



CNX Center
1000 Horizon Vue Drive
Canonsburg, PA 15317-6506
724-485-4000
cnx.com

April 28, 2025

Pennsylvania Department of Environmental Protection
Office of Oil and Gas
400 Waterfront Drive
Pittsburgh, PA 15222-4745

**Re: Proposed Alternate Method or Material for Casing
MCCULLOUGH MAM16FHSU (129-29275), MCCULLOUGH MAM16GHSU (129-29276), MCCULLOUGH MAM16HHSU (129-29277), MCCULLOUGH MAM16IHSU (129-29278)**

To Whom It May Concern,

Enclosed please find the Alternate Method packets for the above-referenced wells, including:

Application for Approval of Alternate Method
Casing Integrity Test
Well Plat (non-coal wells)

Please contact CNX if you have any questions or need further information at Permitting@cnx.com .

Sincerely,

CNX Permitting Services Team



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS MANAGEMENT

DEP USE ONLY
Application Tracking #
1525656

Proposed Alternate Method or Material for Casing, Plugging, Venting or Equipping a Well

Well Operator CNX GAS COMPANY LLC		DEP ID#	Well Permit or Registration Number 129-29275	
Address 1000 HORIZON VUE DRIVE ATTN: PERMITTING			Well Farm Name MCCULLOUGH	
City CANONSBURG	State PA	Zip Code 15317	Well # MAM16FHSU	Serial # PA
Phone 724-485-3244	Fax	County WESTMORELAND		Municipality BELL TWP

A proposed alternate method is subject to provisions in §3221 of the 2012 Oil and Gas Act, 58 Pa. C.S. §3221 Section 13 of the Coal and Gas Resource Coordination Act, 58 P.S. §513 and 25 PA Code §§78.75-78.75a (relating to Alternate Methods.) Attach proof of notification of coal operator(s).

Describe in reasonable detail using a written description and / or diagram:

- 1. the proposed alternate method or materials, and**
- 2. the manner in which the alternative will satisfy the goals of the laws and regulations.**

SEE EXHIBIT A

Optional: Approval by Coal Owner or Operator		Signature of Applicant / Well Operator	
Signature	Date	Signature	Date
		<i>Josh Horvath</i>	4/28/2025
Print or Type Signer's Name and Title		Print or Type Signer's Name and Title	
		Josh Horvath - Drilling Engineer	

If optional approval is signed by coal owner or operator, the 15-day objection period may be waived.

DEP USE ONLY		
Approved by (DEP Manager) <i>April Weiland</i>	Conditions <input type="checkbox"/> YES, See Attached <input checked="" type="checkbox"/> NO	Date 05/13/2025



Alternate Method Request – MAM16F

1. Alternative Request for Casing Integrity Test

- a. CNX requests approval for an Alternate Method regarding 78a.84 - Casing Standards, subsection (f) "Casing which is attached to a blow-out preventer with a pressure rating of greater than 3,000 psi shall be pressure tested after cementing. A passing pressure test must be holding the anticipated maximum pressure to which the casing will be exposed for 30 minutes with not more than a 10% decrease." CNX is requesting Casing Integrity Test (CIT) duration be less than 30 minutes immediately upon placement of cement. This would have the CIT being performed before significant gel strength of the cement has developed in the wellbore in order to prevent development of a Micro-Annulus during the CIT. CNX proposes CIT duration of 10 minutes. This would be done in accordance with API Standard 65 - Part 2, Second Edition - 12/2010 Section 5.10.2 "Regulations may require casing to be pressure tested. Preferably, pressure testing casing should be done before significant gel strength has developed. However, such pressure testing will be limited by the pressure ratings of plugs, floats, cementing heads and other equipment. Pressure testing can be done after the cement has set but this can result in micro-annulus formation or damage to the cement sheath. The pressure should be held on the casing for the shortest length of time required to accomplish the test."
- b. Given the drilling and completions history on offset Marcellus & Utica wells in the area, there is reasonable evidence to suggest shallow gas migration will be possible if performing a CIT were done and allowed for the creation of a micro annulus. The data below represents the Zero Gel Time (ZGT) for the proposed cement blends that will be used during the drilling of this well. These times indicate the length of time that passes before the static cement begins to thicken and allow for the creation of a micro annulus. Applied pressure for the CIT will be calculated based upon TVD of the shoe and the hydrostatic difference between the displacement fluid and the cement fluid and will be 60% of burst rating of the casing except on the 13-3/8" casing where CIT pressure will be 1000psi with Fresh Water.
 - 13-3/8" (with 0% CaCl₂) – ZGT = 0:19 - 9-5/8" (with 0% CaCl₂) – ZGT = 0:17
- c. Base Plan would be to bump the plug, bleed pressure off and check float valves, apply CIT pressure and then hold for 10 minutes. If floats do not

hold, final lift pressure would be held until cement reached 500 psi compressive strength and CIT would be performed as per 78a.84.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS MANAGEMENT

WELL LOCATION PLAT

PAGE 1 Surface Location

Auth ID #:	G:
Permit #:	C:
Project #:	

SHL True Latitude
40.538711

SHL True Longitude
-79.540429

Horizontal Coordinate System:
NAD 83

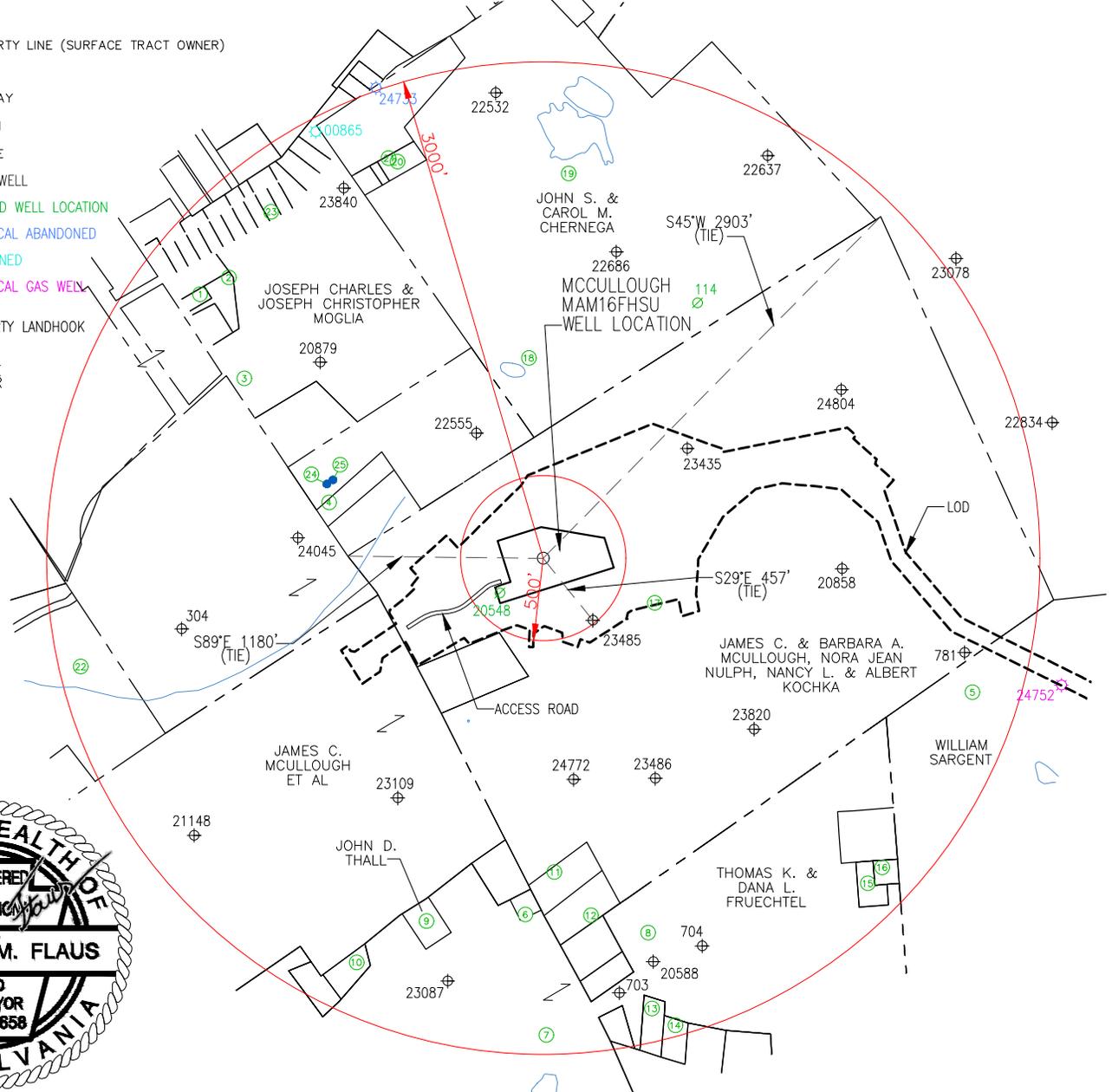
NOTES:
THE PURPOSE OF THIS PLAT IS FOR THE LOCATION OF A PROPOSED GAS WELL AND DOES NOT REPRESENT A CLOSED BOUNDARY SURVEY. PROPERTY LINES AND OWNERS WERE OBTAINED FROM INFORMATION PROVIDED BY CNX AND TAX RECORDS.
PER CNX/DEP NOVEMBER 2, 2023 COLLABORATION, THERE ARE NO EXISTING BUILDINGS AS DEFINED IN ACT 13 INCLUDING ANY RESIDENTIAL BUILDING WITHIN 600 FEET OR OPERATIONAL SCHOOL OR HOSPITAL WITHIN 2,500 FEET.

THERE ARE NO GAS STORAGE RESERVOIRS WITHIN 3000 FEET OF PROPOSED WELL LOCATION.
THERE ARE NO COAL MINES WITHIN 1000' OF THE PROPOSED WELL LOCATION.



LEGEND

- PROPERTY LINE (SURFACE TRACT OWNER)
- LOD
- ROADWAY
- STREAM
- TIE LINE
- ⊕ ACTIVE WELL
- ⊗ PLUGGED WELL LOCATION
- ⊙ HISTORICAL ABANDONED
- ⊙ ABANDONED
- ⊙ HISTORICAL GAS WELL
- ↑ PROPERTY LANDHOOK
- ① WATER SOURCE NUMBER



Applicant / Well Operator Name: CNX GAS COMPANY, LLC		DEP ID#: 159257	Well (Farm) Name: MCCULLOUGH		Well #: MAM16FHSU	Serial #: PA1292030HSUT
Address: 1000 HORIZON VUE DRIVE, CANONSBURG, PA 15317			County: WESTMORELAND	Municipality: BELL TOWNSHIP	Well Type: GAS	
911 address of well site: 544 BELL POINT ROAD, APOLLO, PA 15613			USGS 7 1/2" Quadrangle Map Name: VANDERGRIFT	Map Section: 9	Surface Elevation: 1342.90± ft.	
Surveyor or Engineer: MATTHEW M. FLAUS, PLS	Phone #: (412) 278-2100	Dwg #:	Date: 01/16/2025	Scale: 1"=1000'	Tract Boundary Acreage: 1220.23	
Lat & Long Metadata Method: GPS	Accuracy: 3± ft.	Datum: NAD 83	Elevation Metadata Method: GPS	Accuracy: 5± ft.	Datum: NAVD 88	Survey Date:

WELL LOCATION PLAT
Page 2(A) Notifications

DEP Statewide toll-free phone number for reporting cases of water contamination which may be associated with development of oil and gas resources is 1-866-255-5158.

