Post & Schell P.C.
ATTORNEYS AT LAW

17 North Second Street
12th Floor
Harrisburg, PA 17101-1601
717-731-1970 Main
717-731-1985 Main Fax
www.postschell.com

Garrett P. Lent
Principal

glent@postschell.com
717-612-6032 Direct
717-731-1985 Direct Fax
File #: 204033

March 28, 2025

VIA ELECTRONIC FILING

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor North
P.O. Box 3265
Harrisburg, PA 17105-3265

Re: Letter Of Notification Of PPL Electric Utilities Corporation, Filed Pursuant To 52 Pa. Code Chapter 57 Subchapter G, For Approval To Rebuild Approximately 10.1 Miles Of Existing Single-Circuit 230 kV Transmission Line Between The Fox Hill 230 kV Substation And The Bushkill 230 kV Switchyard That Are Located In Monroe County, Pennsylvania
Docket No. A-2025-_____

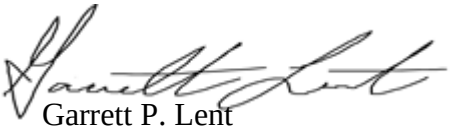
Dear Secretary Chiavetta:

Attached for filing is the Letter of Notification of PPL Electric Utilities Corporation ("PPL Electric") in the above-referenced proceeding. As indicated on the Certificate of Service, copies of the Letter of Notification are being served by certified mail, return receipt requested, upon the involved governmental agencies, municipalities, and property owners. Construction of the Project will commence upon the Commission's approval of this filing, with an estimated construction start date of August 4, 2025, with an anticipated in-serve date of December 31, 2025. To facilitate this construction date, PPL Electric requests that the Commission issue an order approving the Project by no later than the Public Meeting currently scheduled for July 24, 2025.

If you have any questions concerning this matter, please contact me at the address or telephone numbers provided above.

The associated $350.00 filing fee has been paid by Post & Schell, P.C. as of the time of filing.

Respectfully submitted,



Garrett P. Lent

GPL/dmc
Attachments

cc: Deb Backer, Esquire
Jordan Van Order, Esquire
Certificate of Service

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing has been served upon the following persons, in the manner indicated, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

VIA CERTIFIED MAIL: RETURN RECEIPT REQUESTED

Pennsylvania Bureau Of Investigation and Enforcement
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
2nd Floor, Room-N201
Harrisburg, Pennsylvania 17120
Attn: Alison Kaster

Pennsylvania Department of Environmental Protection
400 Market Street
10th Floor Rachel Carson State Office Building
Harrisburg, Pennsylvania 17101
Attn: Regional Permit Coordination Office

Pennsylvania Department of Transportation
Keystone Building
400 North Street, Ninth Floor
Harrisburg, Pennsylvania 17120
Attn: Donald J. Smith, Acting Chief Counsel

Pennsylvania Historical and Museum Commission
Bureau For Historic Preservation
Commonwealth Keystone Building, Second Floor
400 North Street
Harrisburg, Pennsylvania 17120-0053
Attn: Mr. Douglas C. McLearen, Chief

Pennsylvania Department of Conservation And Natural Resources
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17105-8767
Attn: Rebecca Bowen, Ecological Services Section Chief

Pennsylvania Game Commission
2001 Elmerton Avenue
Harrisburg, Pennsylvania 17110-9797
Attn: David Gustafson, Director, Bureau of Wildlife Habitat Management

Pennsylvania Fish and Boat Commission
450 Robinson Lane
Bellefonte, Pennsylvania 16823-9620
Attn: Christopher A. Urban, Chief, Natural Diversity Section

Pennsylvania Office Of Consumer Advocate
555 Walnut Street
5th Floor Forum Place
Harrisburg, Pennsylvania 17101-1923
Attn: Darryl A. Lawrence, Acting Consumer Advocate

Pennsylvania Office Of Small Business Advocate
555 Walnut Street
1st Floor Forum Place
Harrisburg, Pennsylvania 17101
Attn: NazAarah Sabree, Small Business Advocate

U.S. Army Corps of Engineers
Philadelphia District Office
1650 Arch Street
Philadelphia, PA 19103
Attn: Planning Division

U.S. Fish and Wildlife Service
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, Pennsylvania 16801
Attn: Lesa Lindsay

Monroe County Conservation District
8050 Running Valley Road
Stroudsburg, PA 18360
Attn: Robert J. Armstrong, Chairperson

Monroe County Planning Department
701 Main Street, Suite 405
Stroudsburg, PA 18360
Attn: Annette Atkinson, Chairperson

Middle Smithfield Township Board of Supervisors
147 Municipal Drive
East Stroudsburg, PA 18302
Attn: Annette Atkinson, Chairperson

Smithfield Township Zoning Department
1155 Red Fox Road
East Stroudsburg, PA 18301
Attn: Matthew Helbers, Zoning Officer

Middle Smithfield Township Zoning Department
147 Municipal Drive
East Stroudsburg, PA 18302
Attn: Mayra Colon, Zoning Administrator

Middle Smithfield Township Sewer Department
147 Municipal Drive
East Stroudsburg, PA 18302
Attn: Joan Woisin, Sewer Department Manager

Smithfield Township Board of Supervisors
1155 Red Fox Road
East Stroudsburg, PA 18301
Attn: Jacobe A. Pride, Chairman

Allotey Frederick & Lurine
241 Rhapsody Run
East Stroudsburg, Pa 18301-8079

Annese David & Maureen
322 Shawnee Valley Dr
East Stroudsburg, Pa 18302-7799

Bachelder Lorne A & Virginia
131 Resort Ln
East Stroudsburg, Pa 18301-9145

Balaguer Miriam
1043 Upper Ridge View Dr
East Stroudsburg, Pa 18302-7827

Bhagwat Samir N & Maria
324 Shawnee Valley Dr
East Stroudsburg, Pa 18302-7799

Blanco Guillermo Rene
Gilroy Anne
265 Music Center Dr
East Stroudsburg, Pa 18301-7895

BMJ Mortgages
Po Box 301
East Stroudsburg, Pa 18301-0301

Cambridge Constructors LLC
4652 Hamilton Blvd
Allentown, Pa 18103-6021

Canon Erick & Elcie Marie
314 Shawnee Valley Dr
East Stroudsburg, Pa 18302-7799

Commonwealth of Pa
515 N Office Building
Harrisburg, Pa 17125-0109

CRE HRP LLC
25 Town Center Blvd, Suite C
Clermont, Fl 34714-4836

Daily Linda E & Todd M
13 County Bridge Rd
East Stroudsburg, Pa 18301-9107

Davis Rose
316 Shawnee Valley Dr
East Stroudsburg, Pa 18302-7799

DEPG Mosier Associates LP
1000 Fayette St
Conshohocken, Pa 19428-1562

Dwight Delmont Fuller Trustee
2119 Melody Ln
East Stroudsburg, Pa 18301-7888

DEPG Of Shawnee II LP
1000 Fayette St
Conshohocken, Pa 19428-1562

Easterling-Levine Michele
Hill Dequan M
307 Ege Ave
Jersey City, Nj 07305-1001

Estorque Julie Ann & Anthony
318 Shawnee Valley Dr
East Stroudsburg, Pa 18302-7799

Eureka Stone Quarry Inc
9119 Frankford Ave
Philadelphia, Pa 19114-2854

Gagnon Diane & Robert
231 Hollow Rd
East Stroudsburg, Pa 18302-9103

Great Bear Conservancy LLC
1 Great Bear Ct
East Stroudsburg, Pa 18302-8921

Hara Corp
25 Town Center Blvd, Suite C
Clermont, Fl 34714-4836

Haynes Roslyn
99 Woodwind Ct
East Stroudsburg, Pa 18301-8040

Hernandez Hector & Veronica
207 Rhapsody Run
East Stroudsburg, Pa 18301-8079

Hodiman Robert
Erik Tara L
72 Symphony Cir
East Stroudsburg, Pa 18301-8055

Hollow Realty LLC
285 Broadhollow Rd
Farmingdale, Ny 11735-4806

HRP Corp
25 Town Center Blvd, Suite C
Clermont, Fl 34714-4836

Jacobi John & David
Po Box 175
Marshalls Creek, Pa 18335-0175

Keller Christine Norton & Robert
2171 Green Mountain Dr
East Stroudsburg, Pa 18301-7866

Keller Robert M
132 Stallion Ct
East Stroudsburg, Pa 18302-6796

Kober David F
119 Spring Hill Ln
East Stroudsburg, Pa 18301-8951

Lang James G
Arceo Theresa
147 Albert Ln
East Stroudsburg, Pa 18301-7819

Lesoine Lynn C & Susan
6250 Franklin Hill Rd
East Stroudsburg, Pa 18301-7850

Liga Kenneth L & Chiaki
3 Star St
South Floral Park, Ny 11001-3543

Linton Kenisha L
320 Shawnee Valley Dr
East Stroudsburg, Pa 18302-7799

Lloyd Rhiannon
245 Music Center Dr
East Stroudsburg, Pa 18301-7895

Lowris Jason
124 Prairie Ln
East Stroudsburg, Pa 18302-6709

Lupin Charles A
C/O Labar Grace E
2169 Green Mountain Dr
East Stroudsburg, Pa 18301-7866

Lynch Jessica & Stephen
4107 Hickory Ln
East Stroudsburg, Pa 18302-7789

Mattrocce Daniel L
282 Crabapple Ln
East Stroudsburg, Pa 18302-9661

McClain Keith M
310 Shawnee Valley Dr
East Stroudsburg, Pa 18302-7799

McMahon William J & Sandra
130 W Atlantic Blvd
Ocean City, Nj 08226-4604

McNeill Melissa M
308 Shawnee Valley Dr
East Stroudsburg, Pa 18302-7799

Metropolitan Edison Co
C/O First Energy Tax Dept
300 Madison Ave, Po Box 1911
Morristown, Nj 07962

Mid-Atlantic Interstate Transmission LLC
76 S Main St
Akron, Oh 44308

Middle Smithfield Twp
C/O Municipal Authority
147 Municipal Dr
East Stroudsburg, Pa 18302-9519

Miller Margaret A
2175 Green Mountain Dr
East Stroudsburg, Pa 18301-7866

Moon Elizabeth Yung Sook
100 Woodwind Ct
East Stroudsburg, Pa 18301-8041

Morton David
101 Woodwind Ct
East Stroudsburg, Pa 18301-8041

Moses Herbert J
205 Rhapsody Run
East Stroudsburg, Pa 18301-8079

N & B Construction LLC
174 Doe Rd
Bartonsville, Pa 18321-7766

Nesta Gary & Karen
2167 Green Mountain Dr
East Stroudsburg, Pa 18301-7866

Niedzwiecki William
Riley Sean
252 Twin Falls Rd
East Stroudsburg, Pa 18301-7954

Northslope III Owners Association Inc
1221 Pocahontas Rd, Ste 6
East Stroudsburg, Pa 18301

Northslope III Owners Association Inc
Po Box 687
Moscow, Pa 18444-0687

Northslope Phase 2 Owners Assoc Inc
Po Box 93
Shawnee On Delaware, Pa 18356-0093

Ohara Daniel J
305 Del Sol Dr
East Stroudsburg, Pa 18301-7843

Paige Erik W
Hall-Paige Cheryl Denise
316 Great Bear Way Rd
East Stroudsburg, Pa 18302-9093

Paul Donald F & Grace
2153 Green Mountain Dr
East Stroudsburg, Pa 18301-7866

Penn Leaders LLC
2417 Gap View Dr
East Stroudsburg, Pa 18301-7864

Pennsylvania Northeast Regional Railroad Authority
280 Cliff St
Scranton, Pa 18503-1943

Peralta Wilmer
Ramos Angela
2173 Green Mountain Dr
East Stroudsburg, Pa 18301-7866

Pettinato Laura A
199 Albert Ln
East Stroudsburg, Pa 18301-7819

Poconos Restoration Services Inc
338 Great Bear Way Rd
East Stroudsburg, Pa 18302-9093

Pollack Diana D
Clemmons Junius
1109 Woodland Xing
East Stroudsburg, Pa 18302-7830

Pollaro James J
245 Rhapsody Run
East Stroudsburg, Pa 18301-8079

Powell Erma J
2161 Green Mountain Dr
East Stroudsburg, Pa 18301-7866

Powell Kim Y
204 Rhapsody Run
East Stroudsburg, Pa 18301-8076

Price Raymond & Lynn
Po Box 127
Shawnee On Delaware, Pa 18356-0127

Rivera Ricky & Lillian
74 Symphony Cir
East Stroudsburg, Pa 18301-8055

Roach Robert & Mary
95 Woodwind Ct
East Stroudsburg, Pa 18301-8040

Romano Louis
76 Symphony Cir
East Stroudsburg, Pa 18301-8055

Sattaur Rahman & Rashida
306 Del Sol Dr
East Stroudsburg, Pa 18301-7842

Severud Daniel & Melody
2384 Gap View Dr
East Stroudsburg, Pa 18301-7861

Shawnee Power LLC
200 W Madison, Suite 3810
Chicago, Il 60606-3465

Shawnee Ridge At University Park LLC
1 River Rd Box 67
Shawnee On Delaware, Pa 18356

Shawnee Ridge At University Park LLC
200 Jersey Ln
East Stroudsburg, Pa 18301-8020

Shawnee Valley Owners Assoc Inc
Po Box 93
Shawnee On Delaware, Pa 18356-0093

Smithfield SDA Corp
4147 Blueberry Hill Rd
Bushkill, Pa 18324-7784

Sterling Peter P & Cathy
333 Great Bear Way Rd
East Stroudsburg, Pa 18302-9094

Stroudsburg Bus Terminal Inc
Frank Martz Coach Co
Po Box 1007
Wilkes Barre, Pa 18773-1007

The Township Of Smithfield
1155 Red Fox Rd
East Stroudsburg, Pa 18301-9106

The Tyler Gordon Trust
777 Taylor St Ph P1a
Fort Worth, Tx 76102-4944

Thornhill Holden & Camille
312 Shawnee Valley Dr
East Stroudsburg, Pa 18356-7799

Tofani Paul D
207 Frutchey Dr
East Stroudsburg, Pa 18302-6717

University Park Properties LLC
Po Box 67
Shawnee On Delaware, Pa 18356-0067

US Home Corp
800 W Main St
Freehold, Nj 7728

Williston Robert L & Paula
2383 Gap View Dr
East Stroudsburg, Pa 18301-7862

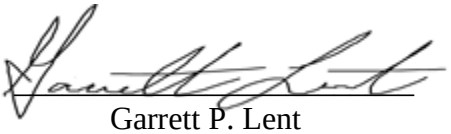
Wills Lawrence A
6415 Ben Hogan Cir
North Fort Myers, Fl 33917-3291

Wong Carlos & Luz
306 Shawnee Valley Dr
East Stroudsburg, Pa 18302-7799

Yetter Jean A
218 Twin Falls Rd
East Stroudsburg, Pa 18301-7954

Zazvonov Denis & Rita Trustees
166 Keystone Rd
East Stroudsburg, Pa 18302-8443

Dated March 28, 2025



Garrett P. Lent

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Letter Of Notification Of PPL Electric Utilities Corporation, Filed Pursuant To 52 Pa. Code Chapter 57 Subchapter G, For Approval To Rebuild Approximately 10.1 Miles of Existing Single-Circuit 230 kV Transmission Lines Between the Fox Hill 230 kV Substation And The Bushkill 230 kV Switchyard That Are Located In Monroe County, Pennsylvania	:	Docket No. A-2025-_____

LETTER OF NOTIFICATION

TO THE PENNSYLVANIA PUBLIC UTILITY COMMISSION:

PPL Electric Utilities Corporation ("PPL Electric" or the "Company") hereby files this Letter of Notification pursuant to Section 57.72(d)(1)(i) of the Pennsylvania Public Utility Commission's ("Commission") regulations, 52 Pa. Code § 57.72(d)(1)(i), to rebuild approximately 10.1 miles of the existing single-circuit transmission line between the Fox Hill 230 kilovolt ("kV") Substation ("Fox Hill Substation") and the Bushkill 230 kV Switchyard ("Bushkill Switchyard") in Smithfield Township, Monroe County, Pennsylvania.[1] The approximate 10.1-mile transmission line is split into two segments by the Shawnee 230 kV Substation ("Shawnee Substation"). The segment between the Fox Hill and Shawnee Substations is named the "Fox Hill-Shawnee 230 kV Transmission Line" and the segment between the Shawnee Substation and Bushkill Switchyard is named the "Shawnee-Bushkill 230 kV Transmission Line." PPL Electric's

[1] For a complete list of municipalities and county crossed by the Project, please refer to Attachment 5 to the Letter of Notification.

proposed rebuild of these lines is known as the "Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Line Rebuild Project" or "the Project."[2]

The proposed Project will address reliability, asset health and safety concerns related to the age and condition of the Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines, which are the oldest 230 kV transmission lines on the PPL Electric system. The Project contemplates the replacement and rebuilding of these existing structures, which are comprised of lattice towers and conductors that were originally installed in the mid-1920s. The vintage towers on the Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines have reached the end of their expected lives, utilize an outdated foundation design, and have deteriorated and will continue to deteriorate. The structures, if they are not rebuilt, will have an increased risk of failure, which will increase risks to the safety and reliability of electric transmission service by PPL Electric, even with ongoing maintenance and repairs. In addition, the existing conductors on the Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines have reached the end of their expected life and are deteriorating in a manner that necessitates replacement.

The Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines are located in Monroe County, Pennsylvania. PPL Electric has provided information regarding this Project to all identified political subdivisions, and none of them have objected to the Project. Construction of the Project will commence upon the Commission's approval of this filing, with an estimated construction start date of August 4, 2025, with an anticipated in-service date of December 31, 2025.

In support thereof, PPL Electric states as follows:

[2] An approximately 0.4-mile section of the existing Fox Hill – Shawnee 230 kV Transmission Line, supported by five existing monopole structures (Structures 38 – 42) will remain in-place, and new optical ground wire ("OPGW") fiber cable will be replaced. This section is not part of the Project.

I. INTRODUCTION

1. This Letter of Notification is filed by PPL Electric, 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. PPL Electric's address is as follows:

PPL Electric Utilities Corporation
827 Hausman Road
Allentown, Pennsylvania 18104

3. PPL Electric's attorneys are:

Michael J. Shafer (I.D. # 205681)
PPL Services Corporation
645 Hamilton Street, Suite 700
Allentown, PA 18101
Voice: 610-774-2599
Fax: 610-774-4102
E-mail: mjshafer@pplweb.com

David B. MacGregor (I.D. # 28804)
Garrett P. Lent (I.D. # 321566)
Post & Schell, P.C.
17 North Second Street
12th Floor
Harrisburg, PA 17101-1601
Voice: 717-731-1970
Fax: 717-731-1985
E-mail: dmacgregor@postschell.com
E-mail: glent@postschell.com

PPL Electric's attorneys are authorized to receive all notices and communications regarding this Letter of Notification.

4. PPL Electric furnishes electric service to approximately 1.4 million customers throughout its certificated service territory, which includes all or portions of twenty-nine counties and encompasses approximately 10,000 square miles in eastern and central Pennsylvania. PPL Electric 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. PPL Electric owns approximately 5,000 miles of transmission lines operating at 69 kV or higher, approximately 375 substations with a capacity of 10 MVA (megavolt amperes) or more, and approximately 43,000 miles of distribution lines operating at less than 69 kV.

6. This Letter of Notification includes the following accompanying Attachments:

- Attachment 1 Necessity Statement;
- Attachment 2 Engineering Statement;
- Attachment 3 Description of Project Area;
- Attachment 4 Design Criteria; and
- Attachment 5 Agency and Landower List.

7. This Letter of Notification and accompanying Attachments, which are incorporated herein by reference, contain all the information required by 52 Pa. Code § 57.72(d)(4).

II. THE PROJECT

A. NEED FOR THE PROJECT

8. PPL Electric is responsible for providing transmission assets and maintaining them in an adequate, efficient, safe, reliable, and reasonable manner to meet the needs of the electric system and its customers' expectations. To achieve this, PPL Electric applies its Transmission Asset Management Procedure as part of its system performance and condition assessment process. These performance and condition assessments identify system needs and prioritize projects based on several variables such as equipment age, condition, maintenance schedule, and impact on system reliability and asset performance to ensure a reliable electric grid and service to its customers.

9. As explained in greater detail below and in Attachment 1 – Necessity Statement, this Project is necessary to resolve significant asset health condition and reliability concerns associated with some of the oldest transmission infrastructure on PPL Electric's system.

10. The Project as proposed addresses these concerns in a cost-efficient manner, as compared to either a replacement alternative or a remediation and later replacement alternative.

In particular, the Project as proposed avoids the substantial uncertainties surrounding lack of remediation experience and lack of evidence for long-term remediation effectiveness for both the towers and conductors, avoids redundant inspection and/or additional remediation of towers and conductors that will ultimately need to be replaced, and is the lowest cost alternative.

11. Prior to submitting the project to PJM Interconnection, L.L.C. ("PJM"), PPL Electric evaluated whether the line could be retired as one of the functional alternatives. Based on this evaluation, it was determined that the line could not be retired without causing substantial issues on the system. Removal of the Fox Hill-Shawnee and Shawnee-Bushkill 230kV lines would leave the Shawnee Substation without a 230 kV source to serve load. Removal of the lines would also leave Fox Hill Substation served from a single 230 kV source and susceptible to load drop on the next contingency. The removal of these lines would leave the system in a less resilient state and remove a critical transmission path between eastern Pennsylvania and New Jersey. As such, the existing Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines remain in PJM's planning studies and are assumed to remain in-service and fully operational. Therefore, PPL Electric focused its efforts on identifying the most appropriate way to address the deteriorated condition of the aging infrastructure.

12. For these reasons, and for the reasons more fully explained below, the Commission should approve the Project as proposed.

1. Existing System

13. The Project is composed of two transmission line segments that connect the Fox Hill Substation, the Shawnee Substation, and the Bushkill Switchyard.

14. The Fox Hill and Shawnee Substations are connected by the single-circuit Fox Hill-Shawnee 230 kV Transmission Line. The existing portion of the Fox Hill-Shawnee 230 kV Transmission Line to be rebuilt is approximately 7.9 miles long and supported by 42 structures.

15. The Shawnee Substation and Bushkill Switchyard are connected by the single-circuit Shawnee-Bushkill 230kV Transmission Line. The Shawnee-Bushkill 230kV Transmission Line is approximately 2.2 miles long and supported by 13 structures.

16. Existing conductors on both lines between the Fox Hill and Shawnee substations Substations and Bushkill Switchyard contain 795 kcmil[3], 54/7 stranding, "Condor" ACSR[4] conductor wires. From Fox Hill to Shawnee Substations, the conductors are supported by a series of transmission line structures that include five existing monopoles on foundations, 28 single lattice towers, five 5-leg lattice towers, three 3-pole structures, and one 2-pole structure. From the Shawnee Substation to the Bushkill Switchyard, the conductors are supported by a series of transmission line structures that include 11 lattice towers, one 2-pole structure, and one 3-pole structure supporting the existing single circuit in a horizontal configuration. The arrangement also includes overhead ground wires ("OHGW").

17. The single-circuit Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines are in PPL Electric's Northeast Region and are part of a larger 230 kV transmission network that supplies PPL Electric and Mid-Atlantic Interstate Transmission LLC ("MAIT") transmission substations. These transmission substations then serve PPL Electric and FirstEnergy Pennsylvania Electric Company ("FirstEnergy") customers.

18. The Fox Hill-Shawnee 230kV Transmission Line has four critical crossings (three major highways, including Interstate 80, US Route 209, and State Route 447, and one waterway crossing of Broadhead Creek) requiring longer repair time and added safety concerns adjacent to

[3] A kcmil is a thousand circular mils. A circular mil is the cross-sectional area of a wire one mil in diameter, where 1 kcmil = 0.5067 mm^2.

[4] ACSR stands for aluminum conductor steel reinforced.

roadways. No critical crossings were identified along the Shawnee-Bushkill 230kV Transmission Line.

19. A map of the existing system configuration is provided as Figure 1-1 of Attachment 1 – Necessity Statement.

2. Definition of the Problem

20. This Project is needed to address asset health and reliability concerns associated with the aged transmission system infrastructure.

21. With the exception of the five structures closest to the Fox Hill Substation (which were installed as part of the construction of the Fox Hill and Monroe Substations in the mid-1990's) and two structures immediately adjacent to the Shawnee Substation (which were installed as part of the construction of the substation in the 1970's), both the Fox Hill-Shawnee 230 kV Transmission Line and the Shawnee-Bushkill 230 kV Transmission Line were installed in the mid-1920s. These transmission lines are the oldest 230 kV transmission lines on the PPL Electric system.

22. Originally constructed between 1926 and 1929, the existing Fox Hill-Shawnee and Shawnee-Bushkill 230kV Transmission Lines have a total of 55 structures spanning approximately 10.5 miles. A breakdown of the structure types, average and maximum ages, and expected life values is shown in Table 1-1 of Attachment 1 – Necessity Statement.

