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File #: 197389

December 27, 2022

***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 The Existing Double-Circuit Stanton-Summit #3 And #4 230 kV Transmission Lines Connecting the Stanton 230 kV Substation And A Two-Pole Turn Structure That Are Respectively Located In Luzerne And Lackawanna Counties, Pennsylvania**
**Docket No. A-2022-_____**

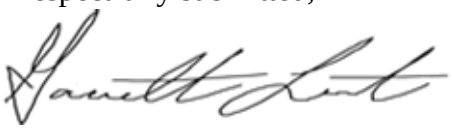
Dear Secretary Chiavetta:

Attached for filing is the Letter of Notification of PPL Electric Utilities Corporation 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 September 2023 with an anticipated in-service date of December 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
Enclosures

cc: Renardo Hicks, Esquire
Paul T. Diskin, 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: Richard Kanaskie

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, 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: Peter Sussenbach, 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, Small Business Advocate

U.S. Army Corps of Engineers
Baltimore District Corporate
Communication Office
2 Hopkins Plaza
Baltimore, Maryland 21201
Attn: Planning Division

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

Lackawanna County Conservation District
1038 Montdale Road, Suite 109
Scott Township, Pennsylvania 18447
ATTN: Jerry Stiles, District Manager

Lackawanna County Regional Planning
Commission
Lackawanna County Government Center
123 Wyoming Avenue, 5th Floor
Scranton, Pennsylvania 18503
ATTN: Brenda Sacco, Director

Luzerne County Conservation District
325 Smiths Pond Road
Shavertown, PA 18708
Attn: Josh Longmore, Executive Director

Luzerne County Planning Commission
Luzerne County Courthouse
20 N Pennsylvania Avenue
Wilkes-Barre, PA 18711
ATTN: N. Brian Caverly, Chair

Exeter Township
State Route 92 Highway
Harding, PA 18643
ATTN: Nancy Redmond, Chairperson

Newton Township
1528 Newton Ransom Boulevard
Clarks Summit, PA 18411
ATTN: Douglas Pallman, Chairperson

Ransom Township
2435 Hickory Lane
Ransom Township, Pennsylvania 18411
ATTN: Dennis Macheska, Chairperson

Irwin E. Benkert
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Clarks Summit, Pa 18411

BGN Development Corp
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Moosic, Pa 18507-1814

James W. Brown & Sheri L. Brown
2421 Ransom Rd.
Clarks Summit, Pa 18411-9570

Jay R. Butler
1200 N Sekol Ave.
Scranton, Pa 18504-1040

Conrail Property Tax Dept
3 Commercial Pl. 209
Norfolk, Va 23510-2108

Daniel W. Davies & J.W. Brown Jr.
608 Oak Ln.
Clarks Summit, Pa 18411-2408

Forest Lands, LLC
1835 Sherwood Rd.
Allentown, Pa 18103-2946

Patrice E. Haan & D. Scott Haan
1943 Timber Ln.
Clarks Summit, Pa 18411-9539

Clayton Lacoe III & Sheri Lacoe
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Clarks Summit, Pa 18411

Dennis J. Lehman
2663 Bald Mountain Rd.
Clarks Summit, Pa 18411

John M. Melnick & Janet Ann Melnick
30 Hunter Ln.
Scott Township, Pa 18411

Jason A. Newkirk & Eunjin Newkirk
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Scranton, Pa 18504-1040

Jos Ohearn & Mary L. Cusma
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Aurora, Ny 13026

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Stevens, Pa 17578-9455

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P.O. Box 127
Meshoppen, Pa 18630-0127

TTJ Harris Real Estate, LLC
771 Newton Rd.
Scranton, Pa 18504

West Mountain Preserve, LLC
771 Newton Rd.
Scranton, Pa 18504

Michael L. Wince & Heather N. Wince
1015 Community Dr.
Scranton, Pa 18504

David Bird Jr.
1028 Beacon Dr.
Scranton, Pa 18504-9695

Bourbeau Family Trust
6217 Poindexter Rd.
North Chesterfield, Va 23234

Randy Buckas
2472 Ransom Rd.
Clarks Summit, Pa 18411-9570

Katharine Collins *et al.*
1400 N Providence Rd. 2
Media, Pa 19063-2043

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Scranton, Pa 18504

Mara Dequevedo
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West Pittston, Pa 18643-2805

Joseph Godino
703 Newton Rd.
Scranton, Pa 185041017

Edward J. Kovalik & Cheryl L. Kovalik
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Clarks Summit, Pa 18411-9565

William D. Lavelle
1030 Community Dr.
Scranton, Pa 18504-9516

Henry J. Makowski & Alice A. Makowski
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Scranton, Pa 18504-1040

Eleanor M. Metzgar
1050 Skyline Dr.
Clarks Summit, Pa 18411-9560

Noakes Grantor Trust
2441 Ransom Rd.
Clarks Summit, Pa 18411-9570

Reading Blue Mtn Northern Rr
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Port Clinton, Pa 19549-0218

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Scranton, Pa 18504-1040

Talen Generation, LLC
600 Hamilton St., Suite 600
Allentown, Pa 18101

Jim Williams Jr.
2202 Kelly Ave.
Scranton, Pa 18508-1634

John Wells & Susan A. Wells
900 N Sekol Ave.
Scranton, Pa 18504-1039

Robert S. Yusinski & Ronald Bird
878 N Sekol Ave.
Scranton, Pa 18504-1037

Date: December 27, 2022

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 The Existing Double-Circuit Stanton-Summit #3 And #4 230 kV Transmission Lines Connecting the Stanton 230 kV Substation And A Two-Pole Turn Structure That Are Respectively Located In Luzerne And Lackawanna Counties, Pennsylvania | : | Docket No. A-2022-_____ |

## LETTER OF NOTIFICATION

**TO THE PENNSYLVANIA PUBLIC UTILITY COMMISSION**:

PPL Electric Utilities Corporation ("PPL Electric") 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 the existing double-circuit Stanton-Summit #3 and #4 230 kV Transmission Lines connecting the Stanton 230 kV Substation ("Stanton Substation") and a two-pole turn structure (Structures 56275-N-47514(L)/56274-N-47518(R)) located approximately 1.4 miles north of the Summit 230-69 kV Substation ("Summit Substation") that are respectively located in Luzerne and Lackawanna Counties, Pennsylvania ("Project").[1]

The proposed Project will address reliability, asset health and safety concerns related to the deteriorated condition of the COR-TEN® lattice towners of PPL Electric's Stanton-Summit #3 and #4 230 kV Transmission Lines. The Project contemplates the replacement and rebuilding of

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

these existing COR-TEN® lattice towers to address structural reliability concerns associated with the experience of "pack-out rust"[2] in many of the joints of the subject lattice towers. The experience of pack-out rust in the joints of the subject towers has accelerated asset health concerns and accelerated the rate at which the subject towers were expected to reach end-of-life.

This project will be constructed in Exeter Township, Newton Township, and Ransom Township, which are either in Luzerne or Lackawanna Counties, Pennsylvania, respectively. 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 September 2023 with an anticipated in-service date of December 2025.[3] PPL Electric is seeking the Commission's decision by no later than May 2023 so if approval is granted, the Company has sufficient time to finalize the items listed below in footnote 3.

In support thereof, PPL Electric states as follows:

[2] As explained in Attachment 1 – Necessity Statement, "pack-out rust" or "pack rust" is a form of localized corrosion typical of steel components that develop a crevice into an open atmospheric environment, which results in rust packing between conjoined steel components. As described further herein, pack-out rust accelerates the deterioration of asset health and can result in shearing off bolts, loss of structural integrity, members disconnecting from lattice towers, and tower failure.

[3] PPL Electric is submitting the Letter of Notification in its schedule at a point in time that will allow the Company to maintain its planned construction schedule and, in the end, complete its scheduled in-service requirement. PPL Electric's schedule accounts for long lead material timelines, additional detailed engineering activities, and construction competitive bidding that all will be required to be completed prior to construction start. In addition, it also should be noted that the Company has had to increase material procurement durations and shipping durations based on industry and national supply chain delays on certain materials.

## 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
Two North Ninth Street
Allentown, Pennsylvania 18101

3. PPL Electric's attorneys are:


Michael J. Shafer (I.D. # 205681)
PPL Services Corporation
Two North Ninth Street
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)
Nicholas A. Stobbe (I.D. # 329583)
Post & Schell, P.C.
17 North Second Street
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Harrisburg, PA 17101-1601
Voice: 717-731-1970
Fax: 717-731-1985
E-mail: dmacgregor@postschell.com
E-mail: glent@postschell.com
E-mail: nstobbe@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 (kilovolts) 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 Description.
- Attachment 3 Description of Project Area.
- Attachment 4 PPL Electric Design Criteria and Safety Practices.
- Attachment 5 Landowners And Agencies 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 has a responsibility to provide transmission assets and maintain them in a manner that is safe, reliable, and resilient to meet the needs of the electric system and the service expectations of its customers. To meet this duty, PPL Electric applies its transmission asset management planning procedure, which includes system performance and condition assessments. 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 performance to ensure a reliable electric grid and reasonable 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 concerns across the Stanton-Summit #3 and #4 230 kV Transmission Lines connecting the Stanton Substation and a two-pole

turn structure (Structures 56275-N-47514(L)/56274-N-47518(R)) located approximately 1.4 miles north of the Summit Substation associated with the presence of pack-out rust in the existing COR-TEN® steel lattice towers and thereby resolve service reliability and safety risks associated with the potential failure of these structures.

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 potential remediation of the existing COR-TEN® steel lattice towers, avoids redundant inspection and/or additional remediation of these structures, and is the lowest cost alternative. Therefore, and for the reasons more fully explained below, the Commission should approve the Project as proposed.

**1. Existing System**

11. The Stanton Substation and Summit Substation are connected by the double-circuit Stanton-Summit #3 and #4 230 kV Transmission Lines.

12. The Stanton-Summit #3 and #4 230 kV Transmission Lines are approximately 7.7 miles long and supported by 46 COR-TEN® lattice structures.

13. The Stanton-Summit #3 230 kV Transmission Line is one of the circuits on these towers, and the Stanton-Summit #4 230 kV Transmission Line is the other.

14. The Stanton Substation is connected to a two-pole turn structure (Structures 56275-N-47514(L)/56274-N-47518(R)) located approximately 1.4 miles north of the Summit Substation.

15. The double-circuit Stanton-Summit #3 and #4 230 kV Transmission Lines are in PPL Electric's Northeast Region and are part of a larger 230 kV transmission network that connects generation in this region to load throughout PPL Electric and rest of PJM's footprint. This 230 kV network includes the Lackawanna-Paupack 230 kV Transmission Line, the Summit-Lackawanna 230 kV Transmission Line, the Jenkins-Stanton 230 kV Transmission Line, and the

Susquehanna-Jenkins 230 kV Transmission Line, that support bulk power flow and feeds various 230-69 kV substations in the Northeast Region.

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

**2. Definition of the Problem**

17. The existing Stanton-Summit #3 and #4 230 kV Transmission Lines are approximately 7.7 miles long and supported by 46 COR-TEN® lattice structures, which were originally constructed in 1970. COR-TEN® lattice towers were commonly installed by the industry during this time because it was believed that the corrosion-resistant properties of weathering-steel would reduce future maintenance needs/costs. These towers had an expected service life of approximately 75 years at the time they were installed.

18. However, in 2013, PPL Electric hired a third-party contractor to perform an assessment of its 230 kV transmission lines under a steel structure capital maintenance program. The assessment identified that 126 of 131 surveyed structures (96%) had one or more structure legs rated Condition C (poor) or Condition D (very poor). Of those 126 structures, 25 had one or more structure legs that were identified as "priority," requiring immediate attention. In order to extend the life of the asset and ensure no failures at the ground line, the 25 structures identified as "priority" received maintenance repairs in 2014, which included post leg, diagonal and base shoe repairs. Protective coating was applied to the remaining 101 COR-TEN® structures that rated Condition C or D but were not identified as "priority." However, these remaining structures face constant asset health concerns due to the presence of pack-out rust.

19. The asset health concerns discovered by the 2013 assessment were heightened by the discovery of pack-out rust in the section joints of the subject COR-TEN® lattice towers. As explained in further detail in Attachment 1 – Necessity Statement, when the presence of pack-out

rust becomes too severe, it can deform steel members and connecting hardware. Pack-out rust can also shear off bolts, cause loss of structural integrity, cause members to disconnect from the tower, and even result in tower failure. This now well-known inherent problem with COR-TEN® steel is also being seen in other infrastructure where two pieces of COR-TEN® Steel overlap at joints, such as those present on lattice towers[4] and other steel structures such as steel bridges.

20. PPL Electric further verified the results of the 2013 assessment by contracting with several independent, non-affiliated inspection companies to conduct evaluations of COR-TEN® lattice towers to determine the overall condition of these towers on the PPL Electric Transmission System in 2019. The 2019 evaluations included inspection of 15 randomly selected COR-TEN® lattice towers across the PPL Electric Transmission System by three separate contractors.[5] Review of the three contractor reports revealed that over 90% of the joints at each structure exhibited visible pack-out in the connections. In addition, the review revealed that pack-out and section-loss was most prominent on the lower portions of the towers where there was higher likelihood of moisture build up.

21. Based on the prevalence of the observed deterioration, PPL Electric determined a more thorough and strategic evaluation was required to determine the full extent of the negative asset health impacts associated with COR-TEN® lattice towers. In early 2020, PPL Electric initiated a second more robust evaluation of the COR-TEN® lattice towers to determine the full

[4] *See, e.g.*, *Application of Virginia Electric and Power Company d/b/a Dominion Virginia Power For approval and certification of Carson-Rogers Road 500 kV Transmission Line Rebuild under Va. Code § 56-46.1 and the Utility Facilities Act, Va. Code § 56-265.1 et seq.*, Va. SCC Case No. PUE-2016-00078, at pp. 2-3, 9-10 (Hearing Examiner Report dated March 10, 2017) ; *Application of Virginia Electric and Power Company For approval and certification of Cunningham-Dooms 500kV Transmission Line Rebuild under Va. Code § 56-46.1 and the Utility Facilities Act, Va. Code § 56-265.1 et seq.*, Va. SCC Case No. PUE-2016-00020, at pp. 3-4 (Response of Dominion Virginia Power to Staff's Supplemental Filing of March 30, 2017, filed April 13, 2017) (discussing the problems associated with "pack-out" rust on another utility's COR-TEN® lattice tower structures).

[5] Each contractor was asked to inspect 5 structures and prepare an engineering analysis of their condition, proposed remediation approach and estimated costs to remediate the identified structural defects.

extent of the deterioration on the transmission system. The details of this analysis are more fully detailed in Attachment 1 – Necessity Statement.

22. The results of the 2020 inspection program again confirmed the severity of deterioration identified during the 2019 inspection program, as follows:

- Over 90% of the joints showed visible pack-out in the connections, which is anticipated to worsen over time.
- The protective patina needed to protect the steel from corrosion did not properly develop at numerous members resulting in section-loss across the entire structure.
- Pack-out damage was typically more prevalent on lower sections of the tower except for some specific attachment points where severe pack-out was observed on higher sections.
- Structural damage was found on several members from pack-out that ruptured bolts and split/deformed members.

23. Finally, in March 2022, PPL Electric contracted RTR Energy Solutions, Inc. ("RTR") to perform a condition assessment of the Stanton-Summit #3 and #4 230 kV Transmission Lines. The details of the RTR March 2022 Assessment are set forth in Attachment 1 – Necessity Statement. In addition, the average structure classified as "Moderate" is in similar condition to structures classified as "Severe." RTR classifies any structure with over 50% of its joints containing pack-out rust as "Severe." 6 of COR-TEN® lattice towers were classified as "Severe." The other 40 COR-TEN® lattice towers were classified as "Moderate."

24. Out of the 40 structures classified as "moderate", the average percentage of total joints containing pack rust is approximately 46%. This shows that the average structure that is classified as moderate in the inspection report is very close to being considered "severe" and the condition of the structures on the line are overall more severe.

25. The majority of pack rust observed on each structure was found in the lower sections of the post leg where horizontal and diagonal members are bolted to the post leg. This

assessment shows that the asset health conditions observed in the system-wide assessment are being exhibited on the specific structures targeted for replacement by the Project.

26. Based on the results of the inspection programs described above, it is clear that the issue with COR-TEN® lattice towers has accelerated the deterioration of these structures and has brought the assets to the end of their service life much sooner than would have been anticipated. At roughly 53 years of age, the COR-TEN® lattice towers that comprise the Stanton-Summit #3 and #4 230 kV Transmission Lines have exceeded their useful life and can no longer be relied upon to safely operate as designed.

