Federal Energy Regulatory Commission

**Office of Energy Projects**

**June 2018**

**RH energytrans, LLC**

**Docket No. CP18-6-000**

# Risberg Line Project

## Environmental Assessment

Cooperating Agencies

US Army Corps of Engineers

PENNSYLVANIA FISH & BOAT COMMISSION

Washington, DC 20426

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, DC 20426

OFFICE OF ENERGY PROJECTS

In Reply Refer To:
OEP/DG2E/Gas 2
RH energytrans, LLC
Docket No. CP18-6-000

TO THE PARTY ADDRESSED:

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared an environmental assessment (EA) for the Risberg Line Project proposed by RH energytrans, LLC (RH) in the above-referenced docket. RH requests authorization to construct, modify, own, operate, and maintain natural gas facilities in Pennsylvania and Ohio to provide 55,000 dekatherms per day of firm natural gas transportation service.

The EA assesses the potential environmental effects of the construction and operation of the Risberg Line Project in accordance with the requirements of the National Environmental Policy Act (NEPA). The FERC staff concludes that approval of the proposed Project, with appropriate mitigating measures, would not constitute a major federal action significantly affecting the quality of the natural and human environment.

The U.S. Army Corps of Engineers and the Pennsylvania Fish and Boat Commission participated as cooperating agencies in the preparation of the EA. Cooperating agencies have jurisdiction by law or special expertise with respect to resources potentially affected by the proposal and participate in the NEPA analysis. The U.S. Army Corps of Engineers will adopt the EA to fulfill their agency's NEPA obligations and will use the EA and supporting documentation to consider the issuance of Clean Water Act Section 404 and Rivers and Harbors Act Section 10 permits.

The Risberg Line Project would consist of the following actions in Pennsylvania:

- minor modifications at the existing County Line Compressor Station in Erie County;
- installation of compression (approximately 728 horsepower, natural gas-fired), receipt metering, and appurtenant facilities at the existing (currently vacant) Meadville Compressor Station site in Crawford County;
- re-certification and use of an existing 12-inch-diameter pipeline extending 26.6 miles from the Meadville Compressor Station north to an existing valve set in Washington Township, Erie County, including construction of a new launcher/receiver;

- next to the Meadville Compressor Station, construction of a 650-foot lateral within the existing 12-inch-diameter pipeline right-of-way to move gas from the Tennessee Gas Pipeline Company, LLC system to the existing pipeline; and
- re-certification and use of a portion of an existing 8-inch-diameter pipeline extending from the 12-inch valve set west about 5.0 miles to a point in Elk Creek Township, Erie County (Line 10257), including construction of two new launcher/receivers.

In Pennsylvania and Ohio, the Project would include:

- construction of 28.3 miles of new 12-inch-diameter pipeline from the west end of the recertified 8-inch-diameter pipeline to connect with Dominion Energy Ohio facilities located in North Kingsville, Ashtabula County, Ohio (Risberg Pipeline). The pipeline would be constructed in new right-of-way and include launcher/receiver facilities and mainline valves; and
- construction of a new meter station at the terminus of the new pipeline in North Kingsville, Ashtabula County, Ohio.

The FERC staff mailed copies of the EA to federal, state, and local government representatives and agencies; elected officials; environmental and public interest groups; Native American tribes; potentially affected landowners and other interested individuals and groups; and newspapers and libraries in the Project area. In addition, the EA is available for public viewing on FERC's website (www.ferc.gov) using the eLibrary link. A limited number of copies of the EA are available for distribution and public inspection at:

Federal Energy Regulatory Commission
Public Reference Room
888 First Street NE, Room 2A
Washington, DC 20426
(202) 502-8371

Any person wishing to comment on the EA may do so. Your comments should focus on the potential environmental effects, reasonable alternatives, and measures to avoid or lessen environmental impacts. The more specific your comments, the more useful they will be. To ensure that the Commission has the opportunity to consider your comments prior to making its decision on this Project, it is important that we receive your comments in Washington, DC on or before 5:00 pm Eastern Time on **July 30, 2018**.

For your convenience, there are three methods you can use to file your comments with the Commission. In all instances please reference the Project docket number (CP18-6-000) with your submission. The Commission encourages electronic filing of comments and has staff available to assist you at (866) 208-3676 or FercOnlineSupport@ferc.gov.

(1) You can file your comments electronically using the eComment feature located on the Commission's website (www.ferc.gov) under the link to Documents and Filings. Using eComment is an easy method for submitting brief, text-only comments on a project;

(2) You can also file your comments electronically using the eFiling feature on the Commission's website (www.ferc.gov) under the link to Documents and Filings. With eFiling, you can provide comments in a variety of formats by attaching them as a file with your submission. New eFiling users must first create an account by clicking on "eRegister." You must select the type of filing you are making. A comment on a particular project is considered a "Comment on a Filing"; or

(3) You can file a paper copy of your comments by mailing them to the following address:

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, DC 20426

Any person seeking to become a party to the proceeding must file a motion to intervene pursuant to Rule 214 of the Commission's Rules of Practice and Procedures (18 CFR 385.214). Only intervenors have the right to seek rehearing or judicial review of the Commission's decision. The Commission grants affected landowners and others with environmental concerns intervenor status upon showing good cause by stating that they have a clear and direct interest in this proceeding which no other party can adequately represent. **Simply filing environmental comments will not give you intervenor status, but you do not need intervenor status to have your comments considered.**

Additional information about the Project is available from the Commission's Office of External Affairs, at **(866) 208-FERC,** or on the FERC website (www.ferc.gov) using the eLibrary link. Click on the eLibrary link, click on "General Search," and enter the docket number in the "Docket Number" field, excluding the last three digits (i.e., CP18-6). Be sure you have selected an appropriate date range. For assistance, please contact FERC Online Support at FercOnlineSupport@ferc.gov or toll free at (866) 208-3676, or for TTY, contact (202) 502-8659. The eLibrary link also provides access to the texts of all formal documents issued by the Commission, such as orders, notices, and rulemakings.

In addition, the Commission offers a free service called eSubscription, which allows you to keep track of all formal issuances and submittals in specific dockets. This can reduce the amount of time you spend researching proceedings by automatically providing you with notification of these filings, document summaries, and direct links to the documents. Go to www.ferc.gov/docs-filing/esubscription.asp.

# TABLE OF CONTENTS


SECTION A – PROPOSED ACTION ..... 1
1.0 INTRODUCTION ..... 1
1.1 Federal Energy Regulatory Commission ..... 1
1.2 U.S. Army Corps of Engineers ..... 2
1.3 Pennsylvania Fish and Boat Commission ..... 2
2.0 PROJECT PURPOSE AND NEED ..... 3
3.0 PROPOSED FACILITIES ..... 3
3.1 Recertification and Modification Activities ..... 5
3.2 New Facilities ..... 5
4.0 NON-JURISDICTIONAL FACILITIES ..... 6
5.0 PUBLIC REVIEW AND COMMENT ..... 6
6.0 PERMITS, APPROVALS, AND REGULATORY CONSULTATIONS ..... 9
7.0 CONSTRUCTION, OPERATION, AND MAINTENANCE PROCEDURES ..... 10
7.1 General Pipeline Construction Procedures ..... 11
7.2 Specialized Pipeline Construction Procedures ..... 12
7.2.1 Waterbody Crossings ..... 12
7.2.2 Wetland Crossings ..... 13
7.2.3 Residential Areas ..... 14
7.2.4 Agricultural Areas ..... 14
7.2.5 Roads, Railroads, and Utility Crossings ..... 14
7.3 Aboveground Facilities ..... 15
7.4 Environmental Compliance Inspection and Monitoring ..... 15
7.5 Operations and Maintenance ..... 15
8.0 LAND REQUIREMENTS ..... 16
SECTION B – ENVIRONMENTAL ANALYSIS ..... 19
1.0 GEOLOGY ..... 19
1.1 Geologic Setting ..... 19
1.2 Mineral Resources ..... 19
1.3 Geologic Hazards ..... 21
1.3.1 Seismic-related Hazards ..... 21
1.3.2 Landslides ..... 22
1.3.3 Flash Flooding and Scour ..... 23
1.3.4 Karst Terrain and Ground Subsidence ..... 24
1.4 Blasting ..... 24
1.5 HDD Feasibility and Geotechnical Investigation ..... 24
2.0 SOILS ..... 25
2.1 Prime Farmland ..... 25
2.2 Soil Compaction ..... 25
2.3 Soil Erosion ..... 27
2.4 Low Revegetation Potential ..... 27
2.5 Shallow Depth to Bedrock ..... 27
2.6 Poor or Excessive Drainage ..... 27
2.7 Soil Contamination ..... 27
2.8 Impacts and Mitigation ..... 27
3.0 WATER RESOURCES AND WETLANDS ..... 29
3.1 Groundwater ..... 29
3.1.1 Existing Groundwater Resources ..... 29
3.1.2 Public and Private Water Supply Wells ..... 29
3.1.3 Contaminated Groundwater ..... 30
3.1.4 Groundwater Impacts and Mitigation ..... 30

3.2 Surface Water ..... 31
3.2.1 Existing Surface Water Resources ..... 31
3.2.2 Waterbody Crossings ..... 33
3.2.3 Hydrostatic Testing ..... 34
3.2.4 Surface Water Impacts and Mitigation ..... 34
3.3 Wetlands ..... 36
3.3.1 Existing Wetland Resources ..... 37
3.3.2 Wetlands Impacts and Mitigation ..... 38
4.0 VEGETATION, WILDLIFE, AND THREATENED AND ENDANGERED SPECIES ..... 42
4.1 Vegetation ..... 42
4.1.1 Existing Vegetation ..... 42
4.1.2 Unique and Sensitive Habitat ..... 46
4.1.3 General Impacts and Mitigation ..... 48
4.1.4 Invasive Species Management ..... 49
4.2 Wildlife ..... 50
4.3 Fisheries ..... 51
4.3.1 General Impacts and Mitigation ..... 52
4.3.2 Fisheries of Special Concern ..... 53
4.4 Migratory Birds ..... 53
4.5 Bald and Golden Eagles ..... 54
4.6 Special Status Species ..... 55
4.6.1 Federally Listed Species ..... 55
4.6.2 State-listed Species ..... 60
5.0 CULTURAL RESOURCES ..... 62
5.1 Consultations ..... 62
5.1.1 State Historic Preservation Officers ..... 63
5.1.2 Federally Recognized Tribes ..... 63
5.1.3 Other Stakeholders ..... 63
5.2 Survey Results ..... 64
5.2.1 Pennsylvania ..... 64
5.2.2 Ohio ..... 64
5.3 Unanticipated Discoveries Plan ..... 65
5.4 Compliance with the National Historic Preservation Act ..... 65
6.0 LAND USE, RECREATION, AND VISUAL RESOURCES ..... 65
6.1 Land Use ..... 65
6.2 Existing Residences and Planned Developments ..... 68
6.3 Recreation and Special Interest Areas ..... 69
6.4 Visual Resources ..... 71
7.0 SOCIOECONOMICS ..... 71
7.1 Population, Economy, and Employment ..... 71
7.2 Housing ..... 73
7.3 Public Services ..... 73
7.4 Transportation and Traffic ..... 74
7.5 Property Values ..... 75
7.6 Tax Revenues ..... 76
7.7 Environmental Justice ..... 76
7.7.1 Demographic and Economic Data ..... 77
8.0 AIR QUALITY ..... 79
8.1 Air Pollutants ..... 79
8.2 Existing Air Quality ..... 80
8.3 Permitting and Regulatory Requirements ..... 81

8.3.1 Federal Regulations ... 81
8.3.2 State Regulations ... 82
8.3.3 General Conformity ... 82
8.4 Construction Impacts and Mitigation ... 83
8.5 Operational Impacts and Mitigation ... 85
8.5.1 Compressor Stations ... 85
8.5.2 North Kingsville Meter Station and Pipeline ... 87
8.5.3 Operational Emissions Mitigation ... 88
9.0 Noise ... 88
9.1 Federal Noise Requirements ... 89
9.2 State and County Noise Requirements ... 89
9.3 Construction Noise Impacts and Mitigation ... 90
9.3.1 General Construction Activities ... 90
9.3.2 HDD Activities ... 91
9.4 Operational Noise Impacts and Mitigation ... 92
10.0 RELIABILITY AND SAFETY ... 96
10.1 Safety Standards ... 96
10.2 Pipeline Accident Data ... 100
10.3 Impact on Public Safety ... 102
11.0 CUMULATIVE IMPACTS ... 103
11.1 Soils ... 108
11.2 Water Resources and Wetlands ... 108
11.3 Vegetation, Wildlife, and Threatened and Endangered Species ... 109
11.4 Land Use and Visual Impacts ... 109
11.5 Socioeconomics ... 110
11.6 Air Quality ... 111
11.7 Noise ... 112
11.8 Climate Change ... 113
SECTION C – ALTERNATIVES ... 116
1.0 NO ACTION ALTERNATIVE ... 117
2.0 SYSTEM ALTERNATIVES ... 117
3.0 RISBERG PIPELINE ROUTE ALTERNATIVES ... 119
4.0 COMPRESSOR STATION ALTERNATIVES ... 121
SECTION D – CONCLUSIONS AND RECOMMENDATIONS ... 123
SECTION E – LIST OF PREPARERS ... 128
SECTION F – REFERENCES ... 130

# LIST OF TABLES

TABLE A.5-1 Summary of Scoping Comments ..... 7
TABLE A.6-1 Permits, Approvals, and Consultations ..... 9
TABLE A.8-1 Summary of Land Requirements Associated with Construction and Operation of the Project ..... 16
TABLE A.8-2 Co-located Risberg Pipeline Segments ..... 17
TABLE A.8-3 Temporary Access Roads ..... 18
TABLE B.1.2-1 Mines Within 0.25 Mile of the Project ..... 20
TABLE B.1.2-2 Oil and Gas Wells within 150 feet of the Project ..... 20
TABLE B.1.3-1 Earthquakes with Epicenters within 10 miles of the Risberg Line Project Right-of-Way ..... 22
TABLE B.1.3-2 Project Areas within FEMA 100-year Flood Zones ..... 23
TABLE B.2-1 Soil Characteristics and Limitations (acres) ..... 26
TABLE B.3.1-1 Private Wells within 150 feet of Construction Workspace ..... 30
TABLE B.3.2-1 Watersheds Crossed by the Project ..... 32
TABLE B.3.3-1 Summary of Wetland Impacts in Acres ..... 39
TABLE B.3.3-2 Additional Temporary Workspace within 50 Feet of Wetlands ..... 41
TABLE B.4.1-1 Vegetation in the Project Area ..... 42
TABLE B.4.1-2 Construction and Operation Impacts on Vegetation Cover Types in the Project Area (acres) ..... 44
TABLE B.4.2-1 Wildlife Species Occurring Within the Vegetative Cover Types of the Project Area ..... 50
TABLE B.4.6-1 Federally Threatened and Endangered Species Potentially Occurring in the Project Area ..... 55
TABLE B.6.1-1 Land Affected by Construction and Operation of the Project (acres) ..... 66
TABLE B.6.2-1 Residences Within 50 Feet of Construction Workspace ..... 68
TABLE B.7.1-1 Existing Social and Economic Conditions for the Project Study Area ..... 72
TABLE B.7.2-1 Available Housing in the Project Study Area ..... 73
TABLE B.7.3-1 Public Services Available in the Project Study Area ..... 73
TABLE B.7.7-1 Racial, Ethnic, and Poverty Statistics for Census Tracts within 1 Mile of Project Facilities ..... 78
TABLE B.8.4-1 Project Construction Emissions (tons) ..... 84
TABLE B.8.5-1 New Meadville Compressor Station Potential Operational Emissions (tpy) ..... 86
TABLE B.8.5-2 Existing County Line Compressor Station Potential Operational Emissions (tpy) ..... 86
TABLE B.8.5-3 New Meadville Compressor Station Modeling Results and Available Ambient Monitoring Data ..... 87
TABLE B.8.5-4 Existing County Line Compressor Station Modeling Results and Available Ambient Monitoring Data ..... 87
TABLE B.9-1 Sound Levels and Relative Loudness (dBA) ..... 89
TABLE B.9.3-1 Noise Levels of Major Construction Equipment ..... 91
TABLE B.9.3-2 Noise Impact Estimates at Nearby NSAs for HDD Activities (dBA) ..... 91
TABLE B.9.4-1 Operational Noise Impact Estimates at Nearby NSAs for the New Meadville Compressor Station (dBA) ..... 93
TABLE B.9.4-2 Operational Noise Impact Estimates for the New North Kingsville Meter Station (dBA) ..... 93
TABLE B.9.4-3 Operational Noise Impact Results for the Existing County Line Compressor Station (dBA) ..... 94
TABLE C.2-1 Comparison of System Alternatives ..... 119
TABLE C.3-1 Comparison of Pipeline Route Alternatives ..... 119

## LIST OF FIGURES

Figure A.3-1. Project Overview ..... 4
Figure A.7.1-1. Typical Pipeline Construction Sequence ..... 11
Figure B.10-1. Cumulative Projects ..... 106
Figure B.10-2. Active Oil and Gas Wells in Erie and Crawford Counties, Pennsylvania, and Ashtabula County, Ohio ..... 107
Figure C.2-1. System Alternatives ..... 118
Figure C.3-1. Pipeline Route Alternatives ..... 120

## APPENDICES

Appendix A – Project Location Maps
Appendix B – Typical Construction Methods Figures
Appendix C – Waterbody and Wetland Crossing Tables
Appendix D – Northern Long-eared Bat Streamlined Consultation Form
Appendix E – Roads and Railroads Crossed Table
Appendix F – Site-specific Residential Construction Plans
Appendix G – Noise Sensitive Area Maps
Appendix H – Cumulative Impacts Tables

## TECHNICAL ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| amsl | above mean sea level |
| APE | area of potential effects |
| AQCR | air quality control region |
| ASTM | American Society for Testing and Materials |
| ATWS | additional temporary workspace |
| BMP | best management practice |
| CAA | Clean Air Act |
| Certificate | Certificate of Public Convenience and Necessity |
| CFR | Code of Federal Regulations |
| CMNH | Cleveland Museum of Natural History |
| CMRP | Construction Mitigation and Restoration Plan |
| CO | carbon monoxide |
| $CO_2$ | carbon dioxide |
| $CO_2e$ | $CO_2$ equivalents |
| COE | U.S. Army Corps of Engineers |
| Commission | Federal Energy Regulatory Commission |
| dB | decibels |
| dBA | A-weighted decibels |
| dBC | C-weighted decibels |
| DEO | Dominion Energy Ohio |
| DOE | U.S. Department of Energy |
| DOW | Ohio Department of Natural Resources Division of Wildlife |
| EA | environmental assessment |
| EI | Environmental Inspector |
| EPA | U.S. Environmental Protection Agency |
| ESA | Endangered Species Act of 1973 |
| ESCP | Erosion and Sediment Control Plan |
| FEMA | Federal Emergency Management Agency |
| FERC | Federal Energy Regulatory Commission |
| FWS | U.S. Fish and Wildlife Service |
| g | gravity |
| GAP | National Gap Analysis Project |
| GHG | greenhouse gas |
| GWP | global warming potential |
| HAP | hazardous air pollutant |
| HDD | horizontal directional drilling |
| hp | horsepower |
| HUC | hydrologic unit code |
| IRCP | Inadvertent Return Contingency Plan |
| $L_{dn}$ | day-night sound level |
| $L_{eq}$ | equivalent sound level |
| LNG | liquefied natural gas |

| | |
|---|---|
| MP | milepost |
| NAAQS | National Ambient Air Quality Standards |
| NAIC | North Atlantic Iron Corporation |
| NEPA | National Environmental Policy Act of 1969 |
| NGA | Natural Gas Act of 1935 |
| NHA | Natural Heritage Area |
| NHPA | National Historic Preservation Act of 1966 |
| NNSR | Nonattainment New Source Review |
| NOI | *Notice of Intent to Prepare an Environmental Assessment for the Proposed Risberg Line Project, and Request for Comments on Environmental Issues* |
| $NO_x$ | nitrogen oxides |
| NRCS | Natural Resources Conservation Service |
| NRHP | National Register of Historic Places |
| NSA | noise-sensitive area |
| NSR | New Source Review |
| ODNR | Ohio Department of Natural Resources |
| ODOT | Ohio Department of Transportation |
| OEMA | Ohio Emergency Management Agency |
| OEP | Office of Energy Projects |
| Pa. Code | Pennsylvania Code |
| PA DCNR | Pennsylvania Department of Conservation and Natural Resources |
| PADEP | Pennsylvania Department of Environment Protection |
| PAR | permanent access road |
| PEM | palustrine emergent |
| PennDOT | Pennsylvania Department of Transportation |
| PFBC | Pennsylvania Fish and Boat Commission |
| PFO | palustrine forested |
| PGA | peak ground acceleration |
| PGC | Pennsylvania Game Commission |
| PHMSA | Pipeline and Hazardous Materials Safety Administration |
| Plan | Upland Erosion Control, Revegetation, and Maintenance Plan |
| $PM_{2.5}$ | particulate matter with an aerodynamic diameter less than or equal to 2.5 microns |
| $PM_{10}$ | particulate matter with an aerodynamic diameter less than or equal to 10 microns |
| PNHP | Pennsylvania Natural Heritage Program |
| POW | palustrine open water |
| PPCP | Preparedness, Prevention, and Contingency Plan |
| Procedures | Wetland and Waterbody Construction and Mitigation Procedures |
| PSD | Prevention of Significant Deterioration |
| PSS | palustrine scrub-shrub |
| PUB | palustrine unconsolidated bottom |
| RH | RH energytrans, LLC |
| RMP | risk management plan |
| RTE | rare, threatened, and endangered |
| Secretary | Secretary of the Commission |

| | |
|---|---|
| SGL | State Game Lands |
| SHPO | State Historic Preservation Officer |
| $SO_2$ | sulfur dioxide |
| SWPPP | Stormwater Pollution Prevention Plans |
| TAR | temporary access road |
| TGP | Tennessee Gas Pipeline Company, LLC |
| tpy | tons per year |
| U.S.C. | United States Code |
| USDA | U.S. Department of Agriculture |
| USDOT | U.S. Department of Transportation |
| USGCRP | U.S. Global Change Research Program |
| USGS | U.S. Geological Survey |
| VOC | volatile organic compound |

## SECTION A – PROPOSED ACTION

## 1.0 INTRODUCTION

The staff of the Federal Energy Regulatory Commission (Commission or FERC) has prepared this environmental assessment (EA) to assess the environmental effects of the natural gas pipeline facilities proposed by RH energytrans, LLC (RH). We[1] prepared this EA in compliance with the requirements of the National Environmental Policy Act of 1969 (NEPA) (Title 40 of the Code of Federal Regulations [CFR] Parts 1500–1508) and with the Commission's implementing regulations under 18 CFR 380.

On October 16, 2017, RH filed an application with the Commission in Docket No. CP18-6-000 for the Risberg Line Project (Project) under Section 7(c) of the Natural Gas Act (NGA) and Parts 157 and 284 of the Commission's regulations. RH seeks to construct and operate certain natural gas facilities in Ohio and Pennsylvania. The Project would deliver up to 55,000 dekatherms per day of firm natural gas transportation service to Dominion Energy Ohio (DEO) and other prospective customers in the vicinity of the Project.

The EA is an important and integral part of the Commission's decision on whether to issue RH a Certificate of Public Convenience and Necessity (Certificate) to construct and operate the proposed facilities. Our principal purposes in preparing this EA are to:

1) identify and assess potential impacts on the natural and human environment that could result from implementation of the proposed action;
2) identify and recommend reasonable alternatives and specific mitigation measures, as necessary, to avoid or minimize Project-related environmental impacts; and
3) facilitate public involvement in the environmental review process.

FERC is the lead federal agency for the preparation of this EA. The U.S. Army Corps of Engineers (COE) and Pennsylvania Fish and Boat Commission (PFBC) participated as cooperating agencies in the preparation of the EA. The purpose and role of FERC and each of the cooperating agencies are described below.

### 1.1 Federal Energy Regulatory Commission

FERC is an independent federal agency responsible for evaluating applications for authorization to construct and operate interstate natural gas pipeline facilities. If the Commission determines a project is required by the public convenience and necessity, a Certificate is issued under Section 7(c) of the NGA and Part 157 of the Commission's regulations.

This EA presents our review of potential environmental impacts and reasonable recommendations to avoid or mitigate impacts. This EA will be used as an element in the Commission's review of the Project to determine whether a Certificate would be issued.

As the lead federal agency, FERC is required to complete any required consultations, such as those under Section 7 of the Endangered Species Act of 1973 (ESA) and Section 106 of the National Historic Preservation Act (NHPA).

[1] The pronouns "we," "us," and "our" refer to environmental staff of the Office of Energy Projects.

## 1.2 U.S. Army Corps of Engineers

The COE is a federal agency within the U.S. Department of Defense with jurisdictional authority pursuant to Section 404 of the Clean Water Act (33 USC 1344), which governs the discharge of dredged or fill material into waters of the United States, and Section 10 of the Rivers and Harbors Act (33 USC 403), which regulates any work or structures that potentially affect the navigable capacity of a waterbody. Because the COE would need to evaluate and approve several aspects of the Risberg Line Project and must comply with the requirements of NEPA before authorizing fill activities or work under the above statutes, it has elected to participate as a cooperating agency in the preparation of this EA. The COE would adopt the EA per 40 CFR 1506.3 if, after an independent review of the document, it concludes that its comments and suggestions have been satisfied. The Project occurs within the Buffalo and Pittsburgh Districts of the COE.

The Project meets the criteria for a nationwide general permit (Nationwide Permit 12) under Section 404 of the Clean Water Act within the Buffalo District portion of the Project in Ohio. Nationwide permits are a type of general permit designed to authorize certain activities that have minimal individual and cumulative adverse effects on the aquatic environment and generally comply with the related laws cited in 33 CFR 320.3. Activities that result in more than minimal individual and cumulative adverse effects on the aquatic environment cannot be authorized by nationwide permits. Nationwide Permit 12 has preconstruction notification requirements that trigger case-by-case review of certain activities. Two nationwide permit general conditions require case-by-case review of all activities that may adversely affect federally listed endangered or threatened species or historic properties (i.e., general conditions 18 and 20). However, the Pennsylvania portion of the Project will be processed by the Pennsylvania Department of Environmental Protection and the Pittsburgh District COE under the Pennsylvania State Programmatic General Permit-5 (PASPGP-5). Any crossing of the Risberg Line that impacts greater than 1 acre of waters of the United States will not qualify for review under the PASPGP-5 and are required to be processed as an Individual Permit by the Pittsburgh District of the COE.

As an element of its review, the COE must consider whether the Project represents the least environmentally damaging practicable alternative pursuant to the Clean Water Act Section 404(b)(1) guidelines. The term "practicable" means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall purposes of the Project. Although this document addresses environmental impacts associated with the Project as they relate to Section 404, it does not serve as a public notice for any of the COE's permits. Based on its participation as a cooperating agency and its consideration of the EA and responses to comments, the COE would prepare a Record of Decision to formally document its decision on the proposed action, including Section 404(b)(1) analysis and required environmental mitigation commitments.

## 1.3 Pennsylvania Fish and Boat Commission

The PFBC is an independent Commonwealth of Pennsylvania agency with a mission to protect, conserve, and enhance the Commonwealth's aquatic resources and to provide fishing and boating opportunities. The PFBC's Division of Environmental Services staff work with expert scientists and engineers from a variety of disciplines to ensure that the aquatic resources (both game and nongame) that live in Commonwealth waters remain protected. The Division of Environmental Services staff are working in consultation with RH to formulate and convey the appropriate level of protection for the PFBC's sensitive trust species, including species of greatest conservation need, that occupy waters and landscapes areas crossed by the Project. The PFBC is an active participant in reviewing the Project's Pennsylvania Department of Environment Protection (PADEP) application and expects to provide review comments involving the agency's aquatic trust resources.

In addition to serving in a regulatory role for the proposed Project, the PFBC has requested to be a cooperating agency. As a cooperating agency, PFBC lends its experiences and insight with environmental impacts relative to this type of activity and provides recommendations on appropriate strategic best management practices and avoidance measures necessary to protect Pennsylvania's trust resources.

## 2.0 PROJECT PURPOSE AND NEED

RH states that the purpose of the Risberg Line Project is to provide firm and interruptible natural gas transportation services to DEO and other customers along the pipeline's route and in the vicinity of North Kingsville in Ashtabula County, Ohio. DEO has experienced some peak day pressure deficiencies in the Ashtabula area, and the Project would enhance peak day pressure reliability and furnish system redundancy.

Under Section 7 of the NGA, the Commission determines whether interstate natural gas transportation facilities are in the public convenience and necessity and, if so, grants a Certificate to construct and operate them. The Commission bases its decisions on technical competence, financing, rates, market demand, gas supply, environmental impact, long-term feasibility, and other issues concerning a proposed project.

## 3.0 PROPOSED FACILITIES

RH's Risberg Line Project would involve modification and recertification of existing facilities and installation of new facilities. Figure A.3-1 is an overview map of the Project facilities. More detailed maps on aerial photographs of all Project facilities are provided in appendix A.

Activities associated with modification and recertification of existing facilities would include:

- modifications at the existing County Line Compressor Station in Erie County, Pennsylvania;
- conversion of an existing 26.6-mile-long, 12-inch-diameter gathering pipeline to natural gas transmission service in Crawford and Erie Counties, Pennsylvania; and
- conversion of an existing 5.0-mile-long, 8-inch-diameter gathering pipeline to natural gas transmission service in Erie County, Pennsylvania.

New facilities that would be constructed include:

- Meadville Compressor Station in Crawford County, Pennsylvania;
- 650-foot-long, 12-inch-diameter lateral pipeline within the existing 12-inch-diameter gathering pipeline right-of-way in Crawford County, Pennsylvania (Tennessee Gas Pipeline Company, LLC [TGP] Lateral);
- 28.3-mile-long, 12-inch-diameter pipeline in Erie County, Pennsylvania, and Ashtabula County, Ohio (Risberg Pipeline); and
- North Kingsville Meter Station in Ashtabula County, Ohio.

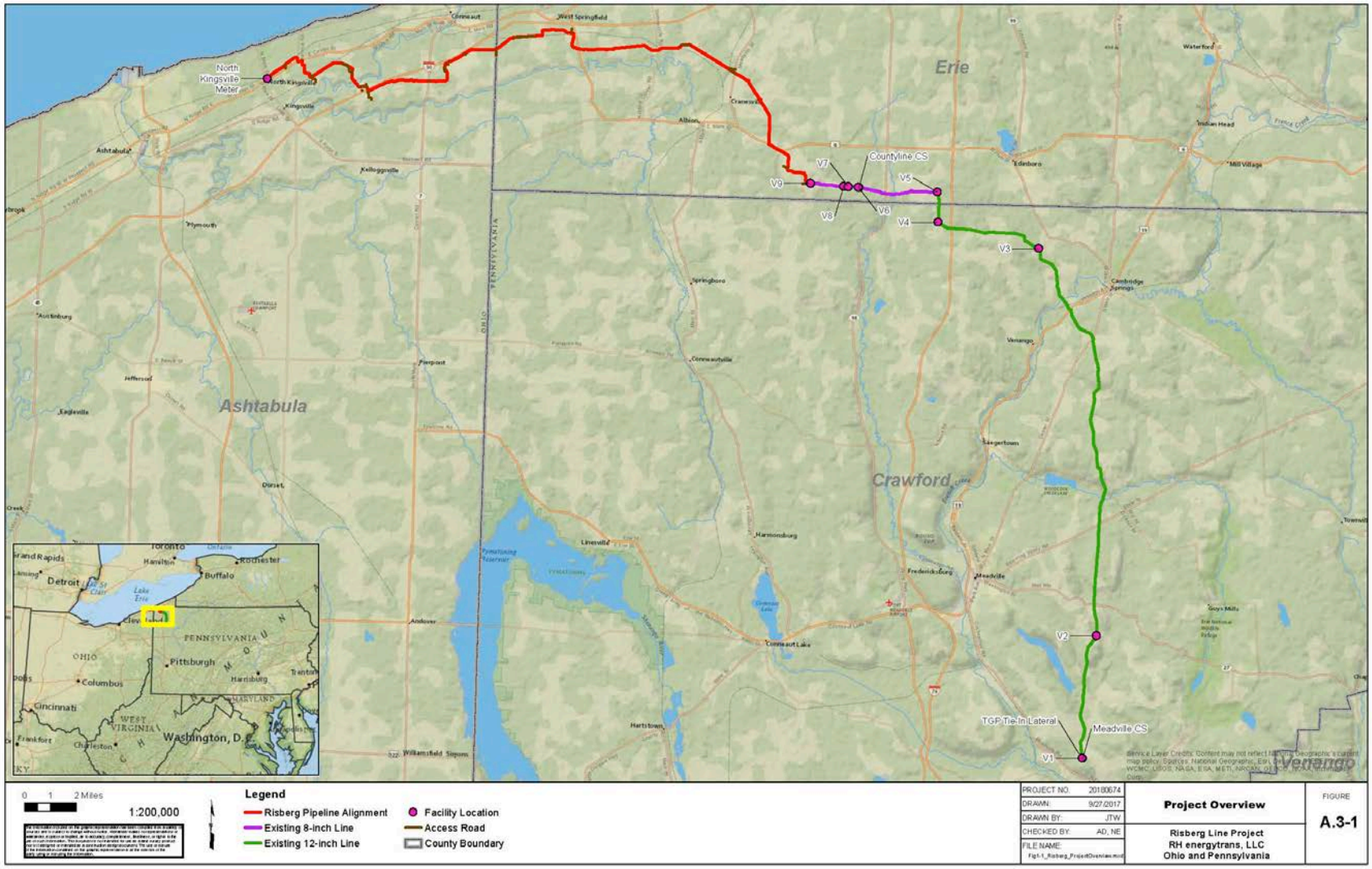


**Figure A.3-1. Project Overview**

## 3.1 Recertification and Modification Activities

**County Line Compressor Station modifications.** The County Line Compressor Station was constructed in 2014 along the existing 8-inch-diameter gathering pipeline and is not currently a FERC-jurisdictional facility. The station occupies about 0.5 acre that is fenced and graveled within a larger 10-acre property. It has three 378-horsepower (hp) gas-fired reciprocating compressor units. RH would acquire the compressor station from its affiliate, Mid American Natural Resources, LLC, and modify the existing suction and discharge piping to allow single stage compression. All construction activities would occur within the existing fenced and graveled area.

**Conversion of existing 12-inch-diameter and 8-inch-diameter gathering pipelines**. These existing pipelines have been in continuous operation since being constructed in 1982. They were converted from natural gas transmission service to natural gas gathering service in 1999. RH proposes to convert the pipelines back to natural gas transmission service. The existing 12-inch-diameter pipeline extends 26.6 miles from the Meadville Compressor Station north to a point southwest of Edinboro near Wetsell Ridge Road in Washington Township, Erie County, Pennsylvania. The existing 8-inch-diameter pipeline extends from the 12-inch pipeline west about 5.0 miles to a point east of State Road near the town of Pageville in Elk Creek Township, Erie County. To convert the pipelines to natural gas transmission service, RH would carry out the following activities:

- install new pig[2] launcher/receiver facilities at each end of the 12-inch-diameter pipeline and at each end of the 8-inch-diameter pipeline, for a total of three facilities (corresponding to V-1, V-5, and V-9 on the pipeline maps in appendix A);
- modify three existing 8-inch-diameter (V-6, V-7, and V-8) and three existing 12-inch-diameter (V-2, V-3, and V-4) valve sites as necessary to allow pigging;
- remove 10 inactive meter taps and 2 subsurface separators;
- hydrostatically test all converted facilities;
- pig the pipelines to remove residual liquids from gathering operations and hydrostatic testing; and
- upgrade the line markers to reflect RH as the owner and operator.

All earth-disturbing activities associated with conversion of the existing gathering pipelines would occur within the existing 50-foot-wide permanent rights-of-way, the compressor station yards, or the Risberg Pipeline permanent right-of-way.

## 3.2 New Facilities

**Meadville Compressor Station**. The Meadville Compressor Station property consists of 14 acres that are currently vacant. A previous compressor station was constructed on the property in 1982 and removed from service in 1994. No aboveground structures from the former compressor station remain at the site. RH would construct a new compressor station within the existing 1.2-acre disturbed area using the existing foundations from the previous station. Facilities would include one 728-hp natural gas-fired reciprocating compressor unit, receipt metering, and appurtenant facilities. RH would install new yard piping.

[2] A "pig" is a tool that the pipeline company inserts into and pushes through the pipeline for cleaning the pipeline, conducting internal inspections, or other purposes.

**TGP Lateral**. To move natural gas from the TGP system to the Risberg Line system, RH would construct a 12-inch-diameter lateral within the existing 12-inch-diameter gathering pipeline right-of-way. The lateral would extend 650 feet from an interconnect with the TGP system at the metering facility within the Meadville Compressor Station to connect with the 12-inch-diameter pipeline. All work would be confined to the previously disturbed Meadville Compressor Station yard and the existing 50-foot-wide permanent right-of-way for the gathering pipeline.

**Risberg Pipeline**. RH would construct 28.3 miles of new 12-inch-diameter pipeline from the west end of the recertified 8-inch-diameter pipeline in Erie County, Pennsylvania, to connect with DEO facilities in North Kingsville, Ashtabula County, Ohio. The pipeline would be constructed in new right-of-way and would include two pig launcher/receiver facilities (one at each end, including one shared with the 8-inch-diameter existing gathering pipeline) and four mainline valves. Information on pipe storage, and contractor yards and access roads is provided in section A.8.

**North Kingsville Meter Station.** RH would construct a meter station and building within a 100-foot by 75-foot site at the terminus of the new Risberg Pipeline where it would interconnect with DEO's distribution system in North Kingsville, Ohio.

## 4.0 NON-JURISDICTIONAL FACILITIES

No non-jurisdictional facilities would be constructed as part of the Project.

## 5.0 PUBLIC REVIEW AND COMMENT

On November 21, 2017, the Commission issued a *Notice of Intent to Prepare an Environmental Assessment for the Proposed Risberg Line Project, and Request for Comments on Environmental Issues* (NOI). The NOI was published in the Federal Register and mailed to 642 entities, including federal, state, and local government representatives and agencies; elected officials; Native American tribes; environmental and public interest groups; newspapers and libraries in the Project area; affected landowners; and interested parties.

We received two comments prior to the issuance of the NOI. These included a letter from the Miami Tribe of Oklahoma indicating its interest in serving as a consulting party, and a letter from the U.S. Fish and Wildlife Service (FWS) responding to the FERC's Notice of Application for the Project. In response to the NOI, we received 34 comments during the 30-day scoping period and 17 comments after the scoping period had ended. Commenters include 2 federal agencies (the COE and the FWS), 1 state agency (Ohio Department of Natural Resources [ODNR]), and 29 individuals. A number of individuals submitted more than one comment. All written comments are part of the public record for the Project and are available for viewing on the FERC eLibrary website.[3] In addition, attendees submitted comments at two informational open houses hosted by RH. RH filed these comments with FERC.[4]

The comments raised include a variety of topics, such as water resources, wetlands, vegetation, wildlife, land use, recreation, socioeconomics, air quality and noise, reliability and safety, and alternatives. The environmental issues and concerns raised in the comments are addressed in this EA in the appropriate resource section, as identified in table A.5-1.

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[3] FERC's eLibrary website at http://www.ferc.gov/docs-filing/elibrary.asp, select "General Search" and enter the docket number excluding the last three digits field (i.e., CP18-6). Select an appropriate date range.

[4] Docket Number CP18-6-000, accession number 20171219-5211.

TABLE A.5-1

**Summary of Scoping Comments**

| Summary of Issue | Section Where Issue is Addressed |
|---|---|
| **General** | |
| Request for public ("town hall style") meeting where attendees can hear all comments and responses | A.5.0 |
| Request for scoping comment period to be extended | A.5.0 |
| Questioning if there would be environmental monitoring after construction | A.7.4 |
| Questioning use of hydrostatic test method for integrity testing of existing gathering pipelines and difficulty of removing test water | B.3.2 |
| Concerns about the purpose and need for the Project and the fact that natural gas service is only being provided to Ohio customers and not Pennsylvania customers | A.5.0 |
| General opposition to fossil fuel energy and pipelines | A.5.0 |
| Inconsistency in reported hp for the Meadville Compressor Station | A.5.0 |
| Concern about the duration of heavy equipment in an area | B.6.2 |
| Concern that RH does not have adequate financial resources to complete the Project | A.5.0 |
| **Water Resources and Wetlands** | |
| Impacts on wetlands and other water resources, particularly the Lake Erie Watershed, Kingsville Swamp, and Conneaut Creek | B.3 |
| Potential impacts on private wells and monitoring of the wells | B.3.1 |
| Need for information on stormwater management, use of rip rap for stream restoration, and use of culverts in small streams | B.3.2 |
| Concern that no water quality monitoring is proposed for sensitive stream crossings | B.3.2 |
| Concern that a large amount of sediment would be injected into the Conneaut Creek watershed during and following construction due to the waterbody crossings | B.3.2 |
| **Wildlife, Vegetation, and Threatened and Endangered Species** | |
| Impacts on wildlife habitat and migratory birds | B.4.2, B.4.4 |
| Potential impacts on federal and state special status species in the Project area, such as Indiana bat, northern long-eared bat, alpine rush, and Kirtland's warbler | B.4.6 |
| Recommendation from the FWS for revegetation of disturbed areas with native species of nectar-producing plants and milkweed to support pollinators | B.4.2 |
| **Land Use, Visual Resources, and Recreation** | |
| Potential for runoff from soil piles to affect a residence | B.6.2 |
| Concern that power to residences could be interrupted | B.6.2 |
| Impacts on agricultural lands; questioning whether farming would be allowed over the pipeline | B.6.1 |
| Impacts on the local nature preserve owned by Cleveland Museum of Natural History | B.3.3, B.4.1, B.6.3 |
| Concern regarding use of eminent domain | B.6.2 |
| **Socioeconomics** | |
| Statement that the Project would provide jobs | B.7.1 |
| Concern about adverse effects on property values | B.7.5 |
| Questioning whether workers would be local or transient | B.7.1–B.7.3 |
| Concern that County Line Compressor Station is located in a low-income area | B.7.7 |
| **Air Quality and Noise** | |
| Impacts on air quality from compressor station emissions | B.8.5 |
| Impacts on climate change | B.11.8 |
| Noise from 8-inch-diameter pipeline | B.9.4 |
| Concern about quality of noise surveys conducted for the existing County Line Compressor Station | B.9.4 |
| Current noise impacts from existing County Line Compressor Station | B.9.4 |
| Impacts of and mitigation for noise and vibration from compressor station operation | B.9.4 |

| TABLE A.5-1<br>**Summary of Scoping Comments** | |
|---|---|
| Summary of Issue | Section Where Issue is Addressed |
| **Reliability and Safety** | |
| Concern about safety of existing older pipelines | B.10 |
| Concern about leaks and spills from the pipelines | B.3.2, B.10 |
| Questioning whether there would be safety shut-offs for pipeline every so often | B.10.1 |
| Risk to pipeline from earthquake fault in Project area | B.1.3 |
| Questions about compressor station and pipeline design and safety, including differing pipeline diameters and condensate that would be produced | B.10 |
| Concern about proximity of pipeline to residences | B.10 |
| **Alternatives** | |
| Statement that renewable energy should be developed rather than fossil fuels | A.5.0 |
| Statement that the alternative pipeline routes would avoid most of the Conneaut Creek watershed area | C.3 |
| Suggestions for pipeline route or system alternatives | C.2, C.3 |

A number of commenters requested that FERC hold a meeting to allow stakeholders an opportunity to express their concerns and ask questions in a public forum. FERC staff were present to answer questions regarding FERC's environmental review process at RH's open houses on December 5 and 6, 2017, which had about 120 and 150 attendees, respectively. Several methods are available for submitting written comments, including in-person at the open houses, and all comments submitted to FERC are available for the public to view on eLibrary. Written comments carry the same weight as spoken comments recorded at a scoping session and are responded to in the same manner by being addressed in the EA. Furthermore, RH had 85 percent survey access and landowner agreements when the application was filed. At the time of scoping, RH had obtained landowner agreements for about 98 percent of the Risberg Pipeline route, with the exception of public utility and railroad properties. For these reasons, a scoping session was not deemed necessary. Commenters also requested an extension to the 30-day scoping period. The scoping period length is standard and consistent with other projects. Furthermore, comments may continue to be posted to the docket, and we addressed in this EA a number of comments received after close of the scoping period.

Some commenters questioned the purpose and need for the Project and the fact that Pennsylvania landowners would be impacted even though there would be no natural gas customers benefitting from the Project in Pennsylvania. Commenters also expressed concerns regarding RH's financial resources to complete the Project. The Commission will consider the need for, and public benefit of, this Project when making its decision on whether or not to certificate it, as documented in the Project Order.

Commenters expressed general opposition to fossil fuel energy and pipelines. FERC regulates the interstate transmission of electricity, natural gas, and oil as well as reviews proposals to build liquefied natural gas (LNG) terminals and interstate natural gas pipelines. FERC does not set energy policy and cannot favor one type of resource over another, especially given that the Federal Power Act explicitly prohibits it from doing so.

One commenter noted that RH changed the compressor unit for the Meadville Compressor Station from 728 hp to 1,600 hp. RH indicated in Resource Reports 1 and 9 that a 728-hp natural gas-fired reciprocating compressor unit would be installed at the Meadville Compressor Station. The document referenced by the commenter as having the change was FERC's NOI, in which the value was incorrectly identified as 1,600 hp. We clarify here that 728 hp is the correct proposed horsepower for the station.

## 6.0 PERMITS, APPROVALS, AND REGULATORY CONSULTATIONS

Table A.6-1 lists the federal and state regulatory agencies that have permit or approval authority or consultation requirements, and the status of that review for the Project. RH would be responsible for obtaining all necessary permits, licenses, and approvals required for its Project.

TABLE A.6-1

**Permits, Approvals, and Consultations**

| Permitting/Approval Agency | Permit, Approval, or Consultation | File Date | Receipt Date |
|---|---|---|---|
| **Federal** | | | |
| Federal Energy Regulatory Commission | Certificate of Public Convenience and Necessity under Section 7(c) of the Natural Gas Act | 10/13/2017 | Pending |
| U.S. Fish & Wildlife Service | Endangered Species Act, Section 7 Consultation and Migratory Bird Treaty Act Consultation (Ohio) | 9/26/2017 | Pending |
| | Endangered Species Act, Section 7 Consultation and Migratory Bird Treaty Act Consultation (Pennsylvania) | 9/28/2017 | Pending |
| U.S. Army Corps of Engineers, Pittsburgh District | Clean Water Act Section 404, Joint Permit Application and Mitigation | 1/5/2018 | Pending |
| U.S. Army Corps of Engineers, Buffalo District | Clean Water Act Section 404, Nationwide Permit 12 Preconstruction Notification, Preliminary Jurisdiction Determination, and Wetland Mitigation | 10/18/2017 | Pending |
| **State – Pennsylvania** | | | |
| Pennsylvania Department of Environmental Protection | Joint Application for Pennsylvania Water Obstruction and Encroachment Permit and U.S. Army Corps of Engineers Section 404 Permit | 1/5/2018 | Pending |
| | State General Plan Approval and Minor Source Air Permit – County Line Compressor Station | 10/26/2017 | Pending |
| | Request for Exemption from Plan Approval/Operating Permit (air quality) – Meadville Compressor Station | 11/6/2017 | 11/15/2017 |
| | Chapter 105 General Permits 5 (utility line stream crossings) and 8 (temporary road crossings) | 2/2/2018 | Pending |
| | National Pollutant Discharge Elimination System General Permit for Discharges from Hydrostatic Testing of Tanks and Pipelines (60-day notice prior to test) | Pending | Pending |
| Pennsylvania Department of Environmental Protection and Erie and Crawford County Conservation Districts | Erosion, Sediment Control, and Stormwater Management Permitting Application Individual Clean Water Act Section 401 Water Quality Certificate | 1/17/2018 | Pending |
| Pennsylvania Department of Conservation and Natural Resources | Consultation for Rare, Threatened, and Endangered (RTE) Species | 10/3/2017 | 10/6/2017 |
| Pennsylvania Game Commission | Consultation for RTE Species | 9/28/2017 | 10/5/2017 |
| Pennsylvania Fish and Boat Commission | Consultation for RTE Species (brook stickleback, brook lamprey, central mudminnow, redfin shiner, spotted turtle) | 10/9/2017 | Pending |
| Pennsylvania Historical and Museum Commission | National Historic Preservation Act Section 106 Consultation | 10/26/2017 | 11/16/17 and 11/17/17 3/20/2018 (minor revision to Project area) |
| Pennsylvania Department of Transportation | Route 6N / State Route 18 Crossing Permits | 12/22/2017 | Pending |

| TABLE A.6-1<br>**Permits, Approvals, and Consultations** | | | |
|---|---|---|---|
| Permitting/Approval Agency | Permit, Approval, or Consultation | File Date | Receipt Date |
| **State – Ohio** | | | |
| Ohio Environmental Protection Agency | Clean Water Act Section 401 Water Quality Certification and Isolated Wetland Permit | 1/26/2018 | Pending |
| | General Permit Authorization to Discharge Hydrostatic Test Water (60-day notice prior to test) | Pending | Pending |
| Ohio Department of Natural Resources | Consultation for State-listed Species | 9/29/2017<br>10/3/2017 | 1/8/2018 and 4/3/2018 – all except spotted turtle (spotted turtle pending) |
| | Wild and Scenic River Consultation | 1/15/2018 | Ongoing |
| Ohio State Historic Preservation Office | National Historic Preservation Act Section 106 Consultation | 10/25/2017 | 1/8/2018<br>4/3/2018 (Farnham Cemetery) |

## 7.0 CONSTRUCTION, OPERATION, AND MAINTENANCE PROCEDURES

The Project facilities would be designed, constructed, operated, and maintained in accordance with applicable requirements defined by U.S. Department of Transportation (USDOT) regulations in 49 CFR 192, Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards; FERC's siting and maintenance requirements in 18 CFR 380.15; and other applicable federal and state regulations and permits.

RH anticipates that construction of the Project, from initial ground disturbance to in-service, would take 5 to 6 months, starting as soon as possible after receiving all necessary federal authorizations. The construction schedule would generally be Monday through Saturday, 10 hours per day (7:30 a.m. to 5:30 p.m.). RH would implement FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures) with alternative measures, referred to herein as RH's Plan and Procedures. FERC's Plan and Procedures were developed to minimize the environmental impact of construction and operation of interstate natural gas transmission facilities.[5] RH would implement the Plan without modification. However, RH is proposing alternative measures to the FERC Procedures, as described in section B.3.3.

RH would also implement additional construction, restoration, and mitigation plans prepared for the Project. These plans include the following:

- Preparedness, Prevention, and Contingency Plan (PPCP)
- Inadvertent Return Contingency Plan (IRCP)
- Site-specific residential construction plans
- Winter Construction Plan
- Unanticipated Discovery Plan for cultural resources
- Construction Mitigation and Restoration Plan (CMRP) for Conneaut Creek

[5] Our Plan and Procedures can be accessed at FERC's website, http://www.ferc.gov/industries/gas/enviro/plan.pdf and http://www.ferc.gov/industries/gas/enviro/procedures.pdf.

- Erosion and Sediment Control Plans (ESCP)
- Stormwater Pollution Prevention Plans (SWPPP)

## 7.1 General Pipeline Construction Procedures

Standard pipeline construction consists of specific activities that make up a linear construction sequence. Figure A.7.1-1 depicts the typical sequence of cross-country pipeline construction. Typical right-of-way construction cross sections are provided in appendix B. RH proposes to use a 75-foot-wide construction right-of-way in upland areas and a 50-foot-wide construction right-of-way in wetland areas. Prior to construction, RH's survey contractor would stake the pipeline centerline and the limits of the construction right-of-way, additional temporary workspace (ATWS), road crossings, and access roads. Wetland boundaries and other environmentally sensitive areas would also be marked at this time. RH would then clear work areas of trees and brush. Vegetative debris would be beneficially used where possible (i.e., timber, mulch, firewood), or hauled away for off-site management or disposal in accordance with all applicable local and state requirements and/or restrictions.

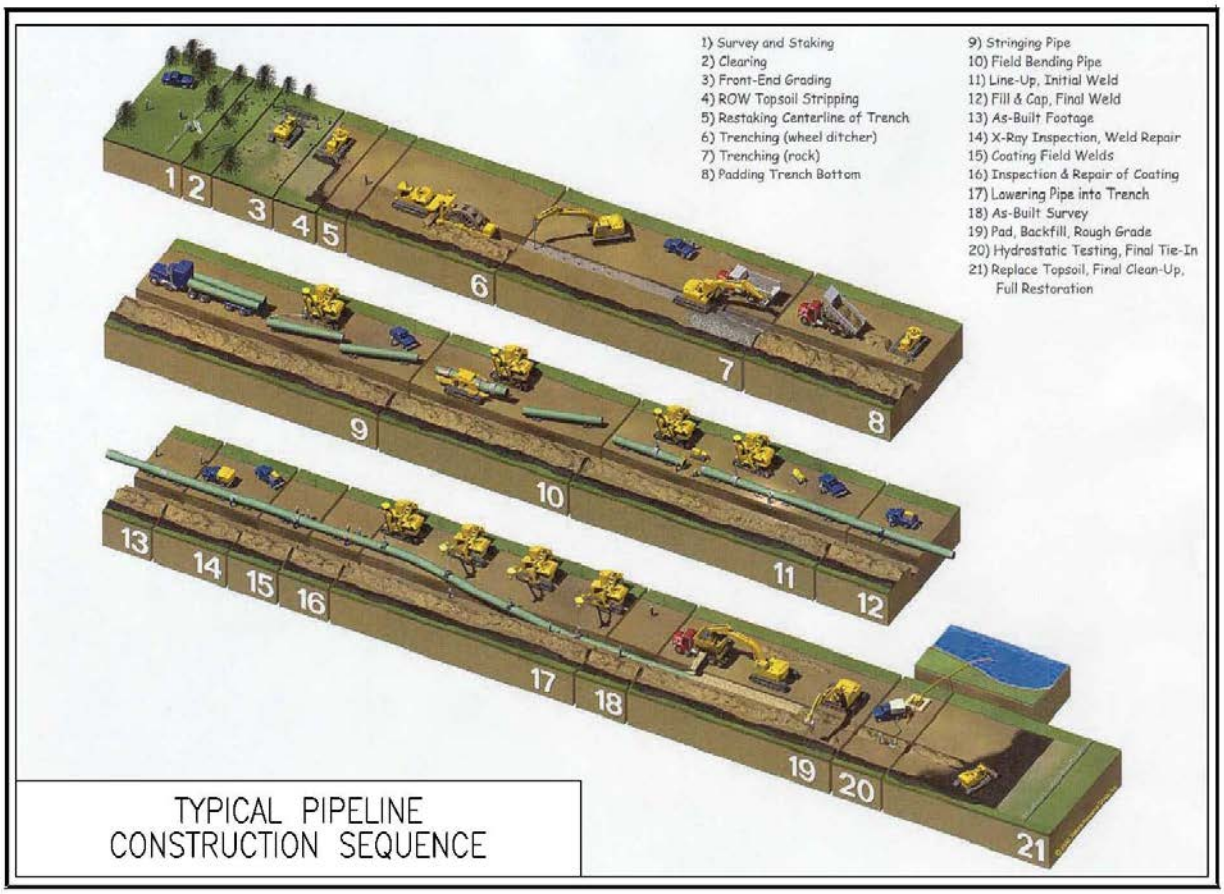


**Figure A.7.1-1. Typical Pipeline Construction Sequence**

Temporary erosion and sediment controls would be installed in accordance with RH's Plan and Procedures, permits, and other environmental authorizations. RH would segregate topsoil ahead of trenching and would stockpile subsoil separately from topsoil. In upland areas, RH would segregate topsoil across the entire construction right-of-way. In wetlands that are not saturated, RH would segregate topsoil from the trench area. RH would not segregate topsoil in saturated wetlands.

Individual sections of pipe would be strung along the right-of-way either before or after trenching. The trench would be up to 36 inches wide, and generally would be constructed with a backhoe. The pipeline would be bent where necessary to conform to the contours of the terrain, aligned, and welded. RH would visually and radiographically inspect welds for defects and repair them if necessary. After assembly, the pipeline would be lowered into the trench and backfilled with the previously excavated soil. The depth of soil cover over the top of pipe would be at least 3 feet. After backfilling, the pipe would be hydrostatically tested in accordance with USDOT regulations specified in 49 CFR 192 and state specifications. All new valves would be enclosed within a fence or barricaded area.

To protect the integrity of the pipeline system, RH would install an impressed current cathodic protection system as a corrosion prevention measure.

## 7.2 Specialized Pipeline Construction Procedures

Specialized construction methods would be used for certain areas, such as waterbody crossings and residential areas. Typical construction right-of-way cross sections for specialized construction methods are provided in appendix B. Based on the geology in the Project area, no blasting is expected to be necessary.

### 7.2.1 Waterbody Crossings

RH would use different waterbody crossing techniques depending on the type of waterbody to be traversed. RH would use standard upland trenching methods across intermittent or ephemeral waterbodies that are non-flowing at the time of construction. Streambeds and banks at these crossings would be restored in accordance with RH's Procedures. Waterbodies that are flowing at the time of construction would be crossed using one of the following dry-ditch methods; figures illustrating these crossing methods are provided in appendix B:

- **Dam and Pump:** The dam and pump method would use dams (consisting of sand bags, diversion walls, etc., covered with impermeable materials such as plastic lining), pumps, and a piping system to move water around the area of stream crossing construction activity. This method would be used on intermittent, ephemeral, or perennial streams during periods of low to moderate flow.
- **Cofferdam:** The cofferdam stream crossing method would use cofferdams to isolate a portion of a stream bed by routing or consolidating flow. RH would use cofferdams on larger waterbodies to progressively move across a stream bed and route water away from active work areas while maintaining a continuous stream flow. Sand bags may be used to reinforce cofferdam walls as needed.
- **Flume:** The flume stream crossing method would use cofferdams in conjunction with one pipe (or several pipes depending on waterbody size) to carry stream flow through the trench location. The cofferdam would be oriented and configured to direct water into the pipe or pipes, and those pipes would be arranged to discharge water back into the waterbody downstream of the crossing location.

- **Conventional Bore:** The conventional bore method would use two bore pits on either side of the crossing in combination with a jack and bore technique to install the pipe under a waterbody or other feature. This method is typically employed to cross waterbodies near road or railroad crossings and waterbodies where surface impacts need to be avoided or to avoid other sensitive resources.

- **Horizontal Directional Drilling:** Horizontal directional drilling (HDD) techniques are often used to cross waterbodies and areas where conventional trenching could produce unacceptable environmental impacts or disturbance of existing uses (e.g., highways). The HDD method involves drilling a pilot borehole under the waterbody, or targeted feature, then enlarging that borehole through successive reaming until the borehole is large enough to accommodate the pipe. For HDD construction, drilling equipment would be set up at the entry point on one side of the targeted feature. On the other side of the targeted feature, pipe for the crossing would be strung out and welded along the right-of-way or within an ATWS that lines up with the drill path. During HDD operations, bentonite-based drilling fluid would be pumped under pressure through the inside of the drill pipe and would flow back (circulate) to the drill entry/exit point along annular space between the outside of the drill pipe and the drilled hole. The pipe would be hydrostatically tested before being pulled through the drill hole.

  RH would limit clearing activities to removal of limbs and small brush along the HDD path at stream banks and bottoms to allow use of tracking wire or tools and to provide line of sight for inadvertent return monitoring.

  While the use of the HDD method would significantly minimize potential impacts on the proposed crossing of waterbodies, because the drilling fluid is pressurized, it can be lost, resulting in an inadvertent return of drilling fluid to the ground surface if the drill path encounters a pathway of less resistance, such as porous material and/or fractures or fissures in the bedrock. The HDD profile (depth and length) would be designed based on site-specific conditions to minimize the risk of inadvertent return.

  During HDD activities, personnel would monitor drilling fluid pressure and would make periodic visual observations along the drill path to ensure that any inadvertent return is identified quickly. Should an inadvertent return occur, RH would implement the response and cleanup procedures in its IRCP.

RH would increase the depth of cover to approximately 5 feet at open-cut stream crossings, and HDD crossings would be deeper. RH would cross one major waterbody, Conneaut Creek, by HDD. A smaller waterbody would be crossed by the HDD for Interstate Highway 90 (I-90).

### 7.2.2 Wetland Crossings

With the exception of wetlands within the two HDD crossings, wetlands would be crossed using an open trench method, and the construction right-of-way width would be reduced from 75 feet to 50 feet. RH would follow its Procedures for construction in wetlands. RH would install prefabricated equipment mats, as conditions require, on the working side of the construction right-of-way. RH would limit pulling of tree stumps and root systems, and grading activities to directly over the trenchline unless the Chief Inspector and Environmental Inspector (EI) determine that safety-related construction constraints require the removal of tree stumps from under the working side of the construction right-of-way.

RH would minimize the length of time that topsoil is segregated and the trench is open. Trenching would begin when the pipeline section has been assembled and is ready to install. RH would segregate the top 1 foot of topsoil from the area disturbed by trenching, except in areas where standing water is present

or soils are saturated. Once trenching starts, construction through the wetland would proceed continuously until the crossing is completed, backfilled, and restored.

### 7.2.3 Residential Areas

In residential areas, RH would use specialized construction techniques to minimize impacts on residences within 50 feet of the construction workspace. Safety fencing would be installed around the work area. RH would not remove mature trees and landscaping from within the edge of the construction workspace unless necessary to safely operate construction equipment or as specified in landowner agreements. RH would restore all lawn areas and landscaping within the construction workspace immediately after cleanup operations, or as specified in landowner agreements, consistent with the requirements of its Plan.

In addition, RH has prepared site-specific construction plans for properties with residences within 25 feet of the construction workspace (see section B.6.2). We encourage affected landowners to review these plans and provide us with any comments during the EA comment period. As part of these site-specific plans, RH would implement dust, noise, and vibration controls, and litter would be picked up daily. To minimize the time the trench is open, the trench excavation would be delayed until the pipeline is ready to be installed and either would be immediately backfilled or covered with steel plates to allow access. RH would install the pipeline in these locations using stovepipe or drag section methods. Stovepipe refers to installing the pipeline one segment at a time in the trench. The drag-section construction method involves installing a prefabricated length of pipe containing several segments.

### 7.2.4 Agricultural Areas

RH would bury the pipeline with at least 4 feet of cover in agricultural areas to allow continued farming. RH would follow measures in its Plan to minimize construction impacts in agricultural areas, including soil compaction testing. In addition, RH would segregate topsoil in areas of cultivated or rotated croplands and managed pastures, and would remove excess rock from at least the topmost 1 foot of soil in all cultivated or rotated croplands.

### 7.2.5 Roads, Railroads, and Utility Crossings

The majority of federal, state, and county roads, and railroads would either be open cut or bored. I-90 would be crossed by HDD. Conventional boring entails digging bore pits on each side of the crossing. On one side, a boring machine with an auger is used to drill a hole beneath the feature to be crossed and install the pipe. Once the pipe is installed, the pits are backfilled with the soil that was removed, and the bore pit locations are restored. Typical diagrams illustrating boring under roads, open cutting roads, and boring under railroads are provided in appendix B. RH would obtain road and railroad crossing permits prior to construction.

RH has identified a number of utilities that would be crossed by the Risberg Pipeline based on design one calls, landowner correspondence, and field surveys. These include power lines, storm sewers, natural gas lines, telecommunications lines, and unknown exposed pipe. Prior to construction, RH would require its contractors to use the Pennsylvania One Call and Ohio Utility Protection System to identify participating utilities. RH would use a mail survey of landowners to identify private utilities.

A pipeline typically is installed under existing buried utilities to maintain the required depth of cover over the pipeline along with a safe separation between the lines during construction and operation.

## 7.3 Aboveground Facilities

RH's initial activity at aboveground facility sites would be to clear the existing vegetation and grade the site as necessary to create level surfaces to establish access for the movement of construction vehicles, and to prepare the area for construction activities. Clearing would be performed only on those areas necessary for installation of structures and pipeline, including sufficient workspaces and perimeter security fencing. Installation of various erosion and sedimentation controls would begin during the initial clearing of the site. No vegetation clearing or grading would be required at either of the compressor station sites.

Construction of the new North Kingsville Meter Station would require clearing, grading, and leveling of the facility site. After the meter facility is constructed, RH would install a permanent fence. The meter facility would be constructed in accordance with industry standards and would comply with applicable USDOT requirements. All components to be placed in high-pressure gas service would be hydrostatically tested to verify integrity in accordance with USDOT regulations (49 CFR 192) before being placed in service.

## 7.4 Environmental Compliance Inspection and Monitoring

During construction, RH would employ EIs who would assess construction-related activities to confirm compliance with the environmental conditions of federal, state, or local agency permits or certificates. The EIs would monitor aspects such as erosion control, revegetation, wetland signage, environmental permit compliance, threatened and endangered species protection (if applicable), and restoration.

The EIs would conduct training sessions for the field construction management personnel and the contractor personnel prior to and during the proposed construction. RH would employ at least two EIs who would be responsible for monitoring and ensuring that construction complies with RH's Plan and Procedures and any other environmental requirements associated with Project construction. This includes one EI per construction spread and an additional EI to monitor work at the compressor and metering facilities and valve sites. The number of spreads would be dependent on the time of year when construction begins and any applicable restrictions for avoiding impacts on sensitive species.

The EIs would have authority to stop activities that violate the measures set forth in the Project documents and authorizations, and would have the authority to order corrective action. FERC staff or its contractors would also conduct routine inspections during construction to determine compliance with the Commission's Orders and to inspect the construction conditions of the Project facilities.

We received a comment questioning whether environmental monitoring would be performed after construction. Post-construction monitoring is required by RH's Plan and Procedures. After construction, RH would monitor the success of wetland revegetation annually until wetland revegetation is successful. In addition, inspections of disturbed upland areas would occur, at a minimum, after the first and second growing seasons to ensure the restoration of all areas affected by the Project. We would also continue to conduct oversight inspection and monitoring following construction. If it is determined that any of the proposed monitoring timeframes are not adequate to assess the success of restoration, RH would be required to extend its post-construction monitoring programs until restoration is complete.

## 7.5 Operations and Maintenance

RH would operate and maintain all Project facilities in compliance with USDOT regulations (49 CFR 192) and the applicable conditions of the Certificate Order for the Project, and in a manner

consistent with industry standards. Prior to putting the new facilities into service, RH would prepare an emergency plan in accordance with 49 CFR 192.615.

RH would conduct periodic aerial and ground inspections of the pipeline system for conditions that could present a safety hazard or require preventive maintenance or repairs. To facilitate visual inspections, RH would maintain vegetation on the permanent pipeline right-of-way in upland areas by mowing, cutting, and trimming, except in areas of actively cultivated cropland. In wetlands, a corridor centered on the pipeline and up to 10 feet wide would be maintained in an herbaceous state, and trees greater than 15 feet in height within 15 feet of the pipeline would be removed from the permanent right-of-way. In accordance with its Procedures, RH would not perform routine vegetation mowing or clearing in riparian or wetland areas between HDD entry and exit points. RH would also periodically inspect and clean the pipelines using pigging tools.

The compressor stations would be linked to a telemetry system that would monitor the pipeline system on a 24-hour basis. Standard operations at compressor stations would include such activities as the calibration, maintenance, and inspection of equipment, as well as the monitoring of pressure, temperature, and vibration data. Standard RH operations would also include the periodic checking of safety and emergency equipment and cathodic protection systems.

## 8.0 LAND REQUIREMENTS

The Risberg Line Project would require about 243.6 acres of land for construction of new facilities, modification of the County Line Compressor Station, and conversion of the existing gathering pipelines. A total of 362.7 acres of land would be required for operation of the Project. Table A.8-1 summarizes the land required for the Project.

TABLE A.8-1

**Summary of Land Requirements Associated with Construction and Operation of the Project**

| Facility | Milepost(s) | Land Affected by Construction (acres) [a] | Land Affected by Operation (acres) |
|---|---|---|---|
| **Pipeline Facilities** | | | |
| TGP Lateral | 0.0 – 0.1 | 0.8 | 0.8 |
| Existing gathering pipelines [b] | 0.0 – 31.5 | 0.7 | 190.6 |
| Risberg Pipeline | 31.5 - 59.9 | 210.1 | 169.5 |
| ATWS | various | 13.6 | 0.0 |
| **Pipeline facilities subtotal** | | **225.2** | **360.9** |
| **Aboveground Facilities [c]** | | | |
| Meadville Compressor Station | 0.0 | 1.2 | 1.2 |
| County Line Compressor Station | 29.7 | 0.3 | 0.3 |
| North Kingsville Meter Station | 59.9 | 0.2 | 0.2 |
| **Aboveground facilities subtotal** | | **1.7** | **1.7** |
| **Contractor and Pipe Storage Yards (3)** | 44.6, 55.3, 58.3 | **7.1** | **0.0** |
| **Access Roads** | various | **9.6** | **0.1** |
| **Total** | | **243.6** | **362.7** |

a With the exception of the existing gathering pipelines (see footnote b), construction impacts include temporary (construction) and permanent (operation) land requirements.

b Construction impacts include sites within the existing gathering pipeline permanent rights-of-way for pig launcher/receivers, valve modifications, meter tap removals, and separator removals. Operations impacts include the existing gathering pipelines permanent rights-of-way.

c Aboveground facilities within (and thus accounted for by) new pipeline right-of-way or the compressor station footprints are not shown.

About 14.5 miles (51 percent) of the Risberg Pipeline would be co-located with existing roads, railroads, or utilities. Table A.8-2 provides the locations where the Risberg Pipeline would be co-located with existing rights-of-way. At some of these locations, the pipeline construction right-of-way would overlap the existing right-of-way of the co-located feature. In appendix B, figures B-6, B-7, and B-9 depict typical construction right-of-way cross sections at locations where the pipeline construction right-of-way would overlap existing easements for a power line, road, and railroad, respectively. The permanent right-of-way for the Risberg Pipeline would be 50 feet wide, consistent with the permanent right-of-way for the existing gathering pipelines.

TABLE A.8-2

**Co-located Risberg Pipeline Segments**

| Begin Milepost | End Milepost | Facility Type | Owner or Name | Length (feet) |
|---|---|---|---|---|
| 31.5 | 31.5 | Power line | First Energy | 41 |
| 32.0 | 32.1 | Power line | First Energy | 501 |
| 33.3 | 33.6 | Road/Power line | Crossingville Road/First Energy | 1,594 |
| 33.6 | 34.2 | Road/Power line | U.S. Route 6N/First Energy | 2,880 |
| 35.3 | 35.9 | Power line | First Energy | 2,860 |
| 36.0 | 36.8 | Road/Power line | Crane Road/First Energy | 4,144 |
| 36.9 | 39.5 | Power line | First Energy | 13,968 |
| 39.6 | 39.8 | Communications | CATV buried cable | 1,260 |
| 40.1 | 40.7 | Railroad | Canadian National | 3,148 |
| 41.4 | 42.6 | Power line | First Energy | 6,093 |
| 42.6 | 42.9 | Power line | First Energy | 1,526 |
| 42.9 | 43.7 | Power line | First Energy | 4,149 |
| 43.8 | 44.1 | Power line | First Energy | 1,592 |
| 44.1 | 44.2 | Power line | First Energy | 568 |
| 46.2 | 47.3 | Railroad | Canadian National | 5,936 |
| 47.6 | 48.2 | Power line | First Energy | 3,013 |
| 49.1 | 50.3 | Road | I-90 | 5,919 |
| 51.0 | 51.6 | Power line | First Energy | 3,602 |
| 53.1 | 53.5 | Road | W Under Ridge Road | 2,075 |
| 55.2 | 55.2 | Road | Unnamed gravel drive | 359 |
| 56.2 | 57.2 | Railroad | Norfolk Southern | 5,483 |
| 58.1 | 58.3 | Road | HWY 20 | 691 |
| 58.5 | 59.0 | Railroad | CSX | 2,472 |
| 59.2 | 59.7 | Railroad | CSX | 2,742 |
| | | | **Total in Miles** | **14.5** |

RH proposes to use three previously disturbed sites as pipe storage and contractor yards. Pipe/Contractor Yard 1, at Milepost (MP) 44.6, is currently an agricultural field southwest of the intersection of Highway 6N and Underridge Road in Erie County, Pennsylvania. Pipe/Contractor Yard 2, at MP 58.3, is a former gravel mine site located northwest of the intersection of East Center Street and Harmon Road in North Kingsville, Ohio. Pipe/Contractor Yard 3 is currently an agricultural field adjacent to Creek Road at MP 55.3 in Ashtabula County, Ohio. RH would complete some minor grading of these lots to level them.

Each compressor station would be accessed through an existing maintained road. The access for the North Kingsville Meter Station would be from an existing road connecting to North Center Street that RH would modify by grading and adding gravel. This would become a permanent access road, PAR-1.

Work areas for activities associated with conversion of the existing gathering pipelines would be accessed from public roads and the existing permanent right-of-way.

As shown in table A.8-3, RH would use 17 gravel roads varying in length from 84 feet to 2,270 feet to temporarily access the Risberg Pipeline construction right-of-way. These include five existing roads that would require only limited grading, and the remaining access roads would be either new or modified from existing dirt or gravel roads. New temporary access roads would be removed and the area restored after the Project is constructed.

TABLE A.8-3

**Temporary Access Roads**

| Name | Milepost | County, State | Existing Land Use | Length (feet) [a] | Proposed Modification |
|---|---|---|---|---|---|
| TAR-1 | 31.6 | Erie County, PA | Existing dirt field road | 1,607 | Grade, add gravel |
| TAR-2 | 32.8 | Erie County, PA | Existing dirt field road | 1,030 | Grade, add gravel |
| TAR-3 | 37.7 | Erie County, PA | Existing dirt field road | 1,410 | Limited grading |
| TAR-4 | 39.6 | Erie County, PA | Existing dirt field road | 117 | Grade, add gravel |
| TAR-5 | 44.8 | Erie County, PA | Grass field | 916 | Grade, add gravel |
| TAR-6 | 47.3 | Erie County, PA | Existing gravel road | 1,594 | Grade, add gravel |
| TAR-7 | 48.2 | Erie County, PA | Previous access road, overgrown | 1,215 | Limited grading |
| TAR-8 | 49.4 | Ashtabula County, OH | Existing dirt field road and farm field | 337 | Grade, add gravel |
| TAR-9 | 50.2 | Ashtabula County, OH | Existing farm road | 475 | Limited grading |
| TAR-10 | 50.4 | Ashtabula County, OH | Existing gravel drive | 397 | Grade, add gravel |
| TAR-11 | 50.5 | Ashtabula County, OH | Existing gravel drive | 709 | Grade, add gravel |
| TAR-12 | 54.1 | Ashtabula County, OH | Existing dirt field road | 2,270 | Grade, add gravel |
| TAR-13 | 54.5 | Ashtabula County, OH | Existing dirt field road | 84 | Grade, add gravel |
| TAR-14 | 55.5 | Ashtabula County, OH | Existing dirt field road | 1,197 | Limited grading |
| TAR-15 | 57.1 | Ashtabula County, OH | Existing dirt field road | 1,649 | Limited grading |
| TAR-16 | 57.1 | Ashtabula County, OH | Existing gravel/slag | 613 | Grade, add gravel |
| TAR-17 | 59.0 | Ashtabula County, OH | Wooded area, existing dirt field road | 863 | Grade, add gravel |

a All temporary access roads would be 25 feet wide.

Although RH has identified access roads and areas where extra workspace would be required, additional or alternative areas could be identified in the future due to changes in site-specific construction requirements. RH would be required to file information on each of those areas for review and approval prior to use.

## SECTION B – ENVIRONMENTAL ANALYSIS

## 1.0 GEOLOGY

### 1.1 Geologic Setting

From east to west, the Project would cross the Northwestern Glaciated Plateau Section of the Appalachian Plateaus Physiographic Province, the Eastern Lake Section of the Central Lowlands Physiographic Province, and the Glaciated Allegheny Plateaus Section of the Appalachian Plateaus Physiographic Province. The Northwestern Glaciated Plateau Section is in northwestern Pennsylvania and consists of broad, rounded uplands with steep-sided linear valleys partly filled with glacial deposits. Bedrock consists of subhorizontal beds of shale, siltstone, and sandstone. The area exhibits very low to moderate local relief, and elevations range from approximately 900 to 2,200 feet above mean sea level (amsl) (Sevon, 2000). The Eastern Lake Section is in the northwestern-most corner of Pennsylvania, abutting Lake Erie, and consists of northwest-sloping, lake-parallel, low-relief ridges. Bedrock consists of beds of shale and siltstone with horizontal or low-south-dipping strata. The area exhibits very low to low local relief, and elevations range from approximately 570 to 1,000 feet amsl (Sevon, 2000). The Glaciated Allegheny Plateaus Section of northeastern Ohio consists of gently rolling ground and end moraine composed of thin to thick drift. Geology is comprised of clayey, low-lime Wisconsinan-age till over deeply buried bedrock consisting of soft Devonian-age shales and near surface Mississippian-age sandstones and shales. Within the vicinity of the Project, the Glaciated Allegheny Plateaus Section exhibits low local relief, and elevations range from approximately 800 to 900 feet amsl (ODNR, 1998).

### 1.2 Mineral Resources

As shown in table B.1.2-1, three active and three inactive aggregate mines would be within 0.25 mile of the Project area in Ohio (ODNR, 2017a). Of these six mines, two active and two inactive mines would be within the construction right-of-way along the mine property margins. RH has executed agreements with owners of the mine properties to address pipeline construction in the immediate vicinity of these mine properties. The easements restrict subsurface activities and construction of permanent aboveground structures within the permanent right-of-way. RH worked with the landowners to determine the placement of the proposed route on their properties to avoid restricting their ability to expand the current or future mining operations to the greatest extent possible. Blasting is currently not used as part of the extraction process at the active mine properties crossed. RH would continue to communicate with the mine owners as well as participate in the One Call system during operation of the pipeline to monitor for future use of blasting in the vicinity of the permanent right-of-way. No active mines would be within 0.25 mile of the Project in Pennsylvania, but one abandoned mine would be within 0.25 mile of the Risberg Pipeline construction right-of-way (U.S. Geological Survey [USGS], 2018a).

TABLE B.1.2-1

**Mines Within 0.25 Mile of the Project**

| Milepost | State | Distance to Construction Workspace (feet) | Type | Status |
|---|---|---|---|---|
| 47.5 | Pennsylvania | 930 | Sand and Gravel | Abandoned |
| 55.1 | Ohio | 400 | Sand and Gravel | Inactive |
| 56.7 to 57.2 | Ohio | Within [a] | Gravel | Inactive |
| 57.5 to 57.6 | Ohio | Within | Sand and Gravel | Active |
| 58.3 to 58.8 | Ohio | Within | Gravel | Inactive |
| 58.8 to 59.1 | Ohio | Within | Sand and Gravel | Active |
| 59.4 | Ohio | 1,190 | Sand, Gravel, and Clay | Active |

a "Within" indicates that the construction workspace overlaps the mine property boundary.
Sources: ODNR (2017a), USGS (2018a)

Hundreds of oil and gas wells are within 0.25 mile of the Project. Table B.1.2-2 lists the oil and gas wells that would be within 150 feet of the Project. No wells are within 150 feet of the compressor stations or the proposed workspaces for the TGP Lateral and existing gathering pipeline modifications. Eight wells would be within 150 feet of the construction right-of-way for the Risberg Pipeline. These include one plugged well that would be within the construction right-of-way and 24 feet from pipeline centerline. To avoid disturbing this plugged well, RH would install balustrades, use orange safety fencing, and/or employ the stove pipe construction method. The other wells would be greater than 50 feet from the construction right-of-way. RH would use orange safety fencing to clearly delineate wells for avoidance. EIs would monitor well locations adjacent to the Project to ensure that the wells are clearly delineated and that appropriate measures are being implemented for protection of the wells.

TABLE B.1.2-2

**Oil and Gas Wells within 150 feet of the Project**

| Milepost | State | Distance from Project (feet) [a] | Status |
|---|---|---|---|
| **Existing Gathering Pipelines** | | | |
| 1.0 | Pennsylvania | Within permanent right-of-way | Active |
| 12.8 | Pennsylvania | 108 | Active |
| 14.6 | Pennsylvania | 29 | Active |
| 19.7 | Pennsylvania | 35 | Active |
| 25.0 | Pennsylvania | 69 | Active |
| 29.7 | Pennsylvania | 101 | Active |
| **Risberg Pipeline** | | | |
| 33.2 | Pennsylvania | 117 | Active |
| 36.0 | Pennsylvania | 78 | Active |
| 41.4 | Pennsylvania | 73 | Active |
| 44.6 | Pennsylvania | Within construction right-of-way | Plugged |
| 49.4 | Ohio | 115 | Active |
| 52.5 | Ohio | 133 | Active |
| 53.1 | Ohio | 142 | Active |
| 54.2 | Ohio | 80 | Active |

a Construction workspace for the Risberg Pipeline and permanent right-of-way for the existing gathering pipelines. The oil and gas wells within 150 feet of the existing gathering pipelines are not within 150 feet of areas that would be disturbed by construction activities.
Sources: PADEP (2017a), ODNR (2017b).

According to the PADEP's oil and gas well mapping website, an active oil and gas well is within the permanent right-of-way of the existing 12-inch-diameter gathering pipeline at about MP 1.0. No soil disturbance is proposed at this location for the Project; however, operation and maintenance activities, including vegetation maintenance, could have the potential to damage this well. Therefore, **we recommend that:**

- **<u>Prior to commencement of service on the existing 12-inch-diameter pipeline</u>, RH should confirm the location of the oil and gas well near MP 1.0, and if it is within the permanent right-of-way for the Project, RH should file with the Secretary of the Commission (Secretary), for review and written approval by the Director of the Office of Energy Projects (OEP), a site plan showing the location of the well relative to the pipeline and measures for protecting the well.**

One producing well and one permitted, but not yet drilled, oil and gas well would be within 500 feet of both the I-90 HDD and the Conneaut Creek HDD in Ohio. Because these wells would be cased at least through the shallow unconsolidated deposits and incompetent bedrock, cross communication with HDD drilling fluid would be unlikely.

RH has routed the Risberg Pipeline to avoid or minimize impacts on the aggregate mine properties in the Project area and would implement measures to protect oil and gas wells near the construction right-of-way. In addition, we have recommended that RH file additional information on the recorded active well within the permanent right-of-way of the 12-inch-diameter pipeline. Therefore, we conclude that the Project would not have a significant impact on mineral resources.

## 1.3 Geologic Hazards

Geologic hazards are natural, physical conditions that can result in damage to land and/or structures, and injury to people. Such hazards typically are seismic-related, including earthquakes, surface faulting, and soil liquefaction. Other potential hazards include landslides, flooding, and ground subsidence (including karst terrain). These hazards, as well as the feasibility of utilizing HDD, based on geologic conditions present in the Project area, and the potential for an inadvertent return of drilling fluid to the surface during HDD activities are discussed below.

### 1.3.1 Seismic-related Hazards

The Project would be in an area of relatively low seismicity. The shaking during an earthquake can be expressed in terms of the acceleration as a percent of gravity (g), and seismic risk can be quantified by the motions experienced at the ground surface or by structures during a given earthquake expressed in terms of g. USGS National Seismic Hazard Probability Mapping shows that for the Project area, within a 50-year period, there is a 2 percent probability of an earthquake with an effective peak ground acceleration (PGA) of 4 to 10 percent g; and a 10 percent probability of an earthquake with an effective PGA of 1 and 3 percent g being exceeded (2014). For reference, PGA of 10 percent g (0.1 g) is generally considered the minimum threshold for damage to older structures or structures not constructed to resist earthquakes. A 4 to 10 percent g PGA is characterized as moderate to strong perceived ground shaking and very light to light potential damage, and a 1 to 3 percent g PGA is associated with weak to light perceived ground shaking and no potential for damage (USGS, 1989).

Sixteen relatively low-magnitude (2.0 to 4.5) earthquakes have been recorded within 10 miles of the Project since 1987 (see table B.1.3-1). Most of these, including the largest, were associated with an injection well associated with oil and gas production near Ashtabula, Ohio, that has since been sealed. The closest identified active wastewater injection well associated with oil and gas production is approximately

4.7 miles south of the Project area near MP 54 (PADEP, 2017a; ODNR, 2017b). Based on this data, we conclude the risk for seismic ground motion to cause damage to the Project facilities is low.

TABLE B.1.3-1

**Earthquakes with Epicenters within 10 miles of the Risberg Line Project Right-of-Way**

| Milepost | Distance from Project Area (miles) | State | Date | Magnitude ($M_W$) |
|---|---|---|---|---|
| 14.5 | 4.1 | PA | 01/03/2007 | 2.1 |
| 26.6 | 7.5 | PA | 12/17/1990 | 2.5 |
| 49.1 | 3.2 | OH | 09/28/2007 | 2.1 |
| 49.6 | 3.6 | OH | 09/28/2007 | 2.7 |
| 59.9 | 4.0 | OH | 06/03/2001 | 3.4 |
| 59.9 | 4.1 | OH | 07/13/1987 | 3.5 |
| 59.9 [a] | 4.3 | OH | 01/25/2001 | 4.5 |
| 59.9 | 4.8 | OH | 01/20/2001 | 2.6 |
| 59.9 | 4.8 | OH | 07/17/2003 | 2.5 |
| 59.9 | 5.7 | OH | 07/13/1987 | 3.0 |
| 59.9 | 5.7 | OH | 07/13/1987 | 2.9 |
| 59.9 | 5.7 | OH | 07/14/1987 | 2.8 |
| 59.9 | 5.7 | OH | 07/14/1987 | 2.7 |
| 59.9 | 6.1 | OH | 01/26/2001 | 2.0 |
| 59.9 | 6.5 | OH | 12/11/2005 | 3.9 |
| 59.9 | 7.7 | OH | 02/23/1995 | 2.9 |

a Coordinates of the earthquake on 01/25/2001 provided by the Ohio Seismic Network.
Source: USGS (2017)

A commenter asked about the risk associated with faults. The USGS considers a fault to be active if displacements have occurred along the fault in the last 10,000 years (USGS, 2008). Based on the USGS map of Quaternary faults, no active surface faults are present in the Project area (2006).

Soil liquefaction is a phenomena associated with seismic activity in which saturated, non-cohesive soils temporarily lose their strength and liquefy (i.e., behave like a viscous liquid) when subjected to forces such as intense and prolonged ground shaking. Because of the low seismic risk in the Project area, we conclude that soil liquefaction would not pose a significant risk to the Project.

### 1.3.2 Landslides

The Project area for the Risberg Pipeline in Pennsylvania has generally low landslide susceptibility, with local areas of moderate to high landslide susceptibility between MPs 0 and 38 at waterbody crossings. The area between MPs 38 and 48 has high landslide potential along lake bluffs and stream banks (Delano and Wilshusen, 2001). The Project would not be constructed along any lake bluffs but does cross waterbodies (stream banks) in this area. The Project area within Ohio lies in an area rated as having a low (approximately between MPs 48 and 55) to moderate (approximately between MPs 55 and 59.9) incidence of landslides (Ohio Emergency Management Agency [OEMA], 2011). Nearly 50 locations along the Risberg Pipeline route have slopes greater than 30 feet. Most of these areas are about 100 to 150 feet in length and occur at waterbody crossings. The compressor station and meter station locations, as well as workspaces for modifications to the existing gathering pipelines facilities are relatively flat.

RH would minimize landslide hazards at stream banks through construction according to its Procedures, including use of trench plugs and permanent waterbars to mitigate, restore, and stabilize steep slope areas. Horizontal cleating with a tracked machine across sloped areas and erosion control blankets would also be used to promote slope stability. RH would install underground drainage/wick drains if

necessary based on groundwater conditions. RH has identified portions of the Risberg Pipeline route with slopes of 15 percent or greater, but has not conducted assessments of slope stability in these areas. Therefore, **we recommend that:**

- **<u>Prior to construction of the Risberg Pipeline</u>, RH should file with the Secretary, for review and written approval by the Director of OEP, a slope stability assessment. RH should complete the assessment by a licensed geotechnical engineer to identify specific locations along the Risberg Pipeline with the potential for slope failure and site-specific measures to mitigate the potential hazard.**

### 1.3.3 Flash Flooding and Scour

The Risberg Pipeline would cross three Federal Emergency Management Agency (FEMA) 100-year flood zones. The existing gathering pipelines cross 12 FEMA 100-year flood zones. These flood zones are shown in table B.1.3-2. No permanent aboveground facilities would be located within these areas.

TABLE B.1.3-2

**Project Areas within FEMA 100-year Flood Zones**

| Milepost | County, State | Associated Waterbody |
|---|---|---|
| **Existing Gathering Pipelines** | | |
| 2.0 | Crawford, PA | Mud Run |
| 3.6 | Crawford, PA | Unnamed tributary to Little Sugar Creek |
| 6.8 | Crawford, PA | Unnamed tributary to Little Sugar Creek |
| 10.3 | Crawford, PA | Woodcock Creek |
| 12.6 | Crawford, PA | Bossard Run |
| 14.4 | Crawford, PA | Gravel Run |
| 19.0 | Crawford, PA | Boles Run |
| 19.2 | Crawford, PA | French Creek |
| 21.0 | Crawford, PA | Unnamed tributary to Torry Run |
| 23.4 | Crawford, PA | Boles Run |
| 28.3 | Erie, PA | Cussewago Creek |
| 30.8 | Erie, PA | West Branch Cussewago Creek |
| **Risberg Pipeline** | | |
| 37.6 – 37.8 | Erie, PA | East Branch of Conneaut Creek |
| 34.7 – 34.8 | Erie, PA | Unnamed tributary to Temple Creek |
| 54.6 – 54.8 | Ashtabula, OH | Conneaut Creek |

Source: FEMA (2017)

Installation of the pipeline would not affect the floodplain, as it would be installed subsurface and all contours would be restored following completion of construction activities. Flooding could affect the pipeline by increasing buoyancy, causing the pipeline to rise toward the land surface where it may become exposed. Furthermore, the Risberg Pipeline crosses waterbodies (listed in appendix C) where scour may cause the pipeline to become exposed. RH would implement the following measures to minimize the risk of pipeline exposure at these locations:

- increase the burial depth to 5 feet at open cut stream crossings;
- install conventional bore crossings at a minimum depth of 5 feet at waterbodies;
- install pipeline with minimum clearance of 30 feet below the existing creek bed at Conneaut Creek through HDD;

- use weighted pipe for areas susceptible to pipe floatation, including waterbody crossings, floodplains, and shallow groundwater areas;
- complete waterbody crossings in accordance with its Procedures; and
- monitor waterbody crossings for evidence of flooding and scour during operations.

Given RH's proposed mitigation measures and that no permanent aboveground facilities would be constructed within FEMA 100-year flood zones, we conclude that Project facilities would not adversely affect the function of the floodplain and would not be adversely impacted by flash flooding or scour hazards.

### 1.3.4 Karst Terrain and Ground Subsidence

Ground subsidence, involving the localized or regional lowering of the ground surface, may be caused by karst formation due to limestone or gypsum bedrock dissolution or sediment compaction due to groundwater pumping and/or oil and gas extraction, and underground mining. Oil and gas extraction occurs in the Project vicinity. However, there have been no reported subsidence hazards as a result of these activities. Subsurface mines do not occur in the Project area and Project areas do not overlie unconsolidated aquifers susceptible to subsidence from excessive pumping; no karst terrain is present (Pennsylvania Department of Conservation and Natural Resources [PA DCNR], 2018; ODNR, 1999). The lithology that could lead to bedrock dissolution and karst development do not generally occur within the Project area and were not observed in geotechnical studies conducted at HDD crossing locations. As such, the potential for ground subsidence to occur is negligible.

We conclude that with RH's adherence to its proposed construction, operation, and mitigation procedures, and our recommendations, geologic hazards would not pose a significant risk to the proposed facilities.

## 1.4 Blasting

Bedrock is unlikely to be encountered during construction (Soil Survey Staff, 2017 and 2018a), with the exception of construction workspace near MPs 48.1 to 54.4 where soils are mapped as Hornell silt loam with depth to bedrock of 28 to 31 inches. This bedrock is likely to be soft enough to dig. If competent bedrock is encountered, RH would use a rock hammer for trench excavation. RH would not use blasting during construction.

## 1.5 HDD Feasibility and Geotechnical Investigation

Length of an HDD alignment, pipeline diameter, and subsurface material are factors in the technical feasibility of an HDD installation. Subsurface conditions that can affect feasibility of an HDD installation include excessive rock strength and abrasivity, poor rock quality, solution cavities, and artesian conditions. Furthermore, inadvertent returns are more likely to occur in less permeable soils or via fractures or fissures in bedrock. Chances for an inadvertent return to occur are greatest near the drill entry and exit points where the drill path has the least amount of ground cover.

RH has proposed the use of the HDD construction method to cross Conneaut Creek and I-90. RH drilled five geotechnical borings (two adjacent to the I-90 crossing and three adjacent to the Conneaut Creek crossing) to depths of approximately 50 to 100 feet below the ground surface in an effort to evaluate subsurface conditions along the proposed alignments. The borings encountered glacial till consisting of mostly sandy clay with layers of sand. The three borings adjacent to the Conneaut Creek crossing also encountered highly to intensely fractured shale bedrock (Devonian Ohio Shale) beneath the till. Most of the observed shale was weathered to varying degrees.

Based on evaluation of the data collected, RH concluded that the risk of significant HDD operational problems and delays associated with the proposed crossings was average to below average and pipe stress analyses and hydraulic fracturing analysis showed a high likelihood of success for the crossings.

To minimize potential drilling complications, including inadvertent returns, RH would contract with an experienced HDD installation contractor who would follow various industry standard best management practices (BMP) such as monitoring drilling fluid makeup and injection rates, maintaining a clean borehole during the drilling process, and installing conductor casing if necessary. RH would additionally follow its IRCP which outlines specific procedures to minimize and address inadvertent returns during construction.

Based on the above analysis, we do not believe the presence of glacial till and fractured bedrock identified by the geophysical studies would render the HDD infeasible or significantly increase the risk of drill failure or inadvertent returns, and we conclude that potential impacts from inadvertent returns would not be significant.

## 2.0 SOILS

Soils crossed by the Project are mainly silt loams, gravelly loams, sandy loams, and loamy sands that have formed in Wisconsinan-age till, glaciolacustrine sediments, glaciofluvial sediments, and alluvial deposits. These soils range from moderately deep to very deep, with the majority of the soils being classified as very deep. Soils were evaluated based on characteristics that could affect construction or increase the potential for soil impacts. These characteristics include prime farmland, compaction-prone soils, highly erodible soils, low revegetation potential, shallow bedrock, and soils with poor or excessive drainage. Table B.2-1 summarizes soil characteristics and limitations for the Project.

### 2.1 Prime Farmland

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) defines prime farmland as land that has the best combination of physical and chemical characteristics for growing food, feed, forage, fiber, and oilseed crops. Unique farmland is land that is used for production of specific high-value food and fiber crops. In addition, soils may be considered of statewide or local importance if those soils are capable of producing a high yield of crops when managed according to accepted farming methods. A total of 142.4 acres of the soils that would be temporarily affected by the Project during construction are considered prime farmland, unique farmland, or farmland of statewide or local importance. Of these soils, 101.8 acres would be within permanent pipeline right-of-way.

### 2.2 Soil Compaction

Soil compaction modifies the structure of soil by decreasing the pore space between soil particles. The pore space is important for water-retention and movement of air and water through the soil to plant roots. Compacting soil may alter drainage, reduce soil productivity and plant growth rates, and increase susceptibility to erosion. Soil compaction is of particular concern in agricultural areas. None of the soils that would be affected by the Project during construction have high potential for soil compaction (Soil Survey Staff, 2018b). However, the majority of the soils that would be in the pipeline construction right-of-way and workspaces are considered to have medium compaction potential.

TABLE B.2-1

**Soil Characteristics and Limitations (acres)**

| Component | Prime Farmland [a] | | High Compaction Potential [b] | | High Erosion Potential [c] | | Poor Revegetation Potential [d] | | Shallow Bedrock [e] | | Hydric [f] | | Poor or Excessive Drainage [g] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Temp | Perm | Temp | Perm | Temp | Perm | Temp | Perm | Temp | Perm | Temp | Perm | Temp | Perm |
| **Pipeline Facilities** | | | | | | | | | | | | | | |
| TGP Lateral and Modifications to existing gathering pipelines | 0.7 | 0.7 | 0.0 | 0.0 | 0.2 | 0.2 | 0.9 | 0.9 | 0.0 | 0.0 | 1.4 | 1.4 | 1.4 | 1.4 |
| Risberg Pipeline | 125.9 | 101.1 | 0.0 | 0.0 | 61.9 | 49.3 | 18.1 | 16.6 | 6.8 | 5.1 | 92.1 | 75.6 | 130.2 | 105.5 |
| **Subtotal** | **126.8** | **101.8** | **0.0** | **0.0** | **62.1** | **49.5** | **19.0** | **17.5** | **6.8** | **5.1** | **93.5** | **77.0** | **131.6** | **106.9** |
| **Aboveground Facilities** | | | | | | | | | | | | | | |
| Meadville Compressor Station | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 1.2 | 1.2 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 |
| County Line Compressor Station | 0.0 [h] | 0.0 [h] | 0.0 | 0.0 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.3 | 0.3 |
| North Kingsville Meter Station | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 |
| **Subtotal** | **0.1** | **0.0** | **0.0** | **0.0** | **1.5** | **1.5** | **1.2** | **1.2** | **0.0** | **0.0** | **0.3** | **0.3** | **0.7** | **0.7** |
| **Other Areas** | | | | | | | | | | | | | | |
| ATWS and Contractor and Pipe Storage Yards (3) | 9.4 | 0.0 | 0.0 | 0.0 | 2.7 | 0.0 | 0.7 | 0.0 | 0.2 | 0.0 | 9.3 | 0.0 | 10.6 | 0.0 |
| Access Roads | 6.3 | 0.1 | 0.0 | 0.0 | 2.3 | 0.1 | 0.6 | 0.0 | 0.9 | 0.0 | 4.8 | 0.0 | 8.6 | 0.1 |
| **Subtotal** | **15.7** | **0.1** | **0.0** | **0.0** | **5.0** | **0.1** | **1.3** | **0.0** | **1.1** | **0.0** | **14.1** | **0.0** | **19.2** | **0.1** |
| | | | | | | | | | | | | | | |
| **Project Totals** | **142.4** | **101.9** | **0.0** | **0.0** | **68.7** | **51.1** | **21.5** | **18.7** | **7.9** | **5.1** | **107.9** | **77.3** | **151.5** | **107.7** |

a Includes prime farmland, unique farmland, and farmland of statewide or local importance (Soil Survey Staff, 2017).

b Based on compaction potential for each soil type according to the USDA NRCS Web Soil Survey (Soil Survey Staff, 2017).

c High water erosion potential includes soils designated as having a Capability Class of 4 or greater AND a Capability Subclass of e; OR the slope class with slope greater than 8%. High wind erosion potential includes soils in wind erodibility groups 1 and 2 according to the USDA NRCS Web Soil Survey (Soil Survey Staff, 2017).

d Includes soils that have a Capability Class of 4 or greater and a Capability Subclass designation of w, s, or c according to the USDA NRCS Web Soil Survey (Soil Survey Staff, 2017).

e Includes soils classified as having bedrock within 60 inches of the ground surface according to the USDA NRCS Web Soil Survey (Soil Survey Staff, 2018).

f Includes soils with hydric ratings greater than 0 according to the USDA NRCS Web Soil Survey (Soil Survey Staff, 2017).

g Includes soils with drainage classes of somewhat poorly drained, poorly drained, very poorly drained, somewhat excessively drained, or excessively drained according to the USDA NRCS Web Soil Survey (Soil Survey Staff, 2017).

h Soil survey results indicate prime farmland soils at the County Line Compressor Station (Soil Survey Staff, 2017); however, this area has already been removed from farming.

Temp = Temporary

Perm = Permanent

## 2.3 Soil Erosion

Soil characteristics such as texture, grain size, slope of the land, organic content, and vegetative cover affect soil erosion potential. Soil disturbance can increase wind and water erosion. A total of 68.7 acres of the soils that would be affected by the Project during construction are highly susceptible to erosion.

## 2.4 Low Revegetation Potential

Successful revegetation is important for maintaining soil productivity and for protecting soil from damage, such as erosion. In forested areas, water infiltration, which is normally enhanced by vegetation, could be reduced until vegetation is reestablished. Soils with poor or excessive drainage, shallow depth to bedrock, and steep slopes may be more difficult to revegetate. A total of 21.5 acres of the soils that would be affected by the Project during construction have poor revegetation potential.

## 2.5 Shallow Depth to Bedrock

Construction in soils with shallow bedrock (those with bedrock less than 5 feet from the surface) could result in mixing stones or rock fragments into surface soils. Stony soils can interfere with agriculture and make revegetation more difficult. Approximately 7.9 acres of the soils affected by the Project during construction have shallow bedrock.

## 2.6 Poor or Excessive Drainage

Soil drainage is important for maintaining soil structure and function. Hydric soils form under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions. Hydric soils include very poorly, poorly, and somewhat poorly drained soils. Due to extended periods of saturation, hydric soils can be prone to compaction and rutting. In excessively and somewhat excessively drained soils, water is removed very rapidly, and internal free water is usually very rare or very deep. These soils can be difficult to revegetate, which can make them more susceptible to damage such as erosion. A total of 107.9 acres that would be affected by the Project during construction have hydric soils, and 151.5 acres have very poorly, poorly, and somewhat poorly drained soils or excessively and somewhat excessively drained soils.

## 2.7 Soil Contamination

The Project would not disturb areas of known soil contamination. If unexpected hazardous wastes or suspect contaminated soils are encountered during construction of the Project, RH would implement the measures in the Unanticipated Hazardous Waste Discoveries section of its PPCP.

## 2.8 Impacts and Mitigation

We received comments on the potential for erosion and sedimentation, particularly into streams in the Conneaut Creek watershed and wetlands, as well as comments on disturbance of the glacial deposits and old lakebed sediments that make up soils in the area. The primary potential impacts of construction on soils are soil erosion, mixing of topsoil and subsoil, poor revegetation, compaction, and rutting in excessively wet soils. In areas with shallow depth to bedrock, there is a potential for introduction of stone into topsoil.