23. There are a total of 44 lattice towers and 11 steel poles. Of the 11 steel poles, the five (5) structures closest to Fox Hill Substation meet current design standards, do not show signs of deterioration, and have not met or exceeded their expected lifespan. These structures will remain in place and not be replaced as part of the Project. However, the vintage towers have exceeded their life expectancy with an average age of 94 years.

24. Notably, the vintage towers on the Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines utilize grillage foundations. Unlike standard tower foundations, which use concrete footers that extend above and below the groundline, grillage foundations do not have concrete footings. Instead, they have a concrete slab buried eight feet below the ground level. As a result of this design, a significant amount of tower steel is buried and in direct contact with the soil. This direct contact significantly increases the risk of corrosion, and reduces structure integrity, due to the moisture held in the soil. Furthermore, the corrosion is below the groundline and, therefore, is not easily visible through inspections.

25. In 2012, Osmose performed groundline inspections on every structure along the Fox Hill-Shawnee 230 kV Transmission Line. Of the 33 structures, 12 were rated Condition D (very poor). Condition D indicates that the steel is heavily corroded in many large areas. There were also large areas of significant thinning of 20% or greater loss of section. There were also areas where the steel is completely rusted through. While the twelve critical structures were repaired, the remainder that were not yet critical had coatings re-applied and were re-buried to reestablish structural stability of the tower. The coatings have a life expectancy of only 10 years, which has been surpassed for these structures. Once beyond their life expectancy, the coatings are likely to break down, making the grillage legs susceptible to further core steel corrosion.

26. An additional third-party condition assessment was performed in 2023 on the Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines to identify and determine the severity of visual deficiencies on the assets. The results of this assessment are shown in Table 1-2 of Attachment 1 – Necessity Statement. Major concerns identified by the assessment included deformation of tower members, foundation cracks, bullet holes, and erosion around the structure foundations.

27. While the coatings discussed above maintained the integrity of the towers over their 10-year life expectancy, the 2023 visual inspection found that they had begun to deteriorate. Of the 44 vintage towers on the lines, moderate conditions were found on the coatings of 32 towers, meaning coatings were peeling, bubbling, and the steel was experiencing corrosion. The results of the visual inspection confirmed that a rebuild would be the most appropriate solution as maintaining the line would no longer address the concerns identified.

28. Similar to the structures, the 795 kcmil[5] ACSR conductor on the lines is also in poor condition and has exceeded its life expectancy, as it was installed between 1926 and 1929. According to the Institute of Electrical and Electronics Engineers ("IEEE")[6], the main concern for the ACSR conductor is the end of life of the galvanization on the steel core and subsequent corrosion. PPL Electric utilized the LineVue device from Kinectrics, which is a non-destructive inspection tool that travels along the length of spans to look through aluminum strands and analyzes the steel core, on targeted spans of the Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines to measure the level of deterioration at the core of the conductor.

29. The LineVue analysis is discussed in greater detail in Attachment 1 – Necessity Statement, and the results of this analysis are shown in Table 1-3 of the same. Importantly, 40% of the inspected spans across the Fox Hill-Shawnee and Shawnee-Bushkill lines were classified as Marginal and 20.83% are classified Poor, which indicates that the steel core's Rated Tensile Strength ("RTS") has greatly diminished due to deterioration. The inspection results also revealed that all Marginal and Poor spans are experiencing heavy surface rust with mild to medium or

[5] A kcmil is a thousand circular mils. A circular mil is the cross-sectional area of a wire one mil in diameter, where 1 kcmil = 0.5067 mm^2.

[6] IEEE is a professional organization for electronics engineering, electrical engineering, and other related disciplines. The association focuses on technology advancement and creates industry standards to establish best practices.

medium to heavy pitting. Additionally, the spans were also categorized by the Extent of Corrosion on the Outer Surface of the Steel Wires. One span showed a loss between 33% and 60% of the zinc galvanizing layer in some sections of the conductor, exposing the base metal. The remaining 17 spans had a loss of up to 33% in some sections of the conductor.

30. Based on the results of the inspection programs described above, it is clear that the Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines have exceeded their useful life and can no longer be relied upon to safely operate as designed.

31. Furthermore, these asset health concerns are of particular import as the Fox Hill-Shawnee and Shawnee-Bushkill Transmission Lines are a critical component of PPL Electric's Bulk Transmission System and are required to serve local load to multiple FirstEnergy customer facilities.

32. If the Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines were to fail, it would cause a load drop at Shawnee 230/32.5 kV Substation. This will result in up to 45 MW of load drop, resulting in approximately 23,166 customers losing service.

33. If the Shawnee-Bushkill 230 kV Transmission Line was to fail, the next contingency (i.e., loss of Martins Creek-Monroe 230 kV Transmission Circuit) will result in load drops at both the Fox Hill Substation and the Shawnee Substation, resulting in approximately 80 MW of load drop. As a result, 32,632 customers will lose service.

34. Furthermore, as the topic of severe weather patterns becomes increasingly relevant, there is a need to consider how changing weather patterns will impact the reliability of the existing lattice structures. Over the last 20 years, PPL Electric has seen a trend of increasing storms per year within the PPL Electric service territory. With each storm comes more exposure to extreme precipitation and wind events. If a tower is structurally compromised due to the continuous

exposure of damaging elements, that wind event creates an increased risk of structural failure. With projected increases of more frequent and intense heat waves over the next century in the Northeast in 2021, the occurrence of more severe wind and precipitation events is expected to rise as well. Due to the combination of drastic changes to the weather pattern and poor structure condition of the structures described above, it is imperative to re-evaluate the structures in the safest and most reliable way to protect against worsening conditions to protect the transmission system from catastrophic failures of towers.

35. The Fox Hill-Shawnee 230 kV Transmission Line rebuild has been assigned the PJM supplemental number s1100. The Shawnee-Bushkill 230 kV Transmission Line rebuild has been assigned the PJM supplemental number s1101.

B. THE PROPOSED PROJECT

36. In order to resolve the identified asset health conditions associated with the aged transmission infrastructure, PPL Electric proposes to rebuild Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines.

37. The proposed Project will address the asset health needs associated with the aged deteriorated and deteriorating lattice towers and conductors that comprise the Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines, as well as improve overall reliability, safety, and system resiliency. With respect to the asset health conditions, the Project will immediately and fully resolve the deteriorated condition of the existing towers and conductors structures on a long-term basis by (a) removing the existing steel lattice towers and replacing them with steel monopoles, and (b) removing and replacing the aged conductors. Replacing the existing lattice towers with monopoles will improve performance by increasing clearances and improving lightning performance. By rebuilding these transmission lines, PPL Electric will resolve the existing asset health issues and avoid the possibility of the issue worsening and/or recurring with

respect to these towers and conductors, and the issue later developing into both a reliability and public safety issue.

38. Importantly, as explained in Attachment 1 – Necessity Statement, the Project as proposed also avoids the additional costs and uncertainties surrounding the alternative structure (i.e., tower) replacement and remediation solutions contemplated PPL Electric. As noted therein, PPL Electric evaluated and rejected these alternatives because each carries substantial uncertainties regarding the immediate and long-term effectiveness of performing maintenance and remediation work on the conductors alone (i.e., Alternative 1 – Structure Replacement) or on both the towers and the conductors (i.e., Alternative 1 – Structure Remediation) until replacement was required. Although remediation could potentially extend the life of the towers and conductors, it would, at a minimum, require that the remediation work be re-evaluated and potentially repeated until replacement occurred, and would involve more frequent inspections. In addition, the health and safety risks associated with the assets' advanced age and degree of deterioration are so great that remediation would fail to adequately address their poor health conditions. The Project as proposed avoids these additional costs and uncertainties and proposes to rebuild the transmission lines in a cost-efficient manner to ensure the continued provision of safe and reliable service.

39. The approximate cost of the entire transmission line rebuild Project is $32.6 Million. On a total cost of service basis, the Proposed Solution is approximately 66% of the cost of Alternative 1 (replacing each of the existing structures) on a 45-year basis and 63% of the cost of Alternative 1 on a 75-year basis. In addition, on a total cost of service basis, the Proposed Solution is approximately 72% of the cost of Alternative 2 (remediating the existing structures) on a 45-year basis and 48% of the cost of Alternative 2 on a 75-year basis.

III. HEALTH AND SAFETY

40. The proposed lines will not create any unreasonable risk of danger to public health or safety. The proposed lines will be designed, constructed, operated, and maintained in a manner that meets or surpasses all applicable National Electrical Safety Code ("NESC") minimum standards and all applicable legal requirements. Descriptions of the NESC standards, PPL Electric's design criteria, and PPL Electric's safety practices are provided in Attachment 4 – Design Criteria.

41. Attachment 4 – Design Criteria accompanying this Letter of Notification also explains PPL Electric's standards for Magnetic Field Management. Ground clearances for the proposed Project will be increased between approximately 3.0 and 7.0 feet higher than those required by the NESC standard in order to reduce the magnetic field exposure.

IV. DESCRIPTION OF THE RIGHT-OF-WAY

42. The rebuilt Fox Hill-Shawnee and Shawnee- Bushkill 230 kV Transmission Lines will replace 48 existing structures in line with the existing structures and will remain on the same PPL Electric fee-owned properties and within the same right-of-way ("ROW") as the existing transmission line.

43. The existing ROW varies in width from 100 to 200 feet wide, with the wider areas typically occurring at angle and dead-end structures and on parcels near substations and switchyards. A network of existing access roads or temporary roads will be utilized during construction of the rebuilt transmission lines. An aerial map is provided in Figure 3-1 of Attachment 3 – Description of the Project Area, which depicts the proposed line and associated structures.

44. With the exception of one structure, all proposed monopoles for the Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines will be constructed in the same vicinity as the existing structures. One structure along the Fox Hill-Shawnee 230 kV Transmission Line will be relocated by approximately 512 feet from the existing structure location on an adjacent property in order to avoid land use impacts on the Delaware Water Gap/Pocono Mountain KOA Campground. PPL Electric informed the property owners of the relocated pole location, and the property owners did not object to the design change.

45. No structures will be placed on properties that currently do not have an existing structure. Because the existing transmission line can be removed from service during the construction process, the rebuilt transmission line will be constructed along the current centerline.

46. As explained in Attachment 2 – Engineering Statement, existing tower structures range in height from between approximately 80 and 120 feet with an average structure height of approximately 90 feet. The proposed monopole structures for the Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines will range in height from between approximately 125 and 190 feet with an average structure height of approximately 150 feet.

47. Two aerial plot plans are provided at the end of Attachment 1 – Necessity Statement. Figure 1-2 depicts the location of the existing transmission facilities associated with this Project. Figure 1-3 depicts the location of the proposed transmission facilities associated with this Project.

V. LAND USE AND ENVIRONMENTAL EVALUATION

48. As explained above, construction of the proposed Project will take place entirely within existing ROW. Therefore, it is anticipated that the proposed rebuilt Fox Hill-Shawnee and

Shawnee-Bushkill 230 kV Transmission Lines will have minimal incremental impacts on land use in the area.

49. PPL Electric will use previously established access roads or temporary roads for construction to the extent practical to further reduce interference with existing uses and minimize land use impacts. A detailed description of the route of each individual component of the Project can be found in Attachment 3 – Description of the Project Area.

50. PPL Electric evaluated the existing land uses on the PPL Electric owned properties, within the existing ROW, and within 0.25 mile (1,320 feet) of the rebuilt centerline ("Project Area") to summarize the overall landscape in which the Project is located. Based on a review of the current (2025) Monroe County parcel data and aerial imagery, the Project Area primarily consists of a rolling forested landscape with residential parcels (approximately 41%), vacant land (18%) and private recreational parcels (10%). Private recreational uses include a campground, golf courses, and areas reserved for resort activities. An additional 8% of the Project area consists of publicly owned lands, including Monroe County's Glen Park, Smithfield Township's Mt. Nebo Park, and Middle Smithfield Township's Milford Road Park. The remaining 23% of existing land uses within the Project Area consists of a mix of commercial and industrial uses, utility and transportation parcels, schools (including East Stroudsburg University) and places of worship.

51. The proposed Project will not affect any national parks, state parks, or natural landmarks, as none are located within the Project Area. The southern boundary of Mount Nebo Park is crossed by the rebuilt Fox Hill-Shawnee 230 kV Transmission Line east of Mt Nebo Road in Smithfield Township. The rebuilt line crosses the park entirely within existing cleared and maintained ROW (see Pages 6 and 7 on Figure 3-1). The rebuilt Fox Hill-Shawnee 230 kV Transmission Line crosses the Delaware Water Gap/Pocono Mountain KOA campground entirely

within existing ROW located east of Hollow Road in Middle Smithfield Township (see Page 9 on Figure 3-1). Two privately owned golf courses, Great Bear Golf Course and Pocono Hills Golf Course, are crossed by the Fox Hill-Shawnee 230 kV Transmission Line (see Pages 10 and 13 on Figure 3-1, respectively) entirely within existing cleared and maintained ROW. No other recreational areas are crossed. The proposed Project is not anticipated to result in new impacts to any local parks, recreation areas, conservation areas, or protected lands.

52. No conservation easements are directly crossed by the Project. The closest conservation easements to the Project include a Wildlands Conservancy easement approximately 1,500 feet southeast of Shawnee Substation and a county agricultural easement approximately 5,000 feet south of Fox Hill Substation. The proposed Project will not affect these easements.

53. One communications tower is located within the Project area approximately 650 feet south of the Fox Hill Substation; it is expected that the rebuilt transmission line will not adversely affect this structure.

54. The Delaware-Lackawanna Railroad corridor runs northwest-south, parallel to Brodhead Creek in proximity to most of the southwestern portion of the Project. As such, the Project requires one railroad crossing. PPL Electric is currently coordinating with the railroad to minimize Project impacts at this crossing.

55. West of the Shawnee Substation, the Project crosses a lower voltage transmission line that connects to Shawnee Substation.

56. The Project crosses two gas transmission pipelines: one owned by Columbia Gas Transmission Company and one owned by Douglas Pipeline Company. The Columbia Gas pipeline follows a similar path but does not parallel or share ROW with the southernmost 2 miles of the Fox Hill-Shawnee 230 kV Transmission Line, passing east of East Stroudsburg in a

generally north-south direction. The Douglas Pipeline Company pipeline extends east from the Columbia Gas pipeline on the north side of I-80 near the I-80 and US-209 interchange. Because the Project will be rebuilt on the existing centerline and within the existing ROW, no adverse effects to the pipelines are anticipated.

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

58. The closest active airports to the Project Area are Hallett's Airstrip and the Mount Pleasant Landing Strip, both privately owned, and located approximately 4.8 miles south and 4.8 miles southeast, respectively, of the Project. The public-use Stroudsburg – Pocono Airport, located 1.7 miles northwest of the project, was permanently closed in 2022 and no longer has any FAA-regulated airspace. PPL Electric does not anticipate any interference with airport operations since the Project consists of electrical facilities that are of a similar height as the existing electrical facilities and within existing ROW. However, PPL Electric will file any required documentation with the Federal Aviation Administration.

59. PPL Electric conducted an online review of the Project Area and surrounding landscape was conducted through the Pennsylvania Historical and Museum Commission ("PHMC") State Historic and Archaeological Resource Exchange site. State Historic Preservation Office ("SHPO") eligible and listed structures and districts either crossed by the Project or in proximity to the Project Area are listed in Table 3-1 and Table 3-2 below, and displayed in Figure 3-1 of Attachment 3 – Description of Project Area.

60. PPL Electric is coordinating with the PHMC for the modifications being made to the transmission lines. This coordination includes permits to construct the Project. Based on PPL Electric's experience with projects near or along the PNJ Interconnection, the Project may impact

this NRHP-eligible district. PPL Electric will perform any reviews and field survey/sampling work required by the PHMC to minimize and mitigate impacts to archaeological or historic architectural resources that may be located within the Project Area.

61. According to the Pennsylvania Department of Conservation and Natural Resources ("DCNR"), the Project Area crosses or passes near several unique geological, scenic or natural areas.

62. The southernmost 1.3 miles of the Project Area crosses the Upper Delaware Scenic River Important Bird Area (IBA #60). Impacts to birds within this IBA will be minimized by constructing the Project within an existing ROW.

63. A Natural Area Inventory ("NAI") has been prepared by The Nature Conservancy in collaboration with the Pennsylvania Natural Heritage Program ("PNHP") for Monroe County (1999). The Marshall Creek NAI area is a riparian corridor supporting five species of concern, and the Shawnee Fen NAI area supports a plant species of concern that was observed in 1993. PPL Electric will coordinate with Middle Smithfield and Smithfield townships and DCNR to minimize any potential impacts to the Marshall Creek and Shawnee Fen areas.

64. The Project crosses the natural areas identified within the NAI. The Project is not anticipated to result in any new impacts to the NAI sites, since the proposed structures will be replaced in close proximity to existing structures within existing and maintained ROW.

65. Erosion and Sedimentation ("E&S") control plans will be developed and implemented for the Project to minimize the displacement of soils. These plans will require prior approval from the Monroe County Conservation District. Coverage under Pennsylvania's National Pollutant Discharge Elimination System ("NPDES") construction permit will also be required from the Pennsylvania Department of Environmental Protection ("PADEP") as needed. During

construction, PPL Electric will adhere to all conditions specified in the NPDES permit. Impacts to local soil resources are anticipated to be minimal.

66. PPL Electric retained an environmental consultant to identify and delineate all waterways and wetlands within the area of the proposed Project. Three perennial stream crossings, six freshwater emergent ("PEM") wetlands, and two freshwater shrub/scrub ("PEM/PSS") wetlands were identified within the existing ROW. Further detail is provided in Attachment 3 – Description of the Project Area. PPL Electric will avoid impacts to wetlands and streams where possible by aerially spanning these features. PPL Electric will obtain all necessary permits from PADEP and the United States Army Corps of Engineers ("USACE") and will comply with all the terms and conditions placed on those permits. PPL Electric also will consult with the Monroe County Conservation District, prepare any required soil erosion and sedimentation control plans, and obtain NPDES permits and comply with any conditions placed on those permits

67. The National Flood Hazard Layer for Monroe County, Pennsylvania was obtained through the Federal Emergency Management Agency ("FEMA") Flood Map Service Center website and analyzed for 100-year floodplains and regulatory floodway within the Project Area and surrounding landscape. Based on review of this data, the Project spans the 100-year floodplain associated with Brodhead Creek and the 100-year floodplain and regulatory floodway associated with Marshalls Creek. Minimal impacts to floodplain areas or floodways are anticipated by the proposed Project activities, since the proposed structures will be replaced in close proximity to existing structures. PPL Electric will coordinate with local agencies for regulated floodplain activities.

68. Vegetative cover in the Project Area consists almost entirely of forested or landscaped areas. The existing ROW areas for the transmission lines have previously been cleared

of woody vegetation and no extensive tree clearing is anticipated on the line. If vegetation management is required in this specific location, PPL Electric will apply its "Specifications for Transmission Vegetation Management LA-79827" to minimize potential impacts.

69. A Pennsylvania Natural Diversity Inventory ("PNDI") was run for the Project on February 23, 2023 to assess the potential presence of threatened and endangered species and/or special concern species. The details of the PNDI, and the minimal impacts and associated mitigation and protection requirements that may be imposed by jurisdictional agencies are described in detail in Attachment 3 – Description of the Project Area.

70. PPL Electric will continue to consult with the jurisdictional agencies regarding potential impacts to protected species, complete all required surveys; obtain all necessary approvals and permits for Project construction; and comply with all conditions placed on those permits.

VI. NOTICE

71. PPL Electric has reached out to residents located immediately adjacent to PPL Electric's fee owned parcels and owners of properties that are crossed by the Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines. Copies of the Letter of Notification will be served upon landowners in accordance with 52 Pa. Code § 57.72(d)(3). A list of the landowners impacted by this project is provided in Attachment 5.

72. PPL Electric has provided information regarding the Project to representatives of Middle Smithfield and Smithfield Townships, in Monroe County, Pennsylvania. These entities have not objected to the proposed Project. Copies of this Letter of Notification will be served on the governmental agencies, municipalities, and other public entities and organizations in

accordance with 52 Pa. Code § 57.72(d)(3). A list of these entities and organizations is also provided in Attachment 5.

VII. LETTER OF NOTIFICATION

73. PPL Electric is proceeding by means of a Letter of Notification, instead of a formal application, pursuant to the Commission's regulations at 52 Pa. Code § 57.72(d)(1)(i).

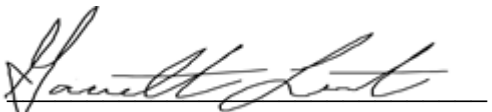
74. The proposed Project qualifies for use of a Letter of Notification because it will be located entirely on an existing transmission line right-of-way, and the size, character design or configuration of the proposed transmission line will not substantially alter the right-of-way.

75. This Letter of Notification is filed on the date set forth below. As provided in 52 Pa. Code § 57.72(d)(5), the Commission will review and, by order, approve or disapprove this Letter of Notification. If the Commission approves this Letter of Notification, the proposed Project will be constructed as proposed herein without the formal application process set forth at 52 Pa. Code §§ 57.71, *et seq*.

VIII. CONCLUSION

WHEREFORE, PPL Electric Utilities Corporation respectfully requests that the Pennsylvania Public Utility Commission approve the proposed Project located in Monroe County, Pennsylvania, that is explained above and in the Attachments hereto, by no later than the Public Meeting scheduled for July 24, 2025.

Respectfully submitted,



Michael J. Shafer (I.D. # 205681)
PPL Services Corporation
645 Hamilton Street, Suite 700
Allentown, PA 18101
Voice: 610-774-2599
Fax: 610-774-4102
E-mail: mjshafer@pplweb.com

David B. MacGregor (I.D. # 28804)
Garrett P. Lent (I.D. # 321566)
Post & Schell, P.C.
17 North Second Street
12th Floor
Harrisburg, PA 17101-1601
Voice: 717-731-1970
Fax: 717-731-1985
E-mail: dmacgregor@postschell.com
E-mail: glent@postschell.com

Date: March 28, 2025

Attorneys for PPL Electric Utilities Corporation

PPL ELECTRIC
ATTACHMENT 1

FOX HILL-SHAWNEE AND SHAWNEE-BUSHKILL 230 kV TRANSMISSION LINE REBUILD PROJECT

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1.0 INTRODUCTION

PPL Electric Utilities Corporation ("PPL Electric") is requesting Pennsylvania Public Utility Commission ("PUC" or "Commission") approval to rebuild approximately 10.1 miles of single-circuit transmission line between the Fox Hill 230 kV Substation ("Fox Hill Substation") and the Bushkill 230 kV Switchyard ("Bushkill Switchyard") in Smithfield Township, Monroe County, Pennsylvania.[1] The approximate 10.1-mile transmission line is split into two segments by the Shawnee 230 kV Substation ("Shawnee Substation"). The segment between the Fox Hill and Shawnee Substations is named the "Fox Hill-Shawnee 230 kV Transmission Line" and the segment between the Shawnee Substation and Bushkill Switchyard is named the "Shawnee-Bushkill 230 kV Transmission Line." PPL Electric's proposed rebuild of these lines is known as the "Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Line Rebuild Project" or the "Project".[2] A map of the existing system configuration is provided as **Figure 1-1**.

This Project is required to address asset health and reliability concerns associated with the aging transmission system infrastructure. The Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines represent some of the oldest transmission infrastructure on PPL Electric's system. In addition, the Project is also required to comply with:

- The Consolidated Transmission Owners Agreement ("CTOA") Rate Schedule - Federal Energy Regulatory Commission ("FERC") - No. 42 (FERC ER10-2713-000), which requires transmission systems to "[b]e kept in place and maintained in good operating condition in accordance with Good Utility Practice and principles, guidelines and standards of the applicable Regional Reliability Council and North American Electric Reliability Corporation ("NERC")."

[1] For a complete list of municipalities and county crossed by the Project, please refer to Attachment 5 to the Letter of Notification.
[2] An approximately 0.4-mile section of the existing Fox Hill – Shawnee 230 kV Transmission Line, supported by five existing monopole structures (Structures 38 – 42) will remain in-place, and new optical ground wire ("OPGW") fiber cable will be replaced. This section is not part of the Project.

The Project is necessary for PPL Electric to avoid violating its obligations under the CTOA to maintain its transmission facilities in good operating condition and avoid public safety concerns caused by failed assets.

Moreover, for PPL Electric's transmission facilities must be maintained in a manner consistent with the standards of the NERC, Reliability First Corporation, and Good Utility Practice as defined by the CTOA to be considered in good operating condition. Failure to comply with these standards, particularly NERC standards, can result in the imposition of significant fines, and other non-monetary penalties.

