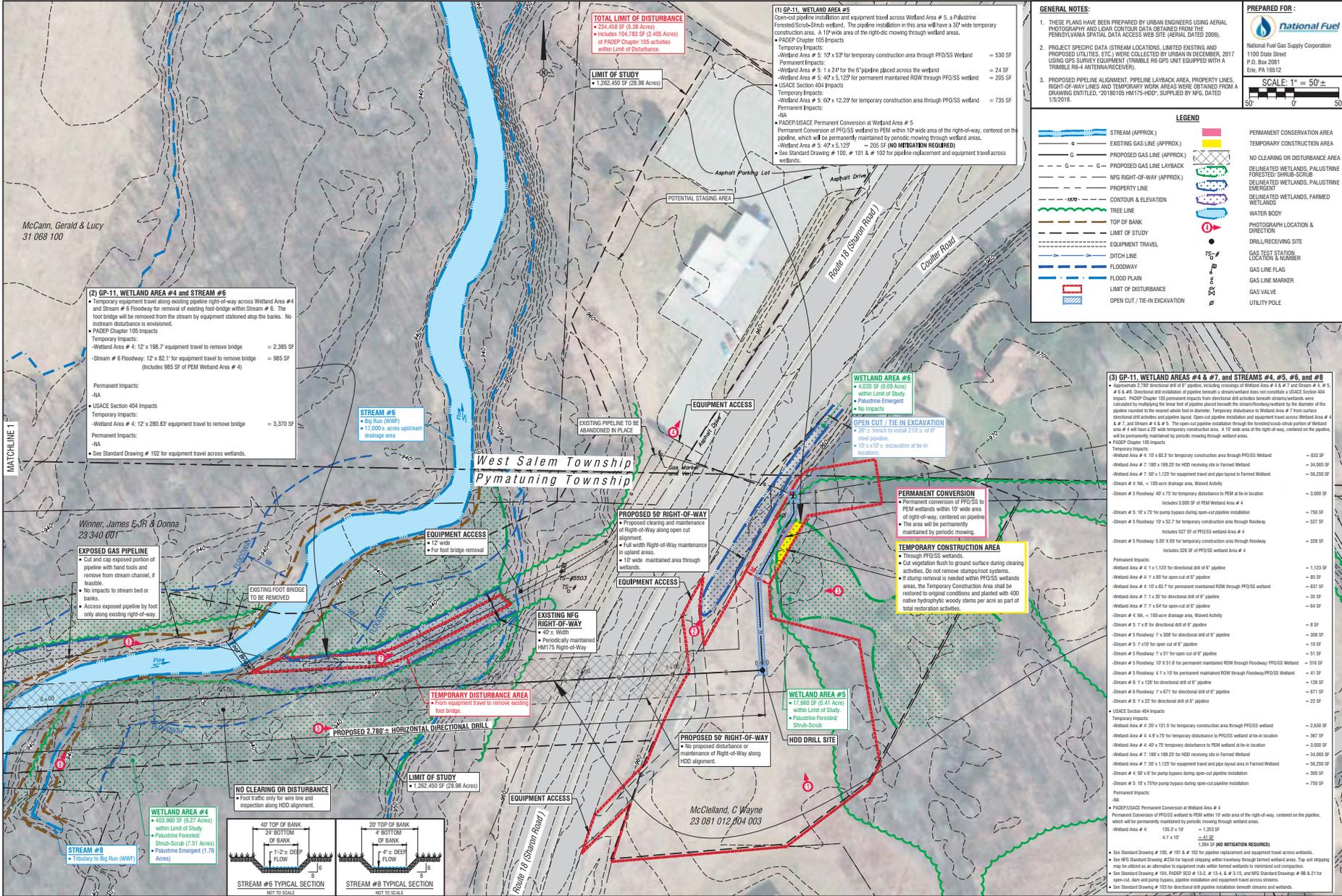


February 26, 2018 - 9:47am T:\2017\2017620007_047 - NFG HM175 HDD\Civil\2017620007_047.dwg MATCHLINE 1



TOTAL LIMIT OF DISTURBANCE
 • 234,458 SF (5.38 Acres)
 • Includes 194,783 SF (4.45 Acres) of PADEP Chapter 105 activities within Limit of Disturbance

LIMIT OF STUDY
 • 1,262,450 SF (28.98 Acres)

(1) GP-11, WETLAND AREA #5
 Open-cut pipeline installation and equipment travel across Wetland Area # 5, a Palustrine Forested/Shrub-Scrub wetland. The pipeline installation in this area will have a 30' wide temporary construction area. A 10' wide area of the right-of-way through wetland areas.
 • PADEP Chapter 105 Impacts
 Temporary Impacts:
 -Wetland Area # 5: 10' x 63' for temporary construction area through PFOSS Wetland = 530 SF
 Permanent Impacts:
 -Wetland Area # 5: 1' x 24' for the 6" pipeline placed across the wetland = 24 SF
 -Wetland Area # 5: 40' x 5,120' for permanent maintained ROW through PFOSS wetland = 205 SF
 USACE Section 404 Impacts
 Temporary Impacts:
 -Wetland Area # 5: 60' x 12,29' for temporary construction area through PFOSS wetland = 735 SF
 Permanent Impacts:
 -NA
 • PADEP/USACE Permanent Conversion at Wetland Area # 5
 Permanent Conversion of PFOSS wetland to PEM within 10' wide area of the right-of-way, centered on the pipeline, which will be permanently maintained by periodic mowing through wetland areas.
 -Wetland Area # 5: 40' x 5,120' = 205 SF (NO MITIGATION REQUIRED)
 • See Standard Drawing # 100, # 101 & # 102 for pipeline replacement and equipment travel across wetlands.

GENERAL NOTES:
 1. THESE PLANS HAVE BEEN PREPARED BY URBAN ENGINEERS USING AERIAL PHOTOGRAPHY AND LIDAR CONTOUR DATA OBTAINED FROM THE PENNSYLVANIA SPATIAL DATA ACCESS WEB SITE (AERIAL DATED 2006).
 2. PROJECT SPECIFIC DATA (STREAM LOCATIONS, LIMITED EXISTING AND PROPOSED UTILITIES, ETC.) WERE COLLECTED BY URBAN IN DECEMBER, 2017 USING GPS SURVEY EQUIPMENT (TRIMBLE R6 GPS UNIT EQUIPPED WITH A TRIMBLE RTK-4 ANTENNA/RECEIVER).
 3. PROPOSED PIPELINE ALIGNMENT, PIPELINE LAYBACK AREA, PROPERTY LINES, RIGHT-OF-WAY LINES AND TEMPORARY WORK AREAS WERE OBTAINED FROM A DRAWING ENTITLED, "20180105 HM175-HDD", SUPPLIED BY NFG, DATED 1/30/18.

PREPARED FOR:
 National Fuel Gas Supply Company
 1100 State Street
 P.O. Box 2081
 Erie, PA 16512

SCALE: 1" = 50' ±
 50' 0' 50'

LEGEND

— (Blue line)	STREAM (APPROX.)	— (Pink area)	PERMANENT CONSERVATION AREA
- - - (Blue line)	EXISTING GAS LINE (APPROX.)	— (Yellow area)	TEMPORARY CONSTRUCTION AREA
- - - (Green line)	PROPOSED GAS LINE (APPROX.)	— (Green area)	NO CLEARING OR DISTURBANCE AREA
- - - (Green line)	PROPOSED GAS LINE LAYBACK	— (Blue area)	DELINEATED WETLANDS, PALUSTRINE FORESTED, SHRUB-SCRUB
- - - (Black line)	PROPERTY LINE	— (Purple area)	DELINEATED WETLANDS, PALUSTRINE EMERGENT
- - - (Black line)	NFG RIGHT-OF-WAY (APPROX.)	— (Light blue area)	DELINEATED WETLANDS, FARMED WETLANDS
- - - (Black line)	CONTOUR & ELEVATION	— (Blue area)	WATER BODY
- - - (Black line)	TREE LINE	— (Red area)	PHOTOGRAPH LOCATION & DIRECTION
- - - (Black line)	TOP OF BANK	— (Red area)	DRILL/RECEIVING SITE
- - - (Black line)	LIMIT OF STUDY	— (Red area)	GAS TEST STATION LOCATION & NUMBER
- - - (Black line)	EQUIPMENT TRAVEL	— (Red area)	GAS LINE FLAG
- - - (Black line)	DITCH LINE	— (Red area)	GAS LINE MARKER
- - - (Black line)	FLOODWAY	— (Red area)	GAS VALVE
- - - (Black line)	FLOOD PLAIN	— (Red area)	UTILITY POLE
- - - (Black line)	LIMIT OF DISTURBANCE	— (Red area)	
- - - (Black line)	OPEN CUT / TIE-IN EXCAVATION	— (Red area)	

(2) GP-11, WETLAND AREA #4 and STREAM #6
 • Temporary equipment travel along existing pipeline right-of-way across Wetland Area # 4 and Stream # 6 Floodway for removal of existing foot-bridge with Stream # 6. The foot bridge will be removed from the stream by equipment stationed atop the banks. No stream disturbance is envisioned.
 • PADEP Chapter 105 Impacts
 Temporary Impacts:
 -Wetland Area # 4: 12' x 198.7' equipment travel to remove bridge = 2,385 SF
 -Stream # 6 Floodway: 12' x 82.1' for equipment travel to remove bridge = 985 SF (Includes 985 SF of PEM Wetland Area # 4)
 Permanent Impacts:
 -NA
 • USACE Section 404 Impacts
 Temporary Impacts:
 -Wetland Area # 4: 12' x 280.83' equipment travel to remove bridge = 3,370 SF
 Permanent Impacts:
 -NA
 • See Standard Drawing # 102 for equipment travel across wetlands.

