



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

December 28, 2015

WELL WORK PERMIT

Fracture

This permit, API Well Number: 47-8704741, 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-505A
Farm Name: FLINT, ANNA E. BATES, ET AL
API Well Number: 47-8704741
Permit Type: Fracture
Date Issued: 12/28/2015

Promoting a healthy environment.

01/01/2016

PERMIT CONDITIONS

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

CONDITIONS

1. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code §22-6-20, which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
2. Pursuant to 35 CSR 4-19.1.a, at the request of the surface owner all water wells or springs within 1000 feet of the proposed well that are actually utilized for human consumption, domestic animals or other general use shall be sampled and analyzed.
3. Pursuant to 35 CSR 4-19.1.c, if the operator is unable to sample and analyze any water well or spring with one thousand (1,000) feet of the permitted well location, the Office of Oil and Gas requires the operator to sample, at a minimum, one water well or spring located between one thousand (1,000) feet and two thousand (2,000) feet of the permitted well location.
4. 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. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced, drilling ceased, completion of any other permitted well work and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.

8704741F

CK 285
55000

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 Roane Reedy Reedy, WV 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: HR-505 3) Elevation: 712'

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 Shale (see wr35) Proposed Target Depth: _____
6) Proposed Total Depth: _____ Feet Formation at Proposed Total Depth: _____
7) Approximate fresh water strata depths: _____
8) Approximate salt water depths: _____

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)
Perform 14 stage Nitrogen Fracture treatment utilizing open hole packer system currently in place.

Refer to attached WR 35 for completed well work details.

[Signature]
10-26-15

13) CASING AND TUBING PROGRAM

TYPE	SPECIFICATIONS			FOOTAGE	INTERVALS	CEMENT
	Size	Grade	Weight per ft			
Conductor						
Fresh Water						
Coal						
Intermediate						
Production						
Tubing						
Liners						

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Packers: Kind: _____
Sizes: _____
Depths Set _____

01/01/2016

WW-2B1
(5-12)

Well No. HR-505

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.

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01/07/2016

8704741F

WR-35
Rev (5-01)

DATE: 6-19-15
API #: 47-08704741

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas

Well Operator's Report of Well Work

Farm name: Anna Bates Flint Operator Well No.: HR 505

LOCATION: Elevation: 712' Quadrangle: Reedy WV 7.5'

District: Reedy County: Roane
Latitude: 947' Feet South of 38 Deg. 55 Min. Sec.
Longitude 5423' Feet West of 81 Deg. 25 Min. Sec.

Company: Hard Rock Exploration

	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Address: 1244 Martins Branch Road Charleston WV, 25312		GL		
Agent: Marc Scholl	20"	10'	10'	NA
Inspector: Ed Gainer	13 3/8"	84'	84'	CTS 59cuft
Date Permit Issued: 7-30-14	9 5/8"	588'	588'	CTS 282cuft
Date Well Work Commenced: 8-8-14	7"	2356'	2356'	308cuft
Date Well Work Completed:	4.5"	7693'	7693'	90cuft
Verbal Plugging:				
Date Permission granted on:	Gamma Log from (3490' - 7860' MD)			
Rotary x Cable Rig	Ran Gyro Log from (3490' - Surface)			
Total Depth (feet): 7902'TMD, 4250'TVD	Open Hole Log (2374' - Surface)			
Fresh Water Depth (ft.): 45', 482'				
Salt Water Depth (ft.): 1200', 1730'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): <u>N/A</u>				

OPEN FLOW DATA

Producing formation Lower Huron Shale Pay zone depth (ft) 4272' - 7900'MD
4120'TVD - 4250' TVD

Gas: Initial open flow 100-150 MCF/d Oil: Initial open flow Bbl/d
Final open flow MMCF/d Final open flow Bbl/d
Time of open flow between initial and final tests Hours
Static rock Pressure no test psig (surface pressure) after Hours

Second producing formation Pay zone depth (ft)
Gas: Initial open flow MCF/d Oil: Initial open flow Bbl/d
Final open flow MCF/d Final open flow Bbl/d
Time of open flow between initial and final tests Hours
Static rock Pressure psig (surface pressure) after Hours

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NOTE: ON BACK OF THIS FORM PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS INCLUDING COAL ENCOUNTERED BY THE WELLBORE.

