

# Commercial/Industrial Floodplain Development Permit

## Doddridge County, WV Floodplain Management

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

**Permit: # 14-211**

**Date Approved: 05/22/2014**

**Expires: 05/22/2015**

**Issued to: CNX GAS COMPANY, LLC**

**POC: AMANDA WRIGHT  
304-884-2027**

**Company Address: ONE ENERGY DRIVE  
JANE LEW, WV 26378**

**Project Address: FREEDOM ROAD/WILLIAMS HOLLOW**

**Firm: 54017C0225C**

**Lat/Long: 39.160384/-80.762823**

**Purpose of development: TANK PAD/STOCKPILE**

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

**Date: 05/22/2014**

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

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April 30, 2014

Ms. Catie Slater  
Floodplain Coordinator  
Doddridge County Commission  
118 East Court Street  
West Union, WV 26456

RE: CNX Gas Company, LLC  
Frye Tank Pad Site

Ms. Slater,

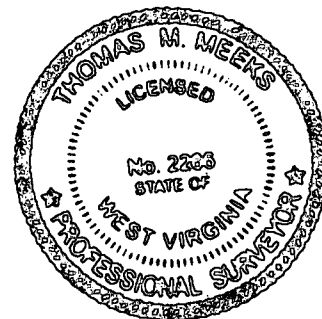
On behalf of CNX, Smith Land Surveying is asking for your concurrence that a Doddridge County floodplain/building permit is not required for this project. CNX has proposed a tank pad with a containment berm for multiple above ground storage tanks, stockpile areas, and an access road (As shown on the attached maps, the Frye Tank Pad Site shares part of the previously submitted Oxford 10 Site's entrance and access road. We are asking that both of these sites be permitted with the same access road individually.) to aid in the development of multiple Marcellus Shale gas wells. The site is located near Porto Rico off of Doddridge County Route 19/11 (Freedom Road). The tank pad is located at Latitude 39.160384 and Longitude -80.762823 (NAD 83) and the stockpile area is located at Latitude 39.160418 and Longitude -80.759574 (NAD 83).

This site does not impact a floodplain. Please see the attached project location map, site plans, and FEMA firmette.

Again on behalf of CNX, SLS is requesting your concurrence so they can begin construction on the Frye Tank Pad Project once the WVDEP drilling permits are received. Please feel to contact Thomas Meeks with SLS at 304-462-5634 or [tmeeks@slssurveys.com](mailto:tmeeks@slssurveys.com), or Amanda Wright with CNX at 304-884-2027 or [AmandaWright@consolenergy.com](mailto:AmandaWright@consolenergy.com) should you have any questions or comments.

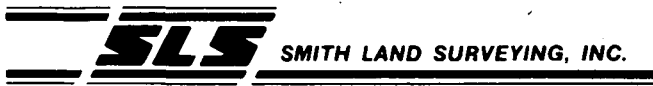
Respectfully submitted,

Thomas M. Meeks, P.S.  
Surveying Manager



cc: Amanda Wright/CNX Gas Company LLC

2014 MAY -8 AM 8:08  
BETH A. ROGERS  
COUNTY CLERK  
DODDRIDGE COUNTY, WV  
FILED



P.O. BOX 150, GLENVILLE, WV 26351  
 (304) 462-5634 • FAX (304) 462-5656

# LETTER OF TRANSMITTAL

DATE 4/30/14	JOB NO. 8105
ATTENTION Catie Slater	
RE: CNX Gas Company's Frye Tank Pad Site	

TO: Doddridge County Floodplain Manager  
118 East Court Street  
West Union, WV 26456

> WE ARE SENDING YOU  Attached  Under separate cover via \_\_\_\_\_ the following items:

- Shop drawings     Prints     Plans     Samples     Specifications  
 Copy of letter     Change order     \_\_\_\_\_

COPIES	DATE	NO.	DESCRIPTION
1			Floodplain/Building Application for CNX Gas Company's Frye Tank Pad Site with cover letter
1			Site Plans
1			Location Map
1			FEMA Map

THESE ARE TRANSMITTED as checked below:

- For approval     Approved as submitted     Resubmit \_\_\_\_\_ copies for approval  
 For your use     Approved as noted     Submit \_\_\_\_\_ copies for distribution  
 As requested     Returned for corrections     Return \_\_\_\_\_ corrected prints  
 For review and comment     \_\_\_\_\_  
 FOR BIDS DUE \_\_\_\_\_ 20\_\_\_\_\_     PRINTS RETURNED AFTER LOAN TO US

REMARKS \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

COPY TO SLS Files; CNX Gas Company, LLC

SIGNED: Deanna McVicker

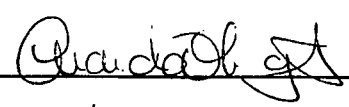
If enclosures are not as noted, kindly notify us at once.

14-211

# DODDRIDGE COUNTY FLOODPLAIN DEVELOPMENT PERMIT APPLICATION

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

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

APPLICANT'S SIGNATURE 

DATE 4/30/14

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

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

APPLICANT'S NAME: CNX Gas Company, LLC

ADDRESS: One Energy Drive Jane Lew, WV 26378

TELEPHONE NUMBER: 304-884-2027

**BUILDER'S NAME:** CNX Gas Company, LLC

**ADDRESS:** One Energy Drive Jane Lew, WV 26378

**TELEPHONE NUMBER:** 304-884-2027

**ENGINEER'S NAME:** Smith Land Surveying

**ADDRESS:** 12 Vanhorn Drive / P.O. Box 150, Glenville, WV 26351

**TELEPHONE NUMBER:** 304-462-5634

**PROJECT LOCATION:** The site is located near Porto Rico off of Doddridge County Route 19/11 (Freedom Road). The tank pad is located at Latitude 39.160384 and Longitude -80.762823 (NAD 83) and the stockpile area is located at Latitude 39.160418 and Longitude -80.759574 (NAD 83).

**NAME OF SURFACE OWNER/OWNERS (IF NOT THE APPLICANT)** J.L Morris, CNX Gas LLC, Rebecca Simpson, Ronald Frye, Christopher McKenzie

**ADDRESS OF SURFACE OWNER/OWNERS (IF NOT THE APPLICANT)** \_\_\_\_\_

**DISTRICT:** Southwest District / Cove District

**DATE/FROM WHOM PROPERTY**

**PURCHASED:** \_\_\_\_\_

**LAND BOOK DESCRIPTION:** \_\_\_\_\_

**DEED BOOK REFERENCE:** Deed Book page

**TAX MAP REFERENCE:** 10-2 Southwest (Morris), 2-1 Cove (CNX), 1-8 Cove (Simpson), 1-12 Cove (Frye), 1-13 Cove (Frye), 1-11 Cove (McKenzie)

**EXISTING BUILDINGS/USES OF PROPERTY:** \_\_\_\_\_

**NAME OF AT LEAST ONE ADULT RESIDING IN EACH RESIDENCE LOCATED UPON THE SUBJECT PROPERTY** \_\_\_\_\_

**ADDRESS OF AT LEAST ONE ADULT RESIDING IN EACH RESIDENCE LOCATED UPON THE SUBJECT PROPERTY** \_\_\_\_\_

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

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

**A. STRUCTURAL DEVELOPMENT**

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

**B. OTHER DEVELOPMENT ACTIVITIES:**

- Fill                     Mining                     Drilling                     Pipelining
- Grading
- Excavation (except for STRUCTURAL DEVELOPMENT checked above)
- Watercourse Altercation (including dredging and channel modification)
- Drainage Improvements (including culvert work)
- Road, Street, or Bridge Construction
- Subdivision (including new expansion)
- Individual Water or Sewer System
- Other (please specify)
- 

**C. STANDARD SITE PLAN OR SKETCH**

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

**ACTUAL TOTAL CONSTRUCTION COSTS OF THE COMPLETE DEVELOPMENT IRRESPECTIVE OF WHETHER ALL OR ANY PART OF THE SUBJECT PROPOSED CONSTRUCTION PROJECT IS WITHIN THE FLOODPLAIN \$ N/A**

**D. ADJACENT AND/OR AFFECTED LANDOWNERS:**

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

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

\_\_\_\_\_

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

\_\_\_\_\_

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

\_\_\_\_\_

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

\_\_\_\_\_

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

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

\_\_\_\_\_

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

\_\_\_\_\_

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

\_\_\_\_\_

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

\_\_\_\_\_

**E. CONFIRMATION FORM**

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

- (A) PERSONAL SERVICE OF PROCESS BY THE DODDRIDGE COUNTY SHERIFF AT THE RATES PERMITTED BY LAW FOR SUCH SERVICE.
- (B) SERVICE BY CERTIFIED MAIL RETURN RECEIPT REQUESTED.
- (C) PUBLICATION.
- (D) COURT REPORTING SERVICES AT ANY HEARINGS REQUESTED BY THE APPLICANT.
- (E) CONSULTANTS AND/OR HEARING EXPERTS UTILIZED BY DODDRIDGE COUNTY FLOODPLAIN ADMINISTRATOR/MANAGER OR FLOODPLAIN APPEALS BOARD FOR REVIEW OF MATERIALS AND/OR TESTIMONY REGARDING THE EFFICACY OF GRANTING OR DENYING THE APPLICANT'S FLOODPLAIN PERMIT.

NAME (PRINT): Lisa Amanda Wright

SIGNATURE:  DATE: 4/30/14

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

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

**THE PROPOSED DEVELOPMENT:**

THE PROPOSED DEVELOPMENT IS LOCATED ON:

FIRM Panel: \_\_\_\_\_

Dated: \_\_\_\_\_

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

Is located in Special Flood Hazard Area.

FIRM zone designation \_\_\_\_\_

100-Year flood elevation is: \_\_\_\_\_ NGVD (MSL)



Unavailable

The proposed development is located in a floodway.

FBFM Panel No. \_\_\_\_\_

Dated \_\_\_\_\_

See section 4 for additional instructions.

**SIGNED** \_\_\_\_\_

**DATE** \_\_\_\_\_

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

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

A plan showing the location of all existing structures, water bodies, adjacent roads, lot dimensions and proposed development.

Development plans, drawn to scale, and specifications, including where applicable: details for anchoring structures, storage tanks, proposed elevation of lowest floor, (including basement or crawl space), types of water resistant materials used below the first floor, details of flood proofing of utilities located below the first floor and details of enclosures below the first floor. Also \_\_\_\_\_  
\_\_\_\_\_

Subdivision or other development plans (If the subdivision or development exceeds 50 lots or 5 acres, whichever is the lesser, the applicant must provide 100-year flood elevations if they are not otherwise available).

Plans showing the extent of watercourse relocation and/or landform alterations.

Top of new fill elevation \_\_\_\_\_ Ft. NGVD (MSL).  
For floodproofing structures applicant must attach certification from registered engineer or architect.

Certification from a registered engineer that the proposed activity in a regulatory floodway will not result in any increase in the height of the 100-year flood. A copy of all data and calculations supporting this finding must also be submitted.

Manufactured homes located in a floodplain area must have a West Virginia Contractor's License and a Manufactured Home Installation License as required by the Federal Emergency Management Agency (FEMA).

Other:

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

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

SIGNED \_\_\_\_\_ DATE \_\_\_\_\_

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

APPEALS: Appealed to the County Commission of Doddridge County?  Yes  No

Hearing Date: \_\_\_\_\_

County Commission Decision - Approved  Yes  No

CONDITIONS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

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

COMPLETE 1 OR 2 BELOW:

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

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

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

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

**INSPECTIONS:**

DATE: \_\_\_\_\_ BY: \_\_\_\_\_  
DEFICIENCIES ?      Y/N

COMMENTS \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

Certificate of Compliance issued: DATE: \_\_\_\_\_ BY: \_\_\_\_\_

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

**PERMIT NUMBER:** \_\_\_\_\_

**PERMIT DATE:** \_\_\_\_\_

**PURPOSE –**

**CONSTRUCTION LOCATION:** \_\_\_\_\_

**OWNER'S ADDRESS:** \_\_\_\_\_

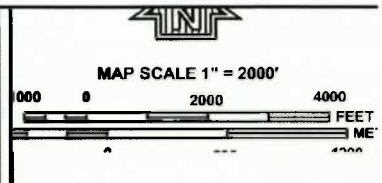
\_\_\_\_\_  
\_\_\_\_\_

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

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

**SIGNED \_\_\_\_\_ DATE \_\_\_\_\_**

# FRYE TANK SITE FEMA MAP



PANEL 0225C

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

PANEL 225 OF 325  
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

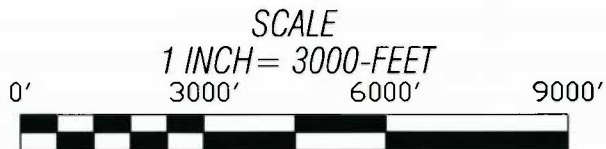
CONTAINS:  
 COMMUNITY NUMBER PANEL SHEET  
 DODDRIDGE COUNTY 54017 0225 C

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

MAP NUMBER  
 54017C0225C  
 MAP REVISED  
 OCTOBER 4, 2011

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps, check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)



JOB #: 8105  
 DRAWN BY: CMH  
 DATE: 04-28-14  
 SCALE: 1" = 3000'

**FRYE TANK SITE**

THIS DOCUMENT WAS PREPARED BY:  
 SMITH LAND SURVEYING, INC.  
 FOR: CNX

**Professional Energy Consultants**  
 A DIVISION OF SMITH LAND SURVEYING, INC.

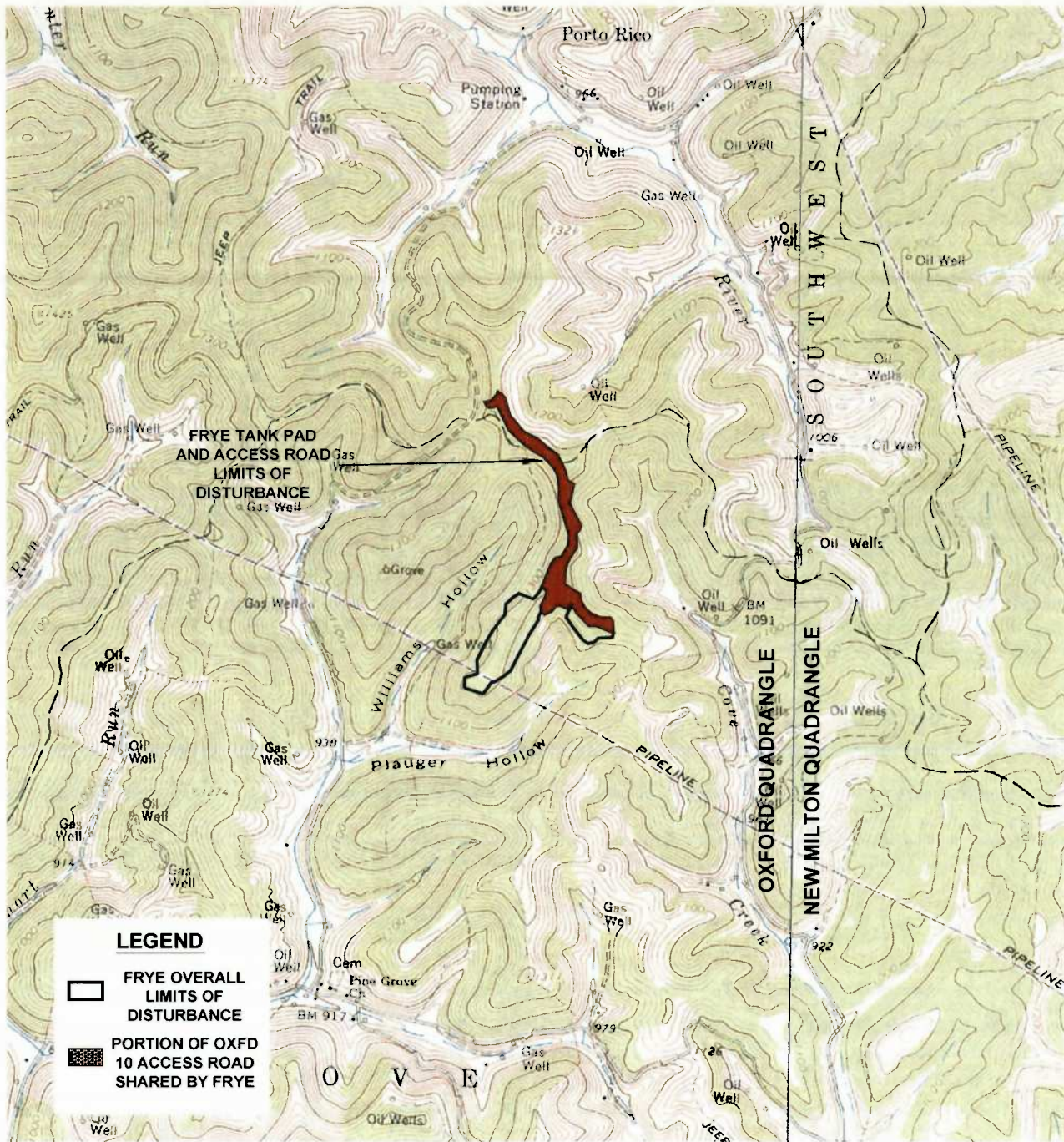


SURVEYORS  
 ENGINEERS  
 ENVIRONMENTAL  
 PROJECT MGMT.

(304) 462-5634  
 WWW.SLSSURVEYS.COM



# FRYE TANK SITE VICINITY MAP



**LEGEND**

FRYE OVERALL LIMITS OF DISTURBANCE

FRYE TANK PAD AND ACCESS ROAD LIMITS OF DISTURBANCE

PORTION OF OXFORD 10 ACCESS ROAD SHARED BY FRYE

**NOTES**  
 OXFORD AND NEW MILTON  
 TOPO QUADS

**SCALE**  
 1 INCH = 2000-FEET



JOB #: 8105  
 DRAWN BY: CMH  
 DATE: 04-28-14  
 SCALE: 1" = 2000'

## FRYE TANK SITE

THIS DOCUMENT WAS PREPARED BY:  
 SMITH LAND SURVEYING, INC.  
 FOR: CNX

**Professional Energy Consultants**  
 A DIVISION OF SMITH LAND SURVEYING, INC.

SURVEYORS  
 ENGINEERS  
 ENVIRONMENTAL  
 PROJECT MGMT.

(304) 462-5634  
 WWW.SLSURVEYS.COM



**PROJECT INFORMATION**

PROJECT NAME: FRYE TANK PAD  
 TAX PARCEL & SURFACE OWNER:  
 TAX MAP/PARCEL 10-2 I L MORRIS SOUTHWEST DISTRICT  
 TOTAL PROPERTY AREA: 6,600.75 ACRES  
 TX MAP/PARCEL 2-1 CNX GAS LLC COVE DISTRICT  
 TOTAL PROPERTY AREA: 169.87 ACRES  
 TAX MAP/PARCEL 1-8 REBECCA SIMPSON ET AL COVE DISTRICT  
 TOTAL PROPERTY AREA: 38.00 ACRES  
 TAX MAP/PARCEL 1-12 RONALD FRYE ET AL COVE DISTRICT  
 TOTAL PROPERTY AREA: 60.00 ACRES  
 TAX MAP/PARCEL 1-13 RONALD FRYE ET AL COVE DISTRICT  
 TOTAL PROPERTY AREA: 80.00 ACRES  
 TAX MAP/PARCEL 1-11 CHRISTOPHER MCKENZIE COVE DISTRICT  
 TOTAL PROPERTY AREA: 78.00 ACRES  
 (ALL PROPERTIES ARE LOCATED IN DODDRIDGE COUNTY)

SITE LOCATION:  
 THE FRYE TANK PAD SITE IS LOCATED ON A RIDGE SOUTH OF CO.  
 RT. 19/11, APPROXIMATELY 7.200 FT SOUTH OF THE CO. RT. 54/1  
 AND CO. RT. 19/11. INTERSECTION.

**LOCATION COORDINATES**

FRYE TANK PAD ENTRANCE  
 LATITUDE: 39.168762 LONGITUDE: -80.764640 (NAD 83)  
 FRYE TANK PAD  
 LATITUDE: 39.159956 LONGITUDE: -80.763234 (NAD 83)

**GENERAL DESCRIPTION**

THE TANK PAD IS BEING CONSTRUCTED TO AID IN THE DEVELOPMENT OF  
 INDIVIDUAL MARCELLUS SHALE GAS WELLS.

**SITE DISTURBANCE COMPUTATIONS**

PAD/CONTAINMENT PAD AREA = 12.9 ± ACRES\*  
 ACCESS ROAD = 17.7 ± ACRES\*\*  
 TOTAL SITE DISTURBANCE = 30.6 ± ACRES  
 \*INCLUDES AREA OF THE TANK PAD & STOCKPILE A  
 \*\*INCLUDES AREA OF THE ACCESS ROADS, AND STOCKPILES B & C

**ENTRANCE PERMIT**

CNX GAS CO. LLC WILL OBTAIN AN ENCROACHMENT PERMIT (FORM MM-109)  
 FROM THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF  
 HIGHWAYS, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.

**MISS UTILITY STATEMENT**

MISS UTILITY OF WEST VIRGINIA WAS NOTIFIED FOR THE LOCATING OF  
 UTILITIES PRIOR TO THIS PROJECT DESIGN; TICKET #1401897642.  
 IN ADDITION, MISS UTILITY WILL BE CONTACTED PRIOR TO START OF THE  
 PROJECT.

**FLOODPLAIN NOTE**

THE PROPOSED LIMITS OF DISTURBANCE FOR THIS PROJECT IS LOCATED IN  
 FEMA FLOOD ZONE X, PER THE FLOOD INSURANCE RATE MAP (FIRM) NUMBER  
 54017C0225C, DATED OCT. 04, 2011.

**ENVIRONMENTAL NOTES**

A WETLAND DELINEATION WAS PERFORMED IN NOVEMBER, 2013 BY ALLSTAR ECOLOGY, LLC TO  
 REVIEW THE SITE FOR WATERS AND WETLANDS THAT ARE MOST LIKELY WITHIN THE REGULATORY  
 PURVIEW OF THE U.S. ARMY CORPS OF ENGINEERS (USACE) AND/OR THE WEST VIRGINIA  
 DEPARTMENT OF ENVIRONMENTAL PROTECTION (WVDEP). THE APRIL 29, 2014 THE REPORT FOR FRYE  
 IMPOUNDMENT WAS PREPARED BY ALLSTAR ECOLOGY, LLC. SUMMARIZES THE RESULTS OF THE FIELD  
 DELINEATION. THE REPORT DOES NOT, IN ANY WAY, REPRESENT A JURISDICTIONAL DETERMINATION OF  
 THE LANDWARD LIMITS OF WATERS AND WETLANDS WHICH MAY BE REGULATED BY THE USACE OR  
 THE WVDEP. IT IS STRONGLY RECOMMENDED THAT THE AFOREMENTIONED AGENCIES BE CONSULTED  
 IN AN EFFORT TO GAIN WRITTEN CONFIRMATION OF THE DELINEATION DESCRIBED BY THIS REPORT  
 PRIOR TO ENGAGING CONSTRUCTION ON THE PROPERTY DESCRIBED HEREIN. THE DEVELOPER SHALL  
 OBTAIN THE APPROPRIATE PERMITS FROM THE FEDERAL AND/OR STATE REGULATORY AGENCIES  
 PRIOR TO ANY PROPOSED IMPACTS TO WATERS OF THE U.S., INCLUDING WETLAND FILLS AND STREAM  
 CROSSINGS.

**GEO TECHNICAL NOTES**

A SUBSURFACE INVESTIGATION OF THE PROPOSED SITE WAS PERFORMED BY TERRACON  
 CONSULTANTS, INC. IN MARCH 2014. THE REPORT PREPARED BY TERRACON  
 CONSULTANTS, INC. DATED APRIL 16, 2014, & REVISED APRIL 23, 2014, REFLECTS THE  
 RESULTS OF THE SUBSURFACE INVESTIGATION. THE INFORMATION AND RECOMMENDATIONS  
 CONTAINED IN THIS REPORT WAS USED IN THE PREPARATION OF THESE PLANS. PLEASE  
 REFER TO THE SUBSURFACE INVESTIGATION REPORT BY TERRACON CONSULTANTS, INC.  
 FOR ADDITIONAL INFORMATION, AS NEEDED.

# FRYE TANK PAD SITE PLAN CNX GAS COMPANY, LLC

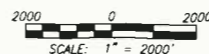
SITUATE ON THE WATERS OF TRIBUTARIES OF S FORK OF HUGHES RIVER  
 IN SOUTHWEST DISTRICT, DODDRIDGE COUNTY, WV.



GRID NORTH AND ELEVATIONS  
 SHOWN HEREON WERE  
 ESTABLISHED BY SURVEY  
 GRADE GPS

OXFORD QUAD

NEW MILTON QUAD



MISS Utility of West Virginia  
 1-800-245-4848  
 West Virginia State Law  
 (Section XIV: Chapter 24-C)  
 Requires that you call two  
 business days before you dig in  
 the state of West Virginia.  
 IT'S THE LAW!!