STREAM #6
 • Big Run (WRF)
 • 17,000+ acres upstream drainage area

WETLAND AREA #6
 • 4,020 SF (0.09 Acre)
 within Limit of Study
 • Palustrine Emergent
 • No Impacts

OPEN CUT / TIE-IN EXCAVATION
 • 38' ± trench to install 210" ± of 6" steel pipeline.
 • 10' ± x 10' ± excavation at tie-in locations.

PROPOSED 50' RIGHT-OF-WAY
 • Proposed clearing and maintenance of Right-of-Way along open cut alignment.
 • Full width Right-of-Way maintenance in upland areas.
 • 10' wide maintained area through wetlands.

PERMANENT CONVERSION
 • Permanent conversion of PFOSS wetlands to PEM wetlands within 10' wide area of right-of-way, centered on pipeline.
 • The area will be permanently maintained by periodic mowing.

TEMPORARY CONSTRUCTION AREA
 • Through PFOSS wetlands.
 • Cut vegetation flush to ground surface during cleaning activities. Do not remove stump/spot/rocks.
 • If stump removal is needed within PFOSS wetlands areas, the Temporary Construction Area shall be restored to original conditions and planted with 400 native hydrophytic woody stems per acre as part of total restoration activities.

(3) GP-11, WETLAND AREAS #4 & #7, and STREAMS #4, #5, #6, and #8
 • Approximate 2,780' directional drill of 6" pipeline, including crossings of Wetland Area # 4, # 7 and Stream # 4, # 5, # 6, & # 8. Directional drill sections of pipeline beneath a stream/wetland does not constitute USACE Section 404 impact. PADEP Chapter 105 permanent impacts from directional drill activities beneath stream/wetlands were calculated by multiplying the linear feet of pipeline placed below the stream/wetland/roadway by the diameter of the pipeline installed in the stream below the bed in diameter. Temporary disturbance to Wetland Area # 7 from surface directional drill activities and pipeline layback. Open-cut pipeline installation and equipment travel across Wetland Area # 4, # 7, and Stream # 6. The open-cut pipeline installation through the forested/shrub-scrub stream section of Wetland Area # 4 will have a 30' wide temporary construction area. A 10' wide area of the right-of-way, centered on the pipeline, will be permanently maintained by periodic mowing through wetland areas.
 • PADEP Chapter 105 Impacts
 Temporary Impacts:
 -Wetland Area # 4: 10' x 83.3' for temporary construction area through PFOSS Wetland = 833 SF
 -Wetland Area # 7: 180' x 198.29' for HDD receiving site in Farmed Wetland = 34,865 SF
 -Stream # 4: 164' x 150-acre drainage area, Waded Activity = 96,250 SF
 -Stream # 5: Roadway: 40' x 73' for temporary disturbance to PEM at tie-in location = 3,000 SF
 Includes 3,000 SF of PEM Wetland Area # 4
 -Stream # 5: 10' x 73' for pump bypass during open-cut pipeline installation = 730 SF
 -Stream # 5: Roadway: 10' x 52.7' for temporary construction area through roadway = 527 SF
 -Stream # 5: Roadway: 40' x 73' for permanent maintained ROW through PFOSS wetland Area # 4 = 298 SF
 Includes 298 SF of PFOSS wetland Area # 4
 Permanent Impacts:
 -Wetland Area # 4: 1' x 1,129' for directional drill of 6" pipeline = 1,129 SF
 -Wetland Area # 4: 1' x 82' for open-cut of 6" pipeline = 82 SF
 -Wetland Area # 4: 10' x 82' for permanent maintained ROW through PFOSS wetland = 827 SF
 -Wetland Area # 7: 1' x 32' for directional drill of 6" pipeline = 32 SF
 -Wetland Area # 7: 1' x 54' for open-cut of 6" pipeline = 64 SF
 -Stream # 4: 164' x 150-acre drainage area, Waded Activity = 96 SF
 -Stream # 5: 7' x 8' for directional drill of 6" pipeline = 56 SF
 -Stream # 5: Roadway: 1' x 300' for directional drill of 6" pipeline = 300 SF
 -Stream # 5: 1' x 10' for open cut of 6" pipeline = 10 SF
 -Stream # 5: Roadway: 1' x 51' for open cut of 6" pipeline = 51 SF
 -Stream # 5: Roadway: 10' x 51' for permanent maintained ROW through PFOSS Wetland = 516 SF
 -Stream # 5: Roadway: 4' x 10' for permanent maintained ROW through PFOSS Wetland = 41 SF
 -Stream # 8: 1' x 129' for directional drill of 6" pipeline = 129 SF
 -Stream # 8: Roadway: 1' x 471' for directional drill of 6" pipeline = 471 SF
 -Stream # 8: 1' x 22' for directional drill of 6" pipeline = 22 SF
 • USACE Section 404 Impacts
 Temporary Impacts:
 -Wetland Area # 4: 20' x 125' for temporary construction area through PFOSS wetland = 2,500 SF
 -Wetland Area # 4: 4.9' x 73' for temporary disturbance to PFOSS wetland of tie location = 367 SF
 -Wetland Area # 4: 40' x 73' temporary disturbance to PEM wetland of tie location = 3,000 SF
 -Wetland Area # 7: 180' x 198.29' for HDD receiving site in Farmed Wetland = 34,865 SF
 -Wetland Area # 7: 50' x 1,129' for equipment travel and pipe layout area in Farmed Wetland = 56,250 SF
 -Stream # 4: 50' x 8' for pump bypass during open-cut pipeline installation = 400 SF
 -Stream # 4: 10' x 1,129' for pump bypass during open-cut pipeline installation = 790 SF
 Permanent Impacts:
 -NA
 • PADEP/USACE Permanent Conversion at Wetland Area # 4
 Permanent Conversion of PFOSS wetland to PEM within 10' wide area of the right-of-way, centered on the pipeline, which will be permanently maintained by periodic mowing through wetland areas.
 -Wetland Area # 4: 1' x 10' = 10 SF
 4.1' x 10' = 41 SF
 1,394 SF (NO MITIGATION REQUIRED)

NO CLEARING OR DISTURBANCE
 • Foot traffic only for wire line and inspection along HDD alignment.

WETLAND AREA #4
 • 403,960 SF (9.27 Acres)
 within Limit of Study
 • Palustrine Forested/Shrub-Scrub (7.51 Acres)
 • Palustrine Emergent (1.76 Acres)

STREAM #6 TYPICAL SECTION
 40' TOP OF BANK
 24' BOTTOM OF BANK
 17'-2" DEEP FLOW

STREAM #6 TYPICAL SECTION
 20' TOP OF BANK
 8' BOTTOM OF BANK
 10'-2" DEEP FLOW

WETLAND AREA #5
 • 17,060 SF (0.41 Acre)
 within Limit of Study.
 • Palustrine Forested/Shrub-Scrub