Signed: _____
By: _____
Date: _____

[Signature]
10-26-15

01/01/2016

<u>Formation:</u>	<u>Top:</u>	<u>Bottom:</u>
<u>Soil/Sand/Shale</u>	0	430
<u>Sand</u>	430	475
<u>Sand/Shale</u>	475	1560
<u>Salt Sand</u>	1560	1790
<u>Big Lime</u>	1790	1852
<u>Injun Sand</u>	1852	1890
<u>Coffee Shale</u>	2278	2292
<u>Devonian Shale</u>	2292	4250
<u>L Huron Section</u>	4140	4250(tvd)

All formation depths shown As TVD

1/4/15 Run total of 180 jts 4.5" N-80 11.6ppf casing with 14 stg Packers Plus open hole packer system. Run pipe to 7693' KB. NU DSA and 10k 4 1/16 frac valve. Pump 5 bbl water, drop 1.25" ball, and follow with 3 bbl water. Start pumping N2 and work rate to 7500 scf/min. Land ball and pressure casing string to 3000 psi with 132k scf N2 (packers shut off gas flow at 1700 psi). Hold 3000 psi on casing for 30 min. Bleed casing back to 650 psi. RU to perform annular squeeze. Pump 8 bbl at 15 ppg, allow casing to vent, and pump additional 8 bbl at 15 ppg followed by 2 bbl water.

NOTE: THERE ARE NO PERFORATED INTERVALS IN THIS STYLE OF COMPLETION. THE PACKERS WILL SERVE AS STAGE ISOLATION AND THE BALL ACTIVATED MECHANICAL SLEEVES SERVE AS THE MEANS OF COMMUNICATION FROM WELLBORE TO FORMATION. ALL DEPTHS ARE INDICATED BELOW.

Stage	Sleeve	Sleeve Size	Ball Size	Packer
1	7587.83	HP	N/A	7538.86
2	7410.70	2.000	2.125	7319.83
3	7191.57	2.125	2.250	7058.80
4	6930.54	2.250	2.375	6797.97
5	6669.81	2.375	2.500	6578.84
6	6450.58	2.500	2.625	6317.81
7	6189.45	2.625	2.750	6056.88
8	5928.52	2.750	2.875	5795.65
9	5667.19	2.875	3.000	5534.42
10	5406.16	3.000	3.125	5273.29
11	5145.13	3.125	3.250	5012.56
12	4884.40	3.250	3.375	4751.83
13	4623.67	3.375	3.500	4532.90
14	4404.74	3.500	3.625	4272.17
Anchor				2592.60

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WW-2A
(Rev. 6-14)

1). Date: October 20, 2015
2.) Operator's Well Number HR-505
State County Permit
3.) API Well No.: 47- 087 - 04741

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

4) Surface Owner(s) to be served:
(a) Name Anna E. Bates Flint
Address 1649 Charleston Road
Spencer, WV 25276 ✓
(b) Name Richard R. Perrin ✓
Address 126 Providence Ave SE
New Philadelphia, OH 44663
(c) Name Margaret Ellen Bates Platt
Address 513 Follev Run ✓
Reedv, WV 25270
6) Inspector Joe Taylor
Address 1478 Claylick Road
Riplev, WV 25271 ✓
Telephone (304)380-7469

5) (a) Coal Operator
Name None
Address _____
(b) Coal Owner(s) with Declaration
Name Anna E. Bates Flint
Address Richard R. Perrin ✓
Margaret Ellen Bates Platt
[Addresses under 4) (a), (b), and (c)]
(c) Coal Lessee with Declaration
Name None
Address _____

TO THE PERSONS NAMED ABOVE TAKE NOTICE THAT:

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

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

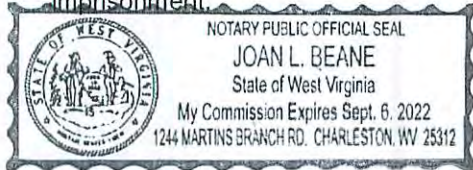
I certify that as required under Chapter 22-6 of the West Virginia Code I have served copies of this notice and application, a location plat, and accompanying documents pages 1 through ___ on the above named parties by:

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

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

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

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



Well Operator Hard Rock Exploration, Inc.
By: Monica Lane
Its: Executive Vice President
Address: 1244 Martins Branch Road
Charleston, WV 25312
Telephone: (304)984-9004
Email: monica@hardrockexploration.com

Received

Subscribed and sworn before me this 20th day of October, 2015

Joan L. Beane Notary Public
My Commission Expires Sept. 6, 2022

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WV Dept. of Environmental Protection
Office of Oil and Gas

