
Garrett P. Lent
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File #: 1713678

October 6, 2025

VIA ELECTRONIC FILING

Matthew Homsher, 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 Single-Circuit Frackville-Columbia 230 kV Transmission Line Connecting the Frackville 230-69 kV Substation and the Columbia 230-69 kV Substation That Are Respectively Located In Schuylkill And Columbia Counties, Pennsylvania
Docket No. A-2025-_____**

Dear Secretary Homsher:

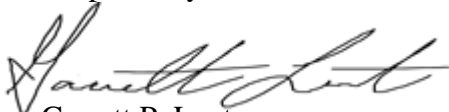
Attached for filing is the Letter of Notification of PPL Electric Utilities Corporation (“PPL Electric”) in the above-referenced proceeding. As indicated on the Certificate of Service, copies of the Letter of Notification are being served by certified mail, return receipt requested, upon the involved governmental agencies, municipalities, and property owners. Construction of the Project will commence upon the Commission’s approval of this filing, with an estimated construction start date of March 2026, with an anticipated in-serve date of January 2029.

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.

Matthew Homsher, Secretary
October 6, 2025
Page 2

Respectfully submitted,



Garrett P. Lent

GPL/dmc
Attachment

cc: Deb Backer (*via email; w/attachment*)
Jordan Van Order (*via email; w/attachment*)
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: Allison Kaster

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

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

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

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

Pennsylvania Game Commission
2001 Elmerton Avenue
Harrisburg, Pennsylvania 17110-9797
Attn: David J. Gustafson, 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: Darryl Lawrence, Consumer Advocate

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

U.S. Army Corps of Engineers
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

Schuylkill County Planning Commission
401 North 2nd Street, Second Floor
Pottsville, Pennsylvania 17901
Attn: Susan A. Smith, Planning Director

Schuylkill County Conservation District
1206 AG Center Drive
Pottsville, Pennsylvania 17901
Attn: Jenna St. Clair, Conservation District
Manager

Schuylkill County Municipal Authority
221 South Center Street
Pottsville, Pennsylvania 17901
Attn: Franklin K. Schoeneman, Chairman

Columbia County Planning Commission
26 West First Street
Bloomsburg, PA 17815
Attn: William Brobst, Chair

Columbia County Conservation District
702 Sawmill Road, Suite 103
Bloomsburg, Pennsylvania 17815
Attn: Nancy Beyer, District Manager

Columbia County Commissioners
11 West Main Street
Main Street County Annex
Bloomsburg, Pennsylvania 17815
Attn: David Witchey, Chief Clerk

Butler Township
211 Broad Street
Ashland, Pennsylvania 17921

Catawissa Township Supervisors
153 Old Reading Road
Catawissa, Pennsylvania 17820
Attn: Tracy Miller, Secretary

Cleveland Township Supervisors
46 Jefferson Road
Elysburg, Pennsylvania 17824
Attn: Stephen Llewellyn, Chairman

Conyngham Township
209 Smith Street
PO Box 10
Wilburton, Pennsylvania 17888
Attn: Martin Wolfe, Chairman

Franklin Township Supervisors
97 Orchard Drive
Catawissa, Pennsylvania 17820
Attn: David McDonald, Chairman

Hemlock Township
26 Firehall Road
Bloomsburg, Pennsylvania 17815
Attn: Eric Stahley, Manager

Locust Township
1 223-A Numidia Drive
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Montour Township Supervisors
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Bloomsburg, Pennsylvania 17815

Roaring Creek Township
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Catawissa, Pennsylvania 17815

Ammon K Stoltzfus And Katie K Stoltzfus
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Lykens, Pa 17048

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Oakford, Pa 19053

Ashland Area Municipal Authy
Ashland Borough Office
401 South 18th Street
Ashland, Pa 17921

Austin Giger
190 Clifton Dr
Bloomsburg, Pa 17815

Barry E Mills And Irene P Mills
10 Gravity Hill Rd
Catawissa, Pa 17820

Blake Hoffman And Patricia Ann Hoffman
89 Lawrence Dr
Catawissa, Pa 17820

Brad E Feese
124 Johnson School Rd
Catawissa, Pa 17820

Bradley C Miller
97 Tyler Ave
Catawissa, Pa 17820

Brady T Hess And Kelly Hess
13 Garfield Rd
Elysburg, Pa 17824

Brandon M Gauger And Brittany B Faust
176 Deussen Dr
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Brecht Rohrbach Residential & Income
Trust
177 Mcintyre Rd
Catawissa, Pa 17820

Broad Mountain Dev Co LLC
10 Gilberton Rd
Gilberton, Pa 17934

Christopher J Welkom And Justin J Welkom
80 Tunnel Rd
Bloomsburg, Pa 17815

City Of Philadelphia Trustee & Stephen
Girard Estate
1101 Market St Suite 2600
Philadelphia, Pa 19107

Clair E Manges And Susan J Jr Manges
375 Ridge Rd
Bloomsburg, Pa 17815

Cole Streater And Dominique Streater
31 Middle Ave
Bloomsburg, Pa 17815

Columbia County
35 W Main St
Bloomsburg, Pa 17815

Columbia Sportsmen Club Inc.
C/O Donald Miller
97 Tyler Ave
Catawissa, Pa 17820

Connie L Giger
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Denise D Vandine
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Bloomsburg, Pa 17815

Denise D Vandine C/O Denise Wenner
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Bloomsburg, Pa 17815

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212 W Cherry St
Mount Carmel, Pa 17851

Donald J Bower And Carolyn J Bower
92 Comarnitsky Ln
Catawissa, Pa 17820

Douglas B Richie And Robert A Shebelsky
5973 Route 209
Stroudsburg, Pa 18360

Drew A Hampton And Kimberly A
Hampton
252 Lake Glory Rd
Catawissa, Pa 17820

Elizabeth Walker And Lisa Walker
447 Grovania Dr
Bloomsburg, Pa 17815

Ellisandra M Lunger And Dazimae Carmo
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Kingwood, Tx 77345

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Ashland, Pa 17921

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Aristes, Pa 17920

George H Watkins
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Golden Valley Holdings LLC
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Bloomsburg, Pa 17815

Gregory A Haladay
360 Tyson School Rd
Catawissa, Pa 17820

Gregory G Graboski And Elizabeth
Graboski
368 Quaker Meeting Rd
Catawissa, Pa 17820

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Helenann M Wegrzynowicz And Michelle F
Enriquez
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Bloomsburg, Pa 17815

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340 Grovania Dr
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Cincinnati, Oh 45202

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Flowermound, Tx 75028

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Mellon Bank N A And
Penna Nat'l Bank & Trust Co
1621 Howard Ave
Pottsville, Pa 17901

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Bloomsburg, Pa 17815

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Swiderski
2097 B Pine Swamp Rd
Catawissa, Pa 17820

Miller Giacinto And Foulk Giacinto
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Port Carbon, Pa 17965

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Comarnitsky
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Hummelstown, Pa 17036

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Ashland, Pa 17921

Nepa Homes LLC
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Paul John Doraski
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Paul Keough And Kristina Keough
246 Legion Rd
Bloomsburg, Pa 17815

Peter A Pesaresi And Nancy V Pesaresi
21 Garfield Rd
Elysburg, Pa 17824

R P Hughes Land Dev Inc
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Reading Blue Mt & Northern Rr
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Hamburg, Pa 19526

Reading Blue Mt & Northern Rr
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Hamburg, Pa 19526

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Robert S Gee
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Robert T Jr Klingerman
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Elysburg, Pa 17824

Roeder Chad J & Renee Roeder
Co Trustees Roeder Irrevocable Asset
Protection Trust
246 Mount Zion Rd
Catawissa, Pa 17820

Roseann Stine
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S Emily Vincent
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Allentown, Pa 18104

Safety Net Inc
129 E Columbia Ave
Mount Carmel, Pa 17851

Scott T Pfirman And Shelley A Pfirman
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Catawissa, Pa 17820

Sharon K Drumheller
235 Rider Rd
Catawissa, Pa 17820

Sober Farms LLC
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Catawissa, Pa 17820

Soil Bound LLC
240 Southern Dr
Catawissa, Pa 17820

Stephen Girard Estate Trustees
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Trina M Damgaard
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Catawissa, Pa 17820

Troy C Litwhiler And Ruthanne L Litwhiler
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Catawissa, Pa 17820

Wade L Hampton And Bonita L Hampton
127 Earth Station Rd
Catawissa, Pa 17820

Walter Gene Williams
20c Gravity Hill Rd
Catawissa, Pa 17820

Walter J Kovalewski And Blanche B
Kovalewski
162 Rider Rd
Catawissa, Pa 17820

Wayne E Shultz
324 Mount Zion Rd
Catawissa, Pa 17820

Wayne M Brokenshire And Deborah A
Brokenshire
2004 Mountain Rd
Catawissa, Pa 17820

Weimines Inc
Po Box 231
Shoemakersville, Pa 19555

Weiser State Forest Roaring Creek Tract
Weiser District Office
Po Box 315
Aristes, Pa 17920

William K Adamski And Mary Margaret
Kriner
273 Quaker Meeting House Rd
Catawissa, Pa 17820

Zeisloft Dale M & Mary Ellen Trustees &
Zeisloft Joint Revocable Trust
16117 Bonita Land Cir
Bonita Springs, Fl 34135

Dated: October 6, 2025


Garrett P. Lent

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Letter Of Notification Of PPL Electric :
Utilities Corporation, Filed Pursuant To 52 :
Pa. Code Chapter 57 Subchapter G, For : Docket No. A-2025-_____
Approval To Rebuild The Existing Single- :
Circuit Frackville-Columbia 230 kV :
Transmission Line Connecting the :
Frackville 230-69 kV Substation and the :
Columbia 230-69 kV Substation That Are :
Respectively Located In Schuylkill And :
Columbia Counties, Pennsylvania :

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 single-circuit Frackville-Columbia 230 kV Transmission Line connecting the Frackville 230-69 kV Substation (“Frackville Substation”) and the Columbia 230-69 kV Substation (“Columbia Substation”) that are respectively located in Schuylkill and Columbia Counties, Pennsylvania.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 Frackville-Columbia 230 kV Transmission Line. The Project contemplates the replacement and rebuilding of these existing COR-TEN® lattice towers to address structural reliability concerns associated with

¹ For a complete list of municipalities and counties crossed by the Project, please refer to Attachment 3 to this Letter of Notification.

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 Columbia and Schuylkill counties, in addition to Butler Township, Catawissa Township, Cleveland Township, Conyngham Township, Franklin Township, Hemlock Township, Locust Township, Montour Township, and Roaring Creek Township, which are either located in Butler, Columbia, Luzerne, or Chester counties. 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 March 2026 with an anticipated in-service date of January 2029.³ PPL Electric is seeking the Commission’s decision by no later than February 28, 2026, 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 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
645 Hamilton Street, Suite 700
Allentown, PA 18101
Voice: 610-774-2599
Fax: 610-774-4102
E-mail: mjshafer@pplweb.com

David B. MacGregor (I.D. # 28804)
Garrett P. Lent (I.D. # 321566)
Hayley E. Wilburn (I.D. # 336055)
Post & Schell, P.C.
17 North Second Street
12th Floor
Harrisburg, PA 17101-1601
Voice: 717-731-1970
Fax: 717-731-1985
E-mail: dmacgregor@postschell.com
E-mail: glent@postschell.com
E-mail: hwilburn@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 45,600 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 Frackville-Columbia 230 kV Transmission Line connecting the Frackville Substation and the Columbia

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 Frackville Substation and Columbia Substation are connected by the single-circuit Frackville-Columbia 230 kV Transmission Line.

12. The Frackville-Columbia 230 kV Transmission Line is approximately 26.7 miles long and supported by 124 structures where 116 of them are single-circuit COR-TEN® lattice structures.

13. These towers are designed for and being used for single-circuit 230 kV operation.

14. The single-circuit Frackville-Columbia 230 kV Transmission Line is in PPL's Central and Susquehanna Regions and is part of a larger 230 kV transmission network that connects generation in these regions to load throughout PPL Electric and rest of PJM's footprint. This 230 kV network includes the Montour-Columbia, Eldred-Frackville, and Frackville-Siegfried 230 kV Transmission Lines, which all support bulk power flow and feed various 230-69 kV substations in these regions.

15. A one-line diagram of the existing system configuration is provided as Figure 1-1, in Attachment 1 – Necessity Statement.

2. Definition of the Problem

16. The existing Frackville-Columbia 230 kV Transmission Line is approximately 26.7 miles long and supported by 124 structures where 116 of them are COR-TEN® lattice structures, which were originally constructed in the early 1970's. 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.

17. However, in 2013, PPL Electric hired a third-party contractor to perform an assessment of the COR-TEN® lattice structures on the Frackville-Columbia 230 kV Transmission Line to observe the overall condition of the line. The assessment identified that 113 of 116 surveyed structures (97%) had one or more structure legs rated Condition C (poor) or Condition D (very poor). Of those 113 structures, 19 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 19 structures identified as “priority” received maintenance repairs in 2014, which included post leg, diagonal and base shoe repairs. In addition to the 19 structures identified as “priority”, an additional 18 structures received similar restoration and maintenance repairs. The following year in 2015, another 68 structures received similar restoration and maintenance repairs. Protective coating was applied to the remaining 8 structures that rated Condition C or D but were not identified as “priority” and had not been restored. However, these remaining structures face constant asset health concerns due to the presence of pack-out rust. Ongoing inspections conducted since 2015 have confirmed that these structures are continuing to degrade.

18. 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 towers⁴ and other steel structures such as steel bridges.

19. 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.

20. 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

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.

initiated a second, more robust evaluation of the COR-TEN® lattice towers to determine the full extent of the deterioration on the transmission system. The details of this analysis are more fully detailed in Attachment 1 – Necessity Statement.

21. 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.

22. Finally, in March 2024, PPL Electric contracted RTR Energy Solutions, Inc. (“RTR”) to perform a condition assessment of the Frackville-Columbia 230 kV Transmission Line. The details of the RTR March 2024 Assessment are set forth in Attachment 1 – Necessity Statement. RTR classifies any structure with over 50% of its joints containing pack-out rust as “Severe.” Of the 116 assessed COR-TEN® lattice towers, 106 were classified as “Severe.” The other 10 COR-TEN® lattice towers were classified as “Moderate.” No structures were classified as “Mild.”

23. . In addition, the average structure classified as “Moderate” is in similar condition to structures classified as “Severe.” Out of the 10 structures classified as "Moderate", the average percentage of total joints containing pack rust is approximately 45%. 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.

24. 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.

25. 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 50 years of age, the COR-TEN® lattice towers that comprise the Frackville-Columbia 230 kV Transmission Line have exceeded their useful life and can no longer be relied upon to safely operate as designed.

26. Furthermore, these asset health concerns are particularly important as the Frackville-Columbia 230 kV Transmission Line is a critical component of PPL Electric's Bulk Transmission System and are required to serve local load to several critical customer facilities.

27. If the Frackville-Columbia 230 kV Transmission Line was to fail, then the next contingency loss of the Montour-Columbia 230 kV Transmission Line would result in the loss of the Columbia substation. This will result in up to 118 Megawatts ("MW") of load drop resulting in approximately 27,700 customers losing service. Critical distribution customers including Bloomsburg Hospital, Columbia County Emergency Management, Municipal Auth. Of Bloomsburg, Grandview Nursing & Rehabilitation, Geisinger Health Services, Danville State Hospital, Geisinger Health System, and Maria Joseph Manor will be impacted by this outage. This would result in all PPL Electric distribution substations with load sourced from the Columbia Substation being removed from service.

28. 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 rust 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, 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.

29. 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 Frackville-Columbia 230 kV Transmission Line (need # PPL-2020-0015). The need # PPL-2020-0015 will be addressed by the Frackville-Columbia 230 kV Transmission Line rebuild under supplemental project s2367, which will be completed at an estimated cost of \$114 Million.

B. THE PROPOSED PROJECT

30. In order to resolve the identified COR-TEN® lattice tower health conditions, PPL Electric proposes to rebuild the existing Frackville-Columbia 230 kV Transmission Line. To

⁶ Refer to slides 21 through 24 at <https://www.pjm.com/~media/committees-groups/committees/teac/2020/20201006/20201006-item-09-ppl-supplemental.ashx>

carry out the Project, PPL Electric will replace 115 of the 116 COR-TEN® lattice structures and one 3-pole dead-end structure on the Frackville-Columbia 230 kV Transmission Line. All the COR-TEN® lattice structures as well as the conductors at each of the 115 locations will be replaced. Existing COR-TEN® structure 11 will be removed and will not be replaced. Additionally, the 3-pole dead-end structure is not made of COR-TEN®, but requires replacement in order for the entire Project to meet its design criteria.

31. 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 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.

32. 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 towers. 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.

33. The approximate cost of the entire transmission line rebuild Project is \$114 million. On a total cost of service basis, the Proposed Solution is approximately 87% of the cost of Alternative 1 (replacing each of the existing structures) on a 45-year basis and 88% of the cost of Alternative 1 on 75-year basis. In addition, on a total cost of service basis, the Proposed Solution is approximately 95% of the cost of Alternative 2 (remediating the existing structures) on a 45-year basis and 55% of the cost of Alternative 2 on 75-year basis.

III. HEALTH AND SAFETY

34. 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.

35. 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. A reduction in magnetic field exposure is anticipated due to the higher ground clearances.

IV. DESCRIPTION OF THE RIGHT-OF-WAY

36. The rebuilt single-circuit Frackville-Columbia 230 kV Transmission Line will be on the same structure alignment and in the same right-of-way (“ROW”) as the existing transmission lines. The existing fee-owned properties and ROW vary in width from approximately 175-350 feet wide. 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.

37. The proposed monopole structures for the rebuilt Frackville-Columbia 230 kV Transmission Line will be constructed in generally the same location as the existing structures. The transmission line cannot be fully deenergized during the construction process, and because of this the new monopoles will be offset by approximately 35 feet ahead of or behind and approximately 15 feet horizontally from the existing COR-TEN® structure locations as a safety precaution. Because the new pole locations are generally similar to the original locations, PPL Electric does not anticipate any objections.

38. As explained in Attachment 2, existing COR-TEN® lattice tower structures range in height from between approximately 96 and 191 feet with an average structure height of approximately 121 feet. The proposed monopole structures for the Frackville-Columbia 230 kV

Transmission Line will range in height from between approximately 90 and 195 feet with an average structure height of approximately 142 feet.

39. Two aerial plot plans are provided at the end of Attachment 1 to this Letter of Notification. Figure 1-2 depicts the existing system configuration of the transmission facilities associated with this Project. Figure 1-3 depicts the proposed system configuration of the transmission facilities associated with this Project.

V. LAND USE AND ENVIRONMENTAL EVALUATION

40. As explained above, construction of the proposed Project will take place entirely within existing rights-of-way. Therefore, it is anticipated that the proposed Frackville-Columbia 230 kV Transmission Line will have minimal incremental impacts on land use in the area.

41. PPL Electric will utilize existing 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.

42. 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”), and current aerial imagery, land use in the Project Area is approximately 92% forested and agricultural land, with the remaining 8% comprised of mixed barren land, developed land, wetlands, open water, herbaceous, and scrub/shrub habitat.

43. The proposed Project will not affect any national parks, state parks, local parks, or natural landmarks. However, there are two state recreational trails located within the Project Area.

The proposed Project spans the Susquehanna River, which provides a water trail from New York through Pennsylvania to Sunbury where it joins the West Branch, and the Legion Road bicycling corridor (Route V) is within the Project Area. The rebuild is not anticipated to impact recreational activities associated with the water trail, and viewshed impacts on Route V will be similar to the existing impacts, because of the proximity within which the new structures will be placed to the old structures.

44. The existing Frackville-Columbia 230 kV Transmission Line crosses the privately-owned Grove-Rishel Conservation Area, Pennsylvania Game Commission State Game Lands 329, and several Agricultural Conservation Easements and Agricultural Security Areas. The existing transmission line also crosses the Roaring Creek Special Regulated Area of Weiser State Forest, which has shared use hiking trails, however no existing or proposed structures are located within the State Forest. No impacts from the proposed Project are anticipated to these areas, since the proposed structures will be installed in proximity to existing structures within the existing ROW.

45. 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. Two historic districts which are eligible for inclusion in the National Register of Historic Places (“NRHP”) are crossed by the Project: the Philadelphia & Reading Railroad and the Delaware, Lackawanna & Western Railroad. PPL Electric is currently coordinating with the railroad companies to minimize Project impacts. The Project is also located adjacent to an eligible historic structure, the Clifton D Miller Farm. Additionally, two known archaeological resources (SHPO resource numbers 2016RE03672 and 2014RE01002) were identified within the Project Area. Neither resource is eligible.

46. PPL Electric is in the initial stage of coordination with the SHPO 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.

47. There are two Federal Communications Commission (FCC) towers within the Project Area. The proposed Project will also cross areas of inactive mining land and be in proximity to wind turbines, with the nearest wind turbine located approximately 530 feet east of proposed Structure 96. No cell tower attachments are located on the existing Frackville-Columbia 230 kV Transmission Line. No existing pipelines were identified within the area. PPL Electric does not anticipate any interference with the FCC towers, wind turbines, or pipelines since the proposed Project consists of electrical facilities that are of a similar height as the existing structures, located in proximity to the existing structures, and within the existing ROW.

48. The existing Frackville-Columbia 230 kV Transmission Line crosses other PPL Electric utility ROWs, such as the Frackville-Mowry 69 kV Transmission Line the Frackville-Reed Tie 69 kV Transmission Line, the Frackville-Fishbach 138-69 kV Transmission Line, and the Sunbury-Columbia 69 kV Transmission Line. Additionally, the Project will cross PPL Electric's Sunbury-Susquehanna #1 and #2 230 kV Transmission Lines and Columbia-Danville 69 kV Transmission Line. No other utilities will be affected by the proposed Project.

49. No Federal Aviation Administration (FAA) facilities were identified within the Project Area. The closest regional airport to the Project Area is the Bloomsburg Municipal Airport,

which is located approximately 3.8 miles southeast of the existing Columbia Substation. Additionally, a private airport (Numidia Airport) is located approximately 1 mile north of the Project along Numidia Drive. PPL Electric does not anticipate any interference with airport operations because the proposed Project consists of electrical facilities that are of a similar height to the existing electrical facilities and are located within existing ROW. However, PPL Electric will comply with any applicable requirements of the Federal Aviation Administration and the Pennsylvania Department of Transportation, Bureau of Aviation.

50. The Project crosses core habitat for several Natural Heritage Areas (“NHAs”). No new impacts are anticipated for these habitats because the existing lattice towers will be replaced within the existing ROW and structure-for-structure with steel monopoles, which have a smaller footprint. No additional unique geological, scenic, or natural areas are located within the Project Area, according to the Pennsylvania Department of Conservation and Natural Resources (“PDCNR”).

51. 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.

52. The existing transmission line spans sixteen National Hydrography Dataset waterways that will remain in place after the Project construction activities have occurred. The waterways crossed by the Project include Little Catawissa Creek, Little Mahanoy Creek, Montour

Run, Mugser Run, Roaring Creek, Susquehanna River, an unnamed tributary (“UNT”) of Little Catawissa Creek, a UNT of Montour Run, two UNTs of Mugser Run, four UNTs of Roaring Creek, and one UNT of Susquehanna River. These waterways are located in the Stony Brook-Fishing Creek Watershed (Hydrologic Unit Code [“HUC”] 020501070707), the Logan Run-Susquehanna River Watershed (HUC 020501071003), the Roaring Creek Watershed (HUC 020501070902), the Mugser Run-South Branch Roaring Creek Watershed (02050107004001), the Little Catawissa Creek Watershed (02050107001204), and the Upper Mahanoy Creek Watershed (020503010501). The Upper Mahanoy Creek Watershed is a subwatershed in the Lower Susquehanna-Penns Watershed (HUC 02050301) and the remaining watersheds are subwatersheds in the Upper Susquehanna-Lackawanna Watershed (HUC 02050107).

53. Mahanoy Creek and Susquehanna River have a Pennsylvania Department of Environmental Protection (PADEP) Chapter 93 Designated Use of Warm Water Fishes. Little Mahanoy Creek, the UNT of Little Catawissa Creek, UNTs of Roaring Creek, the UNT of Susquehanna River, Montour Creek, and the UNT to Montour Creek have a PADEP-designated use classification of Cold Water Fishes (“CWF”). Little Catawissa Creek, Mugser Run, and UNTs of Mugser Run have a PADEP-designated use classification of High Quality-Cold Water Fishes (“HQ-CWF”). All sixteen streams also have a PADEP-designated classification of Migratory Fisheries (“MF”). Little Catawissa Creek and Mugser Run are also classified as Class A Trout Streams, and Little Mahanoy Creek is identified as a Trout Natural Reproduction stream. No direct impacts to these waterway features are anticipated by the Project activities.

54. PPL Electric also reviewed the U.S. Fish and Wildlife Service’s (“USFWS”) National Wetlands Inventory (“NWI”). The Project crosses a total of 21 wetlands: one Palustrine Emergent, Persistent/Scrub-Shrub, Broad-leaved Deciduous Seasonally Flooded (PEM1/SS1C)

wetland habitat; one Palustrine Emergent, Persistent, Temporarily Flooded (PEM1A) wetland habitat; two Palustrine Forested, Broad-leaved Deciduous, Temporarily Flooded (PFO1A) wetland habitat; one Palustrine, Forested, Broad-leaved Deciduous, Seasonally Flooded (PFO1C) wetland habitat; one Palustrine, Forested, Broad-leaved Deciduous, Seasonally Flooded/Saturated (PFO1E) wetland habitat; one Palustrine, Unconsolidated Bottom, Semipermanently Flooded (PUBFx) wetland habitat; two Palustrine, Unconsolidated Bottom, Permanently Flooded (PUBHh) wetland habitats; one Riverine Lower Perennial Unconsolidated Bottom (R2UBH) stream habitat; one Riverine Intermittent Seasonally Flooded (R4SBC) stream habitat; and ten Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded (R5UBH) stream habitats. 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 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.

55. In addition, The National Flood Hazard Layers for Columbia and Schuylkill 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 spans 100-year floodplain areas associated with Little Mahanoy Creek, Montour Run, and Mugser Run. Additionally, the Project crosses 100-year floodplain and regulatory floodway areas associated with Susquehanna River, Mahanoy Creek, and Roaring Creek. Minimal impacts to floodplain areas or floodways are anticipated by the proposed Project activities, since the proposed structures will

be replaced in proximity to existing structures. Coordination with PADEP regarding this potential impact will be conducted during the permitting phase of the Project.

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

57. The Natural Areas Inventories for Columbia and Schuylkill Counties were prepared by the Nature Conservancy in association with the Pennsylvania Natural Heritage Program and were published in 2003 and 2004, respectively. The Project is located within the Aristes Vernal Pond Community, Ashland Reservoir, Catawissa Bluffs, Shenandoah Municipal Authority Watershed, South Branch Roaring Creek Watershed, and Susquehanna River Natural Heritage Areas. No new impacts are anticipated for these habitats crossed by the Project, because the existing lattice towers will be replaced structure-for-structure with steel monopoles, which have a smaller footprint, and because the Project will be constructed and accessed within existing ROW.

58. 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. All four agencies indicated that further review of the Project is necessary to resolve potential impacts. The USFWS indicated that the Project is located within range of Indiana bat and in the vicinity of northern long-eared bat swarming and maternity habitat and tricolored bat swarming. The USFWS recommends avoiding

any tree removal activities between November 15 and March 31. Compliance with this avoidance measure ensures that no further coordination is required with the USFWS. The PFBC indicated that the proposed Project is located in close proximity to known critical habitat for the timber rattlesnake (*Crotalus horridus*) and recommended that a timber rattlesnake habitat assessment be conducted within the Project Area. The PGC and the PDCNR determined that no impacts are likely to their respective species or resources of concern due to the nature of the proposed Project, but PPL Electric will coordinate with the Land Management Supervisor prior to Project activities to obtain any necessary approvals. No further coordination with DCNR is required for the Project.

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

VI. NOTICE

60. 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 Frackville-Columbia 230 kV Transmission Line. 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.

61. PPL Electric has provided information regarding the Project to representatives of Columbia and Schuylkill counties, in addition to Butler Township, Catawissa Township, Cleveland Township, Conyngham Township, Franklin Township, Hemlock Township, Locust Township, Montour Township, and Roaring Creek Township, which are either located in Butler, Columbia, Luzerne, or Chester counties. 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

62. 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).

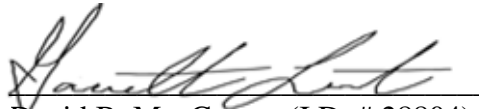
63. The proposed Project qualifies for use of a Letter of Notification because it will be located entirely on an existing transmission line right-of-way, and the size, character design or configuration of the proposed transmission line will not substantially alter the right-of-way.

64. 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 Columbia and Schuylkill Counties and in Butler, Catawissa, Cleveland, Conyngham, Franklin, Hemlock, Locust, Montour, and Roaring Creek Townships within either Butler, Columbia, Luzerne, or Chester Counties, Pennsylvania, that is explained above and in the Attachments hereto, by no later than February 28, 2026.

Respectfully submitted,



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Date: October 6, 2025

Attorneys for PPL Electric Utilities Corporation

**PPL ELECTRIC
ATTACHMENT 1**

FRACKVILLE-COLUMBIA 230 kV COR-TEN® REBUILD PROJECT

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1.0 INTRODUCTION

PPL Electric Utilities Corporation (“PPL Electric” or the “Company”) is requesting Pennsylvania Public Utility Commission (“PUC” or “the Commission”) approval to rebuild approximately 26.7 miles of the existing single-circuit Frackville-Columbia 230 kilovolt (“kV”) Transmission Line connecting the Frackville 230-69 kV Substation (“Frackville Substation”) located in Schuylkill County and the Columbia 230-69 kV Substation (“Columbia Substation”) located in Columbia County, Pennsylvania (“Frackville-Columbia 230 kV Rebuild Project” or the “Project”).¹ The one-line diagram of the existing system configuration is provided as **Figure 1-1**.

This Project is required to address reliability concerns related to the deteriorated condition of the COR-TEN® lattice towers on the Frackville-Columbia 230 kV Transmission Line. In addition, the Project is also required to comply with:

- The Consolidated Transmission Owners Agreement (“TOA”) 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 TOA 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 31,000 PPL Electric

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

² “Pack-out 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.

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, 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 TOA.

Subject to the Commission’s approval, construction will begin in March 2026 to support an in-service date of January 2029. 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 \$114 million, and the cost for the Project will be paid by PPL Electric.³

2.0 BACKGROUND

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

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

³ The estimated cost was developed using averages of recent costs for similar projects and without an in-depth analysis of field investigation. The cost is subject to change as the constructability of the Project, sequence of construction, and other factors that may affect cost are identified and analyzed as the Project progresses.

3.0 TRANSMISSION SYSTEM PLANNING PROCESS

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

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

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

PJM is a 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 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”)⁶ to identify system reinforcements that are required to, among other things, meet the

⁴ Includes transmission facilities operated at voltages of 100 kV or higher.

⁵ Includes transmission facilities operated at voltages less than 100 kV.

