



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

May 21, 2014

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-5101745, 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 6 CHS
Farm Name: CONSOLIDATION COAL COMPA
API Well Number: 47-5101745
Permit Type: Horizontal 6A Well
Date Issued: 05/21/2014

Promoting a healthy environment.

INSPECTORS PERMIT SUMMARY FORM

GPS YES [] NO []

DATE STARTED/LOCATION: _____ OPERATOR: NOBLE ENERGY, INC.
 DRILLING COMMENCED: _____ FARM: CONSOLIDATION COAL COMPANY
 TO DATE: _____ DEPTHS: _____ Well No: MND 6 CHS
 WATER DEPTHS: _____ COAL DEPTHS _____

QUESTIONS FOR THIS REPORT ARE IN ACCORDANCE OF WV CODE 22-6-30 AND REGULATIONS 35CSR 4-12.1 AND 35CSR 4-16 AND THE GENERAL WATER POLLUTION CONTROL PERMIT.

POINTS ARE TO BE GIVEN UP TO MAXIMUM AS SHOWN BASED ON PERFORMANCE.

1. DID OPERATOR GIVE PROPER NOTICE TO INSPECTOR BEFORE THE FOLLOWING:
 - A. CONSTRUCTION YES [] NO [] (2_PTS) (4_PTS) _____
 - B. DRILLING YES [] NO [] (2_PTS)
2. WAS THE TIMBER CUT, STACKED, AND BRUSH USED FOR SEDIMENT BARRIERS BEFORE DIRT WORK STARTED? YES [] NO [] (2_PTS) (4_PTS) _____
3. ARE ALL LOCATION AND/OR ROAD BANKS BEING SLOPED? YES [] NO [] (4_PTS) (4_PTS) _____
4. CONSTRUCTIONS:
WERE THE FOLLOWING SEDIMENT CONTROL STRUCTURES PROPERLY INSTALLED/MAINTAINED?
 - A. ROAD DITCHES (1)_ (2)_ (3)_ (4)_ (PTS) B. CROSS DRAINS (1)_ (2)_ (3)_ (4)_ (5)_ (PTS)
 - C. CULVERTS (1)_ (2)_ (3)_ (4)_ (5)_ (PTS) D. CREEK CROSSINGS (1)_ (2)_ (3)_ (PTS)
 - E. DIVERSION DITCHES (1)_ (2)_ (3)_ (PTS) F. BARRIERS (1)_ (2)_ (3)_ (PTS)
 - G. TEMPORARY SEEDING YES [] NO [] (10_PTS)

POINTS AVAILABLE FOR QUESTION 4: (33_PTS) _____

5. HAS TOP SOIL (IF ANY) BEEN STOCKED PILED? YES [] NO [] (2_PTS) (2_PTS) _____
6. IS THE PIT PROPERLY INSTALLED AND MAINTAINED? YES [] NO [] (9_PTS) (9_PTS) _____
7. RECLAMATION:
 - A. ROADWAY (1)_ (2)_ (3)_ (PTS) B. LOCATION (1)_ (2)_ (3)_ (PTS)
 - C. PITS (1)_ (2)_ (3)_ (PTS) D. PIPELINES (1)_ (2)_ (3)_ (PTS)
 - E. TANK DIKES (1)_ (2)_ (3)_ (PTS) F. API INSTALLED YES [] NO [] (3_PTS)
 - G. ADEQUATE SEEDING MATERIALS (1)_ (2)_ (3)_ (PTS)
 - H. WAS SEED BED ADEQUATE (1)_ (2)_ (3)_ (PTS)

POINTS AVAILABLE FOR QUESTION 7: (24_PTS) _____

8. WAS RECLAMATION COMPLETED WITHIN:
6 MTHS OF TD 6_PTS ONLY; 4 MTHS OF TD 12_PTS ONLY; 2 MTHS OF TD 19_PTS ONLY;
POINTS AVAILABLE FOR QUESTION 8: (19_PTS) _____

TOTAL MAXIMUM POSSIBLE SCORE OF 99.

TOTAL RECLAMATION SCORE: _____

DATE RELEASED

INSPECTOR'S SIGNATURE

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) 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. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. 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 § 22-6A-5a (12), 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.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
8. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.
9. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced on this well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.

WW-9
(9/13)

API Number 47 - 4705101745
Operator's Well No. MND 6 CHS

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) Fish Creek Undefined (HUC 10) Quadrangle Powhatan Point

Elevation 721' Post Construction County Marshall District Franklin

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

Will a pit be used? Yes No

If so, please describe anticipated pit waste: Closed Loop-No pit will be utilized

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 TBD-Next anticipated well)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)

Will closed loop system be used? If so, describe: Yes

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Air thru coal string, then SOB M

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

Additives to be used in drilling medium? Please see attached

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Landfills

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

-Landfill or offsite name/permit number? Please see attached

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

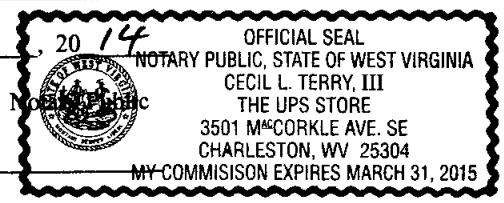
Company Official (Typed Name) Laura Adkins

Company Official Title Regulatory Analyst

Office of Oil and Gas
MAR 20 2014
WV Department of Environmental Protection

Subscribed and sworn before me this 17 day of MARCH

My commission expires 3/31/2015



4705101745

Chemical List Including CAS#'s

Type: Friction Reducer (DWP-612)
Chemical Component as listed on MSDS: Long Chain Polyacrylamide
CAS: N/A

Type: Biocide (DWP-944)
1st Chemical Component as listed on MSDS: 2,2-Dibromo-3-nitrilopropionamide
CAS: 10222-01-2
2nd Chemical Component as listed on MSDS: Polyethylene Glycol Mixture
CAS: 25322-68-3

Type: Scale Inhibitor (DAP-901)
1st Chemical Component as listed on MSDS: Methanol
CAS: 67-56-1
2nd Chemical Component as listed on MSDS: Phosphoric Acid Ammonium Salt
CAS: Trade Secret
3rd Chemical Component as listed on MSDS: Ammonium Chloride
CAS: 12125-02-9
4th Chemical Component as listed on MSDS: Organic Phosphonate
CAS: Trade Secret
5th Chemical Component as listed on MSDS: Amine Salt
CAS: Trade Secret
6th Chemical Component as listed on MSDS: Oxyalkylated Polyamine
CAS: Trade Secret

Type: Surfactant (DWP-938)
Chemical Component as listed on MSDS: Soap
CAS: N/A

Type: Hydrochloric Acid
Chemical Component as listed on MSDS: Hydrochloric Acid
CAS: 7647-01-0

Type: PA Breaker (DWP-690)
Chemical Component as listed on MSDS: Hydrogen Peroxide
CAS: Trade Secret

Type: Gel Slurry (DWP-111)
Chemical Component as listed on MSDS: Viscosifier
CAS: N/A

Type: Oxidizer Breaker (DWP-901)
Chemical Component as listed on MSDS: Ammonium Persulfate
CAS: 7727-54-0

Type: Buffer (DWP-204)
Chemical Component as listed on MSDS: Formic Acid
CAS: 64-18-6

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47 05 10 17 45

Site Water/Cuttings Disposal

Cuttings

Haul off Company:

Eap Industries, Inc. DOT # 0876278
1575 Smith Twp State Rd. Atlasburg PA 15004
1-888-294-5227

MAX Environmental Technologie
233 Max Lane
Yukon, PA 25698
PAD004835146

Disposal Locations:

Apex Environmental, LLC Permit # 06-08438
11 County Road 78
Amsterdam, OH 43903
740-543-4389

Westmoreland Waste, LLC Permit # 100277
111 Conner Lane
Belle Vernon, PA 15012
724-929-7694

Sycamore Landfill (Allied Waste) R30-07900105-2010
4301 Sycamore Ridge Road
Hurricane, WV 25526
304-562-2611

Water

Haul off Company:

Dynamic Structures, Clear Creek DOT # 720485
3790 State Route 7
New Waterford, OH 44445
330-892-0164

Disposal Location:

Solidification
Waste Management, Arden Landfill Permit # 100172
200 Rangos Lane
Washington, PA 15301
724-225-1589

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Solidification/Incineration
Soil Remediation, Inc. Permit # 02-20753
6065 Arrel-Smith Road
Lowelville, OH 44436

WV Department of
Environmental Protection

4705101745

Form WW-9

Operator's Well No. MND 6 CHS

Noble Energy, Inc.

Proposed Revegetation Treatment: Acres Disturbed 9.6 acres Prevegetation pH _____

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

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch Hay or straw at 2 Tons/acre

Seed Mixtures

Temporary

Permanent

Seed Type	lbs/acre
Tall Fescue	40
Ladino Clover	5
See site plans for full list	

Seed Type	lbs/acre
Tall Fescue	40
Ladino Clover	5
See site plans for full list	

Attach:

Drawing(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided)

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Jim Nicholson WVOOG State Inspector