RH's use of measures contained in its Plan and Procedures; ESCPs; and SWPPPs would minimize the impacts from construction activities. These measures would include, but would not be limited to:

- controlling erosion by use of temporary erosion control devices such as trench plugs, slope breakers, hay bales, and silt fences;
- segregating and protecting topsoil from subsoils during trenching in agricultural areas, residential areas, and unsaturated wetlands;
- postponing work in excessively wet conditions in upland soils;
- using low ground-weight equipment or soil stabilization materials such as timber mats when soils are saturated or standing water is present;
- completing final grading, topsoil replacement, and installation of permanent erosion control structures within 20 days after backfilling the trench; and
- inspecting the right-of-way and maintaining erosion and sediment controls as necessary until final stabilization is achieved.

In addition, RH would implement strategies recommended by the NRCS to prevent soil compaction, including 1) fencing off areas prone to soil compaction; 2) using radial tires in lieu of bias-ply tires to create a larger footprint and more surface area; 3) minimizing the use of tractor trailers or other vehicles with high inflation pressure and small footprints in agricultural fields; and 4) reducing unnecessary vehicle and pedestrian traffic.

Following construction, RH would employ restoration mitigation measures, including 1) installing permanent erosion control barriers as necessary; 2) restoring pre-construction contours; 3) removing excess rocks from soils, and 4) revegetating the right-of-way as soon as possible following final grading. RH would conduct follow-up inspections of all disturbed areas after the first and second growing seasons, at a minimum, to determine the success of revegetation.

Contamination from spills or leaks of fuels, lubricants, or coolant from construction equipment could adversely affect soils. The effects of such contamination are typically minor because of the low frequency and small volumes of spills and leaks. If an accidental release occurred during construction of the Project, RH would implement its PPCP.

We have determined that, with implementation of RH's Plan and Procedures; ESCPs; SWPPPs; and PPCP; as well as implementation of USDA recommendations; the majority of impacts on soils would be temporary and adequately minimized during construction and restoration.

New permanent impacts on soils would occur only at new aboveground facilities and the permanent access road for the North Kingsville Meter Station, which would be modified. No new aboveground facilities or permanent access roads would be in areas considered prime farmland, unique farmland, or farmland of statewide or local importance. While alteration of soil drainage characteristics may occur at these locations, impacts would be highly localized and minor. Therefore, permanent impacts on soils also would not be significant.

# 3.0 WATER RESOURCES AND WETLANDS

## 3.1 Groundwater

### 3.1.1 Existing Groundwater Resources

The Project is located within the Appalachian Plateaus Physiographic Province and the Central Lowlands Physiographic Province, and overlies the USGS Appalachian Plateau and Central Lowland Aquifer Systems. These systems include a surficial aquifer system of unconsolidated deposits underlain by aquifers within consolidated rock (USGS, 1995 and 1997).

Surficial aquifers consist of sand and gravel from alluvial and glacial deposits. Precipitation and runoff recharge the surficial aquifers, which are generally suitable for municipal supplies. Well yields typically range from 100 to 500 gallons per minute but can exceed 2,000 gallons per minute.

The primary aquifer systems within consolidated rock underlying the Project area are the Pennsylvanian and Mississippian Aquifers. The Pennsylvanian Aquifers are mostly sandstones and limestones, and can be broken down into the Upper and Lower Pennsylvanian Aquifers. Principal aquifers are aquifers with the potential to produce potable water. The Pennsylvanian Aquifers are not principal aquifers within the Project area.

The Mississippian Aquifers are principal aquifers just south of the Project area in the southern portions of Crawford County, Pennsylvania, and in Ashtabula County, Ohio. These aquifers consist primarily of sandstones. Well yields are highly variable and can depend on the wells' proximity to fractures in the rock. In Pennsylvania, wells typically produce between 30 and 300 gallons of water per minute. In Pennsylvania and Ohio, the recharge source for Mississippian Aquifers is largely the overlying surficial aquifer system. Within the Appalachian Plateau Aquifer System, the consolidated rock aquifers contain pockets of brine water. Water within this system is generally satisfactory for municipal supplies and other purposes.

A sole-source aquifer is an aquifer designated by the U.S. Environmental Protection Agency (EPA) as the "sole or principal source" of drinking water for a given service area. This designation applies to aquifers that supply 50 percent or more of the drinking water for an area and for which no reasonably available alternative sources exist should the aquifer become contaminated. No sole-source aquifers are present in Crawford and Erie Counties, Pennsylvania, or Ashtabula County, Ohio (EPA, 2018a).

### 3.1.2 Public and Private Water Supply Wells

Four private wells would be within 150 feet of the construction workspace for the Risberg Pipeline, including three water supply wells and one monitoring well (see table B.3.1-1). No wells were identified within 150 feet and no springs were identified within 400 feet of the construction workspace for the compressor stations or existing gathering pipelines. No public or community wells would be within 0.5 mile of the Project area.

TABLE B.3.1-1

**Private Wells within 150 feet of Construction Workspace**

| Well ID | Milepost | County, State | Distance and Direction from Construction Workspace (feet) | Description |
|---|---|---|---|---|
| **Risberg Pipeline** | | | | |
| 01092155 | MP 33.5 | Erie, PA | 40, south | Private/Domestic |
| 01092195 | MP 33.7 | Erie, PA | 28, south | Private/Domestic |
| 01092222 | MP 34.1 | Erie, PA | 81, north | Private/Domestic |
| 20354444 | MP 57.3 | Ashtabula, OH | 88, west | Groundwater Monitoring - Active |

Sources: PADEP (2017b), ODNR (2017c)

### 3.1.3 Contaminated Groundwater

Several sites within 0.25 mile of the Project have the potential for groundwater contamination. One Superfund site was identified in Ashtabula County, Ohio, near MP 57.3. This site had leachate, which contaminated Conneaut Creek and groundwater with volatile organic compounds (VOC). Cleanup was undertaken, and deed restrictions limit ground disturbance and groundwater extraction below 10-foot depths for activities within 1,000 feet of Creek Road. The Risberg Pipeline construction right-of-way is generally 1,300 feet or more away from Creek Road. RH would not disturb the subsurface within 1,000 feet of Creek Road. Based on review of groundwater flow direction, monitoring well test results, depth to water, and deed restrictions, RH does not anticipate encountering contaminated groundwater associated with this site during construction activities.

Several leaking underground storage tank sites were identified within 0.25 mile of the Project; however, all tanks have been removed and remedial actions completed, so groundwater contamination is not expected near these sites.

Aquifers in Pennsylvania and Ohio are often subject to groundwater contamination due to the improper construction, casing, or plugging of oil and gas wells in the region. The Project area and its vicinity are within a dense network of active and plugged oil and natural gas wells and supporting infrastructure (PADEP, 2017a; ODNR, 2017b). Although no contamination from oil and gas wells is known to be present in the Project area and vicinity, the potential exists for unknown groundwater contamination from surface infiltration of spilled materials or from a casing failure at an active or shut-in well location.

If contaminated groundwater is encountered during construction of the Project, RH would implement the measures in the Unanticipated Hazardous Waste Discoveries section of its PPCP.

### 3.1.4 Groundwater Impacts and Mitigation

We received comments about potential impacts on groundwater flow and water quality at the Kingsville Swamp, North Kingsville Sand Barrens, and the aquifer that joins them. Commenters note that Kingsville Swamp is a significant wetland complex northwest of the Conneaut Creek crossing and an area that contributes to water supply in the North Kingsville Sand Barrens. Surface drainage and groundwater recharge patterns can be altered temporarily by clearing, grading, trenching, and soil stockpiling activities, potentially causing minor fluctuations in groundwater levels and/or increased turbidity, particularly in shallow surficial aquifers. We expect the resulting changes in water levels and/or turbidity in these aquifers to be localized and temporary. Given the shallow nature of excavation activities, water levels would quickly

re-establish equilibrium and turbidity levels would rapidly subside. The North Kingsville Sand Barrens would be at least 0.5 mile from the construction right-of-way; therefore, no impacts are anticipated.

Commenters expressed concern about impacts of the Project on private wells, particularly in the area of the Kingsville Swamp. None of the water supply wells identified within 150 feet of the construction workspace (see table B.3.1-1) are in the area of the Kingsville Swamp. We also received a request to require RH to test water wells prior to construction. RH would sample all wells within 200 feet of the Risberg Pipeline construction right-of-way, with the owner's permission, before and after construction. RH would provide a questionnaire to landowners to identify any wells not reported in the public databases and would include any wells identified by landowners in the well sampling effort. However, RH has not provided details of the well sampling parameters. **We recommend that:**

- **<u>Prior to construction of the Risberg Pipeline</u>, RH should file with the Secretary a description of the parameters for pre- and post-construction testing of well yield and water quality, for review and written approval by the Director of OEP.**

In the unlikely event that a well is damaged during construction activities, RH would coordinate with the landowner to repair, replace, or remediate the well. RH would provide a temporary water source during the repair and reclamation period if no other potable water is available.

Based on RH's proposed construction procedures and mitigation measures, and our recommendation, we conclude that the Project is not likely to have a significant impact on groundwater quality, quantity, or recharge.

## 3.2 Surface Water

### 3.2.1 Existing Surface Water Resources

The Project area is located in the French Watershed in Erie County, Pennsylvania, and in the Chautauqua-Conneaut Watershed in Erie County, Pennsylvania, and Ashtabula County, Ohio. The Project would be located within 11 hydrologic unit code (HUC) 12 subwatersheds; the watersheds and approximate locations are provided in table B.3.2-1. RH performed field surveys between June and September 2017 to delineate waterbodies that would be within the construction footprint. The Risberg Pipeline and temporary access roads would cross 126 waterbodies, of which 62 are ephemeral, 33 are intermittent, and 31 are perennial. Of the 126 waterbodies, 1 (Conneaut Creek) is classified as a major waterbody (greater than 100 feet wide), 6 are classified as intermediate waterbodies (10 to 100 feet wide), and 119 are classified as minor (less than 10 feet wide). These waterbodies are detailed in appendix C along with crossing methods and in-water work restrictions. None of the construction workspaces associated with the existing gathering pipeline conversion or aboveground facilities would cross waterbodies.

Section 303(d) of the Clean Water Act requires all states to submit a list every 2 years for EPA approval of all surface waters in the state for which beneficial uses, such as drinking, recreation, aquatic habitat, and industrial use, are impaired by pollutants. The Marsh Run-Conneaut Creek watershed, which the Project would cross in Ohio, is currently listed as impaired for recreational use due to bacterial contamination. In addition, Conneaut Creek has a tentative non-attainment status for an unknown source, but a final determination has not been made on the impairment. The existing gathering pipeline crosses Gravel Run and an unnamed tributary that are in non-attainment for low dissolved oxygen/organic enrichment due to grazing-related agriculture, as well as French Creek that is in non-attainment due to an unknown source (likely mercury). All other waterbodies crossed by the Project in Pennsylvania are identified as currently attaining their designated use (Pennsylvania Spatial Data Access, 2018).

TABLE B.3.2-1

**Watersheds Crossed by the Project**

| County, State | HUC 8 Watershed | HUC 12 Watershed | Mileposts | Drainage Area (acres) |
|---|---|---|---|---|
| Erie, PA | 05010004 French Watershed | 050100040906 Van Horne Creek-French Creek | 0 – 0.3 | 35,724 |
| Erie, PA | 05010004 French Watershed | 050100040907 Mud Run-Little Sugar Creek | 0.3 – 8.5 | 33,781 |
| Erie, PA | 05010004 French Watershed | 050100040905 Woodcock Creek | 8.5 – 12.8 | 32,613 |
| Erie, PA | 05010004 French Watershed | 050100040904 Gravel Run-French Creek | 12.8 – 20.8; 22.5 – 25.3; 26.0 – 26.5 | 34,624 |
| Erie, PA | 05010004 French Watershed | 050100040903 Conneauttee Creek | 20.8 – 22.5 | 22,303 |
| Erie, PA | 05010004 French Watershed | 050100040601 West Branch Cussewago Creek-Cussewago Creek | 25.3 – 26.0; 26.5 – 31.5 | 26,461 |
| Erie, PA | 04120101 Chautauqua-Conneaut Watershed | 041201010604 Temple Creek-East Branch Conneaut Creek | 31.5 – 37.8 | 16,742 |
| Erie, PA | 04120101 Chautauqua-Conneaut Watershed | 041201010701 Crooked Creek | 37.8 – 41.8 | 12,982 |
| Erie, PA | 04120101 Chautauqua-Conneaut Watershed | 041201010702 Turkey Creek-Frontal Lake Erie | 41.8 – 47.5 | 17,360 |
| Erie, PA, and Ashtabula, OH | 04120101 Chautauqua-Conneaut Watershed | 041201010605 Marsh Run-Conneaut Creek | 47.5 – 56.3 | 43,739 |
| Ashtabula, OH | 04120101 Chautauqua-Conneaut Watershed | 041201010703 Town of North Kingsville-Frontal Lake Erie | 56.3 – 59.9 | 14,113 |

Source: USGS (2018b)

Executive Order 11988, Floodplain Management, requires Executive agencies to avoid adverse effects on the 100-year floodplain when possible. It also states that growth and development within the floodplain should not be encouraged unless no alternatives exist, and that functions and habitat associated with floodplains should be protected. As described in section B.1.3, the Risberg Pipeline would cross three FEMA 100-year flood zones associated with the East Branch of Conneaut Creek and an unnamed tributary to Temple Creek in Pennsylvania, and Conneaut Creek in Ohio. The existing gathering pipelines cross 12 100-year floodplains in Pennsylvania (FEMA, 2017). No aboveground facilities would be in floodplains. Because disturbance within the floodplains associated with construction of the Risberg Pipeline would be temporary and would not include installation of aboveground facilities, we conclude that the Project would not impact floodplain functions.

Commenters expressed concern about water quality impacts from construction, operation, and accidents to the Lake Erie watershed as a freshwater source of drinking water. The Risberg Pipeline would cross a Surface Water Protection area associated with a municipal water intake owned by the City of Conneaut, Ohio, for approximately 430 linear feet. The intake is in Lake Erie and is more than 3 miles downgradient of the area that would be crossed by the pipeline. RH would implement its site-specific SWPPPs, Plan and Procedures, and PPCP to minimize erosion and sedimentation as well as the potential release of spills of fuel or hazardous materials. BMPs within the plans include silt fence and silt sock to minimize the runoff of sediment laden water during and after storm events, using appropriate containment and storage distances for fuel and hazardous materials to prevent a potential release to surface water, and regular inspections of the erosion and sediment controls and storage areas to identify any potential issues

immediately. Therefore, the Project would not have significant impacts on the Surface Water Protection area.

### 3.2.2 Waterbody Crossings

As described in section A.7.2, RH would use open-cut, dry-ditch, and trenchless methods (HDD and conventional bore) to cross waterbodies. An open-cut stream crossing would be used for waterbody crossings with no perceptible flow at the time of crossing. A dry-ditch method (dam and pump, cofferdam, or flume) would be used if flowing water is present in the stream bed at the time of the crossing. Figures depicting these methods are provided in appendix B. Appendix C provides preliminary crossing methods that RH would use for each waterbody. RH would finalize the selection of the method appropriate to each crossing during construction, depending on seasonal and hydrological conditions and existing conditions.

As indicated by the waterbody crossing table in appendix C, RH anticipates that most waterbodies would be crossed by the open-cut or dam and pump method. RH would use either the cofferdam method or the flume method to cross waterbodies during periods of high flow. RH would cross two waterbodies by conventional bore.

Temporary access roads for the Project would cross eight waterbodies. Three of these crossings have an existing culvert. At five crossings, RH would construct either a temporary rock flume bridge or a timber mat bridge, as shown in the waterbody crossing figures in appendix B. To construct a rock flume bridge, RH would place rip rap comprised of clean rock in the streambed with an imbedded culvert that would be at least 12 inches in diameter. RH would use filter cloth to stabilize stream banks to prevent deterioration and erosion. This would allow vehicles and equipment to pass over the rip rap and maintain the flow of the stream through the culvert.

A timber mat bridge would allow vehicles to go over the streambed and banks without tracking through the waterbody. RH would set bridge bases back at least 1 foot from the stream banks and use a two-layer timber mat as bridge material. An earthen ramp may be required on either side to allow vehicles to access the bridge. RH would place fiber rolls on either side to prevent sediments from the roadway or nearby construction from entering the active stream.

If the rock flume bridge method is used, the rip rap placed in the stream would alter the flow pattern in the construction area and could limit fish and wildlife passage. This impact would last the duration of construction; RH would restore the streambed and banks once the road is no longer needed. The timber mat bridge crossings are not expected to create in-stream impacts because in-stream work or bank alteration would not be required.

RH proposes to cross Conneaut Creek using the HDD construction method and would cross a smaller, unnamed waterbody by HDD at the I-90 crossing. Where waterbodies are crossed via bore or HDD, in-water impacts would generally be avoided, and RH has developed site-specific construction plans for the HDD crossings. RH has also developed a CMRP specific to the Conneaut Creek crossing.

If an inadvertent return of HDD drilling fluid occurs within a waterbody, the resulting turbidity would temporarily affect water quality. Additionally, chlorine from municipal water used to mix the drilling fluid could also affect water quality. Based on a geotechnical assessment of the two HDD locations, the risk of significant HDD operational problems and delays associated with the proposed crossings is average to below average. The risk of an inadvertent return associated with the Conneaut Creek HDD is low to moderate. RH's IRCP includes monitoring and response procedures (containment, cleanup, and restoration) for potential inadvertent returns, and a contingency plan to abandon the HDD, if necessary.

RH indicates that it would monitor pressure several times per hour during the HDD process; however, RH has not provided a description of specific procedures to be taken if monitoring of drilling fluid pressures and return flows indicates the potential of an inadvertent return. Therefore, **we recommend that:**

- **<u>Prior to construction of the Risberg Pipeline</u>, RH should file with the Secretary for review and written approval by the Director of OEP, a revised Inadvertent Return Contingency Plan. The revised plan should include a description of response actions to be taken by the Contractor and Environmental Inspectors in the event of a loss or significant reduction in fluid circulation to minimize the potential for and volume of any inadvertent returns.**

The drilling fluid for the HDDs would consist of bentonite mixed with fresh water obtained from the City of Conneaut municipal supply. RH estimates that 85,000 gallons of water would be required for the HDDs and general dust suppression for Project construction. RH may also add cedar chips to the drilling fluid. If other additives are determined necessary to complete either HDD, **we recommend that:**

- **<u>Prior to construction of the Risberg Pipeline</u>, RH should file with the Secretary for review and written approval by the Director of OEP, a list of any additional drilling fluid additives that could be used, as well as the Safety Data Sheets for each additive, and an affirmative statement that RH will utilize only pre-approved, non-petrochemical-based, non-hazardous additives that comply with the Ohio Environmental Protection Agency permit requirements and environmental regulations.**

### 3.2.3 Hydrostatic Testing

RH would hydrostatically test the pipeline in accordance with USDOT regulations specified in 49 CFR 192 and state specifications. Prior to hydrostatic testing, RH will obtain all required permits for withdrawal and hydrostatic testing from appropriate state agencies. RH would flush any natural gas from the existing gathering system and hydrostatically test it prior to tie-in with the new construction.

RH estimates that 1,770,966 gallons of water would be needed for testing. Proposed hydrostatic testing sources include privately owned ponds near Meadville, Pennsylvania, former aggregate mines, and several municipal sources in Ohio. RH would not add chemicals or additives to the hydrostatic test water. RH would affix withdrawal hoses with screens to avoid the entrapment of juvenile or adult fish at locations where withdrawals are within waterbodies that contain fish. After hydrostatic testing, RH would use an energy dissipater and discharge the test water into well-vegetated, stable areas or within a geotextile flow path with less than 5 percent slope. RH has not yet finalized its hydrostatic test water sources or obtained all the required permits. However, the Procedures require RH to file with the Secretary before construction a list identifying the location of all waterbodies proposed for use as a hydrostatic test water source or discharge location. Furthermore, the Procedures require RH to apply for state-issued water withdrawal permits, as required, and National Pollutant Discharge Elimination System or state-issued discharge permits, as required. Commission staff would verify compliance with the pre-construction filing requirements of the Procedures before allowing construction to proceed.

### 3.2.4 Surface Water Impacts and Mitigation

We received multiple comments regarding surface water quality. Commenters noted that environmental monitoring after construction was unclear. Commenters also expressed concern regarding the effects on water quality of day-to-day activities during operation of the pipeline, or in the event of a

leak or rupture. Multiple commenters expressed concerns regarding the Risberg Pipeline crossing Conneaut Creek and its tributaries, including impacts on water quality in Conneaut Creek, which is a State Wild and Scenic River, and the associated watershed. They noted the high water quality of the creek and watershed, and the trees along the banks. We received comments asking for additional information regarding excess runoff from the construction site and stormwater management details, both in general and in relation to wet trench crossing at minor waterbodies that could cause increased sedimentation in streams.

RH proposes to cross Conneaut Creek using the HDD construction method to avoid in-stream impacts and to minimize impacts on the existing riparian buffer corridor by minimizing the cutting of mature trees along the banks of Conneaut Creek. The HDD entrance and exit would be set back about 900 feet and 400 feet, respectively, from Conneaut Creek. RH would minimize Project impacts on water quality through implementation of its Plan and Procedures, ESCP, PPCP, and restoration plan as described below.

We received a request to require water quality monitoring at sensitive stream crossings. Most waterbodies are minor (less than 10 feet wide), and the duration of in-water work would be brief. No wet trench open-cut crossings are proposed. Impacts on water quality would be minimized by using dry-ditch crossing methods when flow is present and implementing the measures in RH's Procedures. No in-water work would be conducted at Conneaut Creek, and RH would monitor for potential inadvertent returns.

We received a comment regarding culvert use and requesting additional details regarding stream restoration techniques and whether rip rap would be used. Waterbody crossing details are provided in appendix B.

We received comments from the FWS recommending that the Project avoid and minimize water quality impacts; impacts on high quality fish and wildlife habitat, including streams and wetlands; and impacts on natural buffers around streams and wetlands. Impacts on wetlands are discussed in section B.3.3, and impacts on habitat and vegetative buffers are discussed in section B.4.1. Specific to wetlands and streams, the COE requested that the EA include field-delineated wetland and stream data as well as measures to avoid and minimize impacts on wetlands and streams. Tables of field-delineated waterbodies and wetlands are provided in appendix C. Delineated wetlands and streams are also shown on RH's alignment sheets, which are available on eLibrary.[6]

Direct impacts of construction on waterbodies would result from earth moving activities in streams and clearing of nearby riparian and wetland vegetation. Indirect impacts of construction could include temporary increased sedimentation and turbidity within waterbodies from earth disturbing activities in upland areas. During construction, dry flume, and dam and pump methods would temporarily route water around the in-stream construction area, which would minimize the amount of in-stream erosion and sedimentation during construction activity. Once the pipeline has been installed, the trench would be filled, the streambed would be restored, and the stream's natural flow would be returned immediately following pipeline installation. In upland areas, RH would implement its Plan and its ESCPs to minimize the risk of erosion and transport of sediment to waterbodies.

RH prepared restoration plans for stream and wetland crossings, including planting of riparian buffers. Streams would be returned to their natural contours and their banks reseeded as noted in the design drawings. Revegetated areas would be maintained and monitored until restoration is successful. In accordance with its Procedures, RH would install permanent erosion controls, including slope breakers, to

[6] http://elibrary.FERC.gov/idmws/file_list.asp?accession_num=20180323-5144.

prevent sediment deposition into surface waters. These erosion controls would be monitored and maintained throughout operations.

Information regarding integrity monitoring during operation and the potential for natural gas pipeline leaks is provided in section B.10. As described in that section, natural gas primarily consists of methane, which is a nontoxic gas. In the event of a leak or rupture, the natural gas would dissipate into the atmosphere and would have no or minimal effect on surface water. Normal pipeline operations would not affect surface water quality. Inadvertent spills of fuel or chemicals during construction or operational maintenance activities could affect water quality within waterbodies. To avoid or minimize potential impacts from spills, RH would:

- implement the measures in RH's Procedures and the PPCP;
- train construction crews in proper handling of hazardous materials and fuels, reporting of spills and unanticipated discoveries of hazardous materials, spill prevention, and containment and cleanup procedures;
- equip construction crews with appropriate equipment to prevent and clean up spills and keep minimum amounts of hazardous materials in staging areas or on the right-of-way;
- avoid parking equipment overnight, performing routine maintenance activities, refueling, or performing concrete coating activities within 100 feet of waterbodies and wetlands unless an EI determines that there is no other alternative, secondary containment is used to prevent spills, and materials are on hand to clean up spills;
- avoid storing hazardous materials or fuels within 100 feet of a waterbody or wetland, and store hazardous materials within secondary containment;
- place any pump operating within 100 feet of a waterbody or wetland in secondary containment to prevent fuel spills; and
- monitor equipment for potential leaks.

RH would complete Project activities subject to the Clean Water Act through compliance with COE Section 404 Nationwide Permit 12 for Utility Line Discharge, including applicable state and regional conditions, and Section 401 water quality certifications. The permit table in section A.6 lists the required applications for the Project. No Section 10 authorization is required from the COE because no navigable waterways (as defined by the Rivers and Harbors Act) would be crossed by the proposed construction. RH would comply with applicable Section 401 water quality certification requirements and Section 404 permit requirements.

With implementation of RH's mitigation measures, restoration plans, our recommendations, and RH's Procedures to avoid or minimize impacts on waterbodies, we conclude that Project impacts on surface water resources would be sufficiently minimized and would not be significant.

### 3.3 Wetlands

Both the COE and the EPA define wetlands as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (COE, 2009; EPA, 2016a). To be considered a wetland, an area must show hydrophytic vegetation, hydric soils, and wetland hydrology under normal conditions (COE, 2007). RH's Procedures define wetlands as "any area that is not in actively

cultivated or rotated cropland and that satisfies the requirements of the current federal methodology for identifying and delineating wetlands."

The Project occurs within two COE Districts: Pittsburgh and Buffalo. RH submitted a Pre-construction Notification to the Pittsburgh District via the Pennsylvania Joint Permit process in October 2017, and to the Buffalo District of the COE in October 2017.

Both Pennsylvania and Ohio have state-specific wetland classifications. The PADEP regulates wetlands as exceptional value under 25 Pennsylvania Code Chapter 105, Section 17. The Ohio Environmental Protection Agency (Ohio EPA) uses the Ohio Rapid Assessment Method for determining the appropriate category of a particular wetland under the Wetland Antidegradation Rule, Ohio Administrative Code Rule 3745-1-54.

### 3.3.1 Existing Wetland Resources

RH conducted wetland delineations for the Project from June to August 2017. These surveys were conducted for Project locations with new ground disturbance, which includes the Meadville Compressor Station, Risberg Pipeline, and North Kingsville Meter Station, and their associated access roads, facilities, and tie-ins. Appendix C provides a table of wetlands that would be crossed by construction of the Project.

RH used the FWS wetland classification system described by Cowardin et al. (1979) to classify the wetlands that would be affected by construction of the Project. Wetlands were identified as palustrine emergent (PEM), palustrine scrub-shrub (PSS), palustrine forested (PFO), palustrine open water (POW), and palustrine unconsolidated bottom (PUB). In addition, RH identified PFO wetlands within maintained permanent pipeline right-of-way that would be converted to PSS and PEM. These wetland types are defined as follows:

- **PEM** – Non-tidal wetlands characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens; usually dominated by perennial plants. PEM wetlands identified along the power line rights-of-way are dominated by reed canary grass (*Phalaris arundinacea*), goldenrod species, sedges, and common boneset (*Eupatorium perfoliatum*). Forest openings are dominated by sensitive fern (*Onoclea sensibilis*), fowl manna grass (*Glyceria striata*), poison ivy (*Toxicodendron radicans*), rough avens (*Geum laciniatum*), and sedges.
- **PSS** – Freshwater wetlands dominated by woody vegetation less than 20 feet in height. Species include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. The dominant vegetation found in PSS wetlands include red osier dogwood (*Cornus alba*), silky dogwood (*Cornus amomum*), black willow (*Salix nigra*), southern arrow-wood (*Viburnum dentatum*), and red maple (*Acer rubrum*) saplings.
- **PFO** – Freshwater wetlands dominated by woody vegetation greater than 20 feet in height. Dominant species include mature canopy trees, including green ash (*Fraxinus pennsylvanica*), red maple (*Acer rubrum*), and quaking aspen (*Populus tremuloides).*
- **POW** – Freshwater wetlands with open water and unknown bottom. These wetlands are open and do not have vegetation at the surface.
- **PUB** – Freshwater wetlands with unconsolidated bottom with at least 25 percent cover of particles smaller than stones, and vegetative cover less than 30 percent. The lack of large stable surface on the bottom prevents plant and animal attachment.

Vegetative communities and typical species identified during wetland delineations conducted for the Project are described in section B.4.1.

### 3.3.2 Wetlands Impacts and Mitigation

Based on field surveys conducted for the Project, approximately 321 wetlands would be crossed by, or within the construction workspace for, the Project. RH sited aboveground facilities, including the County Line Compressor Station, Meadville Compressor Station, and North Kingsville Meter Station outside of wetlands. The wetland types and total impact acreage are summarized in table B.3.3-1.

Construction of the Project would temporarily impact about 33.3 acres of wetlands. A total of about 36.1 acres of wetlands would be within the permanent right-of-way for the Project. This total is higher than the acreage disturbed during construction because the permanent right-of-way includes wetlands along the existing gathering pipeline that RH would not disturb during Project construction.

RH would reduce the construction right-of-way width to 50 feet within wetlands. RH would restore contours within all wetlands following construction, and emergent and scrub/shrub habitats would be restored. RH would clear about 15.3 acres of forested wetlands during Project construction. This clearing would result in long-term impacts on these forested wetlands. The maintained width in forested wetlands of the permanent right-of-way would generally be 30 feet, which includes up to a 10-foot-wide mowed strip and selective cutting of trees in the rest of the 30-foot corridor as described further below. Therefore, the Project would convert about 15.2 acres of forested wetlands into emergent and scrub/shrub wetlands. While forested wetlands within the temporary workspaces and outside of the 30-foot-wide maintenance area could eventually reestablish, reestablishment would take 10 to 30 years, depending on the species. Site-specific restoration and planting plans have been developed for all forested wetlands.

We received multiple comments regarding the Kingsville Swamp. Commenters noted that Kingsville Swamp is a significant wetland complex northwest of the Conneaut Creek crossing and an area that contributes to water supply in the North Kingsville Sand Barrens, and that both are locally important habitat features. We discuss the habitat aspects of the Kingsville Swamp in section B.4.1. A commenter requested that if the pipeline is built along the Kingsville Swamp, the best possible specifications be used and equipment be cleaned of weed seeds that could be introduced into the Kingsville Swamp. A commenter asked about the installation technique under the Kingsville Swamp and area affected, and about heavy machinery impacts on the swamp. The pipeline would be adjacent to the Kingsville Swamp but would not cross it. RH would not directly impact the Kingsville Swamp wetland habitats during construction. Section B.4.1 addresses mitigation for invasive plant species.

Construction in upland habitats near wetlands could expose these soils to increased wind and water erosion, which could be deposited as sediment within nearby wetlands. Construction and operational activities would be controlled by implementing BMPs and RH's Plan to limit the amount of upland erosion and sedimentation into local wetland habitats. RH would minimize impacts from sedimentation by implementing BMPs in its ESCPs and Plan and Procedures.

TABLE B.3.3-1

**Summary of Wetland Impacts in Acres**

| Facility | PEM | | PSS | | PFO | | POW | | PUB or Riverine | | Total Const | Total Oper |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Const | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper | | |
| **Pipeline Facilities** | | | | | | | | | | | | |
| TGP Lateral | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 |
| Existing gathering pipelines [a] | 0.0 | 1.5 | 0.0 | 0.8 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 1.1 | 0.0 | 4.8 |
| Risberg Pipeline | 11.8 | 11.8 | 4.2 | 4.2 | 15.3 | 15.2 | 0.1 | 0.1 | 0.1 | 0.1 | 31.3 | 31.3 |
| ATWS | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 |
| **Pipeline facilities subtotal** | **12.1** | **13.2** | **4.2** | **5.0** | **15.3** | **16.6** | **0.1** | **0.1** | **0.1** | **1.2** | **31.6** | **36.1** |
| **Contractor and Pipe Storage Yards** | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.9 | 0.0 |
| **Access Roads** | 0.5 | 0.0 | 0.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 |
| **Project Total** | **13.5** | **13.2** | **4.3** | **5.0** | **15.3** | **16.7** | **0.1** | **0.1** | **0.1** | **1.2** | **33.3** | **36.1** |

a No wetlands would be affected by modifications to the existing gathering pipelines. Operations impacts consist of National Wetlands Inventory (NWI) data for the existing gathering pipelines permanent rights-of-way, which have not been field surveyed for wetlands by RH.

Items in the table may not add up due to rounding.

Const = Construction

Oper = Operations

To offset wetland impacts in Ohio, RH proposes to purchase wetland credits from the Trumbull Creek and Pine Brook Wetlands Mitigation Banks. Based on coordination with the Ohio EPA, RH would mitigate at a 1:1 ratio for permanent conversion of PSS wetlands and at a 2.5:1 ratio for permanent conversion of PFO wetlands. RH has reserved 4.4 acres of wetland credit at the Trumbull Creek Wetlands Mitigation Bank and 5.1 acres at the Pine Brook Wetlands Mitigation Bank.

RH's Procedures specify that the only access roads, other than the construction right-of-way, that can be used in wetlands are those existing roads that can be used with no modifications or improvements, other than routine repair, and no impact on the wetland. RH has requested an exception for two access roads (TAR-1 and TAR-5) that would be considered an alternative measure and would be incorporated into RH's Procedures. RH would use access road TAR-1 to access the Risberg Pipeline tie-in with the existing gathering pipeline. RH sited TAR-1 based on landowner preference and to cross PEM wetland rather than PSS wetland. RH would use TAR-5 to access the workspace on the north side of a railroad crossing. RH considered alternatives to this wetland crossing, including routing TAR-5 along the north side of the railroad from the nearest road and accessing the north side of the railroad in upland areas. Access to the north side of the railroad crossing by paralleling the railroad right-of-way from the closest public roadway crossing is not possible because the railroad crosses State Route 6N via an overpass instead of at grade. The wetland and waterbody that would be crossed by the proposed TAR-5 route appear to extend both northwestward and southeast from the railroad crossing. Similarly, a waterbody and wetland are apparent to the west. Therefore, these features could not be avoided by an alternative route. RH sited TAR-5 to avoid tree removal, cropland, and extended portions of the same wetland and other wetlands nearby. RH would use timber mats to protect the wetlands at TAR-1 and TAR-5, and would not conduct grading in the wetlands. We have reviewed RH's proposed routes for TAR-1 and TAR-5, and we agree that the proposed alternative measure is justified.

RH's Procedures require that ATWS be no less than 50 feet from wetlands except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land. If the setback cannot be maintained, a project sponsor can provide site-specific justification for each extra work area with less than 50 feet setback from the wetlands edge. RH requested approval to use 30 ATWS within 50 feet of wetlands. We reviewed these ATWS and determined that the wetlands within 50 feet of 13 proposed ATWS are adjacent to agricultural land and therefore do not require approval. The remaining 17 ATWS are listed in table B.3.3-2 along with RH's justification for why they are necessary. We have reviewed these ATWS and agree that they are justified.

RH would minimize potential adverse impacts on wetlands using minimization measures and BMPs in its Plan and Procedures. These measures include expediting construction in and around wetlands, restoring wetlands to their pre-Project configurations and contours, segregating topsoil over the trench if possible, permanently stabilizing upland areas near wetlands as soon as possible after backfilling, inspecting the right-of-way periodically during and after construction, and repairing any erosion control or restoration features until permanent revegetation is successful. Additionally RH would follow the wetland restoration and riparian area plantings plans in its ESCPs. Herbicides or pesticides would not be used in or within 100 feet of a wetland, except as allowed by the appropriate federal or state agency.

TABLE B.3.3-2

**Additional Temporary Workspace within 50 Feet of Wetlands**

| Milepost | Worksite [a] | Site-specific Justification [b] |
|---|---|---|
| 33.2 | ATWS 10 | Area needed to temporarily store timber due to smaller workspace in the wetland. |
| 33.3 | ATWS 11 | Area needed to temporarily store timber due to smaller workspace in the wetland. |
| 37.9, | ATWS 16 | Area needed for topsoil storage due to smaller workspace in wetland. Sited within power line right-of-way. |
| 38.1 | ATWS 17 | Area needed for topsoil storage due to smaller workspace in wetland. Sited within power line right-of-way. |
| 38.5 | ATWS 19 | Area needed to temporarily store timber due to smaller workspace in the wetland. |
| 39.7 | ATWS 22 | Area needed for travel way on existing roadway. |
| 41.2 | ATWS 24 | Area needed to temporarily store timber due to smaller workspace in the wetland. |
| 41.7 | ATWS 26 | Area needed for topsoil storage due to smaller workspace in wetland. Sited within power line right-of-way. |
| 42.3 | ATWS 28 | Area needed for topsoil storage due to smaller workspace in wetland. Sited within power line right-of-way. |
| 44.2 | ATWS 31 | Area needed for topsoil storage due to pipeline bend, road crossing, and smaller workspace in wetland. Sited within power line right-of-way. |
| 48.1 | ATWS 32 | Area needed for topsoil storage due to smaller workspace in wetland. Sited over existing roadway and adjacent to power line right-of-way. |
| 50.4 | ATWS 33 | Area needed for travel way on existing roadway. |
| 52.3 | ATWS 36 | Area needed for topsoil storage due to pipeline bend, road crossing, and smaller workspace in wetland. Sited within mowed lawn. |
| 57.0 | ATWS 47 | Area needed for topsoil storage due to pipeline bend and smaller workspace in wetland. Sited within mowed field along rail track. |
| 58.4 | ATWS 50 | Area needed for topsoil storage due to pipeline bend and smaller workspace in wetland. Sited within mowed field. |
| 59.0 | ATWS 52 | Area needed for topsoil and timber storage due to smaller workspace in wetland. |
| 59.9 | ATWS 53 | Area needed for topsoil and timber storage due to pipeline bend, meter site, and smaller workspace in wetland. |

a RH included ATWS that were within 50 feet of wetlands adjacent to agricultural land and therefore do not require approval. These include ATWS 2, 3, 4, 6, 7, 8, 9, 15, 30, 35, 41, 42, and 48.

b At all ATWS listed, wetlands and waterbodies would be protected by erosion and sedimentation controls placed upslope of features.

RH's Plan and Procedures state that during operation, RH would mow the permanent right-of-way no more frequently than every 3 years. Routine vegetation mowing or clearing in riparian or wetland would not be conducted in areas between HDD entry and exit points. RH also would not conduct vegetation maintenance over the full width of the permanent right-of-way in wetlands. To facilitate periodic pipeline corrosion/leak surveys, a corridor centered on the entire pipeline right-of-way and up to 10 feet wide would be maintained in an herbaceous state. RH also would selectively cut and remove trees within 15 feet of the pipeline and greater than 15 feet in height. Because RH has not conducted wetland surveys within the permanent right-of-way for the existing gathering pipelines, the locations where this vegetation maintenance would apply have not been defined. Therefore, **we recommend that:**

- **Prior to commencement of service for the existing gathering pipelines, RH should file with the Secretary, for review and written approval by the Director of OEP:**

  **a. the date that RH intends to clear vegetation for the existing gathering pipelines;**

  **b. the results of wetland delineation surveys for the existing gathering pipeline permanent right-of-way;**

  **c. revised alignment sheets indicating all delineated waterbodies and wetlands, and any other sensitive resources such as sensitive habitats; and**

**d. a statement that RH will install all of the proper signage near sensitive resources prior to any proposed maintenance clearing to ensure compliance with RH's Procedures.**

Taking into consideration our recommendation and RH's proposed compensatory mitigation and implementation of its ESCPs and Plan and Procedures, we conclude that wetland impacts for the Project would not be significant.

## 4.0 VEGETATION, WILDLIFE, AND THREATENED AND ENDANGERED SPECIES

### 4.1 Vegetation

#### 4.1.1 Existing Vegetation

From east to west, the Project is located within the Low Lime Drift Plain, Mosquito Creek/Pymatuning Lowlands, and Erie Lake Plain ecoregions. The Low Lime Drift Plain ecoregion consists of glaciated, rolling plains with low rounded hills, gentle slopes, and broad valleys; moraines and outwash landforms may occur. Natural vegetation types in this ecoregion include mixed mesophytic forest, mixed oak forest, beech forest, oak-maple forest, and elm-ash swamp forests (Woods et al., 1999). The Mosquito Creek/Pymatuning Lowlands ecoregion consists of glaciated, level to rolling lake and glacial till plains with flat-bottomed valleys, end moraines, and wetlands; and low gradient, sluggish streams with few riffles. Natural vegetation types in this ecoregion include beech forest with mixed mesophytic forest, elm-ash swamp forests, and sphagnum peat bogs (Woods et al., 1999). The Erie Lake Plain ecoregion consists of depositional lake plain with swales, beach ridges, and coastal cliffs that are prone to slumping. Natural vegetation types in this ecoregion are mostly mixed mesphytic forest with mixed oak forest on sandy sites, and beech forest and elm-ash swamp forest on wetter sites (Woods et al., 1999 and 1998).

Table B.4.1-1 describes the vegetation in the Project area. The vegetation types described at the Meadville Compressor Station, Risberg Pipeline, North Kingsville Meter Station, TGP Lateral, ATWS, access roads, and pipe and contractor yards are based on data collected during on-site botanical surveys. The vegetation types described at the existing gathering pipelines (including the workspaces for modification) and County Line Compressor Station are based on desktop review of USGS National Gap Analysis Project (GAP) vegetation types.

TABLE B.4.1-1

**Vegetation in the Project Area**

| Vegetation Communities | Description |
|---|---|
| **Planted/Cultivated** | |
| Active Agricultural/Cultivated Croplands | Corn (*Zea mays*), soybean (*Glycine max*), and various vegetables. The field edges are dominated by ragweed (*Ambrosia artemisiifolia*). Fallow fields are dominated by various goldenrod species (*Solidago spp.*), sedges (*Carex spp.*), and orchard grass (*Dactylis glomerata*). Crop vegetation accounts for greater than 20 percent of the total vegetation. |
| Pasture/Hay Fields | The typical plant species in the pasture habitat include grasses, legumes, or grass-legume mixtures ideal for livestock grazing or the production of seed or hay crops. |
| Orchards, Vineyards and Other High Structure Agriculture | Agricultural species consist of fruits, tree nuts, berries, Christmas trees, and other woody crops. |
| **Forest/Woodland** | |
| Allegheny-Cumberland Dry Oak Forest and Woodland-Hardwood | White oak (*Quercus alba*), spanish oak (*Quercus falcata*), chestnut oak (*Quercus prinus*), scarlet oak (*Quercus coccinea*), red maple (*Acer rubrum*), pignut hickory (*Carya glabra*), and mockernut hickory (*Carya alba*). |
| Appalachian Hemlock-Hardwood Forest | Sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*), yellow birch (*Betula alleghaniensis*), oak (*Quercus spp.),* tulip poplar (*Liriodendron tulipifera*), black cherry (*Prunus serotine*), red maple, and sweet birch (*Betula lenta*). |

| TABLE B.4.1-1<br><br>**Vegetation in the Project Area** | |
|---|---|
| Vegetation Communities | Description |
| Early Successional Mixed Forest: | Outside of the immediate wetland areas identified within this area, the habitat is dominated by tulip poplar (*Liriodendron tulipfera*), quaking aspen (*Populus tremuloides*), red maple (*Acer rubrum*), and sugar maple (*Acer saccharum*), Allegheny blackberry (*Rubus allegheniensis*), and goldenrod (*Soilidago spp.*). Early successional mixed forest habitat has been previously logged and highly disturbed in certain areas. Depressional wetlands are located throughout the early successional mixed forests. |
| Managed Tree Plantation | Christmas tree farms species such as fir and spruce trees, tree nuts, and maple trees. |
| North-Central Interior Beech-Maple Forest | Sugar maple (dominant), American beech (dominant), northern red oak (*Quercus rubra*), American linden (*Tilia americana*), and tulip poplar, American hornbeam (*Carpinus caroliniana*), American hop hornbeam (*Ostrya virginiana*), jack-in-the-pulpit (*Arisaema triphyllum*), Clayton's sweetroot (*Osmorhiza claytonia*), smooth Solomon's seal (*Polygonatum biflorum*), and white trillium (*Trillium grandiflorum*). |
| North-Central Interior Wet Flatwoods | This habitat consists of hardwood forested with upland and wetland areas interspersed. Swamp Spanish oak dominate in most areas. Other common species include white oak, bur oak (*Quercus macrocarpa*), black gum (*Nyssa sylvatica*), sweet gum (*Liquidambar styraciflua*), and red maple. Shrub species vary depending on the canopy cover and may include buttonbush (*Cephalanthus occidentalis*), winterberry (*Ilex verticillata*), and alder (*Alnus sp.*). Various sedges and cinnamon fern (*Osmundastrum cinnamomeum*) are common herbaceous species. |
| Northeastern Interior Dry Mesic Oak Forest | White oak (dominant), chestnut oak (dominant), scarlet oak (dominant), red maple, northern red oak (dominant), eastern black oak (*Quercus velutina*), red maple(dominant), hickory (*Carya spp.*, dominant), sugar maple, sweet birch, and yellow birch. |
| Ruderal Forest: Forest | Vegetation has established resulting from succession following significant anthropogenic disturbance. These areas are generally characterized by unnatural combinations of resident and invasive species. |
| South-Central Interior Mesophytic Forest | This habitat consists of highly diverse deciduous forests on deep and enriched soils. The South-Central Interior Mesophytic Forests are located on non-mountainous protected areas. The dominant species include sugar maple, beech, tulip poplar, American linden, northern red oak, cucumber tree (*Magnolia acuminata*), and black walnut (*Juglans nigra*). The eastern hemlock (*Tsuga canadensis*) is less frequently associated with this habitat type due to the hemlock woolly adelgid. The herbaceous layer is rich with many spring ephemerals. |
| **Wetland** | |
| Palustrine Emergent (PEM) Wetlands | Wetlands identified along the power line rights-of-way are dominated by reed canary grass, goldenrod species, sedges, and common boneset (*Eupatorium perfoliatum*). Forest openings are dominated by sensitive fern (*Onoclea sensibilis*), fowl manna grass (*Glyceria striata*), poison ivy (*Toxicodendron radicans*), rough avens (*Geum laciniatum*) and sedges. |
| Palustrine Scrub Shrub (PSS) Wetlands | The dominant vegetation found in these wetlands included red osier dogwood (*Cornus alba*), silky dogwood (*Cornus amomum*), black willow (*Salix nigra*), Southern Arrow-wood (*Viburnum dentatum*) and Red Maple (Acer rubrum) saplings. |
| Palustrine Forested (PFO) Wetlands | The habitat here can be seasonally inundated and the canopy is dominated by red maple, green ash (*Fraxinus pennsylvanica*), and quaking aspen. Herbaceous vegetation frequently found in this wetland type included sensitive fern, fowl manna grass, And various sedge species. |
| Palustrine Unconsolidated Bottom (PUB) | These wetlands are open and do not have vegetation at the surface. PUB wetlands include all wetland and deepwater habitat with at least 25 percent cover of particles smaller than stone and a vegetative cover less than 30 percent. PUB wetlands are characterized by their lack of large stable surfaces for plant and animal attachment. |
| Central Interior and Appalachian Floodplain System | Silver maple (*Acer saccharinum*), eastern cottonwood (*Populus deltoides*), river birch (*Betula nigra*), sugarberry (*Celtis laevigate*), black willow (*Salix Nigra*), green ash (*Fraxinus pennslyvanica*), American elm, tulip tree (*Liriodendron tulipifera*), oak, common bottonbrush (*Cephalanthus occidentalis*), roughleaf dogwood (*Cornus drummondii*), pawpaw (*Asimina trilobal*), sedges (*Carex spp.*), bottlebrush grass (*Elymus hystrix*), Canada wild rye (*Elymus canadensis*), Indian wood oats (*Chasmanthium latifolium*). |
| North-Central Interior and Appalachian Rich Swamp | Red maple, black ash (*Fraxinus nigra*), tamarack (*Larix laricina*) and other shrub and herbaceous cover. |
| **Developed & Urban Land** | |
| Open Space | An area with a mixture of some constructed material, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20 percent of the total cover. Open areas commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes. |

| TABLE B.4.1-1<br>**Vegetation in the Project Area** | |
|---|---|
| Vegetation Communities | Description |
| Low Intensity Development: | The low intensity development is an area with a mixture of construction materials and vegetation. Impervious surfaces account for 20 to 49 percent of the total cover. These areas most commonly include single family housing units. |
| High Intensity Development | These areas are highly developed and are places where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial areas. Impervious surfaces account for 80 to 100 percent of the total cover. |
| Existing Overhead Transmission Power Line Corridor Habitat | Reed canary grass (Phalaris arundinacea), goldenrod (*Soilidago spp*.), sedges (*Carex sp*.), orchard grass (*Dactylis glomerata*), timothy grass (*Phleum pratense*), multiflora rose (*Rosa multiflora*), and Allegheny blackberry (*Rubus allegheniensis*). Numerous wetlands are located throughout. The habitat consists of herbaceous meadows bordering scrub shrub habitat. |

The Project would impact 243.9 acres of vegetation during construction and 362.9 acres would be affected during operation. The Project would be located on land with the following vegetative communities: forested and woodlands; planted and cultivated lands; wetlands; open water; and other common vegetation associated with developed and urban lands (see table B.4.1-2).

TABLE B.4.1-2

**Construction and Operation Impacts on Vegetation Cover Types in the Project Area (acres)**

| | **Planted/ Cultivated** | | **Forest/ Woodland** | | **Wetlands [a]** | | **Open Water [a]** | | **Developed & Urban Land** | | **Total** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Facility** | **Const** | **Oper** | **Const** | **Oper** | **Const** | **Oper [b]** | **Const** | **Oper** | **Const** | **Oper** | **Const** | **Oper** |
| **Pipeline Facilities** | | | | | | | | | | | | |
| TGP Lateral | 0 | 0 | 0.7 | 0.7 | 0.1 | 0.1 | 0 | 0 | 0 | 0 | 0.8 | 0.8 |
| Existing Gathering Pipelines | 0.2 | 83.8 | 0.4 | 94.1 | 0 | 0.6 | 0 | 0.6 | 0.1 | 11.5 | 0.7 | 190.6 |
| Risberg Pipeline | 70.2 | 51.4 | 93.0 | 77.8 | 31.3 | 31.3 | 0.1 | 0.1 | 15.7 | 9.1 | 210.3 | 169.7 |
| ATWS | 7.7 | 0 | 2.9 | 0 | 0.2 | 0 | 0 | 0 | 2.8 | 0 | 13.6 | 0 |
| **Pipeline Facilities Subtotal** | **78.1** | **135.2** | **97.0** | **172.6** | **31.6** | **32.0** | **0.1** | **0.7** | **18.6** | **20.6** | **225.4** | **361.1** |
| **Aboveground Facilities** | | | | | | | | | | | | |
| Meadville Compressor Station | 0.7 | 0.7 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | < 0.1 | < 0.1 | 1.2 | 1.2 |
| County Line Compressor Station | 0 | 0 | 0.3 | 0.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0.3 | 0.3 |
| North Kingsville Meter Station | 0 | 0 | 0.1 | 0.1 | 0 | 0 | 0 | 0 | 0.1 | 0.1 | 0.2 | 0.2 |
| **Aboveground Facilities Subtotal** | **0.7** | **0.7** | **0.9** | **0.9** | **0** | **0** | **0** | **0** | **0.1** | **0.1** | **1.7** | **1.7** |
| **Contractor and Pipe Storage Yards (3)** | **5.8** | **0** | **< 0.1** | **0** | **0.9** | **0** | **0** | **0** | **0.3** | **0** | **7.1** | **0** |
| **Access Roads** | **6.2** | **0** | **1.2** | **0** | **0.8** | **0** | **0** | **0** | **1.5** | **0.1** | **9.7** | **0.1** |
| **Project Total** | **90.8** | **135.9** | **99.1** | **173.5** | **33.3** | **32.0** | **0.1** | **0.7** | **20.5** | **20.8** | **243.6** | **362.7** |

a With the exception of wetlands, acreages in this table reflect information from the USGS National GAP Land Cover (USGS, 2015). Construction wetland acreages reflect the delineated wetland features surveyed for this Project.

b Operation impacts in this column represent both field-delineated wetlands and, for the gathering pipelines permanent right-of-way, GAP data. Numbers may not match the permanent impact acreage reported in table B.3.3-1, which includes field-delineated wetland data and NWI data.

Totals may not add up due to rounding.

Const = Construction, Oper = Operation

**Planted/Cultivated**

Construction would disturb about 90.8 acres of planted and cultivated lands. About 135.9 acres of vegetation would be within the permanent operational footprint. Herbaceous vegetation in cropland would likely take one to two growing seasons to be replanted and regenerate completely. RH would restore cultivated croplands as directed by the affected landowners.

**Forest/Woodland**

Forest and woodlands vegetation is the largest vegetation type affected by the Project and is primarily early successional mixed forest. Construction would disturb about 99.1 acres of forested cover type. The permanent operational footprint would impact about 173.5 acres of forested areas, including the forested areas crossed by the permanent right-of-way for the existing gathering pipelines. The forested areas crossed by the existing gathering pipelines were previously cleared during construction of the existing gathering pipelines, and have been maintained for access to the pipeline. Removal of forest could result in forest fragmentation, edge effects, and an increased potential for invasive species establishment. The removal of mature trees could also result in secondary impacts such as increased erosion, increased light penetration, change in air temperature, and loss of soil moisture. Although revegetated, the clearing of forest in temporary construction workspaces would result in a long-term decrease in the quality of wildlife habitat because it would take decades for trees to return to maturity. Forested and woodland areas would be regraded and reseeded with vegetation adapted to the region when construction is complete and in accordance with RH's Plan and Procedures. In upland forested areas, RH would maintain the permanent right-of-way in an herbaceous condition free of trees. In wetlands, trees within 15 feet of the pipeline and greater than 15 feet in height would be selectively cut and removed from the permanent right-of-way, and up to a 10-foot corridor centered over the pipeline would be maintained in an herbaceous state.

**Wetlands and Open Water**

RH conducted wetland and waterbody delineations in areas to be disturbed by the Project and identified PFO, PSS, PEM, POW, and PUB wetlands. Because RH would not disturb wetlands along the existing gathering pipeline right-of-way for Project construction, wetland delineations were not conducted along the existing gathering pipeline right-of-way. Instead, the wetland acreages provided in table B.4.1-1 were estimated using the GAP dataset. In section B.3.3, we recommend that RH conduct wetland delineations within the existing gathering pipeline permanent right-of-way prior to commencement of service. Section B.3.3 also provides details regarding wetland impacts and mitigation.

**Developed & Urban Land**

Vegetation associated with developed and urban areas make up about 20.8 acres of the total vegetation affected by operation of the Project, and 20.5 acres of the vegetation disturbed during construction. Developed and urban areas include a varied mix of development and vegetation. This vegetation category includes areas with existing utility rights-of-way; low density single family housing; highly developed places where people reside or work; and open areas with parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes. Vegetation in these areas typically includes lawn grasses, common landscaping and ornamental species, and successional herbaceous and shrub species in utility rights-of-way and abandoned areas.

RH would revegetate all disturbed areas per its Plan and as requested by landowners. The existing power line right-of-way would be regraded, reseeded, and restored to pre-existing land use following construction. RH's ESCPs detail methods to minimize impacts on vegetation, soil, and erosion. The Erie County Conservation District and Ashtabula Soil and Water Conservation District provided initial guidance

to RH about seed mixes, seeding dates, application rates for fertilizer and lime, erosion controls, and noxious weed control. Final seed mixes and seeding rates would be determined through consultation with landowners and the NRCS.

### 4.1.2 Unique and Sensitive Habitat

The existing gathering pipeline crosses Pennsylvania State Game Lands No. 152 (SGL 152) and three state-designated unique or sensitive wildlife habitat areas including French-Middle Creek Natural Heritage Area (NHA); the Supporting Natural Landscape for French, Cussewago, Conneautee, and Muddy Creek; and the area in East Fairfield Township that supports the Little Sugar Creek at Pettis Corners biological diversity area. The Pennsylvania Natural Heritage Program (PNHP) defines Supporting Natural Landscapes as areas surrounding or adjacent to Core Habitat of an NHA or other designated area. The Supporting Landscapes are not considered the primary habitat of the species of concern or natural community, but may serve as secondary habitat. These areas provide support by maintaining vital ecological processes as well as isolation from potential environmental degradation. Supporting Landscape areas may be able to accommodate some types of activities without detriment to natural resources of concern. Supporting Landscapes are areas directly connected to Core Habitat that maintain vital ecological processes and/or secondary habitat that may be able to withstand some lower level of activity without substantial negative impacts to elements of concern (PNHP, 2012, 2018c, and 2018d).

SGL 152 is a single tract of approximately 500 acres at the Erie and Crawford County border. The Pennsylvania Game Commission (PGC) has maintained approximately 17 acres of the game land in agricultural grains, grasses and other crops. Approximately 30 percent of the forested area has received commercial treatment, and a much smaller portion (10 acres) is treated non-commercially. SGL 152 is popular for deer, turkey and squirrel hunting, and is used for recreational bird watching. While relatively limited, SGL 152's agricultural areas have been impacted by invasive species; mostly multiflora rose and Asian honeysuckles (*Lonicera spp*.) (PGC, 2011).

The French-Middle Creek NHA Core Area and Supporting Landscape contains a high quality, ecologically diverse river with numerous species of special concern. The French Creek watershed drains much of northwestern Pennsylvania. Few dams are located along the river; therefore, it is valuable for recreation and wildlife passage. French Creek remains largely unpolluted and clear, supporting a diverse fish and mussel population. Threats to the NHA include degradation of water quality, loss of forested riparian zones, removal of upland forest cover, livestock, and runoff from impervious surfaces (PNHP, 2018c).

The Supporting Landscape for French, Cussewago, Conneautee, and Muddy Creeks contains streams with many connected streams and a number of unique species are present. The Supporting Landscape protects the diversity and ecological importance of French, Cussewago, Conneautee, and Muddy Creeks. Water pollution, nutrient loading, dredging, and stream channelization affect this watershed (PNHP, 2008).

The existing gathering pipeline crosses East Fairfield Township, near the Little Sugar Creek at Pettis Corners biological diversity area. This area provides appropriate habitat for the creek heelsplitter (*Lasmigona compressa*), a mussel species of concern in Pennsylvania. The threats to this area include streams without adequate riparian buffers (PNHP, 2018d).

The workspaces associated with conversion of the existing gathering pipelines would not cross waterbodies or wetlands and would be within the existing permanent right-of-way, and would, therefore, not impact unique or sensitive habitat areas. During operation, impacts would be limited to vegetation

maintenance within the existing permanent right-of-way and would be minimized by adherence to its Plan and Procedures.

The Risberg Pipeline would cross the following state-listed unique or sensitive wild areas: the Pond Road Wetlands North and South Natural Heritage Areas (NHA) and Supporting Landscape, Conneaut Creek NHA Supporting Landscape, the East Branch Conneaut Creek NHA, and the McCain Oxbow Wetland NHA. Each of these sensitive habitat areas would be affected by construction and operation of the Risberg Pipeline. In addition, the Risberg Pipeline is adjacent to the Kingsville Swamp Preserve.

The Pond Road Wetlands North and South NHA and its Supporting Landscape are forested areas containing high-quality stands of local trees species of concern including Elm-Ash-Maple-Lakeplain Forest habitat. The species include pumpkin ash (*Fraxinus profunda*), Shumard's oak (*Quercus shumardii*), shellbark hickory (*Carya laciniosa*), log fern (*Dryopteris celsa*), small beggar-tick (*Bidens discoidea*), and pineland pimpernel (*Samolus parviflous*). Other known sensitive species that have the potential to occur in this area are larger St. John's-wort (*Hypericum majus*), southern wood-rush (*Luzula bulbosa*), slender sedge (*Carex tenera*), and squarestem spikerush (*Eleocharis quadrangulate*). RH would temporarily disturb approximately 40.5 acres of habitat within the Pond Road Wetlands North and South NHA during construction. Approximately 30.8 acres of the Pond Road Wetlands North and South NHA are within the permanent right-of-way. Major threats to this habitat include invasive species, natural succession, hydrologic changes, and emerald ash borer. (PNHP, 2018a). In order to minimize impacts, RH would follow existing right-of-way, roads, and utility corridors where possible. RH would train personnel involved in invasive species management how to identify rare plants within the Ponds Road wetlands in order to minimize loss of rare plants when treating noxious weeds along the alignment (PNHP, 2008 and 2018a).

The Risberg Pipeline would cross the Conneaut Creek NHA Supporting Landscape. This NHA contains habitat for freshwater mussels and floodplain habitat for species of concern including the elktoe (*Alasmidonta marginata*), creek heelsplitter, round pigtoe (*Pleurobema sintoxia*), rainbow mussel (*Villosa iris*), blue-tipped dancer (*Argia tibialis*), turtlehead borer (*Papaipema nepheleptena*), mayapple borer (*Papaipema rutile*), small beggar-ticks, harbinger-of-spring (*Erigenia bulbosa*), Virginia blue flag (*Iris virginica*), Shumard's oak, and pineland pimpernel. This NHA also provides habitat for five other unnamed species of concern (not listed at the request of the PNHP). RH would temporarily disturb approximately 2.4 acres of habitat within the Conneaut Creek NHA during construction. Approximately 1.6 acres of the Conneaut Creek NHA occurs within the permanent right-of-way for the Risberg Pipeline. The pipeline would abut existing disturbed areas in this section to minimize impacts. RH would avoid the use of pesticides in the Conneaut Creek NHA Supporting Landscape, and to minimize the loss of tree cover along the streambank, RH would minimize the construction right-of-way width in forested areas when crossing East Branch Conneaut Creek (PNHP, 2018b).

The East Branch Conneaut Creek NHA and Supporting Landscape contains two unnamed species of concern (not listed at the request of the PNHP) that require high-quality aquatic habitats. RH would temporarily disturb approximately 0.3 acre of habitat within the East Branch Conneaut Creek NHA during construction. About 0.3 forested acre of the East Branch Conneaut Creek NHA occurs within the permanent right-of-way for the Risberg Pipeline. RH would convert the forested area to prairie or shrubland habitat. This conversion would fragment the existing forest and remove some riparian tree cover of an unnamed tributary to Temple Creek. Maintaining suitable habitat for the two species of concern is the key to success at this site. The main threats to the site include runoff from roads, increased sedimentation, loss of riparian forest cover, increased water temperatures, and disruption of natural nutrient cycling (PNHP, 2018b).

The Risberg Pipeline crosses the Supporting Landscape for the McCain Oxbow Wetlands. This habitat includes oxbows along the western side of Conneaut Creek. The site is dominated by buttonbush

wetland communities. The site supports four species of special concern including the turtle head borer (*Papaipema nepheleptena*), mayapple borer, (*Papaipema rutila*), the small beggar-ticks (*Bidens discoidea*), and an unnamed sensitive species of concern. This NHA overlaps with the Conneaut Creek NHA also crossed by the Project. The threats to this habitat include an existing railroad bridge, hydrological regime alterations, and moth susceptibility to pesticide application (PNHP, 2012).

We received multiple scoping comments regarding the Kingsville Swamp Preserve and Sand Barrens Preserve, both owned by the Cleveland Museum of Natural History. The Kingsville Swamp is hydrologically connected to the North Kingsville Sand Barrens. Between approximate MPs 56.6 and 57.2, the Risberg Pipeline would be co-located with a railroad that is adjacent to the southern border of the Kingsville Swamp Preserve. The railroad would be between the pipeline and the Kingsville Swamp, therefore, swamp vegetation would not be directly disturbed. The pipeline would also be adjacent to the west side of an apparent agricultural field that is within the mapped Kingsville Swamp Preserve for about 0.1 mile. The Kingsville Swamp contains several different plant communities. The shrub wetland at the Kingsville Swamp is dominated by buttonbush, (*Cephalanthus occidentalis*), winterberry (*Ilex verticillata*), high-bush blueberry (*Vaccinium corymbosum*), and black chokecherry (*Prunus virginiana*), Sphagnum mosses are common throughout the swamp. A hemlock swamp is also present within the Swamp. The hemlock forest is dominated by pumpkin ash (*Fraxinus profunda*), black ash (*Fraxinus nigra*), silver maple (*Acer saccharinum*), and hemlock (*Tsuga canadensis*). Fifteen rare or state listed species inhabit the swamp, including one federally listed species. The Sand Barrens are the only known location of three rare caddisflies in Ohio (Cleveland Museum of Natural History [CMNH], 2018). Because effects of the Risberg Pipeline on hydrology would be minor and localized (see section B.3.1), and the Risberg Pipeline would not directly cross the Kingsville Swamp, we conclude that the Project would not have significant impacts on the sensitive species or habitat in the Kingsville Swamp. Furthermore, the Sand Barrens Preserve would be greater than 0.5 mile away from the Risberg Pipeline and would not be affected by pipeline construction.

During construction, RH would implement BMPs on site to minimize the spread of invasive species (see section B.4.1). For example, RH would clean construction equipment and vehicles thoroughly before they are brought on site. This would remove invasive plant seeds and invasive earthworms/cocoons that may have been picked up at other sites. RH would be required to ensure that all disturbed areas in the vicinity of the Kingsville Swamp and other sensitive habitat would successfully revegetate in accordance with its Plan and Procedures and requirements of the PADEP and the Ohio EPA. Additional measures to minimize impacts on vegetation, including unique and sensitive habitats, are described in section B.4.1.

### 4.1.3 General Impacts and Mitigation

RH would permanently convert vegetative cover types within aboveground facilities to industrial uses. The remaining areas in which disturbance would occur would be revegetated.

Construction activities would result in vegetation removal through clearing and grading. Construction impacts would be temporary to permanent depending on the type of vegetation cover affected and the operational use of the land. The relative degree of construction impacts in areas that are not permanently converted to industrial land would depend on the type and amount of vegetation affected and the rate at which the vegetation would regenerate after construction.

RH would typically retain a permanent 50-foot wide right-of-way for operation and maintenance of the pipeline. In some areas, the permanent right-of-way would be smaller due to wetlands and landowner constraints. About 156.7 acres of vegetation that would be within the permanent right-of-way for the Project, including the operational right-of-way of the existing gathering pipelines, are areas that are previously disturbed by cropland, developed, and urban areas.

RH would reduce impacts on forested areas by co-locating 51 percent of the new pipeline with previously disturbed areas such as overhead electric transmission lines. Following construction, RH would revegetate temporary workspaces according to its Plan and Procedures. The revegetation and restoration methods would take into account the requirements stipulated by permit conditions and landowner preferences.

During operations, RH would maintain the permanent right-of-way of the Risberg Pipeline and the existing gathering pipelines in accordance with its Plan and Procedures. RH would maintain vegetation on the permanent pipeline right-of-way in upland areas by mowing, cutting, and trimming, except in areas of actively cultivated cropland or grazing areas. The entire construction right-of-way would be allowed to revegetate. However, large brush and trees would be periodically removed. Routine vegetation mowing or clearing over the full width of the permanent right-of-way in uplands would not be done more frequently than every 3 years. However, to facilitate periodic corrosion/leak surveys, a corridor not exceeding 10 feet in width centered on the pipeline would be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. Vegetation maintenance in wetlands is detailed in section B.3.3.

Because RH has not conducted wetland surveys within the permanent right-of-way for the existing gathering pipelines, we have included a recommendation for surveys in section B.3.3. Based on our recommendation, RH's adherence to its Plan and Procedures, and the NHA-specific mitigation measures described above, we conclude that impacts of the Project on vegetation, including unique and sensitive habitat, would be sufficiently minimized.

#### 4.1.4 Invasive Species Management

Pennsylvania and Ohio have state weed control management programs. Invasive species identified within the Project area include multiflora rose (*Rosa multiflora*), Queen Anne's lace (*Daucus carota*), autumn olive (*Elaeagnus umbellata*), reed canary grass (*Phalaris arundinacea*), and Japanese stilt grass (*Microstegium vimineum*). To prevent the introduction and spread of noxious weeds, RH would clean construction equipment prior to mobilization to the site. During restoration and post-construction monitoring, RH would monitor the non-cultivated portions of the right-of-way for noxious weeds and would use spray or hand removal, as appropriate and as allowed or directed by landowners, to control noxious weeds.

In addition, RH would implement the recommendations of the PA DCNR, including:

- use the least area of disturbance needed for construction, to minimize the area of soil and vegetation disturbance;
- clean boot treads, construction equipment, and vehicles thoroughly (especially the undercarriage and wheels) before bringing them on site to remove invasive plant seeds and invasive earthworms/cocoons that may have been picked up at other sites;
- use weed-free straw or hay mixes when possible;
- not transport unsterilized leaves, mulch, compost, or soil to the site from another location; and
- not use seed mixes that include invasive plant species (e.g. crown vetch) to re-vegetate the area.

With RH's implementation of its Plan and Procedures and its commitment to implement the PA DCNR measures to control invasive species, the impact of the Project on vegetation would be sufficiently minimized.

## 4.2 Wildlife

Wildlife habitat types are based on the vegetation cover types in the Project area and include planted and cultivated lands, forest and woodlands, wetlands, open water, and developed lands as discussed in section B.4.1. Each of these vegetation communities provides varying levels of foraging, cover, and breeding habitat for wildlife species. Developed and urban land occurs in the Project area; however, it typically provides limited habitat for wildlife and is dominated by species well adapted to disturbance by people. Species observed during field surveys are provided in table B.4.2-1.

TABLE B.4.2-1

**Wildlife Species Occurring Within the Vegetative Cover Types of the Project Area**

| Vegetation Cover Type | Observed Wildlife Species |
|---|---|
| Early Successional Mixed Forest | **Mammals:** white-tailed deer, eastern gray squirrel, raccoon, gray fox, eastern chipmunk, coyote<br>**Birds:** hairy woodpecker, wild turkey, red-tailed hawk<br>**Reptiles:** eastern garter snake |
| Palustrine Scrub Shrub Wetlands | **Birds:** red-winged blackbird<br>**Amphibians:** northern spring peeper, red-spotted newt<br>**Reptiles:** midland painted turtle |
| Existing Electric Transmission Line Corridor | **Mammals:** eastern cottontail rabbit, groundhog, eastern mole<br>**Birds:** red-tailed hawk<br>**Reptiles:** eastern garter snake, eastern milksnake |
| Active Agricultural Field/Open Field | **Mammals:** groundhog, eastern mole<br>**Birds:** redtailed hawk, turkey vulture, mourning dove, American crow<br>**Reptiles:** eastern garter snake |
| Palustrine Forested Wetlands | **Birds:** red-winged blackbird<br>**Amphibians:** northern spring peeper, red-spotted newt, gray treefrog, American toad |
| Palustrine Emergent Wetlands | **Mammals:** meadow vole<br>**Birds:** red-winged blackbird<br>**Amphibians**: northern spring peeper, red-spotted newt, American toad<br>**Reptiles:** eastern garter snake, midland painted turtle |

Wildlife associated with commercial and recreational activities known to the area include Canada goose, duck, sea duck, American coot, merganser, white tailed deer, turkey, pheasant and quail.

Construction and operation of the Project would result in short-term, long-term, and permanent impacts on wildlife. Impacts would vary depending on the habitat requirements of each species and the habitat crossed by the Project and within the aboveground facilities.

Potential short-term impacts on wildlife from the Project construction activities include displacement of individuals from the construction workspace and adjacent areas and noise disturbances. Construction could result in the mortality of less-mobile animals such as small rodents, reptiles, amphibians, and invertebrates that may be unable to escape the immediate construction area. Mobile species would leave the area and relocate to neighboring suitable habitat. Noise from construction could also disturb and displace nesting birds in habitat adjacent to the construction work area (see section B.4.4 for further discussion of impacts on migratory birds). Displacement could cause individuals to expend energy to find alternate habitats and could temporarily reduce foraging and breeding success.

A commenter requested information regarding impacts on wildlife including deer, turkey, eagles, and screech owls. These species would likely be temporarily displaced from the workspace and adjacent areas as described above. However, deer, turkey, and screech owls would be expected to use the open, maintained right-of-way to forage once herbaceous vegetation has been restored and for owls, when prey species have returned. Eagles are discussed in more detail in section B.4.5.

Project construction that would take place in previously disturbed areas such as the existing overhead power line right-of-way, cultivated and cropland, developed areas, and existing facility areas would have minor impacts on wildlife. We do not consider these existing areas to be high-quality wildlife habitat and wildlife density is likely to be low. Wildlife in these areas, if present, is likely already acclimated to the noise, lighting, mowing, cutting, and trimming of vegetation that would be associated with an area of existing disturbance.

Long-term impacts would include conversion of forest or scrub-shrub habitats to cleared and maintained right-of-way, fragmentation, persistent noise disturbance at compressor stations, and periodic disturbance during operation and maintenance. Impacts on forested areas would be considered long term, as restoration could require decades to reach preconstruction status. Fragmentation of forested areas results in changes in vegetation, such as dense shrub growth at the forest edge, which may limit the movement of species between adjacent forest blocks, increase predation, and decrease reproductive success for some species (Rosenberg et al., 1999). Construction of the Risberg Pipeline, including ATWS, would require clearing of 95.9 acres of forest. Up to 94.1 acres of forest could be cleared for maintenance of the existing gathering pipeline rights-of-way during operation. Response to continuous noise could result in behavioral effects such as reduced communication, interference with predator/prey detection, habitat avoidance, and reduced pairing success (Barber et al., 2009; Francis and Barber, 2013).

The FWS's Midwest Regional Office indicated that pollinators should be considered in Project planning. RH would utilize pollinator supporting seed mixes in areas where temporary surface disturbance has removed pollinator habitat. Invasive species management would also improve habitat for pollinators. RH would develop seed mixes for pollinators based on landowner coordination and the corresponding NRCS State Office Job Sheets for conservation cover (327) and technical guidance documents (NRCS, 2012 and 2016). As discussed in section B.4.1, RH would implement its Plan to remove and manage invasive species and maintain vegetation. During restoration and post-construction monitoring, RH would monitor the non-cultivated portions of the right-of-way for noxious weeds and would use hand removal or mechanical means and limit spraying as appropriate and as allowed or directed by the landowner, to control noxious weeds.

Project construction along the Risberg Pipeline and other new facilities would follow BMPs outlined in RH's ESCPs and Plan and Procedures. RH would minimize the areas of habitat disturbances to the minimum necessary for Project activities. Although individual mortality of some wildlife could occur as a result of the Project, the effects of these individual losses on wildlife populations would be minor. Based on RH's minimization of impacts on forested habitat, the availability of similar habitats in the vicinity, and the implementation of impact avoidance and minimization measures, we conclude that construction and operation of the Project would not have population-level impacts or significantly measureable negative impacts on wildlife.

### 4.3 Fisheries

As discussed in section B.3.2, 126 streams would be crossed by or within the construction workspace for the Risberg Pipeline and new or modified access roads (see appendix C). Of the 126 streams within the construction workspace for the Project, 31 are perennial streams that provide permanent habitat for fish. Though they are important to downstream habitat, the 33 intermittent streams could provide seasonal fish habitat, and the 62 ephemeral streams would only provide potential habitat during runoff events. The majority of the streams are minor, with the exception of six intermediate stream crossings and one major waterbody. The majority of the streams crossed by the Project within Pennsylvania are classified by PADEP as coldwater fisheries or coldwater. Crooked Creek and its unnamed tributaries are classified as high-quality coldwater fisheries (PADEP, 2018a). The waterbodies crossed in Ohio are classified by Ohio EPA as coolwater or warm waters (Ohio EPA, 2018). Conneaut Creek is classified as an exceptional

warmwater, seasonal salmonoid, agricultural water supply, industrial water supply, and a primary contact recreational water. Smokey Run is also designated as seasonal salmonoid habitat. Common fish species in the Conneaut Creek warmwater watershed include the Muskellunge (*Esox masquinongy*), rock bass (*Ambloplites rupestris*), small-mouth bass (*Micropterus dolomieu*), steelhead (rainbow) trout (*Oncorhynchus mykiss*), tiger Muskellunge (*Esox masquinongy x Esox Lucius*), walleye (*Sander vitreus*), and white crappie (*Pomoxis annularis*).

The existing gathering pipelines cross two waterbodies, Gravel Run and Upper Woodcock Creek, that are designated as trout waters by the PFBC. Gravel Run is listed as a natural trout reproduction stream (PFBC, 2017a). Upper Woodcock Creek is listed as stocked trout waters. RH would not disturb the existing gathering pipeline right-of-way in or near these areas during construction. These waterbodies may be subject to impacts during operation as described below under general impacts and mitigation.

A private fish hatchery is located in Albion, Pennsylvania, along the East Branch of Conneaut Creek. The hatchery stocks steelhead trout and is about 1.8 miles downstream of the pipeline crossing. RH would implement erosion and sedimentation BMPs, including its Procedures, to minimize potential impacts on the hatchery.

### 4.3.1 General Impacts and Mitigation

Temporary impacts on waterbodies would result from construction activities associated with construction of the Risberg Pipeline and new or modified access roads. Construction across waterbodies could result in short-term increases in turbidity, sedimentation, or temporary fragmentation of fish passage.

While dry-ditch crossing methods would reduce turbidity downstream, minor aquatic habitat alteration could still occur and these methods could temporarily impede fish passage. Temporary changes to behavior, avoidance of habitat, and/or the alteration of water quality could increase fish stress rates, injure individuals, or kill individuals.

RH's use of HDD techniques at Conneaut Creek would avoid direct impacts on fisheries. However, HDD has an inherent risk of inadvertent return of drilling fluids (release of drilling fluid). If an inadvertent return occurs, it could result in an increase in turbidity, which could impact water quality, affect fish movement, and increase fish stress rates, injure individuals, or kill individuals. Water quality could also be impacted by an accidental spill of fuel or hazardous materials into a waterbody. As described in section B.3.2, RH would implement the measures in its Procedures, PPCP, and IRCP to minimize the risk of spills.

To minimize impacts from sedimentation and turbidity in waterbodies crossed by the Project, RH would install the pipeline using the open-cut method if the stream is dry; dry-ditch methods (dam and pump, coffer dam, or flume) if the stream has flowing water; or trenchless methods (HDD and conventional bore). RH would use existing culverts, install culverts or use timber mats as bridges to minimize impacts where access roads cross streams. RH would follow its Procedures and its ESCPs approved by state regulatory agencies, including the Ohio EPA, PADEP, and Erie and Crawford County Conservation Districts. Stream banks would be restored and stabilized before stream flow is returned to the waterbody. RH has developed restoration plans for stream and wetland crossings, including planting of riparian buffers. Streams would be returned to their natural contours and their banks reseeded where noted in the design drawings. RH would also avoid construction during the PFBC in-stream work restrictions between April 1 and August 15 in waters east of McKee Road in Erie County. The waterbody crossings affected by this restriction are detailed in appendix C. We conclude that with the implementation of measures in RH's Procedures and the ESCPs as well as time of year restrictions, potential impacts on aquatic resources would be sufficiently minimized.

### 4.3.2 Fisheries of Special Concern

The Project does not cross any essential fish habitat as defined by National Oceanic and Atmospheric Administration. Threatened and endangered species are addressed in section B.4.6.

## 4.4 Migratory Birds

Migratory birds are protected under the Migratory Bird Treaty Act (16 U.S.C. 703-711). Executive Order 13186 (66 Federal Register 3853) directs federal agencies to identify where unintentional take is likely to have a measurable negative effect on migratory bird populations and to avoid or minimize adverse impacts on migratory birds through enhanced collaboration with the FWS. Executive Order 13186 states that emphasis should be placed on species of concern, priority habitats, and key risk factors, and that particular focus should be given to addressing population-level impacts.

On March 30, 2011, the FWS and the Commission entered into a Memorandum of Understanding (FERC, 2011) that focuses on avoiding or minimizing adverse effects on migratory birds and strengthening migratory bird conservation through enhanced collaboration between the two agencies. This voluntary Memorandum of Understanding does not waive legal requirements under the Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, ESA, NGA, Federal Power Act, or any other statutes and does not authorize the take of migratory birds.

Birds of Conservation Concern are a subset of protected birds under the Migratory Bird Treaty Act and include all species, subspecies, and populations of migratory nongame birds that are likely to become candidates for listing under the ESA without additional conservation actions (FWS, 2008). The Birds of Conservation Concern identifies species at distinct levels including a national level, North American Bird Conservation Initiative Bird Conservation Regions level, and at an FWS regions level. The Project would be within the Lower Great Lakes/St. Lawrence Plain Region of the North American Bird Conservation Initiative.

The FWS's Pennsylvania and Ohio Field Offices provided recommendations to avoid and minimize impacts on migratory birds in the Project area. This includes a recommended timing window (September 1 to March 31) for vegetation clearing, minimizing land and vegetation disturbance during design and construction, avoiding permanent habitat alterations in areas of high avian concentration, avoiding fragmenting habitats where area-sensitive species may occur, and using native plants for restoration (FWS, 2018b). RH has indicated that, in most cases, it would conduct preconstruction clearing outside of the migratory bird breeding season in order to avoid potential impacts on migratory bird species.

The Project would have one-time direct impacts on migratory bird habitat as well as indirect impacts associated with construction disturbance. Construction of the Project would involve clearing forest during construction, as described in section B.4.1. Forest clearing would result in the loss of habitat for migratory birds. Forest fragmentation could increase predation and competition, and could reduce nesting and mating habitat for migratory birds (Faaborg et al., 1995). Direct impacts on migratory birds as a result of the Project could include mortality of eggs or young because immature birds could not avoid active construction. Tree clearing, ground disturbing activities, construction noise, and increased human presence could disturb migratory birds during critical breeding and nesting periods, potentially resulting in the loss of nests, eggs, or young. Birds may avoid the area in response to construction activities. Individuals may be injured or killed as a result of fleeing the construction area, or may abandon nests causing the loss of eggs or young. Construction activities would be short-term and episodic. RH has reduced potential impacts on migratory birds by siting the Project to avoid forested habitat where practicable and co-locating 51 percent of the Risberg Pipeline with other linear features such as roads and transmission lines. Direct and indirect effects associated with disturbance during construction may affect individuals but would not likely

affect local populations of migratory birds. Birds not already nesting would be able to avoid the construction area and use abundant nesting habitat in areas nearby. Operational impacts on migratory birds would be limited to minor maintenance and vegetation clearing operations that would be conducted outside of the peak nesting season, which would avoid direct impacts on migratory birds. Therefore, we conclude that impacts on migratory birds from construction and operation of the Project would largely be temporary and would not be significant.

RH would implement the following mitigation measures to further minimize potential impacts on migratory bird species during construction. If construction would occur within the migratory bird nesting season (April 1 to July 15), RH would conduct preconstruction breeding bird surveys. RH would conduct surveys in consultation with the FWS and would use an FWS approved methodology. If active nests are identified within the raptor and migratory bird buffer determined through consultation with the FWS, RH would consult with the FWS on any necessary best management practices, avoidance protocol, or fencing. If a previously unidentified nest is discovered in or directly adjacent to the construction workspace during construction, RH would halt construction until a biological monitor clears the nest and all FWS-approved BMPs and exclusionary devices are in place. State and federally listed bird species are discussed in section B.4.6.

### 4.5 Bald and Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c) enacted in 1940, which prohibits anyone, without a permit issued by the Secretary of the Interior, from take of bald or golden eagles, including their parts, nests, or eggs. The Act defines take as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." Disturb is defined as agitating or bothering a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available:

- injury to an eagle;
- a decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering behavior; or
- nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior.

In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that injures an eagle or substantially interferes with normal breeding, feeding, or sheltering habits (FWS, 2012).

In Pennsylvania, the bald eagle is protected under the Game and Wildlife Code. In Ohio, the bald eagle is not a state-listed species. In both states, bald eagles are protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. To prevent disturbance to eagles from the egg-laying period until the young fledge, no tree clearing can occur within 660 feet of a bald eagle nest or within any woodlot supporting a nest tree without a non-purposeful take permit from the FWS per the Bald and Golden Eagle Protection Act. In addition, work within 660 feet of a nest or within the direct line-of-site of a nest is restricted from January 15 through July 31.

In a letter dated November 16, 2017, the FWS indicated that the Ohio portion of the Project lies within the range of the bald eagle (FWS, 2017b). Based on the FWS's recommendations, RH conducted a field survey for bald eagles between I-90 and Creek Road, an area near a known bald eagle nest. No bald eagle nests were identified. A scoping comment was received regarding the presence of an active bald

eagle near the pipeline crossing of Conneaut Creek. In consultation with the FWS, this nest was determined to be about 1 mile upstream of the Conneaut Creek crossing and it is not within direct line of sight of the Project. No other bald eagle nests were identified, therefore, we conclude no impacts to nesting bald eagles are likely to occur as a result of the Project. The FWS agreed with RH's survey results and concurs that no impacts on nesting bald eagles are likely to occur in Ohio from the Project (FWS, 2018i). The FWS's Pennsylvania Field Office did not identify bald eagles as a concern for the Project in Pennsylvania.

## 4.6 Special Status Species

Special status species are those species to which state or federal agencies afford an additional level of protection by law, regulation, or policy. Special status species include federally listed species protected under the ESA, species proposed or candidates for listing by the FWS, and those species that are state listed as threatened or endangered, or other special status.

### 4.6.1 Federally Listed Species

Federal agencies are required under Section 7 of the ESA, as amended, to ensure that any actions authorized, funded, or carried out by the agency would not jeopardize the continued existence of a federally listed endangered or threatened species, or result in the destruction or adverse modification of the designated critical habitat of a federally listed species.

As the lead federal agency authorizing the Project, FERC is required to consult with the FWS and/or the National Oceanic and Atmospheric Administration Fisheries to determine whether federally listed endangered or threatened species or designated critical habitat are found in the vicinity of the Project, and to evaluate the proposed action's potential effects on those species or critical habitats. As our nonfederal representative, RH initiated informal consultation with the Ohio and Pennsylvania Field Offices of the FWS on September 26, 2017, and September 28, 2017, regarding federally listed threatened or endangered species potentially occurring in or near the Meadville Compressor Station, existing gathering pipelines, County Line Compressor Station, Risberg Pipeline, and North Kingsville Meter Station.

We identified 11 species that are protected under the ESA and have potential to occur in the Project area in Crawford, Erie, and Ashtabula Counties using the FWS's IPaC tool (FWS, 2017d). In addition, we noted critical habitat for piping plover at Presque Isle State Park and for rabbitsfoot in French Creek. Information on these species, including habitat and potential occurrence in areas affected by the Project and effect determinations, is provided in table B.4.6-1.

TABLE B.4.6-1

**Federally Threatened and Endangered Species Potentially Occurring in the Project Area**

| Species | Federal Status | State Status [a] | Habitat Description [b]/Potential to Occur | Effect Determination |
|---|---|---|---|---|
| **Reptiles** | | | | |
| Eastern Massasauga (*Sistrurus catenatus*) | T | OH – E<br>PA – E | Massasaugas require wet prairies, marshes, and low areas along rivers and lakes and also use adjacent upland areas. This species hibernates in crawfish burrows, small mammal burrows, under logs or in tree roots. No eastern massasauga are known to occur in the Project area and none were observed during surveys for the Project. | No effect |
| **Mammals** | | | | |
| Indiana bat (*Myotis sodalis*) | E | OH – E<br>PA – E | The range for this species includes Ohio and Pennsylvania. During winter this species hibernates in caves and mines in the eastern U.S. During the summer, this species is found roosting underneath bark, in cavities, or in crevices of both live trees and snags. This species forages at night along forest edges. No Indiana bats were found during field surveys for the Project. | May affect, but not likely to adversely affect |

TABLE B.4.6-1

**Federally Threatened and Endangered Species Potentially Occurring in the Project Area**

| Species | Federal Status | State Status [a] | Habitat Description [b]/Potential to Occur | Effect Determination |
|---|---|---|---|---|
| Northern long-eared bat (*Myotis septentrionalis*) | T | OH – T<br>PA – NL | The range for this species includes Ohio and Pennsylvania. During winter this species hibernates in caves and mines in the eastern U.S. During the summer, this species is found roosting underneath bark, in cavities or in crevices of both live trees and snags. Roosting in man-made structures is uncommon. This species forages at night in a variety of habitats that contain abundant insects. | May affect, but not likely to adversely affect |
| **Birds** | | | | |
| Kirtland's warbler (*Setophaga kirtlandii*) | E | OH – E<br>PA – NL | This species is not believed to nest in Pennsylvania or Ohio, and migrates along the Lake Erie shoreline on the way to nesting grounds in Michigan, Wisconsin, and Canada. | No effect |
| Piping plover (*Charadruis melodus*) | E | OH – E<br>PA – NL | Within the Great Lakes region this species occupies wide, sand to cobble beaches with little vegetation and a long distance to the tree-line. The only breeding habitat occurring along the shoreline of Lake Erie is at Presque Isle State Park, which is designated as Critical Habitat by the FWS for this species. Critical habitat for piping plover is more than 21 miles from the workspace for the Project. The Project is about 0.9 mile from the Lake Erie shoreline and does not affect habitat for this species. | No effect |
| Rufa red knot (*Calidris canutus rufa*) | T | NL | The rufa red knot is a shorebird that migrates between its breeding grounds in the Canadian Arctic and wintering grounds located as far south as the tip of South America. During migration, this species can be found anywhere along the coast of Lake Erie on open beaches. The Project does not affect habitat for this species. | No effect |
| **Mussels** | | | | |
| Clubshell (Pleuobema clava) | E | OH – E<br>PA – E | The clubshell is known to occur in the French Creek watershed, but is not thought to occur within the Conneaut Creek watershed. This mollusk resides in clean, loose sand and gravel in medium to small rivers and streams. No in-stream work would take place in the French Creek watershed. | No effect |
| Snuffbox (Epioblasma triquetra) | E | OH – E<br>PA – E | This species is known to occur in sand, gravel, or cobble substrates in stream habitat ranging from small to medium creeks and is known to occupy Lake Erie as well as the Chautauqua-Conneaut Creek subbasin watershed and other watersheds in Erie and Crawford Counties, Pennsylvania. Most populations are small and geographically isolated from one another. | No effect |
| Rabbitsfoot (Quadrula cylindrica cylindrica) | T, CH | OH – E<br>PA – E | Occurs within the Ohio River drainage. Rabbitsfoot is primarily an inhabitant of small to medium sized streams and some larger rivers. Can be found in deepwater runs or in shallow water areas along banks. Critical Habitat for this species is present in the French Creek watershed. | No effect |
| Rayed Bean (*Villosa fabalis)* | E | PA – E | This species resides in smaller, headwater creeks, and less commonly in large rivers and wave-washed areas of glacial lakes. Preferred substrates include gravel or sand substrates in and around roots of aquatic vegetation. Within the Project area, this species is only known to occur within the French Creek watershed in Pennsylvania. No in-stream work would take place in the French Creek watershed. | No effect |
| Northern Riffleshell (*Epioblasma torulosa rangiana*) | E | PA – E | This species inhabits large streams and small rivers in firm sand of riffle areas. Within the area crossed by the Project, it occurs only in French Creek. No in-stream work would take place in the French Creek watershed. | No effect |

a T = Threatened, E = Endangered, NL = Not Listed, CH – Critical Habitat
b Sources: FWS (2016, 2017d, and 2018a), NatureServe (2018)

The Project would not cross any suitable habitat for piping plover or rufa red knot. The clubshell, northern riffleshell, and rayed bean mussels are known only in the French Creek watershed in Pennsylvania, where no in-stream work would occur. For these reasons, we conclude that the Project would have *no effect* on these species.

**Eastern Massasauga**

The eastern massasauga is a federally listed threatened species. While the range for this species extends from central New York and southern Ontario to south-central Illinois and eastern Iowa, generally only small isolated populations remain (FWS, 2018g). Eastern massasauga depend on wet areas including wet prairies, marshes, and low areas along rivers and lakes for food and shelter, and use adjacent upland areas. They require a mix of microhabitats found in early successional habitat, with open sunny areas for basking and retreat sites for cover and thermoregulation. Eastern massasauga hibernate individually rather than in a group using crayfish burrows, rocky crevices, rodent burrows, old stumps, rotten logs and root systems. Connectivity between habitat types is crucial for population sustainability. Loss of habitat through development and vegetative succession has led to decline. Eastern massasauga are not long distance travelers and can become isolated by roads, farm fields, and developments that act as barriers for travel between habitat types or restrict pathways to hibernacula or between populations. (FWS, 2018f). While wetlands and streams would be crossed by the Project, these are typically located in forested areas or between active farm fields. Potential suitable habitat appears to be isolated due to roads, farms, and residential developments that act as barriers. No eastern massasauga were observed by RH during site reviews. No eastern massasauga are known to occur in areas that would be impacted by the Project (FWS, 2018d and 2018e). We conclude that eastern massasauga are unlikely to occur in the Project area and the Project would have *no effect* on eastern massasauga.

**Indiana Bat**

The proposed Project is within the range of the federally endangered Indiana bat. In winter, Indiana bat hibernate in caves and mines. In summer, Indiana bat roost in trees that include dead and dying trees with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. However, Indiana bats are also dependent on the forest structure surrounding roost trees. The FWS has records of Indiana bat summer maternity and non-reproductive occurrence, but no hibernacula occurrence in Ashtabula County, Ohio. There are no records of Indiana bat occurrence in Erie or Crawford Counties, Pennsylvania (FWS, 2016). No critical habitat for this species occurs in Pennsylvania or Ohio. Tree clearing associated with the Project has potential for negative impacts to tree-roosting bats. Due to the proposed forest clearing associated with the Risberg Pipeline (see section B.4.1), RH conducted mist net surveys in Ashtabula County, Ohio, and Erie County, Pennsylvania, for Indiana bats in June and July 2017. The surveys were conducted in accordance with the FWS's Indiana bat summer survey guidelines (FWS, 2017c). No Indiana bat were captured. In addition, RH conducted field searches for potential hibernacula (i.e., cave and mine openings) in July 2017. No potential hibernacula were documented in the Project area. Based on the results of the surveys, there is no evidence that Indiana bats are present in the Project area during the summer or winter months.

Based on the results of the mist net surveys, the FWS's Pennsylvania Field Office confirmed that Indiana bats are either not present in the Project area in Pennsylvania, or are present in such low densities that they were not detected (FWS, 2017a). Furthermore, the Project is not within an area that is known to be occupied by a maternity colony, or within the fall swarming habitat associated with any known Indiana bat hibernacula in Pennsylvania. The FWS's Midwest Regional Office determined that Indiana bats are probably absent in the vicinity of the Project in Ohio, and tree clearing at any time of the year in the Ohio portion of the Project is unlikely to result in adverse impacts on Indiana bats. The Midwest Regional Office

stated that negative Indiana bat summer surveys are valid for 2 years, and therefore, no tree clearing should occur on the Ohio portion of the Project site after March 31, 2020, without further coordination with the Ohio Field Office (FWS, 2017b). Construction of the Project would take about 5 to 6 months and is scheduled to begin well before the end of 2019. Therefore, we do not anticipate any clearing would occur after March 31, 2020.

Other than the 2-year expiration of negative bat surveys, the FWS has not recommended specific measures to mitigate potential impacts on the Indiana bat. However, RH has proposed several measures that would minimize potential impacts on Indiana bat, including co-locating the Risberg Pipeline along existing rights-of-way. In addition, at the North Kingsville Meter Station and along the Risberg Pipeline alignment, RH would avoid clearing dead and dying trees within the right-of-way. Furthermore, RH would install bat boxes in areas where significant forest habitat would be converted to operational right-of-way, train employees and contractors to identify sensitive species, and complete construction quickly to reduce potential impact duration.

Based on the likely absence of Indiana bat in the Project area and RH's proposed mitigation measures, we conclude that the Project *may affect, but is not likely to adversely affect*, the Indiana bat. We request that the FWS concur with this determination.

**Northern Long-eared Bat**

The proposed Project is within the range of the federally threatened northern long-eared bat. Section 4(d) of the ESA allows the FWS to promulgate special rules for threatened species, like the northern long-eared bat, that allow the FWS flexibility in implementing the ESA. This allows the FWS to focus on conservation activities and recovery efforts. The FWS published a final 4(d) rule for northern long-eared bat in the January 14, 2016, Federal Register. The final rule exempts all development activities from the ESA take prohibition, except incidental take resulting from tree clearing under the following two conditions: (1) clearing activity within a 0.25 mile radius of a known northern long-eared bat hibernaculum, and (2) tree clearing resulting in the cutting or destruction of any trees within a 150-foot radius from a known maternity tree during the pup rearing period (June 1 through July 31).

Northern long-eared bats roost singly or in colonies under bark, in cavities, or in crevices in live or dead trees. They may also roost in structures like sheds or barns, but this is rare. In winter, northern long-eared bats hibernate in caves or mines.

Due to the proposed forest clearing associated with the Risberg Pipeline (see section B.4.1), RH conducted mist net surveys for northern long-eared bats in June and July 2017 in accordance with the FWS's Indiana bat summer survey guidelines (FWS, 2017c), which can be used for northern long-eared bat presence/absence surveys. The mist-net surveys captured two northern long-eared bats in the Pennsylvania portion of the Project. One of these bats was tracked to a roost tree located 0.2 mile from the Project. No northern long-eared bats were captured in the Ohio portion of the Project.

In Pennsylvania, the proposed Project is not within 0.25 mile of a known northern long-eared bat hibernaculum or within 150 feet from a known, occupied maternity roost tree as confirmed by the FWS's Pennsylvania Field Office (FWS, 2017a). Likewise, the Midwest Regional Office confirmed that the FWS has no known hibernacula or maternity roost records for northern long-eared bat in the vicinity of the Project in Ohio (FWS, 2017b). The Project is not in the vicinity of any known hibernacula or maternity roosts, therefore, the 4(d) rule for the northern long-eared bat could be applied for the Pennsylvania and Ohio portions of the Project, and tree clearing at any time of the year would not result in any unauthorized incidental take of the species. However, to minimize impacts on the northern long-eared bat, RH would implement the same measures as described above for the Indiana bat.

Based on RH's proposed measures to minimize impacts on this species and the FWS's conclusions, we conclude that the Project *may affect, but is not likely to adversely affect*, the northern long-eared bat. We request that the FWS concur with this determination and have attached the streamlined consultation form as appendix D.

**Kirtland's Warbler**

Kirtland's warbler is a federally endangered species that migrates along the Lake Erie shoreline on the way to jack pine forest nesting grounds in Michigan, Wisconsin, and Canada. Suitable migration stopover habitat for the Kirtland's warbler (scrub/shrub and forest habitat) occurs within 3 miles of the shoreline of Lake Erie in Ohio. There are no portions of the Project within 3 miles of the shoreline of Lake Erie in Pennsylvania. The Ohio Field Office of the FWS indicated a lack of nearby observations of Kirtland's warbler (FWS, 2018b). While suitable stopover habitat occurs in the Project area, based on the lack of observations in the area, we conclude the Project would have *no effect* on Kirtland's warbler.

**Snuffbox**

The snuffbox mussel is a federally endangered freshwater mussel usually found in areas of swift current within small to medium sized creeks. Adults often burrow in sand, gravel, and cobble substrates (FWS, 2018h). Snuffbox are known to occur in Lake Erie and the Chautauqua-Conneaut Creek subbasin watershed. RH would install the Risberg Pipeline across Conneaut Creek using HDD to avoid impacts to the creek. No snuffbox are known to occur in areas that would be impacted by the Project (FWS, 2018d and 2018e). Therefore, we conclude that the Project would have *no effect* on snuffbox.

**Rabbitsfoot**

The rabbitsfoot mussel is a federally threatened freshwater mussel found in small to medium waterbodies with moderate current and clear, relatively shallow water with sand and gravel substrate (USDA, 2018a). Critical habitat for the rabbitsfoot in the French Creek watershed is crossed by the existing gathering pipelines. No critical habitat for rabbitsfoot is present in Ashtabula County, Ohio. RH would not conduct in-stream work in the French Creek watershed. Therefore, we conclude that the Project would have *no effect* on rabbitsfoot or its critical habitat.

**Conclusions**

Because consultation with the FWS has not yet been completed for the Project, **we recommend that:**

- **RH should not begin construction activities until:**
  - **a. the staff receives comments from the FWS regarding the proposed action;**
  - **b. the staff completes ESA consultation with the FWS; and**
  - **c. RH has received written notification from the Director of OEP that construction or use of mitigation may begin.**

### 4.6.2 State-listed Species

**Pennsylvania**

In Pennsylvania, the PA DCNR, PFBC, and PGC have the regulatory authority to identify state-listed species that could potentially occur within the Project area. The PGC indicated that no impacts are anticipated as a result of the Project, and recommended that the final Project avoid or minimize impacts on wetlands within the Project area. Wetland impacts and mitigation are addressed in section B.3.3.

The PA DCNR records indicate two endangered plant species, northern water-plantain (*Alisma triviale*) and Shumard's oak (*Quercus shumardii*) are in the Project vicinity. Northern water plantain occurs in seasonal wetlands that dry during the growing season including shallow marshes, edges of ponds and lakes, temporary pools in wet meadows and shallow slow-moving streams or ditches. This species can tolerate disturbance. Shumard oak grows on moist, loamy soils on colluvial sites associated with large and small streams and coastal plains. RH conducted a botanical survey between June and September 2017 and did not identify any species of concern. We conclude that no impacts on sensitive plant species would occur during Project implementation, and the PA DCNR agreed (PA DCNR, 2017).

Based on a search of the Pennsylvania Natural Diversity Inventory, two endangered species, two candidate species, and a sensitive trust species were identified in the vicinity of the Project (PFBC, 2017b). The species included the endangered northern brook lamprey (*Ichthyomyzon fossor*) and redfin shiner (*Lythrurus umbratilis*); the candidates brook stickleback (*Culaea inconstans*) and central mudminnow (*Umbra limi*); and spotted turtles (*Clemmys guttata*), a species of greatest conservation need. PFBC has conducted habitat suitability surveys for the spotted turtle (in April 2018) and has determined that suitable habitat does not exist within the Project limit of disturbance. The PFBC has recommended that no in-stream construction activity occur from April 1 through August 15 for the segments of the Project area east of McKee Road in Erie County based on assumed presence of the above noted fish species within the Project limit of disturbance. RH has agreed to these restrictions. The PFBC anticipates conducting fish surveys within the East Branch of Conneaut Creek watershed to determine the presence or absence of the redfin shiner, northern brook lamprey, brook stickleback, and the central mudminnow in early June. Based on the survey results, the PFBC would provide recommendations and would determine appropriate BMPs, avoidance measures, and/or revise in-stream work restrictions as necessary.

