



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

June 05, 2014

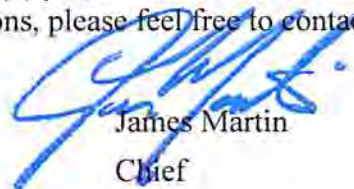
WELL WORK PERMIT
Vertical Well

This permit, API Well Number: 47-5101764, issued to NOBLE ENERGY, INC., is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.



James Martin
Chief

Operator's Well No: MND 99 V
Farm Name: CONSOLIDATION COAL COMPA
API Well Number: 47-5101764
Permit Type: Vertical Well
Date Issued: 06/05/2014

PERMIT CONDITIONS

West Virginia Code §22-6-11 allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code §22-6-20, which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
2. Pursuant to 35 CSR 4-19.1.a, at the request of the surface owner all water wells or springs within 1000 feet of the proposed well that are actually utilized for human consumption, domestic animals or other general use shall be sampled and analyzed.
3. Pursuant to 35 CSR 4-19.1.c, if the operator is unable to sample and analyze any water well or spring with one thousand (1,000) feet of the permitted well location, the Office of Oil and Gas requires the operator to sample, at a minimum, one water well or spring located between one thousand (1,000) feet and two thousand (2,000) feet of the permitted well location.
4. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.
5. During the surface casing and cementing process, in the event cement does not return to the surface, or any other casing string that is permitted to circulate cement to the surface and does not return to the surface, the oil and gas inspector shall be notified within twenty-four (24) hours
6. Well work activities shall not constitute a hazard to the safety of persons.

MND 99 V

Observation/Monitoring Well Work Procedure

This well is intended to be slightly deviated to better place the well between laterals.

An injection fall off test will consist of perforating the zones of interest, pump 5-10 bbl of water into the formation above the fracture pressure (~7000psi) at 5bpm and shut the well in measuring the pressure decline over time for analysis. The fall off tests will be conducted in shallow zones; Burkett, Marcellus, and chert (not more than 99' past the ceiling of the Onondaga) placing a plug between each and then after tests are completed we will monitor pressures on these open and completed zones.

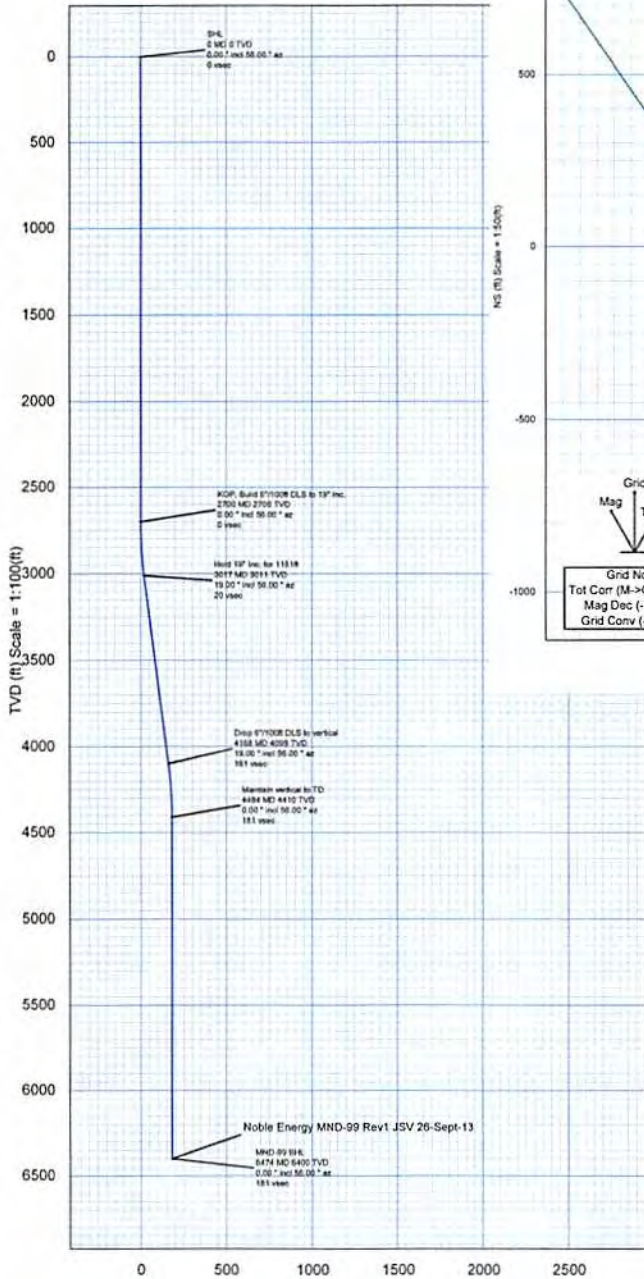
One option is that we will use three gauges behind casing reading real time and leave the two plugs above the Chert and Marcellus so as not to run tubing.

Another option is to have two packers at roughly the same location of the drilled out plugs with two downhole Tubel BHP gauges to measure pressure in all three zones (casing above for Burkett, gauge on tubing between packers to measure both the Chert (tubing) and the Marcellus (annulus)).

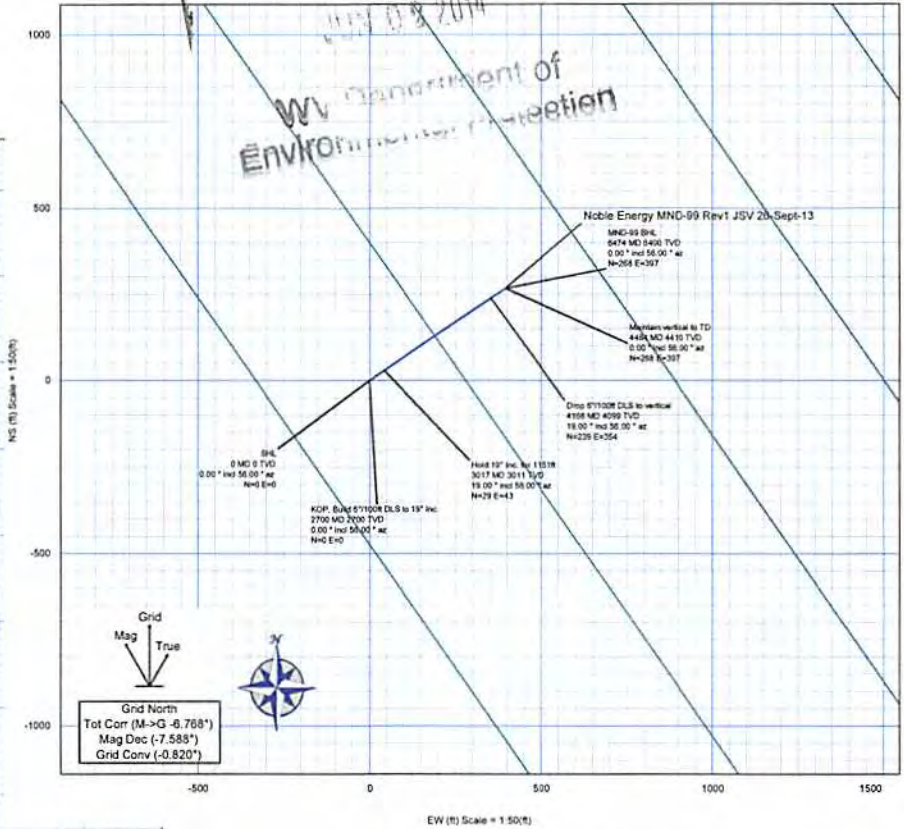
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Office of Oil and Gas
MAY 08 2014
WV Department of
Environmental Protection
06/06/2014

Borehole: Original Borehole	Well: MND-99	Field: WV Marshall County (NAD 27)	Structure: TBD
Gravity & Magnetic Parameters Model: HDGM 2012 MagDec: -7.588°	Dip: 67.377° FS: 52874.851at	Date: 9/26/2013 899.442mgal (3.52664 Gal/cm³)	Surface Location: NAD27 West Virginia State Plane, Northern Zone, US East Lat: N 39 50 34.77 Lon: W 89 47 10.86 Northing: 481736.731025 Easting: 1638823.89153 Grid Code: 5,827 Scale Fact: 1
Station: MND-99 Elevation: Noble Energy MND-99 Rev1 JSV 26-Sept-13 TVD Ref: KD(1120ft above MSL)			

- Noble Energy MND-99 Rev1 JSV 26-Sept-13
- Noble Energy MND-99 Rev1 JSV 26-Sept-13
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- Noble Energy MND-99 Rev1 JSV 26-Sept-13



Vertical Section (ft) Azim = 123.8° Scale = 1:100(ft) Origin = 0N/-S, 0E/-W



Station	Depth	Azim
SHL	2700.00	0.00
SHL Target	Head on Az 0.00°	Head on Az 0.00°
From 0.00' TVD to 2700.00' TVD	0.00' incl 50.00°	0.00' incl 50.00°
From 0.00' to 19.00'	19.00' incl 50.00°	19.00' incl 50.00°
From 19.00' to 3017.00' TVD	0.00' incl 50.00°	0.00' incl 50.00°
SHL Target	Head on Az 0.00°	Head on Az 0.00°
From 19.00' to 3017.00' TVD	19.00' incl 50.00°	19.00' incl 50.00°
From 3017.00' to 4188.00' TVD	0.00' incl 50.00°	0.00' incl 50.00°
SHL Target	Head on Az 0.00°	Head on Az 0.00°
From 4188.00' to 4488.00' TVD	0.00' incl 50.00°	0.00' incl 50.00°
SHL Target	Head on Az 0.00°	Head on Az 0.00°
From 4488.00' to 5474.00' TVD	0.00' incl 50.00°	0.00' incl 50.00°

PART	Sta.	Survey Type	Station/Tool	Node Size	1/2" SPS Area (sq)	MD From (ft)	MD To (ft)	Survey Frequency (Days/Week)	EDU Size (Shots/Week)	EDU Size (Shots/Week)	Comments
1	1	SLR_MND-99-Depth-3m		30	30	18	17/02	1.25	1.25		
1	2	SLR_MND-99-DLS		30	30	18	07/12	17/02	16.75	16.85	

Station	MD	SHL	ADJW	TVD	VSRC	N(268)	E(307)	DLS
SHL	0.00	0.00	89.90	0.00	0.00	0.00	0.00	
KOP: Build 67100R DLS to 19° Inc.	2700.00	0.00	89.90	2700.00	3.20	0.00	0.00	0.00
Head 19° Inc. for 1151ft	3017.00	19.00	89.90	3017.00	32.23	28.08	41.11	0.00
Drop 67100R DLS to vertical	4187.00	19.00	89.90	4187.00	420.76	338.84	351.80	0.00
Maintain vertical to TD	4488.00	0.00	89.90	4488.00	478.78	367.71	366.81	0.00
MND-99 SHL	5474.00	0.00	89.90	5474.00	478.78	367.71	366.81	0.00

Surface Location											
Northing	481736.73	Easting	1638823.89	Latitude	N 39 50 34.77	Longitude	W 89 47 10.86	UTM Zone	18	UTM Easting	1638823.89
Target Description	MND-99		UTM Easting	1638823.89		UTM Northing	481736.73		UTM Zone	18	
Target Name	Station	Dimension	Latitude	Longitude	Northing	Easting	TVD	Utm	Utm Easting	Utm Northing	



DRILLING WELL PLAN
MND-99V
Marcellus Observation Well
Marshall County, WV

MND-99V SHL (Lat/Long) (491736.73N, 1638825.5E) (NAD27)

