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**west virginia** department of environmental protection

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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](http://www.dep.wv.gov)

December 02, 2013

**WELL WORK PERMIT**

**Horizontal Well**

This permit, API Well Number: 47-1100996, issued to HARD ROCK EXPLORATION, 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: HR-497B  
Farm Name: KINGERY, ROGER D. & SANDRA  
**API Well Number: 47- 1100996**  
**Permit Type: Horizontal Well**  
Date Issued: 12/02/2013

**Promoting a healthy environment.**

## 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

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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 within 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. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
5. 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.
6. 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.
7. Well work activities shall not constitute a hazard to the safety of persons.
8. If well work related activities require the use of water obtained by withdrawals from waters of this state in amounts that exceed two hundred ten thousand gallons during any thirty day period, the operator is required to consult, and adhere to, the guidance provided by DEP's Water Withdrawal Guidance Tool prior to any water withdrawals.

WW - 2B  
(Rev. 8/10)

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

1) Well Operator: Hard Rock Exploration, Inc.      494464205      Cabell      Barboursville      Barboursville, WV 7.5'  
Operator ID      County      District      Quadrangle

2) Operator's Well Number: HR-497      3) Elevation: 664'

4) Well Type: (a) Oil \_\_\_\_\_ or Gas X  
(b) If Gas: Production X / Underground Storage \_\_\_\_\_  
Deep \_\_\_\_\_ / Shallow X

5) Proposed Target Formation(s): Lower Huron      Proposed Target Depth: 3300'TVD

6) Proposed Total Depth: 6840'TMD Feet      Formation at Proposed Total Depth: Lower Huron

7) Approximate fresh water strata depths: 30'-60'

8) Approximate salt water depths: 1285'

9) Approximate coal seam depths: None noted in offset wells

10) Approximate void depths,(coal, Karst, other): None

11) Does land contain coal seams tributary to active mine? No

12) Describe proposed well work and fracturing methods in detail (attach additional sheets if needed)

Drill 12 3/8" hole on air/ Freshwater foam; Drill 8 3/4" hole on Air/Freshwater foam/Fluid; Drill Bottom hole on Air.

KOP-2700', Land curve-3640'MD/ 3300'TVD , 3800'VS, 6840'TMD

Run 4.5" casing with open hole packer completion (Depths noted at bottom) -Set packers, cement on top packer, Fracture with Nitrogen gas

13) **CASING AND TUBING PROGRAM**

TYPE	SPECIFICATIONS			FOOTAGE	INTERVALS	CEMENT
	Size	Grade	Weight per ft	For Drilling	Left in Well	Fill -up (Cu. Ft.)
Conductor	13 3/8"	LS	37#	80'	80'	CTS
Fresh Water	9 5/8"	LS	26#	630'	630'	310cuft-CTS
Coal						
Intermediate	7"	LS	19#	2285'	2285'	510cuft-CTS
Production	4 1/2"	N-80	11.6#	6840'	6840'	130cuft
Tubing						
Liners						

Packers: Kind: Mechanical Set open hole packer

Sizes: 4.5" X 6 5/8" 10k diff Seal

Depths Set Place 15stg open hole packer system from 3243'MD- 6840' (240' spacing per stg) , 16th packer at 2600' Dump 130cuft cmt

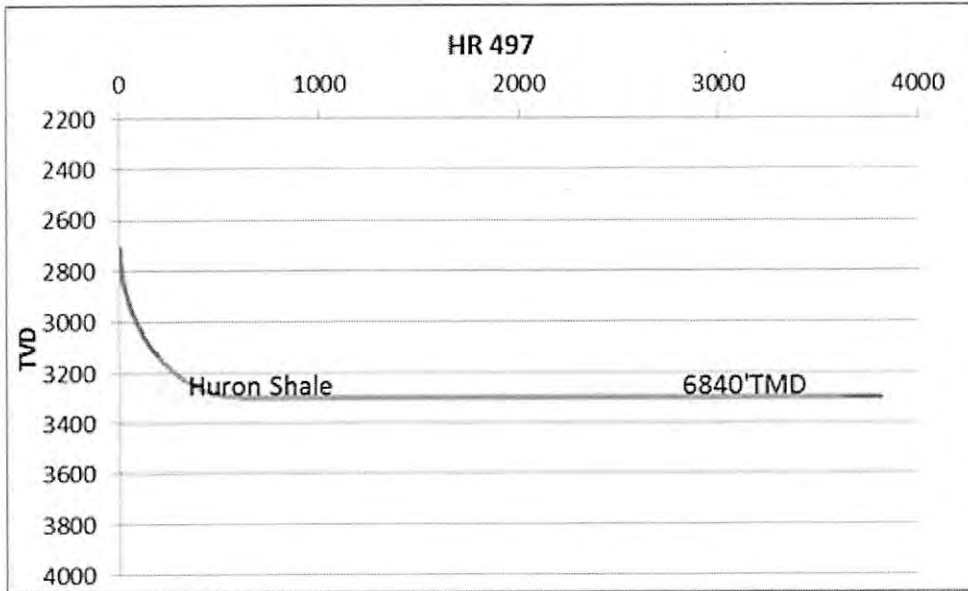
NOTICE

WELLBORE GRAPH  
HARD ROCK EXPLORATION WELL NO. HR-497

RECEIVED  
Office of Oil and Gas

DEC 02 2013

WV Department of  
Environmental Protection



HARD ROCK EXPLORATION, INC.  
1244 MARTINS BRANCH ROAD  
CHARLESTON, WV 25312

11-18-13



COAL OPERATOR, OWNER, OR LESSEE WAIVER

County Cabell  
Operator Hard Rock Exploration, Inc. Operator's Well Number HR-497

