Alton Post Office Solar, LLC
PERMIT BY RULE

Small Renewable Energy Project (Solar) Permit By Rule

APPLICATION DOCUMENTS

Date: September 2020

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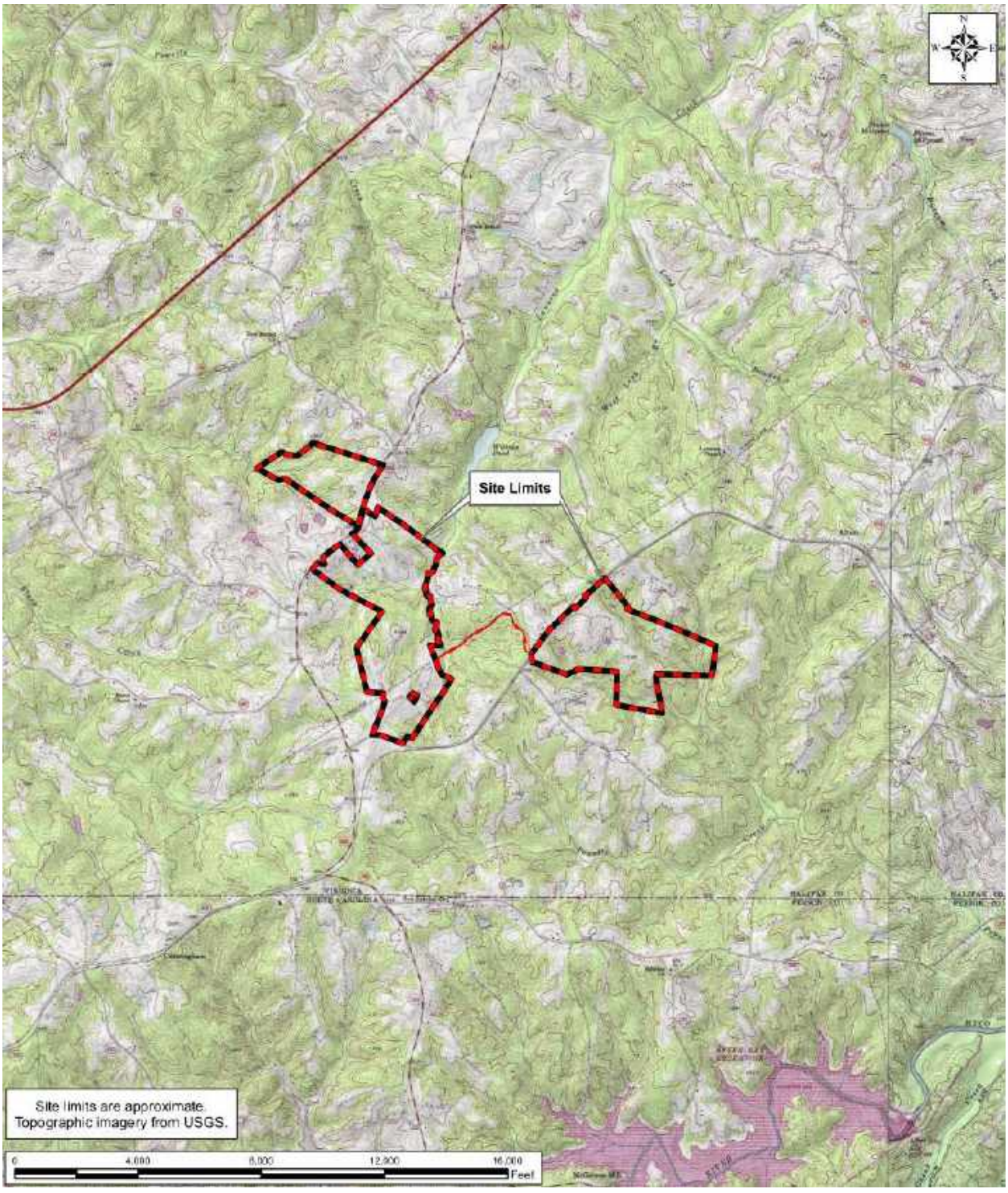
I. INTRODUCTION AND OVERVIEW

The Alton Post Office project ("Project") is a 75 MW solar facility proposed by Alton Post Office Solar, LLC. The Project is located along Route 711 (Alton Post Office Road) and Route 699 (Mt Carmel Road) approximately one mile north of the North Carolina border in Halifax County, Virginia.

The land is currently utilized for agricultural purposes, and is proposed for development as a solar farm. The Project will utilize traditional photovoltaic solar modules to produce electricity which will interconnect through the utility infrastructure of Virginia Electric and Power Company. The proposed solar facility is comprised of solar panels that are attached to a single-axis tracking system. The solar facility has been designed to minimize land disturbance to the extent possible.

This application narrative and associated attachments included within comprise the Permit by Rule ("PBR") application materials. This information is being submitted pursuant to 9 VAC15-60 in order to obtain authorization from the Virginia Department of Environmental Quality (VDEQ) for the construction of the proposed solar facility in accordance with the Solar PBR processing guidelines. Through the subsequent studies/surveys submitted and an analysis of these requirements, we believe the Project will be found to meet the standards and requirements of the PBR regulations.

- Local Jurisdiction: Halifax County, VA
- Total generating capacity of project: 75 MW AC
- Timeframe of project: Anticipated construction time of 12 months
- Public comment period: August 13 – September 11, 2020



U.S. Geological Survey, 2013. 7.5 Minute Series, Alton, Virginia, Topographic Quadrangle Map, 1:24,000 scale.

Figure 1 – Vicinity Map

II. PERMIT BY RULE COMPLIANCE ANALYSIS

Pursuant to 9 VAC15-60-30, in order to obtain authorization from VDEQ for the construction of the proposed solar facility, the Applicant has completed requirements to demonstrate compliance with the Solar PBR processing guidelines. Each of the fifteen (15) Solar PBR requirements, as well as a description of the associated compliance measures, are described in detail below.

1. NOTICE OF INTENT

Requirement: *In accordance with § 10.1-1197.6 B 1 of the Code of Virginia, and as early in the project development process as practicable, furnishes to the department a notice of intent, to be published in the Virginia Register, that he intends to submit the necessary documentation for a permit by rule for a small renewable energy project;*

An updated notice of intent was submitted to VDEQ on April 22, 2020. An initial notice of intent was published for Alton Post Office Solar, LLC in Volume 36, Issue 3 of the Virginia Register of Regulations. Both notices are included in Attachment A.

2. COMPLIANCE WITH LOCAL LAND USE ORDINANCES

Requirement: *In accordance with § 10.1-1197.6 B 2 of the Code of Virginia, furnishes to the department a certification by the governing body of the locality or localities wherein the small renewable energy project will be located that the project complies with all applicable land use ordinances;*

A copy of the Local Governing Body Certification Form, signed by the Zoning Administrator of Halifax County, is included in Attachment B.

3. INTERCONNECTION STUDIES

Requirement: *In accordance with § 10.1-1197.6 B 3 of the Code of Virginia, furnishes to the department copies of all interconnection studies undertaken by the regional transmission organization or transmission owner, or both, on behalf of the small renewable energy project;*

The Project has been reviewed through PJM's standardized interconnection study process. Queue positions AC1-221 and AD1-058 have been combined to represent the interconnection request for the Project.

The following studies have been completed:

Queue AC1-222/AD1-058 Person – Sedge Hill 230kV Generation Interconnection Facility Study Report

Queue Position AC1-221

- Person – Halifax 230 kV Generation Interconnection Feasibility Study Report
- Person – Sedge Hill 230 kV Generation Interconnection System Impact Study Report

Queue Position AD1-058

- Person – Sedge Hill 230 kV Generation Interconnection Feasibility Study Report
- Person – Sedge Hill 230 kV Generation Interconnection System Impact Study Report

The interconnection studies are included as Attachment C. Also included within Attachment C is a Generator Interconnection Affected System Study Report for PJM Interconnection Clusters AC1, AC2, and AD1 for Requests on the Person-Sedge Hill 230kV Corridor.

4. INTERCONNECTION AGREEMENTS

Requirement: *In accordance with § 10.1-1197.6 B 4 of the Code of Virginia, furnishes to the department a copy of the final interconnection agreement between the small renewable energy project and the regional transmission organization or transmission owner indicating that the connection of the small renewable energy project will not cause a reliability problem for the system. If the final agreement is not available, the most recent interconnection study shall be sufficient for the purposes of this section. When a final interconnection agreement is complete, it shall be provided to the department. The department shall forward a copy of the agreement or study to the State Corporation Commission;*

A copy of the Interconnection Service Agreement among PJM Interconnection, L.L.C. and Alton Post Office Solar, LLC and Virginia Electric and Power Company is included in Attachment D.

A copy of the Interconnection Construction Service Agreement by and among PJM Interconnection, L.L.C and Alton Post Office Solar, LLC and Virginia Electric and Power Company is also included.

5. MAXIMUM GENERATION CAPACITY CERTIFICATION

Requirement: *In accordance with § 10.1-1197.6 B 5 of the Code of Virginia, furnishes to the department a certification signed by a professional engineer licensed in Virginia that the maximum generation capacity of the small solar energy project, as designed, does not exceed 150 megawatts;*

The maximum generation capacity of this proposed facility does not exceed 150 MW. A copy of the Maximum Generation Capacity Certification is included as Attachment E.

6. ANALYSIS OF POTENTIAL IMPACT ON AIR QUALITY STANDARDS

Requirement: *In accordance with § 10.1-1197.6 B 6 of the Code of Virginia, furnishes to the department an analysis of potential environmental impacts of the small renewable energy project's operations on attainment of national ambient air quality standards;*

The proposed project will not cause significant negative impacts on the attainment of National Ambient Air Quality Standards (NAAQS), and its operation is expected to have a beneficial impact on the attainment of NAAQS, compared with fossil fuel-based energy generation. A comparison of energy production via the proposed solar project compared with fossil-fuel based generation results in the following reductions to the atmosphere:

- 88,450 tons of carbon dioxide
- 95,280 lbs of sulfur dioxide
- 113,150 lbs of nitrogen oxide
- 12,300 lbs of particulate matter 2.5 μm

The above calculations are estimates generated by the EPA Avoided Emissions and Generation Tool: https://www.epa.gov/statelocalenergy/avoided-emissions-and-generation-tool-avert. Southeast regional data

was utilized for the calculations based on the facility location, and improvements are based on assumed generation of 75 MW of utility-scale solar.

7. ANALYSIS OF POTENTIAL BENEFICIAL/ADVERSE IMPACTS ON NATURAL RESOURCES

Requirement: *In accordance with § 10.1-1197.6 B 7 of the Code of Virginia, furnishes to the department an analysis of the beneficial and adverse impacts of the proposed project on natural resources. The owner or operator shall perform the analyses prescribed in 9VAC15-60-40. For wildlife, that analysis shall be based on information on the presence, activity, and migratory behavior of wildlife to be collected at the site for a period of time dictated by the site conditions and biology of the wildlife being studied, not exceeding 12 months;*

As prescribed in 9VAC15-60-40, the Applicant performed a benefits and adverse impacts analysis for the proposed project on natural resources. The analysis includes both desktop and field surveys for natural and cultural resources.

A. Wildlife Analysis

Threatened and Endangered Species

A state threatened and endangered species review was completed (Attachment F). The following agencies and associated databases were contacted and reviewed:

- Virginia Department of Conservation and Recreation (VDCR)
- Virginia Department of Wildlife Resources (VDWR) – Wildlife Environmental Review Map Services (WERMS)

Information provided by VDCR does not detail any threatened or endangered species on or within a 100' buffer of the project boundary.

The WERMS map does not indicate the presence of any threatened or endangered species within two miles of the project. All Species identified within the WERMS map within a two-mile buffer of the project are described as non-threatened and non-endangered.

Expected beneficial and adverse impacts

According to the reviewed resources, there are no threatened or endangered species present on the project area. In addition, the letter from VDCR states that the current activity will not affect any State listed plants or insects.

Therefore, no adverse impacts to threatened species are anticipated.

Coastal Avian Protection Zone

Project limits were compared to Coastal Avian Protection Zone (CAPZ) data from the Virginia Coastal Zone Management Program, provided by VDEQ's Coastal GEMS geospatial data system. A map showing the project boundary relative to CAPZ is included as Attachment G. Project limits do not fall in part or in whole within one or more CAPZ.

Expected beneficial and adverse impacts

Impact analysis does not apply as the Project does not fall in part or in whole within one or more CAPZ; therefore, the Project will not negatively impact coastal avian wildlife.

B. Historical/Cultural Resource Analysis

The Applicant conducted a Phase I Cultural Resource Survey, dated March 2020 of the archaeological and architectural features of the Project (Attachment H).

All research, fieldwork, and recording conducted as part of these investigations will conform to the guidance specified in the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (Federal Register 48:44716-44742, September 29, 1983), the Virginia Department of Historic Resources' (VHDR) *Guidelines for Conducting Historic Resources Survey in Virginia* (rev. 2017) and VDEQ's *Solar Permit by Rule Guidance* (2012) for complying with the provisions of §10.1-1197.6 B 7 of the Code of Virginia. The assessment was conducted through desktop and field review by a professional meeting the qualification standards of the Secretary of the Interior's Standards for Archeology and Historic Preservation (9VAC15-60-120 B 2) in the appropriate discipline.

Archaeological Survey

A total of seven archaeological sites were identified, all of which date to the early to mid-twentieth century. The Phase I Cultural Resource Survey found that the sites are of limited research potential and recommended not eligible for listing in the National Register of Historic Places (NRHP). VDHR comments were received on June 15, 2020 concurring with the findings of the Phase I Cultural Resource Survey archaeological survey.

Architectural Survey

A total of thirty-nine architectural resources greater than 50 years of age are located within the project limits and one-half mile architectural survey area. The Phase I Cultural Resource Survey found that none of the surveyed resources reflect any unique or significant design or historical associations, and as such, all were recommended not eligible for listing in the NRHP. VDHR comments were received on June 15, 2020 requesting additional information based from the Phase I Cultural Resource Survey architectural survey on one particular resource, Tall Oak Farms (VDHR# 041-5600). A viewshed assessment for VDHR# 041-5600 was completed and submitted to VDHR on July 22, 2020 in which the Applicant specified that the resource would be treated as potentially NRHP-eligible.

Expected beneficial and adverse impacts

As a result of the Phase I Cultural Resource Survey, the Applicant assessed that the Project would not have an impact on the seven identified archaeological sites and 39 architectural resources. VDHR provided comments on June 15, 2020 concurring with the archaeological findings of the Phase I Cultural Resources Survey (Attachment H) and requesting a viewshed analysis of VDHR# 041-5600. The viewshed analysis was completed and submitted to VDHR on July 22, 2020, and it concluded that the Project will a) treat the resource as potentially NRHP-eligible and b) pose no more than a minimal impact on VDHR# 041-5600.

C. Additional Natural Resource Analysis

Natural Heritage Resources

VDCR recommends the development of an invasive species management plan, and the planting of native pollinator plants along facility buffer areas that will bloom throughout the spring and summer.

Expected beneficial and adverse impacts

The Applicant has committed to installing pollinator-friendly plants in select areas of the project boundary under the approved Conditional Use Permit. Details and specifications of the planting plan will be coordinated with Halifax County during the Site Plan review process.

Wetland Delineation

A wetland delineation has been conducted for the entire Project, using the methodology outlined in the 1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual, the Regional Supplement to the USACE Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0), and subsequently issued USACE regulatory guidance regarding the identification of jurisdictional stream channels through the recognition of field indicators of an ordinary high water mark within drainage features.

The delineations identified the following:

- 8.67 acres of palustrine forested (PFO),
- 0.20 acres of palustrine scrub shrub (PSS)
- 5.19 acres of palustrine emergent (PEM),
- 16.65 acres of palustrine open water (POW),
- 18,692 linear feet of perennial stream (R3),
- 9,433 linear feet of intermittent stream (R4),
- 2,131 linear feet of ephemeral stream (R6), and
- 215 linear feet of ditch.

The U.S. Army Corps of Engineers has issued a Preliminary Jurisdictional Determination (PJD) on a portion of the Project area under NAO-2017-02134; the remainder has been confirmed under NAO-2017-2134. Relevant materials are included as Attachment I.

Expected beneficial and adverse impacts

No wetland impacts are indicated on the site plan (section 11), so no adverse impacts are anticipated as a result of the Project. However, if impacts become necessary during the development phase of the project, all required federal and state water protection permits will be obtained.

8. MITIGATION PLAN

Requirement (Summarized by Applicant): *In accordance with § 10.1-1197.6 B 8 of the Code of Virginia, if the Department determines that…significant adverse impacts to wildlife or historic resources are likely, the submission of a mitigation plan detailing reasonable actions to be taken by the owner or operator to avoid, minimize, or otherwise mitigate such impacts, and to measure the efficacy of those actions;*

As a result of the Project, the Applicant finds that there are no significant adverse impacts to wildlife or historic resources. No state threatened and endangered species are located on the Project area. The cultural investigation found that there would be no impacts to archaeological resources. Due to the proposed landscaping and vegetation plan, impacts to architectural resources, and in particular, resource #041-5600, will be minimized. See Attachment H – Cultural Resource Analysis for materials submitted to VDHR on July 22, 2020 indicating the viewshed analysis that incorporates the proposed landscaping and vegetation plan which mitigates potential impacts.

Wetlands and streams on the Project have been delineated and will be avoided during preliminary site design. In the event wetland impacts are proposed, they will adhere to all applicable permit and regulatory requirements.

9. CERTIFICATION OF DESIGN INCORPORATING MITIGATION PLAN

Requirement: *In accordance with § 10.1-1197.6 B 9 of the Code of Virginia, furnishes to the department a certification signed by a professional engineer licensed in Virginia that the project is designed in accordance with 9VAC15-60-80;*

The Applicant has certified that the Project is designed in accordance with 9VAC15-60-80, and the Certification of Design form is attached as Attachment J.

10. OPERATION PLAN INCORPORATING MITIGATION PLAN

Requirement: *In accordance with § 10.1-1197.6 B 10 of the Code of Virginia, furnishes to the department an operating plan that includes a description of how the project will be operated in compliance with its mitigation plan, if such a mitigation plan is required pursuant to 9VAC15-60-50;*

An operating plan, including a description of how the project will be operated in conjunction with its mitigation plan, is included in Attachment K.

11. SITE PLAN & CONTEXT MAP

Requirement: *In accordance with § 10.1-1197.6 B 11 of the Code of Virginia, furnishes to the department a detailed site plan meeting the requirements of 9VAC15-60-70;*

A site plan and context map have been provided in accordance with 9VAC15-60-70 as **Figures 2** and **3** below, and are included as Attachment L.

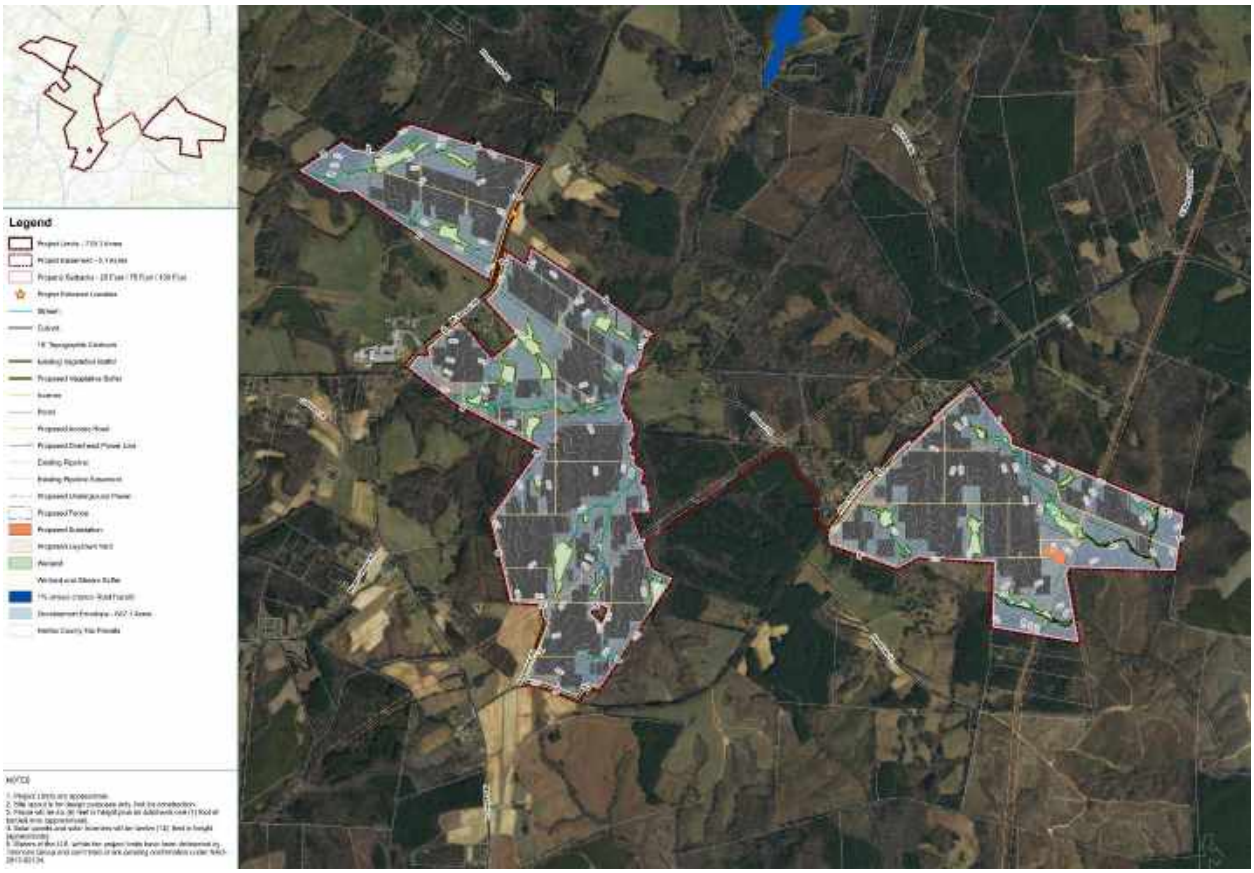


Figure 2 – Site Plan

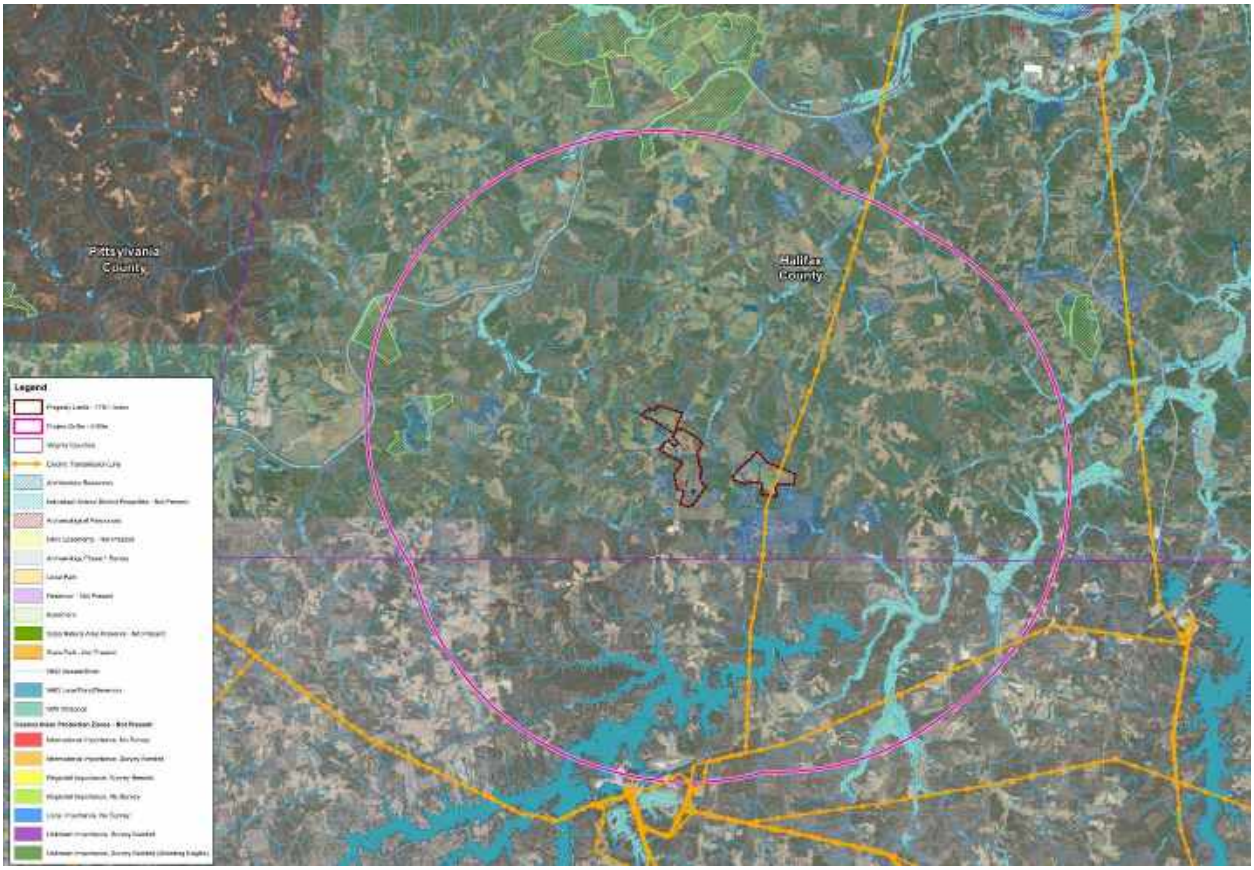


Figure 3 – Context Map

12. CERTIFICATION OF APPLICATION FOR ENVIRONMENTAL PERMITS

Requirement: *In accordance with § 10.1-1197.6 B 12 of the Code of Virginia, furnishes to the department a certification signed by the applicant that the small solar energy project has applied for or obtained all necessary environmental permits;*

The Applicant has identified and has or will obtain all necessary environmental permits, as certified in the Environmental Permit Certification Form (Attachment M).

13. NON-UTILITY CERTIFICATION

Requirement: *In accordance with § 10.1-1197.6 H and I of the Code of Virginia, furnishes to the department a certification signed by the applicant that the small solar energy project is being proposed, developed, constructed, or purchased by a person that is not a utility regulated pursuant to Title 56 of the Code of Virginia or provides certification that (i) the project's costs are not recovered from Virginia jurisdictional customers under base rates, a fuel factor charge, or a rate adjustment clause, or (ii) the applicant is a utility aggregation cooperative formed under Article 2 (§ 56-231.38 et seq.) of Chapter 9.1 of Title 56 of the Code of Virginia;*

The applicant has certified that the project is proposed, developed, constructed or purchased by a person that is not a utility regulated pursuant to Title 56 of the Code of Virginia. The Non-Utility Certification Form is included as Attachment N.

14. PUBLIC REVIEW

Requirement: Prior to authorization of the project and i*n accordance with § 10.1-1197.6 B 13 and B 14 of the Code of Virginia, conducts a 30-day public review and comment period and holds a public meeting pursuant to 9VAC15-60-90. The public meeting shall be held in the locality or, if the project is located in more than one locality, in a place proximate to the location of the proposed project. Following the public meeting and public comment period, the applicant shall prepare a report summarizing the issues raised by the public and include any written comments received and the applicant's response to those comments. The report shall be provided to the department as part of this application;*

A public review and comment period occurred in August-September 2020. In accordance with § 10.1-1197.6 B 13 and 14 of the Code of Virginia, there was be a 30-day public review and comment period from August 13 to September 11, 2020. The public review and comment period was announced by publication in the Gazette Virginian once a week for two consecutive weeks on July 29 and August 5, 2020. Materials were available for viewing during the review period electronically on the following website: (http://www.urbangridsolar.com/news).

Pursuant to 9VAC15-60-90 and Executive Order 53, there was a public meeting on Wednesday, September 2, 2020 at 6pm until 7:30 pm in the parking lot of the Turbeville Ruritan Club, located at 1040 Melon Road, South Boston, Va. Information was presented on poster boards which was visible by attendees' cars. Following the viewing of this information, citizens were asked to park and remain in their cars. Citizens were directed to ask questions by raising their hand out of the window or honking their horn, at which time a representative from Alton Post Office Solar, LLC was available to receive comments while maintaining required social distancing practices. The meeting was also held via RingCentral Meeting teleconferencing. Citizens were asked to pre-

register to attend via teleconferencing and to receive a personalized access code for the meeting and participation instructions. No comments were received during the public comment period.

All materials in support of the public review process are included in Attachment O.

15. PERMIT FEE

Requirement: *In accordance with 9VAC15-60-110, furnishes to the department the appropriate fee.*

In accordance with 9VAC15-60-110, a payment of $12,000 is provided with this application as stipulated by the PBR.

Attachments

Attachment A – Notice of Intent

Attachment B – Local Governing Body Certification Form, Conditional Use Permit

Attachment C – Interconnection Studies

Attachment D – Interconnection Agreement

Attachment E – Maximum Generation Capacity Certification

Attachment F – State threatened and endangered species review

Attachment G – CAPZ

Attachment H – Cultural Resource Analysis

Attachment I – Preliminary Jurisdictional Determination

Attachment J – Certification of Design

Attachment K – Operating Plan

Attachment L – Site Plan, Context Map

Attachment M – Environmental Permit Certification Form

Attachment N – Non-Utility Certification Form

Attachment O – Public Review Documents

Attachment A – Notice of Intent

Alton Post Office Solar, LLC

April 22, 2020

Ms. Mary E. Major
Department of Environmental Quality
P.O. Box 1105
Richmond, VA 23218
mary.major@deq.virginia.gov

Dear Ms. Major:

On behalf of Alton Post Office Solar, LLC, I am providing an updated notice to the Department of Environmental Quality of our intention to submit the necessary documentation for a permit by rule for a small renewable energy project (solar) in Halifax County, Virginia, pursuant to Virginia Regulation 9VAC15-60.

Project acreage has been updated from information previously provided and now totals approximately 778.1 acres, with an easement totaling 5.1 acres.

The proposed project will be located near Route 711 (Alton Post Office Road) and Route 699 (Mount Carmel Road), and is located generally southwest of Alton in Halifax County. The project will have a maximum generating capacity of 150 megawatts alternating current (AC). The project will connect to the gird through transmission lines that bisect the property.

If the Department has questions regarding this project, please contact James Crawford at james.crawford@urbangridco.com or (434) 953-8810.

Sincerely,

James A Crawford Jr

James Crawford Jr
Vice President - Development

STATE BOARD OF BEHAVIORAL HEALTH AND DEVELOPMENTAL SERVICES

Notice of Periodic Review and Small Business Impact Review

Pursuant to Executive Order 17 (2014) and §§ 2.2-4007.1 and 2.2-4017 of the Code of Virginia, the State Board of Behavioral Health and Developmental Services is conducting a periodic review and small business impact review of **12VAC35-105, Rules and Regulations for Licensing Providers by the Department of Behavioral Health and Developmental Services**.

The review of this regulation will be guided by the principles in Executive Order 17 (2014).

The purpose of this review is to determine whether this regulation should be repealed, amended, or retained in its current form. Public comment is sought on the review of any issue relating to this regulation, including whether the regulation (i) is necessary for the protection of public health, safety, and welfare or for the economical performance of important governmental functions; (ii) minimizes the economic impact on small businesses in a manner consistent with the stated objectives of applicable law; and (iii) is clearly written and easily understandable.

The comment period begins Monday, October 30, 2017, and ends Friday, December 15, 2017.

Comments may be submitted online to the Virginia Regulatory Town Hall at http://www.townhall.virginia.gov/L/Forums.cfm. Comments may also be sent to Cleopatra L. Booker, Psy.D., Director, Office of Licensing, Department of Behavioral Health and Developmental Services, P.O. Box 1797, Richmond, VA 23218-1797, telephone (804) 786-1747, FAX (804) 692-0066, or email cleopatra.booker@dbhds.virginia.gov.

Comments must include the commenter's name and address (physical or email) information in order to receive a response to the comment from the agency. Following the close of the public comment period, a report of both reviews will be posted on the Town Hall and a report of the small business impact review will be published in the Virginia Register of Regulations.

Notice of Periodic Review and Small Business Impact Review

Pursuant to Executive Order 17 (2014) and §§ 2.2-4007.1 and 2.2-4017 of the Code of Virginia, the State Board of Behavioral Health and Developmental Services is conducting a periodic review and small business impact review of **12VAC35-180, Regulations to Assure the Protection of Subjects in Human Research**.

The review of this regulation will be guided by the principles in Executive Order 17 (2014).

The purpose of this review is to determine whether this regulation should be repealed, amended, or retained in its current form. Public comment is sought on the review of any issue relating to this regulation, including whether the regulation (i) is necessary for the protection of public health, safety, and welfare or for the economical performance of important governmental functions; (ii) minimizes the economic impact on small businesses in a manner consistent with the stated objectives of applicable law; and (iii) is clearly written and easily understandable.

The comment period begins October 30, 2017, and ends November 21, 2017.

Comments may be submitted online to the Virginia Regulatory Town Hall at http://www.townhall.virginia.gov/L/Forums.cfm. Comments may also be sent to Ruth Anne Walker, Regulatory Coordinator, Department of Behavioral Health and Developmental Services, P.O. Box 1797, Richmond, VA 23218-1797, telephone (804) 225-2252, FAX (804) 786-8623, or email ruthanne.walker@dbhds.virginia.gov.

Comments must include the commenter's name and address (physical or email) information in order to receive a response to the comment from the agency. Following the close of the public comment period, a report of both reviews will be posted on the Town Hall and a report of the small business impact review will be published in the Virginia Register of Regulations.

DEPARTMENT OF ENVIRONMENTAL QUALITY

Alton Post Office Solar, LLC Notice of Intent for Small Renewable Energy (Solar) Project Permit by Rule - Halifax County

Alton Post Office Solar, LLC has provided the Department of Environmental Quality a notice of intent to submit the necessary documentation for a permit by rule for a small renewable energy project (solar) in Halifax County, Virginia, pursuant to 9VAC15-60.

The proposed project will be located along Route 711, Alton Post Office Road, north of Route 768, Hendricks Road, east of Route 699, Mount Carmel Road, and southwest of Alton in Halifax County. This project will have a maximum generating capacity of 150 megawatts alternating current across roughly 502 acres on multiple parcels. The project will connect to the grid through transmission lines that bisect the property.

Contact Information: Mary E. Major, Department of Environmental Quality, P.O. Box 1105, Richmond, VA 23218, telephone (804) 698-4423, FAX (804) 698-4510, or email mary.major@deq.virginia.gov.

Attachment B – Local Governing Body Certification Form, Conditional Use Permit

HALIFAX COUNTY BOARD OF SUPERVISORS

PLANNING AND ZONING OFFICE

1030 Mary Bethune St., Suite LL1
P. O. Box 699
HALIFAX, VIRGINIA 24558-0699
PHONE: (434) 476-3300
FAX: (434) 476-3384
planning@co.halifax.va.us

Detrick Easley
Zoning Administrator

April 7, 2020

Alton Post Office Solar
5516 Falmouth St., Suite 200
Richmond, Va. 23230

Dear Alton Post Office Solar:

I am pleased to advise that the Halifax County Board of Supervisors has approved your Application for a Conditional Use Permit Amendment for the approved Alton Post Office Solar Facility. Board approval of the amendment occurred at its April 6, 2020 meeting, following Public Hearings and a favorable recommendation from the Halifax County Planning Commission.

I have attached a new conditional use permit which addresses the new parcels and adjusted total acreage. Please note, in adopting this amendment, all twenty-seven (27) site conditions remains for the solar facility.

I am pleased we were able to approve this amendment. Halifax County wishes you great success in the operation of your solar facility. Should you have questions or wish further discussion on this matter, please contact me.

Sincerely,

Detrick Easley
Zoning Administrator

HALIFAX COUNTY BOARD OF SUPERVISORS

PLANNING AND ZONING OFFICE
1030 Mary Bethune St., Suite LL1
P. O. Box 699
HALIFAX, VIRGINIA 24558-0699
PHONE: (434) 476-3300
FAX: (434) 476-3384
planning@co.halifax.va.us

Detrick Easley
Zoning Administrator

CONDITIONAL USE PERMIT

1. **APPLICANT:** ALTON POST OFFICE SOLAR, LLC

2. **ADDRESS:** 5516 FALMOUTH ST., SUITE 200
RICHMOND, VIRGINIA 23230

3. **PARCEL LOCATION:** ALTON POST OFFICE ROAD (ROUTE 711)

4. **PROPOSAL:** INSTALL A 80 MW SOLAR FACILITY

5. **PARCEL RECORD NUMBERS:** 24773, 24769, 31245, 31246, 23785, 25131, 24774, 6206, 25713, 6205, 24771 Total 808 Acres

6. **ISSUANCE DATE:** APRIL 6, 2020

7. **CONDITIONS:** 27 Conditions attached.

4-7-2020
DATE

Detrick J Easley
PLANNING AND ZONING ADMINISTRATOR

HALIFAX COUNTY BOARD OF SUPERVISORS

PLANNING AND ZONING OFFICE
1030 Mary Bethune St., Suite LL1
P. O. BOX 699
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PHONE: (434) 476-3300
FAX: (434) 476-3384
planning@co.halifax.va.us

Detrick Easley
Zoning Administrator

CONDITIONAL USE PERMIT
ALTON POST OFFICE SOLAR, LLC

The Halifax County Board of Supervisors approves the Conditional Use Permit for Alton Post Office Solar, LLC to construct, maintain, and operate an 80megawatt solar energy facility subject to the following conditions:

1. The Conditional Use Permit shall be issued to Alton Post Office Solar, LLC to construct, maintain, and operate a large scale solar energy facility at the site. These conditions shall apply to any person or entity that owns or operates the facility at the site pursuant to this Permit. The current facility owner and operator shall provide the Zoning Administrator with advance written notice of any proposed change in the owner or operator of the solar energy facility.

2. The facility, including the project area, panels, buildings, accessory structures, entrances, fencing, vegetative buffers, areas for pollinator-friendly and wildlife-friendly plantings, and rated capacity, shall be sited, developed, constructed, installed, operated, and maintained in substantial conformance with the schematic site plan and project narrative presented by the applicant, except to the extent such plan or narrative is inconsistent with the Ordinance or any condition in this Conditional Use Permit. "Substantial conformity" shall be determined by the Zoning Administrator.

3. Alton Post Office Solar, or any other owner or operator, shall comply with all requirements of Chapter 53, Article V.II., of the Halifax County Code ("Solar Energy Facilities Ordinance" or "Ordinance") that apply to large scale solar energy facilities. Without limiting the foregoing, the facility shall comply with all provisions contained in Section 53-158 of the Ordinance regarding the location, appearance, and operational requirements of large scale solar energy facilities. Future Ordinance amendments will apply to this solar facility, provided such amendments do not impair any vested rights per §15.2-2307.

4. The owner, operator, and facility shall, at all times, comply with all applicable federal, state and local laws, rules, regulations, codes, ordinances, and other

requirements. The owner, operator, and facility shall obtain and, as necessary, maintain all applicable federal, state, and local permits.

5. The facility owner and operator shall provide additional information regarding the facility's permitting and operations when requested by county officials regarding the facility, respond to additional inquiries by county officials, and allow designated county officials to have access to the facility for inspections in accordance with applicable safety and operational constraints.

6. Any proposed expansion of the facility beyond the levels approved herein, change of activities conducted at the facility from those permitted herein, or additional facilities or activities beyond those permitted herein shall be submitted to the Zoning Administrator for review. If the Zoning Administrator deems such proposed changes to be material modifications, they will be subject to Permit amendment procedures, including Public Hearings.

7. A 100ft. setback requirement and 25ft. vegetative buffer shall be maintained from the right of way of Alton Post Office Road.

8. A 100ft. setback requirement and 25ft. vegetative buffer shall be maintained adjacent property lines of parcel record number (20492), also known as 4114 Alton Post Office Road, Alton Va. 24520.

9. All entrances to the site shall be constructed and maintained as authorized and approved by the Virginia Department of Transportation.

10. Security fencing around project area shall be maintained until the facility has been decommissioned and removed. It shall be the responsibility of the facility owner and/or operator to repair fencing promptly upon learning of any disrepair.

11. Disturbed areas within the project area, disturbed areas within the setback, and installed vegetative buffers shall be seeded with appropriate pollinator-friendly native plants, shrubs, trees, grasses, forbes and wildflowers as stated in the landscaping and screening plan, unless the Zoning Administrator determines the disturbed area is not appropriate for such seeding. These areas shall be seeded promptly following completion of construction in such a manner as to reduce invasive weed growth and sediment run-off.

12. Trees planted in the vegetative buffer shall be at least (3) three feet tall at time of planting and expected to grow to a minimum of eight (8) feet within (3) years.

13. The vegetative buffer shall be maintained in good condition until the facility has been decommissioned and removed.

14. Lighting shall be limited to the minimum reasonably necessary for security purposes and shall be designed, installed, and operated so as to minimize off-site effects as much as reasonably practicable.

15. Adequate parking shall be provided on site to accommodate all employees and visitors. It shall be the responsibility of the owner and operator to ensure employees and visitors park only on-site and not on highway right of way or on adjacent parcels unless written consent is provided by the owner or owners thereof.

16. The owner and/or operator is responsible for maintaining the appearance of the site in good condition, including picking up litter from the site as needed on at least a bi-monthly schedule.

PRIOR TO OBTAINING A BUILDING PERMIT AND ENGAGING IN ANY LAND DISTURBANCE ACTIVITY THE OWNER AND/OR OPERATOR SHALL PROVIDE THE INFORMATION, REPORTS, AND SECURITY REQUIRED IN CONDITIONS 15 THROUGH 24 IN FORM AND SUBSTANCE ACCEPTABLE TO THE ZONING ADMINISTRATOR:

17. Proof of adequate amount of liability insurance to cover operations of the large scale solar facility. The owner and operator shall maintain adequate liability insurance until the facility has been decommissioned and removed.

18. The applicant has submitted a decommissioning plan procedure, which is incorporated into these Conditions. The applicant also has submitted a preliminary decommissioning cost estimate dated January 26, 2018. The facility owner and operator shall disassemble and dispose of the solar facility and restore the site in accordance with the decommissioning plan procedure, unless the Ordinance contains stricter requirements, in which case the stricter requirements of the Ordinance shall control. The facility owner and operator shall be jointly and severally responsible for decommissioning the facility in accordance with the decommissioning plan procedure and Sections 53-157(d) and 53-160 of the Ordinance. The initial decommissioning security required pursuant to Section 53-157(d) of the Ordinance shall equal not less than $2,301,925.60, which is the 100% of the estimated total cost to disassemble and dispose of the solar energy facility and restore the site as stated in the applicant's preliminary decommissioning cost estimate. No reduction in the amount of the security will be made on account of the claimed salvage value of the solar facility or the materials used in the solar facility. The preliminary decommissioning cost estimate must be updated before the applicant applies for a building permit and the updated decommissioning cost estimate shall be sealed by a Professional Engineer, as required by Section 53-157(d) of the Ordinance. The amount of the initial decommissioning security may be increased at the discretion of the Zoning Administrator based on the information contained in the updated decommissioning cost estimate. This security shall be in place prior to obtaining

building permits or engaging in any land disturbance activity and shall remain in effect until decommissioning has been completed. The failure by the facility owner and/or operator to decommission the facility in accordance with this condition, the decommissioning plan procedure, and the Ordinance shall constitute a zoning violation and may be enforced as such. The security may be called on by the county to remedy the zoning violation and to pay any and all costs related to decommissioning the facility, including administrative and enforcement costs. The decommissioning plan and decommissioning cost estimate shall be updated upon the request of the Zoning Administrator, which shall be no less frequently than once every ten years and no more frequently than once every five years. Each decommissioning plan and cost estimate shall: (i) be sealed by a Professional Engineer; (ii) meet the requirements of Sections 53-157(d) and 53-160 of the Ordinance; (iii) be in form and substance acceptable to the Zoning Administrator; and (iv) require, among other things, that all salvageable materials be removed and sold or disposed of in accordance with all applicable federal, state, and local regulations. The amount of the required security may be adjusted based on the updated decommissioning cost estimate, but it shall not be less than 100% of the total estimated decommissioning cost.

19. An erosion and sediment control plan approved by the Soil and Water Conservation District. The facility owner and operator shall construct, maintain, and operate the facility in compliance with the approved erosion and sediment control plan.

20. A stormwater management plan approved by the Department of Environmental Quality. The facility owner and operator shall construct, maintain, and operate the facility in compliance with the approved stormwater management plan.

21. A detailed site plan that identifies all areas within the project area and setback where land will be disturbed and the location of vegetative buffers (whether utilizing existing or installed vegetation), identifies areas where the owner and/or operator believes pollinator-friendly seeding is inappropriate, and identifies the particular pollinator-friendly native plants, shrubs, trees, grasses, forbes and wildflowers as stated in the landscaping and screening plan that will be installed in designated locations. The owner and operator will comply with the Zoning Administrator's determination regarding the need to seed areas the owner and/or occupant contend are inappropriate for seeding. The facility owner and operator shall construct, maintain, and operate the facility in compliance with the approved detailed site plan.

22. A construction plan, including a proposed construction schedule, anticipated start date, and hours of operation. The construction plan shall require, among other things, that construction activities, including but not limited to grading, clearing of land, and pile driving, shall be limited to hours between sunrise and sundown, Monday to Saturday, during construction. The facility owner and operator shall

construct, maintain, and operate the facility in compliance with the approved construction plan.

23. A copy of the cultural resources review performed for the facility's Permit by Rule Application identifying historical, architectural, archeological, or other cultural resources on or near the facility.

24. A report on the potential impacts on wildlife and wildlife habitats at the site and within a two-mile radius of the proposed facility using information provided by the Virginia Department of Game and Inland Fisheries or a report prepared by a qualified third-party.

25. A report on the potential impacts on pollinators and pollinator habitats at the site.

26. Written certification from a qualified expert acceptable to the Zoning Administrator that all the facility's panels incorporate and utilize anti-glare technology, anti-reflective coatings, and other available mitigation techniques and reduce glint and glare to levels that meet or exceed industry standards. The facility owner and operator shall use the technologies, coatings and techniques identified in the written certification, or superior technologies, coatings and techniques, for the life of the solar facility.

27. This Permit is non-transferable, except and unless the Permittee provides written notice regarding the transfer, the proposed new Permittee provides a signed statement agreeing to comply with all terms and Conditions imposed on the original Permit, and the proposed new Permittee provides substitute decommissioning security in the amount specified herein. If the new Permittee desires to amend the original permit conditions, amendments must be sent to the Zoning Administrator for review. If the Zoning Administrator deems such proposed changes to be material modifications, they will be subject to Permit amendment procedures, including public hearings.

Failure of Permittee, owner or operator to fully conform to all terms and conditions of this Permit may result in revocation of this Conditional Use Permit.

Defined terms used in these conditions shall have the meanings assigned to them in the Ordinance.

Virginia Department of Environmental Quality
Small Renewable Energy Projects (Solar)
Local Governing Body Certification Form

Facility Name and Location: Alton Post Office Solar, LLC
Alton Post Office Rd. (Rt. 711) just south west of Alton

Applicant's Name:
Alton Post Office Solar, LLC

Applicant's Mailing Address:	Telephone Number and Email Address:
337 Log Canoe Circle Stevensville, MD 21666	(434) 953-8810 James.Crawford@UrbanGridCo.com

The applicant or his representative is submitting an application for a small renewable energy permit by rule from the Virginia Department of Environmental Quality. In accordance with § 10.1 - 1197.6 B 2 of the Code of Virginia, before such permit application can be considered complete, the applicant must obtain a certification from the governing body of the locality or localities in which the small renewable energy project will be located that the project complies with all applicable land use ordinances.

The undersigned requests that an authorized representative of the local governing body sign the certification statement below. In addition, by signing below, the applicant affirms that he has also submitted this form to other localities, if any, in which the proposed project will be located.

Applicant's signature:	Date:
C Franklin DePew	04/07/20

The undersigned local government representative certifies that the proposed small renewable energy project complies with all applicable land use ordinances, as follows:

(Check one block)

☑ The proposed facility **complies** with all applicable land use ordinances.

☐ The proposed facility **does not comply** with all applicable land use ordinances.

Signature of authorized local government representative:	Date:
Detrick D Easley	April 8, 2020
Type or print name: Detrick Easley	**Title:** Zoning Administrator
County, City or Town: Halifax County	

Attachment C – Interconnection Studies

Generation Interconnection
Facility Study Report

For

PJM Generation Interconnection Request
Queue Position AC1-0221 / AD1-058

Person – Sedge Hill 230kV
51.2 MW Capacity / 75.1 MW Energy

January, 2020

General

This Facilities Study has been prepared in accordance with the PJM Open Access Transmission Tariff §207, as well as the Facilities Study Agreement between Urban Grid Solar Projects LLC, (Interconnection Customer (IC)) and PJM Interconnection, LLC (Transmission Provider (TP)). Virginia Electric and Power Company is the Interconnected Transmission Owner (ITO) and provided the input to develop this study.

The IC has proposed a solar generating facility located on Alton Post Office Road, Halifax County, Virginia. The installed facilities will have a total capability of 75.1 MW with 51.2 MW of this output being recognized by PJM as capacity. The proposed in-service date for this project is 07/31/2021. **This study does not imply an ITO commitment to this in-service date.**

Point of Interconnection

AC1-221 \ AD1-058 will interconnect with the ITO transmission system via a new three breaker ring bus switching station that connects onto the Person – Sedge Hill 230kV line # 296.

Cost Summary

The AC1-221 \ AD1-058 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	$ 614,674
Direct Connection Network Upgrades	$ 5,800,636
Non Direct Connection Network Upgrades	$ 838,461
Allocation for New System Upgrades	$ 0
Contribution for Previously Identified Upgrades	$ 0
Total Costs	$ 7,253,771

A. Transmission Owner Facilities Study Summary

1. Description of Project

Queue AC1-221 \ AD1-058 is a request to interconnect a 75.1 MW new solar generating facility to be located in Halifax County, Virginia. The proposed generating facility will interconnect with the ITO's new AC1-221 115kV switching station via a new three breaker ring-bus switching station. The requested in-service date is July 31, 2021. Attachment Facility and Network upgrade construction is estimated to be 8 – 12 months.

2. Amendments to the System Impact Study data or System Impact Study Results

None

3. Interconnection Customer's Submitted Milestone Schedule

- Plan to break ground April 15, 2020
- Permits – state level Permit By Rule and county level Final Site Plan approval complete April 15, 2020
- Substantial site work completed January 15, 2021
- Delivery of major electrical equipment December 31, 2020
- Back Feed Power April 15, 2021
- Commercial Operation July 31, 2021

4. Scope of Customer's Work

IC will build a solar generating facility in Halifax County, Virginia. The generating facility will be comprised of solar arrays. AC1-221 \ AD1-058 consists of 29 x 2.7 MVA TMEIC Solar Ware 2700 PVH-L2700GR inverters. The 29 x 34.5 / 0.600 kV grounded wye delta 2.7 MVA generator step up (GSU) transformers will connect to the solar inverters to the 34.5 kV collector system. The collector bus will also have 2 x 12 MVar and 1x 6 MVar capacitor banks. The generating facility will connect to the Point of Interconnection (POI) via a 230/34.5 kV wye ground/delta main power transformer with a rating of 54/72/90 MVA. The AC1-221 \ AD1-058 POI will be at a tap of the Person – Sedge Hill 230kV line # 296.

5. Description of Facilities Included in the Facilities Study

The ITO will connect the proposed generator lead via Attachment Facilities to a new AC1-221 ring bus switching station directly underneath the 296 line. The site is located along the ITO's 230kV Line #296 between existing Sedge Hill and Person substations. The switching station will be positioned in such a way that the new backbone will be replace the existing 2-pole weathering steel suspension H-frame structure # 296/165. The cut lines will be attached to the new backbone and risers will be dropped from both sides of the backbone to the bus sections directly underneath the line. The lines will consume two of the three positions in the ring bus. The third position will be for the 230 kV feed from the collector station for the solar farm. The Point of Interconnection between the switching station and the collector station will be the 230kV breaker disconnect switch 4-hole pad in the IC's collector station by the common fence. The ITO will

bring its bus to the demarcation point. Metering equipment will be installed in the ITO Switching Station. The grounding systems for both stations will be tied together. The IC will provide the property and access to the switching station. All substation permitting, site preparation and grading activity will be performed by the IC. There will be transmission line protection and anti-islanding work required at the remote line terminal in Sedge Hill substation. Site plan (Attachment 2) was developed by the ITO during PJM's Generation Queue Process. The single line is shown in Attachment 1.

6. Total Costs of Transmission Owner Facilities included in Facilities Study

Work Description	Direct		Indirect		Total Cost
	Labor	Material	Labor	Material	
Attachment Facilities	$293,935	$242,364	$49,593	$28,782	$614,674
Total Attachment Facilities Cost	$293,935	$242,364	$49,593	$28,782	$614,674
AC1-221 230 kV Switching Station (n6357)	$2,322,170	$2,798,921	$377,060	$302,485	$5,800,636
Line #296 Transmission work (n6356)	$494,344	$173,992	$73,721	$27,193	$769,250
Remote relay (n6355)	$27,190	$30,949	$6,293	$4,779	$69,211
Total Network Upgrades	$2,843,704	$3,003,862	$457,074	$334,457	$6,639,097
Total Project Costs	$3,137,639	$3,246,226	$506,667	$363,239	$7,253,771

7. Summary of Milestone Schedules for Completion of Work Included in Facilities Study:

Facilities are estimated to take 14 - 24 months to construct and this is based on the ability to obtain outages to construct and test the proposed facilities.

Proposed Schedule

- Detailed design: 6-12 months
- Permitting: 6-12 months (Timeline runs concurrent with design)
- Construction 8 to 12 months

ITO requires the site to be fully graded and permitted site so they can start construction by September 2020.

B. Transmission Owner Facilities Study Results

1. Attachment Facilities

The Attachment Facilities include the portion of the interconnecting switching station which is associated solely with the single feed to the generating facilities collector station. The Point of Interconnection between the switching station and the collector station will be the 230kV breaker disconnect switch 4-hole pad in the IC's collector station by the common fence. The ITO will

bring its bus to the demarcation point. Metering equipment will be installed in the ITO Switching Station. The equipment associated with the Attachment Facilities includes the following. The equipment associated with the Attachment Facilities include the metering accuracy CCVT's, metering accuracy CT's, disconnect switch, conductors and connectors.

Purchase and install substation material:

1. One (1) 230 kV, 3000A, 3-phase Center Break Gang Operated Switches
2. Three (3) 230 kV metering accuracy CCVT's
3. Three (3) 230 kV metering accuracy CT's
4. Conductors, connectors, conduits, control cables, foundations, steel structures and grounding material

Purchase and install relay material:

1. One (1), 1109 – 28" Dual SEL-587Z Transmission Bus Panel
2. One (1), 4200 – Bus Differential C.T. M.U. Box
3. One (1), 1421 – Generation/NUG/PJM/IPP Metering Panel
4. One (1), 4524 – Revenue Metering C.T. M.U. Box
5. One (1), 4506 – 3 Phase CCVT Potential M.U. Box
6. One (1), 1611 – 28" SEL-451 PMU Panel w/SEL 735/735
7. One (1), Customer Interface Box

2. Transmission Line – Upgrades

PJM Network Upgrade #n6356 - Re-arrange Line #296 to loop into and out of the new three breaker AC1-221 230 kV switching station between existing Person and Sedge Hill substations. The line connection will require the installation of (1) backbone structure, two (2) static pole structures, and the removal of the existing 2-pole wood suspension H-frame. The conceptual design and estimate includes costs for the following:

ESTIMATE – FACILITIES TO BE REMOVED:

1. Remove existing 2-pole weathering steel suspension H-frame Str. # 296/165.

ESTIMATE – FACILITIES TO BE INSTALLED:

1. Install (1) 230 kV Galvanized Steel Backbone Structure with 38' spacing inside the Switching Station.
2. Install (2) Galvanized Static Pole Structures inside Switching Station.
3. Install three spans of 1-7#7 ALWD shield wire (approximately 0.10 miles) from Proposed Backbone to each Proposed Static Pole and between the two Proposed Static Poles.
4. Transfer existing three-phase 2-571 ACSS/TW/HS-285 and 2-3#6 ALWD to proposed backbone.

3. New Substation/Switchyard Facilities

PJM Network Upgrade #n6357 - Build a three breaker AC1-221 230 kV switching station. The site is located along the ITO's 230 kV line #296 from Person and Sedge Hill substations. The switching station will be positioned in such a way that the new backbone will be replace the

existing 2-pole weathering steel suspension H-frame structure # 296/165. The cut lines will be attached to the new backbone and risers will be dropped from both sides of the backbone to the bus sections directly underneath the line. The lines will consume two of the three positions in the ring bus. The third position will be for the 230 kV feed from the collector station for the solar farm.

Because the AC1-221 project switching station splits the existing 296 line between Sedge Hill substation and Person substation (Duke Energy/Progress), zonal, tie-line revenue metering will need to be relocated from Sedge Hill substation to the AC1-221 switching station. Metering class CTs and CCVTs will be required on the switching station line terminal in the AC1-221 switching station.

Duke Energy/Progress will be asked to install islanding transfer trip transmit and breaker failure transfer trip transmit at Person substation to work with the new AC1-221 substation. Breaker failure receive transfer trip currently exists between Person and Sedge Hill and should be leveraged to move the remote end at Person substation from Sedge Hill to the AC1-221 switching station. The work at Person substation is not part of the scope of this study and the costs for that work are not represented here. This work will occur under a separate agreement between Duke/Energy Progress and the IC.

Detail engineering to inquire if pre-ordered material is available, otherwise the project will follow the current long lead time material ordering process.

Currently, the scope and estimate assumes the use of ITO standard spread footer foundations. Once the soil information is received and pile foundations may be required. The change to pile foundations will require adjustment to the project cost estimate.

The work required is as follows:

Purchase and install substation material:

1. Approximately 304’ X 185’ site preparation and grading as required for installation of the switching station (by the IC)
2. Three (3), 230-kV, 3000A, 50 kA SF-6 Circuit Breakers
3. Six (6), 230-kV, 3000A Center Break Switches
4. Two (2), 230-kV, 3000A, 2-Pole Center Break Switches (for PVT’s)
5. Three (3), 230-kV, CCVT's relay accuracy
6. Three (3), 230-kV, CCVT's metering accuracy
7. Three (3), 230-kV, 2000/5, TR2.5 metering accuracy CTs
8. Two (2), 3000A, Vertically Mounted, 115-300Hz Wave Traps
9. Two (2), Line Tuners
10. Six (6), 180-kV, 144 kV MCOV Surge Arresters
11. Four (4) 230-kV, 167 kVA Power PT's for Station Service
12. One (1), 24' x 40' Control Enclosure, prewired by Trachte
13. One (1), 135VDC, 577 Ah Batteries with Charger (capacity requirements to be verified)
14. Oil Containment as required for 230kV PVT’s.
15. Fence as required
16. Steel Structures as required

17. Install two (2) sets of 3-phase connections for connection of Risers to substation tubular Bus
18. Conductor, connectors, conduit, control cable, foundations and grounding material as required per engineering standards

Purchase and install relay material:

1. Three (3), 1510 – 28" Dual SEL-351-7 Transmission Breaker w/ Reclosing Panel
2. Three (3), 4510 - SEL-2411 Breaker Annunciator
3. Two (2), 1320 – 28" Dual SEL-421-5 DCB Line Panel
4. Two (2), 4506 – 3 Phase CCVT Potential M.U. Box
5. One (1), 1603 – 28" SEL-451 Islanding Control Scheme Panel
6. Two (2), 4000 – Station Service Potential M.U. Box
7. Two (2), 4018 – 500A Station Service AC Distribution Panel
8. Two (2), 4007 – 225A Outdoor Transmission Yard AC NQOD
9. Two (2), 4019 – 225A Three Phase Throwover Switch
10. One (1), 4153 – Wall Mount Station Battery Monitor
11. One (1), 5612 - SEL-3530 Data Concentrator Panel
12. One (1), 1255 – Station Annunciator Panel
13. One (1), 5021 – SEL-2411 RTU Panel
14. One (1), 5609 – Fiber Optic Management Panel
15. Three (3), 4526_A – Circuit Breaker Fiber Optic M.U. Box
16. One (1), 5202 – 26" APP 601 Digital Fault Recorder
17. One (1), 5603 – Station Network Panel
18. One (1), 4523 – Security Camera Interface Box
19. One (1), 5603 – Station Network Panel
20. One (1), 5611 – Transmission Fiber Patch Panel
21. One (1), Telephone Interface Box

4. Upgrades to Substation / Switchyard Facilities

PJM Network Upgrade #n6355 - Remote protection and communication work. ITO protection requirements to reliably interconnect the proposed generating facility with the transmission system determined that work is required at the Sedge Hill 230 kV substation. These costs include the following:

Sedge Hill 115 kV Substation

Project Summary
Drawing work, relay resets, and field support necessary to change the line 296 destination from Person substation to AC1-221 substation. Also install line 296 islanding and breaker failure transfer trip schemes to now work with the new AC1-221 substation (replace the existing CT-51C breaker failure transmitter with a CS-51C to send/receive breaker failure transfer trip to/from AC1-221). Also remove line 296 tie line revenue metering from the Sedge Hill substation, as this function will be moved to the new AC1-221 substation. The estimated cost of this scope is $69,211.

Purchase and install relay material:

1. One (1), CT-51C Islanding Transfer Trip Set

2. One (1), SEL-2411 Maintenance Switch
3. One (1), CS-51C Breaker Failure Transfer Trip Set

Work Description	Direct		Indirect		Total Cost
	Labor	Material	Labor	Material	
Sedge Hill	$27,190	$30,949	$6,293	$4,779	$69,211
Total Remote Relay Upgrades	$27,190	$30,949	$6,293	$4,779	$69,211

5. Metering & Communications

PJM Requirements

The IC will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Section 8 of Attachment O Appendix 2.

ITO Requirements

Metering and SCADA/Communication equipment must meet the requirements outlined in section 3.1.6 Metering and Telecommunications of ITO's Facility Interconnection Connection Requirement NERC Standard FAC-001 which is publically available at www.dom.com.

At the IC's expense, the ITO will supply and own at the Point of Interconnection bi-directional revenue metering equipment that will provide the following data:

a. Hourly compensated MWh received from the Customer Facility to the ITO;
b. Hourly compensated MVARh received from the Customer Facility to the ITO;
c. Hourly compensated MWh delivered from the ITO to the Customer Facility; and
d. Hourly compensated MVARh delivered from the ITO to the Customer Facility.

The IC will supply and own metering equipment that will provide Instantaneous net MW and MVar per unit values in accordance with PJM Manuals M-01 and M-14D, and Sections 8.1 through 8.5 of Appendix 2 to the ISA;

The IC will access revenue meter via wireless transceivers or fiber cabling to meter with RS-485 or Ethernet communication port for dial-up reads. IC must provide revenue and real time data to PJM from Interconnection Customer Market Operations Center per "PJM Telemetry Data Exchange Summary" document available at PJM.com.

6. Environmental, Real Estate and Permitting Issues

The IC would be responsible for the following expectations in the area of Environmental, Real Estate and Permitting:

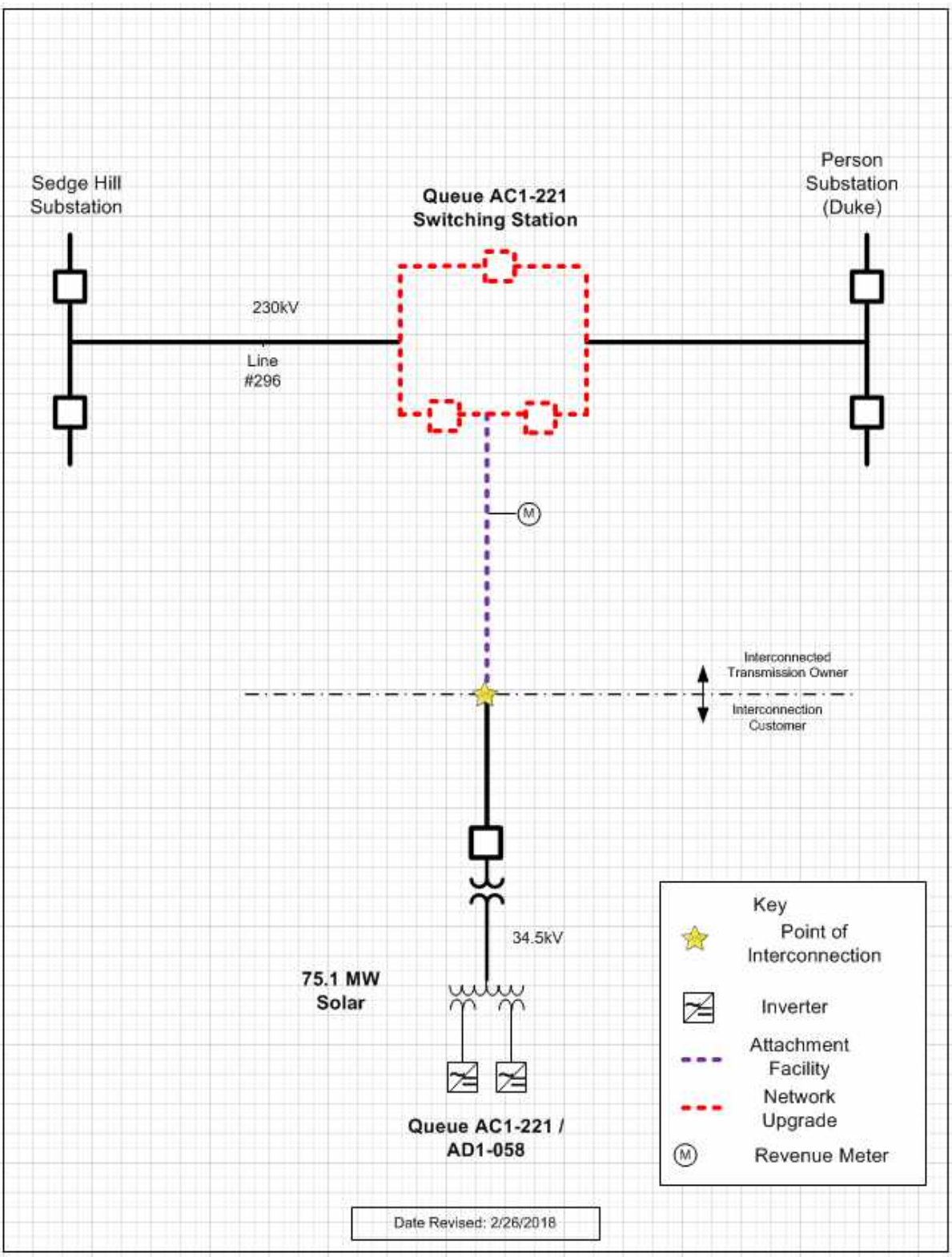
- Suitable Access Road from Substation to a Virginia State Maintained Roadway.

- Any additional land needed for Storm Water Management, Landscaping, and Wetlands/Wetlands Mitigation.
- Conditional Use Permit for Substation.
- Any other Land/Permitting requirements required by the Substation.

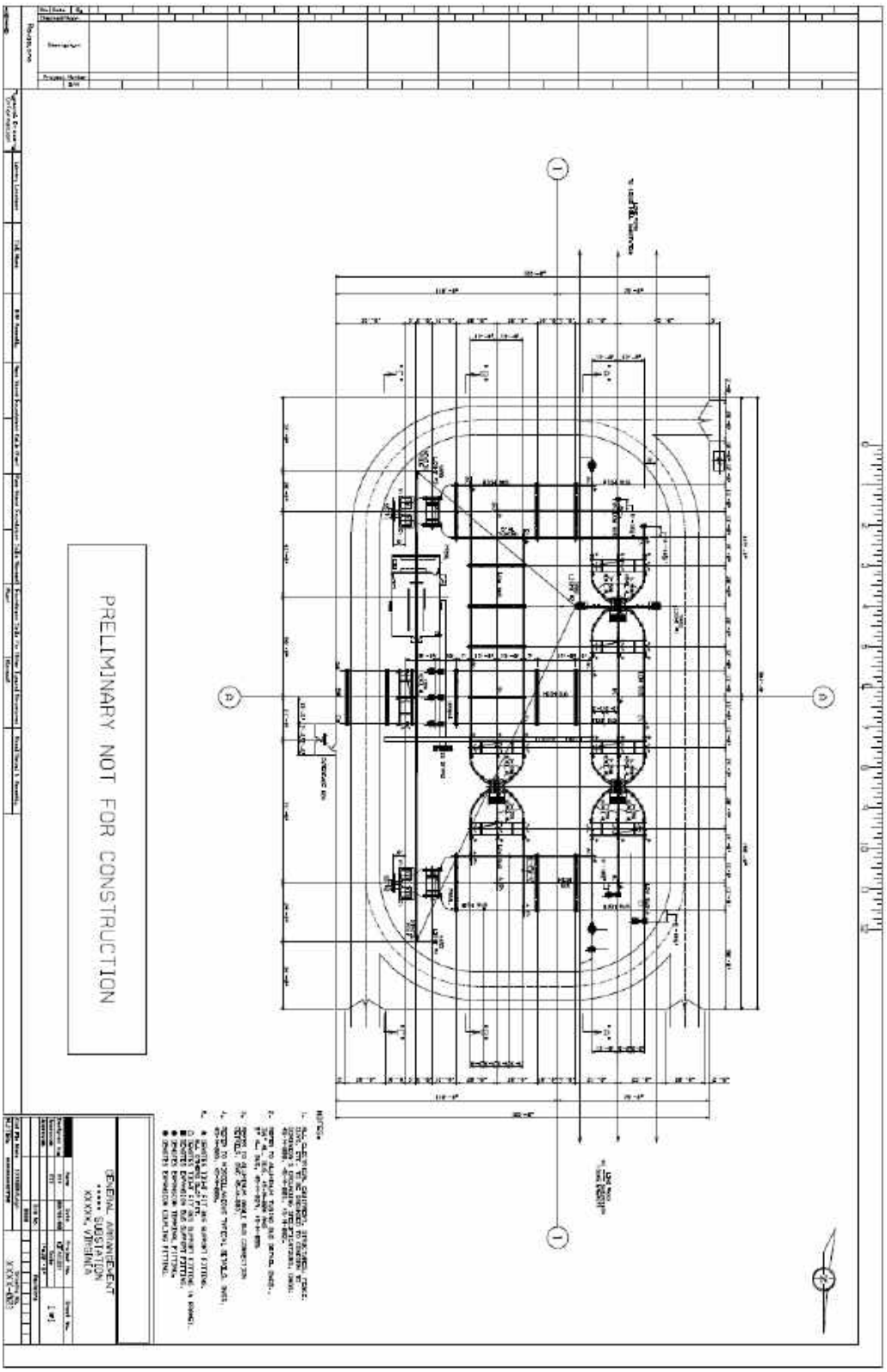
ITO Real Estate Needs:

- The substation layout is complete and ITO requires a 304'x 185' piece of property (title in fee) to build the substation. The property includes the piece of property between the substation and collector station for the strain bus.
    - ITO requires ownership transfer of the substation site before they start construction. Target for the deed by September 2020.
    - The size of the station assumes ITO will not need a separate storm water management system for the substation. If the county rules differently then the ITO will need to revisit the land requirements.
- ITO will need a letter similar to the zoning letter from the county stating that if the solar farm is retired and / or decommissioned the substation will remain.

Attachment 1.
Single Line



Attachment 2.
AC1-221 \ AD1-058 Switching Station General Arrangement



Generator Interconnection Affected System Study Report

PJM Interconnection Clusters AC1, AC2, AD1

Requests on the Person-Sedge Hill 230kV Corridor

March 21, 2019
Duke Energy Progress
Transmission Department

1 PURPOSE

The purpose of this study was to determine the costs of accommodating the projects in the PJM queue that will connect on the Person (DEP) – Sedge Hill (DVP) 230kV line. The PJM projects on this line include the following:

- AC1-221 (closer to Sedge Hill)
- AC2-100 (closer to Person)
- AD1-058 (addition to AC1-221)
- AD1-131 (addition to AC2-100)

2 ASSUMPTIONS

The following affected system study results are from a PJM power-flow model that reflects specific conditions of the system at points in time consistent with the generator interconnection requests being evaluated. The cases include the most recent information for load, generation additions, transmission additions, interchange, and other pertinent data necessary for analysis. Future years may include transmission, generation, and interchange modifications that are not budgeted for and for which no firm commitments have been made. Further, DEP retains the right to make modifications to power-flow cases as needed if additional information is available or if specific scenarios necessitate changes. For the systems surrounding the study area, data is based on the ERAG MMWG model. The suitability of the model for use by others is the sole responsibility of the user. Prior queued generator interconnection requests were considered in this analysis.

The results of this analysis are based on the Interconnection Customer's queue requests including generation equipment data provided. If the facilities' technical data or interconnection points to the transmission system change, the results of this analysis may need to be reevaluated.

3 RESULTS

3.1 Power Flow Analysis Results

Facilities that may require upgrade within the first three to five years following the in-service date are identified. Based on projected load growth on the DEP transmission system, facilities of concern are those with post-contingency loadings of 95% or greater of their thermal rating and low voltage of 0.92 pu and below, for the requested in-service year. The identification of these facilities is crucial due to the construction lead times necessary for certain system upgrades. This process will ensure that appropriate focus is given to these problem areas to investigate whether construction of upgrade projects is achievable to accommodate the requested interconnection service.

Contingency analysis study results show that interconnection of the generation facilities listed in Section 1 does not result in any thermal or voltage issues on the DEP system.

3.2 Short Circuit Analysis

Short circuit analysis was not performed because the subject generation projects are inverter-based and do not contribute significantly to fault current on the transmission system.

3.3 Interconnection

These projects interconnect on the Person (DEP) – Sedge Hill (DVP) 230kV line. Dominion will build a 230 kV ring bus switching station in this line to connect project AC1-221 and then later build another ring bus switching station to connect project AC2-100. Relay changes will be necessary at the DEP Person substation for each of these new ring buses. Projects AD1-058 and AD1-131 are additions to projects AC1-221 and AC2-100, respectively, and do not need relay changes on the DEP system. The DEP interconnection cost estimates are summarized as follows:

PJM Request	DEP Cost	Description	Schedule
AC1-221	$261,100	Relaying work at DEP Person	18 months
AC2-100	$261,100	Relaying work at DEP Person	18 months
AD1-058	$0	Addition to AC1-221 with no effect on DEP relaying	-
AD1-131	$0	Addition to AC2-100 with no effect on DEP relaying	-

In addition, Dominion will need to move the tie line meter from Sedge Hill to the AC1-221 ring bus switching station and then again to the AC2-100 ring bus switching station.

SUMMARY

This Generator Interconnection Affected System Study assessed the impact on the Duke Energy Progress system of interconnecting new generation facilities on the Dominion system. Power flow analysis found no issues for the projects listed in Section 1. Relaying changes are necessary to accommodate some of the projects, as detailed in Section 3.3 Interconnection. Each set of relaying changes will take approximately 18 months after payments are received.

Dominion will need to move the tie line meter to the AC1-221 ring bus switching station and then again to the AC2-100 ring bus switching station.

Study Completed by: Bill Quaintance

Bill Quaintance, PE, Duke Energy Progress

Reviewed by: Mark Byrd

Mark Byrd, PE, Duke Energy Progress

Generation Interconnection Feasibility Study Report

For

PJM Generation Interconnection Request Queue Position AC1-221

Person – Halifax 230kV
19 MW Capacity / 29.2 MW Energy

April / 2017

Introduction

This Feasibility Study has been prepared in accordance with the PJM Open Access Transmission Tariff, 36.2, as well as the Feasibility Study Agreement between Urban Grid Solar Projects LLC, the Interconnection Customer (IC), and PJM Interconnection, LLC (PJM), Transmission Provider (TP). The Interconnected Transmission Owner (ITO) is Virginia Electric and Power Company (VEPCO).

Preface

The intent of the Feasibility Study is to determine a plan, with high level estimated cost and construction time estimates, to connect the subject generation to the PJM network at a location specified by the IC. The IC may request the interconnection of generation as a capacity resource or as an energy-only resource. As a requirement for interconnection, the IC may be responsible for the cost of constructing: (1) Direct Connections, which are new facilities and/or facilities upgrades needed to connect the generator to the PJM network, and (2) Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system.

In some instances a generator interconnection may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection, may also contribute to the need for the same network reinforcement. The possibility of sharing the reinforcement costs with other projects may be identified in the Feasibility Study, but the actual allocation will be deferred until the Impact Study is performed.

The Feasibility Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The IC is responsible for the right of way, real estate, and construction permit issues. For properties currently owned by ITO, the costs may be included in the study.

General

The IC has proposed a solar generating facility located in Halifax County, VA. The installed facilities will have a total capability of 29.2 MW with 19 MW of this output being recognized by PJM as capacity. The proposed in-service date for this project is 9/30/2019. **This study does not imply an ITO commitment to this in-service date.**

Point of Interconnection

AC1-221 will interconnect with the ITO transmission system via a new three breaker ring bus switching station that connects on the Halifax – Person (Duke) 230kV line # 296.

Cost Summary

The AC1-221 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	$1,800,000
Direct Connection Network Upgrades	$6,500,000
Non Direct Connection Network Upgrades	$1,000,000
Total Costs	**$9,300,000**

Attachment Facilities

Generation Substation: Install metering and associated protection equipment. Estimated Cost $600,000.

Transmission: Build approximately 0.5 miles of 230 kV Line. Estimated Cost $1,200,000

The estimated total cost of the Attachment Facilities is $1,800,000. It is estimated to take 30-36 months to complete this work. These preliminary cost estimates are based on typical engineering costs. A more detailed engineering cost estimates are normally done when the IC provides an exact site plan location for the generation substation during the Facility Study phase. These costs do not include CIAC Tax Gross-up. The single line is shown below in Attachment 1.

Direct Connection Cost Estimate

Substation: Build a three breaker 230 kV ring bus at AC1-221 Substation to interconnect the proposed AC1-221 Project and associated equipment. Estimated Cost $6,500,000 and it is estimated to take 36-48 months to complete this work.

Non-Direct Connection Cost Estimate

Transmission: Re-arrange existing lines to accommodate new 230 kV Line. Estimated Cost $1,000,000.

Remote Terminal Work: During the Facilities Study, ITO's System Protection Engineering Department will review transmission line protection as well as anti-islanding required to accommodate the new generation and interconnection substation. System Protection Engineering will determine the minimal acceptable protection requirements to reliably interconnect the proposed generating facility with the transmission system. The review is based on maintaining system reliability by reviewing ITO's protection requirements with the known transmission system configuration which includes generating facilities in the area. This review may determine that transmission line protection and communication upgrades are required at remote substations.

An affected system study will need to be completed with Duke Power since this a tie line

Interconnection Customer Requirements

ITO's Facility Connection Requirements as posted on PJM's website
http://www.pjm.com/~/media/planning/plan-standards/private-dominion/facility-connection-requirements1.ashx

Voltage Ride Through Requirements - The Customer Facility shall be designed to remain in service (not trip) for voltages and times as specified for the Eastern Interconnection in Attachment 1 of NERC Reliability Standard PRC-024-1, and successor Reliability Standards, for both high and low voltage conditions, irrespective of generator size, subject to the permissive trip exceptions established in PRC-024-1 (and successor Reliability Standards).

Frequency Ride Through Requirements - The Customer Facility shall be designed to remain in service (not trip) for frequencies and times as specified in Attachment 2 of NERC Reliability Standard PRC-024-1, and successor Reliability Standards, for both high and low frequency condition, irrespective of generator size, subject to the permissive trip exceptions established in PRC-024-1 (and successor Reliability Standards).

Reactive Power - The Generation Interconnection Customer shall design its non-synchronous Customer Facility with the ability to maintain a power factor of at least 0.95 leading to 0.95 lagging measured at the generator's terminals.

Revenue Metering and SCADA Requirements

PJM Requirements

The IC will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Sections 24.1 and 24.2.

Network Impacts

The Queue Project AC1-221 was evaluated as a 29.2 MW (Capacity 19.0 MW) injection tapping the Halifax-Person 230kV line in the ITO area. Project AC1-221 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AC1-221 was studied with a commercial probability of 53%. Potential network impacts were as follows:

Summer Peak Analysis - 2020

Generator Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None

Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)

None

Short Circuit

(Summary of impacted circuit breakers)

New circuit breakers found to be over-duty:

None

Contributions to previously identified circuit breakers found to be over-duty:

None

Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

None

Steady-State Voltage Requirements

(Summary of the VAR requirements based upon the results of the steady-state voltage studies)

To be determined during Impact Study

Stability and Reactive Power Requirement for Low Voltage Ride Through

(Summary of the VAR requirements based upon the results of the dynamic studies)

To be determined during Impact Study

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. Network Impacts, initially caused by the addition of this project generation)

None

Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have a % allocation cost responsibility which will be calculated and reported for the Impact Study)

None

Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The IC can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

None

Light Load Analysis

Light Load Studies to be conducted during later study phases (as required by PJM Manual 14B).

ITO Analysis

ITO assessed the impact of the proposed Queue Project # AC1-221 interconnection of a 29.2 MW Energy (19 MW Capacity) injection into the ITO's Transmission System at a new interconnection switching station located between the Halifax – Person (Duke) 230kV substations on a section of Line # 296, for compliance with NERC Reliability Criteria on ITO's Transmission System. The system was assessed using the summer 2020 RTEP case provided to ITO by PJM. When performing a generation analysis, ITO's main analysis will be load flow study results under single contingency (both normal and stressed system conditions). ITO Criteria considers a transmission facility overloaded if it exceeds 94% of its emergency rating under normal and stressed system conditions. A full listing of ITO's Planning Criteria and interconnection requirements can be found in the ITO's Facility Connection Requirements which are publicly available at: http://www.dom.com.

The results of these studies evaluate the system under a limited set of operating conditions and do not guarantee the full delivery of the capacity and associated energy of this proposed generation facility under all operating conditions. NERC Planning and Operating Reliability

Criteria allow for the re-dispatch of generating units to resolve projected and actual deficiencies in real time and planning studies. Specifically NERC Category C Contingency Conditions (Bus Fault, Tower Line, N-1-1, and Stuck Breaker scenarios) allow for re-dispatch of generating units to resolve potential reliability deficiencies. For ITO's Planning Criteria the re-dispatch of generating units for these contingency conditions is allowed as long as the projected loading does not exceed 100% of a facility Load Dump Rating.

As part of its generation impact analysis, the ITO routinely evaluates the impact that a proposed new generation resource will have under maximum generation conditions, stress system conditions and import/export system conditions (greater than 20 MW). The results of these studies are discussed in more detail below.

Category B Analysis (Single Contingency):

1. System Normal – No deficiencies identified
2. Critical System Condition (No Surry 230 kV Unit) – No deficiencies identified.

Category C Analysis: (Multiple Facility Analysis)

1. Bus Fault - No deficiencies identified
2. Line Stuck Breaker - No deficiencies identified
3. Tower Line – No deficiencies identified

The import and export conditions into and out of the ITO System are evaluated with any new interconnection greater than 20 MW, any new facility that is interconnected with the ITO System should not significantly decrement FCITC between utilities. These studies will be performed during the System Impact Study.

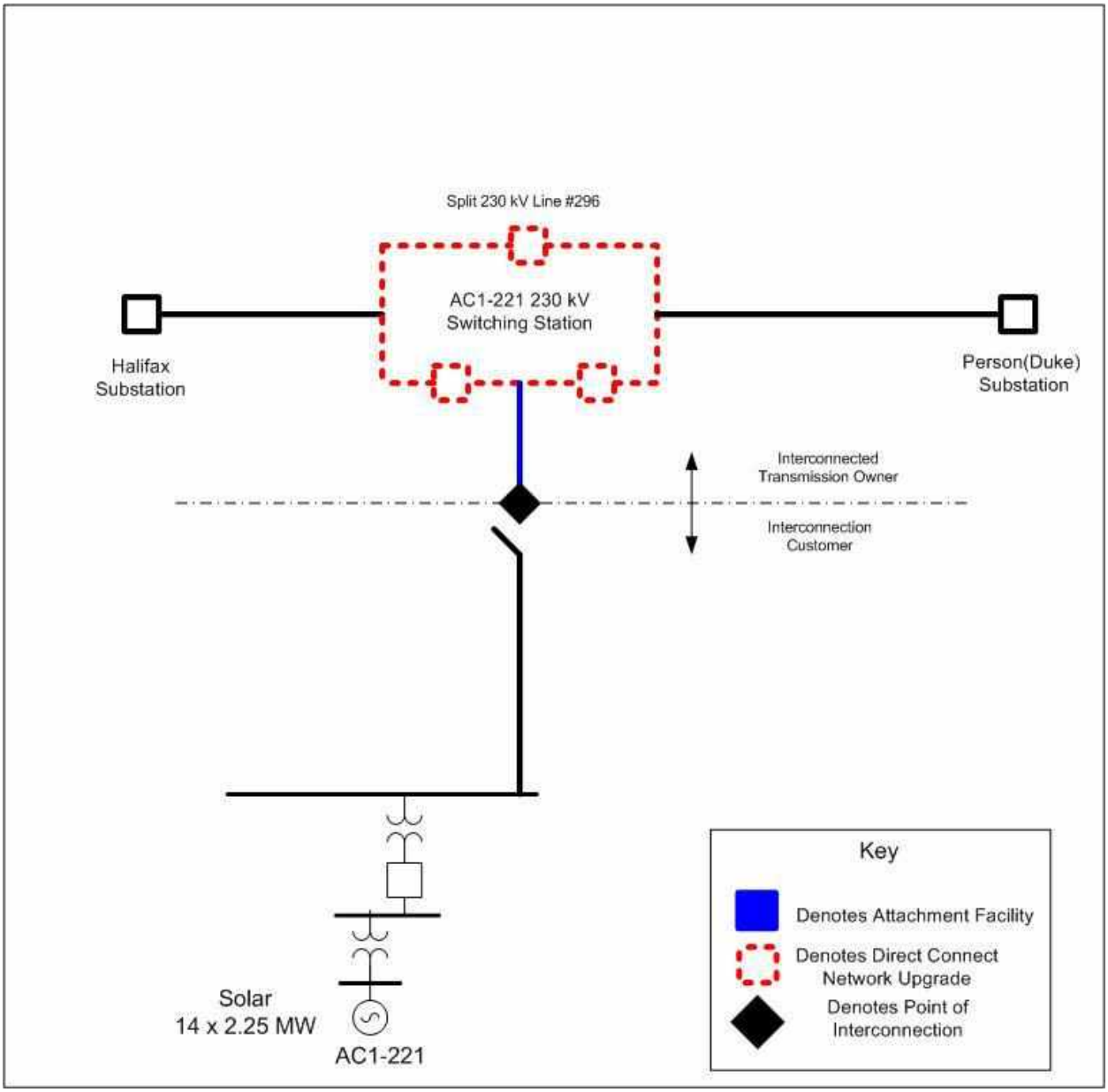
Affected System Analysis & Mitigation

Duke, Progress & TVA Impacts:

Duke Carolina, Progress, & TVA Impacts to be determined during later study phases (as applicable).

Attachment 1.

System Configuration



Generation Interconnection
System Impact Study Report

For

PJM Generation Interconnection Request
Queue Position AC1-221

Person – Sedge Hill 230kV
14.6 MW Capacity / 29.2 MW Energy

December / 2017

Introduction

This System Impact Study (SIS) has been prepared in accordance with the PJM Open Access Transmission Tariff, Section 205, as well as the System Impact Study Agreement between Urban Grid Solar Projects LLC, the Interconnection Customer (IC) and PJM Interconnection, LLC (PJM), Transmission Provider (TP). The Interconnected Transmission Owner (ITO) is Virginia Electric and Power Company (VEPCO).

Preface

The intent of the System Impact Study is to determine a plan, with approximate cost and construction time estimates, to connect the subject generation interconnection project to the PJM network at a location specified by the IC. As a requirement for interconnection, the IC may be responsible for the cost of constructing Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system. All facilities required for interconnection of a generation interconnection project must be designed to meet the technical specifications (on PJM web site) for the appropriate transmission owner.

In some instances an IC may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection or merchant transmission upgrade, may also contribute to the need for the same network reinforcement. The possibility of sharing the reinforcement costs with other projects may be identified in the Feasibility Study, but the actual allocation will be deferred until the System Impact Study is performed.

The System Impact Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The IC is responsible for the right of way, real estate, and construction permit issues. For properties currently owned by Transmission Owners, the costs may be included in the study.

General

The IC has proposed a solar generating facility located in Halifax County, VA. The installed facilities will have a total capability of 29.2 MW with 14.6 MW of this output being recognized by PJM as capacity. The proposed in-service date for this project is 9/30/2019. **This study does not imply an ITO commitment to this in-service date.**

Point of Interconnection

AC1-221 will interconnect with the ITO transmission system via a new three breaker ring bus switching station that connects on the Sedge Hill (previously Halifax) – Person (Duke) 230kV line # 296.

Cost Summary

The AC1-221 interconnection request will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	$1,800,000
Direct Connection Network Upgrades	$6,500,000
Non Direct Connection Network Upgrades	$1,000,000
Allocation for New System Upgrades	$0
Contribution for Previously Identified Upgrades	$0
Total Costs	**$9,300,000**

Attachment Facilities

Generation Substation: Install metering and associated protection equipment. Estimated Cost $600,000.

Transmission: Build approximately 0.5 miles of 230 kV Line. Estimated Cost $1,200,000

The estimated total cost of the Attachment Facilities is $1,800,000. It is estimated to take 30-36 months to complete this work. These preliminary cost estimates are based on typical engineering costs. A more detailed engineering cost estimates are normally done when the IC provides an exact site plan location for the generation substation during the Facility Study phase. These costs do not include CIAC Tax Gross-up. The single line is shown below in Attachment 1.

Direct Connection Cost Estimate

Substation: Build a three breaker 230 kV ring bus at AC1-221 Substation to interconnect the proposed AC1-221 Project and associated equipment. Estimated Cost $6,500,000 and it is estimated to take 36-48 months to complete this work. These preliminary cost estimates are based on typical engineering costs. A more detailed engineering cost estimates are normally done when the IC provides an exact site plan location for the generation substation during the Facility Study phase.

Non-Direct Connection Cost Estimate

Transmission: Re-arrange existing lines to accommodate new 230 kV Line. Estimated Cost $1,000,000.

Remote Terminal Work: During the Facilities Study, ITO's System Protection Engineering Department will review transmission line protection as well as anti-islanding required to accommodate the new generation and interconnection substation. System Protection Engineering will determine the minimal acceptable protection requirements to reliably interconnect the proposed generating facility with the transmission system. The review is based on maintaining system reliability by reviewing ITO's protection requirements with the known transmission system configuration which includes generating facilities in the area. This review may determine that transmission line protection and communication upgrades are required at remote substations.

Outage scheduling and coordination will impact the actual completion dates for the various identified network upgrades.

Interconnection Customer Requirements

ITO's Facility Interconnection Requirements as posted on PJM's website
http://www.pjm.com/~/media/planning/plan-standards/private-dominion/facility-connection-requirements1.ashx

Voltage Ride Through Requirements - The Customer Facility shall be designed to remain in service (not trip) for voltages and times as specified for the Eastern Interconnection in Attachment 1 of NERC Reliability Standard PRC-024-1, and successor Reliability Standards, for

both high and low voltage conditions, irrespective of generator size, subject to the permissive trip exceptions established in PRC-024-1 (and successor Reliability Standards).

Frequency Ride Through Requirements - The Customer Facility shall be designed to remain in service (not trip) for frequencies and times as specified in Attachment 2 of NERC Reliability Standard PRC-024-1, and successor Reliability Standards, for both high and low frequency condition, irrespective of generator size, subject to the permissive trip exceptions established in PRC-024-1 (and successor Reliability Standards).

Reactive Power - The Generation Interconnection Customer shall design its non-synchronous Customer Facility with the ability to maintain a power factor of at least 0.95 leading to 0.95 lagging measured at the generator's terminals.

Meteorological Data Reporting Requirement - The solar generation facility shall, at a minimum, be required to provide the Transmission Provider with site-specific meteorological data including:

- Temperature (degrees Fahrenheit)
- Atmospheric pressure (hectopascals)
- Irradiance
- Forced outage data

Revenue Metering and SCADA Requirements

PJM Requirements

The Interconnection Customer will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Sections 24.1 and 24.2.

Interconnected Transmission Owner Requirements

Metering and SCADA/Communication equipment must meet the requirements outlined in section 3.1.6 Metering and Telecommunications of ITO's Facility Connection Requirement NERC Standard FAC-001 which is publically available at www.dom.com.

Network Impacts

The Queue Project AC1-221 was evaluated as a 29.2 MW (Capacity 14.6 MW) injection tapping the Halifax-Person 230kV line in the ITO area. Project AC1-221 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AC1-221 was studied with a commercial probability of 100%. Potential network impacts were as follows:

Summer Peak Analysis – 2020

Generator Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None

Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output).

None

Short Circuit

(Summary of impacted circuit breakers)

New circuit breakers found to be over-duty:

None

Contributions to previously identified circuit breakers found to be over-duty:

None

Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

None

Steady-State Voltage Requirements

(Summary of the VAR requirements based upon the results of the steady-state voltage studies)

None

Stability and Reactive Power Requirement for Low Voltage Ride Through

(Summary of the VAR requirements based upon the results of the dynamic studies)

No mitigations were found to be required.

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. Network Impacts, initially caused by the addition of this interconnection request)

None

Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have a % allocation cost responsibility which is calculated and reported for in the Impact Study)

None

Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The IC can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this interconnection request by addressing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

None

Light Load Analysis in 2020

Not required

ITO Analysis

ITO assessed the impact of the proposed Queue Project #AC1-221 interconnection of 29.2 MW of energy (Capacity 14.6 MW) for compliance with reliability criteria on ITO's Transmission System. The system was assessed using the summer 2020 RTEP case provided to ITO by PJM. When performing a generation analysis, ITO's main analysis will be load flow study results under single contingency and multiple facility contingency (both normal and stressed system conditions). ITO Criteria considers a transmission facility overloaded if it exceeds 94% of its emergency rating under normal and stressed system conditions. A full listing of ITO's Planning Criteria and interconnection requirements can be found in the ITO's Facility Connection Requirements which are publicly available at: http://www.dom.com.

The results of these studies evaluate the system under a limited set of operating conditions and do not guarantee the full delivery of the capacity and associated energy of this proposed

interconnection request under all operating conditions. NERC Planning and Operating Reliability Criteria allow for the re-dispatch of generating units to resolve projected and actual deficiencies in real time and planning studies. Specifically NERC Category C Contingency Conditions (Bus Fault, Tower Line, N-1-1, and Stuck Breaker scenarios) allow for re-dispatch of generating units to resolve potential reliability deficiencies. For ITO Planning Criteria the re-dispatch of generating units for these contingency conditions is allowed as long as the projected loading does not exceed 100% of a facility Load Dump Rating.

As part of its generation impact analysis ITO routinely evaluates the impact that a proposed new generation resource will have under maximum generation conditions, stress system conditions and import/export system conditions (greater than 20 MW). The results of these studies are discussed in more detail below.

Category B Analysis (Single Contingency):

- System Normal – No deficiencies identified
- Critical System Condition (No Surry 230 kV Unit) OR (Possum Point Unit #6 (230kV Unit) – No deficiencies identified.

Category C Analysis: (Multiple Facility Contingency)

- Bus Fault - No deficiencies identified
- Line Stuck Breaker - No deficiencies identified
- Tower Line – No deficiencies identified

As part of its generation impact analysis ITO routinely evaluates the impact that a proposed new generation resource (greater than 20 MW) will have under maximum generation conditions, stress system conditions and import/export system conditions. The results of these studies are discussed in Table A and B below.

Table A: Import Study Results

Import Study Results			
Area	Summer 2020	Summer 2020 with AC1-221	Limiting Element
AEP	2000+	2000+	None
APS	2000+	2000+	None
CPL	2000+	2000+	None
PJM	2000+	2000+	None

Table B: Export Study Results

Export Study Results

Area	Summer 2020	Summer 2020 with AC1-221	Limiting Element
AEP	2000+	2000+	None
APS	2000+	2000+	None
CPL	2000+	2000+	None
PJM	2000+	2000+	None

ITO's Planning Criteria indicates a need to have approximately 2000 MW of import and export capability. The results of these import and export studies indicate that the proposed AC1-221 (Transfer) will not impact ITO's import or export capability

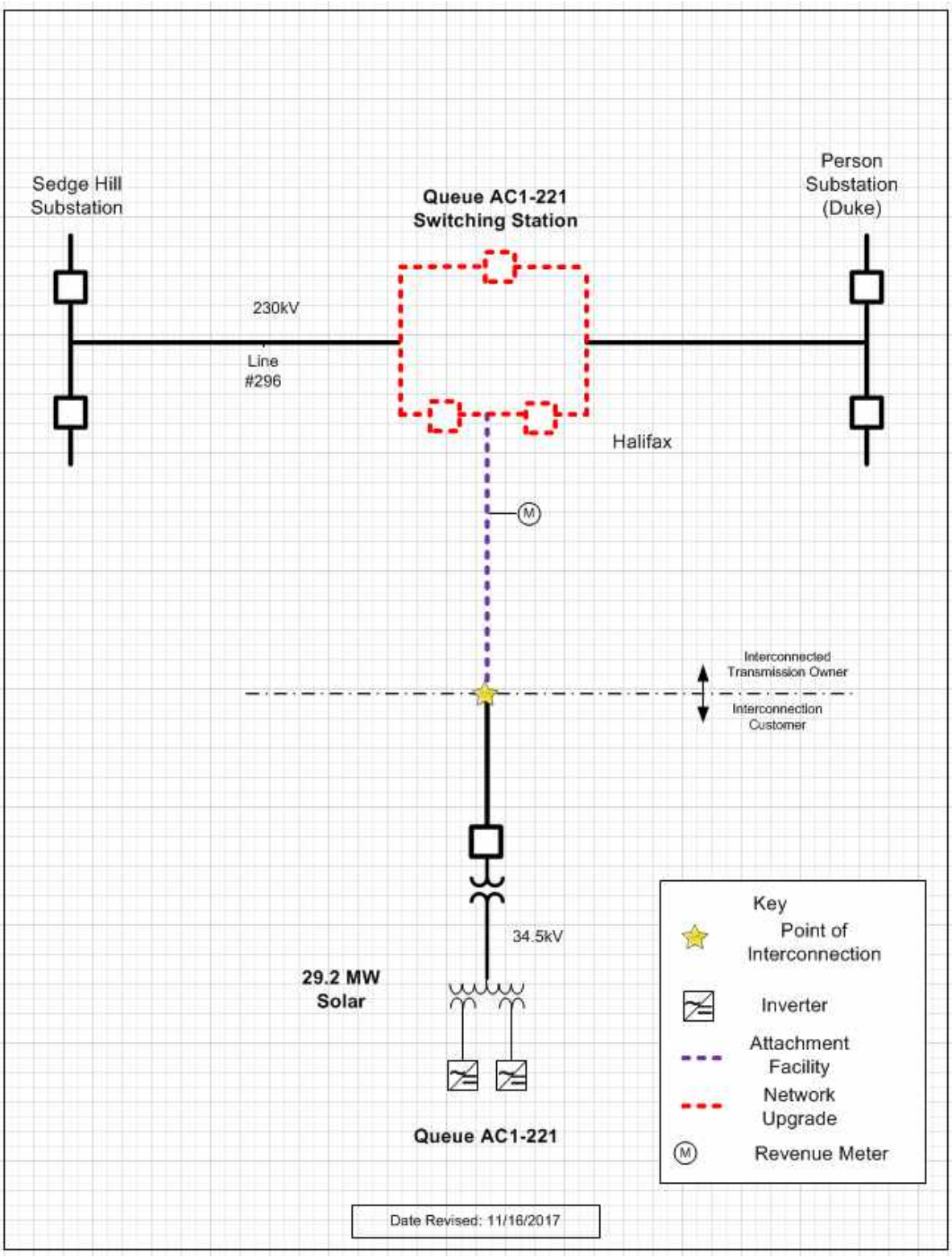
Affected System Analysis & Mitigation

Duke Energy:

An affected system study will need to be completed with Duke since this a tie line

Attachment 1.

System Configuration



Generation Interconnection Feasibility Study Report

For

PJM Generation Interconnection Request Queue Position AD1-058

Person - Sedge Hill 230kV
36.6 MW Capacity / 45.9 MW Energy

February / 2018

Introduction

This Feasibility Study has been prepared in accordance with the PJM Open Access Transmission Tariff, 36.2, as well as the Feasibility Study Agreement between Urban Grid Solar Projects LLC, the Interconnection Customer (IC), and PJM Interconnection, LLC (PJM), Transmission Provider (TP). The Interconnected Transmission Owner (ITO) is Virginia Electric and Power Company (VEPCO).

Preface

The intent of the Feasibility Study is to determine a plan, with high level estimated cost and construction time estimates, to connect the subject generation to the PJM network at a location specified by the IC. The IC may request the interconnection of generation as a capacity resource or as an energy-only resource. As a requirement for interconnection, the IC may be responsible for the cost of constructing: (1) Direct Connections, which are new facilities and/or facilities upgrades needed to connect the generator to the PJM network, and (2) Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system.

In some instances a generator interconnection may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection, may also contribute to the need for the same network reinforcement. The possibility of sharing the reinforcement costs with other projects may be identified in the Feasibility Study, but the actual allocation will be deferred until the Impact Study is performed.

The Feasibility Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The IC is responsible for the right of way, real estate, and construction permit issues. For properties currently owned by ITO, the costs may be included in the study.

General

The IC has proposed a solar generating facility located in Halifax County, VA. The installed facilities will have a total capability of 75.1 MW with 51.2 MW of this output being recognized by PJM as capacity. This queue request is for an additional 45.9 MW with 36.6 MW of this output being recognized by PJM as capacity. The proposed in-service date for this project is 9/30/2018. **This study does not imply an ITO commitment to this in-service date.**

Point of Interconnection

AD1-058 will interconnect with the ITO transmission system via a new three breaker ring bus switching station that connects on the Sedge Hill (previously Halifax) – Person (Duke) 230kV line # 296.

Cost Summary

The AD1-058 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	$0
Direct Connection Network Upgrades	$0
Non Direct Connection Network Upgrades	$0
Total Costs	**$0**

In addition, the AD1-058 project may be responsible for a contribution to the following costs:

Description	Total Cost
New System Upgrades	$8,890,000
Previously Identified Upgrades	$0
Total Costs	**$8,890,000**

Cost allocations for these upgrades will be provided in the System Impact Study Report.

Note: PJM Open Access Transmission Tariff (OATT) section 217.3A outline cost allocation rules. The rules are further clarified in PJM Manual 14A Attachment B. For New System Upgrades, the cost allocation rule differ depending on whether the minimum amount of upgrades to resolve a single reliability criteria violation will cost less than $5,000,000. For upgrades estimated to cost less than $5,000,000 the allocation of costs will not occur outside of the Queue in which the need for the Network Upgrade was identified. Cost allocation within the Queue will be contingent each Queue projects Distribution Factor on the overloaded facility. For upgrades estimated to cost $5,000,000 or greater the allocation of costs will start with the first Queue project to cause the need for the upgrade. Later queue projects will receive cost allocation contingent on their contribution to the violation and are allocated to the queues that have not closed less than 5 years following the execution of the first Interconnection Service Agreement which identifies the need for this upgrade.

The Feasibility Study is used to make a preliminary determination of the type and scope of Attachment Facilities, Local Upgrades, and Network Upgrades that will be necessary to accommodate the Interconnection Request and to provide the Interconnection Customer a preliminary estimate of the time that will be required to construct any necessary facilities and upgrades and the Interconnection Customer's cost responsibility. The System Impact Study provides refined and comprehensive estimates of cost responsibility and construction lead times for new facilities and system upgrades. Facilities Studies will include, commensurate with the degree of engineering specificity as provided in the Facilities Study Agreement, good faith estimates of the cost, determined in accordance with Section 217 of the Tariff,

(a) to be charged to each affected New Service Customer for the Facilities and System Upgrades that are necessary to accommodate this queue project;
(b) the time required to complete detailed design and construction of the facilities and upgrades; and
(c) a description of any site-specific environmental issues or requirements that could reasonably be anticipated to affect the cost or time required to complete construction of such facilities and upgrades.

Attachment Facilities

The existing AC1-221 scope of work is sufficient to accommodate this queue request from an Attachment Facilities and substation expansion perspective. The single line is shown below in Attachment 1.

Non-Direct Connection Cost Estimate

Remote Terminal Work: During the Facilities Study, ITO's System Protection Engineering Department will review transmission line protection as well as anti-islanding required to accommodate the new generation and interconnection substation. System Protection Engineering will determine the minimal acceptable protection requirements to reliably interconnect the proposed generating facility with the transmission system. The review is based on maintaining system reliability by reviewing ITO's protection requirements with the known transmission system configuration which includes generating facilities in the area. This review may determine that transmission line protection and communication upgrades are required at remote substations.

System Reinforcement

AEP: Increase East Danville – Danville 138 kV line ratings S/N: 439 MVA S/E: 510 MVA

(1) Danville Sw. CB M - Danville CB M needs to be replaced, Estimated cost: $1 million.

(2) Danville Risers - Replace Danville risers, Estimated cost: $100,000.

(3) 2.81 miles of conductor will need to reconductor / rebuild, expected cost of $4.2 million.

(4) E Danville 1 - An Engineering study need to be conducted to determine if the relay thermal limit settings can be adjusted to mitigate the overload, Estimated cost: $25,000. New relay packages will be required if the settings cannot be adjusted, Estimated cost: $600,000.

(5) Danville2 - An Engineering study need to be conducted to determine if the relay thermal limit settings can be adjusted to mitigate the overload, Estimated Cost: $25,000. New relay packages will be required if the settings cannot be adjusted, Estimated cost: $600,000.

(6) E Danville (RCTL) - An Engineering study need to be conducted to determine if the relay compliance trip limits settings can be adjusted to mitigate the overload, Estimated Cost: $25,000. New relay packages will be required if the settings cannot be adjusted, Estimated cost: $600,000.

(7) Danville2 (RCTL) - An Engineering study need to be conducted to determine if the relay compliance trip limits settings can be adjusted to mitigate the overload, Estimated Cost: $25,000. New relay packages will be required if the settings cannot be adjusted, Estimated cost: $600,000.

(8) Conductor Section 3 - 0.03 miles of conductor will need to recounductor / rebuild, Estimated cost: $0.045 million.

(9) Conductor Section 1 - 0.03 miles of conductor will need to recounductor / rebuild, Estimated cost: $0.045 million.

(10) E. Danville CB L - East Danville Circuit Breaker L needs to be replaced, estimated cost: $1 million.

An approximate construction time would be 24 to 36 months. Total estimated cost is $8,890,000.

Interconnection Customer Requirements

ITO's Facility Connection Requirements as posted on PJM's website
http://www.pjm.com/~/media/planning/plan-standards/private-dominion/facility-connection-requirements1.ashx

Voltage Ride Through Requirements - The Customer Facility shall be designed to remain in service (not trip) for voltages and times as specified for the Eastern Interconnection in Attachment 1 of NERC Reliability Standard PRC-024-1, and successor Reliability Standards, for both high and low voltage conditions, irrespective of generator size, subject to the permissive trip exceptions established in PRC-024-1 (and successor Reliability Standards).

Frequency Ride Through Requirements - The Customer Facility shall be designed to remain in service (not trip) for frequencies and times as specified in Attachment 2 of NERC Reliability Standard PRC-024-1, and successor Reliability Standards, for both high and low frequency condition, irrespective of generator size, subject to the permissive trip exceptions established in PRC-024-1 (and successor Reliability Standards).

Reactive Power - The Generation Interconnection Customer shall design its non-synchronous Customer Facility with the ability to maintain a power factor of at least 0.95 leading to 0.95 lagging measured at the generator's terminals.

Revenue Metering and SCADA Requirements

PJM Requirements

The IC will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Sections 24.1 and 24.2.

Meteorological Data Reporting Requirement

The solar generation facility shall provide the Transmission Provider with site-specific meteorological data including:

- Temperature (degrees Fahrenheit)
- Atmospheric pressure (hectopascals)
- Irradiance
- Forced outage data

Network Impacts

The Queue Project AD1-058 was evaluated as a 45.9 MW (Capacity 36.6 MW) uprate to the AC1-221 Queue Project which is a tap of Halifax-Person 230kV line in the ITO area. Project AD1-058 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AD1-058 was studied with a commercial probability of 53%. Potential network impacts were as follows:

PJM assessed the impact of the proposed Queue Project as an injection into the ITO, for compliance with NERC Reliability Criteria. The system was assessed using the summer 2021 RTEP case. When performing analysis, ITO Criteria considers a transmission facility overloaded if it exceeds 94% of its emergency rating under single contingency (normal and stressed system conditions). A full listing of the ITO's Planning Criteria and interconnection requirements can be found in the ITO's Facility Connection Requirements which are publicly available at: http://www.dom.com.

The results of these studies evaluate the system under a limited set of operating conditions and do not guarantee the full delivery of the capacity and associated energy of this proposed generation facility under all operating conditions. NERC Planning and Operating Reliability Criteria allow for the re-dispatch of generating units to resolve projected and actual deficiencies in real time and planning studies. Specifically NERC Category C Contingency Conditions (Bus Fault, Tower Line, N-1-1, and Stuck Breaker scenarios) allow for re-dispatch of generating units to resolve potential reliability deficiencies. For ITO Planning Criteria the re-dispatch of generating units for these contingency conditions is allowed as long as the projected loading does not exceed 100% of a facility Load Dump Rating. The results of these studies are discussed in more detail below.

Contingency Descriptions

The following contingencies resulted in overloads:

Contingency Name	Description
AEP_P1-2_#1377	CONTINGENCY 'AEP_P1-2_#1377' OPEN BRANCH FROM BUS 242514 TO BUS 242520 CKT 1 / 242514 05J.FERR 765 242520 05J.FERR 500 1 OPEN BRANCH FROM BUS 242520 TO BUS 306719 CKT 1 / 242520 05J.FERR 500 306719 8ANTIOCH 500 1 END
AEP_P4_#7589_05J.FERR 765	CONTINGENCY 'AEP_P4_#7589_05J.FERR 765' OPEN BRANCH FROM BUS 242514 TO BUS 242520 CKT 1 / 242514 05J.FERR 765 242520 05J.FERR 500 1 OPEN BRANCH FROM BUS 242514 TO BUS 242684 CKT 2 / 242514 05J.FERR 765 242684 05J.FERR 138 2 OPEN BRANCH FROM BUS 242520 TO BUS 306719 CKT 1 / 242520 05J.FERR 500 306719 8ANTIOCH 500 1 END

Contingency Name	Description
DVP_P1-2: LN 556	CONTINGENCY 'DVP_P1-2: LN 556' OPEN BRANCH FROM BUS 314686 TO BUS 314906 CKT 1 /* 6CLOVER 230.00 - 8CLOVER 500.00 OPEN BRANCH FROM BUS 314686 TO BUS 314906 CKT 2 /* 6CLOVER 230.00 - 8CLOVER 500.00 OPEN BRANCH FROM BUS 314686 TO BUS 314906 CKT 3 /* 6CLOVER 230.00 - 8CLOVER 500.00 OPEN BRANCH FROM BUS 314906 TO BUS 314936 CKT 1 /* 8CLOVER 500.00 - 8RAWLINGS 500.00 OPEN BUS 314906 /* ISLAND END

Summer Peak Analysis - 2021

Generator Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None

Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)

None

Short Circuit

(Summary of impacted circuit breakers)

New circuit breakers found to be over-duty:

None

Contributions to previously identified circuit breakers found to be over-duty:

None

Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

	Contingency		Affected		Bus			Power	Loading %		Rating		MW	
#	Type	Name	Area	Facility Description	From	To	Cir.	Flow	Initial	Final	Type	MVA	Contribution	Ref
1	LFFB	AEP_P4_#7589_05J.FERR 765	AEP - AEP	05EDAN 1-05DANVL2 138 kV line	242631	242620	1	DC	110.15	111.36	ER	415	5	1

Steady-State Voltage Requirements

(Summary of the VAR requirements based upon the results of the steady-state voltage studies)

To be determined during Impact Study

Stability and Reactive Power Requirement for Low Voltage Ride Through

(Summary of the VAR requirements based upon the results of the dynamic studies)

To be determined during Impact Study

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. Network Impacts, initially caused by the addition of this project generation)

None

Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have a % allocation cost responsibility which will be calculated and reported for the Impact Study)

Violation #	Overloaded Facility	Upgrade Description	Network Upgrade Number	Upgrade Cost

Violation #	Overloaded Facility	Upgrade Description	Network Upgrade Number	Upgrade Cost
# 1	05EDAN 1-05DANVL2 138 kV line	**AEP: Current ratings S/N : 275 MVA S/E : 361 MVA, New rating: S/N : 439 MVA S/E :510 MVA** (1) Danville Sw. CB M - Danville CB M needs to be replaced, Estimated cost: $1 million. (2) Danville Risers - Replace Danville risers, Estimated cost: $100,000. (3) 2.81 miles of conductor will need to reconductor / rebuild, expected cost of $4.2 million. (4) E Danville 1 - An Engineering study need to be conducted to determine if the relay thermal limit settings can be adjusted to mitigate the overload, Estimated cost: $25,000. New relay packages will be required if the settings cannot be adjusted, Estimated cost: $600,000. (5) Danville2 - An Engineering study need to be conducted to determine if the relay thermal limit settings can be adjusted to mitigate the overload, Estimated Cost: $25,000. New relay packages will be required if the settings cannot be adjusted, Estimated cost: $600,000. (6) E Danville (RCTL) - An Engineering study need to be conducted to determine if the relay compliance trip limits settings can be adjusted to mitigate the overload, Estimated Cost: $25,000. New relay packages will be required if the settings cannot be adjusted, Estimated cost: $600,000. (7) Danville2 (RCTL) - An Engineering study need to be conducted to determine if the relay compliance trip limits settings can be adjusted to mitigate the overload, Estimated Cost: $25,000. New relay packages will be required if the settings cannot be adjusted, Estimated cost: $600,000. (8) Conductor Section 3 - 0.03 miles of conductor will need to recounductor / rebuild, Estimated cost: $0.045 million. (9) Conductor Section 1 - 0.03 miles of conductor will need to recounductor / rebuild, Estimated cost: $0.045 million. (10) E. Danville CB L - East Danville Circuit Breaker L needs to be replaced, estimated cost: $1 million. An Approximate construction time would be 24 to 36 months after signing an interconnection agreement.	Pending	**$8,890,000**
			Total New Network Upgrades	**$8,890,000**

Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The IC can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

	Contingency		Affected		Bus			Power	Loading %		Rating		MW
#	Type	Name	Area	Facility Description	From	To	Circuit	Flow	Initial	Final	Type	MVA	Contribution
2	N-1	DVP_P1-2: LN 556	DVP - CPLE	AC1-221 TAP-6PERSON230 T 230 kV line	927250	304070	1	DC	95.69	100.44	ER	718	36.83
3	N-1	AEP_P1-2_#1377	AEP - AEP	05EDAN 1-05DANVL2 138 kV line	242631	242620	1	DC	110.13	111.33	ER	415	5

Light Load Analysis

Light Load Studies to be conducted during later study phases (as required by PJM Manual 14B).

Affected System Analysis & Mitigation

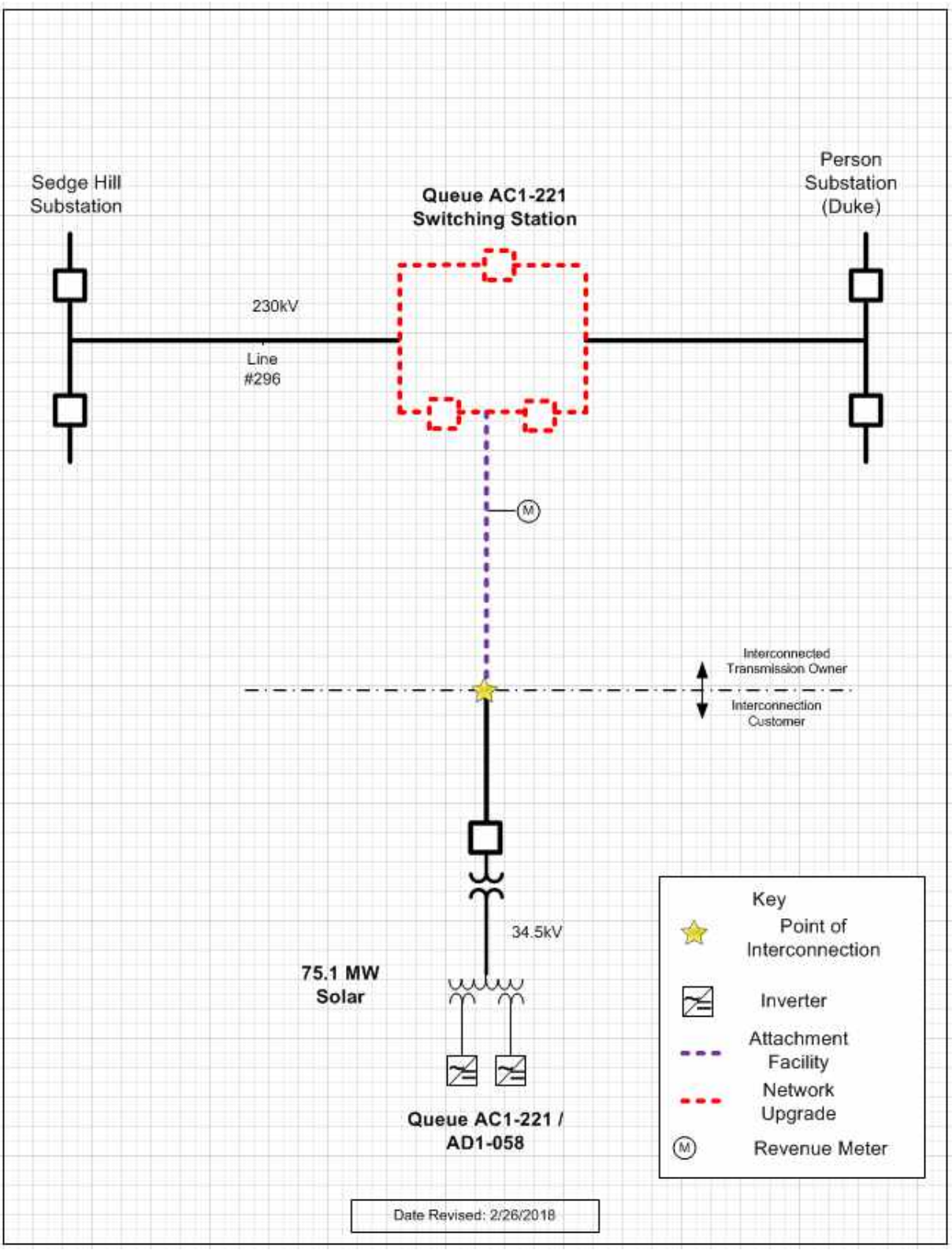
Duke, Progress & TVA Impacts:

Duke Carolina, Progress, & TVA Impacts to be determined during later study phases (as applicable).

An affected system study will need to be completed with Duke since this interconnection is onto a tie line.

Attachment 1.

System Configuration



Attachment 2.

Flowgate Appendices – Option 1

Appendices

The following appendices contain additional information about each flowgate presented in the body of the report. For each appendix, a description of the flowgate and its contingency was included for convenience. However, the intent of the appendix section is to provide more information on which projects/generators have contributions to the flowgate in question. Although this information is not used "as is" for cost allocation purposes, it can be used to gage other generators impact. When a flowgate is identified in multiple analysis the appendix is presented for only the analysis with the greatest overload.

It should be noted the generator contributions presented in the appendices sections are full contributions, whereas in the body of the report, those contributions take into consideration the commercial probability of each project.

Appendix 1

(AEP - AEP) The 05EDAN 1-05DANVL2 138 kV line (from bus 242631 to bus 242620 ckt 1) loads from 110.15% to 111.36% (**DC power flow**) of its emergency rating (415 MVA) for the line fault with failed breaker contingency outage of 'AEP_P4_#7589_05J.FERR 765'. This project contributes approximately 5.0 MW to the thermal violation.

CONTINGENCY 'AEP_P4_#7589_05J.FERR 765'
OPEN BRANCH FROM BUS 242514 TO BUS 242520 CKT 1 / 242514 05J.FERR 765 242520 05J.FERR 500 1
OPEN BRANCH FROM BUS 242514 TO BUS 242684 CKT 2 / 242514 05J.FERR 765 242684 05J.FERR 138 2
OPEN BRANCH FROM BUS 242520 TO BUS 306719 CKT 1 / 242520 05J.FERR 500 306719 8ANTIOCH 500 1
END

Bus Number	*Bus Name*	*Full Contribution*
244012	*05PINNACLE*	*-2.08*
315131	*1EDGECMA*	*4.25*
315132	*1EDGECMB*	*4.25*
314557	*3BETHELC*	*0.35*
314554	*3BTLEBRO*	*0.37*
314572	*3EMPORIA*	*0.14*
314578	*3HORNRTN*	*1.21*
314582	*3KELFORD*	*0.3*
314603	*3SCOT NK*	*1.24*
314617	*3TUNIS*	*0.28*
314620	*6CASHIE*	*0.27*
314574	*6EVERETS*	*0.98*
314594	*6PLYMOTH*	*0.26*
932631	*AC2-084 C*	*3.42*
932632	*AC2-084 E*	*1.68*
932701	*AC2-093 C*	*24.4*
932702	*AC2-093 E*	*13.96*
932761	*AC2-100 C*	*3.66*
932762	*AC2-100 E*	*1.79*
932821	*AC2-107 C*	*3.48*
932822	*AC2-107 E*	*1.63*
933451	*AC2-158 C*	*1.78*
933452	*AC2-158 E*	*1.78*

933461	*AC2-159 C*	*2.33*
933462	*AC2-159 E*	*2.33*
933941	*AD1-017 C*	*0.84*
933942	*AD1-017 E*	*1.36*
933991	*AD1-023 C*	*4.1*
933992	*AD1-023 E*	*2.23*
934041	*AD1-029 C*	*4.23*
934042	*AD1-029 E*	*2.79*
934201	*AD1-047 C*	*2.75*
934202	*AD1-047 E*	*1.83*
934231	*AD1-050 C*	*2.01*
934232	*AD1-050 E*	*1.1*
934311	*AD1-055 C*	*1.07*
934312	*AD1-055 E*	*0.28*
934331	*AD1-057 C O1*	*4.1*
934332	*AD1-057 E O1*	*2.19*
934341	*AD1-058 C*	*3.99*
934342	*AD1-058 E*	*1.01*
934521	*AD1-076 C O1*	*16.71*
934522	*AD1-076 E O1*	*8.51*
934611	*AD1-087 C O1*	*3.62*
934612	*AD1-087 E O1*	*1.69*
934621	*AD1-088 C O1*	*4.63*
934622	*AD1-088 E O1*	*2.17*
LTF	*AD1-120*	*7.55*
LTF	*AD1-121*	*7.6*
934911	*AD1-123 C*	*0.47*
934912	*AD1-123 E*	*0.24*
934991	*AD1-131 C*	*1.31*
934992	*AD1-131 E*	*0.87*
935171	*AD1-152 C O1*	*3.36*
935172	*AD1-152 E O1*	*2.24*
935221	*AD1-157 C*	*0.46*
935222	*AD1-157 E*	*0.31*
935231	*AD1-160 C*	*0.34*
935232	*AD1-160 E*	*0.47*
LTF	*AMIL*	*0.17*
LTF	*BLUEG*	*2.07*
LTF	*CANNELTON*	*0.27*

LTF	*CARR*	*0.06*
LTF	*CBM-S1*	*1.13*
LTF	*CBM-S2*	*16.92*
LTF	*CBM-W2*	*2.91*
LTF	*CLIFTY*	*10.78*
LTF	*CPLE*	*5.57*
LTF	*DEARBORN*	*0.98*
LTF	*EDWARDS*	*0.45*
LTF	*ELMERSMITH*	*0.71*
LTF	*FARMERCITY*	*0.12*
LTF	*G-007A*	*0.79*
LTF	*GIBSON*	*0.59*
LTF	*NEWTON*	*0.97*
LTF	*O-066A*	*0.36*
LTF	*PRAIRIE*	*0.86*
LTF	*RENSSELAER*	*0.05*
LTF	*ROSETON*	*0.35*
LTF	*SMITHLAND*	*< 0.01*
LTF	*TATANKA*	*0.34*
LTF	*TILTON*	*0.61*
LTF	*TRIMBLE*	*0.41*
900672	*V4-068 E*	*0.1*
LTF	*VFT*	*2.09*
LTF	*X1-078*	*0.61*
917332	*Z2-043 E*	*0.36*
917342	*Z2-044 E*	*0.25*
917512	*Z2-088 E OP1*	*1.66*
917592	*Z2-099 E*	*0.14*
918492	*AA1-063AE OP*	*1.37*
918512	*AA1-065 E OP*	*1.46*
918532	*AA1-067 E*	*0.29*
918562	*AA1-072 E*	*0.06*
919692	*AA2-053 E*	*1.33*
919702	*AA2-057 E*	*1.51*
919822	*AA2-068 E*	*0.41*
LTF	*AA2-074*	*3.79*
920022	*AA2-086 E*	*0.07*
920042	*AA2-088 E*	*3.27*
920592	*AA2-165 E*	*0.2*

920631	*AA2-169 C*	*0.91*
920632	*AA2-169 E*	*0.42*
920672	*AA2-174 E*	*0.15*
930401	*AB1-081 C*	*4.09*
930402	*AB1-081 E*	*1.75*
930861	*AB1-132 C*	*4.93*
930862	*AB1-132 E*	*2.11*
931231	*AB1-173 C*	*0.77*
931232	*AB1-173 E*	*0.36*
931241	*AB1-173AC*	*0.77*
931242	*AB1-173AE*	*0.36*
923911	*AB2-031 C O1*	*0.77*
923912	*AB2-031 E O1*	*0.38*
923941	*AB2-035 C*	*0.15*
923942	*AB2-035 E*	*0.06*
923991	*AB2-040 C O1*	*2.52*
923992	*AB2-040 E O1*	*2.06*
924021	*AB2-043 C O1*	*1.21*
924022	*AB2-043 E O1*	*1.99*
924151	*AB2-059 C O1*	*4.82*
924152	*AB2-059 E O1*	*2.48*
924161	*AB2-060 C O1*	*3.48*
924162	*AB2-060 E O1*	*1.64*
924301	*AB2-077 C O1*	*0.78*
924302	*AB2-077 E O1*	*0.52*
924311	*AB2-078 C O1*	*0.78*
924312	*AB2-078 E O1*	*0.52*
924321	*AB2-079 C O1*	*0.78*
924322	*AB2-079 E O1*	*0.52*
924381	*AB2-087 C*	*0.19*
924382	*AB2-087 E*	*0.09*
924391	*AB2-088 C*	*0.19*
924392	*AB2-088 E*	*0.09*
924401	*AB2-089 C*	*0.91*
924402	*AB2-089 E*	*0.47*
924411	*AB2-090 C*	*1.53*
924412	*AB2-090 E*	*0.78*
924491	*AB2-098 C*	*0.23*
924492	*AB2-098 E*	*0.1*

924501	*AB2-099 C*	*0.2*
924502	*AB2-099 E*	*0.08*
924511	*AB2-100 C*	*3.5*
924512	*AB2-100 E*	*1.72*
925121	*AB2-169 C*	*2.26*
925122	*AB2-169 E*	*2.03*
925171	*AB2-174 C O1*	*2.38*
925172	*AB2-174 E O1*	*2.15*
925221	*AB2-176 C*	*0.63*
925222	*AB2-176 E*	*0.27*
925591	*AC1-034 C*	*3.01*
925592	*AC1-034 E*	*2.27*
925611	*AC1-036 C*	*0.33*
925612	*AC1-036 E*	*0.54*
925781	*AC1-054 C*	*3.03*
925782	*AC1-054 E*	*1.4*
925991	*AC1-075 C*	*1.96*
925992	*AC1-075 E*	*1.11*
926021	*AC1-080 C*	*0.65*
926022	*AC1-080 E*	*0.37*
926051	*AC1-083 C*	*4.18*
926052	*AC1-083 E*	*6.82*
926071	*AC1-086 C*	*7.26*
926072	*AC1-086 E*	*3.31*
926201	*AC1-098 C*	*2.4*
926202	*AC1-098 E*	*1.43*
926211	*AC1-099 C*	*0.8*
926212	*AC1-099 E*	*0.47*
926271	*AC1-105 C*	*2.39*
926272	*AC1-105 E*	*1.19*
926771	*AC1-163 C*	*0.65*
926772	*AC1-163 E*	*0.3*
927021	*AC1-189 C*	*3.63*
927022	*AC1-189 E*	*1.81*
927111	*AC1-206 C*	*2.97*
927112	*AC1-206 E*	*1.4*
927141	*AC1-208 C*	*3.54*
927142	*AC1-208 E*	*1.57*
927251	*AC1-221 C*	*1.59*

927252	*AC1-221 E*	*1.59*
927261	*AC1-222 C*	*1.54*
927262	*AC1-222 E*	*1.46*

Generation Interconnection
System Impact Study Report

For

PJM Generation Interconnection Request
Queue Position AD1-058

Person – Sedge Hill 230kV
36.6 MW Capacity / 45.9 MW Energy

November / 2018

Introduction

This System Impact Study (SIS) has been prepared in accordance with the PJM Open Access Transmission Tariff, Section 205, as well as the System Impact Study Agreement between Urban Grid Solar Projects LLC, the Interconnection Customer (IC) and PJM Interconnection, LLC (PJM), Transmission Provider (TP). The Interconnected Transmission Owner (ITO) is Virginia Electric and Power Company (VEPCO).

Preface

The intent of the System Impact Study is to determine a plan, with approximate cost and construction time estimates, to connect the subject generation interconnection project to the PJM network at a location specified by the IC. As a requirement for interconnection, the IC may be responsible for the cost of constructing Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system. All facilities required for interconnection of a generation interconnection project must be designed to meet the technical specifications (on PJM web site) for the appropriate transmission owner.

In some instances an IC may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection or merchant transmission upgrade, may also contribute to the need for the same network reinforcement. The possibility of sharing the reinforcement costs with other projects may be identified in the Feasibility Study, but the actual allocation will be deferred until the System Impact Study is performed.

The System Impact Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The IC is responsible for the right of way, real estate, and construction permit issues. For properties currently owned by Transmission Owners, the costs may be included in the study.

General

The IC has proposed a solar generating facility located in Halifax County, VA. The installed facilities will have a total capability of 75.1 MW with 51.2 MW of this output being recognized by PJM as capacity. This queue request is for an additional 45.9 MW with 36.6 MW of this output being recognized by PJM as capacity. The proposed in-service date for this project is 1/31/2019. **This study does not imply an ITO commitment to this in-service date.**

Point of Interconnection

AD1-058 will interconnect with the ITO transmission system via a new three breaker ring bus switching station that connects on the Sedge Hill – Person (Duke) 230kV line # 296.

Cost Summary

The AD1-058 interconnection request will be responsible for the following costs: None

Attachment Facilities

The existing AC1-221 scope of work is sufficient to accommodate this queue request from an Attachment Facilities and substation expansion perspective. The single line is shown below in Attachment 1.

Non-Direct Connection Cost Estimate

Remote Terminal Work: During the Facilities Study, ITO's System Protection Engineering Department will review transmission line protection as well as anti-islanding required to accommodate the new generation and interconnection substation. System Protection Engineering will determine the minimal acceptable protection requirements to reliably interconnect the proposed generating facility with the transmission system. The review is based on maintaining system reliability by reviewing ITO's protection requirements with the known transmission system configuration which includes generating facilities in the area. This review may determine that transmission line protection and communication upgrades are required at remote substations.

Interconnection Customer Requirements

ITO's Facility Interconnection Requirements as posted on PJM's website
http://www.pjm.com/~/media/planning/plan-standards/private-dominion/facility-connection-requirements1.ashx

Voltage Ride Through Requirements - The Customer Facility shall be designed to remain in service (not trip) for voltages and times as specified for the Eastern Interconnection in Attachment 1 of NERC Reliability Standard PRC-024-1, and successor Reliability Standards, for both high and low voltage conditions, irrespective of generator size, subject to the permissive trip exceptions established in PRC-024-1 (and successor Reliability Standards).

Frequency Ride Through Requirements - The Customer Facility shall be designed to remain in service (not trip) for frequencies and times as specified in Attachment 2 of NERC Reliability Standard PRC-024-1, and successor Reliability Standards, for both high and low frequency condition, irrespective of generator size, subject to the permissive trip exceptions established in PRC-024-1 (and successor Reliability Standards).

Reactive Power - The Generation Interconnection Customer shall design its non-synchronous Customer Facility with the ability to maintain a power factor of at least 0.95 leading to 0.95 lagging measured at the generator's terminals.

Meteorological Data Reporting Requirement - The solar generation facility shall, at a minimum, be required to provide the Transmission Provider with site-specific meteorological data including:

- Temperature (degrees Fahrenheit)
- Atmospheric pressure (hectopascals)
- Irradiance
- Forced outage data

Revenue Metering and SCADA Requirements

PJM Requirements

The Interconnection Customer will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Sections 24.1 and 24.2.

Interconnected Transmission Owner Requirements

Metering and SCADA/Communication equipment must meet the requirements outlined in section 3.1.6 Metering and Telecommunications of ITO's Facility Connection Requirement NERC Standard FAC-001 which is publically available at www.dom.com.

Network Impacts

The Queue Project AD1-058 was evaluated as a 45.9 MW (Capacity 36.6 MW) injection as an uprate to AC1-221 substation in the ITO area. Project AD1-058 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AD1-058 was studied with a commercial probability of 100%. Potential network impacts were as follows:

Contingency Descriptions

The following contingencies resulted in overloads:

Contingency Name	Description
DVP_P1-2: LN 556	CONTINGENCY 'DVP_P1-2: LN 556' OPEN BRANCH FROM BUS 314686 TO BUS 314906 CKT 1 /* 6CLOVER 230.00 - 8CLOVER 500.00 OPEN BRANCH FROM BUS 314686 TO BUS 314906 CKT 2 /* 6CLOVER 230.00 - 8CLOVER 500.00 OPEN BRANCH FROM BUS 314686 TO BUS 314906 CKT 3 /* 6CLOVER 230.00 - 8CLOVER 500.00 OPEN BRANCH FROM BUS 314906 TO BUS 314936 CKT 1 /* 8CLOVER 500.00 - 8RAWLINGS 500.00 OPEN BUS 314906 /* ISLAND END

Summer Peak Analysis – 2021

Generator Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None

Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output).

None

Short Circuit

(Summary of impacted circuit breakers)

New circuit breakers found to be over-duty:

None

Contributions to previously identified circuit breakers found to be over-duty:

None

Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

None

Steady-State Voltage Requirements

(Summary of the VAR requirements based upon the results of the steady-state voltage studies)

None

Stability and Reactive Power Requirement for Low Voltage Ride Through

(Summary of the VAR requirements based upon the results of the dynamic studies)

No mitigations were found to be required.

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. Network Impacts, initially caused by the addition of this interconnection request)

None

Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have a % allocation cost responsibility which is calculated and reported for in the Impact Study)

None

Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The IC can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this interconnection request by addressing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

	Contingency		Affected		Bus			Power	Loading %		Rating		MW
#	Type	Name	Area	Facility Description	From	To	Circuit	Flow	Initial	Final	Type	MVA	Contribution
1	N - 1	DVP_P1-2: LN 556	DVP - DVP	AC1-221 TAP-6PERSON230 T 230 kV line	927250	304070	1	AC	95.33	99.84	ER	718	36.83

Light Load Analysis in 2021

Not required

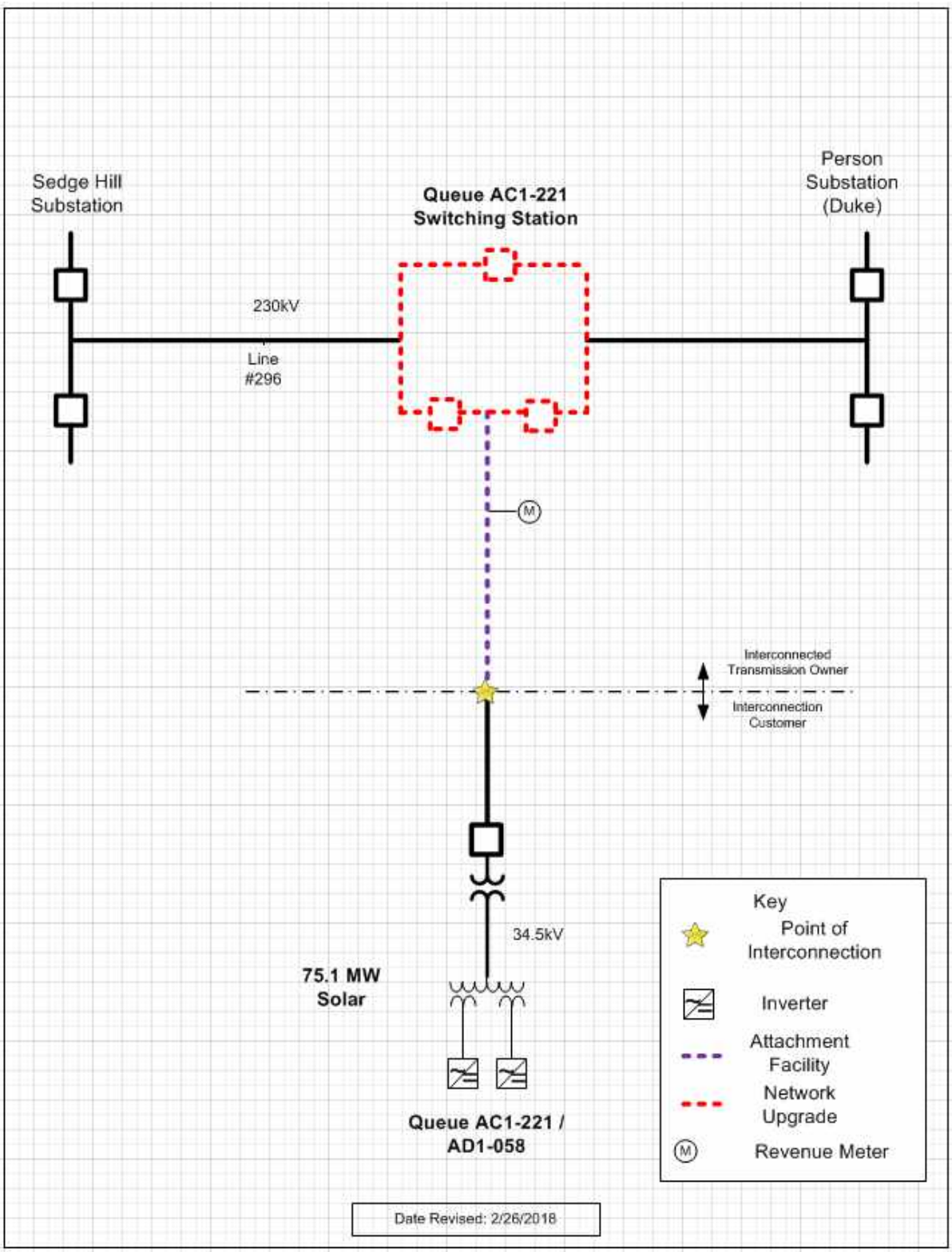
Affected System Analysis & Mitigation

Duke Energy:

An affected system study will need to be completed with Duke since this interconnection is onto a tie line.

Attachment 1.

System Configuration



Attachment D – Interconnection Agreement

Final Interconnection Agreement Pending

Service Agreement No. [ ]

(PJM Queue #AC1-221/AD1-058)

INTERCONNECTION SERVICE AGREEMENT
Among
PJM INTERCONNECTION, L.L.C.
And
ALTON POST OFFICE SOLAR, LLC
And
VIRGINIA ELECTRIC AND POWER COMPANY

Service Agreement No. [ ]

INTERCONNECTION SERVICE AGREEMENT
By and Among
PJM Interconnection, L.L.C.
And
Alton Post Office Solar, LLC
And
Virginia Electric and Power Company
(PJM Queue Position #AC1-221/AD1-058)

1.0 Parties. This Interconnection Service Agreement ("ISA") including the Specifications, Schedules and Appendices attached hereto and incorporated herein, is entered into by and between PJM Interconnection, L.L.C., the Regional Transmission Organization for the PJM Region (hereinafter "Transmission Provider" or "PJM"), Alton Post Office Solar, LLC ("Interconnection Customer") and Virginia Electric and Power Company ("Interconnected Transmission Owner"). All capitalized terms herein shall have the meanings set forth in the appended definitions of such terms as stated in Part I of the PJM Open Access Transmission Tariff ("Tariff").

2.0 Authority. This ISA is entered into pursuant to Part VI of the Tariff. Interconnection Customer has requested an Interconnection Service Agreement under the Tariff, and Transmission Provider has determined that Interconnection Customer is eligible under the Tariff to obtain this ISA. The standard terms and conditions for interconnection as set forth in Appendix 2 to this ISA are hereby specifically incorporated as provisions of this ISA. Transmission Provider, Interconnected Transmission Owner and Interconnection Customer agree to and assume all of the rights and obligations of the Transmission Provider, Interconnected Transmission Owner and Interconnection Customer, respectively, as set forth in Appendix 2 to this ISA.

3.0 Customer Facility Specifications. Attached are Specifications for the Customer Facility that Interconnection Customer proposes to interconnect with the Transmission System. Interconnection Customer represents and warrants that, upon completion of construction of such facilities, it will own or control the Customer Facility identified in section 1.0 of the Specifications attached hereto and made a part hereof. In the event that Interconnection Customer will not own the Customer Facility, Interconnection Customer represents and warrants that it is authorized by the owner(s) thereof to enter into this ISA and to represent such control.

4.0 Effective Date. Subject to any necessary regulatory acceptance, this ISA shall become effective on the date it is executed by all Interconnection Parties, or, if the agreement is filed with FERC unexecuted, upon the date specified by FERC. This ISA shall terminate on such date as mutually agreed upon by the parties, unless earlier terminated in accordance with the terms set forth in Appendix 2 to this ISA. The term of the ISA shall be as provided in Section 1.3 of Appendix 2 to this ISA. Interconnection Service shall commence as provided in Section 1.2 of Appendix 2 to this ISA.

5.0 Security. In accord with Section 212.4 of the Tariff, Interconnection Customer shall provide the Transmission Provider (for the benefit of the Interconnected Transmission Owner) with a letter of credit from an agreed provider or other form of security reasonably acceptable to the Transmission Provider and that names the Transmission Provider as beneficiary ("Security") in the amount of $2,442,289. This amount represents the sum of the estimated Costs, determined in accordance with Sections 212 and 217 of the Tariff, for which the Interconnection Customer will be responsible, less any Costs already paid by Interconnection Customer. Interconnection Customer acknowledges that its ultimate cost responsibility in accordance with Section 217 of the Tariff will be based upon the actual Costs of the facilities described in the Specifications, whether greater or lesser than the amount of the payment security provided under this section.

Should Interconnection Customer fail to provide security at the time the Interconnection Customer executes this ISA, or, if deferred, by the end of the 120-day period, this ISA shall be terminated.

6.0 Project Specific Milestones. In addition to the milestones stated in Section 212.5 of the Tariff, as applicable, during the term of this ISA, Interconnection Customer shall ensure that it meets each of the following development milestones:

6.1 Substantial Site work completed. On or before July 1, 2021, Interconnection Customer must demonstrate completion of at least 20% of project site construction. At this time, Interconnection Customer must submit to Interconnected Transmission Owner and Transmission Provider initial drawings, certified by a professional engineer, of the Customer Interconnection Facilities.

6.2 Delivery of major electrical equipment. On or before July 15, 2021, Interconnection Customer must demonstrate that all generating units have been delivered to Interconnection Customer's project site.

6.3 Commercial Operation. (i) On or before November 30, 2021, Interconnection Customer must demonstrate commercial operation of all generating units. Demonstrating commercial operation includes achieving Initial Operation in accordance with Section 1.4 of Appendix 2 to this ISA and making commercial sales or use of energy, as well as, if applicable, obtaining capacity qualification in accordance with the requirements of the Reliability Assurance Agreement Among Load Serving Entities in the PJM Region.

6.4 Within one (1) month following commercial operation of generating unit(s), Interconnection Customer must provide certified documentation demonstrating that "as-

built" Customer Facility and Customer Interconnection Facilities are in accordance with applicable PJM studies and agreements. Interconnection Customer must also provide PJM with "as-built" electrical modeling data or confirm that previously submitted data remains valid.

Interconnection Customer shall demonstrate the occurrence of each of the foregoing milestones to Transmission Provider's reasonable satisfaction. Transmission Provider may reasonably extend any such milestone dates, in the event of delays that Interconnection Customer (i) did not cause and (ii) could not have remedied through the exercise of due diligence. The milestone dates stated in this ISA shall be deemed to be extended coextensively with any suspension of work initiated by Interconnection Customer in accordance with the Interconnection Construction Service Agreement.

7.0 Provision of Interconnection Service. Transmission Provider and Interconnected Transmission Owner agree to provide for the interconnection to the Transmission System in the PJM Region of Interconnection Customer's Customer Facility identified in the Specifications in accordance with Part IV and Part VI of the Tariff, the Operating Agreement of PJM Interconnection, L.L.C. ("Operating Agreement"), and this ISA, as they may be amended from time to time.