Ground Elevation 1192'

Azm 56°

MND-99V BHL (Lat/Long) (492004.45N, 1639222.41E) (NAD27)

WELLBORE DIAGRAM	HOLE	CASING	GEOLOGY	Top		MUD	CEMENT	CENTRALIZERS	CONDITIONING	COMMENTS
					Base					
	26	20" 94#	Conductor	40	40	AIR	To Surface	N/A	Ensure the hole is clean at TD.	Stabilize surface fill/soil. Conductor casing = 0.438" wall thickness
	12-3/8"	9-5/8" 36# HCK-55 BTC	Pittsburgh Coal	843	848	AIR	15.6 ppg Class A to surface plus 50% Excess Yield = 1.2	Bow Spring on first 2 joints then every third joint to 100' from surface	Fill with fresh water (<3%KCL) gel mud once drilled to TD. Once casing is at setting depth, circulate a minimum of one hole volume prior to pumping cement.	Surface/Coal casing = 0.352" wall thickness. Burst=3520psi
			Surface/Coal Casing	1180	1180					
	8-3/4"	7" 26# P110 TXP BTC	Price Formation	2270	2270	AIR	15.6 ppg Class A to surface plus 50% Excess Yield = 1.2	Bow spring centralizers every third joint to 100' feet from surface.	Fill with gel mud once drilled to TD. Once casing is at setting depth, circulate a minimum of one hole volume prior to pumping cement.	CONTINGENCY STRING (IF HOLE PROBLEMS ARE ENCOUNTERED) Intermediate casing = 0.362" wall thickness. Burst=9960 psi
			Weir Sand	2430	2430					
			Contingency Int. Casing	2680	2680					
	8-3/4" or 7 7/8" Vertical Deviation	4-1/2" 11.6# P-110 BTC	KOP	2700 MD	2700 TVD	AIR	14.8 ppg Class A TOC >= 200' above 9.625" shoe plus 30% Excess	Rigid Bow Spring centralizers every joint to TOC	Fill with gel mud once drilled to TD. Once casing is at setting depth, circulate a minimum of two hole volumes prior to pumping cement.	6DLS build, Tangent @ 19', 6DLS drop back to vertical. Production casing = 0.25" wall thickness. Burst= 10690 psi
			Speechley		3586					
			Drop to Vertical	4170 MD	4100 TVD					
			Angola	5094	5716					
			Rheinstreet	5716	5987					
			Sonyea	5987	5917					
			Cashaqua	5917	6068					
			Middlesex	6068	6091					
			Burkett	6158	6176					
Tully Limestone			6176	6202						
Hamilton	6202	6237								
Marcellus	6237	6290								
Onondaga	6290	6296								
TD		6389 TVD								

WV Department of Environmental Protection
 MAY 08 2014
 Office of Oil and Gas
 RECEIVED

4705101764

WW-2A
(Rev. 6-07)

1.) Date: _____
2.) Operator's Well Number MND 99 V
State _____ County _____ Permit _____
3.) API Well No.: 47- _____ - _____

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

4) Surface Owner(s) to be served:	5) (a) Coal Operator
(a) Name <u>Consolidation Coal Company-Jason Witt</u>	Name <u>Consolidation Coal Company-Jason Witt</u>
Address <u>46226 National Rd. ✓</u>	Address <u>46226 National Road ✓</u>
<u>Saint Clairsville, OH 43950</u>	<u>Saint Clairsville, OH 43950</u>
(b) Name _____	(b) Coal Owner(s) with Declaration
Address _____	Name <u>Consolidation Coal Company-Jason Witt ✓</u>
(c) Name _____	Address <u>46226 National Road</u>
Address _____	<u>Saint Clairsville, OH 43950</u>
6) Inspector <u>Jim Nicholson WVOOG State Inspector</u>	Name <u>Consol Energy, Inc.-Don Puglio ✓</u>
Address <u>PO Box 44</u>	Address <u>1000 Consol Energy Drive</u>
<u>Moundsville, WV 26041-1534</u>	<u>Canonsburg, PA 15317</u>
Telephone <u>304-552-3874</u>	(c) Coal Lessee with Declaration
	Name <u>Consolidation Coal Company-Jason Witt ✓</u>
	Address <u>46226 National Road</u>
	<u>Saint Clairsville, OH 43950</u>

TO THE PERSONS NAMED ABOVE TAKE NOTICE THAT:

Included is the lease or leases or other continuing contract or contracts by which I hold the right to extract oil and gas
OR

Included is the information required by Chapter 22, Article 6, Section 8(d) of the Code of West Virginia (see page 2)

I certify that as required under Chapter 22-6 of the West Virginia Code I have served copies of this notice and application, a location plat, and accompanying documents pages 1 through _____ on the above named parties by:

- Personal Service (Affidavit attached)
- Certified Mail (Postmarked postal receipt attached)
- Publication (Notice of Publication attached)

I have read and understand Chapter 22-6 and 35 CSR 4, and I agree to the terms and conditions of any permit issued under this application.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator Noble Energy, Inc. *Laura L. Adkins*
 By: Laura L. Adkins
 Its: Regulatory Analyst
 Address 333 Technology Drive Suite 116
Canonsburg, PA 15317
 Telephone 412-841-9567

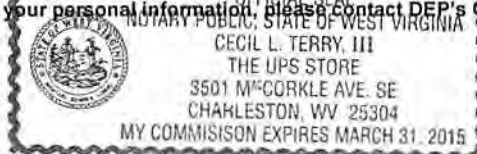
Subscribed and sworn before me this 7 day of MAY, 2014

 My Commission Expires 3/31/2015
 Oil and Gas Privacy Notice

Notary Public

RECEIVED
 Office of Oil and Gas
 MAY 08 2014
 Department of
 Environmental Protection

The Office of Oil and Gas processes your personal information, such as name, address and phone number, as a part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use of your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov



06/06/2014

4705101764

MND 99 V

7012 2920 0000 6498 3533

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 For delivery information visit our website at www.usps.com

SAINT CLAIRSVILLE OH 43950

Postage	\$	\$3.04
Certified Fee		\$3.30
Return Receipt Fee (Endorsement Required)		\$2.70
Restricted Delivery Fee (Endorsement Required)		\$0.00



MND 99 V

Consolidation Coal Company \$9.04
 Jason Witt
 46226 National Road
 Saint Clairsville, OH 43950

See Reverse for Instructions

7012 2920 0000 6498 3526

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CANONSBURG PA 15317

Postage	\$	\$2.86
Certified Fee		\$3.30
Return Receipt Fee (Endorsement Required)		\$2.70
Restricted Delivery Fee (Endorsement Required)		\$0.00



Consol Energy, Inc. \$8.86
 Attn: Don Puglio
 1000 Consol Energy Dr.
 Canonsburg, PA 15317

See Reverse for Instructions

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 Office of Oil and Gas
 MAY 08 2014
 WV Department of
 Environmental Protection

06/06/2014

WW-2A1
(Rev. 1/11)

Operator's Well Number MND 99 V

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6, Section 8(d)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
Consolidation Coal Company	CNX Gas Company, LLC	100%/Fee	646/493
CNX Gas Company, LLC	Noble Energy, Inc.	100%/Fee	752/66

**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources
- WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the proposed activity is initiated.

Noble Energy, Inc.

Well Operator:
By: Its:

Jack D. [Signature] / Jack D. [Signature]
Senior Operations handman

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Office of Oil and Gas
Environmental Protection

WW-2B1
(5-12)

Well No. MND 99 V

West Virginia Department of Environmental Protection
Office of Oil and Gas

NOTICE TO SURFACE OWNERS

The well operator named below is preparing to file for a permit from the state to drill a new well. Before a well work permit can be filed with the Chief of the Office of Oil and Gas, the well operator is required to have given notice of the right to request water well or spring analytical testing. This notice shall be given to the owners or occupants of land which have a water well or spring being utilized for human consumption, domestic animals, or other general use and which is located within 1000 feet of the proposed well site.

With this form, the operator is giving you notice of your right to request analytical testing. The operator is required to sample and analyze the water wells or springs of all owners or occupants who request it. Therefore, if you wish to have your water well or spring tested, contact the operator named below.

All sampling shall be completed prior to drilling. Within thirty (30) days of the receipt of such sample analyses the operator shall submit the results to the Chief of the Office of Oil and Gas and to the owners or occupants who may have requested them.

Be advised, you have the right to sample and analyze any water supply at your own expense.

Listed below is the laboratory chosen by operator to perform analysis, and contactor chosen to collect sample.

Certified Laboratory Name
Sampling Contractor

ALS Labs
Moody Environmental

Well Operator Noble Energy, Inc.

Address 333 Technology Drive Suite 116
Canonsburg, PA 15317

Telephone 724-820-3118

FOR OPERATOR'S USE ONLY: Below, or on an attached page, list those persons which were given this notice. Place an asterisk beside the one(s) that contacted you and requested sampling and analyses. If there were no requests made, indicate by underling which one you have selected to sample and analyze. If there are no water wells or springs within 1000 feet of the proposed site, the Chief may require the operator to test wells up to 2000 feet from the proposed site.

There are no water wells or springs within 1000'. Please see map attached.

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MAY 08 2014
Office of Oil and Gas
Environmental Protection
Department of