INSTRUCTIONS TO COAL OPERATOR, OWNER, OR LESSEE

To the coal operator, owner, or lessee named on page WW2-A. You are hereby notified that any objection you wish to make or are required to make by WV Code 22-6-15, 16 or 17, must be filed with the Chief of the Office of Oil and Gas within fifteen (15) days after the receipt of this application by the Office. Mail objections to:

Chief, Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0499 extension 1654

WAIVER

The undersigned coal operator \_\_\_\_/ owner \_\_\_\_/ lessee \_\_\_\_/ of the coal under this well location has examined this proposed well location. If a mine map exists which covers the area of well location, the well location has been added to the mine map. The undersigned has no objection to the work proposed to be done at this location, provided, the well operator has complied with all applicable requirements of the West Virginia Code and the governing regulations.

FOR EXECUTION BY A NATURAL PERSON

FOR EXECUTION BY A CORPORATION, ETC.

Andrea S. Kengery Date 11/20/13  
Signature

Company Name \_\_\_\_\_  
By \_\_\_\_\_ Date \_\_\_\_\_  
Its \_\_\_\_\_  
Signature \_\_\_\_\_ Date \_\_\_\_\_

SURFACE OWNER WAIVER

County Cabell

Operator Operator well number

Hard Rock Exploration, Inc. HR-497

INSTRUCTIONS TO SURFACE OWNERS NAMED ON PAGE WW2-A

The well operator named on page WW2A is applying for a permit from the State to do oil or gas well work. (Note: If the surface tract is owned by more than three persons, then these materials were served on you because your name appeared on the Sheriff's tax ticket on the land or because you actually occupy the surface tract. In either case, you may be the only owner who will actually receive these materials.) See Chapter 22 of the West Virginia Code. Well work permits are valid for 24 months. If you do not own any interest in the surface tract, please forward these materials to the true owner immediately if you know who it is. Also, please notify the well operator and the Office of Oil and Gas.

NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.

WHERE TO FILE COMMENTS AND OBTAIN ADDITIONAL INFORMATION:

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

Time Limits and methods for filing comments. The law requires these materials to be served on or before the date the operator files his Application. You have FIFTEEN (15) 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 a 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.

Comments must be in writing. Your comments must 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.

The Chief has the power to deny or condition a well work permit based on comments on the following grounds:

- 1) The proposed well work will constitute a hazard to the safety of persons.
2) The soil erosion and sediment control plan is not adequate or effective;
3) Damage would occur to publicly owned lands or resources;
4) The proposed well work fails to protect fresh water sources or supplies;
5) The applicant has committed a substantial violation of a previous permit or a substantial violation of one or more of the rules promulgated under Chapter 22, and has failed to abate or seek review of the violation..."

If you want a copy of the permit as it is issued or a copy of the order denying the permit, you should request a copy from the Chief.

List of Water Testing Laboratories. The Office maintains a list of water testing laboratories which you can hire to test your water to establish water quality prior to and after drilling. Contact the Chief to obtain a copy.

VOLUNTARY STATEMENT OF NO OBJECTION

I hereby state that I have read the instructions to surface owners and that I have received copies of a Notice and Application for a Well Work Permit on Form WW2-A, and attachments consisting of pages 1 through \_\_\_ including a work order on Form WW2-B, a survey plat, and a soil and erosion plan, all for proposed well work on my surface land as described therein.

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials.

FOR EXECUTION BY A NATURAL PERSON

Sandra S. Kingery
Signature
SANDRA S. Kingery
Print Name

Date 11/20/13

Company Name By Its

FOR EXECUTION BY A CORPORATION, ETC.
Office of Oil and Gas

NOV 21 2013
Date:
Signature Date
Environmental Protection

SURFACE OWNER WAIVER

County Cabell

Operator  
Operator well number

Hard Rock Exploration, Inc.  
HR-497

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Department of Environmental Protection  
601 57<sup>th</sup> St. SE  
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(304) 926-0450

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FOR EXECUTION BY A NATURAL PERSON

FOR EXECUTION BY A CORPORATION, ETC.  
Office of Oil and Gas

Roger D Kingery  
Signature

Date 11-20-13

Company  
Name  
By  
Its

NOV 21 2013

Roger D Kingery

Print Name

WV Department of Environmental Protection  
Date

Signature

Date



COAL OPERATOR, OWNER, OR LESSEE WAIVER

County Cabell  
Operator Hard Rock Exploration, Inc. Operator's Well Number HR-497

INSTRUCTIONS TO COAL OPERATOR, OWNER, OR LESSEE

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FOR EXECUTION BY A NATURAL PERSON

FOR EXECUTION BY A CORPORATION, ETC.

Roger D Kingery \_\_\_\_\_ Date 11-20-13  
Signature

Company Name \_\_\_\_\_  
By \_\_\_\_\_  
Its \_\_\_\_\_ Date \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

RECEIVED  
Office of Oil and Gas  
NOV 21 2013  
WV Department of  
Environmental Protection

**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
Roger D. & Sandra S. Kingery	Hard Rock Exploration, Inc.	% of 1/8	376/528

**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 affected activity is initiated.

Well Operator:  
By: Its:

Hard Rock Exploration, Inc.  
  
 Executive Vice President

WW-2B1  
(5-12)

Well No. HR-497

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 Standard Labs or Sturm Lab  
Sampling Contractor Standard Labs or Sturm Lab

Well Operator Hard Rock Exploration, Inc.

Address 1244 Martins Branch Road

Charleston, WV 25312

Telephone (304)984-9004

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.