⁶ 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

NERC Reliability Standards, PJM reliability planning criteria, and Transmission Owner reliability criteria. Prior to submitting the project to PJM, PPL Electric evaluated whether the Frackville-Columbia line could be retired as one of the functional alternatives. Based on this analysis, it was determined that the line could not be retired without causing substantial issues on the system. Removal of the Frackville-Columbia 230 kV line would expose PPL Electric’s Eldred and Frackville substations to a N-1-1 load drop scenario of approximately 245 MW and over 80,000 Customers. As such, the existing single-circuit Transmission Line remains in PJM’s planning studies and is assumed to remain in-service and fully operational. Therefore, PPL Electric focused its efforts on identifying the most appropriate way to address the structural deficiencies.

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 TOA is an agreement (1) among individual Transmission Owners operating within the PJM Region and (2) between the Transmission Owners and PJM. The TOA facilitates the planning and operation of the Transmission Grid within the PJM region and establishes the rights and responsibilities of each party to the TOA. Section 4.6 of the TOA 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 TOA.

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.

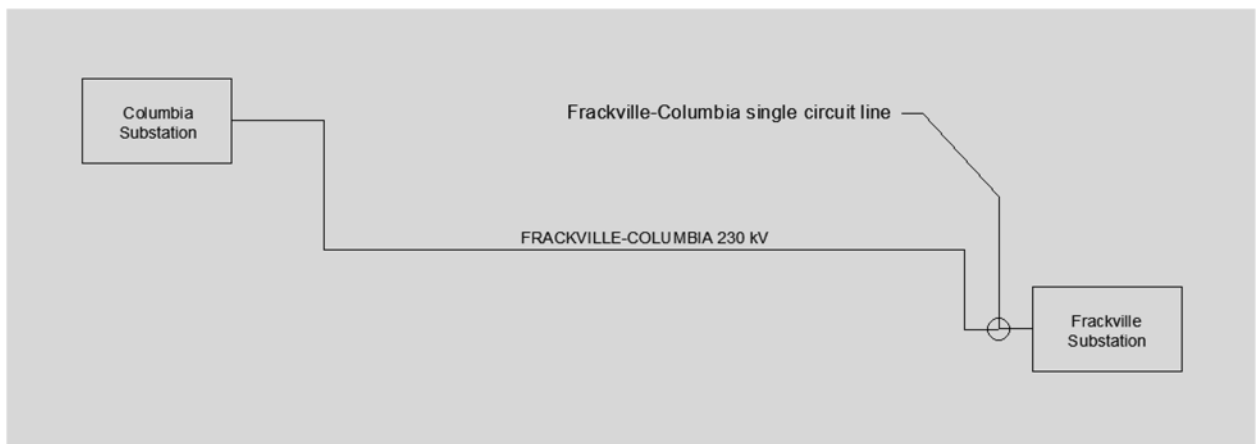
4.0 THE NEED FOR THE PROJECT

4.1 Existing System

The Project is composed of a single-circuit 230 kV transmission line that connects the Frackville and Columbia Substations. The existing Frackville-Columbia 230 kV Transmission Line is approximately 26.7 miles long and supported by 124 structures where 116 of them are single-circuit COR-TEN® lattice structures. These towers are designed and being used for single-circuit 230 kV operation.

The one-line diagram of the existing system configuration is provided below:

Figure 1-1: One-Line Drawing of Project



The single-circuit Frackville-Columbia 230 kV Transmission Line is in PPL Electric’s Central and Susquehanna Regions and is part of a larger 230 kV transmission network that connects generation in these regions to load throughout PPL Electric and the rest of PJM’s footprint. This 230 kV network includes the Montour-Columbia, Eldred-Frackville and Frackville-Siegfried 230 kV Transmission Lines, which all support bulk power flow and feed various 230-69 kV substations in these regions.

The asset health concerns associated with the Frackville-Columbia 230 kV Transmission Line are important as this line is a critical component of PPL Electric’s Bulk Transmission System. If the Frackville-Columbia 230 kV Transmission Line was to fail due to COR-TEN® issues, the following reliability issue would occur:

A) Failure of the Montour-Columbia 230 kV Transmission Line:

- The load at the Columbia 230-69 kV Substation is served by the Montour-Columbia and the Frackville-Columbia 230 kV Transmission Lines. Failure of the Frackville-Columbia 230 kV Transmission Line will put the Columbia Substation load at risk for the loss of the Montour-Columbia 230 kV Transmission Line. A loss of the Montour-Columbia line will, in turn, result in up to 118 Megawatts (“MW”) of load drop, which will result in a loss of service for approximately 27,700 customers. This outage would impact the following 69 kV transmission customers: Geisinger Medical Center, Williams Gas 610, Benton Foundry, McGee Carpet, Cherokee Pharmaceutical, and Green Thumb Industries. Additionally, all PPL Electric distribution substations with load sourced from the Columbia 230-69 kV substation would be removed from service and would impact the following critical distribution customers: Bloomsburg Hospital, Columbia County Emergency Management, Municipal Auth of Bloomsburg, Grandview Nursing & Rehabilitation, Geisinger Health Services, Danville State Hospital, Geisinger Health System, and Maria Joseph Manor.

4.2 Project Need

This Project is needed to address asset health concerns that are accelerating due to increased incidences of pack-out rust associated with COR-TEN® lattice towers. The subject lattice towers had an expected 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 are expected to reach end-of-life, and, in some cases, the towers have deteriorated beyond the point of safe operation, which cannot be reasonably or cost-effectively remediated. Operating at 230 kV, the transmission lines are part of the Bulk Electric System and, as such, PPL Electric is required by the NERC to maintain the assets in a way that will ensure the reliability and stability of that system.

4.2.1 Asset Health

There are approximately 236 circuit miles utilizing COR-TEN® lattice structures within PPL Electric’s Transmission System. That means that there are approximately 1,284 COR-TEN® lattice structures across PPL Electric’s Transmission System, all of which the Company currently

anticipates will need to be addressed in order to resolve the serious asset health concerns identified below.

Originally constructed in the early 1970s, the existing Frackville-Columbia 230 kV Transmission Line contains 116 weathering-steel COR-TEN® lattice structures spanning a total of approximately 26.7 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 and costs.

In 2013, PPL Electric utilized a third-party contractor to perform an assessment of the COR-TEN® lattice structures on the Frackville-Columbia 230 kV Transmission Line to observe the overall condition of the line. The assessment included all 116 COR-TEN® structures on this Line. The contractor evaluated the ground-line of the steel structures by performing minor excavation around the base of the structure, 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 inspected in this assessment. The assessment identified that 113 of 116 COR-TEN® structures (97%) had one or more structure legs rated Condition C (poor) or Condition D (very poor). Of those 113 structures, 19 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 19 structures identified as “priority” received maintenance repairs in 2014, which included post leg, diagonal and base shoe repairs. In addition to the 19 structures identified as “priority”, an additional 18 structures received similar restoration repairs. The following year in 2015, another 68 structures received similar restoration and maintenance repairs. Protective coating was applied to the remaining 8 COR-TEN® structures that rated Condition C or D but were not identified as “priority” and had not been restored. However, these remaining structures face constant asset health concerns due to the presence of pack-out rust. Ongoing inspections conducted since 2015 have confirmed that these structures are continuing to degrade.

These health concerns were further heightened by the discovery of pack-out rust in the section of joints of the COR-TEN® lattice towers. In particular, the protective surface coating of weathering steel that provides resistance to atmospheric corrosion, known as the patina, did not form properly on the structure joints and members due to trapped moisture. The trapped moisture prevents completion of the required wetting and drying cycle needed to form the patina. Over time, this

leads 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-out 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 detaching, breaking, deforming, and corroding 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 types of infrastructure where two pieces of COR-TEN® steel overlap at joints, such as those present on lattice towers⁷ 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-life⁸. 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 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

⁷ 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).

⁸ New steel structures that will be installed under the Project have an anticipated service life of 75 years.

contractors.⁹ Review of the three contractor reports revealed that over 90% of the joints at each structure exhibited visible pack-out rust in the connections. In addition, the review revealed that pack-out rust and section-loss was most prominent on the lower portions of the towers where there was higher likelihood of moisture build up. The trapped moisture within structure joints and members on the lower portions of the towers is generally attributed to less sun exposure, less wind exposure, and higher humidity at the ground level. Because the lower section of the structure is load bearing, the compromised integrity of the lower section of a tower leads to a higher risk for potential failure of the entire tower. 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 on the extent of remediation recommended. For the sake of any analysis associated with the remediation option, a cost of \$219,575 per structure was utilized, which is the average of the 3 remediation cost estimates received from the contractors and adjusted for inflation.

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.

⁹ 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.

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 pack-out at each joint and section-loss at each member on the lower section of each structure, visual observations of pack-out rust 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 are 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 rust in the connections, which is anticipated to worsen over time;
- The protective patina needed to protect the steel from corrosion did not properly develop in numerous members resulting in section-loss across the entire structure;
- Pack-out rust damage was typically more prevalent on lower sections of the tower except for some specific attachment points where severe pack-out rust was observed on higher sections; and

- Structural damage was found on several members from pack-out rust 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 the 2019 and 2020 inspection programs has been further corroborated by a recent study prepared by RTR Energy Solutions, Inc. (“RTR”) in March 2024. RTR was contracted to perform condition assessments on the Frackville-Columbia 230 kV Transmission Line. The assessment entailed the performance of a visual inspection from the ground of each of 116 COR-TEN® lattice towers on the Project alignment. Each joint of the structure was reviewed to determine if pack-out 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-out rust.
- **Moderate** Condition Rating: >25% & <50% of total joints contain pack-out rust.
- **Severe** Condition Rating: >50% of total joints contain pack-out rust.

Results showed that 91.4% of the COR-TEN® lattice towers on the Frackville-Columbia 230 kV Transmission Line were classified as severe. Of the 10 structures classified as “Moderate”, the average percentage of total joints containing pack-out rust is approximately 45%. None of the COR-TEN® lattice towers were classified as mild. A summary of the results of the inspection are represented in **Table 1-2** below:

Table 1-2: Structure Condition Rating Summary: Frackville-Columbia

Condition	Structure Count
Mild	0
Moderate	10
Severe	106
Total	116

The majority of pack-out rust observed on each structure was found in the lower sections of the post leg where horizontal and diagonal members are bolted to the leg. However, pack-out rust was observed in joints all the way up some towers. Structures classified as Severe with significant amounts of pack-out rust present had visible bending on the flat edge of the joint that was originally bolted. The assessment revealed that the asset health conditions observed in the 2020 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, the inferior 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 anticipated. Being over 50 years of age, and with 91.4% of towers in Severe condition, the COR-TEN® lattice towers comprising the Frackville-Columbia 230 kV Transmission Line 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). Shearing of bolts, members disconnecting from lattice towers, and complete tower failure pose a major safety risk to both the public and PPL Electric employees. PPL Electric has determined it is imperative to address these safety risks now, rather than later, to mitigate the increase of asset health, system reliability and safety risks.

The current Moderate and Severe conditions of the towers demonstrates an alarming susceptibility to failure, especially during extreme weather. Additionally, as severe weather patterns are occurring more frequently, PPL Electric sees a need to consider how these 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. Each storm creates exposure to extreme precipitation and wind events. Extreme wind events create an increased risk of structural failure in towers that are already structurally compromised with COR-TEN® pack-out rust and section loss. Additionally, projected increases of more frequent and intense heat waves over the next century in the Northeast will accompany a rise in severe wind and precipitation events. 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 address the COR-TEN® structures in the safest and most reliable way to protect against the pack-out rust issue in the joints of the structures and guard the transmission system from catastrophic failures of COR-TEN® towers.

Any premature failure of these assets will lead to unexpected outages on the Bulk Electric System, exposing PPL Electric to the risk of violations incurred under the NERC Reliability Standards. Violations result in monetary penalties that are determined based on the degree to which compliance was not achieved, the entity size, and the duration of the violation. The penalties range from as low as \$1,000 to over \$1 million. A NERC violation can also directly cause or contribute to Bulk Electric System instability, separation, or cascading failures. Any rolling blackouts caused

by these failures would impact both PPL Electric customers and customers outside of the PPL Electric service territory.

At the October 2020 PJM TEAC meeting,¹⁰ PPL Electric presented its plan to address COR-TEN® needs on the 230 kV system. As part of this plan, PPL Electric shared with PJM stakeholders the specific need to address COR-TEN® towers on the Frackville-Columbia 230 kV Transmission Line [need # PPL-2020-0015 (S2376)]. The need # PPL-2020-0015 will be addressed by the Project under supplemental project S2376. As presented at the PJM TEAC meeting,¹¹ PPL Electric determined that remediation of the towers was not cost effective over the life of the asset and retirement of the line was infeasible due to an approximate 118MW load drop.

5.0 ALTERNATIVES

PPL Electric evaluated three potential solutions to address the degrading health of the Frackville-Columbia 230 kV Transmission Line. While solutions like Alternative 1 and Alternative 2 are available, they are not reasonable or feasible to address all the identified concerns. The following three alternatives were considered and compared based upon (1) their ability to resolve the asset health conditions identified by PPL Electric and (2) a 45-year and 75-year cost of service basis¹²:

- (1) Alternative 1 – Replace all COR-TEN® structures on the Frackville-Columbia 230 kV Transmission Lines;

¹⁰ Refer to slides 21 through 24 at <https://www.pjm.com/~media/committees-groups/committees/teac/2020/20201006/20201006-item-09-ppl-supplemental.ashx>

¹¹ Refer to slides 27 and 28 at <https://www.pjm.com/~media/committees-groups/committees/teac/2020/20201006/20201006-item-09-ppl-supplemental.ashx>

¹² 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 LON 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 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. The Company'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.

- (2) Alternative 2 – Remediate all COR-TEN® structures on the Frackville-Columbia 230 kV Transmission Lines; and
- (3) Alternative 3 – Full Rebuild of the Frackville-Columbia 230 kV Transmission Line (“Proposed Solution”).

Importantly, the existing Frackville-Columbia single-circuit 230 kV Transmission Line is presently in use and is expected to remain operative in order to maintain the reliable and efficient operation of the transmission grid. Indeed, these existing transmission lines are included in PJMs transmission planning studies and are assumed to remain in-service and fully operational, asset retirement is not considered a feasible option.

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 steel monopole structures. The estimated replacement cost is approximately \$685,205/structure. This option would also require PPL Electric to replace the conductors in 2028 when the conductors have reached end-of-life at an additional \$375,966/structure. In addition, there would be increased Operations and Maintenance (“O&M”) costs for the remainder of the service life of the transmission lines, including more frequent inspections. Inspections to identify issues on the line not addressed through a rebuild would use a cycle of comprehensive visual inspections every 8 years and a supplemental, aerial visual inspection every 4 years in between. As shown in Table 1 below, this solution would be significantly more expensive from a total cost of service perspective than the proposed Full Rebuild.

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 all lattice towers supporting the line, which would include replacing severely damaged members with galvanized steel members, installing new hardware and spacers, and cleaning pack-out rust from affected joints. The average estimated cost of remediation is approximately \$219,575/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.¹³ 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. This is because remediations are only temporary solutions that, through each application, become less effective. Additionally, across a single structure, each of the many members and joints may have different integrities due to creep and fatigue that remediation may not fully address. The remediation alternative also does not address hardware concerns, such as insulator issues, that may put the line at further risk.

Subsequent remediation work would be treated as an O&M expense. However, after 30 years, the line will need to be rebuilt with new structures at approximately \$1,643,385/structure. Further, remediation would not address all underlying issues, requiring additional, duplicative projects.

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

5.3 Alternative 3 – Full Rebuild

The third alternative considered by PPL Electric is to fully rebuild the existing Frackville-Columbia 230 kV Transmission Lines. To carry out this alternative, PPL Electric will replace 115 of the 116 COR-TEN® lattice structures and one 3-pole dead-end structure on the Frackville-Columbia 230 kV Transmission Line.¹⁴ Existing COR-TEN® structure 11 will be removed and will not be replaced due to the challenging terrain and expensive access that would be required to install and maintain a new structure at that location. The seven existing structures closest to

¹³ 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.

¹⁴ Although the 3-pole dead-end structure is not made of COR-TEN®, it requires replacement to meet the current design criteria for the entire rebuild project.

Frackville Substation meet the current design and reliability standards and do not require replacement or reconductoring.

Replacing the existing lattice towers with steel monopoles will address the asset health concerns as well as improve performance by increasing clearances and improving lightning performance. Increased clearance allows PPL Electric to avoid a greater number of avian- and vegetation-related outages. Lightning performance will improve through better grounding and conductor protection, which will help lower PPL Electric's susceptibility to lightning-related events. The estimated rebuild cost is approximately \$923,250/structure. As part of the Alternative 3 analysis, PPL Electric rejected an underground rebuild of the existing Frackville-Columbia 230 kV Transmission Line. In particular, PPL Electric decided to reject an underground rebuild due to the substantial increase in overall project costs that would likely result, the environmental impact and permitting challenges that could result due to a crossing of the Susquehanna River and difficult terrain, the line length, and geographic location. PPL Electric estimates the overall cost of undergrounding to be approximately \$17.5 million per mile; given the line length of this project, the cost to underground the line would be approximately \$467.3 million – more than four times the estimated cost of an aboveground rebuild here. Additionally, the height of the proposed structures is such that one of the primary benefits of undergrounding, which is to avoid off-right-of-way trees, would not be realized, as the proposed structures will be high enough to avoid this hazard.

The revenue requirements for a rebuild over both a 45- and 75-year period¹⁵ are lower than Alternatives 1 and 2 (as shown in **Table 1-3**), making the rebuild the more cost-effective solution. General maintenance work would not be needed until 30 years after the rebuild, since the affected structures would be fully replaced, as opposed to an attempt to add more useful life to those structures via remediation. Additionally, the line would incur lower O&M costs because the new assets, including structures and conductors, would require less frequent inspections. Rebuilds are also less risky than remediation. A few risk factors for remediation include lack of contractor experience, a lack of evidence regarding the effectiveness of long-term remediation, and the risk that pack-out rust will return. When compared to the remediation or replacement options, the full rebuild option is more cost-effective and lower risk. Thus, the full system rebuild is the best long-term solution.

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 Frackville-Columbia 230 kV Transmission Lines	\$383.0	\$457.0
Remediate Structures on Frackville-Columbia 230 kV Transmission Lines	\$348.1	\$728.5
Full Rebuild of the Frackville-Columbia 230 kV Transmission Lines	\$332.1	\$401.6

6.0 PROPOSED SOLUTION

The full rebuild of the Frackville-Columbia 230 kV Transmission Line appropriately addresses the asset health conditions described above at the most reasonable cost and, therefore, is the Proposed Solution. 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 Moderate and Severe conditions. For these reasons, PPL Electric rejected the replacement and remediation alternatives as neither prudent nor reasonable.

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 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.

Based on this evaluation, PPL Electric proposes to rebuild the existing Frackville-Columbia 230 kV Transmission Lines to resolve the COR-TEN® lattice tower health conditions. As part of the rebuild, all the COR-TEN® lattice structures as well as the conductors and associated hardware will be replaced, effectively addressing the asset health conditions described above. The Project

will also be designed to double-circuit 230 kV standard for future load growth. The cost of rebuilding the structures as future double-circuit is incrementally more expensive than single-circuit. The rebuilt transmission lines will operate initially as single-circuit.

Upon completion, the Proposed Solution will improve overall reliability, safety, and system resiliency by resolving the asset health concerns associated with COR-TEN® lattice towers. As described in the above Section 5, the Proposed Solution is also 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 and per-mile basis.¹⁵ A summary of this analysis is presented in **Table 1-3** above. On a total cost of service basis, the Proposed Solution is approximately 87% of the cost of Alternative 1 (replacing each of the existing structures) on a 45-year basis and 88% of the cost of Alternative 1 on a 75-year basis.

The Proposed Solution also avoids excess costs and uncertainties surrounding the remediation solution contemplated in Alternative 2. On a total cost of service basis, the Proposed Solution is approximately 95% of the cost of Alternative 2 (remediating the existing structures) on a 45-year basis and 55% of the cost of Alternative 2 on a 75-year basis. 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 herein.

The approximate cost of the entire transmission line rebuild Project is \$107.1 million.

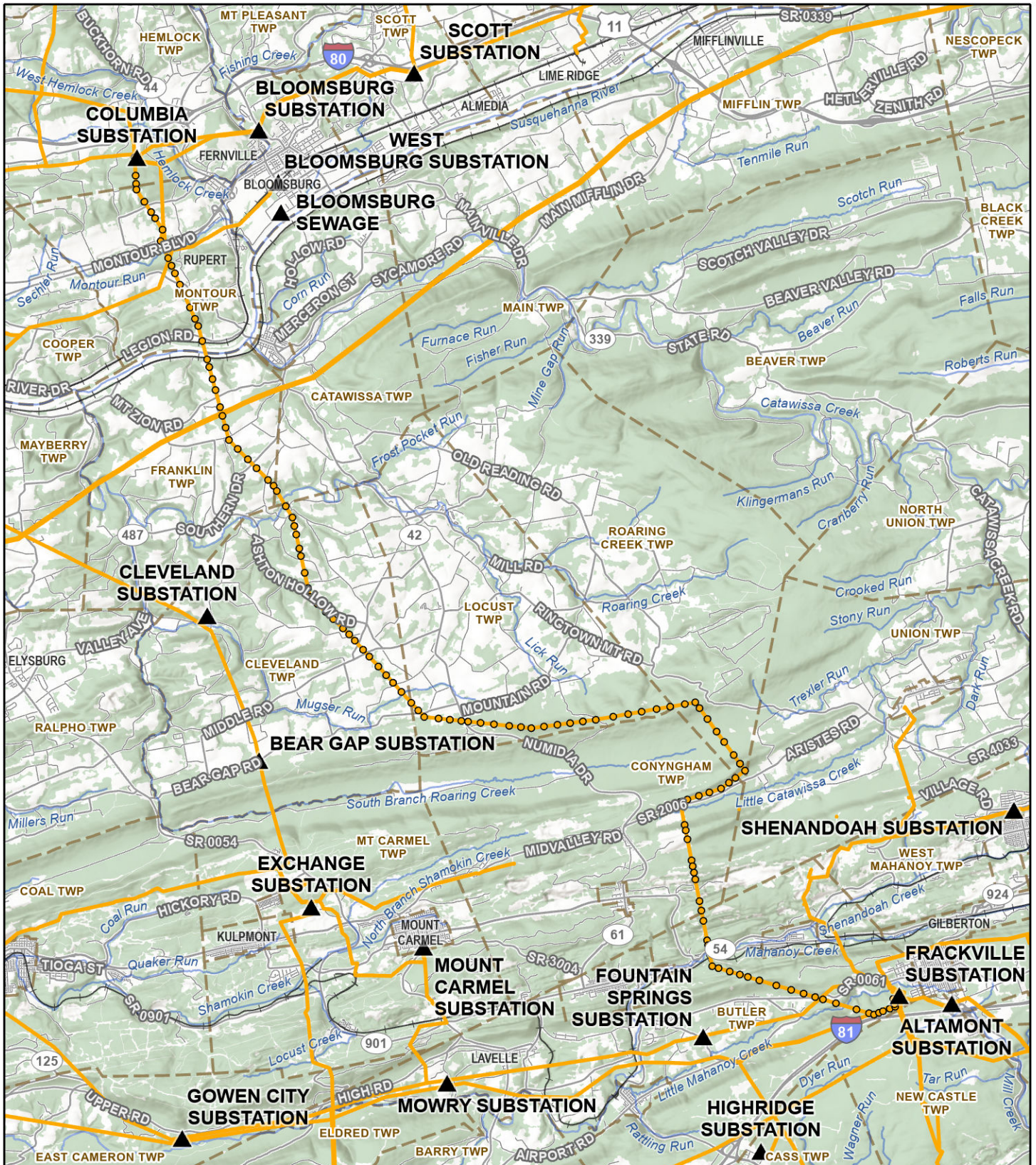
¹⁵ Because all COR-TEN® lattice structures on the system are of a similar design and vintage, doing the cost of service calculation on a per structure basis allows for a determination of the most cost effective option for any COR-TEN® structure on the system regardless of the total line length. It is 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.

As discussed in Section 4.2.1 above, PPL Electric presented the project scope (Supplemental Project Number S2376) for a rebuild of the Frackville-Columbia 230 kV Transmission Line to address the COR-TEN® asset health issues to PJM in the October 2020 TEAC meeting.¹⁶

A map of the proposed system alignment is provided as **Figure 1-3**.

¹⁶ Refer to slides 21 through 24 at <https://www.pjm.com/~media/committees-groups/committees/teac/2020/20201006/20201006-item-09-ppl-supplemental.ashx>

Figure 1-2: Existing System Configuration



- ▲ Substation or Switchyard
- Existing Structure
- Existing Transmission Line
- - Municipality Boundary

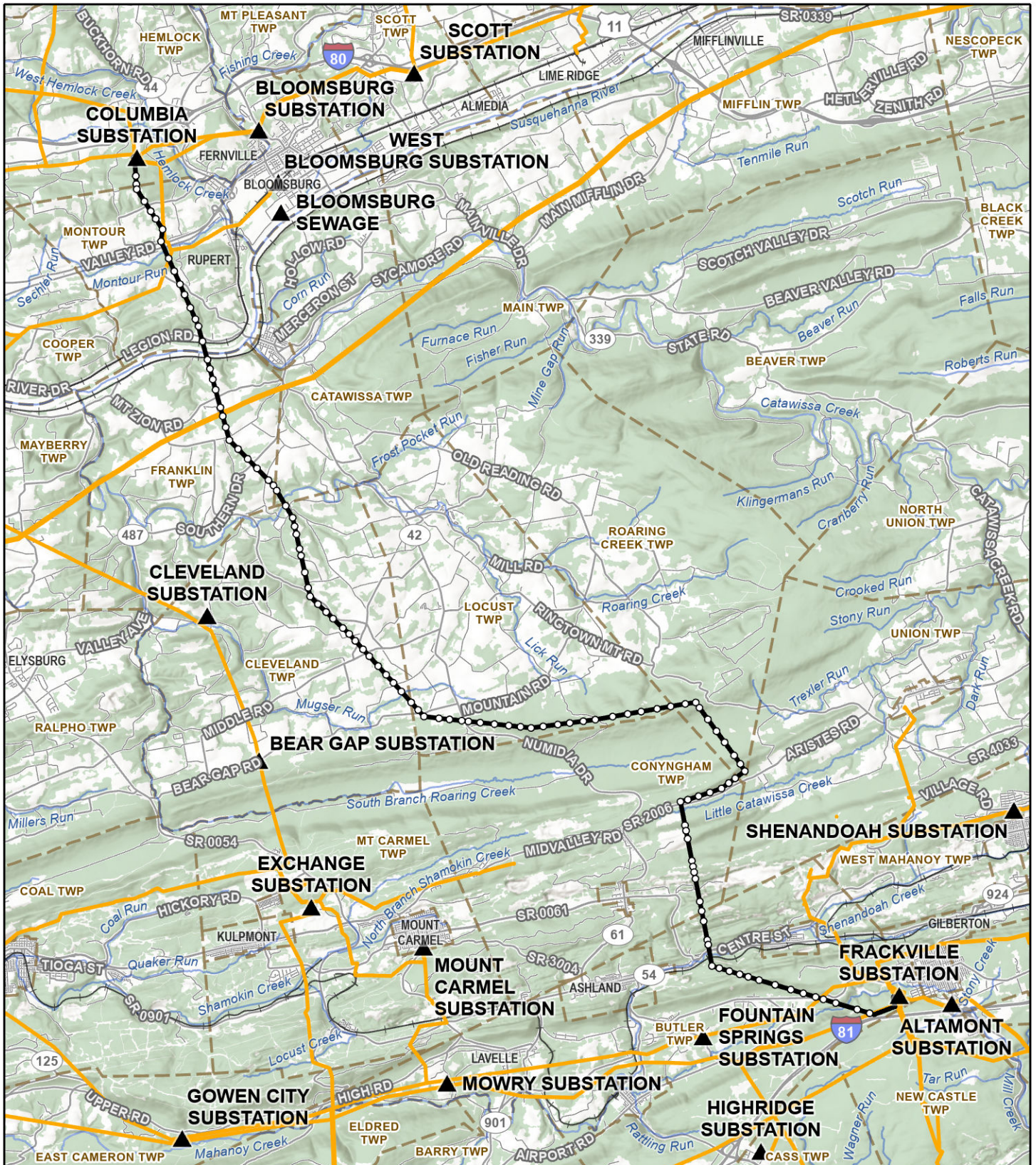
Roads, Railroads,
Municipalities (PASDA 2022)
Rivers, Forest Cover
(USGS 2022)

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

Figure 1-2
Existing System Configuration
Frackville-Columbia 230 kV
Transmission Line Rebuild Project

0 1.5 3 Miles

Figure 1-3: Proposed System Configuration



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

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

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

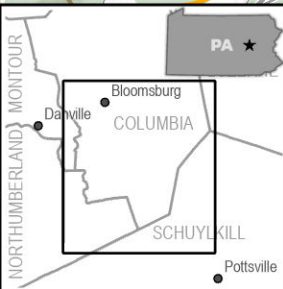


Figure 1-3
Proposed System Configuration
Frackville-Columbia 230 kV
Transmission Line Rebuild Project

Logos for **ppl** and **wsp**.

Scale: 0, 1.5, 3 Miles

**PPL ELECTRIC
ATTACHMENT 2**

FRACKVILLE-COLUMBIA 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 the “Commission”) approval to rebuild approximately 26.7 miles of the existing single-circuit Frackville-Columbia 230 kilovolt (“kV”) Transmission Line connecting the Frackville 230-69 kV Substation (“Frackville Substation”) located in Schuylkill County and the Columbia 230-69 kV Substation (“Columbia Substation”) located in Columbia County, Pennsylvania (“Frackville-Columbia 230 kV Rebuild Project” or “Project”).

The proposed Project is part of PPL Electric’s COR-TEN® rebuild program in which all existing 230 kV transmission lines built with COR-TEN® lattice towers are being replaced due to structural concerns. Specifically, an approximately 26.7-mile-long portion of the Frackville-Columbia 230 kV Rebuild Project requires structure replacements of the COR-TEN® lattice towers. The Project crosses Butler Township in Schuylkill County and Catawissa, Cleveland, Conyngham, Franklin, Hemlock, Locust, Montour, and Roaring Creek townships in Columbia County.

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

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

As described above in Section 1, the existing Frackville-Columbia 230 kV Transmission Line is approximately 26.7 miles long and connects the Frackville and Columbia substations. The Frackville-Columbia 230 kV Transmission Line is composed of three (3) double bundle 2493 kcmil¹, 54/37 stranding, “Kingfisher” Aluminum Conductor Aluminum Reinforced (“ACAR”) conductor wires. This conductor is supported by a series of 116 COR-TEN® single-circuit steel lattice tower, 3 3-pole dead-end structures, and 5 H-frame structures. The 3-pole dead-end

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.

structure closest to the Columbia Substation will also be replaced to meet the design criteria of the rebuilt COR-TEN[®] structures.