**LIST OF DRAWINGS**

- 01 COVER SHEET
- 02 NOTES
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EX INTERMEDIATE CONTOUR	PROF INTERMEDIATE CONTOUR
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EX ROAD EDGE OF GRAVEL/DIRT	PROF LIMITS OF DISTURBANCE
EX ROAD EDGE OF PAVEMENT	PROF WELL PAD
EX ROAD CENTERLINE	PROF WELL HEAD
EX DITCHLINE	PROF 4" PVC DRAIN PIPE
EX CULVERT	PROF SUMP DRAIN
EX GUARDRAIL	PROF CONTAINMENT BERM
EX FENCELINE	PROF PIT/IMPONDMENT CL
EX GATE	PROF PERIMETER SAFETY FENCE
EX OVERHEAD UTILITY	PROF ACCESS GATE WITH EMERGENCY LIFELINE
EX OVERHEAD UTILITY R/W	
EX POWER POLE	
EX GUY WIRE	
EX TELEPHONE LINE	
EX GASLINE	
EX GASLINE R/W	PROF ROCK CONSTRUCTION ENTRANCE
EX WATERLINE	
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EX REFERENCE TREE	PROF ROAD CENTERLINE
EX DELINEATED STREAM	PROF V-DITCH W/ CHECK DAMS
EX DELINEATED WETLAND/POND	PROF DITCH RELIEF CULVERT (DRC)
EX BUILDING	PROF RIP-RAP OUTLET PROTECTION
EX BRIDGE	PROF GUARDRAIL
100' WETLAND/STREAM BUFFER	PROF EARTHEN DIVERSION BERM
EX BORING LOCATION	PROF ORANGE SAFETY FENCE
	PROF COMPOST FILTER SOCK
	SECTION LINE
	MATCHLINE
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	X-SECTION GRID INTERMEDIATE
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	X-SECTION EXISTING GRADE
	X-SECTION WATER SURFACE
	SPOT ELEVATION

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THIS DOCUMENT WAS  
 PREPARED BY:  
 NAVITUS ENGINEERING  
 INC.  
 FOR: CNX GAS  
 COMPANY, LLC

COVER SHEET  
**FRYE TANK PAD**  
 SOUTHWEST DISTRICT  
 DODDRIDGE COUNTY, WV

DATE: 04/30/2014

SCALE: AS NOTED

DESIGNED BY: CSK

FILE NO. 8105

SHEET 01 OF 24

**OPERATOR**

CNX GAS COMPANY, LLC  
 OPERATOR ID: 494458046  
 P.O. BOX 1248  
 JANE LEW, WV 26378  
 PHONE: (304) 889-2009

**ENGINEER**

NAVITUS ENGINEERING, INC.  
 151 WINDY HILL LANE  
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**SURVEYOR**

SMITH LAND SURVEYING, INC.  
 12 VANHORN DRIVE  
 P.O. BOX 150  
 GLENVILLE, WV 26351  
 PHONE: (304) 462-5634



### CONSTRUCTION NOTES:

1. THE CONTRACTOR IS TO VERIFY FIELD CONDITIONS PRIOR TO AND DURING CONSTRUCTION AND WILL NOTIFY NAVITUS ENGINEERING AT (888) 662-4185 OR SMITH LAND SURVEYING AT (304) 462-5634 IMMEDIATELY OF ANY DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND THE APPROVED PLAN. ANY WORK PERFORMED BY THE CONTRACTOR AFTER THE FINDING OF SUCH DISCREPANCIES, SHALL BE DONE AT THE CONTRACTOR'S RISK.
2. METHODS AND MATERIALS USED IN THE CONSTRUCTION OF THE IMPROVEMENTS HEREIN SHALL CONFORM TO THE CURRENT COUNTY CONSTRUCTION STANDARDS AND SPECIFICATIONS AND/OR CURRENT WVDEP EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL STANDARDS AND SPECIFICATIONS. SHOULD A CONFLICT BETWEEN THE DESIGN, SPECIFICATIONS, AND PLANS OCCUR, THE MOST STRINGENT REQUIREMENT WILL APPLY. THE APPROVAL OF THESE PLANS IN NO WAY RELIEVES THE DEVELOPER OR HIS AGENT OF THE RESPONSIBILITIES CONTAINED IN THE WVDEP EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL.
3. AN APPROVED SET OF PLANS AND ALL APPLICABLE PERMITS MUST BE AVAILABLE AT THE CONSTRUCTION SITE. ALSO, A REPRESENTATIVE OF THE DEVELOPER MUST BE AVAILABLE AT ALL TIMES.
4. THE CONTRACTOR SHALL PROVIDE ADEQUATE MEANS OF CLEANING MUD FROM TRUCKS AND/OR OTHER EQUIPMENT PRIOR TO ENTERING PUBLIC STREETS, AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO CLEAN STREETS, ALLAY DUST, AND TO TAKE WHATEVER MEASURES ARE NECESSARY TO INSURE THAT THE STREETS ARE MAINTAINED IN A CLEAN, MUD AND DUST FREE CONDITION AT ALL TIMES.
5. THE LOCATION OF EXISTING UTILITIES SHOWN IN THESE PLANS ARE FROM FIELD LOCATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES AS NEEDED PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL INFORM THE ENGINEER OF ANY CONFLICTS ARISING FROM HIS EXISTING UTILITY VERIFICATION AND THE PROPOSED CONSTRUCTION.
6. THE CONTRACTOR SHALL PROVIDE NOTIFICATION TO THE APPROPRIATE UTILITY COMPANY PRIOR TO CONSTRUCTION OF WATER AND/OR GAS PIPE LINES. INFORMATION SHOULD ALSO BE OBTAINED FROM THE APPROPRIATE AUTHORITY CONCERNING PERMITS, CUT SHEETS, AND CONNECTIONS TO EXISTING LINES.
7. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REPAIR OF ANY DAMAGES TO THE EXISTING STREETS AND UTILITIES WHICH OCCURS AS A RESULT OF HIS CONSTRUCTION PROJECT WITHIN OR CONTIGUOUS TO THE EXISTING RIGHT-OF-WAY.
8. WHEN GRADING IS PROPOSED WITHIN EASEMENTS OF UTILITIES, LETTERS OF PERMISSION FROM ALL INVOLVED COMPANIES MUST BE OBTAINED PRIOR TO GRADING AND/OR SITE DEVELOPMENT.
9. THE DEVELOPER WILL BE RESPONSIBLE FOR THE RELOCATION OF ANY UTILITIES WHICH IS REQUIRED AS A RESULT OF HIS PROJECT. THE RELOCATION SHOULD BE DONE PRIOR TO CONSTRUCTION.
10. THESE PLANS IDENTIFY THE LOCATION OF ALL KNOWN GRAVESITES. GRAVESITES SHOWN ON THIS PLAN WILL BE PROTECTED IN ACCORDANCE WITH STATE LAW. IN THE EVENT GRAVESITES ARE DISCOVERED DURING CONSTRUCTION, THE OWNER AND ENGINEER MUST BE NOTIFIED IMMEDIATELY.
11. THE CONTRACTOR(S) SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATING OR BLASTING AT LEAST TWO (2) WORKING DAYS, BUT NOT MORE THAN TEN (10) WORKING DAYS, PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION.
12. CONTRACTOR TO CONTACT OPERATOR AND ENGINEER IF GROUNDWATER IS ENCOUNTERED DURING CONSTRUCTION.
13. THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE EROSION AND SEDIMENT CONTROL INSPECTOR, 2 DAYS PRIOR TO THE START OF CONSTRUCTION.
14. THE CONTRACTOR IS RESPONSIBLE FOR ALL FILL MATERIAL TESTING REQUIRED DURING THE CONSTRUCTION OF THIS PROJECT. ALL MATERIAL TEST SHALL BE CONDUCTED BY A CERTIFIED MATERIALS TESTING LABORATORY AND A CERTIFICATION OF THE MATERIALS TESTED SHALL BE PROVIDED BY A LICENSED PROFESSIONAL ENGINEER REPRESENTING THE LABORATORY. ALL TEST RESULTS SHALL BE SUBMITTED TO THE ENGINEER CERTIFYING THE CONSTRUCTED FACILITY. FAILURE TO CONDUCT THE DENSITY TEST SHALL BE CAUSE FOR NON-ACCEPTANCE OF THE CONSTRUCTED FACILITY.
15. THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING THE SITE IN ACCORDANCE WITH THE DESIGN PLANS AND CONSTRUCTION DOCUMENTS AND THE SCOPE OF WORK SHALL CONFORM WITH THE GRADES, BERMS, DEPTHS, DIMENSIONS, ETC. SHOWN HEREON.

### CONSTRUCTION SEQUENCE

- THE DEVELOPMENT OF THIS SITE SHALL BE CONSISTENT WITH THE FOLLOWING GENERAL SEQUENCE OF CONSTRUCTION. THE CONTRACTOR SHALL IMPLEMENT, MAINTAIN, AND OPERATE ALL PROPOSED EROSION AND SEDIMENT CONTROL MEASURES TO EFFECTIVELY MITIGATE THE HAZARD OF ACCELERATED EROSION AND SEDIMENTATION TO ACCEPTABLE LEVELS. MINOR DEVIATIONS FROM THIS SEQUENCE SHALL BE EXECUTED BY THE PROJECT'S SUPERINTENDENT AS NEEDED TO ELIMINATE ANY POTENTIAL EROSION CONDITION THAT MAY ARISE FOR THE DURATION OF THE PROJECT. THE WVDEP OFFICE OF OIL AND GAS SHALL BE NOTIFIED OF ANY AND ALL SUCH DEVIATIONS FROM THE APPROVED PLANS.
- 1) A PRE-CONSTRUCTION CONFERENCE WITH THE CONTRACTOR AND THE APPROPRIATE EROSION AND SEDIMENT CONTROL INSPECTOR 48 HOURS PRIOR TO BEGINNING WORK TO REVIEW THE CONSTRUCTION DRAWINGS AND PROVIDE ANY REQUESTED GUIDANCE
  - 2) STAKE THE LIMITS OF CONSTRUCTION.
  - 3) INSTALL THE ROCK CONSTRUCTION ENTRANCE AS SHOWN ON THE PLANS.
  - 4) INSTALL ALL ORANGE SAFETY FENCE AS SHOWN AROUND ANY DELINEATED STREAMS AND WETLANDS TO CLEARLY IDENTIFY THOSE AREAS THAT ARE NOT TO BE DISTURBED.
  - 5) INSTALL ALL BMP'S (COMPOST FILTER SOCKS, SEDIMENT TRAPS, ETC) AS SHOWN ON THE PLANS AND DETAILS. THE SEDIMENT TRAPS SHOWN ON THIS PLAN WILL FUNCTION AS A PLUNGE POOL TO REDUCE THE VELOCITIES ON THE PROPOSED DITCHES DRAINING INTO THEM. THE RUNOFF DRAINING TO THESE FACILITIES WILL BE SEDIMENT FREE.
  - 6) CLEAR AND GRUB THE ACCESS ROAD AND PAD AREA. ALL WOODY MATERIAL, BRUSH, TREES, STUMPS, LARGE ROOTS, BOULDERS, AND DEBRIS SHALL BE CLEARED FROM THE SITE AREA AND KEPT TO THE MINIMUM NECESSARY FOR PROPER CONSTRUCTION, INCLUDING THE INSTALLATION OF NECESSARY SEDIMENT CONTROLS. TREES SIX INCHES IN DIAMETER AND LARGER SHALL BE CUT AND LOGS STACKED. SMALLER TREES, BRUSH, & STUMPS SHALL BE CUT AND OR GRUBBED AND WINDROWED IN APPROPRIATE AREAS FOR USE AS SEDIMENT BARRIERS AT WATER DRAINAGE OUTLETS, WINDROWED BELOW THE WELL SITE, USED FOR WILDLIFE HABITAT, BURNED (AS PER WV FOREST FIRE LAWS), REMOVED FROM SITE, OR DISPOSED OF BY OTHER METHODS APPROVED BY DEP.
  - 7) CONSTRUCT THE ACCESS ROAD. DITCH RELIEF CULVERTS SHALL BE INSTALLED AT A GRADE OF 1-8% TO MINIMIZE OUTLET VELOCITIES TO THE EXTENT POSSIBLE. INSTALL OUTLET PROTECTION AS SHOWN ON PLANS. STABILIZE THE ROAD WITH GEOTEXTILE FABRIC & STONE AND SIDE SLOPES AS SPECIFIED WITH PERMANENT SEEDING. STOCKPILE AND STABILIZE EXCESS MATERIAL ALONG THE ACCESS ROAD, AS NEEDED.
  - 8) STRIP THE TOPSOIL FROM THE PAD AREA. ALL STRIPPED TOPSOIL SHALL BE STOCKPILED IN AREAS SHOWN IN THE PLANS AND IMMEDIATELY STABILIZED. ADDITIONAL BMP MEASURE SHALL BE CONSTRUCTED AROUND TOPSOIL STOCKPILES, IF NECESSARY.
  - 9) ALL DITCH LINES SHALL BE CLEANED PRIOR TO INSTALLATION OF LINED PROTECTION. ALL DITCHES SHALL HAVE ROCK AND GEOTEXTILE FABRIC LINING. INSTALL OUTLET PROTECTION ONCE DITCH RELIEF CULVERTS ARE INSTALLED, AS SHOWN ON THIS PLAN.
  - 10) GRADE THE PAD AREA AS SHOWN ON THE PLANS. IMMEDIATELY STABILIZE THE OUTER AREAS OF THE WELL PAD. THE WELL PAD AND TURNAROUND AREA(S) SHALL BE STABILIZED WITH GEOTEXTILE FABRIC & STONE AND THE SIDE SLOPES WITH COCONUT EROSION CONTROL BLANKETS ON ALL SLOPES. APPLY SEED AND MULCH TO ALL DISTURBED AREAS. THIS SHALL INCLUDE ALL AREAS THAT WILL NOT BE SUBJECT TO REGULAR TRAFFIC ACTIVITY (TO BE STABILIZED WITH STONE), OR ANY DISTURBED AREA THAT WILL NOT BE RE-DISTURBED BEFORE SITE RECLAMATION BEGINS.
  - 11) PREVIOUSLY DISTURBED AREAS AND IMMEDIATE DOWN SLOPE AREAS SHALL BE INSPECTED AFTER EACH RAINFALL STORM EVENT AND MONITORED WEEKLY FOR SIGNS OF ACCELERATED EROSION. IMPLEMENT ADDITIONAL BMP'S AS DEEMED NECESSARY. THESE INSPECTIONS SHALL CONTINUE DURING THE DURATION OF THE PROJECT AND SUBSEQUENT SITE RECLAMATION.
  - 12) COMMENCE THE DRILLING ACTIVITY.
  - 13) ONCE DISTURBED AREAS HAVE BEEN RE-VEGETATED AND STABILIZED FOLLOWING RECLAMATION, THE TEMPORARY BMP'S IN THOSE AREAS MAY BE REMOVED. CONTINUE TO MONITOR THESE AREAS TO ENSURE A UNIFORM RATE OF 70% VEGETATIVE COVERAGE IS MAINTAINED. ANY AREAS FOUND TO BE DEFICIENT SHALL BE RE-SEEDDED AND MULCHED.

### SITE CLEANUP & RECYCLE PROGRAM

1. GARBAGE, FUELS OR ANY SUBSTANCE HARMFUL TO HUMAN, AQUATIC OR FISH LIFE, WILL BE PREVENTED FROM ENTERING SPRINGS, STREAMS, PONDS, LAKES, WETLANDS OR ANY WATER COURSE OR WATER BODY.
2. OILS, FUELS, LUBRICANTS AND COOLANTS WILL BE PLACED IN SUITABLE CONTAINERS AND DISPOSED PROPERLY.
3. ALL TRASH AND GARBAGE WILL BE COLLECTED AND DISPOSED PROPERLY.
4. ALL SEDIMENT REMOVED FROM SEDIMENT CAPTURING DEVICES SHALL BE PLACED ON THE TOPSOIL STOCKPILE, THEN SEEDDED AND MULCHED, AS NECESSARY. ALTERNATIVELY, THE REMOVED SEDIMENT CAN BE TRANSPORTED TO A SITE WITH AN APPROVED PERMIT.

### MAINTENANCE PROGRAM

1. BMP'S WILL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH MEASURABLE RAINFALL EVENT DURING THE ACTIVE CONSTRUCTION PHASE OF THE PROJECT.
2. ALL REVEGETATED ACCESS ROADS AND FACILITIES ARE TO BE MAINTAINED THROUGHOUT THE LIFE OF EACH STRUCTURE.
3. CULVERTS, ROAD DITCHES, BROAD-BASED DIPS, DIVERSION DITCHES, AND ROCK CHECK DAMS MUST BE MAINTAINED IN PROPER WORKING ORDER AND WILL BE CLEANED OUT, REPAIRED, OR REPLACED AS NECESSARY.
4. FILTER STRIPS AND/OR SILT FENCE WILL BE MAINTAINED.
5. ALL AREAS OF EARTH DISTURBANCE WILL BE REPAIRED WHERE SIGNS OF ACCELERATED EROSION ARE DETECTED.
6. SEEDING AND MULCHING WILL BE REPEATED IN THOSE AREAS THAT APPEAR TO BE FAILING OR HAVE FAILED.

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THIS DOCUMENT WAS  
PREPARED BY:  
NAVITUS ENGINEERING  
INC.  
FOR: CNX GAS  
COMPANY, LLC

NOTES  
**FRYE TANK PAD**  
SOUTHWEST DISTRICT  
DODDRIDGE COUNTY, WV

DATE: 04/30/2014

SCALE: N/A

DESIGNED BY: CSK

FILE NO. 8105

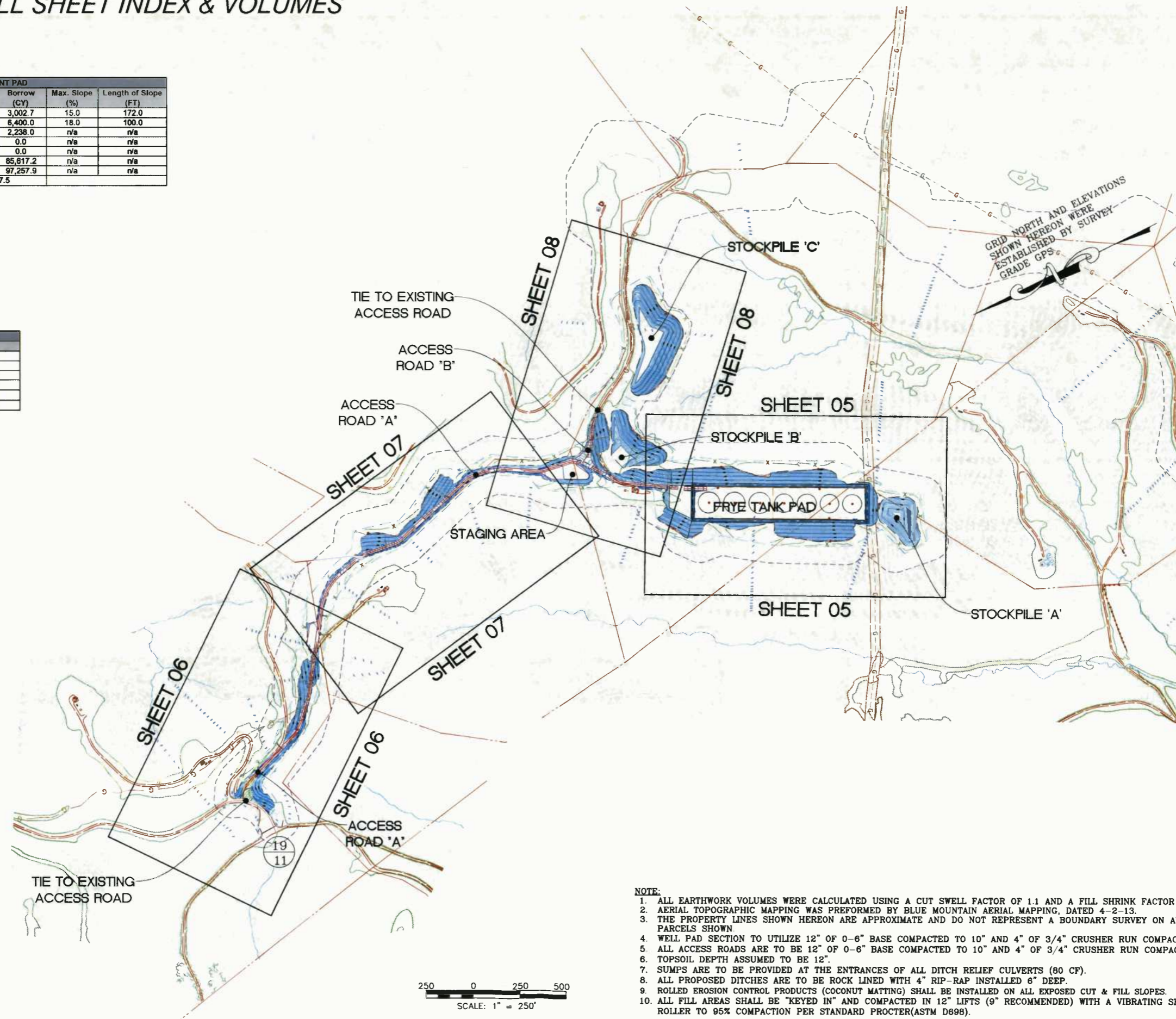
SHEET 02 OF 24

# OVERALL SHEET INDEX & VOLUMES

FRYE WATER CONTAINMENT PAD						
Description	Cut (CY)	Fill (CY)	Spoil (CY)	Borrow (CY)	Max. Slope (%)	Length of Slope (FT)
Access Road "A"	18,061.8	21,084.3	0.0	3,002.7	15.0	172.0
Access Road "B"	0.9	8,400.9	0.0	8,400.0	18.0	100.0
Truck Turnaround Pad	6,250.1	8,488.1	0.0	2,238.0	n/a	n/a
Water Containment Pad	111,871.0	38,293.9	73,577.1	0.0	n/a	n/a
Stripped Topsoil (12")	23,283.3	0.0	23,283.3	0.0	n/a	n/a
Material Stockpiles	0.0	85,817.2	0.0	85,817.2	n/a	n/a
Totals	159,486.9	159,884.4	96,860.4	97,257.9	n/a	n/a
Total Spoil (CY) =			-397.5			

MATERIAL STOCKPILES		
Name	Excess	Topsoil
3" Topsoil Respread	N/A	3,320
A	0	12,613
B	16,684	4,858
C	44,269	3,874
TOTAL	60,953	24,665

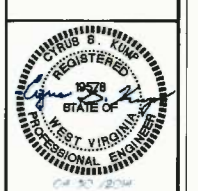
FRYE LIMITS OF DISTURBANCE AREA (AC)	
Total Site	
Access Road "A"	9.79
Access Road "B"	2.87
Water Containment Pad	11.22
Excess/Topsoil Material Stockpiles	5.98
<b>Total Affected Area</b>	<b>29.86</b>
Total Wooded Acres Disturbed	27.58



- NOTE:**
1. ALL EARTHWORK VOLUMES WERE CALCULATED USING A CUT SWELL FACTOR OF 1.1 AND A FILL SHRINK FACTOR OF 1.0.
  2. AERIAL TOPOGRAPHIC MAPPING WAS PERFORMED BY BLUE MOUNTAIN AERIAL MAPPING, DATED 4-2-13.
  3. THE PROPERTY LINES SHOWN HEREON ARE APPROXIMATE AND DO NOT REPRESENT A BOUNDARY SURVEY ON ANY OF THE PARCELS SHOWN.
  4. WELL PAD SECTION TO UTILIZE 12" OF 0-6" BASE COMPACTED TO 10" AND 4" OF 3/4" CRUSHER RUN COMPACTED TO 2".
  5. ALL ACCESS ROADS ARE TO BE 12" OF 0-6" BASE COMPACTED TO 10" AND 4" OF 3/4" CRUSHER RUN COMPACTED TO 2".
  6. TOPSOIL DEPTH ASSUMED TO BE 12".
  7. SUMPS ARE TO BE PROVIDED AT THE ENTRANCES OF ALL DITCH RELIEF CULVERTS (80 CF).
  8. ALL PROPOSED DITCHES ARE TO BE ROCK LINED WITH 4" RIP-RAP INSTALLED 6" DEEP.
  9. ROLLED EROSION CONTROL PRODUCTS (COCONUT MATTING) SHALL BE INSTALLED ON ALL EXPOSED CUT & FILL SLOPES.
  10. ALL FILL AREAS SHALL BE "KEYED IN" AND COMPACTED IN 12" LIFTS (9" RECOMMENDED) WITH A VIBRATING SHEEPSFOOT ROLLER TO 95% COMPACTION PER STANDARD PROCTER (ASTM D698).

