CASE NO. 14-1717-GA-BLN
LON
AVON LAKE GAS ADDITION PROJECT
PROPOSED NATURAL GAS PIPELINE

ATTACHMENT K

EROSION AND SEDIMENT CONTROL PLAN

EROSION AND SEDIMENT CONTROL PLAN REVIEW APPLICATION FORM
LORAIN SOIL AND WATER CONSERVATION DISTRICT

ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM. THE REVIEW AND INSPECTION FEE SHALL BE SUBMITTED WITH THE DEVELOPMENT PLAN. PLANS SHALL NOT BE APPROVED UNTIL THE FEE HAS BEEN PAID.

1. Owner Information

Name NRG Ohio Pipeline Company LLC Phone 609-524-4677

Address 211 Carnegie Center Fax/Email alan.sawyer@nrg.com

City Princeton State NJ Zip 08540

2. Agent/Engineer/Contractor/Builder Information

Name ERM Phone 847-258-8912

Contact Person Doni Murphy Phone 847-258-8912

Address 1701 Golf Road, Suite 1-1700 Fax/Email doni.murphy@erm.com

City Rolling Meadows State IL Zip 60008

3. Site Information

Site Name Avon Lake Gas Addition Project Township Eaton, LaGrange and Carlisle

Address See attached maps Project Type Natural Gas Pipeline

NPDES Permit # Pursuing Wetland Permit # Pursuing Sublot #____ Phase #____

Receiving Watershed 04110001

4. Soil Disturbing Activity Information

Total Project Area (acres) 235 acres Proposed Start Date July 2015

Total Contributing Drainage Area (acres)____ Estimated Completion Date April 2016

Pre-Construction Site Conditions Existing utility corridor/agricultural fields/residential or commercial development

5. Payment Information **Make Checks Payable to Lorain County Commissioners**

Date of Check ____ Check # ____ Amount $ 1,300.00

6. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision and are to the best of my knowledge and belief, true, accurate, and complete.

Printed Name NRG Ohio Pipeline Company LLC By Alan Sawyer, Vice President Affiliation NRG Ohio Pipeline Company LLC

I authorize the Lorain County Commissioners or its appointed agents to enter this property for the purposes of plan review, site inspection or compliance with the Lorain County Erosion & Sediment Control Rules for the duration of the project.

Signature Alan Sawyer Date 18 Dec 2014

7. Approval

Approved as submitted Y N By ____ Date ____

____ Disapproved – Please Correct the following items: ____

Avon Lake Gas Addition Project

Lorain County, Ohio

Erosion and Sediment Control Plan

Prepared by
Environmental Resources Management
Hanover Engineering Associates

Prepared for
NRG Ohio Pipeline Company LLC

December 19, 2014

Signatory Requirement
(to be completed in advance of construction)

NRG Ohio Pipeline Company LLC

Avon Lake Gas Addition Project
Lorain County, Ohio

Erosion and Sediment Control Plan

Planned Construction Start Date: _____
Planned Construction Completion Date: _____

Construction Supervisor: _____
Phone: _____

Project Manager (signature): _____
Construction Contractor (signature): _____
Environmental Inspector (signature): _____

Prepared by
Environmental Resources Management
Hanover Engineering Associates

Prepared for
NRG Ohio Pipeline Company LLC

_____
(Signature)

_____
(Title)

_____
(Date)

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1.0 PROJECT OVERVIEW

Introduction

This Erosion and Sediment Control Plan ("ESCP or Plan") has been prepared for NRG Ohio Pipeline Company LLC for construction activities associated with the Avon Lake Gas Addition Project (the "Project") in Lorain County, Ohio. The purpose of this ESCP is to describe the planned methods, location and maintenance of erosion and sediment control to be implemented during construction of the Project, and methods of restoration following construction. The ESCP also documents planned best management practices ("BMPs") that will be implemented during construction of the Project to minimize adverse environmental impacts associated with storm water runoff and sedimentation by preventing sedimentation into aquatic features and the tracking of sediment and debris onto public roads. This Plan has been prepared pursuant to the Ohio Department of Natural Resources' pipeline construction standards, in conjunction with the most stringent of the collective requirements of the Ohio Environmental Protection Agency, Ohio Department of Natural Resources Division of Soil and Water Conservation, Lorain County Soil and Water Conservation District, City of Avon Lake, City of Avon, City of Elyria and the City of North Ridgeville.

Project Description

The Avon Lake Power Plant is a 734 MW coal-fired generating facility located in Avon Lake, Ohio ("Power Plant").[1] The Power Plant is owned by NRG Power Midwest LP ("NRG Midwest"), which is an indirect subsidiary of NRG Energy, Inc. ("NRG"). The Power Plant was slated for retirement by the facility's prior owner as a result of significant expenditures required to meet increasingly stringent environmental requirements. NRG Midwest has decided to move ahead with a gas addition project, which will keep the facility in operation on natural gas beyond its planned deactivation date (the "Avon Lake Gas Addition Project"). To add natural gas as a fuel supply for the Power Plant, the proposed natural gas pipeline must be designed, permitted and constructed. The Avon Lake Gas Addition Project will bring environmental, economic, employment and electric supply reliability benefits to the region as well as the State. The expected operation date for the pipeline is April 2016. The construction of the proposed pipeline is anticipated to begin as early as summer 2015. If NRG Ohio Pipeline receives the necessary permits and approvals to begin tree cutting in March of 2015, NRG Ohio Pipeline will do so.

The proposed 24-inch diameter high-grade steel pipeline will extend south from the Power Plant, which is located along the Lake Erie shoreline in the City of Avon Lake, to a proposed supply tap location southwest of the Village of Grafton (approximately 20 miles). The proposed pipeline will require siting approval from the Ohio Power Siting Board ("OPSB"), as well as permits and approvals from other local, State and federal authorities.

[1] The Power Plant also has one oil-fueled unit.

Approximately 3,922 feet of the proposed pipeline will be aboveground. The pipeline will require a permanent right-of-way ("ROW") typically 50-feet in width for operation and maintenance and a temporary ROW of 100-feet for construction. Both the permanent and temporary ROWs have been reduced in some areas to reduce the potential for environmental impacts. Additional temporary workspace areas outside of the temporary construction ROW will be needed for short durations during construction. Existing public and private roads will be utilized for access to most of the construction ROW; however, approximately 2.2-miles (or 11,806-feet) of new 25-foot-wide temporary access roads are anticipated. Finally, the required regulating station will occupy up to approximately one acre.

Route Selection

The evaluation or consideration of route alternatives was generally aimed at reducing proximity to existing buildings and other above and below-ground infrastructure or features, while also balancing trade-offs associated with other routing considerations (socioeconomic, ecological, engineering, construction and cost related). Various routing objectives served as the underlying basis of the identification and consideration of alternatives, namely including the following:

- Reducing the potential for impact to wetlands, waterways and other surface and ground waters, to the extent feasible—including minimizing the number of waterway crossings to the extent feasible;
- Minimizing the extent of tree removal required, to the extent feasible;
- Reducing the extent of construction in areas of steep slopes, to the extent feasible; and
- Locating and designing the pipeline such that the use of existing access can be maximized and construction eased, to the extent feasible, with steadfast attention to public safety.

A comprehensive routing study was conducted to identify a preferred alternative. Multiple potential route corridors or alternatives, or iterations thereof, were identified and comparatively evaluated. Route alternatives were removed from consideration where they would result in a greater potential for adverse impacts.