The seven existing structures closest to Frackville Substation (Page 1 of 32, Structure 118 to Structure 124, in **Figure 3-1 in Attachment 3**) meet the current design and reliability standards and do not require replacement or reconductoring. Structures 122 to 124 were installed in 2025 as the subject of one of PPL Electric’s recent Letter of Notification filings to rebuild the Frackville 230/69 kV Substation. Structures 118 to 121 were replaced between 2014-2018 as part of the Company’s maintenance program which replaced all wood assets on the line.

A detailed map of the Project alignment is provided as **Figure 3-1 in Attachment 3**.

Due to the corrosion and development of pack-out rust² on the COR-TEN[®] lattice tower structures, PPL Electric proposes to replace them with steel monopole structures. The COR-TEN[®] lattice towers will be replaced structure-for-structure with steel monopoles for 115 of the 116 existing structures. Existing structure 11 will be removed and will not be replaced as part of the Project due to the challenging terrain and expensive access that would be required to install and maintain a new structure at that location (see Page 30 of 32 in **Figure 3-1 in Attachment 3**). PPL Electric was able to engineer a solution to span the steep slope and avoid installing a new structure. The average span length for the rebuilt Frackville-Columbia 230 kV Transmission Line is 1,159 feet.

² “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.

The existing COR-TEN® lattice tower structures range in height from approximately 96 feet to approximately 191 feet, with an average structure height of approximately 121 feet. The existing COR-TEN® lattice tower structures are approximately 35 feet by 35 feet at their base, or approximately 1,225 square feet. The proposed structures for the rebuilt Frackville-Columbia 230 kV Transmission Line will range in height from approximately 90 feet to approximately 195 feet, with an average height of approximately 142 feet. The proposed monopole structures will have an average base diameter of approximately 7 feet, or an approximate area of 38.5 square feet. **Table 2-1** provides a summary of the number and heights of the existing and proposed structures that are the subject of this Project filing.

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
Frackville-Columbia 230 kV	117	96 to 191	116	90 to 195	7-009-013 7-009-061 7-009-062 7-009-064
Total	117		116		
*Proposed number of new structures based on preliminary engineering. The final number of new structures may vary and include structures to remain/be reused.					

Figures 2-1 through 2-4 depict typical structure types that will be used for the rebuilt Frackville-Columbia 230 kV Transmission Line, which include the following installations of:

- 1 new single-circuit angle tension direct-embedded monopole structure (**Figure 2-1**);
- 89 new long span double-circuit tangent suspension direct embedded monopole structures (**Figure 2-2**);
- 1 new long span double-circuit angle suspension direct embedded monopole structure (**Figure 2-3**); and
- 25 new long span double-circuit angle tension direct embedded monopole structures (**Figure 2-4**).

The rebuild project will be designed to double-circuit 230 kV standards to accommodate future load growth. The proposed monopole structures for the rebuilt Frackville-Columbia 230 kV Transmission Line will be constructed in generally the same location as the existing structures. The transmission line cannot be fully deenergized during the construction process, and because of this the new monopoles will be offset by approximately 35 feet ahead of or behind and approximately 15 feet horizontally from the existing COR-TEN® structure locations as a safety precaution. PPL Electric has designed the proposed transmission line system so that it fits entirely within the existing right-of-way (“ROW”).

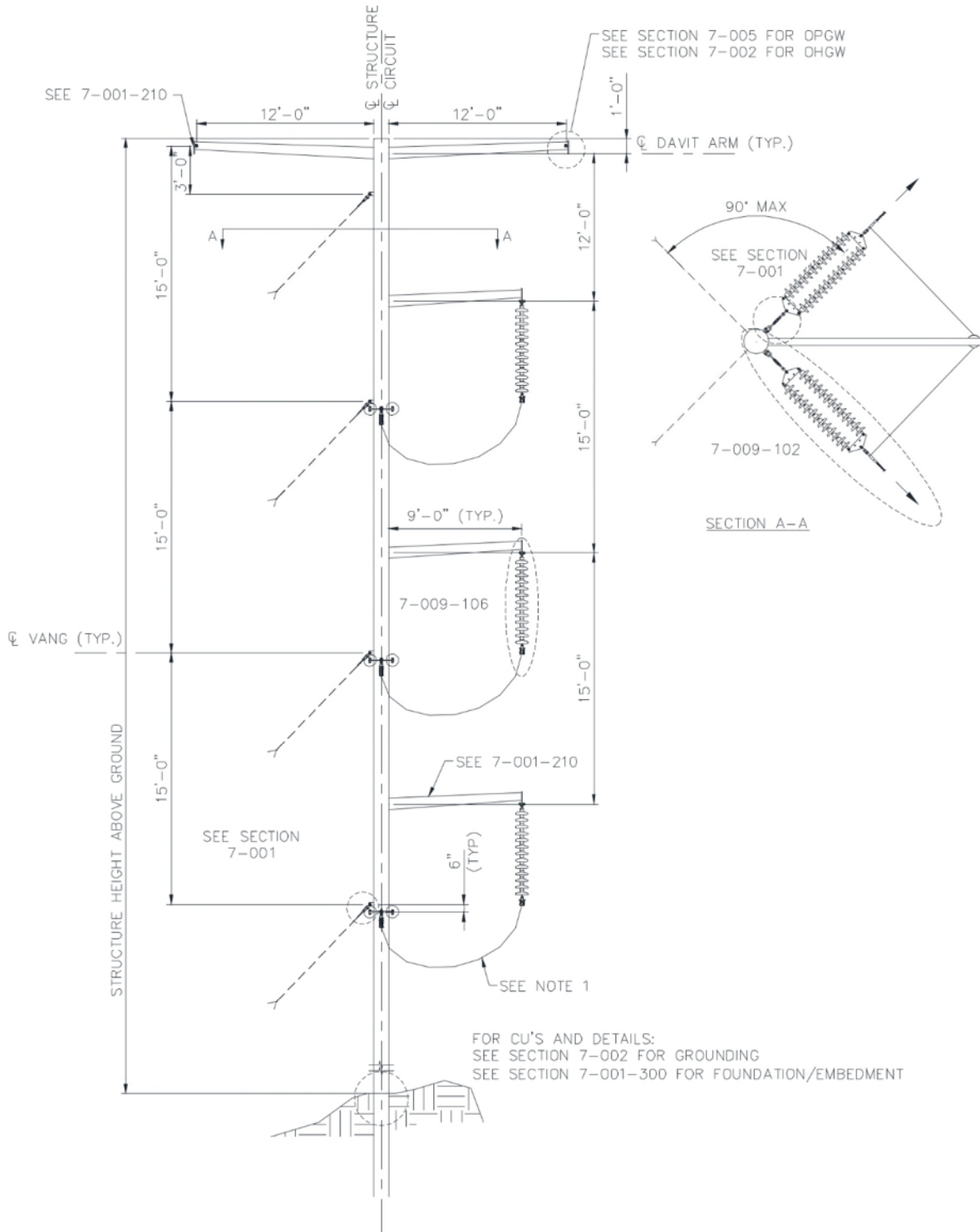
The proposed Frackville-Columbia 230 kV Transmission Line consists of three (3) double bundle 1590 kcmil, 54/19 stranding, “Falcon” Aluminum Conductor Steel Reinforced (“ACSR”) conductors. The minimum conductor-to-ground clearance will be 25.5 feet which occurs at the emergency maximum thermal conductor 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 through 2-4**.

Table 2-2. Design for Minimum Conductor Clearances for Selected Conductor³	
Condition	Transmission Double-Circuit Design Clearance-to-Ground
Heavy Ice (1” Ice at 0°C ambient temperature)	25.5 feet
Predicted extreme thermal load (125°C conductor temperature)	25.5 feet
Predicted blowout (6 psf, 16°C ambient temperature)	25.5 feet

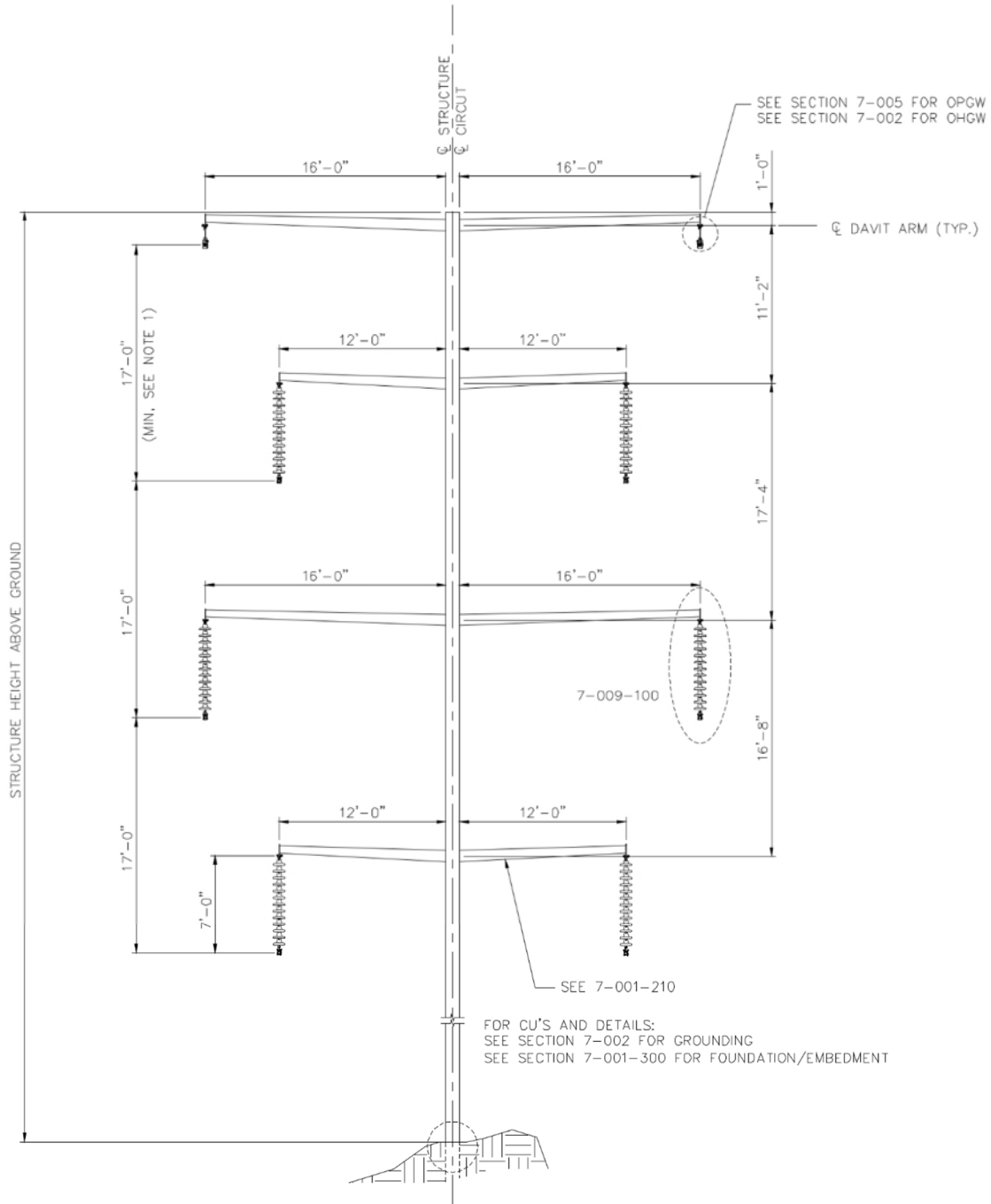
Table 2-3. Conductor Thermal Rating for Selected Conductor			
Condition	Ambient Temperature (°C)	Wind Speed (Ft./sec)	Ampacity (Amps)
Summer Normal	35	0	3,342
Winter Normal	10	0	3,849
Summer Emergency	35	2.533	4,126
Winter Emergency	10	2.533	4,646

³ Clearances based on an initial maximum tension of 6,000-10,000 pounds at 0.5-inch ice, 0°F, 4# wind and maximum ruling span of 200-1,250 feet.

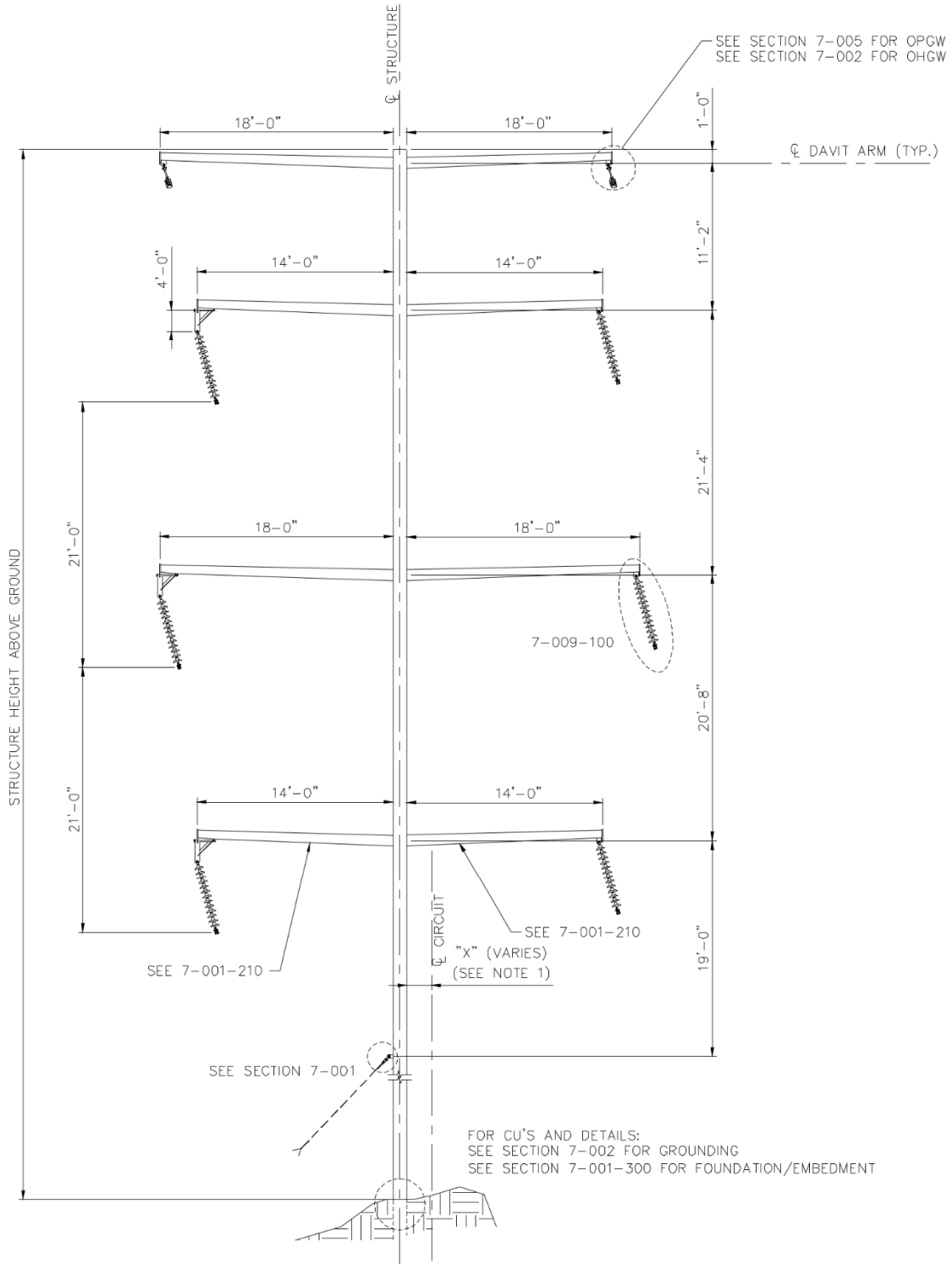
**Figure 2-1. Typical 230 kV Single-Circuit Steel Pole
 0° to 90° Angle Tension on Pole Structure (7-009-013)**



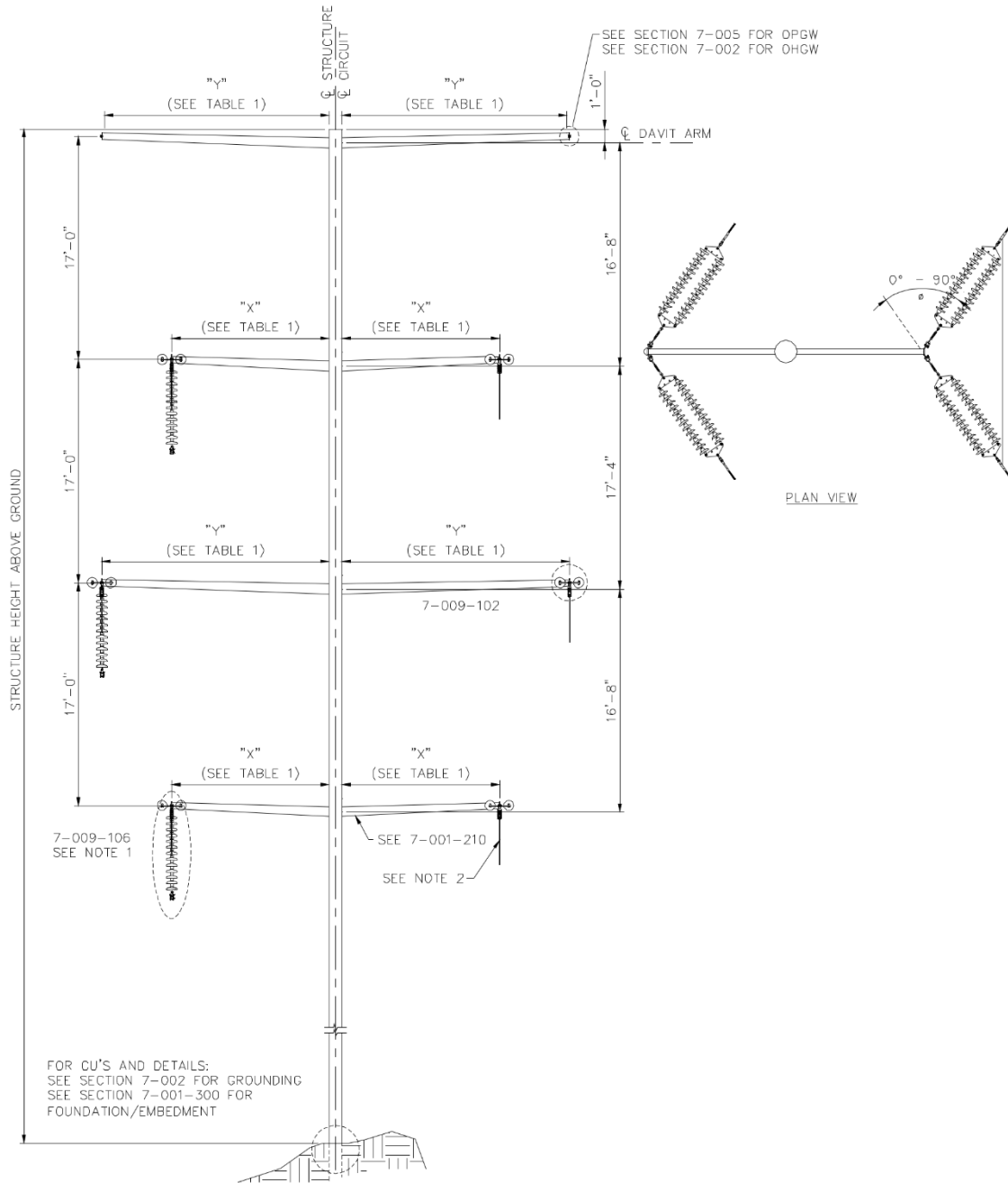
**Figure 2-2. Typical 230 kV Long Span Double Circuit Steel Pole
 0° to 1° Suspension Structure (7-009-061)**



**Figure 2-3. Typical 230 kV Long Span Double Circuit Steel Pole
 1° to 10° Angle Suspension Structure (7-009-062)**



**Figure 2-4. Typical 230 kV Long Span Double Circuit Steel Pole
 0° to 90° Angle Tension on Arm Structure (7-009-064)**



**PPL ELECTRIC
ATTACHMENT 3**

FRACKVILLE-COLUMBIA 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 the “Commission”) approval to rebuild approximately 26 miles of the existing single-circuit Frackville-Columbia 230 kilovolt (“kV”) Transmission Line between the Frackville 230-69 kV Substation (“Frackville Substation”) located in Schuylkill County and the Columbia 230-69 kV Substation (“Columbia Substation”) located in Columbia County, Pennsylvania (the “Frackville-Columbia 230 kV Rebuild Project” or “Project”).

The proposed Project is part of PPL Electric’s COR-TEN® rebuild program in which all existing 230 kV transmission lines built with COR-TEN® lattice towers are being replaced due to structural concerns. Specifically, an approximately 26.7-mile-long portion of the Frackville-Columbia 230 kV Rebuild Project requires structure replacements for the COR-TEN® lattice towers. PPL Electric has provided information about the proposed Project to representatives from Columbia and Schuylkill counties, in addition to Butler, Catawissa, Cleveland, Conyngham, Franklin, Hemlock, Locust, Montour, and Roaring Creek townships.

The rebuilt Frackville-Columbia 230 kV Transmission Line will be slightly offset from the existing structure alignment and will remain on the same PPL Electric fee-owned properties and within the same right-of-way (“ROW”) as the existing transmission line. The existing fee-owned properties and ROW vary in width from approximately 175 feet to approximately 350 feet wide. As part of the Project, 117 existing structures (i.e., 116 COR-TEN® lattice towers and one 3-pole dead-end structure) will be replaced with 116 new structures. Existing structure 11 will be removed and not replaced because of the challenging terrain and expensive access that would be required to install and maintain a new structure at that location. As discussed in **Attachment 2**, the seven existing structures closest to the Frackville Substation meet the current design and reliability standards and do not require replacement or reconductoring. A network of existing access roads and some temporary roads will be utilized during the transmission line rebuild. Detailed maps of the proposed rebuilt Frackville-Columbia 230 kV Transmission Line and associated structures are provided in **Figure 3-1**. The ROW for the Project is further described below:

- North of the Interstate 81 (I-80) highway, in Butler Township, Schuylkill County, the existing Frackville-Columbia 230 kV Transmission Line begins at the rebuilt Frackville Substation then heads in a southwesterly direction to pass through forested terrain for approximately 0.5 mile (Page 1 of 32, from the existing Frackville Substation to Structure 118 in **Figure 3-1**). These structures are located entirely on PPL Electric property and will remain in place.
- From this point, the existing Frackville-Columbia 230 kV Transmission Line proceeds northwest through forested terrain for approximately 3.1 miles (Page 2-5 of 32, Structure 118 to Structure 104 in **Figure 3-1**). This portion of the Project crosses Little Mahanoy Creek and four unnamed tributaries (“UNT”) of Little Mahanoy Creek. The 14 COR-TEN® structures along this 3.1-mile-long segment will be replaced with suspension custom monopole structures and long span angle tension monopole structures (see **Figures 2-2 and 2-4 in Attachment 2**). All of these structures are located entirely within existing ROW maintained by PPL Electric.
- Next, the Frackville-Columbia 230 kV Transmission Line turns again to proceed northward, crossing the Philadelphia and Reading Railroad corridor and State Route 54 (SR 54), continuing through steep forested land and inactive mining properties for approximately 3 miles (Pages 5-8 of 32, Structure 103 to Structure 91 in **Figure 3-1**). Additionally, within this area, the Project crosses approximately 0.4 mile of Pennsylvania Game Commission (PGC) State Game Lands 329 (Pages 7-8 of 32, Structure 96 to Structure 94 in **Figure 3-1**). Hydrological features crossed by this portion of the Project include Mahanoy Creek, Little Catawissa Creek, and an UNT of Little Catawissa Creek. The 13 COR-TEN® structures along this segment will be replaced with suspension custom monopole structures and long span angle tension monopole structures (see **Figures 2-2 and 2-4 in Attachment 2**). All of these structures are located entirely within existing ROW maintained by PPL Electric.
- Just after crossing State Route 2006 (SR 2006)/Aristes Ringtown Road, the Frackville-Columbia 230 kV Transmission Line turns northeastward for 1.3 miles through dense forested terrain. Then, another turn angle structure is used to proceed northwestward for an additional 1.6 miles (Pages 8-12 of 32, Structure 90 to Structure 77 in **Figure 3-1**). This

portion of the Project crosses State Game Lands 329 again, specifically between Structures 91 and 82, and also crosses an UNT of South Branch Roaring Creek. The 14 COR-TEN® structures along this segment will be replaced with suspension custom monopole structures and long span angle tension monopole structures (see **Figures 2-2 and 2-4 in Attachment 2**). All of these structures are located entirely within existing ROW maintained by PPL Electric.

- For the next 4 miles, the Project turns sharply westward as it transitions from traversing primarily forested cover to a mix of agricultural and residential land (Pages 12-17 of 32, Structures 76 to 60 in **Figure 3-1**). Shortly after crossing State Route 42 (SR 42), the Project continues westward for 0.8 mile through agricultural cropland (Pages 17-18 of 32, Structures 60 to 56 in **Figure 3-1**). This portion of the Project crosses several Columbia County Agricultural Security Areas (“ASAs”) of properties located along State Route 42 (SR 42) and Bear Gap Road as well as six UNTs of Mugser Run. The 21 COR-TEN® structures along this combined approximately 5-mile-long segment will be replaced with suspension custom monopole structures and long span angle tension monopole structures (see **Figures 2-2 and 2-4 in Attachment 2**). All of these structures are located entirely within existing ROW maintained by PPL Electric.
- Before the Project crosses Bear Gap Road, the Frackville-Columbia 230 kV Transmission Line turns to proceed northwestward through agricultural land or fragmented woodlots between agricultural and residential properties, totaling 3 miles (Pages 18-21 of 32, Structures 55 to 41 in **Figure 3-1**). Hydrological resources crossed by this portion of the Project include Mugser Run, three UNTs of Mugser Run, and two UNTs of Roaring Creek. Additionally, the Project crosses Columbia County ASAs between Structures 49 and 47 and between Structures 56 and 52. The 15 COR-TEN® structures along this segment will be replaced with suspension custom monopole structures and long span angle tension monopole structures (see **Figures 2-2, 2-3 and 2-4 in Attachment 2**). All of these structures are located entirely within existing ROW maintained by PPL Electric.
- After crossing Ashton Hollow Road and a UNT of Roaring Creek, the Project proceeds in a general northward direction for approximately 2.6 miles through a similar landscape composed of agricultural and residential properties surrounded by larger forested tracts or fragmented woodlots (Pages 22-25 of 32, Structures 40 to 28 in **Figure 3-1**). Within this

portion of the Project, the rebuilt centerline crosses four UNTs of Roaring Creek and Roaring Creek and its associated 100-year Federal Emergency Management Agency (FEMA) floodplain. The 13 COR-TEN® structures along this segment will be replaced with suspension custom monopole structures and long span angle tension monopole structures (see **Figures 2-2 and 2-4** in **Attachment 2**). All of these structures are located entirely within existing ROW maintained by PPL Electric.

- The Project continues in a general northward direction to approach the Susquehanna River through primarily agricultural land for the next 2 miles (Pages 25-27 of 32, Structures 27 to 19 in **Figure 3-1**). Most of this stretch passes through Columbia County Agricultural Conservation Easements (“ACEs”) of properties located along Longwoods Road and Mount Zion Road, two of which are identified as ASAs. This portion of the Project crosses two additional UNTs of Roaring Creek. The 9 COR-TEN® structures along this segment will be replaced with suspension custom monopole structures (see **Figures 2-2 and 2-4** in **Attachment 2**). All of these structures are located entirely within the PPL Electric-maintained portion of the existing ROW.¹
- Between Structure 19 and Structure 18, the Project crosses the Susquehanna River and its associated FEMA-designated 100-year floodplain and regulatory floodway. Additionally, the Project crosses the Delaware, Lackawanna & Western Railroad and the Philadelphia & Erie Railroad, which are along the north and south banks of Susquehanna River, respectively. The private Grove-Rishel Conservation Area, located adjacent to and north of the Susquehanna River, is also crossed by the Project here. Both structures are located entirely within the PPL Electric-maintained portion of the existing ROW.
- On the opposite side of the Susquehanna River, the Project continues northward for 1.6 miles by traversing a few larger forested tracts as well as agricultural lands, including tree farms/orchards, and crossing an UNT of Montour Run (Pages 28-30 of 32, Structures 18 to 10 in **Figure 3-1**). For the remaining 2 miles, the Project crosses Montour Run and US Highway 11 and continues northward, primarily through agricultural land between Montour Boulevard and Ridge Road, and forested cover between Ridge Road and the

¹ The portion of the ROW housing the existing transmission line is maintained, but the southern portion is not cleared of vegetation. PPL does not plan on clearing the vegetation within the southern portion of ROW as a part of this project, and construction activities will remain exclusively on the cleared, maintained portion of ROW.

existing Columbia Substation (Pages 31-32 of 32, Structures 9 to 1 in **Figure 3-1**). The 16 COR-TEN® structures between Structures 2 and 18 will be replaced with suspension custom monopole structures and long span angle tension monopole structures (see **Figures 2-2 and 2-4 in Attachment 2**). This segment also crosses four additional UNTs of Montour Run.

- Structure 1 will be replaced with a suspension custom monopole structure (**Figure 2-1 in Attachment 2**). All of these structures are located entirely within the PPL Electric-maintained portion of the existing ROW or located entirely on PPL Electric property (Structure 1).

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 rebuilt centerline (the “Project Area”). This broader area was reviewed to summarize the overall landscape in which the Project is located. Based on a review of the 2021 United States Geological Survey (USGS) National Land Cover Database (NLCD) and current aerial imagery, land use in the Project Area primarily consists undeveloped forest (deciduous, evergreen, or mixed) and agricultural land (cultivated cropland or hay/pasture), totaling 92 percent. The remaining 8 percent of existing land uses within the Project Area consists of barren land, developed land (open space, low intensity, medium intensity, and high intensity), wetlands, open water, herbaceous, and scrub/shrub habitat.

Two Federal Communications Commissions (FCC) towers were identified within the Project Area, one located approximately 2 miles west of Frackville Substation, and one located adjacent to and southeast of Columbia Substation. Within the southern portion of the Project area, the rebuilt Frackville-Columbia 230 kV Transmission Line also crosses areas of inactive mining land (see Pages 6-7 of 32 in **Figure 3-1**). Additionally, wind turbines are located adjacent to and south of State Game Lands 329 within this area. The existing ROW crosses Windmill Lane between Structures 95 and 96 (see Page 7 of 32 in **Figure 3-1**). The nearest wind turbine is located approximately 530 feet east of proposed Structure 96.

No cell tower attachments are located on the existing Frackville-Columbia 230 kV Transmission Line. No existing intrastate or interstate pipelines were identified within the Project Area. PPL Electric does not anticipate any interference with FCC towers, wind turbines or pipelines since the Project consists of electrical facilities that are of a similar height as the existing structures, located near the existing structure and within existing ROW.

The Project crosses other PPL Electric utility ROWs in proximity to both the Columbia and Frackville substations, such as the Frackville-Mowry 69 kV Transmission Line, the Frackville-Reed Tie 69 kV Transmission Line, the Frackville-Fishbach 138-69 kV Transmission Line, and the Sunbury-Columbia 69 kV Transmission Line.