RECEIVED  
Office of Oil and Gas

NOV 21 2013

WV Department of  
Environmental Protection

**NOTICE**

**WATER TESTING  
HARD ROCK EXPLORATION WELL NO. HR-497B**

**THE FOLLOWING WATER SOURCES WERE IDENTIFIED WITHIN 2000' OF THE  
ABOVE PROPOSED WELL SITE:**

W

**Roger D. & Sandra S. Kingery  
4290 Little Cabell Creek Rd.  
Ona, WV 25545**

**John & Linda M. Martin  
4442 Little Cabell Creek Rd.  
Ona, WV 25545**

**Louie H. & Joyce M. Adkins  
4289 Little Cabell Creek Rd.  
Ona, WV 25545**

**TRUE LINE SURVEYING, INC.  
6211 FAIRVIEW DRIVE  
HUNTINGTON, WV 25705**

**11-13-13**

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Hard Rock Exploration, Inc. OP Code 494464205

Watershed (HUC 10) Little Cabell Creek of Blue Sulphur Quadrangle Barboursville, WV 7.5'

Elevation 664' County Cabell District Barboursville

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 X No \_\_\_\_\_

If so, please describe anticipated pit waste: Drill Cuttings

Will a synthetic liner be used in the pit? Yes X No \_\_\_\_\_ If so, what ml.? 40 or greater 20ML

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection ( UIC Permit Number UIC2D0190460, 3416729685 )
- Reuse (at API Number 8704669, 3502970, 3502987, 3502999, 8704700, 8704698, 8704703, 8704713 - Well will be noted in DMR )
- \_\_\_\_\_ Off Site Disposal (Supply form WW-9 for disposal location)
- \_\_\_\_\_ Other (Explain \_\_\_\_\_)

Will closed loop system be used? No

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Air

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

Additives to be used in drilling medium? Soap, KCl, or Clay Stay

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

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

-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 Monica Francisco

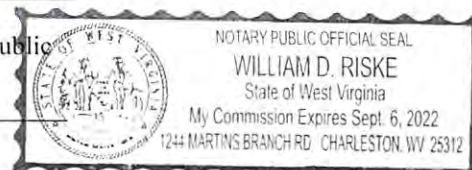
Company Official (Typed Name) Monica Francisco

Company Official Title Executive Vice President

Subscribed and sworn before me this 18th day of NOVEMBER, 20 13

William D. Riske Notary Public

My commission expires Sept 6, 2022



Proposed Revegetation Treatment: Acres Disturbed 0.93 Prevegetation pH 5.5

Lime 3 Tons/acre or to correct to pH 6.5

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

Mulch Hay/Straw/Paper (Paper at 1600 lbs/acre) Tons/acre

Seed Mixtures

Area I		Area II	
Seed Type	lbs/acre	Seed Type	lbs/acre
Red Top	15	Red Top	15
Orchard Grass	25	Orchard Grass	25
Perennial Rye/Crimson Red Clover	25 Each	Perennial Rye/Crimson Red Clover	25 Each
Annual Rye	40	Annual Rye	40

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: 