Route adjustments requested by landowners have been incorporated to the extent feasible, reasonable or appropriate. For example, route adjustments requested by landowners have been incorporated when those requested adjustments would not otherwise significantly and adversely compromise or conflict with any routing objectives, or to the extent that any adjacent landowners were not involuntarily and adversely impacted. The proposed location of the Project, as depicted on the maps provided in Appendix A, reflects the results of NRG Ohio Pipeline Company LLC's robust and comprehensive consideration of alternatives, as well as its willingness to work cooperatively with affected landowners.

General Description of Construction Activities and the Area to be Disturbed

Construction activities will occur within a newly acquired right-of-way though the majority of the area to be disturbed is either developed already (e.g. parking lot) or hosts existing crops or other herbaceous vegetation. Project construction activities (e.g. clearing/grubbing, grading, trench excavation, spoil storage, backfilling and restoration) will disturb soils within a corridor ranging from 50 to 100-feet in width, encompassing both the permanent and temporary ROWs. Both the permanent and temporary ROWs have been reduced in some areas to reduce the potential for environmental impacts. All work will be performed within the limit of disturbance described herein, and as depicted on the maps provided in Appendix A. Sediment controls must be installed within seven days of first clearing/grubbing or prior to any ground disturbing activity, whichever is first. Adherence to the erosion and sediment controls identified within this Plan will minimize the potential for soil erosion and sedimentation during construction and site restoration.

Typically, the trench will be excavated to allow three to five feet of cover over the new pipeline after installation and backfilling. The backfill material that will be returned to the trench will consist of the same material removed from the trench, to the extent practicable. Excess soil will be spread onsite, except in wetlands and waterways. Following the installation of the pipeline, all disturbed areas will be returned to their pre-construction slope and contour, to the extent feasible, stabilized and seeded. All vegetated areas that undergo Project-related soil disturbance will be seeded and re-vegetated to provide a permanent herbaceous cover to stabilize soils and prevent erosion. Other temporary erosion and sediment controls will be maintained until disturbed areas are stabilized.

Segmented construction is expected to ensure the Project is completed on schedule. Soil disturbing activities are anticipated to begin as early as June 2015 and be completed by April 2016. Some of the work will be performed during periods of frozen ground, to the extent feasible, to minimize impact to wetlands and other sensitive areas. A detailed sequence of construction activities can be found on page 83 of Appendix A.

The collective area of anticipated ground disturbance associated with the Project, including all permanent and temporary ROWs, temporary workspace areas, newly constructed temporary access roads, footprint of the regulating station, and BMP installation encompasses approximately 233 acres. Maps provided in Appendix A provide further detail as to the area or limit of disturbance associated with the Project.

New Impervious Areas and Runoff Coefficients

There will be no new impervious surfaces created as a result of the construction of the Project. As previously identified, the area to be disturbed is either developed already (e.g. parking lot) or hosts existing crops or other herbaceous vegetation. All areas disturbed by the Project will be restored to their

pre-construction material, condition or contours to the maximum extent feasible, unless they are restored to meadow condition.

Accordingly, post-construction runoff will remain essentially the same as pre-construction runoff. Therefore, the calculation of runoff coefficients for pre-construction vs. post-construction conditions is not warranted or applicable.

Delineation of Drainage Watersheds

Delineation of drainage watersheds traversed is not warranted or applicable for this Project because the temporary storm water control measures that will be implemented during construction are adaptable to any size watershed based on field conditions and professional judgment. No permanent storm water management systems will be developed for the Project. No permanent filling or relocation of wetlands or waters is planned, and no permanent bridges or culverts will be installed. Furthermore, there will be no permanent change to existing grade, ground surface material or waterway drainage or wetland contours, as all areas disturbed by the Project will be restored to their pre-construction condition, to the extent feasible, or restored to meadow condition.

Site Conditions

Soils

Based on review of U.S. Department of Agricultural National Resource Conservation Service soils data and the Lorain County Soil Survey, the following general soil series occur along the Project, as listed in Table 1.

Table 1. Soils along the Project

Soil Series	Description
Mahoning	Very deep somewhat poorly drained soils formed in low-lime till on till plains of Wisconsin age. The till is derived primarily from shale and siltstone, with minor amounts of limestone and crystalline erratics. Slope is primarily 0 to 6 percent, but ranges to 15 percent.
Udorthents	Moderately well drained to excessively drained soils that have been disturbed by filling, and areas that are disturbed or covered by development. Slopes range from 0 to 10 percent but are dominantly 0 to 5 percent.
Orrville	Very deep, somewhat poorly drained soils formed in loamy alluvium and are on flood plain steps on flood plains. They formed in alluvium from upland areas of low-lime drift, and from areas of sandstone, siltstone, shale, and limestone. They are in or bordering areas of Wisconsinan or Illinoian glaciation. Slope ranges from 0 to 3 percent.
Miner	Very deep, very poorly drained soils formed in low-lime glacial till principally derived from acid shale on lake plains which have been modified by lake action, and in shallow depressions and narrow drainages on till plains. They formed in till principally derived from acid shale. The slope gradient ranges from 0 to 2 percent.
Lorain	Very deep, very poorly drained soils that formed in Wisconsin age fine-textured glaciolacustrine sediments. These soils formed in Wisconsin age glaciolacustrine sediments in depressions on lake plains, terraces, and till plains. Slope ranges from 0 to 2 percent.
Fitchville	Very deep, somewhat poorly drained soils formed in stratified Wisconsinan age glaciolacustrine sediments that are derived mainly from materials high in sandstone and shale and are on summits and shoulders on lake plains and are on treads on terraces. Slope ranges from 0 to 12 percent.
Mermill	Very deep, very poorly drained soils on lake plains, and less commonly on till plains of late Wisconsinan age. They have a plane or concave surface with a slope gradient of 0 to 2 percent.
Oshtemo	Very deep, well drained soils formed in stratified loamy and sandy deposits on outwash plains, valley trains, moraines, and beach ridges. These soils formed in stratified loamy and sandy deposits that have a high content of quartz and contain variable amounts of material derived from igneous and metamorphic rocks, sandstone, limestone, and dolomite. Slope ranges from 0 to 55 percent.
Holly	Very deep, very poorly and poorly drained soils formed on broad flat areas and in slight depressions on flood plains receiving alluvium from upland areas of low-lime drift and noncalcareous sandstone and shale. Slope ranges from 0 through 3 percent.
Chili	Very deep, well drained soils on outwash plains, terraces, kames, and beach ridges. The soils formed in Wisconsinan age stratified outwash derived largely from noncalcareous sandstone and shale that contains a high amount of quartz gravel. Commonly, the outwash is mantled with silt. The slope gradient typically is 0 to 18 percent, but the range is up to 70 percent.
Haskins	Very deep, somewhat poorly drained soils that are moderately deep or deep to dense till on lake plains and on till plains of late Wisconsinan age. They formed in

