PERFORMING WORK THAT WILL RESULT IN GROUND DISTURBANCE, KEEPING THE
  ASSOCIATED GRUBBING AND GRADING LIMITED TO ONLY THAT AMOUNT REQUIRED FOR INSTALLING PERIMETER BMPS.
- 4. LAND GRUBBING IMPLEMENT GRUBBING ACTIVITIES ONLY AFTER ALL DOWNSLOPE PERIMETER EROSION AND SEDIMENTATION BMPS HAVE BEEN
- 5 INSTALL TEMPORARY TRAFFIC CONTROL AND CONSTRUCT THE PILE AND LAGGING WALL AS SHOWN IN THE PLANS
- FINAL STABILIZATION AFTER CONSTRUCTION IS COMPLETED, INSTALL STABILIZATION BMPS INCLUDING: PLACING TOPSOIL AND PERMANENT SEEDING, MULCHING, AND COMPLETE IMPLEMENTATION OF STORM WATER BMPS (AS APPROPRIATE) AS SHOWN ON THE PLANS.
- 7. AFTER 70 PERCENT UNIFORM, VEGETATIVE COVER HAS BEEN ACHIEVED AND THE SITE HAS BEEN STABILIZED, REMOVE ALL TEMPORARY EROSION TION CONTROLS AND STABILIZE ANY DISTURBANCES ASSOCIATED WITH THE REMOVAL OF THE BMPS.

#### **EROSION & SEDIMENT CONTROL PLAN MORGAN RUN ROAD SLIP REPAIR MP 0.418**

MORGANSVILLE, DODRIDGE COUNTY, WEST VIRGINIA

## VICINITY MAP NOT TO SCALE



PROJECT LOCATION

#### SITE INFO

SITE DESCRIPTION EXISTING - CR 20

SCHEDULE OF MAJOR CONSTRUCTION COMMENCEMENT COMPLETION

#### DEVELOPER

ANTERO RESOURCES CORPORATION 535 WHITE OAKS BOULEVARD BRIDGEPORT, WV 26330

#### ENGINEER

CIVIL & ENVIRONMENTAL CONSULTANTS INC. 120 GENESIS BOULEVARD BRIDGEPORT, WV 26330

Antero

1 1 1 1 0 ANTERO RESOURCES
CORPORATION
CORPORATION
DODDRIDGE COUNTY ROUTE 20
MORGANS RUN SLIP REPAIR
SION & SEDIMENT CONTROL NOTE

#### TEMPORARY SEEDING

| memericana temporary coret offices objectivise specifi |
|--|
| Suitability  |
| Best seeding periods                                   |
| HIGH RISK -moisture stress likely                      |
| HIGH RISK - Freeze damage to young seedlings           |
| Good seeding period. Dormant seeding.                  |
|  |

| Species           | N (Ibs/ac) | P205 (lbs/ac) | K2O(lbs/ac) | Example Rec. (per acre |
|-------------------|------------|---------------|-------------|------------------------|
| Cool Season Grass | 40         | 80            | 80          | 400 lbs. 10-20-20      |
| CS Grass & Legume | 30         | 60            | 60          | 300 lbs. 10-20-20      |
| Temporary Cover   | 40         | 40            | 40          | 200 lbs. 19-19-19      |

| Annual Ryegrass  | 40  | 3/1 - 6/15 or 8/15 - 9/15 | Well - Poorly    | 5.5 - 7.5 |
|------------------|-----|---------------------------|------------------|-----------|
| Field Bromegrass | 40  | 3/1 - 6/15 or 8/15 - 9/15 | Well - Mod. Well | 6.0 - 7.0 |
| Spring Oats      | 96  | 3/1 - 6/15                | Well - Poorty    | 5.5 - 7.0 |
| Sudangrass       | 40  | 5/15 - 8/15               | Well - Poorty    | 5.5 - 7.5 |
| Winter Rye       | 168 | 8/15 - 10/15              | Well - Poorty    | 5.5 - 7.5 |
| Winter Wheat     | 180 | 8/15 - 11/15              | Well - Mod. Well | 5.5 - 7.0 |
| Japanese Millet  | 30  | 6/15 - 8/15               | Well             | 4.5-7.0   |
| Redtop           | 5   | 3/1 - 6/15                | Well             | 4.0-7.5   |
| Annual Ryegrass  | 26  | 3/1 - 6/15                | Well - Poorty    | 5.5 - 7.5 |
| Spring Oats      | 64  | 3/1 - 6/15                | Well - Poorty    | 5.5 - 7.5 |
|                  |     |                           |                  |           |

NOTE: These rates should be increased by 50% if planted April 15 - August 1 and October 1 - March 1.

- 1. STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS AND SEDIMENT TRAPS SHALL BE INSTALLED AND WITH TEMPORARY SEEDING PRIOR TO GRADING THE REST OF THE CONSTRUCTION SITE.
- TEMPORARY SEED SHALL BE APPLIED BETWEEN CONSTRUCTION OPERATIONS ON SOIL THAT WILL NOT BE GRADED O REWORKED FOR 14 DAYS OR GREATER, THESE IDLE AREAS SHALL BE SEEDED WITHIN FOUR (4)
- THE SEEDBED SHOULD BE PULVERIZED AND LOOSE TO ENSURE THE SUCCESS OF ESTABLISHING VEGETATION. TEMPORARY SEEDING SHOULD NOT BE POSTPONED IF IDEAL SEEDBED PREPARATION IS NOT POSSIBLE.
- SOIL AMENDMENTS TEMPORARY VEGETATION SEEDING RATES SHALL ESTABLISH ADEQUATE STANDS OF VEGETATION, WHICH
  MAY REQUIRE THE USE OF SOIL AMENDMENTS. BASE RATES FOR LIME AND FERTILIZER SHALL BE USED.
- SEEDING METHOD SEED SHALL BE APPLIED UNIFORMLY WITH A CYCLONE SPREADER, DRILL, CULTIFACKER SEEDER, OR HYDROSEEDER. WHEN FEASIBLE, SEED THAT HAS BEEN BROADCAST SHALL BE COYPERD BY PAKING OR DRAGGING AND THEN LIGHTLY TAMPED THO FLORE USED, OR A FOLLER OF CULTIFACKER. IF PRIVEDSEEDING IS USED, THE SEED AND FERTILIZER WILL BE MIXED ON-SITE AND THE SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.

#### MULCHING TEMPORARY SEEDING

- APPLICATION OF TEMPORARY SEEDING SHALL INCLUDE MULCH, WHICH SHALL BE APPLIED DURING OR IMMEDIATELY AFTER SEEDING. SEEDINGS MADE DURING OPTIMUM SEEDING DATES ON FAVORABLE, VERY FLAT SOIL CONDITIONS MAY NOT NEED MULCH TO ACHIEVE ADEQUATE STABILIZATION.
- 2. MATERIALS:
- STRAW IF STRAW IS USED, IT SHALL BE UNROLLED SMALL-GRAIN STRAW APPLIED AT A RATE OF 2 TONS PER ACRE OR 90 LBS/1,00 SQ. FT. (2-3 BALES)
- HYDROSEEDERS IF WOOD CELLULOSE FIBER IS USED, IT SHALL BE USED AT 2000LBS / AC. OR 46 LB / 1000SQ. FT.
- OTHER OTHER ACCEPTABLE MULCHES INCLUDE MULCH MATTINGS APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS OR WOOD CHIPS APPLIED AT 6 TON/AC
- 3. STRAW MULCH SHALL BE ANCHORED IMMEDIATELY TO MINIMIZE LOSS BY WIND OR WATER ANCHORING METHODS-
- SIANA WICLESTANCE, A DISK, CREMEN ON SMILLAR TYPE TOOL SHALL BE SET STRAIGHT FOR FORMER OR SHE MUCH MATERIAL INTO THE SOIL. STRAW MECHANICALLY ANCHORED SHALL NOT BE FINELY CHOPPED BUT LEFT TO A LENGTH OF APPROXIMATELY 6 NON-ERS.
   MULCH NETTING, HEALTH BUSID ACCORDING TO THE MAILE FOR THE STRAY OF THE MULCH NETTING HAVE DEPOSIT OF THE MULCH NETTING. HEALTH BUSID ACCORDING TO THE MAINEFACTURER'S RECOMMENDATIONS. NETTING MAY BE NECESSARY TO BOLD MUCH IN THACE IN AREAS OF CONCENTRATED KINOFF AND ON CRITICAL SLOPES.
- 3.3. SYNTHETIC BINDERS SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (ARGI-TAC), DCA-70, PERTROSET, TERRA TRACK, OR EQUIVALENT MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER.
- 3.4. WOOD CELLULOSE FIBER WOOD CELLULOSE FIBER BINDER SHALL BE APPLIED AT A NET DRY WT. OF 750 LB/AC. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LB/100 GAL.

#### TEMPORARY SEEDING

#### CUT SLOPES - GREATER THAN 3:1 SLOPES

- AS CALL CONTROLLED THROUGH THE CARRIED OFF ON ANY MATERIAL SOFT ENQUENT TO BE RIPPED WITH A BILLIDOZE. THE SAFE OF THE ROBOTOMY ALD BETAINCE TO THE VERTICAL CUT DESTANCE STALL BE FLATER THAN 1; AND THE IDEOGRAPATO OF THE STAP SHALL SLOPE TOWARD THE VERTICAL CUT HAS A PROPERLY SHALL SHOW THE ADDRESS OF THE STAP SHALL SHOW THE ADDRESS OF THE VERTICAL WALL INDIVIDUAL VERTICAL CUTS SHALL NOT BE MOBE THAN 24 INCHES ON SOFT SOIL MATERIALS, AND NOT MOBE THAN 36 FORTIES IN SOCKY MATERIALS.
  - GOOVING MAY BE MADE WITH ANY APPROPRIATE IMPLEMENT WHICH CAN BE SAFELY OPERATED ON THE SLOPE AND WHICH WILL NOT CAUSE UNDUE COMPACTION, SUGGESTED IMPLEMENTS INCLUDE DISCS, TILLED, SPRING HARDOWS, AND THE TEETH ON A PROVIN-END LOADER BLUCKET. SUCH GROVES SHALL NOT BE LESS THAN 3 INCHES DEEP NOT PURTIESE THAN 15 INCHES APART

#### FILL SLOPES - GREATER THAN 3:1 SLOPES

- FILL SLOPES STEEPER THAN 3:1 SHALL BE GROOVED OR ALLOWED TO REMAIN ROUGH AS THEY ARE CONSTRUCTED UTILIZING METHOD (1) OR (2) BELOW.
- GROOVING MAY BE MADE WITH ANY APPROPRIATE IMPLEMENT WHICH CAN BE SAFELY OPER ATED ON THE SLOPE AND WHICH WILL NOT CAUSE UNDUE COMPACTION SUCH AS DISCS, TILLERS, SPRING HARROWS, AND THE TEETH ON A FRONT-END LOADER BUCKET. GROOVES LEFT SHALL NOT BE LESS THAN 3 INCHES DEEP NOR FURTHER THAN 15 INCHES APART.
- AS LIFTS OF THE FILL ARE CONSTRUCTED. SOIL AND ROCK MATERIALS MAY BE ALLOWED TO FALL NATURALLY ONTO THE SLOPE SURFACE. AT NO TIME SHALL SLOPES BE BLADED OR SCRAPED TO PRODUCE A SMOOTH, HARD SURFACE.

- GROOVES FORDED BY IMPLEMENTS SHALL BE NOT LESS THAN I INCH DEEP AND NOT FURTHER THAN 12 INCHES APART, FILL SLOPES THAT ARE LEFT ROUGH DURING CONSTRUCTION MAY BE SMOOTHED WITH A CHAIN HARROW OR SIMILAR IMPLEMENT OF ACLILITATE MOWING.

#### SPECIFICATIONS FOR PERMANENT SEEDING

SITE PERPARATION

IT. SUBSOILES, PLOY, OR OTHER IMPLEMENT SHALL BE USED TO REDUCE SOIL COMPACTION AND ALLOW MAXIMUM INFILTRATION,
MAXIMUM ONLY THAT THON WILL HELP CONTROL BOTH RUMOFF RATE AND WATER QUALITY'S DISSOLUTION SHOULD BE DONE WHEN
THE STATE OF THE STATE OF

- 2. THE SITE SHALL BE GRADED AS NEEDED TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION AND SEEDING.
- 3. TOPSOIL SHALL BE APPLIED WHERE NEEDED TO ESTABLISH VEGETATION.

- SEEDIED PERPARATION.

  1. LIME-AGRICUITABL, GROUND LIMESTONE SHALL BE APPLIED TO ACTO SOIL AS RECOMMENDED BY A SOIL TEST. IN LIEU OF A SOIL TEST, LIME SHALL BE APPLIED AT THE RATE OF 199 FOUNDS PER 1,000-50, FT. OR 3 TONS PER ACRE.
- 2. FERTILIZER-FERTILIZER SHALL BE APPLIED AS RECOMMENDED BY A SOIL TEST. IN PLACE OF A SOIL TEST, FERTILIZER SHALL BE APPLIED AT A RATE OF 12 POUNDS PER 1,000-SQ. FT. OR 500 POUNDS PER ACRE OF A 10-20-20 OR EQUIVALENT.
- 3. THE LIME AND FERTILIZER SHALL BE WORKED INTO THE SOIL WITH A DISK HARROW, SPRING-TOOTH HARROW, OR OTHER SUITABLE FIELD IMPLEMENT TO A DEPTH OF 3 INCHES. ON SLOPING LAND, THE SOIL SHALL BE WORKED ON THE CONTOUR.

SEEDING DATES AND SOIL CONDITIONS
SEEDING SHOULD BE DONE MAKET! TO APRIL IS OR AUGUST 1 TO OCTOBER 1. IF SEEDING OCCURS APRIL IS - AUGUST 1, AND OCTOBER 1
MAKEL 1, INCREAS SEEDING ARTHS BY 30%, TILLAGE FOR SEEDINGP PREPARATION SHOULD BE DONE WHEN THE SOIL IS DRY ENOUGH
TO CKUMBLE AND NOT FORM RIBBONS WHEN COMPRESSED BY HAND, FOR WINTER SEEDING, SEE THE FOLLOWING SECTION ON
DORMANT SEEDING.

<u>DORMANT SEEDINGS</u> 1. SEEDINGS CAN BE MADE FROM DECEMBER 1 THROUGH MARCH 1. DURING THIS PERIOD, THE SEEDS ARE LIKELY TO GERMINATE BUT

- THE FOLLOWING METHODS MAY BE USED FOR "DORMANT SEEDING":
   FROM DECEMBER I THROUGH MARCH I, PREPARE THE SEEDBED, ADD THE REQUIRED AMOUNTS OF LIME AND FERTILIZER, THEN
  MULCH AND ANTHOR INCREASE SEEDING RATES BY 50%.

MULCHING I. MULCH MATERIAL SHALL BE APPLIED IMMEDIATELY AFTER SEEDING, DORMANT SEEDING SHALL BE MULCHED. 100% OF THE GROUND SURFACE SHALL BE COVERED WITH AN APPROVED MATERIAL.

- STRAW-IF STRAW IS USED IT SHALL BE UNROTTED SMALL-GRAIN STRAW APPLIED AT THE RATE OF 2-3 TONS PER ACRE OR 135 POUNDS (THREE TO FOUR BALES) PER 1,000-SO, FT, THE MULCH SHALL BE SPREAD UNIFORMLY BY HAND OR MECHANICALLY APPLIED SO THE
- SOIL SURFACE IS COVERED, FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,600-SQ.FT. SECTIONS AND SPREAD THATE 45-LB BALES OF STRAW IN EACH SECTION.
   IPTROSECEDERS-IF WOOD CELLIVOS FIBER IS USED. IT SHALL BE APPLIED AT 1,500 LB/AC. OR 35 LB/1,600 SQ. FT.
   OTHER-OTHER ACCEPT/ABLE MULCHES INCLUDE ROLLED EROSION CONTROL MATTINGS OR BLANKETS APPLIED ACCORDING TO MANUFACTURES RECOMMENDATIONS ON WOOD CHIEF APPLIED AT 1 OTHER SPACE AREA.

- STRAW MILCO SHALL BE ANYHORED BAMEDATEN TO MININEEL LOSS BY WINTO OR YATER.

  MECHANICLA BLOCK, CREMER OR SMILLAR IVER TOOL, SHALL BE SIT STRAIGHT TO MINICH OR ANCHOR THE MILLCH MATERIAL INTO THE SOIL. STRAW MICHANICALLY ANCHORED SHALL NOT BE FIRST Y CHOPED BLT, GENERALLY, BE LEFT LONGER THAN SINCHES.

  MILCON RETINEM-INSTITUCI SHALL BE LOSSE ACCORDING TO THE MANUFACTURES'S RECOMMENDATIONS. INTERIOR MAY BE NECESSARY AND LONGER THAN SHALL BE RECOVERED BY THE MANUFACTURES OF AT THE RATE OF 100 GALLONS FER ACRE.
- SYNTHETIC BINDERS-SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRI-TAC), DCA-70, PETROSET, TERRA TACK OR EQUIVALENT MAY

# BE USED AT RATES SPECIFIED BY THE MANUACTURES. VOOD CELLULOSE FIBER-WOOD CELLULOSE FIBER SHALL BE APPLIED AT A NET DRY WORD FELLULOSE FIBER WOOD CELLULOSE FIBER WOOD CELLULOSE FIBER WOOD CELLULOSE FIBER WOOD CELLULOSE FIBER SHALL BE APPLIED AT A NET DRY WEIGHT OF 1,500 POINTS FIRE ACRE THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER WITH THE MIXTURE CONTAINING A MAXIMUM OF 50 POINTS CELLULOSE FIRE 100 GALLONS OF WATER.

IRRIGATION

FERMANENT SEEDING SHALL INCLUDE IRRIGATION TO ESTABLISH VEGETATION DURING DRY WEATHER OR ON ADVERSE SITE CONDITIONS, WHICH REQUIRE ADEQUATE MOISTURE FOR SEED GERMINATION AND FLANT GROWTH.

IRRIGATION RATES SHALL BE MONITORED TO PREVENT EROSION AND DAMAGE TO SEEDED AREAS FROM EXCESSIVE RUNOFF.

#### TOPSOILING

#### SALVAGING AND STOCKPILING:

- DETERMINE THE DEPTH AND SUITABILITY OF TOPSOIL AT THE SITE. (FOR HELP, CONTACT YOUR NRCS OFFICE TO OBTAIN A COUNTY SOIL SURVEY REPORT).
- PRIOR TO STRIPPING TOPSOIL, INSTALL APPROPRIATE DOWNSLOPE EROSION AND SEDIMENTATION CONTROLS SUCH AS SEDIMENT TRAPS AND BASINS.
- REMOVE THE SOIL MATERIAL NO DEEPER THAN WHAT THE COUNTY SOIL SURVEY DESCRIBES AS "SURFACE SOIL" (IE. A OR AP HORIZON).
- CONSTRUCT STOCKFILES IN ACCESSIBLE LOCATIONS THAT DO NOT INTERFERE WITH NATUR-DRAINAGE. INSTALL APPROPRIATE SEDIMENT CONTROLS TO TRAP SEDIMENT SUCH AS BLIT HIMEDIATELY ADJACENT TO THE STOCKFILE OR SEDIMENT TRAPS OR BASINS DOWNSTREAM THE STOCKPILE. STOCKPILE SIDE SLOPES SHALL NOT EXCEED A RATION OF 2:1
- IF TOPSOIL IS STORED FOR MORE THAN 14 DAYS, IT SHOULD BE TEMPORARY SEEDED, OR COVERED WITH A TARP.