8.0 Assumption of Tariff Obligations. Interconnection Customer agrees to abide by all rules and procedures pertaining to generation and transmission in the PJM Region, including but not limited to the rules and procedures concerning the dispatch of generation or scheduling transmission set forth in the Tariff, the Operating Agreement and the PJM Manuals.

9.0 Facilities Study. In analyzing and preparing the Facilities Study, and in designing and constructing the Attachment Facilities, Local Upgrades and/or Network Upgrades described in the Specifications attached to this ISA, Transmission Provider, the Interconnected Transmission Owner(s), and any other subcontractors employed by Transmission Provider have had to, and shall have to, rely on information provided by Interconnection Customer and possibly by third parties and may not have control over the accuracy of such information. Accordingly, NEITHER TRANSMISSION PROVIDER, THE INTERCONNECTED TRANSMISSION OWNER(s), NOR ANY OTHER SUBCONTRACTORS EMPLOYED BY TRANSMISSION PROVIDER OR INTERCONNECTED TRANSMISSION OWNER MAKES ANY WARRANTIES, EXPRESS OR IMPLIED, WHETHER ARISING BY OPERATION OF LAW, COURSE OF PERFORMANCE OR DEALING, CUSTOM, USAGE IN THE TRADE OR PROFESSION, OR OTHERWISE, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WITH REGARD TO THE ACCURACY, CONTENT, OR CONCLUSIONS OF THE FACILITIES STUDY OR THE SYSTEM IMPACT STUDY IF A FACILITIES STUDY WAS NOT REQUIRED OR OF THE ATTACHMENT FACILITIES, THE LOCAL UPGRADES AND/OR THE NETWORK UPGRADES, PROVIDED, HOWEVER, that Transmission Provider warrants that the Transmission Owner

Interconnection Facilities and any Merchant Transmission Upgrades described in the Specifications will be designed and constructed (to the extent that Interconnected Transmission Owner is responsible for design and construction thereof) and operated in accordance with Good Utility Practice, as such term is defined in the Operating Agreement. Interconnection Customer acknowledges that it has not relied on any representations or warranties not specifically set forth herein and that no such representations or warranties have formed the basis of its bargain hereunder.

10.0 Construction of Transmission Owner Interconnection Facilities

10.1. Cost Responsibility. Interconnection Customer shall be responsible for and shall pay upon demand all Costs associated with the interconnection of the Customer Facility as specified in the Tariff. These Costs may include, but are not limited to, an Attachment Facilities charge, a Local Upgrades charge, a Network Upgrades charge and other charges. A description of the facilities required and an estimate of the Costs of these facilities are included in Sections 3.0 and 4.0 of the Specifications to this ISA.

10.2. Billing and Payments. Transmission Provider shall bill the Interconnection Customer for the Costs associated with the facilities contemplated by this ISA, estimates of which are set forth in the Specifications to this ISA, and the Interconnection Customer shall pay such Costs, in accordance with Section 11 of Appendix 2 to this ISA and the applicable Interconnection Construction Service Agreement. Upon receipt of each of Interconnection Customer's payments of such bills, Transmission Provider shall reimburse the applicable Interconnected Transmission Owner. Pursuant to Section 212.4 of the Tariff, Interconnection Customer requests that Transmission Provider provide a quarterly cost reconciliation:

___X__ Yes

_____ No

10.3. Contract Option. In the event that the Interconnection Customer and Interconnected Transmission Owner agree to utilize the Negotiated Contract Option provided by the Interconnection Construction Service Agreement to establish, subject to FERC acceptance, non-standard terms regarding cost responsibility, payment, billing and/or financing, the terms of Sections 10.1 and/or 10.2 of this Section 10.0 shall be superseded to the extent required to conform to such negotiated terms, as stated in a schedule attached to the parties' Interconnection Construction Service Agreement relating to interconnection of the Customer Facility.

10.4 In the event that the Interconnection Customer elects to construct some or all of the Transmission Owner Interconnection Facilities under the Option to Build of the Interconnection Construction Service Agreement, billing and payment for the

Costs associated with the facilities contemplated by this ISA shall relate only to such portion of the Interconnection Facilities as the Interconnected Transmission Owner is responsible for building.

11.0 Interconnection Specifications

11.1 Point of Interconnection. The Point of Interconnection shall be as identified on the one-line diagram attached as Schedule B to this ISA.

11.2 List and Ownership of Interconnection Facilities. The Interconnection Facilities to be constructed and ownership of the components thereof are identified in Section 3.0 of the Specifications attached to this ISA.

11.3 Ownership and Location of Metering Equipment. The Metering Equipment to be constructed, the capability of the Metering Equipment to be constructed, and the ownership thereof, are identified on the attached Schedule C to this ISA.

11.4 Applicable Technical Standards. The Applicable Technical Requirements and Standards that apply to the Customer Facility and the Interconnection Facilities are identified in Schedule D to this ISA.

12.0 Power Factor Requirement.

Consistent with Section 4.7 of Appendix 2 to this ISA, the power factor requirement is as follows:

The Generation Interconnection Customer shall design its non-synchronous Customer Facility with the ability to maintain a power factor of at least 0.95 leading to 0.95 lagging measured at the high-side of the facility substation transformers.

13.0 Charges. In accordance with Sections 10 and 11 of Appendix 2 to this ISA, the Interconnection Customer shall pay to the Transmission Provider the charges applicable after Initial Operation, as set forth in Schedule E to this ISA. Promptly after receipt of such payments, the Transmission Provider shall forward such payments to the appropriate Interconnected Transmission Owner.

14.0 Third Party Beneficiaries. No third party beneficiary rights are created under this ISA, except, however, that, subject to modification of the payment terms stated in Section 10 of this ISA pursuant to the Negotiated Contract Option, payment obligations imposed on Interconnection Customer under this ISA are agreed and acknowledged to be for the benefit of the Interconnected Transmission Owner(s). Interconnection Customer expressly agrees that the Interconnected Transmission Owner(s) shall be entitled to take such legal recourse as it deems appropriate against Interconnection Customer for the payment of any Costs or charges authorized under this ISA or the Tariff with respect to Interconnection Service for which Interconnection Customer fails, in whole or in part, to pay as provided in this ISA, the Tariff and/or the Operating Agreement.

15.0 Waiver. No waiver by either party of one or more defaults by the other in performance of any of the provisions of this ISA shall operate or be construed as a waiver of any other or further default or defaults, whether of a like or different character.

16.0 Amendment. This ISA or any part thereof, may not be amended, modified, or waived other than by a written document signed by all parties hereto.

17.0 Construction With Other Parts Of The Tariff. This ISA shall not be construed as an application for service under Part II or Part III of the Tariff.

18.0 Notices. Any notice or request made by either party regarding this ISA shall be made, in accordance with the terms of Appendix 2 to this ISA, to the representatives of the other party and as applicable, to the Interconnected Transmission Owner(s), as indicated below:

Transmission Provider:

PJM Interconnection, L.L.C.
2750 Monroe Blvd.
Audubon, PA 19403

Interconnection Customer:

Alton Post Office Solar, LLC
337 Log Canoe Circle
Stevensville, MD 21666
Attn: Colin Mott
Email: compliance@urbangridco.com
Phone: (410) 604-3603

Interconnected Transmission Owner:

Virginia Electric and Power Company
10900 Nuckols Road
4th Floor, Highwoods One
Glen Allen, VA 23060
Attn: Mr. Mark Allen, Director Electric Transmission Project Development & Execution

Cheri Yochelson (Senior Counsel) – cheri.m.yochelson@dominionenergy.com
Mike Nester (Manager – Electric Distribution DG Integration) – Mike.Nester@dominionenergy.com
Jason "James" Street (Electric Transmission Wholesale Contracts Administrator II) – James.Street@dominionenergy.com

19.0 Incorporation Of Other Documents. All portions of the Tariff and the Operating Agreement pertinent to the subject matter of this ISA and not otherwise made a part hereof are hereby incorporated herein and made a part hereof.

20.0 Addendum of Non-Standard Terms and Conditions for Interconnection Service. Subject to FERC approval, the parties agree that the terms and conditions set forth in Schedule F hereto are hereby incorporated herein by reference and be made a part of this ISA. In the event of any conflict between a provision of Schedule F that FERC has accepted and any provision of Appendix 2 to this ISA that relates to the same subject matter, the pertinent provision of Schedule F shall control.

21.0 Addendum of Interconnection Customer's Agreement to Conform with IRS Safe Harbor Provisions for Non-Taxable Status. To the extent required, in accordance with Section 24.1 of Appendix 2 to this ISA, Schedule G to this ISA shall set forth the Interconnection Customer's agreement to conform with the IRS safe harbor provisions for non-taxable status.

22.0 Addendum of Interconnection Requirements for all Wind or Non-synchronous Generation Facilities. To the extent required, Schedule H to this ISA sets forth interconnection requirements for a wind or non-synchronous generation facilities and is hereby incorporated by reference and made a part of this ISA.

23.0 All interconnection parties agree to comply with all infrastructure security requirements of the North American Electric Reliability Corporation.

IN WITNESS WHEREOF, Transmission Provider, Interconnection Customer and Interconnected Transmission Owner have caused this ISA to be executed by their respective authorized officials.

(PJM Queue Position #AC1-221/AD1-058)

Transmission Provider: PJM Interconnection, L.L.C.

By:_____ _____ _____
Name Title Date

Printed name of signer:_____

Interconnection Customer: Alton Post Office Solar, LLC

By: DocuSigned by: [signature] 5CAE23270A89439... President and CEO 3/26/2020
Name Title Date

Printed name of signer: Frank Depew

Interconnected Transmission Owner: Virginia Electric and Power Company

By:_____ _____ _____
Name Title Date

Printed name of signer: _____

SPECIFICATIONS FOR
INTERCONNECTION SERVICE AGREEMENT
By and Among
PJM INTERCONNECTION, L.L.C.
And
Alton Post Office Solar, LLC
And
Virginia Electric and Power Company
(PJM Queue Position # AC1-221/AD1-058)

1.0 Description of generating unit(s) (the Customer Facility) to be interconnected with the Transmission System in the PJM Region:

a. Name of Customer Facility:

Alton Post Office Solar

b. Location of Customer Facility:

Alton Post Office Road, Halifax County, Virginia

GPS: 36.562411, -79.026074

c. Size in megawatts of Customer Facility:

For Generation Interconnection Customer:

Maximum Facility Output of 75.1 MW

d. Description of the equipment configuration:

29 x 2.7 MVA TMEIC Solar Ware 2700 PVH-L2700GR inverters

29 x 34.5 / 0.600 kV grounded wye delta 2.7 MVA generator step up (GSU) transformers

2.0 Rights

2.1 Capacity Interconnection Rights:

Pursuant to and subject to the applicable terms of the Tariff, the Interconnection Customer shall have Capacity Interconnection Rights at the Point(s) of Interconnection specified in this Interconnection Service Agreement in the amount of 51.2 MW.

2.1a To the extent that any portion of the Customer Facility described in section 1.0 is not a Capacity Resource with Capacity Interconnection Rights, such portion of the Customer Facility shall be an Energy Resource. PJM reserves the right to limit total injections to the Maximum Facility Output in the event reliability would be affected by output greater than such quantity.

2.3 Incremental Deliverability Rights:

Pursuant to Section 235 of the Tariff, Interconnection Customer shall have Incremental Deliverability Rights at each indicated Point of Interconnection in the following quantity(ies): None

2.4 Incremental Available Transfer Capability Revenue Rights:

Pursuant to Section 233 of the Tariff, Interconnection Customer shall have Incremental Available Transfer Capability Revenue Rights at each indicated Point of Interconnection in the following quantities: None

2.5 Incremental Auction Revenue Rights:

Pursuant to Section 231 of the Tariff, Interconnection Customer shall have Incremental Auction Revenue Rights in the following quantities: None

2.6 Incremental Capacity Transfer Rights:

Pursuant to Section 234 of the Tariff, Interconnection Customer shall have Incremental Capacity Transfer Rights between the following associated source(s) and sink(s) in the indicated quantities: None

3.0 Construction Responsibility and Ownership of Interconnection Facilities

a. Interconnection Customer.

(1) Interconnection Customer shall construct and, unless otherwise indicated, shall own, the following Interconnection Facilities:

Customer Interconnection Facilities:

- One (1) 230/34.5 kV wye ground/delta main power transformer with a rating of 54/72/90 MVA;
- 2 x 12 MVar and 1x 6 MVar capacitor banks;
- One (1) 230 kV circuit breaker; and
- Communication equipment to the Interconnected Transmission Owner bidirectional metering equipment.

(2) In the event that, in accordance with the Interconnection Construction Service Agreement, Interconnection Customer has exercised the Option to Build, it is hereby permitted to build in accordance with and subject to the conditions and limitations set forth in that Section, the following portions of the Transmission Owner Interconnection Facilities which constitute or are part of the Customer Facility:

None

Ownership of the facilities built by Interconnection Customer pursuant to the Option to Build shall be as provided in the Interconnection Construction Service Agreement.

b. Interconnected Transmission Owner

Attachment Facilities:

- One (1) 230 kV, 3000A, 3-phase center break gang operated switches;
- Three (3) 230 kV metering accuracy coupling capacitor voltage transformers;
- Three (3) 230 kV metering accuracy current transformers; and
- Conductors, connectors, conduits, control cables, foundations, steel structures and grounding.

Direct Connection Network Upgrades:
PJM Network Upgrade #n6357 - Build a three breaker AC1-221 230 kV switching station

Non-Direct Connection Network Upgrades:
PJM Network Upgrade #n6356 - Re-arrange line #296 to loop into and out of the new three breaker AC1-221 230 kV switching station

PJM Network Upgrade #n6355 - Remote protection and communication work

4.0 Subject to modification pursuant to the Negotiated Contract Option and/or the Option to Build under the Interconnection Construction Service Agreement, Interconnection Customer shall be subject to the estimated charges detailed below, which shall be billed and paid in accordance with Appendix 2, Section 11 of this ISA and the applicable Interconnection Construction Service Agreement.

4.1 Attachment Facilities Charge: $614,674

4.2 Network Upgrades Charge: $6,639,097

n6355: $69,211
n6356: $769,250
n6357: $5,800,636

4.3 Local Upgrades Charge: $0

4.4 Other Charges: $0

4.5 Cost breakdown:

$3,137,639	Direct Labor
$3,246,226	Direct Material
$506,667	Indirect Labor
$363,239	Indirect Material
$7,253,771	Total

4.6 Security Amount Breakdown:

$838,461 Estimated Cost of Non-Direct Connection Local Upgrades and/or Non-Direct Connection Network Upgrades

plus $1,603,828 Estimated cost of the work (for the first three months after construction commences in earnest) on the required Attachment Facilities, Direct Connection Local Upgrades, and Direct Connection Network Upgrades

plus $0 Option to Build Security for Attachment Facilities, Direct Connection Local Upgrades, and Direct Connection Network Upgrades (including Cancellation Costs)

$2,442,289 Total Security required with ISA

less $0 Costs already paid by Interconnection Customer

$2,442,289 Total Security required with ISA

APPENDICES:

- **APPENDIX 1 - DEFINITIONS**
- **APPENDIX 2 - STANDARD TERMS AND CONDITIONS FOR INTERCONNECTIONS**

SCHEDULES:

- **SCHEDULE A - CUSTOMER FACILITY LOCATION/SITE PLAN**
- **SCHEDULE B - SINGLE-LINE DIAGRAM**
- **SCHEDULE C - LIST OF METERING EQUIPMENT**
- **SCHEDULE D - APPLICABLE TECHNICAL REQUIREMENTS AND STANDARDS**
- **SCHEDULE E - SCHEDULE OF CHARGES**
- **SCHEDULE F - SCHEDULE OF NON-STANDARD TERMS & CONDITIONS**
- **SCHEDULE G - INTERCONNECTION CUSTOMER'S AGREEMENT TO CONFORM WITH IRS SAFE HARBOR PROVISIONS FOR NON-TAXABLE STATUS**
- **SCHEDULE H - INTERCONNECTION REQUIREMENTS FOR A WIND GENERATION FACILITY**
- **SCHEDULE I – INTERCONNECTION SPECIFICATIONS FOR AN ENERGY STORAGE RESOURCE**

APPENDIX 1

DEFINITIONS

From the PJM Tariff accepted for filing by the Commission as of the effective date of this agreement

1. Definitions

Unless the context otherwise specifies or requires, capitalized terms used in this PJM Tariff shall have the respective meanings assigned herein or in the Schedules hereto, or in the PJM Operating Agreement or RAA if not otherwise defined in this PJM Tariff, for all purposes of this PJM Tariff (such definitions to be equally applicable to both the singular and the plural forms of the terms defined). Unless otherwise specified, all references herein to sections, Schedules, Exhibits or Appendices are to sections, Schedules, Exhibits or Appendices of this Agreement. As used in this Agreement.

Abnormal Condition:

"Abnormal Condition" shall mean any condition on the Interconnection Facilities which, determined in accordance with Good Utility Practice, is: (i) outside normal operating parameters such that facilities are operating outside their normal ratings or that reasonable operating limits have been exceeded; and (ii) could reasonably be expected to materially and adversely affect the safe and reliable operation of the Interconnection Facilities; but which, in any case, could reasonably be expected to result in an Emergency Condition. Any condition or situation that results from lack of sufficient generating capacity to meet load requirements or that results solely from economic conditions shall not, standing alone, constitute an Abnormal Condition.

Acceleration Request:

"Acceleration Request" shall mean a request pursuant to Operating Agreement, Schedule 1, section 1.9.4A, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.9.4A, to accelerate or reschedule a transmission outage scheduled pursuant to Operating Agreement, Schedule 1, section 1.9.2 or Operating Agreement, Schedule 1, section 1.9.4, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.9.2 or Tariff, Attachment K-Appendix, section 1.9.4.

Additional Day-ahead Scheduling Reserves Requirement:

"Additional Day-ahead Scheduling Reserves Requirement" shall mean the portion of the Day-ahead Scheduling Reserves Requirement that is required in addition to the Base Day-ahead Scheduling Reserves Requirement to ensure adequate resources are procured to meet real-time load and operational needs, as specified in the PJM Manuals.

Affected System:

"Affected System" shall mean an electric system other than the Transmission Provider's Transmission System that may be affected by a proposed interconnection or on which a proposed interconnection or addition of facilities or upgrades may require modifications or upgrades to the Transmission System.

Affected System Operator:

"Affected System Operator" shall mean an entity that operates an Affected System or, if the

Affected System is under the operational control of an independent system operator or a regional transmission organization, such independent entity.

Affiliate:

"Affiliate" shall mean any two or more entities, one of which controls the other or that are under common control. "Control" shall mean the possession, directly or indirectly, of the power to direct the management or policies of an entity. Ownership of publicly-traded equity securities of another entity shall not result in control or affiliation for purposes of the Tariff or Operating Agreement if the securities are held as an investment, the holder owns (in its name or via intermediaries) less than 10 percent of the outstanding securities of the entity, the holder does not have representation on the entity's board of directors (or equivalent managing entity) or vice versa, and the holder does not in fact exercise influence over day-to-day management decisions. Unless the contrary is demonstrated to the satisfaction of the Members Committee, control shall be presumed to arise from the ownership of or the power to vote, directly or indirectly, ten percent or more of the voting securities of such entity.

Agreements:

"Agreements" shall mean the Amended and Restated Operating Agreement of PJM Interconnection, L.L.C., the PJM Open Access Transmission Tariff, the Reliability Assurance Agreement, and/or other agreements between PJM Interconnection, L.L.C. and its Members.

Ancillary Services:

"Ancillary Services" shall mean those services that are necessary to support the transmission of capacity and energy from resources to loads while maintaining reliable operation of the Transmission Provider's Transmission System in accordance with Good Utility Practice.

Annual Demand Resource:

"Annual Demand Resource" shall have the meaning specified in the Reliability Assurance Agreement.

Annual Energy Efficiency Resource:

"Annual Energy Efficiency Resource" shall have the meaning specified in the Reliability Assurance Agreement.

Annual Resource:

"Annual Resource" shall mean a Generation Capacity Resource, an Annual Energy Efficiency Resource or an Annual Demand Resource.

Annual Resource Price Adder:

"Annual Resource Price Adder" shall mean, for Delivery Years starting June 1, 2014 and ending May 31, 2017, an addition to the marginal value of Unforced Capacity and the Extended Summer Resource Price Adder as necessary to reflect the price of Annual Resources required to meet the applicable Minimum Annual Resource Requirement.

Annual Revenue Rate:

"Annual Revenue Rate" shall mean the rate employed to assess a compliance penalty charge on a Curtailment Service Provider under Tariff, Attachment DD, section 11.

Annual Transmission Costs:

"Annual Transmission Costs" shall mean the total annual cost of the Transmission System for purposes of Network Integration Transmission Service shall be the amount specified in Attachment H for each Zone until amended by the applicable Transmission Owner or modified by the Commission.

Applicable Laws and Regulations:

"Applicable Laws and Regulations" shall mean all duly promulgated applicable federal, State and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any Governmental Authority having jurisdiction over the relevant parties, their respective facilities, and/or the respective services they provide.

Applicable Regional Entity:

"Applicable Regional Entity" shall mean the Regional Entity for the region in which a Network Customer, Transmission Customer, New Service Customer, or Transmission Owner operates.

Applicable Standards:

"Applicable Standards" shall mean the requirements and guidelines of NERC, the Applicable Regional Entity, and the Control Area in which the Customer Facility is electrically located; the PJM Manuals; and Applicable Technical Requirements and Standards.

Applicable Technical Requirements and Standards:

"Applicable Technical Requirements and Standards" shall mean those certain technical requirements and standards applicable to interconnections of generation and/or transmission facilities with the facilities of an Interconnected Transmission Owner or, as the case may be and to the extent applicable, of an Electric Distributor, as published by Transmission Provider in a PJM Manual provided, however, that, with respect to any generation facilities with maximum generating capacity of 2 MW or less *(synchronous) or 5 MW or less (inverter-based)* for which the Interconnection Customer executes a Construction Service Agreement or Interconnection Service Agreement on or after March 19, 2005, "Applicable Technical Requirements and

Standards" shall refer to the "PJM Small Generator Interconnection Applicable Technical Requirements and Standards." All Applicable Technical Requirements and Standards shall be publicly available through postings on Transmission Provider's internet website.

Applicant:

"Applicant" shall mean an entity desiring to become a PJM Member, or to take Transmission Service that has submitted the PJMSettlement credit application, PJMSettlement credit agreement and other required submittals as set forth in Tariff, Attachment Q.

Application:

"Application" shall mean a request by an Eligible Customer for transmission service pursuant to the provisions of the Tariff.

Attachment Facilities:

"Attachment Facilities" shall mean the facilities necessary to physically connect a Customer Facility to the Transmission System or interconnected distribution facilities.

Attachment H:

"Attachment H" shall refer collectively to the Attachments to the PJM Tariff with the prefix "H-" that set forth, among other things, the Annual Transmission Rates for Network Integration Transmission Service in the PJM Zones.

Auction Revenue Rights:

"Auction Revenue Rights" or "ARRs" shall mean the right to receive the revenue from the Financial Transmission Right auction, as further described in Operating Agreement, Schedule 1, section 7.4, and the parallel provisions of Tariff, Attachment K-Appendix, section 7.4.

Auction Revenue Rights Credits:

"Auction Revenue Rights Credits" shall mean the allocated share of total FTR auction revenues or costs credited to each holder of Auction Revenue Rights, calculated and allocated as specified in Operating Agreement, Schedule 1, section 7.4.3, and the parallel provisions of Tariff, Attachment K-Appendix, section 7.4.3.

Authorized Government Agency:

"Authorized Government Agency" means a regulatory body or government agency, with jurisdiction over PJM, the PJM Market, or any entity doing business in the PJM Market, including, but not limited to, the Commission, State Commissions, and state and federal attorneys general.

Avoidable Cost Rate:

"Avoidable Cost Rate" shall mean a component of the Market Seller Offer Cap calculated in accordance with Tariff, Attachment DD, section 6.

Balancing Congestion Charges:

"Balancing Congestion Charges" shall be equal to the sum of congestion charges collected from Market Participants that are purchasing energy in the Real-time Energy Market minus [the sum of congestion charges paid to Market Participants that are selling energy in the Real-time Energy Market plus any congestion charges calculated pursuant to the Joint Operating Agreement between the Midcontinent Independent Transmission System Operator, Inc. and PJM Interconnection, L.L.C. (PJM Rate Schedule FERC No. 38), plus any congestion charges calculated pursuant to the Joint Operating Agreement Among and Between New York Independent System Operator Inc. and PJM Interconnection, L.L.C. (PJM Rate Schedule FERC No. 45), plus any congestion charges calculated pursuant to agreements between the Office of the Interconnection and other entities, plus any charges or credits calculated pursuant to Operating Agreement, Schedule 1, section 3.8, and the parallel provisions of Tariff, Attachment K-Appendix, section 3.8, as applicable)].

Balancing Ratio:

"Balancing Ratio" shall have the meaning provided in Tariff, Attachment DD, section 10A.

Base Capacity Demand Resource:

"Base Capacity Demand Resource" shall have the meaning specified in the Reliability Assurance Agreement.

Base Capacity Demand Resource Constraint:

"Base Capacity Demand Resource Constraint" for the PJM Region or an LDA, shall mean, for the 2018/2019 and 2019/2020 Delivery Years, the maximum Unforced Capacity amount, determined by PJM, of Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources that is consistent with the maintenance of reliability. As more fully set forth in the PJM Manuals, PJM calculates the Base Capacity Demand Resource Constraint for the PJM Region or an LDA, by first determining a reference annual loss of load expectation ("LOLE") assuming no Base Capacity Resources, including no Base Capacity Demand Resources or Base Capacity Energy Efficiency Resources. The calculation for the PJM Region uses a daily distribution of loads under a range of weather scenarios (based on the most recent load forecast and iteratively shifting the load distributions to result in the Installed Reserve Margin established for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Installed Reserve Margin study for the Delivery Year in question). The calculation for each relevant LDA uses a daily distribution of loads under a range of weather scenarios (based on the most recent load forecast for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity

availability distributions developed for the Installed Reserve Margin study for the Delivery Year in question). For the relevant LDA calculation, the weekly capacity distributions are adjusted to reflect the Capacity Emergency Transfer Limit for the Delivery Year in question.

For both the PJM Region and LDA analyses, PJM then models the commitment of varying amounts of Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources (displacing otherwise committed generation) as interruptible from June 1 through September 30 and unavailable the rest of the Delivery Year in question and calculates the LOLE at each DR and EE level. The Base Capacity Demand Resource Constraint is the combined amount of Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources, stated as a percentage of the unrestricted annual peak load, that produces no more than a five percent increase in the LOLE, compared to the reference value. The Base Capacity Demand Resource Constraint shall be expressed as a percentage of the forecasted peak load of the PJM Region or such LDA and is converted to Unforced Capacity by multiplying [the reliability target percentage] times [the Forecast Pool Requirement] times [the forecasted peak load of the PJM Region or such LDA, reduced by the amount of load served under the FRR Alternative].

Base Capacity Demand Resource Price Decrement:

"Base Capacity Demand Resource Price Decrement" shall mean, for the 2018/2019 and 2019/2020 Delivery Years, a difference between the clearing price for Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources and the clearing price for Base Capacity Resources and Capacity Performance Resources, representing the cost to procure additional Base Capacity Resources or Capacity Performance Resources out of merit order when the Base Capacity Demand Resource Constraint is binding.

Base Capacity Energy Efficiency Resource:

"Base Capacity Energy Efficiency Resource" shall have the meaning specified in the Reliability Assurance Agreement.

Base Capacity Resource:

"Base Capacity Resource" shall mean a Capacity Resource as described in Tariff, Attachment DD, section 5.5A(b).

Base Capacity Resource Constraint:

"Base Capacity Resource Constraint" for the PJM Region or an LDA, shall mean, for the 2018/2019 and 2019/2020 Delivery Years, the maximum Unforced Capacity amount, determined by PJM, of Base Capacity Resources, including Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources, that is consistent with the maintenance of reliability. As more fully set forth in the PJM Manuals, PJM calculates the above Base Capacity Resource Constraint for the PJM Region or an LDA, by first determining a reference annual loss of load expectation ("LOLE") assuming no Base Capacity Resources, including no Base Capacity Demand Resources or Base Capacity Energy Efficiency Resources. The calculation for the PJM

Region uses the weekly load distribution from the Installed Reserve Margin study for the Delivery Year in question (based on the most recent load forecast and iteratively shifting the load distributions to result in the Installed Reserve Margin established for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Installed Reserve Margin study for the Delivery Year in question). The calculation for each relevant LDA uses a weekly load distribution (based on the Installed Reserve Margin study and the most recent load forecast for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Installed Reserve Margin study for the Delivery Year in question). For the relevant LDA calculation, the weekly capacity distributions are adjusted to reflect the Capacity Emergency Transfer Limit for the Delivery Year in question. Additionally, for the PJM Region and relevant LDA calculation, the weekly capacity distributions are adjusted to reflect winter ratings.

For both the PJM Region and LDA analyses, PJM models the commitment of an amount of Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources equal to the Base Capacity Demand Resource Constraint (displacing otherwise committed generation). PJM then models the commitment of varying amounts of Base Capacity Resources (displacing otherwise committed generation) as unavailable during the peak week of winter and available the rest of the Delivery Year in question and calculates the LOLE at each Base Capacity Resource level. The Base Capacity Resource Constraint is the combined amount of Base Capacity Demand Resources, Base Capacity Energy Efficiency Resources and Base Capacity Resources, stated as a percentage of the unrestricted annual peak load, that produces no more than a ten percent increase in the LOLE, compared to the reference value. The Base Capacity Resource Constraint shall be expressed as a percentage of the forecasted peak load of the PJM Region or such LDA and is converted to Unforced Capacity by multiplying [the reliability target percentage] times [one minus the pool-wide average EFORd] times [the forecasted peak load of the PJM Region or such LDA, reduced by the amount of load served under the FRR Alternative].

Base Capacity Resource Price Decrement:

"Base Capacity Resource Price Decrement" shall mean, for the 2018/2019 and 2019/2020 Delivery Years, a difference between the clearing price for Base Capacity Resources and the clearing price for Capacity Performance Resources, representing the cost to procure additional Capacity Performance Resources out of merit order when the Base Capacity Resource Constraint is binding.

Base Day-ahead Scheduling Reserves Requirement:

"Base Day-ahead Scheduling Reserves Requirement" shall mean the thirty-minute reserve requirement for the PJM Region established consistent with the Applicable Standards, plus any additional thirty-minute reserves scheduled in response to an RTO-wide Hot or Cold Weather Alert or other reasons for conservative operations.

Base Load Generation Resource

"Base Load Generation Resource" shall mean a Generation Capacity Resource that operates at least 90 percent of the hours that it is available to operate, as determined by the Office of the Interconnection in accordance with the PJM Manuals.

Base Offer Segment:

"Base Offer Segment" shall mean a component of a Sell Offer based on an existing Generation Capacity Resource, equal to the Unforced Capacity of such resource, as determined in accordance with the PJM Manuals. If the Sell Offers of multiple Market Sellers are based on a single Existing Generation Capacity Resource, the Base Offer Segments of such Market Sellers shall be determined pro rata based on their entitlements to Unforced Capacity from such resource.

Base Residual Auction:

"Base Residual Auction" shall mean the auction conducted three years prior to the start of the Delivery Year to secure commitments from Capacity Resources as necessary to satisfy any portion of the Unforced Capacity Obligation of the PJM Region not satisfied through Self-Supply.

Batch Load Demand Resource:

"Batch Load Demand Resource" shall mean a Demand Resource that has a cyclical production process such that at most times during the process it is consuming energy, but at consistent regular intervals, ordinarily for periods of less than ten minutes, it reduces its consumption of energy for its production processes to minimal or zero megawatts.

Behind The Meter Generation:

"Behind The Meter Generation" shall refer to a generation unit that delivers energy to load without using the Transmission System or any distribution facilities (unless the entity that owns or leases the distribution facilities has consented to such use of the distribution facilities and such consent has been demonstrated to the satisfaction of the Office of the Interconnection); provided, however, that Behind The Meter Generation does not include (i) at any time, any portion of such generating unit's capacity that is designated as a Generation Capacity Resource; or (ii) in an hour, any portion of the output of such generating unit that is sold to another entity for consumption at another electrical location or into the PJM Interchange Energy Market.

Black Start Service:

"Black Start Service" shall mean the capability of generating units to start without an outside electrical supply or the demonstrated ability of a generating unit with a high operating factor (subject to Transmission Provider concurrence) to automatically remain operating at reduced levels when disconnected from the grid.

Border Yearly Charge:

"Border Yearly Charge" shall mean the yearly charge determined in accordance with Tariff, Schedule 7.

Breach:

"Breach" shall mean the failure of a party to perform or observe any material term or condition of Tariff, Part IV or Part VI, or any agreement entered into thereunder as described in the relevant provisions of such agreement.

Breaching Party:

"Breaching Party" shall mean a party that is in Breach of Tariff, Part IV or Part VI and/or an agreement entered into thereunder.

Business Day:

"Business Day" shall mean a day in which the Federal Reserve System is open for business and is not a scheduled PJM holiday.

Buy Bid:

"Buy Bid" shall mean a bid to buy Capacity Resources in any Incremental Auction.

Canadian Guaranty:

"Canadian Guaranty" shall mean a Corporate Guaranty provided by an Affiliate of a Participant that is domiciled in Canada, and meets all of the provisions of Tariff, Attachment Q.

Cancellation Costs:

"Cancellation Costs" shall mean costs and liabilities incurred in connection with: (a) cancellation of supplier and contractor written orders and agreements entered into to design, construct and install Attachment Facilities, Direct Assignment Facilities and/or Customer-Funded Upgrades, and/or (b) completion of some or all of the required Attachment Facilities, Direct Assignment Facilities and/or Customer-Funded Upgrades, or specific unfinished portions and/or removal of any or all of such facilities which have been installed, to the extent required for the Transmission Provider and/or Transmission Owner(s) to perform their respective obligations under Tariff, Part IV and/or Part VI.

Capacity:

"Capacity" shall mean the installed capacity requirement of the Reliability Assurance Agreement or similar such requirements as may be established.

Capacity Emergency Transfer Limit:

"Capacity Emergency Transfer Limit" or "CETL" shall have the meaning provided in the Reliability Assurance Agreement.

Capacity Emergency Transfer Objective:

"Capacity Emergency Transfer Objective" or "CETO" shall have the meaning provided in the Reliability Assurance Agreement.

Capacity Export Transmission Customer:

"Capacity Export Transmission Customer" shall mean a customer taking point to point transmission service under Tariff, Part II to export capacity from a generation resource located in the PJM Region that has qualified for an exception to the RPM must-offer requirement as described in Tariff, Attachment DD, section 6.6(g).

Capacity Import Limit:

"Capacity Import Limit" shall have the meaning provided in the Reliability Assurance Agreement.

Capacity Interconnection Rights:

"Capacity Interconnection Rights" shall mean the rights to input generation as a Generation Capacity Resource into the Transmission System at the Point of Interconnection where the generating facilities connect to the Transmission System.

Capacity Market Buyer:

"Capacity Market Buyer" shall mean a Member that submits bids to buy Capacity Resources in any Incremental Auction.

Capacity Market Seller:

"Capacity Market Seller" shall mean a Member that owns, or has the contractual authority to control the output or load reduction capability of, a Capacity Resource, that has not transferred such authority to another entity, and that offers such resource in the Base Residual Auction or an Incremental Auction.

Capacity Performance Resource:

"Capacity Performance Resource" shall mean a Capacity Resource as described in Tariff, Attachment DD, section 5.5A(a).

Capacity Performance Transition Incremental Auction:

"Capacity Performance Transition Incremental Auction" shall have the meaning specified in

Tariff, Attachment DD, section 5.14D.

Capacity Resource:

"Capacity Resource" shall have the meaning provided in the Reliability Assurance Agreement.

Capacity Resource Clearing Price:

"Capacity Resource Clearing Price" shall mean the price calculated for a Capacity Resource that offered and cleared in a Base Residual Auction or Incremental Auction, in accordance with Tariff, Attachment DD, section 5.

Capacity Storage Resource:

"Capacity Storage Resource" shall mean any Energy Storage Resource that participates in the Reliability Pricing Model or is otherwise treated as capacity in PJM's markets such as through a Fixed Resource Requirement Capacity Plan.

Capacity Transfer Right:

"Capacity Transfer Right" shall mean a right, allocated to LSEs serving load in a Locational Deliverability Area, to receive payments, based on the transmission import capability into such Locational Deliverability Area, that offset, in whole or in part, the charges attributable to the Locational Price Adder, if any, included in the Zonal Capacity Price calculated for a Locational Delivery Area.

Capacity Transmission Injection Rights:

"Capacity Transmission Injection Rights" shall mean the rights to schedule energy and capacity deliveries at a Point of Interconnection of a Merchant Transmission Facility with the Transmission System. Capacity Transmission Injection Rights may be awarded only to a Merchant D.C. Transmission Facility and/or Controllable A.C. Merchant Transmission Facilities that connects the Transmission System to another control area. Deliveries scheduled using Capacity Transmission Injection Rights have rights similar to those under Firm Point-to-Point Transmission Service or, if coupled with a generating unit external to the PJM Region that satisfies all applicable criteria specified in the PJM Manuals, similar to Capacity Interconnection Rights.

Cold/Warm/Hot Notification Time:

"Cold/Warm/Hot Notification Time" shall mean the time interval between PJM notification and the beginning of the start sequence for a generating unit that is currently in its cold/warm/hot temperature state. The start sequence may include steps such as any valve operation, starting feed water pumps, startup of auxiliary equipment, etc.

Cold/Warm/Hot Start-up Time:

For all generating units that are not combined cycle units, "Cold/Warm/Hot Start-up Time" shall mean the time interval, measured in hours, from the beginning of the start sequence to the point after generator breaker closure, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero for a generating unit in its cold/warm/hot temperature state. For combined cycle units, "Cold/Warm/Hot Start-up Time" shall mean the time interval from the beginning of the start sequence to the point after first combustion turbine generator breaker closure in its cold/warm/hot temperature state, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero. For all generating units, the start sequence may include steps such as any valve operation, starting feed water pumps, startup of auxiliary equipment, etc. Other more detailed actions that could signal the beginning of the start sequence could include, but are not limited to, the operation of pumps, condensers, fans, water chemistry evaluations, checklists, valves, fuel systems, combustion turbines, starting engines or systems, maintaining stable fuel/air ratios, and other auxiliary equipment necessary for startup.

Cold Weather Alert:

"Cold Weather Alert" shall mean the notice that PJM provides to PJM Members, Transmission Owners, resource owners and operators, customers, and regulators to prepare personnel and facilities for expected extreme cold weather conditions.

Collateral:

"Collateral" shall be a cash deposit, including any interest, or letter of credit in an amount and form determined by and acceptable to PJMSettlement, provided by a Participant to PJMSettlement as security in order to participate in the PJM Markets or take Transmission Service.

Collateral Call:

"Collateral Call" shall mean a notice to a Participant that additional Collateral, or possibly early payment, is required in order to remain in, or to regain, compliance with Tariff, Attachment Q.

Commencement Date:

"Commencement Date" shall mean the date on which Interconnection Service commences in accordance with an Interconnection Service Agreement.

Committed Offer:

The "Committed Offer" shall mean 1) for pool-scheduled resources, an offer on which a resource was scheduled by the Office of the Interconnection for a particular clock hour for an Operating Day, and 2) for self-scheduled resources, either the offer on which the Market Seller has elected to schedule the resource or the applicable offer for the resource determined pursuant to Operating Agreement, Schedule 1, section 6.4, or Operating Agreement, Schedule 1, section 6.6 for a

particular clock hour for an Operating Day.

Completed Application:

"Completed Application" shall mean an application that satisfies all of the information and other requirements of the Tariff, including any required deposit.

Compliance Aggregation Area (CAA):

"Compliance Aggregation Area" or "CAA" shall mean a geographic area of Zones or sub-Zones that are electrically-contiguous and experience for the relevant Delivery Year, based on Resource Clearing Prices of, for Delivery Years through May 31, 2018, Annual Resources and for the 2018/2019 Delivery Year and subsequent Delivery Years, Capacity Performance Resources, the same locational price separation in the Base Residual Auction, the same locational price separation in the First Incremental Auction, the same locational price separation in the Second Incremental Auction, or the same locational price separation in the Third Incremental Auction.

Conditional Incremental Auction:

"Conditional Incremental Auction" shall mean an Incremental Auction conducted for a Delivery Year if and when necessary to secure commitments of additional capacity to address reliability criteria violations arising from the delay in a Backbone Transmission upgrade that was modeled in the Base Residual Auction for such Delivery Year.

CONE Area:

"CONE Area" shall mean the areas listed in Tariff, Attachment DD, section 5.10(a)(iv)(A) and any LDAs established as CONE Areas pursuant to Tariff, Attachment DD, section 5.10(a)(iv)(B).

Confidential Information:

"Confidential Information" shall mean any confidential, proprietary, or trade secret information of a plan, specification, pattern, procedure, design, device, list, concept, policy, or compilation relating to the present or planned business of a New Service Customer, Transmission Owner, or other Interconnection Party or Construction Party, which is designated as confidential by the party supplying the information, whether conveyed verbally, electronically, in writing, through inspection, or otherwise, and shall include, without limitation, all information relating to the producing party's technology, research and development, business affairs and pricing, and any information supplied by any New Service Customer, Transmission Owner, or other Interconnection Party or Construction Party to another such party prior to the execution of an Interconnection Service Agreement or a Construction Service Agreement.

Congestion Price:

"Congestion Price" shall mean the congestion component of the Locational Marginal Price,

which is the effect on transmission congestion costs (whether positive or negative) associated with increasing the output of a generation resource or decreasing the consumption by a Demand Resource, based on the effect of increased generation from or consumption by the resource on transmission line loadings, calculated as specified in Operating Agreement, Schedule 1, section 2, and the parallel provisions of Tariff, Attachment K-Appendix.

Consolidated Transmission Owners Agreement, PJM Transmission Owners Agreement or Transmission Owners Agreement:

"Consolidated Transmission Owners Agreement," "PJM Transmission Owners Agreement" or "Transmission Owners Agreement" shall mean the certain Consolidated Transmission Owners Agreement dated as of December 15, 2005, by and among the Transmission Owners and by and between the Transmission Owners and PJM Interconnection, L.L.C. on file with the Commission, as amended from time to time.

Constraint Relaxation Logic:

"Constraint Relaxation Logic" shall mean the logic applied in the market clearing software where the transmission limit is increased to prevent the Transmission Constraint Penalty Factor from setting the Marginal Value of a transmission constraint.

Constructing Entity:

"Constructing Entity" shall mean either the Transmission Owner or the New Services Customer, depending on which entity has the construction responsibility pursuant to Tariff, Part VI and the applicable Construction Service Agreement; this term shall also be used to refer to an Interconnection Customer with respect to the construction of the Customer Interconnection Facilities.

Construction Party:

"Construction Party" shall mean a party to a Construction Service Agreement. "Construction Parties" shall mean all of the Parties to a Construction Service Agreement.

Construction Service Agreement:

"Construction Service Agreement" shall mean either an Interconnection Construction Service Agreement or an Upgrade Construction Service Agreement.

Control Area:

"Control Area" shall mean an electric power system or combination of electric power systems bounded by interconnection metering and telemetry to which a common automatic generation control scheme is applied in order to:

(1) match the power output of the generators within the electric power system(s) and

energy purchased from entities outside the electric power system(s), with the load within the electric power system(s);

(2) maintain scheduled interchange with other Control Areas, within the limits of Good Utility Practice;

(3) maintain the frequency of the electric power system(s) within reasonable limits in accordance with Good Utility Practice; and

(4) provide sufficient generating capacity to maintain operating reserves in accordance with Good Utility Practice.

Control Zone:

"Control Zone" shall have the meaning given in the Operating Agreement.

Controllable A.C. Merchant Transmission Facilities:

"Controllable A.C. Merchant Transmission Facilities" shall mean transmission facilities that (1) employ technology which Transmission Provider reviews and verifies will permit control of the amount and/or direction of power flow on such facilities to such extent as to effectively enable the controllable facilities to be operated as if they were direct current transmission facilities, and (2) that are interconnected with the Transmission System pursuant to Tariff, Part IV and Part VI.

Coordinated External Transaction:

"Coordinated External Transaction" shall mean a transaction to simultaneously purchase and sell energy on either side of a CTS Enabled Interface in accordance with the procedures of Operating Agreement, Schedule 1, section 1.13, and the parallel provisions of Tariff, Attachment K-Appendix.

Coordinated Transaction Scheduling:

"Coordinated Transaction Scheduling" or "CTS" shall mean the scheduling of Coordinated External Transactions at a CTS Enabled Interface in accordance with the procedures of Operating Agreement, Schedule 1, section 1.13, and the parallel provisions of Tariff, Attachment K-Appendix.

Corporate Guaranty:

"Corporate Guaranty" shall mean a legal document used by an entity to guaranty the obligations of another entity.

Cost of New Entry:

"Cost of New Entry" or "CONE" shall mean the nominal levelized cost of a Reference Resource,

as determined in accordance with Tariff, Attachment DD, section 5.

Costs:

As used in Tariff, Part IV, Part VI and related attachments, "Costs" shall mean costs and expenses, as estimated or calculated, as applicable, including, but not limited to, capital expenditures, if applicable, and overhead, return, and the costs of financing and taxes and any Incidental Expenses.

Counterparty:

"Counterparty" shall mean PJMSettlement as the contracting party, in its name and own right and not as an agent, to an agreement or transaction with a Market Participant or other entities, including the agreements and transactions with customers regarding transmission service and other transactions under the PJM Tariff and the Operating Agreement. PJMSettlement shall not be a counterparty to (i) any bilateral transactions between Members, or (ii) any Member's self-supply of energy to serve its load, or (iii) any Member's self-schedule of energy reported to the Office of the Interconnection to the extent that energy serves that Member's own load.

Credit Available for Export Transactions:

"Credit Available for Export Transactions" shall mean a designation of credit to be used for Export Transactions that is allocated by each Market Participant from its Credit Available for Virtual Transactions, and which reduces the Market Participant's Credit Available for Virtual Transactions accordingly.

Credit Available for Virtual Transactions:

"Credit Available for Virtual Transactions" shall mean the Market Participant's Working Credit Limit for Virtual Transactions calculated on its credit provided in compliance with its Peak Market Activity requirement plus available credit submitted above that amount, less any unpaid billed and unbilled amounts owed to PJMSettlement, plus any unpaid unbilled amounts owed by PJMSettlement to the Market Participant, less any applicable credit required for Minimum Participation Requirements, FTRs, RPM activity, or other credit requirement determinants as defined in Tariff, Attachment Q.

Credit Breach:

"Credit Breach" shall mean the status of a Participant that does not currently meet the requirements of Tariff, Attachment Q or other provisions of the Agreements.

Credit-Limited Offer:

"Credit-Limited Offer" shall mean a Sell Offer that is submitted by a Market Participant in an RPM Auction subject to a maximum credit requirement specified by such Market Participant.

Credit Score:

"Credit Score" shall mean a composite numerical score scaled from 0-100 as calculated by PJMSettlement that incorporates various predictors of creditworthiness.

CTS Enabled Interface:

"CTS Enabled Interface" shall mean an interface between the PJM Control Area and an adjacent Control Area at which the Office of the Interconnection has authorized the use of Coordinated Transaction Scheduling ("CTS"). The CTS Enabled Interfaces between the PJM Control Area and the New York Independent System Operator, Inc. Control Area shall be designated in Schedule A to the Joint Operating Agreement Among and Between New York Independent System Operator Inc. and PJM Interconnection, L.L.C. (PJM Rate Schedule FERC No. 45). The CTS Enabled Interfaces between the PJM Control Area and the Midcontinent Independent System Operator, Inc. shall be designated consistent with Attachment 3, section 2 of the Joint Operating Agreement between Midcontinent Independent System Operator, Inc. and PJM Interconnection, L.L.C.

CTS Interface Bid:

"CTS Interface Bid" shall mean a unified real-time bid to simultaneously purchase and sell energy on either side of a CTS Enabled Interface in accordance with the procedures of Operating Agreement, Schedule 1, section 1.13, and the parallel provisions of Tariff, Attachment K-Appendix.

Curtailment:

"Curtailment" shall mean a reduction in firm or non-firm transmission service in response to a transfer capability shortage as a result of system reliability conditions.

Curtailment Service Provider:

"Curtailment Service Provider" or "CSP" shall mean a Member or a Special Member, which action on behalf of itself or one or more other Members or non-Members, participates in the PJM Interchange Energy Market, Ancillary Services markets, and/or Reliability Pricing Model by causing a reduction in demand.

Customer Facility:

"Customer Facility" shall mean generation facilities or Merchant Transmission Facilities interconnected with or added to the Transmission System pursuant to an Interconnection Request under Subpart A of Tariff, Part IV.

Customer-Funded Upgrade:

"Customer-Funded Upgrade" shall mean any Network Upgrade, Local Upgrade, or Merchant

Network Upgrade for which cost responsibility (i) is imposed on an Interconnection Customer or an Eligible Customer pursuant to Tariff, Part VI, section 217, or (ii) is voluntarily undertaken by a New Service Customer in fulfillment of an Upgrade Request. No Network Upgrade, Local Upgrade or Merchant Network Upgrade or other transmission expansion or enhancement shall be a Customer-Funded Upgrade if and to the extent that the costs thereof are included in the rate base of a public utility on which a regulated return is earned.

Customer Interconnection Facilities:

"Customer Interconnection Facilities" shall mean all facilities and equipment owned and/or controlled, operated and maintained by Interconnection Customer on Interconnection Customer's side of the Point of Interconnection identified in the appropriate appendices to the Interconnection Service Agreement and to the Interconnection Construction Service Agreement, including any modifications, additions, or upgrades made to such facilities and equipment, that are necessary to physically and electrically interconnect the Customer Facility with the Transmission System.

Daily Deficiency Rate:

"Daily Deficiency Rate" shall mean the rate employed to assess certain deficiency charges under Tariff, Attachment DD, section 7, Tariff, Attachment DD, section 8, Tariff, Attachment DD, section 9, or Tariff, Attachment DD, section 13.

Daily Unforced Capacity Obligation:

"Daily Unforced Capacity Obligation" shall mean the capacity obligation of a Load Serving Entity during the Delivery Year, determined in accordance with Reliability Assurance Agreement, Schedule 8, or, as to an FRR entity, in Reliability Assurance Agreement, Schedule 8.1.

Day-ahead Congestion Price:

"Day-ahead Congestion Price" shall mean the Congestion Price resulting from the Day-ahead Energy Market.

Day-ahead Energy Market:

"Day-ahead Energy Market" shall mean the schedule of commitments for the purchase or sale of energy and payment of Transmission Congestion Charges developed by the Office of the Interconnection as a result of the offers and specifications submitted in accordance with Operating Agreement, Schedule 1, section 1.10 and the parallel provisions of Tariff, Attachment K-Appendix.

Day-ahead Energy Market Injection Congestion Credits:

"Day-ahead Energy Market Injection Congestion Credits" shall mean those congestion credits

paid to Market Participants for supply transactions in the Day-ahead Energy Market including generation schedules, Increment Offers, Up-to Congestion Transactions, import transactions, and Day-Ahead Pseudo-Tie Transactions.

Day-ahead Energy Market Transmission Congestion Charges:

"Day-ahead Energy Market Transmission Congestion Charges" shall be equal to the sum of Day-ahead Energy Market Withdrawal Congestion Charges minus [the sum of Day-ahead Energy Market Injection Congestion Credits plus any congestion charges calculated pursuant to the Joint Operating Agreement between the Midcontinent Independent Transmission System Operator, Inc. and PJM Interconnection, L.L.C. (PJM Rate Schedule FERC No. 38), plus any congestion charges calculated pursuant to the Joint Operating Agreement Among and Between New York Independent System Operator Inc. and PJM Interconnection, L.L.C. (PJM Rate Schedule FERC No. 45), plus any congestion charges calculated pursuant to agreements between the Office of the Interconnection and other entities, as applicable)].

Day-ahead Energy Market Withdrawal Congestion Charges:

"Day-ahead Energy Market Withdrawal Congestion Charges" shall mean those congestion charges collected from Market Participants for withdrawal transactions in the Day-ahead Energy Market from transactions including Demand Bids, Decrement Bids, Up-to Congestion Transactions, Export Transactions, and Day-Ahead Pseudo-Tie Transactions.

Day-ahead Loss Price:

"Day-ahead Loss Price" shall mean the Loss Price resulting from the Day-ahead Energy Market.

Day-ahead Prices:

"Day-ahead Prices" shall mean the Locational Marginal Prices resulting from the Day-ahead Energy Market.

Day-Ahead Pseudo-Tie Transaction:

"Day-Ahead Pseudo-Tie Transaction" shall mean a transaction scheduled in the Day-ahead Energy Market to the PJM-MISO interface from a generator within the PJM balancing authority area that Pseudo-Ties into the MISO balancing authority area.

Day-ahead Scheduling Reserves:

"Day-ahead Scheduling Reserves" shall mean thirty-minute reserves as defined by the Reliability*First* Corporation and SERC.

Day-ahead Scheduling Reserves Market:

"Day-ahead Scheduling Reserves Market" shall mean the schedule of commitments for the

purchase or sale of Day-ahead Scheduling Reserves developed by the Office of the Interconnection as a result of the offers and specifications submitted in accordance with Operating Agreement, Schedule 1, section 1.10 and the parallel provisions of Tariff, Attachment K-Appendix.

Day-ahead Scheduling Reserves Requirement:

"Day-ahead Scheduling Reserves Requirement" shall mean the sum of Base Day-ahead Scheduling Reserves Requirement and Additional Day-ahead Scheduling Reserves Requirement.

Day-ahead Scheduling Reserves Resources:

"Day-ahead Scheduling Reserves Resources" shall mean synchronized and non-synchronized generation resources and Demand Resources electrically located within the PJM Region that are capable of providing Day-ahead Scheduling Reserves.

Day-ahead Settlement Interval:

"Day-ahead Settlement Interval" shall mean the interval used by settlements, which shall be every one clock hour.

Day-ahead System Energy Price:

"Day-ahead System Energy Price" shall mean the System Energy Price resulting from the Day-ahead Energy Market.

Deactivation:

"Deactivation" shall mean the retirement or mothballing of a generating unit governed by Tariff, Part V.

Deactivation Avoidable Cost Credit:

"Deactivation Avoidable Cost Credit" shall mean the credit paid to Generation Owners pursuant to Tariff, Part V, section 114.

Deactivation Avoidable Cost Rate:

"Deactivation Avoidable Cost Rate" shall mean the formula rate established pursuant to Tariff, Part V, section 115 of this Tariff.

Deactivation Date:

"Deactivation Date" shall mean the date a generating unit within the PJM Region is either retired or mothballed and ceases to operate.

Decrement Bid:

"Decrement Bid" shall mean a type of Virtual Transaction that is a bid to purchase energy at a specified location in the Day-ahead Energy Market. A cleared Decrement Bid results in scheduled load at the specified location in the Day-ahead Energy Market.

Default:

As used in the Interconnection Service Agreement and Construction Service Agreement, "Default" shall mean the failure of a Breaching Party to cure its Breach in accordance with the applicable provisions of an Interconnection Service Agreement or Construction Service Agreement.

Delivering Party:

"Delivering Party" shall mean the entity supplying capacity and energy to be transmitted at Point(s) of Receipt.

Delivery Year:

"Delivery Year" shall mean the Planning Period for which a Capacity Resource is committed pursuant to the auction procedures specified in Tariff, Attachment DD, or pursuant to an FRR Capacity Plan under Reliability Assurance Agreement, Schedule 8.1.

Demand Bid:

"Demand Bid" shall mean a bid, submitted by a Load Serving Entity in the Day-ahead Energy Market, to purchase energy at its contracted load location, for a specified timeframe and megawatt quantity, that if cleared will result in energy being scheduled at the specified location in the Day-ahead Energy Market and in the physical transfer of energy during the relevant Operating Day.

Demand Bid Limit:

"Demand Bid Limit" shall mean the largest MW volume of Demand Bids that may be submitted by a Load Serving Entity for any hour of an Operating Day, as determined pursuant to Operating Agreement, Schedule 1, section 1.10.1B, and the parallel provisions of Tariff, Attachment K-Appendix.

Demand Bid Screening:

"Demand Bid Screening" shall mean the process by which Demand Bids are reviewed against the applicable Demand Bid Limit, and rejected if they would exceed that limit, as determined pursuant to Operating Agreement, Schedule 1, section 1.10.1B, and the parallel provisions of Tariff, Attachment K-Appendix.

Demand Resource:

"Demand Resource" shall mean a resource with the capability to provide a reduction in demand.

Demand Resource Factor or DR Factor:

"Demand Resource Factor" or ("DR Factor") shall have the meaning specified in the Reliability Assurance Agreement.

Designated Agent:

"Designated Agent" shall mean any entity that performs actions or functions on behalf of the Transmission Provider, a Transmission Owner, an Eligible Customer, or the Transmission Customer required under the Tariff.

Designated Entity:

"Designated Entity" shall have the same meaning provided in the Operating Agreement.

Direct Assignment Facilities:

"Direct Assignment Facilities" shall mean facilities or portions of facilities that are constructed for the sole use/benefit of a particular Transmission Customer requesting service under the Tariff. Direct Assignment Facilities shall be specified in the Service Agreement that governs service to the Transmission Customer and shall be subject to Commission approval.

Direct Charging Energy:

"Direct Charging Energy" shall mean the energy that an Energy Storage Resource purchases from the PJM Interchange Energy Market and (i) later resells to the PJM Interchange Energy Market; or (ii) is lost to conversion inefficiencies, provided that such inefficiencies are an unavoidable component of the conversion, storage, and discharge process that is used to resell energy back to the PJM Interchange Energy Market.

Direct Load Control:

"Direct Load Control" shall mean load reduction that is controlled directly by the Curtailment Service Provider's market operations center or its agent, in response to PJM instructions.

Dispatch Rate:

"Dispatch Rate" shall mean the control signal, expressed in dollars per megawatt-hour, calculated and transmitted continuously and dynamically to direct the output level of all generation resources dispatched by the Office of the Interconnection in accordance with the Offer Data.

Dispatched Charging Energy:

"Dispatched Charging Energy" shall mean Direct Charging Energy that an Energy Storage Resource Model Participant receives from the electric grid pursuant to PJM dispatch while providing a service in the PJM markets.

Dynamic Schedule:

"Dynamic Schedule" shall have the same meaning provided in the Operating Agreement.

Dynamic Transfer:

"Dynamic Transfer" shall have the same meaning provided in the Operating Agreement.

Economic-based Enhancement or Expansion:

"Economic-based Enhancement or Expansion" shall have the same meaning provided in the Operating Agreement.

Economic Load Response Participant:

"Economic Load Response Participant" shall mean a Member or Special Member that qualifies under Operating Agreement, Schedule 1, section 1.5A, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.5A, to participate in the PJM Interchange Energy Market and/or Ancillary Services markets through reductions in demand.

Economic Maximum:

"Economic Maximum" shall mean the highest incremental MW output level, submitted to PJM market systems by a Market Participant, that a unit can achieve while following economic dispatch.

Economic Minimum:

"Economic Minimum" shall mean the lowest incremental MW output level, submitted to PJM market systems by a Market Participant, that a unit can achieve while following economic dispatch.

Effective FTR Holder:

"Effective FTR Holder" shall mean:

(i) For an FTR Holder that is either a (a) privately held company, or (b) a municipality or electric cooperative, as defined in the Federal Power Act, such FTR Holder, together with any Affiliate, subsidiary or parent of the FTR Holder, any other entity that is under common ownership, wholly or partly, directly or indirectly, or has the ability to influence, directly or

indirectly, the management or policies of the FTR Holder; or

(ii) For an FTR Holder that is a publicly traded company including a wholly owned subsidiary of a publicly traded company, such FTR Holder, together with any Affiliate, subsidiary or parent of the FTR Holder, any other PJM Member has over 10% common ownership with the FTR Holder, wholly or partly, directly or indirectly, or has the ability to influence, directly or indirectly, the management or policies of the FTR Holder; or

(iii) an FTR Holder together with any other PJM Member, including also any Affiliate, subsidiary or parent of such other PJM Member, with which it shares common ownership, wholly or partly, directly or indirectly, in any third entity which is a PJM Member (e.g., a joint venture).

EFORd:

"EFORd" shall have the meaning specified in the PJM Reliability Assurance Agreement.

Electrical Distance:

"Electrical Distance" shall mean, for a Generation Capacity Resource geographically located outside the metered boundaries of the PJM Region, the measure of distance, based on impedance and in accordance with the PJM Manuals, from the Generation Capacity Resource to the PJM Region.

Eligible Customer:

"Eligible Customer" shall mean:

(i) Any electric utility (including any Transmission Owner and any power marketer), Federal power marketing agency, or any person generating electric energy for sale for resale is an Eligible Customer under the Tariff. Electric energy sold or produced by such entity may be electric energy produced in the United States, Canada or Mexico. However, with respect to transmission service that the Commission is prohibited from ordering by Section 212(h) of the Federal Power Act, such entity is eligible only if the service is provided pursuant to a state requirement that the Transmission Provider or Transmission Owner offer the unbundled transmission service, or pursuant to a voluntary offer of such service by a Transmission Owner.

(ii) Any retail customer taking unbundled transmission service pursuant to a state requirement that the Transmission Provider or a Transmission Owner offer the transmission service, or pursuant to a voluntary offer of such service by a Transmission Owner, is an Eligible Customer under the Tariff. As used in Tariff, Part VI, Eligible Customer shall mean only those Eligible Customers that have submitted a Completed Application.

Emergency Action:

"Emergency Action" shall mean any emergency action for locational or system-wide capacity shortages that either utilizes pre-emergency mandatory load management reductions or other emergency capacity, or initiates a more severe action including, but not limited to, a Voltage Reduction Warning, Voltage Reduction Action, Manual Load Dump Warning, or Manual Load Dump Action.

Emergency Condition:

"Emergency Condition" shall mean a condition or situation (i) that in the judgment of any Interconnection Party is imminently likely to endanger life or property; or (ii) that in the judgment of the Interconnected Transmission Owner or Transmission Provider is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Transmission System, the Interconnection Facilities, or the transmission systems or distribution systems to which the Transmission System is directly or indirectly connected; or (iii) that in the judgment of Interconnection Customer is imminently likely (as determined in a non-discriminatory manner) to cause damage to the Customer Facility or to the Customer Interconnection Facilities. System restoration and black start shall be considered Emergency Conditions, provided that a Generation Interconnection Customer is not obligated by an Interconnection Service Agreement to possess black start capability. Any condition or situation that results from lack of sufficient generating capacity to meet load requirements or that results solely from economic conditions shall not constitute an Emergency Condition, unless one or more of the enumerated conditions or situations identified in this definition also exists.

Emergency Load Response Program:

"Emergency Load Response Program" shall mean the program by which Curtailment Service Providers may be compensated by PJM for Demand Resources that will reduce load when dispatched by PJM during emergency conditions, and is described in Operating Agreement, Schedule 1, section 8 and the parallel provisions of Tariff, Attachment K-Appendix, section 8.

Energy Efficiency Resource:
"Energy Efficiency Resource" shall have the meaning specified in the PJM Reliability Assurance Agreement.

Energy Market Opportunity Cost:

"Energy Market Opportunity Cost" shall mean the difference between (a) the forecasted cost to operate a specific generating unit when the unit only has a limited number of available run hours due to limitations imposed on the unit by Applicable Laws and Regulations, and (b) the forecasted future Locational Marginal Price at which the generating unit could run while not violating such limitations. Energy Market Opportunity Cost therefore is the value associated with a specific generating unit's lost opportunity to produce energy during a higher valued period of time occurring within the same compliance period, which compliance period is determined by the applicable regulatory authority and is reflected in the rules set forth in PJM Manual 15. Energy Market Opportunity Costs shall be limited to those resources which are specifically delineated in Operating Agreement, Schedule 2.

Energy Resource:

"Energy Resource" shall mean a generating facility that is not a Capacity Resource.

Energy Settlement Area:

"Energy Settlement Area" shall mean the bus or distribution of busses that represents the physical location of Network Load and by which the obligations of the Network Customer to PJM are settled.

Energy Storage Resource:

"Energy Storage Resource" shall mean a resource capable of receiving electric energy from the grid and storing it for later injection to the grid that participates in the PJM Energy, Capacity and/or Ancillary Services markets as a Market Participant.

Energy Storage Resource Model Participant:

"Energy Storage Resource Model Participant" shall mean an Energy Storage Resource utilizing the Energy Storage Resource Participation Model.

Energy Storage Resource Participation Model:

"Energy Storage Resource Participation Model" shall mean the participation model accepted by the Commission in Docket No. ER19-XXX-000.

Energy Transmission Injection Rights:

"Energy Transmission Injection Rights" shall mean the rights to schedule energy deliveries at a specified point on the Transmission System. Energy Transmission Injection Rights may be awarded only to a Merchant D.C. Transmission Facility that connects the Transmission System to another control area. Deliveries scheduled using Energy Transmission Injection Rights have rights similar to those under Non-Firm Point-to-Point Transmission Service.

Environmental Laws:

"Environmental Laws" shall mean applicable Laws or Regulations relating to pollution or protection of the environment, natural resources or human health and safety.

Environmentally-Limited Resource:

"Environmentally-Limited Resource" shall mean a resource which has a limit on its run hours imposed by a federal, state, or other governmental agency that will significantly limit its availability, on either a temporary or long-term basis. This includes a resource that is limited by a governmental authority to operating only during declared PJM capacity emergencies.

Equivalent Load:

"Equivalent Load" shall mean the sum of a Market Participant's net system requirements to serve its customer load in the PJM Region, if any, plus its net bilateral transactions.

Existing Generation Capacity Resource:

"Existing Generation Capacity Resource" shall have the meaning specified in the Reliability Assurance Agreement.

Export Credit Exposure:

"Export Credit Exposure" is determined for each Market Participant for a given Operating Day, and shall mean the sum of credit exposures for the Market Participant's Export Transactions for that Operating Day and for the preceding Operating Day.

Export Nodal Reference Price:

"Export Nodal Reference Price" at each location is the 97th percentile, shall be, the real-time hourly integrated price experienced over the corresponding two-month period in the preceding calendar year, calculated separately for peak and off-peak time periods. The two-month time periods used in this calculation shall be January and February, March and April, May and June, July and August, September and October, and November and December.

Export Transaction:

"Export Transaction" shall be a transaction by a Market Participant that results in the transfer of energy from within the PJM Control Area to outside the PJM Control Area. Coordinated External Transactions that result in the transfer of energy from the PJM Control Area to an adjacent Control Area are one form of Export Transaction.

Export Transaction Price Factor:

"Export Transaction Price Factor" for a prospective time interval shall be the greater of (i) PJM's forecast price for the time interval, if available, or (ii) the Export Nodal Reference Price, but shall not exceed the Export Transaction's dispatch ceiling price cap, if any, for that time interval. The Export Transaction Price Factor for a past time interval shall be calculated in the same manner as for a prospective time interval, except that the Export Transaction Price Factor may use a tentative or final settlement price, as available. If an Export Nodal Reference Price is not available for a particular time interval, PJM may use an Export Transaction Price Factor for that time interval based on an appropriate alternate reference price.

Export Transaction Screening:

"Export Transaction Screening" shall be the process PJM uses to review the Export Credit

Exposure of Export Transactions against the Credit Available for Export Transactions, and deny or curtail all or a portion of an Export Transaction, if the credit required for such transactions is greater than the credit available for the transactions.

Export Transactions Net Activity:

"Export Transactions Net Activity" shall mean the aggregate net total, resulting from Export Transactions, of (i) Spot Market Energy charges, (ii) Transmission Congestion Charges, and (iii) Transmission Loss Charges, calculated as set forth in Operating Agreement, Schedule 1 and the parallel provisions of Tariff, Attachment K-Appendix. Export Transactions Net Activity may be positive or negative.

Extended Primary Reserve Requirement:

"Extended Primary Reserve Requirement" shall equal the Primary Reserve Requirement in a Reserve Zone or Reserve Sub-zone, plus 190 MW, plus any additional reserves scheduled under emergency conditions necessary to address operational uncertainty. The Extended Primary Reserve Requirement is calculated in accordance with the PJM Manuals.

Extended Summer Demand Resource:

"Extended Summer Demand Resource" shall have the meaning specified in the Reliability Assurance Agreement.

Extended Summer Resource Price Adder:

"Extended Summer Resource Price Adder" shall mean, for Delivery Years through May 31, 2018, an addition to the marginal value of Unforced Capacity as necessary to reflect the price of Annual Resources and Extended Summer Demand Resources required to meet the applicable Minimum Extended Summer Resource Requirement.

Extended Synchronized Reserve Requirement:

"Extended Synchronized Reserve Requirement" shall equal the Synchronized Reserve Requirement in a Reserve Zone or Reserve Sub-zone, plus 190 MW, plus any additional reserves scheduled under emergency conditions necessary to address operational uncertainty. The Extended Synchronized Reserve Requirement is calculated in accordance with the PJM Manuals.

External Market Buyer:

"External Market Buyer" shall mean a Market Buyer making purchases of energy from the PJM Interchange Energy Market for consumption by end-users outside the PJM Region, or for load in the PJM Region that is not served by Network Transmission Service.

External Resource:

"External Resource" shall mean a generation resource located outside the metered boundaries of the PJM Region.

Facilities Study:

"Facilities Study" shall be an engineering study conducted by the Transmission Provider (in coordination with the affected Transmission Owner(s)) to: (1) determine the required modifications to the Transmission Provider's Transmission System necessary to implement the conclusions of the System Impact Study; and (2) complete any additional studies or analyses documented in the System Impact Study or required by PJM Manuals, and determine the required modifications to the Transmission Provider's Transmission System based on the conclusions of such additional studies. The Facilities Study shall include the cost and scheduled completion date for such modifications, that will be required to provide the requested transmission service or to accommodate a New Service Request. As used in the Interconnection Service Agreement or Construction Service Agreement, Facilities Study shall mean that certain Facilities Study conducted by Transmission Provider (or at its direction) to determine the design and specification of the Customer Funded Upgrades necessary to accommodate the New Service Customer's New Service Request in accordance with Tariff, Part VI, section 207.

Federal Power Act:

"Federal Power Act" shall mean the Federal Power Act, as amended, 16 U.S.C. §§ 791a, et seq.

FERC or Commission:

"FERC" or "Commission" shall mean the Federal Energy Regulatory Commission or any successor federal agency, commission or department exercising jurisdiction over the Tariff, Operating Agreement and Reliability Assurance Agreement.

FERC Market Rules:

"FERC Market Rules" mean the market behavior rules and the prohibition against electric energy market manipulation codified by the Commission in its Rules and Regulations at 18 CFR §§ 1c.2 and 35.37, respectively; the Commission-approved PJM Market Rules and any related proscriptions or any successor rules that the Commission from time to time may issue, approve or otherwise establish.

Final Offer:

"Final Offer" shall mean the offer on which a resource was dispatched by the Office of the Interconnection for a particular clock hour for the Operating Day.

Final RTO Unforced Capacity Obligation:

"Final RTO Unforced Capacity Obligation" shall mean the capacity obligation for the PJM Region, determined in accordance with RAA, Schedule 8.

Financial Close:

"Financial Close" shall mean the Capacity Market Seller has demonstrated that the Capacity Market Seller or its agent has completed the act of executing the material contracts and/or other documents necessary to (1) authorize construction of the project and (2) establish the necessary funding for the project under the control of an independent third-party entity. A sworn, notarized certification of an independent engineer certifying to such facts, and that the engineer has personal knowledge of, or has engaged in a diligent inquiry to determine, such facts, shall be sufficient to make such demonstration. For resources that do not have external financing, Financial Close shall mean the project has full funding available, and that the project has been duly authorized to proceed with full construction of the material portions of the project by the appropriate governing body of the company funding such project. A sworn, notarized certification by an officer of such company certifying to such facts, and that the officer has personal knowledge of, or has engaged in a diligent inquiry to determine, such facts, shall be sufficient to make such demonstration.

Financial Transmission Right:

"Financial Transmission Right" or "FTR" shall mean a right to receive Transmission Congestion Credits as specified in Operating Agreement, Schedule 1, section 5.2.2 and the parallel provisions of Tariff, Attachment K-Appendix, section 5.2.2.

Financial Transmission Right Obligation:

"Financial Transmission Right Obligation" shall mean a right to receive Transmission Congestion Credits as specified in Operating Agreement, Schedule 1, section 5.2.2(b), and the parallel provisions of Tariff, Attachment K-Appendix, section 5.2.2(b).

Financial Transmission Right Option:

"Financial Transmission Right Option" shall mean a right to receive Transmission Congestion Credits as specified in Operating Agreement, Schedule 1, section 5.2.2(c), and the parallel provisions of Tariff, Attachment K-Appendix, section 5.2.2(c).

Flexible Resource:

"Flexible Resource" shall mean a generating resource that must have a combined Start-up Time and Notification Time of less than or equal to two hours; and a Minimum Run Time of less than or equal to two hours.

Firm Point-To-Point Transmission Service:

"Firm Point-To-Point Transmission Service" shall mean Transmission Service under the Tariff that is reserved and/or scheduled between specified Points of Receipt and Delivery pursuant to Tariff, Part II.

Firm Transmission Feasibility Study:

"Firm Transmission Feasibility Study" shall mean a study conducted by the Transmission Provider in accordance with Tariff, Part II, section 19.3 and Tariff, Part III, section 32.3.

Firm Transmission Withdrawal Rights:

"Firm Transmission Withdrawal Rights" shall mean the rights to schedule energy and capacity withdrawals from a Point of Interconnection of a Merchant Transmission Facility with the Transmission System. Firm Transmission Withdrawal Rights may be awarded only to a Merchant D.C. Transmission Facility that connects the Transmission System with another control area. Withdrawals scheduled using Firm Transmission Withdrawal Rights have rights similar to those under Firm Point-to-Point Transmission Service.

First Incremental Auction:

"First Incremental Auction" shall mean an Incremental Auction conducted 20 months prior to the start of the Delivery Year to which it relates.

Forecast Pool Requirement:

"Forecast Pool Requirement" shall have the meaning specified in the Reliability Assurance Agreement.

Foreign Guaranty:

"Foreign Guaranty" shall mean a Corporate Guaranty provided by an Affiliate of a Participant that is domiciled in a foreign country, and meets all of the provisions of Tariff, Attachment Q.

Form 715 Planning Criteria:

"Form 715 Planning Criteria" shall have the same meaning provided in the Operating Agreement.

FTR Credit Limit:

"FTR Credit Limit" shall mean the amount of credit established with PJMSettlement that an FTR Participant has specifically designated to be used for FTR activity in a specific customer account. Any such credit so set aside shall not be considered available to satisfy any other credit requirement the FTR Participant may have with PJMSettlement.

FTR Credit Requirement:

"FTR Credit Requirement" shall mean the amount of credit that a Participant must provide in order to support the FTR positions that it holds and/or for which it is bidding. The FTR Credit

Requirement shall not include months for which the invoicing has already been completed, provided that PJMSettlement shall have up to two Business Days following the date of the invoice completion to make such adjustments in its credit systems. FTR Credit Requirements are calculated and applied separately for each separate customer account.

FTR Flow Undiversified:

"FTR Flow Undiversified" shall have the meaning established in Tariff, Attachment Q, section V.G.

FTR Historical Value:

For each FTR for each month, "FTR Historical Value" shall mean the weighted average of historical values over three years for the FTR path using the following weightings: 50% - most recent year; 30% - second year; 20% - third year.

FTR Holder:

"FTR Holder" shall mean the PJM Member that has acquired and possesses an FTR.

FTR Monthly Credit Requirement Contribution:

For each FTR, for each month, "FTR Monthly Credit Requirement Contribution" shall mean the total FTR cost for the month, prorated on a daily basis, less the FTR Historical Value for the month. For cleared FTRs, this contribution may be negative; prior to clearing, FTRs with negative contribution shall be deemed to have zero contribution.

FTR Net Activity:

"FTR Net Activity" shall mean the aggregate net value of the billing line items for auction revenue rights credits, FTR auction charges, FTR auction credits, and FTR congestion credits, and shall also include day-ahead and balancing/real-time congestion charges up to a maximum net value of the sum of the foregoing auction revenue rights credits, FTR auction charges, FTR auction credits and FTR congestion credits.

FTR Participant:

"FTR Participant" shall mean any Market Participant that provides or is required to provide Collateral in order to participate in PJM's FTR auctions.

FTR Portfolio Auction Value:

"FTR Portfolio Auction Value" shall mean for each customer account of a Market Participant, the sum, calculated on a monthly basis, across all FTRs, of the FTR price times the FTR volume in MW.

Fuel Cost Policy:

"Fuel Cost Policy" shall mean the document provided by a Market Seller to PJM and the Market Monitoring Unit in accordance with PJM Manual 15 and Operating Agreement, Schedule 2, which documents the Market Seller's method used to price fuel for calculation of the Market Seller's cost-based offer(s) for a generation resource.

Full Notice to Proceed:

"Full Notice to Proceed" shall mean that all material third party contractors have been given the notice to proceed with construction by the Capacity Market Seller or its agent, with a guaranteed completion date backed by liquidated damages.

Generating Market Buyer:

"Generating Market Buyer" shall mean an Internal Market Buyer that is a Load Serving Entity that owns or has contractual rights to the output of generation resources capable of serving the Market Buyer's load in the PJM Region, or of selling energy or related services in the PJM Interchange Energy Market or elsewhere.

Generation Capacity Resource:

"Generation Capacity Resource" shall have the meaning specified in the Reliability Assurance Agreement.

Generation Interconnection Customer:

"Generation Interconnection Customer" shall mean an entity that submits an Interconnection Request to interconnect a new generation facility or to increase the capacity of an existing generation facility interconnected with the Transmission System in the PJM Region.

Generation Interconnection Facilities Study:

"Generation Interconnection Facilities Study" shall mean a Facilities Study related to a Generation Interconnection Request.

Generation Interconnection Feasibility Study:

"Generation Interconnection Feasibility Study" shall mean a study conducted by the Transmission Provider (in coordination with the affected Transmission Owner(s)) in accordance with Tariff, Part IV, section 36.2.

Generation Interconnection Request:

"Generation Interconnection Request" shall mean a request by a Generation Interconnection

Customer pursuant to Tariff, Part IV, subpart A, to interconnect a generating unit with the Transmission System or to increase the capacity of a generating unit interconnected with the Transmission System in the PJM Region.

Generation Owner:

"Generation Owner" shall mean a Member that owns, leases with rights equivalent to ownership, or otherwise controls and operates one or more operating generation resources located in the PJM Region. The foregoing notwithstanding, for a planned generation resource to qualify a Member as a Generation Owner, such resource shall have cleared an RPM auction, and for Energy Resources, the resource shall have a FERC-jurisdictional interconnection agreement or wholesale market participation agreement within PJM. Purchasing all or a portion of the output of a generation resource shall not be sufficient to qualify a Member as a Generation Owner. For purposes of Members Committee sector classification, a Member that is primarily a retail end-user of electricity that owns generation may qualify as a Generation Owner if: (1) the generation resource is the subject of a FERC-jurisdictional interconnection agreement or wholesale market participation agreement within PJM; (2) the average physical unforced capacity owned by the Member and its affiliates over the five Planning Periods immediately preceding the relevant Planning Period exceeds the average PJM capacity obligation of the Member and its affiliates over the same time period; and (3) the average energy produced by the Member and its affiliates within PJM over the five Planning Periods immediately preceding the relevant Planning Period exceeds the average energy consumed by the Member and its affiliates within PJM over the same time period.

Generation Resource Maximum Output:

"Generation Resource Maximum Output" shall mean, for Customer Facilities identified in an Interconnection Service Agreement or Wholesale Market Participation Agreement, the Generation Resource Maximum Output for a generating unit shall equal the unit's pro rata share of the Maximum Facility Output, determined by the Economic Maximum values for the available units at the Customer Facility. For generating units not identified in an Interconnection Service Agreement or Wholesale Market Participation Agreement, the Generation Resource Maximum Output shall equal the generating unit's Economic Maximum.

Generator Forced Outage:

"Generator Forced Outage" shall mean an immediate reduction in output or capacity or removal from service, in whole or in part, of a generating unit by reason of an Emergency or threatened Emergency, unanticipated failure, or other cause beyond the control of the owner or operator of the facility, as specified in the relevant portions of the PJM Manuals. A reduction in output or removal from service of a generating unit in response to changes in market conditions shall not constitute a Generator Forced Outage.

Generator Maintenance Outage:

"Generator Maintenance Outage" shall mean the scheduled removal from service, in whole or in

part, of a generating unit in order to perform necessary repairs on specific components of the facility, if removal of the facility meets the guidelines specified in the PJM Manuals.

Generator Planned Outage:

"Generator Planned Outage" shall mean the scheduled removal from service, in whole or in part, of a generating unit for inspection, maintenance or repair with the approval of the Office of the Interconnection in accordance with the PJM Manuals.

Good Utility Practice:

"Good Utility Practice" shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather is intended to include acceptable practices, methods, or acts generally accepted in the region; including those practices required by Federal Power Act Section 215(a)(4).

Governmental Authority:

"Governmental Authority" shall mean any federal, state, local or other governmental, regulatory or administrative agency, court, commission, department, board, or other governmental subdivision, legislature, rulemaking board, tribunal, arbitrating body, or other governmental authority having jurisdiction over any Interconnection Party or Construction Party or regarding any matter relating to an Interconnection Service Agreement or Construction Service Agreement, as applicable.

Hazardous Substances:

"Hazardous Substance" shall mean any chemicals, materials or substances defined as or included in the definition of "hazardous substances," "hazardous wastes," "hazardous materials," "hazardous constituents," "restricted hazardous materials," "extremely hazardous substances," "toxic substances," "radioactive substances," "contaminants," "pollutants," "toxic pollutants" or words of similar meaning and regulatory effect under any applicable Environmental Law, or any other chemical, material or substance, exposure to which is prohibited, limited or regulated by any applicable Environmental Law.

Hot Weather Alert:

"Hot Weather Alert" shall mean the notice provided by PJM to PJM Members, Transmission Owners, resource owners and operators, customers, and regulators to prepare personnel and facilities for extreme hot and/or humid weather conditions which may cause capacity

requirements and/or unit unavailability to be substantially higher than forecast are expected to persist for an extended period.

IDR Transfer Agreement:

"IDR Transfer Agreement" shall mean an agreement to transfer, subject to the terms of Tariff, Part VI, section 237, Incremental Deliverability Rights to a party for the purpose of eliminating or reducing the need for Local or Network Upgrades that would otherwise have been the responsibility of the party receiving such rights.

Immediate-need Reliability Project:

"Immediate-need Reliability Project" shall have the same meaning provided in the Operating Agreement.

Inadvertent Interchange:

"Inadvertent Interchange" shall mean the difference between net actual energy flow and net scheduled energy flow into or out of the individual Control Areas operated by PJM.

Incidental Expenses:

"Incidental Expenses" shall mean those expenses incidental to the performance of construction pursuant to an Interconnection Construction Service Agreement, including, but not limited to, the expense of temporary construction power, telecommunications charges, Interconnected Transmission Owner expenses associated with, but not limited to, document preparation, design review, installation, monitoring, and construction-related operations and maintenance for the Customer Facility and for the Interconnection Facilities.

Incremental Auction:

"Incremental Auction" shall mean any of several auctions conducted for a Delivery Year after the Base Residual Auction for such Delivery Year and before the first day of such Delivery Year, including the First Incremental Auction, Second Incremental Auction, Third Incremental Auction or Conditional Incremental Auction. Incremental Auctions (other than the Conditional Incremental Auction), shall be held for the purposes of:

(i) allowing Market Sellers that committed Capacity Resources in the Base Residual Auction for a Delivery Year, which subsequently are determined to be unavailable to deliver the committed Unforced Capacity in such Delivery Year (due to resource retirement, resource cancellation or construction delay, resource derating, EFORd increase, a decrease in the Nominated Demand Resource Value of a Planned Demand Resource, delay or cancellation of a Qualifying Transmission Upgrade, or similar occurrences) to submit Buy Bids for replacement Capacity Resources; and

(ii) allowing the Office of the Interconnection to reduce or increase the amount of

committed capacity secured in prior auctions for such Delivery Year if, as a result of changed circumstances or expectations since the prior auction(s), there is, respectively, a significant excess or significant deficit of committed capacity for such Delivery Year, for the PJM Region or for an LDA.

Incremental Auction Revenue Rights:

"Incremental Auction Revenue Rights" shall mean the additional Auction Revenue Rights, not previously feasible, created by the addition of Incremental Rights-Eligible Required Transmission Enhancements, Merchant Transmission Facilities, or of one or more Customer-Funded Upgrades.

Incremental Available Transfer Capability Revenue Rights:

"Incremental Available Transfer Capability Revenue Rights" shall mean the rights to revenues that are derived from incremental Available Transfer Capability created by the addition of Merchant Transmission Facilities or of one of more Customer-Funded Upgrades.

Incremental Capacity Transfer Right:

"Incremental Capacity Transfer Right" shall mean a Capacity Transfer Right allocated to a Generation Interconnection Customer or Transmission Interconnection Customer obligated to fund a transmission facility or upgrade, to the extent such upgrade or facility increases the transmission import capability into a Locational Deliverability Area, or a Capacity Transfer Right allocated to a Responsible Customer in accordance with Tariff, Schedule 12A.

Incremental Deliverability Rights (IDRs):

"Incremental Deliverability Rights" or "IDRs" shall mean the rights to the incremental ability, resulting from the addition of Merchant Transmission Facilities, to inject energy and capacity at a point on the Transmission System, such that the injection satisfies the deliverability requirements of a Capacity Resource. Incremental Deliverability Rights may be obtained by a generator or a Generation Interconnection Customer, pursuant to an IDR Transfer Agreement, to satisfy, in part, the deliverability requirements necessary to obtain Capacity Interconnection Rights.

Incremental Multi-Driver Project:

"Incremental Multi-Driver Project" shall have the same meaning provided in the Operating Agreement.

Incremental Rights-Eligible Required Transmission Enhancements:

"Incremental Rights-Eligible Required Transmission Enhancements" shall mean Regional Facilities and Necessary Lower Voltage Facilities or Lower Voltage Facilities (as defined in Tariff, Schedule 12) and meet one of the following criteria: (1) cost responsibility is assigned to

non-contiguous Zones that are not directly electrically connected; or (2) cost responsibility is assigned to Merchant Transmission Providers that are Responsible Customers.

Increment Offer:

"Increment Offer" shall mean a type of Virtual Transaction that is an offer to sell energy at a specified location in the Day-ahead Energy Market. A cleared Increment Offer results in scheduled generation at the specified location in the Day-ahead Energy Market.

Incremental Energy Offer:

"Incremental Energy Offer" shall mean offer segments comprised of a pairing of price (in dollars per MWh) and megawatt quantities, which must be a non-decreasing function and taken together produce all of the energy segments above a resource's Economic Minimum. No-load Costs are not included in the Incremental Energy Offer.

Initial Operation:

"Initial Operation" shall mean the commencement of operation of the Customer Facility and Customer Interconnection Facilities after satisfaction of the conditions of Tariff, Attachment O-Appendix 2, section 1.4 (an Interconnection Service Agreement).

Interconnected Entity:

"Interconnected Entity" shall mean either the Interconnection Customer or the Interconnected Transmission Owner; Interconnected Entities shall mean both of them.

Interconnected Transmission Owner:

"Interconnected Transmission Owner" shall mean the Transmission Owner to whose transmission facilities or distribution facilities Customer Interconnection Facilities are, or as the case may be, a Customer Facility is, being directly connected. When used in an Interconnection Construction Service Agreement, the term may refer to a Transmission Owner whose facilities must be upgraded pursuant to the Facilities Study, but whose facilities are not directly interconnected with those of the Interconnection Customer.

Interconnection Construction Service Agreement:

"Interconnection Construction Service Agreement" shall mean the agreement entered into by an Interconnection Customer, Interconnected Transmission Owner and the Transmission Provider pursuant to Tariff, Part VI, Subpart B and in the form set forth in Tariff, Attachment P, relating to construction of Attachment Facilities, Network Upgrades, and/or Local Upgrades and coordination of the construction and interconnection of an associated Customer Facility. A separate Interconnection Construction Service Agreement will be executed with each Transmission Owner that is responsible for construction of any Attachment Facilities, Network Upgrades, or Local Upgrades associated with interconnection of a Customer Facility.

Interconnection Customer:

"Interconnection Customer" shall mean a Generation Interconnection Customer and/or a Transmission Interconnection Customer.

Interconnection Facilities:

"Interconnection Facilities" shall mean the Transmission Owner Interconnection Facilities and the Customer Interconnection Facilities.

Interconnection Feasibility Study:

"Interconnection Feasibility Study" shall mean either a Generation Interconnection Feasibility Study or Transmission Interconnection Feasibility Study.

Interconnection Party:

"Interconnection Party" shall mean a Transmission Provider, Interconnection Customer, or the Interconnected Transmission Owner. Interconnection Parties shall mean all of them.

Interconnection Request:

"Interconnection Request" shall mean a Generation Interconnection Request, a Transmission Interconnection Request and/or an IDR Transfer Agreement.

Interconnection Service:

"Interconnection Service" shall mean the physical and electrical interconnection of the Customer Facility with the Transmission System pursuant to the terms of Tariff, Part IV and Tariff, Part VI and the Interconnection Service Agreement entered into pursuant thereto by Interconnection Customer, the Interconnected Transmission Owner and Transmission Provider.

Interconnection Service Agreement:

"Interconnection Service Agreement" shall mean an agreement among the Transmission Provider, an Interconnection Customer and an Interconnected Transmission Owner regarding interconnection under Tariff, Part IV and Tariff, Part VI.

Interconnection Studies:

"Interconnection Studies" shall mean the Interconnection Feasibility Study, the System Impact Study, and the Facilities Study described in Tariff, Part IV and Tariff, Part VI.

Interface Pricing Point:

"Interface Pricing Point" shall have the meaning specified in Operating Agreement, Schedule 1, section 2.6A, and the parallel provisions of Tariff, Attachment K-Appendix.

Intermittent Resource:

"Intermittent Resource" shall mean a Generation Capacity Resource with output that can vary as a function of its energy source, such as wind, solar, run of river hydroelectric power and other renewable resources.

Internal Market Buyer:

"Internal Market Buyer" shall mean a Market Buyer making purchases of energy from the PJM Interchange Energy Market for ultimate consumption by end-users inside the PJM Region that are served by Network Transmission Service.

Interregional Transmission Project:

"Interregional Transmission Project" shall mean transmission facilities that would be located within two or more neighboring transmission planning regions and are determined by each of those regions to be a more efficient or cost effective solution to regional transmission needs.

Interruption:

"Interruption" shall mean a reduction in non-firm transmission service due to economic reasons pursuant to Tariff, Part II, section 14.7.

Limited Demand Resource:

"Limited Demand Resource**"** shall have the meaning specified in the Reliability Assurance Agreement.

Limited Demand Resource Reliability Target:

"Limited Demand Resource Reliability Target**"** for the PJM Region or an LDA, shall mean the maximum amount of Limited Demand Resources determined by PJM to be consistent with the maintenance of reliability, stated in Unforced Capacity that shall be used to calculate the Minimum Extended Summer Demand Resource Requirement for Delivery Years through May 31, 2017 and the Limited Resource Constraint for the 2017/2018 and 2018/2019 Delivery Years for the PJM Region or such LDA. As more fully set forth in the PJM Manuals, PJM calculates the Limited Demand Resource Reliability Target by first: i) testing the effects of the ten-interruption requirement by comparing possible loads on peak days under a range of weather conditions (from the daily load forecast distributions for the Delivery Year in question) against possible generation capacity on such days under a range of conditions (using the cumulative capacity distributions employed in the Installed Reserve Margin study for the PJM Region and in the Capacity Emergency Transfer Objective study for the relevant LDAs for such Delivery Year) and, by varying the assumed amounts of DR that is committed and displaces committed

generation, determines the DR penetration level at which there is a ninety percent probability that DR will not be called (based on the applicable operating reserve margin for the PJM Region and for the relevant LDAs) more than ten times over those peak days; ii) testing the six-hour duration requirement by calculating the MW difference between the highest hourly unrestricted peak load and seventh highest hourly unrestricted peak load on certain high peak load days (e.g., the annual peak, loads above the weather normalized peak, or days where load management was called) in recent years, then dividing those loads by the forecast peak for those years and averaging the result; and (iii) (for the 2016/2017 and 2017/2018 Delivery Years) testing the effects of the six-hour duration requirement by comparing possible hourly loads on peak days under a range of weather conditions (from the daily load forecast distributions for the Delivery Year in question) against possible generation capacity on such days under a range of conditions (using a Monte Carlo model of hourly capacity levels that is consistent with the capacity model employed in the Installed Reserve Margin study for the PJM Region and in the Capacity Emergency Transfer Objective study for the relevant LDAs for such Delivery Year) and, by varying the assumed amounts of DR that is committed and displaces committed generation, determines the DR penetration level at which there is a ninety percent probability that DR will not be called (based on the applicable operating reserve margin for the PJM Region and for the relevant LDAs) for more than six hours over any one or more of the tested peak days. Second, PJM adopts the lowest result from these three tests as the Limited Demand Resource Reliability Target. The Limited Demand Resource Reliability Target shall be expressed as a percentage of the forecasted peak load of the PJM Region or such LDA and is converted to Unforced Capacity by multiplying [the reliability target percentage] times [the Forecast Pool Requirement] times [the DR Factor] times [the forecasted peak load of the PJM Region or such LDA, reduced by the amount of load served under the FRR Alternative].

Limited Resource Constraint:

"Limited Resource Constraint" shall mean, for the 2017/2018 Delivery Year and for FRR Capacity Plans the 2017/2018 and Delivery Years, for the PJM Region or each LDA for which the Office of the Interconnection is required under Tariff, Attachment DD, section 5.10(a) to establish a separate VRR Curve for a Delivery Year, a limit on the total amount of Unforced Capacity that can be committed as Limited Demand Resources for the 2017/2018 Delivery Year in the PJM Region or in such LDA, calculated as the Limited Demand Resource Reliability Target for the PJM Region or such LDA, respectively, minus the Short Term Resource Procurement Target for the PJM Region or such LDA, respectively.

Limited Resource Price Decrement:
"Limited Resource Price Decrement" shall mean, for the 2017/2018 Delivery Year, a difference between the clearing price for Limited Demand Resources and the clearing price for Extended Summer Demand Resources and Annual Resources, representing the cost to procure additional Extended Summer Demand Resources or Annual Resources out of merit order when the Limited Resource Constraint is binding.

List of Approved Contractors:

"List of Approved Contractors" shall mean a list developed by each Transmission Owner and

published in a PJM Manual of (a) contractors that the Transmission Owner considers to be qualified to install or construct new facilities and/or upgrades or modifications to existing facilities on the Transmission Owner's system, provided that such contractors may include, but need not be limited to, contractors that, in addition to providing construction services, also provide design and/or other construction-related services, and (b) manufacturers or vendors of major transmission-related equipment (e.g., high-voltage transformers, transmission line, circuit breakers) whose products the Transmission Owner considers acceptable for installation and use on its system.

Load Management:

"Load Management" shall mean a Demand Resource ("DR") as defined in the Reliability Assurance Agreement.

Load Management Event:

"Load Management Event" shall mean a) a single temporally contiguous dispatch of Demand Resources in a Compliance Aggregation Area during an Operating Day, or b) multiple dispatches of Demand Resources in a Compliance Aggregation Area during an Operating Day that are temporally contiguous.

Load Ratio Share:

"Load Ratio Share" shall mean the ratio of a Transmission Customer's Network Load to the Transmission Provider's total load.

Load Reduction Event:

"Load Reduction Event" shall mean a reduction in demand by a Member or Special Member for the purpose of participating in the PJM Interchange Energy Market.

Load Serving Charging Energy:

"Load Serving Charging Energy" shall mean energy that is purchased from the PJM Interchange Energy Market and stored in an Energy Storage Resource for later resale to end-use load.

Load Serving Entity (LSE):

"Load Serving Entity" or "LSE" shall have the meaning specified in the Reliability Assurance Agreement.

Load Shedding:

"Load Shedding" shall mean the systematic reduction of system demand by temporarily decreasing load in response to transmission system or area capacity shortages, system instability, or voltage control considerations under Tariff, Part II or Part III.

Local Upgrades:

"Local Upgrades" shall mean modifications or additions of facilities to abate any local thermal loading, voltage, short circuit, stability or similar engineering problem caused by the interconnection and delivery of generation to the Transmission System. Local Upgrades shall include:

(i) Direct Connection Local Upgrades which are Local Upgrades that only serve the Customer Interconnection Facility and have no impact or potential impact on the Transmission System until the final tie-in is complete; and

(ii) Non-Direct Connection Local Upgrades which are parallel flow Local Upgrades that are not Direct Connection Local Upgrades.

Location:

"Location" as used in the Economic Load Response rules shall mean an end-use customer site as defined by the relevant electric distribution company account number.

Locational Deliverability Area (LDA):

"Locational Deliverability Area" or "LDA" shall mean a geographic area within the PJM Region that has limited transmission capability to import capacity to satisfy such area's reliability requirement, as determined by the Office of the Interconnection in connection with preparation of the Regional Transmission Expansion Plan, and as specified in Reliability Assurance Agreement, Schedule 10.1.

Locational Deliverability Area Reliability Requirement:

"Locational Deliverability Area Reliability Requirement" shall mean the projected internal capacity in the Locational Deliverability Area plus the Capacity Emergency Transfer Objective for the Delivery Year, as determined by the Office of the Interconnection in connection with preparation of the Regional Transmission Expansion Plan, less the minimum internal resources required for all FRR Entities in such Locational Deliverability Area.

Locational Price Adder:

"Locational Price Adder" shall mean an addition to the marginal value of Unforced Capacity within an LDA as necessary to reflect the price of Capacity Resources required to relieve applicable binding locational constraints.

Locational Reliability Charge:

"Locational Reliability Charge" shall have the meaning specified in the Reliability Assurance Agreement.

Locational UCAP:

"Locational UCAP" shall mean unforced capacity that a Member with available uncommitted capacity sells in a bilateral transaction to a Member that previously committed capacity through an RPM Auction but now requires replacement capacity to fulfill its RPM Auction commitment. The Locational UCAP Seller retains responsibility for performance of the resource providing such replacement capacity.

Locational UCAP Seller:

"Locational UCAP Seller" shall mean a Member that sells Locational UCAP.

LOC Deviation:

"LOC Deviation," shall mean, for units other than wind units, the LOC Deviation shall equal the desired megawatt amount for the resource determined according to the point on the Final Offer curve corresponding to the Real-time Settlement Interval real-time Locational Marginal Price at the resource's bus and adjusted for any Regulation or Tier 2 Synchronized Reserve assignments and limited to the lesser of the unit's Economic Maximum or the unit's Generation Resource Maximum Output, minus the actual output of the unit. For wind units, the LOC Deviation shall mean the deviation of the generating unit's output equal to the lesser of the PJM forecasted output for the unit or the desired megawatt amount for the resource determined according to the point on the Final Offer curve corresponding to the Real-time Settlement Interval real-time Locational Marginal Price at the resource's bus, and shall be limited to the lesser of the unit's Economic Maximum or the unit's Generation Resource Maximum Output, minus the actual output of the unit.

Long-lead Project:

"Long-lead Project" shall have the same meaning provided in the Operating Agreement.

Long-Term Firm Point-To-Point Transmission Service:

"Long-Term Firm Point-To-Point Transmission Service" shall mean firm Point-To-Point Transmission Service under Tariff, Part II with a term of one year or more.

Loss Price:

"Loss Price" shall mean the loss component of the Locational Marginal Price, which is the effect on transmission loss costs (whether positive or negative) associated with increasing the output of a generation resource or decreasing the consumption by a Demand Resource based on the effect of increased generation from or consumption by the resource on transmission losses, calculated as specified in Operating Agreement, Schedule 1, section 2, and the parallel provisions of Tariff, Attachment K-Appendix, section 2.

M2M Flowgate:

"M2M Flowgate" shall have the meaning provided in the Joint Operating Agreement between the Midcontinent Independent Transmission System Operator, Inc. and PJM Interconnection, L.L.C.

Maintenance Adder:

"Maintenance Adder" shall mean an adder that may be included to account for variable operation and maintenance expenses in a Market Seller's Fuel Cost Policy. The Maintenance Adder is calculated in accordance with the applicable provisions of PJM Manual 15, and may only include expenses incurred as a result of electric production.

Manual Load Dump Action:

"Manual Load Dump Action" shall mean an Operating Instruction, as defined by NERC, from PJM to shed firm load when the PJM Region cannot provide adequate capacity to meet the PJM Region's load and tie schedules, or to alleviate critically overloaded transmission lines or other equipment.

Manual Load Dump Warning:

"Manual Load Dump Warning" shall mean a notification from PJM to warn Members of an increasingly critical condition of present operations that may require manually shedding load.

Marginal Value:

"Marginal Value" shall mean the incremental change in system dispatch costs, measured as a $/MW value incurred by providing one additional MW of relief to the transmission constraint.

Mark-to-Auction Value:

"Mark-to-Auction Value" shall mean the net increase (or decrease) in value of a portfolio of FTRs, as further described in Tariff, Attachment Q, section IV.C.9.

Market Monitor:

"Market Monitor**"** means the head of the Market Monitoring Unit.

Market Monitoring Unit or MMU:

"Market Monitoring Unit" or "MMU" means the independent Market Monitoring Unit defined in 18 CFR § 35.28(a)(7) and established under the PJM Market Monitoring Plan (Attachment M) to the PJM Tariff that is responsible for implementing the Market Monitoring Plan, including the Market Monitor. The Market Monitoring Unit may also be referred to as the IMM or Independent Market Monitor for PJM

Market Monitoring Unit Advisory Committee or MMU Advisory Committee:

"Market Monitoring Unit Advisory Committee" or "MMU Advisory Committee" shall mean the committee established under Tariff, Attachment M, section III.H.

Market Operations Center:

"Market Operations Center" shall mean the equipment, facilities and personnel used by or on behalf of a Market Participant to communicate and coordinate with the Office of the Interconnection in connection with transactions in the PJM Interchange Energy Market or the operation of the PJM Region.

Market Participant:

"Market Participant" shall mean a Market Buyer, a Market Seller, an Economic Load Response Participant, or all three, except when such term is used in Tariff, Attachment M, in which case Market Participant shall mean an entity that generates, transmits, distributes, purchases, or sells electricity, ancillary services, or any other product or service provided under the PJM Tariff or Operating Agreement within, into, out of, or through the PJM Region, but it shall not include an Authorized Government Agency that consumes energy for its own use but does not purchase or sell energy at wholesale.

Market Participant Energy Injection:

"Market Participant Energy Injection" shall mean transactions in the Day-ahead Energy Market and Real-time Energy Market, including but not limited to Day-ahead generation schedules, real-time generation output, Increment Offers, internal bilateral transactions and import transactions, as further described in the PJM Manuals.

Market Participant Energy Withdrawal:

"Market Participant Energy Withdrawal" shall mean transactions in the Day-ahead Energy Market and Real-time Energy Market, including but not limited to Demand Bids, Decrement Bids, real-time load (net of Behind The Meter Generation expected to be operating, but not to be less than zero), internal bilateral transactions and Export Transactions, as further described in the PJM Manuals.

Market Seller Offer Cap:

"Market Seller Offer Cap" shall mean a maximum offer price applicable to certain Market Sellers under certain conditions, as determined in accordance with Tariff, Attachment DD. section 6 and Tariff, Attachment M-Appendix, section II.E.

Market Violation:

"Market Violation" shall mean a tariff violation, violation of a Commission-approved order, rule or regulation, market manipulation, or inappropriate dispatch that creates substantial concerns regarding unnecessary market inefficiencies, as defined in 18 C.F.R. § 35.28(b)(8).

Material Modification:

"Material Modification" shall mean any modification to an Interconnection Request that has a material adverse effect on the cost or timing of Interconnection Studies related to, or any Network Upgrades or Local Upgrades needed to accommodate, any Interconnection Request with a later Queue Position.

Maximum Daily Starts:

"Maximum Daily Starts" shall mean the maximum number of times that a generating unit can be started in an Operating Day under normal operating conditions.

Maximum Emergency:

"Maximum Emergency" shall mean the designation of all or part of the output of a generating unit for which the designated output levels may require extraordinary procedures and therefore are available to the Office of the Interconnection only when the Office of the Interconnection declares a Maximum Generation Emergency and requests generation designated as Maximum Emergency to run. The Office of the Interconnection shall post on the PJM website the aggregate amount of megawatts that are classified as Maximum Emergency.

Maximum Facility Output:

"Maximum Facility Output" shall mean the maximum (not nominal) net electrical power output in megawatts, specified in the Interconnection Service Agreement, after supply of any parasitic or host facility loads, that a Generation Interconnection Customer's Customer Facility is expected to produce, provided that the specified Maximum Facility Output shall not exceed the output of the proposed Customer Facility that Transmission Provider utilized in the System Impact Study.

Maximum Generation Emergency:

"Maximum Generation Emergency" shall mean an Emergency declared by the Office of the Interconnection to address either a generation or transmission emergency in which the Office of the Interconnection anticipates requesting one or more Generation Capacity Resources, or Non-Retail Behind The Meter Generation resources to operate at its maximum net or gross electrical power output, subject to the equipment stress limits for such Generation Capacity Resource or Non-Retail Behind The Meter resource in order to manage, alleviate, or end the Emergency.

Maximum Generation Emergency Alert:

"Maximum Generation Emergency Alert" shall mean an alert issued by the Office of the

Interconnection to notify PJM Members, Transmission Owners, resource owners and operators, customers, and regulators that a Maximum Generation Emergency may be declared, for any Operating Day in either, as applicable, the Day-ahead Energy Market or the Real-time Energy Market, for all or any part of such Operating Day.

Maximum Run Time:

"Maximum Run Time" shall mean the maximum number of hours a generating unit can run over the course of an Operating Day, as measured by PJM's State Estimator.

Maximum Weekly Starts:

"Maximum Weekly Starts" shall mean the maximum number of times that a generating unit can be started in one week, defined as the 168 hour period starting Monday 0001 hour, under normal operating conditions.

Member:

"Member" shall have the meaning provided in the Operating Agreement.

Merchant A.C. Transmission Facilities:

"Merchant A.C. Transmission Facility" shall mean Merchant Transmission Facilities that are alternating current (A.C.) transmission facilities, other than those that are Controllable A.C. Merchant Transmission Facilities.

Merchant D.C. Transmission Facilities:

"Merchant D.C. Transmission Facilities" shall mean direct current (D.C.) transmission facilities that are interconnected with the Transmission System pursuant to Tariff, Part IV and Part VI.

Merchant Network Upgrades:

"Merchant Network Upgrades" shall mean additions to, or modifications or replacements of, physical facilities of the Interconnected Transmission Owner that, on the date of the pertinent Transmission Interconnection Customer's Upgrade Request, are part of the Transmission System or are included in the Regional Transmission Expansion Plan.

Merchant Transmission Facilities:

"Merchant Transmission Facilities" shall mean A.C. or D.C. transmission facilities that are interconnected with or added to the Transmission System pursuant to Tariff, Part IV and Part VI and that are so identified in Tariff, Attachment T, provided, however, that Merchant Transmission Facilities shall not include (i) any Customer Interconnection Facilities, (ii) any physical facilities of the Transmission System that were in existence on or before March 20, 2003 ; (iii) any expansions or enhancements of the Transmission System that are not identified as

Merchant Transmission Facilities in the Regional Transmission Expansion Plan and Attachment T to the Tariff, or (iv) any transmission facilities that are included in the rate base of a public utility and on which a regulated return is earned.

Merchant Transmission Provider:

"Merchant Transmission Provider" shall mean an Interconnection Customer that (1) owns, controls, or controls the rights to use the transmission capability of, Merchant D.C. Transmission Facilities and/or Controllable A.C. Merchant Transmission Facilities that connect the Transmission System with another control area, (2) has elected to receive Transmission Injection Rights and Transmission Withdrawal Rights associated with such facility pursuant to Tariff, Part IV, section 36, and (3) makes (or will make) the transmission capability of such facilities available for use by third parties under terms and conditions approved by the Commission and stated in the Tariff, consistent with Tariff, section 38.

Metering Equipment:

"Metering Equipment" shall mean all metering equipment installed at the metering points designated in the appropriate appendix to an Interconnection Service Agreement.

Minimum Annual Resource Requirement:

"Minimum Annual Resource Requirement" shall mean, for Delivery Years through May 31, 2017, the minimum amount of capacity that PJM will seek to procure from Annual Resources for the PJM Region and for each Locational Deliverability Area for which the Office of the Interconnection is required under Tariff, Attachment DD, section 5.10(a) to establish a separate VRR Curve for such Delivery Year. For the PJM Region, the Minimum Annual Resource Requirement shall be equal to the RTO Reliability Requirement minus [the Sub-Annual Resource Reliability Target for the RTO in Unforced Capacity]. For an LDA, the Minimum Annual Resource Requirement shall be equal to the LDA Reliability Requirement minus [the LDA CETL] minus [the Sub-Annual Resource Reliability Target for such LDA in Unforced Capacity]. The LDA CETL may be adjusted pro rata for the amount of load served under the FRR Alternative.

Minimum Down Time:

For all generating units that are not combined cycle units, "Minimum Down Time" shall mean the minimum number of hours under normal operating conditions between unit shutdown and unit startup, calculated as the shortest time difference between the unit's generator breaker opening and after the unit's generator breaker closure, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero. For combined cycle units, "Minimum Down Time" shall mean the minimum number of hours between the last generator breaker opening and after first combustion turbine generator breaker closure, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero.

Minimum Extended Summer Resource Requirement:

"Minimum Extended Summer Resource Requirement" shall mean, for Delivery Years through May 31, 2017, the minimum amount of capacity that PJM will seek to procure from Extended Summer Demand Resources and Annual Resources for the PJM Region and for each Locational Deliverability Area for which the Office of the Interconnection is required under Tariff, Attachment DD, section 5.10(a) to establish a separate VRR Curve for such Delivery Year. For the PJM Region, the Minimum Extended Summer Resource Requirement shall be equal to the RTO Reliability Requirement minus [the Limited Demand Resource Reliability Target for the PJM Region in Unforced Capacity]. For an LDA, the Minimum Extended Summer Resource Requirement shall be equal to the LDA Reliability Requirement minus [the LDA CETL] minus [the Limited Demand Resource Reliability Target for such LDA in Unforced Capacity]. The LDA CETL may be adjusted pro rata for the amount of load served under the FRR Alternative.

Minimum Generation Emergency:

"Minimum Generation Emergency" shall mean an Emergency declared by the Office of the Interconnection in which the Office of the Interconnection anticipates requesting one or more generating resources to operate at or below Normal Minimum Generation, in order to manage, alleviate, or end the Emergency.

Minimum Participation Requirements:

"Minimum Participation Requirements" shall mean a set of minimum training, risk management, communication and capital or collateral requirements required for Participants in the PJM Markets, as set forth herein and in the Form of Annual Certification set forth as Tariff, Attachment Q, Appendix 1. Participants transacting in FTRs in certain circumstances will be required to demonstrate additional risk management procedures and controls as further set forth in the Annual Certification found in Tariff, Attachment Q, Appendix 1.

Minimum Run Time:

For all generating units that are not combined cycle units, "Minimum Run Time" shall mean the minimum number of hours a unit must run, in real-time operations, from the time after generator breaker closure, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero, to the time of generator breaker opening, as measured by PJM's State Estimator. For combined cycle units, "Minimum Run Time" shall mean the time period after the first combustion turbine generator breaker closure, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero, and the last generator breaker opening as measured by PJM's State Estimator.

MISO:

"MISO" shall mean the Midcontinent Independent System Operator, Inc. or any successor thereto.

MTA Collateral Call:

"MTA Collateral Call" shall mean a demand for additional Collateral issued due to a credit shortfall arising from a Mark-to-Auction Value change. The requirements and remedies for an MTA Collateral Call may be different from the requirements and remedies for a Collateral Call.

Multi-Driver Project:

"Multi-Driver Project" shall have the same meaning provided in the Operating Agreement.

Native Load Customers:

"Native Load Customers" shall mean the wholesale and retail power customers of a Transmission Owner on whose behalf the Transmission Owner, by statute, franchise, regulatory requirement, or contract, has undertaken an obligation to construct and operate the Transmission Owner's system to meet the reliable electric needs of such customers.

NERC:

"NERC" shall mean the North American Electric Reliability Corporation or any successor thereto.

NERC Interchange Distribution Calculator:

"NERC Interchange Distribution Calculator" shall mean the NERC mechanism that is in effect and being used to calculate the distribution of energy, over specific transmission interfaces, from energy transactions.

Net Benefits Test:

"Net Benefits Test" shall mean a calculation to determine whether the benefits of a reduction in price resulting from the dispatch of Economic Load Response exceeds the cost to other loads resulting from the billing unit effects of the load reduction, as specified in Operating Agreement, Schedule 1, section 3.3A.4 and the parallel provisions of Tariff, Attachment K-Appendix, section 3.3A.4.

Net Cost of New Entry:

"Net Cost of New Entry" shall mean the Cost of New Entry minus the Net Energy and Ancillary Service Revenue Offset.

Net Obligation:

"Net Obligation" shall mean the amount owed to PJMSettlement and PJM for purchases from the PJM Markets, Transmission Service, (under Tariff, Parts II and III , and other services pursuant to the Agreements, after applying a deduction for amounts owed to a Participant by PJMSettlement as it pertains to monthly market activity and services. Should other markets be

formed such that Participants may incur future Obligations in those markets, then the aggregate amount of those Obligations will also be added to the Net Obligation.

Net Sell Position:

"Net Sell Position" shall mean the amount of Net Obligation when Net Obligation is negative.

Network Customer:

"Network Customer" shall mean an entity receiving transmission service pursuant to the terms of the Transmission Provider's Network Integration Transmission Service under Tariff, Part III.

Network External Designated Transmission Service:

"Network External Designated Transmission Service" shall have the meaning set forth in Reliability Assurance Agreement, Article I.

Network Integration Transmission Service:

"Network Integration Transmission Service" shall mean the transmission service provided under Tariff, Part III.

Network Load:

"Network Load" shall mean the load that a Network Customer designates for Network Integration Transmission Service under Tariff, Part III. The Network Customer's Network Load shall include all load (including losses, Non-Dispatched Charging Energy, and Load Serving Charging Energy) served by the output of any Network Resources designated by the Network Customer. A Network Customer may elect to designate less than its total load as Network Load but may not designate only part of the load at a discrete Point of Delivery. Where an Eligible Customer has elected not to designate a particular load at discrete points of delivery as Network Load, the Eligible Customer is responsible for making separate arrangements under Tariff, Part II for any Point-To-Point Transmission Service that may be necessary for such non-designated load. Network Load shall not include Dispatched Charging Energy.

Network Operating Agreement:

"Network Operating Agreement" shall mean an executed agreement that contains the terms and conditions under which the Network Customer shall operate its facilities and the technical and operational matters associated with the implementation of Network Integration Transmission Service under Tariff, Part III.

Network Operating Committee:

"Network Operating Committee" shall mean a group made up of representatives from the Network Customer(s) and the Transmission Provider established to coordinate operating criteria

and other technical considerations required for implementation of Network Integration Transmission Service under Tariff, Part III.

Network Resource:

"Network Resource" shall mean any designated generating resource owned, purchased, or leased by a Network Customer under the Network Integration Transmission Service Tariff. Network Resources do not include any resource, or any portion thereof, that is committed for sale to third parties or otherwise cannot be called upon to meet the Network Customer's Network Load on a non-interruptible basis, except for purposes of fulfilling obligations under a reserve sharing program.

Network Service User:

"Network Service User" shall mean an entity using Network Transmission Service.

Network Transmission Service:

"Network Transmission Service" shall mean transmission service provided pursuant to the rates, terms and conditions set forth in Tariff, Part III, or transmission service comparable to such service that is provided to a Load Serving Entity that is also a Transmission Owner.

Network Upgrades:

"Network Upgrades" shall mean modifications or additions to transmission-related facilities that are integrated with and support the Transmission Provider's overall Transmission System for the general benefit of all users of such Transmission System. Network Upgrades shall include:

(i) **Direct Connection Network Upgrades** which are Network Upgrades that only serve the Customer Interconnection Facility and have no impact or potential impact on the Transmission System until the final tie-in is complete; and

(ii) **Non-Direct Connection Network Upgrades** which are parallel flow Network Upgrades that are not Direct Connection Network Upgrades.

Neutral Party:

"Neutral Party" shall have the meaning provided in Tariff, Part I, section 9.3(v).

New PJM Zone(s):

"New PJM Zone(s)" shall mean the Zone included in the Tariff, along with applicable Schedules and Attachments, for Commonwealth Edison Company, The Dayton Power and Light Company and the AEP East Operating Companies (Appalachian Power Company, Columbus Southern Power Company, Indiana Michigan Power Company, Kentucky Power Company, Kingsport Power Company, Ohio Power Company and Wheeling Power Company).

New Service Customers:

"New Service Customers" shall mean all customers that submit an Interconnection Request, a Completed Application, or an Upgrade Request that is pending in the New Services Queue.

New Service Request:

"New Service Request" shall mean an Interconnection Request, a Completed Application, or an Upgrade Request.

New Services Queue:

"New Service Queue" shall mean all Interconnection Requests, Completed Applications, and Upgrade Requests that are received within each six-month period ending on April 30 and October 31 of each year shall collectively comprise a New Services Queue.

New Services Queue Closing Date:

"New Services Queue Closing Date" shall mean each April 30 and October 31 shall be the Queue Closing Date for the New Services Queue comprised of Interconnection Requests, Completed Applications, and Upgrade Requests received during the six-month period ending on such date.

New York ISO or NYISO:

"New York ISO" or "NYISO" shall mean the New York Independent System Operator, Inc. or any successor thereto.

Nodal Reference Price:

The "Nodal Reference Price" at each location shall mean the 97th percentile price differential between day-ahead and real-time prices experienced over the corresponding two-month reference period in the prior calendar year. Reference periods will be Jan-Feb, Mar-Apr, May-Jun, Jul-Aug, Sept-Oct, Nov-Dec. For any given current-year month, the reference period months will be the set of two months in the prior calendar year that include the month corresponding to the current month. For example, July and August 2003 would each use July-August 2002 as their reference period.

No-load Cost:

"No-load Cost" shall mean the hourly cost required to create the starting point of a monotonically increasing incremental offer curve for a generating unit.

Nominal Rated Capability:

"Nominal Rated Capability" shall mean the nominal maximum rated capability in megawatts of a Transmission Interconnection Customer's Customer Facility or the nominal increase in transmission capability in megawatts of the Transmission System resulting from the interconnection or addition of a Transmission Interconnection Customer's Customer Facility, as determined in accordance with pertinent Applicable Standards and specified in the Interconnection Service Agreement.

Nominated Demand Resource Value:

"Nominated Demand Resource Value" shall mean the amount of load reduction that a Demand Resource commits to provide either through direct load control, firm service level or guaranteed load drop programs. For existing Demand Resources, the maximum Nominated Demand Resource Value is limited, in accordance with the PJM Manuals, to the value appropriate for the method by which the load reduction would be accomplished, at the time the Base Residual Auction or Incremental Auction is being conducted.

Nominated Energy Efficiency Value:

"Nominated Energy Efficiency Value" shall mean the amount of load reduction that an Energy Efficiency Resource commits to provide through installation of more efficient devices or equipment or implementation of more efficient processes or systems.

Non-Dispatched Charging Energy:

"Non-Dispatched Charging Energy" shall mean all Direct Charging Energy that an Energy Storage Resource Model Participant receives from the electric grid that is not otherwise Dispatched Charging Energy.

Non-Firm Point-To-Point Transmission Service:

"Non-Firm Point-To-Point Transmission Service" shall mean Point-To-Point Transmission Service under the Tariff that is reserved and scheduled on an as-available basis and is subject to Curtailment or Interruption as set forth in Tariff, Part II, section 14.7. Non-Firm Point-To-Point Transmission Service is available on a stand-alone basis for periods ranging from one hour to one month.

Non-Firm Sale:

"Non-Firm Sale" shall mean an energy sale for which receipt or delivery may be interrupted for any reason or no reason, without liability on the part of either the buyer or seller.

Non-Firm Transmission Withdrawal Rights:

"No-Firm Transmission Withdrawal Rights" shall mean the rights to schedule energy withdrawals from a specified point on the Transmission System. Non-Firm Transmission Withdrawal Rights may be awarded only to a Merchant D.C. Transmission Facility that connects

the Transmission System to another control area. Withdrawals scheduled using Non-Firm Transmission Withdrawal Rights have rights similar to those under Non-Firm Point-to-Point Transmission Service.

Non-Performance Charge:

"Non-Performance Charge" shall mean the charge applicable to Capacity Performance Resources as defined in Tariff, Attachment DD, section 10A(e).

Nonincumbent Developer:

"Nonincumbent Developer" shall have the same meaning provided in the Operating Agreement.

Non-Regulatory Opportunity Cost:

"Non-Regulatory Opportunity Cost" shall mean the difference between (a) the forecasted cost to operate a specific generating unit when the unit only has a limited number of starts or available run hours resulting from (i) the physical equipment limitations of the unit, for up to one year, due to original equipment manufacturer recommendations or insurance carrier restrictions, (ii) a fuel supply limitation, for up to one year, resulting from an event of Catastrophic Force Majeure; and, (b) the forecasted future Locational Marginal Price at which the generating unit could run while not violating such limitations. Non-Regulatory Opportunity Cost therefore is the value associated with a specific generating unit's lost opportunity to produce energy during a higher valued period of time occurring within the same period of time in which the unit is bound by the referenced restrictions, and is reflected in the rules set forth in PJM Manual 15. Non-Regulatory Opportunity Costs shall be limited to those resources which are specifically delineated in Operating Agreement, Schedule 2.

Non-Retail Behind The Meter Generation:

"Non-Retail Behind The Meter Generation" shall mean Behind the Meter Generation that is used by municipal electric systems, electric cooperatives, or electric distribution companies to serve load.

Non-Synchronized Reserve:

"Non-Synchronized Reserve" shall mean the reserve capability of non-emergency generation resources that can be converted fully into energy within ten minutes of a request from the Office of the Interconnection dispatcher, and is provided by equipment that is not electrically synchronized to the Transmission System.

Non-Synchronized Reserve Event:

"Non-Synchronized Reserve Event" shall mean a request from the Office of the Interconnection to generation resources able and assigned to provide Non-Synchronized Reserve in one or more specified Reserve Zones or Reserve Sub-zones, within ten minutes to increase the energy output by the amount of assigned Non-Synchronized Reserve capability.

Non-Variable Loads:

"Non-Variable Loads" shall have the meaning specified in Operating Agreement, Schedule 1, section 1.5A.6, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.5A.6.

Non-Zone Network Load:

"Non-Zone Network Load shall mean Network Load that is located outside of the PJM Region.

Normal Maximum Generation:

"Normal Maximum Generation" shall mean the highest output level of a generating resource under normal operating conditions.

Normal Minimum Generation:

"Normal Minimum Generation" shall mean the lowest output level of a generating resource under normal operating conditions.

Obligation:

"Obligation" shall mean all amounts owed to PJMSettlement for purchases from the PJM Markets, Transmission Service, (under both Tariff, Part II and Part III), and other services or obligations pursuant to the Agreements. In addition, aggregate amounts that will be owed to PJMSettlement in the future for capacity purchases within the PJM capacity markets will be added to this figure. Should other markets be formed such that Participants may incur future Obligations in those markets, then the aggregate amount of those Obligations will also be added to the Net Obligation.

Offer Data:

"Offer Data" shall mean the scheduling, operations planning, dispatch, new resource, and other data and information necessary to schedule and dispatch generation resources and Demand Resource(s) for the provision of energy and other services and the maintenance of the reliability and security of the Transmission System in the PJM Region, and specified for submission to the PJM Interchange Energy Market for such purposes by the Office of the Interconnection.

Office of the Interconnection:

"Office of the Interconnection" shall mean the employees and agents of PJM Interconnection, L.L.C. subject to the supervision and oversight of the PJM Board, acting pursuant to the Operating Agreement.

Office of the Interconnection Control Center:

"Office of the Interconnection Control Center" shall mean the equipment, facilities and

personnel used by the Office of the Interconnection to coordinate and direct the operation of the PJM Region and to administer the PJM Interchange Energy Market, including facilities and equipment used to communicate and coordinate with the Market Participants in connection with transactions in the PJM Interchange Energy Market or the operation of the PJM Region.

On-Site Generators:

"On-Site Generators" shall mean generation facilities (including Behind The Meter Generation) that (i) are not Capacity Resources, (ii) are not injecting into the grid, (iii) are either synchronized or non-synchronized to the Transmission System, and (iv) can be used to reduce demand for the purpose of participating in the PJM Interchange Energy Market.

Open Access Same-Time Information System (OASIS) or PJM Open Access Same-Time Information System:

"Open Access Same-Time Information System," "PJM Open Access Same-Time Information System" or "OASIS" shall mean the electronic communication and information system and standards of conduct contained in Part 37 and Part 38 of the Commission's regulations and all additional requirements implemented by subsequent Commission orders dealing with OASIS for the collection and dissemination of information about transmission services in the PJM Region, established and operated by the Office of the Interconnection in accordance with FERC standards and requirements.

Operating Agreement of the PJM Interconnection, L.L.C., Operating Agreement or PJM Operating Agreement:

"Operating Agreement of the PJM Interconnection, L.L.C.," "Operating Agreement" or "PJM Operating Agreement" shall mean the Amended and Restated Operating Agreement of PJM Interconnection, L.L.C. dated as of April 1, 1997 and as amended and restated as of June 2, 1997, including all Schedules, Exhibits, Appendices, addenda or supplements hereto, as amended from time to time thereafter, among the Members of the PJM Interconnection, L.L.C., on file with the Commission.

Operating Day:

"Operating Day" shall mean the daily 24 hour period beginning at midnight for which transactions on the PJM Interchange Energy Market are scheduled.

Operating Margin:

"Operating Margin" shall mean the incremental adjustments, measured in megawatts, required in PJM Region operations in order to accommodate, on a first contingency basis, an operating contingency in the PJM Region resulting from operations in an interconnected Control Area. Such adjustments may result in constraints causing Transmission Congestion Charges, or may result in Ancillary Services charges pursuant to the PJM Tariff.

Operating Margin Customer:

"Operating Margin Customer" shall mean a Control Area purchasing Operating Margin pursuant to an agreement between such other Control Area and the LLC.

Operationally Deliverable:

"Operationally Deliverable" shall mean, as determined by the Office of the Interconnection, that there are no operational conditions, arrangements or limitations experienced or required that threaten, impair or degrade effectuation or maintenance of deliverability of capacity or energy from the external Generation Capacity Resource to loads in the PJM Region in a manner comparable to the deliverability of capacity or energy to such loads from Generation Capacity Resources located inside the metered boundaries of the PJM Region, including, without limitation, an identified need by an external Balancing Authority Area for a remedial action scheme or manual generation trip protocol, transmission facility switching arrangements that would have the effect of radializing load, or excessive or unacceptable frequency of regional reliability limit violations or (outside an interregional agreed congestion management process) of local reliability dispatch instructions and commitments.

Opportunity Cost:

"Opportunity Cost" shall mean a component of the Market Seller Offer Cap calculated in accordance with Tariff, Attachment DD, section 6.

OPSI Advisory Committee:

"OPSI Advisory Committee" shall mean the committee established under Tariff, Attachment M, section III.G.

Option to Build:

"Option to Build" shall mean the option of the New Service Customer to build certain Customer-Funded Upgrades, as set forth in, and subject to the terms of, the Construction Service Agreement.

Optional Interconnection Study:

"Optional Interconnection Study" shall mean a sensitivity analysis of an Interconnection Request based on assumptions specified by the Interconnection Customer in the Optional Interconnection Study Agreement.

Optional Interconnection Study Agreement:

"Optional Interconnection Study Agreement" shall mean the form of agreement for preparation of an Optional Interconnection Study, as set forth in Tariff, Attachment N-3.

Part I:

"Part I" shall mean the Tariff Definitions and Common Service Provisions contained in Tariff, Part I, sections 1 through 12A.

Part II:

"Part II" shall mean Tariff, sections 13 through 27A pertaining to Point-To-Point Transmission Service in conjunction with the applicable Common Service Provisions of Tariff, Part I and appropriate Schedules and Attachments.

Part III:

"Part III" shall mean Tariff, sections 28 through 35 pertaining to Network Integration Transmission Service in conjunction with the applicable Common Service Provisions of Tariff, Part I and appropriate Schedules and Attachments.

Part IV:

"Part IV" shall mean Tariff, sections 36 through 112C pertaining to generation or merchant transmission interconnection to the Transmission System in conjunction with the applicable Common Service Provisions of Tariff, Part I and appropriate Schedules and Attachments.

Part V:

"Part V" shall mean Tariff, sections 113 through 122 pertaining to the deactivation of generating units in conjunction with the applicable Common Service Provisions of Tariff, Part I and appropriate Schedules and Attachments.

Part VI:

"Part VI" shall mean Tariff, sections 200 through 237 pertaining to the queuing, study, and agreements relating to New Service Requests, and the rights associated with Customer-Funded Upgrades in conjunction with the applicable Common Service Provisions of Tariff, Part I and appropriate Schedules and Attachments.

Participant:

"Participant" shall mean a Market Participant and/or Transmission Customer and/or Applicant requesting to be an active Market Participant and/or Transmission Customer**.**

Parties:

"Parties" shall mean the Transmission Provider, as administrator of the Tariff, and the Transmission Customer receiving service under the Tariff. PJMSettlement shall be the Counterparty to Transmission Customers.

Peak-Hour Dispatch:

"Peak-Hour Dispatch" shall mean, for purposes of calculating the Energy and Ancillary Services Revenue Offset under Tariff, Attachment DD, section 5, an assumption, as more fully set forth in the PJM Manuals, that the Reference Resource is committed in the Day-Ahead Energy Market in four distinct blocks of four hours of continuous output for each block from the peak-hour period beginning with the hour ending 0800 EPT through to the hour ending 2300 EPT for any day when the average day-ahead LMP for the area for which the Net Cost of New Entry is being determined is greater than, or equal to, the cost to generate (including the cost for a complete start and shutdown cycle), plus 10% of such costs, for at least two hours during each four-hour block, where such blocks shall be assumed to be committed independently; provided that, if there are not at least two economic hours in any given four-hour block, then the Reference Resource shall be assumed not to be committed for such block; and to the extent not committed in any such block in the Day-Ahead Energy Market under the above conditions based on Day-Ahead LMPs, is dispatched in the Real-Time Energy Market for such block if the Real-Time LMP is greater than or equal to the cost to generate, plus 10% of such costs, under the same conditions as described above for the Day-Ahead Energy Market.

Peak Market Activity:
"Peak Market Activity" shall mean a measure of exposure for which credit is required, involving peak exposures in rolling three-week periods over a year timeframe, with two semi-annual reset points, pursuant to provisions of Tariff, Attachment Q, section V.A. Peak Market Activity shall exclude FTR Net Activity, Virtual Transactions Net Activity, and Export Transactions Net Activity.

Peak Season:

"Peak Season" shall mean the weeks containing the 24th through 36th Wednesdays of the calendar year. Each such week shall begin on a Monday and end on the following Sunday, except for the week containing the 36th Wednesday, which shall end on the following Friday.

Percentage Internal Resources Required:

"Percentage Internal Resources Required" shall have the meaning specified in the Reliability Assurance Agreement.

Performance Assessment Interval:

"Performance Assessment Interval" shall mean each Real-time Settlement Interval for which an Emergency Action has been declared by the Office of the Interconnection, provided, however, that Performance Assessment Intervals for a Base Capacity Resource shall not include any intervals outside the calendar months of June through September.

PJM:

"PJM" shall mean PJM Interconnection, L.L.C., including the Office of the Interconnection as referenced in the PJM Operating Agreement. When such term is being used in the RAA it shall also include the PJM Board.

PJM Administrative Service:

"PJM Administrative Service" shall mean the services provided by PJM pursuant to Tariff, Schedule 9.

PJM Board:

"PJM Board" shall mean the Board of Managers of the LLC, acting pursuant to the Operating Agreement, except when such term is being used in Tariff, Attachment M, in which case PJM Board shall mean the Board of Managers of PJM or its designated representative, exclusive of any members of PJM Management.

PJM Control Area:

"PJM Control Area" shall mean the Control Area recognized by NERC as the PJM Control Area.

PJM Entities:

"PJM Entities" shall mean PJM, including the Market Monitoring Unit, the PJM Board, and PJM's officers, employees, representatives, advisors, contractors, and consultants.

PJM Interchange:

"PJM Interchange" shall mean the following, as determined in accordance with the Operating Agreement and Tariff: (a) for a Market Participant that is a Network Service User, the amount by which its interval Equivalent Load exceeds, or is exceeded by, the sum of the interval outputs of its operating generating resources; or (b) for a Market Participant that is not a Network Service User, the amount of its Spot Market Backup; or (c) the interval scheduled deliveries of Spot Market Energy by a Market Seller from an External Resource; or (d) the interval net metered output of any other Market Seller; or (e) the interval scheduled deliveries of Spot Market Energy to an External Market Buyer; or (f) the interval scheduled deliveries to an Internal Market Buyer that is not a Network Service User.

PJM Interchange Energy Market:

"PJM Interchange Energy Market" shall mean the regional competitive market administered by the Office of the Interconnection for the purchase and sale of spot electric energy at wholesale in interstate commerce and related services established pursuant to Operating Agreement, Schedule 1, and the parallel provisions of Tariff, Attachment K - Appendix.

PJM Interchange Export:

"PJM Interchange Export" shall mean the following, as determined in accordance with the Operating Agreement and Tariff: (a) for a Market Participant that is a Network Service User, the amount by which its interval Equivalent Load is exceeded by the sum of the interval outputs of its operating generating resources; or (b) for a Market Participant that is not a Network Service User, the amount of its Spot Market Backup sales; or (c) the interval scheduled deliveries of Spot Market Energy by a Market Seller from an External Resource; or (d) the interval net metered output of any other Market Seller.

PJM Interchange Import:

"PJM Interchange Import" shall mean the following, as determined in accordance with the Operating Agreement and Tariff: (a) for a Market Participant that is a Network Service User, the amount by which its interval Equivalent Load exceeds the sum of the interval outputs of its operating generating resources; or (b) for a Market Participant that is not a Network Service User, the amount of its Spot Market Backup purchases; or (c) the interval scheduled deliveries of Spot Market Energy to an External Market Buyer; or (d) the interval scheduled deliveries to an Internal Market Buyer that is not a Network Service User.

PJM Liaison:

"PJM Liaison" shall mean the liaison established under Tariff, Attachment M, section III.I.

PJM Management:

"PJM Management" shall mean the officers, executives, supervisors and employee managers of PJM.

PJM Manuals:

"PJM Manuals" shall mean the instructions, rules, procedures and guidelines established by the Office of the Interconnection for the operation, planning, and accounting requirements of the PJM Region and the PJM Interchange Energy Market.

PJM Markets:

"PJM Markets" shall mean the PJM Interchange Energy and capacity markets, including the RPM auctions, together with all bilateral or other wholesale electric power and energy transactions, capacity transactions, ancillary services transactions (including black start service), transmission transactions and any other market operated under the PJM Tariff or Operating Agreement within the PJM Region, wherein Market Participants may incur Obligations to PJMSettlement.

PJM Market Rules:

"PJM Market Rules" shall mean the rules, standards, procedures, and practices of the PJM Markets set forth in the PJM Tariff, the PJM Operating Agreement, the PJM Reliability

Assurance Agreement, the PJM Consolidated Transmission Owners Agreement, the PJM Manuals, the PJM Regional Practices Document, the PJM-Midwest Independent Transmission System Operator Joint Operating Agreement or any other document setting forth market rules.

PJM Net Assets:

"PJM Net Assets**"** shall mean the total assets per PJM's consolidated quarterly or year-end financial statements most recently issued as of the date of the receipt of written notice of a claim less amounts for which PJM is acting as a temporary custodian on behalf of its Members, transmission developers/Designated Entities, and generation developers, including, but not limited to, cash deposits related to credit requirement compliance, study and/or interconnection receivables, member prepayments, invoiced amounts collected from Net Buyers but have not yet been paid to Net Sellers, and excess congestion (as described in Operating Agreement, Schedule 1, section 5.2.6, and the parallel provisions of Tariff, Attachment K-Appendix, section 5.2.6).

PJM Region:

"PJM Region" shall have the meaning specified in the Operating Agreement.

PJM Regional Practices Document:
"PJM Regional Practices Document" shall mean the document of that title that compiles and describes the practices in the PJM Markets and that is made available in hard copy and on the Internet.

PJM Region Installed Reserve Margin:

"PJM Region Installed Reserve Margin" shall mean the percent installed reserve margin for the PJM Region required pursuant to RAA, Schedule 4.1, as approved by the PJM Board.

PJM Region Peak Load Forecast:

"PJM Region Peak Load Forecast" shall mean the peak load forecast used by the Office of the Interconnection in determining the PJM Region Reliability Requirement, and shall be determined on both a preliminary and final basis as set forth in Tariff, Attachment DD, section 5.

PJM Region Reliability Requirement:

"PJM Region Reliability Requirement" shall mean, for purposes of the Base Residual Auction, the Forecast Pool Requirement multiplied by the Preliminary PJM Region Peak Load Forecast, less the sum of all Preliminary Unforced Capacity Obligations of FRR Entities in the PJM Region; and, for purposes of the Incremental Auctions, the Forecast Pool Requirement multiplied by the updated PJM Region Peak Load Forecast, less the sum of all updated Unforced Capacity Obligations of FRR Entities in the PJM Region.

PJMSettlement:

"PJM Settlement" or "PJM Settlement, Inc." shall mean PJM Settlement, Inc. (or its successor), established by PJM as set forth in Operating Agreement, section 3.3.

PJM Tariff, Tariff, O.A.T.T., OATT or PJM Open Access Transmission Tariff:

"PJM Tariff," "Tariff," "O.A.T.T.," "OATT," or "PJM Open Access Transmission Tariff" shall mean that certain PJM Open Access Transmission Tariff, including any schedules, appendices or exhibits attached thereto, on file with FERC and as amended from time to time thereafter.

Plan:

"Plan" shall mean the PJM market monitoring plan set forth in Tariff, Attachment M.

Planned Demand Resource:

"Planned Demand Resource" shall have the meaning specified in the Reliability Assurance Agreement.

Planned External Financed Generation Capacity Resource:

"Planned External Financed Generation Capacity Resource" shall mean a Planned External Generation Capacity Resource that, prior to August 7, 2015, has an effective agreement that is the equivalent of an Interconnection Service Agreement, has submitted to the Office of the Interconnection the appropriate certification attesting achievement of Financial Close, and has secured at least 50 percent of the MWs of firm transmission service required to qualify such resource under the deliverability requirements of the Reliability Assurance Agreement.

Planned External Generation Capacity Resource:

"Planned External Generation Capacity Resource" shall have the meaning specified in the Reliability Assurance Agreement.

Planned Financed Generation Capacity Resource:

"Planned Financed Generation Capacity Resource" shall mean a Planned Generation Capacity Resource that, prior to August 7, 2015, has an effective Interconnection Service Agreement and has submitted to the Office of the Interconnection the appropriate certification attesting achievement of Financial Close.

Planned Generation Capacity Resource:

"Planned Generation Capacity Resource" shall have the meaning specified in the Reliability Assurance Agreement.

Planning Period:

"Planning Period" shall mean the 12 moths beginning June 1 and extending through May 31 of the following year, or such other period approved by the Members Committee.

Planning Period Balance:

"Planning Period Balance" shall mean the entire period of time remaining in the Planning Period following the month that a monthly auction is conducted.

Planning Period Quarter:

"Planning Period Quarter" shall mean any of the following three month periods in the Planning Period: June, July and August; September, October and November; December, January and February; or March, April and May.

Point(s) of Delivery:

"Point(s) of Delivery" shall mean the point(s) on the Transmission Provider's Transmission System where capacity and energy transmitted by the Transmission Provider will be made available to the Receiving Party under Tariff, Part II. The Point(s) of Delivery shall be specified in the Service Agreement for Long-Term Firm Point-To-Point Transmission Service.

Point of Interconnection:

"Point of Interconnection" shall mean the point or points where the Customer Interconnection Facilities interconnect with the Transmission Owner Interconnection Facilities or the Transmission System.

Point(s) of Receipt:

"Point(s) of Receipt" shall mean point(s) of interconnection on the Transmission Provider's Transmission System where capacity and energy will be made available to the Transmission Provider by the Delivering Party under Tariff, Part II. The Point(s) of Receipt shall be specified in the Service Agreement for Long-Term Firm Point-To-Point Transmission Service.

Point-To-Point Transmission Service:

"Point-To-Point Transmission Service shall mean the reservation and transmission of capacity and energy on either a firm or non-firm basis from the Point(s) of Receipt to the Point(s) of Delivery under Tariff, Part II.

Power Purchaser:

"Power Purchaser" shall mean the entity that is purchasing the capacity and energy to be transmitted under the Tariff.

PRD Curve:

"PRD Curve" shall have the meaning provided in the Reliability Assurance Agreement.

PRD Provider:

"PRD Provider" shall have the meaning provided in the Reliability Assurance Agreement.

PRD Reservation Price:

"PRD Reservation" Price shall have the meaning provided in the Reliability Assurance Agreement.

PRD Substation:

"PRD Substation" shall have the meaning provided in the Reliability Assurance Agreement.

Pre-Confirmed Application:

"Pre-Confirmed Application" shall be an Application that commits the Eligible Customer to execute a Service Agreement upon receipt of notification that the Transmission Provider can provide the requested Transmission Service.

Pre-Emergency Load Response Program:

"Pre-Emergency Load Response Program" shall be the program by which Curtailment Service Providers may be compensated by PJM for Demand Resources that will reduce load when dispatched by PJM during pre-emergency conditions, and is described in Operating Agreement, Schedule 1, section 8 and the parallel provisions of Tariff, Attachment K-Appendix, section 8.

Pre-Expansion PJM Zones:

"Pre-Expansion PJM Zones" shall be zones included in the Tariff, along with applicable Schedules and Attachments, for certain Transmission Owners - Atlantic City Electric Company, Baltimore Gas and Electric Company, Delmarva Power and Light Company, Jersey Central Power and Light Company, Mid-Atlantic Interstate Transmission, LLC ("MAIT") (MAIT owns and operates the transmission facilities in the Metropolitan Edison Company Zone and the Pennsylvania Electric Company Zone), PECO Energy Company, Pennsylvania Power & Light Group, Potomac Electric Power Company, Public Service Electric and Gas Company, Allegheny Power, and Rockland Electric Company.

Price Responsive Demand:

"Price Responsive Demand" shall have the meaning provided in the Reliability Assurance Agreement.

Primary Reserve:

"Primary Reserve" shall mean the total reserve capability of generation resources that can be converted fully into energy or Demand Resources whose demand can be reduced within ten minutes of a request from the Office of the Interconnection dispatcher, and is comprised of both Synchronized Reserve and Non-Synchronized Reserve.

Primary Reserve Alert

"Primary Reserve Alert" shall mean a notification from PJM to alert Members of an anticipated shortage of Operating Reserve capacity for a future critical period.

Primary Reserve Requirement:

"Primary Reserve Requirement" shall mean the megawatts required to be maintained in a Reserve Zone or Reserve Sub-zone as Primary Reserve, absent any increase to account for additional reserves scheduled to address operational uncertainty. The Primary Reserve Requirement is calculated in accordance with the PJM Manuals.

Prior CIL Exception External Resource:

"Prior CIL Exception External Resource" shall mean an external Generation Capacity Resource for which (1) a Capacity Market Seller had, prior to May 9, 2017, cleared a Sell Offer in an RPM Auction under the exception provided to the definition of Capacity Import Limit as set forth in RAA, Article I or (2) an FRR Entity committed, prior to May 9, 2017, in an FRR Capacity Plan under the exception provided in the definition of Capacity Import Limit. In the event only a portion (in MW) of an external Generation Capacity Resource has a Pseudo-Tie into the PJM Region, that portion of the external Generation Capacity Resource, which can include up to the maximum megawatt amount cleared in any prior RPM auction or committed in an FRR Capacity Plan (and no other portion thereof), is eligible for treatment as a Prior CIL Exception External Resource if such portion satisfies the requirements of the first sentence of this definition.

Project Financing:

"Project Financing" shall mean: (a) one or more loans, leases, equity and/or debt financings, together with all modifications, renewals, supplements, substitutions and replacements thereof, the proceeds of which are used to finance or refinance the costs of the Customer Facility, any alteration, expansion or improvement to the Customer Facility, the purchase and sale of the Customer Facility or the operation of the Customer Facility; (b) a power purchase agreement pursuant to which Interconnection Customer's obligations are secured by a mortgage or other lien on the Customer Facility; or (c) loans and/or debt issues secured by the Customer Facility.