Soil Series	Description
	loamy water-sorted or glaciolacustrine material and in the underlying till. These soils are on lake plains and till plains. Slope ranges from 0 to 6 percent.
Lobdell	Very deep, moderately well drained soils that formed in recent loamy alluvium. These soils are on nearly level flood plains receiving loamy alluvium from upland areas of sandstone, shale, and low lime glacial drift. Slope ranges from 0 to 3 percent.
Mentor	Very deep, well drained soils formed in silty lacustrine material. These soils are on threads and risers on terraces, dissected lake plains, and silty outwash plains. These soils are formed in stratified glaciolacustrine or terrace deposits derived from materials high in sandstone and shale. Slope ranges from 0 to 70 percent.
Luray	Very deep, very poorly drained soils formed in silty lacustrine material or slack water sediments. These soils are on slight depressions or on level areas on lake plains, terraces, outwash plains, and in small local areas on till plains. Slope ranges from 0 to 2 percent.
Sebring	Very deep, poorly drained soils formed in stratified Wisconsinan age glaciolacustrine sediments and are on broad flats and depressions on lake plains and slackwater terraces. Slope ranges from 0 to 2 percent.
Trumbull	Deep, poorly drained soils formed in low-lime glacial till. These soils are on level to gently sloping and depressional portions of till plains. Slopes are dominantly less than 4 percent but range to 6 percent.
Rawson	Very deep, moderately well drained soils that formed in loamy sediments and till on till plains, outwash plains and lake plains of Wisconsinan age. They are moderately deep or deep to dense till. Slope ranges from 0 to 12 percent.
Bogart	Very deep, moderately well drained soils that formed in Wisconsinan age stratified outwash deposits and are on convex slopes in areas of low relief on stream terraces, beach ridges, and outwash plains. Slopes range from 0 to 12 percent.
Tioga	Very deep, well drained soils formed in alluvium on higher positions in flood plains. These soils formed in recent alluvium, mainly from areas of sandstone, siltstone, and shale. Slope ranges from 0 to 3 percent.
Ellsworth	Very deep, moderately well drained soils formed in low-lime till on plains of Wisconsin age typically with a with a calcium carbonate equivalent of between 5 and 15 percent. The till is derived from shale and sandstone, with minor amounts of limestone and crystalline rocks. Slope ranges from 0 to 70 percent.
Allis	Moderately deep, poorly drained soils on bedrock controlled uplands. They are less frequently located on lake plains. They are on till plains and, less frequently, lake plains. The soils are formed in a thin mantle of glacial till dominated by, and underlain by, acid shale which, in some places is interbedded with siltstone and sandstone. Slope is 0 to 2 percent.
Jimtown	Very deep, somewhat poorly drained soils formed in Wisconsinan Age stratified outwash deposits on stream terraces, outwash terraces, outwash plains, and beach ridges. Slope ranges from 0 to 6 percent.

Land Use

Current land use along the Project area generally consists of industrial, mixed developed, undeveloped and varying densities of residential uses. Where the Project generally extends through the City of Avon Lake, the predominant land use crossed by the Project is industrial use. Where the Project generally extends through the City of Avon, the predominant land use is undeveloped with adjacent industrial, recreational, and residential uses from north to south through the City. Where the Project generally extends through the City of Elyria, the predominant land use is institutional (Lorain County Community College). Where the Project generally extends through the City of North Ridgeville, the predominant land use is undeveloped/wooded with adjacent residential and commercial uses. Proposed residential uses are known to occur in some areas along the Project. Some agricultural uses do occur along the Project, near its southern end, in the undeveloped portions of Eaton, Carlisle and LaGrange Townships. Because this Project mostly crosses lands already developed and parallels existing previously disturbed rights-of-way, there has already been prior ground disturbance and maintenance in the area of the Project. Once the Project is built, the permanent ROW will be maintained as an operational ROW. The ROW will be reseeded, though trees will not be allowed to regrow within the operational ROW.

Wetlands and Waters

Wetlands and streams will be crossed by the Project. There are three predominant types of wetlands that occur along the Project; palustrine forested ("PFO"), palustrine scrub-shrub ("PSS") and palustrine emergent ("PEM"). Construction of the Project will require the removal of trees in 41 acres of PFO wetlands. Forested wetlands along the Project are depressional in nature and located adjacent to agricultural areas that have been actively farmed and ditched. Seven acres of PSS wetlands will be affected by the Project and like the forested wetlands along the Project, these wetlands are also depressional in nature and typically located adjacent to agricultural areas that have been actively farmed and ditched. The Project will affect 11 acres of PEM wetlands, which are similar in nature to the PSS wetlands but located in wet meadows and areas that have endured past clear cutting and farming activities.

Vegetation along intermittent and perennial streams that will be crossed by the Project typically includes a mixture of forested, scrub-shrub and emergent vegetation. Typical substrate types include leaf pack/woody debris, clay or hardpan, muck, gravel, silt and sand. Maps provided in Appendix A depict the location and type of each wetland, in addition to streams, that are within 200-feet of the Project. A copy of the wetland delineation report prepared for the Project and submitted to both the U.S. Army Corps of Engineers and the Ohio Environmental Protection Agency ("OEPA") is included in Appendix D.

Receiving Waters

Surface waters along the Project that are potential receiving waters are identified in Appendix B. Thermal impacts, flow rate, runoff volume and runoff pollution will be minimized by restoring the entire limits of ground disturbance to pre-construction conditions, to the extent feasible, or converting to

meadow in good condition. The thick, vegetative cover will help minimize storm water impacts. Additionally, the permanent ROW will be restored to pre-construction grade, which will promote sheet flow where it currently occurs, across a vegetated area acting as a filter strip.

2.0 CONSTRUCTION ACTIVITIES

This section describes the environmental construction techniques that will be performed to install the pipeline. As previously identified, BMPs will be implemented throughout construction to minimize soil erosion and the transport of sediments from the construction area, and to protect surface waters and wetlands located in and adjacent to the Project area. Detail drawings of specific BMPs are included in Appendix A.

Sequence of Construction Activities

The following provides an overview of the typical activities performed during pipeline construction. Wherever practical, construction activities will occur simultaneously and some steps may not occur in the exact order in which they are listed below.

- Survey and stake proposed pipeline and limits of disturbance.
- Install rock entrances at ingress/egress points to the ROW.
- Flag/field mark wetland areas.
- Install perimeter and other sediment barriers, as required by this Plan.
- Begin clearing of the ROW.
- Grade the workspace if necessary.
- Install geotextile fabric, matting or plating, as required by this Plan.
- Install erosion control blankets on steep slopes.
- Implement BMPs for trench dewatering.
- Install temporary stream crossings (install sedimentation controls as necessary for retaining temporary spoil piles) and restore/stabilize stream banks.
- Excavate the pipeline trench.
- String new pipe along the ROW.
- Weld new pipe sections together.
- Lower pipeline into trench.
- Install clay trench plugs or anti-seep collars.
- Backfill trench.
- Restore grade to preconstruction contours.
- Apply lime and fertilizer as needed. Seed and mulch all disturbed upland areas, and only use the specified wetland seed mix, if required, in wetlands.
- Monitor adequacy of erosion control practices.
- After permanent stabilization is achieved, remove temporary erosion and sediment controls.

Timing of Certain Construction Activities

The special timing considerations that apply to construction activities and implementation of BMPs are described below.

Sediment controls such as siltsoxx will be installed before initial ground disturbance, or immediately following ground disturbance if the nature of the disturbance (e.g., grading) would affect the stability of preinstalled sediment controls. Disturbed areas must be stabilized (i.e., using vegetative or structural soil cover to control erosion, such as temporary or permanent seed and mulch) during construction as specified in Tables 2 and 3 below.