A number of state-listed mussel species, fish, and turtle species listed by the PFBC are known to occur in areas crossed by the right-of-way for the existing gathering pipelines. The workspaces for the existing gathering pipeline modifications would not cross waterbodies. The PFBC conducted a field review in April 2018 for the existing gathering pipeline workspaces, but has not completed its review. Consultation with the PFBC is ongoing regarding the other pipeline facilities within Pennsylvania. Based on the lack of suitable habitat in the Project area, the Project would have no effect on the spotted turtle. Effect determinations for the northern brook lamprey, redfin shiner, brook stickleback, and central mudminnow are still pending. RH would file the results of additional surveys and coordination with the PFBC.

**Ohio**

In Ohio, the ODNR Division of Wildlife (DOW) has authority to restrict taking or possession of native wildlife designated as threatened with statewide extinction (Ohio Revised Code 1531.25). Species on Ohio's endangered wildlife list are categorized as endangered, threatened, potentially threatened, species of concern, species of special interest, extirpated, or extinct. The DOW identified 13 state-listed species as having potential to occur in the Project area. Indiana bat, piping plover, Kirtland's warbler, eastern massasauga, snuffbox, and clubshell are Ohio and federally listed species and are discussed above in section B.4.6.1. The DOW agreed with the conclusions that eastern massasauga, Indiana bat, piping plover,

clubshell and snuffbox would not be impacted by the Project. The DOW defers to the FWS's recommendations for Kirtland's warbler discussed in section B.4.6.1 (ODNR, 2017d).

The DOW identified seven species with ranges overlapping the Project. These include the Ohio endangered northern brook lamprey (*Ichthyomyzon fossor*), northern harrier (*Circus cyaneus*), upland sandpiper (*Bartramia longicauda*), and black bear (*Ursus americanus*) as well as Ohio threatened black sandshell (*Ligumia recta*), channel darter (*Percina copelandi*), and spotted turtle (*Clemmys guttata*).

The Project is within the range of the black sandshell mussel. Black sandshell is usually found in riffle and run areas dominated by sand and gravel in medium to large rivers. Based on consultation with ODNR staff, Conneaut Creek is the only waterbody in the Project area that could require mussel surveys. Given RH would cross Conneaut Creek using HDD, surface impacts on the creek would be avoided. We conclude that with HDD installation and implementation of RH's IRCP, and Plan and Procedures to avoid indirect impacts to Conneaut Creek, impacts on black sandshell would be unlikely. The DOW concurs that with the HDD crossing method, impacts on mussels are not likely (ODNR, 2018c).

The Project is in the range of the northern brook lamprey and the channel darter. Northern brook lamprey are found in clean headwaters of creeks and small rivers with coarse gravel to rock bottoms. This species could occupy Conneaut Creek and its tributaries. The channel darter lives in large clean streams with moderate current and substrate of large rocks, fine gravel and sand. They use riffle areas during spawning and summer feeding and quiet backwaters in winter (PNHP, 2018e; ODNR, 2018e). While RH would avoid direct impacts to Conneaut Creek using HDD installation, installation across tributaries to Conneaut Creek would result in temporary impacts on habitat and water quality. RH would follow the DOW recommendation that no in-water work occur in perennial streams from April 15 through June 30. We conclude that with implementation of RH's Plan and Procedures and the restriction recommended by DOW, the Project would not affect northern brook lamprey or channel darter.

The Project is within the range of the spotted turtle. Spotted turtle prefer shallow sluggish waters in ditches, small streams, marshes, bogs, and pond edges. RH would implement the DOW recommendation to conduct a pre-construction survey for the spotted turtle. The results of the survey are expected to be submitted to the DOW for review by the middle of May 2018. RH would provide the results of the survey and commitments to any DOW recommended minimization measures once surveys are complete. With these commitments, we find impacts to the spotted turtle would be sufficiently minimized.

The Project is within the range of the northern harrier, a common migrant and winter species in Ohio. Nesting northern harriers are much rarer in Ohio, although they occasionally breed in large marshes and grasslands. The female builds a nest out of sticks on the ground, often on a mound. They hunt flying low over grasslands and prefer small mammals (ODNR, 2018f). If grassland habitat would be impacted, DOW recommends that construction be avoided in grasslands during the species' nesting period of May 15 through August 1. If construction within suitable habitat is necessary during the breeding season, RH would perform a pre-construction survey. If a northern harrier is identified on site, RH would coordinate with the DOW and adhere to the DOW recommendation to avoid construction within grassland habitat from May 15 to August 1. We conclude that with implementation of the time-of-year restriction if northern harriers are identified in the Project area, the Project would not affect northern harrier.

The Project is within the range of the upland sandpiper. Nesting upland sandpipers utilize dry grasslands including native grasslands, seeded grasslands, grazed and ungrazed pastures, hayfields, and grasslands established through the Conservation Reserve Program. Suitable habitat occurs throughout the Project area. Construction would result in temporary impacts to suitable habitat until restoration is complete. Construction through nesting habitat that is in use during the nesting period could result in the loss of individuals or nests (ODNR, 2018g). If construction within suitable habitat is necessary during the

breeding season, RH would perform a pre-construction survey. If the species is identified on site, RH would follow the DOW recommendation to avoid construction during the upland sandpiper's nesting period of April 15 to July 31. We conclude that with implementation of RH's Plan to restore disturbed habitat following construction, preconstruction surveys in suitable habitat to identify active nests, and avoidance of active nests during the nesting period as identified by the DOW, the Project would not affect upland sandpipers.

The Project is within the range of the black bear (*Ursus americanus*), an Ohio endangered species. By the 1850s black bears were considered extirpated from Ohio but occasional reports persist. Black bears are opportunistic omnivores, have a large home range (100 to 120 square miles for males and 25 to 50 square miles for females), and use a variety of habitats but prefer wooded cover. Bears may adjust their movements based on human activity and become more nocturnal in areas with high human activity. If black bear are present in the Project area in Ohio, they are likely to avoid the construction area during active construction. Due to the adaptability, large range and mobility of this species, we conclude that the Project is not likely to impact the black bear (ODNR, 2018h). The DOW concurred, stating that due to the large range and mobility of this species, the Project is not likely to impact the black bear.

The ODNR Division of Natural Areas and Preserves indicated that the Project has the potential to impact the alpine rush (*Juncus alpinus*), a state threatened plant species, and recommended a survey of the proposed pipeline route. Alpine rush grow in wet, open to semi-open in sandy soils, often along the shores of lakes and ponds, marshes, ditches, and wet meadows. These habitats are located throughout the Project area. The species is threatened by drainage of wetlands but recovery potential is high since it appears to colonize disturbed habitats (ODNR, 1983). RH conducted a botanical survey for the Project from June 2017 to September 2017 and no alpine rush were identified. RH would temporarily impact wetlands during construction, but would restore wetlands following construction. Because alpine rush were not identified during botanical surveys of the Project area, we conclude that the Project is not likely to impact alpine rush. The Division of Natural Areas and Preserves reviewed the botanical survey report, which concluded that alpine rush was not present and would not be impacted, and stated it has no further comments regarding the alpine rush (ODNR, 2018d).

Species-specific surveys for three species (spotted turtle, northern harrier, upland sandpiper) are still pending. RH would file the results of additional surveys and consultation.

## 5.0 CULTURAL RESOURCES

Section 106 of the NHPA, as amended, requires FERC to consider the effect of its undertakings on properties listed on, or eligible for listing on, the National Register of Historic Places (NRHP), and to afford the Advisory Council on Historic Preservation an opportunity to comment. RH, as a non-federal party, is assisting us in obtaining information under Section 106 of the NHPA and the implementing regulations at 36 CFR 800 by preparing the necessary information, analyses, and recommendations, as authorized by 36 CFR 800.2(a)(3).

### 5.1 Consultations

We sent copies of our NOI for the Project to a wide range of stakeholders, including the Bureau of Indian Affairs; COE; National Park Service; Pennsylvania State Historic Preservation Officer (SHPO); Ohio SHPO; and federally recognized tribes (tribes) that may have an interest in the Project area. The NOI contained a paragraph about Section 106 of the NHPA and stated that we use the notice to initiate consultations with the SHPOs and to solicit their views and those of other government agencies, interested tribes, and the public on the Project's potential effects on historic properties. FERC received comments on the NOI from individuals citing concerns about general impacts on cultural resources, including cemeteries.

### 5.1.1 State Historic Preservation Officers

RH has communicated with the Pennsylvania and Ohio SHPOs. RH provided copies of archaeological and architectural resource survey reports to the Pennsylvania SHPO in October 2017. The Pennsylvania SHPO responded in letters dated November 16 and 17, 2017, concurring with eligibility recommendations for identified resources and concurring that the Project would have no effect on historic properties. RH provided supplemental information to the Pennsylvania SHPO regarding a minor change to the Project. The Pennsylvania SHPO responded on March 20, 2018, that the Project would have no effect on archaeological resources.

RH provided the results of archaeological and architectural resource survey reports in October 2017. RH also submitted an addendum archaeological survey report on November 21, 2017. The Ohio SHPO responded on January 8, 2018, and requested additional information for three architectural properties. The Ohio SHPO concurred with RH's recommendation that the Project would have no effect on historic properties. On March 16, 2018, RH provided the Ohio SHPO with supplemental information regarding NRHP eligibility and Project effects on the Farnham Cemetery. The Ohio SHPO responded in a letter dated April 3, 2018, concurring that the Project would have no effect on the cemetery.

### 5.1.2 Federally Recognized Tribes

We sent our NOI to 17 tribes that may attach religious or cultural importance to historic properties in the area of potential effects (APE; described in section B.5.2). The tribes included the Absentee-Shawnee Tribe of Oklahoma, Cayuga Nation, Delaware Nation, Delaware Tribe of Indians, Eastern Shawnee Tribe of Oklahoma, Miami Tribe of Oklahoma, Oneida Nation of Wisconsin, Onondaga Nation, Pokagon Band of Potawatomi, Seneca-Cayuga Tribe of Oklahoma, Seneca Nation of Indians, Shawnee Tribe, St. Regis Mohawk Tribe, Stockbridge-Munsee Band of the Mohican Nation, Tonawanda Band of Seneca, Tuscarora Nation, and Wyandotte Nation. A follow-up letter was sent to each tribe on January 8, 2018, requesting the tribe's comments and participation in the Section 106 consultation process. FERC received letters from the Miami Tribe of Oklahoma and the Absentee-Shawnee Tribe of Oklahoma on November 13, 2017, and January 30, 2018, respectively, requesting notification in the event of any unanticipated discoveries of human remains during the Project.

In addition to FERC's consultations, RH provided Project information to, and solicited comments from, the same tribes on August 11, 2017. RH sent another letter to the tribes on September 13, 2017, with a revised Project description. To date, RH filed responses from the Absentee-Shawnee Tribe of Oklahoma, Delaware Nation, Miami Tribe of Oklahoma, Shawnee Tribe, St. Regis Mohawk Tribe, and Tuscarora Nation. RH received responses from four tribes that had no concerns about the Project and requested consultation on Project milestones and/or in the event of an unanticipated discovery: the Absentee Shawnee Tribe (August 31, 2017); Miami Tribe of Oklahoma (October 6, 2017); Shawnee Tribe (August 21, 2017, and September 9, 2017); and the Tuscarora Nation (September 8, 2017, and September 27, 2017). In a letter dated August 24, 2017, the Delaware Nation provided their concerns and recommendations regarding potential impacts on archaeological sites, and further requested notification and consultation on any unanticipated discoveries. The St. Regis Mohawk Tribe responded on October 11, 2017, with no comments related to the Project.

### 5.1.3 Other Stakeholders

RH provided Project information to both the Erie County Historical Society and Ashtabula County Historical Society in letters dated August 11, 2017, and September 13, 2017. RH has not filed any responses from these groups.

## 5.2 Survey Results

The APE for direct effects on cultural resources consists of the construction workspace for the Meadville Compressor Station; TGP Lateral next to the Meadville Compressor Station; County Line Compressor Station; North Kingsville Meter Station; Risberg Pipeline; and associated ATWS, contractor yards, and access roads. The APE extends to the depth of disturbance of the associated component, which can range from 6 to 8 feet for the pipeline while ATWS and access roads may have only surface disturbance or minimal grading. The area reviewed for the direct APE consists of 359.3 acres and does not include workspaces associated with the existing gathering pipeline conversion, which would occur in existing, previously disturbed pipeline right-of-way. The APE for indirect effects encompasses all structures and areas of the surrounding landscape that would have a view of any aboveground component of the Project. RH conducted archaeological and historic architectural surveys of the APEs in Pennsylvania and Ohio, and provided reports of the investigations to FERC and the Pennsylvania and Ohio SHPOs.

### 5.2.1 Pennsylvania

RH completed an archaeological survey of the direct APE for facilities in Pennsylvania in 2017. The survey, which totaled 212.8 acres, also included some areas outside the construction workspace to accommodate minor route adjustments. Three previously recorded railroad resources are present in the APE: the Bessemer & Lake Erie Railroad Line (eligibility not assessed); a segment of this railroad built in 1891 (NRHP eligible); and the Erie & Pittsburgh Railroad Line (eligibility not assessed). RH proposes to use conventional borings at these historic resources. The archaeological survey identified three sites, all of which are historic period sites in portions of the Risberg Pipeline. The sites include two historic artifact scatters and one building foundation that date between the early 1800s and the modern period. One site was recommended as not eligible for listing on the NRHP. The remaining two sites are outside the Project's construction workspace and would be avoided by construction of the pipeline. Additionally, RH completed a historic architecture survey of the indirect APE. The survey identified four historic resources. All four resources were recommended as not eligible for NRHP listing. No further work is recommended for these resources.

In letters dated November 16 and 17, 2017, and March 20, 2018, the Pennsylvania SHPO concurred with RH's recommendations that the Project would not affect historic properties in Pennsylvania. We agree.

### 5.2.2 Ohio

RH completed archaeological surveys of the direct APE for facilities in Ohio in 2017. The surveys totaled 146.5 acres and included some areas outside the construction workspace to accommodate minor route adjustments. The Farnham Cemetery is recorded within the study area, and we received comments regarding potential impacts on the cemetery. The Farnham Cemetery is outside of the construction workspace. A proposed light-duty vehicle parking area is in the driveway leading to the cemetery. However, this use would not impact the cemetery. The survey identified nine archaeological sites including two pre-contact artifact scatters and seven historic period sites consisting of artifact scatters, a farmstead, a residence, and a church/school that date between the early nineteenth and mid-twentieth centuries. Four of the historic period sites were recommended not eligible for listing on the NRHP. The remaining five resources are outside the construction workspace and would be avoided.

Additionally, RH conducted a historic architecture survey of the indirect APE. The survey located 69 properties that appeared to be 50 years or older. Of the 69 properties, 68 were recommended not eligible for NRHP listing and 1 was recommended potentially eligible. RH indicated that tree clearing associated

with pipeline construction would be visible, but partially screened, from the potentially NRHP-eligible property, and recommended that it would have no effect.

RH provided the results of the cultural surveys to the Ohio SHPO in October 2017 and on November 21, 2017. The Ohio SHPO disagreed with RH's recommendations regarding two architectural properties and recommended further evaluation if the resources were affected. These buildings are in the indirect APE; however, tree clearing associated with pipeline construction would have no effect. On January 8, 2018, the Ohio SHPO concurred that the Project would have no effect on historic properties. We agree.

### 5.3 Unanticipated Discoveries Plan

RH included a draft Unanticipated Discoveries Plan for Pennsylvania and Ohio with its applications to FERC as appendix 4C to the Environmental Reports. On February 14, 2018, FERC requested revisions to the plan. RH filed a revised Unanticipated Discoveries Plan on March 6, 2018. We reviewed the revised plan and found it acceptable.

### 5.4 Compliance with the National Historic Preservation Act

RH consulted with the Pennsylvania and Ohio SHPOs regarding potential effects on cultural resources. The Pennsylvania and Ohio SHPOs did not object to the APE and agreed that the Project would have no effect on any historic properties. Additionally, no traditional cultural properties or properties of religious or cultural significance have been identified by RH, the Pennsylvania or Ohio SHPOs, or tribes. FERC staff and the Pennsylvania and Ohio SHPOs agree the Project would have no effect on historic properties.

## 6.0 LAND USE, RECREATION, AND VISUAL RESOURCES

### 6.1 Land Use

The Project would be in Crawford and Erie Counties, Pennsylvania, and Ashtabula County, Ohio, on primarily agricultural cropland/pastures and forest/woodland land. Current land use also includes wetland, residential, shrubland, open water, and developed/urban land areas. The Project would affect 243.6 acres during construction and 362.7 acres for operation and maintenance of the pipelines and aboveground facilities. Land uses that would be affected by Project construction and operation are quantified in table B.6.1-1 and defined below:

- **Agricultural Land** – Areas characterized by herbaceous vegetation that have been planted or are intensively managed for the production of food, feed, or fiber, or are maintained in developed settings for specific purposes. Herbaceous vegetation accounts for 75 to 100 percent of the vegetation cover.
- **Herbaceous/Shrubland** – Areas characterized by graminoid or herbaceous vegetation and shrubs generally less than about 15 feet in height. This includes true shrubs, young trees in an early successional stage, and trees stunted from environmental conditions. Herbaceous cover is generally greater than 80 percent of total vegetation, and shrub canopy is typically greater than 20 percent of total vegetation.
- **Forest/Woodland** – Areas characterized by tree cover (natural or semi-natural woody vegetation, generally greater than 15 feet in height). The tree canopy accounts for 25 to 100 percent of the vegetation cover.

TABLE B.6.1-1

**Land Affected by Construction and Operation of the Project (acres)**

| Facility | Agricultural Land | | Herbaceous/ Shrubland | | Forest/Woodland | | Wetlands [b] | | Open Water, Streams, and Canals | | Developed and Urban Land | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Const [a] | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper | Const | Oper |
| **Pipeline Facilities** | | | | | | | | | | | | | | |
| TGP Lateral | - | - | 0.2 | 0.2 | 0.6 | 0.6 | - | - | - | - | - | - | 0.8 | 0.8 |
| Existing Gathering Pipelines [c] | 0.4 | 111.1 | 0.1 | 2.9 | 0.1 | 68.1 | 0.0 | 0.0 | 0.0 | 0.4 | 0.1 | 8.1 | 0.7 | 190.6 |
| Risberg Pipeline | 61.4 | 46.0 | 7.9 | 5.9 | 107.0 | 89.4 | 2.6 | 2.6 | 0.2 | 0.2 | 31.0 | 25.4 | 210.1 | 169.5 |
| ATWS | 7.2 | - | 0.6 | - | 4.0 | - | - | - | - | - | 1.8 | - | 13.6 | - |
| **Subtotal** | **69.0** | **157.1** | **8.8** | **8.9** | **111.7** | **158.1** | **2.6** | **2.6** | **0.2** | **0.6** | **32.9** | **33.5** | **225.2** | **360.9** |
| **Aboveground Facilities [d]** | | | | | | | | | | | | | | |
| Meadville Compressor Station | - | - | 0.8 | 0.8 | 0.4 | 0.4 | - | - | - | - | - | - | 1.2 | 1.2 |
| County Line Compressor Station | - | - | - | - | 0.3 | 0.3 | - | - | - | - | - | - | 0.3 | 0.3 |
| North Kingsville Meter Station | - | - | - | - | 0.1 | 0.1 | - | - | - | - | 0.1 | 0.1 | 0.2 | 0.2 |
| **Subtotal** | **-** | **-** | **0.8** | **0.8** | **0.8** | **0.8** | **-** | **-** | **-** | **-** | **0.1** | **0.1** | **1.7** | **1.7** |
| **Contractor and Pipe Storage Yards (3)** | 4.6 | - | 0.3 | - | - | - | - | - | - | - | 2.2 | - | 7.1 | - |
| **Access Roads** | 4.7 | - | 0.9 | - | 2.3 | <0.1 | 0.3 | - | - | - | 1.4 | 0.1 | 9.6 | 0.1 |
| **Total** | **78.2** | **157.1** | **10.7** | **9.7** | **114.7** | **158.9** | **2.9** | **2.6** | **0.2** | **0.6** | **36.6** | **33.7** | **243.6** | **362.7** |

a With the exception of the existing gathering pipelines (see footnote c), construction impacts include temporary (construction) and permanent (operation) land requirements.

b All acreages in this table reflect information from the National Land Cover Dataset (Homer et al., 2007) and do not reflect the actual delineated wetland and water features surveyed for the Project.

c Construction impacts include sites within the existing gathering pipeline permanent rights-of-way for pig launcher/receivers, valve modifications, meter tap removals, and separator removals. Operation impacts include the existing gathering pipelines permanent rights-of-way.

d Aboveground facilities within (and thus accounted for by) new pipeline right-of-way or the compressor station footprints are not shown.

Totals may not match exactly due to rounding.

Const = Construction

Oper = Operation

- **Wetlands** – Areas where the soil or substrate is periodically saturated with, or covered with, water as defined by Cowardin et al. (1979).
- **Open Water, Streams, and Canals** – Rivers, creeks, canals, and other linear water bodies.
- **Developed and Urban Land** – Areas characterized by a high percentage (30 percent or greater) of constructed materials (e.g., asphalt, concrete, buildings). This includes commercial areas.

The currently vacant Meadville Compressor Station site has an existing fenced area that was previously cleared and used for compressor station operations. This area would be reused for the same purpose. RH owns an additional 12.8 acres outside the fenceline that are forested and would not be affected by the Project. A 0.5-acre fenced area at the County Line Compressor Station is currently being used for compressor station operations and would continue to be operated for the same purpose. The County Line Compressor Station property owned by RH also includes 9.5 acres outside the fenceline that are agricultural and forested, and would not be affected by the Project.

Construction and operation of the Risberg Pipeline and North Kingsville Meter Station would require the establishment of permanent right-of-way across forested or agricultural lands. The pipeline easement could limit how property owners use that land. For example, permanent structures could not be built on the easement, and trees could not be planted close to or over the pipeline.

We received comments regarding potential impacts on agricultural land. One commenter questioned whether farming would be allowed over the pipeline. Impacts on agricultural land would generally be temporary. Farming would be allowed to continue within the permanent right-of-way. Although not currently crossed by the Project, deep rooted crops, such as orchards or tree farms would be excluded from the permanent right-of-way. Mitigation for soil impacts, such as compaction, is described in section B.2. RH is unaware of crop irrigation systems that would be crossed by the Project. If crop irrigation systems are crossed by construction, RH would maintain water flow unless shutoff is coordinated with affected parties. Pursuant to RH's Plan, RH would attempt to locate existing drain tile and irrigation systems prior to construction. RH would contact landowner and local conservation authorities to determine the locations of future drain tiles that are likely to be installed, develop procedures for construction through drain-tiled areas, and engage qualified drain tile specialists to conduct or monitor repairs to drain tile systems affected by construction.

Lands disturbed by Project construction would be returned to their previous land use and in consultation with landowners, except where there are permanent aboveground facilities or where safety would mandate a change in land use (e.g., maintaining a clear right-of-way in a previously forested area). RH would recontour and reseed temporary disturbance from construction of the Project in accordance with its Plan and Procedures, ESCPs, and landowner agreements. Seeding would not be done in cultivated croplands unless requested by the landowner.

During construction of the Project, RH would use existing public roads for access when available. Seventeen existing or new temporary access roads would be used for access to the Risberg Pipeline construction right-of-way (see table A.8-3). One permanent access road would be constructed, in part by modifying an existing road, for access to the North Kingsville Meter Station. RH would use existing roads, without modification, to access the County Line Compressor Station and Meadville Compressor Station. Access roads are described in further detail in section A.8. County roads, state and U.S. highways, and railroads that would be crossed by the Project are identified in appendix E. Other than the public roads and jurisdictional waterbodies of the state, no Project facilities would be within 0.25 mile of federal or state public lands.

The Project would result in a relatively small amount of permanent land conversion, and RH would follow its Plan and Procedures for restoration and maintenance. RH would restore disturbed areas not needed for operations, as well as work with landowners to restore agricultural and residential land. Therefore, we conclude that impacts on land use from the Project would be sufficiently minimized.

## 6.2 Existing Residences and Planned Developments

In Crawford County, portions of the existing 12-inch-diameter gathering pipeline cross Cambridge Township's Commercial Zoning District, which has been identified by the community as an area desirable for future growth. However, no major development is currently planned in the county (Crawford County Planning Commission, 2017). No residential developments are planned within 0.25 mile of the Project components in Erie County, Pennsylvania (Erie County Department of Planning, 2013), or Ashtabula County, Ohio (Ashtabula County Planning Commission, 2017).

Existing residences that would be within 50 feet from the edge of the Project construction workspace are shown in table B.6.2-1. To minimize impacts on residences within 50 feet of the construction workspace, RH would:

- not remove mature trees and landscaping from within the edge of the construction workspace unless necessary to safely operate construction equipment or as specified in landowner agreements;
- restore all lawn areas and landscaping within the construction workspace immediately after cleanup operations, or as specified in landowner agreements;
- install safety fence along the edge of construction workspace adjacent to the residence for a distance of 100 feet on either side of the residence to ensure that construction equipment and materials, including the spoil pile, remain within the construction workspace;
- maintain fencing, at a minimum, throughout the active construction workspace; and
- where possible, maintain a minimum of 25 feet between the residence and the construction workspace for a distance of 100 feet on either side of the residence (i.e., reduce the construction workspace as necessary to maintain the minimum distance).

TABLE B.6.2-1

**Residences Within 50 Feet of Construction Workspace**

| Milepost | County, State | Distance from Construction Workspace (feet) |
|---|---|---|
| 33.5 | Erie County, PA | 18 |
| 51.8 | Ashtabula County, OH | 28 |
| 55.1 | Ashtabula County, OH | 10 |
| 55.1 | Ashtabula County, OH | 12 |
| 55.3 | Ashtabula County, OH | 32 |
| 58.0 | Ashtabula County, OH | 18 |

Four residences occur within 25 feet of the construction workspace. For these residences, RH would ensure that the trench is not excavated until the pipe is ready for installation and that the trench is backfilled immediately after pipe installation. If the trench cannot be backfilled immediately, RH would install steel road plates across the trench to allow access. Site-specific construction plans for residences within 25 feet of the construction workspace are provided in appendix F.

One commenter expressed concern that interruptions to power and run-off from stockpile soils could affect residences. RH does not anticipate that power lines would need to be disconnected or relocated for construction. RH would install temporary erosion controls immediately after initial soil disturbance and would maintain them throughout construction. Temporary erosion control measures would include slope breakers (to reduce runoff velocity and divert water off the construction right-of-way), trench plugs (to segment a continuous open trench), sediment barriers (to stop the flow of sediments and prevent the deposition of sediments beyond approved workspaces or into sensitive resources), and mulch (to stabilize the soil surface for reseeding, and reduce wind and water erosion). Where appropriate, RH would install permanent erosion control measures, including slope breakers and trench breakers (to slow the flow of subsurface water within the trench). Use of these erosion control measures and coordination with landowners to restore agricultural and residential lands would result in relatively small impacts on residential areas.

A commenter asked how long heavy equipment would be operating in an area. Project construction would take about 5 to 6 months. However, for each phase of pipeline construction (clearing, pipeline installation, and restoration), construction equipment would move along the route and not remain at any given location for the entire time. More information about the construction process is provided in section A.7.

We received several comments regarding eminent domain. RH indicates that it has executed easements or similar agreements covering about 98 percent of the length of the Risberg Pipeline route, with the exception of public utility and railroad properties. RH expects to reach agreements with the few remaining landowners. If an easement cannot be negotiated with a landowner and the Project is approved by the Commission, RH may use the right of eminent domain to acquire the property necessary to construct the Project. In that case, RH would still be required to compensate the landowner for the right-of-way and damages incurred during construction, including agricultural losses. The level of compensation would be determined by a court according to state or federal law.

No planned residential development was identified within the vicinity of the Project. With implementation of RH's Plan and Procedures and site-specific residential construction plans, we conclude that the Project would not have a minimal impact on existing residences.

### 6.3 Recreation and Special Interest Areas

Aside from those discussed in the following paragraphs, no special land uses such as national or state forests or parks; Indian reservations; national trails; wilderness areas; natural, recreational, or scenic areas; registered national landmarks; orchards; specialty crops; flood control lands; or coastal zone management areas would be crossed by the Project or within 0.25 mile of the Project. No additional land administered by private conservation organizations would be crossed by the Project.

Three active and three inactive aggregate mines would be within 0.25 mile of the Project area in Ohio (ODNR, 2017a). Of these six mines, two active and two inactive mines would be within the construction right-of-way along the mine property margins. One abandoned mine would be within 0.25 mile of the proposed Risberg Pipeline in Pennsylvania. Further details regarding these mines are provided in section B.1.2.

The Risberg Pipeline would cross Conneaut Creek, which is designated as a State Wild and Scenic River, at MP 54.7. The Conneaut Creek Scenic River Area is about 1.5 miles north of the crossing. The ODNR publishes maps of access points to Conneaut Creek for anglers, paddlers, and other recreationists (ODNR, 2018). As described in section B.3.2, RH would reduce impacts on Conneaut Creek by using an HDD to cross this waterbody. In addition, RH would implement its CMRP for the Conneaut Creek crossing,

which is based on guidance from the Ohio Scenic Rivers Program staff. Furthermore, RH stated it would continue to consult with Ohio Scenic Rivers Program staff regarding Conneaut Creek. RH's CMRP for Conneaut Creek includes measures that would minimize impacts on users, such as:

- limiting clearing activities along the HDD path at stream banks and bottoms to removal of limbs and small brush to provide line of sight for inadvertent return monitoring and use of tracking wire or tools;
- conducting vegetation clearing directly adjacent to Conneaut Creek no sooner than 72 hours before the crossing construction;
- implementing the IRCP, SWPPP, and ESCP;
- conducting visual surface inspections continuously along and in the vicinity of the drill path;
- stabilizing the crossing area immediately upon completion of the HDD bore; and
- immediately backfilling open trenches within 500 feet of Conneaut Creek and seeding and mulching within 7 days of completing pipeline installation.

During construction of this crossing, users of Conneaut Creek may experience temporary visual and noise impacts as a result of nearby construction activities; however, the HDD bore entry and exit locations are located on private land and would not interrupt public use of the creek. Anticipated noise levels associated with the Conneaut Creek HDD are addressed in section B.9.3. Operation of the Project would not affect users of Conneaut Creek.

The proposed Risberg Pipeline in Ashtabula County would be adjacent to the CMNH's Kingsville Swamp Land Preserve between MPs 56.6 and 57.4, and at its nearest point, approximately 0.5 mile southwest of the North Kingsville Sand Barrens. The North Kingsville Sand Barrens is 174 acres of protected land that contains a high-quality fossil dune ridge and several rare and endangered plant and animal species (CMNH, 2018). The Kingsville Swamp occupies 93 acres and is closed to the public. The pipeline would cross a driveway that is part of the property. Construction at this driveway could cause brief and temporary impacts on access; however, the Kingsville Swamp would not be affected. Sections B.3.3 and B.4.1 address potential impacts on the wetlands and sensitive species associated with this land preserve, as well as comments we received on this topic.

The USDA Farm Service Agency and NRCS administer a number of programs, such as the Conservation Reserve Program, in which landowners may enroll. These USDA programs are designed to re-establish valuable land cover to help improve water quality, prevent soil erosion, and reduce loss of wildlife habitat (USDA, 2018b). The locations of lands enrolled in the programs are not publicly available. RH would work with individual landowners if lands enrolled in the Conservation Reserve Program would be crossed by the Project. Lands that are under Conservation Reserve Program contract would be mitigated as required by the NRCS contract terms.

With implementation of RH's proposed mitigation measures, including its CMRP for Conneaut Creek and its Plan and Procedures, the Project would not have significant impacts on recreation or special interest areas.

## 6.4 Visual Resources

Long-term, visible facilities would include the modifications to existing aboveground facilities and construction of new aboveground facilities as described in section A.3. The County Line Compressor Station is an existing facility that would be modified but would not change significantly in appearance. The area directly adjacent to the fenced compressor station on the west, north, and east sides is vegetated with deciduous trees, providing natural screening relative to nearby residences, which are located north and northeast of the station. The nearest residence is 880 feet directly north. The construction of compressors at the Meadville Compressor Station would entail a change to the existing visual landscape because it is currently a vacant site. However, the fenced portion of the compressor station would be surrounded by forest. We conclude that the compressor station facilities would not have a significant impact on the existing scenic quality because they are previously developed industrial sites and because existing forested land provides screening. RH has not proposed plans for visual screening of aboveground facilities. Individual landowner agreements or individual county permits would address any special requirements.

For the Risberg Pipeline facilities, aboveground facilities, and access roads, RH would clear 114.7 acres of forest and maintain 158.9 acres of previously forested land as maintained pipeline right-of-way, resulting in a visual impact to the general area. However, because much of the land use is existing open agricultural land or forested, providing natural screening, there would be minimal visual impact to residences in the area. Co-location of the Risberg Pipeline along other linear features would also reduce the overall visual impacts of tree clearing. The Risberg Pipeline includes 14.5 miles (about half of its length) of co-location with other linear facilities (see table A.8-2). The Project would not cross any scenic highways or byways.

Visual impacts on users of Conneaut Creek, a State Wild and Scenic River, would be minimal due to use of HDD for the stream crossing. Clearing activities along the HDD path at stream banks would be limited to removal of limbs and small brush to provide line of sight for inadvertent return monitoring and use of tracking wire or tools. RH would implement its CMRP for the Conneaut Creek crossing, which includes additional measures such as mulching and reseeding of disturbed areas, not clearing vegetation directly adjacent to Conneaut Creek until 72 hours before installation of the crossing, and limiting clearing of riparian vegetation, to minimize the visual impact of the Project on Conneaut Creek. Therefore, we conclude that the Project would not have significant impacts on visual resources.

# 7.0 SOCIOECONOMICS

Construction and operation of the Project could impact socioeconomic conditions in the area. Some potential effects are related to the number of construction workers that would work on the Project and their impact on population, public services, and temporary housing during construction. Other potential effects are related to construction, such as increased traffic or disruption of normal traffic patterns. Increased property tax revenue, increased job opportunities, and increased income associated with local construction employment are potential effects of the Project.

The socioeconomic study area considered for the analysis of the Project includes Erie and Crawford Counties in Pennsylvania and Ashtabula County in Ohio. The counties in the socioeconomic study area are the most likely to see an increase in non-local workers relocating to these areas due to the proximity to the proposed Project facilities.

## 7.1 Population, Economy, and Employment

A summary of select demographic and socioeconomic conditions for counties in the socioeconomic study area is presented in table B.7.1-1.

TABLE B.7.1-1

**Existing Social and Economic Conditions for the Project Study Area**

| Location | 2016 Population Estimate [a] | Estimated Population Density (persons/sq. mi) (2016) [a, b] | Change in Population (2010-2016) percent [a, b] | Per Capita Income (U.S. dollars) [a] | Civilian Labor Force [a] | Unemploy-ment Rate (percent) [a] | Top Three Industries [a,c] |
|---|---|---|---|---|---|---|---|
| **United States** | 318,558,162 | 90.2 | 4.7 | $29,829 | 159,807,099 | 7.4 | |
| **Pennsylvania** | 12,784,227 | 285.7 | 0.6 | $30,137 | 6,512,133 | 7.2 | E, M, R |
| Crawford County | 86,257 | 85.2 | -2.8 | $23,578 | 40,646 | 6.8 | E, M, A |
| Erie County | 276,207 | 345.6 | -1.6 | $25,555 | 137,838 | 7.1 | E, M, R |
| **Ohio** | 11,614,373 | 284.2 | 0.7 | $27,800 | 5,849,603 | 7.2 | E, M, R |
| Ashtabula County | 98,231 | 139.9 | -3.2 | $20,978 | 43,839 | 8.1 | M, E, R |

a Source: U.S. Census Bureau (2016a)
b Source: U.S. Census Bureau (2010)
c Industries are abbreviated as follows: A = Arts, entertainment, and recreation, and accommodation and food services; E = Educational, Health and Social Services; M = Manufacturing; and R = Retail Trade.

Construction of the Project would temporarily increase the population in the socioeconomic study area. Construction for all portions of the Project is estimated to begin in 2018 and be complete in about 5 to 6 months. We received comments about the creation of jobs associated with the Project and the composition of the construction workforce. Commenters asked if RH would hire local residents for construction of the Project or bring in transient workers. Construction of the Project would require a peak workforce of about 175 workers, with about 50 people required for the modifications to the existing County Line Compressor Station and existing gathering pipeline facilities; about 25 workers for constructing the new Meadville Compressor Station; and about 100 workers for construction of the Risberg Pipeline, the TGP Lateral, and the North Kingsville Meter Station. The construction workforce would include both local and non-local workers, of which up to 50 percent (up to about 90 people) would be local. RH estimates that between two and six permanent employees would be hired for operation of the Project.

Population impacts on the socioeconomic study area are expected to be temporary and proportionally small. Given the short duration of construction, it is our experience that most non-local workers would not travel with their families to the study area, so we estimate about 150 additional persons would be temporarily added to the study area population. Based on the populations within the study area, the temporary addition of the non-local workforce to the study area for the duration of construction would not result in a significant population change. Additionally, the temporary increase in population would be distributed throughout the study area and would have no permanent impact on the population. A brief decrease in the unemployment rates in the study area could occur as a result of hiring of local workers for construction and increased demands on the local economy.

The non-local workforce would most likely spend a portion of their pay in local communities on items such as housing, food, automobile expenses, entertainment, and miscellaneous other items. The number of temporary, indirect jobs in the study area could increase as purchases for goods and services would increase along with the influx of the construction workforce to the area. Indirect employment, including hiring additional staff in the retail and service industries to accommodate the increase in demand for food, clothing, lodging, gasoline, and entertainment, along with an increased demand for goods and services would have a temporary stimulating effect on local economies. Indirect jobs would represent a temporary, minor increase in employment opportunities in the study area.

We also received comments in support of the Project based on anticipated positive effects on the economic conditions of the area.

## 7.2 Housing

Housing characteristics for the counties in the socioeconomic study area are presented in table B.7.2-1.

TABLE B.7.2-1

**Available Housing in the Project Study Area**

| Location | Total Housing Units [a] | Occupied Housing Units [a] | Vacant Housing Units[a] | Rental Vacancy Rate (%) [a] | Number of Hotels and Motels/Campgrounds and RV Parks [b] |
|---|---|---|---|---|---|
| **Pennsylvania** | | | | | |
| Crawford County | 44,442 | 34,575 | 9,867 | 6.4 | 247 |
| Erie County | 119,827 | 109,934 | 9,893 | 6.2 | 189 |
| **Ohio** | | | | | |
| Ashtabula County | 45,907 | 38,890 | 7,017 | 6.3 | 150 |

a Source: U.S. Census Bureau (2015)
b Source: Google Maps (2018)

Temporary housing availability varies geographically within the counties near the proposed facilities and is available in the form of daily, weekly, and monthly rentals in motels, hotels, campgrounds, and rental housing units. The demand for temporary housing in the study area may increase during summer months from tourism.

Construction of the Project could affect the availability of short-term housing in the study area. About half of the peak construction workforce, or about 90 people, are expected to come from outside the local workforce, and may require short-term housing. The Project is likely to have a short-term positive impact on the rental and accommodation industry in the area through increased demand and higher rates of occupancy. Given the rental vacancy rates and the number of hotels, motels, and other temporary housing available in the study area, no significant impacts on the local housing markets would be expected.

## 7.3 Public Services

A wide range of public services and facilities are found in the study area. Services and facilities include hospitals, full-service law enforcement, paid and volunteer fire departments, and schools. Table B.7.3-1 provides an overview of select public services available by county in the study area. Each county has its own sheriff's or police department, numerous fire departments and at least one hospital or medical facility. Additionally, each county has multiple school districts and many public kindergarten-through-12$^{th}$ grade (K-12) schools.

TABLE B.7.3-1

**Public Services Available in the Project Study Area**

| Location | Number of Police / Sheriff Departments | Number of Fire Departments | Number of Hospitals and Medical Facilities | Number of K-12 Schools |
|---|---|---|---|---|
| **Pennsylvania** | | | | |
| Crawford County | 9 | 25 | 2 | 57 |
| Erie County | 16 | 23 | 5 | 104 |
| **Ohio** | | | | |
| Ashtabula County | 9 | 21 | 4 | 37 |

Source: Homefacts (2018)

About 100 non-local workers would be anticipated to travel to the study area to work on the Project, which is a small number relative to the current population of the study area (a negligible population increase of 0.12 percent in Crawford County, 0.04 percent in Erie County, and 0.10 percent in Ashtabula County). This would result in minor, temporary, or no impacts on local community facilities and services, such as police, fire, medical services, and schools. The counties in the study area have adequate infrastructure and services to meet the need of any non-local construction workers entering the study area.

Short-term impacts on public services could include the need for localized police assistance to control traffic flow or respond to emergencies during construction activities. Also, construction-related injuries could occur as a result of unanticipated accidents or emergencies. In the event of an accident, RH could require police, fire, and emergency services. The anticipated demand on these services is not expected to exceed the existing capability of the services. RH would work with local services to coordinate effective emergency response during construction and operation of the Project. Because most of the non-local workers would not travel with their families during the construction period, the Project would not increase demand for school-related services.

The small number of new employees hired for operation of the Project (two to six workers) would have negligible permanent impacts on public services.

### 7.4 Transportation and Traffic

The local road and highway system in the study area and vicinity consists of interstate highways, U.S. highways, state highways, secondary state highways, county roads, and private roads. Most local public roads in vicinity of the Project facilities are paved. Construction of the Project could result in minor, short-term impacts along some roads and highways due to the movement and delivery of equipment, materials, and workers.

Workers commuting to and from the work sites every day would result in a short-term, temporary increase in traffic during construction. At peak workforce, 175 workers would be driving to construction sites using the local road network, spread out over about 60 miles. In addition to the construction workforce, the delivery of construction equipment and materials to the Project facility sites could temporarily congest existing transportation networks. Traffic associated with the delivery of materials and equipment to the Project sites would result in short-term, temporary increases in traffic and traffic congestion on the roads near the Project facilities for the duration of construction.

Between MPs 33.7 and 34.1, the Risberg Pipeline would be co-located with State Route 9N. The centerline of the pipeline would be adjacent to the north side of State Route 9N, and RH's proposed construction right-of-way extends south to the centerline of the road. **We recommend that:**

- **<u>Prior to construction of the Risberg Pipeline</u>, RH should file with the Secretary, for review and written approval by the Director of OEP, a traffic plan for State Route 9N that includes:**

  **a. a timeline for construction activities at this location;**

  **b. details of how traffic will be managed around the construction, including any detours; and**

  **c. safety measures such as signage, cones, barriers, and flaggers.**

## 7.5 Property Values

We received comments expressing concerns that pipeline easements would lower property values of homes in the vicinity of the Project. The effect that a pipeline easement may have on property value is a damage-related issue that would be negotiated between the parties during the easement acquisition process. The easement acquisition process is designed to provide fair compensation to the landowner for the right to use the property for pipeline construction and operation. Appraisal methods used to value land are typically based on objective characteristics of the property and any improvements. The impact a pipeline could have on a property's value would depend on many factors including the size of the tract, the values of adjacent properties, the presence of other utilities, the current value of the land, and the current land use. Subjective valuation is generally not considered in appraisals. If the presence of a pipeline renders a planned use infeasible, it is possible that a potential purchaser would decide not to purchase the property; however, each potential purchaser has different criteria and differing capabilities to purchase land.

A number of studies have been conducted since the early 1990s on the effects of proximity to pipelines on property values. In a few of them, advanced statistical techniques have been applied to evaluate transaction sales data before and after the construction of a pipeline. A literature review of these studies can be found in Wilde et al. (2012). The paper concludes that natural gas pipelines have no statistically significant impact on the values of nearby properties.

FERC staff conducted independent research and identified two recent studies that assessed the effects of natural gas pipeline compressor stations on property values. The first study was prepared for the National Fuel Gas Supply Corporation and assesses the impacts on property values in neighborhoods surrounding compressor stations in seven locations in the state of New York. Sales data over the previous 15 years were evaluated and assessors from six of the seven areas were interviewed. The study found no quantifiable evidence of a discernable effect on property values or appreciation rates of properties within 0.5 mile of compressor stations. The study, which notes the general lack of sales data for analysis, identified the following commonalities among the seven areas: the compressor stations were sited on large land parcels and set back from the road; natural and constructed buffers were utilized; and compressor station sites were generally in rural areas removed from higher density development (Griebner, 2015).

The second study, "A Study of Natural Gas Compressor Stations and Residential Property Values," was prepared for TGP and based on four case studies in New Hampshire and Massachusetts. This study compared the value of properties close to compressor stations to properties farther away. The study relied on available market data and interviews with town assessors, building department representatives, and other government representatives. The study concluded that the presence of a compressor station did not generally affect property values in the area. The study indicated a higher confidence in this conclusion for properties more than 0.5 mile from compressor stations. The reason for this is that the areas surrounding the compressor stations in each of the case studies were more rural in nature, and therefore, there was a comparative lack of sales data in the immediate vicinity of the compressor stations as compared to the area 0.5 mile away. Overall, the study concluded that "well designed and operated compressor stations on larger sites with adequate buffers should have minimal impact on surrounding land uses and residential property values" (Foster, 2016).

As described in section B.6.4, the Project would not have significant visual impacts.

Based on the research we have reviewed, we find no conclusive evidence indicating that the Project would have a significant negative impact on property values.

## 7.6 Tax Revenues

Construction and operation of the Project would result in additional state and local tax revenues related to retail sales and payroll. Non-local construction workers would spend money on housing, transportation, food, and entertainment. In addition, equipment fuel and construction materials, such as gravel and fencing materials, would likely be purchased from local or regional vendors. These revenues would result in minor short-term beneficial impacts on local businesses by generating additional revenues and contributing to the tax base. Construction of the Project would result in increased county property tax revenues in the counties where compressor stations are located, which would result in a short-term beneficial impact on local governments in Crawford and Erie Counties in Pennsylvania. Once operational, property taxes would be assessed on the value of the Project facilities. As such, the increased tax base during Project operations would be a minor long-term beneficial impact on local governments in the Project area.

## 7.7 Environmental Justice

Executive Order 12898, Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations, requires federal agencies to consider if impacts on human health or the environment (including social and economic aspects) would be disproportionately high and adverse for minority and low-income populations, and appreciably exceed impacts on the general population or other comparison group.

Consistent with Executive Order 12898, the Council on Environmental Quality called on federal agencies to actively scrutinize the following issues with respect to environmental justice (1997):

- the racial and economic composition of affected communities;
- health-related issues that may amplify project effects on minority or low-income individuals; and
- public participation strategies, including community or tribal participation in the process.

The EPA's Environmental Justice Policies focus on enhancing opportunities for residents to participate in decision making. The EPA (2017a) states that "Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies. Fair treatment means no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental and commercial operations or policies. Meaningful involvement means:

- people have an opportunity to participate in decisions about activities that may affect their environment and/or health;
- the public's contribution can influence the regulatory agency's decision;
- community concerns will be considered in the decision making process; and
- decision makers will seek out and facilitate the involvement of those potentially affected."

In accordance with Executive Order 12898, all public documents, notices, and meetings for the Project were made readily available to the public during our review of the Project. RH hosted two informational open houses in December 2017, which were attended by about 270 individuals. Additional efforts included mailings to landowners and other stakeholders, a website (http://rhenergytrans.com/), and

a toll-free telephone number. As discussed in section A.5, FERC staff also conducted outreach efforts, which included mailing the NOI to 642 parties notifying them of the Project and requesting comments.

### 7.7.1 Demographic and Economic Data

Based on published EPA guidance concerning environmental justice reviews (1998), we used a three-step approach to conduct our review. These steps are:

1. determine the existence of minority and low-income populations;
2. determine if resource impacts are high and adverse; and
3. determine if the impacts fall disproportionately on environmental justice populations.

For the purposes of this review, a low-income population exists when the percentage of all persons living below the poverty level is more than the percentage for the state where the census tract is located. Also, for this review, minority population exists when:

- the total racial minorities in a U.S. Census Bureau-defined census tract are more than 50 percent of the tract's population;
- the percentage of a racial minority in a census tract is "meaningfully greater"[7] than in the comparison group;
- the total ethnic minorities in a census tract are more than 50 percent of the tract's population; or
- the percentage of ethnic minorities in a census tract is meaningfully greater than in the comparison group.

Racial and ethnic minorities include: African American/Black, Native American or Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, two or more races, and other races; and the Hispanic or Latino ethnicity.

Table B.7.7-1 provides an overview of the racial and economic characteristics of the population in the census tracts within a 1-mile radius of the aboveground Project facilities. No census tracts within 1 mile of aboveground Project facilities had minority populations as defined above.

In Pennsylvania, none of the census tracts within 1 mile of the Meadville Compressor Station or the County Line Compressor Station has a low-income population as defined above.

In Ohio, one census tract within 1 mile of the North Kingsville Meter Station has a percentage of persons living below the poverty level which is higher than the percentage for Ohio (Census Tract 3 in Ashtabula County). This census tract would therefore be considered as a low-income population. The other census tract within 1 mile of the North Kingsville Meter Station does not have a low-income population as defined above.

[7] "Meaningfully greater" is defined in this analysis when minority or ethnic populations are at least 10 percentage points more than in the comparison group, which was the county in which the census tract was located.

TABLE B.7.7-1

**Racial, Ethnic, and Poverty Statistics for Census Tracts within 1 Mile of Project Facilities**

| Location, Project Facility | Total Population [a] | White (%) [a,c] | Hispanic or Latino origin (of any race) (%) [a] | African American (%) [a] | American Indian and Alaska Native (%) [a] | Asian (%) [a] | Native Hawaiian or Other Pacific Islander (%) [a] | Some Other Race (%) [a] | Two or More Races (%) [a] | Total Minority Population (%) [a] | Percentage of Population below Poverty Level (%) [b] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Pennsylvania** | 12,783,977 | 77.8 | 6.6 | 10.6 | 0.1 | 3.1 | 0.0 | 0.1 | 1.7 | 22.2 | 13.3 |
| **Meadville Compressor Station** | | | | | | | | | | | |
| Crawford County | 87,027 | 95.2 | 1.2 | 1.8 | 0.0 | 0.5 | 0.0 | 0.0 | 1.3 | 4.8 | 14.5 |
| Census Tract 1113 | 5,659 | 95.7 | 1.4 | 0.9 | 0.1 | 0.3 | 0.0 | 0.0 | 1.6 | 4.3 | 8.4 |
| **County Line Compressor Station** | | | | | | | | | | | |
| Crawford County | 87,027 | 95.2 | 1.2 | 1.8 | 0.0 | 0.5 | 0.0 | 0.0 | 1.3 | 4.8 | 14.5 |
| Census Tract 1102.01 | 3,687 | 96.8 | 0.9 | 1.3 | 0.0 | 0.3 | 0.0 | 0.1 | 0.6 | 3.2 | 7.0 |
| Erie County | 279,133 | 85.3 | 3.9 | 6.7 | 0.2 | 1.5 | 0.0 | 0.1 | 2.3 | 14.7 | 16.7 |
| Census Tract 101.04 | 2,324 | 96.2 | 1.0 | 1.3 | 0.2 | 0.3 | 0.1 | 0.0 | 0.9 | 3.8 | 10.0 |
| **Ohio** | 11,586,941 | 80.1 | 3.5 | 12.1 | 0.1 | 1.9 | 0.0 | 0.1 | 2.2 | 19.9 | 15.4 |
| **North Kingsville Meter Station** | | | | | | | | | | | |
| Ashtabula County | 99,175 | 90.1 | 3.9 | 3.2 | 0.2 | 0.4 | 0.0 | 0.1 | 2.1 | 9.9 | 19.6 |
| Census Tract 2 | 4,378 | 91.2 | 3.1 | 1.1 | 0.0 | 3.4 | 0.0 | 0.1 | 1.1 | 8.8 | 6.4 |
| Census Tract 3 | 2,025 | 88.0 | 1.6 | 4.9 | 0.3 | 0.0 | 0.3 | 0.3 | 4.6 | 12.0 | **18.2** |

a Source: U.S. Census Bureau (2016b)
b Source: U.S. Census Bureau (2016c)
c White Alone, Not Hispanic or Latino
**Grey highlighted** value indicates percentage exceeds thresholds defined in text, and is an environmental justice population.

We received a comment stating that the County Line Compressor Station is located in a low-income area. As shown in table B.7.7-1, although the percent of the population below poverty level in Crawford County (14.5 percent) is slightly higher than the percentage for the state of Pennsylvania (13.3 percent), the percentage in the two census tracts within 1 mile of the County Line Compressor Station are slightly lower than for the state overall. The percentage of the population with incomes below poverty level is 7.0 percent in Census Tract 1102.01 in Crawford County and 10.0 percent in Census Tract 101.04 in Erie County.

RH would implement a series of measures to minimize potential impacts on communities, including environmental justice communities, near Project facilities. RH would comply with all applicable environmental regulations, including those for air emissions to ensure the National Ambient Air Quality Standards (NAAQS) are met. The NAAQS are designed to protect sensitive populations from impacts. Additional discussion of air quality impacts is provided in section B.8.

RH would comply with FERC noise regulations to minimize effects on nearby noise-sensitive areas (NSA), the closest of which is 170 feet from the proposed North Kingsville Meter Station. The increase in noise at the closest NSA would be about 3 decibels. The threshold for a perceivable change in loudness is about 3 decibels. Additional discussion of noise impacts is provided in section B.9.

Impacts on the natural and human environment from construction and operation of Project facilities are identified and discussed throughout this document. Potentially adverse environmental effects associated with the Project would be minimized and/or mitigated, as applicable, and are not characterized as high and adverse. The census tract within a 1-mile radius of the proposed North Kingsville Meter Station has a higher percentage of low-income persons than the state of Pennsylvania as a whole. However, the meter station location was dictated by the requirement to be at the interconnection point with the DEO distribution system and was not influenced by demographics. Based on our environmental analysis, the Project would not cause a disproportionate share of high and adverse environmental or socioeconomic impacts on any racial, ethnic, or socioeconomic group.

## 8.0 AIR QUALITY

This section of the EA describes existing air quality, identifies the construction and operating air emissions and projected air quality impacts, and outlines methods that RH would use to achieve compliance with regulatory requirements for the Project facilities. Air quality in Crawford and Erie Counties, Pennsylvania, and Ashtabula County, Ohio, would be affected by construction of the Project. During construction, short-term emissions would be generated by operation of equipment, land disturbance, and increased traffic from worker and delivery vehicles. Operation of the Meadville Compressor Station would result in long-term air emissions from a compressor engine, tanks, and fugitive air emissions. Modification of the County Line Compressor Station would result in a continuation of existing compressor engine, tank, and fugitive air emissions.

We received comments on air quality impacts associated with the Project. Specifically, commenters expressed concern with the Project's impact on the health of humans (especially children) near compressor stations as well as the general potential to degrade local air quality. Commenters near the County Line Compressor Station are concerned that emissions would cause respiratory illnesses and odors. Commenters also expressed concern about methane emissions and their effect on climate change.

### 8.1 Air Pollutants

Ambient air quality is protected by federal and state regulations. Under the Clean Air Act (CAA) and its amendments, the EPA established the NAAQS to protect human health and welfare. These standards incorporate short-term (hourly or daily) levels and long-term (annual) levels to address acute and chronic

exposures to the pollutants, as appropriate. The NAAQS include primary standards that are designed to protect human health, including the health of sensitive individuals such as children, the elderly, and those with chronic respiratory problems. The NAAQS also include secondary standards designed to protect public welfare, including visibility, vegetation, animal species, economic interests, and other concerns not related to human health. Individual states may set air quality standards that are at least as stringent as the NAAQS; Pennsylvania and Ohio have adopted the NAAQS.

Standards have been set for seven principal pollutants that are called criteria pollutants. These criteria pollutants are ground-level ozone, carbon monoxide (CO), nitrogen oxides ($NO_x$), sulfur dioxide ($SO_2$), fine particulate matter (inhalable particulate matter with an aerodynamic diameter less than or equal to 10 microns [$PM_{10}$] and less than or equal to 2.5 microns [$PM_{2.5}$]), and airborne lead. Ozone is not emitted into the atmosphere from an emissions source; it develops as a result of a chemical reaction between $NO_x$ and VOCs in the presence of sunlight. Therefore, $NO_x$ and VOCs are often referred to as ozone precursors and are regulated to control the potential for ozone formation. The current NAAQS are listed on the EPA's website (EPA, 2016b).

Hazardous air pollutants (HAP), also known as toxic air pollutants or air toxics, are specific pollutants that are known or suspected to cause cancer (carcinogens) or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. There are no national air quality standards for HAPs but their emissions are limited through permit thresholds and technology standards.

Greenhouse gases (GHG) associated with fossil-fuel combustion are carbon dioxide ($CO_2$), methane, and nitrous oxide. Classification of GHGs as a pollutant is not related to toxicity. GHGs are non-toxic and non-hazardous at normal ambient concentrations, and there are no applicable ambient standards or emission limits for GHG under the CAA. GHG emissions due to human activity are the primary cause of increased levels of all GHGs since the industrial age. These elevated levels of GHGs are the primary cause of warming of the climate system since the 1950s. These existing and future emissions of GHGs, unless significantly curtailed, will cause further warming and changes to the local, regional, and global climate systems. Emissions of GHGs are typically expressed in terms of $CO_2$ equivalents ($CO_{2e}$). The $CO_{2e}$ takes into account the global warming potential (GWP) of each GHG. The GWP is a ratio relative to $CO_{2e}$ of a particular GHG's ability to absorb solar radiation as well its residence time within the atmosphere. Thus, $CO_2$ has a GWP of 1, methane has a GWP of 25, and nitrous oxide has a GWP of 298 (EPA, 2015).[8] In compliance with the EPA's definition of air pollution to include GHGs, emissions of GHG pollutants associated with the construction and operation of the Project are shown as $CO_2$e in this document. We received several comments regarding the Project's impact on climate change. Climate change impacts are discussed in section B.11.8.

## 8.2 Existing Air Quality

Crawford and Erie Counties, Pennsylvania, and Ashtabula County, Ohio, are characterized by a temperate climate. The areas experience average annual precipitation (rainfall and snow) of about 42 to 45 inches, and monthly average daily temperatures range from about 28 degrees Fahrenheit (°F) in January to 68 °F in July. The average annual temperature in the Project area ranges from 48 to 50 °F (National Oceanic and Atmospheric Administration, 2018).

[8] These GWPs are based on a 100-year time period. We have selected their use over other published GWPs for other timeframes because these are the GWPs that the EPA has established for reporting of GHG emissions and air permitting requirements. This allows for a consistent comparison with these regulatory requirements.

The Project would be constructed in Crawford and Erie Counties, Pennsylvania, and Ashtabula County, Ohio, which are all within the Northwest Pennsylvania-Youngstown air quality control region (AQCR). In accordance with Section 7 of the CAA, AQCRs are areas established by the EPA, in consultation with state and local agencies, for air quality planning purposes. State Implementation Plans, approved by the EPA, describe how the NAAQS would be achieved and maintained. The AQCRs are intra- and interstate regions, such as large metropolitan areas, where improvement of the air quality in one portion of the AQCR requires emission reductions throughout the AQCR. Each AQCR, or smaller portion within an AQCR (such as a county or multiple counties), is designated, based on compliance with the NAAQS, as attainment, unclassifiable, maintenance, or nonattainment, on a pollutant-by-pollutant basis. Areas in compliance, or below the NAAQS, are designated as attainment, while areas not in compliance, or above the NAAQS, are designated as nonattainment. Areas previously designated as nonattainment that have since demonstrated compliance with the NAAQS are designated as maintenance for that pollutant. Maintenance areas may be subject to more stringent regulatory requirements similar to nonattainment areas to ensure continued attainment of the NAAQS. Areas that lack sufficient data are considered unclassifiable and are treated as attainment areas for permitting purposes.

Crawford and Erie Counties, Pennsylvania, and Ashtabula County, Ohio, are currently designated as counties in attainment for all monitored pollutants: CO, $NO_x$, ozone, $SO_2$, $PM_{2.5}$, and $PM_{10}$. A maintenance area was once designated as nonattainment. Crawford County is in maintenance for the revoked 1-hour ozone standard; Erie County is in maintenance for the revoked 1-hour and 8-hour ozone standards; and Ashtabula County is in maintenance for 8-hour ozone and the revoked $PM_{2.5}$ standards (EPA, 2017b).

In addition, the Northeast Ozone Transport Region includes 11 northeastern states in which ozone transports from one or more states and contributes to a violation of the ozone NAAQS in one or more other states. States in this region are required to submit a State Implementation Plan, stationary sources are subject to more stringent permitting requirements, and various regulatory thresholds are lower for the pollutants that form ozone, even if they meet the ozone NAAQS. Pennsylvania and Ohio are within the Northeast Ozone Transport Region; thus, the Meadville and County Line Compressor Stations would be subject to more stringent permitting thresholds because of their potential to affect attainment in other states.

## 8.3 Permitting and Regulatory Requirements

### 8.3.1 Federal Regulations

The CAA, as amended in 1977 and 1990, is the basic federal statute governing air pollution. The existing County Line Compressor Station and new Meadville Compressor Station would both be sources of indefinite operational emissions of air pollution and thus subject to regulations under the CAA. We have reviewed the following federal requirements and determined that they are applicable to the Project:

- New Source Review (NSR) is a preconstruction permitting program designed to protect air quality when air pollutant emissions are increased either through the modification of existing stationary sources or through the construction of a new stationary source of air pollution. Although major NSR permitting would not be triggered, minor NSR requirements would apply to the new Meadville Compressor Station.
- New Source Performance Standards that establish emission limits and fuel, monitoring, notification, reporting, and recordkeeping requirements for new or significantly modified stationary source types or categories.

- National Emission Standards for Hazardous Air Pollutants for Source Categories regulate HAP emissions from stationary sources by setting emission limits and monitoring, testing, recordkeeping, and notification requirements.
- The EPA established the final Mandatory Greenhouse Gas Reporting Rule, requiring the reporting of operational GHG emissions from applicable sources that emit greater than or equal to 25,000 metric tons of $CO_2e$ in 1 year. Recent additions to the Mandatory Reporting Rule effective for calendar year 2016 require reporting of GHG emissions generated during operation of natural gas pipeline transmission systems, which include blowdown emissions, equipment leaks, and vent emissions at compressor stations, as well as blowdown emissions between compressor stations.

Based on the estimates of potential emissions for each of the compressor stations, these facilities would be minor sources under Title V and only state operating permit requirements would apply. In addition, the installation of the North Kingsville Meter Station, as well as the pipeline facilities, would not create any new sources of criteria pollutant emissions, so these facilities would not require air quality permitting nor trigger further review under the CAA.

### 8.3.2 State Regulations

Both the Pennsylvania Code (Pa. Code) and the Ohio Administrative Code require sources of air emissions to notify the state and receive a permit to construct, modify, relocate, and operate the stationary source, unless otherwise exempt. Pennsylvania regulations contained in the Pa. Code, Title 25 (25 Pa. Code) that would apply to the Meadville Compressor Station and County Line Compressor Station would be outlined in the Plan Approval permit as to the emission limits that must be met, as well as reporting, monitoring, and testing requirements. In addition, in accordance with 25 Pa. Code §135.3, an annual source report must be filed by March 1 of each year for the previous year operations.

RH submitted a Request for Determination of Exemption from Plan Approval and/or Operating Permit for the Meadville Compressor Station to PADEP on November 6, 2017. The PADEP determined that the Meadville Compressor Station is eligible for an exemption from Plan Approval and/or Operating Permit on November 15, 2017. An application for a General Plan Approval for the County Line Compressor Station was submitted to PADEP on October 26, 2017, to account for a change in operator and was determined to be administratively complete on January 9, 2018. If approved, this would allow the compressor stations to be constructed and to operate while being in compliance with state air quality regulations. The Plan Approval would list specific permit conditions, such as emission controls and emission limits that must be met for the compressor station to operate.

### 8.3.3 General Conformity

The General Conformity Rule was developed to ensure that federal actions in nonattainment and maintenance areas do not impede states' attainment of the NAAQS. Under the General Conformity Rule, the federal government cannot engage, support, or provide financial assistance for licensing or permitting, or approve an activity not conforming to an approved CAA implementation plan. A conformity determination must be conducted by the lead federal agency if a federal action's construction and operation activities are likely to result in generating direct and indirect emissions that would exceed the conformity applicability threshold level of the pollutant(s) for which an air basin is designated as nonattainment or maintenance. Conforming activities or actions should not, through additional air pollutant emissions:

- cause or contribute to new violations of the NAAQS in any area;
- increase the frequency or severity of any existing violation of any NAAQS; or

- delay timely attainment of any NAAQS or interim emission reductions.

The General Conformity Rule entails both an applicability analysis and a subsequent conformity determination, if applicable. According to the conformity regulations, emissions from sources that are subject to any Nonattainment New Source Review (NNSR) or Prevention of Significant Deterioration (PSD) permitting/licensing (major or minor) are exempt and are deemed to have conformed. A General Conformity Determination must be completed when the total direct and indirect emissions of a project would equal or exceed the specified pollutant thresholds on a calendar year basis for each nonattainment or maintenance area.

Crawford and Erie Counties, Pennsylvania, and Ashtabula County, Ohio, are designated as in maintenance with regard to ozone (EPA, 2018b and 2018c). Therefore, a General Conformity analysis is required. The total emissions of $NO_X$ and VOCs for the Project (see tables B.8.4-1, B.8.5-1, and B.8.5-2) would each be considerably below the General Conformity *de minimis* threshold of 100 tpy. Because the emissions that would occur in the maintenance area would not exceed the General Conformity applicability thresholds as defined in 40 CFR 93.153(b)(2) for any criteria pollutant, General Conformity does not apply.

## 8.4 Construction Impacts and Mitigation

Air emissions would be generated during construction of the Project, which is expected to take about 5 to 6 months. Project construction would result in temporary increases of air emissions from the use of diesel- and gas-fueled equipment, blowdown and purging activities, and earth/roadway surface disturbance. Indirect emissions would be generated from vehicles associated with construction workers traveling to and from work sites. Construction air quality impacts would be short-term, lasting only during the period of active construction, and would not result in significant adverse impacts on air quality. Following construction, air quality would revert back to previous conditions.

Fugitive dust would result from land clearing, grading, excavation, concrete work, and vehicle traffic on paved and unpaved roads. Emissions would be greater during dry periods and in areas of fine-textured soils subject to surface activity. The volume of fugitive dust generated would be dependent upon the area disturbed and the type of construction activity, along with the soil's silt and moisture content, wind speed, precipitation, roadway characteristics, and the nature of vehicular/equipment traffic.

Fugitive particulate emissions of $PM_{10}$ and $PM_{2.5}$ were calculated using the EPA's AP-42 emission factors. The AP-42 emission factors tend to be conservative and can overestimate potential fugitive dust generated by projects. Combustion emissions from commuter and on-road construction vehicles (e.g., delivery and material removal vehicles) were estimated using the EPA Motor Vehicle Emission Simulator (MOVES) model version MOVES2014a, which estimates emissions for on-road and non-road vehicles and equipment. Combustion emissions from non-road construction equipment operation were estimated using emission factors generated by EPA's NONROAD2008a model based on the anticipated types of non-road equipment and their associated levels of use. Construction emission estimates were based on a typical construction equipment list, hours of operation, and vehicle miles traveled by the construction equipment and supporting vehicles for the Project. These emission-generating activities would include construction equipment exhaust, on-road vehicle traffic, and off-road vehicle traffic. Table B.8.4-1 provides estimated construction emissions of criteria pollutants, HAP, fugitive dust, and GHGs for on-road, commuter, and non-road vehicles.

TABLE B.8.4-1

**Project Construction Emissions (tons)**

| Project Segment | $NO_x$ | VOC | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ | **Total HAPs** | $CO_2e$ |
|---|---|---|---|---|---|---|---|---|
| **Meadville Compressor Station** | | | | | | | | |
| Construction Equipment | 0.095 | 0.16 | 1.06 | 0.00020 | 0.011 | 0.022 | 0.0061 | 43.03 |
| Offroad Vehicle | 0.0041 | 0.00031 | 0.0015 | 0.000013 | 0.038 | 0.0063 | 0.000058 | 1.49 |
| Onroad Vehicle | 0.00064 | 0.00023 | 0.0028 | 0.0000029 | 0.0070 | 0.00089 | 0.000052 | 0.38 |
| Earthmoving Fugitives | -- | -- | -- | -- | 0.068 | 0.037 | -- | -- |
| **Meadville Compressor Station Subtotal [a]** | **0.100** | **0.162** | **1.068** | **0.00022** | **0.12** | **0.066** | **0.0062** | **44.91** |
| **County Line Compressor Station** | | | | | | | | |
| Construction Equipment | 0.091 | 0.14 | 0.89 | 0.00019 | 0.0099 | 0.019 | 0.016 | 40.73 |
| Offroad Vehicle | 0.0093 | 0.00072 | 0.0034 | 0.000029 | 0.10 | 0.016 | 0.00013 | 3.40 |
| Onroad Vehicle | 0.0014 | 0.00047 | 0.0057 | 0.000052 | 0.020 | 0.0024 | 0.00011 | 0.88 |
| Earthmoving Fugitives | -- | -- | -- | -- | **0.057** | **0.031** | -- | -- |
| **County Line Compressor Station Subtotal** | **0.102** | **0.137** | **0.902** | **0.00028** | **0.19** | **0.068** | **0.016** | **45.01** |
| **North Kingsville Meter Station** | | | | | | | | |
| Construction Equipment | 0.072 | 0.12 | 0.78 | 0.00015 | 0.0080 | 0.017 | 0.0046 | 31.93 |
| Offroad Vehicle | 0.0057 | 0.00044 | 0.0021 | 0.000018 | 0.053 | 0.0088 | 0.000081 | 2.09 |
| Onroad Vehicle | 0.0024 | 0.00085 | 0.010 | 0.000011 | 0.026 | 0.0033 | 0.00019 | 1.43 |
| Earthmoving Fugitives | -- | -- | -- | -- | 0.053 | 0.029 | -- | -- |
| **North Kingsville Meter Station Subtotal** | **0.080** | **0.1176** | **0.795** | **0.00018** | **0.14** | **0.058** | **0.0049** | **35.45** |
| **Risberg Pipeline** | | | | | | | | |
| Construction Equipment | 1.41 | 3.43 | 22.81 | 0.0032 | 0.21 | 0.45 | 0.104 | 378.33 |
| Offroad Vehicle | 1.42 | 0.088 | 0.46 | 0.0043 | 53.71 | 5.52 | 0.016 | 507.92 |
| Onroad Vehicle | 0.44 | 0.15 | 1.83 | 0.0021 | 29.31 | 2.96 | 0.034 | 268.59 |
| Earthmoving Fugitives | -- | -- | -- | -- | 1.69 | 0.90 | -- | -- |
| **Risberg Pipeline Subtotal** | **3.27** | **3.67** | **25.09** | **0.0096** | **84.93** | **9.82** | **0.15** | **1,154.84** |
| **Project Total** | **3.552** | **4.0866** | **27.855** | **0.0103** | **85.38** | **10.012** | **0.1771** | **1,280.21** |

a The totals shown in this table may not equal the sum of addends due to rounding.

The estimated construction emissions shown above are low and would have minimal impact on air quality in the surrounding area. RH would implement mitigation measures to minimize construction emissions, which include:

- avoiding unnecessary construction activities leading to increased emissions, where possible;
- following manufacturers' operating recommendations regarding good combustion practices to ensure that fuel efficiency is maximized and engines are operated such that emissions are minimized;
- reducing the amount of unnecessary engine idle time during construction activities; and
- using water as a dust control mitigation measure when necessary during construction.

Based on our analysis and the short-term, temporary nature of construction, we conclude that construction of the Project would not have a significant impact on air quality.

## 8.5 Operational Impacts and Mitigation

The Meadville and County Line Compressor Stations would be the sources of indefinite operational emissions for the Project. The Meadville Compressor Station would be a new source of air emissions, with a new compressor, new tanks, and new piping components. The modifications to the County Line Compressor Station would not increase potential operational emissions from that facility.

Leaks or "fugitive emissions" of natural gas also could occur along the pipeline and at aboveground facilities, as well as venting of natural gas from blowdown activities. A blowdown event is the process of releasing natural gas from a pressurized system into the atmosphere. The primary pollutant emitted during a blowdown is methane, a GHG, but trace amounts of other natural gas constituents, including ethane, propane, butane, pentane, and hexane, are also emitted. At compressor station facilities, blowdowns typically occur during start-up/shutdown, for maintenance activities, and rarely during emergencies. Unit blowdowns would occur several times per year depending on the unit's usage and maintenance requirements, and last about 5 minutes.

### 8.5.1 Compressor Stations

The proposed new Meadville Compressor Station would be in Crawford County, Pennsylvania. Emission-generating equipment proposed at the station includes one 726-hp natural gas fired reciprocating compressor unit, one 1,000-gallon vertical fixed roof tank, one 2,000-gallon vertical fixed roof tank, and associated piping and components. Estimates of the maximum potential emissions (assuming full-time full-capacity operation) from the Meadville Compressor Station are presented in table B.8.5-1.

TABLE B.8.5-1

**New Meadville Compressor Station Potential Operational Emissions (tpy)**

| Source | Emissions | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | $NO_x$ | CO | VOC | $SO_2$ | $PM_{10}/PM_{2.5}$ | Formaldehyde [a] | Total HAPs | $CO_2e$ |
| Compressor Unit | 3.5 | 0.6 | 2.2 | 0.02 | 1.1 | 0.443 | 0.638 | 3,543 |
| Vertical Fixed Roof Tanks | 0 | 0 | 0.09 | 0 | 0 | 0 | 0 | 2.0 |
| Fugitives | 0 | 0 | 0.21 | 0 | 0 | 0 | 0 | 26.7 |
| Blowdown Releases | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24.4 |
| **Totals** | **3.5** | **0.6** | **2.5** | **0.02** | **1.1** | **0.443** | **0.638** | **3,596** |

a Formaldehyde emissions are presented for largest individual HAP.

The existing County Line Compressor Station is located in Erie County, Pennsylvania. Existing emission-generating equipment at the site includes three 378-hp natural gas-fired reciprocating compressor units, one 1,000-gallon vertical fixed roof tank, one 2,000-gallon vertical fixed roof tank, and associated piping and components. The proposed modifications would involve modification of existing suction and discharge piping, which would not affect emissions. Estimates of the maximum potential emissions (assuming full-time full-capacity operation) from the County Line Compressor Station are presented in table B.8.5-2.

TABLE B.8.5-2

**Existing County Line Compressor Station Potential Operational Emissions (tpy)**

| Source | Emissions | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | $NO_x$ | CO | VOC | $SO_2$ | $PM_{10}/PM_{2.5}$ | Formaldehyde [a] | Total HAPs | $CO_2e$ |
| Compressor Units | 10.5 | 1.8 | 2.7 | 0.02 | 3.7 | 0.888 | 1.279 | 5,316 |
| Tanks | 0 | 0 | 0.093 | 0 | 0 | 0 | 0 | 2.0 |
| Fugitives | 0 | 0 | 0.21 | 0 | 0 | 0 | 0 | 47.3 |
| Blowdown Releases | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30.5 |
| New Erie Co. Pipeline Fugitives | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3.1 |
| Post-Project PTE | 10.5 | 1.8 | 3.0 | 0.02 | 3.7 | 0.888 | 1.279 | 5,398.9 |
| Increase in PTE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3.1 |
| NNSR/PSD Permitting Threshold | 250 | 250 | 250 | 250 | 250 | N/A | N/A | 100,000 |
| Title V Permitting Threshold | 100 | 100 | 100 | 100 | 100 | 10 | 25 | N/A |

a Formaldehyde emissions are presented for largest individual HAP.

RH performed an ambient air quality modeling analysis to determine local impacts from both the proposed new Meadville Compressor Station and the existing County Line Compressor Station. The modeling analyses were completed using the EPA's AERSCREEN dispersion model which provides conservative "worst-case" concentrations outside the facility fenceline. Tables B.8.5-3 and B.8.5-4 provide the modeling results for the Meadville Compressor Station and a comparison to the NAAQS. These tables show that the maximum modeled impacts of the Meadville Compressor Station, combined with the maximum monitored background levels, are substantially less than the NAAQS, and thus the facility would not cause or contribute to an exceedance of the air quality standards.

TABLE B.8.5-3

**New Meadville Compressor Station Modeling Results and Available Ambient Monitoring Data**

| Pollutant | Averaging Period | Modeled µg/m³ | Ambient [a] µg/m³ | Total µg/m³ | NAAQS µg/m³ |
|---|---|---|---|---|---|
| Carbon Monoxide (CO) | 8-hour | 2.0 | 1,143 | 1,145 | 10,000 |
| | 1-hour | 2.2 | 1,600 | 1,602 | 40,000 |
| Nitrogen Dioxide ($NO_2$) | Annual | 1.27 | 12.0 | 13.3 | 100 |
| | 1-hour | 12.7 | 73.2 | 85.9 | 188 |
| Very Fine Particulate ($PM_{2.5}$) | Annual | 0.39 | 9.3 | 9.7 | 12 |
| | 24-hour | 2.37 | 21.0 | 23.4 | 35 |
| Fine Particulate ($PM_{10}$) | 24 hour | 2.37 | 32.0 | 34.4 | 150 |
| Sulfur Dioxide ($SO_2$) | 3-hour | 0.06 | N/A | 0.06 | 1,300 [b] |
| | 1-hour | 0.06 | 31 | 31.06 | 196 |

a The ambient concentrations were obtained from the Erie County, PA station (PA-049-0003).
b The 3-hour $SO_2$ standard is a secondary NAAQS standard.

TABLE B.8.5-4

**Existing County Line Compressor Station Modeling Results and Available Ambient Monitoring Data**

| Pollutant | **Averaging Period** | Modeled µg/m³ | Ambient [a] µg/m³ | Total µg/m³ | NAAQS µg/m³ |
|---|---|---|---|---|---|
| Carbon Monoxide (CO) | 8-hour | 7.4 | 1,143 | 1,150 | 10,000 |
| | 1-hour | 8.2 | 1,600 | 1,608 | 40,000 |
| Nitrogen Dioxide ($NO_2$) | Annual | 4.7 | 12.0 | 16.7 | 100 |
| | 1-hour | 47.5 | 73.2 | 120.7 | 188 |
| Very Fine Particulate ($PM_{2.5}$) | Annual | 1.7 | 9.3 | 11.0 | 12 |
| | 24-hour | 10 | 21 | 31.0 | 35 |
| Fine Particulate ($PM_{10}$) | 24-hour | 10 | 32 | 42.0 | 150 |
| Sulfur Dioxide ($SO_2$) | 3-hour | 0.08 | N/A | 31.0 | 1,300 [b] |
| | 1-hour | 0.08 | 31 | 0.08 | 196 |

a The ambient concentrations were obtained from the Erie County, PA station (PA-049-0003).
b The 3-hour $SO_2$ standard is a secondary NAAQS standard.

### 8.5.2 North Kingsville Meter Station and Pipeline

The North Kingsville Meter Station would be located in Ashtabula County, Ohio. The North Kingsville Meter Station would not include any sources of criteria pollutant or HAP emissions. However, a small amount of GHG emissions would result at North Kingsville Meter Station from fugitive emissions and from blowdown events, for a total of 14.3 tpy $CO_2e$.

Pipeline emissions would be minimal during operations and would typically be limited to pipeline blowdowns and fugitive emissions from mainline valves. Estimated GHG emissions from the existing gathering pipelines and Risberg Pipeline would be 20.0 tpy $CO_2e$.

### 8.5.3 Operational Emissions Mitigation

Emissions from operating the equipment at the Meadville Compressor Station and County Line Compressor Station would result from combustion of natural gas in the compressor engines at the stations. Mitigation measures that would be implemented by RH at one or both of the compressor stations, as applicable, include:

- installing engines that, at a minimum, meet the emission limitations found in the applicable New Source Performance Standards sections;
- developing and implementing an operation and maintenance plan in line with the manufacturer's recommendations for good combustion practices;
- following proper operation and preventative maintenance activities to minimize emissions from the engines and continue to meet the emission standards; and
- following proper operation and preventative maintenance activities to minimize emissions from fugitive emission sources and to continue to meet the emission standards.

We received comments expressing concern about methane leaks from the compressor stations. On May 12, 2016, the EPA issued three final rules under 40 CFR 60 (amendments to subpart OOOO and the new subpart OOOOa), including the Final Updates to New Source Performance Standards and Final Source Determination Rule, that together will curb emissions of methane, smog-forming VOCs, and toxic air pollutants from new, reconstructed, and modified oil and gas sources. The final rules limit methane emissions from oil and gas sources. For example, owners/operators are required to monitor and repair leaks on an established schedule to limit fugitive emissions, and emissions limits have been established for certain natural gas facilities. Regarding natural gas transmission facilities, compressor station owner/operators are required to develop a leak monitoring plan and use an optical gas imaging (or an alternate EPA method, "Method 21") to conduct leak surveys (EPA, 2016c). On March 1, 2018, the EPA announced amendments to two provisions of the 2016 New Source Performance Standards for the oil and natural gas industry in response to comments received by the agency. The amendment removes requirements that sources of fugitive emissions be repaired during unscheduled or emergency shutdowns. Owners and operators are still required to complete repairs during the next scheduled compressor station shutdown, well shutdown, well shut-in, after a planned vent blowdown, or within 2 years, whichever is earlier (EPA, 2018d).

Operation of the Project would result in air quality impacts, particularly in the vicinity of the Meadville Compressor Station and County Line Compressor Station. However, "worst-case" modeled values indicate that local concentrations would be well below air quality standards designed to protect human health. Operation of the Project would not result in significant impacts on air quality.

## 9.0 NOISE

Construction and operation of the Project would affect noise levels in surrounding areas. The ambient sound level of a region is defined by the total noise generated within the specific environment and is comprised of natural and manmade sounds. At any location, both the magnitude and frequency of environmental noise may vary considerably over the course of a day and throughout the week. This variation is caused in part by changing weather conditions and the effect of seasonal vegetation cover.

Two measurements used to relate the time-varying quality of environmental noise to its known effects on people are the equivalent sound level ($L_{eq}$) and the day-night sound level ($L_{dn}$). The $L_{eq}$ is the time-averaged sound pressure over a specified time period, measured in decibels (dB). This corresponds to the level of a constant sound that contains equivalent energy to that in the measured time-varying sound. The $L_{eq}$ is typically reported in the A-weighted scale (dBA), which accounts for the greater sensitivity of

human hearing to mid-range frequency sound than low-frequency or high-frequency sound. The $L_{dn}$ is a 24-hour $L_{eq}$ with 10 dB added during nighttime hours (10 p.m. to 7 a.m.) to account for people's greater sensitivity to noise at night. For an essentially steady sound source that operates continuously over a 24-hour period and controls the environmental sound level, the $L_{dn}$ is approximately 6.4 dB above the measured $L_{eq}$. For a facility to meet an $L_{dn}$ limit of 55 dBA, its 24-hour $L_{eq}$ cannot exceed 48.6 dBA. In general, a person's threshold of perception for a perceivable change in loudness is about 3 dB, whereas a 5 dB change is clearly noticeable, and a 10 dB change is perceived as either twice or half as loud.

As a frame of reference, table B.9-1 demonstrates the relative dBA noise levels of common sounds measured in the environment and industry.

TABLE B.9-1

**Sound Levels and Relative Loudness (dBA)**

| Description of Sound | Sound Level (dBA) |
|---|---|
| Threshold of pain | 140 |
| Jet taking off (200-foot distance) | 130 |
| Operating heavy equipment | 120 |
| Night club with music | 110 |
| Construction site | 100 |
| Boiler room | 90 |
| Freight train (100-foot distance) | 80 |
| Classroom chatter | 70 |
| Conversation (3-foot distance) | 60 |
| Urban residence | 50 |
| Soft whisper (5-foot distance) | 40 |
| North rim of Grand Canyon | 30 |
| Silent study room | 20 |
| Threshold of hearing (at 1,000 Hz) | 0 |

Source: Adapted from the Occupational Safety and Health Administration's Technical Manual (2013)

## 9.1 Federal Noise Requirements

In 1974, the EPA published its *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. This document provides information for state and local governments to use in developing their own ambient noise standards. The EPA determined that an $L_{dn}$ of 55 dBA protects the public from noise interference for indoor and outdoor activities. We have adopted this criterion and use it to evaluate the potential noise impacts at noise-sensitive areas (NSA), such as residences, schools, or hospitals, from operation of the Project and fixed-location construction activities. This level corresponds to a 24-hour $L_{eq}$ of 48.6 dBA. In addition, Commission regulations at 18 CFR 380.12(k)(4)(v)(B) require that operation of compressor stations may not result in any perceptible increase in vibration at any NSA.

## 9.2 State and County Noise Requirements

The State of Pennsylvania does not currently have noise regulations that would apply to the Project. We received comments that have referred to noise limits for oil and gas activities, including compressor station operation, set forth in Pennsylvania Act 13 (Act 13). However, Act 13 does not prescribe an enforceable noise standard, but provides guidelines for noise limits that cannot be superseded by stricter local ordinances. None of the local government agencies in the Project area in Pennsylvania have adopted

a noise ordinance that covers pipeline-related activities; therefore, Act 13 does not apply. Furthermore, the noise control section, among others, of Act 13 was struck down by the Pennsylvania Supreme Court in 2013 and has not been reinstated.

We have not identified any county or township noise regulations that would apply to the Meadville Compressor Station or the County Line Compressor Station. No state, county, or city noise regulations have been identified that would apply to the North Kingsville Meter Station. Finally, neither the State of Pennsylvania nor the State of Ohio has quantitative noise regulations that would apply to Project construction activities, including HDD operations.

## 9.3 Construction Noise Impacts and Mitigation

### 9.3.1 General Construction Activities

Noise would be generated during construction of the Project, which is expected to take about 5 to 6 months, including activities along the pipeline right-of-way and activities at the compressor stations and meter station. Noise levels would be highest in the immediate vicinity of construction activities and would diminish with distance from the construction workspace. Construction activities associated with the Project would be performed with standard heavy equipment such as track-excavators, backhoes, cranes, bulldozers, dump trucks, boring equipment, and cement trucks. In addition, various powered pumps would be used to control water in the construction workspace or during hydrostatic testing activities. Noise would also be generated by trucks and other light vehicles traveling in and near areas under construction. Construction noise would be variable because the types of equipment in use at a construction site change with each construction phase and activity. Noise from construction activities may be noticeable at nearby NSAs. However, construction equipment would be operated on an as-needed basis and would be localized and short-term.

RH states that it would generally follow a construction schedule of Monday through Saturday, 10 hours per day (7:30 a.m. to 5:30 p.m.). Nighttime noise levels are not expected to increase during construction because most construction activities would be limited to daytime hours. However, some tasks may require extended hours and nighttime work for specific activities including stream and wetland crossings, bores to avoid bore collapse, road crossings to re-establish access if necessary, and pressure testing. In addition, HDDs may require work 24 hours per day, 7 days per week, to maintain the integrity of the drilling hole. HDD locations are described further in section B.9.3.2.

Surface topography, vegetation cover, wind, and weather conditions would also affect the distance that construction-related noise would extend from the workspace. Tall, dense vegetation and rolling topography typically attenuates noise when compared to less vegetated, open land. Typically, the most prevalent sound source during construction would be the internal combustion engines used to power the construction equipment. Table B.9.3-1 provides estimated noise levels at 50 feet from the source for typical construction equipment. Noise levels due to construction activities with a fixed location, including construction and modification of the compressor stations, construction of the meter station, and HDD activities, are not expected to exceed 55 dBA $L_{dn}$ at the nearest NSAs.

| TABLE B.9.3-1<br>**Noise Levels of Major Construction Equipment** | |
|---|---|
| Equipment Type | Sound Level at 50 Feet (dBA) |
| Trucks | 85 |
| Crane | 85 |
| Roller | 85 |
| Bulldozers | 85 |
| Pickup Trucks | 55 |
| Backhoes | 80 |
| Grader | 85 |
| Portable generators | 84 |
| Jackhammer | 89 |
| Pumps | 81 |
| Horizontal Boring Hydraulic Jack | 82 |

Source: Federal Highway Administration (2017)

### 9.3.2 HDD Activities

As mentioned earlier, HDDs may require sustained nighttime construction. RH proposes two HDDs, between MPs 54.1 and 54.3 to cross Interstate 90 and between MPs 54.6 and 54.9 to avoid impacts on Conneaut Creek. RH states that it intends to limit drilling activities to the hours of 7 a.m. to 10 p.m. unless abnormal or unsafe conditions are identified. RH estimates that these HDDs would require about 22 days and 9 days of sustained drilling, respectively, to complete. Table B.9.3-2 shows the noise associated with 24-hour HDD activities at the nearest NSAs to the entry and exit points and associated figures showing the locations of the NSAs relative to the activity areas are provided in appendix G. Existing noise levels in table B.9.3-2 are extrapolated from noise surveys conducted on September 19, 2017. Ambient noise around the proposed HDD entry/exit sites was dominated by traffic from I-90, with contribution from insect and bird noise. The equipment used at the HDD site is assumed to be in good working condition, with mufflers meeting or exceeding original equipment manufacturer performance specifications.

TABLE B.9.3-2

**Noise Impact Estimates at Nearby NSAs for HDD Activities (dBA)**

| Entry/Exit - NSA | Distance and Direction | Existing Measured $L_{eq}$ | $L_{eq}$ from HDD Activities [a] | Total $L_{eq}$ (Existing plus HDD Activities) [a] | Expected Increase |
|---|---|---|---|---|---|
| **I-90 HDD, estimated 22 days of drilling** | | | | | |
| Entry – Residence at Under Ridge Rd | 530 feet NNE | 54.6 | 54.2 | 57.4 | 2.8 |
| Exit - Residence at Under Ridge Rd | 1,180 feet NNW | 54.6 | 44.1 | 55.0 | 0.4 |
| **Conneaut Creek HDD, estimated 9 days of drilling** | | | | | |
| Entry - Residence at Under Ridge Rd | 1,170 feet ENE | 54.6 | 51.4 | 56.3 | 1.7 |
| Exit - Residence at Creek Rd | 600 feet NW | 52.8 | 52.6 | 55.7 | 2.9 |

a Estimated noise levels do not include mitigation measures.

The predicted noise contributions from continuous HDD activities would be below 55 dBA or no more than 10 dB above ambient at NSAs near the entry and exit points without special mitigation such as noise walls; therefore, we determine that impacts from the HDD would not be significant at the NSAs.

Due to the temporary, localized, and principally daytime nature of the proposed construction activities, we conclude that would be no significant impact from construction noise associated with the Project.

## 9.4 Operational Noise Impacts and Mitigation

Noise from operation of the Project would be produced primarily through operation of compressor stations and, to a lesser degree, operation of meter stations. When operating, these sources would generate noise on a continuous basis (i.e., up to 24 hours per day). RH performed operational noise impact evaluations for the Project considering the noise produced by all sound-generating sources associated with the proposed and modified compressor and meter stations that could impact the sound contribution at nearby NSAs. These sound sources include the turbine-driven compressor units, gas cooling equipment, and aboveground gas piping at each compressor station, and regulator runs on the flow control skid and miscellaneous piping at the meter station.

Tables B.9.4-1, B.9.4-2, and B.9.4-3 show both the current ambient noise and the estimated noise impact from full load operation of the Meadville Compressor Station, North Kingsville Meter Station, and County Line Compressor Station at nearby NSAs (all residences). Figures in appendix G show the nearest NSAs to these facilities. Ambient noise levels around the site of the new Meadville Compressor Station were recorded on September 19 and 20, 2017, and were characterized by distant traffic, bird and insect noise, and wind in foliage during the day and by insect noise at night. Ambient noise levels around the site of the new North Kingsville Meter Station were measured on January 10, 2018, and were characterized by traffic and foliage noise. Ambient noise levels around the existing County Line Compressor Station were measured on January 11, 2018, and were dominated by the station operations.

For the noise analyses at the proposed new Meadville Compressor Station and the North Kingsville Meter Station, the estimates incorporate noise-level reductions from RH's proposed mitigation measures. Measures specific to a station are shown in parentheses. These measures include, but are not limited to:

- "open-top" barrier wall system (Meadville Compressor Station);
- "hospital-grade" exhaust silencers (Meadville Compressor Station);
- unit blowdown silencers rated for 60 dBA at 300 feet (Meadville Compressor Station);
- unit blowdown silencers rated for 50 dBA at 300 feet (North Kingsville Meter Station);
- an acoustical building housing the regulator skid (North Kingsville Meter Station); and
- pressure control valves designed not to exceed 85 dBA at 3 feet under all conditions (North Kingsville Meter Station).

At the existing County Line Compressor Station, the existing equipment would be modified to allow single-stage compression. According to RH's analysis, this would not affect noise emissions from the station. However, RH acknowledges that current operations at the station result in perceptible airborne vibration (low-frequency noise). To address this issue, RH would install fiber- or ceramic-based insulation on the single wall steel head pipe sections of the exhaust systems and a portion of the mufflers during station modifications. RH would measure vibration levels after modification, and would address further vibration problems if necessary at that time. In addition, a blowdown silencer rated for 60 dBA at 300 feet is planned for the station yard piping.

Blowdown noise was calculated for the Meadville and County Line Compressor Stations and the North Kingsville Meter Station. Each station would be outfitted with a blowdown noise silencer that would reduce noise from a blowdown event to less than 55 dBA $L_{dn}$ at the nearest NSAs. Mitigated noise levels would range from 51 to 55 dBA.

TABLE B.9.4-1

**Operational Noise Impact Estimates at Nearby NSAs for the New Meadville Compressor Station (dBA)**

| NSA | Distance and Direction | Existing Measured $L_{dn}$ | $L_{dn}$ from Proposed Meadville Compressor Station [a] | Total $L_{dn}$ (Existing plus Meadville Compressor Station) [a] | Expected Increase |
|---|---|---|---|---|---|
| Residence at Harvey Rd | 740 feet SE | 51.6 | 51.5 | 54.6 | 3.0 |
| Residence at Harvey Rd | 850 feet SW | 51.6 | 50.2 | 54.0 | 2.4 |
| Residence at Harvey Rd | 900 feet SSE | 51.6 | 49.7 | 53.7 | 2.1 |
| Residence at Harvey Rd | 1,010 feet ENE | 48.6 | 48.6 | 51.6 | 3.0 |

a Estimated noise levels include mitigation measures.

The noise contribution from the Meadville Compressor Station is not expected to exceed the 55 dBA $L_{dn}$ and is not expected to cause a change in existing noise in excess of 3 dB at the nearest NSA.

TABLE B.9.4-2

**Operational Noise Impact Estimates for the New North Kingsville Meter Station (dBA)**

| NSA | Distance and Direction | Existing Measured $L_{dn}$ | $L_{dn}$ from Proposed North Kingsville Meter Station [a] | Total $L_{dn}$ (Existing plus North Kingsville Meter Station) [a] | Expected Increase |
|---|---|---|---|---|---|
| Residences at Center Street | 170 feet S; 170 feet SE | 51.0 | 51.0 | 54.0 | 3.0 |

a Estimated noise levels include mitigation measures.

The sound from the operation of the North Kingsville Meter Station would be noticeable at the nearest residence 170 feet away. However the attributable noise, including pipe flow noise, is not expected to exceed the 55 dBA $L_{dn}$ limit and is not expected to cause an increase in noise in excess of 3 dB at nearby NSAs. To ensure that noise levels due to operation of the meter station would not be significant, **we recommend that:**

- **RH should file a full load noise survey with the Secretary <u>no later than 60 days</u> after placing the new equipment at the North Kingsville Meter Station in service. If the noise attributable to the operation of all of the equipment at the North Kingsville Meter Station exceeds 55 dBA $L_{dn}$ at any nearby NSA, RH should file a report on what changes are needed and should install the additional noise controls to meet the level <u>within 1 year</u> of the in-service date. RH should confirm compliance with the 55 dBA $L_{dn}$ requirement by filing a second noise survey with the Secretary <u>no later than 60 days</u> after it installs the additional noise controls.**

TABLE B.9.4-3

**Operational Noise Impact Results for the Existing County Line Compressor Station (dBA)**

| NSA | Distance and Direction | Existing Measured $L_{dn}$ during Station Operation | Resulting $L_{dn}$ after Installation of Modifications [a] | Expected Increase |
|---|---|---|---|---|
| Residence at Pageville Rd | 1,240 feet ENE | 53.1 | 53.1 | 0.0 |
| Residence at Pageville Rd | 1,000 feet N | 54.4 | 54.4 | 0.0 |
| Residence at Pageville Rd | 2,030 feet WNW | 48.2 | 48.2 | 0.0 |

a Estimated noise levels include mitigation measures.

We received numerous comments about noise and vibration from the existing County Line Compressor Station. Ambient measurements indicate that noise levels with the existing compressors operating are below the FERC limit of 55 dBA $L_{dn}$, and proposed modifications to the station are not expected to increase noise levels. As described above, existing airborne vibration (low-frequency noise) is a known concern at the station and mitigation measures (insulation and mufflers) are proposed to address it. RH has committed to address all perceptible vibration. Therefore, to ensure compliance with this commitment, **we recommend that:**

- **RH should file a vibration survey with the Secretary <u>no later than 60 days</u> after placing the new equipment at the County Line Compressor Station in service. The survey should verify that vibration at nearby NSAs is not perceptible during full station operation across typical operating loads. If vibration attributable to the County Line Compressor Station is perceptible, RH should file a report on what changes are needed and should install the additional vibration controls to reduce vibration under perceptible levels at the NSAs <u>within 1 year</u> of the in-service date. RH should confirm compliance with the requirements by filing a second vibration survey with the Secretary <u>no later than 60 days</u> after it installs the additional vibration controls.**

RH conducted a noise survey at the County Line Compressor Station that was included with its application. We requested a second noise survey due to insufficient measurement durations in the original survey, including a lack of nighttime measurements. We received comments about environmental conditions and the reason for the second noise survey, including comments about wind speed and ground cover. Although a commenter stated that wind speeds were incorrectly reported during RH's second noise study on January 11, 2018, the wind speeds reported by the consultant during the measurements were below the 12 mph limit of American Society for Testing and Materials (ASTM) E1014-84, Standard Guide for Measurement of Outdoor A-Weighted Sound Levels. We also obtained weather information from the nearest online weather station (located in Edinboro, Pennsylvania, approximately 5 miles away from the County Line Compressor Station) that shows that wind speeds during the measurements were below 12 mph (Weather Underground, 2018). Partial ground cover of snow was present during the measurements, but we determined that the presence of snow would not appreciably affect the measurements. Further, the reason for the second noise survey was not related to wind and snow conditions during the original measurements, but rather due to insufficient measurement durations in the original survey, including a lack of nighttime measurements. We recommend that RH conduct another noise survey after completing modifications to the County Line Compressor Station (see recommendation below). The post-modification measurements should conform to ASTM E1014-84.

We received comments about the identification of a pond south of the County Line Compressor Station and an adjacent farm as NSAs. Because the pond is undeveloped and located on private property

with no public access, we do not consider this location to be an NSA. Likewise, the farmland does not have an associated farmhouse that is closer than the NSA already evaluated.

A commenter expressed concern about deterioration of the mufflers in use at the County Line Compressor Station. RH states that, according to the muffler manufacturer, the reactive-type mufflers used at the County Line Compressor Station do not suffer significant degradation of performance over time. Regardless, RH would still be responsible for meeting the FERC criteria of 55 dBA $L_{dn}$ at nearby NSAs should any conditions at the compressor station degrade or otherwise change.

We received a comment about the locations used for the pre-modification noise measurements. The locations were selected based on their accessibility from the public right-of-way. These locations provide measurement results that are reasonably representative of all occupied buildings associated with each NSA based on the relative distance to the compressor station and configuration of obstacles and sound-reflecting surfaces. A commenter noted a trend of increasing noise with time in the second noise survey measurements. RH stated that the compressor conditions remained constant during the measurements, with an extended test not being possible due to limited time at full load. The post-modification measurements are recommended to measure and report noise levels at the NSAs for as long as is feasible to run all equipment at the County Line Compressor Station at full load, up to 24 hours.

We received a comment regarding differences in noise emission depending on the number of compressor units operating simultaneously. The presented measured noise levels at the County Line Compressor Station were recorded with all three compressors operating at full load and, as such, represents a worst-case noise condition. Calculated noise levels at the County Line Compressor Station also represent three compressors operating at full load. As determined by logarithmic addition, when two compressors are operating the levels will be 2 dB lower, and when one compressor is operating, the levels will be 5 dB lower.

To ensure that noise levels due to operation of the proposed Meadville and County Line Compressor Stations would not contribute to significant operational impacts at the nearest NSAs, **we recommend that:**

- **RH should file a full load noise survey with the Secretary <u>no later than 60 days</u> after placing the Meadville and County Line Compressor Stations in service. If full load condition noise surveys are not possible, RH should instead file an interim survey at the maximum possible horsepower load and file the full load survey <u>within 6 months</u>. If the noise attributable to the operation of all of the equipment at the Meadville Compressor Station or County Line Compressor Station under interim or full horsepower load exceeds 55 dBA $L_{dn}$ at any nearby NSA, RH should file a report on what changes are needed and should install the additional noise controls to meet the level <u>within 1 year</u> of the in-service date. RH should confirm compliance with the 55 dBA $L_{dn}$ requirement by filing a second noise survey with the Secretary <u>no later than 60 days</u> after it installs the additional noise controls.**

We received comments expressing concern about noise due to high gas flow rates within the pipeline itself. Noise is not generally associated with pipeline flow outside of valves installed at meter and regulating stations. Furthermore, a majority of the pipeline would be underground, further mitigating noise transmission to the outside environment. Parts of the pipeline would be above ground at the compressor and meter stations, but flow noise from the pipelines was taken into account in the noise studies for those locations.

We received comments regarding potential noise and vibration problems arising due to resonance. Resonance can occur when adjacent objects are vibrating synchronously, or when vibration occurs at a natural frequency of an object or space. Resonance is a rare phenomenon in pipelines and compressor stations, but RH has committed to addressing noise and vibration problems throughout the lifetime of the Project if they occur.

Based on the analysis presented above; RH's compliance with federal, state, and local noise regulations; and our recommendations, we conclude that operational noise resulting from the Project would not be significant.

## 10.0 RELIABILITY AND SAFETY

The transportation of natural gas by pipeline, including aboveground facilities (e.g., compressor stations), involves some incremental risk to the public due to the potential for accidental release of natural gas. The greatest hazard is a fire or explosion following a major pipeline rupture.

Methane, the primary component of natural gas, is colorless, odorless, and tasteless. It is not toxic, but it is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death.

Methane has an auto-ignition temperature of 1,000 °F and is flammable at concentrations between 5.0 and 15.0 percent in air. An unconfined mixture of methane and air is not explosive; however, it may ignite and burn if there is an ignition source. A flammable concentration within an enclosed space in the presence of an ignition source can explode. It is buoyant at atmospheric temperatures and disperses rapidly in air.

