BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Application of Duquesne Light Company filed Pursuant to 52 Pa. Code Chapter 57, Subchapter G, for Approval of the Siting and Construction of the 138 kV Transmission Lines Associated with the **Universal-Plum Project** in Penn Hills, Monroeville, and Plum Borough, Allegheny County, Pennsylvania	:	Docket No. A-2018-_____

APPLICATION OF DUQUESNE LIGHT COMPANY

TO THE PENNSYLVANIA PUBLIC UTILITY COMMISSION:

Duquesne Light Company ("Duquesne Light" or the "Company") hereby files, pursuant to 52 Pa. Code § 57.72, this Application requesting Pennsylvania Public Utility Commission ("Commission") approval to site and construct approximately 4.21 miles of overhead 138 kV transmission lines associated with the proposed Universal-Plum Project in Penn Hills, Monroeville, and Plum Borough, Allegheny County, Pennsylvania (the "Project"). The proposed Project is required to reinforce the 138 kV systems in the region, resolve identified reliability and planning criteria violations, and improve reliability of service for customers primarily in Braddock Hills Borough Churchill Borough, Edgewood Borough, Forest Hills Borough, Penn Hills Borough, Penn Hills Township, Monroeville Borough, Pitcairn Borough, City of Pittsburgh, Plum Borough, Swissvale Borough, Wilkins Township, Wilkinsburg Borough, Allegheny County. The proposed Project will reduce the number of customers affected by a single facility outage, as well as the duration of the outage.

The proposed Project involves the construction of the new Universal-Plum 138 kV Transmission Line that will extend approximately 5.26 miles between the Universal Substation in Penn Hills and the Plum Substation in Plum Borough. As further explained below, approximately 3.70 miles of the new Universal-Plum 138 kV Transmission Line will be built as an overhead transmission line and approximately 1.56 miles will be constructed as an underground transmission line. In addition, in order to accommodate the new Universal-Plum 138 kV Transmission Line, an approximately 0.51-mile portion of the existing Cheswick-Plum 138 kV Transmission Line will be relocated as part of the Project.

Through this application, Duquesne Light seeks Commission approval of the siting and construction of the overhead portions of the proposed Project.[1] Subject to the Commission's approval, the Project has a scheduled construction start date of January 1, 2019 to meet an in-service date of June 1, 2020. In support of this Application, Duquesne Light states as follows:

I. INTRODUCTION

1. This Application is filed by Duquesne Light, a public utility that provides electric distribution, transmission, and provider of last resort services in Pennsylvania subject to the regulatory jurisdiction of the Commission.

2. Duquesne Light's principal business address is:

Duquesne Light Company
411 Seventh Avenue
Pittsburgh, PA 15219

3. Duquesne Light's attorneys are:

[1] Commission approval is not required for the siting and construction of underground transmission lines. *See* 52 Pa. Code § 57.71 (PUC approval is required for the siting and construction of HV transmission lines); 52 Pa. Code § 57.1) (an HV transmission line is an overhead electric supply line with a design voltage of 100 kV or greater).

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Duquesne Light's attorneys are authorized to receive all notices and communications regarding this Application.

4. Duquesne Light furnishes electric service to approximately 600,000 customers throughout its certificated service territory, which includes all or portions of Allegheny and Beaver Counties and encompasses approximately 800 square miles in western Pennsylvania. Duquesne Light is a "public utility" and an "electric distribution company" as defined in Sections 102 and 2803 of the Pennsylvania Public Utility Code, 66 Pa.C.S. §§ 102, 2803.

5. The proposed Project involves the siting and construction of the new Universal-Plum 138 kV Transmission Line that will extend approximately 5.26 miles between the Universal Substation in Penn Hills and the Plum Substation in Plum Borough. Approximately 3.70 miles of the new Universal-Plum 138 kV Transmission Line will be constructed as an overhead transmission line and approximately 1.56 miles will be constructed as an underground transmission line. In addition, in order to accommodate the new Universal-Plum 138 kV Transmission Line, approximately 0.51 miles of the existing Cheswick-Plum 138 kV Transmission Line will be relocated as part of this Project. Duquesne Light herein seeks

Commission approval of the siting and construction of the approximately 4.21-miles of overhead 138 kV transmission line associated with the proposed Project.[2]

6. Accompanying this Application are the following Attachments that provide additional detailed information regarding the proposed Project:

- Attachment 1 – PUC Cross-Reference Matrix
- Attachment 2 – Need Statement
- Attachment 3 – Environmental Assessment and Line Route Siting Study
- CONFIDENTIAL Attachment 4 - Map of Existing and Proposed DLC Facilities
- CONFIDENTIAL Attachment 5a - One Line Diagram of Existing DLC Facilities
- CONFIDENTIAL Attachment 5b - One Line Diagram of Proposed DLC Facilities
- Attachment 6 – Map of Alternatives Considered
- Attachment 7 – Aerial Map of the Preferred Route
- Attachment 8 – Topographical Map of the Preferred Route
- Attachment 9a – Cross-Sectional Diagram of Typical Structures for the Z-154 Line
- Attachment 9b – Cross-Sectional Diagram of Typical Structures Near Universal Substation
- Attachment 10 – Cross-Sectional Diagram of Typical Structures Near Plum Substation (including Cheswick-Plum Line)
- Attachment 11 – Map of Affected Parcels and Landowners
- Attachment 12 – Landowner Matrix
- Attachment 13 – Duquesne Light Design & Safety Criteria
- Attachment 14 – Duquesne Light Vegetation Management Practices

[2] Commission approval is not required for the siting and construction of underground transmission lines. *See* Footnote 1, *supra*.

- Attachment 15 – Public Notices Required by 52 Pa. Code § 69.3102

7. CONFIDENTIAL Attachments 4 5a, and 5b show critical energy infrastructure information regarding the bulk transmission system of Duquesne Light located within their certificated territory in Pennsylvania. Because Duquesne Light believes the transmission system data set forth in Attachments 4 5a, and 5b include sensitive information about critical energy infrastructure that should not be publically accessible, Duquesne Light is submitting CONFIDENTIAL versions of Attachments 4 5a, and 5b.

8. This Application, including the accompanying Attachments and Statements, which are incorporated herein by reference, contains all of the information required by 52 Pa. Code §§ 57.72(c), 69.1101, 69.3102 – 69.3107.

II. NEED FOR THE PROJECT

A. TRANSMISSION PLANNING

9. System planning is the process which assures that transmission and distribution systems can supply electricity to all customer loads reliably and economically. The reliable and economical operation of transmission systems requires planning guidelines for system expansion and reinforcement.

10. PJM Interconnection, L.L.C. ("PJM") is a Federal Energy Regulatory Commission ("FERC") approved Regional Transmission Organization charged with ensuring the reliability of the electric transmission system under its functional control and coordinating the movement of electricity in all or parts of thirteen states and the District of Columbia, including most of Pennsylvania. Duquesne Light, an owner of transmission facilities in Pennsylvania, is a member of PJM and actively participates in the PJM transmission planning process.

11. In order to ensure reliable transmission service, PJM prepares an annual Regional Transmission Expansion Plan ("RTEP") to ensure power continues to flow reliably to customers. The North American Electric Reliability Corporation ("NERC"), PJM, and transmission owner reliability criteria are used by PJM and the transmission owners to analyze the system and determine if specific transmission upgrade projects are needed to ensure long-term reliable electric service to customers.

12. Duquesne Light has adopted reliability and planning standards to ensure adequate and appropriate levels of electric service to its customers consistent with good utility practice. The Duquesne Light Transmission Planning Criteria were developed from and are consistent with the NERC and PJM planning and reliability standards.[3]

13. In accordance with the Duquesne Light Transmission Planning Criteria, Duquesne Light's transmission system is planned so that it can be operated at all projected load levels and during normal scheduled outages to withstand specific unscheduled contingencies without exceeding the equipment capability, causing system instability or cascade tripping, or exceeding voltage tolerances. The transmission system is required to have adequate capability so that it can be operated normally and can withstand unscheduled contingencies and other system conditions.

B. PLANNING AND RELIABILITY ISSUES

14. Duquesne Light's transmission system primarily consists of 69 kV, 138 kV, and 345 kV facilities that currently form a loop around the City of Pittsburgh and its suburbs.

15. A map of the relevant portion of Duquesne Light's existing system is provided in CONFIDENTIAL Attachment 4 to this Application.

[3] Duquesne Light's reliability and planning standards are set forth in its Federal Energy Regulatory Commission Form No. 715 annual report.

16. Duquesne Light's existing Plum 138-23 kV Substation was installed was in 1978 and is located in Plum Borough, Allegheny County. There has been significant load growth in this area since that time. The Plum Substation currently serves a peak load of approximately 34 megavolt amperes ("MVA") primarily in Plum Borough.

17. The Plum Substation presently is supplied by single source of supply, the Cheswick-Plum 138 kV Transmission Line. The Cheswick-Plum 138 kV Transmission Line is a radial line[4] that extends approximately 7.5 miles between the Cheswick Substation in Springdale Borough, and the Plum Substation in Plum Borough.

18. In the event of an outage on the Cheswick-Plum 138 kV Transmission Line, either through required maintenance or potential system faults, the Plum Substation would lose its only transmission source of supply until repairs could be made. The ability to transfer the load served by the Plum Substation to other distribution substations in the area is limited during times of system peak load or during unusual operating conditions, and would cause 23 kV sub-transmission and 23 kV distribution circuits to become heavily loaded.

19. Duquesne Light's existing Universal 138-23 kV Substation is located in Penn Hills, Allegheny County. The Universal Substation is a large substation that has a maximum historical peak load of approximately 124 MVA and provides power to customers in eastern Allegheny County, including the suburbs of Braddock Hill Borough Churchill Borough, Edgewood Borough, Forest Hills Borough, Penn Hills Borough, Penn Hills Township, Monroeville Borough, Pitcairn Borough, City of Pittsburgh, Swissvale Borough, Wilkins Township, and Wilkinsburg Borough. The Universal Substation supplies electricity to multiple critical customers, including two hospitals and a water pumping plant.

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[4] In a "networked" configuration, the transmission line has a voltage source and power supply available at each end of the line. Power can flow from either end of the line to serve customer load. However, in a "radial" configuration, the transmission line has a voltage source and power supply available at only one end of the line.

20. The Universal Substation currently has three 138-23 kV transformers, but only two transmission sources: the Logans Ferry-Universal 138 kV Transmission Line and the Universal-USS Illinois 138 kV Transmission Line. The Logans Ferry-Universal 138 kV Transmission Line extends approximately 6.52 miles between the Logans Ferry Substation located in Plum Borough and the Universal Substation. The Universal-USS Illinois 138 kV Transmission Line extends approximately 6.98 miles between the USS Illinois Substation located in the City of Duquesne and the Universal Substation.

21. The Universal Substation currently violates the Duquesne Light Planning Criteria, which provides that a substation with peak load over 100 MVA should have three transmission line sources. As explained above, the Universal Substation currently has only two transmission sources.

22. The two-source configuration at the Universal Substation creates a significant risk of losing the load served by the Universal Substation, such as, during periods when one of the transmission sources is out of service for planned maintenance. If one of the two sources of supply is out of service, the entire customer load served by the Universal Substation could be interrupted for an extended period of time until repairs could be made if the other source of supply is lost due to an unexpected system fault.

23. For example, on September 4, 2003, the Cheswick-Universal 138 kV Transmission Line was out of service for scheduled maintenance work. Concurrently, an equipment failure caused an outage to the remaining transmission source to the Universal Substation. This event resulted in the loss of the entire Universal Substation, which interrupted electrical service to all customers served from the substation (approximately 29,500 customers in the Penn Hills area) until repairs could be made. If a similar outage were to occur during present

peak load conditions, approximately 37,600 customers would be without power until repairs could be made.

24. Given the experienced and expected load growth in the region, Duquesne Light anticipates that the severity of these reliability issues will continue to increase if the transmission systems serving the areas are not reinforced.

25. Duquesne Light's system planning process and the need for the proposed Project are further explained in Attachment 2 to this Siting Application.

III. DESCRIPTION OF THE PROPOSED TRANSMISSION LINE

A. OVERVIEW OF THE PROPOSED PROJECT

26. To address the identified reliability and planning issues described above, Duquesne Light proposes to construct the new Universal-Plum 138 kV Transmission Line. In order to accommodate the new Universal-Plum 138 kV Transmission Line, Duquesne Light also proposes to relocate approximately 0.51 miles of the existing Cheswick-Plum 138 kV Transmission Line.

27. The proposed Universal-Plum 138 kV Transmission Line will extend approximately 5.26 miles between the Universal Substation in Penn Hills and the Plum Substation in Plum Borough. Approximately 3.70 miles of the proposed Universal-Plum 138 kV Transmission Line will be constructed as an overhead transmission line and approximately 1.56 miles will be constructed as an underground transmission line.

28. To accommodate the new Universal-Plum 138 kV Transmission Line, an approximately 0.51-mile portion of the existing Cheswick-Plum 138 kV Transmission Line will be relocated approximately 64 to 155 feet south of its present location in a new right-of-way. The relocated portion of Cheswick-Plum 138 kV Transmission Line will proceed west from the

Plum Substation and will parallel its present route and the proposed route of the Universal-Plum 138 kV Transmission Line. The relocated portion of Cheswick-Plum 138 kV Transmission Line will minimize overhead wire crossings and make room for the new Universal – Plum 138 kV Transmission Line.

29. The entire Project will be located in Allegheny County. Approximately 1.39 miles of the proposed Universal-Plum 138 kV Transmission Line will be located within the Municipality of Penn Hills, approximately 0.58 miles will be located within the Municipality of Monroeville, and approximately 3.29 miles will be located within Plum Borough. The 0.51-mile portion of the Cheswick-Plum 138 kV Transmission Line to be relocated is located in Plum Borough.

30. An aerial photograph map showing the location of the proposed Universal-Plum 138 kV Transmission Line and relocated Cheswick-Plum 138 kV Transmission Line is provided in Attachment 7 to this Application.

31. The proposed Project will provide a second source of supply to the Plum Substation, which will reduce the number of customers affected by an outage of the present single transmission source of supply to the Plum Substation, as well as the duration of the outage.

32. The proposed Project will also provide a third source of supply to the Universal Substation, which will reduce the number of customers affected by an outage to both of the present two sources of supply to the Universal Substation, as well as the duration of the outage.

33. The proposed Project will bring Universal and Plum Substations into compliance with the Duquesne Light Planning Criteria.

34. The proposed Project was reviewed by PJM stakeholders and included in PJM's Regional Transmission Expansion Plan ("RTEP") as project TOI340.2.

B. ENGINEERING DESCRIPTION

35. The new Universal-Plum 138 kV Transmission Line will include approximately 3.70 miles of new overhead transmission line and approximately 1.56 miles of new underground transmission line.[5] Additionally, the proposed Project involves relocating approximately 0.51 miles of the existing Cheswick-Plum 138kV Transmission Line to accommodate the new Universal-Plum 138 kV Transmission Line.

1. New Universal-Plum 138 kV Transmission Line

36. The proposed new Universal-Plum 138 kV Transmission Line will be designed as a double-circuit 138 kV transmission line, but initially will be operated as a single circuit transmission line until load growth makes it necessary to install the second circuit.

37. Based on preliminary engineering, the new Universal-Plum 138 kV Transmission Line will require approximately 33 new double-circuit structures, which will consist of approximately 27 steel single-pole structures and 6 steel multi-poles structures.

38. The steel structures will largely consist of tubular steel monopole and multi-pole structures that will range from 45 to 135 feet in height, with an average height of approximately 90 feet. All steel poles will be placed on drilled concrete shaft foundations. The average span between these structures will be approximately 530 feet.

39. Cross-sectional diagrams showing the typical placement of the support structures are provided in Attachments 9a and 9b to this Application.

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[5] Commission approval is not required for the siting and construction of underground transmission lines. *See* Footnote 1, *supra*.

40. The overhead 138 kV circuit design will utilize three power conductors per circuit and one shield wire. The power conductors for this Project will be 795 kcmil,[6] 20/7 ACSS-TW-HS[7] conductors. The shield wire will be 48 count, fiber optical ground wire and will provide lightning protection and a communication path between the two substations.

41. The new Universal-Plum 138 kV Transmission Line will be designed to meet, and generally exceed, the National Electrical Safety Code ("NESC") minimum standards.

42. The minimum line to structure clearance for the proposed Universal-Plum 138 kV Transmission Line will be 6 feet. The minimum conductor-to-ground clearance for the proposed Universal-Plum 138 kV Transmission Line at mid-span will be 30 feet under maximum load and operating temperature.[8]

2. Relocated Cheswick-Plum 138kV Transmission Line

43. The relocated Cheswick-Plum 138 kV Transmission Line will be designed as a single-circuit 138 kV transmission line.

44. On the existing Cheswick-Plum 138kV Transmission Line, ten existing wood poles will be removed and one wood pole will be modified to accommodate the Universal-Plum 138kV Transmission Line.

45. Based on preliminary engineering, the relocation of Cheswick-Plum 138 kV Transmission Line will require approximately seven new single-circuit structures, which will consist of approximately six steel single-pole structures and one wood single-pole structure.

46. The steel structures will largely consist of tubular steel monopole structures that will range from 85 to 105 feet in height, with an average height of approximately 95 feet. All

[6] Kcmil stands for thousand circular mils. Kcmil wire size is the equivalent cross sectional area in thousands of circular mils. A circular mil is the area of a circle with a diameter of on thousandth (0.001) of an inch.
[7] ACSS-TW-HS stands for aluminum conductor steel supported, trapezoidal-shaped aluminum strands, high strength conductors
[8] All towers along the proposed Universal-Plum 138 kV Transmission Line were modeled in PLS-TOWER and then checked with the new conductor in PLS CADD per NESC design criteria.

steel poles will be placed on drilled concrete shaft foundations. The average span between these structures will be approximately 450 feet.

47. The wood pole structure will be installed adjacent to New Texas Road and will have an approximate height of 90 feet. The wood pole will be direct embedded and may be guyed due to accessibility and terrain.

48. Cross-sectional diagrams showing the typical placement of the support structures are provided in Attachment 10 to this Application.

49. The overhead 138 kV circuit design will utilize three power conductors per circuit and one shield wire, the same conductor and shield wire as the existing Cheswick-Plum 138kV Transmission Line. The power conductors will be 854 kcmil, 18/19 ACAR[9] conductors. The shield wire will be 7#8 Alumoweld and will provide lightning protection.

50. The relocated segment of the Cheswick-Plum 138kV Transmission Line will be designed to meet, and generally exceed, the NESC minimum standards.

51. The minimum line to structure clearance for the proposed Cheswick-Plum 138 kV Transmission Line will be 6 feet. The minimum conductor-to-ground clearance for the proposed Cheswick-Plum 138 kV Transmission Line at mid-span will be 30 feet under maximum load and operating temperature.

IV. SITING ANALYSIS

A. SUMMARY OF SITING ANALYSIS

52. In accordance with the Commission's regulations at 52 Pa. Code § 57.72(c), Duquesne Light conducted an extensive, multi-faceted analysis to determine the preferred route for the Project. Duquesne Light contracted with GAI Consultants, Inc. to complete a

[9] ACAR stands for aluminum conductor alloy reinforced.

comprehensive siting study. The results of the siting study are contained in the "Environmental Assessment and Line Route Study," which is provided as Attachment 3 to this Application.

53. The goal of Duquesne Light's siting analysis for the Universal-Plum 138 kV Transmission Line was to determine the most suitable route to interconnect the proposed transmission line with the existing Universal and Plum Substation, while minimizing the impact to the natural and human environments, avoiding unreasonable and circuitous routes, and avoiding extreme costs and non-standard design requirements.

54. The Cheswick-Plum 138kV Transmission Line is proposed to be relocated 64 feet to 155 feet from its original location in order to provide a straight entrance into and connection with the Plum Substation for both transmission lines.

55. Many sources of information were used to develop data for the Environmental Assessment and Line Route Study. These sources of information are summarized in Attachment 3 to this Application.

56. The route development process is inherently iterative with modifications made throughout the siting analysis as a result of the identification of new constraints, input from agencies, landowners, and other stakeholders, periodic re-assessment of routes, and adjustments to the overall route network to develop feasible alternative routes.

57. Once the alternative routes were identified, the Siting Team undertook an analysis of potential impacts of each alternative route to human/build environment, the natural environment, and engineering considerations. The alternative routes were reviewed in detail and compared using a combination of information collected in the field, Geographic Information System ("GIS") data sources, public and agency input, engineering and constructability considerations, and the collective knowledge and experience of the Siting Team.

58. Using the analysis described above, the Siting Team selected a proposed route that, on balance, best minimized the overall impacts of the project. The rationale for selecting the proposed route was derived from the accumulation of the siting decisions made throughout the process, the knowledge and experience of the Siting Team, comments from the public and regulatory agencies, and the comparative analysis of potential impacts of each alternative route.

59. A detailed description of the process used to select the proposed route for the Project is provided in Attachment 3 to the Siting Application.

B. SELECTION OF PROPOSED ROUTE

60. Using the siting analysis described above, Duquesne Light identified three (3) alternative routes for the new Universal-Plum 138 kV Transmission Line: Alternative 1, which extends approximately 5.65 miles; Alternative 2, which extends approximately 6.41 miles; and Alternative 3, which extends approximately 5.26 miles.

61. Duquesne Light, in conjunction with its siting consultants, undertook a detailed comparison of each Alternative. A detailed explanation of the analysis and comparison of the Alternatives is provided in Attachment 3 to this Application.

62. Duquesne Light held a public open house in October 2016 and invited impacted landowners along the preferred route as well as advertising in local newspapers the time and location of the open house. During the open house, multiple subject matter experts from Duquesne Light and its consultants were available to explain the scope of the project, its potential impact, and the proposed schedule.

63. The Alternatives were compared and Alternative 3 was selected as the proposed route for the Universal-Plum 138 kV Transmission Line based upon a detailed analysis and balance of potential impacts on the human/built environment, natural environmental, and engineering and constructability considerations.

64. Alternative 3 extends approximately 5.26 miles. A general description of the proposed route is provided below:

- From the Universal Substation, the route selected for the proposed Universal-Plum 138 kV Transmission Line proceeds approximately 0.63 miles in a northerly direction, paralleling and crossing under, using separate structures, the existing Logans Ferry-Universal 138 kV Transmission Line, Dravosburg-Logans Ferry 138 kV Transmission Line, and two Cheswick-Wilmerding 138 kV Transmission Lines.

- The route then turns northeast and proceeds approximately 1.30 miles, traversing a slag dump and wooded areas.

- The route then turns east and proceeds approximately 0.86 miles through a wooded area and a small commercial area before crossing the Pennsylvania Turnpike at Milepost 54.

- After crossing the Pennsylvania Turnpike, the route continues east approximately 0.46 miles through mostly forest land and enters William D. Boyce Park ("Boyce Park"), which is owned by Allegheny County.

- Through the Boyce Park, the route proceeds east approximately 1.28 miles underground through the northern portion of Boyce Park, at which point the route crosses New Texas Road, and continues underground in a southward direction parallel to New Texas Road for approximately 0.28 miles.

- The route then transitions back to overhead at Duquesne Light's existing Cheswick-Plum 138 kV Transmission Line.

- Finally, the route turns east and proceeds approximately 0.45 miles, along the right-of-way currently occupied by the Cheswick-Plum 138 kV Transmission Line, where it interconnects with the Plum Substation.

65. The proposed route is the shortest route, thereby minimizing overall impacts as compared to the other viable alternatives. Details of these overall impacts and mitigation can be found in Attachment 3 of this Application.

66. There are very minimal commercial or residential areas crossed by the preferred route.

67. Approximately 1.4 miles of the preferred route traverses undeveloped portions of Boyce Park. To minimize impacts to Boyce Park, Duquesne Light and Allegheny County agreed

to the location of the proposed line and Duquesne Light agreed to design and construct this segment of the Universal-Plum 138 kV Transmission Line as an underground transmission line. The line would continue underground for an additional 0.16 miles after exiting Boyce Park.[10]

68. In addition, to accommodate the new Universal-Plum 138 kV Transmission Line, an approximately 0.51-mile portion of the existing Cheswick-Plum 138 kV Transmission Line will be relocated 64 to 155 feet south of its present location into new right-of-way. As explained in Attachment 3, the relocated portion of Cheswick-Plum 138 kV Transmission Line will proceed west from the Plum Substation and will parallel its present route and the proposed route of the Universal-Plum 138 kV Transmission Line.

69. All work areas associated with the construction of the Universal-Plum 138 kV Transmission Line have been studied for waterbody and wetland features prior during the line site selection process and will be re-studied as necessary prior to the start of any construction.

70. Duquesne Light will obtain all necessary permits from the United States Army Corps of Engineers or the Pennsylvania Department of Environmental Protection, and will comply with all of the terms and conditions placed on any permits required.

71. Further, Duquesne Light will acquire any required soil erosion and sedimentation control permits and will comply with any conditions placed on those permits. The final design, erosion and sedimentation control measures, and construction of the Universal-Plum 138 kV Transmission Line will minimize impacts to waterbody and wetland features to extent feasible.

72. Duquesne Light completed a Pennsylvania Natural Diversity Inventory records review for the proposed Universal-Plum 138 kV Transmission Line. Based on this review and additional data and information provided by Duquesne Light, the state and federal jurisdictional

[10] Commission approval is not required for the siting and construction of underground transmission lines. *See* footnote 1, *supra*.

agencies all reported that the Project will not impact any threatened and endangered species, or special concern species and resources located within the Project area.

73. Architectural and archeological consultation with the Pennsylvania State Historic Preservation Office and surveys are ongoing. The final design and construction will minimize and avoid impacts to architectural and archeological resources to the extent feasible.

74. A list of the Local, State and Federal governmental agencies and their requirements in connection with the construction or maintenance of the proposed Universal-Plum 138 kV Transmission Line is provided in Attachment 3 to this Application.

75. Duquesne Light determined that the cumulative environmental, human/built, engineering, and constructability impacts associated with the proposed route, Alternative 3, will be significantly less than the other alternatives. A detailed explanation of the selection of the preferred route is provided in Attachment 3 to this Application.

V. RIGHTS-OF-WAY

76. The right-of-way width is generally determined by the structure type, design tensions, span length, and conductor "blowout" (the distance the wires are moved by a crosswind).

77. The majority of the right-of-way for the proposed new Universal-Plum 138 kV Transmission Line will be approximately 100-125 feet in width. In areas where the right-of-way is less than 125 feet, Duquesne Light will design and construct the line to fit within the right-of-way while maintaining all necessary clearances.

78. The names and addresses of all known persons, corporations and other entities of record owning property along the route selected for the proposed Universal-Plum 138 kV Transmission Line are provide in Attachment 12 to this Application.

79. There are a total of twenty-six (26) different owners of forty-four (44) deeded properties along the transmission line route selected for the Universal-Plum 138 kV Transmission Line. At the time of this filing, new rights-of-way and easements are needed from ten (10) property owners.

80. Although negotiations continue with the remaining ten (10) property owners, Duquesne Light is separately filing condemnation applications, pursuant to 15 Pa. C.S. §1511(c), for a finding and determination that the service to be furnished through its proposed exercise of the power of eminent domain to acquire the tracts of land for the proposed Project is necessary or proper for the service, accommodation, convenience, or safety of the public.

VI. HEALTH AND SAFETY

81. The proposed Project will not create any unreasonable risk of danger to the public health or safety. The Project will be designed, constructed, operated, and maintained in a manner that meets or surpasses all applicable NESC minimum standards and all applicable legal requirements.

82. Descriptions of Duquesne Light's construction, operation, maintenance and safety standards and procedures for transmission and distribution lines are provided in Attachment 13 to this Application. These standards meet or exceed all relevant NESC standards and all standards of the Federal Occupational Safety and Health Administration ("OSHA").

83. The Project is being completed within a new transmission line corridor. Duquesne Light will apply the Wire Zone/Border Zone management technique, which is recognized as an industry best practice to manage vegetation and ensure the safe and reliable delivery of electricity. A further description of Duquesne Light's vegetation management practices are provided in Attachment 14 to this Application.

84. Duquesne Light performed an electromagnetic field study for the proposed transmission line. A further description of Duquesne Light's electromagnetic field practices and policies are provided in Attachment 13 to this Application.

85. No communication towers, pipelines, or other utilities will be affected by the proposed Project.

86. Several major roadways, including the Pennsylvania Turnpike and I-376, will be spanned by the various segments of the Project. Pennsylvania Department of Transportation ("PennDOT") Highway Occupancy Permits or equivalent type permits will be acquired by Duquesne Light for these major highways and all other state roads prior to construction.

87. Aviation coordination will be conducted through the Federal Aviation Association ("FAA"). Duquesne Light will assure that that the pole locations and heights are properly recorded by the FAA. Duquesne Light will comply with any additional lighting or other visual aids that may be required by these agencies to assure aviation safety in the region.

88. A further description of the safety considerations which will be incorporated into the design, construction and maintenance of the proposed Project are provided in Attachment 13 to this Application.

VII. CONSTRUCTION COST AND IN-SERVICE DATE

89. Duquesne Light will own, operate, and maintain the transmission lines associated with the proposed Project. The costs for the proposed Project will be paid for by Duquesne Light.[11]

[11] The costs and cost recovery of this Project are subject to the regulatory jurisdiction of the Federal Energy Regulatory Commission.

90. The estimated cost to design and construct the proposed Project using the preferred route is approximately $26.2 million.

91. The estimated cost for the proposed Project is an order-of-magnitude estimate developed using averages of recent costs for similar projects and without an in-depth analysis of filed investigation. The estimated cost is subject to change as the constructability of the Project, sequence of construction, and other factors that may affect cost are identified and analyzed as the Project progresses.

92. The proposed Project has a scheduled construction start date of January 1, 2019 to meet an in-service date of June 1, 2020. As such, the Applicant requests further that the Commission grant the authorization to construct the Universal-Plum Project by no later than October 25, 2018.

VIII. NOTICE AND SERVICE

93. Duquesne Light has provided public notices in accordance with Section 69.3102 of the Commission's Interim Siting Guidelines, 52 Pa. Code § 69.3102. The public notices for this project are provided in Attachment 15 to this Application.

94. Copies of this Application and the Notice of Filing are being served in accordance with the provisions of Section 57.74 of the Commission's regulations, 52 Pa. Code § 57.74.

95. A copy of this Application is available for public examination during ordinary business hours at Duquesne Light Company, 411 Seventh Avenue, Pittsburgh, PA 15230-1930.

96. As soon as practicable after the filing of this Application, Duquesne Light will publish notice of the filing in two newspapers of general circulation in the area of the Universal-Plum 138 kV Transmission Line. This notice will: (a) note the filing with the Commission; (b) provide brief description of the project and its location; (c) provide area locations where the

complete application may be reviewed by the public; and (d) provide any additional information as directed by the Commission.

97. Duquesne Light also requests that the Commission publish notice of this Application in the Pennsylvania Bulletin.

IX. RELATED PROCEEDINGS

98. As noted above, simultaneous with the filing of this Siting Application, Duquesne Light is filing ten (10) Condemnation Applications pursuant to 15 Pa. C.S. § 1511(c) for a finding and determination by the Commission that the service to be furnished by the Duquesne Light through its proposed exercise of the power of eminent domain for the siting and construction of the 138 kV transmission lines associated with the Universal-Plum Project is necessary or proper for the service, accommodation, convenience or safety of the public. Issues relating to the need for these Condemnation Applications are interrelated with this Application.

99. Pursuant to 52 Pa. Code § 57.75(i)(1), Duquesne Light requests that these related proceedings be consolidated for purposes of hearings, if necessary, and decision. Duquesne Light will file an appropriate motion to consolidate these proceedings once all docket numbers have been assigned.

X. CONCLUSION

WHEREFORE, Duquesne Light Company respectfully requests that the Pennsylvania Public Utility Commission: (1) consolidate this Siting Application with the ten Condemnation Applications contemporaneously filed herewith; and (2) approve the siting and constructing of the approximately 4.21 miles of overhead 138 kV transmission lines associated with the proposed Universal-Plum Project in Penn Hills, Monroeville, and Plum Borough, Allegheny County, Pennsylvania as explained above and in the Attachments and to this Application.

Respectfully submitted,

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Date: March 23, 2018

Attorneys for Duquesne Light Company

VERIFICATION

I, Jason A. Harchick, being the Senior Manager, System Planning and Protection for Duquesne Light Company, hereby state that the information set forth above is true and correct to the best of my knowledge, information, and belief, and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 relating to unsworn falsification to authorities.