Table 2. Temporary Stabilization Requirements

Area Requiring Temporary Stabilization	Timeframe to Apply Erosion Controls
Disturbed areas within 50-feet of jurisdictional wetlands and waters and before final grade	Within two days of the most recent disturbance if the area will remain idle for >14 days
For all disturbed areas that will be idle for >21 days but <1 year, and not within 50-feet of a stream	Within two days of the most recent disturbance in the area
Disturbed areas that will be idle over the winter	Prior to November 1

Table 3. Permanent Stabilization Requirements

Area Requiring Permanent Stabilization	Timeframe to Apply Erosion Controls
Any areas that will lie dormant for one year or more	Within two days of the most recent disturbance
Any areas within 50-feet of a stream and at final grade	Within two days of reaching final grade
Any other areas at final grade	Within two days of reaching final grade within that area

Timing of Waterway Crossings

In-stream work will be scheduled to avoid high stream flow conditions, such as immediately following heavy periods of rain, to achieve a dry or low flow condition. The total length of excavated trench open at the stream crossing at any one time will not be greater than the total length of pipeline that can be placed in the trench and backfilled in one working day. Equipment associated with isolation crossing methods (i.e., sand bag dams, flume pipe, pumps, etc.), should they be employed, should not be left in the stream overnight. Every effort will be made to cross streams 10-feet in (bottom) width or less, including the trench backfilling, in one working day. Stream banks and the areas 50-feet from the top of each stream bank will be stabilized within 72 hours from the beginning of the stream crossing.

3.0 EROSION PREVENTION AND SEDIMENT CONTROL MEASURES

Construction activities will occur within a newly acquired right-of-way, though the area to be disturbed hosts existing vegetation. Project construction activities (e.g. clearing/grubbing, grading, trench excavation, spoil storage, backfilling and restoration) will disturb soils within a corridor ranging from 50 to 100-feet in width, encompassing both the permanent and temporary ROWs. Both the permanent and temporary ROWs have been reduced in some areas to reduce the potential for environmental impacts. All work will be performed within the limit of disturbance described herein, and as depicted on the maps provided in Appendix A. Sediment controls must be installed within seven days of first clearing/grubbing or prior to any ground disturbing activity, whichever is first. Adherence to the erosion and sediment controls identified within this Plan will minimize the potential for soil erosion and sedimentation during construction and site restoration.

In general, the measures in this ESCP are designed to minimize erosion and sedimentation by:

- Limiting construction activities to only approved areas identified in this Plan;
- Minimizing the extent and duration of exposed bare soil conditions;
- Stabilizing exposed bare soils;
- Installing and maintaining erosion and sediment control measures in appropriate locations;
- Protecting slopes;
- Establishing perimeter controls and sediment barriers;
- Utilizing specialized construction and restoration techniques for wetland and waterway crossings;
- Retaining sediment on-site;
- Implementing spill prevention and control measures;
- Establishing vegetation as soon as possible following construction activities;
- Continually inspecting the area of ground disturbance and ensuring all implemented BMPs are maintained and effective until final stabilization is achieved.

Temporary Sediment Barriers

Temporary sediment barriers, such as siltsoxx, shall be placed to intercept runoff from the construction area to prevent sediment from entering surface waters and off-ROW areas.

General Right-of-Way Area
Perimeter sediment control (i.e. siltsoxx) will be placed down-gradient of pipeline construction activities and staging areas, where effective and required to protect adjacent undisturbed wetlands and other surface water resources and road surfaces from sedimentation. Installation will be in accordance with the details depicted or described in Appendix A. Sediment will be removed when accumulations reach

1/2 the above ground height of the barrier. Perimeter sediment control barriers that have been undermined or topped will be immediately repaired.

Hillside Pipeline Construction
For pipeline construction parallel to the gradient of a hill (uphill/downhill), where the slope is greater than 1%, suitable sediment barriers may be installed across the ROW to divert runoff to well vegetated areas if runoff has the potential to adversely affect adjacent surface waters and road surfaces. For pipeline construction perpendicular to the gradient of a hill (sidehill areas), where the slope is greater than 1%, a perimeter sediment control barrier shall be installed to protect adjacent surface waters and road surfaces. Both ends of the barrier will be extended at least eight feet up slope at 45 degrees to the main barrier alignment. Installation will be in accordance with the details depicted or described in Appendix A.

Soil Stockpiles
A perimeter sediment control barrier will be installed adjacent to soils stockpiles to prevent sedimentation into streams and wetlands. Maps or drawings illustrating the locations of proposed BMPs are provided in Appendix A. Stockpiles will be placed at existing level grade with both ends of the barrier extending at least eight feet up slope at 45 degrees to the main barrier alignment. Sediment will be removed when accumulations reach 1/2 the aboveground height of the barrier.
Spoil piles from trench excavation will be placed outside of streams and stabilized in a way that will limit the extent of sedimentation entering any stream bed. Spoil piles located in wetlands may be temporarily side-cast into wetlands. However, side-cast material will be managed with appropriate BMPs (stacking spoils on geotextile fabric, timber matting or steel plating and installation of siltsoxx along the perimeter of the spoil pile area) to prevent sedimentation into wetlands and waters.

Road Crossings
The types and locations of control measures needed at roadway crossings will depend upon the slope of the land and the type of roadway drainage systems present at that location. Upslope runoff will be diverted around the work area, as appropriate. For this Project, upslope diversion is not anticipated since the terrain at the road crossings is flat. Sediment barriers will be located downslope of trench or boring pit storage piles. Such storage piles will not be located in any roadway swale or ditch. Runoff from existing roadway culverts, storm sewers, swales, and ditches will be safely conveyed over any open trench.

When entering any construction area from paved roads, all sediment tracked onto the road will be cleaned as soon as practical. If excessive tracking occurs or equipment will access an area for extended periods of time, a stabilized construction entrance constructed of stone will be installed. Installation of stone entrances will be in accordance with the details depicted or described in Appendix A.

Trench Dewatering
Excessive water that accumulates in the trench will be pumped from the trench and filtered prior to discharging onto the ground along the ROW. Filter bags, designed to trap particles larger than 150 microns, will be used to remove sediment from the water. The filter bags will be located on a relatively flat (< 5% slope), well-vegetated area. If the dewatering location is within 50 feet of a stream or wetland, a suitable barrier will be installed to prevent sedimentation into the stream or wetlands. The pump discharge hose will be inserted into the bags in the manner specified by the manufacturer and securely clamped. When the bag is filled to1/2 its total capacity, it will be replaced with a new bag and

properly disposed. If a well-vegetated area is not available, a geotextile underlayment will be placed under the discharge area. Installation of filter bags will be in accordance with the details depicted or described in Appendix A.

Permanent Sediment Barriers

Trench Plugs
Clay trench plugs or anti-seep collars are required for trenching in wetlands, regardless of trench slope. These requirements supplement the general construction practice of placement of plugs in trenches on steep slopes. Trench plugs will also be installed if it is determined that flooding at the low point elevation of a pipeline will adversely affect an adjacent property. Installation of trench plugs will be in accordance with the details depicted or described in Appendix A.

Wetland and Waterway Crossings

Proposed stream-crossing techniques have been selected in accordance with applicable permit requirements, the technical feasibility of the method at each site and the ability of the technique to minimize the potential for sediment release to downstream habitats. Contingency methods will be used if the preferred technique is assessed to be not practical or too high a risk at the time of construction as determined by stream flows and other on-site conditions.

Typically, minor streams, ≤ 10-feet wide at normal flow depth, will be crossed using “open cut” method. Intermediate streams, > 10-feet and ≤ 100-feet wide, and major streams, > 100-feet in width, will be crossed using the wet trench method or by horizontal directional drilling.