Oil and Gas Privacy Notice

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

OCT 27 2015
WV Department of Environmental Protection
01/01/2016

8704741F

**WATER NOTICE
FOR
HARD ROCK EXPLORATION, INC.
WELL HR-505A**

Anna E. Bates Flint, et. al.
1649 Charleston Rd.
Spencer, WV 25276

Katherine Platt Short
1422 Peniel Rd.
Gay, WV 25244

James Slingerland
141 Folly Run
Reedy, WV 25270

Margaret Bates Platt
513 Folly Run
Reedy, WV 25270

Patrick McFadden
PO Box 801
Clendenin, WV 25045

Dorothy Townsend
278 Folly Run
Reedy, WV 25270

Vanderbuilt Mortgage and Finance
Attn: Mark Lazenby
PO Box 5129
Princeton, WV 24740

**True Line Surveying, Inc.
8/11/14**

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**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
Richard R. Perrin	Reserve Oil and Gas, Inc.	% of 1/8	247/692
Margaret Ellen Bates Platt	Reserve Oil and Gas, Inc.	% of 1/8	247/699
Robert II and Anna E Bates Flint	Reserve Oil and Gas, Inc.	% of 1/8	247/702
Reserve Oil and Gas, Inc.	J & M Resources	Assignment	504/459
J & M Resources	Hard Rock Exploration, Inc.	Assignment	252/85

**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

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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.
[Signature]
Executive Vice President

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 OCT 27 2015

8704741F

WW-9
(2/15)

API Number 47 - 087 - 04741
Operator's Well No. HR-505

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) Folley Run of Reedy Creek Quadrangle Reedy, WV 7.5'

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: Drill Cuttings

N/A Will a synthetic liner be used in the pit? Yes No If so, what ml.? 10 or greater

Proposed Disposal Method For Treated Pit Wastes:

FRACTURE PERMIT ONLY. NO PIT WILL BE USED. FLOWBACK TANKS WILL BE USED.
gwm

- Land Application
- Underground Injection (UIC Permit Number UIC2D0190460, 3416729685)
- Reuse (at API Number 110096, 8704729, 3503009, 8704712, 3503011, 3503008, 3503005, ... - Well will be noted in DMR)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)

N/A gwm Will closed loop system be used? If so, describe: No

Drilling medium anticipated for this well (vertical and horizontal)? 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? _____

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

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 NOV 10 2015

Company Official (Typed Name) Monica Francisco

Company Official Title Executive Vice President

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Office of Oil and Gas
WV Dept. of Environmental Protection

Subscribed and sworn before me this 20th day of October, 2015

OCT 27 2015

Joan L. Beane

NOTARY PUBLIC OFFICIAL SEAL
JOAN L. BEANE
State of West Virginia
Department of Environmental Protection
My Commission Expires Sept 6, 2022
1244 MARTINS BRANCH RD, CHARLESTON, WV 25312
01/01/2016

My commission expires Sept. 6, 2022

51-00-01

Hard Rock Exploration, Inc.

Proposed Revegetation Treatment: Acres Disturbed 0.52 Prevegetation pH 5.5

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20 or equivalent

Fertilizer amount 500 lbs/acre

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

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
<u>Red Top</u>	<u>15</u>	<u>Red Top</u>	<u>15</u>
<u>Orchard Grass</u>	<u>25</u>	<u>Orchard Grass</u>	<u>25</u>
<u>Perennial Rye/Crimson Red Clover 25 Each</u>		<u>Perennial Rye/Crimson Red Clover 25 Each</u>	
<u>Annual Rye</u>	<u>40</u>	<u>Annual Rye</u>	<u>40</u>

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: 

Comments: Final reclamation to be done when work is completed
sediment control to be in place at all times.