Project Finance Entity:

"Project Finance Entity" shall mean: (a) a holder, trustee or agent for holders, of any component of Project Financing; or (b) any purchaser of capacity and/or energy produced by the Customer Facility to which Interconnection Customer has granted a mortgage or other lien as security for

some or all of Interconnection Customer's obligations under the corresponding power purchase agreement.

Projected PJM Market Revenues:

"Projected PJM Market Revenues" shall mean a component of the Market Seller Offer Cap calculated in accordance with Tariff, Attachment DD, section 6.

Proportional Multi-Driver Project:

"Proportional Multi-Driver Project" shall have the same meaning provided in the Operating Agreement.

Pseudo-Tie:

"Pseudo-Tie" shall have the same meaning provided in the Operating Agreement.

Public Policy Objectives:

"Public Policy Objectives" shall have the same meaning provided in the Operating Agreement.

Public Policy Requirements:

"Public Policy Requirements" shall have the same meaning provided in the Operating Agreement.

Qualifying Transmission Upgrade:

"Qualifying Transmission Upgrade" shall mean a proposed enhancement or addition to the Transmission System that: (a) will increase the Capacity Emergency Transfer Limit into an LDA by a megawatt quantity certified by the Office of the Interconnection; (b) the Office of the Interconnection has determined will be in service on or before the commencement of the first Delivery Year for which such upgrade is the subject of a Sell Offer in the Base Residual Auction; (c) is the subject of a Facilities Study Agreement executed before the conduct of the Base Residual Auction for such Delivery Year and (d) a New Service Customer is obligated to fund through a rate or charge specific to such facility or upgrade.

Queue Position:

"Queue Position" shall mean the priority assigned to an Interconnection Request, a Completed Application, or an Upgrade Request pursuant to applicable provisions of Tariff, Part VI.

Ramping Capability:

"Ramping Capability" shall mean the sustained rate of change of generator output, in megawatts per minute.

Real-time Congestion Price:

"Real-time Congestion Price" shall mean the Congestion Price resulting from the Office of the Interconnection's dispatch of the PJM Interchange Energy Market in the Operating Day.

Real-time Loss Price:

"Real-time Loss Price" shall mean the Loss Price resulting from the Office of the Interconnection's dispatch of the PJM Interchange Energy Market in the Operating Day.

Real-time Energy Market:

"Real-time Energy Market" shall mean the purchase or sale of energy and payment of Transmission Congestion Charges for quantity deviations from the Day-ahead Energy Market in the Operating Day.

Real-time Offer:

"Real-time Offer" shall mean a new offer or an update to a Market Seller's existing cost-based or market-based offer for a clock hour, submitted for use after the close of the Day-ahead Energy Market.

Real-time Prices:

"Real-time Prices" shall mean the Locational Marginal Prices resulting from the Office of the Interconnection's dispatch of the PJM Interchange Energy Market in the Operating Day.

Real-time Settlement Interval:

"Real-time Settlement Interval" shall mean the interval used by settlements, which shall be every five minutes.

Real-time System Energy Price:

"Real-time System Energy Price" shall mean the System Energy Price resulting from the Office of the Interconnection's dispatch of the PJM Interchange Energy Market in the Operating Day.

Reasonable Efforts:

"Reasonable Efforts" shall mean, with respect to any action required to be made, attempted, or taken by an Interconnection Party or by a Construction Party under Tariff, Part IV or Part VI, an Interconnection Service Agreement, or a Construction Service Agreement, such efforts as are timely and consistent with Good Utility Practice and with efforts that such party would undertake for the protection of its own interests.

Receiving Party:

"Receiving Party" shall mean the entity receiving the capacity and energy transmitted by the Transmission Provider to Point(s) of Delivery.

Referral:

"Referral" shall mean a formal report of the Market Monitoring Unit to the Commission for investigation of behavior of a Market Participant, of behavior of PJM, or of a market design flaw, pursuant to Tariff, Attachment M, section IV.I.

Reference Resource:

"Reference Resource" shall mean a combustion turbine generating station, configured with a single General Electric Frame 7HA turbine with evaporative cooling, Selective Catalytic Reduction technology all CONE Areas, dual fuel capability, and a heat rate of 9.134 Mmbtu/ MWh.

Regional Entity:

"Regional Entity" shall have the same meaning specified in the Operating Agreement.

Regional Transmission Expansion Plan:

"Regional Transmission Expansion Plan" shall mean the plan prepared by the Office of the Interconnection pursuant to Operating Agreement, Schedule 6 for the enhancement and expansion of the Transmission System in order to meet the demands for firm transmission service in the PJM Region.

Regional Transmission Group (RTG):

"Regional Transmission Group" or "RTG" shall mean a voluntary organization of transmission owners, transmission users and other entities approved by the Commission to efficiently coordinate transmission planning (and expansion), operation and use on a regional (and interregional) basis.

Regulation:

"Regulation" shall mean the capability of a specific generation resource or Demand Resource with appropriate telecommunications, control and response capability to separately increase and decrease its output or adjust load in response to a regulating control signal, in accordance with the specifications in the PJM Manuals.

Regulation Zone:

"Regulation Zone" shall mean any of those one or more geographic areas, each consisting of a

combination of one or more Control Zone(s) as designated by the Office of the Interconnection in the PJM Manuals, relevant to provision of, and requirements for, regulation service.

Relevant Electric Retail Regulatory Authority:

"Relevant Electric Retail Regulatory Authority" shall mean an entity that has jurisdiction over and establishes prices and policies for competition for providers of retail electric service to end-customers, such as the city council for a municipal utility, the governing board of a cooperative utility, the state public utility commission or any other such entity.

Reliability Assurance Agreement or PJM Reliability Assurance Agreement:

"Reliability Assurance Agreement" or "PJM Reliability Assurance Agreement" shall mean that certain Reliability Assurance Agreement Among Load Serving Entities in the PJM Region, on file with FERC as PJM Interconnection L.L.C. Rate Schedule FERC No. 44, and as amended from time to time thereafter.

Reliability Pricing Model Auction:

"Reliability Pricing Model Auction" or "RPM Auction" shall mean the Base Residual Auction or any Incremental Auction, or, for the 2016/2017 and 2017/2018 Delivery Years, any Capacity Performance Transition Incremental Auction.

Required Transmission Enhancements:

"Regional Transmission Enhancements" shall mean enhancements and expansions of the Transmission System that (1) a Regional Transmission Expansion Plan developed pursuant to Operating Agreement, Schedule 6 or (2) any joint planning or coordination agreement between PJM and another region or transmission planning authority set forth in Tariff, Schedule 12-Appendix B ("Appendix B Agreement") designates one or more of the Transmission Owner(s) to construct and own or finance. Required Transmission Enhancements shall also include enhancements and expansions of facilities in another region or planning authority that meet the definition of transmission facilities pursuant to FERC's Uniform System of Accounts or have been classified as transmission facilities in a ruling by FERC addressing such facilities constructed pursuant to an Appendix B Agreement cost responsibility for which has been assigned at least in part to PJM pursuant to such Appendix B Agreement.

Reserved Capacity:

"Reserved Capacity" shall mean the maximum amount of capacity and energy that the Transmission Provider agrees to transmit for the Transmission Customer over the Transmission Provider's Transmission System between the Point(s) of Receipt and the Point(s) of Delivery under Tariff, Part II. Reserved Capacity shall be expressed in terms of whole megawatts on a sixty (60) minute interval (commencing on the clock hour) basis.

Reserve Penalty Factor:

"Reserve Penalty Factor" shall mean the cost, in $/MWh, associated with being unable to meet a specific reserve requirement in a Reserve Zone or Reserve Sub-zone. A Reserve Penalty Factor will be defined for each reserve requirement in a Reserve Zone or Reserve Sub-zone.

Reserve Sub-zone:

"Reserve Sub-zone" shall mean any of those geographic areas wholly contained within a Reserve Zone, consisting of a combination of a portion of one or more Control Zone(s) as designated by the Office of the Interconnection in the PJM Manuals, relevant to provision of, and requirements for, reserve service.

Reserve Zone:

"Reserve Zone" shall mean any of those geographic areas consisting of a combination of one or more Control Zone(s), as designated by the Office of the Interconnection in the PJM Manuals, relevant to provision of, and requirements for, reserve service.

Residual Auction Revenue Rights:

"Residual Auction Revenue Rights" shall mean incremental stage 1 Auction Revenue Rights created within a Planning Period by an increase in transmission system capability, including the return to service of existing transmission capability, that was not modeled pursuant to Operating Agreement, Schedule 1, section 7.5 and the parallel provisions of Tariff, Attachment K-Appendix, section 7.5 in compliance with Operating Agreement, Schedule 1, section 7.4.2 (h) and the parallel provisions of Tariff, Attachment K-Appendix, section 7.4.2(h), and, if modeled, would have increased the amount of stage 1 Auction Revenue Rights allocated pursuant to Operating Agreement, Schedule 1, section 7.4.2 and the parallel provisions of Tariff, Attachment K-Appendix, section 7.4.2; provided that, the foregoing notwithstanding, Residual Auction Revenue Rights shall exclude: 1) Incremental Auction Revenue Rights allocated pursuant to Tariff, Part VI; and 2) Auction Revenue Rights allocated to entities that are assigned cost responsibility pursuant to Operating Agreement, Schedule 6 for transmission upgrades that create such rights.

Residual Metered Load:

"Residual Metered Load" shall mean all load remaining in an electric distribution company's fully metered franchise area(s) or service territory(ies) after all nodally priced load of entities serving load in such area(s) or territory(ies) has been carved out.

Resource Substitution Charge:

"Resource Substitution Charge" shall mean a charge assessed on Capacity Market Buyers in an Incremental Auction to recover the cost of replacement Capacity Resources.

Revenue Data for Settlements:

"Revenue Data for Settlements" shall mean energy quantities used in accounting and billing as determined pursuant to Tariff, Attachment K-Appendix and the corresponding provisions of Operating Agreement, Schedule 1.

RPM Seller Credit:

"RPM Seller Credit" shall mean an additional form of Unsecured Credit defined in Tariff, Attachment Q, section IV.

Scheduled Incremental Auctions:

"Scheduled Incremental Auctions" shall refer to the First, Second, or Third Incremental Auction.

Schedule of Work:

"Schedule of Work" shall mean that schedule attached to the Interconnection Construction Service Agreement setting forth the timing of work to be performed by the Constructing Entity pursuant to the Interconnection Construction Service Agreement, based upon the Facilities Study and subject to modification, as required, in accordance with Transmission Provider's scope change process for interconnection projects set forth in the PJM Manuals.

Scope of Work:

"Scope of Work" shall mean that scope of the work attached as a schedule to the Interconnection Construction Service Agreement and to be performed by the Constructing Entity(ies) pursuant to the Interconnection Construction Service Agreement, provided that such Scope of Work may be modified, as required, in accordance with Transmission Provider's scope change process for interconnection projects set forth in the PJM Manuals.

Seasonal Capacity Performance Resource:

"Seasonal Capacity Performance Resource" shall have the same meaning specified in Tariff, Attachment DD, section 5.5A.

Secondary Systems:

"Secondary Systems" shall mean control or power circuits that operate below 600 volts, AC or DC, including, but not limited to, any hardware, control or protective devices, cables, conductors, electric raceways, secondary equipment panels, transducers, batteries, chargers, and voltage and current transformers.

Second Incremental Auction:

"Second Incremental Auction" shall mean an Incremental Auction conducted ten months before the Delivery Year to which it relates**.**

Security:

"Security" shall mean the security provided by the New Service Customer pursuant to Tariff, section 212.4 or Tariff, Part VI, section 213.4 to secure the New Service Customer's responsibility for Costs under the Interconnection Service Agreement or Upgrade Construction Service Agreement and Tariff, Part VI, section 217.

Segment:

"Segment" shall have the same meaning as described in Operating Agreement, Schedule 1, section 3.2.3(e).

Self-Supply:

"Self-Supply" shall mean Capacity Resources secured by a Load-Serving Entity, by ownership or contract, outside a Reliability Pricing Model Auction, and used to meet obligations under this Attachment or the Reliability Assurance Agreement through submission in a Base Residual Auction or an Incremental Auction of a Sell Offer indicating such Market Seller's intent that such Capacity Resource be Self-Supply. Self-Supply may be either committed regardless of clearing price or submitted as a Sell Offer with a price bid. A Load Serving Entity's Sell Offer with a price bid for an owned or contracted Capacity Resource shall not be deemed "Self-Supply," unless it is designated as Self-Supply and used by the LSE to meet obligations under this Attachment or the Reliability Assurance Agreement.

Sell Offer:

"Sell Offer" shall mean an offer to sell Capacity Resources in a Base Residual Auction, Incremental Auction, or Reliability Backstop Auction.

Service Agreement:

"Service Agreement" shall mean the initial agreement and any amendments or supplements thereto entered into by the Transmission Customer and the Transmission Provider for service under the Tariff.

Service Commencement Date:

"Service Commencement Date" shall mean the date the Transmission Provider begins to provide service pursuant to the terms of an executed Service Agreement, or the date the Transmission Provider begins to provide service in accordance with Tariff, Part II, section 15.3 or Tariff, Part III, section 29.1.

Short-Term Firm Point-To-Point Transmission Service:

"Short-Term Firm Point-To-Point Transmission Service" shall mean Firm Point-To-Point

Transmission Service under Tariff, Part II with a term of less than one year.

Short-term Project:

"Short-term Project" shall have the same meaning provided in the Operating Agreement.

Short-Term Resource Procurement Target:

"Short-Term Resource Procurement Target" shall mean, for Delivery Years through May 31, 2018, as to the PJM Region, for purposes of the Base Residual Auction, 2.5% of the PJM Region Reliability Requirement determined for such Base Residual Auction, for purposes of the First Incremental Auction, 2% of the of the PJM Region Reliability Requirement as calculated at the time of the Base Residual Auction; and, for purposes of the Second Incremental Auction, 1.5% of the of the PJM Region Reliability Requirement as calculated at the time of the Base Residual Auction; and, as to any Zone, an allocation of the PJM Region Short-Term Resource Procurement Target based on the Preliminary Zonal Forecast Peak Load, reduced by the amount of load served under the FRR Alternative. For any LDA, the LDA Short-Term Resource Procurement Target shall be the sum of the Short-Term Resource Procurement Targets of all Zones in the LDA.

Short-Term Resource Procurement Target Applicable Share:

"Short-Term Resource Procurement Target Applicable Share" shall mean, for Delivery Years through May 31, 2018: (i) for the PJM Region, as to the First and Second Incremental Auctions, 0.2 times the Short-Term Resource Procurement Target used in the Base Residual Auction and, as to the Third Incremental Auction for the PJM Region, 0.6 times such target; and (ii) for an LDA, as to the First and Second Incremental Auctions, 0.2 times the Short-Term Resource Procurement Target used in the Base Residual Auction for such LDA and, as to the Third Incremental Auction, 0.6 times such target.

Site:

"Site" shall mean all of the real property, including but not limited to any leased real property and easements, on which the Customer Facility is situated and/or on which the Customer Interconnection Facilities are to be located.

Small Commercial Customer:

"Small Commercial Customer," as used in RAA, Schedule 6 and Tariff, Attachment DD-1, shall mean a commercial retail electric end-use customer of an electric distribution company that participates in a mass market demand response program under the jurisdiction of a RERRA and satisfies the definition of a "small commercial customer" under the terms of the applicable RERRA's program, provided that the customer has an annual peak demand no greater than 100kW.

Small Generation Resource:

"Small Generation Resource" shall mean an Interconnection Customer's device of 20 MW or less for the production and/or storage for later injection of electricity identified in an Interconnection Request, but shall not include the Interconnection Customer's Interconnection Facilities. This term shall include Energy Storage Resources and/or other devices for storage for later injection of energy.

Small Inverter Facility:

"Small Inverter Facility" shall mean an Energy Resource that is a certified small inverter-based facility no larger than 10 kW.

Small Inverter ISA:

"Small Inverter ISA" shall mean an agreement among Transmission Provider, Interconnection Customer, and Interconnected Transmission Owner regarding interconnection of a Small Inverter Facility under Tariff, Part IV, section 112B.

Special Member:

"Special Member" shall mean an entity that satisfies the requirements of Operating Agreement, Schedule 1, section 1.5A.02, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.5A.02, or the special membership provisions established under the Emergency Load Response and Pre-Emergency Load Response Programs.

Spot Market Backup:

"Spot Market Backup" shall mean the purchase of energy from, or the delivery of energy to, the PJM Interchange Energy Market in quantities sufficient to complete the delivery or receipt obligations of a bilateral contract that has been curtailed or interrupted for any reason.

Spot Market Energy:

"Spot Market Energy" shall mean energy bought or sold by Market Participants through the PJM Interchange Energy Market at System Energy Prices determined as specified in Operating Agreement, Schedule 1, section 2, and the parallel provisions of Tariff, Attachment K-Appendix, section 2.

Start Additional Labor Costs:

"Start Additional Labor Costs" shall mean additional labor costs for startup required above normal station manning levels.

Start-Up Costs:

"Start-Up Costs" shall mean the unit costs to bring the boiler, turbine and generator from

shutdown conditions to the point after breaker closure which is typically indicated by telemetered or aggregated state estimator megawatts greater than zero and is determined based on the cost of start fuel, total fuel-related cost, performance factor, electrical costs (station service), start maintenance adder, and additional labor cost if required above normal station manning. Start-Up Costs can vary with the unit offline time being categorized in three unit temperature conditions: hot, intermediate and cold.

State:

"State" shall mean the District of Columbia and any State or Commonwealth of the United States.

State Commission:

"State Commission**"** shall mean any state regulatory agency having jurisdiction over retail electricity sales in any State in the PJM Region.

State Estimator:

"State Estimator" shall mean the computer model of power flows specified in Operating Agreement, Schedule 1, section 2.3 and the parallel provisions of Tariff, Attachment K-Appendix, section 2.3.

Station Power:

"Station Power" shall mean energy used for operating the electric equipment on the site of a generation facility located in the PJM Region or for the heating, lighting, air-conditioning and office equipment needs of buildings on the site of such a generation facility that are used in the operation, maintenance, or repair of the facility. Station Power does not include any energy (i) used to power synchronous condensers; (ii) used for pumping at a pumped storage facility; (iii) used in association with restoration or black start service; or (iv) that is Direct Charging Energy.

Sub-Annual Resource Constraint:

"Sub-Annual Resource Constraint" shall mean, for the 2017/2018 Delivery Year and for FRR Capacity Plans the 2017/2018 and 2018/2019 Delivery Years, for the PJM Region or for each LDA for which the Office of the Interconnection is required under Tariff, Attachment DD, section 5.10(a) to establish a separate VRR Curve for a Delivery Year, a limit on the total amount of Unforced Capacity that can be committed as Limited Demand Resources and Extended Summer Demand Resources for the 2017/2018 Delivery Year in the PJM Region or in such LDA, calculated as the Sub-Annual Resource Reliability Target for the PJM Region or for such LDA, respectively, minus the Short-Term Resource Procurement Target for the PJM Region or for such LDA, respectively.

Sub-Annual Resource Price Decrement:

"Sub-Annual Resource Price Decrement" shall mean, for the 2017/2018 Delivery Year, a difference between the clearing price for Extended Summer Demand Resources and the clearing price for Annual Resources, representing the cost to procure additional Annual Resources out of merit order when the Sub-Annual Resource Constraint is binding.

Sub-Annual Resource Reliability Target:

"Sub-Annual Reliability Target" for the PJM Region or an LDA, shall mean the maximum amount of the combination of Extended Summer Demand Resources and Limited Demand Resources in Unforced Capacity determined by PJM to be consistent with the maintenance of reliability, stated in Unforced Capacity, that shall be used to calculate the Minimum Annual Resource Requirement for Delivery Years through May 31, 2017 and the Sub-Annual Resource Constraint for the 2017/2018 and 2018/2019 Delivery Years. As more fully set forth in the PJM Manuals, PJM calculates the Sub-Annual Resource Reliability Target, by first determining a reference annual loss of load expectation ("LOLE") assuming no Demand Resources. The calculation for the unconstrained portion of the PJM Region uses a daily distribution of loads under a range of weather scenarios (based on the most recent load forecast and iteratively shifting the load distributions to result in the Installed Reserve Margin established for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Installed Reserve Margin study for the Delivery Year in question). The calculation for each relevant LDA uses a daily distribution of loads under a range of weather scenarios (based on the most recent load forecast for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Capacity Emergency Transfer Objective study for the Delivery Year in question). For the relevant LDA calculation, the weekly capacity distributions are adjusted to reflect the Capacity Emergency Transfer Limit for the Delivery Year in question.

For both the PJM Region and LDA analyses, PJM then models the commitment of varying amounts of DR (displacing otherwise committed generation) as interruptible from May 1 through October 31 and unavailable from November 1 through April 30 and calculates the LOLE at each DR level. The Extended Summer DR Reliability Target is the DR amount, stated as a percentage of the unrestricted peak load, that produces no more than a ten percent increase in the LOLE, compared to the reference value. The Sub-Annual Resource Reliability Target shall be expressed as a percentage of the forecasted peak load of the PJM Region or such LDA and is converted to Unforced Capacity by multiplying [the reliability target percentage] times [the Forecast Pool Requirement] times [the DR Factor] times [the forecasted peak load of the PJM Region or such LDA, reduced by the amount of load served under the FRR Alternative].

Sub-meter:

"Sub-meter" shall mean a metering point for electricity consumption that does not include all electricity consumption for the end-use customer as defined by the electric distribution company account number. PJM shall only accept sub-meter load data from end-use customers for measurement and verification of Regulation service as set forth in the Economic Load Response rules and PJM Manuals.

Summer-Period Capacity Performance Resource:

"Summer-Period Capacity Performance Resource" shall have the same meaning specified in Tariff, Attachment DD, section 5.5A.

Switching and Tagging Rules:

"Switching and Tagging Rules" shall mean the switching and tagging procedures of Interconnected Transmission Owners and Interconnection Customer as they may be amended from time to time.

Synchronized Reserve:

"Synchronized Reserve" shall mean the reserve capability of generation resources that can be converted fully into energy or Demand Resources whose demand can be reduced within ten minutes from the request of the Office of the Interconnection dispatcher, and is provided by equipment that is electrically synchronized to the Transmission System.

Synchronized Reserve Event:

"Synchronized Reserve Event" shall mean a request from the Office of the Interconnection to generation resources and/or Demand Resources able, assigned or self-scheduled to provide Synchronized Reserve in one or more specified Reserve Zones or Reserve Sub-zones, within ten minutes, to increase the energy output or reduce load by the amount of assigned or self-scheduled Synchronized Reserve capability.

Synchronized Reserve Requirement:

"Synchronized Reserve Requirement" shall mean the megawatts required to be maintained in a Reserve Zone or Reserve Sub-zone as Synchronized Reserve, absent any increase to account for additional reserves scheduled to address operational uncertainty. The Synchronized Reserve Requirement is calculated in accordance with the PJM Manuals.

System Condition:

"System Condition" shall mean a specified condition on the Transmission Provider's system or on a neighboring system, such as a constrained transmission element or flowgate, that may trigger Curtailment of Long-Term Firm Point-to-Point Transmission Service using the curtailment priority pursuant to Tariff, Part II, section 13.6. Such conditions must be identified in the Transmission Customer's Service Agreement.

System Energy Price:

"System Energy Price" shall mean the energy component of the Locational Marginal Price, which is the price at which the Market Seller has offered to supply an additional increment of energy from a resource, calculated as specified in Operating Agreement, Schedule 1, section 2

and the parallel provisions of Tariff, Attachment K-Appendix, section 2.

System Impact Study:

"System Impact Study" shall mean an assessment by the Transmission Provider of (i) the adequacy of the Transmission System to accommodate a Completed Application, an Interconnection Request or an Upgrade Request, (ii) whether any additional costs may be incurred in order to provide such transmission service or to accommodate an Interconnection Request, and (iii) with respect to an Interconnection Request, an estimated date that an Interconnection Customer's Customer Facility can be interconnected with the Transmission System and an estimate of the Interconnection Customer's cost responsibility for the interconnection; and (iv) with respect to an Upgrade Request, the estimated cost of the requested system upgrades or expansion, or of the cost of the system upgrades or expansion, necessary to provide the requested incremental rights.

System Protection Facilities:

"System Protection Facilities" shall refer to the equipment required to protect (i) the Transmission System, other delivery systems and/or other generating systems connected to the Transmission System from faults or other electrical disturbance occurring at or on the Customer Facility, and (ii) the Customer Facility from faults or other electrical system disturbance occurring on the Transmission System or on other delivery systems and/or other generating systems to which the Transmission System is directly or indirectly connected. System Protection Facilities shall include such protective and regulating devices as are identified in the Applicable Technical Requirements and Standards or that are required by Applicable Laws and Regulations or other Applicable Standards, or as are otherwise necessary to protect personnel and equipment and to minimize deleterious effects to the Transmission System arising from the Customer Facility.

Tangible Net Worth:

"Tangible Net Worth" shall mean all assets (not including any intangible assets such as goodwill) less all liabilities. Any such calculation may be reduced by PJMSettlement upon review of the available financial information.

Target Allocation:

"Target Allocation" shall mean the allocation of Transmission Congestion Credits as set forth in Operating Agreement, Schedule 1, section 5.2.3, and the parallel provisions of Tariff, Attachment K-Appendix, section 5.2.3, or the allocation of Auction Revenue Rights Credits as set forth in Operating Agreement, Schedule 1, section 7.4.3, and the parallel provisions of Tariff, Attachment K-Appendix, section 7.4.3.

Third Incremental Auction:

"Third Incremental Auction" shall mean an Incremental Auction conducted three months before

the Delivery Year to which it relates.

Third-Party Sale:

"Third-Party Sale" shall mean any sale for resale in interstate commerce to a Power Purchaser that is not designated as part of Network Load under the Network Integration Transmission Service but not including a sale of energy through the PJM Interchange Energy Market established under the PJM Operating Agreement.

Tie Line:

"Tie Line" shall mean a circuit connecting two balancing authority areas, Control Areas or fully metered electric system regions. Tie Lines may be classified as external or internal as set forth in the PJM Manuals.

Total Lost Opportunity Cost Offer:

"Total Lost Opportunity Cost Offer" shall mean the applicable offer used to calculate lost opportunity cost credits. For pool-scheduled resources specified in PJM Operating Agreement, Schedule 1, section 3.2.3(f-1), and the parallel provisions of Tariff, Attachment K-Appendix, section 3.2.3(f-1), the Total Lost Opportunity Cost Offer shall equal the Real-time Settlement Interval offer integrated under the applicable offer curve for the LOC Deviation, as determined by the greater of the Committed Offer or last Real-Time Offer submitted for the offer on which the resource was committed in the Day-ahead Energy Market for each hour in an Operating Day. For all other pool-scheduled resources, the Total Lost Opportunity Cost Offer shall equal the Real-time Settlement Interval offer integrated under the applicable offer curve for the LOC Deviation, as determined by the offer curve associated with the greater of the Committed Offer or Final Offer for each hour in an Operating Day. For self-scheduled generation resources, the Total Lost Opportunity Cost Offer shall equal the Real-time Settlement Interval offer integrated under the applicable offer curve for the LOC Deviation, where for self-scheduled generation resources (a) operating pursuant to a cost-based offer, the applicable offer curve shall be the greater of the originally submitted cost-based offer or the cost-based offer that the resource was dispatched on in real-time; or (b) operating pursuant to a market-based offer, the applicable offer curve shall be determined in accordance with the following process: (1) select the greater of the cost-based day-ahead offer and updated cost-based Real-time Offer; (2) for resources with multiple cost-based offers, first, for each cost-based offer select the greater of the day-ahead offer and updated Real-time Offer, and then select the lesser of the resulting cost-based offers; and (3) compare the offer selected in (1), or for resources with multiple cost-based offers the offer selected in (2), with the market-based day-ahead offer and the market-based Real-time Offer and select the highest offer.

Total Net Obligation:

"Total Net Obligation" shall mean all unpaid billed Net Obligations plus any unbilled Net Obligation incurred to date, as determined by PJMSettlement on a daily basis, plus any other Obligations owed to PJMSettlement at the time.

Total Net Sell Position:

"Total Net Sell Position" shall mean all unpaid billed Net Sell Positions plus any unbilled Net Sell Positions accrued to date, as determined by PJMSettlement on a daily basis.

Total Operating Reserve Offer:

"Total Operating Reserve Offer" shall mean the applicable offer used to calculate Operating Reserve credits. The Total Operating Reserve Offer shall equal the sum of all individual Real-time Settlement Interval energy offers, inclusive of Start-Up Costs (shut-down costs for Demand Resources) and No-load Costs, for every Real-time Settlement Interval in a Segment, integrated under the applicable offer curve up to the applicable megawatt output as further described in the PJM Manuals. The applicable offer used to calculate day-ahead Operating Reserve credits shall be the Committed Offer, and the applicable offer used to calculate balancing Operating Reserve credits shall be lesser of the Committed Offer or Final Offer for each hour in an Operating Day.

Transmission Congestion Charge:

"Transmission Congestion Charge" shall mean a charge attributable to the increased cost of energy delivered at a given load bus when the transmission system serving that load bus is operating under constrained conditions, or as necessary to provide energy for third-party transmission losses which shall be calculated and allocated as specified in Operating Agreement, Schedule 1, section 5.1 and the parallel provisions of Tariff, Attachment K-Appendix, section 5.1.

Transmission Congestion Credit:

"Transmission Congestion Credit" shall mean the allocated share of total Transmission Congestion Charges credited to each FTR Holder, calculated and allocated as specified in Operating Agreement, Schedule 1, section 5.2, and the parallel provisions of Tariff, Attachment K-Appendix, section 5.2.

Transmission Constraint Penalty Factor:

"Transmission Constraint Penalty Factor" shall mean the maximum cost of the re-dispatch incurred to control the flows across a transmission constraint and establishes the maximum limit on the Marginal Value.

Transmission Customer:

"Transmission Customer" shall mean any Eligible Customer (or its Designated Agent) that (i) executes a Service Agreement, or (ii) requests in writing that the Transmission Provider file with the Commission a proposed unexecuted Service Agreement, to receive transmission service under Tariff, Part II. This term is used in Tariff, Part I and Part VI to include customers receiving transmission service under Tariff, Part II and Part III.

Where used in Tariff, Attachment K-Appendix and the parallel provisions of Operating Agreement, Schedule 1, Transmission Customer shall mean an entity using Point-to-Point Transmission Service.

Transmission Facilities:

"Transmission Facilities" shall have the meaning set forth in the Operating Agreement.

Transmission Forced Outage:

"Transmission Forced Outage" shall mean an immediate removal from service of a transmission facility by reason of an Emergency or threatened Emergency, unanticipated failure, or other cause beyond the control of the owner or operator of the transmission facility, as specified in the relevant portions of the PJM Manuals. A removal from service of a transmission facility at the request of the Office of the Interconnection to improve transmission capability shall not constitute a Forced Transmission Outage.

Transmission Injection Rights:

"Transmission Injection Rights" shall mean Capacity Transmission Injection Rights and Energy Transmission Injection Rights.

Transmission Interconnection Customer:

"Transmission Interconnection Customer" shall mean an entity that submits an Interconnection Request to interconnect or add Merchant Transmission Facilities to the Transmission System or to increase the capacity of Merchant Transmission Facilities interconnected with the Transmission System in the PJM Region or an entity that submits an Upgrade Request for Merchant Network Upgrades (including accelerating the construction of any transmission enhancement or expansion, other than Merchant Transmission Facilities, that is included in the Regional Transmission Expansion Plan prepared pursuant to Operating Agreement, Schedule 6).

Transmission Interconnection Facilities Study:

"Transmission Interconnection Facilities Study" shall mean a Facilities Study related to a Transmission Interconnection Request.

Transmission Interconnection Feasibility Study:

"Transmission Interconnection Feasibility Study" shall mean a study conducted by the Transmission Provider in accordance with Tariff, Part IV, section 36.2.

Transmission Interconnection Request:

"Transmission Interconnection Request" shall mean a request by a Transmission Interconnection

Customer pursuant to Tariff, Part IV to interconnect or add Merchant Transmission Facilities to the Transmission System or to increase the capacity of existing Merchant Transmission Facilities interconnected with the Transmission System in the PJM Region.

Transmission Loading Relief:

"Transmission Loading Relief" shall mean NERC's procedures for preventing operating security limit violations, as implemented by PJM as the security coordinator responsible for maintaining transmission security for the PJM Region.

Transmission Loading Relief Customer:

"Transmission Loading Relief Customer" shall mean an entity that, in accordance with Operating Agreement, Schedule 1, section 1.10.6A and the parallel provisions of Tariff, Attachment K-Appendix, section 1.10.6A has elected to pay Transmission Congestion Charges during Transmission Loading Relief in order to continue energy schedules over contract paths outside the PJM Region that are increasing the cost of energy in the PJM Region.

Transmission Loss Charge:

"Transmission Loss Charge" shall mean the charges to each Market Participant, Network Customer, or Transmission Customer for the cost of energy lost in the transmission of electricity from a generation resource to load as specified in Operating Agreement, Schedule 1, section 5, and the parallel provisions of Tariff, Attachment K-Appendix, section 5.

Transmission Owner:

"Transmission Owner" shall mean a Member that owns or leases with rights equivalent to ownership Transmission Facilities and is a signatory to the PJM Transmission Owners Agreement. Taking transmission service shall not be sufficient to qualify a Member as a Transmission Owner.

Transmission Owner Attachment Facilities:

"Transmission Owner Attachment Facilities" shall mean that portion of the Transmission Owner Interconnection Facilities comprised of all Attachment Facilities on the Interconnected Transmission Owner's side of the Point of Interconnection.

Transmission Owner Interconnection Facilities:

"Transmission Owner Interconnection Facilities" shall mean all Interconnection Facilities that are not Customer Interconnection Facilities and that, after the transfer under Tariff, Attachment P, Appendix 2, section 5.5 to the Interconnected Transmission Owner of title to any Transmission Owner Interconnection Facilities that the Interconnection Customer constructed, are owned, controlled, operated and maintained by the Interconnected Transmission Owner on the Interconnected Transmission Owner's side of the Point of Interconnection identified in

appendices to the Interconnection Service Agreement and to the Interconnection Construction Service Agreement, including any modifications, additions or upgrades made to such facilities and equipment, that are necessary to physically and electrically interconnect the Customer Facility with the Transmission System or interconnected distribution facilities.

Transmission Owner Upgrade:

"Transmission Owner Upgrade" shall have the same meaning provided in the Operating Agreement.

Transmission Planned Outage:

"Transmission Planned Outage" shall mean any transmission outage scheduled in advance for a pre-determined duration and which meets the notification requirements for such outages specified in Operating Agreement, Schedule 1, and the parallel provisions of Tariff, Attachment K-Appendix or the PJM Manuals.

Transmission Provider:

The "Transmission Provider" shall be the Office of the Interconnection for all purposes, provided that the Transmission Owners will have the responsibility for the following specified activities:

(a) The Office of the Interconnection shall direct the operation and coordinate the maintenance of the Transmission System, except that the Transmission Owners will continue to direct the operation and maintenance of those transmission facilities that are not listed in the PJM Designated Facilities List contained in the PJM Manual on Transmission Operations;

(b) Each Transmission Owner shall physically operate and maintain all of the facilities that it owns; and

(c) When studies conducted by the Office of the Interconnection indicate that enhancements or modifications to the Transmission System are necessary, the Transmission Owners shall have the responsibility, in accordance with the applicable terms of the Tariff, Operating Agreement and/or the Consolidated Transmission Owners Agreement to construct, own, and finance the needed facilities or enhancements or modifications to facilities.

Transmission Provider's Monthly Transmission System Peak:

"Transmission Provider's Monthly Transmission System Peak" shall mean the maximum firm usage of the Transmission Provider's Transmission System in a calendar month.

Transmission Service:

"Transmission Service" shall mean Point-To-Point Transmission Service provided under Tariff, Part II on a firm and non-firm basis.

Transmission Service Request:

"Transmission Service Request" shall mean a request for Firm Point-To-Point Transmission Service or a request for Network Integration Transmission Service.

Transmission System:

"Transmission System" shall mean the facilities controlled or operated by the Transmission Provider within the PJM Region that are used to provide transmission service under Tariff, Part II and Part III.

Transmission Withdrawal Rights:

"Transmission Withdrawal Rights" shall mean Firm Transmission Withdrawal Rights and Non-Firm Transmission Withdrawal Rights.

Turn Down Ratio:

"Turn Down Ratio" shall mean the ratio of a generating unit's economic maximum megawatts to its economic minimum megawatts.

Unconstrained LDA Group:

"Unconstrained LDA Group" shall mean a combined group of LDAs that form an electrically contiguous area and for which a separate Variable Resource Requirement Curve has not been established under Tariff, Attachment DD, section 5.10. Any LDA for which a separate Variable Resource Requirement Curve has not been established under Tariff, Attachment DD, section 5.10 shall be combined with all other such LDAs that form an electrically contiguous area.

Unforced Capacity:

"Unforced Capacity" shall have the meaning specified in the Reliability Assurance Agreement.

Unsecured Credit:

"Unsecured Credit" shall mean any credit granted by PJMSettlement to a Participant that is not secured by Collateral.

Unsecured Credit Allowance:

"Unsecured Credit Allowance" shall mean Unsecured Credit extended by PJMSettlement in an amount determined by PJMSettlement's evaluation of the creditworthiness of a Participant. This is also defined as the amount of credit that a Participant qualifies for based on the strength of its own financial condition without having to provide Collateral. See also: "Working Credit Limit."

Updated VRR Curve:

"Updated VRR Curve" shall mean the Variable Resource Requirement Curve for use in the Base Residual Auction of the relevant Delivery Year, updated to reflect any change in the Reliability Requirement from the Base Residual Auction to such Incremental Auction, and for Delivery Years through May 31, 2018, the Short-term Resource Procurement Target applicable to the relevant Incremental Auction.

Updated VRR Curve Decrement:

"Updated VRR Curve Decrement" shall mean the portion of the Updated VRR Curve to the left of a vertical line at the level of Unforced Capacity on the x-axis of such curve equal to the net Unforced Capacity committed to the PJM Region as a result of all prior auctions conducted for such Delivery Year and adjusted, if applicable, by a change in Unforced Capacity commitments associated with the transition provision of Tariff, Attachment DD, section 5.14C, Tariff, Attachment DD, section 5.14D (as related to the 2016/2017 and 2017/2018 Delivery Years), Tariff, Attachment DD, section 5.14E, and Tariff, Attachment DD, section 5.5A(c)(i)(B), and RAA, Schedule 6, section L.9.

Updated VRR Curve Increment:

"Updated VRR Curve Increment" shall mean the portion of the Updated VRR Curve to the right of a vertical line at the level of Unforced Capacity on the x-axis of such curve equal to the net Unforced Capacity committed to the PJM Region as a result of all prior auctions conducted for such Delivery Year and adjusted, if applicable, by a change in Unforced Capacity commitments associated with the transition provision of Tariff, Attachment DD, section 5.14C, Tariff, Attachment DD, section 5.14D (as related to the 2016/2017 and 2017/2018 Delivery Years), Tariff, Attachment DD, section 5.14E, and Tariff, Attachment DD, section 5.5A(c)(i)(B), and RAA, Schedule 6, section L.9.

Upgrade Construction Service Agreement:

"Upgrade Construction Service Agreement" shall mean that agreement entered into by an Eligible Customer, Upgrade Customer or Interconnection Customer proposing Merchant Network Upgrades, a Transmission Owner, and the Transmission Provider, pursuant to Tariff, Part VI, Subpart B, and in the form set forth in Tariff, Attachment GG.

Upgrade Customer:

"Upgrade Customer" shall mean a customer that submits an Upgrade Request pursuant to Operating Agreement, Schedule 1, section 7.8.

Upgrade Feasibility Study:

"Upgrade Feasibility Study" shall mean a study conducted by the Transmission Provider in accordance with Tariff, section 36.3.

Upgrade-Related Rights:

"Upgrade-Related Rights" shall mean Incremental Auction Revenue Rights, Incremental Available Transfer Capability Revenue Rights, Incremental Deliverability Rights, and Incremental Capacity Transfer Rights.

Upgrade Request:

"Upgrade Request" shall mean a request submitted in the form prescribed in Tariff, Attachment EE, for evaluation by the Transmission Provider of the feasibility and estimated costs of (a) a Merchant Network Upgrade or (b) the Customer-Funded Upgrades that would be needed to provide Incremental Auction Revenue Rights specified in a request pursuant to Operating Agreement, Schedule 1, section 7.8.

Up-to Congestion Counterflow Transaction:

"Up-to Congestion Counterflow Transaction" shall mean an Up-to Congestion Transaction will be deemed an Up-to Congestion Counterflow Transaction if the following value is negative: (a) when bidding, the lower of the bid price and the prior Up-to Congestion Historical Month's average real-time value for the transaction; or (b) for cleared Virtual Transactions, the cleared day-ahead price of the Virtual Transactions.

Up-to Congestion Historical Month:

"Up-to Congestion Historical Month" shall mean a consistently-defined historical period nominally one month long that is as close to a calendar month as PJM determines is practical.

Up-to Congestion Prevailing Flow Transaction:

An Up-to Congestion Transaction shall mean an "Up-to Congestion Prevailing Flow Transaction" if it is not an Up-to Congestion Counterflow Transaction.

Up-to Congestion Reference Price:

"Up-to Congestion Reference Price" for an Up-to Congestion Transaction, shall be the specified percentile price differential between source and sink (defined as sink price minus source price) for real-time prices experienced over the prior Up-to Congestion Historical Month, averaged with the same percentile value calculated for the second prior Up-to Congestion Historical Month. Up-to Congestion Reference Prices shall be calculated using the following historical percentiles:

For Up-to Congestion Prevailing Flow Transactions: 30^{th} percentile
For Up-to Congestion Counterflow Transactions when bid: 20^{th} percentile
For Up-to Congestion Counterflow Transactions when cleared: 5^{th} percentile

Up-to Congestion Transaction:

"Up-to Congestion Transaction" shall have the meaning specified in Operating Agreement, Schedule 1, section 1.10.1A, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.10.1A.

Variable Loads:

"Variable Loads" shall have the meaning specified in Operating Agreement, Schedule 1, section 1.5A.6, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.5A.6.

Variable Resource Requirement Curve:

"Variable Resource Requirement Curve" shall mean a series of maximum prices that can be cleared in a Base Residual Auction for Unforced Capacity, corresponding to a series of varying resource requirements based on varying installed reserve margins, as determined by the Office of the Interconnection for the PJM Region and for certain Locational Deliverability Areas in accordance with the methodology provided in Tariff, Attachment DD, section 5.

Virtual Credit Exposure:
"Virtual Credit Exposure" shall mean the amount of potential credit exposure created by a market participant's bid submitted into the Day-ahead market, as defined in Tariff, Attachment Q.

Virtual Transaction:

"Virtual Transaction" shall mean a Decrement Bid, Increment Offer and/or Up-to Congestion Transaction.

Virtual Transaction Screening:

"Virtual Transaction Screening" shall be the process of reviewing the Virtual Credit Exposure of submitted Virtual Transactions against the Credit Available for Virtual Transactions. If the credit required is greater than credit available, then the Virtual Transactions will not be accepted.

Virtual Transactions Net Activity:

"Virtual Transactions Net Activity" shall mean the aggregate net total, resulting from Virtual Transactions, of (i) Spot Market Energy charges, (ii) Transmission Congestion Charges, and (iii) Transmission Loss Charges, calculated as set forth in Tariff, Attachment K-Appendix. Virtual Transactions Net Activity may be positive or negative.

Voltage Reduction Action:

"Voltage Reduction Action" shall mean a notification during capacity deficient conditions in which PJM notifies Members to reduce voltage on the distribution system in order to reduce demand and therefore provide a sufficient amount of reserves, maintain tie flow schedules and preserve limited energy sources.

Voltage Reduction Alert:

"Voltage Reduction Alert" shall mean a notification from PJM to alert Members that a voltage reduction may be required during a future critical period.

Voltage Reduction Warning:

"Voltage Reduction Warning" shall mean a notification from PJM to warn Members that PJM's available Synchronized Reserve is less than the Synchronized Reserve Requirement and that present operations have deteriorated such that a voltage reduction may be required.

Wholesale Transaction:

As used in Tariff, Part IV, "Wholesale Transaction" shall mean any transaction involving the transmission or sale for resale of electricity in interstate commerce that utilizes any portion of the Transmission System.

Winter-Period Capacity Performance Resource:

"Winter-Period Capacity Performance Resource" shall have the same meaning specified in Tariff, Attachment DD, section 5.5A.

Working Credit Limit:

"Working Credit Limit" shall mean an amount is 75% of the Participant's Unsecured Credit Allowance and/or 75% of the Collateral provided by the Participant to PJMSettlement. The Working Credit Limit establishes the maximum amount of Total Net Obligation that a Participant may have outstanding at any time. The calculation of Working Credit Limit shall take into account applicable reductions for Minimum Participation Requirements, FTR, or other credit requirement determinants as defined in Tariff, Attachment Q.

Working Credit Limit for Virtual Transactions:

The "Working Credit Limit for Virtual Transactions" shall be calculated as 75% of the Market Participant's Unsecured Credit Allowance and/or 75% of the Collateral provided by the Market Participant to PJMSettlement when the Market Participant is at or below its Peak Market Activity credit requirements as specified in Tariff, Attachment Q, section V.A. When the Market Participant provides additional Unsecured Credit Allowance and/or Collateral in excess of its Peak Market Activity credit requirements, such additional Unsecured Credit Allowance and/or Financial Security shall not be discounted by 25% when calculating the Working Credit Limit for Virtual Transactions. The Working Credit Limit for Virtual Transactions is a component in the calculation of Credit Available for Virtual Transactions. The calculation of Working Credit Limit for Virtual Transactions shall take into account applicable reductions for Minimum Participation Requirements, FTR, or other credit requirement determinants as defined in Tariff, Attachment Q.

Zonal Base Load:

"Zonal Base Load" shall mean the lowest daily zonal peak load from the twelve month period ending October 21 of the calendar year immediately preceding the calendar year in which an annual Auction Revenue Right allocation is conducted, increased by the projected load growth rate for the relevant Zone, when non-extraordinary conditions exist for the applicable twelve month period, as determined by PJM. If the lowest daily zonal peak load from the applicable twelve month period is abnormally low due to extraordinary conditions, as determined by PJM, Zonal Base Load shall mean the next lowest daily zonal peak load that was not affected by extraordinary conditions during the applicable twelve month period, increased by the projected load growth rate for the relevant Zone. For the purposes of this definition, extraordinary conditions shall mean a significant event, or combination of events, that affect the operation of the bulk power system in an atypical manner and results in an abnormal reduction in the consumption of energy within a Zone.

Zonal Capacity Price:

"Zonal Capacity Price" shall mean the clearing price required in each Zone to meet the demand for Unforced Capacity and satisfy Locational Deliverability Requirements for the LDA or LDAs associated with such Zone. If the Zone contains multiple LDAs with different Capacity Resource Clearing Prices, the Zonal Capacity Price shall be a weighted average of the Capacity Resource Clearing Prices for such LDAs, weighted by the Unforced Capacity of Capacity Resources cleared in each such LDA.

Zone or Zonal:

"Zone" or "Zonal" shall mean an area within the PJM Region, as set forth in Tariff, Attachment J and RAA, Schedule 15, or as such areas may be (i) combined as a result of mergers or acquisitions or (ii) added as a result of the expansion of the boundaries of the PJM Region. A Zone shall include any Non-Zone Network Load located outside the PJM Region that is served from such Zone under Tariff, Attachment H-A.

Zone Network Load:

"Zone Network Load" shall mean Network Load that is located inside of the area comprised of the PJM Region.

APPENDIX 2

STANDARD TERMS AND CONDITIONS FOR INTERCONNECTIONS

1 Commencement, Term of and Conditions Precedent to Interconnection Service

1.1 Commencement Date:

The effective date of an Interconnection Service Agreement shall be the date provided in Section 4.0 of the Interconnection Service Agreement. Interconnection Service under this Interconnection Service Agreement shall commence upon the satisfaction of the conditions precedent set forth in Section 1.2 below.

1.2 Conditions Precedent:

The following conditions must be satisfied prior to the commencement of Interconnection Service under this Interconnection Service Agreement:

(a) This Interconnection Service Agreement, if filed with FERC, shall have been accepted for filing by the FERC;

(b) All requirements for Initial Operation as specified in Section 1.4 below shall have been met and Initial Operation of the Customer Facility shall have been completed.

(c) Interconnection Customer shall be in compliance with all Applicable Technical Requirements and Standards for interconnection under the Tariff (as determined by the Transmission Provider).

1.3 Term:

This Interconnection Service Agreement shall remain in full force and effect until it is terminated in accordance with Section 16 of this Appendix 2.

1.4 Initial Operation:

The following requirements shall be satisfied prior to Initial Operation of the Customer Facility:

1.4.1 The construction of all Interconnection Facilities necessary for the interconnection of the Customer Facility has been completed;

1.4.2 The Interconnected Transmission Owner has accepted any Interconnection Facilities constructed by Interconnection Customer pursuant to the Interconnection Construction Service Agreement;

1.4.3 The Interconnection Customer and the Interconnected Transmission Owner have all necessary systems and personnel in place to allow for parallel operation of their respective facilities;

1.4.4 The Interconnected Transmission Owner has received all applicable documentation for the Interconnection Facilities built by the Interconnection Customer, certified as correct,

including, but not limited to, access to the field copy of marked-up drawings reflecting the as-built condition, pre-operation test reports, and instruction books; and

1.4.5 Interconnection Customer shall have received any necessary authorization from Transmission Provider to synchronize with the Transmission System or to energize, as applicable per the determination of Transmission Provider, the Customer Facility and Interconnection Facilities.

1.4A Limited Operation:

If any of the Transmission Owner Interconnection Facilities are not reasonably expected to be completed prior to the Interconnection Customer's planned date of Initial Operation, and provided that the Interconnected Transmission Owner has accepted the Customer Interconnection Facilities pursuant to the Interconnection Construction Service Agreement, Transmission Provider shall, upon the request and at the expense of Interconnection Customer, perform appropriate power flow or other operating studies on a timely basis to determine the extent to which the Customer Facility and the Customer Interconnection Facilities may operate prior to the completion of the Transmission Owner Interconnection Facilities consistent with Applicable Laws and Regulations, Applicable Reliability Standards, Good Utility Practice, and the Interconnection Service Agreement. In accordance with the results of such studies and subject to such conditions as Transmission Provider determines to be reasonable and appropriate, Transmission Provider shall (a) permit Interconnection Customer to operate the Customer Facility and the Customer Interconnection Facilities, and (b) grant Interconnection Customer limited, interim Interconnection Rights commensurate with the extent to which operation of the Customer Facility is permitted.

1.5 Survival:

The Interconnection Service Agreement shall continue in effect after termination to the extent necessary to provide for final billings and payments; to permit the determination and enforcement of liability and indemnification obligations arising from acts or events that occurred while the Interconnection Service Agreement was in effect; and to permit each Interconnection Party to have access to the real property, including but not limited to leased property and easements of the other Interconnection Parties pursuant to Section 16 of this Appendix 2 to disconnect, remove or salvage its own facilities and equipment.

2 Interconnection Service

2.1 Scope of Service:

Interconnection Service shall be provided to the Interconnection Customer at the Point of Interconnection (a), in the case of interconnection of the Customer Facility of a Generation Interconnection Customer, up to the Maximum Facility Output, and (b), in the case of interconnection of the Customer Facility of a Transmission Interconnection Customer, up to the Nominal Rated Capability. The location of the Point of Interconnection shall be mutually agreed by the Interconnected Entities, provided, however, that if the Interconnected Entities are unable

to agree on the Point of Interconnection, the Transmission Provider shall determine the Point of Interconnection, provided that Transmission Provider shall not select a Point of Interconnection that would impose excessive costs on either of the Interconnected Entities and shall take material system reliability considerations into account in such selection. Specifications for the Customer Facility and the location of the Point of Interconnection shall be set forth in an appendix to the Interconnection Service Agreement and shall conform to those stated in the Facilities Study.

2.2 Non-Standard Terms:

The standard terms and conditions of this Appendix 2 shall not apply, to such extent as Transmission Provider determines to be reasonably necessary to accommodate such circumstances, in the event that the Interconnection Customer acquires an ownership interest in facilities which, under the standard terms and conditions of the Interconnection Construction Service Agreement would be part of the Transmission Owner Interconnection Facilities. In such circumstances and to the extent determined by Transmission Provider to be reasonably necessary, non-standard terms and conditions mutually agreed upon by all Interconnection Parties shall apply, subject to FERC and any other necessary regulatory acceptance or approval. In addition, a Generation Interconnection Customer that acquires an ownership interest in such facilities shall become, and shall remain for so long as it retains such interest, a signatory to the Consolidated Transmission Owners Agreement.

2.3 No Transmission Services:

The execution of an Interconnection Service Agreement does not constitute a request for transmission service, or entitle Interconnection Customer to receive transmission service, under Part II or Part III of the Tariff. Nor does the execution of an Interconnection Service Agreement obligate the Interconnected Transmission Owner or Transmission Provider to procure, supply or deliver to Interconnection Customer or the Customer Facility any energy, capacity, Ancillary Services or Station Power (and any associated distribution services).

2.4 Use of Distribution Facilities:

To the extent that a Generation Interconnection Customer uses distribution facilities for the purpose of delivering energy to the Transmission System, Interconnection Service under this Tariff shall include the construction and/or use of such distribution facilities. In such cases, to such extent as Transmission Provider determines to be reasonably necessary to accommodate such circumstances, the Interconnection Service Agreement may include non-standard terms and conditions mutually agreed upon by all Interconnection Parties as needed to conform with Applicable Laws and Regulations and Applicable Standards relating to such distribution facilities.

2.5 Election by Behind The Meter Generation:

In the event that a Generation Interconnection Customer's Customer Facility is Behind The Meter Generation, the Generation Interconnection Customer may elect from time to time, subject

to the terms of this section, whether to operate all or a portion of its Customer Facility's generating capacity as a Capacity Resource under the Tariff and the Operating Agreement.

2.5.1 Capacity Resource Election:

The Generation Interconnection Customer may elect to operate all or a portion of its Customer Facility as a Capacity Resource only to the extent that the Interconnection Service Agreement grants Capacity Interconnection Rights. Such an election may include all or any portion of the Customer Facility's capacity for which Capacity Interconnection Rights have been granted.

2.5.2 Timing and Duration of Election:

The Generation Interconnection Customer shall make an initial election under this section no later than 30 days prior to the commencement of Interconnection Service. Thereafter, the Generation Interconnection Customer may make the election authorized by this Section 2.5 only once in each calendar year and must notify Transmission Provider of such an election no later than May 1, and no sooner than March 15, of each year. Each such election shall be effective commencing on June 1 following Transmission Provider's receipt of notice of the election. An election under this Section 2.5 shall remain in effect unless and until the Generation Interconnection Customer modifies or terminates it in a subsequent election made in accordance with the terms of this section.

3 Modification Of Facilities

3.1 General:

Subject to Applicable Laws and Regulations and to any applicable requirements or conditions of the Tariff and the Operating Agreement, either Interconnected Entity may undertake modifications to its facilities. In the event that an Interconnected Entity plans to undertake a modification that reasonably may be expected upon completion to have a permanent material impact on the other Interconnected Entity's facilities, that Interconnected Entity, in accordance with Good Utility Practice, shall provide the other Interconnection Parties with sufficient information regarding such modification, so that the other Interconnection Parties may evaluate the potential impact of such modification prior to commencement of the work. The Interconnected Entity desiring to perform such modification shall provide the relevant drawings, plans, and specifications to the other Interconnection Parties at least ninety days, or such shorter period to which the Interconnection Parties receiving the information may agree (which agreement shall not unreasonably be withheld, conditioned, or delayed), in advance of the beginning of the work. The Interconnection Customer shall notify Transmission Provider and Interconnected Transmission Owner of the proposed modifications and Transmission Provider shall provide, within sixty days of receipt of the relevant drawings and specifications (or within such other time upon which the Interconnection Parties may agree), an estimate of any modifications to the Transmission System that would be necessary to accommodate the proposed modifications by Interconnection Customer and a good faith estimate of the costs thereof.

3.2 Interconnection Request:

This Section 3 shall not apply to any proposed modifications by Interconnection Customer to its facilities for which Interconnection Customer must make an Interconnection Request under the Tariff. In such circumstances, the Interconnection Customer and Transmission Provider shall follow the requirements of Subpart A of Part IV of the Tariff.

3.3 Standards:

Any additions, modifications, or replacements made to an Interconnected Entity's facilities shall be constructed and operated in accordance with Good Utility Practice, Applicable Standards and Applicable Laws and Regulations.

3.4 Modification Costs:

Unless otherwise required by Applicable Laws and Regulations or this Appendix 2 and, with respect to a Transmission Interconnection Customer, subject to the terms of Section 236.2 of the Tariff:

(a) Interconnection Customer shall not be responsible for the costs of any additions, modifications, or replacements that the Interconnected Transmission Owner in its discretion or at the direction of Transmission Provider makes to the Interconnection Facilities or the Transmission System in order to facilitate the interconnection of a third party to the Interconnection Facilities or the Transmission System, or to provide transmission service under the Tariff to a third party.

(b) Interconnection Customer shall be responsible for the costs of any additions, modifications, or replacements to the Interconnection Facilities or the Transmission System that are required, in accord with Good Utility Practice and/or to maintain compliance with Applicable Laws and Regulations or Applicable Standards, in order to accommodate additions, modifications, or replacements made by Interconnection Customer to the Customer Facility or to the Customer Interconnection Facilities.

(c) Interconnection Customer shall be responsible for the costs of any additions, modifications, or replacements to the Customer Interconnection Facilities or the Customer Facility that are required, in accord with Good Utility Practice and/or to maintain compliance with Applicable Laws and Regulations or Applicable Standards, in order to accommodate additions, modifications, or replacements that Transmission Provider or the Interconnected Transmission Owner makes to the Transmission System or to the Transmission Owner Interconnection Facilities, but only to the extent that Transmission Provider's or the Interconnected Transmission Owner's changes to the Transmission System or the Transmission Owner Interconnection Facilities are made pursuant to Good Utility Practice and/or to maintain compliance with Applicable Laws and Regulations or Applicable Standards.

4 Operations

4.1 General:

Each Interconnected Entity shall operate, or shall cause operation of, its facilities in a safe and reliable manner in accord with (i) the terms of this Appendix 2; (ii) Applicable Standards; (iii) applicable rules, procedures and protocols set forth in the Tariff and the Operating Agreement, as any or all may be amended from time to time; (iv) Applicable Laws and Regulations, and (v) Good Utility Practice.

4.1.1 Interconnection Customer Drawings:

Within one hundred twenty (120) days after the date of Initial Operation, unless the Interconnection Parties agree on another mutually acceptable deadline, the Interconnection Customer shall deliver to the Transmission Provider and the Interconnected Transmission Owner final, "as-built" drawings, information and documents regarding the Customer Interconnection Facilities, including, as and to the extent applicable: a one-line diagram, a site plan showing the Customer Facility and the Customer Interconnection Facilities, plan and elevation drawings showing the layout of the Customer Interconnection Facilities, a relay functional diagram, relaying AC and DC schematic wiring diagrams and relay settings for all facilities associated with the Interconnection Customer's step-up transformers, the facilities connecting the Customer Facility to the step-up transformers and the Customer Interconnection Facilities, and the impedances (determined by factory tests) for the associated step-up transformers and the Customer Facility. As applicable, the Interconnection Customer shall provide Transmission Provider and the Interconnected Transmission Owner specifications for the excitation system, automatic voltage regulator, Customer Facility control and protection settings, transformer tap settings, and communications.

4.2 [Reserved.]

4.3 Interconnection Customer Obligations:

Interconnection Customer shall obtain Transmission Provider's approval prior to either synchronizing with the Transmission System or energizing, as applicable per the determination of Transmission Provider, the Customer Facility or, except in an Emergency Condition, disconnecting the Customer Facility from the Transmission System, and shall coordinate such synchronizations, energizations, and disconnections with the Interconnected Transmission Owner.

4.4 Transmission Interconnection Customer Obligations:

A Transmission Interconnection Customer that will be a Merchant Transmission Provider is subject to the terms and conditions in Tariff, Section 38.

4.5 Permits and Rights-of-Way:

Each Interconnected Entity at its own expense shall maintain in full force and effect all permits, licenses, rights-of-way and other authorizations as may be required to maintain the Customer Facility and the Interconnection Facilities that the entity owns, operates and maintains and, upon

reasonable request of the other Interconnected Entity, shall provide copies of such permits, licenses, rights-of-way and other authorizations at its own expense to the requesting party.

4.6 No Ancillary Services:

Except as provided in Section 4.7 of this Appendix 2, nothing in this Appendix 2 is intended to obligate the Interconnection Customer to supply Ancillary Services to either Transmission Provider or the Interconnected Transmission Owner.

4.7 Reactive Power and Primary Frequency Response

4.7.1 Reactive Power

4.7.1.1 Reactive Power Design Criteria

4.7.1.1.1 New Facilities:

For all new generating facilities to be interconnected pursuant to the Tariff, other than wind-powered and other non-synchronous generation facilities, the Generation Interconnection Customer shall design its Customer Facility to maintain a composite power delivery at continuous rated power output at a power factor of at least 0.95 leading to 0.90 lagging. For all new wind-powered and other non-synchronous generation facilities the Generation Interconnection Customer shall design its Customer Facility with the ability to maintain a composite power delivery at a power factor of at least 0.95 leading to 0.95 lagging across the full range of continuous rated power output. For all wind-powered and other non-synchronous generation facilities entering the New Service Queue on or after November 1, 2016, the power factor requirement shall be measured at the high-side of the facility substation transformers. This power factor range standard shall be dynamic and can be met using, for example, power electronics designed to supply this level of reactive capability (taking into account any limitations due to voltage level, real power output, etc.) or fixed and switched capacitors, or a combination of the two. For all wind-powered and other non-synchronous generation facilities entering the New Service Queue on or after May 1, 2015, and before November 1, 2016, the power factor requirement shall be measured at the generator's terminals. For new generation resources of more than 20 MW, other than wind-powered and other non-synchronous generating facilities, the power factor requirement shall be measured at the generator's terminals. For new generation resources of 20 MW or less, and all wind-powered and other non-synchronous generation facilities entering the New Service Queue prior to May 1, 2015, the power factor requirement shall be measured at the Point of Interconnection. Any different reactive power design criteria that Transmission Provider determines to be appropriate for a wind-powered or other non-synchronous generation facility shall be stated in the Interconnection Service Agreement. A Transmission Interconnection Customer interconnecting Merchant D.C. Transmission Facilities and/ or Controllable A.C. Merchant Transmission Facilities shall design its Customer Facility to maintain a power factor at the Point of Interconnection of at least 0.95 leading and 0.95 lagging, when the Customer Facility is operating at any level within its approved operating range.

4.7.1.1.2 Increases in Generating Capacity or Energy Output:

All increases in the capacity or energy output of any generation facility interconnected with the Transmission System, other than wind-powered and other non-synchronous generating facilities, shall be designed with the ability to maintain a composite power delivery at continuous rated power output at a power factor for all incremental MW of capacity or energy output, of at least 1.0 (unity) to 0.90 lagging. Wind-powered generation facilities and other non-synchronous generation facilities entering the New Service Queue on or after November 1, 2016, shall be designed with the ability to maintain a composite power delivery at a power factor for all incremental MW of capacity or energy output of at least 0.95 leading to 0.95 lagging measured at the high-side of the facility substation transformers across the full range of continuous rated power output. This power factor range standard shall be dynamic and can be met using, for example, power electronics designed to supply this level of reactive capability (taking into account any limitations due to voltage level, real power output, etc.) or fixed and switched capacitors, or a combination of the two. Wind-powered generation facilities and other non-synchronous generation facilities entering the New Service Queue on or after May 1, 2015, and before November 1, 2016, shall be designed with the ability to maintain a composite power delivery at a power factor for all incremental MW of capacity or energy output, of at least 0.95 leading to 0.95 lagging measured at the generator's terminals under conditions in which a wind-powered generation facility's real power output exceeds 25 percent of its continuous rated power output and, for all other non-synchronous generation facilities, across the full range of continuous rated power output. Wind-powered generation facilities and other non-synchronous generation facilities entering the New Service Queue prior to May 1, 2015 shall be designed with the ability to maintain a composite power delivery at continuous rated power output at a power factor for all incremental MW of capacity of energy output of at least 1.0 (unity) to 0.95 lagging measured at the generator's terminals. The power factor requirement associated with increases in capacity or energy output of more than 20 MW to synchronous generation facilities interconnected with the Transmission System shall be measured at the generator's terminals. The power factor requirement associated with increases in capacity or energy output of 20 MW or less to synchronous generation facilities interconnected to the Transmission System shall be measured at the Point of Interconnection.

4.7.1.2 Obligation to Supply Reactive Power:

Interconnection Customer agrees, as and when so directed by Transmission Provider or when so directed by the Interconnected Transmission Owner acting on behalf or at the direction of Transmission Provider, to operate the Customer Facility to produce reactive power within the design limitations of the Customer Facility pursuant to voltage schedules, reactive power schedules or power factor schedules established by Transmission Provider or, as appropriate, the Interconnected Transmission Owner. Transmission Provider shall maintain oversight over such schedules to ensure that all sources of reactive power in the PJM Region, as applicable, are treated in an equitable and not unduly discriminatory manner. Interconnection Customer agrees that Transmission Provider and the Interconnected Transmission Owner, acting on behalf or at the direction of Transmission Provider, may make changes to the schedules that they respectively establish as necessary to maintain the reliability of the Transmission System.

4.7.1.3 Deviations from Schedules:

In the event that operation of the Customer Facility of an Interconnection Customer causes the Transmission System or the Interconnected Transmission Owner's facilities to deviate from appropriate voltage schedules and/or reactive power schedules as specified by Transmission Provider or the Interconnected Transmission Owner's operations control center (acting on behalf or at the direction of Transmission Provider), or that otherwise is inconsistent with Good Utility Practice and results in an unreasonable deterioration of the quality of electric service to other customers of Transmission Provider or the Interconnected Transmission Owner, the Interconnection Customer shall, upon discovery of the problem or upon notice from Transmission Provider or the Interconnected Transmission Owner, acting on behalf or at the direction of Transmission Provider, take whatever steps are reasonably necessary to alleviate the situation at its expense, in accord with Good Utility Practice and within the reactive capability of the Customer Facility. In the event that the Interconnection Customer does not alleviate the situation within a reasonable period of time following Transmission Provider's or the Interconnected Transmission Owner's notice thereof, the Interconnected Transmission Owner, with Transmission Provider's approval, upon notice to the Interconnection Customer and at the Interconnection Customer's expense, may take appropriate action, including installation on the Transmission System of power factor correction or other equipment, as is reasonably required, consistent with Good Utility Practice, to remedy the situation cited in Transmission Provider's or the Interconnected Transmission Owner's notice to the Interconnection Customer under this section.

4.7.1.4 Payment for Reactive Power:

Any payments to the Interconnection Customer for reactive power shall be in accordance with Schedule 2 of the Tariff.

4.7.2 Primary Frequency Response:
Section 4.7.2 of this ISA and its subsections apply to New Service Requests received on or after October 1, 2018.

Generation Interconnection Customer shall ensure the primary frequency response capability of its Customer Facility by installing, maintaining, and operating a functioning governor or equivalent controls. The term "functioning governor or equivalent controls" as used herein shall mean the required hardware and/or software that provides frequency responsive real power control with the ability to sense changes in system frequency and autonomously adjust the Customer Facility's real power output in accordance with the droop and deadband parameters and in the direction needed to correct frequency deviations. Generation Interconnection Customer is required to install a governor or equivalent controls with the capability of operating: (1) with a maximum 5 percent droop and ±0.036 Hz deadband; or (2) in accordance with the relevant droop, deadband, and timely and sustained response settings from an approved NERC Reliability Standard providing for equivalent or more stringent parameters. The droop characteristic shall be: (1) based on the nameplate capacity of the Customer Facility, and shall be linear in the range of frequencies between 59 to 61 Hz that are outside of the deadband parameter; or (2) based an approved NERC Reliability Standard providing for an equivalent or more stringent parameter. The deadband parameter shall be: the range of frequencies above and

below nominal (60 Hz) in which the governor or equivalent controls is not expected to adjust the Customer Facility's real power output in response to frequency deviations. The deadband shall be implemented: (1) without a step to the droop curve, that is, once the frequency deviation exceeds the deadband parameter, the expected change in the Customer Facility's real power output in response to frequency deviations shall start from zero and then increase (for under-frequency deviations) or decrease (for over-frequency deviations) linearly in proportion to the magnitude of the frequency deviation; or (2) in accordance with an approved NERC Reliability Standard providing for an equivalent or more stringent parameter. Generation Interconnection Customer shall notify Transmission Provider that the primary frequency response capability of the Customer Facility has been tested and confirmed during commissioning. Once Generation Interconnection Customer has synchronized the Customer Facility with the Transmission System, Generation Interconnection Customer shall operate the Customer Facility consistent with the provisions specified in sections 4.7.2.1 and 4.7.2.2 of this agreement. The primary frequency response requirements contained herein shall apply to both synchronous and non-synchronous Customer Facilities.

4.7.2.1 Governor or Equivalent Controls:

Whenever the Customer Facility is operated in parallel with the Transmission System, Generation Interconnection Customer shall operate the Customer Facility with its governor or equivalent controls in service and responsive to frequency. Generation Interconnection Customer shall: (1) in coordination with Transmission Provider and/or the relevant balancing authority, set the deadband parameter to: (1) a maximum of ±0.036 Hz and set the droop parameter to a maximum of 5 percent; or (2) implement the relevant droop and deadband settings from an approved NERC Reliability Standard that provides for equivalent or more stringent parameters. Generation Interconnection Customer shall be required to provide the status and settings of the governor or equivalent controls to Transmission Provider and/or the relevant balancing authority upon request. If Generation Interconnection Customer needs to operate the Customer Facility with its governor or equivalent controls not in service, Generation Interconnection Customer shall immediately notify Transmission Provider and the relevant balancing authority, and provide both with the following information: (1) the operating status of the governor or equivalent controls (i.e., whether it is currently out of service or when it will be taken out of service); (2) the reasons for removing the governor or equivalent controls from service; and (3) a reasonable estimate of when the governor or equivalent controls will be returned to service. Generation Interconnection Customer shall make Reasonable Efforts to return its governor or equivalent controls into service as soon as practicable. Generation Interconnection Customer shall make Reasonable Efforts to keep outages of the Customer Facility's governor or equivalent controls to a minimum whenever the Customer Facility is operated in parallel with the Transmission System.

4.7.2.2 Timely and Sustained Response:

Generation Interconnection Customer shall ensure that the Customer Facility's real power response to sustained frequency deviations outside of the deadband setting is automatically provided and shall begin immediately after frequency deviates outside of the deadband, and to the extent the Customer Facility has operating capability in the direction needed to correct the

frequency deviation. Generation Interconnection Customer shall not block or otherwise inhibit the ability of the governor or equivalent controls to respond and shall ensure that the response is not inhibited, except under certain operational constraints including, but not limited to, ambient temperature limitations, physical energy limitations, outages of mechanical equipment, or regulatory requirements. The Customer Facility shall sustain the real power response at least until system frequency returns to a value within the deadband setting of the governor or equivalent controls. A Commission-approved Reliability Standard with equivalent or more stringent requirements shall supersede the above requirements.

4.7.2.3 Exemptions:

Customer Facilities that are regulated by the United States Nuclear Regulatory Commission shall be exempt from sections 4.7.2, 4.7.2.1, and 4.7.2.2 of this agreement. Customer Facilities that are behind the meter generation that is sized-to-load (i.e., the thermal load and the generation are near-balanced in real-time operation and the generation is primarily controlled to maintain the unique thermal, chemical, or mechanical output necessary for the operating requirements of its host facility) shall be required to install primary frequency response capability in accordance with the droop and deadband capability requirements specified in section 4.7.2, but shall be otherwise exempt from the operating requirements in sections 4.7.2, 4.7.2.1, 4.7.2.2, and 4.7.2.4 of this agreement.

4.7.2.4 Energy Storage Resources:

Generation Interconnection Customer interconnecting an Energy Storage Resource shall establish an operating range in Schedule I of this ISA that specifies a minimum state of charge and a maximum state of charge between which the Energy Storage Resource will be required to provide primary frequency response consistent with the conditions set forth in sections 4.7.2, 4.7.2.1, 4.7.2.2, and 4.7.2.3 of this agreement. Schedule I shall specify whether the operating range is static or dynamic, and shall consider (1) the expected magnitude of frequency deviations in the interconnection; (2) the expected duration that system frequency will remain outside of the deadband parameter in the interconnection; (3) the expected incidence of frequency deviations outside of the deadband parameter in the interconnection; (4) the physical capabilities of the Energy Storage Resource; (5) operational limitations of the Energy Storage Resource due to manufacturer specifications; and (6) any other relevant factors agreed to by Transmission Provider and Generation Interconnection Customer, and in consultation with the relevant transmission owner or balancing authority as appropriate. If the operating range is dynamic, then Schedule I must establish how frequently the operating range will be reevaluated and the factors that may be considered during its reevaluation.

Generation Interconnection Customer's Energy Storage Resource is required to provide timely and sustained primary frequency response consistent with section 4.7.2.2 of this agreement when it is online and dispatched to inject electricity to the Transmission System and/or receive electricity from the Transmission System. This excludes circumstances when the Energy Storage Resource is not dispatched to inject electricity to the Transmission System and/or dispatched to receive electricity from the Transmission System. If Generation Interconnection Customer's Energy Storage Resource is charging at the time of a frequency deviation outside of

its deadband parameter, it is to increase (for over-frequency deviations) or decrease (for under-frequency deviations) the rate at which it is charging in accordance with its droop parameter. Generation Interconnection Customer's Energy Storage Resource is not required to change from charging to discharging, or vice versa, unless the response necessitated by the droop and deadband settings requires it to do so and it is technically capable of making such a transition.

4.8 Under- and Over-Frequency and Under- and Over- Voltage Conditions:

The Generation Interconnection Customer shall ensure "frequency ride through" capability and "voltage ride through" capability of its Customer Facility. The Generation Interconnection Customer shall enable these capabilities such that its Customer Facility shall not disconnect automatically or instantaneously from the system or equipment of the Transmission Provider and any Affected Systems for a defined under-frequency or over-frequency condition, or an under-voltage or over-voltage condition, as tested pursuant to Section 1.4.4 of Appendix 2 of this Interconnection Service Agreement. The defined conditions shall be in accordance with Good Utility Practice and consistent with any standards and guidelines that are applied to other generating facilities in the PJM Region on a comparable basis. The Customer Facility's protective equipment settings shall comply with the Transmission Provider's automatic load-shed program. The Transmission Provider shall review the protective equipment settings to confirm compliance with the automatic load-shed program. The term "ride through" as used herein shall mean the ability of a Customer Facility to stay connected to and synchronized with the system or equipment of the Transmission Provider and any Affected Systems during system disturbances within a range of conditions, in accordance with Good Utility Practice and consistent with any standards and guidelines that are applied to other generating facilities in the Balancing Authority on a comparable basis. The term "frequency ride through" as used herein shall mean the ability of a Generation Interconnection Customer's Customer Facility Customer Facility to stay connected to and synchronized with the Transmission System or equipment of the Transmission Provider and any Affected Systems during system disturbances within a range of under-frequency and over-frequency conditions, in accordance with Good Utility Practice and consistent with any standards and guidelines that are applied to other generating facilities in the PJM Region on a comparable basis. The term "voltage ride through" as used herein shall mean the ability of a Customer Facility to stay connected to and synchronized with the system or equipment of the Transmission Provider and any Affected Systems during system disturbances within a range of under-voltage and over-voltage conditions, in accordance with Good Utility Practice and consistent with any standards and guidelines that are applied to other generating facilities in the PJM Region on a comparable basis.

The Transmission System is designed to automatically activate a load-shed program as required by NERC and each Applicable Regional Entity in the event of an under-frequency system disturbance. A Generation Interconnection Customer shall implement under-frequency and over-frequency relay set points for the Customer Facility as required by NERC and each Applicable Regional Entity to ensure "frequency ride through" capability of the Transmission System. The response of a Generation Interconnection Customer's Customer Facility to frequency deviations of predetermined magnitudes, both under-frequency and over-frequency deviations shall be studied and coordinated with the Transmission Provider in accordance with Good Utility Practice.

4.9 System Protection and Power Quality

4.9.1 System Protection:

Interconnection Customer shall, at its expense, install, operate and maintain such System Protection Facilities as may be required in connection with operation of the Customer Facility and the Customer Interconnection Facilities consistent with Applicable Technical Requirements and Standards. Interconnected Transmission Owner shall install any System Protection Facilities that may be required, as determined by Transmission Provider, on the Transmission Owner Interconnection Facilities or the Transmission System in connection with the operation of the Customer Facility and the Customer Interconnection Facilities. Responsibility for the cost of any System Protection Facilities required on the Transmission Owner Interconnection Facilities or the Transmission System shall be allocated as provided in Section 217 of the Tariff.

4.9.2 Power Quality:

The Customer Facility and Customer Interconnection Facilities shall not cause excessive deviations from the power quality criteria set forth in the Applicable Technical Requirements and Standards.

4.10 Access Rights:

Each Interconnected Entity shall provide the other Interconnected Entity access to areas under its control as reasonably necessary to permit the other Interconnected Entity to perform its obligations under this Appendix 2, including operation and maintenance obligations. An Interconnected Entity that obtains such access shall comply with all safety rules applicable to the area to which access is obtained. Each Interconnected Entity agrees to inform the other Interconnected Entity's representatives of safety rules applicable to an area.

4.11 Switching and Tagging Rules:

The Interconnected Entities shall comply with applicable Switching and Tagging Rules in obtaining clearances for work or for switching operations on equipment. Such Switching and Tagging Rules shall be developed in accordance with OSHA standards codified at 29 C.F.R. Part 1910, or successor standards. Each Interconnected Entity shall provide the other Interconnected Entity a copy of its Switching and Tagging Rules that are applicable to the other Interconnected Entity's activities.

4.12 Communications and Data Protocol:

The Interconnected Entities shall comply with any communications and data protocol that the Transmission Provider may establish.

4.13 Nuclear Generating Facilities:

In the event that the Customer Facility is a nuclear generating facility, the Interconnection Parties shall agree to such non-standard terms and conditions as are reasonably necessary to accommodate the Interconnection Customer's satisfaction of Nuclear Regulatory Commission requirements relating to the safety and reliability of operations of such facilities.

5 Maintenance

5.1 General:

Each Interconnected Entity shall maintain, or shall cause the maintenance of, its facilities in a safe and reliable manner in accord with (i) the terms of this Appendix 2; (ii) Applicable Standards; (iii) applicable rules, procedures and protocols set forth in the Tariff and the Operating Agreement, as any or all may be amended from time to time; (iv) Applicable Laws and Regulations, and (v) Good Utility Practice.

5.2 [Reserved.]

5.3 Outage Authority and Coordination

5.3.1 Coordination:

The Interconnection Parties agree to confer regularly to coordinate the planning, scheduling and performance of preventive and corrective maintenance on the Customer Facility, the Customer Interconnection Facilities and any Attachment Facilities owned by the Interconnected Transmission Owner.

5.3.2 Authority:

Each Interconnected Entity may, in accordance with Good Utility Practice, remove from service its facilities that may affect the other Interconnected Entity's facilities in order to perform maintenance or testing or to install or replace equipment. Except in the event of an Emergency Condition, the Interconnection Customer proposing to remove such facilities from service shall provide prior notice of such activities to the Transmission Provider and the Interconnected Transmission Owner, and the Interconnected Entities shall coordinate all scheduling of planned facility outages with Transmission Provider, in accordance with applicable sections of the Operating Agreement, the PJM Manuals and any other applicable operating guidelines or directives of the Transmission Provider. Subject to the foregoing, the Interconnected Entity scheduling a facility outage shall use Reasonable Efforts to coordinate such outage with the other Interconnected Entity's scheduled outages.

5.3.3 Outages Required for Maintenance:

Subject to any necessary approval by Transmission Provider, each Interconnected Entity shall provide necessary equipment outages to allow the other Interconnected Entity to perform periodic maintenance, repair or replacement of its facilities and such outages shall be provided at

mutually agreeable times, unless conditions arise which an Interconnected Entity believes, in accordance with Good Utility Practice, may endanger persons or property.

5.3.4 Rescheduling of Planned Outages:

To the extent so provided by the Tariff, the Operating Agreement, and the PJM Manuals, an Interconnected Entity may seek compensation from Transmission Provider for any costs related to rejection by Transmission Provider of a request of such Interconnected Entity for a planned maintenance outage.

5.3.5 Outage Restoration:

If an outage on an Interconnected Entity's facilities adversely affects the other Interconnected Entity's facilities, the Interconnected Entity that owns or controls the facility that is out of service shall use Reasonable Efforts to restore the facility to service promptly.

5.4 Inspections and Testing:

Each Interconnected Entity shall perform routine inspection and testing of its facilities and equipment in accordance with Good Utility Practice as may be necessary to ensure the continued interconnection of the Customer Facility with the Transmission System in a safe and reliable manner. Each Interconnected Entity shall have the right, upon advance written notice, to request reasonable additional testing of an Interconnected Entity's facilities for good cause, as may be in accordance with Good Utility Practice.

5.5 Right to Observe Testing:

Each Interconnected Entity shall notify the other Interconnected Entity in advance of its performance of tests of its portion of the Interconnection Facilities. The other Interconnected Entity shall, at its own expense, have the right to observe such testing.

5.6 Secondary Systems:

Each Interconnected Entity agrees to cooperate with the other in the inspection, maintenance, and testing of those Secondary Systems directly affecting the operation of an Interconnected Entity's facilities and equipment which may reasonably be expected to affect the other Interconnected Entity's facilities. Each Interconnected Entity shall provide advance notice to the other Interconnected Entity before undertaking any work on such equipment, especially in electrical circuits involving circuit breaker trip and close contacts, current transformers, or potential transformers.

5.7 Access Rights:

Each Interconnected Entity shall provide the other Interconnected Entity access to areas under its control as reasonably necessary to permit the other Interconnected Entity to perform its obligations under this Appendix 2, including operation and maintenance obligations. An

Interconnected Entity that obtains such access shall comply with all safety rules applicable to the area to which access is obtained. Each Interconnected Entity agrees to inform the other Interconnected Entity's representatives of safety rules applicable to an area.

5.8 Observation of Deficiencies:

If an Interconnection Party observes any Abnormal Condition on, or becomes aware of a lack of scheduled maintenance and testing with respect to, an Interconnection Party's facilities and equipment that might reasonably be expected to adversely affect the observing Interconnection Party's facilities and equipment, the observing Interconnection Party shall provide prompt notice under the circumstances to the appropriate Interconnection Party, and such Interconnection Party shall consider such notice in accordance with Good Utility Practice. Any Interconnection Party's review, inspection, and approval related to the other Interconnection Party's facilities and equipment shall be limited to the purpose of assessing the safety, reliability, protection and control of the Transmission System and shall not be construed as confirming or endorsing the design of such facilities and equipment, or as a warranty of any type, including safety, durability or reliability thereof. Notwithstanding the foregoing, the observing Interconnection Party shall have no liability whatsoever for failure to give a deficiency notice to the other Interconnection Party and the Interconnected Entity that owns the relevant Interconnection Facilities shall remain fully liable for its failure to determine and correct deficiencies and defects in its facilities and equipment.

6 Emergency Operations

6.1 Obligations:

Subject to Applicable Laws and Regulations, each Interconnection Party shall comply with the Emergency Condition procedures of NERC, the Applicable Regional Entity, Transmission Provider, the Interconnected Transmission Owner and Interconnection Customer.

6.2 Notice:

Each Interconnection Party shall notify the other parties promptly when it becomes aware of an Emergency Condition that may reasonably be expected to affect operation of the Customer Facility, the Customer Interconnection Facilities, the Transmission Owner Interconnection Facilities, or the Transmission System. To the extent information is known, the notification shall describe the Emergency Condition, the extent of the damage or deficiency, the expected effect on the facilities and/or operation thereof, its anticipated duration and the corrective action taken and/or to be taken. The initial notice shall be followed as soon as practicable with written notice.

6.3 Immediate Action:

An Interconnection Party becoming aware of an Emergency Condition may take such action, including disconnection of the Customer Facility from the Transmission System, as is reasonable and necessary in accord with Good Utility Practice (i) to prevent, avoid, or mitigate injury or danger to, or loss of, life or property; (ii) to preserve the reliability of, in the case of Interconnection Customer, the Customer Facility, or, in the case of Transmission Provider or the

Interconnected Transmission Owner, the Transmission System and interconnected sub-transmission and distribution facilities; or (iii) to expedite restoration of service. Unless, in Interconnection Customer's reasonable judgment, immediate action is required to prevent imminent loss of life or property, Interconnection Customer shall obtain the consent of Transmission Provider and the Interconnected Transmission Owner prior to performing any manual switching operations at the Customer Facility or the Generation Interconnection Facilities. Each Interconnection Party shall use Reasonable Efforts to minimize the effect of its actions during an Emergency Condition on the facilities and operations of the other Interconnection Parties.

6.4 Record-Keeping Obligations:

Each Interconnection Party shall keep and maintain records of actions taken during an Emergency Condition that may reasonably be expected to affect the other parties' facilities and make such records available for audit in accordance with Section 19.3 of this Appendix 2.

7 Safety

7.1 General:

Each Interconnected Entity shall perform all work under this Appendix 2 that may reasonably be expected to affect the other Interconnected Entity in accordance with Good Utility Practice and all Applicable Laws and Regulations pertaining to the safety of persons or property. An Interconnected Entity performing work within the boundaries of the other Interconnected Entity's facilities must abide by the safety rules applicable to the site. Each party agrees to inform the other party's representatives of applicable safety rules that must be obeyed on the premises.

7.2 Environmental Releases:

Each Interconnected Entity shall notify the other Interconnection Parties, first orally and promptly thereafter in writing, of the release of any Hazardous Substances, any asbestos or lead abatement activities, or any type of remediation activities, related to the Customer Facility or the Interconnection Facilities, any of which may reasonably be expected to affect one or both of the other parties. The notifying party shall (i) provide the notice as soon as possible; (ii) make a good faith effort to provide the notice within twenty-four (24) hours after the party becomes aware of the occurrence; and (iii) promptly furnish to the other parties copies of any publicly available reports filed with any governmental agencies addressing such events.

8 Metering

8.1 General:

Interconnection Customer shall have the right to install, own, operate, test and maintain the necessary Metering Equipment. In the event that Interconnection Customer exercises this option, the Interconnected Transmission Owner shall have the right to install its own check meter(s), at

its own expense, at or near the location of the Metering Equipment. If both Interconnection Customer and Interconnected Transmission Owner install meters, the meter installed by the Interconnection Customer shall control unless it is determined by testing to be inaccurate. If the Interconnection Customer does not exercise the option provided by the first sentence of this section, the Interconnected Transmission Owner shall have the option to install, own, operate, test and maintain all necessary Metering Equipment at Interconnection Customer's expense. If the Interconnected Transmission Owner does not exercise this option, the Interconnection Customer shall install, own, operate, test and maintain all necessary Metering Equipment. Transmission Provider shall determine the location where the Metering Equipment shall be installed, after consulting with Interconnection Customer and the Interconnected Transmission Owner. All Metering Equipment shall be tested prior to any operation of the Customer Facility. Power flows to and from the Customer Facility shall be compensated to the Point of Interconnection, or, upon the mutual agreement of the Interconnected Transmission Owner and the Interconnection Customer, to another location.

8.2 Standards:

All Metering Equipment installed pursuant to this Appendix 2 to be used for billing and payments shall be revenue quality Metering Equipment and shall satisfy applicable ANSI standards and Transmission Provider's metering standards and requirements. Nothing in this Appendix 2 precludes the use of Metering Equipment for any retail services of the Interconnected Transmission Owner provided, however, that in such circumstances Applicable Laws and Regulations shall control.

8.3 Testing of Metering Equipment:

The Interconnected Entity that, pursuant to Section 8.1 of this Appendix 2, owns the Metering Equipment shall operate, maintain, inspect and test all Metering Equipment upon installation and at least once every two years thereafter. Upon reasonable request by the other Interconnected Entity, the owner of the Metering Equipment shall inspect or test the Metering Equipment more frequently than every two years, but in no event more frequently than three times in any 24-month period. The owner of the Metering Equipment shall give reasonable notice to the Interconnection Parties of the time when any inspection or test of the owner's Metering Equipment shall take place, and the other parties may have representatives present at the test or inspection. If Metering Equipment is found to be inaccurate or defective, it shall be adjusted, repaired or replaced in order to provide accurate metering. Where the Interconnected Transmission Owner owns the Metering Equipment, the expense of such adjustment, repair or replacement shall be borne by the Interconnection Customer, except that the Interconnection Customer shall not be responsible for such expenses where the inaccuracy or defect is caused by the Interconnected Transmission Owner. If Metering Equipment fails to register, or if the measurement made by Metering Equipment during a test varies by more than one percent from the measurement made by the standard meter used in the test, the owner of the Metering Equipment shall inform Transmission Provider, and the Transmission Provider shall inform the other Interconnected Entity, of the need to correct all measurements made by the inaccurate meter for the period during which the inaccurate measurements were made, if the period can be determined. If the period of inaccurate measurement cannot be determined, the correction shall

be for the period immediately preceding the test of the Metering Equipment that is equal to one-half of the time from the date of the last previous test of the Metering Equipment, provided that the period subject to correction shall not exceed nine (9) months.

8.4 Metering Data:

At Interconnection Customer's expense, the metered data shall be telemetered (a) to a location designated by Transmission Provider; (b) to a location designated by the Interconnected Transmission Owner, unless the Interconnected Transmission Owner agrees otherwise; and (c) to a location designated by Interconnection Customer. Data from the Metering Equipment at the Point of Interconnection shall be used, under normal operating conditions, as the official measurement of the amount of energy delivered from or to the Customer Facility to the Point of Interconnection, provided that the Transmission Provider's rules applicable to Station Power shall control with respect to a Generation Interconnection Customer's consumption of Station Power.

8.5 Communications

8.5.1 Interconnection Customer Obligations:

Interconnection Customer shall install and maintain satisfactory operating communications with Transmission Provider's system dispatcher or its other designated representative and with the Interconnected Transmission Owner. Interconnection Customer shall provide standard voice line, dedicated voice line and facsimile communications at its Customer Facility control room through use of the public telephone system. Interconnection Customer also shall provide and maintain backup communication links with both Transmission Provider and Interconnected Transmission Owner for use during abnormal conditions as specified by Transmission Provider and Interconnected Transmission Owner, respectively. Interconnection Customer further shall provide the dedicated data circuit(s) necessary to provide Interconnection Customer data to the Transmission Provider and Interconnected Transmission Owner as necessary to conform with Applicable Technical Requirements and Standards.

8.5.2 Remote Terminal Unit:

Unless otherwise deemed unnecessary by Transmission Provider and Interconnected Transmission Owner, as indicated in the Interconnection Service Agreement, prior to any operation of the Customer Facility, a remote terminal unit, or equivalent data collection and transfer equipment acceptable to the Interconnection Parties, shall be installed by Interconnection Customer, or by the Interconnected Transmission Owner at Interconnection Customer's expense, to gather accumulated and instantaneous data to be telemetered to the location(s) designated by Transmission Provider and Interconnected Transmission Owner through use of a dedicated point-to-point data circuit(s) as indicated in Section 8.5.1 of this Appendix 2. Instantaneous, bi-directional real power and, with respect to a Generation Interconnection Customer's Customer Facility, reactive power flow information, must be telemetered directly to the location(s) specified by Transmission Provider and the Interconnected Transmission Owner.

8.5.3. Phasor Measurement Units (PMUs):

An Interconnection Customer entering the New Services Queue on or after October 1, 2012 with a proposed new Customer Facility that has a Maximum Facility Output equal to or greater than 100 MW shall install and maintain, at its expense, phasor measurement units (PMUs). PMUs shall be installed on the Customer Facility low side of the generator step-up transformer, unless it is a non-synchronous generation facility, in which case the PMUs shall be installed on the Customer Facility side of the Point of Interconnection. The PMUs must be capable of performing phasor measurements at a minimum of 30 samples per second which are synchronized via a high-accuracy satellite clock. To the extent Interconnection Customer installs similar quality equipment, such as relays or digital fault recorders, that can collect data at least at the same rate as PMUs and which data is synchronized via a high-accuracy satellite clock, such equipment would satisfy this requirement. As provided for in the PJM Manuals, an Interconnection Customer shall be required to install and maintain, at its expense, PMU equipment which includes the communication circuit capable of carrying the PMU data to a local data concentrator, and then transporting the information continuously to the Transmission Provider; as well as store the PMU data locally for thirty days. Interconnection Customer shall provide to Transmission Provider all necessary and requested information through the Transmission Provider synchrophasor system, including the following: (a) gross MW and MVAR measured at the Customer Facility side of the generator step-up transformer (or, for a non-synchronous generation facility, to be measured at the Customer Facility side of the Point of Interconnection); (b) generator terminal voltage; (c) generator terminal frequency; and (d) generator field voltage and current, where available. The Transmission Provider will install and provide for the ongoing support and maintenance of the network communications linking the data concentrator to the Transmission Provider. Additional details regarding the requirements and guidelines of PMU data and telecommunication of such data are contained in the PJM Manuals.

9 Force Majeure

9.1 Notice:

An Interconnection Party that is unable to carry out an obligation imposed on it by this Appendix 2 due to Force Majeure shall notify the other parties in writing or by telephone within a reasonable time after the occurrence of the cause relied on.

9.2 Duration of Force Majeure:

An Interconnection Party shall not be responsible, or considered to be in Breach or Default under this Interconnection Service Agreement, for any non-performance, any interruption or failure of service, deficiency in the quality or quantity of service, or any other failure to perform any obligation hereunder to the extent that such failure or deficiency is due to Force Majeure. An Interconnection Party shall be excused from whatever performance is affected only for the duration of the Force Majeure and while the Interconnection Party exercises Reasonable Efforts to alleviate such situation. As soon as the non-performing Interconnection Party is able to resume performance of its obligations excused because of the occurrence of Force Majeure, such

Interconnection Party shall resume performance and give prompt notice thereof to the other parties.

9.3 Obligation to Make Payments:

Any Interconnection Party's obligation to make payments for services shall not be suspended by Force Majeure.

9.4 Definition of Force Majeure:

For the purposes of this section, an event of force majeure shall mean any cause beyond the control of the affected Interconnection Party or Construction Party, including but not restricted to, acts of God, flood, drought, earthquake, storm, fire, lightning, epidemic, war, riot, civil disturbance or disobedience, labor dispute, labor or material shortage, sabotage, acts of public enemy, explosions, orders, regulations or restrictions imposed by governmental, military, or lawfully established civilian authorities, which, in any of the foregoing cases, by exercise of due diligence such party could not reasonably have been expected to avoid, and which, by the exercise of due diligence, it has been unable to overcome. Force majeure does not include (i) a failure of performance that is due to an affected party's own negligence or intentional wrongdoing; (ii) any removable or remediable causes (other than settlement of a strike or labor dispute) which an affected party fails to remove or remedy within a reasonable time; or (iii) economic hardship of an affected party.

10 Charges

10.1 Specified Charges:

If and to the extent required by the Interconnected Transmission Owner, after the Initial Operation of the Customer Facility, Interconnection Customer shall pay one or more of the types of recurring charges described in this section to compensate the Interconnected Transmission Owner for costs incurred in performing certain of its obligations under this Appendix 2. All such charges shall be stated in Schedule E of the Interconnection Service Agreement. Interconnected Transmission Owner shall provide Transmission Provider and Interconnection Customer with appropriate cost data, schedules and/or written testimony in support of any charges under this section in such manner and at such time as to allow Transmission Provider to include such materials in its filing of the Interconnection Service Agreement with the FERC. Transmission Provider will deliver a copy of such filing to Interconnection Customer. Permissible charges under this section may include:

(a) Administration Charge — Any such charge may recover only the costs and expenses incurred by the Interconnected Transmission Owner in connection with administrative obligations such as the preparation of bills, the processing of Customer Facility-specific data on energy delivered at the Point of Interconnection and costs incurred in similar types of administrative processes related to Interconnection Customer's Interconnection Service. An Administration Charge shall not be permitted to the extent that the Interconnected Transmission Owner's other charges to the Interconnection Customer under the same Interconnection Service

Agreement include an allocation of Interconnected Transmission Owner's administrative and general expenses and/or other corporate overhead costs.

(b) Metering Charge — Any such charge may recover only the Interconnected Transmission Owner's costs and expenses associated with operation, maintenance, inspection, testing, and carrying or capital replacement charges for any Metering Equipment that is owned by the Interconnected Transmission Owner.

(c) Telemetering Charge — Any such charge may recover only the Interconnected Transmission Owner's costs and expenses associated with operation, maintenance, inspection, testing, and carrying or capital replacement charges for any telemetering equipment that is owned by the Interconnected Transmission Owner and that is used exclusively in conjunction with Interconnection Service for the Interconnection Customer.

(d) Customer Facility Operations and Maintenance Charge — Any such charge may recover only the Interconnected Transmission Owner's costs and expenses associated with operation, maintenance, inspection, testing, modifications, taxes and carrying or capital replacement charges for Attachment Facilities related to the Interconnection Customer's Interconnection Service and that are owned by the Interconnected Transmission Owner, provided that

(i) any such charge shall exclude costs and expenses associated with Transmission Owner Interconnection Facilities owned by the Interconnected Transmission Owner that are radial line facilities that serve load in addition to an Interconnection Customer; and

(ii) except as otherwise provided by Applicable Laws and Regulations, any such charge may include only an allocated share, derived in accordance with the allocations contained in the Facilities Study, of costs and expenses associated with Transmission Owner Interconnection Facilities owned by the Interconnected Transmission Owner that are radial line facilities that serve more than one Interconnection Customer. At the discretion of the affected Interconnected Entities, a Customer Facility Operations and Maintenance Charge authorized under this section may apply on a per-incident basis or on a monthly or other periodic basis.

(e) Other Charges — Any other charges applicable to the Interconnection Customer, as mutually agreed upon by the Interconnection Customer and the Interconnected Transmission Owner and as accepted by the FERC as part of an Interconnection Service Agreement.

10.2 FERC Filings:

To the extent required by law or regulation, each Interconnection Party shall seek FERC acceptance or approval of its respective charges or the methodology for the calculation of such charges.

11 Security, Billing And Payments

11.1 Recurring Charges Pursuant to Section 10:

The following provisions shall apply with respect to recurring charges applicable to Interconnection Service after Initial Operation of the Customer Facility pursuant to Section 10 of this Appendix 2.

11.1.1 General:

Except as, and to the extent, otherwise provided in the Interconnection Service Agreement, billing and payment of any recurring charges applicable to Interconnection Service after Initial Operation of the Customer Facility pursuant to Section 10 of this Appendix 2 shall be in accordance with Section 7 of the Tariff. The Interconnected Transmission Owner shall provide Transmission Provider with all necessary information and supporting data that Transmission Provider may reasonably require to administer billing for and payment of applicable charges under this Appendix 2. Transmission Provider shall remit to the Interconnected Transmission Owner revenues received in payment of Interconnected Transmission Owner's charges to Interconnection Customer under this Appendix 2 upon Transmission Provider's receipt of such revenues. At Transmission Provider's reasonable discretion, charges to Interconnection Customer and remittances to Interconnected Transmission Owner under this Appendix 2 may be netted against other amounts owed by or to such parties under the Tariff.

11.1.2 Billing Disputes:

In the event of a billing dispute between Transmission Provider and Interconnection Customer, Transmission Provider shall continue to provide interconnection service under this Appendix 2 as long as Interconnection Customer (i) continues to make all payments not in dispute, and (ii) pays to Transmission Provider or into an independent escrow account the portion of the invoice in dispute, pending resolution of such dispute. If Interconnection Customer fails to meet these two requirements for continuation of service, then Transmission Provider shall so inform the Interconnection Parties and may provide notice to Interconnection Customer of a Breach pursuant to Section 15 of this Appendix 2. Within thirty days after the resolution of the dispute, the Interconnection Party that owes money to the other Interconnection Party shall pay the amount due with interest calculated in accord with Section 11.4.

11.2 Costs for Transmission Owner Interconnection Facilities:

The following provisions shall apply with respect to charges for the Costs of the Interconnected Transmission Owner for which the Interconnection Customer is responsible.

11.2.1 Adjustments to Security:

The Security provided by Interconnection Customer at or before execution of the Interconnection Service Agreement (a) shall be reduced as portions of the work are completed, and/or (b) shall be increased or decreased as required to reflect adjustments to Interconnection Customer's cost responsibility, as determined in accordance with Section 217, to correspond with changes in the

Scope of Work developed in accordance with Transmission Provider's scope change process for interconnection projects set forth in the PJM Manuals.

11.2.2 Invoice:

The Interconnected Transmission Owner shall provide Transmission Provider a quarterly statement of the Interconnected Transmission Owner's scheduled expenditures during the next three months for, as applicable (a) the design, engineering and construction of, and/or for other charges related to, construction of the Interconnection Facilities for which the Interconnected Transmission Owner is responsible under the Interconnection Service Agreement and the Interconnection Construction Service Agreement, or (b) in the event that the Interconnection Customer exercises the Option to Build pursuant to Section 3.2.3.1 of Appendix 2 of the form of Interconnection Construction Service Agreement (set forth in Attachment P to the Tariff), for the Transmission Owner's Costs associated with the Interconnection Customer's building Attachment Facilities, Local Upgrades, and Network Upgrades (including both Direct Connection Network Upgrades, Direct Connection Local Upgrades, Non-Direct Connection Network Upgrades and Non-Direct Connection Local Upgrades), including but not limited to Costs for tie-in work and Cancellation Costs. Provided, however, such Transmission Owner Costs may include oversight costs (i.e. costs incurred by the Transmission Owner when engaging in oversight activities to satisfy itself that the Interconnection Customer is complying with the Transmission Owner's standards and specifications for the construction of facilities) only if the Transmission Owner and the Interconnection Customer mutually agree to the inclusion of such costs under the Option to Build pursuant to the provisions of Section 3.3.3.1 of Appendix 2 of the form of Interconnection Construction Service Agreement (set forth in Attachment P to the Tariff). Transmission Provider shall bill Interconnection Customer on behalf of the Interconnected Transmission Owner, for the Interconnected Transmission Owner's expected Costs during the subsequent three months. Interconnection Customer shall pay each bill within twenty (20) days after receipt thereof. Upon receipt of each of Interconnection Customer's payments of such bills, Transmission Provider shall reimburse the Interconnected Transmission Owner. Interconnection Customer may request that the Transmission Provider provide a quarterly cost reconciliation. Such a quarterly cost reconciliation will have a one-quarter lag, e.g., reconciliation of costs for the first calendar quarter of work will be provided at the start of the third calendar quarter of work, provided, however, that Section 11.2.3 of this Appendix 2 shall govern the timing of the final cost reconciliation upon completion of the work.

11.2.3 Final Invoice:

Within 120 days after the Interconnected Transmission Owner completes construction and installation of the Interconnection Facilities for which the Interconnected Transmission Owner is responsible under the Interconnection Service Agreement and the Interconnection Construction Service Agreement, Transmission Provider shall provide Interconnection Customer with an accounting of, and the appropriate Construction Party shall make any payment to the other that is necessary to resolve, any difference between (a) Interconnection Customer's responsibility under the Tariff for the actual Cost of such facilities, and (b) Interconnection Customer's previous aggregate payments to Transmission Provider for the Costs of such facilities. Notwithstanding the foregoing, however, Transmission Provider shall not be obligated to make any payment to

either the Interconnection Customer or the Interconnected Transmission Owner that the preceding sentence requires it to make unless and until the Transmission Provider has received the payment that it is required to refund from the Construction Party owing the payment.

11.2.4 Disputes:

In the event of a billing dispute between any of the Construction Parties, Transmission Provider and the Interconnected Transmission Owner shall continue to perform their respective obligations pursuant to this Interconnection Service Agreement and any related Interconnection Construction Service Agreements so long as (a) Interconnection Customer continues to make all payments not in dispute, and (b) the Security held by the Transmission Provider while the dispute is pending exceeds the amount in dispute, or (c) Interconnection Customer pays to Transmission Provider or into an independent escrow account the portion of the invoice in dispute, pending resolution of such dispute. If Interconnection Customer fails to meet any of these requirements, then Transmission Provider shall so inform the other Construction Parties and Transmission Provider or the Interconnected Transmission Owner may provide notice to Interconnection Customer of a Breach pursuant to Section 15 of this Appendix 2.

11.3 No Waiver:

Payment of an invoice shall not relieve Interconnection Customer from any other responsibilities or obligations it has under this Appendix 2, nor shall such payment constitute a waiver of any claims arising hereunder.

11.4 Interest:

Interest on any unpaid amounts shall be calculated in accordance with the methodology specified for interest on refunds in the FERC's regulations at 18 C.F.R. § 35.19a(a)(2)(iii). Interest on delinquent amounts shall be calculated from the due date of the bill to the date of payment.

12.0 Assignment

12.1 Assignment with Prior Consent:

Except as provided in Section 12.2 to this Appendix 2, no Interconnection Party shall assign its rights or delegate its duties, or any part of such rights or duties, under the Interconnection Service Agreement without the written consent of the other Interconnection Parties, which consent shall not be unreasonably withheld, conditioned, or delayed. Any such assignment or delegation made without such written consent shall be null and void. An Interconnection Party may make an assignment in connection with the sale, merger, or transfer of a substantial portion or all of its properties including the Interconnection Facilities which it owns, so long as the assignee in such a sale, merger, or transfer assumes in writing all rights, duties and obligations arising under this Interconnection Service Agreement. In addition, the Interconnected Transmission Owner shall be entitled, subject to Applicable Laws and Regulations, to assign the Interconnection Service Agreement to any Affiliate or successor that owns and operates all or a substantial portion of the Interconnected Transmission Owner’s transmission facilities.

12.2 Assignment Without Prior Consent

12.2.1 Assignment to Owners:

Interconnection Customer may assign the Interconnection Service Agreement without the Interconnected Transmission Owner's or Transmission Provider's prior consent to any Affiliate or person that purchases or otherwise acquires, directly or indirectly, all or substantially all of the Customer Facility and the Customer Interconnection Facilities, provided that prior to the effective date of any such assignment, the assignee shall demonstrate that, as of the effective date of the assignment, the assignee has the technical and operational competence to comply with the requirements of this Interconnection Service Agreement and assumes in a writing provided to the Interconnected Transmission Owner and Transmission Provider all rights, duties, and obligations of Interconnection Customer arising under this Interconnection Service Agreement. However, any assignment described herein shall not relieve or discharge the Interconnection Customer from any of its obligations hereunder absent the written consent of the Transmission Provider, such consent not to be unreasonably withheld, conditioned or delayed.

12.2.2 Assignment to Lenders:

Interconnection Customer may, without the consent of the Transmission Provider or the Interconnected Transmission Owner, assign the Interconnection Service Agreement to any Project Finance Entity(ies), provided that such assignment does not alter or diminish Interconnection Customer's duties and obligations under this Interconnection Service Agreement. If Interconnection Customer provides the Interconnected Transmission Owner with notice of an assignment to any Project Finance Entity(ies) and identifies such Project Finance Entities as contacts for notice purposes pursuant to Section 21 of this Appendix 2, the Transmission Provider or Interconnected Transmission Owner shall provide notice and reasonable opportunity for such entity(ies) to cure any Breach under this Interconnection Service Agreement in accordance with this Interconnection Service Agreement. Transmission Provider or Interconnected Transmission Owner shall, if requested by such lenders, provide such customary and reasonable documents, including consents to assignment, as may be reasonably requested with respect to the assignment and status of the Interconnection Service Agreement, provided that such documents do not alter or diminish the rights of the Transmission Provider or Interconnected Transmission Owner under this Interconnection Service Agreement, except with respect to providing notice of Breach to a Project Finance Entity. Upon presentation of the Transmission Provider and/or the Interconnected Transmission Owner's invoice therefor, Interconnection Customer shall pay the Transmission Provider and/or the Interconnected Transmission Owner's reasonable documented cost of providing such documents and certificates. Any assignment described herein shall not relieve or discharge the Interconnection Customer from any of its obligations hereunder absent the written consent of the Interconnected Transmission Owner and Transmission Provider.

12.3 Successors and Assigns:

This Interconnection Service Agreement and all of its provisions are binding upon, and inure to the benefit of, the Interconnection Parties and their respective successors and permitted assigns.

13 Insurance

13.1 Required Coverages For Generation Resources Of More Than 20 Megawatts or Merchant Transmission Facilities:

Each Interconnected Entity shall maintain insurance as described in paragraphs (a) through (e) below. All insurance shall be procured from insurance companies rated "A-," VII or better by AM Best and authorized to do business in a state or states in which the Interconnection Facilities are located. Failure to maintain required insurance shall be a Breach of the Interconnection Service Agreement.

(a) Workers Compensation insurance with statutory limits, as required by the state and/or jurisdiction in which the work is to be performed, and employer's liability insurance with limits of not less than one million dollars ($1,000,000).

(b) Commercial General Liability Insurance and/or Excess Liability Insurance covering liability arising out of premises, operations, personal injury, advertising , products and completed operations coverage, independent contractors coverage, liability assumed under an insured contract, coverage for pollution to the extent normally available and punitive damages to the extent allowable under applicable law, with limits of not less than one million dollars ($1,000,000) per occurrence/one million dollars ($1,000,000) general aggregate/one million dollars ($1,000,000) products and completed operations aggregate.

(c) Business/Commercial Automobile Liability Insurance for coverage of owned and non-owned and hired vehicles, trailers or semi-trailers designed for travel on public roads, with a minimum, combined single limit of one million dollars ($1,000,000) each accident for bodily injury, including death, and property damage.

(d) Excess and/or Umbrella Liability Insurance with a limit of liability of not less than twenty million dollars ($20,000,000) per occurrence. These limits apply in excess of the employer's liability, commercial general liability and business/commercial automobile liability coverages described above. This requirement can be met alone or via a combination of primary, excess and/or umbrella insurance.

(e) Professional Liability Insurance providing errors, omissions and/or malpractice coverage in the amount of five million dollars ($5,000,000) per occurrence/aggregate. Coverage shall be provided for the Interconnected Entity's duties, responsibilities and performance outlined in this Appendix 2, the Interconnection Service Agreement, and if applicable, the Interconnection Construction Service Agreement.

An Interconnected Entity may meet the Professional Liability Insurance requirements by requiring third-party contractors, designers, or engineers, or other parties that are responsible for design work associated with the transmission facilities or Interconnection Facilities necessary for

the interconnection to procure professional liability insurance in the amounts and upon the terms prescribed by this section 13.1(e), and providing evidence of such insurance to the other Interconnected Entity. Such insurance shall be procured from companies rated "A-," VII or better by AM Best and authorized to do business in a state or states in which the Interconnection Facilities are located. Nothing in this section relieves the Interconnected Entity from complying with the insurance requirements. In the event that the policies of the designers, engineers, or other parties used to satisfy the Interconnected Entity's insurance obligations under this section become invalid for any reason, including but not limited to, (i) the policy(ies) lapsing or otherwise terminating or expiring; (ii) the coverage limits of such policy(ies) are decreased; or (iii) the policy(ies) do not comply with the terms and conditions of the Tariff; Interconnected Entity shall be required to procure insurance sufficient to meet the requirements of this section, such that there is no lapse in insurance coverage. Notwithstanding the foregoing, in the event an Interconnected Entity will not design or construct or cause to design or construct any new transmission facilities or Interconnection Facilities, Transmission Provider, in its discretion, may waive the requirement that an Interconnected Entity maintain the Professional Liability Insurance pursuant to this section.

13.1A. Required Coverages For Generation Resources Of 20 Megawatts Or Less:

Each Interconnected Entity shall maintain the types of insurance as described in section 13.1 paragraphs (a) through (e) in an amount sufficient to insure against all reasonably foreseeable direct liabilities given the size and nature of the generating equipment being interconnected, the interconnection itself, and the characteristics of the system to which the interconnection is made. Additional insurance may be required by the Interconnection Customer, as a function of owning and operating a generating facility. All insurance shall be procured from insurance companies rated "A-," VII or better by AM Best and authorized to do business in a state or states in which the Interconnection Facilities are located. Failure to maintain required insurance shall be a Breach of the Interconnection Service Agreement.

13.2 Additional Insureds:

The Commercial General Liability, Business/Commercial Automobile Liability and Excess and/or Umbrella Liability policies procured by each Interconnected Entity (the "Insuring Interconnected Entity") shall include each other Interconnection Party (the "Insured Interconnection Party"), and its respective officers, agents and employees as additional insureds, providing all standard coverages and covering liability of the Insured Interconnection Party arising out of bodily injury and/or property damage (including loss of use) in any way connected with the operations, performance, or lack of performance under this Interconnection Service Agreement.

13.3 Other Required Terms:

The above-mentioned insurance policies (except workers' compensation) shall provide the following:

(a) Each policy shall contain provisions that specify that it is primary and non contributory for any liability arising out of that party's negligence, and shall apply to such extent without consideration for other policies separately carried and shall state that each insured is provided coverage as though a separate policy had been issued to each, except the insurer's liability shall not be increased beyond the amount for which the insurer would have been liable had only one insured been covered. Each Insuring Interconnected Entity shall be responsible for its respective deductibles or retentions.

(b) If any coverage is written on a Claims First Made Basis, continuous coverage shall be maintained or an extended discovery period will be exercised for a period of not less than two (2) years after termination of the Interconnection Service Agreement.

(c) Provide for a waiver of all rights of subrogation which the Insuring Interconnected Entity's insurance carrier might exercise against the Insured Interconnection Party.

13.3A No Limitation of Liability:

The requirements contained herein as to the types and limits of all insurance to be maintained by the Interconnected Entities are not intended to and shall not in any manner, limit or qualify the liabilities and obligations assumed by the Interconnection Parties under the Interconnection Service Agreement.

13.4 Self-Insurance:

Notwithstanding the foregoing, each Interconnected Entity may self-insure to meet the minimum insurance requirements of this Section 13 of this Appendix 2 to the extent it maintains a self-insurance program, provided that such Interconnected Entity's senior secured debt is rated at investment grade or better by Standard & Poor's and its self-insurance program meets the minimum insurance requirements of this Section 13. For any period of time that an Interconnected Entity's senior secured debt is unrated by Standard & Poor's or is rated at less than investment grade by Standard & Poor's, such Party shall comply with the insurance requirements applicable to it under this Section 13. In the event that an Interconnected Entity is permitted to self-insure pursuant to this section, it shall notify the other Interconnection Parties that it meets the requirements to self-insure and that its self-insurance program meets the minimum insurance requirements in a manner consistent with that specified in Section 13.5 of this Appendix 2.

13.5 Notices; Certificates of Insurance:

All policies of insurance shall provide for thirty days prior written notice of cancellation or material adverse change. If the policies of insurance do not or cannot be endorsed to provide thirty days prior notice of cancellation or material adverse change, each Interconnected Entity shall provide the other Interconnected Entities with thirty days prior written notice of cancellation or material adverse change to any of the insurance required in this agreement. Each Interconnected Entity shall provide the other with certificates of insurance prior to Initial

Operation of the Customer Facility and thereafter at such time intervals as they shall mutually agree upon, provided that such interval shall not be less than one year. All certificates of insurance shall indicate that the certificate holder is included as an additional insured under the Commercial General Liability, Business/Commercial Automobile Liability and Excess and/or Umbrella Liability coverages, and that this insurance is primary with a waiver of subrogation included in favor of the other Interconnected Entities.

13.6 Subcontractor Insurance:

In accord with Good Utility Practice, each Interconnected Entity shall require each of its subcontractors to maintain and provide evidence of insurance coverage of types, and in amounts, commensurate with the risks associated with the services provided by the subcontractor. Bonding of contractors or subcontractors shall be at the hiring Interconnected Entity's discretion, but regardless of bonding, the hiring principal shall be responsible for the performance or non-performance of any contractor or subcontractor it hires.

13.7 Reporting Incidents

The Interconnection Parties shall report to each other in writing as soon as practical all accidents or occurrences resulting in injuries to any person, including death, and any property damage arising out of the Interconnection Service Agreement.

14 Indemnity

14.1 Indemnity:

Each Interconnection Party shall indemnify and hold harmless the other Interconnection Parties, and the other Interconnection Parties' officers, shareholders, stakeholders, members, managers, representatives, directors, agents and employees, and Affiliates, from and against any and all loss, liability, damage, cost or expense to third parties, including damage and liability for bodily injury to or death of persons, or damage to property or persons (including reasonable attorneys' fees and expenses, litigation costs, consultant fees, investigation fees, sums paid in settlements of claims, penalties or fines imposed under Applicable Laws and Regulations, and any such fees and expenses incurred in enforcing this indemnity or collecting any sums due hereunder) (collectively, "Loss") to the extent arising out of, in connection with, or resulting from (i) the indemnifying Interconnection Party's breach of any of the representations or warranties made in, or failure of the indemnifying Interconnection Party or any of its subcontractors to perform any of its obligations under, this Interconnection Service Agreement (including Appendix 2), or (ii) the negligence or willful misconduct of the indemnifying Interconnection Party or its contractors; provided, however, that no Interconnection Party shall have any indemnification obligations under this Section 14.1 in respect of any Loss to the extent the Loss results from the negligence or willful misconduct of the Interconnection Party seeking indemnity.

14.2 Indemnity Procedures:

Promptly after receipt by a Person entitled to indemnity ("Indemnified Person") of any claim or notice of the commencement of any action or administrative or legal proceeding or investigation as to which the indemnity provided for in Section 14.1 may apply, the Indemnified Person shall notify the indemnifying Interconnection Party of such fact. Any failure of or delay in such notification shall not affect an Interconnection Party's indemnification obligation unless such failure or delay is materially prejudicial to the indemnifying Interconnection Party. The Indemnified Person shall cooperate with the indemnifying Interconnection Party with respect to the matter for which indemnification is claimed. The indemnifying Interconnection Party shall have the right to assume the defense thereof with counsel designated by such indemnifying Interconnection Party and reasonably satisfactory to the Indemnified Person. If the defendants in any such action include one or more Indemnified Persons and the indemnifying Interconnection Party and if the Indemnified Person reasonably concludes that there may be legal defenses available to it and/or other Indemnified Persons which are different from or additional to those available to the indemnifying Interconnection Party, the Indemnified Person shall have the right to select separate counsel to assert such legal defenses and to otherwise participate in the defense of such action on its own behalf. In such instances, the indemnifying Interconnection Party shall only be required to pay the fees and expenses of one additional attorney to represent an Indemnified Person or Indemnified Persons having such differing or additional legal defenses. The Indemnified Person shall be entitled, at its expense, to participate in any action, suit or proceeding, the defense of which has been assumed by the indemnifying Interconnection Party. Notwithstanding the foregoing, the indemnifying Interconnection Party (i) shall not be entitled to assume and control the defense of any such action, suit or proceedings if and to the extent that, in the opinion of the Indemnified Person and its counsel, such action, suit or proceeding involves the potential imposition of criminal liability on the Indemnified Person, or there exists a conflict or adversity of interest between the Indemnified Person and the indemnifying Interconnection Party, in such event the indemnifying Interconnection Party shall pay the reasonable expenses of the Indemnified Person, and (ii) shall not settle or consent to the entry of any judgment in any action, suit or proceeding without the consent of the Indemnified Person, which shall not be unreasonably withheld, conditioned or delayed.

14.3 Indemnified Person:

If an Indemnified Person is entitled to indemnification under this Section 14 as a result of a claim by a third party, and the indemnifying Interconnection Party fails, after notice and reasonable opportunity to proceed under Section 14.2 of this Appendix 2, to assume the defense of such claim, such Indemnified Person may at the expense of the indemnifying Interconnection Party contest, settle or consent to the entry of any judgment with respect to, or pay in full, such claim.

14.4 Amount Owing:

If an indemnifying Interconnection Party is obligated to indemnify and hold any Indemnified Person harmless under this Section 14, the amount owing to the Indemnified Person shall be the amount of such Indemnified Person's actual Loss, net of any insurance or other recovery.

14.5 Limitation on Damages:

Except as otherwise provided in this Section 14, the liability of an Interconnection Party under this Appendix 2 shall be limited to direct actual damages, and all other damages at law are waived. Under no circumstances shall any Interconnection Party or its Affiliates, directors, officers, employees and agents, or any of them, be liable to another Interconnection Party, whether in tort, contract or other basis in law or equity for any special, indirect punitive, exemplary or consequential damages, including lost profits. The limitations on damages specified in this Section 14.5 are without regard to the cause or causes related thereto, including the negligence of any Interconnection Party, whether such negligence be sole, joint or concurrent, or active or passive. This limitation on damages shall not affect any Interconnection Party's rights to obtain equitable relief as otherwise provided in this Appendix 2. The provisions of this Section 14.5 shall survive the termination or expiration of the Interconnection Service Agreement.

14.6 Limitation of Liability in Event of Breach:

An Interconnection Party ("Breaching Party") shall have no liability hereunder to the other Interconnection Parties, and the other Interconnection Parties hereby release the Breaching Party, for all claims or damages that either of them incurs that are associated with any interruption in the availability of the Customer Facility, Interconnection Facilities, Transmission System or Interconnection Service or damages to an Interconnection Party's facilities, except to the extent such interruption or damage is caused by the Breaching Party's gross negligence or willful misconduct in the performance of its obligations under this Interconnection Service Agreement (including Appendix 2).

14.7 Limited Liability in Emergency Conditions:

Except as otherwise provided in the Tariff or the Operating Agreement, no Interconnection Party shall be liable to any other Interconnection Party for any action that it takes in responding to an Emergency Condition, so long as such action is made in good faith, is consistent with Good Utility Practice and is not contrary to the directives of the Transmission Provider or of the Interconnected Transmission Owner with respect to such Emergency Condition. Notwithstanding the above, Interconnection Customer shall be liable in the event that it fails to comply with any instructions of Transmission Provider or the Interconnected Transmission Owner related to an Emergency Condition.

15 Breach, Cure And Default

15.1 Breach:

A Breach of this Interconnection Service Agreement shall include:

(a) The failure to pay any amount when due;

(b) The failure to comply with any material term or condition of this Appendix 2 or of the other portions of the Interconnection Service Agreement, including but not limited to any

material breach of a representation, warranty or covenant (other than in subsections (a) and (c)-(e) of this Section) made in this Appendix 2;

(c) Assignment of the Interconnection Service Agreement in a manner inconsistent with its terms;

(d) Failure of an Interconnection Party to provide access rights, or an Interconnection Party's attempt to revoke or terminate access rights, that are provided under this Appendix 2; or

(e) Failure of an Interconnection Party to provide information or data required to be provided under this Appendix 2 to another Interconnection Party for such other Interconnection Party to satisfy its obligations under this Appendix 2.

15.2 Continued Operation:

In the event of a Breach or Default by either Interconnected Entity, and subject to termination of the Interconnection Service Agreement under Section 16 of this Appendix 2, the Interconnected Entities shall continue to operate and maintain, as applicable, such DC power systems, protection and Metering Equipment, telemetering equipment, SCADA equipment, transformers, Secondary Systems, communications equipment, building facilities, software, documentation, structural components, and other facilities and appurtenances that are reasonably necessary for Transmission Provider and the Interconnected Transmission Owner to operate and maintain the Transmission System and the Transmission Owner Interconnection Facilities and for Interconnection Customer to operate and maintain the Customer Facility and the Customer Interconnection Facilities, in a safe and reliable manner.

15.3 Notice of Breach:

An Interconnection Party not in Breach shall give written notice of an event of Breach to the Breaching Party, to Transmission Provider and to other persons that the Breaching Party identifies in writing to the other Interconnection Party in advance. Such notice shall set forth, in reasonable detail, the nature of the Breach, and where known and applicable, the steps necessary to cure such Breach. In the event of a Breach by Interconnection Customer, Transmission Provider and the Interconnected Transmission Owner agree to provide notice of such Breach, at the same time and in the same manner as its notice to Interconnection Customer, to any Project Finance Entity provided that the Interconnection Customer has provided the notifying Interconnection Party with notice of an assignment to such Project Finance Entity(ies) and identifies such Project Finance Entity(ies) as contacts for notice purposes pursuant to Section 21 of this Appendix 2.

15.4 Cure and Default:

An Interconnection Party that commits a Breach and does not take steps to cure the Breach pursuant to this Section 15.4 is in Default of this Appendix 2 and of the Interconnection Service Agreement.

15.4.1 Cure of Breach:

Except for the event of Breach set forth in Section 15.1(a) above, the Breaching Interconnection Party (a) may cure the Breach within thirty days from the receipt of such notice; or (b) if the Breach cannot be cured within thirty (30) days, may commence in good faith all steps that are reasonable and appropriate to cure the Breach within such thirty day time period and thereafter diligently pursue such action to completion. In an event of Breach set forth in Section 15.1(a), the Breaching Interconnection Party may cure the Breach within five (5) days from the receipt of notice of the Breach.

15.5 Right to Compel Performance:

Notwithstanding the foregoing, upon the occurrence of an event of Default, a non-Defaulting Interconnection Party shall be entitled to (a) commence an action to require the Defaulting Interconnection Party to remedy such Default and specifically perform its duties and obligations hereunder in accordance with the terms and conditions hereof, (b) withhold payments, (c) suspend performance hereunder, and (d) exercise such other rights and remedies as it may have in equity or at law; provided, however, that the Transmission Provider shall not terminate the Interconnection Service Agreement due to the failure of Interconnection Customer to make a payment hereunder unless such failure could reasonably be expected to have a material adverse effect on the Interconnected Transmission Owner.

15.6 Remedies Cumulative:

Subject to Section 20.1, no remedy conferred by any provision of this Appendix 2 is intended to be exclusive of any other remedy and each and every remedy shall be cumulative and shall be in addition to every other remedy given hereunder or now or hereafter existing at law or in equity or by statute or otherwise. The election of any one or more remedies shall not constitute a waiver of the right to pursue other available remedies.

16 Termination

16.1 Termination:

This Interconnection Service Agreement and Interconnection Service under this Interconnection Service Agreement may be terminated by the following means:

16.1.1 By Mutual Consent:

Interconnection Service may be terminated as of the date on which the Interconnection Parties mutually agree to terminate the Interconnection Service Agreement.

16.1.2 By Interconnection Customer:

Interconnection Customer may unilaterally terminate the Interconnection Service Agreement pursuant to Applicable Laws and Regulations upon providing Transmission Provider and the

Interconnected Transmission Owner sixty (60) days prior written notice thereof, provided that Interconnection Customer is not then in Default under the Interconnection Service Agreement.

16.1.3 Upon Default of Interconnection Customer:

Transmission Provider may terminate the Interconnection Service Agreement upon the Default of Interconnection Customer of its obligations under the Interconnection Service Agreement by providing Interconnection Customer and the Interconnected Transmission Owner prior written notice of termination; provided, however, that Transmission Provider shall not terminate the Interconnection Service Agreement due to the failure of Interconnection Customer to make a payment hereunder unless such failure could reasonably be expected to have a material adverse effect on the Interconnected Transmission Owner.

16.2 Disposition of Facilities Upon Termination

16.2.1 Disconnection:

Upon termination of the Interconnection Service Agreement in accordance with this Section 16, Transmission Provider and/or the Interconnected Transmission Owner shall, in coordination with Interconnection Customer, physically disconnect the Customer Facility from the Transmission System, except to the extent otherwise allowed by this Appendix 2.

16.2.2 Network Facilities:

At the time of termination, the Transmission Provider and the Interconnected Entities shall keep in place any portion of the Interconnection Facilities that the Transmission Provider deems necessary for the safety, integrity and/or reliability of the Transmission System. Otherwise, Transmission Provider may, in its discretion, within 30 days following termination of Interconnection Service, require the removal of all or any part of the Interconnection Facilities.

16.2.2.1 In the event that (i) the Interconnection Service Agreement and Interconnection Service under this Appendix 2 are terminated and (ii) Transmission Provider determines that some or all of the Interconnection Facilities that are owned by the Interconnection Customer are necessary for the safety, integrity and/or reliability of the Transmission System, Interconnection Customer, subject to Applicable Laws and Regulations, shall transfer to the Interconnected Transmission Owner title to the Interconnection Facilities that Transmission Provider has determined to be necessary for the safety, integrity and/or reliability of the Transmission System.

16.2.2.2 In the event that removal of some or all of the Interconnection Facilities is necessary to maintain compliance with Applicable Standards, Interconnection Customer shall be responsible for the costs of any such removal. Interconnection Customer shall have the right to take or retain title to equipment and/or facilities that are removed pursuant to this section; alternatively, in the event that the Interconnection Customer does not wish to retain title to removed equipment and/or facilities that it owns, the Interconnected Transmission Owner may

elect to pay the Interconnection Customer a mutually agreed amount to acquire and own such equipment and/or facilities.

16.2.3 Request for Disposition Determination:

Interconnection Customer may request a determination from the Transmission Provider whether any Interconnection Facilities will be removed in the event of any termination of Interconnection Service to the Customer Facility within the following year. Transmission Provider shall respond to that request no later than sixty (60) days after receipt.

16.3 FERC Approval:

Notwithstanding any other provision of this Appendix 2, no termination hereunder shall become effective until the Interconnected Entities and/or Transmission Provider have complied with all Applicable Laws and Regulations applicable to such termination, including the filing with the FERC of a notice of termination of the Interconnection Service Agreement, and acceptance of such notice for filing by the FERC.

16.4 Survival of Rights:

Termination of this Interconnection Service Agreement shall not relieve any Interconnection Party of any of its liabilities and obligations arising under this Interconnection Service Agreement (including Appendix 2) prior to the date on which termination becomes effective, and each Interconnection Party may take whatever judicial or administrative actions it deems desirable or necessary to enforce its rights hereunder. Applicable provisions of this Appendix 2 will continue in effect after termination to the extent necessary to provide for final billings, billing adjustments, and the determination and enforcement of liability and indemnification obligations arising from events or acts that occurred while the Interconnection Service Agreement was in effect.

17 Confidentiality:

Information is Confidential Information only if it is clearly designated or marked in writing as confidential on the face of the document, or, if the information is conveyed orally or by inspection, if the Interconnection Party providing the information orally informs the Interconnection Party receiving the information that the information is confidential. If requested by any Interconnection Party, the disclosing Interconnection Party shall provide in writing the basis for asserting that the information referred to in this section warrants confidential treatment, and the requesting Interconnection Party may disclose such writing to an appropriate Governmental Authority. Any Interconnection Party shall be responsible for the costs associated with affording confidential treatment to its information.

17.1 Term:

During the term of the Interconnection Service Agreement, and for a period of three (3) years after the expiration or termination of the Interconnection Service Agreement, except as otherwise

provided in this Section 17, each Interconnection Party shall hold in confidence, and shall not disclose to any person, Confidential Information provided to it by any other Interconnection Party.

17.2 Scope:

Confidential Information shall not include information that the receiving Interconnection Party can demonstrate: (i) is generally available to the public other than as a result of a disclosure by the receiving Interconnection Party; (ii) was in the lawful possession of the receiving Interconnection Party on a non-confidential basis before receiving it from the disclosing Interconnection Party; (iii) was supplied to the receiving Interconnection Party without restriction by a third party, who, to the knowledge of the receiving Interconnection Party, after due inquiry, was under no obligation to the disclosing Interconnection Party to keep such information confidential; (iv) was independently developed by the receiving Interconnection Party without reference to Confidential Information of the disclosing Interconnection Party; (v) is, or becomes, publicly known, through no wrongful act or omission of the receiving Interconnection Party or breach of this Appendix 2; or (vi) is required, in accordance with Section 17.7 of this Appendix 2, to be disclosed to any Governmental Authority or is otherwise required to be disclosed by law or subpoena, or is necessary in any legal proceeding establishing rights and obligations under the Interconnection Service Agreement. Information designated as Confidential Information shall no longer be deemed confidential if the Interconnection Party that designated the information as confidential notifies the other Interconnection Parties that it no longer is confidential.

17.3 Release of Confidential Information:

No Interconnection Party shall disclose Confidential Information to any other person, except to its Affiliates (limited by the Commission's Standards of Conduct requirements), subcontractors, employees, consultants or to parties who may be or considering providing financing to or equity participation in Interconnection Customer or to potential purchasers or assignees of Interconnection Customer, on a need-to-know basis in connection with the Interconnection Service Agreement, unless such person has first been advised of the confidentiality provisions of this Section 17 and has agreed to comply with such provisions. Notwithstanding the foregoing, an Interconnection Party providing Confidential Information to any person shall remain primarily responsible for any release of Confidential Information in contravention of this Section 17.

17.4 Rights:

Each Interconnection Party retains all rights, title, and interest in the Confidential Information that it discloses to any other Interconnection Party. An Interconnection Party's disclosure to another Interconnection Party of Confidential Information shall not be deemed a waiver by any Interconnection Party or any other person or entity of the right to protect the Confidential Information from public disclosure.

17.5 No Warranties:

By providing Confidential Information, no Interconnection Party makes any warranties or representations as to its accuracy or completeness. In addition, by supplying Confidential Information, no Interconnection Party obligates itself to provide any particular information or Confidential Information to any other Interconnection Party nor to enter into any further agreements or proceed with any other relationship or joint venture.

17.6 Standard of Care:

Each Interconnection Party shall use at least the same standard of care to protect Confidential Information it receives as the Interconnection Party uses to protect its own Confidential Information from unauthorized disclosure, publication or dissemination. Each Interconnection Party may use Confidential Information solely to fulfill its obligations to the other Interconnection Parties under the Interconnection Service Agreement or to comply with Applicable Laws and Regulations.

17.7 Order of Disclosure:

If a Governmental Authority with the right, power, and apparent authority to do so requests or requires an Interconnection Party, by subpoena, oral deposition, interrogatories, requests for production of documents, administrative order, or otherwise, to disclose Confidential Information, that Interconnection Party shall provide the Interconnection Party that provided the information with prompt prior notice of such request(s) or requirement(s) so that the providing Interconnection Party may seek an appropriate protective order or waive compliance with the terms of this Appendix 2 or the Interconnection Service Agreement. Notwithstanding the absence of a protective order or agreement, or waiver, the Interconnection Party that is subjected to the request or order may disclose such Confidential Information which, in the opinion of its counsel, the Interconnection Party is legally compelled to disclose. Each Interconnection Party shall use Reasonable Efforts to obtain reliable assurance that confidential treatment will be accorded any Confidential Information so furnished.

17.8 Termination of Interconnection Service Agreement:

Upon termination of the Interconnection Service Agreement for any reason, each Interconnection Party shall, within ten (10) calendar days of receipt of a written request from another party, use Reasonable Efforts to destroy, erase, or delete (with such destruction, erasure and deletion certified in writing to the requesting party) or to return to the other party, without retaining copies thereof, any and all written or electronic Confidential Information received from the requesting party.

17.9 Remedies:

The Interconnection Parties agree that monetary damages would be inadequate to compensate an Interconnection Party for another Interconnection Party's Breach of its obligations under this Section 17. Each Interconnection Party accordingly agrees that the other Interconnection Parties shall be entitled to equitable relief, by way of injunction or otherwise, if the first Interconnection

Party breaches or threatens to breach its obligations under this Section 17, which equitable relief shall be granted without bond or proof of damages, and the receiving Interconnection Party shall not plead in defense that there would be an adequate remedy at law. Such remedy shall not be deemed to be an exclusive remedy for the breach of this Section 17, but shall be in addition to all other remedies available at law or in equity. The Interconnection Parties further acknowledge and agree that the covenants contained herein are necessary for the protection of legitimate business interests and are reasonable in scope. No Interconnection Party, however, shall be liable for indirect, incidental or consequential or punitive damages of any nature or kind resulting from or arising in connection with this Section 17.

17.10 Disclosure to FERC or its Staff:

Notwithstanding anything in this Section 17 to the contrary, and pursuant to 18 C.F.R. § 1b.20, if FERC or its staff, during the course of an investigation or otherwise, requests information from one of the Interconnection Parties that is otherwise required to be maintained in confidence pursuant to this Interconnection Service Agreement, the Interconnection Party, shall provide the requested information to FERC or its staff, within the time provided for in the request for information. In providing the information to FERC or its staff, the Interconnection Party must, consistent with 18 C.F.R. § 388.122, request that the information be treated as confidential and non-public by FERC and its staff and that the information be withheld from public disclosure. Interconnection Parties are prohibited from notifying the other Interconnection Parties prior to the release of the Confidential Information to the Commission or its staff. An Interconnection Party shall notify the other Interconnection Parties to the Interconnection Service Agreement when it is notified by FERC or its staff that a request to release Confidential Information has been received by FERC, at which time any of the Interconnection Parties may respond before such information would be made public, pursuant to 18 C.F.R. § 388.112.

17.11

Subject to the exception in Section 17.10 of this Appendix 2, no Interconnection Party shall disclose Confidential Information of another Interconnection Party to any person not employed or retained by the Interconnection Party, except to the extent disclosure is (i) required by law; (ii) reasonably deemed by the disclosing Interconnection Party to be required in connection with a dispute between or among the Interconnection Parties, or the defense of litigation or dispute; (iii)_ otherwise permitted by consent of the Interconnection Party that provided such Confidential Information, such consent not to be unreasonably withheld; or (iv) necessary to fulfill its obligations under this Interconnection Service Agreement or as a transmission service provider or a Control Area operator including disclosing the Confidential Information to an RTO or ISO or to a regional or national reliability organization. Prior to any disclosures of another Interconnection Party's Confidential Information under this subparagraph, the disclosing Interconnection Party shall promptly notify the other Interconnection Parties in writing and shall assert confidentiality and cooperate with the other Interconnection Parties in seeking to protect the Confidential Information from public disclosure by confidentiality agreement, protective order or other reasonable measures.

17.12

This provision shall not apply to any information that was or is hereafter in the public domain (except as a result of a Breach of this provision).

17.13 Return or Destruction of Confidential Information:

If an Interconnection Party provides any Confidential Information to another Interconnection Party in the course of an audit or inspection, the providing Interconnection Party may request the other party to return or destroy such Confidential Information after the termination of the audit period and the resolution of all matters relating to that audit. Each Interconnection Party shall make Reasonable Efforts to comply with any such requests for return or destruction within ten days of receiving the request and shall certify in writing to the other Interconnection Party that it has complied with such request.

18 Subcontractors

18.1 Use of Subcontractors:

Nothing in this Appendix 2 shall prevent the Interconnection Parties from utilizing the services of subcontractors as they deem appropriate to perform their respective obligations hereunder, provided, however, that each Interconnection Party shall require its subcontractors to comply with all applicable terms and conditions of this Appendix 2 in providing such services.

18.2 Responsibility of Principal:

The creation of any subcontract relationship shall not relieve the hiring Interconnection Party of any of its obligations under this Appendix 2. Each Interconnection Party shall be fully responsible to the other Interconnection Parties for the acts and/or omissions of any subcontractor it hires as if no subcontract had been made.

18.3 Indemnification by Subcontractors:

To the fullest extent permitted by law, an Interconnection Party that uses a subcontractor to carry out any of the Interconnection Party's obligations under this Appendix 2 shall require each of its subcontractors to indemnify, hold harmless and defend each other Interconnection Party, its representatives and assigns from and against any and all claims and/or liability for damage to property, injury to or death of any person, including the employees of any Interconnection Party or of any Affiliate of any Interconnection Party, or any other liability incurred by the other Interconnection Party or any of its Affiliates, including all expenses, legal or otherwise, to the extent caused by any act or omission, negligent or otherwise, by such subcontractor and/or its officers, directors, employees, agents and assigns, that arises out of or is connected with the operation of the facilities of either Interconnected Entity described in this Appendix 2; provided, however, that no Interconnection Party or Affiliate thereof shall be entitled to indemnity under this Section 18.3 in respect of any injury, loss, or damage to the extent that such loss, injury, or damage results from the negligence or willful misconduct of the Interconnection Party or Affiliate seeking indemnity.

18.4 Subcontractors Not Beneficiaries:

No subcontractor is intended to be, or shall be deemed to be, a third-party beneficiary of an Interconnection Service Agreement.

19 Information Access And Audit Rights

19.1 Information Access:

Consistent with Applicable Laws and Regulations, each Interconnection Party shall make available such information and/or documents reasonably requested by another Interconnection Party that are necessary to (i) verify the costs incurred by the other Interconnection Party for which the requesting Interconnection Party is responsible under this Appendix 2 and (ii) carry out obligations and responsibilities under this Appendix 2, provided that the Interconnection Parties shall not use such information for purposes other than those set forth in this Section 19.1 and to enforce their rights under this Appendix 2.

19.2 Reporting of Non-Force Majeure Events:

Each Interconnection Party shall notify the other Interconnection Parties when it becomes aware of its inability to comply with the provisions of this Appendix 2 for a reason other than an event of force majeure as defined in Section 9.4 of this Appendix 2. The parties agree to cooperate with each other and provide necessary information regarding such inability to comply, including, but not limited to, the date, duration, reason for the inability to comply, and corrective actions taken or planned to be taken with respect to such inability to comply. Notwithstanding the foregoing, notification, cooperation or information provided under this Section shall not entitle the receiving Interconnection Party to allege a cause of action for anticipatory breach of the Interconnection Service Agreement.

19.3 Audit Rights:

Subject to the requirements of confidentiality under Section 17 of this Appendix 2, each Interconnection Party shall have the right, during normal business hours, and upon prior reasonable notice to the pertinent other Interconnection Party, to audit at its own expense the other Interconnection Party's accounts and records pertaining to such Interconnection Party's performance and/or satisfaction of obligations arising under this Appendix 2. Any audit authorized by this Section shall be performed at the offices where such accounts and records are maintained and shall be limited to those portions of such accounts and records that relate to obligations under this Appendix 2. Any request for audit shall be presented to the Interconnection Party to be audited not later than twenty-four months after the event as to which the audit is sought. Each Interconnection Party shall preserve all records held by it for the duration of the audit period.

20 Disputes

20.1 Submission:

Any claim or dispute that any Interconnection Party may have against another arising out of the Interconnection Service Agreement may be submitted for resolution in accordance with the dispute resolution provisions of the Tariff.

20.2 Rights Under The Federal Power Act:

Nothing in this Section shall restrict the rights of any Interconnection Party to file a complaint with FERC under relevant provisions of the Federal Power Act.

20.3 Equitable Remedies:

Nothing in this Section shall prevent any Interconnection Party from pursuing or seeking any equitable remedy available to it under Applicable Laws and Regulations.

21 Notices

21.1 General:

Any notice, demand or request required or permitted to be given by any Interconnection Party to another and any instrument required or permitted to be tendered or delivered by any Interconnection Party in writing to another may be so given, tendered or delivered, by recognized national courier, or by depositing the same with the United States Postal Service with postage prepaid, for delivery by certified or registered mail, addressed to the Interconnection Party, or personally delivered to the Interconnection Party, at the address specified in the Interconnection Service Agreement. Such notices, if agreed to by the Interconnection Parties, may be made via electronic means, with e-mail confirmation of delivery.

21.2 Emergency Notices:

Moreover, notwithstanding the foregoing, any notice hereunder concerning an Emergency Condition or other occurrence requiring prompt attention, or as necessary during day-to-day operations, may be made by telephone or in person, provided that such notice is confirmed in writing promptly thereafter. Notice in an Emergency Condition, or as necessary during day-to-day operations, shall be provided (i) if by the Interconnected Transmission Owner, to the shift supervisor at, as applicable, a Generation Interconnection Customer's Customer Facility or a Transmission Interconnection Customer's control center; and (ii) if by the Interconnection Customer, to the shift supervisor at the Interconnected Transmission Owner's transmission control center.

21.3 Operational Contacts:

Each Interconnection Party shall designate, and provide to each other Interconnection Party contact information concerning, a representative to be responsible for addressing and resolving operational issues as they arise during the term of the Interconnection Service Agreement.

22 Miscellaneous

22.1 Regulatory Filing:

In the event that this Interconnection Service Agreement contains any terms that deviate materially from the form included in Attachment O of the Tariff, Transmission Provider shall file the Interconnection Service Agreement on behalf of itself and the Interconnected Transmission Owner with FERC as a service schedule under the Tariff within thirty days after execution. Interconnection Customer may request that any information so provided be subject to the confidentiality provisions of Section 17 of this Appendix 2. An Interconnection Customer shall have the right, with respect to any Interconnection Service Agreement tendered to it, to request (a) dispute resolution under Section 12 of the Tariff or, if concerning the Regional Transmission Expansion Plan, consistent with Schedule 5 of the Operating Agreement, or (b) that Transmission Provider file the agreement unexecuted with the Commission. With the filing of any unexecuted Interconnection Service Agreement, Transmission Provider may, in its discretion, propose to FERC a resolution of any or all of the issues in dispute between or among the Interconnection Parties.

22.2 Waiver:

Any waiver at any time by an Interconnection Party of its rights with respect to a Breach or Default under this Interconnection Service Agreement or with respect to any other matters arising in connection with this Appendix 2, shall not be deemed a waiver or continuing waiver with respect to any subsequent Breach or Default or other matter.