Date: 3/23/2018

Jason A. Harchick

Jason A. Harchick, PE
Senior Manager, System Planning and Protection
Duquesne Light Company
2839 New Beaver Avenue
Pittsburgh, PA 15233

Attachment 1

ATTACHMENT 1
UNIVERSAL-PLUM PROJECT
PUC REGULATION CROSS-REFERENCE MATRIX

Administrative Code Section or Statute	PUC Regulation Requirement	Location In Filing
57.72	Form and content of application	
57.72(a)	Applications shall be in conformity with Section 1.31 (relating to form of documentary filings generally). Supporting exhibits such as maps, photographs and other engineering materials may be on paper not exceeding 28 inches by 40 inches.	Attachments 1 – 15 CONFIDENTIAL Attachment 4a – Map of Existing Facilities CONFIDENTIAL Attachment 4b – Map of Proposed Facilities Attachment 6 – Map of Alternatives Considered Attachment 7 – Aerial Map of the Preferred Route Attachment 8 – Topographical Map of the Preferred Route Attachment 11 – Map of Affected Parcels and Landowners
57.72(b)	The application shall be signed by a person having authority with respect thereto and having knowledge of the matters herein set forth and shall be verified under oath.	Siting Application
57.72(c)	An application shall contain:	
57.72(c)(1)	The name of the applicant and the address of its principal business office	Siting Application
57.72(c)(2)	The name, title and business address of the attorney of the applicant and the person authorized to receive notice and communications with respect to the application if other than the attorney of the applicant.	Siting Application
57.72(c)(3)	A general description – not a legal or metes and bounds description – of the proposed route of the HV	Siting Application

Administrative Code Section or Statute	PUC Regulation Requirement	Location In Filing
	line, to include the number of route miles, the right-of-way width and the location of the proposed HV line within each city, borough, town and township traversed.	Attachment 3 – Section 3.4.3 Attachment 11 Duquesne Light Stmt. No. 2
57.72(c)(4)	The names and addresses of known persons, corporations and other entities of record owning property within the proposed right-of-way, together with an indication of HV line rights-of-way acquired by the applicant.	Attachment 11 – Map of Affected Parcels and Landowners Attachment 12 – Landowner Matrix
57.72(c)(5)	A general statement of the need for the proposed HV line in meeting identified present and future demands for service, of how the proposed HV line will meet that need and of the engineering justifications for the proposed HV line.	Attachment 2
57.72(c)(6)	A statement of the safety considerations which will be incorporated into the design, construction and maintenance of the proposed HV line.	Attachment 12
57.72(c)(7)	A description of studies which had been made as to the projected environmental impact of the HV line as proposed and of the efforts which have been and which will be made to minimize the impact of the HV line upon the environmental and upon scenic and historic areas, including but not limited to impacts, where applicable, upon land use, soil and sedimentation, plant and wildlife habitats, terrain, hydrology and landscape.	Siting Application Attachment 3
52.72(c)(8)	A description of the efforts of the applicant to locate and identify archaeologic, geologic, historic, scenic or wilderness areas of significance within 2 miles of the proposed right-of-way and the location and identity of the areas discovered by the applicant.	Attachment 3
57.72(c)(9)	The location and identity of airports within 2 miles of the nearest limit of the right-of-way of the proposed HV line.	Attachment 3 – Section 5.1.7
57.72(c)(10)	A general description of reasonable alternative routes to the proposed HV line, including a description of the corridor planning methodology, a comparison of the	Attachment 3 – Section 4

	merit and detriments of each route, and a statement of the reasons for selecting the proposed HV line route.	
57.72(c)(11)	A list of the local, State and Federal governmental agencies which have requirements which shall be met in connection with the construction or maintenance of the proposed HV line and a list of documents which have been or are required to be filed with those agencies in connection with the siting and construction of the proposed HV line.	Attachment 3 – Section 7.1
57.72(c)(12)	The estimated cost of construction of the proposed HV line, and the projected date for completion.	Siting Application Attachment 3 – Section 1.2 and 3.4.3
57.72(c)(13)	The following exhibits:	
57.72(c)(13)(i)	A depiction of the proposed route on aerial photographs and topographic maps of suitable detail.	Attachment 7 Attachment 8
57.72(c)(13)(ii)	A description of the proposed HV line, including the length of the line, the design voltage, the size, number and materials of conductors, the design of the supporting structures and their height, configuration and materials of construction, the average distance between supporting structures, the number of supporting structures, the line to structure clearances and the minimum conductor to ground clearances at mid-span under normal load and average weather conditions and under predicted extreme load and weather conditions.	Siting Application Attachment 13 Duquesne Light Stmt. No. 3
57.72(c)(13)(iii)	A simple drawing of a cross section of the proposed right-of-way of the HV line and any adjoining rights-of-way showing the placement of the supporting structures at typical locations, with the height and width of the structures, the width of the right-of-way and the lateral distance between the conductors and the edge of the right-of-way indicated	Attachment 9a Attachment 9b Attachment 10
57.72(c)(13)(iv)	A system map which shows in suitable detail the location and voltage of existing transmission lines and substations of the applicant and the location and voltage of the proposed HV line and associated substations.	CONFIDENTIAL Attachment 4a CONFIDENTIAL Attachment 4b
57.72(c)(14)	A statement identifying litigation concluded or in progress which concerns property or matter relating to	Siting Application

	the proposed HV line, right-of-way route or environmental matters.	
57.72(c)(15)	Additional information as the Commission may require.	
57.74(a)	(a) *Filing.* The applicant shall file with the Commission the original and six copies of the application. An affidavit of service showing the identity of those served under subsections (b) and (c) shall accompany the original and the copies of the application filed with the Commission.	Attachment 12 Notice of Filing Certificate of Service
57.74(b)	(b) *Copies.* At the time of filing, the applicant shall serve a copy of the application by registered or certified mail, return receipt requested, upon the following: (1) The chief executive officer, the governing body and the body charged with the duty of planning land use in each city, borough, town, township and county in which any portion of the HV line is proposed to be located. (2) The president of the public utility, other than the applicant, in whose service territory any portion of the HV line is proposed to be located. (3) The Department of Environmental Resources, Attention: Bureau of Environmental Planning; Post Office Box 2357, 101 S. Second Street, Harrisburg, Pennsylvania, 17120. (NOTE: now Department of Environmental Protection at different Harrisburg office).	Certificate of Service
57.74(c)	(c) *Notice.* (1) At the time of filing, the applicant shall serve a notice of filing and a map of suitable detail showing the proposed route of the proposed facility by registered or certified mail, return receipt requested, upon the following: (i) The Secretary of the Department of Transportation, Room 1200 Transportation and Safety Building, Harrisburg, Pennsylvania 17120. (ii) The Chairman of the Historical and Museum Commission, Post Office Box 1026, Harrisburg, Pennsylvania 17120. (iii) Other local, State or Federal agencies designated in § 57.72 (c)(11)(relating to form and content of application). (iv) The persons, corporations, and other entities designated in § 57.72(c)(4), unless they are served with a copy of the application under § 57.75(i)	Notice of Filing Attachment 11 Certificate of Service

	(relating to hearing and notice).	
57.74(c)	(2) The notice of filing shall contain a statement identifying the filing, the date on which the filing was or is to be made, a description of the proposed line, the design voltage, the number of route miles, the right-of-way width and the location of the proposed HV line within each township traversed and a statement that a copy of the application is available for public examination as provided in subsection (d).	Notice of Filing Siting Application Attachment 11
57.74(d)	(d) *Examination.* On the day of filing of the application, the applicant shall make a copy of the application available for public examination during ordinary business hours at a convenient location within a county in which any part of the proposed HV will be located.	Siting Application Notice of Filing
57.74(e)	(e) *Additional notice.* The applicant shall provide an additional notice and shall serve such additional copies of the application without cost as the Commission may require.	N/A
69.1101	To further the State's goal of making State agency actions consistent with sound land-use planning, and under the act of June 22, 2000 (P. L. 483, No. 67) and the act of June 23, 2000 (P. L. 495, No. 68), the Commission will consider the impact of its decisions upon local comprehensive plans and zoning ordinances. This will include reviewing applications for: (1) Certificates of public convenience. (2) Siting electric transmission lines. (3) Siting a public utility ''building'' under section 619 of the Municipalities Planning Code (53 P. S. § 10619). (4) Other Commission decisions.	Attachment 3 Duquesne Light Stmt. No. 2
69.3102(a)	(a) Applications for electric transmission siting authority should provide the following information with the initial application for siting approval demonstrating its efforts to fully notify landowners who are either owners of land that will be purchased for the transmission project or will be subject to right of way/easement requirements: (1) A Code of Conduct/Internal Practices governing	Attachment 15

	the manner in which public utility employees or their agents interact with landowners along proposed rights of way. (2) Copies of information provided to landowners by the public utility of any publicly disseminated notices advising landowners to contact the Commission or the Office of Consumer Advocate (OCA) in the event of improper land agent practices. (3) Copies of all notices sent under § 57.91 (relating to disclosure of eminent domain power of electric utilities).	
69.3102(b)	(b) Applicants for transmission siting authority should serve a copy of the Code of Conduct on all landowners along the proposed route whose property is to be purchased, subject to easement rights or borders the transmission corridor. The Code of Conduct should also be available on the applicant's website.	Attachment 15
69.3102(c)	(c) Applicants for transmission siting authority should provide prior notice to the Commission's Office of Communications of informational presentations to community groups by the public utility scheduled after the filing of the transmission siting application so that the Commission, OCA and other interested parties can attend meetings or obtain copies of information being disseminated at the presentations.	N/A
69.3103	Applicants for eminent domain authority should follow the following requirements and provide the following information as part of the application: (1) Applicants for transmission siting authority should file applications for all known eminent domain authority as separate filings, but simultaneously with the associated transmission siting applications. Testimonial evidence in support of an eminent domain application should be filed with the application. Subsequent eminent domain authority applications should be filed as soon as reasonably known during the course of the transmission siting application. (2) As part of an eminent domain application, the public utility applicant should present, for those properties subject to condemnation at the time the transmission siting application is filed or later in the siting proceeding, the reason for the exercise of	Condemnation Applications

	condemnation power for each property and the precise location of the affected property. Supporting maps or legal descriptions of the property to be condemned should be supplied to the extent feasible. Submission of information pursuant to this guideline should be consistent with the filing requirements for the exercise of eminent domain powers under 26 Pa.C.S. § 302(b)(5) (relating to declaration of taking). (3) A public utility transmission siting application should include a summary status report for those properties along the proposed transmission route where negotiations for either property acquisition or rights of way/easements may be ongoing. This information should be supplemented as requested by the administrative law judge or the parties during the course of the transmission siting proceeding.	
69.3104	Applications for exemption from municipal zoning requirements should provide the following information with the application: (1) Copies of comprehensive land use plans, zoning ordinances and other documentation relevant to the buildings affected by the exemption request. This information may be filed in either hard copy or electronic format. (2) Provision of metes and bounds or site maps of building sites. (3) A procedure for providing notice to affected municipalities of the request for exemption.	N/A
69.3105(1)	Applications for the siting of electric transmission lines should provide the following information as part of the § 57.72(c) (relating to form and content of application) requirements: (1) Transmission applicants should utilize a combination of transmission route evaluation procedures including high-level GIS data, traditional mapping (including United States Geological Survey data and compilation), aerial maps and analysis of physical site specific constraints raised by affected landowners.	Attachment 3 Attachment 7 Attachment 8 Attachment 11
69.3105(2)	Applications for the siting of electric transmission lines should provide the following information as part of the § 57.72(c) (relating to form and content of	Siting Application

	application) requirements: (2) Transmission applicants should summarize the status of property acquisitions (including fee simple acquisitions and rights of way/easements) as part of the application. The applicant should provide the current status and continuing updates on property acquisition litigation or settlements during the course of the siting proceeding.	
69.3105(3)	Applications for the siting of electric transmission lines should provide the following information as part of the § 57.72(c) (relating to form and content of application) requirements: (3) In providing information regarding the reasonable alternative routes, the utility actively considered in its final phase of the route selection process, and the relative merits of each, in accordance with § 57.72(c)(10), the applicant should include the following information: (i) The environmental, historical, cultural and aesthetic considerations of each route. (ii) The proximity of these alternative routes to residential and nonresidential structures. (iii) The applicant's consideration of relevant existing rights of way. (iv) The comparative construction costs associated with each route.	Attachment 3 Duquesne Light Stmt. No. 2
69.3106	Applications for siting of electric transmission lines should include as part of the filing requirement under § 57.72(e)(7) the following information: A matrix or list showing all expected Federal, state and local government regulatory permitting or licensing approvals that may be required for the project at the time the application is filed, the issuing agency, approximate timeline for approval and current status. The applicant should provide an update on the status of the regulatory permitting/licensing approvals as the case progresses.	Attachment 3 – Section 7.1

69.3107(a)	(a) *Interim guidelines for the use of herbicides and pesticides.* Applicants for transmission line siting authority should provide a detailed vegetation management plan that includes the following components: (1) A general description of the utility's vegetation management plan. (2) Factors that dictate when each method, including aerial spraying, is utilized. (3) Vegetation management practices near aquatic and other sensitive locations. (4) Notice procedures to affected landowners regarding vegetation management practices. (5) Provision of a copy of a landowner maintenance agreement that describes the duties and responsibilities of landowners and the utility for vegetation management to the extent utilized.	Attachment 14
69.3107(b)	(b) *Interim guidelines for Electromagnetic Field (EMF) impacts.* Transmission siting applications should include the following: A description of the EMF mitigation procedures that the utility proposes to utilize along the transmission line route. This description should include a statement of policy approach for evaluating design and siting alternatives and a description of the proposed measures for mitigating EMF impacts.	Attachment 13

Attachment 2

ATTACHMENT 2
UNIVERSAL-PLUM PROJECT
NECESSITY STATEMENT

1.0 Introduction

Duquesne Light Company ("Duquesne Light" or the "Company") proposes to site and construct the new Universal-Plum 138 kV Transmission Line in Penn Hills, Monroeville, and Plum Borough, Allegheny County, Pennsylvania; and to relocate a portion of the existing 138 kV Cheswick-Plum Transmission Line (collectively, the "Project"). The proposed Project involves the construction of approximately 5.26 miles of new 138 kV transmission line between the Universal Substation located in Penn Hills and the Plum substation located in Plum Borough, and the relocation of 0.51 miles of the existing Cheswick-Plum 138 kV transmission line leading into the Plum substation.

The proposed Project is required to improve reliability of service for approximately 50,000 customers in the eastern portion of the Company's service territory. The Project will also allow for improved operating flexibility for the Company's Transmission System Operators to reduce the extent and duration of facility outages. This project is needed to:

(i) Address load growth in the area;

(ii) Improve ability to restore service to customers in the event of an outage;

(iii) Address lack of transmission sources to each substation; and

(iv) Enhance flexibility for facility maintenance.

The estimated cost to site, design, and construct the Project is approximately $30.1 million. Subject to the Commission's approval, construction is scheduled to begin in January 1, 2019, to support the Project's scheduled in-service date of June 1, 2020.

2.0 System Planning Process

System planning is the process which assures that transmission and distribution systems can supply electricity to all customer loads reliably and economically. The reliable and economical operation of transmission and distribution systems requires planning guidelines for system expansion and reinforcement.

As a transmission owner operating in Pennsylvania, Duquesne Light is a member of PJM Interconnection, Inc. ("PJM"). PJM is a Federal Energy Regulatory Commission ("FERC") approved Regional Transmission Organization ("RTO") charged with ensuring the reliable and efficient operation of the electric transmission system under its functional control, and coordinating the transmission of electricity in all or parts of thirteen states, including Pennsylvania, and the District of Columbia. In order to ensure reliable transmission service, PJM prepares an annual Regional Transmission Expansion Plan ("RTEP"). The North American Electric Reliability Corporation ("NERC"), PJM, and transmission owner reliability criteria are used by PJM and the transmission owners to analyze the system and determine if specific transmission upgrade projects are needed to ensure long-term reliable electric service to customers.

PJM's RTEP process is currently set forth in Schedule 6 of PJM's Amended and Restated Operating Agreement ("Schedule 6"). The RTEP is an annual planning process that encompasses a comprehensive series of detailed analyses to ensure electric power continues to flow reliably to customers under stringent reliability planning criteria. PJM Manual 14B outlines the RTEP process and reliability criteria used for this reliability process.

The Company implements PJM's reliability and planning mandates in part through the Duquesne Light Company Transmission Planning Criteria document ("Planning Criteria"), which was developed to ensure adequate and appropriate levels of electric service to its customers consistent with good utility practice. Duquesne Light's reliability and planning standards are set forth in its FERC Form No. 715 annual report.

The fundamental purpose of the Planning Criteria is to provide Duquesne Light planning engineers with a comprehensive set of planning criteria that enable them to plan for a reliable system for Duquesne Light's customers. Duquesne Light's Planning Criteria are consistent with good utility practices and with the reliability criteria and standards used by similarly situated distribution and transmission utilities. For example, the PJM and Duquesne Light Planning Criteria generally provide that the Transmission System should be designed so that:

(i) Normal operation of the system will not load any electric facility beyond its normal continuous rating.

(ii) The loss of any single transmission line, generating unit, power transformer, substation bus, circuit breaker, or double-circuit line due to the outage of a

single tower or pole, does not result in any system electric facility being operated beyond its applicable emergency rating.

(iii) The loss of any single facility should not result in a voltage drop of more than 5% on the transmission system.

(iv) The DLC transmission system relies on underground cables to supply the City of Pittsburgh. Underground cable outages could be long in duration and therefore, the remainder of the system should continue to operate reliably and within its normal rating limits following such events. DLC plans transmission solutions so that no loss of load occurs following an N-2 contingency supporting the City of Pittsburgh.

(v) Once a bulk power substation exceeds or is projected to exceed 100 MVA the station will require three (3) transmission sources.

Using the Planning Criteria, Duquesne Light's transmission system is planned so that it can be operated at all projected load levels and during normal scheduled outages. The system is also planned to withstand specific unscheduled contingencies without exceeding the equipment capability, causing system instability or cascade tripping, exceeding voltage tolerances, or causing large-scale, long term or frequent interruptions to customers. The planning process begins with the development of a computer model of the future system. Once the system model is complete, comprehensive power flow simulations and contingency analyses are performed to determine the ability of the system to comply with the Duquesne Light transmission planning and reliability criteria set forth in Planning Criteria. All conditions where the system is not in conformance with the Planning Criteria are identified, and system reinforcement alternatives are added to bring the system into compliance. Also identified are estimated costs and lead times to

implement the reinforcements under consideration. Computer simulations of the system with the identified reinforcement alternatives are completed to identify the best overall reinforcement that will meet the needs of the area in a reliable and economical manner. Finally, all reinforcements are reviewed with stakeholders at either PJM's Transmission Expansion Advisory Committee ("TEAC") or Sub-Regional Transmission Expansion Plan ("SRRTEP") meetings.

3.0 Existing System

Duquesne Light's existing Universal 138-23 kV Substation is located in Penn Hills, Allegheny County. The Universal Substation is a large substation that has a maximum historical peak load of approximately 124 megavolt amperes ("MVA") and provides power to customers in the eastern Allegheny County, including the suburbs of Braddock Hill Borough Churchill Borough, Edgewood Borough, Forest Hills Borough, Penn Hills Borough, Penn Hills Township, Monroeville Borough, Pitcairn Borough, City of Pittsburgh, Swissvale Borough, Wilkins Township, and Wilkinsburg Borough. The Universal Substation supplies electricity to multiple critical customers, including two hospitals and a water pumping plant.

The Universal Substation currently has three 138-23 kV transformers, but only two transmission sources: the Logans Ferry-Universal 138 kV Transmission Line and the Universal-USS Illinois 138 kV Transmission Line. The Logans Ferry-Universal 138 kV Transmission Line extends approximately 6.52 miles between the Logans Ferry Substation located in Plum Borough and the Universal Substation. The Universal-USS Illinois 138 kV Transmission Line extends approximately 6.98 miles between the USS Illinois Substation located in the City of Duquesne and the Universal Substation.

The Plum 138-23 kV Substation was installed in 1978 and is located in Plum Borough, Allegheny County. It presently is supplied by single source of supply, the Cheswick-Plum 138 kV Transmission Line. The Cheswick-Plum 138 kV Transmission Line is a radial line that extends approximately 7.5 miles between the Cheswick Substation in Springdale Borough, and the Plum Substation in Plum Borough. The Plum Substation has an operating rating of 35.9 MVA, but periodically experiences loads in excess of that rating, and in 2013 experienced an all-time peak load of 46.2 MVA.

Maps of Duquesne Light's existing and proposed transmission facilities are included as CONFIDENTIAL Attachment 4 to the Siting Application. One line diagrams of Duquesne Light's existing and proposed transmission facilities are included as CONFIDENTIAL Attachment 5a and 5b, respectively, to the Siting Application.

4.0 Definition of the Problem

Load Growth

The eastern portion of the Company's service territory has been experiencing significant load growth in recent years. This trend is more acute in the area served by the Plum Substation (primarily in Plum Borough), periodically experiences load in excess of its operating rating of 35.9 MVA.

Lack of Transmission Sources

As discussed above, the Plum Substation is supplied by only one transmission source and the Universal Substation is supplied by only two transmission sources. This limits the ability of system operators to transfer load during unplanned (and planned) outages of the transmission lines interconnected with these substations, which can lead to longer and more frequent outages for customers served by each of these substations.

The Plum Substation requires an additional transmission source to relieve potential constraints on the surrounding distribution system. Currently, the load served by the Plum Substation could be transferred to another substation in the event of an outage on the Cheswick-Plum 138 kV Transmission Line. However, the ability to transfer the load served by the Plum Substation to other distribution substations in the area is limited during times of system peak load or during unusual operating conditions. Under such conditions, the 23 kV sub-transmission and 23 kV distribution circuits would become heavily loaded and near the emergency rating of the conductors.

The Universal Substation requires an additional transmission source to come into compliance with the Planning Criteria. The Planning Criteria provide that a substation with peak load over 100 MVA should have three transmission line sources. As explained above, the Universal Substation has a maximum historical peak load of 124 MVA, but currently has only two transmission sources and, therefore, is currently in violation of the Planning Criteria. Additionally, the two-source configuration at the Universal Substation creates a significant risk of losing the load served by the Universal Substation, such as, during periods when one of the transmission sources are out of service for planned maintenance. If one of the two sources of

supply is out of service, the customer load served by the Universal Substation could be interrupted for an extended period of time until repairs could be made if the other source of supply is lost due to potential system faults.

Service Interruptions

On September 4, 2003, the Cheswick-Universal 138 kV Transmission Line was out of service for scheduled maintenance work. Concurrently, an equipment failure caused an outage to the remaining transmission source to the Universal Substation. This event resulted in the loss of the entire Universal Substation, which interrupted electrical service to all customers served from the substation (approximately 29,500 customers in the Penn Hills area) until repairs could be made. If a similar outage were to occur during the maximum historical peak load conditions, approximately 37,600 customers would be without power until repairs could be made.

5.0 Proposed Solution

The Company proposes to address the issues illustrated above by constructing the new Universal-Plum 138 kV Transmission Line to interconnect the Plum and Universal Substations. Maps of Duquesne Light's existing and proposed transmission facilities are included as CONFIDENTIAL Attachment 4 to the Siting Application. One line diagrams of Duquesne Light's existing and proposed transmission facilities are included as CONFIDENTIAL Attachment 5a and 5b, respectively, to the Siting Application.

The proposed Project will bring the Universal and Plum Substations into compliance with the Duquesne Light Planning Criteria. The proposed Project will provide a third source of supply to

the Universal Substation, which will reduce the number of customers affected by an outage to both of the current two sources of supply to the Universal Substation, as well as the duration of the outage. The proposed Project will also provide a second source of supply to the Plum Substation, which will reduce the operational impact of an outage of the current single transmission source of supply to the Plum Substation.

The proposed Project was reviewed by PJM stakeholders and included in PJM's RTEP as project TOI340.2.

Attachment 3

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Environmental Assessment and Line Route Siting Study

Duquesne Light Company
Universal-Plum 138 kV Transmission Line
Allegheny County, Pennsylvania

GAI Project Number: C120473.23, Task 005
February 2018

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

Prepared for: Duquesne Light Company
2825 New Beaver Avenue
Pittsburgh, Pennsylvania 15233

Environmental Assessment and Line Route Siting Study

Duquesne Light Company
Universal-Plum 138 kV Transmission Line
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Aimee Kay
Environmental Manager

Table of Contents

1.0 Introduction

1.1 Project Overview

Duquesne Light Company (Duquesne Light or the Company Duquesne Light) proposes to construct a new single-circuit 138 kilovolt (kV) transmission line located in Plum Borough and the Municipalities of Penn Hills and Monroeville, Allegheny County, Pennsylvania (PA). The Universal-Plum 138 kV Transmission Line (Project) will connect the existing Universal Substation in the Municipality of Penn Hills (Penn Hills) and the existing Plum Substation in Plum Borough, approximately five miles to the east. The Project is designed with a typical right-of-way (ROW) of 125 feet wide, and minimum ROW of 100 feet wide, centered on the transmission line. In order to accommodate the new Universal-Plum 138 kV Transmission Line, the proposed Project also involves relocating an approximately half-mile portion of the existing Cheswick-Plum 138 kV Transmission Line. The need for the proposed Project is further explained in Attachment 2 to the application filed with the PA Public Utility Commission (PAPUC or Commission).

1.2 Project Timeline and Overview of Regulatory Approvals

Duquesne Light initiated the transmission line siting process in 2008. Initial potential routes were developed, one of which crossed a county park. The Project was put on hold while negotiations were taking place between the county park and Duquesne Light. Once the route through the county park was refined, the siting study resumed in 2015. A public workshop was held on October 20, 2016, to present the three viable alternative routes to the public and encourage public comments. Based on this siting study a Preferred Route was selected. Minor

adjustments were then made to the Preferred Route in collaboration with property owners requests. Construction of the Project is scheduled to begin in January 2019 with an in service date of December 2019.

The PAPUC has jurisdiction over high voltage electric transmission lines and must approve the siting of the proposed Project (52 Pa. code Chapter 57). Regulatory requirements pertaining to the selection of a route for a new high voltage transmission line were incorporated into the study. Chapter 57, Subchapter G contains the PAPUC requirements for documenting the siting and environmental studies which must be conducted to determine potential Project impacts. This Environmental Assessment and Line Route Siting Study is being provided in compliance with section 57.72 (c) (7 through 10) of the PAPUC regulations. Specifically, this report includes a description of the corridor planning and selection methodology, and discusses the reasonable alternatives that were investigated for the selection of the preferred route required by the PAPUC regulations.

1.3 Goal of the Siting Study

The goal of the siting study was to select a 125-foot-wide preferred route between the Universal Substation and the Plum Substation. Furthermore, the goal was to establish alternative routes for evaluation that are environmentally sound, feasible from an engineering and economic perspective, and compliant with applicable regulations. Environmental soundness includes minimizing environmental impacts while maximizing siting opportunities (ex. paralleling an existing right-of-way). Engineering and economic feasibility includes minimizing engineering constraints, cost, and distance of the route. The analysis also sought to

minimize the alternative route overlap to adhere to the PAPUC regulations (52 PA Code 57.1) that define an alternative route as "*a reasonable right-of-way which includes not more than 25 percent of the right-of-way of the applicant's proposed route.*"

To meet the goal of the siting study, the Project study area was examined for constraints and opportunities in order to develop alternative routes, analyze impacts associated with the alternative routes, and select a preferred alternative. The Preferred Route is the route that, when considering all the constraints and opportunities, best minimized the overall impacts of the Project. This report describes the alternative route identification, analysis, and selection process for the proposed Project.

2.0 Route Development and Siting Process

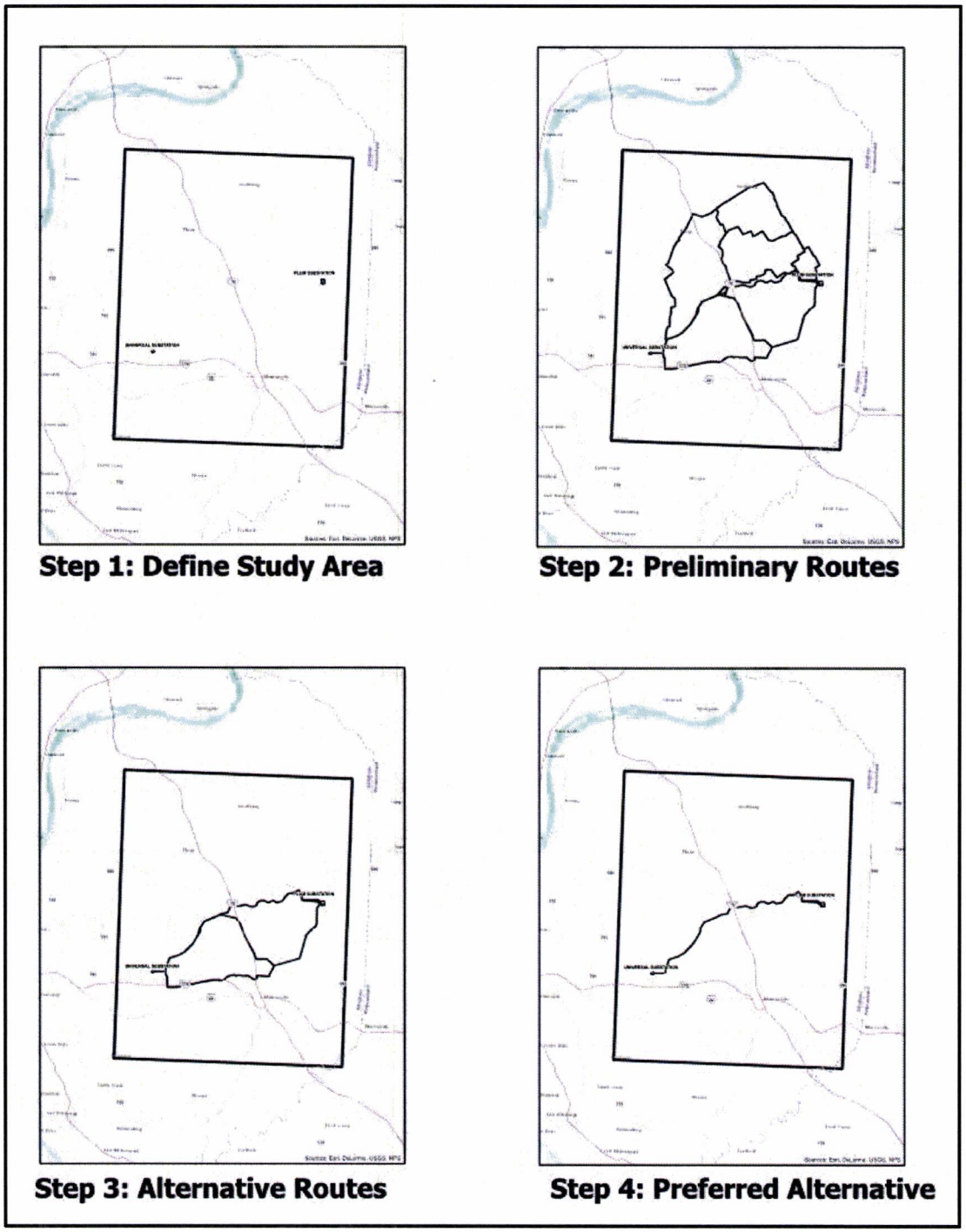
2.1 Route Development Process Summary/Methodology

The initial step in route development is to define a Study Area which includes the Project end points (the existing Universal Substation and the existing Plum Substation) and a large enough area to develop alternative routes. The next step is to utilize publically available data to identify large area constrains (e.g., parks, urban areas) and opportunities (e.g., existing ROWs). The routing team then identifies, at a high level, possible alignments within the study area to develop the Preliminary Routes. The routing team then collects information to review the Preliminary Routes for viability, and modifies or eliminates Preliminary Routes until only the most suitable routes remain. These suitable routes are then compared as the Alternative Routes. The potential impacts of the Alternative Routes to land use, environmental and cultural resources, and engineering concerns are then evaluated and compared among the

Alternative Routes. The Alternative Route that, on balance, best avoids or minimizes overall impacts to environmental and human/built resources and minimizes unreasonable design criteria and cost is then selected as the Preferred Alternative. The routing steps are illustrated in Figure 1.

Figure 1

Routing Steps



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2.2 Data Collection

2.2.1 Geographic Information System Data Collection

The route development and siting process relies heavily on publically available Geographic Information System (GIS) data from federal state and local government agencies. GIS information is an effective way to develop and inventory environmental information and characterize landscape level constraints and opportunities that can then be used to evaluate and compare the routes. A list of the GIS sources used in the route development and siting process is provided in the table below.

Table 2.2-1

GIS Data Sources

Category	Data Source
Aerial Imagery	
Aerial Imagery	Imagery was utilized from the following sources ESRI World Imagery, NAIP, 2015, Accessed 04/2017 and Google Earth.
Hydrology	
Rivers and Lakes	The National Hydrography Dataset (NHD) is a comprehensive set of digital spatial data prepared by the United States Geological Survey (USGS) and United States Environmental Protection Agency that contains information about surface water features such as lakes, ponds, streams, and rivers.
Water Quality Designations	CH 93 Designated Use, PA Department of Environmental Protection, Penn State Institutes Of The Environment, Research Triangle Institute, 2016. This information was used to evaluate exceptional value and high quality streams.
Wetlands	National Wetland Inventory (NWI), United States Fish and Wildlife Service (USFWS), 2016. The NWI produces information on the characteristics, and

	extent of the Nation's wetlands and deep-water habitats, this information is used to review general wetland distributions.
100 Year floodplain	Data was obtained from National Flood Hazard Layer, Federal Emergency Management Agency, PA, 2016.
Conservation and Recreational Lands	
Recreational Areas	Data was digitized from ESRI Aerial Imagery and Google Earth Imagery.
State Parks, Forests, and Game Lands	Data for State parks and state forests were obtained from PA Department of Conservation and Natural Resources (PADCNR) (2015) and data for state game land was obtained from PA Game Commission (PGC) (2013).
Hiking and Biking Trails	Data was obtained from, Explore PA Trails, PADCNR, (2016).
Easements	Data was obtained from National Conservation Easement Database, United States Department of Agriculture/Natural Resource Conservation Service, 2015.