Subject to the Commission's approval, construction will begin on August 4, 2025, to support an in-service date of December 31, 2026. The total estimated cost of this Project, as described below, is approximately $32.6 million, and the cost for the Project will be paid by PPL Electric.[3]

2.0 BACKGROUND

PPL Electric is responsible for providing transmission assets and maintaining them in an adequate, efficient, safe, reliable, and reasonable manner to meet the needs of the electric system and its customers' expectations. To achieve this, PPL Electric applies its Transmission Asset Management Procedure as part of its system performance and condition assessment process. These performance and condition assessments identify system needs and prioritize projects based on several variables such as equipment age, condition, maintenance schedule, and impact on system reliability and asset performance to ensure a reliable electric grid and service to its customers.

The transmission system is the backbone of the electric grid. Failure to maintain the system in accordance with reliability practices and standards can decrease overall transmission system reliability and increase the risk of customer outages.

[3] The estimated cost was developed using averages of recent costs for similar projects and without an in-depth analysis of field investigation. The 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.

3.0 TRANSMISSION SYSTEM PLANNING PROCESS

The nation's interconnected transmission grid ("Transmission Grid") serves as the backbone for the safe and reliable delivery of substantial amounts of electricity from generating stations over significant distances to customers served by transmission and local distribution systems. It is critical that the Transmission Grid be planned and designed to ensure reliable electric service is provided under all loading conditions or when certain elements of the Transmission Grid are out of service (system contingencies) due to planned or unplanned outages.

Robust transmission planning enables the transmission system to supply electricity to all customer loads in a reliable and economical manner. This system planning process ensures that both the Bulk Electric System ("BES")[4] and non-Bulk Electric System ("non-BES")[5] are planned and constructed so that:

- They can accommodate forecasted system flows during summer and winter peak load;
- They can adequately serve each customer's need regarding capacity, voltage, and reliability for all load levels throughout the daily load cycle;
- They can sustain probable contingencies and disturbances with minimal customer service interruptions; and
- They are in conformance with NERC, PJM Interconnection, LLC ("PJM"), and the Transmission Owner's reliability criteria for all normal and emergency operating conditions.

PJM is a FERC-approved Regional Transmission Organization ("RTO") charged with ensuring the reliability of the electric transmission system under its functional control (100 kV and above) and coordinating the movement of electricity in all or parts of thirteen states and the District of Columbia, including Pennsylvania. To ensure reliable transmission service, PJM prepares an annual Regional Transmission Expansion Plan ("RTEP") to identify system reinforcements that are required to, among other things, meet the NERC Reliability Standards, PJM reliability planning criteria, and Transmission Owner reliability criteria. Prior to submitting the project to PJM, PPL Electric evaluated whether the line could be retired as one of the functional alternatives. Based on

[4] Includes transmission facilities operated at voltages of 100 kV or higher.
[5] Includes transmission facilities operated at voltages less than 100 kV.

this evaluation, it was determined that the line could not be retired without causing substantial issues on the system. Removal of the Fox Hill-Shawnee and Shawnee-Bushkill 230kV lines would leave the Shawnee Substation without a 230 kV source to serve load. Removal of the lines would also leave Fox Hill Substation served from a single 230 kV source and susceptible to load drop on the next contingency. The removal of these lines would leave the system in a less resilient state and remove a critical transmission path between eastern Pennsylvania and New Jersey. As such, the existing Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines remain in PJM's planning studies and are assumed to remain in-service and fully operational. Therefore, PPL Electric focused its efforts on identifying the most appropriate way to address the deteriorated condition of the aging infrastructure.

PPL Electric's Transmission Asset Management Procedure involves identifying system needs and determining the best available solution to address those needs. This process includes asset evaluation, asset condition and system risk assessments, analysis of alternative solutions, and project initiation and scheduling. System needs are identified based on the overarching goals of reducing outage frequency and duration, improving system reliability, decreasing system maintenance cost, and maintaining operational flexibility to ensure safe and reliable electric service of the transmission system and to our customers.

When transmission owning utilities (including PPL Electric) set up PJM as an RTO, they agreed to bind themselves to maintaining their existing transmission systems using Good Utility Practice. The CTOA is an agreement between (1) individual Transmission Owners operating within the PJM Region and (2) between the Transmission Owners and PJM. The CTOA facilitates the planning and operation of the Transmission Grid within the PJM region and establishes the rights and responsibilities of each party to the CTOA. Section 4.6 of the CTOA requires that transmission systems "[b]e kept in place and maintained in good operating condition in accordance with Good Utility Practice and principles, guidelines and standards of the applicable Regional Reliability Council and NERC." This Project is required to fulfill PPL Electric's obligations under the CTOA.

In addition, PPL Electric must also comply with the following:

- NERC TPL-001 Transmission System Planning Performance Requirements, which establishes transmission system planning performance requirements with the planning

horizon to develop Bulk Electric System ("BES") that will operate reliably over a broad spectrum of System conditions and following a wide range of contingencies.

4.0 THE NEED FOR THE PROJECT

4.1 Existing System

The Fox Hill and Shawnee Substations are connected by the single-circuit Fox Hill-Shawnee 230 kV Transmission Line. The existing portion of the Fox Hill-Shawnee 230 kV Transmission Line to be rebuilt is approximately 7.9 miles long and supported by 42 structures. The Shawnee Substation and Bushkill Switchyard are connected by the single-circuit Shawnee-Bushkill 230kV Transmission Line. The Shawnee-Bushkill 230kV Transmission Line is approximately 2.2 miles long and supported by 13 structures.

The single-circuit Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines are in PPL Electric's Northeast Region and are part of a larger 230 kV transmission network that supplies PPL Electric and Mid-Atlantic Interstate Transmission LLC ("MAIT") transmission substations. These transmission substations then serve PPL Electric and FirstEnergy Pennsylvania Electric Company ("FirstEnergy") customers. If the Fox Hill-Shawnee and Shawnee-Bushkill 230kV Transmission Lines were to fail, it is expected approximately 45 megawatts ("MW") of load will be dropped. The Fox Hill-Shawnee 230kV Transmission Line has four critical crossings (three major highways, including Interstate 80, US Route 209, and State Route 447, and one waterway crossing of Broadhead Creek) requiring longer repair time and added safety concerns adjacent to roadways. No critical crossings were identified along the Shawnee-Bushkill 230kV Transmission Line.

4.2 Project Need

This Project is needed to address asset health and reliability concerns associated with the aged transmission system infrastructure. With the exception of the five structures closest to the Fox Hill Substation, which were installed as part of the construction of the Fox Hill and Monroe Substations in the mid-1990's and two structures immediately adjacent to the Shawnee Substation, which were installed as part of the construction of the substation in the 1970's, both circuits were installed in the mid-1920s and are the oldest 230 kV transmission lines on the PPL Electric system. After analyzing the assets, they were deemed to have exceeded their life expectancies. This is defined

as the age when the facility exhibits a significant and sustained increase in maintenance costs with a higher likelihood of component failure. Operating at 230 kV, the transmission lines are part of the BES, and as such, PPL Electric is required by the NERC to maintain the assets in a way that will ensure the reliability and stability of that system.

4.2.1 Asset Health

Originally constructed between 1926 and 1929, the existing Fox Hill-Shawnee and Shawnee-Bushkill 230kV Transmission Lines have a total of 55 structures spanning approximately 10.5 miles. A breakdown of the structure types, average and maximum ages, and expected life values is shown in **Table 1-1** below.

Table 1-1. Structure Counts by Type, Age, and Expected Life

Structure Type	Structure Count	Average Age (Years)	Max Age (Years)	Expected Life (Years)
Steel Structure	11	27	30	60
Lattice Tower	44	94	97	80
Grand Total	55	82	97	N/A

As shown in **Table 1-1,** there are a total of 44 lattice towers and 11 steel poles. Of the 11 steel poles, the five (5) structures closest to Fox Hill Substation meet current design standards, do not show signs of deterioration, and have not met or exceeded their expected lifespan. These structures will remain in place and not be replaced as part of the Project. However, the remainder of the towers have exceeded their life expectancy with an average age of 94 years, supporting the need to replace them.

Notably, the vintage towers on the Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines utilize grillage foundations. Standard tower foundations are concrete footers that extend above and below the groundline. On standard tower foundations, the bottom of the tower bolts are installed on top of the concrete footer so that all steel components are located above ground, preventing the steel from directly contacting the soil, which leads to corrosion. Grillage foundations, however, do not have concrete footings. Instead, they have a concrete slab buried eight feet below the ground level. As a result, there is a significant amount of tower steel which is buried and in direct contact with the soil. Direct contact with the soil significantly increases the

risk of corrosion due to the moisture held in the soil. Steel corrosion reduces the integrity of the steel resulting in weak spots that can lead to failure. Furthermore, the corrosion is below the groundline and, therefore, is not easily visible through inspections.

In 2012, Osmose performed groundline inspections on every structure along the Fox Hill-Shawnee 230 kV Transmission Line. Of the 33 structures, 12 were rated Condition D (very poor). Condition D indicates that the steel is heavily corroded in many large areas. There were also large areas of significant thinning of 20% or greater loss of section. There were also areas where the steel is completely rusted through. All damage to the 12 structures was resolved as part of planned repairs. The remaining structures that were not yet critical had coatings re-applied and were re-buried to reestablish structural stability of the tower. The coatings have a life expectancy of only 10 years, which has been surpassed for these structures. Once beyond their life expectancy, the coatings are likely to break down, making the grillage legs susceptible to further core steel corrosion.

An additional third-party condition assessment was performed in 2023 on the Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines to identify and determine severity of visual deficiencies on the assets. As indicated below in **Table 1-2**, 2% of the lattice towers were classified with an overall condition of severe due to the steel damage identified, such as deformation of tower members and bullet holes. Meanwhile, 72.7% were classified as moderate due to the coatings. The inspection provided qualitative metrics for the condition of the steel structures as well as the coatings at the foundation.

For steel damage to be considered severe, it must exhibit one or more of the following:

- Severe member deformation
- Any substantial overhead buckling
- Buckling or deformation of three adjacent redundant members
- Missing more than half of the bolts in a connection
- Missing/severely damaged anchor bolts
- Missing load bearing members
- Completely broken off primary or secondary members
- Missing more than two redundant members on one post leg
- Bullet holes

For the classification of the coatings, the third party contractor utilized the standards referenced in the Society for Protective Coatings ("SSPC"): Standard Method of Evaluating Degree of Rusting on Painted Steel Surface." This method classifies the degree of rusting using a zero to ten scale based on percentage of visible surface rust. Any coatings that fell between three and five on the scale were considered moderate in this inspection.

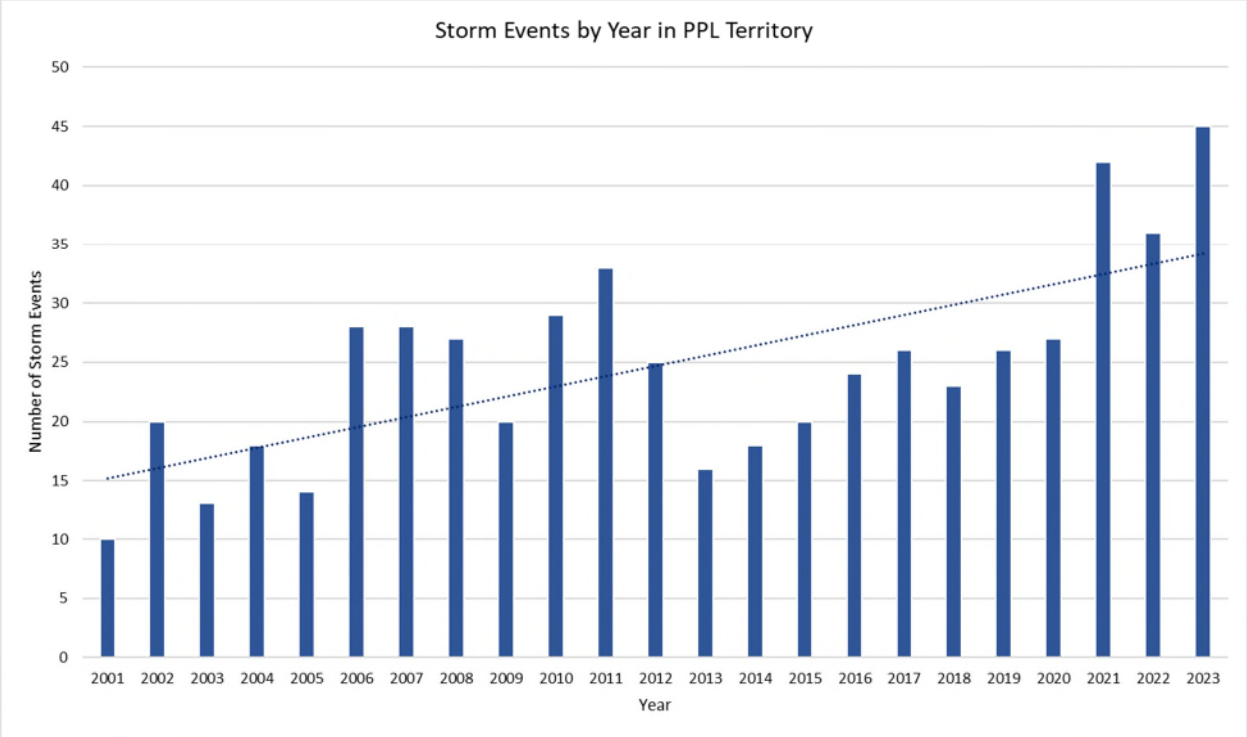
While the coatings discussed above maintained the integrity of the towers over their 10-year life expectancy, the 2023 visual inspection found that they had begun to deteriorate. Of the 44 vintage towers on the lines, moderate conditions were found on the coatings of 32 towers, meaning coatings were peeling, bubbling, and the steel was experiencing corrosion. The results of the visual inspection confirmed that a rebuild would be the most appropriate solution as maintaining the line would no longer address the concerns identified.

Table 1-2. Structure Inspection Overall Condition Summary

Structure Type	Pass	Moderate	Severe
Lattice Tower	11	32	1

The current condition of the towers identified through the assessment identify a susceptibility to failure especially during extreme weather. The topic of severe weather patterns has become increasingly relevant, meaning there is a need to consider how changing weather patterns will impact the reliability of the existing lattice structures. Over the last 20 years, PPL Electric has seen a trend of increasing storms per year within the PPL Electric service territory as shown in **Graph 1-1**. With each storm comes more exposure to extreme precipitation and wind events. If a tower is structurally compromised due to the continuous exposure of damaging elements, that wind event creates an increased risk of structural failure. Due to the combination of drastic changes to weather patterns and the poor condition of the structures described above, it is imperative to address the deficiencies in the structures in the safest and most reliable way to protect against worsening conditions and to protect the transmission system from the catastrophic failures of towers.

Graph 1-1 Storm Events by Year in PPL Territory



Similar to the structures, the 795 kcmil[6] ACSR conductor on the lines is also in poor condition, as it was installed between 1926 and 1929, exceeding life expectancy. According to the Institute of Electrical and Electronics Engineers ("IEEE")[7], the main concern for the ACSR conductor is the end of life of the galvanization on the steel core and subsequent corrosion. PPL Electric utilized the LineVue device from Kinectrics, which is a non-destructive inspection tool that travels along the length of spans to look through aluminum strands and analyze the steel core, on targeted spans of the Fox Hill-Shawnee and Shawnee-Bushkill Transmission Lines to measure the level of deterioration at the core of the conductor.

A data analytical approach was utilized to determine the inspection sample size needed to confidently assess the entire line's condition. Of the total 59 spans along the Fox Hill-Shawnee and Shawnee-Bushkill transmission lines, 24 spans were targeted for inspection. The number of spans on the Fox Hill-Shawnee line is 77% of the total 59 spans between the two lines. The same

[6] A kcmil is a thousand circular mils. A circular mil is the cross-sectional area of a wire one mil in diameter, where 1 kcmil = 0.5067 mm^2.
[7] IEEE is a professional organization for electronics engineering, electrical engineering, and other related disciplines. The association focuses on technology advancement and creates industry standards to establish best practices.

percentage was used to determine how many spans of the targeted 24 would be inspected on Fox Hill-Shawnee compared to Shawnee-Bushkill. As a result, the Fox Hill-Shawnee line had 18 spans inspected while the Shawnee-Bushkill line had the remaining 6 spans inspected. Additionally, the locations of the spans were chosen to show the conductor's condition in different environments at different points in the line. The spans inspected ran through heavily vegetated areas, residential areas, highway crossings, and waterway crossings across the entire length of the line. The locations of any replacement spans were recorded in the final report provided by Kinectrics. A breakdown of the condition found for each span is shown in **Table 1-3** below.

Table 1-3. Kinectrics LineVue Conductor Inspection Results

Condition	Rated Tensile Strength (RTS) of Steel Core	Fox Hill-Shawnee	Shawnee-Bushkill
Very Good	100%	0	0
Good	95% - <100%	5	1
Fair	90% - <95%	2	1
Marginal	85% - <90%	7	3
Poor	<85%	4	1
Grand Total		18	6

The spans were categorized among five conditions that indicate the remaining Rated Tensile Strength (“RTS”) for only the Steel Core. **Table 1-3** shows that 40% of the inspected spans across the Fox Hill-Shawnee and Shawnee-Bushkill lines are Marginal while 20.83% are Poor. The condition of the inspected spans indicates that the steel core's RTS has greatly diminished due to deterioration. The inspection results also revealed that all Marginal and Poor spans are experiencing heavy surface rust with mild to medium or medium to heavy pitting. Additionally, the spans were also categorized by the Extent of Corrosion on the Outer Surface of the Steel Wires. One span showed a loss between 33% and 60% of the zinc galvanizing layer in some sections of the conductor, exposing the base metal. The remaining 17 spans had a loss of up to 33% in some sections of the conductor.

As part of the assessment, Kinectrics provides recommendations for the inspected spans on when the next inspection should take place, and if there is a need for repairs or replacement. Kinectrics

recommended all spans that were in Marginal or Poor condition be replaced due to the severe corrosion pitting and loss of cross-sectional area. In total, 11 spans on the Fox Hill-Shawnee and 4 spans on the Shawnee-Bushkill lines were recommended for replacement, which equates to 62.5% of the sample size. Both transmission lines were also recommended to be re-inspected within the next one to three years. As discussed above, the sample size was chosen to indicate the condition of the Transmission Lines' entire length. Given that a significant amount of the sample size was called out for replacement, it was determined that the lines should be reconductored in their entirety.

PPL Electric further notes conductor splices were replaced to extend the conductor's life in 1983; however, these are weak spots on the conductor which are exposed to moisture, mechanical vibrations, heat, and other contaminants. The elements discussed above could cause corrosion to accumulate, increasing the amount of damage to the splice if it goes undetected. As a result, the consequential energy loss and rise in temperature due to damage can lead to catastrophic failure. In total, there are 74 dead-end splices and 111 midspan splices on the Fox Hill-Shawnee and Shawnee-Bushkill lines. Failure of one of these splices can cause operations on the line, interruptions for customers, and pose severe safety risks to PPL Electric and the public, should the conductor fall to the ground.

If the Fox Hill-Shawnee and Shawnee- Bushkill Transmission Lines were not to be reconductored immediately, yearly splice inspections would be needed to prevent failure. Reconductoring the line will increase the ampacity of the line for heavier line loading during load transfers and regional outages, while also allowing for continued operation without failures or the need to perform extensive maintenance to prolong the life of the existing conductor.

Additionally, copperweld copper overhead ground wire installed in 1941 covers approximately 10 miles of the Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines. Towards the end of life, the copper coating can wear away and cause the steel to corrode from the inside. The shield wire on the lines is currently experiencing rust and breakage on the outer strands. Two spans along the Fox Hill-Shawnee segment are in such poor condition that they cannot receive armor rods or be shunted, in order to address these issues.

PPL Electric has deemed these transmission lines to be in "poor condition" due to the assets' age and physical condition, including the age and condition of the towers and conductors. Any failure

due to the condition of these assets may lead to unexpected outages on the BES, risking violations of NERC Reliability Standards. Violations result in monetary penalties that are determined based on the degree to which the compliance was not achieved, the entity size, and the duration of the violation. The penalties range from as low as $1,000 to over $1 million. A NERC violation can also directly cause or contribute to the BES instability, separation, or cascading failures. The rolling blackouts would impact both PPL Electric customers and customers outside of the PPL Electric territory.

These asset health concerns are also important as the Fox Hill-Shawnee and Shawnee-Bushkill Transmission Lines are a critical component of PPL Electric's Bulk Transmission System and are required to serve local load to multiple FirstEnergy customer facilities. If these transmission lines were to fail due to the explained issues, the following reliability issues would occur:

A) **Failure of Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines:**

- The load at the Shawnee 230-32.5 kV Substation is served by the Fox Hill-Shawnee and Shawnee-Bushkill 230kV Transmission Lines. Failure of both Transmission Lines will cause a load drop at Shawnee 230/32.5 kV Substation. This will result in up to 45 mega-watts ("MW") of load drop, resulting in approximately 23,166 customers losing service.

B) **Failure of Shawnee-Bushkill and Martins Creek-Monroe 230 kV Transmission Lines:**

- Failure of Shawnee-Bushkill 230 kV Transmission Line will put Fox Hill Substation and Shawnee kV Substation at risk for the next contingency. The next contingency of the loss of Martins Creek-Monroe 230 kV Transmission Circuit will result in load drops at both the Fox Hill Substation and the Shawnee Substation, resulting in approximately 80 mega-watts ("MW") of load drop. As a result, 32,632 customers will lose service.

The assets' poor conditions have resulted in increased maintenance costs over the years. The results of previous inspections confirmed that additional mitigation efforts would be needed to maintain the line. These maintenance items include recoating and restorations every 10 years, yearly Ohmstik measurements, conductor inspections, and more frequent aerial inspections, which will increase the cost to uphold the integrity of the line significantly. Conversely, rebuilding the transmission lines would remove grillage foundations and eliminate the need for splices.

Therefore, re-coating and restoration would be required only once towards the structures' end of life around 65 years, and yearly Ohmstik measurements would not be necessary. This would reduce the estimated cost needed to maintain the line substantially.

4.2.2 Line Performance

The Fox Hill-Shawnee 230 kV Transmission Line has not experienced any outages in the last 5 years. In 2018, the Shawnee-Bushkill 230 kV Transmission Line experienced one permanent outage lasting greater than 5 minutes due to vegetation falling into the right of way.

5.0 ALTERNATIVES

PPL Electric evaluated two potential solutions to address the degrading health of the Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines. The following two alternatives were considered and compared based upon their ability to resolve the asset health conditions identified by PPL Electric and upon a 45-year and 75-year cost of service basis:

- (1) Alternative 1 – Maintain the Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines;
- (2) Alternative 2 – Full Rebuild of the Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines ("Proposed Solution").

The Proposed Solution is necessary to address the asset health conditions described above. Although PPL Electric evaluated the option of maintaining the line, the alternative presents substantial uncertainties regarding the immediate and long-term effectiveness to address the condition of the structures and conductor. As explained herein, the health and safety risks associated with the assets' advanced age and degree of deterioration are so great that maintaining the line would fail to adequately address poor health conditions. For these reasons, the first alternative was rejected as it was neither prudent nor reasonable.

Furthermore, the Proposed Solution is the most cost-effective. To estimate the total cost of each alternative over both a 45-year and 75-year period (the expected service life of a new steel structure), cost-of-service calculations for the revenue requirement were completed on a per-structure basis. A summary of this analysis is presented in **Table 1-4** below. Based upon this analysis, PPL Electric determined that the Proposed Solution most efficiently addresses the asset health conditions of the Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines.

Therefore, as explained in Section 6.0, PPL Electric proposes Alternative 2 as the Proposed Solution in this proceeding.

The Fox Hill-Shawnee 230kV line rebuild has been assigned the PJM supplemental number s1100.

The Shawnee-Bushkill 230kV line rebuild has been assigned the PJM supplemental number s1101.

5.1 Alternative 1 – Maintaining the Line

The first alternative considered by PPL Electric to address the poor health condition of assets on the line was to maintain the line as needed, which would include repairing severely damaged members, and installing new hardware and spacers on towers. This alternative was rejected by PPL Electric due to substantial uncertainties regarding its immediate and long-term effectiveness in addressing structural issues. At a minimum re-evaluation and possible subsequent remediation every 10 years or fewer would be needed after the first planned repair. Moreover, the health and safety risks associated with the assets' advanced age and degree of deterioration are so great that remediation would fail to adequately address their poor health conditions.

Based on Kinetics' recommendation, this option would require PPL Electric to immediately replace 15 spans of the Transmission Lines. The remaining spans would also have an O&M cost associated with re-inspecting in 2026. In addition, there would be ongoing O&M costs for the remainder of the service life of the transmission lines, including more frequent inspections and maintenance work identified. Inspections to identify issues on the line not addressed through a rebuild would use a cycle of comprehensive visual inspections every 6 years and a supplemental, aerial visual inspection every 3 years in between. After 30 years, the structures will have to be replaced with new structures. Further, maintaining the line would not address all underlying issues, requiring additional, duplicative projects.