06/06/2014

April 14, 2014

NOBLE ENERGY, INC.
333 TECHNOLOGY DRIVE
SUITE 116
CANNONSBURG, PA 15317

WATER WELL REPORT

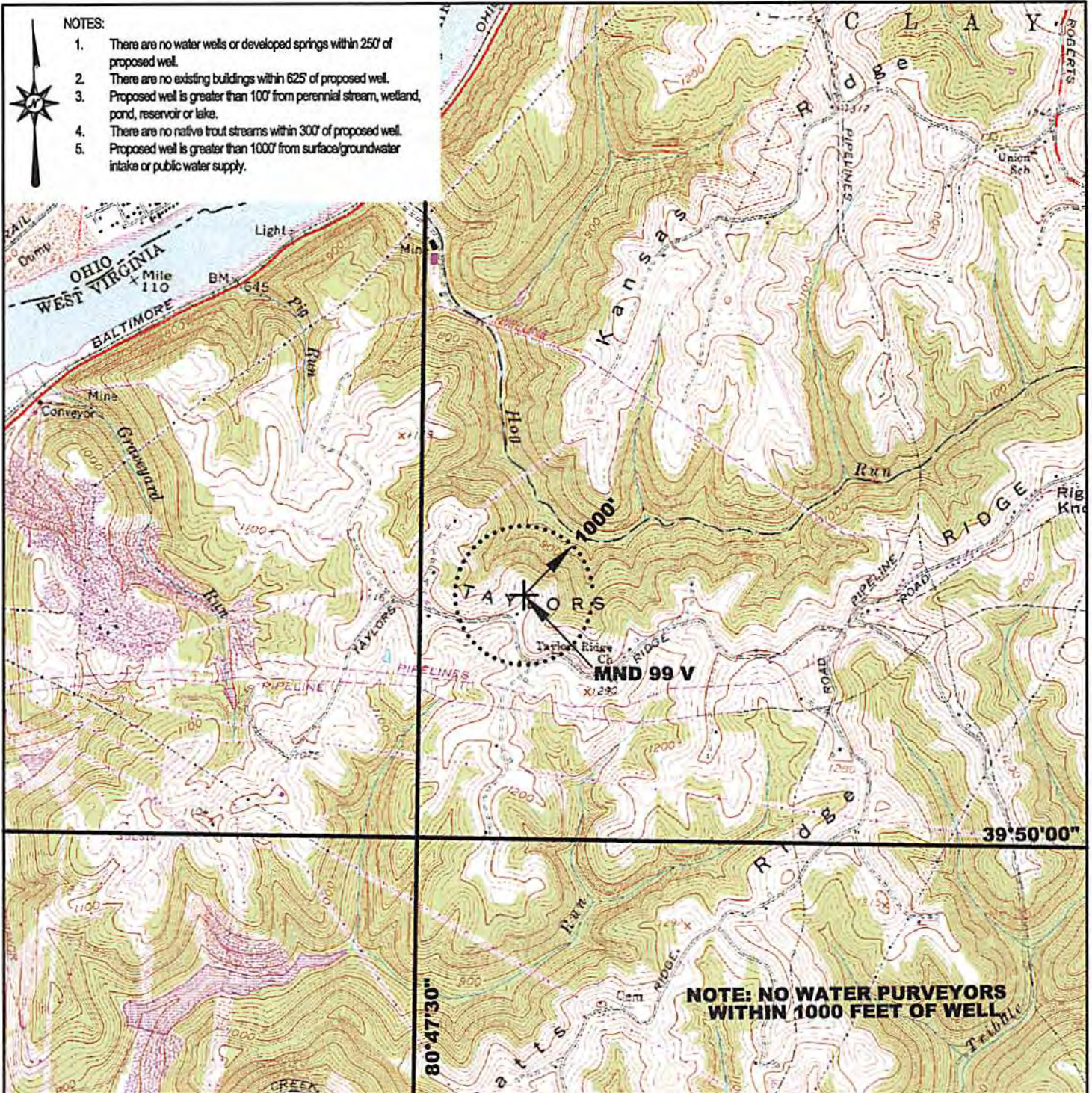
Well No.: MND 99 V
District: Franklin
County: Marshall
State: West Virginia

Potable water sources within 2,000' feet of the above referenced well location.

<u>NAME / ADDRESS</u>	<u>WATER SOURCE DISTANCE TO WELL</u>
ROBERT WILLIAM GRAY - LIFE 10 SUGAR LN WHEELING, WV 26003	1757'
THOMAS K. BARNHART 3008 TAYLORS RIDGE RD PROCTOR, WV 26055	1709'
	1566'

NOTES:

1. There are no water wells or developed springs within 250' of proposed well.
2. There are no existing buildings within 625' of proposed well.
3. Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
4. There are no native trout streams within 300' of proposed well.
5. Proposed well is greater than 1000' from surface/groundwater intake or public water supply.



**NOTE: NO WATER PURVEYORS
WITHIN 1000 FEET OF WELL**

Blue Mountain Inc.
11023 MASON DIXON HIGHWAY
BURTON, WV 26562
PHONE: (304) 662-6486

PREPARED FOR:
NOBLE ENERGY, INC.
333 TECHNOLOGY DRIVE
SUITE 116
CANNONBURG, PA 15317

LEGEND
⊙ - WATER PURVEYOR
+ - EXISTING WELLS

**MND 99 V
LOCATION MAP
MARSHALL COUNTY
FRANKLIN DISTRICT
WEST VIRGINIA**
TOPO QUAD: POWHATAN POINT, OHIO-WV
SCALE: 1" = 2000'
DATE: December 18, 2013

WW-9
(5/13)

Page _____ of _____
API Number 47 - _____ - _____
Operator's Well No. MND 99 V

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Noble Energy, Inc. OP Code 494501907

Watershed (HUC 10) Short Creek Quadrangle Powhatan Point

Elevation 1192' County Marshall District Franklin

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes _____ No X

Will a pit be used for drill cuttings? Yes _____ No X

If so, please describe anticipated pit waste: no pit-closed loop

Will a synthetic liner be used in the pit? Yes _____ No _____ If so, what ml.? _____

Proposed Disposal Method For Treated Pit Wastes:

- _____ Land Application
- _____ Underground Injection (UIC Permit Number _____)
- _____ Reuse (at API Number _____)
- Off Site Disposal (Supply form WW-9 for disposal location)
- _____ Other (Explain _____)

Will closed loop system be used? Yes

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Air thru coal string, then SOBM

-If oil based, what type? Synthetic, petroleum, etc. Synthetic

Additives to be used in drilling medium? See attached

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Offsite, list attached

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) _____

-Landfill or offsite name/permit number? _____

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature Laura L. Adkins

Company Official (Typed Name) Laura L. Adkins

Company Official Title Regulatory Analyst

RECEIVED
Office of Oil and Gas
MAY 08 2014

Subscribed and sworn before me this 7 day of MAY

My commission expires 3/31/2015

WV Department of Environmental Protection
OFFICE OF OIL AND GAS
NOTARY PUBLIC, STATE OF WEST VIRGINIA
CECIL L. TERRY, III
THE UPS STORE
3501 M^CCORKLE AVE. SE
CHARLESTON, WV 25304
MY COMMISSION EXPIRES MARCH 31, 2015

06/06/2014

Proposed Revegetation Treatment: Acres Disturbed _____ Prevegetation pH _____

Lime 2 to 3 Tons/acre or to correct to pH _____

Fertilizer (10-20-20 or equivalent) 10-20-20 at 500 lbs/acre (500 lbs minimum)

Mulch Hay or Straw at 2 Tons/acre

Seed Mixtures

Seed Type	Area I	lbs/acre
Tall Fescue		40
Ladino Clover		5
See Site Plans for Complete List		

Seed Type	Area II	lbs/acre
Tall Fescue		40
Ladino Clover		5
See Site Plans for Complete List		

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Office of Oil and Gas

JUN 02 2014

WMD Department of
Environmental Protection

Attach:
Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [Signature]

Comments: _____

Title: OOG State Inspector

Date: 5/12/14

Field Reviewed? Yes No

4705101764

EROSION & SEDIMENT CONTROL PLAN

FOR

MND 99V WELL PAD

FRANKLIN DISTRICT, MARSHALL COUNTY, WV

GENERAL NOTES

1. THE TOPOGRAPHIC SURVEY (LSD) FOR THIS BAG MAPPING WAS PERFORMED BY WEST VIRGINIA SURVEYING SERVICE, INC.
2. PROPERTY BOUNDARIES, LANDOWNER INFORMATION AND ROAD NETWORKS SHOWN ON THIS PLAN ARE BASED ON AVAILABLE COUNTY DEED RECORD DATA.
3. EXISTING STRUCTURES, TREE LINES AND ROADWAYS HAVE BEEN LOCATED FOR VISUALS FROM AERIAL PHOTOGRAPHS.
4. THE HORIZONTAL DATUM IS WEST VIRGINIA STATE PLANE, NORTH AMERICAN DATUM (1983) (NAD 83) NORTH ZONE.
5. THE VERTICAL DATUM IS WEST VIRGINIA STATE PLANE, NORTH AMERICAN DATUM (1983) (NAD 83) NORTH ZONE.
6. THE DETAILED DESIGN ON THIS PLAN ARE FOR REFERENCE PURPOSES ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT LOCATION PRIOR TO ANY EXCAVATION BY NOTIFYING AND NOTIFY BY WEST VIRGINIA AT 1-800-245-4244.
7. A NEIGHBORHOOD PRESENCE/ABSENCE SURVEY WAS PERFORMED BY WEST VIRGINIA SURVEYING SERVICE, INC. IN NOVEMBER 2013.
8. CONTRACTOR TO PREVENT ALL NEIGHBORHOOD AND NEIGHBORHOOD IMPACTS AND PROPOSED IN THIS PLAN.
9. THE CUT & FILL SUMMARY CALCULATIONS PRESENTED ON THIS PLAN WILL PERMITTING AND INFORMATIONAL PURPOSES ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY EXISTING GRADES AND TO VERIFY EARTHWORK VOLUMES, METHODS AND PROCEDURES. ANY ISSUES ARE TO BE BROUGHT TO THE ENGINEER'S AND OWNER'S ATTENTION PRIOR TO COMMENCEMENT OF WORK.
10. ALL EXISTING UTILITIES HAVE BEEN SHOWN IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION.
11. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL ABOVE AND BELOW GROUND UTILITIES AND STRUCTURES AND WILL BE RESPONSIBLE FOR THE PROTECTION OF THESE UTILITIES AND STRUCTURES AT ALL TIMES.
12. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND NEIGHBORHOOD UNDEVELOPED SERVICE AND ANY DAMAGE DUE TO THE CONTRACTOR'S NEGLIGENCE SHALL BE REPAIRED IMMEDIATELY AND COMPLETELY AT HIS EXPENSE.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF DAMAGED OR DESTROYED LANDSCAPE AND TREES.
14. CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON THE PROJECT SITE PRIOR TO THE START OF CONSTRUCTION.
15. CONTRACTOR TO RELIEVE UTILITIES AS REQUIRED.
16. CONTRACTOR MAY BECOME ACCESSED ROAD ONE (1) STREET STOPS IF NECESSARY AND FOR APPROVAL BY THE OWNER AND ENGINEER.
17. PROPOSED ROCK CONSTRUCTION ENTRANCE TO BE BUILT SUCH THAT RUNOFF FROM PROPOSED ACCESS WILL NOT DIRECT FLOW ON TO PUBLIC ROAD.
18. SEED AND MULCH ALL DISTURBED AREAS PER DETAILS IN THIS PLAN.
19. ALL CLEARED TREE REMAINS SHALL BE PLACED ON OPPOSITE SIDE OF CONFLICT TO TREE SOCKS AND NOT STOCKPILED ON-SITE.
20. CONTRACTOR SHALL STOP WORK IMMEDIATELY AND CONTACT OWNER, ENGINEER AND APPROPRIATE RESPONSIBLE AGENCIES SHOULD ANY NEIGHBORHOOD IMPACTS (I.E. NOISE, VIBRATION, ETC.) BE ENCOUNTERED DURING CONSTRUCTION.
21. NO WORK SHALL BE DONE OUTSIDE THE LIMITS OF DISTURBANCE OR IN PROTECTED AREAS.