### 10.1 Safety Standards

The USDOT is mandated to prescribe minimum safety standards to protect against risks posed by pipeline facilities under Title 49, U.S.C. Chapter 601. The USDOT's Pipeline and Hazardous Materials Safety Administration (PHMSA) administers the national regulatory program to ensure the safe transportation of natural gas and other hazardous materials by pipeline. It develops safety regulations and other approaches to risk management that ensure safety in the design, construction, testing, operation, maintenance, and emergency response of pipeline facilities. Many of the regulations are written as performance standards which set the level of safety to be attained and allow the pipeline operator to use various technologies to achieve safety. PHMSA's safety mission is to ensure that people and the environment are protected from the risk of pipeline incidents. This work is shared with state agency partners and others at the federal, state, and local level.

Title 49, U.S.C. Chapter 601 provides for a state agency to assume all aspects of the safety program for intrastate facilities by adopting and enforcing the federal standards. A state may also act as USDOT's agent to inspect interstate facilities within its boundaries; however, the USDOT is responsible for enforcement actions. PHMSA federal inspectors perform inspections on interstate natural gas pipeline facilities in Pennsylvania and Ohio.

The USDOT pipeline standards are published in Parts 190-199 of Title 49 of the CFR. Part 192 specifically addresses natural gas pipeline safety issues.

Under a Memorandum of Understanding on Natural Gas Transportation Facilities (Memorandum) between the USDOT and FERC, the USDOT has the exclusive authority to promulgate federal safety standards used in the transportation of natural gas. Section 157.14(a)(9)(vi) of FERC's regulations requires

that an applicant certify that it will design, install, inspect, test, construct, operate, replace, and maintain the facility for which a Certificate is requested in accordance with federal safety standards and plans for maintenance and inspection. Alternatively, an applicant must certify that it has been granted a waiver of the requirements of the safety standards by the USDOT in accordance with section 3(e) of the Natural Gas Pipeline Safety Act of 1968. The FERC accepts this certification and does not impose additional safety standards. If the Commission becomes aware of an existing or potential safety problem, there is a provision in the Memorandum to promptly alert USDOT. The Memorandum also provides for referring complaints and inquiries made by state and local governments and the general public involving safety matters related to pipelines under the Commission's jurisdiction.

The FERC also participates as a member of the USDOT's Technical Pipeline Safety Standards Committee which determines if proposed safety regulations are reasonable, feasible, and practicable.

The pipeline and aboveground facilities associated with the Project must be designed, constructed, operated, and maintained in accordance with the USDOT Minimum Federal Safety Standards in 49 CFR 192. The regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures. The USDOT specifies material selection and qualification; minimum design requirements; and protection from internal, external, and atmospheric corrosion.

The USDOT also defines area classifications, based on population density near the pipeline, and specifies more rigorous safety requirements for populated areas. The class location unit is an area that extends 220 yards on either side of the centerline of any continuous 1-mile length of pipeline. The four area classifications are defined below:

Class 1 Location with 10 or fewer buildings intended for human occupancy.

Class 2 Location with more than 10 but less than 46 buildings intended for human occupancy.

Class 3 Location with 46 or more buildings intended for human occupancy or where the pipeline lies within 100 yards of any building or small, well-defined outside area occupied by 20 or more people on at least 5 days a week for 10 weeks in any 12-month period.

Class 4 Location where buildings with four or more stories aboveground are prevalent.

Class locations representing more populated areas require higher safety factors in pipeline design, testing, and operation. For instance, pipelines constructed on land in Class 1 locations must be installed with a minimum depth of cover of 30 inches in normal soil and 18 inches in consolidated rock. Class 2, 3, and 4 locations, as well as drainage ditches of public roads and railroad crossings, require a minimum cover of 36 inches in normal soil and 24 inches in consolidated rock.

Class locations also specify the maximum distance to a sectionalizing block valve (e.g., 10.0 miles in Class 1, 7.5 miles in Class 2, 4.0 miles in Class 3, and 2.5 miles in Class 4). Pipe wall thickness and pipeline design pressures; hydrostatic test pressures; maximum allowable operating pressure (MAOP); inspection and testing of welds; and frequency of pipeline patrols and leak surveys must also conform to higher standards in more populated areas. Preliminary class locations for the Project have been developed based on the relationship of the pipeline centerline to other nearby structures and manmade features. The Project would consist of 52 miles of Class 1, 6 miles of Class 2, and 2 miles of Class 3 pipe.

If a subsequent increase in population density adjacent to the right-of-way results in a change in class location for the pipeline, RH would reduce the MAOP or replace the segment with pipe of sufficient grade and wall thickness, if required to comply with the USDOT requirements for the new class location.

The USDOT Pipeline Safety Regulations require operators to develop and follow a written integrity management program that contain all the elements described in 49 CFR 192.911 and address the risks on each transmission pipeline segment. The rule establishes an integrity management program which applies to all high consequence areas (HCA).

The USDOT has published rules that define HCAs where a gas pipeline accident could do considerable harm to people and their property and requires an integrity management program to minimize the potential for an accident. This definition satisfies, in part, the Congressional mandate for USDOT to prescribe standards that establish criteria for identifying each gas pipeline facility in a high density population area.

The HCAs may be defined in one of two ways. In the first method an HCA includes:

- current Class 3 and 4 locations,
- any area in Class 1 or 2 where the potential impact radius[9] is greater than 660 feet and there are 20 or more buildings intended for human occupancy within the potential impact circle,[10] or
- any area in Class 1 or 2 where the potential impact circle includes an identified site.

An identified site is an outside area or open structure that is occupied by 20 or more persons on at least 50 days in any 12-month period; a building that is occupied by 20 or more persons on at least 5 days a week for any 10 weeks in any 12-month period; or a facility that is occupied by persons who are confined, are of impaired mobility, or would be difficult to evacuate.

In the second method, an HCA includes any area within a potential impact circle that contains:

- 20 or more buildings intended for human occupancy, or
- an identified site.

Once a pipeline operator has determined the HCAs along its pipeline, it must apply the elements of its integrity management program to those segments of the pipeline within HCAs. The USDOT regulations specify the requirements for the integrity management plan at section 192.911. The HCAs have been determined based on the relationship of the pipeline centerline to other nearby structures and identified sites. Of the 60 miles of proposed pipeline route, RH has identified one HCA along the pipeline. The pipeline integrity management rule for HCAs requires inspection of the pipeline HCAs every 7 years.

We received numerous comments regarding the safety of the proposed facilities, including the "natural gas smell" from RH's existing facilities, the risk of explosion, and notification of the public if an incident occurs. One commenter stated that regulations should not allow pipelines to be placed so close to homes and requested that safety regulations be strengthened. The USDOT prescribes the minimum standards for operating and maintaining pipeline facilities, including the requirement to establish a written plan governing these activities. Each pipeline operator is required to establish an emergency plan that

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9 The potential impact radius is calculated as the product of 0.69 and the square root of: the MAOP of the pipeline in psig multiplied by the square of the pipeline diameter in inches.

10 The potential impact circle is a circle of radius equal to the potential impact radius.

includes procedures to minimize the hazards of a natural gas pipeline emergency. Key elements of the plan include procedures for:

- receiving, identifying, and classifying emergency events, gas leakage, fires, explosions, and natural disasters;
- establishing and maintaining communications with local fire, police, and public officials, and coordinating emergency response;
- emergency system shutdown and safe restoration of service;
- making personnel, equipment, tools, and materials available at the scene of an emergency; and
- protecting people first and then property, and making them safe from actual or potential hazards.

The USDOT requires that each operator establish and maintain liaison with appropriate fire, police, and public officials to learn the resources and responsibilities of each organization that may respond to a natural gas pipeline emergency, and to coordinate mutual assistance. The operator must also establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas pipeline emergency and report it to appropriate public officials. RH would provide the appropriate training to local emergency service personnel before the pipeline is placed in service.

One commenter requested information on the number and location of safety shut-off valves. The Project would include 13 new and modified mainline block valves, spaced along the pipelines in accordance with USDOT requirements. These valves would be manually operated except for three valves at the County Line Compressor Station, which would be pneumatic valves, automatically closing if significant change in pressure or flow rate is detected.

We received comments on the safety of using a pipeline constructed in 1982 and the existing compressors at the County Line Compressor Station. The existing pipelines were constructed in accordance with the then-applicable federal safety standards for natural gas transmission pipelines and have been continuously maintained since their construction. RH would use hydrostatic testing to assess the pipelines' integrity as part of the conversion process, as required by USDOT regulations. During operation, RH's inspection and maintenance program would incorporate regular aerial and foot patrols along with periodic inspection using smart pigs (high-tech instruments that travel through the line collecting millions of data points about the pipeline's condition). The compressors at the County Line Compressor Station were manufactured in 2005 and 2006. RH states they have been, and would continue to be, maintained according to the original equipment manufacturer recommendations. The modified County Line Compressor Station would include automated safety shutdown equipment on the compressors, such as switches that would be activated by high or low pressure or vibration, and its proposed conversion of the compressor station would be in accordance with applicable design and safety codes, including PHMSA's pipeline safety regulations.

We received comments about the safety of operating the County Line Compressor Station without walls. One commenter asked if the effects of a fire or explosion on the nearby community would be reduced by a building with four walls in comparison to the existing three-wall configuration; another noted that hunting is common in the area, and the compressors or other equipment could be hit by a stray bullet. State Game Land No. 152, which allows hunting, is located east of the County Line Compressor Station. The distance from the property line of State Game Land No. 152 to the closest equipment on the County Line Compressor Station site is approximately 1,100 feet. The area between the Compressor Station and the State Game Land is forested, and there is a sound wall between the compressor units and the State Game

Land. Therefore, we conclude that the risk of a stray bullet from the State Game Land to the equipment at the County Line Compressor Station is minimal. In addition, the risk of fire or explosion at the County Line Compressor Station would be mitigated by the design measures required by USDOT safety regulations.

## 10.2 Pipeline Accident Data

The USDOT requires all operators of natural gas transmission pipelines to notify the USDOT of any significant incident and to submit a report within 30 days. Significant incidents are defined as any leaks that:

- caused a death or personal injury requiring hospitalization; or
- involve property damage of more than $50,000 (1984 dollars).[11]

During the 20 year period from 1998 through 2017, a total of 1,364 significant incidents were reported on the more than 300,000 total miles of natural gas transmission pipelines nationwide (PHMSA, 2018).

Additional insight into the nature of service incidents may be found by examining the primary factors that caused the failures. Table B.10.2-1 provides a distribution of the causal factors as well as the number of each incident by cause.

The dominant causes of pipeline incidents are corrosion and pipeline material, weld, or equipment failure constituting 53.2 percent of all significant incidents (PHMSA, 2018). The pipelines included in the data set in table B.10.2-1 vary widely in terms of age, diameter, and level of corrosion control. Each variable influences the incident frequency that may be expected for a specific segment of pipeline.

TABLE B.10.2-1

**Natural Gas Transmission Pipeline Significant Incidents by Cause (1998-2017)**

| Cause | Number of Incidents | Percentage |
|---|---|---|
| Pipeline material, weld, or equipment failure | 403 | 29.5 |
| Corrosion | 323 | 23.7 |
| Excavation | 197 | 14.4 |
| All other causes [a] | 151 | 11.1 |
| Natural forces [b] | 148 | 10.9 |
| Outside force [c] | 90 | 6.6 |
| Incorrect operation | 52 | 3.8 |
| **Total** | **1,364** | **100** |

a All other causes include miscellaneous, unspecified, or unknown causes.
b Natural force damage includes earth movement, heavy rain, floods, landslides, mudslides, lightning, temperature, high winds, and other natural force damage.
c Outside force damage includes previous mechanical damage, electrical arcing, static electricity, fire/explosion, fishing/maritime activity, intentional damage, and vehicle damage (not associated with excavation).
Source: PHMSA (2018)

[11] $50,000 in 1984 dollars is approximately $118,497 as of March 2018 (Bureau of Labor Statistics, 2018).

The frequency of significant incidents is strongly dependent on pipeline age. Older pipelines have a higher frequency of corrosion incidents and material failure, because corrosion and pipeline stress/strain is a time-dependent process.

The use of both an external protective coating and a cathodic protection system,[12] required on all pipelines installed after July 1971, significantly reduces the corrosion rate compared to unprotected or partially protected pipe.

Outside force, excavation, and natural forces are the cause in 31.9 percent of significant pipeline incidents (PHMSA, 2018). These result from the encroachment of mechanical equipment such as bulldozers and backhoes; earth movements due to soil settlement, washouts, or geologic hazards; weather effects such as winds, storms, and thermal strains; and willful damage. Table B.10.2-2 provides a breakdown of external force incidents by cause.

TABLE B.10.2-2

**Excavation, Natural Forces, and Outside Force Incidents by Cause (1998-2017)**

| Cause | Number of Excavation, Natural Forces, and Outside Force Incidents | Percentage of All Incidents [a,b] |
|---|---|---|
| Third party excavation damage | 159 | 11.7 |
| Heavy rain, floods | 78 | 5.7 |
| Vehicle (not engaged with excavation) | 52 | 3.8 |
| Earth movement | 29 | 2.1 |
| Lightning, temperature, high winds | 30 | 2.2 |
| Operator/contractor excavation damage | 26 | 1.9 |
| Unspecified excavation damage/previous damage | 12 | 0.8 |
| Other or unspecified natural forces | 11 | 0.8 |
| Fire/explosion | 10 | 0.7 |
| Fishing or maritime activity | 9 | 0.7 |
| Other or unspecified outside force | 11 | 0.8 |
| Previous mechanical damage | 6 | 0.4 |
| Electrical arcing from other equipment/facility | 1 | 0.1 |
| Intentional damage | 1 | 0.1 |
| **Total** | **432** | **31.8** |

a Percentage of all incidents was calculated as a percentage of the total number of incidents natural gas transmission pipeline significant incidents (i.e., all causes) presented in table B.10.2-1.
b Due to rounding, column does not equal 33.6 percent.
Source: PHMSA (2018)

Older pipelines have a higher frequency of outside forces incidents partly because their location may be less well known and less well marked than newer lines. In addition, the older pipelines contain a disproportionate number of smaller-diameter pipelines; which have a greater rate of outside forces incidents. Small diameter pipelines are more easily crushed or broken by mechanical equipment or earth movement.

Since 1982, operators have been required to participate in One Call public utility programs in populated areas to minimize unauthorized excavation activities in the vicinity of pipelines. The One Call program is a service used by public utilities and some private sector companies (e.g., oil pipelines and cable

[12] Cathodic protection is a technique to reduce corrosion (rust) of the natural gas pipeline through the use of an induced current or a sacrificial anode (like zinc) that corrodes at faster rate to reduce corrosion.

television) to provide preconstruction information to contractors or other maintenance workers on the underground location of pipes, cables, and culverts.

## 10.3 Impact on Public Safety

The service incidents data summarized in table B.10.2-1 include natural gas transmission system failures of all magnitudes with widely varying consequences.

Table B.10.3-1 presents the annual injuries and fatalities that occurred on natural gas transmission lines from incidents for the 5-year period between 2011 and 2015. The majority of fatalities from pipelines are due to local distribution pipelines not regulated by FERC. These are natural gas pipelines that distribute natural gas to homes and businesses after transportation through interstate natural gas transmission pipelines. In general, these distribution lines are smaller diameter pipes and/or plastic pipes which are more susceptible to damage. Local distribution systems do not have large rights-of-way and pipeline markers common to the FERC regulated natural gas transmission pipelines. Therefore, incident statistics inclusive of distribution pipelines are inappropriate to use when considering natural gas transmission projects.

TABLE B.10.3-1

**Injuries and Fatalities – Natural Gas Transmission Pipelines [a]**

| | Injuries | | Fatalities | |
|---|---|---|---|---|
| Year | Employees | Public | Employees | Public |
| 2011 | 1 | 0 | 0 | 0 |
| 2012 | 3 | 4 | 0 | 0 |
| 2013 | 0 | 2 | 0 | 0 |
| 2014 | 1 | 0 | 1 | 0 |
| 2015 | 12 | 2 | 6 | 0 |

Source: PHMSA (2016a)

The nationwide totals of accidental fatalities from various anthropogenic and natural hazards are listed in table B.10.3-2 in order to provide a relative measure of the industry-wide safety of natural gas transmission pipelines. Direct comparisons between accident categories should be made cautiously, however, because individual exposures to hazards are not uniform among all categories. The data nonetheless indicate a low risk of death due to incidents involving natural gas transmission pipelines compared to the other categories. Furthermore, the fatality rate is much lower than the fatalities from natural hazards such as lightning, tornados, or floods.

The available data show that natural gas transmission pipelines continue to be a safe, reliable means of energy transportation. From 1998 to 2017, there were an average of 68 significant incidents, 9 injuries, and 2 fatalities per year. The number of significant incidents over the more than 303,000 miles of natural gas transmission lines indicates the risk is low for an incident at any given location. The operation of the Project would represent a slight increase in risk to the nearby public.

TABLE B.10.3-2

**Nationwide Accidental Fatalities by Cause**

| Type of Accident | Annual Number of Deaths |
|---|---|
| All unintentional deaths | 146,571 |
| Motor vehicle [a] | 35,369 |
| Poisoning [a] | 38,851 |
| Falls [a] | 30,208 |
| Drowning [a] | 3,391 |
| Fire, smoke inhalation, burns [a] | 2,760 |
| Floods [b] | 81 |
| Tornado [b] | 72 |
| Lightning [b] | 49 |
| Hurricane [b] | 47 |
| Natural gas distribution lines [c] | 13 |
| Natural gas transmission pipelines [c] | 2 |

a Accident data presented represent the annual accidental deaths recorded in 2013 (Centers for Disease Control and Prevention, 2016).
b Accident data presented represent the 30-year average of accidental deaths between 1985 and 2014 (National Oceanic and Atmospheric Administration, 2016).
c Accident data presented represent the 20-year average between 1996 and 2015 (PHMSA, 2016b).

## 11.0 CUMULATIVE IMPACTS

In accordance with NEPA, we identified other actions located near the Project facilities and evaluated the potential for a cumulative impact on the environment. As defined by the Council on Environmental Quality, a cumulative effect is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Council on Environmental Quality guidance states that an adequate cumulative effects analysis may be conducted by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions. In this analysis, we consider the impacts of past projects within the geographic scope of the proposed action as part of the affected environment (environmental baseline) that were described and evaluated in the preceding environmental analysis. However, present effects of past actions that are relevant and useful are also considered. Actions located outside the geographic scope of the proposed action are generally not evaluated because their potential to contribute to a cumulative impact diminishes with increasing distance from the Project.

As described in the environmental analysis section of this EA, constructing and operating the Project would temporarily and permanently impact the environment. The Project would impact soils, water resources and wetlands, vegetation, wildlife, threatened and endangered species, some land uses, visual resources, socioeconomics, air quality, and noise; however, we conclude that these impacts would not be significant. We also conclude that nearly all Project-related impacts would be contained within or adjacent to the temporary construction right-of-way and ATWS. For other resources, such as forested wetlands, the contribution to regional cumulative impacts would be lessened by any compensatory mitigation required by the COE and state agencies and by the availability of similar habitats in the vicinity. Cleared areas not permanently converted for industrial use (i.e., areas that would not contain an aboveground facility) would be allowed to revegetate.

Based on the Project impacts identified and described in this EA and consistent with Council on Environmental Quality guidance, we have determined that the following resource-specific areas of impact, or geographic scopes, are appropriate to assess cumulative impacts:

- The Project is expected to have no impact or a negligible impact on geology, groundwater, and cultural resources, so these resources are not considered in the cumulative analysis.
- Impacts on soils would be highly localized and primarily limited to construction workspaces for the proposed Project; therefore, for these resources we evaluated other projects/actions within or adjacent to the construction workspaces.
- Surface waters, vegetation, and wildlife impacts were evaluated within the HUC 12 subwatersheds crossed by the Project. Direct impacts on vegetation and and wildlife would be largely contained within or adjacent to construction workspaces. Impacts on surface water (primarily increased turbidity) could extend outside of the construction workspaces, but would also be limited to a relatively small area. Cumulative effects on biological resources typically are assessed within watershed boundaries due to the connectivity between biotic and abiotic resources that occurs within a drainage system. The HUC 12 subwatershed was used for the analysis because of the small scale of the Project's ground disturbance in relation to the area encompassing surrounding watersheds.
- Impacts on land use and visual resources would be primarily restricted to the construction workspaces and the immediate surrounding vicinity, but would also include the surrounding area from where a new aboveground facility would be visible. In recognition of the scenic attributes of the Project area, the geographic scope for land use and visual resources is 1.0 mile.
- Socioeconomics was assessed within the affected counties for all Project facilities.
- Temporary impacts on air quality, including fugitive dust, would be largely limited to areas immediately around active construction, within 0.25 mile. We evaluated other projects/actions that overlap in time and location with construction activities for construction impacts.
- Long-term impacts on air quality would be largely contained in the vicinity of the Meadville and County Line Compressor Stations. We evaluated reasonably foreseeable facilities with stationary emission sources within a 31-mile radius of each compressor station. This geographic scope is consistent with the distance used by the EPA for cumulative modeling of large PSD sources during permitting and following 40 CFR 51, appendix W. We consider this a conservative geographic scope for the purpose of identifying other projects that could contribute to a cumulative impact on air quality.
- Construction noise impacts would be limited to the immediate area, within a 0.25-mile radius from the Project facilities. Long-term impacts on NSAs were evaluated by identifying other stationary source projects with the potential to result in noise levels that would affect NSAs within 1 mile of the Project's compressor stations.

Appendix H, table H-1, provides the list of projects considered in the cumulative impacts analysis. The projects considered in this analysis are listed below. Figure B.10-1 depicts the locations of the first four projects.

- **North Atlantic Iron Corporation (NAIC) distribution pipeline** – A potential new natural gas distribution pipeline, starting at the terminus of the proposed Project in North Kingsville, Ohio, and extending 7 miles northwest to a potential new pig iron production facility about 0.25 mile north of East Ashtabula, Ohio. This project would disturb about 85 acres of soils, vegetation, and wildlife habitat.
- **NAIC pig iron facility** – A potential new merchant pig iron production facility about 7 miles northwest of the northwest terminus of the Project. The amount of ground disturbance for this potential project is not known at this time.
- **EmKey gathering pipeline** – A potential new 8-inch-diameter looping pipeline that would be constructed in the 5-mile-long right-of-way for the existing 8-inch-pipeline in Elk Creek Township, Erie County, Pennsylvania. The new pipeline potentially would be constructed by EmKey Gathering, LLC, a subsidiary of EmKey Energy, LLC, if a need is determined. This project would disturb about 45 acres of soils, vegetation, and wildlife habitat.
- **ITC Lake Erie Connector** – A proposed high-voltage direct current underwater transmission line that would extend about 73 miles from the Erie Converter Station in Erie, Pennsylvania, to Nanticoke, Ontario. About 0.5 mile of new underground transmission cable would connect the new proposed Erie Converter Station and the nearby Penelec Erie West Substation. The Erie Converter Station would be about 0.25 mile north of the proposed Risberg Pipeline in Conneaut Township, Erie County, Pennsylvania. This project would disturb about 94 acres of soils, vegetation, and wildlife habitat (U.S. Department of Energy [DOE], 2016).
- **Transportation projects** – Projects scheduled for construction in the same timeframe and geographic area, identified through our review of online data available from the Pennsylvania Department of Transportation (PennDOT) and Ohio Department of Transportation (ODOT). Projects in Pennsylvania include those under construction and expected to go out for bids in 2018 and 2019 (PennDOT, 2018); projects in Ohio are listed in ODOT's 2018 Construction Program for District 4 (ODOT, 2018).
- **Various industrial facilities** – Facilities identified by reviewing online data provided by PADEP and the Ohio EPA for other stationary sources of air emissions within a 31-mile (50-km) radius of the Project. The industrial facilities include an automotive glass plant, other natural gas compressor stations, power generating stations, coke and iron foundries, paving contractors, and facilities producing asphalt, paving materials, titanium dioxide pigment, and other chemicals. These industrial facilities are listed in appendix H, table H-2.
- **Oil and gas wells** – As shown in figure B.10-2, there are hundreds of active conventional oil and gas wells in Erie, Crawford, and Ashtabula Counties. RH identified 183 wells within 0.25 mile of the construction workspace for the Project.

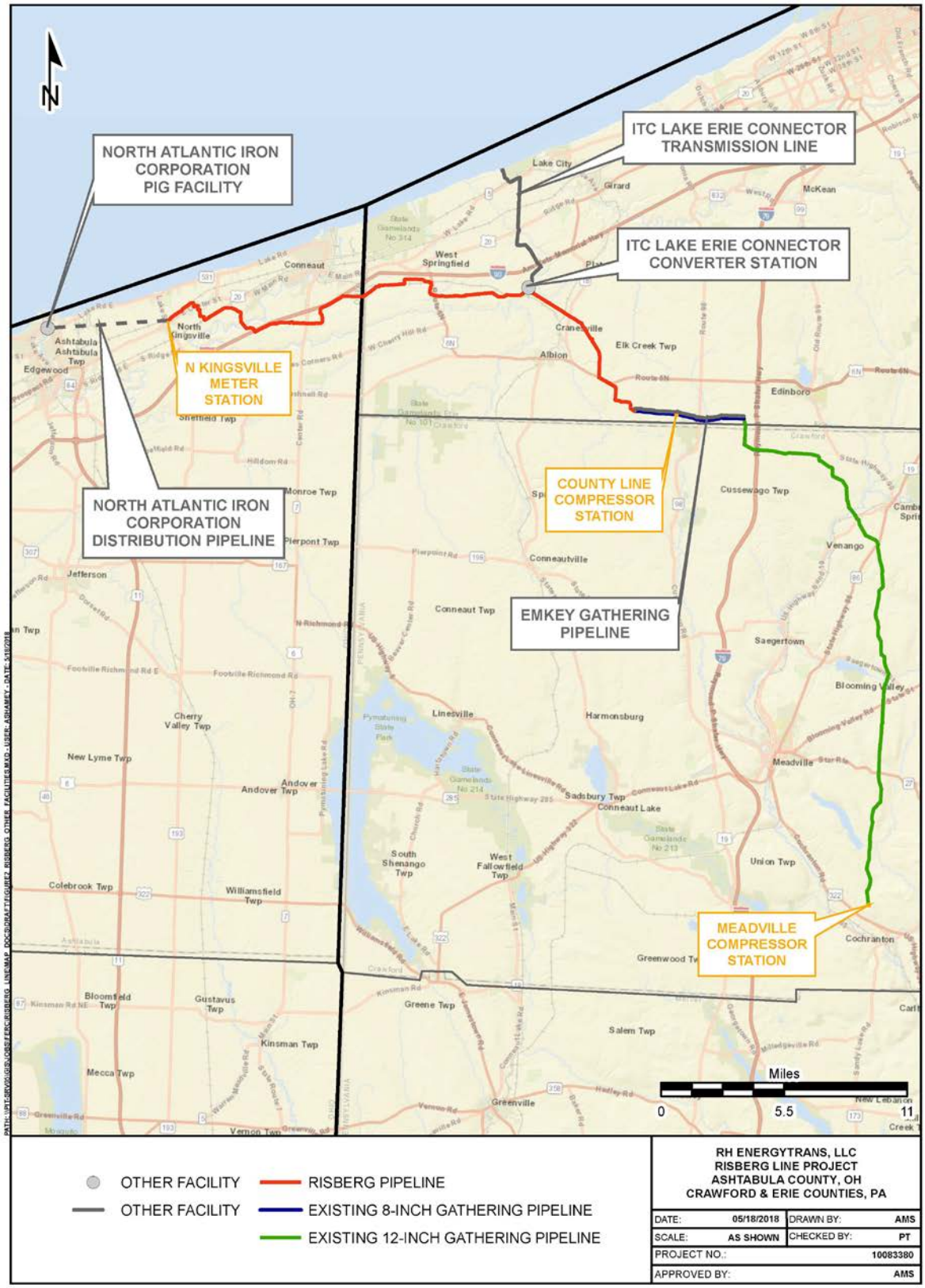
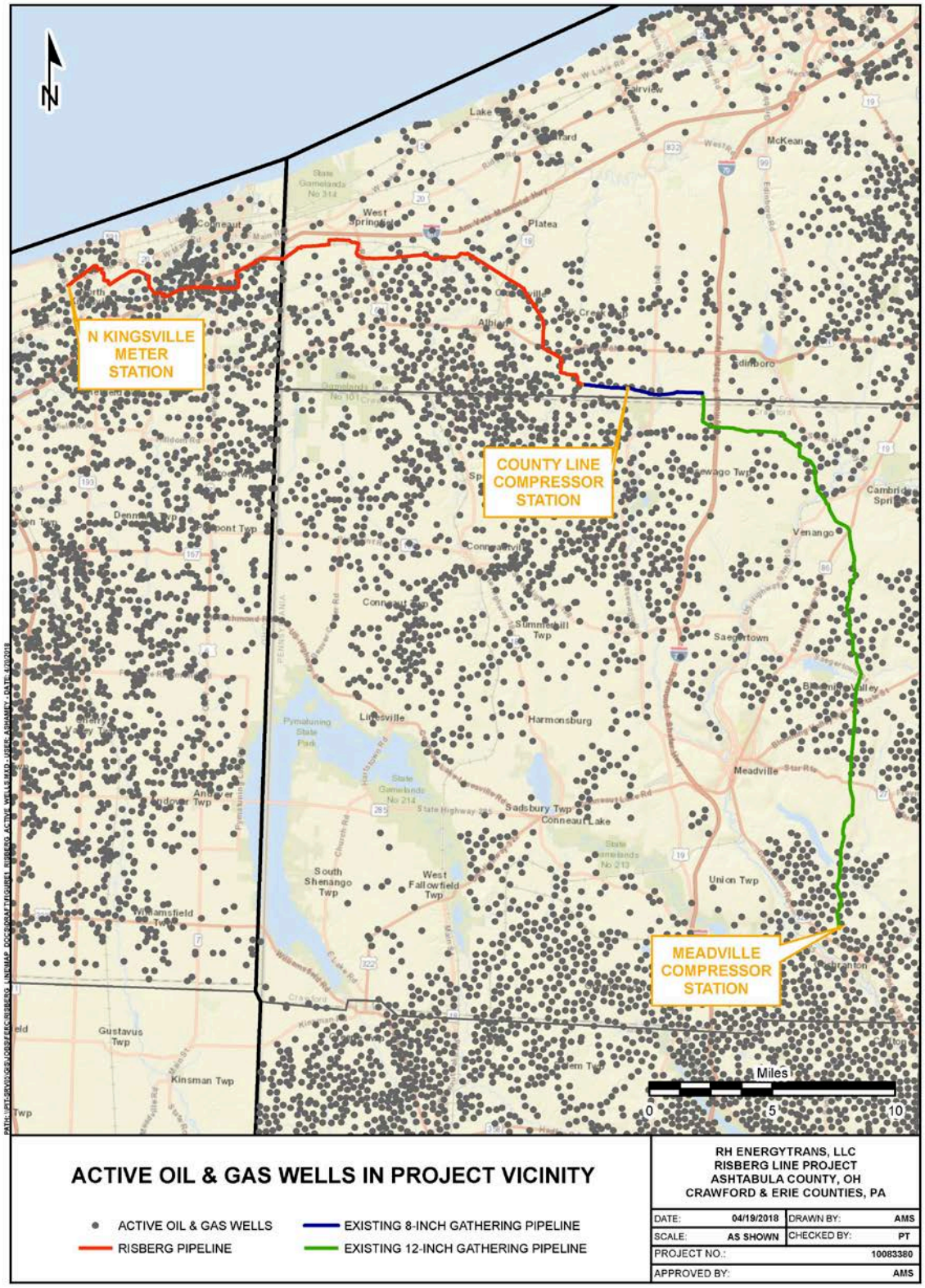



**Figure B.10-1. Cumulative Projects**




Sources: PADEP (2018b), ODNR (2018b)

**Figure B.10-2. Active Oil and Gas Wells in Erie and Crawford Counties, Pennsylvania, and Ashtabula County, Ohio**

We received a comment requesting that the EA evaluate the cumulative damage to the environment caused by gas drilling, gas processing, and pipelines with respect to impacts on water quality, wildlife habitat, and air quality. The relevant cumulative impacts to these resources are discussed in section B.11.2, section B.11.3, and section B.11.6, respectively.

### 11.1 Soils

Impacts on soils would be limited to the Project construction workspace. The NAIC distribution pipeline, if built, would be constructed adjacent to the North Kingsville Meter Station. The EmKey gathering pipeline, if built, would be constructed within the same right-of-way as the 8-inch gathering pipeline that is being converted as part of the Project. Construction of these facilities could overlap, resulting in cumulative impacts. The impacts from each of these facilities would be limited to the immediate area of ground disturbance. Concurrent or consecutive construction schedules could prolong the duration that soils would be disturbed and thus susceptible to erosion and invasive species establishment. Because direct effects on soils from the Project would be localized and limited primarily to the period of construction, and RH would follow its Plan to restore soils to pre-existing conditions after construction activities are completed, the cumulative impacts on soils contributed by the Project would be minor. Furthermore, soil conservation and restoration measures would be implemented by all projects to prevent erosion and stabilize disturbed areas; therefore, cumulative impacts on soils are anticipated to be short-term and not significant.

### 11.2 Water Resources and Wetlands

The Project would result in impacts on waterbodies and wetlands. The Project is located within eleven HUC 12 subwatersheds, as described in section B.3.2. These subwatersheds were considered as the geographic scope for this analysis. The construction workspaces associated with the Risberg Pipeline would cross 126 waterbodies (Conneaut Creek and an unnamed tributary to Conneaut Creek would be crossed using HDD) and 321 delineated wetlands. Workspaces for the compressor stations and existing gathering pipeline modifications would not be within waterbodies or wetlands. The greatest overall impact on waterbodies and wetlands would be the introduction of sediment loading and alteration of channel bottoms and wetland soils stemming from construction and operational activities. RH's implementation of its Procedures would reduce the impacts on waterbodies and wetlands.

The NAIC distribution pipeline would likely have temporary impacts of a similar nature on wetlands and streams if it is constructed. Impacts of the NAIC pig iron facility, if it is constructed, are not known at this time. The potential EmKey gathering pipeline would be installed within the right-of-way for the existing 8-inch-diameter gathering pipeline, between MPs 26.6 and 31.6. For the Lake Erie Connector project, most of the overland segment of the proposed route for the transmission cable follows existing road right-of-way to minimize effects on surface water. The ground-disturbing activities associated with construction of each of these projects may result in erosion that could affect water quality of nearby surface waters.

ODOT projects on US Route 20 and State Route 531 would occur in the same subwatershed as the Project and could contribute temporary cumulative impacts on tributaries to Lake Erie and to Conneaut Creek (as listed in appendix C) and wetlands. However, these ODOT projects are primarily road resurfacing projects, and they would not be expected to have substantial impacts on waterbodies or wetlands. Transportation projects and drilling of new oil and gas wells would be anticipated to obtain necessary environmental permits such as water quality certifications and to follow BMPs described in ESCPs and stormwater management plans, in compliance with state and federal regulations. Existing industrial facilities would be required to follow similar plans and are not expected to contribute new impacts on surface water.

Wetland compensation stipulations in the COE permit would help reduce the long-term cumulative wetland impact contributed to by the Project's construction activities. Given the implementation of BMPs by all projects and the minimal temporal overlap of projects, we conclude that construction and operation of the Project, in consideration with other projects, would not contribute to significant cumulative impacts on surface water or wetland resources.

### 11.3 Vegetation, Wildlife, and Threatened and Endangered Species

The Project would impact about 244 acres of vegetation and wildlife habitat during construction and 363 acres for operation (see table B.4.1-2). Construction and operation of the Project would result in long-term impacts on 173.5 acres of forested land. Adverse impacts on threatened and endangered species are not anticipated. Displaced wildlife would likely relocate to adjacent suitable habitat. For the pipeline portions of the Project, areas not maintained with aboveground facilities/access roads would be allowed to revegetate. RH's implementation of its Plan and Procedures would promote revegetation at Project areas following construction. RH would also follow the recommendations made by the PA DCNR to reduce impacts from invasive species.

Construction activities for other projects in the HUC 12 subwatersheds, including clearing, grading, and excavation, may result in removal of vegetation, alteration of wildlife habitat, displacement of wildlife, and other potential secondary effects, such as increased population stress, predation, and the establishment of invasive plant species. These effects would be greatest where the projects are constructed within the same timeframe and proximity as the Project.

If constructed, the NAIC distribution pipeline and pig iron production facility would disturb over 85 acres of wildlife habitat and could have cumulative effects on vegetation and wildlife in the area. EmKey's potential gathering pipeline would disturb about 45 acres of vegetation and wildlife habitat in the right-of-way of the existing 8-inch-diameter gathering pipeline that would be converted as part of the Project. If the EmKey gathering pipeline is constructed after the Project, it would contribute to cumulative effects on wildlife in the same area and could delay revegetation and contribute to the establishment of noxious weeds in the right-of-way. The Lake Erie Connector project would disturb about 94 acres of vegetation and wildlife habitat, including about 12 acres of forested areas, contributing cumulative impacts.

The transportation projects that would occur in the same HUC 12 subwatershed (including the ODOT projects on US Route 20 and State Route 531) would not likely have adverse impacts on wildlife or wildlife habitat because they would primarily occur within developed road rights-of-way. The existing industrial facilities would not contribute new impacts on vegetation or wildlife. Oil and gas production in the same watershed as the Project would continue to contribute to wildlife disturbance and displacement and to loss and fragmentation of wildlife habitat.

The Project's contribution to regional cumulative impacts would be lessened by any compensatory mitigation required by the COE and state agencies and by the availability of similar habitats in the vicinity. Therefore, we have determined that a significant cumulative impact on vegetation and wildlife would not occur as a result of the construction and operation of the Project.

### 11.4 Land Use and Visual Impacts

Land use impacts associated with the Project would be limited to the Project footprint. Land use at the County Line Compressor Station and the existing pipeline right-of-way would remain unchanged. The currently vacant Meadville Compressor Station would occupy an existing fenced area that was previously cleared and used for compressor station operations. The construction and operation of the new

pipelines and North Kingsville Meter Station would convert agriculture and forested lands to permanent right-of-way.

Visual impacts associated with the Project would primarily be associated with the new aboveground facilities. The Meadville Compressor Station would be visible from a distance of 150 feet, the County Line Compressor Station would be visible from a distance of about 1,400 feet, and the North Kingsville Meter Station would be visible from about 170 feet. The compressor station facilities would not have a significant impact on the existing scenic quality because they are previously developed industrial sites and existing forested land provides screening. Clearing of 0.1 acre of trees and construction of the North Kingsville Meter Station would result in a minor visual impact. The clearing of about 173.5 acres of forest (see table B.4.1-2) for new pipeline facilities, existing pipeline facilities, access roads, and ATWS would also result in visual impacts.

The projects listed in appendix H, table H-1, would impact various land uses. The route of the potential NAIC distribution pipeline is not known at this time. If constructed, the NAIC pipeline would result in conversion of about 42 acres of land to permanent pipeline right-of-way, and would likely result in visual impacts from forest clearing.

The EmKey gathering pipeline, if built, would be installed within the same permanent right-of-way as the existing 8-inch gathering pipeline right-of-way that is being converted as part of the Project and would not result in a change in land use or additional visual impacts.

The Lake Erie Connector project would construct the Erie Converter Station about 0.25 mile north of the Risberg Pipeline in Conneaut Township. The Erie Converter Station would convert about 6 acres of agricultural land to industrial use. The permanent right-of-way for buried underground cable would convert about 45 acres of land to a permanent easement. The main building for the Erie Converter Station would be about 370 feet by 110 feet and about 60 feet in height, adding a substantial, permanent aboveground feature to the viewshed. ITC Lake Erie would plant a vegetative buffer of trees along the east side of the proposed new Erie Converter Station and along the roadway next to the station, and would use non-reflective paint for the building to reduce the visual impacts (DOE, 2016).

Continued development of oil and gas wells within 1 mile of the Project would likely convert other land uses to industrial land. The presence of aboveground facilities, well pads, and access roads would contribute to cumulative visual impacts.

Transportation projects listed in appendix H, table H-1, generally would not acquire new right-of-way and would not have impacts on land use. After construction is completed, visual changes would generally be considered beneficial. Resurfacing projects on US Route 20 near the Kingsville Swamp and the Kingsville Barrens could result in minor visual impacts to these preserves. Future operational modifications to the existing industrial facilities are not anticipated to significantly change land use or contribute substantial new visual impacts.

Based on the limited scope of these cumulative actions and the distance between most of the projects, we conclude that the Project would not contribute a significant impact on the surrounding land use or visual character of the area.

### 11.5 Socioeconomics

The Project would have temporary and limited impacts on traffic, employment, housing, and public services in the Project area. Projects in appendix H, table H-1, constructed in the same timeframe, including transportation and oil and gas development, would cumulatively impact these resources; however, based

on what we know about the active and proposed projects, the counties in Pennsylvania and Ohio that would be affected by the Project have adequate public services and housing to accommodate the various projects.

Other projects would have temporary and permanent impacts on socioeconomic resources in the region. Transportation projects would have temporary adverse impacts on traffic but may result in long-term beneficial impacts on traffic. The oil and gas development projects, including the NAIC distribution pipeline, the EmKey gathering pipeline, and drilling of new oil and gas wells, would result in minor temporary increases in employment, tax revenue, traffic, and demand for housing and public services. Operation of existing oil and gas wells and other industrial facilities identified in appendix H, table H-1, is anticipated to continue providing employment and tax revenue while resulting in approximately the same demand for housing and public services. The Lake Erie Connector project would employ about 125 workers during construction and about 10 workers during operation. ITC Lake Erie expects construction of the proposed project to take about 2.5 years to complete, and the DOE's Environmental Assessment determined that impacts on socioeconomic resources would be negligible to minor (DOE, 2016). The projects listed in appendix H, table H-1, would be constructed across multiple counties in Pennsylvania and Ohio. The timing of construction would result in additional workers in the area, in some cases during the same timeframe. However, because these projects would not be concentrated in a single area/county, we do not believe there would be undue stress on any given public service (e.g., traffic, housing, public safety). Operation of the projects would require few permanent workers. Given the temporal and geographical spacing of the projects and the availability of public services, we conclude that there would not be a significant socioeconomic impact.

Section B.7.7 addresses environmental justice and concludes that potentially adverse environmental effects associated with the Project would not be high or adverse. Although one census tract within a 1-mile radius of the proposed North Kingsville Meter Station has a percentage of persons living below the poverty level that is higher than the percentage for Ohio (Census Tract 3 in Ashtabula County), the Project would not cause a disproportionate share of high and adverse environmental impacts on any racial, ethnic, or socioeconomic group. Further, the Project would adhere to environmental regulations.

The Lake Erie Connector project and the EmKey gathering pipeline would not cross areas identified as environmental justice populations. The precise location of the potential NAIC pig iron production facility has not yet been determined, and it is not known whether the facility or the route of the potential NAIC distribution pipeline would be sited in areas with environmental justice populations. Additional oil and gas wells and transportation projects could occur within areas with low-income or minority populations as defined in section B.7.7. However, these projects would not cause a disproportionate share of adverse environmental effects on any racial, ethnic, or socioeconomic group. We do not believe that the Project would contribute to cumulative impacts on environmental justice populations in the area.

### 11.6 Air Quality

Air quality would be impacted by the Project and the projects listed in appendix H, table H-1. As discussed in section B.8, the proposed Project would comply with the NAAQS. The Meadville Compressor Station would be a minor source of air quality emissions under federal permitting programs. Following the proposed modifications, the County Line Compressor Station would continue to be a minor source of air quality emissions. Based on the limited scope and temporary nature of the construction activities along the pipelines and the North Kingsville Meter Station, and the low levels of permanent emissions expected at the North Kingsville Meter Station, we conclude that Project activities at these locations would not result in significant cumulative impacts on air quality.

The local air quality within a 31-mile radius would be impacted by operation of the projects listed in appendix H, table H-1. However, each of these projects are, or would be, required to comply with all

applicable federal air quality permitting programs, including the NAAQS and any associated monitoring/reporting requirements, and each must conform to its respective state's State Implementation Plan. Many of these facilities have, or would employ, various emissions-reducing technologies and system efficiencies to ensure compliance with the NAAQS and to reduce operational air emissions.

Construction of the Lake Erie Connector project, the potential NAIC distribution pipeline and EmKey gathering pipeline, and any transportation projects under construction at the same time as the Project would contribute minor, temporary impacts on air quality. These impacts would result primarily from construction equipment using diesel-fueled internal combustion engines, such as backhoes and trenching equipment. Emitted pollutants would include CO, $NO_x$, $SO_2$, $CO_2$, VOCs, and PM. Fugitive dust emissions may also occur during construction. These projects would not contribute to cumulative impacts during operation.

The large number of oil and gas wells in the vicinity of the Project and the drilling of new oil and gas wells would result in cumulative impacts when combined with the operational emissions of the Project. Oil and gas wells emit VOCs (including more of the heavier, long-chain HAPs) and methane. Both VOCs and methane can have regional air quality impacts as well as GHG impacts. As described in section B.8.3, EPA's 2016 New Source Performance Standards for the oil and natural gas industry, Subpart OOOO, limit the amount of VOC and methane emissions from oil and gas development.

If constructed, the operation of the potential NAIC pig iron production facility would contribute to impacts on air quality. The composition and amounts of emissions, as well as the timeframes for construction and operation of the facility, are not known at this time.

Various industrial facilities within the 50-km (about 31-mile) radius of the Meadville Compressor Station and the County Line Compressor Station would contribute to cumulative impacts on air quality during their operation, as shown in appendix H, table H-2. The emissions for these facilities are accounted for in the regional background described in section B.8.2. Based on reported emissions, some of the industrial facilities that are expected to contribute the highest air emissions in the geographic scope for air quality include the Cristal Ashtabula Complex that produces titanium dioxide pigment in Ashtabula County, Ohio; the Pittsburgh Glass Works and Advanced Cast Products facilities in Crawford County, Pennsylvania; the Erie Coke Plant, the GE Transportation Erie Plant, and the Waste Management Lakeview Landfill in Erie County, Pennsylvania; the TGP Mercer compressor station and GE Transportation Grove City Main Plant in Mercer County, Pennsylvania; and the Scrubgrass Kennerdell power generating plant in Venango County, Pennsylvania.

The closest industrial facility to the County Line Compressor Station is the Russell Standard Corporation hot mix asphalt plant in Waterford, Pennsylvania. The industrial facility closest to the Meadville Compressor Station is the Range Resources-Appalachia's natural gas-fired Lippert compressor station in East Fairfield, Pennsylvania. As shown in appendix H, table H-2, the Waterford plant and the Lippert compressor station emissions are substantially higher for most pollutants than the emissions for the County Line Compressor Station and the Meadville Compressor Station. Because of the relatively low level of air emissions compared to other projects in the cumulative impact analysis area, the Project would not contribute to cumulative impacts on air quality.

Climate change impacts associated with the Project are discussed in section B.11.8.

## 11.7 Noise

Temporary construction noise associated with the Project would be localized and limited to about 5 to 6 months of construction. The Project would add long-term operational noise sources at the Meadville

Compressor Station and the North Kingsville Meter Station. The existing noise sources at the County Line Compressor Station would remain in operation.

Noise from the construction of the potential NAIC distribution pipeline, the EmKey gathering pipeline, and the Lake Erie Connector transmission line would also be temporary and localized. Construction of the Lake Erie Connector project is currently expected to begin in the second quarter of 2020 (ITC Holdings Corp., 2018), which would not likely overlap with Project construction. The timeframes for the construction of the potential NAIC distribution pipeline and the potential EmKey gathering pipeline have not been determined. Construction noise would be considered cumulative if it occurred during the same timeframe as the Project construction. Noise from the operation of the potential NAIC distribution pipeline, the EmKey gathering pipeline, and the Lake Erie Connector transmission line would be negligible to minor.

Transportation projects and new oil and gas development within 1 mile of the Project would contribute temporary construction noise impacts. Noise associated with the operation of the Russell Standard Corporation hot mix asphalt plant in Waterford and the Lippert compressor station is not anticipated to change from existing conditions.

None of the projects listed in appendix H, table H-1, would be expected to contribute operational long-term impacts on NSAs within 1 mile of the North Kingsville Meter Station, the County Line Compressor Station, or the Meadville Compressor Station. We conclude that the Project would not contribute to cumulative significant noise impacts on the Project area.

## 11.8 Climate Change

Climate change is the change in climate over time, whether due to natural variability or as a result of human activity, and cannot be represented by single annual events or individual anomalies. While a single large flood event, a particularly cold summer, or a warm winter are not necessarily strong indications of climate change, a series of floods or warm years that statistically change the average precipitation or temperature over years or decades may indicate climate change. However, recent research has begun to attribute certain extreme weather events to climate change (Knutson et al., 2017).

Climate change has already resulted in a wide range of impacts across every region of the United States, and those impacts extend beyond atmospheric climate change alone and include changes to water resources, agriculture, ecosystems, and human health. As climate change is currently happening, the United States and the world are warming; global sea level is rising and acidifying; and certain extreme weather events are becoming more frequent and more severe. These changes are driven by accumulation of GHG in the atmosphere, primarily through combustion of fossil fuels (coal, petroleum, and natural gas), combined with agricultural emissions and clearing of forests. These impacts have accelerated throughout the end of the 20th century and into the 21st century. Climate change is a global concern; however, for this analysis, we will focus on the potential cumulative climate change impacts on the Project area.

The following observations of environmental impacts with a high or very high level of confidence are attributed to climate change in the Northeast region, including Pennsylvania (Melillo et al., 2014; Sweet et al., 2017; Knutson et al., 2017):

- Average temperatures have risen about 2 °F between 1895 and 2011, and are projected to increase another 1 to 8 °F over the next several decades, with more frequent days above 90 °F.

- Areas that currently experience ozone pollution problems are projected to experience an increase in the number of days that fail to meet the federal air quality standards.
- An increase in health risks and costs for vulnerable populations is projected due to projected additional heat stress and poor air quality.
- Precipitation has increased by about 5 inches, and winter precipitation is projected to increase 5 to 20 percent by the end of the century.
- Extreme/heavy precipitation events have increased more than 70 percent between 1958 and 2010, and are projected to continue to increase.
- Sea levels have risen about 1 foot since 1900 and are projected to continue increasing 1 to 4 feet by 2100 stressing infrastructure (e.g., communications, energy, transportation, water, and wastewater).
- Severe flooding due to sea-level rise and heavy downpours is likely to occur more frequently.
- Crop damage from intense precipitation events, delays in crop plantings and harvest, and heat stress negatively affect crop yields.
- Invasive weeds are projected to become more aggressive due to their benefit of higher $CO_2$ levels.
- A change in range, elevation, and intra-annual life cycle events of vegetation and wildlife species is projected.
- An increase in carrier habitat and human exposure to vector-borne diseases (e.g., Lyme disease or West Nile virus) is projected.

Further, the following observations of environmental impacts with a high or very high level of confidence are attributed to climate change in the Midwest region, including Ohio (Melillo et al., 2014; Sweet et al., 2017; Knutson et al., 2017):

- Average temperatures have risen about 1.5 °F between 1900 and 2010; however, between 1980 and 2010, the average temperature increased three times as quickly as it did from 1900 to 2010. Average temperatures are projected to increase another 3 to 5 °F over the next 5 decades.
- Longer growing seasons and rising carbon dioxide levels will increase yields of some crops; however, extreme weather events and other stresses associated with climate change are expected to decrease agricultural productivity over the next few decades.
- Extreme rainfall events and flooding have increased during the last century, and these trends are expected to continue, causing erosion, declining water quality, and negative impacts on transportation, agriculture, human health, and infrastructure.
- The composition of forests in the Midwest region is expected to change as rising temperatures drive habitats for many tree species northward.
- Exacerbated risks to the Great Lakes, including changes in the range and distribution of certain fish species, increased invasive species and harmful blooms of algae, and declining beach health, are projected.
- Declines in ice cover are projected to lengthen the commercial navigation season for the Great Lakes.

Our analysis presents the direct and indirect GHG emissions associated with construction and operation of the Project, and the potential impacts of GHG emissions in relation to climate change, to the extent practicable. The GHG emissions associated with construction and operation of the Project are discussed in section B.8.5.

Burning natural gas emits less $CO_2$ compared to other fuel sources (e.g., fuel oil or coal). Because coal is used as an alternative to natural gas in the region in which the Project would be located, it is anticipated that the Project would result in the displacement of some coal use, thereby potentially offsetting some regional GHG emissions. However, the emissions would increase the atmospheric concentration of GHGs in combination with past and future emissions from all other sources and would contribute incrementally to climate change that produces the impacts previously described. There is no generally accepted significance criteria for GHG emissions; therefore, we cannot determine whether the projects' contribution to climate change would be significant.

## SECTION C – ALTERNATIVES

In accordance with NEPA and Commission policy, we identified and evaluated alternatives to the Project, including the no action alternative, system alternatives, pipeline route alternatives, and compression alternatives. These alternatives were evaluated using a specific set of criteria. The evaluation criteria applied to each alternative include a determination of whether the alternative:

- meets the objective of the proposed Project;
- is technically and economically feasible and practical; and
- offers a significant environmental advantage over the proposed Project.

Through environmental comparison and application of our professional judgment, each alternative is considered to a point where it becomes clear if the alternative could or could not meet the three evaluation criteria. To ensure a consistent environmental comparison and to normalize the comparison factors, we generally use desktop sources of information (e.g., publicly available data, geographic information system data, aerial imagery) and assume the same right-of-way widths and general workspace requirements. Where appropriate, we also use site-specific information (e.g., field surveys or detailed designs). Our environmental analysis and this evaluation consider quantitative data (e.g., acreage or mileage) and use common comparative factors such as total length, amount of co-location, and land requirements.

The impacts associated with the Project were described in detail in section B of this EA. Because the alternatives represent mostly alternative locations for natural gas facilities, the specific nature of these impacts on the natural and human environments would generally be similar to the impacts described in section B.

In recognition of the competing interests and the different nature of impacts resulting from an alternative that sometimes exist (i.e., impacts on the natural environment versus impacts on the human environment), we also consider other factors that are relevant to a particular alternative, and discount or eliminate factors that are not relevant or may have less weight or significance.

The alternatives were reviewed against the evaluation criteria in the sequence presented above. The first consideration for including an alternative in our analysis is whether or not it could satisfy the stated purpose of the Project. An alternative that cannot achieve the purpose for the Project cannot be considered as an acceptable replacement for the Project.

Many alternatives are technically and economically feasible. Technically practical alternatives, with exceptions, would generally require the use of common construction methods. An alternative that would require the use of a new, unique, or experimental construction method may not be technically practical because the required technology is not available or is unproven. Economically practical alternatives would result in an action that generally maintains the price-competitive nature of the proposed action. Generally, we do not consider the cost of an alternative as a critical factor unless the added cost to design, permit, and construct the alternative would render the Project economically impractical.

Alternatives that would not meet the Project's objective or were not feasible were not brought forward to the next level of review (i.e., the third evaluation criterion). Determining if an alternative provides a significant environmental advantage requires a comparison of the impacts on each resource as well as an analysis of impacts on resources that are not common to the alternatives being considered. The determination must then balance the overall impacts and all other relevant considerations. In comparing the impact between resources, we also considered the degree of impact anticipated on each resource.

Ultimately, an alternative that results in equal or minor advantages in terms of environmental impact would not compel us to shift the impacts from the current set of landowners to a new set of landowners.

One of the goals of an alternatives analysis is to identify alternatives that avoid significant impacts. In section B, we evaluated each environmental resource potentially affected by the Project and concluded that constructing and operating the Project would not significantly impact these resources. Consistent with our conclusions, the value gained by further reducing the (not significant) impacts of the Project when considered against the cost of relocating the route/facility to a new set of landowners was also factored into our evaluation.

## 1.0 NO ACTION ALTERNATIVE

The no action alternative would result in not implementing the proposed action and would avoid the potential environmental impacts associated with the Project; however, the Project objectives would not be met. RH's customers, including DEO and other prospective industrial customers could seek alternative suppliers for the requested natural gas volumes. Although a Commission decision to deny the Project would avoid the environmental impacts discussed in this EA, other natural gas projects could be constructed to provide a substitute for the natural gas supplies offered by RH. Such alternative projects could require the construction of additional and/or new pipeline facilities in the same or other locations to transport the gas volumes proposed by the Project. These projects would result in their own set of specific environmental impacts that could be equal to or greater than those described for the current proposal. Furthermore, other natural gas projects would likely not meet the Project's purpose and need within the proposed time frame. Therefore, we are not recommending the no action alternative.

## 2.0 SYSTEM ALTERNATIVES

The purpose of identifying and evaluating system alternatives is to determine whether the environmental impacts associated with the construction and operation of the proposed Project could be avoided or reduced by using existing, modified, or other proposed facilities. System alternatives are those able to meet the objectives of the Project but use a different facility (existing or proposed), or are able to otherwise use existing infrastructure to eliminate the need for the proposed facility. However, a viable system alternative must be technically and economically feasible as well as practicable, and must satisfy interconnect requirements and the anticipated in-service date to fulfill commitments made to the Project's customers.

We determined that a system alternative using existing DEO pipeline infrastructure west of the North Kingsville area would not be feasible due to capacity limitations of the existing distribution lines. Therefore, any system alternative would require the construction of new facilities. We reviewed two potential system alternatives that could supply additional natural gas to the Ashtabula area distribution system (see figure C.2-1). System Alternative 1 would involve replacing the existing 10-inch-diameter Cochranton pipeline from the TGP interconnect between Cochranton, Pennsylvania, and Podges Station in Ashtabula, Ohio, with 41 miles of 24-inch-diameter pipeline and between the Podges and Middle Road Stations with 4.4 miles of 20-inch-diameter pipeline. System Alternative 2 would bring in natural gas from the DEO transmission system south of North Kingsville. This alternative would require constructing 56 miles of new 24-inch-diameter pipeline between the Portage and Austinburg Stations in Ohio and 7 miles of new 24-inch-diameter pipeline between the Austinburg and Middle Road Stations.

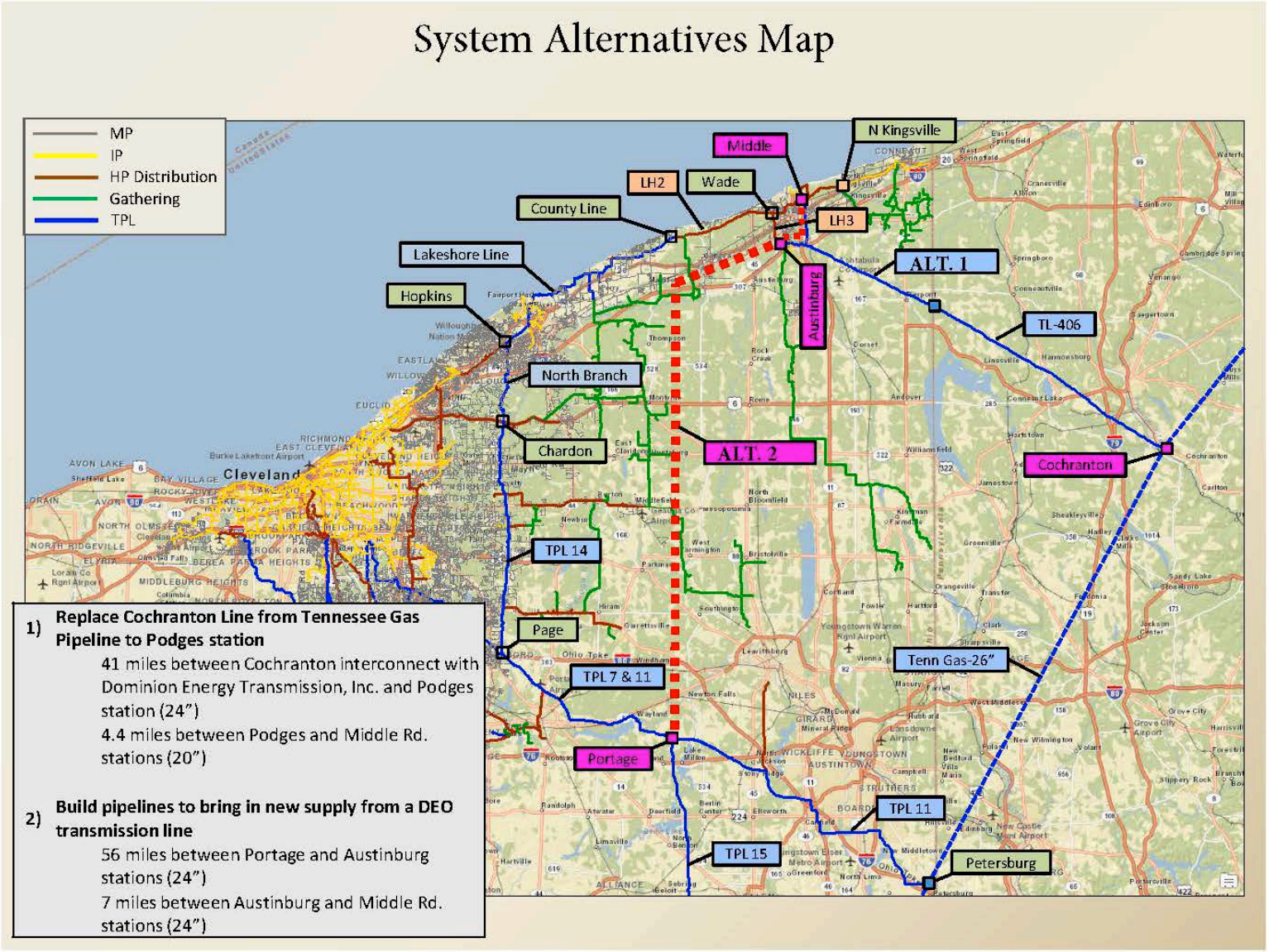



**Figure C.2-1. System Alternatives**

Table C.2-1 provides a comparison of System Alternatives 1 and 2 and the proposed Risberg Pipeline. Because both of the system alternatives would require longer new-build pipelines with greater impacts on forest, wetlands, and waterbodies, they do not present a significant environmental advantage over the proposed action.

TABLE C.2-1

**Comparison of System Alternatives**

| Route | Length (miles) | Co-located Length (miles) [a] | NWI Wetlands Crossed [b] | Forest Crossed (acres) [b] | Waterbodies Crossed [b] |
|---|---|---|---|---|---|
| Proposed Route | 28.3 | 8.0 | 83 | 110.2 | 35 |
| Alternative 1 | 45.4 | 1.3 | 136 | 115.4 | 69 |
| Alternative 2 | 63.0 | 11.9 | 140 | 182.0 | 110 |

a Includes co-location with other utilities.
b Quantities are based only on GIS data to allow a consistent comparison of the proposed route and alternatives. Therefore, these values for the proposed route may not match values in section B.

A commenter proposed an alternative consisting of a 56-mile-long pipeline from Youngstown, Ohio, to Ashtabula along State Route 11 that would "probably encounter fewer environmental issues as well as fewer landowner lease agreements… [and] avoid the many complications involved with interstate pipelines." Such an alternative would need to extend through Youngstown to connect with the DEO transmission system for source of natural gas. This alternative would be similar to System Alternative 2 in that it would require a similar length of new pipeline but would be routed through substantially more highly populated areas. Therefore, the alternative does not present a significant environmental advantage over the proposed action.

## 3.0 RISBERG PIPELINE ROUTE ALTERNATIVES

We assessed three alternative routes (Alternatives 1, 2, and 3) for the Risberg Pipeline as depicted in figure C.3-1. Table C.3-1 compares these alternatives and the proposed route.

TABLE C.3-1

**Comparison of Pipeline Route Alternatives**

| Route | Length (miles) | Co-located Length (miles) [a] | NWI Wetlands Crossed [b] | Forest Crossed (acres) [b] | Public Lands Crossed (acres) | Waterbodies Crossed [b] | Residences within 50 feet [c] |
|---|---|---|---|---|---|---|---|
| Proposed Route | 28.3 | 8.0 | 83 | 110.2 | 0 | 35 | 5 |
| Alternative 1 | 32.5 | 2.0 | 113 | 102.5 | 0 | 57 | 59 |
| Alternative 2 | 31.5 | 5.5 | 68 | 89.3 | 2.2 | 34 | 5 |
| Alternative 3 | 29.7 | 6.6 | 95 | 104.9 | 0 | 34 | 3 |

a Includes co-location with other utilities.
b Quantities are based only on GIS data to allow a consistent comparison of the proposed route and alternatives. Therefore, these values for the proposed route may not match values in section B.
c Residences within 50 feet of the alternative routes have not been field verified.

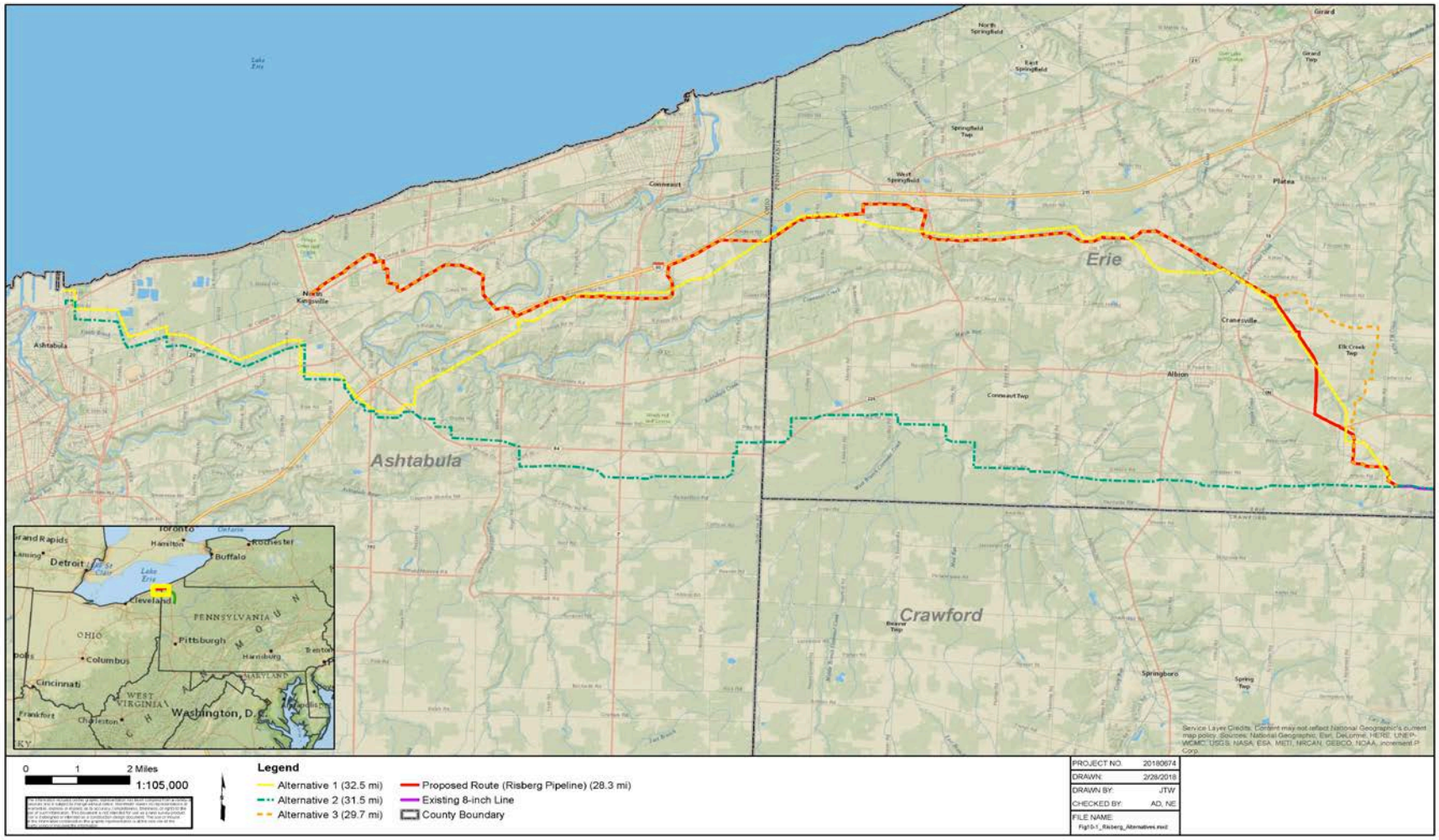



**Figure C.3-1. Pipeline Route Alternatives**

Alternatives 1 and 2 for the Risberg Pipeline route were developed when the DEO delivery point was proposed to be in East Ashtabula, Ohio. The delivery point was changed to the North Kingsville location, where Alternative 3 and the proposed route terminate, based on DEO's preference. Alternative 1 is the longest of the routes considered and has the fewest opportunities for co-location with other utilities and would cross the most wetlands and waterbodies. It also would have considerably more residences within 50 feet of the construction workspace compared to the other routes considered. Furthermore, RH reported issues regarding land availability for this route due to unwilling potential landowners. Alternative 2 would affect the fewest wetlands and acres of forest but would cross Pennsylvania State Game Lands. Alternative 2 would cross more densely populated areas and would have fewer opportunities for co-location with other utilities. Alternative 3 has the fewest number of residences within 50 feet but would cross more wetlands than the proposed route, including several palustrine forested and palustrine scrub-shrub wetlands, which contain a high level of biodiversity and ecological function within their watershed. It would cross slightly less forested land than the proposed route but would have fewer co-location opportunities.

One commenter suggested that an alternative pipeline route running directly along the south or north side of the power line perpendicular to Center Road between North Kingsville and Conneaut, Ohio, would reduce impacts on residents, a historic cemetery, and habitat, as well as reduce drainage and erosion concerns. The suggested alternative route would be in close proximity to multiple ponds and at least one other residence, which potentially would be affected. In addition, we determined that the proposed route would not adversely affect the Farnham Cemetery, and the Ohio SHPO concurs. Therefore, we do not recommend the suggested alternative route.

In conclusion, we did not identify an alternative route to the proposed Risberg Pipeline route that would offer substantially fewer environmental impacts.

## 4.0 COMPRESSOR STATION ALTERNATIVES

We did not consider alternative locations for the Meadville Compressor Station because the proposed use of an existing site that was occupied previously by a compressor station would have fewer impacts than a new greenfield location. RH stated that it would be possible, but more expensive, to add more compression to the Meadville Compressor Station rather than make modifications to the existing County Line Compressor Station. Because the modifications at the County Line Compressor Station are relatively minor and would be required to meet applicable noise and air quality standards, we do not recommend this alternative.

We evaluated the option of using electric motor-driven units instead of the proposed natural gas-fired turbines at the Meadville Compressor Station. The required compression could be met with one 1,000 hp motor operating at 4,160 volts, or two 500 hp motors operating at 480 volts. About 1,000 kilovolt-ampere (kVA) of electrical power would be required from the local power grid.

Electric motor-driven compressor(s) would require a new/upgraded power line that would extend at least 3,850 feet outside of the current station fenceline and cross at least six properties. The power line would cross about 1.7 acres of forested land, 2.8 acres of open space/non-forested land, and one waterbody. Electric motors require less preventative maintenance than gas-fired motors, but their operation is subject to interruption by failure of any component in the electric grid, such as power line icing, supply undervoltage, or phase imbalance.

The Meadville Compressor Station would be a minor source of emissions and would comply with the NAAQS. Although using electric compressors would reduce air emissions at the Meadville Compressor

Station site, generally equivalent emissions would be associated with the facility that would generate the electricity. Therefore, we do not recommend this alternative.

In summary, based on the analysis above, we have determined that RH's proposed Project, as modified by our recommended mitigation measures, is the preferred alternative that can meet the Project objectives.

## SECTION D – CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis in this EA, we have determined that if RH constructs and operates the proposed facilities in accordance with its application, supplements, and the staff's recommended mitigation measures, approval of this proposal would not constitute a major federal action significantly affecting the quality of the human environment. We recommend that the Commission Order (Order) contain a finding of no significant impact and include the following list of mitigation measures as conditions to any Certificate the Commission may issue.

1. RH shall follow the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests) and as identified in the EA, unless modified by the Order. RH must:

    a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;

    b. justify each modification relative to site-specific conditions;

    c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and

    d. receive approval in writing from the Director of OEP **before using that modification**.

2. The Director of OEP, or the Director's designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of the Order, and to take whatever steps are necessary to ensure the protection of environmental resources during construction and operation of the Project. This authority shall allow:

    a. the modification of conditions of the Order;

    b. stop-work authority; and

    c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the Order as well as the avoidance or mitigation of unforeseen adverse environmental impact resulting from Project construction and operation.

3. **Prior to any construction**, RH shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, EIs, and contractor personnel will be informed of the EIs' authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before becoming involved with construction and restoration activities**.

4. The authorized facility locations shall be as shown in the EA, as supplemented by filed alignment sheets. **As soon as they are available, and before the start of construction**, RH shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

    RH's exercise of eminent domain authority granted under Natural Gas Act (NGA) Section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. RH's right of eminent domain granted under NGA Section 7(h) does not authorize it to increase the size of its natural gas pipeline facilities to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

5. RH shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and all staging areas, pipe storage and contractor yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area**.

   This requirement does not apply to extra workspace allowed by the Commission's Plan, and/or minor field realignments per landowner needs and requirements which do not affect other landowners or sensitive environmental areas such as wetlands.

   Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

   a. implementation of cultural resources mitigation measures;

   b. implementation of endangered, threatened, or special concern species mitigation measures;

   c. recommendations by state regulatory authorities; and

   d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.

6. **Within 60 days of the acceptance of the Certificate and before construction begins**, RH shall file an Implementation Plan with the Secretary for review and written approval by the Director of OEP. RH must file revisions to the plan as schedules change. The plan shall identify:

   a. how RH will implement the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests), identified in the EA, and required by the Order;

   b. how RH will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;

   c. the number of EIs assigned, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;

   d. company personnel, including EIs and contractors, who will receive copies of the appropriate material;

   e. the location and dates of the environmental compliance training and instructions RH will give to all personnel involved with construction and restoration (initial and refresher training as the Project progresses and personnel change), with the opportunity for OEP staff to participate in session(s);

   f. the company personnel and specific portion of RH's organization having responsibility for compliance;

   g. the procedures (including use of contract penalties) RH will follow if noncompliance occurs; and

h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:

(1) the completion of all required surveys and reports;

(2) the environmental compliance training of onsite personnel;

(3) the start of construction; and

(4) the start and completion of restoration.

7. RH shall employ a team of EIs for the Project (i.e., two or more or as may be established by the Director of OEP). The EIs shall be:

a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;

b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 6 above) and any other authorizing document;

c. empowered to order correction of acts that violate the environmental conditions of the Order, and any other authorizing document;

d. a full-time position, separate from all other activity inspectors;

e. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and

f. responsible for maintaining status reports.

8. Beginning with the filing of its Implementation Plan, RH shall file updated status reports with the Secretary on a **biweekly basis until all construction and restoration activities are complete**. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:

a. an update on RH's efforts to obtain the necessary federal authorizations;

b. the construction status of the Project, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally sensitive areas;

c. a listing of all problems encountered and each instance of noncompliance observed by the EI during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);

d. a description of the corrective actions implemented in response to all instances of noncompliance;

e. the effectiveness of all corrective actions implemented;

f. a description of any landowner/resident complaints which may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and

g. copies of any correspondence received by RH from other federal, state, or local permitting agencies concerning instances of noncompliance, and RH's response.

9. RH must receive written authorization from the Director of OEP **before commencing construction of any Project facilities**. To obtain such authorization, RH must file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).

10. RH must receive written authorization from the Director of OEP **before placing the Project into service**. Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way and other areas affected by the Project are proceeding satisfactorily.

11. **Within 30 days of placing the authorized facilities in service**, RH shall file an affirmative statement with the Secretary, certified by a senior company official:

    a. that the facilities have been constructed and installed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or

    b. identifying which of the Certificate conditions RH has complied with or will comply with. This statement shall also identify any areas affected by the Project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.

12. **Prior to commencement of service on the existing 12-inch-diameter pipeline**, RH shall confirm the location of the oil and gas well near MP 1.0, and if it is within the permanent right-of-way for the Project, RH shall file with the Secretary, for review and written approval by the Director of OEP, a site plan showing the location of the well relative to the pipeline and measures for protecting the well.

13. **Prior to construction of the Risberg Pipeline**, RH shall file with the Secretary, for review and written approval by the Director of OEP, a slope stability assessment. RH shall complete the assessment by a licensed geotechnical engineer to identify specific locations along the Risberg Pipeline with the potential for slope failure and site-specific measures to mitigate the potential hazard.

14. **Prior to construction of the Risberg Pipeline**, RH shall file with the Secretary a description of the parameters for pre- and post-construction testing of well yield and water quality, for review and written approval by the Director of OEP.

15. **Prior to construction of the Risberg Pipeline**, RH shall file with the Secretary for review and written approval by the Director of OEP, a revised Inadvertent Return Contingency Plan. The revised plan shall include a description of response actions to be taken by the Contractor and Environmental Inspectors in the event of a loss or significant reduction in fluid circulation to minimize the potential for and volume of any inadvertent returns.

16. **Prior to construction of the Risberg Pipeline**, RH shall file with the Secretary for review and written approval by the Director of OEP, a list of any additional drilling fluid additives that could be used, as well as the Safety Data Sheets for each additive, and an affirmative statement that RH will utilize only pre-approved, non-petrochemical-based, non-hazardous additives that comply with the Ohio Environmental Protection Agency permit requirements and environmental regulations.

17. **Prior to commencement of service for the existing gathering pipelines**, RH shall file with the Secretary, for review and written approval by the Director of OEP:

    a. the date that RH intends to clear vegetation for the existing gathering pipelines;

b. the results of wetland delineation surveys for the existing gathering pipeline permanent right-of-way;

c. revised alignment sheets indicating all delineated waterbodies and wetlands, and any other sensitive resources such as sensitive habitats; and

d. a statement that RH will install all of the proper signage near sensitive resources prior to any proposed maintenance clearing to ensure compliance with RH's Procedures.

18. RH shall **not begin** construction activities **until**:

a. the staff receives comments from the FWS regarding the proposed action;

b. the staff completes ESA consultation with the FWS; and

c. RH has received written notification from the Director of OEP that construction or use of mitigation may begin.

19. **Prior to construction of the Risberg Pipeline**, RH shall file with the Secretary, for review and written approval by the Director of OEP, a traffic plan for State Route 9N that includes:

a. a timeline for construction activities at this location;

b. details of how traffic will be managed around the construction, including any detours; and

c. safety measures such as signage, cones, barriers, and flaggers.

20. RH shall file a full load noise survey with the Secretary **no later than 60 days** after placing the new equipment at the North Kingsville Meter Station in service. If the noise attributable to the operation of all of the equipment at the North Kingsville Meter Station exceeds 55 dBA $L_{dn}$ at any nearby NSA, RH shall file a report on what changes are needed and shall install the additional noise controls to meet the level **within 1 year** of the in-service date. RH shall confirm compliance with the 55 dBA $L_{dn}$ requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls.

21. RH shall file a vibration survey with the Secretary **no later than 60 days** after placing the new equipment at the County Line Compressor Station in service. The survey shall verify that vibration at nearby NSAs is not perceptible during full station operation across typical operating loads. If vibration attributable to the County Line Compressor Station is perceptible, RH shall file a report on what changes are needed and shall install the additional vibration controls to reduce vibration under perceptible levels at the NSAs **within 1 year** of the in-service date. RH shall confirm compliance with the requirements by filing a second vibration survey with the Secretary **no later than 60 days** after it installs the additional vibration controls.

22. RH shall file a full load noise survey with the Secretary **no later than 60 days** after placing the Meadville and County Line Compressor Stations in service. If full load condition noise surveys are not possible, RH shall instead file an interim survey at the maximum possible horsepower load and file the full load survey **within 6 months**. If the noise attributable to the operation of all of the equipment at the Meadville Compressor Station or County Line Compressor Station under interim or full horsepower load exceeds 55 dBA $L_{dn}$ at any nearby NSA, RH shall file a report on what changes are needed and shall install the additional noise controls to meet the level **within 1 year** of the in-service date. RH shall confirm compliance with the 55 dBA $L_{dn}$ requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls.

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*HDR, Inc. is a third-party contractor assisting the Commission staff in reviewing the environmental aspects of the project application and preparing the environmental documents required by NEPA. Third-party contractors are selected by Commission staff and funded by project applicants. Per the procedures in 40 CFR 1506.5(c), third-party contractors execute a disclosure statement specifying that they have no financial or other conflicting interest in the outcome of the project. Third-party contractors are required to self-report any changes in financial situation and to refresh their disclosure statements annually. The Commission staff solely directs the scope, content, quality, and schedule of the contractor's work. The Commission staff independently evaluates the results of the third-party contractor's work and the Commission, through its staff, bears ultimate responsibility for full compliance with the requirements of NEPA.*

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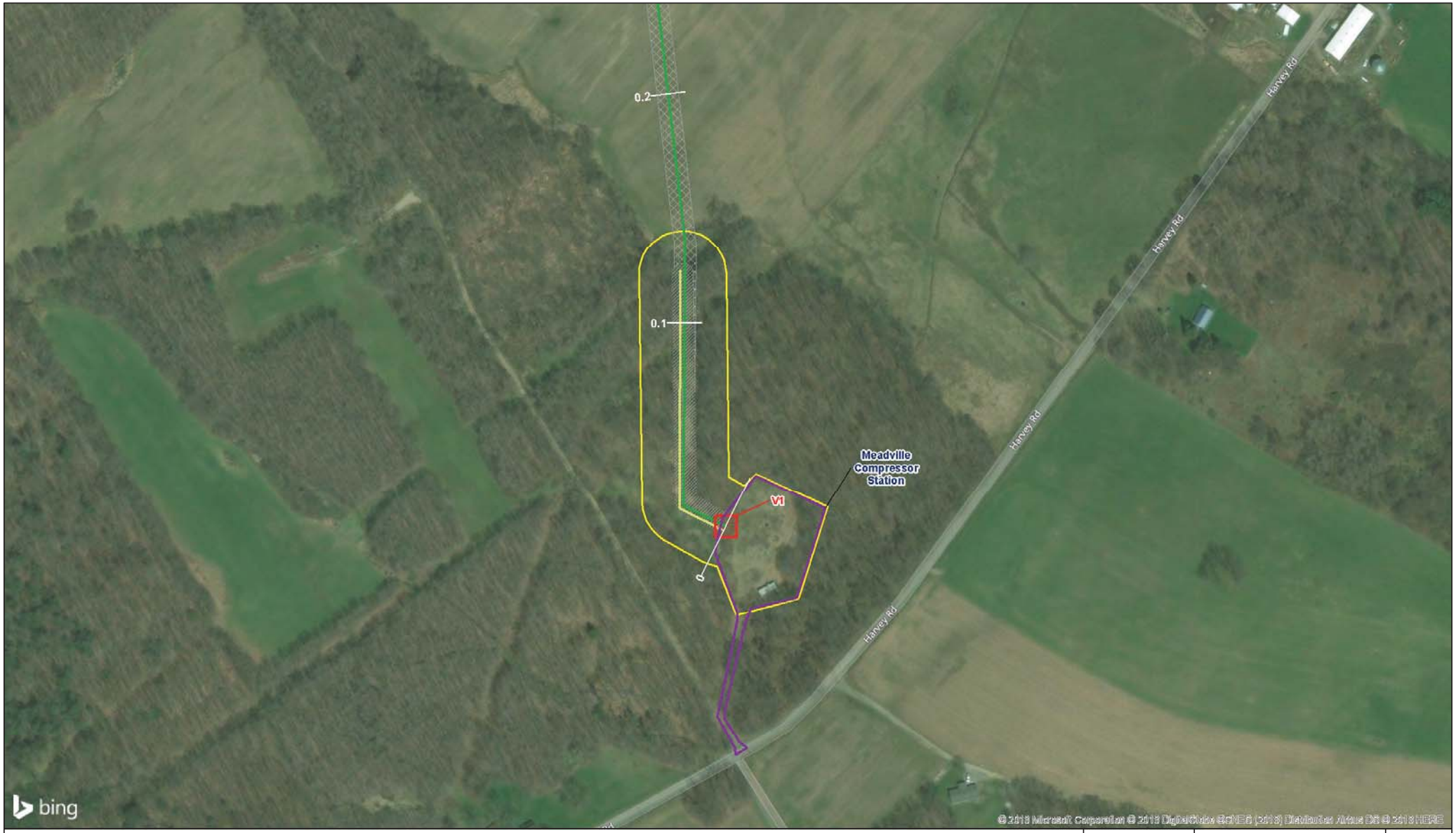
# Appendix A

# Project Location Maps

# Pipeline Facilities

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**Legend**

- Risberg Pipeline Alignment
- Existing 8-inch Line
- Existing 12-inch Line
- TGP Tie-In Lateral
- County Line Compressor Station
- Launcher/Receiver
- Meadville Compressor Station
- Meter Tap
- New Valve Site
- North Kingsville Meter
- Separator
- Valve Facility
- Access Road
- ATWS
- Pipe and Contractor Yard
- New Temporary ROW
- New 50-ft Permanent ROW
- Existing Line 50-ft ROW
- Survey Boundary

RH energytrans

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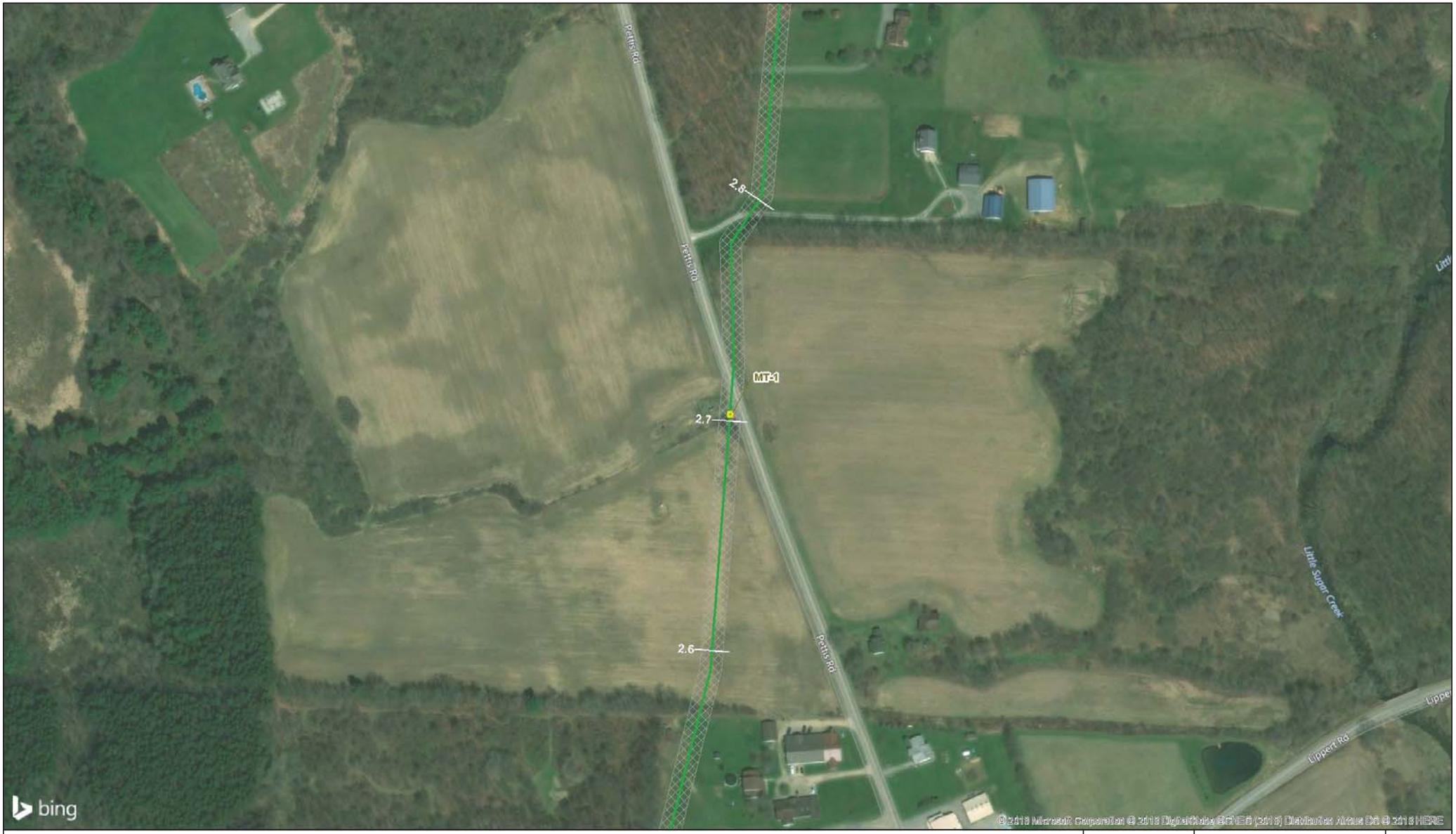
| PROJECT NO. | 20180674 |
| DRAWN: | 3/20/2018 |
| DRAWN BY: | JTW |
| CHECKED BY: | AD, NE |
| FILE NAME: | Fig1-3_Risberg_Aerial.mxd |

Aerial Map

**Risberg Line Project**
**RH energytrans, LLC**
**Ohio and Pennsylvania**

FIGURE

**1-3**

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Aerial Map

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FIGURE

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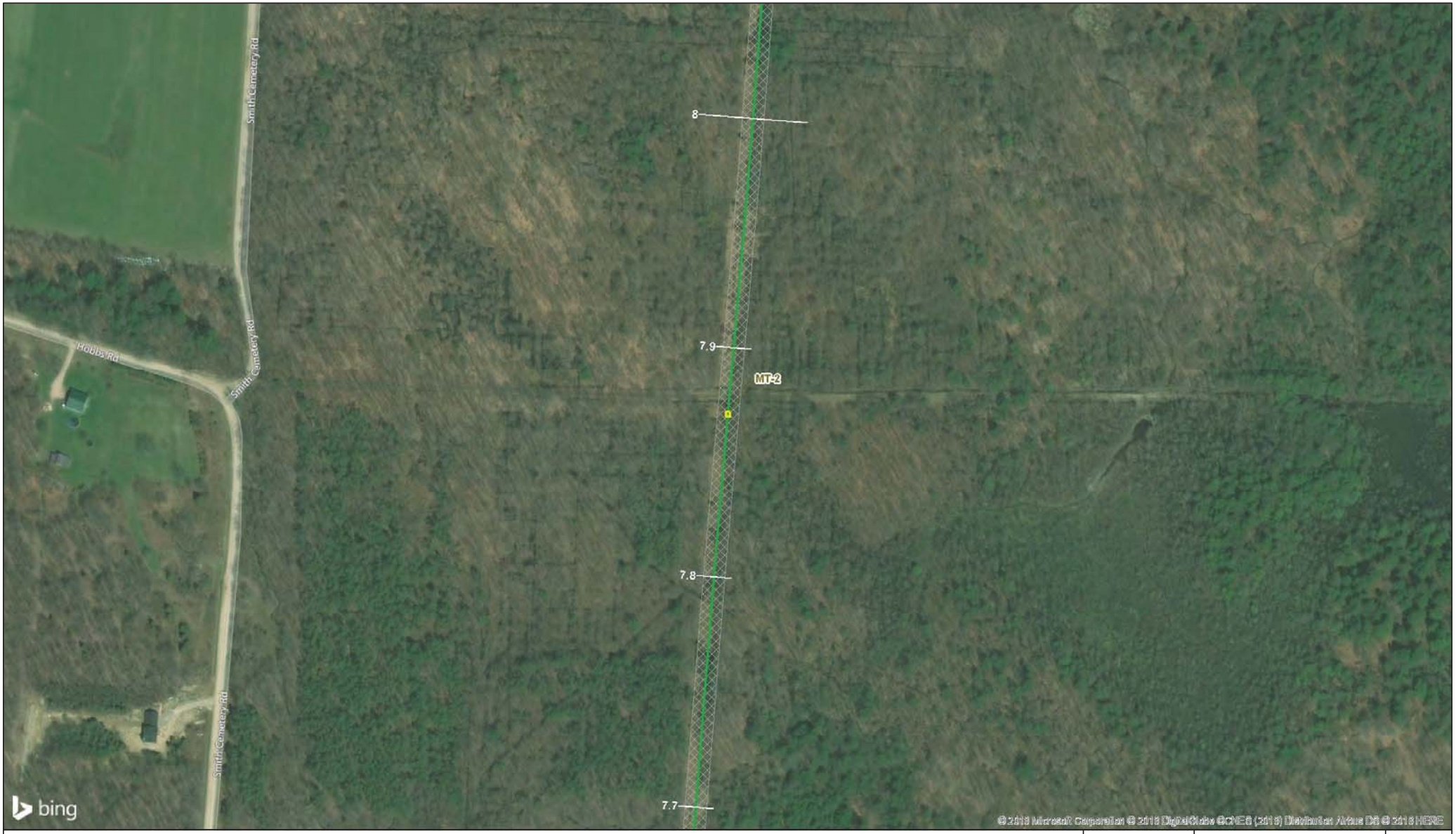


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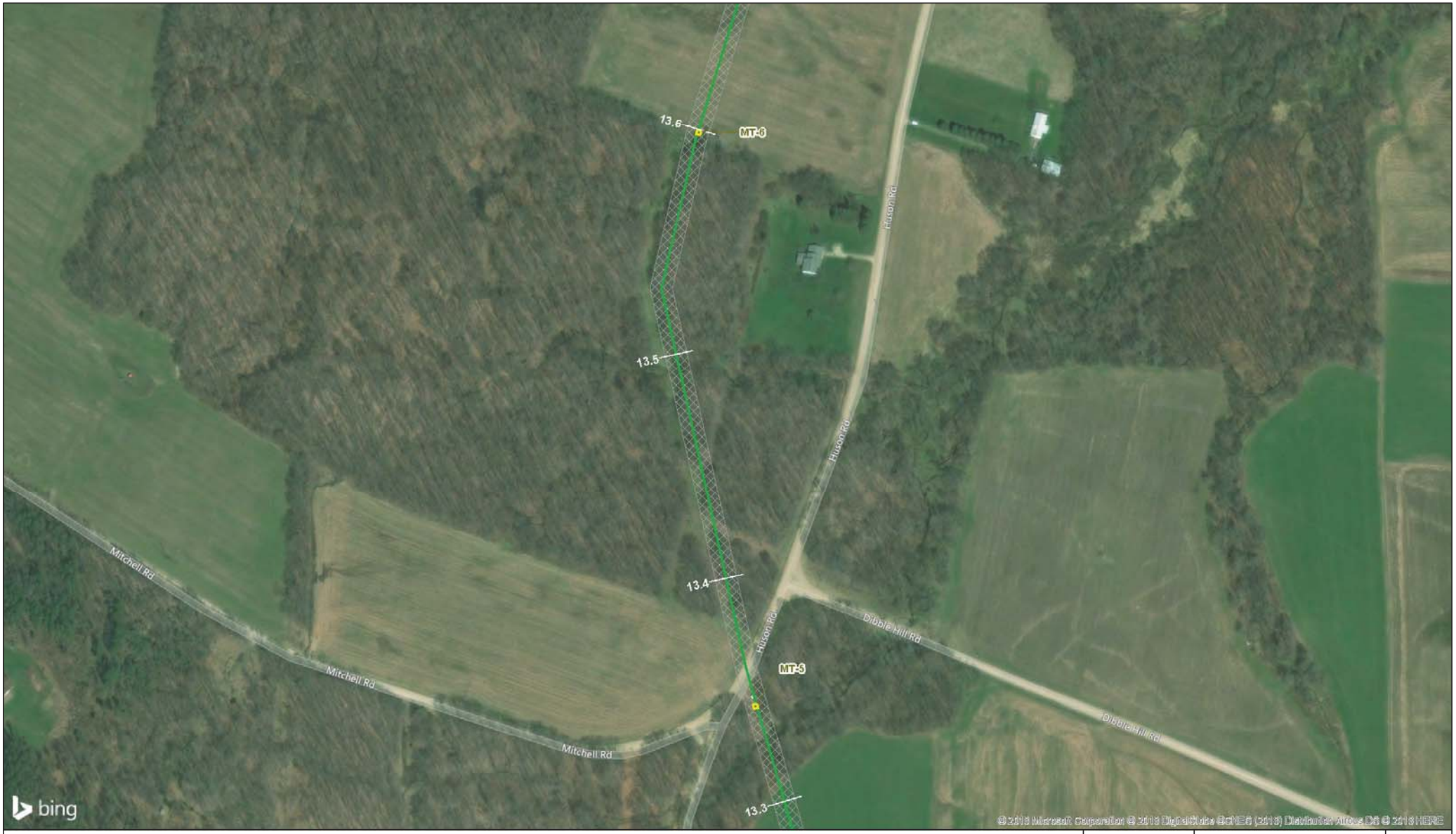
**Ohio and Pennsylvania**

FIGURE

**1-3**

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**Legend**

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- Existing 8-inch Line
- Existing 12-inch Line
- TGP Tie-In Lateral
- County Line Compressor Station
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- Meter Tap
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- Separator
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- Access Road
- ATWS
- Pipe and Contractor Yard
- New Temporary ROW
- New 50-ft Permanent ROW
- Existing Line 50-ft ROW
- Survey Boundary

RH energytrans

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|---|---|
| PROJECT NO. | 20180674 |
| DRAWN: | 3/20/2018 |
| DRAWN BY: | JTW |
| CHECKED BY: | AD, NE |
| FILE NAME: | Fig1-3_Risberg_Aerial.mxd |

Aerial Map

**Risberg Line Project**
**RH energytrans, LLC**
**Ohio and Pennsylvania**

FIGURE

**1-3**

0 100 200 Feet

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N

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FIGURE

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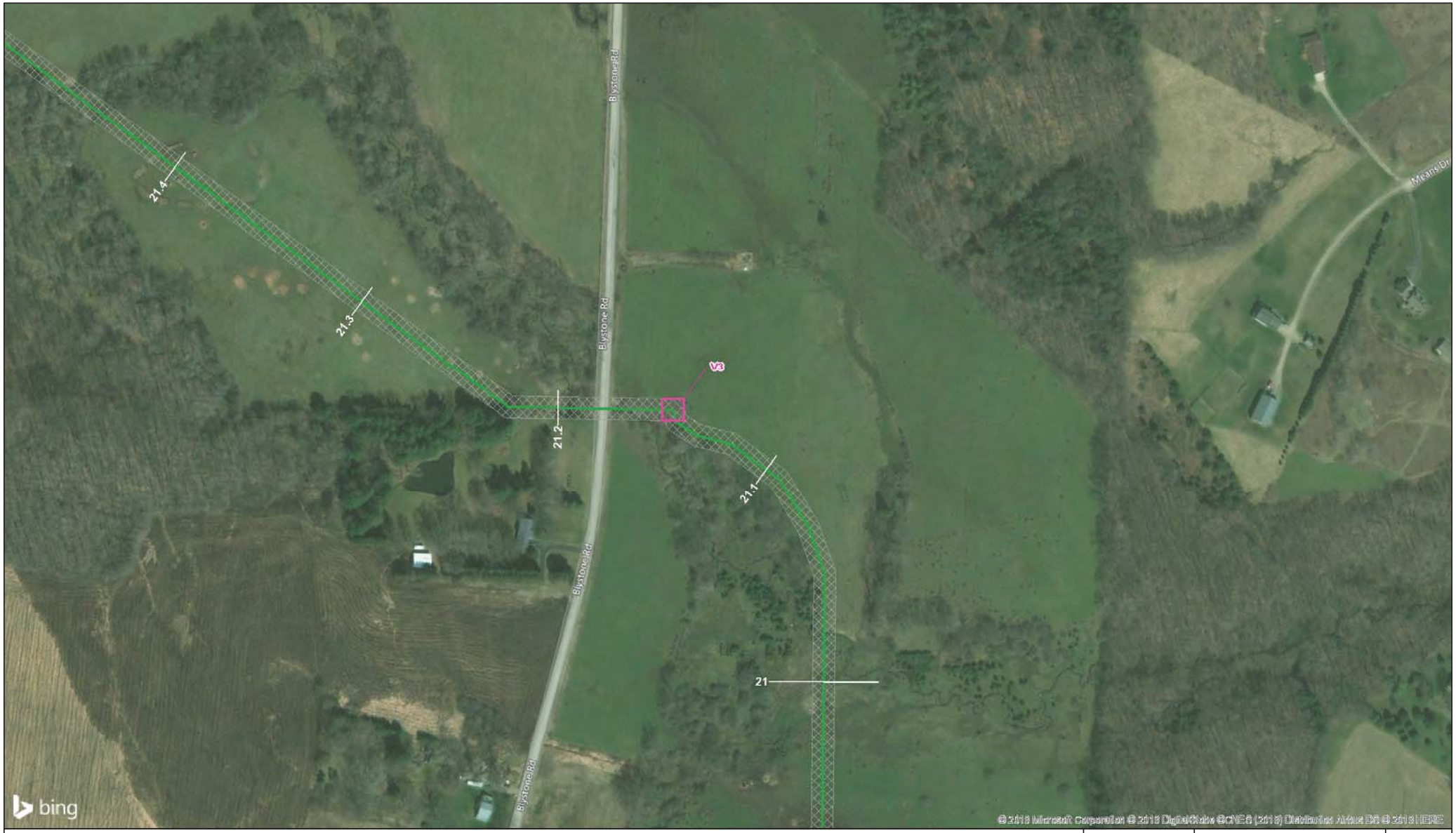