#### SPREADING THE TOPSOIL

- PRIOR TO APPLYING TOPSOIL, THE TOPSOIL SHOULD BE PULVERIZED.
- TO ENSURE BONDING, GRADE THE SUBSOIL AND ROUGHEN THE TOP 3-4 IN. BY DISKING
- DO NOT APPLY WHEN SITE IS WET, MUDDY, OR FROZEN, BECAUSE IT MAKES SPREADING DIFFICULT.
  CAUSES COMPACTION PROBLEMS, AND INHIBITS BONDING WITH SUBSOIL.
- APPLY TOPSOIL EVENLY TO A DEPTH OF AT LEAST 4 INCHES AND COMPACT SLIGHTLY TO IMPROVE CONTACT WITH SUBSOIL.
- 5. AFTER SPREADING, GRADE AND STABILIZE WITH SEEDING OR APPROPRIATE VEGETATION

| Crownvetch/<br>Tail Fescue                              | 10 - 15<br>30  | Well - Mod. Well | 5.0 - 7.5 |
|---|----------------|------------------|-----------|
| Crownvetch/<br>Perennial Ryegrass                       | 10-15          | Well - Mod. Well | 5.0-7.5   |
| Flatpea or Perennial Pea/<br>Tall Fescue                | 20<br>15       | Well - Mod. Well | 4.0 - 8.0 |
| Ladino Clover/<br>Serecia Lespedeza/<br>Tall Fescue     | 30<br>25<br>2  | Well - Mod. Well | 45-75     |
| Tall Fescue/<br>Ladino Clover/<br>Redtop                | 40<br>3<br>3   | Well - Mod. Well | 5.0 - 7.5 |
| Crownvetch/<br>Tall Fescue/<br>Redtop                   | 10<br>20<br>3  | Well - Mod. Well | 5.0 - 7.5 |
| Tall Fescue/<br>Birdsfoot Trefoil/<br>Redtop            | 40<br>10<br>3  | Well - Mod. Well | 5.0 - 7.5 |
| Sericea Lespedeza/<br>Tall Fescue/<br>Redtop            | 25<br>30<br>3  | Well - Mod. Well | 4.5 - 7.5 |
| Redtop/<br>Tall Fescue/<br>Creeping Red                 | 30<br>3<br>50  | Well - Mod. Well | 5.0 - 7.5 |
| Tall Fescue   | 50             | Well - Poorty    | 4.5 - 7.5 |
| Perennial Ryegrass/<br>Tall Fescue/<br>Lethco Flatpee * | 10<br>16<br>20 | Well - Poorty    | 5.0 - 6.0 |

Tables IV 1-4 taken from Natural Resources Conservation Service Manual Critical Area Planting

| KY Bluegrass/<br>Redtop/<br>Ladino Clover or Birdsfoot Trefoil | 20<br>3<br>2/10 | Well - Mod. Well | 5.5 - 7.5  |
|--|-----------------|------------------|------------|
| Timothy/<br>Alfaifa  | 5<br>12         | Well - Mod. Well | 6.5 - 8.0  |
| Timothy/<br>Birdsfoot Trefoil                                  | 5 8             | Well - Poorly    | 5.5 - 7.58 |
| Orcherdgress/<br>Ledino Clover/<br>Redtop                      | 10<br>2<br>3    | Well - Mod. Well | 5.5 - 7.5  |
| Orchardgrass/<br>Ladino Clover                                 | 10 2            | Well - Mod. Well | 5.5 - 7.5  |
| Orchardgrass/<br>Perennial Ryegrass                            | 20              | Well - Mod. Well | 5.5 - 7.5  |
| Creeping Red Fescue/<br>Perennial Ryegra                       | 30<br>10        | Well - Mod. Well | 5.5 - 7.5  |
| Orchardgrass or Kentucky Bluegra                               | ass 20          | Well - Mod. Well | 6.0 - 7.5  |
| Birdsfoot Trefoë/<br>Redtop/<br>Orchardgrass                   | 10<br>5<br>20   | Well - Mod. Well | 5.5 - 7.5  |
| Lathco Flat Pea/<br>Perennial Ryegrass                         | 30<br>20        | Well - Mod. Well | 5.5 - 7.5  |
| Lathco Flat Pea/<br>Orchardgrass                               | 30<br>20        | Well - Mod. Well | 5.5 - 7.5  |

nous to some fivestock. All legumes should be planted with proper inocul

| pH of Soil | Lime in Tons Per Acre                      | Fertilizer, Lbs., per Acre | 10-20-20- or Equivalent |
|------------|--|----------------------------|-------------------------|
| Above 6.0  | 2  | 500                        |                         |
| 5.0 to 6.0 | 3  | 500                        |                         |
| Below 5.0  | and the second of the second of the second | 500                        |                         |

The pH can be determined with a portable pH testing kit or by sending the soil samples to a soil testing laboratory. Whe time per acre are applied it must be incorporated into the soil by disking, backblading or hacking up and down the slope

#### Table IV-6 Mulch Materials Rates and Uses

| Material   | Minimum Rates Per Acre          | Coverage                       | Remarks  |
|--|---------------------------------|--------------------------------|--|
| Hay or Straw   | 2 to 3 Tons<br>100 to 150 Bales | Cover 75% to<br>90% of Surface | Subject to Wind blowing<br>or washing unless tied down |
| Wood Fiber Pulp Fiber Wood-Cellulose Recirculated Pape | 1000 to 1500 lbs                | Cover all<br>Disturbed Areas   | For Hydroseeding                                       |

SHEET No.

20

ATION
NTY ROUTE
SLIP REPAIR
T CONTROL

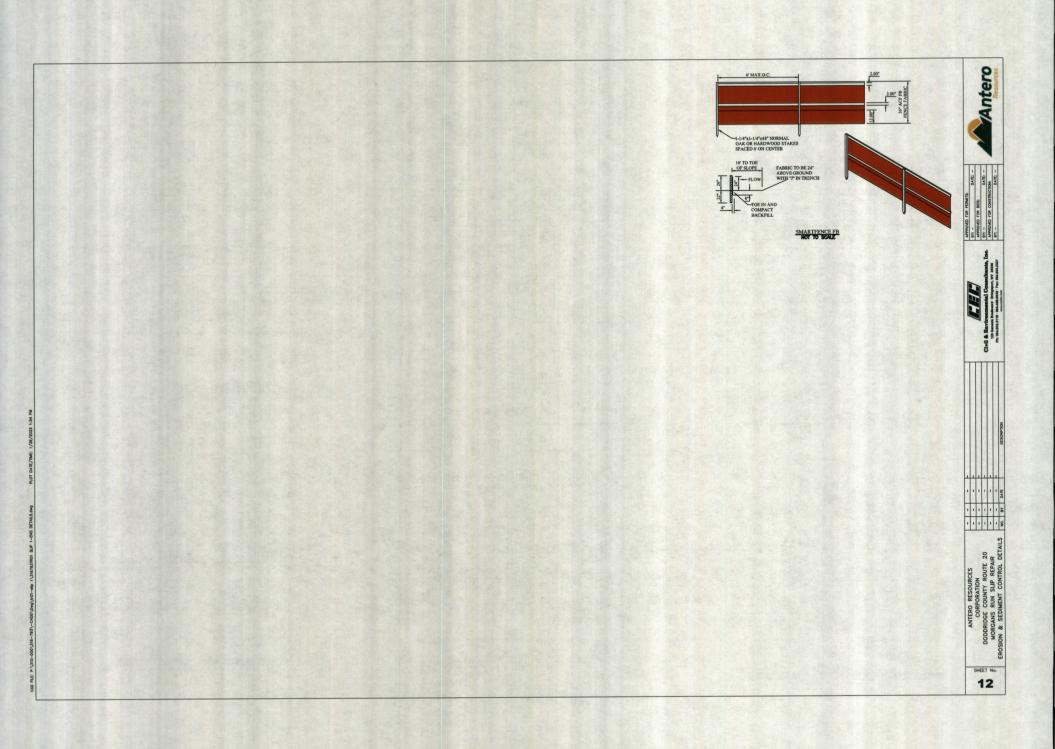
Antero

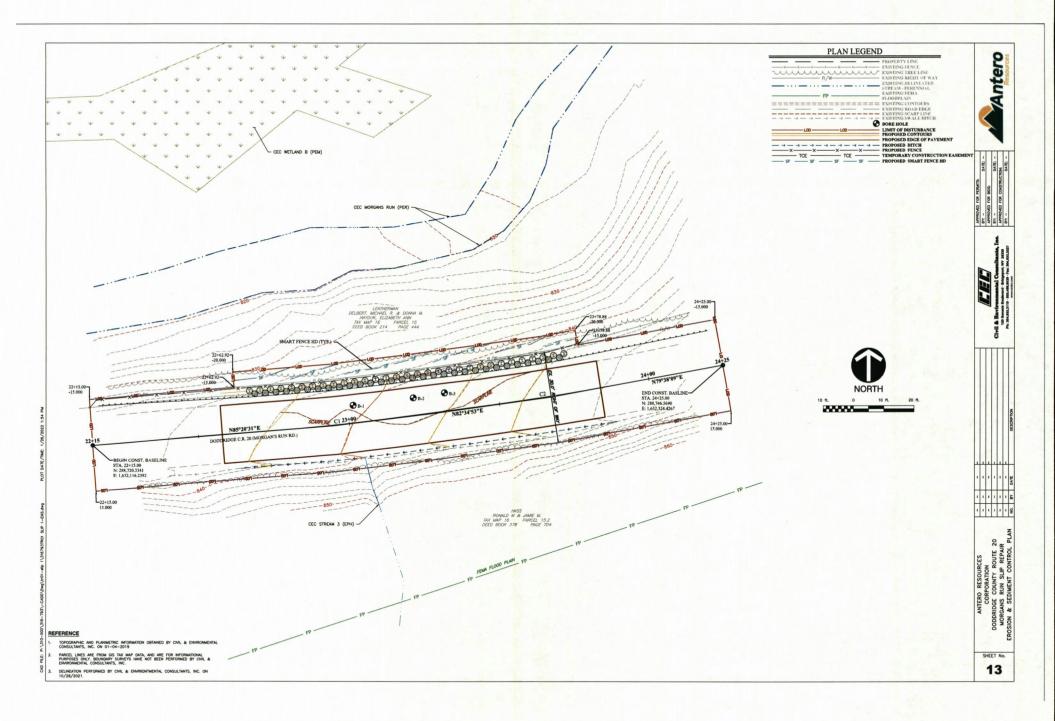
APPROVED

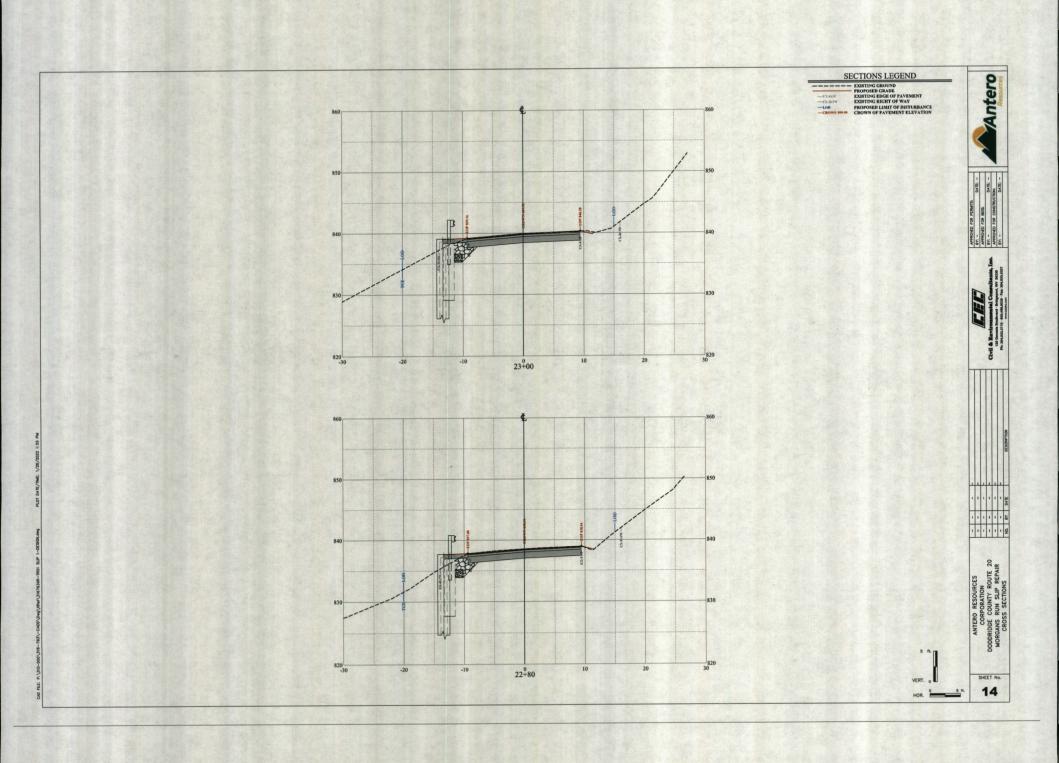
APPROVED

APPROVED

BY: -





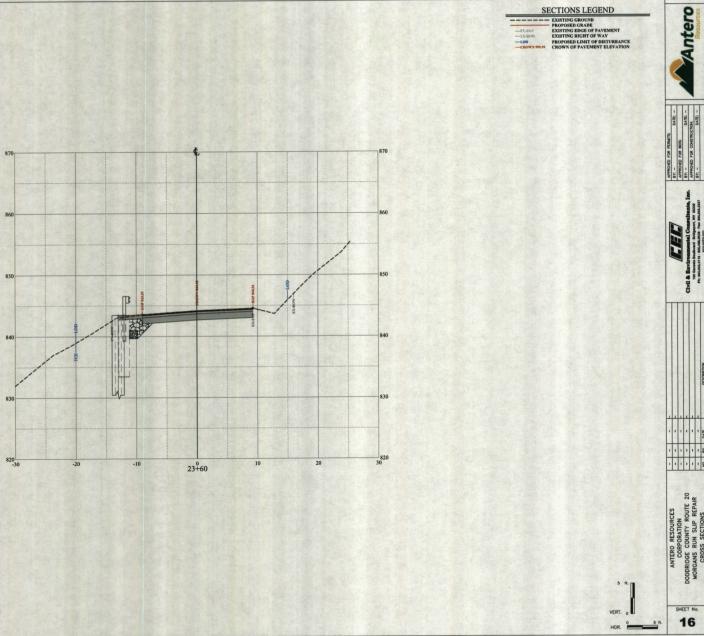


## SECTIONS LEGEND

SHEET No. 15

HOR. 0 5 ft.

VAntero



#### Doddridge County Floodplain Permits (Week of FEBRUARY 14, 2022)

Please take notice that on the (31st) of (January), 2022, (ANTERO RESOURCES) filed an application for a Floodplain Permit (#22-608) to develop land located at or about (MORGANS RUN ROAD) Coordinates: 39.286667,80.687822. The Application is on file with the Floodplain Manager of the County and may be inspected or copled during regular business hours in accordance to MV Code Chapter 298 Freedom of Information, Article i Public Records and county policy and procedures. Any interested persons who desire to comment shall present the same in writing by (MARCH 7, 2022) (20 calendar days after the announcement at the regularly scheduled Doddridge County Commission Meeting) delivered to the Floodplain Manager of the County at 105 Court Street, Suite #3, West Union, WV 26456. This project is a slip repair.

George C. Eidel, CFM Doddridge County Floodplain Manager

12/29x2XB

## STATE of WEST VIRGINIA; COUNTY OF DODDRIDGE, TO WIT:

I, Tamela B. Beamer, Editor of THE HER-ALD RECORD, a certified weekly newspaper published regularly in Doddridge County, West Virginia, DO Hereby Certify Upon Oath that the accompanying Legal Notice entitled:

# Floodplain Application # 21-608 Courtney Tilley

was published in said paper for 2 successive weeks beginning with the issue of 2/9, 2022 and ending with the issue of 2/26, 2022 that contains 184 word space at 115 cents per word and amounts to the sum of

\$ 21.16 FOR THE FIRST PUBLICATION.

SECOND PUBLICATION IS 75% OF THE FIRST PUBLICATION and each other publication thereafter \$\frac{\$15.78}{500}\$ for the TOTAL OF: \$\frac{37.03}{500}\$.

Editor,

Samla B. Lean

**NOTARY PUBLIC** 

alie le Juit



1 INCH = 1 MILE

DISTURBANCE AREA OUTSIDE RIGHT-OF-WAY

FLOODPLAIN CONDITIONS

DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN A FLOODPLAIN?

PERMIT NEEDED FROM COUNTY FLOODPLAIN COORDINATOR

AREA OF RIGHT- OF-WAY IN FLOOD HAZARD AREA: 0.14 ACRES

FLOODPLAIN SHOWN ON DRAWINGS? FIRM MAP NUMBER(S) FOR THIS SITE:

(AC) STATION STATION 0.013 22+62.92 23+78.88

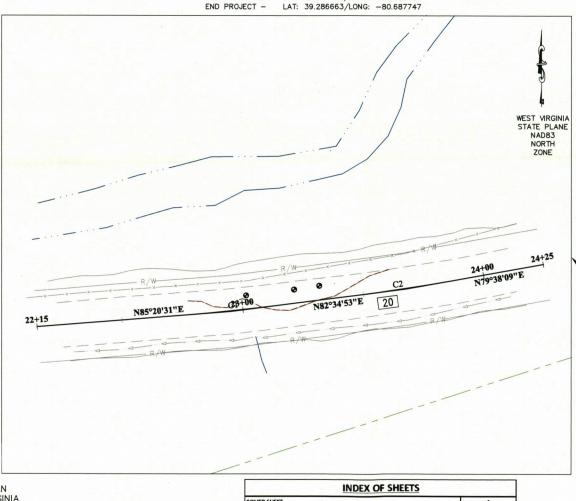
# FINAL DESIGN



# MORGAN'S RUN ROAD SLIP REPAIR - C.R. 20 MP 0.418

# MORGANSVILLE, DODDRIDGE COUNTY, WEST VIRGINIA **NOVEMBER 2021**

BEGIN PROJECT - LAT: 39.286583/LONG: -80.688481 END PROJECT - LAT: 39.286663/LONG: -80.687747



NOT TO SCALE DISTURBED ACREAGE **0.157 ACRES** 

WEST VIRGINIA DOH DISTRICT MAP

| 1               | SURFA      | CE EASEME | ENT OUTSIDE RIG     | HT-OF-WAY         |          |          |
|-----------------|------------|-----------|---------------------|-------------------|----------|----------|
| DESCRIPTIO<br>N | OWNER      | APN       | TYPE OF<br>EASEMENT | TOTAL<br>EASEMENT | ARI      | EAS      |
| N               |            | 44.1      | EASEMENT            | (SF)              | STATION  | STATION  |
|                 | LEATHERMAN | 1 /       | TCE                 | 571               | 22+62.92 | 23+78.89 |
|                 |            |           |                     |                   |          |          |
|                 |            |           | 11.                 | 1.1               |          | 1. "     |
|                 |            |           | 100                 |                   |          |          |
|                 | 1 1 1      |           |                     |                   |          |          |
|                 |            | Mily Y    |                     |                   |          |          |
|                 |            |           |                     |                   |          |          |
|                 |            |           |                     |                   | 100      |          |
|                 |            |           | The same of         |                   |          |          |
|                 |            |           |                     |                   |          |          |
| 7               |            |           |                     |                   |          |          |

**FINAL DESIGN ISSUE FOR BID** 2021-12-14

CALL BEFORE YOU DIG!

THE GENERAL CONTRACTOR SHALL NOTIFY
ALL UTILITY COMPANIES INVOLVED IN THE
SITE NO MORE THAN TEN DAYS AND NO LESS THAN
THREE DAYS IN ADVANCE OF EXCAVATION. WEST VIRGINIA
STATE LAW REQUIRES 2 WORKING DAYS NOTICE (B24C-1-1 TO B24C-1-8 OF THE WEST VIRGINIA CODE).

CALL BEFORE YOU DIG IN WEST VIRGINIA MISS UTILITY: 811 OR 1-800-245-4848

- TOPOGRAPHIC AND PLANIMETRIC INFORMATION OBTAINED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. ON 01-04-2019
- DELINEATION PERFORMED BY CIVIL & ENVIRIONTMENTAL CONSULTANTS, INC. ON

| INDEX OF SHEETS                    |       |
|------------------------------------|-------|
| COVER SHEET                        | 1     |
| GENERAL NOTES                      | 2     |
| SUMMARY OF ESTIMATED QUANTITIES    | 3     |
| TYPICAL SECTION AND DETAILS        | 4     |
| CORE BORING LOGS                   | 5     |
| EXISTING CONDITIONS                | 6     |
| PLUG PILE WALL PLAN                | 7     |
| PLUG PILE WALL PROFILE             | 8     |
| MANTENANCE OF TRAFFIC PLAN         | 9     |
| EROSION & SEDIMENT CONTROL NOTES   | 10-11 |
| EROSION & SEDIMENT CONTROL DETAILS | 12    |
| EROSION & SEDIMENT CONTROL PLAN    | 13    |
| CROSS SECTIONS                     | 14-16 |

## OWNER/DEVELOPER

SEE SHEET 7

ANTERO RESOURCES JOHN DEPOY ROADWAY ENGINEER MANAGER 740-760-1087

## ENGINEER/SURVEYOR

CIVIL & ENVIRONMENTAL CONSULTANTS, INC. 304-848-7104



GOVERNING SPECIFICATIONS AND STANDARD CONSTRUCTION DRAWINGS
THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS, STANDARD SPECIFICATIONS, ROADS AND BRIDGES, ADOPTED 2017, AS AMENDED BY THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAY, SUPPLEMENTAL SPECIFICATIONS, DATED JANUARY 1, 2021, THE CONTRACT DOCUMENTS AND THE CONTRACT PLANS ARE THE GOVERNING PROVISIONS APPLICABLE TO THIS PROJECT

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS, STANDARD DETAILS ROOK VOLUME 1 ISSUED MAY, 2016; AND VOLUME 2, ISSUED JANUARY 2019, ARE APPLICABLE TO THIS PROJECT. THE CONTRACTOR IS EXPECTED TO HAVE COPIES OF THE LATEST STANDARD DETAILS BOOKS AND ANY REVISIONS, WHICH CAN BE FOUND AT: WWW.TRANSPORTATION.WV.GOV/HIGHWAYS/ENGINEERING/PAGES/DETAILS.ASPX

MATERIALS USED FOR THE PROJECT SHALL MEET WYDOH SPECIFICATIONS.