Hazardous materials, chemicals, fuels, and lubricating oils will not be stored, and concrete coating activities will not be conducted, within 100 feet of any waterway or wetland. Refueling of construction equipment will be conducted at least 100 feet away from waterways and wetlands.

Additional erosion and sediment control will be implemented near wetlands and waterways in the form of erosion control matting. Matting will be placed along the edges of wetlands and waterways within the construction ROW. Where construction equipment and vehicular traffic must cross wetlands, temporary timber matting or other suitable methods will be utilized to prevent sedimentation into wetlands.

The requirements of applicable federal (i.e. U.S. Army Corps of Engineers) and State (e.g. Ohio Environmental Protection Agency) regulatory approvals associated with jurisdictional wetlands and waters will otherwise be adhered to at wetland and waterway crossings. Typical drawings depicting wetland crossing methods, stream crossing methods, temporary equipment bridges and stream crossing BMPs are provided in Appendix A.

Stream Crossings
Prior to any construction activities within the stream channel, perimeter sediment control barriers will be installed on both sides of the stream banks. Spoil piles from the tie-in and trench excavations will be placed behind the barriers to protect the stream or waterway from sediment buildup. Assembly areas, temporary equipment and non-hazardous material storage areas will be located a minimum of 50 feet back from the top of the stream bank.

Perimeter sediment control barriers shall be installed parallel to the stream bank with both ends extending at least eight feet upslope at 45 degrees to the main barrier alignment. Sediment shall be removed when accumulations reach ½ the above ground height of the device. Any section of the sediment barrier that has been undermined, topped or damaged will be immediately repaired. The barriers shall remain in place until final stabilization of the area.

Open Cut Method
Open cutting is the standard method for pipe installation in dry watercourses well removed from fish bearing reaches. The pipeline trench is excavated in the bed and banks of the flowing or dry watercourse channel and is backfilled after the pipe is lowered in. The bed and banks of the channel are re-contoured to their original condition and stabilized with seed and mulch. Erosion control matting and/or rip-rap may also be used to further stabilize the watercourse.

After installation of the perimeter sediment control barrier, excavation activities may commence. The trench will be excavated to the minimum width necessary to accommodate installation of the pipe. The trench will be monitored to ensure proper depth and width. In most instances, streambed substrate should be separated from the subsoil and backfilled last to minimize impact. Excavated material that will be subsequently used as backfill shall be immediately removed from the stream crossing and placed behind the sediment barriers on the stream bank. The pipeline will then be lowered into the trench and backfilled. Trench plugs will be installed at the top of the stream bank as depicted on the maps or drawings provided in Appendix A**.** The stream bank will then be stabilized with seed and mulch. Erosion control matting and/or rip-rap may also be applied to further stabilize the stream banks.

Isolation Method
The isolation method is one in which a trench is excavated in the bed and banks of a water body while the surface water in the water body flows uninterrupted and isolated from the excavation area. Isolation techniques include, but are not limited to, fluming, pumped by-pass, and in-channel diversion.

After placement of the perimeter sediment control barrier, installation of the flume or pumped by-pass will commence. The structures for stream isolation methods will be installed and functioning prior to any trench excavation within the stream channel. Sand-filled bags may be stacked at least 12 inches above the level of the stream to create a dam. The trench will be excavated to the minimum width necessary to accommodate installation of the pipe. The trench will be monitored to ensure proper depth and width. Excavated material that will be subsequently used as backfill will be immediately removed from the stream crossing and placed behind the sediment barriers on the stream bank. The pipeline will then be lowered into the ditch and backfilled. (Pipe will be welded and bent prior to placement in the trench.) Trench plugs will be installed at the top of the stream bank as provided in Appendix A**.** The stream banks will be restored to original contour and stabilized with either riprap or erosion control matting. The sand bag dams will be removed following complete restoration of the stream channel and banks.

Horizontal Directional Drill Method
Horizontal directional drilling has been identified as the preferred crossing method for some waterways, particularly larger waterways that will be crossed by the Project. After placement of the perimeter sediment barrier, the launching and receiving holes on both sides of the waterway will be excavated. These excavations will be at least ten feet or more from the stream bank.

Wetland Crossings
Prior to construction, wetlands will be identified and flagged within the ROW. Extra work and staging areas will be located at least 50 feet from the edge of the wetland, where possible. The width of the disturbance will be limited to the minimum necessary for the actual crossing. Movement of vehicles and equipment across the wetland will be minimized. Where equipment and vehicles must traverse saturated wetlands, the use of pads, mats or other suitable methods will be used to minimize disturbance.

During trench excavation, the top six to 12 inches of topsoil (with the vegetative root mass) will be carefully removed from over the trenchline and stockpiled separately from the trench subsoil (unless standing water or saturated soils make this impracticable to effectively segregate). Topsoil piles should be differentiated from subsoil piles with flagging, ribbons or other effective devices. The pipeline will be installed and trench plugs will be placed as identified in this Plan, to prevent the trench from draining the wetland or changing its hydrology. The trench will be backfilled with subsoil first and topsoil on top, and the preconstruction contours will be restored. Excess material, if any, will be removed from the wetland upon completion. Unless required by local agencies, seeding, mulching and fertilization will not be done in wetlands. Restoration of the previously salvaged topsoil will allow the wetland vegetation indigenous to the wetland to re-vegetate naturally. Disturbed slopes adjacent to the wetland will be stabilized immediately upon pipeline installation.

4.0 POST-CONSTRUCTION EROSION CONTROL PRACTICES

Permanent or temporary soil stabilization shall be applied to disturbed areas within two (2) days after final grade has been reached at any location along the Project. Seeding will take place once construction has been completed and the soil has been returned to its pre-construction grade. Recommended seed mixtures and seed rates are found in Appendix A (see page 84). Any removed topsoil in wetlands will be returned to where it was removed and the natural seed allowed to re-establish. If landowner specific requests for restoration measures or seed mixes are received, they will be evaluated on a case by case basis and only implemented if such request(s) adheres to all applicable regulatory requirements. When seasonal conditions prohibit the application of temporary or permanent seeding, dormant seeding (applying seed at 1.5 times the permanent seeding rate) or non-vegetative soil stabilization practices such as mulching or matting will be used.

All disturbed areas will be seeded with plant species that have a high germination capacity. Seeding will be performed with broadcast seeding equipment followed by mulch covering in accordance with the application rates provided in Appendix A. Similarly, lime and fertilizer will be applied at the amounts identified in Appendix A. Final stabilization must be achieved where grass growth has achieved, at a minimum, an 85% even perennial coverage in all disturbed areas. At the end of construction/restoration activities, final site inspection to identify any remaining items to be completed to ensure long-term soil stability will be completed.

5.0 ADDITIONAL POLLUTION CONTROL MEASURES

NRG Ohio Pipeline Company LLC will implement a Spill Prevention, Control and Countermeasure Plan ("SPCC Plan") for the Project (see Appendix A; pages 83-88). The SPCC Plan describes planning, prevention and control measures to minimize impacts resulting from spills of fuels, petroleum products or other regulated substances as a result of pipeline construction. Mixing, pumping, transferring or other handling of construction chemicals or compounds such as fertilizer, lime, any concrete drying compounds, and all other potentially hazardous materials shall be performed in an area away from any water source or ditch. Equipment fueling and maintenance shall be performed away from surface waters, in areas designated specifically for this purpose. The designated areas shall be equipped for recycling oil and catching spills.