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**Ohio and Pennsylvania**

FIGURE

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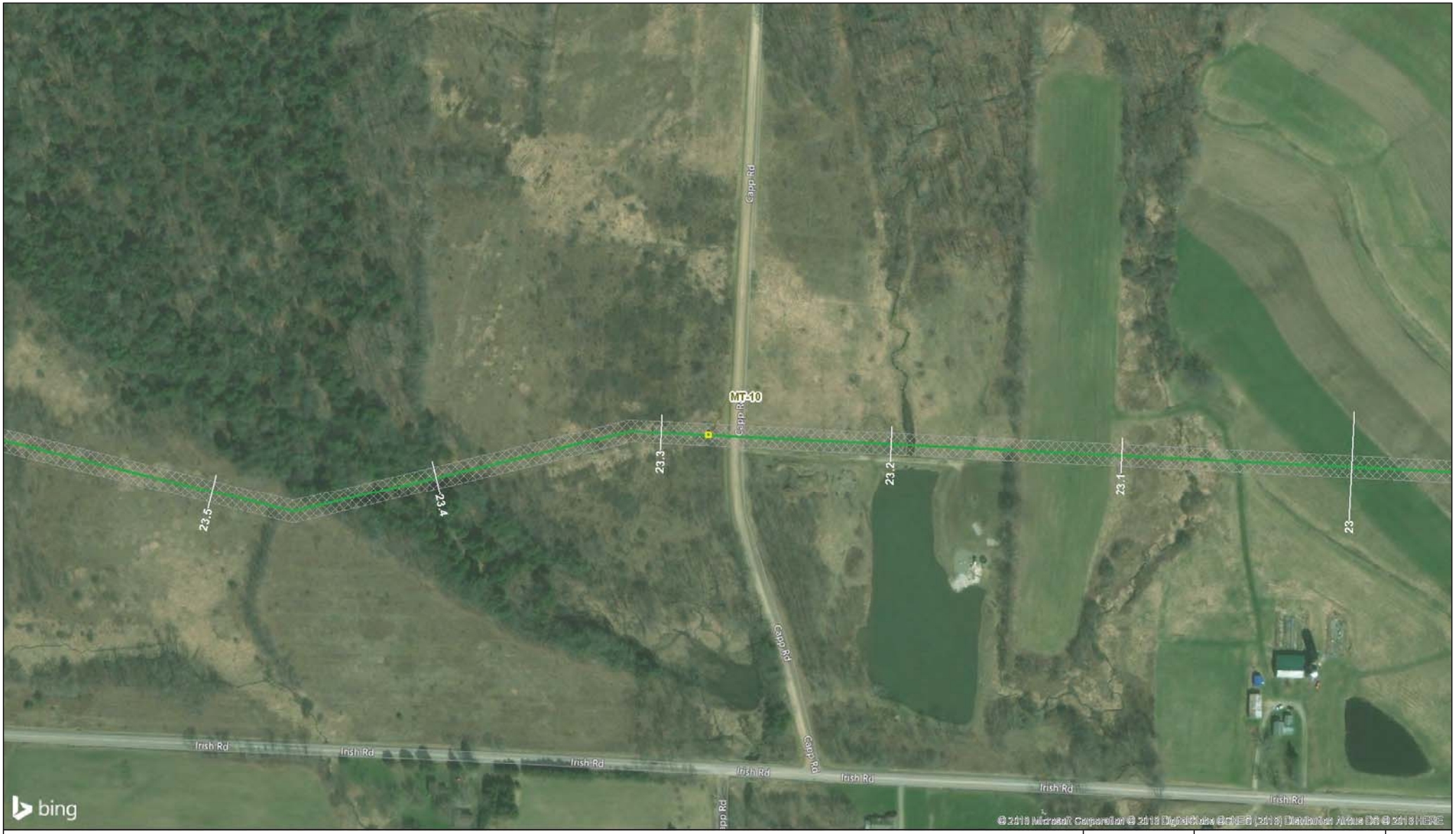


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**Risberg Line Project**
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**Ohio and Pennsylvania**

FIGURE

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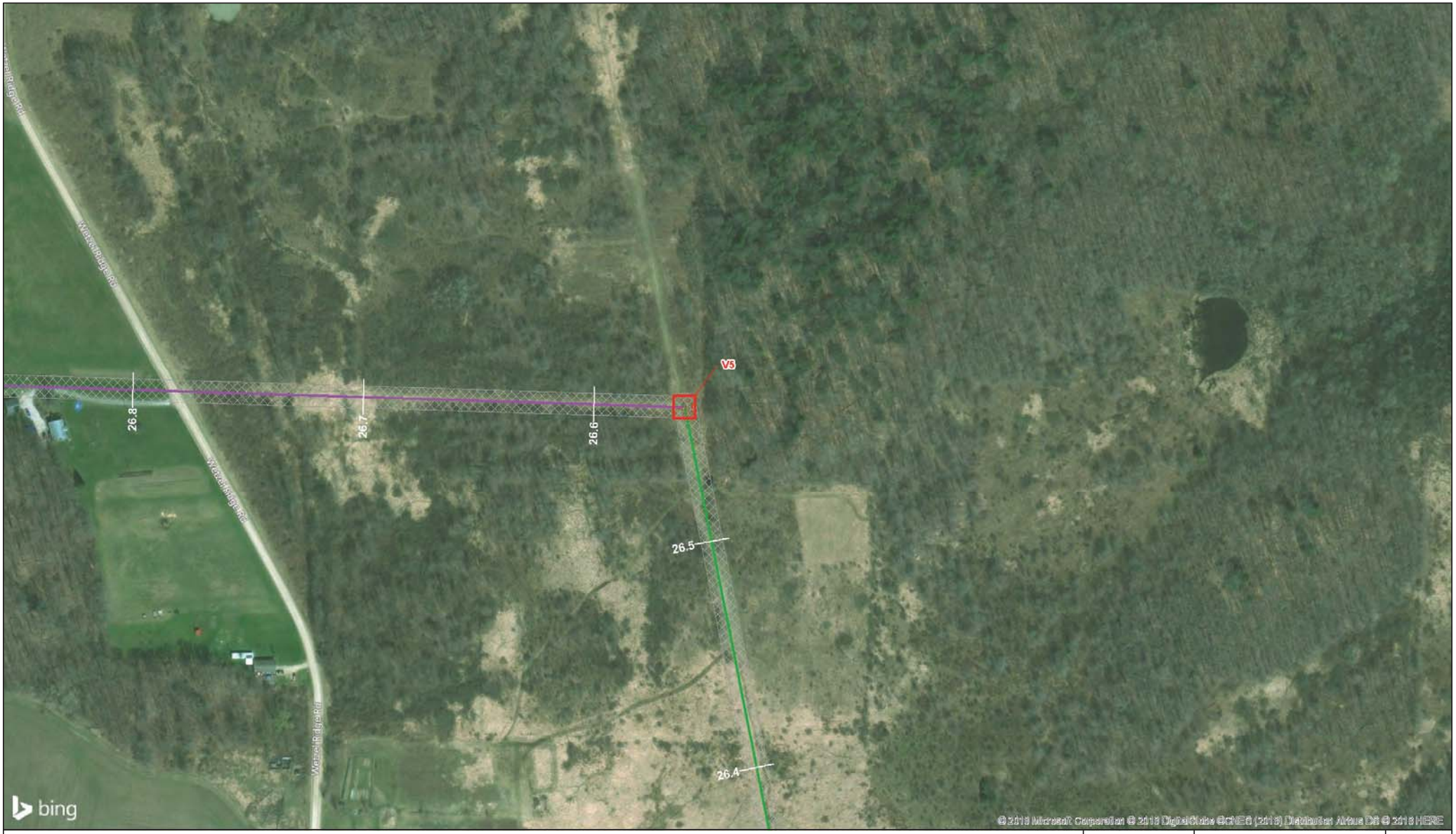
Aerial Map

**Risberg Line Project**
**RH energytrans, LLC**
**Ohio and Pennsylvania**

FIGURE

**1-3**

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Aerial Map

**Risberg Line Project**
**RH energytrans, LLC**
**Ohio and Pennsylvania**

FIGURE

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**RH energytrans, LLC**
**Ohio and Pennsylvania**

FIGURE

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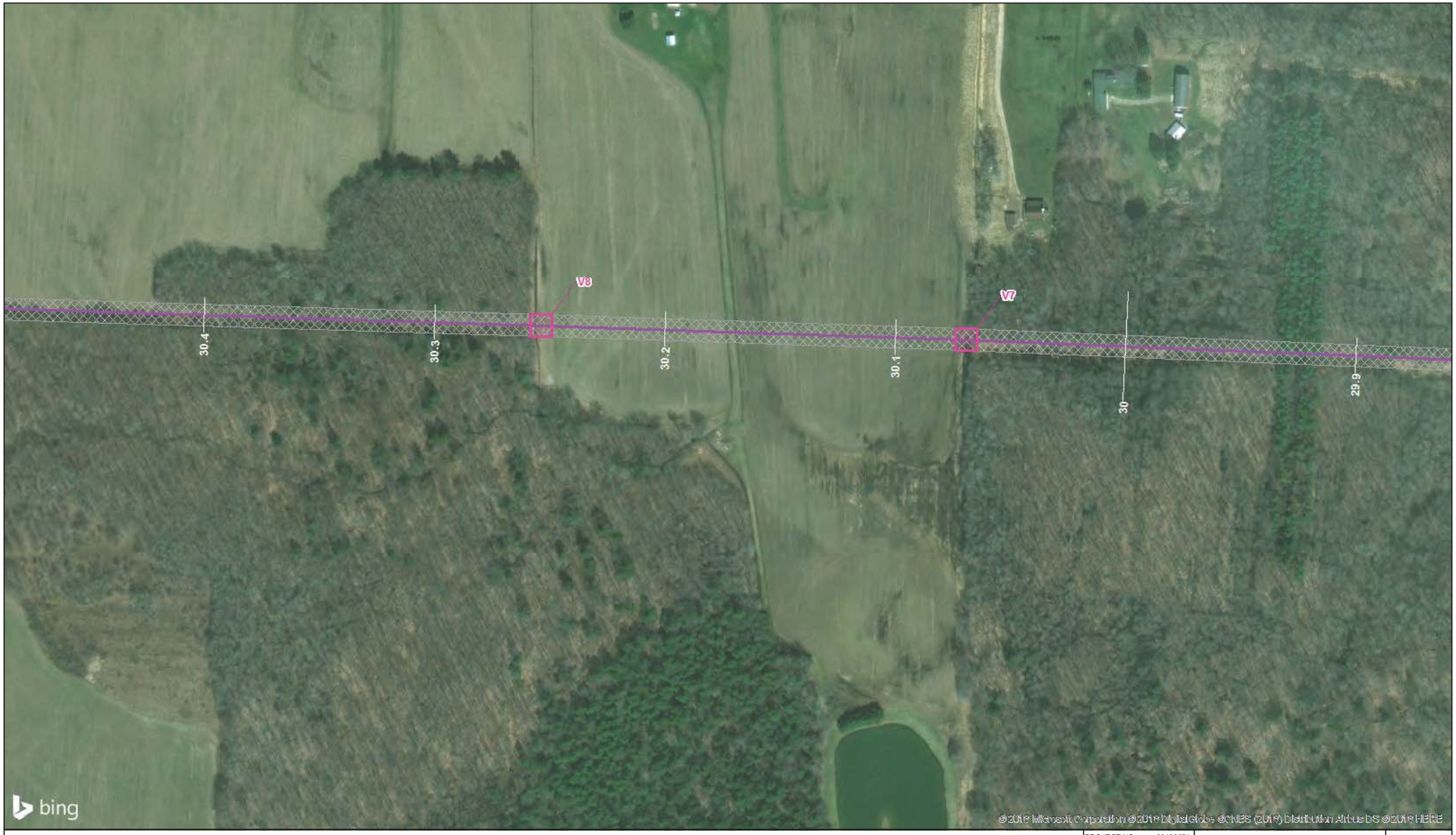


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RH energytrans

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Aerial Map

**Risberg Line Project**
**RH energytrans, LLC**
**Ohio and Pennsylvania**

FIGURE

**1-3**

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FIGURE

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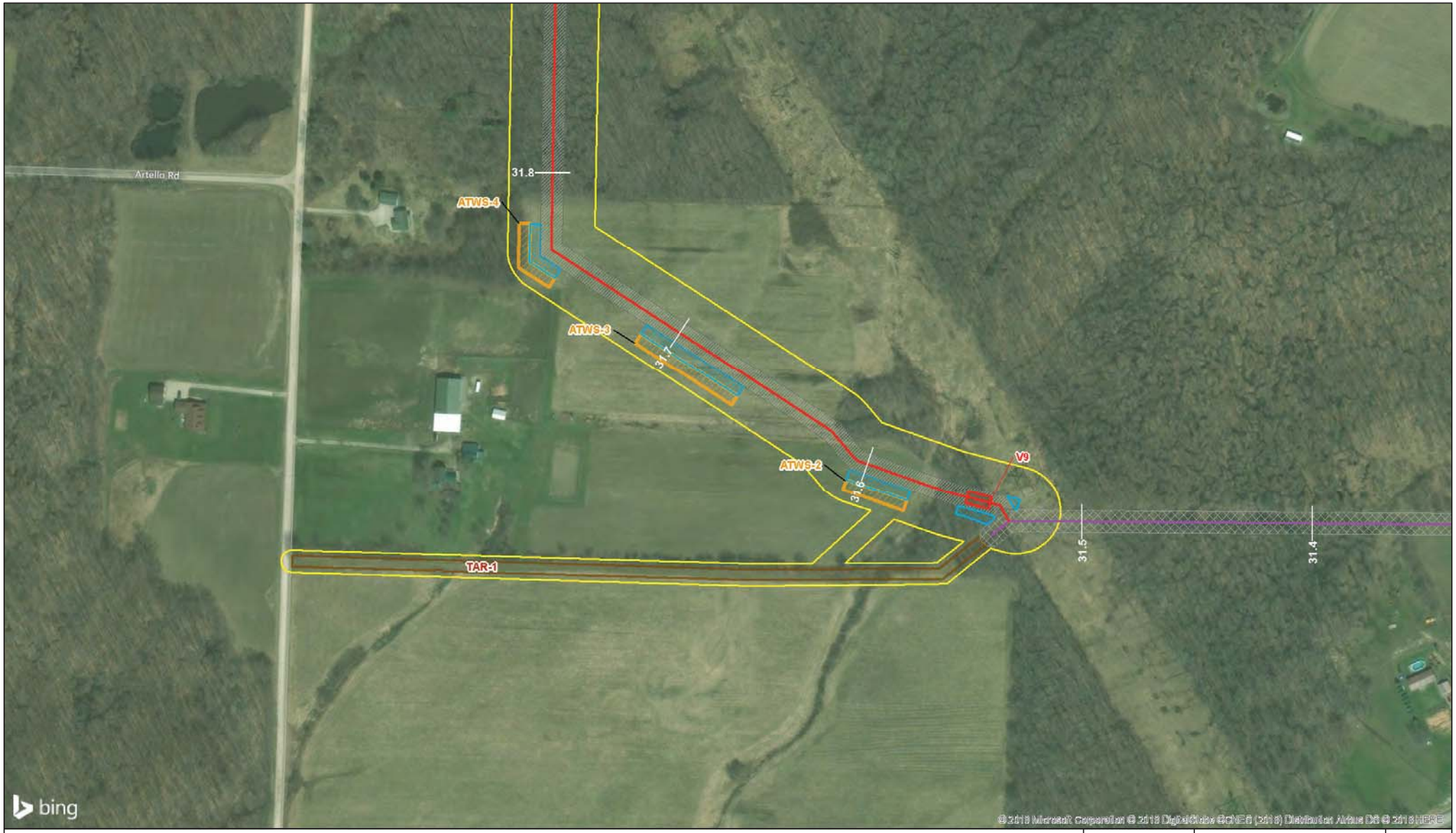


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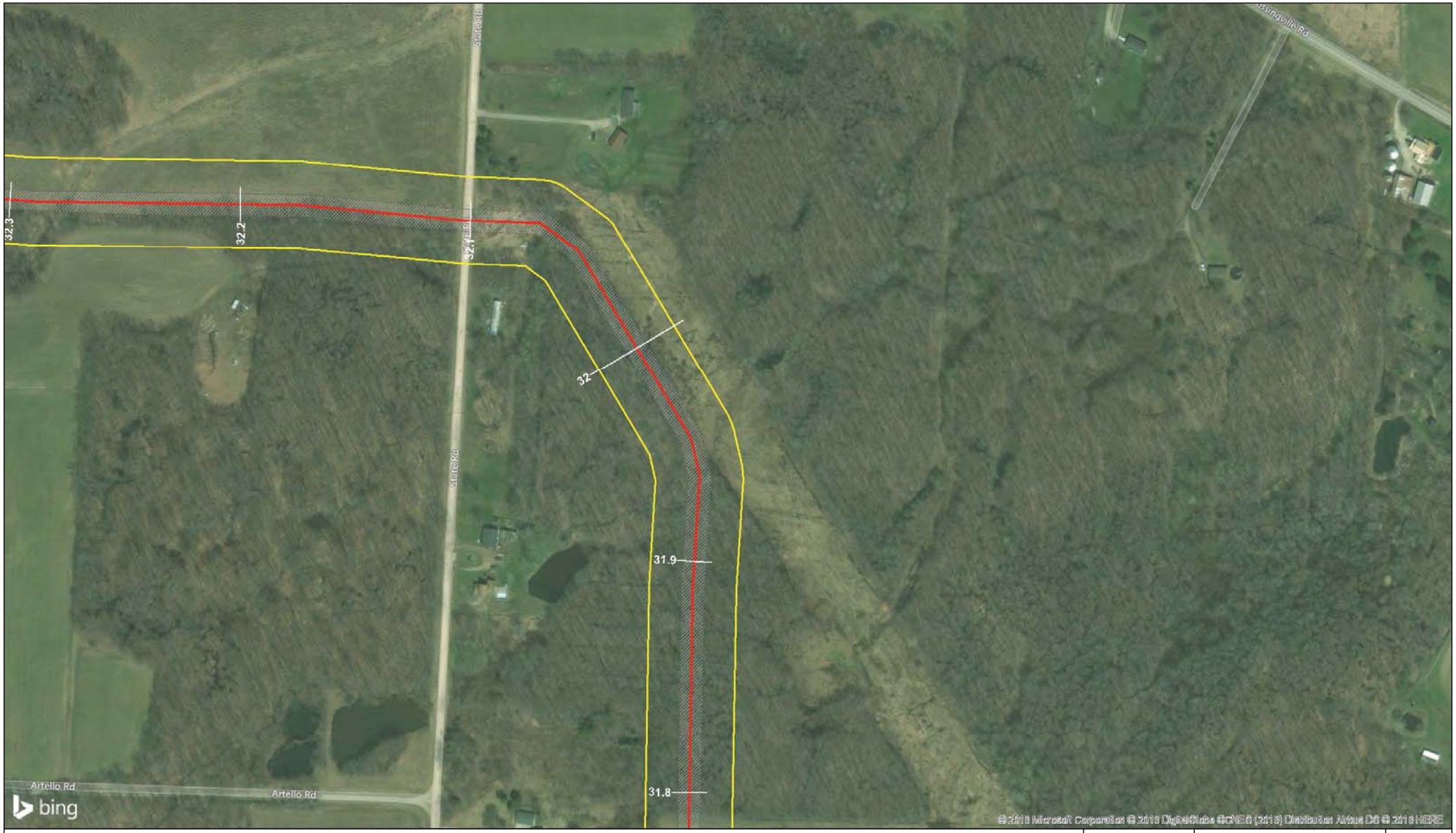


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FIGURE

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FIGURE

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FIGURE

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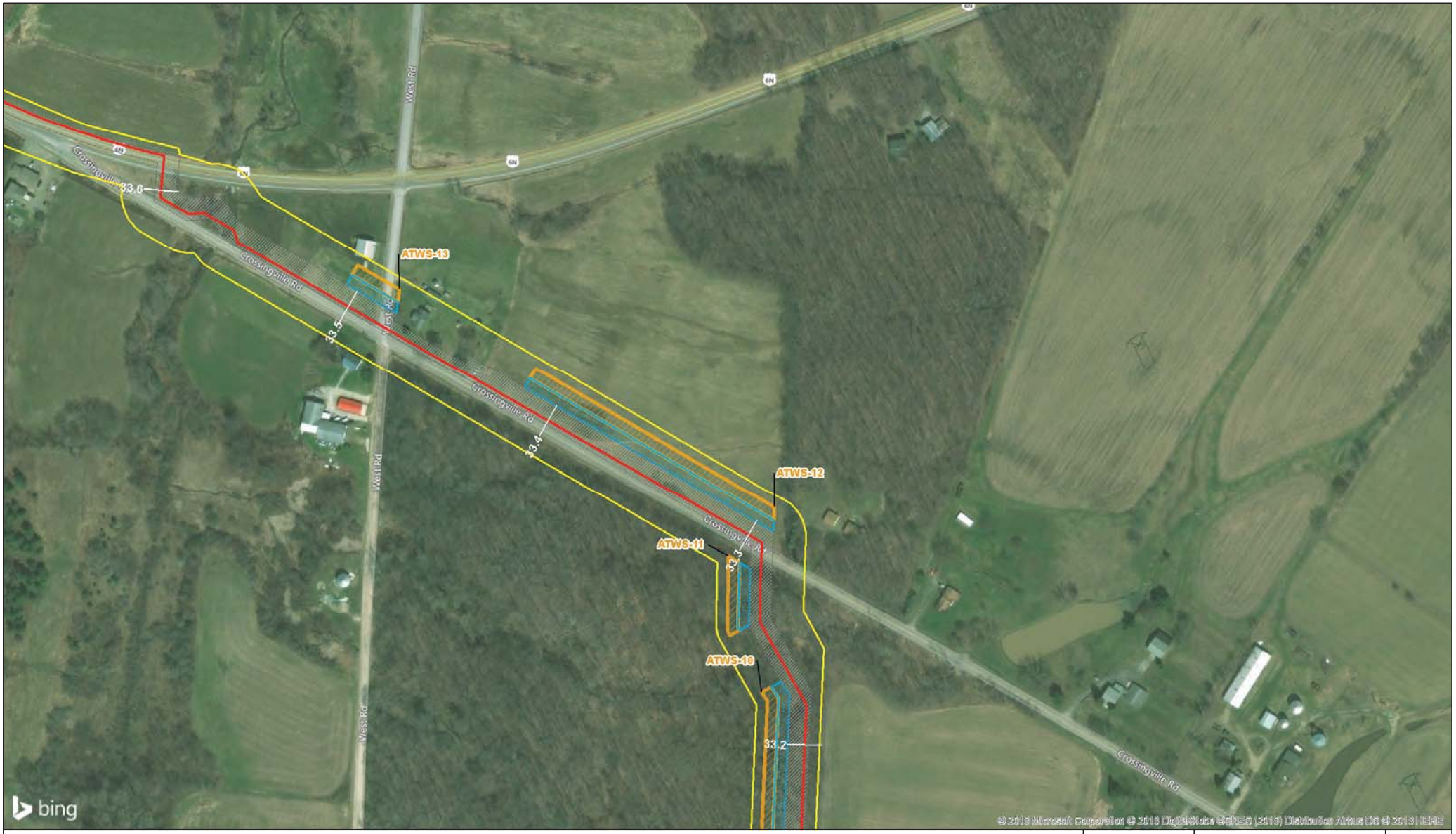


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- Survey Boundary

RH energytrans

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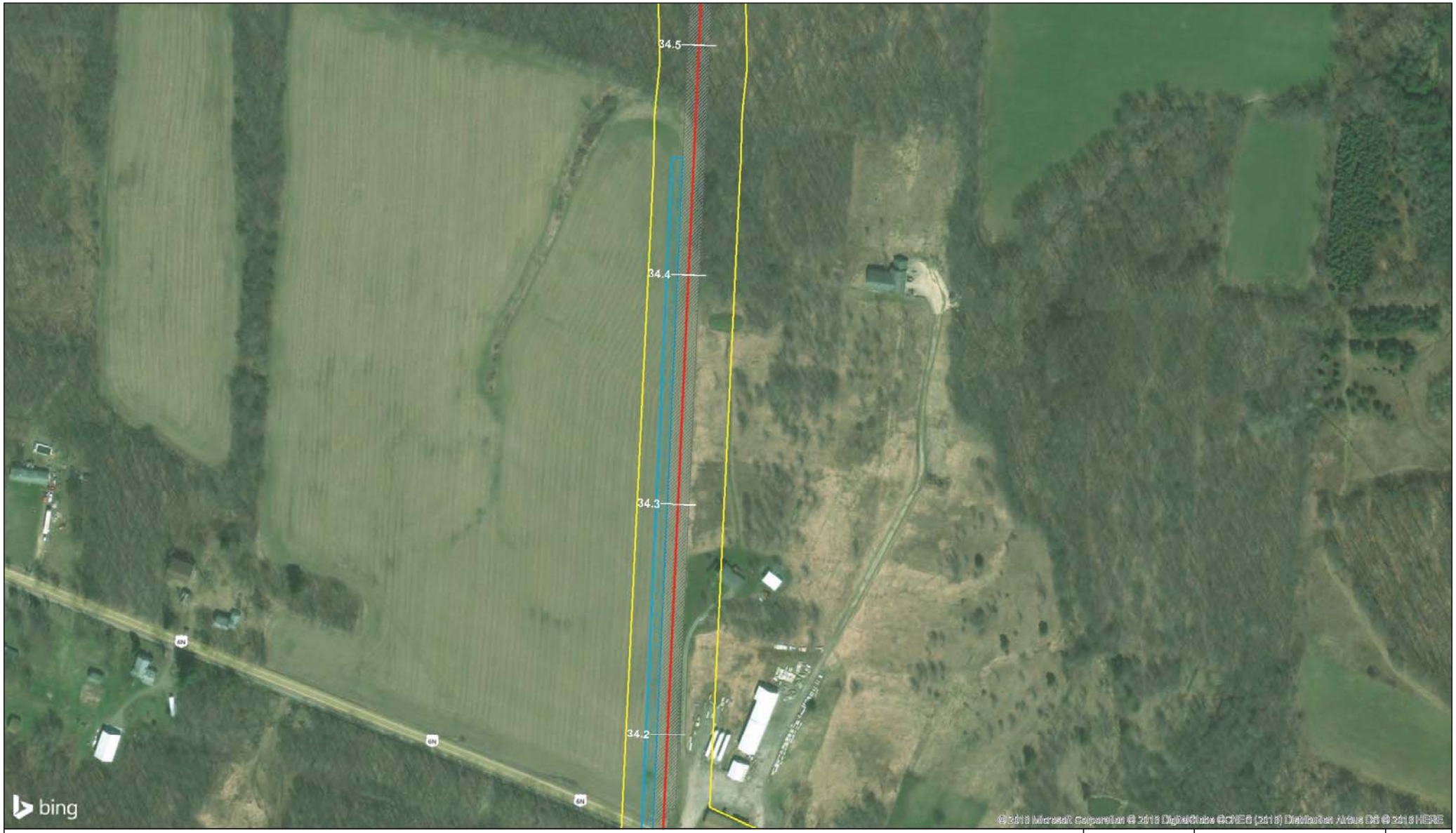
| PROJECT NO. | 20180674 |
| DRAWN: | 3/21/2018 |
| DRAWN BY: | JTW |
| CHECKED BY: | AD, NE |
| FILE NAME: | Fig1-3_Risberg_Aerial.mxd |

Aerial Map

**Risberg Line Project**
**RH energytrans, LLC**
**Ohio and Pennsylvania**

FIGURE

**1-3**

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**RH energytrans, LLC**
**Ohio and Pennsylvania**

FIGURE

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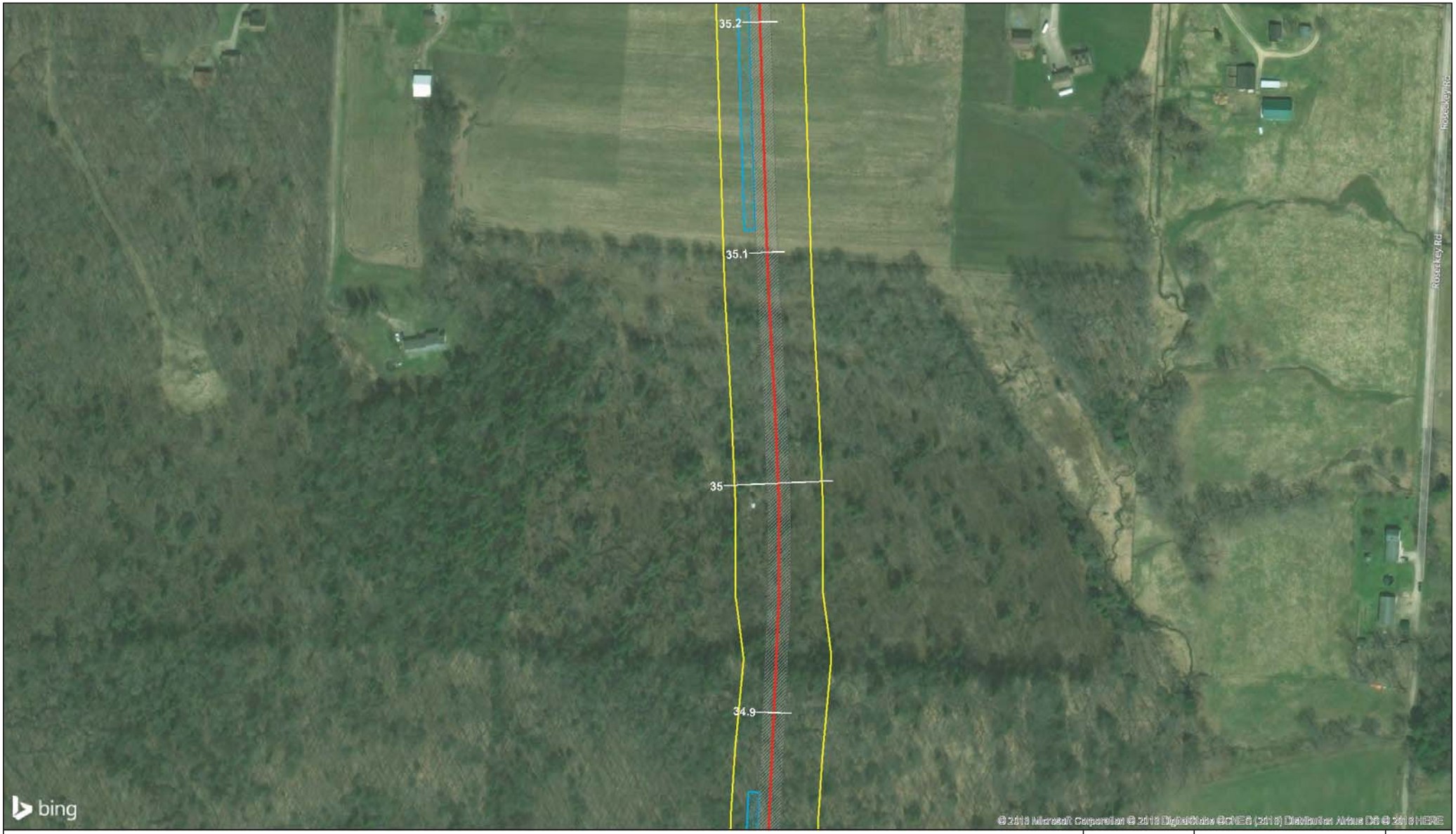


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Aerial Map

**Risberg Line Project**
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**Ohio and Pennsylvania**

FIGURE

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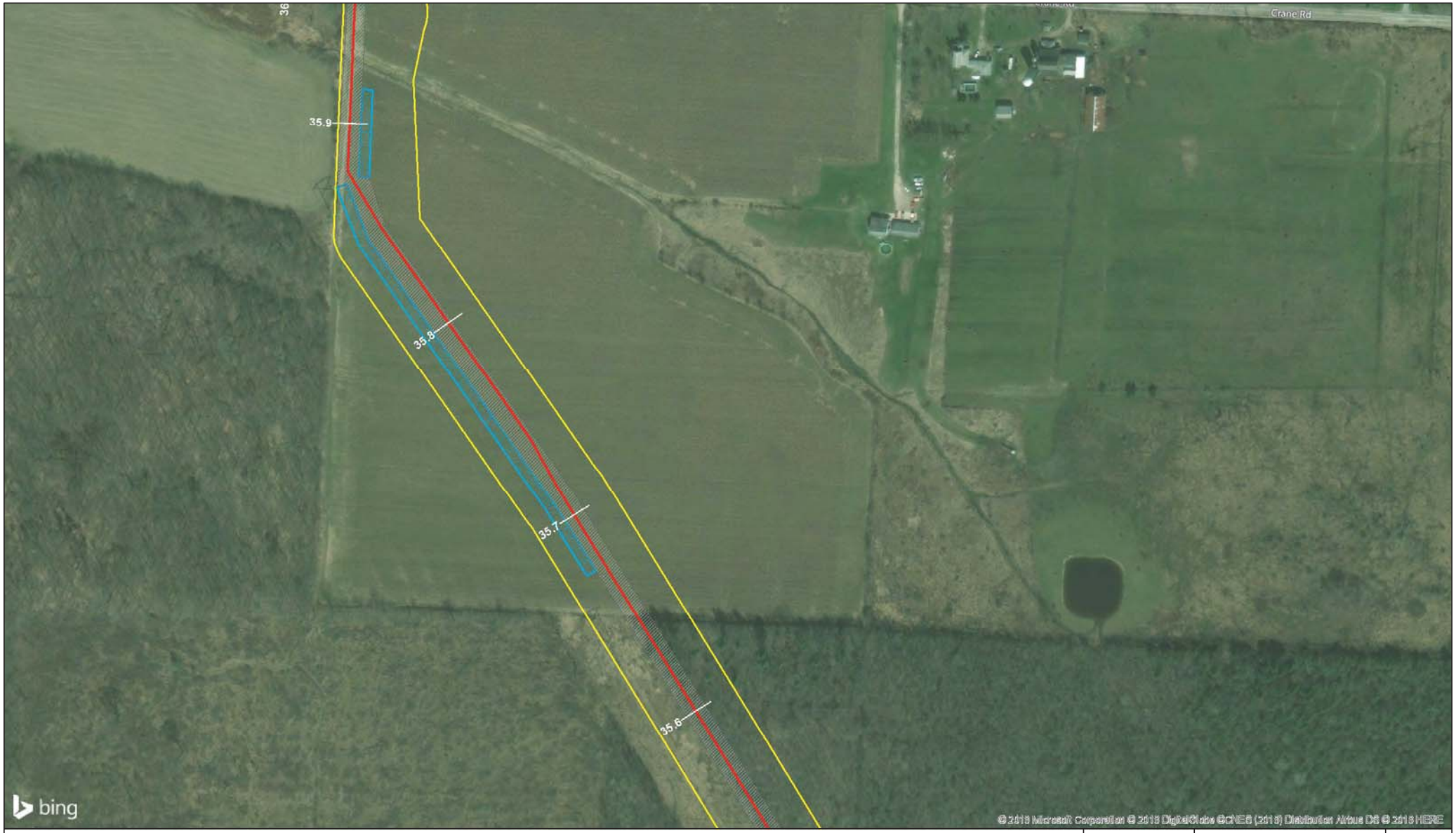


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FIGURE

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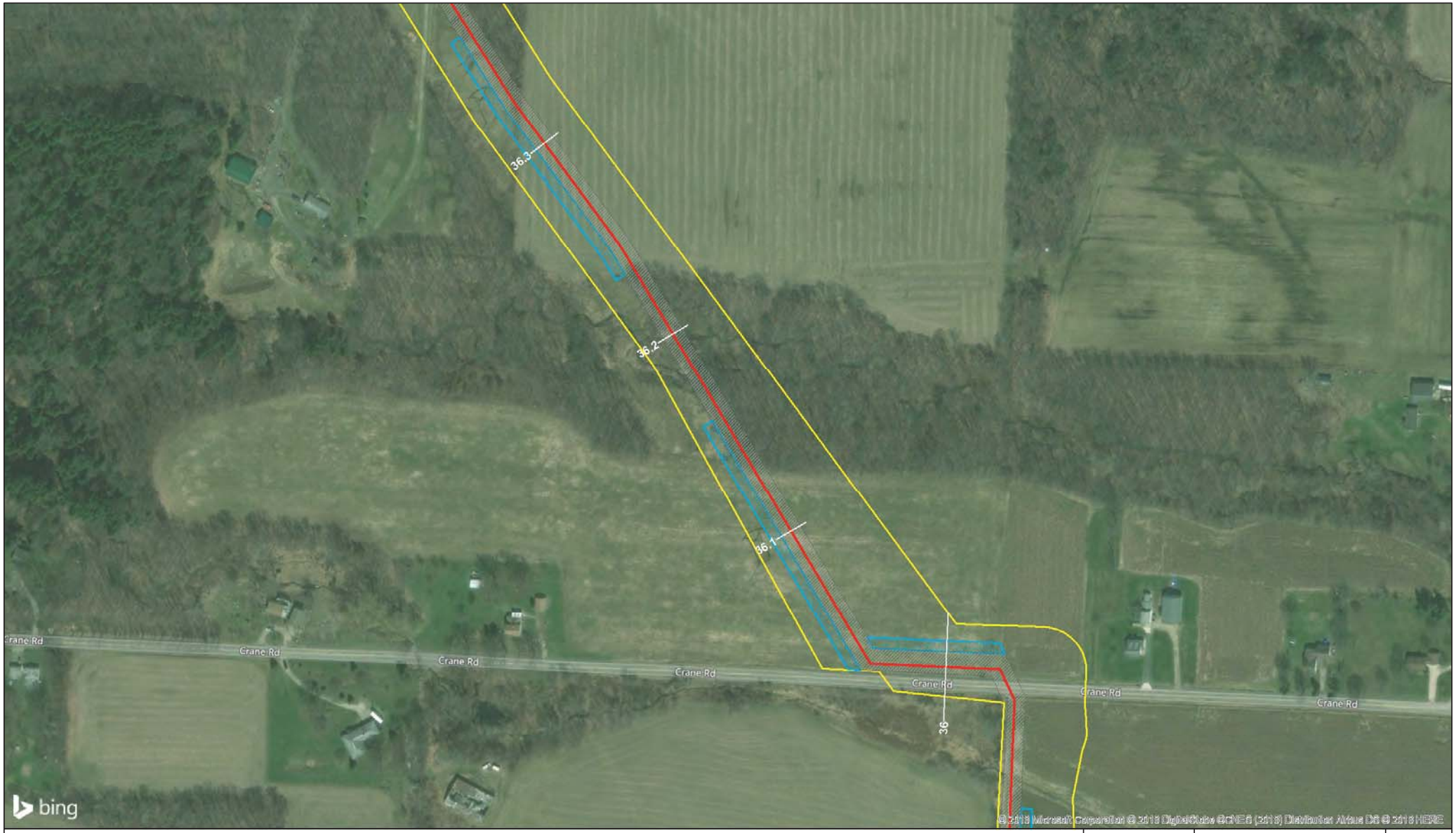


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Aerial Map

**Risberg Line Project**
**RH energytrans, LLC**
**Ohio and Pennsylvania**

FIGURE

**1-3**

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**Risberg Line Project**
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**Ohio and Pennsylvania**

FIGURE

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**Ohio and Pennsylvania**

FIGURE

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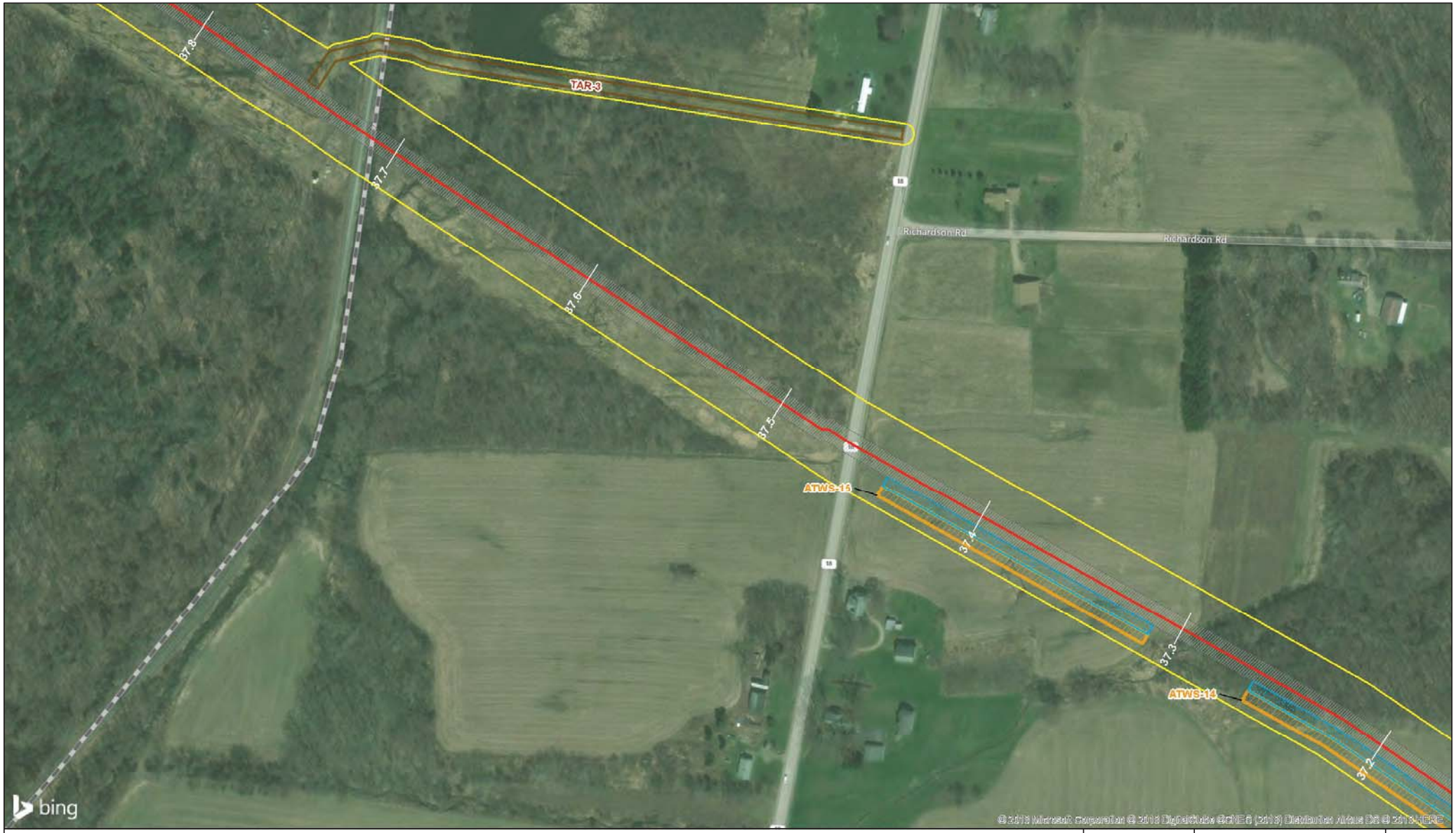


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Aerial Map

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**Ohio and Pennsylvania**

FIGURE

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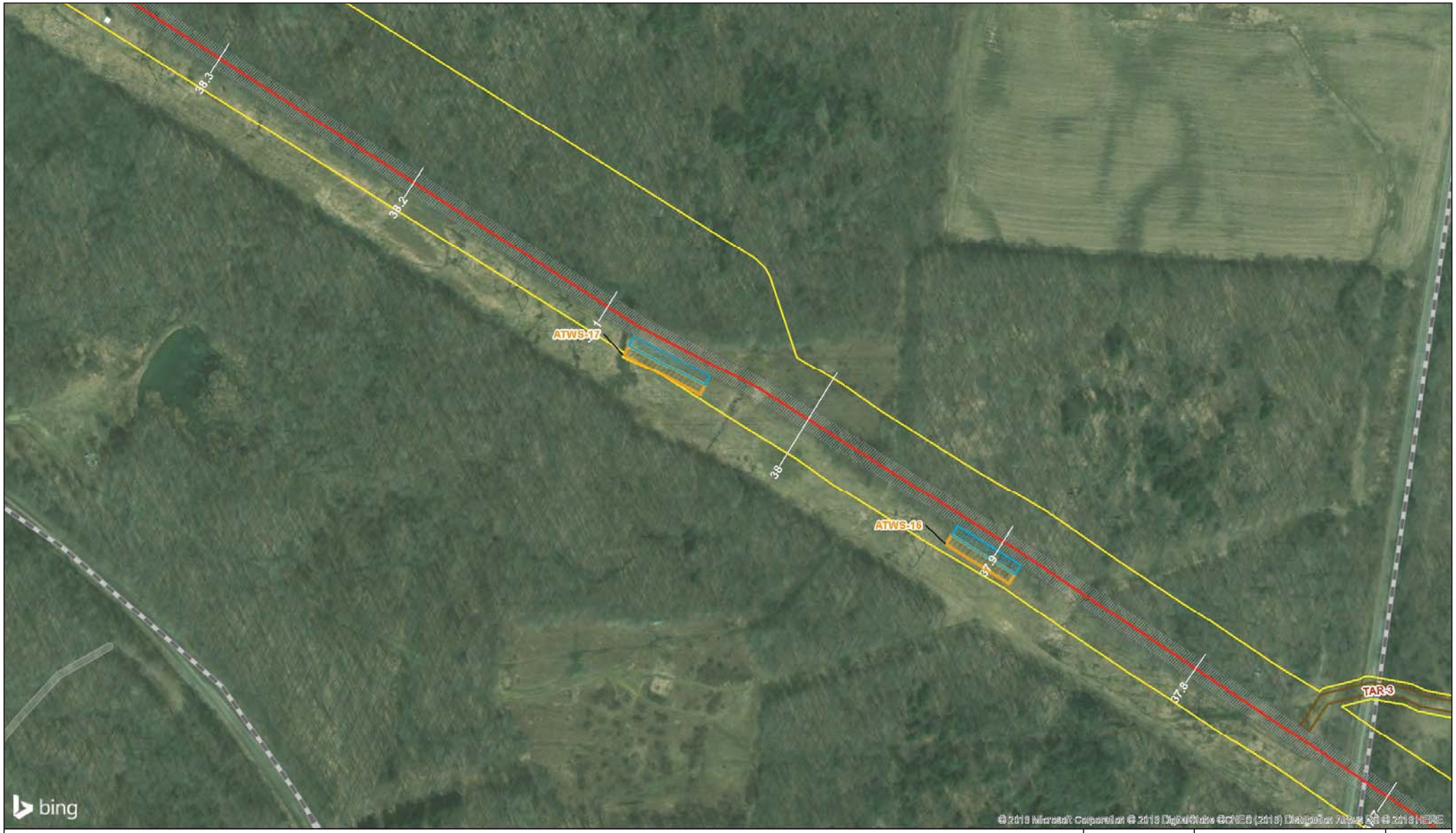


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**RH energytrans, LLC**
**Ohio and Pennsylvania**

FIGURE

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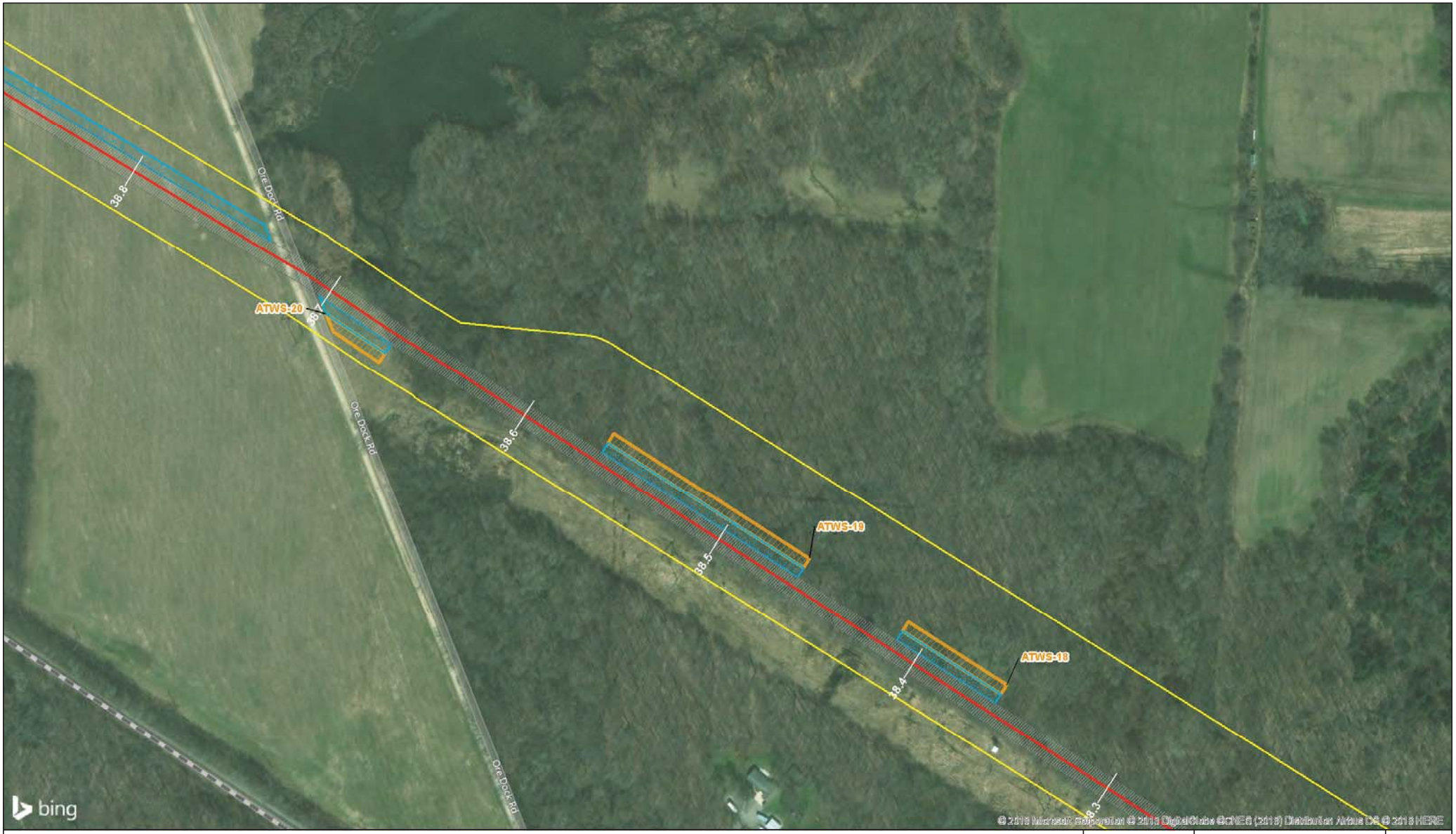


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FIGURE

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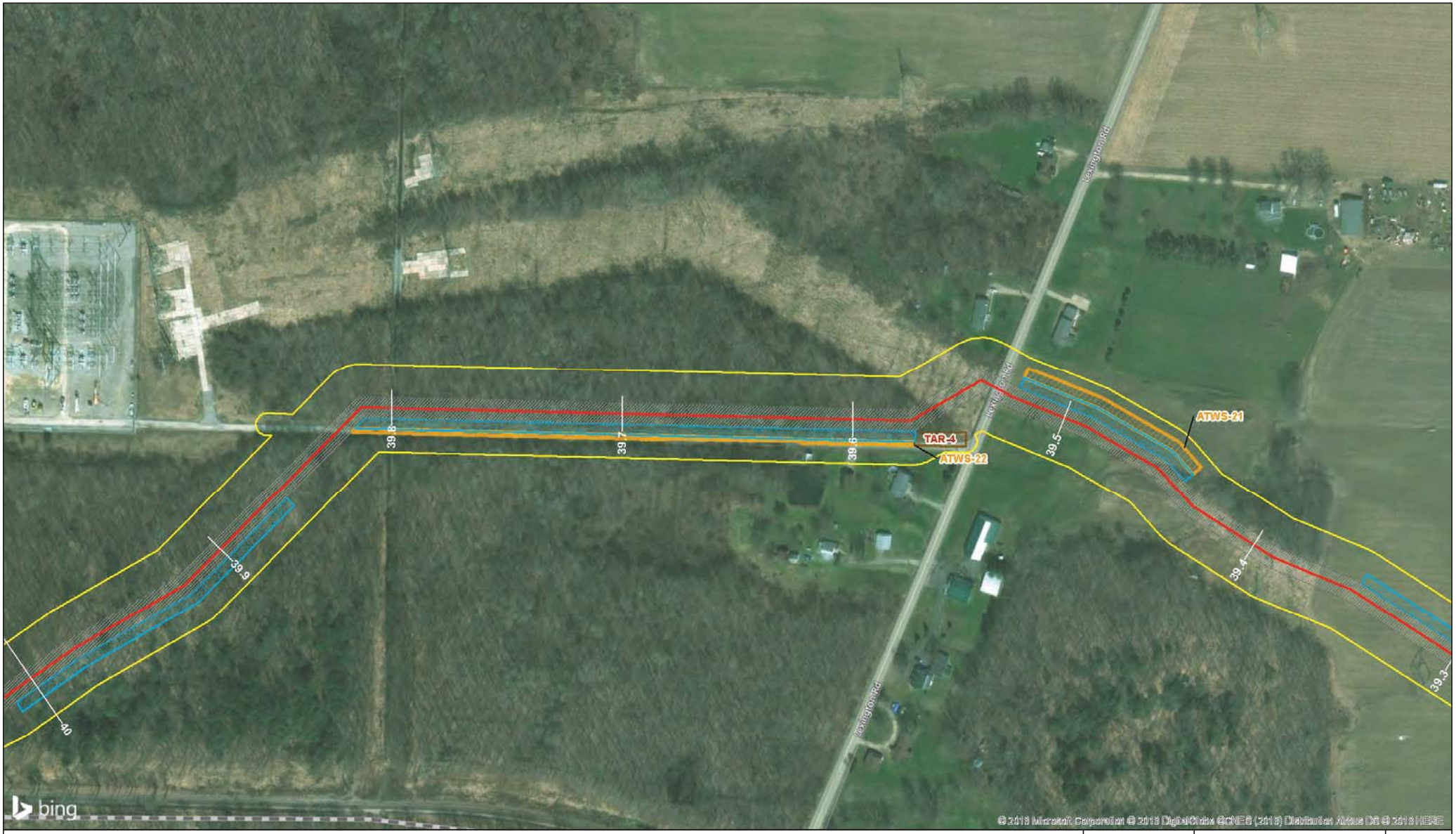


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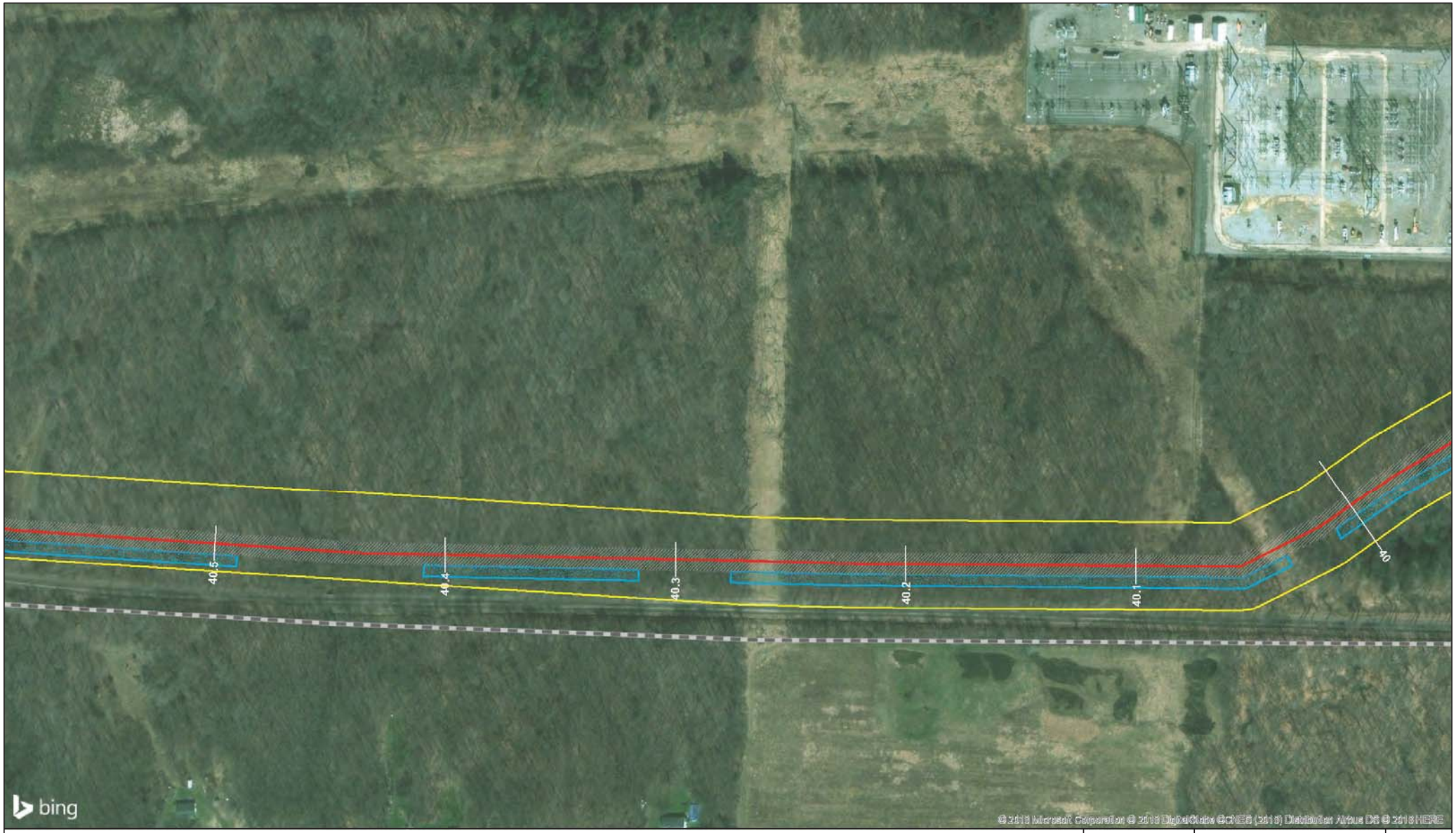


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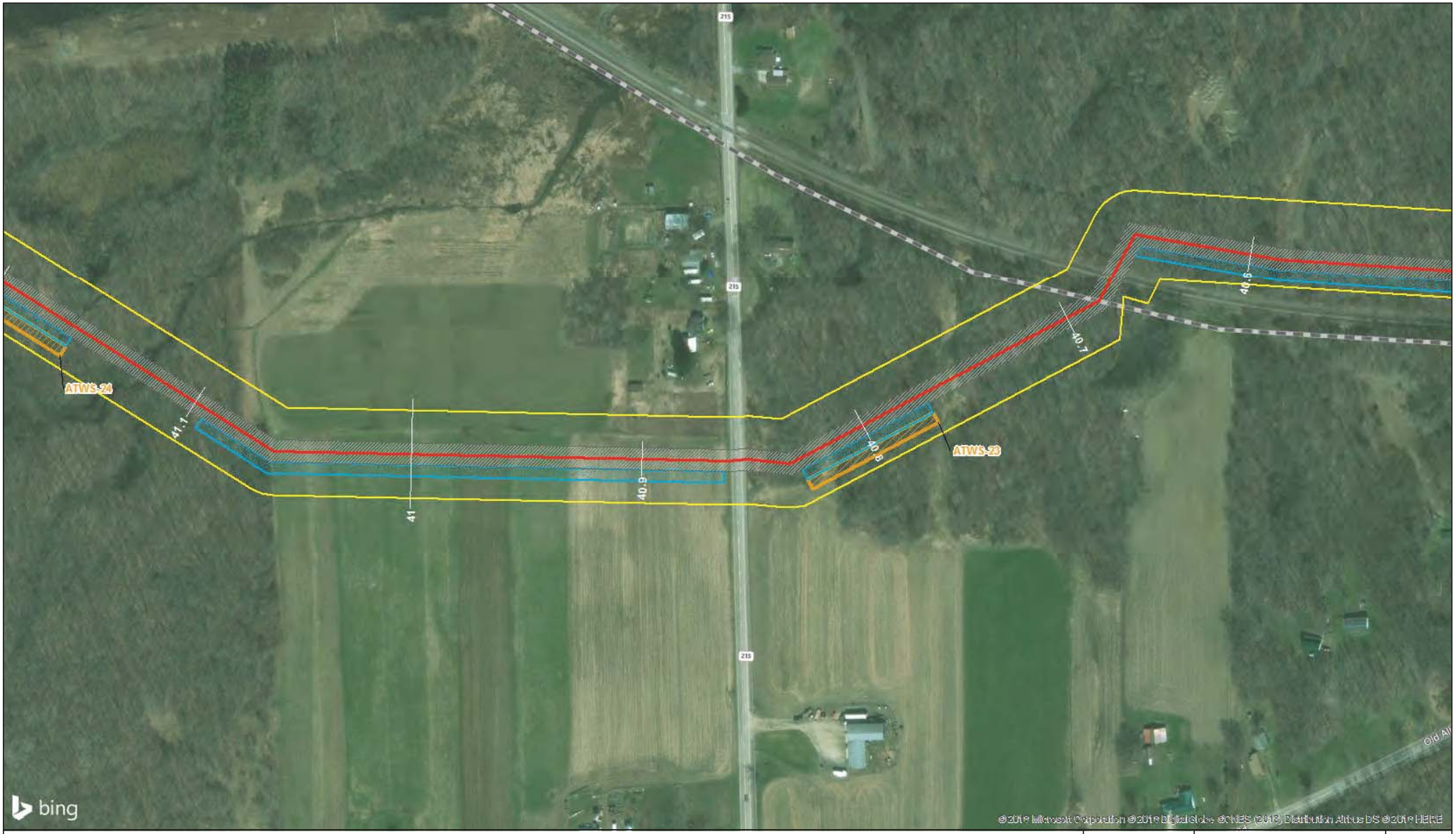


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FIGURE

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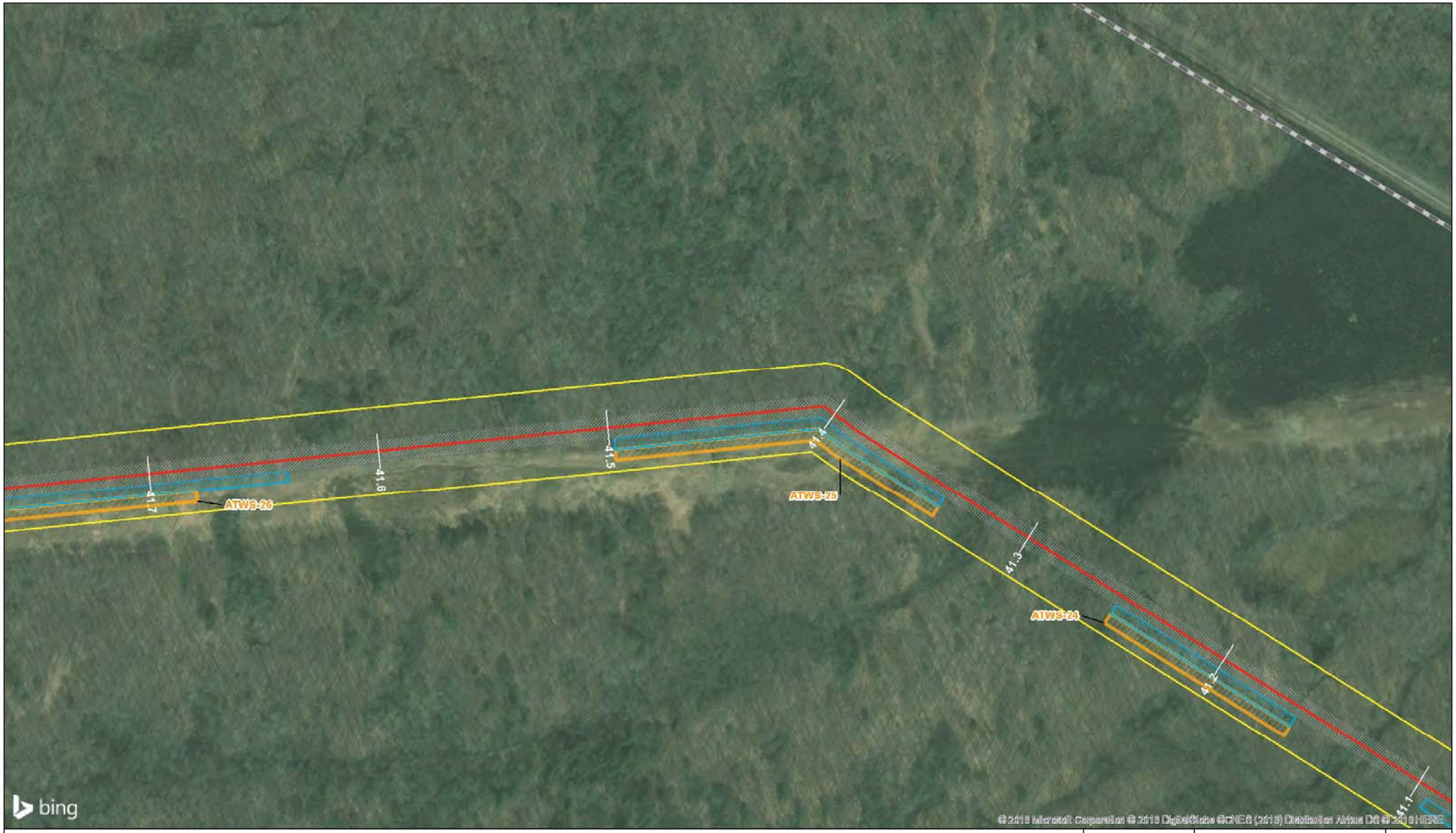


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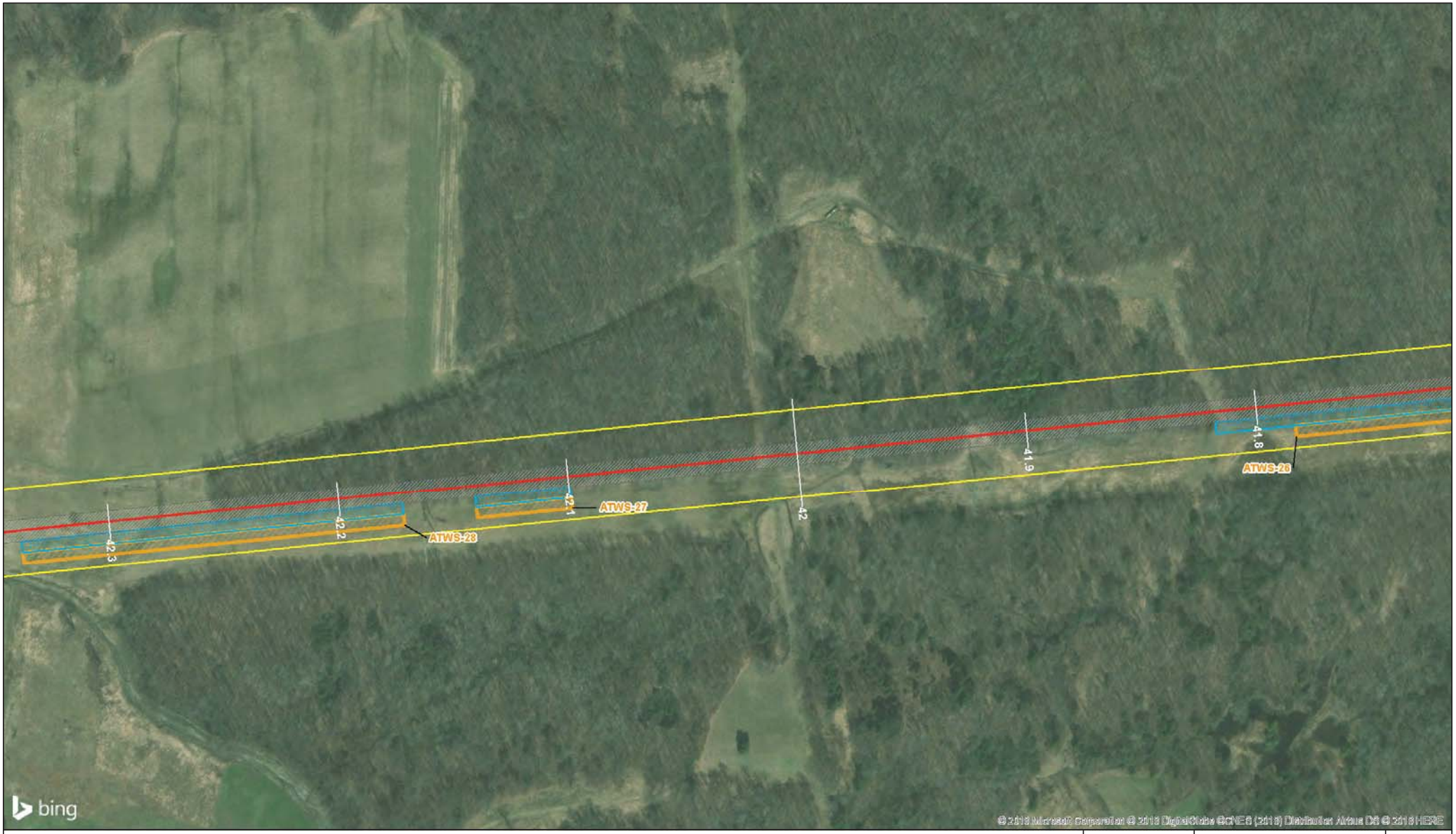
FIGURE

**1-3**

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**Legend**

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- Existing 12-inch Line
- TGP Tie-In Lateral
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- Launcher/Receiver
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- ATWS
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- New Temporary ROW
- New 50-ft Permanent ROW
- Existing Line 50-ft ROW
- Survey Boundary

RH energytrans

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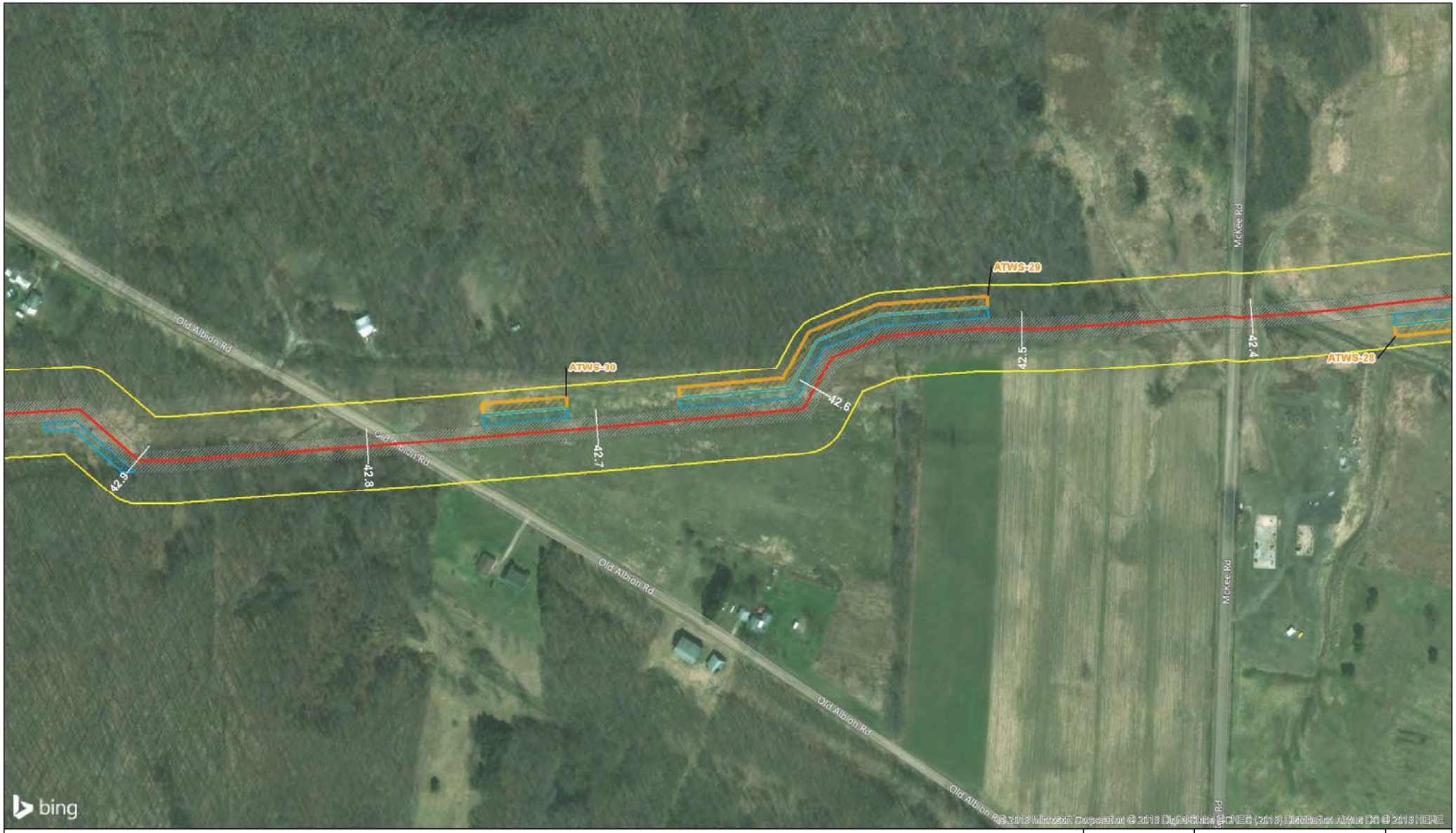
|---|---|
| PROJECT NO. | 20180674 |
| DRAWN: | 3/21/2018 |
| DRAWN BY: | JTW |
| CHECKED BY: | AD, NE |
| FILE NAME: | Fig1-3_Risberg_Aerial.mxd |

Aerial Map

**Risberg Line Project**
**RH energytrans, LLC**
**Ohio and Pennsylvania**

FIGURE

**1-3**

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**Ohio and Pennsylvania**

FIGURE

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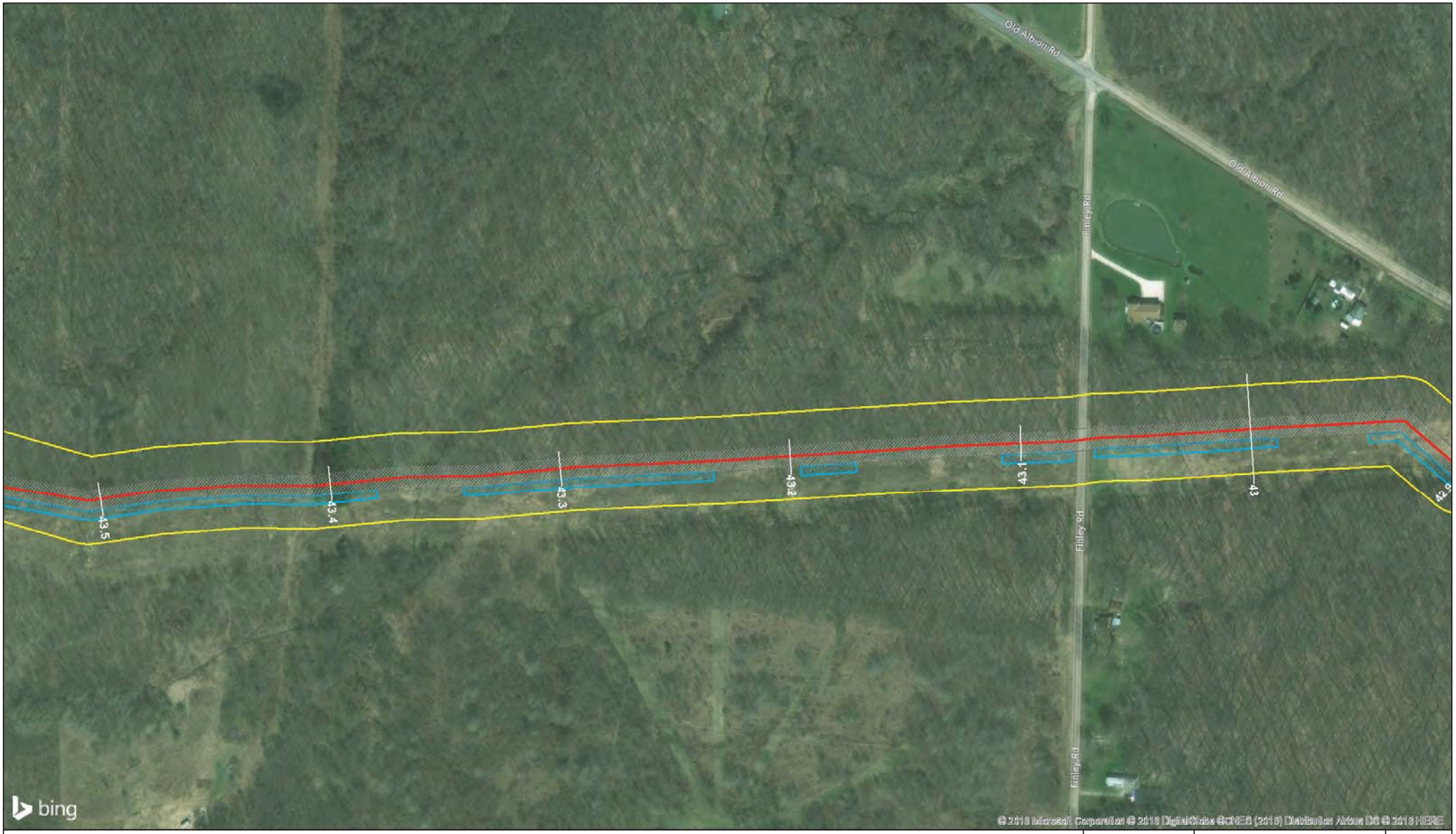


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Aerial Map

**Risberg Line Project**
**RH energytrans, LLC**
**Ohio and Pennsylvania**

FIGURE

**1-3**

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Aerial Map

**Risberg Line Project**
**RH energytrans, LLC**
**Ohio and Pennsylvania**

FIGURE

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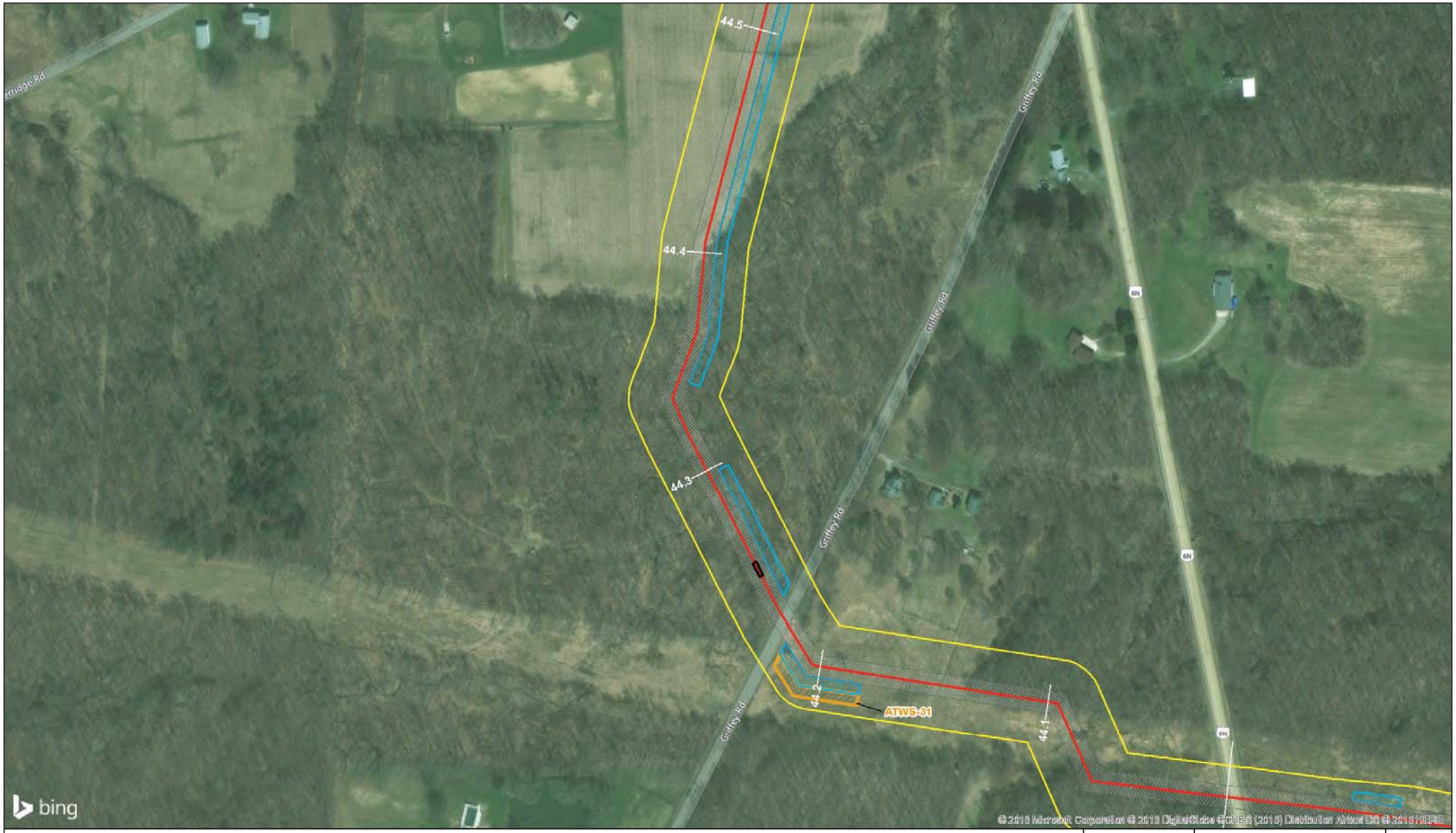


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Aerial Map

**Risberg Line Project**
**RH energytrans, LLC**
**Ohio and Pennsylvania**

FIGURE

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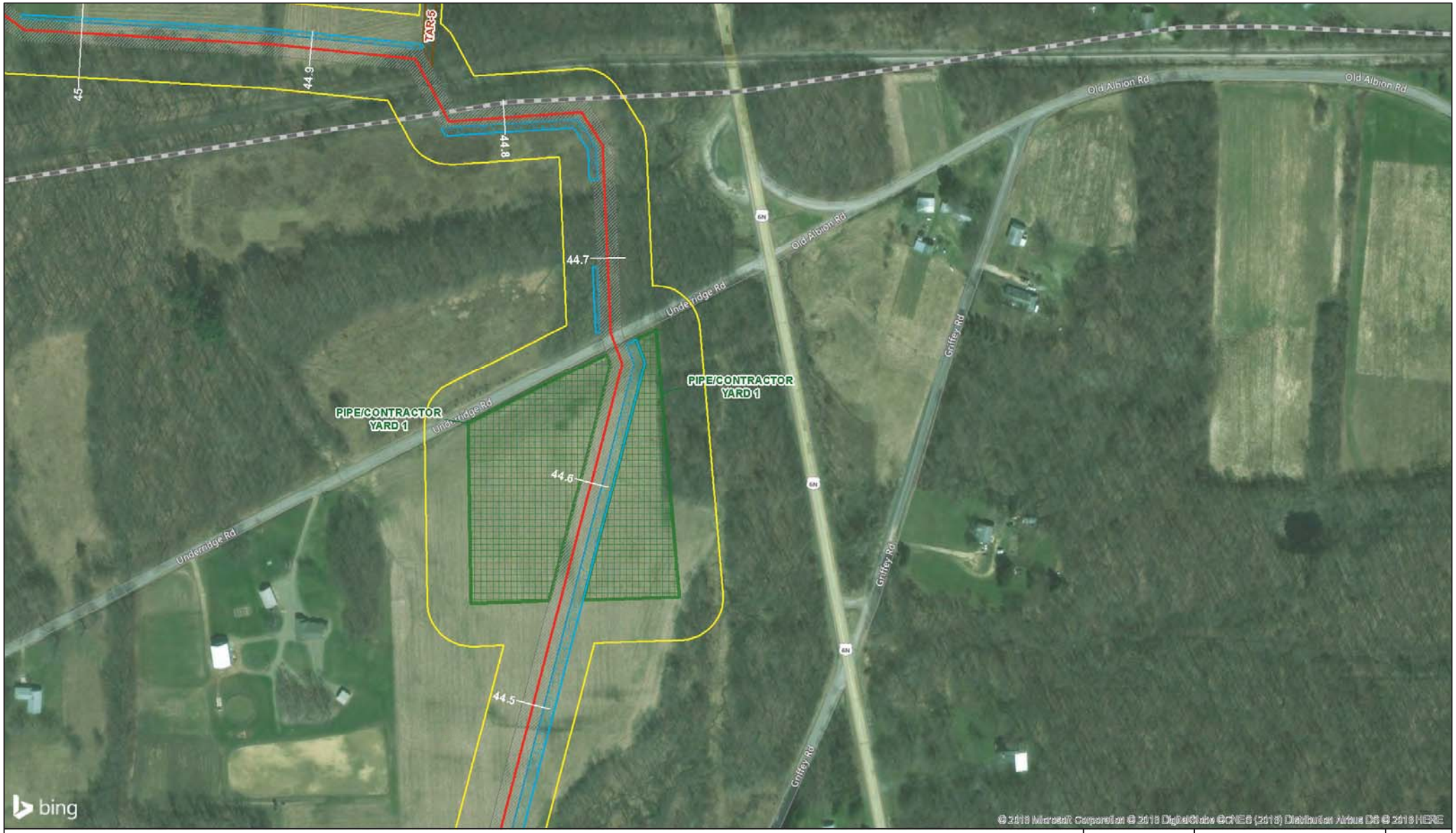


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Aerial Map

**Risberg Line Project**
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**Ohio and Pennsylvania**

FIGURE

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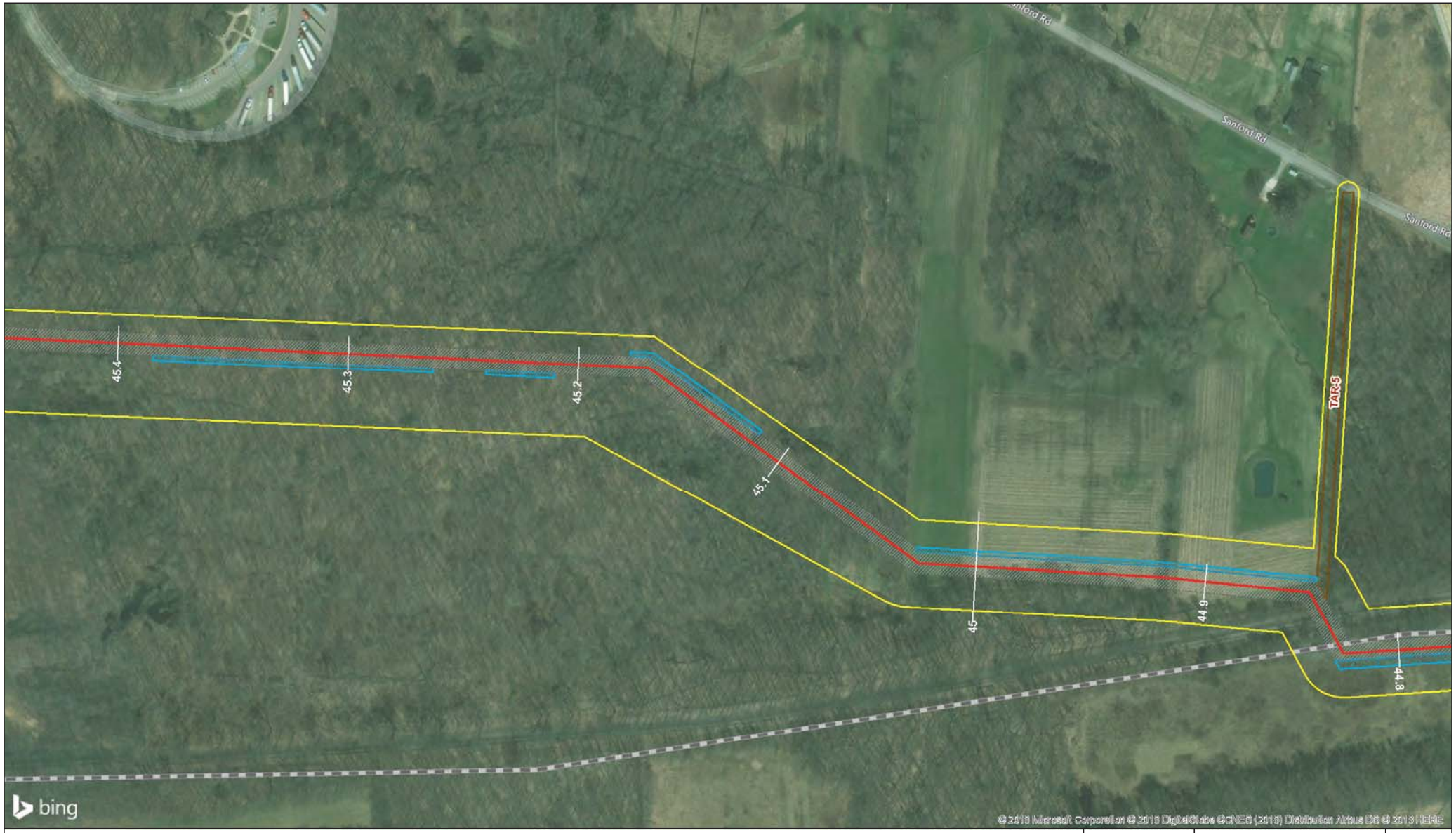


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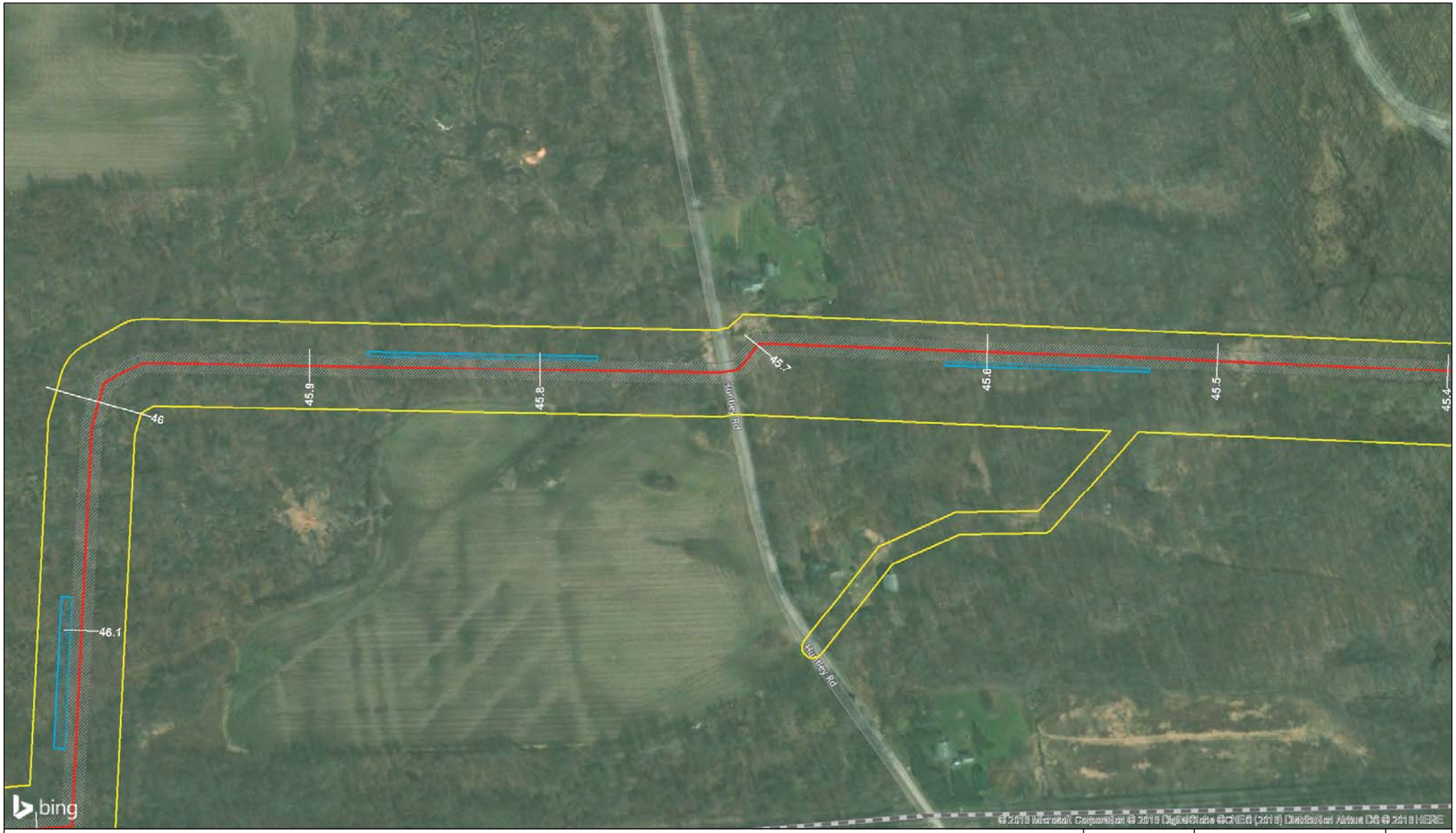
Aerial Map

**Risberg Line Project**
**RH energytrans, LLC**
**Ohio and Pennsylvania**

FIGURE

**1-3**

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**RH energytrans, LLC**
**Ohio and Pennsylvania**

FIGURE

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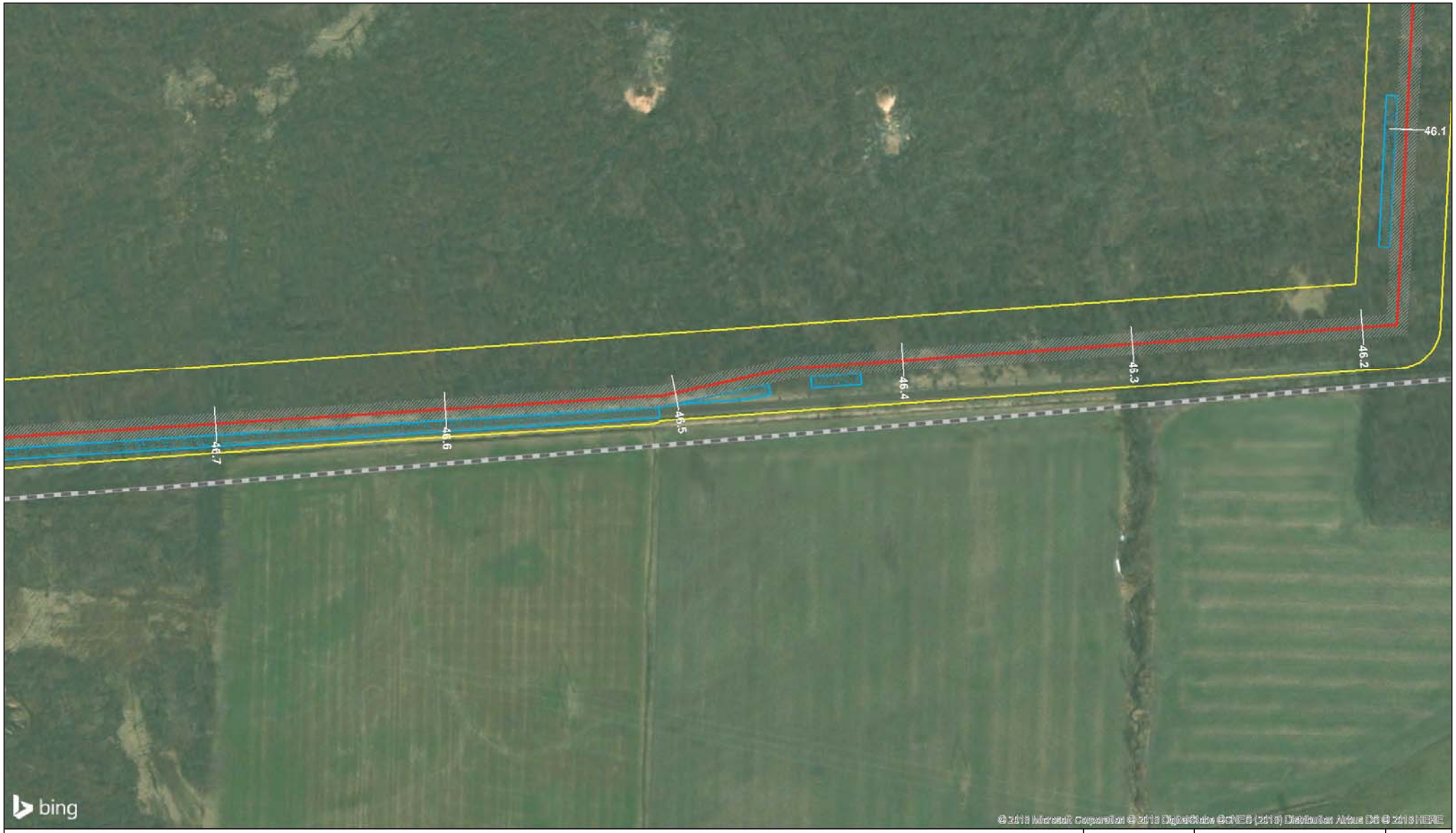


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**RH energytrans, LLC**
**Ohio and Pennsylvania**

FIGURE

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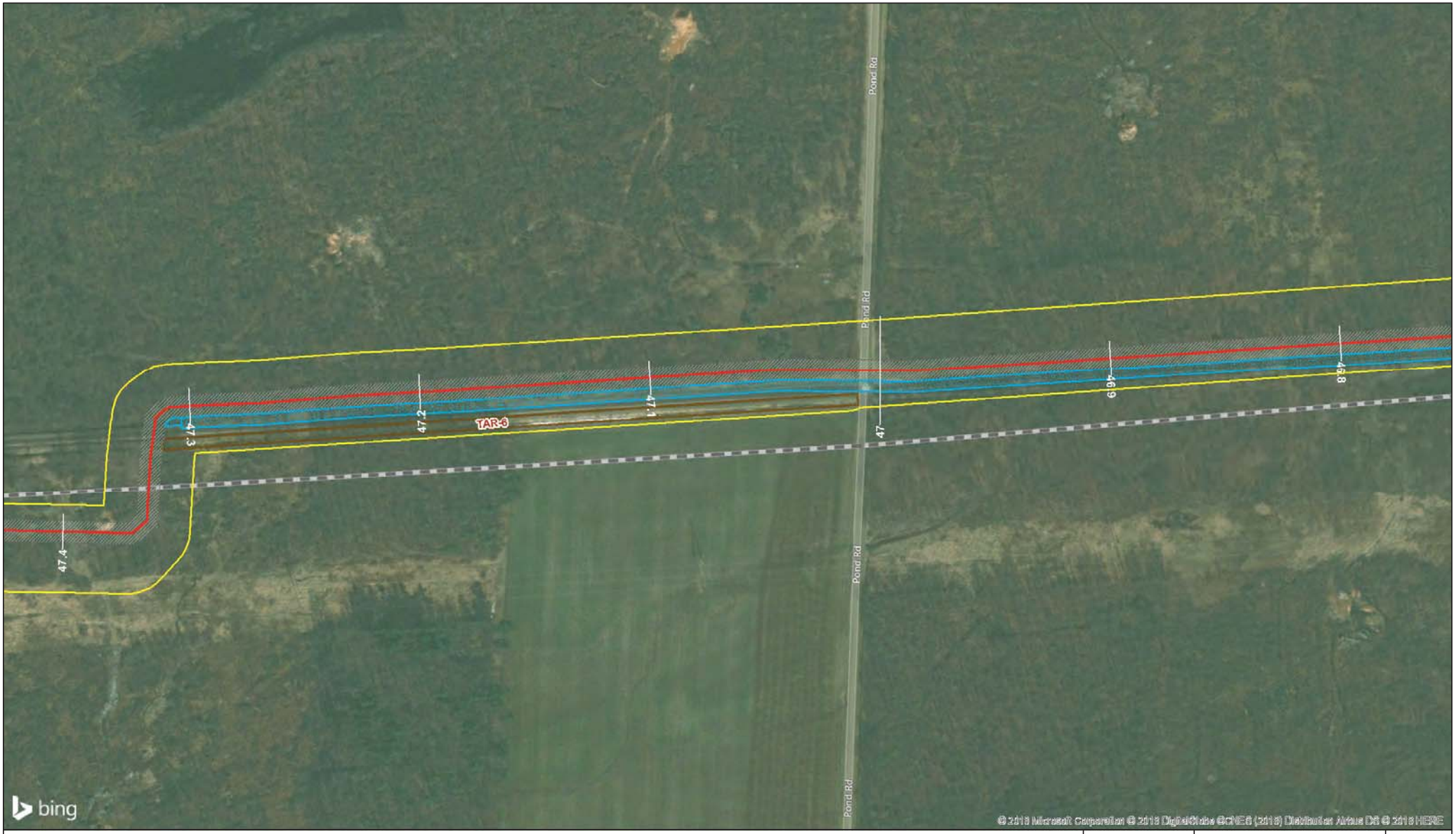


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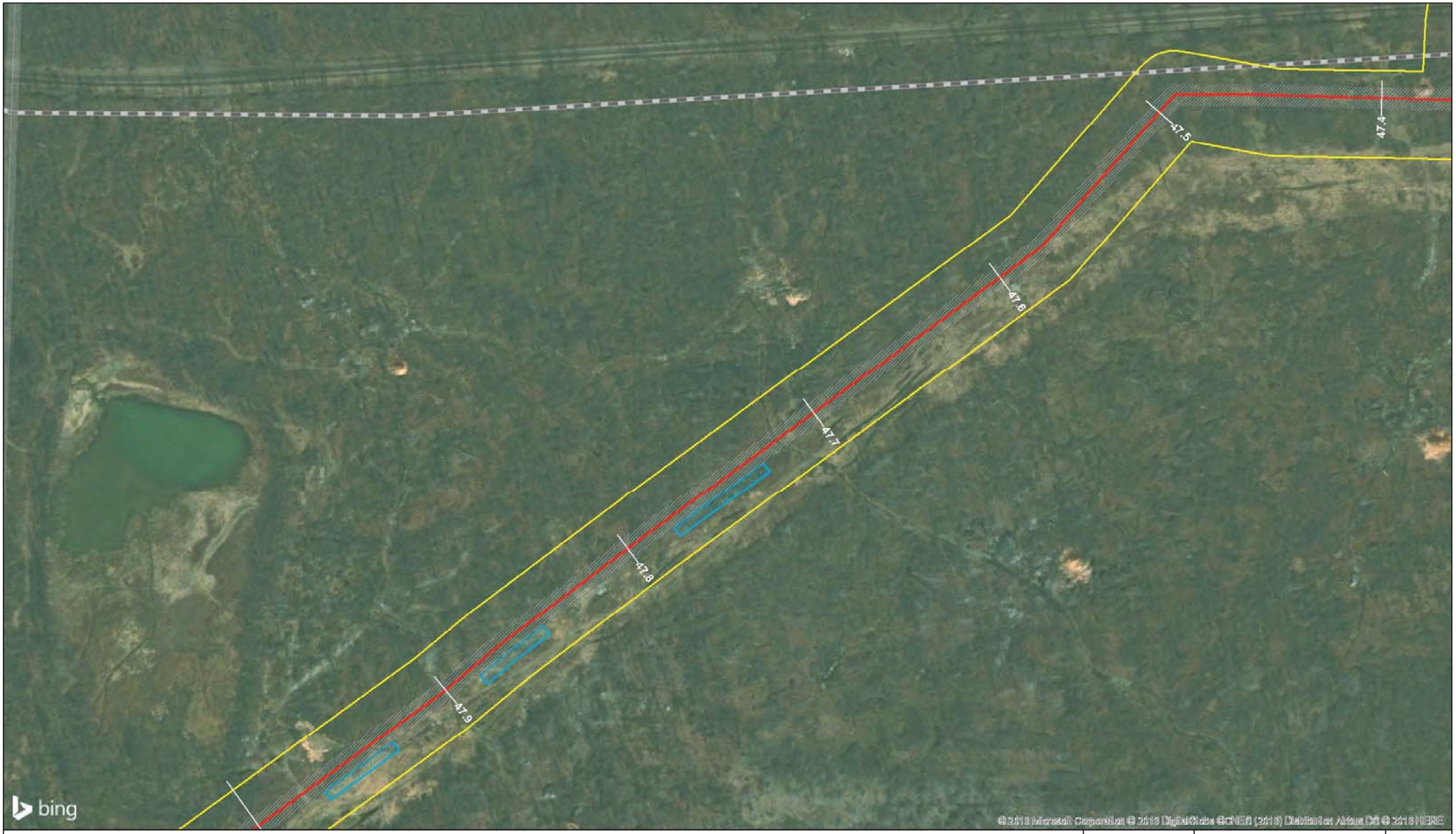