Comments: install silt fence by creek along road + location before construction

RECEIVED  
Office of Oil and Gas

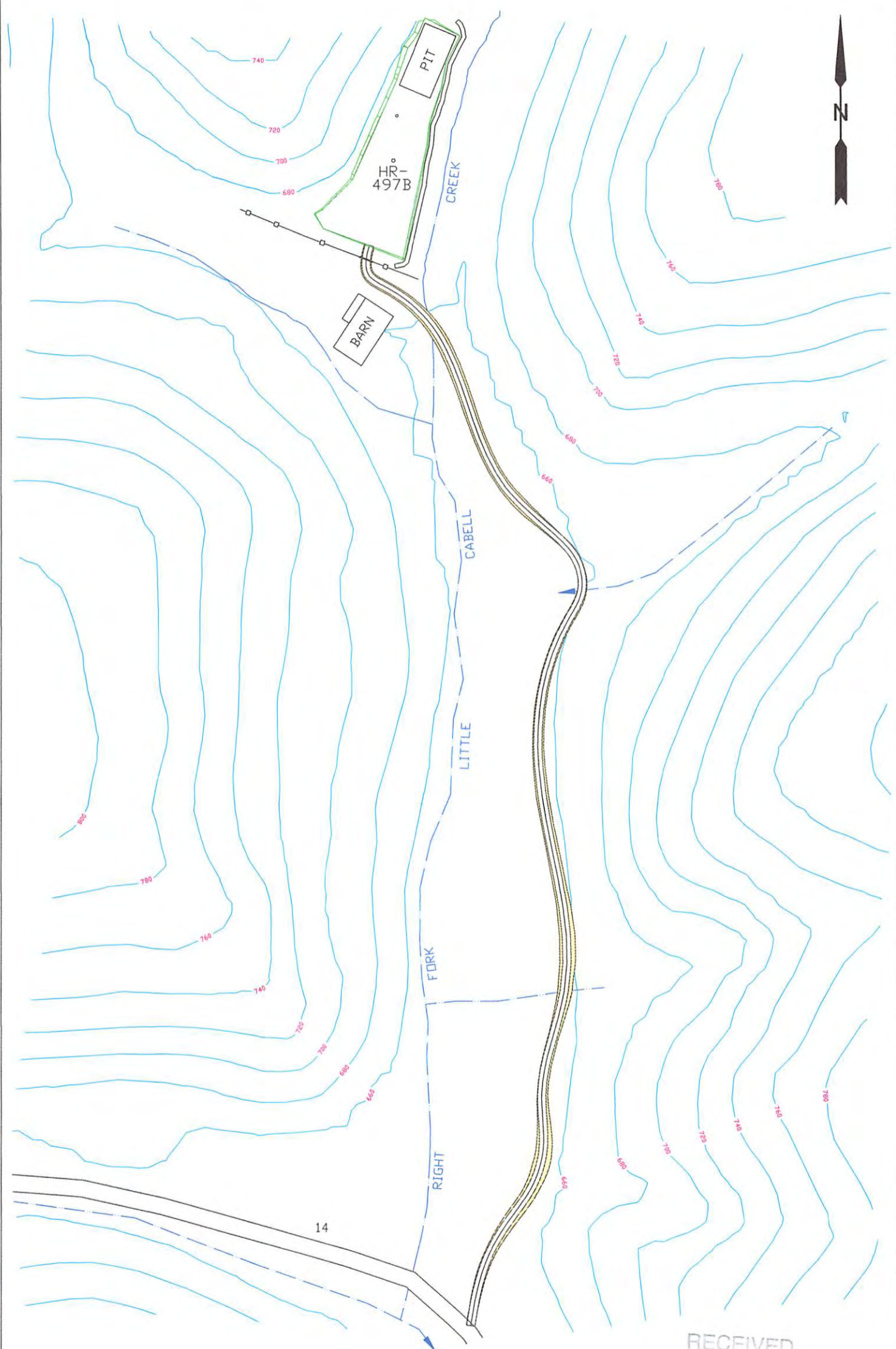
Title: inspector OOG

Date: 11-20-13

NOV 21 2013

Field Reviewed?  Yes  No

WV Department of  
Environmental Protection



RECEIVED  
Office of Oil and Gas

DISTURBED AREAS	
WELL PAD CONSTRUCTION	0.47 AC.
EXISTING ACCESS ROAD	0.46 AC.
ADDITIONAL CLEARING	
<b>TOTAL DISTURBED AREA</b>	<b>0.93 AC</b>

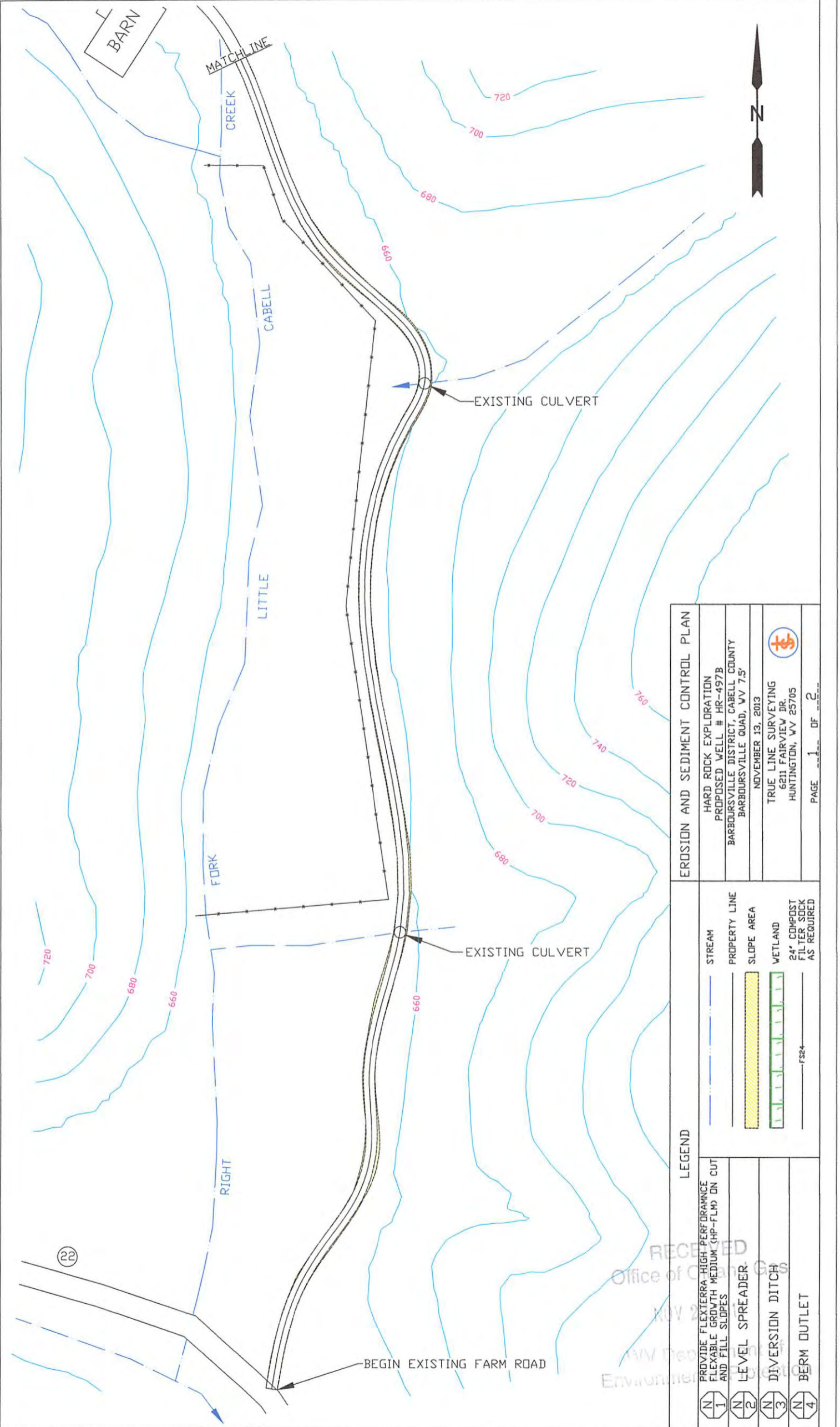
LEGEND	
	STREAM
	PROPERTY LINE
	SLOPE AREA
	WETLAND
	BUFFER AREA

NOV 27 2013

**SITE PLAN**  
 HARD ROCK EXPLORATION  
 PROPOSED WELL # HR-497B  
 BARBOURSVILLE DISTRICT, CABELL COUNTY  
 BARBOURSVILLE QUAD, WV 7.5'