Table 2.2-1 (Continued)

Category	Data Source
Conservation and Recreational Lands (Continued)	
Land Trust Protected Areas	Data was obtained from Allegheny County GIS Department, 2010.
Human Environment	
Institutional structures	Hospitals, Schools, and Churches, were obtained from ESRI & Tomtom, Obtained Through ESRI ARCGIS Online, Accessed 2016. County Public Building And Library were obtained from, Allegheny County GIS Department, 2002. Nursing Homes were obtained from PA Department Of Health (2016).
Residential and commercial Buildings	Data was digitized from aerial imagery and field observations.
Parcel Boundaries and Ownership	Obtained from Allegheny County Parcel Data, Allegheny County GIS Department, 2016.
Cemeteries	Data was digitized from aerial imagery and field observations.
Airfields and Heliports	Digitized from Sky Vector Aeronautical Chart (2016).
Transportation	Obtained from World Transportation, ESRI, Delorme, Here, Mapmyindia, Tomtom, © Openstreetmap Contributors, And The GIS User Community, Obtained Through ESRI ARC GIS Online, Accessed 04/2017.
Existing Transmission Lines and Substations	Existing Transmission Line and Substation information provided by Duquesne Light and digitized based on aerial imagery.
Cultural Resources	
Architectural, Historical, and Archeological Sites and Districts	Obtained from the Cultural Resources Geographic Information System map-based inventory of the historic and archaeological sites and surveys stored in the files of the PA State Historic Preservation Office, (2016).
Land Use	
Land Use and Cover	Data was digitized from aerial imagery and field observations

Sensitive Species	
Rare, Threatened, and Endangered Habitat	Digitized From The PA Natural Heritage Program, Conservation Explorer Web Map, Accessed 2016.
Rare, Threatened, and Endangered Habitat	Digitized From The PA Natural Heritage Program, Conservation Explorer Web Map, Accessed 2016.
Geology	
Steep slope	Steep slope was calculated in GIS using Digital Elevation Modeling downloaded from PA State Data Access 2016
Landslide Prone area	Obtained from Allegheny County GIS Department, 2016.

2.2.2 Field Reviews

In 2009, routing team members conducted a general field reconnaissance throughout the Study Area to familiarize themselves with the Study Area and identify major constraints. Routing team members conducted field reconnaissance again in 2015 and 2016 to update data available for resources in the vicinity of each of the Alternative Routes. The field reconnaissance was limited to publicly accessible areas such as road crossings and public lands. Once the Preferred Route was selected, a detailed field review was conducted in 2016 and 2017 and included stream and wetland delineation, cultural resources study, constructability review, rare threatened and endangered species review, and coordination with property owners.

2.2.3 Federal, State and Local Government Coordination

The routing team contacted various federal, state, and local agencies to inform them of the Project and requested information to be used during the route development and

siting process.

The PA Historical and Museum Commission (PHMC) (also referred to as the PA State Historic Preservation Office (SHPO)) was contacted in June 2009, and asked to review the preliminary routes for impacts to known historic and/or archeological resources. PHMC responded that the potential routes had the potential to impact archaeological and historical resources and requested a Phase 1 archaeological survey and preliminary review of historic buildings, structures, and districts before the project was finalized. Additionally, routing team members accessed the Cultural Resources GIS on the PHMC website to review recorded archaeological and historical resources in the Study Area.

The Online PA Natural Diversity Index (PNDI) Project Environmental Review tool was used to contact the USFWS, PADCNR, PGC, and PA Fish and Boat Commission (PFBC) for potential impacts to RTE species. PNDIs of the study area were run in 2009. No impact to federally- or state-listed species were anticipated in the Project area. The Online PNDI Map Explorer was examined again in 2016 to verify that impacts to RTE species would still be avoided, and an Online PNDI review was submitted for the Preferred Route. The Preferred Route resulted in no impacts to known federal or state listed RTE species.

Duquesne Light coordinated with Boyce Park county officials to avoid visual impacts in the park. The proposed overhead transmission line was changed to underground to eliminate visual impacts in the park.

Meetings and coordination with local municipalities were conducted by Duquesne Light during the route siting process.

2.3 Siting Guidelines

The siting guidelines were developed based upon the Commission regulations, public input, the resource agency permitting requirements, engineering requirements and economic feasibility. The siting guidelines include both siting opportunities and siting constraints. Siting opportunities are locations representing land use and environmental resources which are compatible with the safe, economical, and reliable construction and operation of a 138 kV transmission line. Constraint areas represent locations where a 138 kV transmission line might have a potential adverse impact on sensitive resources or locations where conditions might affect reliable and safe operation or economical construction of the line. The siting guidelines are presented in Table 2.3-1. The siting guidelines are reflected in the resource criteria used to compare alternative routes, which are described in more detail in Section 4.

Table 2.3-1

Siting Opportunities and Constraints

Siting Opportunities	Siting Constraints
• Parallels existing electric transmission line ROW • Parallel pipeline ROW • Parallel railroad ROW • Open, uninhibited privately owned terrain, including farmland • Short, direct routes	• High density population areas, including commercial, residential, and institutional areas • Recreational lands including: State Parks, Local recreational Areas, and Hiking and Biking Trails • Conservation Areas including: State Forest, State Game Land, National Natural Landmarks, Designated Natural

	Areas, Wilderness Areas, Core Rare, Threatened, and Endangered (RTE) Habitats, Land Trust Protected Areas, and Unique Geological Resources • Sensitive Natural Areas including: Designated Scenic Areas, National Wild and Scenic Rivers, Exceptional Value Stream, State Scenic Rivers, Streams, and Wetlands • Cultural Resources including: Historic Sites, Cemeteries, and Archaeological Sites • Engineering constraints including: highway, railroad and road crossings, steep terrain, and landslide-prone areas • Airports • Forest land

+

2.4 Public Involvement in Siting Process

Two public workshops were conducted in 2009. An advertisement was run in the Tribune Review and letters were mailed to the property owners that could be affected by the routes and to local government officials of communities where the Project is located. The public workshops were held on September 14 and 17, 2009, and received a total of 25 attendees. Ten comments were received from the 2009 public workshops. Most comments were in regards to alignment changes to minimize the impact to those individual's property. In 2016, a public workshop was advertised in the Tribune Review on October 13 and October 20 of 2016. The advertisement also provided an email and mailing address and encouraged comments and questions from those unable to attend the workshop. The public workshop was held on October 20, and received 16 attendees. Attendees were encouraged to fill out comment cards; one comment card was received at the workshop with concerns for the effect of the

transmission line on the resale value of their home and health effects.

Furthermore, during the siting process Duquesne Light has worked with individual property owners to accommodate the property owners' requests to the extent practical.

3.0 Alternative Route Identification

3.1 Project Study Area Description

The initial step in the route development process involved the identification of a study area boundary. This was established to include the existing substations, existing Duquesne Light transmission line corridors to allow for opportunities to parallel existing ROWs, and the intervening areas. The northern and southern limits of this area were defined to avoid the Allegheny River valley to the north and dense urban areas of Monroeville on the south. This study area, as shown on Figure 2, incorporates an approximately 38.4-square-mile area in Allegheny County, PA.

3.2 Constraints and Opportunities

Resource Evaluation Criteria were developed in order to compare the suitability of the alternative routes. These criteria consist of 30 resource categories. The resource categories were chosen based on federal and state requirements, their sensitivity to impact by electric transmission lines, and sources of data available.

The resource categories were evaluated at multiple distances from the alternative route centerlines depending on the level of sensitivity. Evaluations include the proposed alternative ROW; the area adjacent to the proposed ROW (including sensitive resources that are in view);

and a four-mile-wide corridor including the area two miles on either side of the centerline of each ROW. The four-mile corridor was used to evaluate potential impacts on archaeological and historic resources, scenic areas, unique geologic areas, wilderness areas and airports. GAI examined 30 environmental and human/built resource criteria to determine impacts for the three alternatives. The 30 resource criteria were based on PAPUC regulations as well as traditional environmental impact assessment criteria. The 30 resource criteria used in the evaluation to select the preferred alternative are briefly described as follows:

- **State Forests**. These areas are multiple-use lands owned and maintained by the PADCNR.
- **State Parks**. These areas offer recreational opportunities and are protected by the PADCNR.
- **State Game Lands**. These areas are set aside for public hunting and game propagation and are protected by the PGC.
- **Other Recreational Areas**. These areas include county and local parks, as well as golf courses, playgrounds, and athletic field that were not associated with a school or other institutional complex that could be identified from Google Earth, USGS maps, and aerial photography.
- **National Natural Landmarks**. These areas are listed on the National Registry of Natural Landmarks maintained by the National Park Service and represent outstanding natural areas or geologic features.
- **Designated Natural Areas/Wilderness Areas**. Designated Natural Areas are

areas recognized for their special natural features and are identified and/or protected by the PADCNR or by non-profit conservation organizations. Wilderness areas are federal lands protected by the Wilderness Act.

- **Core RTE Habitat.** These areas, identified by the PADCNR, are most closely associated with the habitat of a species of concern. These areas can support little disturbance without adversely affecting the habitat of the species of concern. Species of concern include those species listed as endangered, threatened, candidate, and extirpated.
- **Land Trust Protected.** These areas are set aside for conservation and protected by a conservation easement.
- **Unique Geologic Resources**. These features offer outstanding scenic, educational, or scientific resources and are identified in several publications of the PADCNR and by the PA Natural Heritage Inventory.
- **Historic Sites**. These sites include previously recorded National Register of Historic Places (NRHP)-listed, eligible, and unevaluated architectural resources identified through review of the PA State Historic Preservation Office's online cultural resources GIS system.
- **Cemeteries.** These were identified from Google Earth and aerial photography.
- **Designated Scenic Areas**. Although not necessarily protected, these areas have scenic and natural significance, and are listed in a variety of publications. Some areas are located in state parks.

- **National Wild and Scenic Rivers/Exceptional Value Stream.** National Wild and Scenic Rivers have received national recognition as components of the National Wild and Scenic Rivers System for their recreational and scenic value. Exceptional Value Streams have elevated water quality protection criteria due to the excellent water quality found within them. These streams have additional permitting or construction conditions for activities conducted in these locations.
- **State Scenic Rivers**. These streams are components of the PA Scenic Rivers Program administered by the PADCNR.
- **Exceptional Value Streams**. These streams have elevated water quality protection criteria due to the excellent water quality found within them. These streams typically have additional permitting or construction conditions for activities conducted in these locations.
- **Hiking and Biking Trails**. Includes trails officially recognized by federal, state, or local government agencies, or recognized in published guidebooks. Although these are linear resources that can easily be spanned by the transmission line, they also have scenic value.
- **Airports**. Electric transmission lines can potentially present physical obstructions; the safety zone depends upon terrain and runway configuration. The Federal Aviation Administration protects airports.
- **Steep Terrain**. These areas were identified from USGS topographic mapping. Steep terrain was defined as slopes greater than 20 percent.

- **Landslide-Prone Areas.** As designated by the Allegheny County Planning Department based on slope stability, slope steepness and sources of water.
- **Streams**. Only crossings of perennial streams were used in the evaluation. Perennial streams were identified from USGS National Hydrography Dataset.
- **Archaeological Sites**. These areas include previously recorded archaeological sites identified in the CR-GIS database maintained by the PA SHPO.
- **Commercial/Industrial Areas**. These areas are defined by industrial or commercial development, and were identified from aerial photography.
- **Residential Areas**. These areas are characterized by suburban and scattered residential development and were identified from aerial photography.
    - Houses (within 100 feet of Alternative Centerlines)
    - Apartments (within 100 feet of Alternative Centerlines)
- **Highway, Railroad, and Road Crossings**. These were identified from highway mapping and aerial photography.
- **Institutional Complexes**. These areas include schools, churches, nursing homes, municipal building, hospitals, or other places of public gathering.
- **Agricultural Land.** This represents areas that are actively being used for agriculture. Agricultural Land was identified from aerial photography.

- **Forested Land Cleared**. This represents areas that are presently tree covered that will be cleared for construction and maintained as rangeland. Forest land includes plant and wildlife habitat that is valuable for food and cover, and is a habitat type that is generally declining in the study area. Forested land was identified form aerial photography.
- **Wetland Impacts**. Wetlands are vital components of the ecosystem. This parameter assesses forested wetland areas that would be cleared for construction and maintained as emergent wetland.
- **Non-Existing ROW**. These include all undisturbed land required for transmission line construction and operation that does not follow or parallel an existing electrical transmission line ROW.
- **ROW length**. This includes the total length of the ROW in which the transmission line would be constructed.

Figure 3 and Figure 4 identify the approximate 38.4-square-mile study area and the three alternatives with nearby resources on aerial photography and topographic background, respectively.

Depending on the sensitivity of the resource and PAPUC requirements, varying distances from the alternative centerline were used to calculate impacts. All resource impacts were calculated within the 125-foot-wide ROW. However, State Forests, State Parks, State Game Lands, National Natural Landmarks, Designated Natural/Wilderness Areas, Unique Geological Resources, Historic Sites, Designated Scenic Areas, Hiking and Biking Trails, Airports, and

Archaeological Sites impacts were also calculated within a two-mile buffer from the alternative centerline. Additionally, Other Recreational Areas impacts were calculated within 2,000 feet from the alternative centerlines, Institutional Complexes were calculated within 500 feet of the alternative centerlines, and Houses and Apartments were calculated within 100 feet of the alternative centerlines. The potential impacts to resource criteria for each alternative are summarized in Appendix A.

The 30 resources were quantified by the following parameters: linear distance adjacent (miles), number within a specified distance, acres impacted within the ROW, and linear distance within two miles for the Airport impact calculation.

Following data acquisition, it was found that 11 of the criteria to be used for comparing the alternatives did not occur on or in proximity to any of the alternatives. These 11 criteria were:

- State forests;
- State parks;
- State game lands;
- National natural landmarks;
- Designated natural/wilderness areas;
- Cemeteries;
- Unique geologic sites;
- Designated scenic areas;
- NWI Wetlands;

- National wild and scenic rivers/state scenic rivers; and
- Hiking and biking trails.

3.3 Alternative Route Development

Duquesne Light retained GAI Consultants, Inc. (GAI) to prepare this Environmental Assessment and Line Routing Study to identify and evaluate feasible alternative transmission line routes. GAI assembled a team consisting of land use planners, environmental specialists, design engineers, geologists, historians and archaeologists to prepare this environmental assessment and line alternative study.

Following establishment of the study area, GAI utilized recent aerial photography (2015), USGS topographic mapping, agency coordination, and published data to compile a GIS-based constraints map of the study area. This map identified sensitive natural and human/built resources in the study area. GAI used this information to develop preliminary transmission line routes for further analysis to avoid major constraints to the extent feasible.

Field reconnaissance was conducted to update data available for resources in the vicinity of each of the preliminary routes. Route locations were then deleted, or refined as necessary based upon environmental and human/built constraints. Three routes that minimize impacts to environmental and human/built constraints were retained for further analysis.

3.4 Alternative Routes

3.4.1 Alternative Route 1

Alternative 1 is the southernmost route connecting the Universal and Plum Substations and includes the relocation of a portion of the existing Cheswick-Plum Z-54 Line to accommodate the route. This 5.65-mile-long alternative begins at the Universal Substation, extends eastward paralleling Duquesne Light's existing Z-52 and Z-78 Lines for a short distance, turns south at milepost (MP) 0.26 and follows Duquesne Light's existing Z-50 Line, crossing Interstate 376 (I-376). At MP 0.65, Alternative 1 turns to the east, leaving Duquesne Light's Z-50 Line, and travels parallel to the south of I-376. This alternative then crosses I-376 at MP 2.05 and continues through a commercial section of Monroeville. Alternative 1 then crosses the PA Turnpike at MP 2.85 and travels northeast through predominantly wooded areas with a few small residential areas before entering the Plum Substation. The estimated cost to implement Alternative 1 is approximately $21.1 million.

3.4.2 Alternative Route 2

Alternative 2 is a 6.41-mile-long route. Alternative 2 begins at the Universal Substation, proceeding eastward as it parallels Duquesne Light's existing Z-52 and Z-78 Lines until crossing over/under Duquesne Light's existing Z-50 Line at MP 0.26 where the route turns to the north and parallels Duquesne Light's Z-50 Line until MP 0.42. From here, Alternative 2 turns to the northeast and continues through a large barren area until MP 1.59 where the route continues travelling northeast through

wooded areas, then turning to the southeast and crossing the PA Turnpike at MP 2.78. Alternative 2 continues to parallel the PA Turnpike to the south until MP 3.84 where the route turns to the east by the Community College of Allegheny County (CCAC) Boyce Campus. This alternative then travels a short distance southeast until joining Alternative 1's alignment at MP 4.34 travelling through mostly forested land with some residential areas before entering Plum Substation. The estimated cost to implement Alternative 2 is approximately $23.5 million.

3.4.3 Alternative Route 3 (Preferred Route)

Alternative 3 is a 5.26-mile-long route. Alternative 3 begins at Universal Substation and follows the same route as Alternative 2 through the large barren area and wooded areas until MP 2.31 where Alternative 2 turns to the southeast and Alternative 3 continues to the north/northeast through a wooded area. Alternative 3 then turns to the east within the wooded area and travels through a small commercial area before crossing the PA Turnpike at MP 2.72. Alternative 3 continues travelling east through mostly forest land and enters William D. Boyce Park (Boyce Park) at MP 3.23. This alternative proceeds eastward through the northern portion of Boyce Park until MP 4.51. From here, Alternative 3 crosses New Texas Road and parallels Duquesne Light's existing Cheswick-Plum Z-54 Line before reaching Plum Substation. The estimated cost to implement Alternative 3 is approximately $26.2 million.

4.0 Alternative Route Comparison

To quantitatively analyze the three routes, the resource categories were converted to a relative scale, weighted and combined to produce a final impact score of each route.

In order to put resource measurements on a relative scale (acres, number, feet) and to obtain an impact score that could be compared across the different alternatives, the data were mathematically proportioned to a scale of 1 to 10. In this procedure, the alternative with the highest value (worst) for individual resources receives a relative score of 10; that with the lowest value (best) receives a relative score of 1. (Note: If all three alternatives have an impact value of zero for a specific resource criterion, then the weighted value is equal to zero). Thus, the raw data values are transformed to a relative scale from 1 to 10 to obtain Relative Scores for each Resource Evaluation Criterion impacted. Using the relative position of the alternative in comparison to the values for all alternatives provided an indication of how the alternative compares overall. This process is based on a methodology suggested by Gaige, et al. (1991).

In order to determine the most suitable alternative, the relative scores for each criterion for each alternative need to be totaled. Criteria weights established by the Siting Criteria Council (SCC) were used. The SCC was created for the GPU-DQE 500 kV Transmission Line siting that included over 500 miles of line and a study area of 20,000 square miles. The SCC consisted of individuals representing diverse backgrounds and interests. The SCC included professors of ecology and history, city, county and regional planners, a school superintendent,

a member of the League of Women Voters, farmers, a business woman, a health professional, a conservation organization member, and an employee of a business association.

The purpose of the SCC was to aid in the selection of the natural and manmade resource criteria that would be used to evaluate impacts along alternative routes. In addition, the SCC was asked to weigh these resource criteria. The SCC was given an overview of the siting and route evaluation process. Then, the SCC assisted in the selection and definition of Resource Evaluation Criteria. Finally, the SCC assigned weights to the Resource Evaluation Criteria, using a nominal group technique that encourages contributions from all members. The weighting session consisted of four interactive rounds of discussion and weighting. Each member was asked to weigh each Resource Evaluation Criteria. After each round of weighting, each SCC member was given a weighting summary sheet that displayed their last vote and the mean for all the votes for each Resource Evaluation Criteria. Each member was given the opportunity during each round of voting to express their views on the weighting scores in an attempt to influence the next round of voting. The results of the SCC's fourth round of weighting are included in the Table 4.0. At the conclusion of round four the SCC was satisfied with the results and voted to adopt the mean weights for each of the Resource Evaluation Criteria when routing decisions needed to be made and choices had to be made as to which resources were to be impacted. The weights established by the SCC are considered an industry standard.

SCC weights were used for 22 of the 30 resource criteria. GAI further augmented these with an additional 8 resource criteria (Land Trust Protected Area, Cemeteries, Exceptional Value

Streams, Landslide Prone Area, Commercial/Industrial Areas, Forest Land Cleared, Non-existing ROW, and Length of ROW) to reflect items of local significance and current regulatory concerns. Weights for these eight resources were assigned by a group of environmental, planning and engineering professionals at GAI that have extensive experience siting and evaluating the impacts of projects in similar areas. The weights were determined by considering the relative importance of these resources and the weights assigned to related resources by the SCC. The weights used for the evaluation of the alternatives are shown in Table 4.0.

The relative scores achieved by each alternative for each criterion were then multiplied by the criteria weights to obtain the impact scores shown in Appendix A. The impact scores were totaled to obtain an overall impact score for each alternative.

Table 4.0

Resource Evaluation Criteria and Weights Assigned

Resource Evaluation Criteria	Weights
Apartments within 100 feet of centerline	88.8
Institutional Complexes	83.1
National Natural Landmarks	78
Houses within 100 feet of centerline	76.9
Commercial/Industrial Areas	76.9
Historic Sites	76.8
Cemeteries	76.8
Designated Natural/Wilderness Areas	73.2
Scenic Rivers Crossed	72
Core RTE habitat acres	71.9
Land Trust Protected acres	71.9
Designated Scenic Areas	71.3
State Parks	69.2
Other Recreational Areas	67.3

Wetland Cleared	66.2
Unique Geological Resources	59.2
EV streams Crossed	58
Archaeological Sites	54
Landslide-Prone Areas	53.7
Airports	52.5
Agricultural Land	44
State Forests	43.4
Perennial Streams	43
Hiking and Bike Trails	42.8
Steep Terrain	40.9
State Game Lands	33.4
Forest Land Cleared	33
Highway, Railroad and Road Crossings	33.1
Non-existing ROW	31.1
ROW length	28.8

4.1 Land Uses

Current land use described in this section is within and adjacent to the alternatives, as well as the changes to land uses which will occur as a result of construction of any of the three alternatives for the transmission line. Impacts have been considered within the proposed ROW and for urban development within 100 feet of the ROW centerline. Land use/cover types within and adjacent to the ROWs of each of the Alternatives were classified according to criteria developed in A Land Use and Land Cover Classification System for Use with Remote Sensor Data (Anderson, et al., 1976).

A GIS-based Anderson Level II evaluation was conducted for each of the Alternatives. Table 4.1.1 presents a description of land use classifications used in this analysis. Present land use patterns were identified from recent aerial photography (2015) and from field reconnaissance.

Lands to be affected by the Project were determined based on aerial photographs, field visits, and augmented data from USGS maps for stream, pond, road and utility crossings.

Table 4.1-1

Land Use Classifications

Classification	Description
Residential	Areas dominated by single or multi-family housing units.
Commercial/Industrial	Includes human-dominated land uses, with the exception of residential. Typically includes industrial and/or commercial areas with much of the land covered by structures, or parking lots.
Agricultural	Broadly defined as land devoted primarily to the production of food and fiber. Includes cropland, pastureland, and orchards, as well as farm associated structures.
Forest	Those areas having an aerial tree-crown density of 10 percent or more. Includes both deciduous and coniferous woodlands.
Open	Areas dominated by low vegetation such as range land or grass land.
Municipal/Institutional	Areas used by municipalities for parks, waste treatment, water/salt storage, etc.; or institutional uses such as churches, schools, hospitals, etc.
Barren	Area where plant growth may be sparse, stunted, and/or contain limited biodiversity. Environmental conditions such as toxic or infertile soil are often key factors in poor plant growth and development.

Source: Anderson, et al., 1976.

A GIS database was established using the land use classifications presented in Table 4.1, as well as additional criteria for other resource categories. The database was used to evaluate the three alternatives and includes all of the environmental resources studied to select the Preferred Alternative. For purposes of this study, "new ROW" was defined to identify land that is not currently used for any type of utility ROW. "Existing ROW" denotes land that is currently used for electrical transmission ROW.

The following land use descriptions of the areas crossed by each alternative proceed from west to east, beginning at the Universal Substation and continuing to Plum Substation. Figures 3 and 4 show the alternative routes with nearby resources on aerial photography and on topographical mapping, respectively.

Alternative 1

Alternative 1 is approximately 5.65 miles long and is the southernmost route connecting the Universal and Plum Substations. From the Universal Substation, Alternative 1 extends eastward paralleling Duquesne Light's existing Z-52 138 kV transmission line to the south until MP 0.26, where the route turns to the south and parallels Duquesne Light's existing Z-50 138 kV transmission line. Along the Z-50 portion of the route crosses wooded areas and one commercial area before crossing I-376. At MP 0.65, Alternative 1 turns to the east, leaving the Line Z-50 corridor and parallels the south side of I-376, primarily through deciduous forest with some areas of herbaceous rangeland and passing a few small commercial and residential areas. The alternative then crosses I-376 at MP 2.03 and passes through a commercial section of Monroeville with small patches of deciduous forest. The route then crosses the PA Turnpike at MP 2.89 and travels northeast through a small section of herbaceous rangeland and residential land before continuing through forest, crossing the property of Forbes Road Career and Technology Center, until MP 3.81. At this point, Alternative 1 crosses the forested northern edge of the Greater Works Christian School property for approximately 0.3-mile and then crosses the forested northern corner of the University Park Elementary School property. From here, Alternative 1 continues through predominately herbaceous rangeland for just over 0.5-mile. This alternative then travels through more deciduous forest with a few small residential areas before entering the Plum Substation.

Alternative 1 consists of 5.39 miles of non-paralleling ROW. Alternative 1 has 0.1-mile of residential areas and 0.35-mile of commercial areas crossed by and/or adjacent to the proposed

ROW. This route also has 10 houses and 2 apartment complexes within 100 feet of the centerline, one of the houses is located within the ROW. Alternative 1 crosses seven different urban/commercial areas, the most as compared to the other alternatives, ranging in length from 0.02-mile to 0.30-mile. The largest urban area crossed by this route is adjacent to Old William Penn Highway in Monroeville. This route also crosses undeveloped portions of the properties of three schools: the Forbes Road Career and Technology Center (0.12-mile), the Greater Works Christian School (0.33-mile), and the University Park Elementary School (0.02-mile). No impact to the any of the three schools is anticipated because the route crosses deciduous forest near the edge of all three properties. Alternative 1 crosses two different residential areas adjacent to Old William Pen Highway and New Texas Road. The results of all the Land Use Criteria calculated are provided in Table 4.1-2.

Construction of this alternative will require converting approximately 56.65 acres of forest to rangeland. Alternative 1 will temporarily impact approximately 25.08 acres of herbaceous or scrub-shrub rangeland, which will return to its original state after construction is complete. Approximately 6.56 acres consist of barren or impervious areas used for commercial or industrial purposes, and 1.15 acres is used for municipal or institutional use, where no vegetation or wildlife is present; therefore, no impacts will occur in these areas.

Alternative 2

Alternative 2 is a 6.41-mile-long alternative. From the Universal Substation, Alternative 2 proceeds eastwards paralleling Duquesne Light's existing Z-52 Line until crossing Duquesne Light's Z-50 Line at MP 0.26, where the route turns north and parallels Duquesne Light's Z-50

Line to MP 0.46. At this point, Alternative 2 turns to the northeast and continues through a large barren area owned by the United States Steel Corporation (US Steel) until MP 1.59. This route then continues northeastward through mixed rangeland and deciduous forest until MP 2.56. From here, the alternative crosses over commercial land, then turns to the southeast and travels through a small section of forest before crossing the PA Turnpike at MP 2.79. Alternative 2 continues to parallel the PA Turnpike as the route travels south, crossing deciduous forest with small patches of rangeland until MP 3.85. At this point, the route turns to the east at the CCAC – Boyce campus and parallels the CCAC – Boyce campus property along Cooper Road until MP 4.09. Alternative 2 then travels a short distance southeast, within the property of Forbes Road Career and Technology Center, paralleling and then crossing a tributary to Thompson Run (east). At MP 4.34, Alternative 2 turns to the east and travels through forest until MP 4.52, where the route crosses the forested northern portion of the Greater Works Christian School property for approximately 0.3-mile before crossing the forested northern corner of the University Park Elementary School property. From here, Alternative 2 continues through predominately herbaceous rangeland for just over 0.5-mile and then crosses deciduous forest with a few small residential areas before entering the Plum Substation.

Alternative 2 consists of approximately 6.41 miles of non-paralleling ROW. Alternative 2 has approximately 0.08-mile of residential areas and 0.2-mile of commercial areas either crossed by or adjacent to the proposed ROW. There are five houses within 100 feet of the centerline, two of which are located within the ROW. Alternative 2 crosses commercial/industrial areas between mile markers 0.59 and 0.72, and at approximate mile marker 2.6. Residential areas are

crossed off of New Texas Road at approximate mile marker 5.8 and 5.9. This route also crosses the properties of four schools: the CCAC – Boyce (0.70-mile), the Forbes Road Career and Technology Center (0.14-mile), the Greater Works Christian School (0.33-mile), and the University Park Elementary School (0.02-mile). The route parallels the edge of all four properties. No impacts to the Forbes Road Career and Technology Center, the Greater Works Christian School, or the University Park Elementary School are anticipated because the route crosses herbaceous rangeland and/or deciduous forest along the edge of all three properties. Within the CCAC – Boyce property, the route parallels the PA turnpike travelling through mostly deciduous forest. A portion of the route crosses multiple driveways and a portion of two parking lots on the campus. The remainder of this alternative consists of an approximately 1.2-mile-long section through a barren area and smaller areas of herbaceous and/or mixed rangeland. The results of all the Land Use Criteria calculated are provided in Table 4.1-2.

Construction of this alternative will require converting approximately 56.57 acres of forest to rangeland. Alternative 2 will temporarily impact approximately 38.09 acres of herbaceous or scrub-shrub rangeland, which will return to its original state after construction is complete. Approximately 3.38 acres consist of barren or impervious areas used for commercial or industrial purposes, and 2.77 acres is used for municipal or institutional use, where no vegetation or wildlife is present; therefore, no impacts will occur in these areas. This route has approximately one-mile of its length located in a US Steel barren area.

Alternative 3

Alternative 3 is the shortest route at 5.26 miles long. From the Universal Substation, Alternative 3 proceeds eastward paralleling Duquesne Light's existing Z-52 Line until crossing Duquesne Light's Z-50 Line at MP 0.33 where, where the route turns to the north and parallels Duquesne Light's Z-50 Line to MP 0.49. From here, Alternative 3 turns to the northeast and continues through a large barren area owned by US Steel until MP 1.59 before continuing northeast through mixed rangeland and deciduous forest until MP 2.69. This route then crosses a small commercial area followed by the PA Turnpike at MP 2.78. Alternative 3 continues travelling east through deciduous forest and crosses small areas of residential and herbaceous rangeland before entering Boyce Park . Upon entering Boyce Park Alternative 3 transitions to an underground transmission line, at MP 3.25. Alternative 3 proceeds eastward through the largely undeveloped northern portion of Boyce Park. The portion of the park crossed is covered by deciduous forest, with the exception of a gravel parking lot at a soccer field, and an existing Allegheny Power transmission line, which is crossed under at MP 4.07. At MP 4.58 the route exits the park, crosses New Texas Road, and turns south to parallels Duquesne Light's existing Cheswick-Plum Z-54 Line through forested land. Alternative 3 remains as an underground transmission line until MP 4.81. Alternative 3 then transitions back to an overhead transmission line and heads east until reaching the Plum Substation.

Alternatives 3 includes 4.76 miles of non-paralleling ROW. Alternative 3 has 0.05-mile of residential areas, including three residential areas along: Carriage Boulevard (0.02-mile), Center Road (0.06-mile), and New Texas Road (0.02-mile). Three houses are within 100 feet of the centerline, none of which are located within the ROW. Alternative 3 has 0.22-mile of commercial areas crossed by and/or adjacent to the proposed ROW, one commercial/industrial

areas is crossed by Alternative 3 off Thompson Run Road (0.12-mile) and another along Davidson Road (0.09-mile). This route does not cross any school properties. The remainder of this alternative consists of an approximately 1.2-mile-long section through a barren area and smaller areas of herbaceous and/or mixed rangeland. The results of all the Land Use Criteria calculated are provided in Table 4.1-2.