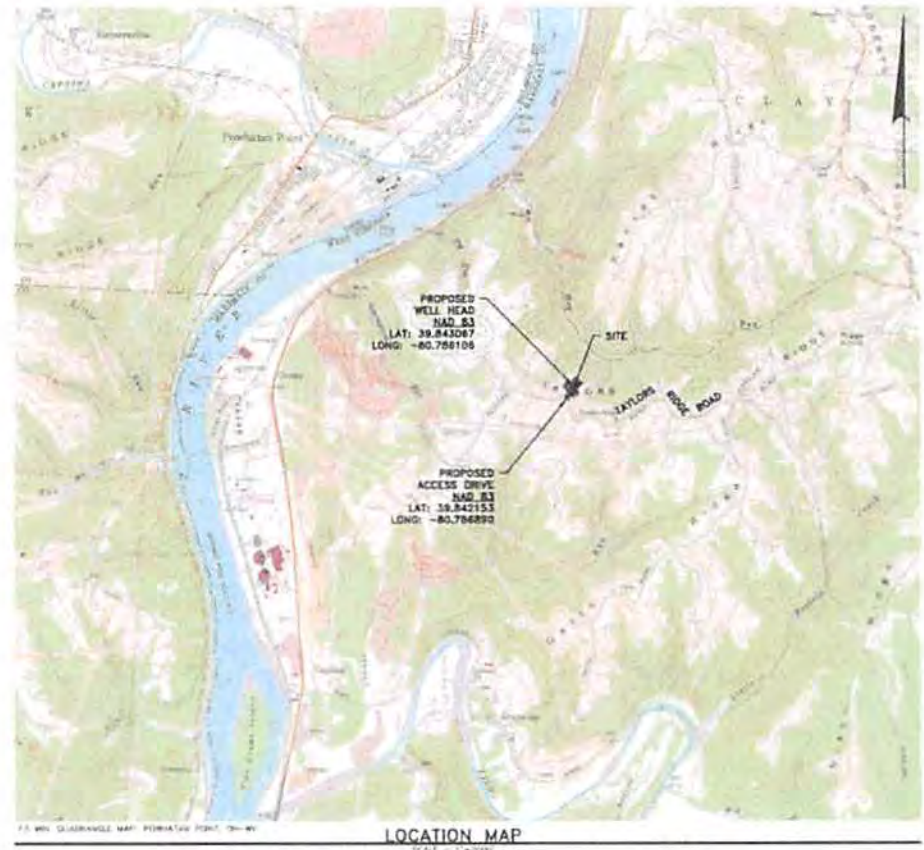
DIRECTIONS TO THE SITE

FROM MEETING TIME US-580 (WV) 2.5 FOR 0.7 MILES KEEP RIGHT ON WV-17 AND FOLLOW FOR 1.8 MILES, TURN LEFT ON US 580 (WV) ROAD (CR-14) AND FOLLOW FOR 1.53 FEET, TURN LEFT ON TAYLOR RIDGE ROAD (CR-27) AND FOLLOW FOR 1.2 MILES, SITE WILL BE ON LEFT.

CUT & FILL

ITEM	WELL PAD	ACCESS DRIVE	TOTAL
CUT	+12,310 C.Y.	+4,547 C.Y.	+16,857 C.Y.
FILL	-1,234 C.Y.	-1,475 C.Y.	-2,709 C.Y.
NET	+11,076 C.Y.	+3,072 C.Y.	+14,148 C.Y.

NOTES:
 1. THE ASSIGNED EROSION CONTROL PLAN.
 2. THE CUT & FILL SUMMARY CALCULATIONS PRESENTED ON THIS PLAN ARE FOR INFORMATIONAL PURPOSES ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY EXISTING GRADES AND VERIFY EARTHWORK VOLUMES, METHODS AND PROCEDURES. ANY ISSUES ARE TO BE BROUGHT TO THE ENGINEER'S AND OWNER'S ATTENTION PRIOR TO COMMENCEMENT OF WORK.



WEST VIRG
CALL BEFORE YOU DIG!
 AT LEAST 48 HOURS, BUT NOT MORE THAN 14 DAYS BEFORE ANY EXCAVATION, PLEASE CALL WEST VIRGINIA SURVEYING SERVICE, INC. AT 1-800-245-4244.

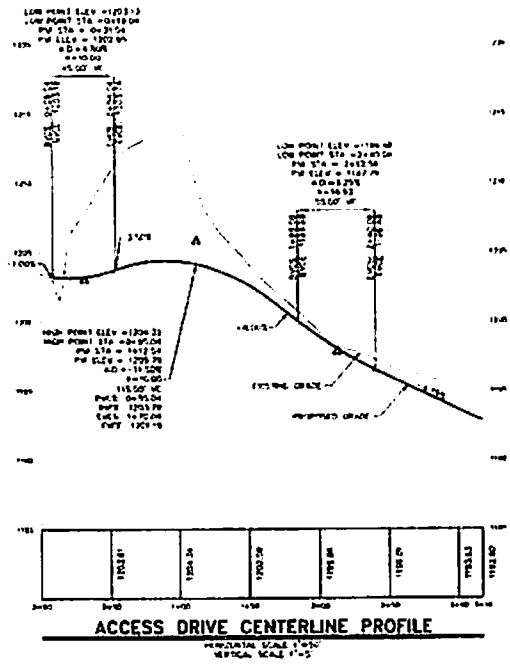
SOILS CLASSIFICATION
 WEST VIRGINIA SURVEYING SERVICE, INC.
 1000 GALENA INDEPENDENCE COMPLEX, LTD.
 1000 GALENA INDEPENDENCE COMPLEX, LTD.
 1000 GALENA INDEPENDENCE COMPLEX, LTD.

LIST OF DRAWINGS

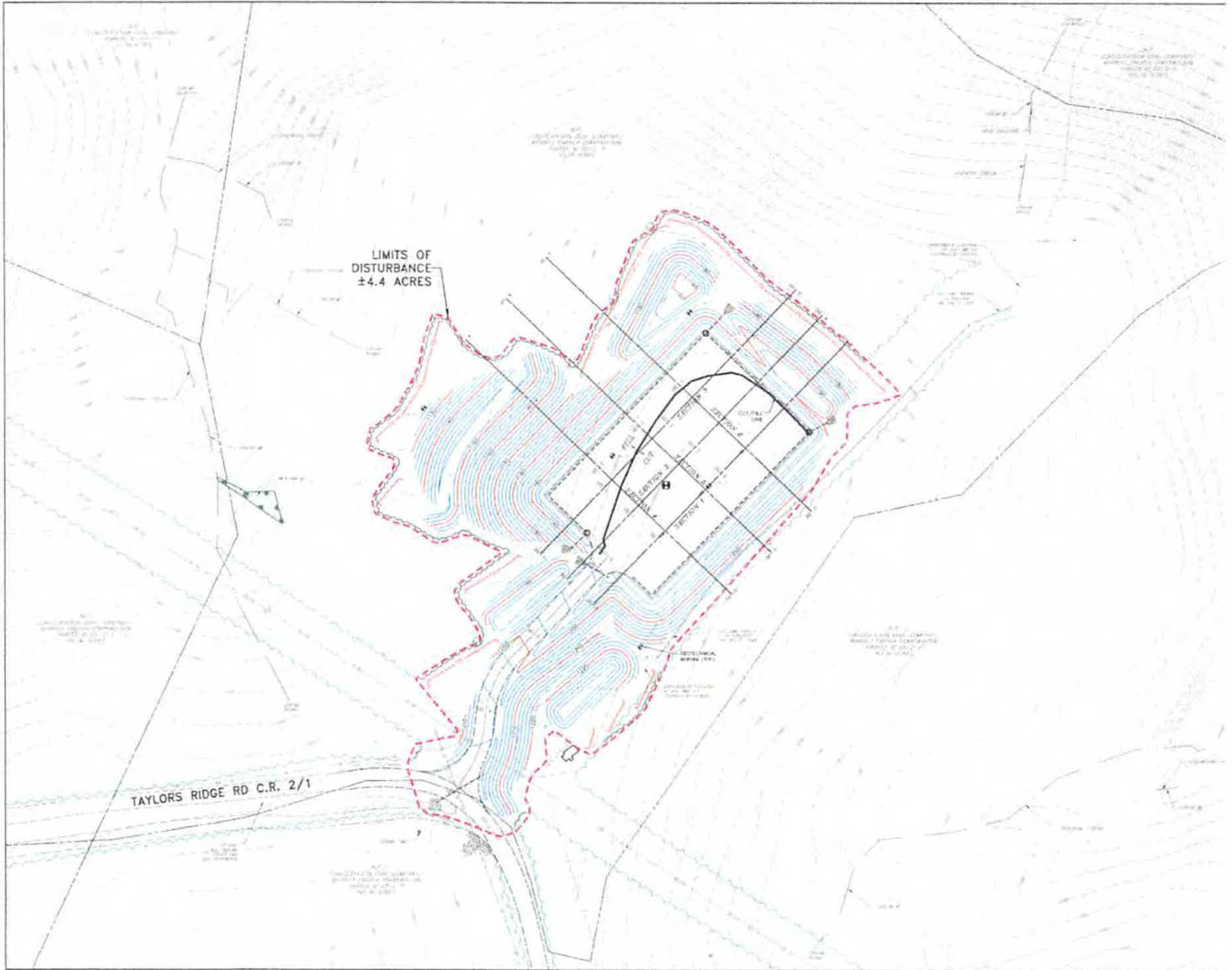
1 OF 10	GENERAL SHEET
2 OF 10	EROSION CONTROL PLAN
3 OF 10	LANDSCAPE PLAN
4 OF 10	EROSION & SEDIMENT CONTROL PLAN
5 OF 10	ACCESS DRIVE
6 OF 10	UTILITY SECTION
7 OF 10	GRADE SECTION
8 OF 10	WELL PAD SOCS
9 OF 10	TREES & BENCH
10 OF 10	DETAILS

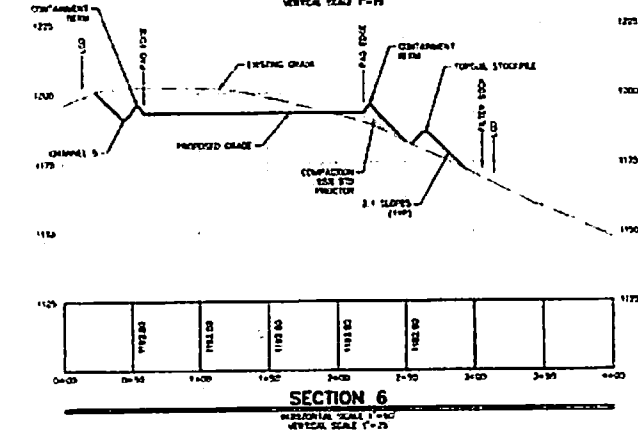
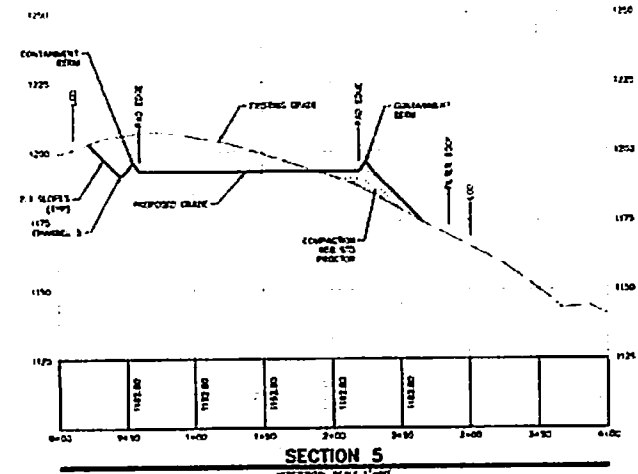
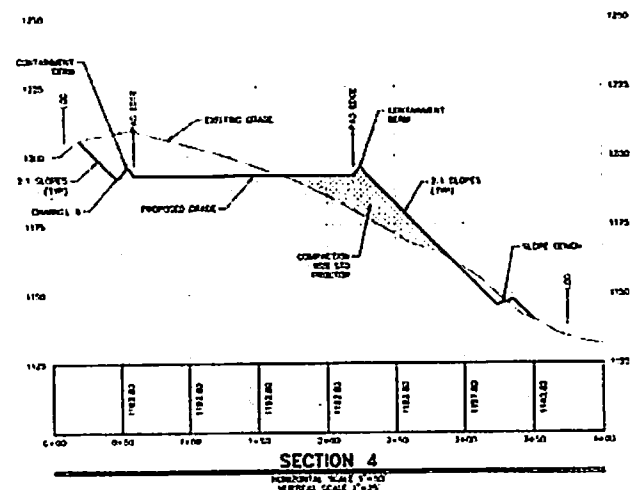
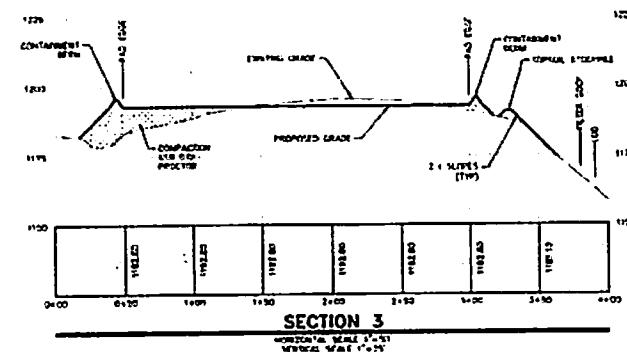
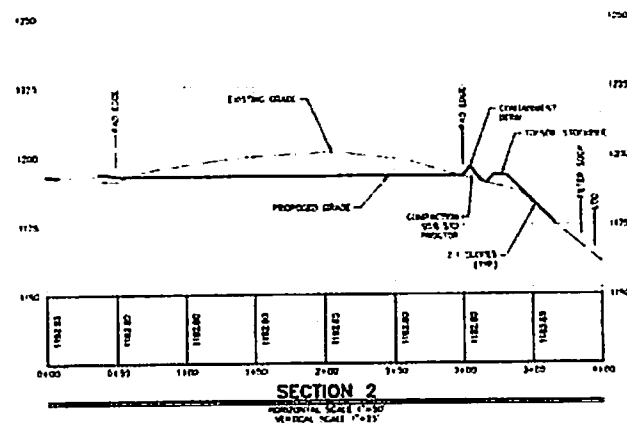
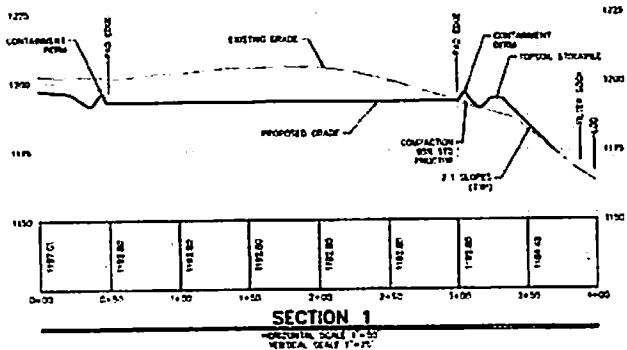
DISTURBANCE SUMMARY
 TOTAL AMOUNT OF DISTURBANCE - 4.4
 (CLEARING REQUIRED) - 1.1
 (NO DISTURBANCE) - 3.3