22.3 Amendments and Rights Under the Federal Power Act:

This Interconnection Service Agreement may be amended or supplemented only by a written instrument duly executed by all Interconnection Parties. An amendment to the Interconnection Service Agreement shall become effective and a part of this Interconnection Service Agreement upon satisfaction of all Applicable Laws and Regulations. Notwithstanding the foregoing, nothing contained in this Interconnection Service Agreement shall be construed as affecting in any way any of the rights of any Interconnection Party with respect to changes in applicable rates or charges under Section 205 of the Federal Power Act and/or FERC's rules and regulations thereunder, or any of the rights of any Interconnection Party under Section 206 of the Federal Power Act and/or FERC's rules and regulations thereunder. The terms and conditions of this Interconnection Service Agreement and every appendix referred to therein shall be amended, as mutually agreed by the Interconnection Parties, to comply with changes or alterations made necessary by a valid applicable order of any Governmental Authority having jurisdiction hereof.

22.4 Binding Effect:

This Interconnection Service Agreement, including this Appendix 2, and the rights and obligations thereunder shall be binding upon, and shall inure to the benefit of, the successors and assigns of the Interconnection Parties.

22.5 Regulatory Requirements:

Each Interconnection Party's performance of any obligation under this Interconnection Service Agreement for which such party requires approval or authorization of any Governmental Authority shall be subject to its receipt of such required approval or authorization in the form and substance satisfactory to the receiving Interconnection Party, or the Interconnection Party making any required filings with, or providing notice to, such Governmental Authorities, and the expiration of any time period associated therewith. Each Interconnection Party shall in good faith seek, and shall use Reasonable Efforts to obtain, such required authorizations or approvals as soon as reasonably practicable.

23 Representations And Warranties

23.1 General:

Each Interconnected Entity hereby represents, warrants and covenants as follows with these representations, warranties, and covenants effective as to the Interconnected Entity during the time the Interconnection Service Agreement is effective:

23.1.1 Good Standing:

Such Interconnected Entity is duly organized or formed, as applicable, validly existing and in good standing under the laws of its State of organization or formation, and is in good standing under the laws of the respective State(s) in which it is incorporated and operates as stated in the Interconnection Service Agreement.

23.1.2 Authority:

Such Interconnected Entity has the right, power and authority to enter into the Interconnection Service Agreement, to become a party hereto and to perform its obligations hereunder. The Interconnection Service Agreement is a legal, valid and binding obligation of such Interconnected Entity, enforceable against such Interconnected Entity in accordance with its terms, except as the enforceability thereof may be limited by applicable bankruptcy, insolvency, reorganization or other similar laws affecting creditors' rights generally and by general equitable principles (regardless of whether enforceability is sought in a proceeding in equity or at law).

23.1.3 No Conflict:

The execution, delivery and performance of the Interconnection Service Agreement does not violate or conflict with the organizational or formation documents, or bylaws or operating agreement, of the Interconnected Entity, or with any judgment, license, permit, order, material agreement or instrument applicable to or binding upon the Interconnected Entity or any of its assets.

23.1.4 Consent and Approval:

Such Interconnected Entity has sought or obtained, or, in accordance with the Interconnection Service Agreement will seek or obtain, each consent, approval, authorization, order, or acceptance by any Governmental Authority in connection with the execution, delivery and performance of the Interconnection Service Agreement and it will provide to any Governmental Authority notice of any actions under this Appendix 2 that are required by Applicable Laws and Regulations.

24 Tax Liability

24.1 Safe Harbor Provisions:

This Section 24.1 is applicable only to Generation Interconnection Customers. Provided that Interconnection Customer agrees to conform to all requirements of the Internal Revenue Service ("IRS") (e.g., the "safe harbor" provisions of IRS Notice 2016-36, 2016-25 I.R.B. (6/20/2016)) that would confer nontaxable status on some or all of the transfer of property, including money, by Interconnection Customer to the Interconnected Transmission Owner for payment of the Costs of construction of the Transmission Owner Interconnection Facilities, the Interconnected Transmission Owner, based on such agreement and on current law, shall treat such transfer of property to it as nontaxable income and, except as provided in Section 24.4.2 below, shall not include income taxes in the Costs of Transmission Owner Interconnection Facilities that are payable by Interconnection Customer under the Interconnection Service Agreement or the Interconnection Construction Service Agreement. Interconnection Customer shall document its agreement to conform to IRS requirements for such non-taxable status in the Interconnection Service Agreement, the Interconnection Construction Service Agreement, and/or the Interim Interconnection Service Agreement.

24.2 Tax Indemnity:

Interconnection Customer shall indemnify the Interconnected Transmission Owner for any costs that Interconnected Transmission Owner incurs in the event that the IRS and/or a state department of revenue (State) determines that the property, including money, transferred by Interconnection Customer to the Interconnected Transmission Owner with respect to the construction of the Transmission Owner Interconnection Facilities is taxable income to the Interconnected Transmission Owner. Interconnection Customer shall pay to the Interconnected Transmission Owner, on demand, the amount of any income taxes that the IRS or a State assesses to the Interconnected Transmission Owner in connection with such transfer of property and/or money, plus any applicable interest and/or penalty charged to the Interconnected Transmission Owner. In the event that the Interconnected Transmission Owner chooses to contest such assessment, either at the request of Interconnection Customer or on its own behalf, and prevails in reducing or eliminating the tax, interest and/or penalty assessed against it, the Interconnected Transmission Owner shall refund to Interconnection Customer the excess of its demand payment made to the Interconnected Transmission Owner over the amount of the tax, interest and penalty for which the Interconnected Transmission Owner is finally determined to be liable. Interconnection Customer's tax indemnification obligation under this section shall survive

any termination of the Interconnection Service Agreement or Interconnection Construction Service Agreement.

24.3 Taxes Other Than Income Taxes:

Upon the timely request by Interconnection Customer, and at Interconnection Customer's sole expense, the Interconnected Transmission Owner shall appeal, protest, seek abatement of, or otherwise contest any tax (other than federal or state income tax) asserted or assessed against the Interconnected Transmission Owner for which Interconnection Customer may be required to reimburse Transmission Provider under the terms of this Appendix 2 or Part VI of the Tariff. Interconnection Customer shall pay to the Interconnected Transmission Owner on a periodic basis, as invoiced by the Interconnected Transmission Owner, the Interconnected Transmission Owner's documented reasonable costs of prosecuting such appeal, protest, abatement, or other contest. Interconnection Customer and the Interconnected Transmission Owner shall cooperate in good faith with respect to any such contest. Unless the payment of such taxes is a prerequisite to an appeal or abatement or cannot be deferred, no amount shall be payable by Interconnection Customer to the Interconnected Transmission Owner for such contested taxes until they are assessed by a final, non-appealable order by any court or agency of competent jurisdiction. In the event that a tax payment is withheld and ultimately due and payable after appeal, Interconnection Customer will be responsible for all taxes, interest and penalties, other than penalties attributable to any delay caused by the Interconnected Transmission Owner.

24.4 Income Tax Gross-Up

24.4.1 Additional Security:

In the event that Interconnection Customer does not provide the safe harbor documentation required under Section 24.1 prior to execution of the Interconnection Service Agreement, within 15 days after such execution, Transmission Provider shall notify Interconnection Customer in writing of the amount of additional Security that Interconnection Customer must provide. The amount of Security that a Transmission Interconnection Customer must provide initially pursuant to this Interconnection Service Agreement shall include any amounts described as additional Security under this Section 24.4 regarding income tax gross-up.

24.4.2 Amount:

The required additional Security shall be in an amount equal to the amount necessary to gross up fully for currently applicable federal and state income taxes the estimated Costs of Local Upgrades and Network Upgrades for which Interconnection Customer previously provided Security. Accordingly, the additional Security shall equal the amount necessary to increase the total Security provided to the amount that would be sufficient to permit the Interconnected Transmission Owner to receive and retain, after the payment of all applicable income taxes ("Current Taxes") and taking into account the present value of future tax deductions for depreciation that would be available as a result of the anticipated payments or property transfers (the "Present Value Depreciation Amount"), an amount equal to the estimated Costs of Local Upgrades and Network Upgrades for which Interconnection Customer is responsible under the

Interconnection Service Agreement. For this purpose, Current Taxes shall be computed based on the composite federal and state income tax rates applicable to the Interconnected Transmission Owner at the time the additional Security is received, determined using the highest marginal rates in effect at that time (the "Current Tax Rate"), and (ii) the Present Value Depreciation Amount shall be computed by discounting the Interconnected Transmission Owner's anticipated tax depreciation deductions associated with such payments or property transfers by its current weighted average cost of capital.

24.4.3 Time for Payment:

Interconnection Customer must provide the additional Security, in a form and with terms as required by Sections 212.4 of the Tariff, within 15 days after its receipt of Transmission Provider's notice under this section. The requirement for additional Security under this section shall be treated as a milestone included in the Interconnection Service Agreement pursuant to Section 217.5 of the Tariff.

24.5 Tax Status:

Each Party shall cooperate with the other to maintain the other Party's tax status. Nothing in this Interconnection Service Agreement or Part VI of the Tariff is intended to adversely affect any Interconnected Transmission Owner's tax exempt status with respect to the issuance of bonds including, but not limited to, local furnishing bonds.

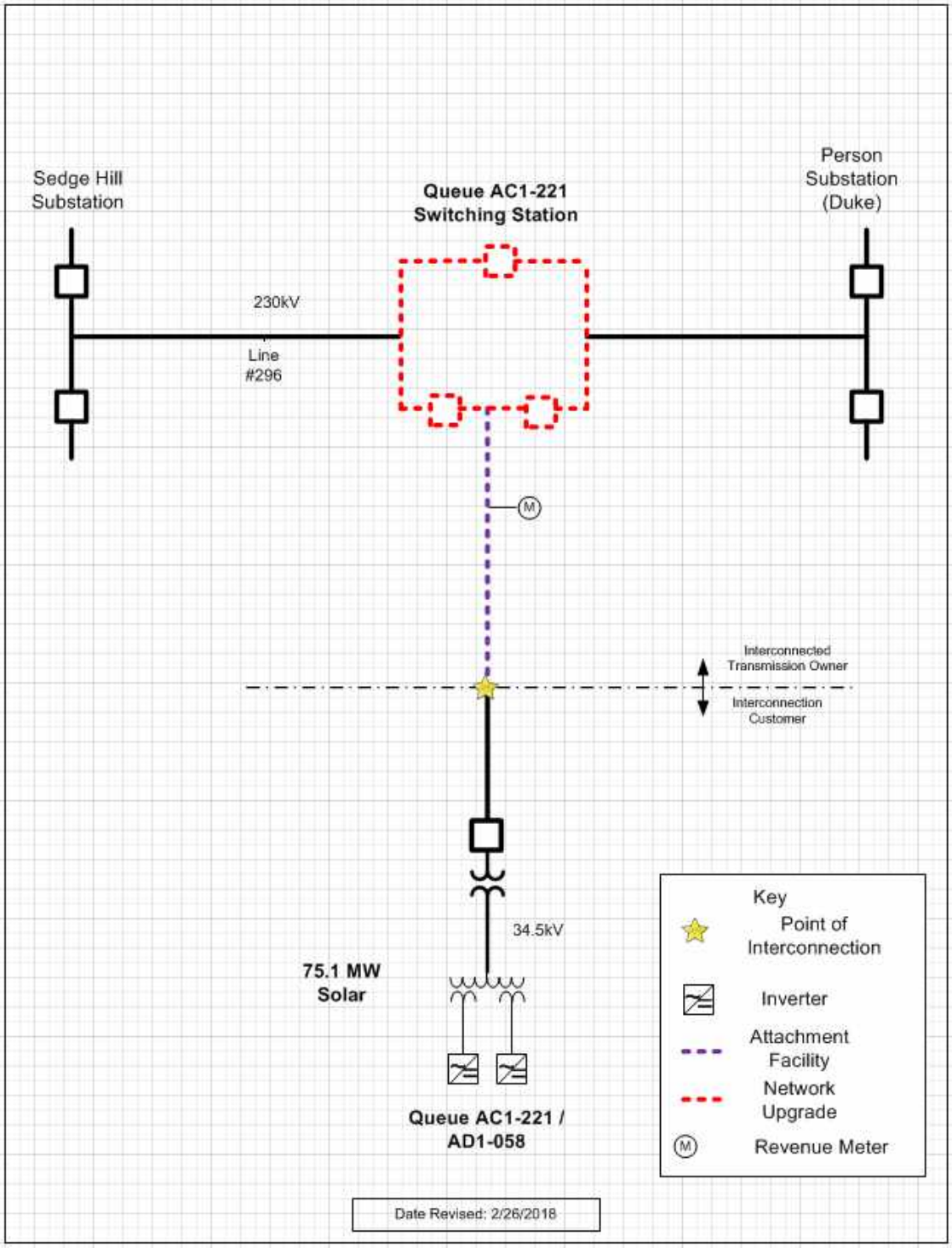
SCHEDULE A

CUSTOMER FACILITY LOCATION/SITE PLAN

GPS: 36.562411, -79.026074

SCHEDULE B

SINGLE-LINE DIAGRAM



SCHEDULE C

LIST OF METERING EQUIPMENT

REVENUE METERING

At the Interconnection Customer's expense, the Interconnected Transmission Owner will supply and own at the Point of Interconnection bi-directional revenue metering equipment that will provide the following data:

a. Hourly compensated MWh received from the Customer Facility to the Interconnected Transmission Owner;

b. Hourly compensated MVARh received from the Customer Facility to the Interconnected Transmission Owner;

c. Hourly compensated MWh delivered from the Interconnected Transmission Owner to the Customer Facility; and

d. Hourly compensated MVARh delivered from the Interconnected Transmission Owner to the Customer Facility.

OPERATIONAL METERING

Instantaneous net MW and MVAR per unit values in accordance with PJM Manuals M-01 and M-14D, and Sections 8.1 through 8.5 of Appendix 2 to this ISA.

COMMUNICATION

Interconnection Customer must provide revenue and real time data to PJM from Interconnection Customer Market Operations Center per PJM Manuals M-01 and M-14D. Any data PJM is collecting can be made available to Interconnected Transmission Owner via existing PJM net connection.

SCHEDULE D

APPLICABLE TECHNICAL REQUIREMENTS AND STANDARDS

Dominion Energy Facility Interconnection Requirements revision 16.0, dated March 15, 2019, shall apply. The Dominion Energy Facility Interconnection Requirements revision 16.0 dated March 15, 2019 is available on the PJM website.

To the extent that these Applicable Technical Requirements and Standards conflict with the terms and conditions of the Tariff or any other provision of this ISA, the Tariff and/or this ISA shall control.

SCHEDULE E

SCHEDULE OF CHARGES

Interconnection Customer shall pay Interconnected Transmission Owner a Monthly Charge. The Interconnected Transmission Owner shall operate, maintain and repair all equipment identified as Attachment Facilities at no additional cost to Interconnection Customer provided the Interconnection Customer continues to pay the Monthly Charge in accordance with the terms of this ISA. For any facility replacement or facility addition, Interconnection Customer shall pay to Interconnected Transmission Owner the capital cost of such replacement or addition as a contribution-in-aid-of-construction, plus any applicable taxes. The cost of Attachment Facilities shall be updated to reflect such change.

The Monthly Charge shall be determined as shown below. Lines 2, 3, and 4 of this calculation shall be revised for updates to the rate formula as set forth in the Tariff, Attachment H-16A, Appendix A, or its successor. Such revision shall determine an updated value for Line 6 of the Monthly Charge calculation and any such revision to lines 2, 3, and 4 of this calculation made in accordance with this Schedule E shall not require filing with the Commission.

1.		Cost of Attachment Facilities[1]
2.	Multiplied by:	Net Transmission Plant[2]
3.	Divided by:	Total Transmission Plant in Service[3]
4.	Multiplied by:	Net Plant Carrying Charge without Depreciation, Return or Income Taxes[4]
5.	Divided by:	12 Months
6.	Equals:	Monthly Charge

The terms of this Schedule E may be revised or amended pursuant to Section 205 or 206 of the Federal Power Act.

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[1] The estimated cost of Attachment Facilities placed in service commensurate with the Initial Operation of the Facility is $614,674. The cost of Attachment Facilities shall be updated as removals, replacements, and additions are made.

[2] The Net Transmission Plant shall be the dollar amount found on Line 152 of the Tariff, Attachment H-16A, Appendix A, or the corresponding value from the rate formula applicable to the Dominion Zone as may be in effect from time to time.

[3] The Total Transmission Plant in Service shall be the dollar amount found on Line 24 of the Tariff, Attachment H-16A, Appendix A, or the corresponding value from the rate formula applicable to the Dominion Zone as may be in effect from time to time.

[4] The Net Plant Carrying Charge without Depreciation, Return, or Income Taxes shall be the amount found on Line 155 of the Tariff, Attachment H-16A, Appendix A, or the corresponding value from the rate formula applicable to the Dominion Zone as may be in effect from time to time.

SCHEDULE F

SCHEDULE OF NON-STANDARD TERMS & CONDITIONS

Required Affected System Upgrades

In order to maintain system reliability, the Customer Facility under this ISA cannot come in service prior to the completion of the Duke Energy Process upgrade system protection at the Person substation to accommodate the new AC1-221 substation. The work at Person substation is not part of the scope of the Facility Study for this AC1-221/AD1-058 Interconnection Request and the costs for that work are not represented in this Agreement. This work will occur under a separate agreement between Duke Energy Process and the Interconnection Customer.

SCHEDULE G

INTERCONNECTION CUSTOMER'S AGREEMENT TO CONFORM WITH IRS SAFE HARBOR PROVISIONS FOR NON-TAXABLE STATUS

As provided in Section 24.1 of Appendix 2 to this ISA and subject to the requirements thereof, Interconnection Customer represents that it meets all qualifications and requirements as set forth in Section 118(a) and 118(b) of the Internal Revenue Code of 1986, as amended and interpreted by Notice 2016-36, 2016-25 I.R.B. (6/20/2016) (the "IRS Notice"). Interconnection Customer agrees to conform with all requirements of the safe harbor provisions specified in the IRS Notice, as they may be amended, as required to confer non-taxable status on some or all of the transfer of property, including money, by Interconnection Customer to Interconnected Transmission Owner with respect to the payment of the Costs of construction and installation of the Transmission Owner Interconnection Facilities specified in this ISA.

Nothing in Interconnection Customer's agreement pursuant to this Schedule G shall change Interconnection Customer's indemnification obligations under Section 24.2 of Appendix 2 to this ISA.

SCHEDULE H

INTERCONNECTION REQUIREMENTS FOR ALL WIND, SOLAR AND NON-SYNCHRONOUS GENERATION FACILITIES

A. Voltage Ride Through Requirements

The Customer Facility shall be designed to remain in service (not trip) for voltages and times as specified for the Eastern Interconnection in Attachment 1 of NERC Reliability Standard PRC-024-1, and successor Reliability Standards, for both high and low voltage conditions, irrespective of generator size, subject to the permissive trip exceptions established in PRC-024-1 (and successor Reliability Standards).

B. Frequency Ride Through Requirements

The Customer Facility shall be designed to remain in service (not trip) for frequencies and times as specified in Attachment 2 of NERC Reliability Standard PRC-024-1, and successor Reliability Standards, for both high and low frequency condition, irrespective of generator size, subject to the permissive trip exceptions established in PRC-024-1 (and successor Reliability Standards).

C. Supervisory Control and Data Acquisition (SCADA) Capability

The wind, solar or non-synchronous generation facility shall provide SCADA capability to transmit data and receive instructions from the Transmission Provider to protect system reliability. The Transmission Provider and the wind, solar or non-synchronous generation facility Interconnection Customer shall determine what SCADA information is essential for the proposed wind, solar or non-synchronous generation facility, taking into account the size of the facility and its characteristics, location, and importance in maintaining generation resource adequacy and transmission system reliability in its area.

D. Meteorological Data Reporting Requirement (Applicable to wind generation facilities only)

The wind generation facility shall, at a minimum, be required to provide the Transmission Provider with site-specific meteorological data including:

- Temperature (degrees Fahrenheit)
- Wind speed (meters/second)
- Wind direction (degrees from True North)
- Atmosphere pressure (hectopascals)
- Forced outage data (wind turbine and MW unavailability)

E. Meteorological Data Reporting Requirement (Applicable to solar generation facilities only)

The solar generation facility shall, at a minimum, be required to provide the Transmission Provider with site-specific meteorological data including:

- Temperature (degrees Fahrenheit)
- Irradiance
- Forced outage data

The Transmission Provider and Interconnection Customer may mutually agree to any additional meteorological data that are required for the development and deployment of a power production forecast. All requirements for meteorological and forced outage data must be commensurate with the power production forecasting employed by the Transmission Provider. Such additional mutually agreed upon requirements for meteorological and forced outage data are set forth below:
NOT APPLICABLE FOR THIS ISA

SCHEDULE I

INTERCONNECTION SPECIFICATIONS FOR AN ENERGY STORAGE RESOURCE

Not Required

Service Agreement No. [ ]

(PJM Queue #AC1-221/AD1-058)

INTERCONNECTION CONSTRUCTION SERVICE AGREEMENT
Among
PJM INTERCONNECTION, L.L.C.
And
ALTON POST OFFICE SOLAR, LLC
And
VIRGINIA ELECTRIC AND POWER COMPANY

Service Agreement No. [ ]

INTERCONNECTION CONSTRUCTION SERVICE AGREEMENT
By and Among
PJM Interconnection, L.L.C.
And
Alton Post Office Solar, LLC
And
Virginia Electric and Power Company

(PJM Queue Position #AC1-221/AD1-058)

1.0 Parties. This Interconnection Construction Service Agreement ("CSA") including the Schedules and Appendices attached hereto and incorporated herein, is entered into by and between PJM Interconnection, L.L.C. ("Transmission Provider" or "PJM") and the following Interconnection Customer and Interconnected Transmission Owner:

Interconnection Customer:

Alton Post Office Solar, LLC

Interconnected Transmission Owner:

Virginia Electric and Power Company

All capitalized terms herein shall have the meanings set forth in the appended definitions of such terms as stated in Part I of the Tariff.

2.0 Authority. This CSA is entered into pursuant to Part VI of the Tariff. The standard terms and conditions for construction are attached at Appendix 2 to this CSA and are hereby specifically incorporated as provisions of this agreement. Transmission Provider, the Interconnection Customer and the Interconnected Transmission Owner agree to and assume all of their respective rights and obligations as set forth in the standard terms and conditions for construction in Appendix 2 to this CSA. Further, Interconnection Customer and the Interconnected Transmission Owner each agrees to and assumes all of the rights and obligations of a Constructing Entity with respect to the facilities that each of them is responsible for constructing, as set forth in this CSA.

3.0 Customer Facility. This CSA specifically relates to the following Customer Facility at the following location:

a. Name of Customer Facility:

Alton Post Office Solar

b. Location of Customer Facility:

Alton Post Office Road, Halifax County, Virginia

GPS: 36.562411, -79.026074

4.0 Effective Date and Term.

4.1 Effective Date. This CSA shall become effective on the later of (i) the date the agreement has been executed by all Construction Parties, or (ii) the date of Interconnection Customer's delivery of Security to the Transmission Provider, provided, however, that if the CSA is filed with the FERC unexecuted, the Effective Date shall be the date specified by the FERC. The Interconnected Transmission Owner shall have no obligation to begin construction of the Transmission Owner Interconnection Facilities prior to the Effective Date. Construction shall commence as provided in the Schedule of Work set forth in Schedule J to this CSA.

4.2 Term. This CSA shall continue in full force and effect from the Effective Date until the termination thereof pursuant to Section 14 of Appendix 2 to this CSA.

4.3 Survival. This CSA shall continue in effect after termination to the extent necessary to provide for final billings and payments, including billings and payments pursuant to Section 9 and/or Section 14 of Appendix 2 to this CSA, and to permit the determination and enforcement of liability and indemnification obligations arising from acts or events that occurred while the CSA was in effect.

5.0 Construction Responsibility for

a. Customer Interconnection Facilities. Interconnection Customer is responsible for designing and constructing the Customer Interconnection Facilities described on the attached Schedule G to this CSA.

b. Construction of Transmission Owner Interconnection Facilities.

1. The Transmission Owner Interconnection Facilities regarding which Interconnected Transmission Owner shall be the Constructing Entity are described on the attached Schedule C to this CSA.

2. Election of Construction Option. Specify below whether the Constructing Entities have mutually agreed to construction of the Transmission Owner Interconnection Facilities that will be built by the Interconnected Transmission Owner pursuant to the Standard Option or the Negotiated Contract Option. (See Section 3.2 of the Appendix 2 to this CSA.)

__X__Standard Option.

_____Negotiated Contract Option.

If the parties have mutually agreed to use the Negotiated Contract Option, the permitted, negotiated terms on which they have agreed and which are not already set forth as part of the Scope of Work and/or Schedule of Work attached to this CSA as Schedules I and J, respectively, shall be as set forth in Schedule H attached to this CSA.

3. Exercise of Option to Build. Has Interconnection Customer timely exercised the Option to Build in accordance with Section 3.2.3 of Appendix 2 to this CSA with respect to some or all of the Transmission Owner Interconnection Facilities?

_____ Yes

___X__ No

If Yes is indicated, Interconnection Customer shall build, in accordance with and subject to the conditions and limitations set forth in Section 3.2.3 of Appendix 2 to this CSA, those portions of the Transmission Owner Interconnection Facilities described on Schedule D attached to this CSA.

6.0 [Reserved].

7.0 Scope of Work. The Scope of Work for all construction pursuant to this CSA shall be as set forth in the attached Schedule I, provided, however, that the scope of work is subject to change in accordance with Transmission Provider's scope change process for interconnection projects as set forth in the PJM Manuals.

8.0 Schedule of Work. The Schedule of Work for all construction pursuant to this CSA shall be as set forth in the attached Schedule J, provided, however, that such schedule is subject to change in accordance with Section 3.3 of Appendix 2 to this CSA.

9.0 [Reserved.]

10.0 Notices. Any notice or request made to or by any party regarding this CSA shall be made in accordance with the standard terms and conditions for construction set forth in Appendix 2 to this CSA to the representatives of the other parties, as indicated below:

Transmission Provider:

PJM Interconnection, L.L.C.
2750 Monroe Blvd.
Audubon, PA 19403

Interconnection Customer:

Alton Post Office Solar, LLC

337 Log Canoe Circle
Stevensville, MD 21666
Attn: Colin Mott
Email: compliance@urbangridco.com
Phone: (410) 604-3603

Interconnected Transmission Owner:

Virginia Electric and Power Company
10900 Nuckols Road
4th Floor, Highwoods One
Glen Allen, VA 23060
Attn: Mr. Mark Allen, Director Electric Transmission Project Development & Execution

Cheri Yochelson (Senior Counsel) – cheri.m.yochelson@dominionenergy.com
Mike Nester (Manager – Electric Distribution DG Integration) – Mike.Nester@dominionenergy.com
Jason "James" Street (Electric Transmission Wholesale Contracts Administrator II) – James.Street@dominionenergy.com

11.0 Waiver. No waiver by any party of one or more defaults by another in performance of any of the provisions of this CSA shall operate or be construed as a waiver of any other or further default or defaults, whether of a like or different character.

12.0 Amendment. This CSA or any part thereof, may not be amended, modified, assigned, or waived other than by a writing signed by all parties.

13.0 Incorporation of Other Documents. All portions of the Tariff and the Operating Agreement pertinent to the subject of this CSA and not otherwise made a part hereof are hereby incorporated herein and made a part hereof.

14.0 Addendum of Interconnection Customer's Agreement to Conform with IRS Safe Harbor Provisions for Non-Taxable Status. To the extent required, in accordance with Section 2.4.1 of Appendix 2 to this CSA, Schedule L to this CSA shall set forth the Interconnection Customer's agreement to conform with the IRS safe harbor provisions for non-taxable status.

15.0 Addendum of Non-Standard Terms and Conditions for Construction Service. Subject to FERC approval, the parties agree that the terms and conditions set forth in the attached Schedule M are hereby incorporated by reference, and made a part of, this CSA. In the event of any conflict between a provision of Schedule M that FERC has accepted and any provision of the standard terms and conditions set forth in Appendix 2 to this CSA that relates to the same subject matter, the pertinent provision of Schedule M shall control.

16.0 Addendum of Interconnection Requirements for all Wind or Non-synchronous Generation Facilities. To the extent required, Schedule N to this CSA sets forth

interconnection requirements for all wind and non-synchronous generation facilities and is hereby incorporated by reference and made a part of this CSA.

17.0 Infrastructure security of electric system equipment and operations and control hardware and software is essential to ensure day-to-day reliability and operational security. All Transmission Providers, Interconnected Transmission Owners, market participants, and Interconnection Customers interconnected with electric systems are to comply with the recommendations offered by the President's Critical Infrastructure Protection Board and best practice recommendations from the electric reliability authority. All public utilities are expected to meet basic standards for electric system infrastructure and operational security, including physical, operational, and cyber-security practices.

IN WITNESS WHEREOF, the parties have caused this Interconnection Construction Service Agreement to be executed by their respective authorized officials.

(PJM Queue Position #AC1-221/AD1-058)

Transmission Provider: PJM Interconnection, L.L.C.:

By:_____ _____ _____
Name Title Date

Printed name of signer:_____

Interconnection Customer: Alton Post Office Solar, LLC

By: DocuSigned by: _____ President and CEO 3/26/2020
5CAE23270A89439...
Name Title Date

Printed name of signer: Frank Depew _____

Interconnected Transmission Owner: Virginia Electric and Power Company

By:_____ _____ _____
Name Title Date

Printed name of signer: _____

APPENDICES:

- **APPENDIX 1 - DEFINITIONS**
- **APPENDIX 2 - STANDARD CONSTRUCTION TERMS AND CONDITIONS**

SCHEDULES:

- **SCHEDULE A - SITE PLAN**
- **SCHEDULE B - SINGLE-LINE DIAGRAM OF INTERCONNECTION FACILITIES**
- **SCHEDULE C - TRANSMISSION OWNER INTERCONNECTION FACILITIES TO BE BUILT BY INTERCONNECTED TRANSMISSION OWNER**
- **SCHEDULE D - TRANSMISSION OWNER INTERCONNECTION FACILITIES TO BE BUILT BY INTERCONNECTION CUSTOMER PURSUANT TO OPTION TO BUILD**
- **SCHEDULE E – [Reserved]**
- **SCHEDULE F – [Reserved]**
- **SCHEDULE G - CUSTOMER INTERCONNECTION FACILITIES**
- **SCHEDULE H - NEGOTIATED CONTRACT OPTION TERMS**
- **SCHEDULE I - SCOPE OF WORK**
- **SCHEDULE J - SCHEDULE OF WORK**
- **SCHEDULE K - APPLICABLE TECHNICAL REQUIREMENTS AND STANDARDS**
- **SCHEDULE L - INTERCONNECTION CUSTOMER'S AGREEMENT TO CONFORM WITH IRS SAFE HARBOR PROVISIONS FOR NON-TAXABLE STATUS**
- **SCHEDULE M - SCHEDULE OF NON-STANDARD TERMS AND CONDITIONS**
- **SCHEDULE N - INTERCONNECTION REQUIREMENTS FOR A WIND GENERATION FACILITY**

APPENDIX 1

DEFINITIONS

From the PJM Tariff accepted for filing by the Commission
As of the effective date of this CSA

1. Definitions

Unless the context otherwise specifies or requires, capitalized terms used in this PJM Tariff shall have the respective meanings assigned herein or in the Schedules hereto, or in the PJM Operating Agreement or RAA if not otherwise defined in this PJM Tariff, for all purposes of this PJM Tariff (such definitions to be equally applicable to both the singular and the plural forms of the terms defined). Unless otherwise specified, all references herein to sections, Schedules, Exhibits or Appendices are to sections, Schedules, Exhibits or Appendices of this Agreement. As used in this Agreement.

Abnormal Condition:

"Abnormal Condition" shall mean any condition on the Interconnection Facilities which, determined in accordance with Good Utility Practice, is: (i) outside normal operating parameters such that facilities are operating outside their normal ratings or that reasonable operating limits have been exceeded; and (ii) could reasonably be expected to materially and adversely affect the safe and reliable operation of the Interconnection Facilities; but which, in any case, could reasonably be expected to result in an Emergency Condition. Any condition or situation that results from lack of sufficient generating capacity to meet load requirements or that results solely from economic conditions shall not, standing alone, constitute an Abnormal Condition.

Acceleration Request:

"Acceleration Request" shall mean a request pursuant to Operating Agreement, Schedule 1, section 1.9.4A, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.9.4A, to accelerate or reschedule a transmission outage scheduled pursuant to Operating Agreement, Schedule 1, section 1.9.2 or Operating Agreement, Schedule 1, section 1.9.4, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.9.2 or Tariff, Attachment K-Appendix, section 1.9.4.

Additional Day-ahead Scheduling Reserves Requirement:

"Additional Day-ahead Scheduling Reserves Requirement" shall mean the portion of the Day-ahead Scheduling Reserves Requirement that is required in addition to the Base Day-ahead Scheduling Reserves Requirement to ensure adequate resources are procured to meet real-time load and operational needs, as specified in the PJM Manuals.

Affected System:

"Affected System" shall mean an electric system other than the Transmission Provider's Transmission System that may be affected by a proposed interconnection or on which a proposed interconnection or addition of facilities or upgrades may require modifications or upgrades to the Transmission System.

Affected System Operator:

"Affected System Operator" shall mean an entity that operates an Affected System or, if the

Affected System is under the operational control of an independent system operator or a regional transmission organization, such independent entity.

Affiliate:

"Affiliate" shall mean any two or more entities, one of which controls the other or that are under common control. "Control" shall mean the possession, directly or indirectly, of the power to direct the management or policies of an entity. Ownership of publicly-traded equity securities of another entity shall not result in control or affiliation for purposes of the Tariff or Operating Agreement if the securities are held as an investment, the holder owns (in its name or via intermediaries) less than 10 percent of the outstanding securities of the entity, the holder does not have representation on the entity's board of directors (or equivalent managing entity) or vice versa, and the holder does not in fact exercise influence over day-to-day management decisions. Unless the contrary is demonstrated to the satisfaction of the Members Committee, control shall be presumed to arise from the ownership of or the power to vote, directly or indirectly, ten percent or more of the voting securities of such entity.

Agreements:

"Agreements" shall mean the Amended and Restated Operating Agreement of PJM Interconnection, L.L.C., the PJM Open Access Transmission Tariff, the Reliability Assurance Agreement, and/or other agreements between PJM Interconnection, L.L.C. and its Members.

Ancillary Services:

"Ancillary Services" shall mean those services that are necessary to support the transmission of capacity and energy from resources to loads while maintaining reliable operation of the Transmission Provider's Transmission System in accordance with Good Utility Practice.

Annual Demand Resource:

"Annual Demand Resource" shall have the meaning specified in the Reliability Assurance Agreement.

Annual Energy Efficiency Resource:

"Annual Energy Efficiency Resource" shall have the meaning specified in the Reliability Assurance Agreement.

Annual Resource:

"Annual Resource" shall mean a Generation Capacity Resource, an Annual Energy Efficiency Resource or an Annual Demand Resource.

Annual Resource Price Adder:

"Annual Resource Price Adder" shall mean, for Delivery Years starting June 1, 2014 and ending May 31, 2017, an addition to the marginal value of Unforced Capacity and the Extended Summer Resource Price Adder as necessary to reflect the price of Annual Resources required to meet the applicable Minimum Annual Resource Requirement.

Annual Revenue Rate:

"Annual Revenue Rate" shall mean the rate employed to assess a compliance penalty charge on a Curtailment Service Provider under Tariff, Attachment DD, section 11.

Annual Transmission Costs:

"Annual Transmission Costs" shall mean the total annual cost of the Transmission System for purposes of Network Integration Transmission Service shall be the amount specified in Attachment H for each Zone until amended by the applicable Transmission Owner or modified by the Commission.

Applicable Laws and Regulations:

"Applicable Laws and Regulations" shall mean all duly promulgated applicable federal, State and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any Governmental Authority having jurisdiction over the relevant parties, their respective facilities, and/or the respective services they provide.

Applicable Regional Entity:

"Applicable Regional Entity" shall mean the Regional Entity for the region in which a Network Customer, Transmission Customer, New Service Customer, or Transmission Owner operates.

Applicable Standards:

"Applicable Standards" shall mean the requirements and guidelines of NERC, the Applicable Regional Entity, and the Control Area in which the Customer Facility is electrically located; the PJM Manuals; and Applicable Technical Requirements and Standards.

Applicable Technical Requirements and Standards:

"Applicable Technical Requirements and Standards" shall mean those certain technical requirements and standards applicable to interconnections of generation and/or transmission facilities with the facilities of an Interconnected Transmission Owner or, as the case may be and to the extent applicable, of an Electric Distributor, as published by Transmission Provider in a PJM Manual provided, however, that, with respect to any generation facilities with maximum generating capacity of 2 MW or less *(synchronous) or 5 MW or less (inverter-based)* for which the Interconnection Customer executes a Construction Service Agreement or Interconnection Service Agreement on or after March 19, 2005, "Applicable Technical Requirements and

Standards" shall refer to the "PJM Small Generator Interconnection Applicable Technical Requirements and Standards." All Applicable Technical Requirements and Standards shall be publicly available through postings on Transmission Provider's internet website.

Applicant:

"Applicant" shall mean an entity desiring to become a PJM Member, or to take Transmission Service that has submitted the PJMSettlement credit application, PJMSettlement credit agreement and other required submittals as set forth in Tariff, Attachment Q.

Application:

"Application" shall mean a request by an Eligible Customer for transmission service pursuant to the provisions of the Tariff.

Attachment Facilities:

"Attachment Facilities" shall mean the facilities necessary to physically connect a Customer Facility to the Transmission System or interconnected distribution facilities.

Attachment H:

"Attachment H" shall refer collectively to the Attachments to the PJM Tariff with the prefix "H-" that set forth, among other things, the Annual Transmission Rates for Network Integration Transmission Service in the PJM Zones.

Auction Revenue Rights:

"Auction Revenue Rights" or "ARRs" shall mean the right to receive the revenue from the Financial Transmission Right auction, as further described in Operating Agreement, Schedule 1, section 7.4, and the parallel provisions of Tariff, Attachment K-Appendix, section 7.4.

Auction Revenue Rights Credits:

"Auction Revenue Rights Credits" shall mean the allocated share of total FTR auction revenues or costs credited to each holder of Auction Revenue Rights, calculated and allocated as specified in Operating Agreement, Schedule 1, section 7.4.3, and the parallel provisions of Tariff, Attachment K-Appendix, section 7.4.3.

Authorized Government Agency:

"Authorized Government Agency" means a regulatory body or government agency, with jurisdiction over PJM, the PJM Market, or any entity doing business in the PJM Market, including, but not limited to, the Commission, State Commissions, and state and federal attorneys general.

Avoidable Cost Rate:

"Avoidable Cost Rate" shall mean a component of the Market Seller Offer Cap calculated in accordance with Tariff, Attachment DD, section 6.

Balancing Congestion Charges:

"Balancing Congestion Charges" shall be equal to the sum of congestion charges collected from Market Participants that are purchasing energy in the Real-time Energy Market minus [the sum of congestion charges paid to Market Participants that are selling energy in the Real-time Energy Market plus any congestion charges calculated pursuant to the Joint Operating Agreement between the Midcontinent Independent Transmission System Operator, Inc. and PJM Interconnection, L.L.C. (PJM Rate Schedule FERC No. 38), plus any congestion charges calculated pursuant to the Joint Operating Agreement Among and Between New York Independent System Operator Inc. and PJM Interconnection, L.L.C. (PJM Rate Schedule FERC No. 45), plus any congestion charges calculated pursuant to agreements between the Office of the Interconnection and other entities, plus any charges or credits calculated pursuant to Operating Agreement, Schedule 1, section 3.8, and the parallel provisions of Tariff, Attachment K-Appendix, section 3.8, as applicable)].

Balancing Ratio:

"Balancing Ratio" shall have the meaning provided in Tariff, Attachment DD, section 10A.

Base Capacity Demand Resource:

"Base Capacity Demand Resource" shall have the meaning specified in the Reliability Assurance Agreement.

Base Capacity Demand Resource Constraint:

"Base Capacity Demand Resource Constraint" for the PJM Region or an LDA, shall mean, for the 2018/2019 and 2019/2020 Delivery Years, the maximum Unforced Capacity amount, determined by PJM, of Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources that is consistent with the maintenance of reliability. As more fully set forth in the PJM Manuals, PJM calculates the Base Capacity Demand Resource Constraint for the PJM Region or an LDA, by first determining a reference annual loss of load expectation ("LOLE") assuming no Base Capacity Resources, including no Base Capacity Demand Resources or Base Capacity Energy Efficiency Resources. The calculation for the PJM Region uses a daily distribution of loads under a range of weather scenarios (based on the most recent load forecast and iteratively shifting the load distributions to result in the Installed Reserve Margin established for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Installed Reserve Margin study for the Delivery Year in question). The calculation for each relevant LDA uses a daily distribution of loads under a range of weather scenarios (based on the most recent load forecast for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity

availability distributions developed for the Installed Reserve Margin study for the Delivery Year in question). For the relevant LDA calculation, the weekly capacity distributions are adjusted to reflect the Capacity Emergency Transfer Limit for the Delivery Year in question.

For both the PJM Region and LDA analyses, PJM then models the commitment of varying amounts of Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources (displacing otherwise committed generation) as interruptible from June 1 through September 30 and unavailable the rest of the Delivery Year in question and calculates the LOLE at each DR and EE level. The Base Capacity Demand Resource Constraint is the combined amount of Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources, stated as a percentage of the unrestricted annual peak load, that produces no more than a five percent increase in the LOLE, compared to the reference value. The Base Capacity Demand Resource Constraint shall be expressed as a percentage of the forecasted peak load of the PJM Region or such LDA and is converted to Unforced Capacity by multiplying [the reliability target percentage] times [the Forecast Pool Requirement] times [the forecasted peak load of the PJM Region or such LDA, reduced by the amount of load served under the FRR Alternative].

Base Capacity Demand Resource Price Decrement:

"Base Capacity Demand Resource Price Decrement" shall mean, for the 2018/2019 and 2019/2020 Delivery Years, a difference between the clearing price for Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources and the clearing price for Base Capacity Resources and Capacity Performance Resources, representing the cost to procure additional Base Capacity Resources or Capacity Performance Resources out of merit order when the Base Capacity Demand Resource Constraint is binding.

Base Capacity Energy Efficiency Resource:

"Base Capacity Energy Efficiency Resource" shall have the meaning specified in the Reliability Assurance Agreement.

Base Capacity Resource:

"Base Capacity Resource" shall mean a Capacity Resource as described in Tariff, Attachment DD, section 5.5A(b).

Base Capacity Resource Constraint:

"Base Capacity Resource Constraint" for the PJM Region or an LDA, shall mean, for the 2018/2019 and 2019/2020 Delivery Years, the maximum Unforced Capacity amount, determined by PJM, of Base Capacity Resources, including Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources, that is consistent with the maintenance of reliability. As more fully set forth in the PJM Manuals, PJM calculates the above Base Capacity Resource Constraint for the PJM Region or an LDA, by first determining a reference annual loss of load expectation ("LOLE") assuming no Base Capacity Resources, including no Base Capacity Demand Resources or Base Capacity Energy Efficiency Resources. The calculation for the PJM

Region uses the weekly load distribution from the Installed Reserve Margin study for the Delivery Year in question (based on the most recent load forecast and iteratively shifting the load distributions to result in the Installed Reserve Margin established for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Installed Reserve Margin study for the Delivery Year in question). The calculation for each relevant LDA uses a weekly load distribution (based on the Installed Reserve Margin study and the most recent load forecast for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Installed Reserve Margin study for the Delivery Year in question). For the relevant LDA calculation, the weekly capacity distributions are adjusted to reflect the Capacity Emergency Transfer Limit for the Delivery Year in question. Additionally, for the PJM Region and relevant LDA calculation, the weekly capacity distributions are adjusted to reflect winter ratings.

For both the PJM Region and LDA analyses, PJM models the commitment of an amount of Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources equal to the Base Capacity Demand Resource Constraint (displacing otherwise committed generation). PJM then models the commitment of varying amounts of Base Capacity Resources (displacing otherwise committed generation) as unavailable during the peak week of winter and available the rest of the Delivery Year in question and calculates the LOLE at each Base Capacity Resource level. The Base Capacity Resource Constraint is the combined amount of Base Capacity Demand Resources, Base Capacity Energy Efficiency Resources and Base Capacity Resources, stated as a percentage of the unrestricted annual peak load, that produces no more than a ten percent increase in the LOLE, compared to the reference value. The Base Capacity Resource Constraint shall be expressed as a percentage of the forecasted peak load of the PJM Region or such LDA and is converted to Unforced Capacity by multiplying [the reliability target percentage] times [one minus the pool-wide average EFORd] times [the forecasted peak load of the PJM Region or such LDA, reduced by the amount of load served under the FRR Alternative].

Base Capacity Resource Price Decrement:

"Base Capacity Resource Price Decrement" shall mean, for the 2018/2019 and 2019/2020 Delivery Years, a difference between the clearing price for Base Capacity Resources and the clearing price for Capacity Performance Resources, representing the cost to procure additional Capacity Performance Resources out of merit order when the Base Capacity Resource Constraint is binding.

Base Day-ahead Scheduling Reserves Requirement:

"Base Day-ahead Scheduling Reserves Requirement" shall mean the thirty-minute reserve requirement for the PJM Region established consistent with the Applicable Standards, plus any additional thirty-minute reserves scheduled in response to an RTO-wide Hot or Cold Weather Alert or other reasons for conservative operations.

Base Load Generation Resource

"Base Load Generation Resource" shall mean a Generation Capacity Resource that operates at least 90 percent of the hours that it is available to operate, as determined by the Office of the Interconnection in accordance with the PJM Manuals.

Base Offer Segment:

"Base Offer Segment" shall mean a component of a Sell Offer based on an existing Generation Capacity Resource, equal to the Unforced Capacity of such resource, as determined in accordance with the PJM Manuals. If the Sell Offers of multiple Market Sellers are based on a single Existing Generation Capacity Resource, the Base Offer Segments of such Market Sellers shall be determined pro rata based on their entitlements to Unforced Capacity from such resource.

Base Residual Auction:

"Base Residual Auction" shall mean the auction conducted three years prior to the start of the Delivery Year to secure commitments from Capacity Resources as necessary to satisfy any portion of the Unforced Capacity Obligation of the PJM Region not satisfied through Self-Supply.

Batch Load Demand Resource:

"Batch Load Demand Resource" shall mean a Demand Resource that has a cyclical production process such that at most times during the process it is consuming energy, but at consistent regular intervals, ordinarily for periods of less than ten minutes, it reduces its consumption of energy for its production processes to minimal or zero megawatts.

Behind The Meter Generation:

"Behind The Meter Generation" shall refer to a generation unit that delivers energy to load without using the Transmission System or any distribution facilities (unless the entity that owns or leases the distribution facilities has consented to such use of the distribution facilities and such consent has been demonstrated to the satisfaction of the Office of the Interconnection); provided, however, that Behind The Meter Generation does not include (i) at any time, any portion of such generating unit's capacity that is designated as a Generation Capacity Resource; or (ii) in an hour, any portion of the output of such generating unit that is sold to another entity for consumption at another electrical location or into the PJM Interchange Energy Market.

Black Start Service:

"Black Start Service" shall mean the capability of generating units to start without an outside electrical supply or the demonstrated ability of a generating unit with a high operating factor (subject to Transmission Provider concurrence) to automatically remain operating at reduced levels when disconnected from the grid.

Border Yearly Charge:

"Border Yearly Charge" shall mean the yearly charge determined in accordance with Tariff, Schedule 7.

Breach:

"Breach" shall mean the failure of a party to perform or observe any material term or condition of Tariff, Part IV or Part VI, or any agreement entered into thereunder as described in the relevant provisions of such agreement.

Breaching Party:

"Breaching Party" shall mean a party that is in Breach of Tariff, Part IV or Part VI and/or an agreement entered into thereunder.

Business Day:

"Business Day" shall mean a day in which the Federal Reserve System is open for business and is not a scheduled PJM holiday.

Buy Bid:

"Buy Bid" shall mean a bid to buy Capacity Resources in any Incremental Auction.

Canadian Guaranty:

"Canadian Guaranty" shall mean a Corporate Guaranty provided by an Affiliate of a Participant that is domiciled in Canada, and meets all of the provisions of Tariff, Attachment Q.

Cancellation Costs:

"Cancellation Costs" shall mean costs and liabilities incurred in connection with: (a) cancellation of supplier and contractor written orders and agreements entered into to design, construct and install Attachment Facilities, Direct Assignment Facilities and/or Customer-Funded Upgrades, and/or (b) completion of some or all of the required Attachment Facilities, Direct Assignment Facilities and/or Customer-Funded Upgrades, or specific unfinished portions and/or removal of any or all of such facilities which have been installed, to the extent required for the Transmission Provider and/or Transmission Owner(s) to perform their respective obligations under Tariff, Part IV and/or Part VI.

Capacity:

"Capacity" shall mean the installed capacity requirement of the Reliability Assurance Agreement or similar such requirements as may be established.

Capacity Emergency Transfer Limit:

"Capacity Emergency Transfer Limit" or "CETL" shall have the meaning provided in the Reliability Assurance Agreement.

Capacity Emergency Transfer Objective:

"Capacity Emergency Transfer Objective" or "CETO" shall have the meaning provided in the Reliability Assurance Agreement.

Capacity Export Transmission Customer:

"Capacity Export Transmission Customer" shall mean a customer taking point to point transmission service under Tariff, Part II to export capacity from a generation resource located in the PJM Region that has qualified for an exception to the RPM must-offer requirement as described in Tariff, Attachment DD, section 6.6(g).

Capacity Import Limit:

"Capacity Import Limit" shall have the meaning provided in the Reliability Assurance Agreement.

Capacity Interconnection Rights:

"Capacity Interconnection Rights" shall mean the rights to input generation as a Generation Capacity Resource into the Transmission System at the Point of Interconnection where the generating facilities connect to the Transmission System.

Capacity Market Buyer:

"Capacity Market Buyer" shall mean a Member that submits bids to buy Capacity Resources in any Incremental Auction.

Capacity Market Seller:

"Capacity Market Seller" shall mean a Member that owns, or has the contractual authority to control the output or load reduction capability of, a Capacity Resource, that has not transferred such authority to another entity, and that offers such resource in the Base Residual Auction or an Incremental Auction.

Capacity Performance Resource:

"Capacity Performance Resource" shall mean a Capacity Resource as described in Tariff, Attachment DD, section 5.5A(a).

Capacity Performance Transition Incremental Auction:

"Capacity Performance Transition Incremental Auction" shall have the meaning specified in

Tariff, Attachment DD, section 5.14D.

Capacity Resource:

"Capacity Resource" shall have the meaning provided in the Reliability Assurance Agreement.

Capacity Resource Clearing Price:

"Capacity Resource Clearing Price" shall mean the price calculated for a Capacity Resource that offered and cleared in a Base Residual Auction or Incremental Auction, in accordance with Tariff, Attachment DD, section 5.

Capacity Storage Resource:

"Capacity Storage Resource" shall mean any Energy Storage Resource that participates in the Reliability Pricing Model or is otherwise treated as capacity in PJM's markets such as through a Fixed Resource Requirement Capacity Plan.

Capacity Transfer Right:

"Capacity Transfer Right" shall mean a right, allocated to LSEs serving load in a Locational Deliverability Area, to receive payments, based on the transmission import capability into such Locational Deliverability Area, that offset, in whole or in part, the charges attributable to the Locational Price Adder, if any, included in the Zonal Capacity Price calculated for a Locational Delivery Area.

Capacity Transmission Injection Rights:

"Capacity Transmission Injection Rights" shall mean the rights to schedule energy and capacity deliveries at a Point of Interconnection of a Merchant Transmission Facility with the Transmission System. Capacity Transmission Injection Rights may be awarded only to a Merchant D.C. Transmission Facility and/or Controllable A.C. Merchant Transmission Facilities that connects the Transmission System to another control area. Deliveries scheduled using Capacity Transmission Injection Rights have rights similar to those under Firm Point-to-Point Transmission Service or, if coupled with a generating unit external to the PJM Region that satisfies all applicable criteria specified in the PJM Manuals, similar to Capacity Interconnection Rights.

Cold/Warm/Hot Notification Time:

"Cold/Warm/Hot Notification Time" shall mean the time interval between PJM notification and the beginning of the start sequence for a generating unit that is currently in its cold/warm/hot temperature state. The start sequence may include steps such as any valve operation, starting feed water pumps, startup of auxiliary equipment, etc.

Cold/Warm/Hot Start-up Time:

For all generating units that are not combined cycle units, "Cold/Warm/Hot Start-up Time" shall mean the time interval, measured in hours, from the beginning of the start sequence to the point after generator breaker closure, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero for a generating unit in its cold/warm/hot temperature state. For combined cycle units, "Cold/Warm/Hot Start-up Time" shall mean the time interval from the beginning of the start sequence to the point after first combustion turbine generator breaker closure in its cold/warm/hot temperature state, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero. For all generating units, the start sequence may include steps such as any valve operation, starting feed water pumps, startup of auxiliary equipment, etc. Other more detailed actions that could signal the beginning of the start sequence could include, but are not limited to, the operation of pumps, condensers, fans, water chemistry evaluations, checklists, valves, fuel systems, combustion turbines, starting engines or systems, maintaining stable fuel/air ratios, and other auxiliary equipment necessary for startup.

Cold Weather Alert:

"Cold Weather Alert" shall mean the notice that PJM provides to PJM Members, Transmission Owners, resource owners and operators, customers, and regulators to prepare personnel and facilities for expected extreme cold weather conditions.

Collateral:

"Collateral" shall be a cash deposit, including any interest, or letter of credit in an amount and form determined by and acceptable to PJMSettlement, provided by a Participant to PJMSettlement as security in order to participate in the PJM Markets or take Transmission Service.

Collateral Call:

"Collateral Call" shall mean a notice to a Participant that additional Collateral, or possibly early payment, is required in order to remain in, or to regain, compliance with Tariff, Attachment Q.

Commencement Date:

"Commencement Date" shall mean the date on which Interconnection Service commences in accordance with an Interconnection Service Agreement.

Committed Offer:

The "Committed Offer" shall mean 1) for pool-scheduled resources, an offer on which a resource was scheduled by the Office of the Interconnection for a particular clock hour for an Operating Day, and 2) for self-scheduled resources, either the offer on which the Market Seller has elected to schedule the resource or the applicable offer for the resource determined pursuant to Operating Agreement, Schedule 1, section 6.4, or Operating Agreement, Schedule 1, section 6.6 for a

particular clock hour for an Operating Day.

Completed Application:

"Completed Application" shall mean an application that satisfies all of the information and other requirements of the Tariff, including any required deposit.

Compliance Aggregation Area (CAA):

"Compliance Aggregation Area" or "CAA" shall mean a geographic area of Zones or sub-Zones that are electrically-contiguous and experience for the relevant Delivery Year, based on Resource Clearing Prices of, for Delivery Years through May 31, 2018, Annual Resources and for the 2018/2019 Delivery Year and subsequent Delivery Years, Capacity Performance Resources, the same locational price separation in the Base Residual Auction, the same locational price separation in the First Incremental Auction, the same locational price separation in the Second Incremental Auction, or the same locational price separation in the Third Incremental Auction.

Conditional Incremental Auction:

"Conditional Incremental Auction" shall mean an Incremental Auction conducted for a Delivery Year if and when necessary to secure commitments of additional capacity to address reliability criteria violations arising from the delay in a Backbone Transmission upgrade that was modeled in the Base Residual Auction for such Delivery Year.

CONE Area:

"CONE Area" shall mean the areas listed in Tariff, Attachment DD, section 5.10(a)(iv)(A) and any LDAs established as CONE Areas pursuant to Tariff, Attachment DD, section 5.10(a)(iv)(B).

Confidential Information:

"Confidential Information" shall mean any confidential, proprietary, or trade secret information of a plan, specification, pattern, procedure, design, device, list, concept, policy, or compilation relating to the present or planned business of a New Service Customer, Transmission Owner, or other Interconnection Party or Construction Party, which is designated as confidential by the party supplying the information, whether conveyed verbally, electronically, in writing, through inspection, or otherwise, and shall include, without limitation, all information relating to the producing party's technology, research and development, business affairs and pricing, and any information supplied by any New Service Customer, Transmission Owner, or other Interconnection Party or Construction Party to another such party prior to the execution of an Interconnection Service Agreement or a Construction Service Agreement.

Congestion Price:

"Congestion Price" shall mean the congestion component of the Locational Marginal Price,

which is the effect on transmission congestion costs (whether positive or negative) associated with increasing the output of a generation resource or decreasing the consumption by a Demand Resource, based on the effect of increased generation from or consumption by the resource on transmission line loadings, calculated as specified in Operating Agreement, Schedule 1, section 2, and the parallel provisions of Tariff, Attachment K-Appendix.

Consolidated Transmission Owners Agreement, PJM Transmission Owners Agreement or Transmission Owners Agreement:

"Consolidated Transmission Owners Agreement," "PJM Transmission Owners Agreement" or "Transmission Owners Agreement" shall mean the certain Consolidated Transmission Owners Agreement dated as of December 15, 2005, by and among the Transmission Owners and by and between the Transmission Owners and PJM Interconnection, L.L.C. on file with the Commission, as amended from time to time.

Constraint Relaxation Logic:

"Constraint Relaxation Logic" shall mean the logic applied in the market clearing software where the transmission limit is increased to prevent the Transmission Constraint Penalty Factor from setting the Marginal Value of a transmission constraint.

Constructing Entity:

"Constructing Entity" shall mean either the Transmission Owner or the New Services Customer, depending on which entity has the construction responsibility pursuant to Tariff, Part VI and the applicable Construction Service Agreement; this term shall also be used to refer to an Interconnection Customer with respect to the construction of the Customer Interconnection Facilities.

Construction Party:

"Construction Party" shall mean a party to a Construction Service Agreement. "Construction Parties" shall mean all of the Parties to a Construction Service Agreement.

Construction Service Agreement:

"Construction Service Agreement" shall mean either an Interconnection Construction Service Agreement or an Upgrade Construction Service Agreement.

Control Area:

"Control Area" shall mean an electric power system or combination of electric power systems bounded by interconnection metering and telemetry to which a common automatic generation control scheme is applied in order to:

(1) match the power output of the generators within the electric power system(s) and

energy purchased from entities outside the electric power system(s), with the load within the electric power system(s);

(2) maintain scheduled interchange with other Control Areas, within the limits of Good Utility Practice;

(3) maintain the frequency of the electric power system(s) within reasonable limits in accordance with Good Utility Practice; and

(4) provide sufficient generating capacity to maintain operating reserves in accordance with Good Utility Practice.

Control Zone:

"Control Zone" shall have the meaning given in the Operating Agreement.

Controllable A.C. Merchant Transmission Facilities:

"Controllable A.C. Merchant Transmission Facilities" shall mean transmission facilities that (1) employ technology which Transmission Provider reviews and verifies will permit control of the amount and/or direction of power flow on such facilities to such extent as to effectively enable the controllable facilities to be operated as if they were direct current transmission facilities, and (2) that are interconnected with the Transmission System pursuant to Tariff, Part IV and Part VI.

Coordinated External Transaction:

"Coordinated External Transaction" shall mean a transaction to simultaneously purchase and sell energy on either side of a CTS Enabled Interface in accordance with the procedures of Operating Agreement, Schedule 1, section 1.13, and the parallel provisions of Tariff, Attachment K-Appendix.

Coordinated Transaction Scheduling:

"Coordinated Transaction Scheduling" or "CTS" shall mean the scheduling of Coordinated External Transactions at a CTS Enabled Interface in accordance with the procedures of Operating Agreement, Schedule 1, section 1.13, and the parallel provisions of Tariff, Attachment K-Appendix.

Corporate Guaranty:

"Corporate Guaranty" shall mean a legal document used by an entity to guaranty the obligations of another entity.

Cost of New Entry:

"Cost of New Entry" or "CONE" shall mean the nominal levelized cost of a Reference Resource,

as determined in accordance with Tariff, Attachment DD, section 5.

Costs:

As used in Tariff, Part IV, Part VI and related attachments, "Costs" shall mean costs and expenses, as estimated or calculated, as applicable, including, but not limited to, capital expenditures, if applicable, and overhead, return, and the costs of financing and taxes and any Incidental Expenses.

Counterparty:

"Counterparty" shall mean PJMSettlement as the contracting party, in its name and own right and not as an agent, to an agreement or transaction with a Market Participant or other entities, including the agreements and transactions with customers regarding transmission service and other transactions under the PJM Tariff and the Operating Agreement. PJMSettlement shall not be a counterparty to (i) any bilateral transactions between Members, or (ii) any Member's self-supply of energy to serve its load, or (iii) any Member's self-schedule of energy reported to the Office of the Interconnection to the extent that energy serves that Member's own load.

Credit Available for Export Transactions:

"Credit Available for Export Transactions" shall mean a designation of credit to be used for Export Transactions that is allocated by each Market Participant from its Credit Available for Virtual Transactions, and which reduces the Market Participant's Credit Available for Virtual Transactions accordingly.

Credit Available for Virtual Transactions:

"Credit Available for Virtual Transactions" shall mean the Market Participant's Working Credit Limit for Virtual Transactions calculated on its credit provided in compliance with its Peak Market Activity requirement plus available credit submitted above that amount, less any unpaid billed and unbilled amounts owed to PJMSettlement, plus any unpaid unbilled amounts owed by PJMSettlement to the Market Participant, less any applicable credit required for Minimum Participation Requirements, FTRs, RPM activity, or other credit requirement determinants as defined in Tariff, Attachment Q.

Credit Breach:

"Credit Breach" shall mean the status of a Participant that does not currently meet the requirements of Tariff, Attachment Q or other provisions of the Agreements.

Credit-Limited Offer:

"Credit-Limited Offer" shall mean a Sell Offer that is submitted by a Market Participant in an RPM Auction subject to a maximum credit requirement specified by such Market Participant.

Credit Score:

"Credit Score" shall mean a composite numerical score scaled from 0-100 as calculated by PJMSettlement that incorporates various predictors of creditworthiness.

CTS Enabled Interface:

"CTS Enabled Interface" shall mean an interface between the PJM Control Area and an adjacent Control Area at which the Office of the Interconnection has authorized the use of Coordinated Transaction Scheduling ("CTS"). The CTS Enabled Interfaces between the PJM Control Area and the New York Independent System Operator, Inc. Control Area shall be designated in Schedule A to the Joint Operating Agreement Among and Between New York Independent System Operator Inc. and PJM Interconnection, L.L.C. (PJM Rate Schedule FERC No. 45). The CTS Enabled Interfaces between the PJM Control Area and the Midcontinent Independent System Operator, Inc. shall be designated consistent with Attachment 3, section 2 of the Joint Operating Agreement between Midcontinent Independent System Operator, Inc. and PJM Interconnection, L.L.C.

CTS Interface Bid:

"CTS Interface Bid" shall mean a unified real-time bid to simultaneously purchase and sell energy on either side of a CTS Enabled Interface in accordance with the procedures of Operating Agreement, Schedule 1, section 1.13, and the parallel provisions of Tariff, Attachment K-Appendix.

Curtailment:

"Curtailment" shall mean a reduction in firm or non-firm transmission service in response to a transfer capability shortage as a result of system reliability conditions.

Curtailment Service Provider:

"Curtailment Service Provider" or "CSP" shall mean a Member or a Special Member, which action on behalf of itself or one or more other Members or non-Members, participates in the PJM Interchange Energy Market, Ancillary Services markets, and/or Reliability Pricing Model by causing a reduction in demand.

Customer Facility:

"Customer Facility" shall mean generation facilities or Merchant Transmission Facilities interconnected with or added to the Transmission System pursuant to an Interconnection Request under Subpart A of Tariff, Part IV.

Customer-Funded Upgrade:

"Customer-Funded Upgrade" shall mean any Network Upgrade, Local Upgrade, or Merchant

Network Upgrade for which cost responsibility (i) is imposed on an Interconnection Customer or an Eligible Customer pursuant to Tariff, Part VI, section 217, or (ii) is voluntarily undertaken by a New Service Customer in fulfillment of an Upgrade Request. No Network Upgrade, Local Upgrade or Merchant Network Upgrade or other transmission expansion or enhancement shall be a Customer-Funded Upgrade if and to the extent that the costs thereof are included in the rate base of a public utility on which a regulated return is earned.

Customer Interconnection Facilities:

"Customer Interconnection Facilities" shall mean all facilities and equipment owned and/or controlled, operated and maintained by Interconnection Customer on Interconnection Customer's side of the Point of Interconnection identified in the appropriate appendices to the Interconnection Service Agreement and to the Interconnection Construction Service Agreement, including any modifications, additions, or upgrades made to such facilities and equipment, that are necessary to physically and electrically interconnect the Customer Facility with the Transmission System.

Daily Deficiency Rate:

"Daily Deficiency Rate" shall mean the rate employed to assess certain deficiency charges under Tariff, Attachment DD, section 7, Tariff, Attachment DD, section 8, Tariff, Attachment DD, section 9, or Tariff, Attachment DD, section 13.

Daily Unforced Capacity Obligation:

"Daily Unforced Capacity Obligation" shall mean the capacity obligation of a Load Serving Entity during the Delivery Year, determined in accordance with Reliability Assurance Agreement, Schedule 8, or, as to an FRR entity, in Reliability Assurance Agreement, Schedule 8.1.

Day-ahead Congestion Price:

"Day-ahead Congestion Price" shall mean the Congestion Price resulting from the Day-ahead Energy Market.

Day-ahead Energy Market:

"Day-ahead Energy Market" shall mean the schedule of commitments for the purchase or sale of energy and payment of Transmission Congestion Charges developed by the Office of the Interconnection as a result of the offers and specifications submitted in accordance with Operating Agreement, Schedule 1, section 1.10 and the parallel provisions of Tariff, Attachment K-Appendix.

Day-ahead Energy Market Injection Congestion Credits:

"Day-ahead Energy Market Injection Congestion Credits" shall mean those congestion credits

paid to Market Participants for supply transactions in the Day-ahead Energy Market including generation schedules, Increment Offers, Up-to Congestion Transactions, import transactions, and Day-Ahead Pseudo-Tie Transactions.

Day-ahead Energy Market Transmission Congestion Charges:

"Day-ahead Energy Market Transmission Congestion Charges" shall be equal to the sum of Day-ahead Energy Market Withdrawal Congestion Charges minus [the sum of Day-ahead Energy Market Injection Congestion Credits plus any congestion charges calculated pursuant to the Joint Operating Agreement between the Midcontinent Independent Transmission System Operator, Inc. and PJM Interconnection, L.L.C. (PJM Rate Schedule FERC No. 38), plus any congestion charges calculated pursuant to the Joint Operating Agreement Among and Between New York Independent System Operator Inc. and PJM Interconnection, L.L.C. (PJM Rate Schedule FERC No. 45), plus any congestion charges calculated pursuant to agreements between the Office of the Interconnection and other entities, as applicable)].

Day-ahead Energy Market Withdrawal Congestion Charges:

"Day-ahead Energy Market Withdrawal Congestion Charges" shall mean those congestion charges collected from Market Participants for withdrawal transactions in the Day-ahead Energy Market from transactions including Demand Bids, Decrement Bids, Up-to Congestion Transactions, Export Transactions, and Day-Ahead Pseudo-Tie Transactions.

Day-ahead Loss Price:

"Day-ahead Loss Price" shall mean the Loss Price resulting from the Day-ahead Energy Market.

Day-ahead Prices:

"Day-ahead Prices" shall mean the Locational Marginal Prices resulting from the Day-ahead Energy Market.

Day-Ahead Pseudo-Tie Transaction:

"Day-Ahead Pseudo-Tie Transaction" shall mean a transaction scheduled in the Day-ahead Energy Market to the PJM-MISO interface from a generator within the PJM balancing authority area that Pseudo-Ties into the MISO balancing authority area.

Day-ahead Scheduling Reserves:

"Day-ahead Scheduling Reserves" shall mean thirty-minute reserves as defined by the Reliability*First* Corporation and SERC.

Day-ahead Scheduling Reserves Market:

"Day-ahead Scheduling Reserves Market" shall mean the schedule of commitments for the

purchase or sale of Day-ahead Scheduling Reserves developed by the Office of the Interconnection as a result of the offers and specifications submitted in accordance with Operating Agreement, Schedule 1, section 1.10 and the parallel provisions of Tariff, Attachment K-Appendix.

Day-ahead Scheduling Reserves Requirement:

"Day-ahead Scheduling Reserves Requirement" shall mean the sum of Base Day-ahead Scheduling Reserves Requirement and Additional Day-ahead Scheduling Reserves Requirement.

Day-ahead Scheduling Reserves Resources:

"Day-ahead Scheduling Reserves Resources" shall mean synchronized and non-synchronized generation resources and Demand Resources electrically located within the PJM Region that are capable of providing Day-ahead Scheduling Reserves.

Day-ahead Settlement Interval:

"Day-ahead Settlement Interval" shall mean the interval used by settlements, which shall be every one clock hour.

Day-ahead System Energy Price:

"Day-ahead System Energy Price" shall mean the System Energy Price resulting from the Day-ahead Energy Market.

Deactivation:

"Deactivation" shall mean the retirement or mothballing of a generating unit governed by Tariff, Part V.

Deactivation Avoidable Cost Credit:

"Deactivation Avoidable Cost Credit" shall mean the credit paid to Generation Owners pursuant to Tariff, Part V, section 114.

Deactivation Avoidable Cost Rate:

"Deactivation Avoidable Cost Rate" shall mean the formula rate established pursuant to Tariff, Part V, section 115 of this Tariff.

Deactivation Date:

"Deactivation Date" shall mean the date a generating unit within the PJM Region is either retired or mothballed and ceases to operate.

Decrement Bid:

"Decrement Bid" shall mean a type of Virtual Transaction that is a bid to purchase energy at a specified location in the Day-ahead Energy Market. A cleared Decrement Bid results in scheduled load at the specified location in the Day-ahead Energy Market.

Default:

As used in the Interconnection Service Agreement and Construction Service Agreement, "Default" shall mean the failure of a Breaching Party to cure its Breach in accordance with the applicable provisions of an Interconnection Service Agreement or Construction Service Agreement.

Delivering Party:

"Delivering Party" shall mean the entity supplying capacity and energy to be transmitted at Point(s) of Receipt.

Delivery Year:

"Delivery Year" shall mean the Planning Period for which a Capacity Resource is committed pursuant to the auction procedures specified in Tariff, Attachment DD, or pursuant to an FRR Capacity Plan under Reliability Assurance Agreement, Schedule 8.1.

Demand Bid:

"Demand Bid" shall mean a bid, submitted by a Load Serving Entity in the Day-ahead Energy Market, to purchase energy at its contracted load location, for a specified timeframe and megawatt quantity, that if cleared will result in energy being scheduled at the specified location in the Day-ahead Energy Market and in the physical transfer of energy during the relevant Operating Day.

Demand Bid Limit:

"Demand Bid Limit" shall mean the largest MW volume of Demand Bids that may be submitted by a Load Serving Entity for any hour of an Operating Day, as determined pursuant to Operating Agreement, Schedule 1, section 1.10.1B, and the parallel provisions of Tariff, Attachment K-Appendix.

Demand Bid Screening:

"Demand Bid Screening" shall mean the process by which Demand Bids are reviewed against the applicable Demand Bid Limit, and rejected if they would exceed that limit, as determined pursuant to Operating Agreement, Schedule 1, section 1.10.1B, and the parallel provisions of Tariff, Attachment K-Appendix.

Demand Resource:

"Demand Resource" shall mean a resource with the capability to provide a reduction in demand.

Demand Resource Factor or DR Factor:

"Demand Resource Factor" or ("DR Factor") shall have the meaning specified in the Reliability Assurance Agreement.

Designated Agent:

"Designated Agent" shall mean any entity that performs actions or functions on behalf of the Transmission Provider, a Transmission Owner, an Eligible Customer, or the Transmission Customer required under the Tariff.

Designated Entity:

"Designated Entity" shall have the same meaning provided in the Operating Agreement.

Direct Assignment Facilities:

"Direct Assignment Facilities" shall mean facilities or portions of facilities that are constructed for the sole use/benefit of a particular Transmission Customer requesting service under the Tariff. Direct Assignment Facilities shall be specified in the Service Agreement that governs service to the Transmission Customer and shall be subject to Commission approval.

Direct Charging Energy:

"Direct Charging Energy" shall mean the energy that an Energy Storage Resource purchases from the PJM Interchange Energy Market and (i) later resells to the PJM Interchange Energy Market; or (ii) is lost to conversion inefficiencies, provided that such inefficiencies are an unavoidable component of the conversion, storage, and discharge process that is used to resell energy back to the PJM Interchange Energy Market.

Direct Load Control:

"Direct Load Control" shall mean load reduction that is controlled directly by the Curtailment Service Provider's market operations center or its agent, in response to PJM instructions.

Dispatch Rate:

"Dispatch Rate" shall mean the control signal, expressed in dollars per megawatt-hour, calculated and transmitted continuously and dynamically to direct the output level of all generation resources dispatched by the Office of the Interconnection in accordance with the Offer Data.

Dispatched Charging Energy:

"Dispatched Charging Energy" shall mean Direct Charging Energy that an Energy Storage Resource Model Participant receives from the electric grid pursuant to PJM dispatch while providing a service in the PJM markets.

Dynamic Schedule:

"Dynamic Schedule" shall have the same meaning provided in the Operating Agreement.

Dynamic Transfer:

"Dynamic Transfer" shall have the same meaning provided in the Operating Agreement.

Economic-based Enhancement or Expansion:

"Economic-based Enhancement or Expansion" shall have the same meaning provided in the Operating Agreement.

Economic Load Response Participant:

"Economic Load Response Participant" shall mean a Member or Special Member that qualifies under Operating Agreement, Schedule 1, section 1.5A, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.5A, to participate in the PJM Interchange Energy Market and/or Ancillary Services markets through reductions in demand.

Economic Maximum:

"Economic Maximum" shall mean the highest incremental MW output level, submitted to PJM market systems by a Market Participant, that a unit can achieve while following economic dispatch.

Economic Minimum:

"Economic Minimum" shall mean the lowest incremental MW output level, submitted to PJM market systems by a Market Participant, that a unit can achieve while following economic dispatch.

Effective FTR Holder:

"Effective FTR Holder" shall mean:

(i) For an FTR Holder that is either a (a) privately held company, or (b) a municipality or electric cooperative, as defined in the Federal Power Act, such FTR Holder, together with any Affiliate, subsidiary or parent of the FTR Holder, any other entity that is under common ownership, wholly or partly, directly or indirectly, or has the ability to influence, directly or

indirectly, the management or policies of the FTR Holder; or

(ii) For an FTR Holder that is a publicly traded company including a wholly owned subsidiary of a publicly traded company, such FTR Holder, together with any Affiliate, subsidiary or parent of the FTR Holder, any other PJM Member has over 10% common ownership with the FTR Holder, wholly or partly, directly or indirectly, or has the ability to influence, directly or indirectly, the management or policies of the FTR Holder; or

(iii) an FTR Holder together with any other PJM Member, including also any Affiliate, subsidiary or parent of such other PJM Member, with which it shares common ownership, wholly or partly, directly or indirectly, in any third entity which is a PJM Member (e.g., a joint venture).

EFORd:

"EFORd" shall have the meaning specified in the PJM Reliability Assurance Agreement.

Electrical Distance:

"Electrical Distance" shall mean, for a Generation Capacity Resource geographically located outside the metered boundaries of the PJM Region, the measure of distance, based on impedance and in accordance with the PJM Manuals, from the Generation Capacity Resource to the PJM Region.

Eligible Customer:

"Eligible Customer" shall mean:

(i) Any electric utility (including any Transmission Owner and any power marketer), Federal power marketing agency, or any person generating electric energy for sale for resale is an Eligible Customer under the Tariff. Electric energy sold or produced by such entity may be electric energy produced in the United States, Canada or Mexico. However, with respect to transmission service that the Commission is prohibited from ordering by Section 212(h) of the Federal Power Act, such entity is eligible only if the service is provided pursuant to a state requirement that the Transmission Provider or Transmission Owner offer the unbundled transmission service, or pursuant to a voluntary offer of such service by a Transmission Owner.

(ii) Any retail customer taking unbundled transmission service pursuant to a state requirement that the Transmission Provider or a Transmission Owner offer the transmission service, or pursuant to a voluntary offer of such service by a Transmission Owner, is an Eligible Customer under the Tariff. As used in Tariff, Part VI, Eligible Customer shall mean only those Eligible Customers that have submitted a Completed Application.

Emergency Action:

"Emergency Action" shall mean any emergency action for locational or system-wide capacity shortages that either utilizes pre-emergency mandatory load management reductions or other emergency capacity, or initiates a more severe action including, but not limited to, a Voltage Reduction Warning, Voltage Reduction Action, Manual Load Dump Warning, or Manual Load Dump Action.

Emergency Condition:

"Emergency Condition" shall mean a condition or situation (i) that in the judgment of any Interconnection Party is imminently likely to endanger life or property; or (ii) that in the judgment of the Interconnected Transmission Owner or Transmission Provider is imminently likely (as determined in a non-discriminatory manner) to cause a material adverse effect on the security of, or damage to, the Transmission System, the Interconnection Facilities, or the transmission systems or distribution systems to which the Transmission System is directly or indirectly connected; or (iii) that in the judgment of Interconnection Customer is imminently likely (as determined in a non-discriminatory manner) to cause damage to the Customer Facility or to the Customer Interconnection Facilities. System restoration and black start shall be considered Emergency Conditions, provided that a Generation Interconnection Customer is not obligated by an Interconnection Service Agreement to possess black start capability. Any condition or situation that results from lack of sufficient generating capacity to meet load requirements or that results solely from economic conditions shall not constitute an Emergency Condition, unless one or more of the enumerated conditions or situations identified in this definition also exists.

Emergency Load Response Program:

"Emergency Load Response Program" shall mean the program by which Curtailment Service Providers may be compensated by PJM for Demand Resources that will reduce load when dispatched by PJM during emergency conditions, and is described in Operating Agreement, Schedule 1, section 8 and the parallel provisions of Tariff, Attachment K-Appendix, section 8.

Energy Efficiency Resource:
"Energy Efficiency Resource" shall have the meaning specified in the PJM Reliability Assurance Agreement.

Energy Market Opportunity Cost:

"Energy Market Opportunity Cost" shall mean the difference between (a) the forecasted cost to operate a specific generating unit when the unit only has a limited number of available run hours due to limitations imposed on the unit by Applicable Laws and Regulations, and (b) the forecasted future Locational Marginal Price at which the generating unit could run while not violating such limitations. Energy Market Opportunity Cost therefore is the value associated with a specific generating unit's lost opportunity to produce energy during a higher valued period of time occurring within the same compliance period, which compliance period is determined by the applicable regulatory authority and is reflected in the rules set forth in PJM Manual 15. Energy Market Opportunity Costs shall be limited to those resources which are specifically delineated in Operating Agreement, Schedule 2.

Energy Resource:

"Energy Resource" shall mean a generating facility that is not a Capacity Resource.

Energy Settlement Area:

"Energy Settlement Area" shall mean the bus or distribution of busses that represents the physical location of Network Load and by which the obligations of the Network Customer to PJM are settled.

Energy Storage Resource:

"Energy Storage Resource" shall mean a resource capable of receiving electric energy from the grid and storing it for later injection to the grid that participates in the PJM Energy, Capacity and/or Ancillary Services markets as a Market Participant.

Energy Storage Resource Model Participant:

"Energy Storage Resource Model Participant" shall mean an Energy Storage Resource utilizing the Energy Storage Resource Participation Model.

Energy Storage Resource Participation Model:

"Energy Storage Resource Participation Model" shall mean the participation model accepted by the Commission in Docket No. ER19-XXX-000.

Energy Transmission Injection Rights:

"Energy Transmission Injection Rights" shall mean the rights to schedule energy deliveries at a specified point on the Transmission System. Energy Transmission Injection Rights may be awarded only to a Merchant D.C. Transmission Facility that connects the Transmission System to another control area. Deliveries scheduled using Energy Transmission Injection Rights have rights similar to those under Non-Firm Point-to-Point Transmission Service.

Environmental Laws:

"Environmental Laws" shall mean applicable Laws or Regulations relating to pollution or protection of the environment, natural resources or human health and safety.

Environmentally-Limited Resource:

"Environmentally-Limited Resource" shall mean a resource which has a limit on its run hours imposed by a federal, state, or other governmental agency that will significantly limit its availability, on either a temporary or long-term basis. This includes a resource that is limited by a governmental authority to operating only during declared PJM capacity emergencies.

Equivalent Load:

"Equivalent Load" shall mean the sum of a Market Participant's net system requirements to serve its customer load in the PJM Region, if any, plus its net bilateral transactions.

Existing Generation Capacity Resource:

"Existing Generation Capacity Resource" shall have the meaning specified in the Reliability Assurance Agreement.

Export Credit Exposure:

"Export Credit Exposure" is determined for each Market Participant for a given Operating Day, and shall mean the sum of credit exposures for the Market Participant's Export Transactions for that Operating Day and for the preceding Operating Day.

Export Nodal Reference Price:

"Export Nodal Reference Price" at each location is the 97th percentile, shall be, the real-time hourly integrated price experienced over the corresponding two-month period in the preceding calendar year, calculated separately for peak and off-peak time periods. The two-month time periods used in this calculation shall be January and February, March and April, May and June, July and August, September and October, and November and December.

Export Transaction:

"Export Transaction" shall be a transaction by a Market Participant that results in the transfer of energy from within the PJM Control Area to outside the PJM Control Area. Coordinated External Transactions that result in the transfer of energy from the PJM Control Area to an adjacent Control Area are one form of Export Transaction.

Export Transaction Price Factor:

"Export Transaction Price Factor" for a prospective time interval shall be the greater of (i) PJM's forecast price for the time interval, if available, or (ii) the Export Nodal Reference Price, but shall not exceed the Export Transaction's dispatch ceiling price cap, if any, for that time interval. The Export Transaction Price Factor for a past time interval shall be calculated in the same manner as for a prospective time interval, except that the Export Transaction Price Factor may use a tentative or final settlement price, as available. If an Export Nodal Reference Price is not available for a particular time interval, PJM may use an Export Transaction Price Factor for that time interval based on an appropriate alternate reference price.

Export Transaction Screening:

"Export Transaction Screening" shall be the process PJM uses to review the Export Credit

Exposure of Export Transactions against the Credit Available for Export Transactions, and deny or curtail all or a portion of an Export Transaction, if the credit required for such transactions is greater than the credit available for the transactions.

Export Transactions Net Activity:

"Export Transactions Net Activity" shall mean the aggregate net total, resulting from Export Transactions, of (i) Spot Market Energy charges, (ii) Transmission Congestion Charges, and (iii) Transmission Loss Charges, calculated as set forth in Operating Agreement, Schedule 1 and the parallel provisions of Tariff, Attachment K-Appendix. Export Transactions Net Activity may be positive or negative.

Extended Primary Reserve Requirement:

"Extended Primary Reserve Requirement" shall equal the Primary Reserve Requirement in a Reserve Zone or Reserve Sub-zone, plus 190 MW, plus any additional reserves scheduled under emergency conditions necessary to address operational uncertainty. The Extended Primary Reserve Requirement is calculated in accordance with the PJM Manuals.

Extended Summer Demand Resource:

"Extended Summer Demand Resource" shall have the meaning specified in the Reliability Assurance Agreement.

Extended Summer Resource Price Adder:

"Extended Summer Resource Price Adder" shall mean, for Delivery Years through May 31, 2018, an addition to the marginal value of Unforced Capacity as necessary to reflect the price of Annual Resources and Extended Summer Demand Resources required to meet the applicable Minimum Extended Summer Resource Requirement.

Extended Synchronized Reserve Requirement:

"Extended Synchronized Reserve Requirement" shall equal the Synchronized Reserve Requirement in a Reserve Zone or Reserve Sub-zone, plus 190 MW, plus any additional reserves scheduled under emergency conditions necessary to address operational uncertainty. The Extended Synchronized Reserve Requirement is calculated in accordance with the PJM Manuals.

External Market Buyer:

"External Market Buyer" shall mean a Market Buyer making purchases of energy from the PJM Interchange Energy Market for consumption by end-users outside the PJM Region, or for load in the PJM Region that is not served by Network Transmission Service.

External Resource:

"External Resource" shall mean a generation resource located outside the metered boundaries of the PJM Region.

Facilities Study:

"Facilities Study" shall be an engineering study conducted by the Transmission Provider (in coordination with the affected Transmission Owner(s)) to: (1) determine the required modifications to the Transmission Provider's Transmission System necessary to implement the conclusions of the System Impact Study; and (2) complete any additional studies or analyses documented in the System Impact Study or required by PJM Manuals, and determine the required modifications to the Transmission Provider's Transmission System based on the conclusions of such additional studies. The Facilities Study shall include the cost and scheduled completion date for such modifications, that will be required to provide the requested transmission service or to accommodate a New Service Request. As used in the Interconnection Service Agreement or Construction Service Agreement, Facilities Study shall mean that certain Facilities Study conducted by Transmission Provider (or at its direction) to determine the design and specification of the Customer Funded Upgrades necessary to accommodate the New Service Customer's New Service Request in accordance with Tariff, Part VI, section 207.

Federal Power Act:

"Federal Power Act" shall mean the Federal Power Act, as amended, 16 U.S.C. §§ 791a, et seq.

FERC or Commission:

"FERC" or "Commission" shall mean the Federal Energy Regulatory Commission or any successor federal agency, commission or department exercising jurisdiction over the Tariff, Operating Agreement and Reliability Assurance Agreement.

FERC Market Rules:

"FERC Market Rules" mean the market behavior rules and the prohibition against electric energy market manipulation codified by the Commission in its Rules and Regulations at 18 CFR §§ 1c.2 and 35.37, respectively; the Commission-approved PJM Market Rules and any related proscriptions or any successor rules that the Commission from time to time may issue, approve or otherwise establish.

Final Offer:

"Final Offer" shall mean the offer on which a resource was dispatched by the Office of the Interconnection for a particular clock hour for the Operating Day.

Final RTO Unforced Capacity Obligation:

"Final RTO Unforced Capacity Obligation" shall mean the capacity obligation for the PJM Region, determined in accordance with RAA, Schedule 8.

Financial Close:

"Financial Close" shall mean the Capacity Market Seller has demonstrated that the Capacity Market Seller or its agent has completed the act of executing the material contracts and/or other documents necessary to (1) authorize construction of the project and (2) establish the necessary funding for the project under the control of an independent third-party entity. A sworn, notarized certification of an independent engineer certifying to such facts, and that the engineer has personal knowledge of, or has engaged in a diligent inquiry to determine, such facts, shall be sufficient to make such demonstration. For resources that do not have external financing, Financial Close shall mean the project has full funding available, and that the project has been duly authorized to proceed with full construction of the material portions of the project by the appropriate governing body of the company funding such project. A sworn, notarized certification by an officer of such company certifying to such facts, and that the officer has personal knowledge of, or has engaged in a diligent inquiry to determine, such facts, shall be sufficient to make such demonstration.

Financial Transmission Right:

"Financial Transmission Right" or "FTR" shall mean a right to receive Transmission Congestion Credits as specified in Operating Agreement, Schedule 1, section 5.2.2 and the parallel provisions of Tariff, Attachment K-Appendix, section 5.2.2.

Financial Transmission Right Obligation:

"Financial Transmission Right Obligation" shall mean a right to receive Transmission Congestion Credits as specified in Operating Agreement, Schedule 1, section 5.2.2(b), and the parallel provisions of Tariff, Attachment K-Appendix, section 5.2.2(b).

Financial Transmission Right Option:

"Financial Transmission Right Option" shall mean a right to receive Transmission Congestion Credits as specified in Operating Agreement, Schedule 1, section 5.2.2(c), and the parallel provisions of Tariff, Attachment K-Appendix, section 5.2.2(c).

Flexible Resource:

"Flexible Resource" shall mean a generating resource that must have a combined Start-up Time and Notification Time of less than or equal to two hours; and a Minimum Run Time of less than or equal to two hours.

Firm Point-To-Point Transmission Service:

"Firm Point-To-Point Transmission Service" shall mean Transmission Service under the Tariff that is reserved and/or scheduled between specified Points of Receipt and Delivery pursuant to Tariff, Part II.

Firm Transmission Feasibility Study:

"Firm Transmission Feasibility Study" shall mean a study conducted by the Transmission Provider in accordance with Tariff, Part II, section 19.3 and Tariff, Part III, section 32.3.

Firm Transmission Withdrawal Rights:

"Firm Transmission Withdrawal Rights" shall mean the rights to schedule energy and capacity withdrawals from a Point of Interconnection of a Merchant Transmission Facility with the Transmission System. Firm Transmission Withdrawal Rights may be awarded only to a Merchant D.C. Transmission Facility that connects the Transmission System with another control area. Withdrawals scheduled using Firm Transmission Withdrawal Rights have rights similar to those under Firm Point-to-Point Transmission Service.

First Incremental Auction:

"First Incremental Auction" shall mean an Incremental Auction conducted 20 months prior to the start of the Delivery Year to which it relates.

Forecast Pool Requirement:

"Forecast Pool Requirement" shall have the meaning specified in the Reliability Assurance Agreement.

Foreign Guaranty:

"Foreign Guaranty" shall mean a Corporate Guaranty provided by an Affiliate of a Participant that is domiciled in a foreign country, and meets all of the provisions of Tariff, Attachment Q.

Form 715 Planning Criteria:

"Form 715 Planning Criteria" shall have the same meaning provided in the Operating Agreement.

FTR Credit Limit:

"FTR Credit Limit" shall mean the amount of credit established with PJMSettlement that an FTR Participant has specifically designated to be used for FTR activity in a specific customer account. Any such credit so set aside shall not be considered available to satisfy any other credit requirement the FTR Participant may have with PJMSettlement.

FTR Credit Requirement:

"FTR Credit Requirement" shall mean the amount of credit that a Participant must provide in order to support the FTR positions that it holds and/or for which it is bidding. The FTR Credit

Requirement shall not include months for which the invoicing has already been completed, provided that PJMSettlement shall have up to two Business Days following the date of the invoice completion to make such adjustments in its credit systems. FTR Credit Requirements are calculated and applied separately for each separate customer account.

FTR Flow Undiversified:

"FTR Flow Undiversified" shall have the meaning established in Tariff, Attachment Q, section V.G.

FTR Historical Value:

For each FTR for each month, "FTR Historical Value" shall mean the weighted average of historical values over three years for the FTR path using the following weightings: 50% - most recent year; 30% - second year; 20% - third year.

FTR Holder:

"FTR Holder" shall mean the PJM Member that has acquired and possesses an FTR.

FTR Monthly Credit Requirement Contribution:

For each FTR, for each month, "FTR Monthly Credit Requirement Contribution" shall mean the total FTR cost for the month, prorated on a daily basis, less the FTR Historical Value for the month. For cleared FTRs, this contribution may be negative; prior to clearing, FTRs with negative contribution shall be deemed to have zero contribution.

FTR Net Activity:

"FTR Net Activity" shall mean the aggregate net value of the billing line items for auction revenue rights credits, FTR auction charges, FTR auction credits, and FTR congestion credits, and shall also include day-ahead and balancing/real-time congestion charges up to a maximum net value of the sum of the foregoing auction revenue rights credits, FTR auction charges, FTR auction credits and FTR congestion credits.

FTR Participant:

"FTR Participant" shall mean any Market Participant that provides or is required to provide Collateral in order to participate in PJM's FTR auctions.

FTR Portfolio Auction Value:

"FTR Portfolio Auction Value" shall mean for each customer account of a Market Participant, the sum, calculated on a monthly basis, across all FTRs, of the FTR price times the FTR volume in MW.

Fuel Cost Policy:

"Fuel Cost Policy" shall mean the document provided by a Market Seller to PJM and the Market Monitoring Unit in accordance with PJM Manual 15 and Operating Agreement, Schedule 2, which documents the Market Seller's method used to price fuel for calculation of the Market Seller's cost-based offer(s) for a generation resource.

Full Notice to Proceed:

"Full Notice to Proceed" shall mean that all material third party contractors have been given the notice to proceed with construction by the Capacity Market Seller or its agent, with a guaranteed completion date backed by liquidated damages.

Generating Market Buyer:

"Generating Market Buyer" shall mean an Internal Market Buyer that is a Load Serving Entity that owns or has contractual rights to the output of generation resources capable of serving the Market Buyer's load in the PJM Region, or of selling energy or related services in the PJM Interchange Energy Market or elsewhere.

Generation Capacity Resource:

"Generation Capacity Resource" shall have the meaning specified in the Reliability Assurance Agreement.

Generation Interconnection Customer:

"Generation Interconnection Customer" shall mean an entity that submits an Interconnection Request to interconnect a new generation facility or to increase the capacity of an existing generation facility interconnected with the Transmission System in the PJM Region.

Generation Interconnection Facilities Study:

"Generation Interconnection Facilities Study" shall mean a Facilities Study related to a Generation Interconnection Request.

Generation Interconnection Feasibility Study:

"Generation Interconnection Feasibility Study" shall mean a study conducted by the Transmission Provider (in coordination with the affected Transmission Owner(s)) in accordance with Tariff, Part IV, section 36.2.

Generation Interconnection Request:

"Generation Interconnection Request" shall mean a request by a Generation Interconnection

Customer pursuant to Tariff, Part IV, subpart A, to interconnect a generating unit with the Transmission System or to increase the capacity of a generating unit interconnected with the Transmission System in the PJM Region.

Generation Owner:

"Generation Owner" shall mean a Member that owns, leases with rights equivalent to ownership, or otherwise controls and operates one or more operating generation resources located in the PJM Region. The foregoing notwithstanding, for a planned generation resource to qualify a Member as a Generation Owner, such resource shall have cleared an RPM auction, and for Energy Resources, the resource shall have a FERC-jurisdictional interconnection agreement or wholesale market participation agreement within PJM. Purchasing all or a portion of the output of a generation resource shall not be sufficient to qualify a Member as a Generation Owner. For purposes of Members Committee sector classification, a Member that is primarily a retail end-user of electricity that owns generation may qualify as a Generation Owner if: (1) the generation resource is the subject of a FERC-jurisdictional interconnection agreement or wholesale market participation agreement within PJM; (2) the average physical unforced capacity owned by the Member and its affiliates over the five Planning Periods immediately preceding the relevant Planning Period exceeds the average PJM capacity obligation of the Member and its affiliates over the same time period; and (3) the average energy produced by the Member and its affiliates within PJM over the five Planning Periods immediately preceding the relevant Planning Period exceeds the average energy consumed by the Member and its affiliates within PJM over the same time period.

Generation Resource Maximum Output:

"Generation Resource Maximum Output" shall mean, for Customer Facilities identified in an Interconnection Service Agreement or Wholesale Market Participation Agreement, the Generation Resource Maximum Output for a generating unit shall equal the unit's pro rata share of the Maximum Facility Output, determined by the Economic Maximum values for the available units at the Customer Facility. For generating units not identified in an Interconnection Service Agreement or Wholesale Market Participation Agreement, the Generation Resource Maximum Output shall equal the generating unit's Economic Maximum.

Generator Forced Outage:

"Generator Forced Outage" shall mean an immediate reduction in output or capacity or removal from service, in whole or in part, of a generating unit by reason of an Emergency or threatened Emergency, unanticipated failure, or other cause beyond the control of the owner or operator of the facility, as specified in the relevant portions of the PJM Manuals. A reduction in output or removal from service of a generating unit in response to changes in market conditions shall not constitute a Generator Forced Outage.

Generator Maintenance Outage:

"Generator Maintenance Outage" shall mean the scheduled removal from service, in whole or in

part, of a generating unit in order to perform necessary repairs on specific components of the facility, if removal of the facility meets the guidelines specified in the PJM Manuals.

Generator Planned Outage:

"Generator Planned Outage" shall mean the scheduled removal from service, in whole or in part, of a generating unit for inspection, maintenance or repair with the approval of the Office of the Interconnection in accordance with the PJM Manuals.

Good Utility Practice:

"Good Utility Practice" shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather is intended to include acceptable practices, methods, or acts generally accepted in the region; including those practices required by Federal Power Act Section 215(a)(4).

Governmental Authority:

"Governmental Authority" shall mean any federal, state, local or other governmental, regulatory or administrative agency, court, commission, department, board, or other governmental subdivision, legislature, rulemaking board, tribunal, arbitrating body, or other governmental authority having jurisdiction over any Interconnection Party or Construction Party or regarding any matter relating to an Interconnection Service Agreement or Construction Service Agreement, as applicable.

Hazardous Substances:

"Hazardous Substance" shall mean any chemicals, materials or substances defined as or included in the definition of "hazardous substances," "hazardous wastes," "hazardous materials," "hazardous constituents," "restricted hazardous materials," "extremely hazardous substances," "toxic substances," "radioactive substances," "contaminants," "pollutants," "toxic pollutants" or words of similar meaning and regulatory effect under any applicable Environmental Law, or any other chemical, material or substance, exposure to which is prohibited, limited or regulated by any applicable Environmental Law.

Hot Weather Alert:

"Hot Weather Alert" shall mean the notice provided by PJM to PJM Members, Transmission Owners, resource owners and operators, customers, and regulators to prepare personnel and facilities for extreme hot and/or humid weather conditions which may cause capacity

requirements and/or unit unavailability to be substantially higher than forecast are expected to persist for an extended period.

IDR Transfer Agreement:

"IDR Transfer Agreement" shall mean an agreement to transfer, subject to the terms of Tariff, Part VI, section 237, Incremental Deliverability Rights to a party for the purpose of eliminating or reducing the need for Local or Network Upgrades that would otherwise have been the responsibility of the party receiving such rights.

Immediate-need Reliability Project:

"Immediate-need Reliability Project" shall have the same meaning provided in the Operating Agreement.

Inadvertent Interchange:

"Inadvertent Interchange" shall mean the difference between net actual energy flow and net scheduled energy flow into or out of the individual Control Areas operated by PJM.

Incidental Expenses:

"Incidental Expenses" shall mean those expenses incidental to the performance of construction pursuant to an Interconnection Construction Service Agreement, including, but not limited to, the expense of temporary construction power, telecommunications charges, Interconnected Transmission Owner expenses associated with, but not limited to, document preparation, design review, installation, monitoring, and construction-related operations and maintenance for the Customer Facility and for the Interconnection Facilities.

Incremental Auction:

"Incremental Auction" shall mean any of several auctions conducted for a Delivery Year after the Base Residual Auction for such Delivery Year and before the first day of such Delivery Year, including the First Incremental Auction, Second Incremental Auction, Third Incremental Auction or Conditional Incremental Auction. Incremental Auctions (other than the Conditional Incremental Auction), shall be held for the purposes of:

(i) allowing Market Sellers that committed Capacity Resources in the Base Residual Auction for a Delivery Year, which subsequently are determined to be unavailable to deliver the committed Unforced Capacity in such Delivery Year (due to resource retirement, resource cancellation or construction delay, resource derating, EFORd increase, a decrease in the Nominated Demand Resource Value of a Planned Demand Resource, delay or cancellation of a Qualifying Transmission Upgrade, or similar occurrences) to submit Buy Bids for replacement Capacity Resources; and

(ii) allowing the Office of the Interconnection to reduce or increase the amount of

committed capacity secured in prior auctions for such Delivery Year if, as a result of changed circumstances or expectations since the prior auction(s), there is, respectively, a significant excess or significant deficit of committed capacity for such Delivery Year, for the PJM Region or for an LDA.

Incremental Auction Revenue Rights:

"Incremental Auction Revenue Rights" shall mean the additional Auction Revenue Rights, not previously feasible, created by the addition of Incremental Rights-Eligible Required Transmission Enhancements, Merchant Transmission Facilities, or of one or more Customer-Funded Upgrades.

Incremental Available Transfer Capability Revenue Rights:

"Incremental Available Transfer Capability Revenue Rights" shall mean the rights to revenues that are derived from incremental Available Transfer Capability created by the addition of Merchant Transmission Facilities or of one of more Customer-Funded Upgrades.

Incremental Capacity Transfer Right:

"Incremental Capacity Transfer Right" shall mean a Capacity Transfer Right allocated to a Generation Interconnection Customer or Transmission Interconnection Customer obligated to fund a transmission facility or upgrade, to the extent such upgrade or facility increases the transmission import capability into a Locational Deliverability Area, or a Capacity Transfer Right allocated to a Responsible Customer in accordance with Tariff, Schedule 12A.

Incremental Deliverability Rights (IDRs):

"Incremental Deliverability Rights" or "IDRs" shall mean the rights to the incremental ability, resulting from the addition of Merchant Transmission Facilities, to inject energy and capacity at a point on the Transmission System, such that the injection satisfies the deliverability requirements of a Capacity Resource. Incremental Deliverability Rights may be obtained by a generator or a Generation Interconnection Customer, pursuant to an IDR Transfer Agreement, to satisfy, in part, the deliverability requirements necessary to obtain Capacity Interconnection Rights.

Incremental Multi-Driver Project:

"Incremental Multi-Driver Project" shall have the same meaning provided in the Operating Agreement.

Incremental Rights-Eligible Required Transmission Enhancements:

"Incremental Rights-Eligible Required Transmission Enhancements" shall mean Regional Facilities and Necessary Lower Voltage Facilities or Lower Voltage Facilities (as defined in Tariff, Schedule 12) and meet one of the following criteria: (1) cost responsibility is assigned to

non-contiguous Zones that are not directly electrically connected; or (2) cost responsibility is assigned to Merchant Transmission Providers that are Responsible Customers.

Increment Offer:

"Increment Offer" shall mean a type of Virtual Transaction that is an offer to sell energy at a specified location in the Day-ahead Energy Market. A cleared Increment Offer results in scheduled generation at the specified location in the Day-ahead Energy Market.

Incremental Energy Offer:

"Incremental Energy Offer" shall mean offer segments comprised of a pairing of price (in dollars per MWh) and megawatt quantities, which must be a non-decreasing function and taken together produce all of the energy segments above a resource's Economic Minimum. No-load Costs are not included in the Incremental Energy Offer.

Initial Operation:

"Initial Operation" shall mean the commencement of operation of the Customer Facility and Customer Interconnection Facilities after satisfaction of the conditions of Tariff, Attachment O-Appendix 2, section 1.4 (an Interconnection Service Agreement).

Interconnected Entity:

"Interconnected Entity" shall mean either the Interconnection Customer or the Interconnected Transmission Owner; Interconnected Entities shall mean both of them.

Interconnected Transmission Owner:

"Interconnected Transmission Owner" shall mean the Transmission Owner to whose transmission facilities or distribution facilities Customer Interconnection Facilities are, or as the case may be, a Customer Facility is, being directly connected. When used in an Interconnection Construction Service Agreement, the term may refer to a Transmission Owner whose facilities must be upgraded pursuant to the Facilities Study, but whose facilities are not directly interconnected with those of the Interconnection Customer.

Interconnection Construction Service Agreement:

"Interconnection Construction Service Agreement" shall mean the agreement entered into by an Interconnection Customer, Interconnected Transmission Owner and the Transmission Provider pursuant to Tariff, Part VI, Subpart B and in the form set forth in Tariff, Attachment P, relating to construction of Attachment Facilities, Network Upgrades, and/or Local Upgrades and coordination of the construction and interconnection of an associated Customer Facility. A separate Interconnection Construction Service Agreement will be executed with each Transmission Owner that is responsible for construction of any Attachment Facilities, Network Upgrades, or Local Upgrades associated with interconnection of a Customer Facility.

Interconnection Customer:

"Interconnection Customer" shall mean a Generation Interconnection Customer and/or a Transmission Interconnection Customer.

Interconnection Facilities:

"Interconnection Facilities" shall mean the Transmission Owner Interconnection Facilities and the Customer Interconnection Facilities.

Interconnection Feasibility Study:

"Interconnection Feasibility Study" shall mean either a Generation Interconnection Feasibility Study or Transmission Interconnection Feasibility Study.

Interconnection Party:

"Interconnection Party" shall mean a Transmission Provider, Interconnection Customer, or the Interconnected Transmission Owner. Interconnection Parties shall mean all of them.

Interconnection Request:

"Interconnection Request" shall mean a Generation Interconnection Request, a Transmission Interconnection Request and/or an IDR Transfer Agreement.

Interconnection Service:

"Interconnection Service" shall mean the physical and electrical interconnection of the Customer Facility with the Transmission System pursuant to the terms of Tariff, Part IV and Tariff, Part VI and the Interconnection Service Agreement entered into pursuant thereto by Interconnection Customer, the Interconnected Transmission Owner and Transmission Provider.

Interconnection Service Agreement:

"Interconnection Service Agreement" shall mean an agreement among the Transmission Provider, an Interconnection Customer and an Interconnected Transmission Owner regarding interconnection under Tariff, Part IV and Tariff, Part VI.

Interconnection Studies:

"Interconnection Studies" shall mean the Interconnection Feasibility Study, the System Impact Study, and the Facilities Study described in Tariff, Part IV and Tariff, Part VI.

Interface Pricing Point:

"Interface Pricing Point" shall have the meaning specified in Operating Agreement, Schedule 1, section 2.6A, and the parallel provisions of Tariff, Attachment K-Appendix.

Intermittent Resource:

"Intermittent Resource" shall mean a Generation Capacity Resource with output that can vary as a function of its energy source, such as wind, solar, run of river hydroelectric power and other renewable resources.

Internal Market Buyer:

"Internal Market Buyer" shall mean a Market Buyer making purchases of energy from the PJM Interchange Energy Market for ultimate consumption by end-users inside the PJM Region that are served by Network Transmission Service.

Interregional Transmission Project:

"Interregional Transmission Project" shall mean transmission facilities that would be located within two or more neighboring transmission planning regions and are determined by each of those regions to be a more efficient or cost effective solution to regional transmission needs.

Interruption:

"Interruption" shall mean a reduction in non-firm transmission service due to economic reasons pursuant to Tariff, Part II, section 14.7.

Limited Demand Resource:

"Limited Demand Resource**"** shall have the meaning specified in the Reliability Assurance Agreement.

Limited Demand Resource Reliability Target:

"Limited Demand Resource Reliability Target**"** for the PJM Region or an LDA, shall mean the maximum amount of Limited Demand Resources determined by PJM to be consistent with the maintenance of reliability, stated in Unforced Capacity that shall be used to calculate the Minimum Extended Summer Demand Resource Requirement for Delivery Years through May 31, 2017 and the Limited Resource Constraint for the 2017/2018 and 2018/2019 Delivery Years for the PJM Region or such LDA. As more fully set forth in the PJM Manuals, PJM calculates the Limited Demand Resource Reliability Target by first: i) testing the effects of the ten-interruption requirement by comparing possible loads on peak days under a range of weather conditions (from the daily load forecast distributions for the Delivery Year in question) against possible generation capacity on such days under a range of conditions (using the cumulative capacity distributions employed in the Installed Reserve Margin study for the PJM Region and in the Capacity Emergency Transfer Objective study for the relevant LDAs for such Delivery Year) and, by varying the assumed amounts of DR that is committed and displaces committed

generation, determines the DR penetration level at which there is a ninety percent probability that DR will not be called (based on the applicable operating reserve margin for the PJM Region and for the relevant LDAs) more than ten times over those peak days; ii) testing the six-hour duration requirement by calculating the MW difference between the highest hourly unrestricted peak load and seventh highest hourly unrestricted peak load on certain high peak load days (e.g., the annual peak, loads above the weather normalized peak, or days where load management was called) in recent years, then dividing those loads by the forecast peak for those years and averaging the result; and (iii) (for the 2016/2017 and 2017/2018 Delivery Years) testing the effects of the six-hour duration requirement by comparing possible hourly loads on peak days under a range of weather conditions (from the daily load forecast distributions for the Delivery Year in question) against possible generation capacity on such days under a range of conditions (using a Monte Carlo model of hourly capacity levels that is consistent with the capacity model employed in the Installed Reserve Margin study for the PJM Region and in the Capacity Emergency Transfer Objective study for the relevant LDAs for such Delivery Year) and, by varying the assumed amounts of DR that is committed and displaces committed generation, determines the DR penetration level at which there is a ninety percent probability that DR will not be called (based on the applicable operating reserve margin for the PJM Region and for the relevant LDAs) for more than six hours over any one or more of the tested peak days. Second, PJM adopts the lowest result from these three tests as the Limited Demand Resource Reliability Target. The Limited Demand Resource Reliability Target shall be expressed as a percentage of the forecasted peak load of the PJM Region or such LDA and is converted to Unforced Capacity by multiplying [the reliability target percentage] times [the Forecast Pool Requirement] times [the DR Factor] times [the forecasted peak load of the PJM Region or such LDA, reduced by the amount of load served under the FRR Alternative].

Limited Resource Constraint:

"Limited Resource Constraint" shall mean, for the 2017/2018 Delivery Year and for FRR Capacity Plans the 2017/2018 and Delivery Years, for the PJM Region or each LDA for which the Office of the Interconnection is required under Tariff, Attachment DD, section 5.10(a) to establish a separate VRR Curve for a Delivery Year, a limit on the total amount of Unforced Capacity that can be committed as Limited Demand Resources for the 2017/2018 Delivery Year in the PJM Region or in such LDA, calculated as the Limited Demand Resource Reliability Target for the PJM Region or such LDA, respectively, minus the Short Term Resource Procurement Target for the PJM Region or such LDA, respectively.

Limited Resource Price Decrement:
"Limited Resource Price Decrement" shall mean, for the 2017/2018 Delivery Year, a difference between the clearing price for Limited Demand Resources and the clearing price for Extended Summer Demand Resources and Annual Resources, representing the cost to procure additional Extended Summer Demand Resources or Annual Resources out of merit order when the Limited Resource Constraint is binding.

List of Approved Contractors:

"List of Approved Contractors" shall mean a list developed by each Transmission Owner and

published in a PJM Manual of (a) contractors that the Transmission Owner considers to be qualified to install or construct new facilities and/or upgrades or modifications to existing facilities on the Transmission Owner's system, provided that such contractors may include, but need not be limited to, contractors that, in addition to providing construction services, also provide design and/or other construction-related services, and (b) manufacturers or vendors of major transmission-related equipment (e.g., high-voltage transformers, transmission line, circuit breakers) whose products the Transmission Owner considers acceptable for installation and use on its system.

Load Management:

"Load Management" shall mean a Demand Resource ("DR") as defined in the Reliability Assurance Agreement.

Load Management Event:

"Load Management Event" shall mean a) a single temporally contiguous dispatch of Demand Resources in a Compliance Aggregation Area during an Operating Day, or b) multiple dispatches of Demand Resources in a Compliance Aggregation Area during an Operating Day that are temporally contiguous.

Load Ratio Share:

"Load Ratio Share" shall mean the ratio of a Transmission Customer's Network Load to the Transmission Provider's total load.

Load Reduction Event:

"Load Reduction Event" shall mean a reduction in demand by a Member or Special Member for the purpose of participating in the PJM Interchange Energy Market.

Load Serving Charging Energy:

"Load Serving Charging Energy" shall mean energy that is purchased from the PJM Interchange Energy Market and stored in an Energy Storage Resource for later resale to end-use load.

Load Serving Entity (LSE):

"Load Serving Entity" or "LSE" shall have the meaning specified in the Reliability Assurance Agreement.

Load Shedding:

"Load Shedding" shall mean the systematic reduction of system demand by temporarily decreasing load in response to transmission system or area capacity shortages, system instability, or voltage control considerations under Tariff, Part II or Part III.

Local Upgrades:

"Local Upgrades" shall mean modifications or additions of facilities to abate any local thermal loading, voltage, short circuit, stability or similar engineering problem caused by the interconnection and delivery of generation to the Transmission System. Local Upgrades shall include:

(i) Direct Connection Local Upgrades which are Local Upgrades that only serve the Customer Interconnection Facility and have no impact or potential impact on the Transmission System until the final tie-in is complete; and

(ii) Non-Direct Connection Local Upgrades which are parallel flow Local Upgrades that are not Direct Connection Local Upgrades.

Location:

"Location" as used in the Economic Load Response rules shall mean an end-use customer site as defined by the relevant electric distribution company account number.

Locational Deliverability Area (LDA):

"Locational Deliverability Area" or "LDA" shall mean a geographic area within the PJM Region that has limited transmission capability to import capacity to satisfy such area's reliability requirement, as determined by the Office of the Interconnection in connection with preparation of the Regional Transmission Expansion Plan, and as specified in Reliability Assurance Agreement, Schedule 10.1.

Locational Deliverability Area Reliability Requirement:

"Locational Deliverability Area Reliability Requirement" shall mean the projected internal capacity in the Locational Deliverability Area plus the Capacity Emergency Transfer Objective for the Delivery Year, as determined by the Office of the Interconnection in connection with preparation of the Regional Transmission Expansion Plan, less the minimum internal resources required for all FRR Entities in such Locational Deliverability Area.

Locational Price Adder:

"Locational Price Adder" shall mean an addition to the marginal value of Unforced Capacity within an LDA as necessary to reflect the price of Capacity Resources required to relieve applicable binding locational constraints.

Locational Reliability Charge:

"Locational Reliability Charge" shall have the meaning specified in the Reliability Assurance Agreement.

Locational UCAP:

"Locational UCAP" shall mean unforced capacity that a Member with available uncommitted capacity sells in a bilateral transaction to a Member that previously committed capacity through an RPM Auction but now requires replacement capacity to fulfill its RPM Auction commitment. The Locational UCAP Seller retains responsibility for performance of the resource providing such replacement capacity.

Locational UCAP Seller:

"Locational UCAP Seller" shall mean a Member that sells Locational UCAP.

LOC Deviation:

"LOC Deviation," shall mean, for units other than wind units, the LOC Deviation shall equal the desired megawatt amount for the resource determined according to the point on the Final Offer curve corresponding to the Real-time Settlement Interval real-time Locational Marginal Price at the resource's bus and adjusted for any Regulation or Tier 2 Synchronized Reserve assignments and limited to the lesser of the unit's Economic Maximum or the unit's Generation Resource Maximum Output, minus the actual output of the unit. For wind units, the LOC Deviation shall mean the deviation of the generating unit's output equal to the lesser of the PJM forecasted output for the unit or the desired megawatt amount for the resource determined according to the point on the Final Offer curve corresponding to the Real-time Settlement Interval real-time Locational Marginal Price at the resource's bus, and shall be limited to the lesser of the unit's Economic Maximum or the unit's Generation Resource Maximum Output, minus the actual output of the unit.

Long-lead Project:

"Long-lead Project" shall have the same meaning provided in the Operating Agreement.

Long-Term Firm Point-To-Point Transmission Service:

"Long-Term Firm Point-To-Point Transmission Service" shall mean firm Point-To-Point Transmission Service under Tariff, Part II with a term of one year or more.

Loss Price:

"Loss Price" shall mean the loss component of the Locational Marginal Price, which is the effect on transmission loss costs (whether positive or negative) associated with increasing the output of a generation resource or decreasing the consumption by a Demand Resource based on the effect of increased generation from or consumption by the resource on transmission losses, calculated as specified in Operating Agreement, Schedule 1, section 2, and the parallel provisions of Tariff, Attachment K-Appendix, section 2.

M2M Flowgate:

"M2M Flowgate" shall have the meaning provided in the Joint Operating Agreement between the Midcontinent Independent Transmission System Operator, Inc. and PJM Interconnection, L.L.C.

Maintenance Adder:

"Maintenance Adder" shall mean an adder that may be included to account for variable operation and maintenance expenses in a Market Seller's Fuel Cost Policy. The Maintenance Adder is calculated in accordance with the applicable provisions of PJM Manual 15, and may only include expenses incurred as a result of electric production.

Manual Load Dump Action:

"Manual Load Dump Action" shall mean an Operating Instruction, as defined by NERC, from PJM to shed firm load when the PJM Region cannot provide adequate capacity to meet the PJM Region's load and tie schedules, or to alleviate critically overloaded transmission lines or other equipment.

Manual Load Dump Warning:

"Manual Load Dump Warning" shall mean a notification from PJM to warn Members of an increasingly critical condition of present operations that may require manually shedding load.

Marginal Value:

"Marginal Value" shall mean the incremental change in system dispatch costs, measured as a $/MW value incurred by providing one additional MW of relief to the transmission constraint.

Mark-to-Auction Value:

"Mark-to-Auction Value" shall mean the net increase (or decrease) in value of a portfolio of FTRs, as further described in Tariff, Attachment Q, section IV.C.9.

Market Monitor:

"Market Monitor**"** means the head of the Market Monitoring Unit.

Market Monitoring Unit or MMU:

"Market Monitoring Unit" or "MMU" means the independent Market Monitoring Unit defined in 18 CFR § 35.28(a)(7) and established under the PJM Market Monitoring Plan (Attachment M) to the PJM Tariff that is responsible for implementing the Market Monitoring Plan, including the Market Monitor. The Market Monitoring Unit may also be referred to as the IMM or Independent Market Monitor for PJM

Market Monitoring Unit Advisory Committee or MMU Advisory Committee:

"Market Monitoring Unit Advisory Committee" or "MMU Advisory Committee" shall mean the committee established under Tariff, Attachment M, section III.H.

Market Operations Center:

"Market Operations Center" shall mean the equipment, facilities and personnel used by or on behalf of a Market Participant to communicate and coordinate with the Office of the Interconnection in connection with transactions in the PJM Interchange Energy Market or the operation of the PJM Region.

Market Participant:

"Market Participant" shall mean a Market Buyer, a Market Seller, an Economic Load Response Participant, or all three, except when such term is used in Tariff, Attachment M, in which case Market Participant shall mean an entity that generates, transmits, distributes, purchases, or sells electricity, ancillary services, or any other product or service provided under the PJM Tariff or Operating Agreement within, into, out of, or through the PJM Region, but it shall not include an Authorized Government Agency that consumes energy for its own use but does not purchase or sell energy at wholesale.

Market Participant Energy Injection:

"Market Participant Energy Injection" shall mean transactions in the Day-ahead Energy Market and Real-time Energy Market, including but not limited to Day-ahead generation schedules, real-time generation output, Increment Offers, internal bilateral transactions and import transactions, as further described in the PJM Manuals.

Market Participant Energy Withdrawal:

"Market Participant Energy Withdrawal" shall mean transactions in the Day-ahead Energy Market and Real-time Energy Market, including but not limited to Demand Bids, Decrement Bids, real-time load (net of Behind The Meter Generation expected to be operating, but not to be less than zero), internal bilateral transactions and Export Transactions, as further described in the PJM Manuals.

Market Seller Offer Cap:

"Market Seller Offer Cap" shall mean a maximum offer price applicable to certain Market Sellers under certain conditions, as determined in accordance with Tariff, Attachment DD. section 6 and Tariff, Attachment M-Appendix, section II.E.

Market Violation:

"Market Violation" shall mean a tariff violation, violation of a Commission-approved order, rule or regulation, market manipulation, or inappropriate dispatch that creates substantial concerns regarding unnecessary market inefficiencies, as defined in 18 C.F.R. § 35.28(b)(8).

Material Modification:

"Material Modification" shall mean any modification to an Interconnection Request that has a material adverse effect on the cost or timing of Interconnection Studies related to, or any Network Upgrades or Local Upgrades needed to accommodate, any Interconnection Request with a later Queue Position.

Maximum Daily Starts:

"Maximum Daily Starts" shall mean the maximum number of times that a generating unit can be started in an Operating Day under normal operating conditions.

Maximum Emergency:

"Maximum Emergency" shall mean the designation of all or part of the output of a generating unit for which the designated output levels may require extraordinary procedures and therefore are available to the Office of the Interconnection only when the Office of the Interconnection declares a Maximum Generation Emergency and requests generation designated as Maximum Emergency to run. The Office of the Interconnection shall post on the PJM website the aggregate amount of megawatts that are classified as Maximum Emergency.

Maximum Facility Output:

"Maximum Facility Output" shall mean the maximum (not nominal) net electrical power output in megawatts, specified in the Interconnection Service Agreement, after supply of any parasitic or host facility loads, that a Generation Interconnection Customer's Customer Facility is expected to produce, provided that the specified Maximum Facility Output shall not exceed the output of the proposed Customer Facility that Transmission Provider utilized in the System Impact Study.

Maximum Generation Emergency:

"Maximum Generation Emergency" shall mean an Emergency declared by the Office of the Interconnection to address either a generation or transmission emergency in which the Office of the Interconnection anticipates requesting one or more Generation Capacity Resources, or Non-Retail Behind The Meter Generation resources to operate at its maximum net or gross electrical power output, subject to the equipment stress limits for such Generation Capacity Resource or Non-Retail Behind The Meter resource in order to manage, alleviate, or end the Emergency.

Maximum Generation Emergency Alert:

"Maximum Generation Emergency Alert" shall mean an alert issued by the Office of the

Interconnection to notify PJM Members, Transmission Owners, resource owners and operators, customers, and regulators that a Maximum Generation Emergency may be declared, for any Operating Day in either, as applicable, the Day-ahead Energy Market or the Real-time Energy Market, for all or any part of such Operating Day.

Maximum Run Time:

"Maximum Run Time" shall mean the maximum number of hours a generating unit can run over the course of an Operating Day, as measured by PJM's State Estimator.

Maximum Weekly Starts:

"Maximum Weekly Starts" shall mean the maximum number of times that a generating unit can be started in one week, defined as the 168 hour period starting Monday 0001 hour, under normal operating conditions.

Member:

"Member" shall have the meaning provided in the Operating Agreement.

Merchant A.C. Transmission Facilities:

"Merchant A.C. Transmission Facility" shall mean Merchant Transmission Facilities that are alternating current (A.C.) transmission facilities, other than those that are Controllable A.C. Merchant Transmission Facilities.

Merchant D.C. Transmission Facilities:

"Merchant D.C. Transmission Facilities" shall mean direct current (D.C.) transmission facilities that are interconnected with the Transmission System pursuant to Tariff, Part IV and Part VI.

Merchant Network Upgrades:

"Merchant Network Upgrades" shall mean additions to, or modifications or replacements of, physical facilities of the Interconnected Transmission Owner that, on the date of the pertinent Transmission Interconnection Customer's Upgrade Request, are part of the Transmission System or are included in the Regional Transmission Expansion Plan.

Merchant Transmission Facilities:

"Merchant Transmission Facilities" shall mean A.C. or D.C. transmission facilities that are interconnected with or added to the Transmission System pursuant to Tariff, Part IV and Part VI and that are so identified in Tariff, Attachment T, provided, however, that Merchant Transmission Facilities shall not include (i) any Customer Interconnection Facilities, (ii) any physical facilities of the Transmission System that were in existence on or before March 20, 2003 ; (iii) any expansions or enhancements of the Transmission System that are not identified as

Merchant Transmission Facilities in the Regional Transmission Expansion Plan and Attachment T to the Tariff, or (iv) any transmission facilities that are included in the rate base of a public utility and on which a regulated return is earned.

Merchant Transmission Provider:

"Merchant Transmission Provider" shall mean an Interconnection Customer that (1) owns, controls, or controls the rights to use the transmission capability of, Merchant D.C. Transmission Facilities and/or Controllable A.C. Merchant Transmission Facilities that connect the Transmission System with another control area, (2) has elected to receive Transmission Injection Rights and Transmission Withdrawal Rights associated with such facility pursuant to Tariff, Part IV, section 36, and (3) makes (or will make) the transmission capability of such facilities available for use by third parties under terms and conditions approved by the Commission and stated in the Tariff, consistent with Tariff, section 38.

Metering Equipment:

"Metering Equipment" shall mean all metering equipment installed at the metering points designated in the appropriate appendix to an Interconnection Service Agreement.

Minimum Annual Resource Requirement:

"Minimum Annual Resource Requirement" shall mean, for Delivery Years through May 31, 2017, the minimum amount of capacity that PJM will seek to procure from Annual Resources for the PJM Region and for each Locational Deliverability Area for which the Office of the Interconnection is required under Tariff, Attachment DD, section 5.10(a) to establish a separate VRR Curve for such Delivery Year. For the PJM Region, the Minimum Annual Resource Requirement shall be equal to the RTO Reliability Requirement minus [the Sub-Annual Resource Reliability Target for the RTO in Unforced Capacity]. For an LDA, the Minimum Annual Resource Requirement shall be equal to the LDA Reliability Requirement minus [the LDA CETL] minus [the Sub-Annual Resource Reliability Target for such LDA in Unforced Capacity]. The LDA CETL may be adjusted pro rata for the amount of load served under the FRR Alternative.

Minimum Down Time:

For all generating units that are not combined cycle units, "Minimum Down Time" shall mean the minimum number of hours under normal operating conditions between unit shutdown and unit startup, calculated as the shortest time difference between the unit's generator breaker opening and after the unit's generator breaker closure, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero. For combined cycle units, "Minimum Down Time" shall mean the minimum number of hours between the last generator breaker opening and after first combustion turbine generator breaker closure, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero.

Minimum Extended Summer Resource Requirement:

"Minimum Extended Summer Resource Requirement" shall mean, for Delivery Years through May 31, 2017, the minimum amount of capacity that PJM will seek to procure from Extended Summer Demand Resources and Annual Resources for the PJM Region and for each Locational Deliverability Area for which the Office of the Interconnection is required under Tariff, Attachment DD, section 5.10(a) to establish a separate VRR Curve for such Delivery Year. For the PJM Region, the Minimum Extended Summer Resource Requirement shall be equal to the RTO Reliability Requirement minus [the Limited Demand Resource Reliability Target for the PJM Region in Unforced Capacity]. For an LDA, the Minimum Extended Summer Resource Requirement shall be equal to the LDA Reliability Requirement minus [the LDA CETL] minus [the Limited Demand Resource Reliability Target for such LDA in Unforced Capacity]. The LDA CETL may be adjusted pro rata for the amount of load served under the FRR Alternative.

Minimum Generation Emergency:

"Minimum Generation Emergency" shall mean an Emergency declared by the Office of the Interconnection in which the Office of the Interconnection anticipates requesting one or more generating resources to operate at or below Normal Minimum Generation, in order to manage, alleviate, or end the Emergency.

Minimum Participation Requirements:

"Minimum Participation Requirements" shall mean a set of minimum training, risk management, communication and capital or collateral requirements required for Participants in the PJM Markets, as set forth herein and in the Form of Annual Certification set forth as Tariff, Attachment Q, Appendix 1. Participants transacting in FTRs in certain circumstances will be required to demonstrate additional risk management procedures and controls as further set forth in the Annual Certification found in Tariff, Attachment Q, Appendix 1.

Minimum Run Time:

For all generating units that are not combined cycle units, "Minimum Run Time" shall mean the minimum number of hours a unit must run, in real-time operations, from the time after generator breaker closure, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero, to the time of generator breaker opening, as measured by PJM's State Estimator. For combined cycle units, "Minimum Run Time" shall mean the time period after the first combustion turbine generator breaker closure, which is typically indicated by telemetered or aggregated State Estimator megawatts greater than zero, and the last generator breaker opening as measured by PJM's State Estimator.

MISO:

"MISO" shall mean the Midcontinent Independent System Operator, Inc. or any successor thereto.

MTA Collateral Call:

"MTA Collateral Call" shall mean a demand for additional Collateral issued due to a credit shortfall arising from a Mark-to-Auction Value change. The requirements and remedies for an MTA Collateral Call may be different from the requirements and remedies for a Collateral Call.

Multi-Driver Project:

"Multi-Driver Project" shall have the same meaning provided in the Operating Agreement.

Native Load Customers:

"Native Load Customers" shall mean the wholesale and retail power customers of a Transmission Owner on whose behalf the Transmission Owner, by statute, franchise, regulatory requirement, or contract, has undertaken an obligation to construct and operate the Transmission Owner's system to meet the reliable electric needs of such customers.

NERC:

"NERC" shall mean the North American Electric Reliability Corporation or any successor thereto.

NERC Interchange Distribution Calculator:

"NERC Interchange Distribution Calculator" shall mean the NERC mechanism that is in effect and being used to calculate the distribution of energy, over specific transmission interfaces, from energy transactions.

Net Benefits Test:

"Net Benefits Test" shall mean a calculation to determine whether the benefits of a reduction in price resulting from the dispatch of Economic Load Response exceeds the cost to other loads resulting from the billing unit effects of the load reduction, as specified in Operating Agreement, Schedule 1, section 3.3A.4 and the parallel provisions of Tariff, Attachment K-Appendix, section 3.3A.4.

Net Cost of New Entry:

"Net Cost of New Entry" shall mean the Cost of New Entry minus the Net Energy and Ancillary Service Revenue Offset.

Net Obligation:

"Net Obligation" shall mean the amount owed to PJMSettlement and PJM for purchases from the PJM Markets, Transmission Service, (under Tariff, Parts II and III , and other services pursuant to the Agreements, after applying a deduction for amounts owed to a Participant by PJMSettlement as it pertains to monthly market activity and services. Should other markets be

formed such that Participants may incur future Obligations in those markets, then the aggregate amount of those Obligations will also be added to the Net Obligation.

Net Sell Position:

"Net Sell Position" shall mean the amount of Net Obligation when Net Obligation is negative.

Network Customer:

"Network Customer" shall mean an entity receiving transmission service pursuant to the terms of the Transmission Provider's Network Integration Transmission Service under Tariff, Part III.

Network External Designated Transmission Service:

"Network External Designated Transmission Service" shall have the meaning set forth in Reliability Assurance Agreement, Article I.

Network Integration Transmission Service:

"Network Integration Transmission Service" shall mean the transmission service provided under Tariff, Part III.

Network Load:

"Network Load" shall mean the load that a Network Customer designates for Network Integration Transmission Service under Tariff, Part III. The Network Customer's Network Load shall include all load (including losses, Non-Dispatched Charging Energy, and Load Serving Charging Energy) served by the output of any Network Resources designated by the Network Customer. A Network Customer may elect to designate less than its total load as Network Load but may not designate only part of the load at a discrete Point of Delivery. Where an Eligible Customer has elected not to designate a particular load at discrete points of delivery as Network Load, the Eligible Customer is responsible for making separate arrangements under Tariff, Part II for any Point-To-Point Transmission Service that may be necessary for such non-designated load. Network Load shall not include Dispatched Charging Energy.

Network Operating Agreement:

"Network Operating Agreement" shall mean an executed agreement that contains the terms and conditions under which the Network Customer shall operate its facilities and the technical and operational matters associated with the implementation of Network Integration Transmission Service under Tariff, Part III.

Network Operating Committee:

"Network Operating Committee" shall mean a group made up of representatives from the Network Customer(s) and the Transmission Provider established to coordinate operating criteria

and other technical considerations required for implementation of Network Integration Transmission Service under Tariff, Part III.

Network Resource:

"Network Resource" shall mean any designated generating resource owned, purchased, or leased by a Network Customer under the Network Integration Transmission Service Tariff. Network Resources do not include any resource, or any portion thereof, that is committed for sale to third parties or otherwise cannot be called upon to meet the Network Customer's Network Load on a non-interruptible basis, except for purposes of fulfilling obligations under a reserve sharing program.

Network Service User:

"Network Service User" shall mean an entity using Network Transmission Service.

Network Transmission Service:

"Network Transmission Service" shall mean transmission service provided pursuant to the rates, terms and conditions set forth in Tariff, Part III, or transmission service comparable to such service that is provided to a Load Serving Entity that is also a Transmission Owner.

Network Upgrades:

"Network Upgrades" shall mean modifications or additions to transmission-related facilities that are integrated with and support the Transmission Provider's overall Transmission System for the general benefit of all users of such Transmission System. Network Upgrades shall include:

(i) **Direct Connection Network Upgrades** which are Network Upgrades that only serve the Customer Interconnection Facility and have no impact or potential impact on the Transmission System until the final tie-in is complete; and

(ii) **Non-Direct Connection Network Upgrades** which are parallel flow Network Upgrades that are not Direct Connection Network Upgrades.

Neutral Party:

"Neutral Party" shall have the meaning provided in Tariff, Part I, section 9.3(v).

New PJM Zone(s):

"New PJM Zone(s)" shall mean the Zone included in the Tariff, along with applicable Schedules and Attachments, for Commonwealth Edison Company, The Dayton Power and Light Company and the AEP East Operating Companies (Appalachian Power Company, Columbus Southern Power Company, Indiana Michigan Power Company, Kentucky Power Company, Kingsport Power Company, Ohio Power Company and Wheeling Power Company).

New Service Customers:

"New Service Customers" shall mean all customers that submit an Interconnection Request, a Completed Application, or an Upgrade Request that is pending in the New Services Queue.

New Service Request:

"New Service Request" shall mean an Interconnection Request, a Completed Application, or an Upgrade Request.

New Services Queue:

"New Service Queue" shall mean all Interconnection Requests, Completed Applications, and Upgrade Requests that are received within each six-month period ending on April 30 and October 31 of each year shall collectively comprise a New Services Queue.

New Services Queue Closing Date:

"New Services Queue Closing Date" shall mean each April 30 and October 31 shall be the Queue Closing Date for the New Services Queue comprised of Interconnection Requests, Completed Applications, and Upgrade Requests received during the six-month period ending on such date.

New York ISO or NYISO:

"New York ISO" or "NYISO" shall mean the New York Independent System Operator, Inc. or any successor thereto.

Nodal Reference Price:

The "Nodal Reference Price" at each location shall mean the 97th percentile price differential between day-ahead and real-time prices experienced over the corresponding two-month reference period in the prior calendar year. Reference periods will be Jan-Feb, Mar-Apr, May-Jun, Jul-Aug, Sept-Oct, Nov-Dec. For any given current-year month, the reference period months will be the set of two months in the prior calendar year that include the month corresponding to the current month. For example, July and August 2003 would each use July-August 2002 as their reference period.

No-load Cost:

"No-load Cost" shall mean the hourly cost required to create the starting point of a monotonically increasing incremental offer curve for a generating unit.

Nominal Rated Capability:

"Nominal Rated Capability" shall mean the nominal maximum rated capability in megawatts of a Transmission Interconnection Customer's Customer Facility or the nominal increase in transmission capability in megawatts of the Transmission System resulting from the interconnection or addition of a Transmission Interconnection Customer's Customer Facility, as determined in accordance with pertinent Applicable Standards and specified in the Interconnection Service Agreement.

Nominated Demand Resource Value:

"Nominated Demand Resource Value" shall mean the amount of load reduction that a Demand Resource commits to provide either through direct load control, firm service level or guaranteed load drop programs. For existing Demand Resources, the maximum Nominated Demand Resource Value is limited, in accordance with the PJM Manuals, to the value appropriate for the method by which the load reduction would be accomplished, at the time the Base Residual Auction or Incremental Auction is being conducted.

Nominated Energy Efficiency Value:

"Nominated Energy Efficiency Value" shall mean the amount of load reduction that an Energy Efficiency Resource commits to provide through installation of more efficient devices or equipment or implementation of more efficient processes or systems.

Non-Dispatched Charging Energy:

"Non-Dispatched Charging Energy" shall mean all Direct Charging Energy that an Energy Storage Resource Model Participant receives from the electric grid that is not otherwise Dispatched Charging Energy.

Non-Firm Point-To-Point Transmission Service:

"Non-Firm Point-To-Point Transmission Service" shall mean Point-To-Point Transmission Service under the Tariff that is reserved and scheduled on an as-available basis and is subject to Curtailment or Interruption as set forth in Tariff, Part II, section 14.7. Non-Firm Point-To-Point Transmission Service is available on a stand-alone basis for periods ranging from one hour to one month.

Non-Firm Sale:

"Non-Firm Sale" shall mean an energy sale for which receipt or delivery may be interrupted for any reason or no reason, without liability on the part of either the buyer or seller.

Non-Firm Transmission Withdrawal Rights:

"No-Firm Transmission Withdrawal Rights" shall mean the rights to schedule energy withdrawals from a specified point on the Transmission System. Non-Firm Transmission Withdrawal Rights may be awarded only to a Merchant D.C. Transmission Facility that connects

the Transmission System to another control area. Withdrawals scheduled using Non-Firm Transmission Withdrawal Rights have rights similar to those under Non-Firm Point-to-Point Transmission Service.

Non-Performance Charge:

"Non-Performance Charge" shall mean the charge applicable to Capacity Performance Resources as defined in Tariff, Attachment DD, section 10A(e).

Nonincumbent Developer:

"Nonincumbent Developer" shall have the same meaning provided in the Operating Agreement.

Non-Regulatory Opportunity Cost:

"Non-Regulatory Opportunity Cost" shall mean the difference between (a) the forecasted cost to operate a specific generating unit when the unit only has a limited number of starts or available run hours resulting from (i) the physical equipment limitations of the unit, for up to one year, due to original equipment manufacturer recommendations or insurance carrier restrictions, (ii) a fuel supply limitation, for up to one year, resulting from an event of Catastrophic Force Majeure; and, (b) the forecasted future Locational Marginal Price at which the generating unit could run while not violating such limitations. Non-Regulatory Opportunity Cost therefore is the value associated with a specific generating unit's lost opportunity to produce energy during a higher valued period of time occurring within the same period of time in which the unit is bound by the referenced restrictions, and is reflected in the rules set forth in PJM Manual 15. Non-Regulatory Opportunity Costs shall be limited to those resources which are specifically delineated in Operating Agreement, Schedule 2.

Non-Retail Behind The Meter Generation:

"Non-Retail Behind The Meter Generation" shall mean Behind the Meter Generation that is used by municipal electric systems, electric cooperatives, or electric distribution companies to serve load.

Non-Synchronized Reserve:

"Non-Synchronized Reserve" shall mean the reserve capability of non-emergency generation resources that can be converted fully into energy within ten minutes of a request from the Office of the Interconnection dispatcher, and is provided by equipment that is not electrically synchronized to the Transmission System.

Non-Synchronized Reserve Event:

"Non-Synchronized Reserve Event" shall mean a request from the Office of the Interconnection to generation resources able and assigned to provide Non-Synchronized Reserve in one or more specified Reserve Zones or Reserve Sub-zones, within ten minutes to increase the energy output by the amount of assigned Non-Synchronized Reserve capability.

Non-Variable Loads:

"Non-Variable Loads" shall have the meaning specified in Operating Agreement, Schedule 1, section 1.5A.6, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.5A.6.

Non-Zone Network Load:

"Non-Zone Network Load shall mean Network Load that is located outside of the PJM Region.

Normal Maximum Generation:

"Normal Maximum Generation" shall mean the highest output level of a generating resource under normal operating conditions.

Normal Minimum Generation:

"Normal Minimum Generation" shall mean the lowest output level of a generating resource under normal operating conditions.

Obligation:

"Obligation" shall mean all amounts owed to PJMSettlement for purchases from the PJM Markets, Transmission Service, (under both Tariff, Part II and Part III), and other services or obligations pursuant to the Agreements. In addition, aggregate amounts that will be owed to PJMSettlement in the future for capacity purchases within the PJM capacity markets will be added to this figure. Should other markets be formed such that Participants may incur future Obligations in those markets, then the aggregate amount of those Obligations will also be added to the Net Obligation.

Offer Data:

"Offer Data" shall mean the scheduling, operations planning, dispatch, new resource, and other data and information necessary to schedule and dispatch generation resources and Demand Resource(s) for the provision of energy and other services and the maintenance of the reliability and security of the Transmission System in the PJM Region, and specified for submission to the PJM Interchange Energy Market for such purposes by the Office of the Interconnection.

Office of the Interconnection:

"Office of the Interconnection" shall mean the employees and agents of PJM Interconnection, L.L.C. subject to the supervision and oversight of the PJM Board, acting pursuant to the Operating Agreement.

Office of the Interconnection Control Center:

"Office of the Interconnection Control Center" shall mean the equipment, facilities and

personnel used by the Office of the Interconnection to coordinate and direct the operation of the PJM Region and to administer the PJM Interchange Energy Market, including facilities and equipment used to communicate and coordinate with the Market Participants in connection with transactions in the PJM Interchange Energy Market or the operation of the PJM Region.

On-Site Generators:

"On-Site Generators" shall mean generation facilities (including Behind The Meter Generation) that (i) are not Capacity Resources, (ii) are not injecting into the grid, (iii) are either synchronized or non-synchronized to the Transmission System, and (iv) can be used to reduce demand for the purpose of participating in the PJM Interchange Energy Market.

Open Access Same-Time Information System (OASIS) or PJM Open Access Same-Time Information System:

"Open Access Same-Time Information System," "PJM Open Access Same-Time Information System" or "OASIS" shall mean the electronic communication and information system and standards of conduct contained in Part 37 and Part 38 of the Commission's regulations and all additional requirements implemented by subsequent Commission orders dealing with OASIS for the collection and dissemination of information about transmission services in the PJM Region, established and operated by the Office of the Interconnection in accordance with FERC standards and requirements.

Operating Agreement of the PJM Interconnection, L.L.C., Operating Agreement or PJM Operating Agreement:

"Operating Agreement of the PJM Interconnection, L.L.C.," "Operating Agreement" or "PJM Operating Agreement" shall mean the Amended and Restated Operating Agreement of PJM Interconnection, L.L.C. dated as of April 1, 1997 and as amended and restated as of June 2, 1997, including all Schedules, Exhibits, Appendices, addenda or supplements hereto, as amended from time to time thereafter, among the Members of the PJM Interconnection, L.L.C., on file with the Commission.

Operating Day:

"Operating Day" shall mean the daily 24 hour period beginning at midnight for which transactions on the PJM Interchange Energy Market are scheduled.

Operating Margin:

"Operating Margin" shall mean the incremental adjustments, measured in megawatts, required in PJM Region operations in order to accommodate, on a first contingency basis, an operating contingency in the PJM Region resulting from operations in an interconnected Control Area. Such adjustments may result in constraints causing Transmission Congestion Charges, or may result in Ancillary Services charges pursuant to the PJM Tariff.

Operating Margin Customer:

"Operating Margin Customer" shall mean a Control Area purchasing Operating Margin pursuant to an agreement between such other Control Area and the LLC.

Operationally Deliverable:

"Operationally Deliverable" shall mean, as determined by the Office of the Interconnection, that there are no operational conditions, arrangements or limitations experienced or required that threaten, impair or degrade effectuation or maintenance of deliverability of capacity or energy from the external Generation Capacity Resource to loads in the PJM Region in a manner comparable to the deliverability of capacity or energy to such loads from Generation Capacity Resources located inside the metered boundaries of the PJM Region, including, without limitation, an identified need by an external Balancing Authority Area for a remedial action scheme or manual generation trip protocol, transmission facility switching arrangements that would have the effect of radializing load, or excessive or unacceptable frequency of regional reliability limit violations or (outside an interregional agreed congestion management process) of local reliability dispatch instructions and commitments.

Opportunity Cost:

"Opportunity Cost" shall mean a component of the Market Seller Offer Cap calculated in accordance with Tariff, Attachment DD, section 6.

OPSI Advisory Committee:

"OPSI Advisory Committee" shall mean the committee established under Tariff, Attachment M, section III.G.

Option to Build:

"Option to Build" shall mean the option of the New Service Customer to build certain Customer-Funded Upgrades, as set forth in, and subject to the terms of, the Construction Service Agreement.

Optional Interconnection Study:

"Optional Interconnection Study" shall mean a sensitivity analysis of an Interconnection Request based on assumptions specified by the Interconnection Customer in the Optional Interconnection Study Agreement.

Optional Interconnection Study Agreement:

"Optional Interconnection Study Agreement" shall mean the form of agreement for preparation of an Optional Interconnection Study, as set forth in Tariff, Attachment N-3.

Part I:

"Part I" shall mean the Tariff Definitions and Common Service Provisions contained in Tariff, Part I, sections 1 through 12A.

Part II:

"Part II" shall mean Tariff, sections 13 through 27A pertaining to Point-To-Point Transmission Service in conjunction with the applicable Common Service Provisions of Tariff, Part I and appropriate Schedules and Attachments.

Part III:

"Part III" shall mean Tariff, sections 28 through 35 pertaining to Network Integration Transmission Service in conjunction with the applicable Common Service Provisions of Tariff, Part I and appropriate Schedules and Attachments.

Part IV:

"Part IV" shall mean Tariff, sections 36 through 112C pertaining to generation or merchant transmission interconnection to the Transmission System in conjunction with the applicable Common Service Provisions of Tariff, Part I and appropriate Schedules and Attachments.

Part V:

"Part V" shall mean Tariff, sections 113 through 122 pertaining to the deactivation of generating units in conjunction with the applicable Common Service Provisions of Tariff, Part I and appropriate Schedules and Attachments.

Part VI:

"Part VI" shall mean Tariff, sections 200 through 237 pertaining to the queuing, study, and agreements relating to New Service Requests, and the rights associated with Customer-Funded Upgrades in conjunction with the applicable Common Service Provisions of Tariff, Part I and appropriate Schedules and Attachments.

Participant:

"Participant" shall mean a Market Participant and/or Transmission Customer and/or Applicant requesting to be an active Market Participant and/or Transmission Customer**.**

Parties:

"Parties" shall mean the Transmission Provider, as administrator of the Tariff, and the Transmission Customer receiving service under the Tariff. PJMSettlement shall be the Counterparty to Transmission Customers.

Peak-Hour Dispatch:

"Peak-Hour Dispatch" shall mean, for purposes of calculating the Energy and Ancillary Services Revenue Offset under Tariff, Attachment DD, section 5, an assumption, as more fully set forth in the PJM Manuals, that the Reference Resource is committed in the Day-Ahead Energy Market in four distinct blocks of four hours of continuous output for each block from the peak-hour period beginning with the hour ending 0800 EPT through to the hour ending 2300 EPT for any day when the average day-ahead LMP for the area for which the Net Cost of New Entry is being determined is greater than, or equal to, the cost to generate (including the cost for a complete start and shutdown cycle), plus 10% of such costs, for at least two hours during each four-hour block, where such blocks shall be assumed to be committed independently; provided that, if there are not at least two economic hours in any given four-hour block, then the Reference Resource shall be assumed not to be committed for such block; and to the extent not committed in any such block in the Day-Ahead Energy Market under the above conditions based on Day-Ahead LMPs, is dispatched in the Real-Time Energy Market for such block if the Real-Time LMP is greater than or equal to the cost to generate, plus 10% of such costs, under the same conditions as described above for the Day-Ahead Energy Market.