27. Furthermore, these asset health concerns are particularly important as the Stanton-Summit #3 and #4 230 kV Transmission Lines are critical components of PPL Electric's Bulk Transmission System and are required to serve local load to several critical customer facilities.

28. If the Stanton-Summit #3 and #4 230 kV Transmission Lines were to fail, then the next contingency loss of the Summit – Lackawanna #1 & #2 230 kV Transmission Lines would result in the loss of the Summit substation. This will result in up to 175 mega-watts ("MW") of load drop resulting in approximately 34,968 customers losing service. Critical facilities including Williams 605 Pumping Station and Metropolitan Insurance will be impacted by this outage. This would result in all PPL Electric distribution substation load on the west side of Scranton area being removed from service.

29. 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 COR-TEN® 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 COR-

TEN® pack-out and section loss, 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. This is evident in the storms associated with Hurricane Ida that hit the Northeast recently, as a storm of that strength would have been rare decades ago. Due to drastic weather pattern changes, it is imperative to re-evaluate the COR-TEN® structures in the safest and most reliable way to protect against the pack rust issue in the joints of the structures and guard the transmission system from catastrophic failures of COR-TEN® towers.

30. At the October 2020 PJM TEAC meeting,[6] PPL Electric presented its plan to address COR-TEN® needs on the 230 kV system. As part of this plan, PPL Electric also shared the need with PJM stakeholders to address COR-TEN® towers on the Stanton-Summit #3 and #4 230 kV Transmission Lines (need # PPL-2020-0006). The need # PPL-2020-0006 will be addressed by the Stanton-Summit #3 and #4 230 kV Transmission Lines rebuild under supplemental project s2367, which will be completed at an estimated cost of $36.8 Million.

**B. THE PROPOSED PROJECT**

31. In order to resolve the identified COR-TEN® lattice tower health condition, PPL Electric proposes to rebuild the existing Stanton-Summit #3 and #4 230 kV Transmission Lines. All the COR-TEN® lattice structures as well as the conductors at the 46 locations will be replaced.

32. The proposed Project will address the asset health needs associated with COR-TEN® lattice tower replacement, as well as improve overall reliability, safety, and system resiliency. It will also address the above-identified reliability needs. With respect to the COR-TEN® asset health condition, the Project will immediately and fully resolve the deteriorated

[6] Refer to slides at https://www.pjm.com/~/media/committees-groups/committees/teac/2020/20201006/20201006-item-09-ppl-supplemental.ashx

condition of the existing structures on a long-term basis by removing the existing COR-TEN® lattice towers and replacing them with steel monopoles. By rebuilding these structures, PPL Electric will resolve the existing COR-TEN® issue and avoid the possibility of the issue worsening and/or recurring with respect to these structures and developing into both a reliability and public safety issue.

33. Importantly, as explained in Attachment 1 – Necessity Statement, the Project as proposed also avoids the additional costs and uncertainties surrounding the alternative remediation solution contemplated PPL Electric. As noted therein, PPL Electric evaluated and rejected the remediation alternative because it carries substantial uncertainties regarding its immediate and long-term effectiveness to address the subject COR-TEN® lattice lowers. There are few, if any, other examples of fully remediating substantially deteriorated COR-TEN® towers which PPL Electric could review to benchmark the effectiveness of this alternative against. Although remediation could potentially extend the life of the structures, it would, at a minimum, require that the remediation work be re-evaluated and potentially repeated every ten years after the initial remediation. In addition, the initial cost of remediation could be substantially greater than anticipated, and the cost of repeated remediation would result in additional O&M expense. 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.

34. The approximate cost of the entire transmission line rebuild Project is $36.8 Million. On a total cost of service basis, the Proposed Solution is approximately 88% of the cost of Alternative 1 (replacing each of the existing structures) on a 45-year basis and 95% of the cost of Alternative 1 on 75-year basis. In addition, on a total cost of service basis, the Proposed Solution

is approximately 89% of the cost of Alternative 2 (remediating the existing structures) on a 45-year basis and 57% of the cost of Alternative 2 on 75-year basis.

## III. HEALTH AND SAFETY

35. 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 to this Letter of Notification.

36. Attachment 4 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. The proposed rebuild of Stanton-Summit #3 and #4 230 kV Transmission Lines will continue to allow for double-circuit operation, which will allow for reverse phasing. A reduction in magnetic field exposure is anticipated due to the higher ground clearances and reverse phasing.

## IV. DESCRIPTION OF THE RIGHT-OF-WAY

37. The rebuilt double-circuit Stanton-Summit #3 and #4 230 kV Transmission Lines will be on the same structure alignment and in the same right-of-way ("ROW") as the existing transmission lines. The existing ROW is approximately 325 feet wide and contains another PPL Electric-owned transmission line that parallels the northern side of the Stanton-Summit #3 and #4 230 kV Transmission Lines. The Project will require the replacement of the existing structures that will be constructed entirely within the existing ROW. *See* 52 Pa. Code § 57.72(d)(1)(i). In addition, the facilities associated with the Project will be constructed upon the same structure alignment as the existing facilities. PPL Electric does not require any additional ROW for the construction of the Project. An aerial map is provided at the end of Attachment 3 to this Letter of Notification, which depicts the proposed line and associated structures.

38. New structures will be located in close proximity to existing structures where it is reasonably practical to do so. Where structures will be substantially relocated, PPL Electric will discuss the proposed structure locations with the respective property owners. Additionally, the existing number of structures on each parcel will not change, and no new structures will be added to properties that do not currently have a structure. Because the new pole locations are generally similar to the original locations, PPL Electric does not anticipate any objections.

39. As explained in Attachment 2, existing COR-TEN® lattice tower structures range in height from between approximately 120 and 170 feet with an average structure height of approximately 144 feet. The proposed monopole structures for the Stanton-Summit #3 and #4 230 kV Transmission Lines will range in height from between approximately 110 and 175 feet with an average structure height of approximately 140 feet.

40. Two aerial plot plans are provided at the end of Attachment 1 to this Letter of Notification. Figure 1-1 depicts the location of the existing transmission facilities associated with

this Project. Figure 1-2 depicts the location of the proposed transmission facilities associated with this Project.

## V. LAND USE AND ENVIRONMENTAL EVALUATION

41. As explained above, construction of the proposed Project will take place entirely within existing rights-of-way. Therefore, it is anticipated that the proposed Stanton-Summit #3 and #4 230 kV Transmission Lines will have minimal incremental impacts on land use in the area.

42. PPL Electric will use and update previously established access 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.

43. 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 ROW ("Project Area"). This broader Project Area was reviewed to provide a sense of the landscape in which the Project is located. Based on review of the 2021 National Land Cover Data ("NLCD"), land use in the Project Area is approximately 90% forested with the remaining 10% comprised of mixed residential and agricultural areas that are crossed at intersections with local roads.

44. The proposed Project will not affect any national parks, state parks, local parks, recreational areas, or natural landmarks. None of these features are located within the Project Area. Review of the National Conservation Easement Database and PA Conserved Lands websites notes that no conserved lands are crossed by the Project.

45. The Project will not affect any state lands, national parks, local parks, recreational areas or natural landmarks because none of these features are located within the Project Area.

46. No conservation easements are directly crossed by the Project.

47. 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. No State Historic Preservation Office ("SHPO") listed or eligible properties are crossed by the Project but the Bedell-Courtright Farmstead (SHPO resource Number 2011RE00513) borders the north side of the ROW along Ransom Road in the central portion of the Project Area. No effect to this resource is anticipated by the proposed Project activities.

48. PPL Electric is in the initial stage of coordination with the PHMC for the modifications being made to the transmission lines. This coordination will be required to receive permits to construct the Project and will be conducted in the near future. PPL Electric does not anticipate any impacts to SHPO eligible properties or any other PHMC related properties. PPL Electric will perform any reviews and field survey/sampling work required by the PHMC to avoid, minimize, and mitigate impacts to archaeological or historic architectural resources that may be located within the Project Area.

49. The Project spans the Reading Blue Mountain and Northern Railroad, which parallels the eastern side of the North Branch Susquehanna River near the Stanton Substation. Two Buckeye Partners product pipelines are also crossed east of Ransom Road in the central portion of the Project. Two communication towers that are also located in the central portion of the Project are located within one mile of the alignment. Access roads to these facilities are spanned by the Project. The Project does not cross other electrical utility ROW's but does parallel the PPL Electric Susquehanna-Roseland 500 kV Transmission Line for the entire length of the Project.

50. The closest active airports relative to the Project Area are the Wilkes-Barre Scranton International Airport, which is approximately five miles to the south of the Stanton Substation, and the Wilkes-Barre Wyoming Valley Airport, located approximately six miles to the southwest. PPL Electric does not anticipate any interference with airport operations because the Project is located in an area where there are existing electrical facilities. However, PPL Electric will comply with any applicable requirements of the Federal Aviation Administration and the Pennsylvania Department of Transportation, Bureau of Aviation.

51. No unique geological, scenic, or natural areas are located within the Project Area, according to the Pennsylvania Department of Conservation and Natural Resources ("PDCNR").

52. Erosion and Sedimentation ("E&S") control plans will be implemented for the Project to minimize the displacement of soils. These plans will require prior approval from the local county conservation districts, each of which will be served with this Letter of Notification. National Pollutant Discharge Elimination System ("NPDES") permits 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.

53. The existing transmission lines span eight National Hydrography Dataset waterways that will remain in place after the Project construction activities have occurred. The waterways crossed by the Project include the North Branch Susquehanna River, Saint John's Creek, Lucky Run, Lindy Creek, Keyser Creek and several tributaries to these features. These waterways are located in the Obendoffers Creek-Susquehanna River Watershed (HUC-02050106409), the Lackawanna River-Susquehanna River Watershed (HUC-020501070110), and the City of Scranton-Lackawanna River Watershed (HUC-020501070109).

54. The North Branch Susquehanna River has a PADEP Chapter 93 Designated Use of Warm Water Fishes, Migratory Fishes ("MF") and all of the remaining waterways have a Designated Use of Cold Water Fishes; MF. Lucky Run is also classified as a Wild Trout (Natural Reproduction) stream by the Pennsylvania Fish and Boat Commission ("PFBC"). No direct impacts to these waterway features are anticipated by the Project activities.

55. PPL Electric also reviewed the U.S. Fish and Wildlife Service's ("USFWS") National Wetlands Inventory ("NWI"). the Project crosses one Palustrine Emergent (PEM1/SS1E) and one Palustrine Scrub-Shrub (PSS1/EM1) wetland complex and eight waterways classified as Riverine Unknown Perennial (R5UBH) stream habitats. The Project also spans the North Branch Susquehanna River which is classified as a Riverine Lower Perennial (R2UBH) waterway. No impacts to these NWI features are anticipated by the proposed Project activities.

56. The NWI only provides a general overview of the potential wetlands that may be located within an area. For federal and state permitting purposes, the wetlands and waterways within the Project area will be delineated, surveyed, and illustrated according to regulatory standards. This information will be used to minimize any identified wetland impacts where feasible. Additionally, PPL Electric will avoid impacts to wetlands where possible by aerially spanning these features.

57. In addition, The National Flood Hazard Layers for Luzerne and Lackawanna Counties, Pennsylvania were obtained through the Federal Emergency Management Agency ("FEMA") Flood Map Service Center website and analyzed for 100-year floodplains within the Project Area and surrounding landscape. Based on review of this data, the Project Area is within the FEMA 100-year floodplain bordering the North Branch Susquehanna River. No impacts to this floodplain area are anticipated by the proposed Project activities.

58. Vegetative cover in the Project Area consists almost entirely of forested habitat. Several areas of forest clearing, agricultural use, and rural residential development are present based on aerial imagery. The existing ROW areas for the transmission line has previously been cleared of woody vegetation and no extensive tree clearing is anticipated on most of those lines. 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.

59. Based on review of the Natural Areas Inventory of Luzerne County, Pennsylvania, published by The Western Pennsylvania Conservancy in 2006, and the Natural Areas Inventory of Lackawanna County, Pennsylvania, published by The Nature Conservancy in 2003, the Project is located within the Susquehanna River at Duryea natural area and adjacent to the Bald Mountain natural area. The Susquehanna River at Duryea natural area is located in Luzerne and Lackawanna Counties and consists of aquatic and riparian habitats along the Susquehanna River corridor that support two species of concern. The Bald Mountain natural area is located in Lackawanna County and includes a Ridgetop Dwarf-Tree Forest Natural Community and an Acidic Rocky Summit Natural Community as well as habitat for four plant species of concern.

60. PPL Electric completed a Pennsylvania Natural Diversity Inventory ("PNDI") for the Project on October 8, 2021. The PNDI reviews evaluate the databases of the United States Fish and Wildlife Service ("USFWS"), Pennsylvania Fish and Boat Commission ("PFBC"), Pennsylvania Game Commission ("PGC"), and the PDCNR.

61. PDCNR is the only agency that responded with potential threatened and endangered species concerns within the Project Area. Surveys for the identified plant species of concern were conducted in spring and fall 2022. The specific plant species identified by PDCNR were not found

in the Project Area, but a different plant species of concern was found in a location that will not be affected by Project activities. PPL Electric will continue to consult with the PDCNR regarding avoidance of this protected species. PPL Electric will obtain all necessary approvals and permits for Project construction, and comply with all conditions placed on those permits.

## VI. NOTICE

62. 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 Stanton-Summit #3 and #4 230 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.

63. PPL Electric has provided information regarding the Project to representatives of Exeter Township, Newton Township, and Ransom Township in Luzerne and Lackawanna Counties, Pennsylvania, respectively. 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

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

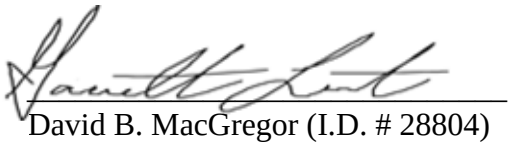
65. The proposed Project qualifies for use of a Letter of Notification because it will be located entirely on an existing transmission line right-of-way, and the size, character design or configuration of the proposed transmission line will not substantially alter the right-of-way.

66. 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 Exeter Township, Newton Township, and Ransom Township, in Luzerne and Lackawanna Counties, Pennsylvania, that is explained above and in the Attachments hereto, by no later than May 2023.

Respectfully submitted,

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Date: December 27, 2022

Attorneys for PPL Electric Utilities Corporation

# PPL ELECTRIC
# ATTACHMENT 1

# STANTON-SUMMIT #3 AND #4
# 230 kV COR-TEN® 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 the existing double-circuit Stanton-Summit #3 and #4 230 kV Transmission Lines connecting the Stanton 230 kV Substation ("Stanton Substation") and a two-pole turn structure (Structures 56275-N-47514(L)/56274-N-47518(R)) located approximately 1.4 miles north of the Summit 230-69 kV Substation ("Summit Substation") that are respectively located in Luzerne and Lackawanna Counties, Pennsylvania ("Project")[1].

This Project is required to address reliability concerns related to the deteriorated condition of the COR-TEN® lattice towers on the Stanton-Summit #3 and #4 230 kV Transmission Lines. In addition, the Project is also required to comply with:

- The Consolidated Transmission Owners Agreement ("CTOA") Rate Schedule - 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 NERC."

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. The Project is one of several essential PPL Electric projects designed to address a system-wide concern related to the structural reliability of COR-TEN® lattice towers on its bulk transmission system. As explained below, the existence of "pack-out rust"[2] in many of the joints of the subject lattice towers diminishes structural integrity and increases the risk of system failures that could negatively impact public safety and affect approximately 34,968 PPL

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

[2] "Pack-out rust" or "pack rust" is a form of localized corrosion typical of steel components that develop a crevice into an open atmospheric environment, which results in rust packing between conjoined steel components. As described in Attachment 1, pack-out rust accelerates the deterioration of asset health and can result in shearing off bolts, loss of structural integrity, members disconnecting from lattice towers, and tower failure.

Electric customers. The Project is necessary to avoid these risks and provide the best solution to immediately address the identified asset health issues on a long-term basis.

Moreover, in order for PPL Electric's transmission facilities to be considered in good operating condition, they must be maintained in a manner consistent with the standards of the North American Electric Reliability Corporation ("NERC"), Reliability First Corporation, and Good Utility Practice as defined by the CTOA.

Subject to the Commission's approval, construction will begin in September 2023 to support an in-service date of December 2025.[3] PPL Electric will continue to own, operate, and maintain the rebuilt 230 kV transmission lines. The total estimated cost of this Project, as described below, is approximately $36.8 Million, and the cost for the Project will be paid by PPL Electric.[4]

## 2.0 BACKGROUND

PPL Electric has a responsibility to provide transmission assets and maintain them in an adequate, efficient, safe, reliable, and reasonable manner to meet the needs of the electric system and the expectations of its customers. 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.