If substances such as oil, diesel fuel, hydraulic fluid, antifreeze, etc., are spilled, leaked or released onto the soil, the soil should be dug up and disposed of at a licensed sanitary landfill or other approved petroleum contaminated soil remediation facility (not a construction /demolition debris landfill). In the event that there are areas of contaminated soils encountered during construction, additional measures may be required. The soils shall be dug up and disposed of at a licensed facility (not a construction/demolition debris landfill). Depending on the extent of contamination, additional treatment and/or collection and disposal may be required. All storm water discharge associated with any contaminated soils must be permitted.

Spills on pavement shall be absorbed with appropriate absorbent materials and disposed of with the trash at a licensed sanitary landfill. Hazardous or industrial wastes such as most solvents, gasoline, oil-based paints and any cement curing compounds require special handling. Spills shall be reported to the Ohio Environmental Protection Agency ("OEPA") at (1-800-282-9378). Spills of 25-gallons or more of petroleum products shall be reported to the OEPA, the local fire department and the Local Emergency Planning Committee within 30 minutes of discovery of the release. All spills which result in contact with any State jurisdictional waters must be reported to the OEPA.

Waste disposal containers shall be provided for the proper collection of all waste materials including construction debris, sanitary garbage, petroleum products, and any hazardous materials to be used on-site. Containers shall be covered and not leaking. All waste material shall be disposed of at facilities approved for that material. Construction wastes will be disposed of in a timely manner. Dumpsters will be emptied on an as-needed basis. No construction wastes or unused materials will be buried, dumped or discharged at or near the area of construction.

Open burning is not allowed within restricted areas such as within municipal corporation limits.

No materials containing rubber, grease, asphalt, or petroleum products (such as tires, auto parts, plastic, or plastic coated wire) may be burned (see OAC 3745-19) at any location.

Dust control is required to prevent nuisance conditions. Dust controls must be used in accordance with the manufacturer's specifications and not be applied in a manner, which would result in a discharge to waters of the state. Isolation distances from bridges, catch basins, and other drainages must be observed. Application (excluding water) may not occur when precipitation is imminent as noted in the short term forecast. Used oil may not be used as dust control.

External washing of wheels, trucks or other construction equipment will be confined to designated washing locations. Wash water from these areas must be directed to a designated sediment trap, settling pool or a sump pump. Sediments deposited on roadways will be removed and returned to the construction site on a daily basis. Discharges such as vehicle and or equipment washing are considered process wastewaters. All process wastewaters must be collected and properly disposed at an approved disposal facility. In the event of an unintended discharge of process wastewaters to any jurisdictional surface waters, it must be isolated for collection and proper disposal and corrective actions taken to eliminate the source of waste water.

Portable sanitary facilities will be kept on-site during construction. These facilities will be emptied on an as-needed basis and will be left empty if a break in construction occurs. A licensed sanitary waste sub-contractor will be used for managing the sanitary facilities.

6.0 MAINTENANCE AND INSPECTION

NRG Ohio Pipeline Company LLC will ensure inspection and maintenance on erosion prevention and sediment control measures occurs on a weekly basis and after each rainfall event greater than 0.5-inches. All necessary repairs must be made immediately to ensure effective and efficient operation. A copy of the inspection form is found in Appendix C.

Maintenance

All protective measures identified in this ESCP must be maintained in effective operating condition. If, through inspection or other means, it is determined that BMPs are not operating effectively, then maintenance shall be performed as necessary to maintain the continued effectiveness of stormwater controls, within three (3) days. Erosion and sediment controls that have been intentionally disabled, run-over, removed or otherwise rendered ineffective must be replaced or corrected immediately upon discovery. If periodic inspections or other information indicate a control has been used incorrectly, is performing inadequately or is damaged, then it must be replaced or modified within ten days following the discovery.

Inspection

The disturbed area will be regularly inspected during construction, as will areas of temporary and permanent stabilization. Personnel conducting these inspections must be familiar with the construction area and knowledgeable of this ESCP. Sediment and erosion control measures identified in this ESCP will be inspected to ensure that they are operating correctly. Inspection of the entire area of disturbance must be conducted at least once every seven (7) days during active construction and within 24 hours after a rainfall event greater than 0.5-inches. Following an inspection which occurs within 24 hours after a rainfall event greater than 0.5-inches, the next inspection must be conducted within seven (7) days.

This ESCP will be modified based on the results of the inspections, as necessary, to ensure adequate erosion and sediment control. Any revisions to the Plan will be completed within seven (7) days following each inspection, and provided to the appropriate administering parties in accordance with State and local requirements. If existing BMPs are modified or if additional BMPs are necessary, an implementation schedule will be provided at the time that the Plan is revised. Inspection and maintenance forms are provided in Appendix C.

7.0 TRAINING

Since the training of staff and subcontractors can act as an effective BMP, a construction personnel training program is recommended to educate personnel responsible for implementing any component of the ESCP, or personnel otherwise responsible for storm water pollution prevention in accordance with the ESCP.

8.0 HYDROSTATIC DISCHARGE

After installation, most pipelines require testing using hydrostatic pressure to ensure integrity of the welds and seams. The subsequent test water is typically discharged onsite or into a sanitary sewer. If discharge into any jurisdictional surface waters is anticipated, NRG Ohio Pipeline Company LLC will obtain the required regulatory approvals for such discharge.

BMPs must be implemented during the hydrostatic discharge test. Every effort will be made to discharge onto a large, well vegetated, non-sloping upland area. The water will be regulated at the discharge point to prevent excessive flow and scouring. Test water is typically obtained from a municipal water source and no chemicals or additives are to be used in the test water. If the discharge conditions require releasing water near any jurisdictional surface water or if high levels of iron or total suspended solids are anticipated, BMPs such as slowing the velocity of the release and/or using treated filters to remove suspended solids and metals may be considered.

9.0 ENVIRONMENTAL APPROVALS

NRG Ohio Pipeline Company LLC will obtain all permits and approvals required to construct the Project. Table 4 lists the major federal and state environmental permits required for the Project and the status of each permit or approval.

Table 4. Required Permits and Approvals

Agency	Permit or Approval Required	Status
Federal		
U.S. Army Corps of Engineers	Section 404 Clean Water Act Authorization	Being submitted in December 2014
U.S. Fish and Wildlife Service	Threatened and Endangered Species Consultation	Pending
State		
Ohio Environmental Protection Agency	General Construction Permit, Notice of Intent/Storm Water Pollution Prevention Plan	To be submitted in advance of construction
	Hydrostatic Test Water General Permit	To be submitted in advance of testing
	Section 401 Water Quality Certification	Submitted
Ohio Department of Natural Resources	State Protected Species Consultation	Pending
Ohio Historic Preservation Office	Historic Preservation Consultation	Pending
Ohio Power Siting Board	Letter of Notification	Being submitted in December 2014

Appendix A

Project Erosion and Sediment Control Plans

AVON LAKE GAS ADDITION PROJECT

E&SC PLAN
CARLISLE, EATON & LAGRANGE TOWNSHIPS
AVON, AVON LAKE, ELYRIA & NORTH RIDGEVILLE CITIES
LORAIN COUNTY
OHIO

PLANS PREPARED BY:

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Engineering Associates Inc
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BARTONSVILLE, PA 18321-7822
PHONE: 570.688.9550
FAX: 570.688.9768