Peak Market Activity:
"Peak Market Activity" shall mean a measure of exposure for which credit is required, involving peak exposures in rolling three-week periods over a year timeframe, with two semi-annual reset points, pursuant to provisions of Tariff, Attachment Q, section V.A. Peak Market Activity shall exclude FTR Net Activity, Virtual Transactions Net Activity, and Export Transactions Net Activity.

Peak Season:

"Peak Season" shall mean the weeks containing the 24th through 36th Wednesdays of the calendar year. Each such week shall begin on a Monday and end on the following Sunday, except for the week containing the 36th Wednesday, which shall end on the following Friday.

Percentage Internal Resources Required:

"Percentage Internal Resources Required" shall have the meaning specified in the Reliability Assurance Agreement.

Performance Assessment Interval:

"Performance Assessment Interval" shall mean each Real-time Settlement Interval for which an Emergency Action has been declared by the Office of the Interconnection, provided, however, that Performance Assessment Intervals for a Base Capacity Resource shall not include any intervals outside the calendar months of June through September.

PJM:

"PJM" shall mean PJM Interconnection, L.L.C., including the Office of the Interconnection as referenced in the PJM Operating Agreement. When such term is being used in the RAA it shall also include the PJM Board.

PJM Administrative Service:

"PJM Administrative Service" shall mean the services provided by PJM pursuant to Tariff, Schedule 9.

PJM Board:

"PJM Board" shall mean the Board of Managers of the LLC, acting pursuant to the Operating Agreement, except when such term is being used in Tariff, Attachment M, in which case PJM Board shall mean the Board of Managers of PJM or its designated representative, exclusive of any members of PJM Management.

PJM Control Area:

"PJM Control Area" shall mean the Control Area recognized by NERC as the PJM Control Area.

PJM Entities:

"PJM Entities" shall mean PJM, including the Market Monitoring Unit, the PJM Board, and PJM's officers, employees, representatives, advisors, contractors, and consultants.

PJM Interchange:

"PJM Interchange" shall mean the following, as determined in accordance with the Operating Agreement and Tariff: (a) for a Market Participant that is a Network Service User, the amount by which its interval Equivalent Load exceeds, or is exceeded by, the sum of the interval outputs of its operating generating resources; or (b) for a Market Participant that is not a Network Service User, the amount of its Spot Market Backup; or (c) the interval scheduled deliveries of Spot Market Energy by a Market Seller from an External Resource; or (d) the interval net metered output of any other Market Seller; or (e) the interval scheduled deliveries of Spot Market Energy to an External Market Buyer; or (f) the interval scheduled deliveries to an Internal Market Buyer that is not a Network Service User.

PJM Interchange Energy Market:

"PJM Interchange Energy Market" shall mean the regional competitive market administered by the Office of the Interconnection for the purchase and sale of spot electric energy at wholesale in interstate commerce and related services established pursuant to Operating Agreement, Schedule 1, and the parallel provisions of Tariff, Attachment K - Appendix.

PJM Interchange Export:

"PJM Interchange Export" shall mean the following, as determined in accordance with the Operating Agreement and Tariff: (a) for a Market Participant that is a Network Service User, the amount by which its interval Equivalent Load is exceeded by the sum of the interval outputs of its operating generating resources; or (b) for a Market Participant that is not a Network Service User, the amount of its Spot Market Backup sales; or (c) the interval scheduled deliveries of Spot Market Energy by a Market Seller from an External Resource; or (d) the interval net metered output of any other Market Seller.

PJM Interchange Import:

"PJM Interchange Import" shall mean the following, as determined in accordance with the Operating Agreement and Tariff: (a) for a Market Participant that is a Network Service User, the amount by which its interval Equivalent Load exceeds the sum of the interval outputs of its operating generating resources; or (b) for a Market Participant that is not a Network Service User, the amount of its Spot Market Backup purchases; or (c) the interval scheduled deliveries of Spot Market Energy to an External Market Buyer; or (d) the interval scheduled deliveries to an Internal Market Buyer that is not a Network Service User.

PJM Liaison:

"PJM Liaison" shall mean the liaison established under Tariff, Attachment M, section III.I.

PJM Management:

"PJM Management" shall mean the officers, executives, supervisors and employee managers of PJM.

PJM Manuals:

"PJM Manuals" shall mean the instructions, rules, procedures and guidelines established by the Office of the Interconnection for the operation, planning, and accounting requirements of the PJM Region and the PJM Interchange Energy Market.

PJM Markets:

"PJM Markets" shall mean the PJM Interchange Energy and capacity markets, including the RPM auctions, together with all bilateral or other wholesale electric power and energy transactions, capacity transactions, ancillary services transactions (including black start service), transmission transactions and any other market operated under the PJM Tariff or Operating Agreement within the PJM Region, wherein Market Participants may incur Obligations to PJMSettlement.

PJM Market Rules:

"PJM Market Rules" shall mean the rules, standards, procedures, and practices of the PJM Markets set forth in the PJM Tariff, the PJM Operating Agreement, the PJM Reliability

Assurance Agreement, the PJM Consolidated Transmission Owners Agreement, the PJM Manuals, the PJM Regional Practices Document, the PJM-Midwest Independent Transmission System Operator Joint Operating Agreement or any other document setting forth market rules.

PJM Net Assets:

"PJM Net Assets**"** shall mean the total assets per PJM's consolidated quarterly or year-end financial statements most recently issued as of the date of the receipt of written notice of a claim less amounts for which PJM is acting as a temporary custodian on behalf of its Members, transmission developers/Designated Entities, and generation developers, including, but not limited to, cash deposits related to credit requirement compliance, study and/or interconnection receivables, member prepayments, invoiced amounts collected from Net Buyers but have not yet been paid to Net Sellers, and excess congestion (as described in Operating Agreement, Schedule 1, section 5.2.6, and the parallel provisions of Tariff, Attachment K-Appendix, section 5.2.6).

PJM Region:

"PJM Region" shall have the meaning specified in the Operating Agreement.

PJM Regional Practices Document:
"PJM Regional Practices Document" shall mean the document of that title that compiles and describes the practices in the PJM Markets and that is made available in hard copy and on the Internet.

PJM Region Installed Reserve Margin:

"PJM Region Installed Reserve Margin" shall mean the percent installed reserve margin for the PJM Region required pursuant to RAA, Schedule 4.1, as approved by the PJM Board.

PJM Region Peak Load Forecast:

"PJM Region Peak Load Forecast" shall mean the peak load forecast used by the Office of the Interconnection in determining the PJM Region Reliability Requirement, and shall be determined on both a preliminary and final basis as set forth in Tariff, Attachment DD, section 5.

PJM Region Reliability Requirement:

"PJM Region Reliability Requirement" shall mean, for purposes of the Base Residual Auction, the Forecast Pool Requirement multiplied by the Preliminary PJM Region Peak Load Forecast, less the sum of all Preliminary Unforced Capacity Obligations of FRR Entities in the PJM Region; and, for purposes of the Incremental Auctions, the Forecast Pool Requirement multiplied by the updated PJM Region Peak Load Forecast, less the sum of all updated Unforced Capacity Obligations of FRR Entities in the PJM Region.

PJMSettlement:

"PJM Settlement" or "PJM Settlement, Inc." shall mean PJM Settlement, Inc. (or its successor), established by PJM as set forth in Operating Agreement, section 3.3.

PJM Tariff, Tariff, O.A.T.T., OATT or PJM Open Access Transmission Tariff:

"PJM Tariff," "Tariff," "O.A.T.T.," "OATT," or "PJM Open Access Transmission Tariff" shall mean that certain PJM Open Access Transmission Tariff, including any schedules, appendices or exhibits attached thereto, on file with FERC and as amended from time to time thereafter.

Plan:

"Plan" shall mean the PJM market monitoring plan set forth in Tariff, Attachment M.

Planned Demand Resource:

"Planned Demand Resource" shall have the meaning specified in the Reliability Assurance Agreement.

Planned External Financed Generation Capacity Resource:

"Planned External Financed Generation Capacity Resource" shall mean a Planned External Generation Capacity Resource that, prior to August 7, 2015, has an effective agreement that is the equivalent of an Interconnection Service Agreement, has submitted to the Office of the Interconnection the appropriate certification attesting achievement of Financial Close, and has secured at least 50 percent of the MWs of firm transmission service required to qualify such resource under the deliverability requirements of the Reliability Assurance Agreement.

Planned External Generation Capacity Resource:

"Planned External Generation Capacity Resource" shall have the meaning specified in the Reliability Assurance Agreement.

Planned Financed Generation Capacity Resource:

"Planned Financed Generation Capacity Resource" shall mean a Planned Generation Capacity Resource that, prior to August 7, 2015, has an effective Interconnection Service Agreement and has submitted to the Office of the Interconnection the appropriate certification attesting achievement of Financial Close.

Planned Generation Capacity Resource:

"Planned Generation Capacity Resource" shall have the meaning specified in the Reliability Assurance Agreement.

Planning Period:

"Planning Period" shall mean the 12 moths beginning June 1 and extending through May 31 of the following year, or such other period approved by the Members Committee.

Planning Period Balance:

"Planning Period Balance" shall mean the entire period of time remaining in the Planning Period following the month that a monthly auction is conducted.

Planning Period Quarter:

"Planning Period Quarter" shall mean any of the following three month periods in the Planning Period: June, July and August; September, October and November; December, January and February; or March, April and May.

Point(s) of Delivery:

"Point(s) of Delivery" shall mean the point(s) on the Transmission Provider's Transmission System where capacity and energy transmitted by the Transmission Provider will be made available to the Receiving Party under Tariff, Part II. The Point(s) of Delivery shall be specified in the Service Agreement for Long-Term Firm Point-To-Point Transmission Service.

Point of Interconnection:

"Point of Interconnection" shall mean the point or points where the Customer Interconnection Facilities interconnect with the Transmission Owner Interconnection Facilities or the Transmission System.

Point(s) of Receipt:

"Point(s) of Receipt" shall mean point(s) of interconnection on the Transmission Provider's Transmission System where capacity and energy will be made available to the Transmission Provider by the Delivering Party under Tariff, Part II. The Point(s) of Receipt shall be specified in the Service Agreement for Long-Term Firm Point-To-Point Transmission Service.

Point-To-Point Transmission Service:

"Point-To-Point Transmission Service shall mean the reservation and transmission of capacity and energy on either a firm or non-firm basis from the Point(s) of Receipt to the Point(s) of Delivery under Tariff, Part II.

Power Purchaser:

"Power Purchaser" shall mean the entity that is purchasing the capacity and energy to be transmitted under the Tariff.

PRD Curve:

"PRD Curve" shall have the meaning provided in the Reliability Assurance Agreement.

PRD Provider:

"PRD Provider" shall have the meaning provided in the Reliability Assurance Agreement.

PRD Reservation Price:

"PRD Reservation" Price shall have the meaning provided in the Reliability Assurance Agreement.

PRD Substation:

"PRD Substation" shall have the meaning provided in the Reliability Assurance Agreement.

Pre-Confirmed Application:

"Pre-Confirmed Application" shall be an Application that commits the Eligible Customer to execute a Service Agreement upon receipt of notification that the Transmission Provider can provide the requested Transmission Service.

Pre-Emergency Load Response Program:

"Pre-Emergency Load Response Program" shall be the program by which Curtailment Service Providers may be compensated by PJM for Demand Resources that will reduce load when dispatched by PJM during pre-emergency conditions, and is described in Operating Agreement, Schedule 1, section 8 and the parallel provisions of Tariff, Attachment K-Appendix, section 8.

Pre-Expansion PJM Zones:

"Pre-Expansion PJM Zones" shall be zones included in the Tariff, along with applicable Schedules and Attachments, for certain Transmission Owners - Atlantic City Electric Company, Baltimore Gas and Electric Company, Delmarva Power and Light Company, Jersey Central Power and Light Company, Mid-Atlantic Interstate Transmission, LLC ("MAIT") (MAIT owns and operates the transmission facilities in the Metropolitan Edison Company Zone and the Pennsylvania Electric Company Zone), PECO Energy Company, Pennsylvania Power & Light Group, Potomac Electric Power Company, Public Service Electric and Gas Company, Allegheny Power, and Rockland Electric Company.

Price Responsive Demand:

"Price Responsive Demand" shall have the meaning provided in the Reliability Assurance Agreement.

Primary Reserve:

"Primary Reserve" shall mean the total reserve capability of generation resources that can be converted fully into energy or Demand Resources whose demand can be reduced within ten minutes of a request from the Office of the Interconnection dispatcher, and is comprised of both Synchronized Reserve and Non-Synchronized Reserve.

Primary Reserve Alert

"Primary Reserve Alert" shall mean a notification from PJM to alert Members of an anticipated shortage of Operating Reserve capacity for a future critical period.

Primary Reserve Requirement:

"Primary Reserve Requirement" shall mean the megawatts required to be maintained in a Reserve Zone or Reserve Sub-zone as Primary Reserve, absent any increase to account for additional reserves scheduled to address operational uncertainty. The Primary Reserve Requirement is calculated in accordance with the PJM Manuals.

Prior CIL Exception External Resource:

"Prior CIL Exception External Resource" shall mean an external Generation Capacity Resource for which (1) a Capacity Market Seller had, prior to May 9, 2017, cleared a Sell Offer in an RPM Auction under the exception provided to the definition of Capacity Import Limit as set forth in RAA, Article I or (2) an FRR Entity committed, prior to May 9, 2017, in an FRR Capacity Plan under the exception provided in the definition of Capacity Import Limit. In the event only a portion (in MW) of an external Generation Capacity Resource has a Pseudo-Tie into the PJM Region, that portion of the external Generation Capacity Resource, which can include up to the maximum megawatt amount cleared in any prior RPM auction or committed in an FRR Capacity Plan (and no other portion thereof), is eligible for treatment as a Prior CIL Exception External Resource if such portion satisfies the requirements of the first sentence of this definition.

Project Financing:

"Project Financing" shall mean: (a) one or more loans, leases, equity and/or debt financings, together with all modifications, renewals, supplements, substitutions and replacements thereof, the proceeds of which are used to finance or refinance the costs of the Customer Facility, any alteration, expansion or improvement to the Customer Facility, the purchase and sale of the Customer Facility or the operation of the Customer Facility; (b) a power purchase agreement pursuant to which Interconnection Customer's obligations are secured by a mortgage or other lien on the Customer Facility; or (c) loans and/or debt issues secured by the Customer Facility.

Project Finance Entity:

"Project Finance Entity" shall mean: (a) a holder, trustee or agent for holders, of any component of Project Financing; or (b) any purchaser of capacity and/or energy produced by the Customer Facility to which Interconnection Customer has granted a mortgage or other lien as security for

some or all of Interconnection Customer's obligations under the corresponding power purchase agreement.

Projected PJM Market Revenues:

"Projected PJM Market Revenues" shall mean a component of the Market Seller Offer Cap calculated in accordance with Tariff, Attachment DD, section 6.

Proportional Multi-Driver Project:

"Proportional Multi-Driver Project" shall have the same meaning provided in the Operating Agreement.

Pseudo-Tie:

"Pseudo-Tie" shall have the same meaning provided in the Operating Agreement.

Public Policy Objectives:

"Public Policy Objectives" shall have the same meaning provided in the Operating Agreement.

Public Policy Requirements:

"Public Policy Requirements" shall have the same meaning provided in the Operating Agreement.

Qualifying Transmission Upgrade:

"Qualifying Transmission Upgrade" shall mean a proposed enhancement or addition to the Transmission System that: (a) will increase the Capacity Emergency Transfer Limit into an LDA by a megawatt quantity certified by the Office of the Interconnection; (b) the Office of the Interconnection has determined will be in service on or before the commencement of the first Delivery Year for which such upgrade is the subject of a Sell Offer in the Base Residual Auction; (c) is the subject of a Facilities Study Agreement executed before the conduct of the Base Residual Auction for such Delivery Year and (d) a New Service Customer is obligated to fund through a rate or charge specific to such facility or upgrade.

Queue Position:

"Queue Position" shall mean the priority assigned to an Interconnection Request, a Completed Application, or an Upgrade Request pursuant to applicable provisions of Tariff, Part VI.

Ramping Capability:

"Ramping Capability" shall mean the sustained rate of change of generator output, in megawatts per minute.

Real-time Congestion Price:

"Real-time Congestion Price" shall mean the Congestion Price resulting from the Office of the Interconnection's dispatch of the PJM Interchange Energy Market in the Operating Day.

Real-time Loss Price:

"Real-time Loss Price" shall mean the Loss Price resulting from the Office of the Interconnection's dispatch of the PJM Interchange Energy Market in the Operating Day.

Real-time Energy Market:

"Real-time Energy Market" shall mean the purchase or sale of energy and payment of Transmission Congestion Charges for quantity deviations from the Day-ahead Energy Market in the Operating Day.

Real-time Offer:

"Real-time Offer" shall mean a new offer or an update to a Market Seller's existing cost-based or market-based offer for a clock hour, submitted for use after the close of the Day-ahead Energy Market.

Real-time Prices:

"Real-time Prices" shall mean the Locational Marginal Prices resulting from the Office of the Interconnection's dispatch of the PJM Interchange Energy Market in the Operating Day.

Real-time Settlement Interval:

"Real-time Settlement Interval" shall mean the interval used by settlements, which shall be every five minutes.

Real-time System Energy Price:

"Real-time System Energy Price" shall mean the System Energy Price resulting from the Office of the Interconnection's dispatch of the PJM Interchange Energy Market in the Operating Day.

Reasonable Efforts:

"Reasonable Efforts" shall mean, with respect to any action required to be made, attempted, or taken by an Interconnection Party or by a Construction Party under Tariff, Part IV or Part VI, an Interconnection Service Agreement, or a Construction Service Agreement, such efforts as are timely and consistent with Good Utility Practice and with efforts that such party would undertake for the protection of its own interests.

Receiving Party:

"Receiving Party" shall mean the entity receiving the capacity and energy transmitted by the Transmission Provider to Point(s) of Delivery.

Referral:

"Referral" shall mean a formal report of the Market Monitoring Unit to the Commission for investigation of behavior of a Market Participant, of behavior of PJM, or of a market design flaw, pursuant to Tariff, Attachment M, section IV.I.

Reference Resource:

"Reference Resource" shall mean a combustion turbine generating station, configured with a single General Electric Frame 7HA turbine with evaporative cooling, Selective Catalytic Reduction technology all CONE Areas, dual fuel capability, and a heat rate of 9.134 Mmbtu/ MWh.

Regional Entity:

"Regional Entity" shall have the same meaning specified in the Operating Agreement.

Regional Transmission Expansion Plan:

"Regional Transmission Expansion Plan" shall mean the plan prepared by the Office of the Interconnection pursuant to Operating Agreement, Schedule 6 for the enhancement and expansion of the Transmission System in order to meet the demands for firm transmission service in the PJM Region.

Regional Transmission Group (RTG):

"Regional Transmission Group" or "RTG" shall mean a voluntary organization of transmission owners, transmission users and other entities approved by the Commission to efficiently coordinate transmission planning (and expansion), operation and use on a regional (and interregional) basis.

Regulation:

"Regulation" shall mean the capability of a specific generation resource or Demand Resource with appropriate telecommunications, control and response capability to separately increase and decrease its output or adjust load in response to a regulating control signal, in accordance with the specifications in the PJM Manuals.

Regulation Zone:

"Regulation Zone" shall mean any of those one or more geographic areas, each consisting of a

combination of one or more Control Zone(s) as designated by the Office of the Interconnection in the PJM Manuals, relevant to provision of, and requirements for, regulation service.

Relevant Electric Retail Regulatory Authority:

"Relevant Electric Retail Regulatory Authority" shall mean an entity that has jurisdiction over and establishes prices and policies for competition for providers of retail electric service to end-customers, such as the city council for a municipal utility, the governing board of a cooperative utility, the state public utility commission or any other such entity.

Reliability Assurance Agreement or PJM Reliability Assurance Agreement:

"Reliability Assurance Agreement" or "PJM Reliability Assurance Agreement" shall mean that certain Reliability Assurance Agreement Among Load Serving Entities in the PJM Region, on file with FERC as PJM Interconnection L.L.C. Rate Schedule FERC No. 44, and as amended from time to time thereafter.

Reliability Pricing Model Auction:

"Reliability Pricing Model Auction" or "RPM Auction" shall mean the Base Residual Auction or any Incremental Auction, or, for the 2016/2017 and 2017/2018 Delivery Years, any Capacity Performance Transition Incremental Auction.

Required Transmission Enhancements:

"Regional Transmission Enhancements" shall mean enhancements and expansions of the Transmission System that (1) a Regional Transmission Expansion Plan developed pursuant to Operating Agreement, Schedule 6 or (2) any joint planning or coordination agreement between PJM and another region or transmission planning authority set forth in Tariff, Schedule 12-Appendix B ("Appendix B Agreement") designates one or more of the Transmission Owner(s) to construct and own or finance. Required Transmission Enhancements shall also include enhancements and expansions of facilities in another region or planning authority that meet the definition of transmission facilities pursuant to FERC's Uniform System of Accounts or have been classified as transmission facilities in a ruling by FERC addressing such facilities constructed pursuant to an Appendix B Agreement cost responsibility for which has been assigned at least in part to PJM pursuant to such Appendix B Agreement.

Reserved Capacity:

"Reserved Capacity" shall mean the maximum amount of capacity and energy that the Transmission Provider agrees to transmit for the Transmission Customer over the Transmission Provider's Transmission System between the Point(s) of Receipt and the Point(s) of Delivery under Tariff, Part II. Reserved Capacity shall be expressed in terms of whole megawatts on a sixty (60) minute interval (commencing on the clock hour) basis.

Reserve Penalty Factor:

"Reserve Penalty Factor" shall mean the cost, in $/MWh, associated with being unable to meet a specific reserve requirement in a Reserve Zone or Reserve Sub-zone. A Reserve Penalty Factor will be defined for each reserve requirement in a Reserve Zone or Reserve Sub-zone.

Reserve Sub-zone:

"Reserve Sub-zone" shall mean any of those geographic areas wholly contained within a Reserve Zone, consisting of a combination of a portion of one or more Control Zone(s) as designated by the Office of the Interconnection in the PJM Manuals, relevant to provision of, and requirements for, reserve service.

Reserve Zone:

"Reserve Zone" shall mean any of those geographic areas consisting of a combination of one or more Control Zone(s), as designated by the Office of the Interconnection in the PJM Manuals, relevant to provision of, and requirements for, reserve service.

Residual Auction Revenue Rights:

"Residual Auction Revenue Rights" shall mean incremental stage 1 Auction Revenue Rights created within a Planning Period by an increase in transmission system capability, including the return to service of existing transmission capability, that was not modeled pursuant to Operating Agreement, Schedule 1, section 7.5 and the parallel provisions of Tariff, Attachment K-Appendix, section 7.5 in compliance with Operating Agreement, Schedule 1, section 7.4.2 (h) and the parallel provisions of Tariff, Attachment K-Appendix, section 7.4.2(h), and, if modeled, would have increased the amount of stage 1 Auction Revenue Rights allocated pursuant to Operating Agreement, Schedule 1, section 7.4.2 and the parallel provisions of Tariff, Attachment K-Appendix, section 7.4.2; provided that, the foregoing notwithstanding, Residual Auction Revenue Rights shall exclude: 1) Incremental Auction Revenue Rights allocated pursuant to Tariff, Part VI; and 2) Auction Revenue Rights allocated to entities that are assigned cost responsibility pursuant to Operating Agreement, Schedule 6 for transmission upgrades that create such rights.

Residual Metered Load:

"Residual Metered Load" shall mean all load remaining in an electric distribution company's fully metered franchise area(s) or service territory(ies) after all nodally priced load of entities serving load in such area(s) or territory(ies) has been carved out.

Resource Substitution Charge:

"Resource Substitution Charge" shall mean a charge assessed on Capacity Market Buyers in an Incremental Auction to recover the cost of replacement Capacity Resources.

Revenue Data for Settlements:

"Revenue Data for Settlements" shall mean energy quantities used in accounting and billing as determined pursuant to Tariff, Attachment K-Appendix and the corresponding provisions of Operating Agreement, Schedule 1.

RPM Seller Credit:

"RPM Seller Credit" shall mean an additional form of Unsecured Credit defined in Tariff, Attachment Q, section IV.

Scheduled Incremental Auctions:

"Scheduled Incremental Auctions" shall refer to the First, Second, or Third Incremental Auction.

Schedule of Work:

"Schedule of Work" shall mean that schedule attached to the Interconnection Construction Service Agreement setting forth the timing of work to be performed by the Constructing Entity pursuant to the Interconnection Construction Service Agreement, based upon the Facilities Study and subject to modification, as required, in accordance with Transmission Provider's scope change process for interconnection projects set forth in the PJM Manuals.

Scope of Work:

"Scope of Work" shall mean that scope of the work attached as a schedule to the Interconnection Construction Service Agreement and to be performed by the Constructing Entity(ies) pursuant to the Interconnection Construction Service Agreement, provided that such Scope of Work may be modified, as required, in accordance with Transmission Provider's scope change process for interconnection projects set forth in the PJM Manuals.

Seasonal Capacity Performance Resource:

"Seasonal Capacity Performance Resource" shall have the same meaning specified in Tariff, Attachment DD, section 5.5A.

Secondary Systems:

"Secondary Systems" shall mean control or power circuits that operate below 600 volts, AC or DC, including, but not limited to, any hardware, control or protective devices, cables, conductors, electric raceways, secondary equipment panels, transducers, batteries, chargers, and voltage and current transformers.

Second Incremental Auction:

"Second Incremental Auction" shall mean an Incremental Auction conducted ten months before the Delivery Year to which it relates**.**

Security:

"Security" shall mean the security provided by the New Service Customer pursuant to Tariff, section 212.4 or Tariff, Part VI, section 213.4 to secure the New Service Customer's responsibility for Costs under the Interconnection Service Agreement or Upgrade Construction Service Agreement and Tariff, Part VI, section 217.

Segment:

"Segment" shall have the same meaning as described in Operating Agreement, Schedule 1, section 3.2.3(e).

Self-Supply:

"Self-Supply" shall mean Capacity Resources secured by a Load-Serving Entity, by ownership or contract, outside a Reliability Pricing Model Auction, and used to meet obligations under this Attachment or the Reliability Assurance Agreement through submission in a Base Residual Auction or an Incremental Auction of a Sell Offer indicating such Market Seller's intent that such Capacity Resource be Self-Supply. Self-Supply may be either committed regardless of clearing price or submitted as a Sell Offer with a price bid. A Load Serving Entity's Sell Offer with a price bid for an owned or contracted Capacity Resource shall not be deemed "Self-Supply," unless it is designated as Self-Supply and used by the LSE to meet obligations under this Attachment or the Reliability Assurance Agreement.

Sell Offer:

"Sell Offer" shall mean an offer to sell Capacity Resources in a Base Residual Auction, Incremental Auction, or Reliability Backstop Auction.

Service Agreement:

"Service Agreement" shall mean the initial agreement and any amendments or supplements thereto entered into by the Transmission Customer and the Transmission Provider for service under the Tariff.

Service Commencement Date:

"Service Commencement Date" shall mean the date the Transmission Provider begins to provide service pursuant to the terms of an executed Service Agreement, or the date the Transmission Provider begins to provide service in accordance with Tariff, Part II, section 15.3 or Tariff, Part III, section 29.1.

Short-Term Firm Point-To-Point Transmission Service:

"Short-Term Firm Point-To-Point Transmission Service" shall mean Firm Point-To-Point

Transmission Service under Tariff, Part II with a term of less than one year.

Short-term Project:

"Short-term Project" shall have the same meaning provided in the Operating Agreement.

Short-Term Resource Procurement Target:

"Short-Term Resource Procurement Target" shall mean, for Delivery Years through May 31, 2018, as to the PJM Region, for purposes of the Base Residual Auction, 2.5% of the PJM Region Reliability Requirement determined for such Base Residual Auction, for purposes of the First Incremental Auction, 2% of the of the PJM Region Reliability Requirement as calculated at the time of the Base Residual Auction; and, for purposes of the Second Incremental Auction, 1.5% of the of the PJM Region Reliability Requirement as calculated at the time of the Base Residual Auction; and, as to any Zone, an allocation of the PJM Region Short-Term Resource Procurement Target based on the Preliminary Zonal Forecast Peak Load, reduced by the amount of load served under the FRR Alternative. For any LDA, the LDA Short-Term Resource Procurement Target shall be the sum of the Short-Term Resource Procurement Targets of all Zones in the LDA.

Short-Term Resource Procurement Target Applicable Share:

"Short-Term Resource Procurement Target Applicable Share" shall mean, for Delivery Years through May 31, 2018: (i) for the PJM Region, as to the First and Second Incremental Auctions, 0.2 times the Short-Term Resource Procurement Target used in the Base Residual Auction and, as to the Third Incremental Auction for the PJM Region, 0.6 times such target; and (ii) for an LDA, as to the First and Second Incremental Auctions, 0.2 times the Short-Term Resource Procurement Target used in the Base Residual Auction for such LDA and, as to the Third Incremental Auction, 0.6 times such target.

Site:

"Site" shall mean all of the real property, including but not limited to any leased real property and easements, on which the Customer Facility is situated and/or on which the Customer Interconnection Facilities are to be located.

Small Commercial Customer:

"Small Commercial Customer," as used in RAA, Schedule 6 and Tariff, Attachment DD-1, shall mean a commercial retail electric end-use customer of an electric distribution company that participates in a mass market demand response program under the jurisdiction of a RERRA and satisfies the definition of a "small commercial customer" under the terms of the applicable RERRA's program, provided that the customer has an annual peak demand no greater than 100kW.

Small Generation Resource:

"Small Generation Resource" shall mean an Interconnection Customer's device of 20 MW or less for the production and/or storage for later injection of electricity identified in an Interconnection Request, but shall not include the Interconnection Customer's Interconnection Facilities. This term shall include Energy Storage Resources and/or other devices for storage for later injection of energy.

Small Inverter Facility:

"Small Inverter Facility" shall mean an Energy Resource that is a certified small inverter-based facility no larger than 10 kW.

Small Inverter ISA:

"Small Inverter ISA" shall mean an agreement among Transmission Provider, Interconnection Customer, and Interconnected Transmission Owner regarding interconnection of a Small Inverter Facility under Tariff, Part IV, section 112B.

Special Member:

"Special Member" shall mean an entity that satisfies the requirements of Operating Agreement, Schedule 1, section 1.5A.02, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.5A.02, or the special membership provisions established under the Emergency Load Response and Pre-Emergency Load Response Programs.

Spot Market Backup:

"Spot Market Backup" shall mean the purchase of energy from, or the delivery of energy to, the PJM Interchange Energy Market in quantities sufficient to complete the delivery or receipt obligations of a bilateral contract that has been curtailed or interrupted for any reason.

Spot Market Energy:

"Spot Market Energy" shall mean energy bought or sold by Market Participants through the PJM Interchange Energy Market at System Energy Prices determined as specified in Operating Agreement, Schedule 1, section 2, and the parallel provisions of Tariff, Attachment K-Appendix, section 2.

Start Additional Labor Costs:

"Start Additional Labor Costs" shall mean additional labor costs for startup required above normal station manning levels.

Start-Up Costs:

"Start-Up Costs" shall mean the unit costs to bring the boiler, turbine and generator from

shutdown conditions to the point after breaker closure which is typically indicated by telemetered or aggregated state estimator megawatts greater than zero and is determined based on the cost of start fuel, total fuel-related cost, performance factor, electrical costs (station service), start maintenance adder, and additional labor cost if required above normal station manning. Start-Up Costs can vary with the unit offline time being categorized in three unit temperature conditions: hot, intermediate and cold.

State:

"State" shall mean the District of Columbia and any State or Commonwealth of the United States.

State Commission:

"State Commission**"** shall mean any state regulatory agency having jurisdiction over retail electricity sales in any State in the PJM Region.

State Estimator:

"State Estimator" shall mean the computer model of power flows specified in Operating Agreement, Schedule 1, section 2.3 and the parallel provisions of Tariff, Attachment K-Appendix, section 2.3.

Station Power:

"Station Power" shall mean energy used for operating the electric equipment on the site of a generation facility located in the PJM Region or for the heating, lighting, air-conditioning and office equipment needs of buildings on the site of such a generation facility that are used in the operation, maintenance, or repair of the facility. Station Power does not include any energy (i) used to power synchronous condensers; (ii) used for pumping at a pumped storage facility; (iii) used in association with restoration or black start service; or (iv) that is Direct Charging Energy.

Sub-Annual Resource Constraint:

"Sub-Annual Resource Constraint" shall mean, for the 2017/2018 Delivery Year and for FRR Capacity Plans the 2017/2018 and 2018/2019 Delivery Years, for the PJM Region or for each LDA for which the Office of the Interconnection is required under Tariff, Attachment DD, section 5.10(a) to establish a separate VRR Curve for a Delivery Year, a limit on the total amount of Unforced Capacity that can be committed as Limited Demand Resources and Extended Summer Demand Resources for the 2017/2018 Delivery Year in the PJM Region or in such LDA, calculated as the Sub-Annual Resource Reliability Target for the PJM Region or for such LDA, respectively, minus the Short-Term Resource Procurement Target for the PJM Region or for such LDA, respectively.

Sub-Annual Resource Price Decrement:

"Sub-Annual Resource Price Decrement" shall mean, for the 2017/2018 Delivery Year, a difference between the clearing price for Extended Summer Demand Resources and the clearing price for Annual Resources, representing the cost to procure additional Annual Resources out of merit order when the Sub-Annual Resource Constraint is binding.

Sub-Annual Resource Reliability Target:

"Sub-Annual Reliability Target" for the PJM Region or an LDA, shall mean the maximum amount of the combination of Extended Summer Demand Resources and Limited Demand Resources in Unforced Capacity determined by PJM to be consistent with the maintenance of reliability, stated in Unforced Capacity, that shall be used to calculate the Minimum Annual Resource Requirement for Delivery Years through May 31, 2017 and the Sub-Annual Resource Constraint for the 2017/2018 and 2018/2019 Delivery Years. As more fully set forth in the PJM Manuals, PJM calculates the Sub-Annual Resource Reliability Target, by first determining a reference annual loss of load expectation ("LOLE") assuming no Demand Resources. The calculation for the unconstrained portion of the PJM Region uses a daily distribution of loads under a range of weather scenarios (based on the most recent load forecast and iteratively shifting the load distributions to result in the Installed Reserve Margin established for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Installed Reserve Margin study for the Delivery Year in question). The calculation for each relevant LDA uses a daily distribution of loads under a range of weather scenarios (based on the most recent load forecast for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Capacity Emergency Transfer Objective study for the Delivery Year in question). For the relevant LDA calculation, the weekly capacity distributions are adjusted to reflect the Capacity Emergency Transfer Limit for the Delivery Year in question.

For both the PJM Region and LDA analyses, PJM then models the commitment of varying amounts of DR (displacing otherwise committed generation) as interruptible from May 1 through October 31 and unavailable from November 1 through April 30 and calculates the LOLE at each DR level. The Extended Summer DR Reliability Target is the DR amount, stated as a percentage of the unrestricted peak load, that produces no more than a ten percent increase in the LOLE, compared to the reference value. The Sub-Annual Resource Reliability Target shall be expressed as a percentage of the forecasted peak load of the PJM Region or such LDA and is converted to Unforced Capacity by multiplying [the reliability target percentage] times [the Forecast Pool Requirement] times [the DR Factor] times [the forecasted peak load of the PJM Region or such LDA, reduced by the amount of load served under the FRR Alternative].

Sub-meter:

"Sub-meter" shall mean a metering point for electricity consumption that does not include all electricity consumption for the end-use customer as defined by the electric distribution company account number. PJM shall only accept sub-meter load data from end-use customers for measurement and verification of Regulation service as set forth in the Economic Load Response rules and PJM Manuals.

Summer-Period Capacity Performance Resource:

"Summer-Period Capacity Performance Resource" shall have the same meaning specified in Tariff, Attachment DD, section 5.5A.

Switching and Tagging Rules:

"Switching and Tagging Rules" shall mean the switching and tagging procedures of Interconnected Transmission Owners and Interconnection Customer as they may be amended from time to time.

Synchronized Reserve:

"Synchronized Reserve" shall mean the reserve capability of generation resources that can be converted fully into energy or Demand Resources whose demand can be reduced within ten minutes from the request of the Office of the Interconnection dispatcher, and is provided by equipment that is electrically synchronized to the Transmission System.

Synchronized Reserve Event:

"Synchronized Reserve Event" shall mean a request from the Office of the Interconnection to generation resources and/or Demand Resources able, assigned or self-scheduled to provide Synchronized Reserve in one or more specified Reserve Zones or Reserve Sub-zones, within ten minutes, to increase the energy output or reduce load by the amount of assigned or self-scheduled Synchronized Reserve capability.

Synchronized Reserve Requirement:

"Synchronized Reserve Requirement" shall mean the megawatts required to be maintained in a Reserve Zone or Reserve Sub-zone as Synchronized Reserve, absent any increase to account for additional reserves scheduled to address operational uncertainty. The Synchronized Reserve Requirement is calculated in accordance with the PJM Manuals.

System Condition:

"System Condition" shall mean a specified condition on the Transmission Provider's system or on a neighboring system, such as a constrained transmission element or flowgate, that may trigger Curtailment of Long-Term Firm Point-to-Point Transmission Service using the curtailment priority pursuant to Tariff, Part II, section 13.6. Such conditions must be identified in the Transmission Customer's Service Agreement.

System Energy Price:

"System Energy Price" shall mean the energy component of the Locational Marginal Price, which is the price at which the Market Seller has offered to supply an additional increment of energy from a resource, calculated as specified in Operating Agreement, Schedule 1, section 2

and the parallel provisions of Tariff, Attachment K-Appendix, section 2.

System Impact Study:

"System Impact Study" shall mean an assessment by the Transmission Provider of (i) the adequacy of the Transmission System to accommodate a Completed Application, an Interconnection Request or an Upgrade Request, (ii) whether any additional costs may be incurred in order to provide such transmission service or to accommodate an Interconnection Request, and (iii) with respect to an Interconnection Request, an estimated date that an Interconnection Customer's Customer Facility can be interconnected with the Transmission System and an estimate of the Interconnection Customer's cost responsibility for the interconnection; and (iv) with respect to an Upgrade Request, the estimated cost of the requested system upgrades or expansion, or of the cost of the system upgrades or expansion, necessary to provide the requested incremental rights.

System Protection Facilities:

"System Protection Facilities" shall refer to the equipment required to protect (i) the Transmission System, other delivery systems and/or other generating systems connected to the Transmission System from faults or other electrical disturbance occurring at or on the Customer Facility, and (ii) the Customer Facility from faults or other electrical system disturbance occurring on the Transmission System or on other delivery systems and/or other generating systems to which the Transmission System is directly or indirectly connected. System Protection Facilities shall include such protective and regulating devices as are identified in the Applicable Technical Requirements and Standards or that are required by Applicable Laws and Regulations or other Applicable Standards, or as are otherwise necessary to protect personnel and equipment and to minimize deleterious effects to the Transmission System arising from the Customer Facility.

Tangible Net Worth:

"Tangible Net Worth" shall mean all assets (not including any intangible assets such as goodwill) less all liabilities. Any such calculation may be reduced by PJMSettlement upon review of the available financial information.

Target Allocation:

"Target Allocation" shall mean the allocation of Transmission Congestion Credits as set forth in Operating Agreement, Schedule 1, section 5.2.3, and the parallel provisions of Tariff, Attachment K-Appendix, section 5.2.3, or the allocation of Auction Revenue Rights Credits as set forth in Operating Agreement, Schedule 1, section 7.4.3, and the parallel provisions of Tariff, Attachment K-Appendix, section 7.4.3.

Third Incremental Auction:

"Third Incremental Auction" shall mean an Incremental Auction conducted three months before

the Delivery Year to which it relates.

Third-Party Sale:

"Third-Party Sale" shall mean any sale for resale in interstate commerce to a Power Purchaser that is not designated as part of Network Load under the Network Integration Transmission Service but not including a sale of energy through the PJM Interchange Energy Market established under the PJM Operating Agreement.

Tie Line:

"Tie Line" shall mean a circuit connecting two balancing authority areas, Control Areas or fully metered electric system regions. Tie Lines may be classified as external or internal as set forth in the PJM Manuals.

Total Lost Opportunity Cost Offer:

"Total Lost Opportunity Cost Offer" shall mean the applicable offer used to calculate lost opportunity cost credits. For pool-scheduled resources specified in PJM Operating Agreement, Schedule 1, section 3.2.3(f-1), and the parallel provisions of Tariff, Attachment K-Appendix, section 3.2.3(f-1), the Total Lost Opportunity Cost Offer shall equal the Real-time Settlement Interval offer integrated under the applicable offer curve for the LOC Deviation, as determined by the greater of the Committed Offer or last Real-Time Offer submitted for the offer on which the resource was committed in the Day-ahead Energy Market for each hour in an Operating Day. For all other pool-scheduled resources, the Total Lost Opportunity Cost Offer shall equal the Real-time Settlement Interval offer integrated under the applicable offer curve for the LOC Deviation, as determined by the offer curve associated with the greater of the Committed Offer or Final Offer for each hour in an Operating Day. For self-scheduled generation resources, the Total Lost Opportunity Cost Offer shall equal the Real-time Settlement Interval offer integrated under the applicable offer curve for the LOC Deviation, where for self-scheduled generation resources (a) operating pursuant to a cost-based offer, the applicable offer curve shall be the greater of the originally submitted cost-based offer or the cost-based offer that the resource was dispatched on in real-time; or (b) operating pursuant to a market-based offer, the applicable offer curve shall be determined in accordance with the following process: (1) select the greater of the cost-based day-ahead offer and updated cost-based Real-time Offer; (2) for resources with multiple cost-based offers, first, for each cost-based offer select the greater of the day-ahead offer and updated Real-time Offer, and then select the lesser of the resulting cost-based offers; and (3) compare the offer selected in (1), or for resources with multiple cost-based offers the offer selected in (2), with the market-based day-ahead offer and the market-based Real-time Offer and select the highest offer.

Total Net Obligation:

"Total Net Obligation" shall mean all unpaid billed Net Obligations plus any unbilled Net Obligation incurred to date, as determined by PJMSettlement on a daily basis, plus any other Obligations owed to PJMSettlement at the time.

Total Net Sell Position:

"Total Net Sell Position" shall mean all unpaid billed Net Sell Positions plus any unbilled Net Sell Positions accrued to date, as determined by PJMSettlement on a daily basis.

Total Operating Reserve Offer:

"Total Operating Reserve Offer" shall mean the applicable offer used to calculate Operating Reserve credits. The Total Operating Reserve Offer shall equal the sum of all individual Real-time Settlement Interval energy offers, inclusive of Start-Up Costs (shut-down costs for Demand Resources) and No-load Costs, for every Real-time Settlement Interval in a Segment, integrated under the applicable offer curve up to the applicable megawatt output as further described in the PJM Manuals. The applicable offer used to calculate day-ahead Operating Reserve credits shall be the Committed Offer, and the applicable offer used to calculate balancing Operating Reserve credits shall be lesser of the Committed Offer or Final Offer for each hour in an Operating Day.

Transmission Congestion Charge:

"Transmission Congestion Charge" shall mean a charge attributable to the increased cost of energy delivered at a given load bus when the transmission system serving that load bus is operating under constrained conditions, or as necessary to provide energy for third-party transmission losses which shall be calculated and allocated as specified in Operating Agreement, Schedule 1, section 5.1 and the parallel provisions of Tariff, Attachment K-Appendix, section 5.1.

Transmission Congestion Credit:

"Transmission Congestion Credit" shall mean the allocated share of total Transmission Congestion Charges credited to each FTR Holder, calculated and allocated as specified in Operating Agreement, Schedule 1, section 5.2, and the parallel provisions of Tariff, Attachment K-Appendix, section 5.2.

Transmission Constraint Penalty Factor:

"Transmission Constraint Penalty Factor" shall mean the maximum cost of the re-dispatch incurred to control the flows across a transmission constraint and establishes the maximum limit on the Marginal Value.

Transmission Customer:

"Transmission Customer" shall mean any Eligible Customer (or its Designated Agent) that (i) executes a Service Agreement, or (ii) requests in writing that the Transmission Provider file with the Commission a proposed unexecuted Service Agreement, to receive transmission service under Tariff, Part II. This term is used in Tariff, Part I and Part VI to include customers receiving transmission service under Tariff, Part II and Part III.

Where used in Tariff, Attachment K-Appendix and the parallel provisions of Operating Agreement, Schedule 1, Transmission Customer shall mean an entity using Point-to-Point Transmission Service.

Transmission Facilities:

"Transmission Facilities" shall have the meaning set forth in the Operating Agreement.

Transmission Forced Outage:

"Transmission Forced Outage" shall mean an immediate removal from service of a transmission facility by reason of an Emergency or threatened Emergency, unanticipated failure, or other cause beyond the control of the owner or operator of the transmission facility, as specified in the relevant portions of the PJM Manuals. A removal from service of a transmission facility at the request of the Office of the Interconnection to improve transmission capability shall not constitute a Forced Transmission Outage.

Transmission Injection Rights:

"Transmission Injection Rights" shall mean Capacity Transmission Injection Rights and Energy Transmission Injection Rights.

Transmission Interconnection Customer:

"Transmission Interconnection Customer" shall mean an entity that submits an Interconnection Request to interconnect or add Merchant Transmission Facilities to the Transmission System or to increase the capacity of Merchant Transmission Facilities interconnected with the Transmission System in the PJM Region or an entity that submits an Upgrade Request for Merchant Network Upgrades (including accelerating the construction of any transmission enhancement or expansion, other than Merchant Transmission Facilities, that is included in the Regional Transmission Expansion Plan prepared pursuant to Operating Agreement, Schedule 6).

Transmission Interconnection Facilities Study:

"Transmission Interconnection Facilities Study" shall mean a Facilities Study related to a Transmission Interconnection Request.

Transmission Interconnection Feasibility Study:

"Transmission Interconnection Feasibility Study" shall mean a study conducted by the Transmission Provider in accordance with Tariff, Part IV, section 36.2.

Transmission Interconnection Request:

"Transmission Interconnection Request" shall mean a request by a Transmission Interconnection

Customer pursuant to Tariff, Part IV to interconnect or add Merchant Transmission Facilities to the Transmission System or to increase the capacity of existing Merchant Transmission Facilities interconnected with the Transmission System in the PJM Region.

Transmission Loading Relief:

"Transmission Loading Relief" shall mean NERC's procedures for preventing operating security limit violations, as implemented by PJM as the security coordinator responsible for maintaining transmission security for the PJM Region.

Transmission Loading Relief Customer:

"Transmission Loading Relief Customer" shall mean an entity that, in accordance with Operating Agreement, Schedule 1, section 1.10.6A and the parallel provisions of Tariff, Attachment K-Appendix, section 1.10.6A has elected to pay Transmission Congestion Charges during Transmission Loading Relief in order to continue energy schedules over contract paths outside the PJM Region that are increasing the cost of energy in the PJM Region.

Transmission Loss Charge:

"Transmission Loss Charge" shall mean the charges to each Market Participant, Network Customer, or Transmission Customer for the cost of energy lost in the transmission of electricity from a generation resource to load as specified in Operating Agreement, Schedule 1, section 5, and the parallel provisions of Tariff, Attachment K-Appendix, section 5.

Transmission Owner:

"Transmission Owner" shall mean a Member that owns or leases with rights equivalent to ownership Transmission Facilities and is a signatory to the PJM Transmission Owners Agreement. Taking transmission service shall not be sufficient to qualify a Member as a Transmission Owner.

Transmission Owner Attachment Facilities:

"Transmission Owner Attachment Facilities" shall mean that portion of the Transmission Owner Interconnection Facilities comprised of all Attachment Facilities on the Interconnected Transmission Owner's side of the Point of Interconnection.

Transmission Owner Interconnection Facilities:

"Transmission Owner Interconnection Facilities" shall mean all Interconnection Facilities that are not Customer Interconnection Facilities and that, after the transfer under Tariff, Attachment P, Appendix 2, section 5.5 to the Interconnected Transmission Owner of title to any Transmission Owner Interconnection Facilities that the Interconnection Customer constructed, are owned, controlled, operated and maintained by the Interconnected Transmission Owner on the Interconnected Transmission Owner's side of the Point of Interconnection identified in

appendices to the Interconnection Service Agreement and to the Interconnection Construction Service Agreement, including any modifications, additions or upgrades made to such facilities and equipment, that are necessary to physically and electrically interconnect the Customer Facility with the Transmission System or interconnected distribution facilities.

Transmission Owner Upgrade:

"Transmission Owner Upgrade" shall have the same meaning provided in the Operating Agreement.

Transmission Planned Outage:

"Transmission Planned Outage" shall mean any transmission outage scheduled in advance for a pre-determined duration and which meets the notification requirements for such outages specified in Operating Agreement, Schedule 1, and the parallel provisions of Tariff, Attachment K-Appendix or the PJM Manuals.

Transmission Provider:

The "Transmission Provider" shall be the Office of the Interconnection for all purposes, provided that the Transmission Owners will have the responsibility for the following specified activities:

(a) The Office of the Interconnection shall direct the operation and coordinate the maintenance of the Transmission System, except that the Transmission Owners will continue to direct the operation and maintenance of those transmission facilities that are not listed in the PJM Designated Facilities List contained in the PJM Manual on Transmission Operations;

(b) Each Transmission Owner shall physically operate and maintain all of the facilities that it owns; and

(c) When studies conducted by the Office of the Interconnection indicate that enhancements or modifications to the Transmission System are necessary, the Transmission Owners shall have the responsibility, in accordance with the applicable terms of the Tariff, Operating Agreement and/or the Consolidated Transmission Owners Agreement to construct, own, and finance the needed facilities or enhancements or modifications to facilities.

Transmission Provider's Monthly Transmission System Peak:

"Transmission Provider's Monthly Transmission System Peak" shall mean the maximum firm usage of the Transmission Provider's Transmission System in a calendar month.

Transmission Service:

"Transmission Service" shall mean Point-To-Point Transmission Service provided under Tariff, Part II on a firm and non-firm basis.

Transmission Service Request:

"Transmission Service Request" shall mean a request for Firm Point-To-Point Transmission Service or a request for Network Integration Transmission Service.

Transmission System:

"Transmission System" shall mean the facilities controlled or operated by the Transmission Provider within the PJM Region that are used to provide transmission service under Tariff, Part II and Part III.

Transmission Withdrawal Rights:

"Transmission Withdrawal Rights" shall mean Firm Transmission Withdrawal Rights and Non-Firm Transmission Withdrawal Rights.

Turn Down Ratio:

"Turn Down Ratio" shall mean the ratio of a generating unit's economic maximum megawatts to its economic minimum megawatts.

Unconstrained LDA Group:

"Unconstrained LDA Group" shall mean a combined group of LDAs that form an electrically contiguous area and for which a separate Variable Resource Requirement Curve has not been established under Tariff, Attachment DD, section 5.10. Any LDA for which a separate Variable Resource Requirement Curve has not been established under Tariff, Attachment DD, section 5.10 shall be combined with all other such LDAs that form an electrically contiguous area.

Unforced Capacity:

"Unforced Capacity" shall have the meaning specified in the Reliability Assurance Agreement.

Unsecured Credit:

"Unsecured Credit" shall mean any credit granted by PJMSettlement to a Participant that is not secured by Collateral.

Unsecured Credit Allowance:

"Unsecured Credit Allowance" shall mean Unsecured Credit extended by PJMSettlement in an amount determined by PJMSettlement's evaluation of the creditworthiness of a Participant. This is also defined as the amount of credit that a Participant qualifies for based on the strength of its own financial condition without having to provide Collateral. See also: "Working Credit Limit."

Updated VRR Curve:

"Updated VRR Curve" shall mean the Variable Resource Requirement Curve for use in the Base Residual Auction of the relevant Delivery Year, updated to reflect any change in the Reliability Requirement from the Base Residual Auction to such Incremental Auction, and for Delivery Years through May 31, 2018, the Short-term Resource Procurement Target applicable to the relevant Incremental Auction.

Updated VRR Curve Decrement:

"Updated VRR Curve Decrement" shall mean the portion of the Updated VRR Curve to the left of a vertical line at the level of Unforced Capacity on the x-axis of such curve equal to the net Unforced Capacity committed to the PJM Region as a result of all prior auctions conducted for such Delivery Year and adjusted, if applicable, by a change in Unforced Capacity commitments associated with the transition provision of Tariff, Attachment DD, section 5.14C, Tariff, Attachment DD, section 5.14D (as related to the 2016/2017 and 2017/2018 Delivery Years), Tariff, Attachment DD, section 5.14E, and Tariff, Attachment DD, section 5.5A(c)(i)(B), and RAA, Schedule 6, section L.9.

Updated VRR Curve Increment:

"Updated VRR Curve Increment" shall mean the portion of the Updated VRR Curve to the right of a vertical line at the level of Unforced Capacity on the x-axis of such curve equal to the net Unforced Capacity committed to the PJM Region as a result of all prior auctions conducted for such Delivery Year and adjusted, if applicable, by a change in Unforced Capacity commitments associated with the transition provision of Tariff, Attachment DD, section 5.14C, Tariff, Attachment DD, section 5.14D (as related to the 2016/2017 and 2017/2018 Delivery Years), Tariff, Attachment DD, section 5.14E, and Tariff, Attachment DD, section 5.5A(c)(i)(B), and RAA, Schedule 6, section L.9.

Upgrade Construction Service Agreement:

"Upgrade Construction Service Agreement" shall mean that agreement entered into by an Eligible Customer, Upgrade Customer or Interconnection Customer proposing Merchant Network Upgrades, a Transmission Owner, and the Transmission Provider, pursuant to Tariff, Part VI, Subpart B, and in the form set forth in Tariff, Attachment GG.

Upgrade Customer:

"Upgrade Customer" shall mean a customer that submits an Upgrade Request pursuant to Operating Agreement, Schedule 1, section 7.8.

Upgrade Feasibility Study:

"Upgrade Feasibility Study" shall mean a study conducted by the Transmission Provider in accordance with Tariff, section 36.3.

Upgrade-Related Rights:

"Upgrade-Related Rights" shall mean Incremental Auction Revenue Rights, Incremental Available Transfer Capability Revenue Rights, Incremental Deliverability Rights, and Incremental Capacity Transfer Rights.

Upgrade Request:

"Upgrade Request" shall mean a request submitted in the form prescribed in Tariff, Attachment EE, for evaluation by the Transmission Provider of the feasibility and estimated costs of (a) a Merchant Network Upgrade or (b) the Customer-Funded Upgrades that would be needed to provide Incremental Auction Revenue Rights specified in a request pursuant to Operating Agreement, Schedule 1, section 7.8.

Up-to Congestion Counterflow Transaction:

"Up-to Congestion Counterflow Transaction" shall mean an Up-to Congestion Transaction will be deemed an Up-to Congestion Counterflow Transaction if the following value is negative: (a) when bidding, the lower of the bid price and the prior Up-to Congestion Historical Month's average real-time value for the transaction; or (b) for cleared Virtual Transactions, the cleared day-ahead price of the Virtual Transactions.

Up-to Congestion Historical Month:

"Up-to Congestion Historical Month" shall mean a consistently-defined historical period nominally one month long that is as close to a calendar month as PJM determines is practical.

Up-to Congestion Prevailing Flow Transaction:

An Up-to Congestion Transaction shall mean an "Up-to Congestion Prevailing Flow Transaction" if it is not an Up-to Congestion Counterflow Transaction.

Up-to Congestion Reference Price:

"Up-to Congestion Reference Price" for an Up-to Congestion Transaction, shall be the specified percentile price differential between source and sink (defined as sink price minus source price) for real-time prices experienced over the prior Up-to Congestion Historical Month, averaged with the same percentile value calculated for the second prior Up-to Congestion Historical Month. Up-to Congestion Reference Prices shall be calculated using the following historical percentiles:

For Up-to Congestion Prevailing Flow Transactions: 30^{th} percentile
For Up-to Congestion Counterflow Transactions when bid: 20^{th} percentile
For Up-to Congestion Counterflow Transactions when cleared: 5^{th} percentile

Up-to Congestion Transaction:

"Up-to Congestion Transaction" shall have the meaning specified in Operating Agreement, Schedule 1, section 1.10.1A, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.10.1A.

Variable Loads:

"Variable Loads" shall have the meaning specified in Operating Agreement, Schedule 1, section 1.5A.6, and the parallel provisions of Tariff, Attachment K-Appendix, section 1.5A.6.

Variable Resource Requirement Curve:

"Variable Resource Requirement Curve" shall mean a series of maximum prices that can be cleared in a Base Residual Auction for Unforced Capacity, corresponding to a series of varying resource requirements based on varying installed reserve margins, as determined by the Office of the Interconnection for the PJM Region and for certain Locational Deliverability Areas in accordance with the methodology provided in Tariff, Attachment DD, section 5.

Virtual Credit Exposure:
"Virtual Credit Exposure" shall mean the amount of potential credit exposure created by a market participant's bid submitted into the Day-ahead market, as defined in Tariff, Attachment Q.

Virtual Transaction:

"Virtual Transaction" shall mean a Decrement Bid, Increment Offer and/or Up-to Congestion Transaction.

Virtual Transaction Screening:

"Virtual Transaction Screening" shall be the process of reviewing the Virtual Credit Exposure of submitted Virtual Transactions against the Credit Available for Virtual Transactions. If the credit required is greater than credit available, then the Virtual Transactions will not be accepted.

Virtual Transactions Net Activity:

"Virtual Transactions Net Activity" shall mean the aggregate net total, resulting from Virtual Transactions, of (i) Spot Market Energy charges, (ii) Transmission Congestion Charges, and (iii) Transmission Loss Charges, calculated as set forth in Tariff, Attachment K-Appendix. Virtual Transactions Net Activity may be positive or negative.

Voltage Reduction Action:

"Voltage Reduction Action" shall mean a notification during capacity deficient conditions in which PJM notifies Members to reduce voltage on the distribution system in order to reduce demand and therefore provide a sufficient amount of reserves, maintain tie flow schedules and preserve limited energy sources.

Voltage Reduction Alert:

"Voltage Reduction Alert" shall mean a notification from PJM to alert Members that a voltage reduction may be required during a future critical period.

Voltage Reduction Warning:

"Voltage Reduction Warning" shall mean a notification from PJM to warn Members that PJM's available Synchronized Reserve is less than the Synchronized Reserve Requirement and that present operations have deteriorated such that a voltage reduction may be required.

Wholesale Transaction:

As used in Tariff, Part IV, "Wholesale Transaction" shall mean any transaction involving the transmission or sale for resale of electricity in interstate commerce that utilizes any portion of the Transmission System.

Winter-Period Capacity Performance Resource:

"Winter-Period Capacity Performance Resource" shall have the same meaning specified in Tariff, Attachment DD, section 5.5A.

Working Credit Limit:

"Working Credit Limit" shall mean an amount is 75% of the Participant's Unsecured Credit Allowance and/or 75% of the Collateral provided by the Participant to PJMSettlement. The Working Credit Limit establishes the maximum amount of Total Net Obligation that a Participant may have outstanding at any time. The calculation of Working Credit Limit shall take into account applicable reductions for Minimum Participation Requirements, FTR, or other credit requirement determinants as defined in Tariff, Attachment Q.

Working Credit Limit for Virtual Transactions:

The "Working Credit Limit for Virtual Transactions" shall be calculated as 75% of the Market Participant's Unsecured Credit Allowance and/or 75% of the Collateral provided by the Market Participant to PJMSettlement when the Market Participant is at or below its Peak Market Activity credit requirements as specified in Tariff, Attachment Q, section V.A. When the Market Participant provides additional Unsecured Credit Allowance and/or Collateral in excess of its Peak Market Activity credit requirements, such additional Unsecured Credit Allowance and/or Financial Security shall not be discounted by 25% when calculating the Working Credit Limit for Virtual Transactions. The Working Credit Limit for Virtual Transactions is a component in the calculation of Credit Available for Virtual Transactions. The calculation of Working Credit Limit for Virtual Transactions shall take into account applicable reductions for Minimum Participation Requirements, FTR, or other credit requirement determinants as defined in Tariff, Attachment Q.

Zonal Base Load:

"Zonal Base Load" shall mean the lowest daily zonal peak load from the twelve month period ending October 21 of the calendar year immediately preceding the calendar year in which an annual Auction Revenue Right allocation is conducted, increased by the projected load growth rate for the relevant Zone, when non-extraordinary conditions exist for the applicable twelve month period, as determined by PJM. If the lowest daily zonal peak load from the applicable twelve month period is abnormally low due to extraordinary conditions, as determined by PJM, Zonal Base Load shall mean the next lowest daily zonal peak load that was not affected by extraordinary conditions during the applicable twelve month period, increased by the projected load growth rate for the relevant Zone. For the purposes of this definition, extraordinary conditions shall mean a significant event, or combination of events, that affect the operation of the bulk power system in an atypical manner and results in an abnormal reduction in the consumption of energy within a Zone.

Zonal Capacity Price:

"Zonal Capacity Price" shall mean the clearing price required in each Zone to meet the demand for Unforced Capacity and satisfy Locational Deliverability Requirements for the LDA or LDAs associated with such Zone. If the Zone contains multiple LDAs with different Capacity Resource Clearing Prices, the Zonal Capacity Price shall be a weighted average of the Capacity Resource Clearing Prices for such LDAs, weighted by the Unforced Capacity of Capacity Resources cleared in each such LDA.

Zone or Zonal:

"Zone" or "Zonal" shall mean an area within the PJM Region, as set forth in Tariff, Attachment J and RAA, Schedule 15, or as such areas may be (i) combined as a result of mergers or acquisitions or (ii) added as a result of the expansion of the boundaries of the PJM Region. A Zone shall include any Non-Zone Network Load located outside the PJM Region that is served from such Zone under Tariff, Attachment H-A.

Zone Network Load:

"Zone Network Load" shall mean Network Load that is located inside of the area comprised of the PJM Region.

APPENDIX 2

STANDARD CONSTRUCTION TERMS AND CONDITIONS

Preamble

The construction of any Interconnection Facilities required to interconnect a Customer Facility with the Transmission System shall be in accordance with the following Standard Construction Terms and Conditions.

1 Facilitation by Transmission Provider

Transmission Provider shall keep itself apprised of the status of the Constructing Entities' construction-related activities and, upon request of either of them, Transmission Provider shall meet with the Constructing Entities separately or together to assist them in resolving issues between them regarding their respective activities, rights and obligations under this Appendix 2 to this CSA. Each Constructing Entity shall cooperate in good faith with the other Construction Parties in Transmission Provider's efforts to facilitate resolution of disputes.

2 Construction Obligations

2.1 Interconnection Customer Obligations

2.1.1 Generally:

Interconnection Customer shall, at its sole cost and expense, design, procure, construct, own and install the Customer Facility and the Customer Interconnection Facilities in accordance with this Appendix 2 to this CSA, Applicable Standards, Applicable Laws and Regulations, Good Utility Practice, the Scope of Work and the Facilities Study (to the extent that design of the Customer Interconnection Facilities is included therein), provided, however, that, in the event and to the extent that the Customer Facility is comprised of or includes Merchant Network Upgrades, subject to the terms of Section 3.2.3 of this Appendix 2, the Interconnected Transmission Owner, shall design, procure, construct and install such Merchant Network Upgrades.

2.1.2 Interconnection Customer Drawings:

On or before the applicable date specified in the Milestones of the Interconnection Service Agreement, Interconnection Customer shall submit to the Interconnected Transmission Owner and Transmission Provider initial drawings, certified by a professional engineer, of the Customer Interconnection Facilities. Interconnected Transmission Owner and Transmission Provider shall review the drawings to assess the consistency of Interconnection Customer's design of the Customer Interconnection Facilities with the design that was analyzed in the planning model as described in PJM Manuals. After consulting with the Interconnected Transmission Owner, Transmission Provider shall provide comments on the drawings to Interconnection Customer within forty-five (45) days after its receipt thereof, after which time any drawings not subject to comment shall be deemed to be approved. All drawings provided hereunder shall be deemed to be Confidential Information.

2.1.3 Effect of Review:

Interconnected Transmission Owner's and Transmission Provider's reviews of Interconnection Customer's initial drawings of the Customer Interconnection Facilities shall not be construed as confirming, endorsing or providing a warranty as to the fitness, safety, durability or reliability of such facilities or the design thereof. At its sole cost and expense, Interconnection Customer shall make such changes to the design of the Customer Interconnection Facilities as may reasonably be required by Transmission Provider, in consultation with the Interconnected Transmission Owner, to ensure that the Customer Interconnection Facilities meet Applicable Standards and, to the extent that design of the Customer Interconnection Facilities is included in the Facilities Study, to ensure that such facilities conform with the Facilities Study.

2.2 Transmission Owner Interconnection Facilities

2.2.1 Generally:

All Transmission Owner Interconnection Facilities necessary for the interconnection of the Customer Facility shall be designed, procured, installed and constructed in accordance with this Appendix 2, Applicable Standards, Applicable Laws and Regulations, Good Utility Practice, the Facilities Study and the Scope of Work under the Interconnection Construction Service Agreement(s).

2.2.2 Cost Responsibility:

Responsibility for the Costs of the Transmission Owner Interconnection Facilities shall be assigned in accordance with Section 217 of the Tariff, as applicable, and shall be stated in the Interconnection Service Agreement.

2.2.3 Construction Responsibility:

Except as otherwise permitted under, or as otherwise agreed upon by the Interconnection Customer and the Interconnected Transmission Owner pursuant to, Section 3 of this Appendix 2, the Interconnected Transmission Owner shall be responsible for the design, procurement, construction and installation of the Transmission Owner Interconnection Facilities. In the event that there are multiple Interconnected Transmission Owners, the Transmission Provider shall determine how to allocate the construction responsibility among them unless they have reached agreement among themselves on how to proceed.

2.2.4 Ownership of Transmission Owner Interconnection Facilities:

The Interconnected Transmission Owner shall own all Transmission Owner Interconnection Facilities that it builds. In addition, the Interconnection Customer will convey to the Interconnected Transmission Owner, as provided in Section 5.5 of this Appendix 2, title to all Transmission Owner Interconnection Facilities built by the Interconnection Customer pursuant to the terms of Section 3.2 of this Appendix 2. Nothing in this section shall affect the interconnection rights otherwise available to a Transmission Interconnection Customer under Subpart C of Part VI of the Tariff.

2.2A Scope of Applicable Technical Requirements and Standards:

Applicable Technical Requirements and Standards shall apply to the design, procurement, construction and installation of the Interconnection Facilities and Merchant A.C. Transmission Facilities only to the extent that the provisions thereof relate to the design, procurement, construction and/or installation of such facilities. Such provisions relating to the design, procurement, construction and/or installation of facilities shall be appended to the Interconnection Construction Service Agreement. The Interconnection Parties shall mutually agree upon, or in the absence of such agreement, Transmission Provider shall determine, which provisions of the Applicable Technical Requirements and Standards should be identified in the Interconnection Construction Service Agreement. In the event of any conflict between the provisions of the Applicable Technical Requirements and Standards that are appended to this Interconnection Construction Service Agreement and any later-modified provisions that are stated in the pertinent PJM Manual, the provisions appended to this Interconnection Construction Service Agreement shall control.

2.3 Construction By Interconnection Customer

2.3.1 Construction Prior to Execution of Interconnection Construction Service Agreement:

If the Interconnection Customer procures materials for, and/or commences construction of, the Customer Interconnection Facilities, any Transmission Owner Interconnection Facilities that it has elected to construct by exercising the Option to Build under Section 3.2.3 of this Appendix 2, or for any subsequent modification thereto, prior to the execution of the Interconnection Construction Service Agreement or, if the Interconnection Construction Service Agreement has been executed, before the Interconnected Transmission Owner and Transmission Provider have accepted the Interconnection Customer's initial design, or any subsequent modification to the design, of such Interconnection Facilities, such procurement and/or construction shall be at the Interconnection Customer's sole risk, cost and expense.

2.3.2 Monitoring and Inspection:

The Interconnected Transmission Owner may monitor construction and installation of Interconnection Facilities that the Interconnection Customer is constructing. Upon reasonable notice, authorized personnel of the Interconnected Transmission Owner may inspect any or all of such Interconnection Facilities to assess their conformity with Applicable Standards.

2.3.3 Notice of Completion:

The Interconnection Customer shall notify the Transmission Provider and the Interconnected Transmission Owner in writing when it has completed construction of (i) the Customer Facility; (ii) the Customer Interconnection Facilities; and (iii) any Transmission Owner Interconnection Facilities for which it has exercised the Option to Build under Section 3 of this Appendix 2.

2.4 Tax Liability

2.4.1 Safe Harbor Provisions:

This Section 2.4.1 is applicable only to Generation Interconnection Customers. Provided that Interconnection Customer agrees to conform to all requirements of the Internal Revenue Service ("IRS") (e.g., the "safe harbor" provisions of IRS Notices 2001-82 and 88-129) that would confer nontaxable status on some or all of the transfer of property, including money, by Interconnection Customer to the Interconnected Transmission Owner for payment of the Costs of construction of the Transmission Owner Interconnection Facilities, the Interconnected Transmission Owner, based on such agreement and on current law, shall treat such transfer of property to it as nontaxable income and, except as provided in Section 2.4.2 of this Appendix 2, shall not include income taxes in the Costs of Transmission Owner Interconnection Facilities that are payable by Interconnection Customer under this Appendix 2. Interconnection Customer shall document its agreement to conform to IRS requirements for such non-taxable status in the Interconnection Service Agreement, the Interconnection Construction Service Agreement, and/or the Interim Interconnection Service Agreement.

2.4.2 Tax Indemnity:

Interconnection Customer shall indemnify the Interconnected Transmission Owner for any costs that Interconnected Transmission Owner incurs in the event that the IRS and/or a state department of revenue (State) determines that the property, including money, transferred by Interconnection Customer to the Interconnected Transmission Owner with respect to the construction of the Transmission Owner Interconnection Facilities is taxable income to the Interconnected Transmission Owner. Interconnection Customer shall pay to the Interconnected Transmission Owner, on demand, the amount of any income taxes that the IRS or a State assesses to the Interconnected Transmission Owner in connection with such transfer of property and/or money, plus any applicable interest and/or penalty charged to the Interconnected Transmission Owner. In the event that the Interconnected Transmission Owner chooses to contest such assessment, either at the request of Interconnection Customer or on its own behalf, and prevails in reducing or eliminating the tax, interest and/or penalty assessed against it, the Interconnected Transmission Owner shall refund to Interconnection Customer the excess of its demand payment made to the Interconnected Transmission Owner over the amount of the tax, interest and penalty for which the Interconnected Transmission Owner is finally determined to be liable. Interconnection Customer's tax indemnification obligation under this section shall survive any termination of the Interconnection Construction Service Agreement.

2.4.3 Taxes Other Than Income Taxes:

Upon the timely request by Interconnection Customer, and at Interconnection Customer's sole expense, the Interconnected Transmission Owner shall appeal, protest, seek abatement of, or otherwise contest any tax (other than federal or state income tax) asserted or assessed against the Interconnected Transmission Owner for which Interconnection Customer may be required to reimburse Transmission Provider under the terms of this Interconnection Construction Service Agreement, or Part VI of the Tariff. Interconnection Customer shall pay to the Interconnected Transmission Owner on a periodic basis, as invoiced by the Interconnected Transmission Owner,

the Interconnected Transmission Owner's documented reasonable costs of prosecuting such appeal, protest, abatement, or other contest. Interconnection Customer and the Interconnected Transmission Owner shall cooperate in good faith with respect to any such contest. Unless the payment of such taxes is a prerequisite to an appeal or abatement or cannot be deferred, no amount shall be payable by Interconnection Customer to the Interconnected Transmission Owner for such contested taxes until they are assessed by a final, non-appealable order by any court or agency of competent jurisdiction. In the event that a tax payment is withheld and ultimately due and payable after appeal, Interconnection Customer will be responsible for all taxes, interest and penalties, other than penalties attributable to any delay caused by the Interconnected Transmission Owner.

2.4.4 Income Tax Gross-Up

2.4.4.1 Additional Security:

In the event that Interconnection Customer does not provide the safe harbor documentation required under Section 2.4.1 of this Appendix 2 prior to execution of the Interconnection Construction Service Agreement, within 15 days after such execution, Transmission Provider shall notify Interconnection Customer in writing of the amount of additional Security that Interconnection Customer must provide. The amount of Security that a Transmission Interconnection Customer must provide initially shall include any amounts described as additional Security under this Section 2.4.4 regarding income tax gross-up.

2.4.4.2 Amount:

The required additional Security shall be in an amount equal to the amount necessary to gross up fully for currently applicable federal and state income taxes the estimated Costs of Local Upgrades and Network Upgrades for which Interconnection Customer previously provided Security. Accordingly, the additional Security shall equal the amount necessary to increase the total Security provided to the amount that would be sufficient to permit the Interconnected Transmission Owner to receive and retain, after the payment of all applicable income taxes ("Current Taxes") and taking into account the present value of future tax deductions for depreciation that would be available as a result of the anticipated payments or property transfers (the "Present Value Depreciation Amount"), an amount equal to the estimated Costs of Local Upgrades and Network Upgrades for which Interconnection Customer is responsible under the Interconnection Service Agreement. For this purpose, Current Taxes shall be computed based on the composite federal and state income tax rates applicable to the Interconnected Transmission Owner at the time the additional Security is received, determined using the highest marginal rates in effect at that time (the "Current Tax Rate"), and (ii) the Present Value Depreciation Amount shall be computed by discounting the Interconnected Transmission Owner's anticipated tax depreciation deductions associated with such payments or property transfers by its current weighted average cost of capital.

2.4.4.3 Time for Payment:

Interconnection Customer must provide the additional Security, in a form and with terms as required by Section 212.4, within 15 days after its receipt of Transmission Provider's notice under this section. The requirement for additional Security under this section shall be treated as a milestone included in the Interconnection Service Agreement pursuant to Section 212.5.

2.4.5 Tax Status:

Each Party shall cooperate with the other to maintain the other Party's tax status. Nothing in this Interconnection Construction Service Agreement or the Tariff is intended to adversely affect any Interconnected Transmission Owner's tax exempt status with respect to the issuance of bonds including, but not limited to, local furnishing bonds.

2.5 Safety

2.5.1 General:

Each Construction Party shall perform all work hereunder that may reasonably be expected to affect any other Construction Party in accordance with Good Utility Practice, Applicable Standards and Applicable Laws and Regulations pertaining to the safety of persons or property. A Construction Party performing work within an area controlled by another Construction Party must abide by the safety rules applicable to the area.

2.5.2 Environmental Releases:

Each Construction Party shall notify each other Construction Party, first orally and then in writing, of the release of any Hazardous Substances, any asbestos or lead abatement activities, or any type of remediation activities related to the Customer Facility or the Interconnection Facilities, any of which may reasonably be expected to affect another Construction Party. The notifying Construction Party shall (i) provide the notice as soon as possible, (ii) make a good faith effort to provide the notice within twenty-four hours after the Construction Party becomes aware of the occurrence, and (iii) promptly furnish to each other Construction Party copies of any publicly available reports filed with any governmental agencies addressing such events.

2.6 Construction-Related Access Rights:

The Interconnected Transmission Owner and the Interconnection Customer herein grant each other at no charge such rights of access to areas that it owns or otherwise controls as may be necessary for performance of their respective obligations, and exercise of their respective rights, pursuant to this Appendix 2, provided that either of them performing the construction will abide by the safety, security and work rules applicable to the area where construction activity is occurring.

2.7 Coordination Among Construction Parties:

The Transmission Provider, the Interconnection Customer, and all Interconnected Transmission Owners shall communicate and coordinate their activities as necessary to satisfy their obligations under this Interconnection Construction Service Agreement.

3 Schedule Of Work

3.1 Construction by Interconnection Customer:

The Interconnection Customer shall use Reasonable Efforts to design, procure, construct and install the Customer Interconnection Facilities and any Transmission Owner Interconnection Facilities that it elects to build by exercise of the Option to Build (defined in Section 3.2.3.1 below) in accordance with the Schedule of Work.

3.2 Construction by Interconnected Transmission Owner

3.2.1 Standard Option:

The Interconnected Transmission Owner shall use Reasonable Efforts to design, procure, construct and install the Transmission Owner Interconnection Facilities that it is responsible for constructing in accordance with the Schedule of Work.

3.2.1.1 Construction Sequencing:

In general, the sequence of the proposed dates of Initial Operation of Interconnection Customers seeking interconnection to the Transmission System will determine the sequence of construction of Network Upgrades.

3.2.2 Negotiated Contract Option:

As an alternative to the Standard Option set forth in Section 3.2.1 of this Appendix 2, the Interconnected Transmission Owner and the Interconnection Customer may mutually agree to a Negotiated Contract Option for the Interconnected Transmission Owner's design, procurement, construction and installation of the Transmission Owner Interconnection Facilities. Under the Negotiated Contract Option, the Interconnection Customer and the Interconnected Transmission Owner may agree to terms different from those included in the Standard Option of Section 3.2.1 above and the corresponding standard terms set forth in the applicable provisions of Part VI of the Tariff and this Appendix 2. Under the Negotiated Contract Option, negotiated terms may include the work schedule applicable to the Interconnected Transmission Owner's construction activities and changes to same (Section 3.3 of this Appendix 2); payment provisions, including the schedule of payments; incentives, penalties and/or liquidated damages related to timely completion of construction (Section 3.2.1 of this Appendix 2); use of third party contractors; and responsibility for Costs, but only as between the Interconnection Customer and the Interconnected Transmission Owner that are parties to this Interconnection Construction Service Agreement; no other Interconnection Customer's responsibility for Costs may be affected (Section 217 of the Tariff). No other terms of the Tariff or this Appendix 2 shall be subject to modification under the Negotiated Contract Option. The terms and conditions of the Tariff that

may be negotiated pursuant to the Negotiated Contract Option shall not be affected by use of the Negotiated Contract Option except as and to the extent that they are modified by the parties' agreement pursuant to such option. All terms agreed upon pursuant to the Negotiated Contract Option shall be stated in full in an appendix to this Interconnection Construction Service Agreement.

3.2.3 Option to Build

3.2.3.1 Option:

In the event that the Interconnected Transmission Owner and the Interconnection Customer are unable to agree upon the terms of an Interconnection Construction Service Agreement (a) on or before the date that is 30 days after Interconnection Customer's execution of the Interconnection Service Agreement, or (b) by such earlier date as is reasonable in the light of the schedule for construction of, as the case may be, the Transmission Owner Interconnection Facilities, as set forth in the Facilities Study, and subject to the terms and conditions set forth in Sections 2 and 3 of this Appendix 2, or if mutually agreed by and between the Interconnection Customer and the Transmission Owner, the Interconnection Customer shall have the right, but not the obligation ("Option to Build"), to design, procure, construct and install all or any portion of the Transmission Owner Interconnection Facilities. In order to exercise this Option to Build, the Interconnection Customer must provide Transmission Provider and the Interconnected Transmission Owner with written notice of its election to exercise the option by no later than seven days after the date that is 30 days after Interconnection Customer's execution of the Interconnection Service Agreement, specifying either that a mutual agreement has been reached between the Interconnection Customer and the Interconnected Transmission Owner that the Interconnection Customer will exercise the Option to Build, or the specific terms and conditions of the Interconnection Construction Service Agreement upon which the Interconnected Transmission Owner and the Interconnection Customer are unable to agree and the efforts undertaken by the Interconnection Customer to resolve such disagreement; provided, however, that the Interconnection Customer and the Interconnected Transmission Owner may by mutual agreement extend the time period for exercise of the option.

3.2.3.2 General Conditions Applicable to Option:

In addition to the other terms and conditions applicable to the construction of facilities under this Appendix 2, the Option to Build is subject to the following conditions:

(a) The Interconnection Customer must obtain or arrange to obtain all necessary permits and authorizations for the construction and installation of the Transmission Owner Interconnection Facilities that it is building, provided, however, that when the Interconnected Transmission Owner's assistance is required, the Interconnected Transmission Owner shall assist the Interconnection Customer in obtaining such necessary permits or authorizations with efforts similar in nature and extent to those that the Interconnected Transmission Owner typically undertakes in acquiring permits and authorizations for construction of facilities on its own behalf;

(b) The Interconnection Customer must obtain all necessary land rights for the construction and installation of the Transmission Owner Interconnection Facilities that it is building, provided, however, that upon Interconnection Customer's reasonable request, the Interconnected Transmission Owner shall assist the Interconnection Customer in acquiring such land rights with efforts similar in nature and extent to those that the Interconnected Transmission Owner typically undertakes in acquiring land rights for construction of facilities on its own behalf;

(c) Notwithstanding anything stated herein, each Interconnected Transmission Owner shall have the exclusive right and obligation to perform the line attachments (tie-in work), and to calibrate remote terminal units and relay settings, required for the interconnection to such Interconnected Transmission Owner's existing facilities of any Transmission Owner Interconnection Facilities that the Interconnection Customer builds;

(d) The Transmission Owner Interconnection Facilities built by the Interconnection Customer shall be successfully inspected, tested and energized pursuant to Sections 3.8 and 3.9 of this Appendix 2; and

(e) Interconnection Customer shall indemnify Interconnected Transmission Owner and Transmission Provider for claims arising from Interconnection Customer's construction of Transmission Owner Interconnection Facilities under the terms and procedures applicable to Sections 12.1, 12.2, 12.3, and 12.4 of this Appendix 2.

3.2.3.3 Additional Conditions Regarding Network Facilities:

To the extent that the Interconnection Customer utilizes the Option to Build for design, procurement, construction and/or installation of (a) any Transmission Owner Interconnection Facilities that are Local Upgrades or Network Upgrades to Transmission System facilities that are in existence or under construction by or on behalf of the Interconnected Transmission Owner on the date that the Interconnection Customer solicits bids under Section 3.2.3.7 below, or (b) Transmission Owner Interconnection Facilities that are to be located on land or in right-of-way owned or controlled by the Interconnected Transmission Owner, and in addition to the other terms and conditions applicable to the design, procurement, construction and/or installation of facilities under this Appendix 2, all work shall comply with the following further conditions:

(i) All work performed by or on behalf of the Interconnection Customer shall be conducted by contractors, and using equipment manufacturers or vendors, that are listed on the Interconnected Transmission Owner's List of Approved Contractors;

(ii) The Interconnected Transmission Owner shall have full site control of, and reasonable access to, its property at all times for purposes of tagging or operation, maintenance, repair or construction of modifications to, its existing facilities and/or for performing all tie-ins of Interconnection Facilities built by or for the Interconnection Customer; and for acceptance testing of any equipment that will be owned and/or operated by the Interconnected Transmission Owner;

(iii) The Interconnected Transmission Owner shall have the right to have a reasonable number of appropriate representatives present for all work done on its property/facilities or regarding the Transmission Owner Interconnection Facilities, and the right to stop, or to order corrective measures with respect to, any such work that reasonably could be expected to have an adverse effect on reliability, safety or security of persons or of property of the Interconnected Transmission Owner or any portion of the Transmission System, provided that, unless circumstances do not reasonably permit such consultations, the Interconnected Transmission Owner shall consult with the Interconnection Customer and with Transmission Provider before directing that work be stopped or ordering any corrective measures;

(iv) The Interconnection Customer and its contractors, employees and agents shall comply with the Interconnected Transmission Owner's safety, security and work rules, environmental guidelines and training requirements applicable to the area(s) where construction activity is occurring and shall provide all reasonably required documentation to the Interconnected Transmission Owner, provided that the Interconnected Transmission Owner previously has provided its safety, security and work rules and training requirements applicable to work on its facilities to Transmission Provider and the Interconnection Customer within 20 Business Days after a request therefor made by Interconnection Customer following its receipt of the Facilities Study;

(v) The Interconnection Customer shall be responsible for controlling the performance of its contractors, employees and agents; and

(vi) All activities performed by or on behalf of the Interconnection Customer pursuant to its exercise of the Option to Build shall be subject to compliance with Applicable Laws and Regulations, including those governing union staffing and bargaining unit obligations, and Applicable Standards.

3.2.3.4 Administration of Conditions:

To the extent that the Interconnected Transmission Owner exercises any discretion in the application of any of the conditions stated in Sections 3.2.3.2 and 3.2.3.3 of this Appendix 2, it shall apply each such condition in a manner that is reasonable and not unduly discriminatory and it shall not unreasonably withhold, condition, or delay any approval or authorization that the Interconnection Customer may require for the purpose of complying with any of those conditions.

3.2.3.5 Approved Contractors:

(a) Each Transmission Owner shall develop and shall provide to Transmission Provider a List of Approved Contractors. Each Transmission Owner shall include on its List of Approved Contractors no fewer than three contractors and no fewer than three manufacturers or vendors of major transmission-related equipment, unless a Transmission Owner demonstrates to Transmission Provider's reasonable satisfaction that it is feasible only to include a lesser number of construction contractors, or manufacturers or vendors, on its List of Approved Contractors.

Transmission Provider shall publish each Transmission Owner's List of Approved Contractors in a PJM Manual and shall make such manual available on its internet website.

(b) Upon request of an Interconnection Customer, a Transmission Owner shall add to its List of Approved Contractors (1) any design or construction contractor regarding which the Interconnection Customer provides such information as the Transmission Owner may reasonably require which demonstrates to the Transmission Owner's reasonable satisfaction that the candidate contractor is qualified to design, or to install and/or construct new facilities or upgrades or modifications to existing facilities on the Transmission Owner's system, or (2) any manufacturer or vendor of major transmission-related equipment (e.g., high-voltage transformers, transmission line, circuit breakers) regarding which the Interconnection Customer provides such information as the Transmission Owner may reasonably require which demonstrates to the Transmission Owner's reasonable satisfaction that the candidate entity's major transmission-related equipment is acceptable for installation and use on the Transmission Owner's system. No Transmission Owner shall unreasonably withhold, condition, or delay its acceptance of a contractor, manufacturer, or vendor proposed for addition to its List of Approved Contractors.

3.2.3.6 Construction by Multiple Interconnection Customers:

In the event that there are multiple Interconnection Customers that wish to exercise an Option to Build with respect to Interconnection Facilities of the types described in Section 3.2.3.3 to this Appendix 2, the Transmission Provider shall determine how to allocate the construction responsibility among them unless they reach agreement among themselves on how to proceed.

3.2.3.7 Option Procedures:

(a) Within 10 days after notifying Transmission Provider and the Interconnected Transmission Owner of its election to exercise the Option to Build, Interconnection Customer shall solicit bids from one or more Approved Contractors named on the Interconnected Transmission Owner's List of Approved Contractors to procure equipment for, and/or to design, construct and/or install, the Transmission Owner Interconnection Facilities that the Interconnection Customer seeks to build under the Option to Build on terms (i) that will meet the Interconnection Customer's proposed schedule; (ii) that, if the Interconnection Customer seeks to have an Approved Contractor construct or install Transmission Owner Interconnection Facilities, will satisfy all of the conditions on construction specified in Sections 3.2.3.2 and 3.2.3.3 of this Appendix 2; and (iii) that will satisfy the obligations of a Constructing Entity (other than those relating to responsibility for the costs of facilities) under this Appendix 2.

(b) Any additional costs arising from the bidding process or from the final bid of the successful Approved Contractor shall be the sole responsibility of the Interconnection Customer.

(c) Upon receipt of a qualifying bid acceptable to it, the Interconnection Customer shall contract with the Approved Contractor that submitted the qualifying bid. Such contract shall meet the standards stated in paragraph (a) of this section.

(d) In the absence of a qualifying bid acceptable to the Interconnection Customer in response to its solicitation, the Interconnected Transmission Owner(s) shall be responsible for the design, procurement, construction and installation of the Transmission Owner Interconnection Facilities in accordance with the Standard Option described in Section 3.2.1 of this Appendix 2.

3.2.3.8 Interconnection Customer Drawings:

Interconnection Customer shall submit to the Interconnected Transmission Owner and Transmission Provider initial drawings, certified by a professional engineer, of the Transmission Owner Interconnection Facilities that Interconnection Customer arranges to build under the Option to Build. The Interconnected Transmission Owner shall review and approve the initial drawings and engineering design of the Transmission Owner Interconnection Facilities to be constructed under the Option to Build. The Interconnected Transmission Owner shall review the drawings to assess the consistency of Interconnection Customer's design of the pertinent Transmission Owner Interconnection Facilities with Applicable Standards and the Facilities Study. Interconnected Transmission Owner, with facilitation and oversight by Transmission Provider, shall provide comments on such drawings to Interconnection Customer within sixty days after its receipt thereof, after which time any drawings not subject to comment shall be deemed to be approved. All drawings provided hereunder shall be deemed to be Confidential Information.

3.2.3.9 Effect of Review:

Interconnected Transmission Owner's review of Interconnection Customer's initial drawings of the Transmission Owner Interconnection Facilities that the Interconnection Customer is building shall not be construed as confirming, endorsing or providing a warranty as to the fitness, safety, durability or reliability of such facilities or the design thereof. At its sole cost and expense, Interconnection Customer shall make such changes to the design of the pertinent Transmission Owner Interconnection Facilities as may reasonably be required by Transmission Provider, in consultation with the Interconnected Transmission Owner, to ensure that the Transmission Owner Interconnection Facilities that Interconnection Customer is building meet Applicable Standards and conform with the Facilities Study.

3.3 Revisions to Schedule of Work:

The Schedule of Work shall be revised as required in accordance with Transmission Provider's scope change process for interconnection projects set forth in the PJM Manuals, or otherwise by mutual agreement of the Construction Parties, which agreement shall not be unreasonably withheld, conditioned or delayed.

3.4 Suspension:

The following provision applies to Interconnection Requests which have entered the New Services Queue prior to February 1, 2011:

Interconnection Customer shall have the right, upon written notice to Transmission Provider and Interconnected Transmission Owner, to suspend at any time all work by Interconnected Transmission Owner associated with the construction and installation of the Transmission Owner Interconnection Facilities required under an Interconnection Service Agreement or Interconnection Construction Service Agreement, with the condition that, notwithstanding such suspension, the Transmission System shall be left in a safe and reliable condition in accordance with Good Utility Practice and Transmission Provider's safety and reliability criteria. This suspension right permits the Interconnection Customer to request one or more suspensions of work for a cumulative period of up to three years. Interconnection Customer's notice of suspension shall include an estimated duration of the suspension and other information related to the suspension.

The following provision applies to Interconnection Requests which have entered the New Services Queue on or after February 1, 2011:

Interconnection Customer shall have the right, upon written notice to Transmission Provider and Interconnected Transmission Owner, to suspend at any time all work by Interconnected Transmission Owner associated with the construction and installation of the Transmission Owner Interconnection Facilities required under an Interconnection Service Agreement or Interconnection Construction Service Agreement, with the condition that, notwithstanding such suspension, the Transmission System shall be left in a safe and reliable condition in accordance with Good Utility Practice and Transmission Provider's safety and reliability criteria. This suspension right permits the Interconnection Customer to request one or more suspensions of work for a cumulative period of up to (i) three years if the Transmission Provider determines that such suspension would not be deemed a Material Modification, or (ii) one year if the Transmission Provider determines that such suspension would be deemed a Material Modification. Interconnection Customer's notice of suspension shall include an estimated duration of the suspension and other information related to the suspension.

3.4.1 Costs:

In the event of a suspension under this section, Interconnection Customer shall be responsible for all reasonable and necessary Cancellation Costs which Interconnected Transmission Owner or Transmission Provider (i) has incurred pursuant to the Interconnection Service Agreement or Interconnection Construction Service Agreement prior to the suspension and (ii) incurs in suspending such work, including any costs incurred to perform such work as may be necessary to ensure the safety of persons and property and the integrity of the Transmission System during such suspension and, if applicable, any costs incurred in connection with the cancellation or suspension of material, equipment and/or labor contracts which Interconnected Transmission Owner or Transmission Provider cannot reasonably avoid; provided, however, that prior to cancelling or suspending any such material, equipment or labor contract, Interconnected Transmission Owner or Transmission Provider, as the case may be, shall obtain Interconnection Customer's authorization to do so. Transmission Provider shall invoice Interconnection Customer pursuant to Section 9 of this Appendix 2 for Cancellation Costs for which the customer is liable under this section. Interconnected Transmission Owner and Transmission

Provider shall use due diligence to minimize Cancellation Costs in the event of a suspension of work.

3.4.2 Duration of Suspension:

In the event Interconnection Customer suspends work by Interconnected Transmission Owner required under an Interconnection Service Agreement or Interconnection Construction Service Agreement pursuant to this Section 3.4, and has not requested Transmission Provider and the Interconnected Transmission Owner to recommence the work required under the applicable agreement(s) on or before the expiration of the time period allowed under this Section 3.4 following commencement of such suspension, the Interconnection Construction Service Agreement and the Interconnection Service Agreement for the Interconnection Request for which Interconnection Customer suspended work shall be deemed terminated as of the end of such suspension time period. The suspension time shall begin on the date the suspension is requested, or on the date of Interconnection Customer's written notice of suspension to Transmission Provider, if no effective date was specified.

3.5 Right to Complete Transmission Owner Interconnection Facilities:

In the event that, at any time prior to successful Stage Two energization of the Transmission Owner Interconnection Facilities pursuant to Section 3.9 of Appendix 2, the Interconnection Customer terminates its obligations under this Appendix 2 pursuant to Section 14.1.2 below due to a Default by the Interconnected Transmission Owner, the Interconnection Customer may elect to complete the design, procurement, construction and installation of the Transmission Owner Interconnection Facilities. The Interconnection Customer shall notify the Interconnected Transmission Owner and Transmission Provider in writing of its election to complete the Transmission Owner Interconnection Facilities within 10 days after the date of Interconnection Customer's notice of termination pursuant to Section 14.1.2 of this Appendix 2. In the event that the Interconnection Customer elects to complete the Transmission Owner Interconnection Facilities, it shall do so in accordance with the terms and conditions of the Option to Build under Section 3.2.3 of this Appendix 2 and shall be responsible for paying all costs of completing the Transmission Owner Interconnection Facilities incurred after the date of its notice of election to complete the facilities. Interconnection Customer may take possession of, and may use in completing the Transmission Owner Interconnection Facilities, any materials and supplies and equipment (other than equipment and facilities that already have been installed or constructed) acquired by the Interconnected Transmission Owner for construction, and included in the Costs, of the Transmission Owner Interconnection Facilities, provided that Interconnection Customer shall pay Transmission Provider, for the benefit of the Interconnected Transmission Owner and upon presentation by Interconnected Transmission Owner of reasonable and appropriate documentation thereof, any amounts expended by the Interconnected Transmission Owner for such materials, supplies and equipment that Interconnection Customer has not already paid. Title to all Transmission Owner Interconnection Facilities constructed by Interconnection Customer under this Section 3.5 shall be transferred to the Interconnected Transmission Owner in accordance with Section 5.5 of this Appendix 2.

3.6 Suspension of Work Upon Default:

Upon the occurrence of a Default by Interconnection Customer as defined in Section 13 of this Appendix 2, the Transmission Provider or the Interconnected Transmission Owner may by written notice to Interconnection Customer suspend further work associated with the construction and installation of the Transmission Owner Interconnection Facilities that the Interconnected Transmission Owner is responsible for constructing. Such suspension shall not constitute a waiver of any termination rights under this Interconnection Construction Service Agreement. In the event of a suspension by Transmission Provider or Interconnected Transmission Owner, the Interconnection Customer shall be responsible for the Costs incurred in connection with any suspension hereunder in accordance with Section 14.3 of this Appendix 2.

3.7 Construction Reports:

Each Constructing Entity shall issue reports to each other Construction Party on a monthly basis, and at such other times as reasonably requested, regarding the status of the construction and installation of the Interconnection Facilities. Each Construction Party shall promptly identify, and shall notify each other Construction Party of, any event that the Construction Party reasonably expects may delay completion, or may significantly increase the cost, of the Interconnection Facilities. Should a Construction Party report such an event, Transmission Provider shall, within fifteen days of such notification, convene a technical meeting of the Construction Parties to evaluate schedule alternatives.

3.8 Inspection and Testing of Completed Facilities

3.8.1 Coordination:

Interconnection Customer and the Interconnected Transmission Owner shall coordinate the timing and schedule of all inspection and testing of the Interconnection Facilities.

3.8.2 Inspection and Testing:

Each Constructing Entity shall cause inspection and testing of the Interconnection Facilities that it constructs in accordance with the provisions of this section. The Construction Parties acknowledge and agree that inspection and testing of facilities may be undertaken as facilities are completed and need not await completion of all of the facilities that a Constructing Entity is building.

3.8.2.1 Of Interconnection Customer-Built Facilities:

Upon the completion of the construction and installation, but prior to energization, of any Interconnection Facilities constructed by the Interconnection Customer and related portions of the Customer Facility, the Interconnection Customer shall have the same inspected and/or tested by an authorized electric inspection agency or qualified third party reasonably acceptable to the Interconnected Transmission Owner to assess whether the facilities substantially comply with Applicable Standards. Said inspection and testing shall be held on a mutually agreed-upon date,

and the Interconnected Transmission Owner and Transmission Provider shall have the right to attend and observe, and to obtain the written results of, such testing.

3.8.2.2 Of Interconnected Transmission Owner-Built Facilities:

Upon the completion of the construction and installation, but prior to energization, of any Interconnection Facilities constructed by the Interconnected Transmission Owner, the Interconnected Transmission Owner shall have the same inspected and/or tested by qualified personnel or a qualified contractor to assess whether the facilities substantially comply with Applicable Standards. Subject to Applicable Laws and Regulations, said inspection and testing shall be held on a mutually agreed-upon date, and the Interconnection Customer and Transmission Provider shall have the right to attend and observe, and to obtain the written results of, such testing.

3.8.3 Review of Inspection and Testing by Interconnected Transmission Owner:

In the event that the written report, or the observation of either Constructing Entity or Transmission Provider, of the inspection and/or testing pursuant to Section 3.8.2 of this Appendix 2 reasonably leads the Transmission Provider or Interconnected Transmission Owner to believe that the inspection and/or testing of some or all of the Interconnection Facilities built by the Interconnection Customer was inadequate or otherwise deficient, the Interconnected Transmission Owner may, within 20 days after its receipt of the results of inspection or testing and upon reasonable notice to the Interconnection Customer, perform its own inspection and/or testing of such Interconnection Facilities to determine whether the facilities are acceptable for energization, which determination shall not be unreasonably delayed, withheld or conditioned.

3.8.4 Notification and Correction of Defects

3.8.4.1 If the Interconnected Transmission Owner, based on inspection or testing pursuant to Section 3.8.2 or 3.8.3 of this Appendix 2, identifies any defects or failures to comply with Applicable Standards in the Interconnection Facilities constructed by the Interconnection Customer, the Interconnected Transmission Owner shall notify the Interconnection Customer and Transmission Provider of any identified defects or failures within 20 days after the Interconnected Transmission Owner's receipt of the results of such inspection or testing. The Interconnection Customer shall take appropriate actions to correct any such defects or failure at its sole cost and expense, and shall obtain the Interconnected Transmission Owner's acceptance of the corrections, which acceptance shall not be unreasonably delayed, withheld or conditioned. Such acceptance does not modify and shall not limit the Interconnection Customer's indemnification obligations set forth in Appendix 2, section 3.2.3.2(e).

3.8.4.2 In the event that inspection and/or testing of any Transmission Owner Interconnection Facilities built by the Interconnected Transmission Owner identifies any defects or failures to comply with Applicable Standards in such facilities, Interconnected Transmission Owner shall take appropriate action to correct any such defects or failures within 20 days after it learns thereof. In the event that such a defect or failure cannot reasonably be corrected within

such 20-day period, Interconnected Transmission Owner shall commence the necessary correction within that time and shall thereafter diligently pursue it to completion.

3.8.5 Notification of Results:

Within 10 days after satisfactory inspection and/or testing of Interconnection Facilities built by the Interconnection Customer (including, if applicable, inspection and/or testing after correction of defects or failures), the Interconnected Transmission Owner shall confirm in writing to the Interconnection Customer and Transmission Provider that the successfully inspected and tested facilities are acceptable for energization.

3.9 Energization of Completed Facilities

(A) Unless otherwise provided in the Schedule of Work, energization of the Interconnection Facilities related to interconnection of a Generation Interconnection Customer and, when applicable as determined by Transmission Provider, of the Interconnection Facilities related to interconnection of a Transmission Interconnection Customer, shall occur in two stages. Stage One energization shall consist of energization of the Customer Interconnection Facilities and of the Transmission Owner Attachment Facilities and will occur prior to initial energization of the Customer Facility. Stage Two energization shall consist of (1) initial synchronization to the Transmission System of any completed generator(s) at the Customer Facility of a Generation Interconnection Customer, or of applicable facilities, as determined by the Transmission Provider, associated with Merchant Transmission Facilities of a Transmission Interconnection Customer, and (2) energization of the remainder of the Transmission Owner Interconnection Facilities. Stage Two energization shall be completed prior to Initial Operation of the Customer Facility.

(B) In the case of Interconnection Facilities related to interconnection of a Transmission Interconnection Customer for which the Transmission Provider determines that two-stage energization is inapplicable, energization shall occur in a single stage, consisting of energization of the Interconnection Facilities and the Customer Facility. Such a single-stage energization shall be regarded as Stage Two energization for the purposes of the remaining provisions of this Section 3.9 and of Section 5.5 of this Appendix 2.

3.9.1

Stage One energization of the Interconnection Facilities may not occur prior to the satisfaction of the following additional conditions:

(a) The Interconnection Customer shall have delivered to the Interconnected Transmission Owner and Transmission Provider a writing transferring to the Interconnected Transmission Owner and Transmission Provider operational control over any Transmission Owner Attachment Facilities that Interconnection Customer has constructed; and

(b) The Interconnection Customer shall have provided a mark-up of construction drawings to the Interconnected Transmission Owner to show the “as-built” condition of all Transmission Owner Attachment Facilities that Interconnection Customer has constructed.

3.9.2 As soon as practicable after the satisfaction of the conditions for Stage One energization specified in Sections 3.8 and 3.9.1 of this Appendix 2, the Interconnected Transmission Owner and the Interconnection Customer shall coordinate and undertake the Stage One energization of facilities.

3.9.3 Stage Two energization of the Interconnection Facilities may not occur prior to the satisfaction of the following additional conditions:

(a) The Interconnection Customer shall have delivered to the Interconnected Transmission Owner and Transmission Provider a writing transferring to the Interconnected Transmission Owner and Transmission Provider operational control over any Transmission Owner Interconnection Facilities that Interconnection Customer has constructed and operational control of which it has not previously transferred pursuant to Section 3.9.1 of this Appendix 2; and

(b) The Interconnection Customer shall have provided a mark-up of construction drawings to the Interconnected Transmission Owner to show the "as-built" condition of all Transmission Owner Interconnection Facilities that Interconnection Customer has constructed and which were not included in the Stage One energization, but are included in the Stage Two energization.

(c) Telemetering systems shall be operational and shall be providing Transmission Provider and the Interconnected Transmission Owner with telemetered data as specified pursuant to Section 8.5.2 of Appendix 2 to the Interconnection Service Agreement.

3.9.4 As soon as practicable after the satisfaction of the conditions for Stage Two energization specified in Sections 3.8 and 3.9.3 of this Appendix 2, the Interconnected Transmission Owner and the Interconnection Customer shall coordinate and undertake the Stage Two energization of facilities.

3.9.5 To the extent defects in any Interconnection Facilities are identified during the energization process, the energization will not be deemed successful. In that event, the Constructing Entity shall take action to correct such defects in any Interconnection Facilities that it built as promptly as practical after the defects are identified. The affected Constructing Entity shall so notify the other Construction Parties when it has corrected any such defects, and the Constructing Entities shall recommence efforts, within 10 days thereafter, to energize the appropriate Interconnection Facilities in accordance with Section 3.9; provided that the Interconnected Transmission Owner may, in the reasonable exercise of its discretion and with the approval of Transmission Provider, require that further inspection and testing be performed in accordance with Section 3.8 of this Appendix 2.

3.10 Interconnected Transmission Owner's Acceptance of Facilities Constructed by Interconnection Customer:

Within five days after determining that Interconnection Facilities have been successfully energized, the Interconnected Transmission Owner shall issue a written notice to the Interconnection Customer accepting the Interconnection Facilities built by the Interconnection Customer that were successfully energized. Such acceptance shall not be construed as confirming, endorsing or providing a warranty by the Interconnected Transmission Owner as to the design, installation, construction, fitness, safety, durability or reliability of any Interconnection Facilities built by the Interconnection Customer, or their compliance with Applicable Standards.

4 Transmission Outages

4.1 Outages; Coordination:

The Construction Parties acknowledge and agree that certain outages of transmission facilities owned by the Interconnected Transmission Owner, as more specifically detailed in the Scope of Work, may be necessary in order to complete the process of constructing and installing all Interconnection Facilities. The Construction Parties further acknowledge and agree that any such outages shall be coordinated by and through the Transmission Provider.

5 Land Rights; Transfer of Title

5.1 Grant of Easements and Other Land Rights:

Interconnection Customer at its sole cost and expense, shall grant such easements and other land rights to the Interconnected Transmission Owner over the Site at such times and in such a manner as the Interconnected Transmission Owner may reasonably require to perform its obligations under this Appendix 2 and/or to perform its operation and maintenance obligations under the Interconnection Service Agreement.

5.2 Construction of Facilities on Interconnection Customer Property:

To the extent that the Interconnected Transmission Owner is required to construct and install any Transmission Owner Interconnection Facilities on land owned by the Interconnection Customer, the Interconnection Customer, at its sole cost and expense, shall legally transfer to the Interconnected Transmission Owner all easements and other land rights required pursuant to Section 5.1 above prior to the commencement of such construction and installation.

5.3 Third Parties:

If any of the easements and other land rights described in Section 5.1 above must be obtained from a third party, the Interconnected Transmission Owner's obligation for completing its construction responsibilities in accordance with the Schedule of Work, to the extent of the facilities that it is responsible for constructing for which such easements and land rights are necessary, shall be subject to Interconnection Customer’s acquisition of such easements and other land rights at such times and in such manner as the Interconnected Transmission Owner may reasonably require to perform its obligations under this Appendix 2, and/or to perform its

operation and maintenance obligations under the Interconnection Service Agreement, provided, however, that upon Interconnection Customer's request, the Interconnected Transmission Owner shall assist the Interconnection Customer in acquiring such land rights with efforts similar in nature and extent to those that the Interconnected Transmission Owner typically undertakes in acquiring land rights for construction of facilities on its own behalf. The terms of easements and land rights acquired by Interconnection Customer shall not unreasonably impede the Interconnected Transmission Owner's timely completion of construction of the affected facilities.

5.4 Documentation:

Interconnection Customer shall prepare, execute and file such documentation as the Interconnected Transmission Owner may reasonably require to memorialize any easements and other land rights granted pursuant to this Section 5. Documentation of such easements and other land rights, and any associated filings, shall be in a form acceptable to the Interconnected Transmission Owner.

5.5 Transfer of Title to Certain Facilities Constructed By Interconnection Customer:

Within thirty (30) days after the Interconnection Customer's receipt of notice of acceptance under Section 3.10 of this Appendix 2 following Stage Two energization of the Interconnection Facilities, the Interconnection Customer shall deliver to the Interconnected Transmission Owner, for the Interconnected Transmission Owner's review and approval, all of the documents and filings necessary to transfer to the Interconnected Transmission Owner title to any Transmission Owner Interconnection Facilities constructed by the Interconnection Customer, and to convey to the Interconnected Transmission Owner any easements and other land rights to be granted by Interconnection Customer in accordance with Section 5.1 above that have not then already been conveyed. The Interconnected Transmission Owner shall review and approve such documentation, such approval not to be unreasonably withheld, delayed, or conditioned. Within 30 days after its receipt of the Interconnected Transmission Owner's written notice of approval of the documentation, the Interconnection Customer, in coordination and consultation with the Interconnected Transmission Owner, shall make any necessary filings at the FERC or other governmental agencies for regulatory approval of the transfer of title. Within twenty (20) days after the issuance of the last order granting a necessary regulatory approval becomes final (i.e., is no longer subject to rehearing), the Interconnection Customer shall execute all necessary documentation and shall make all necessary filings to record and perfect the Interconnected Transmission Owner's title in such facilities and in the easements and other land rights to be conveyed to the Interconnected Transmission Owner. Prior to such transfer to the Interconnected Transmission Owner of title to the Transmission Owner Interconnection Facilities built by the Interconnection Customer, the risk of loss or damages to, or in connection with, such facilities shall remain with the Interconnection Customer. Transfer of title to facilities under this section shall not affect the Interconnection Customer's receipt or use of the interconnection rights related to Network Upgrades and/or Local Upgrades for which it otherwise may be eligible as provided in Subpart C of Part VI of the Tariff.

5.6 Liens:

The Interconnection Customer shall take all reasonable steps to ensure that, at the time of transfer of title in the Transmission Owner Interconnection Facilities built by the Interconnection Customer to the Interconnected Transmission Owner, those facilities shall be free and clear of any and all liens and encumbrances, including mechanics' liens. To the extent that the Interconnection Customer cannot reasonably clear a lien or encumbrance prior to the time for transferring title to the Interconnected Transmission Owner, Interconnection Customer shall nevertheless convey title subject to the lien or encumbrance and shall indemnify, defend and hold harmless the Interconnected Transmission Owner against any and all claims, costs, damages, liabilities and expenses (including without limitation reasonable attorneys' fees) which may be brought or imposed against or incurred by Interconnected Transmission Owner by reason of any such lien or encumbrance or its discharge.

6 Warranties

6.1 Interconnection Customer Warranty:

The Interconnection Customer shall warrant that its work (or the work of any subcontractor that it retains) in constructing and installing the Transmission Owner Interconnection Facilities that it builds is free from defects in workmanship and design and shall conform to the requirements of this Interconnection Construction Service Agreement for one (1) year (the "Interconnection Customer Warranty Period") commencing upon the date title is transferred to Interconnected Transmission Owner in accordance with Section 5.5 of this Appendix 2. The Interconnection Customer shall, at its sole expense and promptly after notification by the Interconnected Transmission Owner, correct or replace defective work in accordance with Applicable Technical Requirements and Standards, during the Interconnection Customer Warranty Period. The warranty period for such corrected or replaced work shall be the unused portion of the Interconnection Customer Warranty Period remaining as of the date of notice of the defect. The Interconnection Customer Warranty Period shall resume upon acceptance of such corrected or replaced work. All Costs incurred by Interconnected Transmission Owner as a result of such defective work shall be reimbursed to the Interconnected Transmission Owner by the Interconnection Customer on demand; provided that the Interconnected Transmission Owner submits the demand to the Interconnection Customer within the Interconnection Customer Warranty Period and provides reasonable documentation of the claimed costs. The Interconnected Transmission Owner's acceptance, inspection and testing, or a third party's inspection or testing, of such facilities pursuant to Section 3.8 of this Appendix 2 shall not be construed to limit in any way the warranty obligations of the Interconnection Customer, and this provision does not modify and shall not limit the Interconnection Customer's indemnification obligations set forth in Appendix 2, section 3.2.3.2(e).

6.2 Manufacturer Warranties:

Prior to the transfer to the Interconnected Transmission Owner of title to the Transmission Owner Interconnection Facilities built by the Interconnection Customer, the Interconnection Customer shall produce documentation satisfactory to the Interconnected Transmission Owner evidencing the transfer to the Interconnected Transmission Owner of all manufacturer warranties

for equipment and/or materials purchased by the Interconnection Customer for use and/or installation as part of the Transmission Owner Interconnection Facilities built by the Interconnection Customer.

7 [Reserved.]

8 [Reserved.]

9 Security, Billing And Payments

The following provisions shall apply with respect to charges for the Costs of the Interconnected Transmission Owner for which the Interconnection Customer is responsible.

9.1 Adjustments to Security:

The Security provided by Interconnection Customer at or before execution of the Interconnection Service Agreement (a) shall be reduced as portions of the work are completed, and/or (b) shall be increased or decreased as required to reflect adjustments to Interconnection Customer's cost responsibility, as determined in accordance with Section 217, to correspond with changes in the Scope of Work developed in accordance with Transmission Provider's scope change process for interconnection projects set forth in the PJM Manuals.

9.2 Invoice:

The Interconnected Transmission Owner shall provide Transmission Provider a quarterly statement of the Interconnected Transmission Owner's scheduled expenditures during the next three months for, as applicable, (a) the design, engineering and construction of, and/or for other charges related to, construction of the Interconnection Facilities for which the Interconnected Transmission Owner is responsible under this Interconnection Construction Service Agreement, or (b) in the event that the Interconnection Customer exercises the Option to Build pursuant to Section 3.2.3.1 of this Appendix 2, for the Interconnected Transmission Owner's Costs associated with the Interconnection Customer's building Attachment Facilities, Local Upgrades and Network Upgrades (including both Direct Connection Network Upgrades, Direct Connection Local Upgrades, Non-Direct Connection Network Upgrades and Non-Direct Connection Local Upgrades), including but not limited to Costs for tie-in work and Cancellation Costs. Provided, however, such Interconnected Transmission Owner Costs may include oversight costs (i.e. costs incurred by the Interconnected Transmission Owner when engaging in oversight activities to satisfy itself that the Interconnection Customer is complying with the Interconnected Transmission Owner's standards and specifications for the construction of facilities) only if the Interconnected Transmission Owner and the Interconnection Customer mutually agree to the inclusion of such costs under the Option to Build pursuant to the provisions of Section 3.3.3.1 of this Appendix. Transmission Provider shall bill Interconnection Customer on behalf of the Interconnected Transmission Owner, for the Interconnected Transmission Owner's expected Costs during the subsequent three months. Interconnection Customer shall pay each bill within twenty (20) days after receipt thereof. Upon receipt of each of Interconnection Customer's payments of such bills, Transmission Provider shall reimburse the Interconnected Transmission

Owner. Interconnection Customer may request that the Transmission Provider provide a quarterly cost reconciliation. Such a quarterly cost reconciliation will have a one-quarter lag, e.g., reconciliation of costs for the first calendar quarter of work will be provided at the start of the third calendar quarter of work, provided, however, that Section 9.3 of this Appendix 2 shall govern the timing of the final cost reconciliation upon completion of the work.

9.3 Final Invoice:

Within 120 days after the Interconnected Transmission Owner completes construction and installation of the Interconnection Facilities for which the Interconnected Transmission Owner is responsible under this Interconnection Construction Service Agreement, Transmission Provider shall provide Interconnection Customer with an accounting of, and the appropriate Construction Party shall make any payment to the other that is necessary to resolve, any difference between (a) Interconnection Customer's responsibility under the Tariff for the actual Cost of such facilities, and (b) Interconnection Customer's previous aggregate payments to Transmission Provider for the Costs of such facilities. Notwithstanding the foregoing, however, Transmission Provider shall not be obligated to make any payment to either the Interconnection Customer or the Interconnected Transmission Owner that the preceding sentence requires it to make unless and until the Transmission Provider has received the payment that it is required to refund from the Construction Party owing the payment.

9.4 Disputes:

In the event of a billing dispute between any of the Construction Parties, Transmission Provider and the Interconnected Transmission Owner shall continue to perform their respective obligations pursuant to this Interconnection Construction Service Agreement so long as (a) Interconnection Customer continues to make all payments not in dispute, and (b) the Security held by the Transmission Provider while the dispute is pending exceeds the amount in dispute, or (c) Interconnection Customer pays to Transmission Provider or into an independent escrow account the portion of the invoice in dispute, pending resolution of such dispute. If Interconnection Customer fails to meet any of these requirements, then Transmission Provider shall so inform the other Construction Parties and Transmission Provider or the Interconnected Transmission Owner may provide notice to Interconnection Customer of a Breach pursuant to Section 13 of this Appendix 2.

9.5 Interest:

Interest on any unpaid, delinquent amounts shall be calculated in accordance with the methodology specified for interest on refunds in the FERC's regulations at 18 C.F.R. Section 35.19a(a)(2)(iii) and shall apply from the due date of the bill to the date of payment.

9.6 No Waiver:

Payment of an invoice shall not relieve Interconnection Customer from any other responsibilities or obligations it has under this Interconnection Construction Service Agreement, nor shall such payment constitute a waiver of any claims arising hereunder.

10 Assignment

10.1 Assignment with Prior Consent:

Except as provided in Section 10.2 below, no Construction Party shall assign its rights or delegate its duties, or any part of such rights or duties, under the Interconnection Construction Service Agreement without the written consent of the other Construction Parties, which consent shall not be unreasonably withheld, conditioned or delayed. Any such assignment or delegation made without such written consent shall be null and void. A Construction Party may make an assignment in connection with the sale, merger, or transfer of a substantial portion or all of its properties, including the Interconnection Facilities which it will own upon completion of construction and the transfer of title required by Section 5 of this Appendix 2, so long as the assignee in such a sale, merger, or transfer assumes in writing all rights, duties and obligations arising under this Interconnection Construction Service Agreement. In addition, the Interconnected Transmission Owner shall be entitled, subject to Applicable Laws and Regulations, to assign the Interconnection Construction Service Agreement to any Affiliate or successor that owns and operates all or a substantial portion of the Interconnected Transmission Owner's transmission facilities.

10.2 Assignment Without Prior Consent

10.2.1 Assignment to Owners:

Interconnection Customer may assign the Interconnection Construction Service Agreement without the Interconnected Transmission Owner's or Transmission Provider's prior consent to any Affiliate or person that purchases or otherwise acquires, directly or indirectly, all or substantially all of the Customer Facility and the Customer Interconnection Facilities, provided that prior to the effective date of any such assignment, the assignee shall demonstrate that, as of the effective date of the assignment, the assignee has the technical competence to comply with the requirements of this Appendix 2 and assumes in a writing provided to the Interconnected Transmission Owner and Transmission Provider all rights, duties, and obligations of Interconnection Customer arising under this Appendix 2. However, any assignment described herein shall not relieve or discharge the Interconnection Customer from any of its obligations hereunder absent the written consent of the Interconnected Transmission Owner, such consent not to be unreasonably withheld, conditioned or delayed.

10.2.2 Assignment to Lenders:

Interconnection Customer may, without the consent of the Transmission Provider or the Interconnected Transmission Owner, assign the Interconnection Construction Service Agreement to any Project Finance Entity(ies), provided that such assignment shall not alter or diminish Interconnection Customer's duties and obligations under this Interconnection Construction Service Agreement. If Interconnection Customer provides the Interconnected Transmission Owner with notice of an assignment to any Project Finance Entity(ies) and identifies such Project Finance Entities as contacts for notice purposes pursuant to Section 20 of this Appendix 2, the

Transmission Provider or Interconnected Transmission Owner shall provide notice and reasonable opportunity for such entity(ies) to cure any Breach under this Appendix 2 in accordance with this Appendix 2. Transmission Provider or Interconnected Transmission Owner shall, if requested by such lenders, provide such customary and reasonable documents, including consents to assignment, as may be reasonably requested with respect to the assignment and status of the Interconnection Construction Service Agreement, provided that such documents do not alter or diminish the rights of the Transmission Provider or Interconnected Transmission Owner under this Appendix 2, except with respect to providing notice of Breach to a Project Finance Entity. Upon presentation of the Transmission Provider's and/or the Interconnected Transmission Owner's invoice therefor, Interconnection Customer shall pay the Transmission Provider and/or the Interconnected Transmission Owner's reasonable documented cost of providing such documents and certificates. Any assignment described herein shall not relieve or discharge the Interconnection Customer from any of its obligations hereunder absent the written consent of the Interconnected Transmission Owner and Transmission Provider.

10.3 Successors and Assigns:

This Interconnection Construction Service Agreement and all of its provisions are binding upon, and inure to the benefit of, the Construction Parties and their respective successors and permitted assigns.

11 Insurance

11.1 Required Coverages For Generation Resources Of More Than 20 Megawatts or Merchant Transmission Facilities:

Each Constructing Entity shall maintain, at its own expense, insurance as described in paragraphs (a) through (e) below. All insurance shall be procured from insurance companies rated "A-," VII or better by AM Best and authorized to do business in a state or states in which the Interconnection Facilities will be located. Failure to maintain required insurance shall be a Breach of the Interconnection Construction Service Agreement.

(a) Workers Compensation Insurance with statutory limits, as required by the state and/or jurisdiction in which the work is to be performed, and employer's liability insurance with limits of not less than one million dollars ($1,000,000).

(b) Commercial General Liability Insurance and/or Excess Liability Insurance covering liability arising out of premises, operations, personal injury, advertising , products and completed operations coverage, independent contractors coverage, liability assumed under an insured contract, coverage for pollution to the extent normally available and punitive damages to the extent allowable under applicable law, with limits of not less than one million dollars ($1,000,000) per occurrence/one million dollars ($1,000,000) general aggregate/one million dollars ($1,000,000) products and completed operations aggregate.

(c) Business/Commercial Automobile Liability Insurance for coverage of owned and non-owned and hired vehicles, trailers or semi-trailers designed for travel on public roads, with a

minimum, combined single limit of not less than one million dollars ($1,000,000) each accident for bodily injury, including death, and property damage.

(d) Excess and/or Umbrella Liability Insurance with a limit of liability of twenty million dollars ($20,000,000) per occurrence. These limits apply in excess of the employer's liability, commercial general liability and business/commercial automobile liability coverages described above. This requirement can be met alone or via a combination of primary, excess and/or umbrella insurance.

(e) Professional Liability, including Contractors Legal Liability, providing errors, omissions and/or malpractice coverage. Coverage shall be provided for the Constructing Entity's duties, responsibilities and performance outlined in this Interconnection Construction Service Agreement, with limits of liability as follows:

$10,000,000 each occurrence
$10,000,000 aggregate

An Interconnected Entity may meet the Professional Liability Insurance requirements by requiring third-party contractors, designers, or engineers, or other parties that are responsible for design work associated with the transmission facilities or Interconnection Facilities necessary for the interconnection to procure professional liability insurance in the amounts and upon the terms prescribed by this section 11.1(e), and providing evidence of such insurance to the other Interconnected Entity. Such insurance shall be procured from companies rated "A-," VII or better by AM Best and authorized to do business in a state or states in which the Interconnection Facilities are located. Nothing in this section relieves the Interconnected Entity from complying with the insurance requirements. In the event that the policies of the designers, engineers, or other parties used to satisfy the Interconnected Entity's insurance obligations under this section become invalid for any reason, including but not limited to, (i) the policy(ies) lapsing or otherwise terminating or expiring; (ii) the coverage limits of such policy(ies) are decreased; or (iii) the policy(ies) do not comply with the terms and conditions of the Tariff; Interconnected Entity shall be required to procure insurance sufficient to meet the requirements of this section, such that there is no lapse in insurance coverage. Notwithstanding the foregoing, in the event an Interconnected Entity will not design or construct or cause to design or construct any new transmission facilities or Interconnection Facilities, Transmission Provider, in its discretion, may waive the requirement that an Interconnected Entity maintain the Professional Liability Insurance pursuant to this section.

11.1A. Required Coverages For Generation Resources Of 20 Megawatts Or Less:

Each Constructing Entity shall maintain the types of insurance as described in section 11.1 paragraphs (a) through (e) above in an amount sufficient to insure against all reasonably foreseeable direct liabilities given the size and nature of the generating equipment being interconnected, the interconnection itself, and the characteristics of the system to which the interconnection is made. Additional insurance may be required by the Interconnection Customer, as a function of owning and operating a generating facility. All insurance shall be procured from insurance companies rated "A-," VII or better by AM Best and authorized to do

business in a state or states in which the Interconnection Facilities are located. Failure to maintain required insurance shall be a Breach of the Interconnection Construction Service Agreement.

11.2 Additional Insureds:

The Commercial General Liability, Business/Commercial Automobile Liability and Excess and/or Umbrella Liability policies procured by each Constructing Entity (the "Insuring Constructing Entity") shall include each other Construction Party (the "Insured Construction Party"), its officers, agents and employees as additional insureds, providing all standard coverages and covering liability of the Insured Construction Party arising out of bodily injury and/or property damage (including loss of use) in any way connected with the operations, performance, or lack of performance under this Interconnection Construction Service Agreement.

11.3 Other Required Terms:

The above-mentioned insurance policies (except workers' compensation) shall provide the following:

(a) Each policy shall contain provisions that specify that it is primary and non contributory for any liability arising out of that party's negligence and shall apply to such extent without consideration for other policies separately carried and shall state that each insured is provided coverage as though a separate policy had been issued to each, except the insurer's liability shall not be increased beyond the amount for which the insurer would have been liable had only one insured been covered. Each Insuring Constructing Entity shall be responsible for its respective deductibles or retentions.

(b) If any coverage is written on a Claims First Made Basis, continuous coverage shall be maintained or an extended discovery period will be exercised for a period of not less than two (2) years after termination of the Interconnection Construction Service Agreement.

(c) Provide for a waiver of all rights of subrogation which the Insuring Constructing Entity's insurance carrier might exercise against the Insured Construction Party.

11.3A No Limitation of Liability:

The requirements contained herein as to the types and limits of all insurance to be maintained by the Constructing Entities are not intended to and shall not in any manner, limit or qualify the liabilities and obligations assumed by the Construction Parties under the Interconnection Construction Service Agreement.

11.4 Self-Insurance:

Notwithstanding the foregoing, each Constructing Entity may self-insure to meet the minimum insurance requirements of this Section 11 to the extent it maintains a self-insurance program;

provided that such Constructing Entity's senior secured debt is rated at investment grade or better by Standard & Poor's and its self-insurance program meets the minimum insurance requirements of this Section 11. For any period of time that a Constructing Entity's senior secured debt is unrated by Standard & Poor's or is rated at less than investment grade by Standard & Poor's, it shall comply with the insurance requirements applicable to it under this Section 11. In the event that a Constructing Entity is permitted to self-insure pursuant to this section, it shall notify the other Construction Parties that it meets the requirements to self-insure and that its self-insurance program meets the minimum insurance requirements in a manner consistent with that specified in Section 11.5.

11.5 Notices; Certificates of Insurance:

Prior to the commencement of work pursuant to this Agreement, the Constructing Entities agree to furnish each other Construction Party with certificates of insurance evidencing the insurance coverage obtained in accordance with this Section 11. All certificates of insurance shall indicate that the certificate holder is included as an additional insured under the Commercial General Liability, Business/Commercial Automobile Liability and Excess and/or Umbrella Liability coverages, and that this insurance is primary with a waiver of subrogation in favor of the other Interconnected Entities. All policies of insurance shall provide for thirty days prior written notice of cancellation or material adverse change. If the policies of insurance do not or cannot be endorsed to provide thirty days prior written notice of cancellation or material adverse change, each Construction Entity shall provide the other Construction Entities with thirty days prior written notice of cancellation or material adverse change to any of the insurance required in this agreement.

11.6 Subcontractor Insurance:

In accord with Good Utility Practice, each Constructing Entity shall require each of its subcontractors to maintain and provide evidence of insurance coverage of types, and in amounts, commensurate with the risks associated with the services provided by the subcontractor. Bonding of contractors or subcontractors shall be at the hiring Constructing Entity's discretion, but regardless of bonding, the hiring principal shall be responsible for the performance or non-performance of any contractor or subcontractor it hires.

11.7 Reporting Incidents:

The Construction Parties shall report to each other in writing as soon as practical all accidents or occurrences resulting in injuries to any person, including death, and any property damage arising out of the Interconnection Construction Service Agreement.

12 Indemnity

12.1 Indemnity:

Each Constructing Entity shall indemnify and hold harmless the other Construction Parties, and the other Construction Parties' officers, shareholders, stakeholders, members, managers,

representatives, directors, agents and employees, and Affiliates, from and against any and all loss, liability, damage, cost or expense to third parties, including damage and liability for bodily injury to or death of persons, or damage to property of persons (including reasonable attorneys' fees and expenses, litigation costs, consultant fees, investigation fees, sums paid in settlements of claims, penalties or fines imposed under Applicable Laws and Regulations, and any such fees and expenses incurred in enforcing this indemnity or collecting any sums due hereunder) (collectively, "Loss") to the extent arising out of, in connection with or resulting from (i) the indemnifying Constructing Entity's breach of any of the representations or warranties made in, or failure of the indemnifying Constructing Entity or any of its subcontractors to perform any of its obligations under, this Appendix 2, or (ii) the negligence or willful misconduct of the indemnifying Constructing Entity or its contractors; provided, however, that neither Constructing Entity shall have any indemnification obligations under this Section 12.1 in respect of any Loss to the extent the Loss results from the negligence or willful misconduct of the Construction Party seeking indemnity.

12.2 Indemnity Procedures:

Promptly after receipt by a Person entitled to indemnity ("Indemnified Person") of any claim or notice of the commencement of any action or administrative or legal proceeding or investigation as to which the indemnity provided for in Section 12.1 above may apply, the Indemnified Person shall notify the indemnifying Constructing Entity of such fact. Any failure of or delay in such notification shall not affect a Constructing Entity's indemnification obligation unless such failure or delay is materially prejudicial to the indemnifying Constructing Entity. The Indemnified Person shall cooperate with the indemnifying Constructing Entity with respect to the matter for which indemnification is claimed. The indemnifying Constructing Entity shall have the right to assume the defense thereof with counsel designated by such indemnifying Constructing Entity and reasonably satisfactory to the Indemnified Person. If the defendants in any such action include one or more Indemnified Persons and the indemnifying Constructing Entity and if the Indemnified Person reasonably concludes that there may be legal defenses available to it and/or other Indemnified Persons which are different from or additional to those available to the indemnifying Constructing Entity, the Indemnified Person shall have the right to select separate counsel to assert such legal defenses and to otherwise participate in the defense of such action on its own behalf. In such instances, the indemnifying Constructing Entity shall only be required to pay the fees and expenses of one additional attorney to represent an Indemnified Person or Indemnified Persons having such differing or additional legal defenses. The Indemnified Person shall be entitled, at its expense, to participate in any action, suit or proceeding, the defense of which has been assumed by the indemnifying Constructing Entity. Notwithstanding the foregoing, the indemnifying Constructing Entity (i) shall not be entitled to assume and control the defense of any such action, suit or proceedings if and to the extent that, in the opinion of the Indemnified Person and its counsel, such action, suit or proceeding involves the potential imposition of criminal liability on the Indemnified Person, or there exists a conflict or adversity of interest between the Indemnified Person and the indemnifying Constructing Entity, in such event the indemnifying Constructing Entity shall pay the reasonable expenses of the Indemnified Person, and (ii) shall not settle or consent to the entry of any judgment in any action, suit or proceeding without the consent of the Indemnified Person, which shall not be unreasonably withheld, conditioned or delayed.

12.3 Indemnified Person:

If an Indemnified Person is entitled to indemnification under this Section 12 as a result of a claim by a third party, and the indemnifying Constructing Entity fails, after notice and reasonable opportunity to proceed under Section 12.2, to assume the defense of such claim, such Indemnified Person may at the expense of the indemnifying Constructing Entity contest, settle or consent to the entry of any judgment with respect to, or pay in full, such claim.

12.4 Amount Owing:

If an indemnifying Constructing Entity is obligated to indemnify and hold any Indemnified Person harmless under this Section 12, the amount owing to the Indemnified Person shall be the amount of such Indemnified Person's actual Loss, net of any insurance or other recovery.

12.5 Limitation on Damages:

Except as otherwise provided in this Section 12, the liability of a Construction Party under this Appendix 2 shall be limited to direct actual damages, and all other damages at law are waived. Under no circumstances shall any Construction Party or its Affiliates, directors, officers, employees and agents, or any of them, be liable to another Construction Party, whether in tort, contract or other basis in law or equity for any special, indirect, punitive, exemplary or consequential damages, including lost profits. The limitations on damages specified in this Section 12.5 are without regard to the cause or causes related thereto, including the negligence of any Construction Party, whether such negligence be sole, joint or concurrent, or active or passive. This limitation on damages shall not affect any Construction Party's rights to obtain equitable relief as otherwise provided in this Appendix 2. The provisions of this Section 12.5 shall survive the termination or expiration of the Interconnection Construction Service Agreement.

12.6 Limitation of Liability in Event of Breach:

A Construction Party ("Breaching Party") shall have no liability hereunder to any other Construction Party, and each other Construction Party hereby releases the Breaching Party, for all claims or damages it incurs that are associated with any interruption in the availability of the Customer Facility, the Interconnection Facilities, Transmission System or Construction Service or damages to a Construction Party's facilities, except to the extent such interruption or damage is caused by the Breaching Party's gross negligence or willful misconduct in the performance of its obligations under this Interconnection Construction Service Agreement.

12.7 Limited Liability in Emergency Conditions:

Except as otherwise provided in the Tariff or the Operating Agreement, no Construction Party shall be liable to any other Construction Party for any action that it takes in responding to an Emergency Condition, so long as such action is made in good faith, is consistent with Good Utility Practice and is not contrary to the directives of the Transmission Provider or the

Interconnected Transmission Owner with respect to such Emergency Condition. Notwithstanding the above, Interconnection Customer shall be liable in the event that it fails to comply with any instructions of Transmission Provider or the Interconnected Transmission Owner related to an Emergency Condition.

13 Breach, Cure And Default

13.1 Breach:

A Breach of the Interconnection Construction Service Agreement shall include:

(a) The failure to pay any amount when due;

(b) The failure to comply with any material term or condition of this Interconnection Construction Service Agreement including but not limited to any material breach of a representation, warranty or covenant (other than in Sections 13.1(a) and (c)-(e) hereof) made in this Appendix 2;

(c) Assignment of the Interconnection Construction Service Agreement in a manner inconsistent with the terms of this Appendix 2;

(d) Failure of a Constructing Entity to provide access rights, or a Constructing Entity's attempt to revoke or terminate access rights, that are provided under this Appendix 2; or

(e) Failure of any Construction Party to provide information or data required to be provided to another Construction Party under this Appendix 2 for such other Construction Party to satisfy its obligations under this Interconnection Construction Service Agreement.

13.2 Notice of Breach:

A Construction Party not in Breach of this Interconnection Construction Service Agreement shall give written notice of an event of Breach to the Breaching Construction Party, to the third Construction Party, and to any other persons that the Breaching Construction Party identifies in writing to the other Construction Parties in advance. Such notice shall set forth, in reasonable detail, the nature of the Breach, and where known and applicable, the steps necessary to cure such Breach. In the event of a Breach by Interconnection Customer, Transmission Provider and the Interconnected Transmission Owner agree to provide notice of such Breach, at the same time and in the same manner as its or their notice to Interconnection Customer, to any Project Finance Entity, provided that the Interconnection Customer has provided Transmission Provider and the Interconnected Transmission Owner with notice of an assignment to such Project Finance Entity(ies) and has identified such Project Finance Entities as contacts for notice purposes pursuant to Section 20 of this Appendix 2.

13.3 Cure and Default:

A Construction Party that commits a Breach and does not take steps to cure the Breach pursuant to this Section 13.3 is in Default of this Interconnection Construction Service Agreement.

13.3.1 Cure of Breach:

The Breaching Construction Party (a) may cure the Breach within thirty days from the receipt of such notice; or, (b) if the Breach cannot be cured within thirty days, may commence in good faith all steps that are reasonable and appropriate to cure the Breach within such thirty day time period and thereafter diligently pursue such action to completion.

13.4 Right to Compel Performance:

Upon the occurrence of an event of Default, a non-Defaulting Construction Party shall be entitled to (a) commence an action to require the Defaulting Construction Party to remedy such Default and specifically perform its duties and obligations hereunder in accordance with the terms and conditions hereof, (b) withhold payments, (c) suspend performance hereunder, and (d) exercise such other rights and remedies as it may have in equity or at law.

13.5 Remedies Cumulative:

Subject to Section 19.1 of this Appendix 2, no remedy conferred by any provision of this Appendix 2 is intended to be exclusive of any other remedy and each and every remedy shall be cumulative and shall be in addition to every other remedy given hereunder or now or hereafter existing at law or in equity or by statute or otherwise. The election of any one or more remedies shall not constitute a waiver of the right to pursue other available remedies.

14 Termination

14.1 Termination

14.1.1 Upon Completion of Construction:

This Interconnection Construction Service Agreement shall terminate upon the later of the following: (i) completion of construction of all Interconnection Facilities; (ii) transfer of title under Section 5 of this Appendix 2; (iii) final payment of all Costs due and owing under this Interconnection Construction Service Agreement; and (iv) the delivery to the Interconnected Transmission Owner of final "as-built" drawings of any Interconnection Facilities built by the Interconnection Customer.

14.1.2 Upon Default By Either Constructing Entity:

Either Constructing Entity may terminate its obligations hereunder in the event of a Default by the other Constructing Entity as defined in Section 13.3 of this Appendix 2.

14.1.3 By Interconnection Customer:

Subject to its payment of Cancellation Costs as explained in Section 14.3 below, the Interconnection Customer may be relieved of its obligations hereunder upon sixty (60) days written notice to Transmission Provider and the Interconnected Transmission Owner.

14.2 [Reserved.]

14.3 Cancellation By Interconnection Customer

14.3.1 Applicability:

The following provisions shall survive and shall apply in the event that Interconnection Customer terminates the Interconnection Construction Service Agreement pursuant to this Section 14.1.3.

14.3.1.1 Cancellation Cost Responsibility:

Upon the cancellation of the Interconnection Construction Service Agreement by the Interconnection Customer, the Interconnection Customer shall be liable to pay to the Interconnected Transmission Owner or Transmission Provider all Cancellation Costs in connection with Construction Service for the Interconnection Customer pursuant to this Interconnection Construction Service Agreement, including Section 14.3.1.2 of this Appendix 2. In the event the Interconnected Transmission Owner incurs Cancellation Costs, it shall provide the Transmission Provider, with a copy to the Interconnection Customer, with a written demand for payment and with reasonable documentation of such Cancellation Costs. The Interconnection Customer shall pay the Transmission Provider each bill for Cancellation Costs within thirty (30) days after, as applicable, the Interconnected Transmission Owner's or Transmission Provider's presentation to the Interconnection Customer of written demand therefor, provided that such demand includes reasonable documentation of the Cancellation Costs that the invoicing party seeks to collect. Upon receipt of each of Interconnection Customer's payments of such bills of the Interconnected Transmission Owner, Transmission Provider shall reimburse the Interconnected Transmission Owner for Cancellation Costs incurred by the latter.

14.3.1.2 Disposition of Facilities Upon Cancellation:

Upon cancellation of the Interconnection Construction Service Agreement by an Interconnection Customer, Transmission Provider, after consulting with the Interconnected Transmission Owner, may, at the sole cost and expense of the Interconnection Customer, authorize the Interconnected Transmission Owner to (a) cancel supplier and contractor orders and agreements entered into by the Interconnected Transmission Owner to design, construct, install, operate, maintain and own the Transmission Owner Interconnection Facilities, provided, however, that Interconnection Customer shall have the right to choose to take delivery of any equipment ordered by the Interconnected Transmission Owner for which Transmission Provider otherwise would authorize cancellation of the purchase order; or (b) remove any Transmission Owner Interconnection Facilities built by the Interconnected Transmission Owner or any Transmission Owner Interconnection Facilities (only after title to the subject facilities has been transferred to the

Interconnected Transmission Owner) built by the Interconnection Customer; or (c) partially or entirely complete the Transmission Owner Interconnection Facilities as necessary to preserve the integrity or reliability of the Transmission System, provided that Interconnection Customer shall be entitled to receive any rights associated with such facilities and upgrades as determined in accordance with Part VI of the Tariff; or (d) undo any of the changes to the Transmission System that were made pursuant to this Interconnection Construction Service Agreement. To the extent that the Interconnection Customer has fully paid for equipment that is unused upon cancellation or which is removed pursuant to subsection (b) above, the Interconnection Customer shall have the right to take back title to such equipment; alternatively, in the event that the Interconnection Customer does not wish to take back title, the Interconnected Transmission Owner may elect to pay the Interconnection Customer a mutually agreed amount to acquire and own such equipment.

14.3.2 Termination Upon Default:

In the event that Interconnection Customer exercises its right to terminate under Section 14.1.2 of this Appendix 2, and notwithstanding any other provision of this Interconnection Construction Service Agreement, the Interconnection Customer shall be liable for payment of the Interconnected Transmission Owner's Costs incurred up to the date of Interconnection Customer's notice of termination pursuant to Section 14.1.2 and the costs of completion of some or all of the Transmission Owner Interconnection Facilities or specific unfinished portions thereof, and/or removal of any or all of such facilities which have been installed, to the extent that Transmission Provider determines such completion or removal to be required for the Transmission Provider and/or Interconnected Transmission Owner to perform their respective obligations under Part VI of the Tariff or this Interconnection Construction Service Agreement, provided, however, that Interconnection Customer's payment of such costs shall be without prejudice to any remedies that otherwise may be available to it under this Appendix 2 for the Default of the Interconnected Transmission Owner.

14.4 Survival of Rights:

The obligations of the Construction Parties hereunder with respect to payments, Cancellation Costs, warranties, liability and indemnification shall survive termination to the extent necessary to provide for the determination and enforcement of said obligations arising from acts or events that occurred while the Interconnection Construction Service Agreement was in effect. In addition, applicable provisions of this Interconnection Construction Service Agreement will continue in effect after expiration, cancellation or termination to the extent necessary to provide for final billings, payments, and billing adjustments.

15 Force Majeure

15.1 Notice:

A Construction Party that is unable to carry out an obligation imposed on it by this Appendix 2 due to Force Majeure shall notify each other Construction Party in writing or by telephone within a reasonable time after the occurrence of the cause relied on.

15.2 Duration of Force Majeure:

A Construction Party shall not be responsible for any non-performance or considered in Breach or Default under this Appendix 2, for any non-performance, any interruption or failure of service, deficiency in the quality or quantity of service, or any other failure to perform any obligation hereunder to the extent that such failure or deficiency is due to Force Majeure. A Construction Party shall be excused from whatever performance is affected only for the duration of the Force Majeure and while the Construction Party exercises Reasonable Efforts to alleviate such situation. As soon as the non-performing Construction Party is able to resume performance of its obligations excused because of the occurrence of Force Majeure, such Construction Party shall resume performance and give prompt notice thereof to each other Construction Party.

15.3 Obligation to Make Payments:

Any Construction Party's obligation to make payments for services shall not be suspended by Force Majeure.

15.4 Definition of Force Majeure:

For the purposes of this section, an event of force majeure shall mean any cause beyond the control of the affected Interconnection Party or Construction Party, including but not restricted to, acts of God, flood, drought, earthquake, storm, fire, lightning, epidemic, war, riot, civil disturbance or disobedience, labor dispute, labor or material shortage, sabotage, acts of public enemy, explosions, orders, regulations or restrictions imposed by governmental, military, or lawfully established civilian authorities, which, in any of the foregoing cases, by exercise of due diligence such party could not reasonably have been expected to avoid, and which, by the exercise of due diligence, it has been unable to overcome. Force majeure does not include (i) a failure of performance that is due to an affected party's own negligence or intentional wrongdoing; (ii) any removable or remediable causes (other than settlement of a strike or labor dispute) which an affected party fails to remove or remedy within a reasonable time; or (iii) economic hardship of an affected party.

16 Subcontractors

16.1 Use of Subcontractors:

Nothing in this Appendix 2 shall prevent the Construction Parties from utilizing the services of subcontractors as they deem appropriate to perform their respective obligations hereunder, provided, however, that each Construction Party shall require its subcontractors to comply with all applicable terms and conditions of this Appendix 2 in providing such services.

16.2 Responsibility of Principal:

The creation of any subcontract relationship shall not relieve the hiring Construction Party of any of its obligations under this Appendix 2. Each Construction Party shall be fully responsible to

each other Construction Party for the acts and/or omissions of any subcontractor it hires as if no subcontract had been made.

16.3 Indemnification by Subcontractors:

To the fullest extent permitted by law, a Construction Party that uses a subcontractor to carry out any of the Construction Party's obligations under this Appendix 2 shall require each of its subcontractors to indemnify, hold harmless and defend each other Construction Party, its representatives and assigns from and against any and all claims and/or liability for damage to property, injury to or death of any person, including the employees of any Construction Party or of any Affiliate of any Construction Party, or any other liability incurred by another Construction Party or any of its Affiliates, including all expenses, legal or otherwise, to the extent caused by any act or omission, negligent or otherwise, by such subcontractor and/or its officers, directors, employees, agents and assigns, that arises out of or is connected with the design, procurement, construction or installation of the facilities of either Constructing Entity described in this Appendix 2; provided, however, that no Construction Party or Affiliate thereof shall be entitled to indemnity under this Section 16.3 in respect of any injury, loss, or damage to the extent that such loss, injury, or damage results from the negligence or willful misconduct of the Construction Party or Affiliate seeking indemnity.

16.4 Subcontractors Not Beneficiaries:

No subcontractor is intended to be, or shall be deemed to be, a third-party beneficiary of the Interconnection Construction Service Agreement.

17 Confidentiality:

Information is Confidential Information only if it is clearly designated or marked in writing as confidential on the face of the document, or, if the information is conveyed orally or by inspection, if the Construction Party providing the information orally informs the Construction Party receiving the information that the information is confidential. If requested by any Construction Party, the disclosing Construction Party shall provide in writing the basis for asserting that the information referred to in this section warrants confidential treatment, and the requesting Construction Party may disclose such writing to an appropriate Governmental Authority. Any Construction Party shall be responsible for the costs associated with affording confidential treatment to its information.

