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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

April 05, 2016

**WELL WORK PLUGGING PERMIT**

**Plugging**

This permit, API Well Number: 47-4301324, issued to CABOT OIL & GAS CORPORATION, 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.

Upon completion of the plugging well work, the above named operator will reclaim the site according to the provisions of WV Code 22-6-30. The above named operator will also file, as required in WV Code 22-6-23, an affidavit on form WR-38 by two experienced persons in the operator's employment and the Oil and Gas inspector that the work authorized under this permit was performed and a description given. Failure to abide by all statutory and regulatory provisions governing all duties and operations here under may result in suspensions or revocation of this permit and in addition may result in civil and/or criminal penalties being imposed upon the operator.

This permit will expire in two (2) years from date of issue. If there are any questions, please free to contact me at (304) 926-0499 ext. 1654.

  
James Martin  
Chief

Operator's Well No: 1-1000  
Farm Name: BESS, MAY F.  
**API Well Number: 47-4301324**  
**Permit Type: Plugging**  
Date Issued: 04/05/2016

**Promoting a healthy environment.**

1) Date February 1, 2016  
2) Operator's  
Well No. Mary Bess #1  
3) API Well No. 47-043 - 01324

4301324P

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

APPLICATION FOR A PERMIT TO PLUG AND ABANDON

4) Well Type: Oil  / Gas  / Liquid injection  / Waste disposal  /  
(If "Gas, Production  or Underground storage ) Deep  / Shallow

5) Location: Elevation 939' Watershed Island Creek  
District Washington County Lincoln Quadrangle Alum Creek

6) Well Operator Cabot Oil & Gas Corporation 7) Designated Agent Phillip Hill - Cabot Oil & Gas Corporation  
Address 2000 Park Lane, Suite 300 Address 900 Lee Street East, Suite 1500  
Pittsburgh, PA 152375 Charleston, WV 25301

8) Oil and Gas Inspector to be notified Name Jeremy James  
Address P.O. Box 36  
Clendenin, WV 25045  
9) Plugging Contractor Name Contractor Services, Inc.  
Address 929 Charleston Road  
Spencer, WV 25276

10) Work Order: The work order for the manner of plugging this well is as follows:  
See Attached Sheet

OK *gwm*

Notification must be given to the district oil and gas inspector 24 hours before permitted work can commence.

Work order approved by inspector \_\_\_\_\_

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WV Department of  
Environmental Protection  
Date \_\_\_\_\_

**Mary Bess #1**  
**API # 47 – 043 - 01324**  
**PLUGGING PROCEDURE**

**Current Configuration**

Elevation @ 927'  
 TD @ 5087'  
 PBSD @ 2205'  
 10 3/4" – 32 3/4# @ 573' on shoe  
 7" – 20# @ 2036' on shoe in red clay  
 3 1/2" – 7.7# @ 2469' w/ Hookwall packer @ 2466'  
 Coal @ 365' – 367' & 479' – 481'  
 Fresh water @ 230'  
 Sand @ 573' – 715' w/ gas @ 574' & fresh water @ 693'  
 Sand @ 844' – 942' w/ fresh water @ 850'  
 Salt sand @ 1110' – 1476' w/ gas @ 1160' & salt water @ 1123' & 1195'  
 Berea @ 2436' – 2464' w/ gas show @ 2445'  
 Brown Shale shot from 2798' to 4096'

**PROCEDURE**

1. Contact Danville Office a minimum of 48 hours prior to starting work.
2. Contact State Inspector a minimum of 24 hours prior to starting work.
3. Lay 2" line from wellhead to pit/tank and stake down securely.
4. MIRU service rig and blow down well. Have vacuum truck available to catch any fluids circulated from well.
5. Unpack wellhead.
6. Pull 3 1/2" tubing w/ packer.
7. TIH with 2 3/8" work string to TD and pump 70 bbls 6% gel.
8. TOOH with work string.
9. MIRU Wireline unit.
10. TIH w/ CIBP and set at 2750'.
11. TOOH w/ Wireline.
12. TIH with 2 3/8" work string to ten feet above CIBP.
13. MIRU Cement Company and pump 50 bbls of 6% gel followed by 18 sks of Class A cement for plug 1 from 2740' to 2640'.
14. Displace w/ 10 bbls of 6% Gel.
15. Pull work string up to 2450' and pump 36 sks of Class A cement for plug 2 from 2450' to 2250'.
16. Displace w/ 8 1/2 bbls of 6% Gel.
17. TOOH with work string. Let cement plug set for a minimum of eight hours.
18. Pull 7" casing.
19. If unable to pull, run freepoint and cut 7" casing where free.
20. TIH with 2 3/8" work string to 1200'.
21. Pump 10 bbls of 6% gel followed by 70 sks of Class A cement for plug 3 from 1200' to 1000'.
22. Displace w/ 3 1/2 bbls 6% Gel. POH.
23. Pull 10 3/4" casing.
24. If unable to pull, run freepoint and cut 10 3/4" casing where free.
25. TIH with work string to 900' and pump 280 sks of Class A cement for plug 4 from 900' to 340'.
26. Displace w/ 1 1/2 bbls of 6% Gel.
27. TOOH with work string.
28. Tag plug 4 to verify TOC @ 340'.
29. TIH w/ work string to 250' and pump 180 sacks Class A cement for Plug 5 from 250' to surface.

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4301324P

30. TOOH with work string and lay down.
31. RDMO Cementing Company.
32. Place monument as required by law on top of well bore.
33. Reclaim well site.

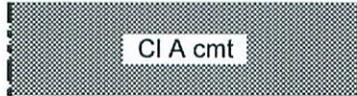
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Mary Bess #1  
API 47-043-01324  
PROPOSED CONFIGURATION

Fresh water @ 230'



Bottom of cement plug 5 @ 250'

6% gel

Top of cement plug 4 @ 340'

Coal @ 365' - 367' & 479' - 481'



10 3/4" 32 3/4# Casing @ 573' pulled

Sand w/ gas @ 574' & water @ 693'

573'

CI A cmt

715'

844'

Bottom of cement plug 4 @ 900'

Sand w/ water @ 850'

6% gel

Top of cement plug 3 @ 1000'

942'

1110'

CI A cmt

Bottom of cement plug 3 @ 1200'

Salt Sand w/ water @ 1123' & 1195'  
& gas show @ 1160'

1476'

6% gel

Reduced hole @ 1437'

Big Lime

1790'

1953'

7" 20# Casing @ 2036' pulled

Berea w/ gas show @ 2445'

2436'

CI A cmt

Top of cement plug 2 @ 2250'

2464'

6% gel

Bottom of cement plug 2 @ 2450'

CI A cmt

Top of cement plug 1 @ 2640'

CIBP set @ 2750'

Brown Shale w/ gas shows  
from 3224' to 4065'  
Shot from 2798' to 4096'

6% gel

DTD @ 4096'

Depth after shot @ 3919'

Schematic is not to scale

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T. Ott 09/11/14

43013249



STATE OF WEST VIRGINIA  
DEPARTMENT OF MINES  
OIL AND GAS DIVISION //

Quadrangle St. Albans

WELL RECORD

Permit No. Line-1324

Oil or Gas Well GAS  
(KIND)

Company OWENS, LIBBEY-OWENS GAS DEPARTMENT  
Address P. O. Box 4168, Charleston 4, W. Va.  
Farm Mary Bess Acres 100  
Location (waters) \_\_\_\_\_  
Well No. 1 (Serial No. 1000) Elev. 927.12  
District Washington County Lincoln  
The surface of tract is owned in fee by \_\_\_\_\_  
Address \_\_\_\_\_  
Mineral rights are owned by Mrs. Helen Epperly  
Rt. 1, Box 412 Address Danville, Va.  
Blair Loop Road  
Drilling commenced 8-4-60  
Drilling completed 10-11-60  
Date Shot 10-13-60 From 2798 To 4096  
With 12,650# Trojan Powder  
Open Flow /10ths Water in \_\_\_\_\_ Inch  
/10ths Merc. in \_\_\_\_\_ Inch  
Volume Berea 15 MCF; Shells & Shale 118 M Cu. Ft.  
Rock Pressure Berea 565 lbs. 74 hrs.  
Shells & Shale 365 74 hrs.  
Oil \_\_\_\_\_ bbls., 1st 24 hrs.  
Fresh water 230 693 feet 850 feet  
Salt water 1123 feet \_\_\_\_\_ feet