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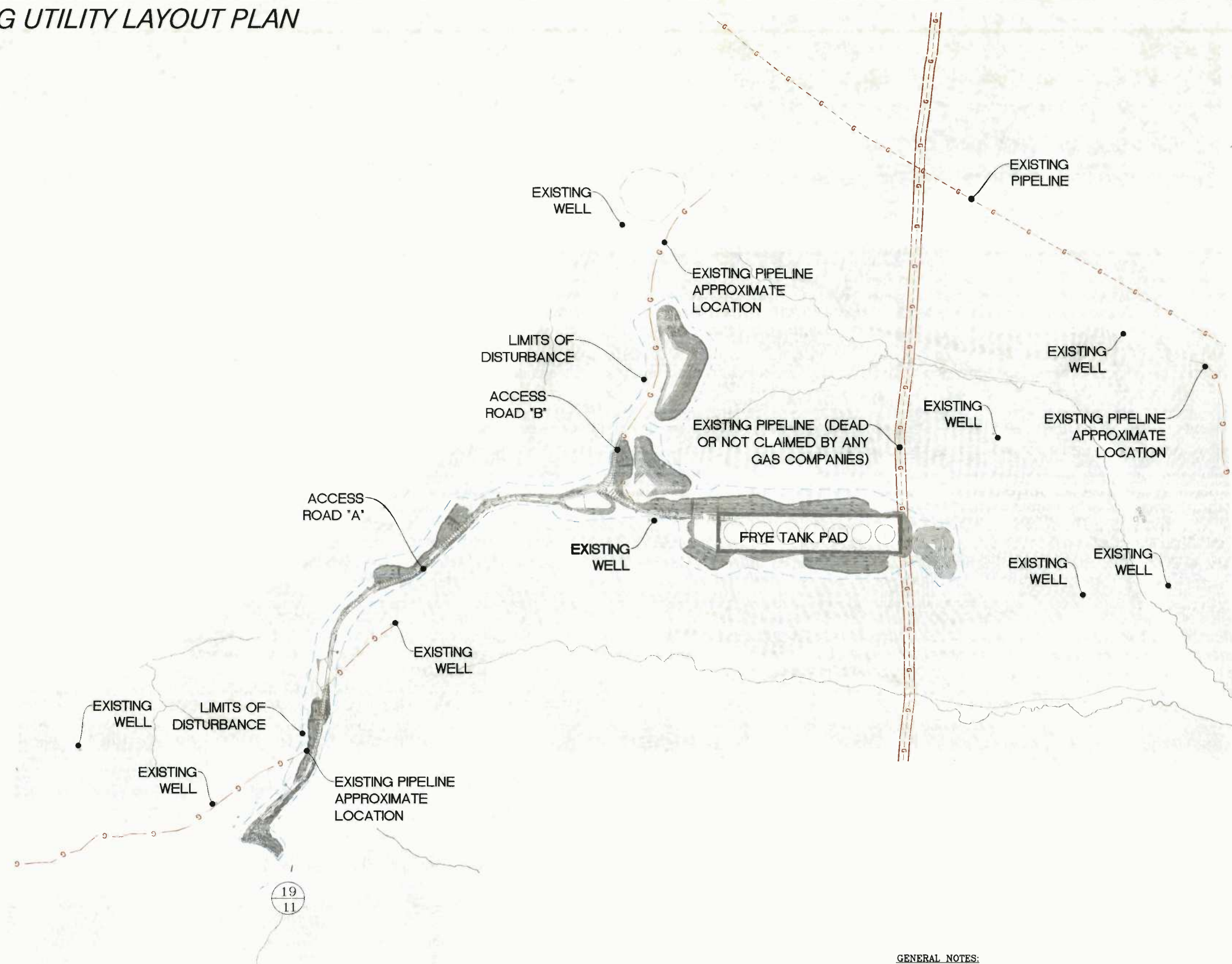
THIS DOCUMENT WAS PREPARED BY:  
NAVITUS ENGINEERING INC.  
FOR: CNX GAS COMPANY, LLC

OVERALL SHEET INDEX & VOLUMES  
**FRYE TANK PAD**  
SOUTHWEST DISTRICT  
DODDRIDGE COUNTY, WV

DATE: 04/30/2014  
SCALE: 1"=250'  
DESIGNED BY: CKS  
FILE NO. 8105  
SHEET 03 OF 24

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# EXISTING UTILITY LAYOUT PLAN



GRID NORTH AND ELEVATIONS  
SHOWN HEREON WERE  
ESTABLISHED BY SURVEY  
GRADE GPS

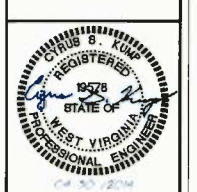
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SCALE: 1" = 250'

**GENERAL NOTES:**

1. THE UTILITIES AND THEIR LOCATIONS AS SHOWN HEREON ARE BASED ON: A) OBSERVABLE EVIDENCE OF THOSE VISIBLE, ABOVE-GROUND FACILITIES, FEATURES, AND MARKERS WHICH WERE FOUND ON THE SUBJECT PROPERTY AT THE TIME OF SURVEY PERFORMED BY SLS, INC. AND B) FIELD MARKINGS PLACED BY UTILITY COMPANIES IN RESPONSE TO THE WV 811 TICKET SUBMITTED BY SLS, INC. SLS, INC. NOR NAVITUS ENGINEERING CANNOT GUARANTEE THE ACCURACY OF THE UTILITY MARKINGS PERFORMED BY OTHERS OR THAT ALL UTILITIES EXISTING WITHIN THE LIMITS OF THIS PLAN ARE SHOWN. ANY UTILITIES ENCOUNTERED SUBSEQUENT TO PLAN APPROVAL OR DURING CONSTRUCTION THAT ARE NOT SHOWN ON THE PLAN SHOULD BE REPORTED TO SLS, INC., NAVITUS ENGINEERING AND/OR CNX GAS COMPANY, LLC.

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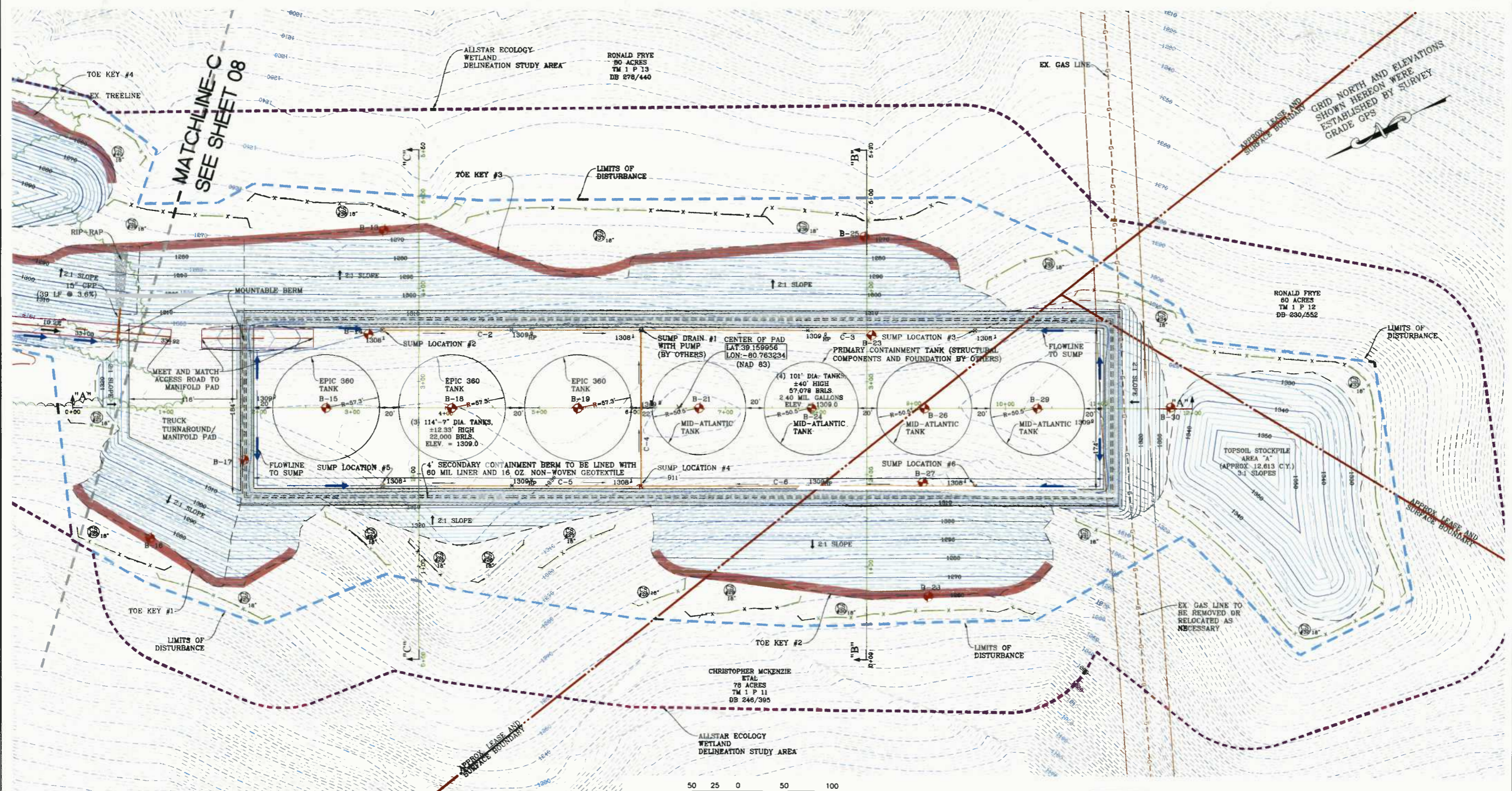
THIS DOCUMENT WAS  
PREPARED BY:  
NAVITUS ENGINEERING  
INC.  
FOR: CNX GAS  
COMPANY, LLC

EXISTING UTILITY LAYOUT PLAN  
**FRYE TANK PAD**  
SOUTHWEST DISTRICT  
DODDRIDGE COUNTY, WV

DATE: 04/30/2014  
SCALE: 1"=250'  
DESIGNED BY: CSK  
FILE NO. 8106  
SHEET 04 OF 24

# TANK PAD DETAILS

**LEGEND**  
 TOE BENCH



- NOTE:**
1. ALL EARTHWORK VOLUMES WERE CALCULATED USING A CUT SWELL FACTOR OF 1.1 AND A FILL SHRINK FACTOR OF 1.0.
  2. AERIAL TOPOGRAPHIC MAPPING WAS PERFORMED BY BLUE MOUNTAIN AERIAL MAPPING, DATED 4-2-13.
  3. THE PROPERTY LINES SHOWN HEREON ARE APPROXIMATE AND DO NOT REPRESENT A BOUNDARY SURVEY ON ANY OF THE PARCELS SHOWN.
  4. WELL PAD SECTION TO UTILIZE 12" OF 0-6" BASE COMPACTED TO 10" AND 4" OF 3/4" CRUSHER RUN COMPACTED TO 2".
  5. ALL ACCESS ROADS ARE TO BE 12" OF 0-6" BASE COMPACTED TO 10" AND 4" OF 3/4" CRUSHER RUN COMPACTED TO 2".
  6. TOPSOIL DEPTH ASSUMED TO BE 12".
  7. SUMPS ARE TO BE PROVIDED AT THE ENTRANCES OF ALL DITCH RELIEF CULVERTS (60 CF).
  8. ALL PROPOSED DITCHES ARE TO BE ROCK LINED WITH 4" RIP-RAP INSTALLED 6" DEEP.
  9. ROLLED EROSION CONTROL PRODUCTS (COCONUT MATTING) SHALL BE INSTALLED ON ALL EXPOSED CUT & FILL SLOPES.
  10. ALL FILL AREAS SHALL BE "KEYED IN" AND COMPACTED IN 12" LIFTS (9" RECOMMENDED) WITH A VIBRATING SHEEPSFOOT ROLLER TO 95% COMPACTION PER STANDARD PROCTER (ASTM D698).

- NOTE:**
1. SPOT ELEVATIONS SHOWN ARE AT FINISHED GRADE. SUMP RIMS ARE SET AT SUBGRADE ELEVATIONS IE. 1' BELOW FINISHED GRADE.
  2. 6 SUMP DRAINS ARE LOCATED WITHIN CONTAINED TANK AREA TO COLLECT ANY AND ALL FLUIDS WHICH WILL THEN DRAIN TO SUMP #1 WHERE A PUMP (DESIGNED BY OTHERS) WILL BE INSTALLED TO PUMP FLUIDS INTO THE TANKS.
  3. THE STRUCTURAL COMPONENTS AND FOUNDATIONS SHALL BE PROVIDED BY THE TANK MANUFACTURERS AND SHALL BE INSTALLED PER THE TANK MANUFACTURER SPECIFICATIONS AND THE RECOMMENDATIONS IN THE GEOTECH REPORT PREPARED BY TERRACON CONSULTANTS, INC.

TOE KEY AND BONDING BENCH QUANTITIES										
Description	Toe key #1	Toe key #2	Toe key #3	Toe key #4	Toe key #5	Toe key #6	Toe key #7	Toe key #8	Bonding Bench	Total
Toe Bench										
Approximate Depth (LF)	10	10	10	10	10	10	10	10	10	N/A
Approximate Width (LF)	10	10	10	10	10	10	10	10	10	N/A
Length (LF)	280	444	1,142	357	803	220	626	411	9,846	14,132
Toe Bench Perimeter Drain (LF)	280	444	1,142	357	803	220	626	411	9,846	14,132
AASHTO #57 Gravel (TONS)	42	67	173	54	122	33	95	62	1,494	2,143
6 oz Non-woven Geotextile (SF)	1,803	2,859	7,354	2,299	5,171	1,417	4,031	2,647	63,428	91,010
Overexcavation (Toe Key) (CY)	3,249	5,151	13,249	4,142	9,316	2,552	7,263	4,768	114,267	163,957
Outlet Drain										
Average Length of Outlet Drain Pipe (LF)	45	45	45	80	50	60	45	45	55	N/A
Toe Bench Outlet Drain Pipe (LF)	135	225	540	320	450	180	315	225	2,200	4,590
6 oz Non-woven Geotextile (SF)	945	1,575	3,780	2,240	3,150	1,260	2,205	1,575	15,400	32,130
AASHTO #57 Gravel (TONS)	15	25	60	36	50	20	35	25	244	510
Rip-Rap Outlet Protection (TONS)	3	5	12	4	9	3	7	5	40	88

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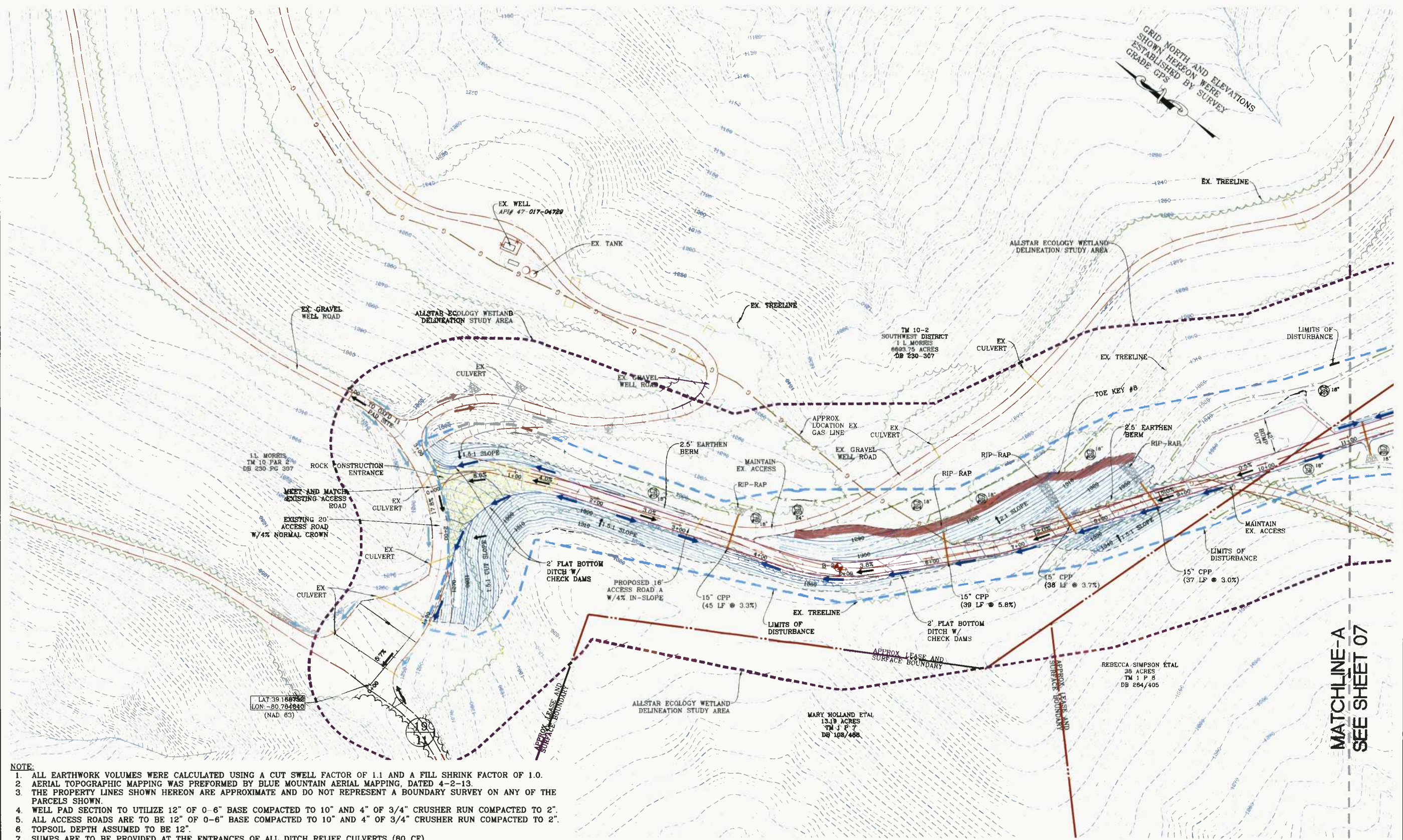
TANK PAD DETAILS  
**FRYE TANK PAD**  
 SOUTHWEST DISTRICT  
 DODDRIDGE COUNTY, WV

DATE: 04/30/2014  
 SCALE: 1" = 50'  
 DESIGNED BY: CSK  
 FILE NO. 8105  
 SHEET 05 OF 24

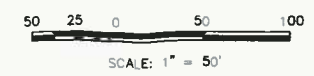
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# ACCESS ROAD DETAILS

**LEGEND**  
 **TOE BENCH**



- NOTE:**
1. ALL EARTHWORK VOLUMES WERE CALCULATED USING A CUT SWELL FACTOR OF 1.1 AND A FILL SHRINK FACTOR OF 1.0.
  2. AERIAL TOPOGRAPHIC MAPPING WAS PERFORMED BY BLUE MOUNTAIN AERIAL MAPPING, DATED 4-2-13.
  3. THE PROPERTY LINES SHOWN HEREON ARE APPROXIMATE AND DO NOT REPRESENT A BOUNDARY SURVEY ON ANY OF THE PARCELS SHOWN.
  4. WELL PAD SECTION TO UTILIZE 12" OF 0-6" BASE COMPACTED TO 10" AND 4" OF 3/4" CRUSHER RUN COMPACTED TO 2".
  5. ALL ACCESS ROADS ARE TO BE 12" OF 0-6" BASE COMPACTED TO 10" AND 4" OF 3/4" CRUSHER RUN COMPACTED TO 2".
  6. TOPSOIL DEPTH ASSUMED TO BE 12".
  7. SUMPS ARE TO BE PROVIDED AT THE ENTRANCES OF ALL DITCH RELIEF CULVERTS (80 CF).
  8. ALL PROPOSED DITCHES ARE TO BE ROCK LINED WITH 4" RIP-RAP INSTALLED 6" DEEP.
  9. ROLLED EROSION CONTROL PRODUCTS (COCONUT MATTING) SHALL BE INSTALLED ON ALL EXPOSED CUT & FILL SLOPES.
  10. ALL FILL AREAS SHALL BE "KEYED IN" AND COMPACTED IN 12" LIFTS (9" RECOMMENDED) WITH A VIBRATING SHEEPSFOOT ROLLER TO 95% COMPACTION PER STANDARD PROCTER (ASTM D698).



**MATCHLINE-A**  
**SEE SHEET 07**

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 PROFESSIONAL ENGINEER  
 19578

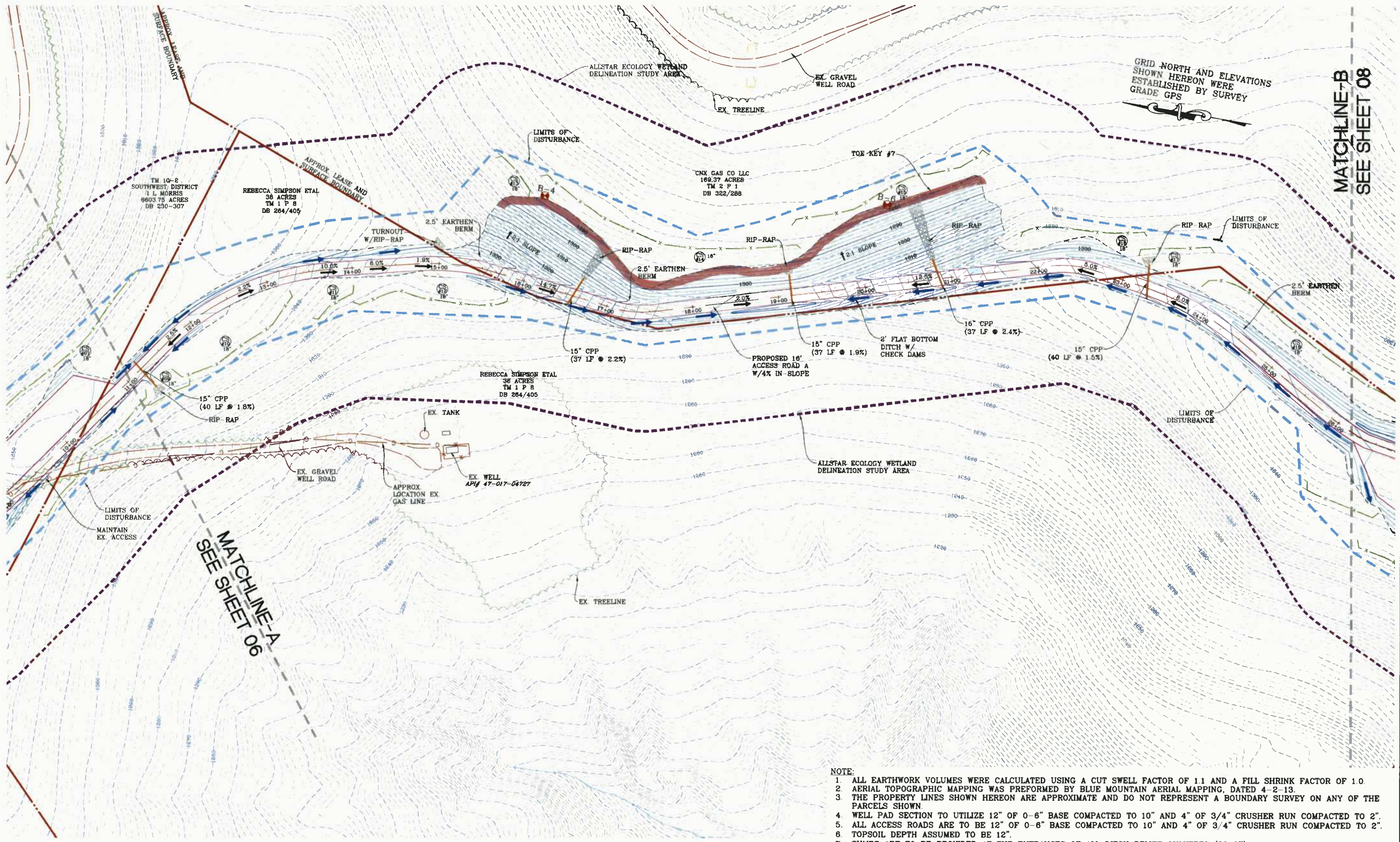
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**ACCESS ROAD DETAILS**  
**FRYE TANK PAD**  
 SOUTHWEST DISTRICT  
 DODDRIDGE COUNTY, WV

DATE 04/30/2014  
 SCALE 1" = 50'  
 DESIGNED BY: CSK  
 FILE NO. 8105  
 SHEET 06 OF 24

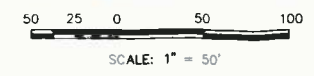
# ACCESS ROAD DETAILS

**LEGEND**  
 **TOE BENCH**



MATCHLINE-A  
SEE SHEET 06

MATCHLINE-B  
SEE SHEET 08



- NOTE:**
1. ALL EARTHWORK VOLUMES WERE CALCULATED USING A CUT SWELL FACTOR OF 1.1 AND A FILL SHRINK FACTOR OF 1.0.
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  10. ALL FILL AREAS SHALL BE "KEYED IN" AND COMPACTED IN 12" LIFTS (9" RECOMMENDED) WITH A VIBRATING SHEEPSFOOT ROLLER TO 95% COMPACTION PER STANDARD PROCTER (ASTM D698).