[3] PPL Electric is submitting the Letter of Notification in its schedule at a point in time that will allow the Company to maintain its planned construction schedule and, in the end, complete our scheduled in-service requirement. PPL Electric's schedule accounts for long lead material timelines, additional detailed engineering activities, and construction competitive bidding that all will be required to be completed prior to construction start. In addition, it also should be noted that the Company has had to increase material procurement durations and shipping durations based on industry and national supply chain delays on certain materials.

[4] 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.

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

## 3.0 TRANSMISSION SYSTEM PLANNING PROCESS

The nation's interconnected transmission system ("Transmission Grid") serves as the backbone for safe and reliable delivery of large amounts of electricity from generating stations over substantial 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")[5] and non-Bulk Electric System (non-BES)[6] 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 Federal Energy Regulatory Commission ("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

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

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")[7] 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.

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 among (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.

[7] PJM's RTEP process is currently set forth in Schedule 6 of PJM's Amended and Restated Operating Agreement ("Schedule 6"). Schedule 6 governs the process by which PJM's members rely on PJM to prepare an annual regional plan for the enhancement and expansion of the transmission facilities to ensure long-term, reliable electric service consistent with established reliability criteria. In addition, Schedule 6 addresses the procedures used to develop the RTEP, the review and approval process for the RTEP, the obligation of transmission owners to build transmission upgrades included in the RTEP, and the process by which interregional transmission upgrades will be developed.

# 4.0 THE NEED FOR THE PROJECT

## 4.1 Existing System

The Stanton and Summit 230 kV Substations are connected by the double-circuit Stanton-Summit #3 and #4 230 kV Transmission Lines. The Stanton-Summit #3 and #4 230 kV Transmission Lines are approximately 7.7 miles long and supported by 46 COR-TEN® lattice structures. These towers are designed and being used for double-circuit 230 kV operation. The Stanton-Summit #3 230 kV Transmission Line is one of the circuits on these towers, and the Stanton-Summit #4 230 kV Transmission Line is the other.

The double-circuit Stanton-Summit #3 and #4 230 kV Transmission Lines are in PPL Electric's Northeast Region and are part of a larger 230 kV transmission network that connects generation in this region to load throughout PPL Electric and rest of PJM's footprint. This 230 kV network includes the Lackawanna-Paupack 230 kV Transmission Line, the Summit-Lackawanna 230 kV Transmission Line, the Jenkins-Stanton 230 kV Transmission Line, and the Susquehanna-Jenkins 230 kV Transmission Line, that support bulk power flow and feeds various 230-69 kV substations in the Northeast Region. As noted below, if the Stanton-Summit #3 and #4 230 kV Transmission Lines fail, it is expected that the service of approximately 34,968 customers would be impacted for the next contingency, including critical customers such as Williams 605 Pumping Station and Metropolitan Insurance.

A map of the existing system configuration is provided as Figure 1-1.

## 4.2 Project Need

This Project is needed to address asset health concerns that are being accelerated by increased incidences of pack-out rust associated with COR-TEN® lattice towers. The subject lattice towers had an expected service life of 75 years and were installed in the early 1970s. The subsequent discovery of increased incidences of pack-out rust associated with COR-TEN® lattice towers has accelerated the rate at which these towers were expected to reach end-of-life, and, in some cases, the towers have deteriorated and are continuing to deteriorate beyond the point where they can safely operate as designed and cannot be reasonably or cost effectively remediated.

### 4.2.1 Asset Health

There are approximately 236 circuit miles containing COR-TEN® lattice structures or approximately 1,284 structures across PPL Electric's Transmission System that it currently anticipates will need to be addressed in order to resolve asset health concerns similar to those identified below.[8]

Originally constructed in 1970, the existing Stanton-Summit #3 and #4 230 kV Transmission Lines have 46 weathering-steel COR-TEN® lattice structures spanning approximately 7.7 miles. COR-TEN® lattice towers were commonly installed by the industry during this time because it was believed that the corrosion-resistant properties of weathering-steel would reduce future maintenance needs/costs.

In 2013, PPL Electric utilized a third-party contractor to perform an assessment of the COR-TEN® lattice structures on its 230 kV transmission lines under a steel structure capital maintenance program. The program evaluated the ground-line of the steel structures, performing minor excavation around the base of the structure and assessing the condition of the steel, and then applying a protective coating to the exposed steel. No joints or members above the base of the structure were included in this assessment. The assessment identified that 126 of 131 COR-TEN® structures (96%) had one or more structure legs rated Condition C (poor) or Condition D (very poor). Of those 126 structures, 25 had one or more structure legs that were identified as "priority", requiring immediate attention. In order to extend the life of the asset and ensure no failures at the ground line, the 25 structures identified as "priority" received maintenance repairs in 2014, which included post leg, diagonal and base shoe repairs. Protective coating was applied to the remaining 101 COR-TEN® structures that rated Condition C or D but were not identified as "priority". However, these remaining structures face constant asset health concerns due to the presence of pack-out rust. Ongoing inspections conducted since 2014 have confirmed that these structures are continuing to degrade.

These asset health concerns were further heightened by the discovery of pack-out rust in the section joints of the COR-TEN® lattice towers. In particular, the protective surface coating of weathering

[8] PPL Electric anticipates that addressing the currently anticipated COR-TEN® projects associated with the 230 kV system (approx. 1112 of the identified structures) will cost approximately $562 million in total. However, these estimates are preliminary in nature and subject to change. PPL Electric is also currently evaluating one other transmission line asset that includes 172 COR-TEN® lattice structures, but it has not yet developed a cost estimate for the remediation or replacement of these structures.

steel that provides resistance to atmospheric corrosion, known as the patina, did not form properly on the structure joints and members due to moisture trapped between the joints. The trapped moisture prevented completion of the required wetting and drying cycle needed to form the patina. Over time, this has led to the formation of pack-out rust within the joints of connecting tower members and section-loss in the steel members and joints. When the pack rust becomes too severe, it can deform steel members and connecting hardware. It can shear off bolts, cause loss of structural integrity, cause members to disconnect from the tower, and even result in tower failure. PPL Electric is experiencing pack-out rust failures on its transmission line system, which are a leading indicator of ultimate structure failure as outlined above. Over the past few years, PPL Electric has encountered multiple instances of COR-TEN® tower members becoming detached, broken, and deformed/corroded to failure due to severe pack-out rust. Failures of this nature on a transmission tower create emergent safety and reliability concerns which must be proactively addressed.

This now well-known inherent problem with COR-TEN® steel is also being seen in other infrastructure where two pieces of COR-TEN® steel overlap at joints, such as those present on lattice towers[9] and other steel structures such as bridges. The presence of pack-out rust on COR-TEN® structures and its negative impacts on asset health have diminished the expected service life of these structures from 75 to 50 years. As these structures were installed approximately 50 years ago, they have effectively reached end-of-life[10]. No manufacturer's warranty currently exists for remediation of the COR-TEN® lattice towers. After a reasonable investigation, PPL Electric is not aware of whether a manufacturer's warranty was in existence at the time the structures were installed.

To better understand the heightened asset health concerns associated with COR-TEN® steel, PPL Electric contracted with independent, non-affiliated inspection companies to conduct evaluations

[9] *See, e.g.*¸ *Application of Virginia Electric and Power Company d/b/a Dominion Virginia Power For approval and certification of Carson-Rogers Road 500 kV Transmission Line Rebuild under Va. Code § 56-46.1 and the Utility Facilities Act, Va. Code § 56-265.1 et seq.*, Va. SCC Case No. PUE-2016-00078, at pp. 2-3, 9-10 (Hearing Examiner Report dated March 10, 2017) ; *Application of Virginia Electric and Power Company For approval and certification of Cunningham-Dooms 500kV Transmission Line Rebuild under Va. Code § 56-46.1 and the Utility Facilities Act, Va. Code § 56-265.1 et seq.*, Va. SCC Case No. PUE-2016-00020, at pp. 3-4 (Response of Dominion Virginia Power to Staff's Supplemental Filing of March 30, 2017, filed April 13, 2017) (discussing the problems associated with "pack-out" rust on another utility's COR-TEN® lattice tower structures).

[10] New steel structures that will be installed under the Project have an anticipated service life of 75 years.

of COR-TEN® lattice towers to determine the overall condition of these towers on the PPL Electric Transmission System in 2019. The 2019 evaluations included inspection of 15 randomly selected COR-TEN® lattice towers across the PPL Electric Transmission System by three separate contractors.[11] Review of the three contractor reports revealed that over 90% of the joints at each structure exhibited visible pack-out in the connections. In addition, the review revealed that pack-out and section-loss was most prominent on the lower portions of the towers where there was higher likelihood of moisture build up. The contractors' estimates to remediate each tower ranged from $140,000 to $240,000 per tower depending on the contractor's proposed remediation approach and extent of remediation recommended. For the sake of any analysis associated with the remediation option, a cost of $183,891 per structure was utilized, which is the average of the 3 remediation costs received from contractors.

Based on the prevalence of observed deterioration on the COR-TEN® lattice towers across the PPL Electric Transmission System and the estimated per-tower cost to rehabilitate, PPL Electric determined that a more thorough and strategic evaluation was needed to determine the full extent of the deterioration of COR-TEN® lattice towers across its system.

In early 2020, PPL Electric initiated a second, more robust evaluation of the COR-TEN® lattice towers to determine the full extent of the deterioration on the transmission system. PPL Electric's Data Analytics Team developed a strategic approach that utilized advanced statistical analysis and modeling to comprehensively determine the overall condition of the COR-TEN® lattice towers in a cost-efficient manner. The statistical analysis determined that inspection of 192 randomly selected COR-TEN® towers would provide a statistically significant representation of all 1,284 COR-TEN® towers on the PPL Electric system with a 90% confidence level and 5% confidence interval. To assist with the analysis, PPL Electric contracted with AmpJack, an independent consultant, to complete an inspection of 192 randomly selected COR-TEN® towers and classify the observed condition.

The inspection of 192 randomly selected COR-TEN® towers performed by AmpJack included a field-based visual overhead inspection of each structure from the ground, taking measurements of

[11] Each contractor was asked to inspect 5 structures and prepare an engineering analysis of their condition, proposed remediation approach and estimated costs to remediate the identified structural defects.

pack-out at each joint and section-loss at each member on the lower section of each structure, visual observations of pack-out and section loss for the higher sections of the towers, and visual observations of the damage at attachment points. The measured values of each joint and member rated according to guidelines provided by PPL Electric using both the measured and visual observations (A-Good, B-Fair, C-Poor, D-Severe and F-Priority). This approach is consistent with the method used by Osmose, an essential asset inspection service company, in grading steel structure corrosion in applications across the country. The results of the AmpJack overall structure ratings are summarized in Table 1-1 below:

**TABLE 1-1: Structure Rating Summary**

| Overall Structure Rating | | | |
|---|---|---|---|
| **Class** | **Condition** | Structure Count | Percent |
| **A** | **Good** | 0 | 0.0% |
| **B** | **Fair** | 0 | 0.0% |
| **C** | **Poor** | 95 | 49.5% |
| **D** | **Severe** | 88 | 45.8% |
| **F** | **Priority** | 9 | 4.7% |

The results of the 2020 inspection program confirmed the severity of deterioration identified during the 2019 inspection program as follows:

- Over 90% of the joints showed visible pack-out in the connections, which is anticipated to worsen over time.
- The protective patina needed to protect the steel from corrosion did not properly develop at numerous members resulting in section-loss across the entire structure.
- Pack-out damage was typically more prevalent on lower sections of the tower except for some specific attachment points where severe pack-out was observed on higher sections.
- Structural damage was found on several members from pack-out that ruptured bolts and split/deformed members.

The accelerated deterioration of the asset health of the COR-TEN® lattice towers that are the subject of the Project revealed by 2019 and 2020 inspection programs has been further corroborated by a recent study prepared by RTR Energy Solutions, Inc. ("RTR") in March 2022. RTR was contracted to perform a condition assessment on the Stanton-Summit #3 and #4 230 kV Transmission Lines. The assessment consisted of all 46 COR-TEN® lattice towers on this line. The scope of the assessment included a visual inspection of each selected structure from the ground. Each joint of the structure was reviewed to determine if pack rust was present. The structure condition was noted as either Mild, Moderate or Severe using the following classification:

- **Mild** Condition Rating: <25% of total joints contain pack rust.
- **Moderate** Condition Rating: >25% & <50% of total joints contain pack rust.
- **Severe** Condition Rating: >50% of total joints contain pack rust.

A summary of the results of the inspection are represented in Table 1-2 below:

**TABLE 1-2: Structure Condition Rating Summary**

| **Condition** | Structure Count |
|---|---|
| **Mild** | 0 |
| **Moderate** | 40 |
| **Severe** | 6 |
| **Total** | 46 |

Out of the 40 structures classified as "moderate", the average percentage of total joints containing pack rust is approximately 46%. This shows that the average structure that is classified as moderate in the assessment is very close to being considered "severe" and the condition of the structures on the line are overall more severe.

The majority of pack rust observed on each structure was found in the lower sections of the post leg where horizontal and diagonal members are bolted to the post leg. However, pack rust was observed in joints all the way up some towers. This assessment shows that the asset health conditions observed in the system-wide assessment are being exhibited on the specific structures targeted for replacement by the Project.

Based on the results of the inspection programs described above, it is clear that the poor performance of the protective patina on the COR-TEN® lattice towers has accelerated the deterioration of these structures and has brought the assets to the end of their service life much sooner than would have been anticipated. At roughly 53 years of age, the COR-TEN® lattice towers that comprise the Stanton-Summit #3 and #4 230 kV Transmission Lines have exceeded their useful life and can no longer be relied upon to safely operate as designed. The proposed rebuild addresses the safety issues resulting from the presence of pack-out rust (e.g., structures failing due to deteriorated joints at the arms or legs). Possible shearing of bolts, members disconnecting from lattice towers, or complete tower failure pose a major safety risk to both the public and PPL Electric employees. PPL Electric has determined that it must address these safety risks now, rather than at a later date, in order to avoid these risks increasing.

These asset health concerns are also important as the Stanton-Summit #3 and #4 230 kV Transmission Lines are a critical component of PPL Electric's Bulk Transmission System and are required to serve local load to several critical customer facilities. If these transmission lines were to fail due to COR-TEN® issues, the following reliability issues would likely occur:[12]

**A) Failure of the Stanton-Summit #3 and #4 230 kV Transmission Lines and:**

- The next contingency loss of the Summit – Lackawanna #1 & #2 230 kV Transmission Lines would result in the loss of the Summit substation. This will result in up to 175 mega-watts ("MW") of load drop resulting in approximately 34,968 customers losing service. Critical facilities including Williams 605 Pumping Station and Metropolitan Insurance will be impacted by this outage. This would result in all PPL Electric distribution substation load on the west side of Scrantonarea being removed from service.

[12] In general, 230kV BES lines do not have a direct contribution to traditional IEEE 1366 metrics (i.e., SAIFI, SAIDI and CAIDI) since a single line outage should not cause customer outages. The 5-year history on this line has no contribution to those metrics and it should remain that way after completion of the rebuild. However, as stated in the Letter of Notification, the lines are in poor condition and if not addressed will ultimately fail. The decision to rebuild the transmission line is based on the condition of the COR-TEN® towers and not previous or future operational performance or its impact on customer outages. Transmission lines must be addressed prior to entering failure mode. The BES would experience unnecessary additional outages and customers would experience additional maintenance costs if PPL Electric allowed the transmission lines to enter failure mode before PPL Electric rebuilds the lines.

Additionally, there is a need to consider how changing weather patterns will impact the reliability of the existing COR-TEN® 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 COR-TEN® pack-out and section loss, wind events create an increased risk of structural failure. With projected increases of more frequent and intense heat waves over the next century in the Northeast, the occurrence of more severe wind and precipitation events is expected to rise as well. This is evident in the storms associated with Hurricane Ida that hit the Northeast in 2021, as a storm of that strength would have been rare decades ago. Due to drastic weather pattern changes, it is imperative to re-evaluate the COR-TEN® structures in the safest and most reliable way to protect against the pack rust issue in the joints of the structures and guard the transmission system from catastrophic failures of COR-TEN® towers.

At the October 2020 PJM TEAC meeting,[13] PPL Electric presented its plan to address COR-TEN® needs on the 230 kV system. As part of this plan, PPL Electric also shared the need with PJM stakeholders to address COR-TEN® towers on the Stanton-Summit #3 and #4 230 kV Transmission Lines (need # PPL-2020-0006). The need # PPL-2020-0006 will be addressed by the Stanton-Summit #3 and #4 230 kV Transmission Line rebuild under supplemental project s2367, which will be completed at an estimated cost of $36.8 Million.