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			Kind of Packer
18			"Oilwell" Hookwall
13			Size of
10 3/4	573'11"	573'11"	3'9"
8 1/2	2035'9"	2035'9"	Depth set
8 1/2	2527'11"	Pulled	2521 - 2525'
8 1/2	2467'	Pulled	Perf. top
8 -1/2	----	2468'9"	Perf. bottom
8			Perf. top
Liners Used			Perf. bottom

CASING CEMENTED \_\_\_\_\_ SIZE \_\_\_\_\_ No. Ft. \_\_\_\_\_ Date \_\_\_\_\_

COAL WAS ENCOUNTERED AT 365 FEET 24 INCHES  
479 FEET 24 INCHES FEET INCHES  
FEET INCHES FEET INCHES

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth Found	Remarks
Soil	Yellow	Soft	0	8			
Sand	Yellow	Soft	8	23			
Sand	Grey	Soft	23	33			
Slate	Grey	--	33	78			
Sand	--	Soft	78	82			
Sand, Bro.	Light	Soft	82	162			
Red Rock	Red	Soft	162	202			
Slate	Grey	Soft	202	230			1 1/2 Bailer water in hole when starting up at 230' after week-end
Sand, Bro.	Light	Soft	230	358			
Slate	Dark	Soft	358	365			
Coal	Dark	Soft	365	367			
Slate	Dark	Soft	367	389			
Sand	Light	Soft	389	429			
Slate	Light	Soft	429	479			
Coal	Dark	Soft	479	481			
Slate	Dark	Soft	481	491			
Sand	Light	Soft	491	572			
Slate	Light	Soft	572	573			
Sand	Light	Soft	573	715			8-10-60 Installed 10-3/4" casing at 573' on shoe set in clay Gas 574-576' Water at 693', 1 BPH 13.7 MCF
Slate	Dark	Soft	715	793			
Sand, Bro.	Light	Soft	793	844			
Sand	Light	Soft	844	942			Water at 850', 3 BPH
Slate	Dark	Soft	942	1007			
Sand	Light	Soft	1007	1070			
Slate	Dark	Soft	1070	1110			
Sand	Light	Soft	1110	1476			Water at 1123', 1 BPH Gas show at 1160' Water at 1195', hole filling Reduced hole at 1437'
Slate	Dark	Soft	1476	1486			
Sand	Light	Soft	1486	1657			
Slate	Light	Soft	1657	1672			

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Department of Environmental Protection

LINE-1324

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth Found	Remarks
Sand	Light	Hard	1672	1717			
Lime	Dark	Med.	1717	1741			
Little Lime	Dark	Hard	1741	1761			
Slate	Dark	Soft	1761	1769	SIM 1769	Sand IM 1769	
Lime	Light	Med.	1769	1790			
Big Lime	White	Hard	1790	1816			
Big Lime	Light	Med.	1816	1840			
Big Lime	White	Hard	1840	1943			
Big Lime	Light	Med.	1943	1953			
Red Injun.	Red	Med.	1953	1998			
Lime Shells	Grey	Med.	1998	2022			
Shells	Grey	Hard	2022	2038	9-8-60		
					Installed 7" casing at 2033' with shoe set in red clay and 2 centralizers at 2029'3" and 1992'		
Shells	Grey	Med.	2038	2041			
Shells	Grey	Soft	2041	2089			
Shells	Grey	Med.	2089	2129			
Lime Shells	Grey	Soft	2129	2159			
Sl & Shls	Light	Soft	2159	2176			
Slate	Light	Soft	2176	2239			
Sl & Shls	Light	Soft	2239	2413			
Br. Shale	Brown	Soft	2413	2436	SIM 2436	Sand IM 2436	
Berea	Light	Hard	2436	2464	Gas 2445'		35 MCF
					Gas 2452'		36.7 MCF
Lime Shells	Grey	Med.	2464	2472			
Shells	Grey	Med.	2472	2476			
Sl & Shls	Grey	Med.	2476	2516			
Shells	Grey	Med.	2516	2542			
Sl & Shls	Grey	Med.	2542	2720			
Shells	Grey	Hard	2720	2735			
Sl & Shls	Grey	Med.	2735	2845			
Shells	Grey	Med.	2845	2873			
Sl & Shls	Light	Soft	2873	2880			
Sl & Shls	Grey	Soft	2880	2978			
Slate	Grey	Soft	2978	3033			
Sl & Shls	Grey	Soft	3033	3625	Test 3062'		13.6 MCF
					Gas- 3224'		14.3 MCF
					Gas 3236'		16.7 MCF
					Test 3359'		16.2 MCF
					Gas 3376'		17.3 MCF
					Test 3411'		17.3 MCF
					Gas 3420'		18.3 MCF
					Test 3545'		17.8 MCF
					Gas 3557'		19.8 MCF
					Test 3890'		18.3 MCF
					Gas 3915'		19.8 MCF
Br. Shale	Brown	Soft	3625	4075	Test 4055'		19.8 MCF
					Gas 4065'		20.3 MCF
Slate	Light	Soft	4075	4096			
			Total Depth 4096		SIM 4096	Sand IM 4096	
			Total Depth After Shot 3919		10-13-60		
					Shot well with 12,650# Trojan Powder from 2798 to 4096 O.C. (3:45 P.M.)		
					Test Before Shot:		20.5 MCF
					Test 15 Min. After Shot:		1426.7 MCF
					Test 1 Hr. " "		866. MCF
					Test 17 Hrs. " "		163.6 MCF
					10-15-60		
					Installed 3 1/2" tubing at 2528' with "Oilwell" Hookwall Pkr. set from 2521 to 2525'		
					Tubing packer leaked		
					10-24-60		
					Pulled tubing		

Date November 14, 1960

APPROVED OWENS, LIBBEY-OWENS GAS DEPARTMENT, Owner

By A. H. Smith, Mgr. (Title) Land, Engrg. & Geol.



STATE OF WEST VIRGINIA  
DEPARTMENT OF MINES  
OIL AND GAS DIVISION 11A

Quadrangle St. Albans

WELL RECORD

Permit No. Linc-1324

continued

Oil or Gas Well GAS  
(KIND)

Company OWENS, LIBREY-OWENS GAS DEPARTMENT  
 Address P. O. Box 4168, Charleston 4, W. Va.  
 Farm Mary Bess Acres 100  
 Location (waters) \_\_\_\_\_  
 Well No. 1 (Serial No. 1000) Elev. 927.12  
 District Washington County Lincoln  
 The surface of tract is owned in fee by \_\_\_\_\_  
 Address \_\_\_\_\_  
 Mineral rights are owned by \_\_\_\_\_  
 Address \_\_\_\_\_  
 Drilling commenced \_\_\_\_\_  
 Drilling completed \_\_\_\_\_  
 Date Shot \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_  
 With \_\_\_\_\_  
 Open Flow \_\_\_\_\_ /10ths Water in \_\_\_\_\_ Inch  
 \_\_\_\_\_ /10ths Merc. in \_\_\_\_\_ Inch  
 Volume \_\_\_\_\_ Cu. Ft.  
 Rock Pressure \_\_\_\_\_ lbs. \_\_\_\_\_ hrs.  
 Oil \_\_\_\_\_ bbls., 1st 24 hrs.  
 Fresh water \_\_\_\_\_ feet \_\_\_\_\_ feet  
 Salt water \_\_\_\_\_ feet \_\_\_\_\_ feet

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
18			Kind of Packer _____
13			
10			Size of _____
8 1/4			
6 3/4			Depth set _____
5 8/16			
3			Perf. top _____
2			Perf. bottom _____
Liners Used			Perf. top _____
			Perf. bottom _____

CASING CEMENTED \_\_\_\_\_ SIZE \_\_\_\_\_ No. Ft. \_\_\_\_\_ Date \_\_\_\_\_

COAL WAS ENCOUNTERED AT \_\_\_\_\_ FEET \_\_\_\_\_ INCHES  
 \_\_\_\_\_ FEET \_\_\_\_\_ INCHES FEET \_\_\_\_\_ INCHES  
 \_\_\_\_\_ FEET \_\_\_\_\_ INCHES FEET \_\_\_\_\_ INCHES

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth Found	Remarks
					10-25-60 Test: Well Open 24 Hrs. 133 MCF Re-Ran tubing at 2467' with "Oilwell" Hookwall Pkr. set from 2460 - 2464		
					10-27-60 Hole in pipe		
					10-28-60 Pulled tubing; well open 5 Hrs. 7" casing: 153 MCF		
					10-31-60 Installed 2468' 9" tubing (3rd time) on "Oilwell" Hookwall packer set at 2466'		
					Test after tubing: Office of Oil & Gas Berea 14 MCF Shells & Shale 148 MCF		
					Well shut in at 2:30 P.M. 18 days after shot.		
					Use for final open flow (see tests 10/15/60 and 10/25/60) Berea 15 MCF Shells & Shale 118 MCF		
							133 MCF