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NOV 10 2015

Title: COG Inspect

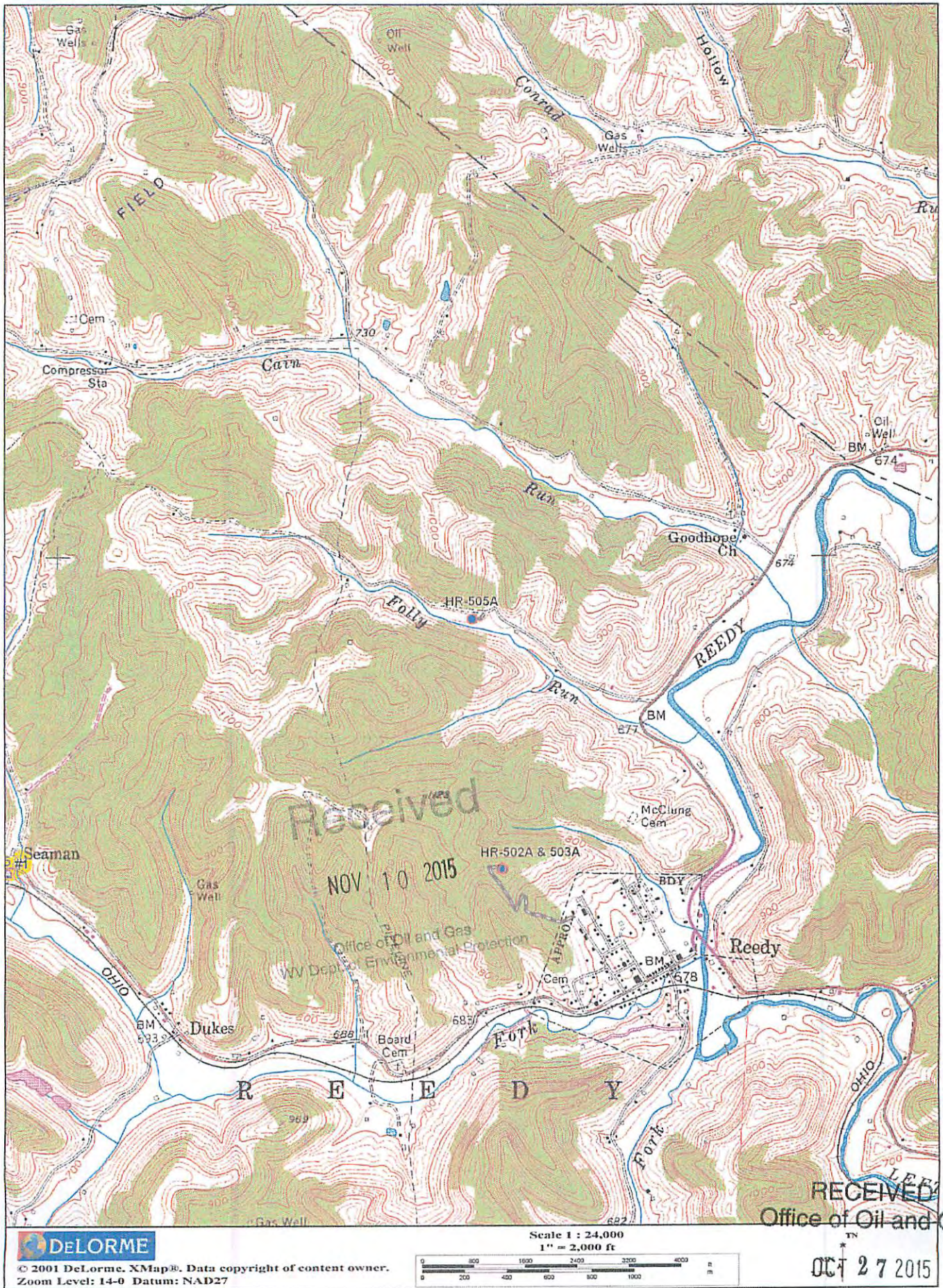
Date: 10-26-15

Field Reviewed? Yes No

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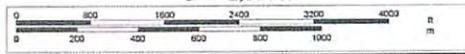
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DeLORME