Comments: *James Nicholson*

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Office of Oil and Gas

MAY 08 2014

WV Department of
Environmental Protection

Title: Oil & Gas Inspector

Date: 4/29/14

Field Reviewed? () Yes () No

4705101745



Site Safety Plan

**Noble Energy, Inc.
MND 6 CHS**

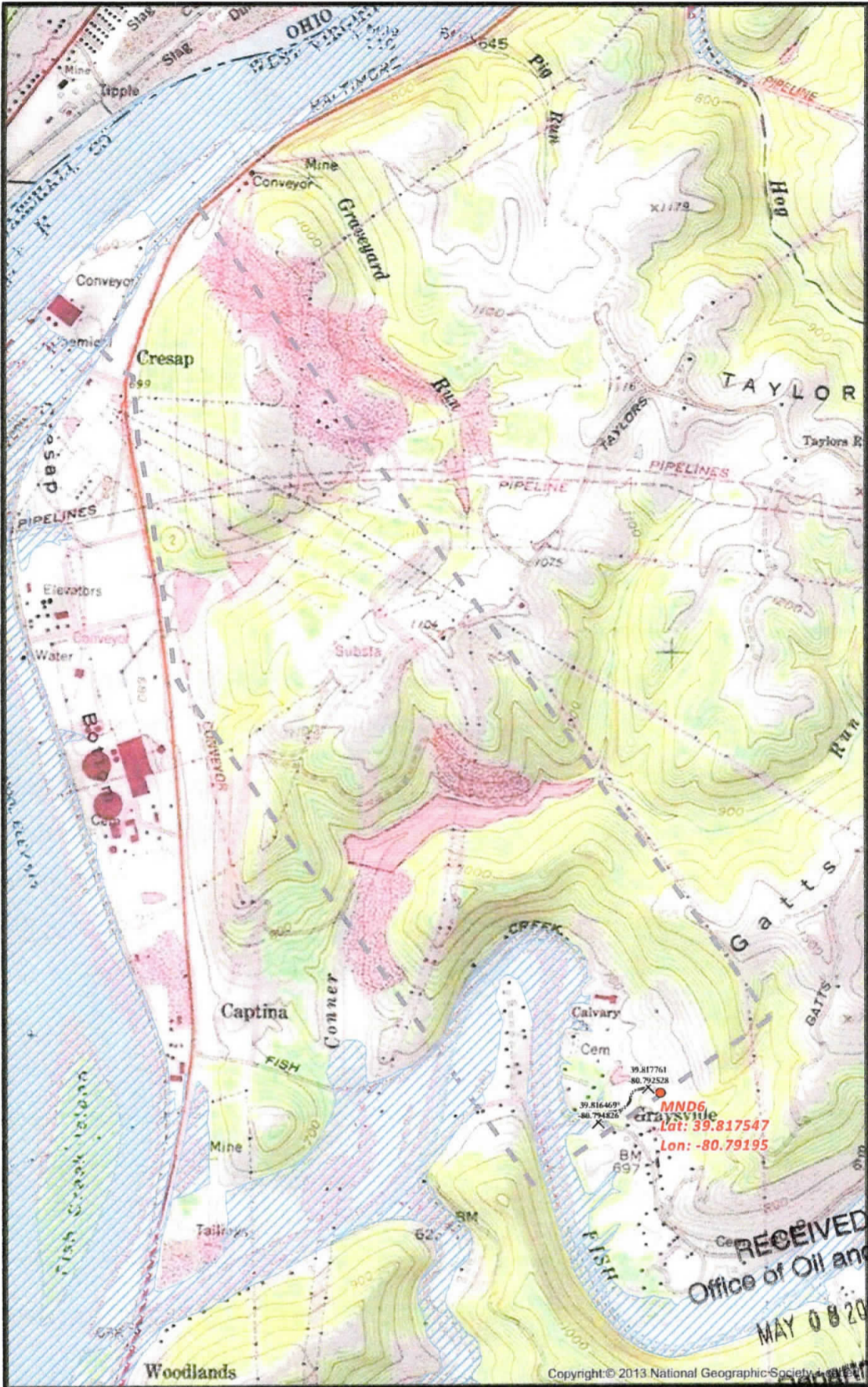
JH 4/29/14

December 2013: Version 1

**For Submission to
West Virginia Department of Environmental
Protection, Office of Oil and Gas**

**Noble Energy, Inc.
Appalachia Offices
333 Technology Drive, Suite 116
Canonsburg, PA 15317-9504**

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MAY 08 2014
WV Department of
Environmental Protection



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MAY 08 2014

WV Department of Environmental Protection

MND6 SITE SAFETY PLAN - FLOODPLAIN ZONES -

- X Access Road Intersection
- Proposed Access Road
- Well Pad
- Proposed Well
- Floodplain

0 750 1,500 3,000 Feet

Scale 1" = 1,500'

Projection: NAD_1983_StatePlane_Virginia_North_FRS_401
Units: Feet US

noble energy

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

Author: Christopher Glover

2/6

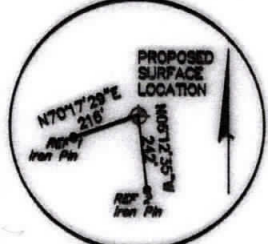
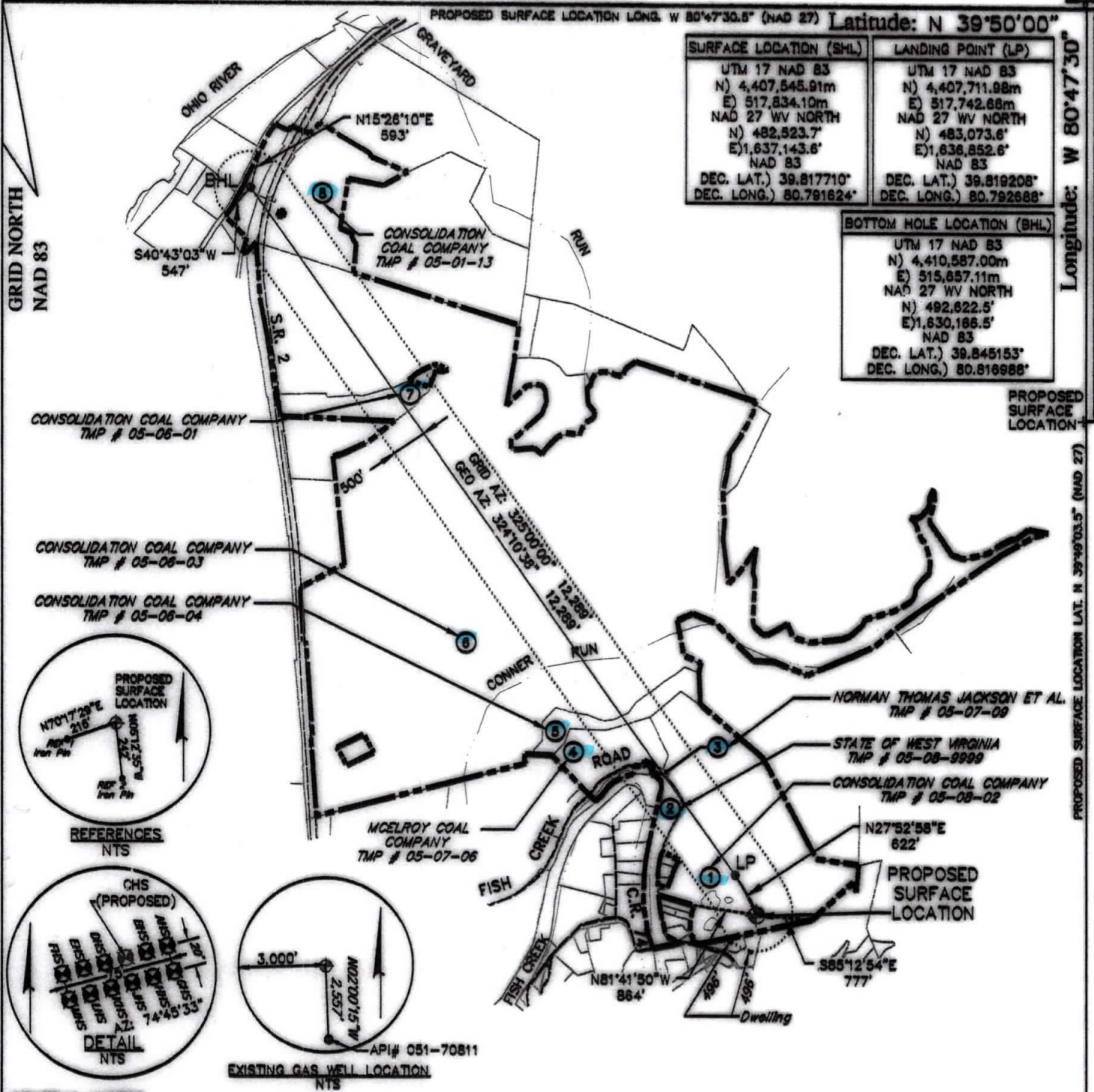
PROPOSED SURFACE LOCATION LONG. W 80°47'30.5" (NAD 27) Latitude: N 39°50'00"

GRID NORTH
NAD 83

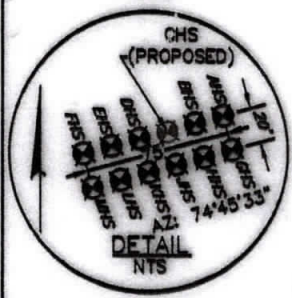
Longitude: W 80°47'30"

SURFACE LOCATION (SHL)	LANDING POINT (LP)
UTM 17 NAD 83 N) 4,407,545.91m E) 517,834.10m NAD 27 WV NORTH N) 482,923.7' E) 1,637,143.6' NAD 83 DEC. LAT.) 39.817710° DEC. LONG.) 80.791624°	UTM 17 NAD 83 N) 4,407,711.98m E) 517,742.68m NAD 27 WV NORTH N) 483,073.6' E) 1,636,852.6' NAD 83 DEC. LAT.) 39.819208° DEC. LONG.) 80.792688°

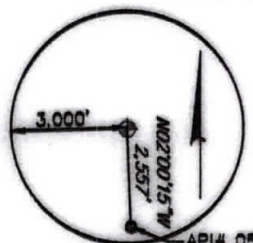
BOTTOM HOLE LOCATION (BHL)
UTM 17 NAD 83 N) 4,410,587.00m E) 515,657.11m NAD 27 WV NORTH N) 492,622.5' E) 1,630,166.5' NAD 83 DEC. LAT.) 39.845153° DEC. LONG.) 80.816988°



REFERENCES
NTS



DETAIL
NTS



EXISTING GAS WELL LOCATION
NTS

GENERAL NOTES:

1. THE LOCATION OF BOUNDARY LINES SHOWN HEREON ARE BASED ON RECORD DEED, PLATS, AND TAX MAPS BEST FIT TO FOUND FIELD EVIDENCE AND AERIAL PHOTOS, UNLESS OTHERWISE NOTED.
2. THIS PLAT DOES NOT REPRESENT AN ACTUAL BOUNDARY SURVEY OF THE INDIVIDUAL PARCELS.
3. THERE ARE NO EXISTING WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' OF PROPOSED WELL.
4. PROPOSED WELL IS GREATER THAN 100' FROM PERENNIAL STREAM, WETLAND, POND, RESERVOIR OR LAKE.
5. THERE ARE NO NATIVE TROUT STREAMS WITHIN 300' OF PROPOSED WELL.
6. THERE ARE TWO DWELLINGS LOCATED WITHIN 650' OF PROPOSED WELLBORE.
7. THE SURROUNDING LANDS ARE BEING SERVED BY PUBLIC WATER BY THE GRAND VIEW DOOLIN WATER SYSTEM PROVIDED BY MARSHALL COUNTY PUBLIC HEALTH AND SANITATION DIVISION.

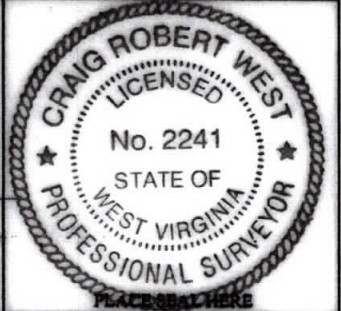
LEGEND

- PROPOSED GAS WELL
- PROPOSED BORE
- TIE LINE
- OIL & GAS LEASE BOUNDARY
- PROPERTY LINE
- STREAM LINE

FILE #: 093842010
 DRAWING #: 093842010_SV-Plat
 SCALE: PLAT & TICK: 1" = 2,000'
 MINIMUM DEGREE OF ACCURACY: 1/200
 PROVEN SOURCE OF ELEVATION: NQS (CORS)

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 RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

SIGNED:
 R.P.E.: _____ L.L.S.: 2241



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
 WVDEP
 OFFICE OF OIL & GAS
 601 57TH STREET
 CHARLESTON, WV 25304



DATE: FEBRUARY 7, 2014
 OPERATOR'S WELL #: MND 6 CHS
 API WELL #: 47 051 01745
 STATE COUNTY PERMIT
 H664

WELL TYPE: OIL GAS WASTE DISPOSAL LIQUID INJECTION PRODUCTION STORAGE DEEP SHALLOW

WATERSHED: FISH CREEK ELEVATION: 722'

COUNTY/DISTRICT: MARSHALL / FRANKLIN QUADRANGLE: POWHATAN POINT, OHIO-W.VA

SURFACE OWNER: CONSOLIDATION COAL COMPANY ACREAGE: 138.557±

OIL & GAS ROYALTY OWNER: CNX GAS COMPANY LLC and NOBLE ENERGY, INC. ACREAGE: _____

CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PERFORATE NEW FORMATION PLUG & ABANDON

DRILL PLUG OFF OLD FORMATION CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY): _____

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 8,940 ft. TMD: 17,928 ft.

