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November 23, 2016

VIA E-FILING

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

***DTE Midstream Appalachia, LLC*, Docket No. PF17-1-000**
Birdsboro Pipeline Project

Draft Resource Report Nos. 1 and 10

Dear Secretary Bose:

On October 28, 2016, the Director of the Office of Energy Projects issued a letter order in the above-referenced docket approving DTE Midstream Appalachia, LLC's ("DTE") request to commence the Federal Energy Regulatory Commission's ("FERC" or "Commission") pre-filing review process with respect to DTE's proposed Birdsboro Pipeline Project ("Project"). Pursuant to Section 157.21(f)(5) of the Commission's Regulations,[1] DTE submits herein draft Resource Report No. 1 and draft Resource Report No. 10.

Pursuant to Sections 157.21(h) and 388.112(b) of the Commission's regulations,[2] DTE requests confidential treatment for portions of draft Resource Report No. 1 containing privileged landowner information. DTE is submitting the confidential portions of draft Resource Report No. 1 under separate cover marked "CONTAINS PRIVILEGED MATERIAL – DO NOT RELEASE." DTE requests that the confidential material be placed in the Commission's non-public files and understands that the Commission staff will notify DTE in advance of any public disclosure of any information contained in draft Resource Report No. 1. Please direct any questions pertaining to confidential information to the undersigned.

Please do not hesitate to contact the undersigned with any questions regarding this filing.

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1 18 C.F.R. 157.21(f)(5) (2016)

2 18 C.F.R. §§ 157.21(h), 388.12.

Respectfully submitted,

/s/ Jane E. Rueger

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Enclosures

cc: Jennifer Zieleinski, Office of Energy Projects

Draft Resource Report No. 1

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Federal Energy Regulatory Commission
Draft Resource Report 1

DTE Midstream Appalachia, LLC
Docket No. PF17-1-000
Birdsboro Pipeline Project
Berks County, Pennsylvania

GAI Project Number: C161040.00, Task 002
November 2016

Pre-filing Draft

PUBLIC INFORMATION

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RESOURCE REPORT ONE - GENERAL PROJECT DESCRIPTION	
MINIMUM FILING REQUIREMENTS	
Information	**Found in**
1. Provide a detailed description and location map of the Project facilities. (§380.12(c)(1))	Section 1.1, Figure 1.1-1, and Construction Alignment Sheets (Appendix 1-B, to be provided with a subsequent filing)
2. Describe non-jurisdictional facilities that would be built in association with the Project. (§380.12(c)(2))	Section 1.8
3. Provide current original U.S. Geological Survey (USGS) 7.5-minute series topographic maps with mileposts showing the Project facilities. (§380.12(c)(3))	Figure 1.1-1
4. Provide aerial images or photographs or alignment sheets based on these sources with mileposts showing the Project facilities. (§380.12(c)(3))	Construction Alignment Sheets (Appendix 1-B, to be provided with a subsequent filing)
5. Provide plot/site plans of compressor stations showing the location of the nearest noise-sensitive areas (NSA) within 1 mile. (§§380.12(c)(3) and (4))	Not applicable.
6. Describe construction and restoration methods. (§380.12(c)(6))	Section 1.3
7. Identify the permits required for construction across surface waters. (§380.12(c)(9))	Table 1.6-1
8. Provide the names and addresses of affected landowners and certify that affected landowners would be notified as required in §157.6(d). (§§380.12(a)(4) and (c)(10)	Section 1.7 and Table 1.7-1 (Privileged and Confidential Information - Do Not Release)
INFORMATION RECOMMENDED OR OFTEN MISSING	
1. Describe all authorizations required to complete the proposed action and the status of applications for such authorizations, including actual or anticipated submittal and receipt dates.	Section 1.6 and Table 1.6-1.
2. Provide plot/site plans of all aboveground facilities that are not completely within the right-of-way.	To be provided with subsequent filing, if applicable.
3. Provide detailed typical construction right-of-way cross-section diagrams for each proposed right-of-way configuration showing information such as widths and relative locations of existing rights-of-way, new permanent rights-of-way, and temporary construction rights-of-way. Clearly identify any overlap of existing rights-of-way for projects involving collocation. Identify by pipeline facility and milepost where each right-of-way configuration would apply.	To be provided with subsequent filing.
4. Summarize the total acreage of land affected by construction and operation of the project.	Section 1.2 and Tables 1.2-1 and 1.2-2.

RESOURCE REPORT ONE - GENERAL PROJECT DESCRIPTION	
INFORMATION RECOMMENDED OR OFTEN MISSING	
Information	**Found in**
5. Describe cathodic protection system; include associated land requirements as appropriate.	Not applicable.
6. Describe construction and restoration methods for offshore facilities as well as onshore facilities.	Section 1.3.
7. For proposed abandonments, describe how the right-of-way would be restored, who would own the site or right-of-way after abandonment, who would be responsible for facilities that would be abandoned in place, and whether landowners were given the opportunity to request removal.	Not applicable.
8. If Resource Report 5, Socioeconomics is not provided, provide the start and end dates of construction, the number of pipeline spreads that would be used, and the workforce per spread.	Section 1.3 (further information to be provided in a subsequent filing).
9. If project includes construction in the federal offshore area, include in the discussion of required authorizations and clearances the status of consultations with the Bureau of Ocean Energy Management, Regulation and Enforcement. File with the Bureau of Ocean Energy Management, Regulation and Enforcement for right-of-way grants at the same time or before filing the Federal Energy Regulatory Commission (FERC) application.	Not applicable.
10. For project involving the import or export of natural gas/ liquefied natural gas and construction of liquefied natural gas facilities, include in the discussion of required authorizations and clearances the status of consultations and authorizations required from the U.S. Department of Energy, U.S. Coast Guard, and the Federal Aviation Administration, as applicable.	Not applicable.
11. Send two (2) additional copies of topographic maps and aerial images/photographs directly to the environmental staff of the Office of Energy Projects.	Submitted concurrent with filing.
12. Provide an electronic copy of the landowner list directly to the FERC environmental staff (check with FERC staff for required format).	Submitted concurrent with filing.

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Appendix 1-D Table 1.8-1 - Birdsboro Facility Federal, State and Local Permits/Approvals

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Acronyms and Abbreviations

API	American Petroleum Institute
ATWS	Additional Temporary Workspace
CAS	Construction Alignment Sheets
CFR	Code of Federal Regulations
Commission	Federal Energy Regulatory Commission
DTE	DTE Midstream Appalachia, LLC
Dth/D	Dekatherms per day
DOE	Department of Energy
DRBC	Delaware River Basin Commission
EI	Environmental Inspector
EmberClear	EmberClear Corporation
EPA	Environmental Protection Agency
E&SCP	Erosion and Sediment Control Plan
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
HDD	Horizontal Directional Drill
MAOP	Maximum Allowable Operating Pressure
MP	Milepost
NDE	Non-destructive examination
NGA	Natural Gas Pipeline Safety Act of 1968
PA	Pennsylvania
Plan	Commission's Upland Erosion Control, Revegetation, and Maintenance Plan
Procedures	Commission's Wetland and Waterbody Construction and Mitigation Procedures
Project	Birdsboro Pipeline Project
psig	pounds per square inch gauge
ROW	Right-of-Way
SHPO	State Historic Preservation Office
T&E Species	Threatened and Endangered Species
TBD	to be determined
TETCO	Texas Eastern Transmission Company
TWS	Temporary Workspace
USACE	US Army Corps of Engineers
USDOT	United States Department of Transportation
USGS	United States Geological Survey

Resource Report 1.0: General Project Description

1.1 Proposed Facilities

DTE Midstream Appalachia, LLC (DTE) is applying to the Federal Energy Regulatory Commission (Commission) for a Certificate of Public Convenience and Necessity under Section 7(c) of the Natural Gas Pipeline Safety Act of 1968 (NGA) for authorization to construct and operate the proposed Birdsboro Pipeline Project (Project) in Berks County, Pennsylvania (PA). The Project involves the proposed installation of approximately 14 miles of new up to 16-inch-diameter natural gas pipeline (to be designated Birdsboro Pipeline upon being placed in-service), extending from a receipt point on Texas Eastern Transmission Company's (TETCO) pipeline in Rockland Township, Berks County, PA, to a delivery point in the Borough of Birdsboro, Berks County, PA. The overall design capacity of the pipeline is expected to be 79,000 dekatherms per day (Dth/d). No compression will be required. The Project will also include the construction of a minor aboveground facility (one meter site) and associated facilities. An overview of the Project is shown in Figure 1.1-1.

1.1.1 Purpose and Need

Birdsboro Power, LLC, is constructing a 485-megawatt, natural gas-fired power plant in the Borough of Birdsboro, Berks County, PA (the "Birdsboro Facility"). The Birdsboro Facility is being developed by EmberClear Corporation (EmberClear). The Birdsboro Facility is anticipated to be in operation in April 2019. This Project is designed to provide approximately 79,000 Dth/d of year-round transportation service from a receipt point on TETCO's pipeline in Rockland Township, Berks County, PA, to the Birdsboro Facility. The pipeline will serve as the fuel provider for the Birdsboro Facility and will have 100 percent of its capacity dedicated to the Facility. The pipeline will have a maximum allowable operating pressure (MAOP) of 1050 pounds per square inch gauge (psig) and will be built to a Class 3 location design. The proposed in-service date for the completed Project is May 31, 2018.

1.1.2 Location and Description of Facilities

Project facilities are proposed to be built in the Borough of Birdsboro, Union Township, Oley Township, Rockland Township, and Amity Township, Berks County, PA.

1.1.2.1 Project Facility Location

Installation of the Birdsboro Pipeline involves the construction of approximately 14 miles of new up to 16-inch-diameter pipeline within new greenfield right-of-way (ROW) located in the Borough of Birdsboro, Union Township, Oley Township, Rockland Township and Amity Township, Berks County, PA. Beginning at the new Birdsboro Facility off Armorcrast Road in the Borough of Birdsboro, the proposed Birdsboro Pipeline runs northward primarily through agricultural land to terminate at a new interconnect on TETCO's pipeline just north of Water Street in Rockland Township, PA. The pipeline will have a MAOP of 1050 psig.

1.1.2.2 Aboveground and Associated Facilities

No major aboveground facilities are proposed for the Project. Additional associated facilities on the proposed up to 16-inch-diameter pipeline are described below:

- installation of one new pig receiver at the Birdsboro Facility; and
- installation of one new meter site adjacent to the TETCO ROW, one new pig launcher at the TETCO interconnect, and two new taps on the TETCO pipelines.

DTE also proposes to construct valves at approximately six locations along the proposed up to 16-inch-diameter pipeline route, with spacing of the valve facilities meeting the requirements of the United States Department of Transportation's (USDOT) Pipeline and Hazardous Materials Safety Administration. Valves allow the associated pipeline to be segmented for safety, operations, and maintenance purposes. They are typically sited away from populated areas to allow for safe gas evacuation if needed.

Summaries of the proposed pipeline facilities and associated facilities are presented in Table 1.1-1 and Table 1.1-2, respectively.

Table 1.1-1

Pipeline Facilities

Facility	Pipeline Diameter and Type	County, State	Mileposts (MPs)	Approximate Length (miles)
Birdsboro Pipeline	Up to 16-Inch New	Berks, PA	0 - 14	14

Table 1.1-2

Aboveground Facilities

Facility Type and Name	Approximate MP	County, State	Description
Pig Receiver	0	Berks, PA	Install new pig receiver at the Birdsboro Facility.
TETCO Meter Site and Pig Launcher	14	Berks, PA	Install new meter site adjacent to TETCO ROW and new pig launcher at the TETCO interconnect.
Valves	To be Determined (TBD)	Berks, PA	Valve locations TBD.

1.1.3 Location Maps, Detailed Route Maps, and Plot/Site Plans

A 1:24,000 scale United States Geological Survey (USGS) map showing the location of the proposed pipeline and aboveground facilities is provided on Figure 1.1-1. The proposed Project footprint will be further detailed in the Construction Alignment Sheets (CAS) to be provided in a subsequent filing. Detailed ROW cross-section drawings will be provided in Resource Report 8 as part of a subsequent filing of the Environmental Report.

1.2 Land Requirements

Land requirements for the Project will include both temporary impacts (i.e., use during construction) and permanent impacts (i.e., necessary to maintain after the facilities are operational). Temporarily impacted areas are necessary to facilitate construction, and include the temporary construction ROW, contractor yards and temporary access roads. Permanently impacted areas will include the new 50-foot-wide permanent easement, aboveground and associated facilities and new permanent access roads.

The temporary construction ROW, aboveground facilities, temporary and permanent access roads, and contractor yards (to the extent contractor yards have been identified) will total approximately 146.19 acres.

A detailed discussion of the Project's land requirements by land use category for both the construction and operation phases of the Project will be presented in Resource Report 8, which will be provided in a subsequent filing. A general summary of land requirements is presented in Tables 1.2-1 and 1.2-2.

Table 1.2-1

Summary of Land Requirements for Pipeline Facilities

Facility	County, State	Land Affected During Construction (acres)[1, 2]	Land Affected During Operation (acres)
Birdsboro Pipeline			
Pipeline ROW[3]	Berks, PA	116.39	81.34
Additional Temporary Workspace (ATWS)[4]	Berks, PA	5.77	0
Access Roads	Berks, PA	4.99	TBD
Staging/Contractor Yards	Berks, PA	19.04	0
	Totals[5]	**146.19**	**TBD**

Notes:

1 Land affected during construction includes both temporary and permanent work areas.

2 Based on a 75-foot-wide temporary construction ROW, including a 50-foot-wide permanent ROW and 25-foot-wide temporary workspace (TWS).

3 Extra work areas in agricultural lands, and at waterbody, wetland, and road crossings, etc.

4 Totals may not equal the sum of the column due to rounding.

Table 1.2-2

Summary of Land Requirements for Aboveground Facilities

Facility	County, State	Land Affected During Construction (acres)[1]	Land Affected During Operation (acres)
TETCO Meter Site/Pig Launcher	Berks, PA	1.04	1.04
Pig Receiver	Berks, PA	0.23	TBD
Valves[2]	Berks, PA	0.35	0.35
Totals[3]		**TBD**	**TBD**

Notes:

1 Land affected during construction includes both permanent and temporary work areas.

2 Land required for valves is located within the permanent 50-foot ROW and has been included in Table 1.2-1.

3 Totals may not equal the sum of the column due to rounding.

1.2.1 Pipeline Facilities

During construction, a 75-foot-wide temporary construction ROW will be utilized, consisting of a 50-foot-wide permanent easement and 25-foot TWS. Twenty-five feet of ATWS will be utilized in certain areas such as agricultural lands, road and railroad crossings, waterbody and wetland crossings, steep slopes, staging and pull-back areas for horizontal directional drills (HDDs), pipe and contractor storage yards and contractor mobilization/demobilization areas, in addition to the 75-foot-wide temporary construction ROW. In areas requiring additional workspace or specialized construction techniques, the ATWS width could be expanded to greater than 25 feet. The construction ROW will be reduced to 50 feet at streams and wetlands.

The Project would use existing and new temporary access roads to access the Project during construction and operation. Public roads will be used to access the ROW where possible. Permanent access roads would be used to support regular and ongoing operational activities. Table 1.2-2 provides anticipated land requirements for Pipeline Facilities.

Two contractor yards have been identified. These sites will be used for equipment and material storage. Additional information regarding contractor yards will be provided in Resource Report 8 which will be provided in a subsequent filing of the Environmental Report. Additional site selection will continue throughout the planning stages of the Project.

Typical construction ROW cross-section diagrams and further land use requirements will be included in Resource Report 8 in a subsequent filing of the Environmental Report.

1.2.2 Aboveground Facilities

The aboveground facilities for the Project include one new meter site adjacent to the TETCO ROW at the northern end of the pipeline in Rockland Township. In addition, DTE will install a new pig launcher at the northern end of the Birdsboro Pipeline and a new pig receiver at the southern end. Valves will be installed alongside the pipeline at new aboveground locations measuring 50 feet by 50 feet within the permanent ROW. DTE plans to locate valves adjacent to existing public roads. Permanent access roads to these sites are not anticipated. Table 1.2-2 provides anticipated land requirements for Aboveground Facilities.

1.3 Construction Procedures

DTE intends to implement the Commission's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) (May 2013) and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures) (May 2013) as a minimum standard during construction. Where modifications to the Plan and Procedures are necessary, these locations will be identified and further discussed in Resource Report 2 to be provided in a subsequent filing of the Environmental Report.

To ensure construction of the Project would comply with the mitigation measures identified in the Resource Reports, the Commission's evaluation of the Project, and the requirements of other federal and state permits, DTE will provide environmental construction training for the personnel of the successful bidding contractors, DTE's inspection staff and Project management staff. Incorporated into this training will be compliance with federal, state, county and municipal permit requirements. For the construction of this Project, contracted personnel will be Operator Qualified for the individual tasks for which they are assigned. There will also be contracted inspectors on the Project (chief, welding, environmental, etc.) who will supervise and inspect construction activities.

In the preparation of the contract bid, DTE will include specific language from the approvals, permits, and regulatory agencies specific to the Project in its construction drawings and specifications to communicate to bidding entities the proper procedures for construction, stabilization and restoration. DTE's CAS will show the requirements, or restrictions, as dictated by the federal, state, and county and municipal permits.

