



---

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

July 30, 2015

**WELL WORK PERMIT**

**Horizontal 6A Well**

This permit, API Well Number: 47-900160, issued to SWN PRODUCTION COMPANY, LLC, 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: MILDRED MANI BRK 3H  
Farm Name: MILDRED MANI & MILES BAUE

**API Well Number: 47-900160**

**Permit Type: Horizontal 6A Well**

Date Issued: 07/30/2015

**Promoting a healthy environment.**

**07/31/2015**

# PERMIT CONDITIONS **4700900160**

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

## CONDITIONS

---

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than one hundred (100) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
8. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.
9. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced on this well. Such notice shall be provided by sending an email to [DEPOOGNotify@wv.gov](mailto:DEPOOGNotify@wv.gov) within 30 days of commencement of drilling.

WW-6B  
(10/14)

API NO. 47-69 -  
OPERATOR WELL NO. Mildred Mani BRK 3H  
Well Pad Name: Mildred Mani BRK Pad

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

1) Well Operator: SWN Production Co., LLC 494512924 Brooke 1-Buffalo 620-Stuebenville  
Operator ID County District Quadrangle

2) Operator's Well Number: Mildred Mani BRK 3H Well Pad Name: Mildred Mani BRK Pad

3) Farm Name/Surface Owner: Mildred Mani & Eric Bauer Public Road Access: Bradys Ridge Road

4) Elevation, current ground: 1072' Elevation, proposed post-construction: 1072'

5) Well Type (a) Gas  Oil \_\_\_\_\_ Underground Storage \_\_\_\_\_  
Other \_\_\_\_\_  
(b) If Gas Shallow  Deep \_\_\_\_\_  
Horizontal

6) Existing Pad: Yes or No yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):  
Target Formation- Marcellus, Target Top TVD- 5637', Target Base TVD- 5716' Anticipated Thickness- 79', Associated Pressure- 3770

8) Proposed Total Vertical Depth: 5684'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 11,175'

11) Proposed Horizontal Leg Length: 5,128'

12) Approximate Fresh Water Strata Depths: 300'

13) Method to Determine Fresh Water Depths: from nearby water wells

14) Approximate Saltwater Depths: 1100'

15) Approximate Coal Seam Depths: 87', 110'-131'

16) Approximate Depth to Possible Void (coal mine, karst, other): 130' possible coal void

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes \_\_\_\_\_ No

(a) If Yes, provide Mine Info: Name: \_\_\_\_\_  
Depth: \_\_\_\_\_  
Seam: \_\_\_\_\_  
Owner: \_\_\_\_\_

*Handwritten notes:*  
KPK  
per  
EB  
7/27/15

RECEIVED  
Office of Oil and Gas

JUL 28 2015


WV Department of  
Environmental Protection



WW-6B  
(10/14)

API NO. 47- 69 -  
OPERATOR WELL NO. Mildred Mani BRK 3H  
Well Pad Name: Mildred Mani BRK Pad

18) CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20"	New	H-40	94#	161'	161'	CTS
Fresh Water	13 3/8"	New	J-55	54.5#	400'	400'	446 sx/CTS
Coal	9 5/8"	New	J-55	40#	1480'	1480'	572 sx/CTS
Intermediate	7"	New	J-55	20#	If Needed	If Needed	If Needed/As Needed
Production	5 1/2"	New	HCP-110	20#	11,175'	11,175'	Load 999 sx 1st 1255 sx 100' inside 
Tubing	2 3/8"	New	P-110	4.7#	Approx. 6139'	Approx. 6139'	
Liners							

*PKK  
for  
Eric  
Bland  
7/29/15*

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Max. Associated Surface Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	30"	0.25	2120	81	Class A	1.19/50% Excess
Fresh Water	13 3/8"	17.5"	0.380	2740	633	Class A	1.19/50% Excess
Coal	9 5/8"	12 1/4"	0.395	3950	1768	Class A	1.19/50% Excess
Intermediate	7"	8 3/4"	0.317	4360	3250	Class A	1.20/15% Excess
Production	5 1/2"	8 3/4"	0.361	12360	9500	Class A	1.20/15% Excess
Tubing	2 3/8"	4.778"	0.190				
Liners							

PACKERS


Kind:	10K Arrowset AS1-X			
Sizes:	5 1/2"			
Depths Set:				

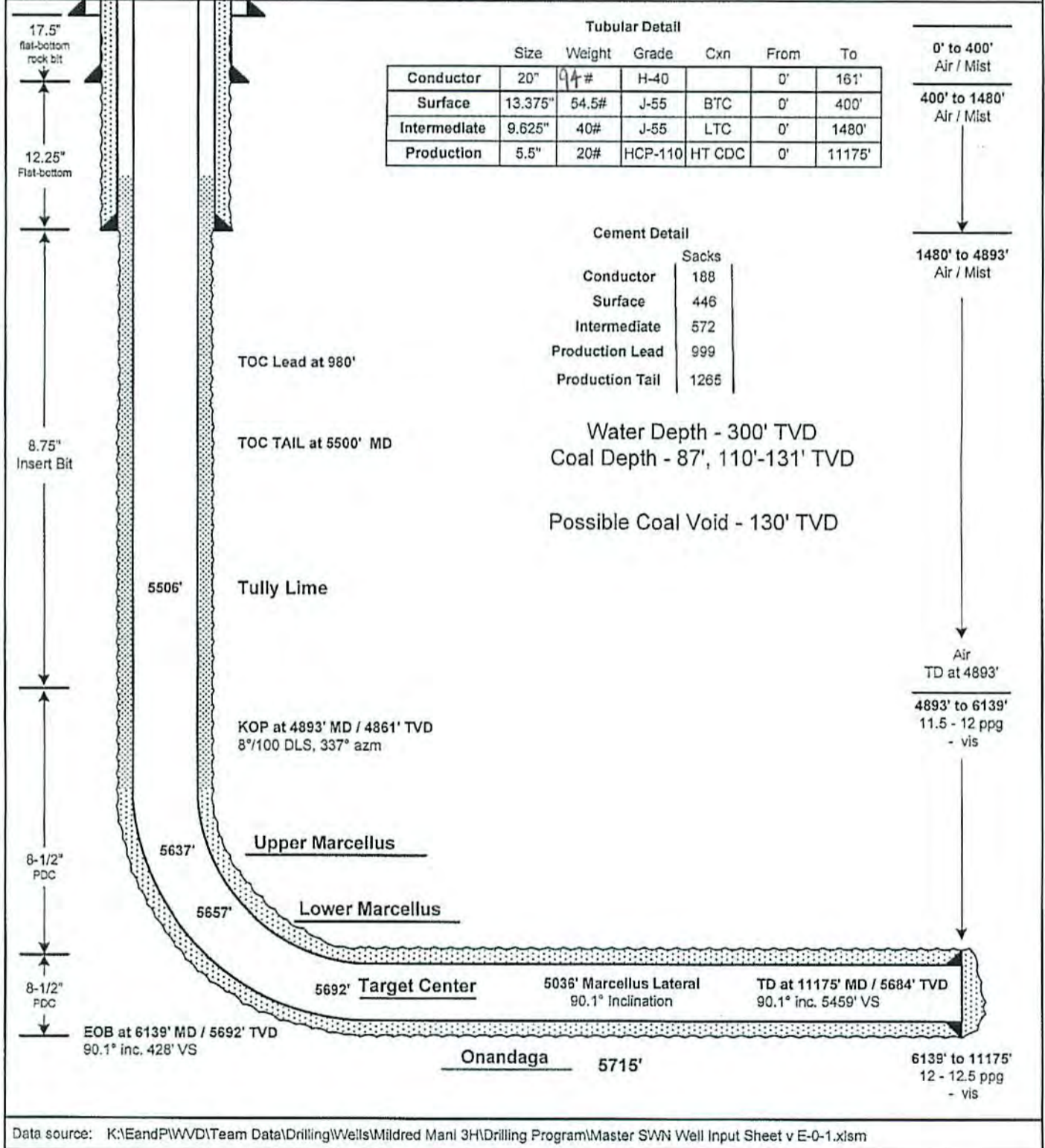
RECEIVED  
Office of Oil and Gas

07/31/2015  
JUL 28 2015

WV Department of  
Environmental Protection



Southwestern Energy Company		Proposed Drilling Program			
Well	: MILDRED MANI 3H	Re-entry Rig	: TBD		
Field	: PANHANDLE FIELD	Prospect	: PANHANDLE		
County	: BROOKE	State	: WV		
SHL	: 40.253952 Latitude -80.589535 Longitude				
BHL	: 40.26776909 Latitude -80.59712492 Longitude				
KB Elev	: 1116 ft MSL			KB	: 26 ft AGL



Data source: K:\EandP\WVD\Team Data\Drilling\Wells\Mildred Mani 3H\Drilling Program\Master SWN Well Input Sheet v E-0-1.xlsm

NOTE: This drawing was created for the Reentry Rig. The depths and lengths shown in the plot are referenced to Reentry Rig RKB.

07/31/2015

RECEIVED  
Office of Oil and Gas

JUL 28 2015

WV Department of  
Environmental Protection

4700900160

SLB Cement Additives

\*\*\*Ref: 2013-78

	Product Name	Product Use	Chemical Name	CAS Number
Surface	D046	antifoam	Fuller's earth (attapulgit)	8031-18-3
			Polypropylene glycol	25322-69-4
	D130	polyester flake - lcm	polyethylene terephthalate	25038-59-9
	S001	calcium chloride	calcium chloride	10043-52-4
	SPACER			
	D130	polyester flake - lcm	polyethylene terephthalate	25038-59-9
	D020	bentonite extender	bentonite	1302-78-9
Intermediate	D046	antifoam	Fuller's earth (attapulgit)	8031-18-3
			Polypropylene glycol	25322-69-4
	D130	polyester flake - lcm	polyethylene terephthalate	25038-59-9
	D044	granulated salt	sodium chloride	7647-14-5
	D153	Anti-Settling Agent	chrystalline silica	14808-60-7
	SPACER			
		D020	bentonite extender	bentonite
	D130	polyester flake - lcm	polyethylene terephthalate	25038-59-9
Kick Off Plug	D080	cement liquid dispersant	product classified as non-hazardous.	
	D801	mid-temp retarder	product classified as non-hazardous	
	D047	antifoam agent	polypropylene glycol	25322-69-4
	SPACER			
	B389	MUDPUSH* Express	Carbohydrate	proprietary
	D206	Antifoaming Agent	Silica Organic Polymer	proprietary
	D031	barite	barium sulfate	7727-43-7
			fatty acid amine	proprietary
			ethoxylated alcohol	proprietary
		glycerol	56-81-5	
B220	surfactant	2,2'-Iminodiethanol	111-42-2	
	D167	UNIFLAC* S	aliphatic amide polymer	proprietary

Received  
Office of Oil & Gas  
MAY 13 2015



4700900160

Production - Lead	D154	low-temperature extender	non-crystalline silica	7631-86-9
	D400	EasyBLOK	boric acid	10043-35-3
	D046	antifoam	Fuller's earth (attapulgite)	8031-18-3
			Polypropylene glycol	25322-69-4
	D201	basic cements enabler	chrySTALLINE silica	14808-60-7
			metal oxide	proprietary
	D202	low-temperature solid dispersant	sulphonated synthetic polymer	proprietary
			formaldehyde (impurity)	50-00-0
	D046	antifoam	Fuller's earth (attapulgite)	8031-18-3
			Polypropylene glycol	25322-69-4
	D187	UNIFLAC* S	aliphatic amide polymer	proprietary
	D065	TIC* Dispersant	Sodium Polynaphthalene Sulfonate	9008-63-3
			Sodium Sulfate	7757-82-6
	D201	basic cements enabler	chrySTALLINE silica	14808-60-7
			metal oxide	proprietary
	D153	Anti-Settling Agent	chrySTALLINE silica	14808-60-7
		SPACER		
	B389	MUDPUSH* Express	Carbohydrate	proprietary
	D208	Antifoaming Agent	Silica Organic Polymer	proprietary
D031	barite	barium sulfate	7727-43-7	
		fatty acid amine	proprietary	
		ethoxylated alcohol	proprietary	
		glycerol	56-81-5	
B220	surfactant	2,2'-Iminodiethanol	111-42-2	

Received  
Office of Oil & Gas  
MAY 13 2015

4700900160

<u>% Concentration Used</u>
0.2% BWOC
0.125 lb/sk
2% BWOC
1 lb/bbl
20 lb/bbl
0.2% BWOC
0.125 lb/sk
10% BWOW
0.15% BWOC
20 lb/bbl
1 lb/bbl
0.05 gal/sk
0.01 gal/sk
0.02 gal/sk
1 lb/bbl
0.1 gal/bbl
310 lb/bbl
1 gal/bbl
0.35% BWOC

Received  
Office of Oil & Gas  
MAY 13 2015



4700900160

8% BWOC
0.8% BWOC
0.2% BWOC
0.2% BWOC
0.3% BWOC
0.2% BWOC
0.35% BWOC
0.25% BWOC
0.2% BWOC
0.2% BWOC
proprietary
proprietary
7727-43-7
proprietary
proprietary
56-81-5
111-42-2

Received  
Office of Oil & Gas  
MAY 13 2015

WW-9  
(9/13)

API Number 47 - 69 -  
Operator's Well No. Mildred Mani BRK 3H

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name SWN Production Co., LLC OP Code 494512924

Watershed (HUC 10) Buffalo Creek Quadrangle 620-Stuebenville East

Elevation 1072' County 009-Brooke District 1-Buffalo

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

Will a pit be used? Yes  No

If so, please describe anticipated pit waste: closed loop system in place at this time- cuttings will be taken to a permitted landfill.

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 2D0072539/ 2D0413175/ 2D0610306/ 2D0610317 )
- Reuse (at API Number at next anticipated well, API# will be included with the WR-34/DDMR &/or permit addendum. )
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain flow back fluids will be put in steel tanks and reused or taken to a permitted disposal facility.)

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

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Air drill to KOP, Fluid Drill with SOBMM form KOP to TD

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

Additives to be used in drilling medium? see attached sheets

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

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

-Landfill or offsite name/permit number? Meadow SWF- 1032, SS Grading SWF- 4902, Northwestern SWF- 1025, Short Creek 1034/WV0109517/CID28726, Carbon Limestone 28726/CID28726  
Arden Landfill 10072, American 02-12954, Country wide 38390/CID38390, Pine Grove 13688

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 \_\_\_\_\_

Company Official (Typed Name) Dee Southall

Company Official Title Regulatory Supervisor

Received  
Office of Oil & Gas  
MAY 13 2015

Subscribed and sworn before me this 27th day of March, 2015

Brittany R Woody  
My commission expires 11/27/23





Form WW-9

Operator's Well No. Mildred Mani BRK 3H

SWN Production Co., LLC

Proposed Revegetation Treatment: Acres Disturbed 10 Prevegetation pH \_\_\_\_\_

Lime as determined by pH test min. 2 \_\_\_\_\_ Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 600 lbs/acre

Mulch Hay/Straw 2.5 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
White Grove	15	White Grove	15
Red Top	15	Red Top	15
Orchard Grass	20	Orchard Grass	20

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: *James Wilson*  
Comments: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

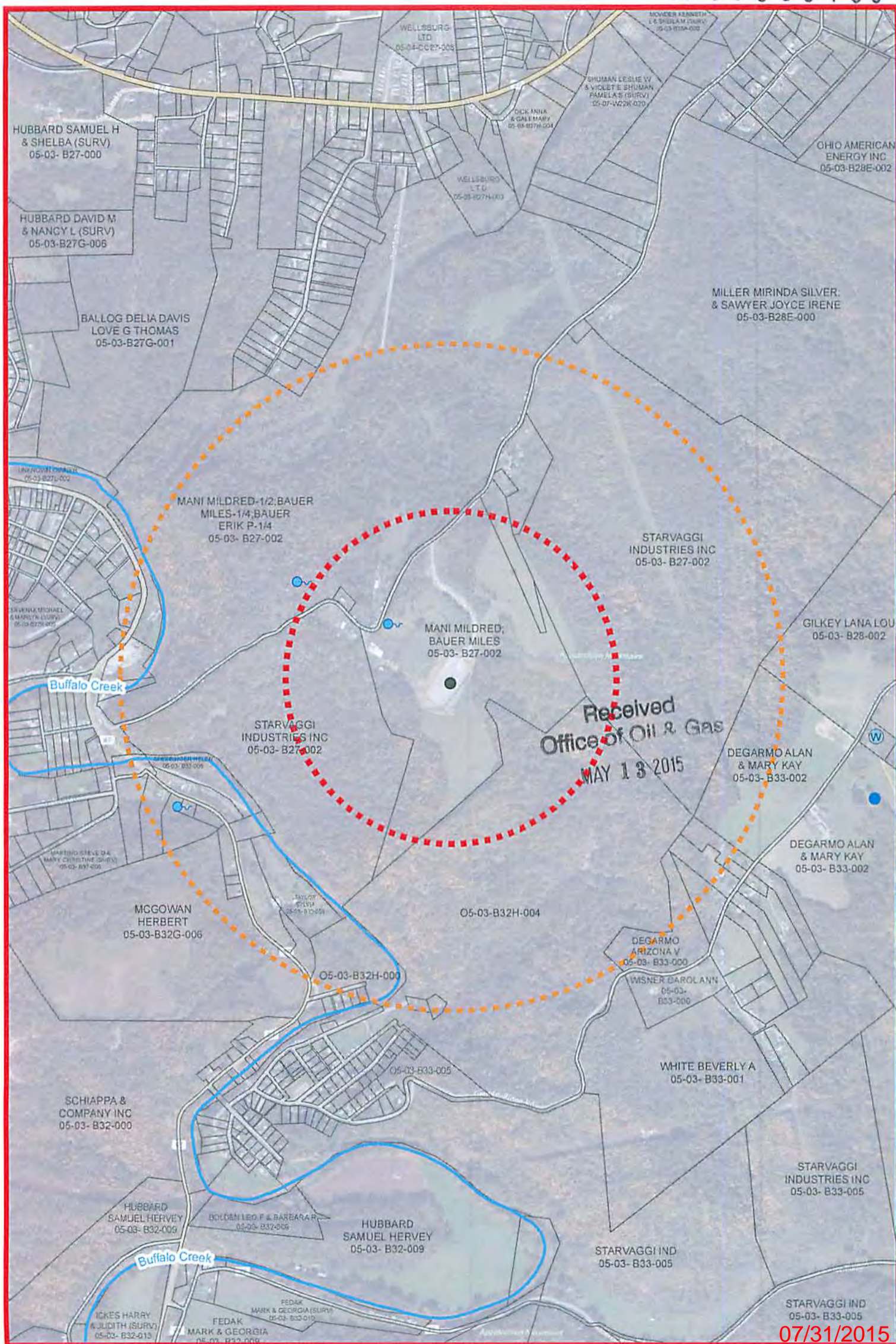
Title: Oil and Gas Inspector

Date: 4/7/15

Received  
Office of Oil & Gas  
MAY 13 2015

Field Reviewed?  Yes  No





The intent of this map is for general reference only. Information on this map was created using the best available data at the time but is not guaranteed accurate.