WELL OPERATOR: NOBLE ENERGY, INC. DESIGNATED AGENT: STEVE M. GREEN

ADDRESS: 333 TECHNOLOGY DRIVE, SUITE 116 ADDRESS: 500 VIRGINIA STREET EAST, UNITED CENTER SUITE 600

CITY: GANONSBURG STATE: PA ZIP CODE: 16317 CITY: CHARLESTON STATE: WV ZIP CODE: 26301

47051017455
47051017455

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE CERTIFICATION

Date of Notice Certification: 3/19/14

API No. 47- _____
Operator's Well No. MND 6 CHS
Well Pad Name: MND 6

Notice has been given:

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>517834.10</u>
County:	<u>Marshall</u>		Northing:	<u>4407545.91</u>
District:	<u>Franklin</u>	Public Road Access:	<u>CR 7/4-Fish Creek Rd</u>	
Quadrangle:	<u>Powhatan Point</u>	Generally used farm name:	<u>Consol (Now owned by Murray American Energy DBA Consolidation Coal)</u>	
Watershed:	<u>Fish Creek Undefined (HUC 10)</u>			

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following: *PLEASE CHECK ALL THAT APPLY <input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED <input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED <input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or <input checked="" type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH) <input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION <input checked="" type="checkbox"/> 5. PUBLIC NOTICE <input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION		OOG OFFICE USE ONLY <input type="checkbox"/> RECEIVED/ NOT REQUIRED <input type="checkbox"/> RECEIVED <input type="checkbox"/> RECEIVED/ NOT REQUIRED <input type="checkbox"/> RECEIVED <input type="checkbox"/> RECEIVED <input type="checkbox"/> RECEIVED
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Required Attachments:

The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

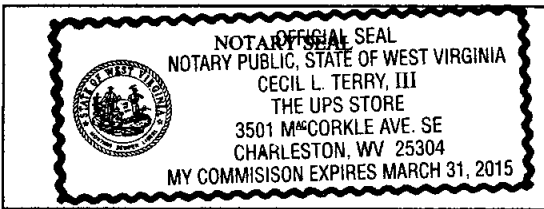
HEC
Office of Oil and Gas
MND 6 CHS
3/19/14
Environmental Protection

Certification of Notice is hereby given:

THEREFORE, I Laura Adkins, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification 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.
By: Laura Adkins
Its: Regulatory Analyst
Telephone: 412-841-9567

Address: 333 Technology Drive Suite 116
Canonsburg, PA 15317
Facsimile: 724-820-3098
Email: ladkins@nobleenergyinc.com



Subscribed and sworn before me this 17 day of MARCH 2014.
[Signature] Notary Public
My Commission Expires 3/31/2015

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as 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 or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

RECEIVED
Office of Oil and Gas
MAR 20 2014
West Virginia Department of
Environmental Protection

47 05 10 17 40

WW-6A
(9-13)

API NO. 47- _____ - _____
OPERATOR WELL NO. MND 6 CHS
Well Pad Name: MND 6

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF APPLICATION

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**

Date of Notice: 3/19/14 Date Permit Application Filed: 3/20/14

Notice of:

- PERMIT FOR ANY WELL WORK CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

- PERSONAL SERVICE REGISTERED MAIL METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice WSSP Notice E&S Plan Notice Well Plat Notice is hereby provided to:

SURFACE OWNER(s)
Name: Consolidation Coal Company ✓
Address: Jason Witt 46226 National Road
Saint Clairsville, OH 43950

Name: Kevin E. and Teresa McGilton ✓
Address: 1704 2nd Street
Moundsville, WV 26041-1534

SURFACE OWNER(s) (Road and/or Other Disturbance)

Name: See attached list
Address: _____
Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: _____
Address: _____

COAL OWNER OR LESSEE
Name: Murray American Energy, Inc. Jason Witt
Address: 46226 National Road
Saint Clairsville, OH 43950

COAL OPERATOR
Name: Murray American Energy, Inc. Jason Witt ✓
Address: 46226 National Road
Saint Clairsville, OH 43950

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)
Name: See attached list
Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD
Name: Columbia Gas Transmission
Address: 1700 MacCorkle Ave, SE ✓
Charleston, WV 25314

*Please attach additional forms if necessary

RECEIVED
Office of Oil and Gas
MAR 20 2014
WV Department of Environmental Protection

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

This Notice Shall Include:

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Location Restrictions

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well pad of a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

47 05 10 17 45

WW-6A
(8-13)

API NO. 47- _____
OPERATOR WELL NO. MND 6 CHS
Well Pad Name: MND 6

examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

Water Well Testing:

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

Water Testing Laboratories:

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

Written Comment:

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0450

Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

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Office of Oil and Gas
MAR 20 2014
WV DEPARTMENT of
Environmental Protection

WW-6A
(8-13)

API NO. 47- _____ - _____
OPERATOR WELL NO. MND 6 CHS
Well Pad Name: MND 6

Time Limits and Methods for Filing Comments.

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

Comment Requirements

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

Permit Denial or Condition

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

RECEIVED
Office of Oil and Gas

MAR 20 2014

WV Dept. of Environment & Natural Resources

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WW-6A
(8-13)

API NO. 47- _____ - _____
OPERATOR WELL NO. MND 6 CHS
Well Pad Name: MND 6

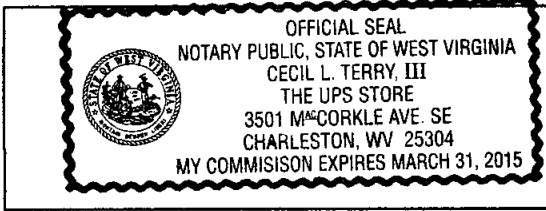
Notice is hereby given by:

Well Operator: Noble Energy, Inc. Laura L. Adkins
Telephone: 412-841-9567
Email: ladkins@nobleenergyinc.com

Address: 333 Technology Drive Suite 116
Canonsburg, PA 15317
Facsimile: 724-820-3098

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as 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 or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.



Subscribed and sworn before me this 17 day of MARCH, 2014.

[Signature] Notary Public

My Commission Expires 3/31/2015

RECEIVED
Office of Oil and Gas
MAR 20 2014
WV Department of
Environmental Protection

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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Earl Ray Tomblin
Governor

Paul A. Mattox, Jr., P. E.
Secretary of Transportation/
Commissioner of Highways

December 6, 2013

James A. Martin, Chief
Office of Oil and Gas
Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

Subject: DOH Permit for the MND-6 Well Site, Marshall County

Dear Mr. Martin,

The West Virginia Division of Highways has issued Permit #06-2013-0529 for the subject site to Noble Energy, Inc. for access to the State Road for the well site located off of Marshall County Route 74 SLS.

The operator has signed an OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

Gary K. Clayton
Regional Maintenance Engineer
Central Office Oil & Gas Coordinator

Gary K. Clayton
Regional Maintenance Engineer
Central Office Oil & Gas Coordinator

RECEIVED
OFFICE OF OIL AND GAS
MAR 26 2014
WEST VIRGINIA DEPARTMENT OF
ENVIRONMENTAL PROTECTION

Cc: James L. McCune
Noble Energy, Inc.
CH, OM, D-6
File

Hydraulic Fracturing Fluid Product Component Information Disclosure

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**
Fresh Water	Operator				100.00%
HYDROCHLORIC ACID 5-10%	Halliburton		Hydrochloric acid	7647-01-0	10.00%
SAND - COMMON WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%
SAND - PREMIUM WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00%
FR-66	Halliburton	Friction Reducer	Hydrotreated light petroleum distillate	64742-47-8	30.00%
BE-9	Halliburton	Biocide	Tributyl tetradecyl phosphonium chloride	81741-28-8	10.00%
Scalechek® LP-65 Scale Inhibitor	Halliburton	Scale Inhibitor	Ammonium chloride	12125-02-9	10.00%
LGC-36 UC	Halliburton	Liquid Gel Concentrate	Guar gum	9000-30-0	60.00%
			Naphtha, hydrotreated heavy	64742-48-9	60.00%
LCA-1	Halliburton	Solvent	Paraffinic solvent	Confidential Business Information	100.00%
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor	Methanol	67-56-1	60.00%
			Propargyl alcohol	107-19-7	10.00%
FE-1A ACIDIZING COMPOSITION	Halliburton	Additive	Acetic acid	64-19-7	60.00%
			Acetic anhydride	108-24-7	100.00%
LoSurf-300D	Halliburton	Non-ionic Surfactant	1,2,4 Trimethylbenzene	95-63-6	1.00%
			Ethanol	64-17-5	60.00%
			Heavy aromatic petroleum naphtha	64742-94-5	30.00%
			Naphthalene	91-20-3	5.00%
			Poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenyl)-omega-hydroxy-, branched	127087-87-0	5.00%
SP BREAKER	Halliburton	Breaker	Sodium persulfate	7775-27-1	100.00%
WG-36 GELLING AGENT	Halliburton	Gelling Agent	Guar gum	9000-30-0	100.00%

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration's (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and

Office of Oil and Gas
RECEIVED



MANAGER: MICHAEL R. OGDEN
DESIGNER: R. OGDEN
ASST. DESIGNER: R. OGDEN
ASST. SUPERVISOR: R. OGDEN
SUPERVISOR: R. OGDEN
PROJECT NO.: 15301
DATE: MAY 08 2014

NOBLE ENERGY
333 TECHNOLOGY DRIVE, SUITE 116
CANONSBURG, PA 15317-3277
BNJ DERELME, PE
(724) 820-3000
www.nobleenergy.com

RETTEW
16700 Independence, Inc.
P.O. Box 400, Independence, PA 15005
Phone: (412) 446-1728 Fax: (412) 446-1733
www.retrew.com

COVER SHEET
FOR
MND 6 WELL PAD
MARSHALL COUNTY, WV
FRANKLIN DISTRICT
DATE: 3/5/2014
SHEET NO. 1 OF 10
DWG. NO. 0938422010