DTE will employ at least one Environmental Inspector (EI) for each construction spread during construction and restoration. Additional EIs will be added as necessary. DTE currently anticipates two to three construction spreads. Each spread will employ on average 25 to 30 people and peak workforce per spread is anticipated to be 40 people. DTE anticipates one to two local hires for operation and maintenance on an as-needed basis. No new full-time permanent employment positions would be created for Project operation.

The role of the EI will be to monitor compliance with the construction and mitigation procedures identified in the filed application, as well as those identified in the federal, state, and local permits. The EI(s) will have stop work authority for activities they determine to be out of compliance with the Project's environmental requirements and to order appropriate corrective action. DTE's Construction Manager will maintain supervision over the EI(s) during construction.

Construction is anticipated to take six months from initial clearing (winter 2017) to final restoration (spring 2018). It is anticipated the facilities will be placed in-service by May 31, 2018.

If applicable, a Winter Construction Plan will be developed and provided in the supplemental filing of the Environmental Report.

1.3.1 Typical Pipeline Construction Procedures

1.3.1.1 Surveying and Staking

Prior to the commencement of construction, a civil survey crew will stake the pipeline centerline, the temporary construction ROW limits and ATWS. In addition, other resources such as environmental and archaeological resources, other utility crossings (e.g., pipelines, powerlines, other wires/cables), and access roads will be identified along the route.

1.3.1.2 Clearing and Grading

The temporary construction ROW will be cleared of vegetation according to the Commission's Plan and Procedures and DTE's Erosion and Sediment Control Plan (E&SCP). Timber cleared from the temporary construction ROW will be removed or set alongside the temporary construction ROW. Treetops and brush will be properly disposed of as construction debris, chipped within the temporary construction ROW or chipped and scattered outside the temporary construction ROW. Stumps may be ground in place, buried within the temporary construction ROW, stacked outside the temporary construction ROW, or hauled offsite. Surface rock may be buried within the temporary construction ROW, set outside the temporary construction ROW, or hauled offsite. All timber removal, treetops, brush, stump, and rock handling/placement will be performed in accordance with landowner agreements and local ordinances.

Once the ROW is cleared of woody vegetation and brush, the surface will be graded to create a level workspace. Displaced soils are generally stockpiled along the temporary construction ROW. However, in locations where the temporary construction ROW is restricted, these soils may be stockpiled at a different location. In areas where topsoil segregation requirements exist, topsoil will be segregated and stockpiled in such a manner that it is segregated from subsoils and can be returned to the temporary construction ROW.

Where necessary, temporary E&S controls will be installed prior to initial ground disturbance and will be maintained throughout construction. Temporary E&S controls primarily consist of installing barriers (e.g., silt fencing, filter socks) or diversion structures (e.g., temporary slope breakers) to prevent sediment-laden waters from migrating off approved work areas. Temporary slope breakers would be spaced in accordance with DTE's E&SCP or the Commission's guidelines. Once installed, these controls will be monitored and maintained so they function as intended until the area has been stabilized or permanent environmental controls are installed.

To manage stormwater surface flow, regular breaks (gaps) in windrowed spoil piles and diversions structures will be used to manage cross-drainage needs. Gaps in windrowed spoil (and topsoil piles) would allow surface water to migrate across the temporary construction ROW in such a way as to minimize upgradient flooding and downstream sedimentation. Gaps would be located at regular intervals and/or where appropriate due to site conditions (e.g., depressions in terrain where water would likely concentrate).

1.3.1.3 Trenching

Trenching would be accomplished with backhoes and/or mechanical trenching machines. Under typical conditions, the trench will be adequate to accommodate the up to 16-inch-diameter pipeline with a minimum three feet of soil cover. Trench depth will typically extend to 60 inches. The trench width will vary based on site conditions (e.g., soil types, bedrock, and presence of groundwater), but will generally be excavated at least 24 inches wider than the diameter of the pipe. At certain crossings (e.g., road, waterbody, wetland and agricultural areas) the pipeline cover may extend to 72 inches (HDD not included) in order to achieve the greater depth of cover requirements. Per 49 Code of Federal Regulations (CFR) Part 192, depth of cover will be a minimum of two feet in areas of consolidated rock. Large stones in the trench will be broken apart with conventional rock-trenching methods. In the event blasting becomes necessary, DTE will identify those areas and submit a blasting plan to the Commission for approval prior to implementation.

Similar to grading activities, considerations for cross-drainage will be made while trenching and where stormwater runoff flows might concentrate in the trench. Flume pipe (e.g., appropriately sized steel or plastic piping) or diversion berms/ditches may be used where needed to direct stormwater across the trench and away from the temporary construction ROW. Inlet and outlet structures may also be necessary to prevent erosion and scouring. Additionally, on sloping terrain, trench plugs may be used to prevent water from scouring the bottom of the trench line. Trench plugs are made of earthen material or sand filled bags.

1.3.1.4 Pipe Stringing and Bending

Sections of new line pipe (joints) will be strung along the temporary construction ROW parallel to the trench, set on temporary supports, and arranged so joints are safely accessible to construction personnel. Joint lengths from the mill can vary and can be cut as needed in the field. Depending on the topography of the temporary construction ROW, the pipe must be bent to fit the trench bottom. For the most severe bends, this will usually involve the use of pre-manufactured factory bends and fittings. The remainder of the other bends will be made using a hydraulic pipe-bending machine which can bend individual pipe joints to the desired angle at locations where there are changes in the natural ground contours or pipeline alignment. At stream crossings, the amount of pipe required to span the stream will be stockpiled in ATWS on one or both banks of the stream.

1.3.1.5 Pipe Assembly and Welding

Following stringing and bending, pipe sections are aligned and welded together. Welding shall be performed in accordance with the Project's Welding Procedure Specification (to be developed during design of the Project) and by qualified welders who have passed specified qualifying tests. Welders and welding procedures will be qualified according to applicable American Petroleum Institute (API) standards.

Welds will be inspected 100 percent, both visually and by non-destructive examination (NDE) methods. Visual inspection shall be carried out on welds to check for imperfections that can be seen with the naked eye and imperfections shall be repaired or removed. Welds then go through the NDE process (i.e., x-ray examination) for imperfections that are not visible with the naked eye. The acceptance criteria will be to API 1104 standards, *Welding of Pipelines and Related Facilities*. Welds displaying unacceptable slag inclusions, void spaces, or other defects will be repaired or cut and re-welded.

Detailed records shall be maintained for each weld as it is completed. The records would include identification serial number; the location of the weld; the date it was produced; qualified procedure reference number; welders' names and reference numbers. These records shall be maintained in the Project's permanent files.

1.3.1.6 Pipe Coating, Inspection, and Repair

Line pipe is coated to protect it from the environment and accelerated degradation. Line pipe is generally mill-coated or yard-coated prior to stringing. Line pipe also requires a coating at the field-welded joints where bare metal has been exposed. Prior to lowering-in the pipeline segment into the trench, the pipeline coating is visually and electronically inspected to locate and repair coating faults or voids.

1.3.1.7 Lowering-In, Padding, and Rough Backfill

Once the welds and coating have passed inspection and prior to lowering-in the pipe, the trench will be inspected for debris and rocks that could damage the pipe and/or its coating. These are removed from the trench prior to pipe installation. Next, sand-filled bags are placed along the trench bottom for the pipe to be set on. This also allows screened padding material to sufficiently surround the pipe. In areas where the backfill has the potential to damage the coating, the pipe may be wrapped in rock shielding material to provide additional protection.

The welded pipe section to be lowered-in is typically placed into the trench using pipe-laying side-boom tractors or equivalent equipment. These tractors are equipped with slings and/or rollers to safely lower the pipe into position while preserving the pipe's coating. Once the pipe is lowered-in, trench breakers (sand-filled bags, Sakrete, foam, etc.) are installed on sloping terrain and/or at sensitive environmental crossings to prevent the subsurface piping of water along the trench line. Clean fill (e.g., soil, sand) is used where needed as padding material to provide protection to the pipe and coating. The material used for padding is selected in accordance with permit conditions and Project engineering specifications. Topsoil will not be used as padding or backfill material. The trench is then rough backfilled using backfilling equipment (e.g., bulldozers, track hoes) until final restoration can be completed. No foreign materials (e.g., construction debris) are permitted to be used as backfill material.

Segregated topsoil, where applicable, will be placed after backfilling the trench above the subsoil. Following backfilling in agricultural land and open land, or in specified areas, a small crown may be left to account for any future soil settling that may occur. Excess soil will be distributed evenly on the ROW, only in upland areas, while maintaining existing contours and will be in accordance with landowner and agency requirements.

1.3.1.8 Hydrostatic Test and Final Tie-Ins

As part of the commissioning of the pipeline, the entire pipeline is pressure tested in accordance with engineering specifications and regulatory approvals. Water is taken from available water sources (e.g., waterbodies, municipal supplies, etc.). The pipe is tested in sections to a pressure well in excess of the MAOP for a specified period of time. Test sections and fill and discharge points are determined by pipe wall thickness, grade, access, and elevation changes. Once the test of a section is successfully completed, the water is conveyed to the adjacent section and reused. Upon completion of testing, the test water will be discharged in accordance with regulatory and permit requirements. Further information on hydrostatic testing will be provided with Resource Report 2 in a subsequent filing of the Environmental Report.

1.3.1.9 Cleanup, Restoration, and Revegetation

DTE will adhere to the restoration guidelines as described in the Commission's Plan and Procedures and applicable permit authorizations. Cleanup of Project activities includes removing construction debris, including unused and surplus materials, temporary construction structures, and equipment. Restoration consists of returning the temporary construction ROW and areas disturbed by construction activities to pre-existing contours and hydraulic regimes, except at locations where permanent changes in drainage will be required to prevent erosion. Normally, final restoration occurs within 10 to 20 days of rough backfilling.

Permanent E&S controls are installed (e.g., waterbars on sloping terrain) and the temporary construction ROW is re-seeded and/or mulched according to permit requirements and landowner agreements. Pipeline markers are installed. Soil adjuncts and fertilizers may be added where necessary. Temporary erosion controls are removed when the area has been stabilized in accordance with Project requirements. In agricultural areas, crop production is monitored until adjacent field yields or better are achieved.

1.3.1.10 Special Construction Procedures

- Rugged Topography. The topography of the Project area is generally low-relief, and extensive construction on slopes is not anticipated. Expanded construction work areas would be included in certain locations where side slope construction plans are proposed. E&S control, as well as revegetation, will be performed in accordance with DTE's E&SCP. If the Project requires construction on steep side slopes, DTE will utilize cut and fill construction techniques, including two-tone construction, where necessary, in areas containing steep side slopes and rolling terrain. During construction utilizing the cut and fill technique, the uphill side of the temporary construction ROW is cut during grading. The material removed from the cut is used to fill the downhill side of the temporary construction ROW. The fill areas are used to accommodate a level construction workspace. The pipeline trench is excavated along the newly graded ROW. With the two-tone construction technique, there are two levels at different elevations. One level is used for the equipment travel lane and work area and the second level is used for the trench and pipeline installation. These techniques typically require ATWS to accommodate highwall and fill areas to provide a level construction workspace. Following pipeline installation and backfill of the trench, excavated material is placed back in the cut and compacted to restore the area to the approximate original contours. In some cases, a narrow maintenance lane may be left to facilitate access for future maintenance. Once completed, the disturbed areas are stabilized.
- Residential Areas. The Project route has been selected to avoid residential areas to the extent possible. Where unavoidable, construction within 25 feet or less of an occupied residence would be accomplished using a Residential Mitigation Plan. The Residential Mitigation Plan will utilize additional construction restrictions and/or mitigation measures (e.g., restricting the temporary construction ROW width, limiting the hours of construction, etc.). DTE would coordinate with residence owners and/or tenants prior to construction activities occurring inside a residential mitigation area. Additional safety precautions may include erecting barricades (e.g., standard orange barricade fencing), welding offsite, controlling fugitive dust and reducing the duration of open trench. Restoration in residential areas is to be performed in accordance with the Commission's Plan and Procedures. Affected landowners are listed in Table 1.7-1 (Privileged and Confidential - Under Separate Cover). Stovepipe construction may be used where the pipeline is installed close to an existing structure or when an open trench would adversely impact a residential, commercial, or industrial area. Stovepiping involves installing the pipeline one joint at a time whereby the welding, radiography, and coating activities are performed in, or directly over top, of the open trench. At the end of each day, the newly installed pipe is backfilled or the

open trench is covered. The length of excavation performed each day cannot exceed the amount of pipe installed. Residential areas crossed by the Project will be identified in Resource Report 8, along with proposed mitigation measures.

- Active Croplands. DTE will work with landowners to identify site conditions (e.g., drain tiles and header systems) crossed by pipeline facilities that might need to be avoided or accommodated during construction so that impacts and disruptions can be minimized. Topsoil would be segregated and restored consistent with the Commission's Plan. As described in the Commission's Plan, a minimum of 12 inches of topsoil will be segregated in deep soils; and the entire topsoil layer, where possible, will be segregated in soils with less than 12 inches of topsoil. During construction DTE will locate drain tiles in fields which are affected and will repair those that are disturbed by construction, to as-found condition or better. Agricultural areas crossed by the Project will be identified in Resource Reports 7 and 8 along with proposed mitigation measures.
- Road Crossings. The Project route crosses state, county, and town roadways, along which traffic interruptions would be avoided or minimized. DTE anticipates open-cut crossings will be acceptable or feasible for a majority of the road crossings. Upon confirmation, if required, a trenchless construction technique (e.g., bores) will be used for road crossings where following consultation with the appropriate authority (e.g., town, county), an open-cut crossing is not determined to be acceptable or feasible. Minor roadways and drives will be crossed by open trenching. Once completed, roadways would be restored in accordance with engineering specifications, to pre-construction conditions or better. Furthermore, when construction activities occur within public roadways, provisions will be made for appropriate signage and, when necessary, temporary detours or other traffic control measures to allow safe traffic flow during construction. Road crossings and proposed crossing methods are represented in Table 1.3-1.
- Railroad Crossings. The Project crosses the Conrail railroad operated by Pennsylvania Lines LLC just north of the Schuylkill River in Amity Township. The crossing will be completed using HDD as part of the Schuylkill River crossing. The depth of the crossing will be specified in the railroad crossing permit.
- Utility Crossings. During the design phase, DTE will use PA's One Call program to identify foreign line operators. Foreign pipeline operators will be consulted regarding pipeline protection measures. These methods include, but are not limited to, the use of an air bridge, adding additional fill over the existing utility, temporarily or permanently relocating or burying the utility and at times rerouting the proposed pipeline at the operator's request. Precautions will be taken to identify existing pipelines, avoid damage, and safely cross foreign pipelines during construction, including:
    - PA One Call will be contacted to locate known pipelines and utilities, and operators of the existing pipelines will be given adequate notice of the crossing and the opportunity to be present during work around their pipelines.

- Known existing pipelines will be precisely located prior to excavation using a handheld magnetometer and/or by probing.
- If necessary, ROW edges will be scanned prior to grading with Passive Inductive Locating equipment to identify any unknown foreign pipelines.
- Mechanized excavation will not be allowed within three feet of existing pipelines; the excavations will be completed by hand shoveling.
- Existing foreign lines will be temporarily supported for the length of the span exposed by the crossing excavation.
- The pipeline trench will be excavated to provide a minimum of 12-inch clearance between the pipeline and the foreign line or structure as designated by officials having authority over the facilities.
- Existing pipelines will be inspected before and after installation of the Project.
- In the event accidental damage occurs to a foreign pipeline during construction, appropriate measures will be implemented to minimize undesirable effects to human health and the environment.

- Blasting. DTE does not anticipate the need for blasting. DTE will utilize other rock excavation techniques including rock trenchers, hydraulic hoe hammers and ripper teeth. Should blasting become necessary, DTE will implement and submit its Blasting Procedures to the Commission for review and approval. Resource Report 6 will contain additional information on construction in areas of shallow bedrock, if applicable, in a subsequent filing.
- Wetland and Waterbody Crossings. The Project impacts to, and discussion of wetland and waterbody areas located in the vicinity of the Project area, will be further described in Resource Reports 2 and 3 to be provided in a subsequent filing. Construction in these areas will be performed in accordance with the Commission's wetland and waterbody crossing procedures and applicable permit conditions, unless more stringent regulatory requirements apply or modifications to the Commission's crossing procedures are requested.
- Trenchless Techniques. Trenchless construction techniques include boring, pipe-jacking, and HDD. Trenchless methods allow the installation of the pipeline with minimal impacts or disturbance to surficial features. Boring techniques are regularly used when crossing transportation features that cannot be disrupted (e.g., roadways). HDDs may be used when rerouting alternatives are limited and other trenching and trenchless techniques are not feasible. Careful consideration must be given to land requirements needed for the HDD equipment, vehicle and equipment access, and noise mitigation during construction. DTE anticipates using bores for road crossings except where an open-cut crossing is determined to be feasible and the roadway authority (e.g., town, county) finds this method acceptable. HDDs are anticipated to be used at major river crossings and to avoid impacts to sensitive environmental resources.

- Dewatering. Dewatering activities may be necessary to remove excess water from the trench line during periods of excessive precipitation or high water table. Dewatering activities will be performed in accordance with DTE's E&SCP and the Commission's Plan and Procedures. Under no circumstances shall heavily silt-laden waters be directly discharged into wetlands or waterbodies. To the extent possible, discharges would occur in well-vegetated upland areas on stable, non-erosive surfaces. If dewatering locations are selected that are not within or immediately adjacent to the temporary construction ROW, they will be sited to minimize off-temporary construction ROW impacts.