<b>Water Purveyor Map</b>		Well Pad: Mildred Mani Brk	County: Brook, WV
Map by: youngst	Date: 4/30/2015	1 inch = 1,000 feet	
Nad 83 UTM Z one 17			
Spring Well Pond Radius - 1500 ft Radius - 3000 ft			



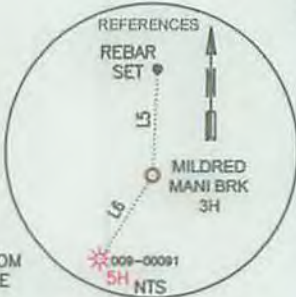
LINE	BEARING	DISTANCE	DESCRIPTION	MONUMENT
L1	S 89°02'06" E	1425.82'	SHL TO LANDMARK	FOUND IRON PIPE
L2	S 47°57'10" E	995.08'	SHL TO LANDMARK	FOUND IRON PIPE
L3	N 51°59'45" W	489.06'	SHL TO TPL	
L4	N 20°23'41" W	5036.48'	TPL TO BHL	
L5	N 02°51'19" E	165.27'	SHL TO REF. PNT.	1/2" REBAR SET
L6	S 31°54'52" W	27.50'	SHL TO REF. PNT.	MILDRED MANI BRK SH WELL HEAD 009-00091

Latitude: 40°17'30"

Longitude: 80°35'00"

GRID NORTH  
UTM, NAD83 DATUM, ZONE 17, US FT

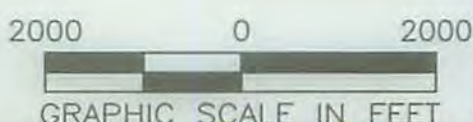
PROPERTY OWNER	PARCEL	ACRES	LEASE NUMBER
1 ERK PHILIP BAUER & MILDRED MANI & MILES BAUER	B27-26	75.44	1-329350-002 1-324207-001 1-324207-002
2 ERK PHILIP BAUER & MILDRED MANI & MILES BAUER	B27-21	204.94	1-329350-002 1-324207-001 1-324207-002
3 GERALD E. WELLMAN, JR.	B27L-42	0.76	1-329373-000
4 DONALD R. MYERS, II & LISA R. MYERS	B27L-43	0.85	47-000482-000
5 THOMAS W. & BARBARA J. SHRINER	B27L-44	0.80	1-329508-000
6 RAY C. ELLISON AND GLADYS B. ELLISON	B27L-45	0.89	1-329466-000
7 RANDY J. & CYNTHIA G. WEAVER	B27L-31	0.75	47-000171-000
8 JAMES WEAVER	B27L-30	0.47	47-000277-000
9 JOHN M. & TONIE A. WHITE	B27L-29	0.70	47-000053-000
10 JOHN J. ECKERSBERG	B27L-28	0.67	1-345228-000
11 ARTHUR APITZSCH & RENEE APITZSCH	B27L-27	0.66	47-000604-000
12 DAVID PHILLIPS	B27G-56	0.50	1-329158-000
13 JAMES WEAVER & DAVID E. SMITH	B27G-40	18.60	47-000277-000 1-329401-002
14 THE MALONEY FAMILY TRUST	B27G-49	11.21	47-000498-000
15 JEREMIAH J. STEIN	B27G-41	0.48	47-000355-000
16 GARY E. SEAVOLT	B27G-42	0.48	47-000357-000
17 GARY L. & DIANE L. WILSON	B27G-43	0.45	47-000234-000
18 ALFRED DISERIO	B27G-44	0.41	47-000280-000
19 CARLENE S. MORGAN	B27G-30.1	0.65	47-000228-000
20 FINLEY C. & NAOMI R. AMOS	B27G-29	0.32	1-329231-000
21 WILLIAM MARK & DEBORAH K. CIPOLETTI	B27G-28	0.58	47-000539-000
22 EUGENE & JUDY LYNN CIPOLETTI	B27G-27	0.57	47-000512-000



<b>SURFACE HOLE LOCATION (SHL):</b>
GEOGRAPHIC (NAD83): LATITUDE: 40.253952° LONGITUDE: -80.589535°
UTM (NAD83, ZONE 17, FEET): NORTHING: 14,619,474.782 EASTING: 1,754,940.932
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,456,024.826 EASTING: 534,907.066
<b>"TURNING POINT" LOCATION (TPL):</b>
GEOGRAPHIC (NAD83): LATITUDE: 40.254784° LONGITUDE: -80.590911°
UTM (NAD83, ZONE 17, FEET): NORTHING: 14,619,775.978 EASTING: 1,754,555.656
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,456,116.631 EASTING: 534,789.634
<b>BOTTOM HOLE LOCATION (BHL):</b>
GEOGRAPHIC (NAD83): LATITUDE: 40.267769° LONGITUDE: -80.597125°
UTM (NAD83, ZONE 17, FEET): NORTHING: 14,624,496.670 EASTING: 1,752,800.430
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,457,555.500 EASTING: 534,254.640

- NOTES ON SURVEY**
- COORDINATES SYSTEM IS UTM, NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
  - SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND FIELD LOCATIONS.
  - THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
  - NO DWELLINGS AND BUILDINGS WITHIN 625 FEET OF PROPOSED OF CENTER OF PAD.
  - NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
  - NO PERENNIAL STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 1000 FEET OF THE LIMITS OF DISTURBANCE.
  - NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.

SURVEYED BY TRIPLE H ENTERPRISES, WEST UNION, WV.



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 REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 667 *Darrell R. Boice*

COMPANY: **SWN** Production Company, LLC

WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25034	(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS	MINIMUM DEGREE OF ACCURACY: 1/200	MILDRED MANI BRK
	PROVEN SOURCE OF ELEVATION: SURVEY GRADE GPS (NAVD 88, US FT)	OPERATOR'S WELL #: 3H	API WELL #: 47 09 00160

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

WATERSHED: UPPER OHIO SOUTH ELEVATION: 1,073.0'

DISTRICT: BUFFALO COUNTY: BROOKE QUADRANGLE: STUEBENVILLE EAST WV.

SURFACE OWNER: MILDRED MANI & MILES BAUER & ERIK PHILIP BAUER ACREAGE: 75.44 +/-

OIL & GAS ROYALTY OWNER: MILDRED MANI & MILES BAUER & ERIK PHILIP BAUER ACREAGE: 393.252 +/-

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

CONVERT  PLUG & ABANDON  CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY) **07/31/2015**

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 5,692' TVD 11,175' TMD

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC	DESIGNATED AGENT: DEE SOUTHALL
ADDRESS: P.O. BOX 1300	ADDRESS: P.O. BOX 1300
CITY: JANE LEW STATE: WV ZIP CODE: 26378	CITY: JANE LEW STATE: WV ZIP CODE: 26378

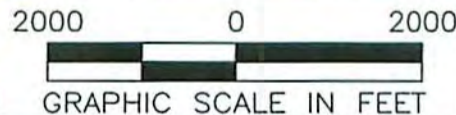
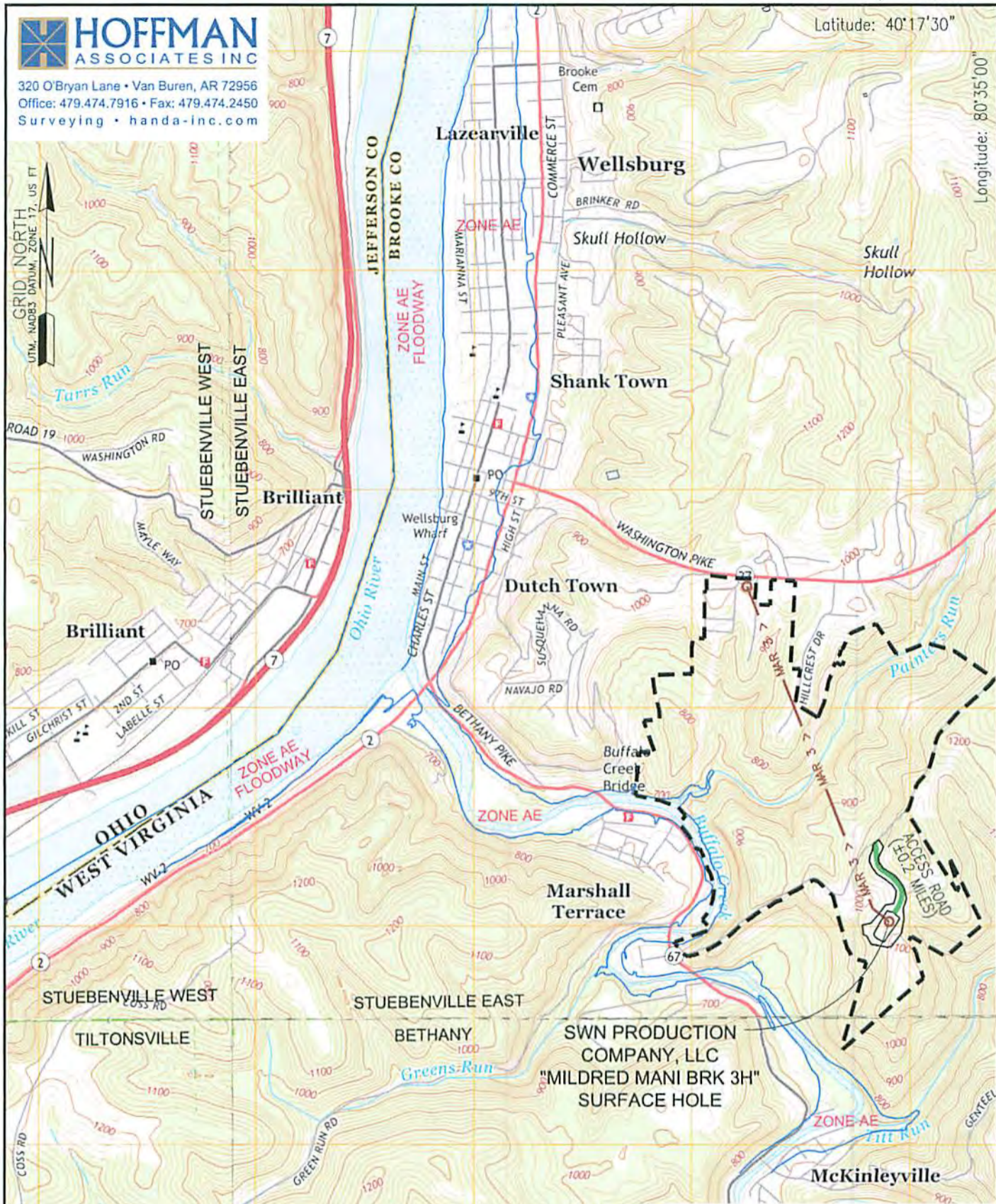
<b>LEGEND:</b> ○ PROPOSED SURFACE HOLE / BOTTOM HOLE * EXISTING / PRODUCING WELLHEAD ⊗ ABANDONED WELL ⊕ PLUGGED & ABANDONED WELL △ CUT CONDUCTOR --- LEASE BOUNDARY --- 500' DHP BUFFER --- MAR I --- MARCELLUS DHP --- ABANDONED PATH	<b>REVISIONS:</b> DATE: 04-28-2015 DRAWN BY: K. IRVIN SCALE: 1" = 2000' DRAWING NO: 58493 WELL LOCATION PLAT
---	---





320 O'Bryan Lane • Van Buren, AR 72956  
Office: 479.474.7916 • Fax: 479.474.2450  
Surveying • handa-inc.com

GRID NORTH  
UTM, NAD83 DATUM, ZONE 17, US FT



WELL: MILDRED MANI BRK 3H  
PAD: STUEBENVILLE EAST, WV

NAME AND DISTANCE TO THE NEAREST STREAM: TITT RUN IS LOCATED ±0.31 MILES SOUTHEAST OF THE CENTER OF THE DRILL PAD.		STREAM CROSSING COORDINATES (NAD 83): NO NEW CROSSINGS.		COMPANY: <b>SWN</b> Production Company, LLC	
WELL RESTRICTIONS: WELL PAD, LOD, & E & S CONTROL FEATURES TO PERENNIAL STREAM, LAKE, POND, RESERVOIR OR WETLAND: >100 FEET WELL PAD, LOD, & E & S CONTROL FEATURES TO NATURALLY PRODUCING TROUT STREAM: >300 FEET WELL PAD, LOD, & E & S CONTROL FEATURES TO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY: >1000 FEET WELL SHL TO EXISTING WATER WELL OR DEVELOPED SPRING: >250 FEET CENTER OF PAD TO OCCUPIED DWELLING STRUCTURE: >625 FEET CENTER OF PAD TO AGRICULTURAL BUILDINGS LARGER THAN 2500 SQ FT: >625 FEET		OPERATOR'S MILDRED MANI BRK		DATE: 04-28-2015	
FEMA FLOOD INFORMATION: BY GRAPHIC PLOTTING ONLY FEMA FIRM UNINCORPORATED AREA OF BROOKE COUNTY, WEST VIRGINIA; MAP NUMBERS 54009C0090 D, 54009C0130 D, & 54009C0088 D; EFFECTIVE DATE APRIL, 19, 2010.		LOCATION: BUFFALO DISTRICT, BROOKE COUNTY, WEST VIRGINIA		DRAWN BY: K. IRVIN	
LEGEND: ○ PROPOSED SURFACE HOLE / BOTTOM HOLE ● EXISTING / PRODUCING WELL-HEAD ○ ABANDONED WELL ● PLUGGED & ABANDONED WELL △ CUT CONDUCTOR		SURFACE HOLE LOCATION: GEOGRAPHIC (NAD83): LATITUDE: 40.253952° LONGITUDE: -80.589535°		SCALE: 1" = 2000' DRAWING NO: 58493 TOPOGRAPHIC MAP	
● EXISTING WATER WELL — ACCESS ROAD — ACCESS ROAD TO PREV. SITE — HIGHWAY/INTERSTATE — COUNTY ROAD		BOTTOM HOLE LOCATION: GEOGRAPHIC (NAD83): LATITUDE: 40.267769° LONGITUDE: -80.597125°		REVISIONS:	

07/31/2015



WW-6A1  
(5/13)

Operator's Well No. Mildred Mani North 3H

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE  
Chapter 22, Article 6A, Section 5(a)(5)  
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:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
-------------------------	-----------------------	-----------------------	---------	-----------

SEE EXHIBIT "A"

**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 **Received** 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

**Office of Oil & Gas**

MAY 13 2015

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: SWN Production Company L.L.C.

By: \_\_\_\_\_

Its: \_\_\_\_\_

Derek Thomas, Senior Landman

Exhibit "A"

Attached hereto and made part of the State of West Virginia Oil and Gas Permit Form WW-6A1 by, SWN Production Company L.L.C. Operator  
 Mildred Mani North 3H  
 Buffalo District, Brooke County, WV

Tract #	Tax Parcel	Lease Number	Lessor	Lessee	Royalty	BK/PG				
1)	B27-26	1-329350-002	Erik Phillip Bauer Chesapeake Appalachia L.L.C.	Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	18.00%	13/713 30/480				
		1-324207-001	Mildred Mani Great Lakes Energy Partners Range Resources L.L.C. Chesapeake Appalachia L.L.C.	Great Lakes Energy Partners Range Resources L.L.C. Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	15.50%	9/526 20/733 10/552 30/480				
	1-324207-002	Miles Bauer Great Lakes Energy Partners Range Resources L.L.C. Chesapeake Appalachia L.L.C.	Great Lakes Energy Partners Range Resources L.L.C. Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	15.50%	9/596 20/733 10/552 30/480					
		2)	B27-21	1-329350-002	Erik Phillip Bauer Chesapeake Appalachia L.L.C.	Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	18.00%	13/713 30/480		
				1-324207-001	Mildred Mani Great Lakes Energy Partners Range Resources L.L.C. Chesapeake Appalachia L.L.C.	Great Lakes Energy Partners Range Resources L.L.C. Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	15.50%	9/526 20/733 10/552 30/480		
			1-324207-002	Miles Bauer Great Lakes Energy Partners Range Resources L.L.C. Chesapeake Appalachia L.L.C.	Great Lakes Energy Partners Range Resources L.L.C. Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	15.50%	9/596 20/733 10/552 30/480			
				B27L-42	1-329373-000	Gerald E. Wellman, Jr. Chesapeake Appalachia L.L.C.	Chesapeake Appalachia, L.L.C. SWN Production Company L.L.C.	14.00%	12/78 30/480	
					B27L-43	47-000482-000	Donald R. Myers II and Lisa R. Myers Chesapeake Appalachia L.L.C.	Chesapeake Appalachia, L.L.C. SWN Production Company L.L.C.	18.00%	14/566 30/480
				5)	B27L-43	1-329506-000	Thomas William Shriner and Barbara Jean Shriner Chesapeake Appalachia L.L.C.	Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	14.00%	13/315 30/480
						1-329466-000	Ray C. Ellison and Gladys B. Ellison Chesapeake Appalachia L.L.C.	Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	14.00%	13/259 30/480
7)	B27L-43			47-000171-000	Randy J. Weaver and Cynthia G. Weaver Chesapeake Appalachia L.L.C.	Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	18.00%	13/678 30/480		

Received  
 Office of Oil & Gas  
 JUL 24 2015

4700900160

Exhibit "A"

Attached hereto and made part of the State of West Virginia Oil and Gas Permit Form WW-6A1 by, SWN Production Company L.L.C. Operator  
 Mildred Mani North 3H  
 Buffalo District, Brooke County, WV

Tract #	Tax Parcel	Lease Number	Lessor	Lessee	Royalty	BK/Pg
8)	B27L-30	47-000277-000	James Weaver, a widower Chesapeake Appalachia L.L.C.	Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	18.00%	13/682 30/480
9)	B27L-29	47-000053-000	John M. White and Tonie A. White Chesapeake Appalachia L.L.C.	Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	18.00%	13/447 30/480
10)	B27L-28	1-345226-000	John J. Eckersberg Chesapeake Appalachia L.L.C.	Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	18.00%	13/363 30/480
11)	B27L-27	47-000604-000	Arthur Apitzsch and Renee Apitzsch Chesapeake Appalachia L.L.C.	Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	18.00%	14/493 30/480
12)	B27G-56	1-329158-000	David Phillips Chesapeake Appalachia L.L.C.	Chesapeake Appalachia, L.L.C. SWN Production Company L.L.C.	18.00%	12/684 30/480
13)	B27G-40	1-329401-002 1-329401-001	David E. Smith Chesapeake Appalachia L.L.C. James Weaver, a widower Chesapeake Appalachia L.L.C.	Chesapeake Appalachia, L.L.C. SWN Production Company L.L.C. Chesapeake Appalachia, L.L.C. SWN Production Company L.L.C.	18.00% 18.00%	13/662 30/480 13/686 30/480
14)	B27G-49	47-000498-000	The Maloney Family Trust Chesapeake Appalachia L.L.C.	Chesapeake Appalachia, L.L.C. SWN Production Company L.L.C.	18.00%	14/448 30/480
15)	B27G-41	47-000355-000	Jeremiah J. Stein Chesapeake Appalachia L.L.C.	Chesapeake Appalachia L.L.C. SWN Production Company L.L.C.	18.00%	14/256 30/480
16)	B27G-42	47-000357-000	Gary R. Seavolt Chesapeake Appalachia L.L.C.	Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	18.00%	14/252 30/480
17)	B27G-43	47-000234-000	Gary L. Wilson and Diane L. Wilson Chesapeake Appalachia L.L.C.	Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	18.00%	14/193 30/480
18)	B27G-44	47-000260-000	Alfred Diserio Chesapeake Appalachia L.L.C.	Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	14.00%	14/516 30/480
19)	B27G-30.1	47-000226-000	Carlene S. Morgan Chesapeake Appalachia L.L.C.	Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	18.00%	14/240 30/480
20)	B27G-29	1-329231-000	Finley C. Amos and Naomi R. Amos Chesapeake Appalachia L.L.C.	Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	18.00%	11/671 30/480

Received  
 Office of Oil & Gas  
 JUL 24 2015

4700900160



Exhibit "A"

Attached hereto and made part of the State of West Virginia Oil and Gas Permit Form WW-6A1 by, SWN Production Company L.L.C. Operator  
Mildred Mani North 3H  
Buffalo District, Brooke County, WV

Tract #	Tax Parcel	Lease Number	Lessor	Lessee	Royalty	BK/PG
21)	B27G-28	47-000539-000	William Mark Cipoletti and Deborah K. Cipoletti Chesapeake Appalachia L.L.C.	Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	18.00%	15/116 30/480
22)	B27G-27	47-000512-000	Eugene Cipoletti and Judy Lynn Cipoletti Chesapeake Appalachia L.L.C.	Chesapeake Appalachia, L.L.C. SWN Production Company, L.L.C.	18.00%	14/406 30/480

Received  
Office of Oil & Gas  
JUL 24 2015

4700900160

# SWN

Southwestern Energy®

PO Box 1300  
Jane Lew, WV 26378  
PHONE: (832) 796-1610

March 26, 2015

Ms. Laura Adkins  
WV DEP Office of Oil & Gas  
601 57<sup>th</sup> St., SE  
Charleston, WV 25304

**RE:** SWN's proposed Mildred Mani BRK 3H & Mildred Mani BRK 205H in Brooke County, West Virginia, Drilling under Brady's Ridge Road.

Dear Ms. Adkins:

SWN Production Company, LLC ("SWN") is applying for a drilling permit for the above referenced well. The State of West Virginia has raised some concern as to SWN's right to drill under Brady's Ridge Road. Please be advised that SWN has leased all mineral owners under said route as it relates to the above-referenced well and unit.

Thank you.