NOVEMBER 13, 2013  
 TRUE LINE SURVEYING  
 6211 FAIRVIEW DR.  
 HUNTINGTON, WV 25705

PAGE 1 OF 1

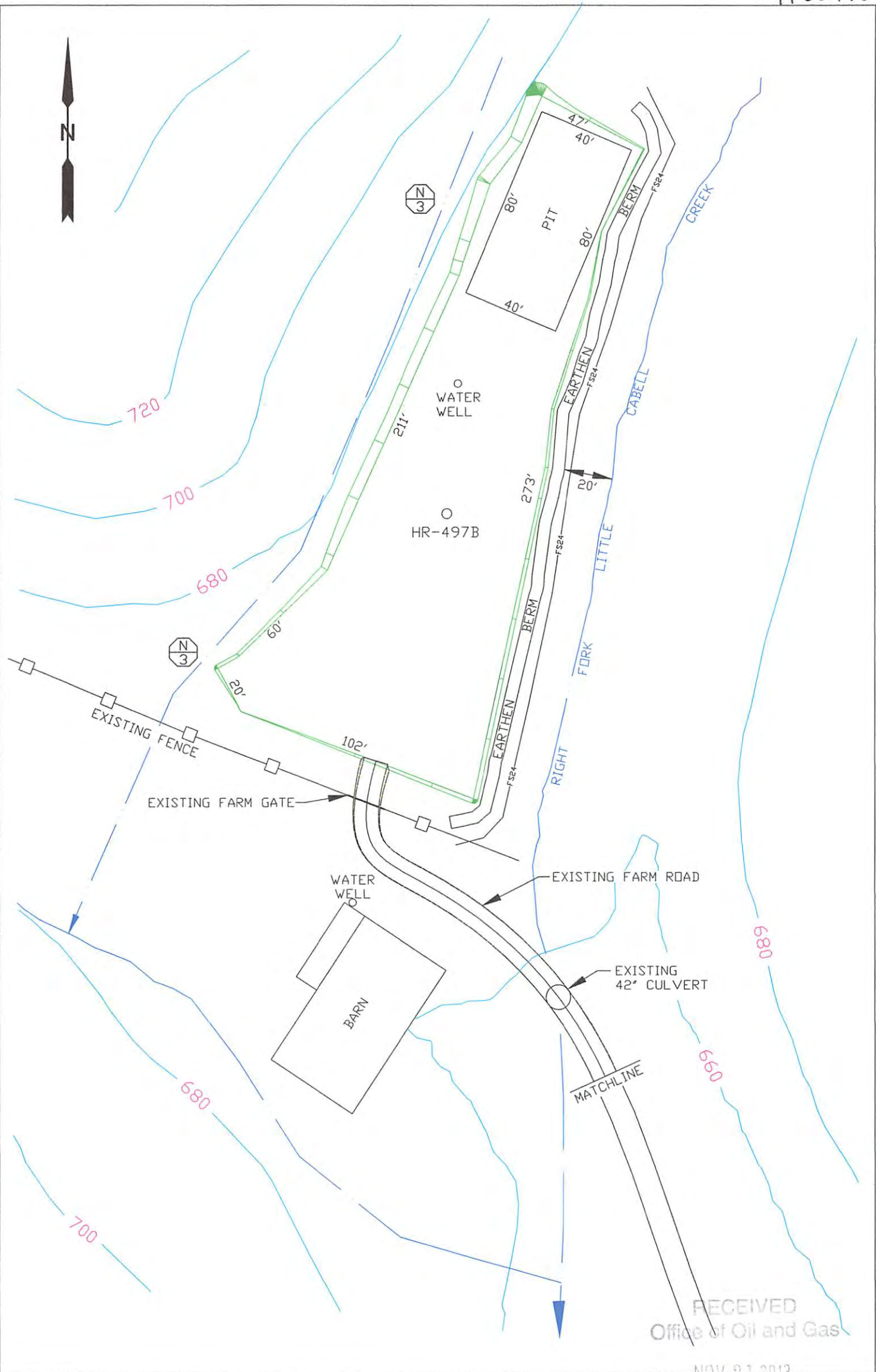


EROSION AND SEDIMENT CONTROL PLAN	
<p>PROVIDE FLEXTERRA HIGH PERFORMANCE FLEXIBLE GROWTH MEDIUM (HP-FLM) ON CUT AND FILL SLOPES</p>	<p>HARD ROCK EXPLORATION PROPOSED WELL # HR-497B BARBOURSVILLE DISTRICT, CABELL COUNTY BARBOURSVILLE QUAD, WV 7.5'</p>
<p>LEVEL SPREADER</p>	<p>NOVEMBER 13, 2013</p>
<p>DIVERSION DITCH</p>	<p>TRUE LINE SURVEYING 6211 FAIRVIEW DR. HUNTINGTON, WV 25705</p>
<p>BERM OUTLET</p>	<p>PAGE 1 OF 2</p>

LEGEND	
<p>1</p>	<p>STREAM</p>
<p>2</p>	<p>PROPERTY LINE</p>
<p>3</p>	<p>SLOPE AREA</p>
<p>4</p>	<p>WETLAND 24" COMPOST FILTER SOCK AS REQUIRED</p>