Handwritten signature and date: *gn 4/29/14*

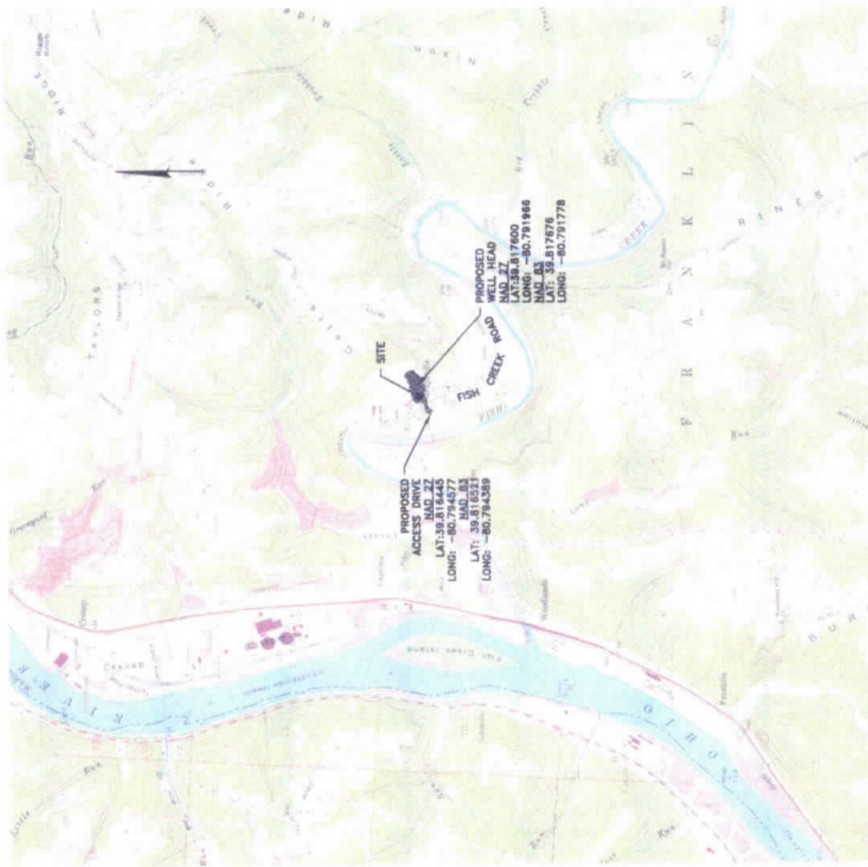
WEST VIRGINIA 811
CALL BEFORE YOU DIG!
Dial 811 or 800-245-4848

SOILS CLASSIFICATION
SCL: BROOKSIDE SCL LOAM, 8% TO 15% SILTS
SCL: BROOKSIDE SCL LOAM, 15% TO 25% SILTS
SCL: CLAYFORD SCL LOAM, 3% TO 8% SILTS
SCL: CLAYFORD SCL LOAM, 8% TO 15% SILTS

LIST OF DRAWINGS
1 OF 10: COVER SHEET
2 OF 10: GEOTECHNICAL RECOMMENDATIONS
3 OF 10: LAYOUT PLAN
4 OF 10: EROSION & SEDIMENT CONTROL PLAN
5 OF 10: CROSS SECTIONS PLAN FOR MND 6
6 OF 10: CROSS SECTIONS PLAN FOR MND 6
7 OF 10: WELLS AND DEWATERING PLAN
8 OF 10: NOTES & DETAILS
9 OF 10: DETAILS
10 OF 10: DETAILS

DISTURBANCE SUMMARY
TOTAL DISTURBED AREA: 4.4 ACRES
TOTAL RESTORED AREA: 4.4 ACRES
NET DISTURBANCE: 0.0 ACRES

EROSION & SEDIMENT CONTROL PLAN FOR MND 6 WELL PAD FRANKLIN DISTRICT, MARSHALL COUNTY, WV



7.5 MET DIGRAPHABLE MAP: FORMATION POINT, 05-94
LOCATION MAP
SHEET 1 OF 10

GENERAL NOTES

1. THE TOPOGRAPHIC SURVEY UTILIZED FOR THIS BASE MAPPING WAS PERFORMED BY RETTEW ASSOCIATES, INC. IN SEPTEMBER 2013.
2. PROPERTY BOUNDARIES, LANDMARK INFORMATION, AND ROAD NETWORKS SHOWN ON THIS PLAN ARE BASED ON AVAILABLE COUNTY GRANVILLE SURVEYS. GRANVILLE SURVEYS SHOWN ON THIS PLAN ARE BASED ON AVAILABLE COUNTY GRANVILLE SURVEYS. GRANVILLE SURVEYS SHOWN ON THIS PLAN ARE BASED ON AVAILABLE COUNTY GRANVILLE SURVEYS.
3. THE GRANVILLE SURVEY DATA IS WEST VIRGINIA STATE PLANE NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.
4. THE GRANVILLE SURVEY DATA IS WEST VIRGINIA STATE PLANE NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.
5. THE GRANVILLE SURVEY DATA IS WEST VIRGINIA STATE PLANE NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.
6. THE GRANVILLE SURVEY DATA IS WEST VIRGINIA STATE PLANE NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.
7. THE GRANVILLE SURVEY DATA IS WEST VIRGINIA STATE PLANE NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.
8. THE GRANVILLE SURVEY DATA IS WEST VIRGINIA STATE PLANE NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.
9. THE GRANVILLE SURVEY DATA IS WEST VIRGINIA STATE PLANE NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.
10. THE GRANVILLE SURVEY DATA IS WEST VIRGINIA STATE PLANE NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.
11. THE GRANVILLE SURVEY DATA IS WEST VIRGINIA STATE PLANE NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.
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13. THE GRANVILLE SURVEY DATA IS WEST VIRGINIA STATE PLANE NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.
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15. THE GRANVILLE SURVEY DATA IS WEST VIRGINIA STATE PLANE NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.
16. THE GRANVILLE SURVEY DATA IS WEST VIRGINIA STATE PLANE NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.
17. THE GRANVILLE SURVEY DATA IS WEST VIRGINIA STATE PLANE NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.
18. THE GRANVILLE SURVEY DATA IS WEST VIRGINIA STATE PLANE NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.
19. THE GRANVILLE SURVEY DATA IS WEST VIRGINIA STATE PLANE NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.
20. THE GRANVILLE SURVEY DATA IS WEST VIRGINIA STATE PLANE NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.

DIRECTIONS TO THE SITE

FROM MARSHALL COUNTY ROAD 7 SOUTH SIDE
HAMP FOR ONE MILE SOUTH OF ROAD 7
ROAD 7 WILL BE ON LEFT IN 1.7 MILES

CUT & FILL

ITEM	DESCRIPTION	TOTAL
1	CUT	4.4 ACRES
2	FILL	4.4 ACRES
3	NET	0.0 ACRES

NOTES:
1. THE ASSIGNED TOPOGRAPHIC SURVEY IS BASED ON GRANVILLE SURVEY DATA.
2. THE GRANVILLE SURVEY DATA IS WEST VIRGINIA STATE PLANE NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.
3. THE GRANVILLE SURVEY DATA IS WEST VIRGINIA STATE PLANE NORTH AMERICAN DATUM 1983 (NAD 83), NORTH ZONE.

4705101745

DATE: 3/9/2014
 SHEET NO. 2 OF 10
 DWG. NO. 035845010

ENVIRONMENTAL RESOURCES BUFFER PLAN
 FOR
MND 6 WELL PAD
 MARSHALL COUNTY, WV
 FRANKLIN DISTRICT

BETTER
 BETTER Associates, Inc.
 141 Green, 850 Pennsylvania, PA 15206
 Phone (412) 446-1728 Fax (412) 446-1733
 Email: better@better.com
 Website: www.better.com

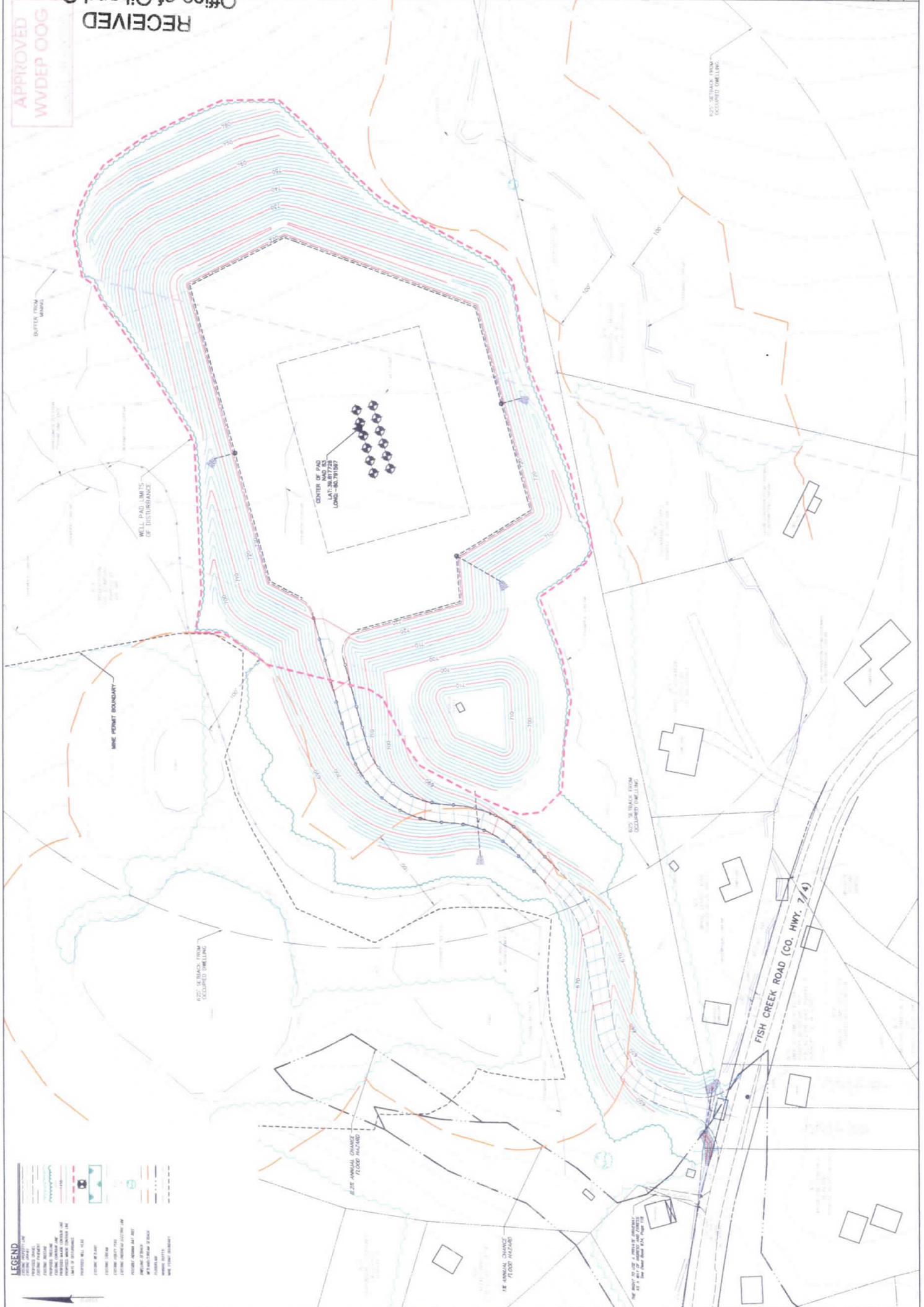
noble energy
 NOBLE ENERGY
 333 TECHNOLOGY DRIVE, SUITE 116
 BEN DERUME, PA 15317-3077
 (724) 820-3000