The PPL Electric Sunbury-Susquehanna #1 and #2 230 kV Transmission Lines cross the Project between Structures 23 and 24 (see Page 26 of 32 in **Figure 3-1**). Additionally, the Project crosses the PPL Electric Columbia-Danville 69 kV transmission line near Structure 8 and between existing Structures 10 and 11. No other pipelines or utilities will be affected by the proposed Project.

No Federal Aviation Administration (FAA) facilities were identified within the Project Area. The closest regional airport to the Project Area is the Bloomsburg Municipal Airport, a publicly owned facility, located approximately 3.8 miles southeast of the existing Columbia Substation. Additionally, a private airport (Numidia Airport) is located approximately 1 mile north of the Project along Numidia Drive. PPL Electric does not anticipate any interference with airport or heliport operations since the Project consists of electrical facilities that are of a similar height as the existing electrical facilities and within existing ROW. Additionally, PPL Electric will file any required documentation with the FAA and the Pennsylvania Department of Transportation, Bureau of Aviation.

The Project crosses two railroads (one along each bank of the Susquehanna River) between Structure 18 and Structure 19 as shown on Pages 27-28 of 32 in **Figure 3-1**. The railroad along the north side of the Susquehanna River is identified as the Delaware, Lackawanna & Western Railroad and the Pennsylvania & Erie Railroad along the south side of the Susquehanna River is owned and operated by Norfolk Southern. The Project also crosses the Philadelphia & Reading Railroad between Structure 103 and Structure 104 (see Page 5 of 32 in **Figure 3-1**). PPL Electric

is currently coordinating with the railroad companies to minimize potential Project impacts. The Company has a history of working with these Railroads and has historically succeeded in obtaining the permits and licenses necessary to complete its projects.

Conserved Lands

The privately-owned Grove-Rishel Conservation Area is located along the north side of the Susquehanna River and is crossed by the existing Frackville-Columbia 230 kV Transmission Line. No impacts are anticipated for the private conservation area since the proposed structures will be installed in proximity to existing structures outside of the conservation area.

Two state recreational trails are located within the Project Area. The Susquehanna River provides a water trail from New York through Pennsylvania to Sunbury where it joins the West Branch. The existing Frackville-Columbia 230 kV Transmission Line spans the Susquehanna River, but the proposed rebuild is not anticipated to impact associated recreational activities. Legion Road (see Page 28 of 32 in **Figure 3-1**) provides a bicycling corridor (Route V) for the greater statewide BicyclePA network.² The Project poses similar viewshed impacts as compared to the existing line to cyclists and motorcyclists along Legion Road/Route V. Additionally, because the proposed structures will be installed in proximity to the existing structures and at similar heights, minimal impact or no impact to Route V is anticipated as a result of the Project.

The Project Area crosses the Roaring Creek Special Regulated Area of Weiser State Forest, located adjacent to and north of SR 2006/Aristes Ringtown Road, which has shared use trails (hiking, biking, and horseback) located along its southern boundary.³ No existing or proposed structures are located within the State Forest. Additionally, no new visual impacts are anticipated for the nearest shared use trails since the forested cover is dense and the existing lattice towers will be replaced structure-for-structure with steel monopoles of similar heights.

PGC State Game Lands 329 is located adjacent to and south of the Weiser State Forest. The existing Frackville-Columbia 230 kV Transmission Line ROW crosses State Game Lands 329

² https://www.dot.state.pa.us/public/pdf/bikes/state_mapV.pdf

³ <https://elibrary.dcnr.pa.gov/GetDocument?docId=5305480&DocName=D18LayLoRes.pdf>

between Structure 94 and Structure 96 and between Structure 82 and Structure 91 (see Pages 7-10 of 32 in **Figure 3-1**).

Overall, the proposed Project is not anticipated to result in new impacts to any local or state parks or recreation areas, conservation areas, or protected lands. No national, state, or local parks or natural landmarks are located within the Project area.

As shown on Pages 25-27 of 32 in **Figure 3-1**, the Project crosses several ACEs and ASAs between Structures 22 and 28. The Project also crosses ASAs between Structure 47 and 49 (see Page 20 of 32 in **Figure 3-1**) and between Structure 52 and Structure 61 (see Pages 17-19 of 32 in **Figure 3-1**). No significant impacts are anticipated for the ACEs and ASAs crossed by the Project since the proposed structures will be located within close proximity to the existing structures, on the same ACE and ASA properties, within the existing ROW.

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. Based on State Historic Preservation Office (“SHPO”) data, two historic districts, which are eligible for inclusion in the National Register of Historic Places (“NRHP”) are crossed by the Project: the Philadelphia & Reading Railroad (see Pages 7, 28, and Page 30 of 32 in **Figure 3-1**) and the Delaware, Lackawanna & Western Railroad (see Pages 27-28 of 32 in **Figure 3-1**). The Project is also located adjacent to an eligible historic structure, the Clifton D Miller Farm, as shown on Pages 25-26 of 32 in **Figure 3-1**.

Two known archaeological resources (2016RE03672 and 2014RE01002) were identified within the Project Area. Both resources are not eligible. No other known architectural or archaeological resources were identified within the Project Area.

PPL Electric is in the initial stage of coordination with the SHPO 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 the SHPO eligible districts. 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

The Project crosses core habitat for several Natural Heritage Areas (“NHAs”), according to the Pennsylvania Department of Conservation and Natural Resources (“DCNR”). These NHAs and additional DCNR coordination are described below. No additional unique geological, scenic, or natural areas are located within the Project Area.

Soils

The Project Area is situated on gently undulating terrain, crossing a rural landscape primarily composed of agricultural land, residential land, and undeveloped forest. Topography varies from approximately 450 feet to approximately 1,845 feet above mean sea level (“msl”). Soils present within the Project Area predominantly consist of silt, stony, and sandy loams, ranging between 0 and 80 percent slopes.

Erosion and Sedimentation (“E&S”) control plans will be developed and implemented for the Project to minimize the displacement of soils. These plans will require prior approval from the applicable counties’ 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 and Wetlands

The existing transmission line spans 16 USGS National Hydrography Dataset (NHD) waterways that will remain in place after the Project construction activities have occurred. The waterways crossed by the Project include Little Catawissa Creek, Little Mahanoy Creek, Mahanoy Creek, Montour Run, Mugser Run, Roaring Creek, Susquehanna River, as well as a UNT of Little

Catawissa Creek, one UNT of Montour Run, two UNTs of Mugser Run, four UNTs of Roaring Creek, and one UNT of Susquehanna River.

Montour Run and its UNT are located in the Stony Brook-Fishing Creek Watershed (Hydrologic Unit Code [“HUC”] 020501070707). Susquehanna River and its UNT are located in the Logan Run-Susquehanna River Watershed (HUC 020501071003). Roaring Creek and its four UNTs are located in the Roaring Creek Watershed (HUC 020501070902). Mugser Run and its two UNTs are located in the Mugser Run-South Branch Roaring Creek Watershed (02050107004001). Little Catawissa Creek and its UNT are located in the Little Catawissa Creek Watershed (02050107001204). Little Mahanoy Creek and Mahanoy Creek are located in the Upper Mahanoy Creek Watershed (020503010501). The Upper Mahanoy Creek Watershed is a subwatershed in the Lower Susquehanna-Penns Watershed (HUC 02050301) and the remaining watersheds are subwatersheds in the Upper Susquehanna-Lackawanna Watershed (HUC 02050107).

Table 3-1 summarizes the PADEP Chapter 93 designated use classifications and special Pennsylvania Fish and Boat Commission (PFBC) designations of the streams identified within the Project area along with their locations on **Figure 3-1**. No direct impact to these stream features is anticipated by the Project activities.

Table 3-1. Streams within the Project Area			
Stream Name	PADEP Chapter 93 Designated Use Classification	Special PFBC Designation	Location on Figure 3-1
Little Mahanoy Creek	CWF, MF	Trout Natural Reproduction	Page 2
Mahanoy Creek	WWF, MF	-	Page 5
UNT of Little Catawissa Creek	CWF, MF	-	Page 7
Little Catawissa Creek	HQ-CWF, MF	Class A Trout Stream	Pages 8 and 9
UNT of Mugser Run	HQ-CWF, MF	-	Pages 17 and 18
Mugser Run	HQ-CWF, MF	Class A Trout Stream	Page 18
UNT of Mugser Run	HQ-CWF, MF	-	Page 19
UNT of Roaring Creek	CWF, MF	-	Pages 21 and 22
UNT of Roaring Creek	CWF, MF	-	Pages 23 and 24

Table 3-1. Streams within the Project Area			
Stream Name	PADEP Chapter 93 Designated Use Classification	Special PFBC Designation	Location on Figure 3-1
Roaring Creek	TSF, MF	-	Pages 23 and 24
UNT of Roaring Creek	CWF, MF	-	Page 24
UNT of Roaring Creek	CWF, MF	-	Page 25
Susquehanna River	WWF, MF	-	Pages 27 and 28
UNT of Susquehanna River	CWF, MF	-	Pages 27 and 28
Montour Run	CWF, MF	-	Page 30
UNT of Montour Run	CWF, MF	-	Page 30

Mahanoy Creek and Susquehanna River have a PADEP-designated use classification of Warm Water Fishes (“WWF”). Little Mahanoy Creek, the UNT of Little Catawissa Creek, UNTs of Roaring Creek, the UNT of Susquehanna River, Montour Creek, and the UNT to Montour Creek have a PADEP-designated use classification of Cold Water Fishes (“CWF”).

Little Catawissa Creek, Mugser Run, and UNTs of Mugser Run have a PADEP-designated use classification of High Quality-Cold Water Fishes (“HQ-CWF”), which is an anti-degradation special protection classification for surface waters having quality which exceeds levels necessary to support propagation of fish, shellfish, and wildlife. All sixteen streams also have a PADEP-designated classification of Migratory Fisheries (“MF”), which is an anti-degradation special protection classification for surface waters which provide habitat for the passage, maintenance and propagation of anadromous and catadromous fishes and other fishes which move to or from flowing waters to complete their life cycles in other waters.

Three streams spanned by the Project have special PFBC designations. Little Catawissa Creek and Mugser Run are also classified as Class A Trout Streams, which are defined as streams that support a population of wild (natural reproduction) trout of sufficient size and abundance to support a long-term and rewarding sport fishery. Additionally, Little Mahanoy Creek is identified as a Trout Natural Reproduction stream, which is a biological designation indicative of flowing waters that support naturally reproducing populations of trout.

Based on review of the U.S. Fish and Wildlife Service’s (“USFWS”) National Wetlands Inventory (“NWI”), the Project crosses a total of 21 wetlands: one Palustrine Emergent, Persistent/Scrub-Shrub, Broad-leaved Deciduous Seasonally Flooded (PEM1/SS1C) wetland habitat; one Palustrine Emergent, Persistent, Temporarily Flooded (PEM1A) wetland habitat; two Palustrine Forested, Broad-leaved Deciduous, Temporarily Flooded (PFO1A) wetland habitat; one Palustrine, Forested, Broad-leaved Deciduous, Seasonally Flooded (PFO1C) wetland habitat; one Palustrine, Forested, Broad-leaved Deciduous, Seasonally Flooded/Saturated (PFO1E) wetland habitat; one Palustrine, Unconsolidated Bottom, Semipermanently Flooded (PUBFx) wetland habitat; two Palustrine, Unconsolidated Bottom, Permanently Flooded (PUBHh) wetland habitats; one Riverine Lower Perennial Unconsolidated Bottom (R2UBH) stream habitat; one Riverine Intermittent Seasonally Flooded (R4SBC) stream habitat; and ten Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded (R5UBH) stream habitats. No impacts to these NWI features are anticipated by the proposed Project activities.

For federal and state permitting purposes, the wetlands and waterways within the Project Area have been delineated, surveyed, and illustrated according to regulatory standards (see **Figure 3-1**). This information is being used to minimize wetland and waterway impacts where feasible. Per PADEP Chapter 105 (Dam Safety and Waterway Management) regulations, wetlands located in or along the floodplain of a wild trout stream or waters listed as Exceptional Value (“EV”) and the floodplain of streams tributary thereto, are to be considered EV wetlands (25 Pa. Code § 105.171(iii)).

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

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.

100-Year Floodplains and Regulatory Floodway

The National Flood Hazard Layer for Columbia and Schuylkill counties in Pennsylvania was obtained through the Federal Emergency Management Agency (“FEMA”) Flood Map Service Center website and analyzed for 100-year floodplains and regulatory floodway within the Project Area and surrounding landscape. Based on review of this data, the Project spans 100-year floodplain areas associated with Little Mahanoy Creek, Montour Run, and Mugser Run. Additionally, the Project crosses 100-year floodplain and regulatory floodway areas associated with Susquehanna River, Mahanoy Creek, and Roaring Creek.

Minimal impacts to floodplain areas or floodways are anticipated by the proposed Project activities, since the proposed structures will be replaced in proximity to existing structures. Coordination with PADEP regarding this potential impact will be conducted during the permitting phase of the Project.

Vegetation

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

Natural Areas Inventory

A Natural Area Inventory (NAI) has been prepared by the Nature Conservancy in association with the Pennsylvania Natural Heritage Program (PNHP) for Columbia and Schuylkill counties (2004 and 2003, respectively). **Table 3-2** summarizes the core habitats of the NHAs crossed by the Project. Overall, no new impacts are anticipated for these habitats crossed by the Project since the

existing lattice towers will be replaced structure-for-structure with steel monopoles, which have a smaller footprint. The Project will be constructed and accessed within existing ROW.

Table 3-2. Natural Heritage Areas within the Project Area		
Natural Heritage Area Name	Core Habitat Description	Location on Figure 3-1
Aristes Vernal Pond Community	An ephemeral/fluctuating natural pool community provides important habitat for breeding amphibians and a variety of other species.	Page 8
Ashland Reservoir	The reservoir and surrounding spring-fed seeps and streams provide habitat for forest dwelling birds, stream salamanders, and other important wildlife.	Pages 1 and 2
Catawissa Bluffs	Several populations of a state threatened plant species of concern are found on the wet, extremely steep limestone cliffs dominating the Susquehanna River in this area.	Page 27
Shenandoah Municipal Authority Watershed	The locally significant site contains old-growth forest that is recovering from destruction from an aphid-like insect pest (hemlock wooly adelgid).	Pages 7 and 8
South Branch Roaring Creek Watershed	The contiguous forest is important to many wildlife species that are intolerant of human disturbance and the forested stream corridors are important stopover areas for migratory birds.	Pages 10-16
Susquehanna River	Five freshwater mussel species of concern were found at several sites along the Susquehanna River between Berwick and Bloomsburg. The river also provides a valuable migration corridor for many bird species, especially aquatic dependent species.	Pages 27 and 28

5.0 THREATENED AND ENDANGERED SPECIES

A Pennsylvania Natural Diversity Inventory (PNDI) was run for the Project on August 21, 2024, to assess the potential presence of threatened and endangered species and/or special concern species. Specific agencies reviewing the Project included the PGC, Pennsylvania Fish and Boat

Commission (PFBC), DCNR, and USFWS. All four agencies indicated in the PNDI that further review of the Project is necessary to resolve potential impacts. PPL Electric has continued coordination with the individual agencies since receiving the initial PNDI responses.

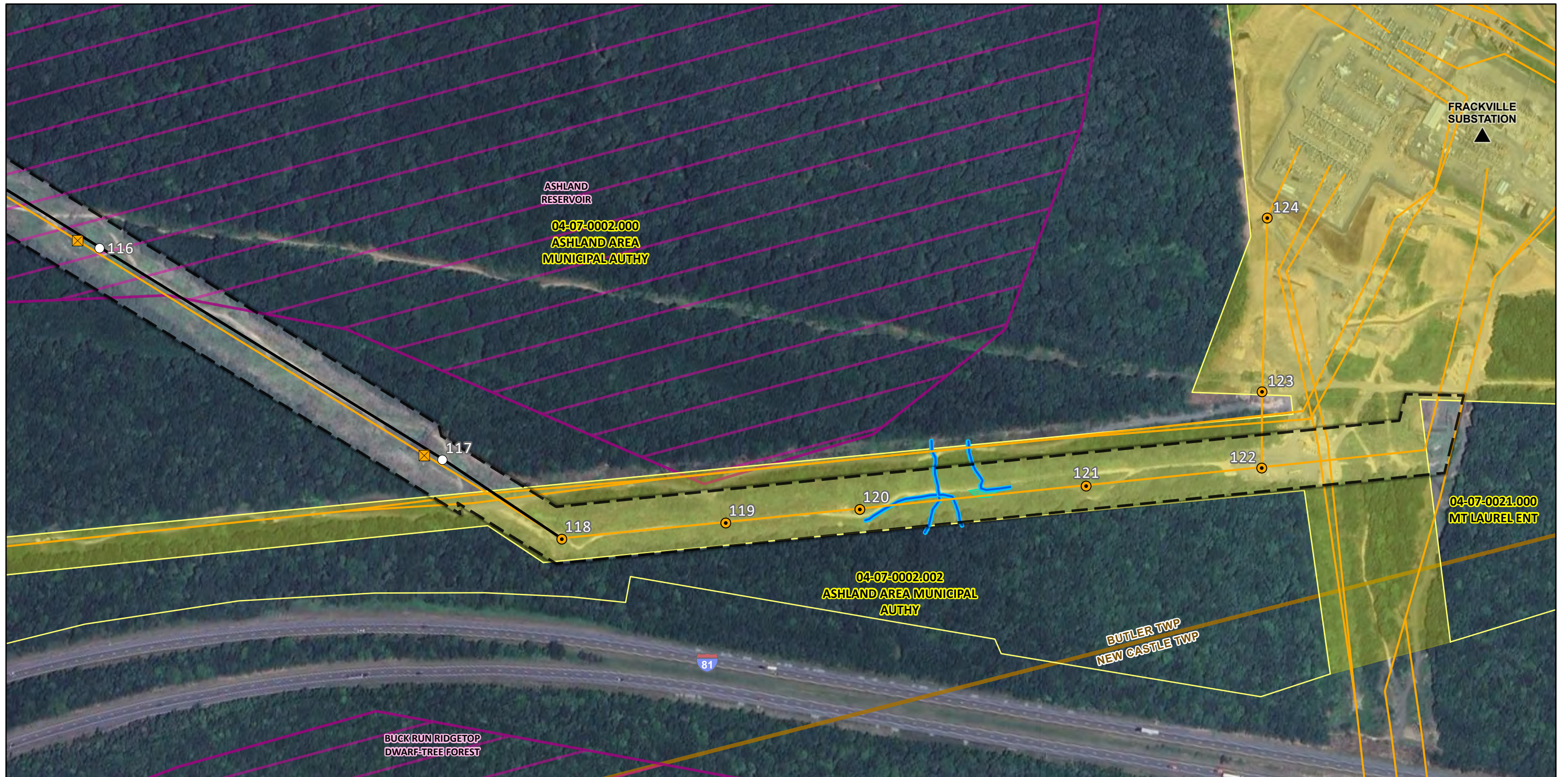
Although the PNDI records indicate species or resources of concern located within the vicinity of the Project, the PGC determined that no impacts are likely due to the nature of the Project, the immediate location of the Project, and detailed resource information. The PGC indicated that the Project crosses State Game Lands No. 329. PPL Electric will coordinate with the Land Management Supervisor prior to Project activities to obtain any necessary approvals.

The PFBC indicated that the Project is located in proximity to known critical habitat for a state species of special concern, the timber rattlesnake (*Crotalus horridus*). The PFBC recommends that a timber rattlesnake habitat assessment be conducted within the Project area by a qualified timber rattlesnake surveyor. Once the completed habitat survey report is received and reviewed by PFBC, a survey targeting the presence of the timber rattlesnake in the Project area may be requested. Additionally, the PFBC recommends that PPL Electric utilizes construction techniques that eliminate in-stream work, sedimentation, and changes to water quality to avoid impacts to the rare or protected freshwater mussel species with known habitat within the vicinity of the Project.

PNDI records indicate species or resources under DCNR's jurisdiction are located in the vicinity of the Project. However, based on the nature of the Project, the immediate location, and their detailed resource information, DCNR determined that no impact is likely. No further coordination with DCNR is required for the Project.

The USFWS indicated that the Project is located within range of Indiana bat and in the vicinity of northern long-eared bat swarming and maternity habitat and tricolored bat swarming. The USFWS recommends avoiding any tree removal activities between November 15 and March 31. Compliance with this avoidance measure ensures that no further coordination is required with the USFWS. PPL Electric will continue to consult with the jurisdictional agencies regarding potential impacts to protected species, complete all required surveys; obtain all necessary approvals and permits for Project construction; and comply with all conditions placed on those permits.

Figure 3-1. Aerial Map of the Project



- ▲ Substation
- Existing Structure to Remain
- ⊠ Existing Structure to be Removed
- Proposed Structure
- Proposed 230kV Transmission Line
- Existing Transmission Line

- Existing ROW
- Municipality Boundary
- Parcel Boundary
- PPL-Owned Parcel
- Delineated Wetland
- Delineated Stream
- CNHI Core Habitat

Imagery (PEMA 2021 & Nearmap 2024)
 Parcels (Columbia & Schuylkill 2025)
 Floodplains (FEMA 2024)
 Roads/Railroads/Parks (PASDA 2022)
 Historic Resources (PHMC 2024)
 NWI Wetlands (USFWS 2024)
 Streams (USGS 2024)

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

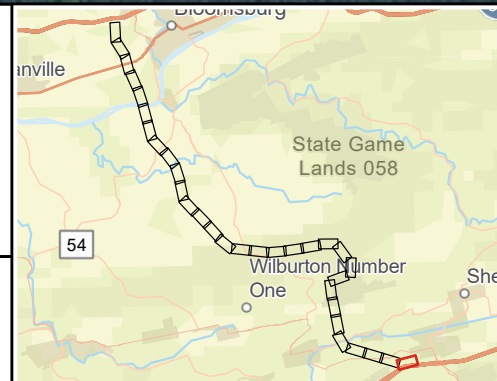
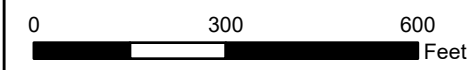
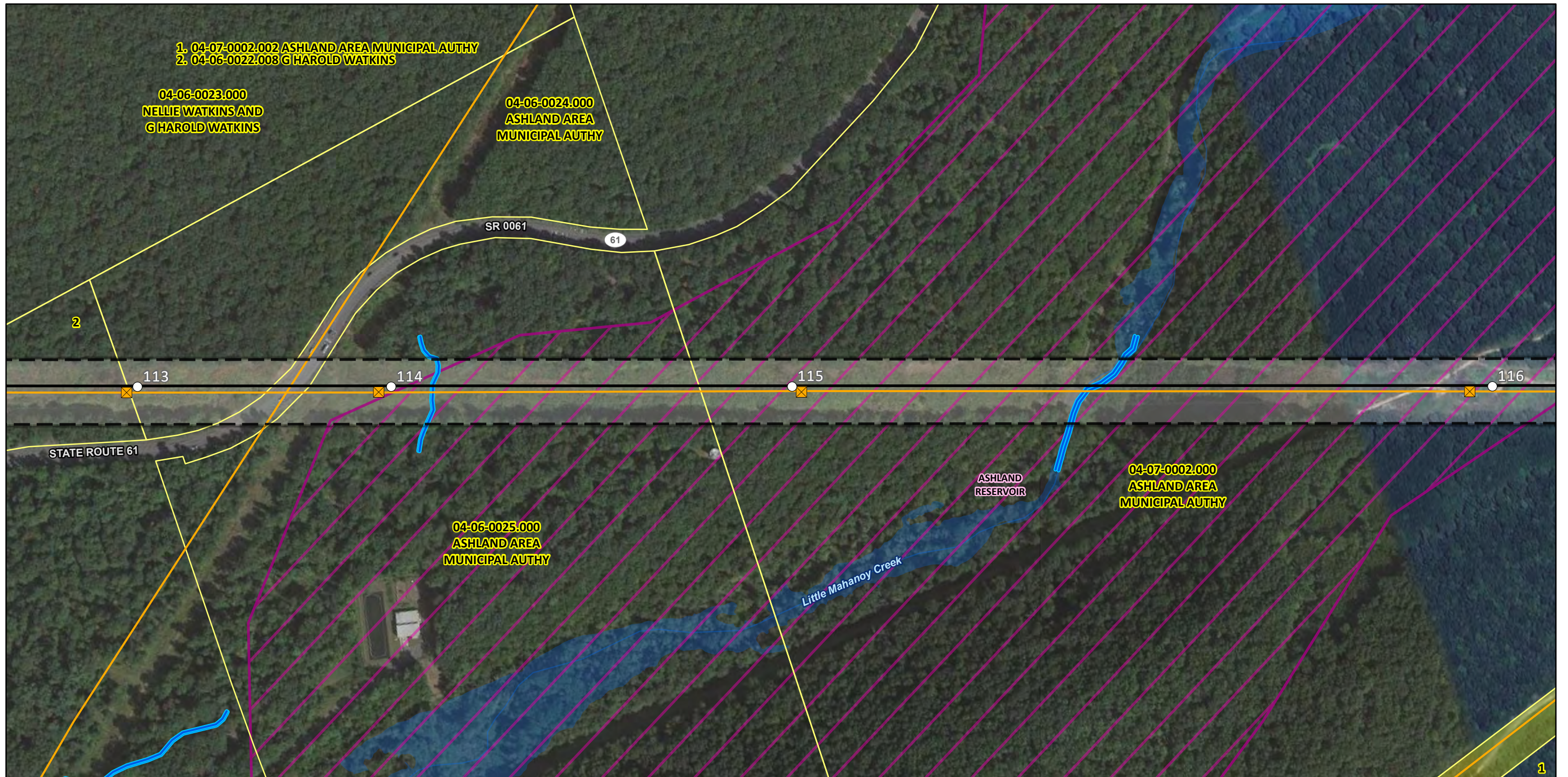













Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





-  Existing Structure to be Removed
-  Proposed Structure
-  Proposed 230kV Transmission Line
-  Existing Transmission Line
-  Existing ROW
-  Parcel Boundary
-  PPL-Owned Parcel
-  NHD Stream/River
-  Delineated Stream
-  100-Year Floodplain
-  CNHI Core Habitat

Imagery (PEMA 2021 & Nearmap 2024)
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Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





- Existing Structure to be Removed
- Proposed Structure
- Proposed 230kV Transmission Line
- Existing Transmission Line
- Existing ROW
- Parcel Boundary
- Delineated Wetland
- Delineated Stream

Imagery (PEMA 2021 & Nearmap 2024)
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 Streams (USGS 2024)










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Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





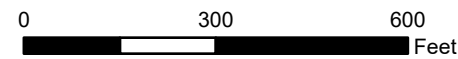
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-  Delineated Wetland
-  Historic District

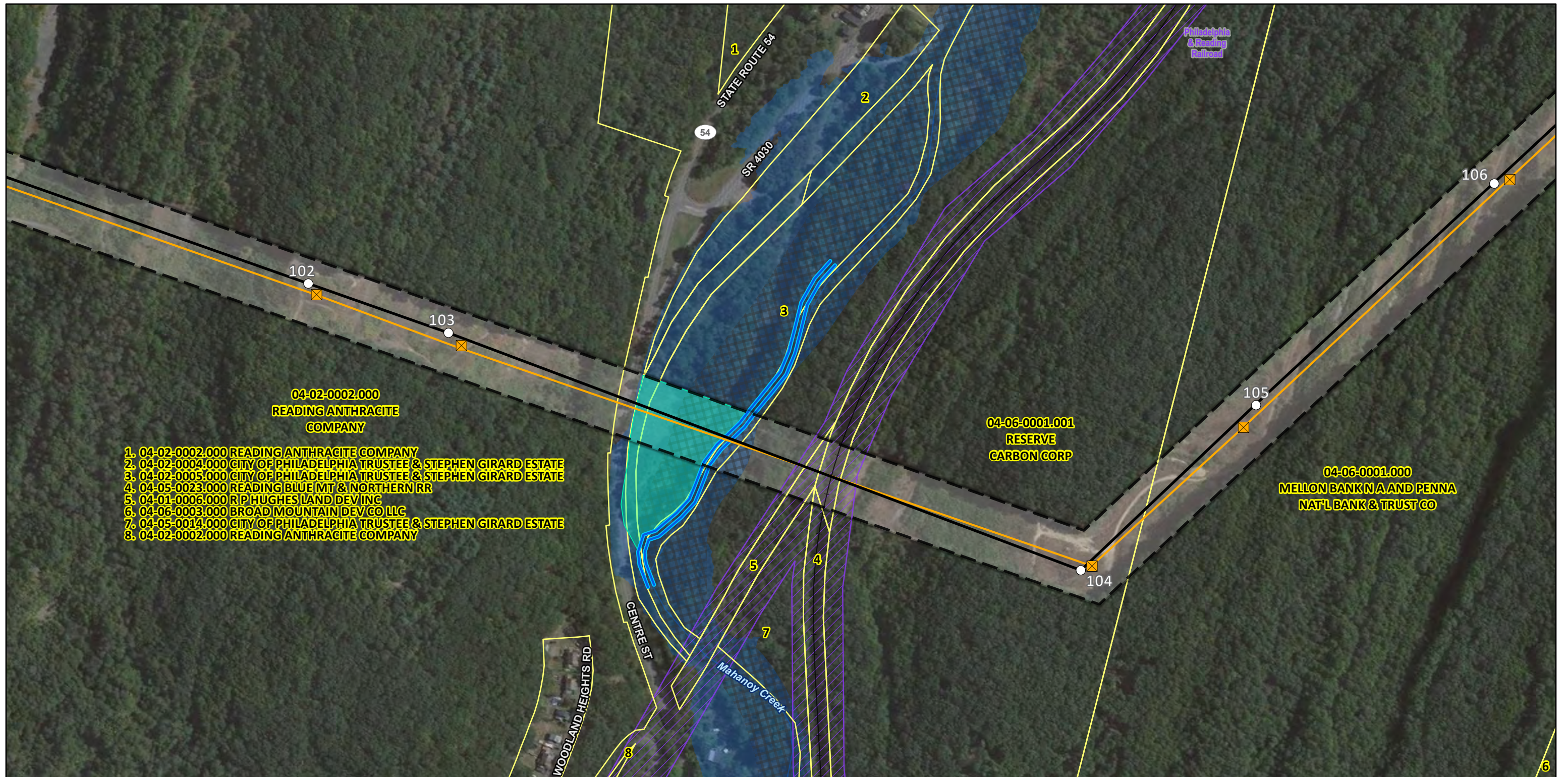
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 Streams (USGS 2024)

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



Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





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- 2. 04-02-0004.000 CITY OF PHILADELPHIA TRUSTEE & STEPHEN GIRARD ESTATE
- 3. 04-02-0005.000 CITY OF PHILADELPHIA TRUSTEE & STEPHEN GIRARD ESTATE
- 4. 04-05-0023.000 READING BLUE MT & NORTHERN RR
- 5. 04-01-0006.000 R P HUGHES LAND DEV INC
- 6. 04-06-0003.000 BROAD MOUNTAIN DEV CO LLC
- 7. 04-05-0014.000 CITY OF PHILADELPHIA TRUSTEE & STEPHEN GIRARD ESTATE
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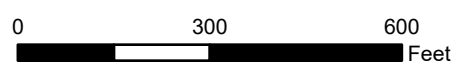
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 - Proposed Structure
 - Proposed 230kV Transmission Line
 - Existing Transmission Line
- Existing ROW
 - Railroad
 - Parcel Boundary
- NHD Stream/River
 - Delineated Wetland
 - Delineated Stream
 - Floodway
 - 100-Year Floodplain
 - Historic District