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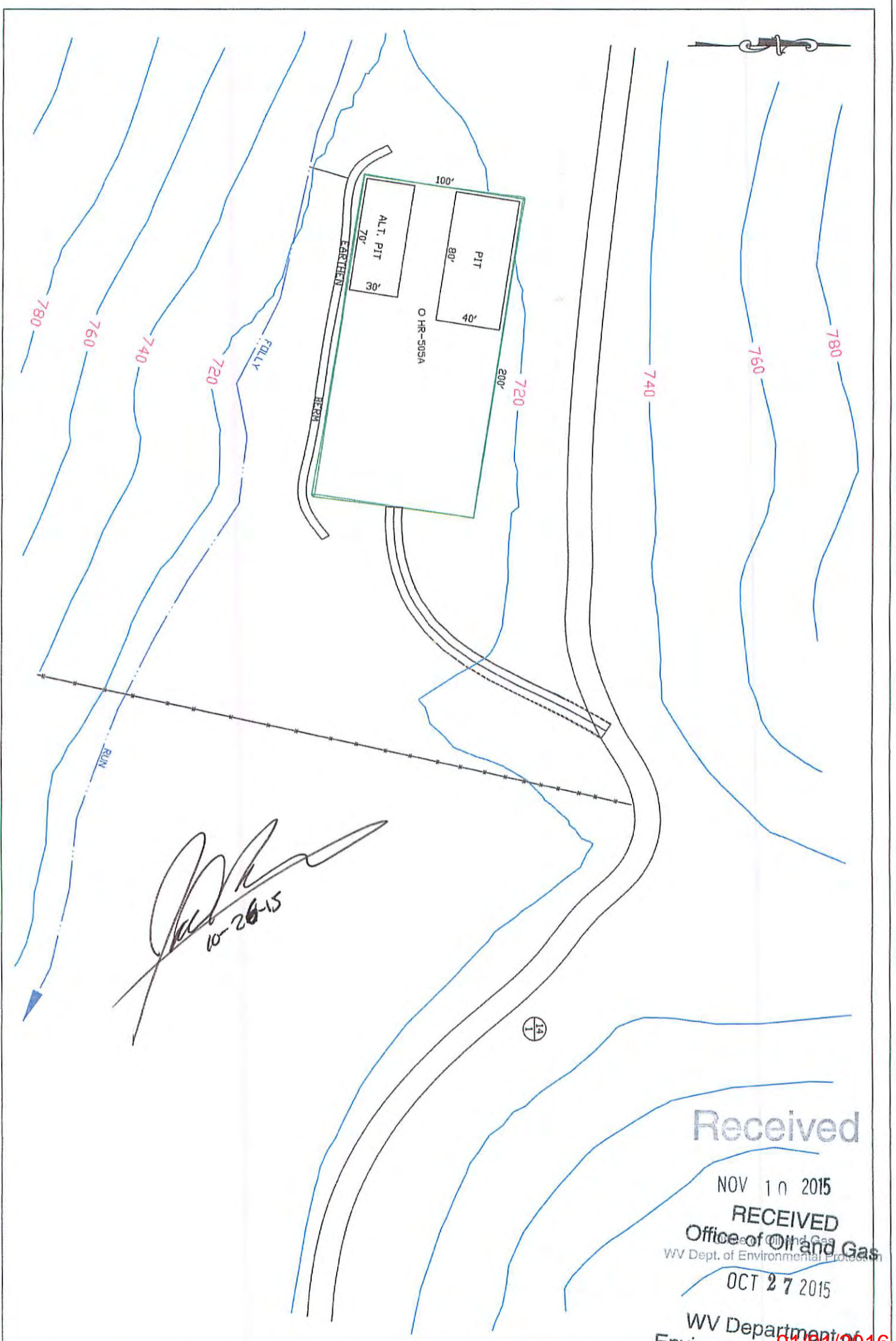
Scale 1 : 24,000
1" = 2,000 ft



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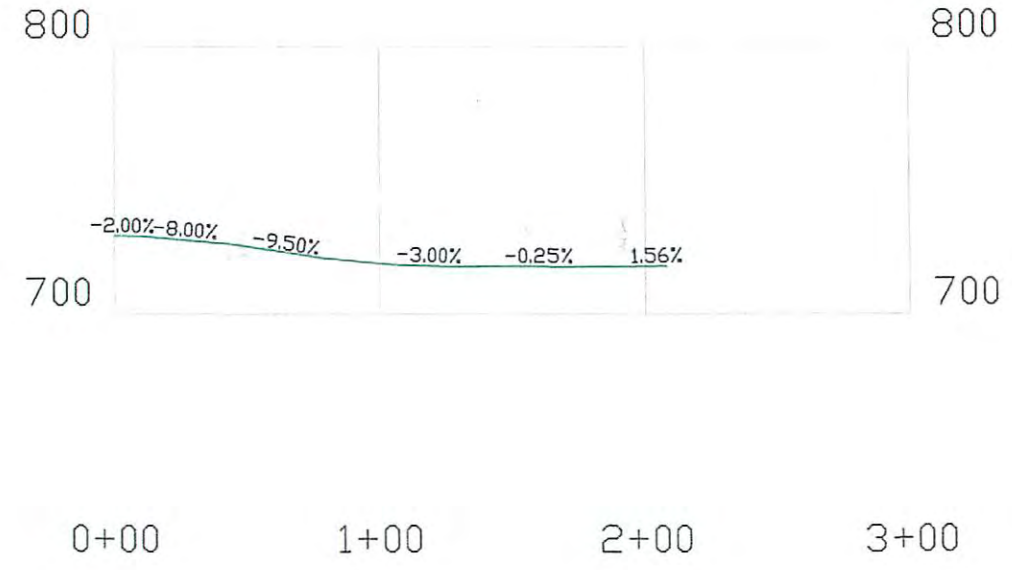
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DISTURBED AREAS	
WELL PAD CONSTRUCTION	0.47 AC.
NEW ACCESS ROAD CONSTRUCTION	0.05 AC.
ADDITIONAL CLEARING	
TOTAL DISTURBED AREA	0.52 AC