Construction of this alternative will require converting approximately 41.54 acres of forest to rangeland. Alternative 3 will temporarily impact approximately 35.93 acres of herbaceous or scrub-shrub rangeland, which will return to its original state after construction is complete. Approximately 3.81 acres consist of barren or impervious areas used for commercial or industrial purposes, and 2.35 acres is used for municipal or institutional use, where no vegetation or wildlife is present; therefore, no impacts will occur in these areas. This route has approximately one-mile of its length located in a US Steel barren area.

Table 4.1-2

Land Use and Land Cover

Criteria[1]	Weight	Alternative Routes 1	2	3
Commercial/Industrial Areas				
Linear Distance Adjacent (miles)		0.35	0.2	0.22
Score[2]	**76.9**	769.0	76.9	169.2
Residential Areas				
Linear Distance Adjacent (miles)		0.10	0.08	0.05
# Houses within 100 feet of Centerline		10	5	3
Score[2]	**76.9**	769.0	274.6	76.9
# Apartment within 100 feet of Centerline		2	0	0
Score[2]	**88.8**	888.0	88.8	88.8
Cemeteries				

Criteria[1]	Weight	Alternative Routes 1	2	3
Number within 125-foot ROW		0	0	0
Score[2]	**76.8**	0	0	0
Number adjacent (2,000 feet)		0	0	1
Railroad and Highway/Road Crossings				
Score[2]	**33.1**	331.0	66.2	33.1
Number of Highway/Road Crossings		20	12	11
Number of Railroad Crossings		1	1	1
Institutional Complexes (schools, churches, hospitals, nursing homes, recreational areas)				
Number Adjacent/Crossed (125-foot ROW)		2	4	4
Score[2]	**83.1**	83.1	831.0	831.0
Number within 500 feet		9	9	6
Agricultural Land				
Active Agricultural Land Acres (125-foot ROW)		0	0	0
Score[2]	**44.0**	0	0	0

Table 4.1-2 (Continued)

Criteria[1]	Weight	Alternative Routes 1	2	3
Agricultural Easements or Agricultural Security Areas Acres (125-foot ROW)		0	0	0
Non-Paralleling ROW				
Miles Required (125-foot ROW)		5.39	6.41	4.76
Score[2]	**31.1**	138.0	311.0	31.1
Length				
Miles		5.65	6.41	5.26
Score[2]	**28.8**	116.7	288.0	28.8
Land Cover				
Forested Land in 125-foot ROW (Acres)		56.65	56.57	41.54
Score[2]	**33.0**	330.0	328.4	33.0
Range Land in 125-foot ROW (Acres)		25.08	38.09	35.93
Barren Land in 125-foot ROW (Acres)		6.56	3.38	3.38
Municipal/institutional Land in 125-foot ROW (Acres)		1.15	2.77	2.77

Notes:

1 Not all criteria that were counted or calculated in the review of the alternatives were used in the scoring process. This is because some criteria were counted using multiple parameters and should not be double counted in the scoring process. Additionally, some of the counted or calculated criteria are not considered negative constraints and should not be include in the scoring process.

2 Scores are calculated by converting the raw data found to a relative scale of 1-10 as described in Section 4.0. The value in the relative scale is then multiplied by the weight to obtain the score. The Raw data, relative scaling, and final score for each criteria scored are provided in Appendix A.

Alternative 3 is the shortest route and requires the least amount of new ROW. Alternative 3 crosses the least residential area and impacts the fewest residential structures. Also, Alternative 3 crosses the fewest roads. Additionally, Alternative 3 crosses the least amount of forested land. While Alternative 3 did not have the lowest impacts for institutional area crossed or

commercial/industrial areas crossed, its impact was only slightly higher than the lowest scoring alternative. From a land use and land cover perspective, Alternative 3 has the least impact.

4.2 Hydrology

Wetlands in the study area were identified through a review of USFWS and NWI maps. The NWI maps identify numerous palustrine wetlands in the study area. However, none of the NWI wetlands are crossed or within the ROW of any of the three alternative routes. During desktop reviews of the study area, four types of wetlands were noted near the alternatives including: palustrine open water, palustrine emergent, palustrine scrub-shrub, and palustrine forested wetlands.

The study area is located in two watersheds; the northern half of the study area drains to the Allegheny River, while the southern half is within the Monongahela River watershed. The only watercourse near the study area that is classified as navigable is the Allegheny River, which is located approximately one-mile north of the study area (PA Code 2016). Streams traversed by Alternative Routes are included in Table 4.2-1. The primary sub-watersheds in the study area are those of Turtle Creek (Monongahela watershed) and Plum Creek (Allegheny watershed). The principal named streams crossed by Project alternatives include Leak Run and its tributaries, Thompson Run (west) and its tributaries, Plum Creek and its tributaries, Little Plum Creek and its tributaries, Piersons Run and its tributaries, and tributaries to Abers Creek. A second Thompson Run (east) and its tributaries are located in the eastern portion of the study area.

Table 4.2-1

Perennial Stream Crossings

Alternative Route	Milepost starting at the Plum Substation	Stream
1	.20	Thompson Run (west)
	.52	Leak Run
	1.51	Leak Run
	1.74	Tributary to Leak Run
	2.02	Leak Run
	3.19	Tributary to Thompson Run (east)
	3.22	Tributary to Thompson Run (east)
	3.26	Tributary to Thompson Run (east)
	3.51	Thompson Run (east)
	4.25	Piersons Run
	4.91	Tributary to Piersons Run
	5.48	Tributary to Abers Creek
	5.87	Tributary to Abers Creek
	6.06	Tributary to Abers Creek
2	.20	Thompson Run (west)
	.59	Tributary to Thompson Run (west)
	1.95	Tributary to Thompson Run (west)
	2.95	Tributary to Thompson Run (west)
	4.29	Thompson Run (east)
	5.02	Piersons Run
	5.69	Tributary to Piersons Run
	6.24	Tributary to Abers Creek
	6.65	Tributary to Abers Creek
	6.84	Tributary to Abers Creek
3	.20	Thompson Run (west)
	.59	Tributary to Thompson Run (west)
	1.95	Tributary to Thompson Run (west)

	2.41	Tributary to Thompson Run (west)
	5.09	Tributary to Abers Creek
	5.41	Tributary to Abers Creek
	5.60	Tributary to Abers Creek

Source: Chapter 93 Designated Use Streams.

The PA Department of Environmental Protection classifies and establishes water quality standards and criteria for all surface waters within the state. These standards include general water use categories and corresponding water quality standards. According to these standards, Thompson Run (west), Leak Run, Little Plum Creek, Plum Creek and their tributaries are classified as warm water fisheries (WWF). Pierson's Run, Thompson Run (east), Abers Creek and their tributaries are classified as trout stocked fisheries (TSF). None of the streams crossed by the three Alternative Routes are classified as Exceptional Value (EV).

Table 4.2-2

Hydrology

Criteria	Weight	Alternative Routes 1	2	3
NWI Wetlands				
Acres (125-foot ROW)		0.00	0.00	0.00
Score[1]	**66.2**	0	0	0
Streams				
Number of Perennial Crossings		14	10	7
Score[1]	**43.0**	430.0	208.9	43.0
EV Streams Crossed (125-foot ROW)		0	0	0
Score[1]	**58.0**	0	0	0

Notes:

[1] Scores are calculated by converting the raw data found to a relative scale of 1-10 as described in Section 4.0. The value in the relative scale is then multiplied by the weight to obtain the score. The Raw data, relative scaling, and final score for each criteria scored are provided in Appendix A.

None of the Alternatives will impact NWI wetlands or exceptional value streams. Alternative 1 has the most perennial streams crossed and Alternative 3 has the least with half that of Alternative 1. From a hydrological perspective, Alternative 3 has less impact.

4.3 Scenic and Recreational Areas

The Outstanding Scenic Geologic Features of Pennsylvania, Parts 1 and 2 (Geyer and Bolles, 1979 and 1987) and USGS 1:24,000 topographic maps were used to identify scenic areas in and near the proposed Project area. Scenic areas identified in these sources represent some of the most notable scenic geologic features of the Commonwealth. No recognized scenic areas are located in the Project Area. Aerial mapping was also used to identify any notable resources.

Recreational areas include those lands managed to provide and enhance a wide variety of both active and passive recreational opportunities. These areas include state parks, county and municipal parks, public hunting and fishing areas, playgrounds, athletic fields, golf courses and reservoirs maintained by the United States Army Corps of Engineers. Recreational areas within the study area were identified using GIS data sources, municipal planning documents, property owner data, and aerial mapping. There are no federal or state parks, state forests, state game lands, designated scenic area, natural, wild and scenic/state rivers located in the vicinity

of the Project area. Additionally, there are no unique geologic resources crossed or adjacent to any of the three alternatives (Geyer and Bolles, 1979 and 1987).

There are numerous local parks within the study area. However, only a few are located in the vicinity of the alternatives. Cottonwood Park is an undeveloped property of approximately seven acres owned by the Municipality of Monroeville, it is located primarily on steep slopes just east of the Universal Substation. Greenleaf Park is an undeveloped woodland along Garden City Drive in Monroeville. Temple Sinai Park is a cemetery and surrounding woodland located off Saltsburg Road in Plum Borough. Boyce Park, approximately 1,000 acres in size, is owned and operated by Allegheny County. It is the largest park in the Project vicinity and offers numerous recreational activities, including hiking/biking trails, ski slopes, wave pool, facilities for soccer, baseball, tennis, and basketball, and many others. The unnamed local park crossed by Alternatives 1 and 2 consists of a soccer field.

Alternative 1 crosses a section of the Cottonwood Park (0.24-mile) traversing existing ROW and deciduous forest. Alternative 1 parallels Duquesne Light's Z-50 Line ROW through Cottonwood Park. Visual impacts within the park are minimized by paralleling the existing transmission line across the property. Alternative 1 is adjacent to Boyce Park for approximately 0.24-miles but does not cross it. Additionally, Alternative 1 crosses approximately 0.06 miles of an unnamed local park.

Alternative 2 crosses a section of Cottonwood Park (0.10-mile) and Greenleaf Park (0.03-mile) traversing some existing ROW and deciduous forest. Alternative 2 parallels Duquesne Light's Z-50 Line ROW these two parks. Visual impacts within these parks are minimized by

paralleling the existing transmission line across the property. Alternative 2 is adjacent to Boyce Park for approximately 0.36-miles but does not cross it. Additionally, Alternative 2 crosses approximately 0.06 miles of an unnamed local park.

Alternative 3 crosses a section of Cottonwood Park (0.10-mile) and Greenleaf Park (0.03-mile) traversing some existing ROW and deciduous forest. Alternative 3 parallels Duquesne Light's Z-50 Line ROW through these two parks and visual impacts within the park are minimized by paralleling the existing transmission line across the property. Alternative 3 crosses the edge of Temple Sinai Community Park (0.01 miles). Approximately 1.24 miles of Alternative 3 traverses the largely undeveloped northern portion of Boyce Park travelling through predominately deciduous forest. The creation of new ROW through this area would result in some visual impact to the park due to tree clearing. However, the effect of this impact is reduced by installing the transmission line underground through Boyce Park.

No additional hiking or biking trails outside of the parks were located in the vicinity of the alternatives.

Table 4.3-1

Scenic and Recreational Areas

Criteria[1]	Weight	Alternative Routes 1	2	3
State Forest				
Linear Distance Adjacent (miles)		0	0	0
Score[2]	**43.4**	0	0	0
Number within two miles		0	0	0
State Parks				
Linear Distance Adjacent (miles)		0	0	0

Criteria[1]	Weight	Alternative Routes 1	2	3
Score[2]	**69.2**	0	0	0
Number within two miles		0	0	0
State Game Lands				
Linear Distance Adjacent (miles)		0	0	0
Score[2]	**33.4**	0	0	0
Number within two miles		0	0	0

Table 4.3-1 (Continued)

Criteria[1]	Weight	Alternative Routes 1	2	3
Recreational Areas (including local parks and golf courses)				
Number Adjacent/Crossed (125-foot ROW)		3	4	4
Score[2]	**67.3**	67.3	673.0	673.0
Number within Line of Sight (2,000 feet of centerline)		8	13	9
Linear Distance Adjacent (miles)		0.65	0.55	1.38
Hiking and Biking Trails (excluding parks)				
Number Crossed (125-foot ROW)		0	0	0
Score[2]	**42.8**	0	0	0
Number of Trail Systems within two miles		0	0	0
Designated Scenic Areas				
Number Adjacent/Crossed (125-foot ROW)		0	0	0
Score[2]	**71.3**	0	0	0
Number within two miles		0	0	0
Natural Wild & Scenic/State Scenic Rivers				
# Scenic Rivers Crossed (125-foot ROW)		0	0	0
Score[2]	**72.0**	0	0	0
Unique Geological Resources				
Number Adjacent/Crossed (125-foot ROW)		0	0	0
Score[2]	**59.2**	0	0	0
Number within two miles		0	0	0

Notes:

1 Not all criteria that were counted or calculated in the review of the alternatives were used in the scoring process. This is because some criteria were counted using multiple parameters and should not be double counted in the scoring process.

2 Scores are calculated by converting the raw data found to a relative scale of 1-10 as described in Section 4.0. The value in the relative scale is then multiplied by the weight to obtain the score. The Raw data, relative scaling, and final score for each criteria scored are provided in Appendix A.

With the exception of local recreation areas the alternatives did not impact any of the criteria examined in this section. While the three alternatives cross roughly the same number of local recreational areas the length of the routes through the parks varied. Alternative 3 had a little over twice the mileage in local recreational areas, than Alternatives 1 and 2. From a scenic and recreational areas perspective, Alternative 1 would have the least impact. However, the long term impact to scenic and recreational areas by Alternative 3 will be mitigated by installing the transmission line underground through Boyce Park.

4.4 Natural Areas and Rare Threatened and Endangered Species

Natural areas fall under three general classifications: designated natural/wilderness areas, national natural landmarks, and other natural areas (land trust areas and core RTE habitat areas). No designated natural/wilderness areas designated by the Wilderness Act (16 United States Code, Section 1172) are located in the study area.

National natural landmarks have been recognized by the National Park Service as areas of outstanding biologic or geologic importance. No national natural landmarks are located in the study area (National Park Service, 2016).

Other natural areas with land trust protection include sites maintained as green space areas by governmental agencies or private organizations, these areas include all the parks mentioned in Section 4.3 with the exception of Temple Sinai Park. The Allegheny County Natural Heritage Inventory (WPC, 1994) also notes that Boyce Park provides a significant amount of open space in eastern Allegheny County.

The PA Natural Heritage Program Conservation Explorer interactive map was reviewed for potential occurrence of endangered, threatened, and rare species within the study area. The interactive map is a collection of information from USFWS, PFBC, PGC, and PADCNR. Several species under the jurisdiction of USFWS are located in the study area. The Indiana bat, northern long-eared bat, and bald eagle are shown to occur over the entire study area. A sensitive species under the PADCNR is located at the intersection of New Texas Road and Lindsey Lane; no alternatives cross this sensitive species. No RTE species under the jurisdiction of the PGC or PFBC were located in the study area.

Table 4.4-1

Criteria[1]	Weight	Alternative Routes 1	2	3
National Natural Landmarks				
Number Adjacent/Crossed (125-foot ROW)		0	0	0
Score[2]	**78.0**	0	0	0
Number within two miles		0	0	0
Designated Natural/Wilderness Areas				
Linear Distance Adjacent (miles) (within 125-foot ROW)		0	0	0
Score[2]	**73.2**	0	0	0
Number within two miles		0	0	0
Other Natural Areas				
Core RTE habitat acres (125-foot ROW)		0	0	0
Score[2]	**71.9**	0	0	0
Land Trust Protected acres (125-foot ROW)		0	0.01	19.20
Score[2]	**71.9**	71.9	72.3	719.0

Natural Areas

Notes:

1 Not all criteria that were counted or calculated in the review of the alternatives were used in the scoring process. This is because some criteria were counted using multiple parameters and should not be double counted in the scoring process.

2 Scores are calculated by converting the raw data found to a relative scale of 1-10 as described in Section 4.0. The value in the relative scale is then multiplied by the weight to obtain the score. The Raw data, relative scaling, and final score for each criteria scored are provided in Appendix A.

Alternative 3 is the only alternative with considerable potential impacts to designated natural areas. From a natural areas perspective, Alternative 1 or 2 would have less impact. However, under Alternative 3, all the land trust protected area traversed by the transmission line is located in Boyce Park, where the line is routed underground. This line design significantly mitigates Alternative 3's long term impact to designated natural areas.

4.5 Terrain and Landscape

Landscape

The study area is located in the Pittsburgh Low Plateau topographic region, which is defined by a dissected upland, formed on warped sedimentary rock. The area is typified by rolling uplands situated dissected by deeply entrenched valleys. There are no dominant topographic features within the study area. However, two prominent man-made features on the landscape are the four-lane PA Turnpike that extends north to south through the central portion of the study area and I-376 which travels east to west across the southern portion of the study area. Developments in the study area vary from dense suburban residential developments on hilltops and on benches of ridges to rural areas interspersed with agricultural lands and. A mixture of commercial and residential development is found in the southern portion of the study area, and the greatest concentration of high density commercial development in the study area occurs here. Commercial uses are often located at major road intersections throughout the study area.

Within the study area, no one terrain feature or land feature dominates the visual environment. Each land use type has an influence on the overall visual character adjacent to the alternatives.

Both terrain and vegetation can influence the extent of visual impact, while the existing land use can determine the type and number of viewers that would be affected by the proposed transmission line. For example, transmission lines located on level, open terrain (such as fields and golf courses) can be seen for longer distances than transmission lines located in hilly, wooded areas.

At the southwest terminus, the Universal Substation is situated on a hill and is visually isolated from most viewers. There are residential developments just to the south and north of the substation. All of the proposed alternatives exit the substation by paralleling an existing Duquesne Light line. At the eastern terminus, a small residential development is located to the south and a park (Larry Mills Park) to the northeast of the Plum Substation. The majority of the land surrounding Plum Substation is forest and mixed rangeland. Alternative 3 parallels an existing Duquesne Light line into Plum Substation, however, Alternatives 1 and 2 do not and may present a visual impact at the eastern terminal points for the proposed transmission line project.

For the proposed transmission line itself, the impact on the visual environment is partially related to its scale and physical design properties. The following definitions were used during the visual impact assessment:

- Minimal. Visual impact is low because the existing terrain and/or vegetation will limit the visual impact. Visual impact is also considered low when a limited number of viewers or viewpoints are involved.
- Moderate. Visual impact is moderate when the existing terrain and/or

vegetation will only partially limit the visual impact, and multiple viewers and/or viewpoints are involved.

- Severe. Visual impact is severe because the existing terrain and/or vegetation will not limit the visual impact and large numbers of viewers or viewpoints, or scenic areas are involved.

Alternative 1

Alternative 1 consists of approximately 5.39 miles (95.4 percent of the total length) of new ROW and will present a new transmission corridor to viewers traveling local roads. Alternative 1 originates on a hilltop near small residential developments at the Universal Substation and proceeds east then south paralleling an existing DCL transmission line until MP 0.74, minimizing visual impacts in this area. The route then parallels I-376 on a hilltop travelling through deciduous forest and past some residential and commercial areas with moderate visibility until MP 2.08. Alternative 1 then crosses I-376 and travels through a commercial area of Monroeville, where the line would be highly visible to a number of viewers, before crossing the PA Turnpike at MP 2.89. The route then proceeds to the northeast passing over hilltops and wooded valleys containing a tributary to Thompson Run (east), Thompson Run (east), and Piersons Run. Viewsheds are normally short in this area. Continuing to the Plum Substation, Alternative 1 crosses several small residential areas where the route would be visible in short spans. The overall visual impacts for Alternative 1 are

judged to be moderate to high due to the extent of new or non-parallel ROW and the extent of commercial areas crossed, which are greater than any of the other routes.

Alternative 2

Alternative 2 consists of approximately 6.41 miles (99.6 percent of the total length) of new ROW and will present a new transmission corridor to viewers traveling many of the local roads. From the Universal Substation the alternative proceeds east then north paralleling an existing Duquesne Light transmission line until MP 0.50, minimizing visual impacts in this area. This route then proceeds northeast through a barren area with very minimal visual effect for approximately one-mile before continuing through mixed rangeland and forest land, skirting a small residential section, and then paralleling commercial land to MP 2.79 where the route crosses the PA Turnpike. Alternative 2 parallels the PA Turnpike until MP 3.85, proceeding southeast crossing a tributary to Thompson Run (west) and a short span of residential and commercial land. The route continues paralleling the PA Turnpike through forest land within the CCAC-Boyce Campus property before turning to the east and passing across the front of the CCAC-Boyce Campus. Visual impacts are moderate to high along this span of residential/commercial land and the CCAC-Boyce crossing. The line traverses the entrance drive and parking lots of the campus while paralleling Cooper Road. At MP 4.09, while travelling southeast, Alternative 2 parallels Piersons Run for approximately 0.15-mile while crossing herbaceous rangeland and forest land downslope from the Forbes Road Career and Technology Center. Low to moderate visual impact occurs in this area. This route then crosses Piersons Run and turns to the northeast travelling through predominantly forest land

interspersed with small sections of herbaceous rangeland and residential areas resulting in generally low visual impact before entering Plum Substation The overall visual impacts are judged as moderate to high due to the extent of new or non-parallel ROW and the crossing of the CCAC-Boyce campus.

Alternative 3

Alternative 3 consists of 4.76 miles (90.5 percent of the total length) of new ROW and will present a new transmission corridor to viewers traveling many of the local roads. Like Alternative 2, Alternative 3 begins on a hilltop near small residential developments at the Universal Substation and proceeds east then north paralleling an existing DCL transmission line until MP 0.50, minimizing visual impacts through this area. Alternative 3 then proceeds northeast through a barren area with very minimal visual impacts for approximately one-mile before continuing through mixed rangeland and forest land, skirting a small residential section and commercial land until MP 2.78 where the route crosses the PA Turnpike. Alternative 3 continues in an eastward direction travelling through predominantly forested land before entering Boyce Park. Upon entering Boyce Park Alternative 3 transitions to an underground transmission line, at MP 3.25. The route crosses the northern portion of Boyce Park in an eastward direction through rolling hills. The creation of new ROW through this area would result in moderate temporary visual impact to the park. The effect of this impact is reduced by

the lack of developed facilities in this area. The Project would be most visible where it crosses the parking lot of a soccer field and in the vicinity of a baseball field. An existing Allegheny Power transmission line is located in this vicinity, contributing to minimization of additional visual impact. No functions of either the soccer fields or the baseball fields will be impacted. At MP 4.58 the route exits the park, crosses New Texas Road, and turns south to parallel Duquesne Light's existing Cheswick-Plum Z-54 Line through forested land. Alternative 3 remains as an underground transmission line until MP 4.81. Alternative 3 then transitions back to an overhead transmission line and heads east through forested land until reaching the Plum Substation. The overall visual impacts along this line are considered to be minimal to moderate because of the limited number of populated areas crossed by this route, the underground transmission line within and adjacent to Boyce Park, and by the lower amount of new ROW required.

Terrain

In the vicinity of the alternative routes, the elevation ranges from approximately 862 mean sea level (MSL) near the Universal Substation to 1,326 MSL to the west of the Plum Substation. Steep terrains were identified from USGS topographic mapping. Steep terrain was defined as slopes greater than 20 percent. Steep terrain may cause complications in the engineering, construction, maintenance, or operation of the transmission line. Alternative 1 has the greatest distance over steep terrain with 1.52 miles. Alternative 2 has the second steepest terrain crossed with 0.9-miles and Alternative 3 has the least steep terrain crossed with 0.53 miles.

Landslide-prone areas are designated by the Allegheny County Planning Department based on slope stability, slope steepness and sources of water. Landslide-prone areas may cause complications with engineering, construction, maintenance, or operation of the transmission line. Alternative 1 crosses the most land slide prone areas with 1.86 miles crossed. Alternative 3 crossed the second most landslide prone area with 1.22 miles. Alternative 2 crosses the least landslide-prone area with 0.88 miles.

Prime farmland is a designation assigned by U.S. Department of Agriculture defining land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, or other crops and is also available for these land uses. Farmland of statewide importance are determined by state agencies, generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. The prime farmland and farmland of statewide importance designations are meant to help growth management and resource conservation efforts in urban growth areas in order to preserve farmland resources and maintain local economic diversity.

Table 4.5-1

Terrain and Landscape

Criteria[1]	Weight	Alternative Routes 1	2	3
Steep Terrain (> 20%)				
Linear Distance Adjacent (miles)		1.52	0.99	0.53
Score[2]	**40.9**	409.0	211.9	40.9
Landslide-Prone Areas				
Linear Distance Adjacent (miles)		1.86	0.88	1.22

Criteria[1]	Weight	Alternative Routes 1	2	3
Score[2]	**53.7**	537.0	53.7	221.4
Agricultural designation				
Prime Farm Land Acres (125-foot ROW)		2.45	4.29	4.08
Farmland of Statewide importance Acres (125-foot ROW)		15.54	20.57	18.49

Notes:

1 Not all criteria that were counted or calculated in the review of the alternatives were used in the scoring process. This is because some criteria were counted using multiple parameters and should not be double counted in the scoring process.

2 Scores are calculated by converting the raw data found to a relative scale of 1-10 as described in Section 4.0. The value in the relative scale is then multiplied by the weight to obtain the score. The Raw data, relative scaling, and final score for each criteria scored are provided in Appendix A.

Based on the qualitative analysis of visual impact Alternative 3 has the least impact on the surrounding landscape view shed. Visual impacts to Alternative 3 are considered minimal to moderate because of the limited number of populated areas crossed by the route, the underground transmission line within Boyce Park, and by the lower amount of new ROW required. Alternative 3 would be least impacted by steep terrain and the second least impacted by landslide-prone areas. However, Alternative 1 had the least impact to Agricultural designation areas. From an overall terrain and landscape perspective, Alternative 3 has the least impact.

4.6 Archaeological and Architectural/Historical Resources

Preliminary background research was conducted to identify previously recorded cultural resources that may be encountered by the Project. Background research included a review of PA Archaeological Site Survey files, PA Historic Resource Survey files, NRHP files, and pertinent cultural resource studies available through the PA SHPO online cultural resources GIS system.

Data was collected on previously recorded archaeological sites, architectural and historical resources, and National Register properties mapped within the background research study area, consisting of a two-mile radius of Project alternatives. A description of the previously recorded architectural and historical resources within two miles of the Alternative Routes is provided in Appendix B.

There are no NRHP listed properties in the study area. There are 26 previously recorded archaeological sites mapped within the background research study area, including one NRHP-

eligible site (36LAL0017). There are 128 previously recorded architectural and historical resources mapped within the study area. Eight of these architectural and historical resources are eligible for listing in the NRHP. These include: the McGinley House (Key# 019906) in Monroeville; the Dickenson Farm (Key #103886) in Plum; the Quinn Property (Key# 107762) in Penn Hills; Hall's Locomotive Shop (Key# 107780) in Monroeville; the Bessemer and Lake Erie Railroad/Union Railroad Roundhouse (Key# 120235) in Penn Hills; the Bessemer and Lake Erie Railroad District (Key# 202993/155731) in Penn Hills and Plum; the Union Railroad (Key# 110340) in North Versailles; and the PA Turnpike/Western Extension (Key# 155893) in Penn Hills, Plum and Monroeville.

The previously recorded archaeological sites and architectural and historical resources mapped within the study area are shown on Figures 3 and 4. Appendix B provides a description of the previously recorded architectural and historical resources located within the study area.

Alternative 1 has five archaeological sites located within 2,000 feet of the centerline and one site within the 125-foot-wide ROW. Alternative 2 has four sites mapped within 2,000 feet of the centerline, with one site located within the ROW. Alternative 3 has three Archaeological sites mapped within 2,000 feet of the centerline (one of which is the NRHP-eligible site 36LAL0017), and no sites located within the 125-foot-wide ROW. Table 4.6-1 identifies the number of previously recorded archaeological sites within two miles of each proposed alternative, as well as within the 125-foot-wide construction ROW and within approximately 2,000 feet of the centerline.

Alternative 1 has 12 architectural or historical resources within 2,000 feet of the centerline and one within the 125-foot-wide ROW. Alternative 2 has 15 architectural or historical resources mapped within 2,000 feet of the centerline, with four resources located within the ROW. Alternative 3 has 14 architectural or historical resources mapped within 2,000 feet of the centerline, and one resource located within the 125-foot-wide ROW. Each of the three alternative routes crosses the NRHP eligible PA Turnpike/Western Extension (Key# 155893). In addition, the centerlines of Alternatives 2 and 3 are all located between 475 to 650 feet from the NRHP eligible Dickenson Farm (Key#103886). Table 4.6-1 identifies the number of previously recorded architectural or historical resources within two miles of each proposed alternative, as well as within the 125-foot-wide construction ROW and within approximately 2,000 feet of the centerline.

Table 4.6-1

Archaeological and Architectural/Historical Resources

Criteria[1]	Weight	Alternative Routes 1	2	3
Architectural and Historic Sites				
Number Crossed (125-foot ROW)		1	4	1
Score[2]	**76.8**	76.8	768.0	537.6
Number Adjacent (2,000 feet of centerline)		12	15	14
Number within two miles		80	84	77
Archaeological Sites				
Number Crossed (125-foot ROW)		1	1	0
Score[2]	**54.0**	540.0	540.0	54.0

Number within 2,000 feet		5	4	3
Number within two miles		13	13	13

Notes:

1 Not all criteria that were counted or calculated in the review of the alternatives were used in the scoring process. This is because some criteria were counted using multiple parameters and should not be double counted in the scoring process.

2 Scores are calculated by converting the raw data found to a relative scale of 1-10 as described in Section 4.0. The value in the relative scale is then multiplied by the weight to obtain the score. The Raw data, relative scaling, and final score for each criteria scored are provided in Appendix A.

The three alternatives are relatively similar in terms of potential impacts to archaeological and architectural/historical resources. Alternative 1 has slightly less impact to architectural/historical resources and Alternative 3 has slightly less potential impact to archaeological resources.

4.7 Airports

The PAPUC requires that all airports be identified within two miles of a proposed transmission line. Also, Federal Aviation Administration (FAA) regulations provide for a review process and for making a "Determination of Hazard or No Hazard" for all structures that might constitute a hazard to aeronautical operations. Moreover, FAA regulations provide for a review of all electrical structures and devices that might interfere with the navigation aids (NAVAIDS) and communication facilities for air operations. The primary NAVAIDS of concern include:

- VORTAC 360 degree directional beams
- Airport instrument landing system

The Sky Vector Aeronautical Chart (2016) was used to locate aeronautical features relevant to the proposed Project. There is one airport within the study area. This is the Pittsburgh-Monroeville Airport, located in the Municipality of Monroeville. This airport is a privately owned facility with a 2,280-foot asphalt runway. There is no control tower, and it has no lights or fuel service facilities. Recent statistics indicate that there are approximately eight single engine aircraft based at this field, with approximately 38 takeoff/landings per week (www.airnav.com).

Air navigation directional beacons may be affected if a high voltage line is directly in the line of sight between the facility and its airborne receiver. There are no navigational directional beacons within two miles of the study area.

At the closest point, Alternative 1 is located approximately 2,400 feet southeast of the runway of the Pittsburgh-Monroeville Airport, and approximately 4,200 feet of the route is within a straight line approach to the runway. Due to the distance from the runway and the location of Alternative 1 at a lower elevation than the runway, no impact to airport operations is anticipated from this alternative. Alternatives 2 and 3 are at their closet point located approximately 3,000 feet northwest of and parallel to the runway. Alternative 2 would also cross the approach to the runway approximately 4,400 feet northeast of the runway. No impact to airport operations is anticipated from any of the alternatives, but out of an abundance of caution, this resource criterion is retained as part of the analysis of alternatives.

Table 4.7-1

Airports

Criteria	Alternative Routes

		1	2	3
Airports				
Length of ROW within 2 Miles		4.03	4.81	3.74
Score[1]	**52.5**	180.6	525.0	52.5

Notes:

1. Scores are calculated by converting the raw data found to a relative scale of 1-10 as described in Section 4.0. The value in the relative scale is then multiplied by the weight to obtain the score. The Raw data, relative scaling, and final score for each criteria scored are provided in Appendix A.

Alternative 3 has the least amount of its route within two miles of an airport. Additionally, at its closest point, Alternative 3 is the furthest from the airport of the three alternatives. Alternative 3 also, parallels the runway approach rather than intersects it. From an airport avoidance perspective, Alternative 3 has the least impact.

5.0 Identification of the Preferred Alternative

The three alternatives were qualitatively and quantitatively analyzed and compared by the routing team based on the information gathered through GIS data, field reconnaissance, public outreach, engineering considerations and cost estimates. The three alternatives developed represent three primary corridor options traversing the northern (Alternative 3), central (Alternative 2), and southern (Alternative 1) portions of the study area. Based on the PAPUC definition, these three primary corridors across the study area are distinct alternatives.