Applicant / Well Operator Name CNX GAS COMPANY, LLC	DEP ID# 159257	Well (Farm) Name MCCULLOUGH	Well # MAM16FHSU	Serial # PA1292030HSUT
Surface Landowner / Lessor: JAMES C. MCCULLOUGH ET AL		Angle & Course of Deviation (Drilling): N 28° 39' 57" W - 13,413'	Anticipated True Vertical Depth Feet (TVD): 13,390'	Anticipated Total Measured Depth Feet (TMD): 26,668'
Target Formation(s): POINT PLEASANT		Deepest Formation to be penetrated: POINT PLEASANT	Number of laterals: 1	Total footage to be drilled all laterals: 26,668'
Surface Owner/Water Purveyor w/Water Supply within 1000'/3000'		Latitude Longitude of Water Supply		
1) KIRK J. MUFFIE		40.542975 -79.548003		
2) BARBARA J. HUSARIK FAMILY IRREVOCABLE LIVING TRUST		40.543263 -79.547384		
3) JOSEPH CHARLES & JOSEPH CHRISTOPHER MOGLIA		40.541593 -79.547002		
4) FRANK J. LOMBARDO, JR.		40.539564 -79.545108		
5) WILLIAM SARGENT		40.536632 -79.531044		
6) SHAWNA LYN COSTA		40.532795 -79.540658		
7) N. KATHLEEN ALTEMUS, VIVIAN A. KOWAL, THOMAS K. FRUECHTEL & KAREN J. BELL		40.530803 -79.540150		
8) N. KATHLEEN ALTEMUS, VIVIAN A. KOWAL, THOMAS K. FRUECHTEL & KAREN J. BELL		40.532533 -79.537983		
9) JOHN D. THALL		40.532654 -79.542807		
10) THOMAS K. & DANA L. FRUECHTEL		40.531945 -79.544304		
11) NORMAN R. JR. & E. DIANE WILLIAMS		40.533509 -79.540048		
12) GARY A. LEEMAN		40.532803 -79.539233		
13) VIVIAN B. & JAMES KOWAL		40.531278 -79.537865		
14) KEVIN A. & BELINDA S. JONES		40.531006 -79.537352		
15) FRANK D. & BARBARA A. GIRARDI		40.533426 -79.533231		
16) CROWN COMMUNICATION INC.		40.533697 -79.532928		
17) JAMES C. & BARBARA A. MCULLOUGH, NORA JEAN NULPH, NANCY J. & ALBERT KOCHKA		40.538008 -79.537985		
18) JOHN S. & CAROL M. CHERNEGA		40.541723 -79.540966		
19) JOHN S. & CAROL M. CHERNEGA		40.545264 -79.539261		
20) MICHELLE R. GABBORINI		40.545240 -79.543769		
Municipality: where the well will be drilled, adjacent to the well, or within 3000 feet		Coal related parties		
BELL TOWNSHIP, WESTMORELAND COUNTY		NON-COAL		
OKLAHOMA BOROUGH, WESTMORELAND COUNTY				
KISKIMINETAS TOWNSHIP, ARMSTRONG COUNTY				
AVONMORE BOROUGH, WESTMORELAND COUNTY				
CONEMAUGH TOWNSHIP, INDIANA COUNTY				
LOYALHANNA TOWNSHIP, WESTMORELAND COUNTY				
SALEM TOWNSHIP, WESTMORELAND COUNTY				
WASHINGTON TOWNSHIP, WESTMORELAND COUNTY				

WELL LOCATION PLAT

PAGE 3 Plan View of Deviated Well Bore

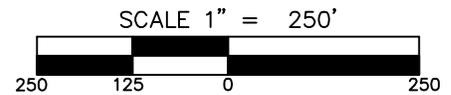
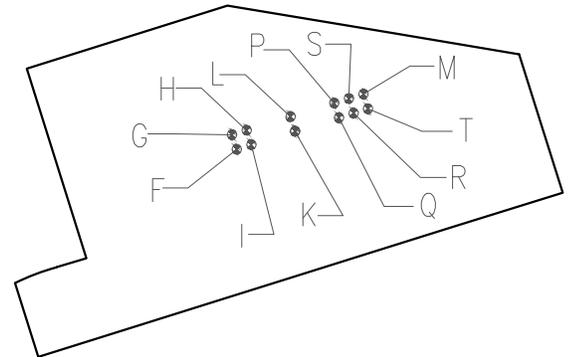
Applicant / Well Operator Name: CNX GAS COMPANY, LLC	DEP ID#: 159257	Well (Farm) Name: MCCULLOUGH	Well #: MAM16FHSU
---	--------------------	---------------------------------	----------------------

SHL True Latitude
40.538711

SHL True Longitude
-79.540429

Horizontal Coordinate System:
NAD 83

LOCATION AT
TOTAL DEPTH
LAT 40.570648
LON -79.564443
(NAD 83)



TRACT BOUNDARY

TRACT BOUNDARY
EXCLUSION

AZ=340°00'00" (GN) 12,450'
PROPOSED HORIZONTAL SECTION

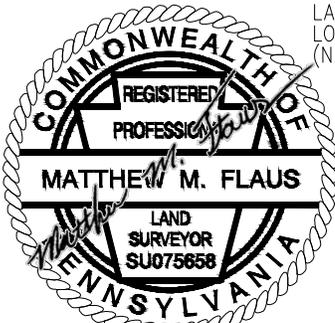
LOCATION
AT LANDING
LAT 40.538780
LON -79.548261
(NAD 83)

S89°E 1180'
(TIE)

S45°W 2903'
(TIE)

MCCULLOUGH
MAM16FHSU
WELL LOCATION

ACCESS
ROAD



LOCATION
AT KOP
LAT 40.537082
LON -79.546571
(NAD 83)

TRACT BOUNDARY AREA 1220.23 Ac.
EXISTING SURFACE ELEVATION- 1342.90± FT.

SCALE 1" = 2500'



WELL LOCATION PLAT

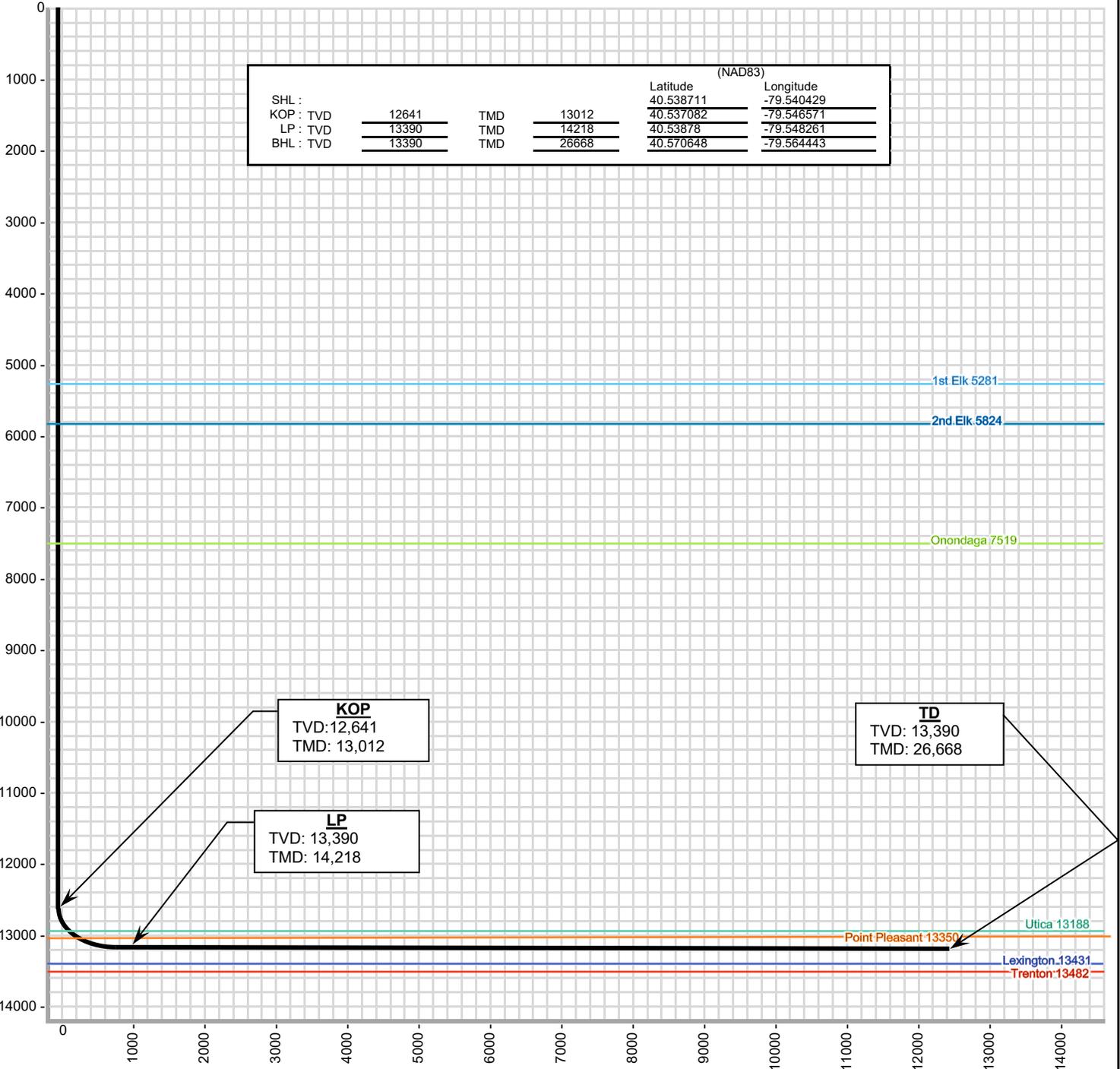
Page 4 Cross Section

DEP Use Only	Well #
--------------	--------

Applicant / Well Operator Name CNX Gas Company LLC	DEP ID# 159257	Well (Farm) Name MCCULLOUGH	Well# MAM16FHSU
--	--------------------------	---------------------------------------	---------------------------

WELL PLAN

				(NAD83)	
SHL :		TMD		Latitude	Longitude
KOP : TVD	12641	TMD	13012	40.538711	-79.540429
LP : TVD	13390	TMD	14218	40.537082	-79.546571
BHL : TVD	13390	TMD	26668	40.53878	-79.548261
				40.570648	-79.564443



Scale 1/2" = 1,000 ft



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS MANAGEMENT

DEP USE ONLY
Application Tracking #
1525657

Proposed Alternate Method or Material for Casing, Plugging, Venting or Equipping a Well

Well Operator CNX GAS COMPANY LLC		DEP ID#	Well Permit or Registration Number 129-29276	
Address 1000 HORIZON VUE DRIVE ATTN: PERMITTING			Well Farm Name MCCULLOUGH	
City CANONSBURG	State PA	Zip Code 15317	Well # MAM16GHSU	Serial # PA
Phone 724-485-3244	Fax	County WESTMORELAND		Municipality BELL TWP

A proposed alternate method is subject to provisions in §3221 of the 2012 Oil and Gas Act, 58 Pa. C.S. §3221 Section 13 of the Coal and Gas Resource Coordination Act, 58 P.S. §513 and 25 PA Code §§78.75-78.75a (relating to Alternate Methods.) Attach proof of notification of coal operator(s).

Describe in reasonable detail using a written description and / or diagram:

- 1. the proposed alternate method or materials, and**
- 2. the manner in which the alternative will satisfy the goals of the laws and regulations.**

SEE EXHIBIT A

Optional: Approval by Coal Owner or Operator		Signature of Applicant / Well Operator	
Signature	Date	Signature	Date
		<i>Josh Horvath</i>	4/28/2025
Print or Type Signer's Name and Title		Print or Type Signer's Name and Title	
		Josh Horvath - Drilling Engineer	

If optional approval is signed by coal owner or operator, the 15-day objection period may be waived.