For the reasons stated above, it is not reasonable or prudent to pursue Alternative 1. Maintaining the line would fail to address the underlying asset health conditions on a long-term basis and is a less cost-efficient option.

5.2 Alternative 2 – Full Rebuild

The second alternative considered by PPL Electric was to fully rebuild the existing Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines. Replacing the existing lattice towers with monopoles will improve performance by increasing clearances and improving lightning performance. The estimated rebuild cost is approximately $583,661/structure.

The revenue requirements for a rebuild over both a 45 and 75-year period are lower (as shown in **Table 1-5**), making the rebuild the more cost-effective solution. General maintenance work would not be needed until 30 years after the rebuild due to fully replacing the affected structures (as opposed to attempting to add more useful life to those structures via remediation). Additionally, less frequent inspections would be needed, lowering O&M costs. Rebuilds are also less risky than remediation due to factors such as lack of remediation experience and lack of evidence for long-term remediation effectiveness. When compared to the option of maintaining the line, the full rebuild option has advantages in both cost-effectiveness and lower risk, making full rebuild the best long-term solution.

TABLE 1-5: Cost of Service of Evaluated Options

Project Scope	45 Year Cost of Service ($M)	75 Year Cost of Service ($M)
Maintain Fox Hill – Shawnee and Shawnee - Bushkill 230 kV Transmission Lines	$140.2	$262.6
Full Rebuild of Fox Hill – Shawnee and Shawnee - Bushkill 230 kV Transmission Lines	$100.7	$124.9

6.0 PROPOSED SOLUTION

PPL Electric evaluated the alternative to maintain the Fox Hill-Shawnee 230 kV and Shawnee-Bushkill 230 kV Transmission Lines and concluded that it is not cost effective. Therefore, to resolve the reliability issues explained above, rebuilding the Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines is the most prudent and cost-effective option to address asset health concerns and improve overall reliability.

The approximate cost of the entire transmission line rebuild Project is $32.6 Million.

On a total cost of service basis, the Proposed Solution is approximately 72% of the cost of Alternative 1 (maintaining the lines) on a 45-year basis and 48% of the cost of Alternative 1 on a 75-year basis.

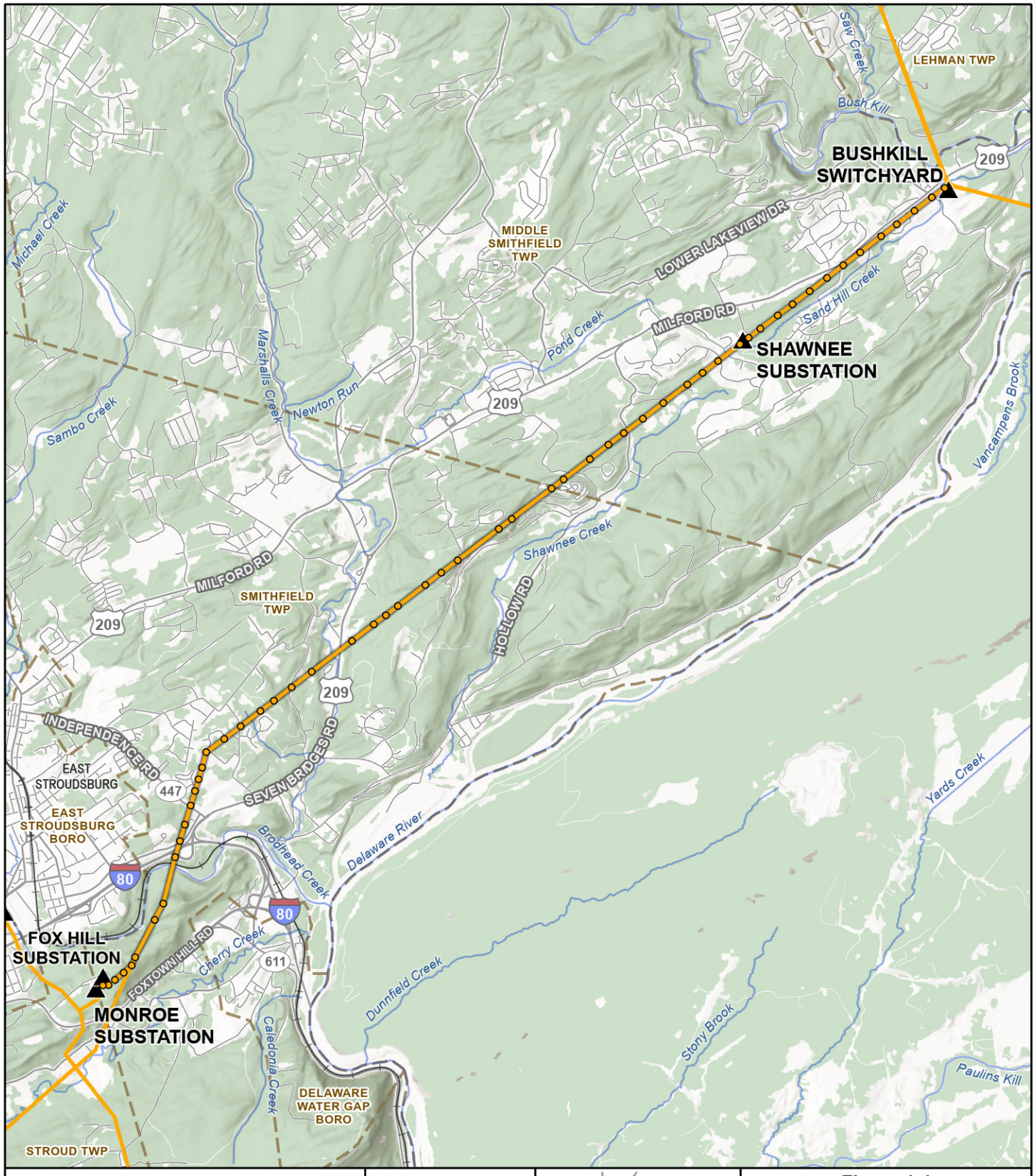
As explained above, from the Fox Hill 230-34.5 kV Substation, the rebuilt Fox Hill-Shawnee 230 kV Transmission Line will extend approximately 7.9 miles to the Shawnee 230 Substation. From here, the Shawnee-Bushkill 230 kV Transmission Line will extend approximately 2.2 miles to the Bushkill 230 kV Switchyard. The rebuilt Fox Hill-Shawnee 230 kV and Shawnee-Bushkill 230kV Transmission Lines will be designed to double circuit 230 kV standards. The cost of rebuilding the lines as double circuit is incrementally more expensive than single circuit. The rebuilt transmission lines will operate initially as single circuit.

After completion of this Project, all asset health concerns will be addressed to ensure continued stability of the Bulk Electric System.

For all the foregoing reasons, this Project is necessary to enable PPL Electric to continue providing reliable service now and into the future and requests Commission approval to complete this Project.

A map of the proposed system alignment is provided as **Figure 1-2**.

Figure 1-1: Existing System Configuration



▲ Substation or Switchyard

○ Existing Structure

— Existing Transmission Line

– – Municipality Boundary

Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2022)

Coordinate System:
State Plane Pennsylvania North
Datum: North American 1983

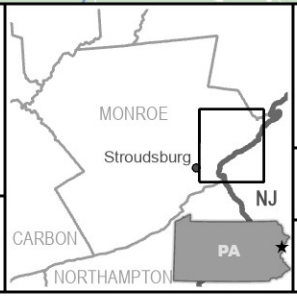


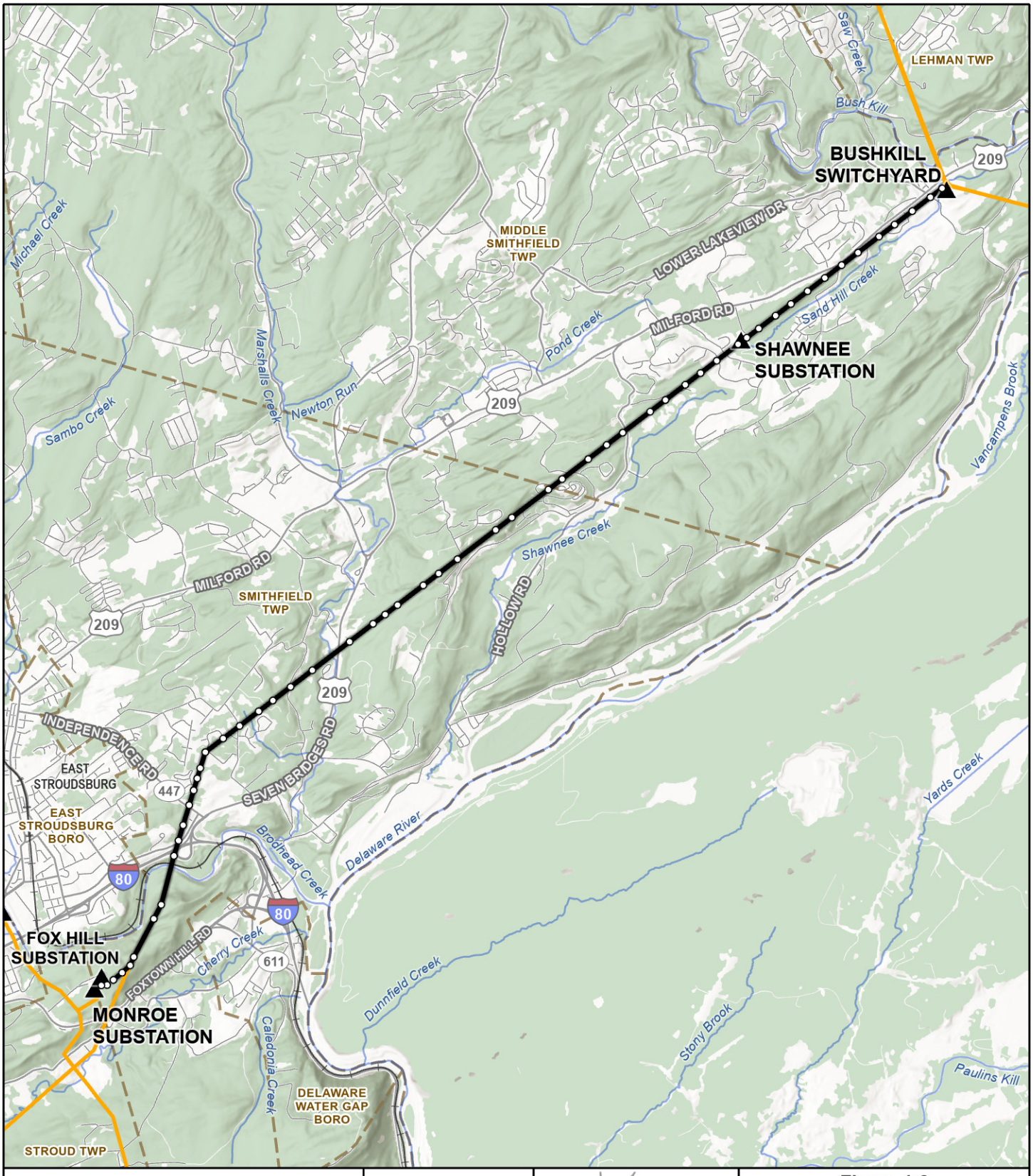
Figure 1-1
Existing System Configuration
Fox Hill - Shawnee and Shawnee - Bushkill 230 kV Transmission Rebuild Project

ppl wsp

0 0.5 1 Miles

N

Figure 1-2: Proposed System Configuration



- Substation or Switchyard
- Proposed Structure
- Proposed Rebuild Centerline
- Existing Transmission Line
- Municipality Boundary

Roads, Railroads, Municipalities (PASDA 2022)
Rivers, Forest Cover (USGS 2022)

Coordinate System:
State Plane Pennsylvania North
Datum: North American 1983

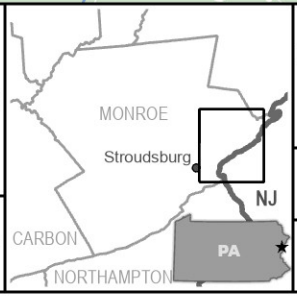


Figure 1-2
Proposed System Configuration
Fox Hill - Shawnee and Shawnee - Bushkill 230 kV Transmission Rebuild Project

ppl wsp

0 0.5 1 Miles

PPL ELECTRIC
ATTACHMENT 2

FOX HILL-SHAWNEE AND SHAWNEE-BUSHKILL 230 kV TRANSMISSION LINE REBUILD PROJECT

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1.0 INTRODUCTION

As explained in **Attachment 1,** PPL Electric Utilities Corporation ("PPL Electric") is requesting Pennsylvania Public Utility Commission ("PUC" or "Commission") approval to rebuild approximately 10.1 miles of single-circuit transmission line between the Fox Hill 230 kV Substation ("Fox Hill Substation") and the Bushkill 230 kV Switchyard ("Bushkill Switchyard") in Smithfield Township, Monroe County, Pennsylvania[1]. The approximate 10.1-mile transmission line is split into two segments by the Shawnee 230 kV Substation ("Shawnee Substation"). The segment between the Fox Hill and Shawnee Substations is named the Fox Hill-Shawnee 230 kV Transmission Line and the segment between the Shawnee Substation and Bushkill Switchyard is named the Shawnee-Bushkill 230 kV Transmission Line ("Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Line Rebuild Project" or "the Project")[2].

The proposed transmission line will be designed according to, and generally exceed, all National Electrical Safety Code ("NESC") standards. Design specifications and safety rules adhered to by PPL Electric are included as **Attachment 4**.

2.0 DESCRIPTION OF THE EXISTING AND PROPOSED 230 kV LINE AND STRUCTURES

Connection between the Fox Hill 230 kV and Shawnee 230 kV substations involves rebuilding 7.9 miles of the existing 8.3-mile-long single circuit Fox Hill-Shawnee 230 kV Transmission Line, which is supported by 37 existing structures owned by PPL Electric. The remaining 0.4-mile segment of the Fox Hill – Shawnee 230 kV Transmission line is supported by five existing steel monopole structures that will remain in place and are not part of the Project. Connection between the Shawnee 230 kV Substation and Bushkill 230 kV Switchyard involves rebuilding the total

[1] For a complete list of municipalities and county crossed by the Project, please refer to Attachment 5 to the Letter of Notification.
[2] An approximately 0.4-mile section of the existing Fox Hill – Shawnee 230 kV Transmission Line, supported by five existing monopole structures (Structures 38 – 42) will remain in-place, and new optical ground wire (OPGW) fiber cable will be replaced. This section is not part of the Project.

length of the 2.2-mile-long single circuit Shawnee-Bushkill 230 kV Transmission Line, which is supported by 13 existing structures owned by PPL Electric.

Existing conductors on both lines between the Fox Hill and Shawnee substations and Bushkill Switchyard contain 795 kcmil[3], 54/7 stranding, "Condor" ACSR[4] conductor wires. From Fox Hill to Shawnee substations, the conductors are supported by a series of transmission line structures that include five existing monopoles on foundations, 28 single lattice towers, five 5-leg lattice towers, three 3-pole structures, and one 2-pole structure. From the Shawnee Substation to the Bushkill Switchyard, the conductors are supported by a series of transmission line structures that include 11 lattice towers, one 2-pole structure, and one 3-pole structure supporting the existing single circuit in a horizontal configuration. The arrangement also includes overhead ground wires ("OHGW") [5].

Forty-eight of the 55 total structures supporting the two transmission lines have met or exceeded their useful life and will be replaced as part of the Project. The five steel monopole structures closest to Fox Hill substation (Structures 38 through 42) meet the current design and reliability standards and do not require replacement or reconductoring; these structures will only have a fiber optic line replaced and are not part of the Project. As discussed in **Attachment 1**, these five structures were installed in the mid-1990's as part of constructing both the Fox Hill and Monroe substations. The two steel 3-pole structures (Structure 1 and Structure 13 on either side of Shawnee Substation) will also remain in place, although new electrical conductors will be connected to them as part of the Project. A detailed aerial exhibit of the Project alignment is provided as **Figure 3-1** in **Attachment 3**.

The existing pole heights range between 80 and 120 feet, with an average height of 90 feet. The proposed monopole structures will range in height from between approximately 125 and 190 feet with an average height of approximately 150 feet. **Table 2-1** provides a summary of the number

[3] A kcmil is a thousand circular mils. A circular mil is the cross-sectional area of a wire one mil in diameter, where 1 kcmil = 0.5067 mm^2.
[4] ACSR stands for aluminum conductor steel reinforced.
[5] An approximately 0.4-mile section of the existing Fox Hill – Shawnee 230 kV Transmission Line, supported by five existing monopole structures (Structures 38 through 42) will remain in-place, and new optical ground wire (OPGW) fiber cable will be replaced. This section is not part of the Project.

and heights of the existing and proposed structures. **Figures 2-1** through **2-3** depict typical structure types that will be used for the Fox Hill – Shawnee 230 kV and Shawnee – Bushkill 230 kV transmission lines.

Table 2-1. Fox Hill – Shawnee and Shawnee – Bushkill 230 kV Existing and New Transmission Line Structures

No. of Existing Structures	Existing Structure Height Range	Proposed No. of New Structures	Proposed Structure Height Range	Applicable Framing/ Specifications
Remain In Place[6]: 7 To be Replaced: 48 **Total: 55**	80 to 120	48	125 to 190 feet	7-009-005 7-009-061 7-009-064

The rebuild Project will be designed to double-circuit 230 kV standards to accommodate future load growth. The Project currently contains 48 existing structures that will be replaced by 48 new double-circuit monopoles. With the exception of one structure, all proposed monopoles for the Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines will be constructed in the same vicinity as the existing structures. One structure along the Fox Hill-Shawnee 230 kV Transmission Line will be relocated by approximately 512 feet from the existing structure location on an adjacent property in order to avoid land use impacts on the Delaware Water Gap/Pocono Mountain KOA Campground. PPL Electric informed the property owners of the relocated pole location, and the property owners did not object to the design change. No structures will be placed on properties that currently do not have an existing structure. Because the existing transmission line can be removed from service during the construction process, the rebuilt transmission line will be constructed along the current centerline. PPL Electric has designed the entire Project to fit within existing ROW or substation property.

[6] 5 of the 55 structures to remain in-place are a part of the line where the OPGW replacement is the only work. These 5 structures will exclusively hold OPGW wire. Therefore, two structures will remain in place, with new conductor. Both structures are part of the Project.

The proposed rebuilt 230 kV transmission lines will consist of three 1590 kcmil, 54/19 stranding "Falcon" ACSS[7] conductors. The existing fiber optic ground wire ("OPGW") and 7/16-inch extra high strength (EHS) Copperweld ground wires will be removed and replaced with dual 144 count OPGW. The proposed lines will be designed according to, and generally exceed, all National Electrical Safety Code ("NESC") minimum standards. The minimum conductor-to-ground clearance will be approximately 33.5 feet, which occurs at a maximum conductor temperature of 200°C (392°F). The design minimum conductor clearances and conductor thermal ratings for the proposed 230 kV lines are shown in **Tables 2-2** and **2-3**. Design specifications and safety rules practiced by PPL Electric are included in **Attachment 4**.

Table 2-2. Design for Minimum Conductor Clearances for Selected Conductor[8]

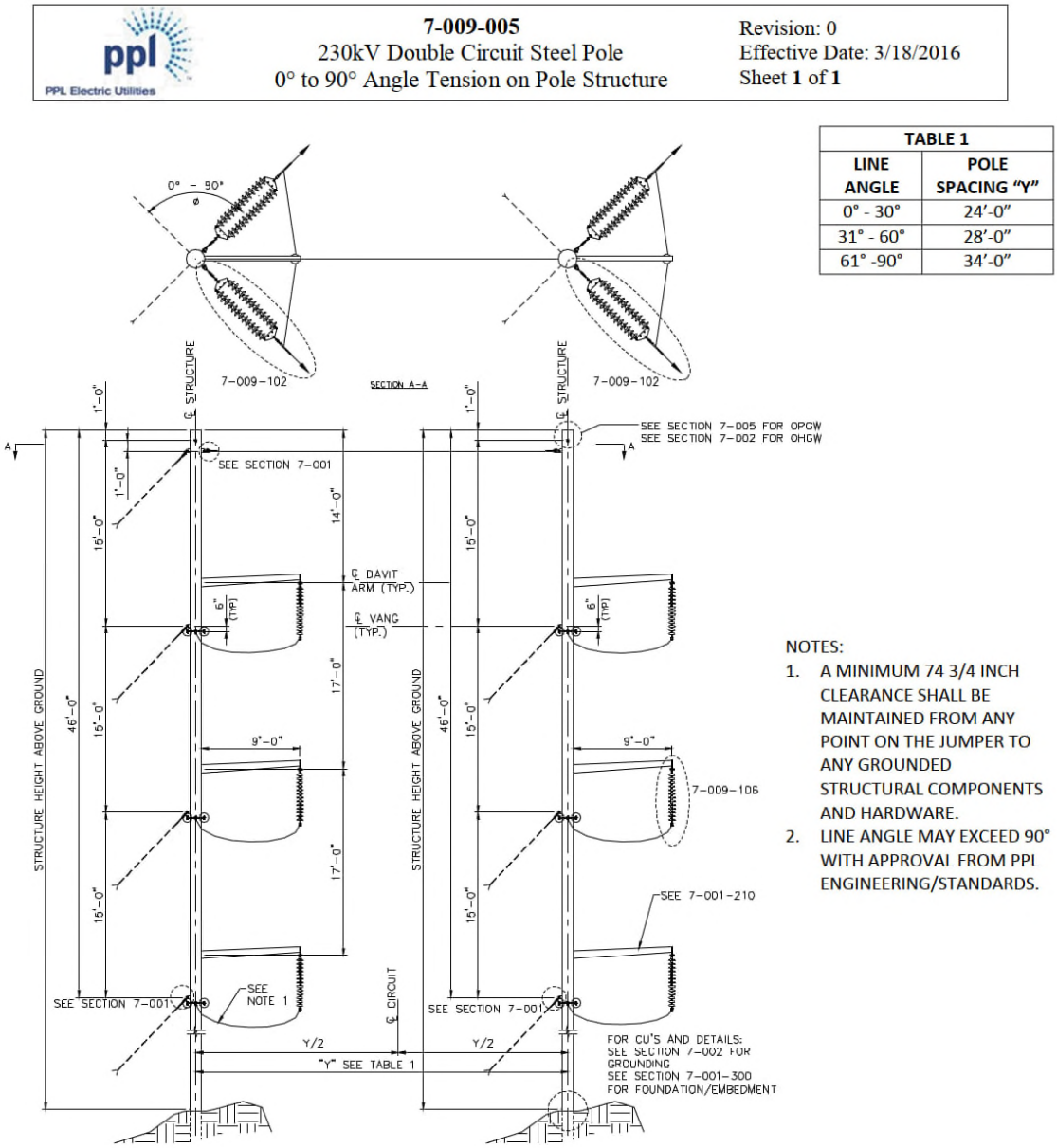
Condition	Transmission Double-Circuit Design Clearance-to-Ground
Heavy Ice (1" ice at 0°C ambient temperature)	35 feet
Predicted extreme thermal load (125°C conductor temperature)	33.5 feet
Predicted blowout (6 psf, 16°C ambient temperature)	25 feet

Table 2-3. Conductor Thermal Rating 1590 kcmil 54/19 Stranding Falcon ACSS – 125°C Normal Maximum Conductor

Condition	Ambient Temperature (°C)	Wind Speed (Ft./sec)	Ampacity (Amps)
Summer Normal	35	0	2300
Winter Normal	10	0	2500
Summer Emergency	35	2.533	3000
Winter Emergency	10	2.533	3200

[7] ACSS stands for aluminum conductor steel supported
[8] Clearances based on an initial maximum tension of 6,000-10,000 pounds at 0.5-inch ice, 0°F, 4# wind and maximum ruling span of 200-1,250 feet.