EXISTING CONDITIONS
TOPOGRAPHIC FEATURES, CONTOURS, AND SURVEY REFERENCE STATIONS USED FOR THIS PROJECT ARE FROM CIVIL & ENVIRONMENTAL CONSULTANTS, INC. FIELD SURVEY CONDUCTED IN 10/2021. EXISTING ROADS, DRIVEWAYS, AND STRUCTURES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. NECESSARY PRECAUTIONS SHALL BE TAKEN BY THE CONTRACTOR TO LOCATE AND PROTECT EXISTING UTILITY SERVICES AND MAINS. AND DISCREPANCIES BETWEEN THE PLANS AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE FIELD ENGINEER PRIOR TO CONSTRUCTION

CONTRACTOR'S RESPONSIBILITY
FAILURE TO SPECIFICALLY MENTION ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THE PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO PERFORM SUCH WORK. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS. THE CONTRACTOR IS RESPONSIBLE FOR TRANSITIONS TO DRIVEWAYS, DRAINAGE STRUCTURES AND OTHER ROADSIDE FEATURES, METAL TRENCH PLATES ARE REQUIRED FOR ALL JOBS INVOLVING CULVERT REPLACEMENT. TRENCH PLATES MUST BE PRESENT ON SITE AND READY FOR IMMEDIATE USE PRIOR TO ROADWAY EXCAVATION

UTILITIES NOTIFICATION
AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS IN AN AREA, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER, THE REGISTERED UTILITY PROTECTION SERVICE, AND THE OWNERS OF EACH UNDERGROUND UTILITY SHOWN IN THE PLANS. THE OWNERS OF THE UNDERGROUND UTILITY FACILITY FACILITY FOR THE UNDERGROUND UTILITY FACILITY FOR THE UNDERGROUND UTILITY FACILITY FOR THE CONSTRUCTION OF THE UNDERGROUND UTILITY FACILITY FOR THE CONSTRUCTION OF THE UNDERGROUND UTILITY FACILITIES IN THE CONSTRUCTION OF THE UNDERGROUND UTILITY FACILITY FACIL AFTER NOTICE IS RECEIVED , STAKE, MARK, OR OTHERWISE DESIGNATE THE LOCATION OF THE UNDERGROUND UTILITY FACILITIES IN THE CONSTRUCTION AREA IN SUCH A MANNER AS TO INDICATE THEIR COURSE TOGETHER WITH THE APPROXIMATE DEPTH AT WHICH THEY WERE INSTALLED. THE MARKING O LOCATING SHALL BE COORDINATED TO STAY APPROXIMATELY TWO (2) DAYS AHEAD OF THE PLANNED CONSTRUCTION

WORK LIMITS
THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION LOCATION ONLY. CONTRACTOR SHALL PROVIDE THE INSTALLATION AND
THE WORK LIMITS SHOWN ON THESE PLANS WHETHER INSIDE OR OUTSID OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSID THESE WORK LIMITS AT THE CONTRACTOR'S EXPENSE

CONSTRICT ALL ACTIVITIES, EQUIPMENT STORAGE, AND STAGING TO WITHIN THE CONSTRUCTION LIMITS. UNLESS OTHERWISE IDENTIFIED IN THE PLANS OR PROPOSAL. THE CONSTRUCTION LIMITS ARE MAINTAINED WITHIN THE RIGHT OF WAY OR AS NOTED ON THE PLANS.

SUBMIT A WRITTEN REQUEST TO THE PROJECT ENGINEER TO USE ANY AREA OUTSIDE THESE LIMITS. THE DOCUMENT SUBMITTED MUST CLEARLY IDENTIF THE AREA AND EXPLAIN THE PROPOSED USE AND RESTORATION OF THE AREA. USE OF THESE AREAS FOR DISPOSAL OF WASTE MATERIAL AND CONSTRUCTION DEBRIS, EXCAVATION OF BORROW MATERIAL AND PLACEMENT OF PORTABLE PLANTS IS PROHIBITED. THE REQUEST MUST BE APPROVED IN WRITING BEFORE THE CONTRACTOR HAS PERMISSION TO USE THE AREA.

SHOULDER AND DITCH WORK SHALL NOT BE PERFORMED BEYOND THESE LIMITS.

ANY ITEMS DAMAGED BEYOND THE CONSTRUCTION LIMITS AS DEFINED ABOVE WILL BE REPLACED IN KIND OR AS APPROVED BY THE PROJECT ENGINEER AT NO EXPENSE TO THE PROPERTY OWNER AND ANTERO RESOURCES.

ANY CONSTRUCTION EQUIPMENT THAT MAY DAMAGE ROADWAY INTEGRITY SHALL BE PROHIBITED FROM TRAVELING ON ROAD UNLESS PROPER PROTECTION (I.E. STEEL ROAD PLATES, PLYWOOD, ECT.) IS USED, OR WRITTEN APPROVAL IS OBTAINED FROM STATE, COUNTY, OR LOCAL AUTHORITY. ANY DAMAGE FROM FAILURE TO COMPLY WILL RESULT IN ROAD BEING RECONSTRUCTED AT CONTRACTOR'S EXPENSE

PROTECTION OF RIGHT-OF-WAY LANDSCAPING
CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING FEATURES SCHEDULED TO REMAIN AT NO EXPENSE TO ANTERO RESOURCES.

CONSTRUCTION NOISE
ACTIVITIES AND LAND USE ADJACENT TO THIS PROJECT MAY BE AFFECTED BY CONSTRUCTION NOISE. IN ORDER TO MINIMIZE ANY ADVERSE
ACTIVITIES AND LAND USE ADJACENT TO THIS PROJECT MAY BE AFFECTED BY CONSTRUCTION. TYPE DEVICES BETWEEN THE HOURS OF 11 PM AND CONSTRUCTION NOISE IMPACTS, DO NOT OPERATE POWER-OPERATED CONSTRUCTION NOISE IMPACTS, DO NOT OPERATE POWER-OPERATED CONSTRUCTION. TYPE DEVICES BETWEEN THE HOURS OF 11 PM AND 7AM. IN ADDITION, DO NOT OPERATE AT ANY TIME ANY DEVICE IN SUCH A MANNER THAT THE NOISE CREATED SUBSTANTIALLY EXCEEDS THE NOISE CUSTOMARIL AND NECESSARILY ATTENDANT TO THE REASONABLE AND EFFICIENT PERFORMANCE OF SUCH EQUIPMENT.

WORK SCHEDULE / COORDINATION OF WORK
THE CONTRACTOR SHALL CONTACT EACH RESIDENCE AND BUSINESS LOCATED WITHIN THE PROJECT LIMITS TO ADVISE OF CONSTRUCTION SCHEDULE AND PARKING RESTRICTIONS NEEDED FOR CONSTRUCTION ACCESS. THE CONTRACTOR SHALL ALSO CONTACT LOCAL SCHOOLS AND EMERGENCY SERVICES TO COORDINATE ANY TIMES THAT CONSTRUCTION SHOULD NOT TAKE PLACE.

MAINTAINING TRAFFIC
TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES DURING NON-WORKING HOURS. THE LANE CLOSURE OF TWO-WAY TRAFFIC SHOULD BE AVOIDED, BUT IF NECESSARY, SHALL BE LIMITED TO NO LONGER THAN 30 MINUTES PER THE WEST VIRGINIA MANUAL ON TEMPORARY TRAFFIC CONTRO FOR STREETS AND HIGHWAYS (2006 EDITION). THE CLOSURE OF ONE LANE SHALL BE PERMITTED DURING PARTS OF THE PROJECT. HOWEVER, CLOSURE TIME SHALL BE LIMITED TO CONSTRUCTION REQUIRING CLOSURE INGRESS AND EGRESS TO ALL DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES THE WEST VIRGINIA MANUAL ON TEMPORARY TRAFFIC CONTROL FOR STREETS AND HIGHWAYS, 2006 EDITION, SHALL BE ENFORCED DURING THE ENTIRE LIFE

 $\frac{\text{ELEVATIONS}}{\text{ALL ELEVATIONS SHOWN REFER TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1988 (NGVD 88)}.$ 

COORDINATES
THE PROJECT DATUM ON THESE PLANS ARE BASED UPON THE NORTH ZONE OF THE WEST VIRGINIA STATE PLANE SYSTEM. THE HORIZONTAL DATUM IS

VERIFICATION OF DIMENSIONS THE CONTRACTOR IS RESPONSIBLE FOR THE VERIFICATION OF ALL PLAN AND ELEVATION DIMENSIONS PRIOR TO ORDERING MATERIAL FOR CONSTRUCTION OF VARIOUS BIO ITEMS IN THIS CONTRACT.

MATERIAL WASTE/SPOIL SITE
THERE IS NO MATERIAL WASTE SITE ESTABLISHED FOR THIS PROJECT. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIAL RESPONSIBLY.

ANY EXISTING ITEMS TO BE REMOVED AS INDICATED ON THESE PLANS SHALL BECOME PROPERTY OF THE CONTRACTOR

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE REMOVED ONCE 70% VEGETATIVE GROWTH IS ESTABLISHED OVER THE ENTIRE

## STRUCTURAL NOTES

MATERIAL DESIGN STRENGTHS

CLASS B CONCRETE: F'C = 3,000 PSI

MATERIAL SPECIFICATIONS

THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, EIGHT EDITION, DESIGNATED BELOW SHALL GOVERN THE MATERIALS FURNISHED, UNLESS OTHERWISE NOTE

STRUCTURAL STEEL

AASHTO M270 - GRADE SO

## STRUCTURAL NOTES (CONTINUED)

THE DRILLED PLUG PILE WALL SHALL BE CONSTRUCTED WITHIN STRICT ACCORDANCE WITH THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS, STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, ADOPTED 2017, SECTION 614, PILING WALLS, AND AS AMENDED BY THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS, SUPPLEMENTAL SPECIFICATIONS DATED JANUARY 1, 2018.

PILE REINFORCED SHAFTS SHALL HAVE A MINIMUM EMBEDMENT OF 10 FEET OR 1/3 OF THE LENGTH INTO COMPETENT ROCK. UNREINFORCED SHAFTS (PLUG PILES) SHALL BE TERMINATED AT TOP OF BEDROCK.

PROVISIONS SHALL BE MADE BY THE CONTRACTOR FOR TEMPORARY CASING FOR DRILLED SHAFT EXCAVATIONS THAT DO NOT STAY OPEN. THE TEMPORARY CASING SHALL BE INCIDENTAL TO THE PILING BID ITEM.

ALL LOOSE MATERIAL AND WATER IN QUANTITIES THAT COULD AFFECT CONCRETE STRENGTH SHALL BE REMOVED FROM THE BOTTOM OF THE DRILLED SHAFT EXCAVATION AS DIRECTED BY THE ENGINEER.

NO ADDITIONAL PAYMENT WILL BE MADE FOR INSTALLED LENGTH OF PILE GREATER THAN THE MINIMUM OF 10' OR 1/3 OF THE PILE LENGTH. STRUCTURAL STEEL MAY BE UNCOATED.

#### PROJECT NOTES

#### RUC010 MOBILIZATION (WVDOH 204)

THIS WORK SHALL CONSIST OF THE PERFORMANCE OF CONSTRUCTION PREPARATORY OPERATIONS, INCLUDING THE MOVEMENT OF PERSONNEL AND EQUIPMENT TO THE PROJECT SITE AND FOR THE ESTABLISHMENT OF THE CONTRACTOR'S OFFICES, BUILDINGS AND OTHER FACILITIES IF NECESSARY TO BEGIN WORK AND ALSO THE REMOVAL OF ALL THOSE ITEMS AT THE COMPLETION OF THE PROJECT. THIS ITEM WILL BE PAID AS LUMP SUM.

#### **RUC015 CLEARING AND GRUBBING (WVDOH 201)**

THIS WORK SHALL CONSIST OF CLEARING, GRUBBING, REMOVING, AND DISPOSING OF ALL TREES, STUMPS, VEGETATION AND DERRIS WITHIN THE CONSTRUCTION LIMITS, AS SET FORTH IN THE CONTRACT PLANS OR AS DESIGNATED BY THE ENGINEER; EXCEPT SUCH OBJECTS AS ARE DESIGNATED TO REMAIN. THIS WORK SHALL ALSO INCLUDE PRESERVATION FROM INJURY OR DEFACEMENT OF ALL VEGETATION AND OBJECTS TO REMAIN. THE CONTRACTOR WILL BE PAID BY THE ACTUAL CLEARED ACREAGE.

#### RUC016 CONSTRUCTION LAYOUT (WVDOH 639)

THIS WORK CONSISTS OF ALL CONSTRUCTION SURVEYING, CALCULATIONS, AND STAKING, IN ACCORDANCE WITH THE CONTRACT PLANS. THIS ITEM WILL BI PAID AS LUMP SUM. THE LIMIT OF DISTURBANCE WILL BE STAKED AND CONSTRUCTION SUITABLE CONTROL WILL BE PROVIDED BY THE CONSULTANT PRIOR

#### **RUC018 MAINTAINING TRAFFIC (WVDOH 636)**

THIS WORK SHALL CONSIST OF ALL NECESSARY MEASURES TO MAINTAIN AND TO PROTECT TRAFFIC, TO PROTECT THE WORK IN PROCESS AND TO MAINTAIN TRAFFIC THROUGH, AROUND OR ADJACENT TO THE CONSTRUCTION AREA IN ACCORDANCE WITH THE WYDOH SPECIFICATIONS OR AS DIRECTED, TWO WAY TRAFFIC SHALL BE MAINTAINED DURING NON-WORKING HOURS, INGRESS AND EGRESS TO ALL DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES. TEMPORARY TWO WAY TRAFFIC ROAD CLOSURES SHALL NOT LAST LONGER THAN 20 MINUTES PER THE WEST VIRGINIA MANUAL ON TEMPORARY TRAFFIC CONTROL FOR STREETS AND HIGHWAYS, LATEST VERSION. THE WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FURNISHING AND MAINTAINING OF ALL TRAFFIC CONTROL DEVICES, FLAGGERS, PILOT TRUCKS, ETC. ALL TRAFFIC CONTROL DEVICES SHALL BE FABRICATED AND INSTALLED ACCORDING TO THE WYDOH MANUAL ON TEMPORARY TRAFFIC CONTROL FOR STREETS AND HIGHWAYS LATEST VERSION, WIRELESS TWO-WAY COMMUNICATION SHALL BE PROVIDED TO THE FLAGGERS SO THEY MAY MAINTAIN COMMUNICATION AT ALL TIMES. FLAGGERS WILL NOT BE PERMITTED TO HAVE A VEHICLE AT THERE FLAGGING LOCATION. FLAGGERS AHEAD SIGNS SHALL BE USED AND REMOVED WHEN NO FLAGGERS ARE NEEDED. THIS ITEM WILL BE PAID AS LUMP SUM.

#### **RUC027 SMARTFENCE FB**

THIS WORK SHALL CONSIST OF INSTALLING OF THE SMARTFENCE AT THE LOCATIONS SHOWN ON THE CONSTRUCTION PLANS. ALL SMARTFENCE NEEDED FOR THIS ITEM WILL BE PROVIDED BY ANTERO AND THE CONTRACTOR WILL BE PAID FOR THE ACTUAL LINEAR FOOTAGE INSTALLED.

#### RUC037 E&S REMOVAL (WVDOH 642)

THIS WORK SHALL CONSIST OF REMOVAL OF ALL PROJECT EROSION AND SEDIMENT CONTROL DEVICES AND ALL 404 CONTROLS. E&S REMOVAL MAY OCCUR AFTER 70% UNIFORM VEGETATIVE COVER HAS BEEN ACHIEVED. THIS ITEM INCLUDES STABILIZING ANY DISTURBANCE ASSOCIATED WITH THE REMOVAL OF THE E&S CONTROLS. THE CONTRACTOR WILL BE PAID FOR THE ACTUAL LINEAR FOOTAGE REMOVED.

## RUC038 MAINTAIN E&S CONTROLS (WVDOH 642)

THIS ITEM IS INCLUDED FOR MAINTENANCE TO ALL FROSION AND SEDIMENT CONTROL DEVICES THROUGHOUT THE PROJECT. THIS MAINTENANCE NCLUDES SEDIMENT REMOVAL, DEVICE REPAIR AND DEVICE REPLACEMENT AS NECESSARY TO MAINTAIN EFFECTIVE CONTROLS. THIS ITEM WILL BE PAID

## RUC154 UNREINFORCED PLUG PILE (WVDOH 614)

THIS ITEM IS INCLUDED FOR THE INSTALLATION OF THE UNREINFORCED PLUG PILES TO BE USED IN THE CONSTRUCTION OF THE PILE WALL AS SHOWN IN THE CONSTRUCTION PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MEANS AND METHODS USED TO CONSTRUCT THE DRILLED SHAFTS. ANY TEMPORARY GRADING, EXCAVATION, EMBANKMENT, AGGREGATE, DRAINAGE, CASING, SHEETING, ETC. NEEDED TO COMPLETE THE WORK AND INSTALLATION OF THE CLASS B CONCRETE CAISSON SHALL BE INCLUDED IN THE BID PRICE. THE CONTRACTOR WILL BE PAID BY THE LINEAR FOOT.

## RUC155 STEEL PILING (HP12x53) (WVDOH 614)

THIS ITEM IS INCLUDED FOR THE STRUCTURAL STEEL PILING TO BE USED IN THE CONSTRUCTION OF THE PILE WALL AS SHOWN IN THE CONSTRUCTION PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MEANS AND METHODS USED TO CONSTRUCT THE DRILLED SHAFTS. ANY TEMPORARY GRADING, EXCAVATION, EMBANKMENT, AGGREGATE, DRAINAGE, CASING, SHEETING, ETC. NEEDED TO COMPLETE THE WORK AND INSTALLATION OF THE CLASS B CONCRETE CAISSON SHALL BE INCLUDED IN THE BID PRICE. THE CONTRACTOR WILL BE PAID BY THE LINEAR FOOT

## RUC193 AGGREGATE BACKFILL (WVDOH CLASS 9)

THIS ITEM IS INCLUDED FOR BACKFILL OF THE RETAINING WALL AS SHOWN IN THE CONSTRUCTION PLANS AND SHALL CONSIST OF WYDOH CLASS 9 CRUSHER RUN. ALL STONE NEEDED FOR THIS ITEM WILL BE PROVIDED BY ANTERO AND THE CONTRACTOR WILL BE PAID FOR PLACEMENT BY THE TON.

## RUC207 EXCAVATION (WVDOH 207)

UNCLASSIFIED EXCAVATION IS TO BE PERFORMED TO ALTER THE EXISTING GRADE TO MEET THE DESIGN ELEVATIONS SHOWN ON THE PLANS. ALL TOPSOIL REMOVED FROM THE AREA IS TO BE STOCKPILED AND THEN REPLACED AT A MAX DEPTH OF 6" OVER THE FINAL GRADED SLOPES TO PROVIDE

THE CONTRACTOR SHALL COMPACT ALL FILL MATERIALS TO NOT LESS THAN 95% OF MAXIMUM DRY DENSITY AND +/-2% OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D1557 TO PROVIDE STABILITY AND REDUCE SETTLEMENT.

ALL COSTS FOR WORK IN THESE LOCATIONS, INCLUDING CUTS, FILLS, BENCHING, REMOVAL, STOCKPILING AND REPLACEMENTS OF TOPSOIL, SHOULDER AND DITCH GRADING AND FINAL COMPACTION OF THE ROADWAY SUBGRADE IS TO BE INCLUDED IN THE UNIT BID PRICE AS WELL AS FINAL COMPACTION OF THE UNDERDRAIN BACKFILL, FINAL PAYMENT WILL BE THE TOTAL NUMBER OF CUBIC YARDS IN THE PLAN QUANTITY

## RUC223 DITCH CLEANOUT (WVDOH 229)

THIS WORK INCLUDES CLEANING AND SHAPING OF THE EXISTING DITCHES ALONG THE PROJECT. ALL DITCHES CUT SHALL BE SEEDED AND MULCHED AS CALLED FOR IN THE PLANS. THE QUANTITY INCLUDES THE FULL LENGTH OF DITCHLINES ALONG THE PROJECT. ALL COSTS FOR DITCH CLEANOUT AND DISPOSAL OF MATERIAL ARE TO BE INCLUDED IN THE UNIT BID PRICE AND THE CONTRACTOR WILL BE PAID BY THE LINEAR FOOT.