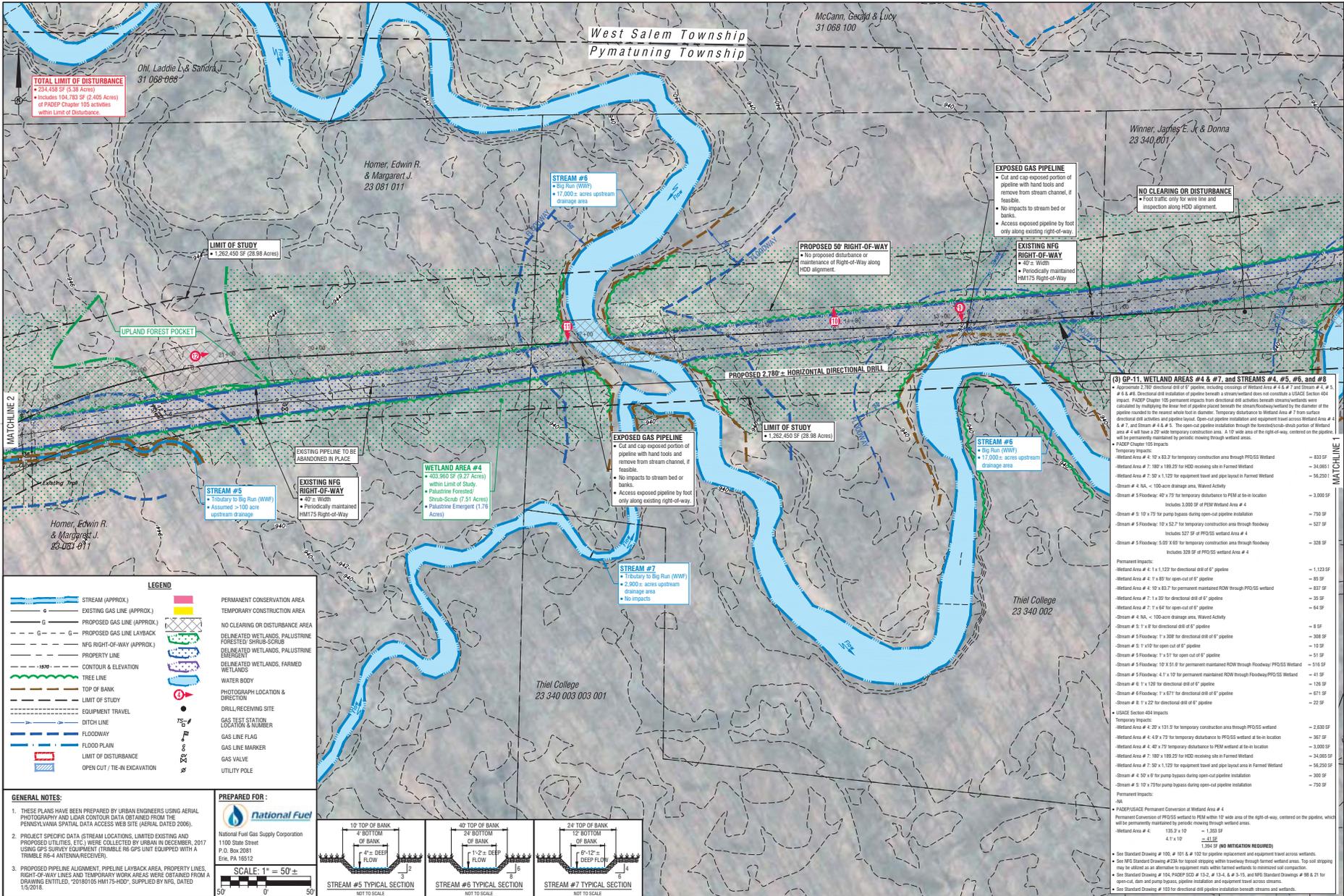
WETLAND AREA #7
 • 1,394 SF (0.03 Acre)
 within Limit of Study.
 • Palustrine Emergent

WETLAND AREA #8
 • 1,394 SF (0.03 Acre)
 within Limit of Study.
 • Palustrine Emergent

URBAN ENGINEERS
 1319 Sassafras Street, Erie, PA 16501-1720
 (814) 453-5702 (ph) (814) 453-2020 (fax)
 www.UrbanEngineers.com (web)

SITE PLAN
 NFG LINE HM175 HORIZONTAL DIRECTIONAL DRILL
 WEST SALEM & PYMATUNING TOWNSHIPS
 MERCER COUNTY, PENNSYLVANIA

REFERENCE:
 DATE: FEBRUARY 2018
 PROJECT NUMBER: 2017620007_047
 DRAWN BY: DJK
 CHECKED BY: DRY
 COPYRIGHT © URBAN ENGINEERS 2017



TOTAL LIMIT OF DISTURBANCE
 • 224,438 SF (5.38 Acres)
 • Includes 104,783 SF (2.405 Acres)
 of PADEP Chapter 105 activities
 within Limit of Disturbance.

Ohl, Laddie L & Sanford J
 31 068 068

Homer, Edwin R. & Margaret J.
 23 081 011

McCann, Gerald & Lucy
 31 068 100

Winner, James E. & Donna
 23 340 001

STREAM #6
 • Big Run (WFF)
 • 17,000± acres upstream
 drainage area

EXPOSED GAS PIPELINE
 • Cut and cap exposed portion of pipeline with hand tools and remove from stream channel, if feasible.
 • No impacts to stream bed or banks.
 • Access exposed pipeline by foot only along existing right-of-way.

NO CLEARING OR DISTURBANCE
 • Foot traffic only for wire line and inspection along HDD alignment.

PROPOSED 50' RIGHT-OF-WAY
 • No proposed disturbance or maintenance of Right-of-Way along HDD alignment.

EXISTING NFG RIGHT-OF-WAY
 • 40' ± Width
 • Periodically maintained HM175 Right-of-Way

LIMIT OF STUDY
 • 1,262,450 SF (28.98 Acres)

UPLAND FOREST POCKET

PROPOSED 2,780' ± HORIZONTAL DIRECTIONAL DRILL

LIMIT OF STUDY
 • 1,262,450 SF (28.98 Acres)

EXPOSED GAS PIPELINE
 • Cut and cap exposed portion of pipeline with hand tools and remove from stream channel, if feasible.
 • No impacts to stream bed or banks.
 • Access exposed pipeline by foot only along existing right-of-way.

WETLAND AREA #4
 • 405,960 SF (9.27 Acres)
 • Palustrine Forested/Shrub-Scrub
 • Palustrine Emergent (1.78 Acres)

EXISTING NFG RIGHT-OF-WAY
 • 40' ± Width
 • Periodically maintained HM175 Right-of-Way

STREAM #5
 • Tributary to Big Run (WFF)
 • 1,000± acres upstream
 drainage area

STREAM #6
 • Big Run (WFF)
 • 17,000± acres upstream
 drainage area

STREAM #7
 • Tributary to Big Run (WFF)
 • 2,900± acres upstream
 drainage area
 • No impacts

Thiel College
 23 340 002

Thiel College
 23 340 003 003 001

LEGEND

- STREAM (APPROX)
- EXISTING GAS LINE (APPROX)
- PROPOSED GAS LINE (APPROX)
- PROPOSED GAS LINE LAYBACK
- HDD RIGHT-OF-WAY (APPROX)
- PROPERTY LINE
- CONTOUR & ELEVATION
- TREE LINE
- TOP OF BANK
- LIMIT OF STUDY
- EQUIPMENT TRAVEL
- DITCH LINE
- FLOODWAY
- FLOOD PLAIN
- LIMIT OF DISTURBANCE
- OPEN CUT/TIE-IN EXCAVATION
- PERMANENT CONSERVATION AREA
- TEMPORARY CONSTRUCTION AREA
- NO CLEARING OR DISTURBANCE AREA
- DELEGATED WETLANDS, PALUSTRINE FORESTED/SHRUB-SCRUB
- DELEGATED WETLANDS, PALUSTRINE EMERGENT
- PHOTOGRAPH LOCATION & DIRECTION
- EQUIPMENT RECEIVING SITE
- GAS TEST STATION LOCATION & NUMBER
- GAS LINE FLAG
- GAS LINE MARKER
- GAS VALVE
- UTILITY POLE

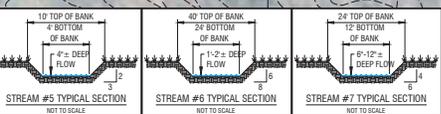
GENERAL NOTES:

- THESE PLANS HAVE BEEN PREPARED BY URBAN ENGINEERS USING AERIAL PHOTOGRAPHY AND LIDAR CONTOUR DATA OBTAINED FROM THE PENNSYLVANIA SPATIAL DATA ACCESS WEB SITE (AERIAL DATED 2006).
- PROJECT SPECIFIC DATA (STREAM LOCATIONS, LIMITED EXISTING AND PROPOSED UTILITIES, ETC.) WERE COLLECTED BY URBAN IN DECEMBER, 2017 USING GPS SURVEY EQUIPMENT. (TOTAL: 86 GPS UNIT EQUIPPED WITH A TRIMBLE RS-4 ANTENNA/RECEIVER).
- PROPOSED PIPELINE ALIGNMENT, PIPELINE LAYBACK AREA, PROPERTY LINES, RIGHT-OF-WAY LINES AND TEMPORARY WORK AREAS WERE OBTAINED FROM A DRAWING ENTITLED, "20180105 HM175-HDD", SUPPLIED BY NFG, DATED 1/5/2018.