LEGEND	
	STREAM
	PROPERTY LINE
	SLOPE AREA
	WETLAND
	BUFFER AREA

SITE PLAN	
HARD ROCK EXPLORATION PROPOSED WELL # HR-505A REEDY DISTRICT, ROANE COUNTY REEDY QUAD, WV 7.5'	
JULY 28, 2014	
TRUE LINE SURVEYING 6211 FAIRVIEW DR. HUNTINGTON, WV 25705	
PAGE 1	OF 1

5704741 F



[Handwritten Signature]
 10/22/15

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Office of Oil and Gas
WV Dept. of Finance

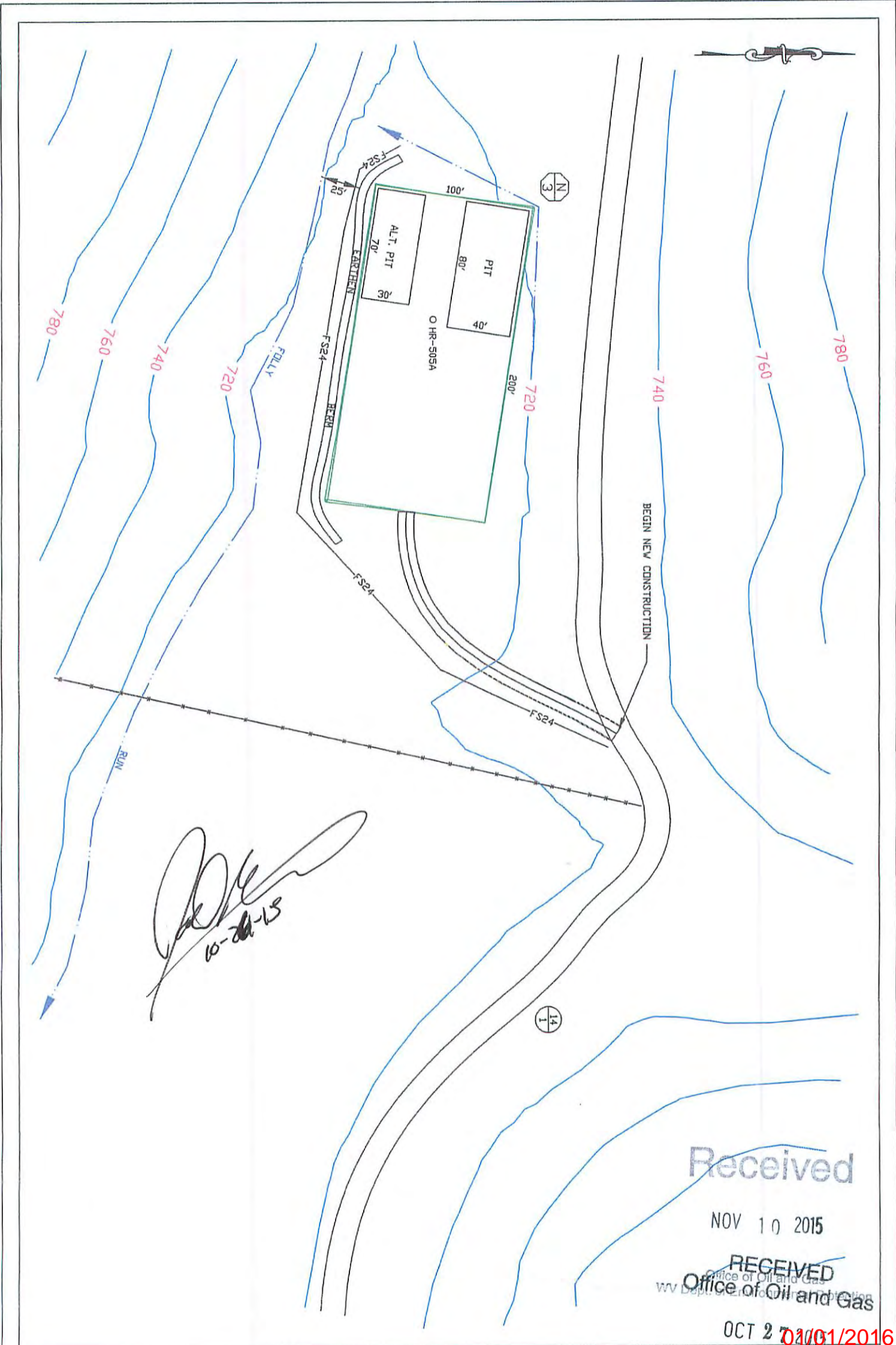
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ROAD PROFILE	
HARD ROCK EXPLORATION PROPOSED WELL # HR-505A REEDY DISTRICT, ROANE COUNTY REEDY QUAD, WV 7.5'	
JULY 28, 2014	
TRUE LINE SURVEYING 6211 FAIRVIEW DR. HUNTINGTON, WV 25705	
PAGE 1	OF 1