## 5.0 ALTERNATIVES

PPL Electric evaluated three potential solutions to address the degrading health of the Stanton-Summit #3 and #4 230 kV Transmission Lines. The following three 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[14]:

[13] Refer to slides at https://www.pjm.com/~/media/committees-groups/committees/teac/2020/20201006/20201006-item-09-ppl-supplemental.ashx

[14] PPL Electric is providing this comparison based upon a 45-year cost of service basis, due to the Commission's routine data requests for a 45-year cost of service analysis in prior Letter of Notification proceedings. PPL Electric notes that it does not utilize a stand-alone cost of service calculation for individual projects, and does not prepare a cost of service analysis for rebuild projects in its regular course of business. However, PPL Electric has prepared this

- (1) Alternative 1 – Replace all structures on the Stanton-Summit #3 and #4 230 kV Transmission Lines;

- (2) Alternative 2 – Remediate all structures on the Stanton-Summit #3 and #4 230 kV Transmission Lines; and

- (3) Alternative 3 – Full Rebuild of the Stanton-Summit #3 and #4 230 kV Transmission Lines ("Proposed Solution").

The Proposed Solution is necessary to address the COR-TEN® asset health condition described above. Although PPL Electric evaluated replacement and remediation options, these alternatives present substantial uncertainties regarding their immediate and long-term effectiveness to address the COR-TEN® issue. As explained herein, the health and safety risks associated with the assets' advanced age and degree of deterioration are so great that replacement and remediation would fail to adequately address their poor health conditions. For these reasons, the replacement and remediation alternatives were rejected as 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.[15] A summary of this analysis is presented in Table 1-3 below. Based upon this analysis, PPL Electric determined that Alternative 3 – Full Rebuild most efficiently addresses the asset health conditions of the Stanton-Summit #3 and #4 230 kV Transmission Lines. Therefore, as explained in Section 6.0, PPL Electric has proposed Alternative 3 as the Proposed Solution in this proceeding.

---

line-specific calculation in anticipation of data requests from the Commission. PPL Electric used its current transmission rate for these calculations and notes that it cannot predict what its transmission rate will be in the future. PPL Electric's transmission rate, and the associated calculations, are subject to change. Furthermore, PPL Electric submits that it is reasonable and appropriate to consider the 75-year cost of service for this project, as the expected life of the steel structures at issue is 75 years.

[15] Because all COR-TEN® lattice structures on the system are of a similar design and vintage, doing the cost of service calculation on a per structure basis allows for a determination of the most cost effective option for any COR-TEN® structure on the system regardless of the total line length. It is assumed that the cost of service calculation could be extrapolated across the total number of structures on a given line with a similar result. The revenue requirement is the total cost that the customers would be charged based on calculations that include a combination of operations and maintenance ("O&M") expense, depreciation, and return on capital.

### 5.1 Alternative 1 – Structure Replacement

The first alternative considered by PPL Electric to address the poor health condition of the weathering steel COR-TEN® lattice towers on these lines was to replace each of the lattice structures. This alternative would include replacing the existing weathering-steel lattice towers with new standard monopole structures. The estimated replacement cost is approximately $647,243/structure. This option would also require PPL Electric to replace the existing conductors with new conductors in 2026 when it has reached its end-of-life at an additional cost of $256,402/structure. In addition, there would be ongoing Operations and Maintenance ("O&M") costs for the remainder of the service life of the transmission lines.

### 5.2 Alternative 2 – Structure Remediation

The second alternative considered by PPL Electric to address the poor health condition of the weathering steel COR-TEN® lattice towers on these lines was to remediate the entire lattice tower line, which would include replacing badly damaged members with galvanized steel members, installing new hardware and spacers, and cleaning pack-out from affected joints. The average estimated cost of remediation is approximately $200,943/structure. This alternative was rejected by PPL Electric due to substantial uncertainties regarding its immediate and long-term effectiveness to address the COR-TEN® issue.[16] Although remediation could extend the life of the structures, it would, at a minimum, require re-evaluation and possible subsequent remediation every 10 years following the initial remediation. 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.

Subsequent remediation work would be treated as an O&M expense. However, after 30 years, the structures will have to be replaced with new structures. Further, remediation would not address all underlying issues which, in turn, would ultimately requiring additional, duplicative projects.

[16] The contractors that provided the cost estimate have never performed a full weathering-steel COR-TEN® lattice tower remediation before. And, moreover, it is PPL Electric's understanding that complete remediation of COR-TEN® lattice towers has never been undertaken by another electric utility. Given the lack of industry experience with remediation, PPL Electric cannot adequately benchmark the efficacy and costs of this alternative. Rebuilding the subject transmission lines, as proposed by the Project, would avoid these potential unknown risks and costs.

For the reasons stated above, it is not reasonable or prudent to pursue Alternative 2. Remediation would fail to address the underlying COR-TEN® asset health conditions on a long-term basis and is a less cost-efficient option.

### 5.3 Alternative 3 – Full Rebuild

The third alternative considered by PPL Electric is to fully rebuild the existing Stanton-Summit #3 and #4 230 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 $799,353/structure.

Although the full rebuild cost per structure is higher than the replacement and remediation options, the revenue requirements over both a 45 and 75-year period[17] are lower (as shown in Table 1-3) due to lower O&M expense and fully replacing the affected structures (as opposed to attempting to add more useful life being added to those structures via remediation), which makes the rebuild a more cost-effective solution. Rebuilds are also less risky than remediation due to factors such as lack of remediation experience, lack of evidence for long-term remediation effectiveness, and risk of returning pack-out rust. The structure replacement option would continue to have ongoing O&M expense with the additional need to return in 2026 to reconductor the line for an additional $256,402/structure. When compared to the remediation or replacement options, the full rebuild option is more cost-effective, long-term, and presents lower risk, making it the best long-term solution.

[17] The $36.8 Million is the total estimated upfront cost of the Project, including design and construction. To evaluate total cost-of-service, the calculation must factor in all lifecycle costs associated with that asset over the analysis window (i.e., 45 years). The Project lifecycle costs include 1) annual depreciation expense over the 45-year window, 2) annual Return on Capital over the 45-year window, and 3) O&M expense for minor repairs at year 45. Those costs will make up the total revenue requirement that is entered annually on the FERC Form 1 formula rate.

**TABLE 1-3: Cost of Service of Evaluated Options**

| Project Scope | 45 Year Cost of Service ($M) | 75 Year Cost of Service ($M) |
|---|---|---|
| Replace Structures on Stanton-Summit #3 and #4 230 kV Transmission Lines | $125.8 | $150.9 |
| Remediate Structures on Stanton-Summit #3 and #4 230 kV Transmission Lines | $116.7 | $235.7 |
| Full Rebuild Stanton-Summit #3 and #4 230 kV Transmission Lines | $111.2 | $134.9 |

## 6.0 PROPOSED SOLUTION

To resolve COR-TEN® lattice tower health condition, PPL Electric proposes to rebuild the existing Stanton-Summit #3 and #4 230 kV Transmission Lines. All the COR-TEN® lattice structures as well as the conductors at the 46 locations will be replaced.

The Project will improve overall reliability, safety and system resiliency by resolving the asset health needs associated with COR-TEN® lattice tower replacement. The transmission line rebuild solution was deemed to be the most cost-effective solution to address these needs.

Importantly, the Proposed Solution also avoids excess costs and uncertainties surrounding the remediation solution contemplated in Alternative 2. As noted above, if PPL Electric were to remediate the existing COR-TEN® lattice towers, further routine inspections would be required to identify any new pack-out rust growth requiring additional corrective action. The remediation effort could provide a short-term extension of life, but ultimately these towers will still need to be replaced to permanently address the issue of pack-out rust since structural integrity of the COR-TEN® steel will become too compromised to remediate. In this regard, Alternative 2 does not represent an alternative that effectively addresses the structural issues associated with the COR-TEN® lattice towers. Moreover, PPL Electric is unaware of another project that has undergone

full weathering-steel COR-TEN® lattice tower remediation. As such, the recurring costs of remediation could be even greater than anticipated and are unlikely to successfully mitigate the risk. The Proposed Solution avoids these excess costs and uncertainties, efficiently rebuilds the transmission lines to ensure the continued provision of safe and reliable service, and resolves the additional reliability concerns identified above.

The approximate cost of the entire transmission line rebuild Project is $36.8 Million.

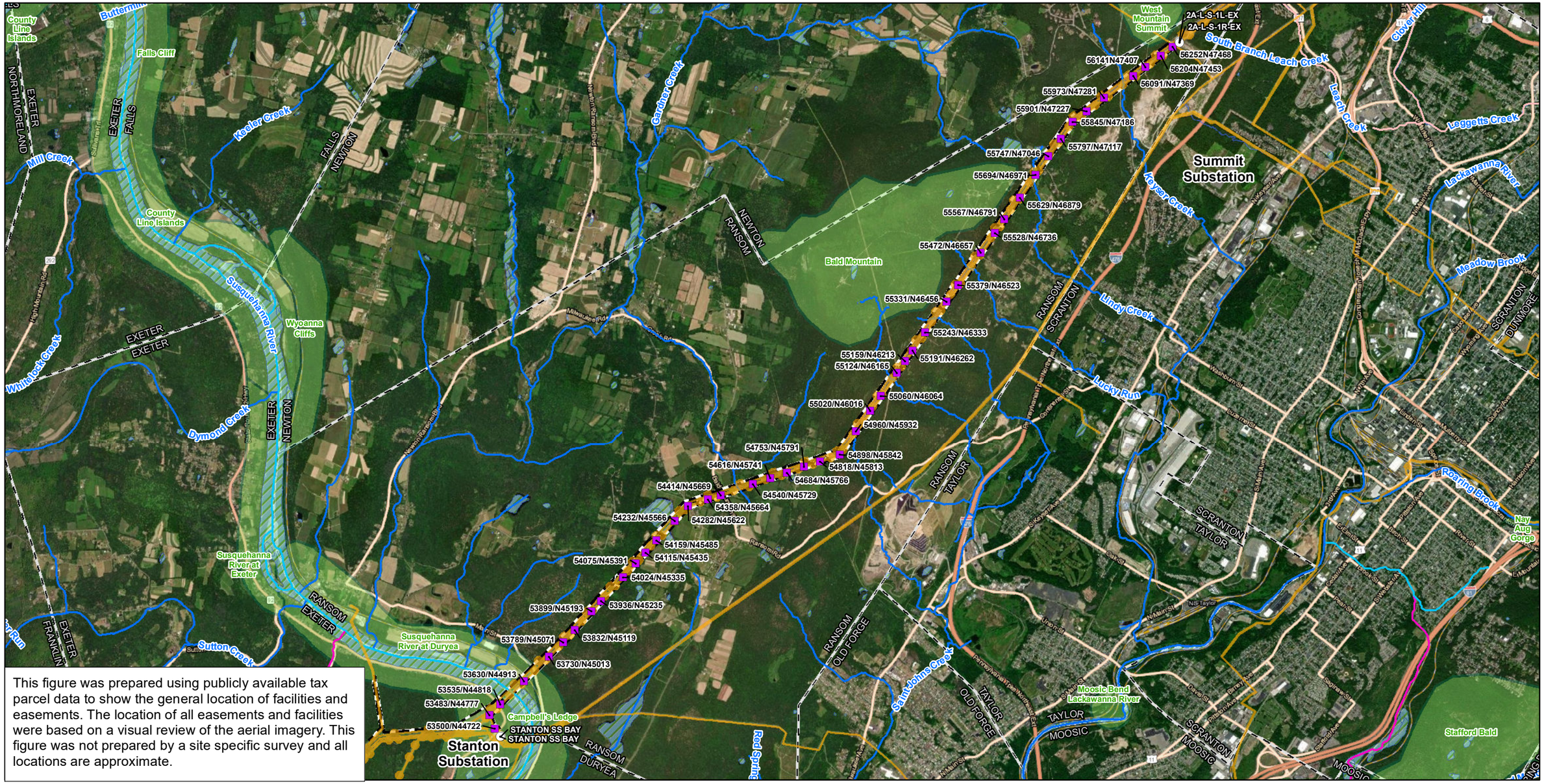
On a total cost of service basis, the Proposed Solution is approximately 88% of the cost of Alternative 1 (replacing each of the existing structures) on a 45-year basis and 95% of the cost of Alternative 1 on 75-year basis. In addition, on a total cost of service basis, the Proposed Solution is approximately 89% of the cost of Alternative 2 (remediating the existing structures) on a 45-year basis and 57% of the cost of Alternative 2 on 75-year basis.

As discussed in Section 4.2.1, above, the project scope (Supplemental Project Number s2367) to rebuild the Stanton-Summit #3 and #4 230 kV Transmission Lines was presented to PJM in the October 2020 TEAC meeting[18] to address the COR-TEN® asset health issues.

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

[18] Refer to slides 13 and 14 at https://www.pjm.com/~/media/committees-groups/committees/teac/2020/20201006/20201006-item-09-ppl-supplemental.ashx

**Figure 1-1: Existing System Configuration**




This figure was prepared using publicly available tax parcel data to show the general location of facilities and easements. The location of all easements and facilities were based on a visual review of the aerial imagery. This figure was not prepared by a site specific survey and all locations are approximate.

## Legend

- Existing Structure (To Remain)
- Existing Structure (To Be Replaced)
- PPL Electric ROW
- NWI Wetlands
- Natural Areas (Core Habitat)

**Existing Transmission Lines**

- 69 kV
- 230 kV
- 500 kV

**Chapter 93 Designated Use Stream**

- CWF
- HQ
- TSF
- WWF

**Notes:**

1. Existing structure locations and right-of-way were provided by PPL Electric in January 2022.

2. Existing Transmission Lines provided by PPL Electric in April 2019.

NAD 1983 State Plane
Pennsylvania North FIPS 3701
Projection: Lambert Conformal Conic
Linear Unit: US Foot

References:
Ch. 93 Designated Use Streams (PADEP 2022)
NWI Wetlands (2021)
Natural Areas (PNHP 2020)
Google Maps Satellite (2019)

0 2,000 4,000 8,000
Feet
1 inch = 4,000 feet

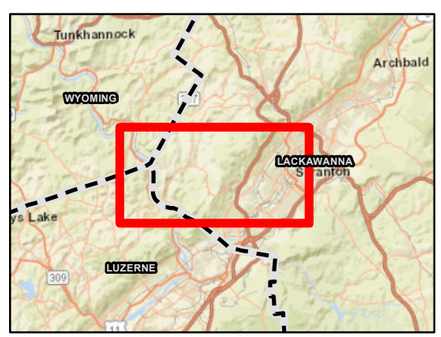



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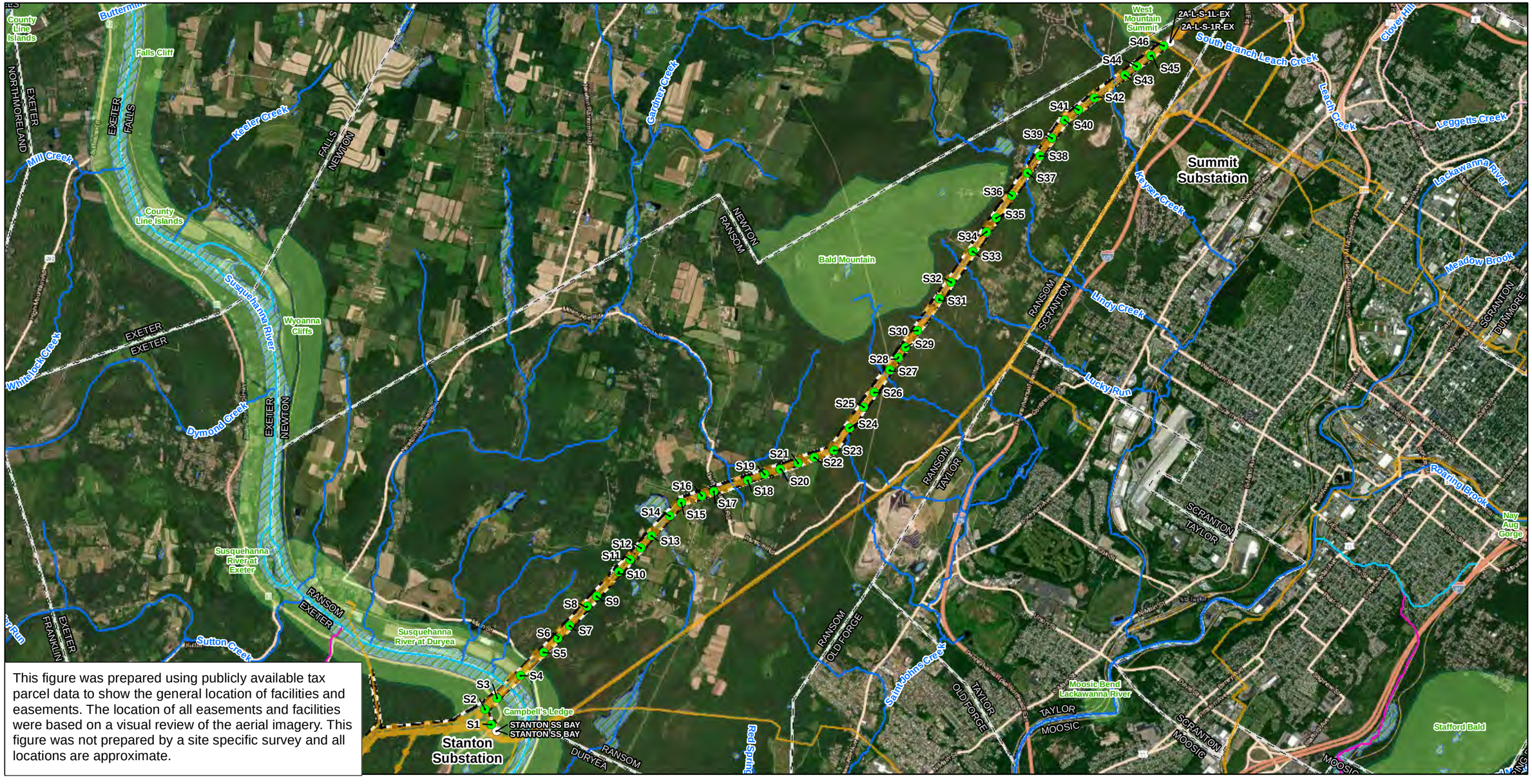
**FIGURE 1-1**
**Existing System Configuration**
**Stanton-Summit 230 kV**
**COR-TEN Rebuild Project**

**Lackawanna and Luzerne Counties, Pennsylvania**

**PPL Electric Utilities**
**Allentown, Pennsylvania**

| | |
|---|---|
| Prepared By: BSF | Checked By: DJY/BAB |
| Job: 60664608 | Date: 8/22/2022 |

**Figure 1-2: Proposed System Configuration**




This figure was prepared using publicly available tax parcel data to show the general location of facilities and easements. The location of all easements and facilities were based on a visual review of the aerial imagery. This figure was not prepared by a site specific survey and all locations are approximate.