Figure 2-1. Typical 230 kV Double-Circuit Steel Pole Angle Tension Structure



REV	Date	Sponsor	Reviewer	Transmission Construction Standards PPL Electric Utilities Corporation
0	3/18/16	MSD	SDS	
				Approved T. P. Hinson Manager Standards

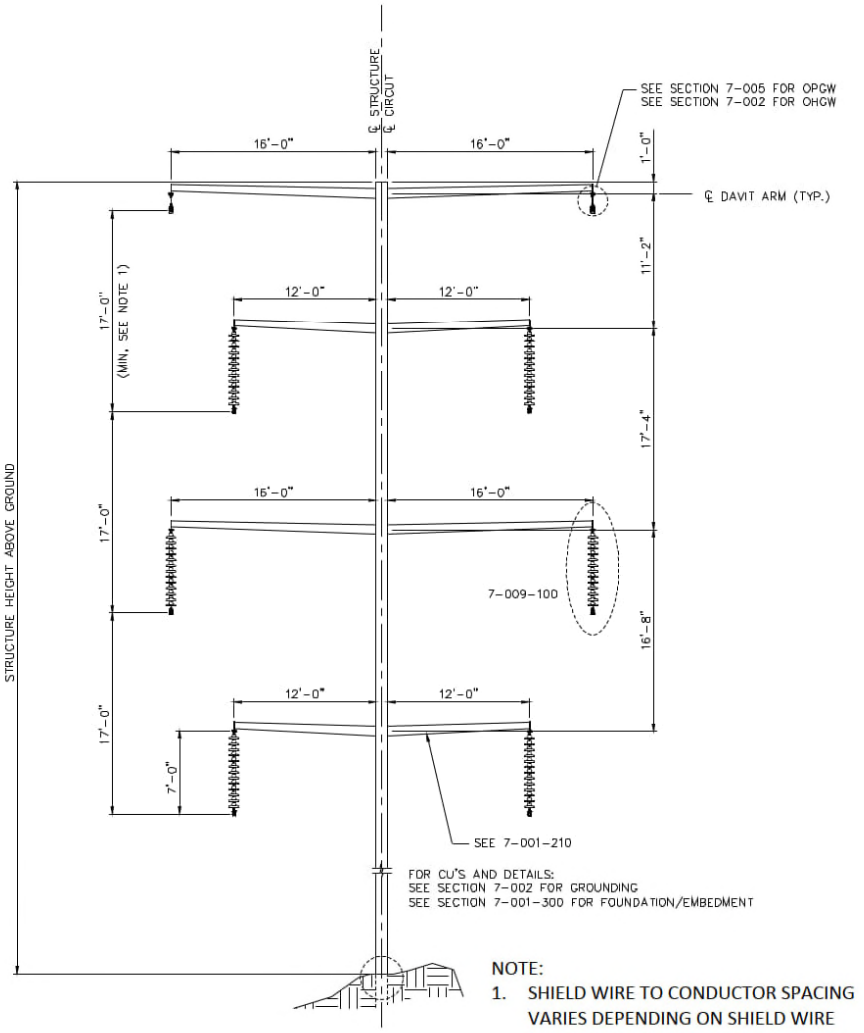
Approved: E154693 Hinson, Todd P

Figure 2-2. Typical 230 kV Long Span Double Circuit Steel Suspension Structure

PPL Electric Utilities

7-009-061
230kV Long Span Double Circuit Steel Pole
0° to 1° Suspension Structure

Revision: 0
Effective Date: 3/18/2016
Sheet **1** of **1**



NOTE:
1. SHIELD WIRE TO CONDUCTOR SPACING VARIES DEPENDING ON SHIELD WIRE SUPPORT ASSEMBLY. SEE SPECIFIC JOB INSTRUCTIONS.

REV	Date	Sponsor	Reviewer	Transmission Construction Standards PPL Electric Utilities Corporation
0	3/18/16	MSD	SDS	
				Approved T. P. Hinson
				Manager Standards

Approved: E154693 Hinson, Todd P

Figure 2-3. Typical 230 kV Long Span Double Circuit Steel Pole Tension on Arm Structure

PPL Electric Utilities

7-009-064
230kV Long Span Double Circuit Steel Pole
0° To 90° Angle Tension on Arm Structure

Revision: 0
Effective Date: 3/18/2016
Sheet **1** of **1**

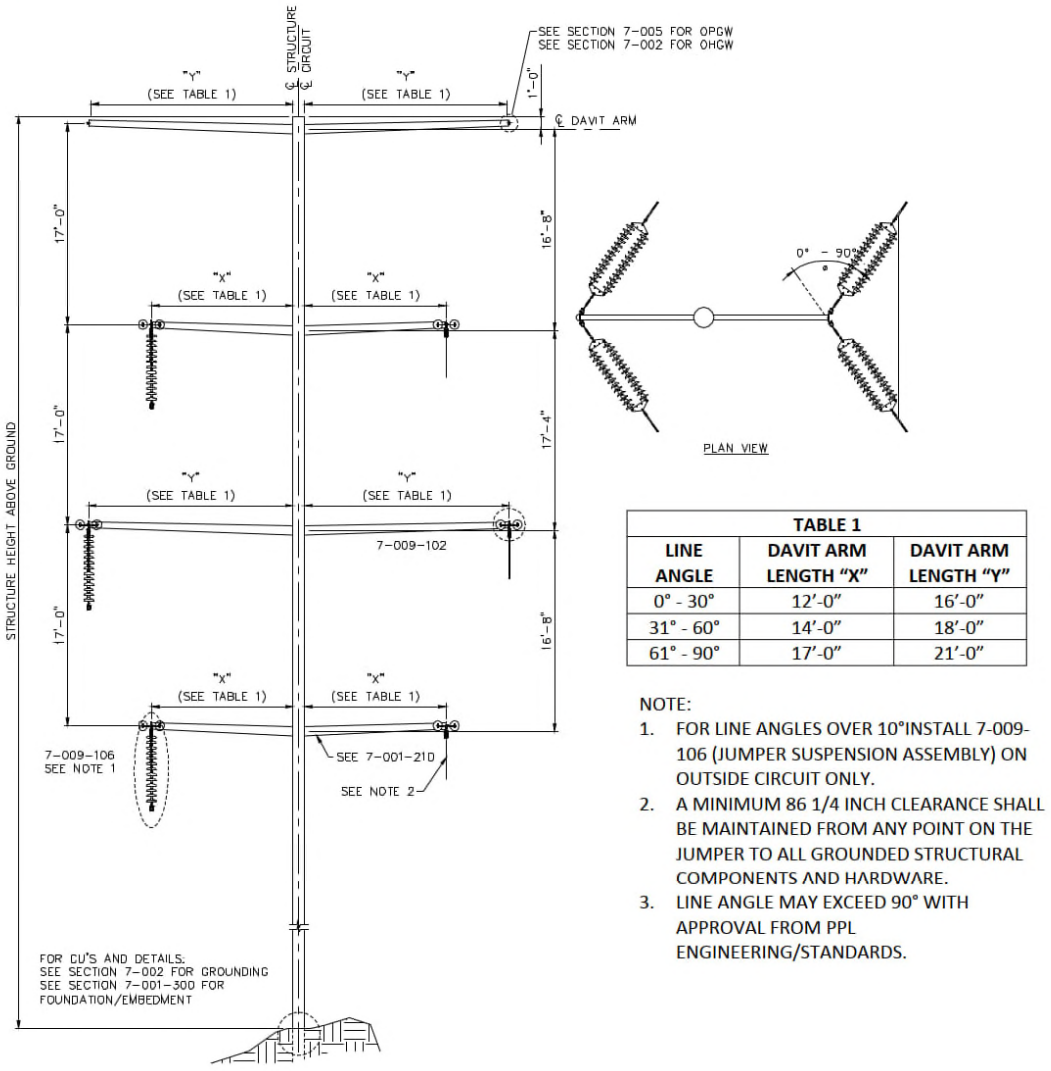


TABLE 1		
LINE ANGLE	DAVIT ARM LENGTH "X"	DAVIT ARM LENGTH "Y"
0° - 30°	12'-0"	16'-0"
31° - 60°	14'-0"	18'-0"
61° - 90°	17'-0"	21'-0"

NOTE:
1. FOR LINE ANGLES OVER 10°INSTALL 7-009-106 (JUMPER SUSPENSION ASSEMBLY) ON OUTSIDE CIRCUIT ONLY.
2. A MINIMUM 86 1/4 INCH CLEARANCE SHALL BE MAINTAINED FROM ANY POINT ON THE JUMPER TO ALL GROUNDED STRUCTURAL COMPONENTS AND HARDWARE.
3. LINE ANGLE MAY EXCEED 90° WITH APPROVAL FROM PPL ENGINEERING/STANDARDS.

REV	Date	Sponsor	Reviewer	Transmission Construction Standards PPL Electric Utilities Corporation
0	3/18/16	MSD	SDS	
				Approved T. P. Hinson
				Manager Standards

Approved: E154693 Hinson, Todd P

PPL ELECTRIC
ATTACHMENT 3

FOX HILL – SHAWNEE AND SHAWNEE – BUSHKILL 230 kV TRANSMISSION LINE REBUILD PROJECT

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1.0 INTRODUCTION

PPL Electric Utilities Corporation ("PPL Electric") is requesting Pennsylvania Public Utility Commission ("PUC" or "Commission") approval to rebuild approximately 10.1 miles of single-circuit transmission line between the Fox Hill 230 kV Substation ("Fox Hill Substation") and the Bushkill 230 kV Switchyard ("Bushkill Switchyard") in Smithfield Township, Monroe County, Pennsylvania. The approximate 10.1-mile transmission line is split into two segments by the Shawnee 230 kV Substation ("Shawnee Substation"). The segment between the Fox Hill and Shawnee Substations is named the "Fox Hill-Shawnee 230 kV Transmission Line" and the segment between the Shawnee Substation and Bushkill Switchyard is named the "Shawnee-Bushkill 230 kV Transmission Line." PPL Electric's proposed rebuild of these lines is known as the "Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Line Rebuild Project" or "the Project".[1]

The entire Project is located within Monroe County, Pennsylvania and crosses Middle Smithfield and Smithfield Townships. PPL Electric has provided information about the proposed Project to representatives from Monroe County in addition to Middle Smithfield and Smithfield Townships.

The rebuilt Fox Hill-Shawnee and Shawnee- Bushkill 230 kV Transmission Lines will replace 48 existing structures in line with the existing structures and will remain on the same PPL Electric fee-owned properties and within in the same right-of-way ("ROW") as the existing transmission line. The existing ROW varies in width from 100 to 200 feet wide, with the wider areas typically occurring at angle and dead-end structures and on parcels near substations and switchyards. A network of existing access roads or temporary roads will be utilized during construction of the rebuilt transmission lines. Detailed maps of the proposed rebuilt Fox Hill-Shawnee and Shawnee-Bushkill 230 kV Transmission Lines and associated structures are provided in **Figure 3-1.**

From the Fox Hill Substation, the Fox Hill-Shawnee 230 kV Transmission Line heads in a northeasterly direction for approximately 2.3 miles, crossing Brodhead Creek and its associated 100-year floodplain, Interstate 80 (I-80) and State Route 447 (Independence Road) through a

predominately rolling forested landscape (Pages 1-3 of 13, Structures 41 to 27 in **Figure 3-1**). Additionally, the Fox Hill-Shawnee 230 kV Transmission Line crosses East Stroudsburg University campus in this area. Between Structures 35 and 34, the Project crosses a Delaware – Lackawanna Railroad line owned by the Pennsylvania Northeast Regional Railroad Authority (Page 2 of 13, in **Figure 3-1**).

The Fox Hill-Shawnee 230 kV Transmission Line continues northeast, traversing mostly residential and wooded properties for approximately 1.4 miles until it crosses Del Sol Drive (Pages 3-5 of 13, Structures 27 to 21 in **Figure 3-1**). After spanning Marshalls Creek and U.S. Route 209 (Route 209), the Fox Hill-Shawnee 230 kV Transmission Line continues northeast for approximately 4.5 miles (Pages 5-10 of 13, Structures 20 to 1 in **Figure 3-1**) through predominately wooded land use, crossing local roads (Mount Nebo Road, Upper Ridge View Drive, Frutchey Drive, and Hollow Road), and the Delaware Water Gap/Pocono Mountain KOA Campground property. At this point, the existing Fox Hill-Shawnee 230 kV Transmission Line terminates into the Shawnee Substation.

From the Shawnee Substation, the Shawnee-Bushkill 230 kV Transmission Line heads northeast for approximately 2.2 miles before terminating into the Bushkill Switchyard. For the first 1.1 miles, the transmission line passes through dense forested land (Pages 10-12 of 13, Shawnee Substation to Structure 7 in **Figure 3-1**) and roughly parallels Milford Road (Route 209) through mixed developed land uses (i.e., multi-family and commercial) for the second half of its length.

2.0 LAND USE

PPL Electric evaluated the existing land uses on the PPL Electric owned properties, within the existing ROW, and within 0.25 mile (1,320 feet) of the rebuilt centerline (“Project Area”) to summarize the overall landscape in which the Project is located. Based on a review of the current (2025) Monroe County parcel data and aerial imagery, the Project Area primarily consists of a rolling forested landscape with residential parcels (approximately 41%), vacant land (18%) and private recreational parcels (10%). Private recreational uses include a campground, golf courses, and areas reserved for resort activities. An additional 8% of the Project area consists of publicly owned lands, including Monroe County’s Glen Park, Smithfield Township’s Mt. Nebo Park, and

Middle Smithfield Township's Milford Road Park. The remaining 23% of existing land uses within the Project Area consists of a mix of commercial and industrial uses, utility and transportation parcels, schools (including East Stroudsburg University) and places of worship.

One communications tower is located within the Project area approximately 650 feet south of the Fox Hill Substation; it is expected that the rebuilt transmission line will not adversely affect this structure. The Project crosses two gas transmission pipelines: one owned by Columbia Gas Transmission Company and one owned by Douglas Pipeline Company. The Columbia Gas pipeline follows a similar path but does not parallel or share ROW with the southernmost 2 miles of the Fox Hill-Shawnee 230 kV Transmission Line, passing east of East Stroudsburg in a generally north-south direction. The Douglas Pipeline Company pipeline extends east from the Columbia Gas pipeline on the north side of I-80 near the I-80 and US-209 interchange. Because the Project will be rebuilt on the existing centerline and within the existing ROW, no adverse effects to the pipelines are anticipated.

The Delaware-Lackawanna Railroad corridor runs northwest-south, parallel to Brodhead Creek in proximity to most of the southwestern portion of the Project. As such, the Project requires one railroad crossing. PPL Electric is currently coordinating with the railroad to minimize Project impacts at this crossing. West of the Shawnee Substation, the Project crosses a lower voltage transmission line that connects to Shawnee Substation. No adverse effects to other existing transmission infrastructure are anticipated. No additional communication towers, pipelines, or other utilities will be affected by the proposed Project.

The closest active airports to the Project Area are Hallett's Airstrip and the Mount Pleasant Landing Strip, both privately owned, and located approximately 4.8 miles south and 4.8 miles southeast, respectively, of the Project. The public-use Stroudsburg – Pocono Airport, located 1.7 miles northwest of the project, was permanently closed in 2022 and no longer has any FAA-regulated airspace. PPL Electric does not anticipate any interference with airport operations since the Project consists of electrical facilities that are of a similar height as the existing electrical facilities and within existing ROW. However, PPL Electric will file any required documentation with the Federal Aviation Administration.

Protected and Recreation Lands

The proposed Project will not affect any national parks, state parks, or natural landmarks, as none are located within the Project Area. The southern boundary of Mount Nebo Park is crossed by the rebuilt Fox Hill-Shawnee 230 kV Transmission Line east of Mt Nebo Road in Smithfield Township. The rebuilt line crosses the park entirely within existing cleared and maintained ROW (see Pages 6 and 7 on **Figure 3-1**). The rebuilt Fox Hill-Shawnee 230 kV Transmission Line crosses the Delaware Water Gap/Pocono Mountain KOA campground entirely within existing ROW located east of Hollow Road in Middle Smithfield Township (see Page 9 on **Figure 3-1**). Two privately owned golf courses, Great Bear Golf Course and Pocono Hills Golf Course, are crossed by the Fox Hill-Shawnee 230 kV Transmission Line (see Pages 10 and 13 on **Figure 3-1**, respectively) entirely within existing cleared and maintained ROW. No other recreational areas are crossed. The proposed Project is not anticipated to result in new impacts to any local parks, recreation areas, conservation areas, or protected lands.

No conservation easements are directly crossed by the Project. The closest conservation easements to the Project include a Wildlands Conservancy easement approximately 1,500 feet southeast of Shawnee Substation and a county agricultural easement approximately 5,000 feet south of Fox Hill Substation. The proposed Project will not affect these easements.

3.0 CULTURAL RESOURCES

An online review of the Project Area and surrounding landscape was conducted through the Pennsylvania Historical and Museum Commission ("PHMC") State Historic and Archaeological Resource Exchange site. State Historic Preservation Office ("SHPO") eligible and listed structures and districts either crossed by the Project or in proximity to the Project Area are listed in **Table 3-1** and **Table 3-2** below, and displayed in **Figure 3-1**, at the end of this attachment.

Table 3-1. Cultural Resources Located in the Project Area

Resource Name	Resource Type	Eligibility	Location	Crossed (Y/N)
Buttermilk Falls House	Building	Eligible	1104 Buttermilk Falls Rd, East Stroudsburg, PA 18301	N

Table 3-1. Cultural Resources Located in the Project Area				
Resource Name	**Resource Type**	**Eligibility**	**Location**	**Crossed (Y/N)**
Clark, Daniel, House	Building	Eligible	US-209 north of Leroys Lane	N
Croasdale Manor of River Farm	Building	Eligible	2524 Walnut Dr, Stroudsburg, PA 18360	N
Denike Center	Building	Eligible	Prospect Street & Center Street in East Stroudsburg	N
Middle Smithfield Presbyterian Church	Building	Eligible	5205 Milford Rd, East Stroudsburg, PA 18302	N
Mosier's Dairy Farm	Building	Eligible	US-209 & Pasture Lane	N
Portundo, Juan, Farm	Building	Eligible	280 Frutchey Dr, East Stroudsburg, PA 18302	N
Rainbow Mountain Resort	Building	Eligible	210 Mt Nebo Rd, East Stroudsburg, PA 18301	N
Schoonover Mountain House	Building	Listed	Community Drive south of US-209	N
Seven Bridges Rd. Bridge	Bridge	Eligible	Community Bridge Rd west of US-209	N
Shoemaker, Captain Jacob, House	Building	Listed	5064 Winona Falls Rd, East Stroudsburg, PA 18302	N
Van Auken, Horace, House	Building	Eligible	Community Bridge Rd west of US-209	N
Zimbar-Liljenstein Gymnasium	Building	Eligible	1236 Centre St, East Stroudsburg, PA 18301	N
Appalachian Trail	District	Eligible	Near the Delaware River	N
Delaware Water Gap Historic District	District	Eligible	Town of Delaware Water Gap	N
Delaware, Lackawanna & Western Railroad: Line (Scranton to Slateford Junction)	District	Eligible	Near I-80 and US-209	Y
Pennsylvania - New Jersey (PNJ) Interconnection	District	Eligible	Coincident with Fox Hill - Shawnee and Shawnee - Bushkill ROW	Y
Waterfront Farm	District	Eligible	Between Franklin Hill Road, Red Fox Rd, and US-209	N
Yiesley-Pearce Farm "Green Valley Farm"	District	Eligible	County Bridge Road & US-209	N

As shown in **Table 3-1**, two NRHP-eligible historic districts and one NRHP-eligible structure are crossed or spanned by the Project today. One of the districts, the Pennsylvania – New Jersey (PNJ) Interconnection, follows the Project ROW. The other district, the Delaware, Lackawanna & Western Railroad, is crossed by the existing ROW south of I-80 (see Page 2 on **Figure 3-1**). An access road leading to the NRHP-eligible Moser Dairy Farm structure is crossed by the existing ROW north of State Route 447 (see Page 3 on **Figure 3-1**).

Table 3-2. Archaeological Resources Located in the Project Area

Resource Name	Resource Type	Eligibility
36MR0184	Both Pre-Contact and Historic	Eligible
36MR0196	Both Pre-Contact and Historic	Eligible
36MR0133	Both Pre-Contact and Historic	Eligible
36MR0119	Both Pre-Contact and Historic	Eligible
36MR0111	Both Pre-Contact and Historic	Eligible
36MR0164	Pre-Contact	Eligible
36MR0123	Pre-Contact	Eligible
36MR0027	Both Pre-Contact and Historic	Eligible
36MR0203	Pre-Contact	Eligible
36MR0204	Pre-Contact	Eligible
36MR0205	Pre-Contact	Eligible
36MR0209	Pre-Contact	Eligible

Seven previously recorded archaeological sites with undetermined statuses are mapped within or adjacent to the Project area (see **Table 3-2**). PPL Electric is coordinating with the PHMC for the modifications being made to the transmission lines. This coordination includes permits to construct the Project. Based on PPL Electric's experience with projects near or along the PNJ Interconnection, the Project may impact this NRHP-eligible district. PPL Electric will perform any reviews and field survey/sampling work required by the PHMC to minimize and mitigate impacts to archaeological or historic architectural resources that may be located within the Project Area.

4.0 NATURAL FEATURES

Unique Natural Features

According to the Pennsylvania Department of Conservation and Natural Resources ("DCNR"), the Project Area crosses or passes near several unique geological, scenic or natural areas. The southernmost 1.3 miles of the Project Area crosses the Upper Delaware Scenic River Important Bird Area (IBA #60). The IBA is located along the Delaware River and contains riparian habitats, woodlands, open fields, and a variety of other habitats across both relatively flat terrain and sheer cliffs. This area provides an important corridor for migrating and wading bird species, including several species of concern. Impacts to birds within this IBA will be minimized by constructing the Project within an existing ROW.

A Natural Area Inventory ("NAI") has been prepared by The Nature Conservancy in collaboration with the Pennsylvania Natural Heritage Program ("PNHP") for Monroe County (1999). The Marshall Creek NAI area is a riparian corridor supporting five species of concern, and the Shawnee Fen NAI area supports a plant species of concern that was observed in 1993. PPL Electric will coordinate with Middle Smithfield and Smithfield townships and DCNR to minimize any potential impacts to the Marshall Creek and Shawnee Fen areas.

The Project crosses the natural areas identified within the NAI. The Project is not anticipated to result in any new impacts to the NAI sites, since the proposed structures will be replaced in close proximity to existing structures within existing and maintained ROW. Five other NAI areas are located within 1 mile of the Project. Indian Chair, located at the southern end of the Marshall Creek NAI and approximately 0.5 miles from the Project, is a significant geologic feature with a flint outcrop that resembles a large chair. Turn Farm Woods, located approximately 0.9 miles southeast of the project, contains habitat for a plant species of concern. Shoemakers Swamp, Shoemakers Fen, and Arnott Fen, each located 0.4 to 0.6 miles from the northern end of the Project, support multiple species of concern. No other NAI areas are located within 1 mile of the Project. The Project will not affect any other unique geological, scenic, or natural areas.

Soils

The Project Area is generally hilly to mountainous, crossing a mixed landscape of forested and developed areas primarily consisting of open space, recreational areas, and residential neighborhoods. Topography varies from approximately 300 feet to approximately 900 feet above

mean sea level ("msl"). Soils present within the Project Area predominantly consist of rock outcrop complexes, ranging between 8 and 70 percent slopes.

Erosion and Sedimentation ("E&S") control plans will be developed and implemented for the Project to minimize the displacement of soils. These plans will require prior approval from the Monroe County Conservation District. Coverage under Pennsylvania's National Pollutant Discharge Elimination System ("NPDES") construction permit will also be required from the Pennsylvania Department of Environmental Protection ("PADEP") as needed. During construction, PPL Electric will adhere to all conditions specified in the NPDES permit. Impacts to local soil resources are anticipated to be minimal.

Waterways and Wetlands

PPL Electric retained an environmental consultant to identify and delineate all waterways and wetlands within the area of the proposed Project. Three perennial stream crossings, six freshwater emergent ("PEM") wetlands, and two freshwater shrub/scrub ("PEM/PSS") wetlands were identified within the existing ROW.

The three delineated stream crossings were identified as Sandhill Creek, Marshalls Creek, and Brodhead Creek. Marshalls Creek and Brodhead Creek have a PADEP Chapter 93 Designated Use Stream Classification of High Quality Cold Water Fishes ("HQ-CWF"); Sandhill Creek is classified as Trout Stocking ("TSF"). A fourth stream identified in the National Hydrography Dataset, Candle Creek, is also crossed by the Project and has a HQ-CWF designation. No direct impact to these stream features is anticipated by the Project activities. Two of the PEM wetlands were identified adjacent to a watercourse. The remaining five PEM wetlands and two PEM/PSS wetlands were identified as depressions or on hillslopes or toeslopes.

PPL Electric will avoid impacts to wetlands and streams where possible by aerially spanning these features. PPL Electric will obtain all necessary permits from PADEP and the United States Army Corps of Engineers ("USACE") and will comply with all the terms and conditions placed on those permits. PPL Electric also will consult with the Monroe County Conservation District, prepare any required soil erosion and sedimentation control plans, and obtain NPDES permits and comply with any conditions placed on those permits.

100-Year Floodplains and Regulatory Floodway

The National Flood Hazard Layer for Monroe County, Pennsylvania was obtained through the Federal Emergency Management Agency ("FEMA") Flood Map Service Center website and analyzed for 100-year floodplains and regulatory floodway within the Project Area and surrounding landscape. Based on review of this data, the Project spans the 100-year floodplain associated with Brodhead Creek and the 100-year floodplain and regulatory floodway associated with Marshalls Creek. The areas at the Brodhead and Marshalls Creek crossings are within Zones A and AE and have a 1-percent-annual-chance of inundation due to a flood event.