PREPARED FOR:

National Fuel Gas Supply Corporation
 1100 State Street
 P.O. Box 2093
 Erie, PA 16512

SCALE: 1" = 50' ±

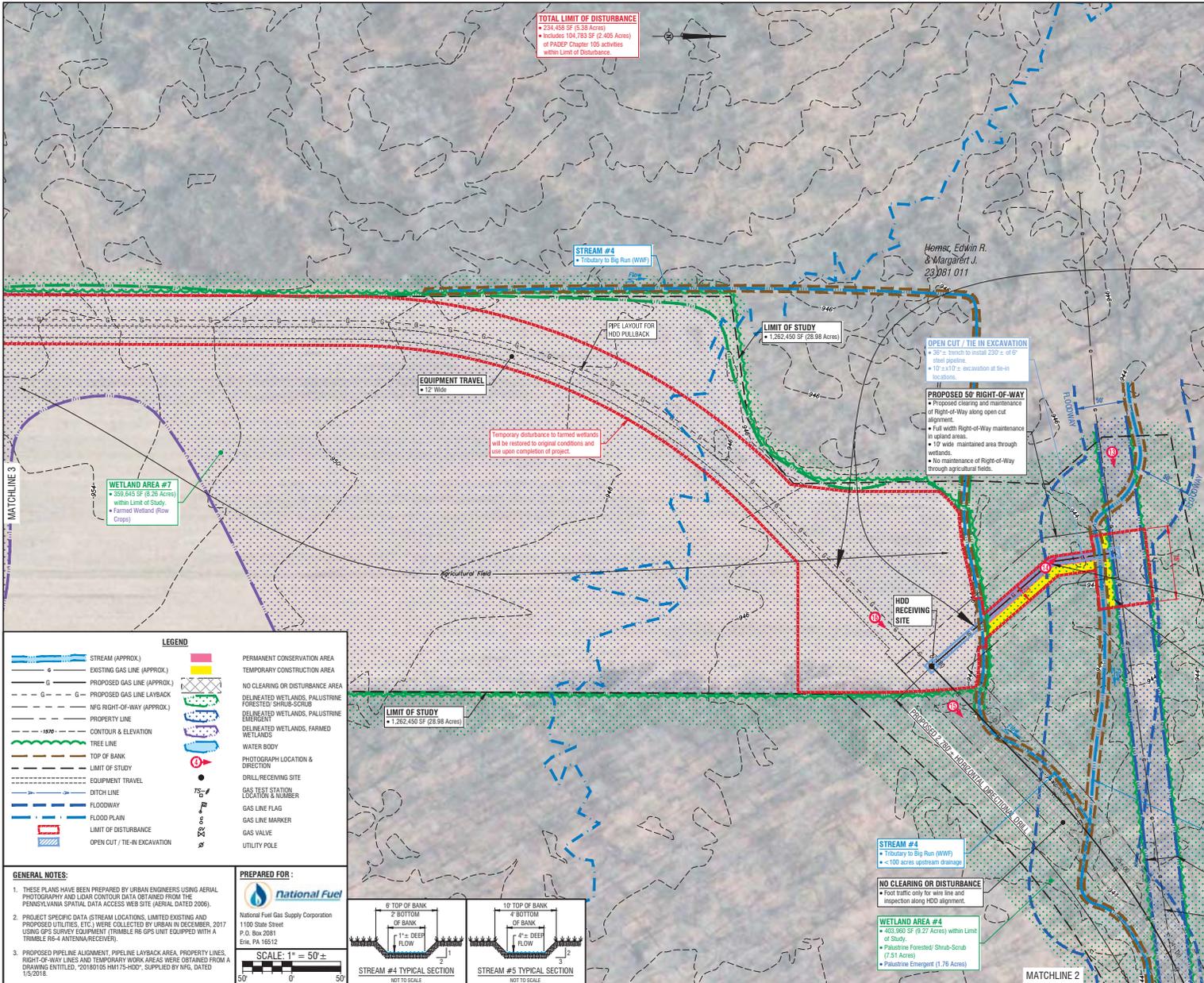


(3) GP-11, WETLAND AREAS #4 & #7, and STREAMS #4, #5, #6, and #8

- Approximate 2,780' directional drill of 6" pipeline, including coverage of Wetland Area #4, #5, #7, and Stream #4, #5, #6, and #8. Directional drill evaluation of pipeline beneath a stream wetland does not constitute a USACE Section 404 Impact. PADEP Chapter 105 permanent impacts from directional drill activities beneath stream wetland areas calculated by multiplying the linear feet of pipeline placed beneath the stream bed by the width of the pipeline according to the request when hole diameter. Temporary disturbance to Wetland Area #7 from surface directional drill activities and pipeline layout. Open-cut pipeline installation and equipment travel across Wetland Area #4 & #7, and Stream #4, #5, #6, and #8. The open-cut pipeline installation through the forested/shrub-scrub portion of Wetland Area #4 will have a 20' wide temporary construction area. A 10' wide area of the right-of-way, centered on the pipeline, will be periodically maintained by periodic mowing through wetland areas.
- PADEP Chapter 105 Impacts:
- Temporary Impacts:
 - Stream #4 Flowway: 40' x 70' for temporary construction area through PFOSS Wetland - 833 SF
 - Wetland Area #7: 180' x 189.29' for HDD receiving site in Farmed Wetland - 34,065 SF
 - Wetland Area #7: 50' x 1,129' for equipment travel and pipe layout in Farmed Wetland - 56,250 SF
 - Stream #4 NAL: < 100-acre drainage area, Waved Activity - 3,000 SF
 - Stream #4 Flowway: 40' x 70' for temporary construction area through PFM at the in location - 750 SF
 - Stream #4 Flowway: 10' x 175' for pump bypass during open-cut pipeline installation - 527 SF
 - Stream #4 Flowway: 10' x 175' for pump bypass during open-cut pipeline installation - 527 SF
 - Stream #4 Flowway: 5.57' x 80' for temporary construction area through floodway - 329 SF
 - Stream #4 Flowway: 5.57' x 80' for temporary construction area through floodway - 329 SF
 - Stream #4 Flowway: 10' x 175' for temporary construction area through floodway - 519 SF
 - Stream #4 NAL: < 100-acre drainage area, Waved Activity - 8 SF
 - Stream #4 Flowway: 1' x 200' for directional drill of 6" pipeline - 200 SF
 - Stream #4 NAL: < 100-acre drainage area, Waved Activity - 11 SF
 - Stream #4 Flowway: 1' x 51' for open cut of 6" pipeline - 51 SF
 - Stream #4 Flowway: 10' x 51' for permanent maintained ROW through Floodway/PFOSS Wetland - 519 SF
 - Stream #4 NAL: < 100-acre drainage area, Waved Activity - 41 SF
 - Stream #4 Flowway: 4' x 128' for directional drill of 6" pipeline - 128 SF
 - Stream #4 NAL: < 100-acre drainage area, Waved Activity - 671 SF
 - Stream #4 Flowway: 1' x 671' for directional drill of 6" pipeline - 22 SF
 - Stream #4 NAL: < 100-acre drainage area, Waved Activity - 22 SF
 - USACE Section 404 Impacts:
 - Temporary Impacts:
 - Wetland Area #4: 20' x 131.5' for temporary construction area through PFOSS Wetland - 2,630 SF
 - Wetland Area #4: 4.5' x 175' for temporary disturbance to PFOSS wetland, at the in location - 831 SF
 - Wetland Area #4: 4.5' x 175' temporary disturbance to PFM wetland at the in location - 3,000 SF
 - Wetland Area #7: 180' x 189.29' for HDD receiving site in Farmed Wetland - 34,065 SF
 - Wetland Area #7: 50' x 1,129' for equipment travel and pipe layout in Farmed Wetland - 56,250 SF
 - Stream #4 NAL: < 100-acre drainage area, Waved Activity - 300 SF
 - Stream #4 Flowway: 10' x 175' for pump bypass during open-cut pipeline installation - 750 SF
 - Permanent Impacts:
 - Wetland Area #4: 4' x 1,129' for directional drill of 6" pipeline - 1,129 SF
 - Wetland Area #4: 4' x 89' for open-cut of 6" pipeline - 89 SF
 - Wetland Area #4: 4' x 83.2' for permanent maintained ROW through PFOSS wetland - 83 SF
 - Wetland Area #4: 2' x 35' for directional drill of 6" pipeline - 35 SF
 - Wetland Area #4: 2' x 64' for open-cut of 6" pipeline - 64 SF
 - Stream #4 NAL: < 100-acre drainage area, Waved Activity - 8 SF
 - Stream #4 NAL: < 100-acre drainage area, Waved Activity - 8 SF
 - Stream #4 Flowway: 1' x 200' for directional drill of 6" pipeline - 200 SF
 - Stream #4 NAL: < 100-acre drainage area, Waved Activity - 11 SF
 - Stream #4 Flowway: 1' x 51' for open cut of 6" pipeline - 51 SF
 - Stream #4 Flowway: 10' x 51' for permanent maintained ROW through Floodway/PFOSS Wetland - 519 SF
 - Stream #4 NAL: < 100-acre drainage area, Waved Activity - 41 SF
 - Stream #4 Flowway: 4' x 128' for directional drill of 6" pipeline - 128 SF
 - Stream #4 NAL: < 100-acre drainage area, Waved Activity - 671 SF
 - Stream #4 Flowway: 1' x 671' for directional drill of 6" pipeline - 22 SF
 - Stream #4 NAL: < 100-acre drainage area, Waved Activity - 22 SF
- USACE Section 404 Impacts:
- Temporary Impacts:
 - Wetland Area #4: 20' x 131.5' for temporary construction area through PFOSS Wetland - 2,630 SF
 - Wetland Area #4: 4.5' x 175' for temporary disturbance to PFOSS wetland, at the in location - 831 SF
 - Wetland Area #4: 4.5' x 175' temporary disturbance to PFM wetland at the in location - 3,000 SF
 - Wetland Area #7: 180' x 189.29' for HDD receiving site in Farmed Wetland - 34,065 SF
 - Wetland Area #7: 50' x 1,129' for equipment travel and pipe layout in Farmed Wetland - 56,250 SF
 - Stream #4 NAL: < 100-acre drainage area, Waved Activity - 300 SF
 - Stream #4 Flowway: 10' x 175' for pump bypass during open-cut pipeline installation - 750 SF
- Permanent Impacts:
 - Wetland Area #4: 4' x 1,129' for directional drill of 6" pipeline - 1,129 SF
 - Wetland Area #4: 4' x 89' for open-cut of 6" pipeline - 89 SF
 - Wetland Area #4: 4' x 83.2' for permanent maintained ROW through PFOSS wetland - 83 SF
 - Wetland Area #4: 2' x 35' for directional drill of 6" pipeline - 35 SF
 - Wetland Area #4: 2' x 64' for open-cut of 6" pipeline - 64 SF
 - Stream #4 NAL: < 100-acre drainage area, Waved Activity - 8 SF
 - Stream #4 NAL: < 100-acre drainage area, Waved Activity - 8 SF
 - Stream #4 Flowway: 1' x 200' for directional drill of 6" pipeline - 200 SF
 - Stream #4 NAL: < 100-acre drainage area, Waved Activity - 11 SF
 - Stream #4 Flowway: 1' x 51' for open cut of 6" pipeline - 51 SF
 - Stream #4 Flowway: 10' x 51' for permanent maintained ROW through Floodway/PFOSS Wetland - 519 SF
 - Stream #4 NAL: < 100-acre drainage area, Waved Activity - 41 SF
 - Stream #4 Flowway: 4' x 128' for directional drill of 6" pipeline - 128 SF
 - Stream #4 NAL: < 100-acre drainage area, Waved Activity - 671 SF
 - Stream #4 Flowway: 1' x 671' for directional drill of 6" pipeline - 22 SF
 - Stream #4 NAL: < 100-acre drainage area, Waved Activity - 22 SF