17.1 Term:

During the term of the Interconnection Construction Service Agreement, and for a period of three (3) years after the expiration or termination of the Interconnection Construction Service Agreement, except as otherwise provided in this Section 17, each Construction Party shall hold in confidence, and shall not disclose to any person, Confidential Information provided to it by any other Construction Party.

17.2 Scope:

Confidential Information shall not include information that the receiving Construction Party can demonstrate: (i) is generally available to the public other than as a result of a disclosure by the receiving Construction Party; (ii) was in the lawful possession of the receiving Construction Party on a non-confidential basis before receiving it from the disclosing Construction Party; (iii) was supplied to the receiving Construction Party without restriction by a third party, who, to the knowledge of the receiving Construction Party, after due inquiry, was under no obligation to the disclosing Construction Party to keep such information confidential; (iv) was independently developed by the receiving Construction Party without reference to Confidential Information of the disclosing Construction Party; (v) is, or becomes, publicly known, through no wrongful act or omission of the receiving Construction Party or breach of this Appendix 2; or (vi) is required, in accordance with Section 17.7 of this Appendix 2, to be disclosed to any Governmental Authority or is otherwise required to be disclosed by law or subpoena, or is necessary in any legal proceeding establishing rights and obligations under this Interconnection Construction Service Agreement. Information designated as Confidential Information shall no longer be deemed confidential if the Construction Party that designated the information as confidential notifies the other Construction Parties that it no longer is confidential.

17.3 Release of Confidential Information:

No Construction Party shall disclose Confidential Information of another Construction Party to any other person, except to its Affiliates (limited by the Commission's Standard of Conduct requirements), subcontractors, employees, consultants or to parties who may be or considering providing financing to or equity participation in Interconnection Customer on a need-to-know basis in connection with the Interconnection Construction Service Agreement, unless such person has first been advised of the confidentiality provisions of this Section 17 and has agreed to comply with such provisions. Notwithstanding the foregoing, a Construction Party that provides Confidential Information of another Construction Party to any person shall remain primarily responsible for any release of Confidential Information in contravention of this Section 17.

17.4 Rights:

Each Construction Party retains all rights, title, and interest in the Confidential Information that it discloses to any other Construction Party. A Construction Party's disclosure to another Construction Party of Confidential Information shall not be deemed a waiver by either Construction Party or any other person or entity of the right to protect the Confidential Information from public disclosure.

17.5 No Warranties:

By providing Confidential Information, no Construction Party makes any warranties or representations as to its accuracy or completeness. In addition, by supplying Confidential Information, no Construction Party obligates itself to provide any particular information or Confidential Information to any other Construction Party nor to enter into any further agreements or proceed with any other relationship or joint venture.

17.6 Standard of Care:

Each Construction Party shall use at least the same standard of care to protect Confidential Information it receives as the Construction Party uses to protect its own Confidential Information from unauthorized disclosure, publication or dissemination. Each Construction Party may use Confidential Information solely to fulfill its obligations to the other Construction Parties under this Interconnection Construction Service Agreement or to comply with Applicable Laws and Regulations.

17.7 Order of Disclosure:

If a Governmental Authority with the right, power, and apparent authority to do so requests or requires a Construction Party, by subpoena, oral deposition, interrogatories, requests for production of documents, administrative order, or otherwise, to disclose Confidential Information, that Construction Party shall provide the Construction Party that provided the information with prompt prior notice of such request(s) or requirement(s) so that the providing Construction Party may seek an appropriate protective order, or waive compliance with the terms of this Interconnection Construction Service Agreement. Notwithstanding the absence of a protective order, or agreement, or waiver, the Construction Party subjected to the request or order may disclose such Confidential Information which, in the opinion of its counsel, the Construction Party is legally compelled to disclose. Each Construction Party shall use Reasonable Efforts to obtain reliable assurance that confidential treatment will be accorded any Confidential Information so furnished.

17.8 Termination of Interconnection Construction Service Agreement:

Upon termination of the Interconnection Construction Service Agreement for any reason, each Construction Party shall, within ten (10) calendar days of receipt of a written request from another party, use Reasonable Efforts to destroy, erase, or delete (with such destruction, erasure and deletion certified in writing to the requesting party) or to return to the requesting party, without retaining copies thereof, any and all written or electronic Confidential Information received from the requesting party.

17.9 Remedies:

The Construction Parties agree that monetary damages would be inadequate to compensate a Construction Party for another Construction Party's Breach of its obligations under this Section 17. Each Construction Party accordingly agrees that each other Construction Party shall be entitled to equitable relief, by way of injunction or otherwise, if the first Construction Party breaches or threatens to breach its obligations under this Section 17, which equitable relief shall be granted without bond or proof of damages, and the receiving Construction Party shall not plead in defense that there would be an adequate remedy at law. Such remedy shall not be deemed to be an exclusive remedy for the breach of this Section 17, but shall be in addition to all other remedies available at law or in equity. The Construction Parties further acknowledge and agree that the covenants contained herein are necessary for the protection of legitimate business

interests and are reasonable in scope. No Construction Party, however, shall be liable for indirect, incidental, consequential, or punitive damages of any nature or kind resulting from or arising in connection with a Breach of any obligation under this Section 17.

17.10 Disclosure to FERC or its Staff:

Notwithstanding anything in this Section 17 to the contrary, and pursuant to 18 C.F.R. § 1b.20, if FERC or its staff, during the course of an investigation or otherwise, requests information from one of the Construction Parties that is otherwise required to be maintained in confidence pursuant to this Interconnection Construction Service Agreement, the Construction Party, shall provide the requested information to FERC or its staff, within the time provided for in the request for information. In providing the information to FERC or its staff, the Construction Party must, consistent with 18 C.F.R. § 388.122, request that the information be treated as confidential and non-public by FERC and its staff and that the information be withheld from public disclosure. Construction Parties are prohibited from notifying the other Construction Parties to the Interconnection Construction Service Agreement prior to the release of the Confidential Information to the Commission or its staff. A Construction Party shall notify the other Construction Parties when it is notified by FERC or its staff that a request to release Confidential Information has been received by FERC, at which time any of the Construction Parties may respond before such information would be made public, pursuant to 18 C.F.R. § 388.112.

17.11

Subject to the exception in Section 17.10, no Construction Party shall disclose Confidential Information of another Construction Party to any person not employed or retained by the disclosing Construction Party, except to the extent disclosure is (i) required by law; (ii) reasonably deemed by the disclosing Construction Party to be required in connection with a dispute between or among the Construction Parties, or the defense of litigation or dispute; (iii)_ otherwise permitted by consent of the Construction Party that provided such Confidential Information, such consent not to be unreasonably withheld; or (iv) necessary to fulfill its obligations under this Interconnection Construction Service Agreement or as a transmission service provider or a Control Area operator including disclosing the Confidential Information to an RTO or ISO or to a regional or national reliability organization. Prior to any disclosures of another Construction Party's Confidential Information under this subparagraph, the disclosing Construction Party shall promptly notify the other Construction Parties in writing and shall assert confidentiality and cooperate with the other Construction Parties in seeking to protect the Confidential Information from public disclosure by confidentiality agreement, protective order or other reasonable measures.

17.12

This provision shall not apply to any information that was or is hereafter in the public domain (except as a result of a Breach of this provision).

17.13 Return or Destruction of Confidential Information:

If any Construction Party provides any Confidential Information to another Construction Party in the course of an audit or inspection, the providing Construction Party may request the other party to return or destroy such Confidential Information after the termination of the audit period and the resolution of all matters relating to that audit. Each Construction Party shall make Reasonable Efforts to comply with any such requests for return or destruction within ten days after receiving the request and shall certify in writing to the requesting Construction Party that it has complied with such request.

18 Information Access And Audit Rights

18.1 Information Access:

Subject to Applicable Laws and Regulations, each Construction Party shall make available to each other Construction Party information necessary (i) to verify the costs incurred by the other Construction Party for which the requesting Construction Party is responsible under this Appendix 2, and (ii) to carry out obligations and responsibilities under this Appendix 2. The Construction Parties shall not use such information for purposes other than those set forth in this Section 18.1 and to enforce their rights under this Appendix 2.

18.2 Reporting of Non-Force Majeure Events:

Each Construction Party shall notify each other Construction Party when it becomes aware of its inability to comply with the provisions of this Appendix 2 for a reason other than an event of force majeure as defined in Section 15.4 of this Appendix 2. The Construction Parties agree to cooperate with each other and provide necessary information regarding such inability to comply, including, but not limited to, the date, duration, reason for the inability to comply, and corrective actions taken or planned to be taken with respect to such inability to comply. Notwithstanding the foregoing, notification, cooperation or information provided under this Section shall not entitle the receiving Construction Party to allege a cause of action for anticipatory breach of this Appendix 2.

18.3 Audit Rights:

Subject to the requirements of confidentiality under Section 17 of this Appendix 2, each Construction Party shall have the right, during normal business hours, and upon prior reasonable notice to the pertinent Construction Party, to audit at its own expense the other Construction Party's accounts and records pertaining to such Construction Party's performance and/or satisfaction of obligations arising under this Interconnection Construction Service Agreement. Any audit authorized by this Section shall be performed at the offices where such accounts and records are maintained and shall be limited to those portions of such accounts and records that relate to obligations under this Appendix 2. Any request for audit shall be presented to the other Construction Party not later than twenty-four months after the event as to which the audit is sought. Each Construction Party shall preserve all records held by it for the duration of the audit period.

19 Disputes

19.1 Submission:

Any claim or dispute that any Construction Party may have against another Construction Party arising out of this Appendix 2 may be submitted for resolution in accordance with the dispute resolution provisions of Section 12 of the Tariff.

19.2 Rights Under The Federal Power Act:

Nothing in this Section shall restrict the rights of any Construction Party to file a complaint with FERC under relevant provisions of the Federal Power Act.

19.3 Equitable Remedies:

Nothing in this Section shall prevent any Construction Party from pursuing or seeking any equitable remedy available to it under Applicable Laws and Regulations.

20 Notices

20.1 General:

Any notice, demand or request required or permitted to be given by either Construction Party to another and any instrument required or permitted to be tendered or delivered by either Construction Party in writing to another may be so given, tendered or delivered, by recognized national courier, or by depositing the same with the United States Postal Service with postage prepaid, for delivery by certified or registered mail, addressed to the Construction Party, or personally delivered to the Construction Party, at the address specified in the Interconnection Construction Service Agreement. If agreed to in advance by the Construction Parties, notices may be communicated via electronic means, so long as there is e-mail confirmation of delivery.

20.2 Operational Contacts:

Each Construction Party shall designate, and shall provide to each other Construction Party contact information concerning, a representative to be responsible for addressing and resolving operational issues as they arise during the term of the Interconnection Construction Service Agreement.

21 Miscellaneous

21.1 Regulatory Filing:

In the event that this Interconnection Construction Service Agreement contains any terms that deviate materially from the form included in Attachment P or from the standard terms and conditions in this Appendix 2, the Transmission Provider shall file the executed Interconnection Construction Service Agreement on behalf of itself and the Interconnected Transmission Owner

with FERC as a service schedule under the Tariff. Interconnection Customer may request that any information so provided be subject to the confidentiality provisions of Section 17 of this Appendix 2. An Interconnection Customer shall have the right, with respect to any Interconnection Construction Service Agreement tendered to it, to request (a) dispute resolution under Section 12 of the Tariff or, if concerning the Regional Transmission Expansion Plan, consistent with Schedule 5 of the Operating Agreement, or (b) that Transmission Provider file the agreement unexecuted with the Commission. With the filing of any unexecuted Interconnection Construction Service Agreement, Transmission Provider may, in its discretion, propose to FERC a resolution of any or all of the issues in dispute between any Construction Parties.

21.2 Waiver:

Any waiver at any time by any Construction Party of its rights with respect to a Breach or Default under this Appendix 2, or with respect to any other matters arising in connection with this Appendix 2, shall not be deemed a waiver or continuing waiver with respect to any other Breach or Default or other matter.

21.3 Amendments and Rights under the Federal Power Act:

Except as set forth in this Section, this Interconnection Construction Service Agreement may be amended, modified, or supplemented only by written agreement of the Construction Parties. Such amendment shall become effective and a part of this Interconnection Construction Service Agreement upon satisfaction of all Applicable Laws and Regulations. Notwithstanding the foregoing, nothing contained in this Interconnection Construction Service Agreement shall be construed as affecting in any way any of the rights of any Construction Party with respect to changes in applicable rates or charges under Section 205 of the Federal Power Act and/or FERC's rules and regulations thereunder, or any of the rights of any Interconnection Party under Section 206 of the Federal Power Act and/or FERC's rules and regulations thereunder. The terms and conditions of this Interconnection Construction Service Agreement and every appendix referred to therein shall be amended, as mutually agreed by the Construction Parties, to comply with changes or alterations made necessary by a valid applicable order of any Governmental Authority having jurisdiction hereof.

21.4 Binding Effect:

This Interconnection Construction Service Agreement, including the rights and obligations incorporated by reference therein from this Interconnection Construction Service Agreement, shall be binding upon, and shall inure to the benefit of, the successors and assigns of the Construction Parties.

21.5 Regulatory Requirements:

Each Construction Party’s performance of any obligation under this Interconnection Construction Service Agreement for which such party requires approval or authorization of any Governmental Authority shall be subject to its receipt of such required approval or authorization

in the form and substance satisfactory to the receiving Construction Party, or the Construction Party making any required filings with, or providing notice to, such Governmental Authorities, and the expiration of any time period associated therewith. Each Construction Party shall in good faith seek, and shall use Reasonable Efforts to obtain, such required authorizations or approvals as soon as reasonably practicable.

22 Representations and Warranties

22.1 General:

Each Constructing Entity hereby represents, warrants and covenants as follows, with these representations, warranties, and covenants effective as to the Constructing Entity during the full time the Interconnection Construction Service Agreement is effective:

22.1.1 Good Standing:

Such Constructing Entity is duly organized or formed, as applicable, validly existing and in good standing under the laws of its state of organization or formation, and is in good standing under the laws of the respective State(s) in which it is incorporated and operates as stated in the preamble of the Interconnection Construction Service Agreement.

22.1.2 Authority:

Such Constructing Entity has the right, power and authority to enter into the Interconnection Construction Service Agreement, to become a party thereto and to perform its obligations thereunder. The Interconnection Construction Service Agreement is a legal, valid and binding obligation of such Constructing Entity, enforceable against such Constructing Entity in accordance with its terms, except as the enforceability thereof may be limited by applicable bankruptcy, insolvency, reorganization or other similar laws affecting creditors' rights generally and by general equitable principles (regardless of whether enforceability is sought in a proceeding in equity or at law).

22.1.3 No Conflict:

The execution, delivery and performance of the Interconnection Construction Service Agreement does not violate or conflict with the organizational or formation documents, or bylaws or operating agreement, of such Constructing Entity, or any judgment, license, permit, order, material agreement or instrument applicable to or binding upon such Constructing Entity or any of its assets.

22.1.4 Consent and Approval:

Such Constructing Entity has sought or obtained, or, in accordance with the Interconnection Construction Service Agreement will seek or obtain, each consent, approval, authorization, order, or acceptance by any Governmental Authority in connection with the execution, delivery

and performance of such Agreement and it will provide to any Governmental Authority notice of any actions under such Agreement that are required by Applicable Laws and Regulations.

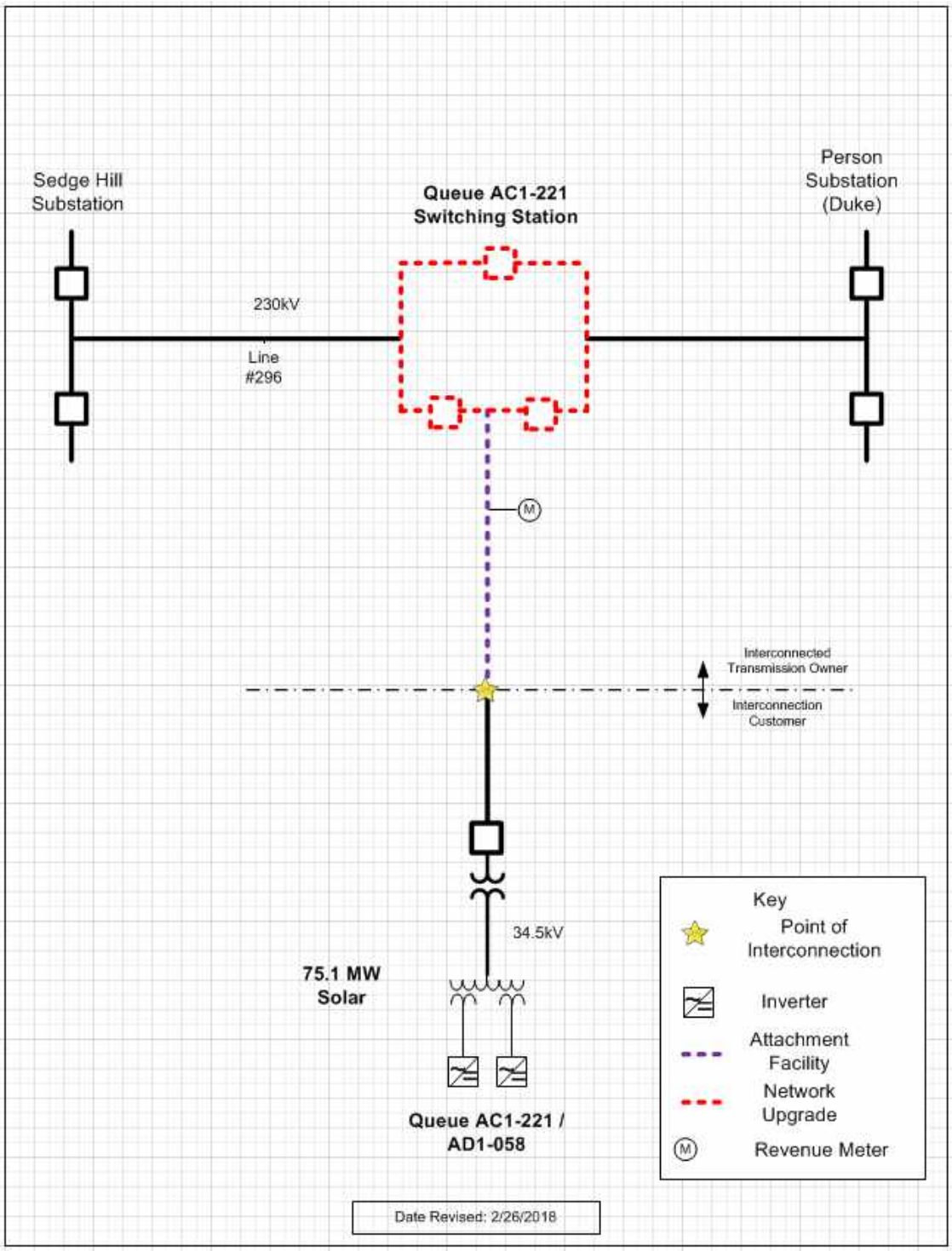
SCHEDULE A

SITE PLAN

GPS: 36.562411, -79.026074

SCHEDULE B

SINGLE-LINE DIAGRAM OF INTERCONNECTION FACILITIES



SCHEDULE C

TRANSMISSION OWNER INTERCONNECTION FACILITIES TO BE BUILT BY INTERCONNECTED TRANSMISSION OWNER

Interconnected Transmission Owner shall construct and, unless otherwise indicated, shall own, the following Interconnection Facilities:

Attachment Facilities:

- One (1) 230 kV, 3000A, 3-phase center break gang operated switches;
- Three (3) 230 kV metering accuracy coupling capacitor voltage transformers;
- Three (3) 230 kV metering accuracy current transformers; and
- Conductors, connectors, conduits, control cables, foundations, steel structures and grounding.

Direct Connection Network Upgrades:
PJM Network Upgrade #n6357 - Build a three breaker AC1-221 230 kV switching station

Non-Direct Connection Network Upgrades:
PJM Network Upgrade #n6356 - Re-arrange line #296 to loop into and out of the new three breaker AC1-221 230 kV switching station

PJM Network Upgrade #n6355 - Remote protection and communication work

SCHEDULE D

TRANSMISSION OWNER INTERCONNECTION FACILITIES TO BE BUILT BY INTERCONNECTION CUSTOMER PURSUANT TO OPTION TO BUILD

None

SCHEDULE E

[Reserved]

SCHEDULE F

[Reserved]

SCHEDULE G

CUSTOMER INTERCONNECTION FACILITIES

Interconnection Customer shall construct and, unless otherwise indicated, shall own, the following Interconnection Facilities:

Customer Interconnection Facilities:

- One (1) 230/34.5 kV wye ground/delta main power transformer with a rating of 54/72/90 MVA;
- 2 x 12 MVar and 1x 6 MVar capacitor banks;
- One (1) 230 kV circuit breaker; and
- Communication equipment to the Interconnected Transmission Owner bidirectional metering equipment.

SCHEDULE H

NEGOTIATED CONTRACT OPTION TERMS

None

SCHEDULE I

SCOPE OF WORK

Interconnected Transmission Owner

Interconnected Transmission Owner shall construct and, unless otherwise indicated, shall own, the following Interconnection Facilities:

Attachment Facilities:

- One (1) 230 kV, 3000A, 3-phase center break gang operated switches;
- Three (3) 230 kV metering accuracy coupling capacitor voltage transformers;
- Three (3) 230 kV metering accuracy current transformers; and
- Conductors, connectors, conduits, control cables, foundations, steel structures and grounding.

Direct Connection Network Upgrades:
PJM Network Upgrade #n6357 - Build a three breaker AC1-221 230 kV switching station

Non-Direct Connection Network Upgrades:
PJM Network Upgrade #n6356 - Re-arrange line #296 to loop into and out of the new three breaker AC1-221 230 kV switching station

PJM Network Upgrade #n6355 - Remote protection and communication work

Interconnection Customer

Interconnection Customer shall construct and, unless otherwise indicated, shall own, the following Interconnection Facilities:

Customer Interconnection Facilities:

- One (1) 230/34.5 kV wye ground/delta main power transformer with a rating of 54/72/90 MVA;
- 2 x 12 MVar and 1x 6 MVar capacitor banks;
- One (1) 230 kV circuit breaker; and
- Communication equipment to the Interconnected Transmission Owner bidirectional metering equipment.

SCHEDULE J

SCHEDULE OF WORK

Interconnected Transmission Owner:

By March 1, 2021:
Initiate construction of AC1-221 substation

By October 27, 2021*:
Complete construction of the Transmission Owner Interconnection Facilities set forth in Schedules C and I of this CSA

Interconnection Customer:

By April 15, 2021:
Initiate construction of Customer Interconnection Facilities set forth in Schedules G and I of this CSA

By February 10, 2021:
Interconnection Customer to deliver the substation pad to the Transmission Owner

By August 15, 2021:
Complete all Customer Interconnection Facilities set forth in Schedules G and I of this CSA

* Transmission Owner will use Reasonable Efforts to provide a back feed power date prior to October 15, 2021

SCHEDULE K

APPLICABLE TECHNICAL REQUIREMENTS AND STANDARDS

Dominion Energy Facility Interconnection Requirements revision 16.0, dated March 15, 2019, shall apply. The Dominion Energy Facility Interconnection Requirements revision 16.0 dated March 15, 2019 is available on the PJM website.

To the extent that these Applicable Technical Requirements and Standards conflict with the terms and conditions of the Tariff or any other provision of this CSA, the Tariff and/or this CSA shall control.

SCHEDULE L

INTERCONNECTION CUSTOMER'S AGREEMENT TO CONFORM WITH

IRS SAFE HARBOR PROVISIONS FOR NON-TAXABLE STATUS

As provided in Section 2.4.1 of Appendix 2 to this CSA and subject to the requirements thereof, Interconnection Customer represents that it meets all qualifications and requirements as set forth in Section 118(a) and 118(b) of the Internal Revenue Code of 1986, as amended and interpreted by Notice 2016-36, 2016-25 I.R.B. (6/20/2016) (the "IRS Notice"). Interconnection Customer agrees to conform with all requirements of the safe harbor provisions specified in the IRS Notice, as they may be amended, as required to confer non-taxable status on some or all of the transfer of property, including money, by Interconnection Customer to Interconnected Transmission Owner with respect to the payment of the Costs of construction and installation of the Transmission Owner Interconnection Facilities specified in this CSA.

Nothing in Interconnection Customer's agreement pursuant to this Schedule L shall change Interconnection Customer's indemnification obligations under Section 2.4.2 of Appendix 2 to the CSA.

SCHEDULE M

SCHEDULE OF NON-STANDARD TERMS AND CONDITIONS

None

SCHEDULE N

INTERCONNECTION REQUIREMENTS FOR ALL WIND, SOLAR AND NON-SYNCHRONOUS GENERATION FACILITIES

A. Voltage Ride Through Requirements

The Customer Facility shall be designed to remain in service (not trip) for voltages and times as specified for the Eastern Interconnection in Attachment 1 of NERC Reliability Standard PRC-024-1, and successor Reliability Standards, for both high and low voltage conditions, irrespective of generator size, subject to the permissive trip exceptions established in PRC-024-1 (and successor Reliability Standards).

B. Frequency Ride Through Requirements

The Customer Facility shall be designed to remain in service (not trip) for frequencies and times as specified in Attachment 2 of NERC Reliability Standard PRC-024-1, and successor Reliability Standards, for both high and low frequency condition, irrespective of generator size, subject to the permissive trip exceptions established in PRC-024-1 (and successor Reliability Standards).

C. Supervisory Control and Data Acquisition (SCADA) Capability

The wind, solar or non-synchronous generation facility shall provide SCADA capability to transmit data and receive instructions from the Transmission Provider to protect system reliability. The Transmission Provider and the wind, solar or non-synchronous generation facility Interconnection Customer shall determine what SCADA information is essential for the proposed wind, solar or non-synchronous generation facility, taking into account the size of the facility and its characteristics, location, and importance in maintaining generation resource adequacy and transmission system reliability in its area.

D. Meteorological Data Reporting Requirement (Applicable to wind generation facilities only)

The wind generation facility shall, at a minimum, be required to provide the Transmission Provider with site-specific meteorological data including:

- Temperature (degrees Fahrenheit)
- Wind speed (meters/second)
- Wind direction (degrees from True North)
- Atmosphere pressure (hectopascals)
- Forced outage data (wind turbine and MW unavailability)

E. Meteorological Data Reporting Requirement (Applicable to solar generation facilities only)

The solar generation facility shall, at a minimum, be required to provide the Transmission Provider with site-specific meteorological data including:

- Temperature (degrees Fahrenheit)
- Irradiance
- Forced outage data

The Transmission Provider and Interconnection Customer may mutually agree to any additional meteorological data that are required for the development and deployment of a power production forecast. All requirements for meteorological and forced outage data must be commensurate with the power production forecasting employed by the Transmission Provider. Such additional mutually agreed upon requirements for meteorological and forced outage data are set forth below:
NOT APPLICABLE FOR THIS CSA

Attachment E – Maximum Generation Capacity Certification

Virginia Department of Environmental Quality
Small Renewable Energy Projects
Maximum Generation Capacity Certification

Facility Name and Location: Alton Post Office Solar
Halifax County, VA

Applicant's Name: Alton Post Office Solar, LLC

Applicant's Mailing Address:	Telephone Number and Email Address:
337 Log Canoe Circle Stevensville, MD 21666	(410)604-3603 james.crawford@urbangridco.com

The applicant or his authorized representative is submitting an application for a small renewable energy permit by rule from the Virginia Department of Environmental Quality. In accordance with § 10.1 -1197.6 of the Code of Virginia, before such permit application can be considered complete, a professional engineer licensed in Virginia must certify that the maximum generation capacity of the small renewable energy project by an electrical generation facility that generates electricity only from sunlight or wind, as designed, does not exceed 150 megawatts.

The undersigned is an professional engineer licensed in Virginia and certifies that the maximum generating capacity for the project is 150 megawatts.

Professional Engineer's signature:	Date:
	3/13/20

COMMONWEALTH OF VIRGINIA
DANIEL J. JAMISON
Lic. No. 38979
3/13/20
PROFESSIONAL ENGINEER

Attachment F – State threatened and endangered species review

Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL & RECREATIONAL RESOURCES

Web Project ID: WEB0000014005

Client Project Number: 39225

PROJECT INFORMATION

TITLE: Alton Post Office

DESCRIPTION: This project is approximately 778.1 acres located in Halifax County and is being explored as a utility-scale solar facility. Tree clearing would occur to a possible maximum extend of approximately 225 acres.

EXISTING SITE CONDITIONS: Currently agricultural and forested

QUADRANGLES: Alton

COUNTIES: Halifax

Latitude/Longitude (DMS): 36° 33' 58.6404" N / 79° 1' 54.3885" W

Acreage: 792 acres

Comments: re-review

REQUESTOR INFORMATION

Priority: N

Tier Level: Tier I

Contact Name: Julia Campus

Company Name: Timmons Group

Address: 1001 Boulders Pkwy Ste 300

City: Richmond

State: VA

Zip: 23225

Phone: 8042006577

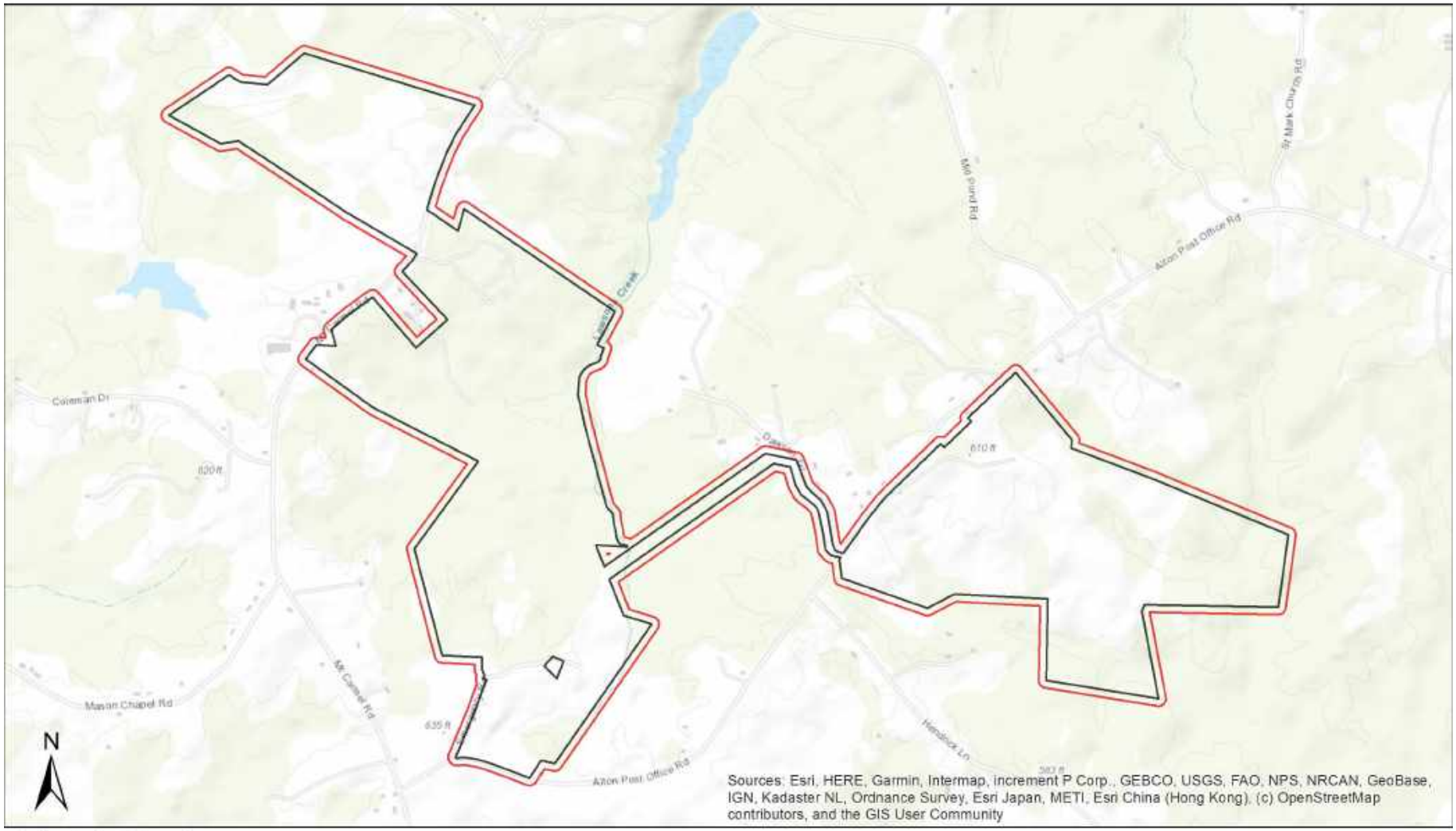
Fax:

Email: julia.campus@timmons.com

Conservation Site	Site Type	Brank	Acreage	Listed Species Presence	Essential Conservation Site?
Natural Heritage Screening Features Intersecting Project Boundary					

Intersecting Predictive Models
Predictive Model Results

Alton Post Office



Project Boundary

Buffered Project Boundary

1:21,142

0 0.175 0.35 0.7 mi

0 0.275 0.55 1.1 km

Quads: Alton

Counties: Halifax

Company: Timmons Group

Lat/Long: 363358 / -790154

Matthew J. Strickler
Secretary of Natural Resources

Clyde E. Cristman
Director

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

The project mapped as part of this report has been searched against the Department of Conservation and Recreation's Biotics Data System for occurrences of natural heritage resources in the vicinity of the area indicated for this project. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in Biotics, natural heritage resources have not been documented within the submitted project boundary including a 100 foot buffer. In addition, the project area does not intersect any of the predictive models identifying potential habitat for natural heritage resources.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Virginia Department of Conservation and Recreation (DCR), DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

Any absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks additional natural heritage resources. New and updated information is continually added to Biotics. Please revisit this website or contact DCR for an update on this natural heritage information if a significant amount of time passes (DCR recommends no more than six months) before it is utilized.

The Virginia Department of Wildlife Resources maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters, that may contain information not documented in the Natural Heritage Data Explorer. Their database may be accessed from http://vafwis.org/fwis/ or contact Ernie Aschenbach (804-367-2733 or Ernie.Aschenbach@dwr.virginia.gov).

Thank you for submitting your project to the Virginia Department of Conservation and Recreation's Natural Heritage Data Explorer Web Service. Should you have any questions or concerns about this report, the Data Explorer, or other Virginia Natural Heritage Program services, please contact the Natural Heritage Project Review Unit at 804-371-2708.

Species Observed within 2 Miles

Species	Federal Status	State Status
Greensnake, northern rough	NE / NT	NE / NT
Shiner, rosefin	NE / NT	NE / NT
Chub, bluehead	NE / NT	NE / NT
Shiner, crescent	NE / NT	NE / NT
Sucker, white	NE / NT	NE / NT
Catfish, white	NE / NT	NE / NT
Dace, rosyside	NE / NT	NE / NT
Darter, fantail	NE / NT	NE / NT
Sunfish, redbreast	NE / NT	NE / NT
Dace, mountain redbelly	NE / NT	NE / NT
Shiner, swallowtail	NE / NT	NE / NT
Chub, creek	NE / NT	NE / NT
Bluegill	NE / NT	NE / NT
Bass, largemouth	NE / NT	NE / NT
Killifish, speckled	NE / NT	NE / NT
Darter, johnny	NE / NT	NE / NT
Sunfish, green	NE / NT	NE / NT
Shiner, golden	NE / NT	NE / NT
Shiner, satinfin	NE / NT	NE / NT
Madtom, margined	NE / NT	NE / NT
Mosquitofish, eastern	NE / NT	NE / NT
Racer, northern black	NE / NT	NE / NT

Legend

- Project Study Limits- 783.2 Acres
- Project Easement - 5.1 Acres
- 2 Mile Buffer
- State Boundary
- NLEB Roost Trees - Not Present
- Trout Streams- Not Present
- Threatened/Endangered Waters- Not Present
- Anadromous Fish Use - Not Present
- Bald Eagle Concentration Areas and Roosts - Not Present
- Colonial Water Birds - Not Present
- Bat Hibernacula - Not Present
- Federal or State Listed Observation Area- Not Present

Federal Status, State Status

- Federal Endangered, State Endangered
- Federal Threatened, State Endangered
- Federal Threatened, State Threatened
- NE/NT, State Endangered
- NE/NT, State Threatened
- NE/NT, NE/NT

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.
1001 Boulders Parkway, Suite 300
Richmond, VA 23225
TEL 804.200.6500
www.timmons.com

PROJECT NAME & LOCATION

ALTON POST OFFICE
HALIFAX COUNTY - VIRGINIA

DATE 09/11/2020
PROJECT NUMBER 39225
PROJECT NAME ALTON POST OFFICE
DESIGNED BY / DRAWN BY M.COOLEY

NOTES:
Project Limits are approximate.
WERMS data from VDGIF provided for Virginia Only.
Bat hibernacula include identifications of Northern long-eared bat, Tri-colored bat, Little-brown bat, Virginia big-eared bat, Gray bat, and Indiana bat.

REVISIONS

#	MM/DD/YY	DESCRIPTION

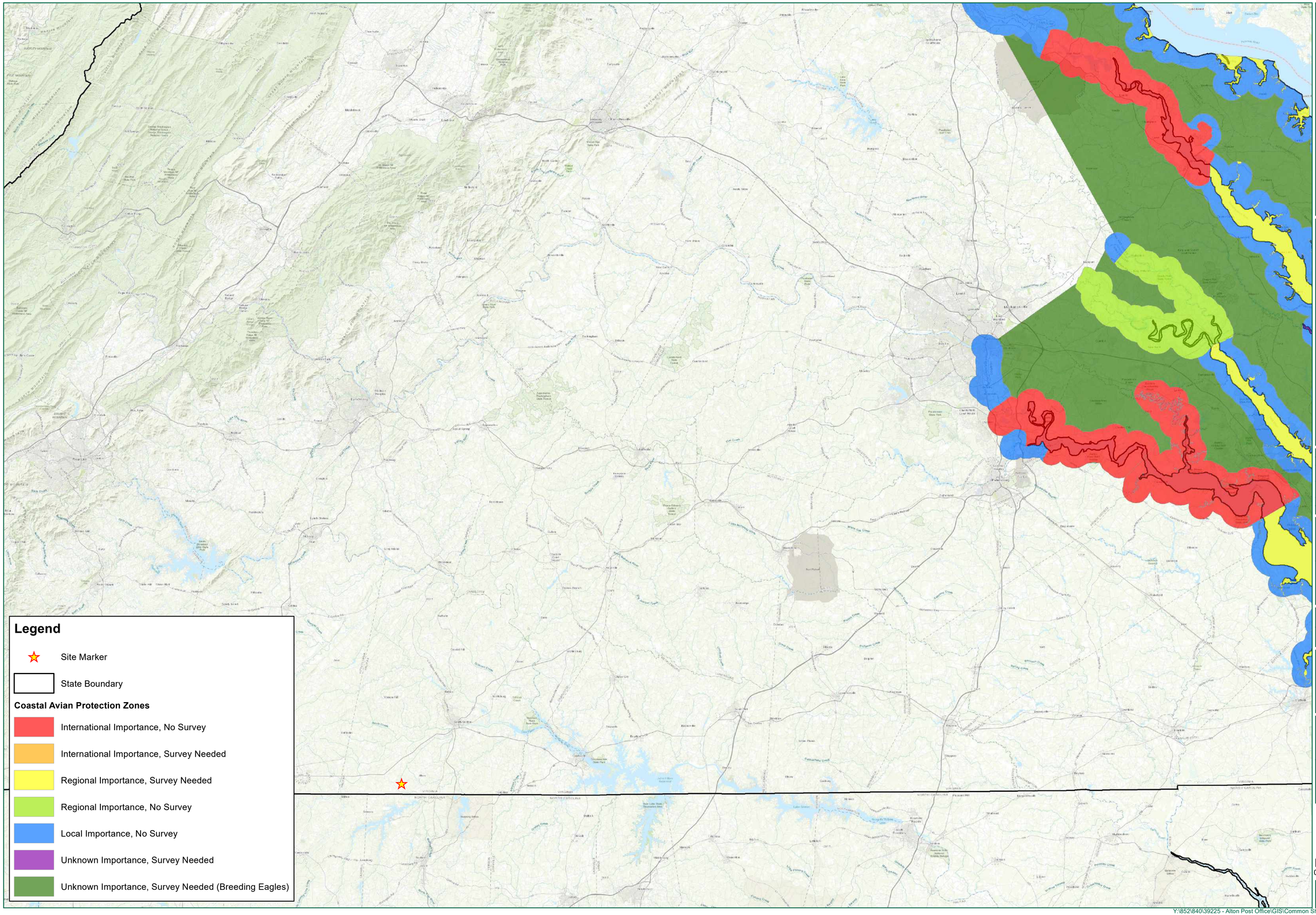
DRAWING DESCRIPTION
WILDLIFE ENVIRONMENTAL REVIEW MAP

SCALE (FEET)
0 2,000 4,000
PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE H:1 " = 2,000 '
SHEET NUMBER 1

Y:\852\840\39225 - Alton Post Office\GIS\Common Shared Exhibits\39225-WERMS.mxd

Attachment G – CAPZ



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Richmond, VA 23225
TEL 804.200.6500
www.timmons.com

PROJECT NAME & LOCATION

ALTON POST OFFICE

HALIFAX COUNTY - VIRGINIA

DATE 02/04/2020

PROJECT NUMBER 39225

PROJECT NAME ALTON POST OFFICE

DESIGNED BY / DRAWN BY M.COOLEY

NOTES:
Project Limits are approximate.
Coastal Avain Protection Zone data from VCU's Virginia Coastal Zone Management Program for Virginia Only.
Aerial imagery from ESRI.

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

COASTAL AVIAN PROTECTION ZONE MAP

SCALE (FEET)

0 35,000 70,000

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE H:1 " = 35,000

SHEET NUMBER 1

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Attachment H – Cultural Resource Analysis

COMMONWEALTH of VIRGINIA

Matt Strickler
Secretary of Natural Resources

Department of Historic Resources
2801 Kensington Avenue, Richmond, Virginia 23221

Julie V. Langan
Director

Tel: (804) 367-2323
Fax: (804) 367-2391
www.dhr.virginia.gov

June 15, 2020

Mr. David Dutton
Dutton + Associates LLC
1115 Crowder Drive
Midlothian, Virginia 23113

RE: *Phase I Cultural Resources Survey of the ±313.9 Hectare (±775.6-Acre) Alton Post Solar Project Area, Halifax County, Virginia*
DHR File No. 2020-0052

Dear Mr. Dutton:

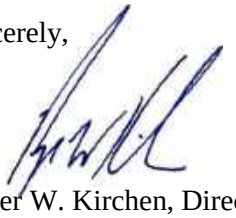
We have received for review the report referenced above prepared by Dutton + Associates LLC. (D+A) for the Timmons Group in support of an application to the Department of Environmental Quality for a Permit-by-Rule for a small renewable energy project in Halifax County. We have reviewed the submitted materials and provide the following comments.

Archaeology
The archaeological survey documented widespread disturbance across the project area; nonetheless, seven (7) sites were identified that reflect the early to mid-20th century occupation of this property. Based on the information provided, we concur that sites **44HA0343**, **44HA0344**, **44HA0345**, **44HA0346**, **44HA0347**, **44HA0348**, and **44HA0349** are *not eligible* for listing in the Virginia Landmarks Register (VLR) or National Register of Historic Places. No additional archaeological survey is recommended at this time.

Architecture
The architectural survey identified 39 resources within the 0.5-mile study area. Six (6) of these are previously recorded and 33 of these are newly identified. Of the previously recorded resources, DHR has already found four (4) to be ineligible for VLR/NRHP listing (DHR ID #s 041-5500, 041-5502, 041-5503, and 041-5505) and one (1) has been demolished since the last survey (DHR ID #041-5059). D+A recommends none of the resources surveyed to be eligible for VLR/NRHP listing. DHR does not concur that the Folk Victorian-style house at 2140 Mt. Carmel Road (DHR ID #041-5600) is ineligible for listing. It is one of three other recorded Folk Victorian-style dwellings in Halifax County, none of which has been evaluated and it has a unique massing/form. Please provide an intensive-level survey for #041-5600 or treat this resource as eligible for the purposes of this project and evaluate the impacts. Please see the attached table for all eligibility and impact recommendations.

We appreciate the opportunity to review this report. If you have any questions regarding these comments or our recommendations, please do not hesitate to contact me roger.kirchen@dhr.virginia.gov.

Sincerely,



Roger W. Kirchen, Director
Review and Compliance Division

c. Mary Major, DEQ
Chris Egghart, DEQ

ATTACHMENT
June 15, 2020
DHR File No. 2020-0052

DHR ID#	Resource Name/Address	D+A Eligibility March 2020	DHR Eligibility June 2020	D+A Impacts March 2020	DHR Impacts June 2020
041-5054	House, 2200 Alton Post Office Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5059	House, 4059 Mount Carmel Road	D+A: Demolished	Not Eligible	N/A	N/A
041-5580	House, 3200 Alton Post Office Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5581	House, 4002 Alton Post Office Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5582	House, Alton Post Office Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5583	House, 3058 Alton Post Office Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5584	House, Alton Post Office Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5585	House, 2163 Alton Post Office Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5586	House, 2103 Alton Post Office Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5587	House, 2196 Mill Pond Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5588	Barns, Mill Pond Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5589	House, 1141 Dawson Trail	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5590	House, 1161 Dawson Trail	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5591	House, 1100 Emergency Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5592	House, 3242 Mt. Carmel Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5593	House, 3211 Mt. Carmel Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5594	House, 3159 Mt. Carmel Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5595	House, 3136 Mt. Carmel Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5596	House, 3105 Mt. Carmel Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5597	House, 1056 Mason Chapel Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5598	House, 1010 Mason Chapel Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5599	House, 1105 Coleman Drive	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5600	House, 2140 Mt. Carmel Road	**D+A: Not Eligible**	**Survey or Treat as Eligible for the Purposes of this Project**	**Impact Not Evaluated**	**Evaluate Impacts**
041-5601	House, on E of Mt. Carmel Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5602	House, 2103 Mt. Carmel Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5603	House, 1223 Mt. Carmel Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5604	House, 1218 Mt. Carmel Road	D+A: Not Eligible	Not Eligible	N/A	N/A

TABLE KEY:	Warrants Mitigation	Needs Attention	**DHR does not concur**

ATTACHMENT
June 15, 2020
DHR File No. 2020-0052

DHR ID#	Resource Name/Address	D+A Eligibility March 2020	DHR Eligibility June 2020	D+A Impacts March 2020	DHR Impacts June 2020
041-5605	House, 4007 Piney Grove Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5606	House, 3177 Piney Grove Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5607	House, 3165 Piney Grove Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5608	House, 3146 Piney Grove Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5612	House, 3070 Alton Post Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5613	Commercial Building, 3232 Mount Carmel Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5614	House, 4005 Piney Grove Road	D+A: Not Eligible	Not Eligible	N/A	N/A
041-5615	House, 3154 Piney Grove Road	D+A: Not Eligible	Not Eligible	N/A	N/A

TABLE KEY:	Warrants Mitigation	Needs Attention	**DHR does not concur**

Dutton + Associates
CULTURAL RESOURCE SURVEY, PLANNING, AND MANAGEMENT

July 22, 2020

Roger Kirchen
Director, Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

RE: *Phase I Cultural Resources Survey of the Alton Post Solar Project in Halifax County, Virginia – Viewshed Assessment for VDHR# 041-5600*
DHR File No. 2020-0052

Dear Mr. Kirchen:

Thank you for your review and comment regarding the above survey report related to the Alton Post Solar Project in Halifax County, Virginia received via letter June 15, 2020. This memo is in response to your request for additional consideration of VDHR# 041-5600, the home located at 2140 Mt. Carmel Road. For the purposes of this effort, the resource will be treated as potentially NRHP-eligible and as such, a viewshed assessment was conducted.

Please review the following information and let us know if there is anything additional we can provide you or assist with to complete your review.

Home, 2140 Mt. Carmel Road, Alton, Virginia (VDHR ID# 041-5600)

According to research and survey conducted as part of the Phase I effort, this home, currently called Tall Oak Farms, was built circa 1890 and exhibits a Folk Victorian style. The two-story frame building appears to have a Gable and Wing original form that has been expanded and altered by later additions. Review of aerial photography reveals that several large additions have been appended to the rear of the building, the most substantial of which occurred in the 1980s. The home also appears to have been renovated with modern vinyl siding, replacement windows, new shutters, and a variety of other features. According to local property assessor records, the most recent permitted addition and renovation occurred in 2015. Still, the home reflects an unusual form and massing for the region and warrants further consideration to fully evaluate its history and evolution. As such, the Tall Oak Farms home will be treated as potentially eligible for listing in the NRHP for its distinctive architecture, for the purposes of this project.

As a potentially NRHP-eligible resource, an assessment of possible impacts brought about by the project was undertaken. The Alton Post Solar Project entails the development of solar arrays on a number of properties and parcels in the vicinity of Tall Oak Farm. These include on parcels to the north and east of the resource property. As the solar project area is located on the adjacent property to the north, roughly 800-feet away at its nearest point, and on a separate property across Mt. Carmel Road, roughly 300-feet away at its nearest point, there will be ***no direct effects*** to Tall Oak Farms.

To assess whether the project may pose a visual impact to Tall Oak Farms, a viewshed assessment was conducted from the property and surrounding vicinity. Inspection was performed and photographs taken from multiple locations around the resource boundaries towards the project area and surrounding setting to document existing setting, visibility, and lines of sight. This assessment found that the home at Tall Oak Farms is located on a large, roughly 100-acre agricultural property. The main house is set back from the road at the end of a gravel driveway. It rests on a grassy lawn with a copse of trees immediately to the front. Just to the side of the house is a modern carport structure. To the opposite side of the home is a modern garage with several open shed areas attached to the rear. In the grassy field to the front of the house is a mid-twentieth century secondary dwelling or tenant house. Situated along a farm lane to the rear of the tenant house are a series of nonhistoric pole barns and storage buildings. To the rear of the building complex on the property are open fields and pasture, as well as a large pond bordered by a wooded area. Bordering the property to the southeast (front and side) of the home, and occupying the adjacent parcel along Mt. Carmel Road, but historically associated with the home, is a large bottling warehouse and distribution center constructed in 1997.

The project area includes a tract to the north of the Tall Oak Farms property as well as across the road to the southeast. The nearest portion of the project area is located across the road to the southeast. This tract is currently mostly open field and pasture interrupted be a series of narrow, irregular, treelines. Set centrally within the tract and near the road is a home and farm complex that are excluded from the project area. Inspection from the driveway to Tall Oak Farms, as well as at various vantage points along Mt. Carmel Road in front of the property reveal this tract of the project area is visible as it borders the road. There is a narrow line of brush and vegetation along the road which provides minimal screening and treelines throughout the tract interrupt wide and open views of the area. The existing home and farm complex set along the road centrally in the project area tract provide further screening of the portions of the project area beyond.

The portion of the project area to the north of Tall Oak Farms is currently open field. There is an existing treeline between the project area tract and the Tall Oak Farms property. Additionally, the pond bordered by wooded areas on the Tall Oak Farms property is situated between the home and this project area tract. Inspection from the driveway to Tall Oak Farms reveals that the existing treeline partially screens visibility of the fields beyond in which the project area is located. Inspection directly from the Tall Oak Farms house was not accessible, however, a review of sight lines on aerial

photography shows that the pond and wooded area will provide additional screening to the treeline along the edge of the property. As such, it is anticipated that visibility of the project area is limited and interrupted.

As such, field inspection and assessment showed that while the Tall Oak Farms home remains on a rural lot surrounded by rural and mostly other agricultural properties, its historic setting is already interrupted and compromised by the presence of a larger, modern warehouse and distribution center immediately to the southwest (front and side) of the home. This complex is clearly visible from public vantage points in the vicinity of Tall Oak Farms, as well as from the home itself. The setting to the north and east of the property, where the project area is located, remains largely intact, however, the resource was noted as having a unique or unusual form and massing, and is thus noteworthy for its architecture. Although a historic tenant house remains on the property, all other barns and outbuildings are nonhistoric and therefore it is not recognized for its association to farming or agriculture in the region. As an architecturally distinct property, historic setting is important, but not character-defining or a key aspect of what may make the resource potentially eligible for listing in the NRHP.

In consideration of viewshed, field inspection and review of aerial photography reveal that the project has the potential to introduce new visual elements or changes to the landscape visible from the home, however, the potential will be diminished by the landscaping and planting plan prepared as part of the project. As part of this plan, vegetative buffers will be planted or supplemented around the perimeter portions of the project area where visibility may otherwise occur. This plan includes the retention of the existing treeline along the northern edge of the property that is between it and that tract of the project area, as well as a proposed 15-foot planted vegetative buffer along Mt. Carmel Road. Together, the vegetative buffers will provide screening of all project improvements from the Tall Oak Farms house, and therefore limit any impacts to the setting of the property that is already compromised by a nonhistoric distribution center. As the project is therefore not anticipated to introduce any features or characteristics that compromise those aspects for which the resource is potentially NRHP-eligible, the Alton Post Solar Project is recommended to pose no more than a ***minimal impact*** on Tall Oak Farms (041-5600).

Figures 1 and 2 below provide maps of Tall Oak Farms and the project area with the location and direction of photographic views. Figures 3 through 12 provide captioned representative and viewshed photographs. A detail of proposed and existing vegetative buffers in the vicinity of Tall Oak Farms is provided in Figure 13.

Figure 1: Map of Tall Oak Farms with location and direction of representative photographs. Source: VCRIS

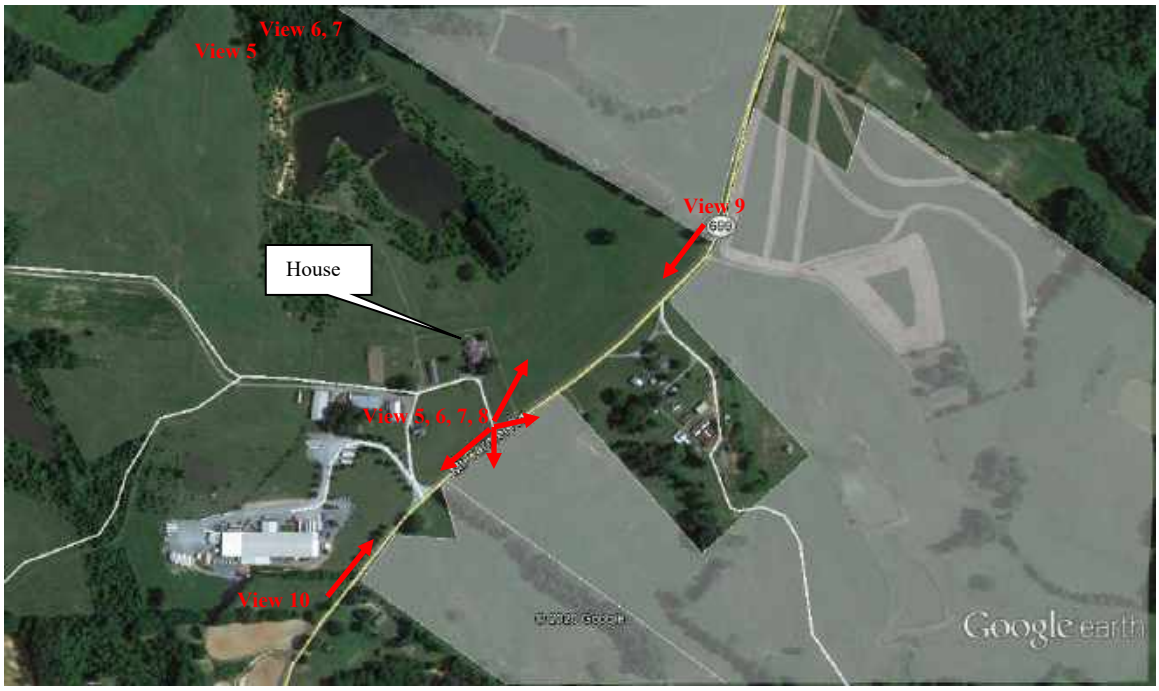


Figure 2: Location of Tall Oak Farms in relation to the project area, with location and direction of viewshed photographs.

Figure 3: View 1- View of Tall Oak Farms house, front facade, facing northwest

Figure 4: View 2- View of rear additions, facing west

Figure 5: View 3- View of Tall Oak Farms house and tenant house in relation to entry to bottling and distribution complex, facing north

Figure 6: View 4- General view of bottling and distribution complex, facing west

Figure 7: View 5- General view from driveway to Tall Oak Farm towards project area, depicting industrial complex to south, facing southwest

Figure 8: View 6- General view from driveway to Tall Oak Farm towards project area, facing south

Figure 9: View 7- General view from driveway to Tall Oak Farm towards project area, facing east

Figure 10: View 8- General view from driveway to Tall Oak Farm towards project area, facing north

Figure 11: View 9- General view from Mt. Carmel Road towards project area, facing southwest

Figure 12: View 10- General view from Mt. Carmel Road towards project area, facing northeast

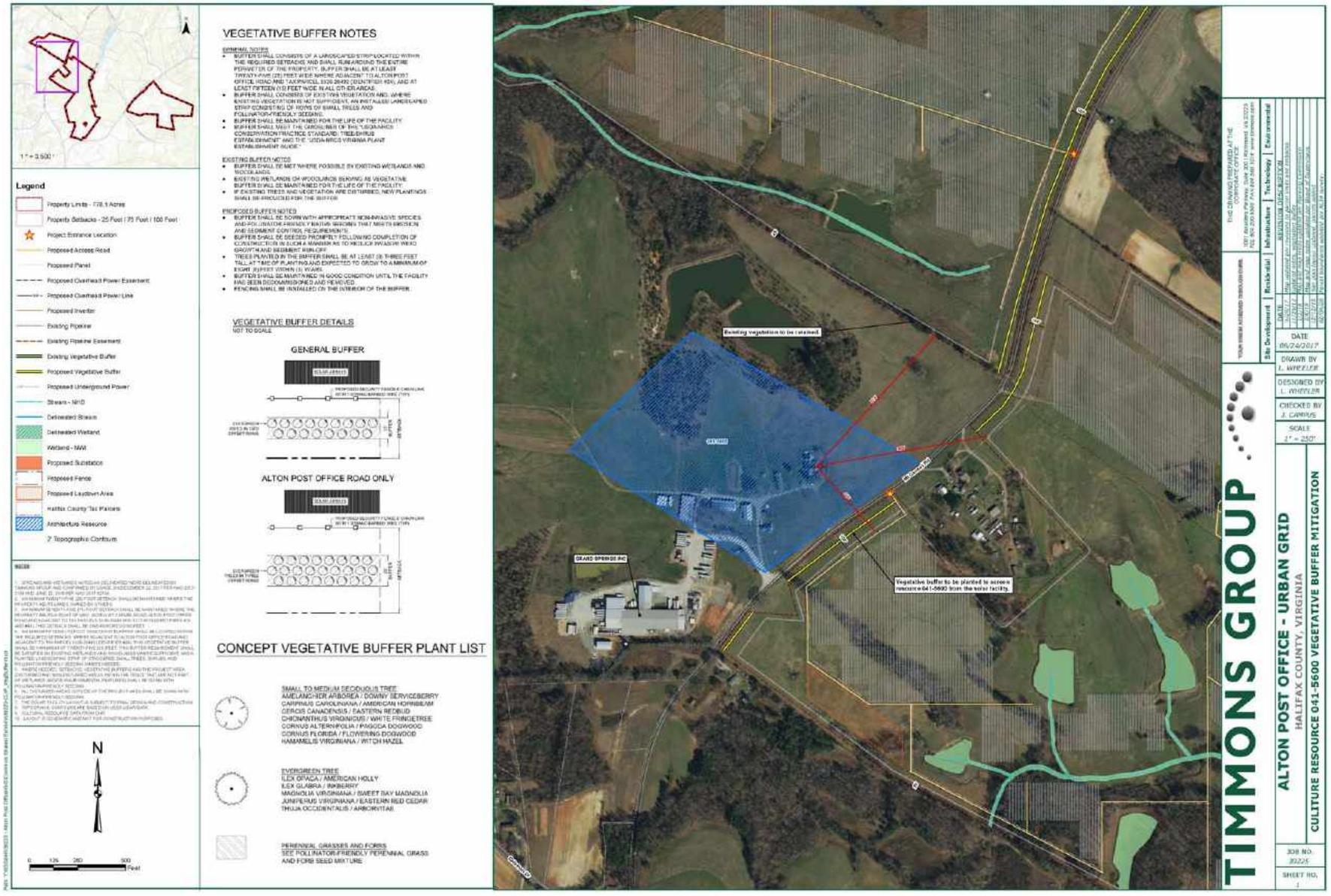


Figure 13: Conceptual Vegetative Planting and Buffer Plan in the vicinity of Tall Oak Farms. Source: Timmons Group

Summary and Conclusions

In response to a request for additional consideration of VDHR# 041-5600, a house located at 2140 Mt. Carmel Road, with regard to the Alton Post Solar Project, D+A undertook field investigations to assess potential impacts to the resource that is being treated as potentially NRHP-eligible for the purposes of this project. As a part of this assessment effort, D+A made a site visit to document the existing setting, lines of sight, and viewshed for the resource. This effort found that the setting of the resource has already been nonhistorically compromised by the development of a large industrial bottling and distribution complex next to the property, however, notes that setting is not a character-defining or key aspect of the resource's potential NRHP-eligibility which is derived from its unusual architectural form and massing. With regards to visibility of the project area and improvements, existing distance, vegetation, and development currently provide some screening and prohibit wide or uninterrupted views of the project area. The proposed landscaping and vegetation plan in place as part of the project includes the retention of existing treelines between the resource and portions of the project area, and planting of new vegetative buffers along Mt. Carmel Road between the property and other portions of the project area. It is therefore anticipated that the project will be screened from the resource, and not introduce any features or characteristics that compromise those aspects for which the resource is potentially NRHP-eligible. ***As such, it is D+A's recommendation that the Alton Post Solar Project will pose no more than a minimal impact on Tall Oak Farms (041-5600).***

If you wish to discuss, please do not hesitate to contact me at (804) 897-1960 or rtaylor@dutton-associates.com.

Sincerely,

DUTTON + ASSOCIATES, LLC

Robert J. Taylor, Jr.
Senior Architectural Historian

cc: Rick Thomas and Julia Campus – Timmons Group

REPORT >

Phase I Cultural Resource Survey of the ±313.9 Hectare (±775.6 Acre) Alton Post Solar Project Area

LOCATION > Halifax County, Virginia

DATE > March 2020

PREPARED FOR >
TIMMONS GROUP

PREPARED BY >
Dutton + Associates, LLC

Dutton + Associates
CULTURAL RESOURCE SURVEY, PLANNING, AND MANAGEMENT

PHASE I CULTURAL RESOURCE SURVEY OF THE ±313.9 HECTARE (±775.6 ACRE) ALTON POST SOLAR PROJECT AREA

HALIFAX COUNTY, VIRGINIA

PREPARED FOR:
TIMMONS GROUP
1001 BOULDERS PARKWAY, SUITE 300
RICHMOND, VA 23225

PREPARED BY:
DUTTON + ASSOCIATES, LLC
1115 CROWDER DRIVE
MIDLOTHIAN, VIRGINIA 23113
804.897.1960

PRINCIPAL INVESTIGATOR
HOPE SMITH, PH.D.

PROJECT ARCHAEOLOGIST:
LAUREN GRYCTKO, M.A.

ARCHITECTURAL HISTORIAN:
ROBERT J. TAYLOR, JR., M.A.

MARCH 2020

ABSTRACT

From February 3 to February 27, 2020 D+A conducted a Phase I cultural resource survey of the ±313.9 hectare (±775.6 acre) Alton Post Solar Project Area. The Phase I was conducted for planning purposes in order to confirm the presence or absence of cultural resources located in the project area, make recommendations regarding National Register of Historic Places (NRHP) eligibility, and assess NRHP-eligible resources for potential impacts brought about by the project. The effort was conducted in support of and in accordance with the terms of a Virginia Department of Environmental Quality (DEQ) Solar Permit by Rule (PBR).

The Alton Post Solar Project Area is located in the Alton vicinity of Halifax County, Virginia. The project area consists of eight parcels grouped in to three tracts of land bordering Alton Post Office Road and Mount Carmel Road. The northernmost parcel is set on the west side of Mount Carmel Road; the central parcel stretches between Mount Carmel and Alton Post Office roads; and the southern parcel is set on the east side of Alton Post Office Road.

The archaeological survey of the project area included both pedestrian and systematic subsurface testing. Subsurface testing focused on terraces which overlooked tributaries and confluences, as well as landforms which were located near historic roads. Subsurface testing, along with visual survey revealed significant disturbance throughout the project area, in the form of logging disturbance, terraforming, and disturbance from continuous agricultural use. Piles of slash, unnaturally undulating pastureland, lack of topsoil, and disturbed fills were common across the project area. A total of seven (7) archaeological sites were identified, all of which date to the early to mid-twentieth century. All seven of these sites are associated with mapped structures which show up on a 1952 topographic map. ***The seven (7) sites have limited research potential and are recommended not eligible for listing in the NRHP.***

Overall, the project area is significantly disturbed through apparent agricultural events including terraforming and timbering for at least the last 20 years. The archaeological sites identified are shown on the 1952 topographic map and have little research potential. ***Therefore, it is D+A's recommendation that no further archaeological work is warranted for this project area.***

The architectural resources survey for the Alton Post Solar Project resulted in the identification of thirty-nine (39) architectural resources greater than 50 years of age (constructed in 1970 or earlier) located within the one-half mile architectural survey area. The resources surveyed as part of this Phase I reflect typical rural development in the region with modest frame and masonry dwellings that reflect subtle influences of national trends in building styles of their period such as Folk Victorian, Craftsman, Minimal Traditional, and Ranch single dwellings. Many buildings that are Vernacular in form or character and include I-houses, hall-and-parlors, or Bungalows with various stylistic influences were also recorded throughout the project area. Many of the homes and properties include a typical collection of agricultural outbuildings including hay barns, pole barns, vehicle sheds, and other structures. Tobacco barns are also common throughout the survey area and most reflect the typical form and construction of these structures encountered throughout the county and region. ***As such, none of the surveyed resources reflect any unique or significant design or historical associations and all are***

recommended not eligible for listing in the NRHP individually or collectively and D+A recommends that no further architectural investigations are warranted for this project.

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1. INTRODUCTION

From February 3 to February 27, 2020 Dutton +Associates, LLC (D+A) conducted a Phase I cultural resource survey (Phase I) of the ±313.9 hectare (±775.6 acre) Alton Post Solar Project Area. The D+A effort is intended to provide documentation and assessment of cultural resources within the project area to make recommendations as to whether they may be potentially eligible for listing in the National Register of Historic Places (NRHP) and assess those that are considered NRHP-eligible for project impacts. The effort was conducted in support of and in accordance with the terms of a Virginia Department of Environmental Quality (DEQ) Solar Permit by Rule (PBR).

All research, fieldwork, and recording conducted as part of these investigations will conform to the guidance specified in the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (Federal Register 48:44716-44742, September 29, 1983), the Virginia Department of Historic Resources' (VDHR) *Guidelines for Conducting Historic Resources Survey in Virginia* (rev. 2017) and the Virginia Department of Environmental Quality's (DEQ) *Solar Permit by Rule Guidance* (2012) for complying with the provisions of §10.1-1197.6 B 7 of the *Code of Virginia*. Principal investigators meet the Secretary of the Interior's Professional Qualification Standards (48 FR 44716) for archaeology, history, architecture, architectural history, or historic architecture. Hope Smith, Ph.D., served as the Principal Investigator, prepared the research design, and oversaw project management. Archaeological investigations were conducted under the direction of Lauren Gryctko, M.A. who co-authored the report. Architectural resource investigations were conducted under the direction of Robert J. Taylor, Jr. M.A. who coauthored the report. Copies of all field notes, maps, correspondence, and research materials are on file at D+A's main office in Midlothian, Virginia.

PROJECT LOCATION

The Alton Post Solar Project Area is located in the Alton vicinity of Halifax County, Virginia (Figure 1-1). The project area consists of eight parcels grouped in to three tracts of land bordering Alton Post Office Road and Mount Carmel Road. The northernmost parcel is set on the west side of Mount Carmel Road; the central parcel stretches between Mount Carmel and Alton Post Office Roads; and the southern parcel is set on the east side of Alton Post Office Road (Figure 1-2).

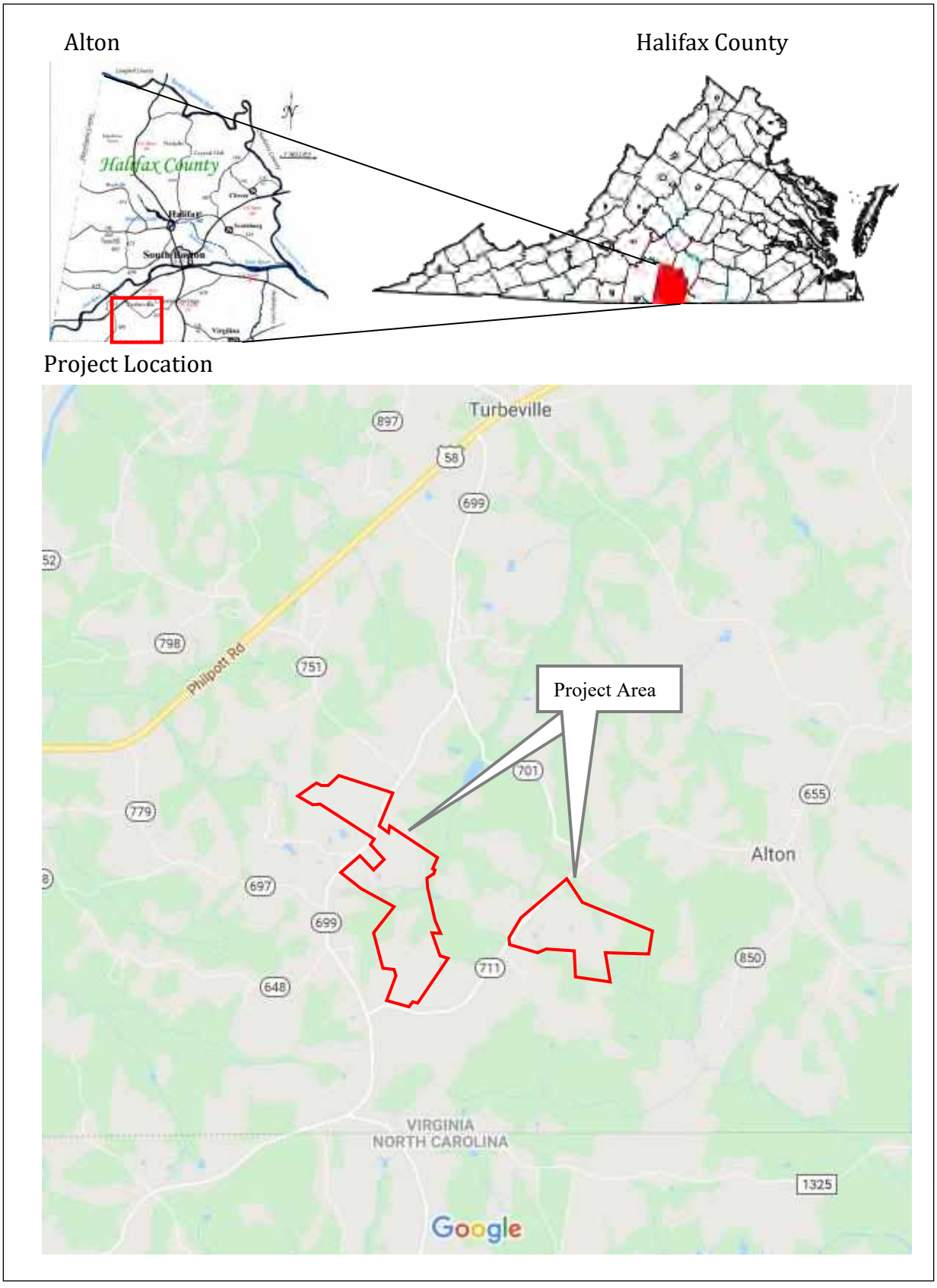

Figure 1-1: General location of the project area.

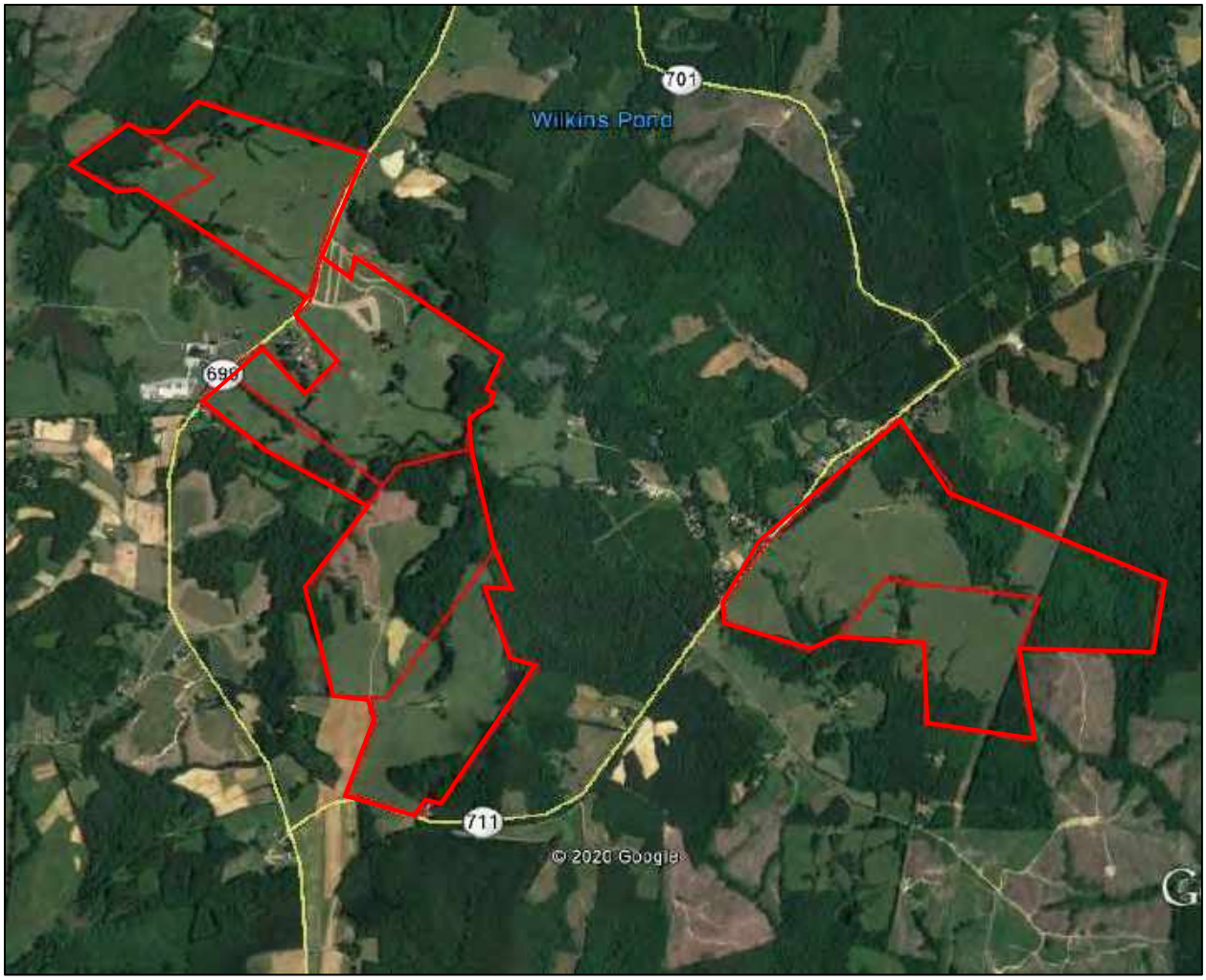

Figure 1-2: Aerial view of project area shown in red. Source: Google Earth 2020.

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2. SURVEY AREA

For the purposes of this Phase I, the survey area was established to define the area in which the project may result in impacts to NRHP-eligible cultural resources. The survey area was designed in accordance with guidance from the VDHR and Virginia Department of Environmental Quality (DEQ) for solar projects in Virginia. Impacts considered include "direct", in which project construction, components, or other aspects may physically alter a cultural resource. "Indirect" impacts are those which may introduce features, qualities, or other characteristics into the setting of a cultural resource. In the case of solar projects, direct impacts are typically introduced by the location of proposed arrays, access roads, fence lines, and utility easements. Indirect impacts are typically limited to the introduction of visual features.

As such, the archaeological survey area includes the footprint of the project property, workspaces, access roads, and any other areas where ground-disturbing activities directly related to the project may take place. Specifically, it includes those portions of the project deemed suitable for testing.

The architectural survey area includes the project area property, as well as the geographic area around the project within which the associated project components may be seen. The recommended viewshed survey area for solar projects according to the Virginia DEQ Permit by Rule (PBR) for Solar Energy Projects is a one-half mile radius around the project area.

The archaeological and architectural resources survey areas for the Alton Post Solar Project is depicted in Figure 2-1.

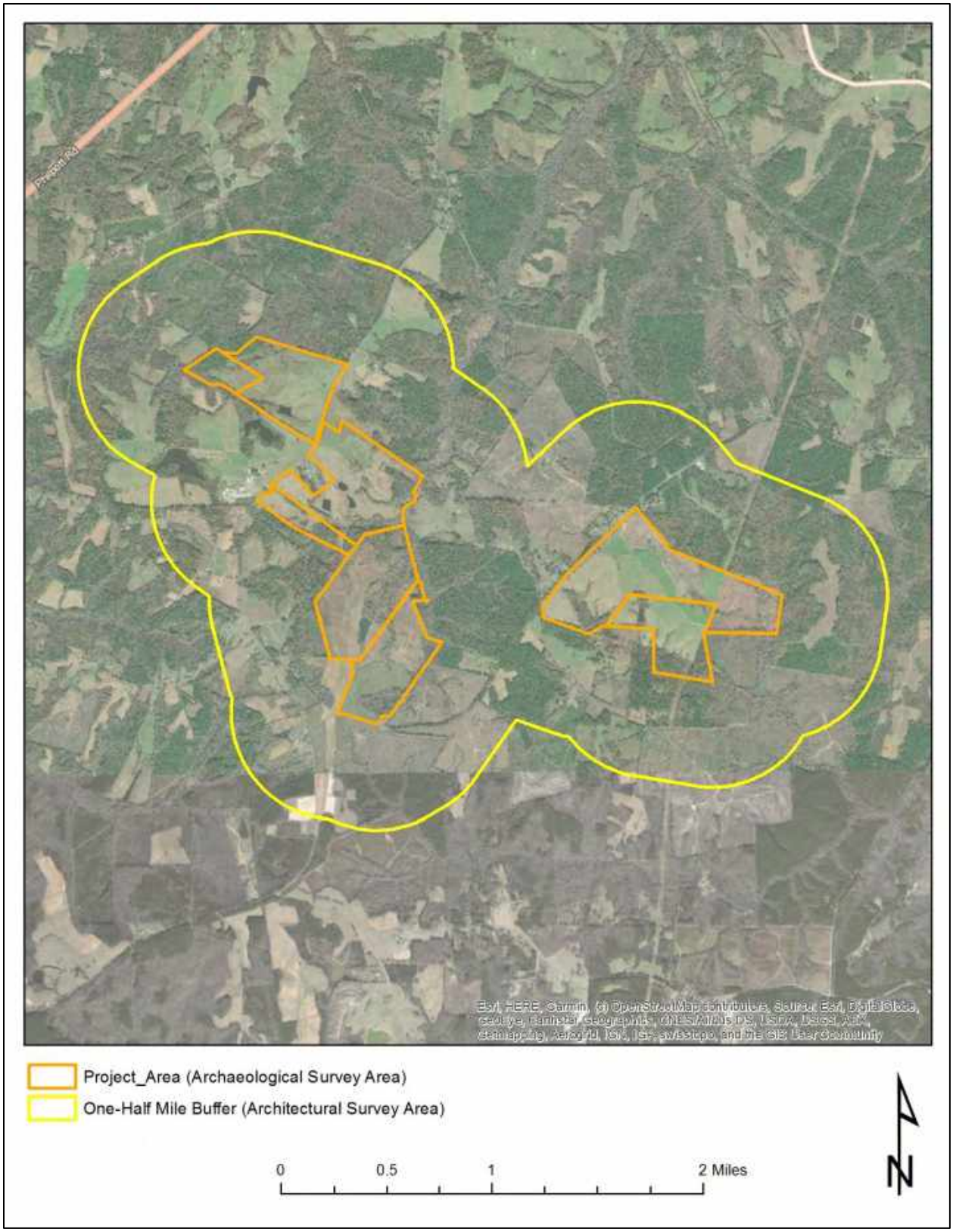

Figure 2-1: Alton Solar Project and Survey Areas.

3. RESEARCH DESIGN

The Phase I cultural resource survey of the Alton Post Solar Project Area was undertaken in order to confirm the existing condition of the property, note any surface evidence of cultural activity, recommend and implement an appropriate survey methodology for the property based upon the results of the background research and field reconnaissance, and identify the presence or absence of cultural resources on the property. The background research, field reconnaissance, and field survey methodologies are summarized below.

ARCHIVAL RESEARCH

In February 2020, D+A conducted background research with the goal of identifying all previously recorded historic properties located within and in the vicinity of the project area in accordance with VDHR's guidance document titled *Guidelines for Conducting Cultural Resources Survey in Virginia* (Revised October 2017). Background research was conducted at the VDHR and on the internet and including the following sources:

- VDHR V-CRIS site files; and
- National Park Service, American Battlefield Protection Program, maps and related documentation.

In further preparation for the Phase I survey, D+A conducted additional review of the following documents and sources for information relative to unrecorded historic property locations in the project area:

- County Tax Assessors records;
- USDA Historic Aerial Imagery;
- U.S. Geological Survey Topographic Maps;
- Previous historic resource survey documents; and
- Local historical society archives.

The additional review conducted in support of the Phase I survey was designed to identify all properties greater than 50 years of age located within the project area. Historic properties include architectural resources, historic and cultural landscapes, battlefields, and historic districts.

CONTEXT DEVELOPMENT

Information from the literature review and background search was used in conjunction with additional research to develop a cultural and historical context to place the project area and any identified historic resources within their appropriate context for evaluations of historical significance. This context was developed through review of previous cultural resource studies, published and unpublished manuscripts, historic maps, aerial photographs, local histories, and a variety of internet sources.

For the purposes of this effort, a comprehensive cultural context of Halifax County was prepared summarizing general historical trends, settlement patterns, and development with a focus on the vicinity of the project area. Further analysis and context development was undertaken for the defined survey area so that newly recorded resources could be effectively evaluated.

FIELD SURVEY

Architectural Resources

The background research conducted in support of this effort was designed to identify properties greater than 50 years of age located within the survey area. A reconnaissance field survey was undertaken to identify and document all buildings, objects, structures, sites, and districts within the survey area that were constructed in 1970 or earlier and meet (or will soon) the 50-year threshold for NRHP-consideration. Construction dates for resources were established through a combination of archival research, property records search, map analysis, and field inspection. Properties that have been subject to previous Phase I survey within the last five years or determined not eligible for listing in the NRHP by the VDHR within the last ten years were not subject to survey as part of this effort.

For each surveyed resource, field forms were completed with information from site observations including a physical description of the resource with information such as relationship to adjacent buildings and structures, general condition, surrounding setting, description of exterior materials, identifiable architectural or structural treatments, and retention of historic physical integrity. Site plans depicting the built environment around each property were sketched. Each identified resource was then marked on both USGS 7.5-Minute Quadrangle maps and current aerial photographs. Representative digital photographs were taken to document each property's existing conditions, setting, and secondary resources.

All field survey identification and documentation were conducted from public ROW and included exterior features only. No interior inspections were conducted as part of this effort. In cases where a resource was not visible or accessible from the public ROW, the property was noted as such. All field documentation was organized and labeled with a unique identification number. Previously recorded resources subject to survey were numbered using their existing VDHR ID# while newly recorded resources were assigned a field recorder number.

All buildings and structures surveyed as part of this study were documented in accordance with VDHR's standards and guidelines and evaluated to determine potential significance in accordance with NRHP criteria. Concentrations of historic resources within or adjacent to the survey area were assessed in terms of their potential for inclusion in historic districts. Each resource's present condition, location relative to other resources, and distinguishing neighborhood characteristics were noted and photographed for an accurate assessment of NRHP Historic District eligibility.

From each resource deemed to be eligible or potentially eligible for listing in the NRHP, a viewshed assessment was conducted from the property towards the project area. This assessment included a visual inspection and photograph of the intervening landscape and vegetation to make

a recommendation as to the likelihood that any improvements related to the project may introduce impacts to the resource.

Archaeological Resources

At the outset of field investigations, a pedestrian survey of the project area was conducted to document existing conditions and to note surface evidence of cultural activity or material and identify areas with the potential for intact subsurface archaeological resources. For any newly encountered archaeological resources identified during the reconnaissance, photographs were taken of the general vicinity and of any visible features. A field map was prepared showing feature locations, permanent landmarks, topographic and vegetation variation, as well as sources of disturbance. Sufficient information was included on the map to permit easy re-identification of the resources.

Following the pedestrian survey, systematic shovel testing was conducted throughout the high probability sections, with shovel test placement avoided in areas of documented or visible significant ground disturbance, slopes in excess of 15 percent, and areas in statutory wetlands or water saturated soils at the time of the survey. Shovel tests were excavated at a maximum of 15-meter (50-foot) intervals along transects spaced 15 meters (50 feet) apart. The soil excavated from all shovel tests was passed through 0.63-centimeter (1/4-inch) mesh screen and all shovel tests were approximately 0.38 meters (15 inches) in diameter and excavated to sterile subsoil or the practical limits of excavation. Isolated positive shovel tests were bracketed with radial shovel tests (half the distance to the next shovel test in all four directions) until two negative shovel tests in each direction were documented.

For any archaeological resources identified during the survey, photographs were taken of the general vicinity and of any visible features. A field map was prepared showing site limits, feature locations, permanent landmarks, topographic and vegetational variation, sources of disturbance, and all surface and subsurface investigations. GPS coordinates for all identified site locations were recorded and sufficient information was included on maps to permit easy relocation of sites. Notes were taken on surface and vegetational conditions, soil characteristics, dimensions and construction of features evident, and the amount and distribution of cultural materials present. All subsurface archaeological excavations were backfilled and returned to pre-survey conditions.

LABORATORY ANALYSIS

All artifacts generated in the course of the survey were provenienced in the field and recorded. Following fieldwork, the artifacts were transported to the D+A laboratory facilities where they were cleaned, sorted, and identified. After processing, all artifacts were inventoried using Microsoft Excel. A computer-printed artifact inventory of prehistoric and historic artifacts is included as an appendix to this report.

Identification of diagnostic artifacts was made by consulting existing comparative collections and available regional literature regarding artifact types. Artifacts were assigned dates through the comparison of identified artifacts with other material culture classes having documented use-

popularity patterns. Ceramics and glass provided primary chronological information. All artifacts were placed in polyethylene re-sealable storage bags and placed in acid free boxes suitable for permanent curation. At the conclusion of the survey, arrangements will be made with the client regarding final deposition of the artifacts.

REPORT AND RECORD PREPARATION

Information from field survey was used in conjunction with background research and context development to assess each identified cultural resource for potential NRHP-eligibility. A results section was prepared that summarizes the field findings, assessment of significance and NRHP-eligibility. For any resource recommended to be potentially eligible for listing in the NRHP, an assessment of project impacts was prepared. The results of the study are accompanied by maps and photographs as appropriate and were synthesized and summarized in this report along with the research design, archives search, and cultural contexts. All research material and documentation generated by this project are on file at D+A's office in Midlothian, Virginia. VDHR site forms (Virginia Cultural Resources Information System (V-CRIS) were completed for all cultural resources, 50 years of age or older, identified during the survey. Site forms for archaeological sites are include as an appendix to this report.

4. ENVIRONMENTAL CONTEXT

PHYSICAL DESCRIPTION AND LOCATION

The Alton Post Solar Project Area consists of ±313.9 hectares (±775.6 acres) of land situated in the Piedmont physiographic region in Virginia (Figure 4-1). The project area is made up of several parcels. The central parcels of the project area are located between Mount Carmel Road to the northwest and Alton Post Office Road to the south and east, with Lawsons Creek acting as the eastern boundary. The northernmost parcel is bounded by Mount Carmel Road on the southwest, and by an unnamed parcel to the north. The southernmost parcel of the project area is bounded by Alton Post Office Road to the northeast and an unnamed parcel to the south. The project area consists primarily of open areas and pastures, with limited woodlands. Runoff from the project area drains west towards Winns Creek, east and northeast towards Lawsons Creek, and south east towards an unnamed tributary.

Figure 4-1: Aerial view of the Alton Post Solar Project Area (red). Source: Google Earth 2020.

GEOLOGY AND TOPOGRAPHY

The project area topography is characterized by six moderately sized landforms dispersed between eight (8) parcels and many small finger ridges with low to moderate slopes. Broad uplands with low to moderate slopes are associated with the Outer Piedmont subprovince of the Piedmont region. The area is underlain by Interlayed Mafic and Felsic Metabolcanic rocks, including foliated felsite, quartz, muscovite schists, and gneiss. The elevation of the project area ranges from approximately ±139.60 meters (458 feet) above mean sea level (AMSL) at the northern corner of the south eastern parcel and ±180.14 meters (591 feet) AMSL on the southern corner of the south west parcel.

HYDROLOGY

The project area drains into Winns Creek from the northern parcel. The project area drains into Lawson Creek from the central parcels. These creeks drain into the Dan River. The project area drains into two unnamed tributaries of Powletts Creek from the southern parcels. Powletts Creek drains into the Hyco River. The two rivers drain into the John H. Kerr Reservoir, which then runs into the Roanoke River. The Roanoke River leads into Lake Gaston before continuing on, leading to the Cypress Swamp and ultimately flowing into the Chesapeake Bay and into the Atlantic Ocean.

PEDOLOGY

The most prominent soil types within the project area are Clifford sandy loam, Clifford clay loam, and Fairview sandy loam. (Figure 4-2; 4-3 and Table 4-1). A total of 92.6% of the soils located within the project area are considered well drained. Approximately 192.59 hectares (475.9 acres) of the project area are considered prime farmland or farmland of statewide importance. Twenty-three percent of the project area slopes at 15% or more.

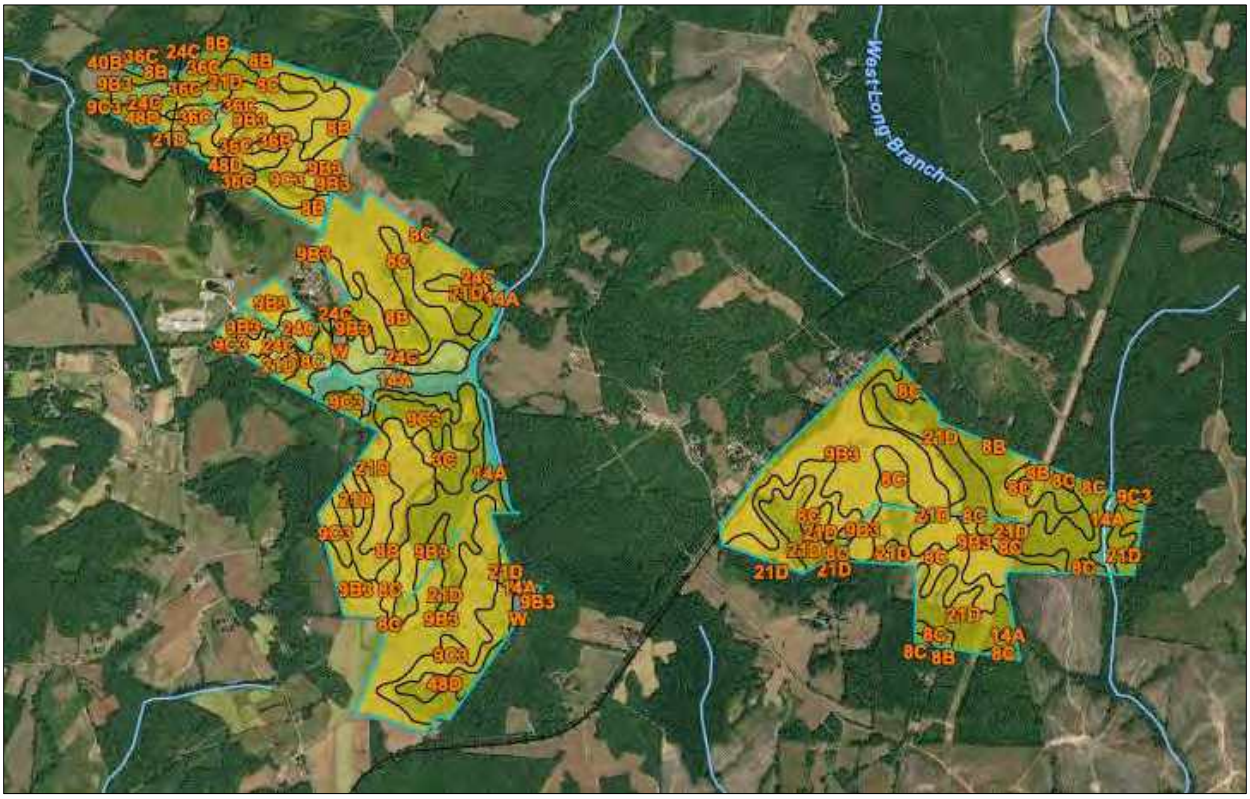

Figure 4-2: Soil Survey of the Alton Post Solar Project Area showing soil types. Source: USDA

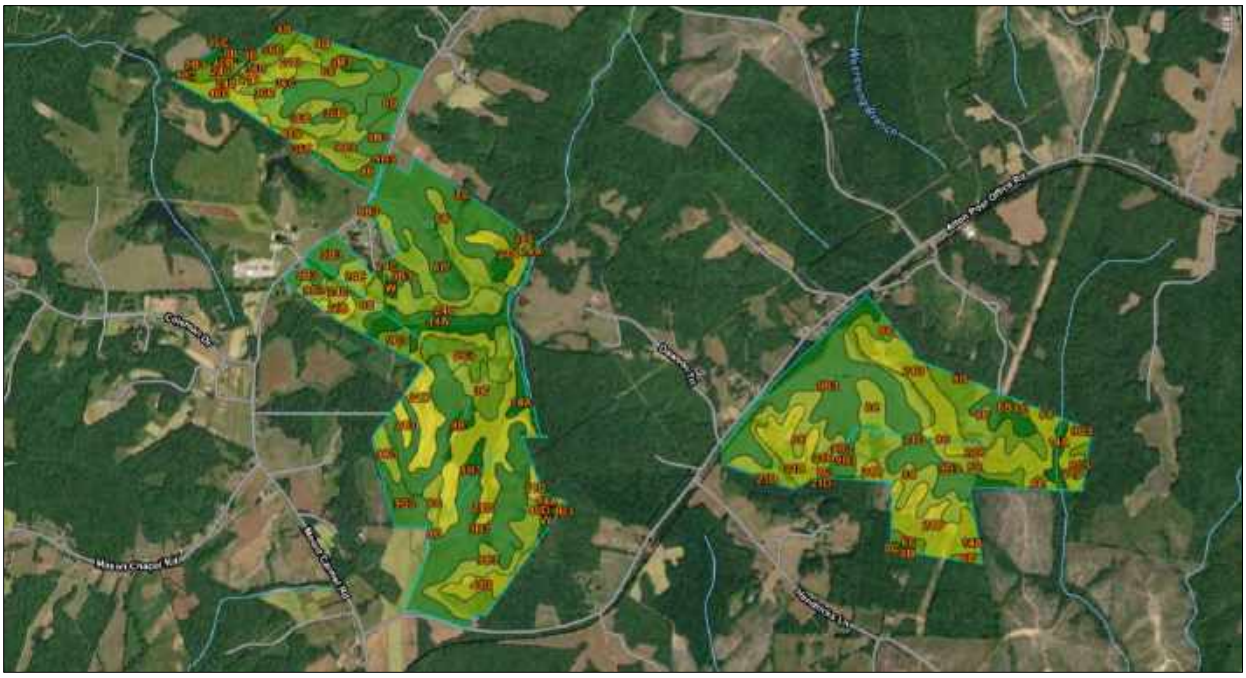

Figure 4-3: Soil Survey of the Alton Post Solar Project Area slopes. Source: USDA

Table 4-1: Unit summary of soils within the Alton Post Solar Project Area. Source: USDA

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
3C	Bentley loamy sand, 8 to 15 percent slopes	Well drained	9.0	1.2%
8B	Clifford sandy loam, 2 to 8 percent slopes	Well drained	106.9	13.8%
8C	Clifford sandy loam, 8 to 15 percent slopes	Well drained	143.4	18.5%
9B3	Clifford clay loam, 2 to 8 percent slopes, severely eroded	Well drained	182.3	23.5%
9C3	Clifford clay loam, 8 to 15 percent slopes, severely eroded	Well drained	63.0	8.1%
14A	Codorus and Hatboro soils, 0 to 2 percent slopes, frequently flooded	Somewhat poorly drained	28.9	3.7%
21D	Fairview sandy loam, 15 to 25 percent slopes	Well drained	163.9	21.1%
24C	Halifax sandy loam, 8 to 15 percent slopes	Moderately well drained	28.4	3.7%
36B	Nathalie sandy loam, 2 to 8 percent slopes	Well drained	3.4	0.4%
36C	Nathalie sandy loam, 8 to 15 percent slopes	Well drained	21.2	2.7%
40B	Rasalo-Orange complex, 2 to 8 percent slopes	Well drained	2.1	0.3%
48D	Toast sandy loam, 15 to 25 percent slopes	Well drained	20.1	2.6%
W	Water		3.1	0.4%
Totals for Area of Interest			**775.6**	**100.0%**

5. PREVIOUS INVESTIGATIONS

This section includes a summary of all the cultural resource management events that have taken place within the project area registered at VDHR through February 2020. It also lists all previously identified architectural resources and archaeological sites located within the project area, as well as within one mile of the project area.

PREVIOUS SURVEYS RELEVANT TO THE SITE

Research at the VDHR reveals that no mapped previous Phase I cultural resource surveys have been conducted within one mile of the project area.

PREVIOUSLY IDENTIFIED ARCHAEOLOGICAL SITES WITHIN ONE MILE

There are 7 previously recorded archaeological sites located within one mile of the project area, none of which are located within the project area (Figure 5-1, Table 5-1). Of these sites, there are four cemeteries, one dwelling, one farmstead, one rockshelter, and a site that is an open-air artifact scatter dating to the prehistoric period. Collectively, these sites range in date from the prehistoric period to the twentieth century. VDHR has not formally evaluated any of these sites for inclusion in the NRHP.

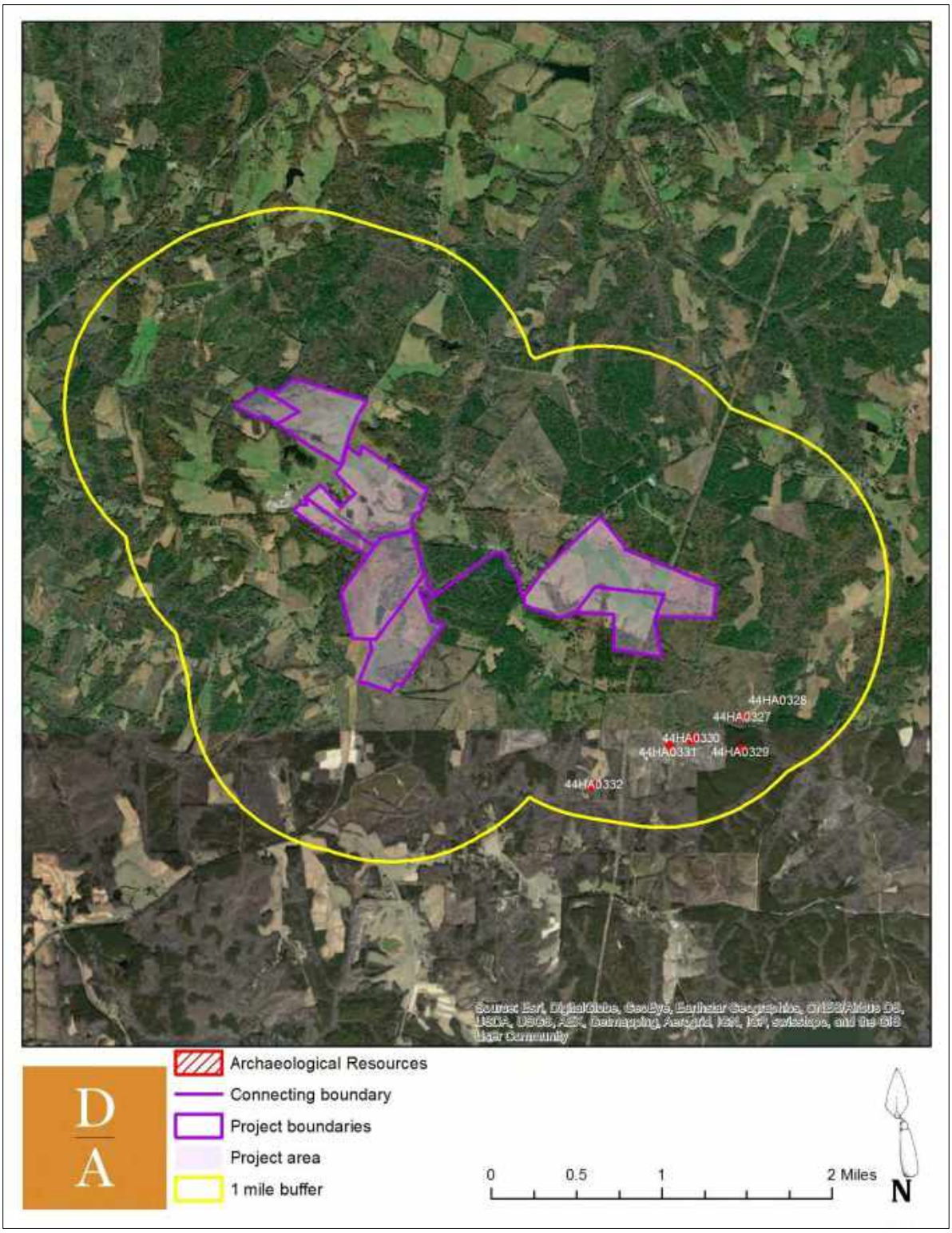

Figure 5-1: Map detailing all archaeological resources (red) within 1.0 mile (yellow) of the project area (purple). Note that the two polygons labeled 44HA0332 represent two separate but associated sites: 44HA0332 (Reaves Farm Cemetery 1) and 44HA0333 (Reaves Farm Cemetery 2). Source: V-CRIS

Table 5-1: Previously identified archaeological sites located within 1.0 mile of the project area.

VDHR ID#	Site Types	Cultural Designation	Temporal Association	NRHP Status
44HA0327	Other	Native American	Middle Archaic Period (6500 - 3001 B.C.E), Late Archaic Period (3000 - 1201 B.C.E), Early Woodland (1200 B.C.E - 299 C.E)	Not Evaluated
44HA0328	Rockshelter	Native American	Pre-Contact (15000 B.C. - 1606 A.D.)	Not Evaluated
44HA0329	Dwelling, single	Indeterminate	Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)	Not Evaluated
44HA0330	Farmstead	Euro-American	Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)	Not Evaluated
44HA0331	Cemetery	Euro-American	Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945)	Not Evaluated
44HA0332	Cemetery	Euro-American	Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	Not Evaluated
44HA0333	Cemetery	Euro-American	Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	Not Evaluated

PREVIOUSLY IDENTIFIED ARCHITECTURAL RESOURCES WITHIN ONE MILE

Review of VDHR records identifies eleven previously recorded architectural resources located within one mile of the project area; none of these resources are located directly within the project area (Figure 5-2, Table 5-2). Included among the previously recorded resources are one cemetery and ten dwellings, many of which are associated with domestic and agricultural outbuildings. The resources range in date from the mid-nineteenth century to the mid-twentieth century. VDHR has determined one resource to be potentially eligible and eight resources to be not eligible for listing in the NRHP. The remaining two resources have not been formally evaluated.

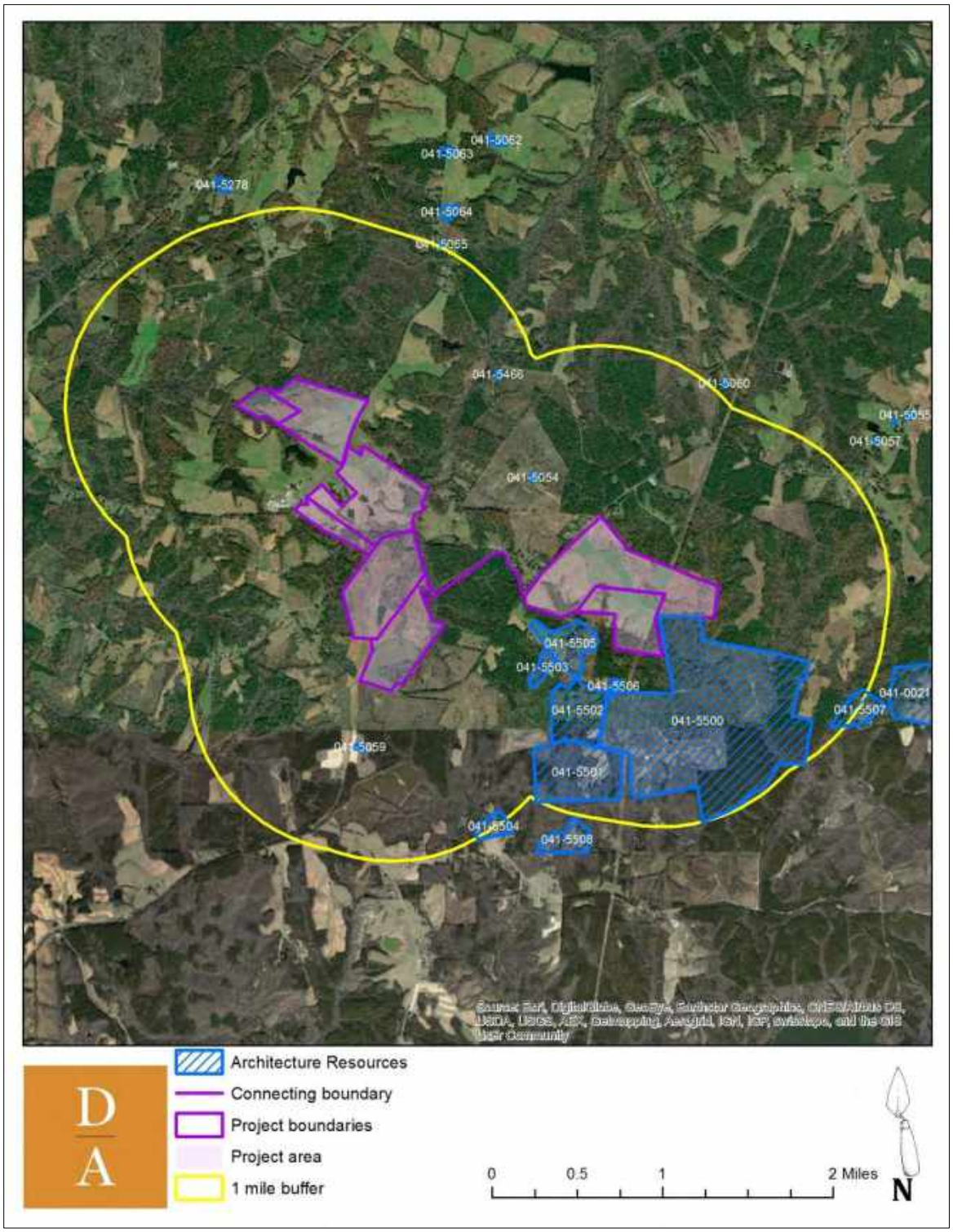

Figure 5-1: Map detailing all architectural resources (blue) within 1.0 mile (yellow) of the project area (purple). Source: V-CRIS

Table 5-2: Previously identified architectural resources located within 1.0 mile of the project area.

VDHR ID#	Resource Name	Type	Year	NRHP Status
041-5054	Double Tenant House, 2200 Alton Post Office Road (Function/Location), Double Tenant House, 2200 Route 711 (Historic)	Multiple dwelling	1900Ca	Not Evaluated
041-5059	House, 4059 Mt. Carmel Road (Function/Location)	Single dwelling	1870Ca	Not Evaluated
041-5466	Cemetery, Mill Pond Road (Function/Location), Pambid property (Current Name)	Cemetery	1865Pre	DHR Staff: Not Eligible
041-5500	Farm, East End of Hendricks Land (Function/Location), Paul Green Farm (Historic)	Single dwelling	1860Ca	DHR Staff: Not Eligible
041-5501	Farm, South Side of Hendricks Lane (Function/Location), Reaves Farm (Historic)	Single dwelling	1860Ca	DHR Staff: Not Eligible
041-5502	Chandler Residence (Current Name), House and Outbuildings, 1152-1186 Hendricks Lane (Function/Location)	Single dwelling	1965Ca	DHR Staff: Not Eligible
041-5503	House and Outbuildings, 1108 Hendricks Lane (Function/Location)	Single dwelling	1900Ca	DHR Staff: Not Eligible
041-5504	House and Outbuildings, 175 D.B. Whitt Road (Function/Location)	Single dwelling	1880Ca	DHR Staff: Not Eligible
041-5505	Hendricks Farm (Current Name), House and Farm, 1095 Hendricks Lane (Function/Location)	Single dwelling	1920Ca	DHR Staff: Not Eligible
041-5506	House, 1185 Hendricks Lane (Function/Location)	Single dwelling	1965Ca	DHR Staff: Not Eligible
041-5507	House and Outbuildings, 1199 Turner Trail (Function/Location)	Single dwelling	1890Ca	DHR Staff: Potentially Eligible

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6. CULTURAL CONTEXT

The following section provides a brief summary of the general overarching regional prehistoric and historic themes relevant to Virginia and Halifax County. The primary emphasis of this context focuses on the anthropological and material culture trends in prehistory and history, and describes how people throughout time could have left their archaeological mark on the landscape of the project area specifically. Prehistoric and historic occupation statistics and trends were analyzed, as were historic maps and available first-hand accounts which aided in establishing the appropriate cultural context for the project area as defined by the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation* and the Virginia Department of Historic Resources' *How to use Historic Contexts in Virginia: A Guide for Survey, Registration, Protection, and Treatment Projects* (VDHR 2011).

PALEOINDIAN PERIOD (PRIOR TO 8000 B.C.)

Recent archaeological findings in Virginia have found the first Paleoindians are projected to have arrived in southeastern North America between 15,000 and 11,000 years ago, or approximately 13000 to 9000 B.C. (McAvoy and McAvoy 1997). Three of the earliest archaeological sites associated with Paleoindian occupation in Virginia are the Cactus Hill site (VDHR #44SX0202) located along the Nottoway River in Sussex County, the Thunderbird Site (VDHR #44WR0011) in Warren County, and the Saltville site (VDHR #44SM0037) in Smyth County. These early populations coincided with the late glacial era when sea levels were approximately 230 feet below their present-day level (Anderson et al. 1996:3). The Laurentide Ice Sheet covered much of northern North America, lowering temperatures in the region and creating an ideal environment for a boreal forest (Delcourt and Delcourt 1981). Paleoindians apparently survived in this environment through opportunistic hunting and gathering of smaller mammals, fish, and wild plants (Anderson 2001). Seasonably mobile, these Paleoindians utilized different food sources at different times of the year, an extensive subsistence pattern that required a large territory.

Accordingly, the Paleoindians may have maintained a central base camp located either in a diverse ecozone where flora and fauna were easily procured or near lithic sources that contained cryptocrystalline stone. Wider ranging satellite camps would then have been seasonally occupied to exploit other natural resources, be they lithic material, flora, or fauna (Anderson et al 1996; Daniel 1996; Binford 1980). Most Paleoindian sites are small and scattered, suggesting that the groups lived in small familial bands distributed across the landscape. The lack of status items among their archaeological remains suggests that these groups recognized little differentiation in status, and probably employed an egalitarian social structure. Ethnographic analogies suggest that Paleoindians might have maintained this rough equality by shunning aspiring leaders, and methods of property redistribution.

The Paleoindians relied upon durable and easily-shaped cryptocrystalline materials such as chert and jasper for their tools. They fashioned these rocks into a variety of instruments, among which were scrapers, gravers, and adzes. Paleoindian projectile points tended to be fluted and bifacially sharpened. Due to time and rising sea levels, many Paleoindian material culture finds are limited

to isolated projectile points. Researchers differentiate the Paleoindian Period into three smaller periods reflecting changes in the morphology of projectile points. These periods include the Early Paleoindian (9500-9000 B.C.), the Middle Paleoindian (9000-8500 B.C.), and the Late Paleoindian (8500-8000 B.C.).

During the Early Paleoindian, Paleoindians produced large fluted Clovis points, a style widespread throughout North America, which could be affixed to a spear shaft. Sites from this period are found throughout the eastern seaboard in very low densities. Regions depicting greater concentrations of these sites are in Tennessee, the Cumberland and Ohio River Valley, western South Carolina, the northern Piedmont of North Carolina, and southern Virginia (Anderson 1990:164-71; Daniel 1996; Ward and Davis 1999).

The Middle Paleoindian saw a modification of Clovis points, such as the disappearance of the fluting in some cases and the addition of "ears" at the base of the point. The appearance of these new types, such as the Cumberland, Simpson, Clovis variants, and Suwanee points, might reflect changes in subsistence patterns as the result of rising global temperatures. During this time, it is theorized that American Indians began to radiate out from their previous range of occupation to exploit resources from more distant environments (Anderson 1990; Anderson et al. 1996; Ward and Davis 1999:31).

Changes to the projectile points intensified during the final centuries of the Paleoindian Period resulting in an increased number of changes in projectile point morphology. The Dalton and Hardaway types and other variants allowed late Paleoindian peoples to hunt new species.

The Paleoindian's scattered settlement pattern and simple culture contribute to the limited number of associated sites in the region, fewer than 75 sites have been identified in present-day Virginia and only 25 have been positively identified in the entire Chesapeake (Turner 1989; Dent 1995). Those Paleoindian sites that have been located tend to be quarry sites, which groups frequently visited and areas where several bands gathered (Meltzer 1988; McAvoy 1992). Many sites were likely destroyed when warming global temperatures melted the glaciers and inundated the low-lying Paleoindian settlements.

ARCHAIC PERIOD (8000 TO 1200 B.C.)

Dramatic climatic changes beginning about 10,000 years ago prompted a reconfiguration of prehistoric people's subsistence strategies and social organization. Specifically, global temperatures began rising with the dawn of the Holocene geological period, simultaneously shrinking the glaciers and raising sea levels. In North America, the Laurentide Ice Sheet gradually receded northward, making the southeastern portion of the modern-day United States warmer and drier. The boreal forest of the Pleistocene era slowly gave way to a mixed conifer and northern hardwood forest. The area began to assume its modern-day climate and floral and faunal species. This warming also resulted in dramatic hydrological changes for coastal Virginia. As the sea level gradually climbed, the land was flooded; as a result, the lower reaches of the Susquehanna River flooded to form the Chesapeake Bay.

These climatic changes created new food sources for prehistoric people. The warmer, drier climate led to a greater biodiversity, especially floral, as spruce and fir forests gave way to nut- and fruit-bearing trees (Aaron 2009:17). This allowed humans to rely more heavily on gathering wild plants, nuts, and berries. Indeed, archaeologists have discovered tools, such as nutting stones and pestles, for processing vegetable materials. The creation of the Chesapeake Bay, furthermore allowed Archaic people to exploit seafood, such as anadromous fish and shellfish. The appearance of shell middens during the period testifies to the importance of mollusks to the Archaic diet (Dent 1995).

To exploit these new resources, Archaic people likely intensified their seasonal movement, splitting their time between a semi-permanent base camp and smaller, dispersed hunting and gathering camps. Bands of as many as 30 people may have gathered in the base camp for part of the year, and then dispersed into "microbands," composed of a single family or two, in other seasons (Griffin 1952; Anderson and Hanson 1998; Ward and Davis 1999). The range of band movement would have occurred over relatively large regions. These larger base camps are theorized to have been located along rich environmental areas near the Fall Line or along main rivers.

New subsistence patterns also required new technologies and the adaption of existing technologies to be suitable to existing game. "The spear thrower [called an atlatl] added range and power to the hunter's arm. The axe enabled people to fell trees. The mortar and pestle made it easy to pound and grind nuts, seeds, and roots" (quoted in Aaron 2009:18). With new technologies, smaller game could be more easily hunted and plants could be processed more effectively. The resulting products of these technologies differentiate the Archaic Period into three smaller periods. The period also saw innovations in projectile point manufacturing. In a further divergence with the Paleoindians who relied heavily on cryptocrystalline lithics, Archaic people utilized more materials, such as quartzite and quartz.

The Early Archaic (8000-6500 B.C.) is characterized by projectile points with corner and side-notches, rather than hafting the points to a wood shaft by fluting as the Paleoindians did. The resulting points, such as the Kirk Stemmed and Notched, Palmer Corner-Notched, Fort Nottoway, Kessell, Charleston, and Amos, are thus readily distinguishable from Paleoindian points (Custer 1990). Early Archaic people hunted caribous, elk, moose, deer, and bear (Egloff and Woodward 1992:12). Additionally, there appears to be an increase in population at this time.

The Middle Archaic (6500-3000 B.C.) is defined primarily by the appearance of stemmed projectile points which were fitted into a hold in the spear shaft. Therefore, points such as the LeCroy, Stanly, Morrow Mountain, and Guilford are diagnostic of Middle Archaic assemblages. Some evidence also points to the use of grinding technology to make atlatls in this period. Mortar and pestles also began to appear during the Middle Archaic, as did axes. The ability to more easily clear forests, resulted in a change in hunting as deer, bear, turkey, and other animals came to the cleared land to eat the new, low-lying growth (Egloff and Woodward 1992:14-15).

Researchers have also pointed out that contexts from this period contain a larger amount of "expedient" stone tools, owing in part to the rapid environmental changes of the Climatic Optimum, which dates from 6000 to 2000 B.C. (Wendland and Bryson 1974; Claggett and Cable

1982; Ward and Davis 1999). These tools were makeshift and less formal, allowing their owners to use them for a wider variety of activities than tools designed for specific uses. The greater density and disbursement of archaeological sites from this period indicates a consistent rise in American Indian populations.

By the Late Archaic (3000-1200 B.C.), a more congenial climate and more abundant food sources led to dramatic population increases, there are estimates of tens of thousands of Virginia Indians during this time (Egloff and Woodward 1992:20). To be certain, this apparent increase might be exaggerated because Late Archaic people had a richer material culture than previous peoples and hence left more archaeological evidence of their existence (Klein and Klatka 1991). Nonetheless, the greater number of Late Archaic sites relative to earlier periods suggests that the human population did in fact expand over the course of the Archaic Period. According to Barber et al. (1992), Late Archaic sites were more than twice as numerous as Middle Archaic sites. As humans occupied the land more densely, they also became more sedentary and less mobile, perhaps owing to the greater reliance on plant-based food resources compared to hunting and fishing. Late Archaic people settled along fertile flood plains (Egloff and Woodward 1992:20).

American Indians from this region may also have begun to domesticate plants such as goosefoot, squash, and gourds (Yarnell 1976:268; Chapman and Shea 1981:70). They also used squash and gourds for food storage, in addition to earthen pits (Egloff and Woodward 1992:22). The projectile point technology of the Late Archaic Period is dominated by stemmed and notched point forms, many with broad blades, likely used as projectiles or knives. These points diminish in size towards the latter portion of this period (Dent 1995; Justice 1995).

It should also be noted that prehistoric sites that consist of lithic debitage, no diagnostic artifacts, and an absence of ceramic artifacts likely date to the Archaic Period. These sites are described in the records as "Prehistoric/Unknown," however they are most likely to date to this period despite not having a specific temporal designation.

WOODLAND PERIOD (1200 B.C. TO 1600 A.D.)

The American Indians of the Woodland Period began to maintain a greater reliance on horticulture and agriculture based on the cultivation of maize, imported from Mesoamerica via the Mississippi Valley, as well as squash, beans, and other crops. This increased sedentism and the nucleating of societies (Klein and Klatka 1991; Mouer 1991). Populations during this time began to consolidate into villages near rivers and floodplains with fertile soil, favorable terrain, and access to fauna. Satellite procurement camps are far less frequent than in the Archaic Period.

The Woodland Period is defined foremost by the development of a ceramic technology for storing and cooking food. Although Archaic people had carved out vessels from soft soapstone, prehistoric Americans did not begin shaping ceramic vessels until around 1200 B.C. The earliest pottery produced on the coastal plain, the Marcey Creek Plain, and other types, in fact resembled those soapstone vessels, suggesting that they were used for similar purposes. Woodland peoples, however, modified the square- or oval-shape soapstone inspired vessels. They began decorating the pieces with cord and tempering them with soapstone and other types of grit to make them

stronger. Examples include Selden Island ceramics (tempered with soapstone) and Accokeek pieces (which used sand and grit for tempering). Anthropologists divide the period up into smaller periods based on changing projectile points and ceramics, as well as settlement patterns.

The beginning of the Early Woodland (1200 B.C.-A.D. 300) is defined by the appearance of ceramics from prehistoric archaeological context. Ceremonialism associated with the burial of the dead also appears at about 500 B.C. with stone and earth burial cairns and cairn clusters in the Shenandoah Valley (McLearen 1992; Stewart 1992). Early Woodland settlements in the Piedmont region of Virginia are located along rivers as well as in interior areas and there is evidence to suggest the Piedmont areas developed a more sedentary lifestyle during this time (Klein and Klatka 1991; Mouer 1991). Many Early Woodland sites in the Piedmont are permanent or semi-permanent villages that are large and intensively occupied. This corresponds with the domestication of weedy plants such as the goosefoot and sunflower along intentionally cleared riverine areas.

During the Middle Woodland (A.D. 300-1000), there is an increase in sites along major trunk streams and estuaries as people move away from smaller tributary areas and begin to organize into larger groups (Hantman and Klein 1992). The Middle Woodland diet becomes more complex as people begin to exploit nuts, amaranth, and chenopod seeds in addition to fish, deer, waterfowl, and turkey. Corn by this time had transformed into the large ears familiar today. The bow and arrow replaced spears for hunting (Egloff and Woodward 1992:25). With more specialized crafts and increased trade came status. Evidence of rank societies emerges more clearly with the spreading of religious and ritual behavior including symbols and regional styles apparent in ceramic styles and other sociotechnic and ideotechnic artifacts.

Variance in ceramic manufacture is a hallmark of the Middle Woodland Period. Pope's Creek ceramics are associated with the beginning of this period, and Mockely ceramics with the later. Pope's Creek ceramics are tempered with medium to coarse sand, with occasional quartz inclusions, and interior scoring has also been recorded (Stephenson 1963:94; McLearen and Mouer 1989). The majority of Pope's Creek ceramics have net-impressed surfaces (Egloff and Potter 1982:99; McLearen and Mouer 1989:5). Shell-tempered Mockley ceramics first appeared around 200 A.D. in Virginia to southern Delaware. There was a variation in surface treatments for Mockley that included plain, cord-marked, and net-impressed (Egloff and Potter 1982:103; Potter 1993:62).

By the Late Woodland Period (A.D. 1000-1606), the use of domesticated plants had assumed a role of major importance in the prehistoric subsistence system. The arrival and cultivation of beans joined corn and squash as the three major crops (Egloff and Woodward 1992:26). The adoption of agriculture represented a major change in the prehistoric subsistence economy and settlement patterns. Expanses of arable land became a dominant settlement factor, and sites were located on fertile floodplain soils or, in many cases, on higher terraces or ridges adjacent to them.

Virginia Indians became more settled and developed strong identities to their local settings. They began to organize into villages and small hamlets with more substantial housing that may have been placed in rows around a plaza (Egloff and Woodward 1992:26). These villages were highly

nucleated and occasionally fortified with palisades. The fortifications demonstrate inter-group conflict.

Occupying the Piedmont of Virginia were the Sioux, including the Monacan, Manhoacs, Nahyssan, Occaneechi, Tutelo, and the Saponi. In his *Adventures in the Dan River Basin*, Altman comments on the lifestyle of the Dan River people: "In the rich alluvial soil they raised many varieties of corn, peas, beans, pumpkins, watermelons, muskmelons, and potatoes; hunted birds for their meat and their parts for bone tools and personal adornment; utilized plants like gourds for food and kitchenware and hunted a variety of animals" (quoted in Aaron 2009:19). The Roanoke River system exhibit a strong, conservative ceramic tradition that covers territory that also includes parts of the New River and Upper James River drainages (MAAR Associates et al. 2008:11).

SETTLEMENT TO SOCIETY (1607 – 1750)

At the time of European arrival, Virginia Indians belonged to three distinct languages groups. This included Algonquian-speaking tribes on the coastal plain which was centered around the Powhatan confederacy; Iroquoian-speaking tribes like the Nottoway and Meherrin south of the James River and the Cherokees in southwestern Virginia; and the Sioux or Siouan-speaking people of the Piedmont (Aaron 2009:19-20). Siouan-speaking tribes in the southern Piedmont included the Tutelo, Occaneechee, and Saponi (MAAR Associates et al. 2008:11). The fertile floodplains of the region provided broad, sandy areas that could be easily tilled for planting crops (HCHSAC 2006:4). These tribes may have had close ties to one another and have had alliances with the tribes in the valleys and mountains of western Virginia and in North Carolina (MAAR Associates et al. 2008:13). However, increased, European movement into these lands would slowly eliminate the vast majority of these native populations.

Though permanent European settlement in the colony of Virginia began in 1607, European exploration of what is now southern and southwestern Virginia was slow to begin with its lack of major navigable waterways that could access the Chesapeake Bay; the major early method of exploration and transportation in the colony was along navigable waterways. Around 1670, however, the German explorer Dr. John Lederer was commissioned to explore the colony. On his second exploration, he ventured west from the James River and south along the mountains to North Carolina and back north. He visited the Saponi tribes in southern Virginia. At the confluence of the Dan and Staunton rivers, Occaneechi Island became an important trading center between American Indians and English colonists to the east.

Unfortunately, in 1676 northern Indian tribes attacked and killed settlers in the colony leading to retaliation by some English settlers. Nathaniel Bacon led a group of planters from the James River region south where they attacked and defeated the Occaneechi Tribe near the present City of Clarksville in Mecklenburg County. The remaining Occaneechi would abandon their homesite. Remnants of the Siouan tribes united under the Saponi and sought the protection of the Colonial Virginia government against their native foes, primarily the Iroquois, including the nearby Nottoway, Meherrin, and Tuscaroras. By 1733, however, the Saponi made peace with the Nottoway and Tuscaroras, and left to live with the latter tribe (MAAR Associates et al. 2008:13-14).

The population of the colony continued to grow and by 1715 there were 72,500 European-American residents and 23,000 African-Americans, largely enslaved (MAAR Associates et al. 2008:16). However, these colonists were primarily in the Tidewater region of Virginia along the navigable waterways. Given the project area's remote location, it was not until the 1720s that Europeans slowly began to migrate into the area. In order to encourage settlement, as well as create a buffer between Europeans in the settled east and American Indians, Brunswick and Spotsylvania counties were established in 1720. Brunswick County extended far west and included the project area. In attempts to draw settlers to the region, inhabitants of Brunswick would be exempt from paying quit rents and purchasing land rights for seven years (Clement 1999:33). While settlement grew in Spotsylvania County, Brunswick remained largely vacant, this was likely due to the flow of the area's rivers. Rivers in Southside Virginia flow southeast into the Albemarle Sound of North Carolina. Unlike the Chesapeake Bay to the north, Albemarle Sound had little in the way of ports.

Early in Virginia and North Carolina's history, the shared boundary between the two colonies was disputed. In 1728, William Byrd was commissioned to survey the boundary for which he received a large land grant. When he explored the region again in 1733, he found that "One can find in this beautiful and fruitful land all the delightful enjoyments which a rational being can ever desire" (quoted in HCHSAC 2006:3).

However, settlement was sparse. By 1738, Brunswick's western lands remained "unseated and uncultivated" (Clement 1999:37). Settlement was again encouraged by exempting settlers from paying levies for a period of ten years and permitting naturalization of Germans, Quakers, and Scotch-Irish who were moving south along the Shenandoah from Pennsylvania. In addition to the land he was granted, William Byrd purchased additional acreage and upon his death, he held 105,000 acres including much of what is now southwestern Halifax County (Figure 6-1). Within a few years, portions of this land was sold to settlers coming into southern Virginia (HCHSAC 2006:4). By 1745, population had grown to the point that complaints regarding the ability to reach the courthouse in this expansive county led to the creation of Lunenburg County in 1745. By 1749, Lunenburg had 9,542 residents (MAAR Associates et al. 2008:19).

A major draw to southern Virginia was the availability of fertile land for the cultivation of tobacco. Around 1612, John Rolfe was able to cultivate a strain of tobacco that readily sold in the English market. The introduction of this "cash crop" was the impetus for European expansions throughout the colony and tobacco quickly became the dominant crop in Virginia. It was tobacco that determined the pattern of nearly every aspect of life, encompassing the economy, the cultural landscape, and social relations (Kulikoff 1986; Moore 1976). It was tobacco that determined how roads were built, how taxes were collected, and where towns were established (Karnes 1998:8). As the popularity of the crop increased in Europe so too did the population of Virginia as did planters' reliance on slave labor in lieu of indentured servants (Salmon 1983:11-12, 15, 20). In 1640, Virginia produced 1.3 million pounds of tobacco and by 1755 the colony exported 42 million pounds (Aaron 2009:81). Tobacco valued at nearly three times that of the next most stable valuable commodity, which was wheat followed by corn (Luchsinger et al. 2006:3-6).

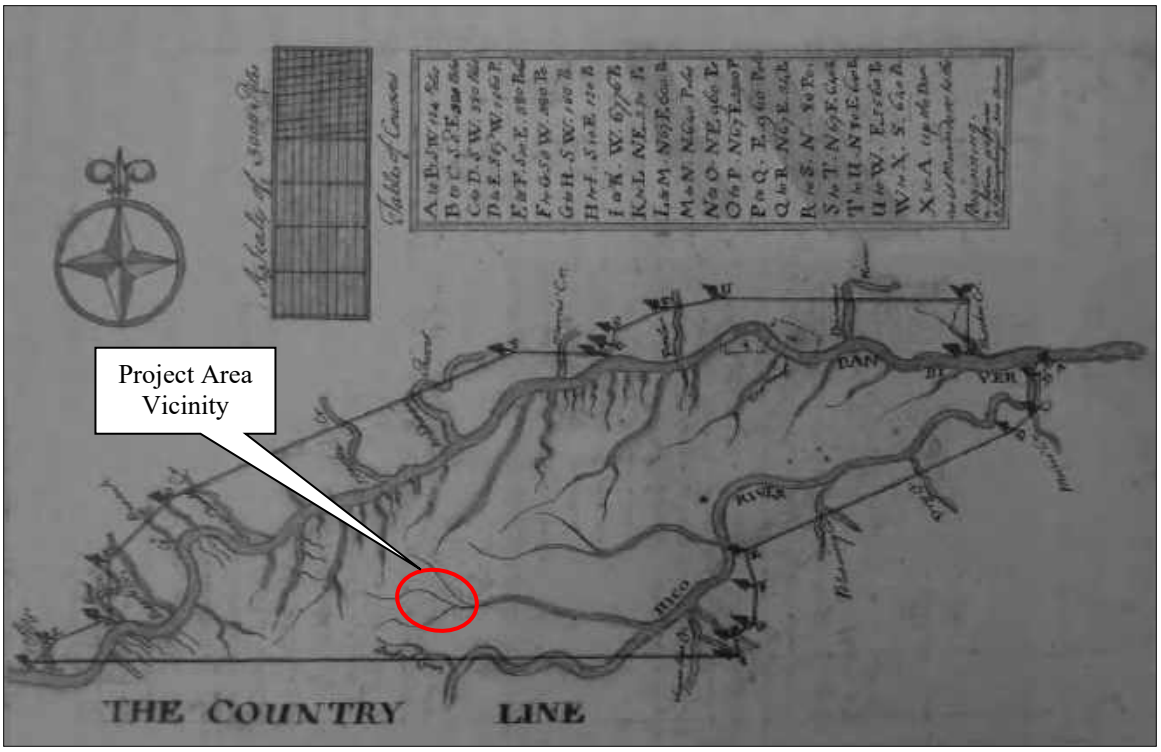

Figure 6-1: William Byrd's land in Halifax County in relation to the project area. Source: HCHSAC 2006:4

COLONY TO NATION (1750 – 1789)

Again, with increased population in western Lunenburg County, residents found travel to the courthouse "grievous and burdensome" which prompted the creation of a new county in 1752 (quoted in HCHSAC 2006:5). Halifax County was named for the George Montague Dunk, Second Earl of Halifax. He was first Lord of the Board of Trade under King George II of England and was known for his interest in the welfare of the Colonies (HCHSAC 2006:3). The boundaries of this new county included all of what is now Pittsylvania, Henry, Franklin, and Patrick counties (Carrington 1975:15). With the formation of Pittsylvania County in 1766, Halifax would achieve its current boundaries (HCHSAC 2006:5).

As settlers moved into the region, one of the first large-scale tasks was that of improving and creating roadways. Early roads included one from the Dan River settlements to the falls of the Banister River; from the Banister Mountains to the site of the Halifax Courthouse. After the formation of Pittsylvania County, the courthouse would be shifted to a more centralized location at Faulkner's Crossing east of the Banister River. This area would be called Banister and sometimes Halifax Courthouse. It would be moved again in the late eighteenth century to its present location (MAAR Associates et al. 2008:19-20, 30). Other early roadways accessed the Blue Ridge Mountains and Valley of Virginia.

These early roadways allowed two distinct types of people to settle Halifax County. From the east came Tidewater tobacco planters in search of new ground on which to plant the cash crop. Repeated cultivation of the crop led to the exhaustion of soils in older counties of the colony.

With these planters came enslaved African labor. According to MAAR Associates et al. there is one estimate of 18 percent of the enslaved labor force at the time of Halifax County's creation. The 1740s and 1750s saw people settling along the major rivers, such as the Dan River. Large landowners in the county established tobacco plantations on fertile lands along the rivers. The second type of settler ventured south and southeast from Maryland and Pennsylvania and subsistence farmers from the Tidewater. These farms tended to be smaller with little, if any, enslaved labor force. Despite their source locations, settlers would come to plant the important cash crop, tobacco. Credit for farms and for the crop often came from Scottish firms. A 1770 map depicts an undeveloped region with forests and waterways though court documents depict the multiple roads, ferries, and bridge constructed and taverns licensed (Figure 6-2). By the 1770s and 1780s more wealthy planters were entering the region, purchasing large tracts of land. With them, the enslaved African-American population also increased. It is estimated that by the early 1780s about 60 percent of the households of the region owned slaves (MAAR Associates et al. 2008:22-24).

While the market for crops grown in Virginia and throughout America was in high demand in European markets, tensions between the colonies and England began to put a strain on trade. At the end of the French and Indian War (1756-1763), the British government had an immense amount of debt. To pay it, Parliament imposed heavy taxes on its subjects and tightened the administration of trade and navigation acts (Salmon 1983:22). These actions sparked a strong response from the colonies, though locally they had little effect on Halifax County farmers whose primary concerns were the cultivation of crops. On the opposite side of the border, in North Carolina, however, restrictions caused civic disorder. One noticeable difference in Halifax was an increasing number of Baptist churches as an alternative to the Anglican Church. Additionally, local farmers switched crops, particularly because of the loss of an English tobacco market, and grew grains and raised livestock (MAAR Associates et al. 2008:24, 26).

As the two entities inched closer to war, in 1774, the Virginia Convention adopted resolves against the importation of British goods and the importation of slaves. It also required each county to form a volunteer company of cavalry or infantry to prepare for an armed conflict. Several companies were formed in Halifax and fought in South Carolina, Guilford Court House, and Yorktown. As war was coming to Virginia, plans were made to separate British forces from their supply lines and reinforcements. In the "March to the Dan," American troops retreated from North Carolina into Virginia, luring the British to follow (MAAR Associates et al. 2008:25-26). The war came to an end at Yorktown.

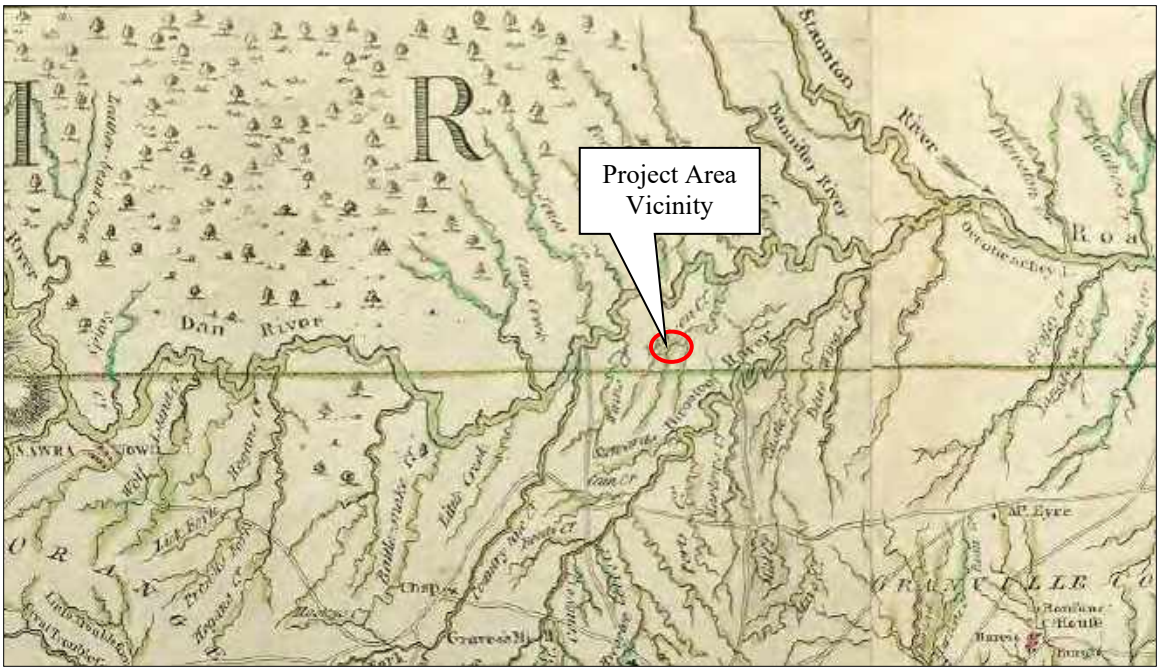

Figure 6-2: Detail of *A compleat map of North-Carolina*, by Collet in 1770, depicting the project area. Source: The John Carter Brown Library

EARLY NATIONAL PERIOD (1789 – 1830)

Following American independence, the population of Southside Virginia as a whole, began to flourish and expand as planters prospered and plantations grew. Most of the property owners in Halifax County were small farmers, with a small number of enslaved workers, however there were some large landowners with extensive tracts of land and many slaves. By the first federal census, the county had a total population of 14,722 residents, 5,565 of whom were enslaved and 226 free African-Americans. The population would continue to rise during this period to 28,034 residents in 1830. By 1830, the enslaved and free black population would also be more than half of the total, approximately 54 percent (MAAR Associates et al. 2008:27, 30, 32).

The vast majority of these residents were involved in farming. The combination of severe soil depletion and continuous cultivation of tobacco and the temporary loss of markets for tobacco caused by the war promoted new farming techniques to improve the soil and further the diversification into corn, wheat and other grains and additional crops. In addition to diversification, a more scientific method of farming was adopted to help restore the soil's nutritive qualities. In his 1817 series of essays entitled *Arator*, Caroline County's John Taylor demonstrated the benefits of four-field crop rotation, in which soils could be improved significantly by rotating corn, wheat, fertilizer, and clover. Similarly, in the early 1820s, Edmund Ruffin publicized the effectiveness of marl in reducing soil acidity, a technique that could triple the productivity of Tidewater soils. The southernmost, central counties of the state also had the largest number of farmers and formed the core of the Virginia tobacco region. This continued even as some individuals moved west and south to try their hand at cheaper, fertile land in Tennessee, Kentucky, and Georgia. By 1820, there were eight tobacco warehouses in Halifax County. In addition to tobacco, other important agricultural products in the county included corn and cattle (MAAR Associates et al. 2008:30-31).

Roadways throughout Virginia slowly began to witness some improvement. In 1816, the Board of Public Works was created to supervise the state's internal improvements, which included construction of roads and turnpikes, and canals. Halifax County's improved road network allowed farmers to get products to warehouses and markets. An 1827 map of Virginia clearly depicts this road network with precursors of Mount Carmel Road (Route 699) and Alton Post Office Road (Route 711) extending through the project area (Figure 6-3). Likewise, the roads connected small towns and villages, such as South Boston, at Boyd's Ferry on Dan River. Other early settlements included the Town of Meadville (VDHR #041-0055) and News Ferry (VDHR #041-0174) (MAAR Associates et al. 2008:29, 31). In addition to tobacco, grains were grown in Halifax County. To process these, mills opened along the county's waterways. In the Mount Carmel District of the county, north of the project area, Wilkins Mill sat on Lawson Creek (MAAR Associates et al. 2008:50).

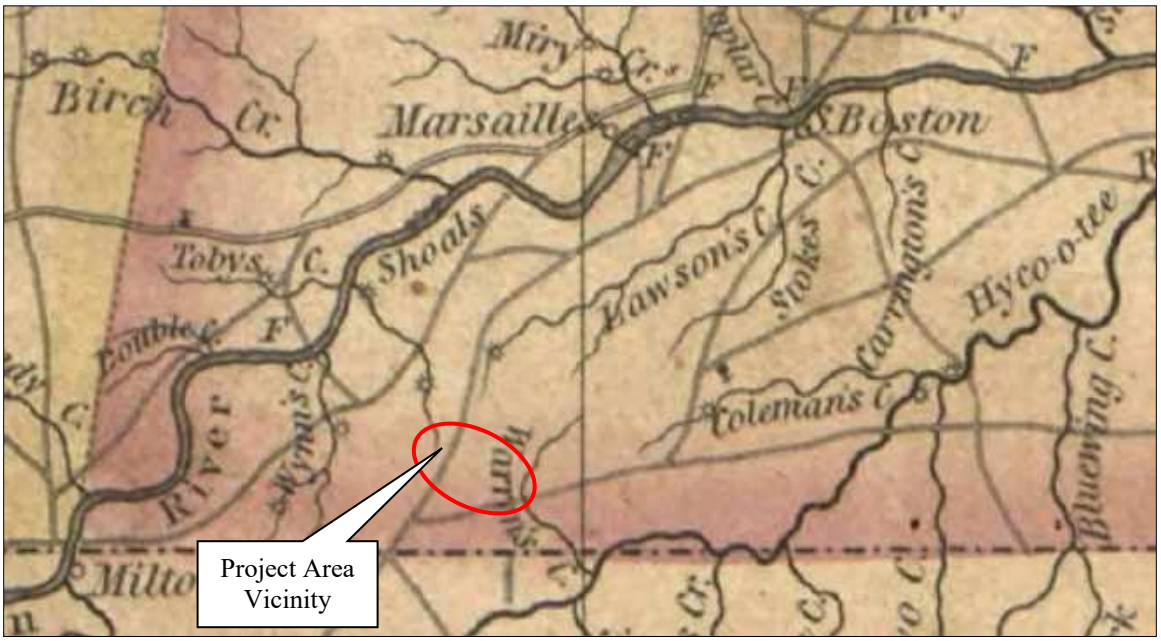

Figure 6-3: Detail of *A map of the state of Virginia*, by Böÿe in 1827, depicting project area vicinity. Source: Library of Congress

ANTEBELLUM PERIOD (1830 – 1860)

Virginia as a whole enjoyed enormous economic prosperity during the Antebellum Period. Halifax County's agricultural economy continued to stay strong. Increased agricultural profits were put back into farms through building and soil improvements and purchasing new tools. There was a building boom during this period as large plantation structures were built and older dwellings expanded upon (MAAR Associates et al. 2008:34). Of note along the Virginia-North Carolina border was Thomas Day, an African-American freedman who provided carpentry and cabinetry for plantations in the regions (MAAR Associates et al. 2008:63). In addition to buildings on farms, more villages and towns became established. In addition to Banister and South Boston, there were Barksdale, Bennett's Store, Bentleysille, Black Walnut, Bloomsburg, Brooklyn, Centreton, Meadville, Mount Laurel, Republic Grove, Scottsburg, and Warren's Store

(MAAR Associates et al. 2008:33). Near the project area were Bloomsburg, Harmony, and Black Walnut (Figure 6-4).