Table 1.3-1

Roads and Railroads Crossed by the Pipelines

Approximate MP	County, State	Road Name	Road Type	Proposed Crossing Method
TBD	Berks, PA	Water Street	Local	Open Cut
TBD	Berks, PA	Mud Run Road	Local	Open Cut
TBD	Berks, PA	Jefferson Street	Local	Open Cut
TBD	Berks, PA	Philadelphia Avenue (PA 73)	State	Conventional Bore
TBD	Berks, PA	Bertolet Mill Road	Local	HDD
TBD	Berks, PA	Farm Road	Local	Open Cut
TBD	Berks, PA	Farm Road	Local	Open Cut
TBD	Berks, PA	Kauffman Road	Local	Conventional Bore
TBD	Berks, PA	Unnamed Road	Local	TBD
TBD	Berks, PA	Oley Turnpike Road	Local	Conventional Bore
TBD	Berks, PA	Oak Lane	Local	Conventional Bore
TBD	Berks, PA	Memorial Highway (PA 662)	State	Conventional Bore
TBD	Berks, PA	Hunter Road	Local	Open Cut
TBD	Berks, PA	Boyertown Pike (PA 562)	State	Conventional Bore
TBD	Berks, PA	Limekiln Road	Local	Conventional Bore
TBD	Berks, PA	Farm Road	Local	Open Cut
TBD	Berks, PA	Weavertown Road	Local	Open Cut
TBD	Berks, PA	Browns Mill Road	Local	Open Cut
TBD	Berks, PA	Browns Mill Road	Local	Open Cut
TBD	Berks, PA	Limekiln Road	Local	Conventional Bore
TBD	Berks, PA	Limekiln Road	Local	Conventional Bore
TBD	Berks, PA	Valley Road	Local	HDD
TBD	Berks, PA	Monocacy Hill Road	Local	Open Cut
TBD	Berks, PA	Ben Franklin Highway East (US 422)	US Highway	Conventional Bore
TBD	Berks, PA	Riga Lane	Local	Open Cut
TBD	Berks, PA	Unnamed Driveway	Local	Open Cut
TBD	Berks, PA	Conrail Railroad Crossing	Railroad	HDD

1.3.2 Aboveground Facilities

No major aboveground facilities are proposed for this Project. The duration of construction for the aboveground facilities will occur concurrently with pipeline construction. DTE intends to implement the Commission's Plan and Procedures as a minimum. As with the pipeline, modifications to the Plan and Procedures are discussed in Section 1.3, Construction Procedures, and will be provided in Resource Report 2.

Surface areas disturbed will be restored in a timely manner. Components in high-pressure natural gas service will be tested prior to placing in service. Hydrostatic testing will follow applicable federal, state and local requirements. Launching and receiving facilities will be installed to meet the same standards and regulatory requirements established for the pipelines. Valves will be installed within the Project's permanent easement.

In addition to construction drawings and/or applicable environmental permits that are provided to the contractor(s), an EI will oversee the implementation of E&S control measures and will advise the contractor in the upgrade and maintenance of the measures throughout construction.

1.4 Operation and Maintenance

DTE will operate and maintain the proposed facilities in accordance with its Operations and Maintenance Manual, which incorporates the applicable safety standards established by the USDOT (49 CFR 192) and American Society of Mechanical Engineers B31.8. DTE will further meet the requirements of the Commission's certificate for installation, the Commission's regulations at 18 CFR § 380.15, and maintenance provisions of the Commission's Plan and Procedures. The standards imposed are in accordance with the NGA, as amended. This Project will not require the hiring of additional full-time operational personnel.

Periodic aerial inspections and ground patrols will be conducted to visually inspect the route from above, or on the ground, for activities such as vegetative encroachment, evidence of unauthorized activity, damaged or exposed pipeline facilities, areas of environmental concern (e.g., subsidence, erosion), and other concerns that could affect public safety and operation of the Project. One ground patrol of the pipeline ROW would be conducted annually.

Vegetation along the permanent ROW would be maintained to prevent woody growth from encroaching onto the permanent easement (e.g., brush cutting, tree trimming) according to the Commission's Plan and Procedures. The maintenance is necessary for pipeline integrity and ROW accessibility. Annually, following foot patrols and/or flyovers, sections of the ROW requiring further inspection will be attended to. These inspections may involve the use of light equipment and hand tools. Mowing and hand-cutting (in areas where the ground is saturated) would be the primary method for maintenance within the permanent easement, and would be done according to the Commission's Plan and Procedures. Tree and brush trimming would be performed in accordance with these same plans, regulatory requirements, and landowner agreements and documented in maintenance records. Within fenced and graveled aboveground facility locations, where mowing and hand-cutting is impractical or undesirable, non-restricted use of herbicides may be used. These activities would be controlled by the above-stated plans, applicable governmental laws and regulations, permit conditions/authorizations, and landowner agreements.

1.5 Future Plans and Abandonment

At this time, DTE has no plans to expand the Project beyond the description and scope discussed herein. There are no current or future plans to abandon facilities as a result of this Project.

1.6 Permits and Approvals

The construction and operation of Project facilities would involve the acquisition of various regulatory permits and approvals, in addition to the Commission's Certificate of Public Convenience and Necessity. Table 1.6-1 summarizes the permits and approvals DTE plans to seek, provided that such federal, state or local requirements or conditions do not conflict with, or are not otherwise preempted by, the Commission's requirements or conditions.

Table 1.6-1

Environmental Permits, Approvals, and Consultations

Agency	Contact Information	Permit/ Approval/ Consultation	Submittal Date (Anticipated)[1]	Approval Date (Anticipated)[1]
Federal				
Commission	888 First Street NE, Washington, DC 20426	NGA Section 7(c) Certificate	(April 2017)	(December 2017)
United States Army Corps of Engineers (USACE), Philadelphia District	Pocono Regulatory Office, 253 State Route 435, Suite 4 Clifton Township, PA 18424 Phone: 570-842-1045	Clean Water Act Section 404	(January 2017)	(September 2017)
United States Fish and Wildlife Service (USFWS)	PA Field Office 110 Radnor Road, Suite 101 State College, PA 16801 Project Point of Contact (POC): Brian Scofield Phone: 814-234-4090	Informal Section 7 Consultation	July 2016	(March 2017)
State - PA				
PA Department of Environmental Protection (PADEP)	Southcentral Regional Office 909 Elmerton Avenue 2nd Floor Harrisburg, PA 17110 Phone: 717-705-4802	Chapter 105 Water Obstruction and Encroachment Permit (Joint Permit)	(January 2017)	(June 2017)
		Submerged Lands License Agreement	(January 2017)	(June 2017)
		Section 401 Water Quality Certification	(January 2017)	(June 2017)
		Hydrostatic Testing Discharge General Permit (PAG-10)	(January 2017)	(June 2017)
PA Game Commission (PGC)	Bureau of Wildlife Habitat Management, Division of Environmental Planning and Habitat Protection 2001 Elmerton Avenue Harrisburg, PA 17110 Phone: 717-787-4250	Threatened and Endangered (T&E) Species Consultation and Clearance	June 2016	(March 2017)
PA Fish and Boat Commission (PFBC)	Division of Environmental Services, Natural Gas Section 450 Robinson Lane Bellefonte, PA 16823 POC: Greg Lech Phone: 610-847-8772	T&E Species Consultation and Clearance	July 2016	(March 2017)

Table 1.6-1 (Continued)

Agency	Contact Information	Permit/ Approval/ Consultation	Submittal Date (Anticipated)[1]	Approval Date (Anticipated)[1]
State - PA (continued)				
PA Department of Conservation and Natural Resources (PADCNR)	Bureau of Forestry, Ecological Services Section 400 Market Street PO Box 8552 Harrisburg, PA 17105 POC: Jaci Braund Phone: 717-214-3813	T&E Species Consultation and Clearance	June 2016	(November 2016)
PA Historical and Museum Commission (PA SHPO)	Bureau of Historic Preservation 400 North Street, 2nd Floor Harrisburg, PA 17120	National Historic Preservation Act, Section 106 Clearance	(January 2017)	(March 2017)
PA Department of Transportation (PA DOT)	Engineering District 5-0, 1002 Hamilton Street Allentown, PA 18101 POC: Brian Boyer Phone: 610-871-4464	Highway Occupancy Permits	(May 2017)	(September 2017)
State - Multiple				
Delaware River Basin Commission (DRBC)	25 State Police Drive PO Box 7360 West Trenton, NJ 08628	Coordination and Potential Permit	September 2016	(June 2017)
County - Berks County, PA				
Berks County Conservation District	1238 County Welfare Road, Leesport, PA 19533 Phone: 610-372-4657	Erosion Sedimentation Control Plan (ESCGP-2)	(April 2017)	(June 2017)

Note:

[1] Dates in parenthesis are anticipated.

1.7 Affected Landowners

DTE has performed outreach to landowners during development of the Project. DTE will continue to perform such outreach and has notified affected landowners whose property is crossed or otherwise is affected by the Project facilities. The names and addresses of these landowners are presented in Table 1.7-1 (Privileged and Confidential). As set forth in this application, DTE certifies that affected landowners and local officials will be notified as required by Section 157.6(d) of the Commission's regulations.

1.8 Non-jurisdictional Facilities

The Birdsboro Pipeline will supply natural gas to the new Birdsboro Facility, a 485-megawatt, natural gas-fired power plant, which is expected to be in operation April 2019. The Birdsboro Facility is being developed by EmberClear. The up to 16-inch-diameter Birdsboro Pipeline will serve as the fuel provider for the Birdsboro Facility, providing 79,000 Dth/d of year-round transportation. The Birdsboro Facility will be located on an approximately 30-acre existing and previously disturbed industrial site, labeled on Figure 1.1-1, Project Location Map.

EmberClear is obtaining permits/approvals for construction and operation of their facility. A table listing anticipated permits and latest status is included in Appendix 1-D. The USFWS responded on May 11, 2015, that the facility is not likely to adversely affect the federally-listed bog turtle (*Glyptemys muhlenbergii*). An updated clearance from the USFWS including the Long-eared bat (*Myotis*

septentrionalis) listing was received on October 6, 2015 and is included in Appendix 1-C. An application was submitted to the Delaware River Basin Commission for Approval of Water Use on May 19, 2016. Authorization will be provided upon receipt. The PA State Historic Preservation Office provided clearance on November 25, 2015. Consultation with these agencies will be provided in a subsequent filing.

1.9 Cumulative Impacts

DTE is in the process of assessing Project cumulative impact analysis, including the resource specific temporal and geographic scope within which cumulative impacts may occur from the construction and operation of the Project. DTE will provide a discussion on cumulative impacts, by resource, in a subsequent filing of the Environmental Report.

1.10 References

Federal Energy Regulatory Commission. 2015. http://www.ferc.gov/default.asp. Accessed November 2016.

Federal Energy Regulatory Commission. 2013. *Upland Erosion Control, Revegetation, and Maintenance Plan*. May 2013.

Federal Energy Regulatory Commission. 2013. *Wetland and Waterbody Construction and Mitigation Procedures*. May 2013.

Federal Energy Regulatory Commission. 2006. *Part 157 - Applications for Certificates of Public Convenience and Necessity and for Orders Permitting and Approving Abandonment Under Section 7 of the Natural Gas Act*. http://www.access.gpo.gov/nara/cfr/waisidx_05/18cfr157_05.html. Accessed November 2016.

United States Department of Transportation. Sections of 49 Code of Federal Regulations 190 through 199 (Sections 192.463, 192.467, 192.491, 192.705, 192.706, and 192.707).

FIGURE

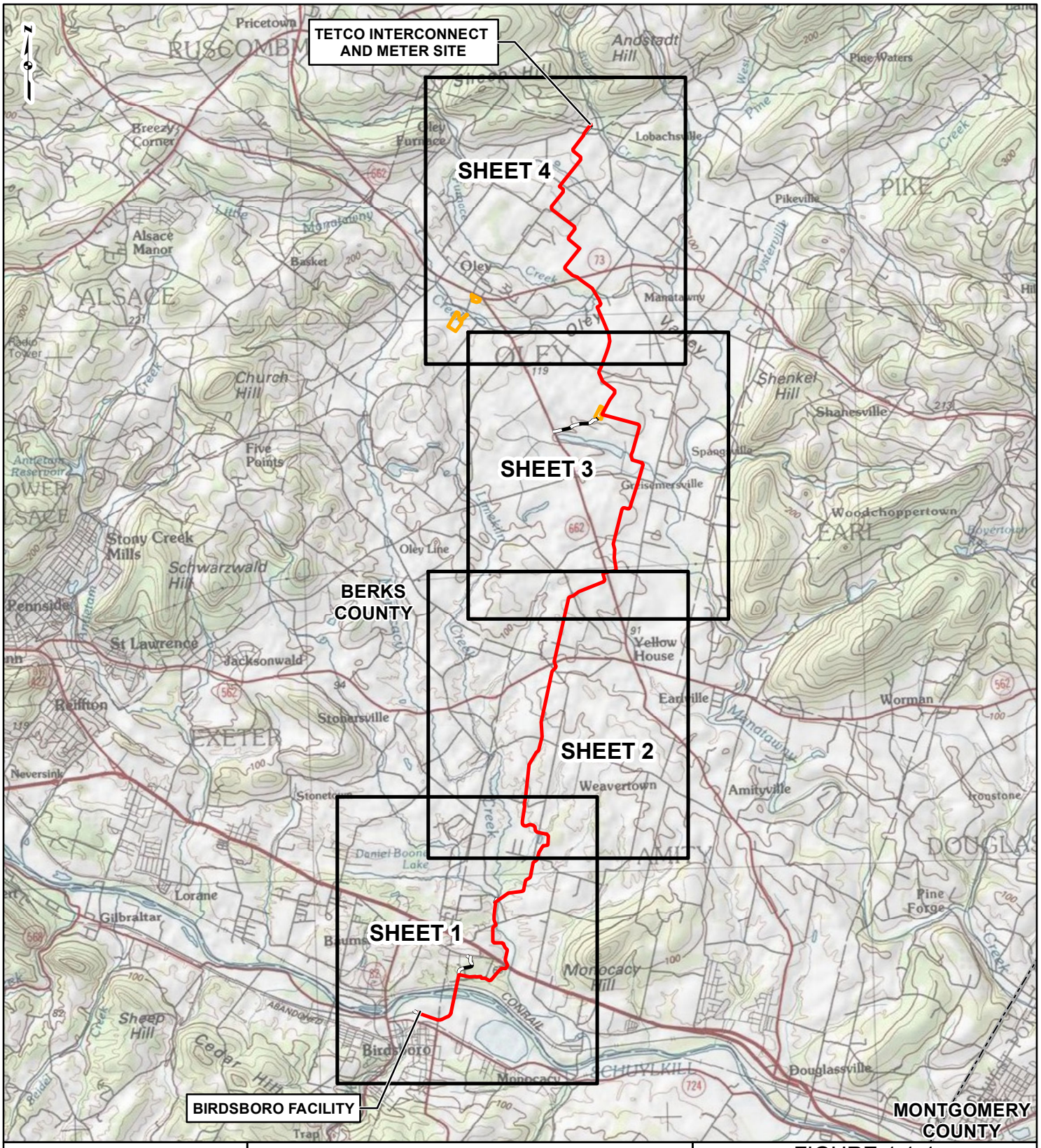

FIGURE 1.1-1
PROJECT LOCATION MAP
SHEET INDEX

BIRDSBORO PIPELINE PROJECT
DTE MIDSTREAM APPALACHIA, LLC

gai consultants

DTE Energy

DRAWN BY: SWW DATE: 11/22/2016
CHECKED: MDO APPROVED: AML

REFERENCE:
USGS 30'X60' TOPOGRAPHIC QUADRANGLE: READING (1986), PENNSYLVANIA, OBTAINED THROUGH ESRI USA TOPO MAPS, NATIONAL GEOGRAPHIC TOPO AND USGS, ACCESSED 11/2016.