<p>1</p>	<p>PROVIDE FLEXTERRA HIGH PERFORMANCE FLEXIBLE GROWTH MEDIUM (HP-FLM) ON CUT AND FILL SLOPES</p>
<p>2</p>	<p>LEVEL SPREADER</p>
<p>3</p>	<p>DIVERSION DITCH</p>
<p>4</p>	<p>BERM OUTLET</p>



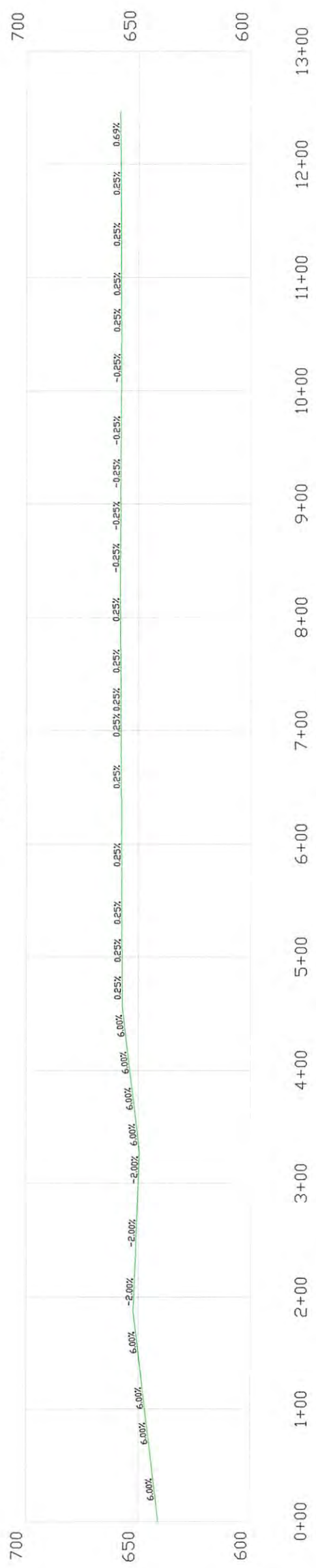


RECEIVED  
Office of Oil and Gas

NOV 21 2013

LEGEND		EROSION AND SEDIMENT CONTROL PLAN
	PROVIDE FLEXTERRA HIGH PERFORMANCE FLEXIBLE GROWTH MEDIUM (HP-FLM) ON CUT AND FILL SLOPES	STREAM
	LEVEL SPREADER	PROPERTY LINE
	DIVERSION DITCH	SLOPE AREA
	BERM OUTLET	WETLAND
		24" COMPOST FILTER SOCK AS REQUIRED
		HARD ROCK EXPLORATION of PROPOSED WELL # HR-497B BARBOURSVILLE DISTRICT, CABELL COUNTY BARBOURSVILLE QUAD, WV 7.5"
		NOVEMBER 13, 2013
		TRUE LINE SURVEYING 6211 FAIRVIEW DR. HUNTINGTON, WV 25705
		PAGE 2 OF 2

SHEET 1



SHEET 2



ROAD PROFILE

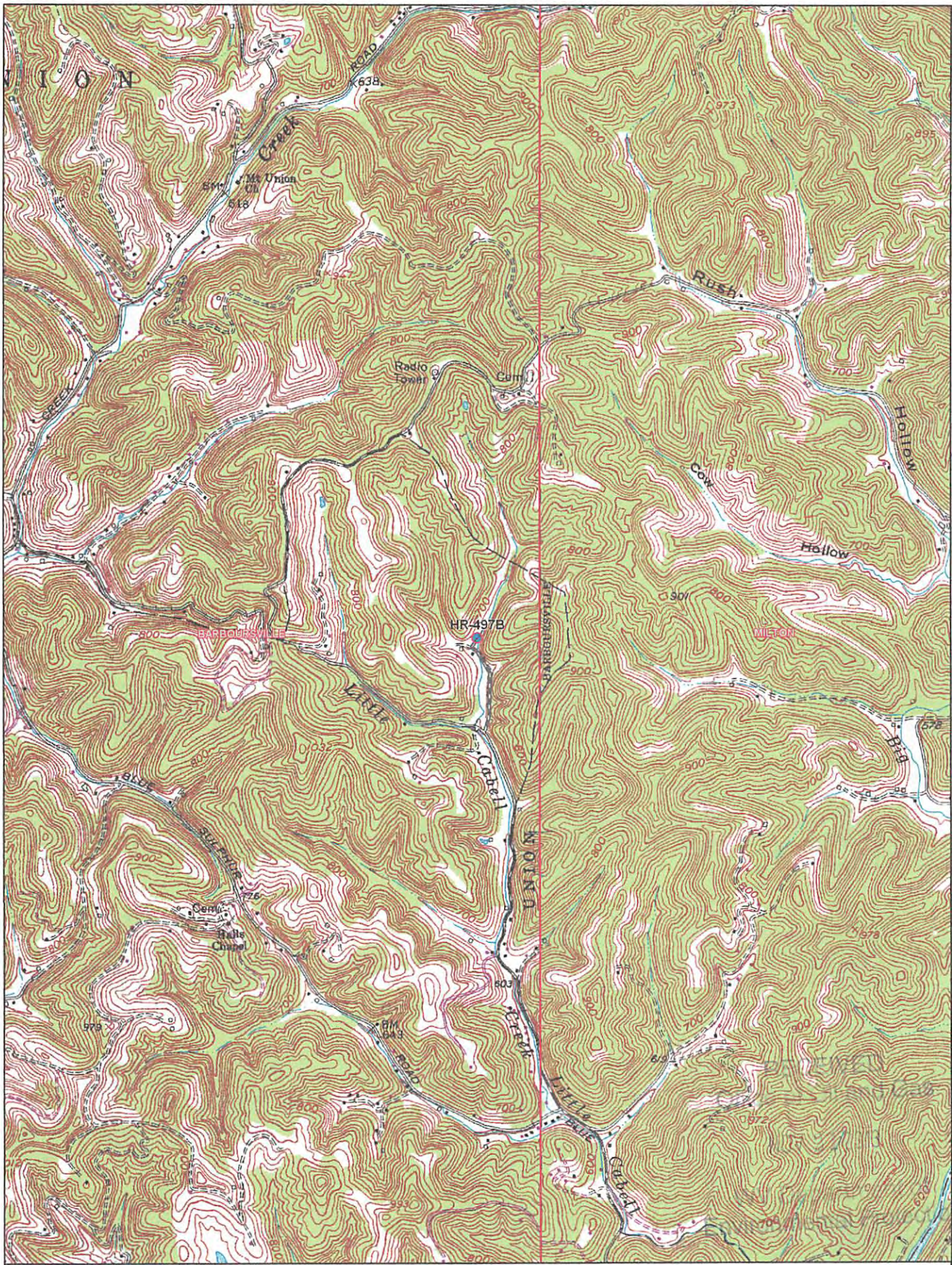
HARD ROCK EXPLORATION  
 PROPOSED WELL # HR-497B  
 BARBOURSVILLE DISTRICT, CABELL COUNTY  
 BARBOURSVILLE QUAD, WV 7.5'