The primary industry of the county continued to be agriculture. Agricultural improvements and innovations continued to spread throughout Virginia. To help spread their effectiveness, agricultural societies opened, such as that in Clarksville, and newspapers and magazines were distributed. In 1850, Halifax County had 1,309 farms. It appears that some farms were consolidated because by 1860, there were 1,029 farms. These farms produced 8,544,532 pounds of tobacco; 533,012 bushels of corn; 237,518 bushels of wheat; 229,790 bushels of oats; 38,252 bushels of sweet potatoes; 13,671 bushels of Irish potatoes; 9,394 bushels of peas and beans; 731 bushels of rye; and 3 bushels of buckwheat as well as wool and livestock (MAAR Associates et al. 2008:36-37). In 1854, Halifax County was described as "among the most populous and wealthy counties of the States. Tobacco, Indian corn, wheat, oats, cattle and swine are the staples" (quoted in Carrington 1975:15).

Like elsewhere in Virginia, the introduction of the railroad would have profound effects on the agricultural economy as farmers were more easily able to get products to markets. In 1847, Virginia's General Assembly chartered the Richmond and Danville Railroad (Grymes n.d.b). The line was completed in 1856 and, in Halifax County, followed a portion of the Dan River through South Boston.

As the century progressed, throughout the country, tensions were rising over the institution of slavery. As opposed to some other regions of Virginia where slavery was stagnating from shifts in agricultural and commercial practices, slave populations remained high in Southside Virginia. By the 1860s, tensions over slavery reached their breaking point when Virginia and other southern states voted to secede from the union.

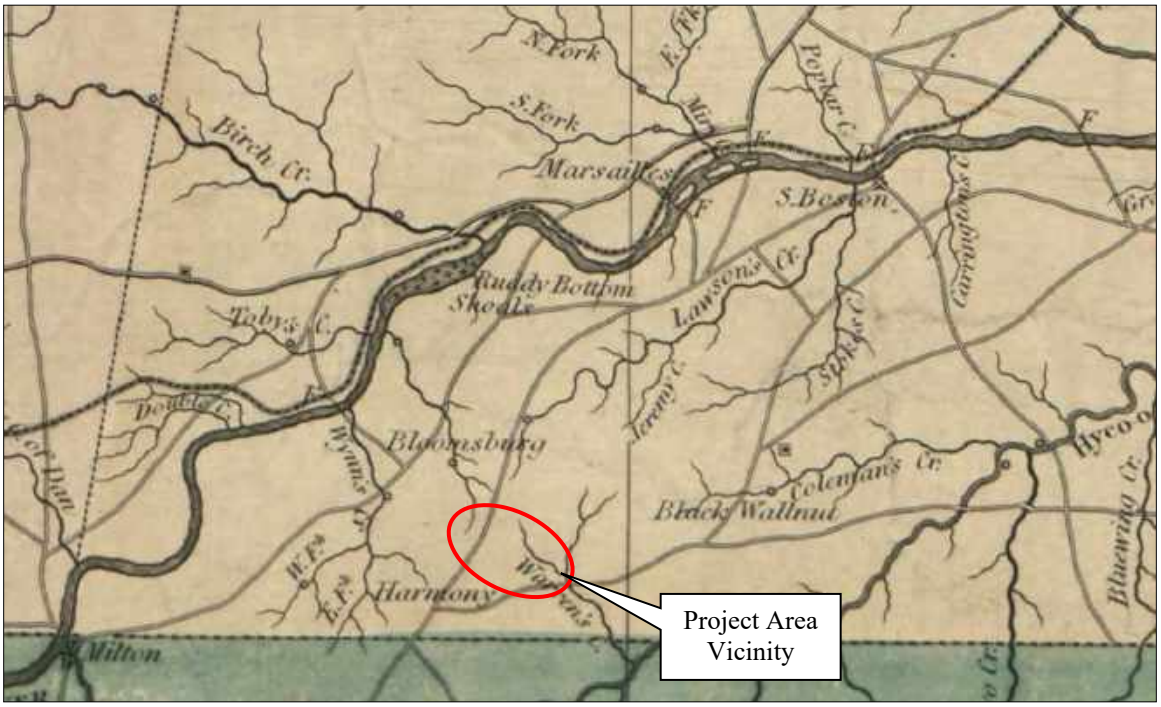

Figure 6-4: Detail of *A map of the state of Virginia*, by Böÿe in 1859, depicting project area vicinity. Source: Library of Congress

CIVIL WAR (1861 – 1865)

With the state of Virginia now separating from the Union, Halifax County furnished more than 30 companies to the Confederate army. Action during the war in Halifax County was limited to Union raids and a fight for the Richmond and Danville Railroad over the Staunton River. One of the goals of the Union army was to destroy Richmond's supply lines which were largely concentrated on the rail lines. In June 1864, Union Brig. Gen. James H. Wilson and Brig. Gen. August V. Kautz left Petersburg to destroy the railroad track and bridge across the river. The bridge was successfully defended by Capt. Benjamin Farinholt and a Confederate reserve in the Battle of Staunton River Bridge (MAAR Associates et al. 2008:40).

Despite the limited action in the county, Halifax was still affected deeply. As in most parts of Virginia, the products of the countryside were depleted in service of the Confederate cause. Many farmers shifted production from cash crops like tobacco to large-scale food production at the request of the Confederate government. Although farmers were able to supply varying amounts of food and supplies, the loss of farm labor and family heads that departed to fight in the war left thousands of acres of land unproductive and abandoned. Lack of an adequate food supply eventually played a large role in the defeat and surrender of the Confederate army.

RECONSTRUCTION AND GROWTH (1865 – 1917)

By the end of the Civil War, the south was in shambles. There was a heavy loss of life, the economy was devastated, money was worthless and credit nonexistent, and many soldiers returned home to find their farms and properties destroyed. Emancipation eliminated slave labor which was relied upon by many farmers in order to turn profit forcing the population to adjust to their new circumstances. The difficulties farmers, black and white, faced after the war were compounded by a drought. A property owner described the state of destitution:

Nearly everyone is broke that owed me anything and all I have to depend on is what little produce I had on hand and the rent of my land and I fear it will take nearly all my rents to pay my taxes. I am only working three hands to try and make a little corn and do not believe that any person can make one cent by hiring Negroes at one hundred and odd dollars to farm. I have rented out most of my land (all that I could) on shares. Our crops are very unpromising. We are now in the midst of a most distressing drought, not having any rain for four or five weeks. Our garden is completely burnt up. Have no vegetables at all except tomatoes and potatoes and if it doesn't rain shortly, there must be a famine in the land as the wheat crop was an entire failure (quoted in MAAR Associates et al. 2008:41).

Halifax County farmers adjusted to the new circumstances by adopting a system of tenant farming and sharecropping. The primary crops were corn, tobacco, wheat, oats, can sorghum, and rye. In addition to agriculture, mining developed into an industry in Halifax, particularly in the Redbank District of the county (MAAR Associates et al. 2008:42-43).

The economy of the south was aided by northern investment in railroads. In 1871, the Pennsylvania Railroad took control of the Richmond and Danville Railroad; however it was sold in 1880. After the Panic of 1893, the Richmond and Danville Railroad became part of the Southern Railway (Grymes n.d.b). The Atlantic & Danville Railroad was chartered in 1882 to connect to Norfolk. In Halifax County, the line extended from North Carolina along Mount Carmel and Alton Post Office roads and along the project area. The Southern Railway system absorbed the Atlantic & Danville Railroad in 1899. The Atlantic & Danville Railroad stayed alive as a paper corporation for the 50 years that the Southern Railway leased it (Grymes n.d.a).

As before, the rail lines also created new towns and permitted existing towns to grow. The Atlantic & Danville Railroad extended through Alton, Harmony, Denniston, and Virgilina in southern Halifax County (MAAR Associates et al. 2008:108). In 1907, Virgilina was at the center of a developing copper mining area. Elsewhere, Clover, on the Danville and Richmond line, was incorporated as a town in 1895 (MAAR Associates et al. 2008:45). The population of Halifax County continued to grow during this period from 27,828 residents in 1870 to 40,044 in 1910 (USCB). In 1890, the town of Banister was renamed Houston (MAAR Associates et al. 2008:30).

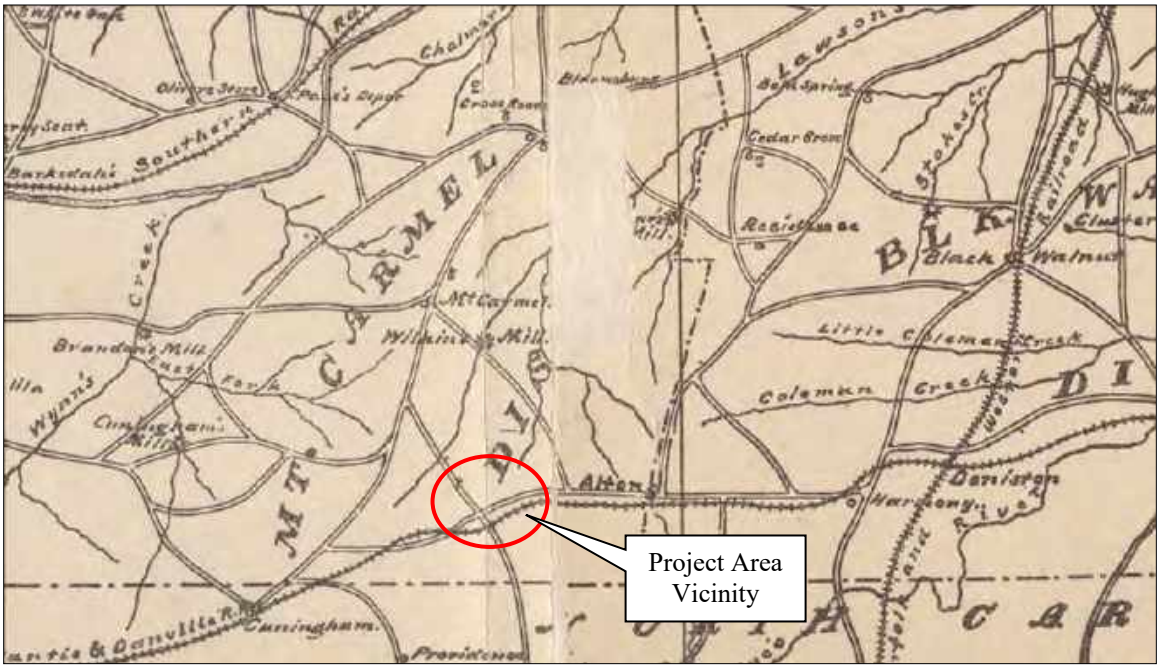

Figure 6-5: Detail of Map of the county of Halifax, by French in 1899, depicting project area vicinity. Source: Library of Virginia

WORLD WAR I TO WORLD WAR II (1917 – 1945)

With the outbreak of World War I, many young men in central Virginia enlisted in the army and those who stayed home did their part in cooperating with wartime rations. Farmers were also encouraged to use more modern techniques to increase productivity. When men returned home from World War I, they generally picked up their lives where they had left them and continued working at the same jobs though transportation improvements would continue to draw people away from the homestead (Manarin and Dowdey 2007:250). Within Halifax County, agriculture

continued to be the primary economy. Tobacco production reached a high of 34,201 acres under cultivation in 1919. By 1934, however, acreage had fallen to 16,068. Corn was the largest crop. Other important crops included wheat, oats, potatoes, and sweet potatoes (MAAR Associates et al. 2008:48).

The stock market crash and Depression of the 1930s brought devastating effects to the economy; however Virginia as a whole did not fare as poorly as other places across the nation. Although owners defaulted on their properties and stores closed, industries had not been over expanded and the state's economy had been built around consumer goods such as foods, textiles, and tobacco that remained in relatively high demand (McCartney 2009).

The population of Halifax County hovered around 41,000 between 1920 and 1950 (USCB) Approximately 54.1 percent of residents were white, while approximately 45.7 percent were African-American. Tenancy continued to play an important role in the county. In 1935, of the 5,847 farms in the county, 59.2 were farmed by tenants (MAAR Associates et al. 2008:48).

A 1948 aerial clearly depicts the rural nature of the project area with agricultural fields mixed with woodland and farmsteads (Figure 6-6). Likewise, the towns within the county remained small, the largest being South Boston with a population of 4,841. Remaining towns had a population less than 500 by 1930. In 1920, Houston was renamed once more when it became Halifax (MAAR Associates et al. 2008:45, 50).

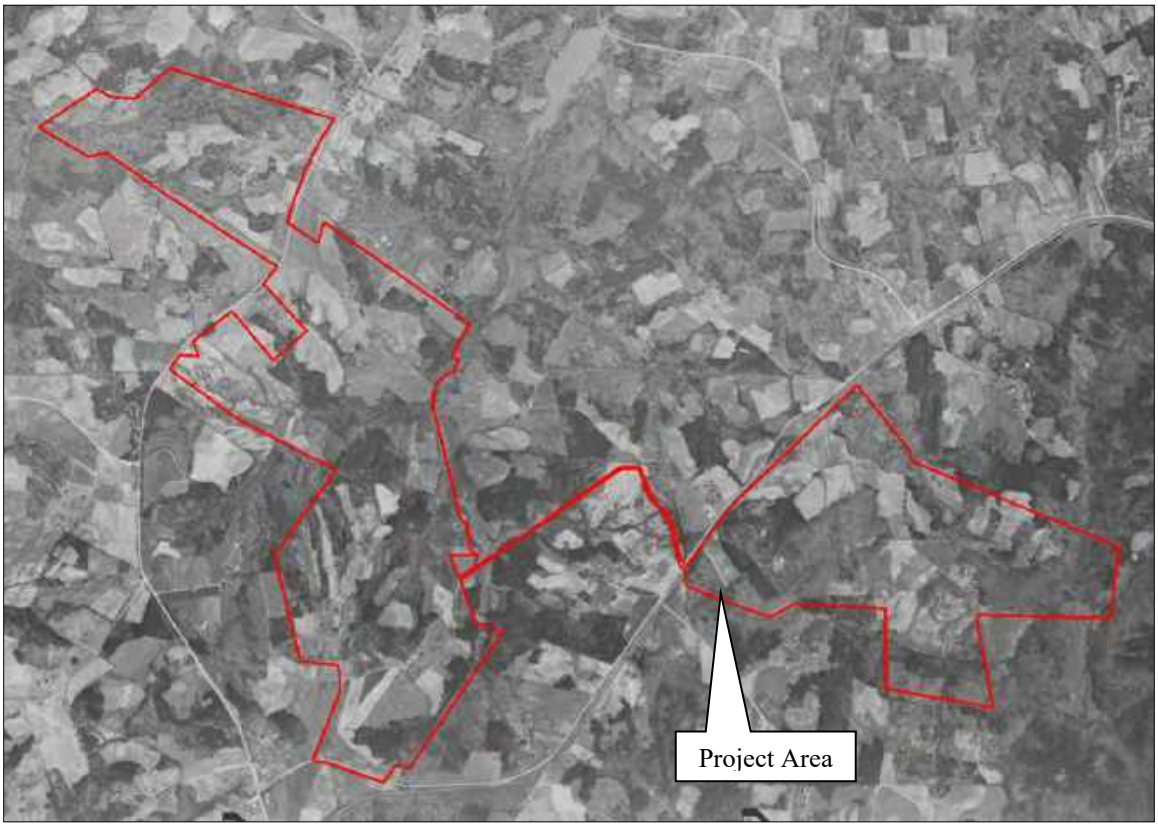

Figure 6-6: Detail of a 1948 aerial depicting project area vicinity. Source: USGS

NEW DOMINION (1945 – PRESENT)

Following World War II, Halifax County maintained its rural character. In 1987, farms occupied 46 percent of the County's land area, most of this farmland was under cultivation (MAAR Associates et al. 2008:53). Primary crops in the county included hay, wheat, soybeans, and tobacco, which was second in the state (MAAR Associates et al. 2008:53). In more recent years, important agricultural products were cattle, hogs, green cowpeas, southern peas, pumpkins, sweet corn, and cantaloupe (MAAR Associates et al. 2008:53). In addition to agricultural products, some major industries had established homes in Halifax County by the second half of the twentieth century including: Halifax Cotton Mills, Inc., Daystrom, Inc., Capital Plastics, Burlington Industries, Craddock-Terry Shoe Corporation, J.P. Stevens and Co., Inc., White House Milk, American Supplies, Inc., C.W. Walters Tobacco Co., Export Leaf Tobacco Co., Imperial Tobacco Co., J.P. Taylor Tobacco Co., United State Plywood Corporation and Blue Ribbon Creamery (MAAR Associates et al. 2008:53). There were also 348,892 acres of commercial forestland in the county in 1986 (MAAR Associates et al. 2008:54). For entertainment, a raceway opened in 1957. Though the track closed in 1974, it reopened in 2000 as the Virginia International Raceway.

Unlike many regions in the state, population of Halifax County would not rise above its 1950 high of 41,442; the county dropped to 29,033 residents in 1990 (USCB). In 1980, the county's population was 60 percent white and 40 percent black (MAAR Associates et al. 2008:53). In the 1960s, South Boston was incorporated leading to 10.6 percent drop in the county's population; although it would revert to its town status in 1995, a reflection of the county's increasingly rural nature (MAAR Associates et al. 2008:53).

Topographic maps in the second half of the twentieth century illustrate the number of buildings along the region's roadways (Figures 6-7 and 6-8). A sign of progress within the county is evident in these roads and in the pipeline that cut through the project area by the 1960s. The project area was a mixture of cultivated land and woodland with clusters of buildings. There were, however, fewer buildings within the project area by 1990.

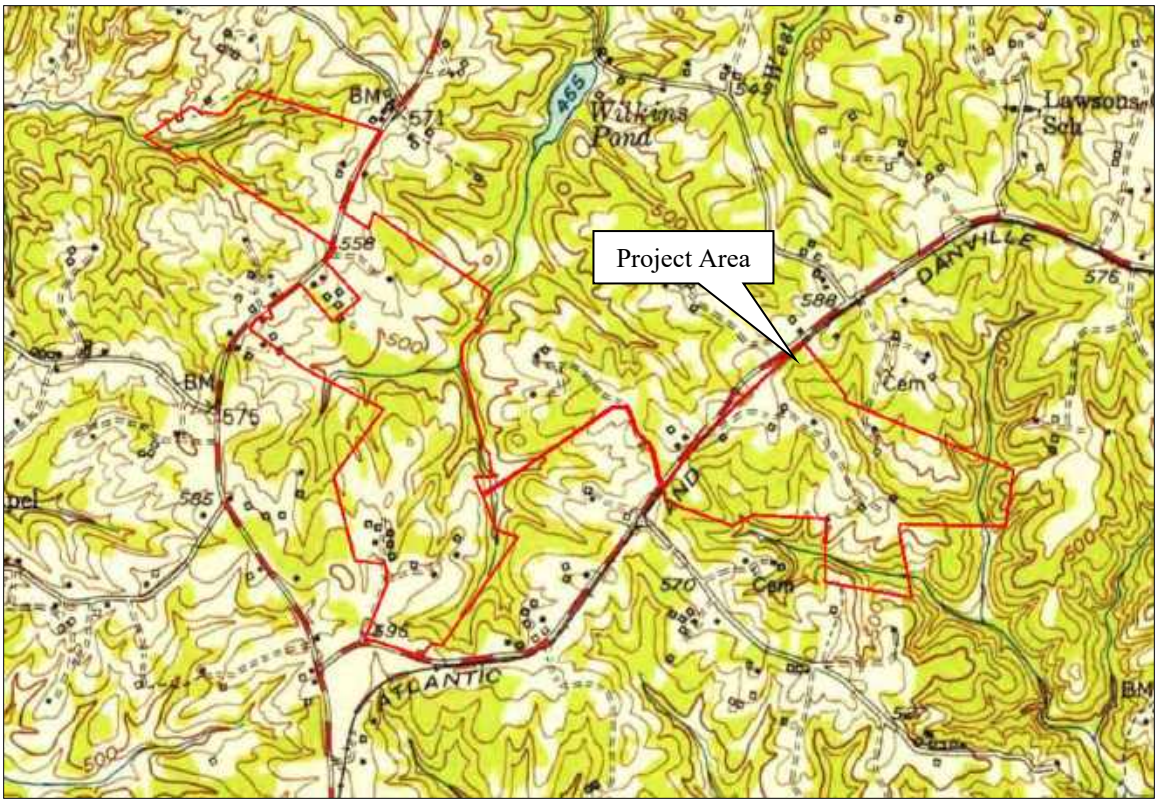

Figure 6-7: Detail of the 1952 *Milton* topographic map depicting the project area. Source: USGS

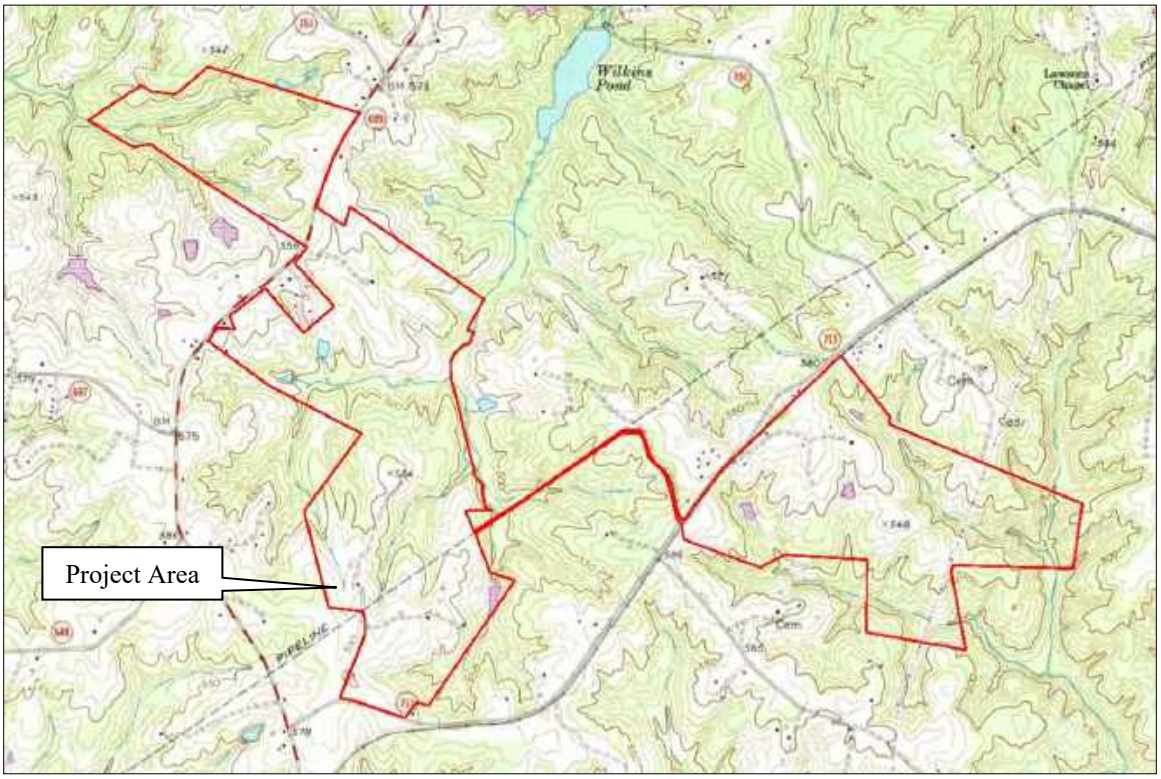

Figure 6-8: Detail of the 1990 *Alton* topographic map depicting the project area. Source: USGS

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7. EXPECTED RESULTS

A number of factors must be considered in determining the types of sites that can reasonably be expected to be found in the course of an archaeological testing program. Environmental data such as geology and hydrology along with historic data including transportation routes and proximity to settled areas can provide indications about general use and settlement. In addition to background research, data on previously identified sites can shed light on the types of resources one might expect to find. The following section summarizes the types of cultural resources expected to be present within the project area following a review of these factors.

ENVIRONMENTAL CONSIDERATIONS

Prior to modern disturbances the character and type of soil would have had a direct effect on the kind of vegetation and hydrology of the area and on the potential for human habitation and usage. There is a strong correlation between settlement density and soil fertility. A well-known study of settlement patterns in relation to soil types (Lukezic 1990) indicates that historic settlement is closely correlated with the location of prime farmland, and Native Americans during the late prehistoric period also appear to have had preferences for specific site locations and soil types (Rountree and Turner 2002:69).

The topography is characterized by six moderately sized landforms with many small, associated finger ridges that have low to moderate slopes. Approximately 192.59 hectares (475.9 acres) of the project area are considered prime farmland or farmland of statewide importance by the USDA. The many irregular finger ridges on the property create several small elevated landforms surrounded by slope and drainages. No soil is marked as poorly drained. There is, however, a section of somewhat poorly drained land which runs west-east through the project area, which is associated with a tributary to Lawson's Creek, and there are terraces which overlook this somewhat poorly drained land.

MAP PROJECTED SITES

Historic documents, maps, and literature provided some evidence on the likelihood for the project area to contain prehistoric or historic archaeological sites. As illustrated earlier in the cultural context section of this report, an 1827 map of Virginia depicts precursors of Mount Carmel Road (Route 699) and Alton Post Office Road (Route 711) extending through the project area, and an 1899 map of the region shows these roads along with The Atlantic & Danville Railroad extending into the project area. The same map indicates the presence of a potential dwelling off of Mount Carmel Road.

A 1948 aerial depicts a few farmsteads located within the project area. The majority of the project area remained woodland and agricultural fields throughout the twentieth century. By the 1960s, the project area was a mixture of cultivated land and woodland with clusters of buildings. There were, however, fewer buildings within the project area by 1990.

PREVIOUSLY RECORDED SITES

While documentary sources have bias and often are limited in their attention to detail, information on previous surveys and recorded resources in the vicinity of the project area, as well as regional settlement models offer additional information and perspective on the project area's potential to contain intact significant archaeological deposits.

Review of the VDHR VCRIS records no previously recorded archaeological or architectural resources in the project area. However, within a mile of the project area prehistoric sites, both which were associated with rock shelters (VDHR #44HA0327 and #44HA0328) were identified. Artifacts collected at Site 44HA0327 include: Meta-rhyolite debitage (n=17), bifaces (n=2), and points (n=4). Both of these prehistoric sites were located on terraces which over looked tributaries to Powells Creek.

PREHISTORIC SITE POTENTIAL

There are many small ridges and terraces which overlook tributaries to Powells Creek, Lawsons Creek and Winns Creek. Portions of the project area which overlook spring feed tributaries and confluences would typically have high potential for prehistoric sites. However, clearing and logging around drainages and tributaries has left a fair amount of disturbance along waterways located in this project area. Therefore, the project area has a moderate potential for prehistoric sites. Where disturbance allowed, spring feed tributaries and confluences were thoroughly tested, given the presence of Site #44HA0327 and #44HA0328 within a mile of the project area.

HISTORIC SITE POTENTIAL

Two historic roads run through, or act as borders to, the project area. A railroad used to run just northwest of the eastern most parcels of the project area. Structures are evident in the project area on historic maps since 1899. Therefore, the historic site potential is high.

8. FIELD SURVEY RESULTS

From February 3 to February 27, 2020 D+A conducted field investigations of the ±313.9 hectare (±775.6 acre) Alton Post Solar Project Area in Halifax County, Virginia. The effort included both archaeological and architectural investigations according to survey methodology outlined in the research design. The results of the survey are summarized below.

ARCHAEOLOGICAL FIELD RESULTS

Prior to initiating archaeological testing of the project area, a systematic pedestrian survey was undertaken in order to assess existing conditions and the potential for archaeological deposits or other historic landscape features to be present. Following the pedestrian survey, a plan for systematically testing the project area was implemented. The results of both the pedestrian and subsurface testing are provided below.

PEDESTRIAN SURVEY

At the outset of the field effort a pedestrian survey was conducted throughout the project area. The project area lies in Halifax County, Virginia, approximately one mile north of the North Carolina border. The project area consists of several parcels. The northernmost parcel is bounded by Mount Carmel Road on the south west, and by an unnamed parcel to the north. The southernmost parcel of the project area is bounded by Alton Post Office Road to the northeast and an unnamed parcel to the south. The project areas appears to be mostly pastureland – consisting of hayfields, cattle pastures, areas which have been timbered but not replanted, and hardwood trees which line drainages. The pastureland has been altered through the installation of ponds and associated berms, and through terraforming in attempts to aid with drainage. Portions of the project area which have been timbered are visibly disturbed, as there are piles of slash on the ground, ruts, and exposed soils.

SUBSURFACE TESTING

Following the pedestrian survey, a plan for systematically testing the project area was implemented. The project area was divided into four areas based on parcels. These areas were labeled A through D in the order they were surveyed (Figure 8-1). Within each of these large areas, several grids of shovel tests at 15-meter (50-foot) intervals were placed on landforms which had been deemed to have the most potential for sites, based on historic map, proximity to water, proximity to historical roads, and disturbance level. Seven sites were found. These sites were labeled Sites 44HA0343 through 44HA0349. Sites 44HA0343 through 44HA0349 all date to the early to mid-twentieth century, and correspond to mapped structures on a 1952 map.

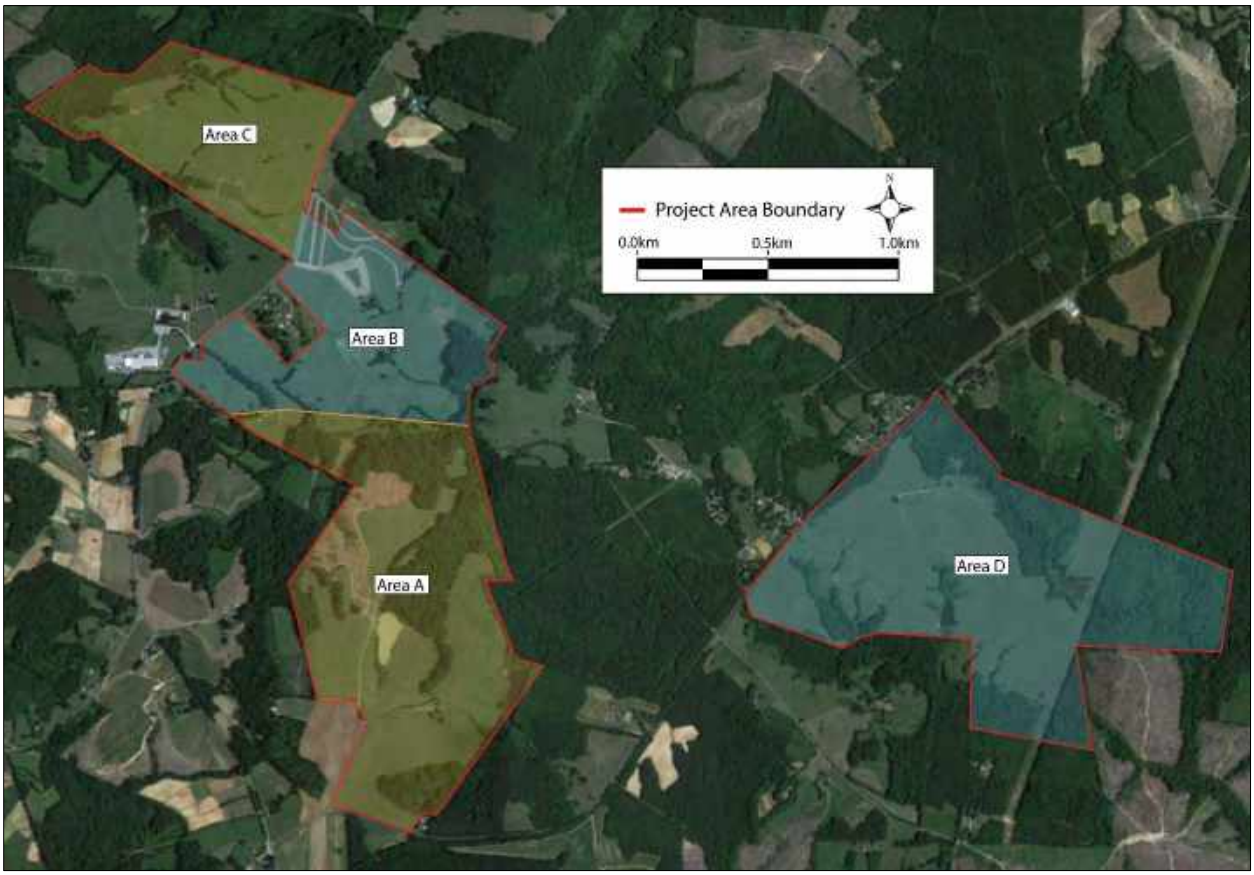


Figure 8-1: Project area broken into Areas A through D.

AREA A

This area consists of two parcels, both of which are in the center of the project area (Figures 8-2 through 8-5). A pipeline corridor runs southwest-northeast through the area. Emergency Road runs along the western border of the lower parcel, acting as part of the project area's western boundary. Emergency Road continues south-north, running into the center of northernmost parcel in this area, and terminating in the center of the area on a large, flat landform. An offshoot of Emergency Road heads east into the southernmost parcel in this area, and terminates on the edges of a large landform, on which several structures stand. Two ponds are located within this area, one east of the standing structures, and one in the center of the project area. The area is bordered to the east, south, and west by the project area boundaries, which are designated by parcel boundaries (Figure 8-6). Area A continues slightly into two parcels which are north of the two parcels which make up most of the Area, with a tributary to Winns Creek acting as the northern boundary of the Area. Area A consists of a several finger ridges – divided by drainages – many of which overlook tributaries to Winns Creek. Vegetation consist of agricultural pastureland, with the presence of minimal trees. Subsurface testing was concentrated on terraces which overlooked the tributaries to Winns Creek, because these terraces had the most potential for prehistoric sites. Additionally, subsurface testing was conducted on landforms on which historic maps indicated the presence of dwellings.

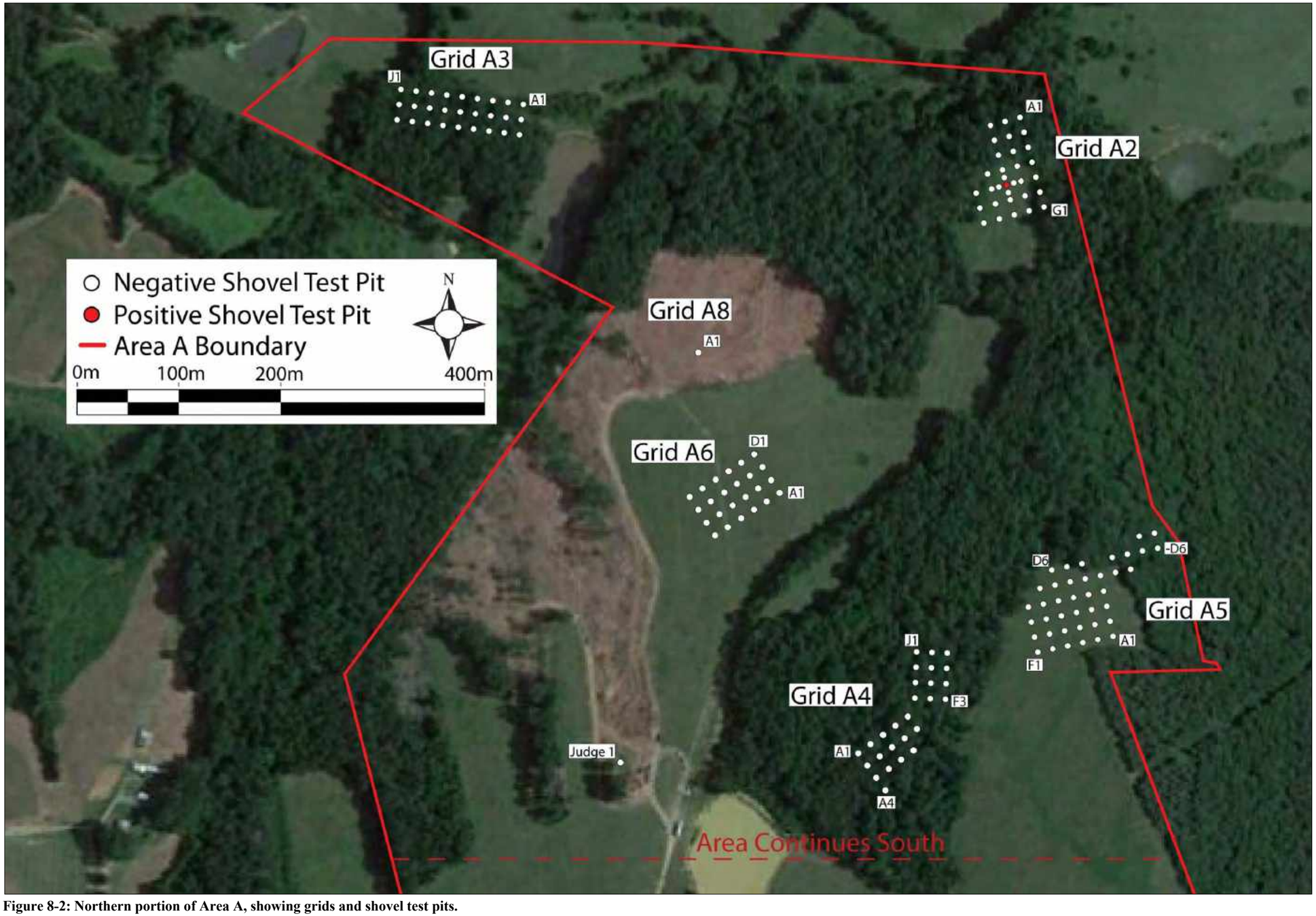


Figure 8-2: Northern portion of Area A, showing grids and shovel test pits.

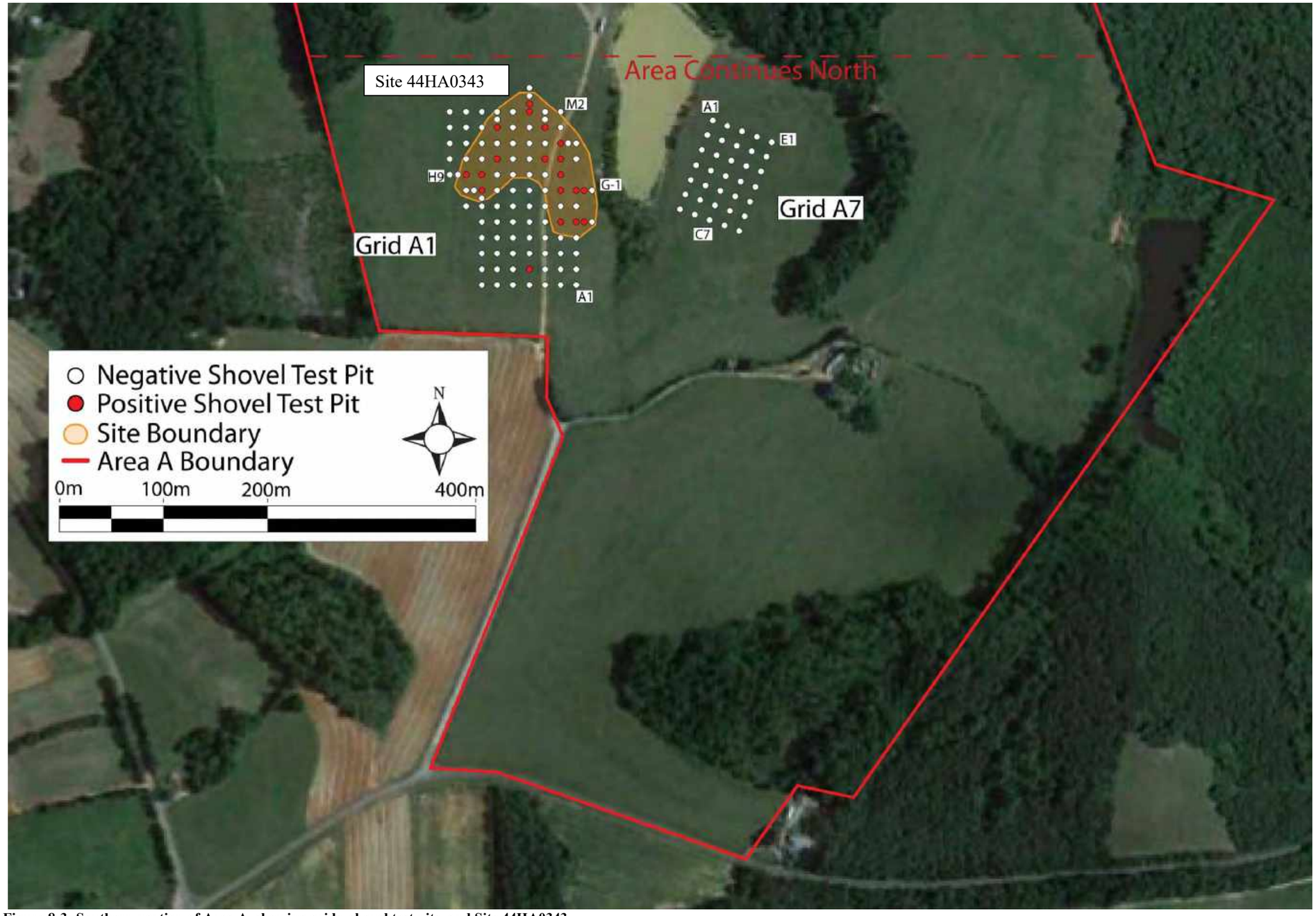


Figure 8-3: Southern portion of Area A, showing grids, shovel test pits, and Site 44HA0343.

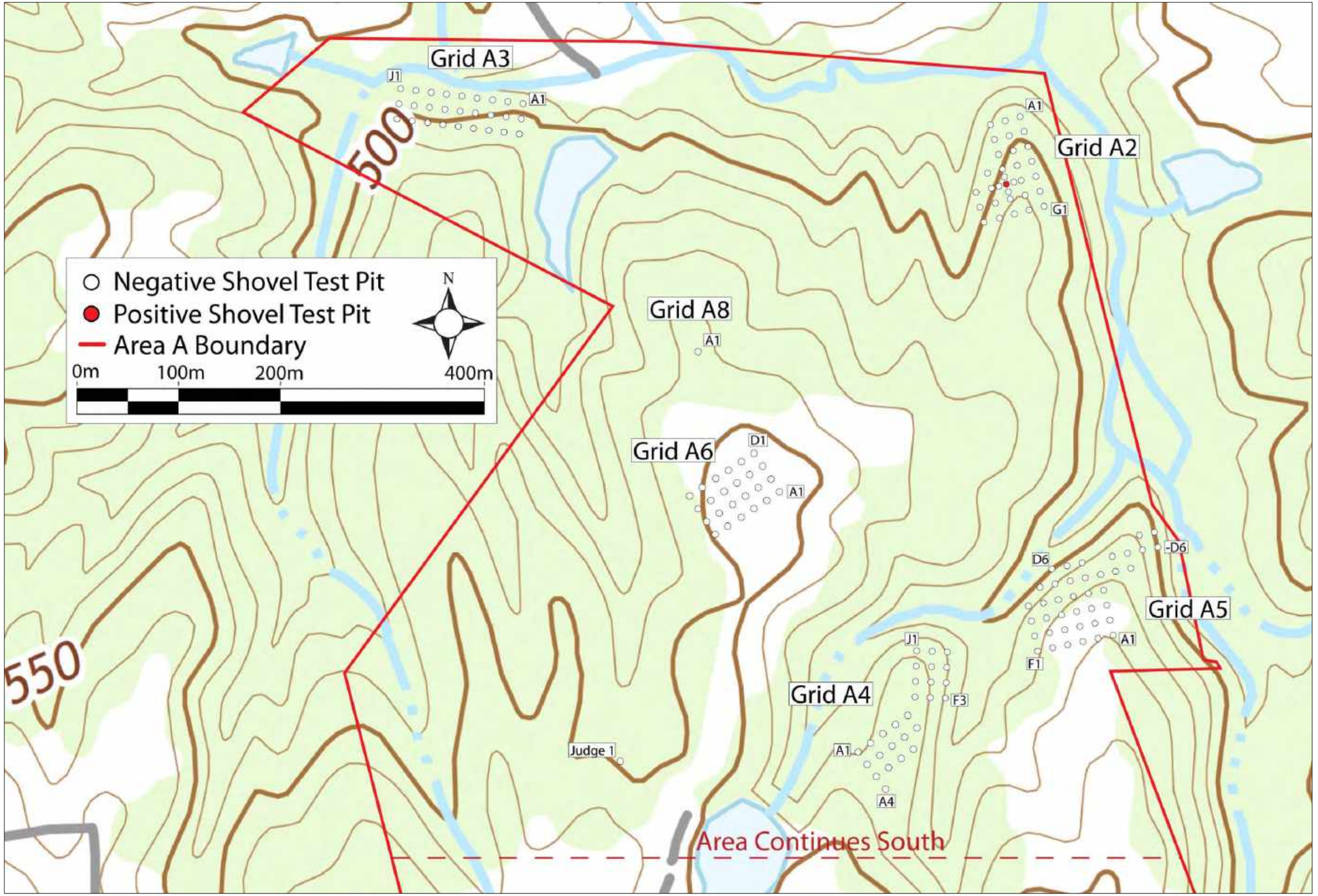


Figure 8-4: Topographic map of northern portion of Area A, showing grids and shovel test pits.

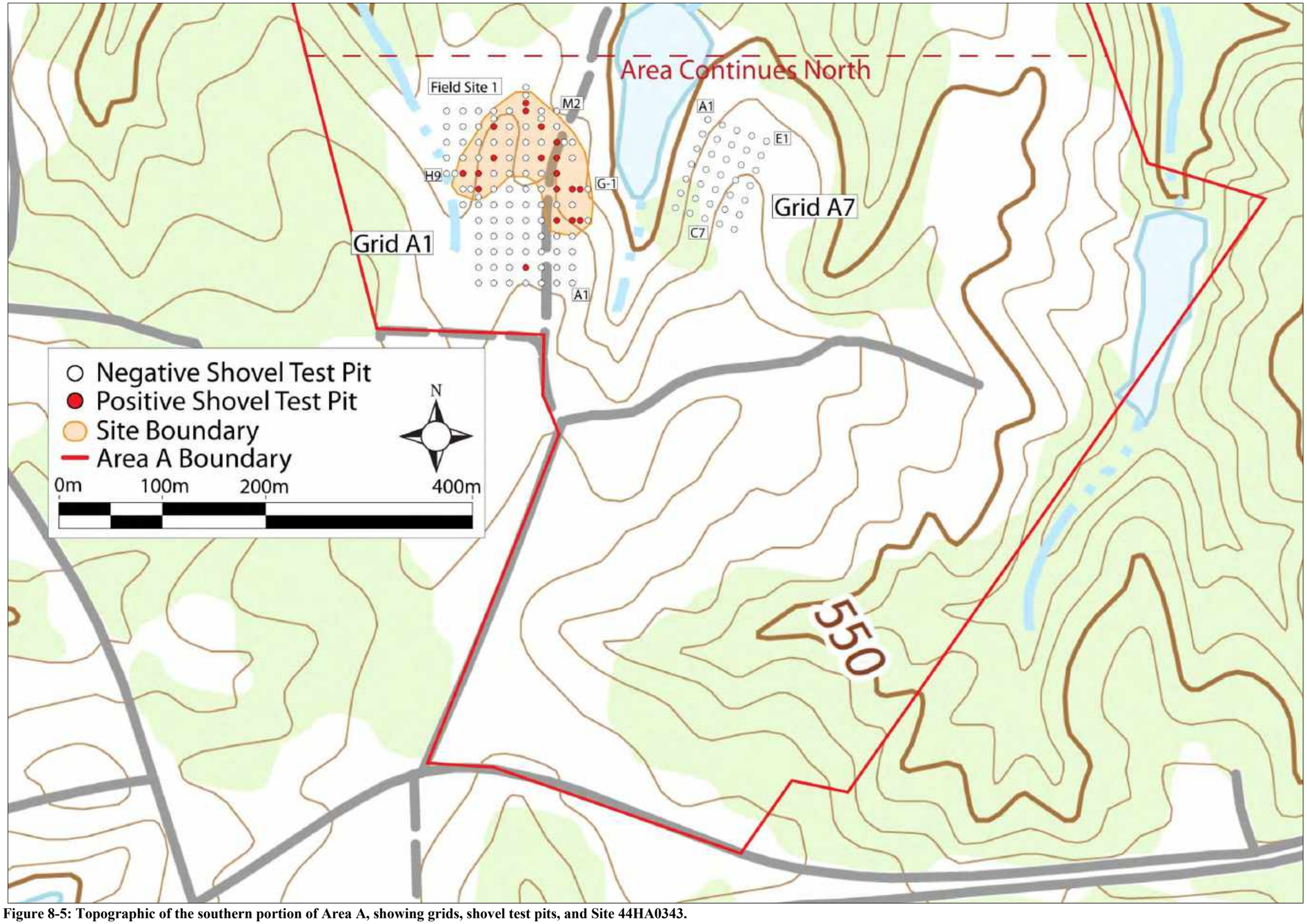


Figure 8-5: Topographic of the southern portion of Area A, showing grids, shovel test pits, and Site 44HA0343.

Figure 8-6: Typical terrain and vegetation in Area A, facing north.

Grid A1

Grid A1 was placed in the south western part of Area A, on the flat portion of a ridge over which a historic road runs. A 1952 topographic map depicted several structures on this landform, however, there was no indication of these structures upon visual inspection. Tributaries to Winns Creek acts as western and eastern boundaries to the A1, while the southern boundary consists of a pipeline corridor and slope acts as the northern boundary. A grid of 106 shovel test pits in twelve transects labeled A through M (excluding I) was placed at 15-meter (50-foot) intervals just west of the tributary which acts as A1's eastern boundary. A total of 18 shovel test pits were positive for artifacts, including colorless glass and brick. Radials were excavated in order to achieve a 15 meter (50 feet) boundary of negative shovel test pits around the site, with the exception of when slope was greater than 15% (Figure 8-7). This site was labeled Site 44HA0343 and will be discussed in greater detail below.

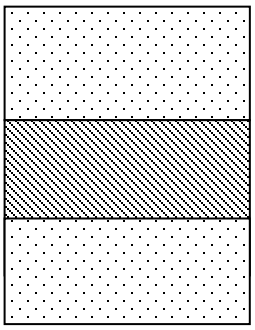
Vegetation consists of low grass associated with agricultural pastures. A few trees line the drainages, a fence runs north-south along the southern western boundary of A1, and a manmade pond sits in the eastern portion of the area. The land is currently being used as a hayfield, as demonstrated by bailed hay and the presence of functional farming equipment (Figure 8-8). Topographic maps demonstrate that this landform has been used as such since at least 1994.

Figure 8-7: Typical terrain and vegetation in area A1, facing north, showing slope.

Figure 8-8: Typical disturbance in area B1, facing north.

Soils ranged in depth 9 to 51 cm to subsoil. Shovel tests seemingly ranged in depth due to the presence of a fill layer which is most likely associated with a grading and filling event which most likely occurred during the deconstruction of the dwellings which were shown to be located

on this landform during the 1950s. Many shovel test pits appeared to consist of a disturbed fill layer which covered an intact A-horizon, which came down to subsoil, as demonstrated by shovel test pit G1. G1 consisted of 36 cm of disturbed 10YR 4/4 dark yellowish brown sandy clay loam mottled with 5YR 4/6 yellowish red sandy clay fill over 24 cm of 10YR 5/6 yellowish brown silty sand A-horizon, which came down to 10YR 6/8 brownish yellow sandy clay (Figure 8-9).



10YR 4/4 sandy clay loam mottled with 5YR 4/6 sandy clay
0-36 cm

10YR 5/6 silty sand
36-51

10YR 6/8 sandy clay
51-61

Figure 8-9: Soil profile of Shovel Test G1.

Site 44HA0343 is located on a flat portion of a ridge over which a historic road runs, associated with a series of dwellings shown on a 1952 map. Currently, there is no visible indication of these structures. Aerials of the project area demonstrate that this portion of the project area has been used as a hayfield since 1994 (Figure 8-10) Artifacts recovered in this site included colorless vessel glass, safety glass, brown bottle glass, porcelain, whiteware, synthetic material, and brick (see Appendix B for full artifact catalog). A total of 42 artifacts were collected, 28 of which were glass (Figure 8-11). All artifacts which were collected were from the disturbed fill stratum. Since all artifacts were recovered from a disturbed stratum, these artifacts do not have any contextual value. For this reason, and for the lack of diagnostic artifacts, this site is recommended as not eligible for inclusion in the NRHP.

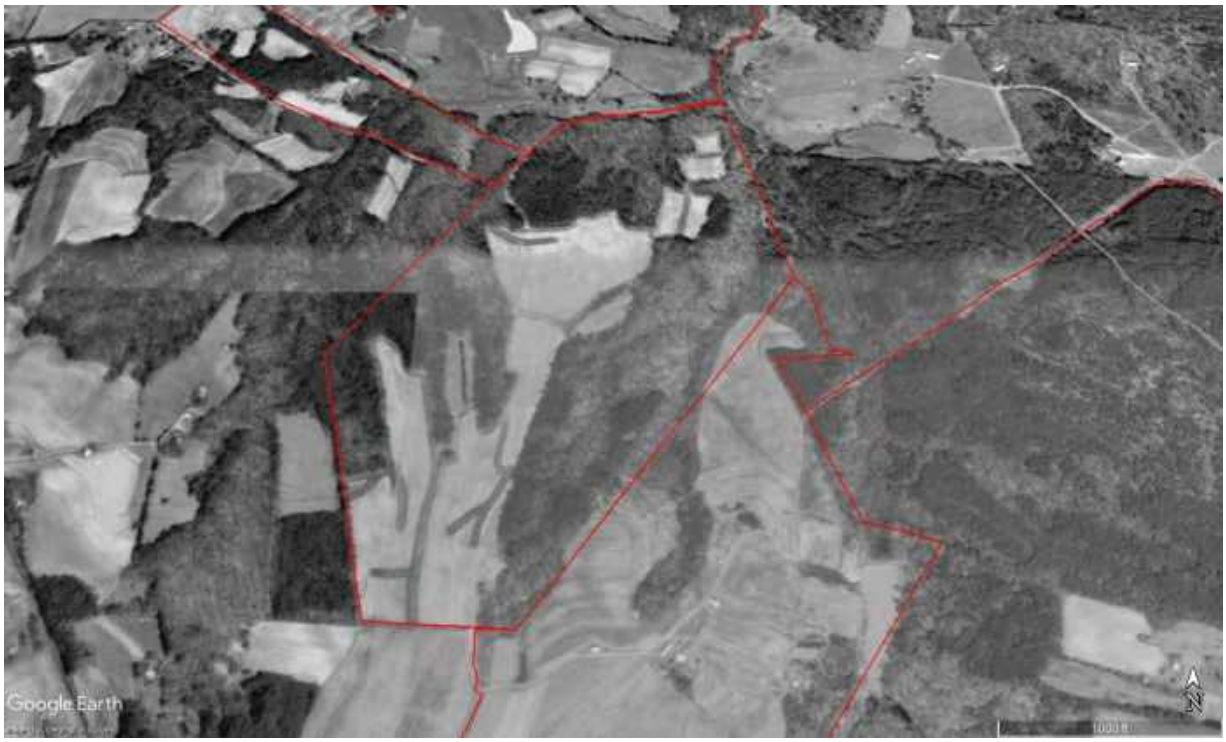


Figure 8-10: Hayfields shown in center of project area. Source: Google Earth 1994.

Figure 8-11: Representative artifacts collected at Site 44HA0343.

Grid A2

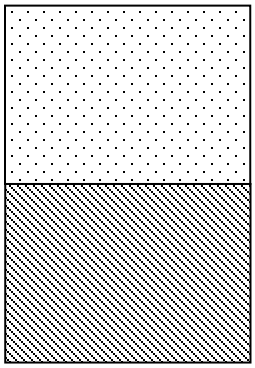
Grid A2 was placed on a narrow finger ridge which overlooks the confluence of two tributaries of Winns Creek. The tributaries to Winns Creek acts as the western and eastern boundaries to A2, while the confluence acts as the northern boundary, and the southern boundary consists of the broad flat landform south of the finger ridge. A grid of 32 shovel test pits in 6 transects labeled A through G was placed at 15-meter (50-foot) intervals just west of the tributary which

acts as A2's eastern boundary. A total of one (1) shovel test pit was positive for artifacts, consisting of worked lithic. The positive shovel test was bracketed with radial shovel tests (half the distance to the next shovel test in all four directions). No radials were positive, and no further work is recommended in this area.

Vegetation consists of low grass associated with agricultural pastures. Trees line the tributaries (Figure 8-12).

Figure 8-12: Typical terrain and vegetation in area A2, facing north.

Soils ranged in depth from 17 to 35 cm to subsoil. All shovel test pits consisted of plowzone, which came down to rocky subsoil. A typical shovel test pit consisted of 22 cm of 10YR 4/6 dark yellowish brown sandy loam over 24 cm silty sand A-horizon, which came down to 10YR 6/8 brownish yellow sandy clay (Figure 8-13).



10YR 4/6 sandy loam
0-22 cm

10YR 6/8 sandy clay
22-32 cm

Figure 8-13: Soil profile of Shovel Test F3.

Grid A3

Grid A3 was placed on a finger ridge and its associated terrace which overlooks a spring-fed tributary to Winns Creek. The tributary to Winns Creek acts as the northern and western boundary to A3, while a drainage slope acts as the eastern boundary, and the southern boundary consists of the broad flay landform south of the finger ridge. A grid of 27 shovel test pits in 7 transects labeled A through J (excluding I) was placed at 15-meter (50-foot) intervals just south of the tributary which acts as A3's northern boundary.

Vegetation consists of hardwood trees, including beech trees, pine, and oak trees, with minimal undergrowth (Figure 8-14). To the east, the area becomes disturbed by the presence of pushpiles, most likely a result from logging near the drainage (Figure 8-15).

Figure 8-14: Typical terrain and vegetation in area A3, facing west.

Figure 8-15: Disturbance in eastern portion of area A3, facing southwest.

Soils ranged in depth from 15 to 30 cm to subsoil, with an outlier reaching subsoil at 50 cm. A typical shovel test pit consisted of 23 cm of 10YR 4/2 dark grayish brown silty loam over 10YR 4/6 dark yellowish brown silty clay subsoil (Figure 8-16). No artifacts were recovered, and no further work is recommended for A3.

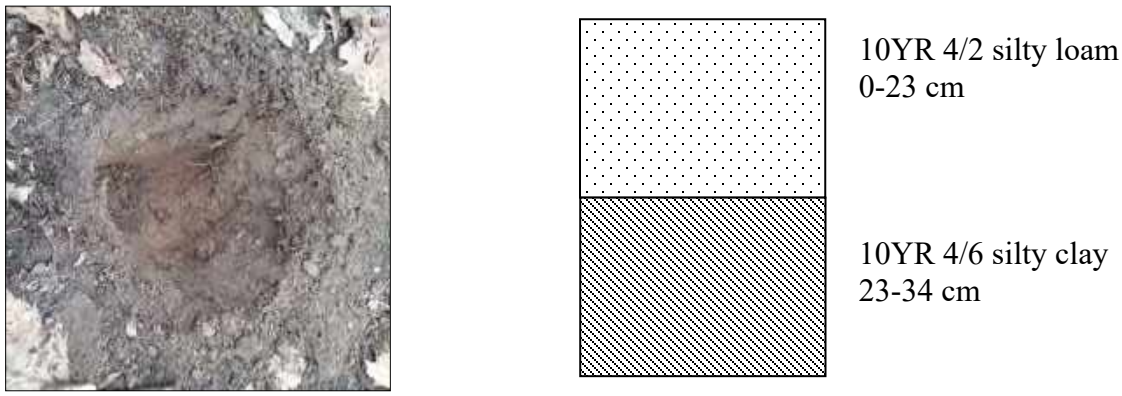


Figure 8-16: Soil profile of Shovel Test E1.

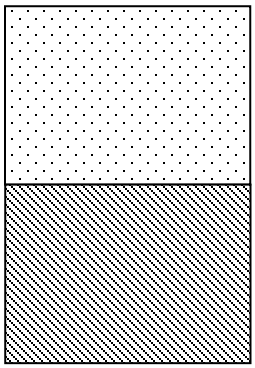
Grid A4

Grid A4 was placed on a finger ridge and its associated terrace which overlooks a spring-fed tributary to Winns Creek to the north and west. The tributary to Winns Creek acts as the northern and western boundary to A4, while a drainage slope acts as the eastern boundary, and the southern boundary consists of the broad flat landform south of the finger ridge. A grid of 27 shovel test pits in 9 transects labeled A through J (excluding I) was placed at 15-meter (50-foot) intervals along the eastern edge of the western boundary of A4.

This landform has been logged in the past and left unplanted. Vegetation consists of young white oak, poplar, sweet gum, and red oak. Undergrowth consists of briars and shrubs (Figure 8-17).

Figure 8-17: Typical terrain and vegetation in area A4, facing north.

Soils ranged in depth from 15 to 28 cm to subsoil, with an outlier reaching subsoil at 53 cm. A typical shovel test pit consisted of 17 cm of 10YR 5/4 yellowish brown loam mottled with 10YR 6/3 pale brown loam which came down to 10YR 6/3 pale brown clay loam subsoil (Figure 8-18). A large amount of natural quartz with coarse inclusions were noted in shovel test pits, but none of this quartz was worked, nor was it of good quality. No artifacts were recovered, and no further work is recommended for A4.



10YR 5/4 loam mottled with 10YR 6/3 loam 0-17 cm

10YR 6/3 clay loam 17-29 cm

Figure 8-18: Soil profile of Shovel Test F4.

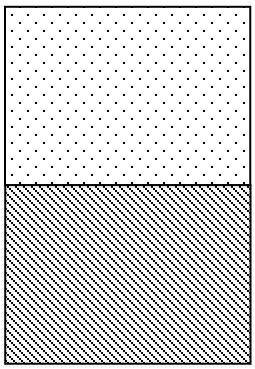
Grid A5

Grid A5 was placed on a finger ridge and its associated terrace which overlooks the confluence of two tributaries to Winns Creek to the northwest and northeast. The tributaries to Winns Creek act as the north, northeastern, and northwestern boundaries to A5, while the southern boundary consists of the broad flat landform south of the finger ridge. A grid of 40 shovel test pits in 6 transects labeled A through F was placed at 15-meter (50-foot) intervals along the northern edge of the southern boundary of A5.

This landform is an agricultural field that appears to be out of use. Vegetation consists of tall grasses, briars, and weeds (Figure 8-19).

Figure 8-19: Typical terrain and vegetation in area A5, facing north.

Soils ranged in depth from 10 to 37 cm to subsoil, with an outlier reaching subsoil at 48 cm. A typical shovel test pit consisted of 31 cm of 10YR 4/6 dark yellowish brown clay loam which came down to 2.5YR 5/8 red clay subsoil (Figure 8-20). No artifacts were recovered, and no further work is recommended for A4.



10YR 4/6 clay loam
0-31 cm

2.5YR 5/8 clay 31-41
cm

Figure 8-20: Soil profile of Shovel Test F4.

Grid A6

Grid A6 was placed on the flat portion of a ridge over which a historic road runs and dead ends. Slopes bound A6 on all sides. A grid of 30 shovel test pits in four (4) transects labeled A through D was placed at 15-meter (50-foot) intervals on top of the highest, flattest portion of the landform.

This landform is an agricultural field that appears to be out of use. Vegetation consists of tall grasses, briars, and weeds. The western portion of this landform has been modified to facilitate drainage (Figure 8-21; Figure 8-22).

Figure 8-21: Typical terrain and vegetation in A6, facing west. Land modification shown in running through the center of the photo.

Figure 8-22: Typical terrain and vegetation in A6, facing south. Land modification shown in forefront of the photo.

Soils ranged in depth from 11 to 35 cm to subsoil. A typical shovel test pit consisted of 19 cm of 10YR 4/6 dark yellowish brown clay loam which came down to 2.5YR 4/8 red clay subsoil (Figure 8-23). No artifacts were recovered, and no further work is recommended for A6.

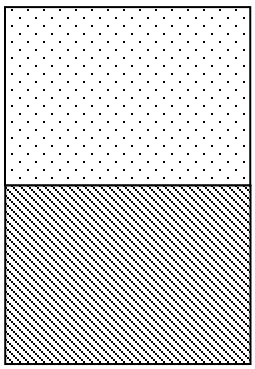


Figure 8-23: Soil Profile of shovel test pit C6.

Grid A7

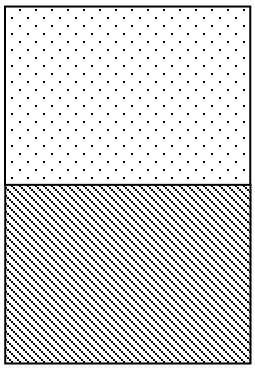
Grid A7 was placed on a finger ridge and associated terrace which extends from a large, irregularly shaped landform which makes up much of the southwestern portion of Area A. A 1952 topographic map shows the presence of a structure on this landform, but there was no visible indication of its presence. Grid A7 overlooks a tributary to Winns Creek to the west. Slopes bound A7 to the north, east, and west. To the south, the landform flattens out. A grid of

35 shovel test pits in five (5) transects labeled A through E was placed at 15-meter (50-foot) intervals just south of the sloped drainage which acts as A7's northern boundary.

This landform is an agricultural field, vegetation consists of cut grass (Figure 8-24).

Figure 8-24: Typical terrain and vegetation in A7, facing north.

Soils ranged in depth from 9 to 37 cm to subsoil and showed signs of disturbance consisting of mottling of topsoil and subsoil, which is typical of land which has been heavily influenced by continuous plowing and agricultural use. A typical shovel test pit consisted of 28 cm of 10YR 4/6 dark yellowish brown clay loam mottled with 2.5YR 5/8 clay subsoil which came down to 2.5YR 5/8 red clay subsoil (Figure 8-25). No artifacts were recovered, and no further work is recommended for A7.



10YR 4/6 clay loam
mottled with 2.5YR 5/8
clay
0-28 cm

2.5YR 5/8 clay
28-38 cm

Figure 8-25: Soil Profile of shovel test pit C6.

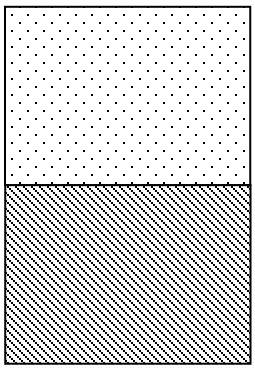
Grid A8

Grid A8 consisted only of one shovel test pit, as the landform on which this shovel test pit was excavated was extremely disturbed from logging. This shovel test pit was excavated in order to confirm that the landform was disturbed. Grid A8 consists of a finger ridge and its associated terrace which overlook a tributary to Winns Creek to the north. The land slopes to the north, east, and west, and flattens out to the south.

This landform is an agricultural field that appears to be out of use. Vegetation consists of tall grasses, and weeds. There is heavy slash coverage on the ground beneath the fescue grass and the land appears to have at one point been a landing for timbering use (Figure 8-26). The general disturbance is confirmed by the lack of topsoil in the excavated shovel test pit discussed below.

Figure 8-26: Typical terrain and vegetation in A8, facing north. Slash is present on the ground and can be seen on the left in the photo, although present of fescue grass obscures the view partially.

The shovel test pit excavated in A8 consisted of 3 cm of 10YR 4/6 dark yellowish brown clay loam which came down to 2.5YR 5/8 red clay subsoil (Figure 8-27). This shovel test pit confirmed the lack of topsoil and overall disturbance of the landform on which it was placed. No artifacts were recovered, and no further work is recommended for A8.



10YR 4/6 clay loam
0-3 cm

2.5YR 5/8 clay
3-13 cm

Figure 8-27: Soil Profile of shovel test pit A1.

AREA B

This area consists of two parcels, both of which are just southeast of Mount Carmel Road, with the road acting as the northwest border for the area. The area is bordered to the northeast, south, and southwest by the project area boundaries, which are designated by parcel boundaries (Figure 8-28; 8-29). Area B consists of a several finger ridges, divided by drainages, many of which overlook a tributary to Lawson's Creek to the south. Vegetation consist of agricultural pastureland, with the presence of minimal trees (Figure 8-30) Six (6) ponds are located within the area (Figure 8-31), three of which appear – according to Google Earth – to have been constructed between 1994 and 2003. Subsurface testing was concentrated on terraces which overlooked the tributary to Lawson's Creek, because these terraces had the most potential for prehistoric sites. Additionally, portions of this area which are depicted as having structures on them in a 1952 topographic map were also subjected to testing.

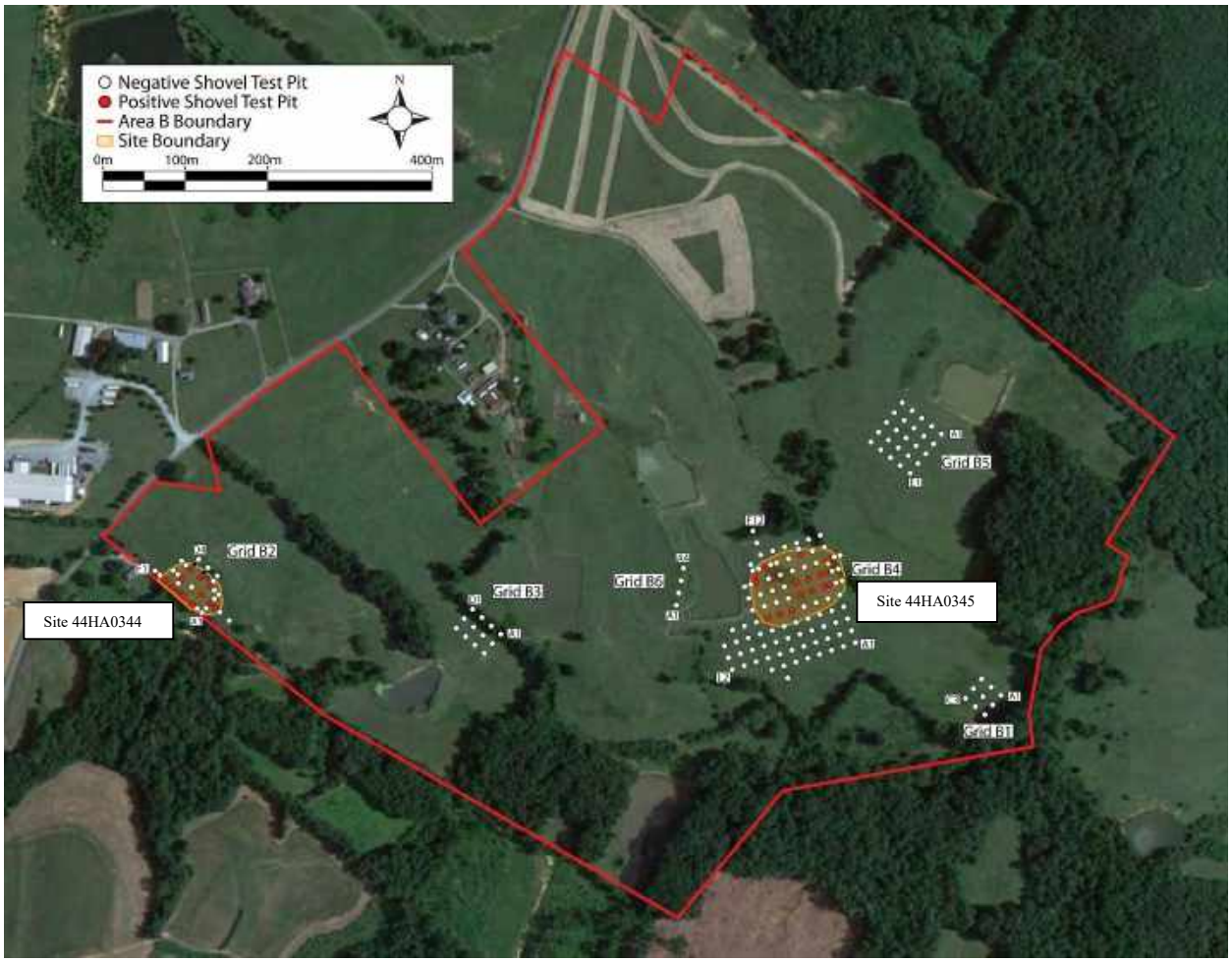


Figure 8-28: Area B, showing placement of grids, shovel test pits, and sites.

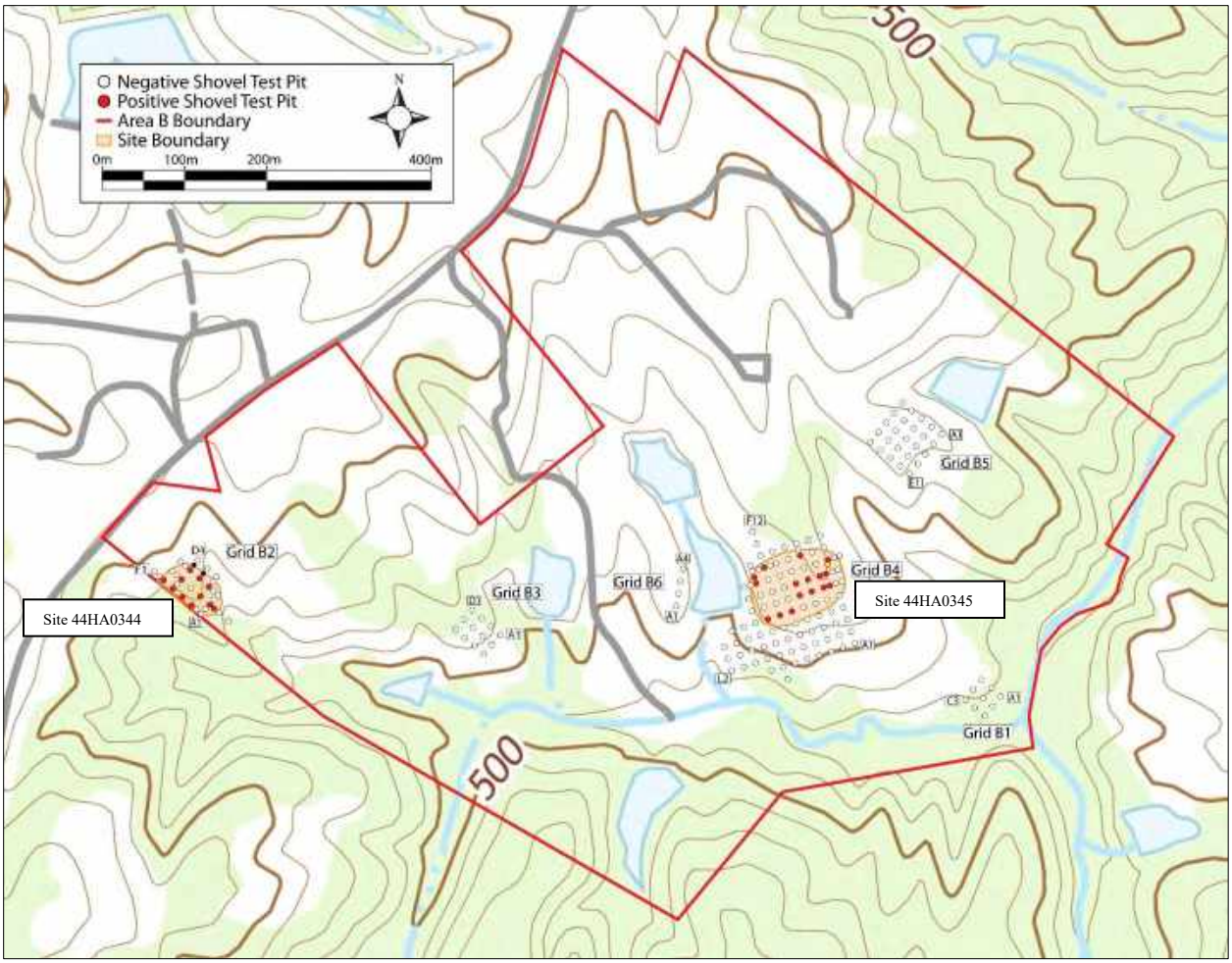


Figure 8-29: Topographic map of Area B, showing placement of grids, shovel test pits, and sites.

Figure 8-30: Typical terrain and vegetation in Area B, facing north.

Figure 8-31: Pond in Area B, facing east.

Grid B1

Grid B1 was placed on a terrace which overlooks the confluence of Lawson's Creek and its tributary to the southeast. A grid of 9 shovel test pits in three (3) transects labeled A through C at 15-meter (50-foot) intervals was laid out over the northeastern edge of the terrace.

Vegetation consists of low grass associated with agricultural pastures, and was heavily disturbed by logging, which left ruts and standing water on the surface (Figure 8-32).

Figure 8-32: Typical disturbance in area B1, facing east.

Soils ranged in depth from 2 to 24 cm to subsoil, demonstrating the level of disturbance on this terrace. A typical profile that showed intact soils consisted of 24 cm of 10YR 4/4 dark yellowish brown silty loam over 7.5YR 5/8 strong brown silty clay subsoil (Figure 8-33). No artifacts were found.

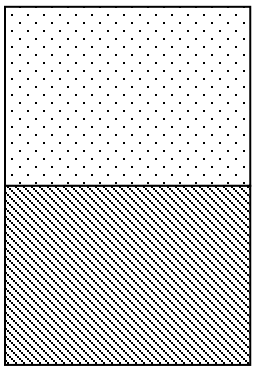


Figure 8-33: Soil profile of Shovel Test B2.

Grid B2

Grid B2 was placed in the western corner of the area, on a finger ridge on which a 1952 topographic map indicates the presence of a dwelling. A 15-meter (50-foot) grid was laid along the southwestern boundary of the project area, with six (6) transects labeled A through F. A total of 11 shovel test pits were positive for twentieth century material. Radials were excavated at 7.5 meters (30 feet) intervals around each positive shovel test pit. A total of 33 shovel test pits were excavated. The positive artifacts appear to be associated with a twentieth century dwelling. These artifacts were called Site 44HA0344 and will be discussed further below.

Vegetation consists of fescue grass which has been cut for hay. There are a few standing trees dispersed throughout the area (Figure 8-34).

Figure 8-34: Typical terrain and vegetation in area B2, facing east.

Soils ranged in depth from 3 to 30 cm to subsoil, demonstrating that in many locations, there was a lack of topsoil in this area. The lack of topsoil is most likely caused by continuous agricultural use. Shovel test DE3 showed a typical profile with intact soils, consisting of 14 cm of 5YR 4/4 reddish brown silty clay loam over 2.5YR 4/6 red silty clay subsoil (Figure 8-35).

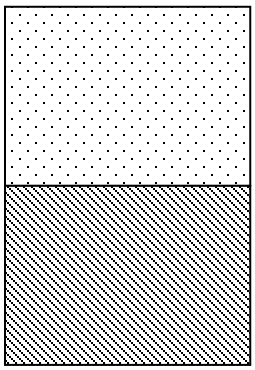


Figure 8-35: Soil profile of Shovel Test DE3.

Site 44HA0344 is associated with a dwelling shown on historical maps. As demonstrated by the presence of a burned layer in a shovel test pit, this dwelling appears to have been burned and demolished, and the artifacts associated with the structure have seemingly been pushed into the drainage which acts as a northeast boundary for Grid B2. Artifacts recovered in this site included shell-edge whiteware, brick, unidentifiable nails, wire nails, a potentially cut nail, ironstone, colorless glass, synthetic material, milk glass, aqua vessel glass, light blue vessel glass, and dark green bottle glass (for a full list of artifacts see Appendix B). A total of 69 artifacts were recovered, 31 of which were some sort of glass (Figure 8-36).

Figure 8-36: Representative artifacts collected at Site 44HA0344.

The abovementioned burnt stratum was identified in shovel test D4, which was located within the cluster of positive shovel test pits (Figure 8-37). Shovel test D4 consisted of 30 cm of 7.5YR 3/1 very dark gray loam over 7.5YR 5/8 strong brown silty clay. Due to the lack of diagnostic artifacts, this site is recommended as not eligible for inclusion in the NRHP.

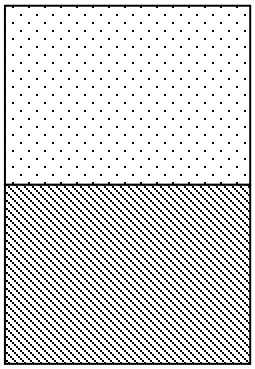


Figure 8-37: Soil profile of Shovel Test D4.

Grid B3

Grid B3 was placed on a terrace which overlooks a tributary of Lawson's Creek and to the southeast and is bounded on the east and west by small drainages. A 1952 topographic map indicates the presence of a structure on this landform. A grid of 12 shovel test pits in four (4) transects labeled A through D at 15-meter (50-foot) intervals was laid out over the northeastern edge of the terrace.

Vegetation consists of fescue grass associated with hay fields (Figure 8-38).

Figure 8-38: Typical terrain and vegetation in area B3, facing east.

Soils ranged in depth from 3 to 27 cm to subsoil, demonstrating the level of disturbance on this terrace. The northeastern side of the area consisted of stripped soils, and lacked top soil – hence the shallow depths. The southwestern portion of the area contained slightly more topsoil. A typical profile that showed intact soils consisted of 27 cm of 7.5YR 4/2 dark brown silty loam over 7.5YR 4/6 strong brown silty clay subsoil (Figure 8-39). No artifacts were found.

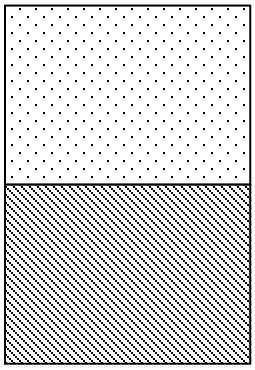


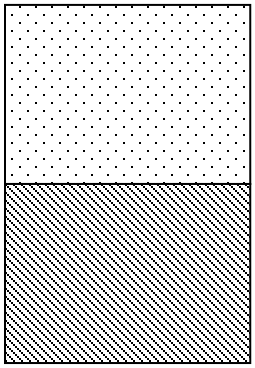
Figure 8-39: Soil profile of Shovel Test B2.

Grid B4

Grid B4 was placed on a ridge and its associated terrace which overlooks a tributary of Lawson's Creek and to the southeast, and is bounded on the east and west by small drainages. The southern portion of the landform has been modified to aid with drainage towards the wetland which acts as the southern boundary of the area. A fence runs along the northern, eastern, western, and southern edges of the area. Near the fence, in the northeast, the ground is saturated. Vegetation consists of short grass associated with agricultural use (Figure 8-40). A grid of 12 shovel test pits in transects labeled A through L at 15-meter (50-foot) intervals was laid out over the northeastern edge of the ridge and terrace. A total of 13 shovel test pits were positive for historic artifacts. Radials were excavated at 7.5 meters (30 feet) intervals around each positive shovel test pit. An unidentified pit was additionally located on top of the flat ridge, this pit is within close proximity to the artifacts which were identified in this area. These artifacts and pit were called Site 44HA0345 and will be discussed further below.

Figure 8-40: Typical terrain and vegetation in area B4, facing north.

Soils ranged in depth from 7 to 49 cm to subsoil, demonstrating the level of disturbance on this terrace. A typical profile that showed intact soils consisted of 40 cm of 10YR 5/4 yellowish brown sandy clay loam over 7.5YR 5/8 strong brown sandy clay subsoil (Figure 8-41).



10YR 5/4 sandy clay loam
0-40 cm

7.5YR 5/8 sandy clay
40-50

Figure 8-41: Soil profile of Shovel Test E4.

Site 44HA0345 consists of a total of 16 shovel test pits which were positive for a total of 62 historic artifacts – 28 of which were some sort of glass. Additionally, a piece of whiteware was collected on the surface approximately 5 feet south of shovel test A8. Artifacts in shovel test pits include ironstone, colorless vessel glass, brick, unidentifiable nails, dark green bottle glass, synthetic material, milk glass, whiteware, and slag (for a full list of artifacts see Appendix B) (Figure 8-42). The presence of an approximately 5.5 meter by 5.5 meter (18 feet by 18 feet) pit, with unknown purposes is also indicative of cultural activity in this area (Figure 8-43). The artifacts recovered are typical of an early to mid-twentieth century site. Due to the large amount of material which is undiagnostic or suggestive of a large window of occupation – including

colorless vessel glass, unidentifiable nails, and undecorated ironstone – along with the level of disturbance in this area – as demonstrated the range in depths in the shovel test pits, this site is recommended as not eligible for inclusion in the NRHP.

Figure 8-42: Representative artifacts collected at Site 44HA0345.

Figure 8-43: Unidentified pit in Area B4, facing southwest.

Grid B5

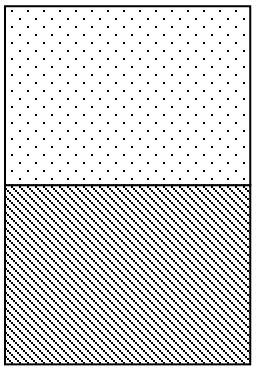
Grid B5 was placed on a ridge which overlooks Lawson's Creek to the southeast. A grid of 25 shovel test pits in five (5) transects labeled A through E at 15-meter (50-foot) intervals was laid out, running east-west along the highest part of the landform. The grid covered the flat, high portion of the landform and did not extend to the terrace due to the heavy disturbance caused by timbering (Figure 8-44; 8-45). In the less disturbed portion of the area, vegetation consists of low grass associated with agricultural pastures (Figure 8-46).

Figure 8-44: Timbering disturbance in area B5, facing north.

Figure 8-45: Timber disturbance in Area B5, facing east.

Figure 8-46: Terrain and vegetation in Area B5, facing south.

Soils ranged in depth from 2 to 11 cm to subsoil, demonstrating the fact that the area has experienced a fair amount of loss of topsoil, most likely due to its continuous use as an agricultural field. A typical shovel test pit consisted of 2 cm of 2.5YR 4/4 reddish brown silty clay loam over 2.5YR 4/8 red clay subsoil (Figure 8-47). No artifacts were found.



2.5YR 4/4silty loam
0-2 cm

2.5YR 4/8 clay
2-10 cm

Figure 8-47: Soil profile of Shovel Test B2.

Grid B6

Grid B6 was placed on a finger ridge and corresponding terrace which overlooks a tributary of Lawson's Creek to the southeast. Visual inspection showed that this terrace has undergone a large amount of land modification. A farm pond has been constructed to the land to the east of the area. This farm pond is shown in aerial maps but is not shown on topographic maps. Disturbance in the form of berms and displaced soils resulting from the creation of the farm pond is present across the area (Figure 8-48). A grid of four (4) shovel test pits in one transect labeled

A with shovel tests placed at 15-meter (50-foot) intervals was laid out over the eastern edge of the terrace, just west of the manmade pond.

Vegetation consists of low grass associated with agricultural pastures. Standing water was present across this finger ridge (Figure 8-49).

Figure 8-48: Pond in area B6, facing east.

Figure 8-49: Typical disturbance in area B6, facing north.

Soils ranged in depth from 19 to 26 cm to subsoil. All excavated shovel test pits were disturbed from the construction of the pond to the east of the grid. A typical profile consisted of 26 cm of 10YR 5/2 brown silty clay loam over 7.5YR 5/6 strong brown silty clay (Figure 8-50). No artifacts were found.

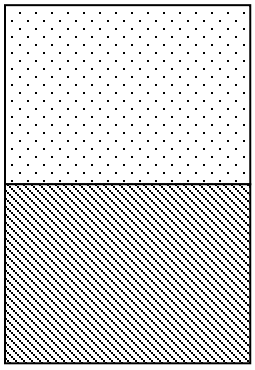


Figure 8-50: Soil profile of Shovel Test A1.

AREA C

This area consists of two parcels, both of which are west of Mount Carmel Road, with the road acting as the eastern border for the area. The area is bordered to the east by Mount Carmel Road, and on all other sides, by the project area boundaries, which are designated by parcel boundaries (Figure 8-51; 8-52). Area C consists of a one irregularly shaped landform from which several finger ridges extend, which are divided by drainages that empty into a tributary of Winns Creek. The tributary to Winns Creek runs northwest to southeast across the northern portion of the area. Vegetation consist of agricultural pastureland, with the presence of minimal trees (Figure 8-53) One (1) pond is located in the southwestern portion of the area (Figure 8-54). The remains of a

dwelling, and its associated barn – which are shown on the 1952 map are present in the eastern portion of the area (Figure 8-55; 8-56). Subsurface testing was conducted on the landform on which these structural remains were identified. In addition to this landform, subsurface testing was concentrated on terraces and finger ridges which overlooked the tributary to Winns Creek, because these landforms had the most potential for prehistoric sites.

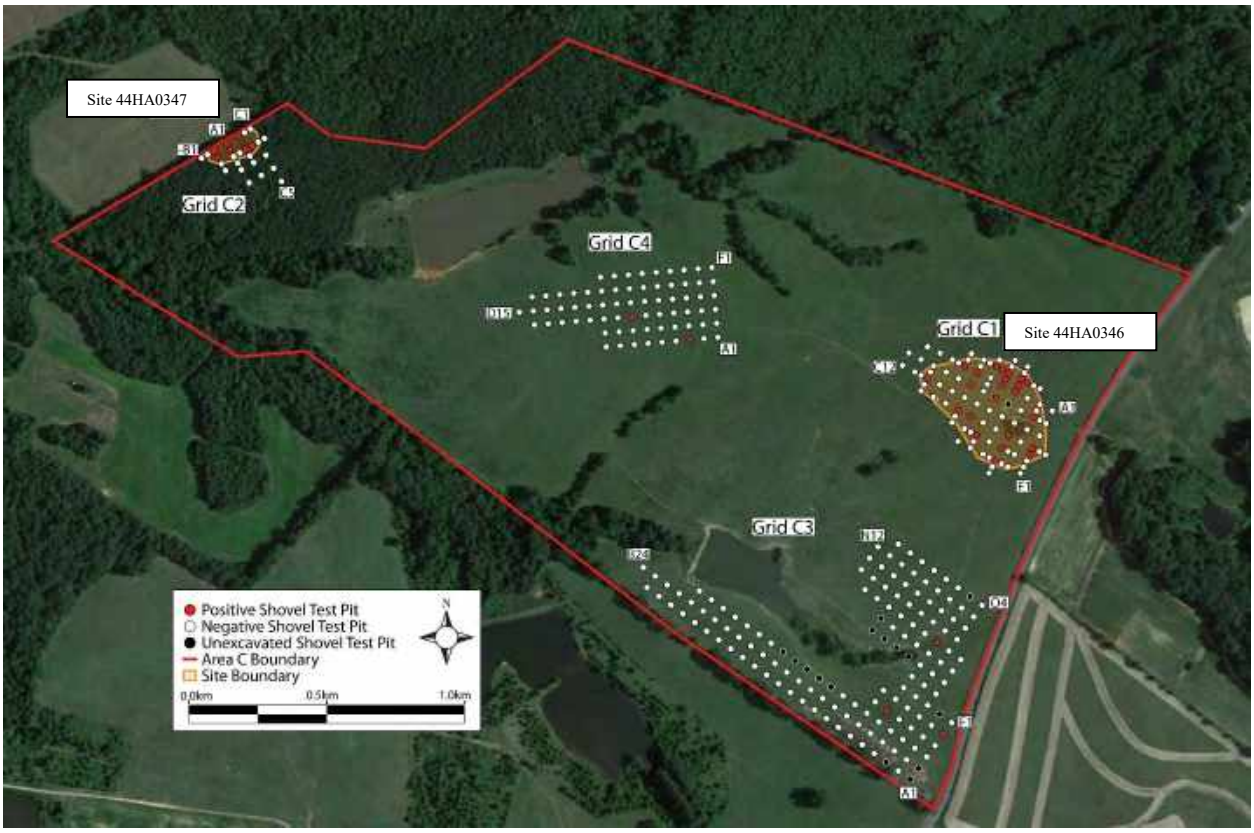


Figure 8-51: Area C, showing placement of grids, shovel test pits, and sites.

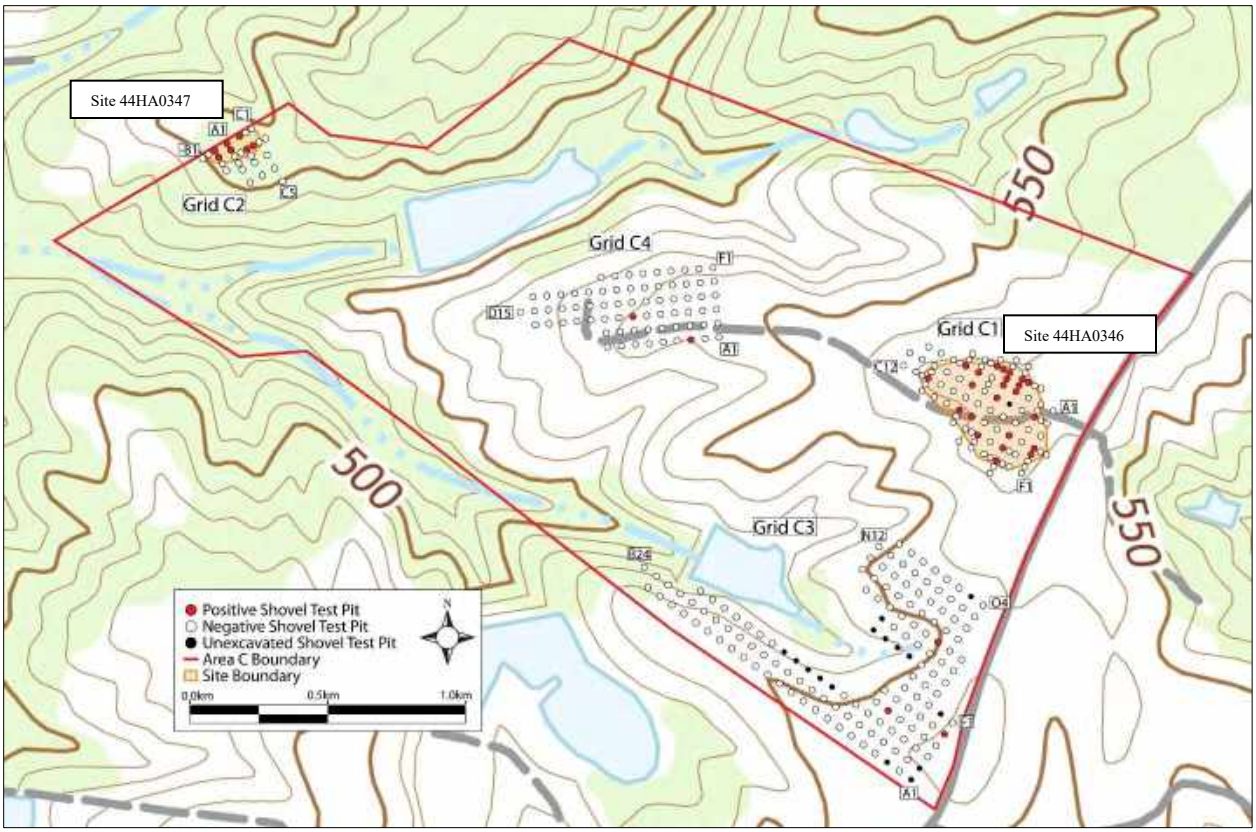


Figure 8-52: Topographic map of Area C, showing placement of grids, shovel test pits, and sites.

Figure 8-53: Typical terrain and vegetation in Area C, facing west.

Figure 8-54: Pond in Area C, facing north.

Figure 8-55: Structural remains in Area C, facing north.

Figure 8-56: Barn west of structural remains in Area C, facing southeast.

Grid C1

Grid C1 was placed on the flat portion of the main landform which makes up Area C. The remains of a structure are located on this landform, and a barn is still standing just west of the remains of the structure (Figure 8-57; 8-58; 8-59). Structures are indicated on a 1952 topographic map of this landform. A well head was also identified in this area (Figure 8-60). The project area boundary acts as the eastern boundary of this area, and the slope acts as the north, west, and south boundaries. A grid of 83 shovel test pits in six (6) transects labeled A through F at 15-meter (50-foot) intervals was laid out over the northeastern edge of the terrace. A total of 23 shovel test pits were positive for twentieth century material. Radials were excavated 7.5-meter (25-foot) away from the positive shovel test pits in the four cardinal directions. The cluster of artifacts are associated with the remains of the structure and the standing barn, these were called Site 44HA0346 and will be discussed further below.

Vegetation consists of low grass associated with agricultural pastures (Figure 8-61).

Figure 8-57: Structural remains in area C1, facing north.

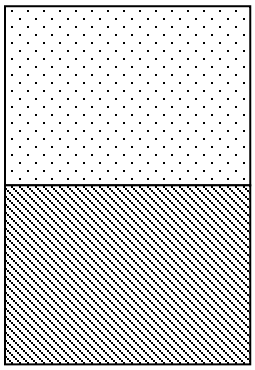
Figure 8-58: Slab associated with structural remains in area, showing cinderblocks and cement slab, facing north.

Figure 8-59: Well head just southwest of the structural remains.

Figure 8-60: Barn associated with structural remains, facing northwest.

Figure 8-61: Typical terrain and vegetation in Area C1, facing north.

Soils averaged in depth from 24 to 60 cm to subsoil, with an outlier measuring 4 cm to subsoil, demonstrating that there is a certain level of disturbance in this area. However, soils were relatively undisturbed in this area, with atypical profile consisting of 35 cm of 10YR 4/4 dark yellowish brown sandy loam over 10YR 6/3 pale brown sandy clay subsoil (Figure 8-62).



10YR 4/4 silty loam
0-35 cm

10YR 6/3 sandy clay
35-45

Figure 8-62: Soil profile of Shovel Test -AA4.

Site 44HA0346 is located on the flat portion of the main landform which makes up Area C (Figure 8-63), consisting of 55 artifacts – 30 of which are glass – including brick fragments, machine cut nails, a wire nail, white plastic, whiteware, dark green bottle glass, light blue glass, colorless vessel glass, stoneware solarized glass, brown lead glazed refined earthenware, and milk glass (Figure 8-64). These artifacts are clustered around the remains of a structure, a concrete slab, and an associated barn and well, as mentioned above. Intentionally placed stones were also identified circling a tree to the south of the remains of the structure (Figure 8-65). This structure is shown on the 1952 topographic. Due to use of cinderblocks in the foundation of the

structure, the presence of Portland cement, coupled with the presence of milk glass and wire nails, Site 44HA0346 is recommended as not eligible for inclusion in the NRHP.

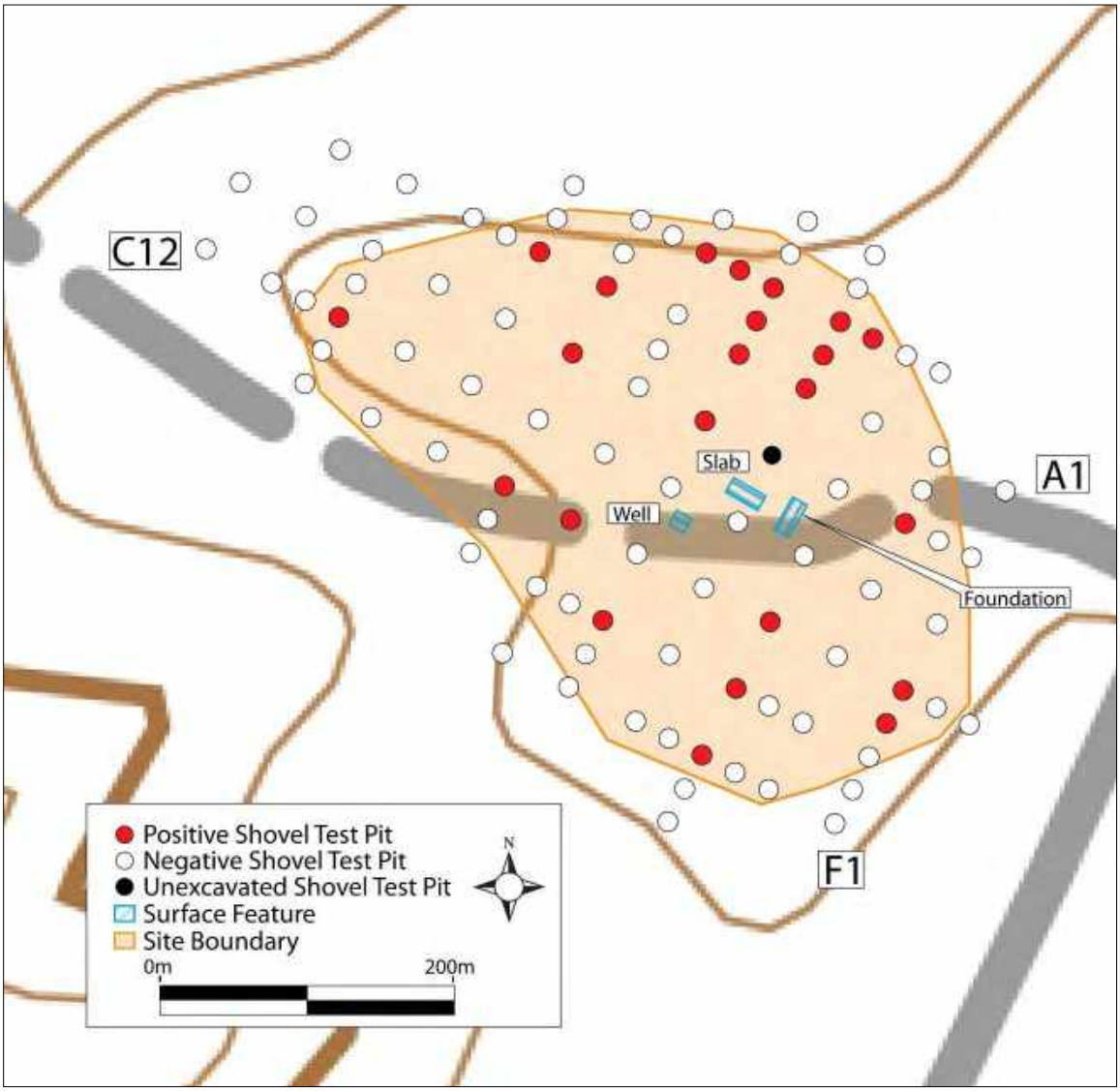


Figure 8-63: Detail of Site 44HA0346.

Figure 8-64: Intentionally placed stones circling a mature hardwood, facing south.

Figure 8-65: Representative artifacts collected at Site 44HA0346.

Grid C2

Grid C2 was placed in the northern most portion of the area, on the top of a ridge which overlooks the confluence of two tributaries to Winns Creek. The northernmost portion of the ridge is outside of the project area. A 1952 topographic map indicates the presence of a structure on this landform. A 15-meter (50-foot) grid was laid along the flat portion of the area, with transects labeled -B through DC. A total of 26 shovel test pits were excavated. A total of six (6) shovel test pits were positive for artifacts. Radials were excavated at 7.5 meters (30 feet) intervals around each positive shovel test pits. A standing chimney was identified just south of the project area boundary. The cluster of artifacts and the standing chimney were labeled Site 44HA0347 and will be discussed further below.

Vegetation consists of planted pines (Figure 8-66). This portion of the project area has been subjected to heavy logging and ground disturbance was visible on the surface (Figure 8-67).

Figure 8-66: Typical terrain and vegetation in area C2, facing north.

Figure 8-67: Typical disturbance in area C2, facing north.

Soils ranged in depth from 9 to 34 cm to subsoil, demonstrating the heavy disturbance throughout the area. An intact shovel test pit profile consisted of 22 cm of 5YR 4/4 reddish brown silty clay loam over 2.5YR 4/6 red silty clay subsoil (Figure 8-68).

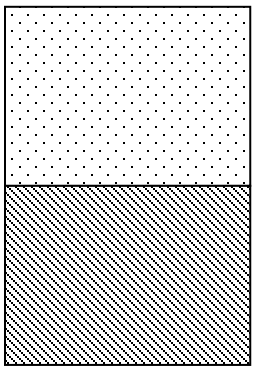


Figure 8-68: Soil profile of Shovel Test B2.

Site 44HA0347 is located in the northern most portion of area C, on a ridge which overlooks a tributary to Winns Creek to the south, and is associated with the stone chimney fall located just northeast of the project area boundary (Figure 8-69) The Chimney fall consists of large pieces of worked stone (Figure 8-70). Daffodils and yucca were noted along with cedar trees, all of which are close to the chimney fall. Artifacts recovered in this site included ironstone, colorless bottle glass, and aqua window glass (Figure 8-71). A total of seven (7) artifacts were recovered.

Although the chimney fall confirms the past presence of a structure in this area, the soils show that there is no subsurface integrity, and the lack of artifacts suggest that there is little archaeological information to be gathered regarding the site. Due to the lack of diagnostic artifacts, along with the visible indication of disturbance as demonstrated by the push piles, and the lack of topsoil in many of the shovel test pits, the lack of subsurface integrity is apparent, due to this, the site is recommended as not eligible for inclusion in the NRHP.

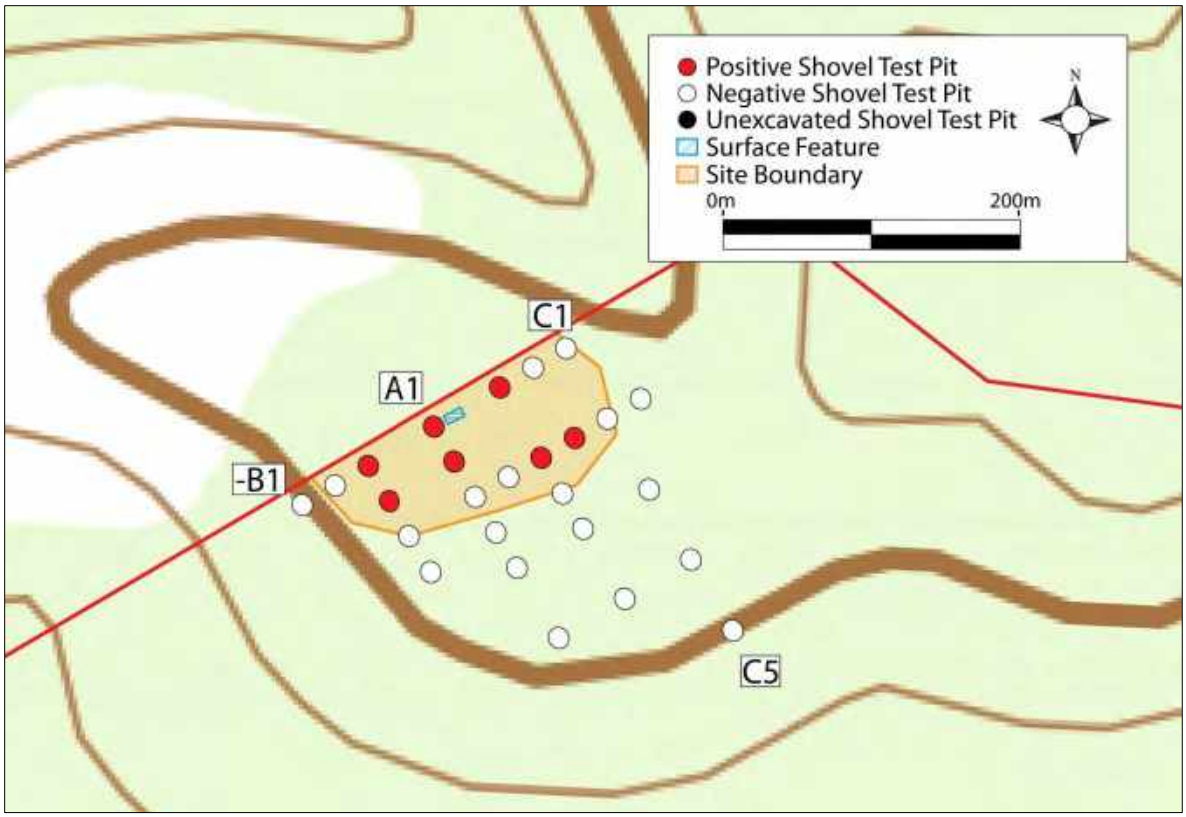


Figure 8-69: Detail of Site 44HA0347.

Figure 8-70: Chimney fall at Site 5, facing southeast.

Figure 8-71: Representative artifacts collected at Site 44HA0347.

Grid C3

Grid C3 was placed in the southern corner of the area, on a finger ridge which overlooks a drainage and a manmade pond to the northeast. The southwestern most portion of this finger ridge is located outside of the project area. Land slopes to the northeast and northwest, is bounded by Mount Carmel Road to the southeast, and by the project area to the southwest. The

center of the landform is disturbed from the installation of a manmade pond – which according to aerial imagery was created between 1994 and 2003. As the grid approached the pond the ground became saturation and visibly disturbed (Figure 8-72). A 15-meter (50-foot) grid was laid out just west of Mount Carmel Road which acts as the boundary of the area, with transects labeled A through O. A total of three (3) shovel test pits were positive for a lightbulb, a wire nail, and colorless vessel glass. These items were collected but upon further inspection in the field were determined to be modern, thus no radials were excavated. A total of 149 shovel test pits were excavated.

Vegetation consists of fescue grass which has been cut for hay. There are a few standing trees dispersed throughout the area (Figure 8-73).

Figure 8-72: Disturbance in center of C3, showing terraformed land, facing west.

Figure 8-73: Typical terrain and vegetation in area C3, facing north.

Soils ranged in depth from 7 to 60 cm to subsoil, demonstrating the overall disturbance of the area, which has most likely been caused by continuous agricultural use. Shovel test B16 showed a typical profile for the area, consisting of 19 cm of 5YR 5/2 reddish gray loamy clay over 5YR 5/6 yellowish red clay subsoil (Figure 8-74).

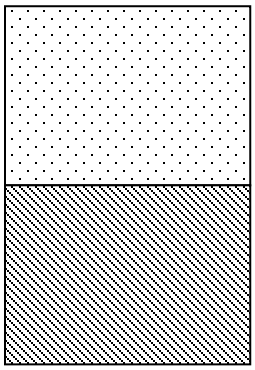


Figure 8-74: Soil profile of Shovel Test B16.

Grid C4

Grid C4 was placed in the center of the area, on a finger ridge and associated terrace which overlooks a tributary to Winns Creek to the northwest. The land slopes to the north, south, and west. To the east, the land flattens out. A 15-meter (50-foot) grid was laid out just along top of the flattest part of the landform, extending towards the terraced portion of the landform with transects labeled A through F. Two shovel test pits were positive. One for clear vessel glass and another for lantern glass. The lantern glass was collected, but the colorless vessel glass was

discarded due to its modern nature. Upon further inspection in the field, the lantern was determined to be modern as well, thus no radials were excavated. A total of 70 shovel test pits were excavated.

Vegetation consists of fescue grass which has been cut for hay. There are a few standing trees dispersed throughout the area (Figure 8-75).

Figure 8-75: Typical terrain and vegetation in area C4, facing north.

Soils ranged in depth from 3 cm to 52 cm to subsoil, demonstrating the overall disturbance of the area, which has most likely been caused by continuous agricultural use. Shovel test D3 showed a typical profile for the area, consisting of 16 cm of 5YR 5/6 yellowish red sandy clay over 5YR 5/6 yellowish red clay subsoil (Figure 8-76).

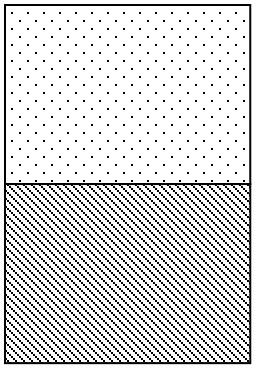


Figure 8-76: Soil profile of Shovel Test D3.

AREA D

This area consists of two parcels in the easternmost portion of the project area. A transmission line runs southwest-northeast through the area. The area consists of portions of three large, irregularly shaped landforms which area dissected by drainages and tributaries to Powells Creek. The area is bordered to the northwest by Alton Post Office Road, to the south partially by a tributary to Powells Creek, and in all other directions by parcel boundaries (Figure 8-77; 7-78). The area consists of a several finger ridges, divided by drainages, many of which overlook tributaries to Powells Creek to the south. Vegetation consists of in use agricultural pastureland, untended fescue and weeds which have grown post-timbering events, and a few wooded areas (Figure 8-79; 7-80; 7-81). Subsurface testing was concentrated on finger ridges and their associated terraces which overlooked tributaries to Powells Creek, because terraces had the most potential for prehistoric sites. Additionally, landforms which historic maps showed as having dwellings on them were subjected to subsurface testing

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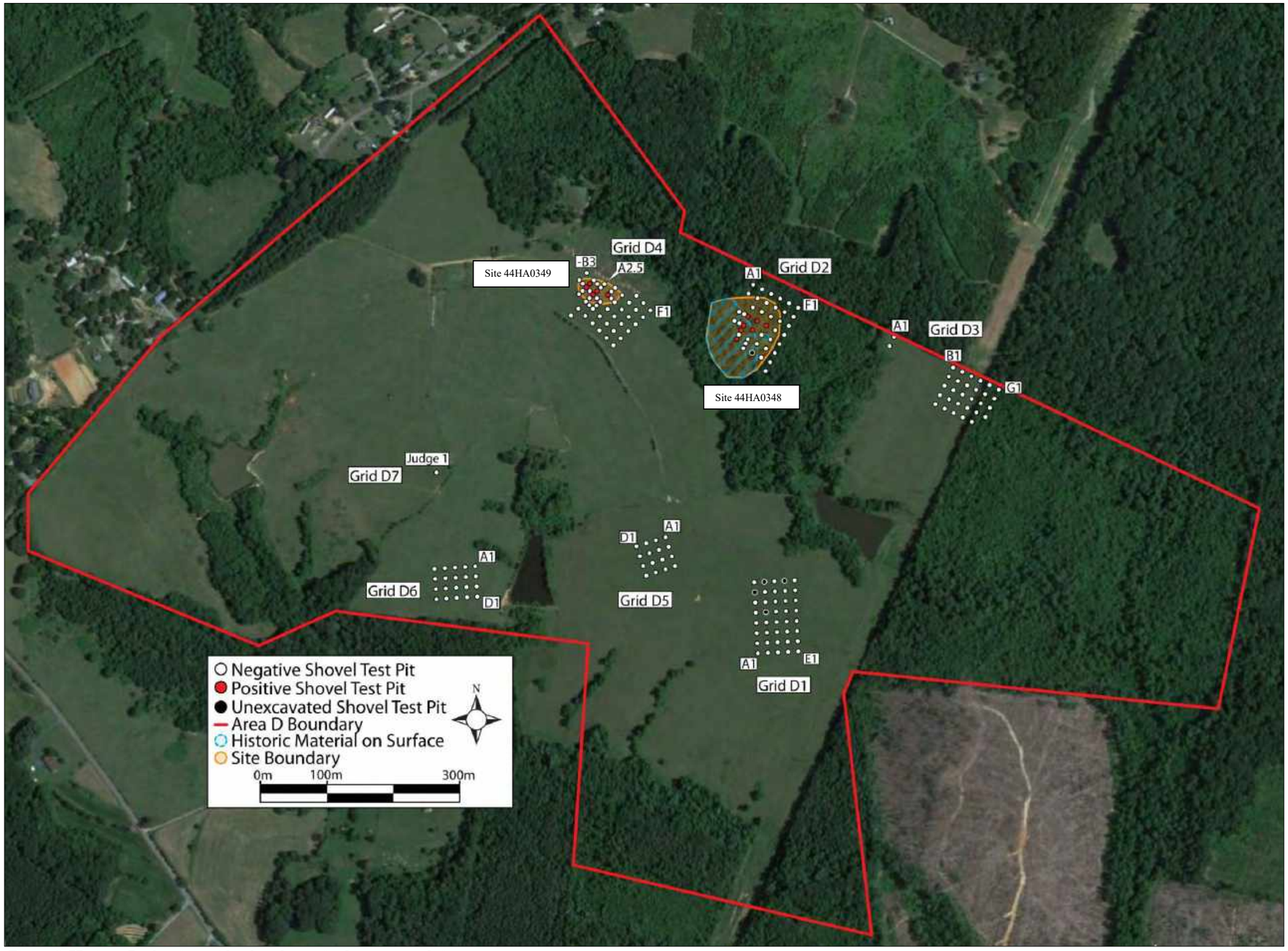


Figure 8-77: Area D, showing grids, shovel test pit placement and sites.

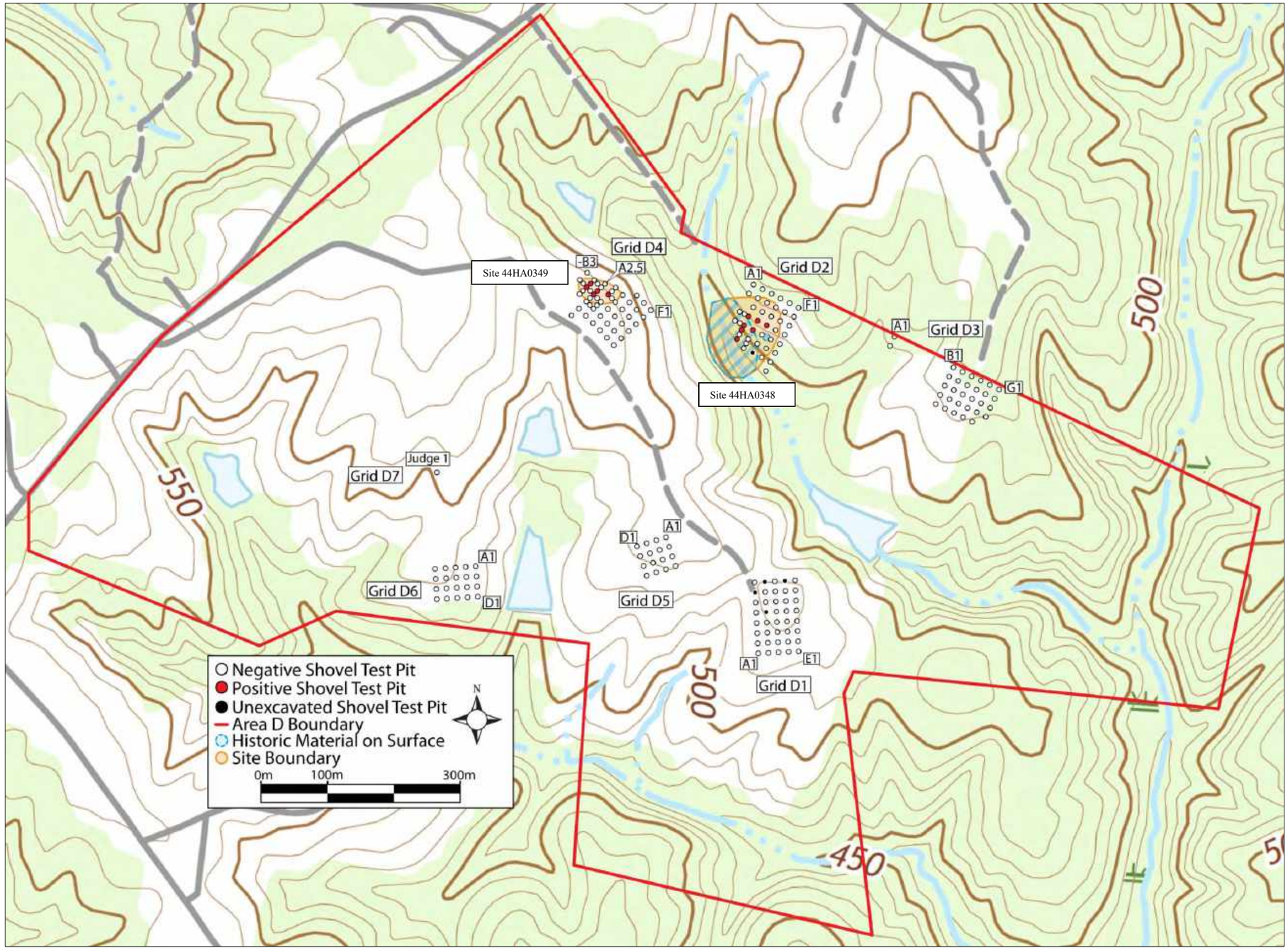


Figure 8-78: Topographic map of Area D, showing grids, shovel test pit placement, and sites.

Figure 8-79: Pastureland in Area D, facing north.

Figure 8-80: Fescue, weeds, and shrubs in Area D, facing west.

Figure 8-81: Wooded portion in Area D, facing north.

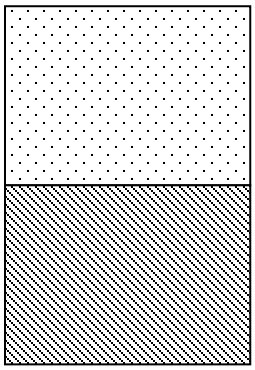
Grid D1

Grid D1 was placed on a knoll on which a historic road dead ends. A 1952 topographic map indicates the presence of a structure on this landform. A dirt road and a barbed wire fence run north-south through the area. The grid consists of 40 shovel test pits in five (5) transects labeled A through E at 15-meter (50-foot) intervals was laid out over the southern portion of the landform.

Vegetation consists of low grass associated with cattle pastures (Figure 8-82).

Figure 8-82: Typical terrain and vegetation in D1, facing west.

Soils ranged in depth from 7 to 25 cm to subsoil, with an outlier reaching subsoil at 46 cm in depth. A typical profile consisted of 8 cm of 10YR 4/4 dark yellowish brown silty clay loam over 2.5YR 5/8 red clay subsoil (Figure 8-83). No artifacts were found, and no further work is recommended in this portion of the project area.



10YR 4/4 silty clay loam
0-8 cm

2.5YR 5/8 clay
8-22

Figure 8-83: Soil profile of Shovel Test C3.

Grid D2

Grid D2 was placed against the northern border of the area, on a terrace associated with a finger ridge which overlooks a tributary to Powells Creek to the south. Most of this landform is located north of the project area. A 1952 topographic map indicates the presence of a structure on this landform. A 15-meter (50-foot) grid was laid just south of the northern boundary of the project area, with transects labeled A through G. A total of 42 shovel test pits were excavated in this

area, eight (8) of which were positive for historical materials. Radials were excavated at 7.5 meters (30 feet) intervals around each positive shovel test pit, until two negative shovel test pits were excavated in all directions, or until slope became greater than 25 percent. Artifacts were noted on the surface, in the drainage, and a pit with unknown function was also noted on top of the landform. The artifacts and the pit were called Site 44HA0348 and will be discussed further below.

Vegetation consists of shrubs and a small amount of grass, typical of an area which has been recently logged (Figure 8-84).

Figure 8-84: Typical terrain in area D2, facing east.

Soils ranged in depth from 4 to 36 cm to subsoil. An outlier reached subsoil at 42 cm in depth, and contained imported gravel, most likely associated with land alteration for timbering purposes. The varying depths of subsoil, along with the presence of gravel in the shovel test pit demonstrates the overall disturbance in this area. Shovel test B4 consisted of 33 cm of 7.5YR 5/6 strong brown silty clay loam over subsoil consisting of 2.5YR 4/6 red clay mottled with 7.5YR 5/6 strong brown silty clay loam subsoil (Figure 8-85).

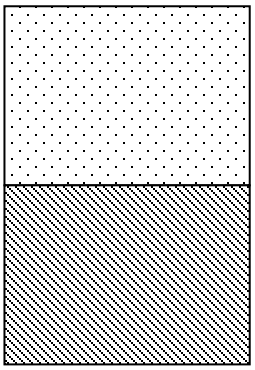


Figure 8-85: Soil profile of Shovel Test B4.

Site 44HA0348 located on a terrace associated with a finger ridge which overlooks a tributary to Powells Creek to the south and west (Figure 8-86). The portion of this landform which is located within the project area slopes drastically to the south, east, and west (Figure 8-87). Along with the artifacts that were recovered from the shovel test pits, artifacts were identified on the surface, in the drainage. A pit was identified on the flattest portion of the landform (Figure 8-88) Yucca plants and daffodils were noted growing in the drainage. Artifacts recovered in this site included ironstone, shell-edged whiteware, milk glass, stoneware, colorless vessel glass, a machine cut nail, aqua glass, and stoneware (for a full list of artifacts collected, see Appendix B) (Figure 8-89). One isolated prehistoric artifact was collected on the surface among the historical surface scatter. This artifact is a projectile point or knife, similar to Cobbs Triangular point (Figure 8-90). A total of 6 (six) shovel test pits were positive for artifacts, and a total 27 artifacts were recovered. Datable artifacts consist of a milk glass lid liner which dates to 1924-1940; a milk glass vessel which dates to 1923-1982; whiteware shell-edge which dates to 1860-1890. Due to the fact that many of the artifacts which were collected and noted are on the surface are on the sloped portion of this landform, it is likely that these artifacts are displaced from alluvial events, and that the site no longer has surface integrity, thus this site is recommended as not eligible for inclusion in the NRHP.

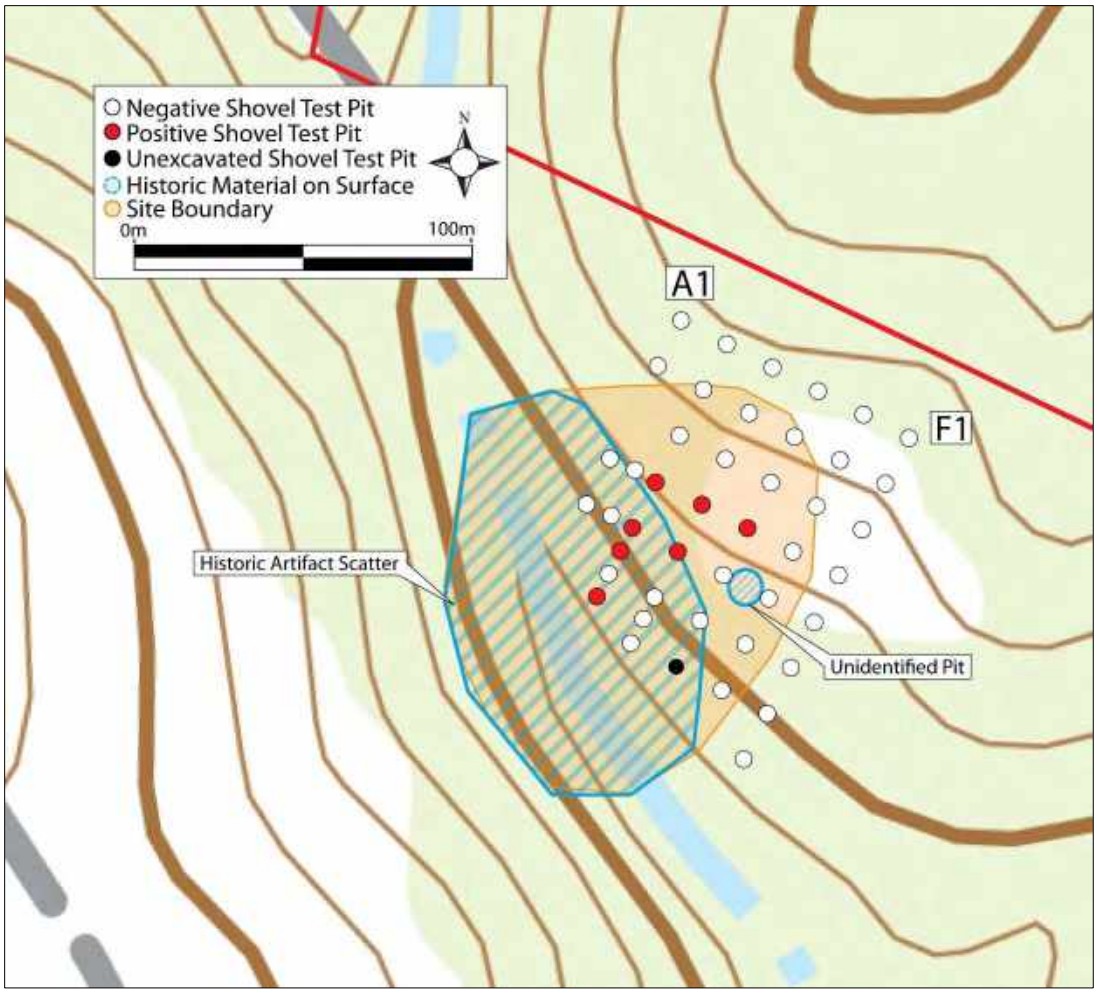


Figure 8-86: Detail of Site 44HA0348.

Figure 8-87: Slope in D2, facing west.

Figure 8-88: Pit located in D2, facing southeast.

Figure 8-89: Representative artifacts collected from Site 44HA0348.

Figure 8-90: Isolated prehistoric artifact collected at Site 44HA0347.

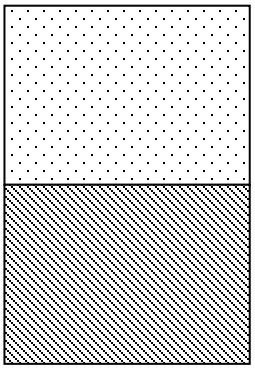
Grid D3

Grid D3 was placed against the northern border of the area, on a finger ridge which overlooks a tributary to Powells Creek to the south. Most of this landform is located north of the project area. A road dead ends just north of the project area boundary, and just north of this area. D3 is bordered by slopes to the south, east and west. The project area acts as the northern border for D3. A 15-meter (50-foot) grid was laid just south of the northern boundary of the project area, with transects labeled A through G. A powerline and a barbed wire fence run southwest-northeast through the center of D3. The A line of the grid was placed approximately 90 meters (300 feet) northwest of the rest of the grid, in order to examine the condition of soils on a small finger ridge close to the drainage which acts as D3's western boundary. The shovel test pits which were excavated near the powerline corridor were disturbed. A total of 31 shovel test pits were excavated in D3. No artifacts were recovered.

Vegetation consists of low fescue grass and small shrubs typical of cattle pasture (Figure 8-91).

Figure 8-91: Typical terrain and vegetation in area D3, facing west.

Soils ranged in depth from 8 to 37 cm to subsoil, demonstrating the overall disturbance in this area. Shovel test B1 consisted of 17 cm of 10YR 4/6 dark yellowish brown silty clay loam over subsoil consisting of 2.5YR 4/8 red silty clay mottled with 7.5YR 5/6 strong brown silty clay loam subsoil (Figure 8-92).



10YR 4/6 silty clay loam
0-17 cm

2.5YR 4/8 silty clay
17-26

Figure 8-92: Soil profile of Shovel Test B4.

Grid D4

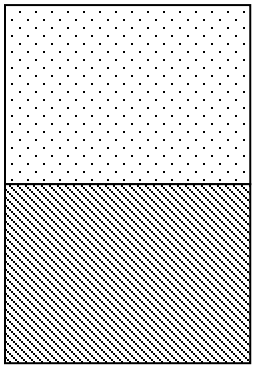
Grid D4 was placed on a terrace located on the northeastern portion of a finger ridge which extends from one of the large landforms which makes up most of Area D. This terrace overlooks a tributary to Powells Creek and is east of a road which dead ends on the larger landform. For this reason, the landform was subjected to subsurface testing in order to test for prehistoric and historic sites. D4 is bounded by slope to the north and east. A road bounds D4 to the south. A

grid of transects labeled A through F at 15-meter (50-foot) intervals was laid just south of the tributary which acts as D4's northern boundary. A total of five (5) shovel test pits were positive for historic artifacts. Radials were excavated at 7.5 meters (30 feet) intervals around each positive shovel test pit, until two negative shovel test pits were excavated in all direction. The cluster of artifacts was labeled Site 44HA0349 and will be discussed further below.

Vegetation consisted of short grass typical of cattle pastures (Figure 8-93).

Figure 8-93: Typical vegetation and terrain in area D4, facing north.

Soils ranged in depth from 5 to 67 cm to subsoil, demonstrating the level of disturbance on this terrace. Approximately 30 percent of the shovel test pits excavated in D4 reached subsoil before 10 cm. A typical profile consisted of 3 cm of 10YR 4/6 dark yellowish brown silty clay loam over 2.5YR 4/8 red silty clay subsoil (Figure 8-94).



10YR 4/6 silty clay loam
0-3 cm

2.5YR 4/8 silty clay
17-26 cm

Figure 8-94: Soil profile of Shovel Test D5.

Site 44HA0349 consists of a total of five (5) shovel test pits which were positive for historic artifacts, including an unidentifiable nail, whiteware, colorless glass, an iron bracket, and an ironstone teacup rim (for a full list of artifacts see Appendix B) (Figure 8-95). Many of these artifacts are undiagnostic – including the thirteen pieces of colorless glass. Due to the small number of artifacts collected, the generally disturbed nature and lack of topsoil of the landform on which these artifacts are located, and the lack of diagnostic artifacts, this site is not recommended as eligible for the NRHP.

Figure 8-95: Representative artifacts collected from Site 44HA0349.

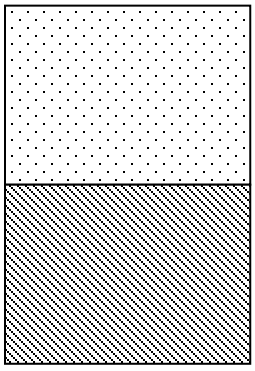
Grid D5

Grid D5 was placed on a flat knoll which is part of the large, irregular landform which makes up the center of Area D. D5 is bounded by slopes on all sides, except for to the north, where the large irregular landform continues. A grid of 16 shovel test pits in four (4) transects labeled A through D at 15-meter (50-foot) intervals was laid out just west of the slope which makes up the western boundary for D5.

Vegetation consisted of short grass typical of a cattle pasture (Figure 8-96).

Figure 8-96: Typical terrain and vegetation in D5, facing north.

Soils ranged in depth from 13 to 30 cm to subsoil. A typical profile that showed that once the sod cap was removed, the shovel test pit essentially came directly down to subsoil. A typical shovel test pit consisted of 24 cm of 2.5YR 4/4 reddish brown silty clay loam over 2.5YR 4/8 red clay subsoil (Figure 8-97). No artifacts were found, and no further work is recommended for D5.



2.5YR 4/4silty loam
0-2 cm

2.5YR 4/8 clay
2-10 cm

Figure 8-97: Soil profile of Shovel Test B2.

Grid D6

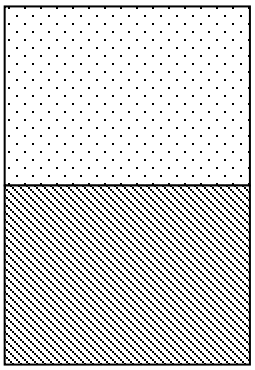
Grid D6 was placed on a finger ridge and corresponding terrace which overlooks a pond created from a tributary of Powells Creek to the east. A grid of 20 shovel test pits in four transects

labeled A through D were placed at 15-meter (50-foot) intervals just west of the drainage and its associated pond.

Vegetation consists of low grass associated with agricultural pastures (Figure 8-98).

Figure 8-98: Typical terrain and vegetation in B6, facing north.

Soils ranged in depth from 11 to 41 cm to subsoil. A typical profile consisted of 41 cm of 10YR 5/4 yellowish brown silty clay loam mottled with 10YR 4/6 dark yellowish brown over 5YR 3/4 dark reddish brown silty clay (Figure 8-99). No artifacts were found.



10YR 5/4 silty clay loam
0-41 cm

5YR 3/4 silty clay
41-50

Figure 8-99: Soil profile of Shovel Test C3.

Grid D7

Grid D7 consisted only of one shovel test pit, as the landform on which this shovel test pit was excavated was extremely disturbed from terraforming, and visual inspection demonstrated that the modification had resulted in the addition of fill dirt on top of the landform. The excavated shovel test pit confirmed that the landform was disturbed due to the addition of fill dirt. Grid D7 consists of a finger ridge that protrudes from the larger irregular landform which makes up most of the center of Area D. This finger ridge is located just south of where a map projected historic road is shown to dead end.

This landform is a cattle field that appears to be out of use. Vegetation consists of short grasses, and weeds (Figure 8-100). Ground surface undulated, demonstrating the terraforming of the landform (Figure 8-101).

Figure 8-100: Typical terrain and vegetation in D7, facing north.

Figure 8-101: Disturbed, undulating land in D7, facing west.

The shovel test pit excavated in D7 consisted of 39 cm of 10YR 4/6 dark yellowish brown sandy loam mottled with 10YR 5/4 yellowish brown sandy loam which came down to 7.5YR 5/8 loamy clay (Figure 8-102). Overall disturbance of the landform on which it was placed, and the lack of an intact, cultural layer. No artifacts were recovered, and no further work is recommended for D7.

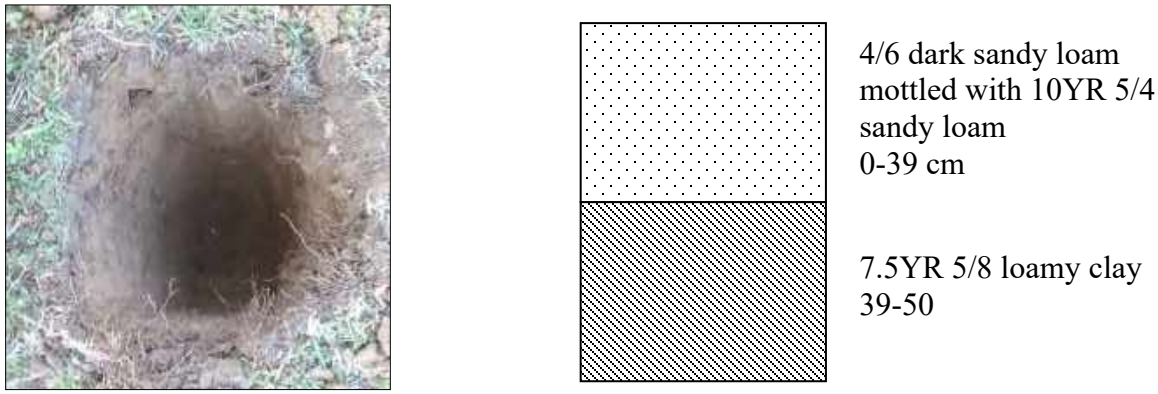


Figure 8-102: Soil profile of Shovel Test A1.

ARCHITECTURAL FIELD RESULTS

The architectural resources survey for the Alton Post Solar Project resulted in the identification of thirty-nine (39) architectural resources greater than 50 years of age (constructed in 1970 or earlier) located within the one-half mile architectural survey area. Of the surveyed resources, six (6) were previously recorded (VDHR# 041-5054, 041-5059, 041-5500, 041-5502, 041-5503, and 041-5505) and thirty-three (33) were newly recorded during this Phase I Survey (VDHR# 041-5580/5608, 041-5612/5615). Four of the previously recorded resources have been surveyed and determined not eligible for listing in the NRHP by the VDHR within the last five years, and therefore were only field visited to verify conditions, but were not resurveyed or evaluated as part of this effort (VDHR# 041-5500, 041-5502, 041-5503, and 041-5505). One additional previously recorded resource was found to have been demolished since last surveyed (VDHR# 041-5059). VCRIS site file forms were prepared or updated for each surveyed resource.

The survey area occupies a large rural area of southern Halifax County a few miles west of the crossroads community of Alton. Primary transportation corridors through the survey area include Alton Post Office Road and Mt Carmel Road, both of which are northeast-southwest oriented secondary roads. The landscape of the survey area is mostly rural and characterized by gently rolling terrain typical of the Piedmont that is a patchwork of open pasture or agricultural field with strands of native woodland and planted timber bisected by a network of small creeks.

The survey area is lightly developed, with buildings and improved properties scattered throughout. The majority of the 39 surveyed resources are domestic buildings and farmsteads from the late-nineteenth to late-twentieth century with a variety of associated agricultural outbuildings. Also within the survey area is a single dwelling believed to date from the late-eighteenth or early-nineteenth century based on its form and design, as well as a single mid-twentieth century commercial building.

Most of the homes and farms are set on moderate to large properties although are typically set in close proximity to the road with agricultural complexes and fields to the rear. Some of the dwellings, particularly the more recent mid- and late-twentieth century homes tends to be set in clusters on small rural lots adjacent to the roads. A handful of properties, particularly those that appear to have been built as modest tenant homes in the early-twentieth century have been abandoned and allowed to deteriorate or consumed by vegetation. In some cases, a newer dwelling or mobile home has been built on these properties.

As with the four previously recorded resources that were recently determined not eligible for listing in the NRHP, all of the resources surveyed as part of this effort reflect typical rural development in the region with modest frame and masonry dwellings that reflect subtle influences of national trends in building styles of their period such as Folk Victorian, Craftsman, Minimal Traditional, and Ranch single dwellings. Many buildings that are Vernacular in form or character and include I-houses, hall-and-parlors, or Bungalows with various stylistic influences were also recorded throughout the project area. Many of the homes and properties include a typical collection of agricultural outbuildings including hay barns, pole barns, vehicle sheds, and other structures. Tobacco barns are also common throughout the survey area and most reflect the typical form and construction of these structures encountered throughout the county and region.

As such, none of the surveyed resources reflect any unique or significant design or historical associations and all are recommended not eligible for listing in the NRHP individually or collectively.

Provided in the following pages are a table of all surveyed resources (Table 8-1), a map with the location of each resource surveyed (Figure 8-103), and descriptive narratives and photographs of each of the identified historic resources. Resource narratives include a physical description, discussion of history, integrity, and NRHP-eligibility.

Table 8-1: Surveyed architectural resources. Bold font denotes resource is NRHP-eligible. Orange highlight denotes resource is located directly within the project area.

VDHR #	Resource Name/Address	Year Built	NRHP Eligibility
041-5054	House, 2200 Alton Post Office Road	c.1900	D+A: Not Eligible
041-5059	House, 4059 Mount Carmel Road	c.1870	D+A: Demolished
041-5580	House, 3200 Alton Post Office Road	1933	D+A: Not Eligible
041-5581	House, 4002 Alton Post Office Road	c.1880	D+A: Not Eligible
041-5582	House, Alton Post Office Road	c.1900	D+A: Not Eligible
041-5583	House, 3058 Alton Post Office Road	c.1900	D+A: Not Eligible
041-5584	House, Alton Post Office Road	c.1900	D+A: Not Eligible
041-5585	House, 2163 Alton Post Office Road	1920	D+A: Not Eligible
041-5586	House, 2103 Alton Post Office Road	1900	D+A: Not Eligible
041-5587	House, 2196 Mill Pond Road	c.1960	D+A: Not Eligible
041-5588	Barns, Mill Pond Road	c.1900	D+A: Not Eligible
041-5589	House, 1141 Dawson Trail	1950	D+A: Not Eligible
041-5590	House, 1161 Dawson Trail	1960	D+A: Not Eligible
041-5591	House, 1100 Emergency Road	1930	D+A: Not Eligible
041-5592	House, 3242 Mt. Carmel Road	c.1900	D+A: Not Eligible
041-5593	House, 3211 Mt. Carmel Road	c.1910	D+A: Not Eligible
041-5594	House, 3159 Mt. Carmel Road	1958	D+A: Not Eligible
041-5595	House, 3136 Mt. Carmel Road	1945	D+A: Not Eligible
041-5596	House, 3105 Mt. Carmel Road	1957	D+A: Not Eligible
041-5597	House, 1056 Mason Chapel Road	1970	D+A: Not Eligible
041-5598	House, 1010 Mason Chapel Road	c.1900	D+A: Not Eligible
041-5599	House, 1105 Coleman Drive	c.1960	D+A: Not Eligible
041-5600	House, 2140 Mt. Carmel Road	c.1890	D+A: Not Eligible
041-5601	House, on E of Mt. Carmel Road	c.1930	D+A: Not Eligible
041-5602	House, 2103 Mt. Carmel Road	1932	D+A: Not Eligible
041-5603	House, 1223 Mt. Carmel Road	c.1910	D+A: Not Eligible
041-5604	House, 1218 Mt. Carmel Road	c.1930	D+A: Not Eligible
041-5605	House, 4007 Piney Grove Road	1970	D+A: Not Eligible
041-5606	House, 3177 Piney Grove Road	1970	D+A: Not Eligible
041-5607	House, 3165 Piney Grove Road	c.1960	D+A: Not Eligible
041-5608	House, 3146 Piney Grove Road	1947	D+A: Not Eligible
041-5612	House, 3070 Alton Post Road	1947	D+A: Not Eligible
041-5613	Commercial Building, 3232 Mount Carmel Road	1950	D+A: Not Eligible
041-5614	House, 4005 Piney Grove Road	1970	D+A: Not Eligible
041-5615	House, 3154 Piney Grove Road	c.1940	D+A: Not Eligible

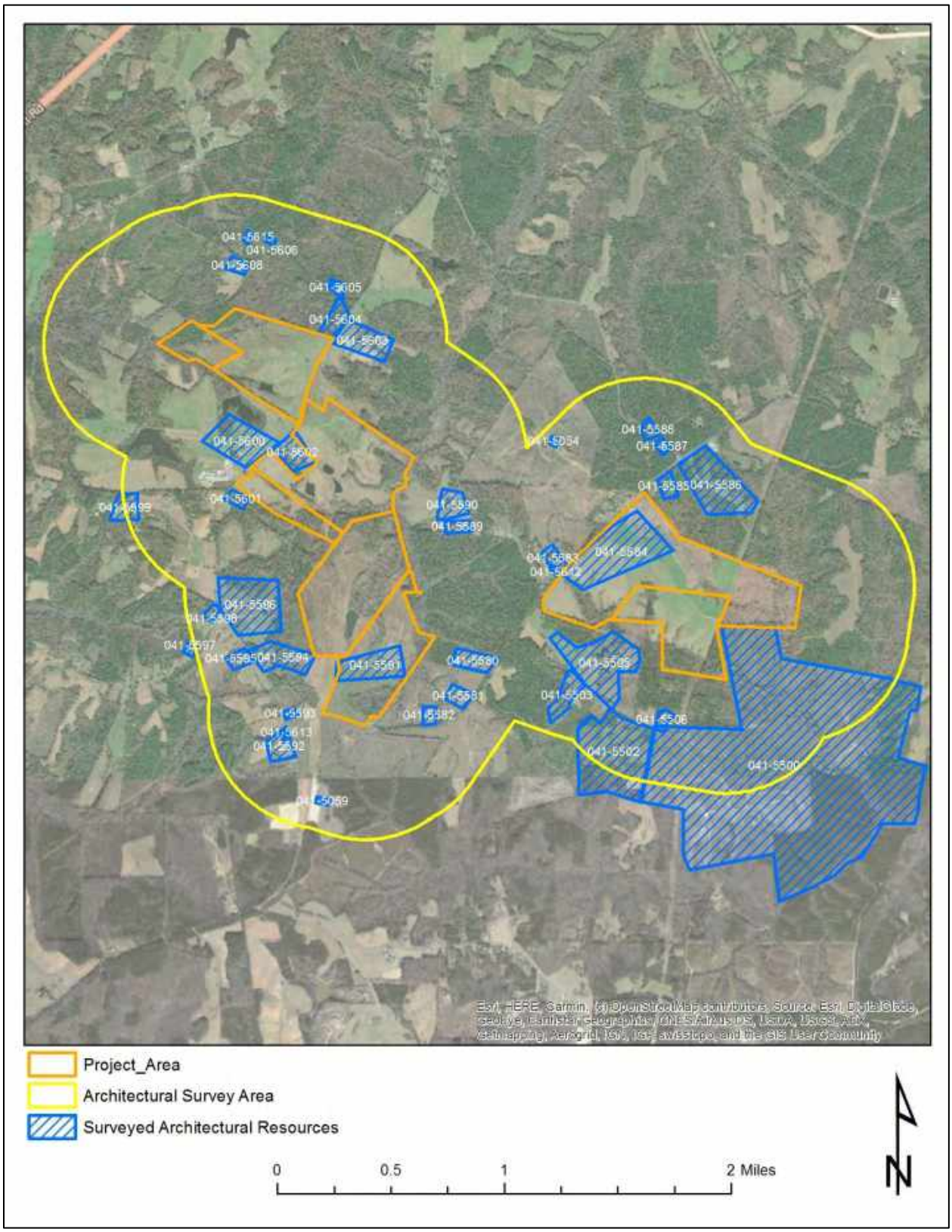


Figure 8-103: Location of surveyed architectural resources.