PROJECT OWNER/APPLICANT:

NRG OHIO PIPELINE COMPANY LLC
211 CARNEGIE CENTER
PRINCETON, NEW JERSEY 08540
CONTACT: NATHAN J. ROZIC
PHONE: 724.597.8630
FAX: 724.554.6208
EMAIL: Nathan.Rozic@nrg.com

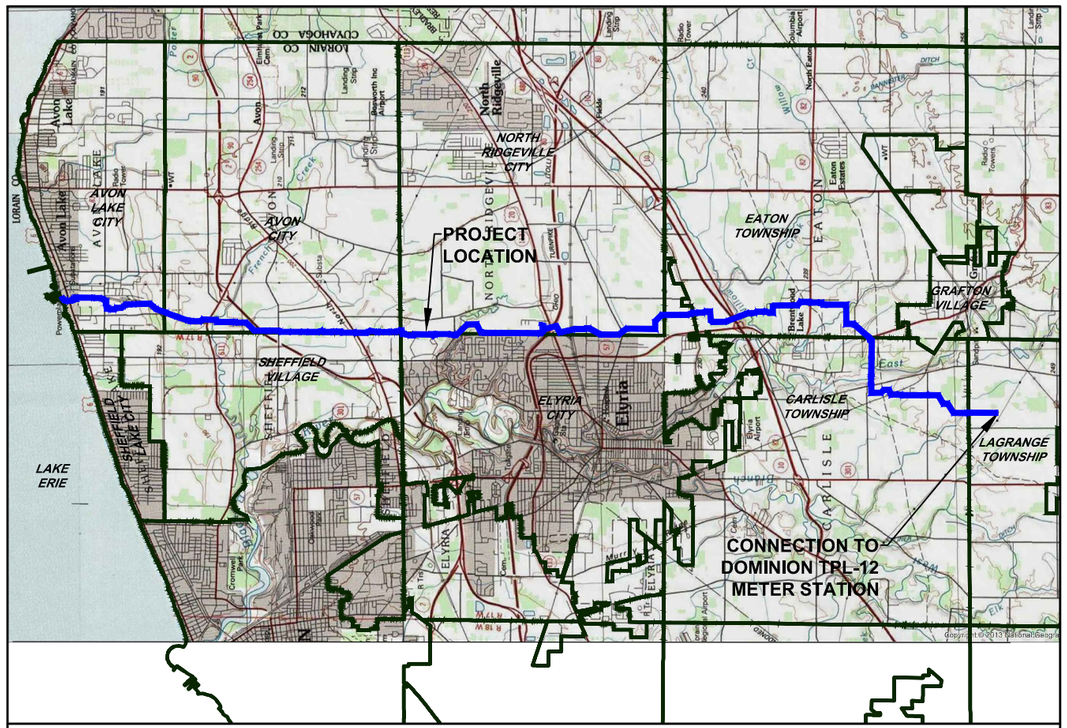
"CALL BEFORE YOU DIG"

BY LAW, EVERYONE MUST CONTACT THE OHIO UTILITIES PROTECTION SERVICE, 8-1-1 OR 1-800-362-2764, AT LEAST 48 HOURS BUT NO MORE THAN 10 WORKING DAYS (EXCLUDING WEEKENDS AND LEGAL HOLIDAYS) BEFORE BEGINNING ANY DIGGING PROJECT.

1. Serial Number XXXXXXXXXXX - XXXX to XXXX (nearest intersection)

	HORZ. LENGTH	SLOPE LENGTH
MAIN LINE R.O.W.	103,505 L.F.	103,724 L.F.

LIMIT OF CONSTRUCTION AND LIMIT OF DISTURBANCE - 235 AC.



PROJECT AREA MAP
SCALE: 1" = 7000'
7000 0 3500 7000 14000 28000

SHEET INDEX

SHEET 1	OF	88	COVER SHEET
SHEETS 2-3	OF	88	CONTOUR INDEX MAP
SHEETS 4-5	OF	88	AERIAL INDEX MAP
SHEETS 6-44	OF	88	E&SPC LAYOUT PLANS
SHEETS 45-82	OF	88	E&SPC SITE DETAILS
SHEETS 83-88	OF	88	E&SPC TYPICAL DETAILS

RECEIVING WATERS

LAKE ERIE
UNNAMED TRIBUTARY TO LAKE ERIE
BLACK RIVER
UNNAMED TRIBUTARY TO BLACK RIVER
UNNAMED TRIBUTARY TO EAST BRANCH OF BLACK RIVER
FRENCH CREEK
UNNAMED TRIBUTARY TO FRENCH CREEK
JUNGBLUTH DITCH
WILLOW CREEK
JACKSON DITCH
ALEXANDER DITCH
DENT DITCH

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SEAL

NO.	REVISIONS	DATE

COVER SHEET

AVON LAKE GAS ADDITION PROJECT
CARLISLE, EATON & LAGRANGE TOWNSHIPS
AVON, AVON LAKE, ELYRIA &
NORTH RIDGEVILLE CITIES
LORAIN COUNTY
OHIO

DRAWN BY: AEJ
CHECKED BY: SJC
DATE: 12.15.14
SCALE: 1"=7000'
PROJECT NO. NRG-1007
SHEET NO. 1 OF 88

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Bartonsville, PA 18321-7822
570.688.9550
Fax 570.688.9768

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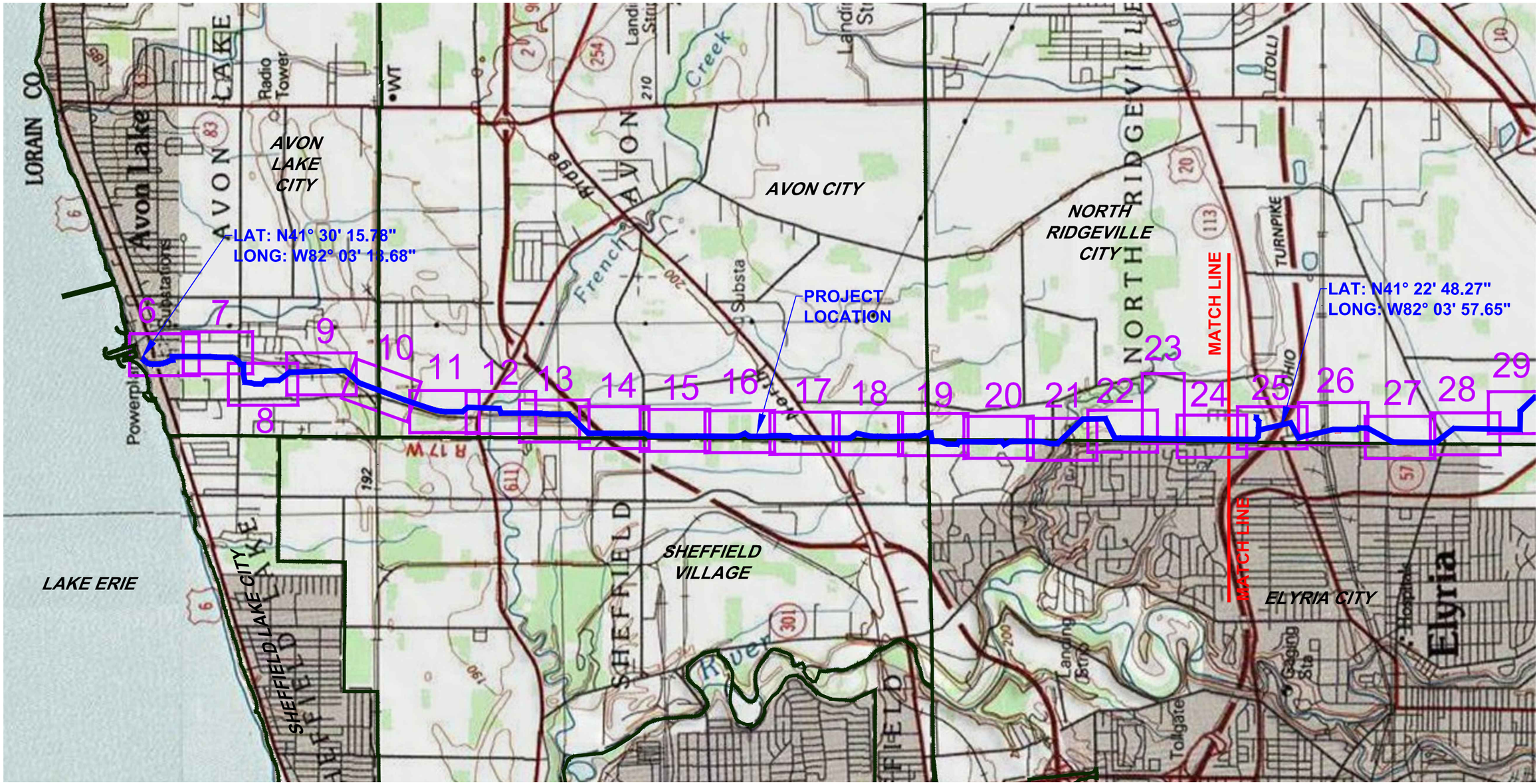