(Over)



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Environmental Protection

Linc-1324

4301324P

WW-4A  
Revised 6-07

1) Date: February 1, 2016  
2) Operator's Well Number  
Mary Bess #1  
3) API Well No.: 47 - 043 - 01324

**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE OF APPLICATION TO PLUG AND ABANDON A WELL**

4) Surface Owner(s) to be served:	5) (a) Coal Operator
(a) Name <u>See Attached Sheet</u>	Name <u>Not Operated</u>
Address _____	Address _____
(b) Name _____	(b) Coal Owner(s) with Declaration
Address _____	Name <u>Craig Smith</u>
(c) Name _____	Address <u>115 Brookside Drive</u>
Address _____	<u>Scott Depot, WV 25560</u>
6) Inspector <u>Jeremy James</u>	(c) Coal Lessee with Declaration
Address <u>P.O. Box 36</u>	Name <u>None of Record</u>
<u>Clendenin, WV 25045</u>	Address _____
Telephone <u>(304) 951-2596</u>	_____

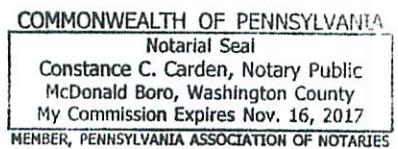
**TO THE PERSONS NAMED ABOVE:** You should have received this Form and the following documents:

- (1) The application to Plug and Abandon a Well on Form WW-4B, which sets out the parties involved in the work and describes the well its and the plugging work order; and
- (2) The plat (surveyor's map) showing the well location on Form WW-6.

The reason you received these documents is that you have rights regarding the application which are summarized in the instructions on the reverses side. However, you are not required to take any action at all.

Take notice that under Chapter 22-6 of the West Virginia Code, the undersigned well operator proposes to file or has filed this Notice and Application and accompanying documents for a permit to plug and abandon a well with the Chief of the Office of Oil and Gas, West Virginia Department of Environmental Protection, with respect to the well at the location described on the attached Application and depicted on the attached Form WW-6. Copies of this Notice, the Application, and the plat have been mailed by registered or certified mail or delivered by hand to the person(s) named above (or by publication in certain circumstances) on or before the day of mailing or delivery to the Chief.

Well Operator Cabot Oil & Gas Corporation  
 By: Kenneth L. Marcum  
 Its: Regulatory Supervisor  
 Address 2000 Park Lane, Suite 300  
Pittsburgh, PA 15275  
 Telephone (412) 249-3850



Subscribed and sworn before me this 1st day of February, 2016  
Constance C. Carden Notary Public  
 My Commission Expires November 16, 2017

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 FEB 05 2016

**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 at [depprivacyoffier@wv.gov](mailto:depprivacyoffier@wv.gov).

4301324P

SURFACE OWNERS  
MARY BESS #1  
API #47-043-01324

Craig Smith ✓  
115 Brookside Drive  
Scott Depot, WV 25560

William E. Bess ✓  
1055 Highland Drive  
St. Albans, WV 25177

William O. Thomas, Jr. ✓  
24 Serenity Place  
Tornado, WV 25202

Richard H. Evans & Victoria M. Evans ✓  
1781 Union Avenue  
Niceville, FL 32578

Lawrence Trimble & Cheryl Trimble ✓  
517 Circle Drive  
Arlington, TX 76010

Dana Trimble, Jr. ✓  
133 Town Run Road  
Moorefield, WV 26836

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Cabot Oil & Gas Corporation OP Code 08145

Watershed (HUC 10) Island Creek Quadrangle Alum Creek

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: \_\_\_\_\_

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

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection ( UIC Permit Number \_\_\_\_\_ )
- Reuse (at API Number \_\_\_\_\_ )
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain No treated pit wastes will be produced)

Will closed loop system be used? If so, describe: N/A

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. no drilling proposed

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

Additives to be used in drilling medium? N/A

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. No cuttings produced during plugging operation

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

-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 *Kenneth L. Marcum*

Company Official (Typed Name) Kenneth L. Marcum

Company Official Title Regulatory Supervisor

Subscribed and sworn before me this 1st day of February, 20 16

Constance C. Carden Notary Public

My commission expires 11/16/2017

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Office of Oil and Gas  
FEB 05 2016

COMMONWEALTH OF PENNSYLVANIA  
Notarial Seal  
Constance C. Carden, Notary Public  
McDonald Boro, Washington County  
My Commission Expires Nov. 16, 2017  
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

**Cabot Oil & Gas Corporation**

Proposed Revegetation Treatment: Acres Disturbed 0.39 Prevegetation pH 6.5

Lime 2 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20/20 or equivalent

Fertilizer amount 500 lbs/acre

Mulch Pulp Fiber at 1000 to 1500 lbs. Tons/acre

**Seed Mixtures**

**Temporary**

**Permanent**

Seed Type	lbs/acre
(Grain Rye - 100) (Red Clover - 5) (Fescue - 40)	
(Annual Rye - 20) (White Clover - 5)	
(Perennial Rye - 10) (Alta Sweet Clover - 5)	
(Yellow Clover - 5) (Birdsfoot Trefoil - 10)	

Seed Type	lbs/acre
(Grain Rye - 100) (Red Clover - 5) (Fescue - 40)	
(Annual Rye - 20) (White Clover - 5)	
(Perennial Rye - 10) (Alta Sweet Clover - 5)	
(Yellow Clover - 5) (Birdsfoot Trefoil - 10)	

**Attach:**

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

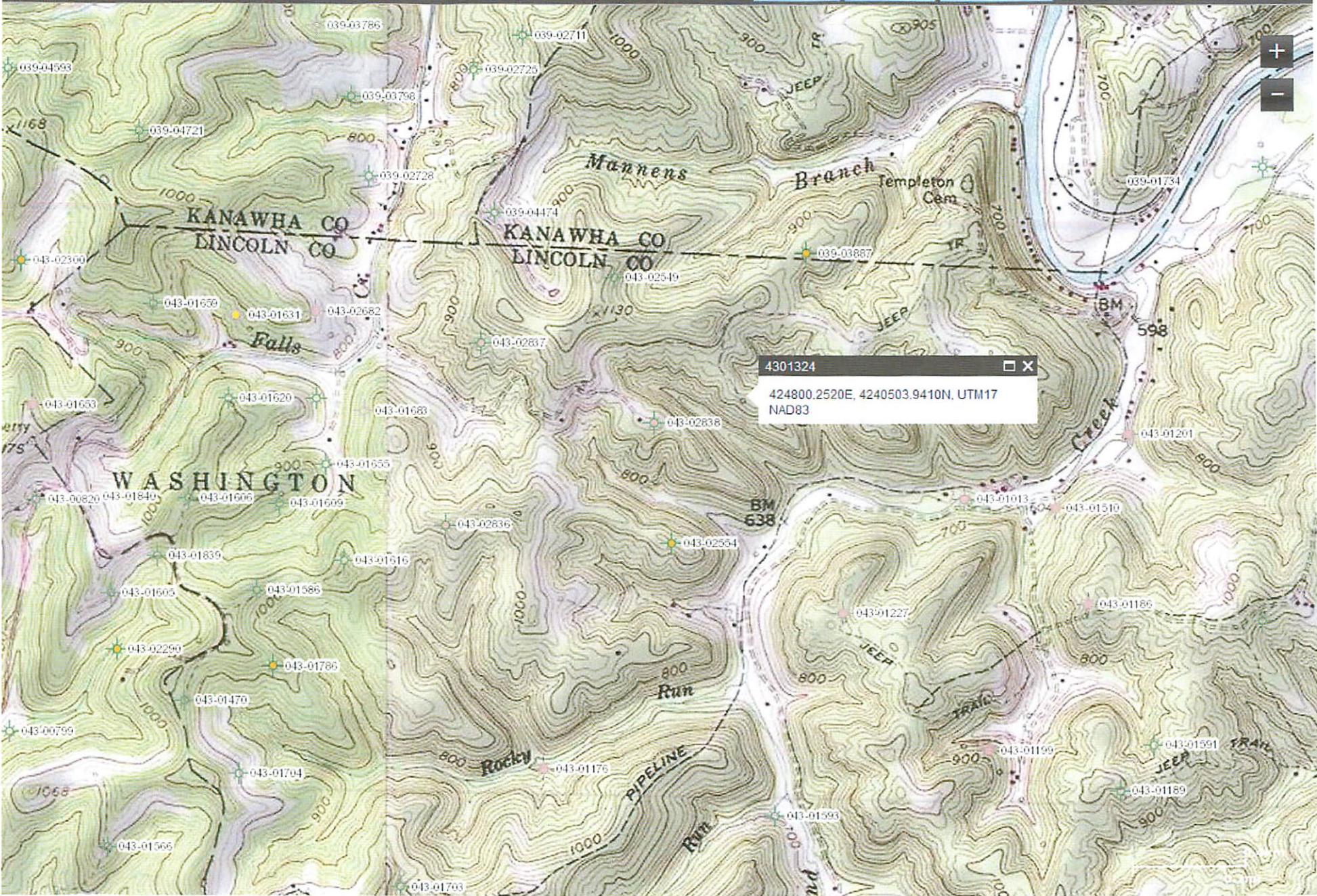
Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: \_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Title: \_\_\_\_\_ Date: \_\_\_\_\_