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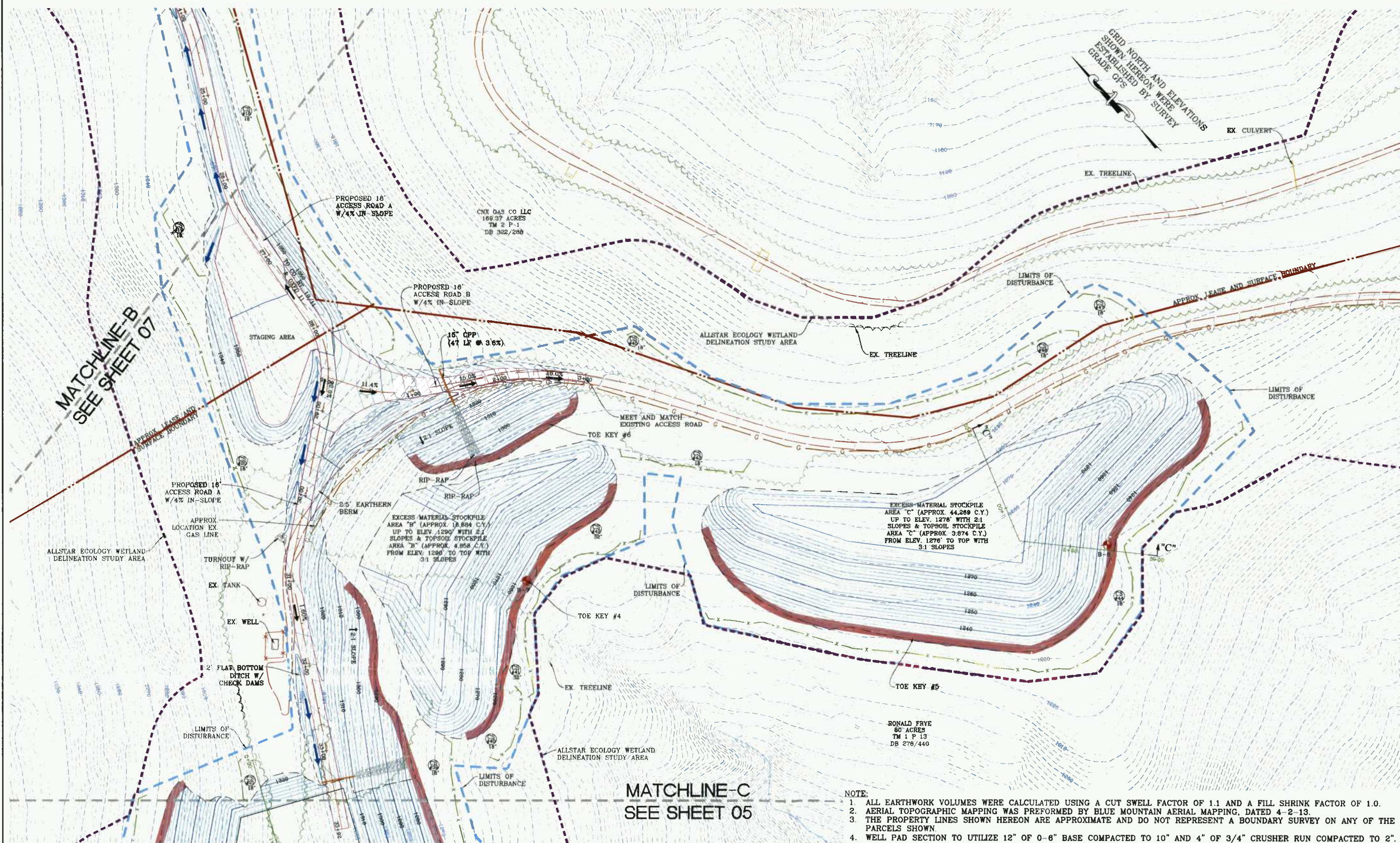
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 INC.  
 FOR: CNX GAS  
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ACCESS ROAD DETAILS  
**FRYE TANK PAD**  
 SOUTHWEST DISTRICT  
 DODDRIDGE COUNTY, WV

DATE	04/30/2014
SCALE	1"=50'
DESIGNED BY:	CSK
FILE NO.	8105
SHEET	07 OF 24

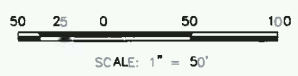
# ACCESS ROAD DETAILS

**LEGEND**  
 TOE BENCH



MATCHLINE-B  
SEE SHEET 07

MATCHLINE-C  
SEE SHEET 05



- NOTE:**
1. ALL EARTHWORK VOLUMES WERE CALCULATED USING A CUT SWELL FACTOR OF 1.1 AND A FILL SHRINK FACTOR OF 1.0.
  2. AERIAL TOPOGRAPHIC MAPPING WAS PERFORMED BY BLUE MOUNTAIN AERIAL MAPPING, DATED 4-2-13.
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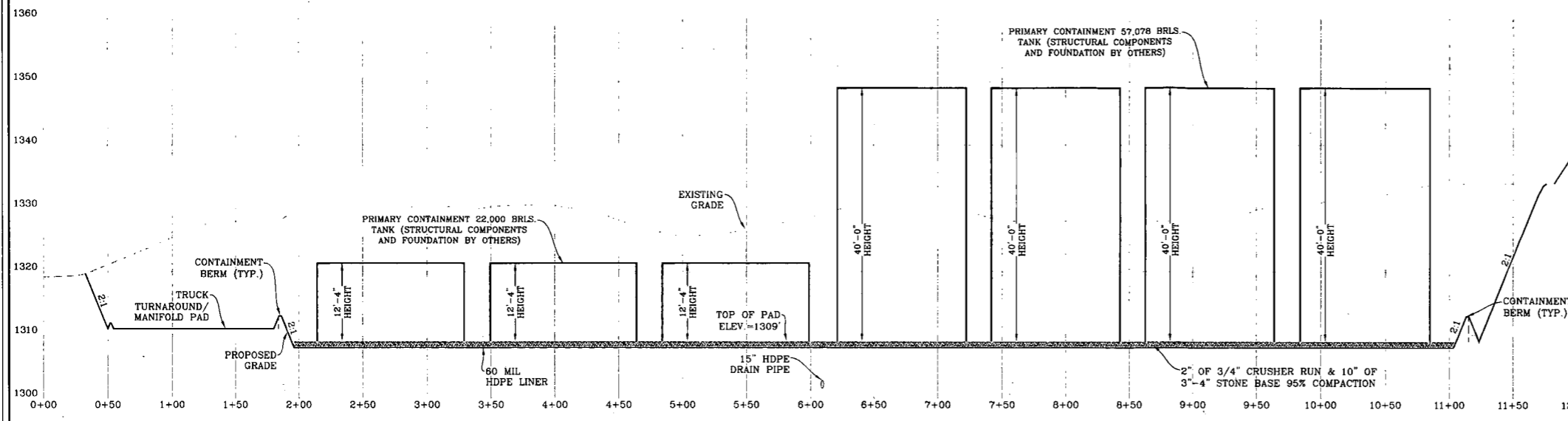


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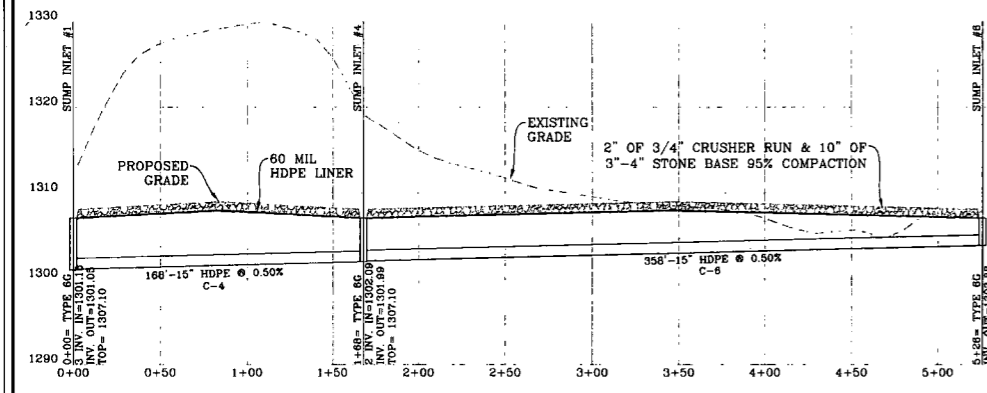
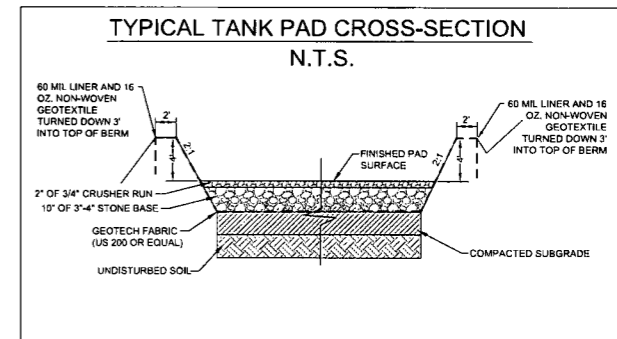
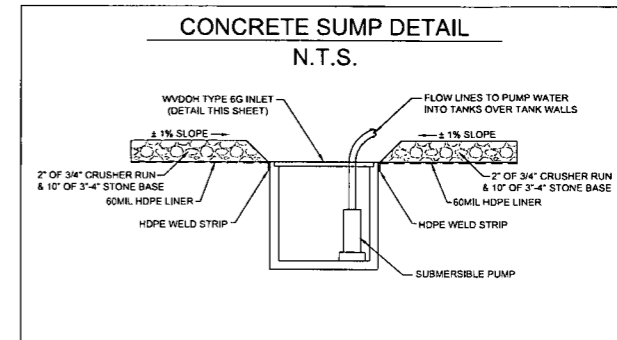
ACCESS ROAD DETAILS  
**FRYE TANK PAD**  
 SOUTHWEST DISTRICT  
 DODDRIDGE COUNTY, WV

DATE: 04/30/2014  
 SCALE: 1"=50'  
 DESIGNED BY: CSK  
 FILE NO. 8105  
 SHEET 08 OF 24

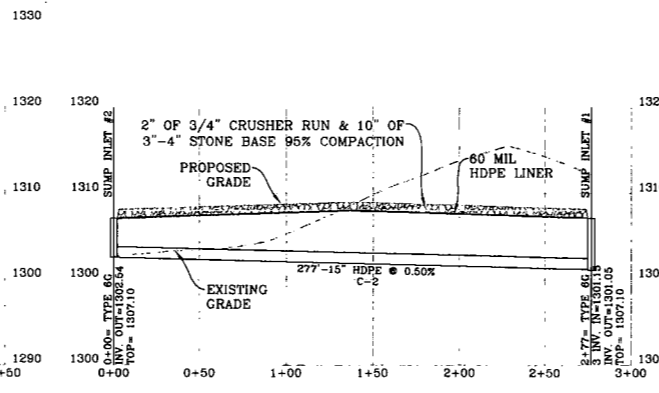
# TANK PAD SECTIONS



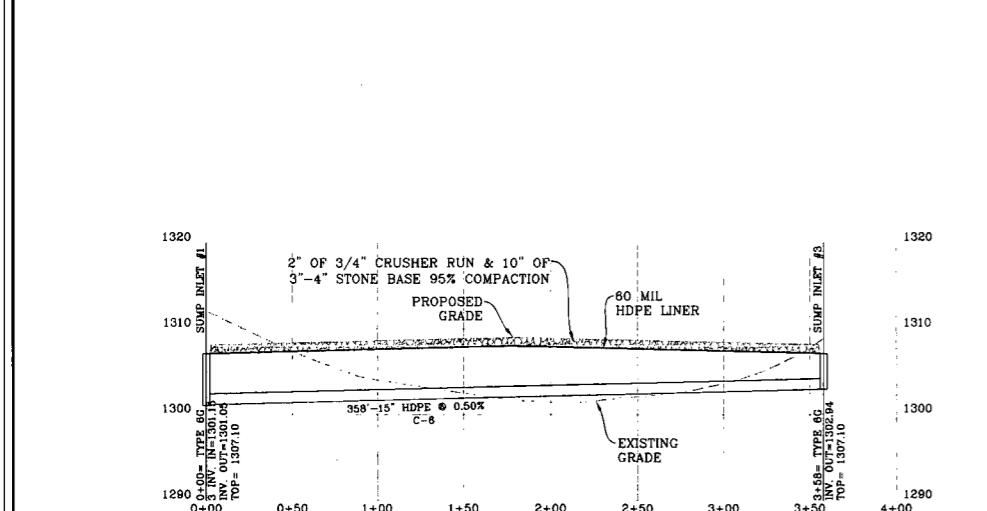
TANK PAD CROSS-SECTION "A-A"  
SCALE: HORIZ. 1" = 50' VERT. 1" = 10'



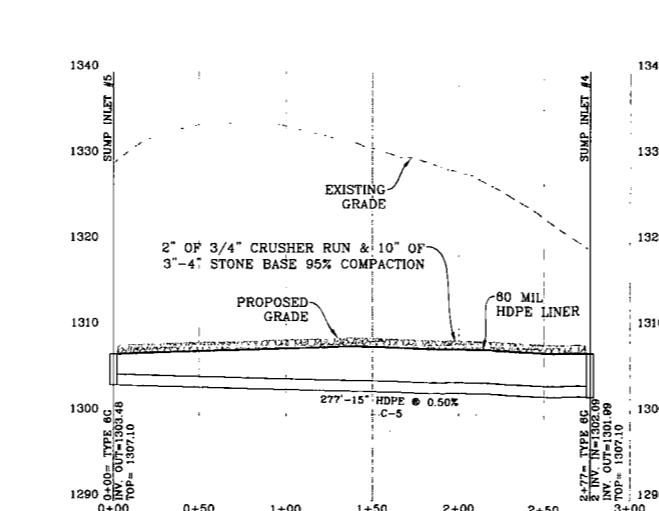
STORM DRAIN PROFILE  
SCALE: HORIZ. 1" = 50' VERT. 1" = 50'



STORM DRAIN PROFILE  
SCALE: HORIZ. 1" = 50' VERT. 1" = 50'



STORM DRAIN PROFILE  
SCALE: HORIZ. 1" = 50' VERT. 1" = 50'



STORM DRAIN PROFILE  
SCALE: HORIZ. 1" = 50' VERT. 1" = 50'

INLET TYPE	INLET SIZE	INLET WEIGHT	INLET LENGTH	INLET WIDTH	INLET HEIGHT
1	24"	150	10'	24"	24"
2	30"	200	10'	30"	30"
3	36"	250	10'	36"	36"
4	42"	300	10'	42"	42"
5	48"	350	10'	48"	48"
6	54"	400	10'	54"	54"
7	60"	450	10'	60"	60"
8	66"	500	10'	66"	66"
9	72"	550	10'	72"	72"
10	78"	600	10'	78"	78"
11	84"	650	10'	84"	84"
12	90"	700	10'	90"	90"
13	96"	750	10'	96"	96"
14	102"	800	10'	102"	102"
15	108"	850	10'	108"	108"
16	114"	900	10'	114"	114"
17	120"	950	10'	120"	120"
18	126"	1000	10'	126"	126"
19	132"	1050	10'	132"	132"
20	138"	1100	10'	138"	138"
21	144"	1150	10'	144"	144"
22	150"	1200	10'	150"	150"
23	156"	1250	10'	156"	156"
24	162"	1300	10'	162"	162"
25	168"	1350	10'	168"	168"
26	174"	1400	10'	174"	174"
27	180"	1450	10'	180"	180"
28	186"	1500	10'	186"	186"
29	192"	1550	10'	192"	192"
30	198"	1600	10'	198"	198"
31	204"	1650	10'	204"	204"
32	210"	1700	10'	210"	210"
33	216"	1750	10'	216"	216"
34	222"	1800	10'	222"	222"
35	228"	1850	10'	228"	228"
36	234"	1900	10'	234"	234"
37	240"	1950	10'	240"	240"
38	246"	2000	10'	246"	246"
39	252"	2050	10'	252"	252"
40	258"	2100	10'	258"	258"
41	264"	2150	10'	264"	264"
42	270"	2200	10'	270"	270"
43	276"	2250	10'	276"	276"
44	282"	2300	10'	282"	282"
45	288"	2350	10'	288"	288"
46	294"	2400	10'	294"	294"
47	300"	2450	10'	300"	300"
48	306"	2500	10'	306"	306"
49	312"	2550	10'	312"	312"
50	318"	2600	10'	318"	318"
51	324"	2650	10'	324"	324"
52	330"	2700	10'	330"	330"
53	336"	2750	10'	336"	336"
54	342"	2800	10'	342"	342"
55	348"	2850	10'	348"	348"
56	354"	2900	10'	354"	354"
57	360"	2950	10'	360"	360"
58	366"	3000	10'	366"	366"
59	372"	3050	10'	372"	372"
60	378"	3100	10'	378"	378"
61	384"	3150	10'	384"	384"
62	390"	3200	10'	390"	390"
63	396"	3250	10'	396"	396"
64	402"	3300	10'	402"	402"
65	408"	3350	10'	408"	408"
66	414"	3400	10'	414"	414"
67	420"	3450	10'	420"	420"
68	426"	3500	10'	426"	426"
69	432"	3550	10'	432"	432"
70	438"	3600	10'	438"	438"
71	444"	3650	10'	444"	444"
72	450"	3700	10'	450"	450"
73	456"	3750	10'	456"	456"
74	462"	3800	10'	462"	462"
75	468"	3850	10'	468"	468"
76	474"	3900	10'	474"	474"
77	480"	3950	10'	480"	480"
78	486"	4000	10'	486"	486"
79	492"	4050	10'	492"	492"
80	498"	4100	10'	498"	498"
81	504"	4150	10'	504"	504"
82	510"	4200	10'	510"	510"
83	516"	4250	10'	516"	516"
84	522"	4300	10'	522"	522"
85	528"	4350	10'	528"	528"
86	534"	4400	10'	534"	534"
87	540"	4450	10'	540"	540"
88	546"	4500	10'	546"	546"
89	552"	4550	10'	552"	552"
90	558"	4600	10'	558"	558"
91	564"	4650	10'	564"	564"
92	570"	4700	10'	570"	570"
93	576"	4750	10'	576"	576"
94	582"	4800	10'	582"	582"
95	588"	4850	10'	588"	588"
96	594"	4900	10'	594"	594"
97	600"	4950	10'	600"	600"
98	606"	5000	10'	606"	606"
99	612"	5050	10'	612"	612"
100	618"	5100	10'	618"	618"

**NOTES**

The finished top surface of inlet and grate shall be flush with adjacent finished surfaces such as pavement, gutters, curbs, and sidewalks. Top of grate elevation, if shown on the plans, is for information only.

Construction may be cast-in place, precast in one or multiple sections, or any combination of cast-in place and precast.

Type 2 Grate shall be used at all locations unless otherwise specified on the Plans. Type 1 Urban Grates shall be used only at specially designated locations as shown on the Plans.

The Contractor, at his option, may omit use of the frame by forming a ledge in the concrete.

Special care shall be exercised in forming the 2" wide concrete ledge to provide a smooth, even surface for supporting the grates if the grates frame is not used. No projections shall be on the bearing surfaces of the ledge or the grates, and the grates shall rest on the ledge without rocking.

The Mounding Detail as shown is not required when an inlet is placed in a sump.

Optional construction joints labeled "CJ" may be roughened concrete, keyed or grooved as per the typical details shown herein or as approved by the Engineer. No shrink joint casting the requirements of subsection 715.5 of the specifications may be used to a depth of 1/2" for leveling between precast sections. Thicker depths will be allowed as per the manufacturer's recommendations.

This inlet is to be installed in roadways or median ditches only. It is not to be placed adjacent to pavement or in the gutter pan of a combination curb and gutter.

The minimum distance from the top of any pipe opening to any construction joint above the opening shall be 144 inches.

The number and location of pipe openings shall be as shown in the plans. The Contractor at no additional cost shall be responsible for any temporary bracing required to transport precast inlet sections due to multiple openings.

**NOTE:**

- PUMP TO BE DESIGNED BY OTHERS.
- 6 SUMP DRAINS ARE LOCATED WITHIN CONTAINED TANK AREA TO COLLECT ANY AND ALL FLUIDS WHICH WILL THEN DRAIN TO SUMP #1 WHERE A PUMP (DESIGNED BY OTHERS) WILL BE INSTALLED TO PUMP FLUIDS INTO THE TANKS.
- THE STRUCTURAL COMPONENTS AND FOUNDATIONS SHALL BE PROVIDED BY THE TANK MANUFACTURER AND SHALL BE INSTALLED PER THE TANK MANUFACTURER SPECIFICATIONS AND THE RECOMMENDATIONS IN THE GEOTECH REPORT PREPARED BY TERRACON CONSULTANTS, INC.

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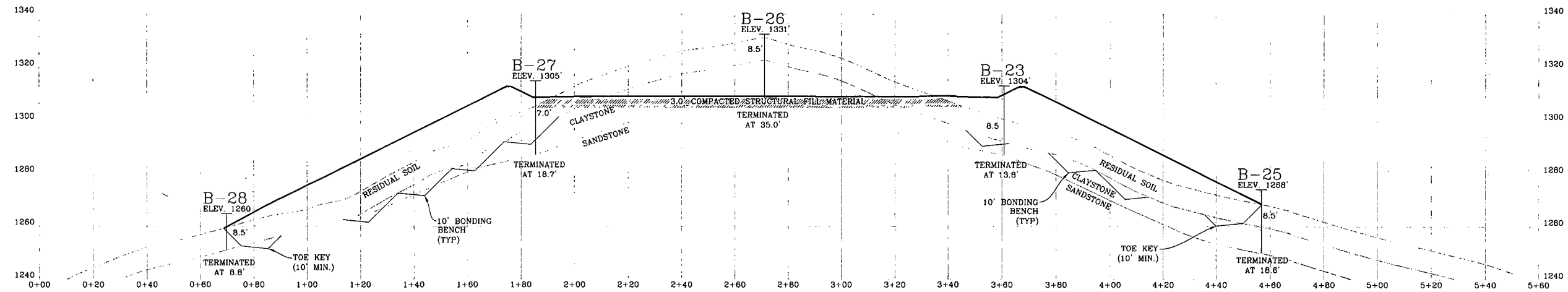
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NAVITUS ENGINEERING  
INC.  
FOR: CNX GAS  
COMPANY, LLC

TANK PAD SECTIONS  
**FRYE TANK PAD**  
SOUTHWEST DISTRICT  
DODDRIDGE COUNTY, WV

DATE: 04/30/2014  
SCALE: 1"=50'  
DESIGNED BY: CSK  
FILE NO. 8105  
SHEET 09 OF 24

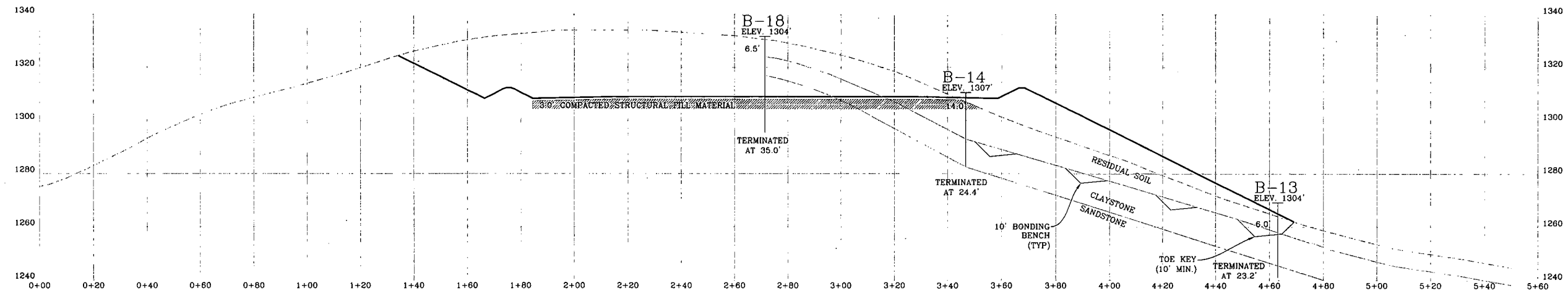


# SUB-SURFACE TANK PAD SECTIONS



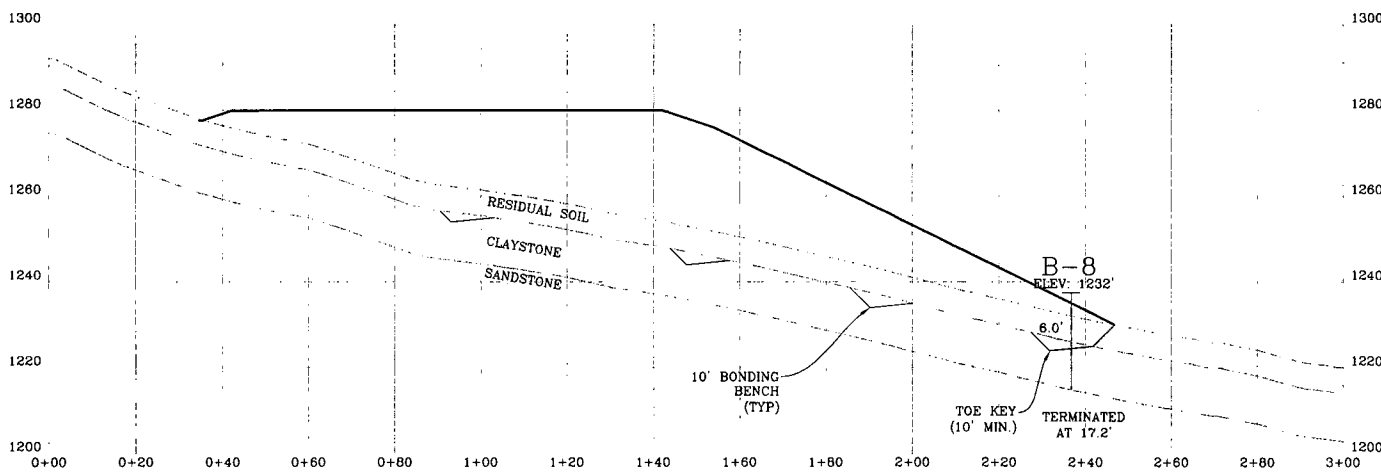
**SECTION "B-B"**

SCALE: HORIZ. 1" = 20' VERT. 1" = 20'