## RUC409 MAINTENANCE AGGREGATE (WVDOH 636)

THIS ITEM IS INCLUDED FOR AGGREGATES REQUIRED FOR THE MAINTENANCE OF TRAFFIC. AGGREGATE SHALL BE APPLIED AS REQUIRED TO MAINTAIN A SUITABLE TRAVELWAY FOR THE PUBLIC THROUGHOUT THE DURATION OF THE PROJECT. ALL STONE NEEDED FOR THIS ITEM WILL BE PROVIDED BY ANTERO AND THE CONTRACTOR WILL BE PAID FOR PLACEMENT BY THE TON.

## PROJECT NOTES (CONTINUED)

#### RUC412 AGGREGATE CRUSHER RUN (WVDOH CLASS 1) (WVDOH 307)

THIS ITEM HAS BEEN INCLUDED AS A FINAL ROADWAY SURFACE IN AREAS AS DESIGNATED AND IS TO BE PLACED AS SHOWN IN THE DETAILS IN THE CONSTRUCTION PLANS. PLACEMENT OF AGGREGATE SHALL BE WITH A PAYER OR SPREADER BOX. AGGREGATE SHALL BE WETTED TO AID IN COMPACTION THE MAXIMUM LIFT THICKNESS FOR AGGREGATE SHALL BE 6 INCHES. ALL STONE NEEDED FOR THIS ITEM WILL BE PROVIDED BY ANTERO AND THE CONTRACTOR WILL BE PAID FOR PLACEMENT BY THE TON.

## RUC413 AGGREGATE SHOULDER STONE (WVDOH CLASS 10) (WVDOH 307)

THIS ITEM IS TO BE USED AS SHOULDER STONE ALONG THE EDGES OF THE ROADWAY. STONE IS TO BE PLACED AS SHOWN IN THE DETAILS, THE PLACEMEN' OF SHOULDER STONE SHALL BE COMPLETED WITHIN 10 DAYS AFTER THE MAJORITY OF THE PAVING OPERATIONS ARE FINISHED. IN AREAS WHERE SHOULDER STONE COMPACTION IS POSSIBLE, PNEUMATIC TIRE ROLLERS OR STEEL WHEEL ROLLERS SHALL BE USED. THE MAXIMUM LIFT THICKNESS FOR AGGREGATE SHALL BE 6 INCHES. ALL STONE FOR THE ITEM WILL BE PROVIDED BY ANTERO AND CONTRACTOR WILL BE PAID FOR PLACEMENT BY THE TON

#### **RUC420 ACCESS ROAD GEOTEXTILE FABRIC**

THIS ITEM IS INCLUDED AS FABRIC FOR SEPARATION AND SHALL BE USED IN ROADWAY CONSTRUCTION AS SHOWN IN THE CONSTRUCTION PLANS. ALL MATERIAL FOR THIS ITEM WILL BE PROVIDED BY ANTERO AND THE CONTRACTOR WILL BE PAID FOR PLACEMENT BY THE SQUARE YARD.

#### RUC490 MARSHALL HMA BASE COURSE TYPE 2 (1 LIFT @ 3" COMPACTED) (WVDOH 401)

PLACE HMA BASE COURSE AS SHOWN IN THE DETAILS IN THE CONSTRUCTION PLANS. A SAFETY EDGE SHALL BE PLACED ON THE PAYER TO SHAPE THE OUTSIDE EDGE OF THE PAVEMENT TO BE MAXIMUM OF 30' AS SHOWN IN THE DETAIL IN THE PLANS. ALL ASPHALT PLACED ON THIS JOB SHALL HAVE A SAFETY EDGE. ALL COSTS FOR MATERIALS, LABOR, AND EQUIPMENT IS TO BE INCLUDED IN THE UNIT BID PRICE AND THE CONTRACTOR WILL BE PAID BY

RUC495 MARSHALL HMA WEARING COURSE TYPE 1 (1 LIFT @ 1.5" COMPACTED) (WYDDH 401)
PLACE HMA WEARING COURSE AS SHOWN IN THE DETAILS IN THE CONSTRUCTION PLANS. A SAFETY EDGE SHALL BE PLACED ON THE PAVER TO SHAPE THE OUTSIDE EDGE OF THE PAVEMENT TO BE MAXIMUM OF 30' AS SHOWN IN THE DETAIL IN THE PLANS, ALL ASPHALT PLACED ON THIS IOR SHALL HAVE A SAFETY EDGE. ALL COSTS FOR MATERIALS, LABOR, AND EQUIPMENT IS TO BE INCLUDED IN THE UNIT BID PRICE AND THE CONTRACTOR WILL BE PAID BY

## RUC580 GUARDRAIL, TYPE 1 CLASS III (WVDOH 607)

THIS ITEM SHALL CONSIST OF CONSTRUCTION OF GUARDRAIL THE CONSTRUCTION OF THE GUARDRAIL SHALL INCLUDE THE COMPLETE FURNISHING, ASSEMBLING AND ERECTING OF ALL COMPONENT PARTS AND MATERIALS AT THE LOCATION SHOWN ON THE PLANS. ALL GUARDRAIL SHALL BE INSTALLED AT A HEIGHT OF 31.5 INCHES, USING ALL NEW RAIL, ACCORDING TO THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS. STANDARD DETAILS BOOKS, VOLUME 1. USED OR RECYCLED RAIL WILL NOT BE PERMITTED. THE ENDS OF EACH GUARDRAIL SECTION SHALL BE FLARED AWAY FROM THE TRAVEL WAY PER THE DETAIL INCLUDED IN THE CONSTRUCTION PLANS. IF ANY GUARDRAIL NEEDS REMOVED IN THE LOCATIONS DESIGNATED FOR NEW GUARDRAIL, IT WILL BECOME PROPERTY OF THE CONTRACTOR. ALL COSTS FOR MATERIALS, LABOR, AND EQUIPMENT IS TO BE NCLUDED IN THE UNIT BID PRICE AND THE CONTRACTOR WILL BE PAID BY THE LINEAR FOOT.

#### RUC580 GUARDRAIL, TYPE 1 CLASS IV (WVDOH 607)

THIS ITEM SHALL CONSIST OF CONSTRUCTION OF GUARDRAIL THE CONSTRUCTION OF THE GUARDRAIL SHALL INCLUDE THE COMPLETE FURNISHING ASSEMBLING AND ERECTING OF ALL COMPONENT PARTS AND MATERIALS AT THE LOCATION SHOWN ON THE PLANS. ALL GUARDRAIL SHALL BE INSTALLE AT A HEIGHT OF 31.5 INCHES, USING ALL NEW RAIL, ACCORDING TO THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS, STANDARD DETAILS BOOKS. VOLUME 1. USED OR RECYCLED RAIL WILL NOT BE PERMITTED. THE ENDS OF EACH GUARDRAIL SECTION SHALL BE FLARED AWAY FROM THE TRAVEL WAY PER THE DETAIL INCLUDED IN THE CONSTRUCTION PLANS. IF ANY GUARDRAIL NEEDS REMOVED IN THE LOCATIONS
DESIGNATED FOR NEW GUARDRAIL, IT WILL BECOME PROPERTY OF THE CONTRACTOR. ALL COSTS FOR MATERIALS, LABOR, AND EQUIPMENT IS TO BE INCLUDED IN THE UNIT BID PRICE AND THE CONTRACTOR WILL BE PAID BY THE LINEAR FOOT.

## RUCS81 BUFFER END SECTION (WVDOH 607)

BUFFER END SECTIONS SHALL BE INSTALLED AT THE ENDS OF EACH RUN OF GUARDRAIL UNLESS OTHERWISE SPECIFICED IN THE CONSTRUCTION PLANS. PAYMENT IS TO BE PER EACH INSTALLED.

## RUC620 HAND SEED AND MULCH (2 DIMENSIONAL QUANTITY) (WVDOH 652)

THIS WORK SHALL COVER ALL OPERATIONS INCIDENTAL TO THE ESTABLISHMENT OF PERMANENT GRASS AND LEGUME VEGETATION, INCLUDING THE FURNISHING AND SOWING OF SEED, FURNISHING AND APPLYING FERTILIZER, AGRICULTURAL LIMESTONE, AND MULCH MATERIAL APPLIED BY HAND PER THE ANTERO SPECIFICATIONS AT LOCATIONS INDICATED ON THE PLANS, THE CONTRACTOR WILL BE PAID BY THE ACTUAL SEEDED ACREAGE

## RUC715 BARBED WIRE FENCE (WVDOH 608)

TRANSPORTATION

harles titus 2K 12 WV US

ANTERO RESOURCES
JOHN DEPOY
740-460-1087

COORDINATOR

THIS ITEM HAS BEEN INCLUDED IN THE PLANS FOR REMOVAL AND REPLACEMENT OF FARM FIELD FENCE WHICH HAS TO BE REMOVED DUE TO THE ROADWAY WIDENING. ONCE THE FINAL CUT/FILL IS MADE AND SEEDED AND MULCHED THE FINAL FENCING WILL BE PLACED AND PAID FOR, ALL FENCE IS TO BE REPLACED WITH SIMILAR TYPE FENCING ACCEPTABLE TO THE LANDOWNER. ALL COSTS FOR MATERIALS, LABOR, AND EQUIPMENT FOR REMOVAL OF EXISTING FENCE AND CONSTRUCTION OF NEW FENCE IS TO BE INCLUDED IN THE UNIT BID PRICE AND THE CONTRACTOR WILL BE PAID BY THE LINEAR FOOT PER PLAN DETAIL

## **UTILITY CONTACTS**

ABARTA OIL & GAS COMPANY 6453 BUCKHANNON PIKE FRONTIER COMMUNICATIONS 428 W. MAIN ST MOUNT CLARE, WV 26408 CLARKSBURG, WV 26301 GREYLOCK PRODUCTION, LLC. 500 CORPORATE LANDING DOMINION ENERGY 925 WHITE OAKS BLVD. AT&T TRANSMISSION CHARLESTON, WV 25331

MARKWEST LIBERTY
MIDSTREAM & RESOURCES
2991 WVI8 S ENERGY TRANSFER BRIDGEPORT, WV 26330

## CONTACTS

MISS UTILITY 1-800-245-4848 NATIONAL RESPONSI CENTER FOR REPORTIN http://www.wv811.com CHEMICAL OR OIL SPILLS DODDRIDGE COUNTY SCHOOL BUS GARAGE CHARLES TITUS

CIVIL AND ENVIRONMENTAL

APPI BY: BY: BY:

ero

ESOURCES
RATION
JUTY ROUTE 20
I SLIP REPAIR
- NOTES

<u>WEST VIRGINIA</u> <u>DIVISION OF HIGHWAYS</u> ANTERO
CORPO
DODDRIDGE CO
MORGANS RU
GENERA

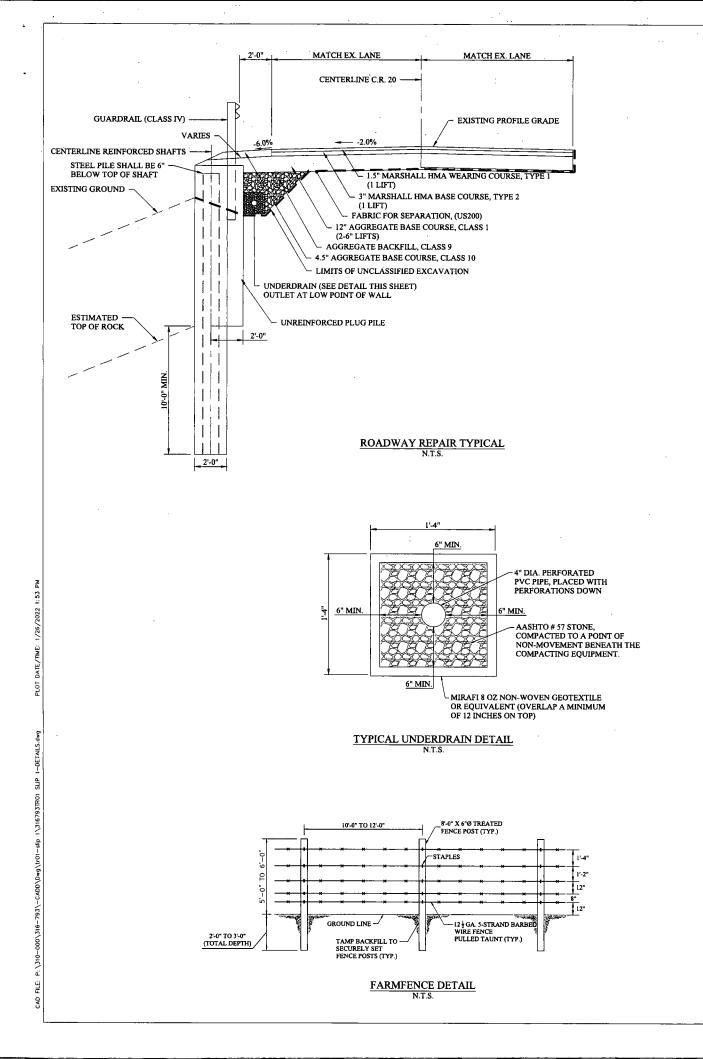
304-843-4000 AMBULANCE, FIRE, LAW ENFORCEMENT

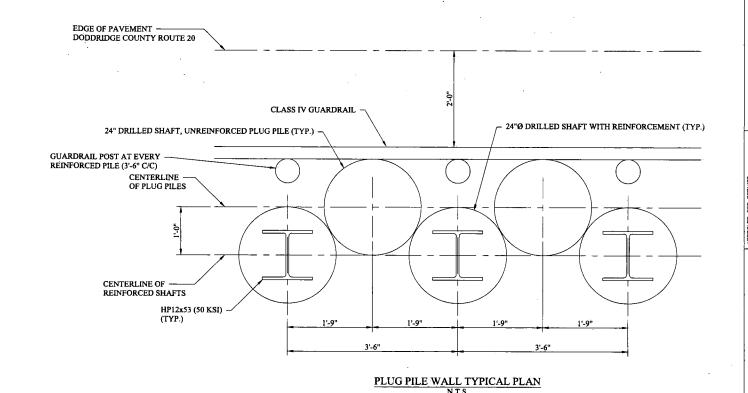
1 DOT DRIVER

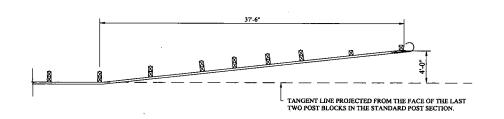
SHEET

PAGE INTENTIONALLY LEFT BLANK FOR SUMMARY OF ESTIMATED QUANTITIES

TO BE ADDED AFTER BIDDING







GUARDRAIL TERMINAL FLARE DETAIL

APPROVED FOR PERMITS:

BY: —
APPROVED FOR BIDS:
BY: —
APPROVED FOR CONSTRUC
BY: —

BORING NUMBER B-2

A SPT-N VALUÉ A
20 40 60 80
PL MC LL
20 40 60 80

☐ FINES CONTENT (%) ☐ 20 40 50 80

PROJECT NAME Morgans Run Slips
PROJECT LOCATION Doddridge County

AT END OF SOIL SAMPLING

AT END OF CORING \_\_\_\_

SS 100 46-28-32

| SS 100 46-28-32
| SS 100 42-50
| SS 67 18-12-10
| SS 4 28 2-9-7
| (16)
| SS 26: 2-2-2
| (4)

SS 100 4-4-6 1.25

GROUND ELEVATION 840.8 ft BACKFILL Auger Cuttings.

BORING NUMBER B-1

20 40 80 80

PL MC LL
20 40 80 80

FINES CONTENT (%)

PROJECT LOCATION \_Doddridge County

AT END OF SOIL SAMPLING \_\_

AFTER DRILLING \_\_\_

AT END OF CORING 10.0 ft / Elev 829.6 ft

SAMPLE TYPE
NUMBER.
RECOVERY % (ROD)
COUNTS
(N VALUE)
POCKET PEN, (ISI)

SS 17 50

SS 100 2:445 (9) 2.75

SS 7

NQ 100 3 (63)

DATE STARTED 5/24/18 COMPLETED 5/24/18 GROUND ELEVATION 839.6 ft BACKFILL Auger Cuttings

Civil & Environmental Consultants, Inc 600 Marketplace Avenue; Suite 200 Bridgeport, WV 26330

SOIL SAMPLING METHOD Hollow Stem Auger & NO Core

SOIL SAMPLING CONTRACTOR Enviroprobe Integrated Solutions, Inc. WATER LEVELS:

\_\_ CHECKED BY 上出

MATERIAL DESCRIPTION

Blick decomposed SANDSTONE FRAGMENTS, moist, loose, (COLLUVAL SQL).

Brown to dark brown sandy CLAY, with rock fragments, moist, medium stiff, (RESIDUAL SQL).

RedSith brown and brown CLAY, trepo claystone fragments, moist to wet, stiff; (RESIDUAL SQL).

Roddsh brown, gray and block SANDY SHALE INTERBEDDED WITH CLAYSTONE. Iresh to slightly weathered, broken to slightly broken; soft to medium hard Bottom of boring at 32.0 feet..

Brown and gray decomposed SHALE; with a stiff, (RESIDUAL SOIL)