MANAGER: R. OGDEN
 DESIGNER: M. ASL
 CHECKER: M. ASL
 DATE: 3/9/2014
 SHEET NO. 2 OF 10



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

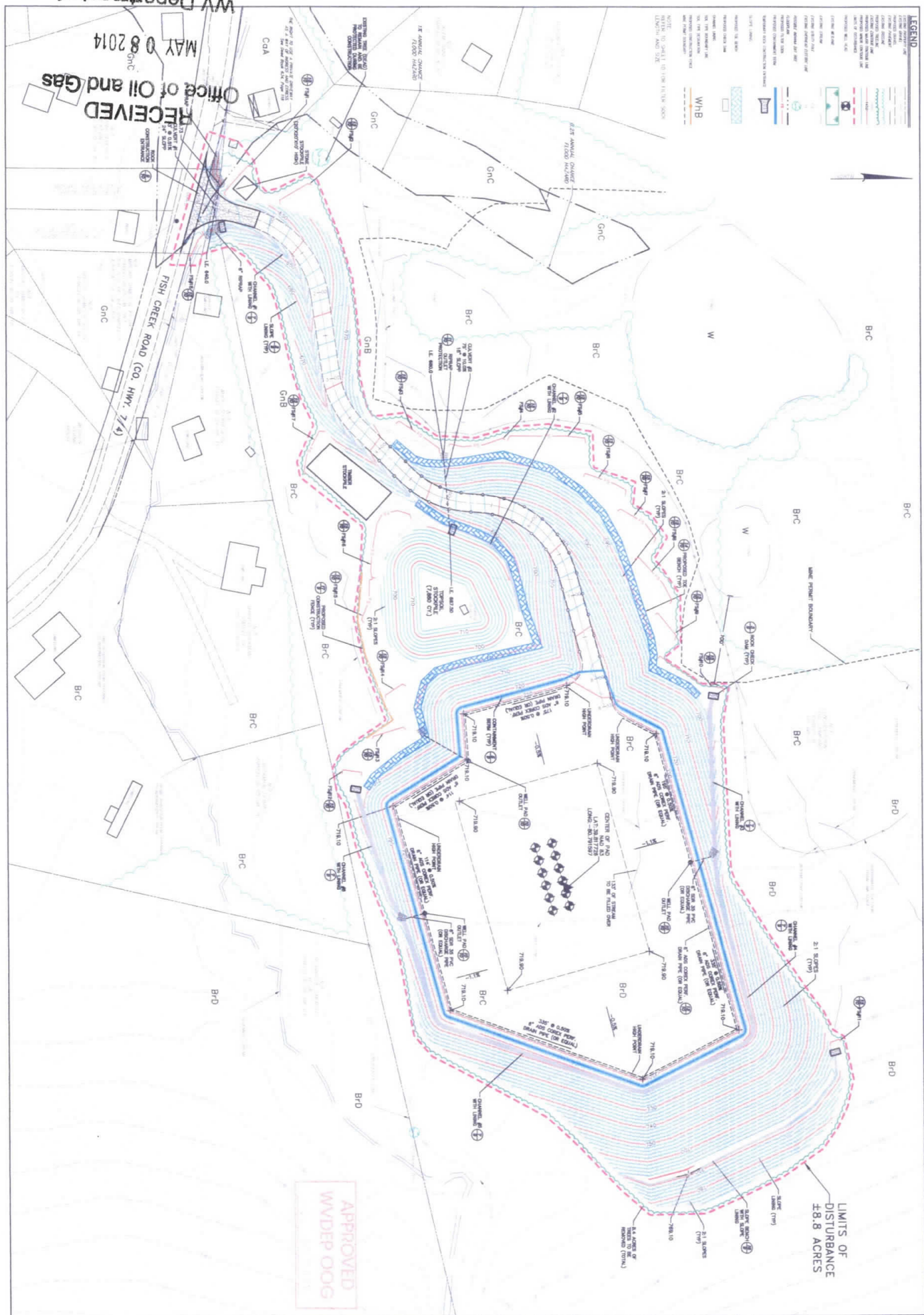
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WV Department of Environmental Protection

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Office of Oil and Gas
MAY 08 2014



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WVDEP 000

EROSION & SEDIMENT CONTROL PLAN
FOR
MND 6 WELL PAD
FRANKLIN DISTRICT MARSHALL COUNTY, WV

RETTEW
RETTEW Associates, Inc.
Two Towers, 4900 Glenview Pl., Ste 200, Pittsburgh, PA 15206
Phone (412) 446-1728 Fax (412) 446-1733
Email: rette@rette.com Website: www.rette.com

CLIENT
NOBLE ENERGY
333 TECHNOLOGY DRIVE, SUITE 116
CANONSBURG, PA 15317-3077
BEN DERELUME, PE
(724) 820-3000

MANAGER: MICHAEL R. OGDEN
DESIGN BY: ASN
DRAWN BY: ASN
SURV. CHECK: FELDBROCK NO. DATA COLLECTOR

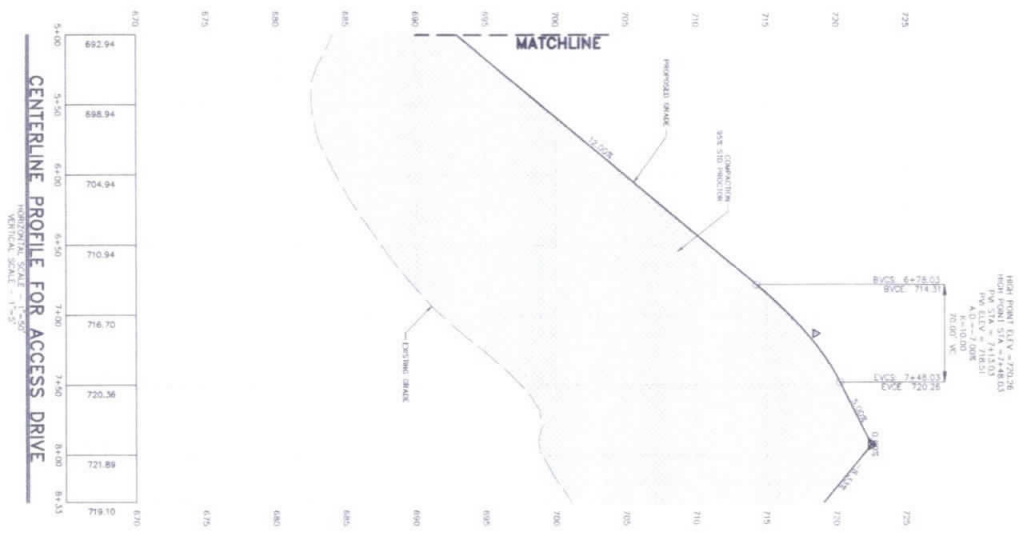
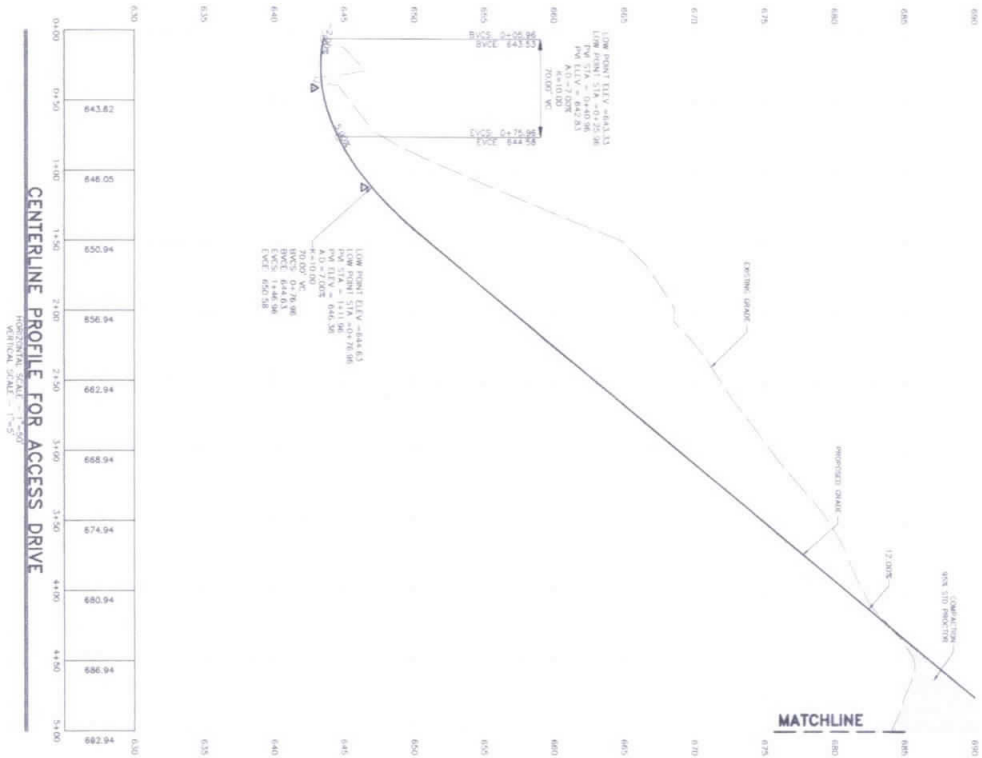
FOR RETTEW ASSOCIATES BY
3-25-14
RETTEW ASSOCIATES, INC.
3074
W. HUBBARD

SCALE 1"=50'