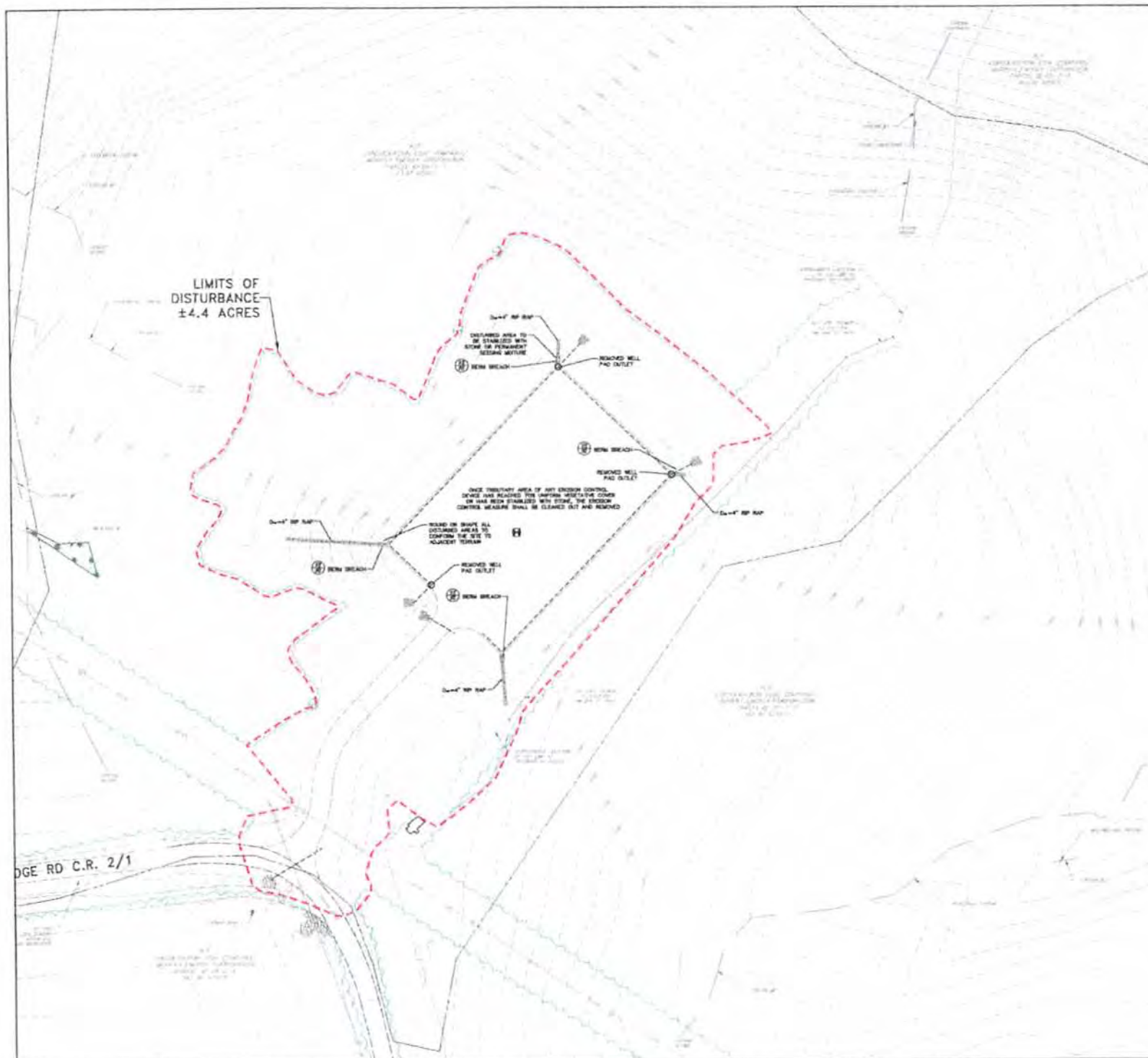
Handwritten signature and date: jw 1/12



4705101764







RECLAMATION NOTES

1. DISTURBED AREA TO BE STABILIZED WITH SEED MIXTURE
2. DISTURBED AREA TO BE STABILIZED WITH SEED MIXTURE
3. ROAD OF SHAPE ALL DISTURBED AREAS
4. ONCE TROUBLY AREA OF ANY EROSION OCCURS (EITHER LOWER OR HIGHER THAN THE DESIGN) SHALL BE CLEANED OUT AND

RESTORATION OF PL

1. IF LATER DISTURBANCE OCCURS DURING RECLAMATION SEED MIXTURE SHALL BE APPLIED TO ALL DISTURBED AREAS. SEED SHALL BE APPLIED AT A RATE OF 100 LBS PER ACRE. SEED SHALL BE APPLIED TO ALL DISTURBED AREAS. SEED SHALL BE APPLIED TO ALL DISTURBED AREAS.
2. FINAL RECLAMATION SHALL BE PERFORMED BY THE U.S. AGRICULTURAL SERVICE.
3. TYPICAL SHALL BE FREE FROM STONE AND DEBRIS, BUT MAY CONTAIN DEBRIS.
4. PRECAUTIONS SHALL BE EXERCISED TO AVOID EROSION AND SEDIMENT CONTROL.
5. SEED SHALL BE NOT MORE THAN 1/4\"/>

POST-USE RECLAMA

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FUTURE MAINTENANCE OF THE SITE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FUTURE MAINTENANCE OF THE SITE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FUTURE MAINTENANCE OF THE SITE.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FUTURE MAINTENANCE OF THE SITE.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FUTURE MAINTENANCE OF THE SITE.

POST-USE RECLAM

1. THE ENGINEER SHALL FIELD VERIFY ALL WATERWAYS, WEIRWAYS, AND AREAS.
2. INSTALL PERMANENT EROSION CONTROL MEASURES TO PROTECT THE ADJACENT ENVIRONMENT FROM EROSION AND SEDIMENTATION. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED AT THE END OF EACH WORK PERIOD.
3. INSTALL ALL PERMANENT EROSION CONTROL MEASURES TO PROTECT THE ADJACENT ENVIRONMENT FROM EROSION AND SEDIMENTATION. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED AT THE END OF EACH WORK PERIOD.
4. RECLAIMATION OF SITE FROM THE RECLAMATION OF PAD FILL SLOPES, IN CONTACT WITH WATER, SHALL BE PERFORMED BY THE CONTRACTOR. ALL MATERIAL SHALL BE PLACED IN A MANNER THAT WILL PROTECT THE ADJACENT ENVIRONMENT FROM EROSION AND SEDIMENTATION. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED AT THE END OF EACH WORK PERIOD.

POST-USE RECLAM

1. BRING THE SITE BACK TO PRE-CONSTRUCTION CONDITION.
2. THE GRASS LAWN, DRAINAGE, AND SEWERAGE SHALL BE RESTORED TO ORIGINAL CONDITION.
3. DRAINAGE CONSTRUCTION SHALL BE PERFORMED IN THE SEQUENCE OF THE PLAN.
4. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED AT THE END OF EACH WORK PERIOD.
5. ALL PERMANENT EROSION CONTROL MEASURES SHALL BE INSTALLED AT THE END OF EACH WORK PERIOD.
6. ALL PERMANENT EROSION CONTROL MEASURES SHALL BE INSTALLED AT THE END OF EACH WORK PERIOD.

FROSON AND SEDIMENTATION CONTROL MEASURES

Systems and construction control measures shall be implemented during the construction and post construction period to prevent the erosion, sedimentation and other pollutants from entering streams, including temporary streams, etc. such as the drainage system. The contractor shall be required to implement all measures before any construction activity begins and the project at the lowest practical cost.

TEMPORARY EROSION CONTROL MEASURES

1. Temporary erosion control shall be established on all slopes, on stockpiled material, and on all disturbed areas left unprotected by construction equipment and other activities.
2. During construction, the amount of disturbed soils shall be kept to a minimum and erosion control measures shall be installed as soon as possible.
3. All construction activities shall be carried out in such a manner as to minimize the amount of disturbed area.
4. All soil stockpiles are to be seeded with a temporary cover as soon as possible.
5. After clearing completion of the final grading, temporary seeding of plants and final erosion control shall be made possible to the protection of streams.
6. The site and vegetation shall be restored as soon as possible to the original condition.
7. All soil shall be placed at the site within 30 days of the time the soil is excavated or removed from the site.
8. All soil shall be placed at the site within 30 days of the time the soil is excavated or removed from the site.
9. The contractor shall employ erosion control measures to prevent soil from being washed away by rain.