## Legend

- Proposed Structure
- Existing Structure (To Remain)
- PPL Electric ROW
- NWI Wetlands
- Natural Areas (Core Habitat)

**Existing Transmission Lines**

- 69 kV
- 230 kV
- 500 kV

**Chapter 93 Designated Use Stream**

- CWF
- HQ
- TSF
- WWF

**Notes:**

1. Existing structure locations and right-of-way were provided by PPL Electric in January 2022.
2. Proposed structure locations were provided by PPL Electric in September 2022.
3. Existing Transmission Lines provided by PPL Electric in April 2019.

NAD 1983 State Plane
Pennsylvania North FIPS 3701
Projection: Lambert Conformal Conic
Linear Unit: US Foot

References:
Ch. 93 Designated Use Streams (PADEP 2022)
NWI Wetlands (2021)
Natural Areas (PNHP 2020)
Google Maps Satellite (2019)

0 2,000 4,000 8,000
Feet
1 inch = 4,000 feet

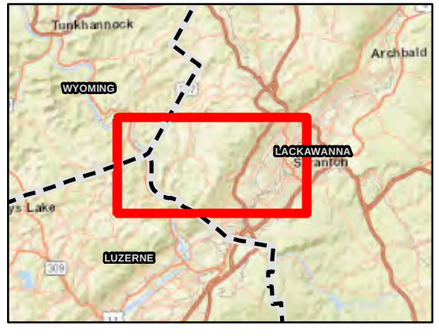



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**FIGURE 1-2**
**Proposed System Configuration**
**Stanton-Summit 230 kV**
**COR-TEN Rebuild Project**

**Lackawanna and Luzerne Counties, Pennsylvania**

**PPL Electric Utilities**
**Allentown, Pennsylvania**

| | |
|---|---|
| Prepared By: BSF | Checked By: DJY/BAB |
| Job: 60664608 | Date: 9/14/2022 |

# PPL ELECTRIC
# ATTACHMENT 2

# STANTON-SUMMIT #3 AND #4
# 230 KV COR-TEN® 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 the existing double-circuit Stanton-Summit #3 and #4 230 kV Transmission Lines connecting the Stanton 230 kV Substation ("Stanton Substation") and a two-pole turn structure (Structures 56275-N-47514(L)/56274-N-47518(R)) located approximately 1.4 miles north of the Summit 230-69 kV Substation ("Summit Substation") that are respectively located in Luzerne and Lackawanna Counties, Pennsylvania ("Project").

The proposed transmission line system 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 LINES AND STRUCTURES

Connection between the Stanton Substation and Summit Substation turn structures involves a 47.7-mile-long section of the double-circuit Stanton-Summit #3 and #4 230 kV Transmission Lines. The existing Stanton-Summit #3 and #4 230 kV Transmission Lines contain six 1590 kcmil[1], 45/7 stranding, "Lapwing" ACSR[2] conductor wires and two overhead ground wires ("OHGW") from the Stanton Substation to the Summit Substation turn structures. These conductor and ground wires are supported by a series of transmission line structures that include 46 COR-TEN® double-circuit steel lattice tower structures.

Due to the corrosion and development of pack rust[3] on these COR-TEN® lattice tower structures, PPL Electric proposes to replace them with double-circuit steel monopole structures. The COR-

[1] 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 mm².
[2] ACSR stands for aluminum conductor steel reinforced.
[3] "Pack-out rust" or "pack rust" is a form a localized corrosion typical of steel components that develop a crevice into an open atmospheric environment, which results in rust packing between conjoined steel components. As described in Attachment 1, pack-out rust accelerates the deterioration of asset health and can result in shearing off bolts, loss of structural integrity, members disconnecting from lattice towers, and tower failure.

TEN® lattice tower structures to be replaced extend consecutively between existing tower 53500-N-44772 (proposed Structure 66) located near the Stanton Substation and tower 56252-N-47468 (proposed Structure 119) located next to the Summit Substation turn structures. The Summit Substation turn structures will not be replaced but will be upgraded with new ground wires. A detailed map of the Project alignment is provided as **Figure 3-1 in Attachment 3**.

The existing COR-TEN® lattice tower structures range in height from between approximately 120 and 170 feet with an average structure height of approximately 144 feet. The proposed monopole structures for the Stanton-Summit #3 and #4 230 kV Transmission Lines will range in height from between approximately 110 and 175 feet with an average structure height of approximately 140 feet. **Table 2-1** provides a summary of the number and heights of the existing and proposed structures.

**Table 2-1: Existing and New Transmission Line Structures**

| Transmission Line | No. of Existing Structures | Existing Structure Height Range (feet) | Proposed No. of New Structures | Proposed Structure Height Range (feet) | Applicable Framing/ Specifications |
|---|---|---|---|---|---|
| STANTON-SUMMIT #3 and #4 230 kV | 46 | 120-170 | 46 | 110-175 | 7-009-061<br>7-009-062<br>7-009-064 |
| **Total** | **46** | | **46** | | |

**Figures 2-1** and **2-2** depict typical structure types that will be used for the Stanton-Summit #3 and #4 230 kV Transmission Lines, which include the following:

- Install approximately 31 new double-circuit long span suspension structures (**Figure 2-1)**.
- Install approximately two new double-circuit long span angle suspension structures **(Figure 2-2**), and
- Install approximately 13 new double-circuit long span angle tension structures **(Figure 2-3**).

The proposed Stanton-Summit #3 and #4 230 kV Transmission Lines will consist of 46 new monopole structures. The new monopole structures will be offset approximately 10 feet off center from the existing COR-TEN® lattice towers as a safety precaution. This lateral shift will move the Stanton-Summit #3 and #4 230 kV Transmission Lines to the north and slightly closer to the existing 500 kV structures that share the 325-foot-wide right-of-way ("ROW") corridor that

extends through the Project area from the Stanton Substation to the Summit Substation turn structures. PPL Electric has designed the proposed transmission line system so that it fits entirely within the existing ROW. The proposed Stanton-Summit #3 and #4 230 kV Transmission Lines will consist of six 1590 kcmil, 54/19 stranding, "Falcon" ACSS[4] conductors. The two OHGW will be removed and be replaced with 48 fiber optical ground wires ("OPGW"). The minimum conductor-to-ground clearance will be 25.5 feet which occurs at the emergency maximum thermal conductor temperature of 250°C (482°F). The design minimum conductor clearances and conductor thermal ratings for the reconstructed lines are noted in **Tables 2-2 and 2-3**.

**Table 2-2: Design for Minimum Conductor Clearance for 1590 kcmil 54/19 Stranding ACSS**

| Condition | Transmission Double-Circuit Design Clearance-to-Ground |
|---|---|
| PPL Heavy Ice (1" ice, 32°F) | 25.5' |
| Max Operating Temperature (250°C / 482°F) | 25.5' |
| PPL Blowout (15psf, 60°F) | 25.5' |

**Table 2-3: Conductor Thermal Rating 1590 kcmil 54/19 Stranding Falcon ACSS – 200°C Normal Maximum Conductor Temperature (250°C Emergency)**

| Condition | Ambient Temperature (°C) | Wind Speed (Ft./sec) | Ampacity (Amps) |
|---|---|---|---|
| Summer Normal | 35 | 0 | 2344 |
| Winter Normal | 10 | 0 | 2506 |
| Summer Emergency | 35 | 2.53 | 3074 |
| Winter Emergency | 10 | 2.53 | 3201 |

[4] ACSS stands for aluminum conductor steel supported

**Figure 2-1: Typical 230 kV Long Span Double-Circuit Steel Pole Structure**

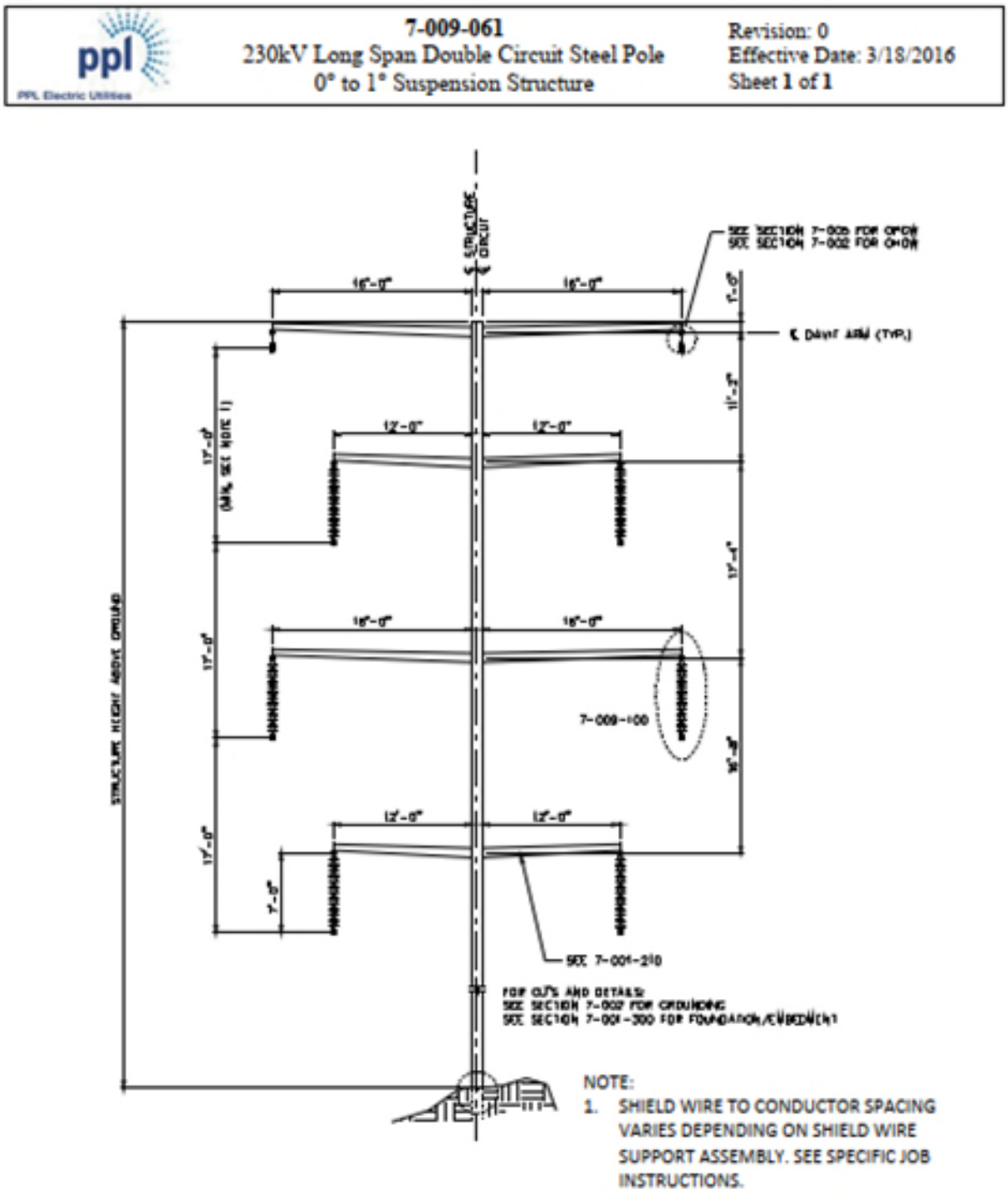
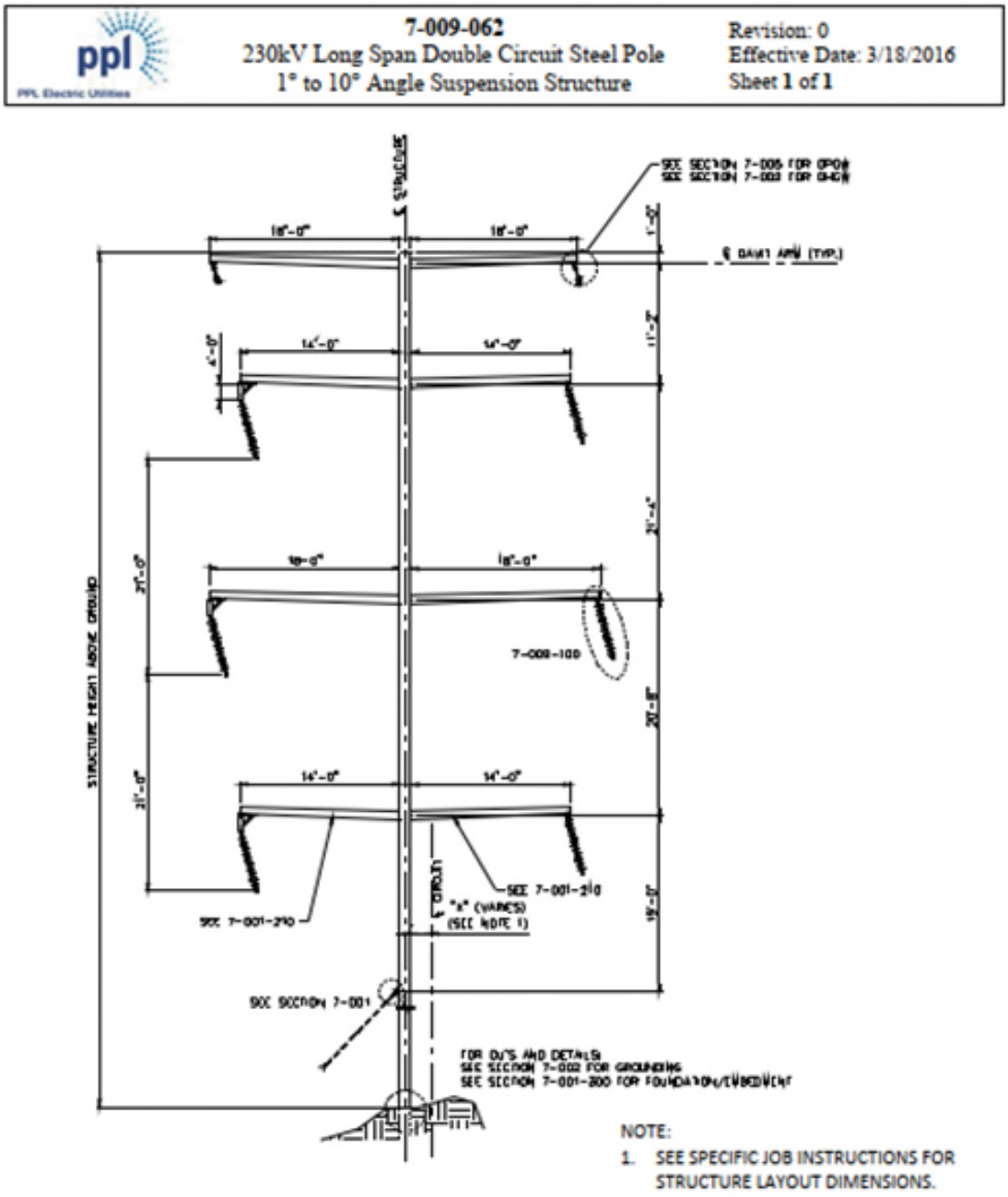
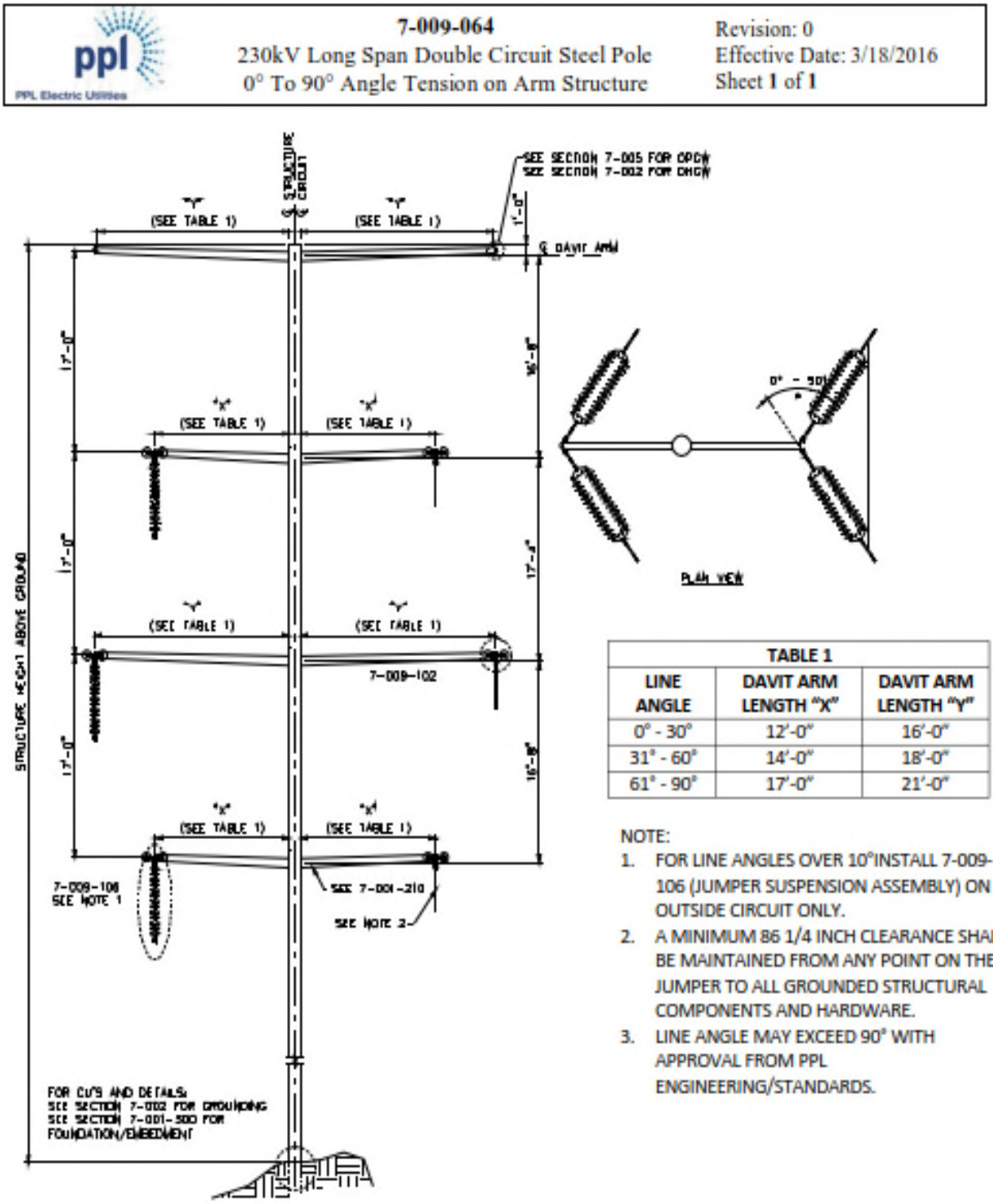