NO.	DATE	REVISION

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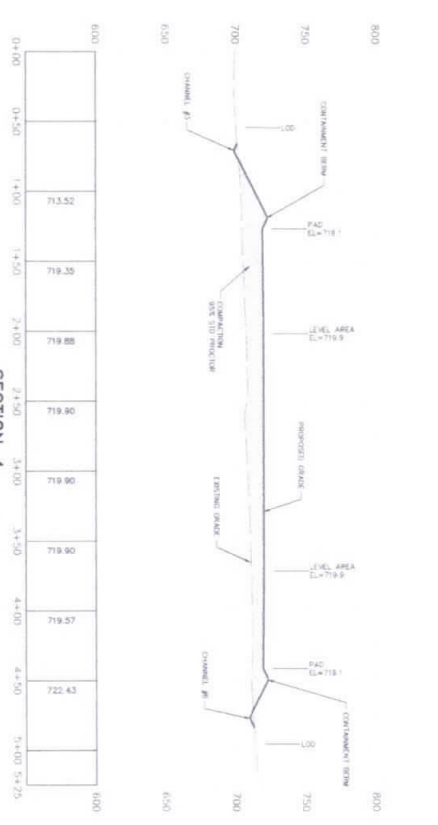
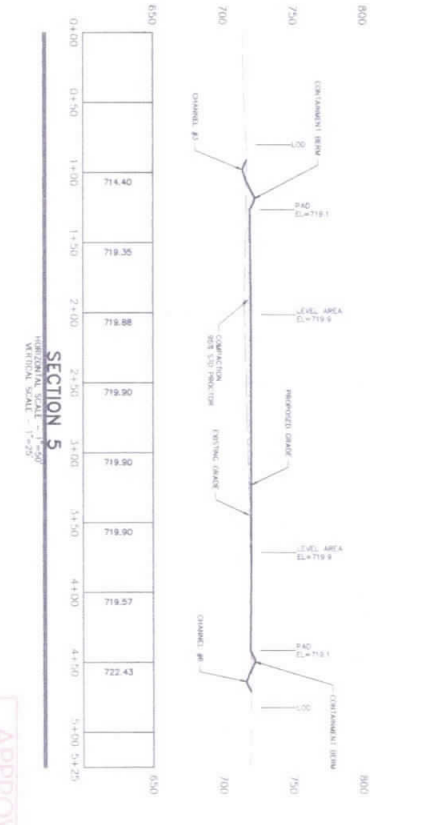
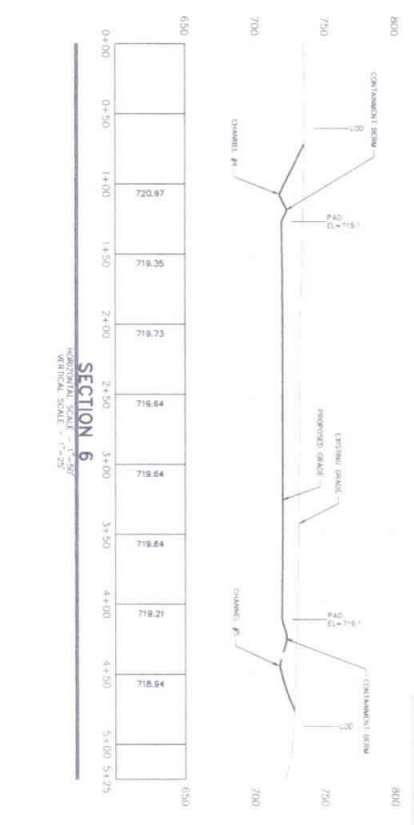
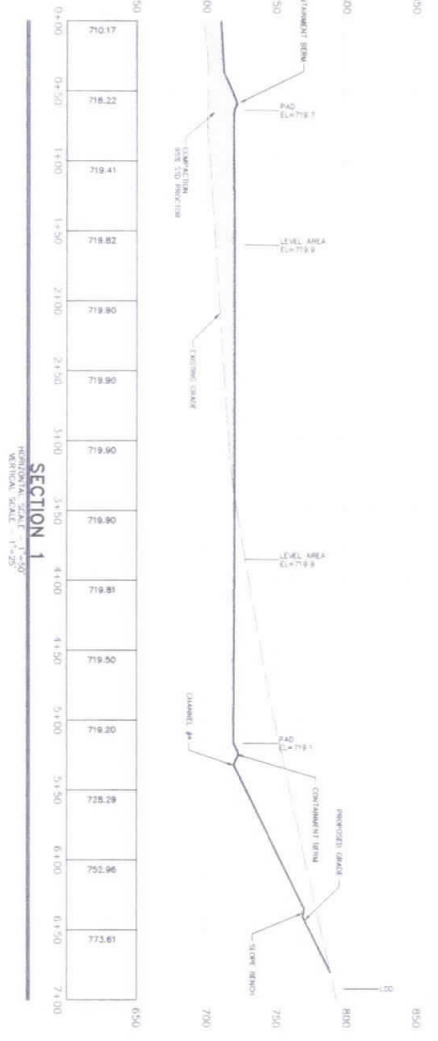
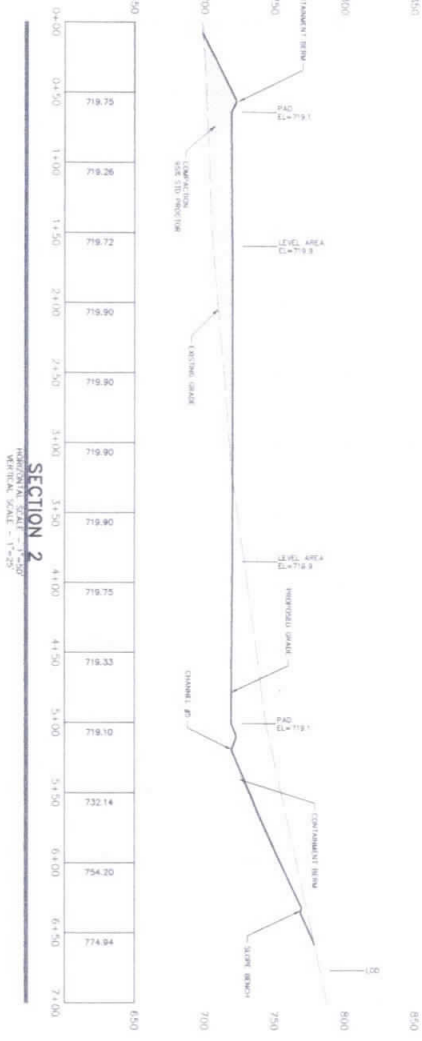
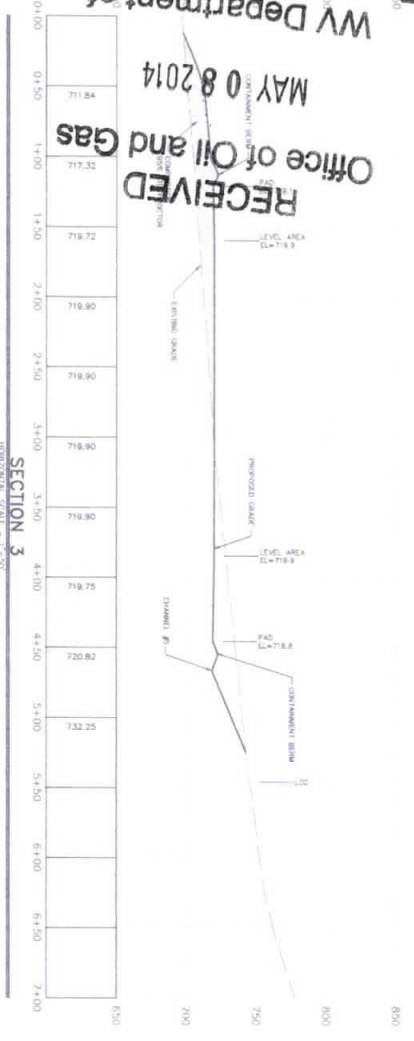


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WVDEP 006

DATE: 3/9/2014 SHEET NO. 5 OF 10 Dwg. No. 093M42010		ACCESS DRIVE PROFILES FOR MND 6 WELL PAD		RETTEW RETTEW Associates, Inc. Two Towers, 4955 Shepherdville Pl, Ste 305, Pittsburgh, PA 15205 Phone (412) 446-1728 • Fax (412) 446-1732 Email: rettew@rettew.com Website: www.rettew.com		CLIENT NOBLE ENERGY 333 TECHNOLOGY DRIVE, SUITE 116 CANONSBURG, PA 15317-3077 BEN DEREUME, PE (724) 820-3000 		MANAGER: MICHAEL R. OGDEN DESIGN BY: ASH DRAWN BY: ASH SURV. CHIEF: FELDRON RD DATA COLLECTOR		FOR RETTEW ASSOCIATES BY: 		SCALE AS SHOWN	
NO.	DATE	REVISION											

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WV Department of Environmental Protection
Office of Oil and Gas
MAY 08 2014
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CROSS SECTIONS
FOR
MND 6 WELL PAD

DATE: 3/9/2014
SHEET NO. 7 OF 10
DWG NO. 003B202010

FRANKLIN DISTRICT MARSHALL COUNTY, WV

RETTEW
RETTEW Associates, Inc.
Two Towers, 4925 Shadsworth Pl, Ste 300, Pittsburgh, PA 15205
Phone (412) 446-1228 Fax (412) 446-1233
Email: rettew@rettew.com
Website: www.rettew.com

CLIENT
NOBLE ENERGY
333 TECHNOLOGY DRIVE, SUITE 118
CANONSBURG, PA 15317-3077
BEN DERUPE, PE
(724) 820-3000

noble energy

MANAGER: MICHAEL R. OGDEN
DESIGN BY: ASH
DRAWN BY: ASH
SURV. CHECK: RETTEW NO DATA COLLECTOR

FOR RETTEW ASSOCIATES BY: **W. H. HADLEY**
Professional Engineer Seal: W. H. HADLEY, No. 15074, State of West Virginia

SCALE AS SHOWN

NO.	DATE	REVISION

4705101745

RECLAMATION NOTES:

1. CONSTRUCTION EROSION CONTROL MEASURES TO BE INSTALLED FIRST, INCLUDING AND NOT LIMITED TO:
 - a. DISTURBED AREA TO BE STABILIZED WITH SEEDS OR PERMANENT SEEDING MATTER
 - b. BOUND OR SHAPE ALL DISTURBED AREAS TO CONFORM TO THE SITE TO ADJUST TO EXISTING TOPOGRAPHY
 - c. ANY EXISTING EROSION CONTROL STRUCTURES SHALL BE MAINTAINED OR IMPROVED AS NECESSARY TO PREVENT EROSION
 - d. EROSION CONTROL MEASURES SHALL BE CLEANED OUT AND REMOVED

