

Commercial/Industrial Floodplain Development Permit

Doddridge County, WV Floodplain Management

This permit has been issued to **Noble Energy, Inc.**, 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: #14-248 ~ OXF97 Well Pad

Date Approved: 08/06/2014

Expires: N/A

Issued to: Noble Energy, Inc.

**POC: Dee Swiger
724-820-3000**

**Company Address: 33 Technology Drive, STE 116
Canonsburg, PA 15317**

Project Address: West Union District

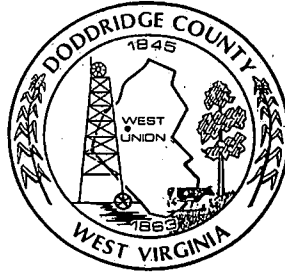
Lat/Long: 39.233201N/80.803583W

Purpose of development: Well Pad Construction. Project does NOT impact floodplain.

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

Date: 08/06/2014

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



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118 East Court Street; West Union, WV 26456

Legal Advertisement:
Doddridge County
Floodplain Permit Application

Please take notice that on the 28th day of July, 2014

Noble Energy Inc.

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

West Union District 39.233201N / 80.803583W

Permit #14-248 OXF97 Well Pad

(Note: This project is not within the floodplain)

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

Any interested persons who desire to comment shall present the same in writing by **August 27, 2014**, delivered to:

Clerk of the County Court

118 E. Court Street, West Union, WV 26456

Beth A Rogers, Doddridge County Clerk

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

33 Technology Drive, Suite 116
Canonsburg, PA 15317
Tel: 724-820-3000
Fax: 724-820-3098
www.nobleenergyinc.com



14-248

July 23, 2014

Doddridge County Commission
Attn: Mr. Dan Wellings
Floodplain Coordinator
118 East Court Street
West Union, WV 26456

RE: Noble Energy Inc.
OXF 97 Well Pad Project

Dear Mr. Wellings,

Pursuant to the requirements of the Doddridge County Floodplain Ordinance, Noble Energy Inc. (Noble) is submitting this letter to request concurrence to complete a project in Doddridge County, West Virginia. Noble is proposing to construct a Marcellus Shale well pad, access road, and other pertinent facilities. The approximate location is NAD 83 Lat: 39° 13'59.94" Lon: 80° 48'12.86" NAD 27 Lat: 39° 13'59.64" Lon: 80° 48'163.48" off of County Route 11/4. Please see the attached project location map.

Noble intends to use the existing public road from Route 11/4 to gain access to the project site. Noble's access road construction will begin at NAD 83 Lat: 39° 13'05.02" Lon: 80° 48'18.44" NAD 27 Lat: 39° 14'04.72" Lon: 80° 48'19.06". Until the referenced coordinates, Noble will be using an existing road. The well pad and ancillary facilities will be built, wells drilled, and reclaimed per the West Virginia Department of Environmental Protection requirements outlined in the drilling permit expected in late in July 2014. During the course of this project, no fill material will be added to or removed from the floodplain area.

Noble is requesting your concurrence to begin construction on the OXF 97 Well Pad once the WVDEP drilling permits are received. Please feel free to contact me at 724-820-3061 or at dswiger@nobleenergyinc.com should you have any questions or comments.

Sincerely,

A handwritten signature in black ink, appearing to read 'Dee Swiger', written over a horizontal line.

Dee Swiger
Regulatory Analyst III

**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 _____

[Handwritten Signature]

DATE 8/22/14

SECTION 2: PROPOSED 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: Noble Energy, Inc.

ADDRESS: 333 Technology Drive, Suite 116 Canonsburg, PA 15317

TELEPHONE NUMBER: 724-820-3061

CONTRACTOR NAME: unknown at this time
ADDRESS: _____
TELEPHONE # _____
WV CONTRACTOR LICENCE # _____

ENGINEER'S NAME: Dieffenbach & Aritz - Bryan D. Morris
ADDRESS: 12 Roush Pt Morgantown, WV 26501
TELEPHONE NUMBER: 304.985.5555

PROJECT LOCATION:

NAME OF SURFACE OWNER/OWNERS (IF NOT THE APPLICANT) Haessly Land & Timber LLC
26 Sheets Run Rd, Marietta OH 45750 & Kathryn Walters 9407 Scratchet.
ADDRESS OF SURFACE OWNER/OWNERS (IF NOT THE APPLICANT) Wilmington, NC 28412

DISTRICT: West Union
LAND BOOK DESCRIPTION: _____
DEED BOOK REFERENCE: _____
TAX MAP REFERENCE: Haessly 09-08-22-10 Walters 09-08-19-27
EXISTING BUILDINGS/USES OF PROPERTY: None - Farm / Timber
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 _____

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

B. OTHER DEVELOPMENT ACTIVITIES:

- Fill Mining Drilling Pipelining
 Grading
 Excavation (except for STRUCTURAL DEVELOPMENT checked above)
 Watercourse Alteration (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)

oil and Gas well pad

C. STANDARD SITE PLAN OR SKETCH

1. SUBMIT ALL STANDARD SITE PLANS, IF ANY HAVE BEEN PREPARED (ENGINEERING PLANS MUST BE SIGNED AND SEALED).
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/
PROPOSED CONSTRUCTION PROJECT WITHIN THE FLOODPLAIN**

\$ _____

D. ADJACENT AND/OR AFFECTED LANDOWNERS:

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

NAME: _____

NAME: _____

ADDRESS: _____

ADDRESS: _____

NAME: _____

NAME: _____

ADDRESS: _____

ADDRESS: _____

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

NAME: _____

NAME: _____

ADDRESS: _____

ADDRESS: _____

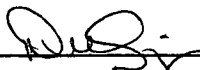
E. CONFIRMATION FORM

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

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

(E) CONSULTANTS AND/OR HEARING EXPERTS UTILIZED BY DODDRIDGE COUNTY FLOODPLAIN ADMINISTRATOR/MANAGER OR FLOODPLAIN APPEALS BOARD FOR REVIEW OF MATERIALS AND/OR TESTIMONY REGARDING THE EFFICACY OF GRANTING OR DENYING THE APPLICANT'S FLOODPLAIN PERMIT.

NAME (PRINT): Dee Swiger

SIGNATURE:  DATE: 7-22-14

After completing SECTION 2, APPLICANT should submit form and fees to Clerk of Doddridge County Court 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 .

Stream name _____.

Profile # _____.

Unavailable

The proposed development is located in a floodway.

See section 4 for additional instructions.

SIGNED _____

DATE _____

**SECTION 4: ADDITIONAL INFORMATION REQUIRED FOR DEVELOPMENT IN
SPECIAL FLOOD HAZARD AREA (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 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 10 lots or 2 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.
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 Flood Hazard Area must have a West Virginia Contractor's License and a Manufactured Home Installation License as required by the Federal Emergency Management Agency (FEMA).

- Other: _____

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

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

SIGNED _____ DATE _____

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

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.
- 2 Actual (As Built) elevation of floodproofing is _____ FT. NGVD.

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

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

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

INSPECTIONS:

DATE: _____ BY: _____
DEFICIENCIES ? Y/N

COMMENTS _____

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

Certificate of Compliance issued: DATE: _____ BY: _____

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

PERMIT NUMBER: _____
PERMIT DATE: _____

PURPOSE –

CONSTRUCTION LOCATION: _____

OWNER'S ADDRESS: _____

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

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

SIGNED _____ **DATE** _____

WV Flood Map



This map is not the official regulatory FIRM or DFIRM. Its purpose is to assist with determining potential flood risk for the selected location.

Map Created on 8/1/2014

	Location of the mouse click		K — K Cross Section Line
	Approximate Study (Zone A)		810 Base Flood Elevation Line
	Detailed Study (Zone AE, AH, AO)		DFIRM Panel (Map) Index
	Floodway		
	Flood Water Depth (HEC-RAS)		

User Notes:
Noble Energy
OXF97 Well Pad

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

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

Flood Hazard Area: Selected site is **WITHIN** the FEMA 100-year floodplain.

Flood Zone:

Advisory Flood Height: About 1366 feet
Water Depth: About 1,366.00 feet (Source: HEC-RAS)
Elevation: About 1366 feet
Location (long, lat): 80.803583 W, 39.233201 N
Location (UTM 17N): (516952, 4342674)
FEMA Issued Flood Map: 54017C0225C
Contacts: Doddridge County
CRS Information: N/A
Flood Profile: No Profile
HEC-RAS Model: No Model
Parcel Number:

STATE OF WEST VIRGINIA,
COUNTY OF DODDRIDGE, TO WIT

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

Floodplain Permit
OXF97 Well Pad
Noble Energy #14-248

was published in said paper for ... *2*

successive weeks beginning with the issue
of ... *August 5th* ... 2014 and

ending with the issue of
August 12th ... 2014 and

that said notice contains ... *189*

WORD SPACE at ... *115* ... cents a word

amounts to the sum of \$... *21.74*

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

\$ *16.31*

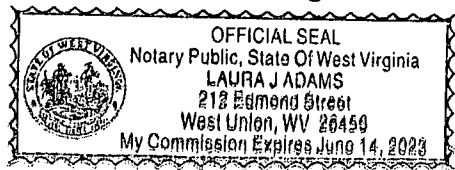
and each publication thereafter
\$ *38.05*

EDITOR
Virginia Nicholson

SWORN TO AND SUBSCRIBED
BEFORE ME THIS THE ... *14th* ... DAY
OF ... *August* ... 2014

NOTARY PUBLIC
Laura Adams

LEGAL ADVERTISEMENT
Doddridge County
Floodplain Permit Application
Please take notice that on the 28th day of July, 2014
Noble Energy Inc. filed an application for a Floodplain
Permit to develop land located at or about West Union
District 39-233201N/80-803583W Permit # 14-248 OXF97
Well Pad
(Note: This project is not within the floodplain)
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business hours. As this project is outside the FEMA
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authority. Any interested persons who desire to comment
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Delivered to the
Clerk of the County Court
118 E. Court Street, West Union, WV 26456
Beth A. Rogers, Doddridge County Clerk
Edwin L. "Bo" Wriston, Doddridge County Flood Plain
Manager
855-2xb



EROSION & SEDIMENT CONTROL PLAN

OXF-97 WELL SITE

DODDRIDGE COUNTY, WEST VIRGINIA

FOR

NOBLE ENERGY, INC

PROJECT NO. 1454001
JUNE 17, 2014

REVISED				
DATE				
NO.				
DRAWN	KAW			
CHECKED	BKB			
APPROVED	BDM			
DATE	8/17/14			
PROJECT NO.	1454001			
CLIENT	NOBLE ENERGY, INC			
PROJECT	OXF-97 WELL SITE			
TITLE	TITLE SHEET			
DRAWING NO.	1			



REFERENCES: US DEPARTMENT OF INTERIOR GEOLOGICAL SURVEY, OXFORD QUADRANGLE, WV, 7.5 MINUTE SERIES

LOCATION MAP
750' 0 1000' 2000'
SCALE

DISTURBANCE SUMMARY TABLE

PARCEL ID:	Property Owner	LIMITS OF CLEARING & GRUBBING			LIMITS OF DISTURBANCE		
		Forrested	Non-Forrested	Total	Forrested	Non-Forrested	Total
09-08-22-14	Haessly Land & Timber LLC	0.20	0.56	0.76	0.92	1.18	2.10
09-08-22-10	Haessly Land & Timber LLC	6.03	0.00	6.03	7.66	0.00	7.66
09-07-05-04	Haessly Land & Timber LLC	0.64	0.00	0.64	2.09	0.00	2.09
09-08-19-27	Zoe K. Walters	3.94	0.00	3.94	4.58	0.00	4.58
09-08-23-3.1	William Randall Hamblet	4.76	2.61	7.37	10.48	2.99	13.47
09-08-23-3	Lucy Harper	0.31	0.00	0.31	0.52	0.00	0.52
TOTALS:		15.88	3.17	19.05	26.25	4.17	30.42

INDEX	
DRAWING NO.	TITLE
1	TITLE SHEET
2	GENERAL NOTES
3	EXISTING SITE PLAN
4	OVERALL SITE PLAN
5-11	PROPOSED SITE PLAN
12-14	ACCESS ROAD PROFILE
15	SOILS PLAN
16	TYPICAL SECTIONS
17-23	SITE RESTORATION PLAN
24-26	EIS DETAILS
27	SEED AND MULCH PLAN
ATTACHMENT A	OXF-148 SITE PLAN - EGT PRODUCTION COMPANY

11/23/14 3:17:2014 2:51:48 PM K:\Noble\1454001_OXF97\Plans\E&S\DOT_ Title_Sheet.dgn

DIEFFENBAUCH & HRITZ, LLC

EROSION AND SEDIMENT CONTROL GENERAL NOTES

A. GENERAL NOTES

1. UNDERGROUND UTILITIES ARE SHOWN AT APPROXIMATE LOCATIONS. THE EXACT LOCATIONS, DEPTH, AND SIZE OF ALL EXISTING UTILITIES IN THE PROJECT AREA SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR WITH A REPRESENTATIVE OF THE APPROPRIATE UTILITY COMPANY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL UTILITY COMPANIES AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO COMMENCING WORK ON THIS PROJECT. THE CONTRACTOR SHALL CONTACT WEST VIRGINIA 811 AT 1-800-245-4848 SEVENTY-TWO (72) HOURS PRIOR TO COMMENCING WORK.

2. THE CONTRACTOR SHALL APPLY A MINIMUM OF SIX (6) INCHES (150 MM) OF TOPSOIL TO ALL EXCAVATED AND FILLED SURFACES THAT WILL RECEIVE PERMANENT SEEDING AND MULCHING. TOPSOIL SHALL CONSIST OF FRIABLE SURFACE SOIL REASONABLY FREE OF GRASS, ROOTS, WEEDS, STICKS, ROCKS, AND OTHER UNSUITABLE MATERIAL. THE SOURCE OF THE TOPSOIL SHALL BE EXISTING STOCKPILED TOPSOIL.

3. SPREADING SHALL NOT BE CONDUCTED WHEN THE GROUND OR TOPSOIL IS FROZEN, EXCESSIVELY WET, OR OTHERWISE IN A CONDITION DETRIMENTAL TO UNIFORM SPREADING OPERATIONS. SURFACES DESIGNATED TO RECEIVE A TOPSOIL APPLICATION SHALL BE LIGHTLY SCARIFIED JUST PRIOR TO THE SPREADING OPERATION. WHERE COMPACTED EARTH FILLS ARE TOPSOILED, THE TOPSOIL SHALL BE PLACED CONCURRENTLY WITH THE EARTH FILL AND SHALL BE BONDED TO THE COMPACTED FILL WITH THE COMPACTING EQUIPMENT. FOLLOWING THE SPREADING OPERATION, THE TOPSOIL SURFACE SHALL BE LEFT REASONABLY SMOOTH AND WITHOUT RUTS AND SURFACE IRREGULARITIES THAT COULD CONTRIBUTE TO CONCENTRATED WATER FLOW DOWN SLOPE.

4. THE DRAWINGS IN THIS PLAN SET ARE A REPRESENTATION OF THE PROPOSED WELL PAD AND ACCESS ROAD. PROPOSED STRUCTURES SUCH AS THE ROADWAYS, CULVERTS, SEDIMENT BARRIERS, ETC. ARE SHOWN IN THEIR APPROXIMATE PRE-PLANNING CONFIGURATION. GIVEN UNFORESEEN CIRCUMSTANCES THE AS-BUILT LOCATIONS OF THESE STRUCTURES MAY VARY SLIGHTLY FROM THE LOCATIONS SHOWN ON THIS PLAN.

5. ALL ROADS SHOWN ARE EXISTING UNLESS OTHERWISE NOTED AND SHALL BE MAINTAINED IN ACCORDANCE WITH THE WVDOT OIL & GAS BMP MANUAL. ALL CULVERTS SHOWN ARE PROPOSED AND WILL BE A MINIMUM OF 12" UNLESS OTHERWISE NOTED.

6. ALL FILL SHALL BE COMPACTED TO 95 PERCENT OF STANDARD PROCTOR (ASTM D698) DENSITY AT A MOISTURE CONTENT WITHIN 2 PERCENT OF OPTIMUM.

7. BRUSH AND / OR TIMBER REMOVED BY CLEARING AND GRUBBING ACTIVITIES WILL BE CUT UP AND WINROWED BELOW THE OUT SLOPE OF CONSTRUCTION AREAS.

8. DITCH LINES AND CULVERTS WILL BE INSTALLED WHENEVER PRACTICAL. HOWEVER, PORTIONS OF THE EXISTING / PROPOSED ROADS WHICH ARE LOCATED IN SOLID ROCK SHALL NOT REQUIRE DITCHES OR CROSS DRAINS, UNLESS OTHERWISE WARRANTED BY FIELD CIRCUMSTANCES.

9. SUPPLEMENTAL DRAINAGE AND / OR SEDIMENT CONTROL MEASURES IN ADDITION TO THOSE SHOWN ON THE PLANS WILL BE INSTALLED WHEN AND WHERE DEEMED NECESSARY. THE ADDITIONAL MEASURES MAY CONSIST OF COMPOST FILTER SOCK, SILT FENCES, OR OTHER MEASURES AS OUTLINED IN THE WV OIL & GAS BMP MANUAL.

10. CROSS DRAINS AND / OR WATERBARS WILL BE INSTALLED AS AN INTEGRAL PART OF THIS RECLAMATION PROCESS AND SHALL BE SPACED IN ACCORDANCE WITH THE AS-BUILT ROADWAY SLOPES AND TABLE I-4 OF THE WV EROSION AND SEDIMENT CONTROL FIELD MANUAL.

11. ROCK CHECK DAMS ARE TO BE CONSTRUCTED DOWNSTREAM OF ALL CULVERTS AND CROSS DRAIN INLETS AS REQUIRED BY THE WV OIL & GAS BMP MANUAL. FIELD CONDITIONS SUCH AS ROCK OUTCROPS AND BEDROCK MAY PROHIBIT INLET TRAPS FROM BEING INSTALLED. WHEN THESE CONDITIONS EXIST, ADDITIONAL EROSION CONTROL MEASURES SHALL BE EVALUATED AND UTILIZED AS NEEDED.

12. CONTRACTORS ARE RESPONSIBLE FOR NOTIFICATION OF THE OPERATOR PRIOR TO ANY DEVIATION OF THIS PLAN.

13. ENTRANCES AT COUNTY / STATE ROADS SHALL BE MAINTAINED IN ACCORDANCE WITH D.O.T. REGULATIONS. SEPARATE PERMITS MAY BE REQUIRED BY THE WVDOT. A STABILIZED ENTRANCE CONSISTING OF 6" CRUSHED STONE WILL BE INSTALLED FOR A MINIMUM OF 75' FROM THE INGRESS AND EGRESS POINTS OF ALL PUBLIC ROADWAYS IN ACCORDANCE WITH WV OIL & GAS BMP MANUAL.

14. ALL STRUCTURES SHOULD BE INSPECTED REGULARLY AND REPAIRS OF ANY DAMAGE SHOULD BE COMPLETED AS PROMPTLY AS POSSIBLE.

B. SITE PREPARATION

1. SEEDING PREPARATION

THE SEEDBED MUST BE LOOSE AT THE TIME OF SEEDING. APPLICATIONS OF SEED ON HARD GROUND WILL RESULT IN A POOR STAND OF VEGETATION. THE SOIL SURFACE MUST BE LOOSENEED TO A MINIMUM DEPTH OF 3 INCHES BY DISKING ON THE CONTOUR, OR BY BULLDOZER TRACKING UP AND DOWN THE SLOPE. BACKBLADING IS ACCEPTABLE ON GENTLE SLOPES SUCH AS THE BENCH OR ROAD BED. IF SEEDBED PREPARATION IS NOT FEASIBLE, 50% MORE SEED SHALL BE ADDED TO THE RECOMMENDED RATES.

2. TEMPORARY SEEDING

WHERE EXPOSED SOIL SURFACES ARE NOT TO BE FINE-GRADED OR WORKED FOR PERIOD LONGER THAN 21 DAYS, TEMPORARY VEGETATIVE COVER WITH SEEDING CONTROLS MUST BE ESTABLISHED. VEGETATION MUST BE ESTABLISHED ON ROAD BANK AND LOCATION SLOPES WHEN RECLAMATION CANNOT BE COMPLETED WITHIN THE PRESCRIBED 6 MONTHS. APPLY SEED BY BROADCASTING, DRILLING, OR HYDRAULIC APPLICATIONS ACCORDING TO THE RATE INDICATED IN THE TABLE BELOW. PERFORM ALL PLANTING OPERATIONS AT RIGHT ANGLES TO THE SLOPE.

SEED	RATES IN LBS. PER ACRE	RECOMMENDED DATE
ANNUAL RYEGRASS	40	MAR 1 TO JUNE 15 AUG 15 TO SEPT 15
FIELD BROMEGRASS	40	MAR 1 TO JUNE 15 AUG 15 TO SEPT 15
SPRING OATS	90	MARCH 1 TO JUNE 15
SUDANGRASS	40	MAY 15 TO AUG 15
WINTER RYE	180	AUG 15 TO OCT 15
WINTER WHEAT	180	AUG 15 TO NOV 15
JAPANESE MILLET	30	JUNE 15 TO AUG 15
REDTOP	5	MARCH 1 TO JUNE 15
ANNUAL RYEGRASS	25	MARCH 1 TO JUNE 15
SPRING OATS	84	MARCH 1 TO JUNE 15

NOTE: THESE RATES SHOULD BE INCREASED BY 50% IF PLANTED APRIL 15 - AUGUST 1 AND OCTOBER 1 - MARCH 1.