**Figure 2-2: Typical 230 kV Long Span Double-Circuit Steel Pole Angle Suspension Structure**




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

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




| 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.

# PPL ELECTRIC
# ATTACHMENT 3

# STANTON-SUMMIT #3 AND #4
# 230 kV COR-TEN® 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 7.7 miles of the existing double-circuit Stanton-Summit #3 and #4 230 kV Transmission Lines connecting the Stanton 230 kV Substation ("Stanton Substation") and a two-pole turn structure (Structures 56275-N-47514(L)/56274-N-47518(R)) located approximately 1.4 miles north of the Summit 230-69 kV Substation ("Summit Substation") that are respectively located in Luzerne and Lackawanna Counties, Pennsylvania ("Project").

The rebuilt double-circuit Stanton-Summit #3 and #4 230 kV Transmission Lines will be on the same structure alignment and in the same right-of-way ("ROW") as the existing transmission lines. The centerline alignment, however, is being shifted approximately 10-feet to the north toward the center of the ROW to account for construction safety concerns. The existing ROW is approximately 325 feet wide and contains another PPL Electric-owned transmission line that parallels the northern side of the Stanton-Summit #3 and #4 230 kV Transmission Lines. The Project will require the replacement of 46 existing structures that will be constructed entirely within the existing ROW. 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 double-circuit Stanton-Summit #3 and #4 230 kV Transmission Lines and associated structures are provided in **Figure 3-1**.

From the Stanton Substation, the Project travels in a northeasterly direction across forested mountains and mixed agricultural and low-density residential areas before reaching the turn structures that lead into the Summit Substation as shown in **Figure 3-1**. The ROW for the Project is further described below:

- From the Stanton Substation, the Project will extend north approximately 0.2 miles (1,125 feet) over State Route 92 and open meadow to Structure S2 using two COR-TEN® structures that will be replaced with two long span angle tension monopole structures (7-009-064) (Sheet 1, Structures S1 and S2 in **Figure 3-1**). These structures are located entirely on ROW maintained by PPL Electric.

- From Structure S2, the Project turns to the northeast and extends 2.2 miles (11,640 feet) to Structure S15 (Sheets 1 to 4, Structures S3 to S15 in **Figure 3-1**). This segment spans State Route 92, the North Branch Susquehanna River, the Reading Blue Mountain and Northern Railroad, and Lower Narrows Road before extending upslope across a forested mountain to Ransom Road located near Structure S15. Starting with Structure S3, the thirteen COR-TEN® structures along this segment will be replaced with new structures that include seven long span suspension monopole structures (7-009-061), one long span angle suspension monopole structure (7-009-062), and five long span angle tension monopole structures (7-009-064). These structures are located entirely on ROW maintained by PPL Electric.
- From Structure S15, the Project turns to the east and extends for 1.25 miles (6,590 feet) to Structure S23 (Sheets 4 to 6, Structures S16 to S23 in **Figure 3-1**). This segment extends across predominantly agricultural lands that are bordered by low density residential development. Four local roads are spanned along the alignment. The eight COR-TEN® structures along this segment will be replaced with new structures that include five long span suspension monopole structures (7-009-061), one long span angle suspension monopole structure (7-009-062), and two long span angle tension monopole structures (7-009-064). These structures are located entirely on ROW maintained by PPL Electric.
- From Structure S23, the Project turns to the northeast and extends 3.05 miles (16,120 feet) to Structure S40 (Sheets 6 to 10, Structures S24 to S40 in **Figure 3-1**). This segment extends predominantly across the forested slopes of Bald Mountain but does span two local roads that are bordered by low density residential development closer to Structure S40. The seventeen COR-TEN® structures along this segment will be replaced with new structures that include fifteen long span suspension monopole structures (7-009-061) and two long span angle tension monopole structures (7-009-064). These structures are located entirely on ROW maintained by PPL Electric.
- From Structure S40, the Project turns to the east and extends 1.00 miles (5,420 feet) to the turn structures to Summit Substation (Sheets 10 and 11, Structures S41 to S46 in **Figure 3-1**). This segment continues across the forested slopes of Bald Mountain that is bisected by one local road and also consists of active quarry operations. The six COR-TEN® structures along this segment will be replaced with new structures that include five long span suspension monopole structures (7-009-061) and one long span angle tension

monopole structures (7-009-064). These structures are located entirely on ROW maintained by PPL Electric.

## 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 miles (1,320 feet) of the ROW ("Project Area"). This broader Project Area was reviewed to provide a sense of the landscape in which the Project is located. Based on review of the 2021 National Land Cover Data ("NLCD"), land use in the Project Area is approximately 90% forested with the remaining 10% comprised of mixed agricultural and residential areas that are crossed at intersections with local roads.

The Project spans the Reading Blue Mountain and Northern Railroad, which parallels the eastern side of the North Branch Susquehanna River near the Stanton Substation. Two Buckeye Partners product pipelines are also crossed east of Ransom Road in the central portion of the Project. Two communication towers that are also located in the central portion of the Project are located within one mile of the alignment. Access roads to these facilities are spanned by the Project. The Project does not cross other electrical utility ROW's but does parallel the PPL Electric Susquehanna-Roseland 500 kV Transmission Line for the entire length of the Project.

The closest active airports relative to the Project Area are the Wilkes-Barre Scranton International Airport, which is approximately five miles to the south of the Stanton Substation, and the Wilkes-Barre Wyoming Valley Airport, located approximately six miles to the southwest. PPL Electric does not anticipate any interference with airport operations because the Project is located in an area where there are existing electrical facilities. However, PPL Electric will comply with any applicable requirements of the Federal Aviation Administration and the Pennsylvania Department of Transportation, Bureau of Aviation.

***Conserved Lands***

The proposed Project will not affect any national parks, state parks, local parks, recreational areas, or natural landmarks. None of these features are located within the Project Area. Review of the National Conservation Easement Database and PA Conserved Lands websites notes that no conserved lands are crossed by the Project.

## 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. No State Historic Preservation Office ("SHPO") listed or eligible properties are crossed by the Project but the Bedell-Courtright Farmstead (SHPO resource Number 2011RE00513) borders the north side of the ROW along Ransom Road in the central portion of the Project Area. No effect to this resource is anticipated by the proposed Project activities.

PPL Electric is in the initial stage of coordination with the PHMC for the modifications being made to the transmission lines. This coordination will be required to receive permits to construct the Project and will be conducted in the near future. PPL Electric does not anticipate any impacts to SHPO eligible properties or any other PHMC related properties. PPL Electric will perform any reviews and field survey/sampling work required by the PHMC to avoid, 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***

No unique geological, scenic, or natural areas are located within the Project Area, according to the Pennsylvania Department of Conservation and Natural Resources ("PDCNR").

***Soils***

The Project traverses over mountains and crosses along hillsides and plateau ridges with topography ranges from approximately 600 feet above sea level ("abs") at the Stanton Substation to approximately 1,920 feet abs at the mountain summits near the turn structures to Summit Substation. The soils present within the Project Area consist of very stony to channery loams, silt loams, and rock outcrops found on moderate to steeply sloped mountain, hillside, and plateau ridge landforms.

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 local county conservation districts. National Pollutant Discharge Elimination System ("NPDES") permits 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***

The existing transmission lines span eight National Hydrography Dataset waterways that will remain in place after the Project construction activities have occurred. The waterways crossed by the Project include the North Branch Susquehanna River, Saint John's Creek, Lucky Run, Lindy Creek, Keyser Creek and several tributaries to these features. These waterways are located in the Obendoffers Creek-Susquehanna River Watershed (HUC-02050106409), the Lackawanna River-Susquehanna River Watershed (HUC-020501070110), and the City of Scranton-Lackawanna River Watershed (HUC-020501070109). The North Branch Susquehanna River has a PADEP Chapter 93 Designated Use of Warm Water Fishes, Migratory Fishes ("MF") and all of the remaining waterways have a Designated Use of Cold-Water Fishes; MF. Lucky Run is also classified as a Wild Trout (Natural Reproduction) stream by the Pennsylvania Fish and Boat Commission ("PFBC"). No direct impacts to these waterway features are anticipated by the Project activities.

An E&S control plan will be developed to address stormwater control in all watershed areas crossed by the Project. PPL Electric will obtain all approvals and permits necessary for the construction of the Project and will comply with any conditions placed on those permits.

***Wetlands***

Based on review of the U.S. Fish and Wildlife Service's ("USFWS") National Wetlands Inventory ("NWI"), the Project crosses one Palustrine Emergent (PEM1/SS1E) and one Palustrine Scrub-Shrub (PSS1/EM1) wetland complex and eight waterways classified as Riverine Unknown Perennial (R5UBH) stream habitats. The Project also spans the North Branch Susquehanna River which is classified as a Riverine Lower Perennial (R2UBH) waterway. No impacts to these NWI features are anticipated by the proposed Project activities.

The NWI only provides a general overview of the potential wetlands that may be located within an area. For federal and state permitting purposes, the wetlands and waterways within the Project Area have been delineated, surveyed, and illustrated according to regulatory standards. This information is being used to minimize wetland and waterway impacts where feasible. Additionally, PPL Electric will avoid impacts to wetlands and waterways where possible by aerially spanning these features.

***100-year Floodplains***

The National Flood Hazard Layers for Luzerne and Lackawanna Counties, Pennsylvania were obtained through the Federal Emergency Management Agency ("FEMA") Flood Map Service Center website and analyzed for 100-year floodplains within the Project Area and surrounding landscape. Based on review of this data, the Project Area is within the FEMA 100-year floodplain bordering the North Branch Susquehanna River. No impacts to this floodplain area are anticipated by the proposed Project activities.

### *Vegetation*

Vegetative cover in the Project Area consists almost entirely of forested habitat. Several areas of forest clearing, agricultural use, and rural residential development are present based on aerial imagery. The existing ROW areas for the transmission line has previously been cleared of woody vegetation and no extensive tree clearing is anticipated on most of those lines. 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

### *Natural Areas Inventory*

Based on review of the *Natural Areas Inventory of Luzerne County, Pennsylvania*, published by The Western Pennsylvania Conservancy in 2006, and the *Natural Areas Inventory of Lackawanna County, Pennsylvania,* published by The Nature Conservancy in 2003, the Project is located within the Susquehanna River at Duryea natural area and adjacent to the Bald Mountain natural area. The Susquehanna River at Duryea natural area is located in Luzerne and Lackawanna Counties and consists of aquatic and riparian habitats along the Susquehanna River corridor that support two species of concern. The Bald Mountain natural area is located in Lackawanna County and includes a Ridgetop Dwarf-Tree Forest Natural Community and an Acidic Rocky Summit Natural Community as well as habitat for four plant species of concern.