- USACE Section 404 Impacts:
- Temporary Impacts:
- Wetland Area #4: 20' x 131.5' for temporary construction area through PFOSS Wetland - 2,630 SF
- Wetland Area #4: 4.5' x 175' for temporary disturbance to PFOSS wetland, at the in location - 831 SF
- Wetland Area #4: 4.5' x 175' temporary disturbance to PFM wetland at the in location - 3,000 SF
- Wetland Area #7: 180' x 189.29' for HDD receiving site in Farmed Wetland - 34,065 SF
- Wetland Area #7: 50' x 1,129' for equipment travel and pipe layout in Farmed Wetland - 56,250 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 300 SF
- Stream #4 Flowway: 10' x 175' for pump bypass during open-cut pipeline installation - 750 SF
- Permanent Impacts:
- Wetland Area #4: 4' x 1,129' for directional drill of 6" pipeline - 1,129 SF
- Wetland Area #4: 4' x 89' for open-cut of 6" pipeline - 89 SF
- Wetland Area #4: 4' x 83.2' for permanent maintained ROW through PFOSS wetland - 83 SF
- Wetland Area #4: 2' x 35' for directional drill of 6" pipeline - 35 SF
- Wetland Area #4: 2' x 64' for open-cut of 6" pipeline - 64 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 8 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 8 SF
- Stream #4 Flowway: 1' x 200' for directional drill of 6" pipeline - 200 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 11 SF
- Stream #4 Flowway: 1' x 51' for open cut of 6" pipeline - 51 SF
- Stream #4 Flowway: 10' x 51' for permanent maintained ROW through Floodway/PFOSS Wetland - 519 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 41 SF
- Stream #4 Flowway: 4' x 128' for directional drill of 6" pipeline - 128 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 671 SF
- Stream #4 Flowway: 1' x 671' for directional drill of 6" pipeline - 22 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 22 SF
- USACE Section 404 Impacts:
- Temporary Impacts:
- Wetland Area #4: 20' x 131.5' for temporary construction area through PFOSS Wetland - 2,630 SF
- Wetland Area #4: 4.5' x 175' for temporary disturbance to PFOSS wetland, at the in location - 831 SF
- Wetland Area #4: 4.5' x 175' temporary disturbance to PFM wetland at the in location - 3,000 SF
- Wetland Area #7: 180' x 189.29' for HDD receiving site in Farmed Wetland - 34,065 SF
- Wetland Area #7: 50' x 1,129' for equipment travel and pipe layout in Farmed Wetland - 56,250 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 300 SF
- Stream #4 Flowway: 10' x 175' for pump bypass during open-cut pipeline installation - 750 SF
- Permanent Impacts:
- Wetland Area #4: 4' x 1,129' for directional drill of 6" pipeline - 1,129 SF
- Wetland Area #4: 4' x 89' for open-cut of 6" pipeline - 89 SF
- Wetland Area #4: 4' x 83.2' for permanent maintained ROW through PFOSS wetland - 83 SF
- Wetland Area #4: 2' x 35' for directional drill of 6" pipeline - 35 SF
- Wetland Area #4: 2' x 64' for open-cut of 6" pipeline - 64 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 8 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 8 SF
- Stream #4 Flowway: 1' x 200' for directional drill of 6" pipeline - 200 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 11 SF
- Stream #4 Flowway: 1' x 51' for open cut of 6" pipeline - 51 SF
- Stream #4 Flowway: 10' x 51' for permanent maintained ROW through Floodway/PFOSS Wetland - 519 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 41 SF
- Stream #4 Flowway: 4' x 128' for directional drill of 6" pipeline - 128 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 671 SF
- Stream #4 Flowway: 1' x 671' for directional drill of 6" pipeline - 22 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 22 SF
- USACE Section 404 Impacts:
- Temporary Impacts:
- Wetland Area #4: 20' x 131.5' for temporary construction area through PFOSS Wetland - 2,630 SF
- Wetland Area #4: 4.5' x 175' for temporary disturbance to PFOSS wetland, at the in location - 831 SF
- Wetland Area #4: 4.5' x 175' temporary disturbance to PFM wetland at the in location - 3,000 SF
- Wetland Area #7: 180' x 189.29' for HDD receiving site in Farmed Wetland - 34,065 SF
- Wetland Area #7: 50' x 1,129' for equipment travel and pipe layout in Farmed Wetland - 56,250 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 300 SF
- Stream #4 Flowway: 10' x 175' for pump bypass during open-cut pipeline installation - 750 SF
- Permanent Impacts:
- Wetland Area #4: 4' x 1,129' for directional drill of 6" pipeline - 1,129 SF
- Wetland Area #4: 4' x 89' for open-cut of 6" pipeline - 89 SF
- Wetland Area #4: 4' x 83.2' for permanent maintained ROW through PFOSS wetland - 83 SF
- Wetland Area #4: 2' x 35' for directional drill of 6" pipeline - 35 SF
- Wetland Area #4: 2' x 64' for open-cut of 6" pipeline - 64 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 8 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 8 SF
- Stream #4 Flowway: 1' x 200' for directional drill of 6" pipeline - 200 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 11 SF
- Stream #4 Flowway: 1' x 51' for open cut of 6" pipeline - 51 SF
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- Stream #4 Flowway: 10' x 175' for pump bypass during open-cut pipeline installation - 750 SF
- Permanent Impacts:
- Wetland Area #4: 4' x 1,129' for directional drill of 6" pipeline - 1,129 SF
- Wetland Area #4: 4' x 89' for open-cut of 6" pipeline - 89 SF
- Wetland Area #4: 4' x 83.2' for permanent maintained ROW through PFOSS wetland - 83 SF
- Wetland Area #4: 2' x 35' for directional drill of 6" pipeline - 35 SF
- Wetland Area #4: 2' x 64' for open-cut of 6" pipeline - 64 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 8 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 8 SF
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- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 11 SF
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- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 41 SF
- Stream #4 Flowway: 4' x 128' for directional drill of 6" pipeline - 128 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 671 SF
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- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 300 SF
- Stream #4 Flowway: 10' x 175' for pump bypass during open-cut pipeline installation - 750 SF
- Permanent Impacts:
- Wetland Area #4: 4' x 1,129' for directional drill of 6" pipeline - 1,129 SF
- Wetland Area #4: 4' x 89' for open-cut of 6" pipeline - 89 SF
- Wetland Area #4: 4' x 83.2' for permanent maintained ROW through PFOSS wetland - 83 SF
- Wetland Area #4: 2' x 35' for directional drill of 6" pipeline - 35 SF
- Wetland Area #4: 2' x 64' for open-cut of 6" pipeline - 64 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 8 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 8 SF
- Stream #4 Flowway: 1' x 200' for directional drill of 6" pipeline - 200 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 11 SF
- Stream #4 Flowway: 1' x 51' for open cut of 6" pipeline - 51 SF
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- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 41 SF
- Stream #4 Flowway: 4' x 128' for directional drill of 6" pipeline - 128 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 671 SF
- Stream #4 Flowway: 1' x 671' for directional drill of 6" pipeline - 22 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 22 SF
- USACE Section 404 Impacts:
- Temporary Impacts:
- Wetland Area #4: 20' x 131.5' for temporary construction area through PFOSS Wetland - 2,630 SF
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- Wetland Area #4: 4.5' x 175' temporary disturbance to PFM wetland at the in location - 3,000 SF
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- Permanent Impacts:
- Wetland Area #4: 4' x 1,129' for directional drill of 6" pipeline - 1,129 SF
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- Wetland Area #4: 4' x 83.2' for permanent maintained ROW through PFOSS wetland - 83 SF
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- Stream #4 Flowway: 10' x 51' for permanent maintained ROW through Floodway/PFOSS Wetland - 519 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 41 SF
- Stream #4 Flowway: 4' x 128' for directional drill of 6" pipeline - 128 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 671 SF
- Stream #4 Flowway: 1' x 671' for directional drill of 6" pipeline - 22 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 22 SF
- USACE Section 404 Impacts:
- Temporary Impacts:
- Wetland Area #4: 20' x 131.5' for temporary construction area through PFOSS Wetland - 2,630 SF
- Wetland Area #4: 4.5' x 175' for temporary disturbance to PFOSS wetland, at the in location - 831 SF
- Wetland Area #4: 4.5' x 175' temporary disturbance to PFM wetland at the in location - 3,000 SF
- Wetland Area #7: 180' x 189.29' for HDD receiving site in Farmed Wetland - 34,065 SF
- Wetland Area #7: 50' x 1,129' for equipment travel and pipe layout in Farmed Wetland - 56,250 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 300 SF
- Stream #4 Flowway: 10' x 175' for pump bypass during open-cut pipeline installation - 750 SF
- Permanent Impacts:
- Wetland Area #4: 4' x 1,129' for directional drill of 6" pipeline - 1,129 SF
- Wetland Area #4: 4' x 89' for open-cut of 6" pipeline - 89 SF
- Wetland Area #4: 4' x 83.2' for permanent maintained ROW through PFOSS wetland - 83 SF
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- Stream #4 Flowway: 4' x 128' for directional drill of 6" pipeline - 128 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 671 SF
- Stream #4 Flowway: 1' x 671' for directional drill of 6" pipeline - 22 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 22 SF
- USACE Section 404 Impacts:
- Temporary Impacts:
- Wetland Area #4: 20' x 131.5' for temporary construction area through PFOSS Wetland - 2,630 SF
- Wetland Area #4: 4.5' x 175' for temporary disturbance to PFOSS wetland, at the in location - 831 SF
- Wetland Area #4: 4.5' x 175' temporary disturbance to PFM wetland at the in location - 3,000 SF
- Wetland Area #7: 180' x 189.29' for HDD receiving site in Farmed Wetland - 34,065 SF
- Wetland Area #7: 50' x 1,129' for equipment travel and pipe layout in Farmed Wetland - 56,250 SF
- Stream #4 NAL: < 100-acre drainage area, Waved Activity - 300 SF
- Stream #4 Flowway: 10' x 175' for pump bypass during open-cut pipeline installation - 750 SF
- Permanent Impacts:
- Wetland Area #4: 4' x 1,129' for directional drill of 6" pipeline - 1,129 SF
- Wetland Area #4: 4' x 89' for open-cut of 6" pipeline - 89 SF
- Wetland Area #4: 4' x 83.2' for permanent maintained ROW through PFOSS wetland - 83 SF
- Wetland Area #4: 2' x 35' for directional drill of 6" pipeline - 35 SF
- Wetland Area #4: 2' x