PROJECT NUMBER 182-136

CEC REP KAS

NOTES \_\_

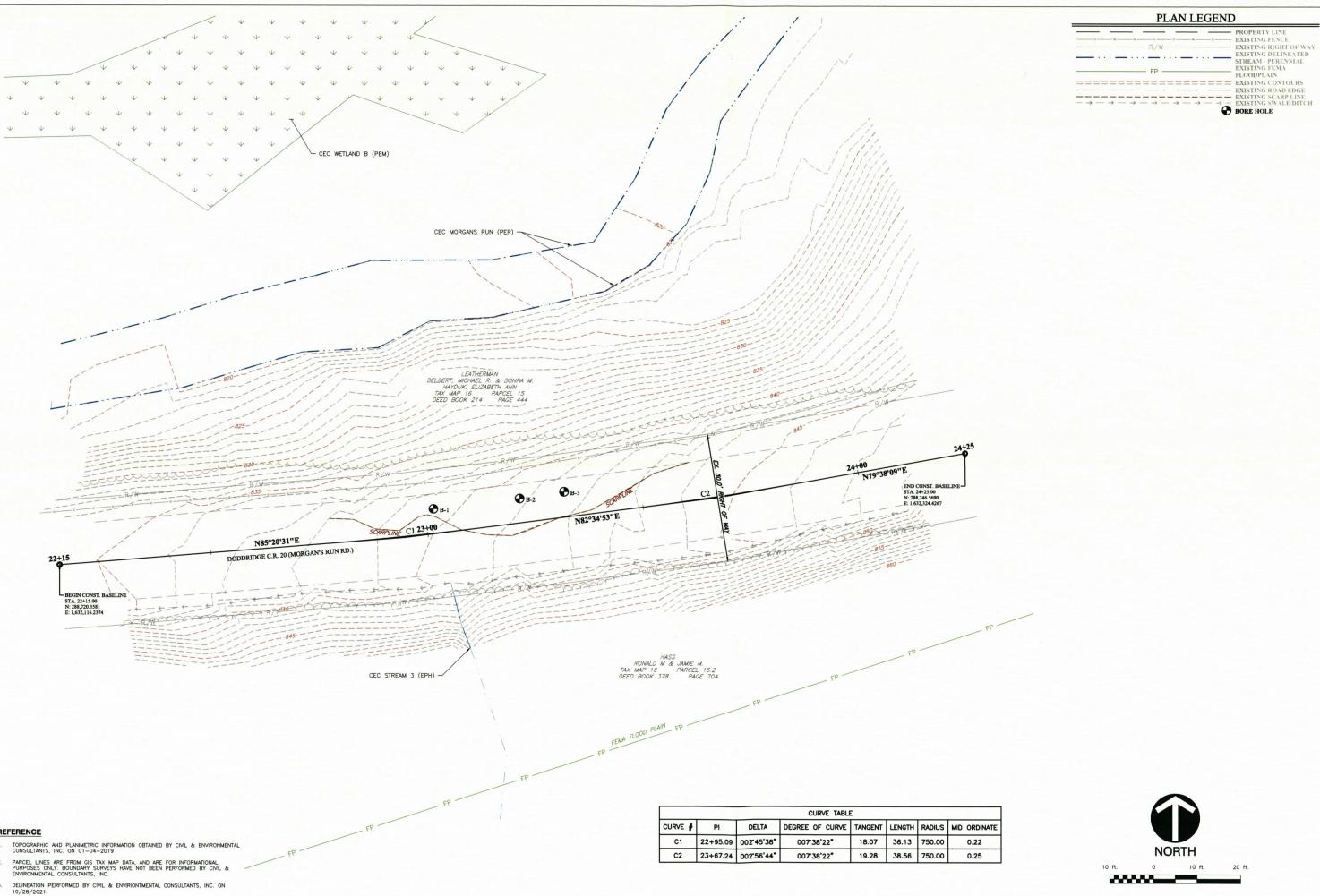
|            |                | CMI & Environmental Consultante, Inc.<br>600 Marketplace Avenue, Sulte 200<br>Bridgeport; WV 26330 |         |                  |             |          |                     |                             |                   |            |  | PAC  | E  |
|------------|----------------|--|---------|------------------|-------------|----------|---------------------|-----------------------------|-------------------|------------|--|--|----|
| CLIER      | er <u>Ant</u>  | ero Resources Corporation  | PROJE   | CT NAF           | ME .        | Morg     | ans Ru              | n Slips                     |                   |            |  |  |    |
| PROJ       | ECT NU         | IMBER 162-136  | PROJE   | CT LOC           | CATI        | ON _     | Doddri              | dge County                  |                   |            |  |  | _  |
| DATE       | START          | TED _5/25/18 COMPLETED _5/25/18  | GROUN   | DELE             | VAT         | ION .    | 841,5               | tt                          | BACK              | FILL       | Auge   | r Cutt   | ij |
| SOIL       | SAMPL          | ING CONTRACTOR Enviroprobe Integrated Solutions, Inc.  | WATER   | LEVE             | LS:         |          |                     |                             |                   |            |  |  |    |
| SOft.      | SAMPL          | ING METHOD Hollow Stern Auger & NO Corn  |         | T END            | OF          | SOIL     | SAMP                | LING                        |                   |            |  |  |    |
| CEC        | REP K          | AS CHECKED BY LIH  | ŢΑ      | T,END            | OF          | CORE     | NG _1               | 1.0 ft / Elev               | 830,5             | a          |  |  |    |
| NOTE       | 8              |  |         | FTER             | DRA         | LING     |                     |                             |                   |            |  |  | _  |
| ELEVATION. | GRAPHIC<br>LOG | MÁTERIAL DESCRIPTION   |         | (f)              | DOVE DIVINO | NUMBER   | RECOVERY %<br>(ROD) | BLOW<br>COUNTS<br>(N VALUE) | POCKET PEN. (tst) | 01         | PL<br>20<br>INES                             | MC<br>40-<br>CONT                                | 6  |
| 840        |                | (PAVEMENT)   |         | 0                | М           | SS<br>1  | 100                 | 40-27-17                    | ļ -               |            | 20   | 40   | 6  |
| 840        | ***            | Brown sandy CLAY, trace organics: moist, medium stiff, (Fil  | LL)     | Ĺ.               | М           | <u> </u> | -                   | (44)                        | ł                 |            | /  | 1  | -  |
| -          | ₩              |  |         | Ļ.               | kл          | SS       | -                   | 3-2-4                       | 1.                | /          | 7  | i  |    |
| -          | ໝ              |  |         | L.               | М           | ž        | 89                  | (6)                         | ١ ا               | 1          |  |  |    |
|            |                | Reddish brown and brown sandy CLAY, with sandstone freg<br>moist, stiff, (RESIDUAL SOIL)           | ments,  | .5               | 1           |          | _                   |                             | 1                 |            | <u>.                                    </u> | _  |    |
| -          |                | . #  |         | L.               | M           | SS       | 100                 | 3-4-6<br>(10)               | 3                 | 1          | †  |  |    |
| 835        | ₩              | Reddish brown and gray CLAY, with decomposed claystone.  | molist. | [ .              | צץ          |          | <del> </del>        | 110)                        | ł                 | 1          | ľ  |  |    |
|            |                | Reddish brown and gray CLAY, with decomposed daystone, very still, (RESIDUAL SOIL)                 | ,       |                  | ka          | SS       | $\vdash$            | 3-12-8                      | ł                 | ١ ١        | Ĺ  |  |    |
|            |                | Brown, gray, and tan dayey SAND, with stendstone fragmen   |         |                  | M           | 4        | 83                  | (20)                        |                   |            | Ì  |  |    |
|            |                | moist+, (RESIDUAL SOIL)  | - 1     | 10               | Γ           |          |                     |                             | ]                 |            |  |  | -  |
|            | ₩,             | Burgundy and gray CLAY, with decomposed daystone, mois<br>stiff (RESIDUAL SOIL)                    | t, very |                  | M           | 53       | 100                 | 8-8-10                      | 3.5               |            | ,  |  |    |
| 830        |                | Tan and dark gray miceceous SANDY SHALE; dry, hard,  |         | Γ.               | M           | 5        | 1.00                | (16)                        | ""                | '          | $\setminus$                                  |  |    |
| -          |                | (BEDROCK)  |         |                  | 1           |          |                     | [                           |                   | 1          | ·  | Υ.   |    |
| : ;        |                |  |         |                  | 1           |          | i                   |                             |                   | 1          | į.   | /  | 3  |
|            |                |  |         | 15               | М           | SS       | 100                 | 25-27-43                    | 1                 |            | -  | 1  | 1  |
|            |                |  |         |                  | $\square$   | 6        |                     | (70)                        | ł                 |            | ľ  | -  |    |
| 825        |                | Auger Refusal at 17 feet.  |         | ٠                | 1           |          |                     |                             | Į.                |            |  | i  |    |
|            |                | Reddish brown and brown CLAYSTONE, slightly weathered  | to.     | ·                | 'n          |          | $\vdash$            | ĺ                           |                   |            |  |  |    |
|            |                | moderately weathered, slightly broken to very broken, very se                                      | oft     | Ι.               | 11          | NO.      | 39                  |                             | İ                 |            |  |  |    |
|            |                |  |         | 20               | Ш           | •        | (0)                 |                             |                   |            | i.   | 1  | -  |
|            |                |  |         | -40              | H           |          | $\vdash$            |                             |                   | _          | 1  | :  |    |
| 820        |                |  |         | ١.               | 11          |          | -                   |                             |                   |            | ľ  | }  |    |
|            |                |  |         | ·                | Ш           | NO       | 50                  | 1                           |                   | 1          | Ī  | -  |    |
|            |                |  |         | ١.               | П           | 2        | (7).                |                             | 1                 |            | ľ  |  |    |
|            |                |  |         | ŀ <sub>~</sub> ∙ | 11          |          |                     |                             |                   |            | ľ  |  |    |
|            |                |  |         | 25               | H           |          | -                   |                             |                   | $\vdash$   | •  | <del>;                                    </del> | -  |
| 815        |                |  |         | ነ .              | H           |          |                     |                             | ľ                 |            |  | 1  |    |
|            |                |  |         | ├ .              | ŧ١          | NQ       | 100                 |                             | 1                 | l          | •  |  | :  |
|            |                |  |         | ١.               | ł۱          | 3        | (13)                |                             |                   |            | Ť  |  |    |
|            |                | Light gray and gray SANDY SHALE, fresh to slightly weather   | red,    | ├ .              | {           |          |                     |                             | 1                 |            |  |  |    |
|            | Ħ              | slightly broken to broken, soft<br>Bottom of boring at 30.0 feet.                                  |         | 30               | μ           |          | $\vdash$            |                             |                   |            | -  | <del>}</del>                                     |    |
|            | ı              | botton or owing at 30.0 foot.  |         | l                |             |          |                     |                             | ľ                 |            |  |  | -  |
|            |                |  |         |                  |             |          |                     |                             |                   |            | į  | •  | -  |
|            |                |  |         | l                |             |          |                     |                             | 1                 |            | Ť  | 1  |    |
|            |                |  |         | ľ                | 1           |          |                     |                             |                   | <u>L</u> _ | i  |  |    |

| CLIE                                     | IT An          | tero Resources Corporation   | PROJEC*          | - NAM         | F M~                  | ans P.           | n Stirrs                    |                   |                                |                    |              |  |
|--|----------------|--|------------------|---------------|-----------------------|------------------|-----------------------------|-------------------|--------------------------------|--------------------|--------------|--|
|  |                |  |                  |               |                       |                  | dge County                  |                   |                                |                    |              |  |
| DATE STARTED _5/25/18 COMPLETED _5/25/18 |                |  |                  |               |                       |                  | it                          |                   | CERLL: A                       | voer Cu            | ttions       |  |
|  |                | ING CONTRACTOR Enviroprobe Integrated Solutions, Inc.                                  |                  |               |                       | <u></u>          |                             |                   |                                | SOLL See           | 20244        |  |
|  |                | ING METHOD Hollow Stern Auper & NO Corn  |                  |               |                       | SAMP             | LING —                      |                   |                                |                    |              |  |
|  |                | AS CHECKED BY LIH  |                  |               |                       |                  | 1.0 ft / Elev               |                   | n                              |                    |              | _  |
| <b>KOTÉ</b>                              |                |  |                  |               | RILLIN                |                  |                             |                   | **                             |                    |              |  |
| ELEVATION.                               | GRAPHIC<br>LOG | MÁTERIAL DESCRIPTION   |                  | OEPTH<br>(ft) | SAMPLE TYPE<br>NUMBER | RECOVERY % (ROD) | BLOW<br>COUNTS<br>(N VALUE) | POCKET PEN. (tst) | 20<br>PL<br>20<br>D FINI<br>20 | 40<br>40<br>ES CON | 60<br>VTENT  | 80<br> -<br> - |
|  |                | (PAVEMENT)   |                  |               | ∑ ss                  | 100              | 40-27-17                    | _                 | 1                              | 40                 | 60           | 80   |
| 840                                      | 8888           | Brown sandy CLAY, trace organics moist, medium stiff, (FILL                            | <del>, -</del> [ | ]             | $\Delta$ 1            | +                | (44).                       | 1                 |                                |                    |              |  |
|  | ₩              |  | · [              | ]             | √ ss                  | 89               | 3-2-4                       | ۱,                |                                |                    |              |  |
| -  | ₩              | Reddish brown and brown sandy CLAY, with sandstone fregin                              |                  | -             | A 2                   | 109              | (6)                         | ↓'                | 1                              |                    |              | į  |
|  |                | moist, stiff, (RESIDUAL SOIL)  | ents.            | 5             | 7                     |                  |                             | 4                 | 1                              | -                  | <del>-</del> | +  |
| 835                                      |                |  | ŀ                | _             | X SS                  | 100              | 3-4-6<br>(10)               | 3                 | <b>\</b>                       | 1                  | 1            | h  |
|  |                | Reddish brown and gray CLAY, with decomposed daystone, n very still, (RESIDUAL SOIL)   | nolist.          | -             |                       | 1                |                             | 1                 | \!                             | -                  | ľ            | i  |
| •  |                | very sur, (RESIDUAL SOIL)  | ļ                | 4             | √ ss                  | 83               | 3-12-8                      | 1                 | \                              |                    |              | i  |
| -  |                |  |                  |               | $\Lambda$ 4           | 83               | (20);                       |                   | 1                              |                    | 1            |  |
| •  | <b>/////</b>   | moist+, (RÉSIDUAL SOIL)  Burgundy and gray CLAY, with decomposed daystone, moist,      | /                | 10            |                       | ↓                |                             |                   |                                |                    |              |  |
| 63Ö .                                    |                | ■ Surgundy and gray CLAY, with decomposed draystone, moist,<br>  Stiff (RESIDUAL SOIL) | wery [           |               | X 55                  | 100              | 8-8-10<br>(18)              | 3.5               | - 農                            |                    |              | ÷  |
| 030                                      |                | Ten and dark gray miceceous SANDY.SHALE, dry, hard,                                    |                  |               | X 3                   | <del> </del>     | 1107                        | 1                 |                                | <u>\</u> .         |              | -  |
| -  |                | (BEDROCK)  | L                |               |                       |                  |                             |                   | 1 :                            | 1                  |              | -  |
| ;  |                |  | . [              |               |                       | <u> </u>         |                             | ŀ                 | 1 1                            | `                  | <b>\</b>     |  |
|  |                |  |                  | 15            | XI ss                 | 100              | 25-27-43                    | -                 | L. I.                          |                    |              |  |
|  |                |  |                  |               | / N P                 | ├                | (70)                        | 1                 |                                |                    |              | T  |
| 825                                      |                | Auger Refusal at 17 feet.  | Γ                |               |                       |                  |                             | l                 |                                | - 1                |              | į  |
| -  |                | Reddish brown and brown CLAYSTONE, slightly weathered to                               |                  | 1             |                       |                  |                             | İ                 |                                |                    | į.           | 1  |
|  |                | moderately weathered, slightly broken to very broken, very soft                        | ' t              | -             | NO<br>1               | (0)              |                             | ĺ                 | 1 1                            |                    | Ĭ            | į  |
| _  |                |  | ı                | 20            | Ш'                    | (0)              |                             |                   | 1 1                            |                    | i            | 1  |
| -  |                |  | ŀ                | 20            | H                     | 1                |                             | l                 | 1                              | $\pm$              | ÷            | ÷  |
| 820                                      |                |  | t                | 7             | Ш                     | -                |                             |                   | 1                              |                    |              |  |
|  | W/A            |  | t                | 1             | NO                    | 50               |                             |                   |                                |                    | ľ            | 1  |
|  |                |  | ŀ                | -             | 2                     | (7).             |                             | l                 |                                | i                  |              | 1  |
| -  |                |  | <b>-</b>         |               | Ш                     | 1                |                             | 1                 |                                | į                  | ŀ            |  |
| _  |                |  | ŀ                | 25            | H-                    | +                |                             |                   | +                              | +                  | +            | ÷  |
| 815                                      |                |  | ŀ                | -             | H                     |                  |                             | ľ                 |                                | ÷                  | 1            | 1  |
|  |                |  | ŀ                | -             | NO                    | 100              |                             |                   |                                | į                  |              |  |
|  |                |  | ŀ                | -             | 3                     | (13)             |                             | 1                 |                                |                    |              |  |
| •  |                | Light gray and gray SANDY SHALE; fresh to slightly weathered                           | <del></del>      | 4             | H                     | ]                |                             | 1                 |                                |                    |              |  |
| -  | Ħ              | slightly broken to broken, soft  |                  | 30            | Щ                     | 1                |                             | 1                 | <b>-</b>                       | <del>-</del>       | <del>-</del> | +  |
|  |                | Bottom of boring at 30,0 feet.   | ĺ                |               |                       | 1                |                             | 1                 |                                |                    |              |  |
|  |                |  | -                |               |                       |                  |                             | 1                 |                                |                    | 1            |  |
|  |                |  |                  |               |                       | 1                | l                           | 1                 | 1 3                            | ÷                  |              | 3  |

ANTERO RESOURCES
CORPORATION
DODDRIDGE COUNTY ROUTE 20
MORGANS RUN SLIP REPAIR
CORE BORING LOGS

1 1 1 1 1 6 1 1 1 1 0<u>0</u>

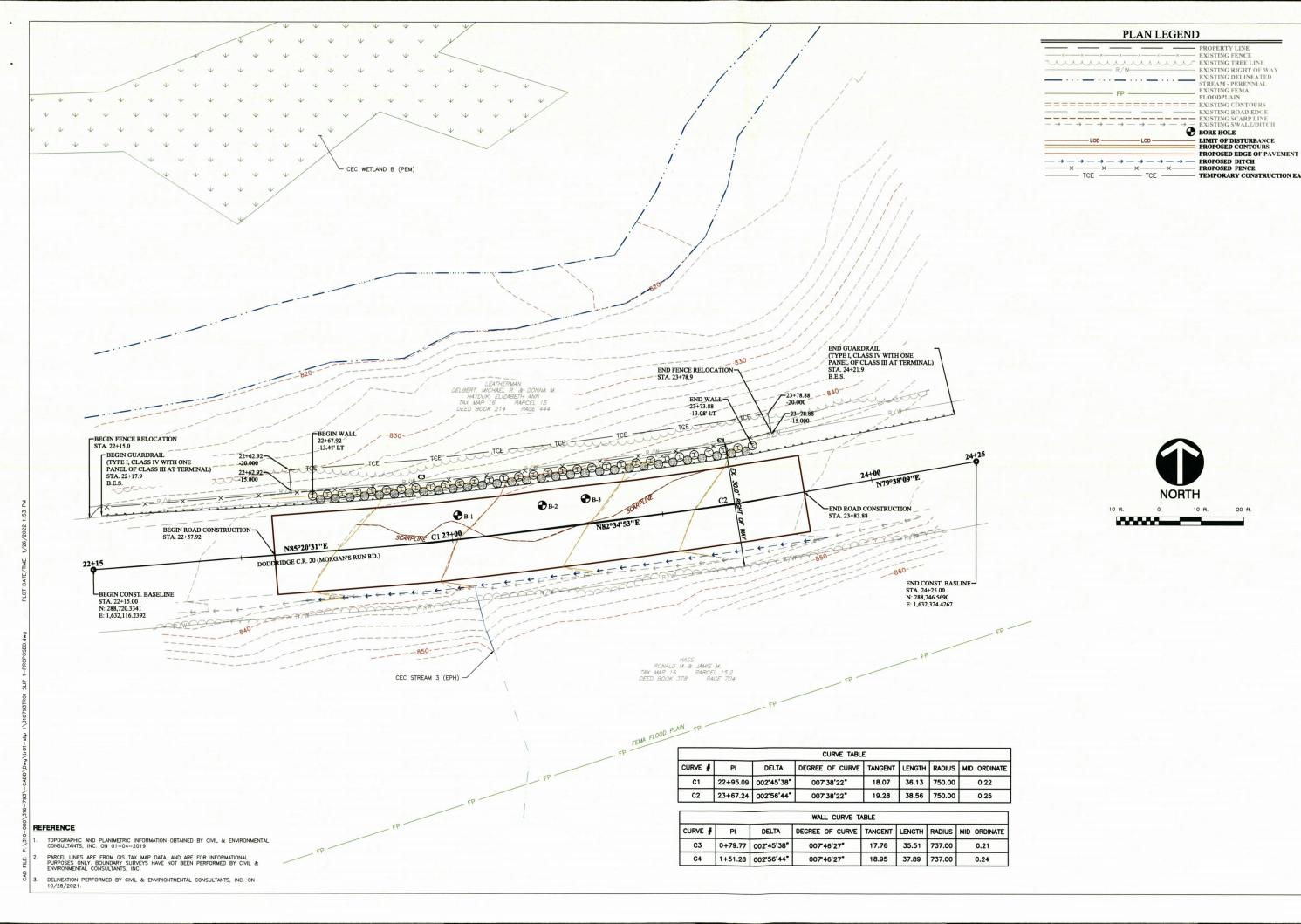
SHEET No.





|                       | _       |                    |         |                            |         |
|-----------------------|---------|--------------------|---------|----------------------------|---------|
|                       | DATE: - |                    | DATE: - | CTION:                     | DATE: - |
| PERMITS:              |         | BIDS:              |         | CONSTRUC                   |         |
| FOR                   |         | FOR                |         | FOR                        |         |
| APPROVED FOR PERMITS: | BY: -   | APPROVED FOR BIDS: | BY: -   | APPROVED FOR CONSTRUCTION: | BY: -   |

SHEET No.



Antero

SHEET No.

PROFILE LEGEND Antero PROPOSED GRADE END PLUG/PILE WALL ¬
DODDRIDGE C.R. 20
CENTERLINE
STATION 23+74
O/S 14.0' L 850 1.0' STA 23+74.02 ELEV 845.08 840 ESTIMATED BEDROCK ELEVATION 830 MIN. 10.0' EMBEDDMENT OR 1/3 PILE LENGTH FOR REINFORCED SHAFTS 820 810 1 1 1 1 1 9 800 790

| APPROVED FOR PERMITS. | BATE: - |
| BY: - | APPROVED FOR BIDS: | BATE: - |
| BY: - | APPROVED FOR CONSTRUCTION: |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - |
| BY: - | DATE: - | Civil & Environ 120 Genesis Bou Ph: 304.833.3119 ·

OUT TO OUT WALL LENGTH = 110.5' 31 PILES @ 3'-6" SPACING 850 EXISTING GRADE ( MORGAN'S RUN RD.) - BEGIN PLUG/PILE WALL DODDRIDGE C.R. 20 CENTERLINE STATION 22+68 O/S 13.0' L EXISTING GRADE AT WALL PROPOSED GRADE (BEHIND WALL) STA 23+26.52-ELEV 841.60 1.0' 840 STA 22+67.02-ELEV 837.68 830 820 810 24" Ø DRILLED SHAFT, UNREINFORCED (PLUG PILE) TO EXTEND TO BEDROCK SURFACE 800 790

> VERT. 0 HOR.