Sincerely,



Derek A. Thomas  
Senior Landman  
SWN Production Company, LLC  
P. O. Box 1300  
Jane Lew, WV 26378

Received  
Office of Oil & Gas  
MAY 13 2015



The Right People doing the Right Things,  
wisely Investing the cash flow from  
our underlying Assets, will create Value+

07/31/2015

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

Date of Notice Certification: 5/8/15

API No. 47- 69 -  
Operator's Well No. Mildred Mani BRK 3H  
Well Pad Name: Mildred Mani BRK Pad

**Notice has been given:**

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

State:	<u>WV</u>	UTM NAD 83	Easting:	<u>534907.1</u>
County:	<u>009-Brooke</u>		Northing:	<u>4456024.8</u>
District:	<u>1-Buffalo</u>	Public Road Access:	<u>Bradys Ridge Road</u>	
Quadrangle:	<u>620-Stuebenville East</u>	Generally used farm name:	<u>Mildred Mani</u>	
Watershed:	<u>Buffalo Creek</u>			

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

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p style="text-align: center;"><b>OOG OFFICE USE ONLY</b></p> <p><input checked="" type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p style="text-align: center;"><b>Received</b> <b>Office of Oil &amp; Gas</b> MAY 13 2015</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED</p>
---	---

**Required Attachments:**

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



**Certification of Notice is hereby given:**

THEREFORE, I \_\_\_\_\_, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator: SWN Production Co., LLC  
By: Dee Southall  
Its: Regulatory Supervisor  
Telephone: 304-884-1610

Address: P.O. Box 1300  
Jane Lew, WV 26378  
Facsimile: 304-471-2497  
Email: Dee\_Southall@swn.com



Subscribed and sworn before me this 27th day of March 2015  
Brittany R Woody Notary Public  
My Commission Expires 11/27/22

**Oil and Gas Privacy Notice:**

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

Received  
Office of Oil & Gas  
MAY 13 2015



WW-6A  
(9-13)

API NO. 47- 69 -  
OPERATOR WELL NO. Mildred Mani BRK 3H  
Well Pad Name: Mildred Mani BRK Pad

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

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

Date of Notice: 5/8/15 Date Permit Application Filed: 5/8/15

Notice of:

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

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

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

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

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

SURFACE OWNER(s)  
 Name: Mildred Mani  
 Address: 1709 Bradys Ridge Road  
Wellsburg, WV 26070  
 Name: Miles Bauer  
 Address: 1709 Bradys Ridge Road  
Wellsburg, WV 26070

SURFACE OWNER(s) (Road and/or Other Disturbance)  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

SURFACE OWNER(s) (Impoundments or Pits)  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

COAL OWNER OR LESSEE  
 Name: Starvaggi Industries, Inc.  
 Address: 401 Pennsylvania Ave  
Weirton, WV 26062  
 COAL OPERATOR  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)  
 Name: Mildred Mani  
 Address: 1709 Bradys Ridge Road  
Wellsburg, WV 26070

OPERATOR OF ANY NATURAL GAS STORAGE FIELD  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

Received  
Office of Oil & Gas

\*Please attach additional forms if necessary

MAY 13 2015



WW-6A  
(9-13)

4700900160

API NO. 47- 69 -  
OPERATOR WELL NO. Mildred Mani BRK 3H  
Well Pad Name: Mildred Mani BRK Pad

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

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

Date of Notice: 5/8/15 Date Permit Application Filed: 5/8/15

Notice of:

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

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

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

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

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

SURFACE OWNER(s)  
Name: Erik P. Bauer  
Address: 136 S. Thomas DR  
Port Clinton OH 43452-9447

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

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

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

SURFACE OWNER(s) (Impoundments or Pits)

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

COAL OWNER OR LESSEE  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

COAL OPERATOR  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

OPERATOR OF ANY NATURAL GAS STORAGE FIELD  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

\*Please attach additional forms if necessary.

Received  
Office of Oil & Gas

MAY 13 2015

07/31/2015



WW-6A  
(8-13)

API NO. 47- 69 -  
OPERATOR WELL NO. Mildred Mani BRK 3H  
Well Pad Name: Mildred Mani BRK Pad

**Notice is hereby given:**

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

**This Notice Shall Include:**

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

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

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

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

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

**Well Location Restrictions**

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

Received  
Office of Oil & Gas  
MAY 13 2015

07/31/2015



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

#### **Water Well Testing:**

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

#### **Water Testing Laboratories:**

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

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

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

#### **Written Comment:**

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

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

Received  
Office of Oil & Gas

MAY 13 2015

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

07/31/2015

**Time Limits and Methods for Filing Comments.**

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

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

**Comment Requirements**

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

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

**Permit Denial or Condition**

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

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

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

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

Received  
Office of Oil & Gas  
MAY 13 2015



WW-6A  
(8-13)

4700900160

API NO. 47- 69 -  
OPERATOR WELL NO. Mildred Mani BRK 3H  
Well Pad Name: Mildred Mani BRK Pad

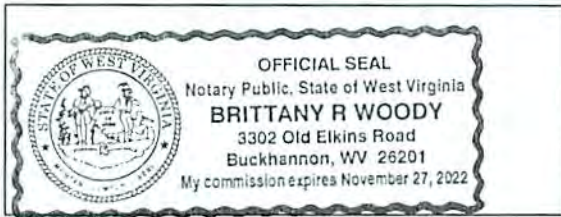
**Notice is hereby given by:**

Well Operator: SWN Production Co., LLC  
Telephone: 304-884-1610  
Email: Dee\_Southall@swn.com

Address: P.O. Box 1300  
Jane Lew, WV 26378  
Facsimile: 304-471-2497

**Oil and Gas Privacy Notice:**

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



Subscribed and sworn before me this 27<sup>th</sup> day of March 2015  
Brittany R Woody Notary Public  
My Commission Expires 11/27/22

Received  
Office of Oil & Gas  
MAY 13 2015

07/31/2015





WW-6A4  
(1/12)

**STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE OF INTENT TO DRILL**

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

**Notice Time Requirement:** Notice shall be provided at least TEN (10) days prior to filing a permit application.

**Date of Notice:** 03/23/2015      **Date Permit Application Filed:** 5/8/15

**Delivery method pursuant to West Virginia Code § 22-6A-16(b)**

HAND DELIVERY       CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

**Notice is hereby provided to the SURFACE OWNER(s):**

Name: Mildred Mani  
Address: 1709 Bradys Ridge Road CT  
Wellsburg, WV 26070

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-16(b), notice is hereby given that the undersigned well operator has an intent to enter upon the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State:	<u>WV</u>	UTM NAD 83	Easting:	<u>534907.1</u>
County:	<u>Brooke</u>		Northing:	<u>4456024.8</u>
District:	<u>Buffalo</u>	Public Road Access:	<u>Bradys Ridge Road</u>	
Quadrangle:	<u>Stuebenville East</u>	Generally used farm name:	<u>Mildred Mani</u>	
Watershed:	<u>Buffalo Creek</u>			

**This Notice Shall Include:**

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Notice is hereby given by:**

Well Operator: SWN Production Co., LLC  
Address: 179 Innovation Drive  
Jane Lew, WV 26378  
Telephone: 304-517-6603  
Email: steve\_perkins@swn.com  
Facsimile: 304-461-2497

Authorized Representative: Steve Perkins  
Address: 179 Innovation Drive  
Jane Lew, WV 26378  
Telephone: 304-514-6603  
Email: steve\_perkins@swn.com  
Facsimile: 304-461-2497

**Oil and Gas Privacy Notice:**

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

Received  
Office of Oil & Gas

MAY 13 2015

07/31/2015



STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE OF INTENT TO DRILL

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

**Notice Time Requirement:** Notice shall be provided at least TEN (10) days prior to filing a permit application.

**Date of Notice:** 03/23/2015 **Date Permit Application Filed:** 5/21/15

**Delivery method pursuant to West Virginia Code § 22-6A-16(b)**

HAND DELIVERY  CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

**Notice is hereby provided to the SURFACE OWNER(s):**

Name: Miles Bauer  
Address: 1709 Bradys Ridge Road CT  
Wellsburg, WV 26070

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-16(b), notice is hereby given that the undersigned well operator has an intent to enter upon the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State: WV UTM NAD 83 Easting: 534907.1  
County: Brooke Northing: 4456024.8  
District: Buffalo Public Road Access: Bradys Ridge Road  
Quadrangle: Stuebenville East Generally used farm name: Mildred Mani  
Watershed: Buffalo Creek

**This Notice Shall Include:**

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Notice is hereby given by:**

Well Operator: SWN Production Co., LLC  
Address: 179 Innovation Drive  
Jane Lew, WV 26378  
Telephone: 304-517-6603  
Email: steve\_perkins@swn.com  
Facsimile: 304-461-2497

Authorized Representative: Steve Perkins  
Address: 179 Innovation Drive  
Jane Lew, WV 26378  
Telephone: 304-514-6603  
Email: steve\_perkins@swn.com  
Facsimile: 304-461-2497

**Oil and Gas Privacy Notice:**

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

Received  
Office of Oil and Gas  
MAY 13 2015

07/31/2015



WW-6A5  
(1/12)

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

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

**Date of Notice:** 03/23/2015      **Date Permit Application Filed:** 5/8/15

**Delivery method pursuant to West Virginia Code § 22-6A-16(c)**

- CERTIFIED MAIL                                       HAND
- RETURN RECEIPT REQUESTED                                      DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

**Notice is hereby provided to the SURFACE OWNER(s)**  
(at the address listed in the records of the sheriff at the time of notice):

Name: Mildred Mani	Name: _____
Address: 1709 Bradys Ridge Road	Address: _____
Wellsburg, WV 26070	_____

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State: WV	UTM NAD 83	Easting: 534907.1
County: Brooke		Northing: 4456024.8
District: Buffalo	Public Road Access: Bradys Ridge Road	
Quadrangle: Stuebenville East	Generally used farm name: Mildred Mani	
Watershed: Buffalo Creek		

**This Notice Shall Include:**

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by W. Va. Code § 22-6A-10(b) to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

Well Operator: SWN Production Co., LLC	Address: 179 Innovation Drive
Telephone: 304-517-6603	Jane Lew, WV 26378
Email: steve_perkins@swn.com	Facsimile: 304-461-2497

**Oil and Gas Privacy Notice:**

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

Received  
Office of Oil & Gas  
MAY 13 2015

07/31/2015



WW-6A5  
(1/12)

**STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE OF PLANNED OPERATION**

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

**Date of Notice:** 03/23/2015      **Date Permit Application Filed:** \_\_\_\_\_

**Delivery method pursuant to West Virginia Code § 22-6A-16(c)**

- CERTIFIED MAIL                                       HAND  
RETURN RECEIPT REQUESTED                                      DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

**Notice is hereby provided to the SURFACE OWNER(s)**

(at the address listed in the records of the sheriff at the time of notice):

Name: Miles Bauer  
Address: 1709 Bradys Ridge Road  
Wellsburg, WV 26070

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State:	<u>WV</u>	UTM NAD 83	Easting:	<u>534907.1</u>
County:	<u>Brooke</u>		Northing:	<u>4456024.8</u>
District:	<u>Buffalo</u>	Public Road Access:	<u>Bradys Ridge Road</u>	
Quadrangle:	<u>Stuebenville East</u>	Generally used farm name:	<u>Mildred Mani</u>	
Watershed:	<u>Buffalo Creek</u>			

**This Notice Shall Include:**

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by W. Va. Code § 22-6A-10(b) to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

Well Operator: SWN Production Co., LLC  
Telephone: 304-517-6603  
Email: steve\_perkins@swn.com

Address: 179 Innovation Drive  
Jane Lew, WV 26378  
Facsimile: 304-461-2497

**Oil and Gas Privacy Notice:**

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

Received  
Office of Oil & Gas  
MAY 13 2015

07/31/2015









## WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

**Division of Highways**

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

Earl Ray Tomblin  
 Governor

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

April 14, 2015

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

Subject: DOH Permit for the Mildred Mani Pad, Brooke County  
 Mildred Mani BRK 3H

Dear Mr. Martin,

The West Virginia Division of Highways has transferred Permit #06-2013-0277 for the subject site to Southwestern Energy for access to the State Road for the well site located off of Brooke County Route 27/3 SLS.

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

Very Truly Yours,

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

Cc: Brittany Woody  
 Southwestern Energy  
 CH, OM, D-6  
 File

Received  
 Office of Oil & Gas

MAY 13 2015

07/31/2015

Supplier Name	Product Name	Product Use	Chemical Name	CAS Number
NALCO ONESOURCE	EC6110A	Biocide	Ethanol	000064-17-5
			Glutaraldehyde (Pentanediol)	000111-30-8
			Quaternary Ammonium Compounds	N/A-063
	EC6629A	Biocide	No Hazardous Components	NONE
WEATHERFORD	WBK-133 OXIDIZER	Breaker	Ammonium Persulfate	007727-54-0
	WBK-134	Breaker	Ammonium Persulfate	007727-54-0
			Crystalline Silica (Quartz Sand, Silicon Dioxide)	014808-60-7
	WCS-631LC	Clay Stabilizer	Proprietary Non Hazardous Salt	N/A-229
			Water	007732-18-5
	WFR-55LA	Friction Reducer	No Hazardous Components	NONE
	WGA-15L	Gel	Petroleum Distillate Hydrotreated Light	064742-47-8
	WPB-584-L	Buffer	Potassium Carbonate	000584-08-7
			Potassium Hydroxide	001310-58-3
	WXL-101LE	Crosslinker	No Hazardous Components	NONE
	WXL-101LM	Crosslinker	Petroleum Distillate Hydrotreated Light	064742-47-8
	WXL-105L	Crosslinker	Water	007732-18-5
Ethylene Glycol			000107-21-1	
Boric Acid			010043-35-3	
Ethanolamine			000141-43-5	
SCHLUMBERGER	B244 Green-Cide 25G	Biocide	Glutaraldehyde	111-30-8
	L071 Temporary Clay Stabilizer	Clay Stabilizer	Cholinium Chloride	67-48-1
	Breaker J218	Breaker	Diammonium Peroxidisulphate	7727-54-0
	EB-Clean* J475 Breaker		Diammonium Peroxidisulphate	7727-54-0
	Friction Reducer B315	Friction Reducer	Distillates (petroleum), Hydrotreated light Aliphatic Alcohol Glycol Ether	64742-47-8 Proprietary
	Friction Reducer J609		Ammonium Sulfate	7783-20-2

Received  
Office of Oil & Gas

MAY 13 2015

07/31/2015



4700900160

Supplier Name	Product Name	Product Use	Chemical Name	CAS Number
SCHLUMBERGER	Water Gelling Agent J580	Gel	Carbohydrate Polymer	Proprietary
	Scale Inhibitor B317	Scale Inhibitor	Trisodium ortho phosphate Ethane-1, 2-diol	7601-54-9 107-21-1
	Borate Crosslinker J532	Crosslinker	Aliphatic polyol Sodium tetraborate decahydrate	Proprietary 1303 96-4
	Crosslinker J610		Aliphatic polyol Potassium hydroxide	Proprietary 1310 58-3

Received  
Office of Oil & Gas

MAY 13 2015

07/31/2015

Supplier Name	Product Name	Product Use	Chemical Name	CAS Number
BAKER HUGHES	ALPHA 1427	Biocide	Didecyl Dimethyl Ammonium Chloride	007173-51-1
			Ethanol	000064-17-5
			Glutaraldehyde (Pentanediol)	000111-30-8
			Quaternary Ammonium Compound	068424-85-1
			Water	007732-18-5
	BF-7L	Buffer	Potassium Carbonate	000584-08-7
	ClayCare	Clay Stabilizer	Choline Chloride	000067-48-1
			Water	007732-18-5
	Enzyme G-I	Breaker	No Hazardous Components	NONE
	ENZYME G-NE	Breaker	No Hazardous Components	NONE
	FRW-18	Friction Reducer	Petroleum Distillate Hydrotreated Light	064742-47-8
	GW-3LDF	Gel	Petroleum Distillate Blend	N/A-014
			Polysaccharide Blend	N/A-021
SCALETROL 720	Scale Inhibitor	Diethylene Glycol	000111-46-6	
		Ethylene Glycol	000107-21-1	
XLW-32	Crosslinker	Boric Acid	010043-35-3	
		Methanol (Methyl Alcohol)	000067-56-1	
FRAC TECH SERVICES	APB01 (AMMONIUM PERSUFATE BREAKER)	Breaker	Ammonium Persulfate	007727-54-0
	B05 (LOW PH BUFFER)	Buffer	Acetic acid	000064-19-7
	BXL03 Borate XL Delayed High Temp	Crosslinker	No Hazardous Components	NONE
	FRW-200	Friction Reducer	No Hazardous Components	NONE
	HVG01 (TURQUOISE-1 BULK)	Gelling Agent	Petroleum Distillate Hydrotreated Light	064742-47-8
	KCLS-4	Clay Stabilizer	No Hazardous Components	NONE
	LTB-1	Breaker	Ammonium Persulfate	N/A

Received  
Office of Oil & Gas  
MAY 13 2015

07/31/2015



MISS Utility of West Virginia  
1-800-245-4848  
West Virginia State Law  
(Section XXV, Chapter 24-C)  
Requires that you call two business days before you dig in  
the state of West Virginia  
IT'S THE LAW!!!



Know what's below.  
Call before you dig.

**MILDRED MANI BRK AS-BUILT**  
AS-BUILT/PRODUCTION PLAN  
BUFFALO DISTRICT, BROOKE COUNTY, WV  
JULY 2015

PLANS PREPARED BY:

**TRIPLE H ENTERPRISES**  
204 NEELY AVENUE,  
WEST UNION, WV 26456  
304-873-3260



ANTHONY BAUMGARD, P.E. NO. WV 14029

OWNER:



**WVDEP OOG  
ACCEPTED AS-BUILT**

*WJL* 7/27/2015

SHEET INDEX

1. TITLE SHEET
- 2-3. EVACUATION SHEET
4. OVERALL PLAN SHEET
5. SITE PLAN SHEET
6. PROFILE SHEET
7. DETAIL SHEET

COORDINATES

SITE ENTRANCE  
(NAD 83)  
LAT. 40° 15' 25.6"  
LONG. 80° 35' 25.8"

COORDINATES

CENTER OF PAD  
(NAD 83)  
LAT. 40° 15' 13.6"  
LONG. 80° 35' 22.9"

ASSUMPTIONS:  
THE DRAWINGS, CONTRACT NOTES, AND  
REFERENCED LEGAL INSTRUMENTS  
HAVE BEEN PREPARED IN ACCORDANCE WITH  
THE WEST VIRGINIA CODE OF STATE REGULATIONS  
DIVISION OF ENVIRONMENTAL AFFAIRS OF THE  
AS-BUILT DATE.



● SITE LOCATION



NOTES

1. THE AS-BUILT DRAWINGS HEREIN REFLECTS FIELD DATA COLLECTED RELATIVE TO THE FINAL GRADING OF THE DISTURBED AREA AS OF JULY 27, 2015. TRIPLE H ENTERPRISES IS NOT RESPONSIBLE FOR ANY CHANGES MADE TO THE SITE AFTER THE ABOVE MENTIONED DATE.
2. THE EXISTING CONTAINMENT BERM AROUND THE WELL PAD SHALL BE REPAIRED AS NECESSARY TO ENSURE 100% CONTAINMENT OF ALL FLUIDS PRIOR TO DRILLING OPERATIONS.
3. THE EXISTING FENCE TO THE WELL PAD SHALL HAVE THE SPURTABLE BARS REPAIRED AS NECESSARY TO ENSURE 100% CONTAINMENT OF ALL FLUIDS PRIOR TO DRILLING OPERATIONS.