IN SITUATIONS WHERE ANOTHER COVER IS DESIRED, CONTACT THE LOCAL SOIL CONSERVATION DISTRICT FOR SEEDING RECOMMENDATIONS. APPROVAL OF THE OIL AND GAS INSPECTOR IS NEEDED.

3. PERMANENT SEEDING

PLANTING OF PERMANENT VEGETATIVE COVER SHALL BE PERFORMED ON ALL DISTURBED AREAS WHERE NO FURTHER SOIL DISTURBANCE IS ANTICIPATED OR NEEDED. PLANTING OF PERMANENT VEGETATIVE COVERS MUST BE PERFORMED ON ALL DISTURBED AREAS AFTER THE COMPLETION OF THE DRILLING PROCESS. ANY SITE THAT CONTAINS SIGNIFICANT AMOUNTS OF TOPSOIL SHALL HAVE THE TOPSOIL REMOVED AND STOCKPILED WHEN FEASIBLE. LIME AND FERTILIZER RATES SHALL BE APPLIED TO ALL PERMANENT SEEDING AT THE TIME OF SEEDBED PREPARATION.

SEED	RATES IN LBS. PER ACRE	SOIL DRAINAGE PREFERENCE	pH RANGE
CROWN VETCH / TALL FESCUE	10 - 15	WELL - MOD. WELL	6.0-7.5
CROWN VETCH PERENNIAL RYEGRASS	10 - 15	WELL - MOD. WELL	6.0-7.5
FLATPEA OR PERENNIAL RYE TALL FESCUE	20	WELL - MOD. WELL	6.0-7.5
LATHO CLOVER	30	WELL - MOD. WELL	6.0-7.5
SEBASTIA LEA PEPERZIN TALL FESCUE	2		
TALL FESCUE	40	WELL - MOD. WELL	4.0-8.0
LATHO CLOVER / REDTOP	3	WELL - MOD. WELL	4.0-8.0
CROWN VETCH / TALL FESCUE / REDTOP	20	WELL - MOD. WELL	4.5-7.5
TALL FESCUE	40	WELL - MOD. WELL	4.5-7.5
BIRDSFOOT TREFLOID / REDTOP	10	WELL - MOD. WELL	6.0-7.5
SEBASTIA LEA PEPERZIN / TALL FESCUE	30	WELL - MOD. WELL	4.5-7.5
REDFEATHER / REDTOP	30	WELL - MOD. WELL	6.0-7.5
TALL FESCUE / CROWN VETCH	30	WELL - MOD. WELL	6.0-7.5
TALL FESCUE	60	WELL - POORLY	4.5-7.5
PERENNIAL RYEGRASS / TALL FESCUE	10	WELL - POORLY	6.0-8.0
LATHO FLATPEA	30	WELL - POORLY	6.0-8.0

MIXTURES IN THE TABLE BELOW ARE MORE WILDLIFE AND FARM FRIENDLY

SEED	RATES IN LBS. PER ACRE	SOIL DRAINAGE PREFERENCE	pH RANGE
KY BLUEGRASS / REDTOP	20	WELL - MOD. WELL	5.5 - 7.5
LATHO CLOVER OR BIRDSFOOT TREFLOID	2 / 10	WELL - MOD. WELL	8.5 - 8.0
TIMOTHY / TALL FESCUE	5	WELL - MOD. WELL	8.5 - 8.0
TIMOTHY / BIRDSFOOT TREFLOID	5	WELL - POORLY	8.5 - 7.5 B
ORCHARDGRASS / LATHO CLOVER / REDTOP	10	WELL - MOD. WELL	5.5 - 7.5
ORCHARDGRASS / LATHO CLOVER	10	WELL - MOD. WELL	5.5 - 7.5
ORCHARDGRASS / PERENNIAL RYEGRASS	20	WELL - MOD. WELL	5.5 - 7.5
ORCHARDGRASS / PERENNIAL RYEGRASS	15	WELL - MOD. WELL	5.5 - 7.5
ORCHARDGRASS / PERENNIAL RYEGRASS	30	WELL - MOD. WELL	5.5 - 7.5
ORCHARDGRASS OR KENTUCKY BLUEGRASS	20	WELL - MOD. WELL	6.0 - 7.5
BIRDSFOOT TREFLOID / REDTOP	5	WELL - MOD. WELL	6.5 - 7.5
ORCHARDGRASS	20	WELL - MOD. WELL	6.5 - 7.5
LATHO FLATPEA / PERENNIAL RYEGRASS	30	WELL - MOD. WELL	6.5 - 7.5
LATHO FLATPEA / ORCHARDGRASS	30	WELL - MOD. WELL	6.5 - 7.5

NOTE: MIXTURES LISTED IN SOLID ARE SUITABLE FOR USE IN SHADED WOODED SETTINGS, THOSE IN ITALICS ARE SUITABLE FOR USE IN FILTER STRIPS.

*LATHO FLATPEA IS POTENTIALLY POISONOUS TO SOME LIVESTOCK.

ALL LEGUMES SHOULD BE PLANTED WITH PROPER INOCULANTS PRIOR TO SEEDING.

FOR UNPREPARED SEEDBEDS OR SEEDINGS OUTSIDE THE OPTIMUM TIME FRAMES, ADD 50% MORE SEED TO THE SPECIFIED RATE.

pH OF SOIL	LIME IN TONS PER ACRE	FERTILIZER, LBS/ACRE 10-20-20 OR EQUIVALENT
ABOVE 6.0	2	600
6.0 TO 6.0	3	600
BELOW 6.0	4	600

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.

4. MULCHING

DEPENDING ON THE FIELD SITUATION, MULCH IS TO BE ANCHORED MECHANICALLY OR WITH MULCH NETTING.

MECHANICAL ANCHORING
APPLY MULCH AND PULL A MULCH ANCHORING TOOL OVER THE MULCH. WHEN A DISK IS USED, SET THE DISK STRAIGHT AND PULL ACROSS THE SLOPE. MULCH MATERIAL SHOULD BE TUCKED INTO THE SOIL APPROXIMATELY THREE INCHES.

MULCH NETTING
FOLLOW MANUFACTURER'S RECOMMENDATIONS WHEN POSITIONING AND STAPLING THE MULCH NETTING TO THE SOIL SURFACE.

MATERIAL	MINIMUM RATES PER ACRE	COVERAGE	REMARKS
HAY OR STRAW	2 TO 3 TONS	75% TO 80%	SUBJECT TO WIND BLOWING OR WASHING UNLESS TIED DOWN
WOOD FIBER	100 TO 150 BALES		
PULP FIBER	1000 TO 1500 LBS	ALL DISTURBED AREAS	FOR HYDROSEEDING
WOOD-CELLULOSE RECIRCULATED PAPER			

C. CONSTRUCTION SEQUENCE

1. AREAS THAT ARE NOT TO BE DISTURBED DURING CONSTRUCTION ARE TO BE CLEARLY MARKED BEFORE BEGINNING WORK ON THE SITE.

2. CONTACT WEST VIRGINIA 811 (1-800-245-4848), THREE (3) BUSINESS DAYS PRIOR TO ANY EARTHMOVING ACTIVITIES THAT ARE TO TAKE PLACE.

3. CONSTRUCTION ACTIVITY WILL BEGIN WITH THE CLEARING AND GRUBBING OF THE ACCESS ROAD FROM THE SITE POINT OF ACCESS WORKING TOWARDS THE WELL PAD LOCATION. TEMPORARY EROSION AND SEDIMENT CONTROLS WILL BE INSTALLED AS NECESSARY.

4. THE REMAINING PROJECT AREA WILL THEN BE CLEARED AND GRUBBED AND EROSION AND SEDIMENT CONTROL DEVICES, AS REQUIRED BY THE EROSION AND SEDIMENT CONTROL PLAN AND DICTATED BY THE FIELD CONDITIONS, ARE TO BE INSTALLED.

5. THE WELL PAD LOCATION WILL THEN BE CONSTRUCTED. FINAL GRADING COMPLETED, GRAVEL WILL BE PLACED ON THE ACCESS ROAD AND SOIL AREAS WILL BE FERTILIZED AND PERMANENTLY SEEDED AND MULCHED.

D. TEMPORARY CONTROL MEASURES AND FACILITIES

1. GENERAL - SEE PLANS AND DETAILS FOR PROPOSED LOCATIONS AND CONSTRUCTION DETAILS FOR BMPs.

2. ROCK CONSTRUCTION ENTRANCE - SHALL BE INSTALLED WHEREVER CONSTRUCTION TRAFFIC ENTERS AND LEAVES A SITE. LARGE QUANTITIES OF MUD CAN BE TRACKED ONTO PUBLIC AND PRIVATE ROADS CAUSING DANGEROUS DRIVING CONDITIONS AND MUDDY RUNOFF WHEN IT RAINS. CONSTRUCTION ENTRANCES ARE STABILIZED TO REDUCE THE AMOUNT OF SEDIMENT TRANSPORTED ONTO PAVED ROADS BY VEHICLES OR EQUIPMENT BY CONSTRUCTING A STABILIZED PAD OF STONE AT ENTRANCES TO CONSTRUCTION SITES.

3. COMPOST FILTER SOCK - SHALL BE PLACED ALONG THE SLOPES OF THE DISTURBED AREAS AS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN AND IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL PLAN DETAILS.

4. ROCK CHECK DAM - SMALL TEMPORARY DAMS WILL BE CONSTRUCTED ACROSS A WATERWAY AS NECESSARY TO REDUCE THE VELOCITY OF STORMWATER FLOWS, THEREBY REDUCING EROSION OF THE CHANNEL AND TRAPPING SEDIMENT.

E. MAINTENANCE OF TEMPORARY CONTROL MEASURES AND FACILITIES

1. GENERAL

A. THE MAINTENANCE FOR THE PROJECT SHALL BE IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTINUOUS MAINTENANCE OF ALL EAS MEASURES AND DEVICES FOR THE DURATION OF THE PROJECT AND UNTIL THE AREA IS STABILIZED WITH A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER.

B. THE CONTRACTOR SHALL INSPECT ALL DEVICES REGULARLY AND AFTER EVERY RAINFALL EVENT OF 0.5 INCHES OR GREATER AND PERFORM MAINTENANCE AS REQUIRED. ANY DEVICES FOUND TO BE CLOGGED, DAMAGED, HALF-FULL OF SILT OR NOT FULLY OPERATIONAL SHALL BE CLEARED OF ALL DEBRIS. THE SOLID WASTE DISPOSAL IS THE RESPONSIBILITY OF THE CONTRACTOR. ALL DEPOSITED SEDIMENT FROM THE TRAP SHALL BE REMOVED AND SPREAD ACCORDINGLY.

2. ROCK CONSTRUCTION ENTRANCE

A. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND / OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

B. WHEELS ON ALL VEHICLES SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. IF WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO APPROVED SEDIMENT TRAPPING DEVICE. IF THE STREET IS WASHED PRECAUTIONS MUST BE TAKEN TO PREVENT MUDDY WATER FROM RUNNING INTO WATERWAYS OR STORM SEWERS.

C. INSPECTION AND NEEDED MAINTENANCE SHOULD BE PROVIDED DAILY BUT AT A MINIMUM EVERY SEVEN DAYS AND AFTER EACH RAINFALL EVENT OF 0.5 INCHES OR GREATER.

3. COMPOST FILTER SOCK

A. INSPECT COMPOST FILTER SOCK AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL EVENT OF 0.5 INCHES OR GREATER. MAKE ALL REQUIRED REPAIRS IMMEDIATELY.

B. ACCUMULATED SEDIMENTS SHALL BE REMOVED AS REQUIRED TO KEEP THE SOCK FUNCTIONAL. IN ALL CASES REMOVE DEPOSITS WHERE ACCUMULATIONS REACH 1/2 THE ABOVE - GROUND HEIGHT OF THE SOCK.

C. SEDIMENT COLLECTED FROM THE EROSION CONTROL STRUCTURES SHALL BE PLACED UPSTREAM OF THOSE CONTROLS AND IMMEDIATELY STABILIZED WITH SEED AND AN ANCHORED MULCH OR HAULED OFFSITE TO A DISPOSAL AREA WITH AN APPROVED EROSION AND SEDIMENT CONTROL PLAN.

D. ADHERE TO MANUFACTURER'S RECOMMENDATIONS FOR REPLACING COMPOST FILTER SOCK DUE TO WEATHERING.

E. ANY SOCK SECTION THAT HAS COLLAPSED OR EXPERIENCED A FAILURE DUE TO CONCENTRATED SURFACE FLOW SHALL BE IMMEDIATELY REPLACED WITH A NEW SECTION OF COMPOST FILTER SOCK OF THE SAME DIAMETER FOR THE LENGTH OF COLLAPSED AREA.

F. AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED, REMOVE ALL SOCK MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, BRING THE DISTURBED AREA TO GRADE AND STABILIZE.

4. ROCK CHECK DAMS

A. INSPECT EACH CHECK DAM ONCE EVERY WEEK AND AFTER ANY RAINFALL EVENT OF 0.5 INCHES OR GREATER.

B. REPLACE STONE AND REPAIR DAMS AS NECESSARY TO MAINTAIN THE CORRECT HEIGHT AND CONFIGURATIONS.

C. REMOVE SEDIMENT ACCUMULATIONS FROM BEHIND THE CHECK DAMS WHEN IT HAS ACCUMULATED TO ONE HALF OF THE ORIGINAL HEIGHT OF THE DAM. SEDIMENT COLLECTED FROM THE EROSION CONTROL STRUCTURES SHALL BE PLACED UPSTREAM OF EROSION AND SEDIMENT CONTROLS AND IMMEDIATELY STABILIZED WITH SEED AND AN ANCHORED MULCH OR HAULED OFFSITE TO A DISPOSAL AREA WITH AN APPROVED EROSION AND SEDIMENT CONTROL PLAN.

F. MAINTENANCE / CONTRACTOR'S RESPONSIBILITIES

1. CONTRACTOR SHALL IMPLEMENT THE EROSION AND SEDIMENT CONTROL PLAN IN ACCORDANCE WITH THE DRAWINGS.

2. ALL FACILITIES SHALL BE INSPECTED AND REPAIRED, IF NECESSARY AFTER EACH RAINFALL EVENT OF 0.5 INCHES OR GREATER OR AT A PERIOD NOT TO EXCEED ONE WEEK. ALL PREVENTATIVE MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING, AND ANCHORING OF THE MULCH SHALL BE PERFORMED IMMEDIATELY. SEDIMENT COLLECTED FROM THE EROSION CONTROL STRUCTURES SHALL BE PLACED UPSTREAM OF THOSE CONTROLS AND IMMEDIATELY STABILIZED WITH SEED AND AN ANCHORED MULCH OR HAULED OFFSITE TO A DISPOSAL AREA WITH AN APPROVED EROSION AND SEDIMENT CONTROL PLAN.

3. AT NO TIME WILL SEDIMENT-LADEN RUNOFF BE ALLOWED TO LEAVE THE SITE AND ENTER WATERS OF THE STATE WITHOUT FIRST PASSING THROUGH A SEDIMENT FILTERING DEVICE. IF EROSION CONTROL FACILITIES FAIL TO PERFORM AS EXPECTED, ALTERNATIVE FACILITIES OR MODIFICATIONS OF THOSE FACILITIES INSTALLED WILL BE REQUIRED.

4. ALL PERMANENTLY SEEDING AREAS THAT BECOME ERODED SHALL HAVE THE TOPSOIL REPLACED, THE EROSION CONTROL MATTING REPLACED (IF APPLICABLE), SEED AND MULCH REAPPLIED AND ANCHORED. IF EROSION PERSISTS, THE AREA SHALL BE EITHER LINED WITH SOIL OR STABILIZED AS APPROPRIATE.

5. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE KEPT AVAILABLE FOR INSPECTION ON THE CONSTRUCTION SITE AT ALL TIMES THROUGHOUT THE DURATION OF THE PROJECT.

6. THE INTENT OF THIS PLAN / NARRATIVE IS TO INDICATE GENERAL MEANS OF COMPLIANCE WITH THE REQUIREMENTS OF THE RULES AND REGULATIONS OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION (AS AUTHORIZED UNDER THE CLEAN STREAMS LAW). IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO IMPLEMENT THESE METHODS, PLUS ADDITIONAL METHODS, AS MAY BE NECESSARY BECAUSE OF CONDITIONS CREATED BY LOCALIZED SITE CONDITIONS AND / OR CONSTRUCTION PROCEDURES IN ORDER TO ASSURE COMPLIANCE WITH APPLICABLE LAW. IT WILL FURTHER BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL EROSION AND SEDIMENT CONTROL FACILITIES SO THAT THEY PERFORM AS REQUIRED BY APPLICABLE LAW.

7. FINES AND RELATED COSTS RESULTING FROM THE CONTRACTOR'S FAILURE TO PROVIDE ADEQUATE PROTECTION AGAINST SOIL EROSION AND FOR ANY VIOLATIONS OF THE CLEAN STREAMS LAW AND THE RULES AND REGULATIONS PROMULGATED THEREUNDER SHALL BE BORNE BY THE CONTRACTOR.

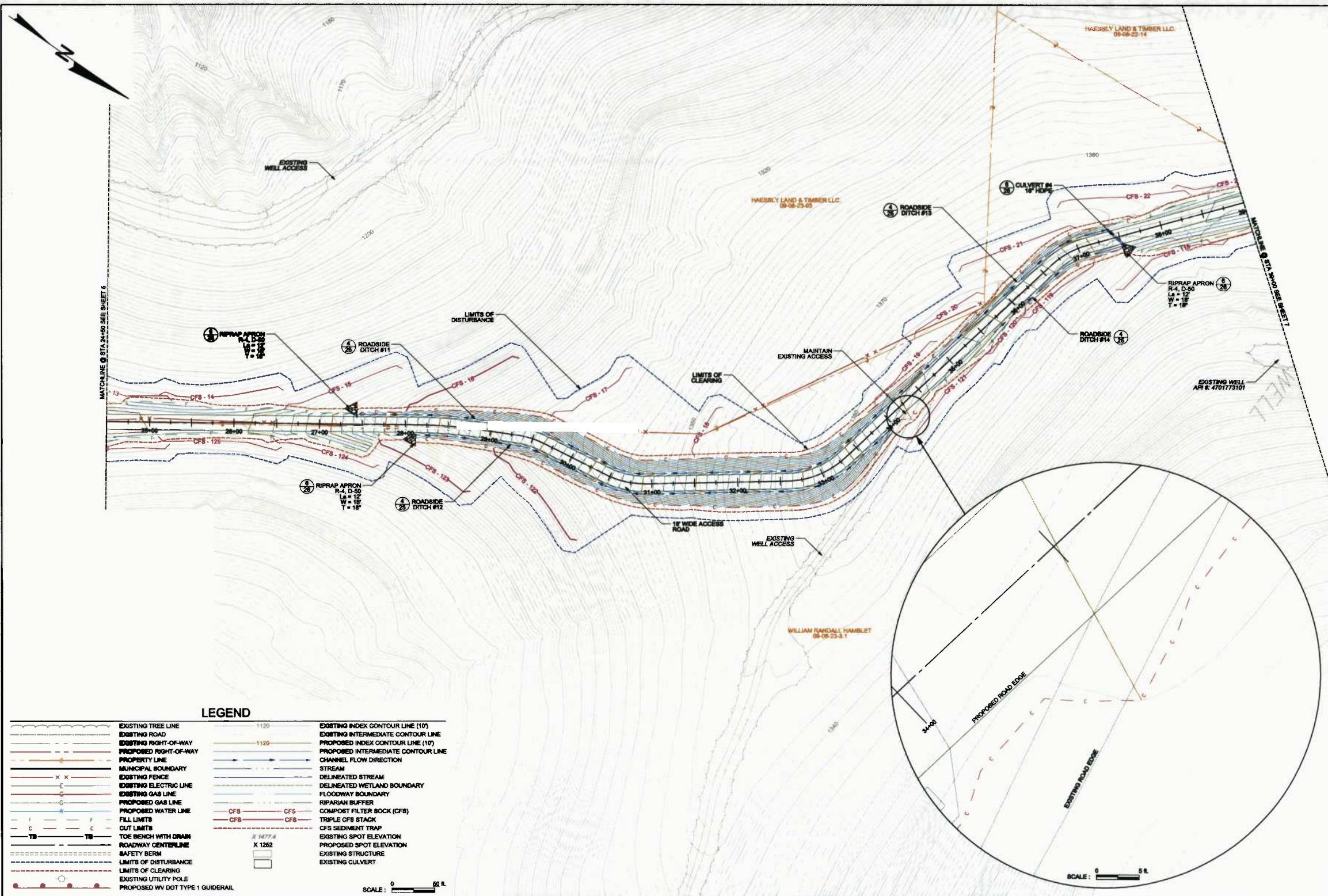
G. RECYCLING AND DISPOSAL METHODS

1. REMOVE WASTE MATERIALS INCLUDING TRASH AND DEBRIS, AND LEGALLY DISPOSE OF THEM OFF THE SITE TO A WVDOT APPROVED DUMP SITE. SEPARATE RECYCLABLE MATERIALS PRODUCED DURING SITE CLEARING FROM OTHER NON-RECYCLABLE MATERIALS. STORE OR STOCKPILE WITHOUT INTERMIXING WITH OTHER MATERIALS AND TRANSPORT THEM TO RECYCLING FACILITIES. MATERIAL TO BE REMOVED SHALL BE REMOVED AS NEEDED AND SHALL NOT BE ALLOWED TO ACCUMULATE AT THE SITE.