### *Threatened and Endangered Species*

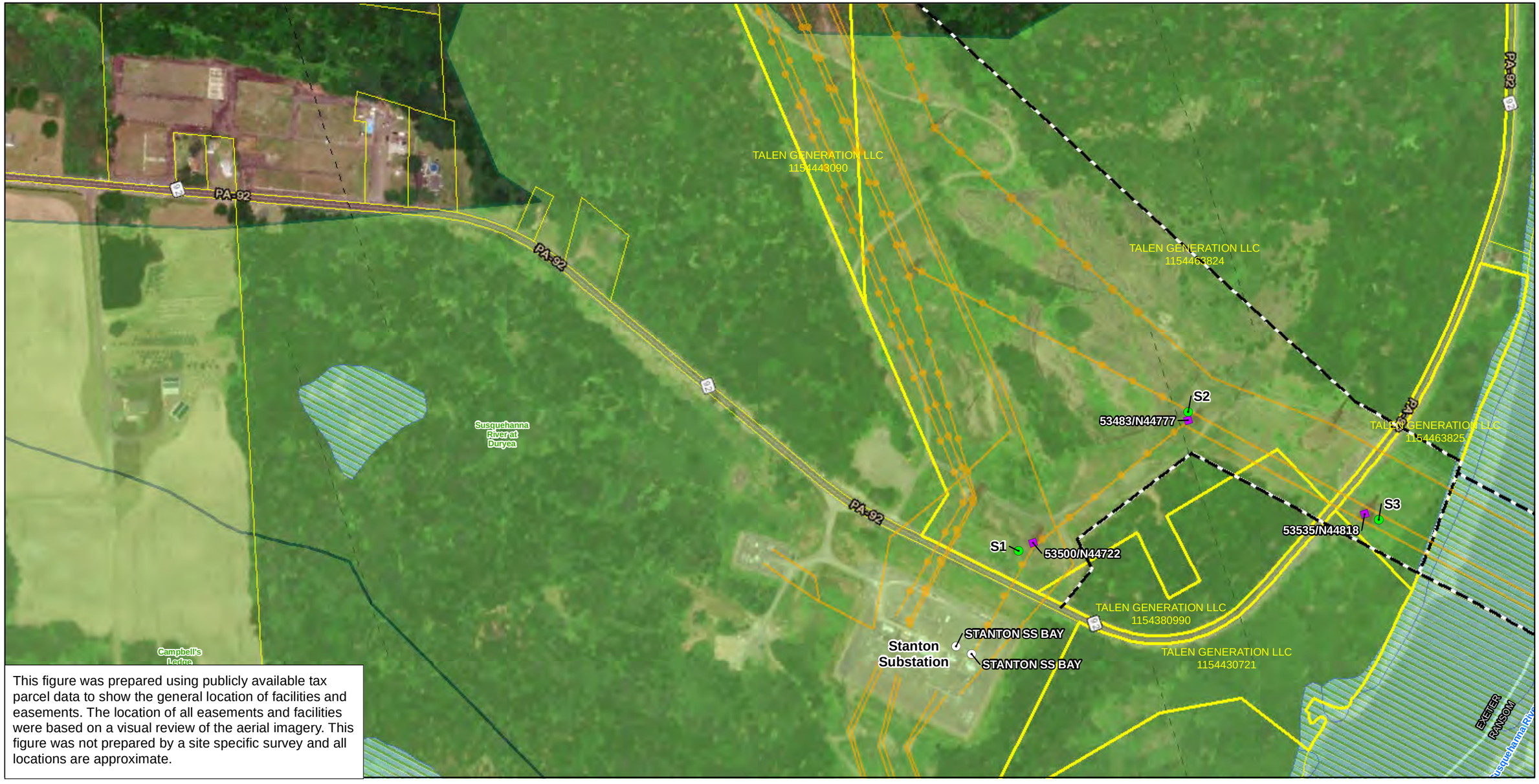
A Pennsylvania Natural Diversity Inventory was run for the Project on October 8, 2021, to assess the potential presence of threatened and endangered species and/or special concern species. Specific agencies reviewing the Project included the following:

- Pennsylvania Game Commission,
- PFBC,
- PDCNR, and
- USFWS.

PDCNR is the only agency that responded with potential threatened and endangered species concerns within the Project Area. Surveys for the identified plant species of concern were conducted in spring and fall 2022. The specific plant species identified by PDCNR were not found in the Project Area, but a different plant species of concern was found in a location that will not be affected by Project activities. PPL Electric will continue to consult with the PDCNR regarding avoidance of this protected species.

PPL Electric will 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**




This figure was prepared using publicly available tax parcel data to show the general location of facilities and easements. The location of all easements and facilities were based on a visual review of the aerial imagery. This figure was not prepared by a site specific survey and all locations are approximate.

## Legend

- Proposed Structure
- Existing Structure (To Remain)
- Existing Structure (To Be Replaced)
- PPL Electric ROW
- NWI Wetlands
- Natural Areas (Core Habitat)
- Parcel Boundary

**Existing Transmission Lines**

- 69 kV
- 230 kV
- 500 kV

**Chapter 93 Designated Use Stream**

- WWF

**Notes:**

1. Existing structure locations and right-of-way were provided by PPL Electric in January 2022.

2. Proposed structure locations were provided by PPL Electric in September 2022.

3. Existing Transmission Lines provided by PPL Electric in April 2019.

NAD 1983 State Plane
Pennsylvania North FIPS 3701
Projection: Lambert Conformal Conic
Linear Unit: US Foot

References:
Ch. 93 Designated Use Streams (PADEP 2022)
NWI Wetlands (2021)
Natural Areas (PNHP 2020)
Google Maps Satellite (2019)

0 150 300 600
Feet
1 inch = 300 feet


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**FIGURE 3-1**
**Aerial Map of the Project**
**Stanton-Summit 230 kV**
**COR-TEN Rebuild Project**
**Sheet 1 of 11**
**Lackawanna and Luzerne Counties, Pennsylvania**

**PPL Electric Utilities**
**Allentown, Pennsylvania**

| | |
|---|---|
| Prepared By: BSF | Checked By: DJY/BAB |
| Job: 60664608 | Date: 9/14/2022 |


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## Legend

- Proposed Structure
- Existing Structure (To Be Replaced)
- PPL Electric ROW
- NWI Wetlands
- Natural Areas (Core Habitat)
- Parcel Boundary

**Existing Transmission Lines**

- 230 kV
- 500 kV

**Chapter 93 Designated Use Stream**

- CWF
- WWF

**Notes:**

1. Existing structure locations and right-of-way were provided by PPL Electric in January 2022.
2. Proposed structure locations were provided by PPL Electric in September 2022.
3. Existing Transmission Lines provided by PPL Electric in April 2019.

NAD 1983 State Plane
Pennsylvania North FIPS 3701
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Linear Unit: US Foot

References:
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0 150 300 600
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**FIGURE 3-1**
**Aerial Map of the Project**
**Stanton-Summit 230 kV**
**COR-TEN Rebuild Project**
**Sheet 2 of 11**
**Lackawanna and Luzerne Counties, Pennsylvania**

**PPL Electric Utilities**
**Allentown, Pennsylvania**

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RED MILL HOLDINGS LLC
1227349453

DANIEL W DAVIES & J W BROWN
1227413487

JAMES W & SHERI L BROWN
1227350434

MARA DEQUEVEDO
1227413670

EDWARD J & CHERYL L KOVALIK
1227437665

S7
53832/N45119
S8
53899/N45193
53936/N45235
S9
54024/N45335
S10
S11
54075/N45391
54115/N45435
S12

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## Legend

- Proposed Structure
- Existing Structure (To Be Replaced)
- PPL Electric ROW
- NWI Wetlands
- Parcel Boundary

**Existing Transmission Lines**
- 230 kV
- 500 kV

**Chapter 93 Designated Use Stream**
- CWF

**Notes:**
1. Existing structure locations and right-of-way were provided by PPL Electric in January 2022.

2. Proposed structure locations were provided by PPL Electric in September 2022.

3. Existing Transmission Lines provided by PPL Electric in April 2019.

NAD 1983 State Plane
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References:
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NWI Wetlands (2021)
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Google Maps Satellite (2019)

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**FIGURE 3-1**
**Aerial Map of the Project**
**Stanton-Summit 230 kV**
**COR-TEN Rebuild Project**
**Sheet 3 of 11**
**Lackawanna and Luzerne Counties, Pennsylvania**

**PPL Electric Utilities**
**Allentown, Pennsylvania**

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## Legend

- Proposed Structure
- Existing Structure (To Be Replaced)
- PPL Electric ROW
- NWI Wetlands
- Parcel Boundary

**Existing Transmission Lines**

- 230 kV
- 500 kV

**Notes:**

1. Existing structure locations and right-of-way were provided by PPL Electric in January 2022.
2. Proposed structure locations were provided by PPL Electric in September 2022.
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NAD 1983 State Plane
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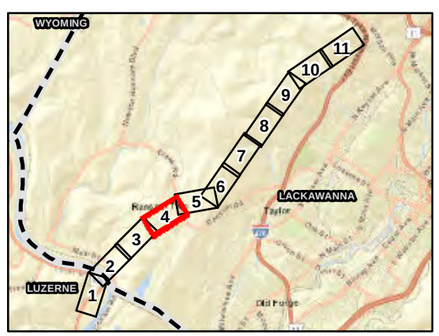


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**FIGURE 3-1**
**Aerial Map of the Project**
**Stanton-Summit 230 kV**
**COR-TEN Rebuild Project**
**Sheet 4 of 11**
**Lackawanna and Luzerne Counties, Pennsylvania**

**PPL Electric Utilities**
**Allentown, Pennsylvania**

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| Job: 60664608 | Date: 9/14/2022 |


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## Legend

- Proposed Structure
- Existing Structure (To Be Replaced)
- PPL Electric ROW
- NWI Wetlands
- Parcel Boundary

**Existing Transmission Lines**

- 230 kV
- 500 kV

**Chapter 93 Designated Use Stream**

- CWF

**Notes:**

1. Existing structure locations and right-of-way were provided by PPL Electric in January 2022.
2. Proposed structure locations were provided by PPL Electric in September 2022.
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NAD 1983 State Plane
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0 150 300 600
Feet
1 inch = 300 feet


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**FIGURE 3-1**
**Aerial Map of the Project**
**Stanton-Summit 230 kV**
**COR-TEN Rebuild Project**
**Sheet 5 of 11**
**Lackawanna and Luzerne Counties, Pennsylvania**

**PPL Electric Utilities**
**Allentown, Pennsylvania**

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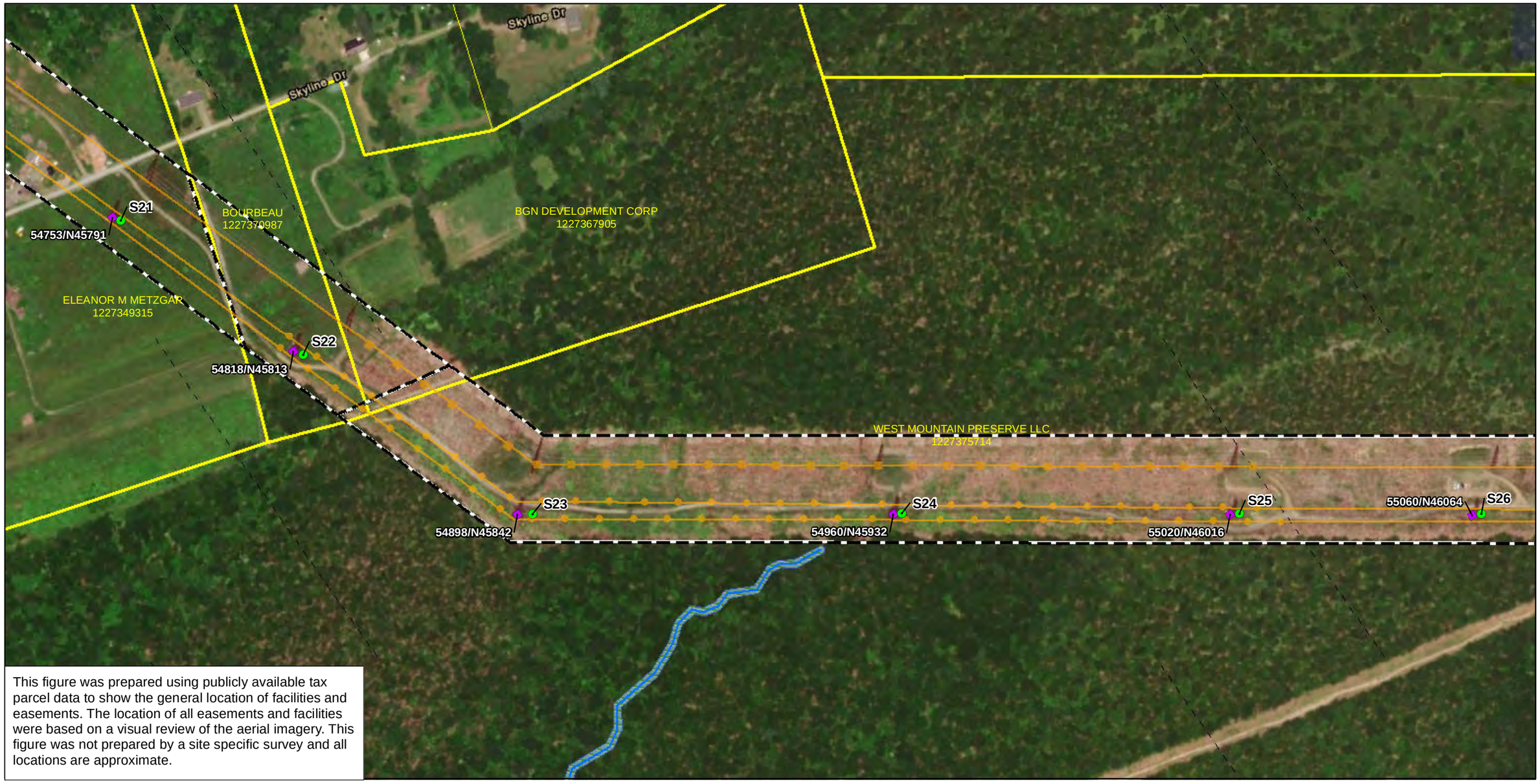
| Job: 60664608 | Date: 9/14/2022 |

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## Legend

- Proposed Structure
- Existing Structure (To Be Replaced)
- PPL Electric ROW
- NWI Wetlands
- Parcel Boundary

**Chapter 93 Designated Use Stream**

- CWF

**Existing Transmission Lines**

- 230 kV
- 500 kV

**Notes:**

1. Existing structure locations and right-of-way were provided by PPL Electric in January 2022.

2. Proposed structure locations were provided by PPL Electric in September 2022.

3. Existing Transmission Lines provided by PPL Electric in April 2019.

NAD 1983 State Plane
Pennsylvania North FIPS 3701
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Linear Unit: US Foot

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Natural Areas (PNHP 2020)
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0 150 300 600
Feet
1 inch = 300 feet


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**FIGURE 3-1**
**Aerial Map of the Project**
**Stanton-Summit 230 kV**
**COR-TEN Rebuild Project**
**Sheet 6 of 11**
**Lackawanna and Luzerne Counties, Pennsylvania**

**PPL Electric Utilities**
**Allentown, Pennsylvania**

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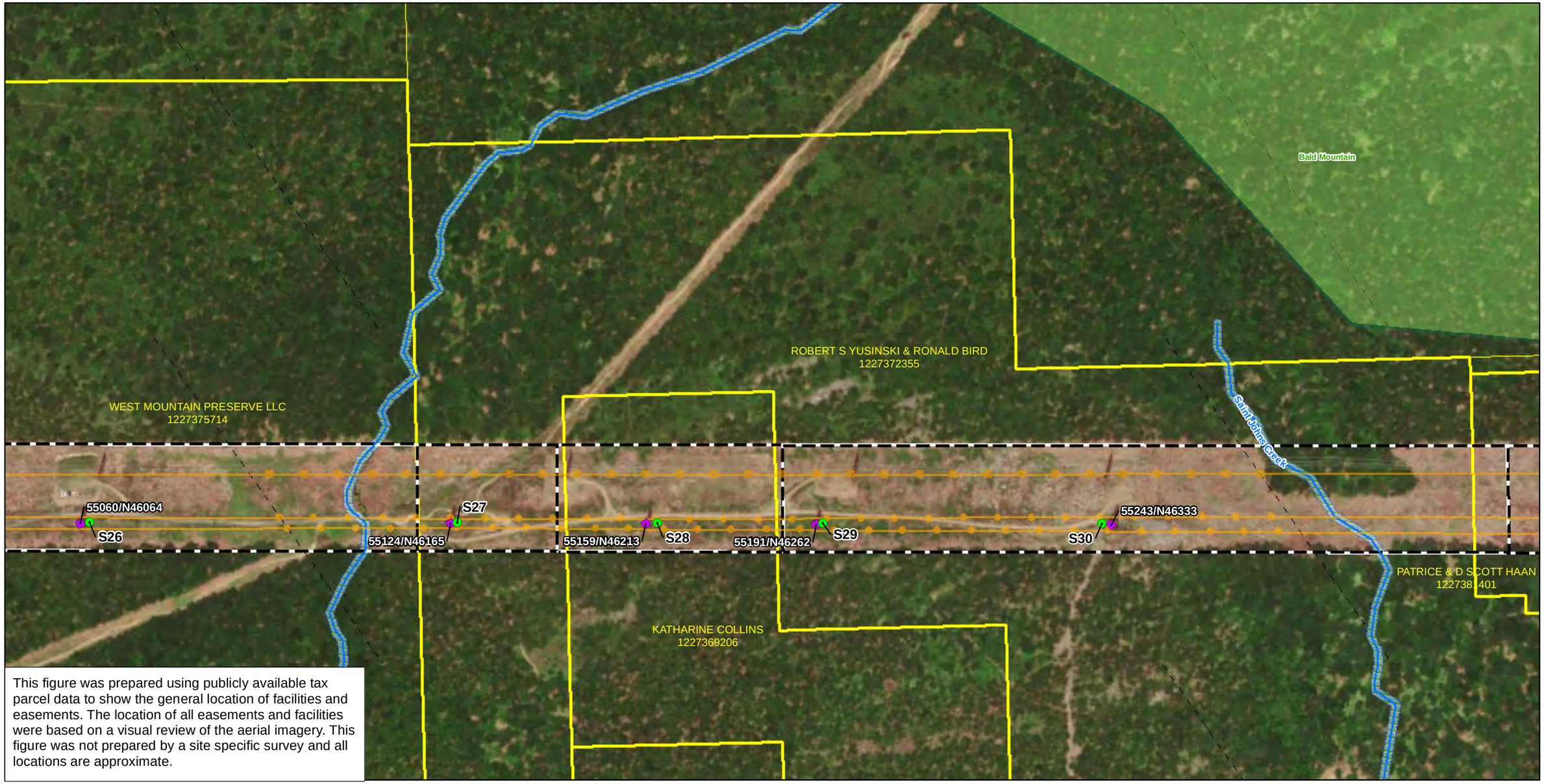


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## Legend

- Proposed Structure
- Existing Structure (To Be Replaced)
- PPL Electric ROW
- NWI Wetlands
- Natural Areas (Core Habitat)
- Parcel Boundary

**Chapter 93 Designated Use Stream**

- CWF

**Existing Transmission Lines**

- 230 kV
- 500 kV

**Notes:**

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3. Existing Transmission Lines provided by PPL Electric in April 2019.