DEP USE ONLY		
Approved by (DEP Manager)	Conditions	Date
<i>April Weiland</i>	<input type="checkbox"/> YES, See Attached <input checked="" type="checkbox"/> NO	05/13/2025



Alternate Method Request – MAM16G

1. Alternative Request for Casing Integrity Test

- a. CNX requests approval for an Alternate Method regarding 78a.84 - Casing Standards, subsection (f) "Casing which is attached to a blow-out preventer with a pressure rating of greater than 3,000 psi shall be pressure tested after cementing. A passing pressure test must be holding the anticipated maximum pressure to which the casing will be exposed for 30 minutes with not more than a 10% decrease." CNX is requesting Casing Integrity Test (CIT) duration be less than 30 minutes immediately upon placement of cement. This would have the CIT being performed before significant gel strength of the cement has developed in the wellbore in order to prevent development of a Micro-Annulus during the CIT. CNX proposes CIT duration of 10 minutes. This would be done in accordance with API Standard 65 - Part 2, Second Edition - 12/2010 Section 5.10.2 "Regulations may require casing to be pressure tested. Preferably, pressure testing casing should be done before significant gel strength has developed. However, such pressure testing will be limited by the pressure ratings of plugs, floats, cementing heads and other equipment. Pressure testing can be done after the cement has set but this can result in micro-annulus formation or damage to the cement sheath. The pressure should be held on the casing for the shortest length of time required to accomplish the test."
- b. Given the drilling and completions history on offset Marcellus & Utica wells in the area, there is reasonable evidence to suggest shallow gas migration will be possible if performing a CIT were done and allowed for the creation of a micro annulus. The data below represents the Zero Gel Time (ZGT) for the proposed cement blends that will be used during the drilling of this well. These times indicate the length of time that passes before the static cement begins to thicken and allow for the creation of a micro annulus. Applied pressure for the CIT will be calculated based upon TVD of the shoe and the hydrostatic difference between the displacement fluid and the cement fluid and will be 60% of burst rating of the casing except on the 13-3/8" casing where CIT pressure will be 1000psi with Fresh Water.
 - 13-3/8" (with 0% CaCl₂) – ZGT = 0:19 - 9-5/8" (with 0% CaCl₂) – ZGT = 0:17
- c. Base Plan would be to bump the plug, bleed pressure off and check float valves, apply CIT pressure and then hold for 10 minutes. If floats do not

hold, final lift pressure would be held until cement reached 500 psi compressive strength and CIT would be performed as per 78a.84.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS MANAGEMENT

WELL LOCATION PLAT

PAGE 1 Surface Location

Auth ID #:	G:
Permit #:	C:
Project #:	C:

SHL True Latitude
40.538763

SHL True Longitude
-79.540452

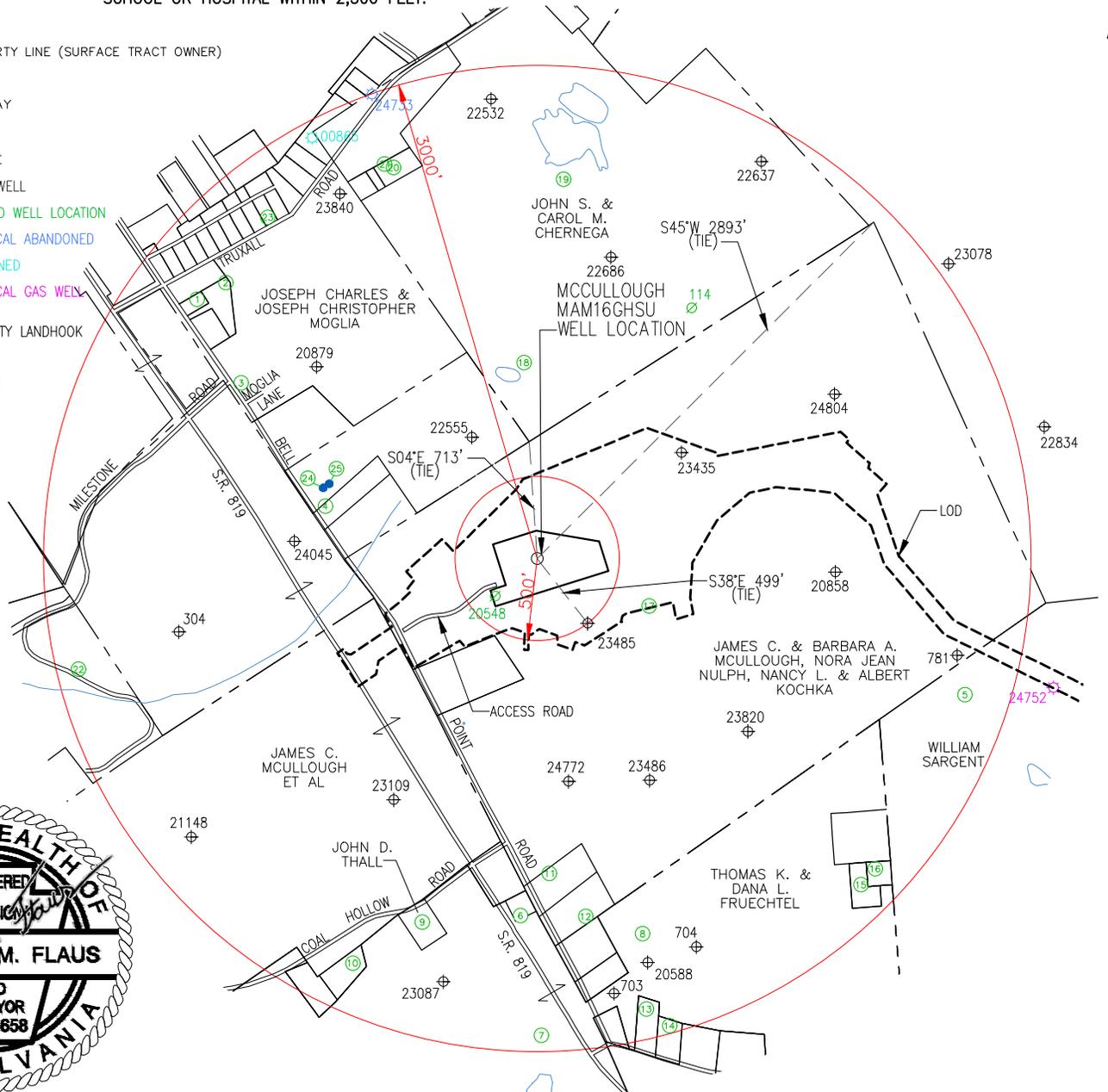
Horizontal Coordinate System:
NAD 83

NOTES:
THE PURPOSE OF THIS PLAT IS FOR THE LOCATION OF A PROPOSED GAS WELL AND DOES NOT REPRESENT A CLOSED BOUNDARY SURVEY. PROPERTY LINES AND OWNERS WERE OBTAINED FROM INFORMATION PROVIDED BY CNX AND TAX RECORDS.
PER CNX/DEP NOVEMBER 2, 2023 COLLABORATION, THERE ARE NO EXISTING BUILDINGS AS DEFINED IN ACT 13 INCLUDING ANY RESIDENTIAL BUILDING WITHIN 600 FEET OR OPERATIONAL SCHOOL OR HOSPITAL WITHIN 2,500 FEET.

THERE ARE NO GAS STORAGE RESERVOIRS WITHIN 3000 FEET OF PROPOSED WELL LOCATION.
THERE ARE NO COAL MINES WITHIN 1000' OF THE PROPOSED WELL LOCATION.

LEGEND

- PROPERTY LINE (SURFACE TRACT OWNER)
- LOD
- == ROADWAY
- STREAM
- TIE LINE
- ⊕ ACTIVE WELL
- ⊗ PLUGGED WELL LOCATION
- ⊙ HISTORICAL ABANDONED
- ⊙ ABANDONED
- ⊙ HISTORICAL GAS WELL
- ↑ PROPERTY LANDHOOK
- ① WATER SOURCE NUMBER



Applicant / Well Operator Name: CNX GAS COMPANY, LLC		DEP ID#: 159257	Well (Farm) Name: MCCULLOUGH		Well #: MAM16GHSU	Serial #: PA1292031HSUT
Address: 1000 HORIZON VUE DRIVE, CANONSBURG, PA 15317			County: WESTMORELAND	Municipality: BELL TOWNSHIP	Well Type: GAS	
911 address of well site: 544 BELL POINT ROAD, APOLLO, PA 15613			USGS 7 1/2" Quadrangle Map Name: VANDERGRIFT	Map Section: 9	Surface Elevation: 1342.90± ft.	
Surveyor or Engineer: MATTHEW M. FLAUS, PLS	Phone #: (412) 278-2100	Dwg #:	Date: 01/16/2025	Scale: 1"=1000'	Tract Boundary Acreage: 1543.20	
Lat & Long Metadata Method: GPS	Accuracy: 3± ft.	Datum: NAD 83	Elevation Metadata Method: GPS	Accuracy: 5± ft.	Datum: NAVD 88	Survey Date:

WELL LOCATION PLAT
Page 2(A) Notifications

DEP Statewide toll-free phone number for reporting cases of water contamination which may be associated with development of oil and gas resources is 1-866-255-5158.

Applicant / Well Operator Name CNX GAS COMPANY, LLC	DEP ID# 159257	Well (Farm) Name MCCULLOUGH	Well # MAM16GHSU	Serial # PA1292031HSUT
Surface Landowner / Lessor: JAMES C. MCCULLOUGH ET AL		Angle & Course of Deviation (Drilling): N 23° 07' 21" W - 14,059'	Anticipated True Vertical Depth Feet (TVD): 13,390'	Anticipated Total Measured Depth Feet (TMD): 27,109'
Target Formation(s): POINT PLEASANT		Deepest Formation to be penetrated: POINT PLEASANT	Number of laterals: 1	Total footage to be drilled all laterals: 27,109'
Surface Owner/Water Purveyor w/Water Supply within 1000'/3000'		Latitude Longitude of Water Supply		
1) KIRK J. MUFFIE		40.542975 -79.548003		
2) BARBARA J. HUSARIK FAMILY IRREVOCABLE LIVING TRUST		40.543263 -79.547384		
3) JOSEPH CHARLES & JOSEPH CHRISTOPHER MOGLIA		40.541593 -79.547002		
4) FRANK J. LOMBARDO, JR.		40.539564 -79.545108		
5) WILLIAM SARGENT		40.536632 -79.531044		
6) SHAWNA LYN COSTA		40.532795 -79.540658		
7) N. KATHLEEN ALTEMUS, VIVIAN A. KOWAL, THOMAS K. FRUECHTEL & KAREN J. BELL		40.530803 -79.540150		
8) N. KATHLEEN ALTEMUS, VIVIAN A. KOWAL, THOMAS K. FRUECHTEL & KAREN J. BELL		40.532533 -79.537983		
9) JOHN D. THALL		40.532654 -79.542807		
10) THOMAS K. & DANA L. FRUECHTEL		40.531945 -79.544304		
11) NORMAN R. JR. & E. DIANE WILLIAMS		40.533509 -79.540048		
12) GARY A. LEEMAN		40.532803 -79.539233		
13) VIVIAN B. & JAMES KOWAL		40.531278 -79.537865		
14) KEVIN A. & BELINDA S. JONES		40.531006 -79.537352		
15) FRANK D. & BARBARA A. GIRARDI		40.533426 -79.533231		
16) CROWN COMMUNICATION INC.		40.533697 -79.532928		
17) JAMES C. & BARBARA A. MCULLOUGH, NORA JEAN NULPH, NANCY J. & ALBERT KOCHKA		40.538008 -79.537985		
18) JOHN S. & CAROL M. CHERNEGA		40.541723 -79.540966		
19) JOHN S. & CAROL M. CHERNEGA		40.545264 -79.539261		
20) MICHELLE R. GABBORINI		40.545240 -79.543769		
Municipality: where the well will be drilled, adjacent to the well, or within 3000 feet		Coal related parties		
BELL TOWNSHIP, WESTMORELAND COUNTY		NON-COAL		
OKLAHOMA BOROUGH, WESTMORELAND COUNTY				
KISKIMINETAS TOWNSHIP, ARMSTRONG COUNTY				
AVONMORE BOROUGH, WESTMORELAND COUNTY				
CONEMAUGH TOWNSHIP, INDIANA COUNTY				
LOYALHANNA TOWNSHIP, WESTMORELAND COUNTY				
SALEM TOWNSHIP, WESTMORELAND COUNTY				
WASHINGTON TOWNSHIP, WESTMORELAND COUNTY				