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NO. DATE	REVISED	KAW	DWB	BMS	CREATED	BDM	APPROVED	1464001	PROJECT NO.
DIEFFENBAUGH & HIRTZ MORGANTOWN, WV									
NOBLE ENERGY, INC									
CLIENT									
PROJECT									
OXF-97 WELL-SITE									
GENERAL NOTES									
TITLE									
2									
DRAWING NO.									

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MATCHLINE @ STA 24+00 SEE SHEET 5

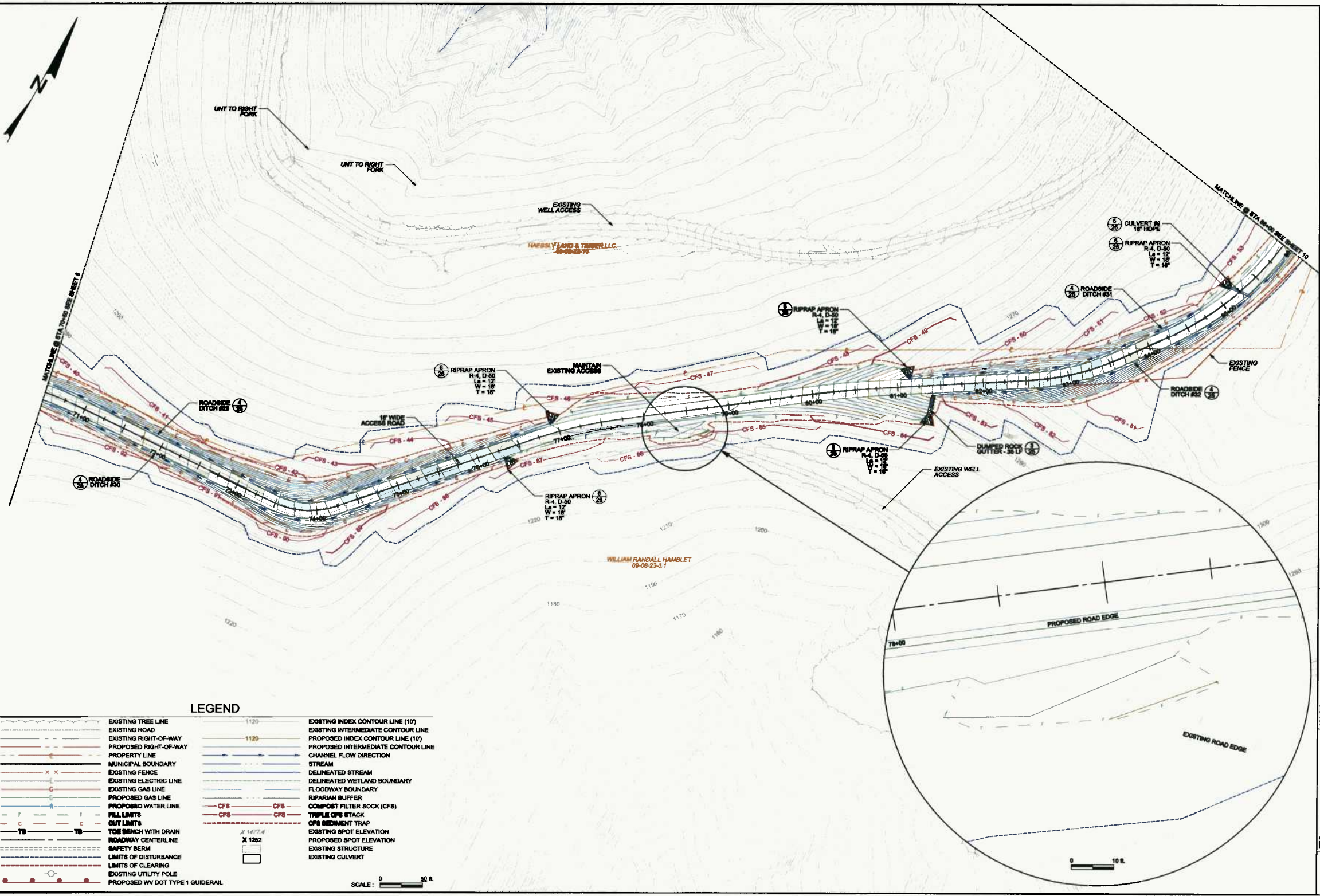
LEGEND

	EXISTING TREE LINE		EXISTING INDEX CONTOUR LINE (10')
	EXISTING ROAD		EXISTING INTERMEDIATE CONTOUR LINE
	EXISTING RIGHT-OF-WAY		PROPOSED INDEX CONTOUR LINE (10')
	PROPOSED RIGHT-OF-WAY		PROPOSED INTERMEDIATE CONTOUR LINE
	PROPERTY LINE		STREAM
	MUNICIPAL BOUNDARY		DELINEATED STREAM
	EXISTING FENCE		DELINEATED WETLAND BOUNDARY
	EXISTING ELECTRIC LINE		FLOODWAY BOUNDARY
	EXISTING GAS LINE		RIPARIAN BUFFER
	PROPOSED GAS LINE		COMPOST FILTER SOCK (CFS)
	PROPOSED WATER LINE		TRIPLE CFS STACK
	FILL LIMITS		CFS SEDIMENT TRAP
	CUT LIMITS		EXISTING SPOT ELEVATION
	TOE BENCH WITH DRAIN		PROPOSED SPOT ELEVATION
	ROADWAY CENTERLINE		EXISTING STRUCTURE
	SAFETY BERM		EXISTING CULVERT
	LIMITS OF DISTURBANCE		
	LIMITS OF CLEARING		
	EXISTING UTILITY POLE		
	PROPOSED WY DOT TYPE 1 GUIDERAIL		

SCALE: 0 50 ft

DATE	BY	CHECKED	APPROVED	DATE	PROJECT NO.
<p>NOBLE ENERGY, INC</p> <p>OXF-97 WELL SITE</p> <p>PROPOSED SITE PLAN</p> <p>6</p>					
<p>CLIENT: NOBLE ENERGY, INC</p> <p>PROJECT: OXF-97 WELL SITE</p> <p>TITLE: PROPOSED SITE PLAN</p> <p>DRAWING NO.: 6</p>					
<p>DESIGNED BY: KAW</p> <p>DRAWN BY: BMS</p> <p>CHECKED BY: BMS</p> <p>APPROVED BY: BEM</p> <p>DATE: 9/17/14</p> <p>PROJECT NO.: 1454001</p>					
<p>DIFFENBAUGH & HRTZ</p> <p>MORGANTOWN, WV</p>					

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LEGEND

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	EXISTING ROAD		EXISTING INTERMEDIATE CONTOUR LINE
	EXISTING RIGHT-OF-WAY		PROPOSED INDEX CONTOUR LINE (10')
	PROPOSED RIGHT-OF-WAY		CHANNEL FLOW DIRECTION
	PROPERTY LINE		STREAM
	MUNICIPAL BOUNDARY		DELINEATED STREAM
	EXISTING FENCE		DELINEATED WETLAND BOUNDARY
	EXISTING ELECTRIC LINE		FLOODWAY BOUNDARY
	EXISTING GAS LINE		RIPARIAN BUFFER
	PROPOSED GAS LINE		COMPOST FILTER SOCK (CFS)
	PROPOSED WATER LINE		TRIPLE CFS STACK
	FILL LIMITS		CFS SEDIMENT TRAP
	OUT LIMITS		EXISTING SPOT ELEVATION
	TOE BENCH WITH DRAIN		PROPOSED SPOT ELEVATION
	ROADWAY CENTERLINE		EXISTING STRUCTURE
	SAFETY BERM		EXISTING CULVERT
	LIMITS OF DISTURBANCE		
	LIMITS OF CLEARING		
	EXISTING UTILITY POLE		
	PROPOSED WV DOT TYPE 1 GUIDRAIL		

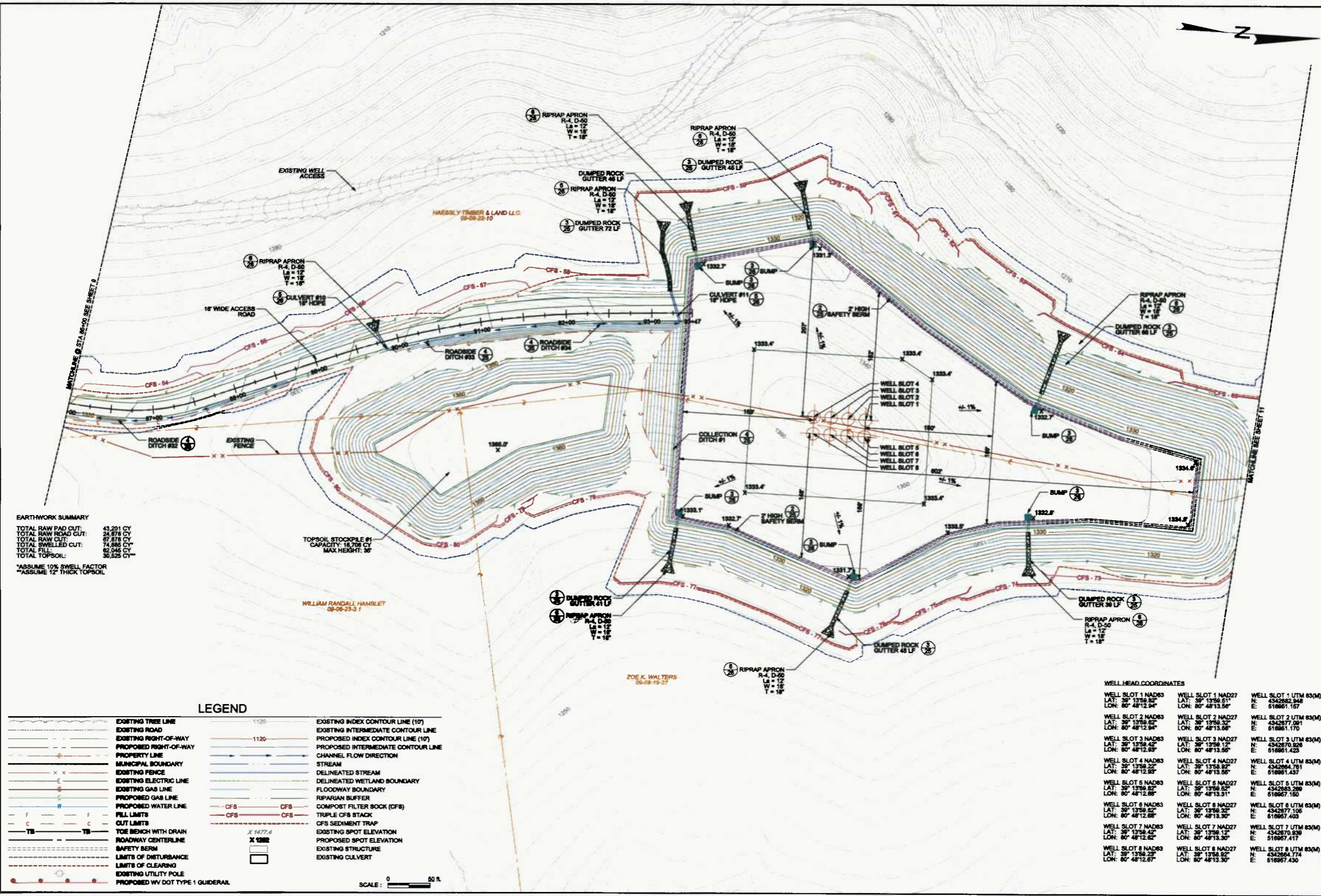
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NO. DATE	
DRAWN BY	KAW
CHECKED BY	BVB
APPROVED BY	SDM
DATE	01/17/14
PROJECT NO.	1454001
CLIENT	NOBLE ENERGY, INC
PROJECT	OXF-97 WELL SITE
TITLE	PROPOSED SITE PLAN
DRAWING NO.	9

DIFFENBAUGH & HRITZ
MORGANTOWN, WV

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EARTHWORK SUMMARY

TOTAL RAW PAD CUT:	43,291 CY
TOTAL RAW ROAD CUT:	24,878 CY
TOTAL RAW CUT:	67,878 CY
TOTAL SWELLED CUT:	74,886 CY
TOTAL FILL:	82,046 CY
TOTAL TOPSOIL:	30,525 CY

*ASSUME 10% SWELL FACTOR
**ASSUME 12" THICK TOPSOIL

LEGEND

	EXISTING TREE LINE		EXISTING INDEX CONTOUR LINE (10')
	EXISTING RIGHT-OF-WAY		EXISTING INTERMEDIATE CONTOUR LINE
	PROPERTY LINE		PROPOSED INDEX CONTOUR LINE (10')
	MUNICIPAL BOUNDARY		PROPOSED INTERMEDIATE CONTOUR LINE
	EXISTING FENCE		CHANNEL FLOW DIRECTION
	EXISTING ELECTRIC LINE		STREAM
	EXISTING GAS LINE		DELINEATED STREAM
	PROPOSED GAS LINE		DELINEATED WETLAND BOUNDARY
	PROPOSED WATER LINE		FLOODWAY BOUNDARY
	FILL LIMITS		RIPARIAN BUFFER
	CUT LIMITS		COMPOST FILTER SOCK (CFS)
	TOE BENCH WITH DRAIN		TRIPLE CFS STACK
	ROADWAY CENTERLINE		CFS SEDIMENT TRAP
	SAFETY BERM		EXISTING SPOT ELEVATION
	LIMITS OF DISTURBANCE		PROPOSED SPOT ELEVATION
	LIMITS OF CLEARING		EXISTING STRUCTURE
	EXISTING UTILITY POLE		EXISTING CULVERT
	PROPOSED WV DOT TYPE 1 GUIDELINE		

WELL HEAD COORDINATES

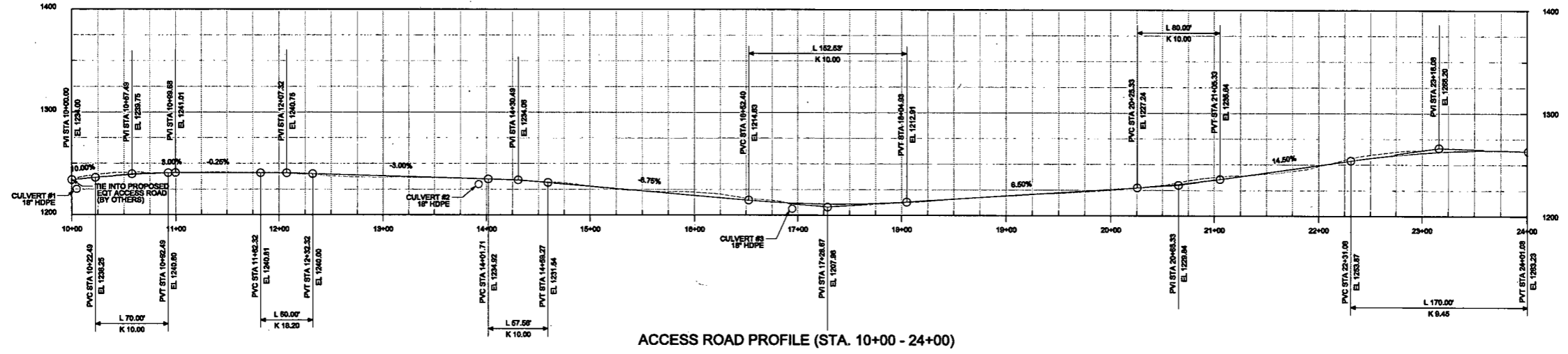
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WELL SLOT 2 NAD83 LAT: 39° 13'59.82" LON: 80° 48'12.84"	WELL SLOT 2 NAD27 LAT: 39° 13'59.82" LON: 80° 48'13.59"	WELL SLOT 2 UTM 83Q0 N: 4342877.091 E: 616861.170
WELL SLOT 3 NAD83 LAT: 39° 13'59.82" LON: 80° 48'12.83"	WELL SLOT 3 NAD27 LAT: 39° 13'59.82" LON: 80° 48'13.59"	WELL SLOT 3 UTM 83Q0 N: 4342870.828 E: 616861.423
WELL SLOT 4 NAD83 LAT: 39° 13'59.82" LON: 80° 48'12.83"	WELL SLOT 4 NAD27 LAT: 39° 13'59.82" LON: 80° 48'13.59"	WELL SLOT 4 UTM 83Q0 N: 4342864.791 E: 616861.437
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WELL SLOT 7 NAD83 LAT: 39° 13'59.82" LON: 80° 48'12.82"	WELL SLOT 7 NAD27 LAT: 39° 13'59.82" LON: 80° 48'13.30"	WELL SLOT 7 UTM 83Q0 N: 4342870.839 E: 616867.417
WELL SLOT 8 NAD83 LAT: 39° 13'59.82" LON: 80° 48'12.87"	WELL SLOT 8 NAD27 LAT: 39° 13'59.82" LON: 80° 48'13.30"	WELL SLOT 8 UTM 83Q0 N: 4342864.774 E: 616867.450

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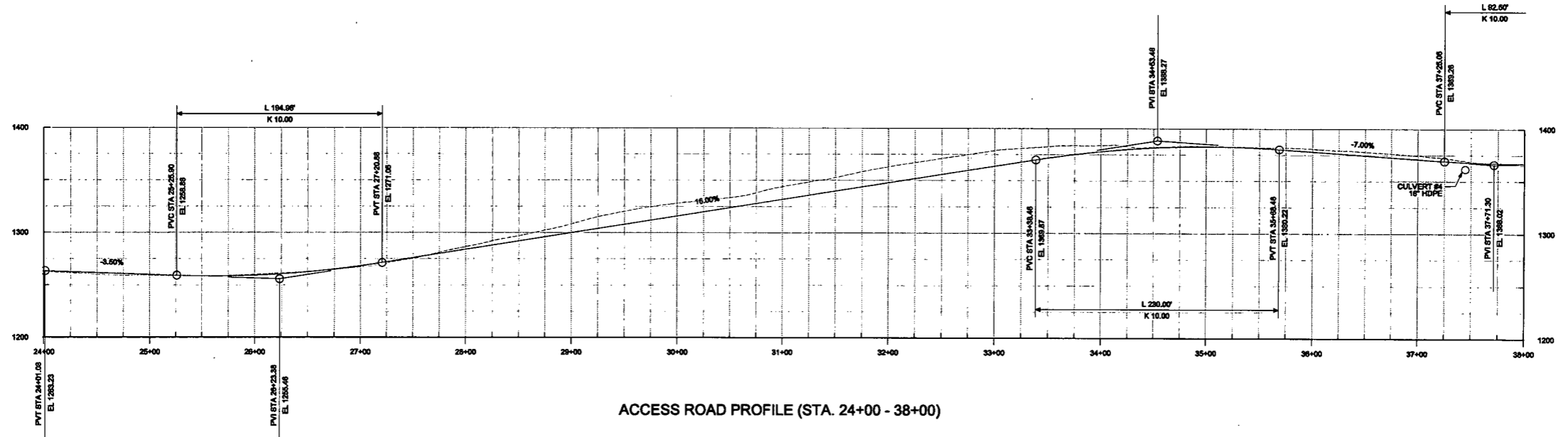
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NOBLE ENERGY, INC
OXF-97 WELL SITE
PROPOSED SITE PLAN
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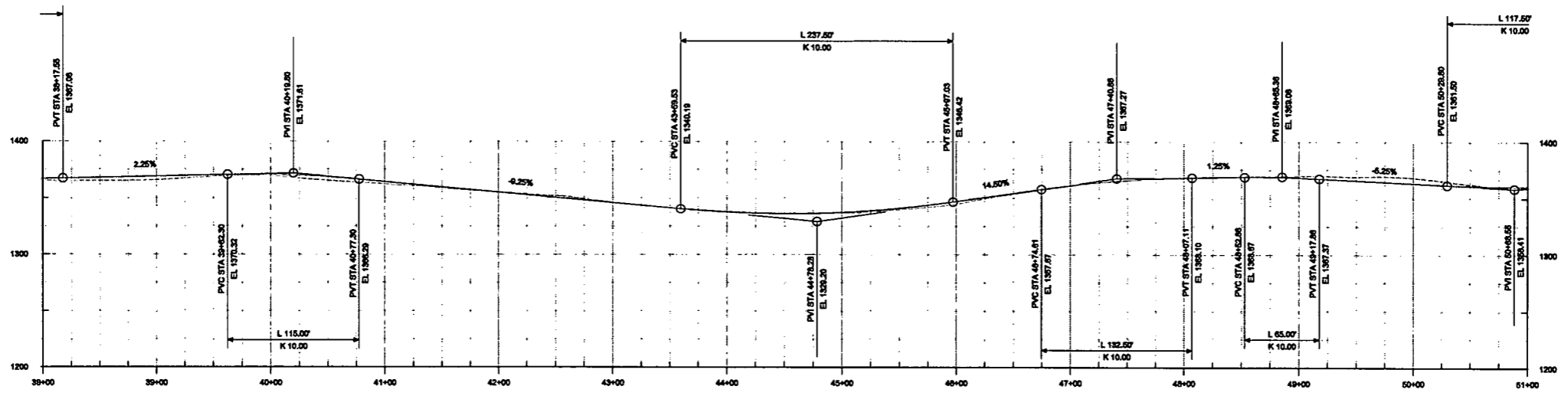
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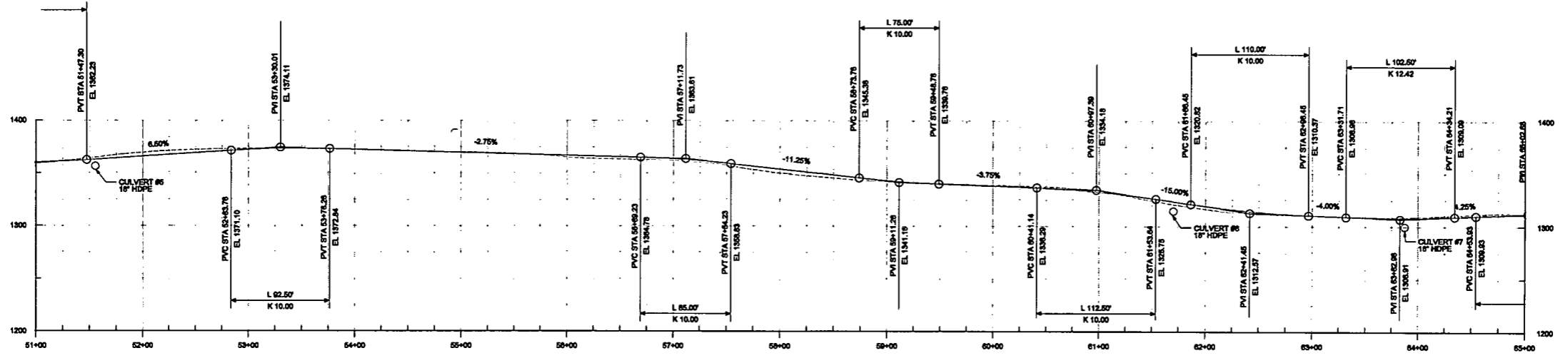
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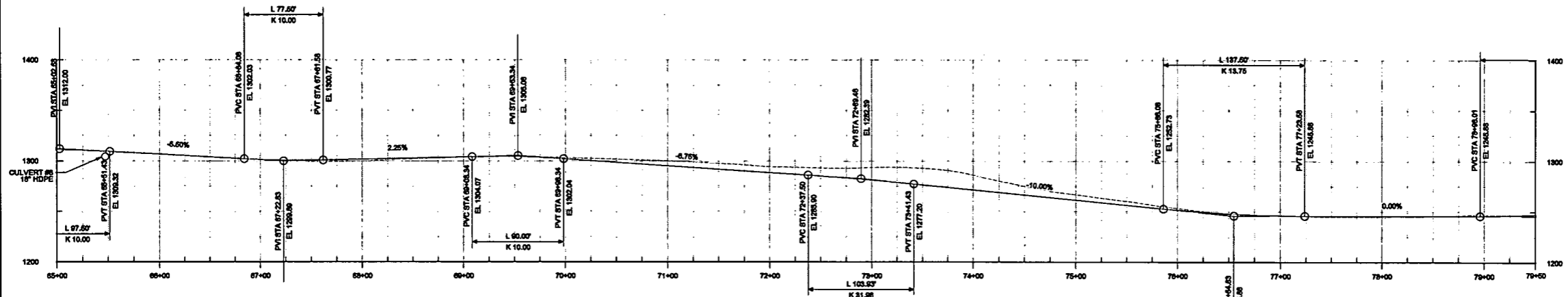