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**Ohio and Pennsylvania**

FIGURE

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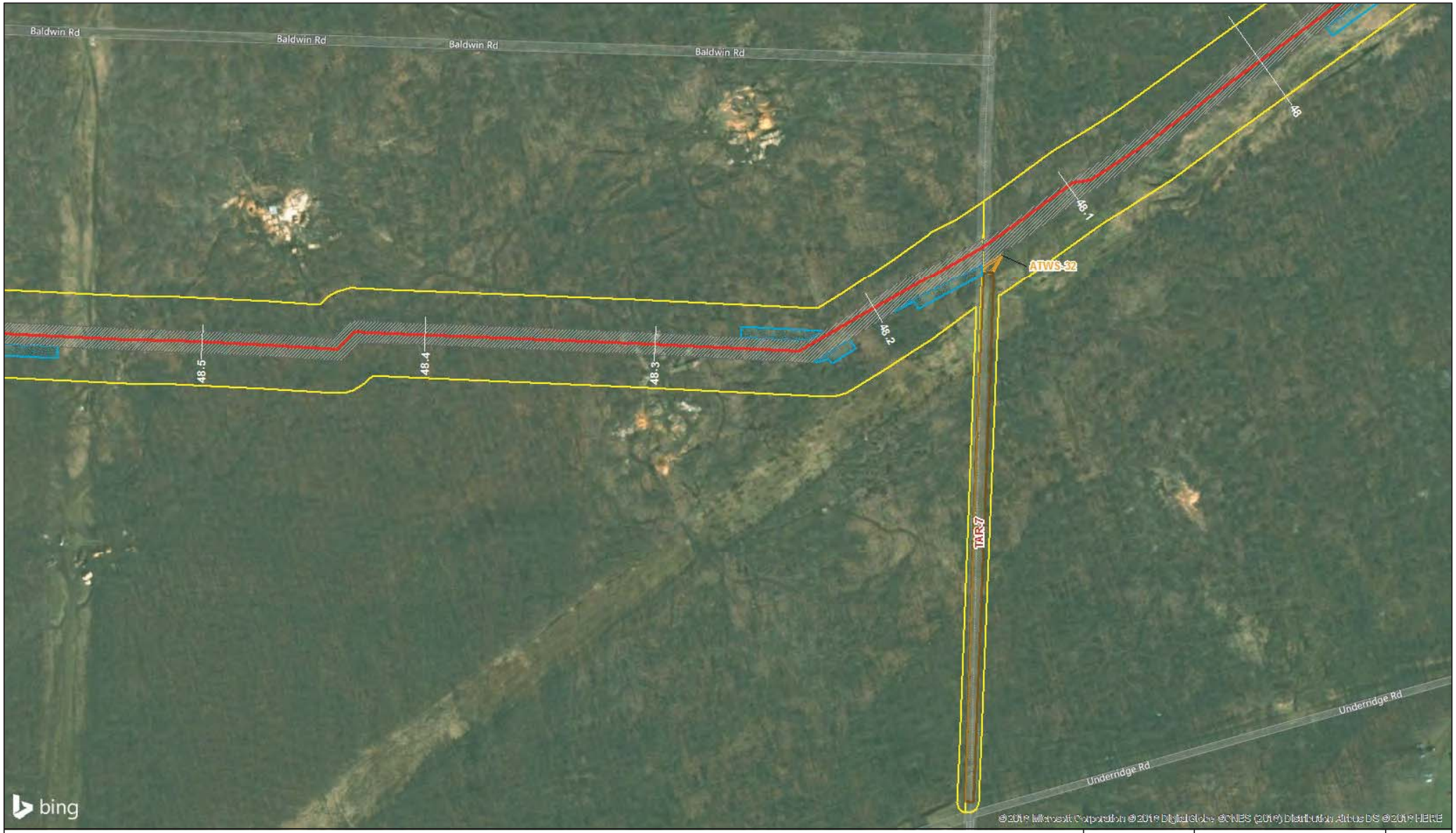


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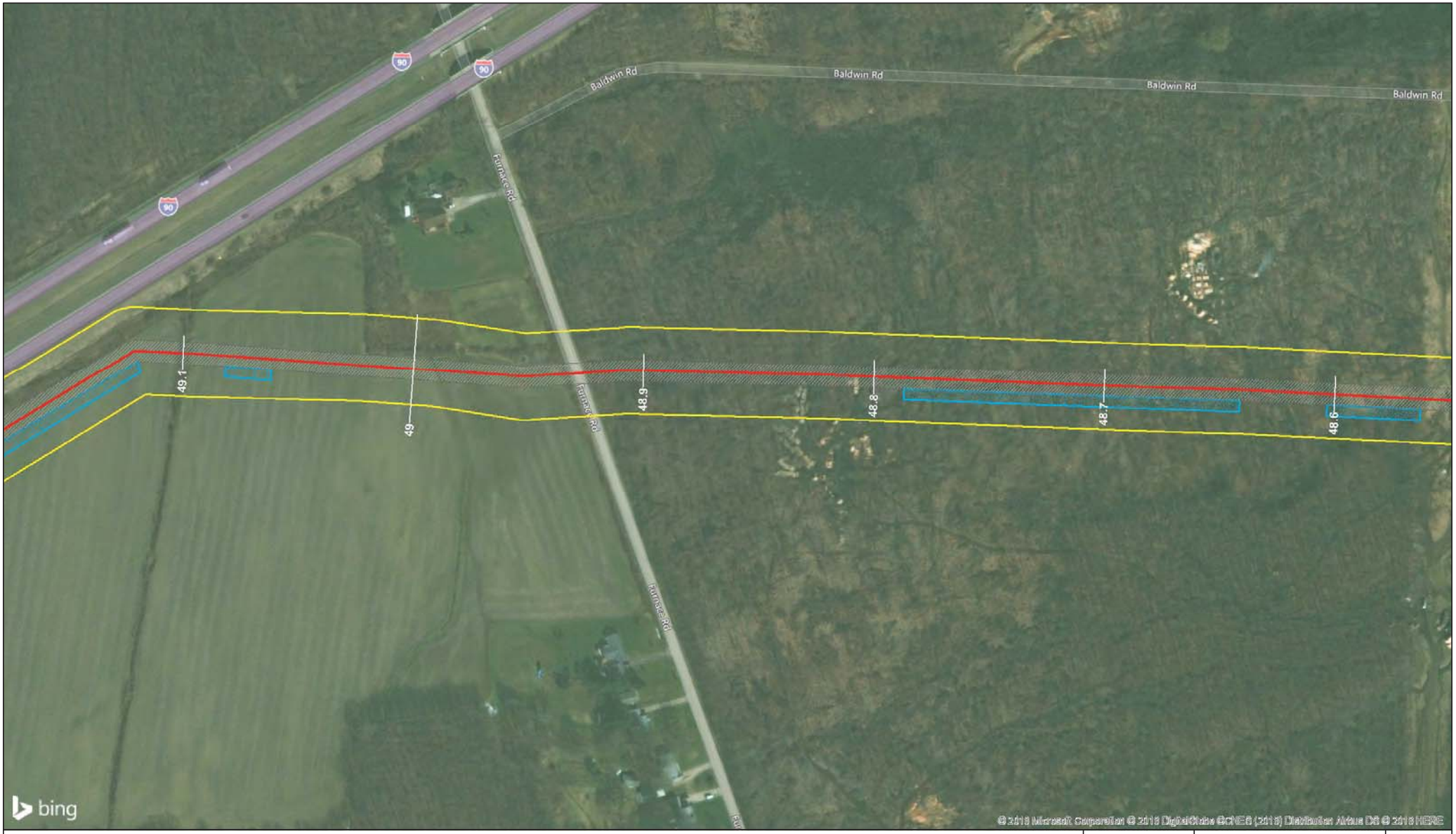


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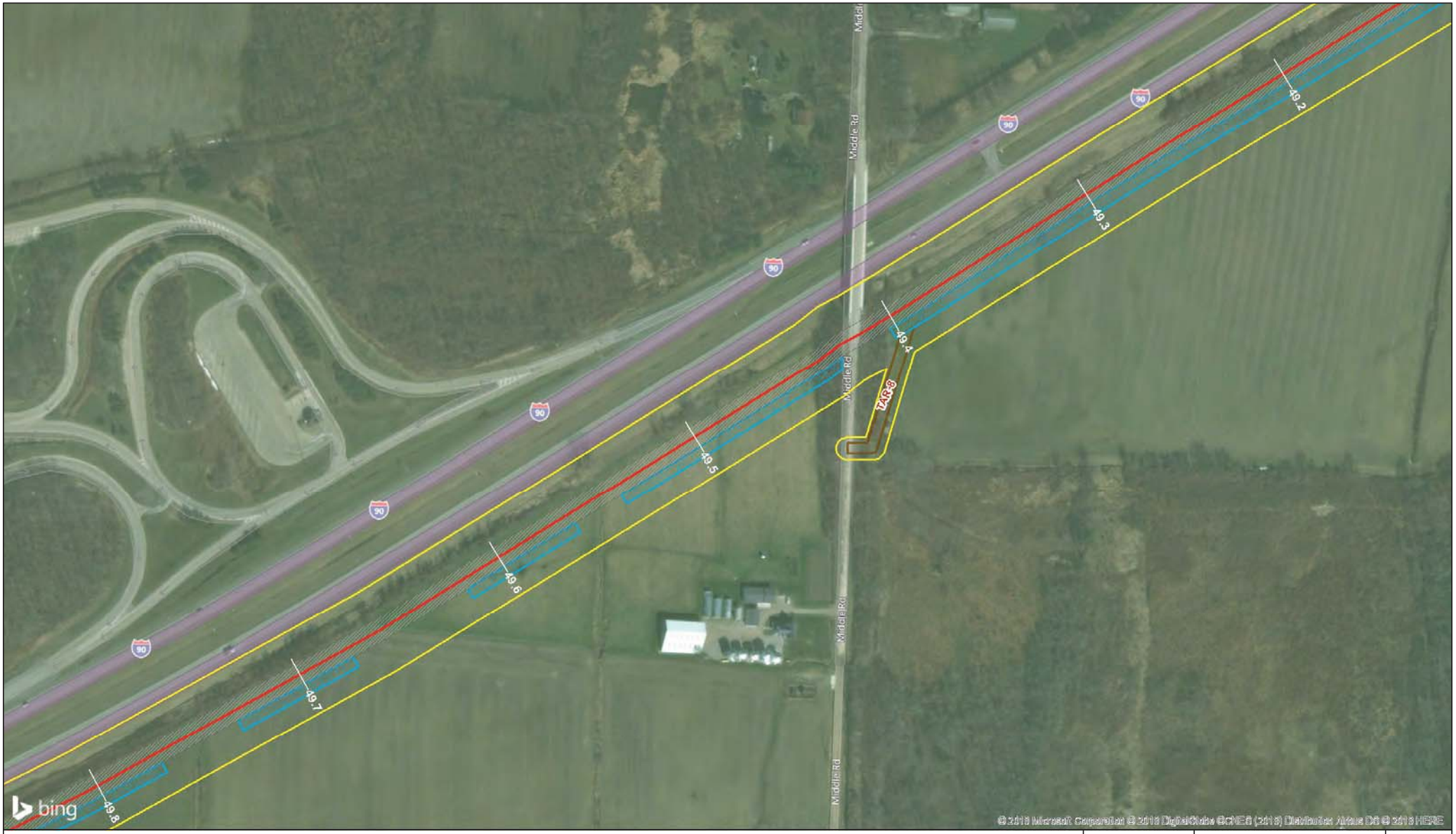


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FIGURE

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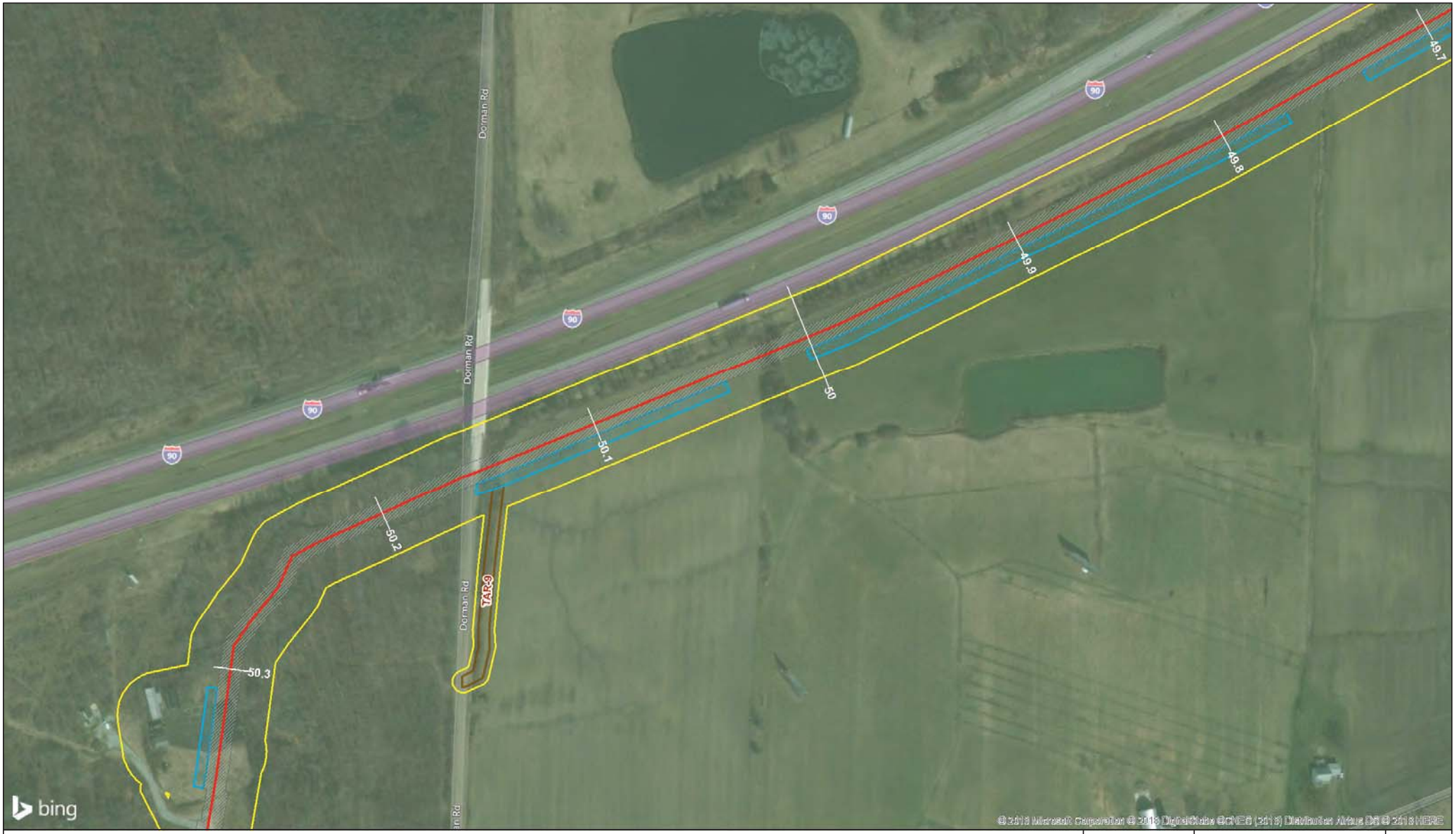


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**Risberg Line Project**
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**Ohio and Pennsylvania**

FIGURE

**1-3**

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- Pipe and Contractor Yard
- New Temporary ROW
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- Existing Line 50-ft ROW
- Survey Boundary

RH energytrans

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| PROJECT NO. | 20180674 |
| DRAWN: | 3/21/2018 |
| DRAWN BY: | JTW |
| CHECKED BY: | AD, NE |
| FILE NAME: | Fig1-3_Risberg_Aerial.mxd |

Aerial Map

**Risberg Line Project**
**RH energytrans, LLC**
**Ohio and Pennsylvania**

FIGURE

**1-3**

0 100 200 Feet

1:2,400

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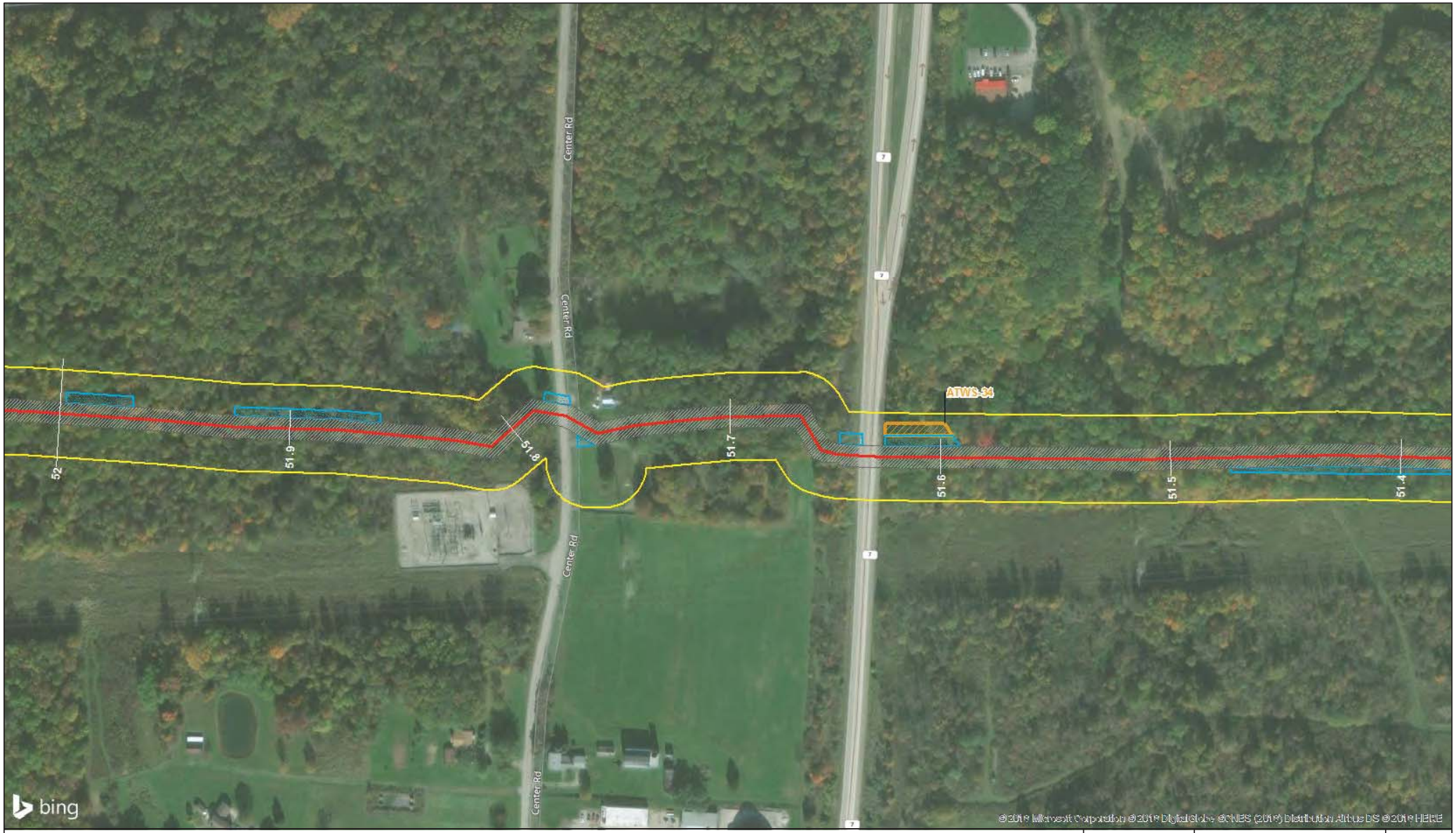


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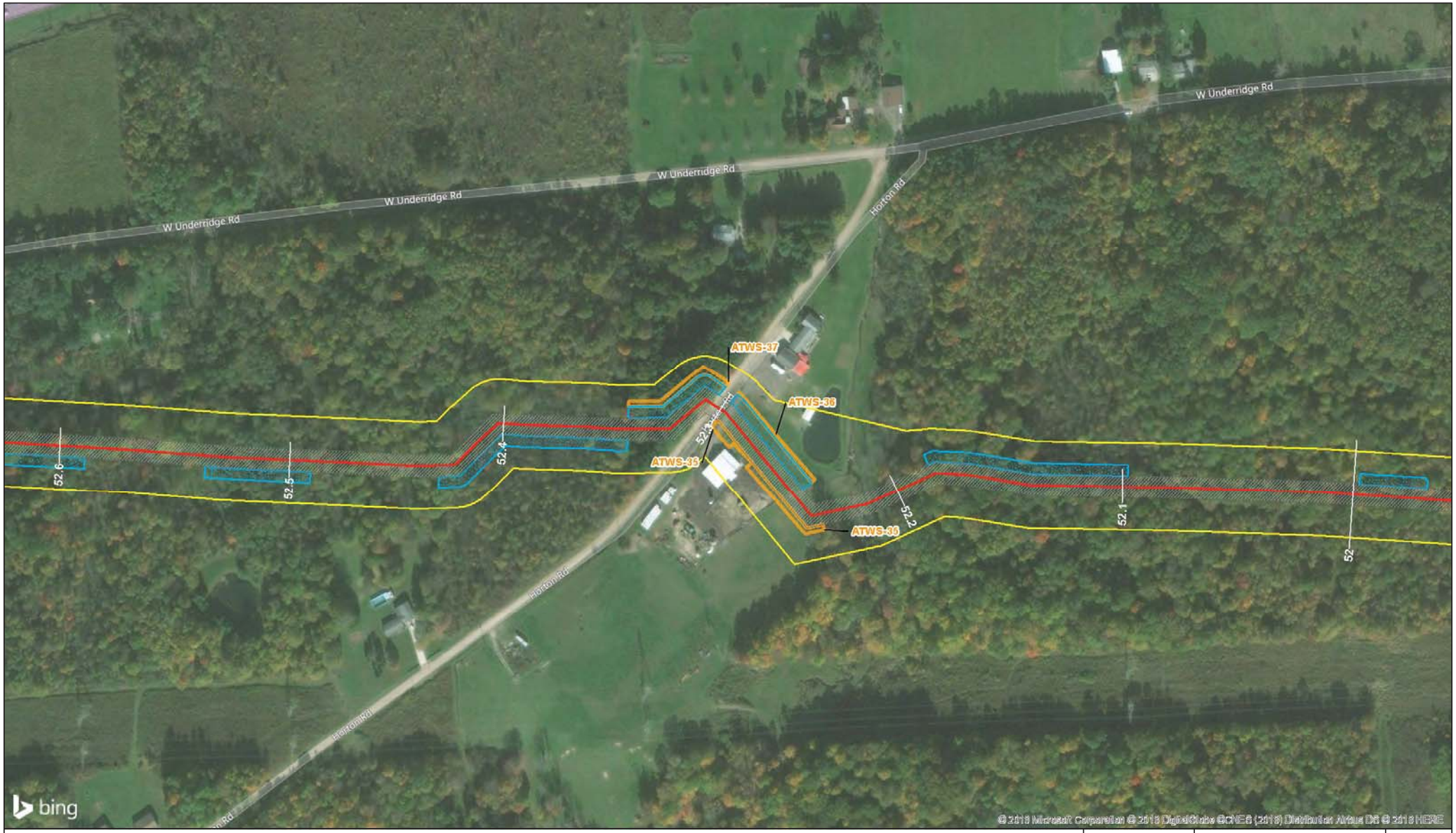


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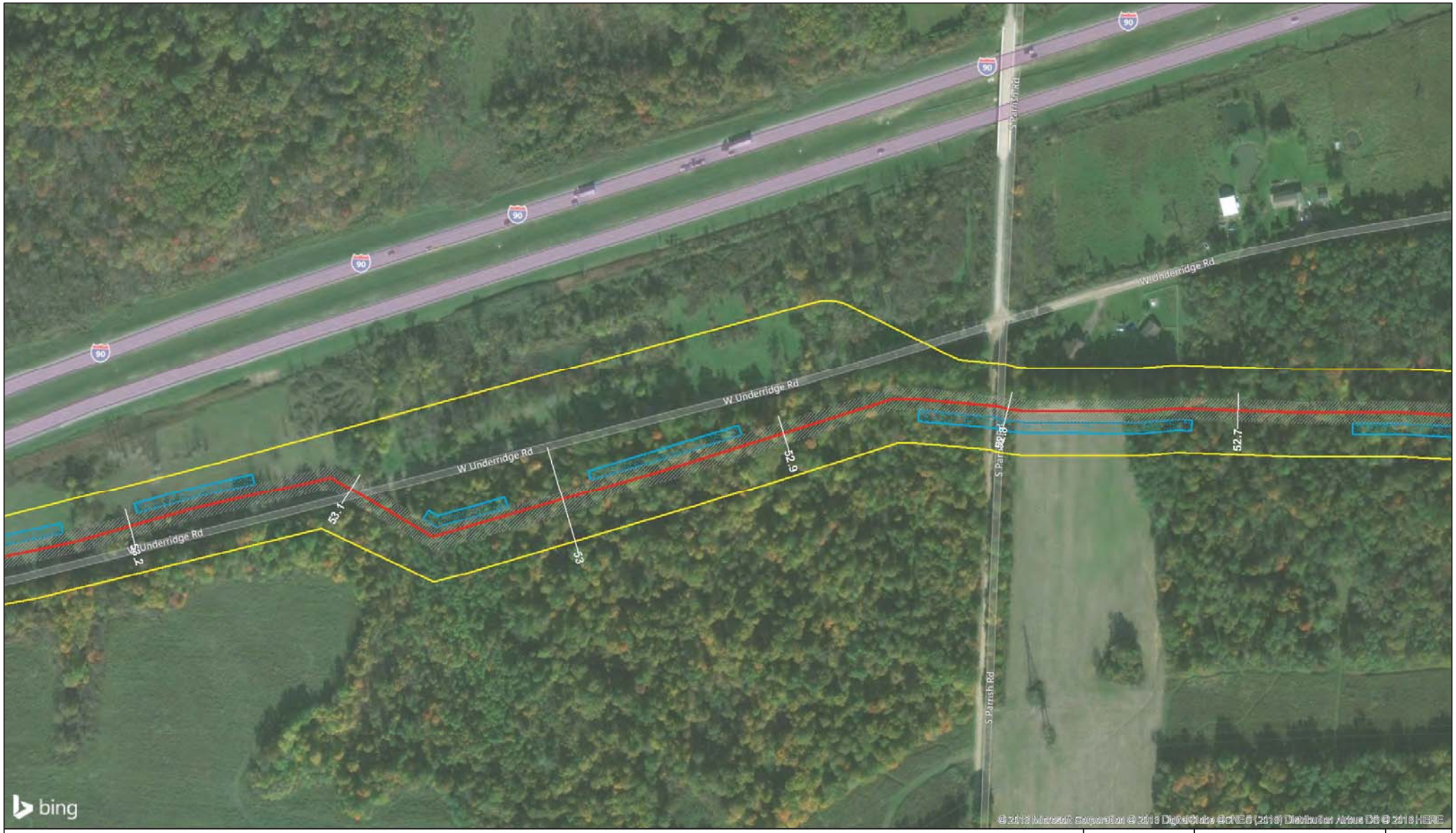


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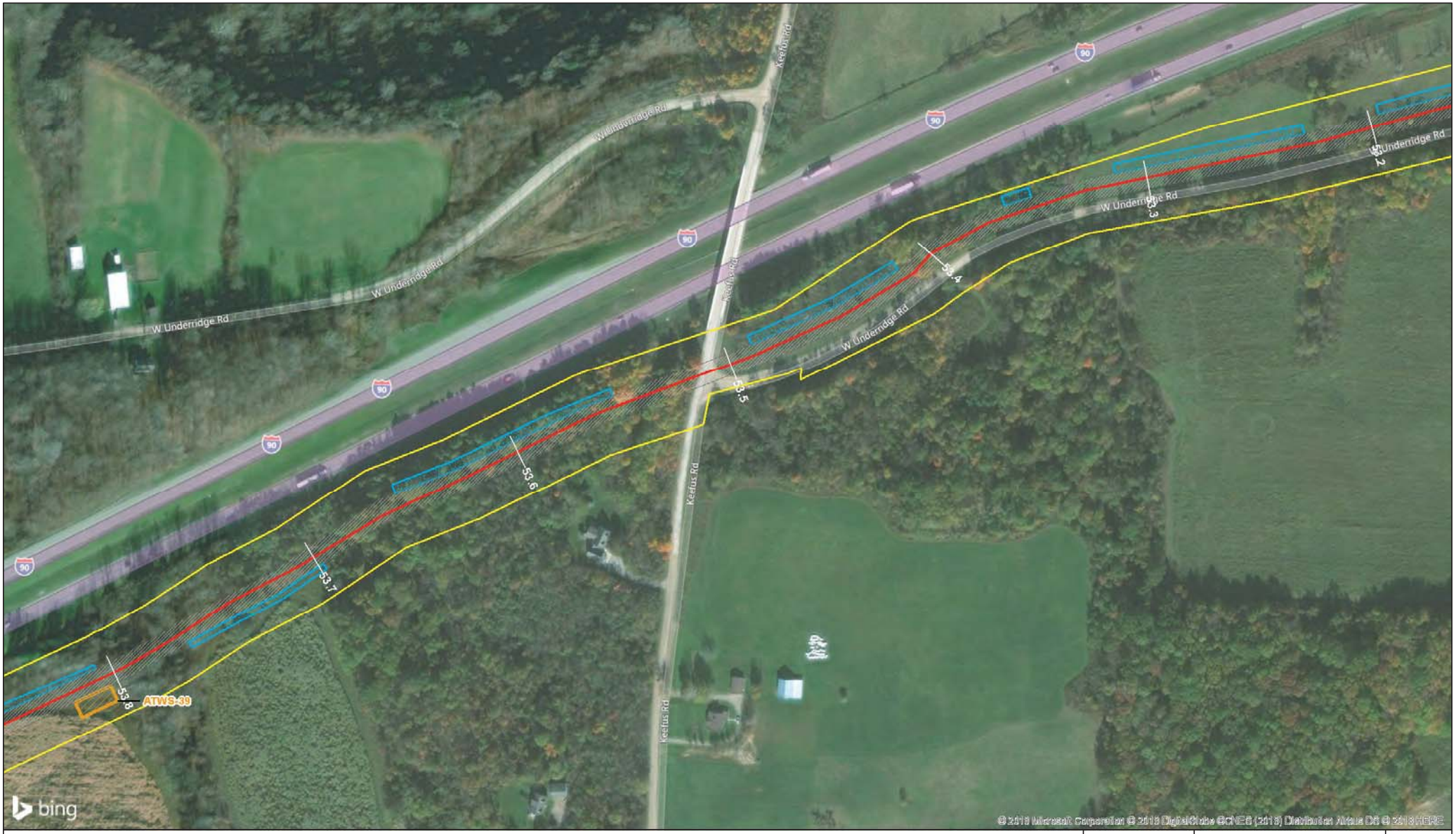


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Aerial Map

**Risberg Line Project**
**RH energytrans, LLC**
**Ohio and Pennsylvania**

FIGURE

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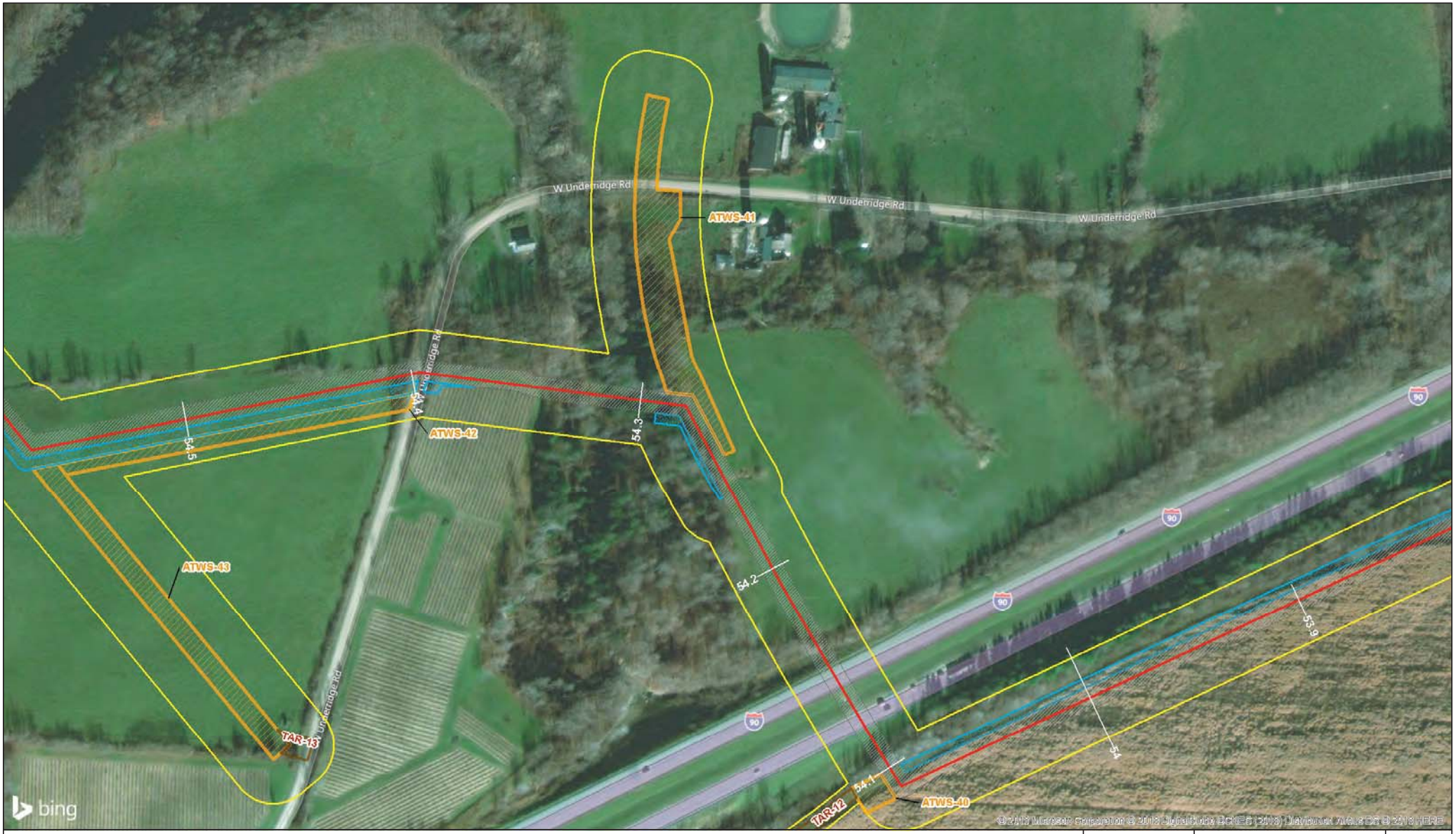


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**Risberg Line Project**
**RH energytrans, LLC**
**Ohio and Pennsylvania**

FIGURE

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**Risberg Line Project**
**RH energytrans, LLC**
**Ohio and Pennsylvania**

FIGURE

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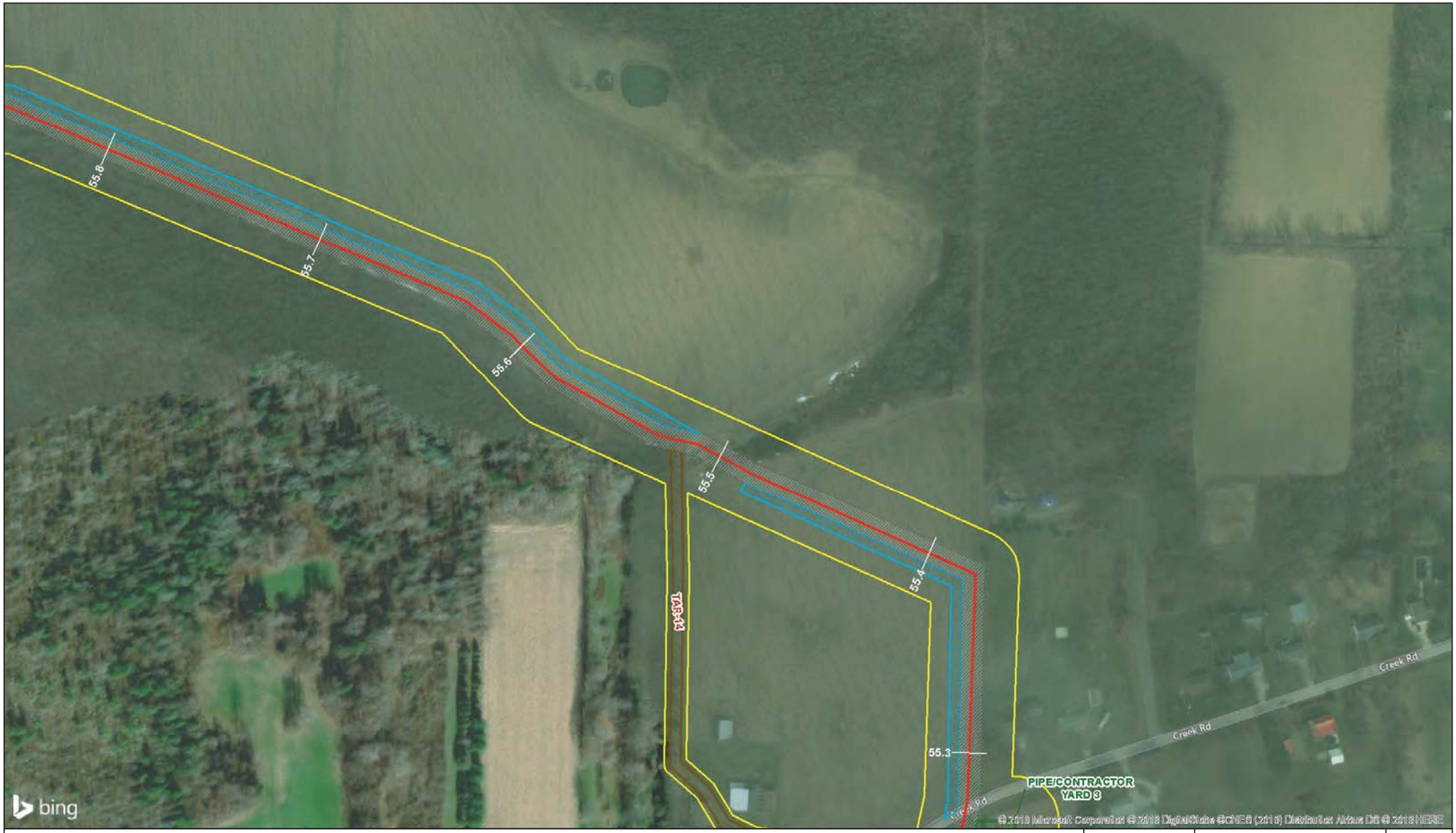


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FIGURE

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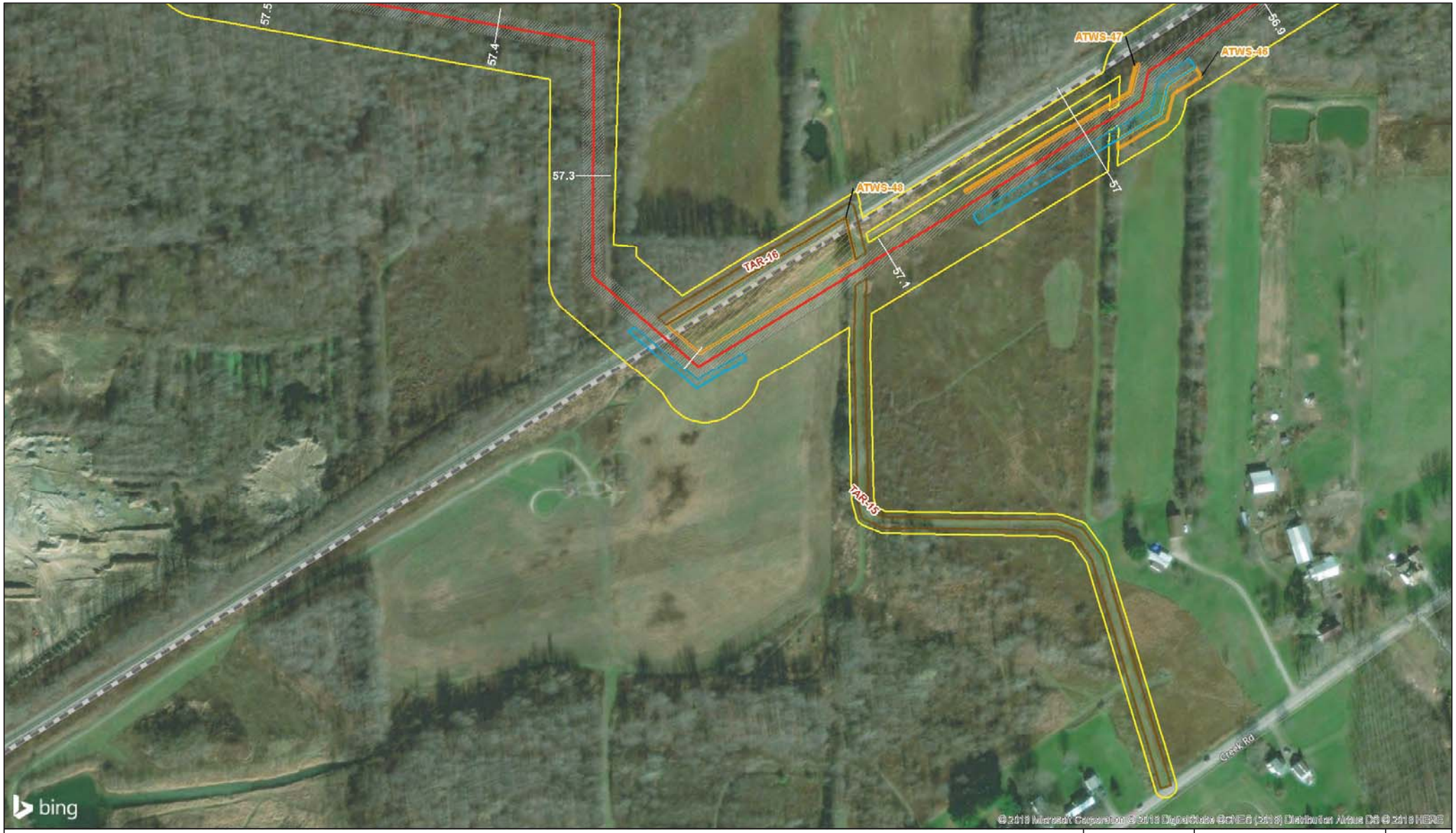


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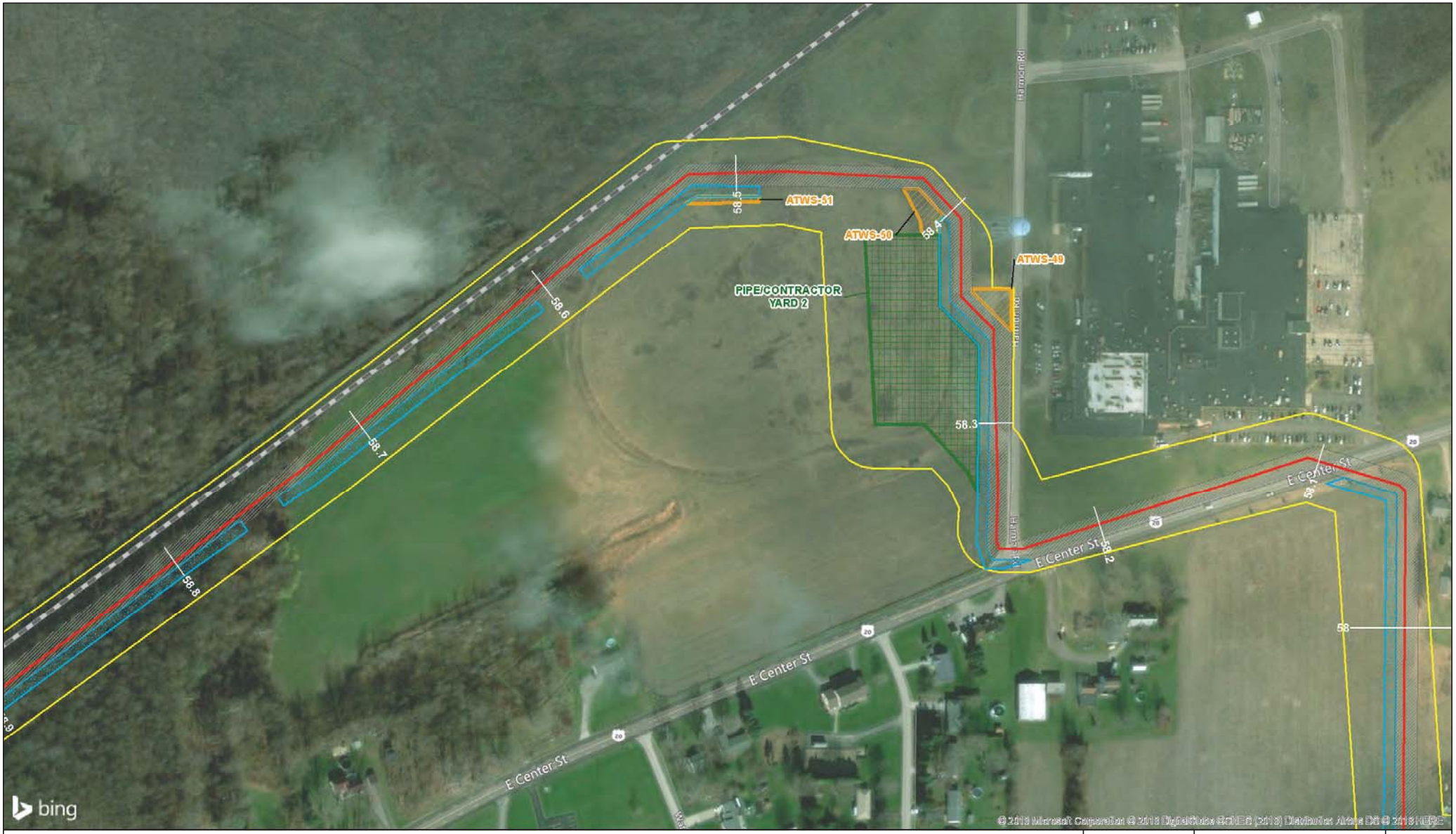


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FIGURE

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FIGURE

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FIGURE

**1-3**

# Compressor Stations and Meter Station

0 100 200 Feet

1:3,000

The information included on this graphic representation has been compiled from a variety of sources and is subject to change without notice. Kleinfelder makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. This document is not intended for use as a land survey product nor is it designed or intended as a construction design document. The use or misuse of the information contained on this graphic representation is at the sole risk of the party using or misusing the information.

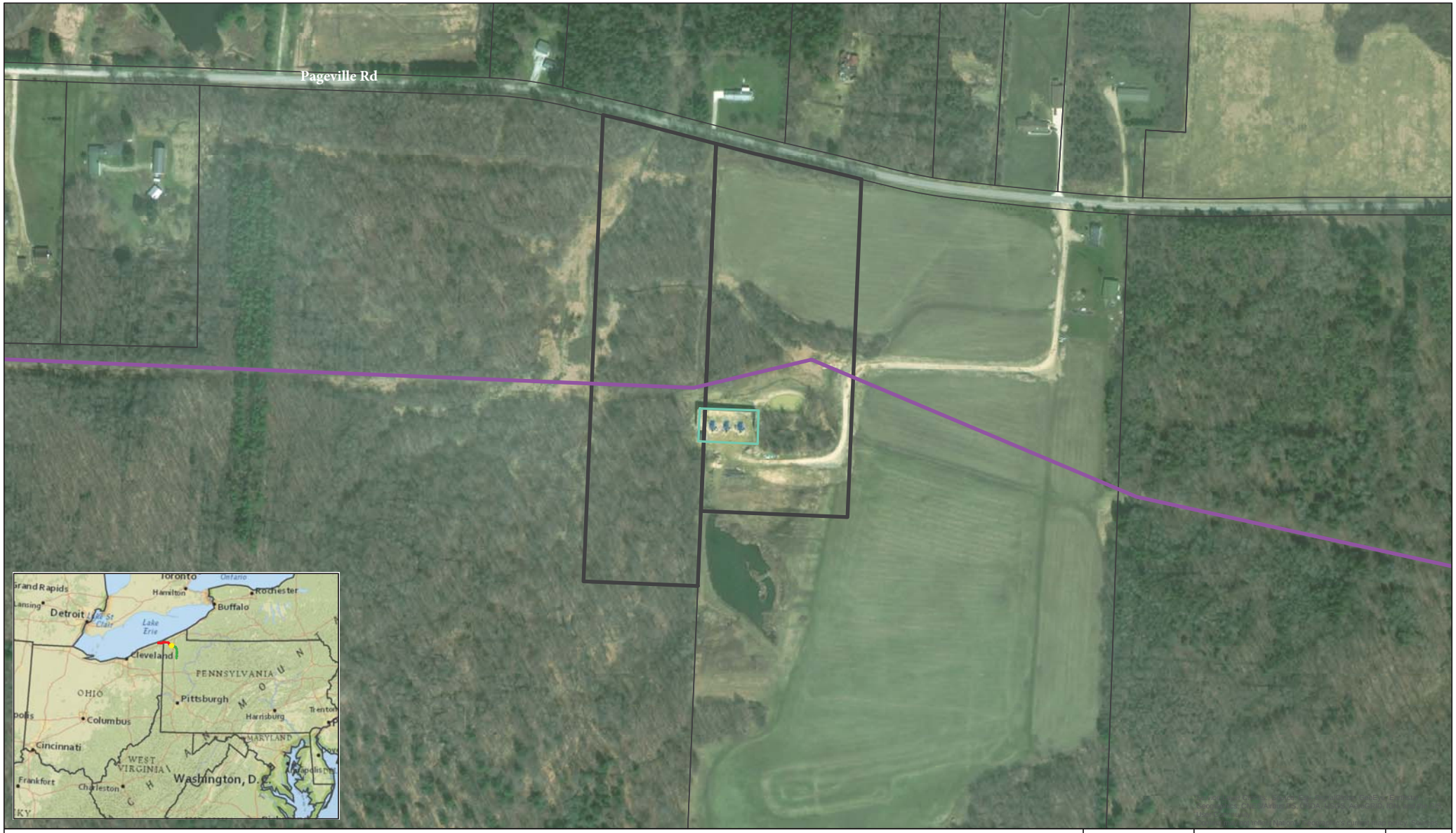
**Legend**

- Risberg Pipeline Alignment
- Existing 12-inch Line
- Meadville Compressor Station Fenceline
- Ownership Boundary
- Parcel Boundary

| | |
|---|---|
| PROJECT NO. | 20180674 |
| DRAWN: | 4/15/2018 |
| DRAWN BY: | JTW |
| CHECKED BY: | AD, NE |
| FILE NAME: | Attach12_Risberg_MeadvilleCompressor_Properties.mxd |

Meadville Compressor Station
Parcel Map

**Risberg Line Project**
**RH energytrans, LLC**
**Ohio and Pennsylvania**




0 100 200 Feet

1:3,000

The information included on this graphic representation has been compiled from a variety of sources and is subject to change without notice. Kleinfelder makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. This document is not intended for use as a land survey product nor is it designed or intended as a construction design document. The use or misuse of the information contained on this graphic representation is at the sole risk of the party using or misusing the information.

**Legend**

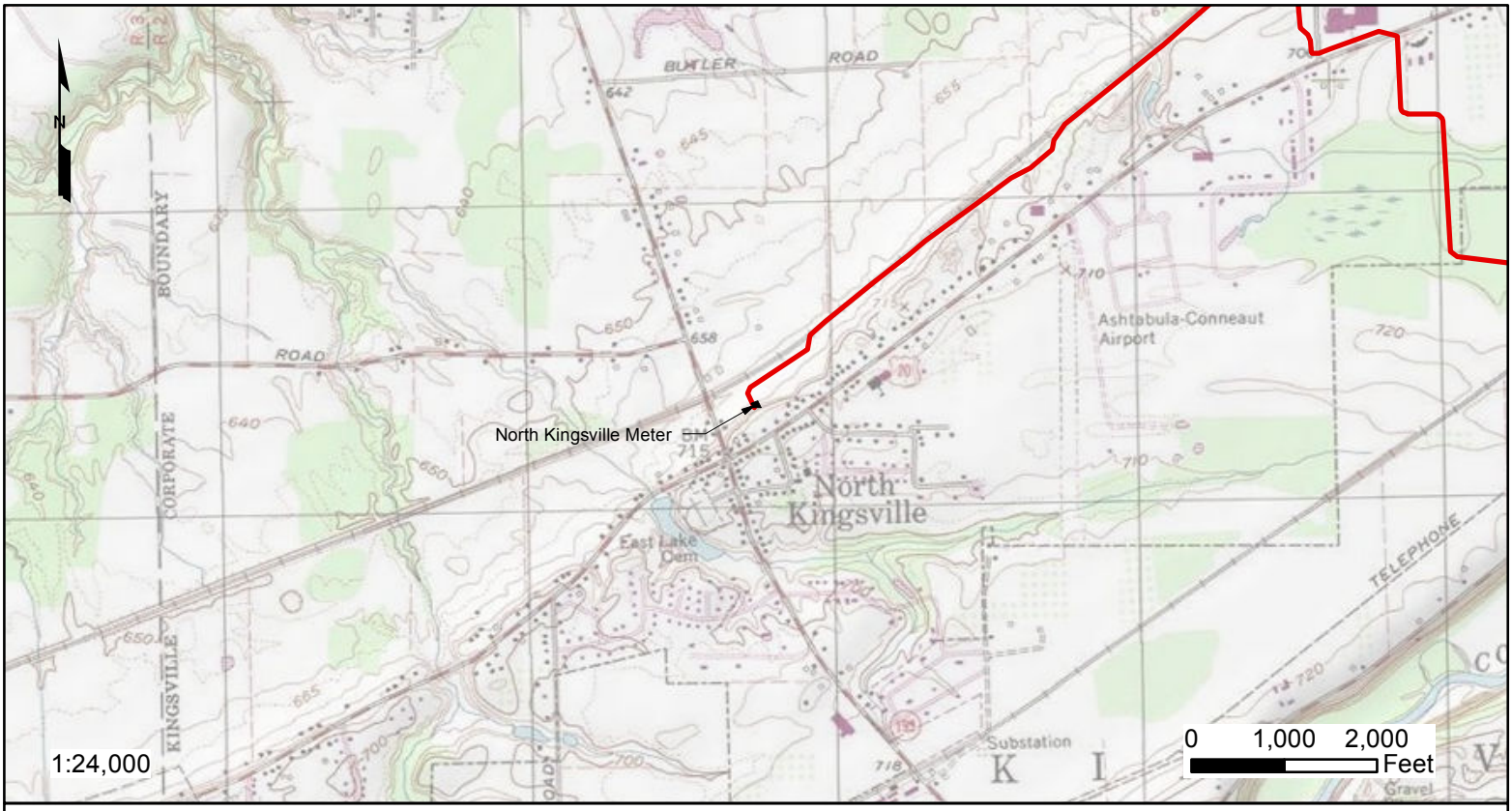
- Risberg Pipeline Alignment
- Existing 8-inch Line
- Existing 12-inch Line
- County Line Compressor Station Fenceline
- Ownership Boundary
- Parcel Boundary

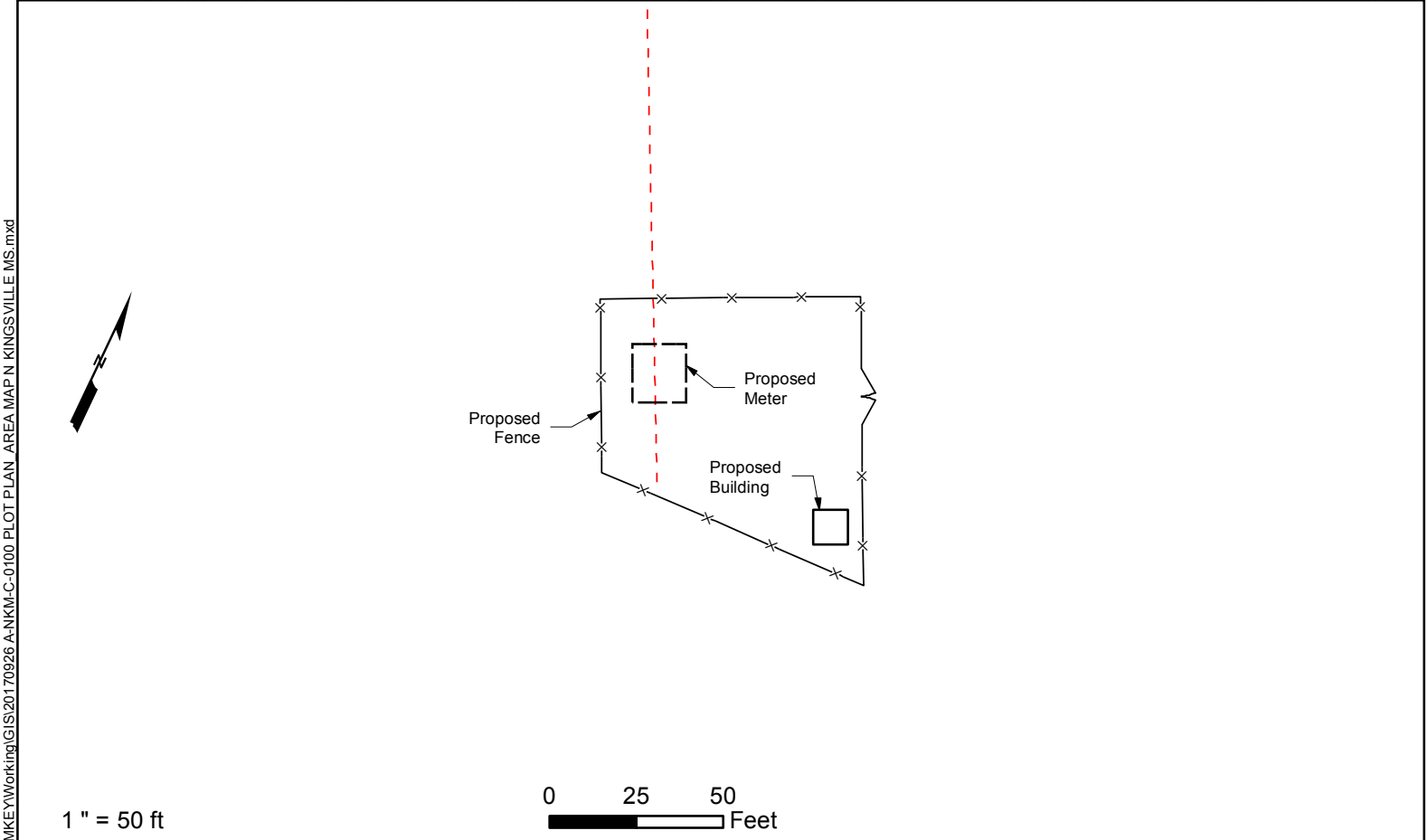
RH energytrans

| | |
|---|---|
| PROJECT NO. | 20180674 |
| DRAWN: | 4/15/2018 |
| DRAWN BY: | JTW |
| CHECKED BY: | AD, NE |
| FILE NAME: | Attach12_Risberg_CountyLineCompressor_Properties.mxd |

County Line Compressor Station Parcel Map

**Risberg Line Project**
**RH energytrans, LLC**
**Ohio and Pennsylvania**




Meter Station

Proposed Route

RH energytrans

**RISBERG LINE PROJECT**

FIGURE 1-7

NORTH KINGSVILLE METER

LOCATION MAP AND PLOT PLAN

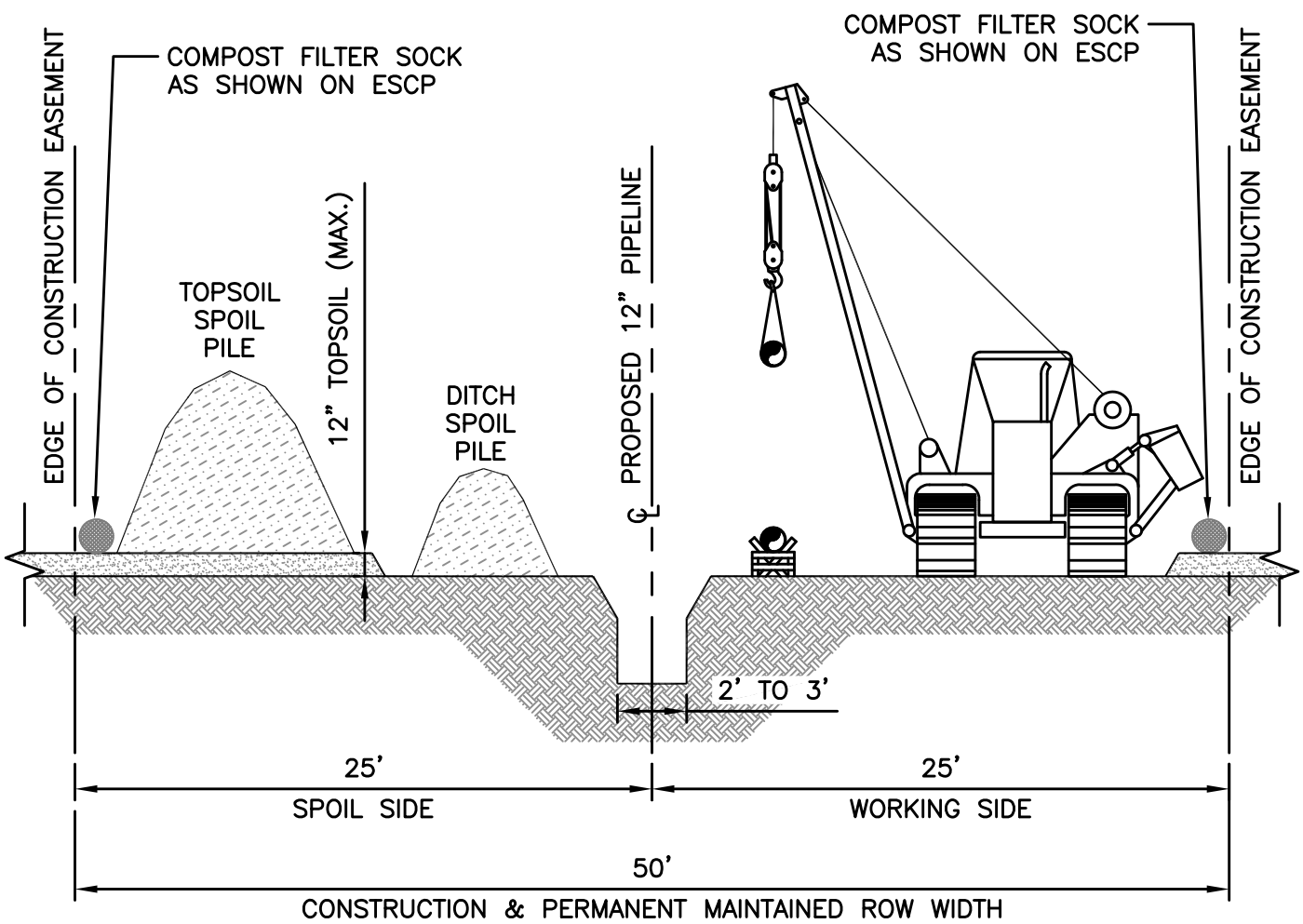
26SEP2017 DWG NO.: A-NKM-C-0100 REV. B

Document Path: Q:\Unconventionals\EMKEY\Working\GIS\20170926 A-NKM-C-0100 PLOT PLAN_AREA MAP N KINGSVILLE MS.mxd

# Appendix B

# Typical Construction Methods Figures

## TYPICAL 50' ROW CONFIGURATION

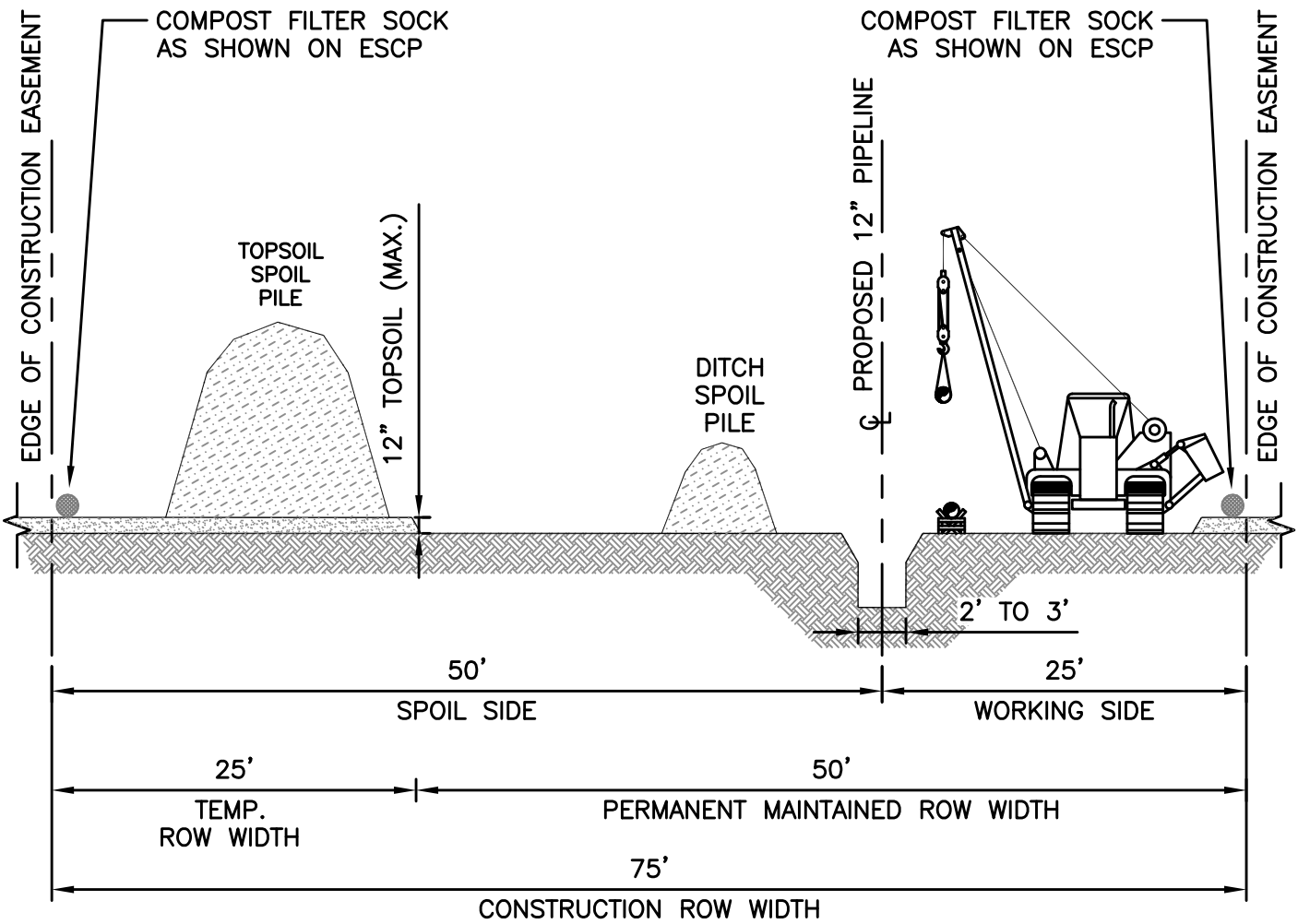



NOTES:

1. KEEP SPOIL PILES SEPARATED AND CLEAN OF ALL CONSTRUCTION DEBRIS.
2. LEAVE GAPS IN THE SPOIL PILES AT OBVIOUS DRAINAGES. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL PILES. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS. TRENCH SPOIL POSITIONS CAN BE ADJUSTED TO FIT THE SITE AS APPROVED BY INSPECTOR.

| | | | |
|---|---|---|---|
| RH energytrans | PROJECT NO. 197409<br>DRAWN BY: AJD<br>CHECKED BY: TP<br>DATE: 01/04/2018<br>SCALE: N.T.S. | TYPICAL UPLAND ROW CONFIGURATION<br>RH ENERGYTRANS, LLC<br>RISBERG LINE PROJECT<br>PENNSYLVANIA AND OHIO | FIGURE<br>B-1 |

## TYPICAL 75' ROW CONFIGURATION

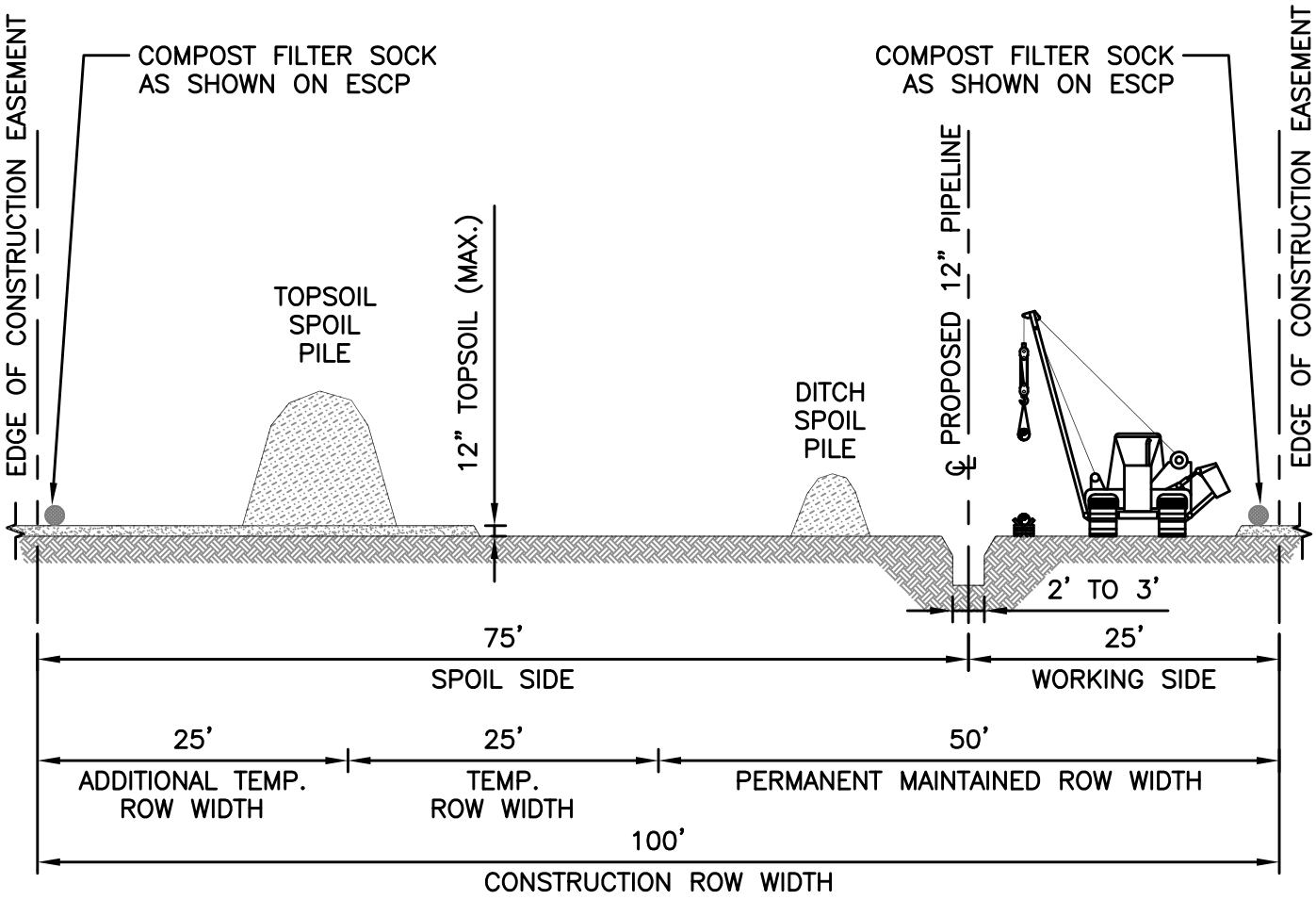



NOTES:

1. KEEP SPOIL PILES SEPARATED AND CLEAN OF ALL CONSTRUCTION DEBRIS.
2. LEAVE GAPS IN THE SPOIL PILES AT OBVIOUS DRAINAGES. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL PILES. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS. TRENCH SPOIL POSITIONS CAN BE ADJUSTED TO FIT THE SITE AS APPROVED BY INSPECTOR.
3. TEMP. ROW WIDTH USED FOR SPOIL, TIMBER STORAGE, MATERIALS, ETC.

| | | | |
|---|---|---|---|
| RH energytrans | PROJECT NO. 197409<br>DRAWN BY: AJD<br>CHECKED BY: TP<br>DATE: 01/04/2018<br>SCALE: N.T.S. | TYPICAL UPLAND ROW CONFIGURATION<br>RH ENERGYTRANS, LLC<br>RISBERG LINE PROJECT<br>PENNSYLVANIA AND OHIO | FIGURE<br>B-2 |

## TYPICAL 100' ROW CONFIGURATION



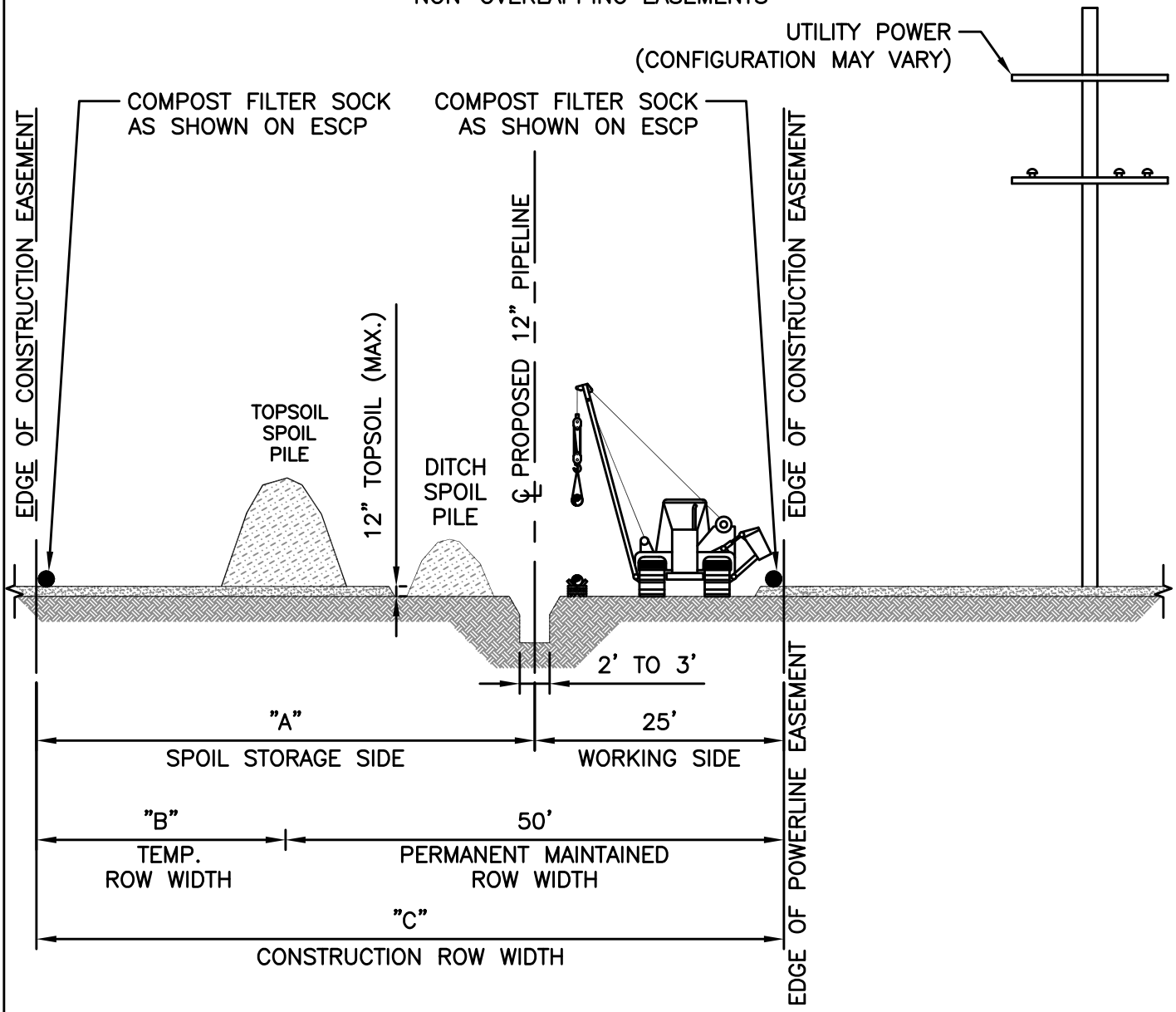

NOTES:

1. KEEP SPOIL PILES SEPARATED AND CLEAN OF ALL CONSTRUCTION DEBRIS.
2. LEAVE GAPS IN THE SPOIL PILES AT OBVIOUS DRAINAGES. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL PILES. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS. TRENCH SPOIL POSITIONS CAN BE ADJUSTED TO FIT THE SITE AS APPROVED BY INSPECTOR.
3. TEMP. ROW WIDTH USED FOR SPOIL, TIMBER STORAGE, MATERIALS, ETC.

| | | | |
|---|---|---|---|
| RH energytrans | PROJECT NO. 197409<br>DRAWN BY: AJD<br>CHECKED BY: TP<br>DATE: 01/04/2018<br>SCALE: N.T.S. | TYPICAL UPLAND ROW CONFIGURATION<br>RH ENERGYTRANS, LLC<br>RISBERG LINE PROJECT<br>PENNSYLVANIA AND OHIO | FIGURE<br>B-3 |

## TYPICAL 50', 60', AND 75' ROW CONFIGURATION

PARALLEL TO POWERLINE
NON–OVERLAPPING EASEMENTS




NOTES:

1. KEEP SPOIL PILES SEPARATED AND CLEAN OF ALL CONSTRUCTION DEBRIS.
2. LEAVE GAPS IN THE SPOIL PILES AT OBVIOUS DRAINAGES. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL PILES. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS. TRENCH SPOIL POSITIONS CAN BE ADJUSTED TO FIT THE SITE AS APPROVED BY INSPECTOR.
3. MAINTAIN PROPER CLEARANCES FROM POWERLINES.
4. TEMP. ROW WIDTH USED FOR SPOIL, TIMBER STORAGE, MATERIALS, ETC.

| | 50' ROW | 60' ROW | 75' ROW |
|---|---|---|---|
| "A" | 25' | 35' | 50' |
| "B" | 0' | 10' | 25' |
| "C" | 50' | 60' | 75' |

RH energytrans

| | |
|---|---|
| PROJECT NO. | 197409 |
| DRAWN BY: | AI |
| CHECKED BY: | TP |
| DATE: | 01/12/2018 |
| SCALE: | N.T.S. |

TYPICAL UPLAND
ROW CONFIGURATION
PARALLEL TO POWERLINES

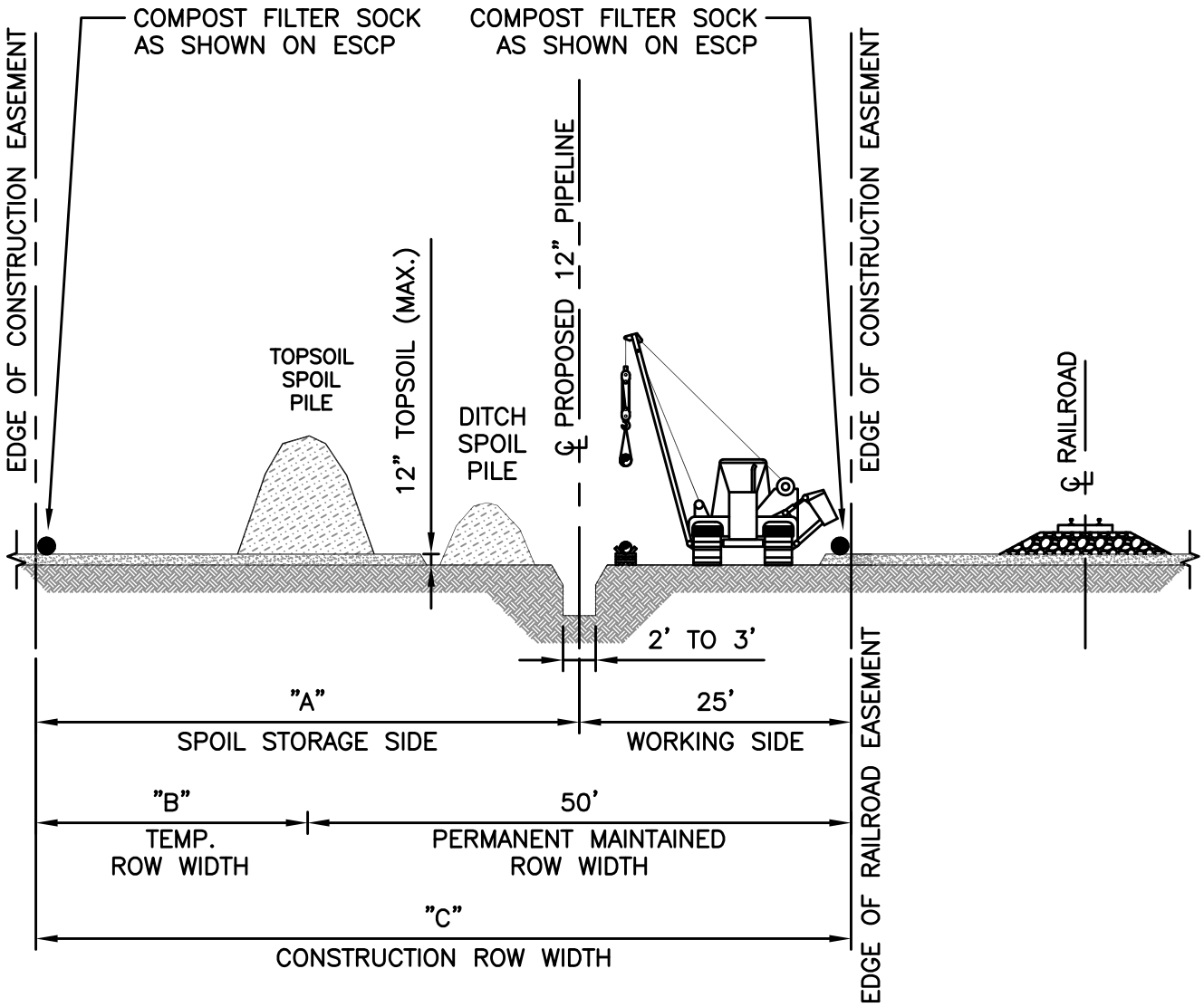
RH ENERGYTRANS, LLC
RISBERG LINE PROJECT
PENNSYLVANIA AND OHIO

FIGURE

B-4

## TYPICAL 50', 60', AND 75' ROW CONFIGURATION

PARALLEL TO RAILROAD
NON–OVERLAPPING EASEMENTS




NOTES:

1. KEEP SPOIL PILES SEPARATED AND CLEAN OF ALL CONSTRUCTION DEBRIS.
2. LEAVE GAPS IN THE SPOIL PILES AT OBVIOUS DRAINAGES. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL PILES. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS. TRENCH SPOIL POSITIONS CAN BE ADJUSTED TO FIT THE SITE AS APPROVED BY INSPECTOR.
3. TEMP. ROW WIDTH USED FOR SPOIL, TIMBER STORAGE, MATERIALS, ETC.

| | 50' ROW | 60' ROW | 75' ROW |
|---|---|---|---|
| "A" | 25' | 35' | 50' |
| "B" | 0' | 10' | 25' |
| "C" | 50' | 60' | 75' |

RH energytrans

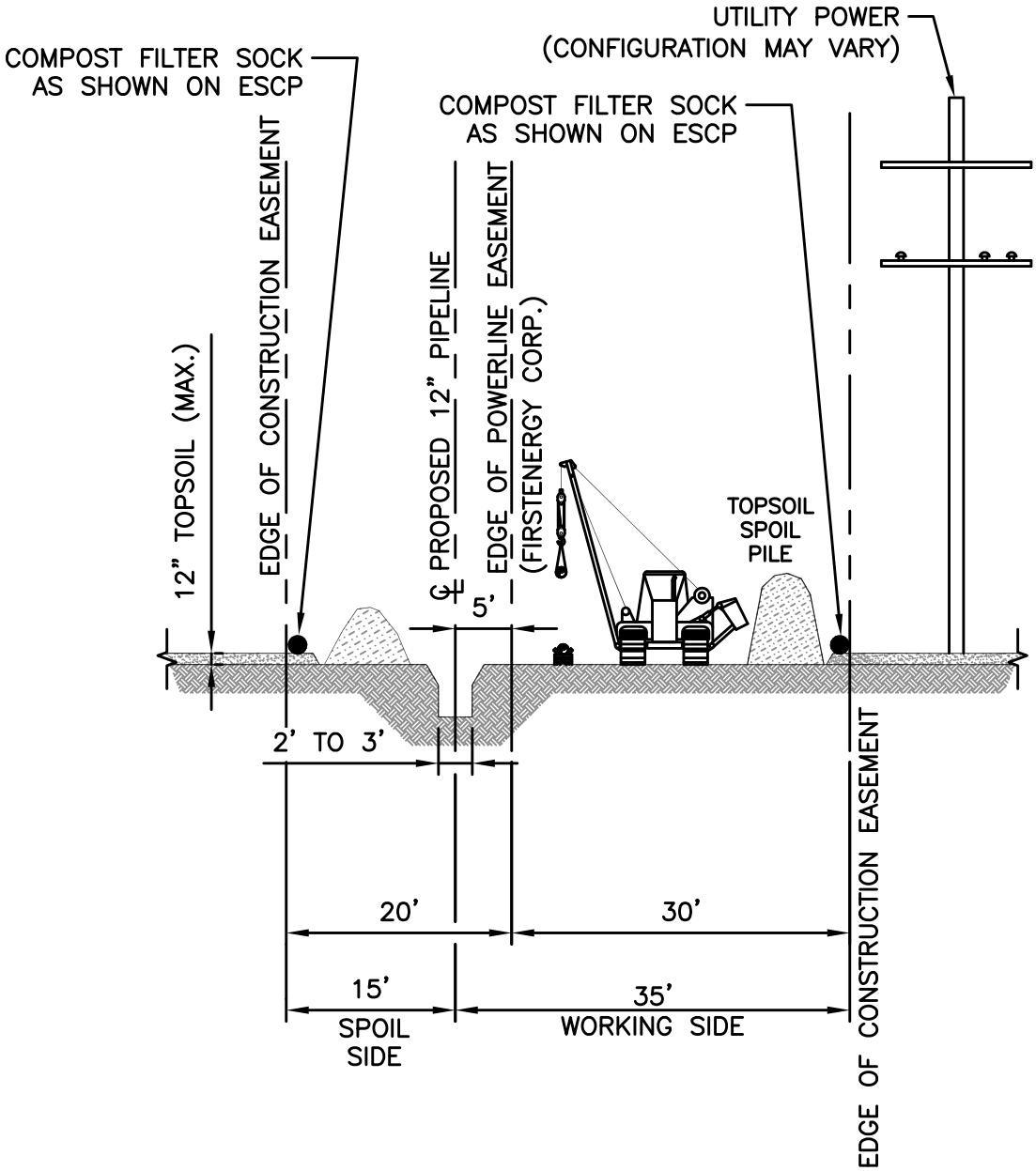
| | |
|---|---|
| PROJECT NO. | 197409 |
| DRAWN BY: | AI |
| CHECKED BY: | TP |
| DATE: | 01/12/2018 |
| SCALE: | N.T.S. |

TYPICAL UPLAND ROW CONFIGURATION
PARALLEL TO RAILROADS

RH ENERGYTRANS, LLC
RISBERG LINE PROJECT
PENNSYLVANIA AND OHIO

FIGURE
B-5

## TYPICAL ROW CONFIGURATION
PARALLEL TO POWERLINE
OVERLAPPING EASEMENTS

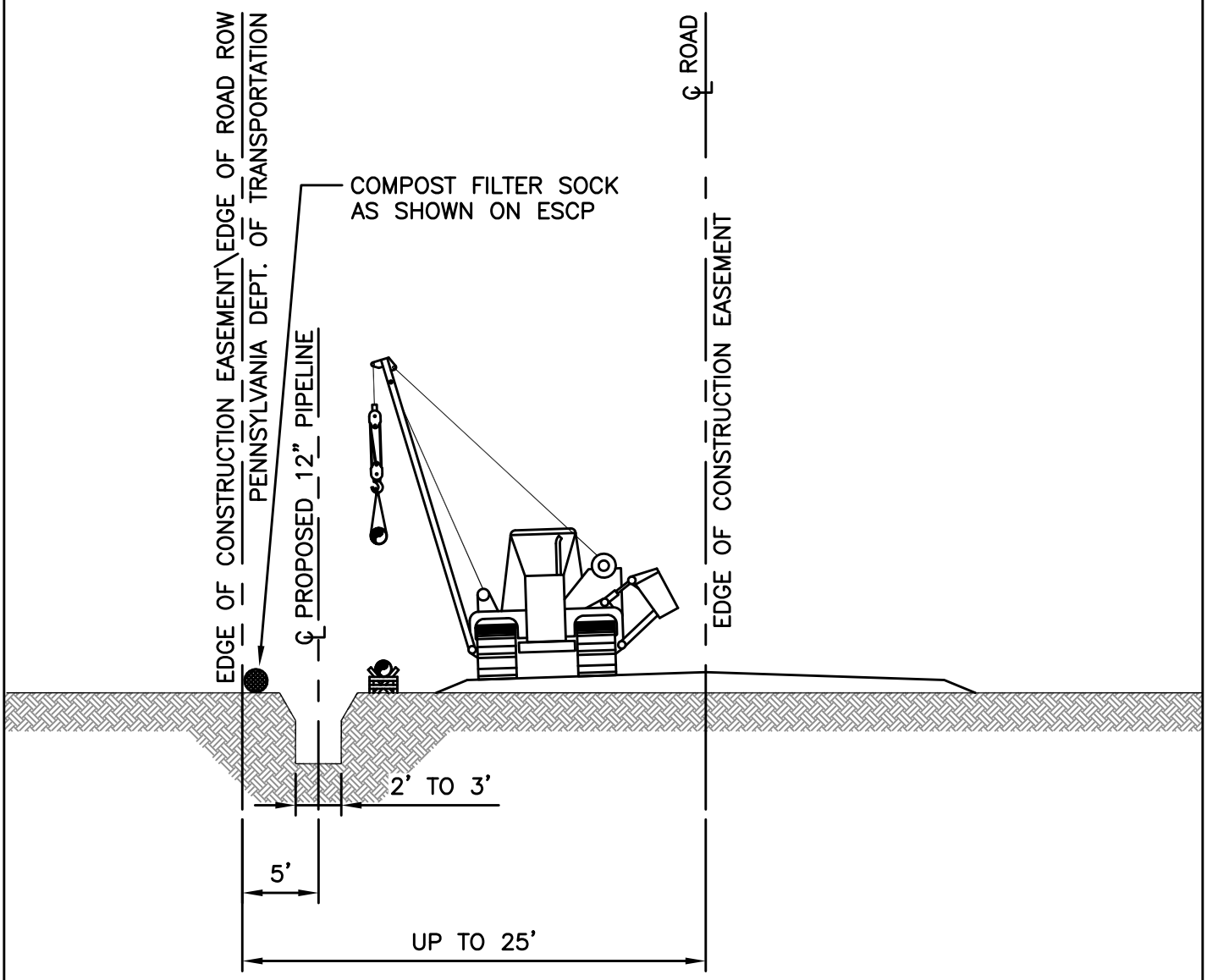



NOTES:

1. KEEP SPOIL PILES SEPARATED AND CLEAN OF ALL CONSTRUCTION DEBRIS.
2. LEAVE GAPS IN THE SPOIL PILES AT OBVIOUS DRAINAGES. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL PILES. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS. TRENCH SPOIL POSITIONS CAN BE ADJUSTED TO FIT THE SITE AS APPROVED BY INSPECTOR.
3. MAINTAIN PROPER CLEARANCES FROM POWERLINES.

| | | | |
|---|---|---|---|
| RH energytrans | PROJECT NO. 197409<br>DRAWN BY: AI<br>CHECKED BY: TP<br>DATE: 01/12/2018<br>SCALE: N.T.S. | TYPICAL UPLAND ROW CONFIGURATION<br>PARALLEL TO POWERLINES<br>RH ENERGYTRANS, LLC<br>RISBERG LINE PROJECT<br>PENNSYLVANIA AND OHIO | FIGURE<br>B-6 |

TYPICAL ROW CONFIGURATION
PARALLEL AND IN ROAD ROW



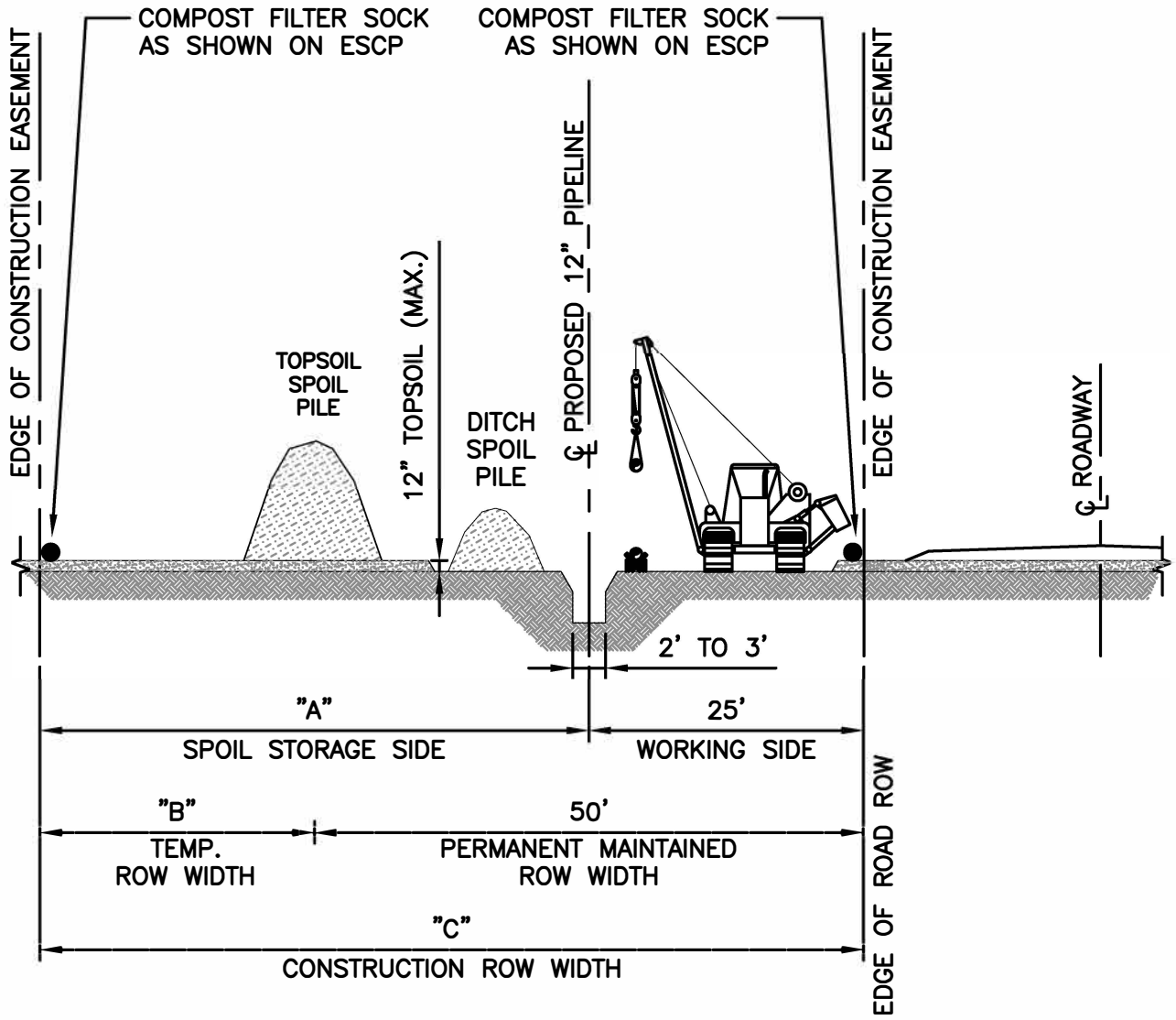

NOTES:

1. KEEP SPOIL PILES SEPARATED AND CLEAN OF ALL CONSTRUCTION DEBRIS.
2. LEAVE GAPS IN THE SPOIL PILES AT OBVIOUS DRAINAGES. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL PILES. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS. TRENCH SPOIL POSITIONS CAN BE ADJUSTED TO FIT THE SITE AS APPROVED BY INSPECTOR.
3. ABIDE BY ROAD AUTHORITY'S RULES AND REGULATIONS.
4. DITCH SPOIL PLACEMENT TO BE DETERMINED DURING CONSTRUCTION WITHIN CONSTRUCTION EASEMENT.

| | | | |
|---|---|---|---|
| RH energytrans | PROJECT NO. 197409<br>DRAWN BY: AI<br>CHECKED BY: TP<br>DATE: 01/12/2018<br>SCALE: N.T.S. | TYPICAL UPLAND ROW CONFIGURATION<br>PARALLEL TO ROADWAY<br>RH ENERGYTRANS, LLC<br>RISBERG LINE PROJECT<br>PENNSYLVANIA AND OHIO | FIGURE<br>B-7 |

## TYPICAL 50', 60', AND 75' ROW CONFIGURATION

PARALLEL TO ROAD
NON–OVERLAPPING EASEMENTS




NOTES:

1. KEEP SPOIL PILES SEPARATED AND CLEAN OF ALL CONSTRUCTION DEBRIS.
2. LEAVE GAPS IN THE SPOIL PILES AT OBVIOUS DRAINAGES. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL PILES. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS. TRENCH SPOIL POSITIONS CAN BE ADJUSTED TO FIT THE SITE AS APPROVED BY INSPECTOR.
3. TEMP. ROW WIDTH USED FOR SPOIL, TIMBER STORAGE, MATERIALS, ETC.

| | 50' ROW | 60' ROW | 75' ROW |
|---|---|---|---|
| "A" | 25' | 35' | 50' |
| "B" | 0' | 10' | 25' |
| "C" | 50' | 60' | 75' |

RH energytrans

| | |
|---|---|
| PROJECT NO. | 197409 |
| DRAWN BY: | AI |
| CHECKED BY: | TP |
| DATE: | 01/12/2018 |
| SCALE: | N.T.S. |

TYPICAL UPLAND ROW CONFIGURATION
PARALLEL TO ROADWAY

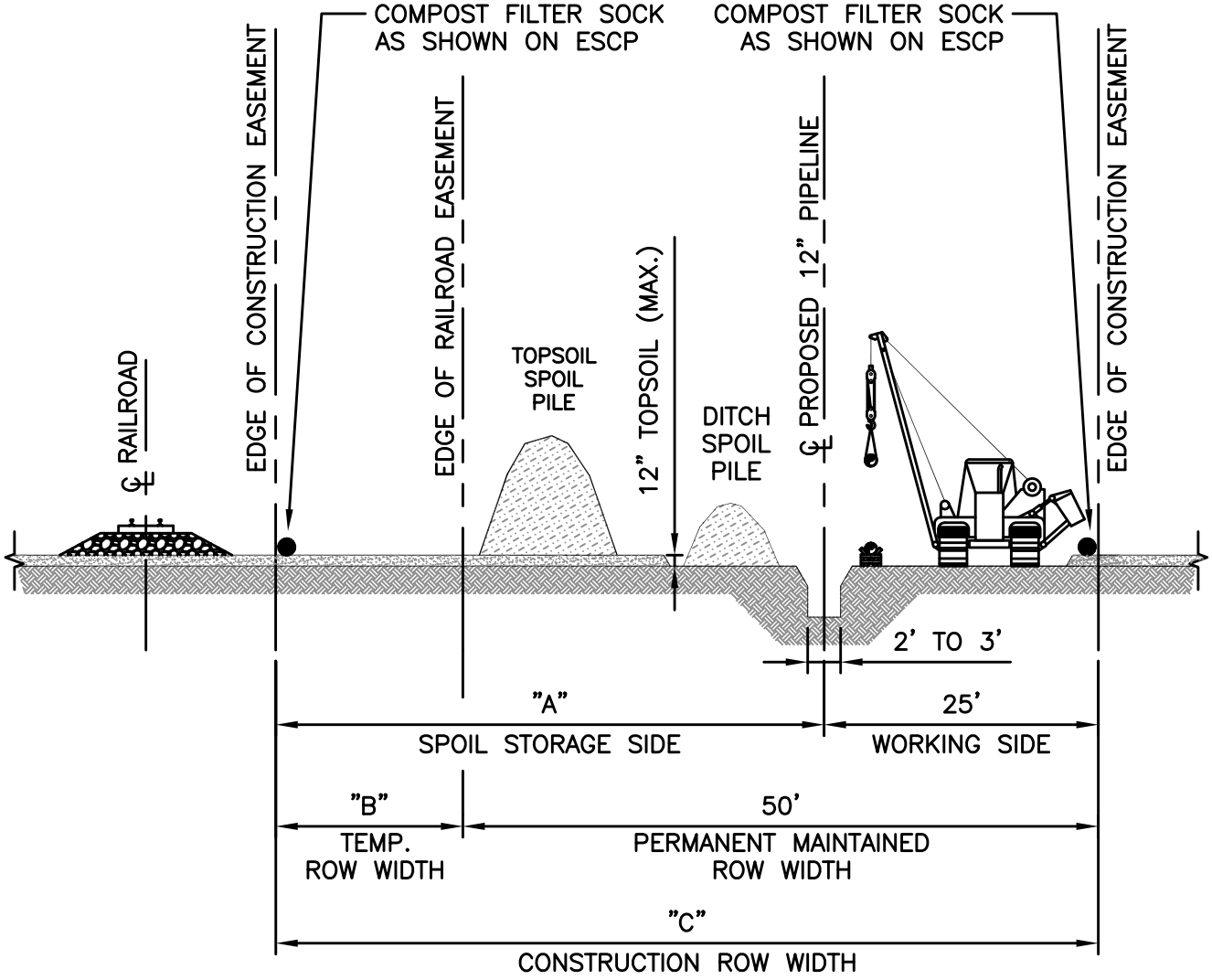
RH ENERGYTRANS, LLC
RISBERG LINE PROJECT
PENNSYLVANIA AND OHIO

FIGURE

B-8

## TYPICAL 50', 60', AND 75' ROW CONFIGURATION

PARALLEL TO RAILROAD
OVERLAPPING EASEMENTS




NOTES:

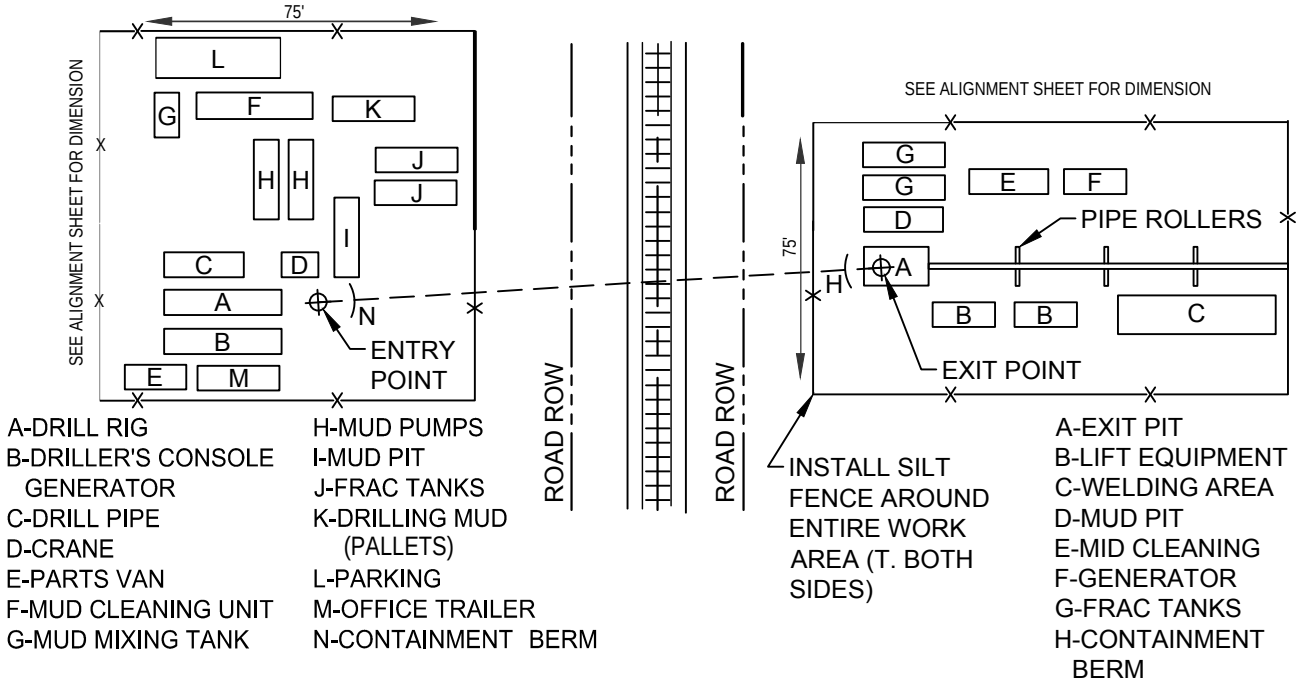
1. KEEP SPOIL PILES SEPARATED AND CLEAN OF ALL CONSTRUCTION DEBRIS.
2. LEAVE GAPS IN THE SPOIL PILES AT OBVIOUS DRAINAGES. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL PILES. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS. TRENCH SPOIL POSITIONS CAN BE ADJUSTED TO FIT THE SITE AS APPROVED BY INSPECTOR.
3. TEMP. ROW WIDTH USED FOR SPOIL, ACCESS, TIMBER STORAGE, MATERIALS, ETC.

| | 50' ROW | 60' ROW | 75' ROW |
|---|---|---|---|
| "A" | 25' | 35' | 50' |
| "B" | 0' | 10' | 25' |
| "C" | 50' | 60' | 75' |

RH energytrans

| | | | |
|---|---|---|---|
| PROJECT NO. 197409 | TYPICAL UPLAND ROW CONFIGURATION PARALLEL TO RAILROADS | FIGURE |
| DRAWN BY: AI | | B-9 |
| CHECKED BY: TP | RH ENERGYTRANS, LLC RISBERG LINE PROJECT PENNSYLVANIA AND OHIO | |
| DATE: 03/05/2018 | | |
| SCALE: N.T.S. | | |

# TYPICAL HDD HIGHWAY CROSSING

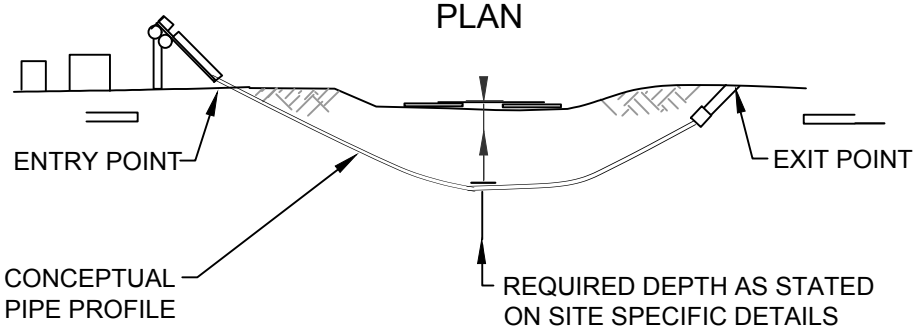



A-DRILL RIG
B-DRILLER'S CONSOLE GENERATOR
C-DRILL PIPE
D-CRANE
E-PARTS VAN
F-MUD CLEANING UNIT
G-MUD MIXING TANK

H-MUD PUMPS
I-MUD PIT
J-FRAC TANKS
K-DRILLING MUD (PALLETS)
L-PARKING
M-OFFICE TRAILER
N-CONTAINMENT BERM

A-EXIT PIT
B-LIFT EQUIPMENT
C-WELDING AREA
D-MUD PIT
E-MID CLEANING
F-GENERATOR
G-FRAC TANKS
H-CONTAINMENT BERM

## PLAN




## PROFILE

NOTES:

1. ENSURE THAT ONLY BENTONITE BASED DRILLING MUD IS USED. DO NOT ALLOW THE USE OF ANY ADDITIVES TO THE DRILLING MUD WITHOUT THE APPROVAL OF COMPANY'S INSPECTOR.
2. INSTALL BERMS DOWNSLOPE FROM THE DRILL ENTRY AND ANTICIPATED EXIT POINT TO CONTAIN ANY RELEASE OF DRILLING MUD.
3. DISPOSE OF DRILLING MUD IN ACCORDANCE WITH THE APPROPRIATE REGULATORY AUTHORITY REQUIREMENTS.