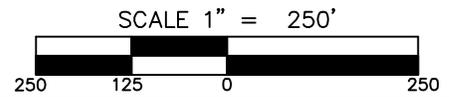
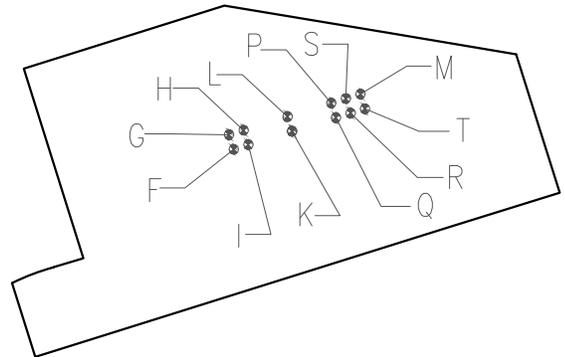
WELL LOCATION PLAT
PAGE 3 Plan View of Deviated Well Bore

Applicant / Well Operator Name: CNX GAS COMPANY, LLC	DEP ID#: 159257	Well (Farm) Name: MCCULLOUGH	Well #: MAM16GHSU
--	---------------------------	--	-----------------------------

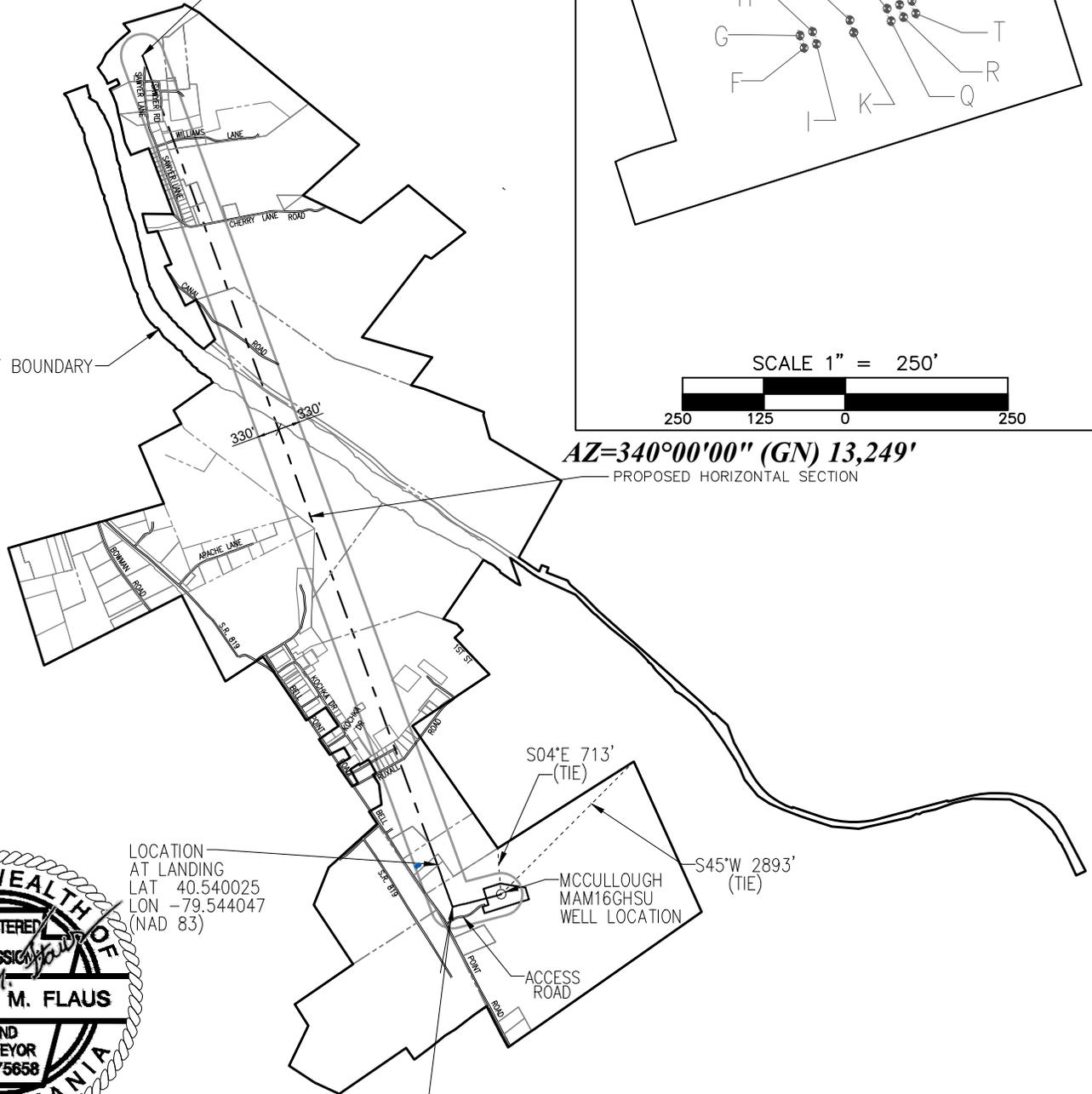
SHL True Latitude 40.538763
SHL True Longitude -79.540452

Horizontal Coordinate System:
NAD 83

LOCATION AT
TOTAL DEPTH
LAT 40.573938
LON -79.561266
(NAD 83)



TRACT BOUNDARY



LOCATION
AT LANDING
LAT 40.540025
LON -79.544047
(NAD 83)

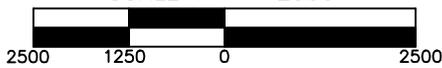
LOCATION
AT KOP
LAT 40.538191
LON -79.543116
(NAD 83)



TRACT BOUNDARY AREA 1543.20 Ac.

EXISTING SURFACE ELEVATION- 1342.90± FT.

SCALE 1" = 2500'



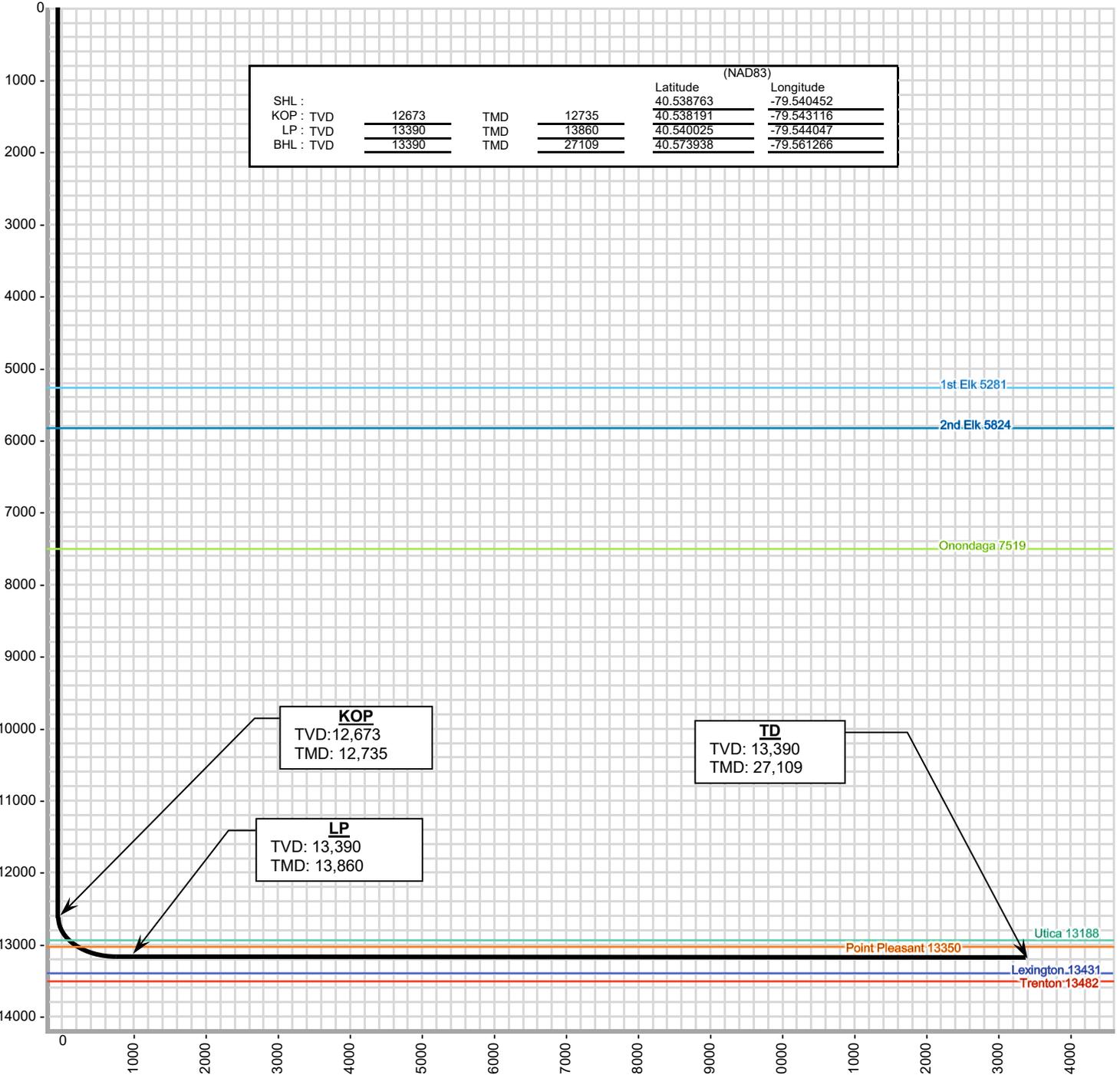
WELL LOCATION PLAT

Page 4 Cross Section

DEP Use Only	Well #
--------------	--------

Applicant / Well Operator Name CNX Gas Company LLC	DEP ID# 159257	Well (Farm) Name MCCULLOUGH	Well# MAM16GHSU
--	--------------------------	---------------------------------------	---------------------------

WELL PLAN



Scale 1/2" = 1,000 ft



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS MANAGEMENT

DEP USE ONLY
Application Tracking #
1525659

Proposed Alternate Method or Material for Casing, Plugging, Venting or Equipping a Well

Well Operator CNX GAS COMPANY LLC		DEP ID#	Well Permit or Registration Number 129-29277	
Address 1000 HORIZON VUE DRIVE ATTN: PERMITTING			Well Farm Name MCCULLOUGH	
City CANONSBURG	State PA	Zip Code 15317	Well # MAM16HHSU	Serial # PA
Phone 724-485-3244	Fax	County WESTMORELAND		Municipality BELL TWP

A proposed alternate method is subject to provisions in §3221 of the 2012 Oil and Gas Act, 58 Pa. C.S. §3221 Section 13 of the Coal and Gas Resource Coordination Act, 58 P.S. §513 and 25 PA Code §§78.75-78.75a (relating to Alternate Methods.) Attach proof of notification of coal operator(s).