Minimal impacts to floodplain areas or floodways are anticipated by the proposed Project activities, since the proposed structures will be replaced in close proximity to existing structures. PPL Electric will coordinate with local agencies for regulated floodplain activities.

Vegetation

Vegetative cover in the Project Area consists almost entirely of forested or landscaped areas. The existing ROW areas for the transmission lines have previously been cleared of woody vegetation and no extensive tree clearing is anticipated on the line. If vegetation management is required in this specific location, PPL Electric will apply its "Specifications for Transmission Vegetation Management LA-79827" to minimize potential impacts.

5.0 THREATENED AND ENDANGERED SPECIES

A Pennsylvania Natural Diversity Inventory ("PNDI") was run for the Project on February 23, 2023 to assess the potential presence of threatened and endangered species and/or special concern species. Specific agencies reviewing the Project included the following:

- Pennsylvania Game Commission ("PGC")
- Pennsylvania Fish & Boat Commission ("PFBC")
- DCNR
- United States Fish and Wildlife Service ("USFWS")

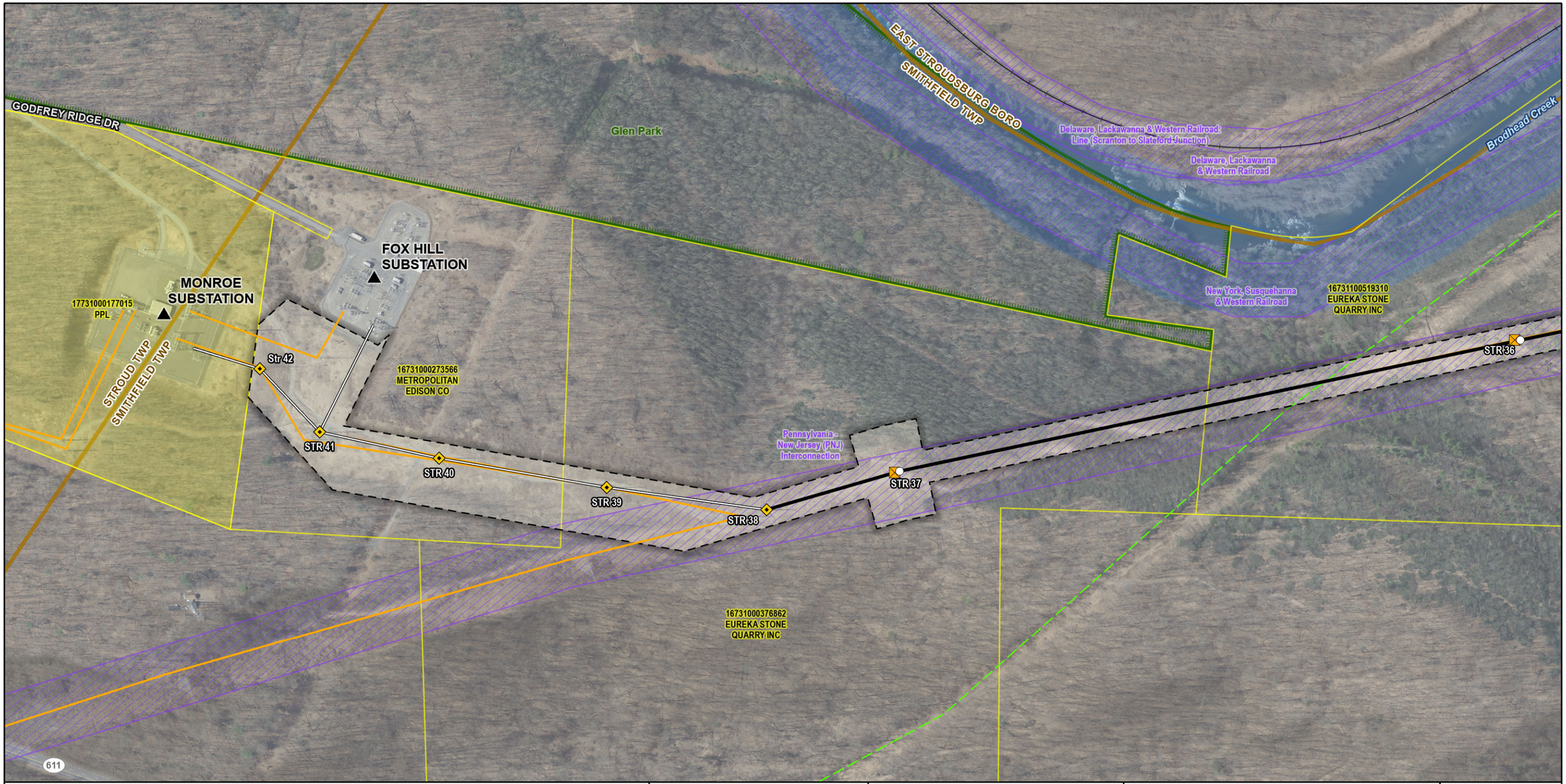
The DCNR search indicated that the Project is located within the range of the *Carex tetanica*, a threatened species of rigid sedge found in fens, marshes, meadows, and fields. According to the Monroe County NAI, rigid sedge is not present within the county, as it mainly grows in meadows in New England, therefore, no impacts to the rigid sedge are anticipated.

The PFBC search indicated that the Project is located within the range of the brindle shiner (*Notropis bifrenatus*) and ironcolor shiner (*Notropis chalybaeus*), both of which are endangered species of fish. The proposed Project will not require any construction or disturbance in stream channels and waterways will be protected during construction with appropriate stormwater controls. Therefore, no impacts to the brindle shiner and ironcolor shiner are anticipated.

The USFWS search indicated that the Project is located in potential bog turtle (*Glyptemys muhlenbergii*) habitat. PPL Electric retained a qualified bog turtle surveyor to conduct a Phase I bog turtle survey for wetlands delineated within the Project area in July 2023. Based on the survey, five wetlands were identified as potential bog turtle habitat. Therefore, PPL Electric's bog turtle surveyor conducted Phase II bog turtle presence/absence surveys throughout April, May, and June 2024. No bog turtles were observed during these surveys within or in the vicinity of the identified wetlands. The Phase II survey report was submitted to the USFWS and was subsequently approved in February 2025. No further coordination with the USFWS is required.

The PGC reported no known impacts to threatened and endangered species and/or special concern species and resources within the Project Area. PPL Electric will continue to consult with the jurisdictional agencies regarding potential impacts to protected species, complete all required surveys; obtain all necessary approvals and permits for Project construction; and comply with all conditions placed on those permits.

Figure 3-1. Aerial Map of the Project



- Substation or Switchyard
- Existing Structure to Remain - Add OPGW Only
- Existing Structure to be Removed
- Proposed Structure
- Proposed Rebuild Centerline
- OPGW Only
- Existing Transmission Line
- Existing ROW
- Parcel Boundary
- PPL-Owned Parcel
- Railroad
- Municipality Boundary
- Local Park or Recreation Area
- Historic District
- 100-Year Floodplain

Imagery (PEMA 2018)
Parcels (Monroe Co. 2023)
Floodplains (FEMA 2022)
Delineated Features (Penn Env. 2022)
Golf Courses (ESRI 2021)
Roads/Railroads/Parks (PASDA 2022)
Historic Resources (PHMC 2023)

Coordinate System:
State Plane Pennsylvania North
Datum: North American 1983

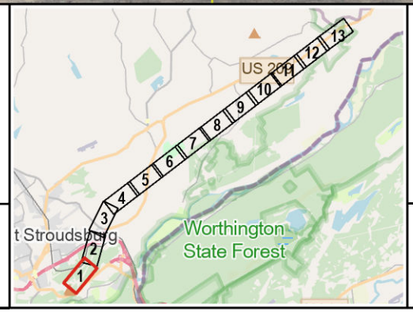


Figure 3-1
Aerial Map
Fox Hill - Shawnee & Shawnee - Bushkill 230 kV Transmission Rebuild Project

ppl wsp

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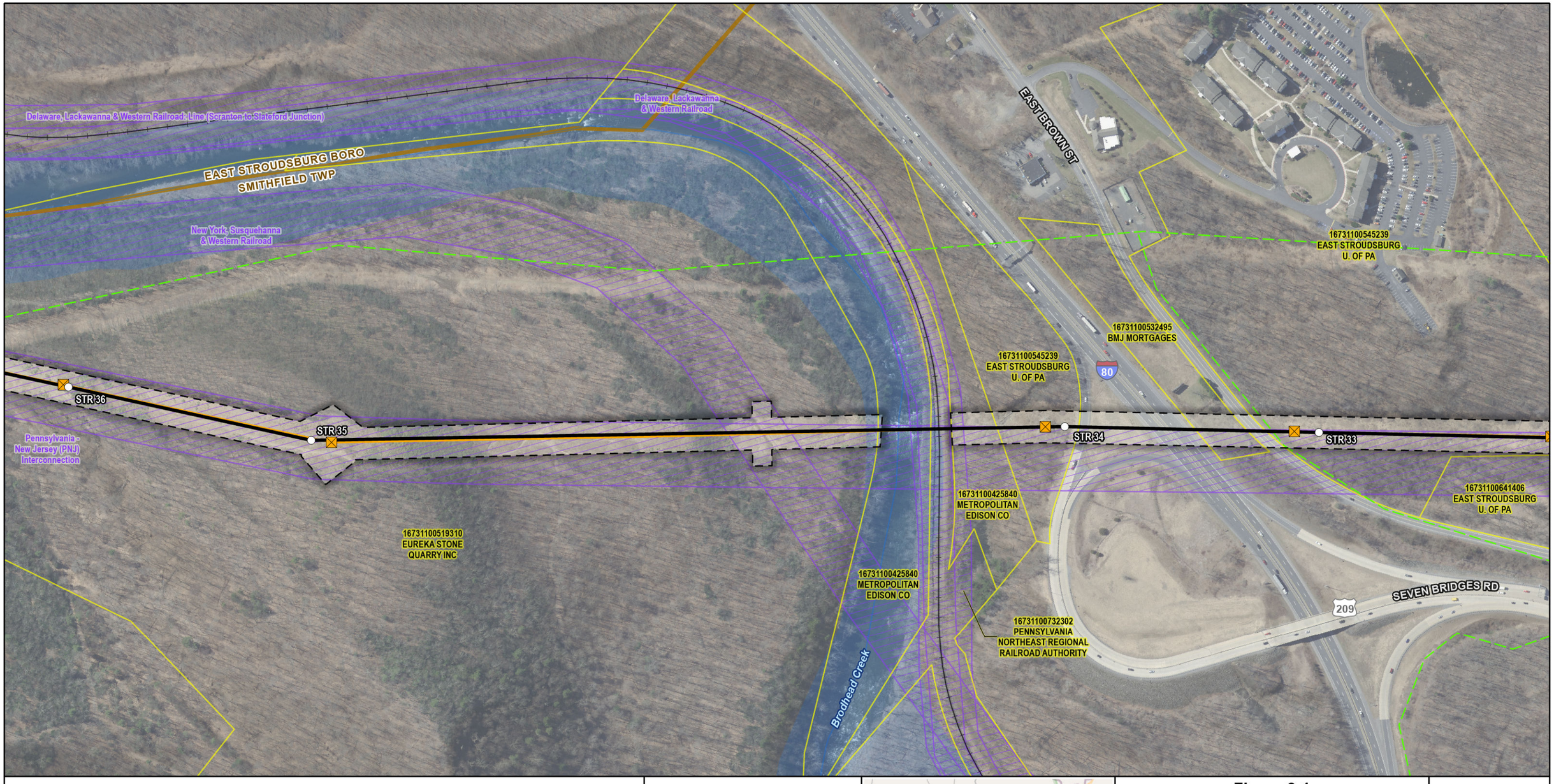

Existing Structure to be Removed
Proposed Structure
Proposed Rebuild Centerline
Existing Transmission Line
Existing ROW
Parcel Boundary
Railroad
Municipality Boundary
Historic District
100-Year Floodplain

Imagery (PEMA 2018)
Parcels (Monroe Co. 2023)
Floodplains (FEMA 2022)
Delineated Features (Penn Env. 2022)
Golf Courses (ESRI 2021)
Roads/Railroads/Parks (PASDA 2022)
Historic Resources (PHMC 2023)

Coordinate System:
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Datum: North American 1983

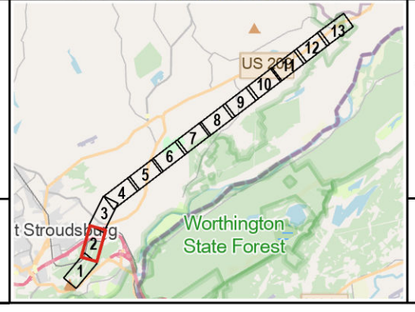

Figure 3-1
Aerial Map
Fox Hill - Shawnee & Shawnee - Bushkill 230 kV Transmission Rebuild Project

ppl wsp

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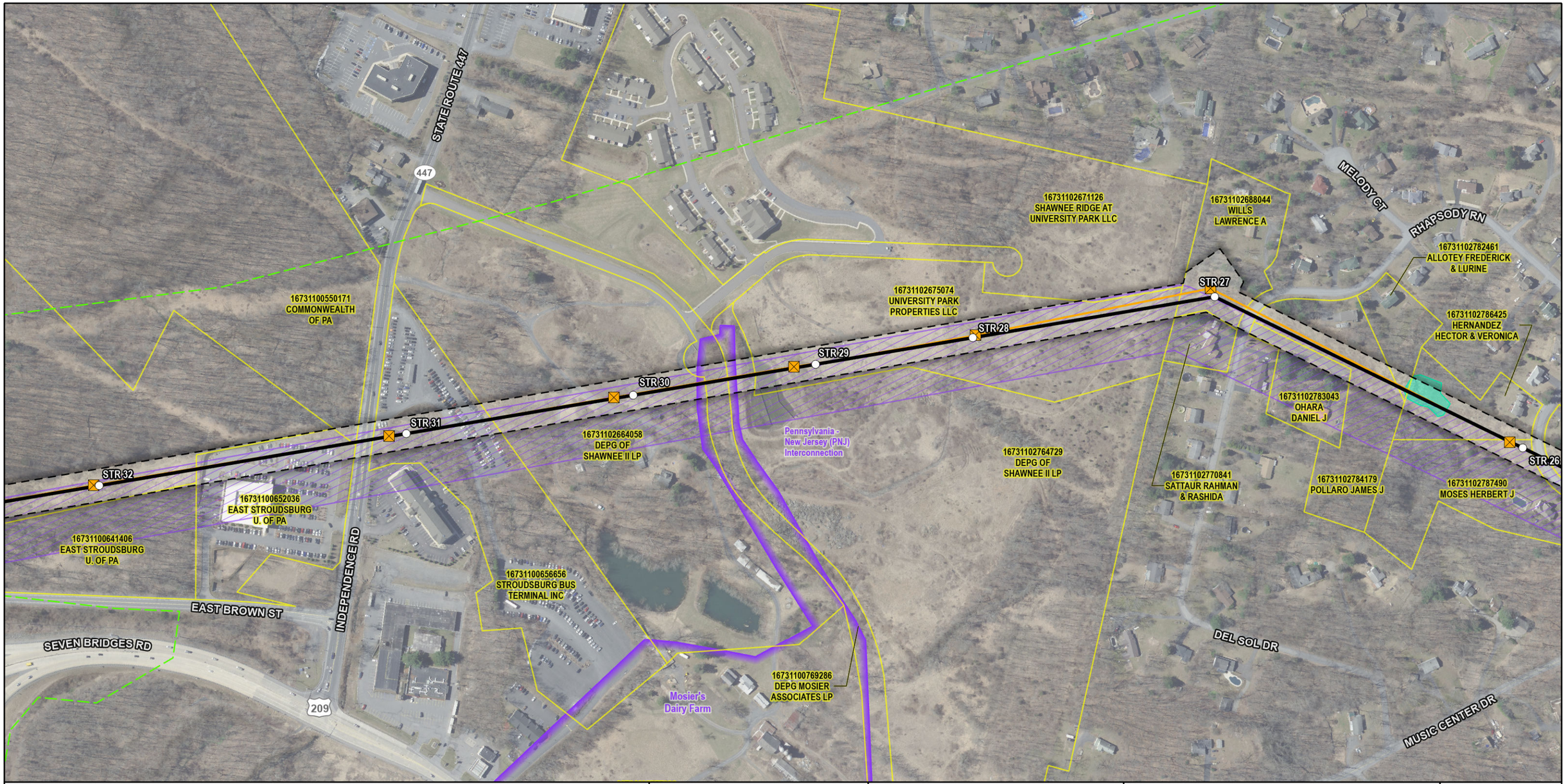

Existing Structure to be Removed
Proposed Structure
Proposed Rebuild Centerline
Existing Transmission Line
Existing ROW
Parcel Boundary
Historic Building
Historic District
Historic District
Delineated Wetland

Imagery (PEMA 2018)
Parcels (Monroe Co. 2023)
Floodplains (FEMA 2022)
Delineated Features (Penn Env. 2022)
Golf Courses (ESRI 2021)
Roads/Railroads/Parks (PASDA 2022)
Historic Resources (PHMC 2023)

Coordinate System:
State Plane Pennsylvania North
Datum: North American 1983

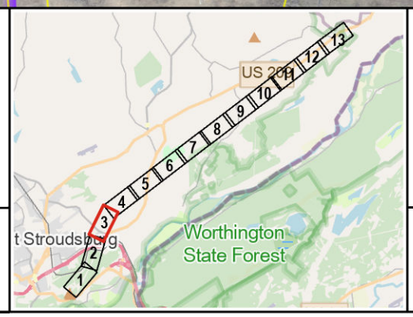

Figure 3-1
Aerial Map
Fox Hill - Shawnee & Shawnee - Bushkill 230 kV Transmission Rebuild Project

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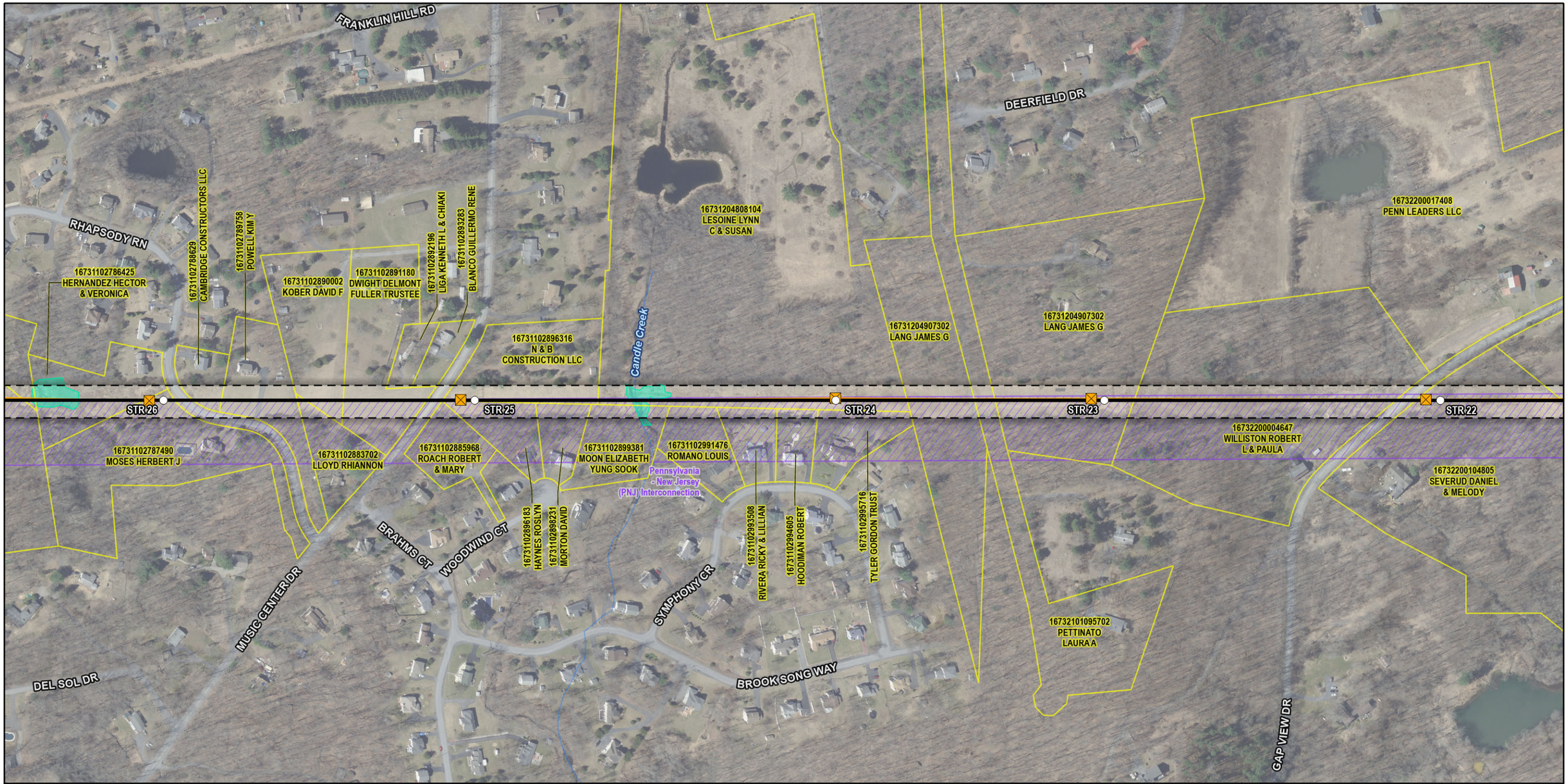

Existing Structure to be Removed
Proposed Structure
Proposed Rebuild Centerline
Existing Transmission Line
Existing ROW
Parcel Boundary
Historic District
Delineated Wetland

Imagery (PEMA 2018)
Parcels (Monroe Co. 2023)
Floodplains (FEMA 2022)
Delineated Features (Penn Env. 2022)
Golf Courses (ESRI 2021)
Roads/Railroads/Parks (PASDA 2022)
Historic Resources (PHMC 2023)

Coordinate System:
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Datum: North American 1983

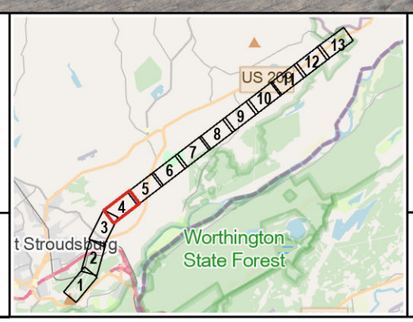

Figure 3-1
Aerial Map
Fox Hill - Shawnee & Shawnee - Bushkill 230 kV
Transmission Rebuild Project

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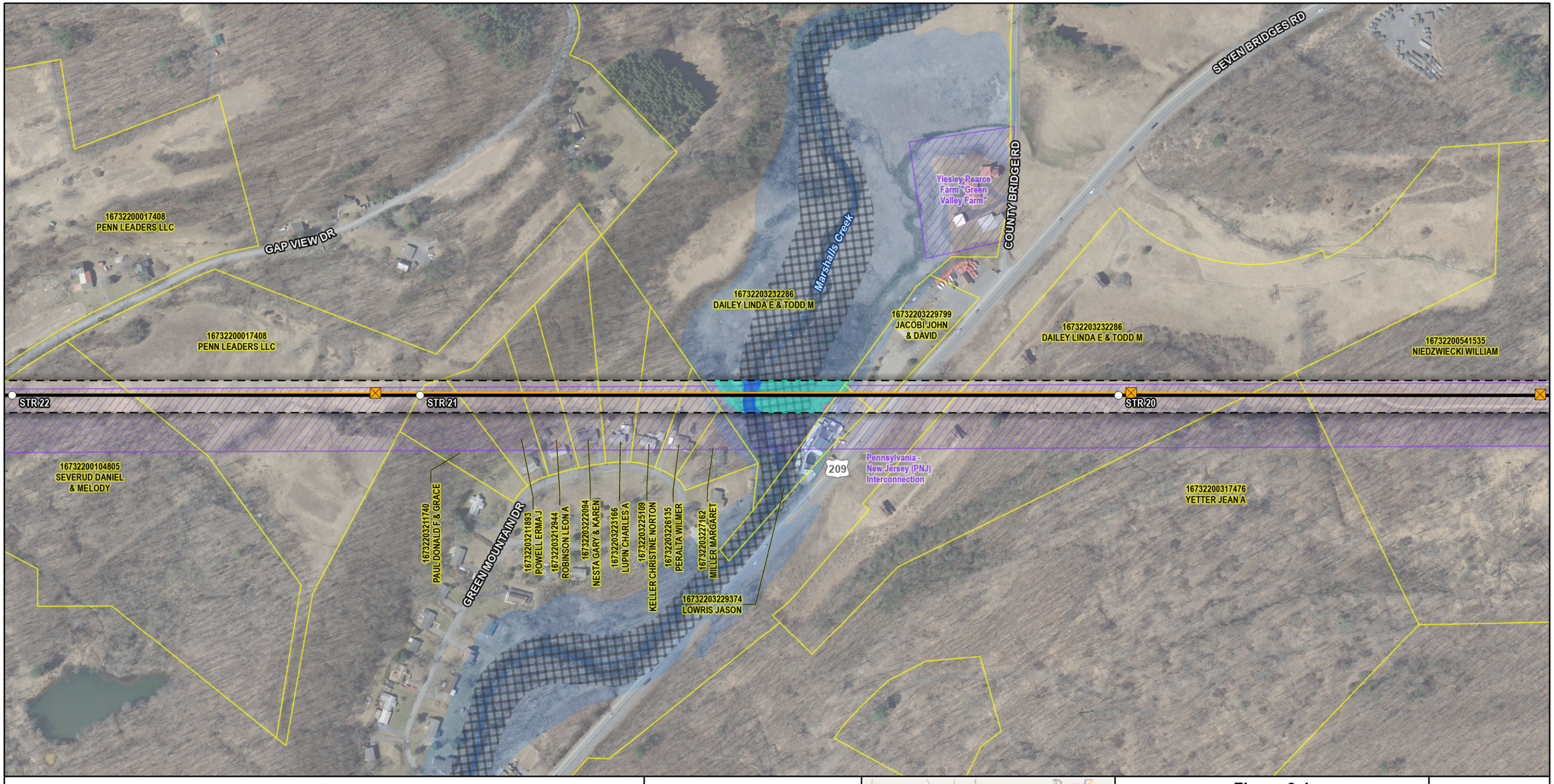