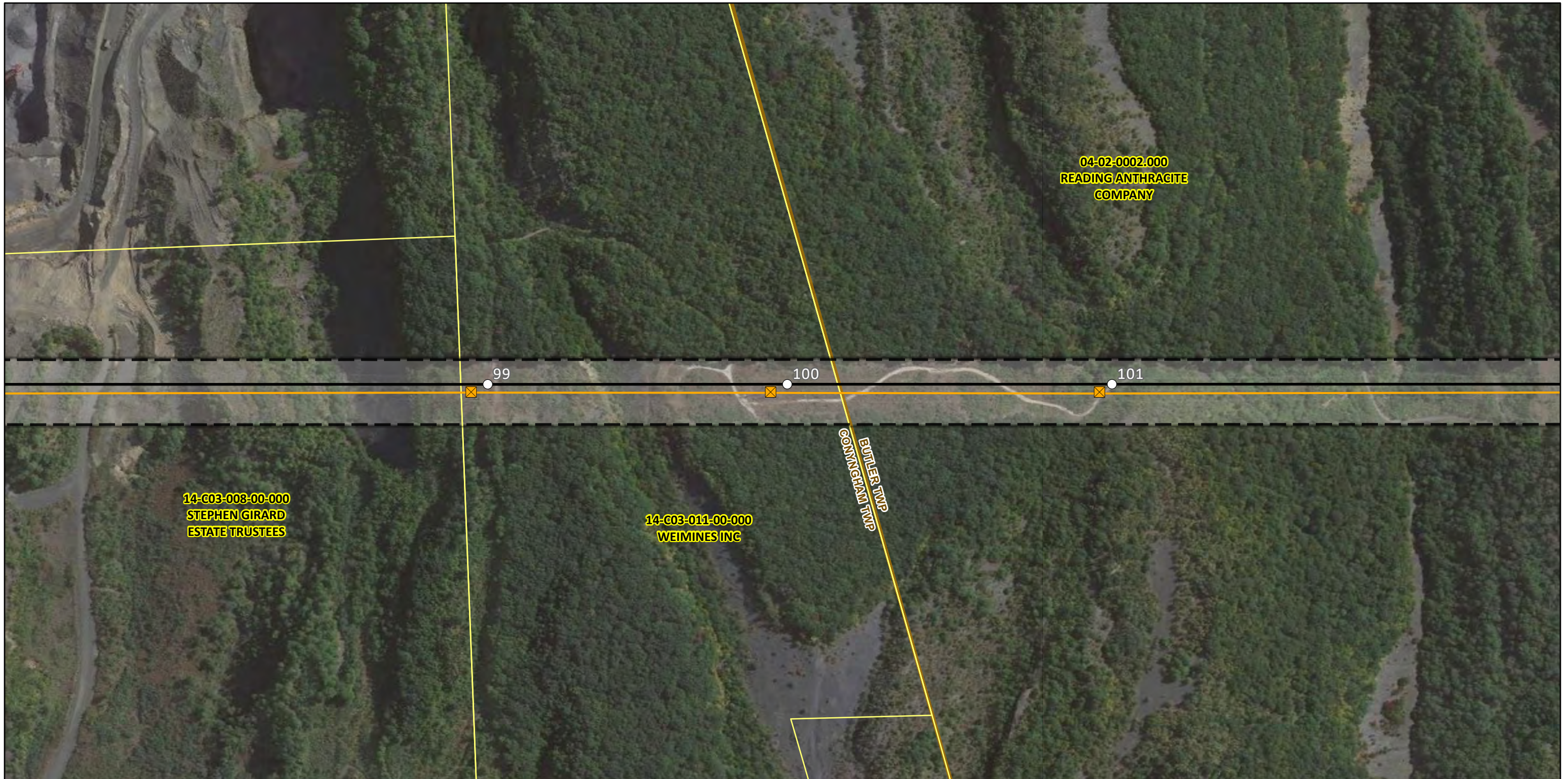
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 Streams (USGS 2024)








Coordinate System:
 State Plane Pennsylvania South
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Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





-  Existing Structure to be Removed
-  Proposed Structure
-  Proposed 230kV Transmission Line
-  Existing Transmission Line
-  Existing ROW
-  Municipality Boundary
-  Parcel Boundary

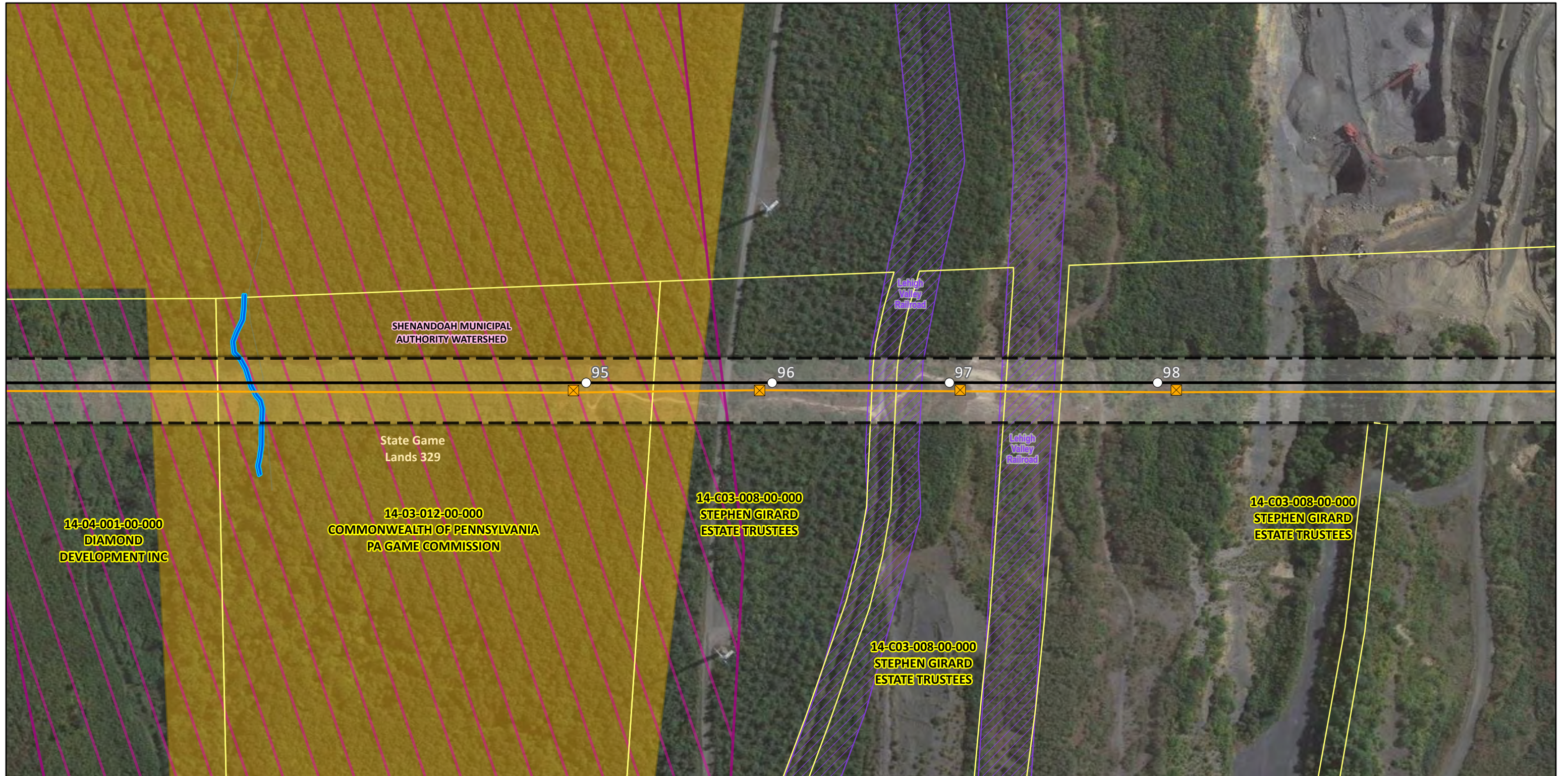
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Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





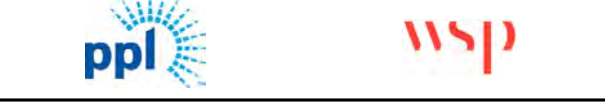
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- ⎓ Existing ROW
- ▭ Parcel Boundary
- NHD Stream/River
- Delineated Stream
- ▨ Historic District
- ▨ PGC Land
- ▨ CNHI Core Habitat

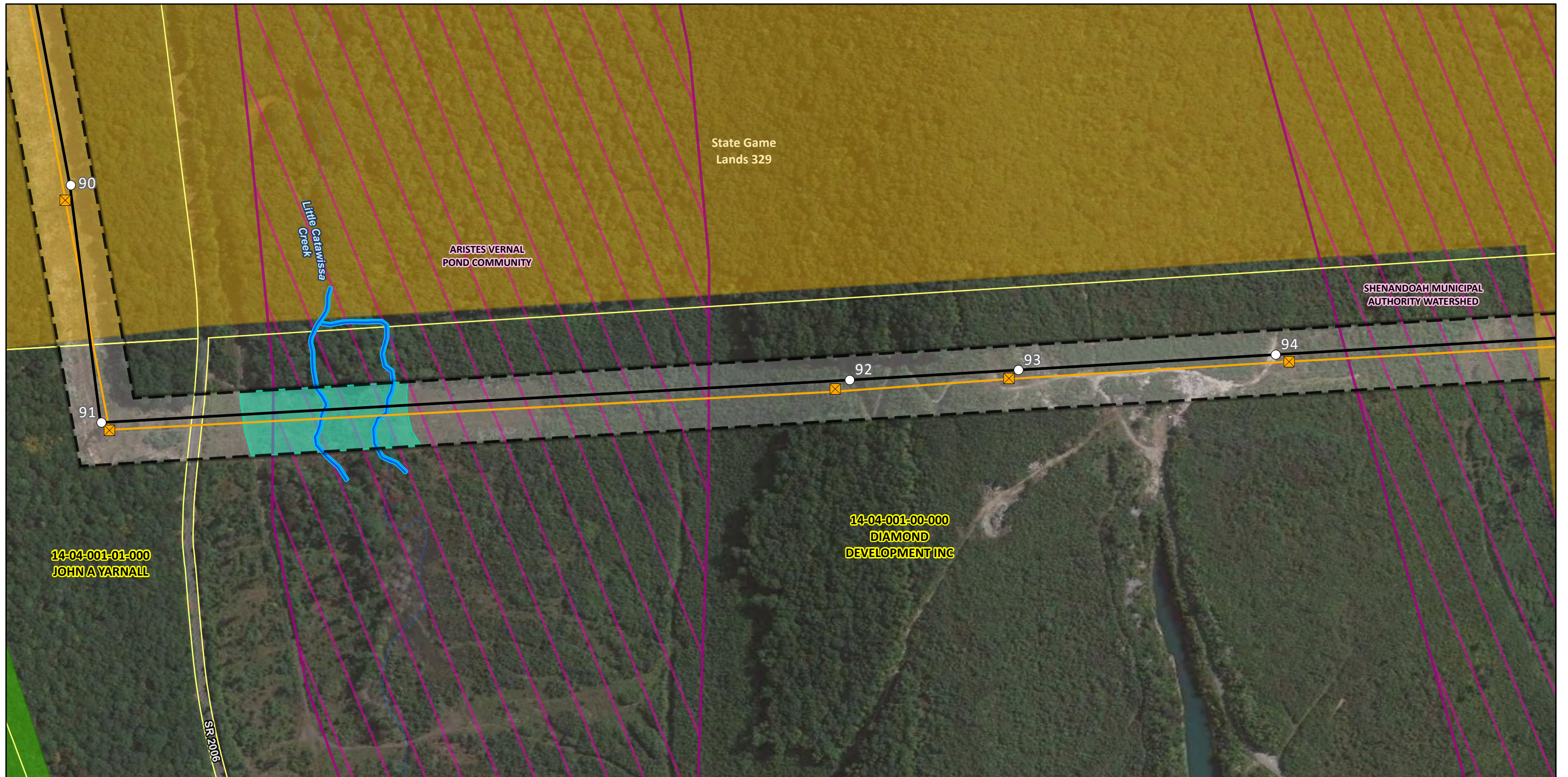
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Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





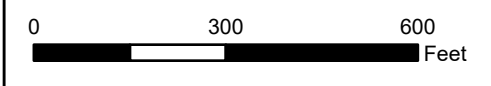
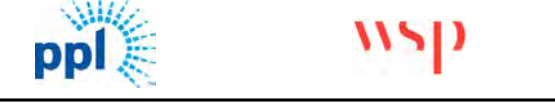
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- Delineated Stream
- PGC Land
- Weiser State Forest
- CNHI Core Habitat
- NHD Stream/River

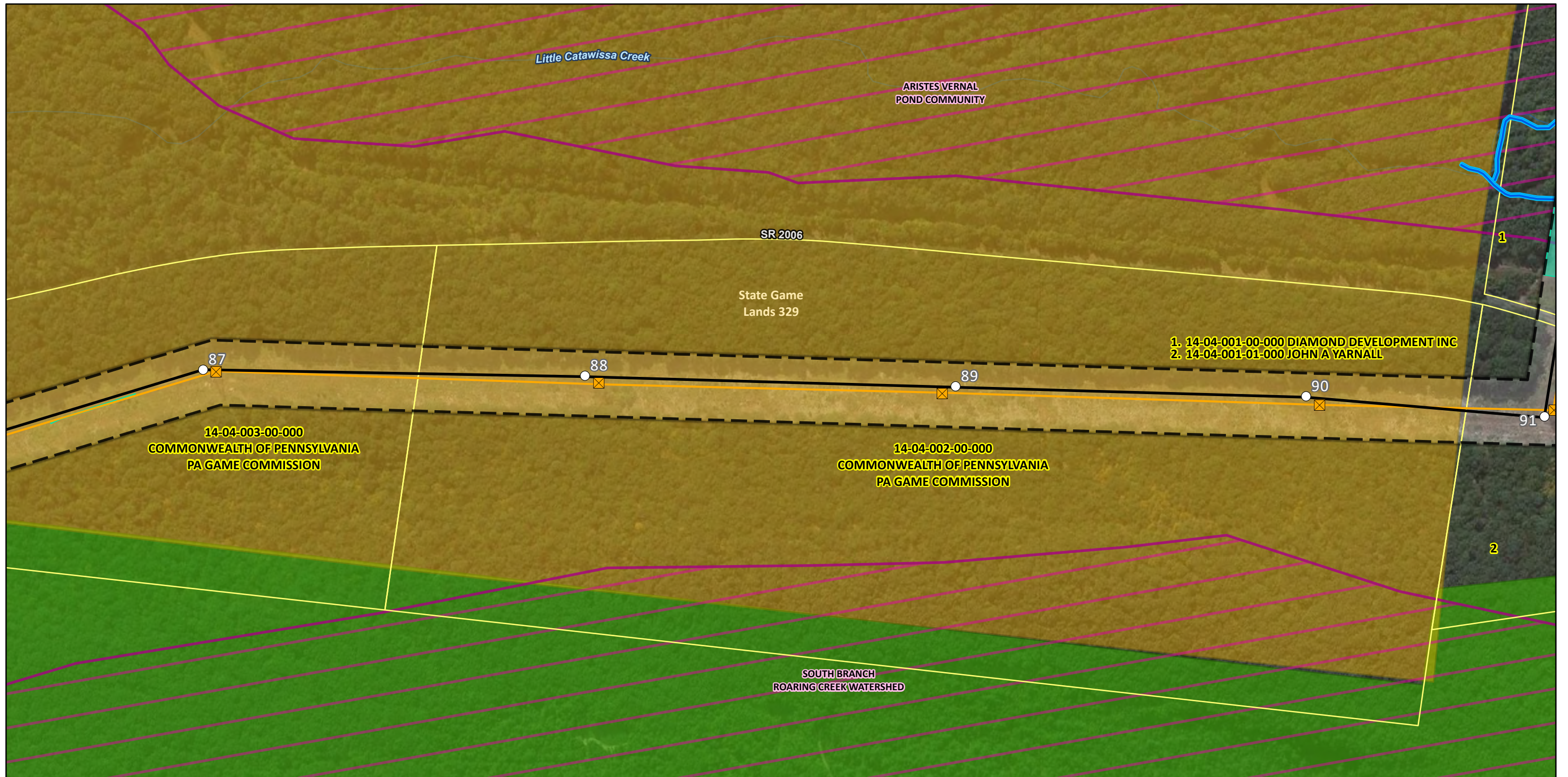
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Figure 3-1
Aerial Map
Frackville-Columbia 230kV
Transmission Line Rebuild Project





1. 14-04-001-00-000 DIAMOND DEVELOPMENT INC
 2. 14-04-001-01-000 JOHN A YARNALL

14-04-003-00-000
 COMMONWEALTH OF PENNSYLVANIA
 PA GAME COMMISSION

14-04-002-00-000
 COMMONWEALTH OF PENNSYLVANIA
 PA GAME COMMISSION

SOUTH BRANCH
 ROARING CREEK WATERSHED

- Existing Structure to be Removed
- Existing ROW
- NHD Stream/River
- Delineated Wetland
- Parcel Boundary
- Delineated Stream
- Proposed Structure
- Proposed 230kV Transmission Line
- PGC Land
- Weiser State Forest
- CNHI Core Habitat
- Existing Transmission Line

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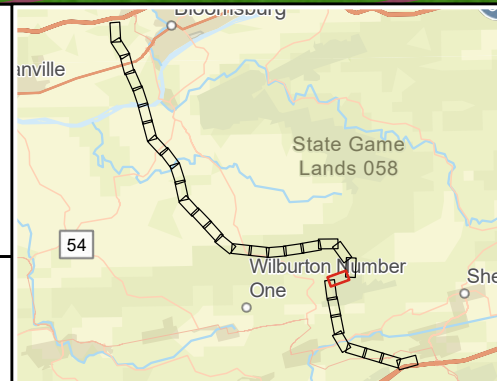
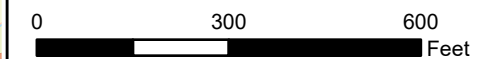
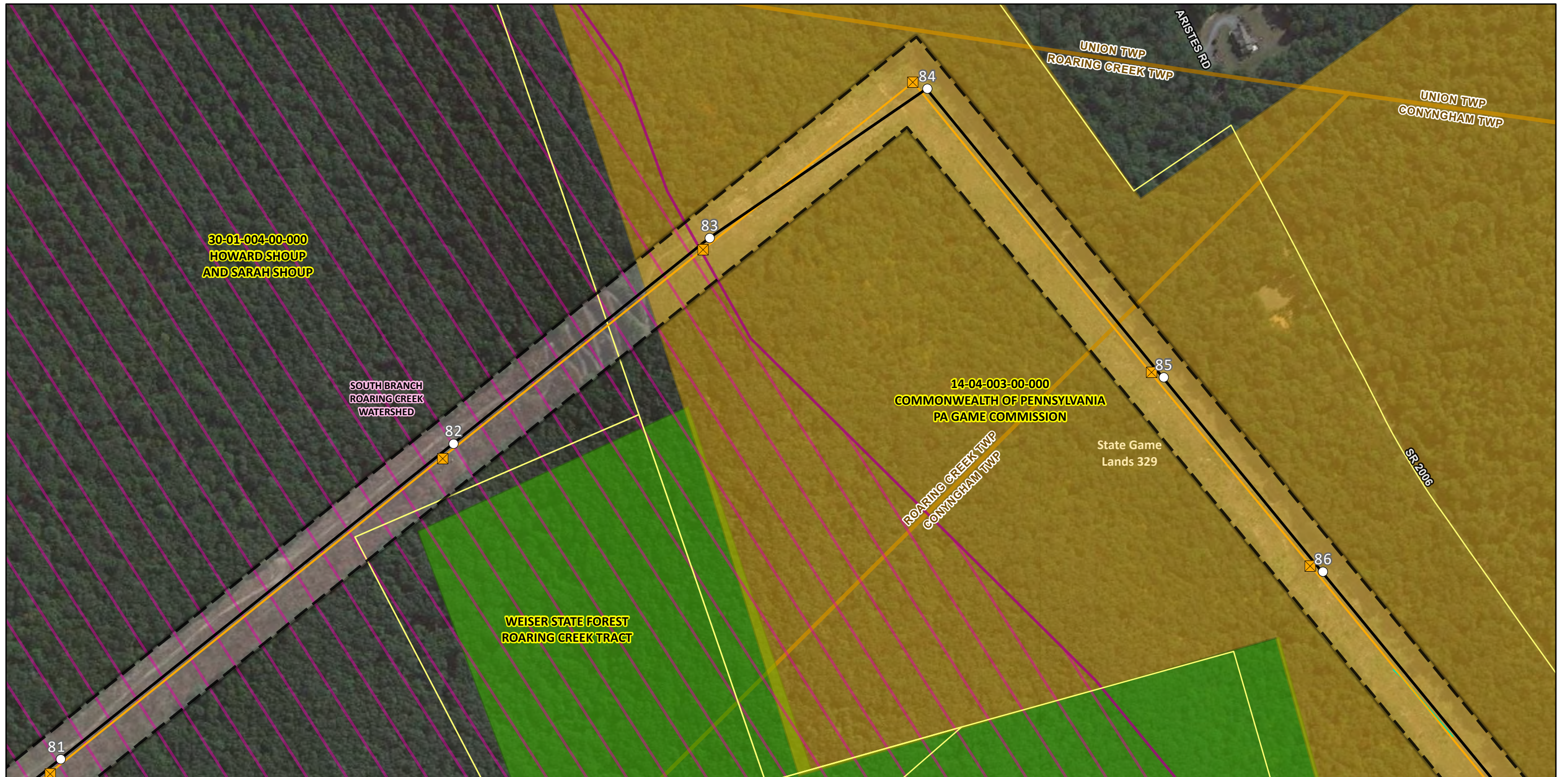


Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





- Existing Structure to be Removed
- Proposed Structure
- Proposed 230kV Transmission Line
- Existing Transmission Line
- Existing ROW
- Municipality Boundary
- Parcel Boundary
- Delineated Wetland
- PGC Land
- Weiser State Forest
- CNHI Core Habitat

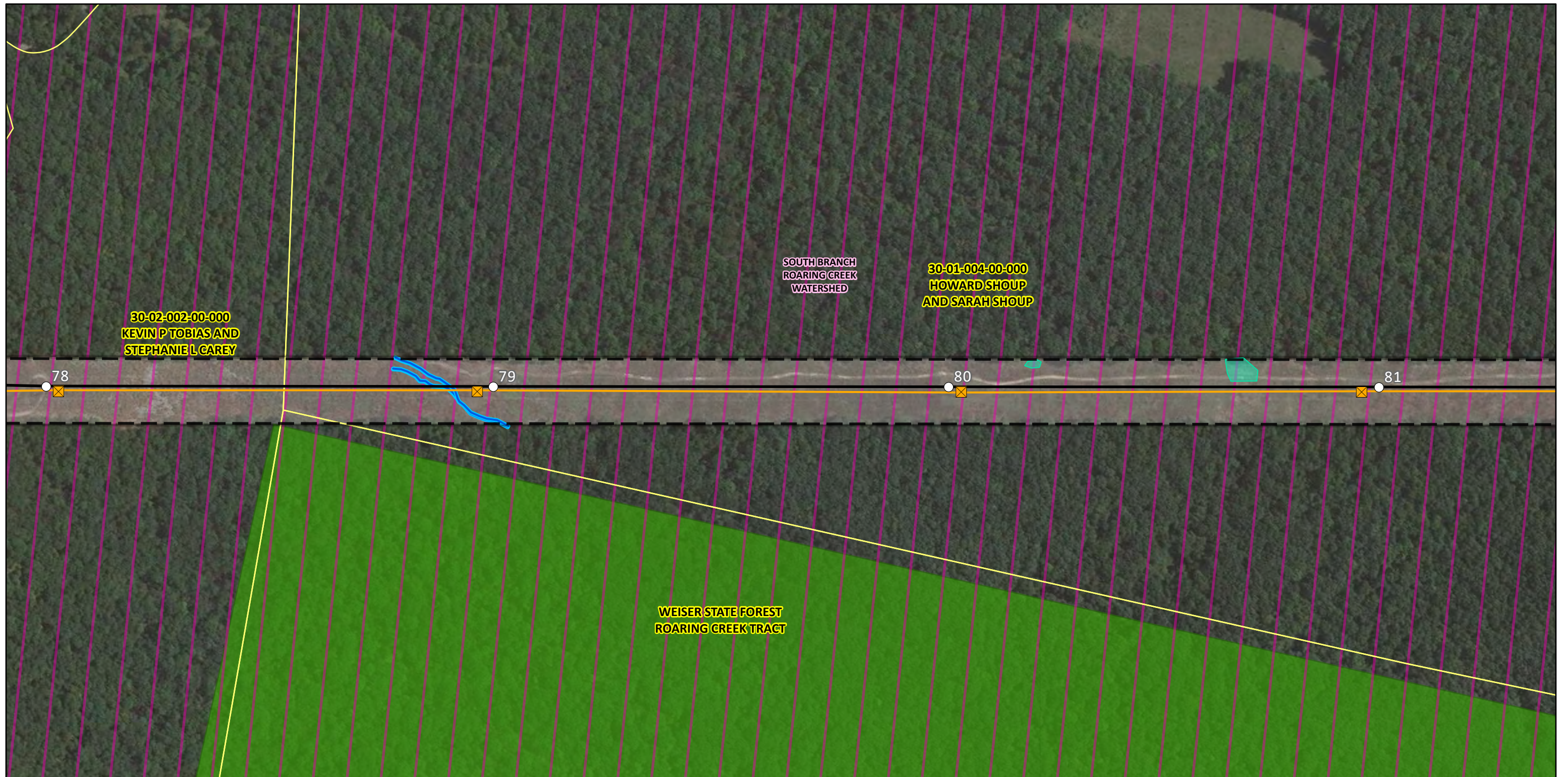
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Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





- ⊠ Existing Structure to be Removed
- Proposed Structure
- Proposed 230kV Transmission Line
- Existing Transmission Line
- ⊠ Existing ROW
- ▭ Parcel Boundary
- ▭ Delineated Wetland
- Delineated Stream
- ▭ Weiser State Forest
- ▭ CNHI Core Habitat

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 Streams (USGS 2024)










Coordinate System:
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 Datum: North American 1983



Figure 3-1
Aerial Map
Frackville-Columbia 230kV
Transmission Line Rebuild Project





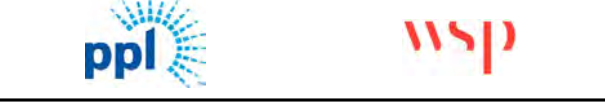
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-  Parcel Boundary
-  Weiser State Forest
-  CNHI Core Habitat

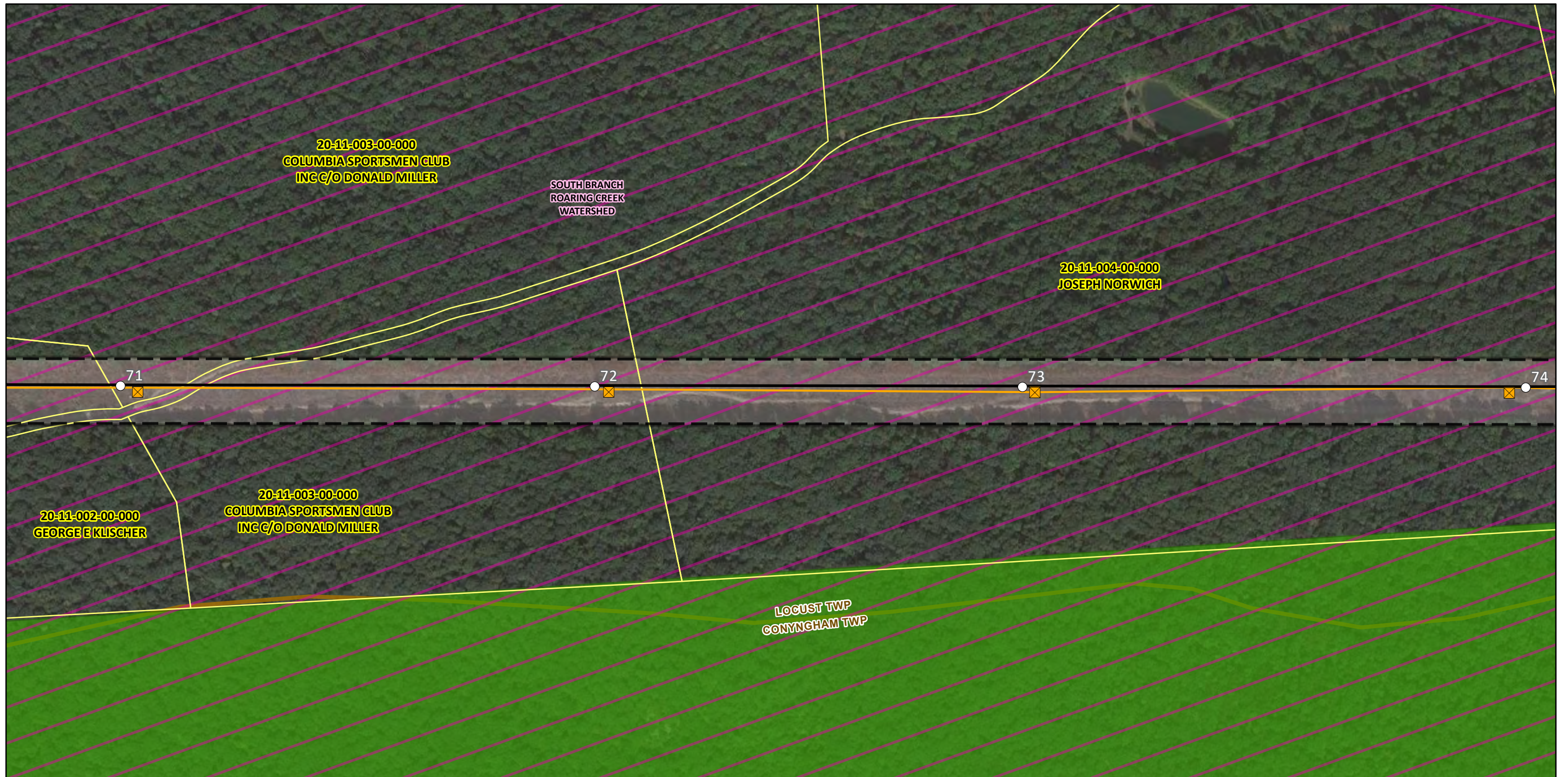
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Coordinate System:
 State Plane Pennsylvania South
 Datum: North American 1983



Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





- Existing Structure to be Removed
- Proposed Structure
- Proposed 230kV Transmission Line
- Existing Transmission Line
- Existing ROW
- Municipality Boundary
- Parcel Boundary
- Weiser State Forest
- CNHI Core Habitat

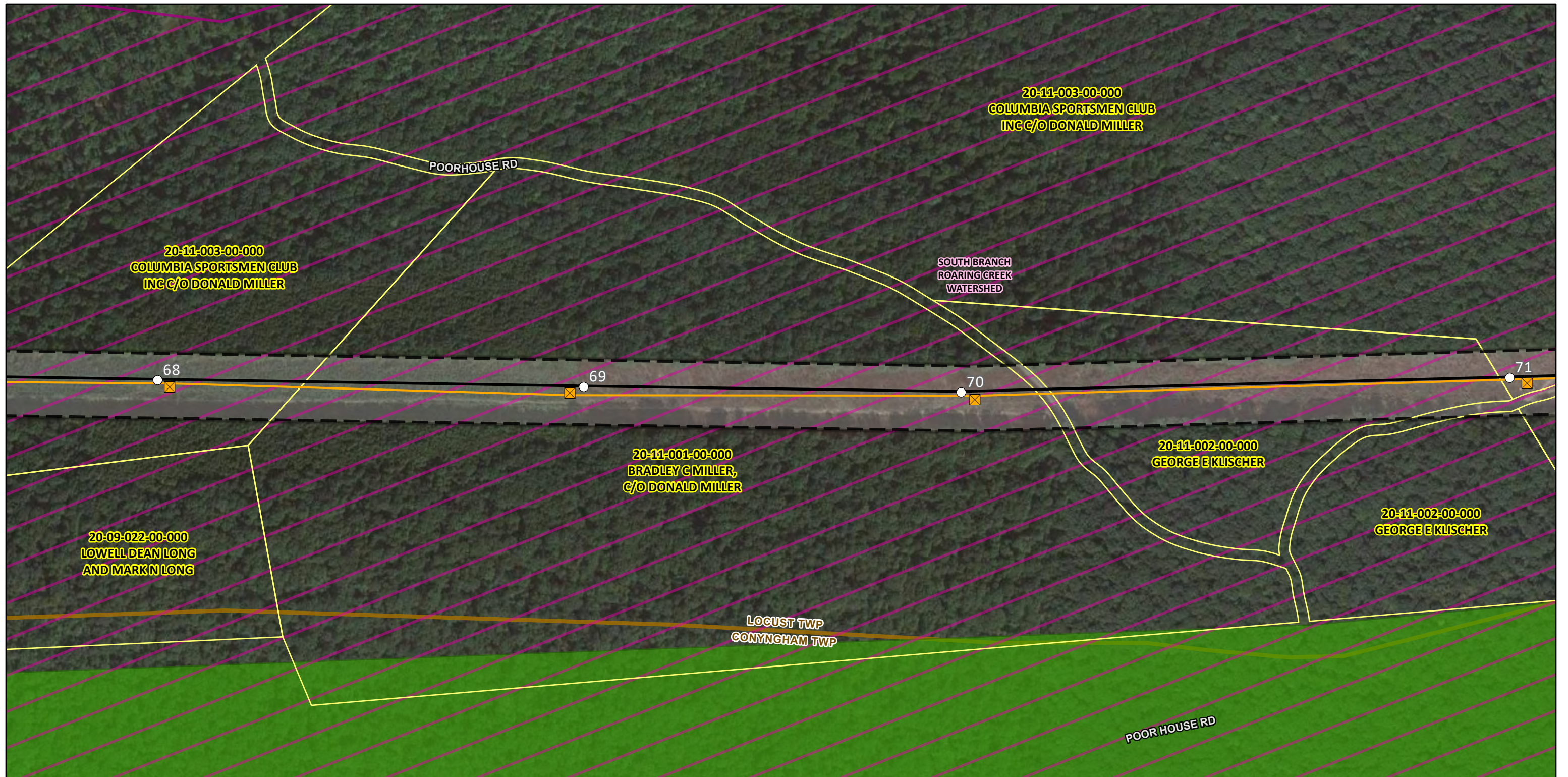
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Coordinate System:
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Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





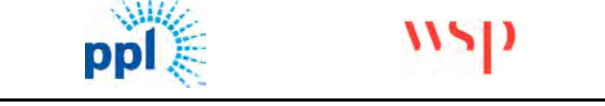
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- Proposed Structure
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- Existing Transmission Line
- Existing ROW
- Municipality Boundary
- Parcel Boundary
- Weiser State Forest
- CNHI Core Habitat

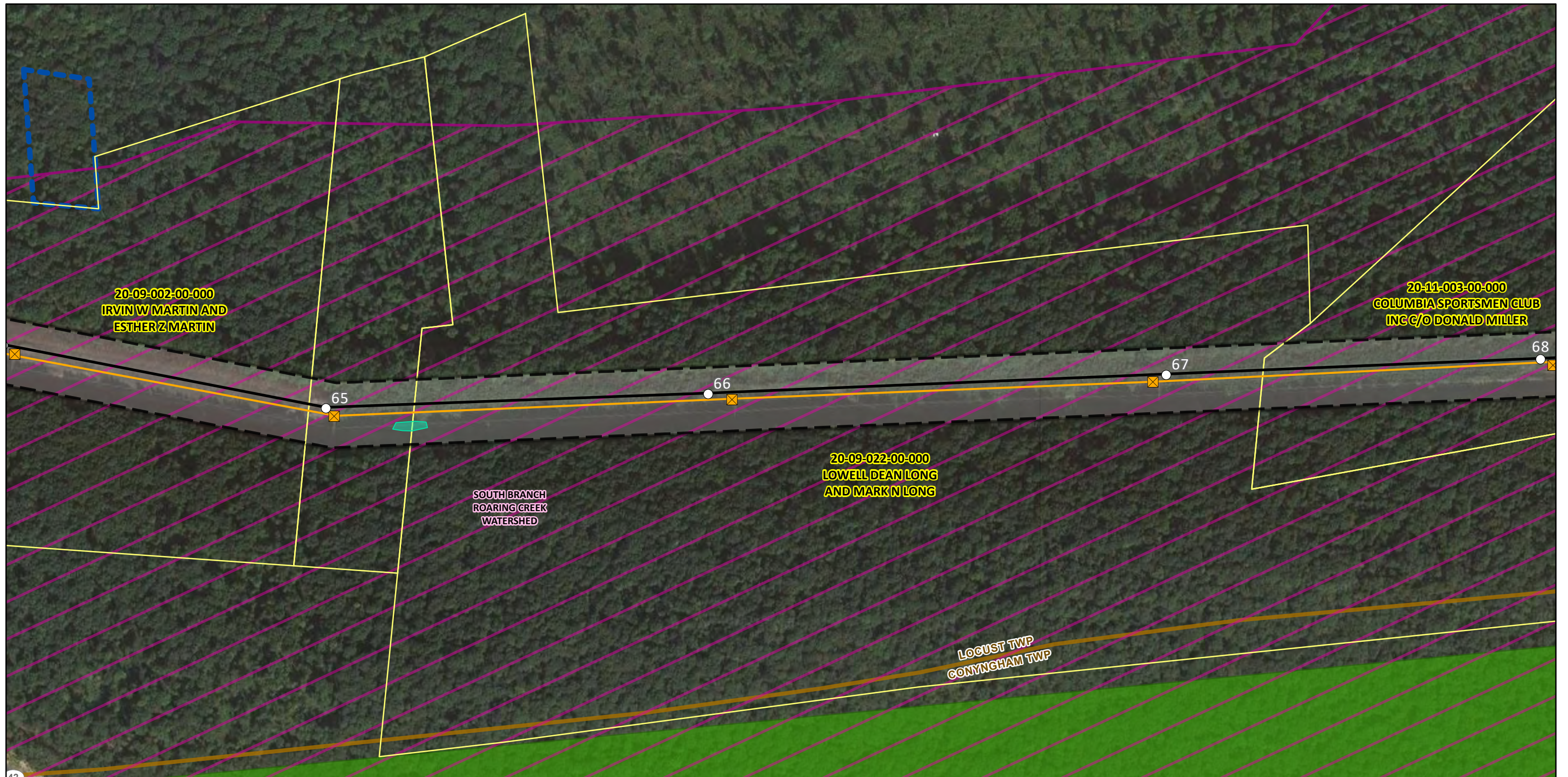
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 Streams (USGS 2024)

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



Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





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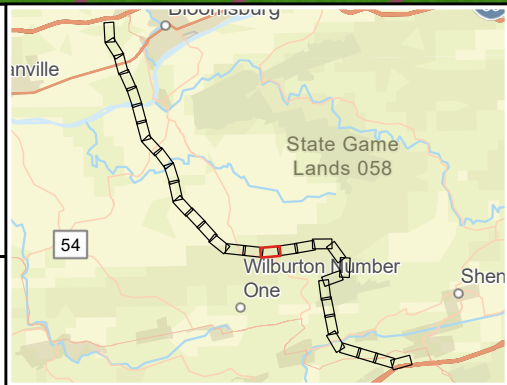
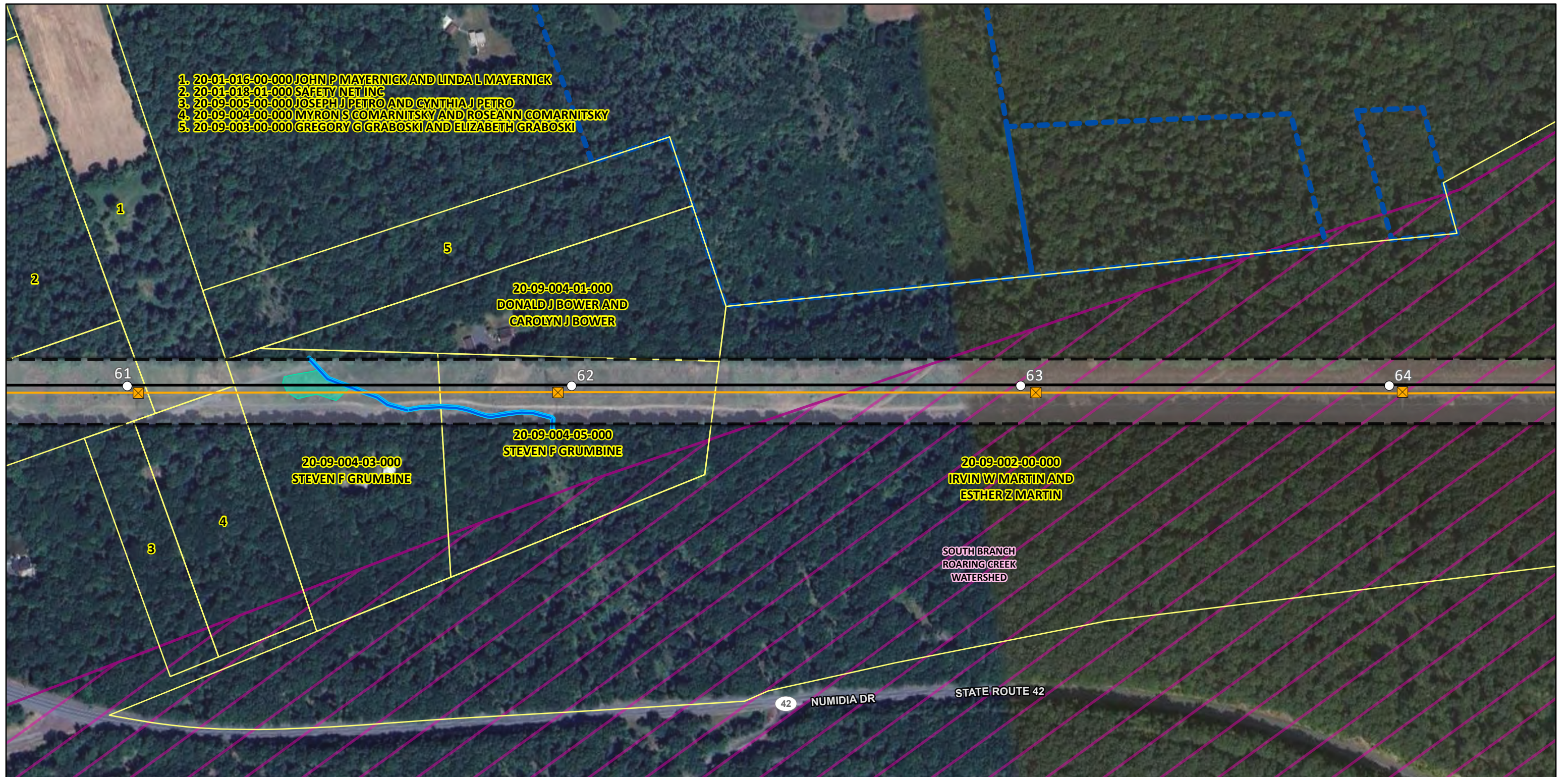


Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project



- 1. 20-01-016-00-000 JOHN P MAYERNICK AND LINDA L MAYERNICK
- 2. 20-01-018-01-000 SAFETY NET INC
- 3. 20-09-005-00-000 JOSEPH J PETRO AND CYNTHIA J PETRO
- 4. 20-09-004-00-000 MYRON S GOMARNITSKY AND ROSEANN GOMARNITSKY
- 5. 20-09-003-00-000 GREGORY G GRABOSKI AND ELIZABETH GRABOSKI

20-09-004-01-000
DONALD J BOWER AND
CAROLYN J BOWER

20-09-004-03-000
STEVEN F GRUMBINE

20-09-004-05-000
STEVEN F GRUMBINE

20-09-002-00-000
IRVIN W MARTIN AND
ESTHER Z MARTIN

SOUTH BRANCH
ROARING CREEK
WATERSHED

42 NUMIDIA DR STATE ROUTE 42

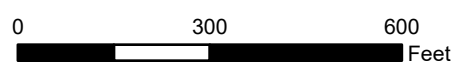
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- Proposed Structure
- Proposed 230kV Transmission Line
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- Existing ROW
- Parcel Boundary
- Agricultural Security Area (ASA)
- Delineated Wetland
- Delineated Stream
- CNHI Core Habitat

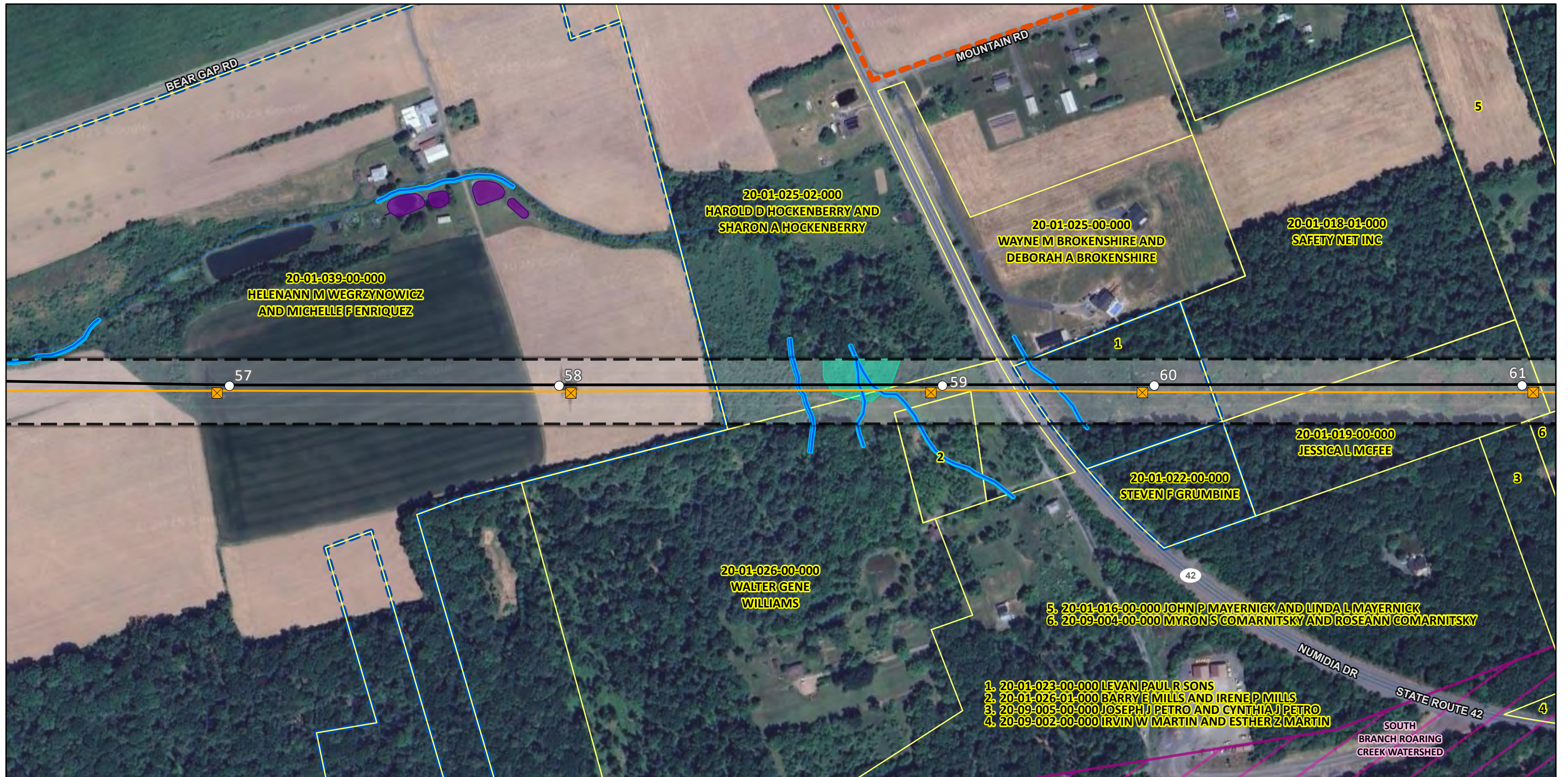
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Figure 3-1
Aerial Map
Frackville-Columbia 230kV
Transmission Line Rebuild Project





- ✘ Existing Structure to be Removed
- Proposed Structure
- Proposed 230kV Transmission Line
- Existing Transmission Line
- Existing ROW
- ▭ Parcel Boundary
- ASA Agricultural Security Area (ASA)
- ACE Agricultural Conservation Easement (ACE)
- NHD Stream/River
- ▭ Delineated Pond
- ▭ Delineated Wetland
- Delineated Stream
- ▭ CNHI Core Habitat

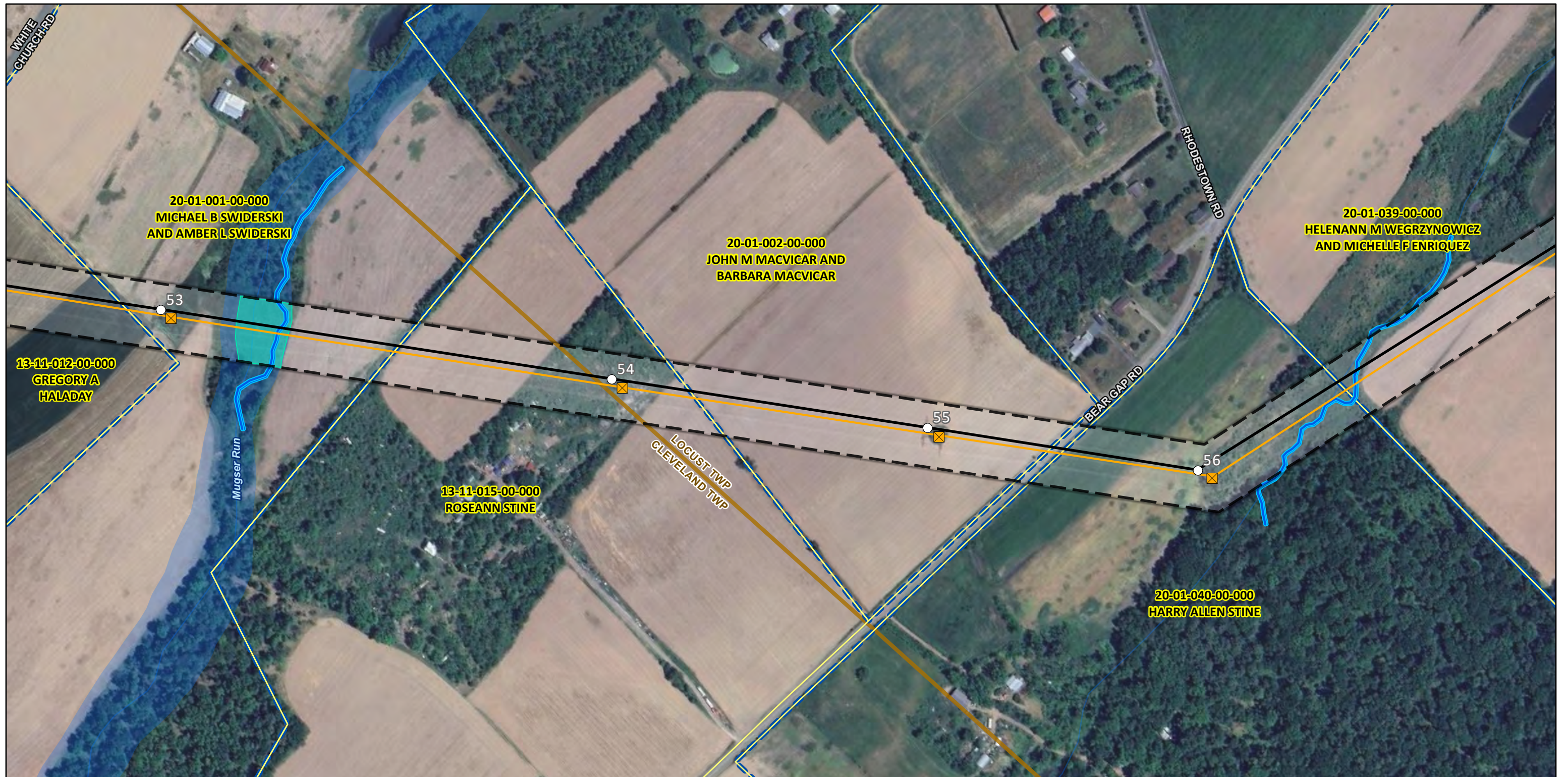
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Coordinate System:
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Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





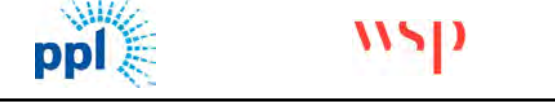
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-  Proposed Structure
-  Proposed 230kV Transmission Line
-  Existing Transmission Line
-  Existing ROW
-  Municipality Boundary
-  Parcel Boundary
-  Agricultural Security Area (ASA)
-  NHD Stream/River
-  Delineated Wetland
-  Delineated Stream
-  100-Year Floodplain

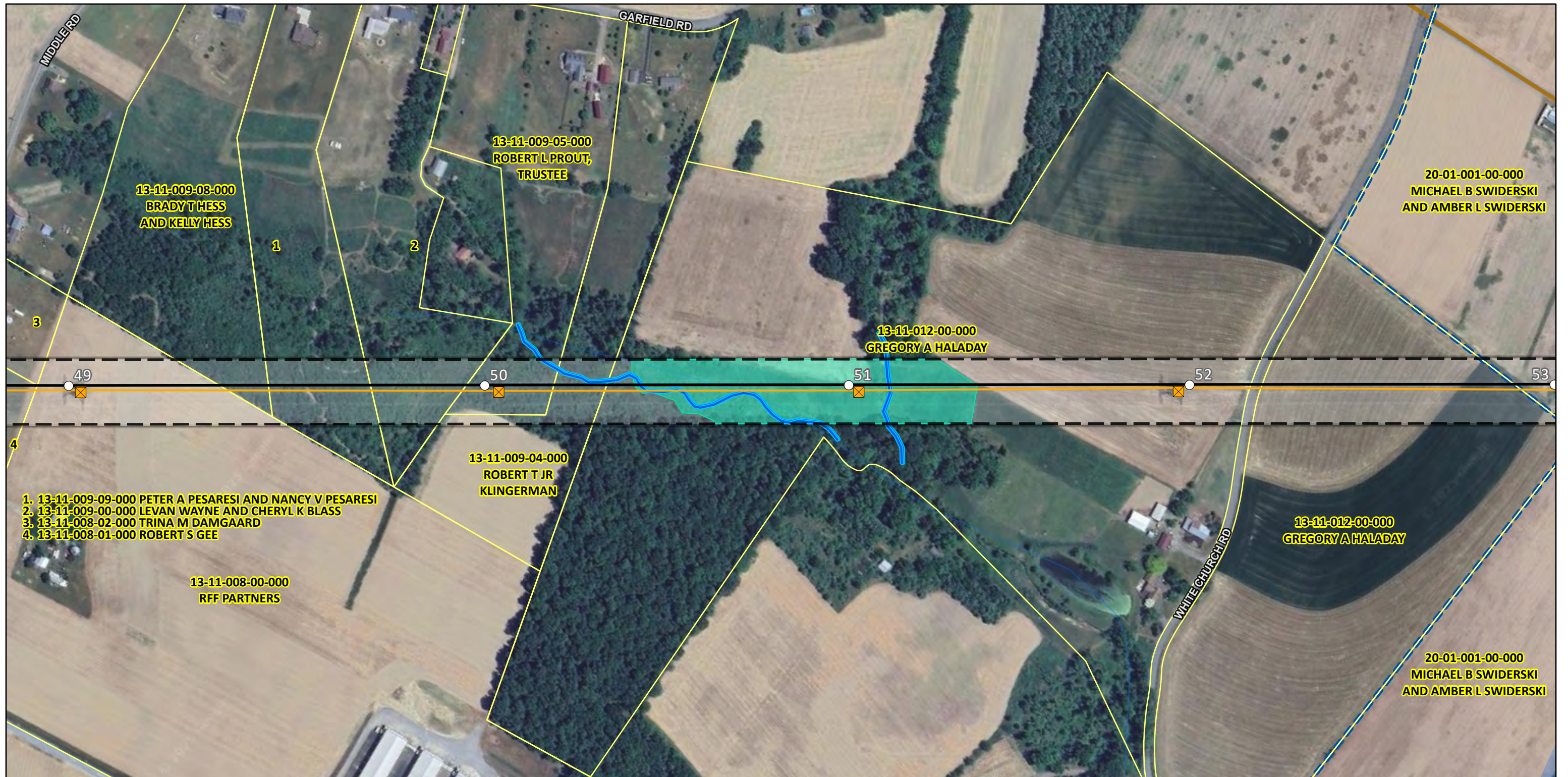
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Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





- Existing Structure to be Removed
- Proposed Structure
- Existing ROW
- Municipality Boundary
- Parcel Boundary
- Agricultural Security Area (ASA)
- NHD Stream/River
- Delineated Wetland
- Delineated Stream
- 100-Year Floodplain

1. 13-11-009-09-000 PETER A PESARESI AND NANCY V PESARESI
2. 13-11-009-00-000 LEVAN WAYNE AND CHERYL K BLASS
3. 13-11-008-02-000 TRINA M DAMGAARD
4. 13-11-008-01-000 ROBERT S GEE

Imagery (PEMA 2021 & Nearmap 2024)
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Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





- Existing Structure to be Removed
- Proposed Structure
- Proposed 230kV Transmission Line
- Existing Transmission Line
- Existing ROW
- Parcel Boundary
- Agricultural Security Area (ASA)
- Delineated Stream

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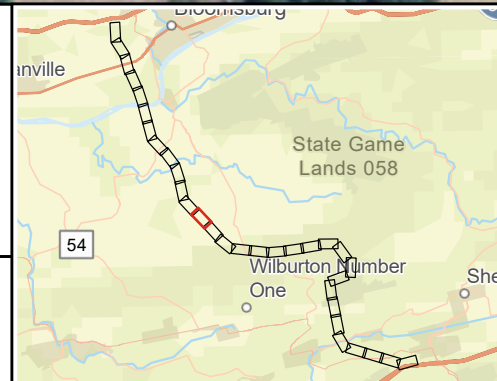
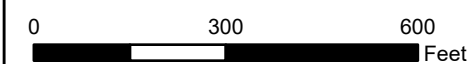
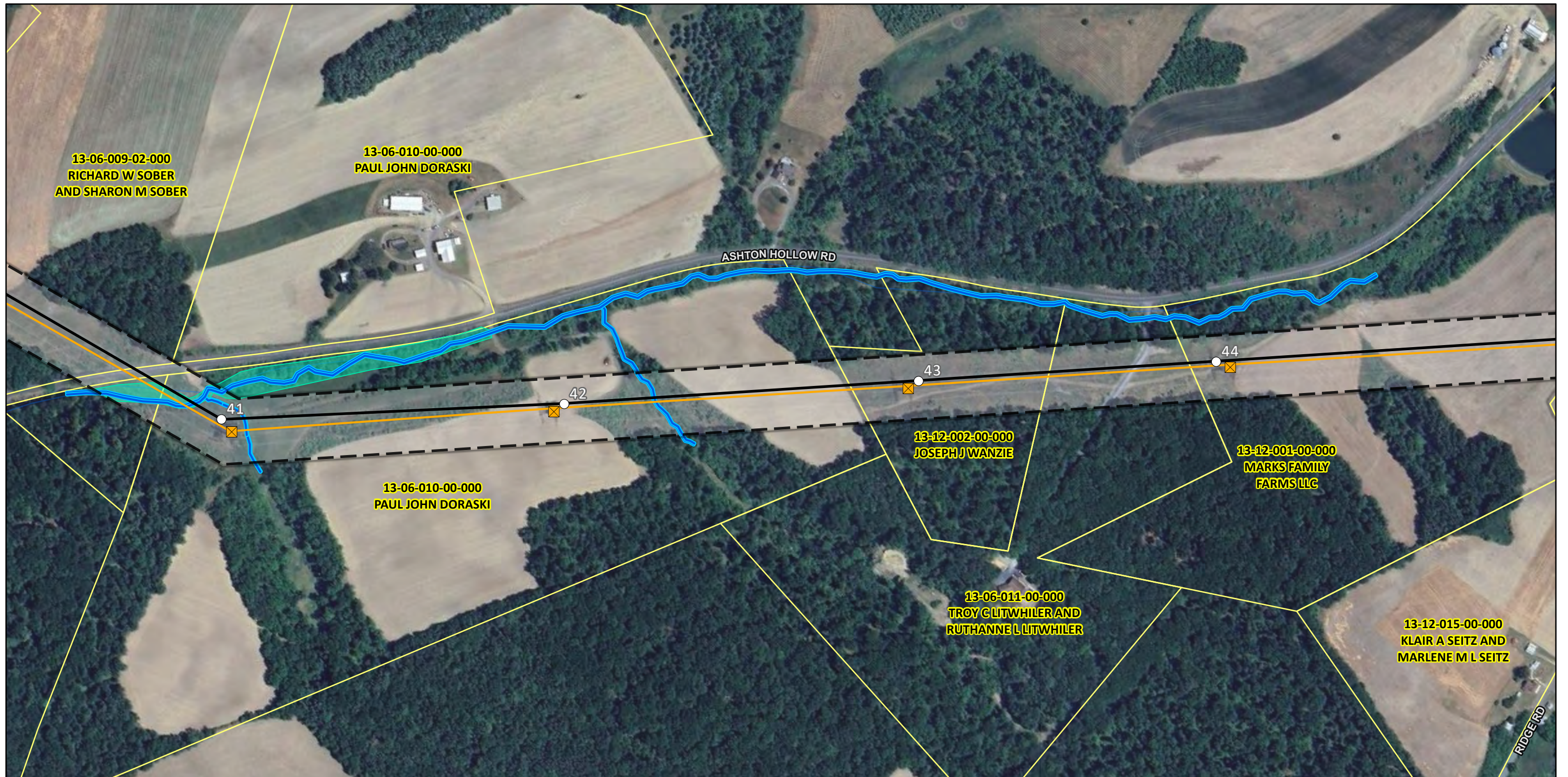


Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





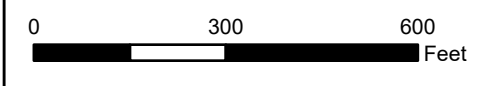
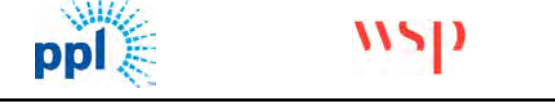
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- Existing ROW
- Parcel Boundary
- NHD Stream/River
- Delineated Wetland
- Delineated Stream
- Proposed 230kV Transmission Line
- Existing Transmission Line

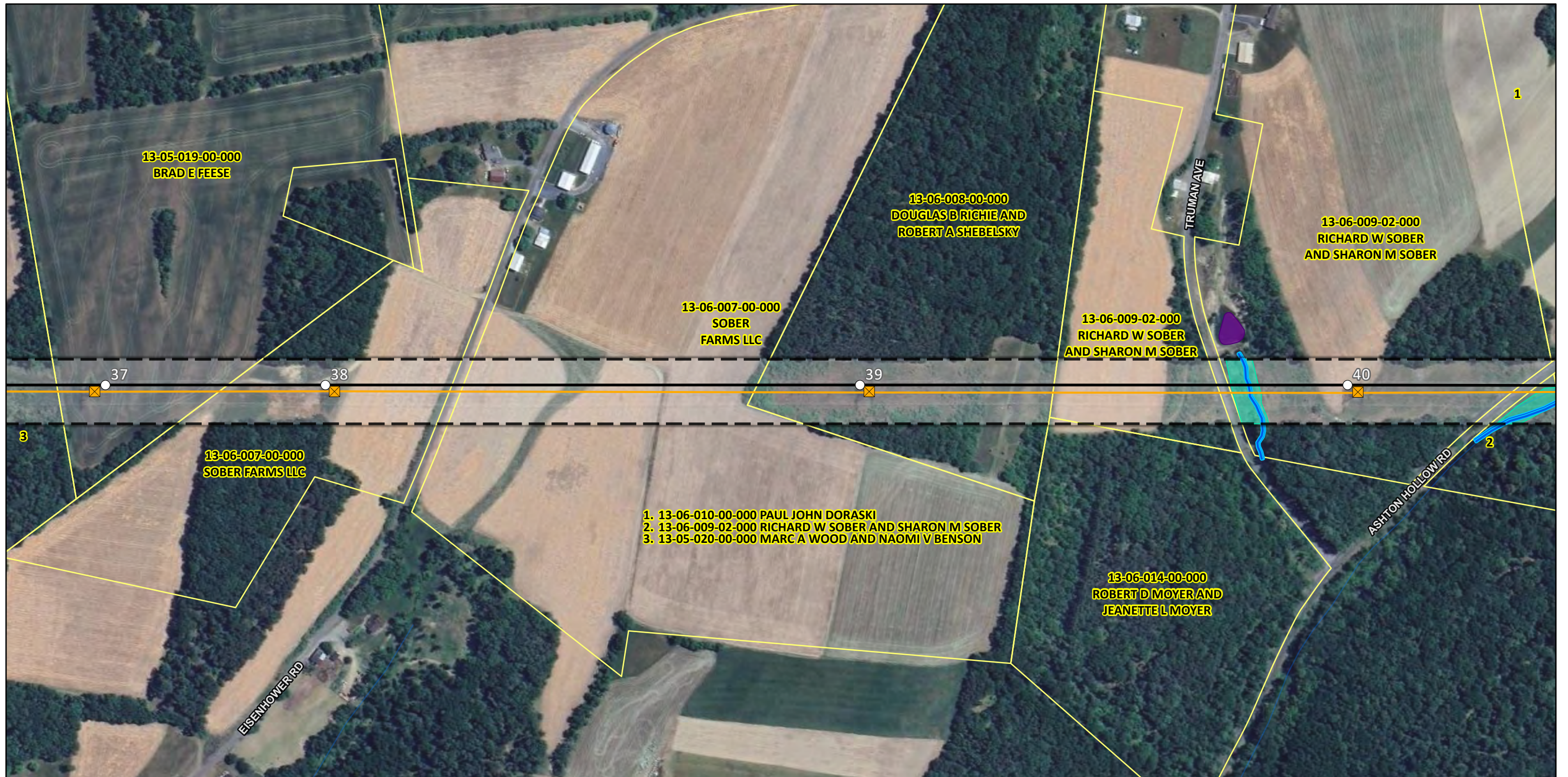
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Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





1. 13-06-010-00-000 PAUL JOHN DORASKI
2. 13-06-009-02-000 RICHARD W SOBER AND SHARON M SOBER
3. 13-05-020-00-000 MARC A WOOD AND NAOMI V BENSON

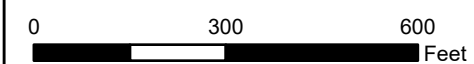
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- Proposed Structure
- Parcel Boundary
- Delineated Pond
- Proposed 230kV Transmission Line
- Delineated Wetland
- Existing Transmission Line
- Delineated Stream

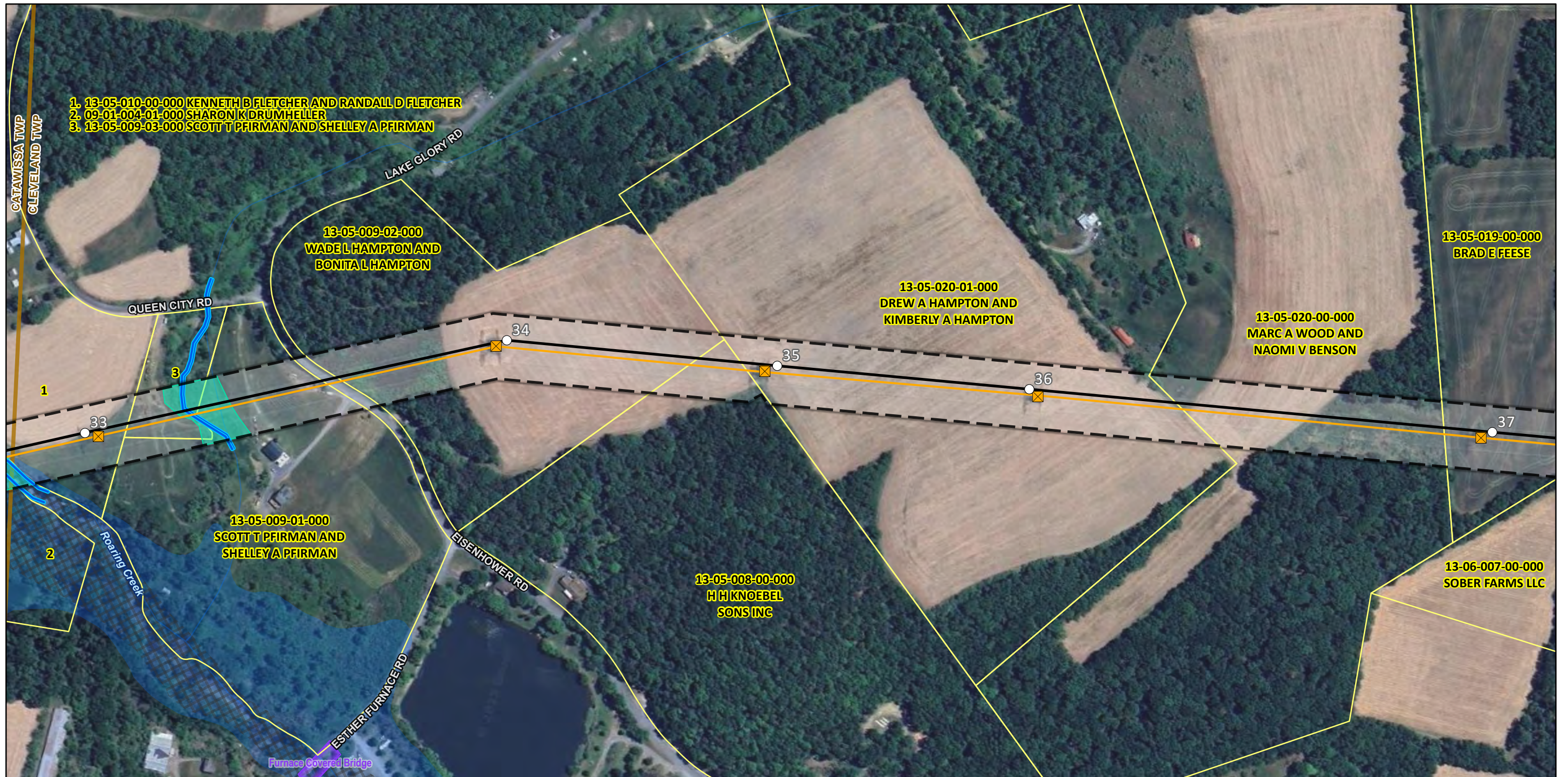
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Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





Existing Structure to be Removed	Existing ROW	NHD Stream/River
Proposed Structure	Municipality Boundary	Delineated Wetland
Proposed 230kV Transmission Line	Parcel Boundary	Delineated Stream
Existing Transmission Line		Floodway
		100-Year Floodplain
		Historic Building

Imagery (PEMA 2021 & Nearmap 2024)
 Parcels (Columbia & Schuylkill 2025)
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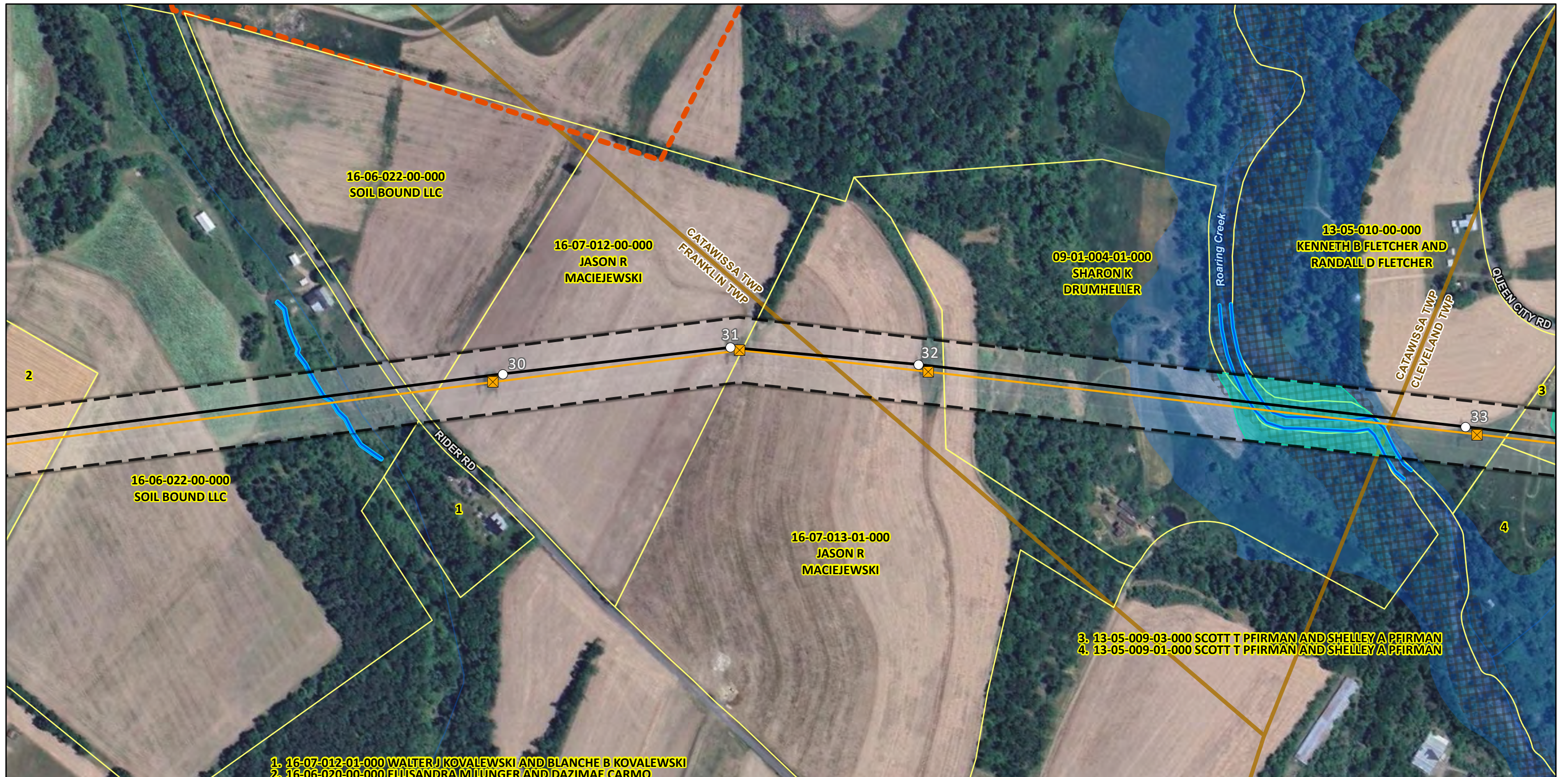


Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project

0 300 600 Feet

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1:3,600



1. 16-07-012-01-000 WALTER J KOVALEWSKI AND BLANCHE B KOVALEWSKI
 2. 16-06-020-00-000 ELLISANDRA MILUNGER AND DAZIMAE CARMO

- ✘ Existing Structure to be Removed
- Proposed Structure
- Proposed 230kV Transmission Line
- Existing Transmission Line
- Existing ROW
- Municipality Boundary
- Parcel Boundary
- Agricultural Conservation Easement (ACE)
- NHD Stream/River
- Delineated Wetland
- Delineated Stream
- Floodway
- 100-Year Floodplain

Imagery (PEMA 2021 & Nearmap 2024)
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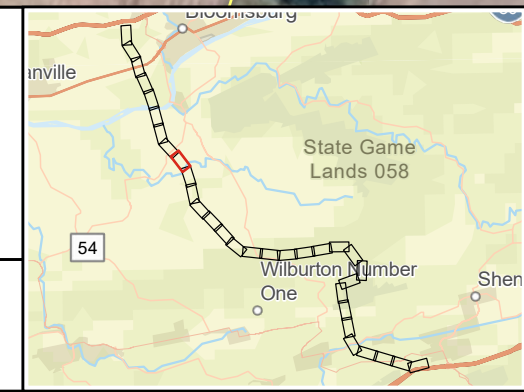
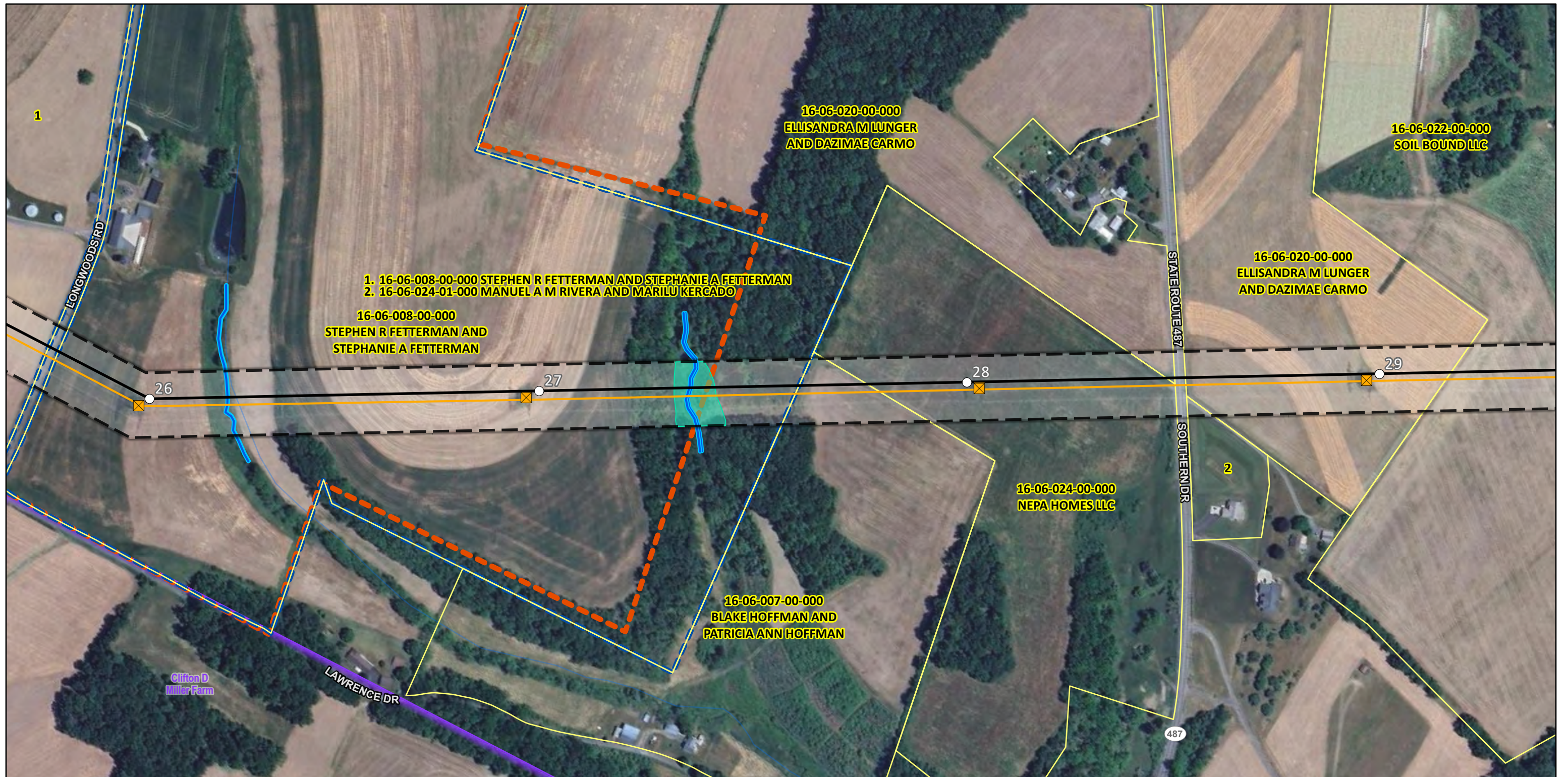


Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





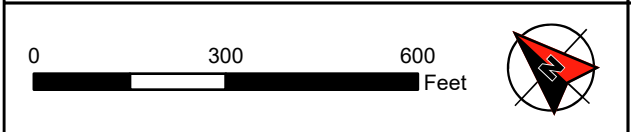
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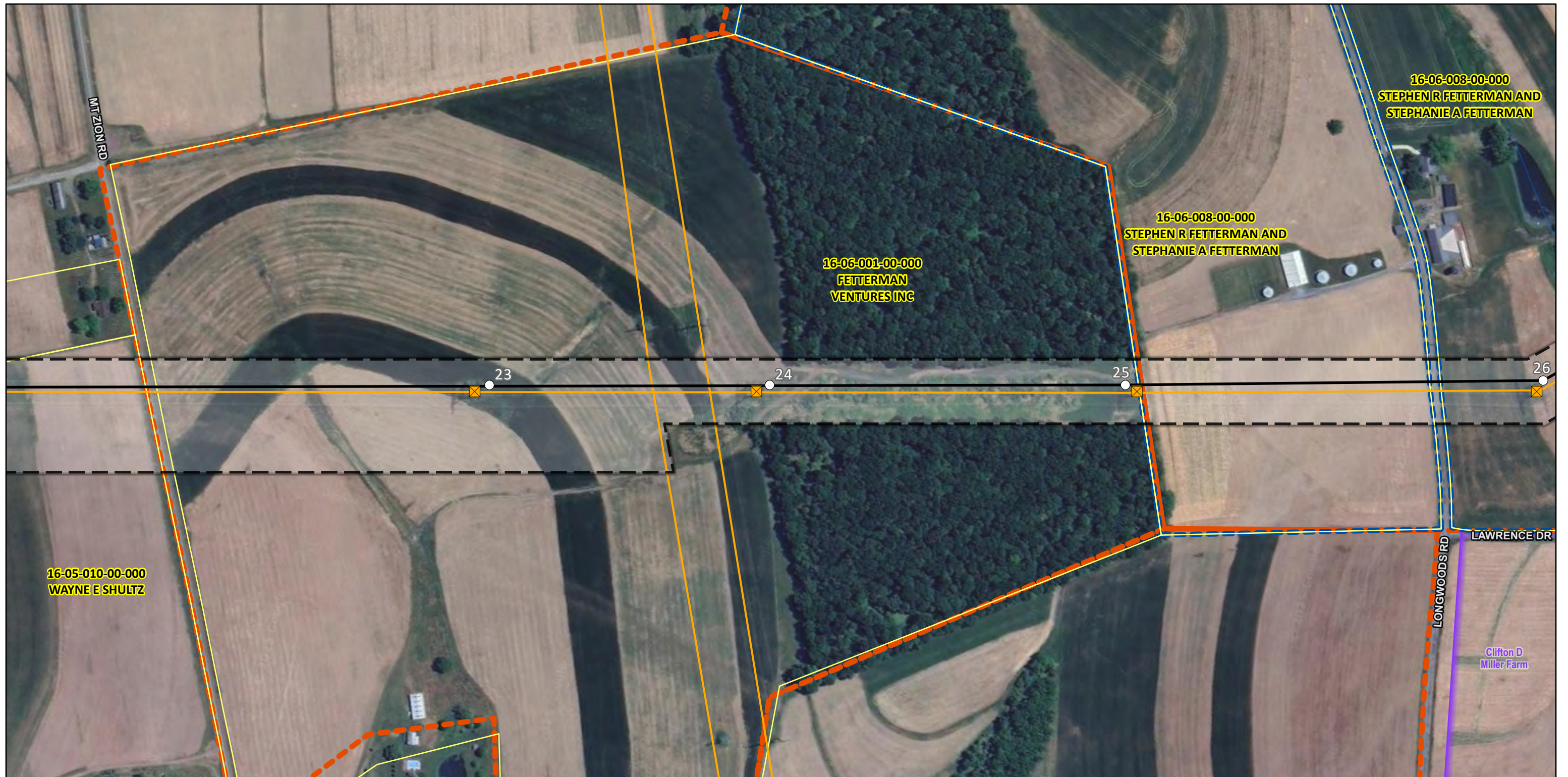
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Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





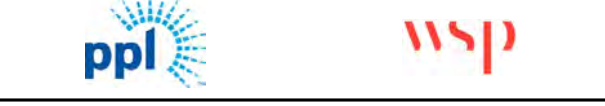
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-  Proposed Structure
-  Proposed 230kV Transmission Line
-  Existing Transmission Line
-  Existing ROW
-  Parcel Boundary
-  Agricultural Security Area (ASA)
-  Agricultural Conservation Easement (ACE)
-  NHD Stream/River
-  Delineated Stream
-  Historic Building

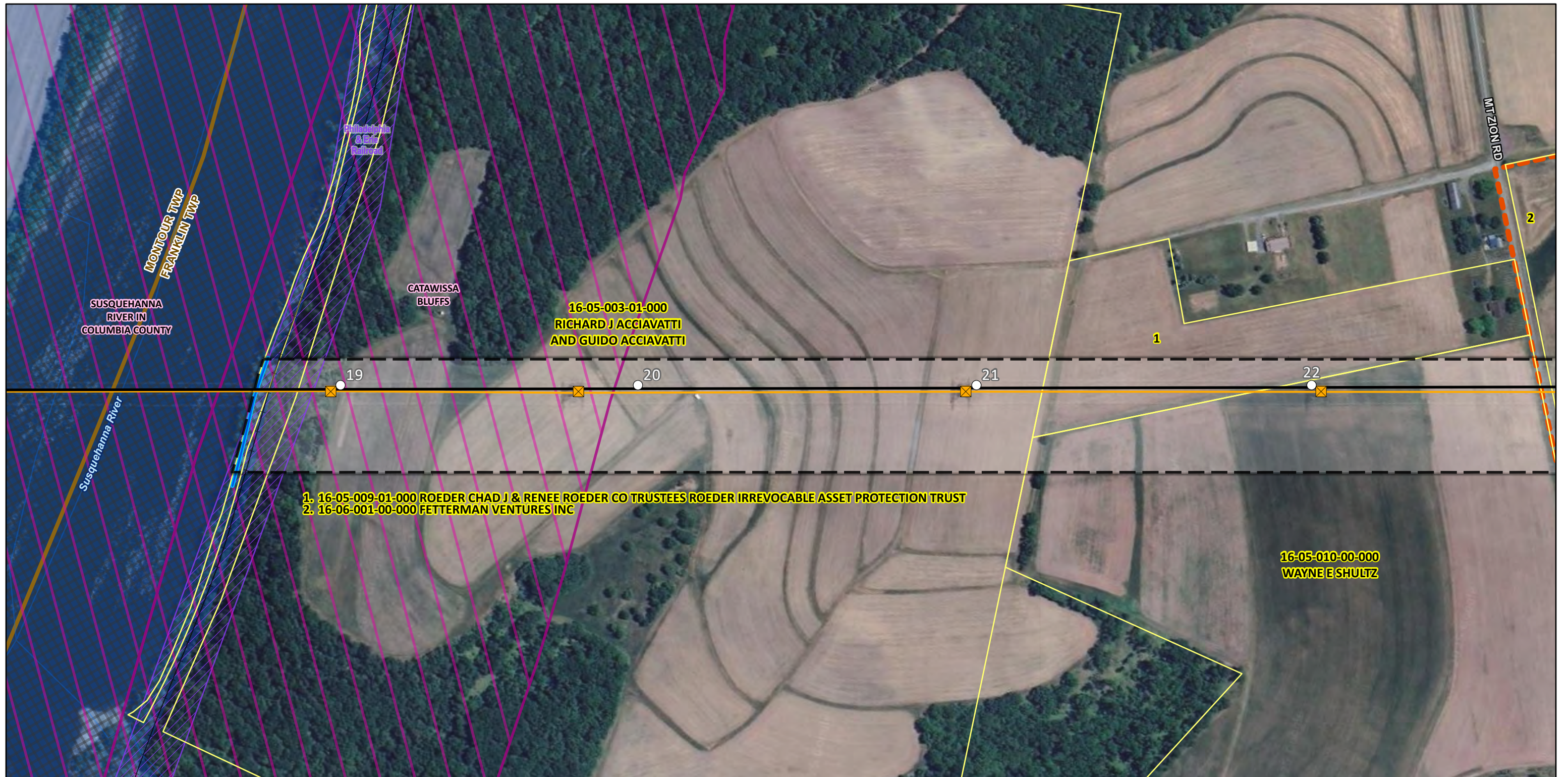
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Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





1. 16-05-009-01-000 ROEDER CHAD J & RENEE ROEDER CO TRUSTEES ROEDER IRREVOCABLE ASSET PROTECTION TRUST
 2. 16-06-001-00-000 FETTERMAN VENTURES INC

- ✘ Existing Structure to be Removed
- Proposed Structure
- Proposed 230kV Transmission Line
- Existing Transmission Line
- Existing ROW
- Municipality Boundary
- Railroad
- Parcel Boundary
- Agricultural Conservation Easement (ACE)
- NHD Stream/River
- Delineated Stream
- Floodway
- 100-Year Floodplain
- Historic District
- CNHI Core Habitat

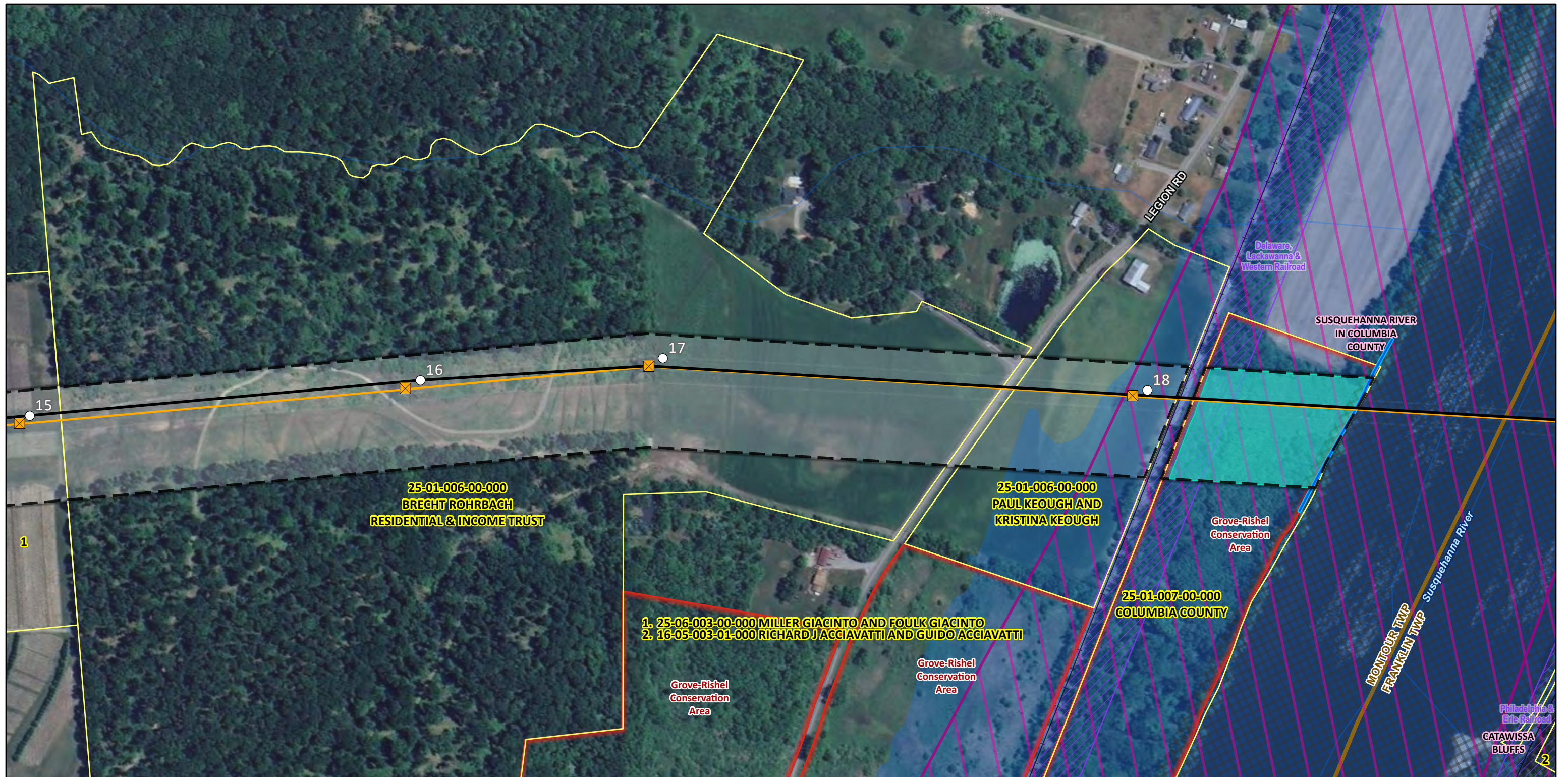
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Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