NOVEMBER 13, 2013

TRUE LINE SURVEYING  
 6211 FAIRVIEW DR.  
 HUNTINGTON, WV 25705

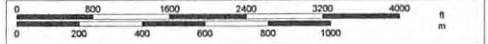
PAGE 1 OF 1

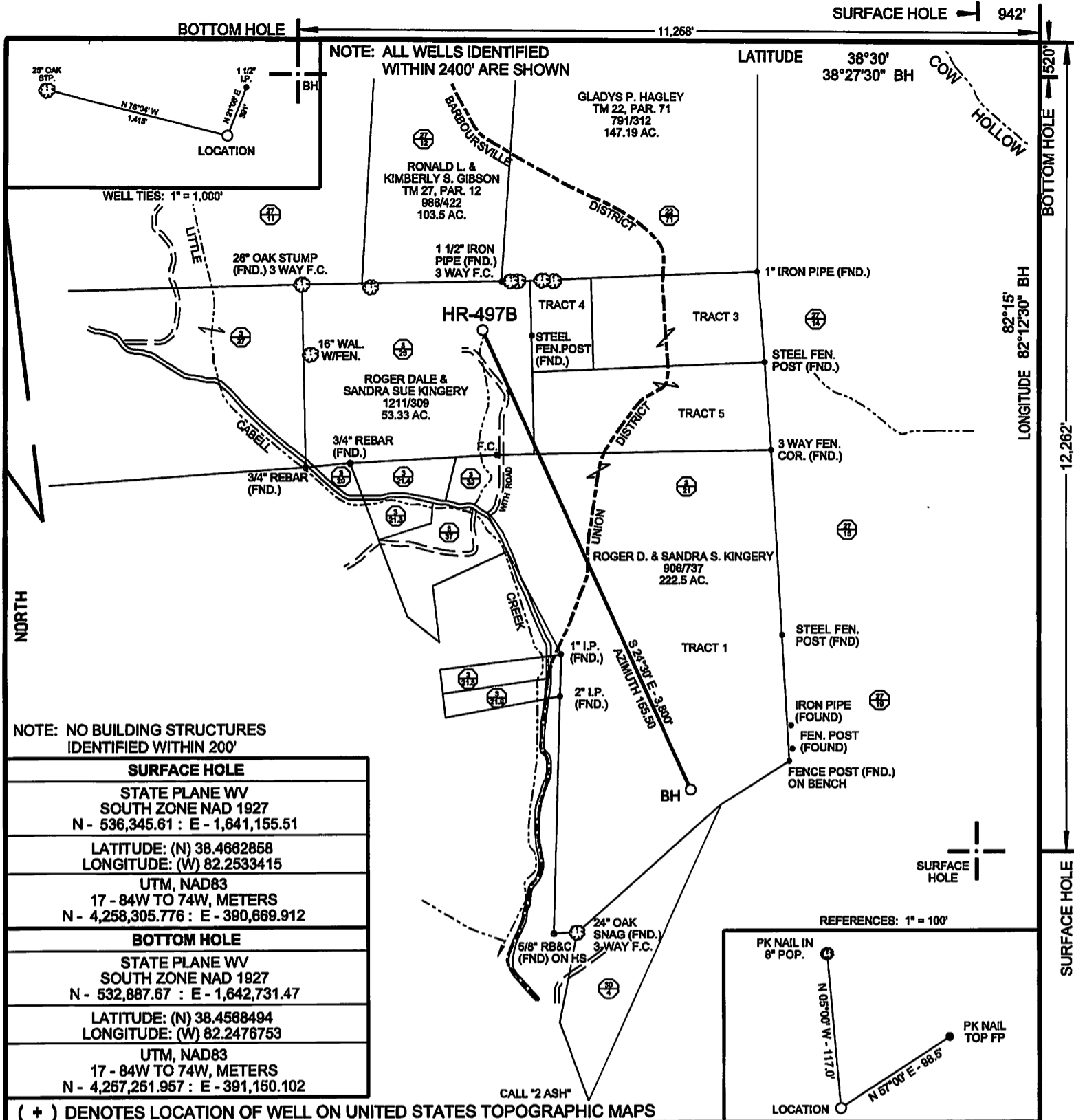




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 Zoom Level: 14-0 Datum: NAD27