**SECTION "C-C"**

SCALE: HORIZ. 1" = 20' VERT. 1" = 20'

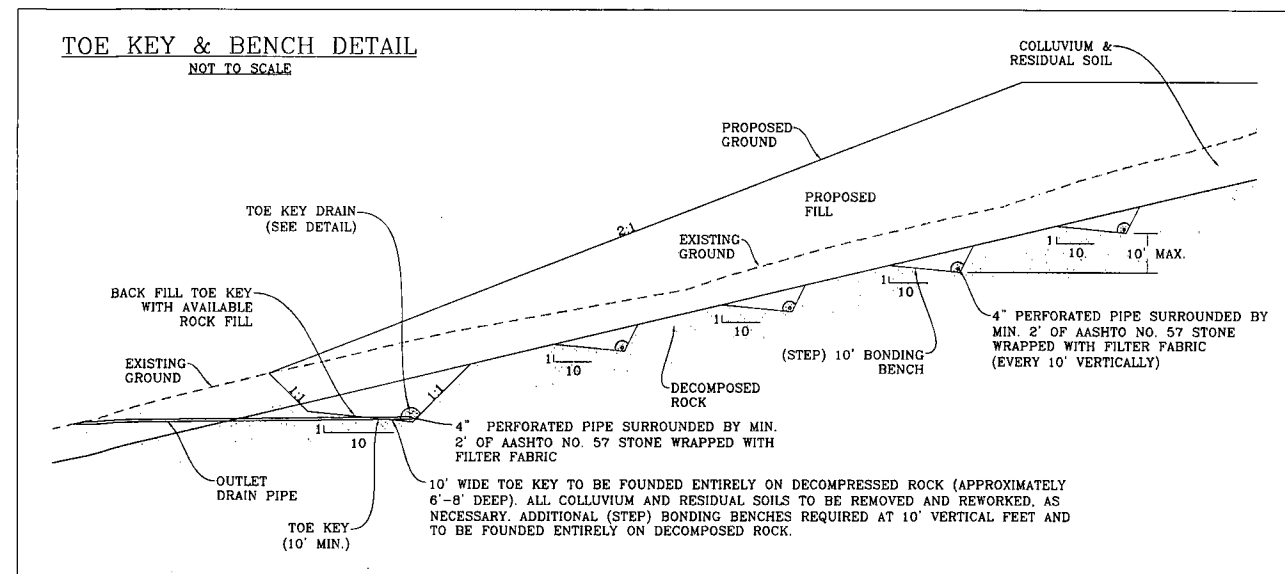


**SECTION "D-D"**

SCALE: HORIZ. 1" = 20' VERT. 1" = 20'

**NOTE:**

THE TOE KEY AND (STEP) BONDING BENCH LOCATIONS SHOWN FOR THE PAD EMBANKMENT FILL SLOPES WERE ESTABLISHED FROM THE AVAILABLE SUBSURFACE INFORMATION THAT WAS COLLECTED BY TRIAD ENGINEERING, INC. THE DECOMPOSED ROCK DEPTHS THAT THE TOE KEY SHALL BE FOUNDED UPON WERE INTERPOLATED FROM THE AVAILABLE BORING DATA AND MAY VARY IN THE FIELD, DURING CONSTRUCTION. IT IS RECOMMENDED THE ADDITIONAL TEST PITTING BE PERFORMED DURING CONSTRUCTION OF THE TOE KEYS TO ENSURE THAT THE TOE KEY IS FOUNDED ON A SOLID, COMPETENT SURFACE.



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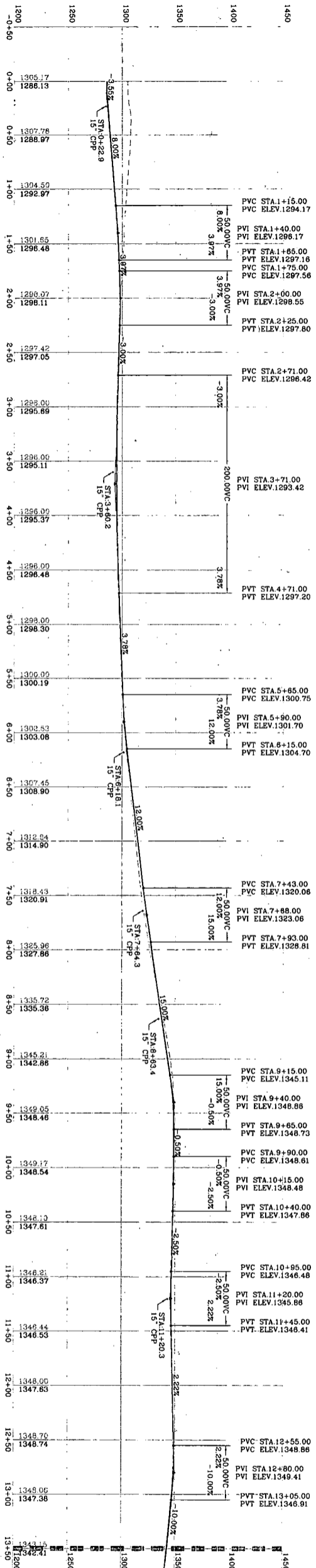


THIS DOCUMENT WAS PREPARED BY:  
NAVITUS ENGINEERING  
INC.  
FOR: CNX GAS COMPANY, LLC

SUB-SURFACE TANK PAD SECTIONS  
**FRYE TANK PAD**  
SOUTHWEST DISTRICT  
DODDRIDGE COUNTY, WV

DATE: 04/30/2014  
SCALE: 1"=50'  
DESIGNED BY: CSK  
FILE NO. 8105  
SHEET 10 OF 24

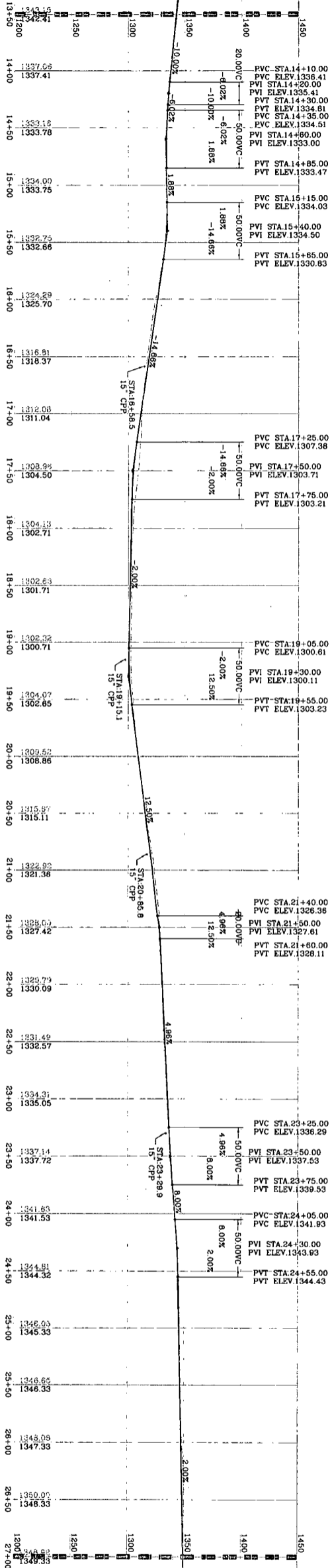
ACCESS ROAD A PROFILE



MATCHLINE-D  
SEE THIS SHEET

ACCESS ROAD A PROFILE  
SCALE: HORIZ. 1" = 50' VERT. 1" = 50'

MATCHLINE-D  
SEE THIS SHEET

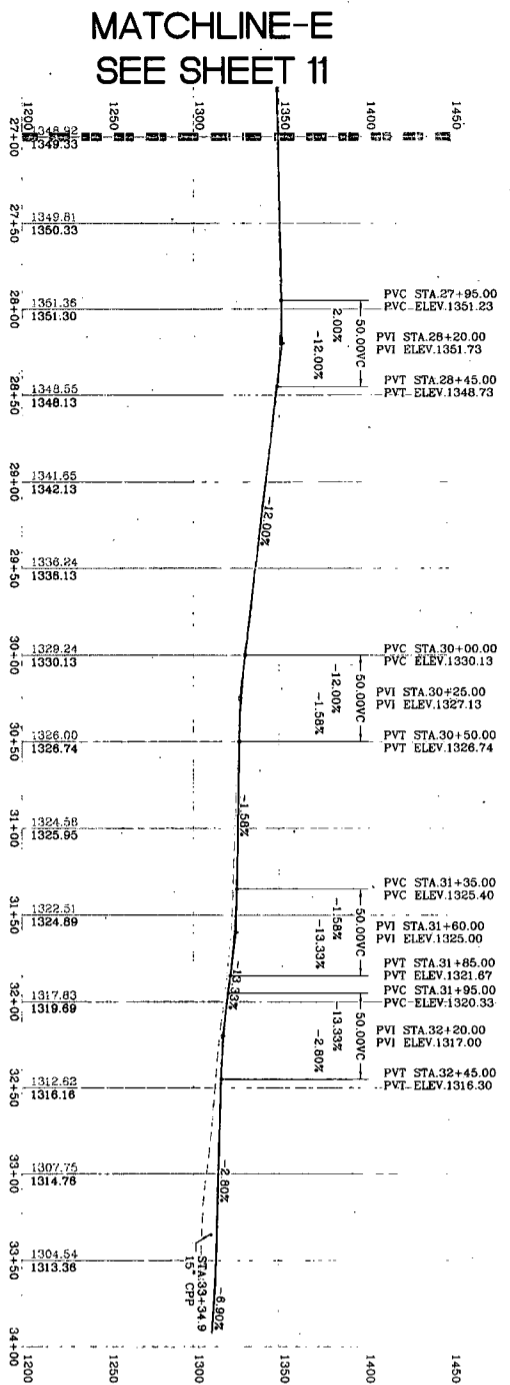


MATCHLINE-E  
SEE SHEET 12

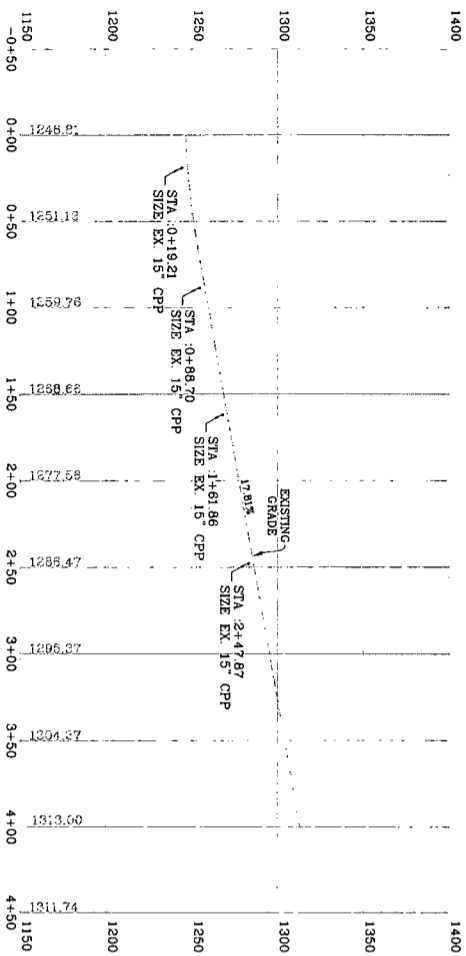
ACCESS ROAD A PROFILE  
SCALE: HORIZ. 1" = 50' VERT. 1" = 50'

<p>ACCESS ROAD A PROFILE <b>FRYE TANK PAD</b></p> <p>SOUTHWEST DISTRICT DODDRIDGE COUNTY, WV</p>	<p>THIS DOCUMENT WAS PREPARED BY NAVITUS ENGINEERING FOR: CHX GAS COMPANY, LLC</p>		<p><b>Professional Consultants</b> A DIVISION OF SMITH LAND SURVEYING, INC.</p> <p><b>SLSS</b></p> <p>(304) 462-5634      www.slssurveyors.com</p>	<p><b>NAVITUS</b> ENERGY ENGINEERING</p> <p>Telephone: (888) 662-4185   www.NavitusEng.com</p>
<p>DATE: 04/30/2014</p> <p>SCALE: 1" = 50'</p> <p>DESIGNED BY: CSK</p> <p>FILE NO: 8105</p> <p>SHEET 11 OF 24</p>				

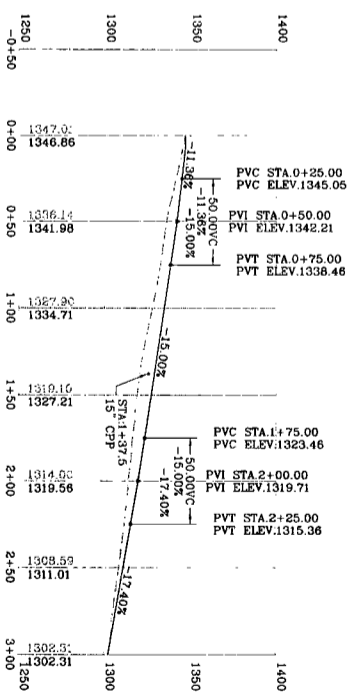
# ACCESS ROAD A, B & EXISTING PROFILE



ACCESS ROAD A PROFILE  
SCALE: HORIZ. 1" = 50' VERT. 1" = 50'



EXISTING ACCESS ROAD PROFILE  
SCALE: HORIZ. 1" = 50' VERT. 1" = 50'



ACCESS ROAD B PROFILE  
SCALE: HORIZ. 1" = 50' VERT. 1" = 50'



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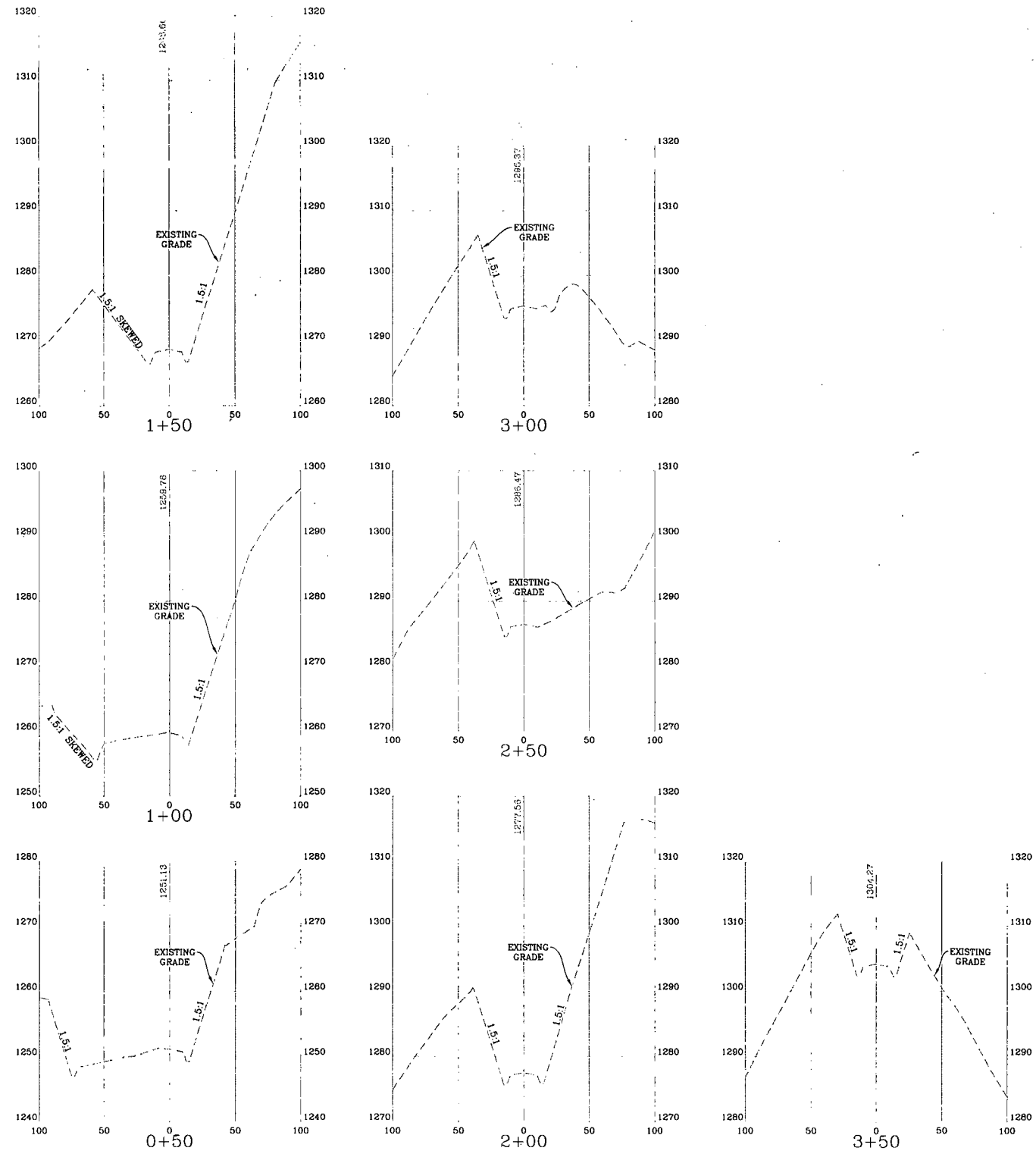
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**FRYE TANK PAD**  
SOUTHWEST DISTRICT  
DODDRIDGE COUNTY, WV

DATE: 04/20/2014  
SCALE: 1"=50'  
DESIGNED BY: CSK  
FILE NO.: B105  
SHEET 12 OF 24

# ROAD SECTIONS

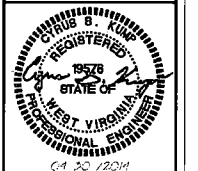
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SCALE: HORIZ. 1" = 50' VERT. 1" = 10'



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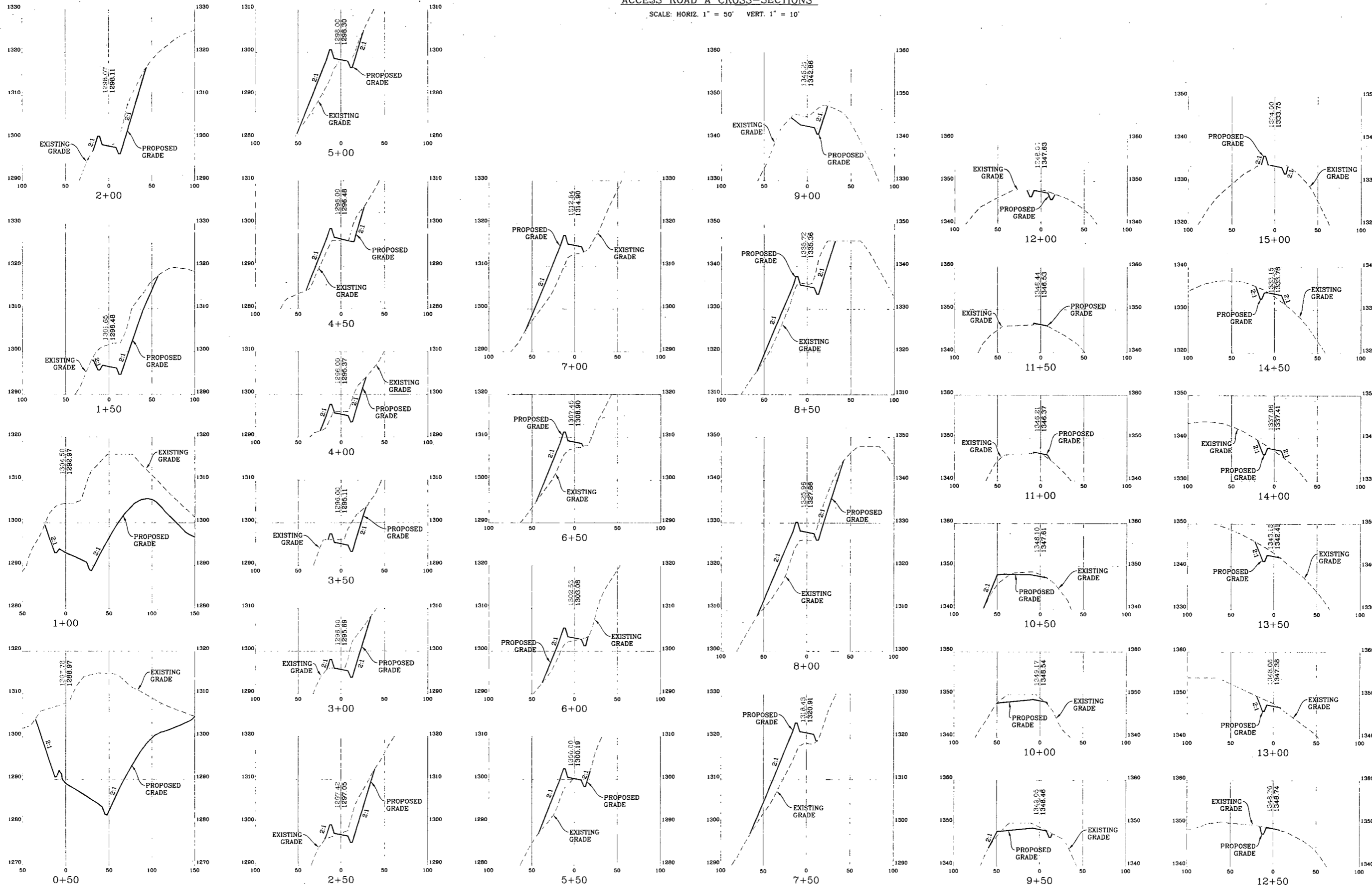
ROAD SECTIONS  
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SOUTHWEST DISTRICT  
DODDRIDGE COUNTY, WV

DATE: 04/30/2014  
SCALE: 1"=50'  
DESIGNED BY: CSK  
FILE NO. 8105  
SHEET 13 OF 24

# ROAD SECTIONS

## ACCESS ROAD A CROSS-SECTIONS

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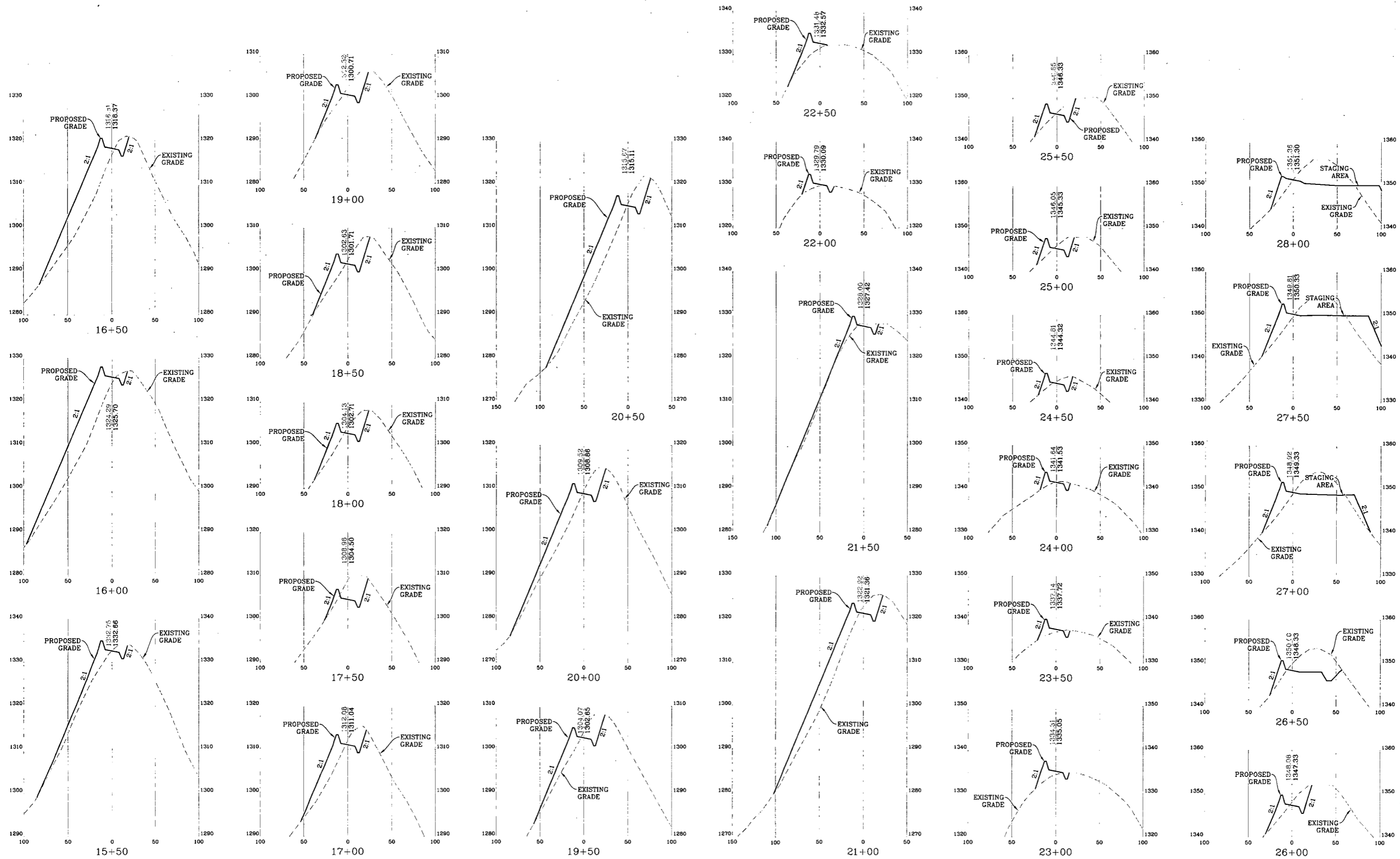
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**FRYE TANK PAD**  
SOUTHWEST DISTRICT  
DODDRIDGE COUNTY, WV