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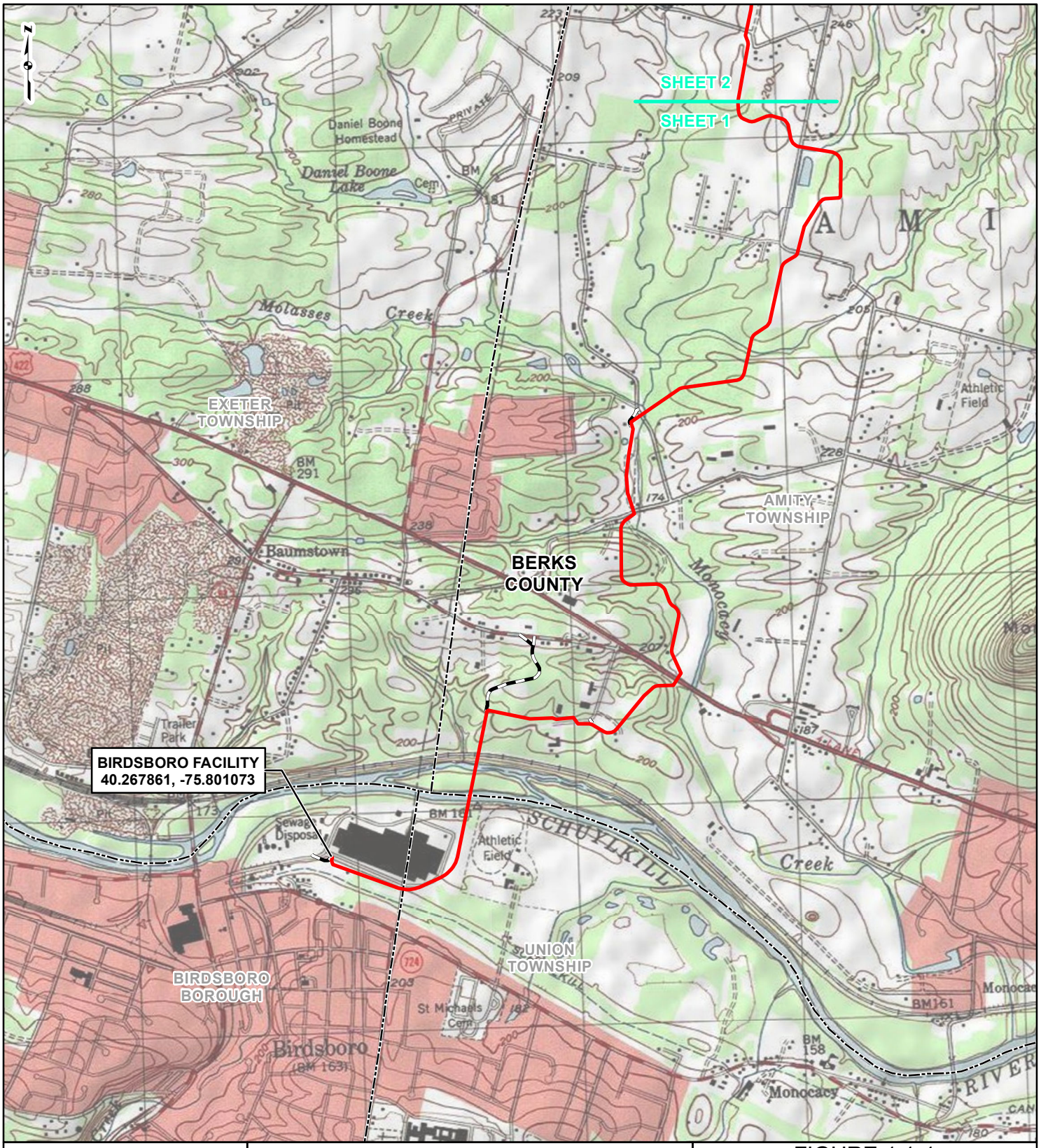
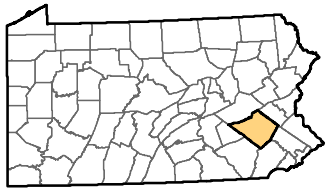


PROJECT LOCATION



BERKS COUNTY, PENNSYLVANIA

LEGEND

- PROPOSED PIPELINE
- ACCESS ROAD
- STAGING AREA / CONSTRUCTION YARD
- COUNTY BOUNDARY
- MUNICIPAL BOUNDARY

0 1,000 2,000 4,000 Feet

FIGURE 1.1-1
PROJECT LOCATION MAP
SHEET 1 OF 4

BIRDSBORO PIPELINE PROJECT
DTE MIDSTREAM APPALACHIA, LLC

gai consultants

DTE Energy

DRAWN BY: SWW DATE: 11/22/2016
CHECKED: MDO APPROVED: AML

REFERENCE:
USGS 7.5' TOPOGRAPHIC QUADRANGLES: BIRDSBORO (1984), BOYERTOWN (1975), FLEETWOOD (1978), AND MANATAWNY (1975), PENNSYLVANIA, OBTAINED THROUGH ESRI USA TOPO MAPS, NATIONAL GEOGRAPHIC TOPO AND USGS, ACCESSED 11/2016.

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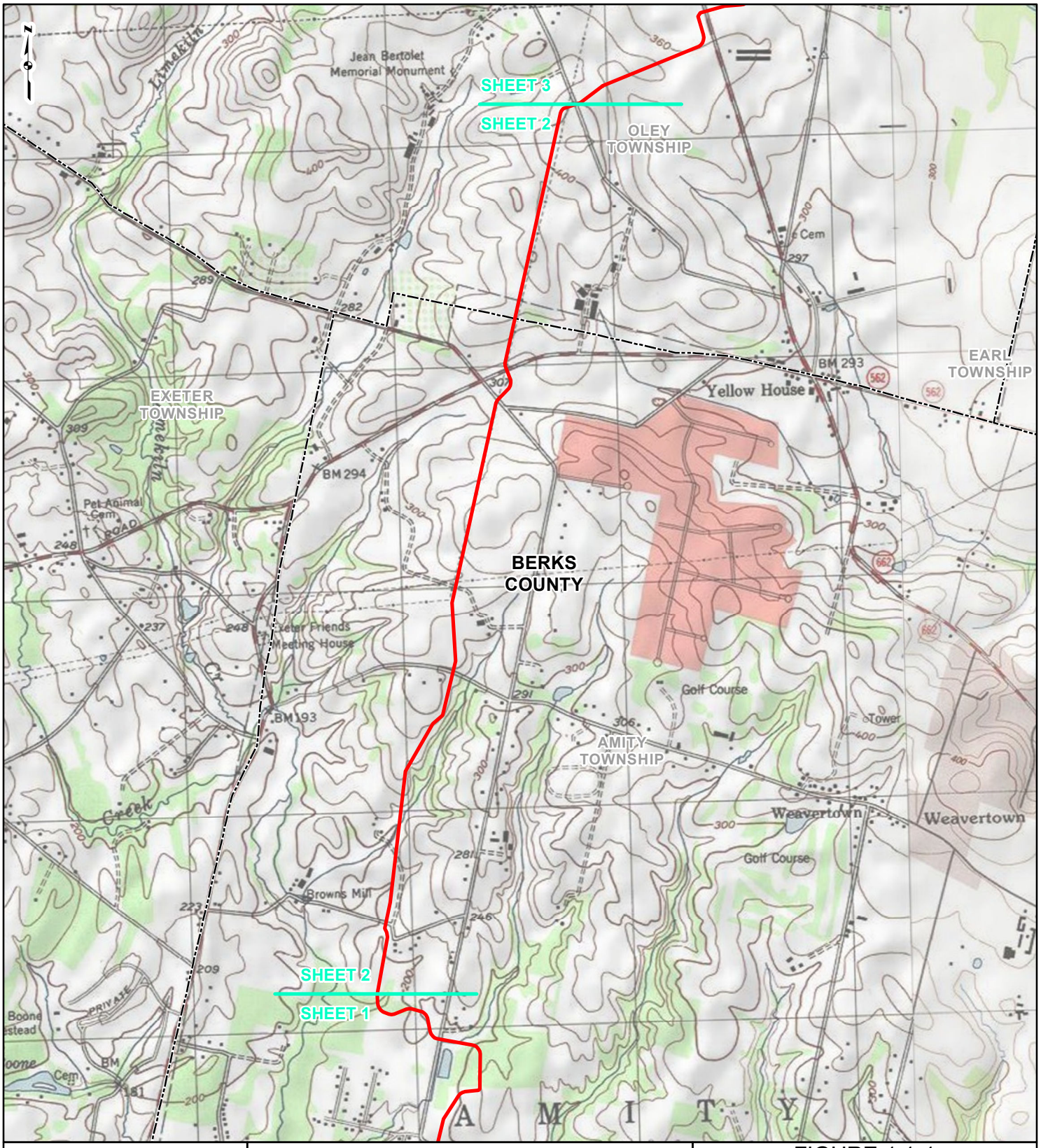
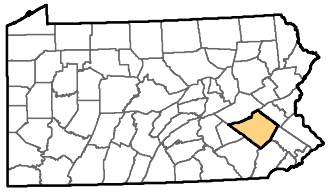


PROJECT LOCATION



BERKS COUNTY, PENNSYLVANIA

LEGEND

- PROPOSED PIPELINE
- ACCESS ROAD
- STAGING AREA / CONSTRUCTION YARD
- COUNTY BOUNDARY
- MUNICIPAL BOUNDARY

0 1,000 2,000 4,000 Feet

FIGURE 1.1-1
PROJECT LOCATION MAP
SHEET 2 OF 4

BIRDSBORO PIPELINE PROJECT
DTE MIDSTREAM APPALACHIA, LLC

gai consultants

DTE Energy

DRAWN BY: SWW DATE: 11/22/2016
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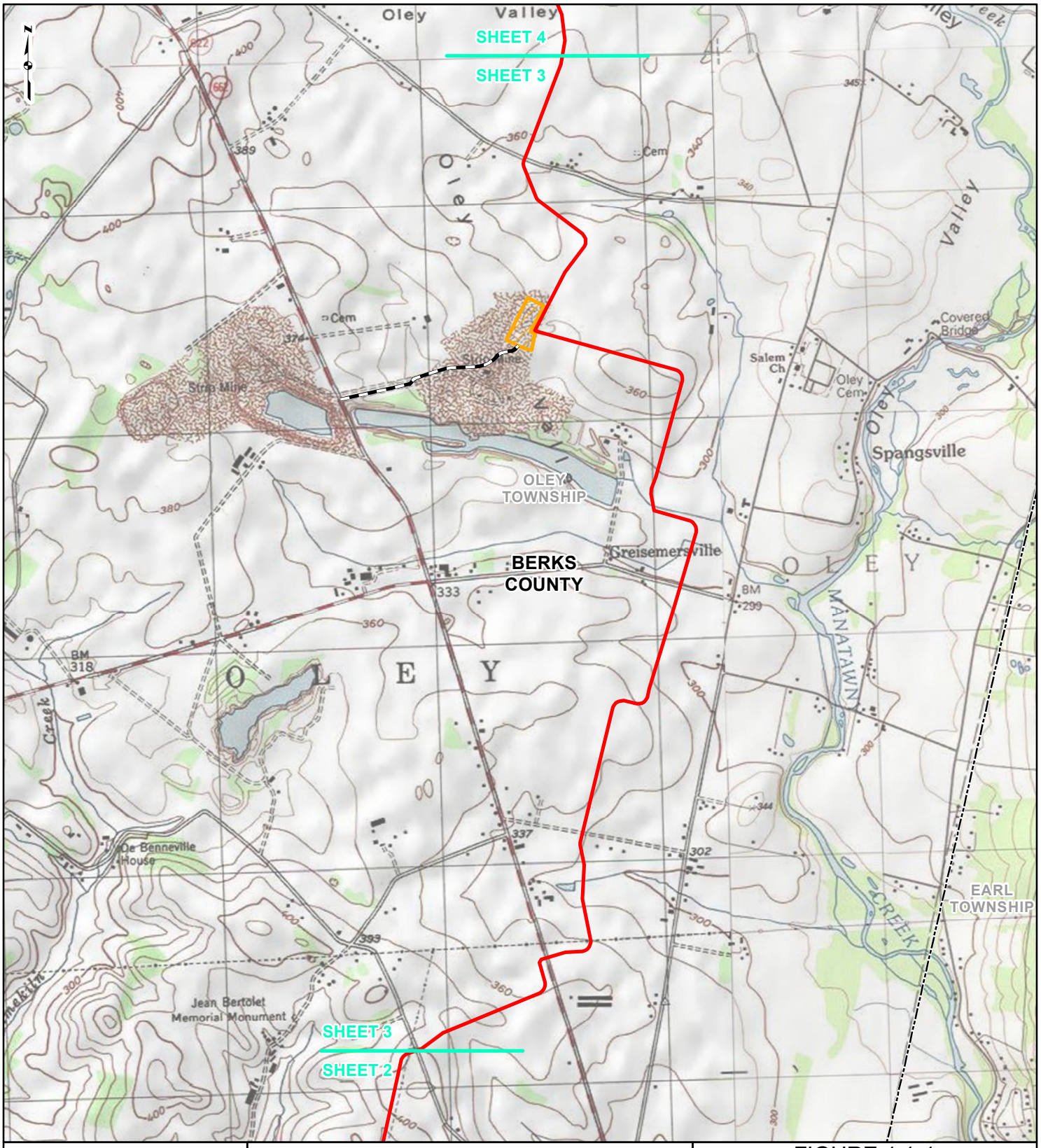
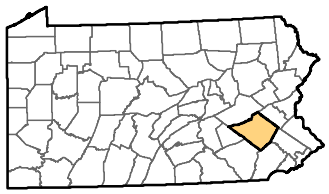


PROJECT LOCATION



BERKS COUNTY, PENNSYLVANIA

LEGEND

- PROPOSED PIPELINE
- ACCESS ROAD
- STAGING AREA / CONSTRUCTION YARD
- COUNTY BOUNDARY
- MUNICIPAL BOUNDARY

0 1,000 2,000 4,000 Feet

FIGURE 1.1-1
PROJECT LOCATION MAP
SHEET 3 OF 4

BIRDSBORO PIPELINE PROJECT
DTE MIDSTREAM APPALACHIA, LLC

gai consultants

DTE Energy

DRAWN BY: SWW DATE: 11/22/2016
CHECKED: MDO APPROVED: AML

REFERENCE:
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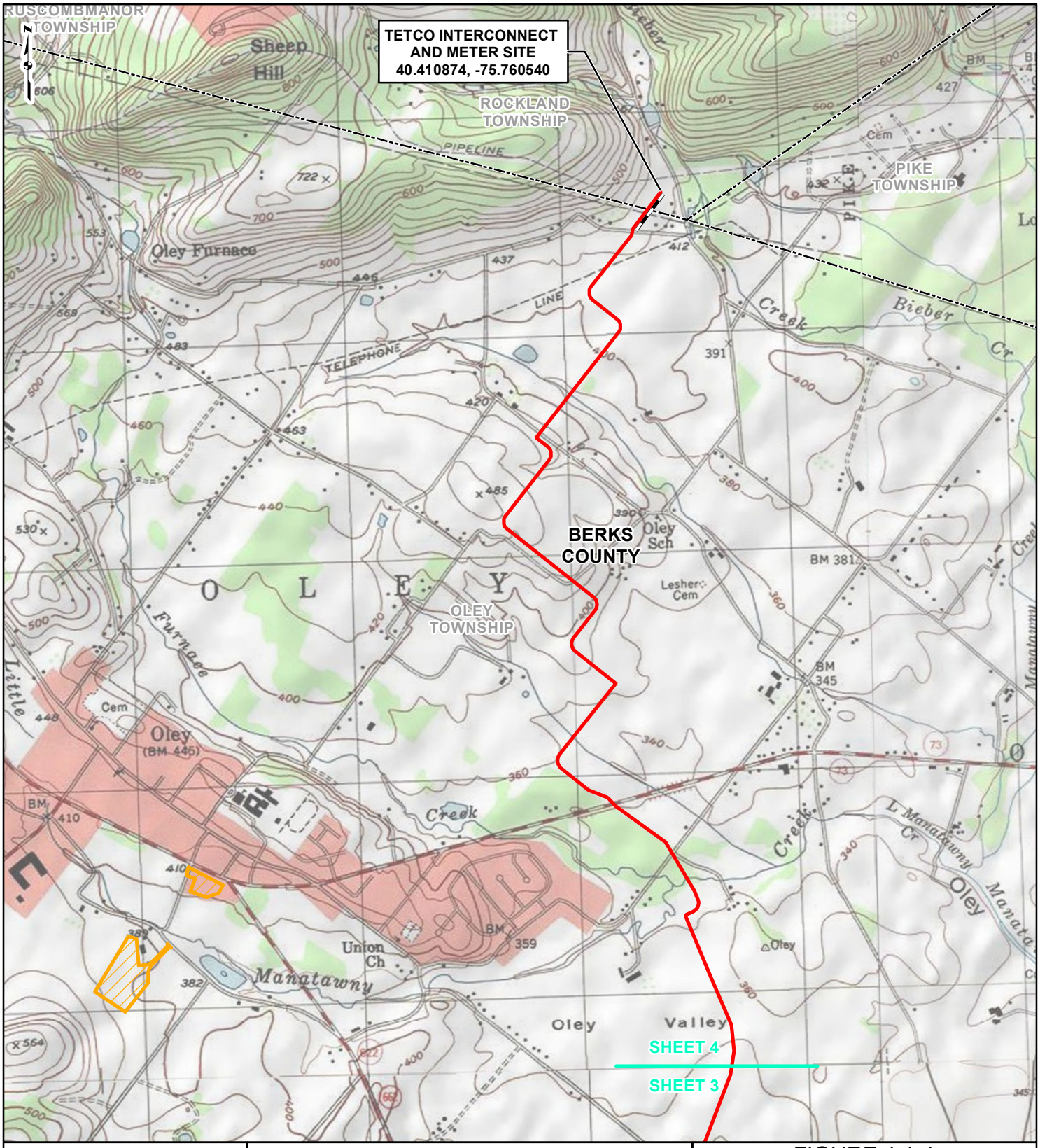
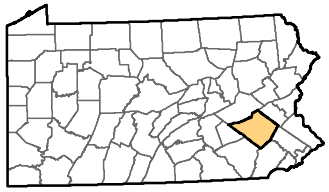


PROJECT LOCATION



BERKS COUNTY, PENNSYLVANIA

LEGEND

- PROPOSED PIPELINE
- ACCESS ROAD
- STAGING AREA / CONSTRUCTION YARD
- COUNTY BOUNDARY
- MUNICIPAL BOUNDARY

0 1,000 2,000 4,000 Feet

FIGURE 1.1-1
PROJECT LOCATION MAP
SHEET 4 OF 4

BIRDSBORO PIPELINE PROJECT
DTE MIDSTREAM APPALACHIA, LLC

gai consultants

DTE Energy

DRAWN BY: SWW DATE: 11/22/2016
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APPENDIX 1-A
Construction Alignment Sheets
(to be provided in a subsequent filing)

APPENDIX 1-B

Typical Construction Right-of-Way Cross-Section Diagrams (to be provided in a subsequent filing)

APPENDIX 1-C
Birdsboro Facility Agency Consultation

2015-0551

Quad3 Architecture Engineering Environmental Services

Land Planning & Utilities

September 29, 2015

U.S. Fish and Wildlife Service
Pennsylvania Field Office
110 Radnor Rd; Suite 101
State College, PA 16801

RE: Natural Gas Combine Cycle
Birdsboro Power LLC
PNDI Search ID: 20150929533277

To whom it may concern;

U.S. FISH AND WILDLIFE SERVICE
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, Pennsylvania 16801-4850

It appears there have been no changes in the project or on-site biological information; therefore, the agency's comments, as detailed in our letter of 5/11/2015 (dated), remain unchanged.