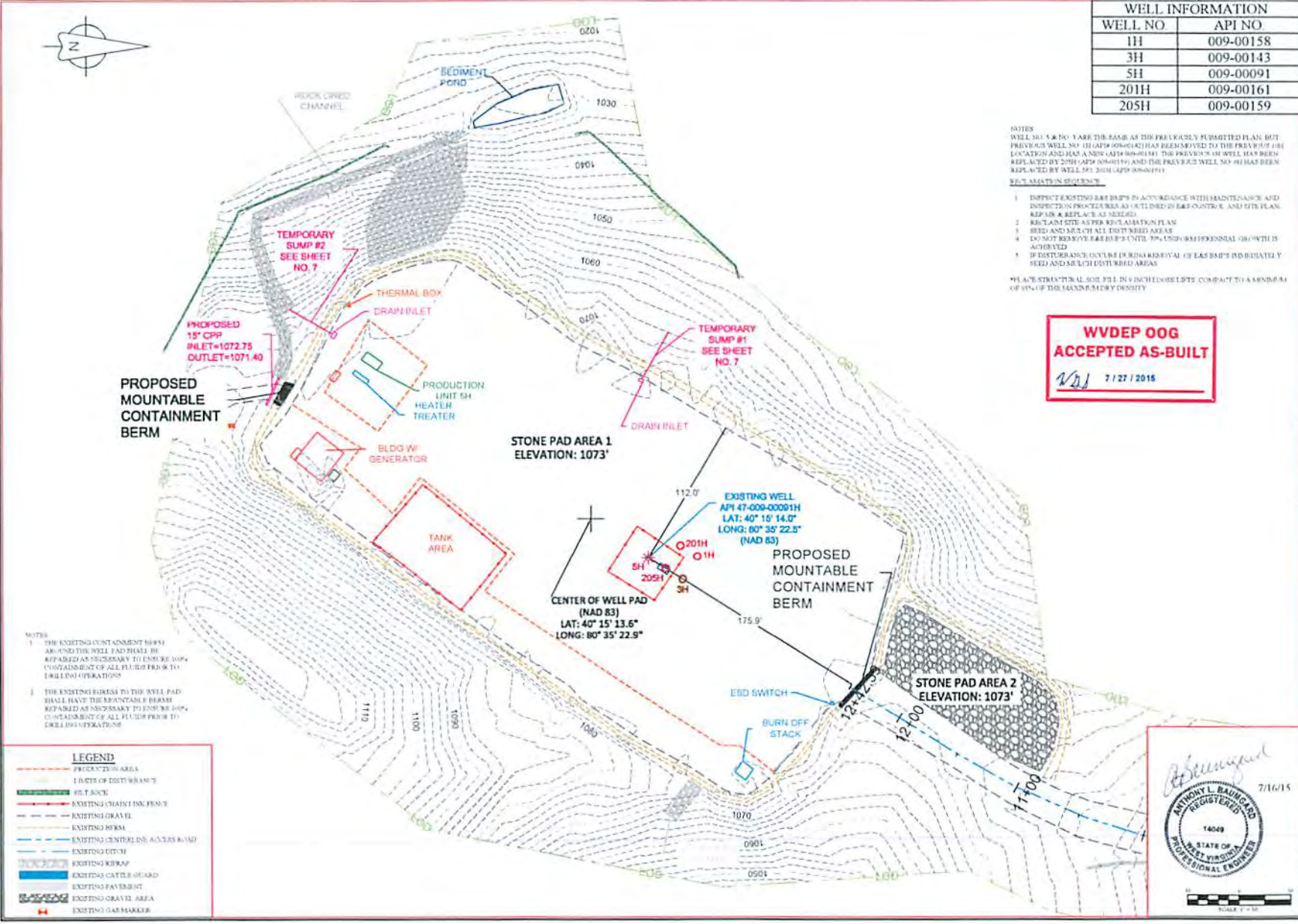
Triple H Enterprises

SWN

MILDRED MANI BRK AS-BUILT  
BUFFALO DISTRICT BROOKE COUNTY  
WEST VIRGINIA

JOB  
DATE: 6/18/2015  
DRAWN BY: ACR  
SCALE: AS SHOWN  
SHEET: 1 OF 1





WELL INFORMATION	
WELL NO.	API NO.
1H	009-00158
3H	009-00143
5H	009-00091
201H	009-00161
205H	009-00159

- NOTES
- WELL NO. 5 & 6 TO TAKE THE PLACE OF THE PREVIOUSLY SUBMITTED PLAN, BUT PREVIOUS WELL NO. 5H (API 009-00091H) HAS BEEN MOVED TO THE PREVIOUS WELL LOCATION AND HAS A NEW LATER 009-00143. THE PREVIOUS WELL HAS BEEN REPLACED BY 201H (API 009-00161) AND THE PREVIOUS WELL NO. 6H HAS BEEN REPLACED BY WELL NO. 205H (API 009-00159).
- WELL ABANDON SCHEME
- INSPECT EXISTING RAB BHP'S IN ACCORDANCE WITH MAINTENANCE AND INSPECTION PROCEDURES AS OUTLINED IN REG. CONTROL AND SITE PLAN. REPAIR & REPLACE AS NEEDED.
  - RECLAIM SITE AS PER WELLS ABANDON PLAN.
  - SEED AND MULCH ALL EXPOSED AREAS.
  - DO NOT REMOVE TREES UNTIL 70% UNDER-BRANCHING GROWTH IS ACHIEVED.
  - IF DISTURBANCE OCCURS OR REMOVAL OF RAB BHP'S IMMEDIATELY REEVALUATE AND MULCH DISTURBED AREAS.
- WEAVE STRUCTURAL SOIL FILL IN 4" DITCH COARSELY COMPACT TO A MINIMUM OF 95% OF THE MAXIMUM DENSITY.

**WVDEP OOG  
ACCEPTED AS-BUILT**

*[Signature]* 7/27/2015

- NOTES
- THE EXISTING CONTAINMENT BERM AROUND THE WELL PAD SHALL BE REPAIRED AS NECESSARY TO ENSURE 100% CONTAINMENT OF ALL FLUIDS FROM ALL DRILLING OPERATIONS.
  - THE EXISTING FENCE TO THE WELL PAD SHALL HAVE THE MOUNTABLE BERMS REPAIRED AS NECESSARY TO ENSURE 100% CONTAINMENT OF ALL FLUIDS FROM ALL DRILLING OPERATIONS.

**LEGEND**

- PRODUCTION AREA
- 1.0 FEET OF DISTURBANCE
- ROCK LINED CHANNEL
- EXISTING CHAIN LINK FENCE
- EXISTING GRAVEL
- EXISTING BERM
- EXISTING CENTERLINE ACCESS ROAD
- EXISTING DITCH
- EXISTING KICKAP
- EXISTING CATTLE GUARD
- EXISTING PAVEMENT
- EXISTING GRAVEL AREA
- EXISTING GAS MARKER



MILKED MAN BRK AS-BUILT  
BUFFALO DISTRICT BROOKS COUNTY  
WEST VIRGINIA

*[Signature]* 7/16/15

ANTHONY L. BAUMGARD  
REGISTERED  
14049  
STATE OF WEST VIRGINIA  
PROFESSIONAL ENGINEER

SCALE: 1" = 10'

JOB: 07-18-2015  
DATE: 07-18-2015  
DRAWN BY: ACB  
SCALE: AS SHOWN  
SHEET 5 OF 7



# WEST VIRGINIA 811

TWO WORKING DAYS PRIOR TO EXCAVATION, THE CONTRACTOR MUST CONTACT THE WV ONE CALL SYSTEM, INC., 1-800-245-4848

# MILDRED MANI AS-BUILT & RECL BUFFALO DISTRICT, BR MARCH

OWNER



SWN PRODUCTION CO., LLC.  
P.O. BOX 1300  
JANE LEW, WV 26378  
(832)-796-1610

- SHEET
- 1. TITLE
- 2-3. EVACUA
- PREVAILIN
- 4. AS-BUILT
- 5-6. AS
- 7. ACCESS R
- 8. RECLAMATION
- 9-10. RECLAM
- 11-12. I

TOTAL DISTURBED  
PAD DISTURBED  
ROAD DISTURBED

ACCESS ROAD  
ACCESS ROAD A  
WELL PAD ELE

1H - API#  
3H - API#  
5H - API#



**TITLE SHEET**  
MILDRED MANI BRK PAD A  
BUFFALO DISTRICT, BROOKE COUNTY, WV

07/31/2015



# NI BRK PAD A AMINATION PLAN ROOKE COUNTY, WV 2015

PLANS PREPARED BY:

**BOORD BENCHEK & ASSOCIATES, INC.**  
ENGINEERING, SURVEYING, CONSTRUCTION AND MINING SERVICE'S  
SOUTHPOINTE, PA 15317 PHONE: 724-746-1055

INDEX
SHEET
ION ROUTE/
IG WINDS
OVERVIEW
-BUILT
DAD PROFILE
PLAN OVERVIEW
ATION PLAN
DETAILS
AREA: 10.0 ACRES
AREA: 5.6 ACRES
AREA: 4.4 ACRES
LENGTH: 1,233'
VG. WIDTH: 24'
ATION: 1072'

Received  
Office of Oil & Gas  
MAY 13 2015



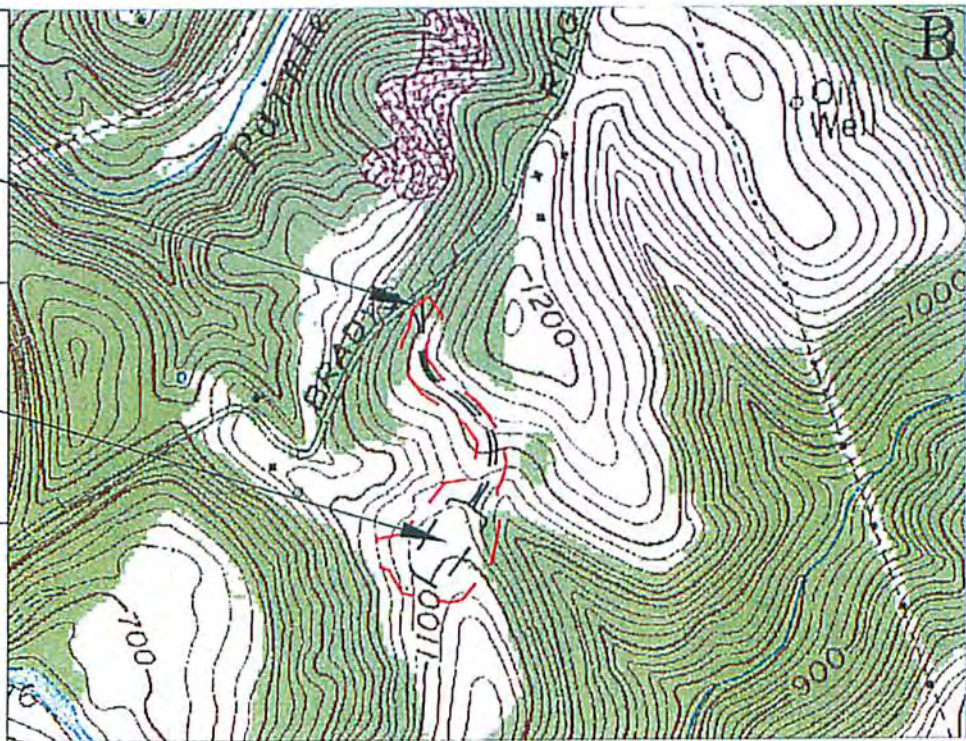
*Handwritten signature and date: 4/9/15*

*Handwritten signature of Andrew Benchek*  
ANDREW BENCHEK  
P.E.

*Handwritten date: 3-4-15*  
DATE

009-00142  
009-00143  
009-00091

COORDINATES	
SITE ENTRANCE (NAD 83)	
LAT: 40° 15' 25.8"	
LONG: 80° 35' 25.2"	
(NAD 27)	
LAT: 40° 15' 25.6"	
LONG: 80° 35' 25.9"	
CENTER OF WELLS (NAD 83)	
LAT: 40° 15' 14.4"	
LONG: 80° 35' 22.6"	
(NAD 27)	
LAT: 40° 15' 14.1"	
LONG: 80° 35' 23.3"	



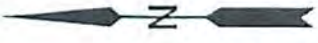
1" = 1000'



SHEET

1  
OF  
12





 = EVACUATION ROUTE

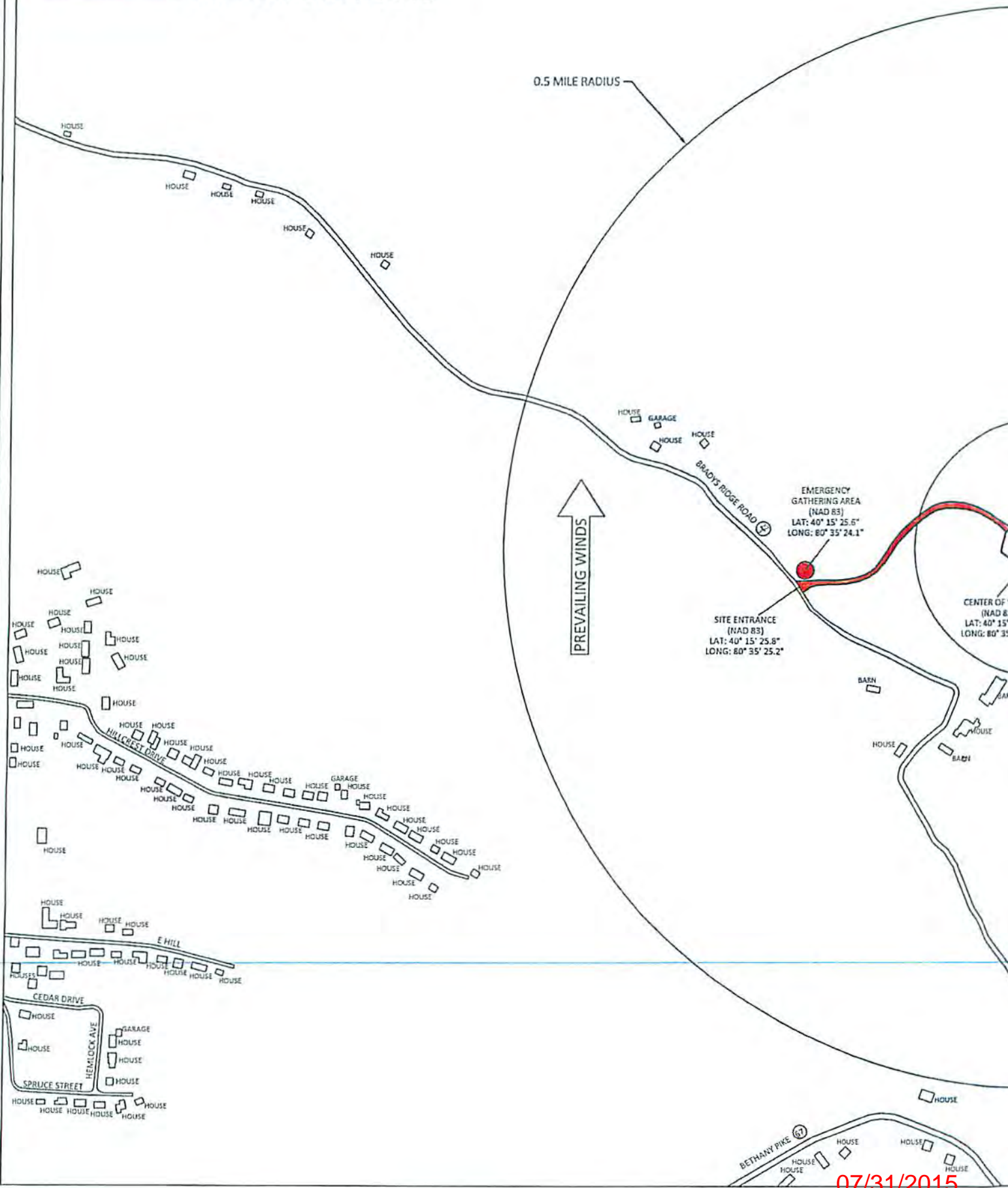
0.5 MILE RADIUS

↑  
PREVAILING WINDS

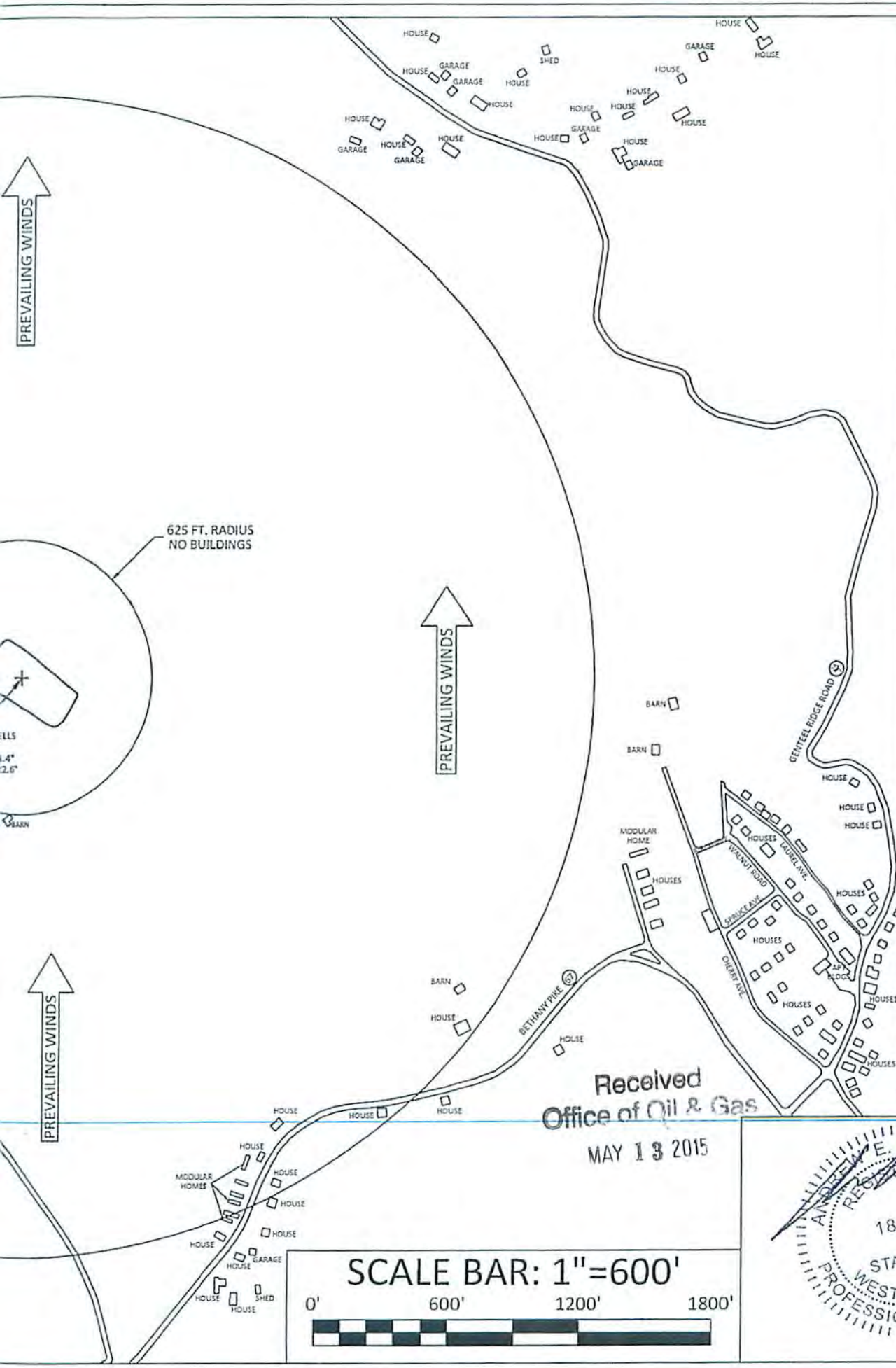
EMERGENCY GATHERING AREA  
(NAD 83)  
LAT: 40° 15' 25.6"  
LONG: 80° 35' 24.1"

SITE ENTRANCE  
(NAD 83)  
LAT: 40° 15' 25.8"  
LONG: 80° 35' 25.2"

CENTER OF W...  
(NAD 83)  
LAT: 40° 15' ...  
LONG: 80° 35' ...



07/31/2015



**BOORD, BENCHEK and ASSOC., INC.**  
 Engineering, Surveying, Construction,  
 and Mining Services  
 Southpointe, PA 15317 Phone: 724-746-1055

*M*  
*4/9/15*

**EVACUATION ROUTE/  
 PREVAILING WINDS**  
 THIS DOCUMENT WAS PREPARED BY:  
 BOORD, BENCHEK AND ASSOC., INC.  
 FOR: SWN PRODUCTION CO., LLC.