CONSTRUCTION SEQUENCE

1. The contractor shall submit a construction sequence plan to the District Engineer for review and approval.
2. The contractor shall submit a construction sequence plan to the District Engineer for review and approval.
3. The contractor shall submit a construction sequence plan to the District Engineer for review and approval.
4. The contractor shall submit a construction sequence plan to the District Engineer for review and approval.
5. The contractor shall submit a construction sequence plan to the District Engineer for review and approval.
6. The contractor shall submit a construction sequence plan to the District Engineer for review and approval.
7. The contractor shall submit a construction sequence plan to the District Engineer for review and approval.
8. The contractor shall submit a construction sequence plan to the District Engineer for review and approval.
9. The contractor shall submit a construction sequence plan to the District Engineer for review and approval.
10. The contractor shall submit a construction sequence plan to the District Engineer for review and approval.

SCHEDULE OF MAINTENANCE OF FROSON & SEDIMENTATION CONTROL MEASURES

The District Engineer shall be notified of any maintenance or repair work on any erosion control measure. The contractor shall be responsible for the maintenance of all erosion control measures.

4.3.1 CONSTRUCTION ENTRANCE

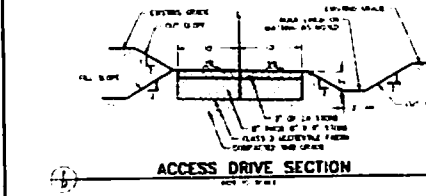
1. The contractor shall install a construction entrance at the site of any construction activity.
2. The contractor shall install a construction entrance at the site of any construction activity.
3. The contractor shall install a construction entrance at the site of any construction activity.
4. The contractor shall install a construction entrance at the site of any construction activity.
5. The contractor shall install a construction entrance at the site of any construction activity.
6. The contractor shall install a construction entrance at the site of any construction activity.
7. The contractor shall install a construction entrance at the site of any construction activity.
8. The contractor shall install a construction entrance at the site of any construction activity.
9. The contractor shall install a construction entrance at the site of any construction activity.
10. The contractor shall install a construction entrance at the site of any construction activity.

4.3.2 EROSION CONTROL

1. The contractor shall install erosion control measures at the site of any construction activity.
2. The contractor shall install erosion control measures at the site of any construction activity.
3. The contractor shall install erosion control measures at the site of any construction activity.
4. The contractor shall install erosion control measures at the site of any construction activity.
5. The contractor shall install erosion control measures at the site of any construction activity.
6. The contractor shall install erosion control measures at the site of any construction activity.
7. The contractor shall install erosion control measures at the site of any construction activity.
8. The contractor shall install erosion control measures at the site of any construction activity.
9. The contractor shall install erosion control measures at the site of any construction activity.
10. The contractor shall install erosion control measures at the site of any construction activity.

4.3.3 MULCH

1. The contractor shall apply mulch to all disturbed areas.
2. The contractor shall apply mulch to all disturbed areas.
3. The contractor shall apply mulch to all disturbed areas.
4. The contractor shall apply mulch to all disturbed areas.
5. The contractor shall apply mulch to all disturbed areas.
6. The contractor shall apply mulch to all disturbed areas.
7. The contractor shall apply mulch to all disturbed areas.
8. The contractor shall apply mulch to all disturbed areas.
9. The contractor shall apply mulch to all disturbed areas.
10. The contractor shall apply mulch to all disturbed areas.



**TABLE IV-1
TEMPORARY SEEDING
FOR CRITICAL AREAS**

SEED	RATES IN LB PER ACRE	ESTIMATED DATE
ANNUAL SEEDING	40	MAR 1 TO APR 15
SPRING DATE	30	MAR 1 TO APR 15
FALL DATE	10	NOV 15 TO DEC 15
ANNUAL SEEDING	20	MAR 1 TO APR 15
SPRING DATE	10	MAR 1 TO APR 15

**TABLE IV-2
PERMANENT SEEDING
FOR ALL DISTURBED AREAS**

SEED	RATES IN LB PER ACRE
WIRE CLOSER	15
RED TOP	15
GROUND GRASS	15

SEEDING IS TO BE COMPLETED WITHIN THE PERIOD OF 10 DAYS FROM THE DATE OF DISTURBANCE. SEEDING IS TO BE COMPLETED WITHIN THE PERIOD OF 10 DAYS FROM THE DATE OF DISTURBANCE.

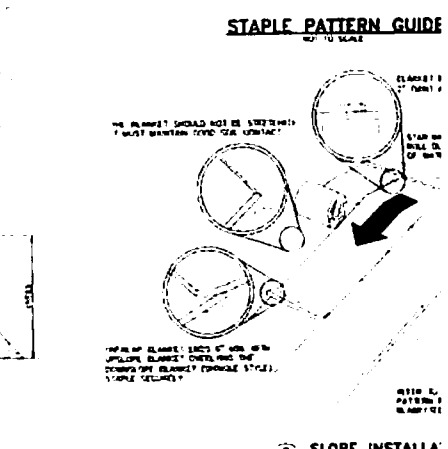
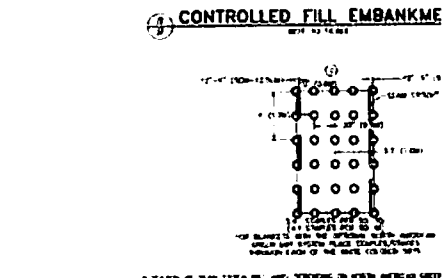
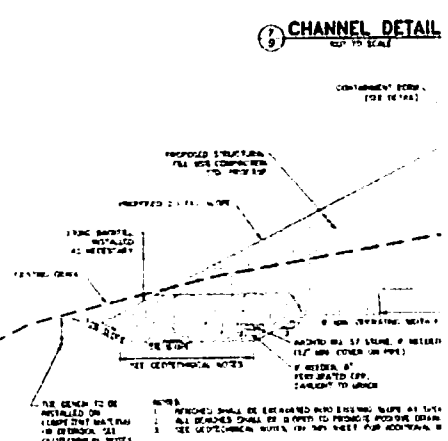
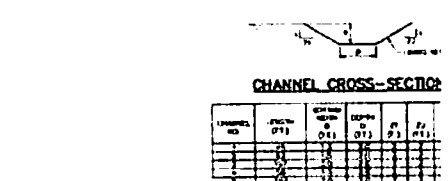
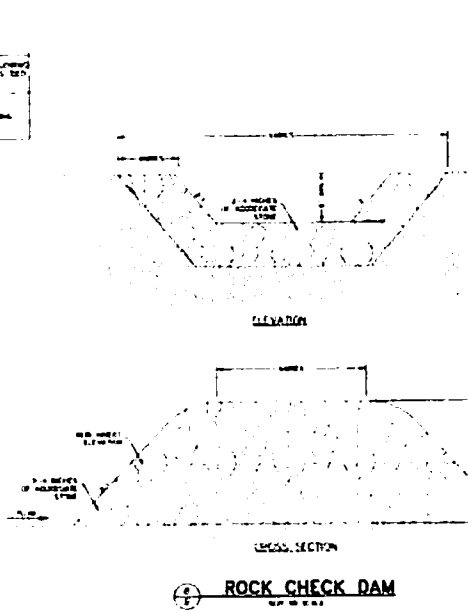
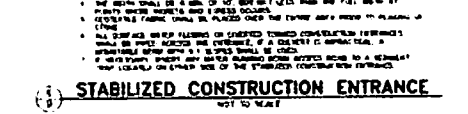
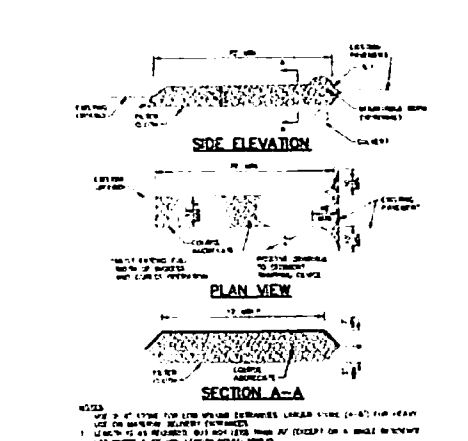
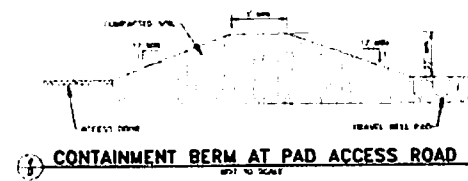
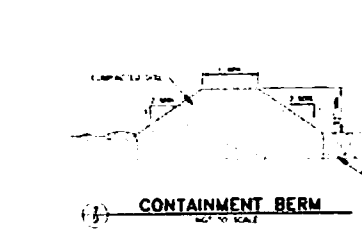
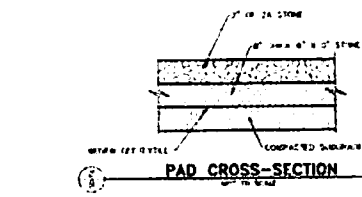
**TABLE IV-3
LIME AND FERTILIZER
APPLICATION TABLE**

SOIL TYPE	LIME IN TONS PER ACRE	FERTILIZER IN LB PER ACRE
ABOVE 5.0	0	100
5.0 TO 6.0	1	100
BELOW 5.0	2	100

THE SOIL CAN BE DETERMINED BY A PORTABLE TESTING KIT OR BY ANALYZING THE SOIL SAMPLES BY A SOIL TESTING LABORATORY.

**TABLE IV-4
MULCH MATERIALS RATES AND USES**

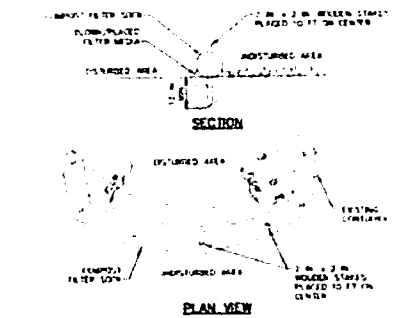
MATERIAL	APPROXIMATE RATES PER ACRE	CONDUCE	REMARKS
STRAW	2 TO 3 TONS	CRITICAL TO SOIL	SUBJECT TO SOIL TESTING
WOOD PILES	1 TO 2 TONS	OTHER ALL DISTURBED	FOR RESTORATION
WOOD CHIPS	1 TO 2 TONS	OTHER ALL DISTURBED	FOR RESTORATION
WOOD SHAVINGS	1 TO 2 TONS	OTHER ALL DISTURBED	FOR RESTORATION



SLOPE INSTALLATION

4705101764

COMPOST FILTER SOCK PART	
QTY	DESCRIPTION
2	3" X 12" 1/2" RIGID POLYETHYLENE
2	3" X 12" 1/2" RIGID POLYETHYLENE
2	3" X 12" 1/2" RIGID POLYETHYLENE
2	3" X 12" 1/2" RIGID POLYETHYLENE
2	3" X 12" 1/2" RIGID POLYETHYLENE
2	3" X 12" 1/2" RIGID POLYETHYLENE
2	3" X 12" 1/2" RIGID POLYETHYLENE
2	3" X 12" 1/2" RIGID POLYETHYLENE
2	3" X 12" 1/2" RIGID POLYETHYLENE



WELL PAD CONTAINMENT TRENCH DETAIL

1. TRENCH SHALL BE CONSTRUCTED ON A SLOPE OF 1:1.

2. TRENCH SHALL BE REPAIRED IMMEDIATELY AFTER THE INSPECTION.

3. TRENCH SHALL BE MAINTAINED TO A MINIMUM DEPTH OF 18" BELOW THE FINISHED GRADE.

4. TRENCH SHALL BE MAINTAINED TO A MINIMUM DEPTH OF 18" BELOW THE FINISHED GRADE.

5. TRENCH SHALL BE MAINTAINED TO A MINIMUM DEPTH OF 18" BELOW THE FINISHED GRADE.

6. TRENCH SHALL BE MAINTAINED TO A MINIMUM DEPTH OF 18" BELOW THE FINISHED GRADE.

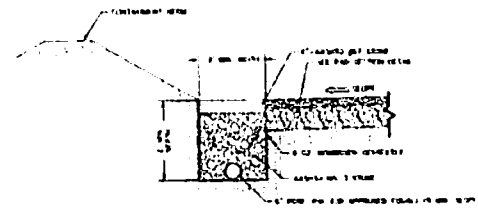
7. TRENCH SHALL BE MAINTAINED TO A MINIMUM DEPTH OF 18" BELOW THE FINISHED GRADE.