Describe in reasonable detail using a written description and / or diagram:

- 1. the proposed alternate method or materials, and**
- 2. the manner in which the alternative will satisfy the goals of the laws and regulations.**

SEE EXHIBIT A

Optional: Approval by Coal Owner or Operator		Signature of Applicant / Well Operator	
Signature	Date	Signature	Date
		<i>Josh Horvath</i>	4/28/2025
Print or Type Signer's Name and Title		Print or Type Signer's Name and Title	
		Josh Horvath - Drilling Engineer	

If optional approval is signed by coal owner or operator, the 15-day objection period may be waived.

DEP USE ONLY		
Approved by (DEP Manager) <i>April Weiland</i>	Conditions <input type="checkbox"/> YES, See Attached <input checked="" type="checkbox"/> NO	Date 05/13/2025

Alternate Method Request – MAM16H

1. Alternative Request for Casing Integrity Test

- a. CNX requests approval for an Alternate Method regarding 78a.84 - Casing Standards, subsection (f) "Casing which is attached to a blow-out preventer with a pressure rating of greater than 3,000 psi shall be pressure tested after cementing. A passing pressure test must be holding the anticipated maximum pressure to which the casing will be exposed for 30 minutes with not more than a 10% decrease." CNX is requesting Casing Integrity Test (CIT) duration be less than 30 minutes immediately upon placement of cement. This would have the CIT being performed before significant gel strength of the cement has developed in the wellbore in order to prevent development of a Micro-Annulus during the CIT. CNX proposes CIT duration of 10 minutes. This would be done in accordance with API Standard 65 - Part 2, Second Edition - 12/2010 Section 5.10.2 "Regulations may require casing to be pressure tested. Preferably, pressure testing casing should be done before significant gel strength has developed. However, such pressure testing will be limited by the pressure ratings of plugs, floats, cementing heads and other equipment. Pressure testing can be done after the cement has set but this can result in micro-annulus formation or damage to the cement sheath. The pressure should be held on the casing for the shortest length of time required to accomplish the test."
- b. Given the drilling and completions history on offset Marcellus & Utica wells in the area, there is reasonable evidence to suggest shallow gas migration will be possible if performing a CIT were done and allowed for the creation of a micro annulus. The data below represents the Zero Gel Time (ZGT) for the proposed cement blends that will be used during the drilling of this well. These times indicate the length of time that passes before the static cement begins to thicken and allow for the creation of a micro annulus. Applied pressure for the CIT will be calculated based upon TVD of the shoe and the hydrostatic difference between the displacement fluid and the cement fluid and will be 60% of burst rating of the casing except on the 13-3/8" casing where CIT pressure will be 1000psi with Fresh Water.
 - 13-3/8" (with 0% CaCl₂) – ZGT = 0:19 - 9-5/8" (with 0% CaCl₂) – ZGT = 0:17
- c. Base Plan would be to bump the plug, bleed pressure off and check float valves, apply CIT pressure and then hold for 10 minutes. If floats do not

hold, final lift pressure would be held until cement reached 500 psi compressive strength and CIT would be performed as per 78a.84.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS MANAGEMENT

WELL LOCATION PLAT

PAGE 1 Surface Location

Auth ID #:	G:
Permit #:	C:
Project #:	C:

SHL True Latitude
40.538780

SHL True Longitude
-79.540383

Horizontal Coordinate System:
NAD 83

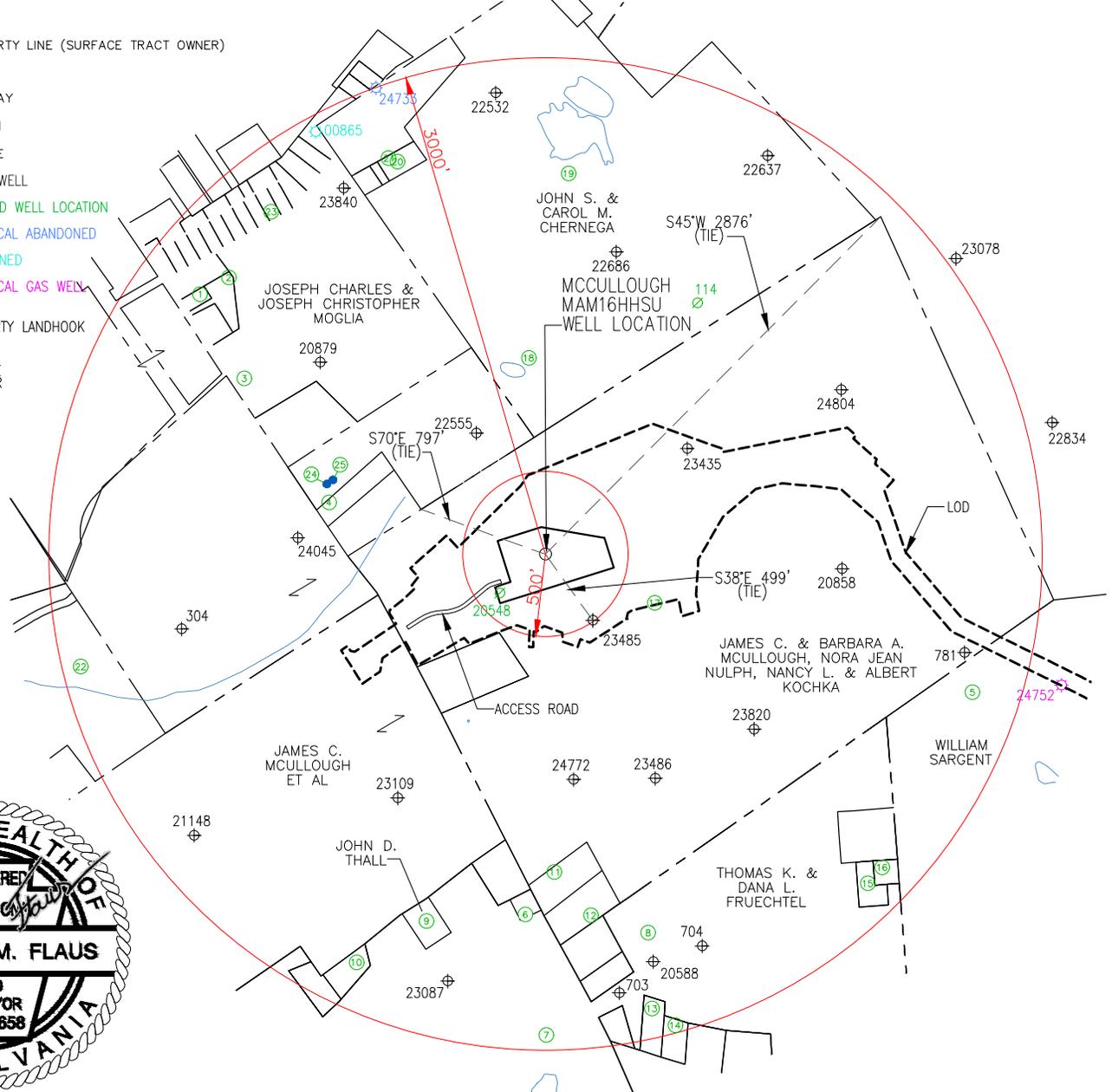
NOTES:
THE PURPOSE OF THIS PLAT IS FOR THE LOCATION OF A PROPOSED GAS WELL AND DOES NOT REPRESENT A CLOSED BOUNDARY SURVEY. PROPERTY LINES AND OWNERS WERE OBTAINED FROM INFORMATION PROVIDED BY CNX AND TAX RECORDS.
PER CNX/DEP NOVEMBER 2, 2023 COLLABORATION, THERE ARE NO EXISTING BUILDINGS AS DEFINED IN ACT 13 INCLUDING ANY RESIDENTIAL BUILDING WITHIN 600 FEET OR OPERATIONAL SCHOOL OR HOSPITAL WITHIN 2,500 FEET.

THERE ARE NO GAS STORAGE RESERVOIRS WITHIN 3000 FEET OF PROPOSED WELL LOCATION.
THERE ARE NO COAL MINES WITHIN 1000' OF THE PROPOSED WELL LOCATION.



LEGEND

- PROPERTY LINE (SURFACE TRACT OWNER)
- LOD
- ROADWAY
- STREAM
- TIE LINE
- ⊕ ACTIVE WELL
- ⊗ PLUGGED WELL LOCATION
- ⊙ HISTORICAL ABANDONED
- ⊙ ABANDONED
- ⊙ HISTORICAL GAS WELL
- ↑ PROPERTY LANDHOOK
- ① WATER SOURCE NUMBER



Applicant / Well Operator Name: CNX GAS COMPANY, LLC		DEP ID#: 159257	Well (Farm) Name: MCCULLOUGH		Well #: MAM16HHSU	Serial #: PA1292032HSUT
Address: 1000 HORIZON VUE DRIVE, CANONSBURG, PA 15317			County: WESTMORELAND	Municipality: BELL TOWNSHIP	Well Type: GAS	
911 address of well site: 544 BELL POINT ROAD, APOLLO, PA 15613			USGS 7 1/2" Quadrangle Map Name: VANDERGRIFT	Map Section: 9	Surface Elevation: 1342.90± ft.	
Surveyor or Engineer: MATTHEW M. FLAUS, PLS	Phone #: (412) 278-2100	Dwg #:	Date: 01/16/2025	Scale: 1"=1000'	Boundary Tract Acreage: 1291.53	
Lat & Long Metadata Method: GPS	Accuracy: 3± ft.	Datum: NAD 83	Elevation Metadata Method: GPS	Accuracy: 5± ft.	Datum: NAVD 88	Survey Date:

WELL LOCATION PLAT
Page 2(A) Notifications

DEP Statewide toll-free phone number for reporting cases of water contamination which may be associated with development of oil and gas resources is 1-866-255-5158.

Applicant / Well Operator Name CNX GAS COMPANY, LLC	DEP ID# 159257	Well (Farm) Name MCCULLOUGH	Well # MAM16HHSU	Serial # PA1292032HSUT
Surface Landowner / Lessor: JAMES C. MCCULLOUGH ET AL		Angle & Course of Deviation (Drilling): N 18° 14' 08" W - 14,347'	Anticipated True Vertical Depth Feet (TVD): 13,390'	Anticipated Total Measured Depth Feet (TMD): 27,373'
Target Formation(s): POINT PLEASANT		Deepest Formation to be penetrated: POINT PLEASANT	Number of laterals: 1	Total footage to be drilled all laterals: 27,373'
Surface Owner/Water Purveyor w/Water Supply within 1000'/3000'		Latitude Longitude of Water Supply		
1) KIRK J. MUFFIE		40.542975 -79.548003		
2) BARBARA J. HUSARIK FAMILY IRREVOCABLE LIVING TRUST		40.543263 -79.547384		
3) JOSEPH CHARLES & JOSEPH CHRISTOPHER MOGLIA		40.541593 -79.547002		
4) FRANK J. LOMBARDO, JR.		40.539564 -79.545108		
5) WILLIAM SARGENT		40.536632 -79.531044		
6) SHAWNA LYN COSTA		40.532795 -79.540658		
7) N. KATHLEEN ALTEMUS, VIVIAN A. KOWAL, THOMAS K. FRUECHTEL & KAREN J. BELL		40.530803 -79.540150		
8) N. KATHLEEN ALTEMUS, VIVIAN A. KOWAL, THOMAS K. FRUECHTEL & KAREN J. BELL		40.532533 -79.537983		
9) JOHN D. THALL		40.532654 -79.542807		
10) THOMAS K. & DANA L. FRUECHTEL		40.531945 -79.544304		
11) NORMAN R. JR. & E. DIANE WILLIAMS		40.533509 -79.540048		
12) GARY A. LEEMAN		40.532803 -79.539233		
13) VIVIAN B. & JAMES KOWAL		40.531278 -79.537865		
14) KEVIN A. & BELINDA S. JONES		40.531006 -79.537352		
15) FRANK D. & BARBARA A. GIRARDI		40.533426 -79.533231		
16) CROWN COMMUNICATION INC.		40.533697 -79.532928		
17) JAMES C. & BARBARA A. MCULLOUGH, NORA JEAN NULPH, NANCY J. & ALBERT KOCHKA		40.538008 -79.537985		
18) JOHN S. & CAROL M. CHERNEGA		40.541723 -79.540966		
19) JOHN S. & CAROL M. CHERNEGA		40.545264 -79.539261		
20) MICHELLE R. GABBORINI		40.545240 -79.543769		
Municipality: where the well will be drilled, adjacent to the well, or within 3000 feet		Coal related parties		
BELL TOWNSHIP, WESTMORELAND COUNTY		NON-COAL		
OKLAHOMA BOROUGH, WESTMORELAND COUNTY				
KISKIMINETAS TOWNSHIP, ARMSTRONG COUNTY				
AVONMORE BOROUGH, WESTMORELAND COUNTY				
CONEMAUGH TOWNSHIP, INDIANA COUNTY				
LOYALHANNA TOWNSHIP, WESTMORELAND COUNTY				
SALEM TOWNSHIP, WESTMORELAND COUNTY				
WASHINGTON TOWNSHIP, WESTMORELAND COUNTY				