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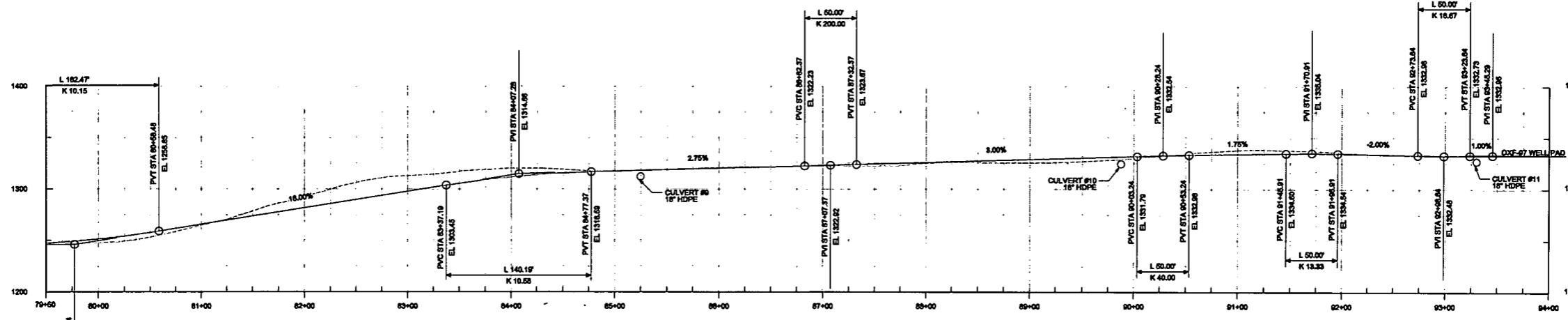
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ACCESS ROAD PROFILE (STA. 79+50 - 93+46)

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SOIL RESOLUTION METHODS

- IF SOIL RESTRICTIONS ARE ENCOUNTERED IN RARE SITUATIONS, THE FOLLOWING RESOLUTIONS WILL BE FOLLOWED:
- ERODIBLE: USE ACCEPTABLE EROSION CONTROL BLANKETS AND ATTAIN 70% VEGETATIVE COVER ON ALL CUT AND FILL SLOPES.
- CUTBANKS/GAVE: FOLLOW OSHA RECOMMENDED GUIDELINES CONCERNING TRENCHING AND SLOPE WORK.
- CORROSIVE TO CONCRETE AND STEEL: IF CONCRETE OR STEEL IS TO COME IN CONTACT WITH A CORROSIVE SOIL, IT WILL BE TREATED AND PROTECTED OR THE CORROSIVE SOIL WILL BE REMOVED AND REPLACED WITH ACCEPTABLE MATERIAL.
- HIGH WATER TABLE: ALL WATER ENCOUNTERED SHALL BE TREATED USING ACCEPTABLE EAS BMP'S.
- LOW STRENGTH: CUT AND FILL SLOPES SHALL BE SLOPED NO STEEPER THAN 2:1.
- PIPING: SOILS PRONE TO PIPING OR INTERNAL EROSION PROBLEMS SHALL BE REMOVED AND REPLACED WITH ACCEPTABLE MATERIAL.
- POOR TOPSOIL: FOLLOW FERTILIZER, LIME, AND SEED APPLICATION RATES AS NOTED ON THE PLAN.
- POTENTIALLY HYDRIC: IF HYDRIC SOILS ARE ENCOUNTERED, A WETLANDS STUDY WILL BE PERFORMED AND WETLANDS WILL BE AVOIDED.

REFERENCE:
TOPOGRAPHIC INFORMATION OBTAINED FROM BLUE MOUNTAIN ENGINEERING
DATUM: NAD 83 WLN
LIMITS OF DISTURBANCE: 20.94 ACRES

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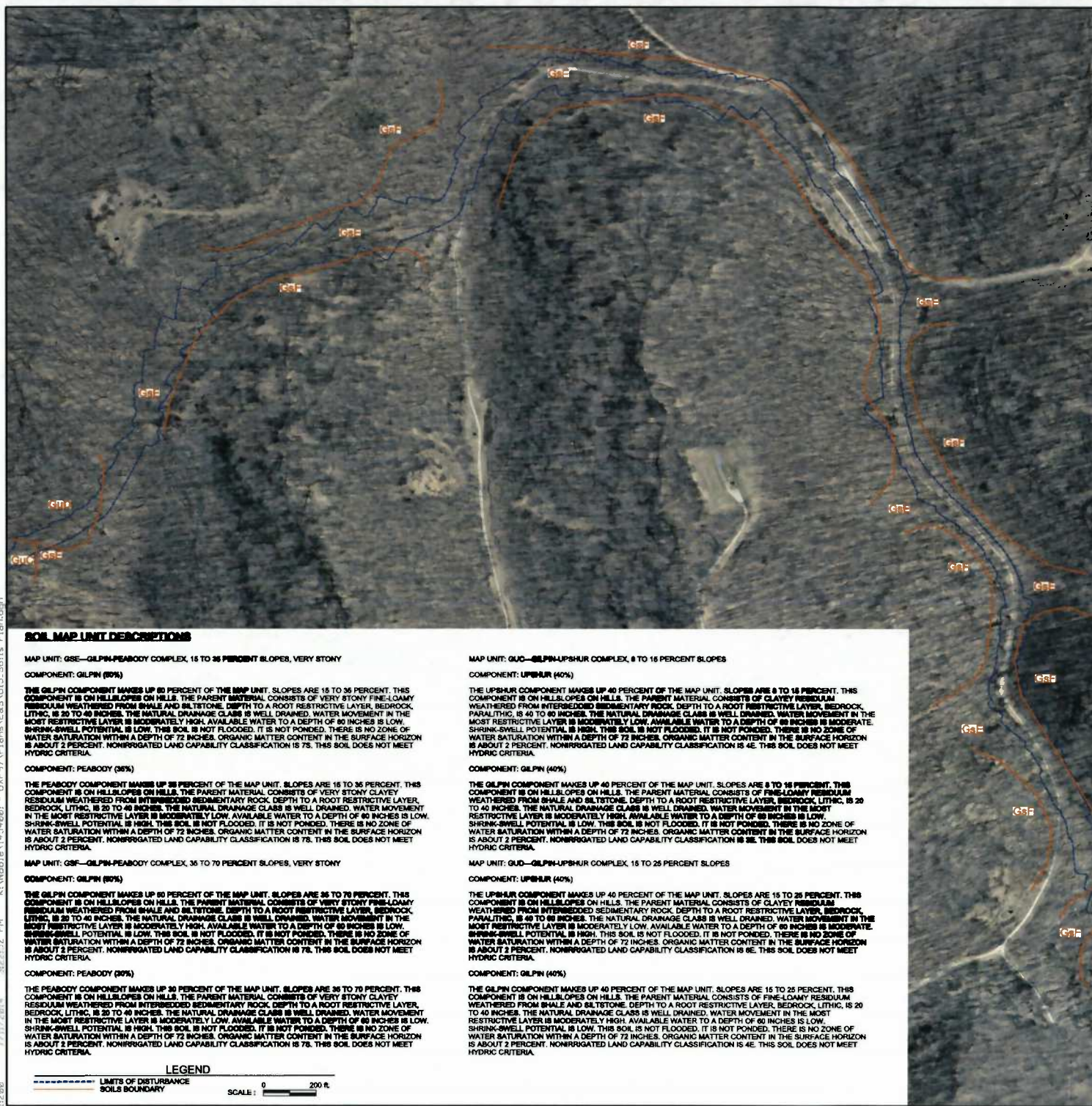
DIEFFENBAUGH & HORTZ
MORGANTOWN, WV

NOBLE ENERGY, INC

OXF-87 WELL SITE

SOILS PLAN

15



SOIL MAP UNIT DESCRIPTIONS

MAP UNIT: GSE—GILPIN-PEABODY COMPLEX, 15 TO 35 PERCENT SLOPES, VERY STONY
COMPONENT: GILPIN (60%)
 THE GILPIN COMPONENT MAKES UP 60 PERCENT OF THE MAP UNIT. SLOPES ARE 15 TO 35 PERCENT. THIS COMPONENT IS ON HILLSLOPES ON HILLS. THE PARENT MATERIAL CONSISTS OF VERY STONY FINE-LOAMY RESIDUUM WEATHERED FROM SHALE AND SILTSTONE. DEPTH TO A ROOT RESTRICTIVE LAYER, BEDROCK, LITHIC, IS 20 TO 40 INCHES. THE NATURAL DRAINAGE CLASS IS WELL DRAINED. WATER MOVEMENT IN THE MOST RESTRICTIVE LAYER IS MODERATELY HIGH. AVAILABLE WATER TO A DEPTH OF 60 INCHES IS LOW. SHRINK-SWELL POTENTIAL IS HIGH. THIS SOIL IS NOT FLOODED. IT IS NOT PONDED. THERE IS NO ZONE OF WATER SATURATION WITHIN A DEPTH OF 72 INCHES. ORGANIC MATTER CONTENT IN THE SURFACE HORIZON IS ABOUT 2 PERCENT. NONIRRIGATED LAND CAPABILITY CLASSIFICATION IS 7S. THIS SOIL DOES NOT MEET HYDRIC CRITERIA.

COMPONENT: PEABODY (36%)
 THE PEABODY COMPONENT MAKES UP 36 PERCENT OF THE MAP UNIT. SLOPES ARE 15 TO 35 PERCENT. THIS COMPONENT IS ON HILLSLOPES ON HILLS. THE PARENT MATERIAL CONSISTS OF VERY STONY CLAYEY RESIDUUM WEATHERED FROM INTERBEDDED SEDIMENTARY ROCK. DEPTH TO A ROOT RESTRICTIVE LAYER, BEDROCK, LITHIC, IS 20 TO 40 INCHES. THE NATURAL DRAINAGE CLASS IS WELL DRAINED. WATER MOVEMENT IN THE MOST RESTRICTIVE LAYER IS MODERATELY LOW. AVAILABLE WATER TO A DEPTH OF 60 INCHES IS LOW. SHRINK-SWELL POTENTIAL IS HIGH. THIS SOIL IS NOT FLOODED. IT IS NOT PONDED. THERE IS NO ZONE OF WATER SATURATION WITHIN A DEPTH OF 72 INCHES. ORGANIC MATTER CONTENT IN THE SURFACE HORIZON IS ABOUT 2 PERCENT. NONIRRIGATED LAND CAPABILITY CLASSIFICATION IS 7S. THIS SOIL DOES NOT MEET HYDRIC CRITERIA.

MAP UNIT: GSF—GILPIN-PEABODY COMPLEX, 35 TO 70 PERCENT SLOPES, VERY STONY
COMPONENT: GILPIN (60%)
 THE GILPIN COMPONENT MAKES UP 60 PERCENT OF THE MAP UNIT. SLOPES ARE 35 TO 70 PERCENT. THIS COMPONENT IS ON HILLSLOPES ON HILLS. THE PARENT MATERIAL CONSISTS OF VERY STONY FINE-LOAMY RESIDUUM WEATHERED FROM SHALE AND SILTSTONE. DEPTH TO A ROOT RESTRICTIVE LAYER, BEDROCK, LITHIC, IS 20 TO 40 INCHES. THE NATURAL DRAINAGE CLASS IS WELL DRAINED. WATER MOVEMENT IN THE MOST RESTRICTIVE LAYER IS MODERATELY HIGH. AVAILABLE WATER TO A DEPTH OF 60 INCHES IS LOW. SHRINK-SWELL POTENTIAL IS HIGH. THIS SOIL IS NOT FLOODED. IT IS NOT PONDED. THERE IS NO ZONE OF WATER SATURATION WITHIN A DEPTH OF 72 INCHES. ORGANIC MATTER CONTENT IN THE SURFACE HORIZON IS ABOUT 2 PERCENT. NONIRRIGATED LAND CAPABILITY CLASSIFICATION IS 7S. THIS SOIL DOES NOT MEET HYDRIC CRITERIA.

COMPONENT: PEABODY (36%)
 THE PEABODY COMPONENT MAKES UP 36 PERCENT OF THE MAP UNIT. SLOPES ARE 35 TO 70 PERCENT. THIS COMPONENT IS ON HILLSLOPES ON HILLS. THE PARENT MATERIAL CONSISTS OF VERY STONY CLAYEY RESIDUUM WEATHERED FROM INTERBEDDED SEDIMENTARY ROCK. DEPTH TO A ROOT RESTRICTIVE LAYER, BEDROCK, LITHIC, IS 20 TO 40 INCHES. THE NATURAL DRAINAGE CLASS IS WELL DRAINED. WATER MOVEMENT IN THE MOST RESTRICTIVE LAYER IS MODERATELY LOW. AVAILABLE WATER TO A DEPTH OF 60 INCHES IS LOW. SHRINK-SWELL POTENTIAL IS HIGH. THIS SOIL IS NOT FLOODED. IT IS NOT PONDED. THERE IS NO ZONE OF WATER SATURATION WITHIN A DEPTH OF 72 INCHES. ORGANIC MATTER CONTENT IN THE SURFACE HORIZON IS ABOUT 2 PERCENT. NONIRRIGATED LAND CAPABILITY CLASSIFICATION IS 7S. THIS SOIL DOES NOT MEET HYDRIC CRITERIA.

MAP UNIT: GUC—GILPIN-UPSHUR COMPLEX, 8 TO 15 PERCENT SLOPES
COMPONENT: UPSHUR (40%)
 THE UPSHUR COMPONENT MAKES UP 40 PERCENT OF THE MAP UNIT. SLOPES ARE 8 TO 15 PERCENT. THIS COMPONENT IS ON HILLSLOPES ON HILLS. THE PARENT MATERIAL CONSISTS OF CLAYEY RESIDUUM WEATHERED FROM INTERBEDDED SEDIMENTARY ROCK. DEPTH TO A ROOT RESTRICTIVE LAYER, BEDROCK, PARALITHIC, IS 40 TO 60 INCHES. THE NATURAL DRAINAGE CLASS IS WELL DRAINED. WATER MOVEMENT IN THE MOST RESTRICTIVE LAYER IS MODERATELY LOW. AVAILABLE WATER TO A DEPTH OF 60 INCHES IS MODERATE. SHRINK-SWELL POTENTIAL IS HIGH. THIS SOIL IS NOT FLOODED. IT IS NOT PONDED. THERE IS NO ZONE OF WATER SATURATION WITHIN A DEPTH OF 72 INCHES. ORGANIC MATTER CONTENT IN THE SURFACE HORIZON IS ABOUT 2 PERCENT. NONIRRIGATED LAND CAPABILITY CLASSIFICATION IS 4E. THIS SOIL DOES NOT MEET HYDRIC CRITERIA.

COMPONENT: GILPIN (40%)
 THE GILPIN COMPONENT MAKES UP 40 PERCENT OF THE MAP UNIT. SLOPES ARE 8 TO 15 PERCENT. THIS COMPONENT IS ON HILLSLOPES ON HILLS. THE PARENT MATERIAL CONSISTS OF FINE-LOAMY RESIDUUM WEATHERED FROM SHALE AND SILTSTONE. DEPTH TO A ROOT RESTRICTIVE LAYER, BEDROCK, LITHIC, IS 20 TO 40 INCHES. THE NATURAL DRAINAGE CLASS IS WELL DRAINED. WATER MOVEMENT IN THE MOST RESTRICTIVE LAYER IS MODERATELY HIGH. AVAILABLE WATER TO A DEPTH OF 60 INCHES IS LOW. SHRINK-SWELL POTENTIAL IS HIGH. THIS SOIL IS NOT FLOODED. IT IS NOT PONDED. THERE IS NO ZONE OF WATER SATURATION WITHIN A DEPTH OF 72 INCHES. ORGANIC MATTER CONTENT IN THE SURFACE HORIZON IS ABOUT 2 PERCENT. NONIRRIGATED LAND CAPABILITY CLASSIFICATION IS 7S. THIS SOIL DOES NOT MEET HYDRIC CRITERIA.

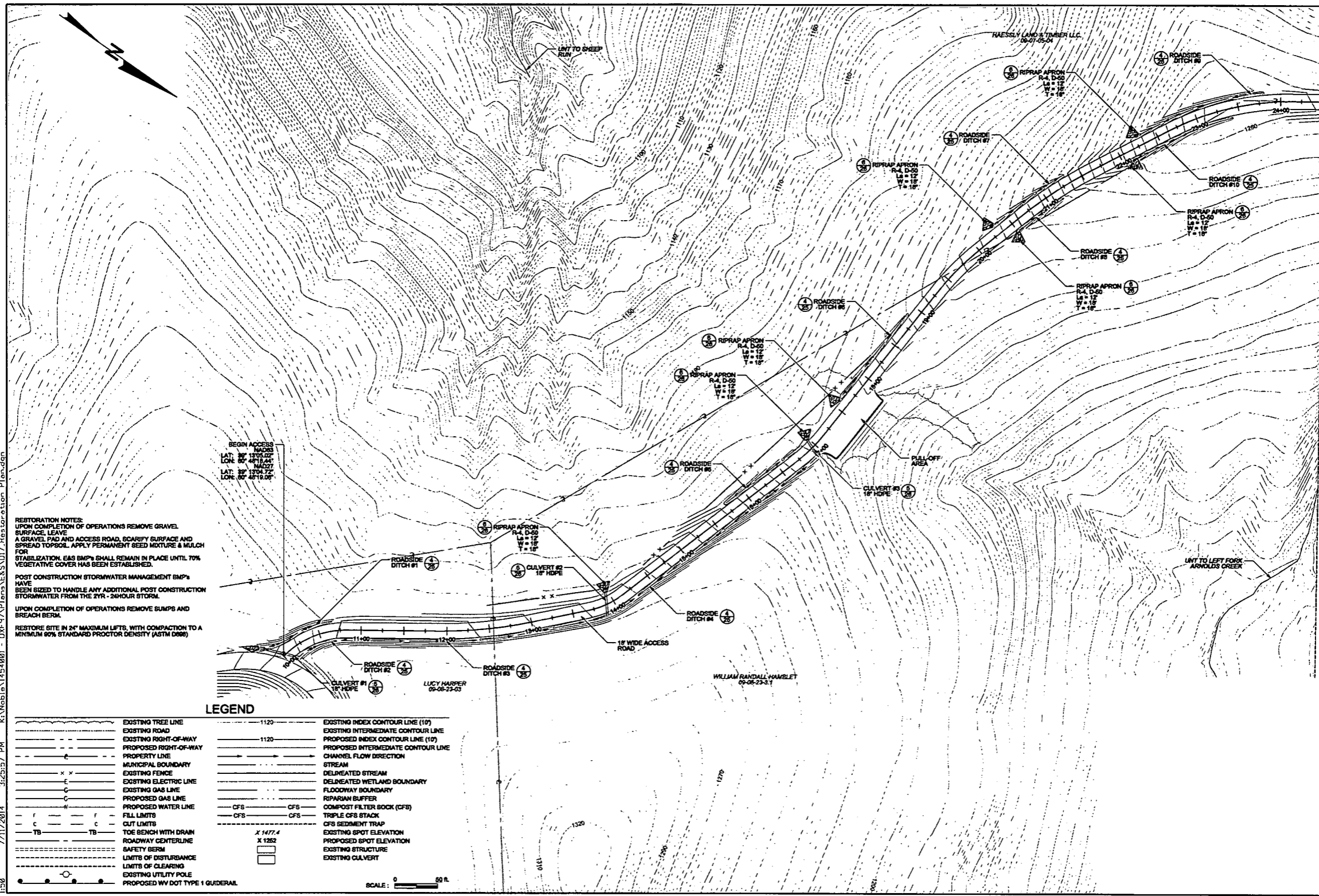
MAP UNIT: GUD—GILPIN-UPSHUR COMPLEX, 15 TO 25 PERCENT SLOPES
COMPONENT: UPSHUR (40%)
 THE UPSHUR COMPONENT MAKES UP 40 PERCENT OF THE MAP UNIT. SLOPES ARE 15 TO 25 PERCENT. THIS COMPONENT IS ON HILLSLOPES ON HILLS. THE PARENT MATERIAL CONSISTS OF CLAYEY RESIDUUM WEATHERED FROM INTERBEDDED SEDIMENTARY ROCK. DEPTH TO A ROOT RESTRICTIVE LAYER, BEDROCK, PARALITHIC, IS 40 TO 60 INCHES. THE NATURAL DRAINAGE CLASS IS WELL DRAINED. WATER MOVEMENT IN THE MOST RESTRICTIVE LAYER IS MODERATELY LOW. AVAILABLE WATER TO A DEPTH OF 60 INCHES IS MODERATE. SHRINK-SWELL POTENTIAL IS HIGH. THIS SOIL IS NOT FLOODED. IT IS NOT PONDED. THERE IS NO ZONE OF WATER SATURATION WITHIN A DEPTH OF 72 INCHES. ORGANIC MATTER CONTENT IN THE SURFACE HORIZON IS ABOUT 2 PERCENT. NONIRRIGATED LAND CAPABILITY CLASSIFICATION IS 6E. THIS SOIL DOES NOT MEET HYDRIC CRITERIA.