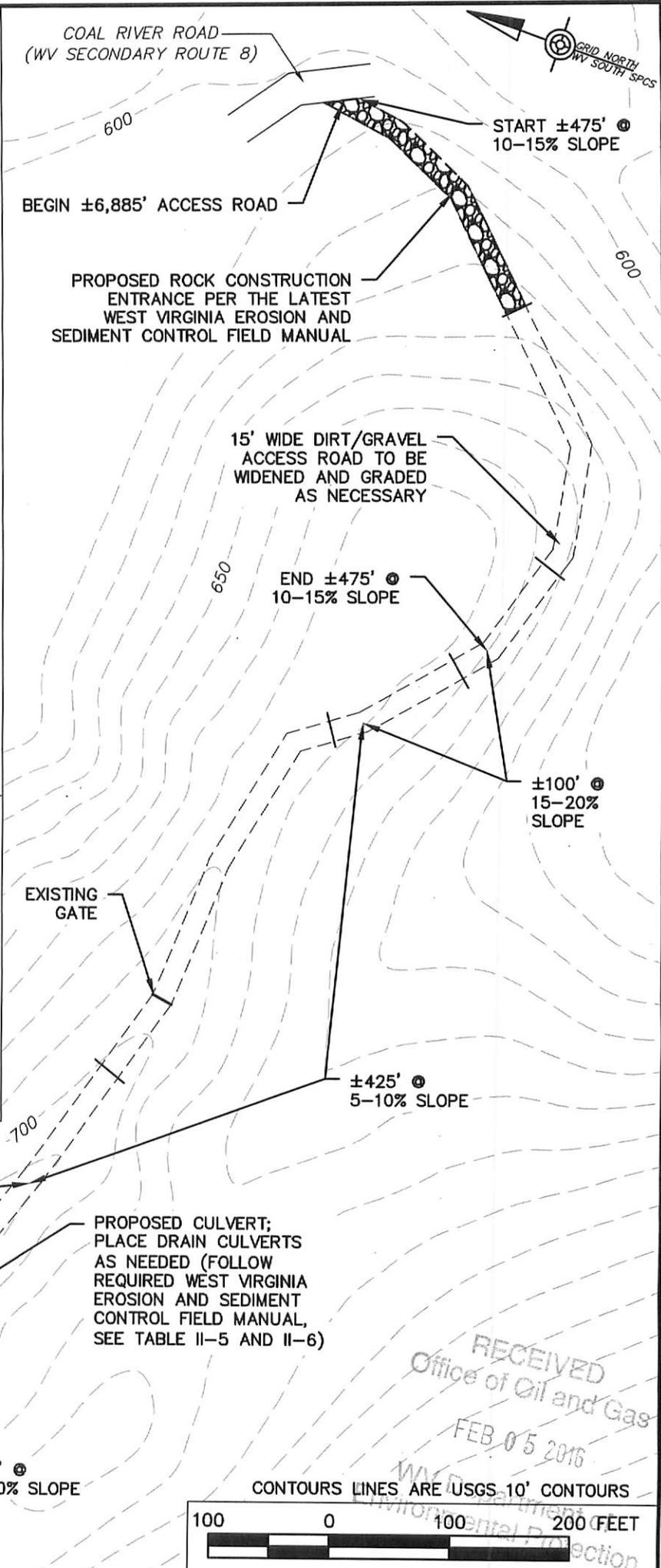
Field Reviewed? ( ) Yes ( ) No



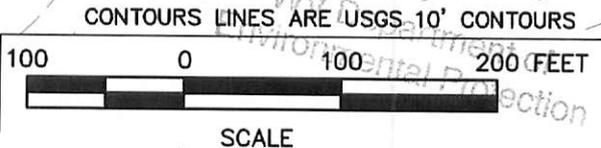
43013247

**NOTES:**

1. ALL ROADS SHOWN HEREON ARE EXISTING UNLESS OTHERWISE NOTED AND SHALL BE MAINTAINED IN ACCORDANCE WITH THE WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD MANUAL. ALL CULVERTS SHOWN ON THIS PLAN ARE PROPOSED AND WILL BE A MINIMUM OF 12" IN DIAMETER UNLESS OTHERWISE DESIGNATED AND WILL BE PACKED AS NEEDED AND REQUIRED BY WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD MANUAL.
2. SUPPLEMENTAL DRAINAGE AND/OR SEDIMENT CONTROL MEASURES IN ADDITION TO THOSE SHOWN ON THIS PLAN WILL BE INSTALLED WHEN AND WHERE DEEMED NECESSARY. THE ADDITIONAL MEASURES MAY CONSIST OF STRAW BALES, SILT FENCES, OR OTHER MEASURES AS OUTLINED IN THE WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD MANUAL.
3. SEDIMENT TRAPS ARE TO BE CONSTRUCTED AT ALL CULVERTS AND CROSS DRAIN INLETS AS REQUIRED IN THE WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD MANUAL. FIELD CONDITIONS SUCH AS ROCK OUTCROPS AND BEDROCK MAY PROHIBIT INLET TRAPS BEING INSTALLED, WHEN THESE CONDITIONS EXIST, ADDITIONAL EROSION CONTROL MEASURES SHALL BE EVALUATED AND UTILIZED AS NEEDED.
4. A SEDIMENT BARRIER OF EITHER BRUSH, STRAW BALES OR FILTER FENCE WILL BE MAINTAINED BELOW THE OUT FALL OF ALL PROPOSED CULVERTS AND AT ALL OTHER STORM WATER DISCHARGE POINTS FROM EITHER THE ROADWAY OR THE LOCATION.
5. ENTRANCES AT COUNTY/STATES ROAD SHALL BE MAINTAINED IN ACCORDANCE WITH WVDOT REGULATIONS, SEPARATE PERMITS MAY BE REQUIRED BY THE WVDOT.
6. A STABILIZED CONSTRUCTION ENTRANCE WILL BE INSTALLED AS SHOWN UNLESS OTHERWISE DIRECTED BY WVDEP INSPECTOR AND/OR WVDOT.
7. CROSS DRAINS AND/OR WATERBARS WILL BE INSTALLED AS AN INTEGRAL PART OF THE RECLAMATION PROCESS AND SHALL BE SPACED IN ACCORDANCE WITH THE WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD MANUAL.



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Office of Oil and Gas  
FEB 05 2016



**NOTE:**  
EROSION AND SEDIMENT CONTROLS MUST BE IN PLACE FOR ALL EARTH DISTURBANCE PER THE LATEST WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD MANUAL AND WV DEP INSPECTOR.

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PROJECT NO.: 8744-015  
SHEET NO.: 1 of 6

**RECLAMATION PLAN  
BESS, MARY 1**

WASHINGTON DISTRICT, LINCOLN COUNTY, WEST VIRGINIA

CABOT OIL & GAS CORPORATION  
FIVE PENN CENTER WEST, SUITE 401  
PITTSBURGH, PA 15276-0130  
PHONE (304) 369-1771  
DATE: 4/9/14 DRAWN BY: RTC CHECKED BY: THK

Larson Design Group • Architects Engineers Surveyors  
2502 Cranberry Square  
Morgantown, WV 26508  
PHONE 304.777.2940 TOLL FREE 877.323.6603  
FAX 570.323.9902 • www.larsondesigngroup.com



Office of Oil and Gas

NOTE:  
EROSION AND SEDIMENT CONTROLS MUST BE IN PLACE FOR ALL EARTH DISTURBANCE PER THE LATEST WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD MANUAL AND WV DEP INSPECTOR.