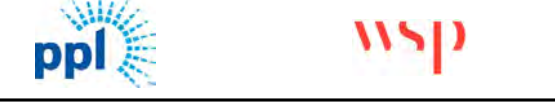
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- Proposed Structure
- Proposed 230kV Transmission Line
- Existing Transmission Line
- Existing ROW
- Municipality Boundary
- Railroad
- Parcel Boundary
- Conservation Easement
- NHD Stream/River
- Delineated Wetland
- Delineated Stream
- Floodway
- 100-Year Floodplain
- Historic District
- CNHI Core Habitat

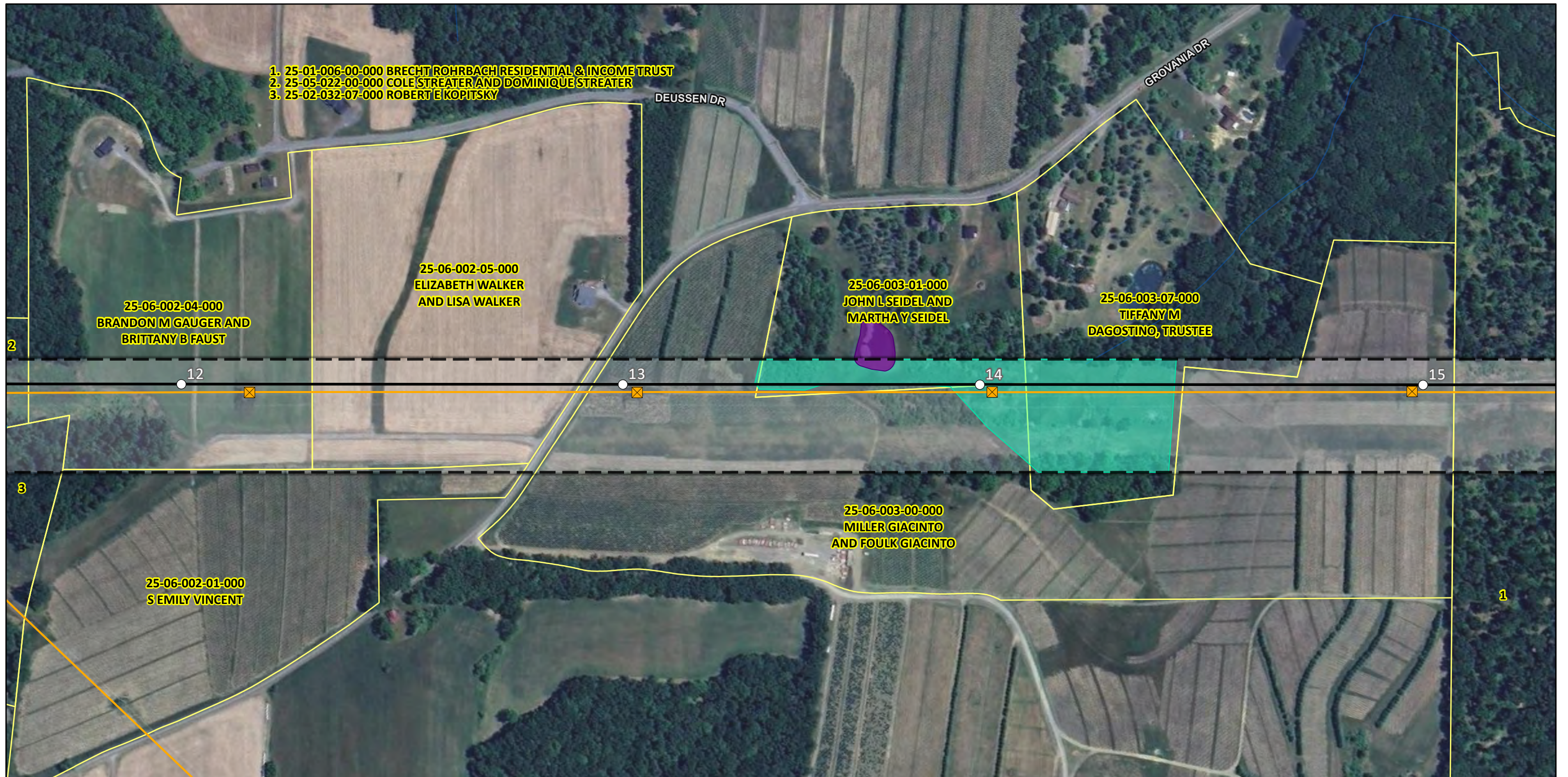
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Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





1. 25-01-006-00-000 BRECHT ROHRBACH RESIDENTIAL & INCOME TRUST
2. 25-05-022-00-000 COLE STREATER AND DOMINIQUE STREATER
3. 25-02-032-07-000 ROBERT E KOPITSKY

25-06-002-04-000
BRANDON M GAUGER AND
BRITTANY B FAUST

25-06-002-05-000
ELIZABETH WALKER
AND LISA WALKER

25-06-003-01-000
JOHN L SEIDEL AND
MARTHA Y SEIDEL

25-06-003-07-000
TIFFANY M
DAGOSTINO, TRUSTEE

25-06-003-00-000
MILLER GIACINTO
AND FOULK GIACINTO

25-06-002-01-000
S EMILY VINCENT

2

3

1

12

13

14

15

- Existing Structure to be Removed
- Proposed Structure
- Proposed 230kV Transmission Line
- Existing Transmission Line
- Existing ROW
- Parcel Boundary
- NHD Stream/River
- Delineated Pond
- Delineated Wetland
- Delineated Stream

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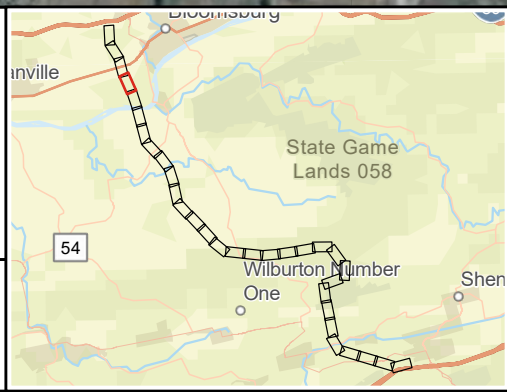
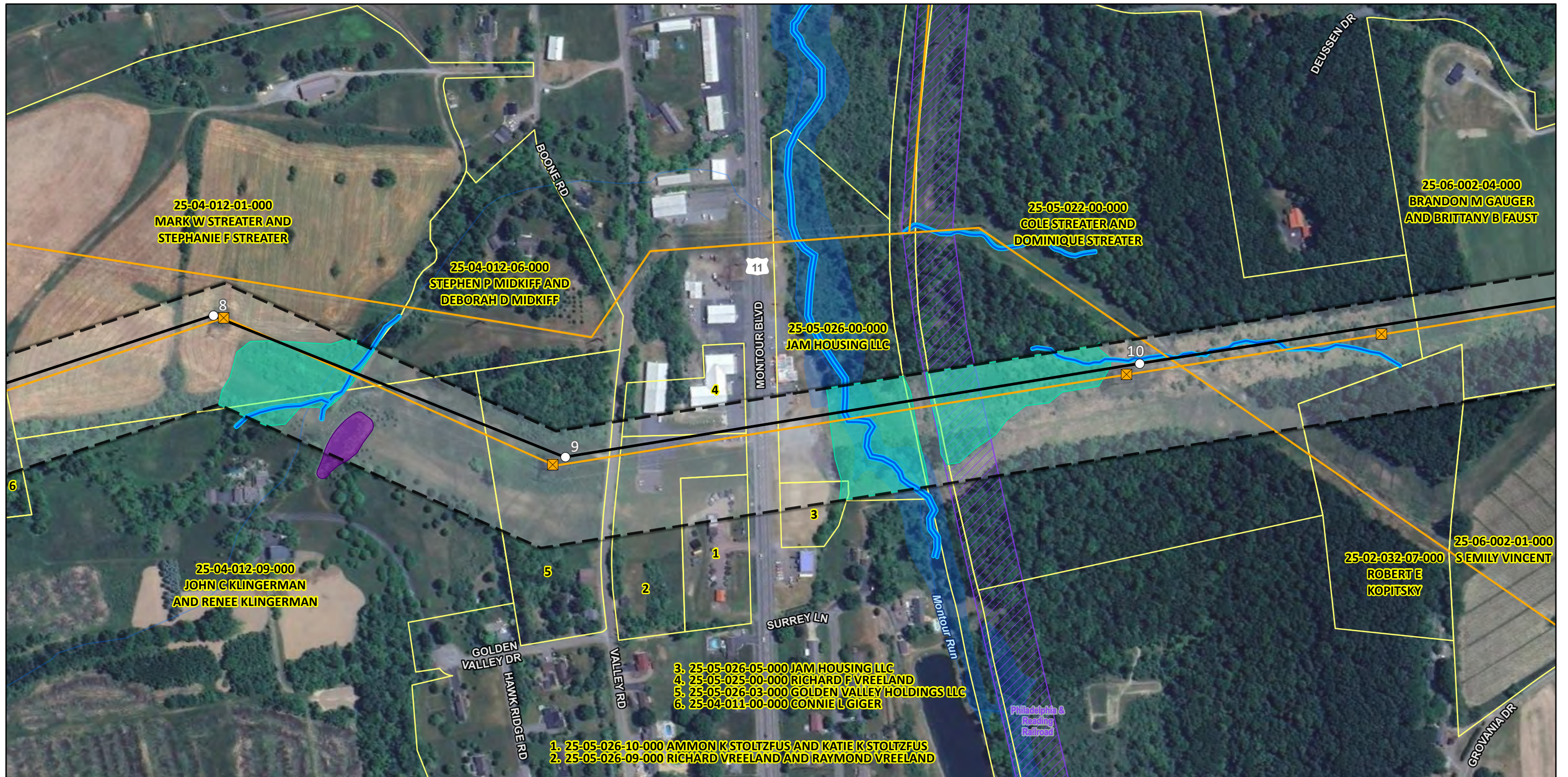


Figure 3-1
Aerial Map
Frackville-Columbia 230kV
Transmission Line Rebuild Project





- ✘ Existing Structure to be Removed
- Proposed Structure
- Proposed 230kV Transmission Line
- Existing Transmission Line
- Existing ROW
- ▭ Parcel Boundary
- NHD Stream/River
- ▭ Delineated Pond
- ▭ Delineated Wetland
- Delineated Stream
- ▭ 100-Year Floodplain
- ▭ Historic District

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Coordinate System:
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 Datum: North American 1983



Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project

ppl **wsp**





Existing Structure to be Removed	Existing ROW	NHD Stream/River
Proposed Structure	Municipality Boundary	Delineated Stream
Proposed 230kV Transmission Line	Parcel Boundary	
Existing Transmission Line		

Imagery (PEMA 2021 & Nearmap 2024)
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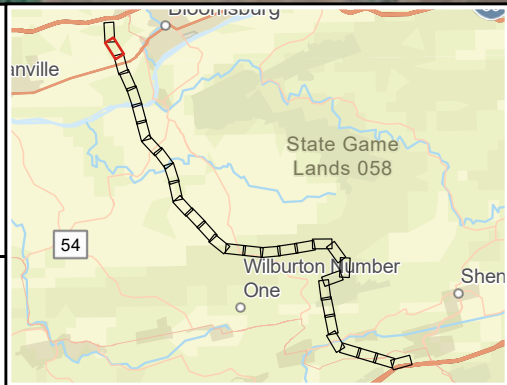


Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project





- Substation
- Existing Structure to be Removed
- Proposed Structure
- Proposed 230kV Transmission Line
- Existing Transmission Line
- Existing ROW
- Municipality Boundary
- Parcel Boundary
- PPL-Owned Parcel
- NHD Stream/River

Imagery (PEMA 2021 & Nearmap 2024)
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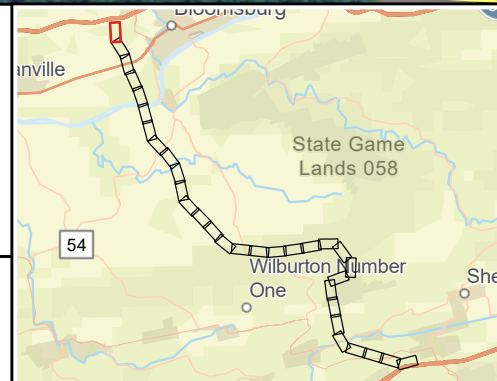
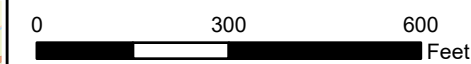


Figure 3-1
Aerial Map
 Frackville-Columbia 230kV
 Transmission Line Rebuild Project



**PPL ELECTRIC
ATTACHMENT 4**

FRACKVILLE-COLUMBIA 230 kV COR-TEN® REBUILD PROJECT

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Table 4-4. 500 kV Vertical Clearance to Ground 3

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

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

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

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

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

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

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

2.0. PERIODIC MAINTENANCE PROGRAM ON ALL TRANSMISSION LINES

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

3.0. PERSONNEL SAFETY RULES

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

- Procedures have been developed to allow work to be performed on energized facilities in a safe manner. When lines or apparatus are removed from service to be worked on, the Energy Control Process system is applied. This system provides that a red tag must be physically placed on the control handle of the de-energized equipment.
- The red tag may be removed only after proper authorization to energize the equipment has been received.
- Various other tags are used for limited operations and informational purposes.
- Employees or contractors will not apply or remove a tag or change the status of tagged equipment unless authorized.

- Temporary safety grounds are used on de-energized facilities for employee lineman safety during maintenance, construction, or reconstruction work. Safety grounds are wires connecting the de-energized facility to an electrical ground. If the facility should be energized, the safety grounds will divert the current directly to ground and reduce the likelihood of personal injury.
- Before applying grounds, a test is done to confirm that the line is de-energized. The voltage test device is checked before and after use to assure reliability.
- Poles or structures are inspected and examined for structural integrity before climbing. If there is any reason to believe that a pole is unsafe, it is stabilized before work is performed. Appropriate safety gear in the form of body belts, safety straps, hard hats, gloves, etc., is worn by linemen during line work activity.

4.0 MAGNETIC FIELD MANAGEMENT PLAN

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

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

**PPL ELECTRIC
ATTACHMENT 5**

FRACKVILLE-COLUMBIA 230kV COR-TEN® 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: Allison Kaster

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

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

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

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

Pennsylvania Game Commission
2001 Elmerton Avenue
Harrisburg, Pennsylvania 17110-9797
Attn: David J. Gustafson, 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: Darryl Lawrence, 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 Road, Suite 101
State College, Pennsylvania 16801
Attn: Lesa Lindsay

County Agencies

Schuylkill County Planning Commission
401 North 2nd Street, Second Floor
Pottsville, Pennsylvania 17901
Attn: Susan A. Smith, Planning Director

Schuylkill County Conservation District
1206 AG Center Drive
Pottsville, Pennsylvania 17901
Attn: Jenna St. Clair, Conservation District Manager

Schuylkill County Municipal Authority
221 South Center Street
Pottsville, Pennsylvania 17901
Attn: Franklin K. Schoeneman, Chairman

Columbia County Planning Commission
26 West First Street
Bloomsburg, PA 17815
Attn: William Brobst, Chair
Columbia County Conservation District

702 Sawmill Road, Suite 103
Bloomsburg, Pennsylvania 17815
Attn: Nancy Beyer, District Manager

Columbia County Commissioners
11 West Main Street
Main Street County Annex
Bloomsburg, Pennsylvania 17815
Attn: David Witchey, Chief Clerk

Municipalities

Butler Township
211 Broad Street
Ashland, Pennsylvania 17921

Catawissa Township Supervisors
153 Old Reading Road
Catawissa, Pennsylvania 17820
Attn: Tracy Miller, Secretary

Cleveland Township Supervisors
46 Jefferson Road
Elysburg, Pennsylvania 17824
Attn: Stephen Llewellyn, Chairman

Conyngham Township
209 Smith Street
PO Box 10
Wilburton, Pennsylvania 17888
Attn: Martin Wolfe, Chairman

Franklin Township Supervisors
97 Orchard Drive
Catawissa, Pennsylvania 17820
Attn: David McDonald, Chairman

Hemlock Township
26 Firehall Road
Bloomsburg, Pennsylvania 17815
Attn: Eric Stahley, Manager

Locust Township
1 223-A Numidia Drive
Catawissa, Pennsylvania 17820
Montour Township Supervisors
296 Jackson Street
Bloomsburg, Pennsylvania 17815

Roaring Creek Township
28 Brass School Road
Catawissa, Pennsylvania 17815

Landowners

AMMON K STOLTZFUS AND KATIE K
STOLTZFUS
1901 LUXEMBURG RD
LYKENS, PA 17048

ASHLEY THOMAS, LLC
1225 CLAYTON AVE
OAKFORD, PA 19053

ASHLAND AREA MUNICIPAL AUTHY
ASHLAND BOROUGH OFFICE
401 SOUTH 18TH STREET
ASHLAND, PA 17921

AUSTIN GIGER
190 CLIFTON DR
BLOOMSBURG, PA 17815

BARRY E MILLS AND IRENE P MILLS
10 GRAVITY HILL RD
CATAWISSA, PA 17820

BLAKE HOFFMAN AND PATRICIA ANN
HOFFMAN
89 LAWRENCE DR
CATAWISSA, PA 17820

BRAD E FEESE
124 JOHNSON SCHOOL RD
CATAWISSA, PA 17820

BRADLEY C MILLER
97 TYLER AVE
CATAWISSA, PA 17820

BRADY T HESS AND KELLY HESS
13 GARFIELD RD
ELYSBURG, PA 17824

BRANDON M GAUGER AND BRITTANY
B FAUST
176 DEUSSEN DR
BLOOMSBURG, PA 17815

BRECHT ROHRBACH RESIDENTIAL &
INCOME TRUST
177 MCINTYRE RD
CATAWISSA, PA 17820

BROAD MOUNTAIN DEV CO LLC
10 GILBERTON RD
GILBERTON, PA 17934

CHRISTOPHER J WELKOM AND JUSTIN
J WELKOM
80 TUNNEL RD
BLOOMSBURG, PA 17815

CITY OF PHILADELPHIA TRUSTEE &
STEPHEN GIRARD ESTATE
1101 MARKET ST SUITE 2600
PHILADELPHIA, PA 19107

CLAIR E MANGES AND SUSAN J JR
MANGES
375 RIDGE RD
BLOOMSBURG, PA 17815

COLE STREATER AND DOMINIQUE
STREATER
31 MIDDLE AVE
BLOOMSBURG, PA 17815

COLUMBIA COUNTY
35 W MAIN ST
BLOOMSBURG, PA 17815

COLUMBIA SPORTSMEN CLUB INC C/O
DONALD MILLER
97 TYLER AVE
CATAWISSA, PA 17820

Landowners

COMMONWEALTH OF PENNSYLVANIA
PA GAME COMMISSION
2001 ELMERTON AVE
HARRISBURG, PA 17110

CONNIE L GIGER
321 RIDGE RD
BLOOMSBURG, PA 17815

DENISE D VANDINE
279 QUARRY DR
BLOOMSBURG, PA 17815

DENISE D VANDINE C/O DENISE
WENNER
279 QUARRY DR
BLOOMSBURG, PA 17815

DIAMOND DEVELOPMENT INC
212 W CHERRY ST
MOUNT CARMEL, PA 17851

DONALD J BOWER AND CAROLYN J
BOWER
92 COMARNITSKY LN
CATAWISSA, PA 17820

DOUGLAS B RICHIE AND ROBERT A
SHEBELSKY
5973 ROUTE 209
STROUDSBURG, PA 18360

DREW A HAMPTON AND KIMBERLY A
HAMPTON
252 LAKE GLORY RD
CATAWISSA, PA 17820

ELIZABETH WALKER AND LISA
WALKER
447 GROVANIA DR
BLOOMSBURG, PA 17815

ELLISANDRA M LUNGER AND
DAZIMAE CARMO
340A SOUTHERN DR
CATAWISSA, PA 17820

FETTERMAN VENTURES INC
6102 MOUNTAIN MAPLE CT
KINGWOOD, TX 77345

G HAROLD WATKINS
992 FOUNTAIN ST
ASHLAND, PA 17921

GEORGE E KLISCHER
PO BOX 174
ARISTES, PA 17920

GEORGE H WATKINS
992 FOUNTAIN ST
ASHLAND, PA 17921

GOLDEN VALLEY HOLDINGS LLC
1388 STATE ROUTE 487
BLOOMSBURG, PA 17815

GREGORY A HALADAY
360 TYSON SCHOOL RD
CATAWISSA, PA 17820

GREGORY G GRABOSKI AND
ELIZABETH GRABOSKI
368 QUAKER MEETING RD
CATAWISSA, PA 17820

H H KNOEBEL SONS INC
PO BOX 317
ELYSBURG, PA 17824

Landowners

HAROLD D HOCKENBERRY AND
SHARON A HOCKENBERRY
1522 NUMIDIA DR
CATAWISSA, PA 17820

HARRY ALLEN STINE
167 BEAR GAP RD
ELYSBURG, PA 17824

HELENANN M WEGRZYNOWICZ AND
MICHELLE F ENRIQUEZ
46 BEAR GAP RD
CATAWISSA, PA 17820

HOWARD SHOUP AND SARAH SHOUP
143 HILL FIELD RD
RINGTOWN, PA 17967

IRVIN W MARTIN AND ESTHER Z
MARTIN
1681 SWENDEL RD
MIFFLINBURG, PA 17844

JAM HOUSING LLC
1205 6TH AVE
BERWICK, PA 18603

JASON R MACIEJEWSKI
236 PARRS MILL RD
CATAWISSA, PA 17820

JESSICA L MCFEE
25 COMARNITSKY LN
CATAWISSA, PA 17820

JOHN A YARNALL
502 E FRONT ST
BERWICK, PA 18603

JOHN C KLINGERMAN AND RENEE
KLINGERMAN
405 GOLDEN VALLEY DR
BLOOMSBURG, PA 17815

JOHN L SEIDEL AND MARTHA Y
SEIDEL
340 GROVANIA DR
BLOOMSBURG, PA 17815

JOHN M MACVICAR AND BARBARA
MACVICAR
PO BOX 145
NUMIDIA, PA 17858

JOHN P MAYERNICK AND LINDA L
MAYERNICK
2078 MOUNTAIN RD
CATAWISSA, PA 17820

JOSEPH J PETRO AND CYNTHIA J
PETRO
498 POOR HOUSE RD
CATAWISSA, PA 17820

JOSEPH J WANZIE
PO BOX 66
NUMIDIA, PA 17858

JOSEPH NORWICH
714 NUMIDIA DR
CATAWISSA, PA 17820

KENNETH B FLETCHER AND RANDALL
D FLETCHER
3436 PRUSS HILL RD
POTTSTOWN, PA 19464

KEVIN P TOBIAS AND STEPHANIE L
CAREY
384 MONTOUR RD
ELYSBURG, PA 17824

Landowners

KLAIR A SEITZ AND MARLENE M L
SEITZ
549 RIDGE RD
CATAWISSA, PA 17820

LEHIGH VALLEY R R CO
1 E 4TH ST 13TH FL
CINCINNATI, OH 45202

LEVAN PAUL R SONS
1447 NUMIDIA DR
CATAWISSA, PA 17820

LEVAN WAYNE AND CHERYL K BLASS
31 GARFIELD RD
ELYSBURG, PA 17824

LOWELL DEAN LONG AND MARK N
LONG
5112 WILDWOOD DR
FLOWERMOUND, TX 75028

MANUEL A M RIVERA AND MARILU
KERCADO
373 SOUTHERN DR
CATAWISSA, PA 17820

MARC A WOOD AND NAOMI V BENSON
848 KIMBALL AVE
WESTFIELD, NJ 07090

MARK W STREATER AND STEPHANIE F
STREATER
64 MIDDLE AVE
BLOOMSBURG, PA 17815

MARKS FAMILY FARMS LLC
326 JOHNSON SCHOOL RD
CATAWISSA, PA 17820

MELLON BANK N A AND PENNA NAT'L
BANK & TRUST CO
1621 HOWARD AVE
POTTSVILLE, PA 17901

MICHAEL A MORRIS
401 RIDGE RD
BLOOMSBURG, PA 17815

MICHAEL B SWIDERSKI AND AMBER L
SWIDERSKI
2097 B PINE SWAMP RD
CATAWISSA, PA 17820

MILLER GIACINTO AND FOULK
GIACINTO
490 GROVANIA DR
BLOOMSBURG, PA 17815

MT LAUREL ENT
15 MAIN ST
PORT CARBON, PA 17965

MYRON S COMARNITSKY AND
ROSEANN COMARNITSKY
69 S HOERNERSTOWN RD
HUMMELSTOWN, PA 17036

NELLIE WATKINS AND G HAROLD
WATKINS
992 FOUNTAIN ST
ASHLAND, PA 17921

NEPA HOMES LLC
470 W 8 1/2 ST
BLOOMSBURG, PA 17815

PAUL JOHN DORASKI
517 ASHTON HOLLOW RD
CATAWISSA, PA 17820

Landowners

PAUL KEOUGH AND KRISTINA
KEOUGH
246 LEGION RD
BLOOMSBURG, PA 17815

R P HUGHES LAND DEV INC
144 BROWN RD
YATESVILLE, PA 18640

READING BLUE MT & NORTHERN RR
1 N 4TH ST
HAMBURG, PA 19526

RESERVE CARBON CORP
PO BOX 1200
POTTSVILLE, PA 17901

RICHARD F VREELAND
13 HARTMAN RD
DANVILLE, PA 17821

RICHARD VREELAND AND RAYMOND
VREELAND
13 HARTMAN RD
DANVILLE, PA 17821

ROBERT D MOYER AND JEANETTE L
MOYER
PO BOX 11
SHAWNEE ON DELAWARE, PA 18356

ROBERT J MADARA AND MICHELLE L
MADARA
466 TYSON SCHOOL RD
CATAWISSA, PA 17820

ROBERT S GEE
289 MIDDLE RD
CATAWISSA, PA 17820

PETER A PESARESI AND NANCY V
PESARESI
21 GARFIELD RD
ELYSBURG, PA 17824

READING ANTHRACITE COMPANY
200 MAHANTONGO ST
POTTSVILLE, PA 17901

READING BLUE MT & NORTHERN RR
1 N 4TH ST
HAMBURG, PA 19526

RFF PARTNERS
216 CEMETERY HILL RD
CATAWISSA, PA 17820

RICHARD J ACCIAVATTI AND GUIDO
ACCIAVATTI
PO BOX 179
WESTTOWN, PA 19395

RICHARD W SOBER AND SHARON M
SOBER
83 TRUMAN AVE
CATAWISSA, PA 17820

ROBERT E KOPITSKY
625 GROVANIA DR
BLOOMSBURG, PA 17815

ROBERT L PROUT
51 GARFIELD RD
ELYSBURG, PA 17824

ROBERT T JR KLINGERMAN
65 GARFIELD RD
ELYSBURG, PA 17824

Landowners

ROEDER CHAD J & RENEE ROEDER CO
TRUSTEES ROEDER IRREVOCABLE
ASSET PROTECTION TRUST
246 MOUNT ZION RD
CATAWISSA, PA 17820

ROSEANN STINE
192B BEAR GAP RD
ELYSBURG, PA 17824

S EMILY VINCENT
4133 KILMER AVE
ALLENTOWN, PA 18104

SAFETY NET INC
129 E COLUMBIA AVE
MOUNT CARMEL, PA 17851

SCOTT T PFIRMAN AND SHELLEY A
PFIRMAN
16 EISENHOWER RD
CATAWISSA, PA 17820

SHARON K DRUMHELLER
235 RIDER RD
CATAWISSA, PA 17820

SOBER FARMS LLC
258 EISENHOWER RD
CATAWISSA, PA 17820

SOIL BOUND LLC
240 SOUTHERN DR
CATAWISSA, PA 17820

STEPHEN GIRARD ESTATE TRUSTEES
1101 MARKET ST SUITE 2600
PHILADELPHIA, PA 19107

STEPHEN P MIDKIFF AND DEBORAH D
MIDKIFF
315 BOONE RD
BLOOMSBURG, PA 17815

STEPHEN R FETTERMAN AND
STEPHANIE A FETTERMAN
6102 MOUNTAIN MAPLE CT
KINGWOOD, TX 77345

STEVEN F GRUMBINE
234 COMARNITSKY LN
CATAWISSA, PA 17820

STEVEN F GRUMBINE
297 DAHL RD
BLOOMSBURG, PA 17815

TIFFANY M COHO
330 GROVANIA DR
BLOOMSBURG, PA 17815

TRINA M DAMGAARD
279 MIDDLE RD
CATAWISSA, PA 17820

TROY C LITWHILER AND RUTHANNE L
LITWHILER
640 ASHTON HOLLOW RD
CATAWISSA, PA 17820

WADE L HAMPTON AND BONITA L
HAMPTON
127 EARTH STATION RD
CATAWISSA, PA 17820

WALTER GENE WILLIAMS
20C GRAVITY HILL RD
CATAWISSA, PA 17820

Landowners

WALTER J KOVALEWSKI AND
BLANCHE B KOVALEWSKI
162 RIDER RD
CATAWISSA, PA 17820

WAYNE E SHULTZ
324 MOUNT ZION RD
CATAWISSA, PA 17820

WAYNE M BROKENSHERE AND
DEBORAH A BROKENSHERE
2004 MOUNTAIN RD
CATAWISSA, PA 17820

WEIMINES INC
PO BOX 231
SHOEMAKERSVILLE, PA 19555

WEISER STATE FOREST ROARING
CREEK TRACT
WEISER DISTRICT OFFICE
PO BOX 315
ARISTES, PA 17920

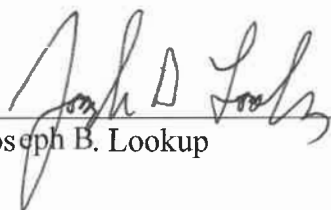
WILLIAM K ADAMSKI AND MARY
MARGARET KRINER
273 QUAKER MEETING HOUSE RD
CATAWISSA, PA 17820

ZEISLOFT DALE M & MARY ELLEN
TRUSTEES & ZEISLOFT JOINT
REVOCABLE TRUST
16117 BONITA LAND CIR
BONITA SPRINGS, FL 34135

VERIFICATION

I, JOSEPH B. LOOKUP, being the Vice President – Transmission & Distribution Planning and Asset Management at PPL Services Corporation, hereby state that the facts above set forth are true and correct to the best of my knowledge, information and belief and that I expect PPL Electric Utilities Corporation to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 relating to unsworn falsification to authorities.

Date: September 24, 2025



Joseph B. Lookup