COMPONENT: GILPIN (40%)
 THE GILPIN COMPONENT MAKES UP 40 PERCENT OF THE MAP UNIT. SLOPES ARE 15 TO 25 PERCENT. THIS COMPONENT IS ON HILLSLOPES ON HILLS. THE PARENT MATERIAL CONSISTS OF FINE-LOAMY RESIDUUM WEATHERED FROM SHALE AND SILTSTONE. DEPTH TO A ROOT RESTRICTIVE LAYER, BEDROCK, LITHIC, IS 20 TO 40 INCHES. THE NATURAL DRAINAGE CLASS IS WELL DRAINED. WATER MOVEMENT IN THE MOST RESTRICTIVE LAYER IS MODERATELY HIGH. AVAILABLE WATER TO A DEPTH OF 60 INCHES IS LOW. SHRINK-SWELL POTENTIAL IS HIGH. THIS SOIL IS NOT FLOODED. IT IS NOT PONDED. THERE IS NO ZONE OF WATER SATURATION WITHIN A DEPTH OF 72 INCHES. ORGANIC MATTER CONTENT IN THE SURFACE HORIZON IS ABOUT 2 PERCENT. NONIRRIGATED LAND CAPABILITY CLASSIFICATION IS 4E. THIS SOIL DOES NOT MEET HYDRIC CRITERIA.



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BEGIN ACCESS MARKS
 LAT: 38° 12'53.02"
 LON: 87° 45'18.44"
 LAT: 38° 12'54.72"
 LON: 87° 45'18.08"

RESTORATION NOTES:
 UPON COMPLETION OF OPERATIONS REMOVE GRAVEL SURFACE. LEAVE A GRAVEL PAD AND ACCESS ROAD, SCARIFY SURFACE AND SPREAD TOPSOIL. APPLY PERMANENT SEED MIXTURE & MULCH FOR STABILIZATION. EAS BMP'S SHALL REMAIN IN PLACE UNTIL 70% VEGETATIVE COVER HAS BEEN ESTABLISHED.

POST CONSTRUCTION STORMWATER MANAGEMENT BMP'S HAVE BEEN SIZED TO HANDLE ANY ADDITIONAL POST CONSTRUCTION STORMWATER FROM THE 24R - 24HOUR STORM.

UPON COMPLETION OF OPERATIONS REMOVE SUMPS AND BREACH BERM.

RESTORE SITE IN 2" MAXIMUM LIFTS, WITH COMPACTION TO A MINIMUM 90% STANDARD PROCTOR DENSITY (ASTM D698)

LEGEND

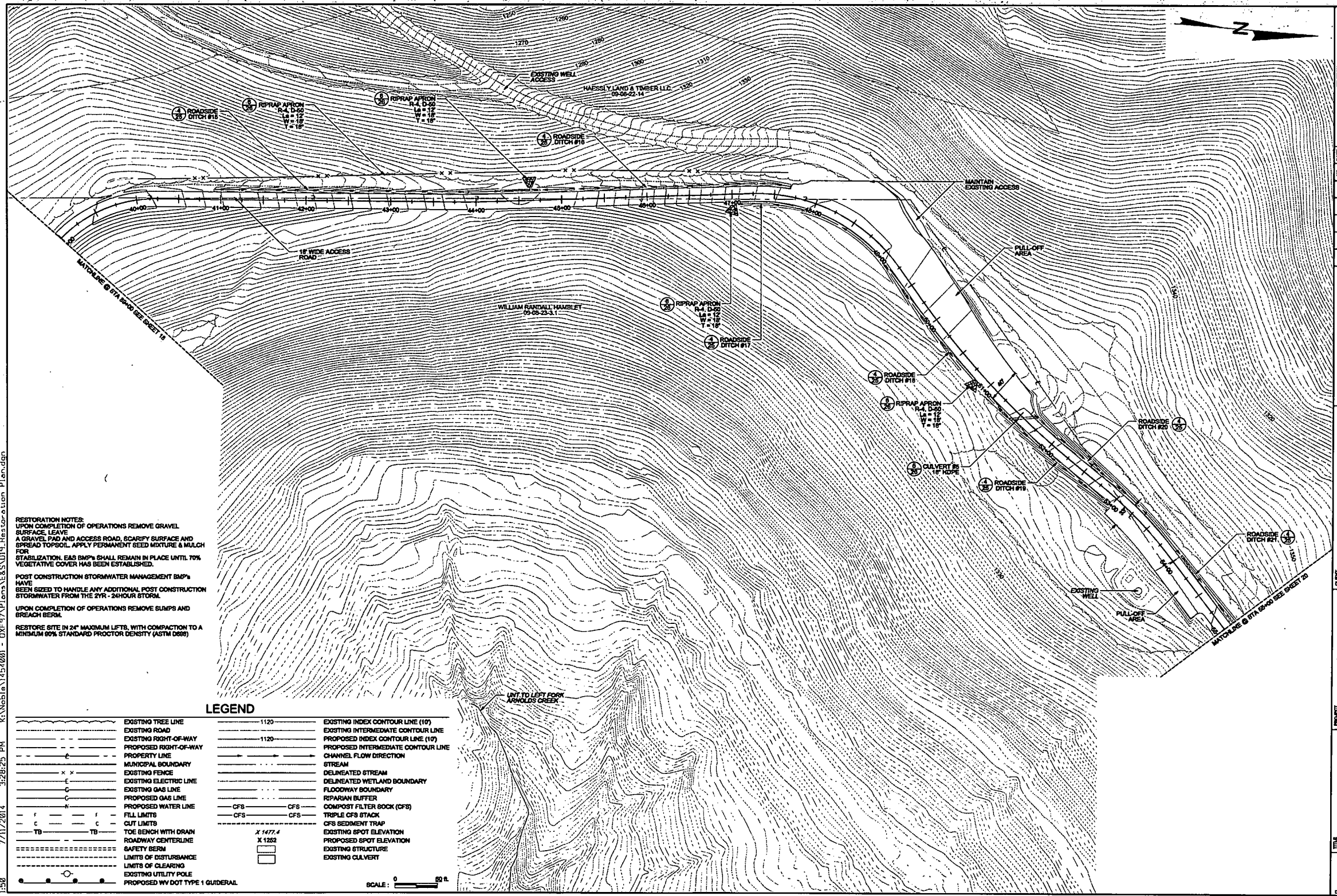
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	EXISTING RIGHT-OF-WAY		PROPOSED INDEX CONTOUR LINE (10')
	PROPOSED RIGHT-OF-WAY		PROPOSED INTERMEDIATE CONTOUR LINE
	PROPERTY LINE		CHANNEL FLOW DIRECTION
	MUNICIPAL BOUNDARY		STREAM
	EXISTING FENCE		DELINEATED STREAM
	EXISTING ELECTRIC LINE		DELINEATED WETLAND BOUNDARY
	EXISTING GAS LINE		FLOODWAY BOUNDARY
	PROPOSED GAS LINE		RIPARIAN BUFFER
	PROPOSED WATER LINE		COMPOST FILTER SOCK (CFS)
	FILL LIMITS		TRIPLE CFS STACK
	CUT LIMITS		CFS SEDIMENT TRAP
	TOE BENCH WITH DRAIN		EXISTING SPOT ELEVATION
	ROADWAY CENTERLINE		PROPOSED SPOT ELEVATION
	SAFETY BERM		EXISTING STRUCTURE
	LIMITS OF DISTURBANCE		EXISTING CULVERT
	LIMITS OF CLEARING		
	EXISTING UTILITY POLE		
	PROPOSED WV DOT TYPE 1 GUIDERAIL		

SCALE: 0 50 FT.

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CLIENT: NOBLE ENERGY, INC.
 PROJECT: OXF-97 WELL SITE
 TITLE: SITE RESTORATION PLAN
 DRAWING NO.: 17

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RESTORATION NOTES:
 UPON COMPLETION OF OPERATIONS REMOVE GRAVEL SURFACE. LEAVE A GRAVEL PAD AND ACCESS ROAD, SCARIFY SURFACE AND SPREAD TOPSOIL. APPLY PERMANENT SEED MIXTURE & MULCH FOR STABILIZATION. EAS BMPs SHALL REMAIN IN PLACE UNTIL 70% VEGETATIVE COVER HAS BEEN ESTABLISHED.
 POST CONSTRUCTION STORMWATER MANAGEMENT BMPs HAVE BEEN SIZED TO HANDLE ANY ADDITIONAL POST CONSTRUCTION STORMWATER FROM THE 2YR - 24HOUR STORM.
 UPON COMPLETION OF OPERATIONS REMOVE BUMPS AND BREACH BERM.
 RESTORE SITE IN 2" MAXIMUM LIFTS, WITH COMPACTION TO A MINIMUM 90% STANDARD PROCTOR DENSITY (ASTM D698)

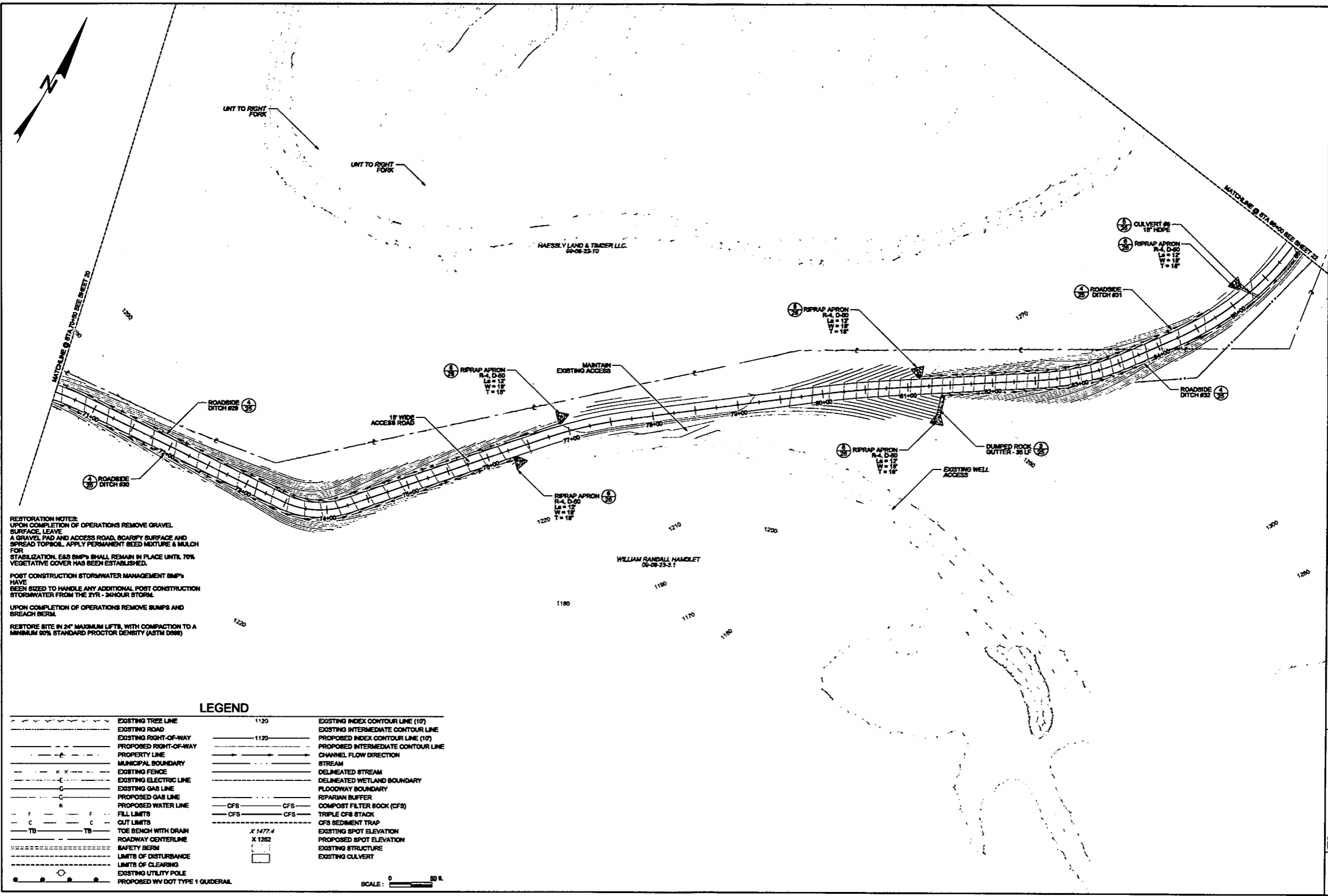
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	EXISTING ROAD		EXISTING INTERMEDIATE CONTOUR LINE
	EXISTING RIGHT-OF-WAY		PROPOSED INDEX CONTOUR LINE (10')
	PROPOSED RIGHT-OF-WAY		PROPOSED INTERMEDIATE CONTOUR LINE
	PROPERTY LINE		CHANNEL FLOW DIRECTION
	MUNICIPAL BOUNDARY		STREAM
	EXISTING FENCE		DELINEATED STREAM
	EXISTING ELECTRIC LINE		DELINEATED WETLAND BOUNDARY
	EXISTING GAS LINE		FLOODWAY BOUNDARY
	PROPOSED GAS LINE		RIPARIAN BUFFER
	PROPOSED WATER LINE		COMPOST FILTER SOCK (CFS)
	FILL LIMITS		TRIPLE CFS STACK
	CUT LIMITS		CFS SEDIMENT TRAP
	TOE BENCH WITH DRAIN		EXISTING SPOT ELEVATION
	ROADWAY CENTERLINE		PROPOSED SPOT ELEVATION
	SAFETY BERM		EXISTING STRUCTURE
	LIMITS OF DISTURBANCE		EXISTING CULVERT
	LIMITS OF CLEARING		
	EXISTING UTILITY POLE		
	PROPOSED WV DOT TYPE 1 GUARDRAIL		

SCALE: 0 50 FT

NO. DATE	NO. DATE
1 KAW	1 KAW
2 DND	2 DND
3 SDM	3 SDM
DATE	DATE
1454001	1454001
PROJECT NO.	PROJECT NO.
DIEFFENBAUGH & HRTZ MORGANTOWN, WV	
NOBLE ENERGY, INC	
OXF-97 WELL SITE	
SITE RESTORATION PLAN	
19	

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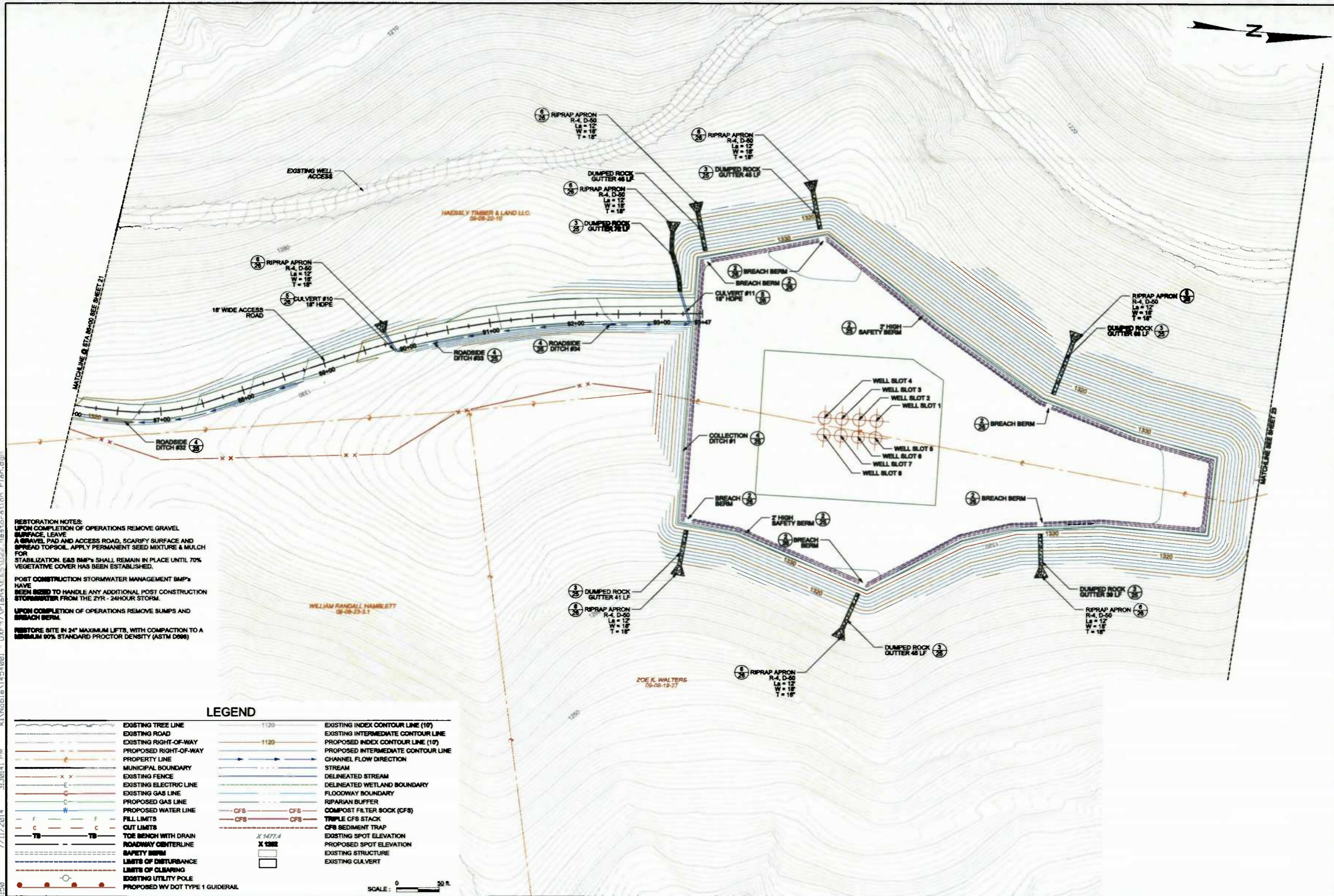
RESTORATION NOTES:
 UPON COMPLETION OF OPERATIONS REMOVE GRAVEL SURFACE. LEAVE A GRAVEL PAD AND ACCESS ROAD, SCARIFY SURFACE AND SPREAD TOPSOIL. APPLY PERMANENT SEED MIXTURE & MULCH FOR STABILIZATION. EAS BMPs SHALL REMAIN IN PLACE UNTIL 70% VEGETATIVE COVER HAS BEEN ESTABLISHED.
 POST CONSTRUCTION STORMWATER MANAGEMENT BMPs HAVE BEEN SIZED TO HANDLE ANY ADDITIONAL POST CONSTRUCTION STORMWATER FROM THE 2YR - 24HOUR STORM.
 UPON COMPLETION OF OPERATIONS REMOVE BUMPS AND BREACH BERM.
 RESTORE SITES IN 2" MAXIMUM LIFTS, WITH COMPACTION TO A MINIMUM 90% STANDARD PROCTOR DENSITY (ASTM D998)

LEGEND

	EXISTING TREE LINE		EXISTING INDEX CONTOUR LINE (10')
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	PROPOSED RIGHT-OF-WAY		PROPOSED INTERMEDIATE CONTOUR LINE
	PROPERTY LINE		CHANNEL FLOW DIRECTION
	MUNICIPAL BOUNDARY		STREAM
	EXISTING FENCE		DELINEATED STREAM
	EXISTING ELECTRIC LINE		DELINEATED WETLAND BOUNDARY
	EXISTING GAS LINE		FLOODWAY BOUNDARY
	PROPOSED GAS LINE		RIPARIAN BUFFER
	PROPOSED WATER LINE		COMPOST FILTER ROCK (CFS)
	FILL LIMITS		TRIPLE CFS STACK
	CUT LIMITS		CFS SEDIMENT TRAP
	TOE BENCH WITH DRAIN		EXISTING SPOT ELEVATION
	ROADWAY CENTERLINE		PROPOSED SPOT ELEVATION
	SAFETY BERM		EXISTING STRUCTURE
	LIMITS OF DISTURBANCE		EXISTING CULVERT
	LIMITS OF CLEARING		
	EXISTING UTILITY POLE		
	PROPOSED WW DOT TYPE 1 GUIDERAIL		

SCALE: 0 50 ft

NO.	DATE	REVISION	KAW DESIGN BKD CHECKED BDM APPROVED 8/17/14 DATE 1454001 PROJECT NO.
 DIEFFENBAUCH & HRTZ MORGANTOWN, WV			NOBLE ENERGY, INC OXF-97 WELL SITE
COUNTY			
PROJECT			TITLE SITE RESTORATION PLAN
DRAWING NO.			21



RESTORATION NOTES:
 UPON COMPLETION OF OPERATIONS REMOVE GRAVEL SURFACE. LEAVE A GRAVEL PAD AND ACCESS ROAD, SCARIFY SURFACE AND SPREAD TOPSOIL. APPLY PERMANENT SEED MIXTURE & MULCH FOR STABILIZATION. EAS BMP'S SHALL REMAIN IN PLACE UNTIL 70% VEGETATIVE COVER HAS BEEN ESTABLISHED.