±300' @  
10-15% SLOPE

±500' @  
15-20% SLOPE

15' WIDE DIRT/GRAVEL  
ACCESS ROAD TO BE  
WIDENED AND GRADED  
AS NECESSARY

±50' @  
15-20% SLOPE

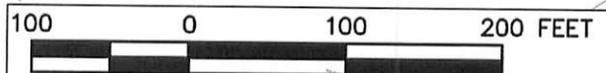
±100' @  
0-5% SLOPE

±225' @  
10-15% SLOPE

±250' @  
10-15% SLOPE

PROPOSED CULVERT;  
PLACE DRAIN CULVERTS  
AS NEEDED (FOLLOW  
REQUIRED WEST VIRGINIA  
EROSION AND SEDIMENT  
CONTROL FIELD MANUAL,  
SEE TABLE II-5 AND II-6)

±525' @  
0-5% SLOPE



SCALE RECEIVED

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CONTOURS LINES ARE USGS 10' CONTOURS

### RECLAMATION PLAN BESS, MARY 1

WASHINGTON DISTRICT, LINCOLN COUNTY, WEST VIRGINIA

CABOT OIL & GAS CORPORATION  
FIVE PENN CENTER WEST, SUITE 401  
PITTSBURGH, PA 15276-0130  
PHONE (304) 369-1771  
DATE: 4/9/14 DRAWN BY: RTC CHECKED BY: THK

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PROJECT NO.:  
8744-015  
SHEET NO.:  
2 of 6

WV Department  
Environmental Protection

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CONTOURS LINES ARE USGS 10' CONTOURS



CONTINUED  
±525' @  
0-5% SLOPE

±275' @  
5-10% SLOPE

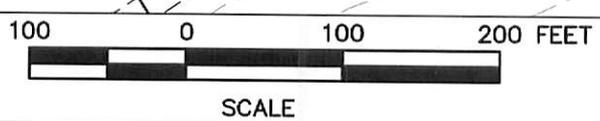
±325' @  
0-5% SLOPE

PROPOSED CULVERT;  
PLACE DRAIN CULVERTS  
AS NEEDED (FOLLOW  
REQUIRED WEST VIRGINIA  
EROSION AND SEDIMENT  
CONTROL FIELD MANUAL,  
SEE TABLE II-5 AND II-6)

±50' @  
20-25% SLOPE

±700' @  
0-5% SLOPE

15' WIDE DIRT/GRAVEL  
ACCESS ROAD TO BE  
WIDENED AND GRADED  
AS NECESSARY



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SHEET NO.: 3 of 6

### RECLAMATION PLAN BESS, MARY 1

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CABOT OIL & GAS CORPORATION  
FIVE PENN CENTER WEST, SUITE 401  
PITTSBURGH, PA 15276-0130  
PHONE (304) 369-1771  
DATE: 4/9/14 DRAWN BY: RTC CHECKED BY: THK

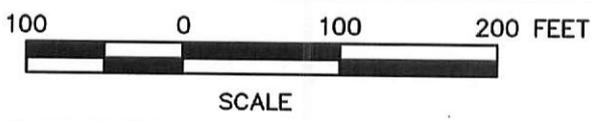
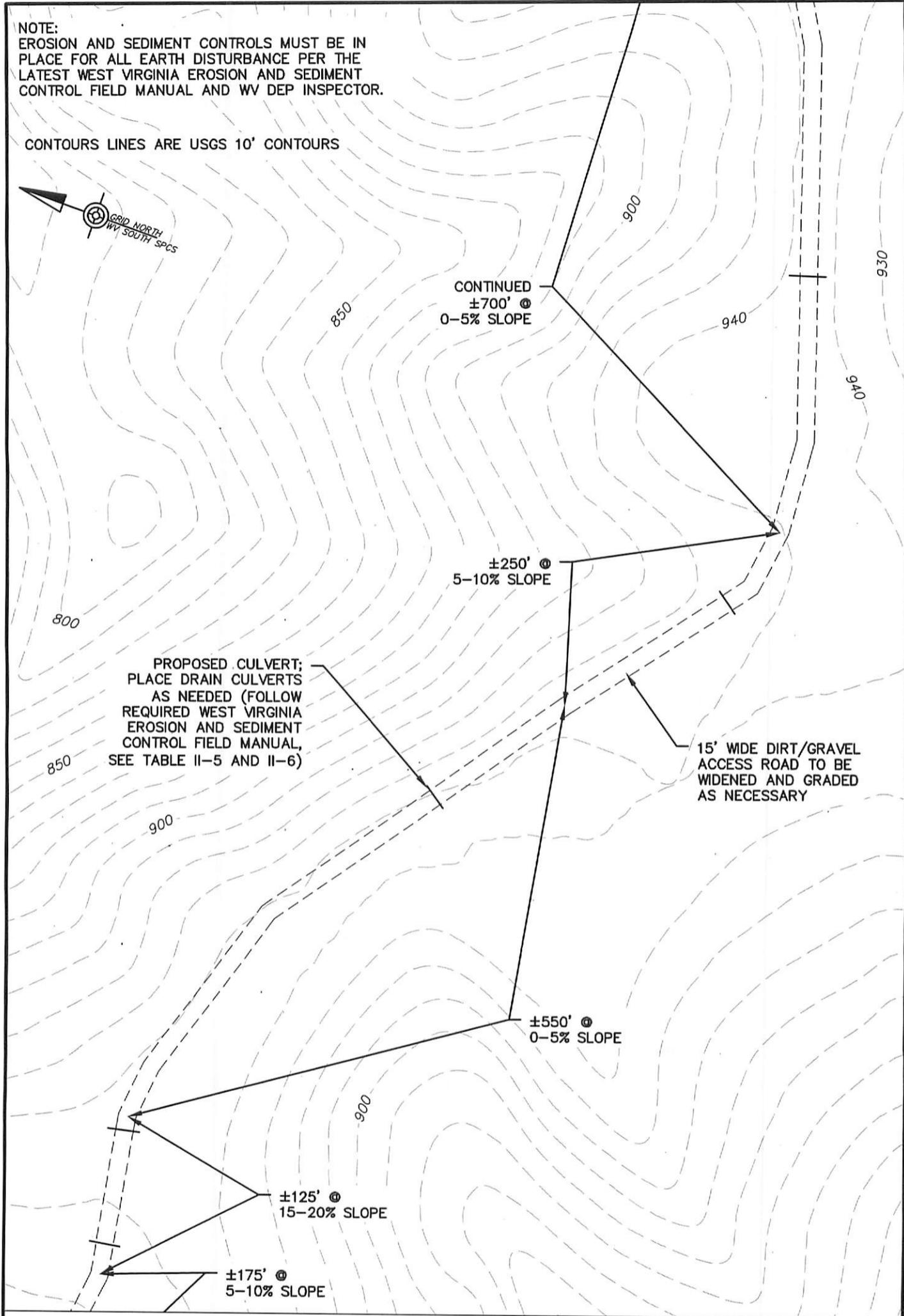
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Morgantown, WV 26508  
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FAX 570.323.9902 ■ www.larsondesigngroup.com

WV Dept  
Environmental



NOTE:  
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### RECLAMATION PLAN BESS, MARY 1