WELL LOCATION PLAT

PAGE 3 Plan View of Deviated Well Bore

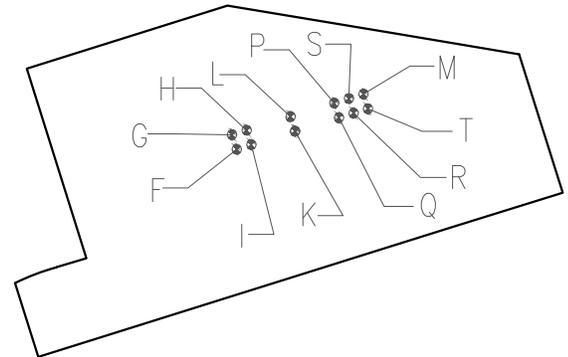
Applicant / Well Operator Name: CNX GAS COMPANY, LLC	DEP ID#: 159257	Well (Farm) Name: MCCULLOUGH	Well #: MAM16HHSU
---	--------------------	---------------------------------	----------------------

SHL True Latitude
40.538780

SHL True Longitude
-79.540383

Horizontal Coordinate System:
NAD 83

LOCATION AT
TOTAL DEPTH
LAT 40.575926
LON -79.557537
(NAD 83)



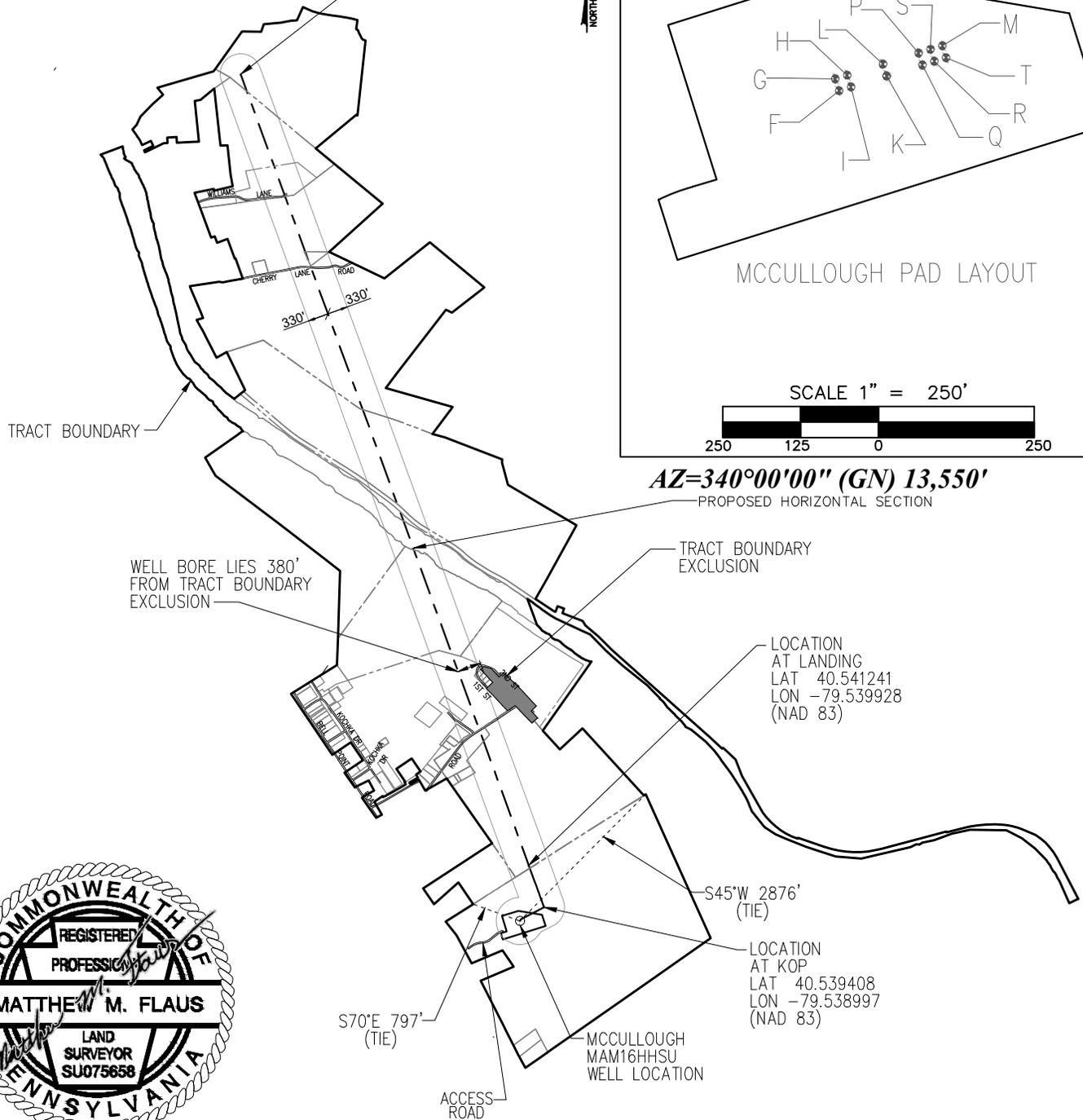
MCCULLOUGH PAD LAYOUT

SCALE 1" = 250'



AZ=340°00'00" (GN) 13,550'

PROPOSED HORIZONTAL SECTION



TRACT BOUNDARY AREA 1291.53 Ac.

EXISTING SURFACE ELEVATION- 1342.90± FT.

SCALE 1" = 2500'



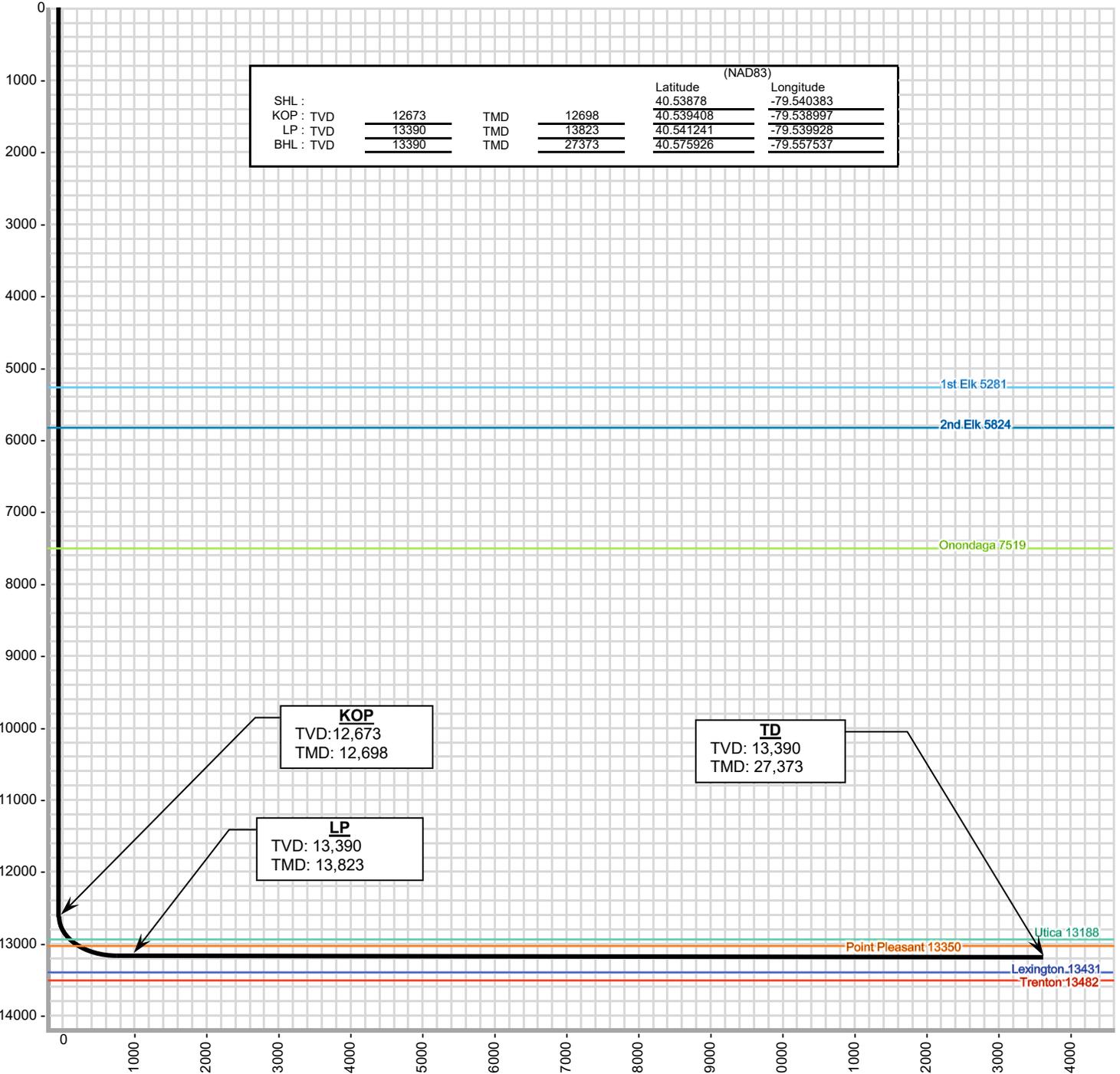
WELL LOCATION PLAT

Page 4 Cross Section

DEP Use Only	Well #
Applicant / Well Operator Name CNX Gas Company LLC	Well # MAM16HHSU

WELL PLAN

				(NAD83)	
		Latitude			Longitude
SHL :		40.53878			-79.540383
KOP : TVD	12673	40.539408	TMD	12698	-79.538997
LP : TVD	13390	40.541241	TMD	13823	-79.539928
BHL : TVD	13390	40.575926	TMD	27373	-79.557537



Scale 1/2" = 1,000 ft



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS MANAGEMENT

DEP USE ONLY
Application Tracking #
1525660

Proposed Alternate Method or Material for Casing, Plugging, Venting or Equipping a Well

Well Operator CNX GAS COMPANY LLC		DEP ID#	Well Permit or Registration Number 129-29278	
Address 1000 HORIZON VUE DRIVE ATTN: PERMITTING			Well Farm Name MCCULLOUGH	
City CANONSBURG	State PA	Zip Code 15317	Well # MAM16IHSU	Serial # PA
Phone 724-485-3244	Fax	County WESTMORELAND	Municipality BELL TWP	

A proposed alternate method is subject to provisions in §3221 of the 2012 Oil and Gas Act, 58 Pa. C.S. §3221 Section 13 of the Coal and Gas Resource Coordination Act, 58 P.S. §513 and 25 PA Code §§78.75-78.75a (relating to Alternate Methods.) Attach proof of notification of coal operator(s).