RESTORATION OF PLANTED AREAS

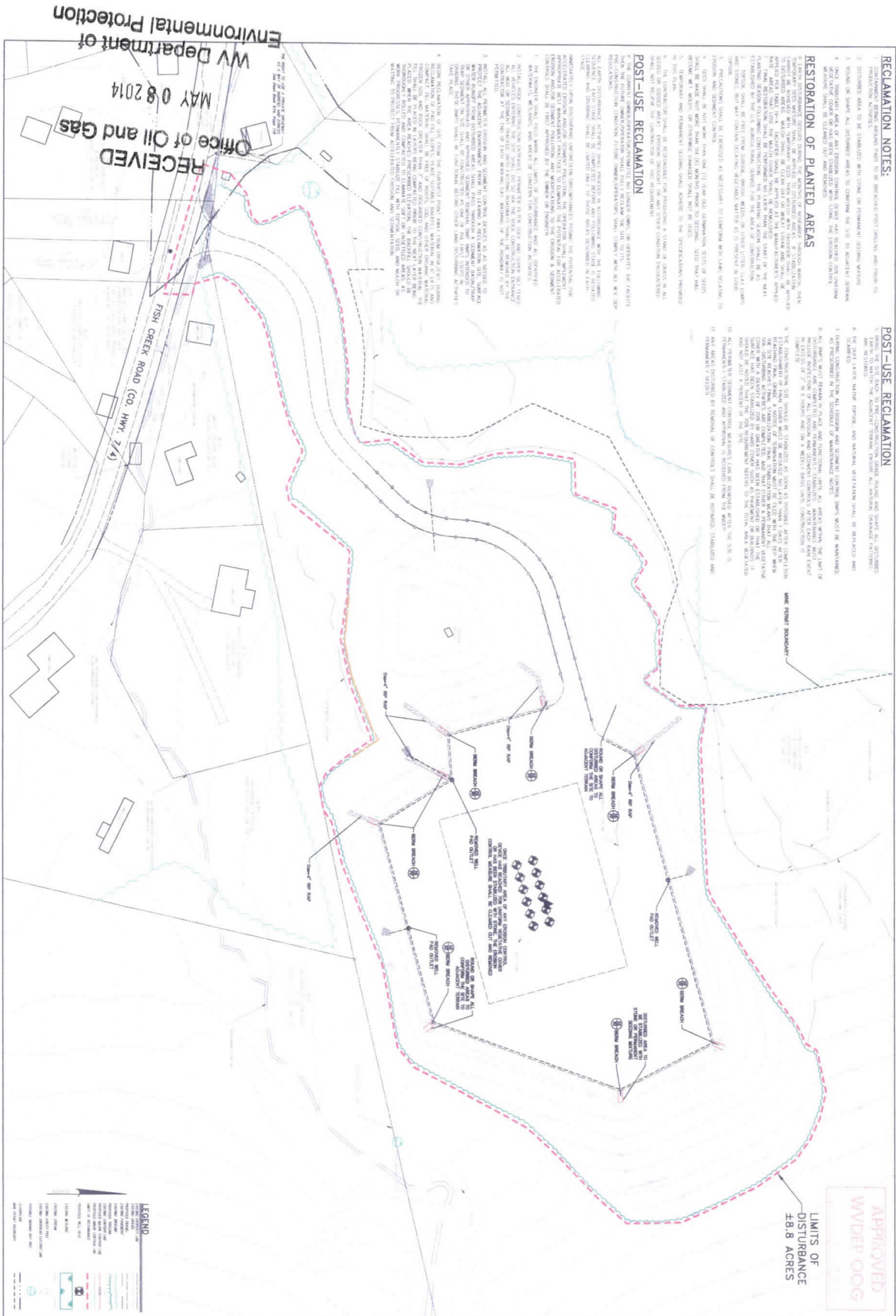
1. PLANTED AREAS SHALL BE RESTORED TO EXISTING OR BETTER CONDITION WITHIN 90 DAYS OF COMPLETION OF CONSTRUCTION. RESTORATION SHALL BE COMPLETED BY THE END OF THE PLANTING SEASON FOLLOWING CONSTRUCTION. THE PLANTING SEASON SHALL BE AS DETERMINED BY THE U.S. AGRICULTURAL SERVICE FOR THE AREA OF CONSTRUCTION. PLANTED AREAS SHALL BE RESTORED TO EXISTING OR BETTER CONDITION WITHIN 90 DAYS OF COMPLETION OF CONSTRUCTION.
2. PLANTED AREAS SHALL BE RESTORED TO EXISTING OR BETTER CONDITION WITHIN 90 DAYS OF COMPLETION OF CONSTRUCTION. RESTORATION SHALL BE COMPLETED BY THE END OF THE PLANTING SEASON FOLLOWING CONSTRUCTION. THE PLANTING SEASON SHALL BE AS DETERMINED BY THE U.S. AGRICULTURAL SERVICE FOR THE AREA OF CONSTRUCTION. PLANTED AREAS SHALL BE RESTORED TO EXISTING OR BETTER CONDITION WITHIN 90 DAYS OF COMPLETION OF CONSTRUCTION.

POST-USE RECLAMATION

1. ALL REMAINDER SEEDING MATERIALS, INCLUDING SEEDS, SHALL BE PLANTED AND NOT MORE THAN 30% OF THE SEEDS SHALL BE PLANTED WITHIN 90 DAYS OF COMPLETION OF CONSTRUCTION.
2. TEMPORARY AND PERMANENT SEEDING SHALL ADHERE TO THE SPECIFICATIONS PROVIDED IN THIS PLAN.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A STANDARD GRADE, IN ALL AREAS OF CONSTRUCTION, TO BE MAINTAINED THROUGHOUT THE LIFE OF THE PROJECT.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A STANDARD GRADE, IN ALL AREAS OF CONSTRUCTION, TO BE MAINTAINED THROUGHOUT THE LIFE OF THE PROJECT.

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LEGEND

- EXISTING EROSION CONTROL MEASURES
- NEW EROSION CONTROL MEASURES
- EXISTING EROSION CONTROL MEASURES TO BE MAINTAINED
- NEW EROSION CONTROL MEASURES TO BE MAINTAINED
- EXISTING EROSION CONTROL MEASURES TO BE REMOVED
- NEW EROSION CONTROL MEASURES TO BE REMOVED
- EXISTING EROSION CONTROL MEASURES TO BE IMPROVED
- NEW EROSION CONTROL MEASURES TO BE IMPROVED
- EXISTING EROSION CONTROL MEASURES TO BE REPLACED
- NEW EROSION CONTROL MEASURES TO BE REPLACED
- EXISTING EROSION CONTROL MEASURES TO BE DESTROYED
- NEW EROSION CONTROL MEASURES TO BE DESTROYED
- EXISTING EROSION CONTROL MEASURES TO BE REPAIRED
- NEW EROSION CONTROL MEASURES TO BE REPAIRED
- EXISTING EROSION CONTROL MEASURES TO BE DEMOLISHED
- NEW EROSION CONTROL MEASURES TO BE DEMOLISHED

WELL PAD RECLAMATION PLAN FOR MND 6 WELL PAD	RETTEW Associates, Inc. Two Towers, 4950 Staeburnville Pl, Ste 305, Pittsburgh, PA 15205 Phone (412) 446-1725 - Fax (412) 446-1733 Email: rettew@rettew.com Website: www.rettew.com	CLIENT NOBLE ENERGY 333 TECHNOLOGY DRIVE, SUITE 116 CANONSBURG, PA 15317-3077 BEN DEREUME, PE (724) 820-3000 	MANAGER: MICHAEL R. OGDEN DESIGN BY: ASN DRAWN BY: ASN SURV. CHECK: FELLBOOK NO. SAIA SELECTOR	FOR RETTEW ASSOCIATES BY: 5-25-14 	SCALE 0 25 50 100 150'
					DATE: 3/5/2014 SHEET NO. 5 OF 10 DWG. NO. 0035842010

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EROSION AND SEDIMENTATION CONTROL NOTES

EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CONSIDERED AS PART OF THE CONSTRUCTION AND POST CONSTRUCTION PHASES TO PREVENT SOIL EROSION, SEDIMENTATION, AND OTHER POLLUTANTS FROM ENTERING ADJACENT WATERWAYS. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE DESIGNED TO PREVENT POLLUTANTS FROM ENTERING ADJACENT WATERWAYS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL APPLICABLE EROSION AND SEDIMENTATION CONTROL REGULATIONS FROM THE APPLICABLE AGENCIES.

- TEMPORARY EROSION CONTROL MEASURES**
1. ALL DISTURBED AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION BY THE INSTALLATION OF TEMPORARY EROSION CONTROL MEASURES.
 2. EROSION CONTROL MEASURES SHALL BE DESIGNED TO PREVENT POLLUTANTS FROM ENTERING ADJACENT WATERWAYS.
 3. EROSION CONTROL MEASURES SHALL BE DESIGNED TO PREVENT POLLUTANTS FROM ENTERING ADJACENT WATERWAYS.
 4. ALL SOIL SURFACES ARE TO BE COVERED WITH A TEMPORARY EROSION CONTROL MEASURE WITHIN 72 HOURS.
 5. SPERM GRANULE APPLICATION OF THE FINAL EROSION CONTROL MEASURE SHALL BE COMPLETED WITHIN 14 DAYS.
 6. EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REPAIRED AS NECESSARY THROUGHOUT THE CONSTRUCTION PERIOD.
 7. EROSION CONTROL MEASURES SHALL BE REMOVED IMMEDIATELY UPON COMPLETION OF THE CONSTRUCTION PHASE.
 8. EROSION CONTROL MEASURES SHALL BE DESIGNED TO PREVENT POLLUTANTS FROM ENTERING ADJACENT WATERWAYS.
 9. EROSION CONTROL MEASURES SHALL BE DESIGNED TO PREVENT POLLUTANTS FROM ENTERING ADJACENT WATERWAYS.
 10. EROSION CONTROL MEASURES SHALL BE DESIGNED TO PREVENT POLLUTANTS FROM ENTERING ADJACENT WATERWAYS.
 11. EROSION CONTROL MEASURES SHALL BE DESIGNED TO PREVENT POLLUTANTS FROM ENTERING ADJACENT WATERWAYS.

- CONSTRUCTION SEQUENCE**
1. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING UTILITIES THROUGHOUT THE CONSTRUCTION PERIOD.
 2. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING UTILITIES THROUGHOUT THE CONSTRUCTION PERIOD.
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 15. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING UTILITIES THROUGHOUT THE CONSTRUCTION PERIOD.

- SCHEDULE OF MAINTENANCE OF EROSION & SEDIMENTATION CONTROL MEASURES**
1. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING UTILITIES THROUGHOUT THE CONSTRUCTION PERIOD.
 2. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING UTILITIES THROUGHOUT THE CONSTRUCTION PERIOD.
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 15. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING UTILITIES THROUGHOUT THE CONSTRUCTION PERIOD.

- ROCK CONSTRUCTION DETAILS**
1. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING UTILITIES THROUGHOUT THE CONSTRUCTION PERIOD.
 2. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING UTILITIES THROUGHOUT THE CONSTRUCTION PERIOD.
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- ROCK CHECK DAM**
1. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING UTILITIES THROUGHOUT THE CONSTRUCTION PERIOD.
 2. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING UTILITIES THROUGHOUT THE CONSTRUCTION PERIOD.
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**TABLE IV-1
TEMPORARY SEEDING
FOR CRITICAL AREAS**

SEED	RATE IN LB PER ACRE	RECOMMENDED DATE
ANNUAL REGRASS	40	MAY 1 TO JUNE 1
PERMANENT SEED	15	MAY 15 TO JUNE 15
SPRING OATS	50	MAY 1 TO JUNE 15
PER OATS	140	MAY 15 TO JUNE 15
ANNUAL REGRASS	20	MAY 1 TO JUNE 15
SPRING OATS	54	MAY 1 TO JUNE 15

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

SEED	RATE IN LB PER ACRE
WHITE CLOVER	15
RED TOP	15
ORCHARD GRASS	20

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

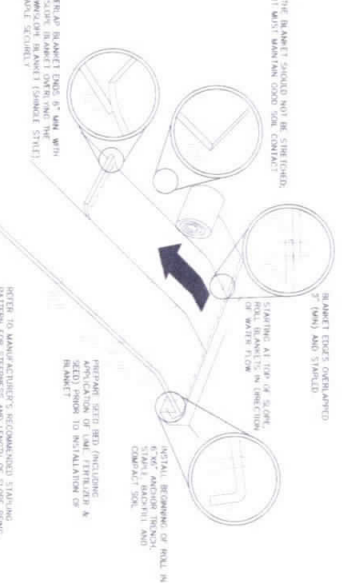
PH OF SOIL	LIME IN TONS PER ACRE	FERTILIZER IN LB PER ACRE
4.0 TO 4.5	2	500
4.5 TO 5.0	3	500
5.0 TO 5.5	4	500