DATE: 04/30/2014  
SCALE: 1"=50'  
DESIGNED BY: CSK  
FILE NO. 8105  
SHEET 14 OF 24

# ROAD SECTIONS

## ACCESS ROAD A CROSS-SECTIONS

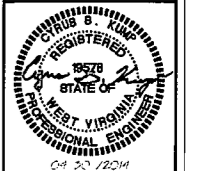
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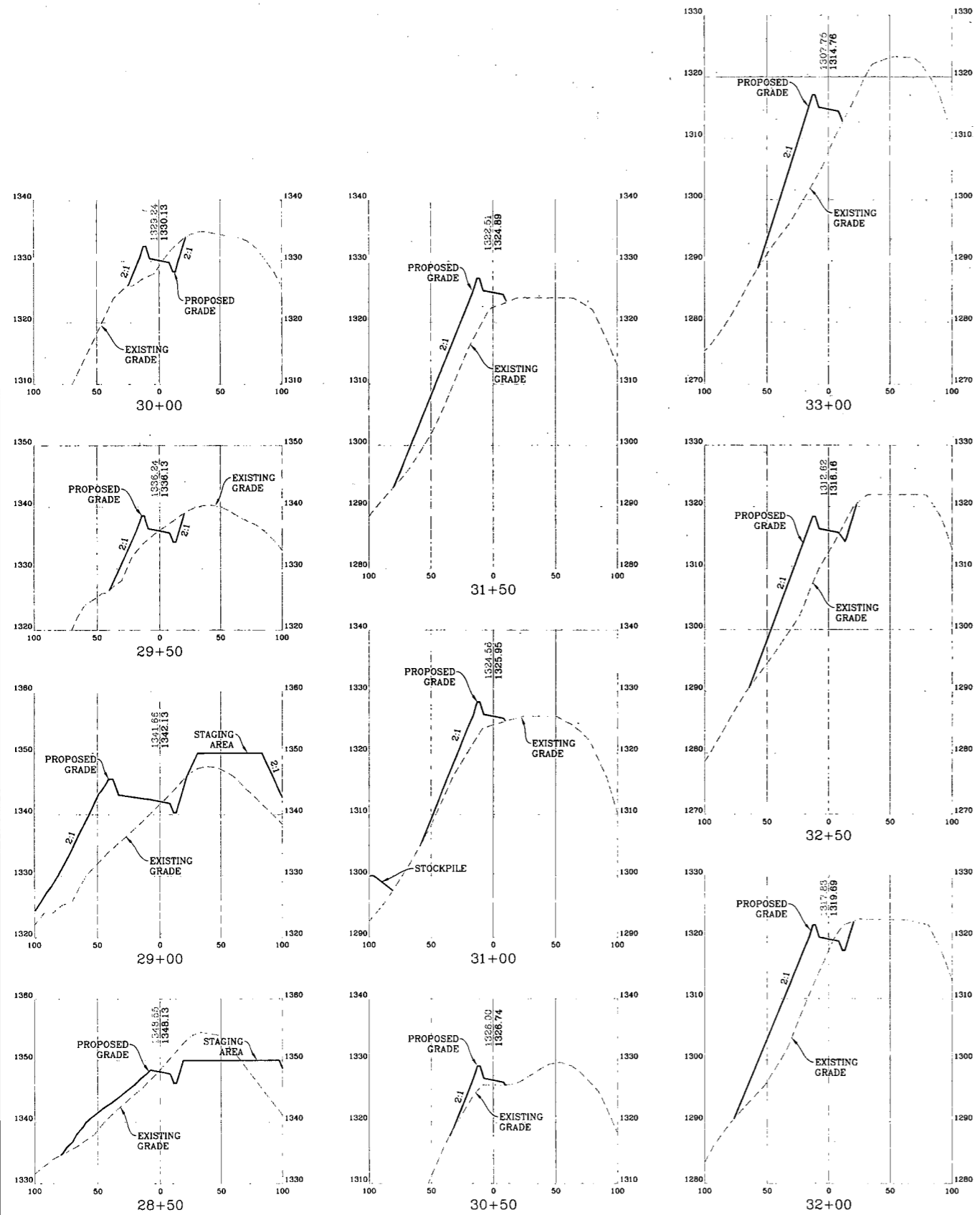
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**FRYE TANK PAD**  
SOUTHWEST DISTRICT  
DODDRIDGE COUNTY, WV

DATE: 04/30/2014  
SCALE: 1"=50'  
DESIGNED BY: CSK  
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SHEET 15 OF 24

# ROAD SECTIONS

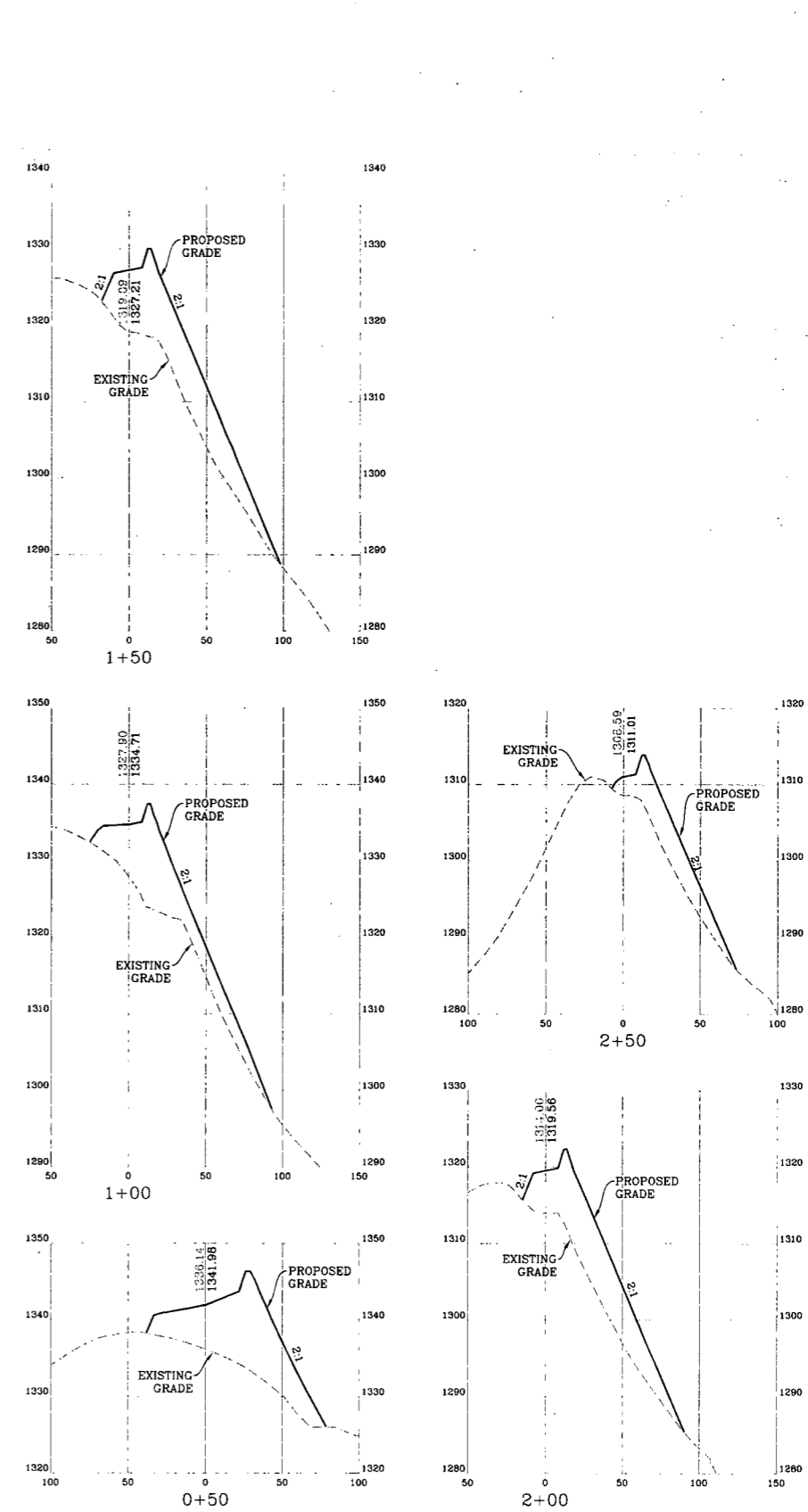
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SCALE: HORIZ. 1" = 50' VERT. 1" = 10'



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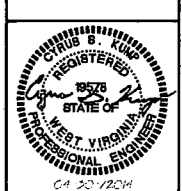
SCALE: HORIZ. 1" = 50' VERT. 1" = 10'



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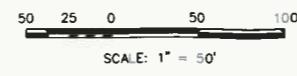
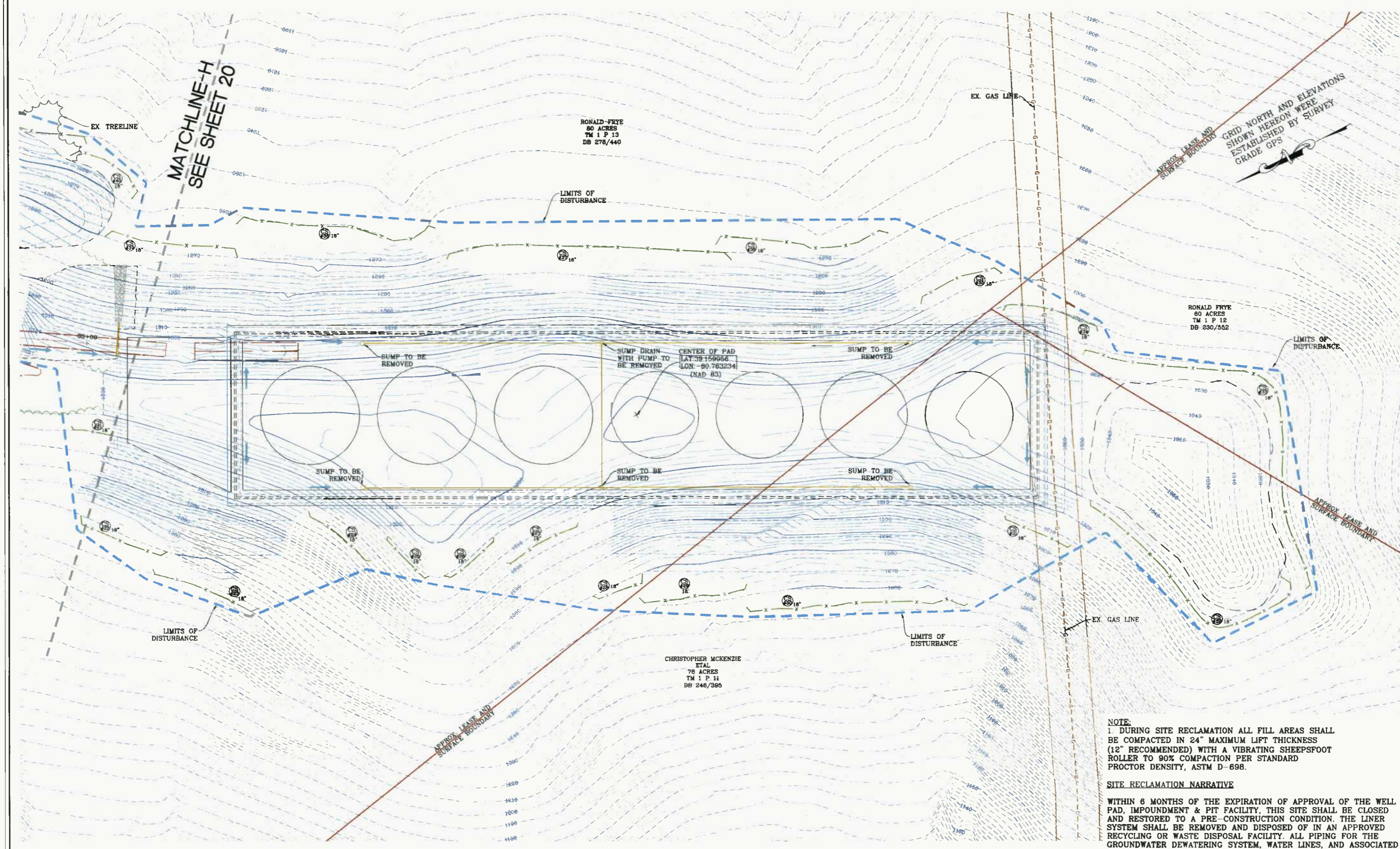


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ROAD SECTIONS  
**FRYE TANK PAD**  
SOUTHWEST DISTRICT  
DODDRIDGE COUNTY, WV

DATE: 04/30/2014  
SCALE: 1"=50'  
DESIGNED BY: CSK  
FILE NO. 8105  
SHEET 16 OF 24

# TANK PAD RECLAMATION PLAN

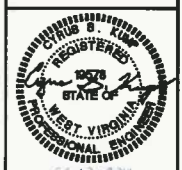


**NOTE:**  
 1 DURING SITE RECLAMATION ALL FILL AREAS SHALL BE COMPACTED IN 24" MAXIMUM LIFT THICKNESS (12" RECOMMENDED) WITH A VIBRATING SHEEPSFOOT ROLLER TO 90% COMPACTION PER STANDARD PROCTOR DENSITY, ASTM D-698.

**SITE RECLAMATION NARRATIVE**  
 WITHIN 6 MONTHS OF THE EXPIRATION OF APPROVAL OF THE WELL PAD, IMPOUNDMENT & PIT FACILITY, THIS SITE SHALL BE CLOSED AND RESTORED TO A PRE-CONSTRUCTION CONDITION. THE LINER SYSTEM SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED RECYCLING OR WASTE DISPOSAL FACILITY. ALL PIPING FOR THE GROUNDWATER DEWATERING SYSTEM, WATER LINES, AND ASSOCIATED STRUCTURES SHALL BE REMOVED. ALL EX. BMP'S SHOWN SHALL BE INSPECTED FOR DAMAGE AND REPLACED AS NECESSARY BEFORE RECLAMATION CAN BEGIN. THE SITE SHALL BE REGRADED AS INDICATED ON PLANS TO PRE-CONSTRUCTION GRADES. UPON COMPLETION OF GRADING, THE SITE SHALL BE SEEDED AND MULCHED PER THE REVEGETATION DETAILS ON SHEET 23.

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TANK PAD RECLAMATION PLAN  
**FRYE TANK PAD**  
 SOUTHWEST DISTRICT  
 DODDRIDGE COUNTY, WY

DATE: 04/30/2014  
 SCALE: 1" = 50'  
 DESIGNED BY: CSK  
 FILE NO. 8105  
 SHEET 17 OF 24

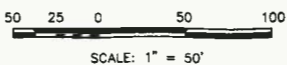
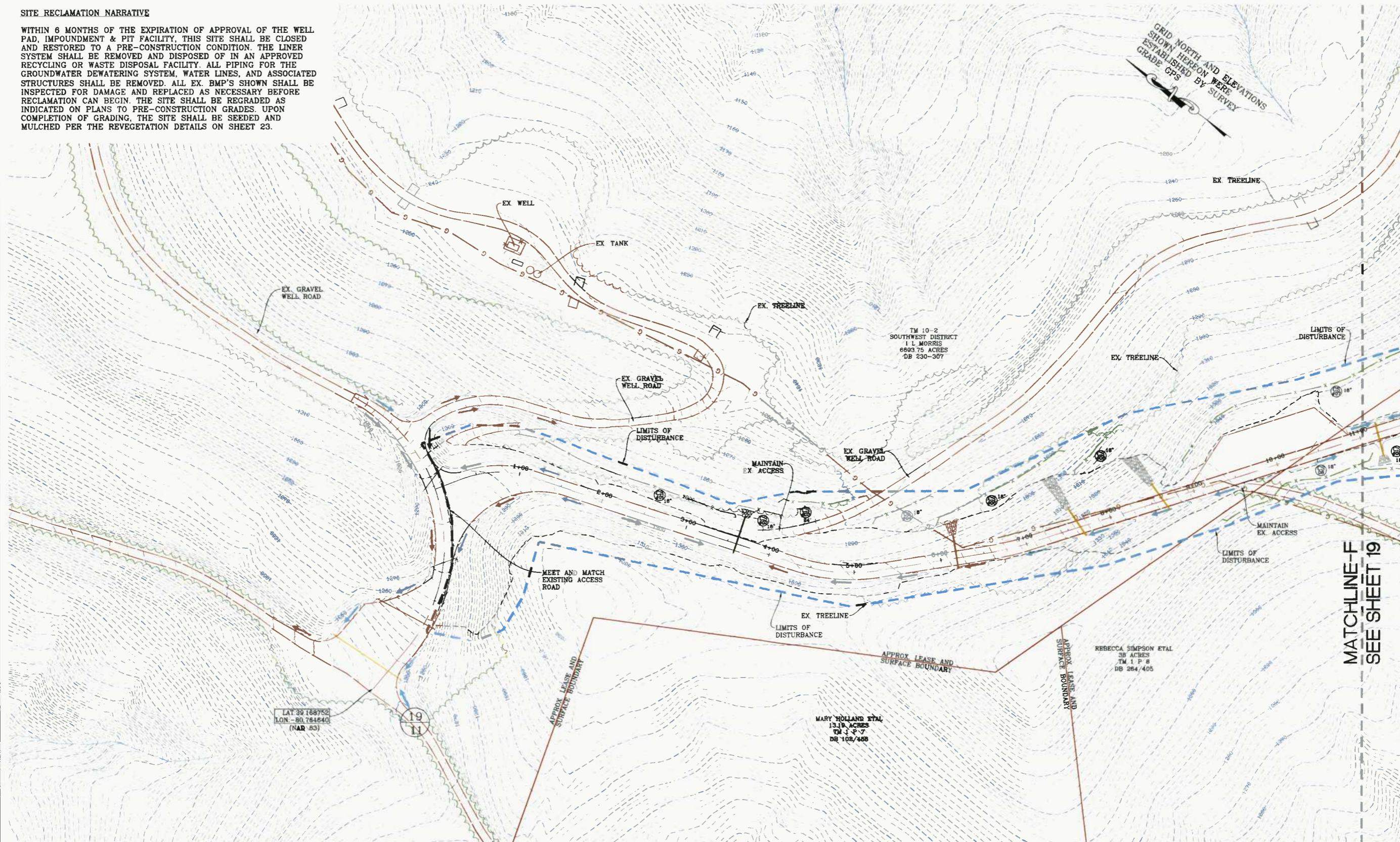


# TANK PAD RECLAMATION PLAN

**NOTE:**  
 1. DURING SITE RECLAMATION ALL FILL AREAS SHALL BE COMPACTED IN 24" MAXIMUM LIFT THICKNESS (12" RECOMMENDED) WITH A VIBRATING SHEEPSFOOT ROLLER TO 90% COMPACTION PER STANDARD PROCTOR DENSITY, ASTM D-698.

**SITE RECLAMATION NARRATIVE**

WITHIN 6 MONTHS OF THE EXPIRATION OF APPROVAL OF THE WELL PAD, IMPOUNDMENT & PIT FACILITY, THIS SITE SHALL BE CLOSED AND RESTORED TO A PRE-CONSTRUCTION CONDITION. THE LINER SYSTEM SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED RECYCLING OR WASTE DISPOSAL FACILITY. ALL PIPING FOR THE GROUNDWATER DEWATERING SYSTEM, WATER LINES, AND ASSOCIATED STRUCTURES SHALL BE REMOVED. ALL EX. BMP'S SHOWN SHALL BE INSPECTED FOR DAMAGE AND REPLACED AS NECESSARY BEFORE RECLAMATION CAN BEGIN. THE SITE SHALL BE REGRADED AS INDICATED ON PLANS TO PRE-CONSTRUCTION GRADES. UPON COMPLETION OF GRADING, THE SITE SHALL BE SEEDED AND MULCHED PER THE REVEGETATION DETAILS ON SHEET 23.



MATCHLINE-F  
SEE SHEET 19

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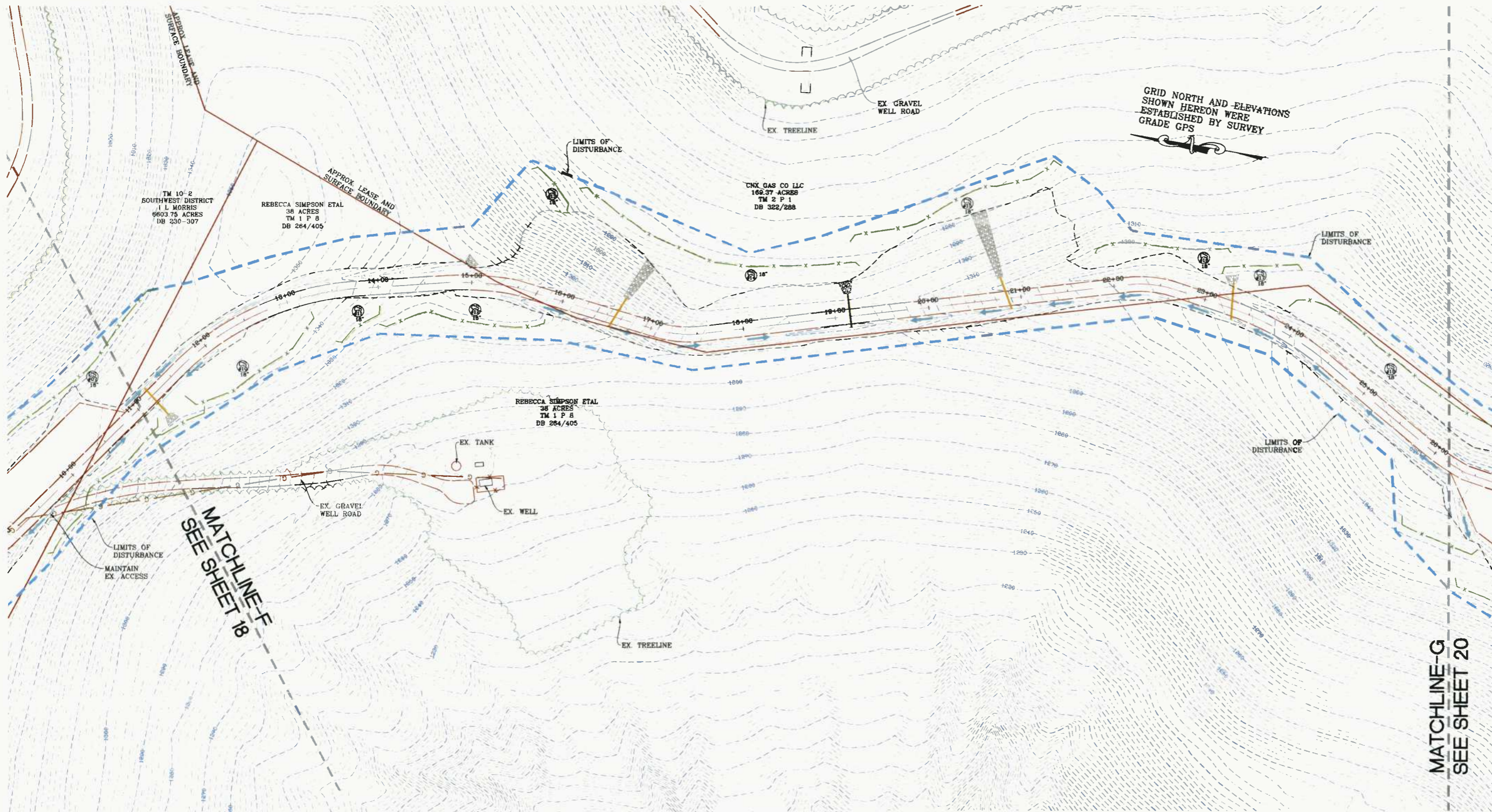


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ACCESS ROAD RECLAMATION PLAN  
**FRYE TANK PAD**  
 SOUTHWEST DISTRICT  
 DODDRIDGE COUNTY, WV

DATE: 04/30/2014  
 SCALE: 1" = 50'  
 DESIGNED BY: CSK  
 FILE NO. 8105  
 SHEET 18 OF 24

# ACCESS ROAD RECLAMATION PLAN



**NOTE:**  
 1. DURING SITE RECLAMATION ALL FILL AREAS SHALL BE COMPACTED IN 24" MAXIMUM LIFT THICKNESS (12" RECOMMENDED) WITH A VIBRATING SHEEPSFOOT ROLLER TO 90% COMPACTION PER STANDARD PROCTOR DENSITY, ASTM D-698.