Alternative 1, the southernmost alternative, has the highest/worst final impact score of all the alternative routes. It is the worst overall alternative from an environmental, human/built, cultural, and engineering perspective. Alternative 1 is the second longest and would require the

second most acquisition of new ROW. This alternative has the most impact on human/built resources, as it has the most road crossings, impacts the most residential structures, and impacts the most commercial/industrial areas. However, Alternative 1 had the least impact to Institutional Complexes. Alternative 1 is the worst alternative from an engineering perspective, as it crosses the most steep terrain and landslide-prone areas, and is the closest to the Pittsburgh-Monroeville Airport, and is within a straight line approach to its runway. Alternative 1 has the most impact to some of the environmental resources including forest land cleared and perennial streams crossed, but has the least impact to other criteria such as natural areas and recreational areas. The impacts to cultural resources are similar across all three alternatives. Alternative 1 has slightly more impact to archaeological sites than the other two alternatives but has slightly fewer impacts to historic sites than the other two alternatives. Alternative 1 has the lowest cost estimate to acquire and construct.

Alternative 2 is a part central, part southern alternative, and has the second lowest final impact score of all the alternative routes. It is the second best overall alternative from an environmental, human/built, cultural, and engineering perspective. Alternative 2 is the longest and would require the most new ROW. This alternative has the second most impact on human/built resources as it has the most impact to institutional complexes, has the second most road crossings, impacts the second most residential structures, but has the least impact to commercial/industrial areas. Alternative 2 is the second best alternative from an engineering perspective, as it crosses the least landslide-prone area, crosses the second steepest terrain, but has the longest distance that is within two miles of Pittsburgh-Monroeville Airport, and is within a straight line approach to its runway. Alternative 2 has the second most impact to

environmental resources including forest land cleared, perennial streams crossed, natural areas and recreational areas. The impacts to cultural resources are similar across all three alternatives. Alternative 2 has the second most impact to archaeological sites, and has slightly more impacts to historic sites than the other two alternatives. Alternative 2 has the second lowest cost estimate to acquire and construct.

Alternative 3 is the northern alternative, and has the lowest/best final impact score of all the alternative routes. It is the best overall alternative from an environmental, human/built, cultural, and engineering perspective. Alternative 3 is the shortest route and would require the least new ROW acquisition. This alternative has the least impact on human/built resources, residential structures, road crossings, and has the second least impact to commercial/industrial areas and institutional complexes that are only slightly more than Alternative 2. Alternative 3 is the best alternative from an engineering perspective, as it crosses the least steep terrain, crosses the second least landslide-prone area, and has the shortest distance within 2 miles of Pittsburgh-Monroeville Airport, and is not within a straight line approach to its runway. Alternative 3 has the least impact to some of the environmental resources including forest land cleared and perennial streams crossed, but has the most impact to others including natural areas and recreational areas. The impacts to cultural resources are similar across all three alternatives. Alternative 3 has the slightly less impact to archaeological sites and historic sites than the other two alternatives. Alternative 3 has the highest cost estimate to acquire and construct, due to the underground portion of transmission line through Boyce Park.

5.1 Preferred Alternative Impacts and Mitigation

5.1.1 Land Use and Land Cover

The Preferred Alternative is 5.26-mile-long and includes 4.76 miles of non-paralleling ROW, with approximately 0.5-mile paralleling existing Duquesne Light transmission line ROW. The Preferred Alternative has 0.05-mile of residential areas and 0.22-mile of commercial areas crossed by and/or adjacent to the proposed ROW and only three residential structures within 100 feet of the centerline, none of which were within the ROW. This route does not cross any school properties.

As the majority of the Preferred Alternative is new ROW, there will be permanent land use impacts. All of the forest land cleared for this route will be converted to rangeland. This alternative crosses approximately 2.24 miles of deciduous forest, resulting in the clearing of approximately 41.54 acres of forest land. Any herbaceous and/or mixed rangeland crossed would be temporarily impacted during construction, but would not result in any permanent land use change as the land would return to an herbaceous and/or mixed rangeland state.

Construction of the Project will require the clearing and maintenance of permanent ROW of at least 100 feet wide, and up to 125 feet wide. The Preferred Alternative, as the shortest route at 5.26 miles long, will have the least land use impacts.

The Preferred alternatives will produce temporary and secondary impacts during construction, especially in residential areas and some commercial areas. These impacts include noise and other construction-related disturbances, including disruptions to vehicular traffic. The most substantial land use effects associated with construction of

the proposed line include a reduction in woodland and visual effects in residential areas. Total rangeland area will be increased as a result of construction, although a temporary reduction in this land use will occur during the construction phase until vegetation becomes re-established. The construction of new ROW in wooded areas will result in the removal of a number of mature trees. New access roads may be required to access certain areas of the new transmission line.

Land can continue to be used by the property owner as desired provided it does not interfere with operation or maintenance of the transmission line, access to the transmission line, or specific ROW agreements.

All landowners whose access to their property could be potentially impacted will be notified in writing of the possible use of their land for an Access Easement consistent with the construction, maintenance, repair, renewal, use, or operation of said system. Duquesne Light has the right to trim or remove, and control the growth of, by any means selected by Duquesne Light, any trees, brush or shrubbery, and to remove obstructions, which at any time interfere with or threaten to interfere with the access of this easement. Duquesne Light agrees to pay for all damage to fences, crops, and other personal property caused by construction, operation, maintenance, rebuilding or removal of the transmission line.

During Clearing of the ROW some loss of individual animals may be incurred within the new ROW, it is anticipated that most animals can relocate to suitable adjacent habitat during construction. Depending on the habitat type in question, these displaced

animals may be able to re-establish in the maintained ROW following construction. Although some wildlife population decreases may be experienced in response to limits upon carrying capacity of adjacent habitats, these decreases should be minimal due to the small area of disturbance.

Clearing new ROW will result in somewhat higher predation rates, increased nest parasitism, and human disturbances associated with forest edges. This may have a minor negative effect upon forest birds (Brittingham and Temple, 1983; Bushman and Therres, 1988). Local populations of some forest interior species may also decrease as a result of the Project. Rangeland areas will increase as a result of project implementation. This additional rangeland will provide foraging areas for numerous wildlife species.

The maintenance of ROW, including tree trimming and brush clearing, may have an effect upon terrestrial animal species occurring in the area. Maintenance may destroy the nests and young of some species if it coincides with the breeding season; driving over the ROW for inspection purpose can also destroy nests and young. However, these impacts should be minimal and should not have any adverse effect upon wildlife populations, as they are infrequent.

Vegetation management practices that will be used by Duquesne Light to minimize impacts to vegetation and wildlife include, but are not limited to:

- Plant cover in the in the center of the ROW will be maintained as a low shrub-herb-fern-grass community.

- Implement selective clearing, based on stem density, on the edges of the ROW and allow compatible herbaceous and shrub species to grow. Use selective herbicide applications to manage undesirable vegetation in and along the ROW corridor. Specific herbicides designed for wetland use may also be utilized to promote best practices.
- Considering span length, allow tree growth in deep valleys and ravines where the conductor height exceeds the mature height of the surrounding trees factoring for minimum allowable electrical safety clearance requirements.
- All disturbed areas will be restored to their original contours. Seeding and mulching will immediately follow seedbed preparation.
- All cutting in and along the ROW less than five inches in diameter, other than buffer areas, will be piled and crushed or disposed of by chipping or shredding. Cutting larger than five inches in diameter will be stacked behind the edge of the ROW or removed, as directed by the landowner.
- Tree pruning and removal and wood disposal efforts in and along the ROW edge will be performed in such a manner as to minimize, as much as possible, damage to desirable plant species.

An Erosion and Sedimentation (E&S) Control Plan will be executed during the construction phase of the Preferred Alternative, minimizing impacts from erosion and resulting sedimentation.

5.1.2 Hydrology

The Preferred Alternative crosses seven perennial streams and no NWI wetlands.

Additional detailed wetland delineations would be required in the field in order to thoroughly define potential wetland impacts of the Preferred Alternative. It is likely that additional wetlands may be identified during wetland delineations conducted.

Wetlands provide a number of significant benefits to the environment. With the exception of forested wetlands, transmission line construction, operation and maintenance do not change the wetlands' basic ecological function; any unavoidable effects would be minimal and temporary. It is anticipated that no structures would be located in wetlands for any of the alternative routes. Therefore, no permanent loss of wetlands is expected.

None of these streams crossed by the Preferred Alternative are expected to be affected by the placement of poles. However, all streams may be crossed by temporary access roads within the ROW. Temporary equipment crossings will be installed to minimize impacts and will be removed following construction. Temporary equipment crossings will result in a temporary impact to the riparian buffer. The riparian buffers will be replanted following construction and vegetation that is compatible with the transmission line will be allowed to grow. Therefore, no long term impacts to surface waters are anticipated from any of the alternatives. The potential for construction impacts on water quality during construction will be minimized by implementation of the E&S Control Plan.

It is anticipated that crossings of waterbodies for construction of the Project will require a General Permit 5 (GP-5) for Utility Line Stream Crossings and a GP-8 for Temporary Access Roads from the PaDEP, as well as a PA State Programmatic General Permit from the United States Army Corps of Engineers.

Among the protection measures that will be incorporated in this plan are:

- Stream or wetland crossings by vehicles will be restricted to temporary equipment crossings. Access to structures will be gained from upland locations wherever possible.
- Temporary stream and wetland crossings will be used as needed, consisting of equipment pads. If needed, culverts will be constructed in streams with clean stone and gravel fill.
- Any required construction access roads will be laid out to prevent sediments from reaching streams and wetlands. A strip of undisturbed land will be left between the construction road and the stream (filter strip). The width of the filter strip will be greater in steep slope areas than on level areas.
- Best management practices will be used along the stream banks and wetlands to prevent entry of sediment into the stream.
- During construction, drainage ditches, creeks and waterways will be kept free of obstructions.
- Where available, existing access roads will be used to avoid the crossing of streams.

- Appropriate controls will be used at structure locations to prevent sediments from discharging from the area of disturbance.

5.1.3 Scenic and Recreational Areas

The Preferred Alternative cross a portion of the undeveloped Cottonwood Park and Greenleaf Park near the Universal Substation parallel to an existing transmission lines. Therefore, visual impacts to the park and its functions are anticipated to be minimal.

Approximately 1.24 miles of the Preferred Alternative crosses the northern portion of Boyce Park travelling within existing roadways and avoiding major tree removal throughout its route. Duquesne Light has coordinated with the Allegheny County Department of Parks and Recreation concerning the location of Alternatives across the park. Duquesne Light has come to an agreement with the Allegheny County Department of Parks and Recreation that the transmission line will be buried underground within Boyce Park. This will eliminate the visual impact to the park and will reduce the amount of tree clearing in the park. The width of clearing will be reduced to 25 feet wide within the park which is the minimum width required to install an underground transmission line. The Allegheny County Parks Comprehensive Master Plan (2000) recommends that an 18-hole golf course be developed near the existing recreation area in the northeast corner of the park. The Preferred Alternative would be compatible with this use, should it be developed. Alternative 3 travels in a relatively straight path across Boyce Park. No functions of adjacent soccer fields or the baseball fields will be impacted.

5.1.4 Natural Areas and Rare Threatened and Endangered Species

The Preferred Alternative does not impact designated natural/wilderness areas, national natural landmarks, or Core RTE Habitat.

The Preferred Alternative is within the range of the Indiana bat, northern long-eared bat, and bald eagle. However, Duquesne Light coordinate with the USFWS concerning the Preferred Alternative and avoidance measures were not requested.

The Preferred Alternative crosses a Land Trust Protected areas that is associated with Boyce Park, Duquesne Light has agreed to install the transmission line underground to mitigate the impact to the park.

5.1.5 Terrain and Landscape

The Preferred Alternative will have a minimal to moderate visual impact on the surrounding viewshed. Visual impacts are considered minimal to moderate because of the limited number of populated areas crossed by the route, the underground transmission line within Boyce Park, and by the low amount of new ROW required.

The Preferred Alternative crosses 0.53 miles of steep terrain and 1.22 miles of landslide-prone area. These areas will be take into consideration for the final design and construction of the Project.

5.1.6 Archaeological and Architectural/Historical Resources

Additional investigations will be conducted, as necessary, during final design and permitting of the Preferred Alternative to determine the presence, extent, and eligibility of architectural and historical resources that could be affected by the Project. These

efforts will be coordinated with the PA SHPO.

5.1.7 Airports

The Preferred Alternative, at its closet point is approximately 3,000 feet northwest of and parallel to the runway of the Pittsburgh-Monroeville Airport. Approximately 3.74 miles of the Preferred Alternative is within two miles of the Pittsburgh-Monroeville Airport. Duquesne Light will coordinate with the FAA and will provide markers or beacons as required.

6.0 Route for Cheswick-Plum

As part of the Project, Duquesne Light also seeks PUC approval to relocate a portion of the Cheswick-Plum 138 kV Transmission Line to accommodate the entrance of the proposed Universal-Plum 138 kV Transmission Line into the Plum Substation. At present, the Cheswick-Plum 138 kV Transmission Line enters the west side of the Plum Substation at its northernmost terminal. This same terminal represents the best terminus of the Universal-Plum 138 kV Transmission Line, which approaches the Plum Substation north of the Cheswick-Plum 138 kV Transmission Line. Unless the Cheswick-Plum 138 kV Transmission Line is re-terminated to the south of its present location, the Universal-Plum 138 kV Transmission Line would have to cross the Cheswick-Plum 138 kV Transmission Line to enter the Plum Substation. Such a line crossing would be impractical for several reasons; it would present clearance and reliability issues, and would necessitate abnormally tall structures to support the Universal-Plum 138 kV Transmission Line.

The 0.51 mile sections of the Cheswick-Plum 138 kV Transmission Line is proposed to be relocated between 64 and 155 feet to the south of its current location. The relocated section runs from Structure #6833, on the west side of New Texas Road, and the Plum Substation. It will require the relocation of seven structures.

The approximately 0.51-mile relocation of Cheswick-Plum 138 kV Transmission Line will require the clearing of new ROW through predominantly forested area. The relocation will cross two perennial streams and one road. The existing Cheswick-Plum 138 kV Transmission Line currently crosses one of the perennial streams and the road. No other resource criteria are expected to be impacted by the relocation. Additionally, no new properties will be impacted by the relocation.

Because the existing facilities to be connected by the relocated section are only 0.51 miles apart, few alternatives would be feasible. Furthermore, the proposed route runs along existing transmission right-of-way and infrastructure; any alternative that deviated from this route would necessarily have higher impacts.

7.0 Permits and Zoning

7.1 Anticipated Agency Requirements and Permits

The anticipated agency requirements and permits for the Preferred Alternative are provided in Table 7.1.

Table 7.1

Agency Requirements and Permits

Agency	Requirement	Permit Status	Date of Submission	Date of Approval
Federal Agencies				
United States Army Corps of Engineers	Pennsylvania State Programmatic General Permit 5	Application to be Submitted	June 21, 2018 (anticipated)	October 03, 2018 (anticipated)
United States Fish and Wildlife Service	Rare Threatened and Endangered Species Consultation	Approval Granted (expires after two years[1])	September 16, 2016	September 16, 2016
Federal Aviation Administration	Notice of Proposed Construction or Alteration (Form 7460-1)	Application to be Submitted	October 30, 2018 (anticipated)	March 1, 2019 (anticipated)
Land and Water Conservation Fund	PADCNR Consultation for anti-conversion	Application to be Submitted	September 15, 2018 (anticipated)	October 15, 2018 (anticipated)
State Agencies				
Pennsylvania Department of Environmental Protection	Chapter 105, GP-5 for Utility Line Stream Crossings and a GP-8 for Temporary Access Roads	Application to be Submitted	June 21, 2018 (anticipated)	October 03, 2018 (anticipated)
Pennsylvania Game Commission	Rare Threatened and Endangered Species Consultation	Approval Granted (expires after two years[1])	September 16, 2016	September 16, 2016
Pennsylvania Department of Conservation and Natural Resources	Rare Threatened and Endangered Species Consultation	Approval Granted with Conditions (expires after two years[1])	December 18, 2017	January 5, 2018
Pennsylvania Fish and Boat	Rare Threatened and Endangered	Approval Granted (expires after two	September 16, 2016	September 16, 2016

Agency	Requirement	Permit Status	Date of Submission	Date of Approval
Commission	Species Consultation	years[1])		
Pennsylvania State Historic Preservation Office	Cultural Resources Consultation	Application to be Submitted	March 8, 2018 (anticipated)	June 15, 2018 (anticipated)
Pennsylvania Department of Transportation	Highway Occupancy Permit, Driveway Permit, Excessive Maintenance Agreement	Application to be Submitted (expires after one year)	December 12, 2018 (anticipated)	February 12, 2019 (anticipated)
Pennsylvania Turnpike Commission	Permit for Aerial Crossing	Application to be Submitted	February 19, 2018	August 15, 2018 (anticipated)
Local Agencies				
Allegheny County Conservation District	General (PAG-02) National Pollutant Discharge Elimination System (NPDES) Permit	Application to be Submitted	June 22, 2018 (anticipated)	October 03, 2018 (anticipated)
Allegheny County	Hauling Agreement and Drive Way Permits	Application to be Submitted (expires after one year[2])	January 12, 2019 (anticipated)	February 12, 2019 (anticipated)

Table 7.1 (Continued)

Agency	Requirement	Permit Status	Date of Submission	Date of Approval
Local Agencies (Continued)				
Penn Hills Borou	Grading Permit	Application to be Submitted	June 22, 2018 (anticipated)	October 03, 2018 (anticipated)
	Floodplain Permit	Application to be Submitted	January 19, 2019 (anticipated)	March 19, 2019 (anticipated)
	Driveway Permit and Excessive Maintenance Agreement	Application to be Submitted (expires after one year[2])	January 12, 2019 (anticipated)	February 12, 2019 (anticipated)
Monroeville Borough	Grading Permit	Application to be Submitted	June 22, 2018 (anticipated)	October 03, 2018 (anticipated)
	Floodplain Permit	Application to be Submitted	January 19, 2019 (anticipated)	March 19, 2019 (anticipated)
	Driveway Permit and Excessive Maintenance Agreement	Application to be Submitted (expires after one year[2])	January 12, 2019 (anticipated)	February 12, 2019 (anticipated)
Plum Borough	Grading Permit	Application to be Submitted	June 22, 2018 (anticipated)	October 03, 2018 (anticipated)
	Floodplain Permit	Application to be Submitted	January 19, 2019 (anticipated)	March 19, 2019 (anticipated)
	Driveway Permit and Excessive Maintenance Agreement	Application to be Submitted (expires after one year[2])	January 12, 2019 (anticipated)	February 12, 2019 (anticipated)
Union Railroad	Railroad Crossing Permit	Application to be Submitted	March 26, 2018 (anticipated)	February 26, 2019 (anticipated)

Notes:

1. RTE consultation expiring before permit approval will be updated as needed.
2. PennDOT and local road permits or agreements expiring before the completion of the project will be updated.

7.2 Review of County Comprehensive Plans and Municipal Level Zoning

The proposed construction and operation of the new single-circuit 138 kV transmission line was evaluated for general compliance with the local Comprehensive Plans located in Plum Borough, Penn Hills and Monroeville. Comprehensive Plans may also be known as a master plan, general plan or land use plan. The plans purpose is to help guide local planning for the communities and set short term as well as long-term goals and objectives for all activities that affect the community. Review of the Comprehensive Plans and other associated documentation in relation to the proposed project activities considered the compatibility with local land use, proposed housing developments, future growth areas, community facilities and environmentally sensitive areas.

All three municipal plans were reviewed to identify issues specific to the local communities as well as any potential fatal flaws. Mitigation of any potential impacts may include modifying the route, engineering design, locating the corridor in relationship to existing utility infrastructure, and coordinating with individual property owners and municipal governments.

Monroeville Borough

The objectives in Monroeville's Comprehensive Plan that could relate to the construction of a transmission line include growth management objectives that aim to maintain a reasonable level of services by encouraging new industry, commercial, and residential development and ensure economic viability by providing a business friendly climate. Environmental objectives

aim to preserve environmentally sensitive areas which include wooded areas, steep slopes, stream corridors and flood prone areas.

According to the Monroeville Comprehensive Plan (2005), the Preferred Alternative passes through areas with and existing land use of Open Space/Wooded Areas. The Future Land Use Map shows the Preferred Alternative passing through areas designated as Residential Neighborhood Areas and Planned Residential. In addition, the Preferred Alternative passes through areas indicated as Park/Open Space or Open Space Linkage. These open spaces are meant to provide hiking, biking, or walking opportunities and provide vegetation or woodlands that provide a visual break within an urban area.

While in Monroeville Borough, three zoning designations are crossed by the Preferred Alternative. Approximately 0.38-mile are located in an Industrial zoned area, 0.08-mile are located in a Conservancy zoned area, and 0.10-mile are located in a Residential (R2) zoned area.

Penn Hills Township

The Penn Hills Comprehensive Plan, adopted in 1991, stated that Penn Hills is, and is expected to remain, a primarily single-family residential community. While Penn Hills encourages growth and new development the impact to single-family neighborhoods must be considered. The Penn Hills Comprehensive Plan also included an objective of preservation of open spaces, which include steep slopes, woodlands, and other natural features. The large vacant parcels where the Preferred Alternative is located is identified in the Comprehensive Plan (1991) as offering a wide variety of long-range development opportunities.

The Draft 2015 Penn Hills Comprehensive plan was also reviewed. This version reiterated that Penn Hills has a developer-friendly atmosphere, and welcomes new housing of all types. The 2015 draft plan also identifies the large parcels crossed by the Preferred Alternatives as potential for residential development.

While in Penn Hills Township, three zoning designations are crossed by the Preferred Alternative. Approximately 1.75 miles are located in an Industrial zoned area, 0.08-mile are located in a Conservancy zoned area, and 0.95-mile are located in a Residential (R1 and R5) zoned area.

Plum Borough

Plum Borough's Comprehensive Plan, adopted in 2011, describes Plum Borough as a growing suburban residential community that is seeking increased non-residential development. However, the comprehensive plan aims to protect, conserve and preserve the natural resources and rural characteristic of the borough. A portion of the Preferred Alternative passes through a district that is designated by Plum Borough as an Economic Revitalization Tax Assistance district, which encourages commercial development of former industrial and commercial sites. The Preferred Alternative crosses this district upon entering Plum Borough until crossing the Turnpike.

The Future Land Use Map was examined. The Economic Revitalization Tax Assistance district crossed by the Preferred Alternative is designated as Office Commercial. Boyce Park is designated as Public/Semipublic. The remaining area crossed by the Preferred Alternative in Plum Borough is designated and Low Density Residential.

While in Plum Borough, three zoning designations are crossed by the Preferred Alternative. Approximately 0.75-mile are located in a Manufacturing zoned area, 1.29 miles are located in a Conservancy zoned area, and 1.21 miles are located in a Residential (R1 and R2) zoned area.

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APPENDIX A
Resource Criteria Score Calculations

Table A-1

Land Use and Land Cover Criteria Score Calculations

Criteria	Weight	Alternative Routes 1	2	3
Commercial/Industrial Areas: Linear Distance Adjacent (miles)				
Raw Data		0.35	0.2	0.22
Relative Score		10.00	1.00	2.20
Score	**76.9**	769.0	76.9	169.2
Residential Areas				
# Houses within 100 feet of Centerline				
Raw Data		10	5	3
Relative Score		10.00	3.57	1.00
Score	**76.9**	769.0	274.6	76.9
# Apartment within 100 feet of Centerline				
Raw Data		2	0	0
Relative Score		10.00	1.00	1.00
Score	**88.8**	888.0	88.8	88.8
Cemeteries: Number within 125-foot ROW				
Raw Data		0	0	0
Relative Score		0.00	0.00	0.00
Score	**76.8**	0	0	0
Railroad and Highway/Road Crossings: Number of Crossings				
Raw Data		21	13	12
Relative Score		10.00	2.00	1.00
Score	**33.1**	331.0	66.2	33.1
Institutional Complexes: Number Adjacent/Crossed (125-foot ROW)				
Raw Data		2	4	4
Relative Score		1.00	10.00	10.00
Score	**83.1**	83.1	831.0	831.0
Agricultural Land: Active Agricultural Land Acres (125-foot ROW)				
Raw Data		0	0	0
Relative Score		0.00	0.00	0.00

Criteria	Weight	Alternative Routes 1	2	3
Score	**44.0**	0	0	0
Non-Paralleling ROW: Miles Required (125-foot ROW)				
Raw Data		5.39	6.41	4.76
Relative Score		4.44	10.00	1.00
Score	**31.1**	138.0	311.0	31.1

Table A-1 (Continued)

Criteria	Weight	Alternative Routes 1	2	3
Residential Areas (Continued)				
Length: Miles				
Raw Data		5.65	6.41	5.26
Relative Score		4.05	10.00	1.00
Score	**28.8**	116.7	288.0	28.8
Forested Land: 125-foot ROW (Acres)				
Raw Data		56.65	56.57	41.54
Relative Score		10.00	9.95	1.00
Score	**33.0**	330.0	328.4	33.0

Table A-2

Hydrology Criteria Score Calculations

Criteria	Weight	Alternative Routes 1	2	3
NWI Wetlands: Acres (125-foot ROW)				
Raw Data		0.00	0.00	0.00
Relative Score		0.00	0.00	0.00
Score	**66.2**	0	0	0
Streams				
Number of Perennial Crossings				
Raw Data		14	10	7
Relative Score		10.00	4.86	1.00
Score	**43.0**	430.0	208.9	43.0
EV Streams Crossed (125-foot ROW)				
Raw Data		0	0	0
Relative Score		0.00	0.00	0.00
Score	**58.0**	0	0	0

Table A-3

Scenic and Recreational Area Criteria Score Calculations

Criteria	Weight	Alternative Routes 1	2	3
State Forest: Linear Distance Adjacent (miles)				
Raw Data		0	0	0
Relative Score		0.00	0.00	0.00
Score	**43.4**	0	0	0
State Parks: Linear Distance Adjacent (miles)				
Raw Data		0	0	0
Relative Score		0.00	0.00	0.00
Score	**69.2**	0	0	0
State Game Lands: Linear Distance Adjacent (miles)				
Raw Data		0	0	0
Relative Score		0.00	0.00	0.00
Score	**33.4**	0	0	0
Recreational Areas (including local parks and golf courses): Number Adjacent/Crossed (125-foot ROW)				
Raw Data		3	4	4
Relative Score		1.00	10.00	10.00
Score	**67.3**	67.3	673.0	673.0
Hiking and Biking Trails (excluding parks): Number Crossed (125-foot ROW)				
Raw Data		0	0	0
Relative Score		0.00	0.00	0.00
Score	**42.8**	0	0	0
Designated Scenic Areas: Number Adjacent/Crossed (125-foot ROW)				
Raw Data		0	0	0
Relative Score		0.00	0.00	0.00
Score	**71.3**	0	0	0
Natural Wild & Scenic/State Scenic Rivers: # Scenic Rivers Crossed (125-foot ROW)				
Raw Data		0	0	0
Relative Score		0.00	0.00	0.00
Score	**72.0**	0	0	0

Criteria	Weight	Alternative Routes 1	2	3
Unique Geological Resources: Number Adjacent/Crossed (125-foot ROW)				
Raw Data		0	0	0
Relative Score		0.00	0.00	0.00
Score	**59.2**	0	0	0

Table A-4

Criteria	Weight	Alternative Routes 1	2	3
National Natural Landmarks: Number Adjacent/Crossed (125-foot ROW)				
Raw Data		0	0	0
Relative Score		0.00	0.00	0.00
Score	**78.0**	0	0	0
Designated Natural/Wilderness Areas: Linear Distance Adjacent (miles) (within 125-foot ROW)				
Raw Data		0	0	0
Relative Score		0.00	0.00	0.00
Score	**73.2**	0	0	0
Other Natural Areas				
Core RTE habitat acres (125-foot ROW)				
Raw Data		0	0	0
Relative Score		0.00	0.00	0.00
Score	**71.9**	0	0	0.00
Land Trust Protected acres (125-foot ROW)				
Raw Data		0	0.01	19.20
Relative Score		1.00	1.01	10.00
Score	**71.9**	71.9	72.3	719.0

Natural Areas Resources Criteria Score Calculations

Table A-5

Terrain and Landscape Criteria Score Calculations

Criteria	Weight	Alternative Routes 1	2	3
Steep Terrain (> 20%): Linear Distance Adjacent (miles)				
Raw Data		1.52	0.99	0.53
Relative Score		10.00	5.18	1.00
Score	**40.9**	409.0	211.9	40.9
Landslide-Prone Areas: Linear Distance Adjacent (miles)				
Raw Data		1.86	0.88	1.22
Relative Score		10.00	1.00	4.12
Score	**53.7**	537.0	53.7	221.4

Table A-6

Archaeological and Architectural/Historical Resources Criteria Score Calculations

Criteria	Weight	Alternative Routes 1	2	3
Architectural and Historic Sites: Number Crossed (125-foot ROW)				
Raw Data		1	4	1
Relative Score		1.00	10.00	7.00
Score	**76.8**	76.8	768.0	537.6
Archaeological Sites: Number Crossed (125-foot ROW)				
Raw Data		1	1	0
Relative Score		10.00	10.00	1.00
Score	**54.0**	540.0	540.0	54.0

Table A-7

Airport Criteria Score Calculations

Criteria	Weight	Alternative Routes 1	2	3
Airports: Length of ROW within 2 Miles				
Raw Data		4.03	4.81	3.74
Relative Score		3.44	10.00	1.00
Score	**52.5**	180.6	525.0	52.5

APPENDIX B
Description of Previously Recorded Architectural and Historical Resources Within Two Miles of Project Alternatives

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Description of Previously Recorded Architectural and Historical Resources Within Two Miles of Project Alternatives

Key #	County	Municipality	Historic Name	Resource Category	Address	National Register Status
8214	Allegheny	Turtle Creek Borough		Site		Undetermined
8345	Allegheny	Wilkins Township	Linhart Homestead	Building	221 Farnsworth Ave.	Undetermined
8346	Allegheny	Wilkins Township		Site		Undetermined
8347	Allegheny	Wilkins Township	Gray School	Building	Harrison St.	Undetermined
8348	Allegheny	Wilkins Township	Linhart Cemetery	Site	Harrison Rd.	Undetermined
9748	Allegheny	Plum Borough		Building	Elicker Rd.	Undetermined
9749	Allegheny	Plum Borough		Building	413 Elicker	Undetermined
9751	Allegheny	Plum Borough		Building	501 Harris	Undetermined
9754	Allegheny	Plum Borough		Building		Undetermined
9755	Allegheny	Plum Borough	Shirley House	Building	Leechburg Rd.	Undetermined
9758	Allegheny	Plum Borough		Building	Leechburg Rd.	Undetermined
9760	Allegheny	Plum Borough	Laird Cemetery	Site	New Texas Rd.	Undetermined
9761	Allegheny	Plum Borough		Site	New Texas Rd.	Undetermined
9762	Allegheny	Plum Borough		Building	4525 New Texas Rd.	Undetermined
9764	Allegheny	Plum Borough		Building	Renton Rd.	Undetermined
9765	Allegheny	Plum Borough	Dreble House	Building	Repp Rd.	Undetermined
9766	Allegheny	Plum Borough		Building	7943 Saltsburg Rd.	Undetermined
9768	Allegheny	Plum Borough		Building	9701 Saltsburg Rd.	Undetermined
9770	Allegheny	Plum Borough		Building	191 School Rd.	Undetermined
19901	Allegheny	Monroeville Borough	Bellwood Public School	Building	Bellwood Rd.	Undetermined
19903	Allegheny	Monroeville Borough		Building	1744 James St.	Undetermined
19906	Allegheny	Monroeville Borough	McGinley House	Building	McGinley Rd.	Eligible
19907	Allegheny	Monroeville Borough	Crossroads Presbyterian	Building		Undetermined

			Church			
19909	Allegheny	Monroeville Borough	McCullough House	Building	2215 Monroeville Blvd.	Undetermined
19910	Allegheny	Monroeville Borough		Building	Northern Pike	Undetermined
19911	Allegheny	Monroeville Borough	Rising Sun Inn	Building	3835 Northern Pike	Undetermined
19912	Allegheny	Monroeville Borough	Haymaker House	Building	1256 Northwestern	Undetermined
19914	Allegheny	Monroeville Borough		Building	2033 Speelman Ln.	Undetermined
19918	Allegheny	Monroeville Borough		Structure	Old William Penn Hwy.	Undetermined
20092	Allegheny	Penn Hills Township	Atlas Cement Company	Building	B St.	Undetermined

Description of Previously Recorded Architectural and Historical Resources Within Two Miles of Project Alternatives (Continued)