8. TRENCH SHALL BE MAINTAINED TO A MINIMUM DEPTH OF 18" BELOW THE FINISHED GRADE.

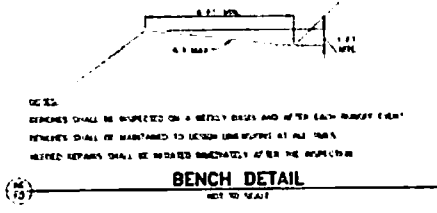
9. TRENCH SHALL BE MAINTAINED TO A MINIMUM DEPTH OF 18" BELOW THE FINISHED GRADE.

10. TRENCH SHALL BE MAINTAINED TO A MINIMUM DEPTH OF 18" BELOW THE FINISHED GRADE.

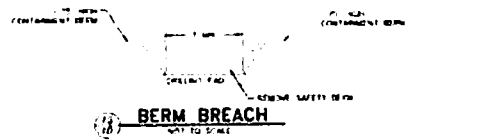
STANDARD CONSTRUCTION DETAIL #4-1
COMPOST FILTER SOCK
NOT TO SCALE



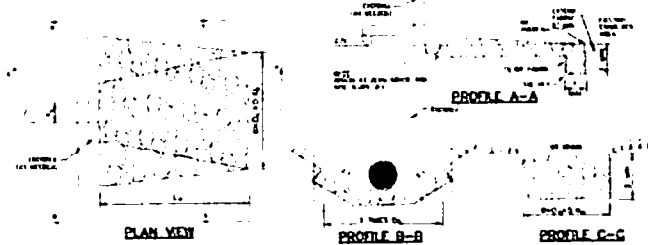
WELL PAD CONTAINMENT TRENCH DETAIL
NOT TO SCALE



BENCH DETAIL
NOT TO SCALE



BERM BREACH
NOT TO SCALE



OUTLET PROTECTION

1. OUTLET PROTECTION SHALL BE CONSTRUCTED ON A SLOPE OF 1:1.

2. OUTLET PROTECTION SHALL BE CONSTRUCTED ON A SLOPE OF 1:1.

3. OUTLET PROTECTION SHALL BE CONSTRUCTED ON A SLOPE OF 1:1.

4. OUTLET PROTECTION SHALL BE CONSTRUCTED ON A SLOPE OF 1:1.

5. OUTLET PROTECTION SHALL BE CONSTRUCTED ON A SLOPE OF 1:1.

6. OUTLET PROTECTION SHALL BE CONSTRUCTED ON A SLOPE OF 1:1.

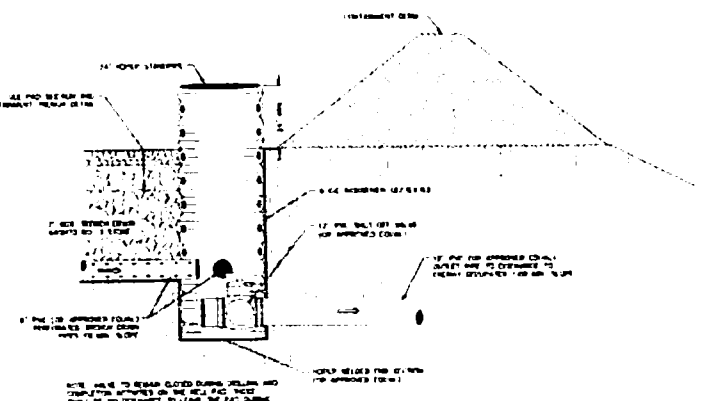
7. OUTLET PROTECTION SHALL BE CONSTRUCTED ON A SLOPE OF 1:1.

8. OUTLET PROTECTION SHALL BE CONSTRUCTED ON A SLOPE OF 1:1.

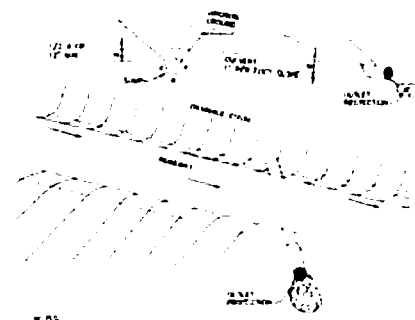
9. OUTLET PROTECTION SHALL BE CONSTRUCTED ON A SLOPE OF 1:1.

10. OUTLET PROTECTION SHALL BE CONSTRUCTED ON A SLOPE OF 1:1.

OUTLET PROTECTION
NOT TO SCALE



WELL PAD DRAINAGE STRUCTURE
NOT TO SCALE



DITCH RELIEF CULVERT

1. DITCH RELIEF CULVERT SHALL BE CONSTRUCTED ON A SLOPE OF 1:1.

2. DITCH RELIEF CULVERT SHALL BE CONSTRUCTED ON A SLOPE OF 1:1.

3. DITCH RELIEF CULVERT SHALL BE CONSTRUCTED ON A SLOPE OF 1:1.

4. DITCH RELIEF CULVERT SHALL BE CONSTRUCTED ON A SLOPE OF 1:1.

5. DITCH RELIEF CULVERT SHALL BE CONSTRUCTED ON A SLOPE OF 1:1.

6. DITCH RELIEF CULVERT SHALL BE CONSTRUCTED ON A SLOPE OF 1:1.

7. DITCH RELIEF CULVERT SHALL BE CONSTRUCTED ON A SLOPE OF 1:1.

8. DITCH RELIEF CULVERT SHALL BE CONSTRUCTED ON A SLOPE OF 1:1.

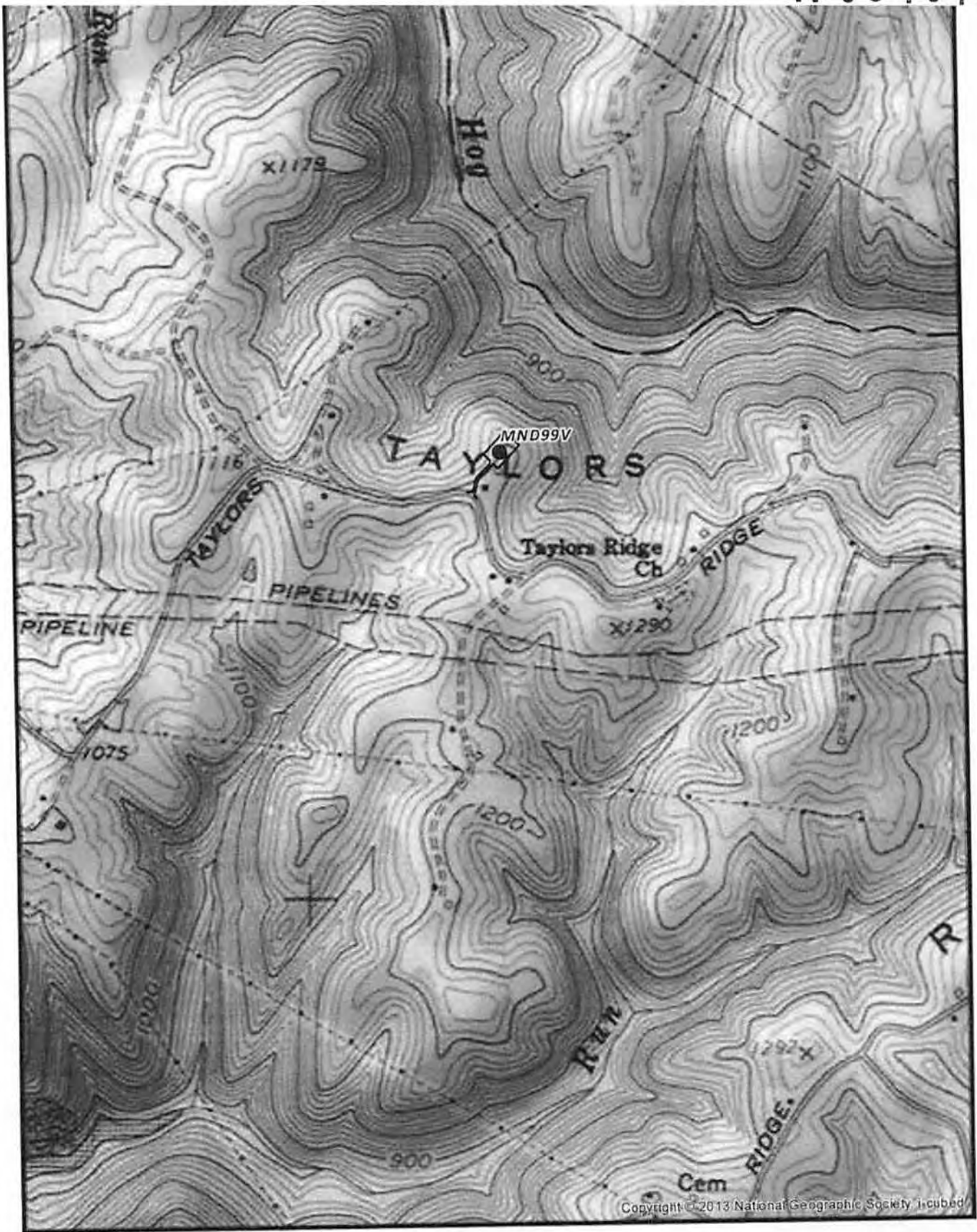
9. DITCH RELIEF CULVERT SHALL BE CONSTRUCTED ON A SLOPE OF 1:1.

10. DITCH RELIEF CULVERT SHALL BE CONSTRUCTED ON A SLOPE OF 1:1.

DITCH RELIEF CULVERT
NOT TO SCALE

WELL PAD	WELL PAD	WELL PAD	WELL PAD	WELL PAD	WELL PAD
1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36
37	38	39	40	41	42
43	44	45	46	47	48
49	50	51	52	53	54
55	56	57	58	59	60
61	62	63	64	65	66
67	68	69	70	71	72
73	74	75	76	77	78
79	80	81	82	83	84
85	86	87	88	89	90
91	92	93	94	95	96
97	98	99	100	101	102

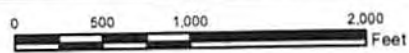
DITCH RELIEF CULVERT
NOT TO SCALE



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MND 99 V Location Map
 Marshall County, Franklin District
 West Virginia

● Well Pad — Access Road



Scale 1" = 1000'

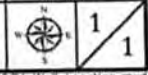
Projection: NAD_1983_StatePlane_WestVirginia_North_FIPS_4701
 Units: Feet US



Disclaimer: All data is licensed for use by Noble Energy Inc. use only.