REVISIONS

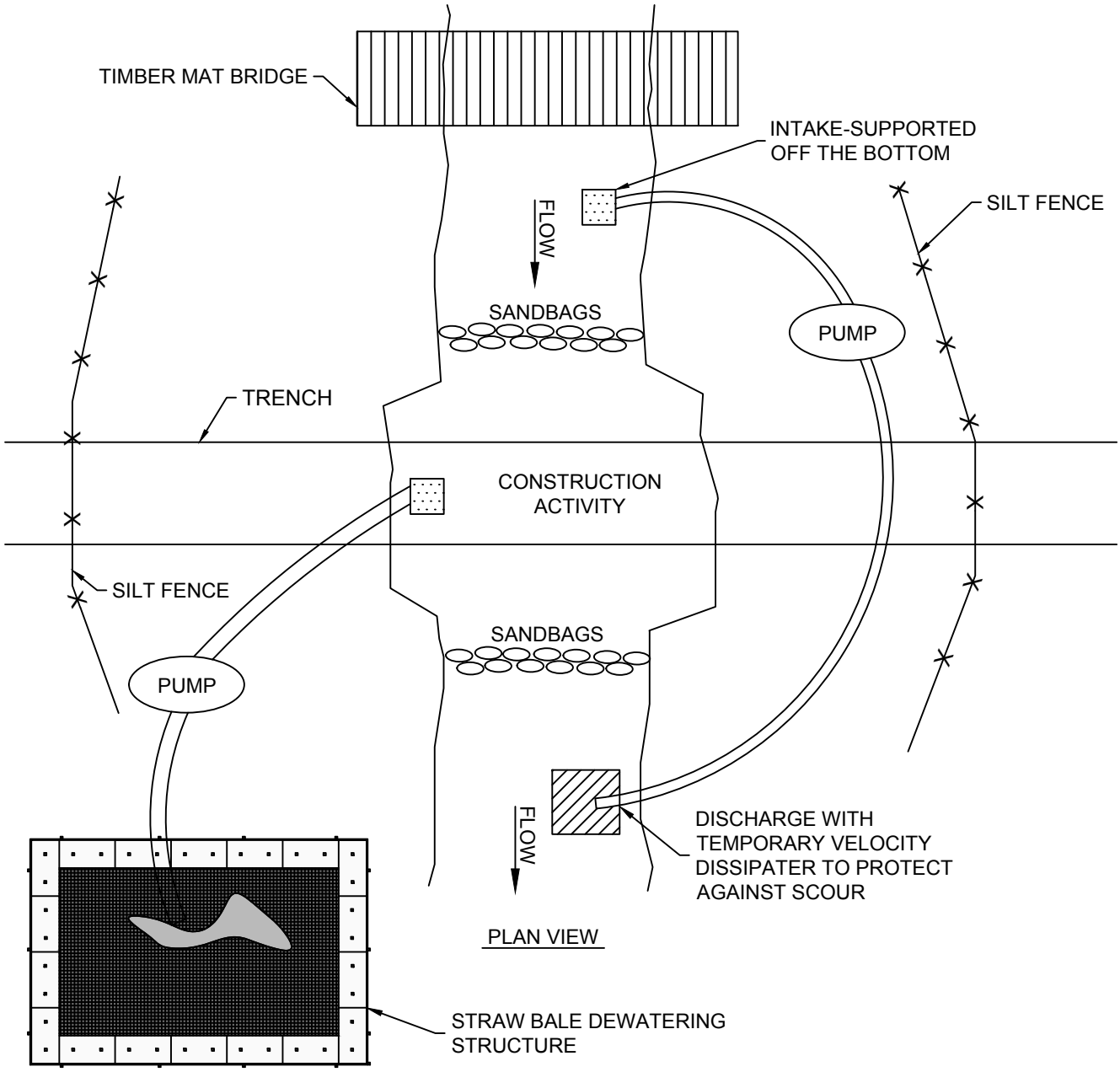
| NO. | DATE | DESCRIPTION | APPROVAL |
|---|---|---|---|
| B | 02/20/2018 | Issued for FERC | |
| | | | |
| | | | |
| | | | |
| | | | |

PROJECT NO.
DRAWN BY:
CHECKED BY:
DATE: 02/20/2018

TYPICAL
HDD HIGHWAY CROSSING

RH ENERGYTRANS
RISBERG LINE PROJECT
ASHTABULA COUNTY, OH

FIGURE
B-10



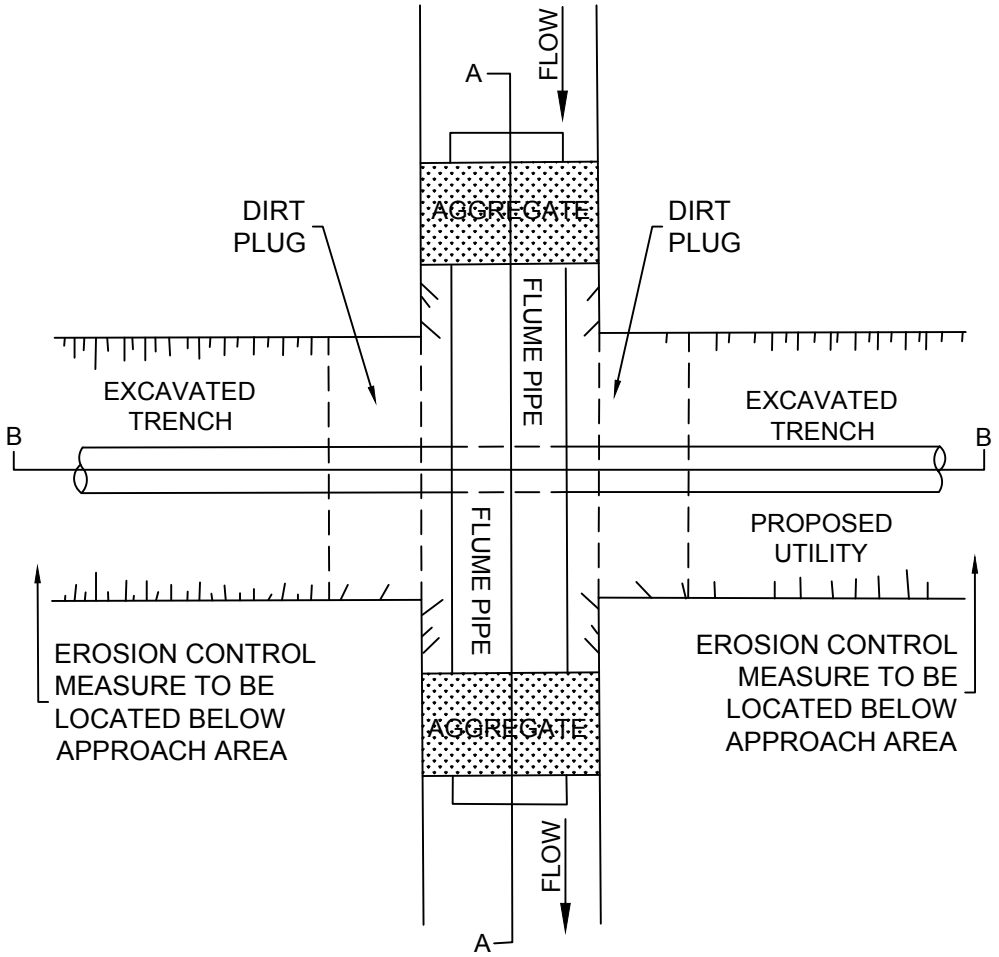

NOTES:

1. DEWATERING STRUCTURE SHOULD BE PLACED IN WELL VEGETATED STRIP.
2. TOP 6"-12" OF NATURAL STREAM SUBSTRATE SHOULD BE ISOLATED DURING IN-STREAM TRENCHING AND RESTORED UPON COMPLETION OF FINAL STREAM STABILIZATION.
3. ENVIRONMENTAL INSPECTOR MUST VERIFY DAM AND PUMP AROUND SETUP.
4. MUST BE A MINIMUM OF 5 FEET OF COVER FROM TOP OF PIPE TO NATURAL GROUND.
5. PIPE SAG SECTION SHOULD BE WELDED PRIOR TO TRENCHING ACTIVITY COMMENCES.
6. ACCUMULATION OF TRENCH WATER MUST BE PUMPED TO DEWATERING STRUCTURE.
7. IN-STREAM WORK MUST BE COMPLETED WITHIN 24 HOURS (HIGH WATER MARK TO HIGH WATER MARK)
8. STREAM BUFFER AREA MUST BE RESTORED WITHIN 72 HOURS.

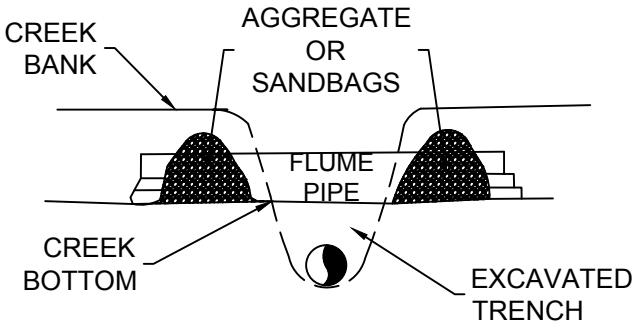
DAM and PUMP STREAM CROSSING

NTS

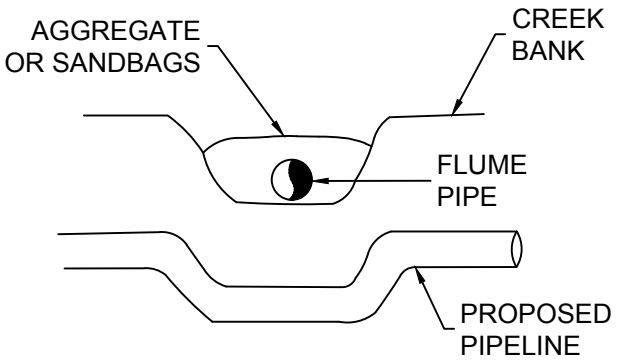
| | | | |
|---|---|---|---|
| KLEINFELDER Bright People. Right Solutions. | PROJECT NO.: 20180674 | EROSION & SEDIMENTATION CONTROL DETAILS | FIGURE |
| | DESIGNED BY: JAS | RISBERG PIPELINE | |
| | DRAWN BY: JAS | RH energytrans, LLC. RISBERG PIPELINE ASTABULA COUNTY, OHIO & ERIE COUNTY, PENNSYLVANIA | B-11 |
| | CHECKED BY: TBD | | |
| | DATE: 02/26/2018 | | |




PLAN VIEW




SECTION A-A

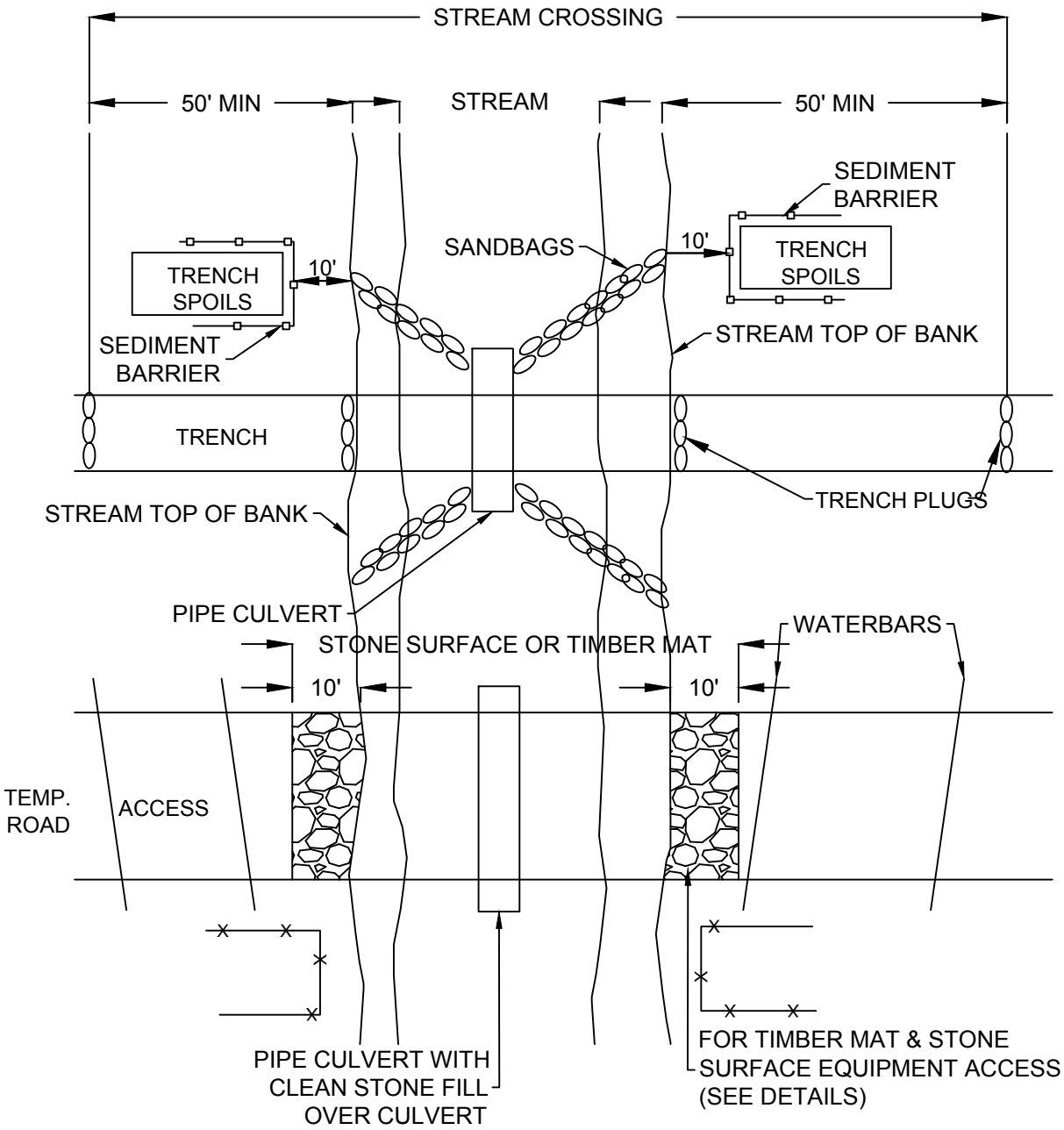



SECTION B-B

FLUME PIPE CROSSING

NTS

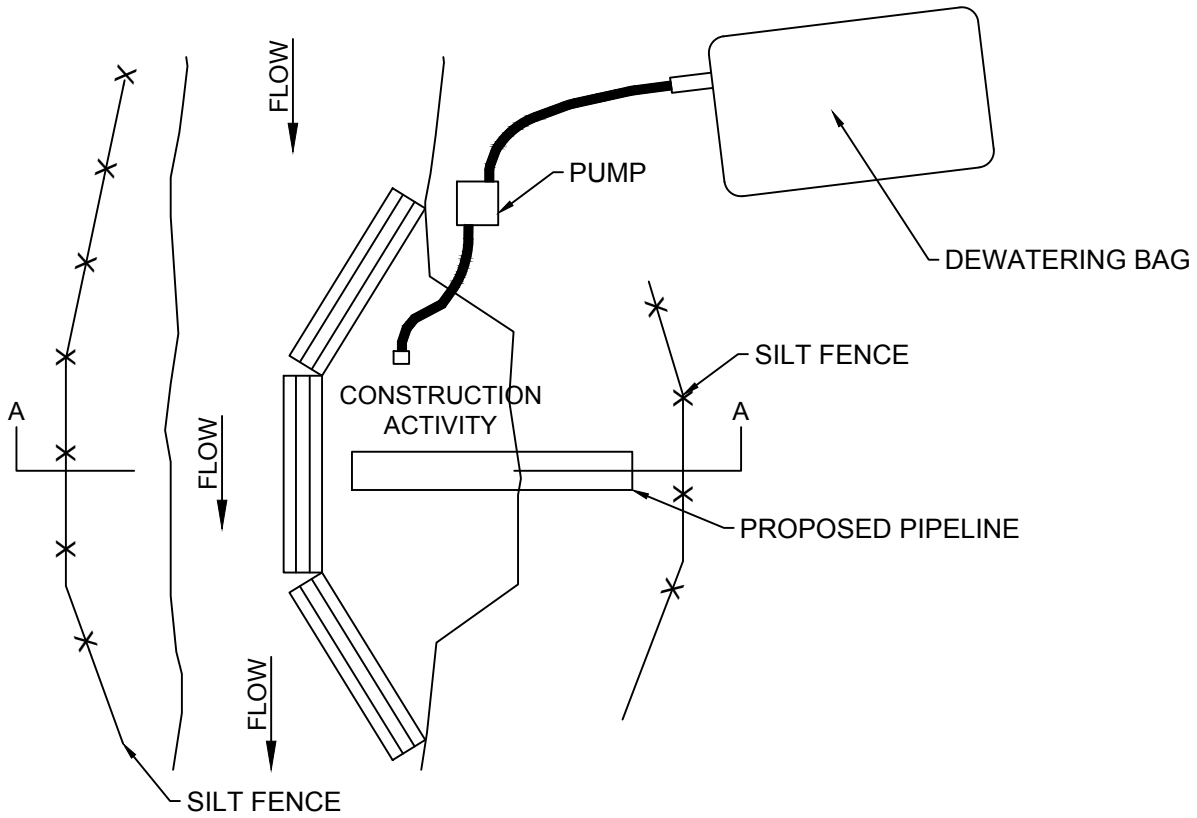
| | | | |
|---|---|---|---|
| KLEINFELDER Bright People. Right Solutions. | PROJECT NO.: 20180674 | EROSION & SEDIMENTATION CONTROL DETAILS | FIGURE |
| | DESIGNED BY: JAS | RISBERG PIPELINE | |
| | DRAWN BY: JAS | RH energytrans, LLC. RISBERG PIPELINE ASTABULA COUNTY, OHIO & ERIE COUNTY, PENNSYLVANIA | B-12 |
| | CHECKED BY: TBD | | |
| | DATE: 02/26/2018 | | |



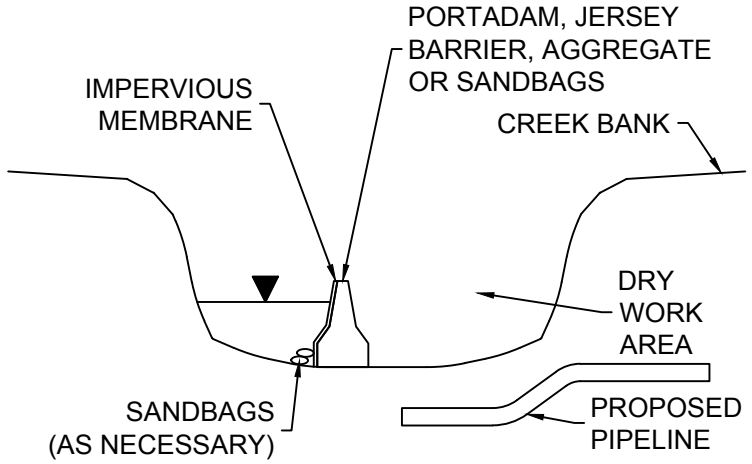

FLUMED STREAM CROSSING WITH ACCESS ROAD

NTS

| | | | |
|---|---|---|---|
| KLEINFELDER Bright People. Right Solutions. | PROJECT NO.: 20180674 | EROSION & SEDIMENTATION CONTROL DETAILS | FIGURE |
| | DESIGNED BY: JAS | RISBERG PIPELINE | |
| | DRAWN BY: JAS | | B-13 |
| | CHECKED BY: TBD | RH energytrans, LLC. RISBERG PIPELINE ASTABULA COUNTY, OHIO & ERIE COUNTY, PENNSYLVANIA | |
| | DATE: 02/26/2018 | | |




PLAN VIEW

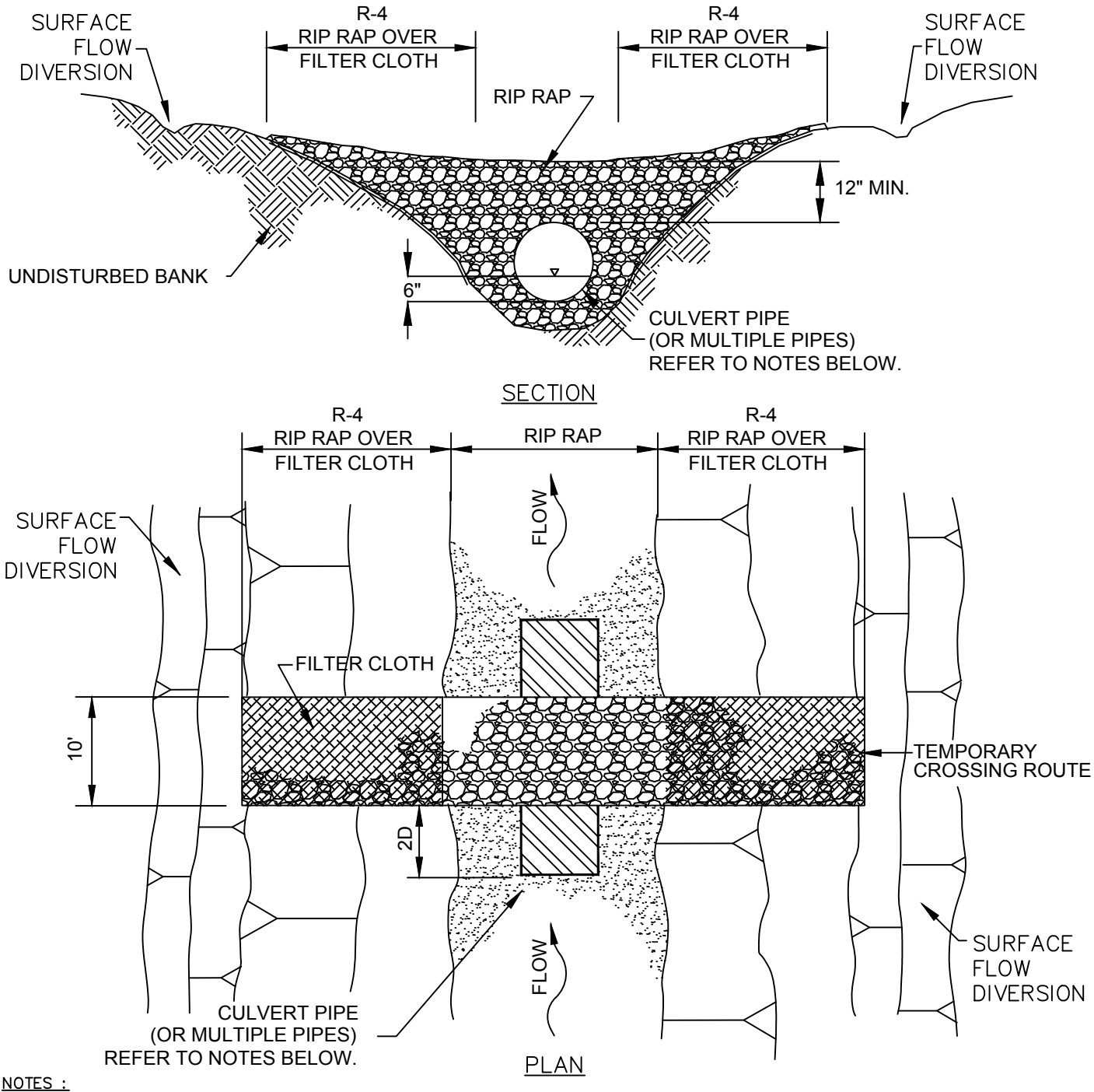



SECTION A-A

COFFERDAM CROSSING

NTS

| | | | |
|---|---|---|---|
| KLEINFELDER Bright People. Right Solutions. | PROJECT NO.: 20180674 | EROSION & SEDIMENTATION CONTROL DETAILS | FIGURE |
| | DESIGNED BY: JAS | RISBERG PIPELINE | |
| | DRAWN BY: JAS | RH energytrans, LLC. RISBERG PIPELINE ASTABULA COUNTY, OHIO & ERIE COUNTY, PENNSYLVANIA | B-14 |
| | CHECKED BY: TBD | | |
| | DATE: 02/26/2018 | | |



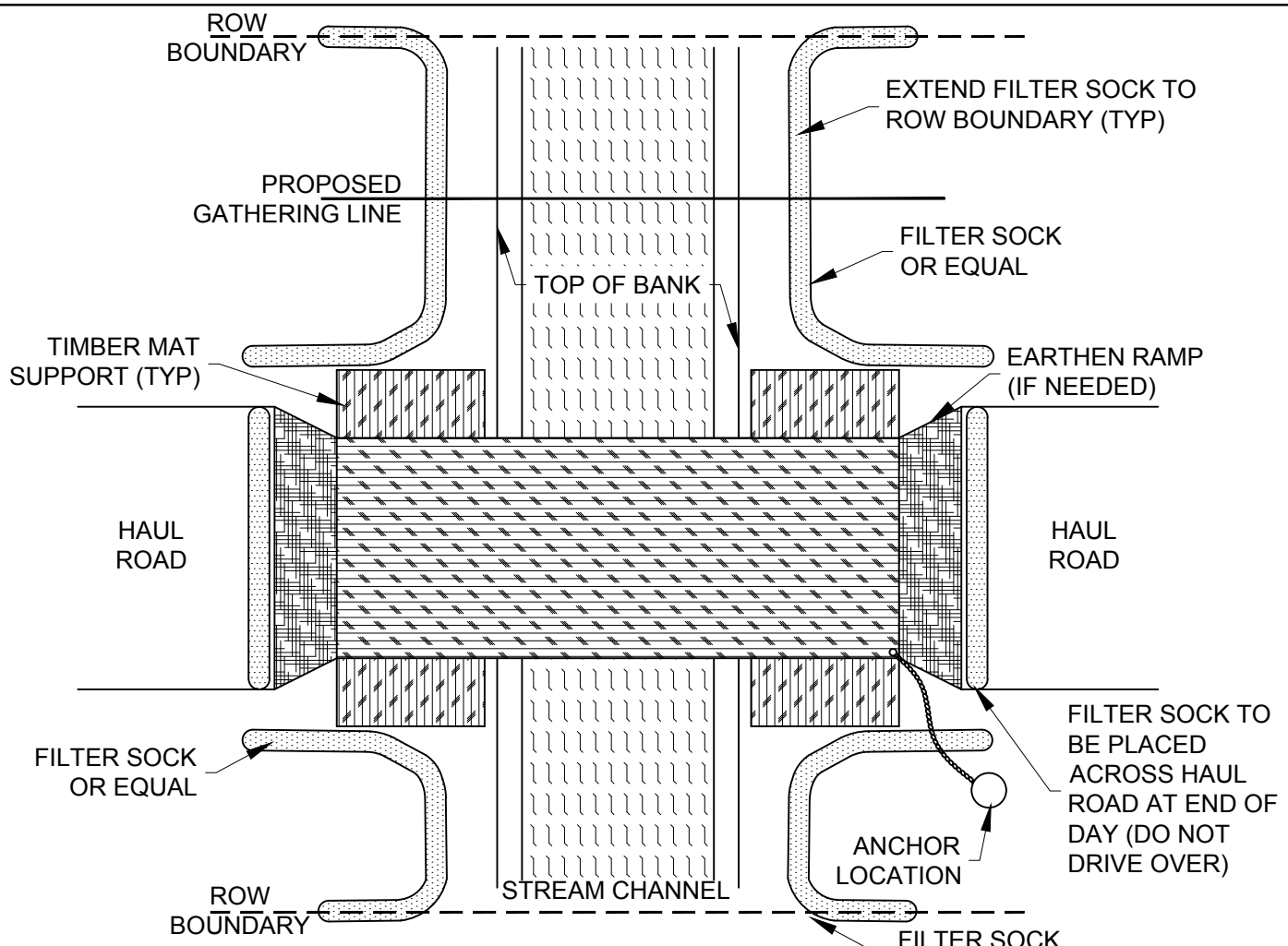

NOTES :

1. PIPE SHOULD EXTEND BEYOND TOE OF ROADWAY.
2. ROADWAY SHOULD BE DEPRESSED OVER CULVERT TO ALLOW FOR OVERFLOW.
3. CLEAN ROCK FILL SHALL BE USED TO GUARD AGAINST EROSION AND SEDIMENTATION. STREAMBED MATERIAL IS NOT TO BE USED.
4. MINIMUM SIZE DIAMETER CULVERT TO BE INSTALLED IS 12 INCHES.
5. APPROACHES TO CROSSINGS ARE NOT TO EXCEED A DEPTH OF 6 INCHES ABOVE ORIGINAL GRADE.
6. PROPER EROSION AND SEDIMENTATION CONTROL MEASURES MUST BE INSTALLED.

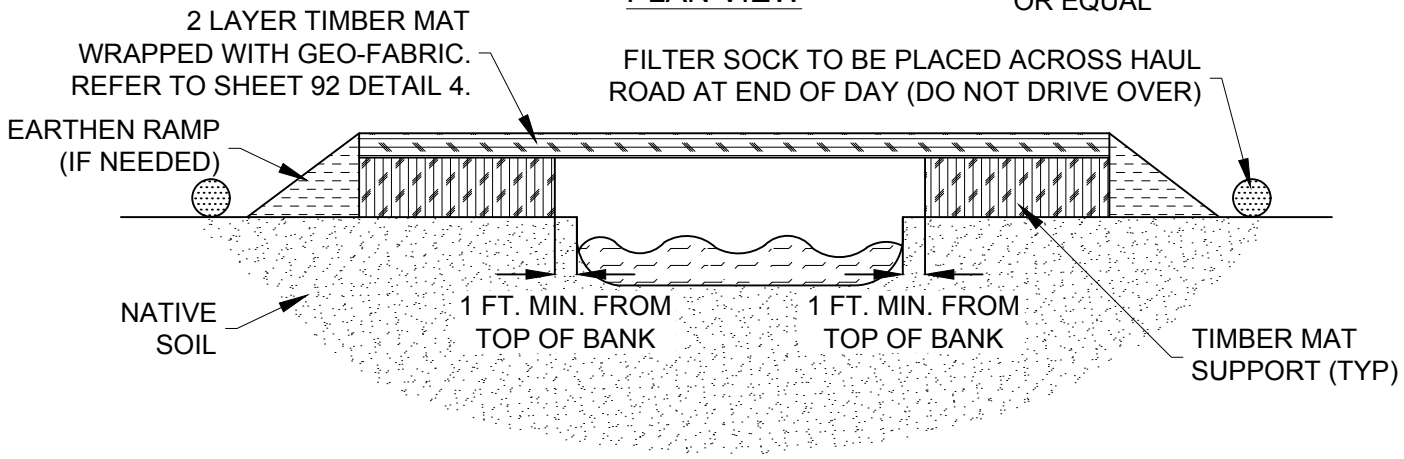
ROCK FLUME BRIDGE

NTS

| | | | |
|---|---|---|---|
| KLEINFELDER Bright People. Right Solutions. | PROJECT NO.: 20180674 | EROSION & SEDIMENTATION CONTROL DETAILS | FIGURE |
| | DESIGNED BY: JAS | RISBERG PIPELINE | |
| | DRAWN BY: JAS | RH energytrans, LLC. RISBERG PIPELINE ASTABULA COUNTY, OHIO & ERIE COUNTY, PENNSYLVANIA | B-15 |
| | CHECKED BY: TBD | | |
| | DATE: 02/26/2018 | | |




PLAN VIEW

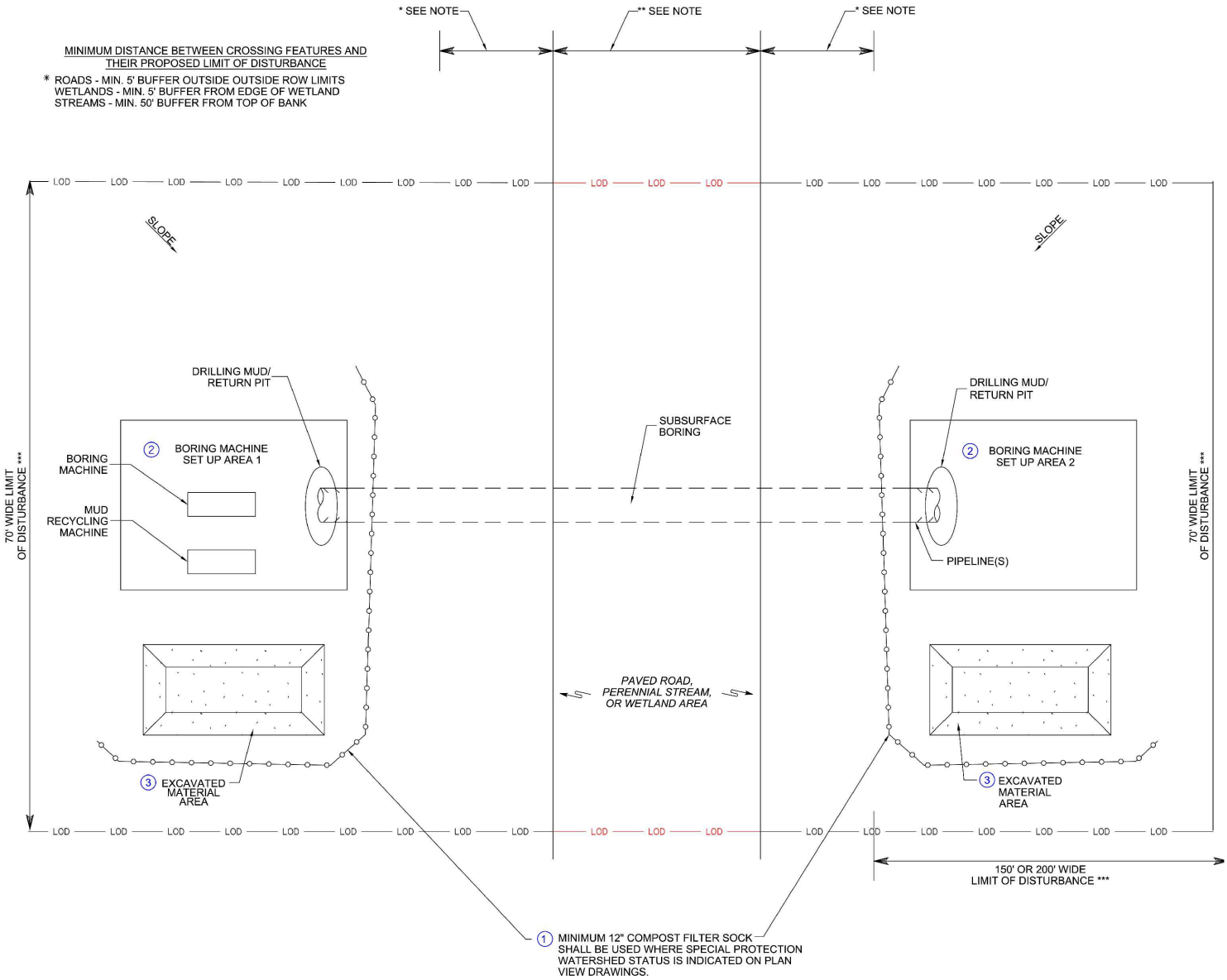



PROFILE VIEW

TYPICAL EROSION AND SEDIMENT CONTROL FOR STREAM CROSSINGS

NTS

| | | | |
|---|---|---|---|
| KLEINFELDER Bright People. Right Solutions. | PROJECT NO.: 20180674 | **EROSION & SEDIMENTATION CONTROL DETAILS** | FIGURE |
| | DESIGNED BY: JAS | **RISBERG PIPELINE** | |
| | DRAWN BY: JAS | RH energytrans, LLC. RISBERG PIPELINE ASTABULA COUNTY, OHIO & ERIE COUNTY, PENNSYLVANIA | B-16 |
| | CHECKED BY: TBD | | |
| | DATE: 02/26/2018 | | |




TYPICAL BORING CROSSING

NTS

| | | | |
|---|---|---|---|
| KLEINFELDER Bright People. Right Solutions. | PROJECT NO.: 20180674 | **EROSION & SEDIMENTATION CONTROL DETAILS** | FIGURE |
| | DESIGNED BY: JAS | **RISBERG PIPELINE** | |
| | DRAWN BY: JAS | RH energytrans, LLC. RISBERG PIPELINE ASTABULA COUNTY, OHIO & ERIE COUNTY, PENNSYLVANIA | B-17 |
| | CHECKED BY: TBD | | |
| | DATE: 02/26/2018 | | |

MINIMUM DISTANCE BETWEEN CROSSING FEATURES AND THEIR PROPOSED LIMIT OF DISTURBANCE

* ROADS - MIN. 5' BUFFER OUTSIDE ROW LIMITS
WETLANDS - MIN 5' BUFFER FROM EDGE OF WETLAND
STREAMS - MIN 5' BUFFER FROM TOP OF BANK

** SHOULD AN INADVERTENT RETURN OF DRILLING FLUID (MUD) OCCUR DURING ANY CONVENTIONAL OR HORIZONTAL DIRECTIONAL DRILLING (HDD) ACTIVITY, ACCESS TO THE AFFECTED AREA COULD RESULT IN ADDITIONAL DISTURBED EARTH WITHIN THE LIMIT OF DISTURBANCE (LOD).

*** REFER TO PLANS FOR LOD WIDTH AND LENGTH REQUIREMENTS FOR ANY HDD OR CONVENTIONAL BORE SETUP.

CONSTRUCTION VEHICLES AND EQUIPMENT ARE PROHIBITED FROM CROSSING OVER SURFACE WATERS (I.E., STREAMS AND WETLANDS) WITHOUT AN APPROVED CHAPTER 105/SECTION 404 PERMIT FROM PADEP AND/OR USACE FOR THAT CROSSING.

TYPICAL BORING CROSSING - SEQUENCE OF CONSTRUCTION

THE PLACEMENT OF THESE STRUCTURES WILL BE DONE IN THE ORDER AS NUMBERED BELOW. EACH SEQUENCE BELOW WILL BE COMPLETED BEFORE THE NEXT STEP IN THE SEQUENCE COMMENCES. NO STEPS WILL BE REMOVED.

NOTE: THE BORING WILL BE PERFORMED UTILIZING A DIRECTIONAL OR HDD BORING MACHINE. THERE WILL BE EARTHWORK ASSOCIATED WITH LEVELING AN AREA FOR THE SETUP OF THE BORING MACHINE.

THE NUMBERS SHOWN IN CLUE ARE SHOWN ON THE PLAN VIEW FOR LOCATION PURPOSES. THE NUMBERS SHOWN IN BLACK ARE NOT ON THE PLAN VIEWS.

1. INSTALL APPROPRIATE SEDIMENT BARRIER DOWNSLOPE OF BORING MACHINE SETUP AREAS 1 & 2 AND ALL EXCAVATED MATERIAL AREAS.

2. EXCAVATE AND GRADE FOR BORING MACHINE SETUP AREAS 1 & 2.

3. PLACE EXCESS MATERIAL IN HE DESIGNATED AREAS.

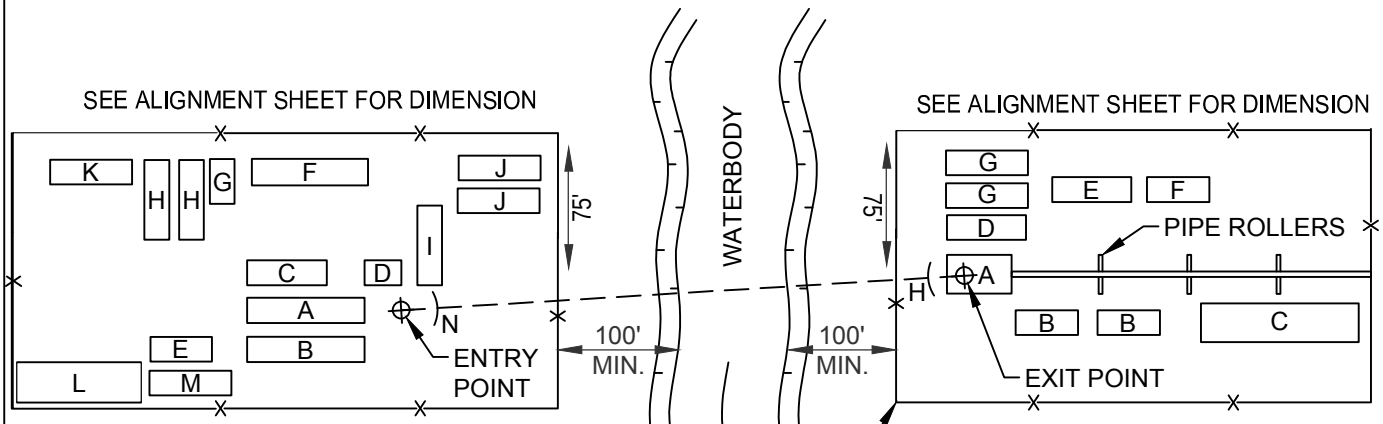
4. THE BORING, CASING, AND CONNECTION OF LINES WILL BE COMPLETED.
5. DURING THE EXCAVATION FOR THE BORING MACHINE SETUP, ALL GROUNDWATER THAT NEEDS TO BE PIMPED FROM THE EXCAVATED TRENCH WILL BE REMOVED BY DISCHARGE THROUGH A PUMPED WATER FILTER BAG. SEE DETAIL 2 ON THIS SHEET. THE LOCATION OF THIS PUMPED WATER FILTER BAG IS NOT SHOWN ON THIS PLAN.

TYPICAL BORING CROSSING

NTS

| | | | |
|---|---|---|---|
| KLEINFELDER Bright People. Right Solutions. | PROJECT NO.: 20180674 | EROSION & SEDIMENTATION CONTROL DETAILS | FIGURE |
| | DESIGNED BY: JAS | RISBERG PIPELINE | |
| | DRAWN BY: JAS | | B-17 p.2 |
| | CHECKED BY: TBD | RH energytrans, LLC. RISBERG PIPELINE ASTABULA COUNTY, OHIO & ERIE COUNTY, PENNSYLVANIA | |
| | DATE: 02/26/2018 | | |

# TYPICAL HDD WATERBODY CROSSING



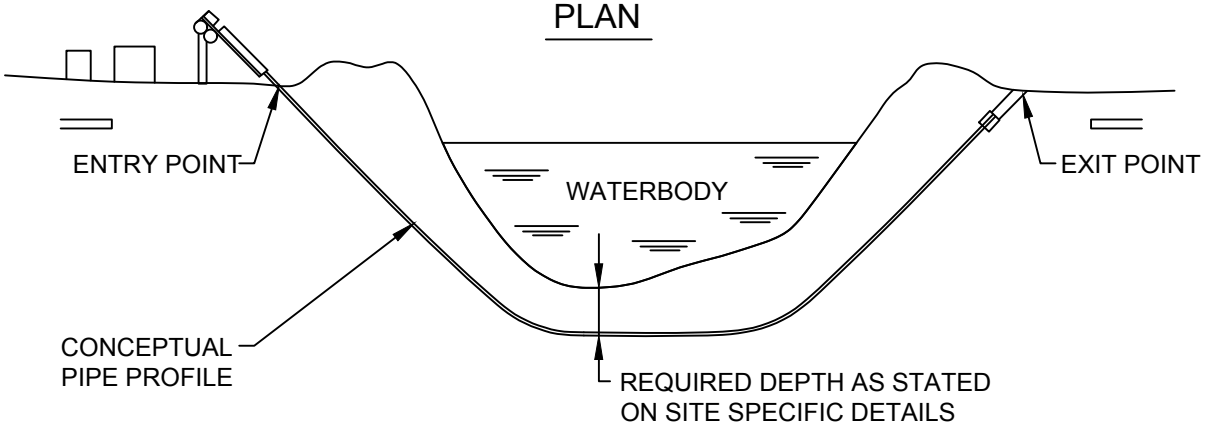

A-DRILL RIG
B-DRILLER'S CONSOLE GENERATOR
C-DRILL PIPE
D-CRANE
E-PARTS VAN
F-MUD CLEANING UNIT
G-MUD MIXING TANK

H-MUD PUMPS
I-MUD PIT
J-FRAC TANKS
K-DRILLING MUD (PALLETS)
L-PARKING
M-OFFICE TRAILER
N-CONTAINMENT BERM

INSTALL SILT FENCE AROUND ENTIRE WORK AREA (T. BOTH SIDES)

A-EXIT PIT
B-LIFT EQUIPMENT
C-WELDING AREA
D-MUD PIT
E-MID CLEANING
F-GENERATOR
G-FRAC TANKS
H-CONTAINMENT BERM

## PLAN




## PROFILE

NOTES:

1. SET UP DRILLING EQUIPMENT A MINIMUM OF 100 FEET FROM THE EDGE OF THE WATERCOURSE. DO NOT CLEAR OR GRADE WITHIN 100 FOOT ZONE. SETBACK MAY BE ADJUSTED BASED ON ANALYSIS IN GEOTECH REPORT.
2. ENSURE THAT ONLY BENTONITE BASED DRILLING MUD IS USED. DO NOT ALLOW THE USE OF ANY ADDITIVES TO THE DRILLING MUD WITHOUT THE APPROVAL OF COMPANY'S INSPECTOR.
3. INSTALL SUITABLE DRILLING MUD TANKS OR SUMPS TO PREVENT CONTAMINATION OF WATERCOURSE.
4. INSTALL BERMS DOWNSLOPE FROM THE DRILL ENTRY AND ANTICIPATED EXIT POINT TO CONTAIN ANY RELEASE OF DRILLING MUD.
5. DISPOSE OF DRILLING MUD IN ACCORDANCE WITH THE APPROPRIATE REGULATORY AUTHORITY REQUIREMENTS.

REVISIONS

| NO. | DATE | DESCRIPTION | APPROVAL |
|---|---|---|---|
| B | 02/20/2018 | Issued for FERC | |

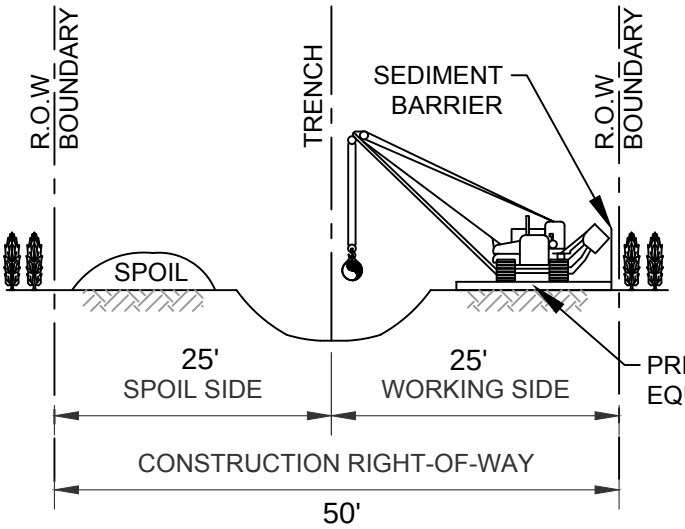
PROJECT NO.
DRAWN BY:
CHECKED BY:
DATE: 02/20/2018

TYPICAL HDD WATER CROSSING

RH ENERGYTRANS
RISBERG LINE PROJECT
ASHTABULA COUNTY, OH

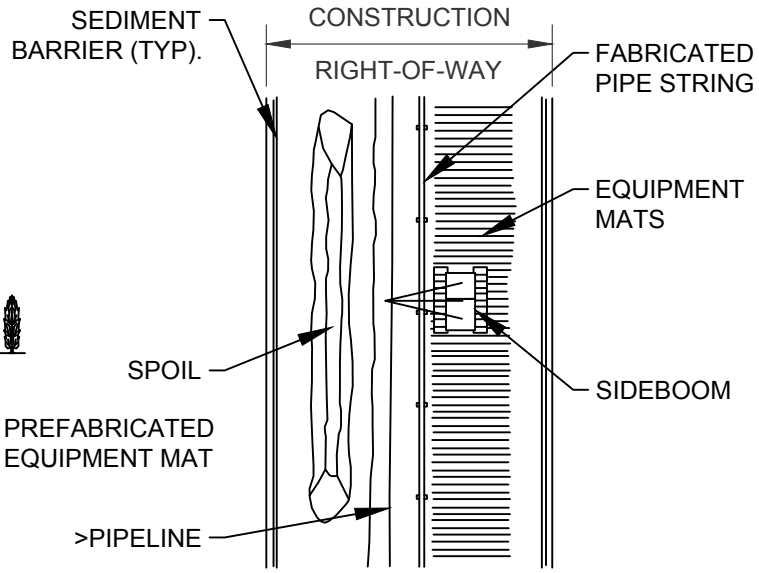
FIGURE
B-18

# TYPICAL WETLAND CONSTRUCTION PROCEDURE




## CROSS SECTION

N.T.S




## PLAN VIEW

N.T.S

NOTES:

1. FLAG WETLAND BOUNDARIES AND INSTALL BOUNDARY SIGNS PRIOR TO CLEARING.
2. NO OVERNIGHT PARKING OR REFUELING OF MOBILE EQUIPMENT IS ALLOWED WITHIN 100 FEET OF WETLAND. PLACE "NO FUELING" SIGN POSTS 100 FEET BACK FROM WETLAND BOUNDARY.
3. INSTALL TEMPORARY SLOPE BREAKERS UP SLOPE OF WETLAND BOUNDARIES AS SHOWN ON DRAWINGS AND/OR SPECIFICATIONS.
4. INSTALL PREFABRICATED EQUIPMENT MATS AS FIELD CONDITIONS REQUIRE ON THE WORKING SIDE OF THE CONSTRUCTION CORRIDOR.
5. AVOID ADJACENT WETLANDS. INSTALL SEDIMENT BARRIERS AT OUTER BOUNDARIES OF WETLAND AND ALONG BOTH WETLAND EDGES.
6. LIMIT PULLING OF TREE STUMPS AND GRADING ACTIVITIES TO DIRECTLY OVER THE TRENCH LINE. DO NOT GRADE OR REMOVE STUMPS OR ROOT SYSTEMS FROM THE REST OF THE RIGHT-OF-WAY IN WETLANDS UNLESS THE CHIEF INSPECTOR AND COMPANY ENVIRONMENTAL INSPECTOR DETERMINE THAT SAFETY RELATED CONSTRUCTION CONSTRAINTS REQUIRE REMOVAL OF TREE STUMPS FROM UNDER THE WORKING SIDE OF THE RIGHT-OF-WAY.
7. SEGREGATE TOPSOIL FROM THE TOP ONE FOOT OF THE TRENCH, EXCEPT IN AREAS WHERE STANDING WATER IS PRESENT.
8. TRENCHING THROUGH WETLANDS MAY PROCEED WHEN THE PIPE SECTION IS FABRICATED AND READY TO LAY. ONCE TRENCHING COMMENCES, CONSTRUCTION THROUGH THE WETLANDS IS TO PROCEED CONTINUOUSLY UNTIL THE CROSSING IS COMPLETED, BACK FILLED AND RESTORED IN ORDER TO MINIMIZE THE LENGTH OF TIME THE TRENCH IS OPEN.
9. PIPE SECTION MAY BE FABRICATED WITHIN THE WETLAND ADJACENT TO PIPE TRENCH, OR IN STAGING AREA OUTSIDE THE WETLAND AND WALKED IN. THERE SHOULD BE NO CONCRETE COATING ACTIVITY WITHIN 100 FEET OF WETLAND BOUNDARY UNLESS APPROVED BY COMPANY ENVIRONMENTAL INSPECTOR.
10. LOWER-IN PIPE. PRIOR TO BACKFILLING, INSTALL TRENCH PLUGS IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS.
11. RESTORE GRADE TO NEAR PRE-CONSTRUCTION TOPOGRAPHY AND INSTALL PERMANENT EROSION CONTROL.
12. REMOVE PREFABRICATED MATS FROM WETLANDS UPON COMPLETION.

| | | | |
|---|---|---|---|
| RH energytrans | PROJECT NO. 197409<br>DRAWN BY: AI<br>CHECKED BY: TAP<br>DATE: 1/19/2018 | TYPICAL WETLAND CONSTRUCTION PROCEDURE<br>RH ENERGYTRANS, LLC<br>RISBERG LINE PROJECT<br>PENNSYLVANIA AND OHIO | FIGURE<br>B-19 |

# Appendix C

# Waterbody and Wetland Crossing Tables

## Waterbody Crossing Table

| Milepost or Access Road | Stream ID | Waterbody Name | Width (feet)[1] | Anticipated Crossing Method[2] | FERC Waterbody Type | Stream Type | Seasonal Timing Restriction for In-stream Construction[3] | State Water Quality Classification[4] |
|---|---|---|---|---|---|---|---|---|
| **Risberg Pipeline, Erie County, Pennsylvania** | | | | | | | | |
| 31.5 | STREAM 1_109 | Unnamed tributary to Temple Creek | 0.6 | Open Cut | Minor | Ephemeral | Procedures, PFBC: April 1 – August 15 | CWF |
| 31.9 | STREAM 1_110 | Unnamed tributary to Temple Creek | 0.3 | Open Cut | Minor | Ephemeral | Procedures, PFBC: April 1 – August 15 | CWF |
| 31.9 | STREAM 1_112 | Unnamed tributary to Temple Creek | 0.8 | Open Cut | Minor | Ephemeral | Procedures, PFBC: April 1 – August 15 | CWF |
| 32.8 | STREAM 1_118 | Unnamed tributary to Temple Creek | 0.8 | Open Cut | Minor | Ephemeral | Procedures, PFBC: April 1 – August 15 | CWF |
| 32.8 | STREAM 1_119 | Unnamed tributary to Temple Creek | 0.2 | Open Cut | Minor | Ephemeral | Procedures, PFBC: April 1 – August 15 | CWF |
| 32.8 | KLF-STREAM03 | Unnamed tributary to Temple Creek | 10 | Dam and Pump | Minor | Perennial | Procedures, PFBC: April 1 – August 15 | CWF |
| 33.1 | STREAM 1_120 | Unnamed tributary to Temple Creek | 1 | Open Cut | Minor | Intermittent | Procedures, PFBC: April 1 – August 15 | CWF |
| 33.3 | KLF-STREAM02 | Unnamed tributary to Temple Creek | 8 | Dam and Pump | Minor | Perennial | Procedures, PFBC: April 1 – August 15 | CWF |
| 33.5 | STREAM 1_123 | Unnamed tributary to Temple Creek | 0.6 | Open Cut | Minor | Ephemeral | Procedures, PFBC: April 1 – August 15 | CWF |
| 33.6 | STREAM 1_124 | Unnamed tributary to Temple Creek | 2 | Dam and Pump | Minor | Perennial | Procedures, PFBC: April 1 – August 15 | CWF |
| 33.6 | STREAM 1_125 | Unnamed tributary to Temple Creek | 0.2 | Open Cut | Minor | Ephemeral | Procedures, PFBC: April 1 – August 15 | CWF |
| 33.6 | STREAM 1_128 | Unnamed tributary to Temple Creek | 0.3 | Open Cut | Minor | Ephemeral | Procedures, PFBC: April 1 – August 15 | CWF |
| 34.5 | STREAM 4_11 | Unnamed tributary to Temple Creek | 5 | Open Cut | Minor | Ephemeral | Procedures, PFBC: April 1 – August 15 | CWF |
| 34.6 | STREAM 4_13 | Unnamed tributary to Temple Creek | 9 | Open Cut | Minor | Intermittent | Procedures, PFBC: April 1 – August 15 | CWF |
| 34.6 | STREAM 4_14 | Unnamed tributary to Temple Creek | 4 | Open Cut | Minor | Ephemeral | Procedures, PFBC: April 1 – August 15 | CWF |
| 34.7 | STREAM 4_15 | Unnamed tributary to Temple Creek | 2 | Open Cut | Minor | Ephemeral | Procedures, PFBC: April 1 – August 15 | CWF |
| 34.7 | STREAM 4_16 | Unnamed tributary to Temple Creek | 6 | Open Cut | Minor | Intermittent | Procedures, PFBC: April 1 – August 15 | CWF |
| 34.7 | STREAM 4_17 | Unnamed tributary to Temple Creek | 2 | Open Cut | Minor | Intermittent | Procedures, PFBC: April 1 – August 15 | CWF |
| 34.7 | KLF-STREAM04 | Unnamed tributary to Temple Creek | 18 | Dam and Pump | Intermediate | Perennial | Procedures, PFBC: April 1 – August 15 | CWF |
| 35.9 | STREAM 4_7 | Unnamed tributary to East Branch Conneaut Creek | 3 | Open Cut | Minor | Intermittent | Procedures, PFBC: April 1 – August 15 | CWF |
| 36.2 | STREAM 4_6 | Unnamed tributary to East Branch Conneaut Creek | 4 | Dam and Pump | Minor | Perennial | Procedures, PFBC: April 1 – August 15 | CWF |
| 36.5 | STREAM 4_4 | Unnamed tributary to East Branch Conneaut Creek | 5.5 | Dam and Pump | Minor | Perennial | Procedures, PFBC: April 1 – August 15 | CWF |

**Waterbody Crossing Table**

| Milepost or Access Road | Stream ID | Waterbody Name | Width (feet)[1] | Anticipated Crossing Method[2] | FERC Waterbody Type | Stream Type | Seasonal Timing Restriction for In-stream Construction[3] | State Water Quality Classification[4] |
|---|---|---|---|---|---|---|---|---|
| 36.8 | STREAM 4_3 | Unnamed tributary to East Branch Conneaut Creek | 4.5 | Open Cut | Minor | Intermittent | Procedures, PFBC: April 1 – August 15 | CWF |
| 37.3 | STREAM 4_2 | Unnamed tributary to East Branch Conneaut Creek | 4 | Open Cut | Minor | Intermittent | Procedures, PFBC: April 1 – August 15 | CWF |
| 37.7 | STREAM 4_1 | East Branch Conneaut Creek | 12 | Conventional Bore | Intermediate | Perennial | Procedures, PFBC: April 1 – August 15 | CWF |
| 40.4 | STREAM 3_4 | Unnamed tributary to Crooked Creek | 4 | Open Cut | Minor | Ephemeral | PFBC: April 1 – August 15 | HQ-CWF |
| 41.1 | STREAM 3_2 | Unnamed tributary to Crooked Creek | 3 | Open Cut | Minor | Intermittent | Procedures, PFBC: April 1 – August 15 | HQ-CWF |
| 41.1 | STREAM 3_1 | Unnamed tributary to Crooked Creek | 3 | Open Cut | Minor | Intermittent | Procedures, PFBC: April 1 – August 15 | HQ-CWF |
| 42.4 | STREAM 1_19 | Unnamed tributary to Conneaut Creek | 1 | Dam and Pump | Minor | Perennial | Procedures, PFBC: April 1 – August 15 | CWF |
| 42.4 | STREAM 2_17 | Unnamed tributary to Raccoon Creek | 1.5 | Open Cut | Minor | Ephemeral | Procedures, PFBC: April 1 – August 15 | CWF |
| 42.4 | STREAM 2_18 | Unnamed tributary to Raccoon Creek | 1 | Open Cut | Minor | Ephemeral | Procedures, PFBC: April 1 – August 15 | CWF |
| 43.0 | STREAM 2_16 | Unnamed tributary to Raccoon Creek | 2 | Open Cut | Minor | Intermittent | Procedures | CWF |
| 43.2 | STREAM 2_15 | Unnamed tributary to Raccoon Creek | 1.5 | Open Cut | Minor | Ephemeral | Procedures | CWF |
| 43.4 | STREAM 2_14 | Unnamed tributary to Raccoon Creek | 1.5 | Open Cut | Minor | Intermittent | Procedures | CWF |
| 44.1 | STREAM 2_9 | Raccoon Creek | 2.5 | Dam and Pump | Minor | Perennial | Procedures | CWF |
| 44.3 | STREAM 2_7 | Unnamed tributary to Raccoon Creek | 2.5 | Open Cut | Minor | Intermittent | Procedures | CWF |
| 44.7 | STREAM 2_6 | Unnamed tributary to Raccoon Creek | 1 | Open Cut | Minor | Ephemeral | Procedures | CWF |
| 45.1 | STREAM 2_5 | Unnamed tributary to Raccoon Creek | 2.5 | Dam and Pump | Minor | Perennial | Procedures | CWF |
| 45.4 | STREAM 2_2 | Unnamed tributary to Turkey Creek | 3 | Dam and Pump | Minor | Perennial | Procedures | CWF |
| 45.5 | STREAM 2_3 | Unnamed tributary to Turkey Creek | 2 | Open Cut | Minor | Intermittent | Procedures | CWF |
| 45.7 | STREAM 2_1 | Turkey Creek | 3 | Dam and Pump | Minor | Perennial | Procedures | CWF |
| 45.8 | STREAM 1_1 | Unnamed tributary to Turkey Creek | 0.5 | Open Cut | Minor | Intermittent | Procedures | CWF |
| 46.3 | STREAM 1_4 | Unnamed tributary to Turkey Creek | 4 | Dam and Pump | Minor | Perennial | Procedures | CWF |
| 46.7 | STREAM 1_5 | Unnamed tributary to Conneaut Creek | 1.5 | Open Cut | Minor | Intermittent | Procedures | CWF |
| 46.8 | STREAM 1_6 | Unnamed tributary to Conneaut Creek | 1.5 | Open Cut | Minor | Intermittent | Procedures | CWF |
| 46.8 | STREAM 1_8 | Unnamed tributary to Conneaut Creek | 1 | Open Cut | Minor | Ephemeral | Procedures | CWF |
| 46.9 | STREAM 1_7 | Unnamed tributary to Conneaut Creek | 1.5 | Open Cut | Minor | Intermittent | Procedures | CWF |
| 47.3 | STREAM 1_9 | Unnamed tributary to Conneaut Creek | 1 | Dam and Pump | Minor | Perennial | Procedures | CWF |
| 47.6 | STREAM 1_12 | Unnamed tributary to Conneaut Creek | 2.5 | Dam and Pump | Minor | Perennial | Procedures | CWF |
| 47.8 | STREAM 1_13 | Unnamed tributary to Conneaut Creek | 2 | Dam and Pump | Minor | Perennial | Procedures | CWF |
| 48.1 | STREAM 1_14 | Unnamed tributary to Conneaut Creek | 3 | Dam and Pump | Minor | Perennial | Procedures | CWF |
| 48.1 | STREAM 1_16 | Unnamed tributary to Conneaut Creek | 2 | Open Cut | Minor | Ephemeral | Procedures | CWF |
| 48.1 | STREAM 1_17 | Unnamed tributary to Conneaut Creek | 1 | Open Cut | Minor | Ephemeral | Procedures | CWF |

## Waterbody Crossing Table

| Milepost or Access Road | Stream ID | Waterbody Name | Width (feet)[1] | Anticipated Crossing Method[2] | FERC Waterbody Type | Stream Type | Seasonal Timing Restriction for In-stream Construction[3] | State Water Quality Classification[4] |
|---|---|---|---|---|---|---|---|---|
| **Risberg Pipeline, Ashtabula County, Ohio** | | | | | | | | |
| 48.3 | Stream 1_18A | Unnamed tributary to Conneaut Creek | 3 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 48.4 | Stream 1_18 | Unnamed tributary to Conneaut Creek | 3 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 48.4 | Stream 1_20 | Unnamed tributary to Conneaut Creek | 3 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 48.6 | Stream 1_21 | Unnamed tributary to Conneaut Creek | 1 | Open Cut | Minor | Intermittent | Procedures | -- |
| 48.6 | Stream 1_22 | Unnamed tributary to Conneaut Creek | 3 | Open Cut | Minor | Intermittent | Procedures | -- |
| 48.9 | KLF-STREAM01 | Unnamed tributary to Conneaut Creek | 12 | Dam and Pump | Intermediate | Perennial | Procedures, ODNR: April 15 - June 30 | -- |
| 49.1 | Stream 1_23 | Unnamed tributary to Conneaut Creek | 2 | Open Cut | Minor | Intermittent | Procedures | -- |
| 49.4 | Stream 1_24 Crossing 1 | Unnamed tributary to Conneaut Creek | 6 | Conventional Bore | Minor | Perennial | Procedures, ODNR: April 15 - June 30 | -- |
| 49.8 | Stream 1_130 | Unnamed tributary to Conneaut Creek | 2 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 50.0 | Stream 1_26 | Unnamed tributary to Conneaut Creek | 2 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 50.2 | Stream 1_27 | Unnamed tributary to Conneaut Creek | 4 | Open Cut | Minor | Intermittent | Procedures | -- |
| 50.3 | Stream 1_28 | Smokey Run | 6 | Dam and Pump | Minor | Perennial | ODNR: September 15 – June 30 | SSH |
| 50.3 | Stream 1_30 | Unnamed tributary to Conneaut Creek | 2 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 50.5 | Stream 1_31 | Unnamed tributary to Conneaut Creek | 1 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 50.7 | Stream 1_32 | Unnamed tributary to Conneaut Creek | 2 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 50.8 | Stream 1_33 | Unnamed tributary to Conneaut Creek | 2 | Open Cut | Minor | Intermittent | Procedures | -- |
| 50.9 | Stream 1_34 | Unnamed tributary to Conneaut Creek | 2 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 51.1 | Stream 1_36 | Unnamed tributary to Conneaut Creek | 2 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 51.2 | Stream 1_37 | Unnamed tributary to Conneaut Creek | 2 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 51.3 | Stream 1_38 | Unnamed tributary to Conneaut Creek | 2 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 51.3 | Stream 1_39 | Unnamed tributary to Conneaut Creek | 2 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 51.5 | Stream 1_40 | Unnamed tributary to Conneaut Creek | 6 | Open Cut | Minor | Intermittent | Procedures | -- |
| 51.6 | Stream 1_41 | Unnamed tributary to Conneaut Creek | 1 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 51.6 | Stream 1_42 | Unnamed tributary to Conneaut Creek | 1.5 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 51.6 | KLF-STREAM05 | Unnamed tributary to Conneaut Creek | 18 | Dam and Pump | Intermediate | Perennial | Procedures, ODNR: April 15 - June 30 | -- |
| 51.8 | Stream 1_44 | Unnamed tributary to Conneaut Creek | 15 | Open Cut | Intermediate | Intermittent | Procedures | -- |
| 51.8 | Stream 1_45 | Unnamed tributary to Conneaut Creek | 6 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 51.8 | Stream 1_46 | Unnamed tributary to Conneaut Creek | 1.5 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 51.9 | Stream 1_48 | Unnamed tributary to Conneaut Creek | 2 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 52.0 | Stream 1_47 | Unnamed tributary to Conneaut Creek | 2 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 52.0 | Stream 1_49A | Unnamed tributary to Conneaut Creek | 6 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 52.0 | Stream 1_49 | Unnamed tributary to Conneaut Creek | 6 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 52.2 | Stream 1_50 | Unnamed tributary to Conneaut Creek | 1 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 52.2 | Stream 1_51 | Unnamed tributary to Conneaut Creek | 9 | Dam and Pump | Minor | Perennial | Procedures, ODNR: April 15 - June 30 | -- |
| 52.5 | Stream 1_52 | Unnamed tributary to Conneaut Creek | 3 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 52.6 | Stream 1_53 | Unnamed tributary to Conneaut Creek | 4 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 52.7 | Stream 1_54 | Unnamed tributary to Conneaut Creek | 1.5 | Open Cut | Minor | Ephemeral | Procedures | -- |

**Waterbody Crossing Table**

| Milepost or Access Road | Stream ID | Waterbody Name | Width (feet)[1] | Anticipated Crossing Method[2] | FERC Waterbody Type | Stream Type | Seasonal Timing Restriction for In-stream Construction[3] | State Water Quality Classification[4] |
|---|---|---|---|---|---|---|---|---|
| 52.7 | Stream 1_55 | Unnamed tributary to Conneaut Creek | 3 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 52.7 | Stream 1_56 | Unnamed tributary to Conneaut Creek | 2 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 52.7 | Stream 1_57 | Unnamed tributary to Conneaut Creek | 5 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 52.9 | Stream 1_58 | Unnamed tributary to Conneaut Creek | 4 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 52.9 | Stream 1_63 | Unnamed tributary to Conneaut Creek | 4 | Open Cut | Minor | Intermittent | Procedures | -- |
| 52.9 | Stream 1_62 | Unnamed tributary to Conneaut Creek | 3 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 53.0 | Stream 1_65 | Unnamed tributary to Conneaut Creek | 0.3 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 53.1 | Stream 1_69 | Unnamed tributary to Conneaut Creek | 2.5 | Open Cut | Minor | Intermittent | Procedures | -- |
| 53.1 | Stream 1_70 | Unnamed tributary to Conneaut Creek | 2 | Open Cut | Minor | Intermittent | Procedures | -- |
| 53.2 | Stream 1_72 | Unnamed tributary to Conneaut Creek | 3 | Open Cut | Minor | Intermittent | Procedures | -- |
| 53.3 | Stream 1_77 | Unnamed tributary to Conneaut Creek | 6.5 | Open Cut | Minor | Intermittent | Procedures | -- |
| 53.4 | Stream 1_79 | Unnamed tributary to Conneaut Creek | 3 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 53.5 | Stream 1_82 | Unnamed tributary to Conneaut Creek | 3 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 53.5 | Stream 1_83 | Unnamed tributary to Conneaut Creek | 3 | Open Cut | Minor | Intermittent | Procedures | -- |
| 53.7 | Stream 1_84 | Unnamed tributary to Conneaut Creek | 8 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 53.8 | Stream 1_86 | Unnamed tributary to Conneaut Creek | 8 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 54.2 | Stream 1_88 | Unnamed tributary to Conneaut Creek | 1 | HDD | Minor | Ephemeral | Procedures | -- |
| 54.3 | Stream 1_89A | Unnamed tributary to Conneaut Creek | 2 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 54.3 | Stream 1_89 | Unnamed tributary to Conneaut Creek | 7 | Open Cut | Minor | Intermittent | Procedures | -- |
| 54.7 | Stream 1_91 | Conneaut Creek | 120 | HDD | Major | Perennial | ODNR: September 15 – June 30; in-stream construction would be avoided | EWH, SSH, AWS, IWS; and PCR |
| 56.2 | Stream 1_97 | Unnamed tributary to Lake Erie | 3 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 56.3 | Stream 1_98 | Unnamed tributary to Lake Erie | 3 | Open Cut | Minor | Ephemeral | Procedures | -- |
| 58.6 | Stream 1_101 | Unnamed tributary to Lake Erie | 5 | Dam and Pump | Minor | Perennial | Procedures, ODNR: April 15 - June 30 | -- |
| 58.7 | Stream 1_99 | Unnamed tributary to Lake Erie | 8 | Dam and Pump | Minor | Perennial | Procedures, ODNR: April 15 - June 30 | -- |
| 59.1 | Stream 1_102 | Unnamed tributary to Lake Erie | 4 | Dam and Pump | Minor | Perennial | Procedures, ODNR: April 15 - June 30 | -- |
| 59.2 | Stream 1_103 | Unnamed tributary to Lake Erie | 6 | Dam and Pump | Minor | Perennial | Procedures, ODNR: April 15 - June 30 | -- |
| 59.5 | Stream 1_105 | Unnamed tributary to Lake Erie | 5 | Dam and Pump | Minor | Perennial | Procedures, ODNR: April 15 - June 30 | -- |
| 59.7 | Stream 1_108 | Unnamed tributary to Lake Erie | 6 | Dam and Pump | Minor | Perennial | Procedures, ODNR: April 15 - June 30 | -- |

**Waterbody Crossing Table**

| Milepost or Access Road | Stream ID | Waterbody Name | Width (feet)[1] | Anticipated Crossing Method[2] | FERC Waterbody Type | Stream Type | Seasonal Timing Restriction for In-stream Construction[3] | State Water Quality Classification[4] |
|---|---|---|---|---|---|---|---|---|
| TAR-1 | Stream 1_109 | Unnamed tributary to Temple Creek | 0.6 | Culvert | Minor | Ephemeral | Procedures, PFBC: April 1 – August 15 | CWF |
| TAR-3 | Stream 4_18 | Unnamed tributary to East Branch Conneaut Creek | 8 | Existing Culvert | Minor | Intermittent | Procedures, PFBC: April 1 – August 15 | CWF |
| TAR-3 | Stream 4_19 | East Branch Conneaut Creek | 12 | Existing Culvert | Intermediate | Perennial | Procedures, PFBC: April 1 – August 15 | CWF |
| TAR-5 | Stream 4_21 | Unnamed tributary of Raccoon Creek | 3 | Culvert | Minor | Intermittent | Procedures | CWF |
| TAR-8 | Stream 1_24 | Unnamed tributary of Conneaut Creek | 6 | Existing 12- inch Culvert | Minor | Perennial | Procedures, ODNR: April 15 - June 30 | -- |
| TAR-9 | KLF- STREAM200 | Unnamed tributary of Conneaut Creek | 2 | Timber Mat | Minor | Ephemeral | Procedures | -- |
| TAR-9 | Stream 1_35 | Unnamed tributary of Conneaut Creek | 1 | Timber Mat | Minor | Ephemeral | Procedures | -- |
| TAR-12 | Stream 1_95 | Unnamed tributary of Conneaut Creek | 2 | Culvert | Minor | Ephemeral | Procedures | -- |

1 Based on ordinary high water mark.
2 RH may revise its proposed crossing method based on seasonal conditions, flow levels, or other environmental factors. "Open cut" assumes no flowing water at the time of construction. These waterbodies would be crossed using flume, dam and pump, or cofferdam methods if flowing water is present at the time of crossing.
3 In-stream work restrictions are based on RH's Procedures for coldwater fisheries (i.e., October 1 – May 31) and guidance from the Pennsylvania Fish and Boat Commission (PFBC), Ohio Department of Natural Resources (ODNR), and the U.S. Fish and Wildlife Service.
4 CWF – Coldwater Fishery; HQ – High Quality; SSH – Seasonal Salmonid Habitat; EWH – Exceptional Warmwater Habitat; AWS – Agricultural Water Supply; IWS – Industrial Water Supply; and PCR – Primary Contact Recreation. Source: PA DEP 2017; OH EPA 2017.

| Wetland Crossing Table | | | | | |
|---|---|---|---|---|---|
| **Milepost or Access Road** | **Wetland ID/Field Identification Code If Available** | **NWI Classification** | **Approximate Crossing Length (feet)** | **Acreage Affected During Construction** | **Acreage Affected During Operation** |
| **TGP Lateral, Crawford County, Pennsylvania** | | | | | |
| 0.1 | KLF-WETLAND37 | PEM | 134 | 0.07 | 0.07 |
| **Risberg Pipeline, Erie County, Pennsylvania** | | | | | |
| 31.5 | 1_CR | PFO | 22 | <0.01 | <0.01 |
| 31.5 | 1_CR | PEM | 112 | 0.07 | 0.07 |
| 31.6 | 1_CR | PFO | 75 | 0.03 | 0.03 |
| 31.6 | 1_CR | PEM | 70 | 0.03 | 0.03 |
| 31.6 | 1_CU | PEM | 155 | 0.11 | 0.11 |
| 31.6 | 1_CU | PEM | 64 | 0.02 | 0.02 |
| 31.7 | KLF-WETLAND101 | PEM | 193 | 0.18 | 0.18 |
| 31.9 | 1_CV | PFO | 848 | 0.87 | 0.87 |
| 32.0 | 1_CV | PEM | 28 | <0.01 | <0.01 |
| 32.0 | 1_CV | PEM | 260 | 0.02 | 0.02 |
| 32.0 | 1_CV | PFO | 544 | 0.50 | 0.50 |
| 32.1 | 1_CW | PEM | 160 | 0.15 | 0.15 |
| 32.2 | 1_CY | PEM | 1172 | 1.28 | 1.28 |
| 32.5 | KLF-WETLAND31 | PEM | 138 | 0.10 | 0.10 |
| 32.5 | 1_DB | PFO | 139 | 0.10 | 0.10 |
| 32.6 | 1_DB | PFO | 67 | 0.01 | 0.01 |
| 32.6 | 1_DB | PFO | 67 | 0.01 | 0.01 |
| 32.6 | 1_DE | PEM | 75 | 0.02 | 0.02 |
| 32.6 | 1_DE | PEM | 21 | <0.01 | <0.01 |
| 32.6 | 1_DD | PEM | 51 | <0.01 | <0.01 |
| 32.7 | 1_DF | PEM | 109 | 0.02 | 0.02 |
| 32.7 | 1_DG | PEM | 66 | 0.01 | 0.01 |
| 32.8 | KLF-WETLAND30 | PEM | 44 | <0.01 | <0.01 |
| 32.8 | 1_DI | PFO | 60 | 0.03 | 0.03 |
| 32.9 | KLF-WETLAND29 | PEM | 46 | 0.02 | 0.02 |
| 33.0 | 4_DK | POW | 97 | 0.07 | 0.06 |
| 33.2 | 1_DN | PEM | 70 | 0.05 | 0.05 |
| 33.4 | 1_DO | PEM | 64 | 0.04 | 0.04 |
| 33.5 | KLF-WETLAND28 | PEM | 106 | 0.07 | 0.07 |
| 33.6 | 1_DQ | PEM | 112 | 0.07 | 0.07 |
| 33.6 | 1_DQ | PEM | 93 | 0.05 | 0.05 |
| 34.5 | KLF-WETLAND32 | PEM | 49 | 0.01 | 0.01 |
| 34.7 | 4_BD | PEM | 21 | <0.01 | <0.01 |
| 34.7 | 4_BD | PEM | 2 | <0.01 | <0.01 |
| 34.7 | 4_BE | PEM | 127 | 0.05 | 0.05 |
| 35.0 | 4_BF | PFO | 1036 | 1.16 | 1.16 |
| 35.1 | 4_BG | PEM | 78 | 0.04 | 0.04 |
| 35.2 | 4_BB | PEM | 53 | 0.01 | 0.01 |
| 35.2 | 4_BA | PEM | 56 | 0.01 | 0.01 |
| 35.3 | 4_AZ | PFO | 13 | <0.01 | <0.01 |
| 35.3 | 4_AY | PEM | 0 | <0.01 | <0.01 |
| 35.4 | 4_AY | PEM | 1617 | 0.96 | 0.96 |
| 35.4 | 4_AZ | PFO | 1032 | 0.73 | 0.73 |
| 35.5 | 4_AY | PEM | 29 | <0.01 | <0.01 |
| 35.6 | KLF-WETLAND14 | PFO | 68 | 0.03 | 0.03 |
| 35.6 | 4_AY | PEM | 96 | 0.04 | 0.04 |
| 35.6 | 4_AY | PEM | 13 | <0.01 | <0.01 |

| Wetland Crossing Table | | | | | |
|---|---|---|---|---|---|
| **Milepost or Access Road** | **Wetland ID/Field Identification Code If Available** | **NWI Classification** | **Approximate Crossing Length (feet)** | **Acreage Affected During Construction** | **Acreage Affected During Operation** |
| 35.6 | 4_AY | PEM | 32 | <0.01 | <0.01 |
| 35.6 | 4_AY | PEM | 28 | <0.01 | <0.01 |
| 35.6 | 4_AY | PEM | 3 | <0.01 | <0.01 |
| 35.6 | 4_AY | PEM | 27 | <0.01 | <0.01 |
| 35.6 | 4_AY | PEM | 201 | 0.11 | 0.11 |
| 35.9 | 4_AX | PEM | 85 | 0.07 | 0.07 |
| 36.2 | 4_AT | PEM | 224 | 0.23 | 0.23 |
| 36.4 | 4_AR | PEM | 132 | 0.05 | 0.05 |
| 36.4 | 4_AP | PFO | 186 | 0.06 | 0.06 |
| 36.4 | 4_AP | PEM | 77 | 0.01 | 0.01 |
| 36.5 | 4_AP | PFO | 143 | 0.01 | 0.01 |
| 36.6 | 4_AH | PEM | 206 | 0.12 | 0.12 |
| 36.6 | 4_AG | PEM | 249 | 0.21 | 0.21 |
| 36.8 | 4_AB | PEM | 35 | 0.01 | 0.01 |
| 36.8 | 4_AB | PEM | 17 | <0.01 | <0.01 |
| 36.8 | 4_AB | PEM | 2 | <0.01 | <0.01 |
| 36.8 | 4_AC | PFO | 171 | 0.12 | 0.12 |
| 36.8 | 4_AB | PEM | 9 | <0.01 | <0.01 |
| 36.9 | 4_AB | PFO | 180 | 0.15 | 0.15 |
| 36.9 | 4_AB | PEM | 205 | 0.06 | 0.06 |
| 36.9 | 4_AB | PEM | 14 | <0.01 | <0.01 |
| 36.9 | 4_AB | PEM | 4 | <0.01 | <0.01 |
| 36.9 | 4_AB | PEM | 10 | <0.01 | <0.01 |
| 36.9 | 4_AB | PEM | 20 | <0.01 | <0.01 |
| 37.0 | 4_Z | PEM | 175 | 0.02 | 0.02 |
| 37.0 | 4_AA | PFO | 171 | 0.16 | 0.16 |
| 37.3 | 4_Y | PEM | 114 | 0.05 | 0.05 |
| 37.5 | 4_X | PEM | 68 | 0.03 | 0.03 |
| 37.5 | 4_V | PSS | 266 | 0.11 | 0.11 |
| 37.5 | 4_U | PEM | 485 | 0.35 | 0.35 |
| 37.5 | 4_W | PFO | 163 | 0.05 | 0.05 |
| 37.6 | 4_U | PEM | 17 | <0.01 | <0.01 |
| 37.6 | 4_W | PFO | 14 | <0.01 | <0.01 |
| 37.6 | 4_T | PFO | 248 | 0.15 | 0.15 |
| 37.6 | 4_S | PEM | 366 | 0.18 | 0.18 |
| 37.7 | 4_S | PEM | 11 | <0.01 | <0.01 |
| 37.7 | 4_S | PEM | 85 | 0.01 | 0.01 |
| 37.7 | 4_T | PFO | 326 | 0.29 | 0.29 |
| 37.7 | 4_S | PEM | 14 | <0.01 | <0.01 |
| 37.7 | 4_S | PEM | 19 | <0.01 | <0.01 |
| 37.7 | 4_R | PEM | 3 | <0.01 | <0.01 |
| 37.7 | 4_R | PEM | 77 | 0.04 | 0.04 |
| 37.8 | 4_O | PEM | 302 | 0.12 | 0.12 |
| 37.8 | 4_P | PFO | 264 | 0.23 | 0.23 |
| 37.9 | 4_O | PEM | 131 | 0.08 | 0.08 |
| 38.0 | 4_M | PEM | 173 | 0.18 | 0.18 |
| 38.1 | 4_I | PEM | 293 | 0.09 | 0.09 |
| 38.2 | 4_I | PSS | 103 | 0.03 | 0.03 |
| 38.2 | 4_I | PSS | 53 | 0.01 | 0.01 |
| 38.2 | 4_I | PEM | 19 | <0.01 | <0.01 |
| 38.2 | 4_I | PSS | 107 | 0.02 | 0.02 |

| Wetland Crossing Table | | | | | |
|---|---|---|---|---|---|
| **Milepost or Access Road** | **Wetland ID/Field Identification Code If Available** | **NWI Classification** | **Approximate Crossing Length (feet)** | **Acreage Affected During Construction** | **Acreage Affected During Operation** |
| 38.2 | 4_I | PFO | 1483 | 1.32 | 1.32 |
| 38.3 | 4_J | PEM | 152 | 0.01 | 0.01 |
| 38.4 | 4_H | PEM | 50 | <0.01 | <0.01 |
| 38.4 | 4_B | PFO | 33 | <0.01 | <0.01 |
| 38.4 | 4_B | PFO | 114 | 0.08 | 0.08 |
| 38.6 | 4_E | PFO | 155 | 0.13 | 0.13 |
| 38.6 | 4_A | PSS | 242 | 0.23 | 0.23 |
| 39.4 | KLF-WETLAND04 | PEM | 342 | 0.38 | 0.38 |
| 39.6 | KLF-WETLAND05 | PEM | 181 | 0.17 | 0.17 |
| 39.6 | 4_CC | PFO | 106 | 0.05 | 0.05 |
| 39.8 | 3_S | PSS | 149 | 0.02 | 0.02 |
| 39.8 | 3_R | PSS | 73 | 0.01 | 0.01 |
| 39.8 | KLF-WETLAND07 | PFO | 51 | 0.02 | 0.02 |
| 40.1 | 3_O | PEM | 50 | 0.01 | 0.01 |
| 40.3 | 4_CA | PFO | 92 | 0.08 | 0.08 |
| 40.4 | 3_N | PFO | 163 | 0.14 | 0.14 |
| 40.5 | 4_BZ | PFO | 101 | 0.09 | 0.09 |
| 40.7 | 3_M | PFO | 119 | 0.04 | 0.04 |
| 40.8 | 4_BY | PEM | 93 | 0.08 | 0.08 |
| 40.8 | KLF-WETLAND10 | PEM | 26 | <0.01 | <0.01 |
| 40.8 | 3_L | PEM | 97 | 0.09 | 0.09 |
| 41.1 | 3_C | PFO | 90 | 0.05 | 0.05 |
| 41.3 | 3_D | PFO | 134 | 0.13 | 0.13 |
| 41.3 | 3_D | PFO | 124 | 0.11 | 0.11 |
| 41.5 | 3_F | PFO | 165 | 0.15 | 0.15 |
| 41.5 | 3_G | PFO | 21 | <0.01 | <0.01 |
| 41.6 | 3_G | PFO | 147 | 0.06 | 0.06 |
| 41.6 | 3_I | PFO | 51 | <0.01 | <0.01 |
| 41.6 | 3_I | PFO | 92 | 0.05 | 0.05 |
| 41.9 | 2_AB | PFO | 182 | 0.16 | 0.16 |
| 41.9 | 2_AB | PFO | 117 | 0.08 | 0.08 |
| 41.9 | 2_AB | PEM | 22 | <0.01 | <0.01 |
| 41.9 | 2_AB | PFO | 285 | 0.30 | 0.30 |
| 42.0 | 2_AB | PEM | 63 | 0.02 | 0.02 |
| 42.0 | 2_AB | PEM | 98 | 0.03 | 0.03 |
| 42.1 | 2_AA | PEM | 77 | 0.02 | 0.02 |
| 42.2 | 2_Y | PEM | 19 | <0.01 | <0.01 |
| 42.3 | 2_Z | PEM | 36 | 0.01 | 0.01 |
| 42.4 | 2_X | PEM | 255 | 0.23 | 0.23 |
| 42.4 | 2_W | PEM | 45 | 0.01 | 0.01 |
| 42.4 | KLF-WETLAND11 | PSS | 56 | 0.03 | 0.03 |
| 42.5 | 4_BX | PFO | 75 | 0.06 | 0.06 |
| 42.7 | KLF-WETLAND13 | PEM | 87 | 0.06 | 0.06 |
| 42.8 | 2_T | PEM | 560 | 0.41 | 0.41 |
| 43.0 | 2_S | PEM | 43 | 0.01 | 0.01 |
| 43.1 | 2_R | PEM | 244 | 0.12 | 0.12 |
| 43.6 | 2_Q | PEM | 116 | 0.02 | 0.02 |
| 43.6 | 2_Q | PFO | 77 | 0.04 | 0.04 |
| 43.6 | 2_P | PEM | 98 | 0.04 | 0.04 |
| 43.7 | 2_P | PFO | 248 | 0.20 | 0.20 |
| 43.7 | 2_P | PEM | 351 | 0.22 | 0.22 |

| Wetland Crossing Table | | | | | |
|---|---|---|---|---|---|
| **Milepost or Access Road** | **Wetland ID/Field Identification Code If Available** | **NWI Classification** | **Approximate Crossing Length (feet)** | **Acreage Affected During Construction** | **Acreage Affected During Operation** |
| 43.8 | 2_P | PEM | 285 | 0.21 | 0.21 |
| 43.8 | 2_O | PEM | 127 | 0.06 | 0.06 |
| 43.9 | 2_N | PFO | 170 | 0.03 | 0.03 |
| 43.9 | 2_N | PEM | 188 | 0.16 | 0.16 |
| 44.0 | 2_M | PFO | 233 | 0.05 | 0.05 |
| 44.0 | 2_M | PEM | 236 | 0.20 | 0.20 |
| 44.0 | 2_L | PFO | 93 | 0.01 | 0.01 |
| 44.0 | 2_L | PEM | 209 | 0.20 | 0.20 |
| 44.0 | 2_L | PFO | 61 | <0.01 | <0.01 |
| 44.1 | 2_L | PEM | 67 | 0.03 | 0.03 |
| 44.1 | 2_K | PEM | 33 | <0.01 | <0.01 |
| 44.1 | 2_K | PEM | 316 | 0.24 | 0.24 |
| 44.3 | KLF-WETLAND15 | PEM | 16 | <0.01 | <0.01 |
| 44.3 | KLF-WETLAND15 | PEM | 22 | <0.01 | <0.01 |
| 44.7 | KLF-WETLAND17 | PEM | 46 | 0.01 | 0.01 |
| 45.1 | 2_I | PEM | 125 | 0.09 | 0.09 |
| 45.1 | 2_I | PFO | 159 | 0.10 | 0.10 |
| 45.2 | 2_BW | PFO | 66 | 0.02 | 0.02 |
| 45.2 | 2_G | PFO | 149 | 0.12 | 0.12 |
| 45.3 | 2_G | PFO | 64 | 0.01 | 0.01 |
| 45.4 | 2_D | PSS | 201 | 0.11 | 0.11 |
| 45.4 | 2_D | PSS | 70 | 0.02 | 0.02 |
| 45.5 | 2_D | PSS | 204 | 0.18 | 0.18 |
| 45.5 | 2_D | PFO | 169 | 0.13 | 0.13 |
| 45.6 | 2_C | PSS | 96 | 0.08 | 0.08 |
| 45.7 | 2_C | PFO | 225 | 0.21 | 0.21 |
| 45.7 | KLF-WETLAND22 | PSS | 190 | 0.20 | 0.20 |
| 45.7 | 1_A | PEM | 126 | 0.08 | 0.08 |
| 45.7 | 1_A | PFO | 196 | 0.14 | 0.14 |
| 45.9 | 1_B | PEM | 36 | 0.01 | 0.01 |
| 45.9 | KLF-WETLAND27 | PEM | 16 | <0.01 | <0.01 |
| 45.9 | 1_E | PEM | 8 | <0.01 | <0.01 |
| 45.9 | 1_F | PSS | 6 | <0.01 | <0.01 |
| 45.9 | 1_F | PSS | 4 | <0.01 | <0.01 |
| 45.9 | 1_E | PEM | 88 | 0.05 | 0.05 |
| 45.9 | 1_E | PEM | 28 | <0.01 | <0.01 |
| 46.0 | 1_F | PSS | 59 | 0.02 | 0.02 |
| 46.0 | 1_J | PFO | 74 | 0.01 | 0.01 |
| 46.0 | 1_L | PFO | 39 | <0.01 | <0.01 |
| 46.0 | 1_K | PEM | 83 | 0.04 | 0.04 |
| 46.0 | 1_N | PFO | 39 | 0.01 | 0.01 |
| 46.0 | 1_N | PFO | 22 | <0.01 | <0.01 |
| 46.1 | 1_O | PEM | 99 | 0.07 | 0.07 |
| 46.2 | 1_R | PFO | 106 | 0.06 | 0.06 |
| 46.2 | 1_S | PFO | 259 | 0.22 | 0.22 |
| 46.2 | 1_S | PSS | 122 | 0.02 | 0.02 |
| 46.3 | 1_S | PFO | 37 | 0.01 | 0.01 |
| 46.3 | KLF-WETLAND25 | PEM | 71 | 0.03 | 0.03 |
| 46.4 | 1_U | PSS | 193 | 0.10 | 0.10 |
| 46.5 | 1_T | PEM | 34 | 0.01 | 0.01 |
| 46.7 | 1_Z | PFO | 85 | 0.03 | 0.03 |

| Wetland Crossing Table | | | | | |
|---|---|---|---|---|---|
| **Milepost or Access Road** | **Wetland ID/Field Identification Code If Available** | **NWI Classification** | **Approximate Crossing Length (feet)** | **Acreage Affected During Construction** | **Acreage Affected During Operation** |
| 46.9 | 1_Y | PFO | 160 | 0.05 | 0.05 |
| 46.9 | 1_Y | PFO | 1 | <0.01 | <0.01 |
| 47.0 | 2_B | PFO | 55 | 0.02 | 0.02 |
| 47.0 | 2_B | PFO | 11 | <0.01 | <0.01 |
| 47.0 | 2_B | PFO | 52 | 0.02 | 0.02 |
| 47.1 | KLF-WETLAND02 | PSS | 206 | 0.09 | 0.08 |
| 47.2 | KLF-WETLAND03 | PEM | 20 | <0.01 | <0.01 |
| 47.2 | 1_AB | PFO | 27 | <0.01 | <0.01 |
| 47.2 | 1_AB | PFO | 94 | 0.02 | 0.02 |
| 47.3 | 1_AD | PSS | 132 | 0.05 | 0.05 |
| 47.4 | 1_AD | PSS | 59 | 0.03 | 0.03 |
| 47.4 | 1_AE | PEM | 120 | 0.10 | 0.10 |
| 47.5 | 1_AE | PEM | 139 | 0.11 | 0.11 |
| 47.5 | 1_AE | PEM | 24 | <0.01 | <0.01 |
| 47.5 | 1_AE | PEM | 77 | 0.01 | 0.01 |
| 47.6 | 1_AE | PEM | 131 | 0.02 | 0.02 |
| 47.7 | 1_AF | PSS | 489 | 0.51 | 0.51 |
| 47.7 | 1_AF | PEM | 477 | 0.05 | 0.05 |
| 47.8 | 1_AG | PEM | 41 | 0.01 | 0.01 |
| 47.8 | 4_BV | PEM | 81 | 0.05 | 0.05 |
| 47.8 | 4_BV | PEM | 1 | <0.01 | <0.01 |
| 47.9 | 1_AI | PSS | 84 | 0.02 | 0.02 |
| 47.9 | 1_AI | PEM | 31 | <0.01 | <0.01 |
| 47.9 | 1_AI | PEM | 20 | <0.01 | <0.01 |
| 47.9 | 1_AJ | PEM | 31 | 0.01 | 0.01 |
| 47.9 | 1_AJ | PSS | 70 | 0.02 | 0.02 |
| 47.9 | 1_AK | PSS | 87 | 0.02 | 0.02 |
| 48.0 | 1_AL | PEM | 41 | 0.01 | 0.01 |
| 48.1 | 1_AM | PEM | 81 | 0.03 | 0.03 |
| **Risberg Pipeline, Ashtabula County, Ohio** | | | | | |
| 48.2 | 1_AN | PFO | 22 | <0.01 | <0.01 |
| 48.3 | 1_AP | PSS | 26 | <0.01 | <0.01 |
| 48.3 | 1_AP | PSS | 81 | 0.02 | 0.02 |
| 48.3 | 1_AP | PSS | 84 | 0.06 | 0.06 |
| 48.3 | 1_AQ | PFO | 105 | 0.05 | 0.05 |
| 48.4 | 1_AQ | PFO | 31 | 0.01 | 0.01 |
| 48.4 | 1_AR | PFO | 140 | 0.11 | 0.11 |
| 48.5 | 1_AS | PSS | 14 | <0.01 | <0.01 |
| 48.5 | 1_AS | PSS | 57 | 0.01 | 0.01 |
| 48.5 | 1_AS | PEM | 63 | 0.03 | 0.03 |
| 48.5 | 1_AS | PSS | 17 | <0.01 | <0.01 |
| 48.5 | 1_AS | PSS | 48 | 0.01 | 0.01 |
| 48.5 | 1_AS | PSS | 30 | <0.01 | <0.01 |
| 48.5 | 1_AS | PSS | 27 | <0.01 | <0.01 |
| 48.5 | 1_AS | PSS | 29 | <0.01 | <0.01 |
| 48.5 | 1_AS | PSS | 199 | 0.17 | 0.17 |
| 48.8 | 1_AU | PSS | 72 | 0.04 | 0.04 |
| 48.8 | 1_AV | PSS | 54 | 0.02 | 0.02 |
| 48.9 | 1_AW | PSS | 376 | 0.40 | 0.40 |
| 48.9 | KLF-WETLAND01 | PEM | 43 | <0.01 | <0.01 |

| Wetland Crossing Table | | | | | |
|---|---|---|---|---|---|
| **Milepost or Access Road** | **Wetland ID/Field Identification Code If Available** | **NWI Classification** | **Approximate Crossing Length (feet)** | **Acreage Affected During Construction** | **Acreage Affected During Operation** |
| 49.0 | KLF-WETLAND01 | PEM | 515 | 0.54 | 0.54 |
| 49.0 | KLF-WETLAND01 | PSS | 103 | 0.01 | 0.01 |
| 49.6 | 1_EI | PEM | 55 | 0.01 | 0.01 |
| 49.7 | 1_EG | PEM | 122 | 0.05 | 0.05 |
| 49.9 | 1_EE | PEM | 66 | 0.01 | 0.01 |
| 50.4 | 1_BD | PSS | 141 | 0.10 | 0.10 |
| 50.5 | 4_AN | PSS | 483 | 0.54 | 0.54 |
| 50.6 | 4_AM | PEM | 56 | 0.01 | 0.01 |
| 50.7 | 4_AL | PSS | 88 | 0.08 | 0.08 |
| 52.0 | 1_BG | PFO | 111 | 0.07 | 0.07 |
| 52.1 | 1_BH | PFO | 88 | 0.05 | 0.05 |
| 52.2 | 4_AK | PEM | 98 | 0.08 | 0.08 |
| 52.2 | 1_BJ | PEM | 80 | 0.07 | 0.07 |
| 52.4 | 1_BK | PSS | 92 | 0.03 | 0.03 |
| 52.5 | 1_BL | PFO | 195 | 0.17 | 0.17 |
| 52.6 | 1_BM | PEM | 182 | 0.11 | 0.11 |
| 53.1 | 1_EO | PEM | 19 | <0.01 | <0.01 |
| 53.1 | KLF-WETLAND36 | PSS | 132 | 0.10 | 0.10 |
| 53.2 | 1_BO | PSS | 82 | 0.03 | 0.03 |
| 53.4 | 1_BP | PFO | 96 | 0.05 | 0.05 |
| 53.5 | 1_BQ | PEM | 34 | 0.01 | 0.01 |
| 53.5 | 1_BR | PEM | 57 | 0.04 | 0.04 |
| 54.2 | 1_BT | PEM | 52 | 0.02 | 0.02 |
| 54.3 | 1_BU | PFO | 50 | 0.02 | 0.02 |
| 54.3 | 1_BU | PEM | 45 | 0.02 | 0.02 |
| 54.5 | KLF-WETLAND201 | PEM | 47 | 0.02 | 0.02 |
| 54.8 | 1_BV | PFO | 105 | 0.09 | 0.09 |
| 55.0 | 1_BX | PSS | 54 | 0.03 | 0.03 |
| 55.0 | 1_BX | PEM | 154 | 0.15 | 0.15 |
| 55.3 | KLF-WETLAND102 | PEM | 63 | 0.07 | <0.01 |
| 55.3 | KLF-WETLAND103 | PEM | 27 | 0.02 | <0.01 |
| 55.5 | 1_BY | PEM | 151 | 0.10 | 0.10 |
| 55.5 | 1_BY | PEM | 15 | 0.01 | <0.01 |
| 55.5 | 1_BZ | PFO | 67 | 0.02 | <0.01 |
| 55.9 | 1_BZ | PFO | 375 | 0.35 | 0.35 |
| 56.0 | 1_CA | PFO | 374 | 0.38 | 0.38 |
| 56.4 | 1_CC | PSS | 104 | 0.04 | 0.04 |
| 56.4 | 1_CB | PEM | 137 | 0.02 | 0.02 |
| 56.4 | 1_Cb | PFO | 106 | 0.01 | 0.01 |
| 56.5 | 1_Cb | PFO | 1127 | 0.85 | 0.85 |
| 56.5 | 1_CB | PEM | 1073 | 0.39 | 0.39 |
| 56.7 | 1_CD | PEM | 62 | 0.03 | 0.03 |
| 56.7 | 1_CD | PFO | 2 | <0.01 | <0.01 |
| 56.7 | 1_CD | PFO | 65 | 0.02 | 0.02 |
| 56.8 | 1_CE | PFO | 364 | 0.28 | 0.28 |
| 56.8 | 1_CE | PSS | 354 | 0.09 | 0.09 |
| 56.9 | 1_CE | PFO | 150 | 0.14 | 0.14 |
| 56.9 | 1_CE | PSS | 65 | <0.01 | <0.01 |
| 57.1 | 1_CG | PEM | 230 | 0.23 | 0.23 |
| 57.2 | 1_CF | PEM | 244 | 0.23 | 0.23 |
| 57.3 | 1_CI | PFO | 742 | 0.97 | 0.97 |

| Wetland Crossing Table | | | | | |
|---|---|---|---|---|---|
| **Milepost or Access Road** | **Wetland ID/Field Identification Code If Available** | **NWI Classification** | **Approximate Crossing Length (feet)** | **Acreage Affected During Construction** | **Acreage Affected During Operation** |
| 57.4 | 1_CI | PFO | 434 | 0.46 | 0.46 |
| 57.5 | 1_CI | PSS | 405 | 0.34 | 0.34 |
| 57.5 | 1_CJ | PUB | 123 | 0.03 | 0.03 |
| 57.6 | 1_CI | PFO | 866 | 0.94 | 0.94 |
| 57.7 | 1_CJ | PUB | 105 | 0.01 | 0.01 |
| 57.8 | 1_CI | PFO | 375 | 0.39 | 0.39 |
| 58.4 | 1_CK | PEM | 433 | 0.85 | <0.01 |
| 58.4 | 1_CK | PEM | 231 | 0.12 | 0.12 |
| 59.1 | 1_CM | PSS | 61 | 0.04 | 0.04 |
| 59.2 | 1_CN | PEM | 67 | 0.02 | 0.02 |
| 59.6 | 1_CO | PEM | 25 | <0.01 | <0.01 |
| 59.6 | 1_CO | PEM | 67 | 0.02 | 0.02 |
| 59.6 | 1_CO | PFO | 147 | 0.08 | 0.08 |
| 59.7 | 1_CO | PEM | 213 | 0.17 | 0.17 |
| 59.7 | 1_CP | PFO | 42 | <0.01 | <0.01 |
| 59.7 | 1_CQ | PEM | 53 | 0.01 | 0.01 |
| 59.7 | 1_CQ | PEM | 89 | 0.05 | 0.05 |
| 59.8 | 1_CQ | PEM | 37 | <0.01 | <0.01 |
| 59.8 | 1_CQ | PSS | 172 | 0.08 | 0.08 |
| 59.8 | 1_CP | PFO | 606 | 0.41 | 0.41 |
| **Temporary Access Roads** | | | | | |
| TAR-1 | 1_CR | PFO | Not available | 0.02 | Not applicable |
| TAR-1 | 1_CR | PEM | Not available | 0.04 | Not applicable |
| TAR-1 | 1_CR | PSS | Not available | 0.05 | Not applicable |
| TAR-1 | 1_CS | PEM | Not available | 0.01 | Not applicable |
| TAR-3 | 4_BR | PEM | Not available | 0.16 | Not applicable |
| TAR-3 | 4_O | PEM | Not available | 0.03 | Not applicable |
| TAR-5 | 4_BP | PFO | Not available | 0.04 | Not applicable |
| TAR-5 | 4_BP | PEM | Not available | 0.08 | Not applicable |
| TAR-5 | 4_BO | PEM | Not available | 0.00 | Not applicable |
| TAR-7 | 4_BS | PEM | Not available | 0.08 | Not applicable |
| TAR-7 | 4_BT | PEM | Not available | 0.08 | Not applicable |
| TAR-7 | 4_BU | PSS | Not available | 0.01 | Not applicable |
| TAR-9 | KLF-Wetland200 | PSS | Not available | 0.01 | Not applicable |
| TAR-9 | Wetland 1_EB | PSS | Not available | 0.02 | Not applicable |
| TAR-14 | Wetland 1_BZ | PFO | Not available | 0.02 | Not applicable |
| TAR-15 | Wetland 1_DV | PEM | Not available | 0.06 | Not applicable |
| TAR-15 | Wetland 1_DX | PSS | Not available | 0.04 | Not applicable |
| TAR-15 | Wetland 1_DW | PEM | Not available | 0.01 | Not applicable |
| TAR-15 | Wetland 1_DY | PFO | Not available | <0.01 | Not applicable |
| TAR-15 | Wetland 1_DZ | PSS | Not available | 0.04 | Not applicable |

# Appendix D

# Northern Long-eared Bat Streamlined Consultation Form

# Northern Long-Eared Bat 4(d) Rule Streamlined Consultation Form

Federal agencies should use this form for the optional streamlined consultation framework for the northern long-eared bat (NLEB). This framework allows federal agencies to rely upon the U.S. Fish and Wildlife Service's (USFWS) January 5, 2016, intra-Service Programmatic Biological Opinion (BO) on the final 4(d) rule for the NLEB for section 7(a)(2) compliance by: (1) notifying the USFWS that an action agency will use the streamlined framework; (2) describing the project with sufficient detail to support the required determination; and (3) enabling the USFWS to track effects and determine if reinitiation of consultation is required per 50 CFR 402.16.