Existing Structure to be Removed
Proposed Structure
Proposed Rebuild Centerline
Existing Transmission Line
Existing ROW
Parcel Boundary
Historic District
Delineated Stream
Delineated Wetland
Floodway
100-Year Floodplain

Imagery (PEMA 2018)
Parcels (Monroe Co. 2023)
Floodplains (FEMA 2022)
Delineated Features (Penn Env. 2022)
Golf Courses (ESRI 2021)
Roads/Railroads/Parks (PASDA 2022)
Historic Resources (PHMC 2023)

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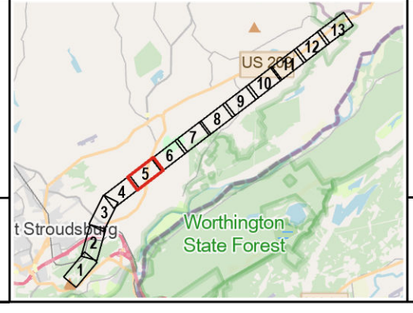

Figure 3-1
Aerial Map
Fox Hill - Shawnee & Shawnee - Bushkill 230 kV Transmission Rebuild Project

0 300 600 Feet

1:3,600

Existing Structure to be Removed
Proposed Structure
Proposed Rebuild Centerline
Existing Transmission Line
Existing ROW
Parcel Boundary
Local Park or Recreation Area
Historic District

Imagery (PEMA 2018)
Parcels (Monroe Co. 2023)
Floodplains (FEMA 2022)
Delineated Features (Penn Env. 2022)
Golf Courses (ESRI 2021)
Roads/Railroads/Parks (PASDA 2022)
Historic Resources (PHMC 2023)

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Datum: North American 1983

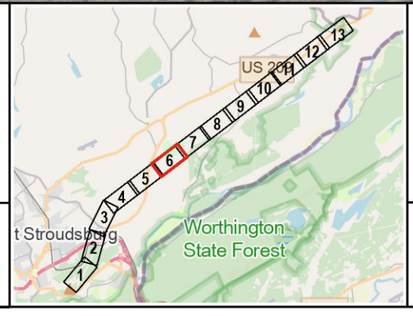

Figure 3-1
Aerial Map
Fox Hill - Shawnee & Shawnee - Bushkill 230 kV Transmission Rebuild Project

0 300 600 Feet

1:3,600

Existing Structure to be Removed
Proposed Structure
Proposed Rebuild Centerline
Existing Transmission Line
Existing ROW
Parcel Boundary
Local Park or Recreation Area
Historic District

Imagery (PEMA 2018)
Parcels (Monroe Co. 2023)
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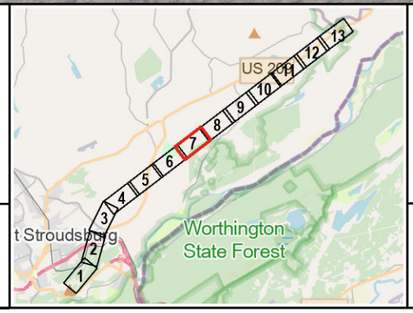


Figure 3-1
Aerial Map
Fox Hill - Shawnee & Shawnee - Bushkill 230 kV Transmission Rebuild Project

0 300 600 Feet

1:3,600

Existing Structure to be Removed
Proposed Structure
Proposed Rebuild Centerline
Existing Transmission Line
Existing ROW
Parcel Boundary
Municipality Boundary
Historic District
Delineated Wetland

Imagery (PEMA 2018)
Parcels (Monroe Co. 2023)
Floodplains (FEMA 2022)
Delineated Features (Penn Env. 2022)
Golf Courses (ESRI 2021)
Roads/Railroads/Parks (PASDA 2022)
Historic Resources (PHMC 2023)

Coordinate System:
State Plane Pennsylvania North
Datum: North American 1983

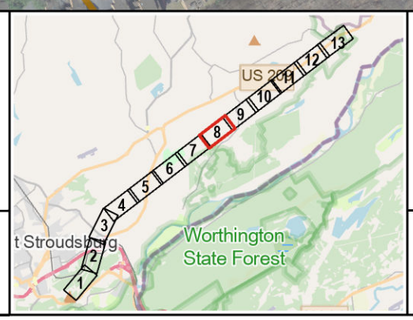
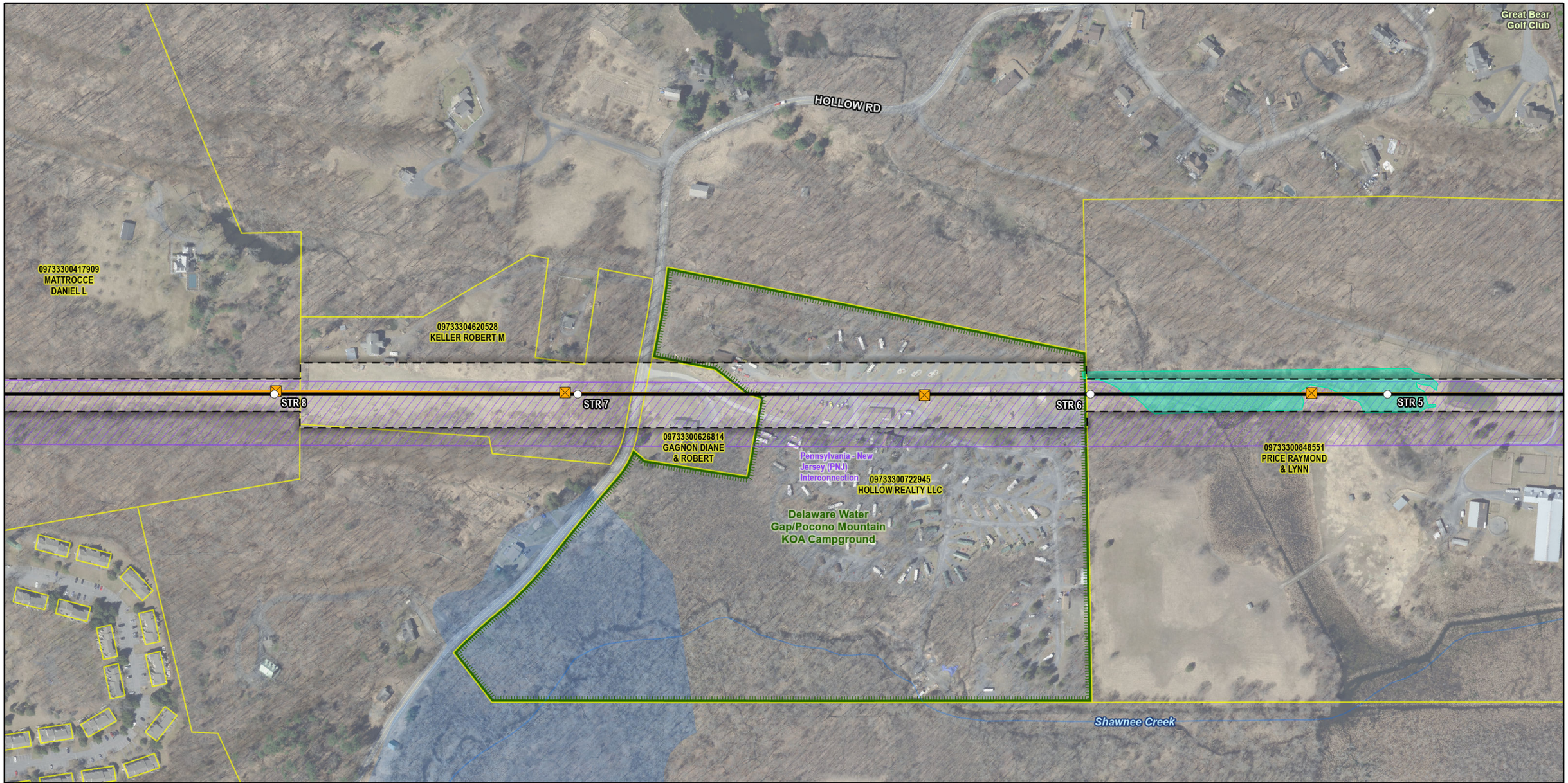


Figure 3-1
Aerial Map
Fox Hill - Shawnee & Shawnee - Bushkill 230 kV Transmission Rebuild Project

0 300 600 Feet

1:3,600



- Existing Structure to be Removed
- Proposed Structure
- Proposed Rebuild Centerline
- Existing Transmission Line
- Existing ROW
- Parcel Boundary
- Local Park or Recreation Area
- Golf Course
- Historic District
- Delineated Wetland
- 100-Year Floodplain

Imagery (PEMA 2018)
Parcels (Monroe Co. 2023)
Floodplains (FEMA 2022)
Delineated Features (Penn Env. 2022)
Golf Courses (ESRI 2021)
Roads/Railroads/Parks (PASDA 2022)
Historic Resources (PHMC 2023)

Coordinate System:
State Plane Pennsylvania North
Datum: North American 1983

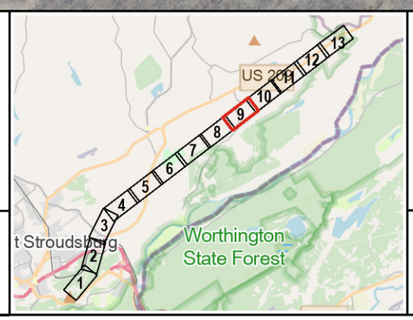
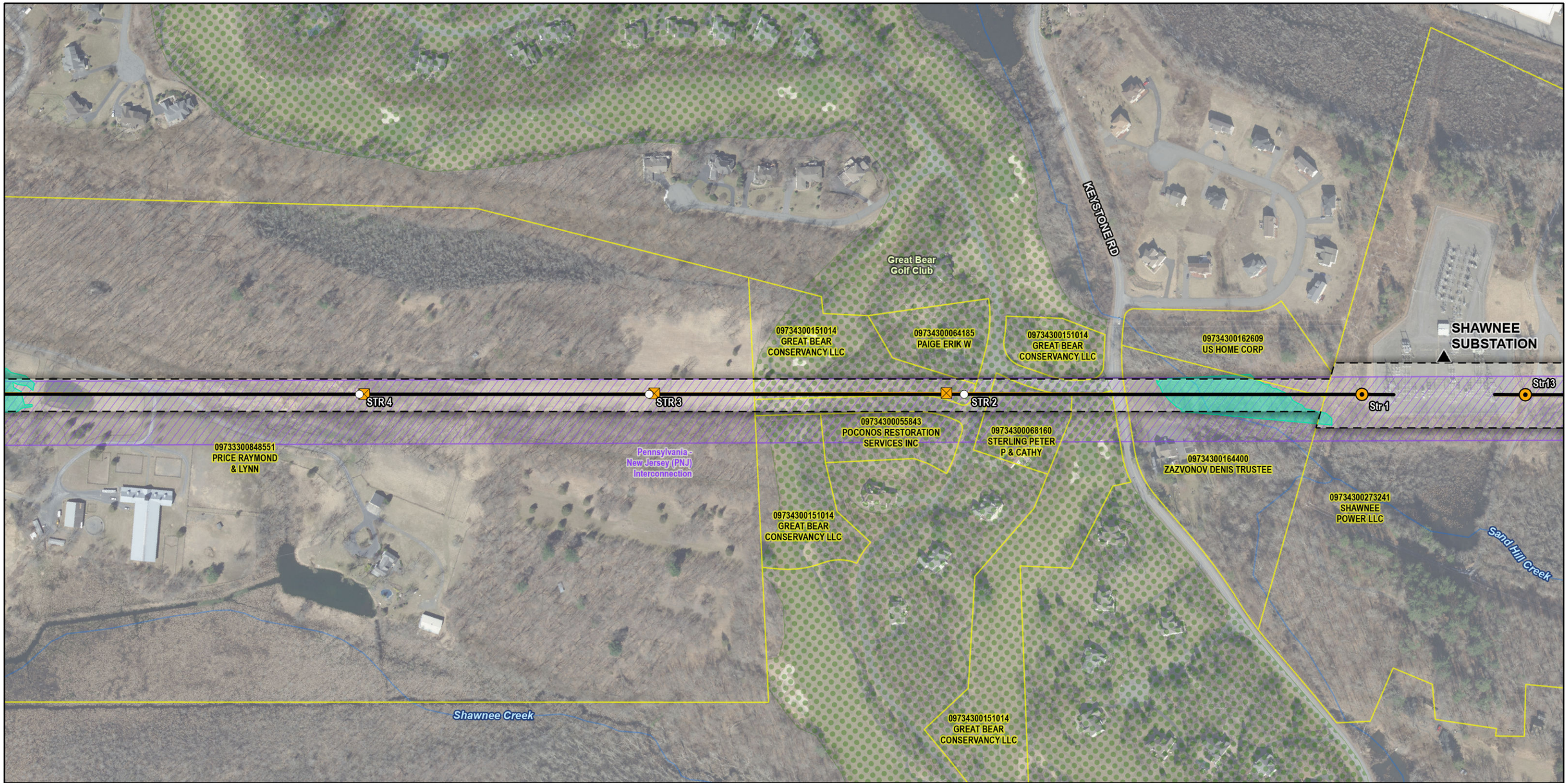


Figure 3-1
Aerial Map
Fox Hill - Shawnee & Shawnee - Bushkill 230 kV Transmission Rebuild Project

0 300 600 Feet

1:3,600



- Substation or Switchyard
- Existing Structure to Remain
- Existing Structure to be Removed
- Proposed Structure
- Proposed Rebuild Centerline
- Existing Transmission Line
- Existing ROW
- Parcel Boundary
- Golf Course
- Historic District
- Delineated Wetland

Imagery (PEMA 2018)
Parcels (Monroe Co. 2023)
Floodplains (FEMA 2022)
Delineated Features (Penn Env. 2022)
Golf Courses (ESRI 2021)
Roads/Railroads/Parks (PASDA 2022)
Historic Resources (PHMC 2023)

Coordinate System:
State Plane Pennsylvania North
Datum: North American 1983

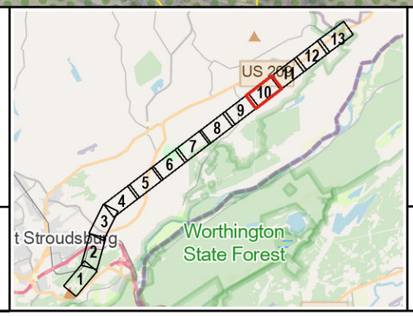
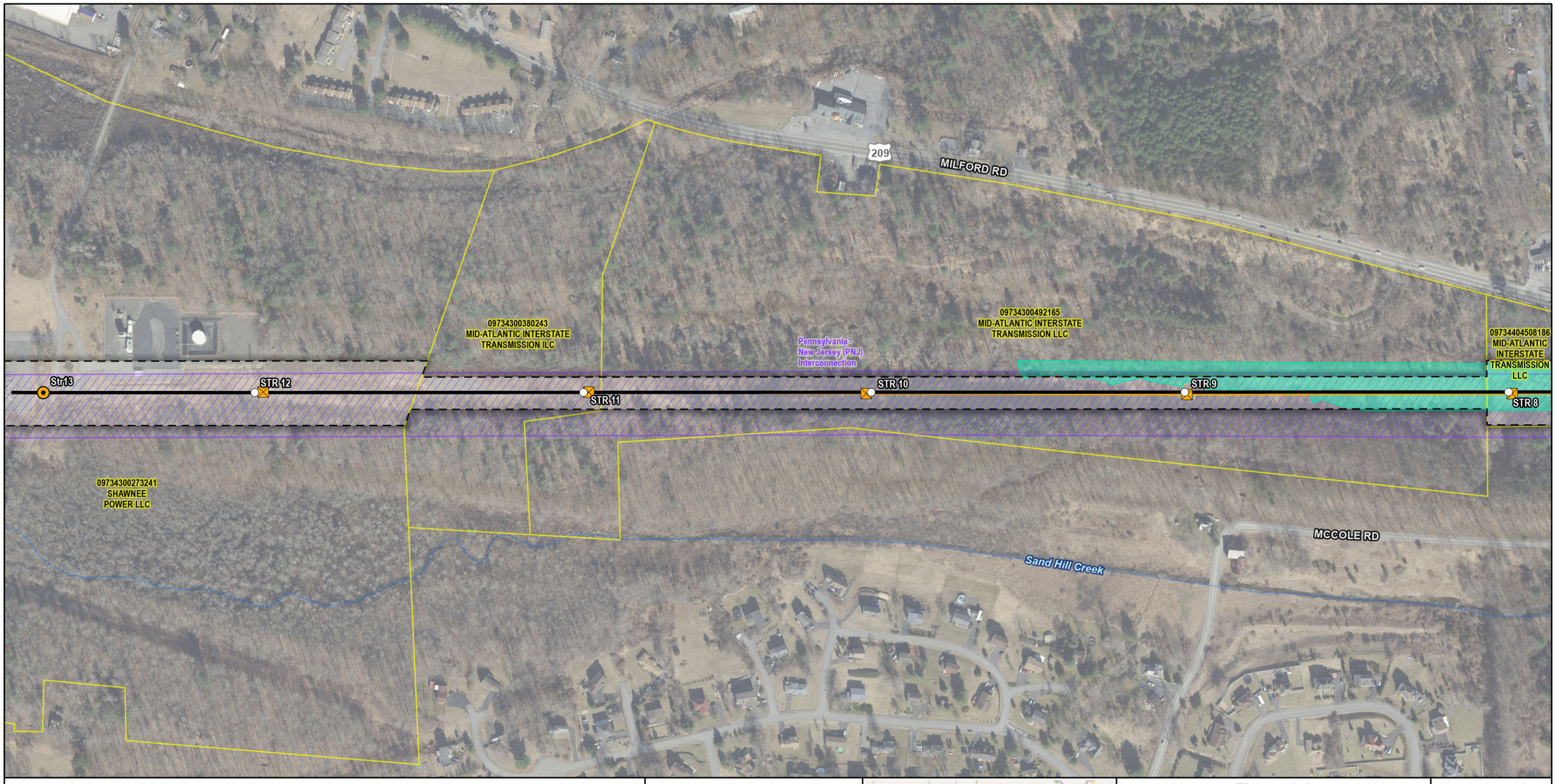


Figure 3-1
Aerial Map
Fox Hill - Shawnee & Shawnee - Bushkill 230 kV Transmission Rebuild Project

0 300 600 Feet

1:3,600



Existing Structure to Remain
Existing Structure to be Removed
Proposed Structure
Proposed Rebuild Centerline
Existing Transmission Line
Existing ROW
Parcel Boundary
Historic District
Delineated Wetland

Imagery (PEMA 2018)
Parcels (Monroe Co. 2023)
Floodplains (FEMA 2022)
Delineated Features (Penn Env. 2022)
Golf Courses (ESRI 2021)
Roads/Railroads/Parks (PASDA 2022)
Historic Resources (PHMC 2023)

Coordinate System:
State Plane Pennsylvania North
Datum: North American 1983

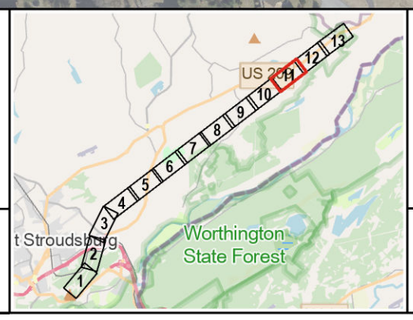


Figure 3-1
Aerial Map
Fox Hill - Shawnee & Shawnee - Bushkill 230 kV Transmission Rebuild Project

0 300 600 Feet

1:3,600

Existing Structure to be Removed
Proposed Structure
Proposed Rebuild Centerline
Existing Transmission Line
Existing ROW
Parcel Boundary
Golf Course
Historic District
Delineated Wetland

Imagery (PEMA 2018)
Parcels (Monroe Co. 2023)
Floodplains (FEMA 2022)
Delineated Features (Penn Env. 2022)
Golf Courses (ESRI 2021)
Roads/Railroads/Parks (PASDA 2022)
Historic Resources (PHMC 2023)

Coordinate System:
State Plane Pennsylvania North
Datum: North American 1983

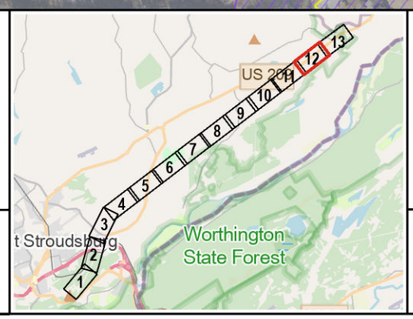
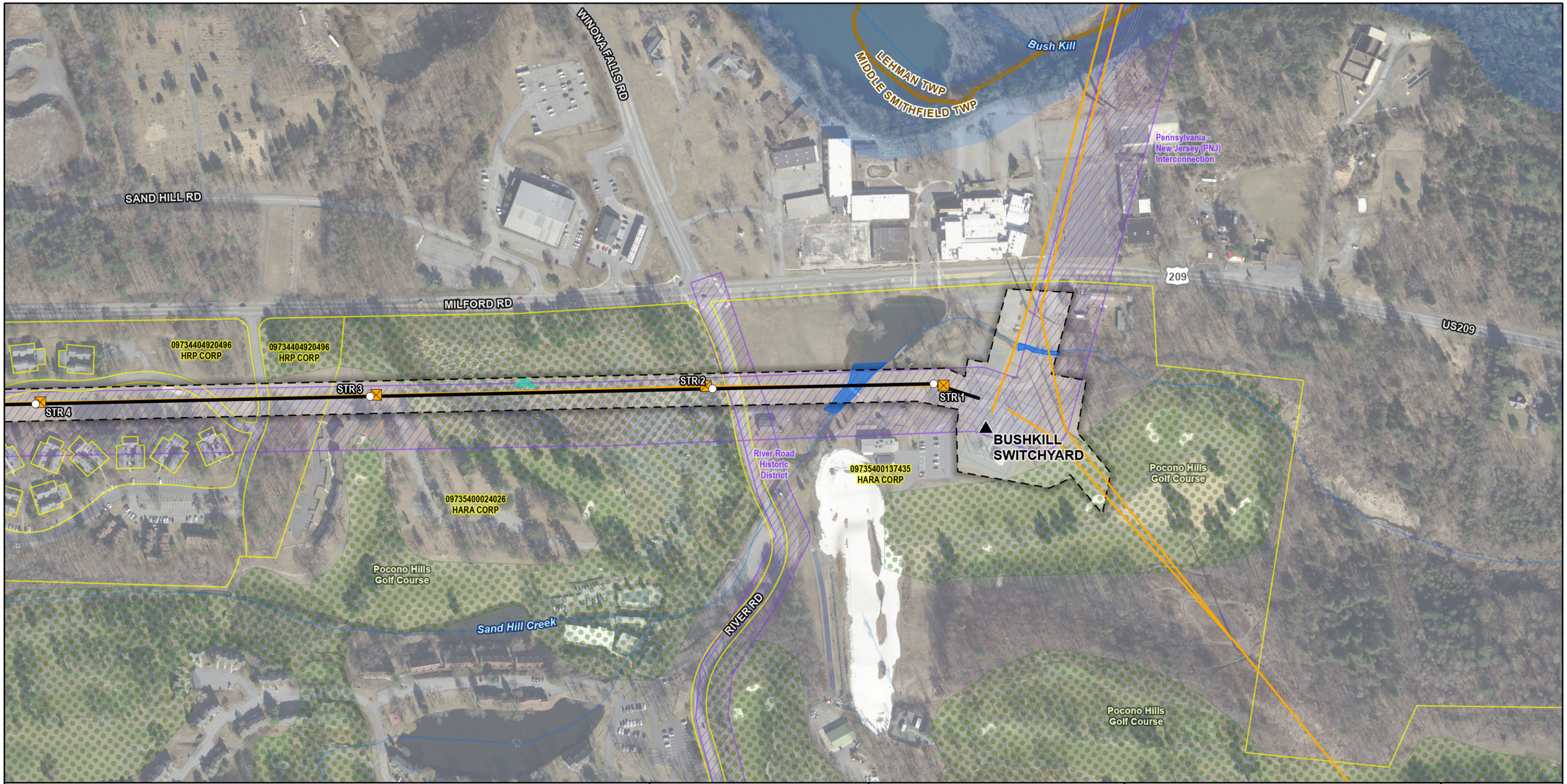


Figure 3-1
Aerial Map
Fox Hill - Shawnee & Shawnee - Bushkill 230 kV Transmission Rebuild Project

0 300 600 Feet

1:3,600



- Substation or Switchyard
- Existing Structure to be Removed
- Proposed Structure
- Proposed Rebuild Centerline
- Existing Transmission Line
- Existing ROW
- Parcel Boundary
- Municipality Boundary
- Golf Course
- Historic District
- Delineated Stream
- Delineated Wetland
- 100-Year Floodplain

Imagery (PEMA 2018)
Parcels (Monroe Co. 2023)
Floodplains (FEMA 2022)
Delineated Features (Penn Env. 2022)
Golf Courses (ESRI 2021)
Roads/Railroads/Parks (PASDA 2022)
Historic Resources (PHMC 2023)

Coordinate System:
State Plane Pennsylvania North
Datum: North American 1983

Figure 3-1
Aerial Map
Fox Hill - Shawnee & Shawnee - Bushkill 230 kV Transmission Rebuild Project

0 300 600 Feet

1:3,600

PPL ELECTRIC
ATTACHMENT 4

FOX HILL-SHAWNEE AND SHAWNEE-BUSHKILL 230 kV TRANSMISSION LINE REBUILD PROJECT

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1.0. DESIGN CONSIDERATIONS

PPL Electric Utilities Corporation's ("PPL Electric") new and rebuilt transmission lines are designed according to, and generally exceed, all National Electric Safety Code ("NESC") minimum standards. The NESC is a set of rules guiding safety standards 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. PPL Electric has developed design specifications and safety rules which meet or surpass all requirements specified by the NESC.