_____, Supervisor 10/6/15

Upon completing PNDI search on 101.5 acre site for 14 acre project know as Natural Gas Combine Cycle (NGCC) facility in Birdsboro Borough, Berks County, PA a "hit" for a potential impact was discovered. Quad Three Group Inc. on behave of Birdsboro Power LLC requests a further review of this project to resolve the potential impacts if it exists. This potential impact was completed and addressed by your agency on May 11, 2015 however due to Lon-eared Bat addition all PNDI receipts submitted to the county have to be dated after May 6, 2015.Please see attached documentation to speed up this process.

In order to assist you in your review I have included the following:

1. Signed copy of the Project Environmental Review Receipt
2. Project Narrative with a description of the overall project
3. Project Location Information and USGS Mapping
4. Two drawings C-100 – Floodway Existing Features
   C-600 – Erosion and Sediment Control Plan
5. Color Photos keyed to basic site plan
6. Fax Transmittal from U.S. Fish and Wildlife Services

Please don't hesitate to contact me at 570 829-4200 x 314 or mmoucha@quad3.com if you have any questions.

Sincerely,

QUAD THREE GROUP, INC.

Martin Moucha

Martin Moucha
Cc: File

L:\Projects\107\10706.04 Future Power PA LLC\RESUBMISSION\PNDI\U.S. Fish and Wildlife Service.docx

37 North Washington St
Wilkes-Barre, PA 18701
phone 570.829.4200
fax 570.829.0302
www.quad3.com

PNDI # 20150313489746 USFWS Project # 2015-0551

U.S. FISH AND WILDLIFE SERVICE

110 Radnor Road, Suite 101, State College, PA 16801

This responds to your inquiry about a PNDI Internet Database search that resulted in a potential conflict with a federally listed, proposed or candidate species.

PROJECT LOCATION INFORMATION

County: Berks

Township: Birdsboro Borough

MISC INFORMATION

Date received by FWS: April 24, 2015

☐ ACTIVE ☐ ARCHIVE

USFWS COMMENTS ☐ FAXED ☐ MAILED

To: Martin Moucha

Fax #: 570.829.0302

Affiliation: Quad Three Group

SPECIFIC PROJECT: Birdsboro Power Natural Gas Combine Cycle Plant

FISH AND WILDLIFE SERVICE COMMENT(s):

X ***NOT LIKELY TO ADVERSELY AFFECT***

The federally listed bog turtle occurs or may occur in or near the project area. However, based on our review of the information provided, including the project description and location (_____), no adverse effects to this species are likely to occur. If there is any change in the location, scale, scope, layout or design of the project, further consultation or coordination with the Service will be necessary.

The above determination is valid for two years from the date of this letter. In addition, this response relates only to federally listed, proposed, and candidate species under our jurisdiction, based on an office review of the proposed project's location and anticipated impacts. No field inspection of the project area has been conducted by this office. Consequently, comments on this form are not to be construed as addressing other Service concerns under the Fish and Wildlife Coordination Act or other authorities. *Please reference the above PNDI # and USFWS Project # in any future correspondence regarding this project.*

This review was conducted by the biologist listed below. He/she can be contacted at 814-234-4090.

☐ Robert Anderson (x7447) ☐ Jennifer Kagel (x7451) ☐ Pamela Shellenberger (x7459) ☐ Melinda Turner (x7449) ☑ Kayla Easler (x7455)

SIGNATURE: _____ DATE: 5/11/15

Supervisor, Pennsylvania Field Office

APPENDIX 1-D
Table 1.8-1 - Birdsboro Facility Federal, State and Local Permits/Approvals

Table 1.8-1

Birdsboro Facility Federal, State and Local Permits/Approvals

Permit/Authorization	Agency	Issuance Date (anticipated)	Status
Federal			
Wetlands Permit Section 404	USACE	TBD	Anticipate to submit Joint Permit Application
Notice of Exempt Wholesale Generator Status	Commission	TBD	Required before Operation
Market-Based Rate Authorization	Commission	TBD	Required before Operation
Annual Electric Generator Report, EIA-860	Department of Energy (DOE), Energy Information Administration	TBD	TBD
Coal Capability Self-Certification	DOE	TBD	Required before Operation
Notice of Proposed Construction or Alteration - stack	Federal Aviation Administration (FAA)	12/10/2015	Part 1 complete. Part 2 due w/in five days of construction reaching greatest height
Notice of Proposed Construction or Alteration - construction crane	FAA	TBD	TBD
Federal Threatened and Endangered Species Clearance	USFWS	05/11/2015; 10/06/2015	Complete
Cross State Air Pollution Rule	Environmental Protection Agency (EPA)	TBD	TBD
Clean Air Act Section 112(r)	EPA	TBD	TBD
Delaware River Basin Commission (DRBC) approval of Water Use	DRBC	(12/14/2016)	Application submitted 05/19/16; revised application submitted 07/15/16.
Radio License - construction	Federal Communications Commission (FCC)	TBD	TBD
Radio License - operation	FCC	TBD	TBD
Notification of Hazardous Waste Activity	EPA	TBD	TBD
State			
Air Quality Plan Approval	PADEP	03/23/2016	Complete
Title IV Acid Rain Permit	PADEP	TBD	Submit to the Title V permitting authority 24 months before the date the unit commences operation.
Air Operating Permit	PADEP	TBD	
State (Continued)			
Notice of Proposed Construction or Alteration - stack	PA DOT-BOA	09/07/2016	Complete
Threatened, and Endangered Species Clearance	PGC	09/29/2015	Complete
Threatened, and Endangered Species Clearance	PADCNR	10/13/2015	Complete

Permit/Authorization	Agency	Issuance Date (anticipated)	Status
Threatened, and Endangered Species Clearance	PFBC	05/13/2015	Complete
Historic and Archaeological Review	PA SHPO	11/25/2015	Complete
Chapter 105 Water Obstruction and Encroachment Permit	PADEP	TBD	TBD
Section 401 Water Quality Certification	PADEP	TBD	TBD
Submerged Lands License Agreement	PADEP	TBD	TBD
NPDES General Permit for Discharges from Hydrostatic Testing of Tanks and Pipelines (PAG-10) - construction	PADEP	TBD	If applicable, Notice of Intent (NOI) to be submitted at least 60 days prior to discharge.
NPDES General Permit for Discharges of Stormwater Associated with Industrial Activity (PAG-03)	PADEP	TBD	File NOI at least 60 days prior to commencement of the industrial activity with the appropriate DEP regional office.
Spill Prevention, Control, and Countermeasure (SPCC) Plan/Preparedness, Prevention and Contingency (PPC) Plan/Spill Prevention Response (SPR) Plan – Construction	PA DEP/EPA	TBD	TBD
SPCC Plan/PPC Plan/SPR Plan - Operation	PADEP/EPA	TBD	TBD
Sewage Facilities Planning Module Approval	PADEP	09/21/2016	Complete
Storage Tank Site Specific Installation Permits - Construction	PADEP	TBD	TBD
Storage Tank Registrations/Operating Permits - Operations	PADEP	TBD	TBD
Boiler and Pressure Vessel Tank Registration	PA Department of Labor	TBD	TBD
Flammable and combustible liquids storage registration	PA Department of Labor and Industry	TBD	TBD
Special Hauling Permit	PA DOT	TBD	TBD
Local			
Preliminary Land Development Plan Approval	Birdsboro Borough Council/Birdsboro Planning Commission	04/13/2015; 06/20/2016	Complete
Final Land Development Plan Approval	Birdsboro Borough Council/Birdsboro Planning Commission	TBD	TBD
County Comprehensive Plan Consistency Letter	Berks County Planning Commission	05/07/2015	Complete

Permit/Authorization	Agency	Issuance Date (anticipated)	Status
Borough Zoning Consistency Letter	Borough of Birdsboro	04/24/2015	Complete
NPDES General Permit for Discharges of Stormwater Associated with Construction Activity (PAG-02)	Berks County Conservation District	12/28/2015	Permit # PAG02 0006 15 032. Permittee name corrected with submittal of co-permittee application form on 09/19/2016. Pre-construction conference held 10/06/2016
Soil Erosion and Sediment Control Plan Approval	Berks County Conservation District	12/28/2015	Submitted and approved as part of stormwater permit.
Post Construction Stormwater Management Plan Approval	Berks County Conservation District	12/28/2015	Submitted and approved as part of stormwater permit.
Sewer Connection Permit	Birdsboro Municipal Authority	TBD	TBD
Industrial Wastewater Discharge Permit	Birdsboro Municipal Authority	TBD	TBD
Water Line Extension and Water Supply Agreement	Reading Area Water Authority	TBD	TBD
Wastewater Services Agreement	Birdsboro Municipal Authority	TBD	TBD
Backup Water Supply Agreement	Birdsboro Municipal Authority	TBD	TBD
Demolition Permit	Borough of Birdsboro	TBD	TBD
Building Permits	Borough of Birdsboro	TBD	TBD
Certificate of Occupancy	Borough of Birdsboro	TBD	TBD

Draft Resource Report No. 10

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gai consultants

Federal Energy Regulatory Commission
Draft Resource Report 10

DTE Midstream Appalachia, LLC
Docket No. PF17-1-000
Birdsboro Pipeline Project
Berks County, Pennsylvania

GAI Project Number: C161040.00, Task 002
November 2016

Pre-filing Draft

PUBLIC INFORMATION

Prepared by: GAI Consultants, Inc.
Pittsburgh Office
385 East Waterfront Drive
Homestead, Pennsylvania 15120-5005

Prepared for: DTE Midstream Appalachia, LLC
333 Technology Drive, Suite 109
Canonsburg, PA 15317

RESOURCE REPORT TEN - ALTERNATIVES	
SUMMARY OF COMMISSION FILING INFORMATION	
Information	**Found in**
1. Address the "no action" alternative. (§380.12(l)(1))	Section 10.1
2. For large projects, address the effect of energy conservation or energy alternatives to the Project. (§380.12(l)(1))	Not Applicable.
3. Identify system alternatives considered during the identification of the Project and provide the rationale for rejecting each alternative. (§380.12(l)(1))	Section 10.2
4. Identify major and minor route alternatives considered to avoid impact to sensitive environmental areas (e.g., wetlands, parks, or residences) and provide sufficient comparative data to justify the selection of the proposed route. (§380.12(l)(3))	Section 10.3
5. Identify alternative sites considered for the location of major new aboveground facilities and provide sufficient comparative data to justify the selection of the proposed site. (§380.12(l)(3))	Section 10.4
INFORMATION RECOMMENDED OR OFTEN MISSING	
1. Ensure that project objectives that serve as the basis for evaluating alternatives are consistent with the purpose and need discussion in Resource Report 1.	Section 10.2, Section 10.3, and Section 10.4
2. Identify and Evaluate alternatives identified by stakeholders.	Section 10.4.2
3. Clearly identify and compare the corresponding segments of route alternatives and route variations to the segments of the proposed route that they would replace if adopted.	Not Applicable.

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Figure 10.4-1 Major Route Alternatives Map
Figure 10.4-2 Route Variations Map

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Acronyms and Abbreviations

Commission	Federal Energy Regulatory Commission
DTE	DTE Midstream Appalachia, LLC
HDD	Horizontal Directional Drilling
PA	Pennsylvania
Project	Birdsboro Pipeline Project
PEM	palustrine emergent
PFO	palustrine forested
PSS	palustrine scrub-shrub
TETCO	Texas Eastern Transmission Company

Resource Report 10.0: Alternatives

10.1 Introduction

DTE Midstream Appalachia, LLC (DTE) is applying to the Federal Energy Regulatory Commission (Commission) for a Certificate of Public Convenience and Necessity under Section 7(c) of the Natural Gas Act for authorization to construct and operate the proposed Birdsboro Pipeline Project (Project) in Berks County, Pennsylvania (PA). The Project involves the proposed installation of approximately 14 miles of new up to 16-inch-diameter natural gas pipeline (to be designated Birdsboro Pipeline upon being placed in service), extending from a receipt point on Texas Eastern Transmission Company's (TETCO) pipeline in Rockland Township, Berks County, PA to a delivery point in the Borough of Birdsboro, Berks County, PA. The overall design capacity of the pipeline is expected to be 79,000 dekatherms per day. No compression will be required. The Project will also include the construction of minor aboveground facilities.

10.2 No-Action Alternative

The No-Action Alternative would not entail the construction of any new facilities and would not meet the purpose and need of the Project, which is to provide natural gas service to the Birdsboro Facility. While the No-Action Alternative would eliminate impacts to the environment from the Project, this alternative was not found to be feasible since it did not satisfy the purpose of providing the transportation service needed to supply natural gas to the Birdsboro Facility.

10.3 System Alternatives

Obtaining the natural gas required to run the Birdsboro Facility could not occur through the use of the local utility as it does not have sufficient resources. Additionally, no natural gas transmission pipelines currently serve the Birdsboro Facility or immediate area and DTE does not currently operate any pipelines within the Project vicinity. To provide natural gas to the Birdsboro Facility to facilitate its operation, DTE or another natural gas transmission company would be required to construct equivalent new facilities. The TETCO pipeline interconnect was chosen for its proximity to the Birdsboro Facility and DTE believes the route chosen is representative of the most direct and environmentally sound option, as further supported by the route alternatives discussed below. No viable System Alternatives (equivalent to the proposed system) either exist or are proposed at this time.

10.4 Route Alternatives

Prior to determining the Proposed Route, three route alternatives were considered based on constructability, cultural, environmental, economic, landowner concerns, and other technical considerations. These routes are shown on Figure 10.4-1, Major Route Alternatives.

10.4.1 Major Route Alternatives

10.4.1.1 Alternative One

Alternative One was considered due to the potential to follow an existing powerline right-of-way and parallel a railroad on the southern portion of the route. The horizontal directional drill (HDD) across the Schuykill River for Alternative One would be to the east of the HDD location for the Proposed Route. After the Schuykill River crossing, Alternative One turns west into Exeter Township while the Proposed Route continues north into Amity Township. Alternative One turns to the north near Lincoln Road and continues northward. Alternative One briefly parallels the Proposed Route at the intersection of Oley and Amity Townships for approximately 1.4 miles, crosses over the Proposed Route in several locations through Oley Township, and travels northward in the general direction of the Proposed Route to an interconnect on the TETCO pipeline west of the Proposed Route interconnect in Rockland

Township, Berks County. The total length of pipeline would be approximately 15.06 miles. Alternative One is not preferred because it would be approximately one-mile longer than the Proposed Route and is expected to result in greater impacts as a result of construction and operation. Alternative One would pass through a densely populated area of Stonetown near the southern end. Alternative One would also parallel the Schuykill River for approximately 2.2 miles at an approximate 150-foot offset for the majority of the paralleled portion. Additionally, the Alternative One crossing of U.S. Route 422 (Benjamin Franklin Highway) was not considered to be optimum from a construction standpoint due to crossing length.

10.4.1.2 Alternative Two

Alternative Two was considered to avoid paralleling the Schuykill River and instead travel directly north from the HDD. The HDD across the Schuykill River would be to the east of the HDD location for the Proposed Route and would follow the same route as Alternative One. After the Schuykill River Crossing, instead of turning west like Alternative One, Alternative Two would continue north into Amity Township to the west of the Proposed Route and to the east of Alternative One. Alternative Two would follow the same route as Alternative One for the northern portion of the route to the interconnect. The total length of pipeline would be approximately 11.95 miles. Alternative Two would be approximately 2.05 miles shorter than the Proposed Route; however, Alternative Two is not the preferred route because Alternative Two would result in greater cultural impacts. Alternative Two would cross the historic Daniel Boone homestead at the southern end. Additionally, the location of the crossing of U.S. Route 422 was not considered to be optimum from a construction standpoint due to crossing length.