LEGEND

CENTERLINE OF AVON LAKE GAS ADDITION PIPELINE R.O.W.

GRAPHIC SCALE

2000 0 1000 2000 4000 8000

(IN FEET)
1 inch = 2000ft.

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SEAL

NO.	REVISIONS	DATE

CONTOUR INDEX MAP

AVON LAKE GAS ADDITION PROJECT

CARLISLE, EATON & LAGRANGE TOWNSHIPS
AVON, AVON LAKE, ELYRIA &
NORTH RIDGEVILLE CITIES
LORAIN COUNTY
OHIO

DRAWN BY: AEJ
CHECKED BY: SJC
DATE: 12.15.14
SCALE: 1"=2000'

PROJECT NO. NRG-1007

SHEET NO. 2 OF 88

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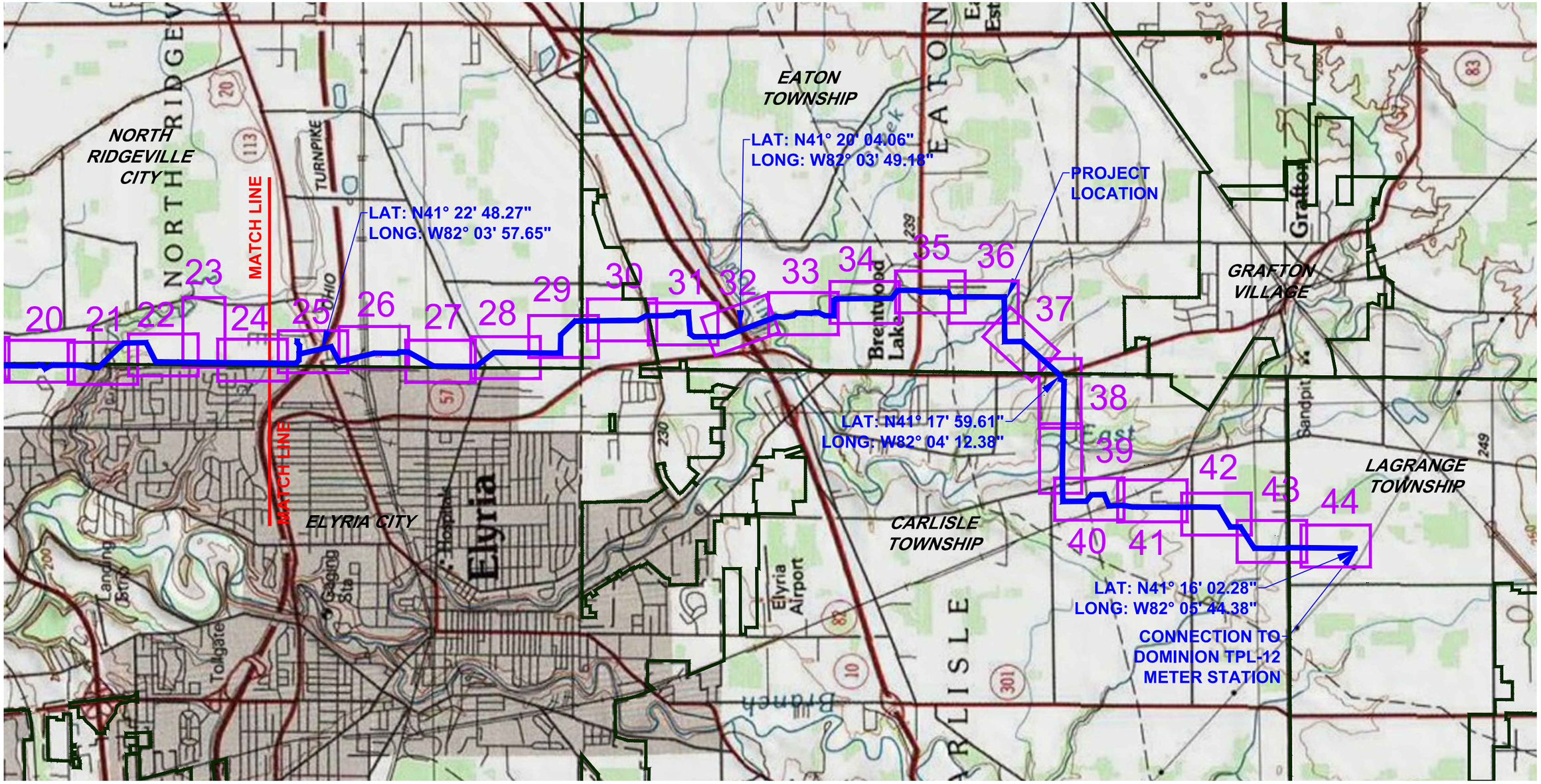

LEGEND

CENTERLINE OF AVON LAKE GAS ADDITION PIPELINE R.O.W.

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2000 0 1000 2000 4000 8000

(IN FEET)
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SEAL

NO.	REVISIONS	DATE

CONTOUR INDEX MAP

AVON LAKE GAS ADDITION PROJECT

CARLISLE, EATON & LAGRANGE TOWNSHIPS
AVON, AVON LAKE, ELYRIA &
NORTH RIDGEVILLE CITIES
LORAIN COUNTY
OHIO

DRAWN BY: AEJ
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DATE: 12.15.14
SCALE: 1"=2000'

PROJECT NO. NRG-1007

SHEET NO. 3 OF 88

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Commission of Ohio Docketing Information System on

12/19/2014 12:49:40 PM

in

Case No(s). 14-1717-GA-BLN

Summary: Application of NRG Ohio Pipeline Company LLC continued - Attachment K (Part 1) electronically filed by Teresa Orahood on behalf of Sally Bloomfield