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FIVE PENN CENTER WEST, SUITE 401  
PITTSBURGH, PA 15276-0130  
PHONE (304) 369-1771  
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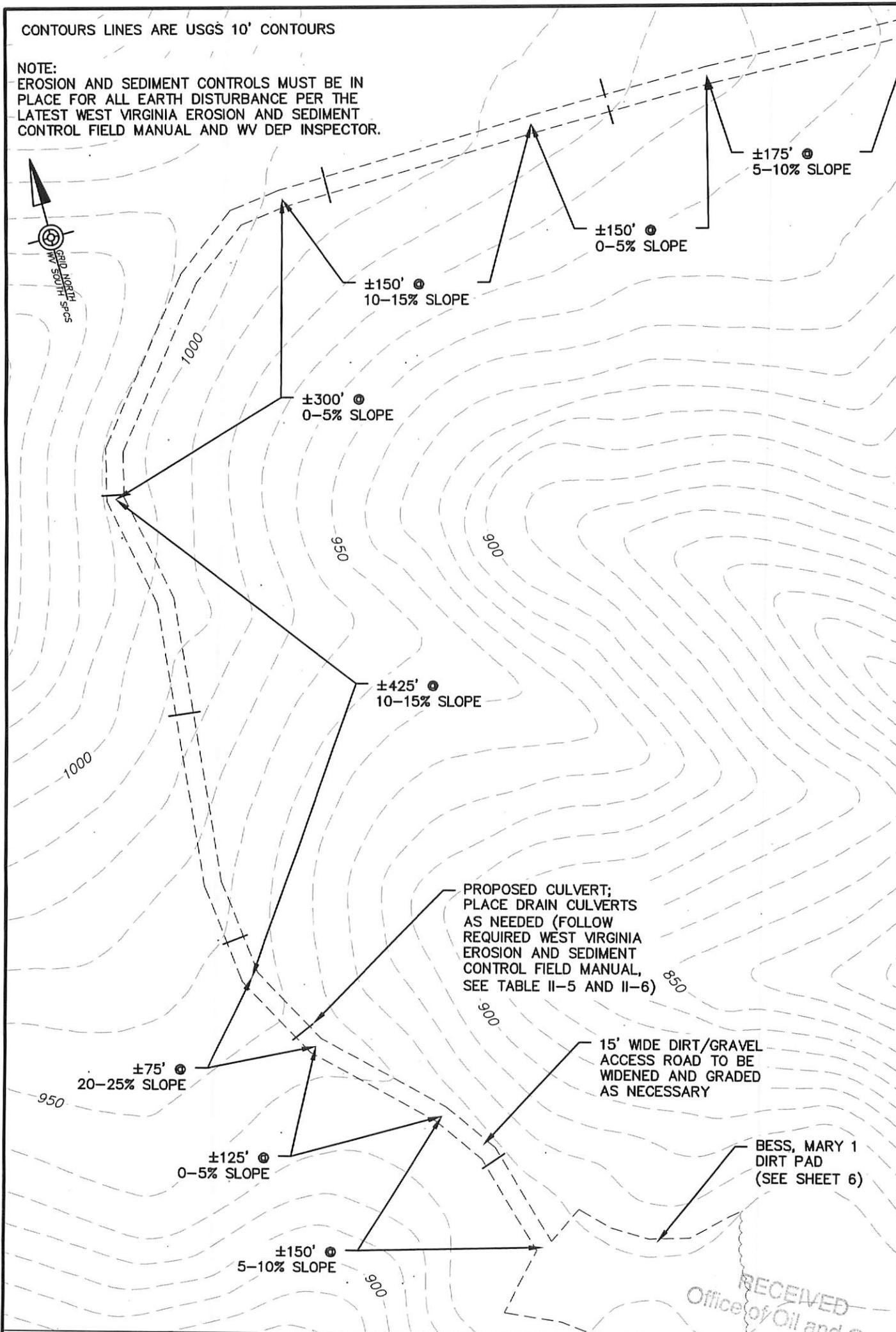
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PROJECT NO.:  
8744-015

SHEET NO.:  
4 of 6

CONTOURS LINES ARE USGS 10' CONTOURS

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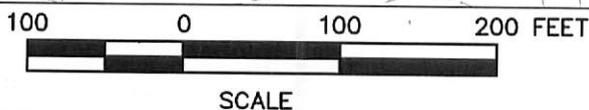


PROPOSED CULVERT;  
PLACE DRAIN CULVERTS  
AS NEEDED (FOLLOW  
REQUIRED WEST VIRGINIA  
EROSION AND SEDIMENT  
CONTROL FIELD MANUAL,  
SEE TABLE II-5 AND II-6)

15' WIDE DIRT/GRAVEL  
ACCESS ROAD TO BE  
WIDENED AND GRADED  
AS NECESSARY

BESS, MARY 1  
DIRT PAD  
(SEE SHEET 6)

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Office of Oil and Gas



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### RECLAMATION PLAN BESS, MARY 1

WASHINGTON DISTRICT, LINCOLN COUNTY, WEST VIRGINIA

CABOT OIL & GAS CORPORATION  
FIVE PENN CENTER WEST, SUITE 401  
PITTSBURGH, PA 15276-0130  
PHONE (304) 369-1771

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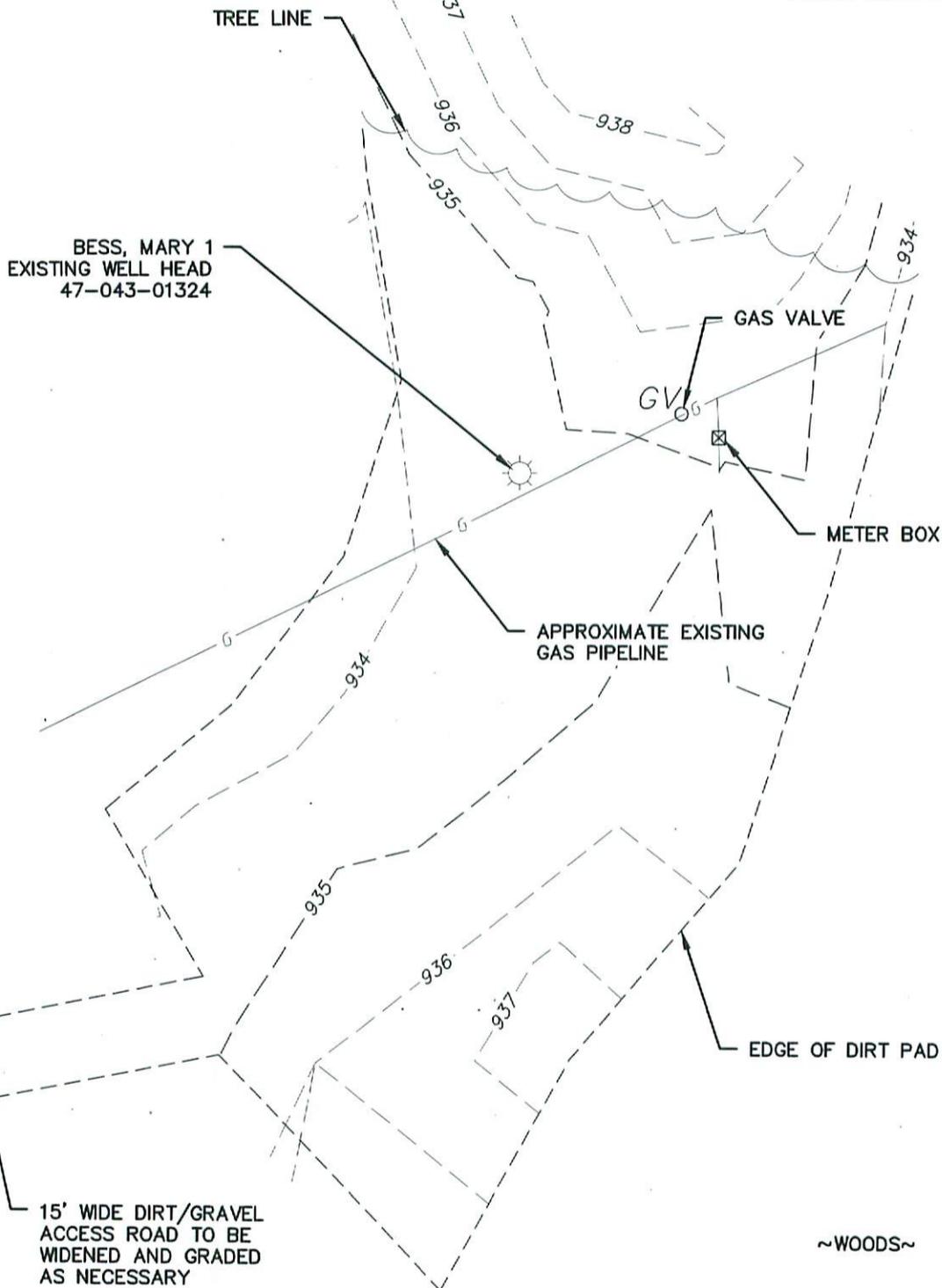
SHEET NO.:  
5 of 6  
PROJECT NO.:  
8744-015



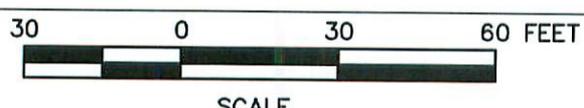
EXISTING BESS, MARY 1 WELL HEAD

PHOTO DATE: 01/16/14

~WOODS~



CONTOURS LINES GENERATED FROM SURVEY DATA



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**RECLAMATION PLAN  
BESS, MARY 1**