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 mechanical 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 are designed to maintain public safety.

The NESC specifies strength and loading rules based on three different "grades of construction" for conductors and supporting structures:

- Grade B – This grade of construction provides the highest margin of safety and is required when the pole supports spans that cross limited access highways, railroads, and waterways.
- Grade C – This grade of construction is most common and provides a basic margin of safety. It is often utilized for the typical power and joint-use distribution pole.
- Grade N – This is the lowest grade of construction and is most often used for emergency and temporary construction.

PPL Electric designs all its transmission lines for Grade B construction. The use of Grade B design and construction translates to higher levels of structural reliability and safety to withstand the environmental conditions of ice and/or wind loading.

PPL Electric's rigorous design standards are further incorporated into the parameters utilized to account for ice and wind loadings on the wires and structure. Structure loading and line designs must accommodate a variety of operating conditions as different ice and wind combinations can impact the conductor sags and tensions of the line. PPL Electric's transmission lines are designed to exceed NESC requirements by accounting for additional load cases due to various ice and wind loading conditions beyond what is required by NESC. This means that PPL Electric lines are designed to operate safely and reliably during extreme inclement weather. In addition, PPL Electric design standards include a clearance to ground buffer in excess of NESC required clearances to account for construction and design tolerances and the filling or grading of land within the right-of-way by property owners. This buffer also significantly reduces the risk of a property owner inadvertently contacting a transmission line. This has occurred on PPL Electric's system in the past and higher clearances minimize the likelihood of future occurrences.

Table 4-1. 69 kV Vertical Clearance to Ground		
Surface Underneath Conductors	**NESC Standard Clearance**	**PPL Electric Clearances**
Roads, streets, and other areas subject to truck traffic	19.2 Ft.	22.2 Ft.
Other land traversed by vehicles such as cultivated grazing, forest, orchards, etc.	19.2 Ft.	22.2 Ft.
Spaces and ways subject to pedestrians or restricted traffic only	15.2 Ft.	22.2 Ft.
Track rails of railroads (except electrified railroads using overhead trolley conductors)	27.2 Ft.	30.2 Ft.

Table 4-2. 138 kV Vertical Clearance to Ground		
Surface Underneath Conductors	**NESC Standard Clearance**	**PPL Electric Clearances**
Roads, streets, and other areas subject to truck traffic	20.6 Ft.	23.6 Ft.
Other land traversed by vehicles such as cultivated grazing, forest, orchards, etc.	20.6 Ft.	23.6 Ft.
Spaces and ways subject to pedestrians or restricted traffic only	16.6 Ft.	23.6 Ft.
Track rails of railroads (except electrified railroads using overhead trolley conductors)	28.6 Ft.	31.6 Ft.

Table 4-3. 230 kV Vertical Clearance to Ground		
Surface Underneath Conductors	**NESC Standard Clearance**	**PPL Electric Clearances**
Roads, streets, and other areas subject to truck traffic	22.5 Ft.	25.5 Ft.
Other land traversed by vehicles such as cultivated grazing, forest, orchards, etc.	22.5 Ft.	25.5 Ft.
Spaces and ways subject to pedestrians or restricted traffic only	18.5 Ft.	25.5 Ft.
Track rails of railroads (except electrified railroads using overhead trolley conductors)	30.5 Ft.	33.5 Ft.

Table 4-4. 500 kV Vertical Clearance to Ground		
Surface Underneath Conductors	**NESC Standard Clearance**	**PPL Electric Clearances**
Roads, streets, and other areas subject to truck traffic	28.4 Ft.	31.4 Ft.
Other land traversed by vehicles such as cultivated grazing, forest, orchards, etc.	28.4 Ft.	31.4 Ft.
Spaces and ways subject to pedestrians or restricted traffic only	24.4 Ft.	31.4 Ft.
Track rails of railroads (except electrified railroads using overhead trolley conductors)	36.4 Ft.	39.4 Ft.

A relay protection system is also used on PPL Electric's transmission lines to protect public safety, as well as the equipment on the transmission system. The purpose of relay protection is to automatically de-energize the line in the unlikely event that the line or supporting structure fails and the line contacts the ground.

2.0. PERIODIC MAINTENANCE PROGRAM ON ALL TRANSMISSION LINES

To ensure continued public safety and integrity of service, a periodic maintenance and inspection program is implemented for every transmission line. The program is administered using helicopter patrols, with supplemental foot patrols as needed. Helicopter patrols are performed on all lines on a predetermined frequency, depending on voltage level. The two-man helicopter crew flies parallel to and above the line so that the observer can look for signs of line damage or deterioration and observe

clearances between vegetation and conductors. The observations are included in a report that is forwarded to the appropriate department for corrective action.

3.0. PERSONNEL SAFETY RULES

Overall, PPL Electric designs and constructs projects with high regard to both public and employee safety and follows or exceeds all codes and requirements. The following are a few examples of PPL Electric's safety rules that demonstrate its dedication to employee and contractor safety:

- Procedures have been developed to allow work to be performed on energized facilities in a safe manner. When lines or apparatus are removed from service to be worked on, the Energy Control Process system is applied. This system provides that a red tag must be physically placed on the control handle of the de-energized equipment.
- The red tag may be removed only after proper authorization to energize the equipment has been received.
- Various other tags are used for limited operations and informational purposes.
- Employees or contractors will not apply or remove a tag or change the status of tagged equipment unless authorized.
- Temporary safety grounds are used on de-energized facilities for employee lineman safety during maintenance, construction, or reconstruction work. Safety grounds are wires connecting the de-energized facility to an electrical ground. If the facility should be energized, the safety grounds will divert the current directly to ground and reduce the likelihood of personal injury.
- Before applying grounds, a test is done to confirm that the line is de-energized. The voltage test device is checked before and after use to assure reliability.
- Poles or structures are inspected and examined for structural integrity before climbing. If there is any reason to believe that a pole is unsafe, it is stabilized before work is performed. Appropriate safety gear in the form of body belts, safety straps, hard hats, gloves, etc., is worn by linemen during line work activity.

4.0 MAGNETIC FIELD MANAGEMENT PLAN

PPL Electric's Magnetic Field Management Program is applied to new and reconstructed transmission line projects. Although there is no current scientific evidence demonstrating that magnetic fields cause any adverse health effects or pose a health or safety threat to the public, PPL Electric has established a policy to design its new and rebuilt transmission lines to reduce magnetic fields. To lower magnetic field exposures, the program generally prescribes the use of a line design that provides ground clearances higher than the required minimum NESC ground clearance and reverse phasing of new double circuit lines where it is feasible to do so at low or no cost. The implementation of additional modifications to reduce magnetic field levels is considered, provided those modifications can be made at low or no cost and will not interfere with the operation of the line.

The program will be applied to this Project and the Project is designed with clearances that are at least 3 feet higher than NESC standards.

PPL ELECTRIC
ATTACHMENT 5

FOX HILL-SHAWNEE AND SHAWNEE-BUSHKILL 230 kV TRANSMISSION LINE REBUILD PROJECT

Federal Agencies

U.S. Army Corps of Engineers
Philadelphia District Office
1650 Arch Street
Philadelphia, PA 19103
Attn: Planning Division

U.S. Fish and Wildlife Service
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, Pennsylvania 16801
Attn: Lesa Lindsay

State Agencies

Pennsylvania Bureau of Investigation and Enforcement
Pennsylvania Public Utility Commission
Commonwealth Keystone Building 400 North Street
2nd Floor, Room-N201
Harrisburg, Pennsylvania 17120
Attn: Allison Kaster

Pennsylvania Department of Environmental Protection
400 Market Street
10th Floor Rachel Carson State Office Building
Harrisburg, Pennsylvania 17101
Attn: Regional Permit Coordination Office

Pennsylvania Department of Transportation
Commonwealth Keystone Building
400 North Street, Fifth Floor
Harrisburg, Pennsylvania 17120
Attn: Donald J. Smith, Acting Chief Counsel

Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, Second Floor 400
North Street Harrisburg, Pennsylvania 17120-0053
Attn: Mr. Douglas C. McLearen, Chief

Pennsylvania Department of Conservation and Natural Resources
Rachel Carson State Office Building
400 Market Street Harrisburg, Pennsylvania 17105-8767
Attn: Rebecca Bowen, Ecological Services Section Chief

Pennsylvania Game Commission
2001 Elmerton Avenue
Harrisburg, Pennsylvania 17110-9797
Attn: Stephen Smith, Executive Director, Bureau of Wildlife Habitat Management

Pennsylvania Fish and Boat Commission
Center Region Office
595 East Rolling Ridge Drive
Bellefonte, Pennsylvania 16823-9620
Attn: Christopher A. Urban, Chief, Natural Diversity Section

Pennsylvania Office of Consumer Advocate
555 Walnut Street 5th Floor Forum Place
Harrisburg, Pennsylvania 17101-1923
Attn: Patrick Cicero, Consumer Advocate

Pennsylvania Office of Small Business Advocate
555 Walnut Street
1st Floor Forum Place
Harrisburg, Pennsylvania 17101
Attn: NazAarah Sabree, Small Business Advocate

County Agencies

Monroe County Conservation District
8050 Running Valley Road
Stroudsburg, PA 18360
Attn: Robert J. Armstrong, Chairperson

Monroe County Planning Department
701 Main Street, Suite 405
Stroudsburg, PA 18360
Attn: Annette Atkinson, Chairperson

Municipalities

Middle Smithfield Township Board of Supervisors
147 Municipal Drive
East Stroudsburg, PA 18302
Attn: Annette Atkinson, Chairperson

Middle Smithfield Township Zoning Department
147 Municipal Drive
East Stroudsburg, PA 18302
Attn: Mayra Colon, Zoning Administrator

Middle Smithfield Township Sewer Department
147 Municipal Drive
East Stroudsburg, PA 18302
Attn: Joan Woisin, Sewer Department Manager

Smithfield Township Board of Supervisors
1155 Red Fox Road
East Stroudsburg, PA 18301
Attn: Jacobe A. Pride, Chairman

Smithfield Township Zoning Department
1155 Red Fox Road
East Stroudsburg, PA 18301
Attn: Matthew Helbers, Zoning Officer

Landowners

ALLOTEY FREDERICK & LURINE
241 RHAPSODY RUN
EAST STROUDSBURG, PA 18301-8079

ANNESE DAVID & MAUREEN
322 SHAWNEE VALLEY DR
EAST STROUDSBURG, PA 18302-7799

BACHELDER LORNE A & VIRGINIA
131 RESORT LN
EAST STROUDSBURG, PA 18301-9145

BALAGUER MIRIAM
1043 UPPER RIDGE VIEW DR
EAST STROUDSBURG, PA 18302-7827

BHAGWAT SAMIR N & MARIA
324 SHAWNEE VALLEY DR
EAST STROUDSBURG, PA 18302-7799

BLANCO GUILLERMO RENE
GILROY ANNE
265 MUSIC CENTER DR
EAST STROUDSBURG, PA 18301-7895

BMJ MORTGAGES
PO BOX 301
EAST STROUDSBURG, PA 18301-0301

CAMBRIDGE CONSTRUCTORS LLC
4652 HAMILTON BLVD
ALLENTOWN, PA 18103-6021

CANON ERICK & ELCIE MARIE
314 SHAWNEE VALLEY DR
EAST STROUDSBURG, PA 18302-7799

COMMONWEALTH OF PA
515 N OFFICE BUILDING
HARRISBURG, PA 17125-0109

CRE HRP LLC
25 TOWN CENTER BLVD, SUITE C
CLERMONT, FL 34714-4836

DAILY LINDA E & TODD M
13 COUNTY BRIDGE RD
EAST STROUDSBURG, PA 18301-9107

DAVIS ROSE
316 SHAWNEE VALLEY DR
EAST STROUDSBURG, PA 18302-7799

DEPG MOSIER ASSOCIATES LP
1000 FAYETTE ST
CONSHOHOCKEN, PA 19428-1562

DEPG OF SHAWNEE II LP
1000 FAYETTE ST
CONSHOHOCKEN, PA 19428-1562

DWIGHT DELMONT FULLER TRUSTEE
2119 MELODY LN
EAST STROUDSBURG, PA 18301-7888

EAST STROUDSBURG UNIVERSITY OF PENNSYLVANIA
200 PROSPECT ST
EAST STROUDSBURG, PA 18301-2956

EASTERLING-LEVINE MICHELE
HILL DEQUAN M
307 EGE AVE
JERSEY CITY, NJ 07305-1001

ESTORQUE JULIE ANN & ANTHONY
318 SHAWNEE VALLEY DR
EAST STROUDSBURG, PA 18302-7799

EUREKA STONE QUARRY INC
9119 FRANKFORD AVE
PHILADELPHIA, PA 19114-2854

GAGNON DIANE & ROBERT
231 HOLLOW RD
EAST STROUDSBURG, PA 18302-9103

GREAT BEAR CONSERVANCY LLC
1 GREAT BEAR CT
EAST STROUDSBURG, PA 18302-8921

HARA CORP
25 TOWN CENTER BLVD, SUITE C
CLERMONT, FL 34714-4836

HAYNES ROSLYN
99 WOODWIND CT
EAST STROUDSBURG, PA 18301-8040

HERNANDEZ HECTOR & VERONICA
207 RHAPSODY RUN
EAST STROUDSBURG, PA 18301-8079

HODIMAN ROBERT
ERIK TARA L
72 SYMPHONY CIR
EAST STROUDSBURG, PA 18301-8055

HOLLOW REALTY LLC
285 BROADHOLLOW RD
FARMINGDALE, NY 11735-4806

HRP CORP
25 TOWN CENTER BLVD, SUITE C
CLERMONT, FL 34714-4836

JACOBI JOHN & DAVID
PO BOX 175
MARSHALLS CREEK, PA 18335-0175

KELLER CHRISTINE NORTON & ROBERT
2171 GREEN MOUNTAIN DR
EAST STROUDSBURG, PA 18301-7866

KELLER ROBERT M
132 STALLION CT
EAST STROUDSBURG, PA 18302-6796

KOBER DAVID F
119 SPRING HILL LN
EAST STROUDSBURG, PA 18301-8951

LANG JAMES G
ARCEO THERESA
147 ALBERT LN
EAST STROUDSBURG, PA 18301-7819

LESOINE LYNN C & SUSAN
6250 FRANKLIN HILL RD
EAST STROUDSBURG, PA 18301-7850

LIGA KENNETH L & CHIAKI
3 STAR ST
SOUTH FLORAL PARK, NY 11001-3543

LINTON KENISHA L
320 SHAWNEE VALLEY DR
EAST STROUDSBURG, PA 18302-7799

LLOYD RHIANNON
245 MUSIC CENTER DR
EAST STROUDSBURG, PA 18301-7895

LOWRIS JASON
124 PRAIRIE LN
EAST STROUDSBURG, PA 18302-6709

LUPIN CHARLES A
C/O LABAR GRACE E
2169 GREEN MOUNTAIN DR
EAST STROUDSBURG, PA 18301-7866

LYNCH JESSICA & STEPHEN
4107 HICKORY LN
EAST STROUDSBURG, PA 18302-7789

MATTROCCE DANIEL L
282 CRABAPPLE LN
EAST STROUDSBURG, PA 18302-9661

MCCLAIN KEITH M
310 SHAWNEE VALLEY DR
EAST STROUDSBURG, PA 18302-7799

MCMAHON WILLIAM J & SANDRA
130 W ATLANTIC BLVD
OCEAN CITY, NJ 08226-4604

MCNEILL MELISSA M
308 SHAWNEE VALLEY DR
EAST STROUDSBURG, PA 18302-7799

METROPOLITAN EDISON CO
C/O FIRST ENERGY TAX DEPT
300 MADISON AVE, PO BOX 1911
MORRISTOWN, NJ 07962

MID-ATLANTIC INTERSTATE TRANSMISSION LLC
76 S MAIN ST
AKRON, OH 44308

MIDDLE SMITHFIELD TWP
C/O MUNICIPAL AUTHORITY
147 MUNICIPAL DR
EAST STROUDSBURG, PA 18302-9519

MILLER MARGARET A
2175 GREEN MOUNTAIN DR
EAST STROUDSBURG, PA 18301-7866

MOON ELIZABETH YUNG SOOK
100 WOODWIND CT
EAST STROUDSBURG, PA 18301-8041

MORTON DAVID
101 WOODWIND CT
EAST STROUDSBURG, PA 18301-8041

MOSES HERBERT J
205 RHAPSODY RUN
EAST STROUDSBURG, PA 18301-8079

N & B CONSTRUCTION LLC
174 DOE RD
BARTONSVILLE, PA 18321-7766

NESTA GARY & KAREN
2167 GREEN MOUNTAIN DR
EAST STROUDSBURG, PA 18301-7866

NIEDZWIECKI WILLIAM
RILEY SEAN
252 TWIN FALLS RD
EAST STROUDSBURG, PA 18301-7954

NORTHSLOPE III OWNERS ASSOCIATION INC
1221 POCAHONTAS RD, STE 6
EAST STROUDSBURG, PA 18301

NORTHSLOPE III OWNERS ASSOCIATION INC
PO BOX 687
MOSCOW, PA 18444-0687

NORTHSLOPE PHASE 2 OWNERS ASSOC INC
PO BOX 93
SHAWNEE ON DELAWARE, PA 18356-0093

OHARA DANIEL J
305 DEL SOL DR
EAST STROUDSBURG, PA 18301-7843

PAIGE ERIK W
HALL-PAIGE CHERYL DENISE
316 GREAT BEAR WAY RD
EAST STROUDSBURG, PA 18302-9093

PAUL DONALD F & GRACE
2153 GREEN MOUNTAIN DR
EAST STROUDSBURG, PA 18301-7866

PENN LEADERS LLC
2417 GAP VIEW DR
EAST STROUDSBURG, PA 18301-7864

PENNSYLVANIA NORTHEAST REGIONAL RAILROAD AUTHORITY
280 CLIFF ST
SCRANTON, PA 18503-1943

PERALTA WILMER
RAMOS ANGELA
2173 GREEN MOUNTAIN DR
EAST STROUDSBURG, PA 18301-7866

PETTINATO LAURA A
199 ALBERT LN
EAST STROUDSBURG, PA 18301-7819

POCONOS RESTORATION SERVICES INC
338 GREAT BEAR WAY RD
EAST STROUDSBURG, PA 18302-9093

POLLACK DIANA D
CLEMMONS JUNIUS
1109 WOODLAND XING
EAST STROUDSBURG, PA 18302-7830

POLLARO JAMES J
245 RHAPSODY RUN
EAST STROUDSBURG, PA 18301-8079

POWELL ERMA J
2161 GREEN MOUNTAIN DR
EAST STROUDSBURG, PA 18301-7866

POWELL KIM Y
204 RHAPSODY RUN
EAST STROUDSBURG, PA 18301-8076

PRICE RAYMOND & LYNN
PO BOX 127
SHAWNEE ON DELAWARE, PA 18356-0127

RIVERA RICKY & LILLIAN
74 SYMPHONY CIR
EAST STROUDSBURG, PA 18301-8055

ROACH ROBERT & MARY
95 WOODWIND CT
EAST STROUDSBURG, PA 18301-8040

ROBINSON LEON A
2163 GREEN MOUNTAIN DR
EAST STROUDSBURG, PA 18301-7866

ROMANO LOUIS
76 SYMPHONY CIR
EAST STROUDSBURG, PA 18301-8055

SATTAUR RAHMAN & RASHIDA
306 DEL SOL DR
EAST STROUDSBURG, PA 18301-7842

SEVERUD DANIEL & MELODY
2384 GAP VIEW DR
EAST STROUDSBURG, PA 18301-7861

SHAWNEE POWER LLC
200 W MADISON, SUITE 3810
CHICAGO, IL 60606-3465

SHAWNEE RIDGE AT UNIVERSITY PARK LLC
1 RIVER RD BOX 67
SHAWNEE ON DELAWARE, PA 18356

SHAWNEE RIDGE AT UNIVERSITY PARK LLC
200 JERSEY LN
EAST STROUDSBURG, PA 18301-8020

SHAWNEE VALLEY OWNERS ASSOC INC
PO BOX 93
SHAWNEE ON DELAWARE, PA 18356-0093

SMITHFIELD SDA CORP
4147 BLUEBERRY HILL RD
BUSHKILL, PA 18324-7784

STERLING PETER P & CATHY
333 GREAT BEAR WAY RD
EAST STROUDSBURG, PA 18302-9094

STROUDSBURG BUS TERMINAL INC
FRANK MARTZ COACH CO
PO BOX 1007
WILKES BARRE, PA 18773-1007

THE TOWNSHIP OF SMITHFIELD
1155 RED FOX RD
EAST STROUDSBURG, PA 18301-9106

THE TYLER GORDON TRUST
777 TAYLOR ST PH P1A
FORT WORTH, TX 76102-4944

THORNHILL HOLDEN & CAMILLE
312 SHAWNEE VALLEY DR
EAST STROUDSBURG, PA 18356-7799

TOFANI PAUL D
207 FRUTCHEY DR
EAST STROUDSBURG, PA 18302-6717

UNIVERSITY PARK PROPERTIES LLC
PO BOX 67
SHAWNEE ON DELAWARE, PA 18356-0067

US HOME CORP
800 W MAIN ST
FREEHOLD, NJ 7728

WILLISTON ROBERT L & PAULA
2383 GAP VIEW DR
EAST STROUDSBURG, PA 18301-7862

WILLS LAWRENCE A
6415 BEN HOGAN CIR
NORTH FORT MYERS, FL 33917-3291

WONG CARLOS & LUZ
306 SHAWNEE VALLEY DR
EAST STROUDSBURG, PA 18302-7799

YETTER JEAN A
218 TWIN FALLS RD
EAST STROUDSBURG, PA 18301-7954

ZAZVONOV DENIS & RITA TRUSTEES
166 KEYSTONE RD
EAST STROUDSBURG, PA 18302-8443

VERIFICATION

I, JOSEPH B. LOOKUP, being the Vice President – Transmission & Distribution Planning and Asset Management at PPL Services Corporation, hereby state that the facts above set forth are true and correct to the best of my knowledge, information and belief and that I expect PPL Electric Utilities Corporation 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: 03/27/2025

Joseph Lookup (Mar 27, 2025 16:43 EDT)

Joseph B. Lookup