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Linear Unit: US Foot

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Natural Areas (PNHP 2020)
Google Maps Satellite (2019)

0 150 300 600
Feet
1 inch = 300 feet


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**FIGURE 3-1**
**Aerial Map of the Project**
**Stanton-Summit 230 kV**
**COR-TEN Rebuild Project**
**Sheet 7 of 11**
**Lackawanna and Luzerne Counties, Pennsylvania**

**PPL Electric Utilities**
**Allentown, Pennsylvania**

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| Job: 60664608 | Date: 9/14/2022 |


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## Legend

- Proposed Structure
- Existing Structure (To Be Replaced)
- PPL Electric ROW
- NWI Wetlands
- Natural Areas (Core Habitat)
- Parcel Boundary

**Existing Transmission Lines**

- 230 kV
- 500 kV

**Chapter 93 Designated Use Stream**

- CWF

**Notes:**

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NAD 1983 State Plane
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Linear Unit: US Foot

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Natural Areas (PNHP 2020)
Google Maps Satellite (2019)

0 150 300 600
Feet
1 inch = 300 feet


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**FIGURE 3-1**
**Aerial Map of the Project**
**Stanton-Summit 230 kV**
**COR-TEN Rebuild Project**
**Sheet 8 of 11**
**Lackawanna and Luzerne Counties, Pennsylvania**

**PPL Electric Utilities**
**Allentown, Pennsylvania**

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## Legend

- Proposed Structure
- Existing Structure (To Be Replaced)
- PPL Electric ROW
- NWI Wetlands
- Natural Areas (Core Habitat)
- Parcel Boundary

**Existing Transmission Lines**

- 230 kV
- 500 kV

**Chapter 93 Designated Use Stream**

- CWF

**Notes:**

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NAD 1983 State Plane
Pennsylvania North FIPS 3701
Projection: Lambert Conformal Conic
Linear Unit: US Foot

References:
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Natural Areas (PNHP 2020)
Google Maps Satellite (2019)

0 150 300 600
Feet
1 inch = 300 feet


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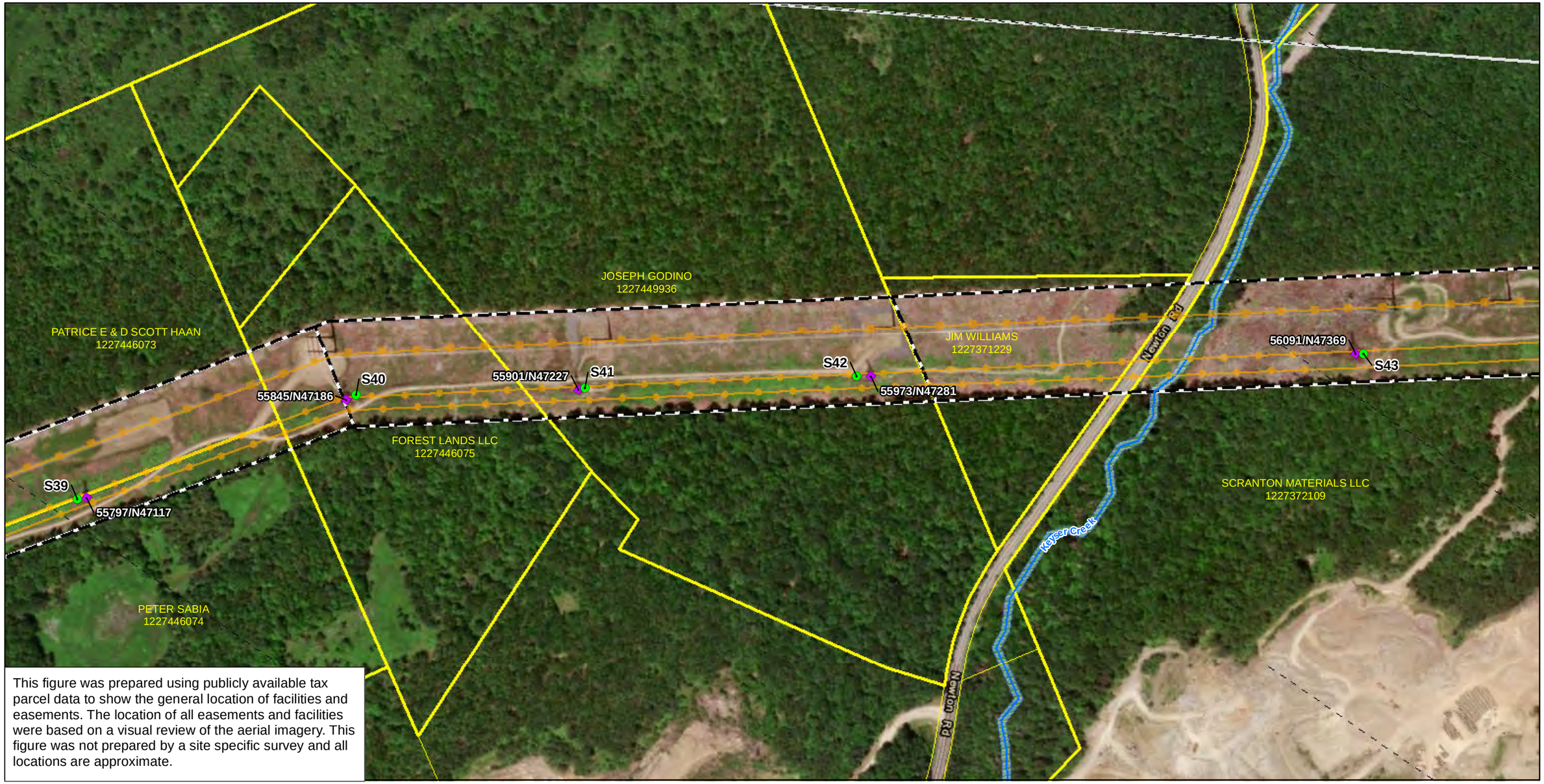
**FIGURE 3-1**
**Aerial Map of the Project**
**Stanton-Summit 230 kV**
**COR-TEN Rebuild Project**
**Sheet 9 of 11**
**Lackawanna and Luzerne Counties, Pennsylvania**

**PPL Electric Utilities**
**Allentown, Pennsylvania**

| | |
|---|---|
| Prepared By: BSF | Checked By: DJY/BAB |
| Job: 60664608 | Date: 9/14/2022 |

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## Legend

- Proposed Structure
- Existing Structure (To Be Replaced)
- PPL Electric ROW
- NWI Wetlands
- Parcel Boundary

**Existing Transmission Lines**

- 230 kV
- 500 kV

**Chapter 93 Designated Use Stream**

- CWF

**Notes:**

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2. Proposed structure locations were provided by PPL Electric in September 2022.

3. Existing Transmission Lines provided by PPL Electric in April 2019.

NAD 1983 State Plane
Pennsylvania North FIPS 3701
Projection: Lambert Conformal Conic
Linear Unit: US Foot

References:
Ch. 93 Designated Use Streams (PADEP 2022)
NWI Wetlands (2021)
Natural Areas (PNHP 2020)
Google Maps Satellite (2019)

0 150 300 600
Feet
1 inch = 300 feet


AECOM

**FIGURE 3-1**
**Aerial Map of the Project**
**Stanton-Summit 230 kV**
**COR-TEN Rebuild Project**
**Sheet 10 of 11**
**Lackawanna and Luzerne Counties, Pennsylvania**

**PPL Electric Utilities**
**Allentown, Pennsylvania**

| | |
|---|---|
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## Legend

- Proposed Structure
- Existing Structure (To Remain)
- Existing Structure (To Be Replaced)
- PPL Electric ROW
- NWI Wetlands
- Natural Areas (Core Habitat)
- Parcel Boundary

**Chapter 93 Designated Use Stream**

- TSF

**Existing Transmission Lines**

- 69 kV
- 230 kV
- 500 kV

**Notes:**

1. Existing structure locations and right-of-way were provided by PPL Electric in January 2022.
2. Proposed structure locations were provided by PPL Electric in September 2022.
3. Existing Transmission Lines provided by PPL Electric in April 2019.

NAD 1983 State Plane
Pennsylvania North FIPS 3701
Projection: Lambert Conformal Conic
Linear Unit: US Foot

References:
Ch. 93 Designated Use Streams (PADEP 2022)
NWI Wetlands (2021)
Natural Areas (PNHP 2020)
Google Maps Satellite (2019)

0 150 300 600
Feet
1 inch = 300 feet


AECOM

**FIGURE 3-1**
**Aerial Map of the Project**
**Stanton-Summit 230 kV**
**COR-TEN Rebuild Project**
**Sheet 11 of 11**
**Lackawanna and Luzerne Counties, Pennsylvania**

**PPL Electric Utilities**
**Allentown, Pennsylvania**

| | |
|---|---|
| Prepared By: BSF | Checked By: DJY/BAB |
| Job: 60664608 | Date: 9/14/2022 |

# PPL ELECTRIC
# ATTACHMENT 4

# STANTON-SUMMIT #3 AND #4
# 230 kV COR-TEN® REBUILD PROJECT

## TABLE OF CONTENTS



## List of Tables

## 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 Conductor 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 Conductor 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 Conductor 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 Conductor 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 voltage test is performed 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 designed with clearances that are at least three feet higher than NESC standards.

# PPL ELECTRIC
# ATTACHMENT 5

# STAN-SUMT REBUILD PROJECT

**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: Richard Kanaskie

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, 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: Dr. Matthew Schnupp, 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: Patrick M. 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

**FEDERAL AGENCIES**

U.S. Army Corps of Engineers
Baltimore District Corporate Communication Office
2 Hopkins Plaza
Baltimore, Maryland 21201
Attn: Planning Division

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

**COUNTY AGENCIES**

Lackawanna County Conservation District
1038 Montdale Road, Suite 109
Scott Township, Pennsylvania 18447
ATTN: Jerry Stiles, District Manager

Lackawanna County Regional Planning Commission
Lackawanna County Government Center
123 Wyoming Avenue, 5th Floor
Scranton, Pennsylvania 18503
ATTN: Brenda Sacco, Director

Luzerne County Conservation District
325 Smiths Pond Road
Shavertown, PA 18708
Attn: Josh Longmore, Executive Director

Luzerne County Planning Commission
Luzerne County Courthouse
20 N Pennsylvania Avenue
Wilkes-Barre, PA 18711
ATTN: N. Brian Caverly, Chair

**MUNICIPALITIES**

Exeter Township
State Route 92 Highway
Harding, PA 18643
ATTN: Nancy Redmond, Chairperson

Newton Township
1528 Newton Ransom Boulevard
Clarks Summit, PA 18411
ATTN: Douglas Pallman, Chairperson

Ransom Township
2435 Hickory Lane
Ransom Township, Pennsylvania 18411
ATTN: Dennis Macheska, Chairperson

**LANDOWNERS**

| | |
|---|---|
| IRWIN E. BENKERT<br>2626 BALD MOUNTAIN RD.<br>CLARKS SUMMIT, PA 18411 | DAVID BIRD JR.<br>1028 BEACON DR.<br>SCRANTON, PA 18504-9695 |
| BGN DEVELOPMENT CORP<br>1024 SPRINGBROOK AVE.<br>MOOSIC, PA 18507-1814 | BOURBEAU FAMILY TRUST<br>6217 POINDEXTER RD.<br>NORTH CHESTERFIELD, VA 232 |
| JAMES W. BROWN & SHERI L. BROWN<br>2421 RANSOM RD.<br>CLARKS SUMMIT, PA 18411-9570 | RANDY BUCKAS<br>2472 RANSOM RD.<br>CLARKS SUMMIT, PA 18411-9570 |
| JAY R. BUTLER<br>1200 N SEKOL AVE.<br>SCRANTON, PA 18504-1040 | KATHARINE COLLINS ET AL.<br>1400 N PROVIDENCE RD. 2<br>MEDIA, PA 19063-2043 |
| CONRAIL PROPERTY TAX DEPT<br>3 COMMERCIAL PL. 209<br>NORFOLK, VA 23510-2108 | JAMES T. COOKE & DONNA A. COOKE<br>1059 N SEKOL AVE<br>SCRANTON, PA 18504 |
| DANIEL W. DAVIES & J.W. BROWN JR.<br>608 OAK LN.<br>CLARKS SUMMIT, PA 18411-2408 | MARA DEQUEVEDO<br>10 DELAWARE AVE.<br>WEST PITTSTON, PA 18643-2805 |
| FOREST LANDS, LLC<br>1835 SHERWOOD RD.<br>ALLENTOWN, PA 18103-2946 | JOSEPH GODINO<br>703 NEWTON RD.<br>SCRANTON, PA 185041017 |
| PATRICE E. HAAN & D. SCOTT HAAN<br>1943 TIMBER LN.<br>CLARKS SUMMIT, PA 18411-9539 | EDWARD J. KOVALIK & CHERYL L. KOVALIK<br>2412 RED OAK DR.<br>CLARKS SUMMIT, PA 18411-9565 |

| | |
|---|---|
| CLAYTON LACOE III & SHERI LACOE<br>2627 BALD MOUNTAIN RD.<br>CLARKS SUMMIT, PA 18411 | WILLIAM D. LAVELLE<br>1030 COMMUNITY DR.<br>SCRANTON, PA 18504-9516 |
| DENNIS J. LEHMAN<br>2663 BALD MOUNTAIN RD.<br>CLARKS SUMMIT, PA 18411 | HENRY J. MAKOWSKI & ALICE A. MAKOWSKI<br>1083 N SEKOL AVE.<br>SCRANTON, PA 18504-1040 |
| JOHN M. MELNICK & JANET ANN MELNICK<br>30 HUNTER LN.<br>SCOTT TOWNSHIP, PA 18411 | ELEANOR M. METZGAR<br>1050 SKYLINE DR.<br>CLARKS SUMMIT, PA 18411-9560 |
| JASON A. NEWKIRK & EUNJIN NEWKIRK<br>1017 N SEKOL AVE.<br>SCRANTON, PA 18504-1040 | NOAKES GRANTOR TRUST<br>2441 RANSOM RD.<br>CLARKS SUMMIT, PA 18411-9570 |
| JOS OHEARN & MARY L. CUSMA<br>503 MAIN ST.<br>AURORA, NY 13026 | READING BLUE MTN NORTHERN RR<br>P.O. BOX 218<br>PORT CLINTON, PA 19549-0218 |
| RED MILL HOLDINGS, LLC<br>390 E CHURCH ST.<br>STEVENS, PA 17578-9455 | JAMIE RILLSTONE & ROSPIGLIOSI T. RILLSTONE<br>1035 N SEKOL AVE.<br>SCRANTON, PA 18504-1040 |
| SCRANTON MATERIALS, LLC<br>P.O. BOX 127<br>MESHOPPEN, PA 18630-0127 | TALEN GENERATION, LLC<br>600 HAMILTON ST., SUITE 600<br>ALLENTOWN, PA 18101 |
| TTJ HARRIS REAL ESTATE, LLC<br>771 NEWTON RD.<br>SCRANTON, PA 18504 | JOHN WELLS & SUSAN A. WELLS<br>900 N SEKOL AVE.<br>SCRANTON, PA 18504-1039 |
| WEST MOUNTAIN PRESERVE, LLC<br>771 NEWTON RD.<br>SCRANTON, PA 18504 | JIM WILLIAMS JR.<br>2202 KELLY AVE.<br>SCRANTON, PA 18508-1634 |

| | |
|---|---|
| MICHAEL L. WINCE & HEATHER N. WINCE<br>1015 COMMUNITY DR.<br>SCRANTON, PA 18504 | ROBERT S. YUSINSKI & RONALD BIRD<br>878 N SEKOL AVE.<br>SCRANTON, PA 18504-1037 |

**VERIFICATION**

I, JOSEPH B. LOOKUP, being the Director of 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: 12/19/2022

Joseph Lookup (Dec 19, 2022 16:49 EST)

Joseph B. Lookup