SHEET 2 OF 12

DATE:  
 MARCH 2015  
 MILDRED MANI  
 BRK PAD A  
 BUFFALO DISTRICT,  
 BROOKE COUNTY,  
 WV

Received  
 Office of Oil & Gas  
 MAY 13 2015



07/31/2015



 = EVACUATION ROUTE

B

0.5 MILE RADIUS

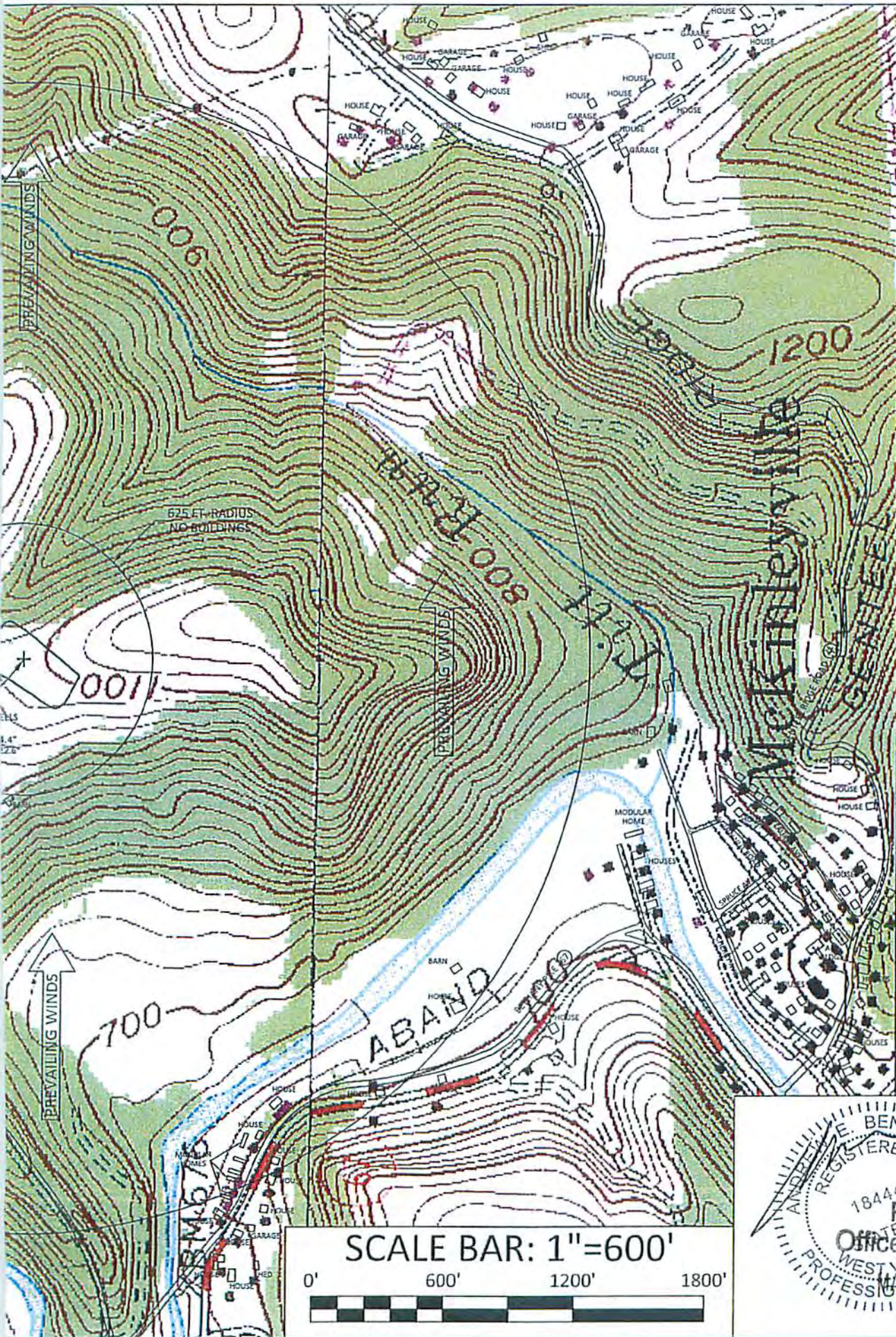
PREVENT WINDS

SITE ENTRANCE  
(MAD 83)  
LAT: 40° 35' 25.8"  
LONG: 80° 35' 25.2"

EMERGENCY  
GATHERING AREA  
(MAD 83)  
LAT: 40° 15' 25.6"  
LONG: 80° 35' 24.1"

CENTER OF W  
(MAD 83)  
LAT: 40° 15' 1"  
LONG: 80° 35' 1"





BOORD, BENCHEK and ASSOC., INC.  
 Engineering, Surveying, Construction,  
 and Mining Services  
 Southpointe, PA 15317 Phone: 724-746-1055

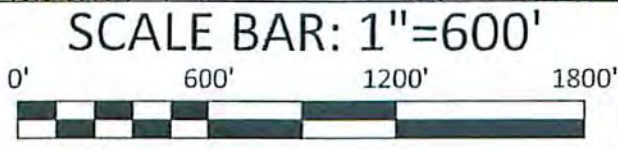
*4/19/15*

**EVACUATION ROUTE/  
 PREVAILING WINDS**

THIS DOCUMENT WAS PREPARED BY:  
 BOORD, BENCHEK AND ASSOC., INC.  
 FOR: SWN PRODUCTION CO., LLC.

SHEET 3 OF 12

DATE:  
 MARCH 2015  
 MILDRED MANI  
 BRK PAD A  
 BUFFALO DISTRICT,  
 BROOKE COUNTY,  
 WV



07/31/2015



**LEGEND**  
— = PROJECT BOUNDARY (10.0 ACRES)  
- - - = PROPERTY LINE

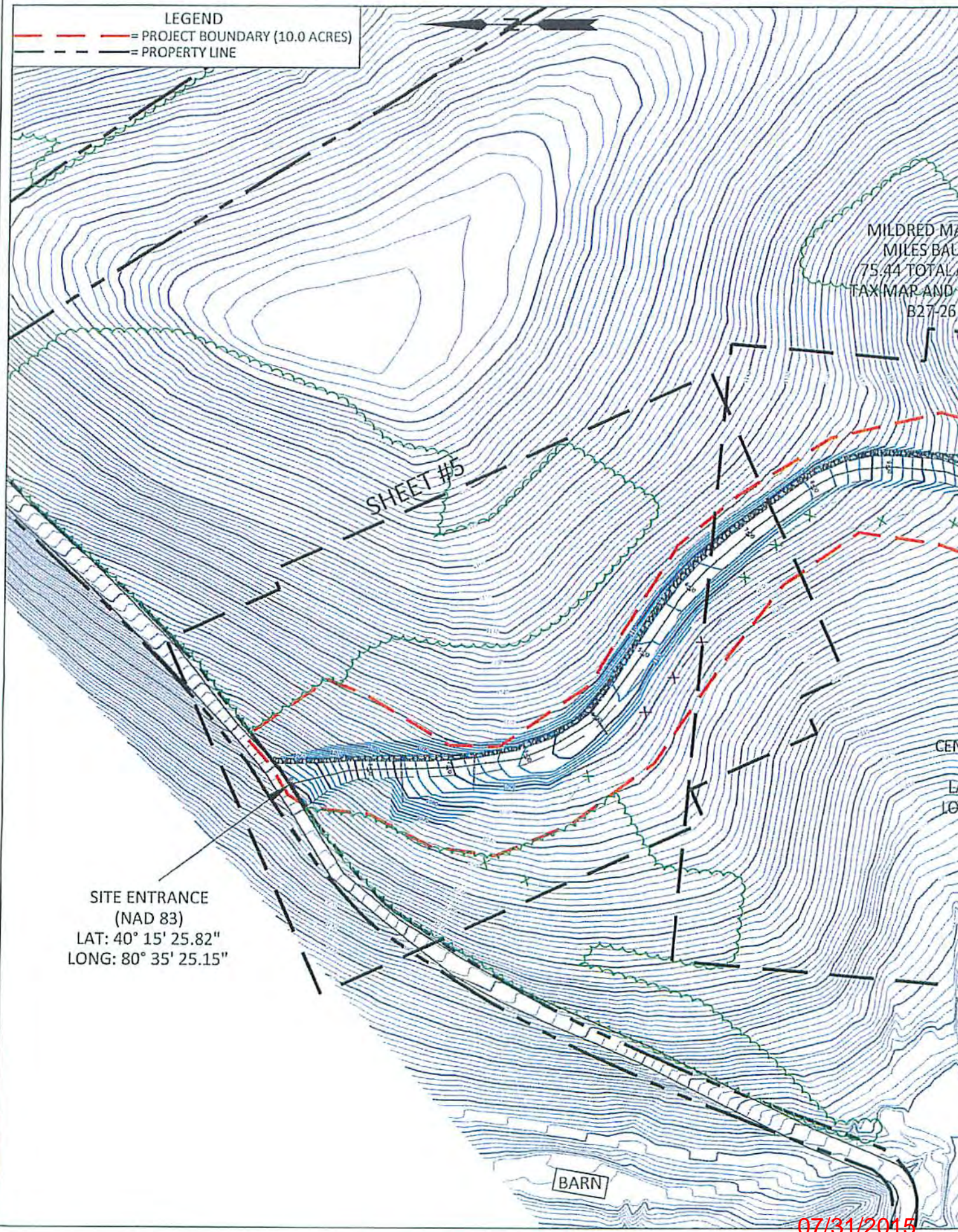
MILDRED MA  
MILES BAU  
75.44 TOTAL A  
TAX MAP AND F  
B27-26

SHEET #5

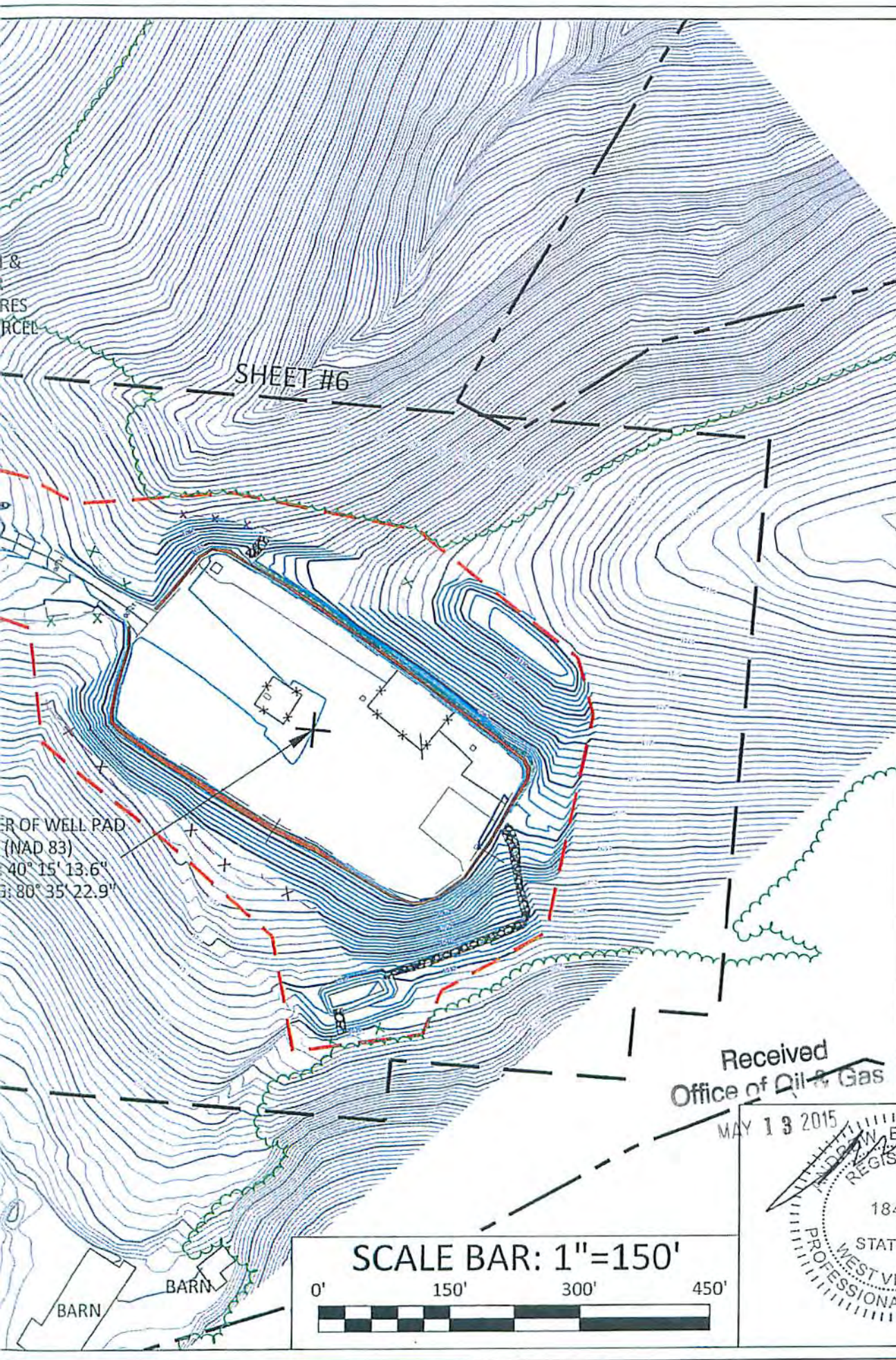
SITE ENTRANCE  
(NAD 83)  
LAT: 40° 15' 25.82"  
LONG: 80° 35' 25.15"

BARN

07/31/2015







BOORD, BENCHEK and ASSOC., INC.  
 Engineering, Surveying, Construction,  
 and Mining Services  
 Southpointe, PA 15317 Phone: 724-746-1055

*Handwritten signature*  
 4/9/15

**AS-BUILT OVERVIEW**

THIS DOCUMENT WAS PREPARED BY:  
 BOORD, BENCHEK AND ASSOC., INC.  
 FOR: SWN PRODUCTION CO., LLC.

SHEET 4 OF 12

DATE: MARCH 2015  
 MILDRED MANI  
 BRK PAD A  
 BUFFALO DISTRICT,  
 BROOKE COUNTY,  
 WV













Received  
 Office of Oil & Gas  
 MAY 13 2015

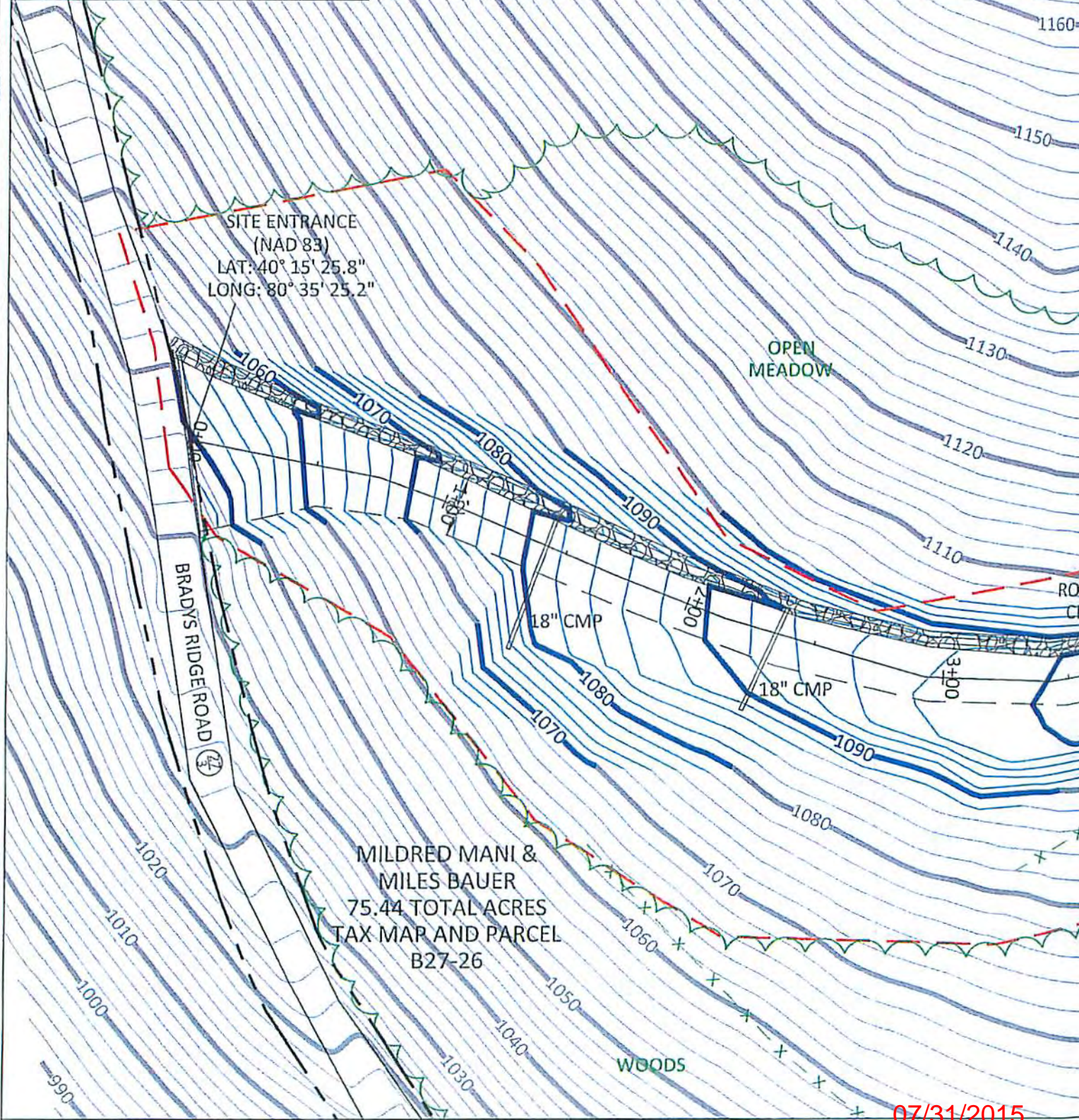


07/31/2015



LEGEND

-  = REINFORCED FILTER FENCE
-  = SUPER SILT FENCE
-  = FENCE LINE
-  = EXISTING 10' CONTOURS
-  = EXISTING 2' CONTOURS
-  = AS-BUILT 10' CONTOURS
-  = AS-BUILT 2' CONTOURS
-  = PROJECT BOUNDARY (10.0 ACRES)
-  = PROPERTY LINE
-  = TREE LINE
-  = DRILLED WELL
-  = PROPOSED WELL



MILDRED MANI &  
MILES BAUER  
75.44 TOTAL ACRES  
TAX MAP AND PARCEL  
B27-26



1180

MILDRED MANI &  
MILES BAUER  
75.44 TOTAL ACRES  
TAX MAP AND PARCEL  
B27-26

BOORD, BENCHEK and ASSOC., INC.  
Engineering, Surveying, Construction,  
and Mining Services  
Southpointe, PA 15317 Phone: 724-746-1055

AS-BUILT

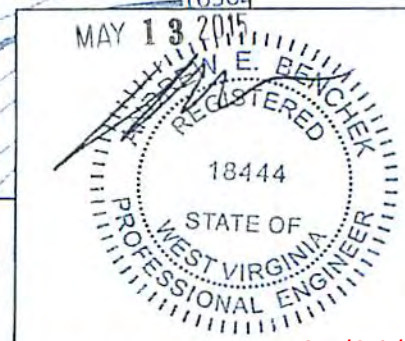
THIS DOCUMENT WAS PREPARED BY:  
BOORD, BENCHEK AND ASSOC., INC.  
FOR: SWN PRODUCTION CO., LLC.