Key #	County	Municipality	Historic Name	Resource Category	Address	National Register Status
20095	Allegheny	Penn Hills Township		Building	Bridge St.	Undetermined
20102	Allegheny	Penn Hills Township		Site	Frankstown Rd.	Undetermined
20103	Allegheny	Penn Hills Township		Building	Frankstown Rd.	Undetermined
20107	Allegheny	Penn Hills Township	Morrow Log House	Building	11401 Frankstown Rd.	Undetermined
20109	Allegheny	Penn Hills Township		Building	726 Hamill Rd.	Undetermined
20110	Allegheny	Penn Hills Township		Building	1035 Hamill Rd.	Undetermined
20113	Allegheny	Penn Hills Township	Renton Mine No. 6	Site	Hulton Rd.	Undetermined
20114	Allegheny	Penn Hills Township		Building	1207 Hulton Rd.	Undetermined
20115	Allegheny	Penn Hills Township	Morrow House Flying Shuttle Patent		19 Jefferson Rd.	Undetermined
20116	Allegheny	Penn Hills Township	Morrow School	Structure	147 Jefferson Rd.	Undetermined

Description of Previously Recorded Architectural and Historical Resources Within Two Miles of Project Alternatives (Continued)

Key #	County	Municipality	Historic Name	Resource Category	Address	National Register Status
20117	Allegheny	Penn Hills Township	Morrow Barn	Building	237 Jefferson Rd.	Undetermined
20118	Allegheny	Penn Hills Township		Building	Jodie Ln.	Undetermined
20123	Allegheny	Penn Hills Township		Structure	Main St.	Undetermined
20124	Allegheny	Penn Hills Township	Union Railroad: Station	Building	Main St.	Undetermined
20126	Allegheny	Penn Hills Township		Building	Mill St.	Undetermined
20131	Allegheny	Penn Hills Township		Building	Old Barn Dr.	Undetermined
20133	Allegheny	Penn Hills Township	McLaughlin Cabin or Groton	Building	Pike St.	Undetermined
20134	Allegheny	Penn Hills Township		Building	Poketa Rd.	Undetermined
20135	Allegheny	Penn Hills Township		Building	7450 Saltsburg Rd.	Undetermined
20136	Allegheny	Penn Hills Township		Building	7505 Saltsburg Rd.	Undetermined
20139	Allegheny	Penn Hills Township		Site		Undetermined
20140	Allegheny	Penn Hills Township		Building	S McCully Dr.	Undetermined
44865	Westmoreland	Murrysville Borough	McAlister Stagecoach Tavern	Building	5380 Logan's Ferry Rd.	Undetermined
44892	Westmoreland	Murrysville Borough	Bryan House	Building	5054 Logans Ferry Rd.	Undetermined
44917	Westmoreland	Murrysville Borough	Hamilton House	Building	Hickory Hill Rd.	Undetermined
44919	Westmoreland	Murrysville Borough	Hankey Farm No. 2	Building	Logans Ferry Rd.	Undetermined
44939	Westmoreland	Murrysville Borough	Long House	Building	4632 Logans Ferry Rd.	Undetermined
44941	Westmoreland	Murrysville Borough		Building	Logans Ferry Rd.	Undetermined
44942	Westmoreland	Murrysville Borough	Ludwig House	Building		Undetermined

Description of Previously Recorded Architectural and Historical Resources Within Two Miles of Project Alternatives (Continued)

Key #	County	Municipality	Historic Name	Resource Category	Address	National Register Status
44958	Westmoreland	Murrysville Borough		Building	Remaley Rd.	Undetermined
44979	Westmoreland	Murrysville Borough	Tallant, David, House	Building	Gun Club Rd.	Undetermined
44986	Westmoreland	Murrysville Borough	Remaley House	Building	Bulltown Rd.	Undetermined
93015	Allegheny	Plum Borough	Plum Creek Viaduct	Structure	Pennsylvania Tpke.	Not Eligible
96873	Allegheny	Plum Borough	Plum Creek Bridge No. 16 over Stotler Rd	Structure	Stotler Rd	Not Eligible
96876	Allegheny	Penn Hills Township; Plum Borough	Plum Creek Upper Branch, Bridge No. 7	Structure	Universal Rd.	Not Eligible
100579	Allegheny	Plum Borough		Structure	Milltown Rd.	Not Eligible
100581	Allegheny	Plum Borough		Structure		Undetermined
100603	Allegheny	Penn Hills Township			Hunter Rd.	Undetermined
100678	Allegheny	Plum Borough	The Whales Tale	Building	720 Center Rd.	Not Eligible
102229	Allegheny	Plum Borough	Unity Railways Company (3+50 to 205+82)	District		Not Eligible
103886	Allegheny	Plum Borough	Dickenson Farm		741 Center Rd.	Eligible
107762	Allegheny	Penn Hills Township	Quinn Property	Building	1177 McCully Dr.	Eligible
107764	Allegheny	Penn Hills Township	South McCully Drive Bridge	Building	S McCully Dr.	Not Eligible
107780	Allegheny	Monroeville Borough	Hall's Locomotive Shop	Building	Larimer Ave.	Eligible
107782	Allegheny	Monroeville Borough	Old William Penn Hwy Bridge	Structure	Old William Penn Hwy.	Not Eligible

Description of Previously Recorded Architectural and Historical Resources Within Two Miles of Project Alternatives (Continued)

Key #	County	Municipality	Historic Name	Resource Category	Address	National Register Status
107784	Allegheny	Monroeville Borough	Thompson Run Rd. Bridge	Structure	Thompson Run Rd.	Not Eligible
107826	Allegheny	Wilkins Township	Linhart	District		Not Eligible
110340	Allegheny	Multiple	Union Railroad (Dravosburg Borough to Monroeville Borough)	District		Eligible
120235	Allegheny	Penn Hills Township	Bessemer & Lake Erie Railroad: Roundhouse	Building	Leechburg Rd.	Eligible
129654	Allegheny	Monroeville Borough		Structure	SR 2065	Demolished or 100% Destroyed
129655	Allegheny	Monroeville Borough		Structure	SR 2063	Not Eligible
129656	Allegheny	Monroeville Borough		Structure	SR 22	Not Eligible
129657	Allegheny	Monroeville Borough		Structure	SR 2048	Not Eligible
129658	Allegheny	Monroeville Borough		Structure	SR 22	Not Eligible
129659	Allegheny	Monroeville Borough		Structure	SR 286	Not Eligible
129660	Allegheny	Monroeville Borough		Structure	SR 2081	Not Eligible
129662	Allegheny	Monroeville Borough	Hall Station Bridge	Structure	SR 2048	Not Eligible
129663	Allegheny	Monroeville Borough		Structure	SR 7446	Not Eligible
129664	Allegheny	Monroeville Borough		Structure	SR 2065	Not Eligible
129665	Allegheny	Monroeville Borough		Structure	SR 22	Not Eligible
129666	Allegheny	Monroeville Borough		Structure	SR 286	Not Eligible

Description of Previously Recorded Architectural and Historical Resources Within Two Miles of Project Alternatives (Continued)

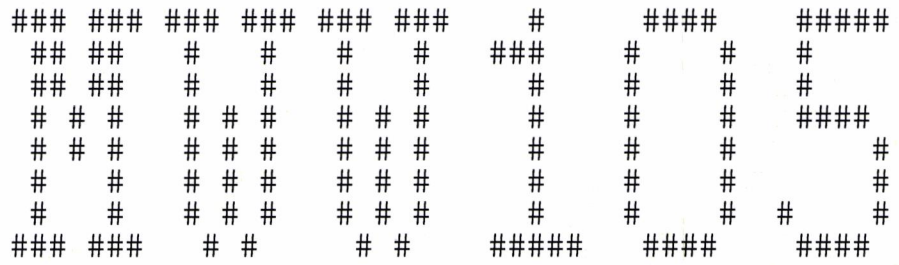
Key #	County	Municipality	Historic Name	Resource Category	Address	National Register Status
129667	Allegheny	Monroeville Borough		Structure	SR 286	Not Eligible
129668	Allegheny	Monroeville Borough		Structure	SR 286	Not Eligible
129703	Allegheny	Penn Hills Township		Structure	SR 2058	Not Eligible
129705	Allegheny	Penn Hills Township	B &LE Bridge No 1	Structure	SR 7113	Not Eligible
129842	Allegheny	Plum Borough		Structure	SR 7466	Not Eligible
129843	Allegheny	Plum Borough		Structure	SR 7466	Demolished or 100% Destroyed
129844	Allegheny	Plum Borough		Structure	SR 2086	Not Eligible
129845	Allegheny	Plum Borough		Structure	SR 2086	Not Eligible
129846	Allegheny	Plum Borough		Structure	SR 2086	Not Eligible
129848	Allegheny	Plum Borough		Structure	SR 2076	Not Eligible
129849	Allegheny	Plum Borough		Structure	SR 286	Not Eligible
129851	Allegheny	Plum Borough		Structure	SR 2075	Not Eligible
129852	Allegheny	Plum Borough		Structure	SR 286	Not Eligible
129853	Allegheny	Plum Borough		Structure	SR 286	Not Eligible
129986	Allegheny			Structure	SR 8	Not Eligible
129994	Allegheny	Wilkins Township		Structure	SR 2048	Not Eligible
129995	Allegheny	Wilkins Township		Structure	SR 2065	Not Eligible
129996	Allegheny	Wilkins Township		Structure	SR 2152	Not Eligible
155720		Multiple	Allegheny Valley Railway (aggregate file)	District		Not Evaluated/ Aggregate File

Description of Previously Recorded Architectural and Historical Resources Within Two Miles of Project Alternatives (Continued)

Key #	County	Municipality	Historic Name	Resource Category	Address	National Register Status
155731		Multiple	Bessemer & Lake Erie Railroad (aggregate file)	District		Not Evaluated/ Aggregate File
155893		Multiple	Pennsylvania Turnpike: Western Extension	Structure		Eligible
156313	Allegheny	Plum Borough	Plum High School	Building	100 School Rd.	Not Eligible
200628	Allegheny	Penn Hills Township	Penn Hills Municipal Building	Building	12245 Frankstown Rd.	Not Eligible
202110	Allegheny	Plum Borough	Grays Farm	Building	7740 Saltsburg Road	Not Eligible
202111	Allegheny	Plum Borough	Temple Sinai Cemetery	Building	7740 Saltsburg Road	Undetermined
202112	Allegheny	Plum Borough	Clements Farmstead	Building	7825 Saltsburg Road	Not Eligible
202113	Allegheny	Plum Borough		Building	401 Davidson Road	Not Eligible
202114	Allegheny	Plum Borough	American Legion Post 980	Building	7824 Saltsburg Road	Not Eligible
202115	Allegheny	Monroeville Borough		Building	4336 Northern Pike	Not Eligible
202116	Allegheny	Monroeville Borough	East Exit Motel	Building	4500 William Penn Highway	Undetermined
202117	Allegheny	Plum Borough	Peak Ski and Snowboard Center	Building	640 Center Road	Not Eligible
202118	Allegheny	Monroeville Borough		Building	4404 Gateway Drive	Not Eligible
202119	Allegheny	Monroeville Borough		Building	4405 Gateway Drive	Not Eligible
202120	Allegheny	Plum Borough		Building	676 Center Road	Not Eligible
202121	Allegheny	Monroeville Borough		Building	575 Beatty Road	Undetermined

Description of Previously Recorded Architectural and Historical Resources Within Two Miles of Project Alternatives (Continued)

Key #	County	Municipality	Historic Name	Resource Category	Address	National Register Status
202300	Lycoming	Cascade Township		Building	11146 Rose Valley Road	Undetermined
202646	Allegheny	Penn Hills Township		Building	11344 Azalea Drive	Undetermined
202993	Allegheny	Penn Hills Township; Plum Borough	Bessemer & Lake Erie Railroad	District		Eligible
202998	Allegheny	Penn Hills Township; Plum Borough	Pennsylvania Railroad: Plum Creek Branch	District		Not Eligible
202999	Allegheny	Plum Borough	Regency Park Plan	District	Regency Drive, Kathy Lynn Drive, Millers Lane, Pikeview Drive	Not Eligible



Job : 214
Date: 3/21/2018
Time: 12:55:50 PM

Automated Acid Pickling Line Matrix

Station	Process	DOT (inches)	FTB (inches)	Depth (inches)	Freeboard (inches)	Process Cells (Cells / Tank Compartment)	Volume - Total (Gallons)	Volume - Operating (Gallons)	Temperature (° F)	Specific Gravity	Tank Material	Tank Insulated	Immersion Time, Minimum (sec.)	Immersion Time, Maximum (sec.)	Insulated, 2" Fiberboard	Overflow, Weir	Emergency Overflow Weir to Drain Header	Emergency Overflow Weir to Tunnel Floor	4" Flanged Drain With Air Operated Diaphragm Valve, HMI Remote	Drain Connected to Acid Drain Header	3" Flanged Drain With TUBV and Camlock Fitting	Saddles, Steel	RTD Probe, Primary	RTD Probe, Secondary	RTD Probe, Tertiary	Immersion Steam Coil	Steam Manifold with Solenoid Valve and Manual Bypass	Condensate Return Manifold with Steam Trap	Cooling, Internal Cooling Coil, SS316	Cooling, Internal Cooling Coil, PVDF	Cooling Water Supply Manifold with Solenoid Valve and Manual Bypass	Mechanical Agitation, Vibration	Eductor Agitation	Eductor Agitation Pump	Eductor Agitation Pump, Vertical	Eductor Agitation Pump, Duall Vertical, Halar Coated	Eductor Agitation, Pump Low-Flow Safety Shutoff Switch	Level Sensor, Configuration, Four (4) Point	Conductivity Sensor, Monitoring/Control	Deluge System, Water, 330 GPM, 4" Flange, Automated Valve	Deluge System, Calcium Nitrate, 330 GPM, 4" Flange, Automated Valve	Water Fill, Continuous with 8-10 GPM Flow Restrictor	Water Fill, Automatic with Manual Bypass	Interior Spray System, Duall Pump with Low Flow sensor, 500 GPM @ 100 PSI,	Automatic HCL Chemical Dosing System, Fed From Common Local Storage Tank	Automatic Inhibitor Chemical Dosing System, Feed From Customer Tote	Automatic Nitric Chemical Dosing System, Connected to Common Local Storage Tank	Automatic HF Chemical Dosing System, Fed From Common Local Storage Tank	Automatic Urea Chemical Dosing System, Feed From Customer Tote	Automatic Sulfuric Chemical Dosing System, Feed From Customer Tote	Automatic Pickleen Chemical Dosing System, Feed From Customer Tote	Connection to Shared HCL Transfer Storage Tank	Connection to Shared HCL /HF Transfer Storage Tank	Two (2) 1 1/2" Flange Fittings for Acid Regen Connection	Dry Powder Auger Feed System	Ventilation, Push Air Manifold	Ventilation Hood	Ventilation Hood Designation	Ventilation Hood Factor (CFM/Ft^2)	Push Air Blower
101	Salt Bath					1																																																						
102	Salt Bath					1																																																						
103	Salt Bath					1																																																						
104	Quench					1																																																						
105	HCL Acid, Chrome Grades, 48% BV	90	108	84	8	1	3,535	3,199	185	1.1	PP	Yes			x		x		x	x	x	x	x			x	x	x		x	x	x	x	x			x	x					x		x	x										x	x	HCL SCR	150	
106	HCL Acid, Chrome Grades, 48% BV	90	108	84	8	1	3,535	3,199	185	1.1	PP	Yes			x		x		x	x	x	x	x			x	x	x				x	x	x			x	x					x		x	x										x	x	HCL SCR	150	
107	HCL Acid, 18-8, 48% BV	90	108	84	8	1	3,535	3,199	185	1.1	PP	Yes			x		x		x	x	x	x	x			x	x	x				x	x	x			x	x					x		x	x										x	x	HCL SCR	150	
108	HCL Acid, 18-8, 48% BV	90	108	84	8	1	3,535	3,199	185	1.1	PP	Yes			x		x		x	x	x	x	x			x	x	x				x	x	x			x	x					x		x	x										x	x	HCL SCR	150	
109	Immersion Rinse	90	108	84	8	1	3,535	3,199		1.0	PP					x			x	x	x	x										x	x	x			x	x				x																		
110	Hot Rinse Transfer	90	108	84	8	1	3,535	3,199	160	1.0	PP	Yes			x	x			x	x		x	x			x	x	x				x	x	x			x	x	x				x														x	x	ALK	150	
111	Nitric Acid, 28% BV	90	108	84	8	1	3,535	3,199	130	1.1	PP							x	x	x	x	x	x	x	x				x		x	x	x	x			x	x		x			x				x		x					x		x	x	Nitric SCR	150	
112	Nitric Acid, 28% BV	90	108	84	8	1	3,535	3,199	130	1.1	PP							x	x	x		x	x	x	x				x		x	x	x	x			x	x		x			x				x		x					x		x	x	Nitric SCR	150	
113	Nitric (18% BV) / HF (5% BV)	90	108	84	8	1	3,535	3,199	130	1.1	PP							x	x	x		x	x	x	x					x	x	x	x	x			x	x		x	x		x				x	x	x			x	x	x		x	x	Nitric SCR	150	
114	Nitric (18% BV) / HF (5% BV)	90	108	84	8	1	3,535	3,199	130	1.1	PP							x	x	x		x	x	x	x					x	x	x	x	x			x	x		x	x		x				x	x	x			x	x	x		x	x	Nitric SCR	150	
115	Nitric (5% BV) / HCL Acid (38% BV)	90	108	84	8	1	3,535	3,199	140	1.1	PP	Yes			x		x		x	x		x	x			x	x	x		x	x	x	x	x			x	x					x														x	x	Nitric SCR	150	
116	Sulfuric (20% BV)	90	108	84	8	1	3,535	3,199	180	1.1	PP	Yes			x		x		x	x		x	x			x	x	x				x	x	x			x	x					x							x	x					x	x	Nitric SCR	150	
117	Final Spray Rinse	90	108	84		1				1.0	PP					x			x	x		x																x	x				x	x																
118	Hot Rinse	90	108	84	8	1	3,535	3,199	160	1.0	PP	Yes			x	x			x	x		x	x			x	x	x				x	x	x			x	x	x				x														x	x	ALK	150	
119	Transfer Stand	90	108	84		1					HRS											x																																				ALK		
120	Pickleen (PK)	90	108	84	8	1	3,535	3,199	185	1.1	HRS	Yes			x		x				x	x	x			x	x	x					x		x		x	x					x								x					x	x	ALK	150	
121	PreCoat	90	108	84	8	1	3,535	3,199	195	1.1	PP	Yes			x		x				x	x	x			x	x	x					x			x	x	x					x								x				x	x	x	ALK	150	
122	Lime	90	108	84	8	1	3,535	3,199	185	1.1	HRS	Yes			x		x		x			x	x			x	x	x					x	x			x	x					x								x				x	x	x	ALK	150	
123	Dryer	90	108	84		1			350	1.0	SS304L	Yes			x							x	x																																					
124	Dryer	90	108	84		1			350	1.0	SS304L	Yes			x							x	x																																					
125	Load/Unload	90	108	84		1																x																																						
126	Load/Unload	90	108	84		1																x																																						
127	Load/Unload	90	108	84		1																x																																						
128	Load/Unload	90	108	84		1																x																																						
129	Load/Unload	90	108	84		1																x																																						
130	Load/Unload	90	108	84		1																x																																						
	Estimated Line Length FT	*208*													13	4	9	4	15	14	8	26	17	4	4	11	11	11	2	4	6		16	14	1		16	17	3	4	2	1	16	1	4	4	4	2	4	1	4	2	2	4	2	15	15			1

Automated Acid Pickling Line Matrix

Station	Process	DOT (inches)	FTB (inches)	Depth (inches)	Freeboard (inches)	Process Cells (Cells / Tank Compartment)	Volume - Total (Gallons)	Volume - Operating (Gallons)	Temperature (° F)	Specific Gravity	Tank Material	Tank Insulated	Immersion Time, Minimum (sec.)	Immersion Time, Maximum (sec.)
	TOTALS													
3	Total AI													
0	Total AO													
153	Total DI													
98	Total DO													
25	Total RTD													
27	110/1/60 Motor <1HP													
1	Total Motor <5HP													
15	Total Motor >5HP													
0	Total Motor =>10HP													
0	VFD													

Station	Process	Insulated, 2" Fiberboard	Overflow, Weir	Emergency Overflow Weir to Drain Header	Emergency Overflow Weir to Tunnel Floor	4" Flanged Drain With Air Operated Diphragm Valve, HMI Remote	Drain Connected to Acid Drain Header	3" Flanged Drain With TUBV and Camlock Fitting	Saddles, Steel	RTD Probe, Primary	RTD Probe, Secondary	RTD Probe, Tertiary	Immersion Steam Coil	Steam Manifold with Solenoid Valve and Manual Bypass	Condensate Return Manifold with Steam Trap	Cooling, Internal Cooling Coil, SS316	Cooling, Internal Cooling Coil, PVDF	Cooling Water Supply Manifold with Solenoid Valve and Manual Bypass	Mechanical Agitation, Vibration
	TOTALS																		
3	Total AI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
0	Total AO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
153	Total DI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
98	Total DO	-	-	-	-	15	-	-	-	-	-	-	-	11	-	-	-	6	
25	Total RTD	-	-	-	-	-	-	-	-	17	4	4	-	-	-	-	-	-	
27	110/1/60 Motor <1HP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1	Total Motor <5HP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
15	Total Motor >5HP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
0	Total Motor =>10HP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
0	VFD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Station	Process	Eductor Agitation	Eductor Agitation Pump	Eductor Agitation Pump, Vertical	Eductor Agitation Pump, Duall Vertical, Halar Coated	Eductor Agitation, Pump Low-Flow Safety Shutoff Switch	Level Sensor, Configuration, Four (4) Point	Conductivity Sensor, Monitoring/Control	Deluge System, Water, 330 GPM, 4" Flange, Automated Valve	Deluge System, Calcium Nitrate, 330 GPM, 4" Flange, Automated Valve	Water Fill, Continuous with 8-10 GPM Flow Restrictor	Water Fill, Automatic with Manual Bypass	Interior Spray System, Duall Pump with Low Flow sensor, 500 GPM @ 100 PSI,
	TOTALS												
3	Total AI	-	-	-		-	-	3	-	-	-	-	-
0	Total AO	-	-	-		-	-	-	-	-	-	-	-
153	Total DI	-	-	-		16	68	-	-	-	-	-	-
98	Total DO	-	14	1		-	-	-	4	2	-	16	1
25	Total RTD	-	-	-		-	-	-	-	-	-	-	-
27	110/1/60 Motor <1HP	-	-	-		-	-	-	-	-	-	-	-
1	Total Motor <5HP	-	-	-		-	-	-	-	-	-	-	-
15	Total Motor >5HP	-	14	1		-	-	-	-	-	-	-	-
0	Total Motor =>10HP	-	-	-		-	-	-	-	-	-	-	-
0	VFD	-	-	-		-	-	-	-	-	-	-	-

Station	Process	Automatic HCL Chemical Dosing System, Fed From Common Local Storage Tank	Automatic Inhibitor Chemical Dosing System, Feed From Customer Tote	Automatic Nitric Chemical Dosing System, Connected to Common Local Storage Tank	Automatic HF Chemical Dosing System, Fed From Common Local Storage Tank	Automatic Urea Chemical Dosing System, Feed From Customer Tote	Automatic Sulfuric Chemical Dosing System, Feed From Customer Tote	Automatic Pickleen Chemical Dosing System, Feed From Customer Tote	Connection to Shared HCL Transfer Storage Tank	Connection to Shared HCL /HF Transfer Storage Tank	Two (2) 1 1/2" Flange Fittings for Acid Regen Connection	Dry Powder Auger Feed System	Ventilation, Push Air Manifold	Ventilation Hood	Ventilation Hood Designation	Ventilation Hood Factor (CFM/Ft^2)	Push Air Blower
	TOTALS																
3	Total AI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0	Total AO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
153	Total DI	12	12	12	6	12	3	12	-	-	-	-	-	-	-	-	-
98	Total DO	4	4	4	2	4	1	4	2	2	-	-	-	-	-	-	1
25	Total RTD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	110/1/60 Motor <1HP	4	4	4	2	4	1	4	2	2	-	-	-	-	-	-	-
1	Total Motor <5HP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
15	Total Motor >5HP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0	Total Motor =>10HP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0	VFD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CONFIDENTIAL Attachment 4

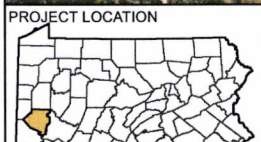
(No Public Version Available)

CONFIDENTIAL Attachment 5a
(No Public Version Available)

CONFIDENTIAL Attachment 5b
(No Public Version Available)

Attachment 6

PROJECT LOCATION



ALLEGHENY COUNTY, PENNSYLVANIA

REFERENCE: ESRI WORLD IMAGERY, NAIP, 2015, ACCESSED 06/2017. WORLD TRANSPORTATION, ESRI, DELORME, HERE, MAPMYINDIA, TOMTOM, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY. OBTAINED THROUGH ESRI ARCGIS ONLINE, ACCESSED 06/2017.

LEGEND

- EXISTING SUBSTATION
- ALTERNATIVE ROUTE 1
- ALTERNATIVE ROUTE 2
- ALTERNATIVE ROUTE 3
- STUDY AREA

0 1,500 3,000 6,000 Feet

FIGURE ES-1
STUDY AREA AND ROUTE ALTERNATIVES

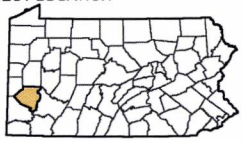
UNIVERSAL TO PLUM
138kV TRANSMISSION LINE PROJECT
DUQUESNE LIGHT COMPANY

DRAWN BY: AEK DATE: 6/5/2017
CHECKED: MDO APPROVED: AMK

Z:\Energy\2012\C120473.23 - DLC Universal-Plum 138kV\GIS\MXD\Constraints\Siting\Fig_ES-1_Study_Area_Route_Alternative_2017_04_28.mxd

Attachment 7

PROJECT LOCATION



ALLEGHENY COUNTY, PENNSYLVANIA

REFERENCES: USGS 7.5' TOPOGRAPHIC QUADRANGLES: BRADDOCK (1979) AND MURRYSVILLE (1970), PENNSYLVANIA, OBTAINED THROUGH ESRI USA TOPO MAPS, NATIONAL GEOGRAPHIC AND USGS, ACCESSED 06/2017.

LEGEND

PREFERRED ROUTE

EXISTING SUBSTATION

0 1,000 2,000 4,000 Feet

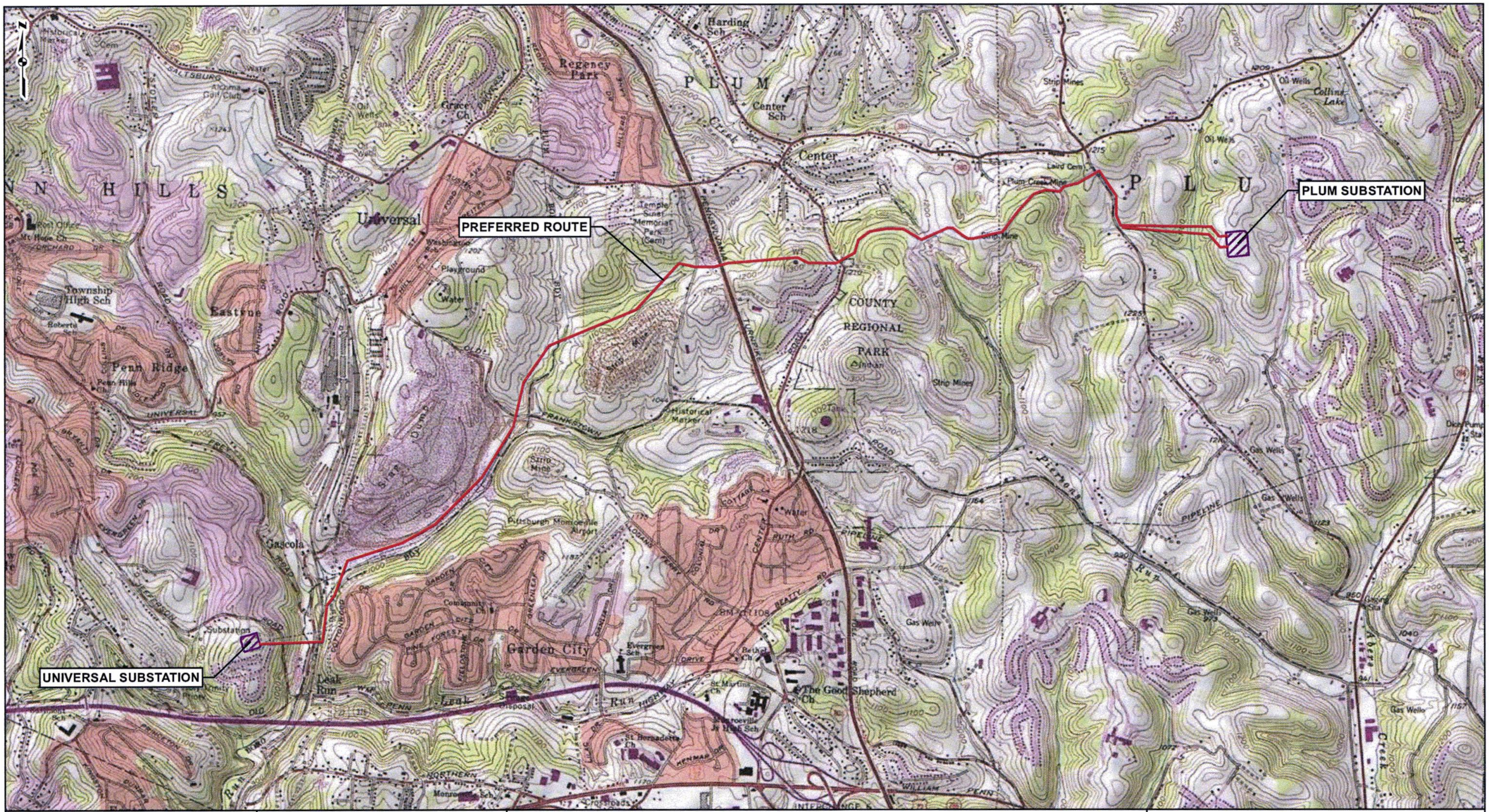
EXHIBIT 1
AERIAL PHOTOGRAPH MAP SHOWING
THE LOCATION OF THE LINE

UNIVERSAL TO PLUM
138kV TRANSMISSION LINE PROJECT
DUQUESNE LIGHT COMPANY

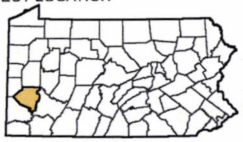
DRAWN BY: EFJ	DATE: 6/7/2017
CHECKED: MDO	APPROVED: AMK

Z:\Energy\2012\C120473.23 - DLC Universal-Plum 138kV\GIS\MXD\Misc\2016_11_04_Preferred_Route_Topo\Preferred_Route_Topo_2016_11_04.mxd

Attachment 8



PROJECT LOCATION



ALLEGHENY COUNTY, PENNSYLVANIA

REFERENCES: USGS 7.5' TOPOGRAPHIC QUADRANGLES: BRADDOCK (1979) AND MURRYSVILLE (1970), PENNSYLVANIA, OBTAINED THROUGH ESRI USA TOPO MAPS, NATIONAL GEOGRAPHIC AND USGS, ACCESSED 11/2016.