February 26, 2018 - 9:45am T:\2017\2017620007.047 - NFG HM175 HDD\Civil\2017620007.047_CSD\CAD\2017620007.047.dwg



TOTAL LIMIT OF DISTURBANCE
 • 234,468 SF (5.38 Acres)
 • Includes 104,783 SF (2.405 Acres) of PADEP Chapter 105 activities within Limit of Disturbance

STREAM #4
 • Tributary to Big Run (WFW)

Homes, Edwin R. & Margaret J.
 23081 011

LIMIT OF STUDY
 • 1,282,450 SF (29.98 Acres)

EQUIPMENT TRAVEL
 • 12' Wide

Temporary disturbance to farmed wetlands will be restored to original conditions and use upon completion of project.

OPEN CUT / TIE IN EXCAVATION
 • 25' ± trench to install 20" or 6" steel pipeline.
 • 10' x 10' ± excavation at 94-in locations.

PROPOSED 50' RIGHT-OF-WAY
 • Proposed clearing and maintenance of Right-of-Way along open cut alignment.
 • Full width Right-of-Way maintenance in upland areas.
 • 10' wide maintained area through wetlands.
 • No maintenance of Right-of-Way through agricultural fields.

LIMIT OF STUDY
 • 1,282,450 SF (29.98 Acres)

STREAM #4
 • Tributary to Big Run (WFW)
 • < 100 acres upstream drainage

NO CLEARING OR DISTURBANCE
 • Foot traffic only for wire line and inspection along HDD alignment.

WETLAND AREA #4
 • 403,360 SF (9.27 Acres) within Limit of Study.
 • Palustrine Forested/Shrub-Scrub (7.51 Acres)
 • Palustrine Emergent (1.76 Acres)

- (3) SP-11 WETLAND AREAS #4 & #7, and STREAMS #4, #5, #6, and #8**
- Approximately 2,700 linear feet of 6" pipeline, including crossings of Wetland Area #4, #7, and Stream #4, #5, #6, and #8.
 - 6" & 8" directional drill installation of pipeline beneath stream/wetland does not constitute a USACE Section 404 project. PADEP Chapter 105 permanent impacts from directional drill activities beneath stream/wetlands were calculated by multiplying the linear feet of pipeline placed beneath the stream/wetland by the diameter of the pipeline routed to the nearest whole foot diameter. Temporary disturbance to Wetland Area #7 from various directional drill activities and pipeline layout. Open cut pipeline installation and equipment travel across Wetland Area #4, #7, and Stream #4, #5, #6, and #8. The open cut pipeline installation through the forested/shrub-scrap portion of Wetland Area #4 has a 420 wide temporary construction area. A 10' wide area of the right-of-way, centered on the pipeline, will be permanently maintained by periodic mowing through wetland areas.
 - PADEP Chapter 105 Impacts
 - Temporary Impacts
 - Wetland Area #4: 10' x 83.2' for temporary construction area through PFOSS Wetland = 833 SF
 - Wetland Area #7: 180' x 189.25' for HDD receiving site in Farmed Wetland = 34,065 SF
 - Wetland Area #7: 50' x 1,125' for equipment travel and pipe layout in Farmed Wetland = 56,250 SF
 - Stream #4: 100'-ac drainage area, Wasted Activity
 - Stream #5: Floodway: 40' x 75' for temporary disturbance to PEM at-in location = 3,000 SF
 - Includes 3,000 SF of PEM Wetland Area #4
 - Stream #5: 10' x 75' for pump bypass during open-cut pipeline installation = 750 SF
 - Stream #5: Floodway: 10' x 52.7' for temporary construction area through floodway = 527 SF
 - Includes 527 SF of PFOSS Wetland Area #4
 - Stream #5: Floodway: 10' includes 528 SF of PFOSS Wetland Area #4 = 528 SF
 - Permanent Impacts:
 - Wetland Area #4: 1' x 1,122' for directional drill of 6" pipeline = 1,122 SF
 - Wetland Area #4: 1' x 92' for open-cut of 6" pipeline = 92 SF
 - Wetland Area #4: 10' x 83.2' for temporary maintained ROW through PFOSS wetland = 832 SF
 - Wetland Area #7: 1' x 20' for directional drill of 6" pipeline = 20 SF
 - Wetland Area #7: 1' x 62' for open-cut of 6" pipeline = 62 SF
 - Stream #4: 100'-ac drainage area, Wasted Activity = 8 SF
 - Stream #5: 1' x 8' for directional drill of 6" pipeline = 8 SF
 - Stream #5: Floodway: 1' x 300' for directional drill of 6" pipeline = 300 SF
 - Stream #5: 1' x 10' for open cut of 6" pipeline = 10 SF
 - Stream #5: Floodway: 1' x 51' for open cut of 6" pipeline = 51 SF
 - Stream #5: Floodway: 4' x 51.8' for permanent maintained ROW through Floodway/PFOSS Wetland = 207 SF
 - Stream #5: Floodway: 4' x 10' for permanent maintained ROW through Floodway/PFOSS Wetland = 40 SF
 - Stream #6: 1' x 120' for directional drill of 6" pipeline = 120 SF
 - Stream #6: Floodway: 1' x 671' for directional drill of 6" pipeline = 671 SF
 - Stream #6: 1' x 22' for directional drill of 6" pipeline = 22 SF
 - USACE Section 404 Impacts
 - Temporary Impacts:
 - Wetland Area #4: 20' x 183.3' for temporary construction area through PFOSS wetland = 3,666 SF
 - Wetland Area #4: 4' x 75' for temporary disturbance to PFOSS wetland to-in location = 307 SF
 - Wetland Area #4: 40' x 75' temporary disturbance to PEM wetland to-in location = 3,000 SF
 - Wetland Area #7: 180' x 189.25' for HDD receiving site in Farmed Wetland = 34,065 SF
 - Wetland Area #7: 50' x 1,125' for equipment travel and pipe layout area in Farmed Wetland = 56,250 SF
 - Stream #4: 100'-ac drainage area, Wasted Activity = 8 SF
 - Stream #5: 10' x 75' for pump bypass during open-cut pipeline installation = 750 SF
 - Permanent Impacts:
 - PADEP/USACE Permanent Conversion of Wetland Area #4
 - Permanent Conversion of PFOSS wetland to PEM within 10' wide area of the right-of-way, centered on the pipeline, which will be permanently maintained by periodic mowing through wetland areas.
 - Wetland Area #4: 100.2' x 10' = 1,002 SF
 - Wetland Area #4: 4' x 100' = 400 SF
 - 1,394 SF (ND MITIGATION REQUIRED)
 - See Standard Drawing #100, #101, & #102 for pipeline, equipment and equipment travel across wetlands.
 - See NFG Standard Drawing #23A for hump stopping within existing farmed wetland areas. Top soil stripping may be utilized as an alternative to equipment mats within farmed wetlands to minimize soil compaction.
 - See Standard Drawing #104, #102P, #102, #103, #104, #105, #106, #107, #108, #109, #110, #111, #112, #113, #114, #115, #116, #117, #118, #119, #120, #121 for open-cut, clean and pump bypass, pipeline installation and equipment travel across streams.
 - See Standard Drawing #700 for directional drill pipeline installation beneath streams and wetlands.