DATE:  
MARCH 2015  
MILDRED MANI  
BRK PAD A

BUFFALO DISTRICT,  
BROOKE COUNTY,  
WV

Received  
Office of Oil & Gas

MAY 13 2015

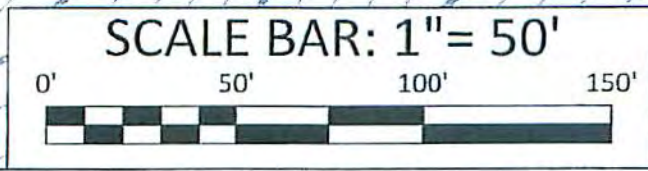


KLINED  
ANNEI

STONE ACCESS ROAD

18" CMP

OPEN  
MEADOW

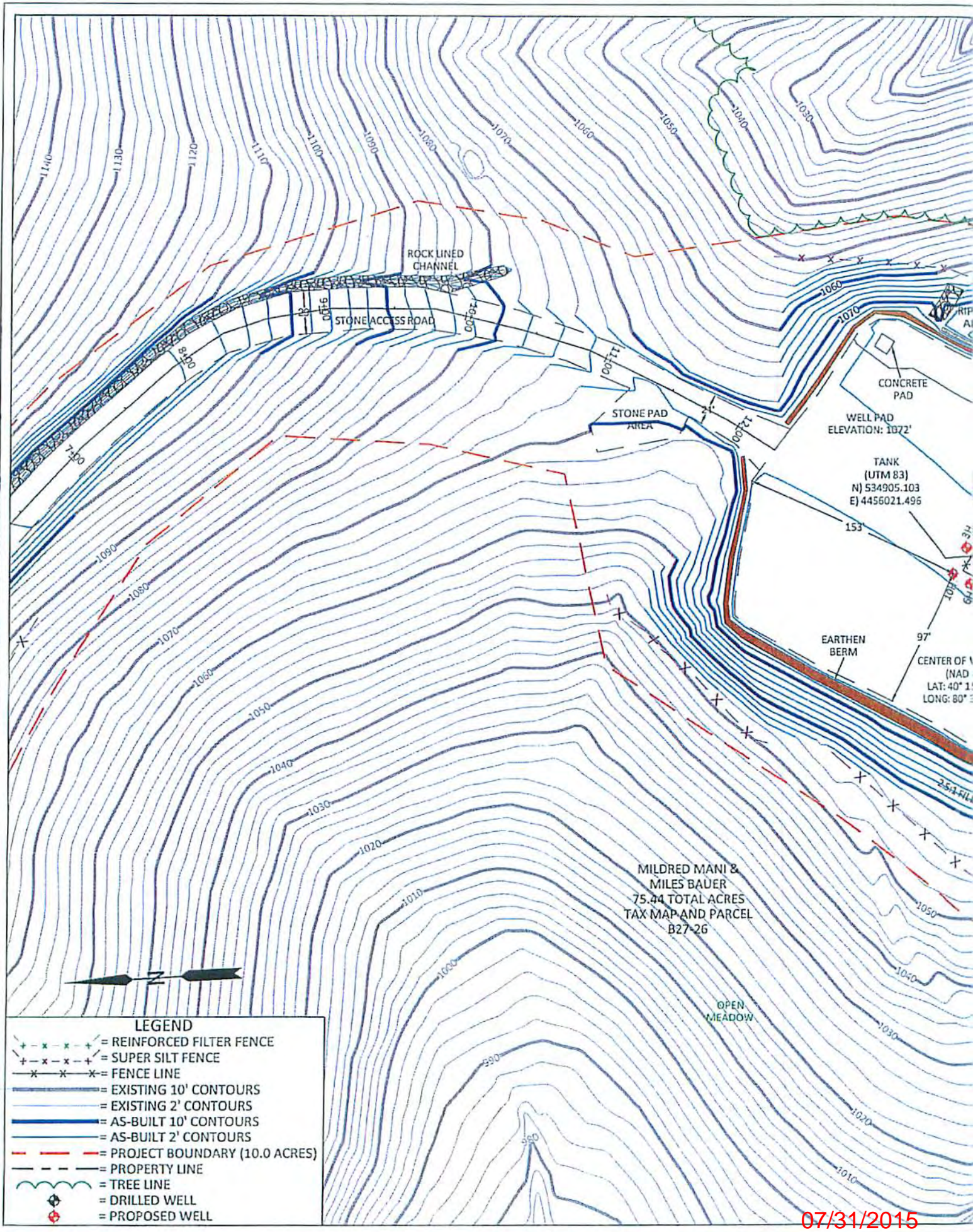


07/31/2015

SHEET 5 OF 12

*Handwritten signature and date: 8/24/15*





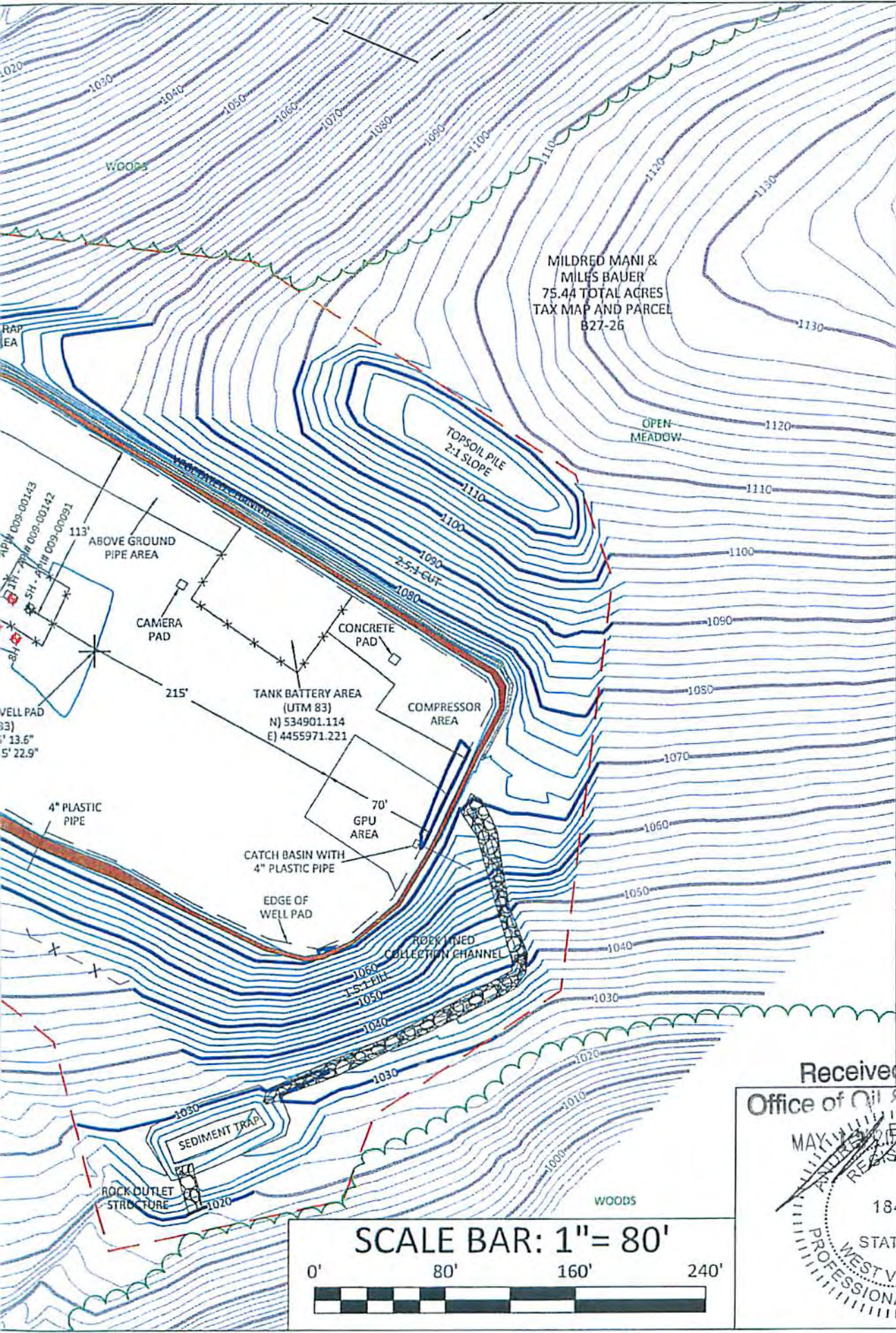
MILDRED MANI &  
MILES BAUER  
75.44 TOTAL ACRES  
TAX MAP AND PARCEL  
B27-26

**LEGEND**

- + -+ -+ -+ = REINFORCED FILTER FENCE
- x -x -x -x = SUPER SILT FENCE
- x -x -x -x = FENCE LINE
- (thin blue) = EXISTING 10' CONTOURS
- (medium blue) = EXISTING 2' CONTOURS
- (thick blue) = AS-BUILT 10' CONTOURS
- (darker blue) = AS-BUILT 2' CONTOURS
- - - (red) = PROJECT BOUNDARY (10.0 ACRES)
- - - (black) = PROPERTY LINE
- - - (green) = TREE LINE
- ⊕ (black) = DRILLED WELL
- ⊕ (red) = PROPOSED WELL

07/31/2015





**BOORD, BENCHEK and ASSOC., INC.**  
 Engineering, Surveying, Construction,  
 and Mining Services

Southpointe, PA 15317 Phone: 724-746-1055

*Handwritten signature and date: 4/9/15*

**AS-BUILT**

THIS DOCUMENT WAS PREPARED BY:  
 BOORD, BENCHEK AND ASSOC., INC.  
 FOR: SWN PRODUCTION CO., LLC.

SHEET 6 OF 12

DATE:  
 MARCH 2015  
 MILDRED MANI  
 BRK PAD A  
 BUFFALO DISTRICT,  
 BROOKE COUNTY,  
 WV

Received  
 Office of Oil & Gas  
 MAY 13 2015  
 BOORD, BENCHEK  
 REGISTERED  
 18444  
 STATE OF  
 WEST VIRGINIA  
 PROFESSIONAL ENGINEER



07/31/2015



ACCESS ROAD PRO  
SCALE: 1" = 50'

1150

1100

1050

14.41%

18" CMP #1

18" CMP #2

1000

1046.00

0+00

1061.47

0+50

1072.90

1+00

1082.20

1+50

1089.13

2+00

1094.62

2+50

1098.00

3+00

1100.00

3+50

M

1150

1100

1050

-5.61%

-9.11%

1108.00

7+00

1108.00

7+50

1107.66

8+00

1103.95

8+50

1097.08

9+00

1089.39

9+50

1082.72

10+00

1077.46

10+50

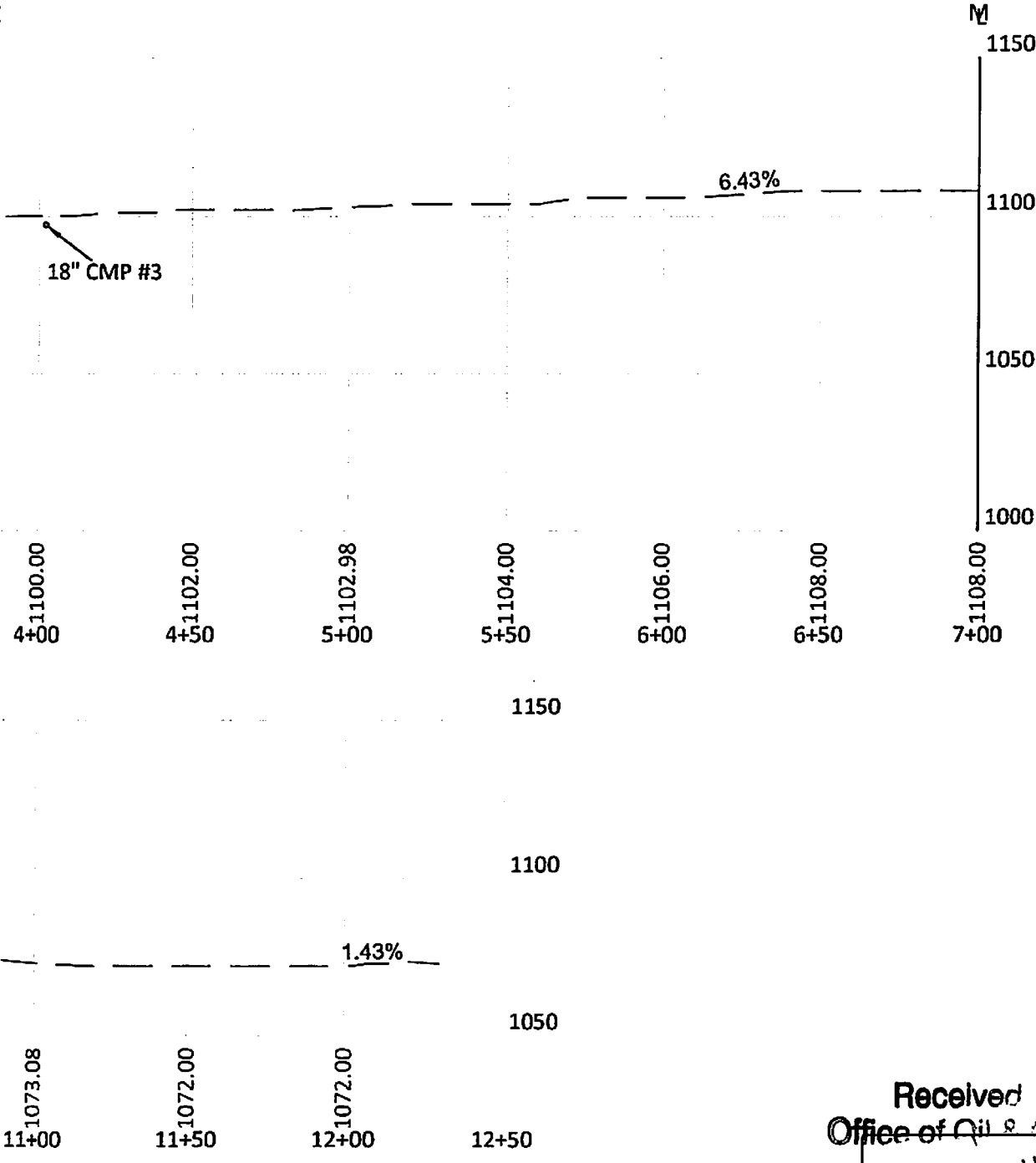
LEGEND

--- = EXISTING GRADE

07/31/2015



FILE



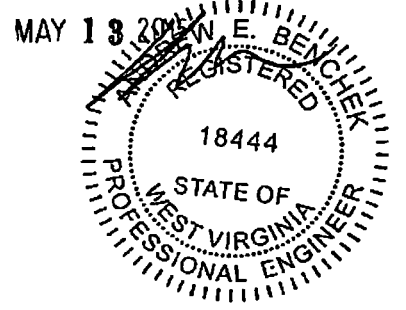
**BOORD, BENCHEK and ASSOC., INC.**  
 Engineering, Surveying, Construction,  
 and Mining Services  
 Southpointe, PA 15317 Phone: 724-746-1055

**ACCESS ROAD PROFILE**

THIS DOCUMENT WAS PREPARED BY:  
 BOORD, BENCHEK AND ASSOC., INC.  
 FOR: SWN PRODUCTION CO., LLC.

DATE:  
 MARCH 2015  
 MILDRED MANI  
 BRK PAD A  
 BUFFALO DISTRICT,  
 BROOKE COUNTY,  
 WV

Received  
 Office of Oil & Gas



SHEET 7 OF 12

07/31/2015



LEGEND  
- - - = PROJECT BOUNDARY (10.0 ACRES)  
- - - = PROPERTY LINE

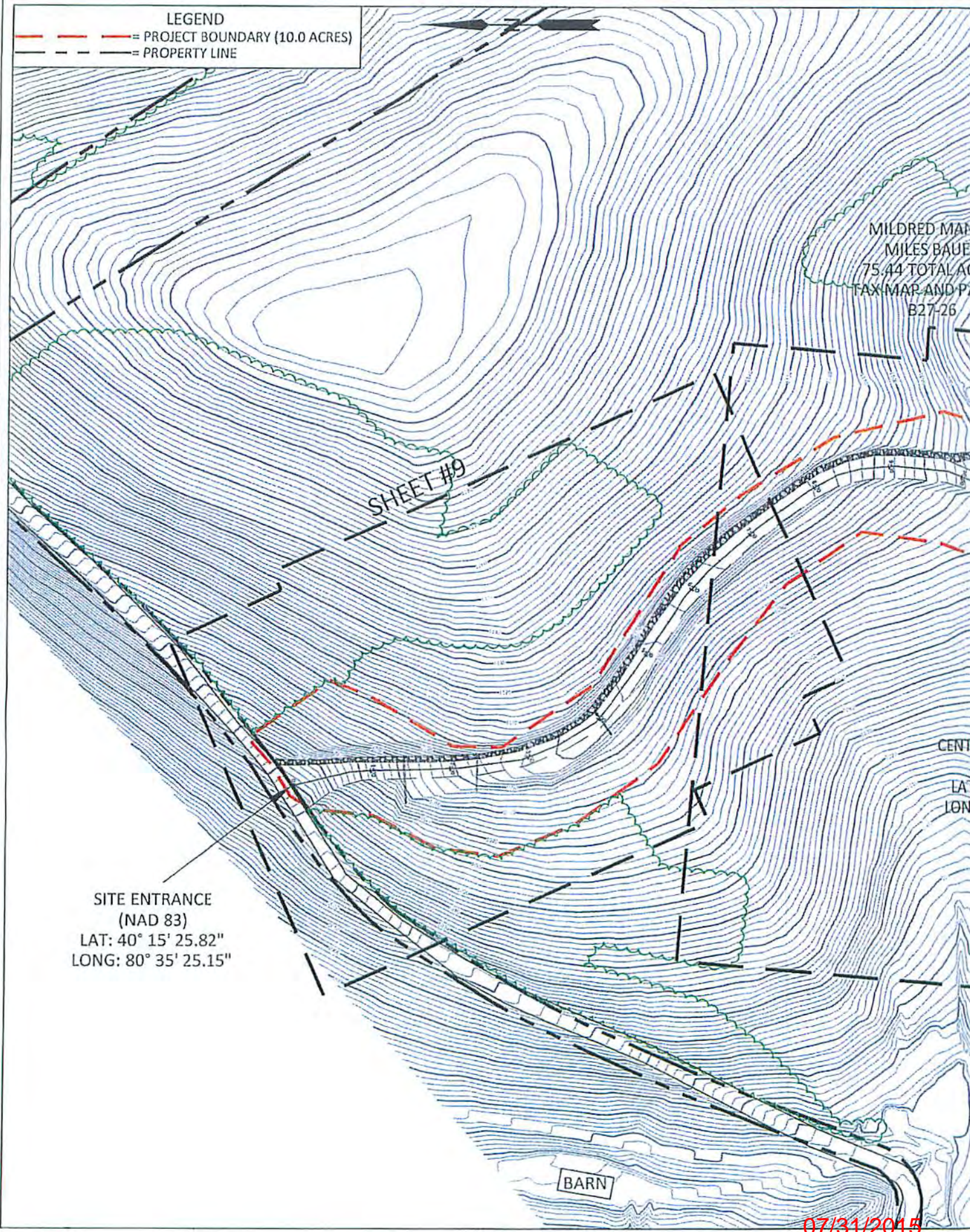
MILDRED MAN  
MILES BAUER  
75.44 TOTAL AC  
TAX MAP AND PA  
B27-26

SHEET #9

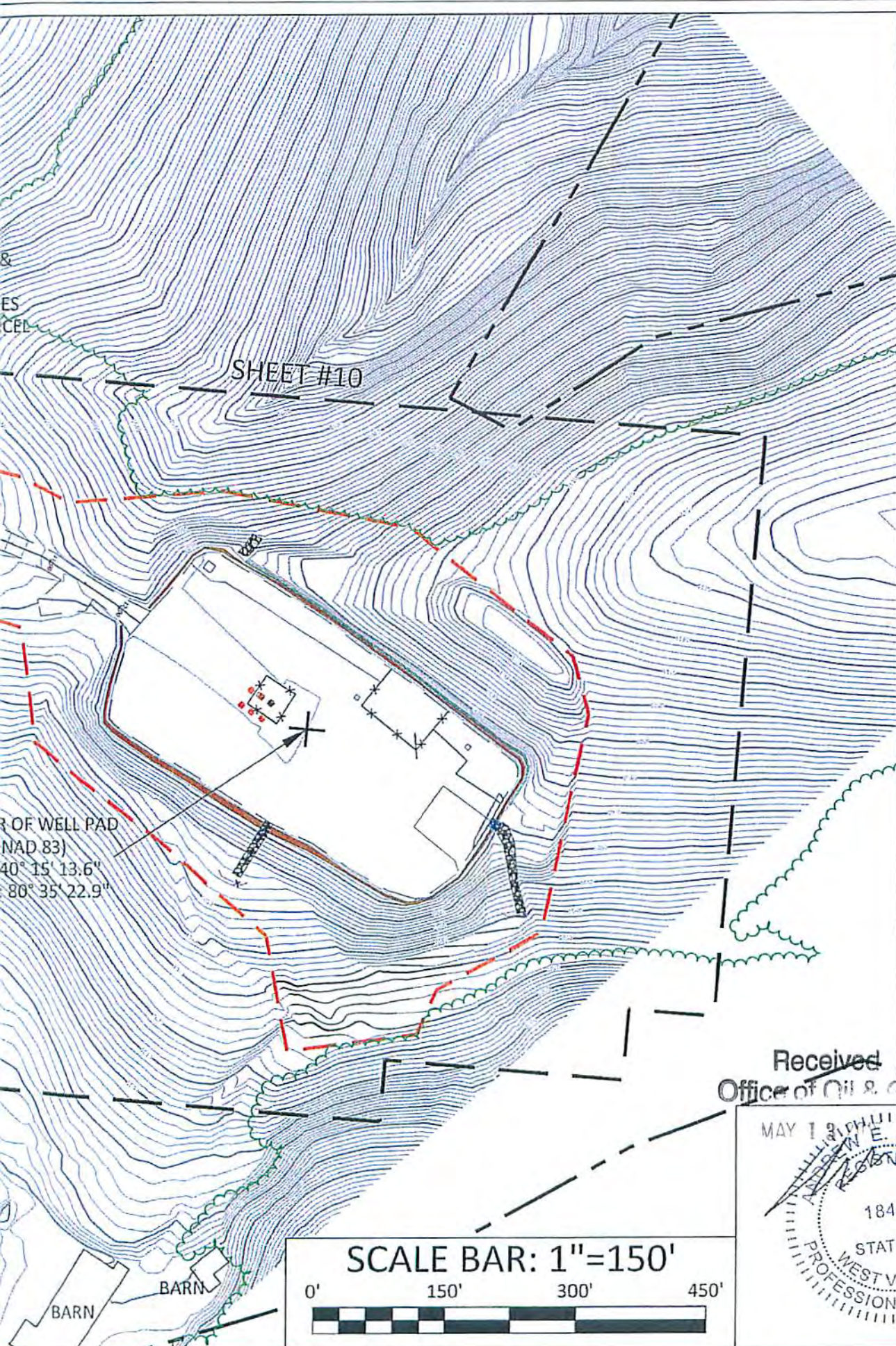
SITE ENTRANCE  
(NAD 83)  
LAT: 40° 15' 25.82"  
LONG: 80° 35' 25.15"

BARN

07/31/2015







BOORD, BENCHEK and ASSOC., INC.  
 Engineering, Surveying, Construction,  
 and Mining Services  
 Southpointe, PA 15317 Phone: 724-746-1055

RECLAMATION PLAN OVERVIEW

*4/9/15*

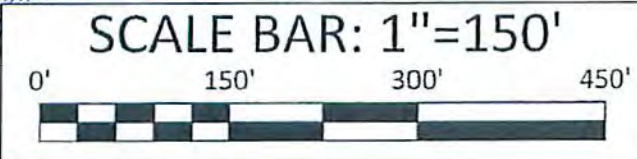
THIS DOCUMENT WAS PREPARED BY:  
 BOORD, BENCHEK AND ASSOC., INC.  
 FOR: SWN PRODUCTION CO., LLC.