Scale 1 : 24,000  
 1" = 2,000 ft



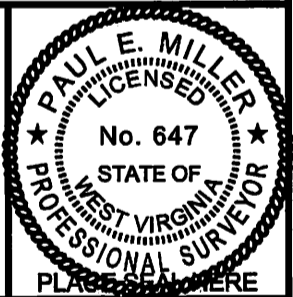


FILE NO.	HR-497B.DGN
DRAWING NO.	HR-497B
SCALE	1" = 1000'
MINIMUM DEGREE OF ACCURACY	1:200
PROVEN SOURCE OF ELEVATION	MAPPING GRADE GPS

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) *Paul E. Miller*

R.P.E. \_\_\_\_\_ L.I.S. 647



STATE OF WEST VIRGINIA  
DIVISION OF ENVIRONMENTAL PROTECTION  
OIL AND GAS DIVISION

DATE NOVEMBER 13, 20 13

OPERATOR'S WELL NO. HR-497B

API WELL NO. \_\_\_\_\_

47 011 00996 H  
STATE COUNTY PERMIT

WELL TYPE: OIL \_\_\_ GAS X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_  
(IF "GAS,") PRODUCTION X STORAGE \_\_\_ DEEP \_\_\_ SHALLOW X

LOCATION: ELEVATION 664' WATER SHED LITTLE CABELL CREEK OF BLUE SULPHUR  
DISTRICT BARBOURSVILLE COUNTY CABELL  
QUADRANGLE BARBOURSVILLE, WV 7.5'

SURFACE OWNER ROGER D. AND SANDRA S. KINGERY ACREAGE 53.33

OIL & GAS ROYALTY OWNER Roger + Sandra Kingery LEASE ACREAGE 2.31  
LEASE NO. \_\_\_\_\_

PROPOSED WORK: DRILL X CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR  
STIMULATE X PLUG OFF OLD FORMATION \_\_\_ PERFORATE NEW  
FORMATION \_\_\_ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_

PLUG AND ABANDON \_\_\_ CLEAN OUT AND REPLUG \_\_\_

TARGET FORMATION LOWER HURON ESTIMATED DEPTH 6570' MD; 3300' TVD

WELL OPERATOR HARD ROCK EXPLORATION, INC. DESIGNATED AGENT JAMES L. STEPHENS

ADDRESS 1244 MARTINS BR. RD., CHARLESTON, WV 25312 ADDRESS SAME

FORM WW-6

COUNTY NAME  
PERMIT

Hard Rock Consulting, LLC



Hard Rock Land Services, LLC

November 18, 2013

Mr. Gene Smith  
West Virginia Department of Environmental Protection  
601 57<sup>th</sup> Street SE  
Charleston, West Virginia 25304

CK 14915  
0500

RE: Permit for well HR-497

Dear Gene:

I am writing regarding fresh water casing protection for the above referenced well. Hard Rock Exploration respectfully request this permit be issued allowing a deeper string of fresh water protection.

The new emergency rules act as a blanket policy and does not take several factors into consideration. The primary issue is that a lot of wells in the state of West Virginia are drilled on air, and the majority of operators with air drilling operations work diligently to reduce the amount of water in their operations. The new guidelines appear to be focused on fluid drilling and do not take into account wells being drilled on air. Our request is based on what we consider to be better engineering practices for air drilling operations.

The proper placement of the casing shoe must be considered; Hard Rock wants the ability to place the casing shoe in a rock, which has the mechanical integrity to ensure a proper seal at the casing shoe. If we follow the "new guidelines" most of the wells in our operational area would have the casing shoe placed in a red rock section and we would run casing 100 feet below the Pittsburgh Sand. Red rock has been proven to be a formation that is not stable with drilling operations; the rock is sensitive to time and the fluids that are produced from the intermediate hole. When the red rock is not covered we have seen sloughing and wash-outs during drilling operations.

Our proposed fresh water protection string set just above elevation does three things to ensure protection of fresh water and the minimization of pit fluids:

- (1) It limits the time exposure on the fresh water aquifer and adds only a few hours of air drilling to the well.
- (2) With the minimal time exposed and a casing shoe located in a mechanically sound rock it will ensure the cement will seal and form a good compressive barrier to future drilling operations.

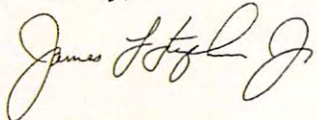
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(3) The last item, which is overlooked by the new standards, is pit volumes. The proposed fresh water casing placement will allow the majority of the 8 ¾ hole to be drilled on air. Using this method will permit Hard Rock to reduce fluids for drilling and decrease pit water volumes.

We also request that a cement record log from a cement service company be filed with our WR-35. We think that failure of either the cement quality or circulation should be a good measure of when to require additional logging and most fresh water protection strings are witnessed by the State Oil and Gas inspector for verification of a good cement job. Running a bond log under pressure should only be done if a known problem exists; the pressuring up of the casing string is detrimental to the newly established cement and could cause a micro-annulus problem. In addition, bond logs ran at the shallow depths with large internal diameter casings are very inaccurate if not ran under pressure. I think that the cement record log and the circulation of cement at surface will satisfy the "new guidelines".

I hope this request is considered and permits are issued in the very near future.

Sincerely,



James L. Stephens  
President

Cc: Monica Stephens  
Ron Crites

RECEIVED  
Office of Oil and Gas

NOV 21 2013

WV Department of  
Environmental Protection