10.4.1.3 Alternative Three

Alternative Three was considered to avoid the historic Daniel Boone homestead. The HDD across the Schuykill River would be approximately 0.4-mile to the east of the HDD location for the Proposed Route. After the Schuykill River Crossing, Alternative Three would continue northward to the east of the Proposed Route, cross over the Proposed Route, and would overlap with Alternative Two for approximately 0.5-mile before following the same route as Alternatives One and Two for approximately 2.5 miles. Alternative Three would continue northward at an approximate one-mile to 1.5-mile offset to the east of the Proposed Route for approximately three miles before connecting with the TETCO pipeline just south of Boyer Road in Pike Township, Berks County. The total length of pipeline would be approximately 12.03 miles. Alternative Three would be approximately two miles shorter than the Proposed Route, however, Alternative Three is not preferred due to landowner's request. The location of the HDD was moved to the west upon landowner request, which is shown in the Proposed Route on Figure 10.4-1, Major Route Alternatives. Additionally, the TETCO pipeline interconnect location was not considered conducive for a meter station from a landowner and access standpoint.

10.4.1.4 Proposed Route

The Proposed Route was chosen to avoid cultural resources to the extent practicable, avoid paralleling the Schuykill River and take into consideration landowner requests. The Proposed Route originates at the Birdsboro Facility, travels east and then north of Armorcrast Road in Birdsboro Township. All three alternatives and the Proposed Route cross the Conrail railroad and the Schuykill River via an HDD. Following the HDD, the Proposed Route travels east while Alternatives One and Three travel directly north and Alternative Two travels west. The Proposed Route continues north through Amity Township into Oley Township. The Proposed Route connects with the TETCO pipeline just north of Water Street in Rockland Township, Berks County.

10.4.2 Route Variations

A route variation would include small adjustments to avoid minor concerns and impacts such as topography, environmental features, landowner requests, and manmade features. Because route variations are considered to resolve localized resource issues (e.g., wetlands, residence, cultural resource sites), they are normally much shorter than route alternatives. The route variations reviewed for the Project are shown on Figure 10.4-2, Route Variations Map, and described below.

10.4.2.1 Route Variation 1

Route Variation 1 was adjusted in order to avoid impacts to palustrine forested (PFO) Wetland 1 adjacent to the Birdsboro Facility. The route adjustment is offset to the northwest by approximately 400 feet (at its widest point) and does not impact streams or wetlands.

10.4.2.2 Route Variation 2

Route Variation 2 was adjusted in order to minimize impacts to palustrine scrub-shrub (PSS) wetland MB12. The route adjustment is offset to the east by approximately 140 feet (at its widest point) and continues for approximately 1,150 feet. The route adjustment crosses palustrine emergent (PEM) wetlands MB12 and MB16 for approximately 40 feet, but reduces the length of the PSS wetland crossing from approximately 110 feet to approximately 40 feet.

10.4.2.3 Route Variation 3

Route Variation 3 was adjusted because of constructability issues and to minimize impact to the wetland. Route Variation 10 had a sharp right angle turn within the PFO portion of wetland KL1. At its widest offset, the adjustment is approximately 215 feet to the southwest and minimizes the length of the wetland crossing by approximately 150 feet.

10.4.2.4 Route Variation 4

Route Variation 4 was adjusted in order to avoid parallel impacts to perennial stream MB29. The route adjustment crosses the stream perpendicularly, decreasing impacts to the stream. The route is offset to the west by approximately 80 feet and continues for approximately 800 feet.

10.4.2.5 Route Variation 5

Route Variation 5 was adjusted in order to avoid impacts to PFO wetlands MB31 and MB33, and PSS wetland MB32. The route was adjusted to be approximately 210 feet to the east (at its widest point) and continues for approximately 950 feet. The route adjustment will not impact wetlands or streams.

10.4.2.6 Route Variation 6

Route Variation 6 was adjusted in order to avoid impacts to PFO wetland LP1. The route was offset approximately 190 feet to the east (at its widest point) and continues for approximately 900 feet. The route adjustment will not impact wetlands or streams.

10.4.2.7 Route Variation 7

Route Variation 7 was adjusted in this location in order to minimize impacts to PFO wetland LP2. The adjustment is approximately 240 feet to the east and continues for approximately 750 feet. The crossing length of wetland LP2 was decreased from approximately 380 feet to 120 feet.

10.4.2.8 Route Variation 8

Route Variation 8 was adjusted in this location in order to minimize impacts to PEM wetland BR2. The route was moved approximately 270 feet to the west (at its widest offset) and continues for approximately 1,220 feet, decreasing the length of the wetland crossed from approximately 47 feet to 14 feet.

10.4.2.9 Route Variation 9

Route Variation 9 was adjusted in this location per the landowner's request. The landowner may extend their quarry operation in the future. In order to work with the landowner, DTE adjusted the route to the edge of the landowner's property. The route adjustment will not impact wetlands or streams.

10.4.2.10 Route Variation 10

Route Variation 10 was adjusted to avoid tree clearing in critical Indiana bat (*Myotis sodalis*) maternity roosting habitat. The route was offset from Route Variation 10 approximately 75 feet to the northeast and continues for approximately 2,300 feet. The route adjustment also avoids several PFO wetland complexes and a rare plant to the southeast.

10.4.2.11 Route Variation 11

Route Variation 11 was the original adjustment to avoid the wetland crossed by Route Variation 12. However, upon field review, Route Variation 11 would cross a wetland for approximately 620 feet. The route was adjusted in order to cross the wetland further southeast where the wetland crossing length is approximately 210 feet. The wetland is proposed to be crossed via HDD, therefore no impact is anticipated.

10.4.2.12 Route Variation 12

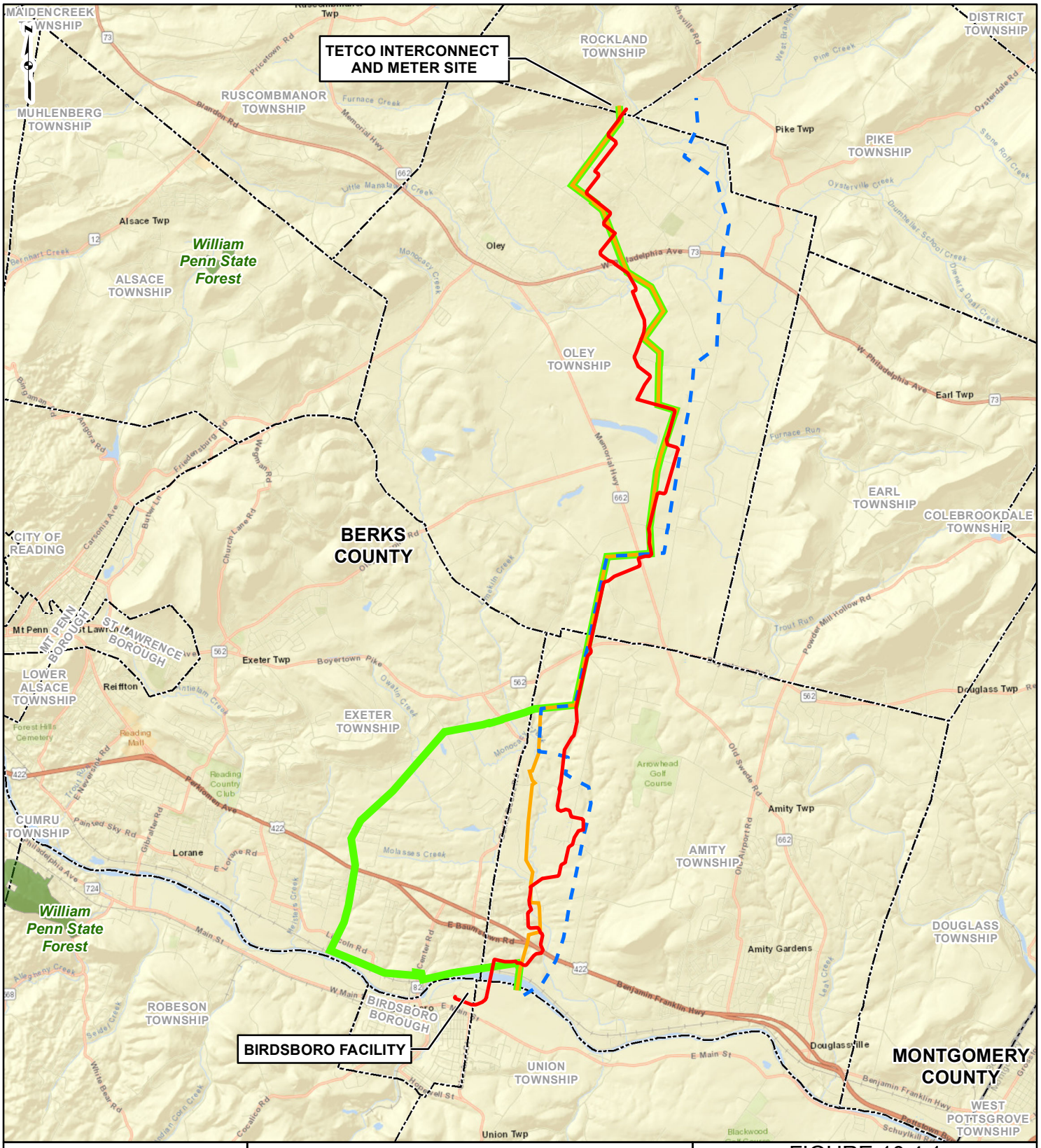
Route Variation 12 travels northwest for approximately 1,000 feet, then turns generally northeast for approximately 1,000 feet before intersecting the proposed route. Route Variation 12 was not considered viable upon completion of the wetland delineation fieldwork. The variation was eliminated in favor of a route that minimizes impacts to delineated wetlands by crossing the resource perpendicularly at the narrowest practicable point.

DTE will continue to review its route for engineering constraints and make necessary minor route deviations as needed. Likewise, if minor route deviations are suggested by landowners or regulatory agencies, DTE will consider these requests as the Proposed Route is further refined. Evaluation of requested deviations will be ongoing and tracked. Deviations reviewed and either approved or denied, as well as descriptions of these deviations will be provided in a revised Resource Report 10 to be submitted in a subsequent filing of the Environmental Report.

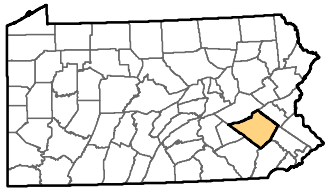
10.5 Alternative Sites

No major aboveground facilities are proposed as part of this Project. If based on landowner feedback and/or civil survey the proposed locations are revised, DTE will provide an update in a subsequent filing.

FIGURES



PROJECT LOCATION



BERKS COUNTY, PENNSYLVANIA

LEGEND

- PROPOSED ROUTE
- ALTERNATIVE 1
- ALTERNATIVE 2
- ALTERNATIVE 3
- MUNICIPAL BOUNDARY
- COUNTY BOUNDARY

0 0.75 1.5 3 Miles

FIGURE 10.4.1
MAJOR ROUTE ALTERNATIVES MAP

BIRDSBORO PIPELINE PROJECT
DTE MIDSTREAM APPALACHIA, LLC

gai consultants

DTE Energy

DRAWN BY: SWW DATE: 11/22/2016
CHECKED: MDO APPROVED: AML

REFERENCE: WORLD STREETMAP, OBTAINED THROUGH ESRI ARCGIS ONLINE, © 2012 ESRI, DELORME, NAVTEQ, TOMTOM, ACCESSED 11/2016. STATE FORESTS, PA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES (PADCNR), 2015.

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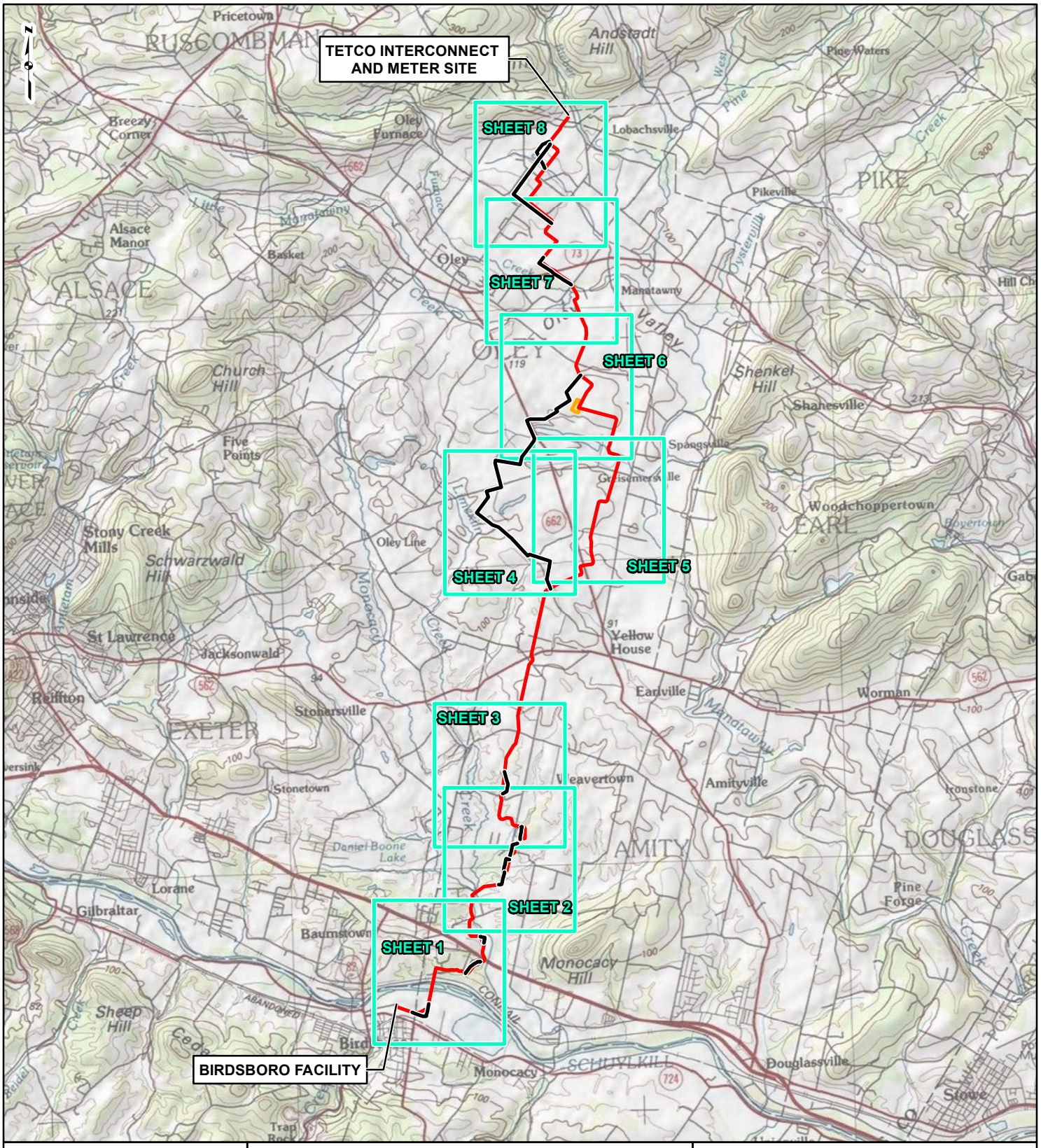

FIGURE 10.4-2
ROUTE VARIATIONS MAP SHEET INDEX

BIRDSBORO PIPELINE PROJECT
DTE MIDSTREAM APPALACHIA, LLC

gai consultants

DTE Energy

DRAWN BY: SWW DATE: 11/22/2016
CHECKED: EFJ APPROVED: AML

REFERENCE: USGS 30'X60' TOPOGRAPHIC QUADRANGLE: READING (1986), PENNSYLVANIA, OBTAINED THROUGH ESRI USA TOPO MAPS, NATIONAL GEOGRAPHIC TOPO AND USGS, ACCESSED 11/2016.