**SITE RECLAMATION NARRATIVE**  
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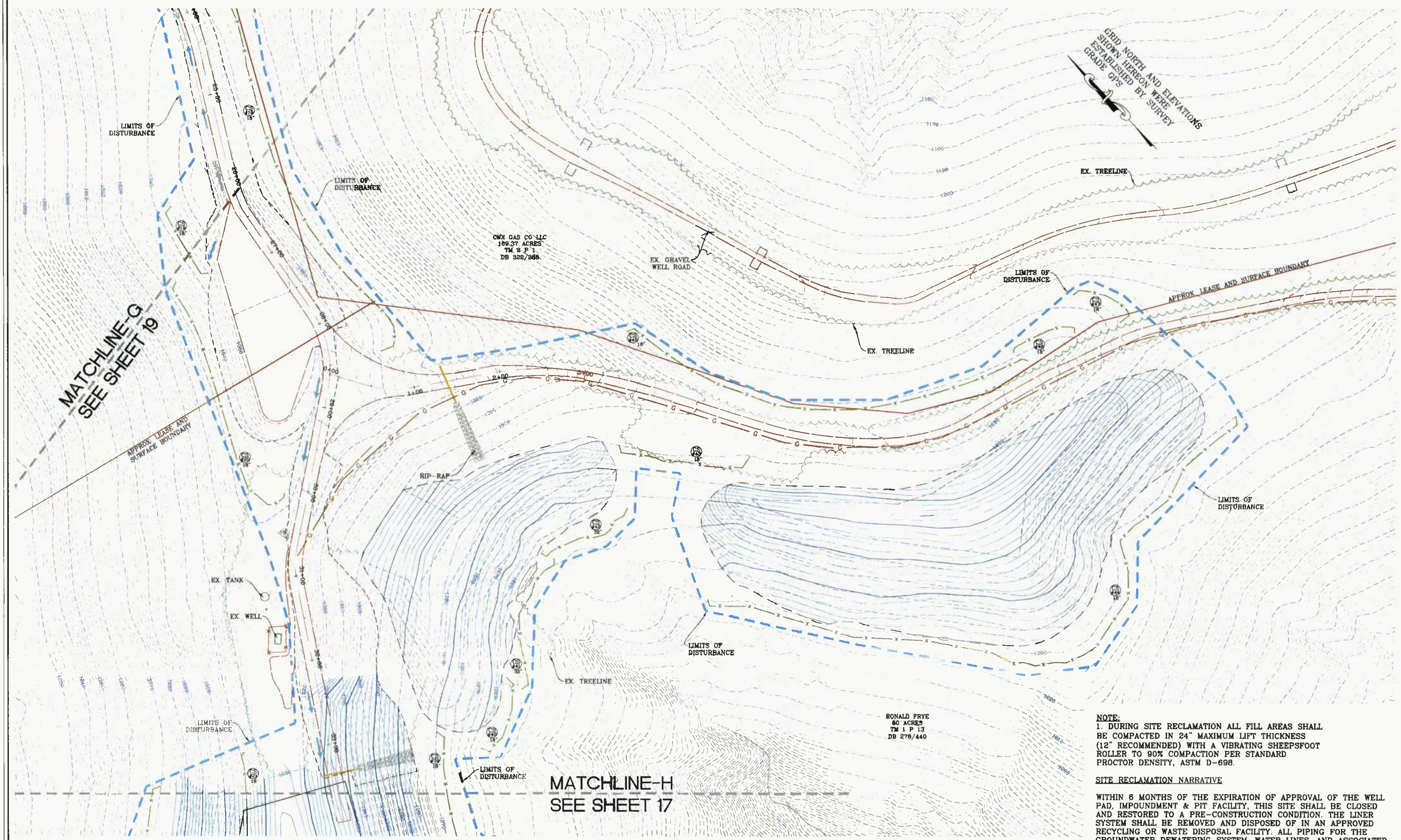


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ACCESS ROAD RECLAMATION PLAN  
 FRYE TANK PAD  
 SOUTHWEST DISTRICT  
 DODDRIDGE COUNTY, WV

DATE	04/30/2014
SCALE	1" = 50'
DESIGNED BY	CSK
FILE NO.	8105
SHEET	19 OF 24

# TANK PAD & STOCKPILE RECLAMATION PLAN



**NOTE:**  
 1. DURING SITE RECLAMATION ALL FILL AREAS SHALL BE COMPACTED IN 24" MAXIMUM LIFT THICKNESS (12" RECOMMENDED) WITH A VIBRATING SHEEPSFOOT ROLLER TO 90% COMPACTION PER STANDARD PROCTOR DENSITY, ASTM D-698.

**SITE RECLAMATION NARRATIVE**  
 WITHIN 6 MONTHS OF THE EXPIRATION OF APPROVAL OF THE WELL PAD, IMPOUNDMENT & PIT FACILITY, THIS SITE SHALL BE CLOSED AND RESTORED TO A PRE-CONSTRUCTION CONDITION. THE LINER SYSTEM SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED RECYCLING OR WASTE DISPOSAL FACILITY. ALL PIPING FOR THE GROUNDWATER DEWATERING SYSTEM, WATER LINES, AND ASSOCIATED STRUCTURES SHALL BE REMOVED. ALL EX. BMP'S SHOWN SHALL BE INSPECTED FOR DAMAGE AND REPLACED AS NECESSARY BEFORE RECLAMATION CAN BEGIN. THE SITE SHALL BE REGRADED AS INDICATED ON PLANS TO PRE-CONSTRUCTION GRADES UPON COMPLETION OF GRADING. THE SITE SHALL BE SEEDED AND MULCHED PER THE REVEGETATION DETAILS ON SHEET 23.

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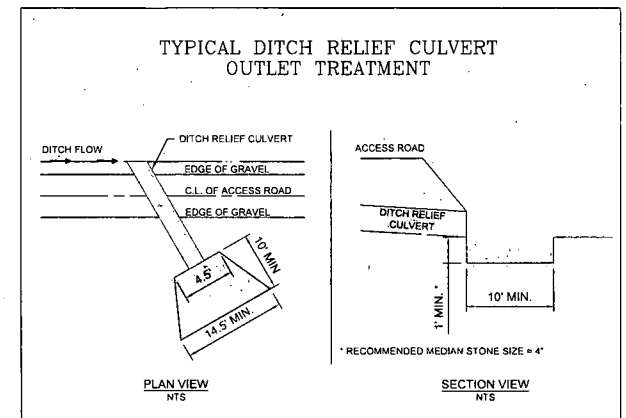
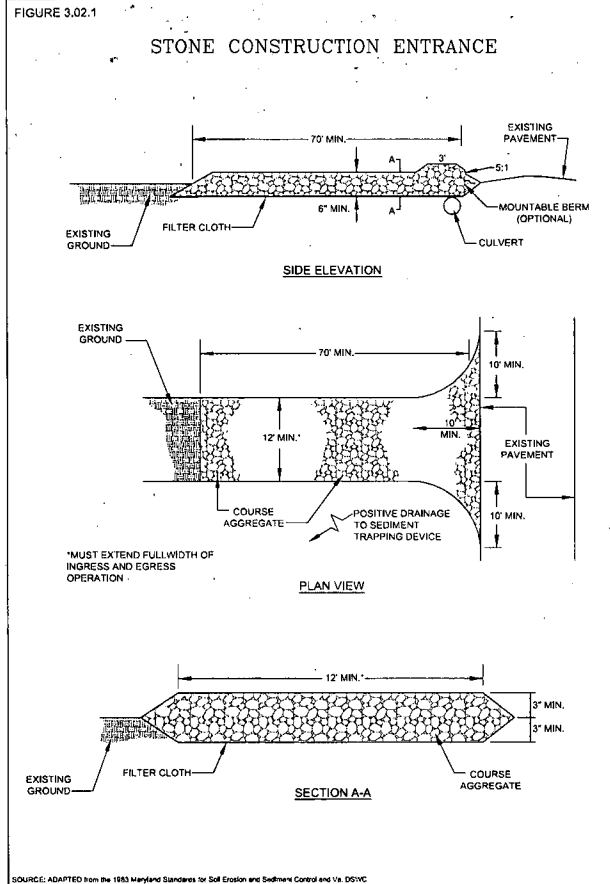
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 ENVIRONMENTAL  
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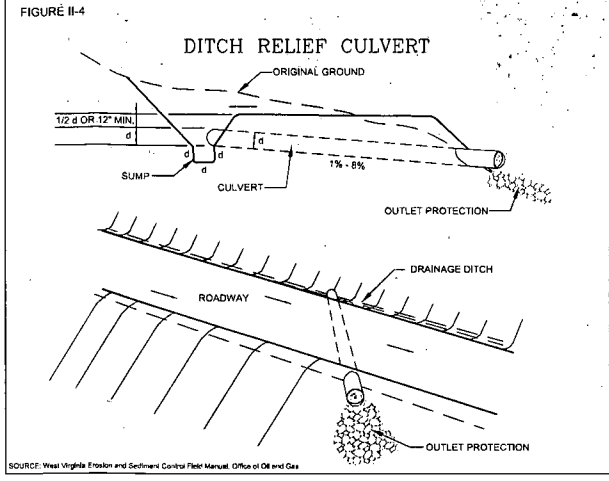
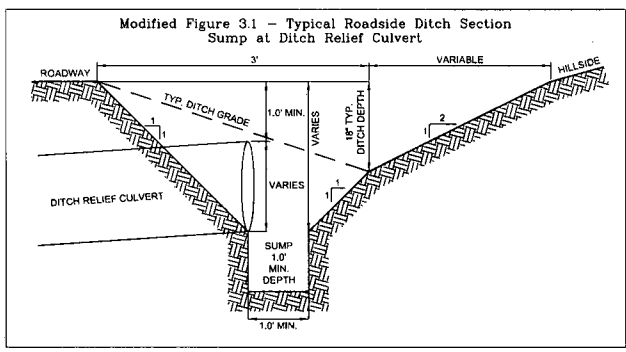
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TANK PAD & STOCKPILE RECLAMATION PLAN  
**FRYE TANK PAD**  
 SOUTHWEST DISTRICT  
 DODDRIDGE COUNTY, WV

DATE:	04/30/2014
SCALE:	1" = 50'
DESIGNED BY:	CSK
FILE NO.:	8105
SHEET:	20 OF 24



**NOTE:**  
ALL DITCH LINE PROTECTION SHALL BE INSTALLED AS RECOMMENDED IN THE WEST VIRGINIA EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE (BMP) MANUAL. DITCH LINE PROTECTION SHALL BE ROCK LINED.  
IF HIGH ERODIVE SOILS ARE ENCOUNTERED DURING CONSTRUCTION, THE ENGINEER SHOULD BE CONTACTED FOR FURTHER EVALUATION.

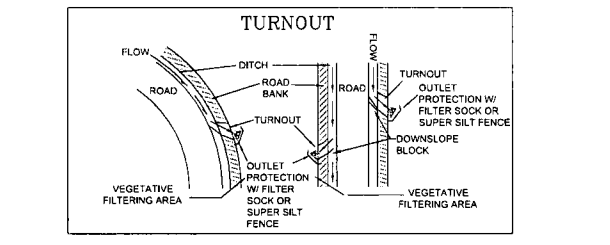
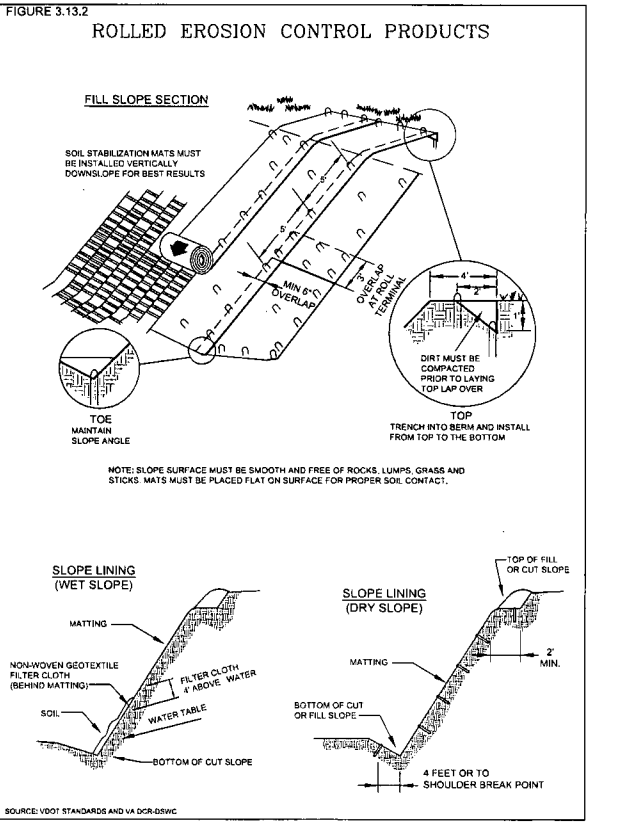
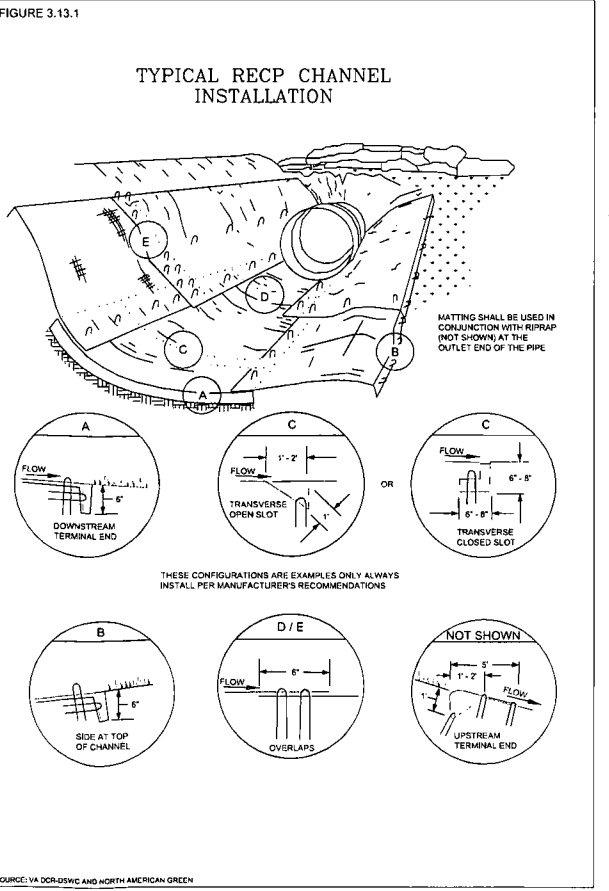
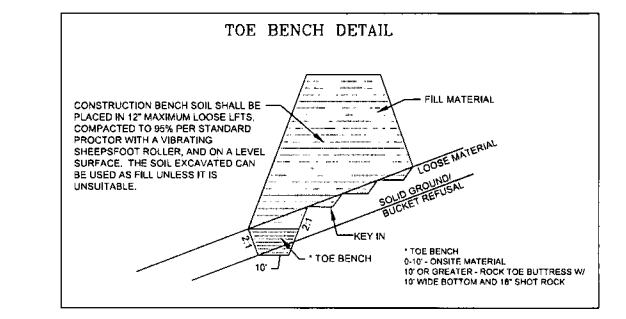
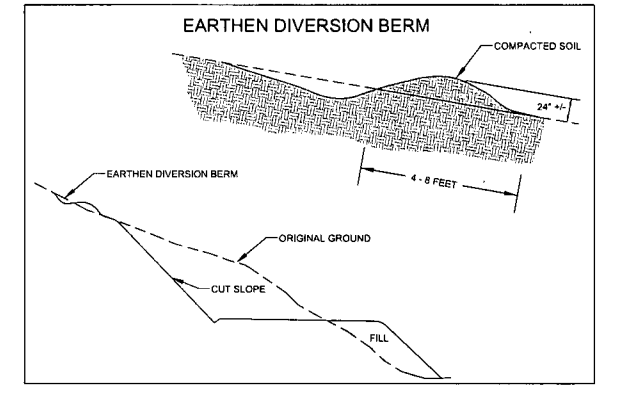
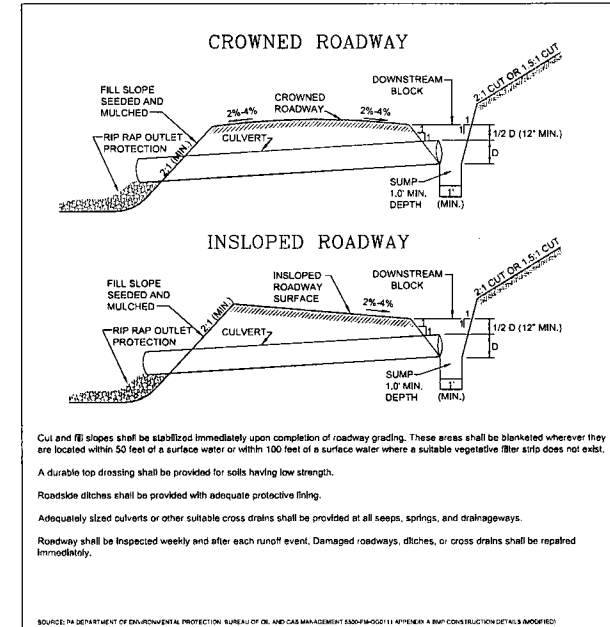
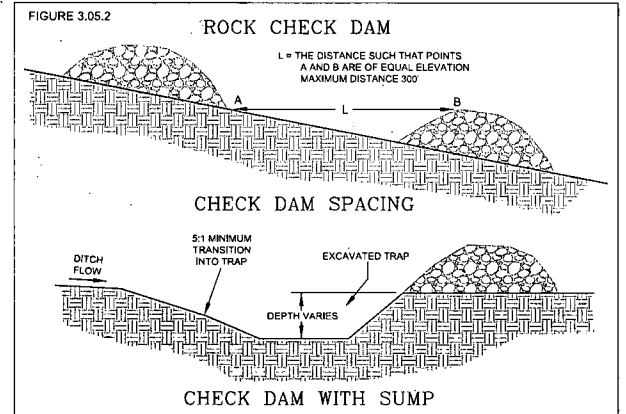
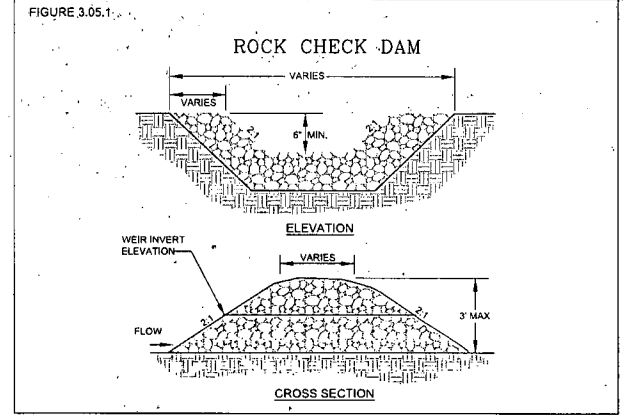


#### Table II-5 Pipe Sizes for Culverts Across Roads

Drainage Area (Ac)	Pipe Diameter (In)	Pipe Capacity (Cfs)
10	15	5
20	18	9
30	21	12
50	24	18
80	27	24
100	30	29
300	36	60
500	42	85

#### Table II-6 Spacing of Culverts

Road Grade %	Distance (Ft)
2-5	500-300
6-10	300-200
11-15	200-100
16-20	100



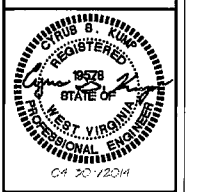
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PROJECT MGMT.

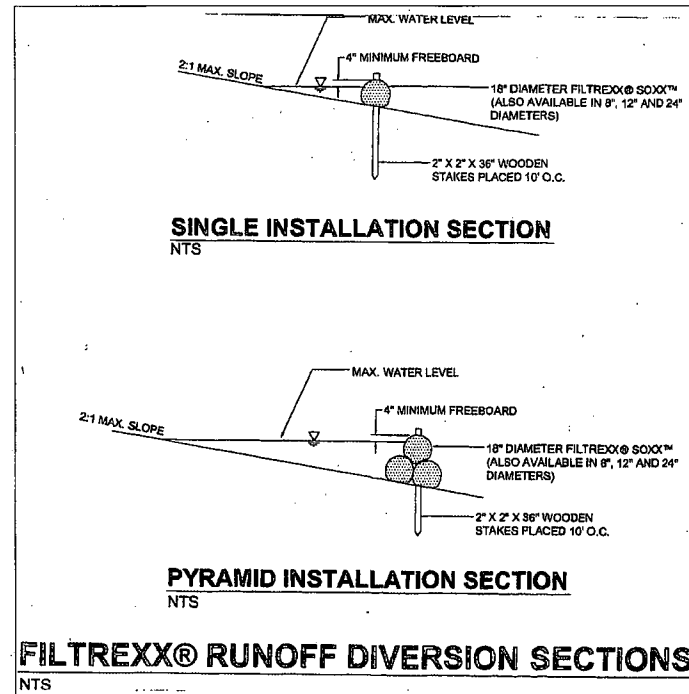
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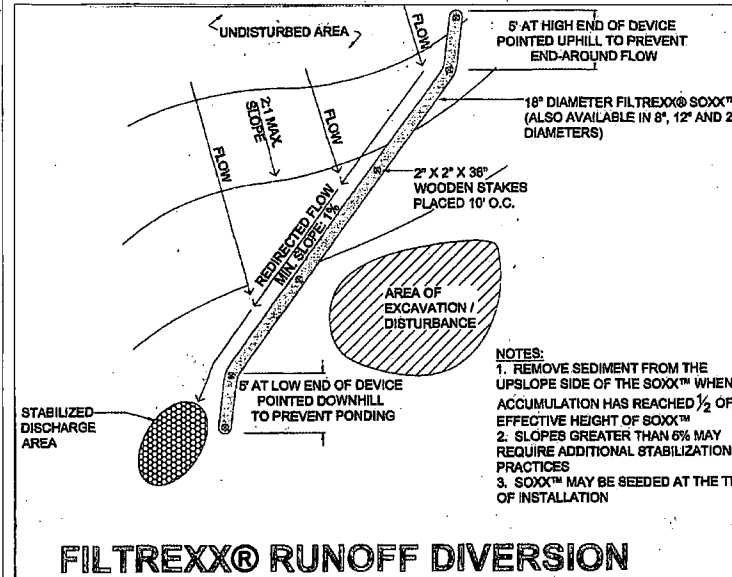
THIS DOCUMENT WAS PREPARED BY: NAVITUS ENGINEERING INC. FOR: CNX GAS COMPANY, LLC

CONSTRUCTION DETAILS  
**FRYE TANK PAD**  
SOUTHWEST DISTRICT  
DODDRIDGE COUNTY, WV

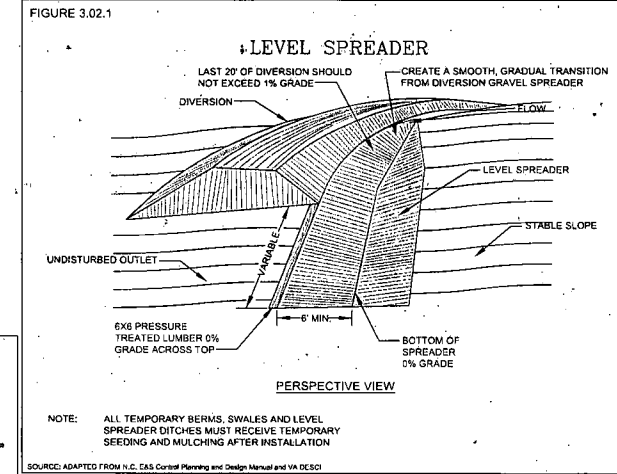
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FILE NO. 8105  
SHEET 21 OF 24



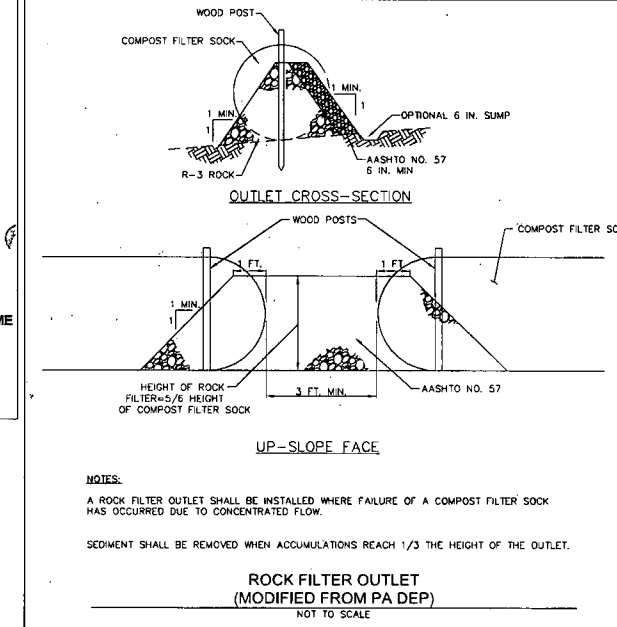
**FILTREXX® RUNOFF DIVERSION SECTIONS**  
NTS