This form is not necessary if an agency determines that a proposed action will have no effect to the NLEB or if the USFWS has concurred in writing with an agency's determination that a proposed action may affect, but is not likely to adversely affect the NLEB (i.e., the standard informal consultation process). Actions that may cause prohibited incidental take require separate formal consultation. Providing this information does not address section 7(a)(2) compliance for any other listed species.

| **Information to Determine 4(d) Rule Compliance:** | **YES** | **NO** |
|---|---|---|
| 1. Does the project occur wholly outside of the WNS Zone[1]? | ☐ | ☒ |
| 2. Have you contacted the appropriate agency[2] to determine if your project is near known hibernacula or maternity roost trees? | ☒ | ☐ |
| 3. Could the project disturb hibernating NLEBs in a known hibernaculum? | ☐ | ☒ |
| 4. Could the project alter the entrance or interior environment of a known hibernaculum? | ☐ | ☒ |
| 5. Does the project remove any trees within 0.25 miles of a known hibernaculum at any time of year? | ☐ | ☒ |
| 6. Would the project cut or destroy known occupied maternity roost trees, or any other trees within a 150-foot radius from the maternity roost tree from June 1 through July 31. | ☐ | ☒ |

You are eligible to use this form if you have answered yes to question #1 **or** yes to question #2 **and** no to questions 3, 4, 5 and 6. The remainder of the form will be used by the USFWS to track our assumptions in the BO.

**Agency and Applicant**[3] (Name, Email, Phone No.):

Federal Energy Regulatory Commission

Nancy Fox-Fernandez, Nancy.Fox-Fernandez@ferc.gov, 202-502-8559

**Project Name**:

Risberg Line Project

**Project Location** (include coordinates if known):

Ashtabula County in Ohio and Crawford and Erie counties in Pennsylvania.

[1] http://www.fws.gov/midwest/endangered/mammals/nleb/pdf/WNSZone.pdf
[2] See http://www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html
[3] If applicable - only needed for federal actions with applicants (e.g., for a permit, etc.) who are party to the consultation.

Coordinates:

Northern end of Proposed Risberg Pipeline @ North Kingsville Meter Station

-80.689352  41.907353

Southern end of Risberg Pipeline (and beginning of existing 8-inch line)

-80.282051  41.858769

Southern end of Existing 8-inch Pipeline (and beginning of existing 12-inch line)

-80.187371  41.855909

Southern end of Existing 12-inch Pipeline @ Meadeville CS

-80.068178  41.543023

**Basic Project Description** (provide narrative below or attach additional information):

The purpose of the Risberg Line Project is to provide firm and interruptible natural gas transportation services to Dominion Energy Ohio (DEO) and other customers along the pipeline's route and in the vicinity of North Kingsville in Ashtabula County, Ohio. DEO has experienced some peak day pressure deficiencies in the Ashtabula area, and the Project would enhance peak day pressure reliability and furnish system redundancy. The Project would include modifications to existing facilities as well as the construction of new facilities along the project route.

Activities associated with modification and recertification of existing facilities would include:

- modifications at the existing County Line Compressor Station in Erie County, Pennsylvania;
- conversion of an existing 26.6-mile-long, 12-inch-diameter gathering pipeline to natural gas transmission service in Crawford and Erie Counties, Pennsylvania; and
- conversion of an existing 5.0-mile-long, 8-inch-diameter gathering pipeline to natural gas transmission service in Erie County, Pennsylvania.

New facilities that would be constructed include:

- Meadville Compressor Station in Crawford County, Pennsylvania;
- 650-foot-long, 12-inch-diameter lateral pipeline within the existing 12-inch-diameter gathering pipeline right-of-way in Crawford County, Pennsylvania (Tennessee Gas Pipeline Company, LLC [TGP] Lateral);
- 28.3-mile-long, 12-inch-diameter pipeline in Erie County, Pennsylvania, and Ashtabula County, Ohio (Risberg Pipeline); and
- North Kingsville Meter Station in Ashtabula County, Ohio.

| General Project Information | YES | NO |
|---|---|---|
| Does the project occur within 0.25 miles of a known hibernaculum? | ☐ | ☒ |
| Does the project occur within 150 feet of a known maternity roost tree? | ☐ | ☒ |
| Does the project include forest conversion[4]? (if yes, report acreage below) | ☒ | ☐ |
| Estimated total acres of forest conversion | 99-acres | |
| If known, estimated acres[5] of forest conversion from April 1 to October 31 | N/A | |
| If known, estimated acres of forest conversion from June 1 to July 31[6] | N/A | |
| Does the project include timber harvest? (if yes, report acreage below) | ☐ | ☒ |
| Estimated total acres of timber harvest | | |
| If known, estimated acres of timber harvest from April 1 to October 31 | | |
| If known, estimated acres of timber harvest from June 1 to July 31 | | |
| Does the project include prescribed fire? (if yes, report acreage below) | ☐ | ☒ |
| Estimated total acres of prescribed fire | | |
| If known, estimated acres of prescribed fire from April 1 to October 31 | | |
| If known, estimated acres of prescribed fire from June 1 to July 31 | | |
| Does the project install new wind turbines? (if yes, report capacity in MW below) | ☐ | ☒ |
| Estimated wind capacity (MW) | | |

Agency Determination:

By signing this form, the action agency determines that this project may affect the NLEB, but that any resulting incidental take of the NLEB is not prohibited by the final 4(d) rule.

If the USFWS does not respond within 30 days from submittal of this form, the action agency may presume that its determination is informed by the best available information and that its project responsibilities under 7(a)(2) with respect to the NLEB are fulfilled through the USFWS January 5, 2016, Programmatic BO. The action agency will update this determination annually for multi-year activities.

The action agency understands that the USFWS presumes that all activities are implemented as described herein. The action agency will promptly report any departures from the described activities to the appropriate USFWS Field Office. The action agency will provide the appropriate USFWS Field Office with the results of any surveys conducted for the NLEB. Involved parties will promptly notify the appropriate USFWS Field Office upon finding a dead, injured, or sick NLEB.

Signature: _____ Date Submitted: June 29, 2018

[4] Any activity that temporarily or permanently removes suitable forested habitat, including, but not limited to, tree removal from development, energy production and transmission, mining, agriculture, etc. (see page 48 of the BO).
[5] If the project removes less than 10 trees and the acreage is unknown, report the acreage as less than 0.1 acre.
[6] If the activity includes tree clearing in June and July, also include those acreage in April to October.

# Appendix E

# Roads and Railroads Crossed Table

| Roads and Railroads Crossed by Risberg Pipeline | | | | |
|---|---|---|---|---|
| **Milepost** | **Name** | **Municipality, County** | **Anticipated Crossing Method** | **Existing Road Surface** |
| **Roads** | | | | |
| 32.1 | State Rd. | Elk Creek, Erie County | Open Cut | Dirt / Gravel |
| 33.3 | Crossingville Rd. | Elk Creek, Erie County | Bore | Asphalt |
| 33.5 | West Rd. | Elk Creek, Erie County | Open Cut | Asphalt |
| 33.6 | State Route 6N | Elk Creek, Erie County | Open Cut | Asphalt |
| 35.2 | Sherman Rd. | Elk Creek, Erie County | Open Cut | Asphalt |
| 36.0 | Crane Rd | Elk Creek, Erie County | Bore | Asphalt |
| 36.5 | Thrasher Rd. | Elk Creek, Erie County | Bore | Asphalt |
| 37.5 | State Route 18 (Meadville Rd.) | Elk Creek, Erie County | Bore | Asphalt |
| 38.7 | Oredocks Rd. | Conneaut, Erie County | Open Cut | Dirt / Gravel |
| 39.1 | Bowmantown Rd. | Conneaut, Erie County | Bore | Asphalt |
| 39.5 | Lexington Rd. | Conneaut, Erie County | Open Cut | Asphalt |
| 39.8 | Private Crossing | Conneaut, Erie County | Open Cut | Dirt / Gravel |
| 40.9 | State Route 215 (Summerville Rd.) | Conneaut, Erie County | Bore | Asphalt |
| 42.4 | McKee Rd. | Springfield, Erie County | Bore | Dirt / Gravel |
| 42.8 | Old Albion Rd. | Springfield, Erie County | Bore | Dirt / Gravel |
| 43.1 | Finely Rd. | Springfield, Erie County | Bore | Dirt / Gravel |
| 44.0 | State Route 6N | Springfield, Erie County | Bore | Asphalt |
| 44.2 | Griffey Rd. | Springfield, Erie County | Bore | Asphalt |
| 44.7 | Underridge Rd. | Springfield, Erie County | Bore | Asphalt |
| 45.7 | Huntley Rd. | Springfield, Erie County | Bore | Asphalt |
| 47.0 | Pond Rd. | Springfield, Erie County | Bore | Dirt / Gravel |
| 48.1 | State Line Rd. | Conneaut/West Springfield, Ashtabula County | Open Cut | Dirt-abandoned |
| 48.9 | Furnace Rd. | Conneaut, Ashtabula County | Bore | Asphalt |
| 49.4 | Middle Rd. | Conneaut, Ashtabula County | Bore | Dirt / Gravel |

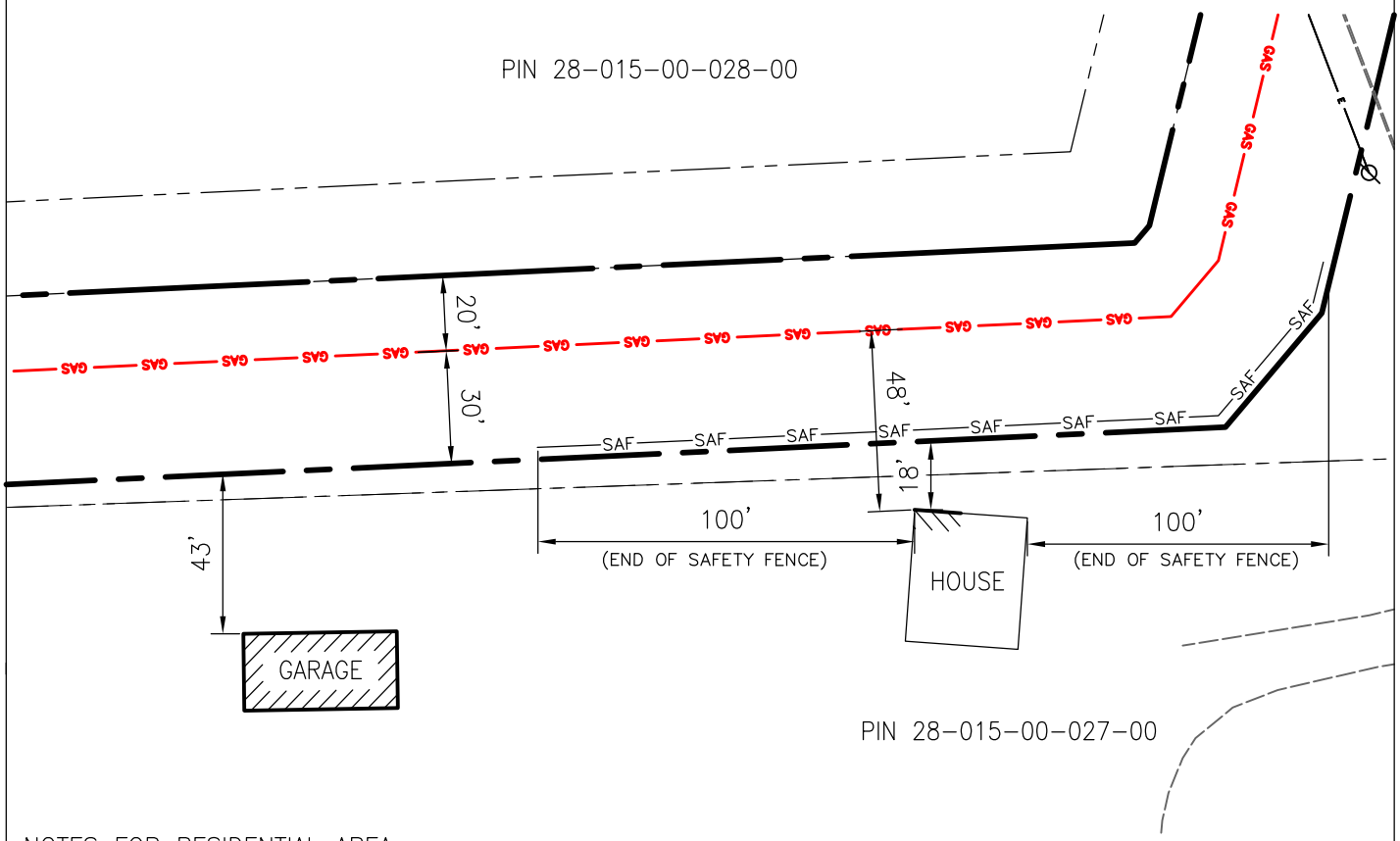
| Roads and Railroads Crossed by Risberg Pipeline | | | | |
|---|---|---|---|---|
| **Milepost** | **Name** | **Municipality, County** | **Anticipated Crossing Method** | **Existing Road Surface** |
| 50.2 | Dorman Rd. | Conneaut, Ashtabula County | Bore | Dirt / Gravel |
| 50.3 | Private Crossing | Conneaut, Ashtabula County | Open Cut | Asphalt |
| 50.6 | Underridge Rd. | Conneaut, Ashtabula County | Open Cut | Dirt / Gravel |
| 51.4 | Private Crossing | Conneaut, Ashtabula County | Open Cut | Dirt / Gravel |
| 51.6 | State Route 7 | Conneaut, Ashtabula County | Bore | Asphalt |
| 51.8 | Center Rd. | Conneaut, Ashtabula County | Bore | Asphalt |
| 52.3 | Horton Rd. | Conneaut, Ashtabula County | Open Cut | Dirt / Gravel |
| 52.8 | S. Parrish Rd. | Conneaut, Ashtabula County | Open Cut | Dirt / Gravel |
| 53.1 | Underridge Rd. | Conneaut, Ashtabula County | Open Cut | Dirt / Gravel |
| 53.5 | Keefus Rd. | Conneaut, Ashtabula County | Bore | Dirt / Gravel |
| 54.1 | U.S. 90 | North Kingsville, Ashtabula County | HDD | Asphalt |
| 54.4 | W. Underridge Rd. | North Kingsville, Ashtabula County | Open Cut | Dirt / Gravel |
| 55.1 | Unnamed, off Creek Rd. | North Kingsville, Ashtabula County | Open Cut | Dirt / Gravel |
| 55.3 | Creek Rd. | North Kingsville, Ashtabula County | Open Cut | Asphalt |
| 56.6 | Reed Rd. | North Kingsville, Ashtabula County | Bore | Asphalt |
| 57.0 | Private Crossing | North Kingsville, Ashtabula County | Open Cut | Dirt / Gravel |
| 58.1 | State Route 20 (Center Street) | North Kingsville, Ashtabula County | Bore | Asphalt |
| 58.2 | Harmon Rd. | North Kingsville, Ashtabula County | Bore | Asphalt |
| **Railroads** | | | | |
| 37.7 | Canadian National / Bessemer & Lake Erie Railroad | Erie County | Bore | n/a |

| Roads and Railroads Crossed by Risberg Pipeline | | | | |
|---|---|---|---|---|
| **Milepost** | **Name** | **Municipality, County** | **Anticipated Crossing Method** | **Existing Road Surface** |
| 40.1 | Railroad Private Spur | Erie County | Open cut | n/a |
| 40.7 | Canadian National / Bessemer & Lake Erie Railroad | Erie County | Bore | n/a |
| 44.8 | Canadian National / Bessemer & Lake Erie Railroad | Erie County | Bore | n/a |
| 47.3 | Canadian National / Bessemer & Lake Erie Railroad | Erie County | Bore | n/a |
| 57.2 | Norfolk Southern Railroad | Ashtabula County | Bore | n/a |

# Appendix F

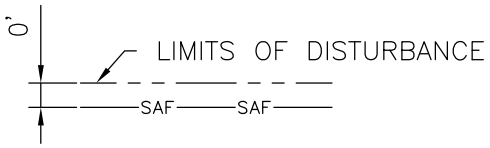
# Site-specific Residential Construction Plans

ASHTABULA COUNTY, OHIO




NOTES FOR RESIDENTIAL AREA:

1. CONSTRUCTION WILL TAKE PLACE DURING DAYLIGHT HOURS TO MINIMIZE NOISE IMPACTS TO THE SURROUNDING RESIDENTS. WORK AREAS ARE TO BE KEPT NEAT AND LITTER REMOVED DAILY. CREATION OF DUST SHALL BE MINIMIZED BY CLEANING OF ROAD SURFACES AND WATER SPRAYING AS NECESSARY.
2. TRENCH EXCAVATION WILL BE DELAYED UNTIL PIPE IS READY FOR INSTALLATION AND WILL EITHER BE IMMEDIATELY BACKFILLED OR COVERED WITH STREET PLATES.
3. INSTALLATION METHOD WILL BE BY SINGLE JOINT (STOVE PIPE) OR MULTIPLE JOINTS (DRAG SECTION) AS BEST DETERMINED ON SITE.
4. LANDOWNER MAILINGS WILL BE SENT OUT PRIOR TO START OF CONSTRUCTION ALONG WITH DIRECT COMMUNICATION WITH THE LANDOWNER TO SCHEDULE ACCESS.
5. LANDOWNER WORK SPACE AND/OR EASEMENT AGREEMENT AND ANY SITE SPECIFIC REQUIREMENTS WILL BE ENFORCED BY RH ENERGYTRANS ON SITE REPRESENTATIVES.
6. THE EROSION AND SEDIMENT CONTROL PLAN PERMIT FOR CONSTRUCTION AND RESTORATION WILL BE ADHERED TO.




ALL SAFETY FENCE SHALL BE LOCATED ON THE LIMITS OF DISTURBANCE

TYPICAL DETAIL

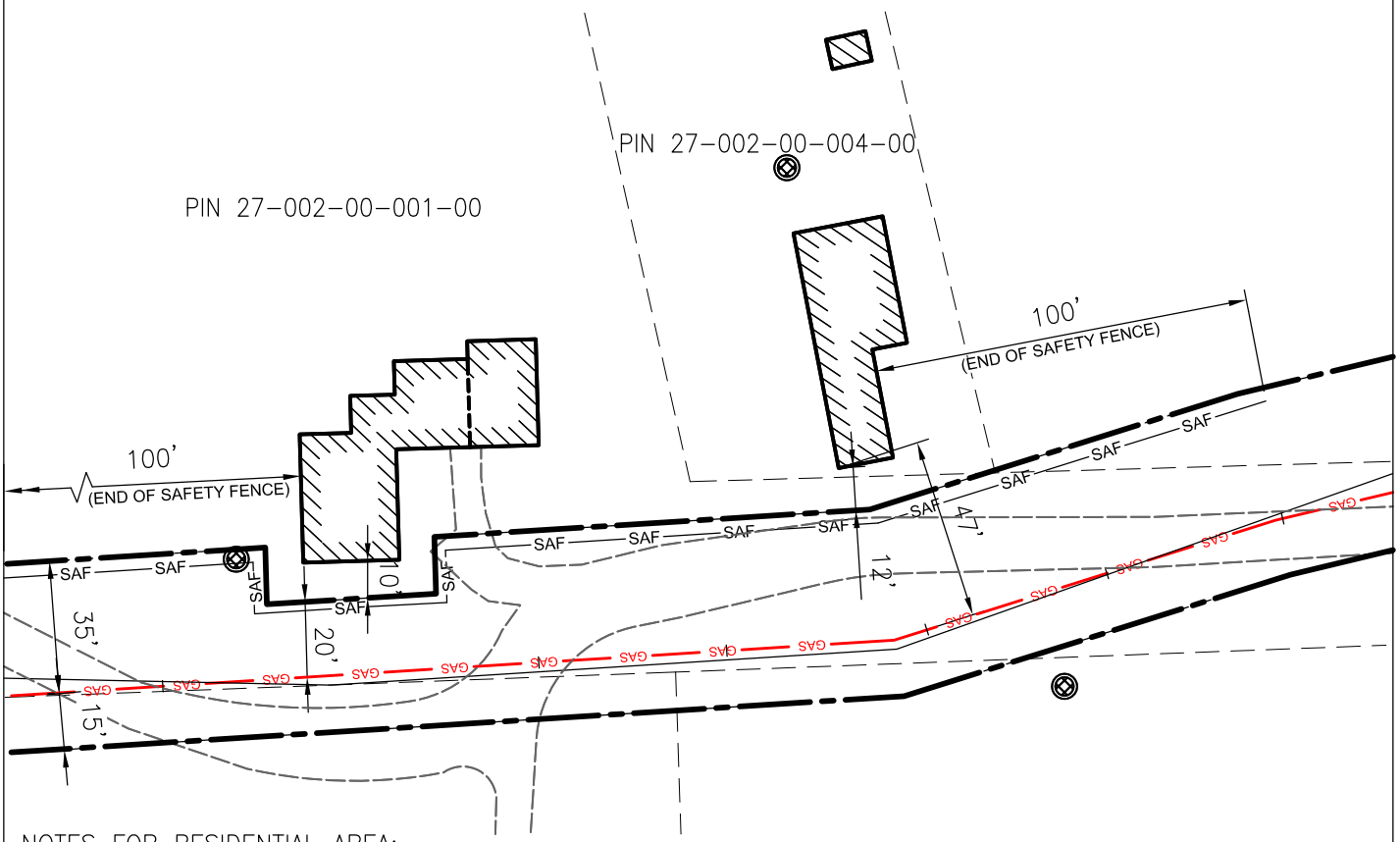
LEGEND

| | |
|---|---|
| GAS | PROPOSED PIPELINE |
| SAF | SAFETY FENCE |
| | WORK CORRIDOR LIMIT |
| | PROPERTY LINE |
| | PERMANENT ROW |

| | | | |
|---|---|---|---|
| RH energytrans | PROJECT NO. 197409<br>DRAWN BY: BV<br>CHECKED BY: TAP<br>DATE: 03/05/2018 | RESIDENTIAL CONSTRUCTION PLAN MP 58.05<br>RH ENERGYTRANS, LLC<br>RISBERG LINE PROJECT<br>PENNSYLVANIA AND OHIO | FIGURE<br>F-1 |

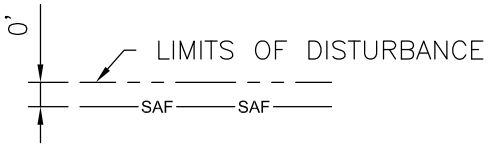
ANSI A-8.5x11

ASHTABULA COUNTY, OHIO




NOTES FOR RESIDENTIAL AREA:

1. CONSTRUCTION WILL TAKE PLACE DURING DAYLIGHT HOURS TO MINIMIZE NOISE IMPACTS TO THE SURROUNDING RESIDENTS. WORK AREAS ARE TO BE KEPT NEAT AND LITTER REMOVED DAILY. CREATION OF DUST SHALL BE MINIMIZED BY CLEANING OF ROAD SURFACES AND WATER SPRAYING AS NECESSARY.
2. TRENCH EXCAVATION WILL BE DELAYED UNTIL PIPE IS READY FOR INSTALLATION AND WILL EITHER BE IMMEDIATELY BACKFILLED OR COVERED WITH STREET PLATES.
3. INSTALLATION METHOD WILL BE BY SINGLE JOINT (STOVE PIPE) OR MULTIPLE JOINTS (DRAG SECTION) AS BEST DETERMINED ON SITE.
4. LANDOWNER MAILINGS WILL BE SENT OUT PRIOR TO START OF CONSTRUCTION ALONG WITH DIRECT COMMUNICATION WITH THE LANDOWNER TO SCHEDULE ACCESS.
5. LANDOWNER WORK SPACE AND/OR EASEMENT AGREEMENT AND ANY SITE SPECIFIC REQUIREMENTS WILL BE ENFORCED BY RH ENERGYTRANS ON SITE REPRESENTATIVES.
6. THE EROSION AND SEDIMENT CONTROL PLAN PERMIT FOR CONSTRUCTION AND RESTORATION WILL BE ADHERED TO.




ALL SAFETY FENCE SHALL BE LOCATED ON THE LIMITS OF DISTURBANCE

TYPICAL DETAIL

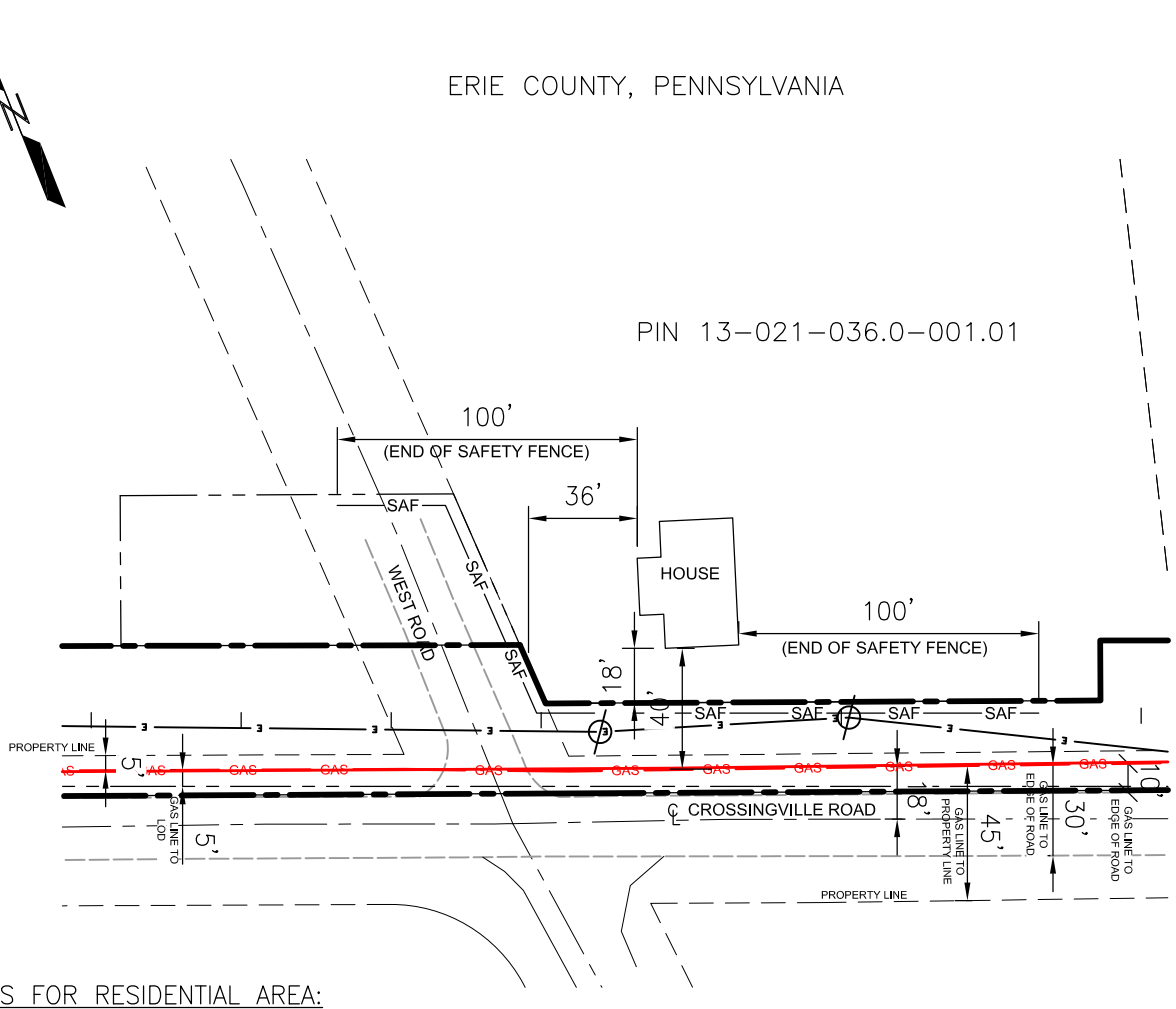
LEGEND

| | |
|---|---|
| GAS | PROPOSED PIPELINE |
| SAF | SAFETY FENCE |
| | WORK CORRIDOR LIMIT |
| | PROPERTY LINE |
| | PERMANENT ROW |

| | | | |
|---|---|---|---|
| RH energytrans | PROJECT NO. 197409<br>DRAWN BY: AI<br>CHECKED BY: TAP<br>DATE: 03/05/2018 | RESIDENTIAL CONSTRUCTION PLAN MP 55.08<br>RH ENERGYTRANS, LLC<br>RISBERG LINE PROJECT<br>PENNSYLVANIA AND OHIO | FIGURE<br>F-2 |

ANSI A-8.5x11

ERIE COUNTY, PENNSYLVANIA




NOTES FOR RESIDENTIAL AREA:

1. CONSTRUCTION WILL TAKE PLACE DURING DAYLIGHT HOURS TO MINIMIZE NOISE IMPACTS TO THE SURROUNDING RESIDENTS. WORK AREAS ARE TO BE KEPT NEAT AND LITTER REMOVED DAILY. CREATION OF DUST SHALL BE MINIMIZED BY CLEANING OF ROAD SURFACES AND WATER SPRAYING AS NECESSARY.
2. TRENCH EXCAVATION WILL BE DELAYED UNTIL PIPE IS READY FOR INSTALLATION AND WILL EITHER BE IMMEDIATELY BACKFILLED OR COVERED WITH STREET PLATES.
3. INSTALLATION METHOD WILL BE BY SINGLE JOINT (STOVE PIPE) OR MULTIPLE JOINTS (DRAG SECTION) AS BEST DETERMINED ON SITE.
4. LANDOWNER MAILINGS WILL BE SENT OUT PRIOR TO START OF CONSTRUCTION ALONG WITH DIRECT COMMUNICATION WITH THE LANDOWNER TO SCHEDULE ACCESS.
5. LANDOWNER WORK SPACE AND/OR EASEMENT AGREEMENT AND ANY SITE SPECIFIC REQUIREMENTS WILL BE ENFORCED BY RH ENERGYTRANS ON SITE REPRESENTATIVES.
6. THE EROSION AND SEDIMENT CONTROL PLAN PERMIT FOR CONSTRUCTION AND RESTORATION WILL BE ADHERED TO.

ALL SAFETY FENCE SHALL BE LOCATED ON THE LIMITS OF DISTURBANCE

TYPICAL DETAIL

LEGEND

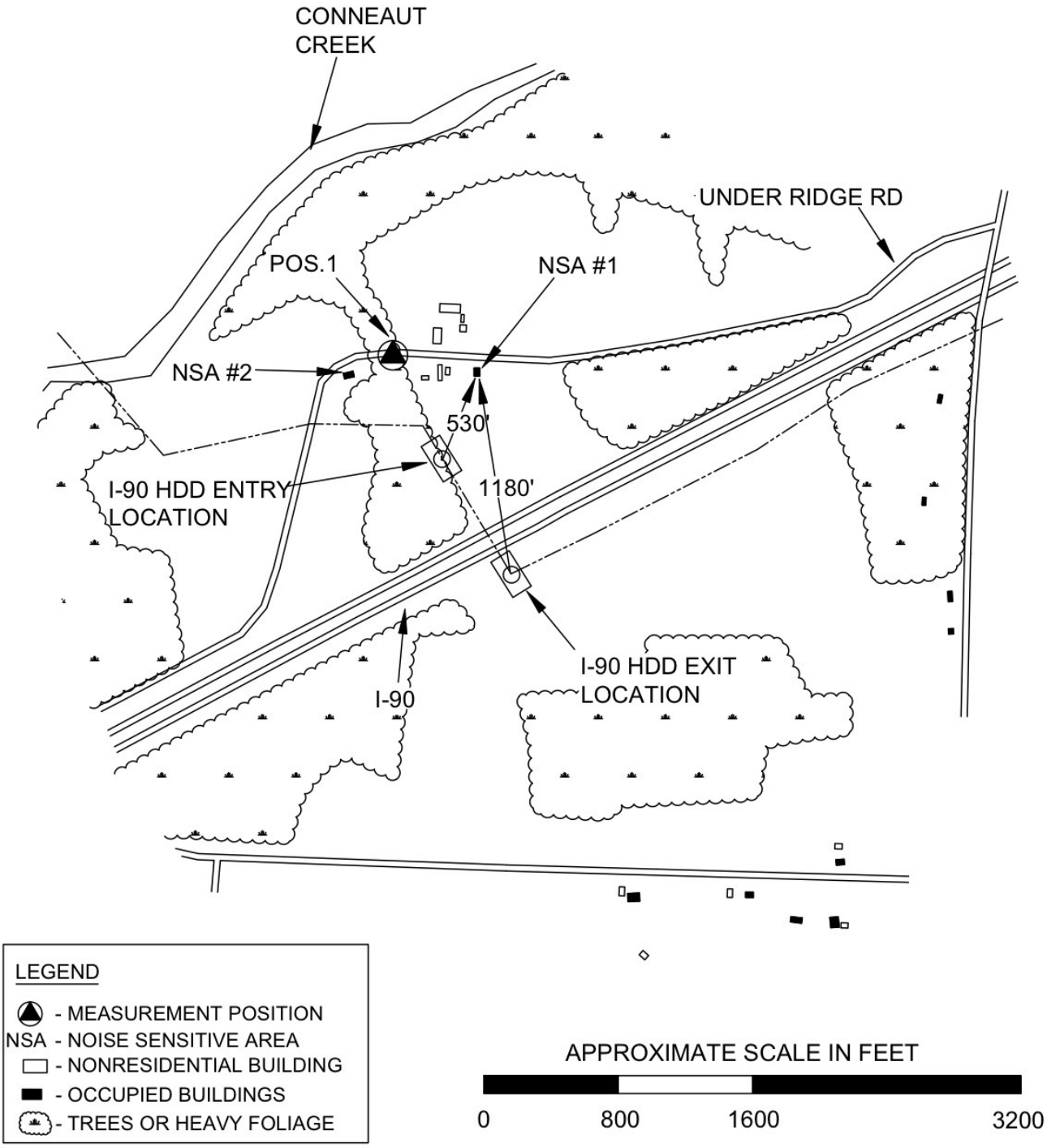
| | |
|---|---|
| GAS | PROPOSED PIPELINE |
| SAF | SAFETY FENCE |
| | WORK CORRIDOR LIMIT |
| | PROPERTY LINE |
| | PERMANENT ROW |

| | | | |
|---|---|---|---|
| RH energytrans | PROJECT NO. 197409 | RESIDENTIAL CONSTRUCTION PLAN MP 33.48 | FIGURE |
| | DRAWN BY: AI | | F-3 |
| | CHECKED BY: TAP | RH ENERGYTRANS, LLC RISBERG LINE PROJECT PENNSYLVANIA AND OHIO | |
| | DATE: 03/05/2018 | | |

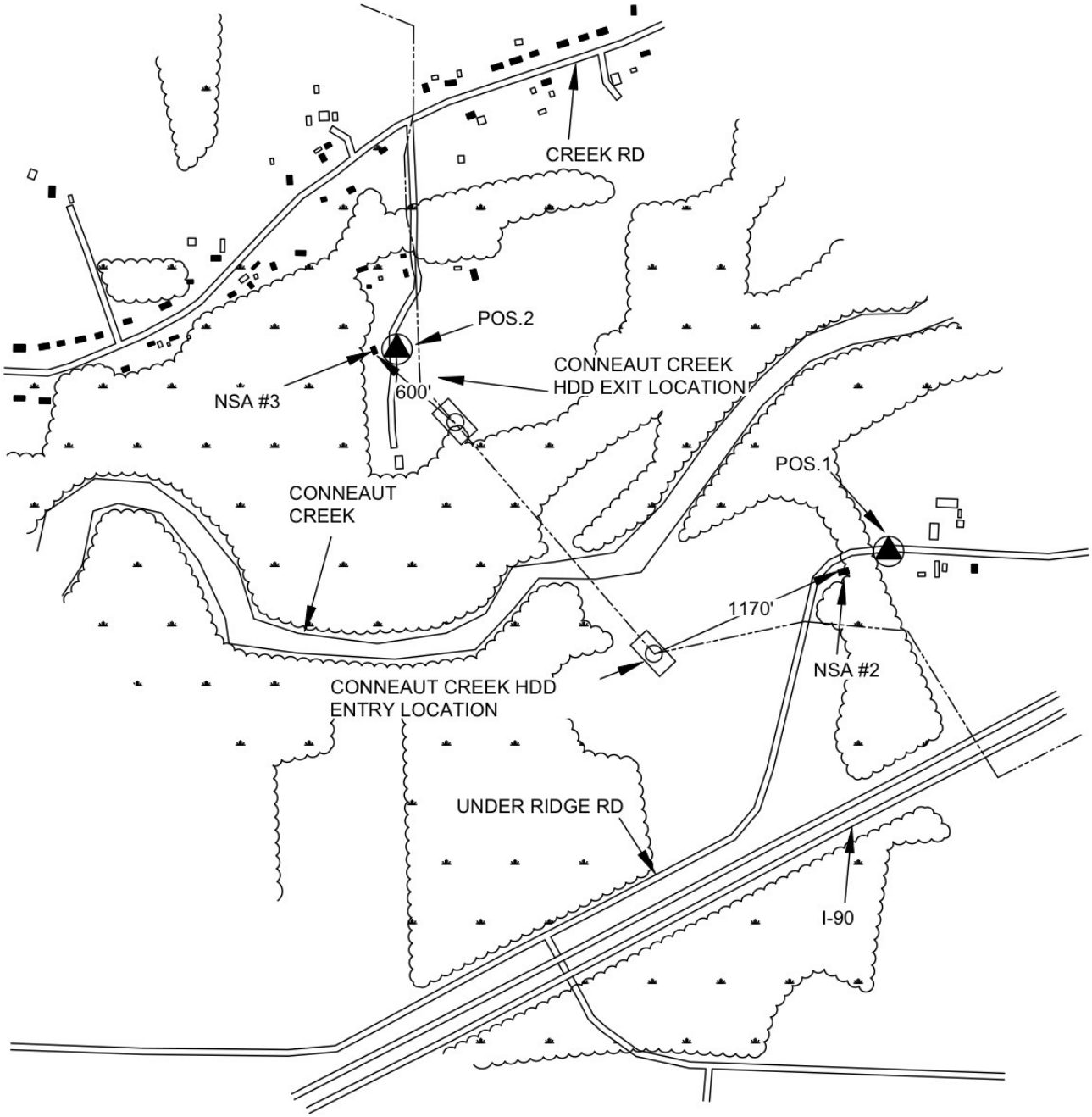
ANSI A-8.5x11

# Appendix G

# Noise Sensitive Area Maps




Noise Sensitive Area Map - HDD I-90



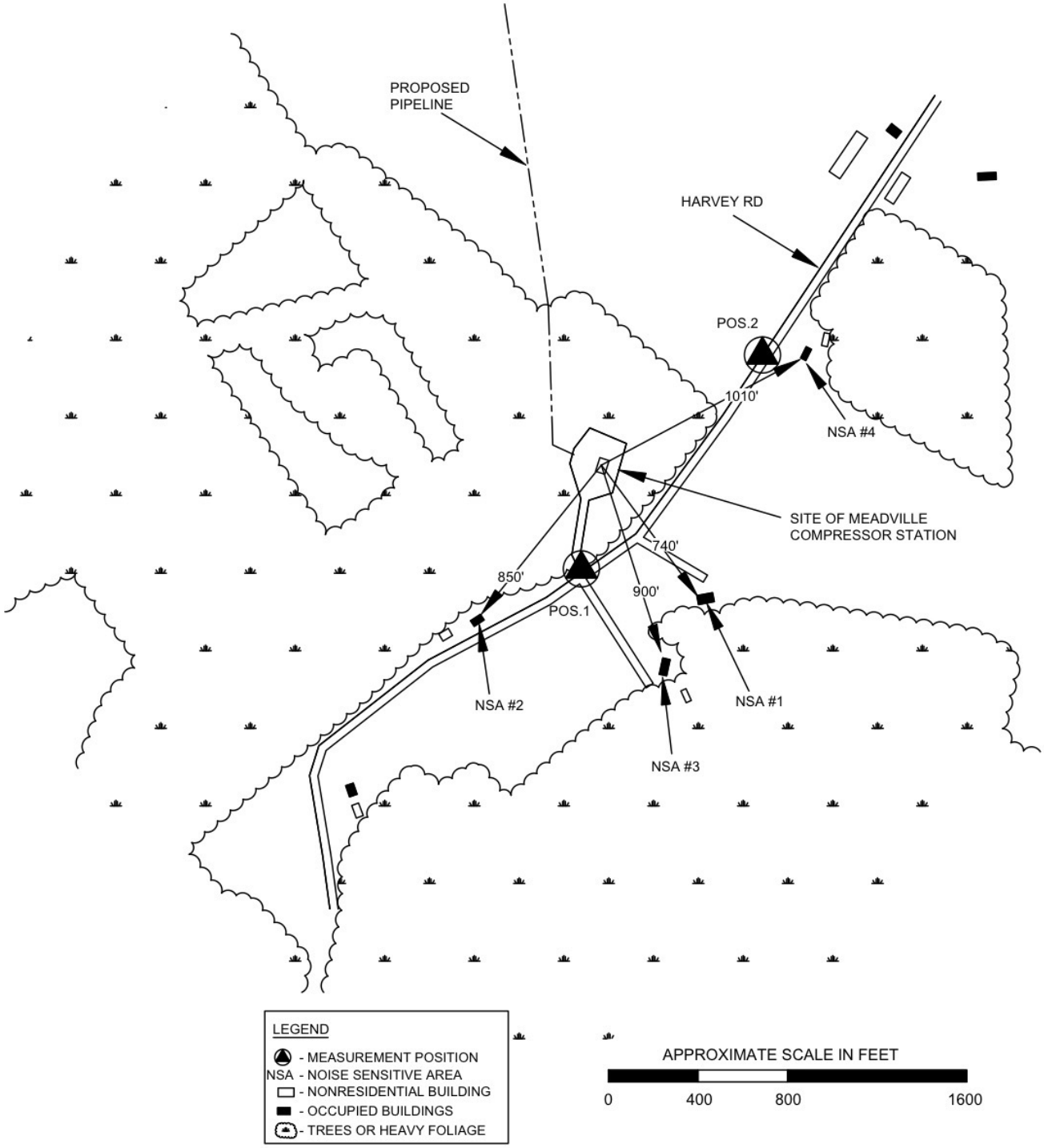

LEGEND

- MEASUREMENT POSITION
NSA - NOISE SENSITIVE AREA
- NONRESIDENTIAL BUILDING
- OCCUPIED BUILDINGS
- TREES OR HEAVY FOLIAGE

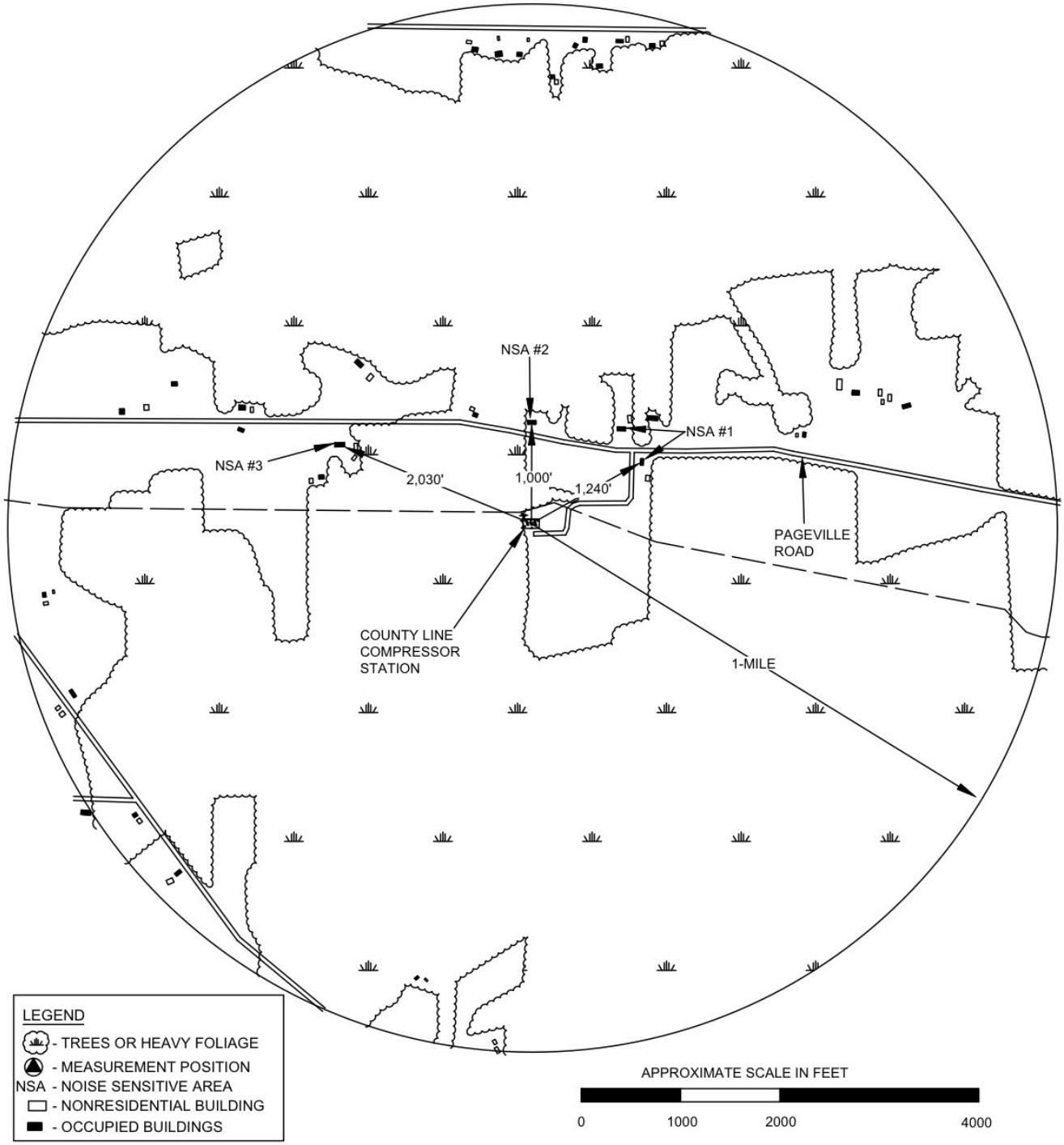
APPROXIMATE SCALE IN FEET

0 800 1600 3200

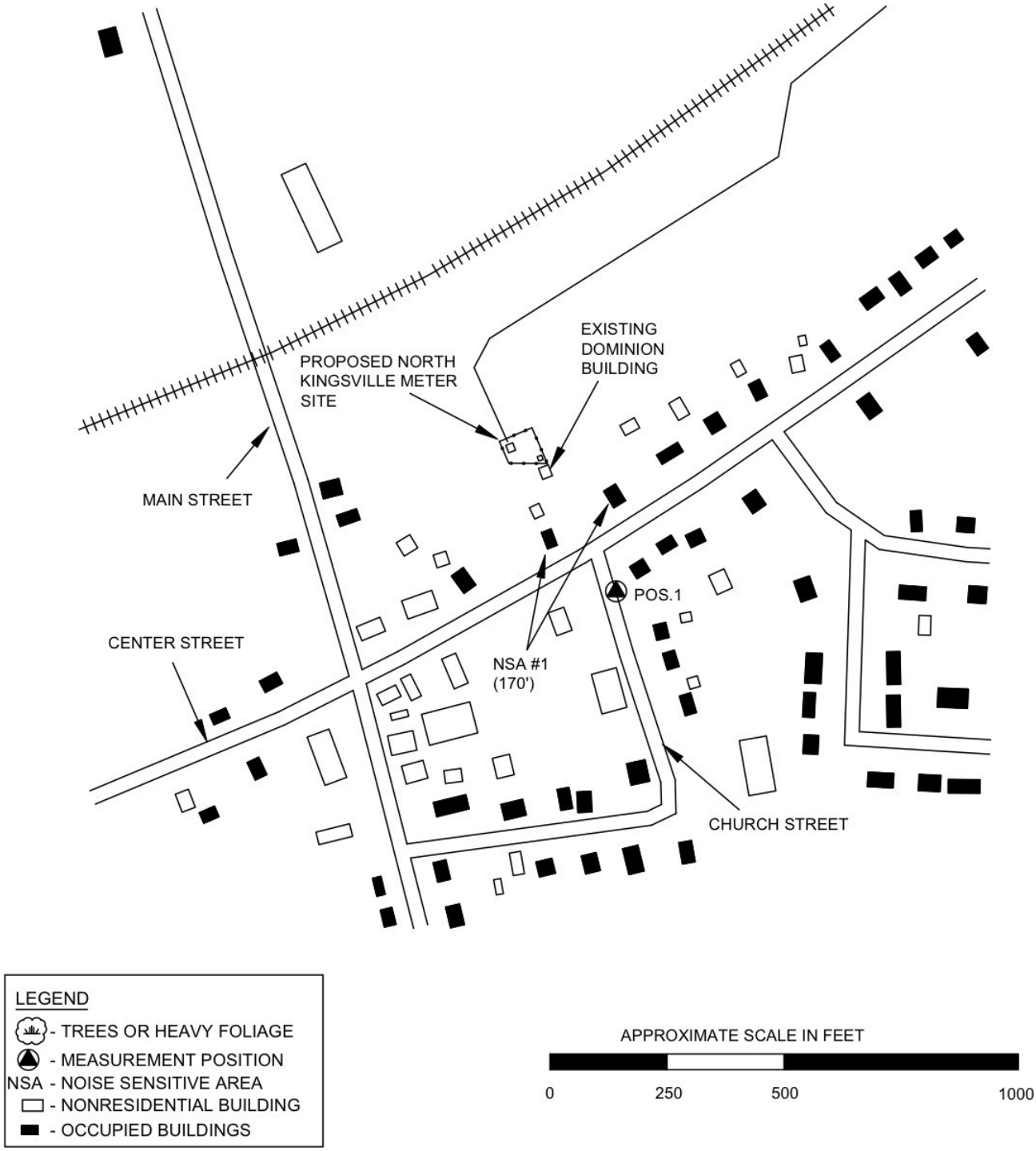
Noise Sensitive Areas Map - HDD Conneaut Creek




Noise Sensitive Areas Map - Meadville Compressor Station




County Line Compressor Station: General Area Layout/Map showing the NSAs (primarily Residences) and Areas of Interest within approximately 1 Mile of the Station.




North Kingsville Meter Station (RH Risberg Line Project): Area Layout/Map showing the new MS, NSAs within 0.5 Mile of the MS Site and Chosen Sound Measurement Position(s) near the Identified Closest NSAs.

# Appendix H

# Cumulative Impacts Tables

TABLE H-1

**Cumulative Impacts Analysis: Past, Present, and Reasonably Foreseeable Projects**

| Project Name and Number | County and State | Location | Description | Timeframe | Resources That May Be Cumulatively Affected |
|---|---|---|---|---|---|
| Various Industrial Facilities with Reportable Air Emissions | Crawford and Erie, Pennsylvania and Ashtabula, Ohio | Various as shown on Figure B.10-2. The closest facility to the Meadville Compressor Station is 1.5 miles away; the closest facility to the County Line Compressor Station is 0.25 miles away | As shown in table B.10-2, 85 industrial projects were identified within the 30-mile (50-kilometer) radius for air quality-specific areas of impact around each Project Compressor Station. These industrial projects include automotive glass plant, other natural gas compressor stations, power generating stations, coke and iron foundries, paving contractors, and facilities producing asphalt, paving materials, titanium dioxide pigment, and other chemicals. All these industrial facilities report air emissions to the Pennsylvania Department of Environmental Protection or the Ohio Environmental Protection Agency. | Present | Air Quality |
| Oil and Gas Development | Crawford and Erie, Pennsylvania and Ashtabula, Ohio | Various as shown on Figure B.10-1. | Within 0.25 miles of the proposed disturbance areas for the Project, 183 wells have been identified. Hundreds more active wells (both conventional and unconventional) are present within the 30-mile (50-kilometer) radius for air quality-specific areas of impact around each Project Compressor Station | Past, present, and future | Surface Water, Wetlands, Vegetation, Wildlife, Threatened and Endangered Species, Land Use, Visual, Air Quality, and Noise |
| NW 2018 Bridge Shotcrete Group (PennDOT Project ID 106579) | Crawford, Pennsylvania | Various Locations | Various State Routes: Various municipalities in Crawford, Forest, Venango and Warren Counties Metal culverts shotcrete application | Notice to Proceed Date: May 2018 | Socioeconomics |
| Big "I" Roundabout (PennDOT Project ID 106367) | Crawford, Pennsylvania | Vernon Township | US Routes 6/322 (Conneaut Lake Road) at the intersection with US Route 19 and State Route 98 (Perry Highway) Vernon Township Intersection Safety Improvements | Completion Date: November 2019 | Socioeconomics |
| SR 4011 Brdg/ Cussewago Ck (PennDOT Project ID 97081) | Crawford, Pennsylvania | Cussewago Township | State Route 4011 (Crossingville Road) Grange Road Bridge over Cussewago Creek Cussewago Township Bridge Replacement | Notice to Proceed Date: April 2018 | Socioeconomics |
| PA 27 over Oil Creek Trib (PennDOT Project ID 74605) | Crawford, Pennsylvania | Oil Creek Township | State Route 27 (West Central Avenue) Bridge over the Oil Creek Tributary Oil Creek Township Bridge Replacement | Notice to Proceed Date: December 2018 | Socioeconomics |
| SR 1007: Bidley Crns Brdg (PennDOT Project ID 505) | Crawford, Pennsylvania | Athens Township | State Route 1007 (Brown Hill Road) Bidley Corners Bridge over Federal Run Athens Township Bridge Replacement | Notice to Proceed Date: July 2018 | Socioeconomics |
| Group 172 (PennDOT Project ID 107882) | Crawford, Pennsylvania | Rome and Sparta Townships | State Route 89 from Harrison Rd to State 77 The City of Titusville along with Rome and Sparta Townships. Resurfacing. | Completion Date: May 2018 | Socioeconomics |
| I-79 over Conneaut Swamp (PennDOT Project ID 105054) | Crawford, Pennsylvania | Greenfield Township | Milling and patching the deck surface, placing a concrete composite overlay, repair decks joints and replacing approach slabs. Interstate 79 in Greenfield Township, Crawford County. Bridge deck rehabilitation. | Completion Date: May 2019 | Socioeconomics |

TABLE H-1

**Cumulative Impacts Analysis: Past, Present, and Reasonably Foreseeable Projects**

| Project Name and Number | County and State | Location | Description | Timeframe | Resources That May Be Cumulatively Affected |
|---|---|---|---|---|---|
| Conneaut Lake Revitiliz (PennDOT Project ID 104337) | Crawford, Pennsylvania | Conneaut Lake Borough | State Route 6 (Water Street) Conneuat Lake Borough Streetscape - Sidewalks, curb ramps, lighting. | Completion Date: July 2018 | Socioeconomics |
| PA 198 and PA 77 Inter (PennDOT Project ID 104144) | Crawford, Pennsylvania | Borough of Blooming Valley | State Route 77 (State Street) and State Route 198 (Saegertown Street) Borough of Blooming Valley Safety Improvement | Completion Date: May 2018 | Socioeconomics |
| PA 198 and PA 86 Inter (PennDOT Project ID 104143) | Crawford, Pennsylvania | Woodcock Township | State Route 198 (Saegertown Street), State and State Route 886 Woodcock Township Safety Improvement | Completion Date: May 2018 | Socioeconomics |
| SR 173:Mercer Cty line to SR 2014 (PennDOT Project ID 98977) | Crawford, Pennsylvania | Randolph Township | State Route 173 from the Mercer county line to French Creek in Fairfield township and US 322 in Wayne township to State Route 27 in Randolph Township Resurfacing | Completion Date: May 2019 | Socioeconomics |
| SR 2028: Enterprise Rd (PennDOT Project ID 98923) | Crawford, Pennsylvania | Oil Creek Township | State Route 2028 (Enterprise Road) from State Route 27 to the Warren County line Oil Creek Township Resurface/Restoration | Completion Date: May 2018 | Socioeconomics |
| PA 27: Lynn St to County Line (PennDOT Project ID 98902) | Crawford, Pennsylvania | City of Titusville | State Route 27 (Main Street) from Lynn St to the Venango County line City of Titusville Resurface | Completion Date: May 2018 | Socioeconomics |
| US 6: Linden St. to Reynolds Ave. (PennDOT Project ID 98854) | Crawford, Pennsylvania | City of Meadville | State Route 6 (French Creek Parkway) from Linden Street to Reynolds Avenue The City of Meadville Highway Reconstruction | Completion Date: May 2019 | Socioeconomics |
| PA 27: Franklin St-Lynn St (PennDOT Project ID 98625) | Crawford, Pennsylvania | City of Titusville | State Route 27 (Diamond Street/Main Street) from Franklin Street to Lynn Street City of Titusville Resurface/Restoration | Completion Date: May 2018 | Socioeconomics |
| PA 173: US 322 - SR 2014 (PennDOT Project ID 98621) | Crawford, Pennsylvania | Wayne Township | State Route 173 from State Route 322 to State Route 2014 Wayne Township Resurface/ Restoration | Completion Date: May 2019 | Socioeconomics |
| SR 2024: St. John St (PennDOT Project ID 98603) | Crawford, Pennsylvania | City of Titusville | State Route 2024 (St. John Street) from Perry Street to Franklin Street City of Titusville Resurface/Restoration | Completion Date: May 2018 | Socioeconomics |
| SR 408: Henry Rd to SR 77 (PennDOT Project ID 98602) | Crawford, Pennsylvania | Richmond Township | State Route 408 (Henry Rd to SR 77) Richmond Township Resurfacing | Completion Date: May 2019 | Socioeconomics |
| SR 408: Cambridge to SR 1014 (PennDOT Project ID 97881) | Crawford, Pennsylvania | Cambridge and Rockdale Townships and the Borough of Cambridge Springs | State Route 408 (Church Street) from Cambridge Springs Road to State Route 1014 Cambridge and Rockdale Townships and the Borough of Cambridge Springs Restoration/Resurface | Completion Date: May 2018 | Socioeconomics |

TABLE H-1

**Cumulative Impacts Analysis: Past, Present, and Reasonably Foreseeable Projects**

| Project Name and Number | County and State | Location | Description | Timeframe | Resources That May Be Cumulatively Affected |
|---|---|---|---|---|---|
| Baldwin Street: Park Ave to US 6 (PennDOT Project ID 97876) | Crawford, Pennsylvania | Mead Township and the City of Meadville | State Route 2037 (Baldwin Street) from North Main Street to State Route 6 West Mead Township and the City of Meadville Restoration/ Resurface | Completion Date: May 2018 | Socioeconomics |
| SR 1006 Slide (PennDOT Project ID 97665) | Crawford, Pennsylvania | Borough of Cambridge Springs | State Route 1006 (McClelland Street) Borough of Cambridge Springs Slide Correction/Roadway Failure | Completion Date: May 2018 | Socioeconomics |
| SR 285 over Conneaut Ck (PennDOT Project ID 90045) | Crawford, Pennsylvania | Fairfield Township | State Route 285 (Custards Road) Brooks Crossing Bridge over Conneaut Creek Tributary Fairfield Township Bridge Replacement | Completion Date: April 2018 | Socioeconomics |
| PA 27 over Lake Ck Trib (PennDOT Project ID 89105) | Crawford, Pennsylvania | Randolph Township | State Route 27 Washington Bridge over Lake Creek Tributary Randolph Township Bridge Replacement | Completion Date: September 2018 | Socioeconomics |
| US 6/Trib #4 French Ck (PennDOT Project ID 78580) | Crawford, Pennsylvania | Borough of Cambridge Springs | State Route 6 (Venango Avenue) Bridge over French Creek Tributary Borough of Cambridge Springs Bridge Replacement | Completion Date: July 2018 | Socioeconomics |
| PA 198 and US 6 Intersection (PennDOT Project ID 75050) | Crawford, Pennsylvania | Borough of Saegertown | SR 198 (Saegertown Street), SR 6 (Main Street) Borough of Saegertown Safety Improvement | Completion Date: May 2018 | Socioeconomics |
| PA 8: Franklin St Brdg (PennDOT Project ID 57947) | Crawford, Pennsylvania | City of Titusville | State Route 8 (Franklin Street) Bridge over Oil Creek City of Titusville Bridge Restoration/ Rehabilitation | Completion Date: August 2018 | Socioeconomics |
| SR 1025: Grant Street (PennDOT Project ID 32158) | Crawford, Pennsylvania | Bloomfield Township and the Borough of Cambridge Springs | State Route 1025 (Grant Street) from State Route 86 (South Main Street) to State Route 1006 (McClelland Street) Bloomfield Township and the Borough of Cambridge Springs Resurfacing | Completion Date: May 2018 | Socioeconomics |
| Erie Connector Project | Erie, Pennsylvania and Ontario, Canada | 0.25 miles - Risberg Line; the Erie Converter Station would be about 0.25 miles north of the proposed Risberg Line in Conneaut Township, Erie County, Pennsylvania | A high-voltage direct current underwater transmission line proposed by ITC Holdings that would extend about 73 miles from the Erie Converter Station in Erie, Pennsylvania to Nanticoke, Ontario. About 0.5 mile of new underground transmission cable would connect the new proposed Erie Converter Station and the nearby Penelec Erie West Substation. | Construction Timing Unknown. Presidential Permit issued by U.S. Department of Energy in January 2017, Canada's National Energy Board (NEB) issued a Certificate of Public Convenience Necessity in June 2017. Permitting ongoing. | Soils, Surface Water, Wetlands, Vegetation, Wildlife, Socioeconomics, Land Use, Visual, Cultural, and Air Quality |

TABLE H-1

**Cumulative Impacts Analysis: Past, Present, and Reasonably Foreseeable Projects**

| Project Name and Number | County and State | Location | Description | Timeframe | Resources That May Be Cumulatively Affected |
|---|---|---|---|---|---|
| EmKey 8-inch Loop Pipeline | Erie, Pennsylvania | 0 miles - Existing 8-inch gathering line for conversion (MP 26.55 to 31.55) Collocated in the ROW for the existing 8- inch pipeline located in Elk Creek | A potential pipeline loop to be constructed by EmKey Gathering. This pipeline would be constructed within the ROW of the existing 8-inch gathering pipeline proposed to be converted to transmission service. The pipeline would be built to maintain current gas throughput. | Under Company review for determination of future need | Soils, Surface Water, Wetlands, Vegetation, Wildlife, Socioeconomics, Visual, and Air Quality |
| 2017 Erie Local Bridge Group 1 (PennDOT Project ID 110237) | Erie, Pennsylvania | Erie County | Various locations on local roads in Erie County. Bridge rehabilitation/ restoration project | Completion Date: December 2019 | Socioeconomics |
| I-90 Cable Median Barrier (PennDOT Project ID 110094) | Erie, Pennsylvania | Harborcreek, Greenfield, and North East Townships | Interstate 90 (American Veterans Memorial Highway) from approximately 0.9 miles east of the interchange with State Route 290 to the PA/NY State Border in Harborcreek, Greenfield, and North East Townships. Safety Improvement | Completion Date: December 2018 | Socioeconomics |
| US 6N and SR 98 Intersection (PennDOT Project ID 109857) | Erie, Pennsylvania | Elk Creek Township | US 6N (SR 3006) and PA 98 (SR 198) Elk Creek Township Intersection Improvement | Completion Date: July 2019 | Socioeconomics |
| PA 5: Wayne St to Franklin Ave (PennDOT Project ID 109748) | Erie, Pennsylvania | City of Erie | State Route 5 (12th Street/Lake Road) from Wayne Avenue to Franklin Ave. with railroad coordination with CSX Transportation (DOT #524324B) and one signal rebuild with audible pushbuttons (TBD). | Completion Date: May 2021 | Socioeconomics |
| SRs 699, 4008 & 4014 (PennDOT Project ID 107744) | Erie, Pennsylvania | Millcreek Township and the City of Erie | State Route 699 in the City of Edinboro State Route 4008 in Summit Township State Route 4014 in Millcreek Township and the City of Erie | Notice to Proceed Date: May 2018 | Socioeconomics |
| SR 20 & SR 832 ADA Ramps (PennDOT Project ID 106766) | Erie, Pennsylvania | Millcreek Township | SR 832 from SR 20 to SR 5, SR 20 from Angle Road to Zuck Road, SR 5 from Asbury Rd to Pittsburgh Ave, SR 19 from Kuntz Rd to Grandview Blvd and SR 4009 from West Ridge Rd to W 23rd St Millcreek Township Safety Improvement | Notice to Proceed Date: April 2018 | Socioeconomics |
| Erie 2018 AWPM (PennDOT Project ID 106440) | Erie, Pennsylvania | Erie County | This project includes installing, repairing and replacing reflective pavement markings on various state routes and in various municipalities in Erie County. | Let Date: March 2018 | Socioeconomics |
| PA 98/Sterrettania Rd Intersection (PennDOT Project ID 105776) | Erie, Pennsylvania | Fairview Township | Avonia Road (State Route 98) at the intersection of Sterrettania Road (State Route 832) Fairview Township, Erie County Safety Improvements | Completion Date: April 2018 | Socioeconomics |
| PA 290/Buffalo Road Int (PennDOT Project ID 104463) | Erie, Pennsylvania | City of Erie | State Route 290 Intersection realignment. Erie County; City of Erie Bridge Removal and intersection realignment and reconstruction. | Completion Date: January 2021 | Socioeconomics |

TABLE H-1

**Cumulative Impacts Analysis: Past, Present, and Reasonably Foreseeable Projects**

| Project Name and Number | County and State | Location | Description | Timeframe | Resources That May Be Cumulatively Affected |
|---|---|---|---|---|---|
| Cranberry Area Ped Improv (PennDOT Project ID 104338) | Erie, Pennsylvania | City of Erie | State Route 4034 (Bayfront Parkway) and Cranberry Street City of Erie Pedestrian Improvements - Sidewalks, curb ramps, pedestrian signal | Completion Date: November 2018 | Socioeconomics |
| SR 955: Iroquois Avenue (PennDOT Project ID 99700) | Erie, Pennsylvania | Harborcreek Township | State Route 955 (Iroquois Avenue) from Nagle Road to Buffalo Road Harborcreek Township Resurfacing | Completion Date: November 2018 | Socioeconomics |
| PA 97: Waterford-Marsh Rd (PennDOT Project ID 99007) | Erie, Pennsylvania | Waterford Township | State Route 197 (Waterford Street) from Waterford to Marsh Road Borough of Waterford, Waterford and Summit Townships Resurface/ Restoration | Notice to Proceed Date: May 2018 | Socioeconomics |
| SR 19: 38th St to 26th St (PennDOT Project ID 98333) | Erie, Pennsylvania | City of Erie | State Route 19 (Peach Street) from 38th Street to 26th Street City of Erie Highway Restoration | Completion Date: November 2019 | Socioeconomics |
| Erie Preserve Br Group (PennDOT Project ID 95613) | Erie, Pennsylvania | Amity and Lawrence Park Township | SR 89 and SR 4032 Amity Township and Lawrence Park Township Bridge Rehabilitation | Notice to Proceed Date: July 2018 | Socioeconomics |
| N Waterford Improvements (PennDOT Project ID 91394) | Erie, Pennsylvania | Waterford Township | Safety Improvement - realignment and traffic signal improvements with appropriate signing and pavement markings | Completion Date: March 2020 | Socioeconomics |
| US 20 Bridge over Elk Creek (PennDOT Project ID 1271) | Erie, Pennsylvania | Girard Township | State Route 20 (Ridge Road) Bridge over Elk Creek in Girard Township and the Borough of Girard | Notice to Proceed Date: September 2018 | Socioeconomics |
| Niemeyer Road (T-463) Br (PennDOT Project ID 1180) | Erie, Pennsylvania | Waterford Township | Niemyer Road (Township Road 463) Covered Bridge over Lebeouf Creek Waterford Township Local Covered Bridge Restoration/ Rehabilitation | Completion Date: November 2018 | Socioeconomics |
| SR 6-273 Bicycle Items (PennDOT Project ID 109511) | Erie, Pennsylvania | Union and Wayne Townships | State Route 6 (Grand Army of the Republic Highway) from Mitchell Road to State Route 89 Union and Wayne Townships Resurfacing | Completion Date: May 2018 | Socioeconomics |
| City of Erie Local Fed Aid Routes (PennDOT Project ID 108951) | Erie, Pennsylvania | City of Erie | Milling and paving of multiple sections of city streets and other miscellaneous construction | Completion Date: May 2018 | Socioeconomics |
| 1-17-GR1 (PennDOT Project ID 107276) | Erie, Pennsylvania | Erie County | Construction of and emergency repairs of right-of-way fence, guide rail, and impact attenuators | Completion Date: June 2019 | Socioeconomics |
| SR: 89 Wattsburg RD (PennDOT Project ID 107730) | Erie, Pennsylvania | Venango and Greenfield Townships | State Route 89 (Beaver Dam Rd) from State route 8 to Station Rd. in Venango and Greenfield Townships | Completion Date: May 2018 | Socioeconomics |
| SR 426: Columbus Ave to S (PennDOT Project ID 107726) | Erie, Pennsylvania | Wayne Township and City of Corry | State Route 426 from State Route 6 to the New York State line in Wayne Township and the City of Corry. | Completion Date: May 2019 | Socioeconomics |
| 38th Street VA Signal (PennDOT Project ID 107539) | Erie, Pennsylvania | City of Erie | 38th St (SR 4016) between French St and City of Erie New Signal/Intersection | Completion Date: November 2018 | Socioeconomics |

TABLE H-1

**Cumulative Impacts Analysis: Past, Present, and Reasonably Foreseeable Projects**

| Project Name and Number | County and State | Location | Description | Timeframe | Resources That May Be Cumulatively Affected |
|---|---|---|---|---|---|
| Peach St & Moorehead Signal (PennDOT Project ID 106445) | Erie, Pennsylvania | City of Erie | State Route 19 (Peach Street) intersection with Moorehead Street and West 29th St City of Erie Intersection Improvements | Completion Date: May 2018 | Socioeconomics |
| US 19 thru Waterford Boro (PennDOT Project ID 99762) | Erie, Pennsylvania | Waterford Township | State Route 19 (Waterford Pike) from State Route 197 to State Route 197 Waterford Township and the Borough of Waterford Restoration | Completion Date: May 2018 | Socioeconomics |
| SR 6: Mitchell Rd - SR 89 (PennDOT Project ID 99747) | Erie, Pennsylvania | Union and Wayne Townships | State Route 6 (Grand Army of the Republic Highway) from Mitchell Road to State Route 89 Union and Wayne Townships Resurfacing | Completion Date: May 2018 | Socioeconomics |
| SR 98: Sterrettania-Lake (PennDOT Project ID 99733) | Erie, Pennsylvania | Millcreek Township | State Route 98 (Avonia Road/East Main Street) from Sterrettania Road to Lake Road Fairview Township and State Route 4012 Love Rd to Zuck Rd Millcreek Township Resurfacing | Completion Date: May 2018 | Socioeconomics |
| SR 4016: Old French Rd to Rice Ave (PennDOT Project ID 99020) | Erie, Pennsylvania | City of Erie | State Route 4016 (38th Street) from State Route 197 (Old French Road) to Rice Avenue City of Erie Resurface/Restoration | Completion Date: May 2018 | Socioeconomics |
| SR 3014 Brdg/Falk Run (PennDOT Project ID 97988) | Erie, Pennsylvania | Franklin Township | State Route 3014 (Old State Road) Bridge over Falk Run Franklin Township and Erie County Department Force Bridge Replacement | Completion Date: July 2018 | Socioeconomics |
| SR 4012: Intrchng Rd Impr (PennDOT Project ID 95558) | Erie, Pennsylvania | Millcreek Township | State Route 4012 (Interchange Road) from Old Zuck Road to Zimmerly Road and State Route 699 from Zimmerly Road to Peach Street Millcreek Township Reconstruction | Completion Date: October 2019 | Socioeconomics |
| Millfair Road Project (PennDOT Project ID 88716) | Erie, Pennsylvania | Millcreek and Fairview Townships | State Route 4016 (Millfair Road) from State Route 20 (Ridge Road) to State Route 5 (West Lake Road) Millcreek and Fairview Townships New Bridge, roadway rehabilitation including signal upgrades at SR 20 and SR 5 intersections | Completion Date: May 2018 | Socioeconomics |
| I-79: MP 165 to MP 168.5, Preservation (PennDOT Project ID 76851) | Erie, Pennsylvania | McKean and Washington Townships | Interstate 79 (Raymond P Shafer Highway) from milepost 165 to milepost 168.5 Franklin, McKean and Washington Townships Interstate Maintenance | Completion Date: May 2018 | Socioeconomics |
| PA 197 Bridge/French Ck Trib (PennDOT Project ID 72613) | Erie, Pennsylvania | Union Township | SR 97 (Union City Road) Bridge over French Creek Tributary Union Township Bridge Replacement | Completion Date: August 2018 | Socioeconomics |
| McBride Viaduct (PennDOT Project ID 58232) | Erie, Pennsylvania | City of Erie | McBride Viaduct-East Avenue Bridge over CSX Railroad (DOT #524012T) City of Erie Local Bridge Removal | Completion Date: November 2018 | Socioeconomics |

TABLE H-1

**Cumulative Impacts Analysis: Past, Present, and Reasonably Foreseeable Projects**

| Project Name and Number | County and State | Location | Description | Timeframe | Resources That May Be Cumulatively Affected |
|---|---|---|---|---|---|
| SR 4012 Br over I-79 (PennDOT Project ID 58229) | Erie, Pennsylvania | Millcreek Township | State Route 4012 (Interchange Road/Zimmerly Road) Bridge over Interstate 79 (Raymond P. Shafer Highway) Millcreek Township Bridge Restoration/Rehabilitation | Completion Date: October 2019 | Socioeconomics |
| SR 6N: Ridge-Cherry Hill (PennDOT Project ID 99753) | Erie, Pennsylvania | Springfield Township | State Route 3006 (US 6N) from Ridge Road to Cherry Hill Road Conneaut and Springfield Townships Resurfacing | Awarded May 2019; Notice to Proceed July 2019 | Socioeconomics |
| SR 3006 Bridge over I-90 (PennDOT Project ID 97183) | Erie, Pennsylvania | Springfield Township | State Route 3006 (Perry Highway) Bridge over Interstate 90 (American Veterans Memorial Highway) Springfield Township Bridge Preservation | Awarded February 2019; Notice to Proceed April 2019 | Socioeconomics |
| Huntley Road/I-90 (PennDOT Project ID 82924) | Erie, Pennsylvania | Springfield Township | State Route 3102 (Huntley Road) Bridge over Interstate 90 (American Veterans Memorial Highway) Springfield Township Bridge Replacement | Awarded February 2019; Notice to Proceed April 2019 | Socioeconomics |
| Pond Road over I-90 (PennDOT Project ID 82922) | Erie, Pennsylvania | Springfield Township | State Route 3101 (Pond Road) Bridge over Interstate 90 (American Veterans Memorial Highway) Springfield Township Bridge Replacement | Awarded February 2019; Notice to Proceed April 2019 | Socioeconomics |
| I-90: MP 0 to 3.5, Recons (PennDOT Project ID 102031) | Erie, Pennsylvania | Springfield Township | Interstate 90 (American Veterans Memorial Highway) from the Ohio/Pennsylvania line to the maintenance crossover east of State Route 6N Springfield Township Reconstruction | Awarded January 2019; Notice to Proceed April 2019 | Socioeconomics |
| NAIC Distribution Pipeline | Ashtabula, Ohio | 0 miles – Starts at the terminus of the proposed Risberg Line in North Kingsville and extends 7 miles northwest terminating approximately 0.25 miles north of East Ashtabula, Ohio. | A potential 7-mile distribution pipeline, to be constructed by others, starting at the terminus of the proposed Risberg Line in North Kingsville, Ashtabula County, Ohio. The potential pipeline would service NAIC which, assuming it proceeds with a merchant pig iron production facility it is developing, would be interested in purchasing gas transportation service from the Project. | Unknown | Soils, Surface Water, Wetlands, Vegetation, Wildlife, Threatened and Endangered Species, Socioeconomics, Land Use, Visual, Cultural, and Air Quality |
| NAIC Facility | Ashtabula, Ohio | unknown – North Kingsville Meter Station (the precise location and associated impacts of the potential new NAIC Facility are currently unknown) | A potential new merchant pig iron production facility at the terminus of the proposed NAIC distribution pipeline, some seven miles from the North Kingsville terminus of the Risberg Line project. | Unknown | Vegetation, Threatened and Endangered Species, Socioeconomics, Land Use, Visual, and Air Quality |
| US Route 20 (ODOT Project 100815) | Ashtabula, Ohio | Saybrook, Ashtabula & Kingsville Townships; less than 0.5 mile from Risberg Line Project | Microsurfacing of US 20 between Brown Rd. and N. Bend Rd. and on SR 84 between the eastern Ashtabula Corporation limit to SR 193 | November 2018 to December 2019 | Water Resources, Wildlife, Land Use, Socioeconomics, Air Quality (construction), Noise |

TABLE H-1

**Cumulative Impacts Analysis: Past, Present, and Reasonably Foreseeable Projects**

| Project Name and Number | County and State | Location | Description | Timeframe | Resources That May Be Cumulatively Affected |
|---|---|---|---|---|---|
| US Route 20; State Routes 45, 84, 167 & 193 (ODOT Project 102356) | Ashtabula, Ohio | Various Locations; less than 1 mile from Risberg Line Project | Microsurfacing of the following routes: US 20 from the eastern Geneva Corporation limit to Ninevah Rd. and between Donahoe Dr. to the western Conneaut Corporation limit, SR 45 from the CSX railroad to SR 531, SR 84 between SR 193 and I-90, SR 167 between SR 46 to Garrett Rd. and SR 193 between Sheffield Monroe Rd. and Plymouth Gageville Rd. and between SR 84 and US 20 | May – October 2018 | Water Resources, Wildlife, Land Use, Socioeconomics, Air Quality (construction), Noise |
| US Route 20 (ODOT Project 94077) | Ashtabula, Ohio | City of Conneaut; less than 1 mile from Risberg Line Project | Resurfacing of US 20 from just east of SR 7 to the Pennsylvania state line. Project also includes minor bridge repairs. | Awarded August 2018 | Water Resources, Wildlife, Land Use, Socioeconomics, Air Quality (construction), Noise |
| State Route 531 (ODOT Project 94110) | Ashtabula, Ohio | City of Ashtabula; Village of North Kingsville; Ashtabula Township; 1 mile from Risberg Line Project | Resurfacing of SR 531 between Westminster Ave. and Westshore Dr. and between the eastern Ashtabula Corporation limit and the western Corporation limit. Project also includes minor bridge repairs. | April – July 2018 | Water Resources, Wildlife, Land Use, Socioeconomics, Air Quality (construction), Noise |
| Other Road Projects (10 identified) | Ashtabula, Ohio | Between 1 and 21 miles from Risberg Line Project | Projects vary but include total pavement replacement, resurfacing, bridge painting, culvert replacements, chip sealing | April 2018 to October 2019 | Socioeconomics |

Note: Transportation projects in Pennsylvania that are included in this table are those listed on PennDOT website with a Let Date or Notice to Proceed Date. Projects for which PennDOT did not provide a date are not included.

TABLE H-2

**Summary of Potential Emissions for Cumulative Actions Evaluated for the Project**

| Facility | Pollutant: Particulate Matter ($PM_{10}$) (tpy) | Particulate Matter ($PM_{2.5}$) (tpy) | Sulfur Dioxide ($SO_2$) (tpy) | Carbon Monoxide (CO) (tpy) | Nitrogen Oxide ($NO_x$) (tpy) | Volatile Organic Compound (VOC) (tpy) |
|---|---|---|---|---|---|---|
| **Crawford County, PA** | | | | | | |
| Advanced Cast Products/Meadville | 44.44 | 36.79 | 0.26 | 43.79 | 2.39 | 1.53 |
| Dunbar Asphalt Prod/Conneaut Lake Asphalt Div | 19.84 | NR | 4.77 | 2.07 | 1.43 | 1.04 |
| Homerwood Hardwood Flooring/Titusville | 0.88 | 0.03 | 0.00 | 0.33 | 0.40 | 14.91 |
| ITU Absorb Tech Inc/Titusville | NR | NR | NR | 0.03 | 0.03 | 17.50 |
| Kastle Resources Enterprises/Foulk Comp Station | 0.09 | 0.09 | 0.01 | 0.40 | 5.33 | 6.69 |
| Kastle Resources Enterprises/Pierpont Comp Station | 0.01 | 0.01 | 0.00 | 9.22 | 6.02 | 14.43 |
| Laurel Mtn Midstream Opr LLC /Townville Comp Station | 0.44 | 0.44 | 0.03 | 0.53 | 9.26 | 10.91 |
| Lord Corp/Cambridge Springs | 0.07 | NR | 0.01 | 1.91 | 2.28 | 6.04 |
| Lord Corp/Saegertown | 0.13 | 0.10 | 0.01 | 3.61 | 4.40 | 25.26 |
| Molded Fiber Glass Co / Tray Company | 0.05 | 0.03 | 0.01 | 1.26 | 1.51 | 10.96 |
| Pittsburgh Glass Works/Meadville Works 8 | 273.90 | 262.50 | 331.10 | 15.80 | 1540.70 | 17.90 |
| Range Resources Appalachia LLC / Chidester Station | 0.02 | 0.02 | 2.07 | 6.55 | 3.89 | 0.80 |
| Range Resources Appalachia LLC/Dillinger Station | 0.01 | 0.01 | 0.00 | 5.16 | 3.07 | 0.20 |
| Range Resources Appalachia LLC / Marsidell Station | NR | NR | NR | NR | NR | 0.04 |
| Range Resources Appalachia LLC / Russell Station | 0.01 | 0.01 | 0.00 | 0.37 | 0.09 | 0.35 |
| Range Resources Appalachia/Lippert Station | 0.03 | 0.03 | 0.00 | 4.27 | 17.27 | 4.99 |
| **Total Existing Crawford County** | 339.92 | 300.06 | 338.27 | 95.32 | 1598.05 | 133.55 |
| **Meadville Compressor Station (Proposed)** | 1.10 | 1.10 | 0.02 | 0.60 | 3.50 | 2.50 |
| **Total Existing & Proposed Crawford County** | 341.02 | 301.16 | 338.29 | 95.92 | 1601.55 | 136.05 |
| **Erie County, PA** | | | | | | |
| Accuride Erie LP/Erie Forge Plant | 10.61 | 10.60 | 2.45 | 26.24 | 9.01 | 5.96 |
| BASF Corporation/Erie | 0.30 | 0.30 | 0.04 | 6.03 | 12.35 | 3.25 |
| Cross Paving LLC/Venango | 17.79 | NR | 1.70 | 0.97 | 0.97 | 0.48 |
| Emkey Gas Proc LLC/Union City Gas Plant | NR | NR | NR | 6.25 | 10.77 | 4.20 |
| Emkey Gathering LLC/Carter Hill Comp Station | NR | NR | NR | 0.02 | 0.08 | 1.10 |
| Emkey Gathering LLC/Union City Comp Station | NR | NR | NR | 6.87 | 9.39 | 8.77 |
| Erie Coke Corp/Erie Plant | 33.89 | 14.10 | 87.29 | 42.70 | 80.08 | 22.60 |
| Erie Sewer Authority/Erie WWTP | 1.17 | 1.17 | 1.09 | 18.65 | 9.92 | 5.09 |
| Foam Fabricators Inc/Erie Plant | 0.09 | 0.09 | 0.01 | 0.95 | 1.22 | 45.03 |
| GE Transportation/Erie Plant | 6.48 | 6.48 | 0.32 | 42.96 | 109.20 | 49.30 |
| Hanes Erie/Fairview | NR | NR | NR | NR | NR | 25.68 |
| Haysite Reinforced Plastics LLC/Erie | 0.10 | NR | 0.01 | 1.15 | 1.37 | 37.13 |
| Insul Board/Erie | 0.00 | NR | 0.00 | 0.12 | 0.15 | 17.31 |
| Joseph Mccormick Const/Wesleyville | 0.14 | 0.03 | 0.01 | 1.51 | 1.79 | 0.10 |
| Lake Erie Biofuels LLC/Erie | 1.75 | 1.75 | 0.12 | 15.56 | 7.97 | 3.58 |

TABLE H-2

**Summary of Potential Emissions for Cumulative Actions Evaluated for the Project**

| Facility | Pollutant: Particulate Matter ($PM_{10}$) (tpy) | Particulate Matter ($PM_{2.5}$) (tpy) | Sulfur Dioxide ($SO_2$) (tpy) | Carbon Monoxide (CO) (tpy) | Nitrogen Oxide ($NO_x$) (tpy) | Volatile Organic Compound (VOC) (tpy) |
|---|---|---|---|---|---|---|
| Lord Corp/Erie | 0.08 | NR | 0.04 | 1.15 | 2.22 | 20.66 |
| Mayer Bros Const Co/West Plant | 0.45 | 0.40 | 0.25 | 16.86 | 0.99 | 0.40 |
| Molded Fiber Glass Co/Union City | 0.10 | 0.10 | 0.60 | 0.70 | 0.80 | 30.60 |
| Natl Fuel Gas Supply/Carter Hill | 0.05 | 0.05 | 0.00 | 0.62 | 0.67 | 4.47 |
| Natl Fuel Gas Supply/Curtis Rd Station | 0.05 | 0.05 | 0.00 | 0.55 | 0.65 | 0.12 |
| Natl Fuel Gas Supply/Summit Station | 0.06 | 0.06 | 0.01 | 13.82 | 34.37 | 3.39 |
| RH Energytrans LLC Countyline Comp Station (Existing) | NR | NR | NR | 0.24 | 1.71 | 1.63 |
| Russell Std Corp Waterford Plant | 11.80 | NR | 0.40 | 32.30 | 2.00 | 2.00 |
| Urick Foundry Co/Erie | 9.23 | 4.39 | 0.38 | 74.83 | 2.37 | 1.48 |
| Waste Mgmt Pa/Lake View Landfill | 3.14 | 2.74 | 5.42 | 198.44 | 48.28 | 42.61 |
| Zurn Ind LLC/Cast Metals Div | 1.94 | 1.86 | 0.08 | 1.15 | 1.41 | 2.91 |
| **Total Existing Erie County** | 99.24 | 44.17 | 100.23 | 510.63 | 349.74 | 339.84 |
| **County Line Compressor Station (Proposed)** | 3.70 | 3.70 | 0.02 | 1.80 | 10.50 | 3.00 |
| **Total Existing & Proposed Erie County** | 102.94 | 47.87 | 100.25 | 512.43 | 360.24 | 342.84 |
| **Mercer County, PA** | | | | | | |
| Range Resources Appalachia/Wallace Station | 0.02 | 0.02 | 0.02 | 4.18 | 17.10 | 5.66 |
| Salem Tube Inc/Greenville Reynolds Ind Pk | 0.03 | NR | 0.01 | 0.32 | 1.44 | 28.64 |
| Dba Select Metal Litho Greenville | 0.03 | 0.03 | 0.00 | 0.75 | 0.89 | 9.11 |
| Hodge Foundry/Greenville | 21.60 | 3.28 | 0.06 | 0.16 | 0.30 | 16.43 |
| GE Transp/Grove City Main Plant | 4.06 | 4.19 | 0.12 | 21.80 | 95.99 | 23.45 |
| GE Transportation/Grove City Ux Fac | 0.35 | 0.35 | 0.01 | 0.82 | 0.98 | 11.10 |
| Grove City Coll/Grove City | 1.89 | 1.22 | 19.90 | 1.19 | 8.89 | 1.13 |
| Bucks Fabricating/Hadley | NR | NR | NR | NR | NR | 15.59 |
| Jamestown Paint Co/Mercer | 0.45 | NR | NR | NR | NR | 4.77 |
| Hilcorp Energy Co/Lackawannock Larmon Fac | 0.12 | 0.12 | 0.08 | 19.61 | 19.77 | 32.68 |
| Ergon Trucking/Storage Tanks | NR | NR | NR | NR | NR | 17.47 |
| Tennessee Gas Pipeline Co Llc/Mercer Sta 219 | 1.59 | 1.59 | 0.10 | 7.17 | 99.98 | 7.79 |
| Natl Fuel Gas Supply Corp/Mercer Comp Sta | 1.77 | 1.77 | 0.11 | 1.17 | 20.10 | 5.95 |
| Miller Ind/Chevron | NR | NR | NR | NR | NR | 10.29 |
| Laurel Mtn Midstream Opr Llc/Hurtt Comp Sta | 0.46 | 0.46 | 0.03 | 0.91 | 7.01 | 9.26 |
| Sharon Coating Llc/Sharon | 1.40 | 1.40 | 0.03 | 8.91 | 29.61 | 2.00 |
| **Total Existing Mercer County** | 33.75 | 14.42 | 20.46 | 66.99 | 302.08 | 201.31 |
| **Venango County, PA** | | | | | | |
| Belden & Blake Corp/Windy Hill Comp Sta | 0.01 | 0.01 | 0.14 | 12.62 | 13.02 | 2.38 |
| Borchers Americas Franklin Fac | 0.22 | NR | 0.03 | 3.46 | 1.91 | 14.89 |
| Devonian Resources Inc/Van Extraction Plant | 0.16 | 0.16 | 0.00 | 3.54 | 3.46 | 3.25 |
| Electralloy Go Carlson/Oil City | 2.47 | NR | 8.93 | 94.34 | 38.78 | 13.26 |
| Franklin Ind Co/Franklin | NR | NR | 0.07 | NR | 16.92 | 20.71 |
| Glenn O Hawbaker Inc/Harrisville Asphalt Plt | 0.75 | NR | 10.33 | 7.72 | 5.98 | 0.67 |

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| Facility | Pollutant | | | | | |
|---|---|---|---|---|---|---|
| | Particulate Matter ($PM_{10}$) (tpy) | Particulate Matter ($PM_{2.5}$) (tpy) | Sulfur Dioxide ($SO_2$) (tpy) | Carbon Monoxide (CO) (tpy) | Nitrogen Oxide ($NO_x$) (tpy) | Volatile Organic Compound (VOC) (tpy) |
| Handsome Lake Energy Llc/Kennerdell | 5.77 | 5.77 | 0.52 | 10.38 | 68.70 | 4.70 |
| IA Const Corp/Franklin Hot Mix Plt | 4.68 | NR | 0.15 | 13.19 | 1.51 | 0.27 |
| Natl Fuel Gas Supply Corp/Van Station | 0.03 | 0.03 | 0.00 | 0.36 | 3.49 | 0.65 |
| Pa Dhs/Polk Ctr | 3.26 | NR | 37.06 | 11.16 | 24.91 | 1.14 |
| Renovex/Barkeyville Fac | 0.20 | 0.02 | 0.00 | 0.10 | 0.18 | 0.67 |
| Sasol Chemicals Usa Llc/Oil City | 4.89 | 4.89 | 0.06 | 1.18 | 4.81 | 26.69 |
| Scrubgrass Generating Co Lp/Kennerdell Plt | 35.54 | NR | 1,120.45 | 147.97 | 548.49 | 5.09 |
| WS Packaging Group/Franklin | 0.00 | 0.00 | 0.00 | 0.10 | 0.12 | 25.43 |
| **Total Existing Venango County** | 57.96 | 10.87 | 1,177.75 | 306.13 | 732.30 | 119.81 |
| **Ashtabula County, OH** | | | | | | |
| Ashta Chemicals Inc. | 0.04 | 0.04 | 0.01 | 1.93 | 2.30 | 0.13 |
| Chromaflo Technologies Corp | NR | NR | NR | NR | NR | 2.86 |
| Continental Structural Plastics of Ohio LLC aka CSP OH | 0.08 | 0.08 | 0.01 | 2.35 | 3.73 | 23.37 |
| Cristal USA Inc., Ashtabula Complex Plant 1 | 11.57 | 7.92 | 27.81 | 13111.31 | 24.81 | 666.11 |
| Cristal USA Inc., Ashtabula Complex Plant 2 | 25.13 | 22.70 | 38.31 | 30419.78 | 194.83 | 2170.70 |
| CW Ohio INC. | NR | NR | NR | NR | NR | 1.67 |
| Leather Resource of America, Inc. | 0.07 | 0.07 | NR | NR | NR | 3.75 |
| Mar Zane Plant No 10 | 5.07 | 0.57 | 1.50 | 6.73 | 4.38 | 6.83 |
| MFG, Composite Systems | NR | NR | NR | NR | NR | 23.76 |
| Premix Inc., a subsidiary of A. Schulman, Inc. | NR | NR | NR | NR | NR | 2.66 |
| Vesuvius USA Corp. - Conneaut Plant | 1.15 | 1.15 | 0.01 | 1.82 | 2.16 | 0.12 |
| Zehrco Giancola Composites Inc. Plant 4 | NR | NR | NR | NR | NR | 1.12 |
| Zehrco Plastics Inc. (Plant 2) | NR | NR | NR | NR | NR | 19.29 |
| **Total Existing Ashtabula County** | 43.11 | 32.53 | 67.66 | 43543.92 | 232.22 | 2922.37 |
| **Total Existing and Proposed All Counties** | **578.78** | **406.85** | **1704.41** | **44525.38** | **3228.38** | **3722.38** |
| **Total Proposed Facilities** | **4.8** | **4.8** | **0.04** | **2.4** | **14** | **5.5** |