POST CONSTRUCTION STORMWATER MANAGEMENT BMP'S HAVE BEEN DESIGNED TO HANDLE ANY ADDITIONAL POST CONSTRUCTION STORMWATER FROM THE 2YR - 24HOUR STORM.

UPON COMPLETION OF OPERATIONS REMOVE SUMPS AND BREACH BERM.

RESTORE SITE IN 24" MAXIMUM LFTS, WITH COMPACTION TO A MINIMUM 90% STANDARD PROCTOR DENSITY (ASTM D698)

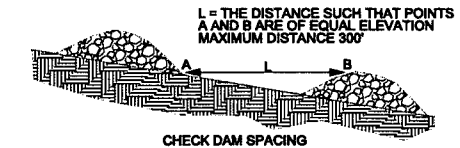
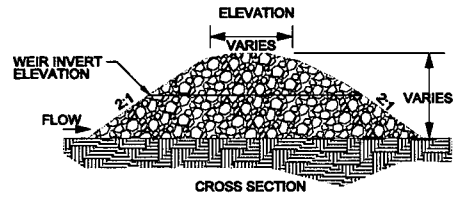
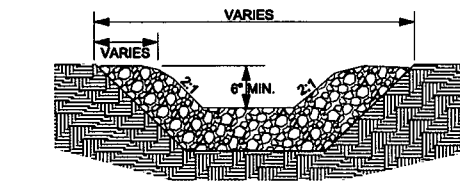
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	EXISTING TREE LINE		EXISTING INDEX CONTOUR LINE (10')
	EXISTING ROAD		EXISTING INTERMEDIATE CONTOUR LINE
	EXISTING RIGHT-OF-WAY		PROPOSED INDEX CONTOUR LINE (10')
	PROPOSED RIGHT-OF-WAY		CHANNEL FLOW DIRECTION
	PROPERTY LINE		STREAM
	MUNICIPAL BOUNDARY		DELINEATED STREAM
	EXISTING FENCE		DELINEATED WETLAND BOUNDARY
	EXISTING ELECTRIC LINE		FLOODWAY BOUNDARY
	EXISTING GAS LINE		RIPARIAN BUFFER
	PROPOSED GAS LINE		COMPOST FILTER SOCK (CFS)
	PROPOSED WATER LINE		TRIPLE CFS STACK
	FILL LIMITS		CFS SEDIMENT TRAP
	CUT LIMITS		EXISTING SPOT ELEVATION
	TOE BENCH WITH DRAIN		PROPOSED SPOT ELEVATION
	ROADWAY CENTERLINE		EXISTING STRUCTURE
	SAFETY BERM		EXISTING STRUCTURE
	LIMITS OF DISTURBANCE		EXISTING STRUCTURE
	LIMITS OF CLEARING		EXISTING STRUCTURE
	EXISTING UTILITY POLE		EXISTING STRUCTURE
	PROPOSED WV DOT TYPE 1 GUIDERAIL		

SCALE: 0 50 FT

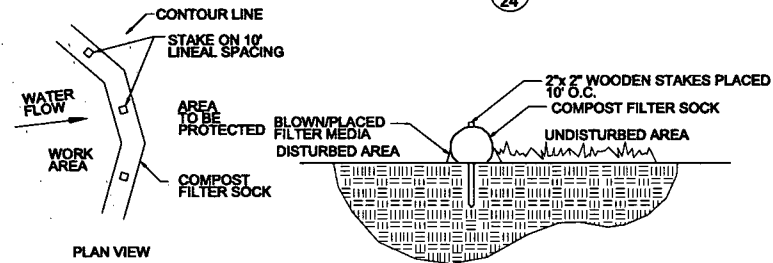
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TITLE	NOBLE ENERGY, INC
DRAWING NO.	NOBLE ENERGY, INC

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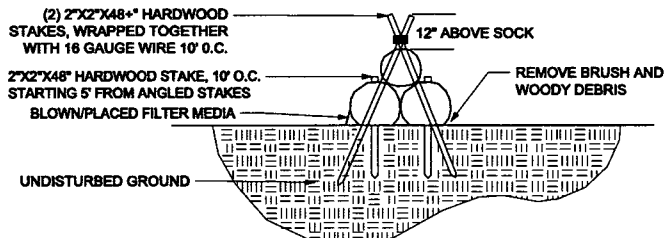
ROCK CHECK DAM

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COMPOST FILTER SOCK DETAIL

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CROSS SECTIONAL VIEW



1 ROW OF 18" COMPOST FILTER SOCK (STACKED ON TOP OF 2 ROWS OF 24" COMPOST FILTER SOCK)

1. MINIMUM BASE WIDTH IS EQUIVALENT TO THE HEIGHT.
2. SEDIMENT ACCUMULATION SHALL NOT EXCEED 1/3 THE TOTAL HEIGHT OF THE STACK.
3. SOCKS SHALL BE OF LARGER DIAMETER FOR SUCCESSIVE LAYERS AS INDICATED ABOVE.

PLAN VIEW

TRIPLE COMPOST FILTER SOCK STACK DETAIL

3
24

SOCK #	SIZE	% SLOPE	ACTUAL SLOPE LENGTH (FT)	MAX SLOPE LENGTH (FT)	SILT SOCK LENGTH	LOCATION
CFS 1	12"	18	22	80	47	ACCESS ROAD
CFS 2	12"	23	26	61	150	ACCESS ROAD
CFS 3	12"	25	32	58	123	ACCESS ROAD
CFS 4	12"	22	27	62	92	ACCESS ROAD
CFS 5	12"	19	31	75	92	ACCESS ROAD
CFS 6	18"	29	49	80	150	ACCESS ROAD
CFS 7	12"	13	31	115	150	ACCESS ROAD
CFS 8	12"	11	38	135	150	ACCESS ROAD
CFS 9	12"	15	62	100	150	ACCESS ROAD
CFS 10	18"	21	85	135	150	ACCESS ROAD
CFS 11	24"	28	87	120	140	ACCESS ROAD
CFS 12	12"	6	18	220	118	ACCESS ROAD
CFS 13	12"	19	58	75	150	ACCESS ROAD
CFS 14	18"	29	45	80	150	ACCESS ROAD
CFS 15	24"	41	69	75	150	ACCESS ROAD
CFS 16	TRIPLE STACK	46	79	70	150	ACCESS ROAD
CFS 17	24"	26	110	138	116	ACCESS ROAD
CFS 18	18"	21	105	135	74	ACCESS ROAD
CFS 19	12"	20	59	70	109	ACCESS ROAD
CFS 20	12"	8	12	180	101	ACCESS ROAD
CFS 21	12"	15	40	100	150	ACCESS ROAD
CFS 22	12"	11	35	135	160	ACCESS ROAD
CFS 23	12"	4	24	320	150	ACCESS ROAD
CFS 24	12"	8	13	180	150	ACCESS ROAD
CFS 25	12"	17	36	85	136	ACCESS ROAD
CFS 26	12"	28	25	45	136	ACCESS ROAD
CFS 27	12"	19	52	75	150	ACCESS ROAD
CFS 28	12"	7	15	195	150	ACCESS ROAD
CFS 29	12"	26	35	55	114	ACCESS ROAD
CFS 30	12"	6	95	220	95	ACCESS ROAD
CFS 31	12"	4	23	320	122	ACCESS ROAD
CFS 32	12"	29	7	43	150	ACCESS ROAD
CFS 33	12"	13	15	115	126	ACCESS ROAD
CFS 34	12"	8	13	180	150	ACCESS ROAD
CFS 35	12"	8	13	180	150	ACCESS ROAD
CFS 36	12"	8	12	180	150	ACCESS ROAD
CFS 37	12"	13	15	115	93	ACCESS ROAD
CFS 38	12"	28	36	45	160	ACCESS ROAD
CFS 39	12"	25	8	58	64	ACCESS ROAD
CFS 40	12"	4	27	320	88	ACCESS ROAD
CFS 41	18"	40	38	58	150	ACCESS ROAD
CFS 42	12"	38	8	35	150	ACCESS ROAD
CFS 43	TRIPLE STACK	54	26	91	150	ACCESS ROAD
CFS 44	18"	44	32	50	103	ACCESS ROAD
CFS 45	12"	32	34	40	108	ACCESS ROAD
CFS 46	12"	29	35	43	150	ACCESS ROAD
CFS 47	12"	24	38	60	150	ACCESS ROAD
CFS 48	18"	38	48	62	150	ACCESS ROAD
CFS 49	TRIPLE STACK	45	84	75	116	ACCESS ROAD
CFS 50	24"	49	45	50	116	ACCESS ROAD
CFS 51	12"	29	28	43	83	ACCESS ROAD
CFS 52	12"	9	11	165	107	ACCESS ROAD
CFS 53	12"	14	42	110	150	ACCESS ROAD
CFS 54	12"	22	32	62	150	ACCESS ROAD
CFS 55	12"	24	42	60	150	ACCESS ROAD
CFS 56	18"	22	65	125	150	ACCESS ROAD
CFS 57	12"	17	42	85	150	ACCESS ROAD
CFS 58	18"	25	59	100	150	ACCESS ROAD
CFS 59	TRIPLE STACK	46	77	70	237	PAD
CFS 60	TRIPLE STACK	25	260	180	85	PAD
CFS 61	TRIPLE STACK	32	245	115	78	PAD
CFS 62	TRIPLE STACK	48	93	70	60	PAD
CFS 63	TRIPLE STACK	47	112	70	134	PAD
CFS 64	TRIPLE STACK	47	95	70	190	PAD
CFS 65	TRIPLE STACK	46	84	70	146	PAD
CFS 66	32"	40	86	90	150	PAD

NOTE: SLOPE LENGTH MEASURED FROM FURTHEST POINT OF CONTRIBUTING DRAINAGE AREA UTILIZE EXISTING SILT SOCK AND REPLACE IF NEEDED.

COMPOST FILTER SOCK SIZE CHART

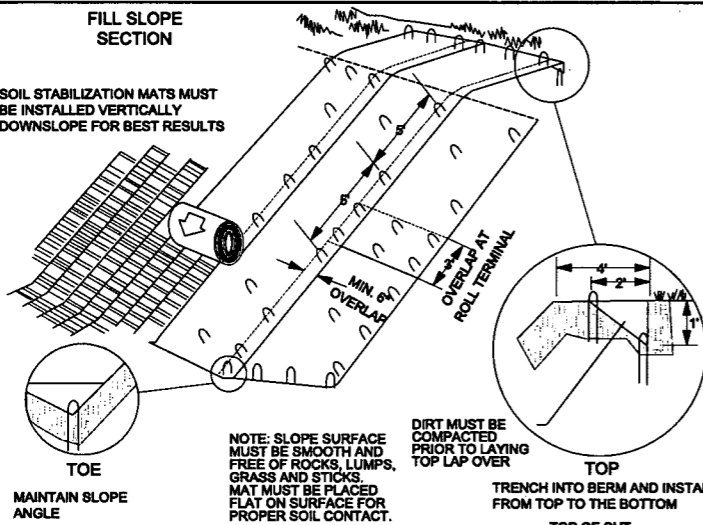
SOCK #	SIZE	% SLOPE	ACTUAL SLOPE LENGTH (FT)	MAX SLOPE LENGTH (FT)	SILT SOCK LENGTH	LOCATION
CFS 67	32"	41	84	87	202	NORTH STOCKPILE
CFS 68	24"	40	65	80	178	NORTH STOCKPILE
CFS 69	32"	43	79	85	98	NORTH STOCKPILE
CFS 70	32"	46	66	70	68	NORTH STOCKPILE
CFS 71	24"	40	80	80	150	NORTH STOCKPILE
CFS 72	24"	48	50	55	71	PAD
CFS 73	32"	46	67	70	298	PAD
CFS 74	TRIPLE STACK	47	76	70	114	PAD
CFS 75	TRIPLE STACK	51	65	102	102	PAD
CFS 76	TRIPLE STACK	23	253	200	85	PAD
CFS 77	TRIPLE STACK	50	74	65	302	PAD
CFS 78	32"	30	123	125	150	SOUTH STOCKPILE
CFS 79	32"	34	93	100	62	SOUTH STOCKPILE
CFS 80	24"	28	105	120	322	SOUTH STOCKPILE
CFS 81	12"	8	48	180	81	ACCESS ROAD
CFS 82	18"	36	62	64	96	ACCESS ROAD
CFS 83	TRIPLE STACK	58	33	76	76	ACCESS ROAD
CFS 84	TRIPLE STACK	51	70	150	150	ACCESS ROAD
CFS 85	12"	27	41	50	142	ACCESS ROAD
CFS 86	12"	19	42	75	150	ACCESS ROAD
CFS 87	12"	31	13	40	150	ACCESS ROAD
CFS 88	18"	48	29	40	150	ACCESS ROAD
CFS 89	TRIPLE STACK	56	25	96	96	ACCESS ROAD
CFS 90	18"	31	52	73	96	ACCESS ROAD
CFS 91	12"	40	10	35	142	ACCESS ROAD
CFS 92	12"	50	20	25	150	ACCESS ROAD
CFS 93	12"	18	33	80	150	ACCESS ROAD
CFS 94	12"	19	31	75	108	ACCESS ROAD
CFS 95	12"	18	22	80	150	ACCESS ROAD
CFS 96	12"	26	38	55	150	ACCESS ROAD
CFS 97	12"	19	31	75	106	ACCESS ROAD
CFS 98	12"	13	16	115	150	ACCESS ROAD
CFS 99	12"	33	33	39	147	ACCESS ROAD
CFS 100	18"	31	70	73	149	ACCESS ROAD
CFS 101	12"	19	21	75	150	ACCESS ROAD
CFS 102	18"	33	45	71	150	ACCESS ROAD
CFS 103	24"	30	76	100	116	ACCESS ROAD
CFS 104	12"	19	42	75	150	ACCESS ROAD
CFS 105	12"	12	26	125	143	ACCESS ROAD
CFS 106	12"	9	11	165	151	ACCESS ROAD
CFS 107	12"	22	9	62	104	ACCESS ROAD
CFS 108	12"	32	25	40	150	ACCESS ROAD
CFS 109	12"	13	35	115	150	ACCESS ROAD
CFS 110	12"	6	18	220	150	ACCESS ROAD
CFS 111	18"	28	58	85	101	ACCESS ROAD
CFS 112	24"	30	76	100	146	ACCESS ROAD
CFS 113	12"	21	34	65	126	ACCESS ROAD
CFS 114	12"	20	46	70	150	ACCESS ROAD
CFS 115	18"	29	48	80	140	ACCESS ROAD
CFS 116	18"	24	71	110	150	ACCESS ROAD
CFS 117	12"	22	37	62	150	ACCESS ROAD
CFS 118	12"	24	42	60	150	ACCESS ROAD
CFS 119	12"	35	20	37	116	ACCESS ROAD
CFS 120	12"	33	12	39	76	ACCESS ROAD
CFS 121	12"	3	30	415	150	ACCESS ROAD
CFS 122	TRIPLE STACK	35	121	95	150	ACCESS ROAD
CFS 123	TRIPLE STACK	46	83	70	128	ACCESS ROAD
CFS 124	24"	40	60	80	131	ACCESS ROAD
CFS 125	12"	30	37	42	150	ACCESS ROAD
CFS 126	12"	30	37	42	150	ACCESS ROAD
CFS 127	18"	45	34	50	124	ACCESS ROAD
CFS 128	18"	30	47	75	89	ACCESS ROAD
CFS 129	18"	27	66	90	126	ACCESS ROAD
CFS 130	12"	19	43	75	140	ACCESS ROAD
CFS 131	12"	14	56	110	127	ACCESS ROAD
CFS 132	12"	20	40	70	109	ACCESS ROAD

REVISION
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 DATE
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 PROJECT NO.
 DIEFFENBAUGH & HRTZ
 INCORPORATED, WY
 NOBLE ENERGY, INC
 CLIENT
 OXF-97 WELL SITE
 E&S DETAILS
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FILL SLOPE SECTION

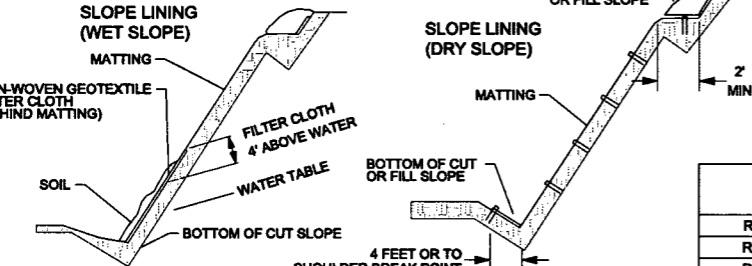
SOIL STABILIZATION MATS MUST BE INSTALLED VERTICALLY DOWNSLOPE FOR BEST RESULTS



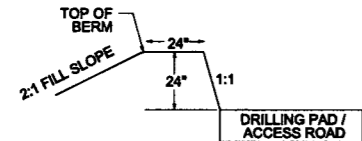
NOTE: SLOPE SURFACE MUST BE SMOOTH AND FREE OF ROCKS, LUMPS, GRASS AND STICKS. MAT MUST BE PLACED FLAT ON SURFACE FOR PROPER SOIL CONTACT.

DIRT MUST BE COMPACTED PRIOR TO LAYING TOP LAP OVER

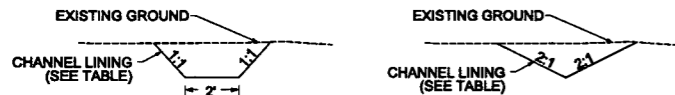
TRENCH INTO BERM AND INSTALL FROM TOP TO THE BOTTOM



ROLLED EROSION CONTROL PRODUCTS



DRILLING PAD / ACCESS ROAD BERM DETAIL TYPICAL



DITCH TYPICAL TRAPEZOIDAL

DITCH TYPICAL TRIANGULAR

1. LOCATION AND EXTENT OF THE STRUCTURES ON THESE SHEETS MAY VARY DEPENDING ON ACTUAL FIELD CONDITIONS.
2. IN AREAS WHERE THE DEPTH TO BEDROCK IS SHALLOW, IT MAY BE MORE ECONOMICALLY TO CONSTRUCT THE DITCHES BY EXCAVATING INTO BEDROCK. THE DITCHES SHALL BE OF SUFFICIENT CAPACITY TO CONVEY THE ESTIMATED DISCHARGE RATES. WHERE ROCK RIPRAP PROTECTION IS REQUIRED IN DITCHES BECAUSE OF HIGH FLOW VELOCITY, THE RIPRAP MUST ADHERE TO THE CONTRACT ITEM SPECIFICATION REQUIREMENTS.

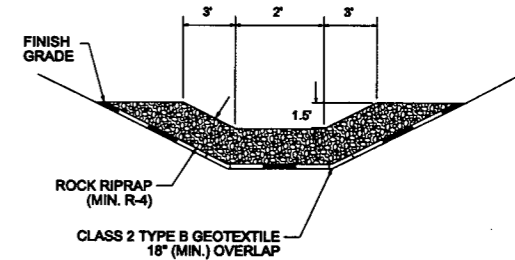
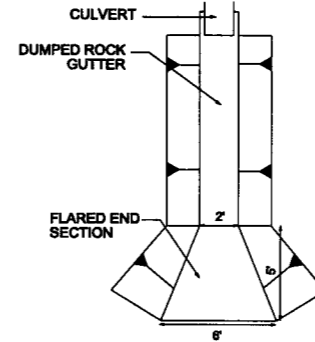
3. USE TRAPEZOIDAL BUCKET TO CONSTRUCT DITCHES.