Describe in reasonable detail using a written description and / or diagram:

- 1. the proposed alternate method or materials, and**
- 2. the manner in which the alternative will satisfy the goals of the laws and regulations.**

SEE EXHIBIT A

Optional: Approval by Coal Owner or Operator		Signature of Applicant / Well Operator	
Signature	Date	Signature	Date
		<i>Josh Horvath</i>	4/28/2025
Print or Type Signer's Name and Title		Print or Type Signer's Name and Title	
		Josh Horvath - Drilling Engineer	

If optional approval is signed by coal owner or operator, the 15-day objection period may be waived.

DEP USE ONLY		
Approved by (DEP Manager) <i>April Weiland</i>	Conditions <input type="checkbox"/> YES, See Attached <input checked="" type="checkbox"/> NO	Date 05/13/2025



Alternate Method Request – MAM16I

1. Alternative Request for Casing Integrity Test

- a. CNX requests approval for an Alternate Method regarding 78a.84 - Casing Standards, subsection (f) "Casing which is attached to a blow-out preventer with a pressure rating of greater than 3,000 psi shall be pressure tested after cementing. A passing pressure test must be holding the anticipated maximum pressure to which the casing will be exposed for 30 minutes with not more than a 10% decrease." CNX is requesting Casing Integrity Test (CIT) duration be less than 30 minutes immediately upon placement of cement. This would have the CIT being performed before significant gel strength of the cement has developed in the wellbore in order to prevent development of a Micro-Annulus during the CIT. CNX proposes CIT duration of 10 minutes. This would be done in accordance with API Standard 65 - Part 2, Second Edition - 12/2010 Section 5.10.2 "Regulations may require casing to be pressure tested. Preferably, pressure testing casing should be done before significant gel strength has developed. However, such pressure testing will be limited by the pressure ratings of plugs, floats, cementing heads and other equipment. Pressure testing can be done after the cement has set but this can result in micro-annulus formation or damage to the cement sheath. The pressure should be held on the casing for the shortest length of time required to accomplish the test."
- b. Given the drilling and completions history on offset Marcellus & Utica wells in the area, there is reasonable evidence to suggest shallow gas migration will be possible if performing a CIT were done and allowed for the creation of a micro annulus. The data below represents the Zero Gel Time (ZGT) for the proposed cement blends that will be used during the drilling of this well. These times indicate the length of time that passes before the static cement begins to thicken and allow for the creation of a micro annulus. Applied pressure for the CIT will be calculated based upon TVD of the shoe and the hydrostatic difference between the displacement fluid and the cement fluid and will be 60% of burst rating of the casing except on the 13-3/8" casing where CIT pressure will be 1000psi with Fresh Water.
 - 13-3/8" (with 0% CaCl₂) – ZGT = 0:19 - 9-5/8" (with 0% CaCl₂) – ZGT = 0:17
- c. Base Plan would be to bump the plug, bleed pressure off and check float valves, apply CIT pressure and then hold for 10 minutes. If floats do not

hold, final lift pressure would be held until cement reached 500 psi compressive strength and CIT would be performed as per 78a.84.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS MANAGEMENT

WELL LOCATION PLAT

PAGE 1 Surface Location

Auth ID #:	G:
Permit #:	C:
Project #:	C:

SHL True Latitude
40.538728

SHL True Longitude
-79.540360

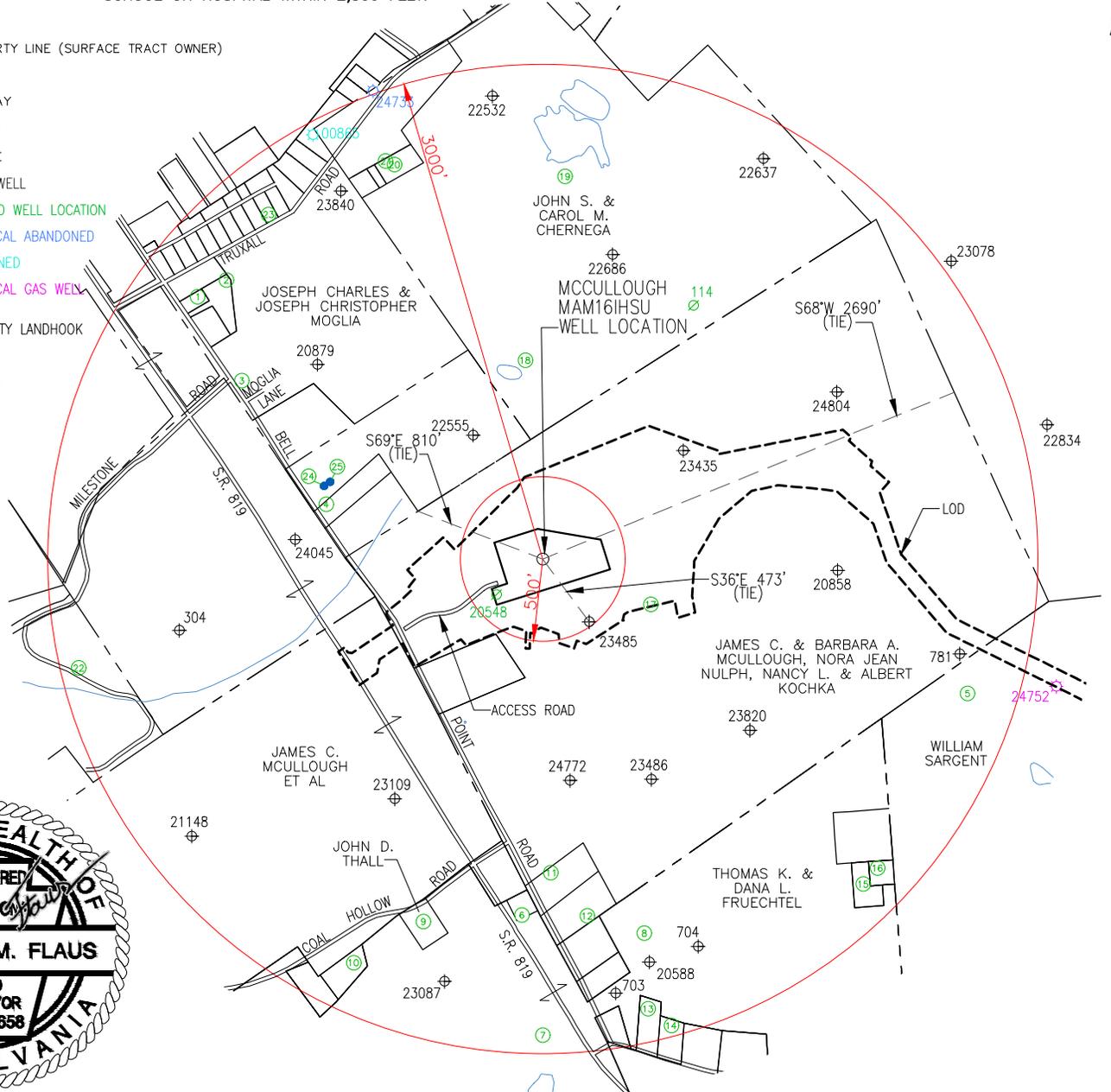
Horizontal Coordinate System:
NAD 83

NOTES:
THE PURPOSE OF THIS PLAT IS FOR THE LOCATION OF A PROPOSED GAS WELL AND DOES NOT REPRESENT A CLOSED BOUNDARY SURVEY. PROPERTY LINES AND OWNERS WERE OBTAINED FROM INFORMATION PROVIDED BY CNX AND TAX RECORDS.
PER CNX/DEP NOVEMBER 2, 2023 COLLABORATION, THERE ARE NO EXISTING BUILDINGS AS DEFINED IN ACT 13 INCLUDING ANY RESIDENTIAL BUILDING WITHIN 600 FEET OR OPERATIONAL SCHOOL OR HOSPITAL WITHIN 2,500 FEET.

THERE ARE NO GAS STORAGE RESERVOIRS WITHIN 3000 FEET OF PROPOSED WELL LOCATION.
THERE ARE NO COAL MINES WITHIN 1000' OF THE PROPOSED WELL LOCATION.

LEGEND

- PROPERTY LINE (SURFACE TRACT OWNER)
- LOD
- == ROADWAY
- STREAM
- TIE LINE
- ⊕ ACTIVE WELL
- ⊗ PLUGGED WELL LOCATION
- ⊙ HISTORICAL ABANDONED
- ⊙ ABANDONED
- ⊙ HISTORICAL GAS WELL
- ↑ PROPERTY LANDHOOK
- ① WATER SOURCE NUMBER



Applicant / Well Operator Name: CNX GAS COMPANY, LLC		DEP ID#: 159257	Well (Farm) Name: MCCULLOUGH		Well #: MAM16IHSU	Serial #: PA1292033HSUT
Address: 1000 HORIZON VUE DRIVE, CANONSBURG, PA 15317			County: WESTMORELAND	Municipality: BELL TOWNSHIP	Well Type: GAS	
911 address of well site: 544 BELL POINT ROAD, APOLLO, PA 15613			USGS 7 1/2" Quadrangle Map Name: VANDERGRIFT	Map Section: 9	Surface Elevation: 1342.90± ft.	
Surveyor or Engineer: MATTHEW M. FLAUS, PLS	Phone #: (412) 278-2100	Dwg #:	Date: 01/16/2025	Scale: 1"=1000'	Tract Boundary Acreage: 1523.24	
Lat & Long Metadata Method: GPS	Accuracy: 3± ft.	Datum: NAD 83	Elevation Metadata Method: GPS	Accuracy: 5± ft.	Datum: NAVD 88	Survey Date:

WELL LOCATION PLAT
Page 2(A) Notifications

DEP Statewide toll-free phone number for reporting cases of water contamination which may be associated with development of oil and gas resources is 1-866-255-5158.