SHEET 8 OF 12

...R OF WELL PAD  
 (NAD 83)  
 40° 15' 13.6"  
 80° 35' 22.9"

DATE:  
 MARCH 2015  
 MILDRED MANI  
 BRK PAD A  
 BUFFALO DISTRICT,  
 BROOKE COUNTY,  
 WV

Received  
 Office of Oil & Gas

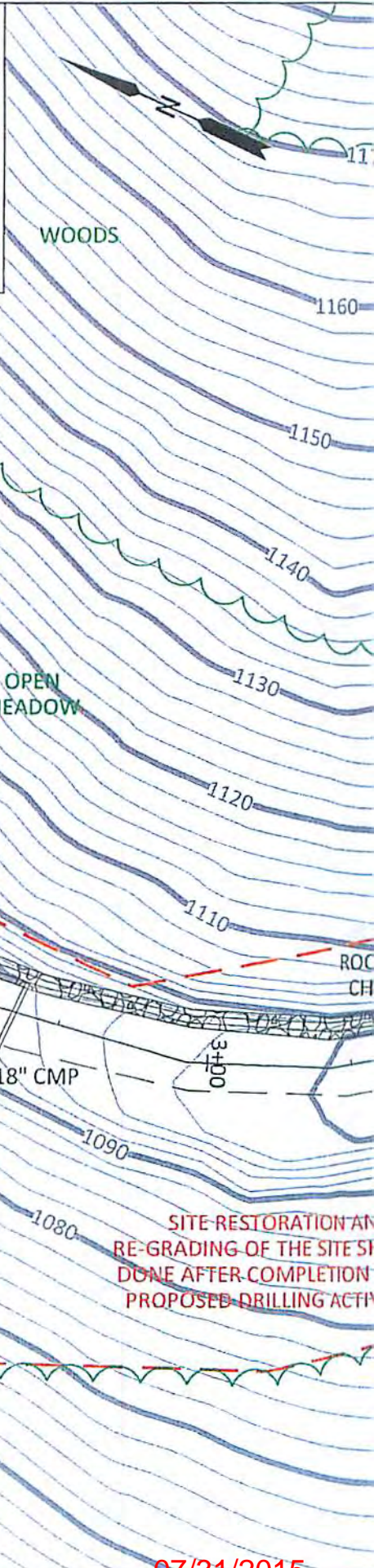


07/31/2015



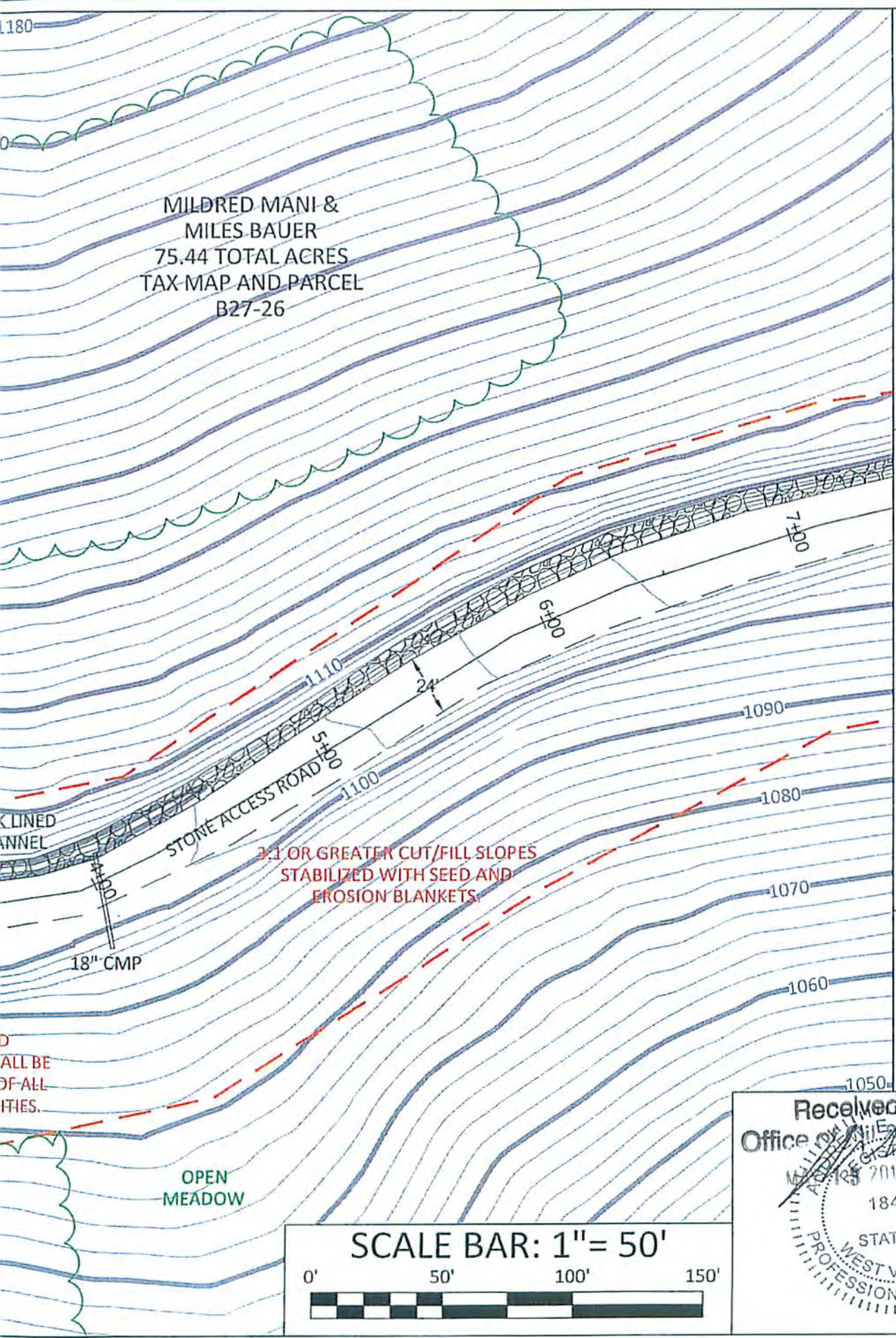
LEGEND	
	= SUPER SILT FENCE (SSF)
	= FENCE LINE
	= EXISTING 10' CONTOURS
	= EXISTING 2' CONTOURS
	= PROPOSED 10' CONTOURS
	= PROPOSED 2' CONTOURS
	= RECLAIMED 10' CONTOURS
	= RECLAIMED 2' CONTOURS
	= PROJECT BOUNDARY (10.0 ACRES)
	= PROPERTY LINE
	= TREE LINE
	= DRILLED WELL
	= PROPOSED WELL

- RECLAMATION SEQUENCE:**
1. INSPECT EXISTING E&S BMP'S IN ACCORDANCE WITH MAINTENANCE AND INSPECTION PROCEDURES AS OUTLINED IN E&S CONTROL AND SITE PLAN. REPAIR & REPLACE AS NEEDED.
  2. INSTALL SUPER SILT FENCE #1 & #2 ALONG WITH DISCHARGE CHANNELS #1 & #2.
  3. RECLAIM SITE AS PER RECLAMATION PLAN.
  4. SEED AND MULCH ALL DISTURBED AREAS.
  5. DO NOT REMOVE E&S BMP'S UNTIL 70% UNIFORM PERENNIAL GROWTH IS ACHIEVED.
  6. IF DISTURBANCE OCCURS DURING REMOVAL OF E&S BMP'S IMMEDIATELY SEED AND MULCH DISTURBED AREAS.
- \*PLACE STRUCTURAL SOIL FILL IN 9 INCH LOOSE LIFTS. COMPACT TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY.



MILDRED MANI &  
MILES BAUER  
75.44 TOTAL ACRES  
TAX MAP AND PARCEL  
B27-26

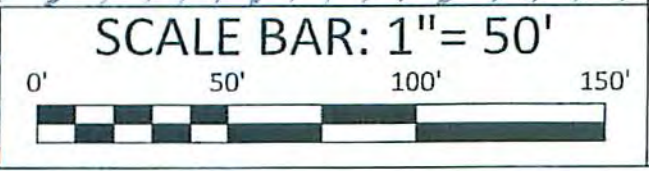




MILDRED MANI &  
MILES BAUER  
75.44 TOTAL ACRES  
TAX MAP AND PARCEL  
B27-26

3:1 OR GREATER CUT/FILL SLOPES  
STABILIZED WITH SEED AND  
EROSION BLANKETS.

OPEN  
MEADOW



BOORD, BENCHEK and ASSOC., INC.  
Engineering, Surveying, Construction,  
and Mining Services  
Southpointe, PA 15317 Phone: 724-746-1055

*Handwritten signature and date:*  
4/9/15

RECLAMATION PLAN

THIS DOCUMENT WAS PREPARED BY:  
BOORD, BENCHEK AND ASSOC., INC.  
FOR: SWN PRODUCTION CO., LLC.

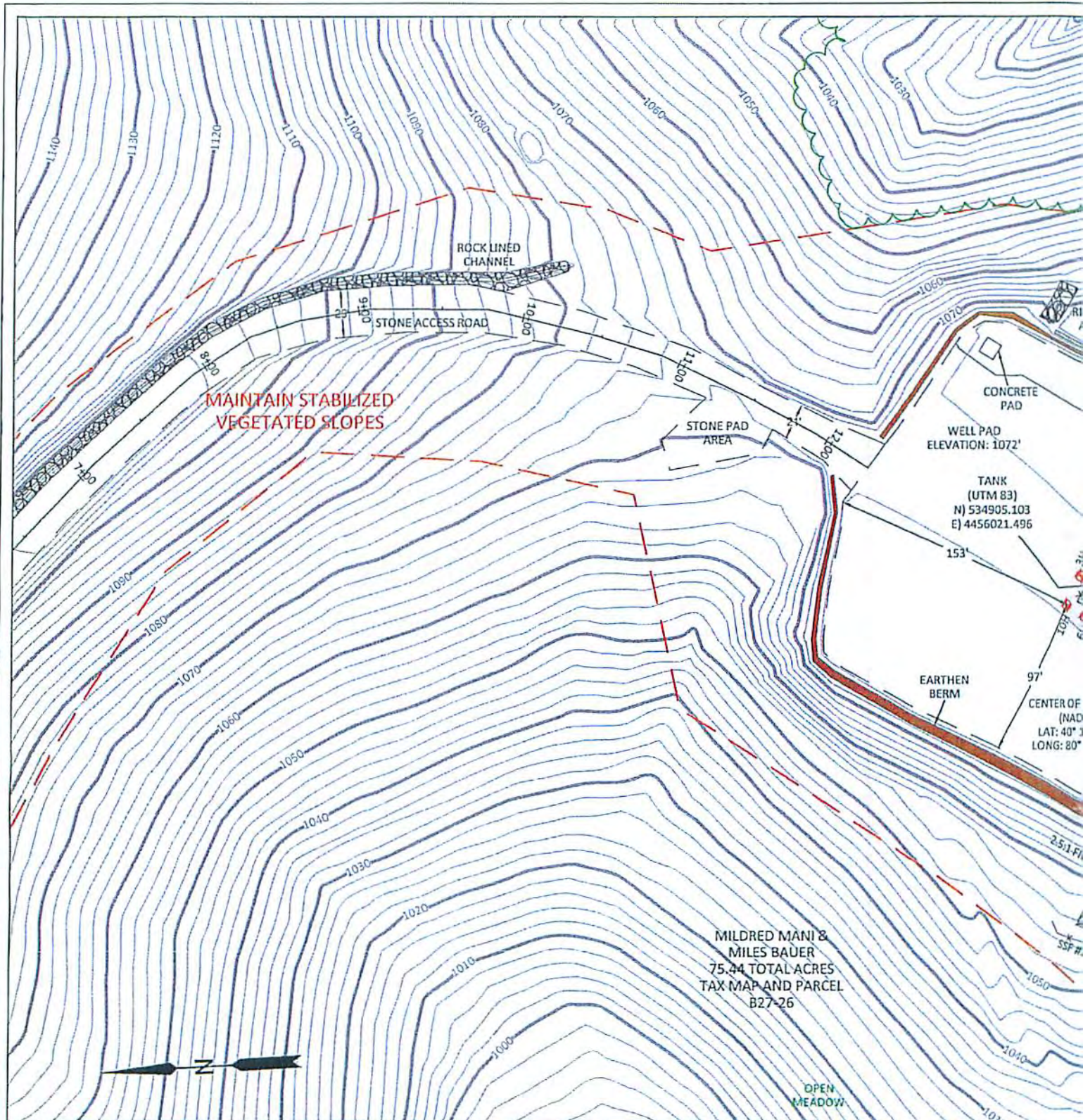
SHEET 9 OF 12

DATE:  
MARCH 2015  
MILDRED MANI  
BRK PAD A  
BUFFALO DISTRICT,  
BROOKE COUNTY,  
WV



07/31/2015





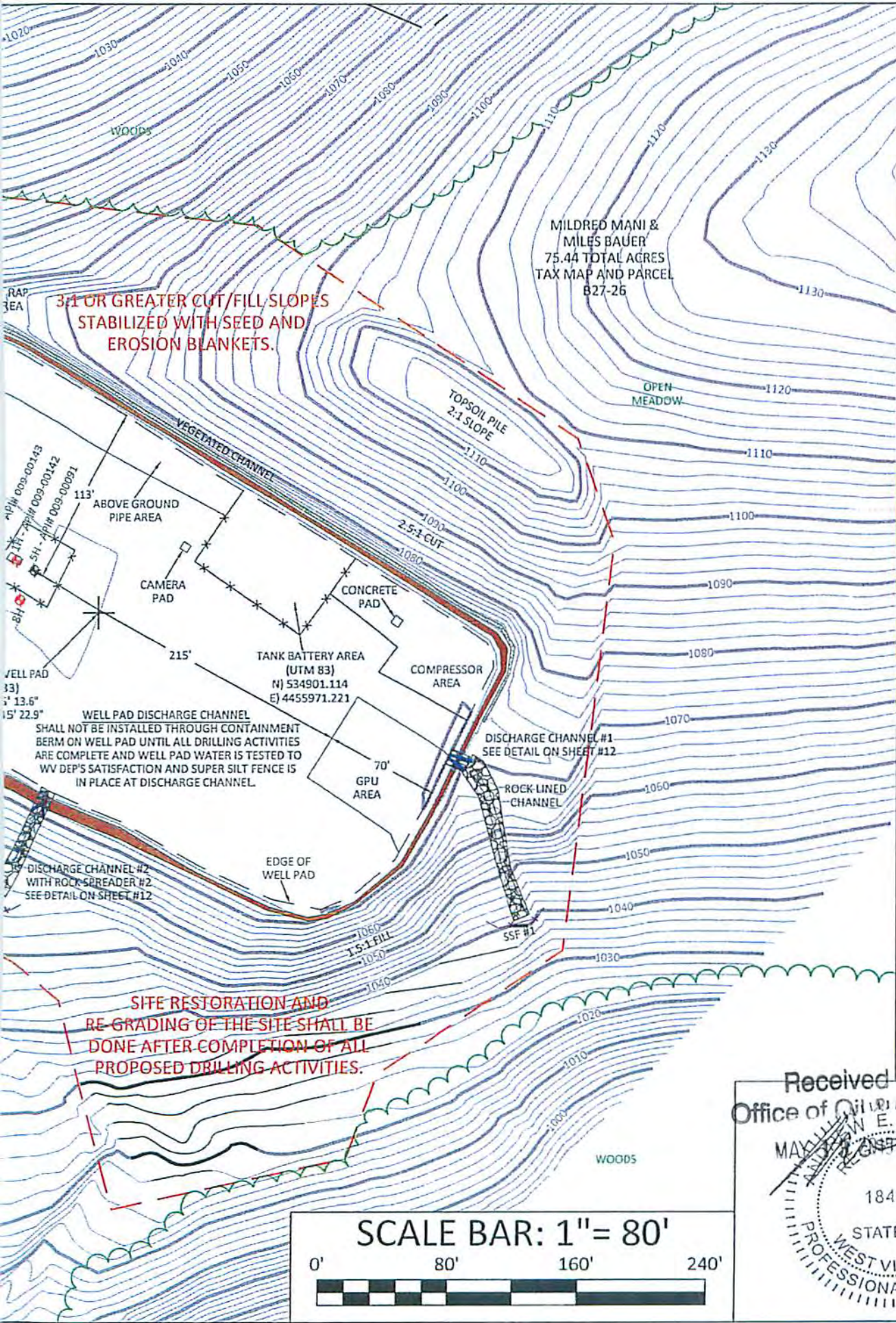
**LEGEND**

	= SUPER SILT FENCE (SSF)
	= FENCE LINE
	= EXISTING 10' CONTOURS
	= EXISTING 2' CONTOURS
	= PROPOSED 10' CONTOURS
	= PROPOSED 2' CONTOURS
	= RECLAIMED 10' CONTOURS
	= RECLAIMED 2' CONTOURS
	= PROJECT BOUNDARY (10.0 ACRES)
	= PROPERTY LINE
	= TREE LINE
	= DRILLED WELL
	= PROPOSED WELL

- RECLAMATION SEQUENCE:**
1. INSPECT EXISTING E&S BMP'S IN ACCORDANCE WITH MAINTENANCE AND INSPECTION PROCEDURES AS OUTLINED IN E&S CONTROL AND SITE PLAN. REPAIR & REPLACE AS NEEDED.
  2. INSTALL SUPER SILT FENCE #1 & #2 ALONG WITH DISCHARGE CHANNELS #1 & #2.
  3. RECLAIM SITE AS PER RECLAMATION PLAN.
  4. SEED AND MULCH ALL DISTURBED AREAS.
  5. DO NOT REMOVE E&S BMP'S UNTIL 70% UNIFORM PERENNIAL GROWTH IS ACHIEVED.
  6. IF DISTURBANCE OCCURS DURING REMOVAL OF E&S BMP'S IMMEDIATELY SEED AND MULCH DISTURBED AREAS.
- \*PLACE STRUCTURAL SOIL FILL IN 9 INCH LOOSE LIFTS. COMPACT TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY.

07/31/2015





MILDRED MANI & MILES BAUER  
75.44 TOTAL ACRES  
TAX MAP AND PARCEL  
B27-26

**BOORD, BENCHEK and ASSOC., INC.**  
Engineering, Surveying, Construction,  
and Mining Services

Southpointe, PA 15317 Phone: 724-746-1055

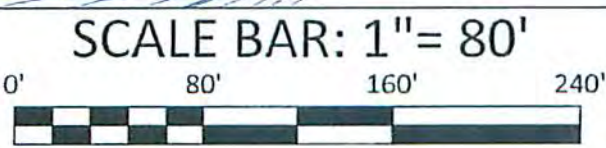
*4/19/15*

**RECLAMATION PLAN**

THIS DOCUMENT WAS PREPARED BY:  
**BOORD, BENCHEK AND ASSOC., INC.**  
FOR: SWN PRODUCTION CO., LLC.

SHEET 10 OF 12

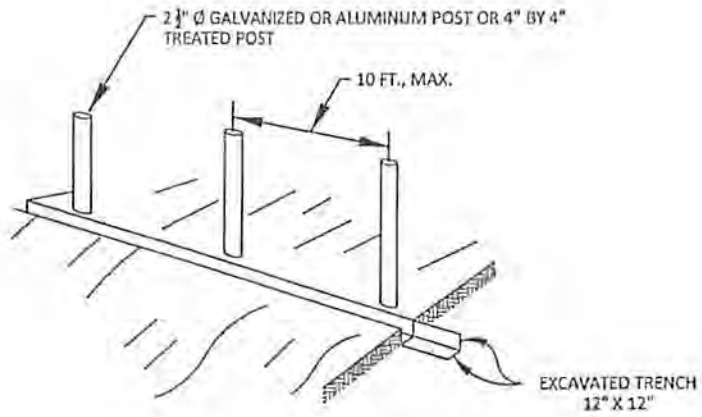
DATE:  
MARCH 2015  
  
MILDRED MANI  
BRK PAD A  
  
BUFFALO DISTRICT,  
BROOKE COUNTY,  
WV



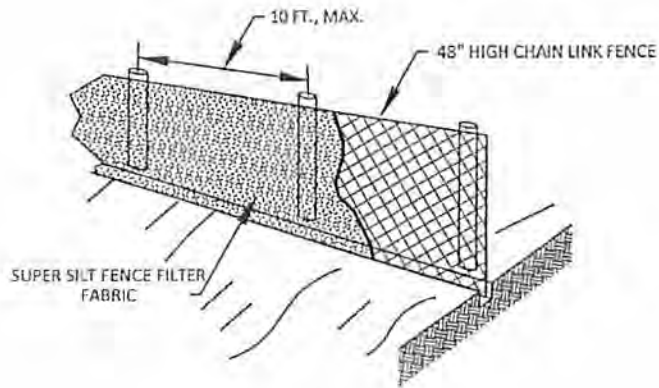
07/31/2015



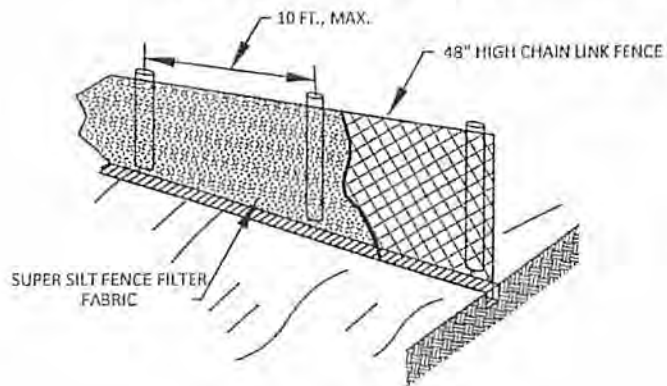
1. SET POSTS ALONG CONTOUR OF THE LAND AND EXCAVATE TRENCH UPSLOPE ALONG THE LINE OF POSTS.