RIPRAP GRADATION, FILTER BLANKET REQUIREMENTS, MAXIMUM VELOCITIES

CLASS SIZE NO.	PERCENT PASSING (SQUARE OPENINGS)					
	R-8	R-7	R-6	R-5	R-4	R-3
ROCK SIZE (INCHES)						
42	100					
30		100				
24	15-50		100			
18		15-50		100		
15	0-15		15-50			
12		0-15		15-50	100	
9			0-15			
6				0-15	15-50	100
4						
3					0-15	15-50
2						0-15
NOMINAL PLACEMENT THICKNESS (INCHES)	63	45	36	27	18	9
FILTER STONE	AASHTO #1	AASHTO #1	AASHTO #1	AASHTO #3	AASHTO #3	AASHTO #57
V _{max} (ft/sec)	17.0	14.5	13.0	11.5	9.0	6.5

COMPARISON OF VARIOUS GRADATIONS OF COARSE AGGREGATES
TOTAL PERCENT PASSING

AASHTO NUMBER	6 1/2"	4"	3 1/2"	2 1/2"	2"	1 1/2"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#100
1		100	90-100	25-60			0-5							
3				100	90-100	0-15		0-5						
5						90-100	20-55	0-10	0-5					
57						90-100		25-60		0-10	0-5			
67						100	90-100		20-55	0-10	0-5			
7							100	90-100	40-70	0-15	0-5			
8								100	85-100	10-30	0-10	0-5		
10									100	75-100				10-30



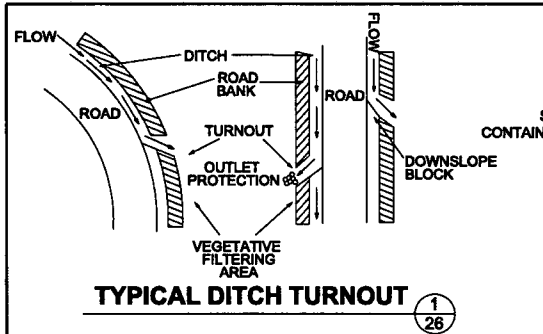
DUMPED ROCK GUTTER TYPICAL

DITCH DESIGN PARAMETERS

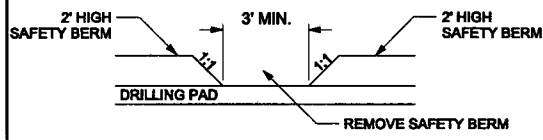
ITEM	CONTRIBUTING AREA (AC)	CHANNEL LENGTH (FT)	MIN. CHANNEL DEPTH, D (FT)	MINIMUM FREEBOARD	BOTTOM WIDTH (FT)	TYPE OF CHANNEL	PEAK DESIGN FLOW, (CFS)	DESIGN SLOPE, (%)	FLOW DEPTH, (FT)	VELOCITY (FT/S)	SHEAR (LB/SF)	CHANNEL LINING	PLACEMENT THICKNESS (FT)
ROADSIDE DITCH #1	0.12	101	1.0	0.5	2.0	TRAPEZOIDAL	0.31	6.9	0.07	1.99	0.30	DITCH FABRIC	N/A
ROADSIDE DITCH #2	0.05	92	1.0	0.5	2.0	TRAPEZOIDAL	0.12	5.4	0.05	1.29	0.17	DITCH FABRIC	N/A
ROADSIDE DITCH #3	1.18	279	1.0	0.5	2.0	TRAPEZOIDAL	2.83	2.5	0.36	3.05	0.56	DITCH FABRIC	N/A
ROADSIDE DITCH #4	0.71	309	1.0	0.5	2.0	TRAPEZOIDAL	1.84	7.1	0.20	3.64	0.89	DITCH FABRIC	N/A
ROADSIDE DITCH #5	0.06	119	1.0	0.5	2.0	TRAPEZOIDAL	0.19	7.6	0.05	1.71	0.24	DITCH FABRIC	N/A
ROADSIDE DITCH #6	0.09	133	1.0	0.5	2.0	TRAPEZOIDAL	0.26	5.3	0.07	1.72	0.23	DITCH FABRIC	N/A
ROADSIDE DITCH #7	0.07	107	1.0	0.5	2.0	TRAPEZOIDAL	0.25	12.1	0.06	2.19	0.45	R-4	1.5
ROADSIDE DITCH #8	0.01	71	1.0	0.5	2.0	TRAPEZOIDAL	0.02	12.7	0.01	0.83	0.08	R-4	1.5
ROADSIDE DITCH #9	0.08	160	1.0	0.5	2.0	TRAPEZOIDAL	0.22	6.3	0.06	1.70	0.24	DITCH FABRIC	N/A
ROADSIDE DITCH #10	0.02	126	1.0	0.5	2.0	TRAPEZOIDAL	0.04	10.3	0.02	1.03	0.13	R-4	1.5
ROADSIDE DITCH #11	0.52	743	1.0	0.5	2.0	TRAPEZOIDAL	1.57	14.4	0.18	4.52	1.44	R-4	1.5
ROADSIDE DITCH #12	0.21	668	1.0	0.5	2.0	TRAPEZOIDAL	0.56	14.4	0.08	3.12	0.72	R-4	1.5
ROADSIDE DITCH #13	0.17	253	1.0	0.5	2.0	TRAPEZOIDAL	0.48	5.5	0.10	2.18	0.34	DITCH FABRIC	N/A
ROADSIDE DITCH #14	0.03	189	1.0	0.5	2.0	TRAPEZOIDAL	0.08	4.8	0.04	1.06	0.12	DITCH FABRIC	N/A
ROADSIDE DITCH #15	0.22	374	1.0	0.5	2.0	TRAPEZOIDAL	0.68	8.0	0.11	2.78	0.55	DITCH FABRIC	N/A
ROADSIDE DITCH #16	0.20	310	1.0	0.5	2.0	TRAPEZOIDAL	0.70	10.3	0.11	3.05	0.71	R-4	1.5
ROADSIDE DITCH #17	0.03	170	1.0	0.5	2.0	TRAPEZOIDAL	0.07	4.1	0.04	0.96	0.10	DITCH FABRIC	N/A
ROADSIDE DITCH #18	0.03	208	1.0	0.5	2.0	TRAPEZOIDAL	0.06	3.4	0.03	0.86	0.06	DITCH FABRIC	N/A
ROADSIDE DITCH #19	0.04	217	1.0	0.5	2.0	TRAPEZOIDAL	0.10	6.0	0.04	1.24	0.16	DITCH FABRIC	N/A
ROADSIDE DITCH #20	0.14	203	1.0	0.5	2.0	TRAPEZOIDAL	0.42	5.4	0.10	2.06	0.34	DITCH FABRIC	N/A
ROADSIDE DITCH #21	0.16	207	1.0	0.5	2.0	TRAPEZOIDAL	0.48	2.9	0.12	1.77	0.22	DITCH FABRIC	N/A
ROADSIDE DITCH #22	0.18	251	1.0	0.5	2.0	TRAPEZOIDAL	0.52	8.0	0.10	2.52	0.50	DITCH FABRIC	N/A
ROADSIDE DITCH #23	0.01	83	1.0	0.5	2.0	TRAPEZOIDAL	0.03	6.0	0.02	0.78	0.07	DITCH FABRIC	N/A
ROADSIDE DITCH #24	0.04	38	1.0	0.5	2.0	TRAPEZOIDAL	0.14	2.6	0.06	1.09	0.10	DITCH FABRIC	N/A
ROADSIDE DITCH #25	0.01	37	1.0	0.5	2.0	TRAPEZOIDAL	0.01	2.7	0.01	0.40	0.02	DITCH FABRIC	N/A
ROADSIDE DITCH #26	0.09	115	1.0	0.5	2.0	TRAPEZOIDAL	0.25	1.7	0.10	1.18	0.11	DITCH FABRIC	N/A
ROADSIDE DITCH #27	0.02	122	1.0	0.5	2.0	TRAPEZOIDAL	0.05	2.5	0.03	0.73	0.05	DITCH FABRIC	N/A
ROADSIDE DITCH #28	0.02	40	1.0	0.5	2.0	TRAPEZOIDAL	0.06	5.0	0.03	0.96	0.09	DITCH FABRIC	N/A
ROADSIDE DITCH #29	0.55	759	1.0	0.5	2.0	TRAPEZOIDAL	1.57	7.8	0.18	3.70	0.82	DITCH FABRIC	N/A
ROADSIDE DITCH #30	0.13	622	1.0	0.5	2.0	TRAPEZOIDAL	0.30	8.5	0.07	2.10	0.37	DITCH FABRIC	N/A
ROADSIDE DITCH #31	0.21	359	1.0	0.5	2.0	TRAPEZOIDAL	0.61	13.4	0.09	3.15	0.75	R-4	1.5
ROADSIDE DITCH #32	0.19	762	1.0	0.5	2.0	TRAPEZOIDAL	0.44	7.2	0.09	2.30	0.40	DITCH FABRIC	N/A
ROADSIDE DITCH #33	0.46	202	1.0	0.5	2.0	TRAPEZOIDAL	1.05	1.5	0.24	1.87	0.22	DITCH FABRIC	N/A
ROADSIDE DITCH #34	0.25	142	1.0	0.5	2.0	TRAPEZOIDAL	0.58	1.4	0.17	1.50	0.15	DITCH FABRIC	N/A
COLLECTION DITCH #1	0.15	193	1.0	0.5	0.0	TRIANGULAR	0.34	0.5	0.41	1.03	0.13	DITCH FABRIC	N/A

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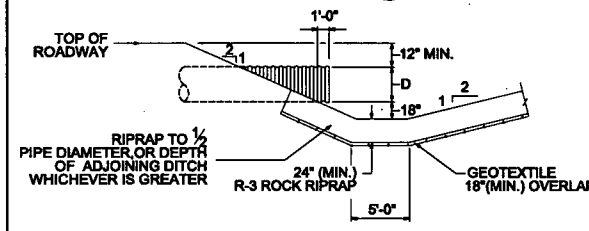
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 BDM APPROVED
 6/17/14 DATE
 1454001 PROJECT NO.
 DIEFFENBAUGH & HIRTZ MORGANTOWN, WV
 NOBLE ENERGY, INC
 OXF-97 WELL SITE
 E&S DETAILS
 25 DRAWING NO.



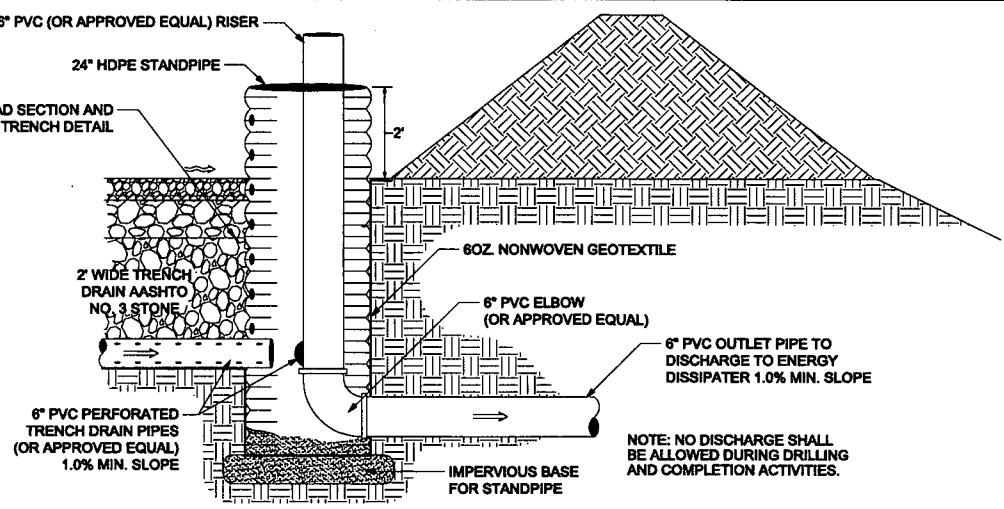
TYPICAL DITCH TURNOUT 1/26



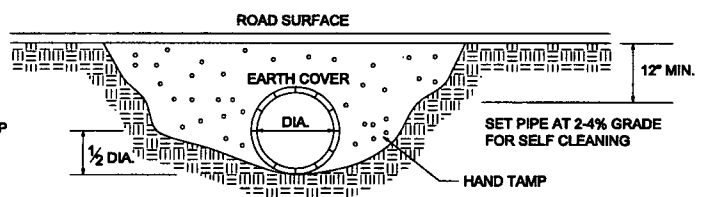
BERM BREACH 2/26



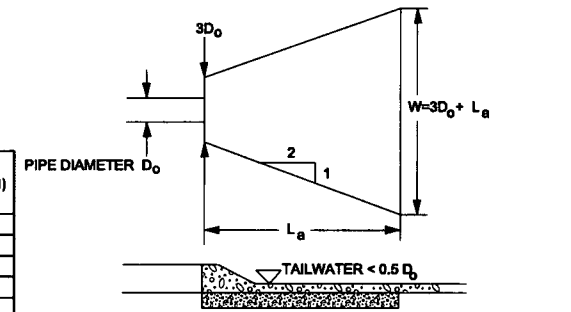
PIPE INLET TYPICAL 4/26



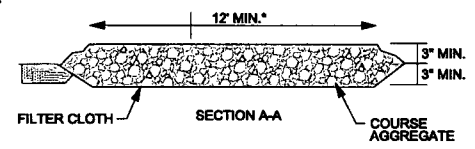
SUMP - WELL PAD DRAINAGE STRUCTURE 3/26



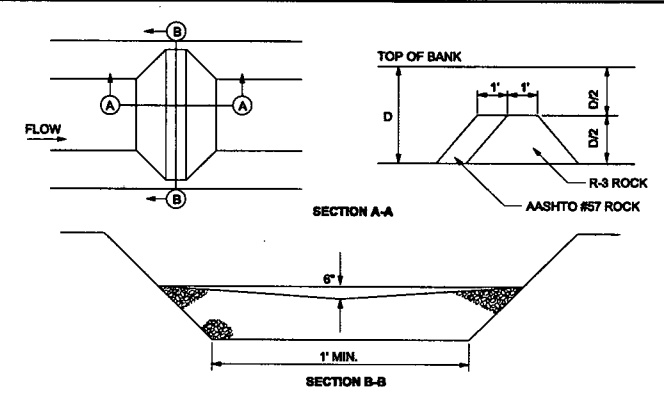
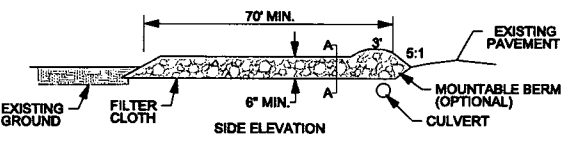
TYPICAL CROSS DRAIN CULVERT 5/26



**RIP RAP APRON OUTLET PROTECTION
MINIMUM TAILWATER CONDITION** 6/26

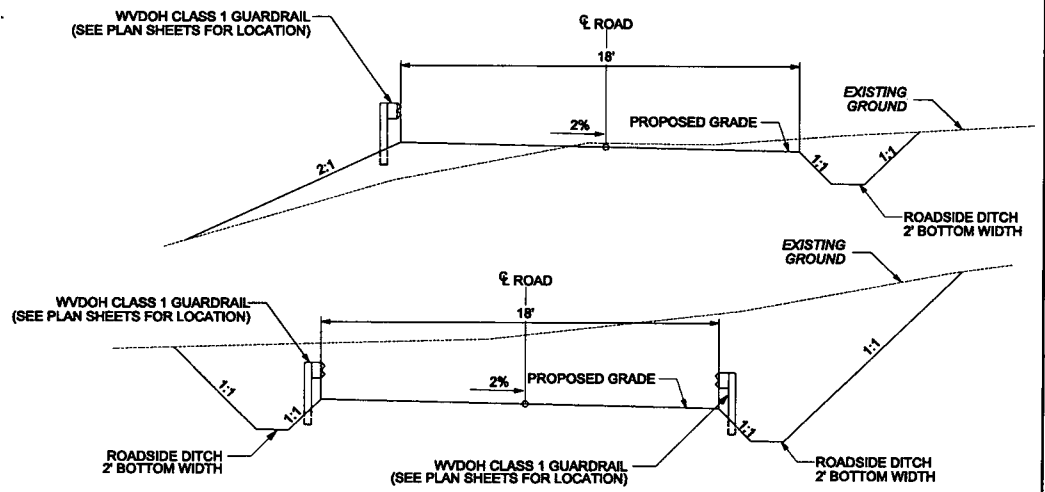


STONE CONSTRUCTION ENTRANCE 7/26

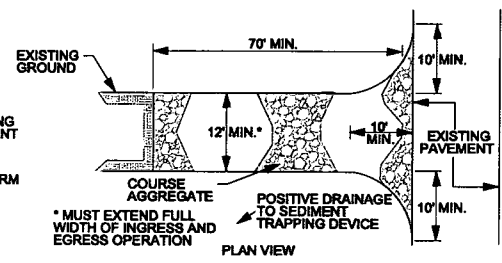


ROCK FILTER 9/26

SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE HEIGHT OF THE FILTERS. IMMEDIATELY UPON STABILIZATION OF EACH CHANNEL, REMOVE ACCUMULATED SEDIMENT, REMOVE ROCK FILTER, AND STABILIZE DISTURBED AREAS.



TYPICAL GUARDRAIL SECTION 8/26



* MUST EXTEND FULL WIDTH OF INGRESS AND EGRESS OPERATION

CULVERT SUMMARY TABLE

ITEM	LOCATION	DRAINAGE AREA (AC)	PEAK FLOW (CFS)	LENGTH (FT)	SLOPE (%)	SIZE (IN)
CULVERT #1	10+00	0.05	0.12	45	2	18
CULVERT #2	13+90	1.18	2.83	30	10	18
CULVERT #3	16+95	0.71	1.64	25	2	18
CULVERT #4	37+45	0.17	0.48	30	3.3	18
CULVERT #5	51+55	0.14	0.42	32	3.1	18
CULVERT #6	61+70	0.18	0.52	30	6.7	18
CULVERT #7	63+85	0.13	0.39	25	2	18
CULVERT #8	65+50	0.02	0.06	30	1.7	18
CULVERT #9	85.25	0.19	0.44	30	6.7	18
CULVERT #10	89+85	0.46	1.05	30	6.7	18
CULVERT #11	93+30	0.40	0.92	40	2.5	18

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 1464001 PROJECT NO.
 CLIENT
 NOBLE ENERGY, INC
 OXF-97 WELL SITE
 PROJECT
 E&S DETAILS
 TITLE
 26
 DRAWING NO.

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LEGEND

-  SLOPE MATTING / SEED & MULCH
-  SEED & MULCH ONLY

SCALE: 0 200 ft

DATE	NO.	REVISED
DATE	NO.	REVISED
06/17/14		
DATE	NO.	REVISED
1454001		
PRODUCT NO.	DIEFFENBAUGH & HRTZ MORGANTOWN, WV	
TITLE	CLIENT	PROJECT
SEED & MULCH PLAN	NOBLE ENERGY, INC	OXF-97 WELL SITE
27		

PROJECT INFORMATION

PROJECT NAME: OXF 149 H1, H2, H5, H7 & H8
 TAX PARCEL:
 WEST UNION DISTRICT
 MAP 23
 SURFACE OWNER:
 LUCY E. HARPER
 WEST UNION DISTRICT
 DODDRIDGE COUNTY, WV
 TOTAL PROPERTY AREA: 442.80 ± ACRES (TM 23-03)
 MATHEW HAMBLET ET AL
 WEST UNION DISTRICT
 DODDRIDGE COUNTY, WV
 TOTAL PROPERTY AREA: 442.80 ± ACRES (TM 23-31)
 I.L. MORRIS
 SOUTHWEST DISTRICT
 DODDRIDGE COUNTY, WV
 TOTAL PROPERTY AREA: 6,603.75 ± ACRES (TM 10-02)
 OIL AND GAS ROYALTY OWNER:
 LEWIS MAXWELL HRS
 WEST UNION DISTRICT
 DODDRIDGE COUNTY, WV
 TOTAL PROPERTY AREA: 2,654 ± ACRES

SITE LOCATION:
 THE OXF 149 SITE IS LOCATED ON A RIDGE SOUTH OF CO. RT. 11/4, APPROXIMATELY 4.3 MILES SOUTH OF THE CO. RT. 11 AND CO. RT. 11/4 INTERSECTION.

LOCATION COORDINATES

OXF 149 H1, H2, H5, H7 & H8 WELL PAD ENTRANCE @ CO. RT. 11/4
 LATITUDE: 39.224924 LONGITUDE: -80.797512 (NAD 83)
 OXF 149 H1, H2, H5, H7 & H8 WELL PAD
 LATITUDE: 39.221286 LONGITUDE: -80.800717 (NAD 83)
 OXF 149 H1, H2, H5, H7 & H8 ASSOCIATED PIT
 LATITUDE: 39.220301 LONGITUDE: -80.801578 (NAD 83)
 OXF 149 H1, H2, H5, H7 & H8 TANK A PAD
 LATITUDE: 39.221933 LONGITUDE: -80.799673 (NAD 83)
 OXF 149 H1, H2, H5, H7 & H8 TANK B PAD
 LATITUDE: 39.221733 LONGITUDE: -80.798991 (NAD 83)

SITE DISTURBANCE COMPUTATIONS

PADS/ASSOCIATED PIT AREA = 14.72 ± ACRES*
 EX. CO. RT. 11/4 TO OXF 149 WELL PAD = 3.68 ± ACRES
 EX. CO. RT. 23/2 TO OXF 138 WELL PAD = 3.41 ± ACRES
 PHASE 1 (ACCESS ROAD 'A') = 4.51 ± ACRES
 PHASE 2 (ACCESS ROAD 'B' STA. 31+50 - END) = 19.68 ± ACRES**
 TOTAL SITE DISTURBANCE = 46.00 ± ACRES
 *INCLUDES AREA OF THE WELL PAD, TANK PAD, ASSOCIATED PIT & STOCKPILES A-C.
 **INCLUDES AREA OF THE PHASE 2 ACCESS ROAD B & STOCKPILE D.