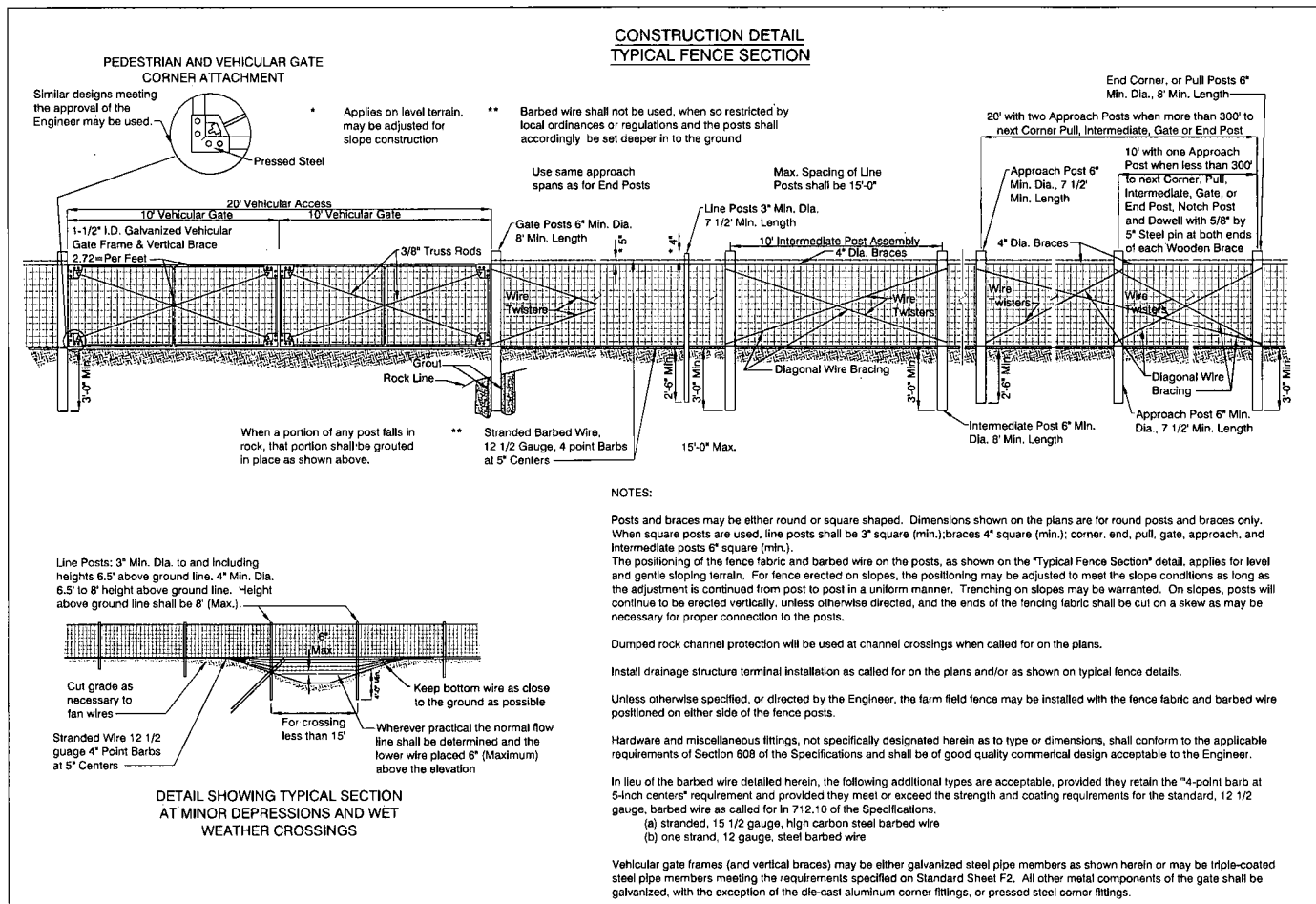
**FILTREXX® RUNOFF DIVERSION**



NOTE: ALL TEMPORARY BERMS, SWALES AND LEVEL SPREADER DITCHES MUST RECEIVE TEMPORARY SEEDING AND MULCHING AFTER INSTALLATION.  
SOURCE: ADAPTED FROM N.C. GAS Corral Planning and Design Manual and VA DCSGI



NOTES:  
A ROCK FILTER OUTLET SHALL BE INSTALLED WHERE FAILURE OF A COMPOST FILTER SOCK HAS OCCURRED DUE TO CONCENTRATED FLOW.  
SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE HEIGHT OF THE OUTLET.  
**ROCK FILTER OUTLET (MODIFIED FROM PA DEP)**  
NOT TO SCALE



**NOTES:**  
Posts and braces may be either round or square shaped. Dimensions shown on the plans are for round posts and braces only. When square posts are used, line posts shall be 3" square (min.); braces 4" square (min.); corner, end, pull, gate, approach, and intermediate posts 6" square (min.).  
The positioning of the fence fabric and barbed wire on the posts, as shown on the "Typical Fence Section" detail, applies for level and gentle sloping terrain. For fence erected on slopes, the positioning may be adjusted to meet the slope conditions as long as the adjustment is continued from post to post in a uniform manner. Trenching on slopes may be warranted. On slopes, posts will continue to be erected vertically, unless otherwise directed, and the ends of the fencing fabric shall be cut on a skew as may be necessary for proper connection to the posts.  
Dumped rock channel protection will be used at channel crossings when called for on the plans.  
Install drainage structure terminal installation as called for on the plans and/or as shown on typical fence details.  
Unless otherwise specified, or directed by the Engineer, the farm field fence may be installed with the fence fabric and barbed wire positioned on either side of the fence posts.  
Hardware and miscellaneous fittings, not specifically designated herein as to type or dimensions, shall conform to the applicable requirements of Section 608 of the Specifications and shall be of good quality commercial design acceptable to the Engineer.  
In lieu of the barbed wire detailed herein, the following additional types are acceptable, provided they retain the "4-point" barb at 4-inch centers' requirement and provided they meet or exceed the strength and coating requirements for the standard, 12 1/2 gauge, barbed wire as called for in 712.10 of the Specifications.  
(a) stranded, 15 1/2 gauge, high carbon steel barbed wire  
(b) one strand, 12 gauge, steel barbed wire  
Vehicular gate frames (and vertical braces) may be either galvanized steel pipe members as shown herein or may be triple-coated steel pipe members meeting the requirements specified on Standard Sheet F2. All other metal components of the gate shall be galvanized, with the exception of the die-cast aluminum corner fittings, or pressed steel corner fittings.

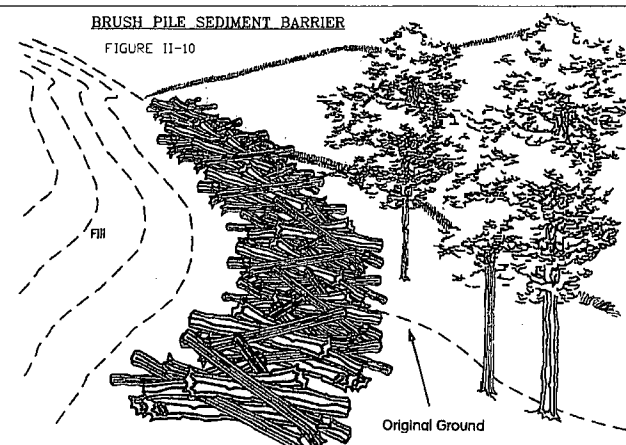
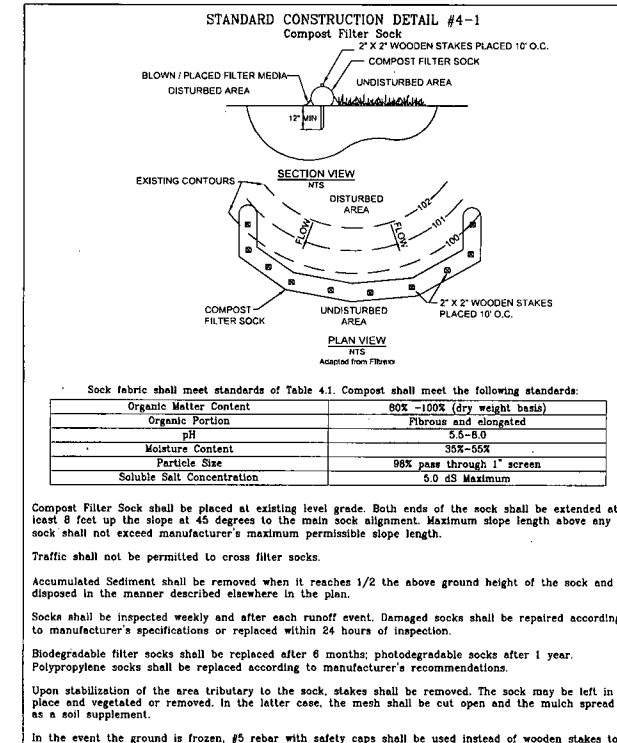


Table 4.1  
Compost Sock Fabric Minimum Specifications

Material Type	3 mil HDPE		5 mil HDPE		Multi-Filament Polypropylene (MPP)	Heavy Duty Multi-Filament Polypropylene (HDMPP)
	Photo-degradable	Bio-degradable	Photo-degradable	Bio-degradable		
Material Characteristics	Photo-degradable	Photo-degradable	Photo-degradable	Bio-degradable	Photo-degradable	Photo-degradable
Sock Diameters	12" 18"	16" 24"	16" 24"	16" 24"	12" 24"	12" 24"
Mesh Opening	3/8"	3/8"	3/8"	3/8"	3/8"	1/8"
Textile Strength	26 psi	26 psi	26 psi	44 psi	44 psi	202 psi
Ultraviolet Stability % Original Strength (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.	100% at 1000 hr.	100% at 1000 hr.	100% at 1000 hr.	100% at 1000 hr.
Minimum Functional Longevity	6 months	9 months	6 months	1 year	2 years	2 years
Inner Containment Netting	Two-ply systems HDPE biaxial net Continuously wound Fusion-welded junctures 3/4" x 3/4" Max. aperture size					
Outer Filtration Mesh	Composite Polypropylene Fabric Woven layer & non-woven fleece mechanically fused via needle punch 3/16" Max. aperture size					

Sock fabrics composed of burlap may be used on projects lasting 6 months or less.



Socket fabric shall meet standards of Table 4.1. Compost shall meet the following standards:

Organic Matter Content	80% - 100% (dry weight basis)
Organic Portion	Fibrous and elongated
pH	5.5-6.0
Moisture Content	35%-55%
Particle Size	98% pass through 1" screen
Soluble Salt Concentration	5.0 dS Maximum

Compost Filter Sock shall be placed at existing level grade. Both ends of the sock shall be extended at least 8 feet up the slope at 45 degrees to the main sock alignment. Maximum slope length above any sock shall not exceed manufacturer's maximum permissible slope length.  
Traffic shall not be permitted to cross filter socks.  
Accumulated Sediment shall be removed when it reaches 1/2 the above ground height of the sock and disposed in the manner described elsewhere in the plan.  
Socks shall be inspected weekly and after each runoff event. Damaged socks shall be repaired according to manufacturer's specifications or replaced within 24 hours of inspection.  
Biodegradable filter socks shall be replaced after 6 months; photodegradable socks after 1 year. Polypropylene socks shall be replaced according to manufacturer's recommendations.  
Upon stabilization of the area tributary to the sock, stakes shall be removed. The sock may be left in place and vegetated or removed. In the latter case, the mesh shall be cut open and the mulch spread as a soil supplement.  
In the event the ground is frozen, #5 rebar with safety caps shall be used instead of wooden stakes to anchor the filter sock. Once the ground thaws the rebar anchors shall be removed and replaced with 2" x 2" wooden stakes and installed as shown in the detail above.

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REGISTERED PROFESSIONAL ENGINEER  
STATE OF WEST VIRGINIA  
04 30 1204

THIS DOCUMENT WAS PREPARED BY:  
NAVITUS ENGINEERING INC.  
FOR: CNX GAS COMPANY, LLC

CONSTRUCTION DETAILS  
**FRYE TANK PAD**  
SOUTHWEST DISTRICT  
DODDRIDGE COUNTY, WV

DATE: 04/30/2014  
SCALE: 1"=50'  
DESIGNED BY: CSK  
FILE NO. 8105  
SHEET 22 OF 24

**REVEGETATION**  
Taken from the  
West Virginia Erosion and Sediment Control Field Manual  
West Virginia Division of Environmental Protection Office of Oil and Gas  
Charleston, W.Va.  
Section IV

**Temporary Seeding**

- a. **General Conditions Where Practice Applies**  
Where exposed soil surfaces are not to be fine-graded or worked for periods longer than 21 days. Temporary vegetative cover with sediment controls must be established where runoff will go directly into a stream. Immediately upon construction of the site (site includes road and location), vegetation must be established on road bank and location slopes. A permanent vegetative cover shall be applied to areas that will be left un-worked for a period of more than six months.
- b. **Seed Mixtures and Planting Dates**  
Refer to Tables 2 through 4 for recommended dates to establish vegetative cover and the approved lists of temporary and permanent plant species, and planting rates. Table 3 gives recommended types of temporary vegetation, rates of application, and optimum seeding dates. In situations where another cover is desired, contact the local soil conservation district for seeding recommendations.
- c. **Seed Application**  
Apply seed by broadcasting, drilling, or by hydroseed according to the rates indicated in Table IV-3. Perform all planting operations at right angles to the slope. Necessary site preparation and roughening of the soil surface should be done just prior to seeding. Seedbed preparation may not be required on newly disturbed areas.

**Permanent Seeding**

- a. **General**  
Permanent vegetative cover will be established where no further soil disturbance is anticipated or needed. Soil fertility and pH level should be tested and adjusted according to seed species planted. Planting of permanent vegetative covers must be performed on all disturbed areas after completion of the drilling process. Any site that contains significant amounts of topsoil shall have the topsoil removed and stockpiled when feasible. Topsoil should not be added to slopes steeper than 2:1 unless a good bonding to the sub-layer can be achieved. After proper grading and seedbed preparation, the vegetation will reestablish ground cover for the control of surface water runoff erosion.
- b. **Lime and Fertilizer**  
1. Lime shall be applied to all permanent seedings. The pH of the soil is to be determined and lime applied accordingly. Once the pH is known, select the amount of lime to be applied from Table IV-5.  
2. Fertilizer shall be applied in all permanent seedings. Apply the equivalent for 500 lbs. minimum 10-20-20 fertilizer per acre or use the amount of fertilizer and lime recommended by a certified soil test.  
3. Application: For best results and maximum benefits, the lime and fertilizer are to be applied at the time of seedbed preparation.
- c. **Permanent Seed Mixtures**  
Planners should take into consideration the species makeup of the existing pasture and the landowner's future pasture management plans when recommending seed mixtures. Selection: From Tables IV 4a and b, Permanent Seeding Mixtures Suitable for Establishment in West Virginia.

**Seeding for Wildlife Habitat**

- Consider the use of the native plants or locally adapted plants when selecting cover types and species for wildlife habitat. Wildlife friendly species or mixes that have multiple values should be considered. See wildlife friendly species/mixtures in Table IV-4b. Consider selecting no or low maintenance long-lived plants adaptable to sites which may be difficult to maintain with equipment.

**Mulching**

- a. **General Organic Mulches**  
The application of straw, hay or other suitable materials to the soil surface to prevent erosion. Straw made from wheat or oats is the preferred mulch, the use of hay is permissible, but not encouraged due to the risk of spreading invasive species. Mulch must be applied to all temporary and permanent seeding on all disturbed areas. Depending on site conditions, in critical areas such as waterways or steep slopes, additional or substitute soil protective measures may be used if deemed necessary. Examples include jute mesh and soil stabilization blankets or erosion control matting.
- b. **Chemical Mulches, Soil Binders and Tackifiers**  
A wide range of synthetic spray on materials are marketed to stabilize and protect the soil surface. These are mixed with water and sprayed over the mulch and to the soil. They may be used alone in some cases as temporary stabilizers, or in conjunction with fiber mulch, straw or hay.
- c. **Specifications**  
When used alone most chemical mulches do not have the capability to insulate the soil or retain soil moisture that organic mulches have.
- d. **Anchoring**  
Depending on the field situation, mulch may not stay in place because of wind action or rapid water runoff. In such cases, mulch is to be anchored mechanically or with mulch netting.

**Table 4a**  
Permanent Seeding Mixture

Species/Mixture	Seeding Rate (lbs/acre)	Soil/Drainage preference	pH Range
Crownvetch / Tall Fescue	10 - 15	Well - Mod. Well	5.0 - 7.5
Crownvetch / Perennial Ryegrass	10 - 15	Well - Mod. Well	5.0 - 7.5
Flatpea or Perennial Pea / Tall Fescue	20	Well - Mod. Well	4.0 - 8.0
Ladino Clover / Serecia Lespedeza / Tall Fescue	15	Well - Mod. Well	4.5 - 7.5
Ladino Clover / Redtop / Tall Fescue	30	Well - Mod. Well	5.0 - 7.5
Ladino Clover / Redtop / Tall Fescue	30	Well - Mod. Well	5.0 - 7.5
Ladino Clover / Redtop / Tall Fescue	30	Well - Mod. Well	5.0 - 7.5
Birdsfoot Trefoil / Redtop	10	Well - Mod. Well	5.0 - 7.5
Serecia Lespedeza / Tall Fescue	25	Well - Mod. Well	4.5 - 7.5
Redtop / Tall Fescue	30	Well - Mod. Well	5.0 - 7.5
Creeping Red / Tall Fescue	50	Well - Poorly	4.5 - 7.5
Perennial Ryegrass / Tall Fescue	10	Well - Poorly	5.8 - 8.0
Lathco Flatpea *	20		

\* 'Lathco' Flatpea is potentially poisonous to some livestock. All legumes should be planted with proper inoculants prior to seeding. For unprepared seedbeds or seeding outside the optimum timeframe, add 50% more seed to the specified rate.  
Mixtures listed in bold are suitable for use in shaded woodland settings; those in italics are suitable for use in filter strips.

**Table 4b**  
Wildlife and Farm Friendly Seed Mixtures

Species/Mixture	Seeding Rate (lbs/acre)	Soil/Drainage preference	pH Range
KY Bluegrass / Redtop	20	Well - Mod. Well	5.5 - 7.5
Ladino Clover or Birdsfoot Trefoil	2 / 10	Well - Mod. Well	5.5 - 8.0
Timothy / Alfalfa / Timothy	12	Well - Poorly	5.5 - 7.5
Birdsfoot Trefoil / Orchardgrass / Ladino Clover / Redtop	2	Well - Mod. Well	5.5 - 7.5
Orchardgrass / Ladino Clover / Orchardgrass / Perennial Ryegrass	10	Well - Mod. Well	5.5 - 7.5
Creeping Red Fescue / Perennial Ryegrass	30	Well - Mod. Well	5.5 - 7.5
Orchardgrass or KY Bluegrass / Birdsfoot Trefoil / Redtop / Orchardgrass	10	Well - Mod. Well	5.5 - 7.5
Lathco Flatpea * / Perennial Ryegrass	20	Well - Mod. Well	5.5 - 7.5
Lathco Flatpea * / Orchardgrass	30	Well - Mod. Well	5.5 - 7.5

\* 'Lathco' Flatpea is potentially poisonous to some livestock. All legumes should be planted with proper inoculants prior to seeding. For unprepared seedbeds or seeding outside the optimum timeframe, add 50% more seed to the specified rate.  
Mixtures listed in bold are suitable for use in shaded woodland settings; those in italics are suitable for use in filter strips.

**Table IV-5**  
Lime and Fertilizer Application Table

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	4	500

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

**Table IV-1**  
Recommended Seeding Dates

Planting Dates	Suitability
March 1 - April 15 and August 1 - October 1	Best Seeding Periods
April 15 - August 1	HIGH RISK - moisture stress likely
October 1 - December 1	HIGH RISK - freeze damage to young seedlings
December 1 - March 1	Good seeding period. Dormant seeding

**Table 2**  
Acceptable Fertilization Recommendation

Species	N (lbs/ac)	P2O5 (lbs/ac)	Example Rec. (per acre)
Cool Season Grass	40	80	400 lbs. 10-20-20
CS Grass & Legume	30	60	300 lbs. 10-20-20
Temporary Cover	40	40	200 lbs. 19-19-19

**Table 3**  
Temporary Cover

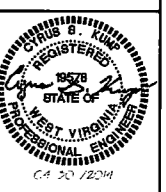
Species	Seeding Rate (lbs/acre)	Optimum Seeding Dates	Drainage	pH Range
Annual Ryegrass	40	3/1 - 6/15 or 8/15 - 9/15	Well - Poorly	5.5 - 7.5
Field Bromegrass	40	3/1 - 6/15 or 8/15 - 9/15	Well - Mod. Well	6.0 - 7.0
Spring Oats	96	3/1 - 6/15	Well - Poorly	5.5 - 7.0
Sundagrass	40	5/15 - 8/15	Well - Poorly	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.

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

Material	Minimum Rates per acre	Coverage	Remarks
Hay or Straw	2 to 3 Tons	Cover 75% to 90% of Surface	Subject to wind blowing or washing unless tied down
Wood Fiber	1000 to 1500 lbs	Cover all	For hydroseeding
Pulp Fiber		Disturbed Areas	
Wood - Cellulose			
Recirculated Paper			

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



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**CONSTRUCTION DETAILS**  
**FRYE TANK PAD**  
SOUTHWEST DISTRICT  
DODDRIDGE COUNTY, WV

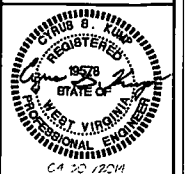
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Material Quantities				
TANK PAD SITE: FRYE				
Item Description	Quantity	Unit	Unit Cost	Item Total
<b>1.0 Clearing and Grubbing</b>				
1.a Tree Clearing	26.8	AC	\$	\$
1.b. Mowing	3.8	AC	\$	\$
<b>2.0 Compost Filter Sock</b>				
2.a. 12" Compost Filter Sock		LF	\$	\$
2.b. 18" Compost Filter Sock	8,715	LF	\$	\$
2.c. 24" Compost Filter Sock	109	LF	\$	\$
2.d. 32" Compost Filter Sock	299	LF	\$	\$
2.e. Compost Sock Diversion		LF	\$	\$
<b>3.0 Stone &amp; Aggregate Surfacing</b>				
3.a. Tank Pad 12" of 0"-6" Aggregate (Compacted to 10")*	9,687	TONS	\$	\$
3.b. Tank Pad 4" of 3/4" Crusher Run (Compacted to 2")*	3,767	TONS	\$	\$
3.c. Access Road & Manifold Pad 12" of 0"-6" Aggregate (Compacted to 10")*	6,369	TONS	\$	\$
3.d. Access Road & Manifold Pad 4" of 3/4" Crusher Run (Compacted to 2")*	2,477	TONS	\$	\$
3.e. Geotextile	29,192	SY	\$	\$
3.f. Rock Level Spreader		TONS	\$	\$
<b>4.0 Coconut Slope Matting</b>				
	62,217	SY	\$	\$
<b>5.0 Seed &amp; Mulch</b>				
	24.6	AC	\$	\$
<b>6.0 Ditch Lining</b>				
6.a. Ditch Fabric	6,080	SY	\$	\$
6.b. R-3	1,013	TONS	\$	\$
<b>7.0 CPP Culvert</b>				
7.a. 15" HDPE (Tank Pad)	1,430	LF	\$	\$
7.b. 15"	436	LF	\$	\$
7.c. 18"		LF	\$	\$
7.d. 24"		LF	\$	\$
7.e. 30"		LF	\$	\$
7.f. 36"		LF	\$	\$
7.g. Sump Drains	6	EA	\$	\$
<b>8.0 Excavation</b>				
8.a. Tank Pad (Cut w 10% Swell)	38,294	CY	\$	\$
8.b. Tank Pad (Export to Stockpile)	73,577	CY	\$	\$
8.c. Access Roads & Manifold Pad (Cut w 10% Swell)	24,380	CY	\$	\$
8.d. Access Roads & Manifold Pad (Export to Stockpile)	667	CY	\$	\$
8.e. Topsoil (12")	23,958	CY	\$	\$
<b>9.0 Ditch Length</b>				
	6,282	LF	\$	\$
<b>10.0 Rip Rap Aprons</b>				
	383	TONS	\$	\$
<b>11.0 Rip Rap Weir</b>				
		TONS	\$	\$
<b>12.0 Overexcavation (Bonding Bench)</b>				
	163,957	CY	\$	\$

\*Gravel quantities shown have been increased by 10%



THIS DOCUMENT WAS  
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NAVITUS ENGINEERING  
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MATERIAL QUANTITIES  
**FRYE TANK PAD**  
SOUTHWEST DISTRICT  
DODDRIDGE COUNTY, WV

DATE: 04/30/2014

SCALE: 1"=50'

DESIGNED BY: CSK

FILE NO. 8105

SHEET 24 OF 24