LEGEND	
	STREAM (APPROX)
	EXISTING GAS LINE (APPROX)
	PROPOSED GAS LINE (APPROX)
	PROPOSED GAS LINE LAYBACK
	NFG RIGHT-OF-WAY (APPROX)
	PROPERTY LINE
	CONTOUR & ELEVATION
	TREE LINE
	TOP OF BANK
	LIMIT OF STUDY
	EQUIPMENT TRAVEL
	DITCH LINE
	FLOODWAY
	FLOOD PLAIN
	LIMIT OF DISTURBANCE
	OPEN CUT / TIE-IN EXCAVATION
	PERMANENT CONSERVATION AREA
	TEMPORARY CONSTRUCTION AREA
	NO CLEARING OR DISTURBANCE AREA
	DELIMITED WETLANDS, PALUSTRINE EMERGENT
	DELIMITED WETLANDS, PALUSTRINE FORESTED
	DELIMITED WETLANDS, PALUSTRINE SCRUB-SCRUB
	WATER BODY
	PHOTOGRAPH LOCATION & DIRECTION
	DRILL/RECEIVING SITE
	GAS TEST STATION LOCATION & DIRECTION
	GAS LINE FLAG
	GAS LINE MARKER
	GAS VALVE
	UTILITY POLE

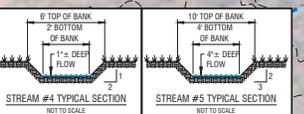
GENERAL NOTES:

- THESE PLANS HAVE BEEN PREPARED BY URBAN ENGINEERS USING AERIAL PHOTOGRAPHY AND LGAIN CONTOUR DATA OBTAINED FROM THE PENNSYLVANIA SPATIAL DATA ACCESS WEB SITE (AERIAL DATED 2006).
- PROJECT SPECIFIC DATA (STREAM LOCATIONS, LIMITED EXISTING AND PROPOSED UTILITIES, ETC.) WERE COLLECTED BY URBAN IN DECEMBER, 2017 USING GPS SURVEY EQUIPMENT (TRIMBLE R6 GPS UNIT EQUIPPED WITH A TRIMBLE R6-4 ANTENNA/RECEIVER).
- PROPOSED PIPELINE ALIGNMENT, PIPELINE LAYBACK AREA, PROPERTY LINES, RIGHT-OF-WAY LINES AND TEMPORARY WORK AREAS WERE OBTAINED FROM A DRAWING ENTITLED, "20180105 HM175-HDD", SUPPLIED BY NFG, DATED 1/5/2018.

PREPARED FOR:

National Fuel Gas Supply Corporation
 1100 State Street
 P.O. Box 2001
 Erie, PA 16512

SCALE: 1" = 50' ±

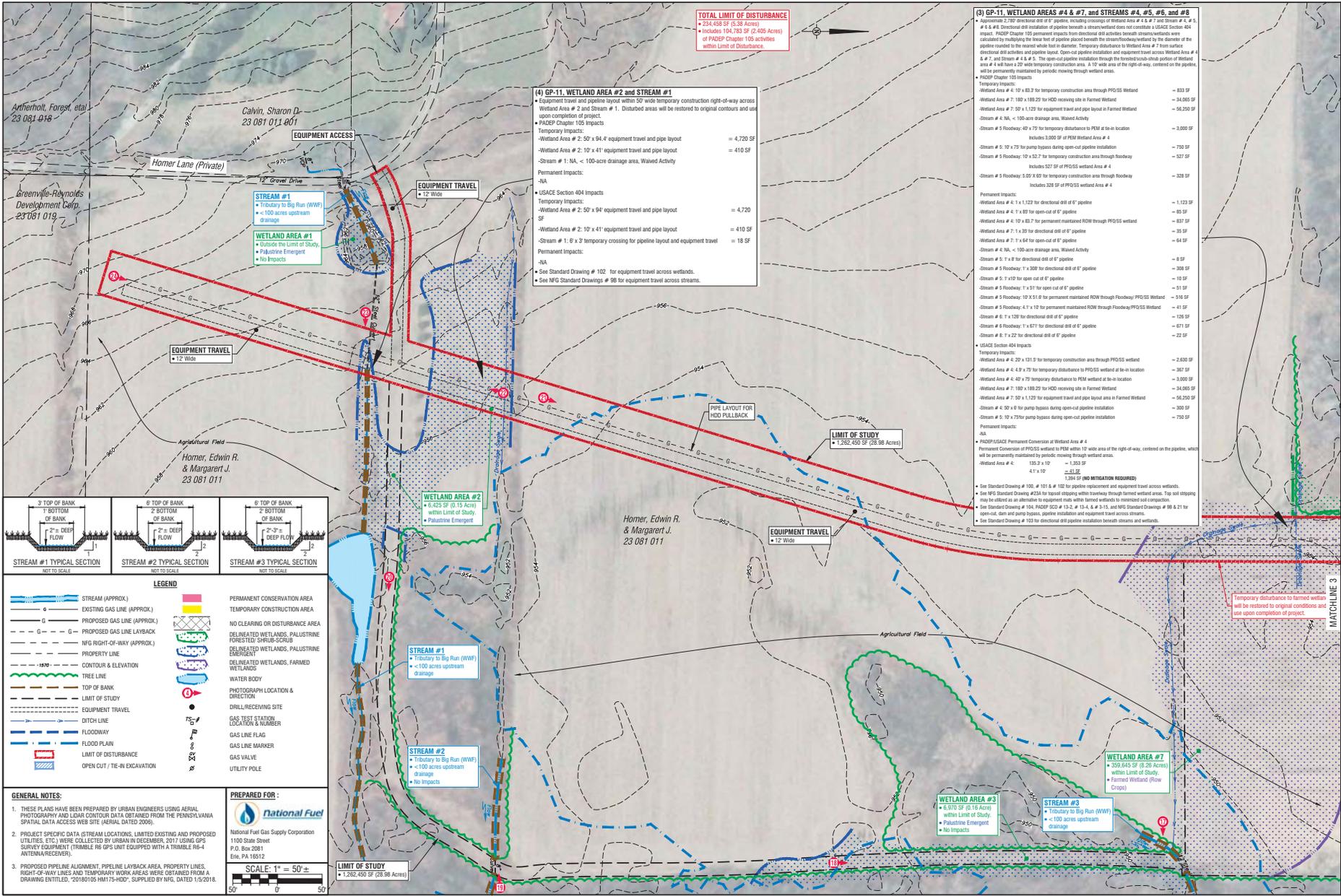


SITE PLAN
 NFG LINE HM175 HORIZONTAL DIRECTIONAL DRILL
 WEST SALEM & PYMATUNING TOWNSHIPS
 MERCER COUNTY, PENNSYLVANIA

REFERENCE:
 DATE: FEBRUARY 2018
 PROJECT NUMBER: 2017620007.047
 DRAWN BY: DJK
 CHECKED BY: DRY
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URBAN ENGINEERS
 1319 Sassafras Street, Erie, PA 16501-1720
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 www.UrbanEngineers.com (web)

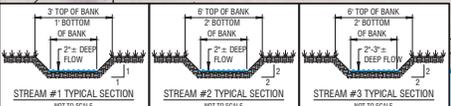
NFG-3



TOTAL LIMIT OF DISTURBANCE
 • 234,638 SF (5.36 Acres)
 • Includes 104,783 SF (2.405 Acres) of PADEP Chapter 105 activities within Limit of Disturbance.