2. ATTACH THE CHAIN LINK FENCE AND FILTER FABRIC TO THE FENCE POSTS AND EXTEND THEM 12", MIN., INTO THE DITCH.



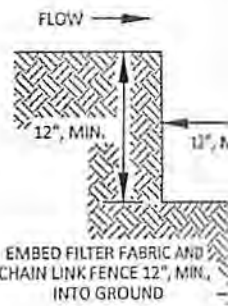
3. BACKFILL AND COMPACT THE TRENCH WITH EXCAVATED SOILS.



2 1/2" Ø GALVANIZED ALUMINUM POST OR TREATED POST

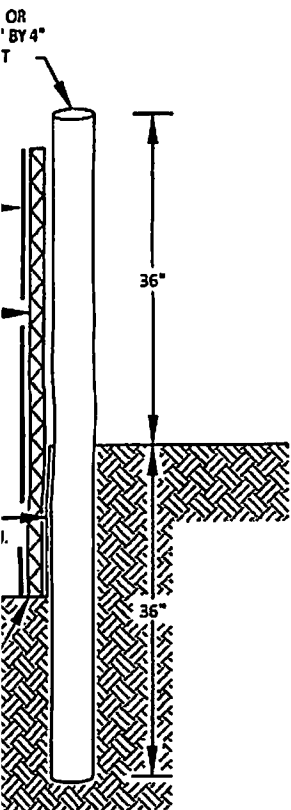
SUPER SILT FENCE FILTER FABRIC

48" HIGH CHAIN LINK FENCE



SUPER SILT FENCE  
NTS

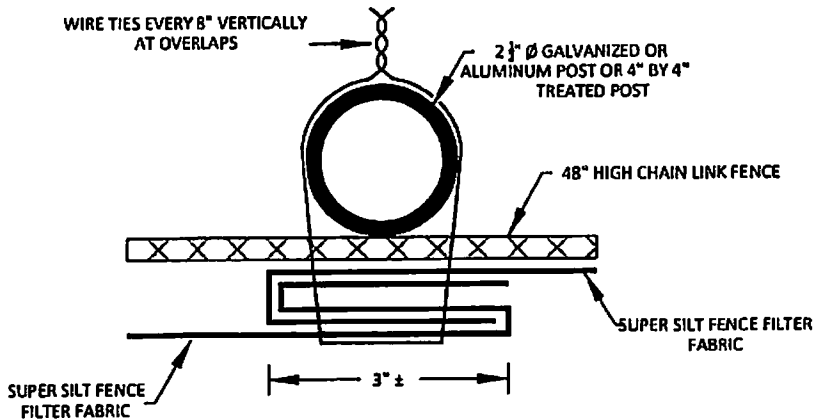




SIDE VIEW  
NTS

**SUPER SILT FENCE NOTES:**

1. CHAIN LINK FENCE SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 608 OF THE WVDDH SPECIFICATIONS. CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE POSTS WITH WIRE TIES OR STAPLES.
2. POSTS NEED NOT BE SET IN CONCRETE.
3. THE FILTER FABRIC SHALL BE FASTENED TO THE CHAIN LINK FENCE WITH TIES EVERY 24" AT THE TOP AND MID SECTION.
4. FABRIC AND FENCE SHALL BE EMBEDDED 12", MINIMUM, INTO THE GROUND.
5. A 6", MINIMUM, OVERLAP SHALL BE PROVIDED WHERE TWO SECTIONS OF FABRIC ADJOIN. THE OVERLAPPED FABRIC SHALL BE FOLDED TOGETHER AND ATTACHED TO THE CHAIN LINK FENCE.
6. 4" BY 4" PRESSURE TREATED PDSTS MAY BE SUBSTITUTED FOR METAL FENCE POSTS WITH THE APPROVAL OF THE ENGINEER.
7. THE LENGTH OF SLOPE ABOVE THE FENCE SHALL NOT EXCEED 400 FEET IN STEEP TERRAIN. IN FLATTER AREAS THE LENGTH CAN BE EXTENDED WITH THE APPROVAL OF THE ENGINEER.



END LAP TOP VIEW  
NTS

**BOORD, BENCHEK and ASSOC., INC.**  
Engineering, Surveying, Construction,  
and Mining Services  
Southpointe, PA 15317 Phone: 724-746-1055

**DETAILS**

THIS DOCUMENT WAS PREPARED BY:  
BOORD, BENCHEK AND ASSOC., INC.  
FOR: SWN PRODUCTION CO., LLC.

DATE:  
MARCH 2015  
MILDRED MANI  
BRK PAD A  
BUFFALO DISTRICT,  
BROOKE COUNTY,  
WV

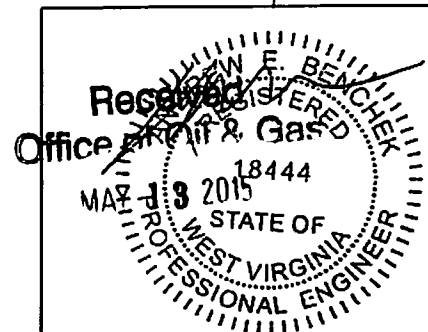




Table 4a. Permanent seeding mixtures suitable for establishment in WV.

Species/Mixture	Seeding Rate (lbs/acre)	Soil Drainage Preference	pH Range
Crownvetch/	10 - 15	Well - Mod. Well	5.0 - 7.5
Tall Fescue	30		
Crownvetch/	10 - 15	Well - Mod. Well	5.0 - 7.5
Perennial Ryegrass	20		
Flatpea or Perennial Pea/	20	Well - Mod. Well	4.0 - 8.0
Tall Fescue	15		
Ladino Clover/	30		
Sericea Lespedeza/	25	Well - Mod. Well	4.5 - 7.5
Tall Fescue	2		
Tall Fescue/	40		
Ladino Clover/	3	Well - Mod. Well	5.0 - 7.5
Redtop	3		
Crownvetch/	10		
Tall Fescue/	20	Well - Mod. Well	5.0 - 7.5
Redtop	3		
Tall Fescue/	40		
Birdsfoot Trefoil/	10	Well - Mod. Well	5.0 - 7.5
Redtop	3		
Sericea Lespedeza/	25		
Tall Fescue/	30	Well - Mod. Well	4.5 - 7.5
Redtop	3		
Redtop/	30		
Tall Fescue/	3	Well - Mod. Well	5.0 - 7.5
Creeping Red	50		
Tall Fescue	50	Well - Poorly	4.5 - 7.5
Perennial Ryegrass/	10		
Tall Fescue/	15	Well - Poorly	5.0 - 8.0
Lathco Flatpea *	20		

Tables IV 1-4 taken from Natural Resources Conservation Service Manual Critical Area Planting

Table 4b. Mixtures in the table below are more wildlife and farm friendly.

Species/Mixture	Seeding Rate (lbs/acre)	Soil Drainage Preference	pH Range
KY Bluegrass/	20		
Redtop	3	Well - Mod. Well	5.5 - 7.5
Ladino Clover or Birdsfoot Trefoil	2/10		
Timothy/	5		
Alfalfa	12	Well - Mod. Well	6.5 - 8.0
Timothy/	5		
Birdsfoot Trefoil	8	Well - Poorly	5.5 - 7.5
Orchardgrass/	10		
Ladino Clover/	2	Well - Mod. Well	5.5 - 7.5
Redtop	3		
Orchardgrass/	10		
Ladino Clover	2	Well - Mod. Well	5.5 - 7.5
Orchardgrass/	20		
Panzonal Ryegrass	10	Well - Mod. Well	5.5 - 7.5
Creeping Red Fescue/	30		
Perennial Ryegrass	10	Well - Mod. Well	5.5 - 7.5
Orchardgrass or Kentucky Bluegrass	20	Well - Mod. Well	6.5 - 7.5
Birdsfoot Trefoil	10		
Redtop/	8	Well - Mod. Well	5.5 - 7.5
Orchardgrass	20		
Lathco Flat Pea/	30		
Perennial Ryegrass	20	Well - Mod. Well	5.5 - 7.5
Lathco Flat Pea/	30		
Orchardgrass	20	Well - Mod. Well	5.5 - 7.5

Mixtures listed in bold are suitable for use in shallow erodible outcrops. Prices in dollars are available for use in other states.  
\* Lathco Flatpea is genetically poisonous in some varieties. All legumes should be planted with proper inoculants prior to seeding. For unseeded mixtures or seeding outside the optimum timeframes, add 50% more seed to the specified rate.

Table IV-5. Lime and Fertilizer Application Table

pH of Soil	Lime in Tons Per Acre	Fertilizer Lbs. per Acre	10-20-20 or Equivalent
Above 6.0	2	500	
5.0 to 6.0	3	500	
Below 5.0	4	500	

The pH can be determined with a portable pH testing kit or by sending the soil samples to a soil testing laboratory. When 4 tons of lime per acre are applied it must be incorporated into the soil by using backhoeing or tilling up and down the slope.

Table IV-6. Mulch Materials Rates and Uses

Material	Minimum Rates Per Acre	Coverage	Remarks
Hay or Straw	2 to 3 Tons	Cover 75% to 90% of Surface	Subject to Wind blowing or washing unless tied down
Wood Fiber	1000 to 1500 lbs	Cover all	For Hydroseeding
Pulp Fiber		Disturbed Areas	
Wood-Cellulose			
Recycled Paper			

Table IV-1 Recommended seeding dates for permanent and temporary cover unless otherwise noted.

Planting Dates	Suitability
March 1 - April 15 and August 1 - October 1	Best seeding periods
April 15 - August 1	HIGH RISK - moisture stress likely
October 1 - Dec. 1	HIGH RISK - Freeze damage to young plants
Dec. 1 - March 1	Good seeding period. Dormant seeding.

Table 2. Acceptable fertilization recommendation in absence of a soil test.

Species	N (lbs/ac)	P2O5 (lbs/ac)	K2O (lbs/ac)	Example Rec. (lbs/ac)
Cool Season Grass	40	80	80	400 lbs. 10-20-20
CS Grass & Legume	30	60	60	300 lbs. 10-20-20
Temporary Cover	40	40	40	200 lbs. 19-19-19

Table 3. Temporary cover suitable for establishment in West Virginia.

Species	Seeding Rate (lbs/acre)	Optimum Seeding Dates	Drainage
Annual Ryegrass	40	3/1 - 6/15 or 8/15 - 9/15	Well - Poorly
Field Bromegrass	40	3/1 - 6/15 or 8/15 - 9/15	Well - Mod. Well
Spring Oats	96	3/1 - 6/15	Well - Poorly
Sudangrass	40	5/15 - 8/15	Well - Poorly
Winter Rye	168	8/15 - 10/15	Well - Poorly
Winter Wheat	180	8/15 - 11/15	Well - Mod. Well
Japanese Millet	30	6/15 - 8/15	Well
Redtop	5	3/1 - 6/15	Well
Annual Ryegrass	26	3/1 - 6/15	Well - Poorly
Spring Oats	64	3/1 - 6/15	Well - Poorly

NOTE: These rates should be increased by 50% if planted April 15 - August 1 and October 1 - March 1.

### Mulching

#### 1. General Organic Mulches

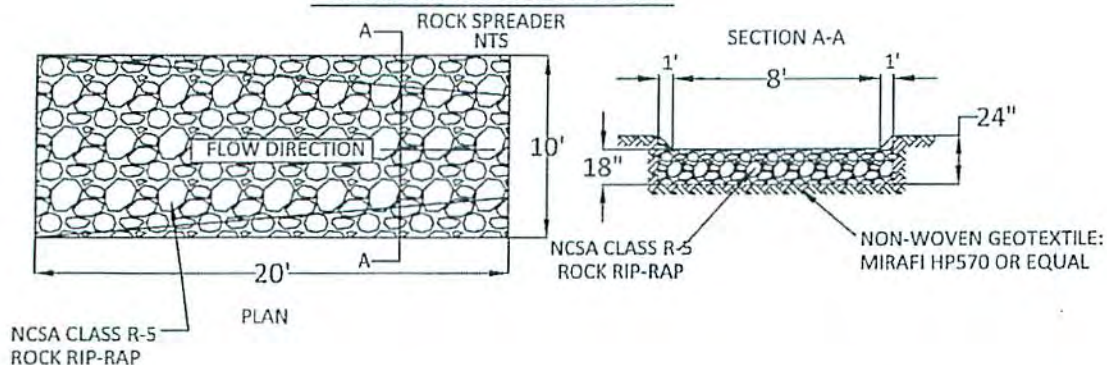
The application of straw, hay or other suitable materials to the soil surface to prevent erosion. Straw mulch, wheat or oats is the preferred mulch, the use of hay is permissible, but not encouraged due to the risk of seed invasion. Mulch must be applied to all temporary and permanent seeding on all disturbed areas. Depending on site conditions, in critical areas such as waterways, or steep slopes, additional or substitute soil protection measures may be used if deemed necessary. Examples include jute mesh, and soil stabilization blankets or erosion control matting.

Areas that have been temporarily or permanently seeded should be mulched immediately following seeding. Mulches conserve desirable soil properties, reduce soil moisture loss, prevent crusting and sealing of the surface and provide a suitable microclimate for seed germination.

Areas that cannot be seeded because of the season should be mulched to provide some protection to the soil surface. An organic mulch, straw or hay, should be used and the area then seeded as soon as weather or soil conditions permit. Do not use fiber mulch (cellulose-hydroseed) alone for this practice; at normal application rates it will not give the soil protection of other types of mulch.

Wood cellulose fiber mulch, is used in hydroseeding operations and applied as part of the slurry. It creates the best seed-soil contact when applied over top of (as a separate operation) newly seeded areas. Fiber mulch not alone provide sufficient protection on highly erodible soils, or during less than favorable growing conditions. Fiber mulch should not be used alone during the dry summer months or when used for late fall mulch cover straw mulch during these periods, and fiber mulch may be used to tack (anchor) the straw mulch. Fiber mulch is well suited for steep slopes, critical areas, and areas susceptible to wind.

### STANDARD CONSTRUCTION DETAIL





**INSTALLATION**

Strictly comply with equipment manufacture's installation instructions and recommendations. Use approved hydro-spraying machines with fan-type nozzle (50-degree tip). To achieve optimum soil surface coverage, apply HP-FGM from opposing directions to soil surface. Rough surfaces (rocky terrain, cat tracks and ripped soils) may require higher application rates to achieve 100% cover. Slope interruption devices or water diversion techniques are recommended when slope lengths exceed 100 feet (30m). Maximum slope length is for product applications on a 3H:1V slope. For application on steeper slopes, slope interruption lengths may need to be decreased based on actual site conditions. Not recommended for channels or areas with concentrated water flow. No chemical additives with the exception of fertilizer, liming and biostimulant materials should be added to this product. To ensure proper application rates, measure and stake area. For maximum performance, apply HP-FGM in a two-step process as follows:

1. Step One: Apply fertilizer with specified prescriptive agronomic formulations and 50% of seed with a small amount of HP-FGM for visual metering.
2. Step Two: Mix balance of seed and apply HP-FGM at a rate of 50 lb per 125 gallons (23kg/475 liters) of water over freshly seeded surfaces. Confirm loading rates with equipment manufacturer. Do not leave seeded surfaces unprotected, especially if precipitation is imminent.

**APPLICATION RATES:** These application rates are for standard conditions. Designers may wish to reduce rates to encourage faster vegetation establishment or may need to increase application rates on rough surfaces. Consult application and loading charts to determine number of bags to be added for desired area and application rate.

**BOORD, BENCHEK and ASSOC., INC.**  
Engineering, Surveying, Construction,  
and Mining Services

Southpointe, PA 15317 Phone: 724-746-1055

**Loading Chart for Profile's SMMs, BFMs, HP-FGMs and ET-FGM**

Tank Size (gal)	# of 50-lb bags	Deployment (ft)	2,500 lb/acre		3,000 lb/acre		3,500 lb/acre		4,000 lb/acre		4,500 lb/acre	
			Sq ft	Acres	Sq ft	Acres	Sq ft	Acres	Sq ft	Acres	Sq ft	Acres
250	2	100	1,742	0.040	1,452	0.033	1,243	0.029	1,099	0.025	964	0.022
500	4	200	3,485	0.080	2,904	0.067	2,485	0.057	2,178	0.050	1,926	0.044
750	6	300	5,227	0.120	4,356	0.100	3,724	0.086	3,267	0.075	2,894	0.067
1,000	8	400	6,970	0.160	5,808	0.133	4,978	0.114	4,354	0.100	3,872	0.089
1,500	12	600	10,454	0.240	8,712	0.200	7,467	0.171	6,554	0.150	5,766	0.133
2,000	16	800	13,939	0.320	11,616	0.267	9,956	0.229	8,712	0.200	7,744	0.178
2,500	20	1,000	17,424	0.400	14,472	0.333	12,446	0.286	10,900	0.250	9,552	0.222
3,000	24	1,200	20,909	0.480	17,328	0.400	14,928	0.343	13,068	0.300	11,616	0.267
3,500	28	1,400	24,394	0.560	20,184	0.467	17,424	0.400	15,216	0.350	13,332	0.311
4,000	32	1,600	27,879	0.640	23,040	0.533	19,912	0.457	17,424	0.400	15,438	0.356

**Additional Notes:**

- For hose applications, 25 lb/100 gal is recommended.
- Rough surfaces (rocky terrain, cat tracks, ripped soils, etc.) may require additional product to achieve 100% coverage.
- Be sure to allow for residual material in tank on subsequent applications.

Application Rates			Slope Interruption Limits*		
Slope Condition	English	SI	Product Category	Length (ft)	Length (m)
≤ 4H to 1V	2500 lb/acre	2900 kg/hectare	SMM	50	15
> 4H to 1V and ≤ 2H to 1V	3000 lb/acre	3400 kg/hectare	BFM	75	23
> 2H to 1V and ≤ 1H to 1V	3500 lb/acre	3900 kg/hectare	HP-FGM	100	30
> 1H to 1V and ≤ 3H to 1V	4000 lb/acre	4500 kg/hectare	ET-FGM	125	38
> 1H to 1V	4500 lb/acre	5100 kg/hectare			
Steeper (E2B or T2A)	1500 lb/acre	1700 kg/hectare			
As built for T2A	1500 lb/acre	2000 kg/hectare			

\*SMM not recommended for slopes greater than 2H:1V.  
\*BFM not recommended for slopes greater than 1H:1V.  
\*HP-FGM or ET-FGM recommended for slopes greater than 1H:1V.  
\*Use only approved and tested T2As to create the GreenArmor System.

**Visual Key for Proper Application**  
(Hicterra HP-FGM shown below)

Proper Application

Improper Application

3,000 lb/acre

3,500 lb/acre

4,000 lb/acre

15.00 lb/acre      15.00 lb/acre      15.00 lb/acre

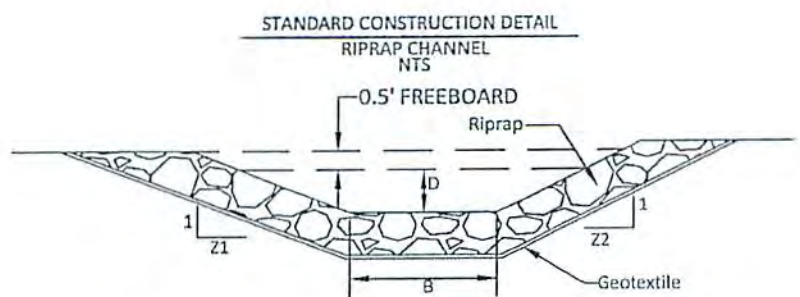
**DETAILS**

THIS DOCUMENT WAS PREPARED BY:  
BOORD, BENCHEK AND ASSOC., INC.  
FOR: SWN PRODUCTION CO., LLC.

SHEET 12 OF 12

DATE: MARCH 2015  
MILDRED MANI BRK PAD A  
BUFFALO DISTRICT, BROOKE COUNTY, WV

Received  
Office of Oil & Gas  
MAY 13 2015



CHANNEL NO.	TOTAL LENGTH (FT.)	BOTTOM WIDTH B (FT.)	DEPTH D (FT.)	Z1 (FT.)	Z2 (FT.)	LINING
DISCHARGE CHANNEL #1	13	2	1	2	2	18" THICK R-5 RIPRAP
DISCHARGE CHANNEL #2	51	2	1	2	2	18" THICK R-5 RIPRAP

07/31/2015