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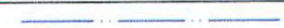


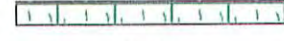
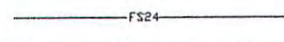
NOV 10 2015

RECEIVED
Office of Oil and Gas
WV Dept. of Environmental Protection

OCT 27 2016

LEGEND

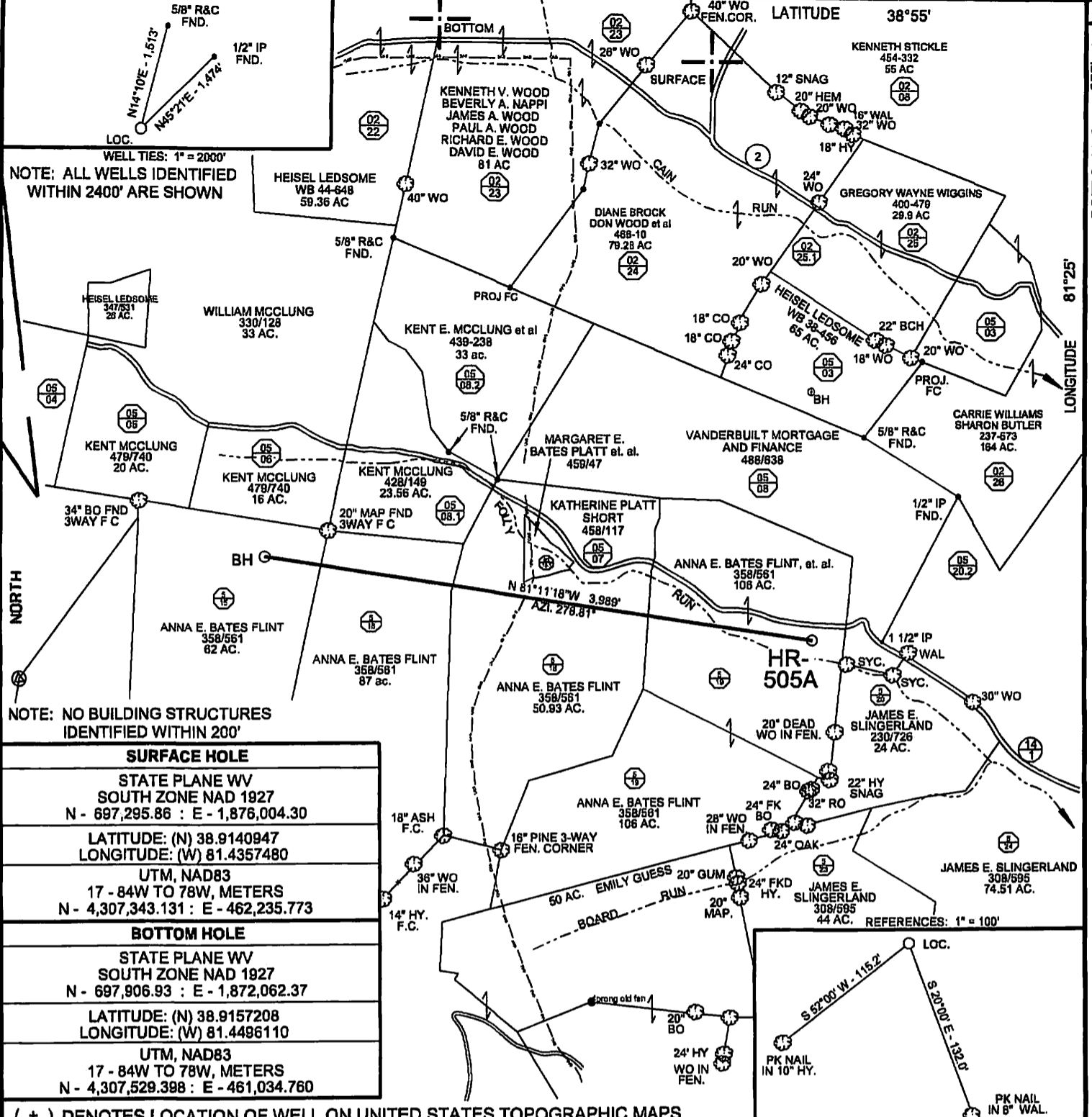
-  PROVIDE FLEXTERRA HIGH PERFORMANCE FLEXIBLE GROWTH MEDIUM (HP-FLM) ON CUT AND FILL SLOPES
-  LEVEL SPREADER
-  DIVERSION DITCH
-  BERM OUTLET