LEGEND

PREFERRED ROUTE

EXISTING SUBSTATION

0 1,000 2,000 4,000 Feet

EXHIBIT 1
TOPOGRAPHIC MAP SHOWING
THE LOCATION OF THE LINE

UNIVERSAL TO PLUM
138kV TRANSMISSION LINE PROJECT
DUQUESNE LIGHT COMPANY

DRAWN BY: EFJ	DATE: 11/4/2016
CHECKED: MDO	APPROVED: AMK

\\gaiconsultants.local\BUProj\Energy\2012\C120473.23 - DLC Universal-Plum 138kV\GIS\MXD\Misc\2016_11_04_Preferred_Route_Topo\Preferred_Route_Topo_2016_11_04.mxd

Attachment 9a

PROPOSED ℄ 138kV LINE R/W
INSTALLED TRIANGULAR CONFIGURATION
TYPICAL TANGENT STRUCTURES FOR
Z-154 ADJACENT TO Z-54

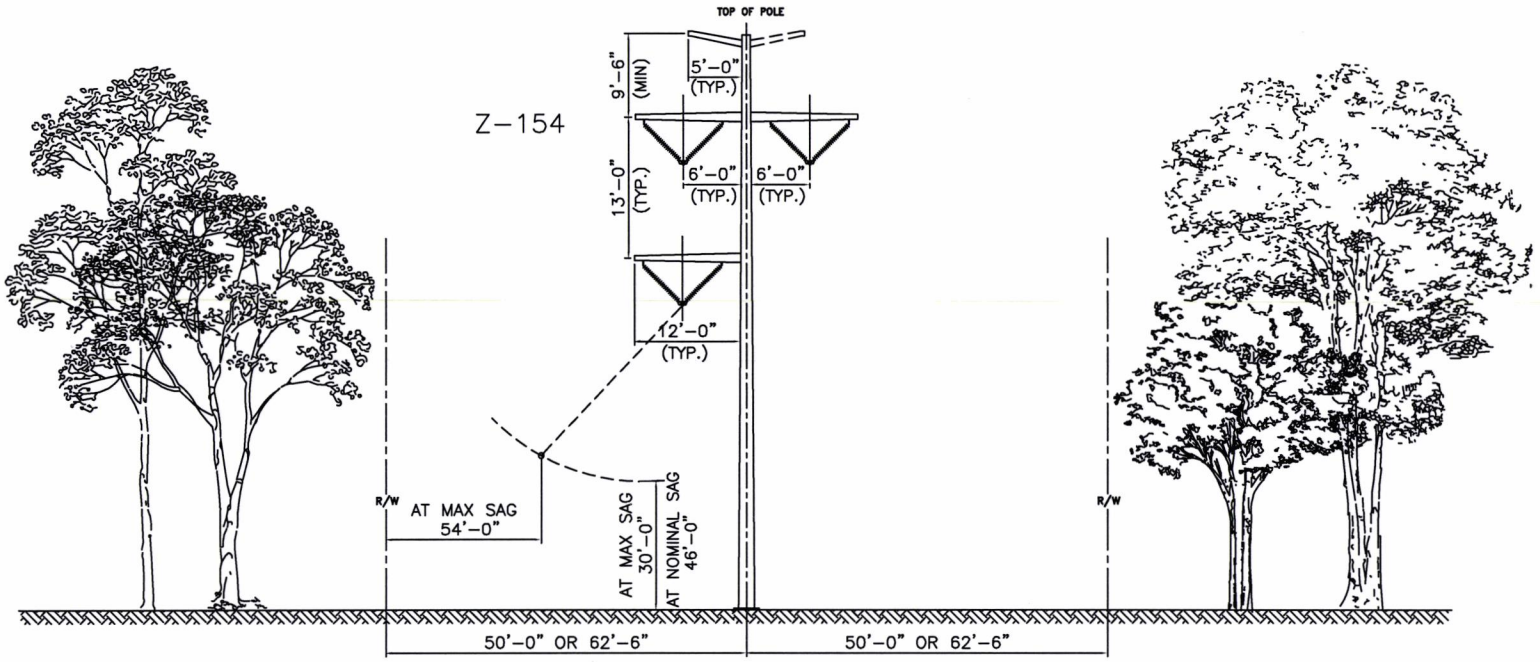


EXHIBIT 8	gai consultants
TYPICAL CROSS SECTION OF LINE UNIVERSAL–PLUM 138kV DUQUESNE LIGHT COMPANY ALLEGHENY COUNTY, PA	

Attachment 9b

PROPOSED ℄ 138kV LINE R/W
TYPICAL UNDER CROSSING
DEADEND STRUCTURE

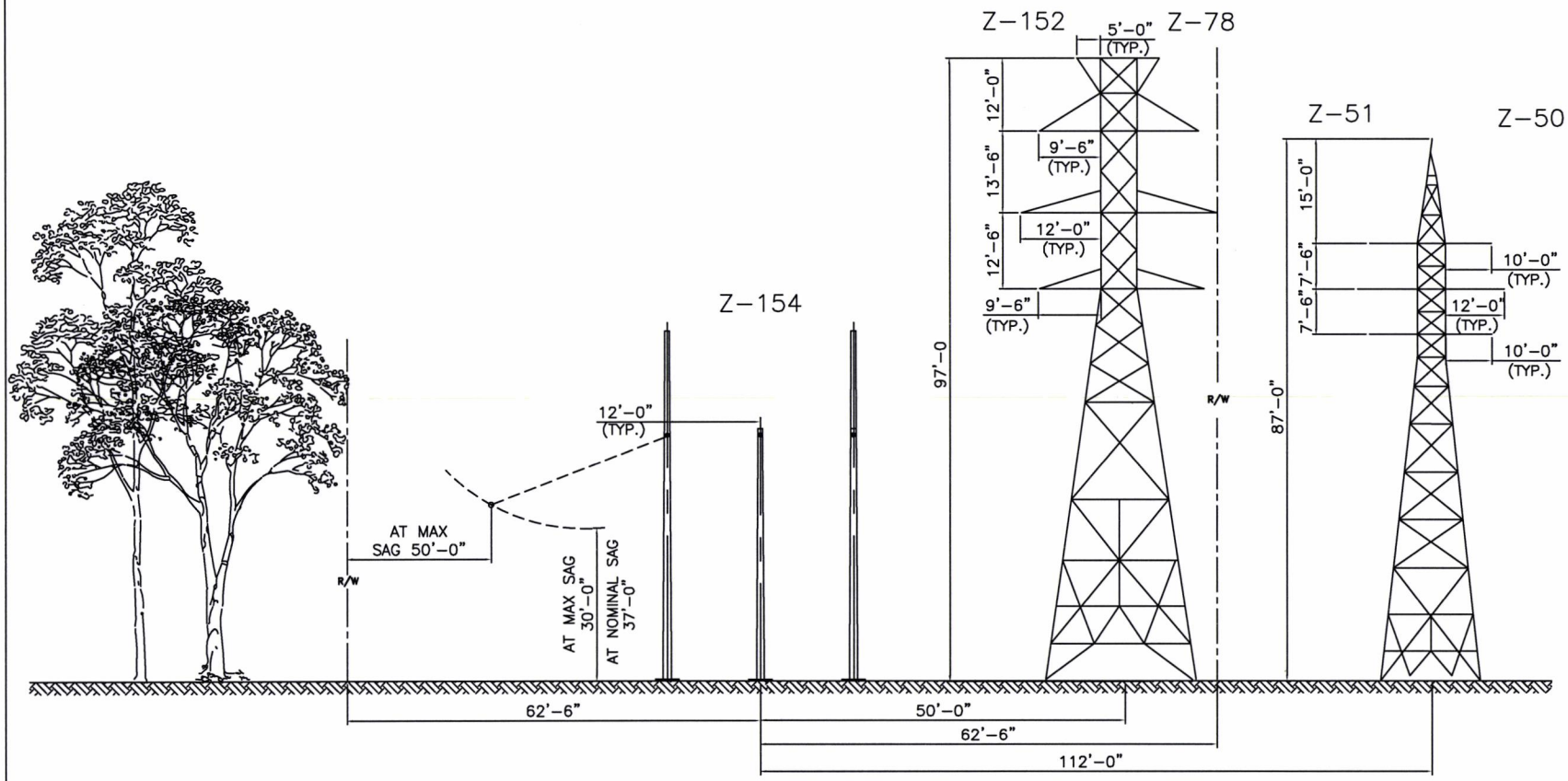


EXHIBIT 6

gai consultants

TYPICAL CROSS SECTION OF LINE

UNIVERSAL–PLUM 138kV

DUQUESNE LIGHT COMPANY
ALLEGHENY COUNTY, PA

Attachment 10

PROPOSED ℄ 138kV LINE R/W
INSTALLED TRIANGULAR CONFIGURATION
TYPICAL TANGENT STRUCTURES FOR
Z–154 ADJACENT TO Z–54

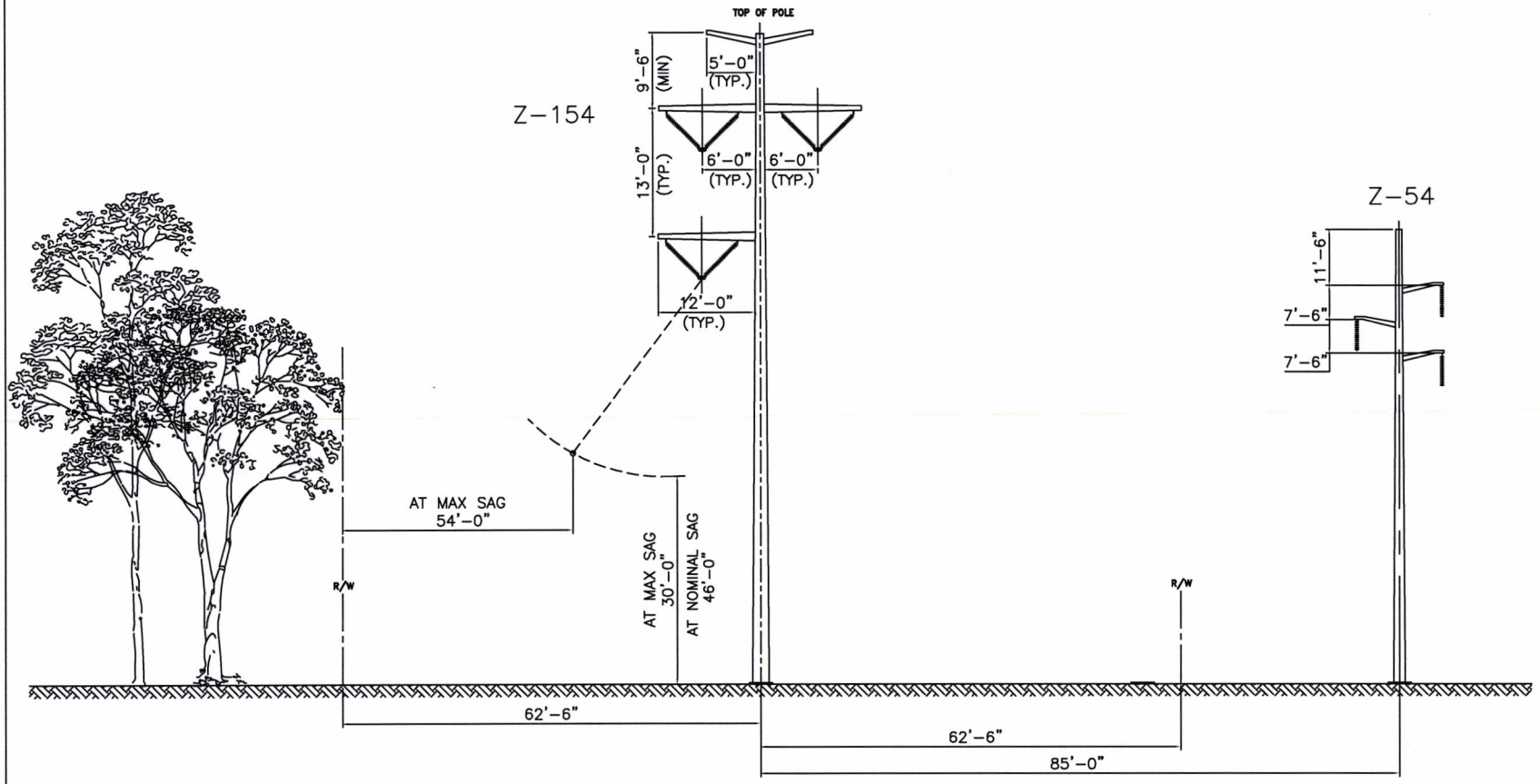


EXHIBIT 7

gai consultants

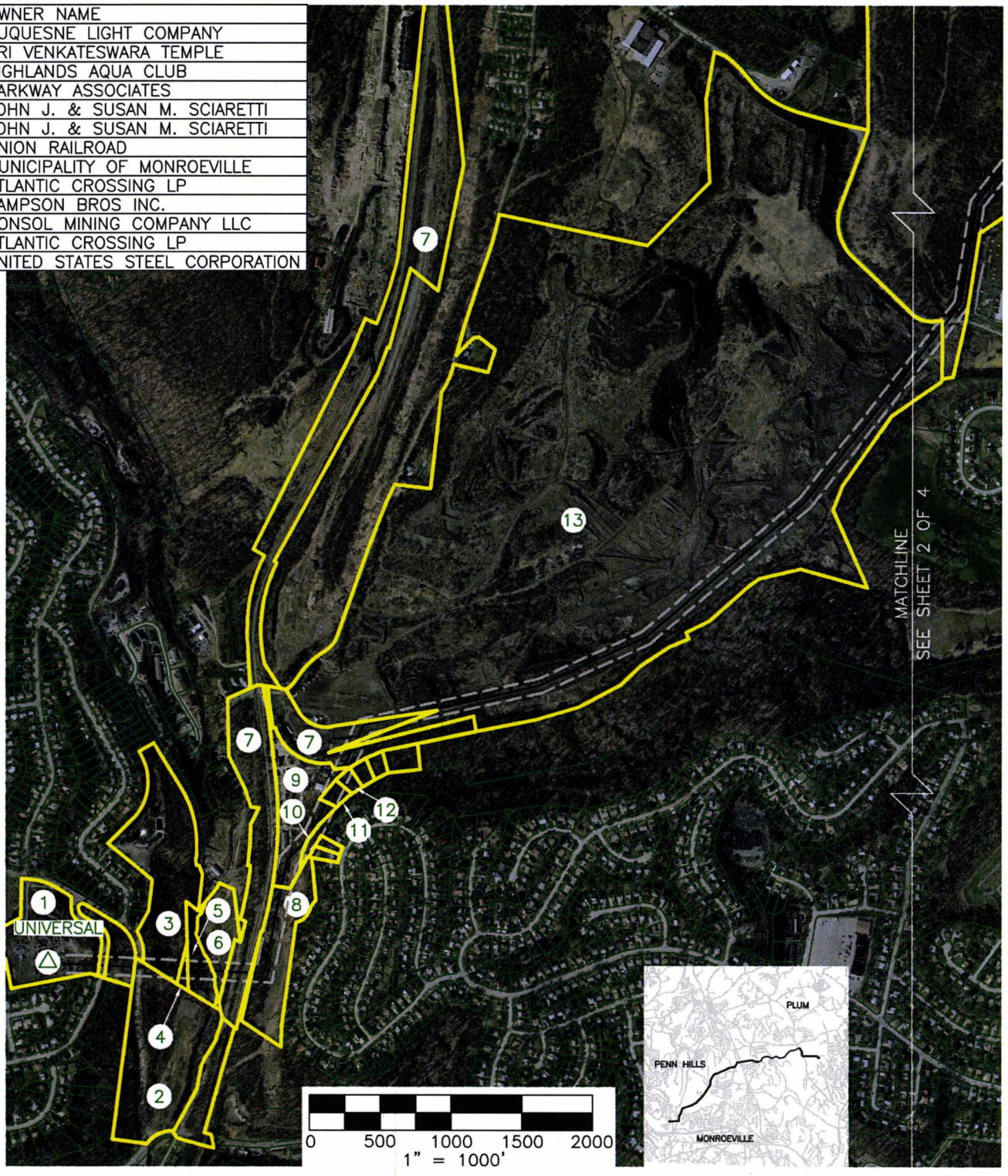
TYPICAL CROSS SECTION OF LINE

UNIVERSAL–PLUM 138kV

DUQUESNE LIGHT COMPANY
ALLEGHENY COUNTY, PA

Attachment 11

LABEL	OWNER NAME
1	DUQUESNE LIGHT COMPANY
2	SRI VENKATESWARA TEMPLE
3	HIGHLANDS AQUA CLUB
4	PARKWAY ASSOCIATES
5	JOHN J. & SUSAN M. SCIARETTI
6	JOHN J. & SUSAN M. SCIARETTI
7	UNION RAILROAD
8	MUNICIPALITY OF MONROEVILLE
9	ATLANTIC CROSSING LP
10	SAMPSON BROS INC.
11	CONSOL MINING COMPANY LLC
12	ATLANTIC CROSSING LP
13	UNITED STATES STEEL CORPORATION



LEGEND

- △ SUBSTATION
- ROUTE
- ROW
- PARCEL WITHIN ROW
- GIS PARCEL BOUNDARY

SOURCES: PENNSYLVANIA SPATIAL DATA ACCESS (PASDA)
PROJECTED COORDINATE SYSTEM: PA STATE PLANE SOUTH
DATUM: NORTH AMERICAN DATUM OF 1983 (NAD83)
PROJECTION: LAMBERT CONFORMAL CONIC.
LINEAR UNIT: FEET
ELLIPSOID: GEODETIC REFERENCE SYSTEM 80

DUQUESNE LIGHT COMPANY

REAL ESTATE DEPT.–SURVEYING PITTSBURGH,PA.

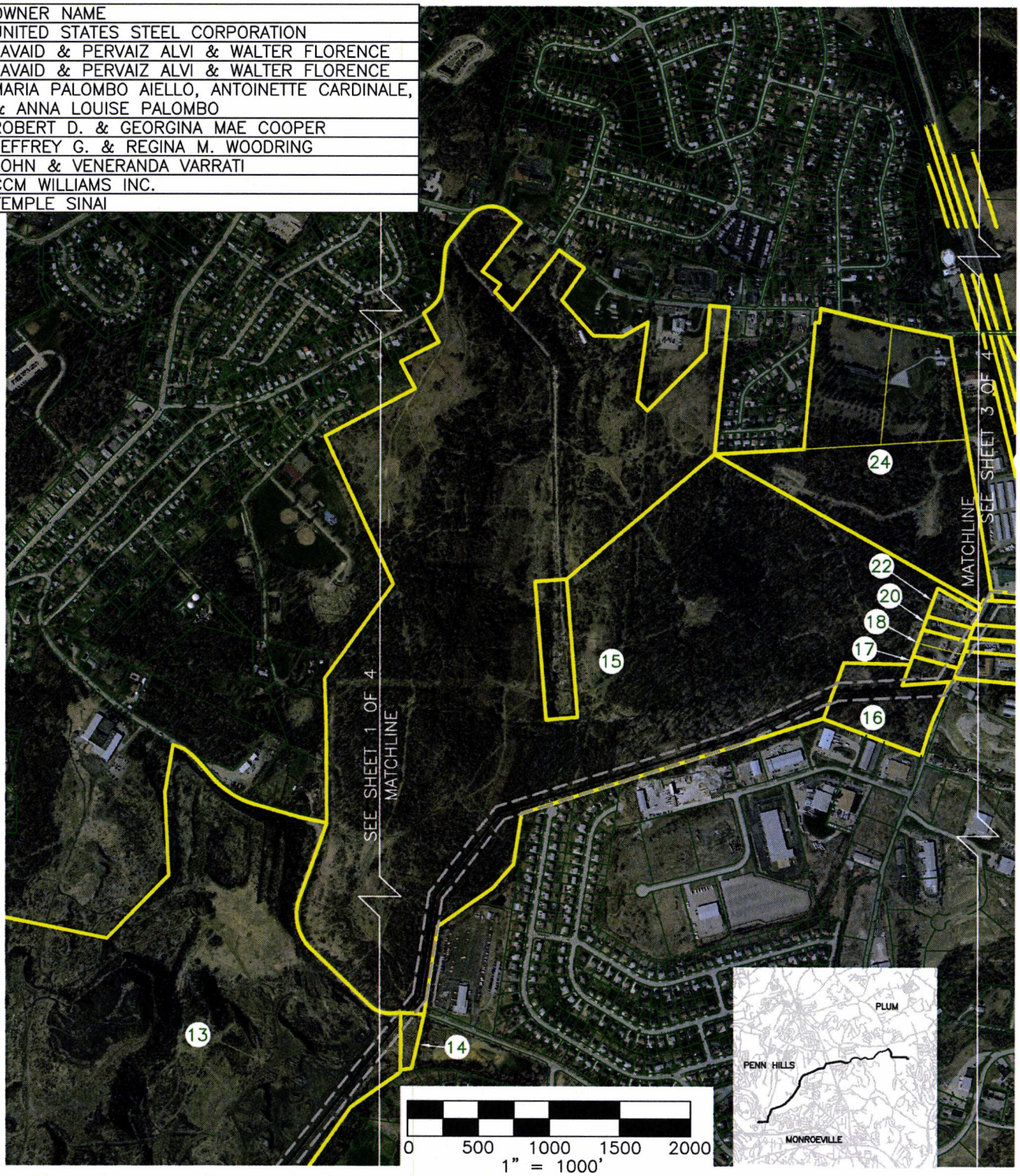
SCALE AS SHOWN	DATE 03/20/18	ARCH. APP.
	DRAWN JLS	ELECT. APP.
	CHECKED MEH	MECH. APP.
	INSP.	STRUCT. APP.

UNIVERSAL – PLUM
ALLEGHENY COUNTY
AERIAL EXHIBIT

MONROEVILLE TWP./PENN HILLS TWP.
& PLUM BOROUGH
SHEET 1 OF 4

APP. COMPLETE WHEN INITIALED HERE	O.F.E.	L	NO. 8793
	C.O.		

LABEL	OWNER NAME
13	UNITED STATES STEEL CORPORATION
14	JAVAID & PERVAIZ ALVI & WALTER FLORENCE
15	JAVAID & PERVAIZ ALVI & WALTER FLORENCE
16	MARIA PALOMBO AIELLO, ANTOINETTE CARDINALE, & ANNA LOUISE PALOMBO
17	ROBERT D. & GEORGINA MAE COOPER
18	JEFFREY G. & REGINA M. WOODRING
20	JOHN & VENERANDA VARRATI
22	CCM WILLIAMS INC.
24	TEMPLE SINAI



LEGEND

- △ SUBSTATION
- ROUTE
- ROW
- PARCEL WITHIN ROW
- GIS PARCEL BOUNDARY

SOURCES: PENNSYLVANIA SPATIAL DATA ACCESS (PASDA)
PROJECTED COORDINATE SYSTEM: PA STATE PLANE SOUTH
DATUM: NORTH AMERICAN DATUM OF 1983 (NAD83)
PROJECTION: LAMBERT CONFORMAL CONIC.
LINEAR UNIT: FEET
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DUQUESNE LIGHT COMPANY

REAL ESTATE DEPT.–SURVEYING PITTSBURGH,PA.

SCALE AS SHOWN	DATE 03/20/18	ARCH. APP.
	DRAWN JLS	ELECT. APP.
	CHECKED MEH	MECH. APP.
	INSP.	STRUCT. APP.

APP. COMPLETE WHEN INITIALED HERE: O.F.E. / C.O.

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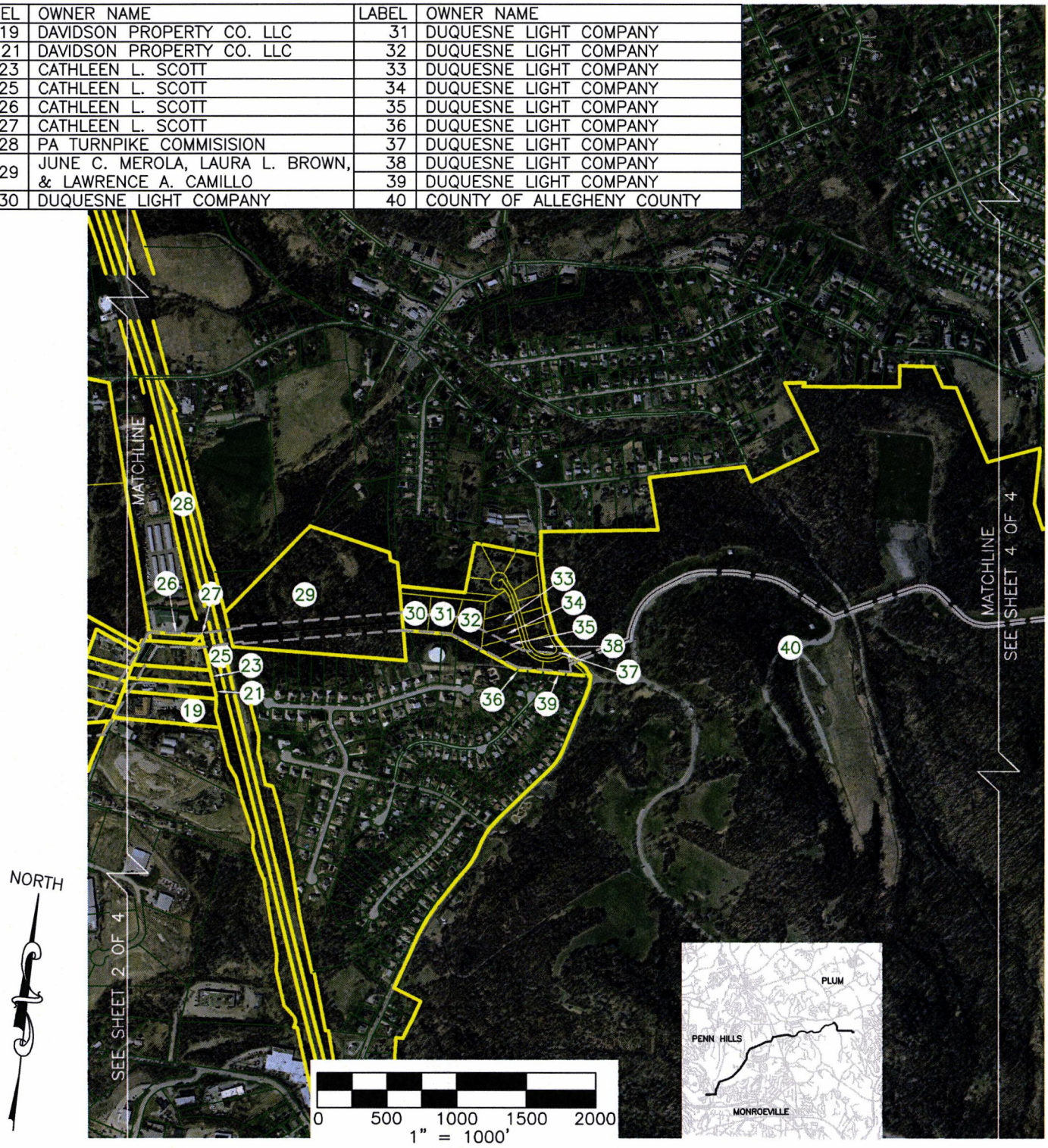
ALLEGHENY COUNTY
AERIAL EXHIBIT

MONROEVILLE TWP./PENN HILLS TWP.
& PLUM BOROUGH
SHEET 2 OF 4

L NO. 8793

LABEL	OWNER NAME	LABEL	OWNER NAME
19	DAVIDSON PROPERTY CO. LLC	31	DUQUESNE LIGHT COMPANY
21	DAVIDSON PROPERTY CO. LLC	32	DUQUESNE LIGHT COMPANY
23	CATHLEEN L. SCOTT	33	DUQUESNE LIGHT COMPANY
25	CATHLEEN L. SCOTT	34	DUQUESNE LIGHT COMPANY
26	CATHLEEN L. SCOTT	35	DUQUESNE LIGHT COMPANY
27	CATHLEEN L. SCOTT	36	DUQUESNE LIGHT COMPANY
28	PA TURNPIKE COMMISISION	37	DUQUESNE LIGHT COMPANY
29	JUNE C. MEROLA, LAURA L. BROWN, & LAWRENCE A. CAMILLO	38	DUQUESNE LIGHT COMPANY
		39	DUQUESNE LIGHT COMPANY
30	DUQUESNE LIGHT COMPANY	40	COUNTY OF ALLEGHENY COUNTY



LEGEND

- △ SUBSTATION
- ROUTE
- ROW
- PARCEL WITHIN ROW
- GIS PARCEL BOUNDARY

SOURCES: PENNSYLVANIA SPATIAL DATA ACCESS (PASDA)
PROJECTED COORDINATE SYSTEM: PA STATE PLANE SOUTH
DATUM: NORTH AMERICAN DATUM OF 1983 (NAD83)
PROJECTION: LAMBERT CONFORMAL CONIC.
LINEAR UNIT: FEET
ELLIPSOID: GEODETIC REFERENCE SYSTEM 80

DUQUESNE LIGHT COMPANY

REAL ESTATE DEPT.–SURVEYING PITTSBURGH,PA.

SCALE AS SHOWN	DATE 03/20/18	ARCH. APP.
	DRAWN JLS	ELECT. APP.
	CHECKED MEH	MECH. APP.
	INSP.	STRUCT. APP.

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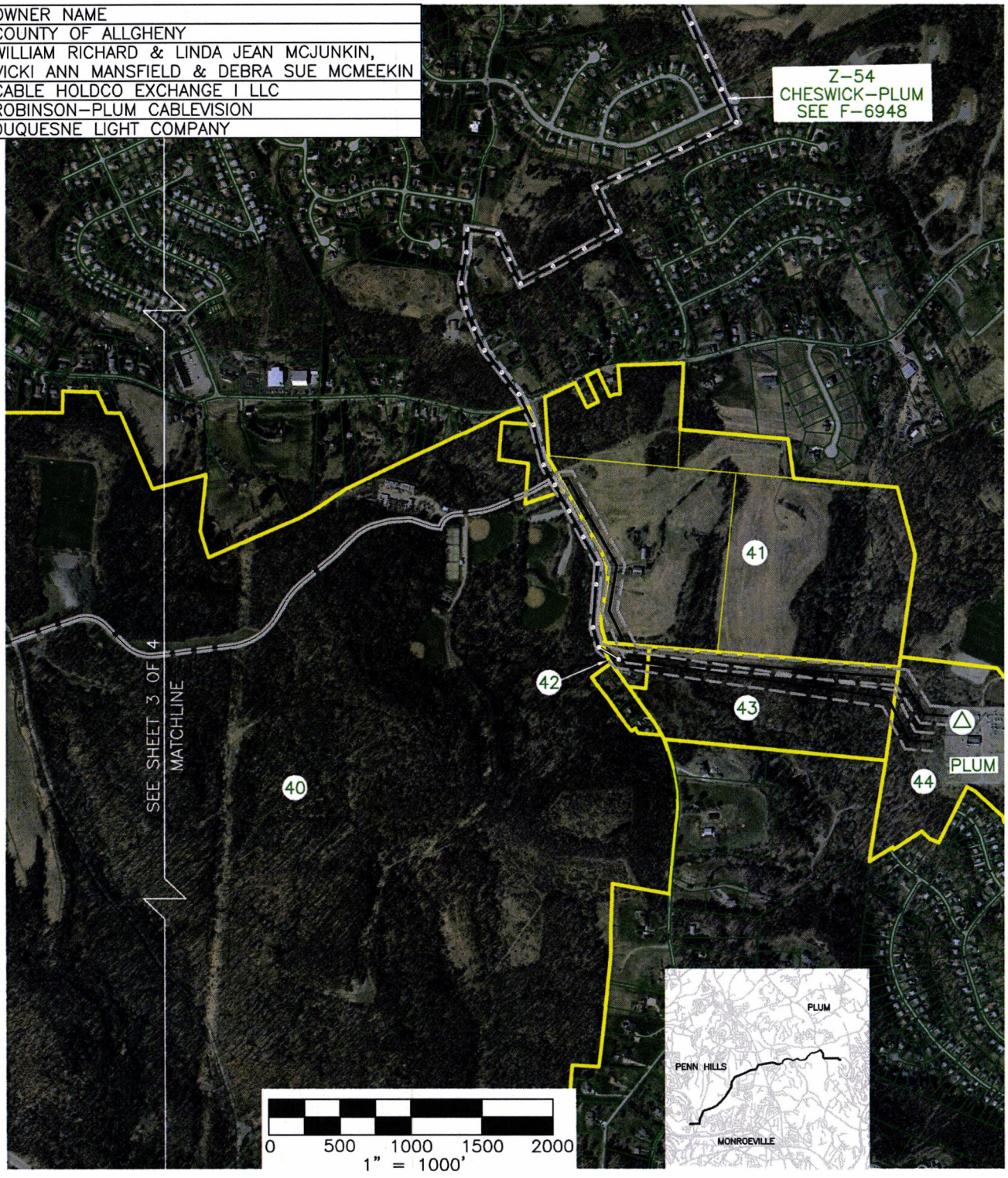
ALLEGHENY COUNTY
AERIAL EXHIBIT

MONROEVILLE TWP./PENN HILLS TWP.
& PLUM BOROUGH
SHEET 3 OF 4

APP. COMPLETE WHEN INITIALED HERE	O.F.E.	L	NO. 8793
	C.O.		

LABEL	OWNER NAME
40	COUNTY OF ALLGHENY
41	WILLIAM RICHARD & LINDA JEAN MCJUNKIN, VICKI ANN MANSFIELD & DEBRA SUE MCMEEKIN
42	CABLE HOLDCO EXCHANGE I LLC
43	ROBINSON–PLUM CABLEVISION
44	DUQUESNE LIGHT COMPANY



LEGEND

- △ SUBSTATION
- ROUTE
- ROW
- PARCEL WITHIN ROW
- GIS PARCEL BOUNDARY

SOURCES: PENNSYLVANIA SPATIAL DATA ACCESS (PASDA)
PROJECTED COORDINATE SYSTEM: PA STATE PLANE SOUTH
DATUM: NORTH AMERICAN DATUM OF 1983 (NAD83)
PROJECTION: LAMBERT CONFORMAL CONIC.
LINEAR UNIT: FEET
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DUQUESNE LIGHT COMPANY

REAL ESTATE DEPT.–SURVEYING PITTSBURGH,PA.

SCALE AS SHOWN	DATE 03/20/18	ARCH. APP.
	DRAWN JLS	ELECT. APP.
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	INSP.	STRUCT. APP.

UNIVERSAL – PLUM
ALLEGHENY COUNTY
AERIAL EXHIBIT

MONROEVILLE TWP./PENN HILLS TWP.
& PLUM BOROUGH
SHEET 4 OF 4

APP. COMPLETE WHEN INITIALED HERE	O.F.E.	L	NO. 8793
	C.O.		