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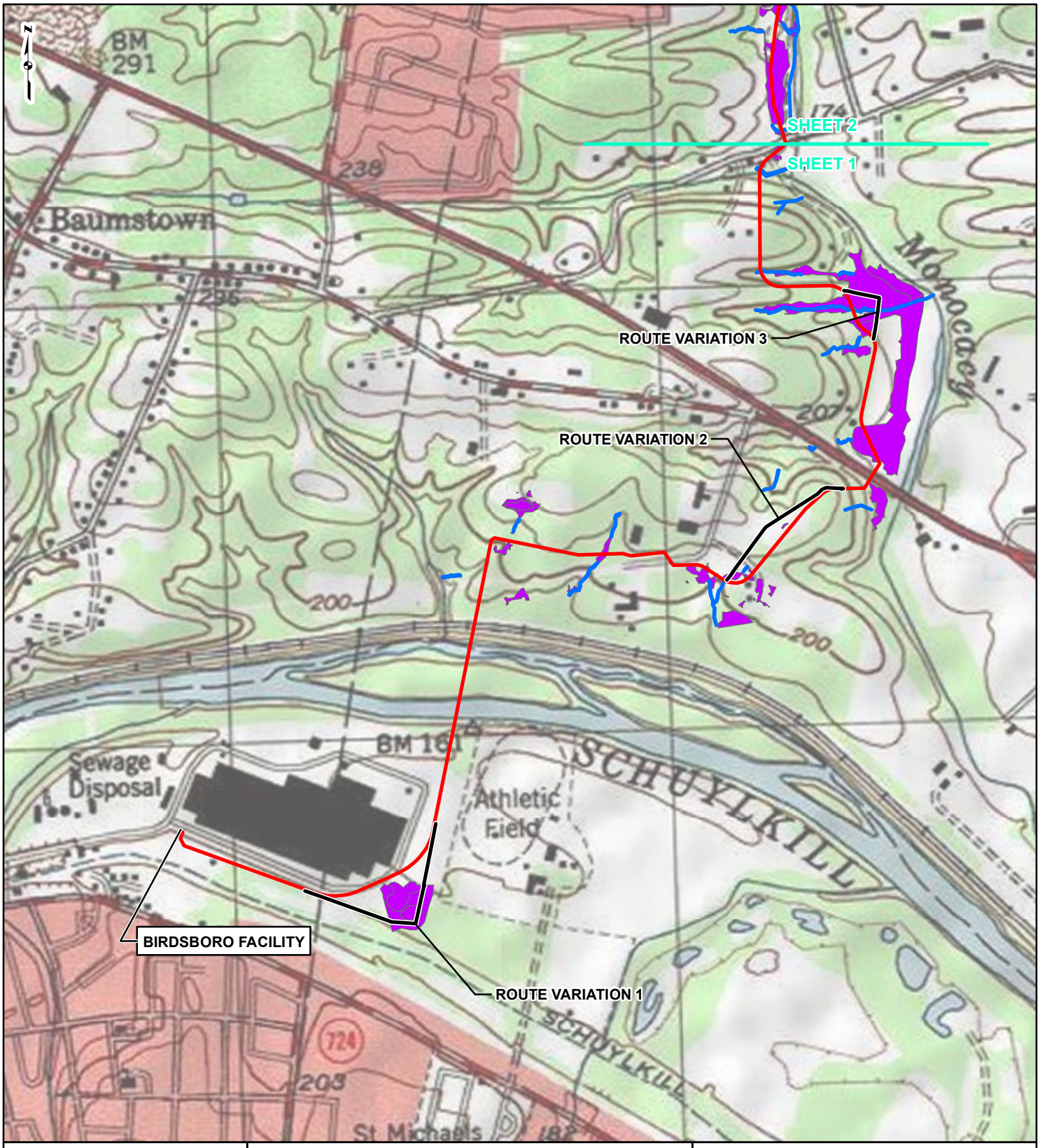
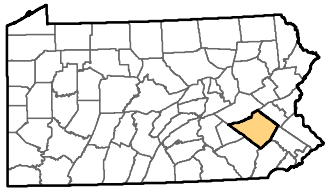


PROJECT LOCATION



BERKS COUNTY, PENNSYLVANIA

LEGEND

- PROPOSED PIPELINE
- ROUTE VARIATION
- STREAM
- CONSTRUCTION YARD
- WETLAND

0 500 1,000 2,000 Feet

FIGURE 10.4-2
ROUTE VARIATIONS MAP
SHEET 1 OF 8

BIRDSBORO PIPELINE PROJECT
DTE MIDSTREAM APPALACHIA, LLC

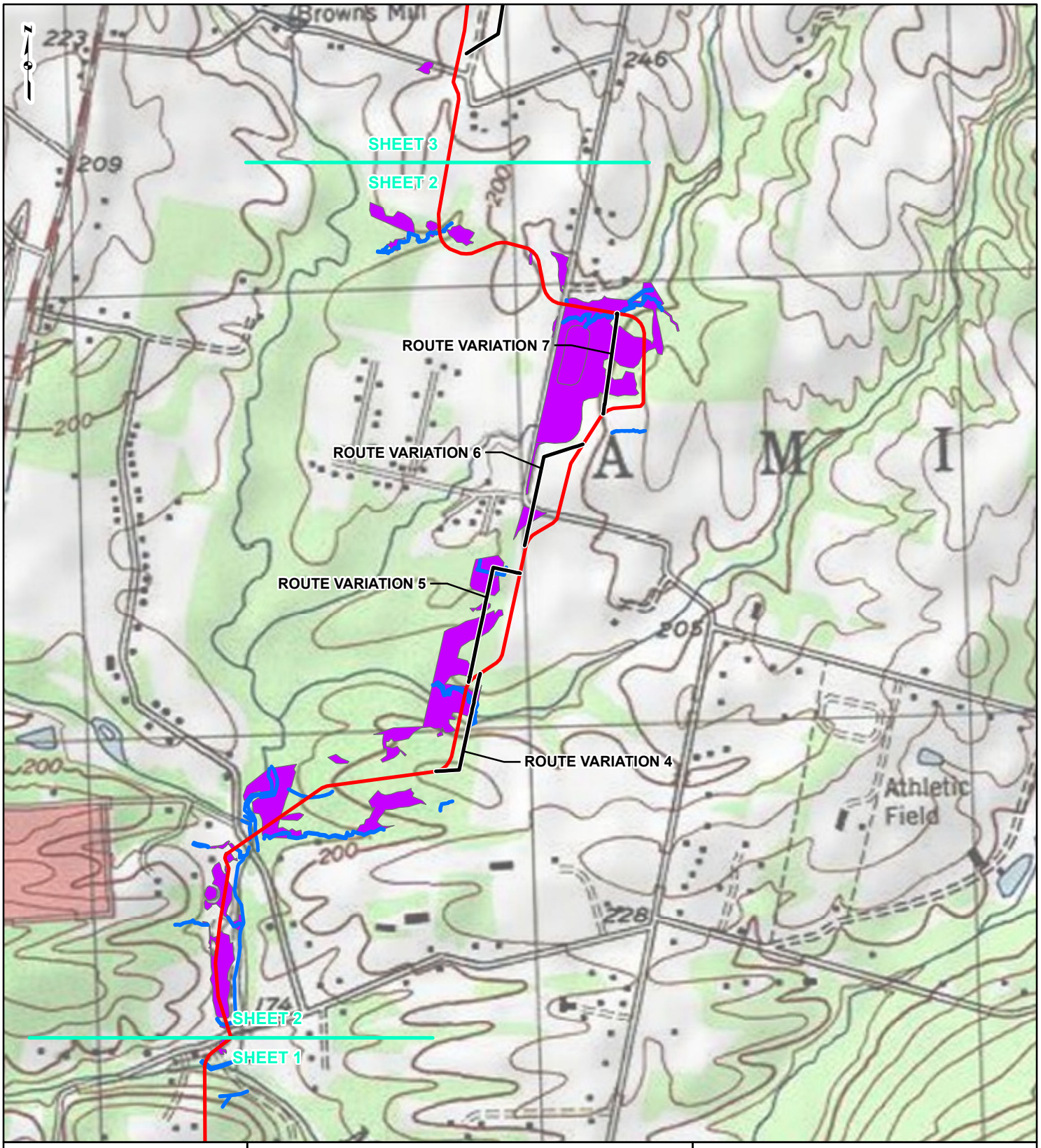
gai consultants

DTE Energy

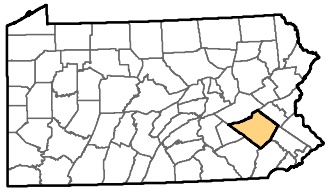
DRAWN BY: SWW DATE: 11/22/2016
CHECKED: EFJ APPROVED: AML

REFERENCE: USGS 7.5' TOPOGRAPHIC QUADRANGLES: BIRDSBORO (1984), BOYERTOWN (1975), FLEETWOOD (1978), AND MANATAWNY (1975), PENNSYLVANIA, OBTAINED THROUGH ESRI USA TOPO MAPS, NATIONAL GEOGRAPHIC TOPO AND USGS, ACCESSED 11/2016.

Z:\Energy\2016\C161040.00 - DTE FERC Support- Birdsbo\GIS\MXD\FERC\ROUTE_VARIATION_MAP_2016_11_18.mxd



PROJECT LOCATION



BERKS COUNTY, PENNSYLVANIA

LEGEND

- PROPOSED PIPELINE
- ROUTE VARIATION
- STREAM
- CONSTRUCTION YARD
- WETLAND

0 500 1,000 2,000 Feet

FIGURE 10.4-2
ROUTE VARIATIONS MAP
SHEET 2 OF 8

BIRDSBORO PIPELINE PROJECT
DTE MIDSTREAM APPALACHIA, LLC

gai consultants

DTE Energy

DRAWN BY: SWW DATE: 11/22/2016
CHECKED: EFJ APPROVED: AML

REFERENCE: USGS 7.5' TOPOGRAPHIC QUADRANGLES: BIRDSBORO (1984), BOYERTOWN (1975), FLEETWOOD (1978), AND MANATAWNY (1975), PENNSYLVANIA, OBTAINED THROUGH ESRI USA TOPO MAPS, NATIONAL GEOGRAPHIC TOPO AND USGS, ACCESSED 11/2016.

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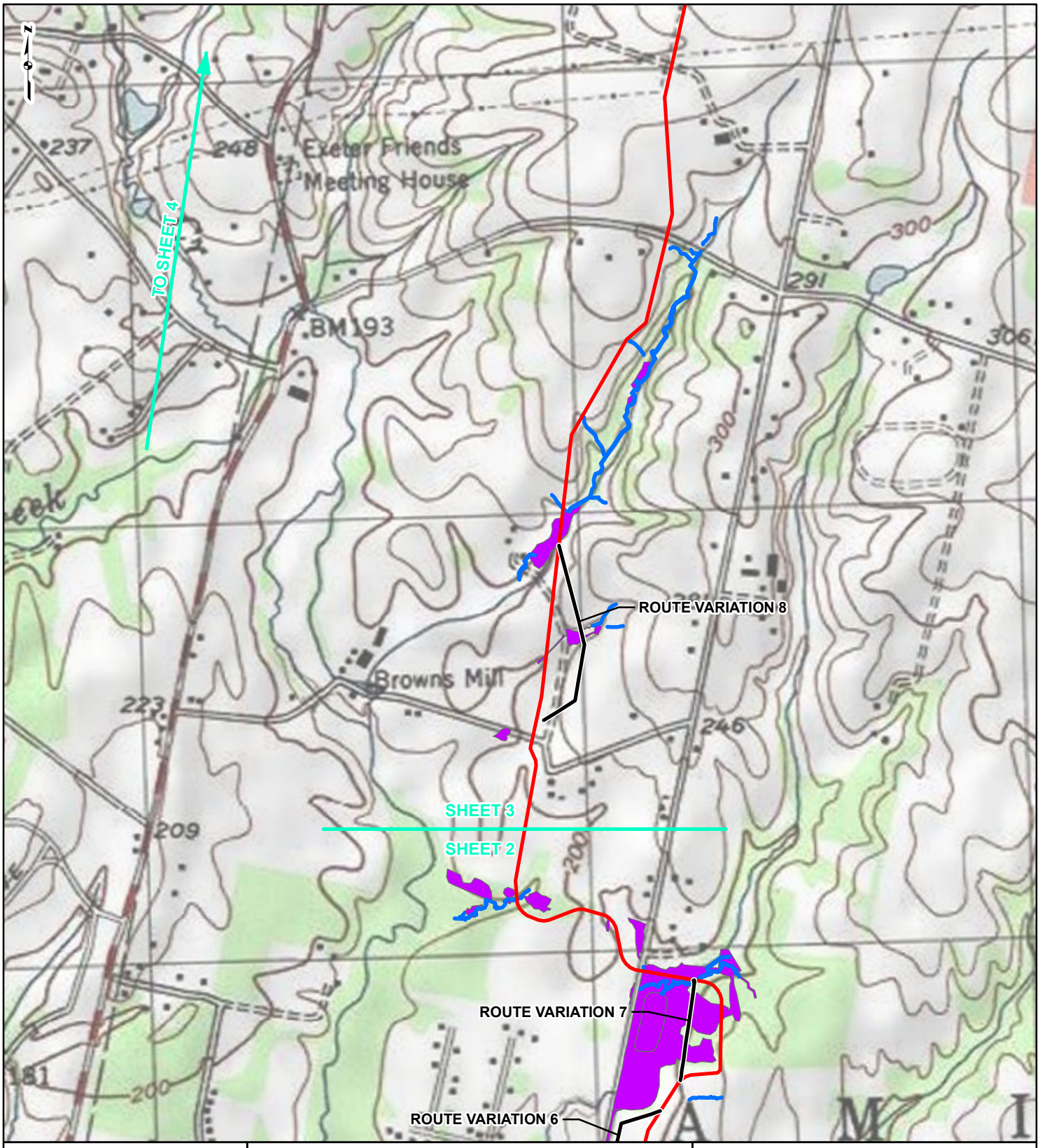

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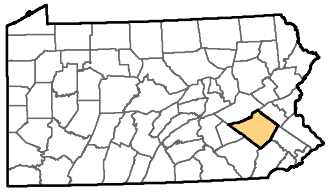

BERKS COUNTY, PENNSYLVANIA

LEGEND

- PROPOSED PIPELINE
- ROUTE VARIATION
- STREAM
- CONSTRUCTION YARD
- WETLAND

0 500 1,000 2,000 Feet

FIGURE 10.4-2
ROUTE VARIATIONS MAP
SHEET 3 OF 8

BIRDSBORO PIPELINE PROJECT
DTE MIDSTREAM APPALACHIA, LLC

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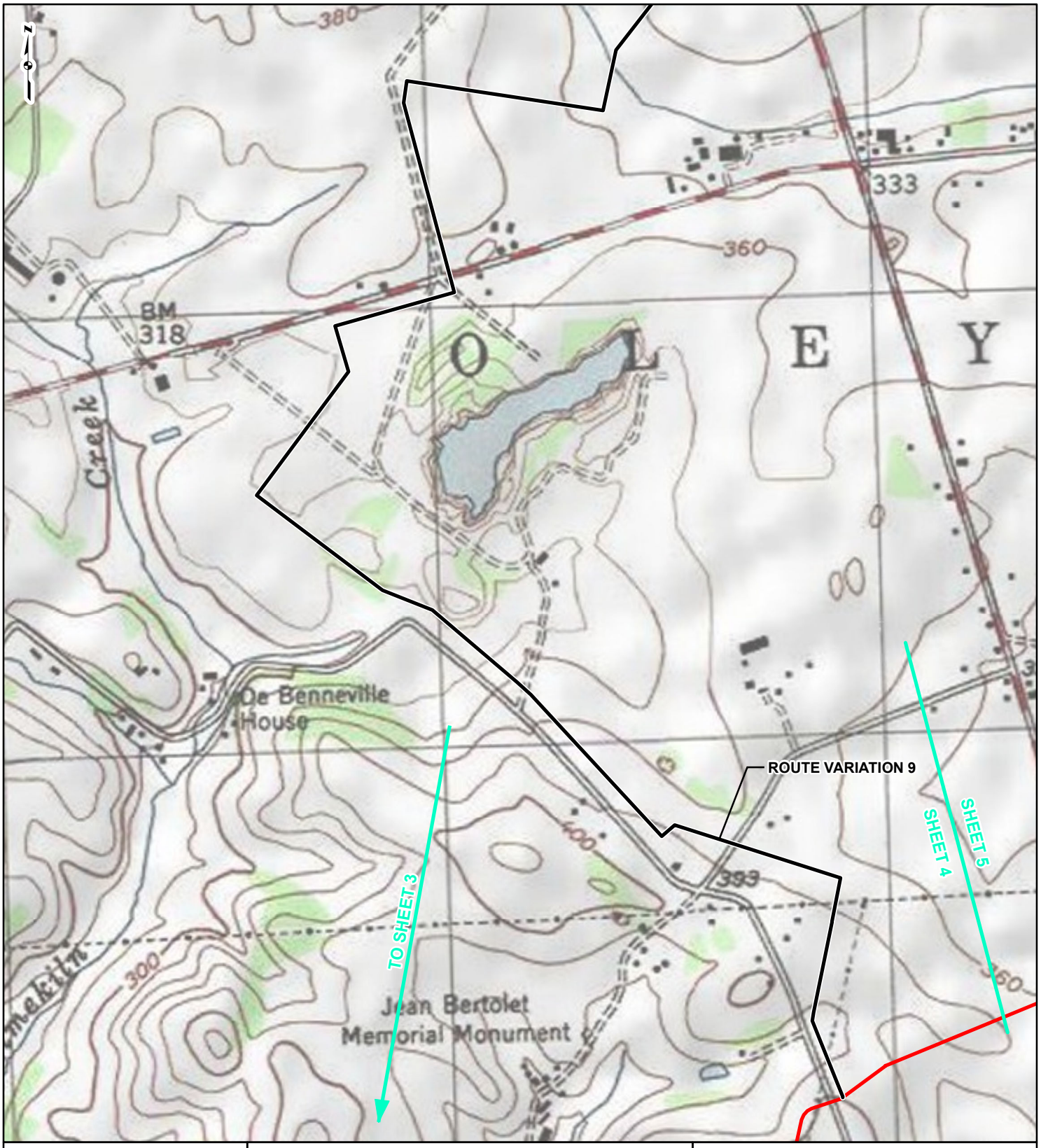

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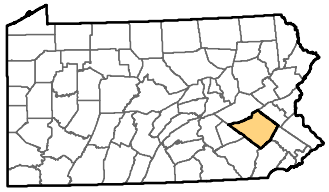