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

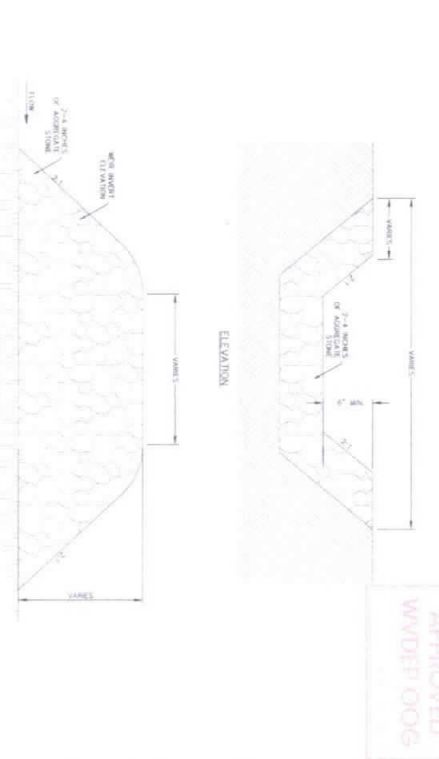
MATERIAL	APPROXIMATE RATES PER ACRE	COMMENTS	REMARKS
HAY OR STRAW	2 TO 3 TONS	COVER TO SOIL	SUBJECT TO AND BOUND BY LOCAL ORDINANCES
WOOD CHIP MULCH	1000 TO 1500 LB	COVER TO SOIL	FOR HYDROLOGICAL
WOOD CHIP MULCH	1000 TO 1500 LB	COVER TO SOIL	FOR HYDROLOGICAL



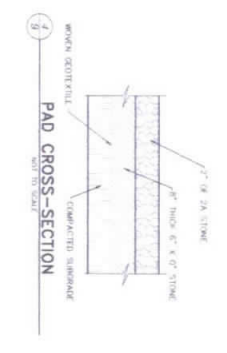
**16 BENCH DETAIL
NOT TO SCALE**



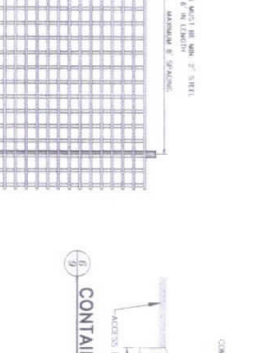
**9 SLOPE INSTALLATION
NOT TO SCALE**



**3 ROCK CHECK DAM
NOT TO SCALE**



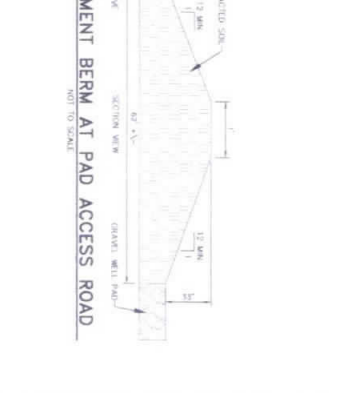
**8 CONTAINMENT BERM AT PAD ACCESS ROAD
NOT TO SCALE**



**6 CONTAINMENT BERM
NOT TO SCALE**



**7 CHANNEL CROSS-SECTION
NOT TO SCALE**



**8 CHANNEL DETAIL
NOT TO SCALE**



**7 TYPICAL ACCESS DRIVE SECTION
NOT TO SCALE**

NOTES & DETAILS FOR MND 6 WELL PAD

DATE: 3/25/2014
SHEET NO: 9 OF 10
DWG. NO: 003424010

RETTEW
RETTEW Associates, Inc.
333 TECHNOLOGY DRIVE, SUITE 116
CANONSBURG, PA 15317-3077
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333 TECHNOLOGY DRIVE, SUITE 116
CANONSBURG, PA 15317-3077
BEN DEREUME, PE
(724) 820-3000

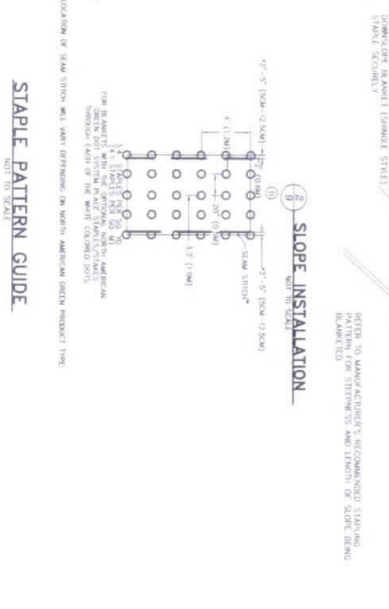
MANAGER: MICHAEL R. OGDEN
DESIGN BY: ASN
DRAWN BY: ASN
SURV. CHECK: FELDROCK NO. DATA COLLECTOR

FOR RETTEW ASSOCIATES BY: 3-25-14
19074
STATE OF PENNSYLVANIA
Professional Engineer Seal

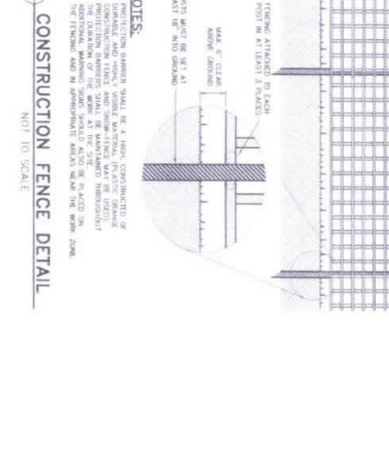
NO.	DATE	REVISION

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**17 STAPLE PATTERN GUIDE
NOT TO SCALE**

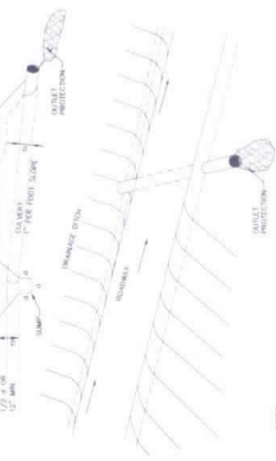


**17 CONSTRUCTION FENCE DETAIL
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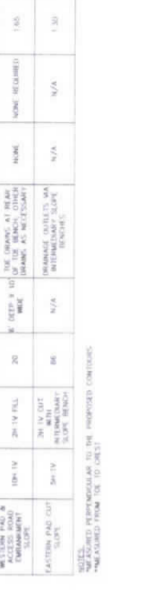
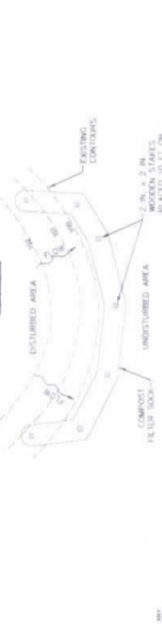
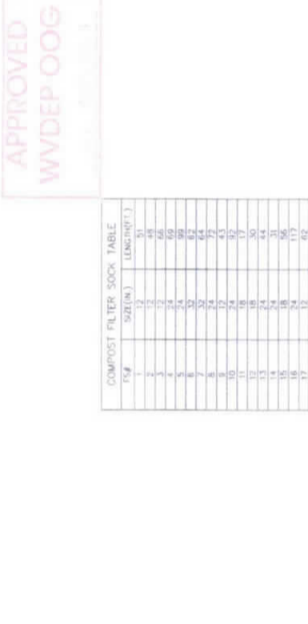
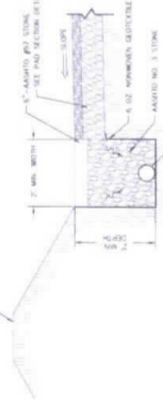
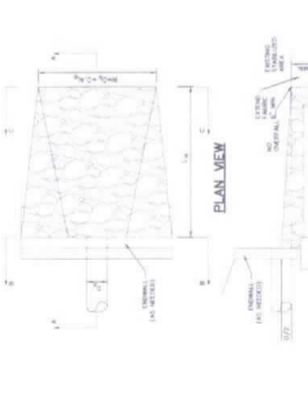
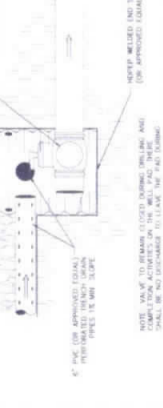
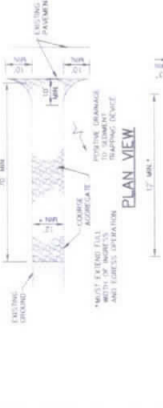
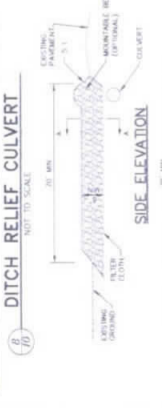
FRANKLIN DISTRICT MARSHALL COUNTY, WV

4705101745

4705101745



1. DRAINAGE STRUCTURE SHALL BE INSTALLED TO RECEIVE LINE AND GROUND WATER.
2. DRAINAGE STRUCTURE SHALL BE CONSTRUCTED TO A MINIMUM OF 18" BELOW FINISHED GRADE.
3. DRAINAGE STRUCTURE SHALL BE CONSTRUCTED WITH A MINIMUM OF 18" BELOW FINISHED GRADE.
4. DRAINAGE STRUCTURE SHALL BE CONSTRUCTED WITH A MINIMUM OF 18" BELOW FINISHED GRADE.
5. DRAINAGE STRUCTURE SHALL BE CONSTRUCTED WITH A MINIMUM OF 18" BELOW FINISHED GRADE.
6. DRAINAGE STRUCTURE SHALL BE CONSTRUCTED WITH A MINIMUM OF 18" BELOW FINISHED GRADE.
7. DRAINAGE STRUCTURE SHALL BE CONSTRUCTED WITH A MINIMUM OF 18" BELOW FINISHED GRADE.



WV Department of Environmental Protection

RECEIVED
Office of Oil and Gas
DATE 08/20/2014



FOR SETTING ASSOCIATES BY
5-25-14
DESIGN BY: CHAD BR
ASST: ASST
CHECKED BY: CHAD BR
ASST: ASST
SCALE: ASST
DATE: 08/20/2014

NOBLE ENERGY
333 TECHNOLOGY DRIVE, SUITE 118
CANNONSBURG, PA 15317-3077
BEN DRUMER, PE
(724) 820-3000

BETHEM
PETER ASSOCIATES, INC.
504 SOUTH HARRISBURG PIKE
TOWNSHIP, PA 15205
TEL: (412) 468-1728
FAX: (412) 468-1733
WWW.BETHEM.COM

DETAILS
FOR
MND 6 WELL PAD
MARSHALL COUNTY, WV
FRANKLIN DISTRICT
DATE: 3/5/2014
SHEET NO. 10 OF 10
DWG NO. 093825010

GEOTECHNICAL NOTES

1. SHALL BE PERFORMED IN ALL STRUCTURAL AREAS.
2. SHALL BE PERFORMED IN ALL STRUCTURAL AREAS.
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30. SHALL BE PERFORMED IN ALL STRUCTURAL AREAS.

TABLE 4. STABILIZATION MEASURES

SLOPE TYPE	MAXIMUM SLOPE	MINIMUM SLOPE	STABILIZATION MEASURES	REQUIRED	RECOMMENDED	REQUIRED	RECOMMENDED
WELL PAD & BERM	2H:1V	2H:1V	20' MIN. WOODEN STAKES	NO	NO	NO	NO
WELL PAD & BERM	2H:1V	2H:1V	20' MIN. WOODEN STAKES	NO	NO	NO	NO
WELL PAD & BERM	2H:1V	2H:1V	20' MIN. WOODEN STAKES	NO	NO	NO	NO
WELL PAD & BERM	2H:1V	2H:1V	20' MIN. WOODEN STAKES	NO	NO	NO	NO