Applicant / Well Operator Name CNX GAS COMPANY, LLC	DEP ID# 159257	Well (Farm) Name MCCULLOUGH	Well # MAM16IHSU	Serial # PA1292033HSUT
Surface Landowner / Lessor: JAMES C. MCCULLOUGH ET AL		Angle & Course of Deviation (Drilling): N 12° 56' 13" W - 14,618'	Anticipated True Vertical Depth Feet (TVD): 13,390'	Anticipated Total Measured Depth Feet (TMD): 28,086'
Target Formation(s): POINT PLEASANT		Deepest Formation to be penetrated: POINT PLEASANT	Number of laterals: 1	Total footage to be drilled all laterals: 28,086'
Surface Owner/Water Purveyor w/Water Supply within 1000'/3000'		Latitude Longitude of Water Supply		
1) KIRK J. MUFFIE		40.542975 -79.548003		
2) BARBARA J. HUSARIK FAMILY IRREVOCABLE LIVING TRUST		40.543263 -79.547384		
3) JOSEPH CHARLES & JOSEPH CHRISTOPHER MOGLIA		40.541593 -79.547002		
4) FRANK J. LOMBARDO, JR.		40.539564 -79.545108		
5) WILLIAM SARGENT		40.536632 -79.531044		
6) SHAWNA LYN COSTA		40.532795 -79.540658		
7) N. KATHLEEN ALTEMUS, VIVIAN A. KOWAL, THOMAS K. FRUECHTEL & KAREN J. BELL		40.530803 -79.540150		
8) N. KATHLEEN ALTEMUS, VIVIAN A. KOWAL, THOMAS K. FRUECHTEL & KAREN J. BELL		40.532533 -79.537983		
9) JOHN D. THALL		40.532654 -79.542807		
10) THOMAS K. & DANA L. FRUECHTEL		40.531945 -79.544304		
11) NORMAN R. JR. & E. DIANE WILLIAMS		40.533509 -79.540048		
12) GARY A. LEEMAN		40.532803 -79.539233		
13) VIVIAN B. & JAMES KOWAL		40.531278 -79.537865		
14) KEVIN A. & BELINDA S. JONES		40.531006 -79.537352		
15) FRANK D. & BARBARA A. GIRARDI		40.533426 -79.533231		
16) CROWN COMMUNICATION INC.		40.533697 -79.532928		
17) JAMES C. & BARBARA A. MCULLOUGH, NORA JEAN NULPH, NANCY J. & ALBERT KOCHKA		40.538008 -79.537985		
18) JOHN S. & CAROL M. CHERNEGA		40.541723 -79.540966		
19) JOHN S. & CAROL M. CHERNEGA		40.545264 -79.539261		
20) MICHELLE R. GABBORINI		40.545240 -79.543769		
Municipality: where the well will be drilled, adjacent to the well, or within 3000 feet		Coal related parties		
BELL TOWNSHIP, WESTMORELAND COUNTY		NON-COAL		
OKLAHOMA BOROUGH, WESTMORELAND COUNTY				
KISKIMINETAS TOWNSHIP, ARMSTRONG COUNTY				
AVONMORE BOROUGH, WESTMORELAND COUNTY				
CONEMAUGH TOWNSHIP, INDIANA COUNTY				
LOYALHANNA TOWNSHIP, WESTMORELAND COUNTY				
SALEM TOWNSHIP, WESTMORELAND COUNTY				
WASHINGTON TOWNSHIP, WESTMORELAND COUNTY				

WELL LOCATION PLAT
PAGE 3 Plan View of Deviated Well Bore

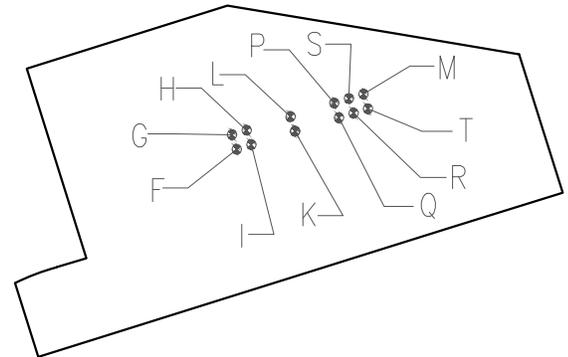
Applicant / Well Operator Name: CNX GAS COMPANY, LLC	DEP ID#: 159257	Well (Farm) Name: MCCULLOUGH	Well #: MAM16IHSU
---	--------------------	---------------------------------	----------------------

SHL True Latitude 40.538728
SHL True Longitude -79.540360

Horizontal Coordinate System:
NAD 83

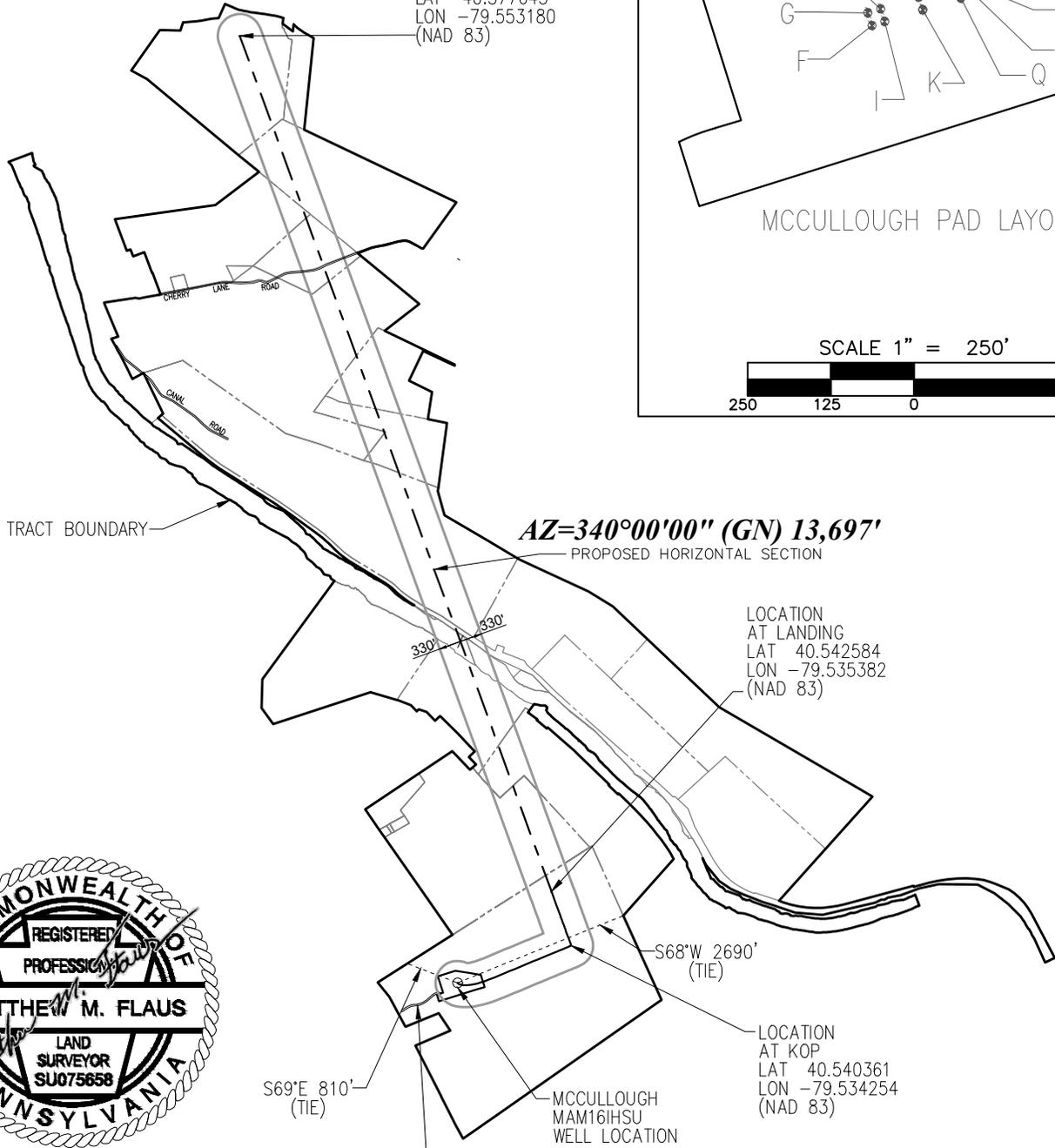


LOCATION AT
TOTAL DEPTH
LAT 40.577645
LON -79.553180
(NAD 83)



MCCULLOUGH PAD LAYOUT

SCALE 1" = 250'



TRACT BOUNDARY AREA 1523.24 Ac.

EXISTING SURFACE ELEVATION- 1342.90± FT.

SCALE 1" = 2500'



WELL LOCATION PLAT

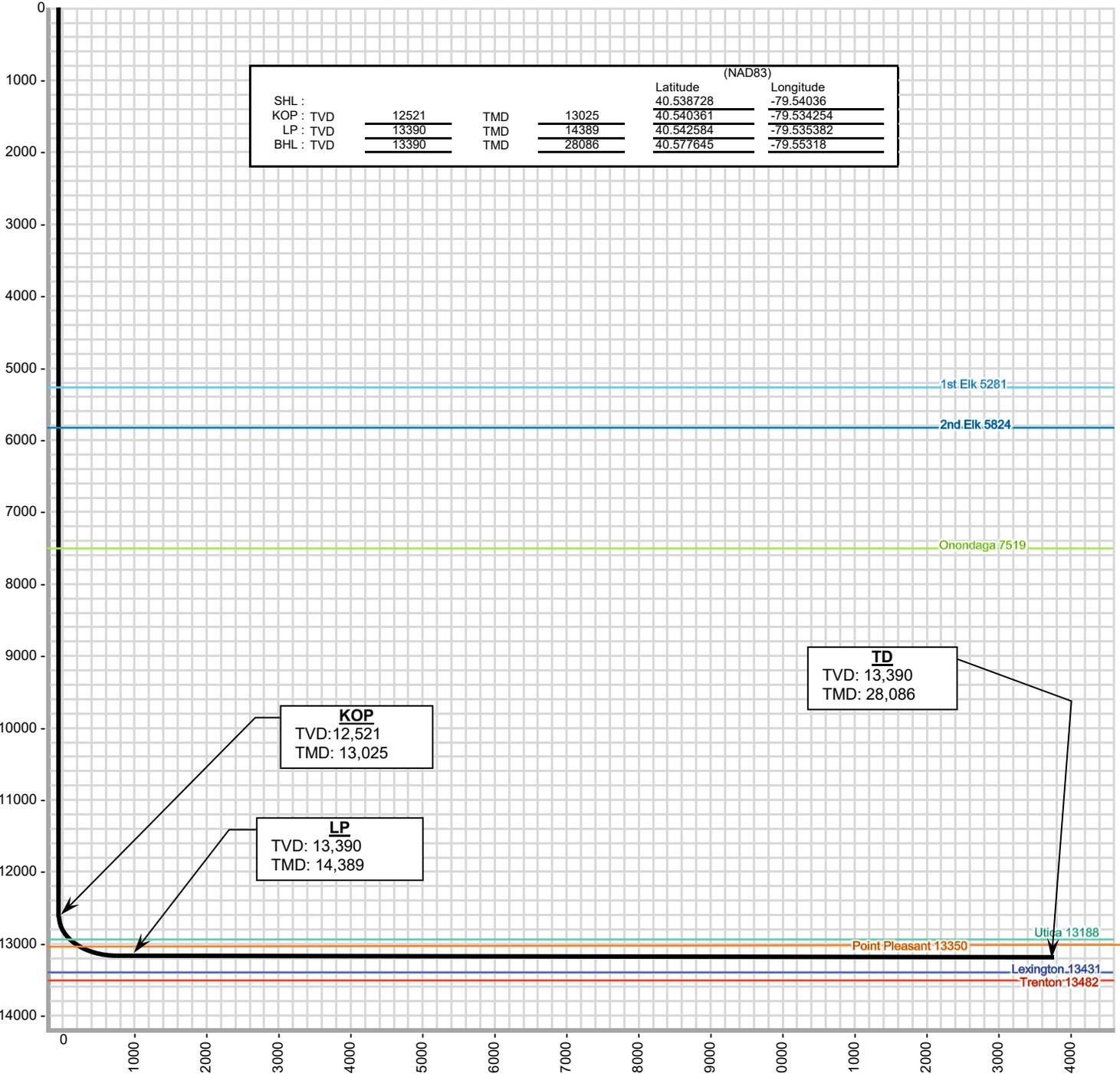
Page 4 Cross Section

DEP Use Only	Well #
--------------	--------

Applicant / Well Operator Name CNX Gas Company LLC	DEP ID# 159257	Well (Farm) Name MCCULLOUGH	Well# MAM16IHSU
--	--------------------------	---------------------------------------	---------------------------

WELL PLAN

				(NAD83)	
		Latitude			Longitude
SHL :		40.538728			-79.54036
KOP : TVD	12521	40.540361	TMD	13025	-79.534254
LP : TVD	13390	40.542584	TMD	14389	-79.535382
BHL : TVD	13390	40.577645	TMD	28086	-79.55318



Scale 1/2" = 1,000 ft