SHEET No. 8

| TABLE I (SIGN SPACING) |
|------------------------|
|------------------------|

|                         | DISTANCE BETWEEN SIGNS (FT) |     |     |  |  |
|-------------------------|-----------------------------|-----|-----|--|--|
| ROAD TYPE               | A                           | 8   | С   |  |  |
| Two-Lane<br>(≤ 40 MPH)  | 100                         | 100 | 100 |  |  |
| Two-Lane<br>(45-50 MPH) | 350                         | 350 | 350 |  |  |
| Two-Lane<br>(55-60 MPH) | 500                         | 500 | 500 |  |  |

# SPEED BUFFELLIMIT (D) (FT MIN.

| 25 | 155 |
|----|-----|
| 30 | 200 |
| 35 | 250 |
| 40 | 305 |
| 45 | 360 |
| 50 | 425 |
| 55 | 495 |
| 60 | 570 |

## LEGEND

| 220             |         |
|-----------------|---------|
| WORK AREA       |         |
| DRUMS/CONES     | • • •   |
| DIRECTION OF TH | RAVEL - |
| SHADOW VEHICLE  |         |

# NOTES:

 Flaggers, one for each direction, shall be used to control traffic continuously for as long as a one lane operation is in effect. The flaggers shall have 2-way, handheld communication to be able to communicate with each other at all times. Flaggers are not permitted to have vehicles.

## LENGTH OF CLOSURE

 Several small work areas close together should be combined into one work zone. However, the closure shall not be more than 2000' long unless approved by the Engineer. The minimum length between closures shall be 2000'. Only one side of the road shall be closed in any one work zone.

## SIGN LOCATION AND SPACING

- 3A. The minimum spacing between work zone signs is shown in Table I. Maximum spacing should not be greater than 1.5 times the distances shown in Table I.
- 3B. Sign spacing should be adjusted to avoid conflict with existing signs. Minimum spacing to existing signs shall be 200' for speeds of 45 mph or less and a minimum of 400' for speeds of 50 mph or greater.
- 3C. The location of the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment.

## ADJUSTMENTS FOR SIGHT DISTANCE

4. The location of the flagger station and the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment.

## BASIC SIGNING

- 5A. ROAD WORK AHEAD (W20-1) signs shall be provided on entrance ramps or roadways entering the work limits.
- 5B. END ROAD WORK (G20-2) signs are only required for lane closures of more than 1 day. It is intended that these signs be placed on the mainline, on all exist ramps, and on roadways exiting the work limits.
- 5C. Overlapping of the signing for adjacent projects should be avoided where the messages could be confusing. Any ROAD WORK AHEAD (W20-1) or END ROAD WORK (G20-2) sign shall be omitted or covered during the period when both projects are active.

## SIGNING DETAILS

- 6A. The Advisory Speed (W13-1P) plaque shall be used when specified in the plan.
- 6B. 36" warning signs may be used when the approach speed limit is 40 mph or less.

## FLASHING WARNING LIGHTS

7. Type A flashing warning lights shown on the ROAD WORK AHEAD (W20-1) signs and on the LANE CLOSED AHEAD (W20-5) signs are required whenever a night lane closure is necessary.

## DRUMS / CONES

- 8A. Drum spacing shall be as follows:
  - a) Spacing along the closure shall be 40' center-to-center.
  - b) Spacing along the approach taper shall be 10' center-to-center
- 8B. Cones may be substituted for drums as follows:
  - a) Cones used for daytime traffic control shall have a minimum height of 28".
  - b) Cones used for nighttime traffic control shall have a minimum height of 42".
  - c) Use of cones at night shall be prohibited along tapers.
- 8C. Provisions shall be made to stabilize the cones and drums to prevent them from blowing over.
- 8D. A minimum of two drums shall be used to close the paved shoulder.

## (RESERVED FOR FUTURE USE)

9A. (Intentionally blank)

## AREA ILLUMINATION

- 10A. Adequate area illumination of each flagger station shall be provided at night. Use of portable flood lighting is acceptable. Luminaries shall be located adjacent to each flagger station.
- 10B. To ensure the adequacy of floodlight placement and the elimination of glare, the Contractor and the Engineer shall drive through the worksite each night when the lighting is in place. Light placement and shielding shall be adjusted to the satisfaction of the Engineer.

## INTERSECTION / DRIVEWAY ACCESS

- 11. Within the length of closure, provision shall be made to control traffic entering from intersecting streets and major drives as necessary to prevent wrong—way movements and to keep vehicles off of new pavement not ready for traffic. The contractor shall:
  - a) Place across the closed lane, either three drums (cones) or barricades, and/or
  - b) Provide an additional flagger at every public street intersection and major driveway.

Drums (cones) placed across the closed lane shall be located 25' beyond the projected pavement edges of the driveway or cross highway, as shown in Standard Construction Drawings (SCDs MT-97.11 or MT-97.12. For barricades, see SCD MT-101.60

Existing STOP signs shall be relocated as necessary to assure proper location for the traffic conditions.

The method of control shall be subject to the approval of the Engineer.

## SHADOW VEHICLE

- 12A. The shadow vehicle shall be in place and unoccupied whenever workers are in the work area. This vehicle shall be removed from the pavement whenever workers are not in the work area.
- 12B. The shadow vehicle shall be equipped with a high-intensity yellow rotating, flashing, oscillating, or strobe light(s).
- 12C. The vehicle shall be equipped with a truck-mounted attenuator when called for in the plans.
- 12D. Other protective devices may be used in lieu of the shadow vehicle shown when approved by the Engineer.

## CHIP SEAL OPERATIONS

13. For chip seal operations, additional signing shall be incorporated in the advance warning area.

Antero

SHEET No.

- ALL PROPERTIES ADJACENT TO THE SITE OF SOIL-DISTURBING ACTIVITY SHALL BE PROTECTED TO THE MAXIMUM EXTENT PRACTICABLE, FROM SOIL EROSION AND SEDIMENT RUNOFF AND DRAINAGE, INCLUDING, BUT NOT LIMITED TO PRIVATE PROPERTIES, NATURAL AND ARTIFICIAL WATERWAYS, WETLANDS, STORM SEWERS AND PUBLIC LANDS.
- 3. CONSTRUCTION SITE EROSION AND SEDIMENT CONTROL PRACTICES USED TO SATISFY THIS REQUIREMENT SHALL CONFORM, AS A MINIMUM, TO STATE OF WEST VIRIGINA STANDARDS AS SET FORTH IN THE MOST-CURRENT EDITION OF THE WEST VIRIGINIA BEST MANAGEMENT PRACTICES MANUAL, DEFINED BY THE WEST VIRIGINA DEPARTMENT OF ENVIRONMENTAL PROTECTION.
- 4. CIVIL & ENVIRONMENTAL CONSULTANTS INC. ANTICIPATES OBTAINING, WITH A REASONABLE DEGREE OF CERTAINTY EROSION AND SEDIMENT CONTROL PLAN APPROVALS IN ACCORDANCE WITH THESE RULES, AND ALL OTHER NECESSARY PERMITS AND OR APPROVALS FROM FEDERAL STATE, AND/OR COUNTY AGENCIES. IF REQUIREMENTS VARY, THE MOST STRINGENT REQUIREMENTS SHALL BE FOLLOWED.
- 5. EROSION AND SEDIMENT CONTROL PRACTICES AT THE SITE, AND AS IDENTIFIED IN THE ESC PLAN SHALL COMPLY WITH THE FOLLOWING
- 5.1. AN APPROVED EROSION AND SEDIMENT CONTROL PLAN OR APPROVAL LETTER FROM THE WV DEP SHALL BE LOCATED ON SITE FOR REVIEW.
- 5.2. LIMITS TO CLEARING AND GRADING SHALL BE SHOWN ON ESC PLANS. LIMITS TO CLEARING AND GRADING SHALL BE CLEARLY MARKED ON SITE WITH SIGNAGE, FLAGGING, AND/OR FENCING ETC.
- 5.3. INSTALLING EROSION AND SEDIMENT PERIMETER CONTROLS AS A FIRST ACTION OF CONSTRUCTION AS SPECIFIED BY CONSTRUCTION SEQUENCE. THIS SHALL INCLUDE AND IS NOT LIMITED TO PROTECTIVE BMP'S FOR STREAM CORRIDORS AND CROSSINGS, WETLANDS, SITE ENTRANCE, SEDIMENT TRAPS & BASINS, BARKIERS, AND DIVERSION DIKES.
- 5.4. CONCENTRATED STORM WATER RUNOFF SHALL PASS THROUGH A SEDIMENT CONTROL DEVICE BEFORE EXITING THE SITE BOUNDARIES. CONCENTRATED RUNOFF FROM BARE SOIL AREAS SHALL BE DIVERTED INTO A SETTLING POND OR SEDIMENT CONTROL STRUCTURE, OR OTHER APPROVED SEDIMENT BARRIER BEFORE LEAVING THE SITE.
- 5.5. EARTHEN STRUCTURES SUCH AS DAMS, BASINS, STREAM MODIFICATIONS AND WATER DIVERSIONS SHALL BE SEEDED AND MULCHED WITH IN FOUR (4) DAYS OF THE COMPLETION OF INSTALLATION, DAMS SHALL CONFORM TO THE WEST VIRGINIA DAM SAFETY LAWS (WV CODE CHAPTER 22, ARTICLE 14, DAM CONTROL AND SAFETY ACT)
- 5.6. STABILIZATION OF CRITICAL AREAS WITHIN 50 FEET OF ANY STREAM OR WETLAND SHALL BE TEMPORARILY STABILIZED WITHIN TWO (2)
  DAYS OF DISTURBANCE IF AREAS WILL REMAIN INACTIVE FOR SEVEN (7) DAYS OR LONGER. CONSTRUCTION VEHICLES SHALL AVOID STREAMS
  AND THE 50 FOOT BUFFER AREAS. IF AN ACTIVE DRAINAGE WAY MUST BE CROSSED BY CONSTRUCTION VEHICLES REPEATEDLY DURING
  CONSTRUCTION, A TEMPORARY STREAM CROSSING SHALL BE CONSTRUCTED ACCORDING TO THE SPECIFICATIONS IN THE WEST VIRGINIA
  BEST MANAGEMENT PRACTICES MANUAL. CONSTRUCTION OF BRIDGES, CULVERTS OR SEDIMENT CONTROL STRUCTURES SHALL NOT PLACE
  SOIL, DEBRIS AND OTHER FINE PARTICULATE MATERIAL INTO OR CLOSE TO THE WATER RESOURCES IN SUCH A MANNER THAT IT MAY
  SLOUGH, SLIP OR ERODE.
- 5.7. STORM SEWER INLETS SHALL BE PROTECTED SO THAT SEDIMENT-LADEN RUNOFF WILL NOT ENTER THE STORM SEWER SYSTEM WITHOUT FIRST BEING FILTERED AND/OR TREATED. SANITARY SEWER MANHOLES SHALL BE PROTECTED SO THAT NO STORM RUNOFF WILL ENTER THE SANITARY SEWER SYSTEM.
- 5.8. RE-VEGETATE SOIL: TEMPORARY SOIL STABILIZATION SHALL OCCUR WITHIN FOUR (4) DAYS AFTER ROUGH GRADING IF THE AREA WILL REMAIN IDLE LONGER THAN FOURTEEN (14) DAYS. PERMANENT SOIL STABILIZATION SHALL BE INSTALLED WITHIN FOUR (4) DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. PERMANENT VEGETATION IS A GROUND COVER DENSE ENOUGH TO COVER 80% OF THE SOIL SURFACE AND MATURE ENOUGH TO SURVIVE WINTER WEATHER CONDITIONS.
- 5.9. SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED TO PREVENT SOIL LOSS. STABILIZATION SHALL BE REQUIRED IF STOCKPILES ARE LOCATED WITHIN CRITICAL AREAS NEAR STREAMS OR WETLANDS, OR IF DETERMINED BY THE WY DEP THAT SEDIMENT FROM STOCKPILES WILL LEAVE THE SITE.
- 5.10. UNSTABLE SOILS PRONE TO SLIPPING OR SLOUGHING SHALL NOT BE CLEARED, GRADED, EXCAVATED, FILLED OR HAVE LOADS IMPOSED UPON THEM UNLESS THE WORK IS PLANNED BY A QUALIFIED PROFESSIONAL ENGINEER AND INSTALLED IN ACCORDANCE WITH THE ESC PLAN. CUT AND FILL SLOPPES SHOULD BE DESIGNED TO MINIMIZE EROSION PROBLEMS. ADEQUATE SLOPE DESIGN INCLUDES USE OF ROUGH SOIL SURFACE ALONG THE FACE OF THE SLOPE; WATER DIVERSION ALONG THE TOP OF THE SLOPE AWAY FROM THE FACE; TERRACES TO REDUCE SLOPE LENGTH; DELIVERY OF CONCENTRATED STORM WATER FLOWS TO THE BASE OF THE SLOPE VIA ADEQUATE CHANNEL OR PIPE; AND DRAINAGE FOR WATER SEEPS IN THE SLOPE THAT ENDANCER SLOPE STABLITY.
- 5.11. SOIL SHALL BE REMOVED FROM PAVED SURFACES AND/OR PUBLIC ROADS AT THE END OF EACH DAY IN SUCH A MANNER THAT DOES NOT CREATE OFF-SITE SEDIMENTATION IN ORDER TO ENSURE SAFETY AND ABATE OFF-SITE SOIL LOSS, COLLECTED SEDIMENTS SHALL BE PLACED IN A STABLE LOCATION.
- 5.12. STABILIZED DISTURBED OR MODIFIED DRAINAGE WAYS REDUCE EROSION EFFECTS OF STORM WATER BY USING AND/OR MAINTAINING GRASSED SWALES, INFILTRATED STRUCTURES, OR WATER DIVERSIONS.
- 5.13. SEDIMENT AND EROSION CONTROLS SHALL BE INSPECTED ONCE EVERY FOUR (4) DAYS AND WITHIN 24 HOURS OF A 0.25" OR GREATER RAINFALL EVENT. ANTERO WILL UTILIZE THE NEAREST WEATHER GAUGE VIA WEATHER UNDERGROUND OR NOAA. A WRITTEN LOG OF THESE INSPECTIONS AND IMPROVEMENTS TO CONTROLS SHALL BE KEPT ON SITE. THE INSPECTIONS SHALL INCLUDE THE DATE OF INSPECTION, NAME OF INSPECTOR, WEATHER CONDITIONS, OBSERVATIONS, ACTIONS TAKEN TO CORRECT THE PROBLEMS AND THE DATE OF CORRECTIVE ACTIONS WERE TAKEN.
- 5.14. TRENCHES FOR UNDERGROUND UTILITY LINES AND PIPES SHALL BE TEMPORARILY STABILIZED WITHIN FOUR (4) DAYS IF THEY ARE TO REMAIN INACTIVE FOR THIRTY DAYS (30). TRENCH DEWATERING DEVICES SHALL DISCHARGE IN A MANNER THAT FILTERS SOIL-LADEN WATER BEFORE DISCHARGING IT TO A RECEIVING DRAINAGE DITCH OR POND. IF SEEDING, MULCHING, OR OTHER EROSION AND SEDIMENT CONTROL MEASURES WERE PREVIOUSLY INSTALLED, THESE PROTECTIVE MEASURES SHALL BE REINSTALLED.
- 5.15. DISTURBED AREAS WHICH WILL REMAIN UNWORKED FOR A PERIOD OF 14 DAYS OR MORE SHALL BE STABILIZED WITH SEEDING AND MULCHING OR OTHER APPROPRIATE MEANS WITHIN FOUR (4) DAYS.
- 5.16. SOLID, SANITARY AND TOXIC WASTE MUST BE DISPOSED OF IN A PROPER MANNER IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS. IT IS PROHIBITED TO BURN, BURY OR POUR OUT ONTO THE GROUND OR INTO THE STORM SEWER, ANY SOLVENTS, PAINTS, STAINS, GASOLINE, DISSEL FUEL, USED MOTOR OIL, HYDRAULIC FLUID, ANTIFREEZE, CEMENT CURING COMPOUNDS OR OTHER SUCH TOXIC OR HAZARDOUS WASTES. STORAGE TANKS SHOULD BE LOCATED IN DIKED AREAS AWAY FROM ANY DRAINAGE CHANNELS. THE DIKED AREA SHOULD HOLD A VOLUME 110% OF THE LARGEST TANK.
- 5.17. OFF-SITE VEHICLE TRACKING OF SEDIMENT SHALL BE MINIMIZED. CONSTRUCTION VEHICLES ARE LIMITED TO THE CONSTRUCTION ACCESS ROAD(S) NOTED ON THE PLAN. OFFSITE SEDIMENT TRACKING SHALL BE CONTROLLED BY REGULARLY SCHEDULED SWEEPING OF OFFSITE ACCESS ROADS AND MAINTENANCE OF ROCK CONSTRUCTION ENTRANCE.
- 5.18. ALL EROSION AND SEDIMENT CONTROL PRACTICES MUST MEET THE STANDARDS AND SPECIFICATIONS OF THE WEST VIRGINIA BEST MANAGEMENT PRACTICES MANUAL (LATEST EDITION)
- 5.19. OTHER EROSION AND SEDIMENT CONTROL ITEMS MAY BE NECESSARY DUE TO THE ENVIRONMENTAL CONDITIONS
- 5.20. WINTERIZATION: ANY DISTURBED AREA THAT IS NOT GOING TO BE WORKED FOR 14 DAYS OR MORE MUST BE SEEDED AND MULCHED BY NOVEMBER 1 OR MUST HAVE A DORMANT SEEDING OR MULCH COVER APPLIED BETWEEN NOVEMBER 1 AND MARCH 1.
- 5.21. CONCRETE CEMENT IS TO BE TAKEN BACK TO PLANT FOR WASHOUT AND RECYCLING OR DESIGNATED AREAS ON SITE FOR CONCRETE WASHOUT ARE TO BE USED.

## ADDITIONAL CONSTRUCTION SITE POLLUTION CONTROLS

1. CONSTRUCTION PERSONNEL, INCLUDING SUBCONTRACTORS WHO MAY USE OR HANDLE HAZARDOUS OR TOXIC MATERIALS, SHALL BE MADE AWARE OF THE FOLLOWING GENERAL GUIDELINES REGARDING DISPOSAL AND HANDLING OF HAZARDOUS AND CONSTRUCTION WASTES.