(4) GP-11, WETLAND AREA #2 and STREAM #1
 • Equipment travel and pipeline layout within 50' wide temporary construction right-of-way across Wetland Area #2 and Stream #1. Disturbed areas will be restored to original contours and uses upon completion of project.
 • PADEP Chapter 105 Impacts
 Temporary Impacts:
 - Wetland Area #2: 50' x 94' equipment travel and pipe layout = 4,720 SF
 - Wetland Area #2: 10' x 41' equipment travel and pipe layout = 410 SF
 - Stream #1: NA, < 100-acre drainage area, Waived Activity
 Permanent Impacts:
 - NA
 • USACE Section 404 Impacts
 Temporary Impacts:
 - Wetland Area #2: 50' x 94' equipment travel and pipe layout = 4,720 SF
 - Wetland Area #2: 10' x 41' equipment travel and pipe layout = 410 SF
 - Stream #1: 1' 6" x 3' temporary crossing for pipeline layout and equipment travel = 18 SF
 Permanent Impacts:
 - NA
 • See Standard Drawing # 102 for equipment travel across wetlands.
 • See NFG Standard Drawings # 98 for equipment travel across streams.

(5) GP-11, WETLAND AREAS #4 & #7, and STREAMS #4, #5, #6, and #8
 • #4 & #8: Directional drill installation of pipeline beneath a stream/wetland does not constitute a USACE Section 404 impact. PADEP Chapter 105 permanent impacts from directional drill activities beneath stream/wetlands were calculated by multiplying the true length of pipeline placed beneath the stream/wetland by the diameter of the pipeline rounded to the nearest whole foot in diameter. Temporary disturbance to Wetland Area #7 from surface directional drill activities and pipeline layout. Open-cut pipeline installation and equipment travel across Wetland Area #4 & #7 and Streams #4 & #8. The open-cut pipeline installation through the temporary construction area within Wetland Area #4 will have a 50' wide temporary construction area. A 10' wide area of the right-of-way, centered on the pipeline, will be permanently maintained by periodic mowing through wetland areas.
 • PADEP Chapter 105 Impacts
 Temporary Impacts:
 - Wetland Area #4: 10' x 83.3' for temporary construction area through PFOSS Wetland Area #4 = 833 SF
 - Wetland Area #7: 180' x 189.25' for HDD receiving site in Farmed Wetland = 34,065 SF
 - Wetland Area #7: 50' x 1,129' for equipment travel and pipe layout in Farmed Wetland = 56,250 SF
 - Stream #4: NA, < 100-acre drainage area, Waived Activity = 0 SF
 - Stream #5: Floodway: 45' x 75' for temporary disturbance to PFM at tie-in location = 3,375 SF
 - Stream #5: 5' x 10' for pump bypass during open-cut pipeline installation = 50 SF
 - Stream #5: Floodway: 10' x 53.7' for temporary construction area through floodway includes 527 SF of PFOSS Wetland Area #4 = 527 SF
 - Stream #5: Floodway: 5.00' x 62' for temporary construction area through floodway includes 328 SF of PFOSS Wetland Area #4 = 328 SF
 Permanent Impacts:
 - Wetland Area #4: 1' x 1,129' for directional drill of 6" pipeline = 1,129 SF
 - Wetland Area #4: 1' x 83' for open-cut of 6" pipeline = 83 SF
 - Wetland Area #4: 4' 10' x 83.7' for permanent maintained ROW through PFOSS Wetland = 337 SF
 - Wetland Area #7: 1' x 1,84' for open-cut of 6" pipeline = 1,84 SF
 - Wetland Area #4: NA, < 100-acre drainage area, Waived Activity = 0 SF
 - Stream #4: 5' 1' x 8' for directional drill of 6" pipeline = 8 SF
 - Stream #5: Floodway: 1' x 308' for directional drill of 6" pipeline = 308 SF
 - Stream #5: 1' x 10' for open cut of 6" pipeline = 10 SF
 - Stream #5: Floodway: 1' 5" x 10' for open cut of 6" pipeline = 15 SF
 - Stream #5: Floodway: 10' x 5.1' for permanent maintained ROW through Floodway/PFOSS Wetland = 51 SF
 - Stream #5: Floodway: 4' 1' x 10' for permanent maintained ROW through Floodway/PFOSS Wetland = 41 SF
 - Stream #6: 1' x 128' for directional drill of 6" pipeline = 128 SF
 - Stream #6: Floodway: 1' x 67' for directional drill of 6" pipeline = 67 SF
 - Stream #6: 1' x 22' for directional drill of 6" pipeline = 22 SF
 • USACE Section 404 Impacts
 Temporary Impacts:
 - Wetland Area #4: 20' x 131.5' for temporary construction area through PFOSS wetland = 2,630 SF
 - Wetland Area #4: 4' 10' x 75' for temporary disturbance to PFM at tie-in location = 307 SF
 - Wetland Area #4: 4' 10' x 75' temporary disturbance to PFM wetland at tie-in location = 300 SF
 - Wetland Area #7: 180' x 189.25' for HDD receiving site in Farmed Wetland = 34,065 SF
 - Wetland Area #7: 50' x 1,129' for equipment travel and pipe layout area in Farmed Wetland = 56,250 SF
 - Stream #4: 5' 10' x 75' for pump bypass during open-cut pipeline installation = 300 SF
 - Stream #5: 10' x 75' for pump bypass during open-cut pipeline installation = 750 SF
 Permanent Impacts:
 - NA
 • PADEP/USACE Permanent Conversion of Wetland Area #4
 Permanent Conversion of PFOSS wetland to PFM within 10' wide area of the right-of-way, centered on the pipeline, which will be permanently maintained by periodic mowing through wetland areas.
 - Wetland Area #4: 135.0' x 10' = 1,350 SF
 4' x 10' = 40 SF
 1,394 SF (NO MITIGATION REQUIRED)
 • See Standard Drawing # 100, # 101 & # 102 for pipeline replacement and equipment travel across wetlands.
 • See NFG Standard Drawing #238 for special ditches within temporary through farmed wetland areas. Top soil stripings may be utilized as an alternative to equipment mats within farmed wetlands to minimize soil compaction.
 • See Standard Drawing # 104, for special HDD # 13-2, # 13-4, & # 3-1, and NFG Standard Drawings # 98 & 27 for special cut, open and pump bypass, pipeline installation and equipment travel across streams.
 • See Standard Drawing # 103 for directional drill pipeline installation beneath streams and wetlands.



LEGEND

STREAM (APPROX)	PERMANENT CONSERVATION AREA
EXISTING GAS LINE (APPROX)	TEMPORARY CONSTRUCTION AREA
PROPOSED GAS LINE (APPROX)	NO CLEARING OR DISTURBANCE AREA
PROPOSED GAS LINE LAYBACK	DELINEATED WETLANDS, PALUSTRINE FORESTED, SHRUB-SCRP
NFG RIGHT-OF-WAY (APPROX)	DELINEATED WETLANDS, PALUSTRINE FORESTED
PROPERTY LINE	DELINEATED WETLANDS, FARMED WETLANDS
CONTOUR & ELEVATION	WATER BODY
TREE LINE	PHOTOGRAPH LOCATION & DIRECTION
TOP OF BANK	GAS TEST STATION LOCATION & NUMBER
BOTTOM OF BANK	GAS LINE FLAG
DEEP FLOW	GAS LINE MARKER
DEEP FLOW	GAS VALVE
DEEP FLOW	UTILITY POLE
DEEP FLOW	

GENERAL NOTES:

- THESE PLANS HAVE BEEN PREPARED BY URBAN ENGINEERS USING AERIAL PHOTOGRAPHY AND LOWRIE CONTOUR DATA OBTAINED FROM THE PENNSYLVANIA SPATIAL DATA ACCESS WEB SITE (AERIAL DATED 2006).
- PROJECT SPECIFIC DATA (STREAM LOCATIONS, LIMITED EXISTING AND PROPOSED UTILITIES, ETC.) WERE COLLECTED BY URBAN IN DECEMBER, 2017 USING GPS SURVEY EQUIPMENT (TRIMBLE 560 GPS UNIT EQUIPPED WITH A TRIMBLE RB-4 ANTENNA/RECEIVER).
- PROPOSED PIPELINE ALIGNMENT, PIPELINE LAYBACK AREA, PROPERTY LINES, RIGHT-OF-WAY LINES AND TEMPORARY WORK AREAS WERE OBTAINED FROM A DRAWING ENTITLED, '20180105 HM175-HDD', SUPPLIED BY NFG, DATED 1/5/2018.

PREPARED FOR:
 National Fuel Gas Supply Corporation
 1100 State Street
 P.O. Box 2081
 Erie, PA 16512

SCALE: 1" = 50' ±

SITE PLAN
 NFG LINE HM175 HORIZONTAL DIRECTIONAL DRILL
 WEST SALEM & PYMATUNING TOWNSHIPS
 MERCER COUNTY, PENNSYLVANIA

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REFERENCE:
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 CHECKED BY: DRY
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NFG-4

MATCHLINE 3

DATE: FEBRUARY 2018