WASHINGTON DISTRICT, LINCOLN COUNTY, WEST VIRGINIA

**CABOT OIL & GAS CORPORATION**  
FIVE PENN CENTER WEST, SUITE 401  
PITTSBURGH, PA 15276-0130  
PHONE (304) 369-1771  
DATE: 4/9/14 DRAWN BY: RTC CHECKED BY: THK

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PROJECT NO.: 8744-015  
SHEET NO.: 6 of 6

WELL OPERATOR: CABOT OIL & GAS CORPORATION  
 Address: FIVE PENN CENTER WEST, SUITE 401  
 City: PITTSBURGH, State: PA, Zip Code: 15276

DESIGNATED AGENT: WHITNEY JOHNSON  
 Address: CABOT OIL & GAS CORPORATION, P.O. BOX 450  
 City: GLASGOW, State: WV, Zip Code: 25086

TARGET FORMATION: BEREA & DEVONIAN SHALE  
 ESTIMATED DEPTH: 2798' - 4096'

WELL TYPE:  Oil  Waste Disposal  Production  Deep  
 Gas  Liquid Injection  Storage  Shallow

WATERSHED: ISLAND CREEK  
 COUNTY/DISTRICT: LINCOLN & KANAWHA / WASHINGTON  
 SURFACE OWNER: CRAIG SMITH  
 OIL & GAS ROYALTY OWNER: CRAIG SMITH (47-2500)

ACREAGE: 100.0  
 ACREAGE: 100.0

QUADRANGLE: ALUM CREEK  
 ELEVATION: 939'

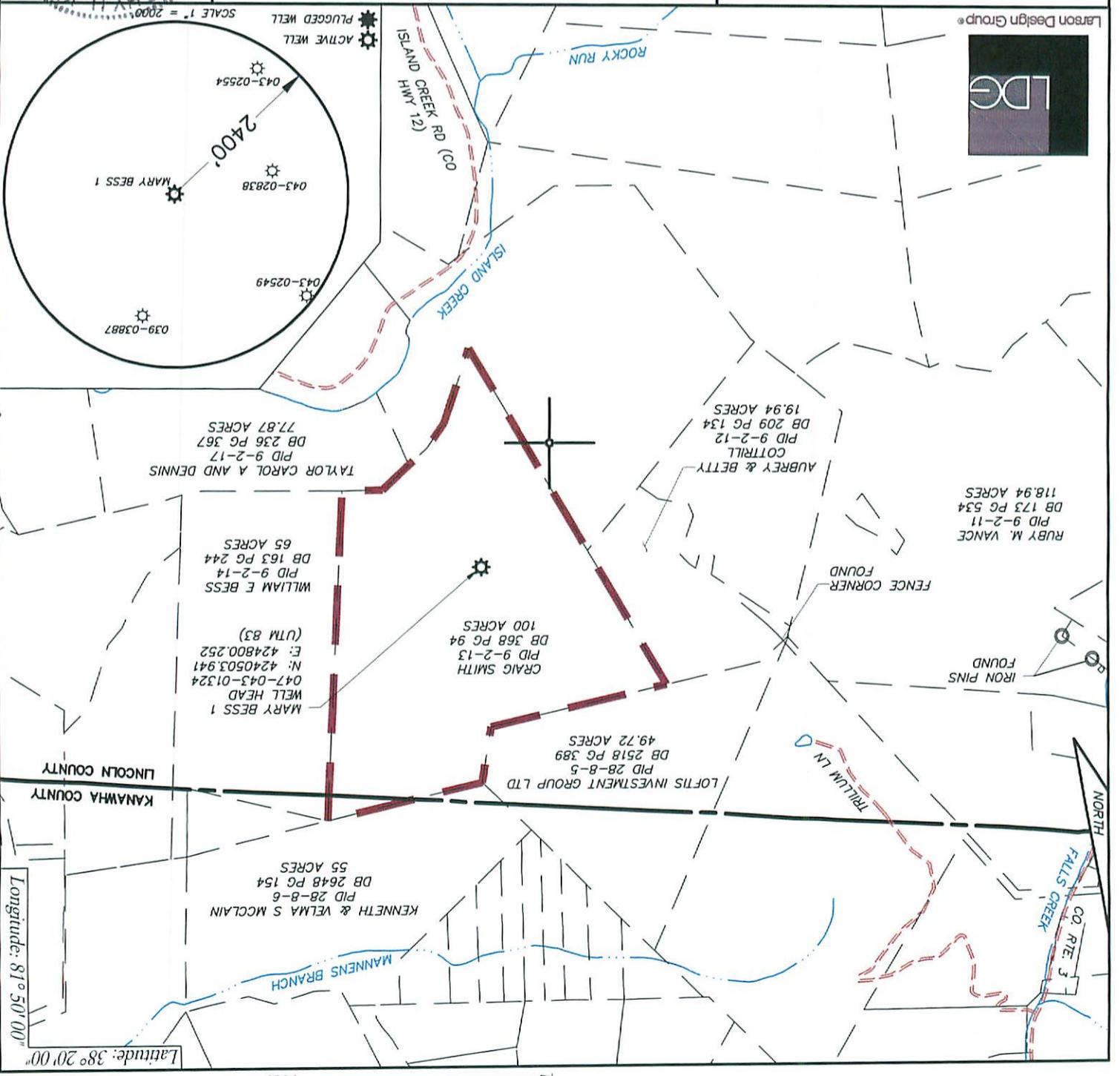
DATE: JANUARY 22, 2016  
 OPERATOR'S WELL #: BESS, MARY 1  
 API WELL #: 47 043 01324 P

UNITED STATES TOPOGRAPHIC MAPS  
 WIDEF  
 OFFICE OF OIL & GAS  
 601 57TH STREET  
 CHARLESTON, WV 25304

STATE OF WEST VIRGINIA  
 KENTON SEWEN LIBRARIAN

FILE #: 8744-015  
 DRAWING #: 1  
 SCALE: 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY: 1" in 2500'  
 PROVEN SOURCE OF ELEVATION: SURVEY GRADE GPS  
 (+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

R.P.E.: L.S.: 1969  
 Signed: *Timothy H. Kinder*  
 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.



Latitude: 38° 20' 00"  
 Longitude: 81° 50' 00"  
 7689'  
 8681'

WELL OPERATOR: CABOT OIL & GAS CORPORATION  
 Address: FIVE PENN CENTER WEST, SUITE 401  
 City: PITTSBURGH, State: PA, Zip Code: 15276

DESIGNATED AGENT: WHITNEY JOHNSON  
 Address: CABOT OIL & GAS CORPORATION, P.O. BOX 450  
 City: GLASGOW, State: WV, Zip Code: 25086

TARGET FORMATION: BEREA & DEVONIAN SHALE  
 ESTIMATED DEPTH: 2798' - 4096'

SURFACE OWNER: CRAIG SMITH  
 OIL & GAS ROYALTY OWNER: CRAIG SMITH (47-2500)  
 ACREAGE: 100.0

COUNTY/DISTRICT: LINCOLN & KANAWHA / WASHINGTON  
 WATERSHED: ISLAND CREEK  
 ELEVATION: 939'

WELL TYPE:  Gas  Liquid Injection  Oil  Waste Disposal  
 Shallow  Deep  Production