\*USE PRODUCTS UP

\*FOLLOW LABEL DIRECTIONS FOR DISPOSAL

\*REMOVE LIDS FROM EMPTY BOTTLES AND CANS WHEN DISPOSING IN TRASH

\*RECYCLE WASTES WHENEVER POSSIBLE
\*DON'T BURY CHEMICALS OR CONTAINERS
\*DON'T BURN CHEMICALS OR CONTAINERS

\*REMOVE LIDS FROM EMPTY BOTTLES AND CANS WHEN DISPOSING IN TR \*DON'T POUR INTO WATERWAYS, STORM DRAINS OR ONTO THE GROUND \*DON'T POUR DOWN THE SINK, FLOOR DRAIN OR SEPTIC TANKS \*DON'T MIX CHEMICALS TOGETHER

- 2. CONTAINERS SHALL BE PROVIDED FOR THE PROPER COLLECTION OF ALL WASTE MATERIAL INCLUDING CONSTRUCTION DEBRIS, TRASH, PETROLEUM PRODUCTS AND ANY HAZARDOUS MATERIALS USED ON-SITE. CONTAINERS SHALL BE COVERED AND NOT LEAKING. ALL WASTE MATERIAL SHALL BE DISPOSED OF AT FACILITIES APPROVED FOR THAT MATERIAL HANDLING CONSTRUCTION DEMOLITION AND DEBRIS (CD&D) WASTE MUST BE DISPOSED OF AT A WEST VIRGINIA DEP APPROVED CD&D LANDFILL.
- 3. NO CONSTRUCTION RELATED WASTE MATERIALS ARE TO BE BURIED ON-SITE BY EXCEPTION, CLEAN FILL (BRICK, HARDENED CONCRETE, SOIL)
  MAY BE UTILIZED IN A WAY WHICH DOES NOT ENCROACH UPON NATURAL WETLANDS, STREAMS OR FLOODPLAINS OR RESULT IN THE
  CONTAMINATION OF WATERS OF THE STATE.
- 4. HANDLING CONSTRUCTION CHEMICALS: MIXING, PUMPING, TRANSFERRING OR OTHER HANDLING OF CONSTRUCTION CHEMICALS SUCH AS FERTILIZER, LIME, ASPHALT, CONCRETE DRYING COMPOUNDS, AND ALL OTHER POTENTIALLY HAZARDOUS MATERIALS SHALL BE PERFORMED IN AN AREA AWAY FROM ANY WATERCOURSE DITCH OR STORM DRAIN
- 5. EQUIPMENT FUELING AND MAINTENANCE, OIL CHANGING, ETC, SHALL BE PERFORMED AWAY FROM WATERCOURSES, DITCHES OR STORM DRAINS, IN AN AREA DESIGNATED FOR THAT PURPOSE. THE DESIGNATED AREA SHALL BE EQUIPPED FOR RECYCLING OIL AND CATCHING SPILLS. SECONDARY CONTAINMENT SHALL BE PROVIDED FOR ALL FUEL OIL STORAGE TANKS. THESE AREAS MUST BE INSPECTED EVERY FOUR (4) DAYS AND WITHIN 24 HRS OF A 0.25 INCH OR GREATER RAIN EVENT TO ENSURE THERE ARE NO EXPOSED MATERIALS WHICH WOULD CONTAMINATE STORM WATER. SITE OPERATORS MUST BE AWARE THAT SPILL PREVENTION CONTROL AND COUNTERMEASURE (SPCC) REQUIREMENTS MAY APPLY. AN SPCC PLAN IS REQUIRED FOR SITE WITH ONE SINGLE ABOVE GROUND TANK OF 666 GALLONS OR MORE, ACCUMULATIVE ABOVE GROUND STORAGE OF 1130 GALLONS OR MORE, 42,000 GALLONS OF UNDERGROUND STORAGE. CONTAMINATED SOILS MUST BE DISPOSED OF IN ACCORDANCE WITH ITEM 8.
- 6. CONCRETE WASH WATER SHALL NOT BE ALLOWED TO FLOW TO STREAM, DITCHES, STORM DRAINS, OR ANY OTHER WATER CONVEYANCE. A SUMP OR PIT WITH NO POTENTIAL FOR DISCHARGE SHALL BE CONSTRUCTED IF NEEDED TO CONTAIN CONCRETE WASH WATER. FIELD TILE OR OTHER SUBSURFACE DRAINAGE STRUCTURES WITHIN 10 FT. OF THE SUMP SHALL BE CUT AND PLUGGED FOR SMALL PROJECTS, TRUCK CHUTES MAY BE RINSED AWAY FROM ANY WATER CONVEYANCES.
- 7. SPILL REPORTING REQUIREMENTS: SPILLS ON PAVEMENT SHALL BE ABSORBED WITH SAWDUST OR KITTY LITTER AND DISPOSED OF WITH THE TRASH AT A LICENSED SANITARY LANDFILL HAZARDOUS OR INDUSTRIAL WASTES SUCH AS MOST SOLVENTS, GASOLINE, OIL-BASED PAINTS, AND CEMENT CURING COMPOUNDS REQUIRE SPECIAL HANDLING. SPILLS SHALL BE REPORTED TO WEST VIRGINIA DEP (1-800-642-3014). SPILLS OF 52 GALLONS OR MORE OF PETROLEUM PRODUCTS SHALL BE REPORTED TO WEST VIRGINIA DEP, THE LOCAL FIRE DEPARTMENT, AND THE LOCAL EMERGENCY PLANNING COMMITTEE WITHIN 30 MIN. OF THE DISCOVERY OF THE RELEASE. ALL SPILLS WHICH CONTACT WATERS OF THE STATE MUST BE REPORTED TO WEST VIRGINIA DEP.
- 8. CONTAMINATED SOILS: IF SUBSTANCES SUCH AS OIL, DIESEL FUEL, HYDRAULIC FLUID, ANTIFREEZE, ETC. ARE SPILLED, LEADED, OR RELEASED ONTO THE SOIL, THE SOIL SHOULD BE DUG UP AND DISPOSED OF AT A LICENSED SANITARY LANDFILL OR OTHER APPROVED PETROLEUM CONTAMINATED SOIL REMEDIATION FACILITY. (NOT A CONSTRUCTION/DEMOLITION DEBRIS LANDFILL). NOTE THAT STORM WATER RUN OFF ASSOCIATED WITH CONTAMINATED SOILS ARE NOT TO BE AUTHORIZED UNDER WEST VIRGINIA'S GENERAL STORM WATER PERMIT ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
- 9. OPEN BURNING: NO MATERIALS CONTAINING RUBBER, GREASE, ASPHALT, OR PETROLEUM PRODUCTS, SUCH AS TIRES, AUTO PARTS, PLASTICS OR PLASTIC COATED WIRE MAY BE BURNED (WV45CSR6). OPEN BURNING IS NOT ALLOWED IN RESTRICTED AREAS, WHICH ARE DEFINED AS: 1) WITHEN CORPORATION LIMITS; 2) WITHEN 1000 FEET OF A MUNICIPAL CORPORATION HAVING A POPULATION OF 1000 TO 10,000; AND 3) A ONE MILE ZONE OUTSIDE OF A CORPORATION OF 10,000 OR MORE, OUTSIDE OF RESTRICTED AREAS, NO OPEN BURNING IS ALLOWED WITHIN A 1000 FEET OF AN INHABITED BULLDING ON ANOTHER PROPERTY. OPEN BURNING IS PERMISSIBLE AN A RESTRICTED AREA FOR: HEATING TAR, WELDING, SMUDGE POTS AND SIMILAR OCCUPATIONAL NEEDS, AND HEATING FOR WARMTH OR OUTDOOR BARBEQUES. OUTSIDE OF RESTRICTED AREAS, OPEN BURNING IS PERMISSIBLE FOR LANDSCAPE OR LAND-CLEARING WASTES (PLANT MATERIAL, WITH PRIOR WRITTEN PERMISSION FROM WEST VIRGINIA DEP), AND AGRICULTURAL WASTES, EXCLUDING BUILDINGS.
- 10. DUST CONTROL OR DUST SUPPRESSANTS SHALL BE USED TO PREVENT NUISANCE CONDITIONS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND IN A MANNER, WHICH PREVENTS A DISCHARGE TO WATERS OF THE STATE. SUFFICIENT DISTANCE MUST BE PROVIDED BETWEEN APPLICATION SAND INBEARBY BRIDGES, CATCH BASINS, AND OTHER WATERWAYS. APPLICATION (EXCLUDING WATER) MAY NOT OCCUR WHEN RAIN IS IMMINENT AS NOTED IN THE SHORT TERM FORECAST. USED OIL MAY NOT BE APPLIED FOR DUST CONTROL.
- 11. OTHER AIR PERMITTING REQUIREMENTS: CERTAIN ACTIVITIES ASSOCIATED WITH CONSTRUCTION WILL REQUIRE AIR PERMITS INCLUDING BUT NOT LIMITED TO: MOBILE CONCRETE BATCH PLANTS, MOBILE ASPHALT PLANTS, CONCRETE CRUSHERS, LARGE GENERATORS, ECT. THESE ACTIVITIES WILL REQUIRE SPECIFIC WEST VIREGINIA DEP AIR PERMITS FOR INSTALLATION AND OPERATION. OPERATORS MUST SEEK AUTHORIZATION FROM THE CORRESPONDING DISTRICT OF WEST VIREGINIA DEP. FOR DEMOLITION OF ALL COMMERCIAL SITES, A NOTIFICATION FOR RESTORATION AND DEMOLITION MUST BE SUBMITTED TO WEST VIRGINIA DEP TO DETERMINE IF ASBESTOS CORRECTIVE ACTIONS ARE
- 12. PROCESS WASTE WATER/LEACHATE MANAGEMENT: WEST VIRGINIA DEP'S CONSTRUCTION GENERAL PERMIT ONLY ALLOWS THE DISCHARGE OF STORM WATER AND DOES NOT INCLUDE OTHER WASTE STREAMS/DISCHARGES SUCH AS VEHICLE AND/OR EQUIPMENT WASHING, ON-SITE SEPTIC LEACHATE CONCRETE WASH OUT, WHICH ARE CONSIDERED PROCESS WASTEWATER. ALL PROCESS WASTEWATER MUST BE COLLECTED AND PROPERLY DISPOSAL AN APPROVED DISPOSAL FACILITY. IN THE EVENT LEACHATE OR SEEPAGE IS DISCHARGED, IT MUST BE ISOLATED FOR COLLECTION AND PROPER DISPOSAL AND CORRECTIVE ACTIONS TAKEN TO ELIMINATE THE SOURCE OF WASTE WATER.

## CONSTRUCTION SEQUENCE

- 1. PRIOR TO COMMENCEMENT OF ANY EARTH DISTURBANCE ACTIVITY, INCLUDING CLEARING, GRUBBING, AND GRADING, THE REGISTRANT SHALL CLEARLY DELINEATE SENSITIVE AREAS, THE LIMITS OF CLEARING, AND TREES THAT ARE TO BE CONSERVED WITHIN THE PROJECT SITE. INSTALL APPROPRIATE BARRIERS WHERE EQUIPMENT MAY NOT BE PARKED. STAGED. OPERATED. OR LOCATED FOR ANY PURPOSES.
- 2. TREE CLEARING THIS IS THE FIRST ACTIVITY TO TAKE PLACE AT THE SITE, AND SHALL PROVIDE BMPS TO MINIMIZE ACCELERATED EROSION AND SEDIMENTATION DUE TO INCREASED RUNOFF FROM CLEARED AREAS.
- SEDIMENT BARRIERS INSTALL PERIMETER BMPS PRIOR TO PERFORMING WORK THAT WILL RESULT IN GROUND DISTURBANCE, KEEPING THE ASSOCIATED GRUBBING AND GRADING LIMITED TO ONLY THAT AMOUNT REQUIRED FOR INSTALLING PERIMETER BMPS.
- 4. LAND GRUBBING IMPLEMENT GRUBBING ACTIVITIES ONLY AFTER ALL DOWNSLOPE PERIMETER EROSION AND SEDIMENTATION BMPS HAVE BEEN CONSTRUCTED AND STABILIZED.
- 5. INSTALL TEMPORARY TRAFFIC CONTROL AND CONSTRUCT THE PILE AND LAGGING WALL AS SHOWN IN THE PLANS
- FINAL STABILIZATION AFTER CONSTRUCTION IS COMPLETED, INSTALL STABILIZATION BMPS INCLUDING: PLACING TOPSOIL AND PERMANENT SEEDING, MULCHING, AND COMPLETE IMPLEMENTATION OF STORM WATER BMPS (AS APPROPRIATE) AS SHOWN ON THE PLANS.
- 7. AFTER 70 PERCENT UNIFORM, VEGETATIVE COVER HAS BEEN ACHIEVED AND THE SITE HAS BEEN STABILIZED, REMOVE ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS AND STABILIZE ANY DISTURBANCES ASSOCIATED WITH THE REMOVAL OF THE BMPS.

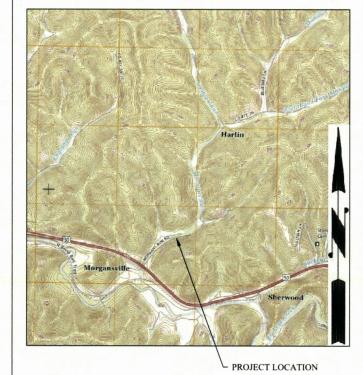
# EROSION & SEDIMENT CONTROL PLAN MORGAN RUN ROAD SLIP REPAIR MP 0.418

MORGANSVILLE, DODRIDGE COUNTY, WEST VIRGINIA

NOVEMBER 2021



#### VICINITY MAP NOT TO SCALE



SITE INFO

SITE DESCRIPTION EXISTING - CR 20

SCHEDULE OF MAJOR CONSTRUCTION COMMENCEMENT COMPLETION

## DEVELOPER

ANTERO RESOURCES CORPORATION 535 WHITE OAKS BOULEVARD BRIDGEPORT. WV 26330

## ENGINEER

CIVIL & ENVIRONMENTAL CONSULTANTS INC 120 GENESIS BOULEVARD BRIDGEPORT, WV 26330

ANTERO RESOURCES
CORPORATION
DODDRIDGE COUNTY ROUTE 20
MORGANS RUN SLIP REPAIR

SHEET No.

| Species           | N (lbs/ac) | P205 (lbs/ac) | K2O(lbs/ac) | Example Rec. (per acre) |
|-------------------|------------|---------------|-------------|-------------------------|
| Cool Season Grass | 40         | 80            | 80          | 400 lbs. 10-20-20       |
| CS Grass & Legume | 30         | 60            | 60          | 300 lbs. 10-20-20       |
| Temporary Cover   | 40         | 40            | 40          | 200 lbs. 19-19-19       |

| Table 3. Tem | porary cover | suitable for | establishment | in West | Virginia |
|--------------|--------------|--------------|---------------|---------|----------|
|--------------|--------------|--------------|---------------|---------|----------|

| Species          | Seeding Rate (lbs/acre) | OptimumSeeding Dates      | Drainage         | pH Range  |
|------------------|-------------------------|---------------------------|------------------|-----------|
| Annual Ryegrass  | 40                      | 3/1 - 6/15 or 8/15 - 9/15 | Well - Poorty    | 5.5 - 7.5 |
| Field Bromegrass | 40                      | 3/1 - 6/15 or 8/15 - 9/15 | Well - Mod. Well | 6.0 - 7.0 |
| Spring Oats      | 96                      | 3/1 - 6/15                | Well - Poorty    | 5.5 - 7.0 |
| Sudangrass       | 40                      | 5/15 - 8/15               | Well - Poorly    | 5.5 - 7.5 |
| Winter Rye       | 168                     | 8/15 - 10/15              | Well - Poorly    | 5.5 - 7.5 |
| Winter Wheat     | 180                     | 8/15 - 11/15              | Well - Mod. Well | 5.5 - 7.0 |
| Japanese Millet  | 30                      | 6/15 - 8/15               | Well             | 4.5 - 7.0 |
| Redtop           | 5                       | 3/1 - 6/15                | Well             | 4.0 - 7.5 |
| Annual Ryegrass  | 26                      | 3/1 - 6/15                | Well - Poorly    | 5.5 - 7.5 |
| Spring Oats      | 64                      | 3/1 - 6/15                | Well - Poorly    | 5.5 - 7.5 |

NOTE: These rates should be increased by 50% if planted April 15 - August 1 and October 1 - March 1

- 1. STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS AND SEDIMENT TRAPS SHALL BE INSTALLED AND WITH TEMPORARY SEEDING PRIOR TO GRADING THE REST OF THE CONSTRUCTION SITE.
- REWORKED FOR 14 DAYS OR GREATER. THESE IDLE AREAS SHALL BE SEEDED WITHIN FOUR (4) DAYS AFTER GRADING.
- THE SEEDBED SHOULD BE PULVERIZED AND LOOSE TO ENSURE THE SUCCESS OF ESTABLISHING VEGETATION. TEMPORARY SEEDING SHOULD NOT BE POSTPONED IF IDEAL SEEDBED PREPARATION IS NOT POSSIBLE.
- 4. SOIL AMENDMENTS TEMPORARY VEGETATION SEEDING RATES SHALL ESTABLISH ADEQUATE STANDS OF VEGETATION, WHICH MAY REQUIRE THE USE OF SOIL AMENDMENTS. BASE RATES FOR LIME AND FERTILIZER SHALL BE USED.
- 5. SEEDING METHOD SEED SHALL BE APPLIED UNIFORMLY WITH A CYCLONE SPREADER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER. WHEN FEASIBLE, SEED THAT HAS BEEN BROADCAST SHALL BE COVERED BY RAKING OR DRAGGING AND THEN LIGHTLY TAMPED INTO PLACE USING A ROLLER OR CULTIPACKER. IF HYDROSEEDING IS USED, THE SEED AND FERTILIZER WILL BE MIXED ON-SITE AND THE SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.

APPLICATION OF TEMPORARY SEEDING SHALL INCLUDE MULCH, WHICH SHALL BE APPLIED DURING OR IMMEDIATELY AFTER SEEDING. SEEDINGS MADE DURING OPTIMUM SEEDING DATES ON FAVORABLE, VERY FLAT SOIL CONDITIONS MAY NOT NEED MULCH TO ACHIEVE ADEQUATE STABILIZATION.

- STRAW IF STRAW IS USED, IT SHALL BE UNROLLED SMALL-GRAIN STRAW APPLIED AT A RATE OF 2 TONS PER ACRE OR 90 LBS/1,00 SQ. FT. (2-3 BALES)
- HYDROSEEDERS IF WOOD CELLULOSE FIBER IS USED, IT SHALL BE USED AT 2000LBS./AC. OR 46 LB./1000SQ. FT.
- OTHER OTHER ACCEPTABLE MULCHES INCLUDE MULCH MATTINGS APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS OR WOOD CHIPS APPLIED AT 6 TON/AC
- 3. STRAW MULCH SHALL BE ANCHORED IMMEDIATELY TO MINIMIZE LOSS BY WIND OR WATER. ANCHORING METHODS:
- MECHANICAL A DISK, CRIMPER, OR SIMILAR TYPE TOOL SHALL BE SET STRAIGHT TO PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL. STRAW MECHANICALLY ANCHORED SHALL NOT BE FINELY CHOPPED BUT LEFT TO A LENGTH OF APPROXIMATELY 6 INCHES.
- MULCH NETTING NETTING SHALL BE USED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. NETTING MAY BE NECESSARY TO HOLD MULCH IN PLACE IN AREAS OF CONCENTRATED RUNOFF AND ON CRITICAL SLOPES.
- SYNTHETIC BINDERS SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (ARGI-TAC), DCA-70, PERTROSET, TERRA TRACK, OR EQUIVALENT MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER.
- WOOD CELLULOSE FIBER WOOD CELLULOSE FIBER BINDER SHALL BE APPLIED AT A NET DRY WT. OF 750 LB/AC. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LB/100 GAL.

## TEMPORARY SEEDING

## CUT SLOPES - GREATER THAN 3:1 SLOPES

- STAIR-STEP GRADING MAY BE CARRIED OUT ON ANY MATERIAL SOFT ENOUGH TO BE RIPPED WITH A BULLDOZER. THE RATIO OF THE HORIZONTAL DISTANCE TO THE VERTICAL CUT DISTANCE SHALL BE FLATTER THAN 1:1 AND THE HORIZONTAL PORTION OF THE "STEP" SHALL SLOPE TOWARD THE VERTICAL WALL. INDIVIDUAL VERTICAL CUTS SHALL NOT BE MORE THAN 24 INCHES ON SOFT SOIL MATERIALS AND NOT MORE THAN 36 INCHES IN ROCKY MATERIALS.
- GROOVING MAY BE MADE WITH ANY APPROPRIATE IMPLEMENT WHICH CAN BE SAFELY OPERATED ON THE SLOPE AND WHICH WILL NOT CAUSE UNDUE COMPACTION. SUGGESTED IMPLEMENTS INCLUDE DISCS, TILLERS, SPRING HARROWS, AND THE TEETH ON A FRONT-END LOADER BUCKET. SUCH GROVES SHALL NOT BE LESS THAN 3 INCHES DEEP NOR FURTHER THAN 15

## FILL SLOPES - GREATER THAN 3:1 SLOPES

- FILL SLOPES STEEPER THAN 3:1 SHALL BE GROOVED OR ALLOWED TO REMAIN ROUGH AS THEY ARE CONSTRUCTED UTILIZING
- GROOVING MAY BE MADE WITH ANY APPROPRIATE IMPLEMENT WHICH CAN BE SAFELY OPERATED ON THE SLOPE AND WHICH WILL NOT CAUSE UNDUE COMPACTION SUCH AS DISCS. TILLERS. SPRING HARROWS, AND THE TEETH ON A FRONT-END LOADER BUCKET. GROOVES LEFT SHALL NOT BE LESS THAN 3 INCHES DEEP NOR FURTHER THAN 15 INCHES APART.
- AS LIFTS OF THE FILL ARE CONSTRUCTED. SOIL AND ROCK MATERIALS MAY BE ALLOWED TO FALL NATURALLY ONTO THE LOPE SURFACE. AT NO TIME SHALL SLOPES BE BLADED OR SCRAPED TO PRODUCE A SMOOTH, HARD SURFACE.

## CUTS, FILLS, AND GRADED AREAS WHICH WILL BE MOWED

- MOWED SLOPES SHOULD NOT BE STEEPER THAN 3:1 AND SHALL AVOID EXCESSIVE ROUGHNESS. THESE AREAS MAY BE ROUGHENED WITH SHALLOW GROOVES SUCH AS THOSE, WHICH REMAIN AFTER TILLING, DISCING, HARROWING, RAKING, OR USE OF A CULTIPACKER-SEEDER. THE FINAL PASS OF ANY SUCH TILLAGE IMPLEMENT SHALL BE ON THE CONTOUR (PERPENDICULAR TO THE SLOPE).
- GROOVES FORMED BY IMPLEMENTS SHALL BE NOT LESS THAN 1 INCH DEEP AND NOT FURTHER THAN 12 INCHES APART. FILL SLOPES THAT ARE LEFT ROUGH DURING CONSTRUCTION MAY BE SMOOTHED WITH A CHAIN HARROW OR SIMILAR IMPLEMENT TO FACILITATE MOWING.