-  STREAM
-  PROPERTY LINE
-  SLOPE AREA
-  WETLAND
-  24" COMPOST FILTER SOCK AS REQUIRED

EROSION AND SEDIMENT CONTROL PLAN

WV Department of Environmental Protection
HARD ROCK EXPLORATION
PROJECT # HR-505A
REEDY DISTRICT, ROOM 300
REEDY QUAD, WV 7.5"
JULY 28, 2014
TRUE LINE SURVEYING
6211 FAIRVIEW DR.
HUNTINGTON, WV 25705
PAGE 1 OF 1

BOTTOM HOLE ← SURFACE HOLE → 9367' 5,423'



NOTE: ALL WELLS IDENTIFIED WITHIN 2400' ARE SHOWN

NOTE: NO BUILDING STRUCTURES IDENTIFIED WITHIN 200'

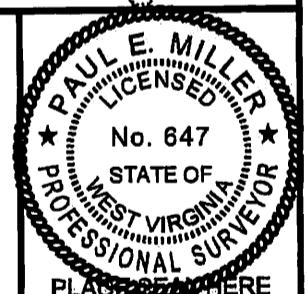
SURFACE HOLE	
STATE PLANE WV	SOUTH ZONE NAD 1927
N - 697,295.86	E - 1,876,004.30
LATITUDE: (N) 38.9140947	LONGITUDE: (W) 81.4357480
UTM, NAD83	17 - 84W TO 78W, METERS
N - 4,307,343.131	E - 462,235.773
BOTTOM HOLE	
STATE PLANE WV	SOUTH ZONE NAD 1927
N - 697,906.93	E - 1,872,062.37
LATITUDE: (N) 38.9157208	LONGITUDE: (W) 81.4486110
UTM, NAD83	17 - 84W TO 78W, METERS
N - 4,307,529.398	E - 461,034.760

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

FILE NO. HR-505A AS DRILLED.DGN
 DRAWING NO. HR-505A AS DRILLED
 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.L.S. 647



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

DATE NOVEMBER 2, 20 15
 OPERATOR'S WELL NO. HR-505A
 API WELL NO. _____

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

LOCATION: ELEVATION 712' WATER SHED FOLLEY RUN OF REEDY CREEK
 DISTRICT REEDY COUNTY ROANE

QUADRANGLE REEDY, WV 7.5'

SURFACE OWNER ANNA E. BATES FLINT, et. al. ACREAGE 106
 OIL & GAS ROYALTY OWNER _____ LEASE ACREAGE _____

LEASE NO. _____

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

PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___

TARGET FORMATION LOWER HURON ESTIMATED DEPTH _____

WELL OPERATOR HARD ROCK EXPLORATION, INC. DESIGNATED AGENT JAMES L. STEPHENS
 ADDRESS 1244 MARTINS BR. RD., CHARLESTON, WV 26312 ADDRESS SAME

01/01/2016

FORM WW-6

COUNTY NAME
 PERMIT