BERKS COUNTY, PENNSYLVANIA

LEGEND

- PROPOSED PIPELINE
- ROUTE VARIATION
- STREAM
- CONSTRUCTION YARD
- WETLAND

0 500 1,000 2,000 Feet

FIGURE 10.4-2
ROUTE VARIATIONS MAP
SHEET 4 OF 8

BIRDSBORO PIPELINE PROJECT
DTE MIDSTREAM APPALACHIA, LLC

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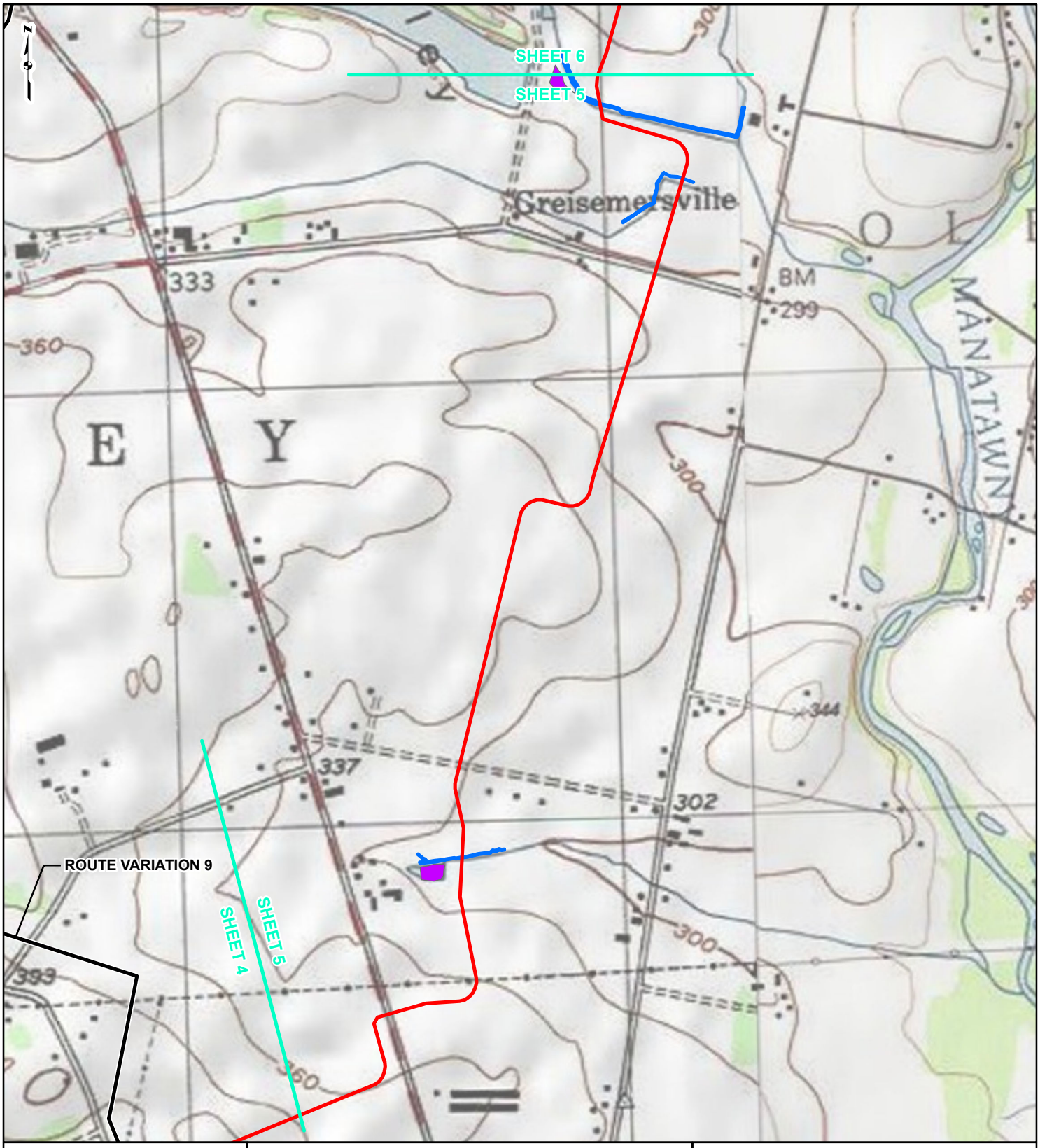

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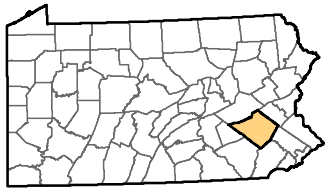

BERKS COUNTY, PENNSYLVANIA

LEGEND

- PROPOSED PIPELINE
- ROUTE VARIATION
- STREAM
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- WETLAND

0 500 1,000 2,000 Feet

FIGURE 10.4-2
ROUTE VARIATIONS MAP
SHEET 5 OF 8

BIRDSBORO PIPELINE PROJECT
DTE MIDSTREAM APPALACHIA, LLC

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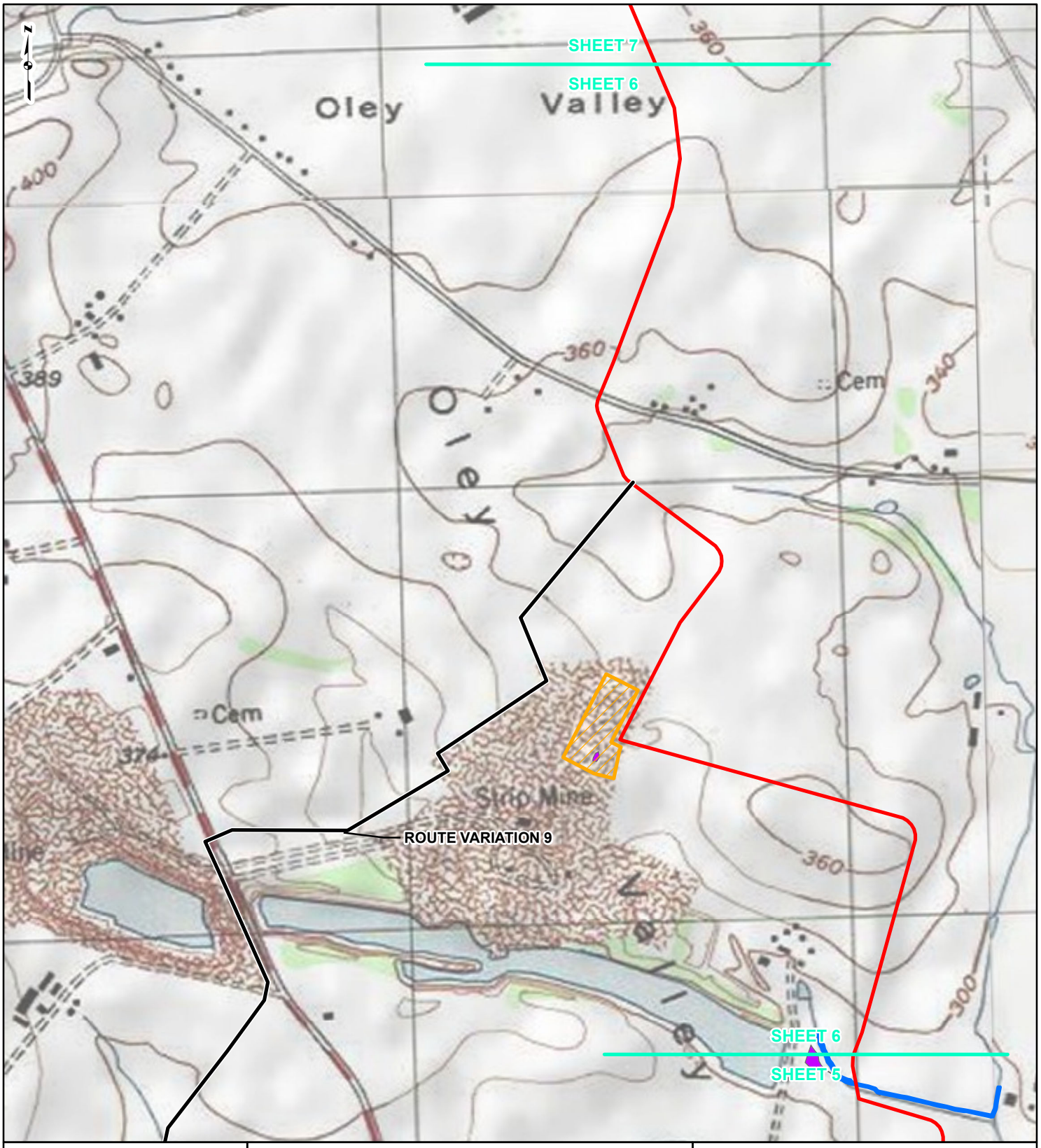

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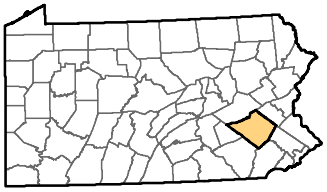

BERKS COUNTY, PENNSYLVANIA

LEGEND

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- ROUTE VARIATION
- STREAM
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- WETLAND

0 500 1,000 2,000 Feet

FIGURE 10.4-2
ROUTE VARIATIONS MAP
SHEET 6 OF 8

BIRDSBORO PIPELINE PROJECT
DTE MIDSTREAM APPALACHIA, LLC

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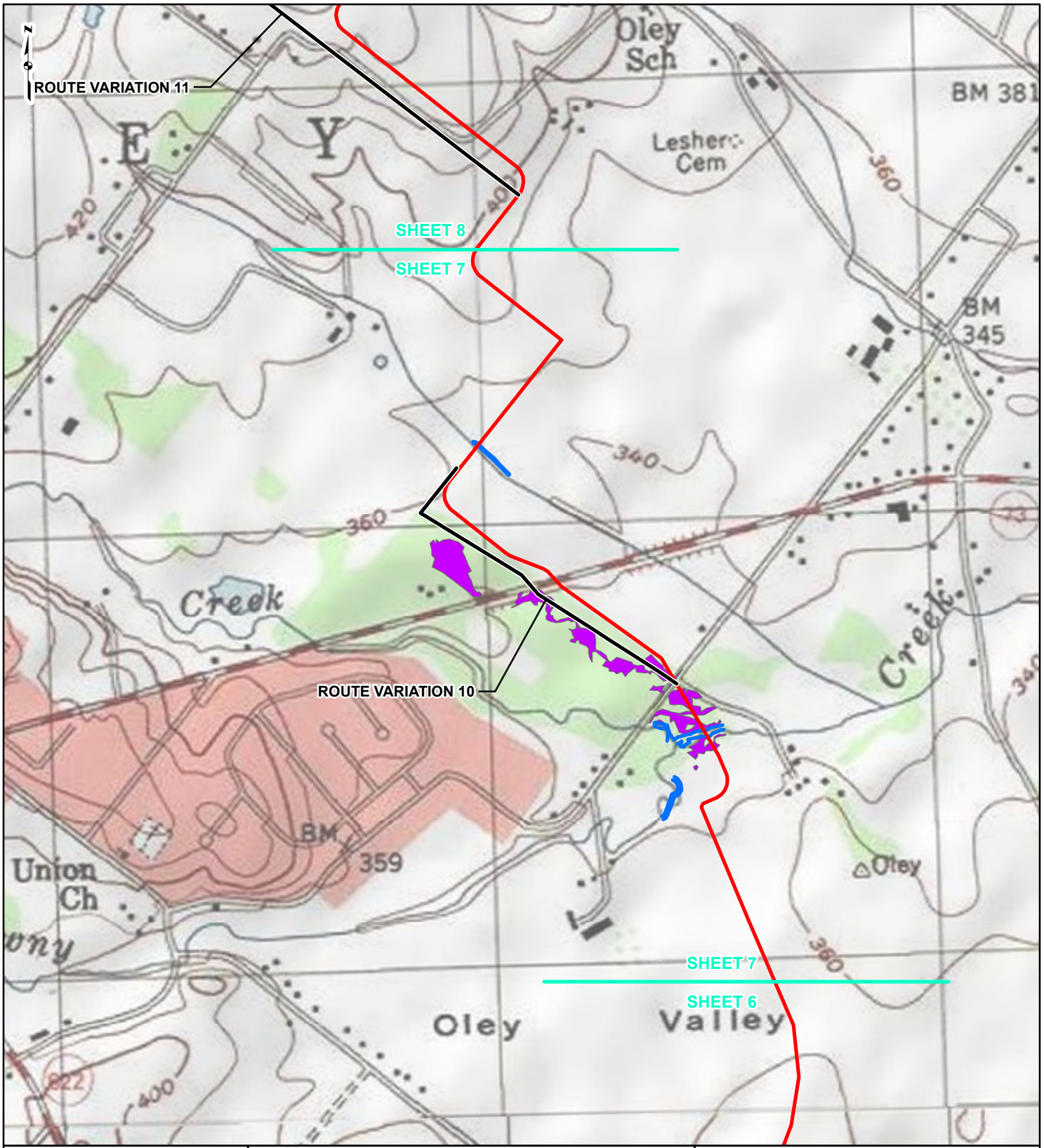

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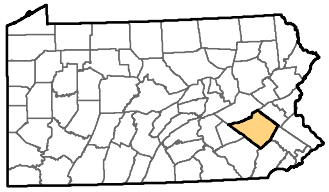

BERKS COUNTY, PENNSYLVANIA

LEGEND

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FIGURE 10.4-2
ROUTE VARIATIONS MAP
SHEET 7 OF 8

BIRDSBORO PIPELINE PROJECT
DTE MIDSTREAM APPALACHIA, LLC

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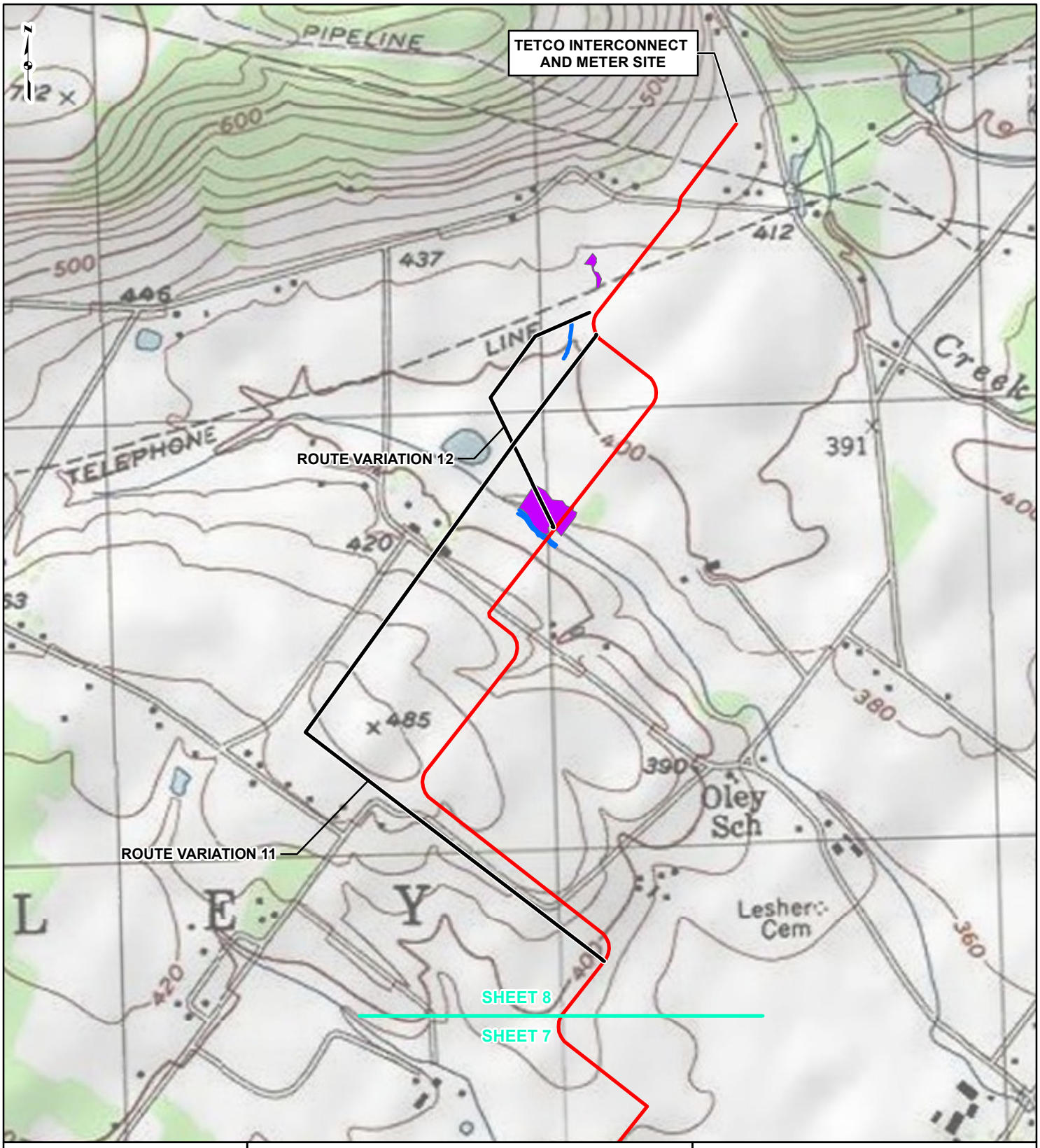

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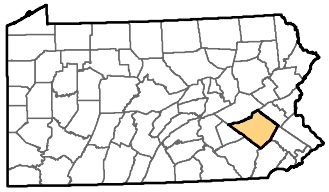

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FIGURE 10.4-2
ROUTE VARIATIONS MAP
SHEET 8 OF 8

BIRDSBORO PIPELINE PROJECT
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