## SPECIFICATIONS FOR PERMANENT SEEDING

SITE PREPARATION

1. SUBSOILER, PLOW, OR OTHER IMPLEMENT SHALL BE USED TO REDUCE SOIL COMPACTION AND ALLOW MAXIMUM INFILTRATION.

1. SUBSOILER, PLOW, OR OTHER IMPLEMENT SHALL BE USED TO REDUCE SOIL COMPACTION AND ALLOW MAXIMUM INFILTRATION. (MAXIMIZING INFILTRATION WILL HELP CONTROL BOTH RUNOFF RATE AND WATER QUALITY.) SUBSOILING SHOULD BE DONE WHEN THE SOIL MOISTURE IS LOW ENOUGH TO ALLOW THE SOIL TO CRACK OR FRACTURE. SUBSOILING SHALL NOT BE DONE ON SLIP-PRONE AREAS WHERE SOIL PREPARATION SHOULD BE LIMITED TO WHAT IS NECESSARY FOR ESTABLISHING VEGETATION.

- 2. THE SITE SHALL BE GRADED AS NEEDED TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION AND
- 3. TOPSOIL SHALL BE APPLIED WHERE NEEDED TO ESTABLISH VEGETATION.

SEEDBED PREPARATION

1. LIME-AGRICULTURAL GROUND LIMESTONE SHALL BE APPLIED TO ACID SOIL AS RECOMMENDED BY A SOIL TEST. IN LIEU OF A SOIL

1. LIME-AGRICULTURAL GROUND LIMESTONE SHALL BE APPLIED TO ACID SOIL AS RECOMMENDED BY A SOIL TEST. IN LIEU OF A SOIL TEST, LIME SHALL BE APPLIED AT THE RATE OF 150 POUNDS PER 1,000-SQ. FT. OR 3 TONS PER ACRE.

- 2. FERTILIZER-FERTILIZER SHALL BE APPLIED AS RECOMMENDED BY A SOIL TEST. IN PLACE OF A SOIL TEST, FERTILIZER SHALL BE APPLIED AT A RATE OF 12 POUNDS PER 1,000-SQ. FT. OR 500 POUNDS PER ACRE OF A 10-20-20 OR EQUIVALENT
- 3. THE LIME AND FERTILIZER SHALL BE WORKED INTO THE SOIL WITH A DISK HARROW, SPRING-TOOTH HARROW, OR OTHER SUITABLE FIELD IMPLEMENT TO A DEPTH OF 3 INCHES. ON SLOPING LAND, THE SOIL SHALL BE WORKED ON THE CONTOUR.

SEEDING DATES AND SOIL CONDITIONS SEEDING SHOULD BE DONE MARCH I TO APRIL 15 OR AUGUST I TO OCTOBER 1. IF SEEDING OCCURS APRIL 15 - AUGUST I, AND OCTOBER I - MARCH 1, INCREASE SEEDING RATES BY 50%, TILLAGE FOR SEEDBED PREPARATION SHOULD BE DONE WHEN THE SOIL IS DRY FNOUGH TO CRUMBLE AND NOT FORM RIBBONS WHEN COMPRESSED BY HAND. FOR WINTER SEEDING, SEE THE FOLLOWING SECTION OF

DORMANT SEEDINGS

1. SEEDINGS CAN BE MADE FROM DECEMBER 1 THROUGH MARCH 1. DURING THIS PERIOD, THE SEEDS ARE LIKELY TO GERMINATE BUT MAY NOT BE ABLE TO SURVIVE THE WINTER.

- 2. THE FOLLOWING METHODS MAY BE USED FOR "DORMANT SEEDING":
- FROM DECEMBER 1 THROUGH MARCH 1, PREPARE THE SEEDBED, ADD THE REQUIRED AMOUNTS OF LIME AND FERTILIZER, THEN MULCH AND ANCHOR. INCREASE SEEDING RATES BY 50%.

<u>MULCHING</u> 1. MULCH MATERIAL SHALL BE APPLIED IMMEDIATELY AFTER SEEDING. DORMANT SEEDING SHALL BE MULCHED. 100% OF THE SURFACE SHALL BE COVERED WITH AN APPROVED MATERIAL.

- STRAW-IF STRAW IS USED IT SHALL BE UNROTTED SMALL-GRAIN STRAW APPLIED AT THE RATE OF 2-3 TONS PER ACRE OR 135 POLINDS (THREE TO FOUR BALES) PER 1,000-SQ. FT. THE MULCH SHALL BE SPREAD UNIFORMLY BY HAND OR MECHANICALLY APPLIED SO THE

SURFACE IS COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000-SO.FT.

SECTIONS AND SPREAD THREE 45-LB. BALES OF STRAW IN EACH SECTION.

- HYDROSEEDERS-LF WOOD CELLULOSE FIBER IS USED, IT SHALL BE APPLIED AT 1,500 LB/AC. OR 35 LB/1,000 SQ. FT.

- OTHER-OTHER ACCEPTABLE MULCHES INCLUDE ROLLED EROSION CONTROL MATTINGS OR BLANKETS APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS OR WOOD CHIPS APPLIED AT 6 TONS PER ACRE.

#### 3. STRAW AND MULCH ANCHORING METHODS

STRAW MULCH SHALL BE ANCHORED IMMEDIATELY TO MINIMIZE LOSS BY WIND OR WATER

- MULCH NETTING-NETTING SHALL BE USED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. NETTING MAY BE NECESSARY

TO HOLD MULCH IN PLACE IN AREAS OF CONCENTRATED RUNOFF AND ON CRITICAL SLOPES.

- ASPHALT EMULSION-ASPHALT SHALL BE APPLIED AS RECOMMENDED BY THE MANUFACTURER OR AT THE RATE OF 160 GALLONS PER

- SYNTHETIC BINDERS-SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRI-TAC), DCA-70, PETROSET, TERRA TACK OR EQUIVALENT MAY BE USED AT RATES SPECIFIED BY THE MANUFACTURER.
- WOOD CELLULOSE FIBER-WOOD CELLULOSE FIBER SHALL BE APPLIED AT A NET DRY WEIGHT OF 1,500 POUNDS PER ACRE. THE WOOD

CELLULOSE FIBER SHALL BE MIXED WITH WATER WITH THE MIXTURE CONTAINING A MAXIMUM OF 50 POUNDS CELLULOSE PER 100 GALLONS OF WATER.

IRRIGATION
PERMANENT SEEDING SHALL INCLUDE IRRIGATION TO ESTABLISH VEGETATION DURING DRY WEATHER OR ON ADVERSE SITE

OF THE PROPERTY OF THE PR CONDITIONS, WHICH REQUIRE ADEQUATE MOISTURE FOR SEED GERMINATION AND PLANT GROWTI

IRRIGATION RATES SHALL BE MONITORED TO PREVENT EROSION AND DAMAGE TO SEEDED AREAS FROM EXCESSIVE RUNOFF.

## **TOPSOILING**

## SALVAGING AND STOCKPILING:

- DETERMINE THE DEPTH AND SUITABILITY OF TOPSOIL AT THE SITE. (FOR HELP, CONTACT YOUR NRCS OFFICE TO OBTAIN A COUNTY SOIL SURVEY REPORT).
- PRIOR TO STRIPPING TOPSOIL, INSTALL APPROPRIATE DOWNSLOPE EROSION AND SEDIMENTATION CONTROLS SUCH AS SEDIMENT TRAPS AND BASINS.
- REMOVE THE SOIL MATERIAL NO DEEPER THAN WHAT THE COUNTY SOIL SURVEY DESCRIBES AS SURFACE SOIL" (IE. A OR AP HORIZON)
- CONSTRUCT STOCKPILES IN ACCESSIBLE LOCATIONS THAT DO NOT INTERFERE WITH NATURAL DRAINAGE. INSTALL APPROPRIATE SEDIMENT CONTROLS TO TRAP SEDIMENT SUCH AS SILT FENCE IMMEDIATELY ADJACENT TO THE STOCKPILE OR SEDIMENT TRAPS OR BASINS DOWNSTREAM OF THE STOCKPILE SIDE SLOPES SHALL NOT EXCEED A RATION OF 2:1.
- IF TOPSOIL IS STORED FOR MORE THAN 14 DAYS, IT SHOULD BE TEMPORARY SEEDED, OR COVERED

## SPREADING THE TOPSOIL

- PRIOR TO APPLYING TOPSOIL, THE TOPSOIL SHOULD BE PULVERIZED.
- TO ENSURE BONDING, GRADE THE SUBSOIL AND ROUGHEN THE TOP 3-4 IN. BY DISKING.
- DO NOT APPLY WHEN SITE IS WET, MUDDY, OR FROZEN, BECAUSE IT MAKES SPREADING DIFFICULT, CAUSES COMPACTION PROBLEMS, AND INHIBITS BONDING WITH SUBSOII
- APPLY TOPSOIL EVENLY TO A DEPTH OF AT LEAST 4 INCHES AND COMPACT SLIGHTLY TO IMPROVE CONTACT WITH SUBSOIL.
- AFTER SPREADING, GRADE AND STABILIZE WITH SEEDING OR APPROPRIATE VEGETATION

| Species/Mixture   | Seeding Rate (lbs/acre) | Soil Drainage Preference | pH Rang   |
|---|-------------------------|--------------------------|-----------|
| Crownvetch/<br>Tall Fescue                              | 10 - 15<br>30           | Well - Mod. Well         | 5.0 - 7.5 |
| Crownvetch/<br>Perennial Ryegrass                       | 10 - 15<br>20           | Well - Mod. Well         | 5.0 - 7.5 |
| Flatpea or Perennial Pea/<br>Tall Fescue                | 20<br>15                | Well - Mod. Well         | 4.0 - 8.0 |
| Ladino Clover/<br>Serecia Lespedeza/<br>Tall Fescue     | 30<br>25<br>2           | Well - Mod. Well         | 4.5 - 7.5 |
| Tall Fescue/<br>Ladino Clover/<br>Redtop                | 40<br>3<br>3            | Well - Mod. Well         | 5.0 - 7.5 |
| Crownvetch/<br>Tall Fescue/<br>Redtop                   | 10<br>20<br>3           | Well - Mod. Well         | 5.0 - 7.5 |
| Tall Fescue/<br>Birdsfoot Trefoil/<br>Redtop            | 40<br>10<br>3           | Well - Mod. Well         | 5.0 - 7.5 |
| Sericea Lespedeza/<br>Tall Fescue/<br>Redtop            | 25<br>30<br>3           | Well - Mod. Well         | 4.5 - 7.5 |
| Redtop/<br>Tall Fescue/<br>Creeping Red                 | 30<br>3<br>50           | Well - Mod. Well         | 5.0 - 7.5 |
| Tall Fescue   | 50                      | Well - Poorly            | 4.5 - 7.5 |
| Perennial Ryegrass/<br>Tall Fescue/<br>Lathco Flatpea * | 10<br>15<br>20          | Well - Poorly            | 5.0 - 8.0 |

## Table 4b. Mixtures in the table below are more wildlife and farm friendly

| Species/Mixture S  | eeding Rate (lbs/acre) | Soil Drainage Preference | pH Range    |
|--|------------------------|--------------------------|-------------|
| KY Bluegrass/<br>Redtop/<br>Ladino Clover or Birdsfoot Tre | 20<br>3<br>efoil 2/10  | Well - Mod. Well         | 5.5 - 7.5   |
| Timothy/<br>Alfalfa  | 5<br>12                | Well - Mod. Well         | 6.5 - 8.0   |
| Timothy/<br>Birdsfoot Trefoil                              | 5 8                    | Well - Poorty            | 5.5 - 7.5 8 |
| Orchardgrass/<br>Ladino Clover/<br>Redtop                  | 10<br>2<br>3           | Well - Mod. Well         | 5.5 - 7.5   |
| Orchardgrass/<br>Ladino Clover                             | 10 2                   | Well - Mod. Well         | 5.5 - 7.5   |
| Orchardgrass/<br>Perennial Ryegrass                        | 20<br>10               | Well - Mod. Well         | 5.5 - 7.5   |
| Creeping Red Fescue/<br>Perennial Ryegra                   | 30<br>10               | Well - Mod. Well         | 5.5 - 7.5   |
| Orchardgrass or Kentucky Bl                                | uegrass 20             | Well - Mod. Well         | 6.0 - 7.5   |
| Birdsfoot Trefoil/<br>Redtop/<br>Orchardgrass              | 10<br>5<br>20          | Well - Mod. Well         | 5.5 - 7.5   |
| Lathco Flat Pea/<br>Perennial Ryegrass                     | 30<br>20               | Well - Mod. Well         | 5.5 - 7.5   |
| Lathco Flat Pea/<br>Orchardgrass                           | 30<br>20               | Well - Mod. Well         | 5.5 - 7.5   |

## Table IV-5 Lime and Fertilizer Application Table

| pH of Soil                    | Lime in Tons Per Acre   | Fertilizer, Lbs., per Acre | 10-20-20- or Equivaler |
|-------------------------------|---|----------------------------|------------------------|
| Above 6.0                     | 2 40 (44)   | 500                        | Marian Andrew          |
| 5.0 to 6.0                    | 3   | 500                        |                        |
| Below 5.0                     | 4   | 500                        |                        |
| CHICAGO CONTRACTOR CONTRACTOR | SANDARING SERVICES CONTRACTOR AND AND AND AND AND AND AND AND AND AND |                            |                        |

t can be determined with a portable pH testing kit or by sending the soil samples to a soil testing laboratory. When 4 tons of r acre are applied it must be incorporated into the soil by disking, backblading or tracking up and down the above.

| Material          | Minimum Rates Per Acre | Coverage        | Remarks                     |
|-------------------|------------------------|-----------------|-----------------------------|
| Hay or Straw      | 2 to 3 Tons            | Cover 75% to    | Subject to Wind blowing     |
|                   | 100 to 150 Bales       | 90% of Surface  | or washing unless tied down |
| Wood Fiber        | 1000 to 1500 lbs       | Cover all       | For Hydroseeding            |
| Pulp Fiber        |                        | Disturbed Areas |                             |
| Wood-Cellulose    |                        |                 |                             |
| Recirculated Pape |                        |                 |                             |

Civil & Environs
120 Genesis Boul
Ph: 304.833,3119

6' MAX O.C.

1-1/4"x1-1/4"x48" NORMAL OAK OR HARDWOOD STAKES SPACED 6' ON CENTER

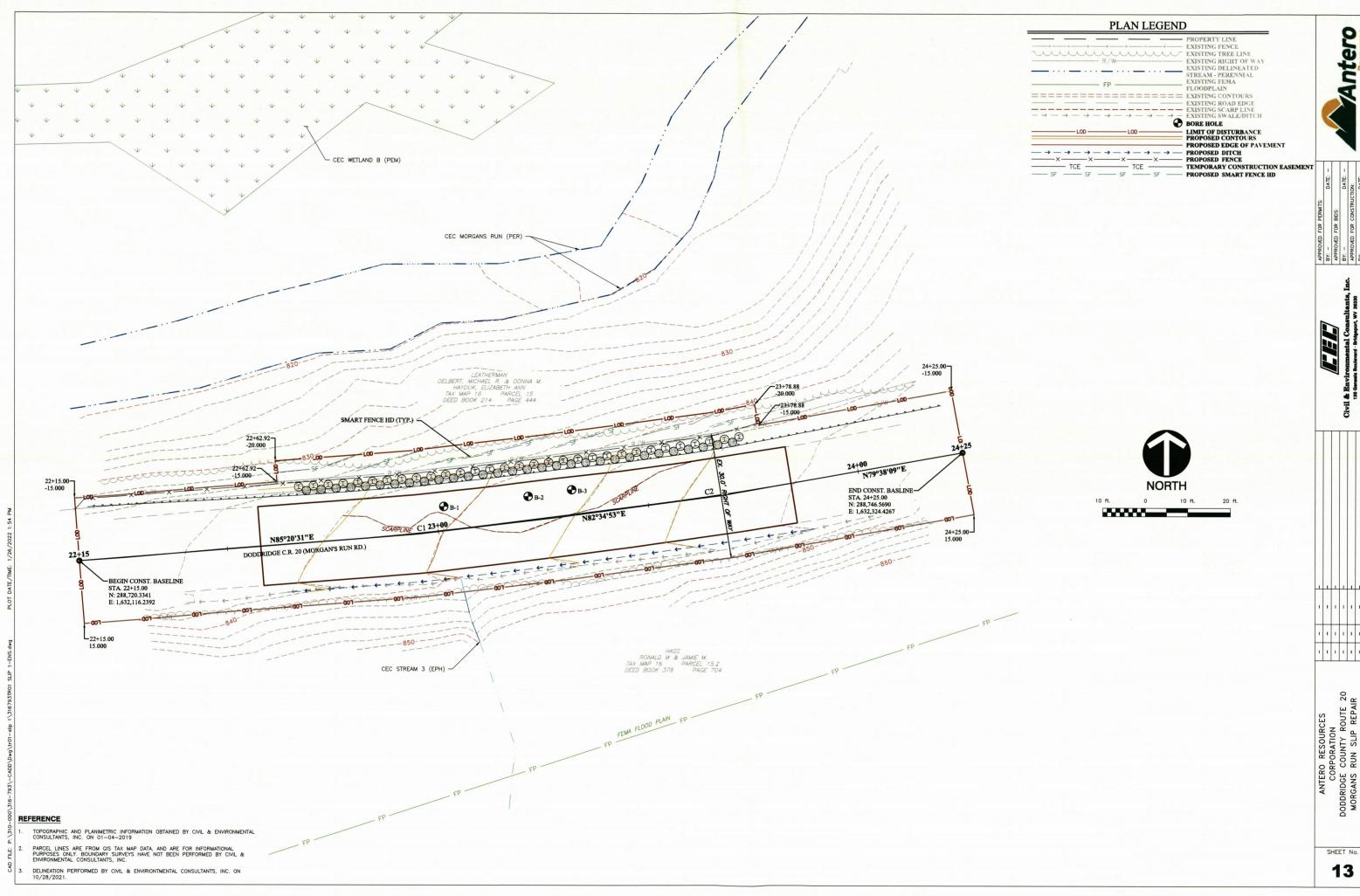
FABRIC TO BE 24" ABOVE GROUND WITH "J" IN TRENCH

SMARTFENCE FB NOT TO SCALE

OF SLOPE

FLOW

TOE IN AND COMPACT BACKFILL



Mantero

10

20

820 -30

-20

-10

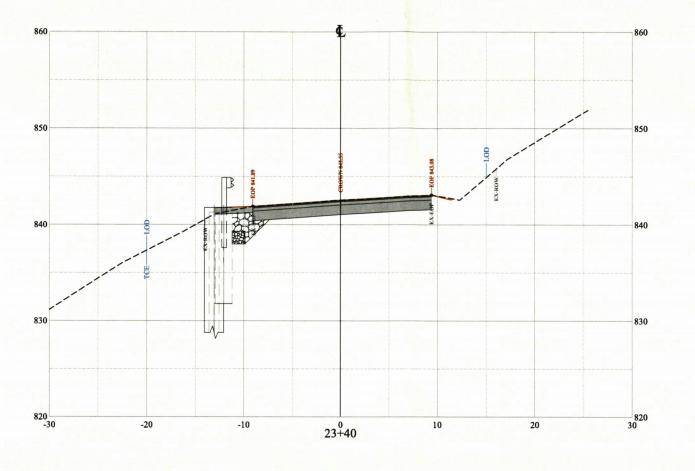
22+80

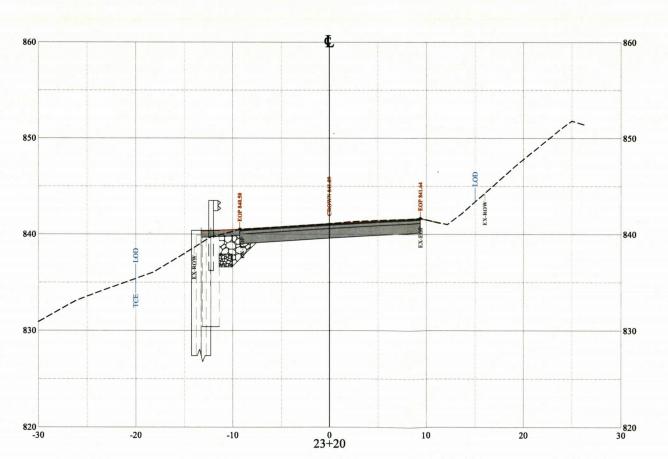
## SECTIONS LEGEND

SHEET No.

14

HOR.





## SECTIONS LEGEND

SECTIONS LEGEND

----EXISTING GROUND
PROPOSED GRADE

-EX-EOP
EXISTING EDGE OF PAVEMENT
EXISTING RIGHT OF WAY
PROPOSED LIMIT OF DISTURBANCE
CROWN OF PAVEMENT ELEVATION

Mantero

SECTIONS LEGEND

Antero

| PERMITS:              | BIDS:              | DATE: | CONSTRUCTION               |       |
|-----------------------|--------------------|-------|----------------------------|-------|
| APPROVED FOR PERMITS: | APPROVED FOR BIDS: | BY: - | APPROVED FOR CONSTRUCTION: | BY: - |

SHEET No.

16

VERT. 0

HOR.