Date: 5/8/2014

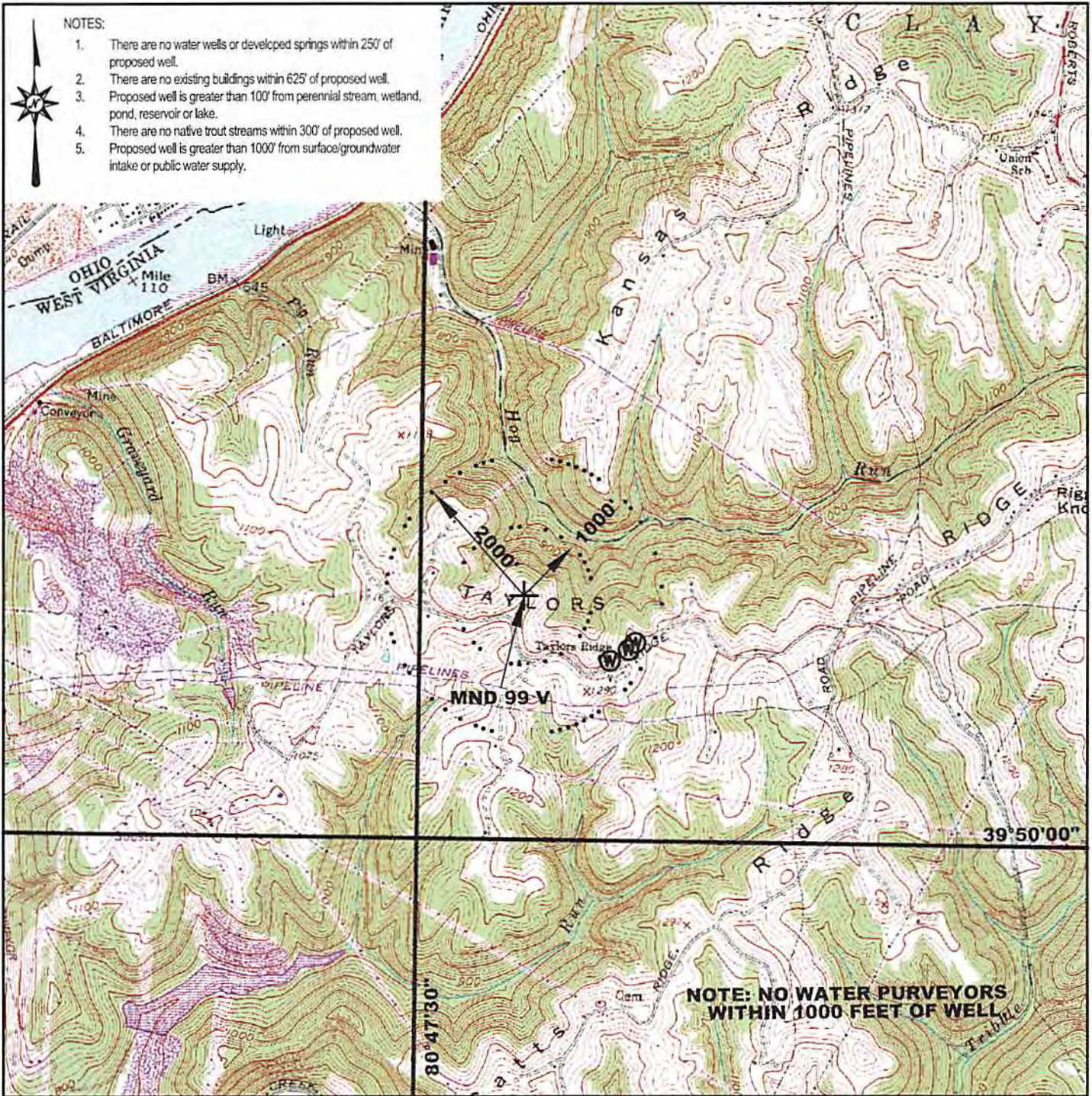
Author: Tim Huson



Document Path: G:\Caronsburg\GIS\Projects\District_30\Appalachia\MXD\EHSA\Permitting\Moundsville\MND99V\030_PA_WV_MND99V_Well_Location.mxd

NOTES:

1. There are no water wells or developed springs within 250' of proposed well.
2. There are no existing buildings within 625' of proposed well.
3. Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
4. There are no native trout streams within 300' of proposed well.
5. Proposed well is greater than 1000' from surface/groundwater intake or public water supply.



Blue Mountain Inc.
 11023 MASON DIXON HIGHWAY
 BURTON, WV 26562
 PHONE: (304) 662-6486

PREPARED FOR:
NOBLE ENERGY, INC.
 333 TECHNOLOGY DRIVE
 SUITE 116
 CANNONSBURG, PA 15317

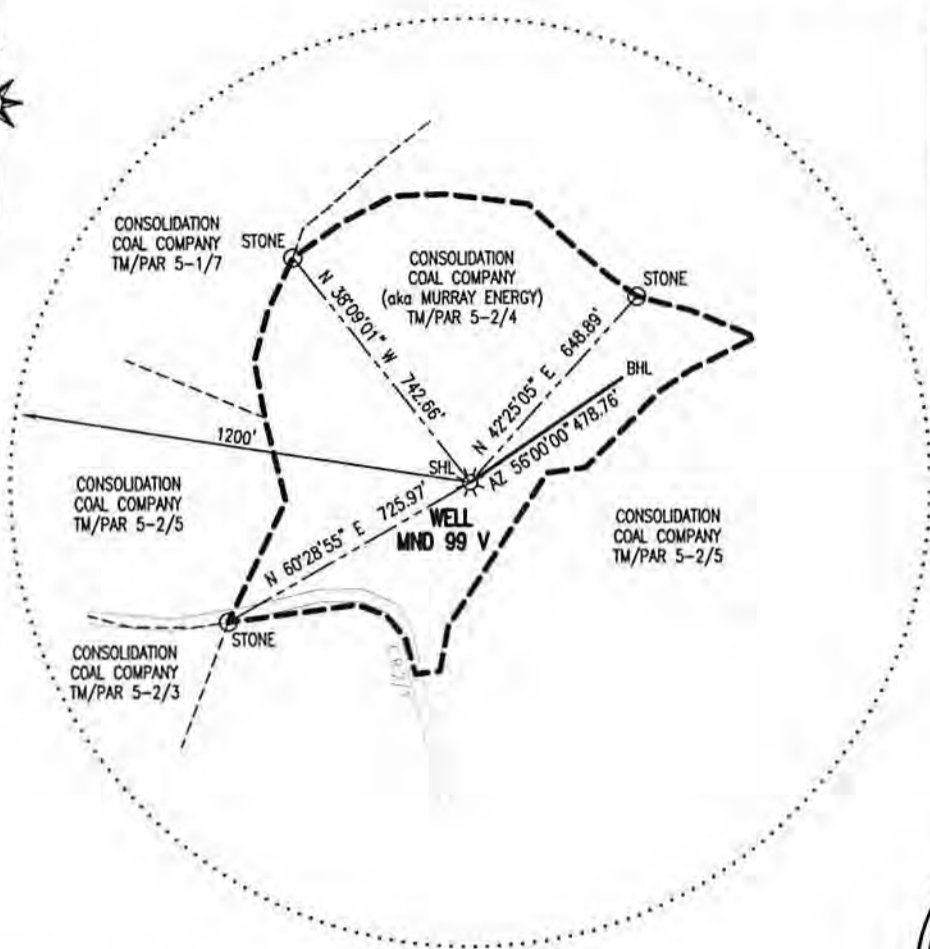
LEGEND
 (W) - WATER PURVEYOR
 + - EXISTING WELLS

MND 99 V
LOCATION MAP
MARSHALL COUNTY
FRANKLIN DISTRICT
WEST VIRGINIA

TOPO QUAD: POWHATTAN POINT, OHIO-WV
 SCALE: 1" = 2000'
 DATE: APRIL 14, 2014

Well is located on topo map 11,670 feet south of Latitude: 39° 52' 30"

Well is located on topo map 10,202 feet west of Longitude: 80° 45' 00"



LEGEND	
	- TOPO MAP POINT
	- WELL
	- ALL ARE POINTS UNLESS OTHERWISE NOTED.
	- WATER SOURCE
	- MINERAL TRACT BOUNDARY
	- PARCEL LINES
	- WELL REFERENCE
	- WELL BORE PATH
	- ROAD
	- STREAM CENTER LINE
WELLS WITHIN 1200'	
	- EXISTING WELLS
	- PLUGGED WELLS

NOTES:

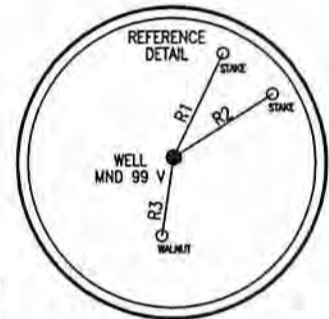
1. There are no water wells or developed springs within 200' of proposed well.
2. There are no existing buildings within 200' of proposed well.
3. It is not the purpose or intention of this plot to represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, are based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.



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 BURTON, WV 26562
 PHONE: (304) 662-6486

SURFACE HOLE LOCATION (SHL)	
UTM 17-NAD83	N:4410361.28
	E:518299.66
NAD27, WV NORTH	N:491736.73
	E:1638825.50
LAT/LON DATUM-NAD83	LAT:39.843066692
	LON:80.786106007

BOTTOM HOLE LOCATION (BHL)	
UTM 17-NAD83	N:4410444.86
	E:518419.22
NAD27, WV NORTH	N:492004.45
	E:1639222.41
LAT/LON DATUM-NAD83	LAT:39.843817
	LON:-80.784706

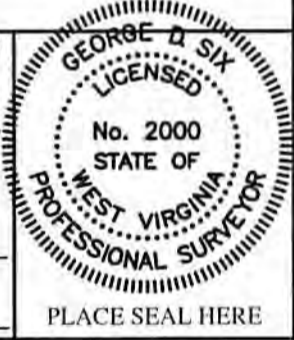


LINE	BEARING	DISTANCE
R1	N 25°44'15" E	198.6194'
R2	N 57°38'02" E	203.2679'
R3	S 08°48'50" W	137.7892'

FILE #: MND 99 V
 DRAWING #: MND 99 V
 SCALE: 1" = 500'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed: [Signature]
 R.P.E.: _____ L.L.S.: P.S. No. 2000



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP

OFFICE OF OIL & GAS
 601 57TH STREET
 CHARLESTON, WV 25304

DATE: MAY 29, 2014
 OPERATOR'S WELL #: MND 99 V
 API WELL #: 47 51 01764
 STATE COUNTY PERMIT

Well Type: Oil Waste Disposal Production Deep OTHER
 Gas Liquid Injection Storage Shallow

WATERSHED: SHORT CREEK - OHIO RIVER ELEVATION: 1192.00'
 COUNTY/DISTRICT: MARSHALL / FRANKLIN QUADRANGLE: POWHATAN POINT, OH-WV 7.5'
 SURFACE OWNER: CONSOLIDATION COAL COMPANY ACREAGE: 20.85±
 OIL & GAS ROYALTY OWNER: CONSOLIDATION COAL COMPANY ACREAGE: 20.85± 06/06/2014

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
 CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY): _____

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,389± TMD: 6,825±
 WELL OPERATOR NOBLE ENERGY, INC. DESIGNATED AGENT STEVEN M. GREEN
 Address 333 TECHNOLOGY DRIVE, SUITE 116 Address 500 VIRGINIA STREET EAST, UNITED CENTER SUITE 590
 City CANONSBURG State PA Zip Code 15317 City CHARLESTON State WV Zip Code 25301