Attachment 12

ATTACHMENT 12

NAMES AND ADDRESSES OF PROPERTY OWNERS

LINE NUMBER	MAP BLOCK LOT NUMBER	PARCEL ID	OWNER	TAX MAILING ADDRESS
1	540-M-354	0540M00354000000	DUQUESNE LIGHT COMPANY	1800 SEYMOUR STREET PITTSBURGH, PA 15233
2	637-N-247	0637N00247000000	SRI VENKATESWARA TEMPLE	PO BOX 17280 PITTSBURGH, PA 15235
3	637-E-288	0637E00288000000	HIGHLANDS AQUA CLUB INC.	130 MCALISTER DR PITTSBURGH, PA 15235
4	637-J-158	0637J00158000000	PARKWAY ASSOCIATES	4117 OLD WILLIAM PENN HWY MURRYSVILLE, PA 15668-1920
5	637-J-139-1	0637J00139000100	JOHN J. & SUSAN M. SCIARRETTI	1152 JEFFERSON HEIGHTS ROAD PITTSBURGH, PA 15235
6	637-J-139	0637J00139000000	JOHN J. & SUSAN M. SCIARRETTI	1152 JEFFERSON HEIGHTS ROAD PITTSBURGH, PA 15235
7	542-D-398-0-1(2)	0542D00398000001(2)	UNION RAILROAD	1200 PENN AVENUE, SUITE 300 PITTSBURGH, PA 15222
8	639-K-394	0639K00394000000	THE MUNICIPALITY OF MONROEVILLE	2700 MONROEVILLE BOULEVARD MONROEVILLE, PA 15146
9	637-B-122	0637B00122000000	ATLANTIC CROSSING LP	PO BOX 17336 PITTSBURGH, PA 15235
10	637-F-325	0637F00325000000	SAMPSON BROS INC.	133 JEFFERSON ROAD PITTSBURGH, PA 15235
11	637-B-100	0637B00100000000	CONSOL MINING COMPANY LLC	1000 CONSOL ENERGY DRRIVE CANONSBURG, PA 15317
12	637-B-105	0637B00105000000	ATLANTIC CROSSING LP	PO BOX 17336 PITTSBURGH, PA 15235
13	637-B-386	0637B00386000000	UNITED STATES STEEL CORPORATION	600 GRANT STREET, SUITE 1381 PITTSBURGH, PA 15219
14	741-A-12	0741A00012000000	JAVAID M ALVI AND PERVAIZ M ALVI AND WALTER M LORENCE	600 MUNIR DRIVE ELIZABETH, PA 15037
15	741-A-46	0741A00046000000	JAVAID M ALVI AND PERVAIZ M ALVI AND WALTER M LORENCE	600 MUNIR DRIVE ELIZABETH, PA 15037
16	740-H-130	0740H00130000000	MARIA PALOMBO AIELLO AND ANTOINETTE CARDINALE AND ANNA LOUISE PALOMBO	370 HAMILTON DRIVE PITTSBURGH, PA 15235
17	740-H-115	0740H00115000000	ROBERT D AND GEORGINA MAE COOPER	509 COTTAGE LANE MONROEVILLE, PA 15146

18	740-H-98	0740H00098000000	JEFFREY G. AND REGINA M. WOODRING	420 EDWARDS ROAD NEW KENSINGTON, PA 15068
19	740-H-31	0740H00031000000	DAVIDSON PROPERTY CO., LLC	3335 BOULEVARD OF THE ALLIES PITTSBURGH PA 15213
20	740-H-70	0740H00070000000	JOHN & VENERAND VARRATI	4444 MARYWOOD Dr MONROEVILLE PA 15146
21	740-H-42	0740H00042000000	DAVIDSON PROPERTY CO., LLC	3335 BOULEVARD OF THE ALLIES PITTSBURGH PA 15213
22	740-H-68	0740H00068000000	CCM WILLIAMS, LLC.	450 DAVIDSON RD PITTSBURGH, PA 15239
23	740-H-46	0740H00046000000	CATHLEEN L. SCOTT	995 WILLS AVENUE NEW KENSINGTON, PA 15068
24	739-S-125	0739S00125000000	TEMPLE SINAI	5505 FORBES AVENUE PITTSBURGH, PA15217
25	853-E-390	0853E00390000000	CATHLEEN L SCOTT	995 WILLS AVENUE NEW KENSINGTON, PA 15068
26	853-A-325	0853A00325000000	CATHLEEN L SCOTT	995 WILLS AVENUE NEW KENSINGTON, PA 15068
27	853-A-320	0853A00320000000	CATHLEEN L SCOTT	995 WILLS AVENUE NEW KENSINGTON, PA 15068
28	854-B-150	0854B00150000000	PA TURNPIKE COMMISSION	PO BOX 67676 HARRISBURG, PA 17106
29	853-B-10	0853B00010000000	JUNE C MEROLA AND LAURA L BROWN AND LAWRENCE A CAMILLO	528 OBLOCK AVENUE PITTSBURGH, PA 15239
30	853-B-2	0853B00002000000	DUQUESNE LIGHT COMPANY	1800 SEYMOUR ST PITTSBURGH, PA 15233
31	853-B-3	0853B00003000000	DUQUESNE LIGHT COMPANY	1800 SEYMOUR ST PITTSBURGH, PA 15233
32	853-C-2	0853C00002000000	DUQUESNE LIGHT COMPANY	1800 SEYMOUR ST PITTSBURGH, PA 15233
33	853-C-8	0853C00008000000	DUQUESNE LIGHT COMPANY	1800 SEYMOUR ST PITTSBURGH, PA 15233
34	853-C-7	0853C00007000000	DUQUESNE LIGHT COMPANY	1800 SEYMOUR ST PITTSBURGH, PA 15233
35	853-C-6	0853C00006000000	DUQUESNE LIGHT COMPANY	1800 SEYMOUR ST PITTSBURGH, PA 15233
36	853-C-5	0853C00005000000	DUQUESNE LIGHT COMPANY	1800 SEYMOUR ST PITTSBURGH, PA 15233
37	853-C-190	0853C00190000000	DUQUESNE LIGHT COMPANY	1800 SEYMOUR ST PITTSBURGH, PA 15233

38	853-C-19	0852C00019000000	DUQUESNE LIGHT COMPANY	1800 SEYMOUR ST PITTSBURGH, PA 15233
39	853-C-4	0853C00004000000	DUQUESNE LIGHT COMPANY	1800 SEYMOUR ST PITTSBURGH, PA 15233
40	975-L-380	0975L00380000000	COUNTY OF ALLEGHENY	542 FORBES AVENUE, ROOM 347 PITTSBURGH, PA 15219
41	973-H-137	0973H00137000000	WILLIAM RICHARD MCJUNKIN AND LINDA JEAN MCJUNKIN AND VICKI ANN MANSFIELD AND DEBRA SUE MCMEEKIN	9000 NIBLICK DRIVE JOHNS CREEK, GA 30022
42	1102-N-90	1102N00090000000	CABLE HOLDCO EXCHANGE I, LLC	PO BOX 173838 DENVER, CO 80217
43	1103-A-225	1103A00225000000	ROBINSON/PLUM CABLEVISION, LP	PO BOX 173838 DENVER, CO 80217
44	1103-C-116	1103C00116000000	DUQUESNE LIGHT COMPANY	1800 SEYMOUR STREET PITTSBURGH, PA 15233

Attachment 13

ATTACHMENT 13
UNIVERSAL-PLUM PROJECT
DUQUESNE LIGHT COMPANY DESIGN CRITERIA, ELECTROMAGNETIC FIELD POLICY AND APPLICATION, AND SAFETY PRACTICES

The National Electrical Safety Code (NESC) is a set of rules to safeguard people during the installation, operation, and maintenance of electric power lines. The NESC contains the basic provisions considered necessary for the safety of employees and the public. Although it is not intended as a design specification, its provisions establish minimum design requirements. Duquesne Light Company ("Duquesne Light") has developed design specifications and safety rules which meet or surpass all provisions specified by the NESC.

Engineering Design Criteria and Parameters

The NESC includes loading requirements and clearances for the design, construction, and operation of power lines. The "loads" on conductors and supporting structures are the forces that develop from the weight of the conductors, the weight of ice on the conductors, plus wind pressure on the conductors and supporting structures. Loading requirements are the loads on the conductors and structures that are anticipated assuming certain ice and wind conditions. Loading requirements always contain "safety factors" to allow for unknown or unanticipated contingencies. The clearances and loading requirements contained in the NESC were developed to ensure public safety and welfare.

Duquesne Light transmission line design standards meet or surpass the NESC standards. For example, the relative order of grades of construction for conductors and supporting structures is B, C, and N; Grade B being the highest. According to the NESC standards, construction Grades B, C, or N may be used for transmission lines (except at crossings of railroad tracks and limited access highways where Grade B construction is specified). However, Duquesne Light designs all of its transmission lines for Grade B construction. The use of Grade B design and construction specifies such things as larger-minimum crossarm dimensions, larger-minimum conductor size, and increased safety factors.

Duquesne Light also surpasses the NESC standards in the clearance requirements. Duquesne Light designs 138 kV and 345kV transmission lines to meet 30 feet of ground clearance under the worst-case load scenario, 9.4 feet more than the NESC minimum of 20.6 feet for new construction on 138kV transmission lines and 5.2 feet more than the NESC minimum of 24.8 feet for new construction on 345kV transmission lines. The average clearance under normal load and average weather conditions will be 47.3 feet. For reconductor projects and spans with new structures on 138kV and 345kV transmission lines, Duquesne Light strives to obtain either 30 feet of ground clearance or NESC+10%, modifying existing structures as necessary to meet this criteria. For all other types of clearances on new lines, NESC+10% is used.

Duquesne Light also surpasses the NESC standards in the structure overload or multiplying factors. The guideline for structural load factors for transmission structures can be found in the NESC Code. Duquesne Light applies overload factors of 1.1 for NESC 250C and NESC 250D loads compared to the NESC requirement of using 1.0 overload factors for NESC 250C and NESC 250D loads.

Electromagnetic Field Management Practices for New Transmission Lines

a. Transmission Line Planning

All electric currents, including those running within electric transmission lines, generate electric and magnetic fields (sometimes referred to jointly as electromagnetic fields or EMF). Electric and magnetic fields share some similarities, but have differences as well. Magnetic fields are directly related to the flow of electrical current in wires and devices. Electric fields are directly related to voltage, which creates the force to make electrical current flow. Both fields decrease quickly with distance from the source.

A large body of scientific evidence does not demonstrate that exposure to EMF are harmful, although guidelines have been set. The EMF exposure standard for the United States is the IEEE Standard C95.6 "Safety Levels with Respect to Human Exposure to Electromagnetic Fields, 0-3 kHz," which specifies maximum permissible exposure (MPE) limits for the general public of 9040mG (60 Hz) for magnetic fields and 10kV/m (60 Hz) for electric fields within in the right-of-way and 5 kV/m off the right-of-way. Internally, the World Health Organization does not produce an EMF standard, but recognizes the International Council on Non-Ionizing Radiation Protection

(ICNIRP) standard. The 2010 ICNIRP standard "ICNIRP Guidelines for Limiting Exposure to Time-varying Electric and Magnetic Fields (1 hZ to 100 kHz)" lists general public reference levels of 2000mG (60Hz) for magnetic fields and 4.167 kV/m (60Hz) for electric fields. Duquesne Light's transmission lines have EMF levels that are under the reference levels as indicated in these standards and guidelines. Duquesne Light also takes additional steps in its transmission line planning and design processes to identify and minimize any potential EMF impacts on the surrounding area.

Because EMF decrease significantly with distance from the source, any potential EMF emitted by a new transmission line is highly localized. Duquesne Light therefore first identifies the point(s) in a new transmission line with highest potential for EMF exposure. This point is usually a span with (i) lowest ground clearance, (ii) in densely populated neighborhoods; and (iii) in close proximity to publically-accessible areas (such as public sidewalks).

Second, because magnetic fields are a function of current, the next step is to determine the load current along that point of the transmission line. For this, Duquesne Light uses its power flow models, which are based upon projected load growth ten years into the future. Duquesne Light examines two load scenarios: (i) the "50/50" expected peak load forecast (i.e., projections indicate 50% chance the peak will be less than the scenario, and 50% chance the peak will be greater), and (ii) the "90/10" high load condition (i.e., projections indicate 90% chance the peak will be less than the scenario, and 10% the peak will be greater). These power flow studies also consider various contingencies, such as a generators being offline and other transmission lines being out of service. After evaluating the scenarios and contingencies, the greatest load currents on the transmission lines being studied are used for the EMF study. Where Duquesne Light plans to replace an existing transmission line with a new transmission line, it calculates the load in the same way for the existing transmission line as though the new line were not built, so that the net effect on the EMF levels can be determined.

Third, as part of its design process, Duquesne Light adjusts the line design to minimize the potential for exposure to EMF. For example, where a line has two 138 kV circuits, Duquesne Light balances circuit loads where practical to maximize the EMF-mitigating effects of reverse phasing.

b. Universal-Plum Project

Duquesne Light followed the above process for the new and relocated 138 kV transmission lines to design the Universal-Plum Project, employing several design and planning characteristics to mitigate their EMF propagation and impacts.

First, wherever possible, the lines are predominantly routed through unoccupied parcels; where the route would approach occupied areas, it would run around their edges.

Second, at the largest publically-accessible area along the proposed route – William D. Boyce Park – the lines would be routed underground, effectively eliminating EMF along that span.

Third, the above-ground portions of the lines have been designed with a minimum conductor clearance of 30 feet. This establishes a wide "buffer area" in which EMF emitted by the line will rapidly dissipate.

Fourth, Duquesne Light configured the transmission lines to maximize reverse phasing opportunities. The new transmission line is being built as a single circuit line with the ability to add a future second circuit. Because only one circuit will initially be installed as part of the Project, it is not possible to fully implement reverse phasing at this time. Instead, Duquesne Light designed the line with a triangular configuration (two conductors on one side of the tower structure and the third conductor on the other side of the tower structure), which helps counterbalances their magnetic forces. This has the effect of reducing the surrounding magnetic field up to 29% percent in an ideal span.

Periodic Maintenance Program on All Transmission Lines

Duquesne Light ensures the continued public safety from our transmission line infrastructure by implementing various maintenance and inspection programs. One program is the routine inspection of as-built conditions to meet clearance requirements described above through advanced surveying technology referred to as "LiDAR". This technology allows Duquesne Light to model its transmission system three-dimensionally to analyze clearances from the conductors to the world around them, including vegetation, homes, pools, roads, and more. This program provides

Duquesne Light with accurate as-built records to ensure compliance with designs while also identifying any new or changing conditions to surrounding landscape.

Other Duquesne Light Maintenance programs for inspected towers include:

a. Ground inspections, performed by Duquesne Light mobile workers walking around the base of the structure, on approximately 350 structures annually. These inspections focus heavily on foundations, structure integrity, and failed hardware, though additional information may be noted.

b. Aerial inspections, performed by a Duquesne Light subcontractor from a helicopter on approximately 500 structures annually. These inspections focus heavily on hardware and structural defects in tower members, though additional information may be noted.

Personnel Safety Rules

Duquesne Light follows OSHA regulations to ensure safe practices. These regulations are incorporated into the Duquesne Light employee Safety Handbook. Duquesne Light safety rules and good practices include the following:

1. Only qualified employees and trainees working under their direct supervision may work on or with exposed energized lines or parts of equipment operating at 50 volts or more, and must be familiar with the minimum approach distances as indicated by OSHA regulations.

2. Before work is commenced, a job briefing will be held with all employees to orient each employee as to:
    a. The hazards associated with the job.
    b. The work procedures involved.
    c. Any special precautions to be taken.
    d. All energy source controls.
    e. Personal protective equipment required.

3. When working in elevated locations, above four feet, employees shall use appropriate fall protection systems. Each employee working from an aerial lift, bucket truck, or man lift shall use a full body harness and either a shock absorbing lanyard or self-retracting lanyard. Duquesne Light ensures that all fall protection follows the OSHA regulations.

4. Prior to climbing towers and other similar structures a documented visual inspection shall be conducted by a competent person to:
    a. Determine type or work, materials, and construction methods required.
    b. Determine whether ground access, without climbing a structure, is possible through use of access roads and bucket trucks.
    c. Determine physical condition of the structure.
    d. Contact Engineering to determine if a structural analysis has been performed to identify tie-off and anchorage points for construction activities.
    e. Tie-off and anchorage points follow the OSHA regulations, in which the anchorage points can support 5,000 lbs per employee or a twice the impact load per employee.
    f. Determine the type of fall protection systems to be used, appropriate anchorage points and complete documented fall safety analysis. All work is to be inspected prior to construction to evaluate the site conditions. If there are any concerns about the integrity of a structure, Duquesne Light Engineering is engaged to perform the appropriate investigation and analysis to provide guidance for safely completing the job.

Attachment 14

ATTACHMENT 14
UNIVERSAL-PLUM PROJECT
VEGETATION MANAGEMENT PRACTICES

As identified in Attachment 11 – Map of Affected Parcels and Landowners and Attachment 12 - Landowner Matrix, and discussed in DLC Statement No. 4 - Direct Testimony of Mark Hummel, Duquesne Light Company ("the Company") is acquiring 5.33 miles of new right-of-way for the new and relocated 138 kV transmission lines to be built as part of the Universal-Plum Project. This Attachment describes the Company's plans for managing vegetation within and around the transmission line corridor.

(1) A general description of the utility's vegetation management plan.

The Project is being completed within a new transmission line corridor. Even though a portion of the Line will parallel existing ROWs, these sections are still new ROW as they are located outside the existing ROW thereby requiring additional forest clearing or maintenance of vegetation. Duquesne Light will apply the Wire Zone/Border Zone management technique, which is recognized as an industry best practice to manage vegetation and ensure the safe and reliable delivery of electricity. Under the Wire Zone/Border Zone management technique, non-compatible species in both the Wire Zone/Border Zone areas are removed. Areas within the Wire zone are cleared of all woody vegetation leaving only grasses and other herbaceous plants. Areas within the Border Zone are cleared of vegetation that would exceed 15 feet at maturity. ROW management extends beyond the managed corridor to include "danger trees" located outside the ROW that present a hazard to a transmission line. Danger trees are those that, in falling, would either strike the conductors or pass within the minimum clearances required for the conductors, structures, and facilities.

(2) Factors that dictate when each method, including aerial spraying, is utilized.

Vegetation control methods are site-dependent. Duquesne Light employs a Utility Vegetation Management (UVM) assessment of each vegetation management job to align job objectives, the characteristics and setting of the work site and vegetation thereon, and the vegetation management tools available. For example, field personnel consider species composition, stem density, and stand age to assist in the selection of control methods appropriate for the site.

Vegetation controls are often used in combination to produce desired outcomes. Methods for consideration include, but are not limited to, the following:

- Manual Control: work performed with hand tools
  - Highly selective method; can be useful in sensitive sites
  - May be less efficient and more costly compared to other methods
- Mechanical Control: work performed with the assistance of mechanized equipment
  - Less selective; may result in site disturbance requiring restoration
  - Can be highly efficient and cost-effective
  - Application is limited by terrain and right-of-way accessibility
- Chemical Control: application of herbicides
  - When properly used, can be efficient and cost-effective, while minimizing site disturbance and enhancing plant and wildlife diversity
  - Selection of proper herbicide and application method depend upon site and vegetation characteristics, and will be consistent with the manufacturer's label and applicable laws and regulations.

- Selective application directly to targeted species is preferred. Non-selective aerial applications may be appropriate for less-sensitive sites that are in sparsely-populated areas, are difficult to safely access, and/or have a high stem density.

- Biological Control: encouragement of mutually beneficial interactions of naturally-occurring plant and animal species inhabiting the right-of-way
  - Certain plants compatible with transmission line rights-of-way ("compatible species") naturally produce substances that inhibit the establishment of incompatible competing species (for example, fern allelopathy).
  - In some instances, field personnel may be able to selectively remove certain plants to encourage the growth of other, more favorable species.
  - Availability and feasibility of this method is highly dependent on site conditions, plant and animal species present at the site, and vegetation management objectives.
- Cultural Control: management of vegetation within the right-of-way to promote desired compatible plant communities (or "cultures").
  - In some instances, it can be feasible to supplement the above control methods with additional interventions to encourage the development of stable communities of compatible plants within the right-of-way. For example, Duquesne Light can provide landowners with informational resources to aid them in the cultivation and management of desirable, compatible plant species in the right-of-way.

- Can reduce longer-term maintenance requirements and costs once plant community stability is achieved.

(3) Vegetation management practices near aquatic and other sensitive locations.

All sites, notably those that are environmentally sensitive, should only be managed using appropriate UVM control methods. Field personnel assess special site characteristics, such as proximity to wetlands or sensitive species habitats, as part of their UVM analysis. The control methods employed are then tailored to the site conditions to minimize or mitigate impacts consistent with the desired UVM objectives. Special site conditions are then noted for future vegetation maintenance work.

(4) Notice procedures to affected landowners regarding vegetation management practices.

Duquesne Light employs robust landowner notification procedures regarding its vegetation management practices. Duquesne Light or its representatives (referred to collectively as Duquesne Light) notify landowners of routine vegetation management, such as maintenance of the right-of-way corridor, approximately 2-6 weeks prior to the scheduled vegetation management work. Duquesne Light typically makes at least one attempt at in-person contact with each landowner, except for landowners who reside outside of Duquesne Light's service territory, whom Duquesne Light contacts via telephone. At such initial contact, Duquesne Light provides information regarding the scheduled work, including:

- A brief explanation of what and when work will be performed
- Why the work is necessary
- A general location of the work and utility facilities involved
- The extent of work and how it will be performed

- The contractor to perform the work and crew members involved; and
- Contact information for customer questions or follow-up.

Also at these in-person visits, Duquesne Light marks trees affected with ribbons or (blue for those identified for removal; yellow for those identified for pruning), and requests a landowner signature on a written description of work.

Where the in-person contact attempt is unsuccessful, Duquesne Light marks trees as discussed above and leaves a door hanger explaining the nature, necessity, and anticipated date of the scheduled work, as well as contact information for customer questions or follow-up. Depending on the nature and extent of the scheduled work, Duquesne Light may also supplement this notice with other written correspondence mailed to the landowner or via telephone upon request by the landowner.

In addition to these individualized contacts, Duquesne Light provides general notice of its vegetation management practices through other outlets. Duquesne Light's website, duquesnelight.com, includes extensive information concerning the reasons, methods, and features of Duquesne Light's vegetation management practices, as well as links to other educational sites for customers who wish to learn more. Duquesne Light staff also participate in periodic public events, such as the annual Pittsburgh Home & Garden Show, where they are available to respond directly to landowner questions or concerns.

(5) Provision of a copy of a landowner maintenance agreement that describes the duties and responsibilities of landowners and the utility for vegetation management to the extent utilized.

Landowners' and Duquesne Light's respective rights and responsibilities are memorialized in the right-of-way and easement agreements between Duquesne Light and respective landowners. In general, landowners can to continue to use the right-of-way area, so long as such use is

compatible with the safe and reliable operation and maintenance of Duquesne Light facilities. Compatible uses that require no prior review or approval from the Duquesne Light include agricultural farming and gardening. Duquesne Light also allows compatible development within the right-of-way area, provided that the design and work in the area does not interfere with the safe and reliable operation and maintenance of Duquesne Light facilities. Such uses can include: grading, installation of roadways or parking lots, and installation of underground infrastructure (such as utilities).

Attachment 15

Duquesne Light Company

411 Seventh Avenue
Pittsburgh, PA 15219

August 9, 2016

Dear <Resident Name>:

As new homes are being built and the demand for energy grows in the area, Duquesne Light Company is working to maintain a level of reliability customers have come to expect while increasing the overall resiliency of the grid. Our dedication to improving the way energy is delivered is just one of the many ways we are working to become your next generation energy company.

As such, we are planning to build a high voltage transmission line from the Universal Substation in the Municipality of Penn Hills to the Plum Substation in Borough of Plum.

You are receiving this letter because you own property in the proposed route of the new transmission line. In the coming months, we will be conducting field studies to evaluate vegetation and wildlife in the area. We ask that you please sign and return the enclosed property permission letter by August 20, 2016 to allow us access to your property.

Duquesne Light has engaged GAI Consultants, an engineering consulting firm, to assist us with this work. A Duquesne Light or GAI representative will show proper identification and clearly state the purpose of the visit. If no one is home, a door tag notice will be left and we will proceed with the field study. The studies will be performed safely, courteously and as quickly as possible. No wildlife will be harmed in any way during these studies.

Also enclosed are our Standards of Conduct guidelines, notice of eminent domain rights and Right of Way maintenance practices. A contractor from Doyle Land Services also will be visiting with you to discuss acquiring the right of way needed to complete this project. Like GAI, a Doyle representative will show proper identification and clearly state the purpose of the visit.

New, updated and reliable infrastructure remains the key to future growth for the community. This important project will upgrade the overall dependability of the electric grid, helping our customers to maintain the lifestyle they've come to enjoy.

Should you have any concerns, please contact Duquesne Light by calling our Customer Service Center at (412) 393-7100 or Zach Merritt, Project Manager, at 412-393-7988. Thank you for your cooperation and assistance in this matter.

Sincerely,

Duquesne Light Company

DUQUESNE LIGHT CO.

NOTICE
INTERNAL PRACTICES FOR DEALING WITH THE PUBLIC ON POWER LINE PROJECTS

Duquesne Light Company has a long-standing commitment to conducting business in an honest and ethical manner. Duquesne Light's employees, contractors and agents who interact with members of the public (including landowners along proposed rights of way) in activities such as planning; real estate and right-of-way transactional sitting and construction of power lines and other facilities will:

- Act with integrity at all times.
- Treat people courteously and in a professional manner.
- Be forthright and honest in all actions and communications.
- Comply with applicable laws and regulations.
- Seek to avoid conflicts of interest.
- Accept responsibility for actions and decisions.
- Be responsible stewards of the environment.
- Place a high priority on the safety of the public and our representatives and employees.

DUQUESNE LIGHT CO.

NOTICE
EMINENT DOMAIN POWER

The Pennsylvania Public Utility Commission requires that Duquesne Light Company give you the following information:

Duquesne Light Company is presently planning to build a new 138 kilovolt (kV) electric transmission line, from Universal Substation to Plum Substation, which spans the Municipality of Penn Hills, the Municipality of Monroeville, and the Borough of Plum in Allegheny County, Pennsylvania. This new transmission line is needed to meet increased demand for electrical power and to ensure reliable electric service for eastern Allegheny County. Although the final design of the transmission line is not complete, the line includes approximately 40 self-supporting steel monopoles on drilled pier reinforced concrete foundations. The monopoles will range in height from 105 feet to 150 feet and will be centered on a 125 foot right of way.

Since the route presently under consideration could affect your property, a representative of the utility will contact you in the near future to discuss the utility's plans as they may affect your property. In order to better prepare you for these discussions and to avoid possible misunderstandings, we want to take this opportunity to inform you of your legal rights and the legal rights and duties of Duquesne Light Company with regard to this project.

You have the right to have legal counsel represent you in these negotiations. You do not have to sign any agreement without the advice of counsel. If you do not know an attorney you may contact your local bar association.

MUST YOU ACCEPT ANY OFFER MADE BY THE UTILITY FOR YOUR PROPERTY?

No. You may refuse to accept it. However, the utility has the power to take property by eminent domain, subject to the approval of the Public Utility Commission, for the construction of transmission lines if the utility is unable to negotiate an agreement to buy a right-of-way. If your property is condemned, you must be paid "just compensation." "Just compensation" has been defined by the courts in Pennsylvania as the difference between the fair market value of your property before condemnation, unaffected by the condemnation, and the fair market value of your remaining property after condemnation, as affected by the condemnation.

CAN THE UTILITY CONDEMN YOUR HOUSE?

No. The company cannot condemn your house or a reasonable "curtilage" around your house. Generally, curtilage includes the land or buildings within 300 feet of your house which are used for your domestic purposes. However, the 300-foot limit does not automatically extend beyond the homeowner's property line.

DO YOU HAVE A RIGHT TO A PUBLIC HEARING WHEN THE UTILITY SEEKS TO CONDEMN YOUR PROPERTY?

Yes. When an electric utility seeks to have your property condemned, the utility must first apply to the Pennsylvania Public Utility Commission for a certificate finding the condemnation to be necessary or proper for the service, accommodation, convenience, or safety of the public. The Commission will then hold a public hearing. As the landowner whose property may be condemned, you are a party to the proceeding and may retain counsel, present evidence,

and/or testify yourself in opposition to the application for a certification. If you wish to testify at the public hearing, you should make your intention known by letter to Secretary, Pennsylvania Public Utility Commission, P. O. Box 3265, Harrisburg, Pennsylvania 17120.

If the Commission approves the utility's application for a certificate finding the condemnation in the public interest, then the utility may proceed before the local Court of Common Pleas to condemn your land. If the Commission denies the utility's application, the utility cannot condemn your land. If you retain an attorney to represent you before the Commission, you must do so at your own expense.

The Commission will not decide how much money you should receive if your land is condemned. The only issue the Commission will decide is whether the condemnation serves the public interest. If the Commission approves the utility's application for condemnation, the amount of money to which you are entitled will be determined by a local Board of View or the Court of Common Pleas. However, you may at any time make an agreement with the utility as to the amount of damages you are to be paid.

DUQUESNE LIGHT CO.

NOTICE
RIGHT OF WAY MAINTENANCE PRACTICES

The Pennsylvania Public Utility Commission requires that Duquesne Light Company give you the following information on the Right-Of-Way Maintenance Practices for the Universal-Plum Transmission Reliability Project:

The methods currently used by Duquesne Light Company are set forth in *Technical Specifications for Line Clearance and Vegetation Management of Rights-of-Way*, which will be made available to you for your inspection upon request. If you wish further information concerning right-of-way maintenance methods, you may contact Zach Merritt, at 2825 New Beaver Avenue, Pittsburgh Pennsylvania; telephone number (412) 393-7988. You may discuss with Mr. Merritt, either before or during negotiation of the right-of-way agreement, these methods and any other questions you may have about right-of-way maintenance.

Once a utility has constructed an electric transmission line on a right-of-way across your land, the utility must maintain the right-of-way free of tall-growing trees and brush which might impair the reliability of electric service, the safety of the line, and access to the line or its towers. The utility or its contractors may remove and control tall-growing trees and brush by several methods: hand cutting of trees, limbs, and brush; mechanical cutting with chain saws, motorized cutting machines, or aerial saws; application of herbicides, either from the ground or aerially. The utility must confine its maintenance activities to the approved right-of-way across your land, except where tall-growing trees or brush or their root systems grow into the right-of-way from adjoining land and constitute a threat to the electric transmission line and its structures.

If you believe that the maintenance method(s) used by the company would raise problems with your use of your land adjacent to the right-of-way, it is your responsibility as the landowner to bring this to the attention of the utility before you sign the right-of-way agreement.

The utility company has the responsibility to maintain its right-of-way, and regular maintenance must occur. Although you as the landowner cannot determine whether or not maintenance will occur, your right-of-way agreement may specify certain conditions on the performance of the maintenance program which are important to you. These conditions can be part of the negotiations between you and the utility company for your land, since a right-of-way agreement is a legal contract between a landowner and a utility company. It is important for you to understand also that the maintenance methods used by the utility company may change over time as the costs of maintenance or the methods of performing maintenance change. You may want to specify in your right-of-way agreement that the utility company inform you of changes in its maintenance methods or in the maintenance schedule for your land.

The provisions of the right-of-way agreement are enforceable in the local Court of Common Pleas. The right-of-way agreement cannot be enforced by the Pennsylvania Public Utility Commission. Any claims for damage resulting from improper maintenance of the right-of-way must be settled with the utility, its contractors, or in the local Court of Common Pleas at your own expense. The Commission cannot award damages for violations of the right-of-way agreement.

DUQUESNE LIGHT CO.

PERMISSION FORM

In order to complete the design of this critical infrastructure project and enhance the reliability of its services in your area, Duquesne Light Company will need to access your property to evaluate property boundaries and environmental and archeological issues.

All representatives accessing your property under this Permission Form, including Duquesne Light Company, GAI Consultants, and Doyle Land Services, will show proper identification and clearly state the purpose of the visit. If no one is home, a door tag notice will be left and we will proceed with the evaluation.

Please sign below and return this Permission Form using the enclosed envelope as soon as possible. If you have any questions, please contact Zach Merritt at (412) 393-7988.

Duquesne Light Company and/or its agents or contractors may enter onto my property for the purpose of performing the above evaluation.

Signature: _____

Printed Name: _____

Property Address: _____

_____

Telephone Number: _____

Date: _____

VERIFICATION

I, Jason A. Harchick, being the Senior Manager, System Planning and Protection for Duquesne Light Company, hereby state that the information set forth above is true and correct to the best of my knowledge, information, and belief, and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 relating to unsworn falsification to authorities.

Date: 3/23/2018

Jason A. Harchick

Jason A. Harchick, PE
Senior Manager, System Planning and Protection
Duquesne Light Company
2839 New Beaver Avenue
Pittsburgh, PA 15233