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

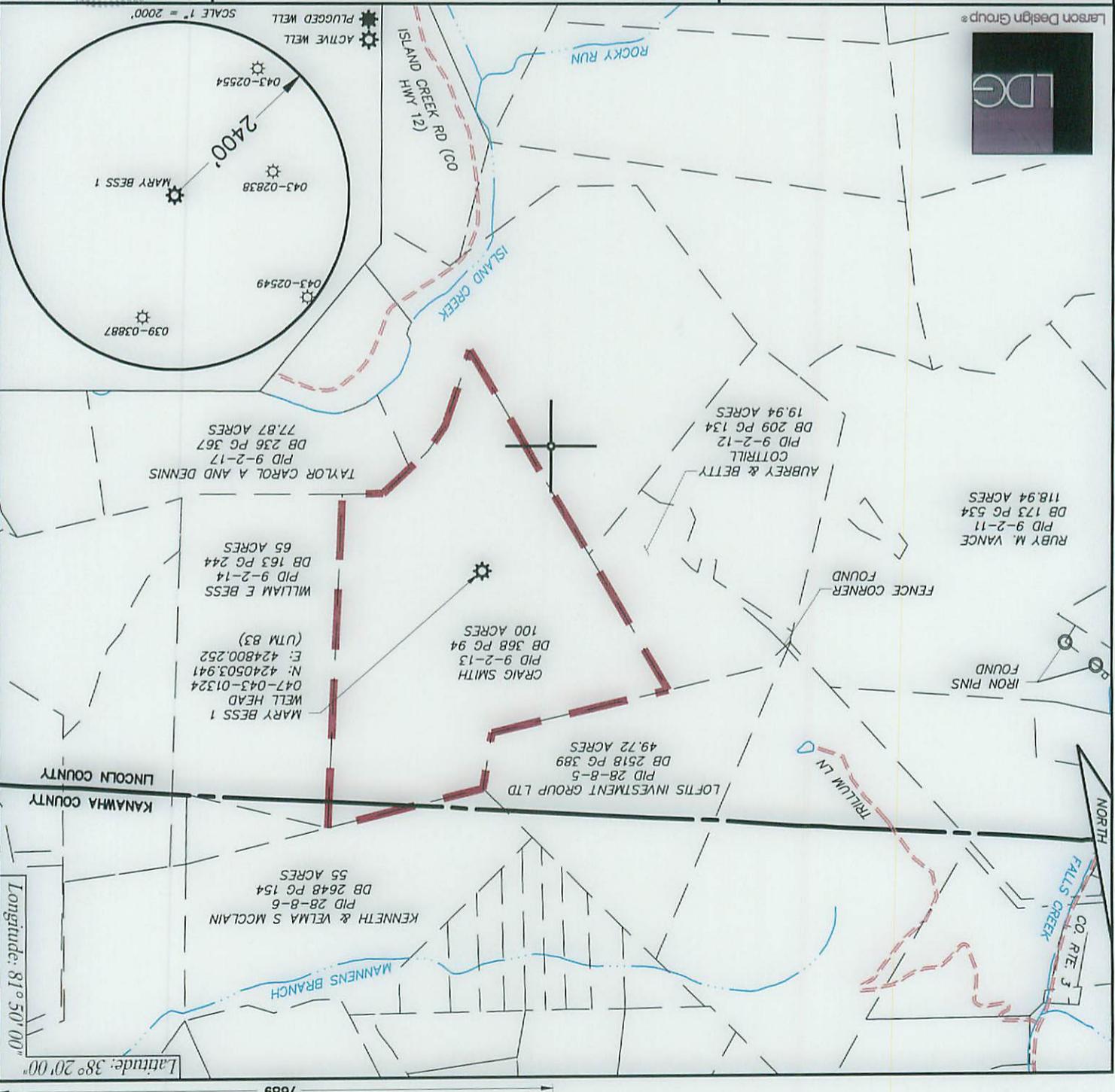
DATE: JANUARY 22, 2016  
 OPERATOR'S WELL #: BESS, MARY 1  
 API WELL #: 47 043 01324 P



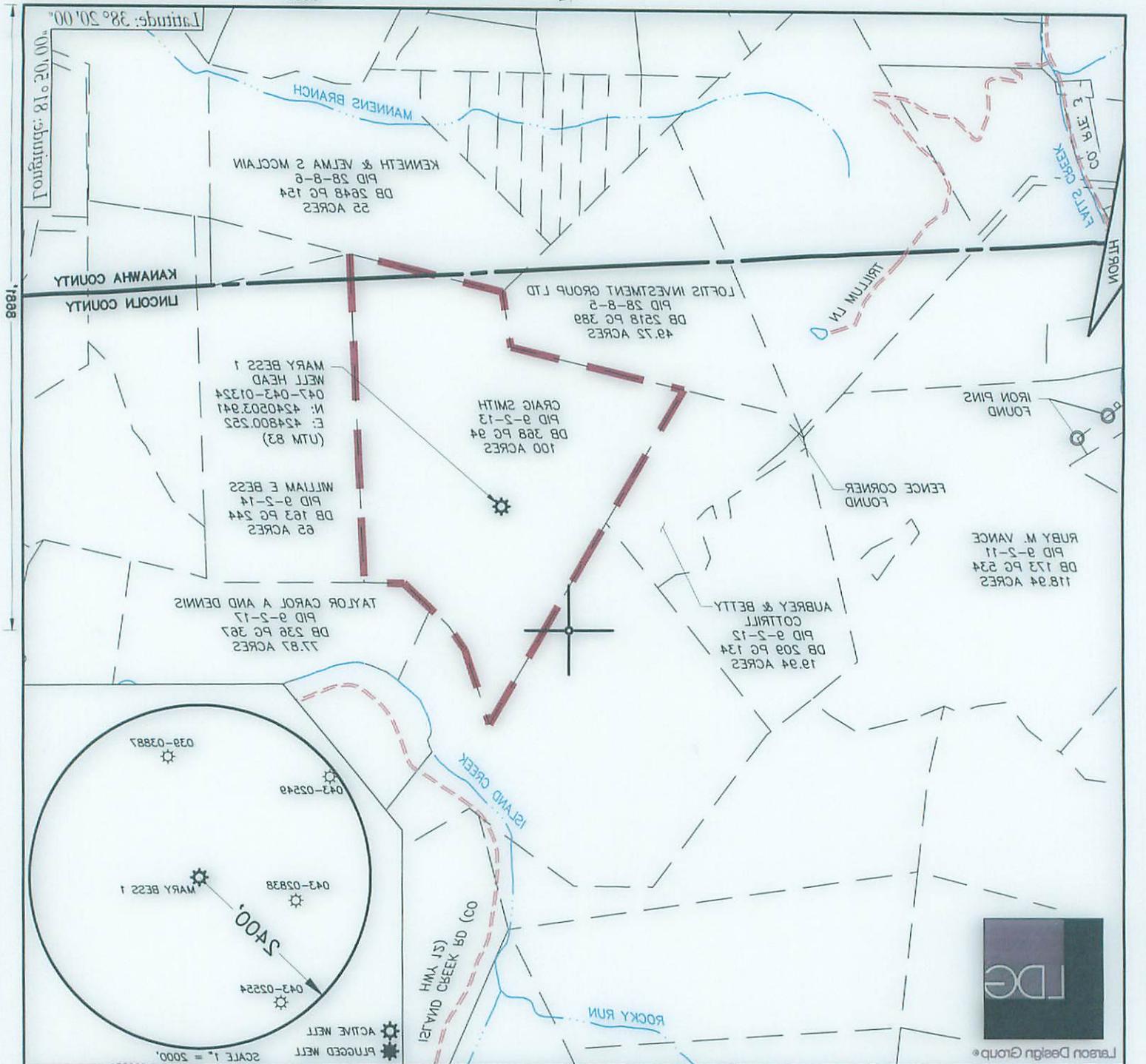
FILE #: 8744-015  
 DRAWING #: 1  
 SCALE: 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY: 1" in 2500'  
 PROVEN SOURCE OF ELEVATION: SURVEY GRADE GPS  
 (+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.  
 Signed: *[Signature]*  
 R.P.E.: L.L.S. 1969

PLATE SEAL HERE  
 NO. 1969  
 STATE OF WEST VIRGINIA  
 LICENSED PROFESSIONAL SURVEYOR  
 TIMOTHY H. KINDER



Larson Design Group



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Signed: *[Signature]*

R.P.E.: \_\_\_\_\_

J.L.S.: 1989

FILE #: 8744-012

DRAWING #: 1

SCALE: 1" = 1000'

MINIMUM DEGREE OF ACCURACY: 1" in 2500'

PROVEN SOURCE OF ELEVATION: SURVEY GRADE GPS

WELL OPERATOR: CABOT OIL & GAS CORPORATION  
 Address: FIVE PENN CENTER WEST, SUITE 401  
 City: PITTSBURGH, State: PA, Zip Code: 15226

DESIGNATED AGENT: WHITNEY JOHNSON  
 Address: CABOT OIL & GAS CORPORATION, P.O. BOX 450  
 City: GLASGOW, State: WV, Zip Code: 25086

TARGET FORMATION: BEREA & DEVONIAN SHALE  
 ESTIMATED DEPTH: 298' - 406', CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY):

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

OIL & GAS ROYALTY OWNER: CRAIG SMITH (47-2500) ACREAGE: 100.0  
 SURFACE OWNER: CRAIG SMITH ACREAGE: 100

COUNTY/DISTRICT: LINCOLN & KANAWHA \ WASHINGTON  
 WATERSHED: ISLAND CREEK

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

OFFICE OF OIL & GAS, 601 27TH STREET, CHARLESTON, WV 25304

STATE COUNTY PERMIT API WELL #: 47 043 01324 P OPERATOR'S WELL #: BESS, MARY 1 DATE: JANUARY 22, 2016

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