ENTRANCE PERMIT

EQT PRODUCTION COMPANY WILL OBTAIN AN ENCROACHMENT PERMIT (FORM MM-106) 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 #1524866539. 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. PIER THE FLOOD INSURANCE RATE MAP (FIRM) NUMBER 54017C0225C, DATED OCTOBER 04, 2011.

ENVIRONMENTAL NOTES

A WETLAND DELINEATION WAS PERFORMED ON AUGUST 13, 2013 BY POTESTA ENGINEERS AND ENVIRONMENTAL CONSULTANTS 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 AUGUST 13, 2013 EXHIBIT FIGURE 2 WAS PREPARED BY POTESTA ENGINEERS AND ENVIRONMENTAL CONSULTANTS 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 CONSENTATION 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.

GENERAL DESCRIPTION

THE WELL PAD, TANK PAD & ASSOCIATED PIT IS BEING CONSTRUCTED TO AID IN THE DEVELOPMENT OF INDIVIDUAL MARCELLUS SHALE GAS WELLS.

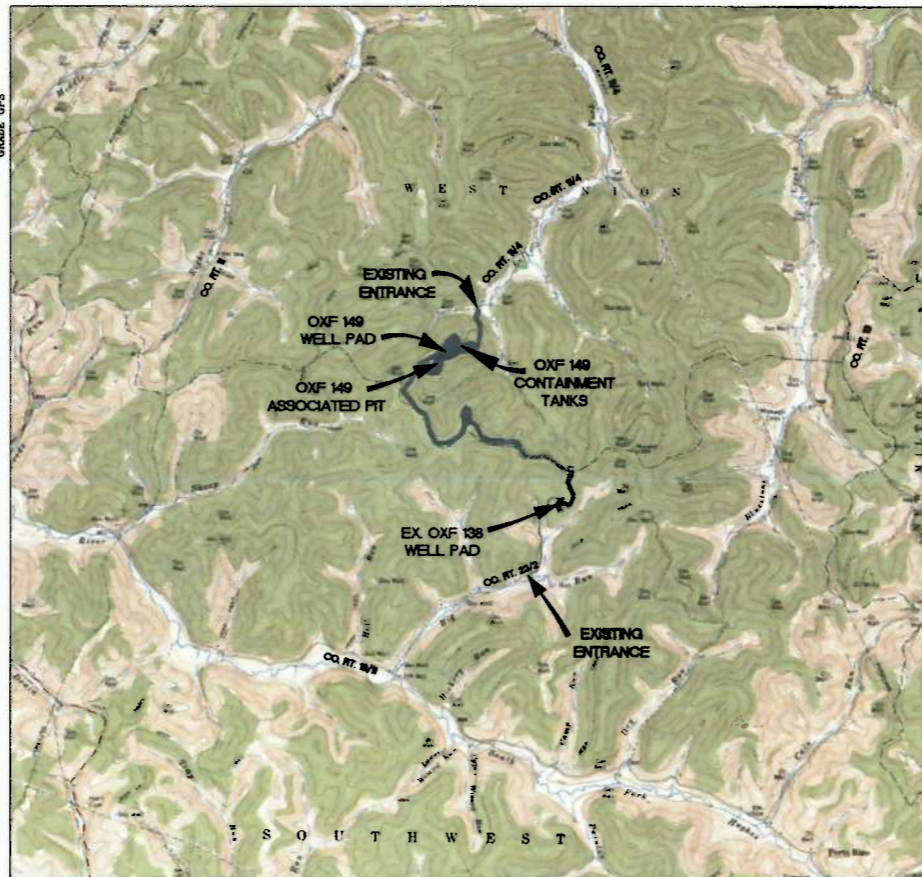
MISS Utility of West Virginia
 1-800-245-4848
 West Virginia State Law
 (Section XIV: Chapter 24-C)
 Requires that you call two
 business days before you dig in
 the state of West Virginia.
 IT'S THE LAW!!

OXF 149 SITE PLAN EQT PRODUCTION COMPANY

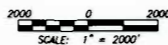
PROPOSED WELL NO. H1 - WV512478 (API# 47-017-06392), H2 - WV512479 (API# 47-017-06393), H5 - WV512482 (API# 47-017-06391), H7 - WV514074 & H8 - WV514073
 EXISTING WELL API NO. 47-017-05951, 47-017-05894, & 47-017-05895

SITUATE ON THE WATERS OF A TRIBUTARY OF LEFT FORK ARNOLDS CREEK IN SOUTHWEST & WEST UNION DISTRICT, DODDRIDGE COUNTY, WEST VIRGINIA

GRID NORTH AND ANGLE MEASUREMENTS ESTABLISHED BY SURVEY GRADE GPS



OXFORD QUAD



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		SPOT ELEVATION	---
		CENTER OF PAD	---

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COVER SHEET
OXF 149
 SITE PLAN MODIFICATION
 SOUTHWEST & WEST UNION DISTRICT
 DODDRIDGE COUNTY, WV

DATE: 02/12/2014
 SCALE: AS NOTED
 DESIGNED BY: CEK
 FILE NO: 6960
 SHEET 01 OF 42
 REV: 05/21/2014

CONSTRUCTION NOTES:

- METHODS AND MATERIALS USED IN THE CONSTRUCTION OF THE IMPROVEMENTS HEREIN SHALL CONFORM TO THE CURRENT COUNTY CONSTRUCTION STANDARDS AND SPECIFICATIONS AND/OR CURRENT WDEP EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL STANDARDS AND SPECIFICATIONS.
- MEASURES TO CONTROL EROSION AND SILTATION, INCLUDING DETENTION PONDS SERVING AS SILT BASINS DURING CONSTRUCTION, MUST BE PROVIDED PRIOR TO ISSUANCE OF THE SITE DEVELOPMENT PERMIT. THE APPROVAL OF THESE PLANS IN NO WAY RELIEVES THE DEVELOPER OR HIS AGENT OF THE RESPONSIBILITIES CONTAINED IN THE WDEP EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL.
- 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.
- 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.
- NOTIFICATION SHALL BE GIVEN 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.
- 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.
- THE DEVELOPER WILL BE RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING STREETS AND UTILITIES WHICH OCCURS AS A RESULT OF HIS CONSTRUCTION PROJECT WITHIN OR CONTIGUOUS TO THE EXISTING RIGHT-OF-WAY.
- 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.
- 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.
- 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.
- THE CONTRACTOR IS TO VERIFY FIELD CONDITIONS PRIOR TO AND DURING CONSTRUCTION AND NOTIFY NAVTUS ENGINEERING AT (888) 682-4185 OR SMITH LAND SURVEYING AT (304) 462-5634 IMMEDIATELY OF ANY DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND THE APPROVED PLAN.
- CONTRACTORS SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATING OR ELASTING AT LEAST TWO (2) WORKING DAYS, BUT NOT MORE THAN TEN (10) WORKING DAYS, PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION.
- CONTRACTOR TO CONTACT OPERATOR AND ENGINEER IF GROUNDWATER IS ENCOUNTERED DURING CONSTRUCTION.
- ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED BY THE CONTRACTOR DAILY AND CHECKED AFTER EVERY RAINFALL. ALL DRAIN INLETS SHALL BE FREE OF SILTATION AND DEBRIS. INEFFECTIVE MEASURES SHALL BE REPLACED, AS NECESSARY.
- THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE EROSION AND SEDIMENT CONTROL INSPECTOR, 2 DAYS PRIOR TO THE START OF CONSTRUCTION.

CONSTRUCTION SEQUENCE

- THE EMP'S SHALL BE IMPLEMENTED, MAINTAINED, AND OPERATED IN THE FOLLOWING GENERAL SEQUENCE OF CONSTRUCTION TO MITIGATE THE HAZARD OF ACCELERATED EROSION AND SEDIMENTATION TO ACCEPTABLE LEVELS. MINOR DEVIATIONS FROM THIS SEQUENCE SHALL BE EXECUTED BY THE PROJECT'S FOREMAN AS NEEDED TO ELIMINATE ANY POTENTIAL EROSION CONDITION THAT MAY ARISE FOR THE DURATION OF THE PROJECT. THE WDEP OFFICE OF OIL AND GAS SHALL BE NOTIFIED OF ANY AND ALL SUCH DEVIATIONS FROM THE APPROVED PLANS.
- STAKE THE LIMITS OF CONSTRUCTION.
 - INSTALL THE ROCK CONSTRUCTION ENTRANCE AS SHOWN ON THE PLANS.
 - INSTALL ALL ORANGE SAFETY FENCE AS SHOWN AROUND ANY DELINEATED STREAMS AND WETLANDS TO CLEARLY IDENTIFY THOSE AREAS THAT ARE NOT TO BE DISTURBED.
 - INSTALL ALL EMP'S (SUPER SILT FENCE, REINFORCED SILT FENCE, SEDIMENT TRAPS, ETC) AS SHOWN ON THE PLANS AND DETAILS.
 - CLEAR AND GRUB THE ACCESS ROAD AND PAD/PIT AREA. ALL WOODY MATERIAL, BRUSH, TREES, STUMPS, LARGE ROOTS, BULDERS 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. THESE SIX INCHES IN DIAMETER AND LONGER SHALL BE CUT AND LOGS STACKED. SMALLER TREES, BRUSH & STUMPS SHALL BE CUT AND OR CRUSHED AND WINDROWED IN APPROPRIATE AREAS FOR USE AS SEDIMENT BARRIERS AT WATER DRAINAGE OUTLETS, WINDROWED BELOW THE WELL SITE, USED FOR WILDLIFE HABITAT, BURIED (AS PER WY FOREST FIRE LINES), REMOVED FROM SITE, OR DISPOSED OF BY OTHER METHODS APPROVED BY DSP.
 - INSTALL ANY WETLAND OR STREAM CROSSINGS AS SHOWN ON THE PLANS.
 - CONVEY UPOPELLE DRAINAGE AROUND THE ACCESS ROAD AND PAD/PIT AREA BY CONSTRUCTING ALL DIVERSION BERM(S) AS SHOWN ON THE PLANS.
 - 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 STONE AND SIDE SLOPES AS SPECIFIED WITH PERMANENT SEEDING. STOCKPILE AND STABILIZE TOPSOIL ALONG THE ACCESS ROAD, AS NEEDED.
 - STRIP THE TOPSOIL FROM THE PAD/PIT AREA. TOPSOIL SHALL BE STOCKPILED AND IMMEDIATELY STABILIZED.
 - GRADE THE PAD/PIT AREA AS SHOWN ON THE PLAN. IMMEDIATELY STABILIZE THE OUTER AREAS OF THE PIT AS PER THE WELL PAD AND ANY TURF/GRASS AREAS WITH STONE AND THE SIDE SLOPES WITH EROSION CONTROL, PLANTING WHEN SLOPES ARE 3:1 OR GREATER. APPLY SEED AND MULCH 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.
 - INSTALL THE PIT LINER SYSTEM AND PERIMETER SAFETY FENCE /GATE AND EMERGENCY LIFE LINE AS SHOWN ON THE PLANS.
 - 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 EMP'S AS DEEMED NECESSARY. THESE INSPECTIONS SHALL CONTINUE DURING THE DURATION OF THE PROJECT AND SUBSEQUENT SITE RECLAMATION.
 - ONCE THE PIT HAS BEEN COMPLETED, SUBMIT THE AS-BUILT CERTIFICATION FOR EACH PIT FACILITY TO THE WDEP OFFICE OF OIL AND GAS, PRIOR TO PLACING FLUIDS IN EITHER STRUCTURE.
 - COMMENCE THE DRILLING ACTIVITY.
 - ONCE DISTURBED AREAS HAVE BEEN RE-VEGETATED AND STABILIZED FOLLOWING RECLAMATION, THE TEMPORARY EMP'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-SEEDING AND MULCHED.

SITE CLEANUP & RECYCLE PROGRAM

- 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.
- OILS, FUELS, LUBRICANTS AND COOLANTS WILL BE PLACED IN SUITABLE CONTAINERS AND DISPOSED PROPERLY.
- ALL TRASH AND GARBAGE WILL BE COLLECTED AND DISPOSED PROPERLY.
- ALL SEDIMENT REMOVED FROM SEDIMENT CAPTURING DEVICES SHALL BE PLACED ON THE TOPSOIL STOCKPILE, THEN SEEDED AND MULCHED, AS NECESSARY. ALTERNATIVELY, THE REMOVED SEDIMENT CAN BE TRANSPORTED TO A SITE WITH AN APPROVED PERMIT.

MAINTENANCE PROGRAM

- EMP'S WILL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH MEASURABLE RAINFALL EVENT DURING THE ACTIVE CONSTRUCTION PHASE OF THE PROJECT.
- ALL REVEGETATED ACCESS ROADS AND FACILITIES ARE TO BE MAINTAINED THROUGHOUT THE LIFE OF EACH STRUCTURE.
- 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.
- FILTER STRIPS AND/OR SILT FENCE WILL BE MAINTAINED.
- ALL AREAS OF EARTH DISTURBANCE WILL BE REPAIRED WHERE SIGNS OF ACCELERATED EROSION ARE DETECTED.
- SEEDING AND MULCHING WILL BE REPEATED IN THOSE AREAS THAT APPEAR TO BE FAILING OR HAVE FAILED.

ASSOCIATED IMPOUNDMENT/PIT CONSTRUCTION STANDARD NOTES

THE DESIGN, CONSTRUCTION, AND REMOVAL OF EMBANKMENTS ASSOCIATED WITH ASSOCIATED IMPOUNDMENTS/PITS FOR OIL AND GAS WELLS MUST BE ACCOMPLISHED IN SUCH A MANNER AS TO PROTECT THE HEALTH AND SAFETY OF THE PEOPLE, THE NATURAL RESOURCES, AND ENVIRONMENT OF THE STATE. THE IMPOUNDMENT/PIT EMBANKMENTS SHALL BE DESIGNED, CONSTRUCTED, AND MAINTAINED TO BE STRUCTURALLY SOUND AND REASONABLY PROTECTED FROM UNAUTHORIZED ACTS OF THIRD PARTIES.

- THE FOUNDATION FOR A ASSOCIATED IMPOUNDMENT/PIT EMBANKMENT MUST BE STRIPPED AND GRUBBED TO A MINIMUM DEPTH OF 2 FEET PRIOR TO PLACEMENT AND COMPACTION OF EARTHEN FILL MATERIAL. NO EMBANKMENT FILL SHALL BE PLACED ON FROZEN MATERIAL.
- ANY SPRINGS ENCOUNTERED WITHIN THE FOUNDATION AREA SHALL BE DRAINED TO THE OUTSIDE/DOWNSTREAM TOE OF EMBANKMENT. CONSTRUCTED DRAIN SYSTEM SHALL BE AN EXCAVATED 2' x 2' TRENCH AND BACK FILLED WITH TYPE A SAND, COMPACTED BY HAND TAMPER. NO GEOTEXTILES SHALL BE USED TO LINE TRENCH. THE LAST 3' OF DRAIN AT THE DOWNSTREAM END SHALL BE CONSTRUCTED WITH AASHTO #6 MATERIAL.
- SOILS FOR EARTHEN EMBANKMENT CONSTRUCTION SHALL BE LIMITED TO TYPES GC, GM, SC, SM, CL, OR ML (ASTM-D-2487 - UNIFIED SOILS CLASSIFICATION). SOILS MUST CONTAIN A MINIMUM OF 20% OF PLUS NO. 200 SIEVE AND BE "WELL GRADED" MATERIAL WITH COBBLES OR BOLDER SIZE MATERIAL MIXED WITH THE CLAY. A MINIMUM OF THREE SAMPLES SHALL BE CLASSIFIED.
- THE EARTHEN EMBANKMENT SHALL BE COMPACTED BY A VIBRATING SHEEPSFOOT ROLLER. THE LIFTS MUST BE IN HORIZONTAL LAYERS WITH A MAXIMUM LOOSE LIFT THICKNESS 12" AND MAXIMUM PARTICLE SIZE LESS THAN 6".
- THE PLACEMENT OF ALL FILL MATERIAL SHALL BE FREE OF WOOD, STUMPS AND ROOTS, LARGE ROCKS AND BULDERS, AND ANY OTHER NONCOMPACTABLE SOIL MATERIAL. THE EMBANKMENT SHALL BE COMPACTED TO A MINIMUM OF VISIBLE NON-MOVEMENT, HOWEVER, THE COMPACTION EFFORT SHALL NOT EXCEED THE OPTIMUM MOISTURE LIMITS.
- THE EMBANKMENT TOP SHALL BE A MINIMUM OF 12' IN WIDTH.
- THE MINIMUM INSIDE AND OUTSIDE SIDESLOPES SHALL BE 2H:1V, UNLESS OTHERWISE SPECIFIED.
- ALL EXPOSED EMBANKMENT SLOPES, NOT COVERED BY COMPACTED ROCKFILL OR RIPRAP SHALL BE LIMED, FERTILIZED, SEEDED AND MULCHED. PERMANENT VEGETATIVE COVER IN COMPLIANCE WITH THE WDEP EROSION AND SEDIMENT CONTROL FIELD MANUAL MUST BE ESTABLISHED UPON THE COMPLETION OF THE IMPOUNDMENT/PIT CONSTRUCTION. EMBANKMENTS SHALL BE MAINTAINED WITH A GRASSY VEGETATIVE COVER AND FREE OF BRUSH AND/OR TREES.
- A MINIMUM OF 2' OF FREEBOARD SHALL BE MAINTAINED AT ALL TIMES DURING THE OPERATION OF THE IMPOUNDMENT.
- ALL EMBANKMENT CONSTRUCTION AND COMPACTION TESTING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

ASSOCIATED IMPOUNDMENT/PIT LINER SYSTEM NOTES:

THE DESIGNED IMPOUNDMENT/PIT FACILITY SHALL BE FULLY LINED WITH A GEOSYNTHETIC LINER SYSTEM. LINERS SHALL BE INSTALLED IN ACCORDANCE TO MANUFACTURER'S SPECIFICATIONS.

- THE SUB-BASE SHALL BEAR THE WEIGHT OF THE LINER SYSTEM, WATER, AND EQUIPMENT OPERATING ON THE IMPOUNDMENT/PIT WITHOUT CAUSING OR ALLOWING A FAILURE OF THE LINER SYSTEM.
- THE SUB-BASE SHALL BE COMPACTED TO ACCOMMODATE POTENTIAL SETTLEMENT WITHOUT DAMAGE TO THE LINER SYSTEM.
- THE UPPER 6" OF THE SUB-BASE SHALL BE COMPACTED TO A STANDARD PROCTOR DENSITY OF AT LEAST 95%.
- THE SUB-BASE SHALL BE HARD, UNIFORM, SMOOTH AND FREE OF DEBRIS, ROCK FRAGMENTS, PLANT MATERIAL AND OTHER FOREIGN MATERIAL.
- THE SUB-BASE SHALL BE COVERED WITH NON-WOVEN GEOTEXTILE FABRIC TO CUSHION THE PRIMARY LINER AND ALLOW FOR ADEQUATE VENTING BETWEEN THE PRIMARY LINER AND THE SUB-BASE TO PREVENT THE ENTRAPMENT OF GASES BENEATH THE LINER SYSTEM.
- THE IMPOUNDMENT/PIT AREA SHALL BE DRAINED AND COMPLETELY DRY PRIOR TO THE PLACEMENT OF THE PRIMARY LINER. THE PRIMARY LINER SHALL MEET ALL WY DEP GUIDELINES FOR MINIMUM THICKNESS AND SHALL PREVENT THE MIGRATION OF WATER THROUGH THE LINER TO THE GREATEST DEGREE THAT IS TECHNOLOGICALLY POSSIBLE.
- THE PRIMARY LINER SHALL FULLY COVER THE BOTTOM AND SIDEWALLS OF THE IMPOUNDMENT/PIT.
- AN ANCHOR TRENCH SHALL BE EXCAVATED COMPLETELY AROUND THE PERIMETER OF THE IMPOUNDMENT/PIT AREA AT THE PLANNED ELEVATION OF THE TOP OF THE LINING. THE TRENCH SHALL BE A MINIMUM 36 INCHES DEEP AND 24 INCHES WIDE.
- ALL ELEMENTS OF THE LINER SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. ALL SEAMS AND SEALS AROUND ANY PROJECTIONS SHALL BE SEALED AND TESTED IN A METHOD APPROVED BY THE MANUFACTURER.
- GAS RELIEF VENTS SHALL BE PROVIDED ALONG THE TOP OF THE LINER AND WITHIN ONE FOOT OF THE PERIMETER OF THE IMPOUNDMENT TO ALLOW GASES TO ESCAPE FROM UNDER THE GEOMEMBRANE. MAXIMUM SPACING FOR VENTS SHALL BE 30 FEET.
- WATER LEVEL MARKINGS SHALL BE CLEARLY PAINTED (1' INCREMENTS) ON THE LINER SYSTEM TO IDENTIFY THE WATER SURFACE ELEVATION.

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NOTES
OXF 149
SITE PLAN MODIFICATION
SOUTHWEST & WEST UNION DISTRICT
DODDRIIDGE COUNTY, WY

DATE: 02/12/2014

SCALE: N/A

DESIGNED BY: CSK

FILE NO. 6880

SHEET 02 OF 42

REV: 05/21/2014



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OXF 97 SITE SAFETY PLAN
- FLOODPLAIN ZONES -

- Access Road Intersection
- Hydrology
- Proposed Access Road
- Inlet Sump to Drilling
- Floodplain
- Well Pad
- Contour
- States



1 Inch = 1,750 Feet

Projection: NAD 1927 StatePlane West Virginia North FIPS 4701
Units: Foot US

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