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RESOURCE NARRATIVES

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VDHR ID# 041-5054
House, 2200 Alton Post Office Road

This single dwelling was built circa 1900 according to previous survey and exhibits no discernable style. The building has a one-and-a-half-story rectangular main block with a full-width one-story rear ell. The wood frame structural system is clad with clapboard and rests on a stone pier foundation. It is topped by a side-gable roof covered with standing seam metal. Exterior end brick chimneys flank each side of the house at the ridge. The main entrance is set centrally on the front and sheltered by a full-width shed roof porch with plain posts. Fenestration consists of double-hung sash windows with one-over-one light configurations. The building is simple and unadorned.

This dwelling is set far back from the road on a large rural property. The home rests within a small homesite overgrown with vegetation. It is approached by a long dirt road that extends through several properties between this one and the road. Several small historic outbuildings and barns are scattered around the dwelling. The building complex is surrounded by a patchwork of agricultural fields and treelines. Larger wooded areas border the property to all sides.

This property is an example of a typical early-twentieth century farm and dwelling in the region. Previous survey indicated the building is likely formerly a tenant house or quarters associated with a larger primary dwelling that is no longer extant. This home is an undistinguished Vernacular dwelling. It includes a small collection of typical barns and outbuildings. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5059
House, 4059 Mount Carmel Road

Previous survey recorded this resource as a circa 1870 frame dwelling exhibiting a Gothic Revival style. This building is no longer present and is assumed to have been demolished.

The building was located on a rural property located on the east side of Mount Carmel Road. The site on which the building sat remains evident as a cluster of trees at the end of a driveway.

As this former dwelling has been demolished, it is therefore considered ***not eligible*** for listing in the NRHP on an individual basis or as part of an historic district.

VDHR ID# 041-5580
House, 3200 Alton Post Office Road

This two-story frame dwelling was built in 1933 according to local records and exhibits a Craftsman style. It has an American Foursquare form and remains in good condition. The dwelling rests on a continuous foundation with walls clad in vinyl siding topped with a hipped roof covered in asphalt shingles. The roof is pierced by an interior slope brick chimney and a hipped dormer centered on the front slope. There is a pair of vents located in the dormer. The main entrance is slightly offset on the front façade and sheltered by a hipped roof portico supported by tapered columns set on brick piers. Fenestration consists of a tripartite window, paired four over four double-hung sash windows and a single, six-pane fixed window. The dwelling lacks any major ornamentation.

This dwelling is located on the west side of Alton Post Office Road on a rural lot. The lot is mostly open agricultural fields surrounded by wooded area on the perimeter. There are trees around the homesite and a driveway that leads along the north side. There are four outbuildings associated with the home.

This property is an example of a typical early-twentieth century farm and dwelling in the region. The home is an undistinguished dwelling with subtle Craftsman style influences. It includes a collection of typical outbuildings consisting of a historic garage, barns, and sheds. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5581
House, 4002 Alton Post Office Road

This two-story frame dwelling was circa 1880 according to site survey and exhibits a Folk Victorian style. It has an L-shaped form and remains in poor condition. The dwelling has been abandoned and vacant. It rests on a continuous foundation with walls clad in weatherboard siding topped with a side gable roof with central lower cross gable. The roof is clad in metal and pierced by two, exterior end brick chimneys. There is also an interior slope brick flue on the rear addition. The main entrance is centered on the front façade and sheltered by a full-width porch supported by wood posts. Fenestration consists of single, two over two double-hung sash windows adorned with shutters. Other ornamentation consists of cornice brackets and a decorative rakeboard.

This dwelling is located on the west side of Alton Post Office Road on a large rural lot. The lot is open grassy area with trees along the rear perimeter. A long dirt driveway leads to the front of the dwelling and there are large bushes and trees around the homesite. A small shed is located in the rear.

This property is an example of a typical early-twentieth century farm and dwelling in the region. The home is an undistinguished dwelling with subtle Craftsman style influences. It includes a collection of typical outbuildings consisting of a historic garage, barns, and sheds. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5582
House, Alton Post Office Road

This one and a half story frame dwelling was built circa 1900 according to site survey and exhibits a Vernacular style. It has a rectangular form and remains in poor condition. It is abandoned and neglected. The cabin rests on a continuous foundation with walls clad in weatherboard siding topped with a side gable roof covered in corrugated metal. The roof is pierced by an interior slope brick chimney. The main entrance is centered on the front façade and sheltered by a full-width overhang in the roof supported by wood posts. Fenestration on the cabin has been boarded up with metal due to vacancy.

This cabin is located on the northwest side of Alton Post Office Road on a rural lotthat is overgrown with bushes and long grass. There is a shed located behind the cabin.

This property is an example of a typical modest early-twentieth century dwelling in the region. The home is an undistinguished Vernacular dwelling with little architectural distinction. It includes a sole shed as an outbuilding. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5583
House, 3058 Alton Post Office Road

This single dwelling was built in the late-eighteenth or early-nineteenth century according to site survey and exhibits a Vernacular design. The building appears to have a one-story hall-and-parlor form with an enclosed side porch and a central rear wing. The wood frame structural system is clad with vinyl siding and rests on a continuous brick foundation. It is topped by a side-gable roof covered with standing seam metal. Exterior end brick chimneys extend up each side of the building at the ridge. The main entrance is set centrally on the front and sheltered by a partial-width hipped roof porch that has been screened. Fenestration consists of double-hung sash windows that are currently covered with plastic tarp. The building is embellished with boxed cornices and chimney haunches.

This dwelling sits back from the road on a large rural property. It is set on a grassy lawn with trees and vegetation scattered throughout and around. A pole barn and farmstand is set in the yard to the front of the house. A circular driveway loops around the rear of the building with additional outbuildings set to the rear. Most of the outbuildings are difficult to see from the road but appear to include a variety of small twentieth century barns and sheds as well as a mobile home.

This property is an example of a typical late-eighteenth or early-nineteenth century plantation dwelling in the region. The home is Vernacular form with little architectural distinction that has been compromised by nonhistoric alteration. It includes a collection of twentieth century barns and sheds but no noteworthy outbuildings. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5584
House, Alton Post Office Road

This single dwelling was built circa 1900 according to site survey and exhibits a Vernacular design. The building appears to have been vacant for an extended period and is in a deteriorated condition. The building has a one-over-one two-story form. The wood frame structural system is clad with clapboard and rests on a stone pier foundation. It is topped by a side-gable roof covered with standing seam metal pierced at the ridge by an interior end brick chimney. The main entrance is offset on the front and sheltered by a full-width shed roof porch with plain wood posts. Fenestration consists of double-hung sash windows although most are removed or missing. The building is plain and unembellished.

This dwelling sits near the road on a large rural property. It is set in the middle of a large field with a few trees growing immediately around the building. A dirt farm lane leads past the house into the property with additional barns and outbuildings along it, including several tobacco barns and other general purposes barns. The property is mostly open pasture interspersed by treelines with wider wooded areas bordering it.

This property is an example of a typical early-twentieth century dwelling and farm in the region. The home is Vernacular form with little architectural distinction and may have been a tenant house or secondary dwelling to a no longer extant primary resource. It includes a collection of typical early-twentieth century barns and outbuildings. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5585
House, 2163 Alton Post Office Road

This single-story frame dwelling was built in 1920 according to local records and exhibits a Vernacular style. It has a rectangular form and remains in good condition. The dwelling rests on a continuous foundation with walls clad in vinyl siding topped with a hipped roof covered in corrugated metal. The roof is pierced by a central front slope, hipped roof dormer. The dormer contains a one over one double-hung sash window. The main entrance is slightly offset on the front façade and is sheltered by a partial width, hipped roof porch supported by metal posts. Fenestration consists of single and paired, six over six double-hung sash windows. A single, one over one double-hung sash windows is also present on the front façade. A two-car garage with a flat roof extends off the side elevation and the garage bays are open. Ornamentation consist of shutters on the windows.

This dwelling is located on the east side of Alton Post Office Road on a rural lot. The lot is wooded with a few open grassy areas. There is a gravel driveway that leads to the garage openings on the front of the dwelling. A carport and shed are located to the side of the dwelling. Aerial photography shows another outbuilding not visible from the public right of way behind the dwelling.

This property is an example of a typical early-twentieth century dwelling in the region. The home is an undistinguished dwelling with little architectural distinction. It includes a collection of typical domestic outbuildings. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5586
House, 2103 Alton Post Office Road

This one and a half story frame dwelling was built in 1900 according to local records and exhibits a Craftsman style. It has a rectangular form and remains in good condition. The dwelling rests on a continuous foundation with walls clad in vinyl siding topped with a side gable roof covered in asphalt shingles. The roof is pierced by a shed roof dormer that contains single, one over one double-hung sash windows. The main entrance is centered on the front façade and sheltered by a full-width single story porch supported by square columns set on piers. Fenestration consists of single, one over one double-hung sash windows. The dwelling lacks any major ornamentation.

This dwelling is located on the east side of Alton Post Office Road at the end of a long gravel driveway. A barn is located along the driveway and two sheds are near the homesite. There are trees along the perimeter of the property and a few around the dwelling. A cemetery is located on the south side of the driveway and is marked on county records. The area is neatly mowed, but it was unable to be viewed closely due to the owner forbidding access.

This property is an example of a typical early-twentieth century farm and dwelling in the region. The home is an undistinguished dwelling with subtle Craftsman style influences. It includes a collection of typical domestic and agricultural outbuildings. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5587
House, 2196 Mill Pond Road

This one and a half story masonry dwelling was built circa 1960 according to local records and exhibits a Minimal Traditional style. It has a rectangular form and remains in fair condition. The dwelling rests on a continuous foundation with cinder block walls topped with a side gable roof covered in asphalt shingles. The roof is pierced by a central interior brick chimney. The main entrance is centered on the front façade and unsheltered. Fenestration consists of single, one over one double-hung sash windows. The dwelling lacks any ornamentation.

This dwelling is located on the west side of Mill Pond Road on a small rural residential lot. The lot is mostly open grassy area with trees around the perimeter. A driveway loops around the front of the dwelling. A shed is located on the north side of the lot.

This property is an example of a typical mid-twentieth century dwelling in the region. The home is an undistinguished dwelling with subtle Craftsman style influences. It includes a sole shed as an outbuilding. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5588
Barns, Mill Pond Road

This complex of barns includes two early-twentieth century agricultural buildings. One is a frame tobacco barn clad with vertical board siding and topped by a side-gable roof. An open-sided shed is attached to one side of the building. The second barn is a horizontally laid log structure of unknown original use. The lods are open with no chinking, and it is topped by a side-gable roof. Both buildings appear to be vacant and no longer in use.

This complex is set near the road on a small rural lot. Both buildings are overgrown and the entire property is heavily wooded. A dirt lane leads from the road into the complex.

This property is a collection of two typical early-twentieth century agricultural buildings in the region. Both barns are undistinguished with little architectural distinction. The buildings appear to no longer be associated with a primary dwelling or larger collection of buildings. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The buildings are located in an area of discontiguous historic resources, and are, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5589
House, 1141 Dawson Trail

This single-story frame dwelling was built in 1950 according to local records and exhibits a Minimal Traditional style. It has a rectangular form and remains in fair condition. The dwelling rests on a continuous foundation with walls clad in vinyl siding topped with a hipped roof covered in asphalt shingles. The roof is pierced by two interior slope brick chimneys. The main entrance is slightly offset on the front façade and sheltered by a hipped roof portico supported by square columns. Fenestration consists of single, one over one double-hung sash windows. Ornamentation consists of shutters on the windows.

This dwelling is located on the south side of Dawson Trail on a rural lot. The lot is mostly grassy area with trees surrounding the dwelling and along the southern border. A gravel driveway leads to the dwelling and a shed is located at the rear.

This property is an example of a typical mid-twentieth century dwelling in the region. The home is an undistinguished dwelling with subtle Minimal Traditional influences. It includes a sole shed as an outbuilding. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5590
House, 1161 Dawson Trail

This single-story frame dwelling was built in 1960 according to local records and exhibits a Minimal Traditional style. It has a rectangular form and remains in good condition. The dwelling rests on a continuous foundation with walls clad in vinyl siding topped with a cross gable roof covered in corrugated metal. The roof is pierced by a central interior brick chimney. The main entrance is slightly offset on the front façade and sheltered by a partial-width front gable porch supported by square columns. Fenestration consists of single, six over six double-hung sash windows. Ornamentation consists of shutters on the windows.

This single-story frame dwelling is located at the end of Dawson Trail with trees surrounding the main dwelling and open fields on the rest of the property. A gravel driveway leads to the dwelling. A shed is located in the backyard and the ruins of a building behind that. On the north side of the driveway is a mobile home, shed, and vehicle shed.

This property is an example of a typical mid-twentieth century dwelling in the region. The home is an undistinguished dwelling with subtle Minimal Traditional influences. It includes a collection of typical domestic and agricultural outbuildings. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5591
House, 1000 Emergency Road

This two-story frame dwelling was built in 1930 according to local records and exhibits a Folk Victorian style. It has a gable and wing form and remains in poor condition. The dwelling rests on a continuous foundation with walls clad in asbestos siding topped with a cross gable roof covered in corrugated metal. The roof is pierced by a central interior brick chimney. The main entrance is offset on the single-story wing on the front façade and is sheltered by a partial width porch supported by wood posts. Fenestration on the front faced consists of double-hung sash window that are missing the panes and falling out due to neglect. The dwelling lacks any ornamentation.

This dwelling is located at the end of Emergency Road on a rural property. The lot is mostly open grassy area with trees along the driveway and around the homesite. A gravel driveway leads to the dwelling. A tobacco barn is located on the north side of the driveway and there are two mobile homes in the front yard. Two sheds are located in the backyard but are only visible from aerial photography.

This property is an example of a typical early-twentieth century farm and dwelling in the region. The home is an undistinguished dwelling with subtle Folk Victorian influences. It includes a collection of typical domestic and agricultural barns and outbuildings. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5592
House, 3242 Mount Carmel Road

This frame dwelling was built circa 1900 according to site survey and exhibits a Vernacular style. It has a two-story I-house main block with one-story wings to each side. The dwelling rests on a continuous foundation with walls clad in vinyl siding topped with a side gable roof covered in corrugated metal. The wings on either side of the main, two-story portion of the dwelling are single-story. There are two exterior end chimneys on either end of the two-story center mass of the dwelling. The main entrance is centered on the front façade and is sheltered by a partial width single-story porch supported by tapered square columns set on brick piers. Fenestration consists of single and paired, one over one double-hung sash windows. Ornamentation consists of shutters on the windows. A carport extends off the north side of the dwelling.

This dwelling is located on the west side of Mount Carmel Road at the intersection of Mount Carmel Road and Alton Post Office Road. The lot is open agricultural fields along with wooded areas and a pond to the northwest. The home sits near the road in a fenced homesite with landscaping and trees scattered throughout. A gravel driveway extends around the side of the house to a complex of barns and outbuildings to the rear. The building complex is surrounded by agricultural fields.

This property is an example of a typical early-twentieth century farm and dwelling in the region. The home is an undistinguished Vernacular I-house dwelling with subtle Minimal Traditional influences. It includes a collection of typical domestic and agricultural barns and outbuildings. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5593
House, 3211 Mount Carmel Road

This one and a half story cabin was built circa 1910 according to a site survey and exhibits a Vernacular style. It has a rectangular form and remains in poor condition. The dwelling rests on a continuous foundation with walls clad in asphalt shingles topped with a side gable roof covered in corrugated metal. The roof is pierced by an exterior end cinder block chimney. The main entrance is centered on the front façade and sheltered by a full width single-story porch supported by wood posts. Fenestration consists of single, six over six double-hung sash windows. The dwelling lacks any ornamentation.

This dwelling is located on the east side of Mount Carmel Road on a small rural lot. The lot is above grade from the roadway and is open with trees along the rear of the property. A shed is located on the rear of lot.

This property is an example of a typical modest early-twentieth century dwelling in the region. The home is an undistinguished Vernacular dwelling with little architectural distinction. A sole shed is the only outbuilding on the property. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5594
House, 3159 Mount Carmel Road

This single-story frame dwelling was built in 1958 according to local records and exhibits a Minimal Traditional style. It has a rectangular form and remains in good condition. The dwelling rests on a continuous foundation with walls clad in asbestos siding topped with a cross gable roof covered in corrugated metal. The roof is pierced by a central interior brick chimney. The main entrance is centered on the front façade and sheltered by a flat roof portico supported by wood posts. Fenestration consists of single and paired, six over six double-hung sash windows. Ornamentation consists of shutters on the windows.

This dwelling is located on the east side of Mount Carmel Road on a small rural lot. The lot is open agricultural fields along the road frontage with wooded area surrounding the dwelling. There are two sheds and a tobacco barn that are associated with the dwelling.

This property is an example of a typical mid-twentieth century farm and dwelling in the region. The home is an undistinguished Minimal Traditional dwelling. It includes a small collection of typical domestic and agricultural barns and outbuildings. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5595
House, 3136 Mount Carmel Road

This one and a half story frame dwelling was built in 1945 according to local records and exhibits a Craftsman style. It has a rectangular form and remains in good condition. The dwelling rests on a continuous foundation with walls clad in vinyl siding topped with a front gable roof covered in corrugated metal. The roof is pierced by a central interior brick chimney. The main entrance is offset on the north side of the front façade and is located in an inset portion of the façade supported by square columns. Fenestration consists of single, three over one double-hung sash windows. Ornamentation is limited to shutters on the windows.

This dwelling is located on the west side of Mount Carmel Road on a rural residential lot. The lot is mostly open agricultural fields with trees surrounding the homesite. There are seven outbuilding surrounding the homesite.

This property is an example of a typical mid-twentieth century farm and dwelling in the region. The home is an undistinguished dwelling with subtle Craftsman style influences. It includes a collection of typical domestic and agricultural barns and outbuildings. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5596
House, 3105 Mount Carmel Road

This single-story masonry dwelling was built in 1957 according to local records and exhibits a Minimal Traditional style. It has a rectangular form and remains in good condition. The dwelling rests on a continuous foundation with brick walls laid in a stretcher bond topped with a cross gable roof covered in asphalt shingles. The roof is pierced by a central interior brick chimney. The main entrance is offset on the front façade and is unsheltered. Fenestration consists of a picture window with a central, single-pane fixed window flanked on either side by a one over one double-hung sash window. There is also a paired, one over one double-hung sash window on the gable-end of the front façade. Ornamentation is limited to shutters on the windows.

The dwelling sits back from the road on a large rural property. It rests within a manicured grassy homesite with a variety of landscaping and shade trees scattered throughout. The homesite is approached by a long a gravel driveway that extends through open agricultural fields at the front of the property. Set to the sides of the home are a number of historic outbuildings including a garage, barn, tobacco barn, equipment shed, and small workshop. Set at the front of the property adjacent to the road is a small tenant house.

This property is an example of a typical mid-twentieth century farm and dwelling in the region. The home is an undistinguished Minimal Traditional dwelling. It includes a collection of typical domestic and agricultural barns and outbuildings. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5597
House, 1056 Mason Chapel Road

This single dwelling was built in 1970 according to local records and exhibits no discernable style. The building has a one-story rectangular form with an integral roof open carport to the side. The masonry structural system is clad with brick laid in a common bond and rests on a continuous concrete foundation. It is topped by a side-gable roof covered with asphalt shingles pierced on the rear slope by a central interior brick chimney flue. The main entrance is set centrally on the front and sheltered by a partial-width cross-gable porch with metal supports. Fenestration consists of paired double-hung-sash windows with horizontal two-over-two light configurations as well as a single pane picture window on the front. The building is plain and minimally ornamented.

This building is set back from the road on a small rural lot. A circular gravel driveway is set in front of the house with an offshoot that extends back to the carport. There is an open grassy yard in front of and to the sides of the building with some trees scattered throughout. A wooded treeline borders the rear of the property. No outbuildings were observed on the property.

This property is an example of a typical late-twentieth century dwelling in the region. The home is an undistinguished dwelling with little architectural distinction. There are no outbuildings or secondary resources on the property. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5598
House, 1010 Mason Chapel Road

This single dwelling was built circa 1900 according to site survey and exhibits a Vernacular style. The building has a two-story rectangular two-bay original block with a wide one-story rear ell that extends out past both sides of the building. The wood frame structural system is clad with asbestos shingles and rests on a continuous concrete block foundation. It is topped by a side-gable roof covered with asphalt shingles. An exterior end stone and brick chimney extends up the side at the ridge. The main entrance is set centrally on the front and sheltered by a full-width hipped roof porch supported by plain wood posts on brick piers. Fenestration consists of replacement double-hung-sash windows with horizontal two-over-two light configurations. The building is plain and minimally ornamented.

This building is set back from the road on a small rural lot. The front of the property is mostly open and grassy with some trees and other vegetation scattered throughout. The rear of the property is wooded. A gravel driveway extends from the road to a small parking area in front of the house with an extension that leads past the side of the house to an historic outbuilding of unknown function set against the rear treeline.

This property is an example of a typical early-twentieth century dwelling and farm in the region. The home is Vernacular form with little architectural distinction. It includes a single outbuilding of unknown historic function. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5599
House, 1105 Coleman Drive

This single dwelling was built circa 1960 according to site survey and exhibits no discernable style. The building has a one-story rectangular form. The wood frame structural system is clad with asbestos shingles and rests on a continuous concrete block foundation. It is topped by a side-gable roof covered with asphalt shingles that is pierced at the ridge by a central interior brick chimney flue. The main entrance is set centrally on the front and approached by an unsheltered ramp. Fenestration consists of replacement double-hung-sash windows with one-over-one light configurations as well as a single pane picture window on the front. The building is minimally ornamented with window shutters.

This building is set back from the road on a small rural lot. It rests on a grassy lawn with several trees planted around the home. A gravel driveway extends from the road to the side of the house. To the opposite side of the house is a mobile home and a cluster of agricultural buildings sitting in a field.

This property is an example of a typical mid-twentieth century dwelling and farm in the region. The home reflects no discernable style with little architectural distinction. It includes a typical collection of domestic and agricultural outbuildings. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5600
House, 2140 Mount Carmel Road

This single dwelling was built circa 1890 according to site survey and exhibits a Folk Victorian style. The building has a complex form created by multiple additions to the sides and rear of what appears to originally have been a two-story Gable and Wing form. The wood frame structural system is clad with vinyl siding and rests on a continuous brick foundation. It is topped by a cross-gable roof covered with standing seam metal. The main entrance is set offset on the front adjacent to the forward wing, and is sheltered by a full-width hipped roof porch with turned posts. A modern wraparound porch has been appended to the side and rear of the building. Fenestration consists of replacement double-hung-sash windows with two-over-two light configurations. The building is moderately embellished, although it is difficult to determine what, if any the historic ornamentation was. Both the forward wing and a bay on the side of the main block have clipped hexagonal corners, although the rooflines appear altered. The porch is adorned with turned posts and nonhistoric shutters have been added to the windows.

This building is set back from the road on a relatively large rural property. The home rests within a cleared field with a handful of shade trees planted in the immediate vicinity. A gravel driveway approaches the home with an extension around the side that leads to an attached garage. The driveway also continues past the front of the house to a complex of barns, outbuildings, and a secondary dwelling. Open agricultural fields surround the building complex.

This property is an example of a typical late-twentieth century dwelling and farm in the region. The home reflects an original Folk Victorian form and stylistic influence, although has been compromised by nonhistoric alteration and addition. It includes a typical collection of historic and modern barns and outbuildings. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5601
House, 2140 Mount Carmel Road

This single dwelling was built circa 1930 according to site survey and exhibits no discernable style. It appears to have been vacant for an extended period of time and remains in a deteriorated condition. The building has a one-story rectangular form. The wood frame structural system is clad with clapboard and rests on an obscured foundation. It is topped by a side-gable roof covered with standing seam metal pierced at the ridge by an interior central brick chimney flue. The main entrance is set centrally on the front and is unsheltered. Fenestration consists of double-hung-sash windows with six-over-six light configurations. The building is simple and unadorned.

This building is set near the road on a small rural lot. The property is mostly open field although the house is set within an overgrown thicket. Several relic trees are spaced along the front edge of the property along the road. Set against a wooded area at the rear of the property are two historic outbuildings that both appear to be tobacco barns.

This property is an example of a typical early-twentieth century dwelling and farm in the region. The home reflects no discernable style with little architectural distinction. It includes a small collection of typical barns. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5602
House, 2103 Mount Carmel Road

This single dwelling was built in 1932 according to local records and exhibits a Craftsman style. The building has a one-and-a-half story rectangular form with an offset one-story rear ell. The wood frame structural system is clad with vinyl siding and rests on a continuous brick foundation. It is topped by a clipped-gable jerkinhead roof with similarly clipped central cross gable all covered with asphalt shingles. Central interior brick chimneys pierce both the front and rear slopes of the roof. The main entrance is set centrally on the front and is sheltered by a full-width shed roof porch with Doric columns. Fenestration consists of double-hung-sash windows with six-over-six light configurations set in pairs. The building is moderately embellished through its roofline, wide eaves, porch details, and entry sidelights as well as window shutters.

This building is set near the road on a large rural property. It rests on manicured lawn with ornamental foundation plantings and shade trees throughout. A circular gravel driveway loops in front of the house with an extensions around the rear. Just to the rear of the house are two historic garages and a historic secondary dwelling is set across the driveway to the side. Set in a cluster to the rear of the house is a complex of agricultural outbuildings including sheds, barns, and tobacco storage buildings. This complex is bordered by a line of trees obscuring visibility of many of the buildings from public ROW. Surrounding the home and building complex to the sides and rear are large agricultural fields.

This property is an example of a typical early-twentieth century dwelling and farm in the region. The home reflects a Craftsman style influence with minor nonhistoric alterations. It includes a typical collection of historic and nonhistoric domestic and agricultural outbuildings. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5603
House, 1223 Mount Carmel Road

This single dwelling was built in 1910 according to local records and exhibits a Craftsman style. The building has a two-story Foursquare form with an offset one story rear ell. The wood frame structural system is clad with vinyl siding and rests on a continuous concrete block foundation. It is topped by a pyramidal roof covered with asphalt shingles that is pierced by an interior brick chimney on the side slope. The main entrance is offset on the front and sheltered by a full-width hipped roof porch with Doric columns. Fenestration consists of double-hung-sash windows with six-over-one light configurations. The building is minimally embellished with boxed cornices and porch details.

This building is set back from the road on a large rural property. It rests within a grassy manicured homesite with a variety of shade trees and landscaping throughout. A gravel driveway approaches the homesite and extends past the rear of the house as a farm lane. Flanking the farm lane are a number of outbuildings including tobacco barns and equipment sheds. Surrounding the building complex are agricultural fields interspersed by treelines with thicker wooded areas bordering the property.

This property is an example of a typical early-twentieth century dwelling and farm in the region. The home reflects Craftsman stylistic influences with little architectural distinction. It includes a typical collection of domestic and agricultural outbuildings. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5604
House, 1218 Mount Carmel Road

This single dwelling was built circa 1930 according to site survey and exhibits no discernable style. The building has a two-story main block with one-story additions to the side and rear. The wood frame structural system is clad with asbestos shingles and rests on an obscured foundation. It is topped by a side-gable roof covered with standing seam metal. An interior brick chimney extends up the side of the main block at the ridge. The main entrance is set centrally on the front and sheltered by a full-width shed roof porch with turned posts. Fenestration consists of double-hung-sash windows with six-over-six light configurations. The building is plain and unornamented.

This building is set near the road on a small rural lot. It rests within what appears to previously have been a cleared yard that is now overgrown with the rest of the property. Scattered throughout the lot are a variety of outbuildings including a tobacco curing barn, packing barn, general barn, garage, and mobile home. The property is bordered by wooded areas to the sides and rear.

This property is an example of a typical early-twentieth century dwelling and farm in the region. The home reflects a Vernacular form with little architectural distinction. It includes a typical collection of historic and nonhistoric domestic and agricultural outbuildings. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5605
House, 4007 Piney Grove Road

This single dwelling was built in 1970 according to local records and exhibits a Minimal Traditional style. The building has a one-story main block with a small offset rear ell. The wood frame structural system is clad with asbestos shingles and rests on a continuous stone veneer clad foundation. It is topped by a side-gable roof covered with asphalt shingles pierced by an interior brick chimney on the rear slope. The main entrance is set centrally on the front and sheltered by a partial-width gable roof porch with plain posts. Fenestration consists of double-hung-sash windows with six-over-six light configurations. The building is minimally embellished with scalloped wall shingles and window shutters.

This building is set near the road on a small rural lot. It rests on a cleared lawn with a variety of landscaping around the foundation. A gravel driveway approaches the side of the house and a small parking area. A wellhouse is set to the rear of the house along the edge of a garden plot. The property is bordered by woods to the side and rear.

This property is an example of a typical late-twentieth century dwelling in the region. The home reflects a Minimal Traditional style with little architectural distinction. It includes a single wellhouse as an outbuilding. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5606
House, 3177 Piney Grove Road

This single dwelling was built in 1970 according to local records and exhibits no discernable style. The building has a one-story L-shaped form. The wood frame structural system is clad with asbestos shingles and rests on a continuous concrete block foundation. It is topped by a hipped roof covered with asphalt shingles pierced by an interior concrete block chimney flue on the ridge. The main entrance is set centrally on the front, adjacent to the forward wing, and sheltered by an integral roof porch with a plain corner post. Fenestration consists of double-hung-sash windows with one-over-one light configurations. The building is minimally embellished with wide overhanging eaves and exposed rafter tails.

This building is set near the road on a small rural lot. It rests on a cleared lawn with minimal landscaping. A gravel driveway approaches the side of the house and a small parking area. The property is bordered by woods to the side and rear. No outbuildings were observed on the property.

This property is an example of a typical late-twentieth century dwelling in the region. The home reflects no discernable style with little architectural distinction. There are no outbuildings or other resources on the property. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5607
House, 3165 Piney Grove Road

This single dwelling was built circa 1960 according to site survey and exhibits no discernable style. The building has a one-story rectangular form. The wood frame structural system is clad with Masonite siding and rests on a continuous concrete block foundation. It is topped by a side-gable roof covered with asphalt shingles pierced by an interior concrete block chimney flue on the ridge. The main entrance is set centrally on the front and is unsheltered. Fenestration consists of double-hung-sash windows with one-over-one light configurations set in pairs. The building is minimally embellished with window shutters.

This building is set near the road on a small rural lot. It rests on a cleared lawn with minimal landscaping and shade trees throughout. A gravel driveway extends past the side of the house to a small shed to the rear. The property is bordered by woods to the side and rear.

This property is an example of a typical mid-twentieth century dwelling in the region. The home reflects no discernable style with little architectural distinction. It includes a single shed as an outbuilding. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5608
House, 3146 Piney Grove Road

This single dwelling was built in 1947 according to local records and exhibits a Craftsman style. The building has a two-story rectangular form with a full-width one-story rear ell. The wood frame structural system is clad with Bricktex siding and rests on a continuous concrete block foundation. It is topped by a side-gable roof covered with asphalt shingles pierced by a wide shed roof dormer on the front slope. Two interior brick chimney flues pierce the roof above the dormer on the ridge. The main entrance is set centrally on the front and sheltered by a full-width shed roof porch supported by metal posts on brick piers. Fenestration consists of double-hung sash windows with one-over-one light configurations set in pairs. The building is simple and unornamented.

This building is set back from the road on a large rural property. It rests within a small grassy lawn with minimal landscaping. A long gravel road approaches the homesite, leading through a separate property along the road to the front. The gravel driveway loops around the house with a short spur leading to a prefabricated carport and small storage shed to the side. A pole barn and mobile home are set to the rear of the house. The building complex is surrounded by small agricultural fields with open pasture beyond.

This property is an example of a typical mid-twentieth century dwelling and farm in the region. The home reflects a Craftsman style influence with little architectural distinction. It includes a typical collection of historic and nonhistoric domestic and agricultural outbuildings. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5612
House, 3070 Alton Post Road

This single dwelling was built in 1947 according to local records and exhibits no discernable style. The building has a one-story rectangular form with a full-width rear ell. The wood frame structural system is clad with vinyl siding and rests on a continuous concrete block foundation. It is topped by a side-gable roof covered with asphalt shingles pierced by two interior brick chimney flues on the ridge. The main entrance is set centrally on the front and sheltered by a partial-width shed roof porch with plain posts. Fenestration consists of replacement double-hung sash windows with one-over-one light configurations. The building is minimally embellished with window shutters.

This building is set near the road on a small rural lot. It rests within a small grassy lawn with minimal landscaping and shade trees scattered throughout. A gravel driveway extends around the side of the house to a historic storage shed set to the rear. Wooded areas border the property to the side and rear.

This property is an example of a typical mid-twentieth century dwelling in the region. The home reflects no discernable style with little architectural distinction. It includes a single shed as an outbuilding. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5613
Commercial Building, 3232 Mount Carmel Road

This commercial building was built in 1950 according to local records and exhibits no discernable style. The building has a one-story rectangular form with a full-width rear ell. The concrete block structural system is exposed and rests on a continuous concrete block foundation. It is topped by a side-gable roof covered with asphalt shingles. There are two storefront entries on the front, both of which are unsheltered. Fenestration consists of fixed ten-light commercial windows. Metal security bars have been added over the window openings. The building is plain and unembellished.

This building is set near the road on a small rural lot. There is a gravel parking lot in front of the building and a driveway extends past the side to two outbuildings set to the rear. These include a historic garage as well as a storage building. The driveway continues past this property and leads to a residential property behind it.

This property is an example of a typical mid-twentieth century roadside rural commercial building. The building reflects no discernable style with little architectural distinction. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5614
House, 4005 Piney Grove Road

This single dwelling was built in 1970 according to local records and exhibits no discernable style. The building has a one-story rectangular form with an enclosed side porch. The wood frame structural system is clad with asbestos shingles and rests on a continuous concrete block foundation. It is topped by a side-gable roof covered with asphalt shingles pierced by an interior concrete block chimney flue on the rear slope. The main entrance is set centrally on the front and is unsheltered. Fenestration consists of double-hung sash windows with two-over-two light configurations as well as a single pane picture window on the front. The building is minimally embellished with window awnings.

This building is set near the road on a small rural lot. It rests within a small grassy lawn with a variety of landscaping and shade trees scattered throughout the front yard. A gravel driveway extends around the side of the house to a small parking area. A small storage shed is set in the corner of the back yard. Wooded areas border the property to the side and rear.

This property is an example of a typical late-twentieth century dwelling in the region. The home reflects no discernable style with little architectural distinction. It includes a single shed as an outbuilding. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

VDHR ID# 041-5615
House, 4005 Piney Grove Road

This single dwelling was built circa 1940 according to site survey and exhibits a Craftsman style. The building has a one-and-a-half-story rectangular main block with an offset one-story rear ell. The wood frame structural system is clad with asbestos shingles and rests on a continuous brick foundation. It is topped by a front-gable roof covered with asphalt shingles pierced by two gabled window dormers on each slope, as well as an interior concrete block chimney flue on one side slope. The main entrance is set centrally on the front and sheltered by a full-width hipped roof porch supported by plain posts set on brick piers. Fenestration consists of double-hung sash windows with six-over-six light configurations. The building is minimally embellished with exposed rafter tails.

This building is set near the road on a small rural lot. It rests on a grassy lawn with minimal landscaping around the foundation. A small storage shed is set in the yard to the rear of the building. A driveway extends past the side of the house and continues to another residential property behind it. Wooded areas border the property to the sides.

This property is an example of a typical mid-twentieth century dwelling in the region. The home reflects Craftsman style influences with little architectural distinction. It includes a single shed as an outbuilding. Overall, the property does not embody distinctive characteristics or possess significant or unique architectural or design features and limited research revealed no known significant historical associations. The building is located in an area of discontiguous historic resources, and is, therefore, considered ***not eligible*** for listing in the NRHP on an individual basis or as part of a historic district.

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9. CONCLUSIONS AND RECOMMENDATIONS

From February 3 to February 27, 2020 D+A conducted a Phase I cultural resource survey of the ±313.9 hectare (±775.6 acre) Alton Post Solar Project Area. The Phase I was conducted for planning purposes in order to confirm the presence or absence of cultural resources located in the project area, make recommendations regarding NRHP eligibility, and assess NRHP-eligible resources for potential impacts brought about by the project.

The archaeological survey of the project area included both pedestrian and systematic subsurface testing. Subsurface testing focused on terraces which overlooked tributaries and confluences, as well as landforms which were located near historic roads. Subsurface testing, along with visual survey revealed significant disturbance throughout the project area, in the form of logging disturbance, terraforming, and disturbance from continuous agricultural use. Piles of slash, unnaturally undulating pastureland, lack of topsoil, and disturbed fills were common across the project area. A total of seven (7) archaeological sites were identified, all of which date to the early to mid-twentieth century. All seven of these sites are associated with mapped structures which show up on a 1952 topographic map. ***The seven sites have limited research potential and are recommended not eligible for listing in the NRHP.***

Overall, the project area is significantly disturbed through apparent agricultural events including terraforming and timbering for at least the last 20 year. The archaeological sites identified are shown on the 1952 topographic map and have little research potential. ***Therefore, it is D+A's recommendation that no further archaeological work is warranted for this project area.***

The architectural resources survey for the Alton Post Solar Project resulted in the identification of thirty-nine (39) architectural resources greater than 50 years of age (constructed in 1970 or earlier) located within the one-half mile architectural survey area. The resources surveyed as part of this Phase I reflect typical rural development in the region with modest frame and masonry dwellings that reflect subtle influences of national trends in building styles of their period such as Folk Victorian, Craftsman, Minimal Traditional, and Ranch single dwellings. Many buildings that are Vernacular in form or character and include I-houses, hall-and-parlors, or Bungalows with various stylistic influences were also recorded throughout the project area. Many of the homes and properties include a typical collection of agricultural outbuildings including hay barns, pole barns, vehicle sheds, and other structures. Tobacco barns are also common throughout the survey area and most reflect the typical form and construction of these structures encountered throughout the county and region. ***As such, none of the surveyed resources reflect any unique or significant design or historical associations and all are recommended not eligible for listing in the NRHP individually or collectively and D+A recommends that no further architectural investigations are warranted for this project.***

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10. REFERENCES

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APPENDIX A: RESUMES

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J. HOPE SMITH
PRINCIPAL INVESTIGATOR

Dutton + Associates
CULTURAL RESOURCE SURVEY, PLANNING, AND MANAGEMENT

Education

PhD, 2017
Anthropology
University of Tennessee
Knoxville, Tennessee

Bachelor of Arts, 2005
Historic Preservation
University of Mary Washington
Fredericksburg, Virginia

Memberships

Register of Professional Archaeologists

Society for Historical Archaeology

Hope Smith holds a PhD in Anthropology, concentrating in Historical Archaeology, from the University of Tennessee and a B.A. in Historic Preservation from the University of Mary Washington. Her area of focus is eighteenth and nineteenth-century Virginia, and her research interests include material culture studies, artifacts of personal adornment, and the intersection of race and gender in plantation archaeology. She has over 12 years of experience in archaeology and has participated in both historic and prehistoric projects at all levels of investigation.

Her experience in Cultural Resource Management includes supervising fieldwork, analyzing field and artifact data, and authoring reports.

Prior to working at Dutton + Associates, she was employed as a Teaching Associate at the University of Tennessee, where she taught archaeology field schools and courses in archaeology, including a course on Cultural Resource Management law and practice.

As a project archaeologist for Dutton + Associates, Dr. Smith collaborates on all aspects of archaeological work, including supervising field work, and authoring project reports.

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CULTURAL RESOURCE SURVEY, PLANNING, AND MANAGEMENT

J. HOPE SMITH
PRINCIPAL INVESTIGATOR

Professional Experience

Dutton+Associates, LLC, Project Archaeologist
Richmond, Virginia, 2017
Conducts archaeological investigations (Phase I, II, III and monitoring), prepares research designs, manages and directs archaeological field crew, analyzes artifacts, writes reports.

University of Tennessee, Knoxville, Graduate Teaching Associate
Knoxville, Tennessee, 2011-2017
Supervised fieldwork during two archaeological field schools; taught undergraduate-level archaeology courses.

James Madison's Montpelier Crew Chief
Montpelier Station, Virginia 2008-2011
Performed fieldwork and supervised students and interns in excavation and survey projects; drew maps and coauthored site reports.

The Louis Berger Group Field Technician, Richmond, Virginia, 2005-2007.
Performed fieldwork at all levels of excavation on a wide variety of projects.

The Ottery Group Field Technician, Silver Springs, Maryland, 2005.
Performed fieldwork on a complex multi-component historic Phase III in Gloucester, Virginia.

Example Projects and Publications

Phase I Surveys
Mecklenburg Timber and Prison sites, Mecklenburg Co
Dranesville Rd. Development, Fairfax Co
Pavilion Development, Prince William Co
Dry Mill, Loudoun Co
Remington to Gordonsville Transmission Line
Montebello Farm, Loudoun Co.
Arbordale, York Co.
Spotsylvania Town Center, City of Fredericksburg
Palmer's Creek, Spotsylvania Co.

Phase II Evaluations
44LD1244, Loudoun Co
44WM0312, Westmoreland Co

Museum Technical Reports
Object Report and Museum Purchasing Recommendations, The Montpelier Foundation, Orange Co
Report of Archaeological Testing at Mount Pleasant, The Montpelier Foundation, Orange Co
Archaeological Dataset and Context, Digital Archaeological Archive of Comparative Slavery

LAUREN GRYCTKO
Archaeology Field Supervisor

Dutton + Associates
CULTURAL RESOURCE SURVEY, PLANNING, AND MANAGEMENT

Education

Master of Arts, 2015
Historical Archaeology
College of William and Mary
Williamsburg, Virginia

Bachelor of Science, 2011
Anthropology
James Madison University
Harrisonburg, Virginia

CPR and OSHA 30 Certified

Ms. Gryctko holds a B.S. in Anthropology from James Madison University and a M.A. in Historical Archaeology from the College of William and Mary. She has 8 years of Cultural Resource Management experience and has taken part in projects throughout Virginia – most notably at Thomas Jefferson's Monticello.

Her experience in Cultural Resource Management includes conducting and supervising Phase I, II and III archaeological field excavations on 18th, 19th and 20th century sites, recording data and preparing survey records through site maps, photos context forms and field notes, and contributing to reports.

As an Archaeology Field Supervisor for Dutton + Associates, Ms. Gryctko manages and conducts all aspects of Phase I, II and III field surveys on a wide variety of sites including transmission lines, solar projects, and substation projects. She has field experience in a broad array of settings including mountainous terrain. Ms. Gryctko's knowledge of historic period archaeological sites and material culture, including Civil War archaeology, provides clients with comprehensive knowledge of complex and unique resource types.

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CULTURAL RESOURCE SURVEY, PLANNING, AND MANAGEMENT

LAUREN GRYCTKO
Archaeological Field Supervisor

Professional Experience

Dutton + Associates, LLC, Archaeological Field Supervisor, Richmond, Virginia, November 2017-present. Conducts archaeological investigations (Phase I, II, III and monitoring), supervises and directs archaeological field crew, maintains field records, analyzes artifacts, contributes to reporting, trains new field crew in proper field procedures, and monitors the health and safety of field crew.

Thomas Jefferson's Monticello, Archaeological Field Assistant, Charlottesville, Virginia, May 2015 – November 2017. Conducted archaeological testing, assisted with site research, performed lab work.

William and Mary Center for Archaeological Research, Archaeological Field Technician, Williamsburg, Virginia, February 2015- May 2015.
Conducted field surveys, recorded data and prepared survey records, prepared site forms.

Thomas Jefferson's Monticello, Archaeological Field Technician, Charlottesville, Virginia, February 2013 – May 2013. Conducted archaeological testing, assisted with site research, performed lab work.

James Madison University's Department of Archaeology, Archaeological Field Technician, Harrisonburg, Virginia, September 2010 – June 2012. Assembled historical research, co-authored site report, conducted Phase I field excavations.

Example Projects and Publications

Transmission Line Projects
Phase I Cultural Resources Survey of the Remington-Gordonsville Transmission Line Rebuild Project, Albemarle, Orange, Culpeper, and Fauquier Counties, Virginia

Solar Projects
Phase I Survey of the Sadler Solar Center, Greensville County, Virginia

Cedar Creek Battlefield Phase I
Fisher's Hill Battlefield Phase I

Jefferson's Monticello
Tufton Quarter Farm Phase I
Building E Phase III
Joinery Shop Phase II
Stables Phase III
North and South Dependencies Phase III
South Pavilion Kitchen Phase III

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ROBERT J. TAYLOR, JR
Senior Architectural Historian

Dutton + Associates
CULTURAL RESOURCE SURVEY, PLANNING, AND MANAGEMENT

Education

Master of Arts, 2009
Historic Preservation
Savannah College of Art and Design
Savannah, Georgia

Bachelor of Arts, 2005
Historic Preservation
University of Mary Washington
Fredericksburg, Virginia

Awards

Eagle Scout, 2001

Mr. Taylor holds a B.A. in Historic Preservation from University of Mary Washington and a M.A. in Historic Preservation from Savannah College of Art and Design. He has over 10 years of Cultural Resource Management Experience and has taken part in projects in Virginia, North Carolina, Maryland, Delaware, New Jersey, Rhode Island, Pennsylvania, Ohio, Florida, and California.

His experience in Cultural Resource Management includes working on both Architectural and Archaeological projects while participating in all phases of compliance from project initiation and development to completion. His work includes conducting field surveys, researching and documenting historic resources, completing site file forms, writing reports, preparing *NRHP* evaluations and documentation for individual resources and historic districts, compiling HABS/HAER documentation packages, preparing Cell Tower compliance packages, and conducting archaeological testing. He has a thorough understanding of the laws and regulations that govern cultural resources and has assisted with a number of Cultural Resource Management Plans, Programmatic Agreements, and Memorandum of Agreements. Outside of CRM, he has worked for the Thomas Jefferson's Monticello Foundation where he was a field archaeologist and assisted with the long-term, Plantation Survey Project on Monticello Mountain. Mr. Taylor's primary interests lie in Architectural Forensics and the study of building evolution.

As Senior Architectural Historian for Dutton + Associates, Mr. Taylor manages and conducts all aspects of historic and architectural resource projects and studies.

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Dutton + Associates
CULTURAL RESOURCE SURVEY, PLANNING AND MANAGEMENT

ROBERT J. TAYLOR, JR
Senior Architectural Historian

Professional Experience

Dutton + Associates, LLC, Architectural Historian, Richmond, Virginia, March 2009-present.
Manages architectural history studies, provides regulatory and compliance consultation, conducts Historic Resources Surveys, prepares NRHP nominations, HABS/HAER packages, site forms, and other documentation packages; performs research and context development, and authors project reports.

Thomas Jefferson Monticello Foundation, Field Archaeologist, Charlottesville, Virginia, Winter 2008- 2009. Conducted archaeological testing, assisted with site research, performed lab work

Janus Research, Inc, Architectural Historian, Tampa, Florida, August 2005- May 2008.
Conducted field surveys, Prepared NRHP and HABS/HAER documentation packages, authored Cultural Resource Assessment Survey Reports

Example Projects and Publications

Transmission Line Projects
Phase I Cultural Resources Survey of the Cunningham to Elmont 500 kV Transmission Line, Multiple Counties
Phase I Cultural Resources Survey of the TL47 230kV Transmission Line Rebuild, Multiple Counties
SCC Pre-Application Study for the Gainesville-Haymarket Substation and Transmission Line, Prince William Co
Cultural Resources Survey of the Bearwallow-Faraday Transmission Line Rebuild Project, Tazewell County
Phase I Cultural Resources Survey of the Dominion Line 567 Wilcox Wharf to Windmill Point Rebuild Project, Charles City and Prince George County
Phase I Survey of the Chase City-Kerr Dam, Line 137 and 138, Mecklenburg County
SCC Pre-Application Study of the Mount Storm-Valley Rebuild Project, Rockingham County
Phase I Survey of the Hayes-Yorktown 230kV Transmission Line, Gloucester County

Substation Projects
SCC Pre-Application Study of the Elklick Substation Expansion, Fairfax Co
SCC Pre-Application Study of the Roundtable Substation, Fairfax County
Phase I Survey of the Possum Point Project, Prince William County

Wind Power Projects
Phase I Cultural Resources Survey of the Rocky Forge Wind Project, Botetourt County

Solar Projects
Phase I Survey of the Briel Solar Farm, Henrico Co
Phase I Survey of the Puller Solar Project, Middlesex County
Phase I Survey of the Whitehouse Solar Project, Louisa County
Phase I Survey of the Hosier Road Solar Project, Suffolk County
Phase I Survey of the Twitty Creek Solar Project, Charlotte County

Other
Phase III Investigations of the Spring Hill Plantation Site for the Dominion Reymet Road Expansion Project, Chesterfield County
HALS Photography for the Skiffe's Creek 500kV Transmission Line Project, Charles City County

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DARA FRIEDBERG
Architectural Historian

D
A

Dutton + Associates
CULTURAL RESOURCE SURVEY, PLANNING, AND MANAGEMENT

Education

Master of Science, 2004
Historic Preservation
University of Pennsylvania
Philadelphia, Pennsylvania

Bachelor of Arts, 1999
Historic Preservation
Mary Washington College
Fredericksburg, Virginia

Ms. Friedberg holds a M.S. in Historic Preservation, concentrating in Architectural Conservation, from University of Pennsylvania and a B.A. in Historic Preservation from Mary Washington College. She has worked in historic preservation and conservation since 1999 and has taken part in projects in Virginia, Maryland, Pennsylvania, Washington, D.C., South Carolina, Georgia, Connecticut, New York, Illinois, Ohio, and Tennessee.

Her experience in Cultural Resource Management includes conducting field surveys, researching and documenting historic resources, preparing National Register of Historic Places nominations, performing archival research, assisting in Federal Tax Credit projects, and completing material analyses of historic mortar and paint.

Prior to working at Dutton + Associates, she was employed as a conservator. This allowed her to conduct multiple conditions assessments of architecture, monuments, and sculptures as well as provide treatment recommendations and project specifications. She has also physically worked on the conservation of stone, metal, and decorative painting. At the completion of each project she provided thorough documentation of each process undertaken.

As an Architectural Historian for Dutton + Associates, Ms. Friedberg collaborates on all aspects of historic and architectural projects including performing field work, conducting project research, and authoring project reports.

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Dutton + Associates

DARA FRIEDBERG
Architectural Historian

Professional Experience

Dutton + Associates, LLC, Architectural Historian, Midlothian, Virginia, 2013-Present
Conducts historic resources surveys, performs background research, develops historic contexts, writes National Register nominations, and authors and formats project reports

Kreilick Conservation, LLC, Conservator, Oreland, Pennsylvania, 2006-2012
Completed conditions assessments and treatment recommendations for stone and metal projects, conserved stone and metal architectural elements, monuments, and sculptures, and authored conservation reports.

Powers & Company, Inc., Preservation Associates, Philadelphia, Pennsylvania, 2002-2006
Conducted historic resources surveys, performed background research, assisted with Federal Historic Preservation Tax Credit projects, completed mortar and historic paint analyses, completed conditions assessments and recommendations for buildings, produced reports for large scale restoration projects, and created project specifications.

Albert Michaels Conservation, Inc., Conservation Technician, Harrisburg, Pennsylvania, 2001-2002
Conserved decorative paintings and refinished ornate wood, and authored conservation reports.

KCI Technologies, Inc., Cultural Resource Specialist, Hunt Valley, Maryland, 2000-2001
Conducted historic resources surveys, performed background research, and authored project reports.

Restoration Concepts, Restoration Intern, Burlington, Vermont, 1999
Assisted in the restoration of a building.

Example Projects

National Register of Historic Places Nominations
- Tower Building, Richmond
- Lee Medical Building, Richmond
- Fuqua Farm, Chesterfield

Preliminary Information Forms
- North Thompson Street Historic District, Richmond
- Virginia Avenue Elementary School, Petersburg

Interpretive Signs
- Skiffes Creek Interpretive Signs, multiple counties
- Spring Hill Plantation Interpretive Signs, Chesterfield Co.

Viewshed Analyses
- Viewshed Assessment for Fort Evans, Loudoun Co.
- Viewshed Analysis for Ellerslie, Surry Co.

Military Analyses and Landscape Studies
- Phase IA Assessment and Military Terrain Analysis of the Plantation Woods Property, Spotsylvania Co.
- Phase I, Viewshed Assessment, and Military Terrain Analysis for the Potato Run Mitigation Bank, Culpeper Co.
- Assessment of Two Core Areas of the Battle of Buckland Mills, Prince William Co.

Cultural Resource Survey and Compliance Reports
- Cultural Context and Thematic Study for the Proposed Revitalize RVA Project, Richmond
- Assessment of Fulton Gas Works, Richmond
- Documentary Study of the Cromley Row Project Area, Alexandria
- Study of Washington Boundary Ditches, Fairfax Co.
- Intensive Level Survey for Warehouse No. 3 of the Richmond Intermediate Terminal, Richmond
- Economic Context of Middlesex County and the Palmer House, Middlesex Co.
- Phase I Survey for the Remington-Gordonsville Transmission Line Rebuild Project, multiple counties
- Phase II Archaeological Evaluation of Site 44LD1244, Loudoun Co.

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APPENDIX B: ARTIFACT INVENTORY

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Prov.	Strat	Main Material, Subtype, Decoration and Color	Qty.	Part	Notes
Area A1					
D2	**I**	Glass, colorless vessel	2	Body	
D2	I	Mortar, sand-based	3	Fragment	10g
E1	**I**	Glass, Aqua vessel	1	Body	
E2	**I**	Glass, Colorless vessel	3	Body	
E2	I	Synthetic material, black, ridged	1	Fragment	
G -0.5	**I**	Glass, brown bottle glass	1	Body	
G -0.5	I	Glass, colorless vessel	1	Body	
G1	**I**	Porcelain, bowl	1	Rim	Vitrified paste
G1	I	Porcelain, bowl	1	Base	Vitrified paste
G1	I	Glass, colorless, lantern	1	Body	0.4mm thickness
G1	I	Glass, brown bottle glass	2	Body	
G1	I	Glass, brown bottle glass	1	Body	Stippled bands on exterior
G1	I	Brick	2	Fragment	32g
G2	**I**	Brick	2	Fragment	309g
G7	**I**	Glass, Aqua vessel	1	Body	Embossed "..AUGHT.."
H2	**I**	Glass, colorless saftey glass	1	Fragment	
H7	**I**	Glass, colorless vessel	1	Body	
H7	I	Glass, colorless window	1	Pane	Rounded edge
H8	**I**	Glass, colorless vessel	1	Body	
J2	**I**	Glass, colorless vessel	1	Body	
J3	**I**	Glass, aqua window	2	Pane	
J3	**I**	Glass, brown bottle glass	1	Body	
J6	**I**	Glass, colorless vessel with threaded rim	1	Lip	
J6	I	Glass, colorless vessel with molded design	1	Body	
J6	I	Glass, colorless bottle with embossed PEPSI logo	1	Body	1943-1958
J6	I	Glass, brown bottle glass	1	Body	
K2	**I**	Charcoal	2	Fragment	4g
L3	**I**	Refined earthenware, whiteware with red banded rim	1	Rim	Heavily crazed and discolored

Prov.	Strat	Main Material, Subtype, Decoration and Color	Qty.	Part	Notes
L6	**I**	Glass, colorless vessel	1	Body	
L6	I	Plactic, cream vessel	1	Rim	
M4	**I**	Glass, colorless vessel	1	Body	
MN4	**I**	Glass, light blue jar with threaded rim	1	Rim	
Area A2					
E3	**I**	Quartzite, potentially modified stone	1	Fragment	Material in less than ideal for prehistoric tool making, but eliptical cross section and distinct edges suggest cultural modification.
Area B2					
-AA2	**I**	Glass, colorless vessel	1	Body	Molded diamond pattern
-AA2	I	Glass, colorless vessel	1	Body	
-AA2	I	Iron, fragment	1	Fragment	2g
A2	**I**	Glass, light blue vessel	3	Body	
A2	I	Glass, milk glass	1	Body	
A2	I	Glass, brown bottle	2	Body	
A2	I	Glass, brown bottle with stippled exterior	1	Body	
A2	I	Glass, Colorless bottle	1	Base	Embossed "..AC 6"
A2	I	Glass, Colorless vessel	1	Body	Molded rounded edge
A2	I	Glass, Colorless vessel	1	Body	Molded starburst on exterior
A2	I	Glass, Colorless vessel	1	Body and base	Molded ridges on exterior
A2	I	Glass, Colorless vessel	1	Rim	
A2	I	Glass, Colorless vessel	18	Body	
A2	I	Glass, aqua window	3	Pane	
A2	I	Unidentifiable material	1		Possibly

Prov.	Strat	Main Material, Subtype, Decoration and Color	Qty.	Part	Notes
					leather. Brittle.
A2	I	Iron, fragment	1		Potential lid. 53g
B1	**I**	Glass, aqua window	3	Pane	
B2	**I**	Glass, light blue vessel	1	Body	
B2	I	Nail, wire	1	Whole	
B3	**I**	Glass, colorless bottle, threaded	1	Lip	
B3	I	Glass, colorless bottle	1	Body	Embossed "..EDER.."
B3	I	Glass, aqua window	1	Pane	
B3	I	Nail, unidentifiable	1	Shank	
C1	**I**	Glass, colorless window	1	Pane	
C1	I	Nail, unidentifiable	1	Whole	Large, potential bolt.
C3	**I**	Glass, colorless vessel	2	Body	
C3	I	Glass, aqua vessel glass	1	Body	
C3	I	Glass, colorless window	1	Pane	
C3	I	Glass, aqua window	1	Pane	
C3	I	Nail, wire	1	Shank	
C3	I	Iron, fragment	1	Fragment	1g
C3	I	Sand based Mortar, with brick fragments embedded	3	Fragment	355g
C3	I	Metal tag, 17mm diameter	1	Whole	Stamped "22.6" on one side, and "470" on reverse.
D1	**I**	Glass, colorless vessel	2	Body	
D1	I	Glass, aqua vessel, melted	1	Fragment	
D2	**I**	Glass, colorless vessel	2	Body	
D3	**I**	Nail, Machine Cut	1	Shank	
D3	I	Nail	1	Head	
E1	**I**	Glass, colorless bottle	1	Neck	
E1	I	Glass, colorless bottle	1	Lip	Machine made crown top, 1903-present
Area B4					

Prov.	Strat	Main Material, Subtype, Decoration and Color	Qty.	Part	Notes
5ft south of A8	**Surface**	Shell edge whiteware	1	Rim	Neoclassical rim, 1800-1830
A8	**I**	Refined earthenware, whiteware with blue floral transferprint	1	Base	
AB6	**I**	Brick	1	Fragment	2g, not collected.
AB7	**I**	Glass, colorless vessel	1	Body	
AB7	I	Glass, aqua vessel	1	Body	
AB7	I	Refined earthenware, Ironstone. Undecorated.	1	Body	Burned
AB7	I	Coarse earthenware, gray finish	1	Body	Discolored
AB7	I	Ceramic glaze, burned	1	Fragment	
AB7	I	Brick	1	Fragment	193g
B6	**I**	Nail, unidentifiable	2	Whole	
B7	**I**	Refined earthenware, Ironstone. Undecorated.	1	Body	
B7	I	Refined earthenware, Ironstone. Undecorated.	1	Rim	
B7	I	Refined earthenware, Ironstone. Undecorated.	1	Body	Burned
B7	I	Glass, light blue vessel	6	Body	
B7	I	Glass, aqua vessel	1	Body	
B7	I	Glass, colorless vessel	1	Body	
B7	I	Glass, colorless vessel with molded diamond pattern	1	Body	
B7	I	Glass, light blue vessel	5	Fragment	Melted
B7	I	Glass, colorless vessel	2	Fragment	Melted
B7	I	Brick	2	Fragment	5g
B7	I	Nail, unidentifiable	1	Fragment	
B7	I	Slag	2	Fragment	6g
C6	**I**	Brick	2	Fragment	Approximately 9g. Not Collected.
C7	**I**	Glass, milk glass	1	Fragment	
C7	**I**	Glass, colorless vessel	1	Body	
C9	**I**	Iron, fragment	1	Fragment	
C9	I	Nail, Wire	1	Whole	

Prov.	Strat	Main Material, Subtype, Decoration and Color	Qty.	Part	Notes
C9	I	Brick	2	Fragment	86g. One glazed.
D6	**I**	Glass, milk glass	1	Fragment	
D6	I	Glass, colorless vessel	1	Body	
D7	**I**	Glass, Aqua window	6	Pane	
D7	I	Synthetic material, potential valve	1	Whole	Fragment
D7	I	Nail, machine cut or wire	1	Fragment	
E5	**I**	Refined earthenware, Ironstone. Undecorated.	1	Base	
F5	**I**	Glass, milk glass vessel	1	Body	
F9	**I**	Brick	1	Fragment	43g
G5	**I**	Glass, Dark green bottle	1	Body	
G8	**I**	Iron, fragment	3	Fragment	13g
G8.5	**I**	Glass, colorless vessel	1	Body	
G8.5	**I**	Nail, unidentifiable	1	Shank	
G8.5	**I**	Nail, unidentifiable	1	Head	
Area C1					
-A3.5	I	Nail, Machine Cut	1	Shank	
-A4	I	Glass, Aqua window	1	Pane	
-A5	I	Glass, colorless vessel	1	Body	
-A5	I	Stoneware, bristol glaze with albany slip	1	Body	Potentially clorox jug or similar storage vessel.
-A5	I	Brown glass bottle lip with cap	1	Lip, Cap	Threaded lip
-A5.5	**I**	Porcelain	1	Body	Highly vitrified paste
-A5.5	I	Glass, aqua vessel	1	Body	Embossed lettering, illegible.
-A5.5	I	Glass, colorless vessel	2	Body	
-A6	**I**	Nail, Wire	1	Whole	
-AA4	**I**	Glass, aqua vessel	2	Body	
-AA4	I	Refined earthenware, whiteware	1	Body	
-AA4	I	Nail, Machine Cut	2	Whole	
-AA4	I	Nail, unidentifiable	1	Whole	

Prov.	Strat	Main Material, Subtype, Decoration and Color	Qty.	Part	Notes
-AA4	I	Nail, two machine cut nails, fused	1	Shank	
-AA5	I	Glass, aqua window	1	Pane	
-AA5	I	Refined earthenware, Ironstone. Undecorated.	1	Rim	
-AA5	I	Nail, Machine Cut	2	Whole	
-AA5	I	Iron, unidentifiable	1	Fragment	
A4	I	Refined earthenware, whiteware	1	Body	
A4	I	Glass, light blue vessel	1	Body	
A5	**I**	Glass, colorless vessel	1	Body	
A5	I	Glass, colorless vessel	1	Body	Stippled exterior
A5	I	Stoneware, dark brown lead glaze	1	Body	
A7	**I**	Glass, bright green vessel	1	Body	
A7	I	Glass, light blue vessel	1	Body	
A7	I	Glass, colorless vessel	1	Body	
A7	I	Plastic, yellow	1	Cap	
A8	**I**	Nail, Machine Cut	1	Shank	
B2	**I**	Glass, colorless vessel	1	Body	
B5	**I**	Glass, light blue vessel	1	Body	
B5	I	Glass, solarized vessel	1	Body	
B5	I	Glass, colorless vessel	1	Body	
B5	I	Glass, Aqua window	1	Body	
B7	**I**	Glass, colorless vessel	1	Body	
C10	**I**	Glass, colorless vessel	1	Body	
D1	**I**	Glass, Dark green bottle	1	Body	
D3	**I**	Glass, milk glass vessel	1	Body	
D3	I	Iron, fragment	1	Fragment	79g
D6	**I**	Glass, colorless vessel	1	Body	
D7	**I**	Refined earthenware, whiteware	1	Body	
D7	I	Refined earthenware, brown lead glaze	1	Body	
D7	I	Glass, colorless vessel	1	Body	
D7	I	Plastic, white	5	Fragment	
DE1	**I**	Glass, colorless vessel	1	Lip	Embossed "..OZ". Tooled ring lip.

Prov.	Strat	Main Material, Subtype, Decoration and Color	Qty.	Part	Notes
E3	**I**	Glass, colorless window	1	Pane	
E5	**I**	Glass, colorless vessel	1	Body	Embossed with liquid measure line, marked 20 and 40.
F3	**I**	Glass, colorless vessel	1	Base	
Area C2					
-A1	**I**	Refined earthenware, Ironstone. Undecorated.	1	Base	Partial maker's mark on base, stamped "..CO."
-A1.5	**I**	Glass, opalescent vessel	1	Rim	Crazing throughout
A1	**I**	Glass, light blue bottle	1	Body	Embossed lettering, illegible
A1.5	**I**	Refined earthenware, Ironstone. Undecorated.	1	Body	
B1	**I**	Refined earthenware, Ironstone.	1	Rim	Molded design
B2	**I**	Glass, colorless bottle	1	Base	Embossed "1" on base. Square bottle.
BC2	**I**	Glass, aqua window	1	Pane	
Area C3					
D5	**I**	Glass, colorless vessel	2	Body	
E1	**I**	Metal lightbulb base	1	Base	
E1	I	Nail, Wire	1	Shank	
K5	**I**	Glass, colorless vessel	1	Body	
Area C4					
A3	**I**	Glass, lantern	1	Body	0.4mm thick
C7	**I**	Glass, colorless	1	Fragment	Not Collected.
Area D2					
Historic Scatter Surface Collection	**Surface**	Refined earthenware, ironstone with floral decal	1	Base	Blue, green, and pink design
Historic	Surface	Refined earthenware,	1	Rim	Non

Prov.	Strat	Main Material, Subtype, Decoration and Color	Qty.	Part	Notes
Scatter Surface Collection		whiteware, shell edge			impressed design, 1860s-1890s
Historic Scatter Surface Collection	Surface	Refined earthenware, ironstone with molded scallop design	1	Rim	
Historic Scatter Surface Collection	Surface	Refined earthenware, whiteware with blue floral transferprint	1	Body	
Historic Scatter Surface Collection	Surface	Refined earthenware, ironstone with blue basket transferprint	1	Body	Burned
Historic Scatter Surface Collection	Surface	Lid Liner, Milk glass	1	Fragment	Embossed diamond. Possibly made by the Diamond Glass Co. 1924-1940.
Historic Scatter Surface Collection	Surface	Glass, milk glass vessel	1	Base	Embossed with "HA" monogram. Made by the Hazel- Atlas Corporation, 1923-1982.
Surface Collection 1	**Surface**	Rhyolite, prehistoric tool	1	Whole	Projectile point or knife. Similar to Cobbs Triangular point, possibly Archaic.
B4	**I**	Refined earthenware, whiteware with floral decal	1	Base	Blue and green design.
B5	**I**	Stoneware, tan salt glaze with dark brown interior glaze	1	Body	

Prov.	Strat	Main Material, Subtype, Decoration and Color	Qty.	Part	Notes
B5	**I**	Glass, colorless vessel	1	Body	
B5	**I**	Glass, colorless window	1	Pane	
B5.5	**I**	Glass, colorless vessel	1	Body	
B6.5	**I**	Glass, colorless vessel	1	Body	
C4	**II**	Glass, colorless vessel	2	Body	
C4	II	Glass, colorless vessel	1	Body	Thin spiderweb cracks
C4	II	Refined earthenware, whiteware	1	Body	
C4	II	Nail, Machine cut	1	Shank	
C4	II	Nail, unidentifiable	1	Whole	
C4	II	Iron, strap	1	Fragment	Approximatley 36cm x 2.5cm
C5	**I**	Glass, aqua window	2	Pane	
C5	I	Glass, colorless window	1	Pane	
D4	**I**	Refined earthenware, Ironstone. Undecorated.	1	Body	
D4	I	Glass, colorless vessel	2	Body	
Area D4					
-A3.5	**I**	Refined earthenware, whiteware with handpainted red band	1	Body	
-A3.5	I	Glass, light green vessel	1	Body	
-A3.5	I	Glass, colorless vessel	6	Body	
-A4	**I**	Glass, colorless vessel with partial molded design	1	Body	
A3	**I**	Refined earthenware, Ironstone. Undecorated.	1	Rim	Teacup
A3.5	**I**	Glass, colorless vessel	3	Body	
A3.5	I	Glass, Colorless window	2	Pane	
A4	**I**	Glass, aqua vessel	2	Body	
A4	I	Glass, colorless vessel	3	Body	
A4	I	Glass, Colorless window	1	Pane	
A4	I	Nail, unidentifiable	1	Whole	
A4	I	Iron, bracket	1	Whole	

APPENDIX C: V-CRIS FORMS

Snapshot

Date Generated: March 26, 2020

Site Name: No Data
Site Classification: Terrestrial, open air
Year(s): 1917 - 1945, 1946 - 1991
Site Type(s): Artifact scatter
Other DHR ID: No Data
Temporary Designation: No Data

Site Evaluation Status

Locational Information

USGS Quad: ALTON
County/Independent City: Halifax (County)
Physiographic Province: Piedmont
Elevation: 570 feet
Aspect: Facing East
Drainage: Roanoke
Slope: 0-2%
Acreage: 4.360
Landform: Ridge
Ownership Status: Private
Government Entity Name: No Data

Site Components

Component 1

Category: Domestic
Site Type: Artifact scatter
Cultural Affiliation: Indeterminate
DHR Time Period: World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)
Start Year: No Data
End Year: No Data
Comments: No Data

Bibliographic Information

Bibliography:

Phase I Cultural Resource Survey of the ±313.9 Hectare (±775.6 Acre) Alton Post Solar Project Area. 2020. D+A.

Informant Data:

No Data

CRM Events

Event Type: Survey:Phase I

Project Staff/Notes:

No Data

Project Review File Number: No Data

Sponsoring Organization: No Data

Organization/Company: Dutton + Associates, LLC

Investigator: Lauren Gryctko

Survey Date: 2/5/2020

Survey Description:

This survey was conducted in anticipation of development. Following a pedestrian reconnaissance of the project area, systematic shovel testing was conducted throughout the high potential sections, with shovel test placement avoided in areas of documented or visible significant ground disturbance, slopes in excess of 15 percent, and areas in statutory wetlands or water-saturated soils at the time of the survey. The soil excavated from all shovel tests was passed through 0.63-centimeter (1/4-inch) mesh screen and all shovel tests were approximately 0.38 meters (15 inches) in diameter and excavated to sterile subsoil or the practical limits of excavation. Isolated positive shovel tests were bracketed with radial shovel tests (half the distance to the next shovel test in all four directions) until two negative shovel tests in each direction were documented

Current Land Use	Date of Use	Comments
Agricultural field	2/5/2020	*No Data*

Threats to Resource: Development

Site Conditions: 75-99% of Site Destroyed

Survey Strategies: Subsurface Testing, Historic Map Projection

Specimens Collected: Yes

Specimens Observed, Not Collected: No

Artifacts Summary and Diagnostics:

Aqua vessel glass, colorless vessel glass, black synthetic material, brown bottle glass, porcelain bowl fragments, colorless lantern glass, brick, Brick, colorless window glass, Charcoal, whiteware, light blue jar with threaded rim. These artifacts are typical of an early to mid-twentieth century domestic site.

Summary of Specimens Observed, Not Collected:

No Data

Current Curation Repository: D+A

Permanent Curation Repository: To be determined by the client

Field Notes: Yes

Field Notes Repository: D+A

Photographic Media: Digital

Survey Reports: Yes

Survey Report Information:

Phase I Cultural Resource Survey of the ±313.9 Hectare (±775.6 Acre) Alton Post Solar Project Area. D+A. 2020

Survey Report Repository: D+A

DHR Library Reference Number: No Data

Significance Statement: Field Site 1 is located on a flat portion of a ridge over which a historic road runs, associated with a series of dwellings shown on a 1952 map. Currently, there is no visible indication of these structures. Aerials of the project area demonstrate that this portion of the project area has been used as a hayfield since 1994. A total of 42 artifacts were collected, 28 of which were glass. All artifacts which were collected were from a disturbed fill stratum. Since all artifacts were recovered from a disturbed stratum, these artifacts do not have any contextual value. For this reason, and for the lack of diagnostic artifacts, this site is recommended as not eligible for inclusion in the NRHP.

Surveyor's Eligibility Recommendations: Recommended Not Eligible

Surveyor's NR Criteria Recommendations: No Data

Surveyor's NR Criteria Considerations: No Data

Snapshot

Date Generated: March 26, 2020

Site Name: No Data
Site Classification: Terrestrial, open air
Year(s): 1917 - 1945, 1946 - 1991
Site Type(s): Artifact scatter
Other DHR ID: No Data
Temporary Designation: No Data

Site Evaluation Status

Locational Information

USGS Quad: ALTON
County/Independent City: Halifax (County)
Physiographic Province: Piedmont
Elevation: 550 feet
Aspect: Flat
Drainage: Roanoke
Slope: 0-2%
Acreage: 0.580
Landform: Terrace
Ownership Status: Private
Government Entity Name: No Data

Site Components

Component 1

Category: Domestic
Site Type: Artifact scatter
Cultural Affiliation: Indeterminate
DHR Time Period: World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)
Start Year: No Data
End Year: No Data
Comments: No Data

Bibliographic Information

Bibliography:

Phase I Cultural Resource Survey of the
±313.9 Hectare (±775.6 Acre) Alton Post Solar Project Area. 2020. D+A

Informant Data:

No Data

CRM Events

Event Type: Survey:Phase I

Project Staff/Notes:

No Data

Project Review File Number: No Data

Sponsoring Organization: No Data

Organization/Company: Dutton + Associates, LLC

Investigator: Lauren Gryctko

Survey Date: 2/5/2020

Survey Description:

This survey was conducted in anticipation of development. Following a pedestrian reconnaissance of the project area, systematic shovel testing was conducted throughout the high potential sections, with shovel test placement avoided in areas of documented or visible significant ground disturbance, slopes in excess of 15 percent, and areas in statutory wetlands or water-saturated soils at the time of the survey. The soil excavated from all shovel tests was passed through 0.63-centimeter (1/4-inch) mesh screen and all shovel tests were approximately 0.38 meters (15 inches) in diameter and excavated to sterile subsoil or the practical limits of excavation. Isolated positive shovel tests were bracketed with radial shovel tests (half the distance to the next shovel test in all four directions) until two negative shovel tests in each direction were documented

Current Land Use	Date of Use	Comments
Agricultural field	2/5/2020	*No Data*

Threats to Resource: Development

Site Conditions: 75-99% of Site Destroyed

Survey Strategies: Subsurface Testing, Historic Map Projection

Specimens Collected: Yes

Specimens Observed, Not Collected: No

Artifacts Summary and Diagnostics:

Colorless vessel glass, iron fragments, light blue vessel glass, milk glass
brown bottle glass, colorless bottle glass, aqua window glass, light blue vessel glass, wire nails, machine cut nails. These artifacts are typical of a early to mid-twentieth century domestic site.

Summary of Specimens Observed, Not Collected:

No Data

Current Curation Repository: D+A

Permanent Curation Repository: To be determined by client

Field Notes: Yes

Field Notes Repository: D+A

Photographic Media: Digital

Survey Reports: Yes

Survey Report Information:

Phase I Cultural Resource Survey of the ±313.9 Hectare (±775.6 Acre) Alton Post Solar Project Area. D+A. 2020

Survey Report Repository: D+A

DHR Library Reference Number: No Data

Significance Statement: A burnt stratum was identified in one excavted shovel test D4, which was located within the cluster of positive shovel test pits, however, shovel test pits ranged in depth from 3 to 30 cm to subsoil, demonstrating that in many locations, there was a lack of topsoil in this area. The lack of topsoil is most likely caused by continuous agricultural use. Due to the lack of diagnostic artifacts, this site is recommended as not eligible for inclusion in the NRHP.

Surveyor's Eligibility Recommendations: Recommended Not Eligible

Surveyor's NR Criteria Recommendations: No Data

Surveyor's NR Criteria Considerations: No Data

Snapshot

Date Generated: March 26, 2020

Site Name: No Data
Site Classification: Terrestrial, open air
Year(s): 1917 - 1945, 1946 - 1991
Site Type(s): Artifact scatter
Other DHR ID: No Data
Temporary Designation: No Data

Site Evaluation Status

Locational Information

USGS Quad: ALTON
County/Independent City: Halifax (County)
Physiographic Province: Piedmont
Elevation: 515 feet
Aspect: Flat
Drainage: Roanoke
Slope: 0-2%
Acreage: 1.590
Landform: Ridge Finger
Ownership Status: Private
Government Entity Name: No Data

Site Components

Component 1

Category: Domestic
Site Type: Artifact scatter
Cultural Affiliation: Indeterminate
DHR Time Period: World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)
Start Year: No Data
End Year: No Data
Comments: No Data

Bibliographic Information

Bibliography:

Phase I Cultural Resource Survey of the ±313.9 Hectare (±775.6 Acre) Alton Post Solar Project Area

Informant Data:

No Data

CRM Events

Event Type: Survey:Phase I

Project Staff/Notes:

No Data

Project Review File Number: No Data

Sponsoring Organization: No Data

Organization/Company: Dutton + Associates, LLC

Investigator: Lauren Gryctko

Survey Date: 2/5/2020

Survey Description:

This survey was conducted in anticipation of development. Following a pedestrian reconnaissance of the project area, systematic shovel testing was conducted throughout the high potential sections, with shovel test placement avoided in areas of documented or visible significant ground disturbance, slopes in excess of 15 percent, and areas in statutory wetlands or water-saturated soils at the time of the survey. The soil excavated from all shovel tests was passed through 0.63-centimeter (1/4-inch) mesh screen and all shovel tests were approximately 0.38 meters (15 inches) in diameter and excavated to sterile subsoil or the practical limits of excavation. Isolated positive shovel tests were bracketed with radial shovel tests (half the distance to the next shovel test in all four directions) until two negative shovel tests in each direction were documented

Current Land Use	Date of Use	Comments
Agricultural field	2/5/2020	*No Data*

Threats to Resource: Development

Site Conditions: 75-99% of Site Destroyed

Survey Strategies: Subsurface Testing, Historic Map Projection

Specimens Collected: Yes

Specimens Observed, Not Collected: No

Artifacts Summary and Diagnostics:

Shell edge whiteware, whiteware with blue floral transferprint, Brick
colorless vessel glass, aqua glass, coarse earthenware, burned ceramic glaze, nails, light blue vessel glass, Slag, milk glass, Iron fragment, wire nail, Synthetic material, possible machine cut or wire nail, dark green bottle glass. These artifacts are typical of an early to mid twentieth century domestic site.

Summary of Specimens Observed, Not Collected:

No Data

Current Curation Repository: D+A

Permanent Curation Repository: To be determined by the client

Field Notes: Yes

Field Notes Repository: D+A

Photographic Media: Digital

Survey Reports: Yes

Survey Report Information:

Phase I Cultural Resource Survey of the ±313.9 Hectare (±775.6 Acre) Alton Post Solar Project Area. D+A. 2020

Survey Report Repository: D+A

DHR Library Reference Number: No Data

Significance Statement: Field Site 3 consists of a total of 16 shovel test pits which were positive for a total of 62 historic artifacts – 28 of which were some sort of glass. Additionally, a piece of whiteware was collected on the surface approximately 5 feet south of shovel test A8. Artifacts in shovel test pits include ironstone, colorless vessel glass, brick, unidentifiable nails, dark green bottle glass, synthetic material, milk glass, whiteware, and slag. The presence of an approximately 5.5 meter by 5.5 meter (18 feet by 18 feet) pit, with unknown purposes is also indicative of cultural activity in this area. The artifacts recovered are typical of an early to mid-twentieth century site. Due to the large amount of material which is undiagnostic or suggestive of a large window of occupation – including colorless vessel glass, unidentifiable nails, and undecorated ironstone – along with the level of disturbance in this area – as demonstrated the range in depths in the shovel test pits, this site is recommended as not eligible for inclusion in the NRHP.

Surveyor's Eligibility Recommendations: Recommended Not Eligible

Surveyor's NR Criteria Recommendations: No Data

Surveyor's NR Criteria Considerations: No Data

Snapshot

Date Generated: March 26, 2020

Site Name: No Data
Site Classification: Terrestrial, open air
Year(s): 1917 - 1945, 1946 - 1991
Site Type(s): Dwelling, single
Other DHR ID: No Data
Temporary Designation: No Data

Site Evaluation Status

Locational Information

USGS Quad: ALTON
County/Independent City: Halifax (County)
Physiographic Province: Piedmont
Elevation: 520 feet
Aspect: Flat
Drainage: Roanoke
Slope: 0-2%
Acreage: 1.920
Landform: Knoll
Ownership Status: Private
Government Entity Name: No Data

Site Components

Component 1

Category: Domestic
Site Type: Dwelling, single
Cultural Affiliation: Indeterminate
DHR Time Period: World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)
Start Year: No Data
End Year: No Data
Comments: No Data

Bibliographic Information

Bibliography:

Phase I Cultural Resource Survey of the
±313.9 Hectare (±775.6 Acre) Alton Post Solar Project Area. 2020. D+A

Informant Data:

No Data

CRM Events

Event Type: Survey:Phase I

Project Staff/Notes:

No Data

Project Review File Number: No Data

Sponsoring Organization: No Data

Organization/Company: Dutton + Associates, LLC

Investigator: Lauren Gryctko

Survey Date: 2/5/2020

Survey Description:

This survey was conducted in anticipation of development. Following a pedestrian reconnaissance of the project area, systematic shovel testing was conducted throughout the high potential sections, with shovel test placement avoided in areas of documented or visible significant ground disturbance, slopes in excess of 15 percent, and areas in statutory wetlands or water-saturated soils at the time of the survey. The soil excavated from all shovel tests was passed through 0.63-centimeter (1/4-inch) mesh screen and all shovel tests were approximately 0.38 meters (15 inches) in diameter and excavated to sterile subsoil or the practical limits of excavation. Isolated positive shovel tests were bracketed with radial shovel tests (half the distance to the next shovel test in all four directions) until two negative shovel tests in each direction were documented

Current Land Use	Date of Use	Comments
Agricultural field	2/5/2020	*No Data*

Threats to Resource: Development

Site Conditions: 75-99% of Site Destroyed

Survey Strategies: Subsurface Testing

Specimens Collected: Yes

Specimens Observed, Not Collected: No

Artifacts Summary and Diagnostics:

Machine Cut nail, aqua window glass, colorless vessel glass,
Stoneware, bristol glaze with albany slip, Brown glass bottle lip with cap
Porcelain, Glass, aqua vessel, wire nail, whiteware, light blue vessel glass, dark brown lead glazed Stoneware, yellow plastic, colorless window glass.

Summary of Specimens Observed, Not Collected:

No Data

Current Curation Repository: D+A

Permanent Curation Repository: To be determined by the client

Field Notes: Yes

Field Notes Repository: D+A

Photographic Media: Digital

Survey Reports: Yes

Survey Report Information:

Phase I Cultural Resource Survey of the ±313.9 Hectare (±775.6 Acre) Alton Post Solar Project Area. D+A. 2020

Survey Report Repository: D+A

DHR Library Reference Number: No Data

Significance Statement: Field Site 4 is located on the flat portion of the main landform which makes up Area C, consisting of 55 artifacts – 30 of which are glass – including brick fragments, machine cut nails, a wire nail, white plastic, whiteware, dark green bottle glass, light blue glass, colorless vessel glass, stoneware solarized glass, brown lead glazed refined earthenware, and milk glass. These artifacts are clustered around the remains of a structure, a concrete slab, and an associated barn and well, as mentioned above. Intentionally placed stones were also identified circling a tree to the south of the remains of the structure. This structure is shown on the 1952 topographic. Due to use of cinderblocks in the foundation of the structure, the presence of Portland cement, coupled with the presence of milk glass and wire nails, Field Site 4 is recommended as not eligible for inclusion in the NRHP.

Surveyor's Eligibility Recommendations: Recommended Not Eligible

Surveyor's NR Criteria Recommendations: No Data

Surveyor's NR Criteria Considerations: No Data

Snapshot

Date Generated: March 26, 2020

Site Name: No Data
Site Classification: Terrestrial, open air
Year(s): 1946 - 1991, 1992 - ?
Site Type(s): Dwelling, single
Other DHR ID: No Data
Temporary Designation: No Data

Site Evaluation Status

Locational Information

USGS Quad: ALTON
County/Independent City: Halifax (County)
Physiographic Province: Piedmont
Elevation: 515 feet
Aspect: Facing Northeast
Drainage: Roanoke
Slope: 0-2%
Acreage: 0.190
Landform: Ridge
Ownership Status: Private
Government Entity Name: No Data

Site Components

Component 1

Category: Domestic
Site Type: Dwelling, single
Cultural Affiliation: Indeterminate
DHR Time Period: The New Dominion (1946 - 1991), Post Cold War (1992 - Present)
Start Year: No Data
End Year: No Data
Comments: No Data

Bibliographic Information

Bibliography:

Phase I Cultural Resource Survey of the ±313.9 Hectare (±775.6 Acre) Alton Post Solar Project Area. D+A. 2020

Informant Data:

No Data

CRM Events

Event Type: Survey:Phase I

Project Staff/Notes:

No Data

Project Review File Number: No Data

Sponsoring Organization: No Data

Organization/Company: Dutton + Associates, LLC

Investigator: Lauren Gryctko

Survey Date: 2/5/2020

Survey Description:

This survey was conducted in anticipation of development. Following a pedestrian reconnaissance of the project area, systematic shovel testing was conducted throughout the high potential sections, with shovel test placement avoided in areas of documented or visible significant ground disturbance, slopes in excess of 15 percent, and areas in statutory wetlands or water-saturated soils at the time of the survey. The soil excavated from all shovel tests was passed through 0.63-centimeter (1/4-inch) mesh screen and all shovel tests were approximately 0.38 meters (15 inches) in diameter and excavated to sterile subsoil or the practical limits of excavation. Isolated positive shovel tests were bracketed with radial shovel tests (half the distance to the next shovel test in all four directions) until two negative shovel tests in each direction were documented

Current Land Use	Date of Use	Comments
Forest	2/5/2020	*No Data*

Threats to Resource: Development

Site Conditions: 75-99% of Site Destroyed, Surface Deposits Present But With No Subsurface Integrity

Survey Strategies: Subsurface Testing

Specimens Collected: Yes

Specimens Observed, Not Collected: Yes

Artifacts Summary and Diagnostics:

Ironstone, colorless bottle glass, and aqua window glass. A total of seven (7) artifacts were recovered.

Summary of Specimens Observed, Not Collected:

Chimney fall consisting of worked stone. No other intact arcitectural surface indication was noted.

Current Curation Repository: D+A

Permanent Curation Repository: D+A

Field Notes: Yes

Field Notes Repository: To be determined by client

Photographic Media: Digital

Survey Reports: Yes

Survey Report Information:

Phase I Cultural Resource Survey of the ±313.9 Hectare (±775.6 Acre) Alton Post Solar Project Area. D+A. 2020

Survey Report Repository: D+A

DHR Library Reference Number: No Data

Significance Statement: The chimney fall consists of large pieces of worked stone. Daffodils and yucca and cedar trees were noted close to the chimney fall. Artifacts recovered in this site included ironstone, colorless bottle glass, and aqua window glass. A total of seven (7) artifacts were recovered. Although the chimney fall confirms the past presence of a structure in this area, the soils show that there is no subsurface integrity, and the lack of artifacts suggest that there is little archaeological information to be gathered regarding the site. Due to the lack of diagnostic artifacts, along with the visible indication of disturbance as demonstrated by the push piles, and the lack of topsoil in many of the shovel test pits, it is apparent that the only feature left on the site is chimney fall, due to this, the site is recommended as not eligible for inclusion in the NRHP.

Surveyor's Eligibility Recommendations: Recommended Not Eligible

Surveyor's NR Criteria Recommendations: No Data

Surveyor's NR Criteria Considerations: No Data

Snapshot

Date Generated: March 26, 2020

Site Name: No Data
Site Classification: Terrestrial, open air
Year(s): 1946 - 1991, 1992 - ?
Site Type(s): Artifact scatter
Other DHR ID: No Data
Temporary Designation: No Data

Site Evaluation Status

Locational Information

USGS Quad: ALTON
County/Independent City: Halifax (County)
Physiographic Province: Piedmont
Elevation: No Data
Aspect: Facing Southwest
Drainage: Roanoke
Slope: 15-25%
Acreage: 2.950
Landform: Terrace
Ownership Status: Private
Government Entity Name: No Data

Site Components

Component 1

Category: Domestic
Site Type: Artifact scatter
Cultural Affiliation: Indeterminate
DHR Time Period: The New Dominion (1946 - 1991), Post Cold War (1992 - Present)
Start Year: No Data
End Year: No Data
Comments: No Data

Bibliographic Information

Bibliography:

Phase I Cultural Resource Survey of the
±313.9 Hectare (±775.6 Acre) Alton Post Solar Project Area. D+A. 2020.

Informant Data:

No Data

CRM Events

Event Type: Survey:Phase I

Project Staff/Notes:

No Data

Project Review File Number: No Data

Sponsoring Organization: No Data

Organization/Company: Dutton + Associates, LLC

Investigator: Lauren Gryctko

Survey Date: 2/5/2020

Survey Description:

This survey was conducted in anticipation of development. Following a pedestrian reconnaissance of the project area, systematic shovel testing was conducted throughout the high potential sections, with shovel test placement avoided in areas of documented or visible significant ground disturbance, slopes in excess of 15 percent, and areas in statutory wetlands or water-saturated soils at the time of the survey. The soil excavated from all shovel tests was passed through 0.63-centimeter (1/4-inch) mesh screen and all shovel tests were approximately 0.38 meters (15 inches) in diameter and excavated to sterile subsoil or the practical limits of excavation. Isolated positive shovel tests were bracketed with radial shovel tests (half the distance to the next shovel test in all four directions) until two negative shovel tests in each direction were documented

Current Land Use	Date of Use	Comments
Forest	2/5/2020	This is a recently timbered forest. Land currently consists of scrubland associated with recently timbered forest.

Threats to Resource: Development

Site Conditions: 75-99% of Site Destroyed

Survey Strategies: Subsurface Testing

Specimens Collected: Yes

Specimens Observed, Not Collected: Yes

Artifacts Summary and Diagnostics:

ironstone with floral decal, shell edge whiteware, ironstone with molded scallop design, whiteware with blue floral transferprint, ironstone with blue basket transferprint, Milk glass lid liner, milk glass vessel, prehistoric tool made of rhyolite, whiteware with floral decal
Stoneware, tan salt glaze with dark brown interior glaze,colorless vessel
glass, colorless window glass, colorless vessel, Machine cut nail, iron strap

Summary of Specimens Observed, Not Collected:

Ironstone and colorless vessel glass were noted on the surface in the drainage. Only a sample of these were collected.

Current Curation Repository: D+A

Permanent Curation Repository: To be determined by the client

Field Notes: Yes

Field Notes Repository: D+A

Photographic Media: Digital

Survey Reports: Yes

Survey Report Information:

Phase I Cultural Resource Survey of the ±313.9 Hectare (±775.6 Acre) Alton Post Solar Project Area. D+A. 2020

Survey Report Repository: D+A

DHR Library Reference Number: No Data

Significance Statement: Located on a terrace associated with a finger ridge which overlooks a tributary to Powells Creek to the south and west, much of this landform is outside of the project area. The portion of this landform which is located within the project area slopes drastically to the south, east, and west. Along with the artifacts that were recovered from the shovel test pits, artifacts were identified on the surface, in the drainage. A pit was identified on the flattest portion of the landform. Yucca plants and daffodils were noted growing in the drainage. Artifacts recovered in this site included ironstone, shell-edged whiteware, milk glass, stoneware, colorless vessel glass, a machine cut nail, aqua glass, and stoneware. One isolated prehistoric artifact was collected on the surface among the historical surface scatter. This artifact is a projectile point or knife, similar to Cobbs Triangular point. A total of 7 (seven) shovel test pits were positive for artifacts, and a total 27 artifacts were recovered. Datable artifacts consist of a milk glass lid liner which dates to 1924-1940; a milk glass vessel which dates to 1923-1982; whiteware shell-edge which dates to 1860-1890. Due to the fact that many of the artifacts which were collected and noted are on the surface are on the sloped portion of this landform, it is likely that these artifacts are displaced from alluvial events, and that the site no longer has surface integrity, thus this site is recommended as not eligible for inclusion in the NRHP.

Surveyor's Eligibility Recommendations:	Recommended Not Eligible
Surveyor's NR Criteria Recommendations:	No Data
Surveyor's NR Criteria Considerations:	No Data

Snapshot

Date Generated: March 26, 2020

Site Name: No Data
Site Classification: Terrestrial, open air
Year(s): 1917 - 1945, 1946 - 1991
Site Type(s): Artifact scatter
Other DHR ID: No Data
Temporary Designation: No Data

Site Evaluation Status

Locational Information

USGS Quad: ALTON
County/Independent City: Halifax (County)
Physiographic Province: Piedmont
Elevation: 550 feet
Aspect: Facing Northeast
Drainage: Roanoke
Slope: 0-2%
Acreage: 0.560
Landform: Terrace
Ownership Status: Private
Government Entity Name: No Data

Site Components

Component 1

Category: Domestic
Site Type: Artifact scatter
Cultural Affiliation: Indeterminate
DHR Time Period: World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)
Start Year: No Data
End Year: No Data
Comments: No Data

Bibliographic Information

Bibliography:

Phase I Cultural Resource Survey of the
±313.9 Hectare (±775.6 Acre) Alton Post Solar Project Area. 2020. D+A

Informant Data:

No Data

CRM Events

Event Type: Survey:Phase I

Project Staff/Notes:

No Data

Project Review File Number: No Data

Sponsoring Organization: No Data

Organization/Company: Dutton + Associates, LLC

Investigator: Lauren Gryctko

Survey Date: 2/5/2020

Survey Description:

This survey was conducted in anticipation of development. Following a pedestrian reconnaissance of the project area, systematic shovel testing was conducted throughout the high potential sections, with shovel test placement avoided in areas of documented or visible significant ground disturbance, slopes in excess of 15 percent, and areas in statutory wetlands or water-saturated soils at the time of the survey. The soil excavated from all shovel tests was passed through 0.63-centimeter (1/4-inch) mesh screen and all shovel tests were approximately 0.38 meters (15 inches) in diameter and excavated to sterile subsoil or the practical limits of excavation. Isolated positive shovel tests were bracketed with radial shovel tests (half the distance to the next shovel test in all four directions) until two negative shovel tests in each direction were documented

Current Land Use	Date of Use	Comments
Pasture	2/5/2020	*No Data*

Threats to Resource: Development

Site Conditions: 75-99% of Site Destroyed

Survey Strategies: Subsurface Testing

Specimens Collected: Yes

Specimens Observed, Not Collected: No

Artifacts Summary and Diagnostics:

whiteware with handpainted red band, light green vessel glass, colorless vessel glass, ironstone, colorless window glass, aqua vessel glass, colorless vessel, unidentifiable nail, iron bracket

Summary of Specimens Observed, Not Collected:

No Data

Current Curation Repository: D+A

Permanent Curation Repository: To be determined by the client

Field Notes: Yes

Field Notes Repository: D+A

Photographic Media: Digital

Survey Reports: Yes

Survey Report Information:

Phase I Cultural Resource Survey of the ±313.9 Hectare (±775.6 Acre) Alton Post Solar Project Area. D+A. 2020

Survey Report Repository: D+A

DHR Library Reference Number: No Data

Significance Statement: A total of five (5) shovel test pits were positive for historic artifacts, including an unidentifiable nail, whiteware, colorless glass, an iron bracket, and an ironstone teacup rim. Many of these artifacts are undiagnostic – including the thirteen pieces of colorless glass. Due to the small number of artifacts collected, the generally disturbed nature and lack of topsoil of the landform on which these artifacts are located, and the lack of diagnostic artifacts, this site is not recommended as eligible for the NRHP.

Surveyor's Eligibility Recommendations: Recommended Not Eligible

Surveyor's NR Criteria Recommendations: No Data

Surveyor's NR Criteria Considerations: No Data

Attachment I – Preliminary Jurisdictional Determination

Appendix 2 - PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD: August 11, 2020

B. NAME AND ADDRESS OF PERSON REQUESTING PJD:
Urban Grid Solar Projects, LLC C/o Timmons Group, Dan Cox 1001 Boulders Pkwy, Richmond

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

NAO-2017-2134

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:

(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: Virginia County/parish/borough: Halifax City:

Center coordinates of site (lat/long in degree decimal format): 36.564583, -79.029556

Lat.: xx.xxx° Long.: yy.yyy°

Universal Transverse Mercator:

Name of nearest waterbody: Lawsons Creek

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☑ Office (Desk) Determination. Date: July 14, 2020

☐ Field Determination. Date(s):

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
			See Attached Table		

Site Number	Latitude	Longitude	Estimated amount of aquatic resource in review area	Type of aquatic resource	Geographic authority to which the aquatic resource "may be subject
A	36.580092	-79.069624	9097 SQ_FT	WETLANDS	404
A1	36.570868	-79.052155	1028 SQ_FT	WETLANDS	404
A2	36.569103	-79.056103	165 FOOT	WOUS	404
B	36.579926	-79.069063	561 SQ_FT	WETLANDS	404
B1	36.572691	-79.051338	19990 SQ_FT	WETLANDS	404
B2INT	36.577746	-79.063522	11 FOOT	WOUS	404
B2EPH	36.578154	-79.06318	350 FOOT	WOUS	404
C	36.579871	-79.068872	834 SQ_FT	WETLANDS	404
C1	36.572064	-79.050302	2657 SQ_FT	WETLANDS	404
C2	36.569853	-79.055707	488 FOOT	WOUS	404
D	36.579834	-79.06827	1005 SQ_FT	WETLANDS	404
D1	36.572771	-79.049945	9664 SQ_FT	WETLANDS	404
D2PEM	36.573278	-79.052821	4243 SQ_FT	WETLANDS	404
D2POW	36.573175	-79.052386	45753 SQ_FT	WETLANDS	404
E	36.580149	-79.065804	3375 SQ_FT	WETLANDS	404
E1	36.579311	-79.067534	132 SQ_FT	WETLANDS	404
E2	36.56472	-79.04008	106 FOOT	WOUS	404
FPFO	36.581296	-79.06286	18422 SQ_FT	WETLANDS	404
FPEM	36.580693	-79.065509	12938 SQ_FT	WETLANDS	404
FPOW	36.580664	-79.064567	117764 SQ_FT	WETLANDS	404
F1	36.57927	-79.066892	1883 FOOT	WOUS	404
F2	36.569457	-79.052209	265 FOOT	WOUS	404
G	36.581598	-79.063259	851 SQ_FT	WETLANDS	404
G1	36.577701	-79.06256	69 FOOT	WOUS	404
G2	36.570633	-79.051506	290 FOOT	WOUS	404
HPFO	36.580725	-79.060695	29858 SQ_FT	WETLANDS	404
HPEM	36.580949	-79.06148	4451 SQ_FT	WETLANDS	404
H1	36.57218	-79.050508	230 FOOT	WOUS	404
H2	36.563529	-79.049209	4436 SQ_FT	WETLANDS	404
I	36.581404	-79.061038	170 SQ_FT	WETLANDS	404
I1	36.576718	-79.060167	227 FOOT	WOUS	404
I2	36.563836	-79.04916	282 FOOT	WOUS	404
J	36.579572	-79.068331	297 SQ_FT	WETLANDS	404
J1	36.576547	-79.059638	141 FOOT	WOUS	404
K	36.577738	-79.063203	166 SQ_FT	WETLANDS	404
K1	36.579902	-79.067687	1380 FOOT	WOUS	404
L	36.577602	-79.062456	2248 SQ_FT	WETLANDS	404
L1	36.580069	-79.067076	46 FOOT	WOUS	404
MPFO	36.576722	-79.060364	2209 SQ_FT	WETLANDS	404
MPEM	36.577028	-79.060509	13494 SQ_FT	WETLANDS	404
MPOW	36.577286	-79.061243	61951 SQ_FT	WETLANDS	404
M1	36.572917	-79.051758	83 FOOT	WOUS	404
N	36.569851	-79.061434	591 SQ_FT	WETLANDS	404
N1	36.581733	-79.063037	433 FOOT	WOUS	404
O	36.569569	-79.060907	743 SQ_FT	WETLANDS	404
O1	36.581211	-79.06174	847 FOOT	WOUS	404

PPFO	36.569779	-79.060466	5108 SQ_FT	WETLANDS	404
PPEM	36.569821	-79.059515	5396 SQ_FT	WETLANDS	404
PPOW	36.56961	-79.059644	22697 SQ_FT	WETLANDS	404
P1	36.581105	-79.061627	83 FOOT	WOUS	404
Q	36.569378	-79.059119	7898 SQ_FT	WETLANDS	404
Q1	36.569702	-79.061099	153 FOOT	WOUS	404
RPEM	36.571671	-79.058023	8805 SQ_FT	WETLANDS	404
RPOW	36.570822	-79.057805	55517 SQ_FT	WETLANDS	404
R1	36.569738	-79.060517	345 FOOT	WOUS	404
S	36.569414	-79.058777	2412 SQ_FT	WETLANDS	404
S1	36.569269	-79.059319	363 FOOT	WOUS	404
TPSS	36.570172	-79.057842	1699 SQ_FT	WETLANDS	404
TPEM	36.570137	-79.057778	754 SQ_FT	WETLANDS	404
T1	36.569414	-79.058777	106 FOOT	WOUS	404
UPEM	36.572574	-79.05676	45679 SQ_FT	WETLANDS	404
UPOW	36.572077	-79.056438	43379 SQ_FT	WETLANDS	404
U1	36.569975	-79.059428	72 FOOT	WOUS	404
VPEM	36.569513	-79.055236	5299 SQ_FT	WETLANDS	404
VPOW	36.570971	-79.055702	42817 SQ_FT	WETLANDS	404
V1	36.564941	-79.046827	381 FOOT	WOUS	404
WPFO	36.567688	-79.056551	1417 SQ_FT	WETLANDS	404
WPEM	36.568691	-79.055961	1656 SQ_FT	WETLANDS	404
WPOW	36.568385	-79.05645	51448 SQ_FT	WETLANDS	404
W1	36.569513	-79.055236	2775 FOOT	WOUS	404
X	36.569046	-79.054537	7536 SQ_FT	WETLANDS	404
X1	36.569811	-79.057754	336 FOOT	WOUS	404
Y	36.569251	-79.052524	6223 SQ_FT	WETLANDS	404
Y1	36.570255	-79.05759	120 FOOT	WOUS	404
Z	36.569459	-79.053255	3736 SQ_FT	WETLANDS	404
Z1	36.565865	-79.045376	464 FOOT		404

1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.

2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

- [x] Maps, plans, plots or plat submitted by or on behalf of the PJD requestor: Map: Timmons Group.
- [x] Data sheets prepared/submitted by or on behalf of the PJD requestor.
  - [x] Office concurs with data sheets/delineation report.
  - [ ] Office does not concur with data sheets/delineation report. Rationale: _____.
- [ ] Data sheets prepared by the Corps: _____.
- [ ] Corps navigable waters' study: _____.
- [x] U.S. Geological Survey Hydrologic Atlas: 03010104
  - [ ] USGS NHD data.
  - [x] USGS 8 and 12 digit HUC maps.
- [x] U.S. Geological Survey map(s). Cite scale & quad name: 1"=24,000' - Alton
- [x] Natural Resources Conservation Service Soil Survey. Citation: Web Soil Survey 2019
- [x] National wetlands inventory map(s). Cite name: COE GIS
- [ ] State/local wetland inventory map(s): _____.
- [ ] FEMA/FIRM maps: _____.
- [ ] 100-year Floodplain Elevation is: ____. (National Geodetic Vertical Datum of 1929)
- [x] Photographs: [x] Aerial (Name & Date): Corps GIS. or [ ] Other (Name & Date): _____.
- [ ] Previous determination(s). File no. and date of response letter: _____.
- [ ] Other information (please specify): _____.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Digitally signed by VANDERPLOEG.STEVEN.A.1389363252
Date: 2020.08.11 16:47:20 -04'00'

Signature and date of Regulatory staff member completing PJD

James A Crawford Jr

Signature and date of person requesting PJD (REQUIRED, unless obtaining the signature is impracticable)[1]

[1] Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

PREPARED FOR:
URBAN GRID SOLAR PROJECTS, LLC
337 LOG CANOE CIRCLE
STEVENSVILLE, MD 21666

ALTON POST OFFICE SOLAR FACILITY

JURISDICTIONAL WATERS OF THE U.S. DELINEATION PACKAGE

FEBRUARY 2020

PREPARED BY:
TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.
1001 BOULDERS PARKWAY, SUITE 300
RICHMOND, VIRGINIA 23225
PHONE: 804.200.6500
FAX: 804.560.1648
WWW.TIMMONS.COM

TIMMONS GROUP PROJECT NO. 39225

EXECUTIVE SUMMARY

On behalf of Urban Grid Solar Projects, LLC, Timmons Group environmental scientists Dan Cox, Hunter Wines, Melissa Davis, and Ben Crumrine conducted a field delineation on January 20-21, 2020 to identify jurisdictional Waters of the U.S. (WOTUS) and wetlands within the project study limits of the Alton Post Office Solar Facility site (Site).

The Site is comprised of three parcels and encompasses approximately 299.3 acres of land located in southern Halifax County. It is bound by mixed pine-hardwood forest to the north and south and active agriculture to the east and west. The majority of the Site consists of active agriculture and mixed pine-hardwood forest. Mt Carmel Rd intersects the middle of the project limits. In addition, the project area includes a utility easement that runs between two previously confirmed Alton Post Office parcels (NAO-2017-02134). The property is located within the Lower Dan River watershed (HUC 03010104) and is drained by Lawsons Creek and unnamed tributaries of Winns Creek flowing north into the Dan River (see Figure 1: Vicinity Map).

The Site was delineated based upon the methodology outlined in the 1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual, the Regional Supplement to the USACE Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0), and subsequently issued USACE regulatory guidance regarding the identification of jurisdictional stream channels through the recognition of field indicators of an ordinary high water mark within drainage features. Using these methodologies, preliminary delineation mapping was produced and is included along with the attached Site description and discussion for your review. During our delineation, approximately 3.04 acres of palustrine forested (PFO) wetlands, 0.04 acres of palustrine scrub-shrub (PSS) wetlands, 2.59 acres of palustrine emergent (PEM) wetlands, and 10.13 acres of palustrine open water (POW) jurisdictional area were identified onsite. In addition, 8134 linear feet of perennial stream (R3), 3180 linear feet of intermittent stream (R4), and 1451 linear feet of ephemeral stream (R6) were identified onsite.

JURISDICTIONAL WATERS OF THE U.S. DELINEATION PACKAGE
ALTON POST OFFICE SOLAR FACILITY

TABLE OF CONTENTS

MAPS

APPENDICES

1.0 PROJECT INFORMATION SHEET

General

Project Name:	Alton Post Office Solar Facility
State:	Virginia
County:	Halifax
Latitude:	36.572740
Longitude:	-79.055127
Subject Property Size:	+/-299.3 acres
HUC Code:	03010104 (Lower Dan River Watershed)
Waterbodies (TNW):	Lawsons Creek, unnamed tributaries of Lawsons Creek, and unnamed tributaries of Winns Creek

Corresponding Information

USGS Quad:	Alton, 2016
USDA Soils Map:	http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm Alton, VA

Owner/Applicant

Name:	Urban Grid Solar Projects, LLC
Address:	337 Log Canoe Circle Stevensville, MD 21666
Contact:	James Crawford

Consultant

Name:	Timmons Group
Address:	1001 Boulders Parkway, Suite 300 Richmond, VA 23225
Telephone:	(804) 200-6500
Contacts:	Ben Crumrine: (804) 200-6370 Dan Cox: (804) 200-6512

2.0 INTRODUCTION

On behalf of Urban Grid Solar Projects, LLC, Timmons Group environmental scientists Dan Cox, Hunter Wines, Melissa Davis, and Ben Crumrine conducted a delineation on January 20-21, 2020 to identify Waters of the U.S. (WOTUS) and wetlands within the project study limits of the Alton Post Office Solar Facility Property (Site).

3.0 SITE INFORMATION

3.1 Site Location

The Site is comprised of three parcels and encompasses approximately 299.3 acres of land located off of Mt Carmel Rd in southern Halifax County, Virginia (see Figure 1: Vicinity Map). It is located within the Lower Dan River watershed (HUC 03010104) and is drained by Lawsons Creek and unnamed tributaries of both Lawson Creek and Winns Creek, flowing north into the Lower Dan River (see Figure 2: Hydrologic Unit Code Map). In addition, a utility easement, included in the project area, is located between two previously confirmed parcels (NAO-2017-02134) The property is located in the Piedmont physiographic province.

3.2 Site Description

The majority of the Site consists of active agriculture and mixed pine-hardwood forest. Current land use is dominated by cattle grazing, and a number of ponds have been created throughout the study area. The Site is bound by mixed pine-hardwood forest to the north and south and active agriculture to the east and west. Mt Carmel Rd intersects the middle of the project limits. The majority of the Site consists of active cattle pasture and, to a smaller extent, mixed pine-hardwood forest. (see Figure 3: Environmental Inventory Map).

4.0 METHODS OF DELINEATION

4.1 Preliminary Offsite Investigation/Data Review

A review of publicly available resources was performed prior to the onsite field investigation in order to determine if there is the potential for jurisdictional areas, and if present, the extent of these areas located within the project area. These mapping resources generally include but are not limited to the United States Geological Survey (USGS) maps, the U.S. Department of Agriculture Natural Resource Conservation Service (NRCS) soils database, and the U.S. Fish & Wildlife Service National Wetlands Inventory (NWI) database.

4.2 Field Investigation

The Site was delineated based upon the methodology outlined in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual, the Regional Supplement to the USACE Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0), and subsequently issued USACE regulatory guidance regarding the identification of jurisdictional stream channels through the recognition of field indicators of an ordinary high water mark within drainage features.

The wetland boundary was flagged with consecutively numbered pink and black ribbon at approximately 50-ft intervals. Field data stations were established within close proximity to the flagged wetland boundary, usually within 10 to 20 feet, in order to document upland and wetland conditions existing along the jurisdictional boundary. Field data stations were labeled and marked with blue flagging in the field. Features identified in the field were GPS-located for the study area. Photographs were taken of the field data stations to depict existing site conditions along the delineation boundary. Field data sheets are included in Appendix A. Site photographs collected during the field delineation are available upon request.

5.0 DELINEATION FINDINGS

5.1 Preliminary Off-site Investigation/Data Review Findings

The USGS map depicts three parcels connected by previously confirmed property (NAO-2017-02134), stretching from west to east. The western two parcels, positioned around the upland ridgeline between the Lawsons and Winns Creek watersheds, make up the bulk of the acreage onsite. The easternmost parcel consists of a narrow access corridor running east to west out of the headwater draw associated with Lawsons Creek to the high ground at Alton Post Office Rd. The Site's western two parcels have a topographic high of approximately 573 ft above mean sea level (AMSL), while the eastern parcel rises to an elevation of approximately 580 ft AMSL. These highpoints onsite transition to lower elevations of approximately 470 ft AMSL in the topographical draws associated with Lawsons and Winns Creek watersheds. Streams throughout the study area ultimately drain off-site to the north into the Lower Dan River (see Figure 1: Vicinity Map).

The NRCS soils mapping identifies eleven distinct soil series/complexes within the Site. Of the soil series/complexes identified onsite, none are documented as being hydric in Halifax County, while one soil, Codorus and Hatboro soils (14A), is documented as being partially hydric. This partially hydric soil is described as frequently flooded and somewhat poorly drained with a very shallow depth to water table. The upland soils onsite are generally described as being well-drained and soil textures include sandy loam, loam, and clay loam (see Figure 3: Environmental Inventory Map).

NHD and NWI mapping depict streams and wetlands associated with two primary watersheds: The western system associated with Winns Creek has two streams onsite with small pockets of floodplain palustrine forested (PFO) wetlands. The primary central drainage associated with Lawsons Creek shows headwater PFO wetlands and first order tributaries draining to Lawsons Creek along the parcel's eastern boundary and intersecting the western portion of the Site's easternmost parcel (see Figure 3: Environmental Inventory Map).

5.2 Onsite Determination/Findings

5.2.1 Jurisdictional Area Summary

The onsite delineation verified the presence of wetlands and hydric soils depicted on the NWI and Soil Survey mapping and determined the wetland systems to be more extensive than

mapped. A summary of the jurisdictional areas identified onsite is provided below in Table 1: Jurisdictional Areas Summary. The location and size of jurisdictional areas delineated onsite are shown on Figure 4: Wetlands and Waters of the U.S. Delineation Map.

Table 1: Jurisdictional Area Summary

Area Description	Area Size (acres)	PFO (acres)	PSS (acres)	PEM (acres)	POW (acres)	R3 Streams (lf)	R4 Streams (lf)	R6 Streams (lf)
Alton Post Office Solar Facility	299.3	3.04	0.04	2.59	10.13	8,134	3,180	1,451

Notes:
1) PFO = palustrine forested wetlands, PSS = palustrine scrub-shrub wetlands, PEM = palustrine emergent wetlands, R3 = upper perennial streams, R4 = intermittent streams, R6 = ephemeral streams, and lf = linear feet.
2) Jurisdictional area acreages are preliminary based on field delineation and have not been confirmed or surveyed.

5.2.1.1 Jurisdictional Area Vegetation

The dominant vegetation within the tree and sapling strata of the wetlands onsite consisted primarily of river birch (*Betula nigra*), American sycamore (*Platanus occidentalis*), and sweetgum (*Liquidambar styraciflua*). The dominant species within the shrub stratum included musclewood (*Carpinus caroliniana*) and river birch. The herbaceous stratum within wetland areas was most often comprised of Japanese stiltgrass (*Microstegium vimineum*) and Jimsonweed (*Datura stramonium*). The woody vine stratum within wetlands was most often represented by muscadine grape (*Vitis rotundifolia*) and common greenbrier (*Smilax rotundifolia*).

5.2.1.2 Jurisdictional Area Hydrology

Primary hydrology indicators observed within the jurisdictional areas included surface water (A1), high water table within the upper 10 inches of the soil (A2), soil saturation (A3), drift deposits (B3), drift deposits (B3), water-stained leaves (B9), and oxidized rhizospheres on living roots (C3). Secondary hydrology indicators observed across the Site included drainage patterns (B10), geomorphic position (D2), and hydrophytic vegetation abundance that meets the FAC-neutral test (D5).

5.2.1.3 Jurisdictional Area Soils

Soils within the wetland areas onsite exhibited low chroma matrix colors and concentrations that are characteristic of reducing anaerobic conditions associated with the formation of hydric soils. Wetland soils were typically very dark grayish brown (10YR 3/2) within the upper 2 inches. Jurisdictional soils were generally underlain by light brownish gray (10YR 6/2) down to 18 inches. Redox concentrations greater than 5% were observed between 2 and 18 inches below soil surface and were typically strong brown (7.5YR 5/6), yellowish brown (10YR 5/6, 10YR 5/8), or dark yellowish brown (10YR 4/6). The soils most frequently met the F3 Depleted Matrix hydric soil indicator. Textures within jurisdictional

areas included fine sandy loam, silt loam, loam, and clay loam. Field data sheets are included in Appendix A and provide additional detail regarding the representative soils within wetlands.

5.3.1 Upland Area Summary

During the field investigation of the subject property, approximately 283.5 acres of upland or non-jurisdictional areas were identified onsite. The majority of the upland areas located within the subject property are characterized by active cattle pasture and mixed pine-hardwood forest (see Figure 3: Environmental Inventory Map). Upland soils were typically brown (10YR 4/3) or dark brown (7.5YR 3/3) within the upper 1 to 8 inches and underlain by pale brown (10YR 6/3) to reddish brown (5YR 5/4) soils below 1 to 8 inches. Soil textures include sandy loam, loam, and clay loam. The mapped soils present within the Site are depicted on Figure 3: Environmental Inventory Map. Few to no indicators of wetland hydrology were observed within the upland areas. The location and size of upland areas delineated onsite are shown on Figure 4: Wetlands and Waters of the U.S. Delineation Map.

6.0 REFERENCES

United States Army Corps of Engineers. 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0). ERDC/EL TR-10-09. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. *Classification of wetlands and deepwater habitats of the United States*. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.

National List of Hydric Soils 2010, United States Department of Agriculture Natural Resource Conservation Service, http://soils.usda.gov/use/hydric/

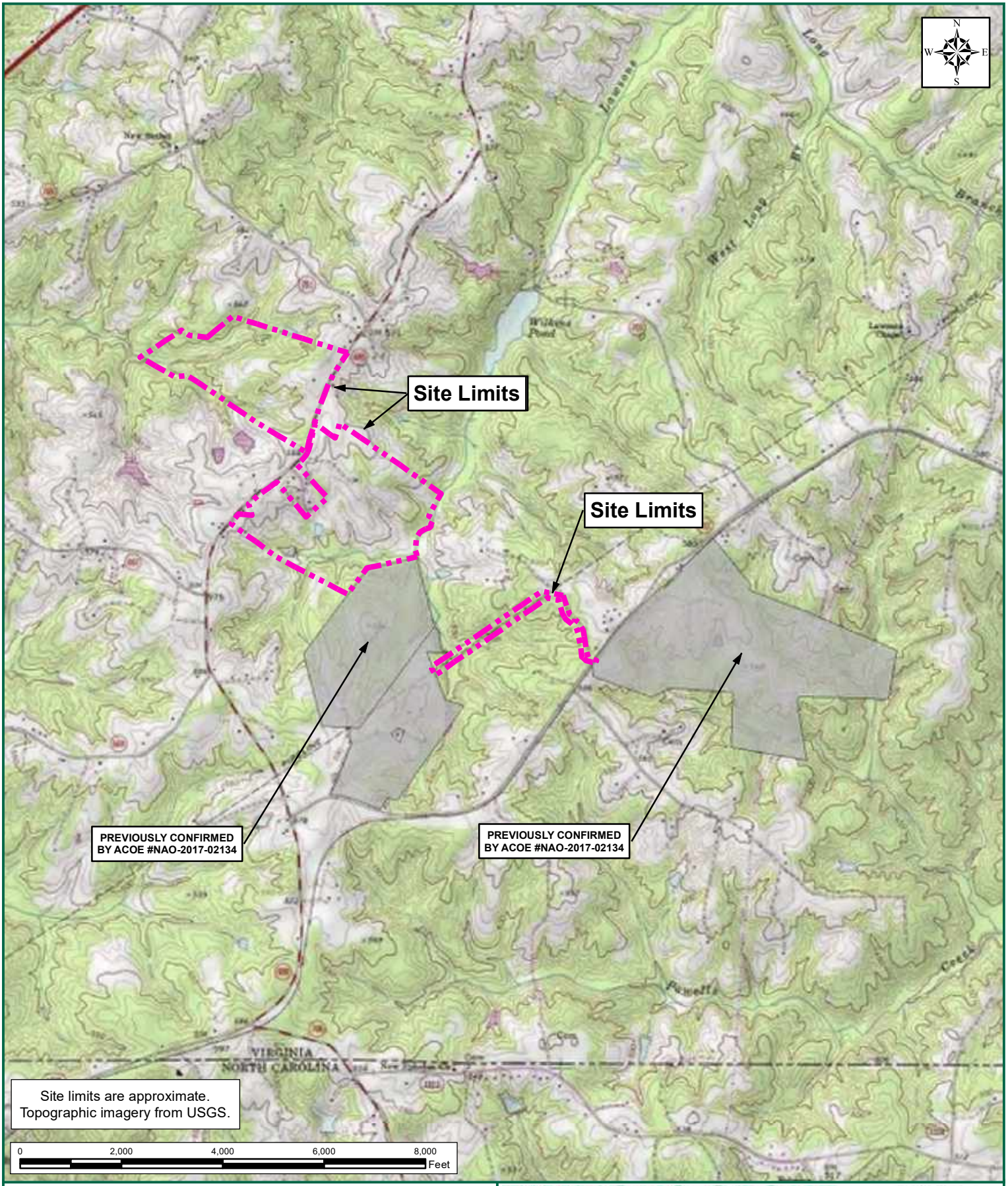
United States Department of Agriculture. Natural Resources Conservation Service http://websoilsurvey.nrcs.usda.gov/app/

United States Fish and Wildlife Service. National Wetlands Inventory http://www.fws.gov/nwi/

Wetland Training Institute. 1995. Field Guide for Wetland Delineation: 1987 Corps of Engineers Manual, Wetland Training Institute, Glenwood, NM, USA.

MAPS

Path: Y:\804\39225-Alton Post Office_Solar\GIS\Common Shared Exhibits\AdditionalParcel2020\39225-VIC-2020.mxd



ALTON POST OFFICE SOLAR

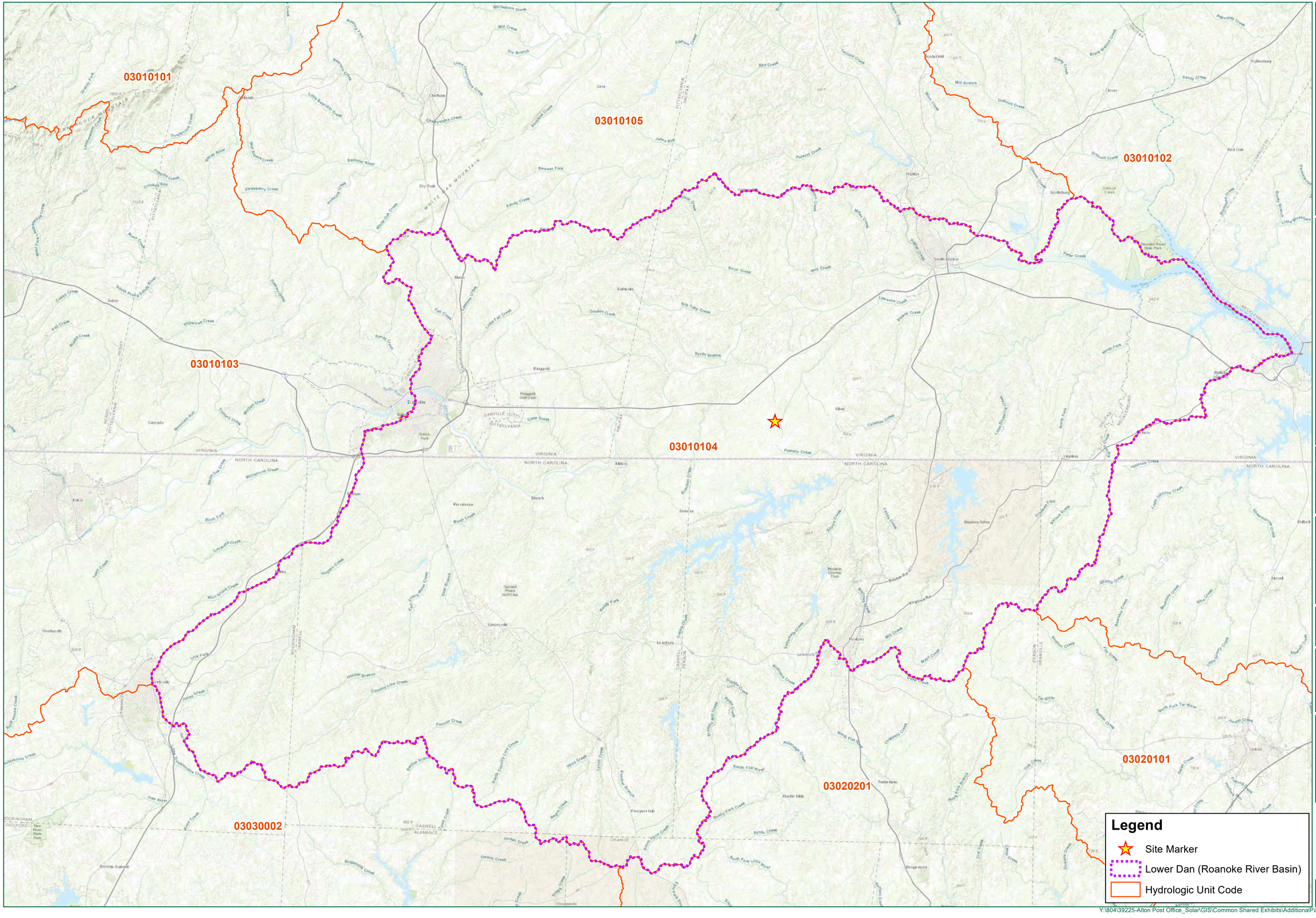
HALIFAX COUNTY, VIRGINIA

FIGURE 1: VICINITY MAP

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

TIMMONS GROUP JOB NUMBER: *39225*
PROJECT STUDY LIMITS: *299.3 ACRES*
LATITUDE: *36.572740*
LONGITUDE: *-79.055127*

U.S.G.S. QUADRANGLE(S): *ALTON*
DATE(S): *2016*
WATERSHED(S): *LOWER DAN (ROANOKE RIVER BASIN)*
HYDROLOGIC UNIT CODE(S): *03010104*



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TEL 804.200.6500
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PROJECT NAME & LOCATION

ALTON POST OFFICE SOLAR

HALIFAX COUNTY, VIRGINIA

DATE 01/14/2020

PROJECT NUMBER 39225

PROJECT NAME ALTON POST OFFICE SOLAR

DESIGNED BY / DRAWN BY K. SCHMIDT

NOTES:
Site marker is approximate.
HUC from USGS.
Topographic basemap from Esri Online.

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

FIGURE 2:
HYDROLOGIC
UNIT CODE MAP

PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE H: 1 " = 2 Miles

SHEET NUMBER 1

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Halifax County Soils	
Mapunit Symbol	**Mapunit Name**
14A	Codorus and Hatboro soils, 0 to 2 percent slopes, frequently flooded
19C	Devotion-Rhodhiss complex, 4 to 15 percent slopes
19D	Devotion-Rhodhiss complex, 15 to 25 percent slopes
21D	Fairview sandy loam, 15 to 25 percent slopes
24B	Halifax sandy loam, 2 to 8 percent slopes
24C	Halifax sandy loam, 8 to 15 percent slopes
36B	Nathalie sandy loam, 2 to 8 percent slopes
36C	Nathalie sandy loam, 8 to 15 percent slopes
37C	Oak Level loam, 8 to 15 percent slopes
3C	Bentley loamy sand, 8 to 15 percent slopes
40B	Rasalo-Orange complex, 2 to 8 percent slopes
43B	Spriggs-Rasalo complex, 2 to 8 percent slopes
43C	Spriggs-Rasalo complex, 8 to 15 percent slopes
43D	Spriggs-Rasalo complex, 15 to 25 percent slopes
48D	Toast sandy loam, 15 to 25 percent slopes
8B	Clifford sandy loam, 2 to 8 percent slopes
8C	Clifford sandy loam, 8 to 15 percent slopes
9B3	Clifford clay loam, 2 to 8 percent slopes, severely eroded
9C3	Clifford clay loam, 8 to 15 percent slopes, severely eroded
W	Water

PREVIOUSLY CONFIRMED BY ACOE #NAO-2017-02134

PREVIOUSLY CONFIRMED BY ACOE #NAO-2017-02134

Piney Grove Rd
Mt Carmel Rd
Coleman Dr
Dawson Trl
Alton Post Office Rd
Emergency Rd
Mason Chapel Rd
Hendricks Ln
McCamellan

Legend

- Project Limits - 299.3 Acres
- National Hydrography Dataset
- National Wetlands Inventory

Hydric Soils Classification

- All Hydric
- Not hydric
- Partially Hydric

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PROJECT NAME & LOCATION

ALTON POST OFFICE SOLAR

HALIFAX COUNTY, VIRGINIA

DATE 01/15/2020

PROJECT NUMBER 39225

PROJECT NAME ALTON POST OFFICE SOLAR

DESIGNED BY / DRAWN BY K. SCHMIDT

NOTES:
Project Limits are approximate.
NWI from US Fish and Wildlife Service.
Soils data from SSURGO. National Hydrography Dataset from USGS.
Aerial imagery from VGIN.

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION

FIGURE 3: ENVIRONMENTAL INVENTORY MAP

SCALE (FEET)

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PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE H:1 " = 600 '

SHEET NUMBER 1

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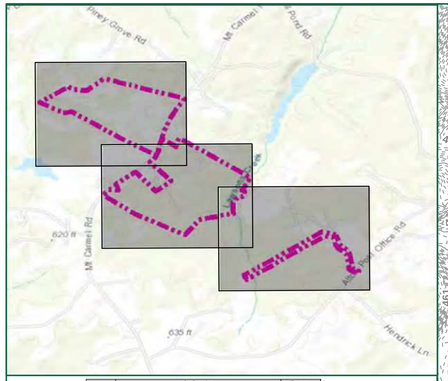
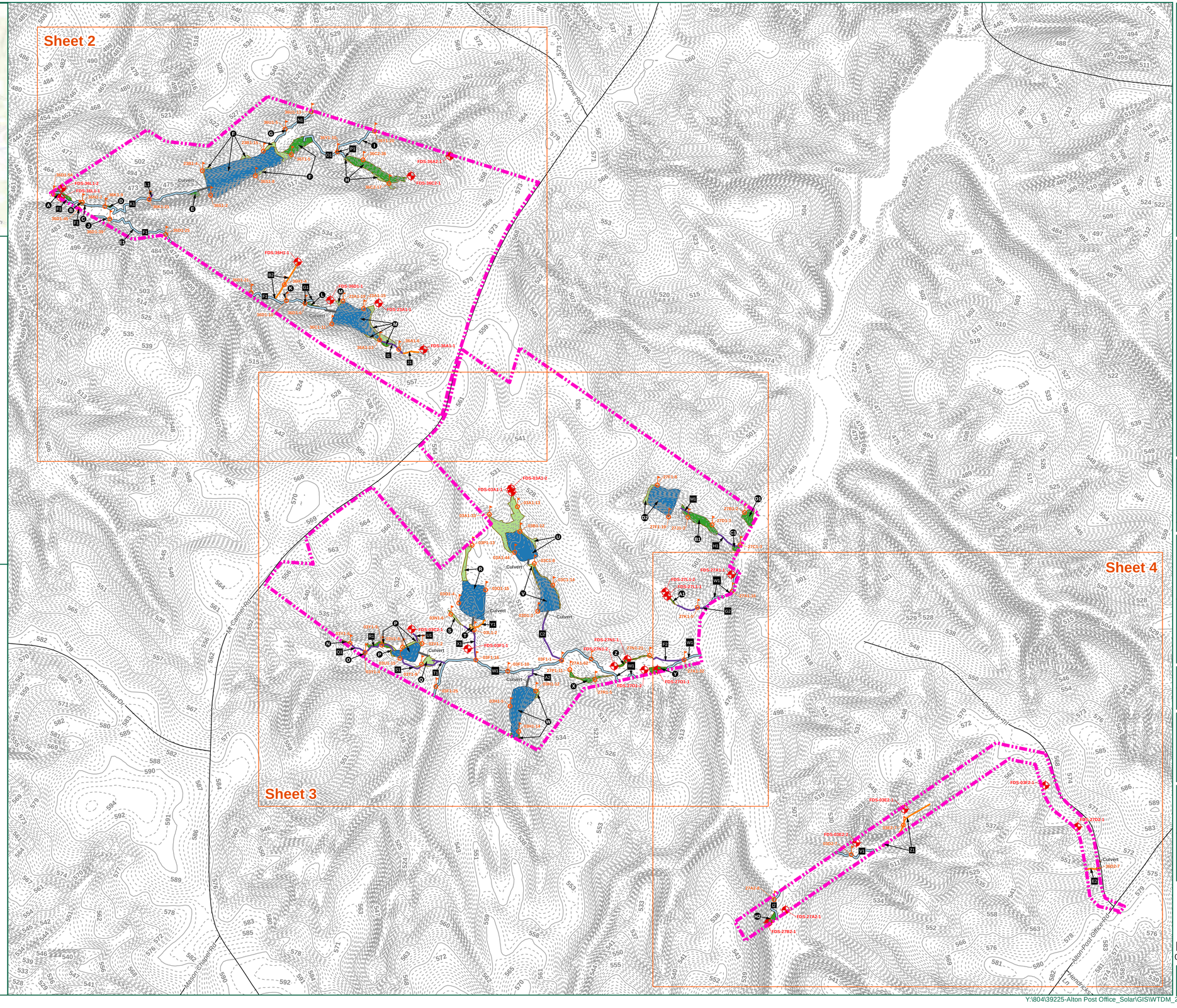


Resource Identification	Confirmation									Resource Description Notes*
	PFO: (sq ft)	PSS: (sq ft)	PEM: (sq ft)	POW: (sq ft)	R3: (ft)	R4: (ft)	R6: (ft)	Ditch: (ft)		
A	9,097									NT/V
B	561									NT/V
C	834									NT/V
D	1,065									NT/V
E	3,375									NT/V
F	18,422		12,936	117,764						NT/V; NT/NV
G	851									NT/V
H	29,868		4,451							NT/V
I	170									NT/V
J	297									NT/V
K	166									NT/V
L	2,246									NT/V
M	2,209		13,494	61,951						NT/V; NT/NV
N	591									NT/V
O	743									NT/V
P	5,158		5,356	22,697						NT/V; NT/NV
Q			7,898							NT/V;
R			8,805	55,517						NT/V; NT/NV
S			2,412							NT/V
T		1,699	754							NT/V
U			45,979	43,379						NT/V; NT/NV
V			5,288	42,617						NT/V; NT/NV
W	1,417		1,656	51,448						NT/V; NT/NV
X	7,534									NT/V
Y	6,223									NT/V
Z	3,736									NT/V
A1	1,028									NT/V
B1	18,990									NT/V
C1	2,657									NT/V
D1	9,664									NT/V
E1	132									NT/V
F1					1,883					NT/NV
G1					69					NT/NV
H1						230				NT/NV
I1						227				NT/NV
J1							141			NT/NV
K1					1,380					NT/NV
L1						46				NT/NV
M1						83				NT/NV
N1					433					NT/NV
O1					847					NT/NV
P1					83					NT/NV
Q1						153				NT/NV
R1						345				NT/NV
S1						363				NT/NV
T1						106				NT/NV
U1						72				NT/NV
V1					381					NT/NV
W1					2,775					NT/NV
X1						336				NT/NV
Y1							120			NT/NV
Z1							464			NT/NV
A2						185				NT/NV
B2						11	350			NT/NV
C2						488				NT/NV
D2			4,243	45,753						NT/NV
E2							106			NT/NV
F2						265				NT/NV
G2						290				NT/NV
H2	4,436									NT/V
I2					392					NT/NV
J2							270			NT/NV
Total	**132,354**	**1,699**	**113,025**	**441,325**	**8,134**	**3,180**	**1,451**	**0**		
Total Wetland Area =	**688,404 sq ft**				**15.80 ac**					
Total Stream Length =	**12,764 lf**									

* T=Tidal; NT=Non-tidal; V=Vegetated; NV=Non-Vegetated; PFO=Palustine Forested Wetland; PSS=Palustine Scrub-Shrub Wetland; PEM=Palustine Emergent Wetland; POW= Palustine Open Water; EM= Estuarine Intertidal Wetlands; R3= Upper Perennial Streams; R4=Intermittent Streams; R6 = Ephemeral Streams

Legend

- Project Study Limits - 299.3 Acres
- Stream Identifier
- Wetland Identifier
- Flag
- Field Data Station
- Culvert
- Perennial Stream (R3)
- Intermittent Stream (R4)
- Ephemeral Stream (R6)
- Palustrine Emergent (PEM) Wetlands
- Palustrine Forested (PFO) Wetlands
- Palustrine Scrub-Shrub (PSS) Wetlands
- Palustrine Open Water (POW)



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PROJECT NAME & LOCATION

ALTON POST OFFICE
HALIFAX COUNTY, VIRGINIA

DATE: 01/22/2020

PROJECT NUMBER: 39225

PROJECT NAME: ALTON POST OFFICE

DESIGNED BY / DRAWN BY: K. SCHMIDT

1. Waters of the U.S. within the project study limits have been located using submeter, Bluetooth GPS antennas by Timmons Group.
2.Waters of the U.S. have not been confirmed by the U.S. Army Corps of Engineers until stamped.
3. Project limits are approximate.
4. Topography based on USGS LiDAR.
5. Cowardin Stream Classifications are based solely on field observations. No formal Stream assessment methodology was completed to determine these Cowardin Classifications.

REVISIONS

#	MM/DD/YY:	DESCRIPTION

DRAWING DESCRIPTION

FIGURE 4: WETLANDS AND WATERS OF THE U.S. DELINEATION MAP

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PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE	SHEET NUMBER
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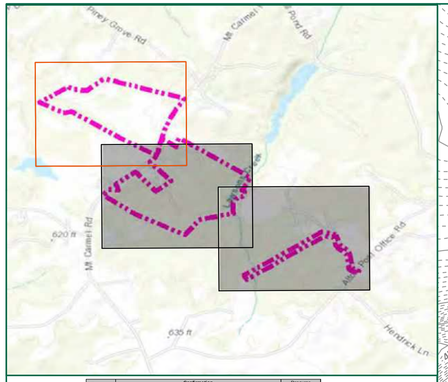

Resource Identification	Confirmation								Resource Description Notes*
	PFO: (sq ft)	PSS: (sq ft)	PEM: (sq ft)	POW: (sq ft)	R3: (lf)	R4: (lf)	R6: (lf)	Ditch: (lf)	
A	9,097								NT/V
B	551								NT/V
C	834								NT/V
D	1,065								NT/V
E	3,375								NT/V
F	18,422		12,938	117,764					NT/V, NT/NV
G	851								NT/V
H	29,858		4,451						NT/V
I	170								NT/V
J	297								NT/V
K	166								NT/V
L	2,246								NT/V
M	2,209		13,494	61,951					NT/V, NT/NV
N	561								NT/V
O	743								NT/V
P	5,108		5,356	22,697					NT/V, NT/NV
Q			7,898						NT/V
R			8,805	55,517					NT/V, NT/NV
S			2,412						NT/V
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V			5,289	42,617					NT/V, NT/NV
W	1,417		1,656	51,448					NT/V, NT/NV
X	7,534								NT/V
Y	6,223								NT/V
Z	3,736								NT/V
A1	1,028								NT/V
B1	18,990								NT/V
C1	2,657								NT/V
D1	9,664								NT/V
E1	132								NT/V
F1					1,863				NT/NV
G1					69				NT/NV
H1						230			NT/NV
I1						227			NT/NV
J1							141		NT/NV
K1					1,380				NT/NV
L1						46			NT/NV
M1						83			NT/NV
N1					433				NT/NV
O1					847				NT/NV
P1					83				NT/NV
Q1						153			NT/NV
R1						345			NT/NV
S1						363			NT/NV
T1						106			NT/NV
U1						72			NT/NV
V1					381				NT/NV
W1					2,775				NT/NV
X1						336			NT/NV
Y1							120		NT/NV
Z1							464		NT/NV
A2						165			NT/NV
B2						11	350		NT/NV
C2						488			NT/NV
D2			4,243	45,753					NT/NV
E2							106		NT/NV
F2						265			NT/NV
G2						290			NT/NV
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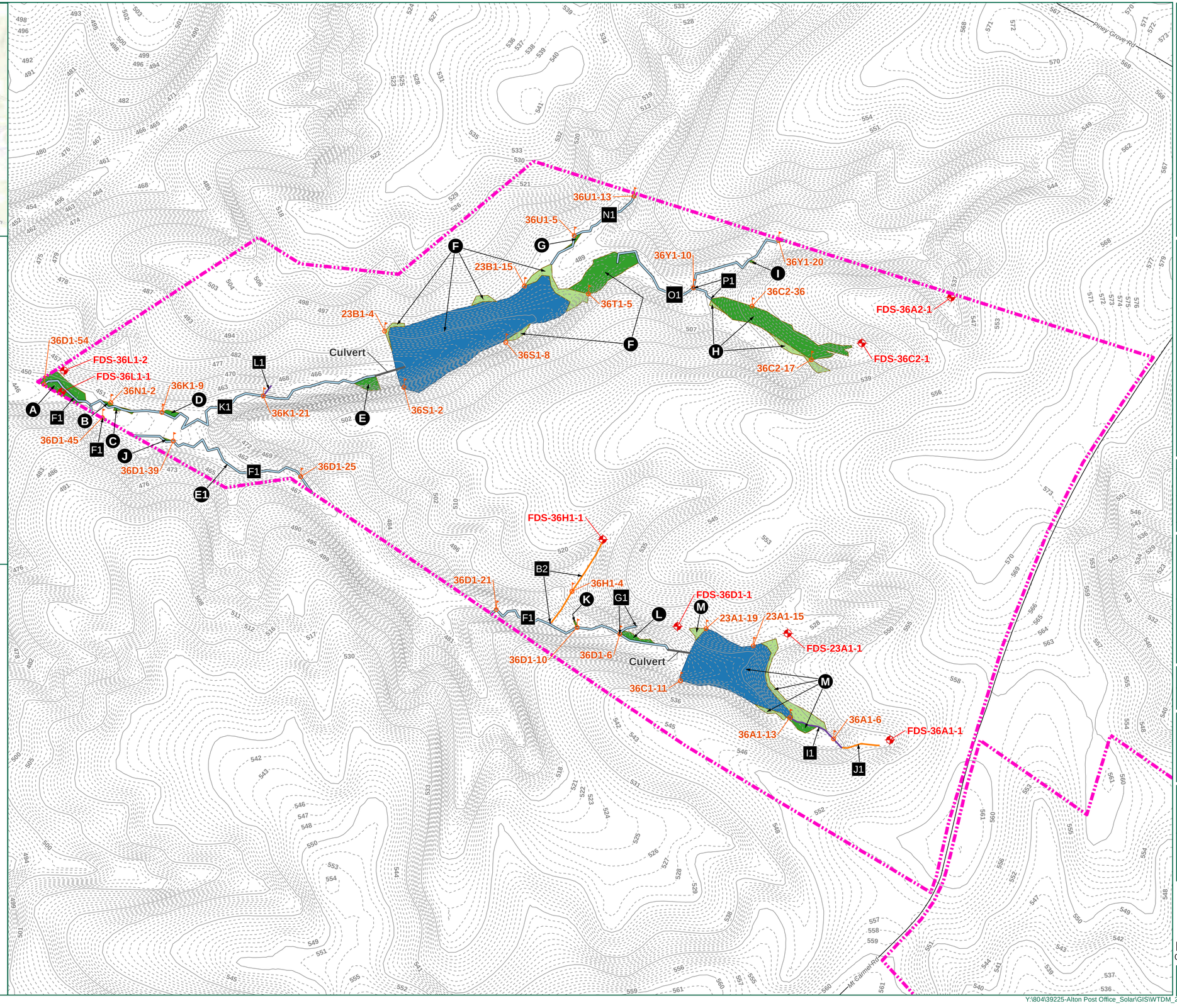
I2					282				NT/NV
J2							270		NT/NV
Total	132,354	1,699	113,029	441,325	8,134	3,180	1,451	0	
Total Wetland Area =	688,404 sq ft				15.80 ac				
Total Stream Length =	12,764 lf								

* T=Tidal; NT=Non-tidal; V=Vegetated; NV=Non-Vegetated; PFO=Palustrine Forested Wetland; PSS=Palustrine Scrub-Shrub Wetland; PEM=Palustrine Emergent Wetland; POW= Palustrine Open Water; EM= Estuarine Intertidal Wetlands; RS= Upper Perennial Streams; Re=Intermittent Streams; R6 = Ephemeral Streams

Legend

- Project Study Limits - 299.3 Acres
- Stream Identifier
- Wetland Identifier
- Flag
- Field Data Station
- Culvert
- Perennial Stream (R3)
- Intermittent Stream (R4)
- Ephemeral Stream (R6)
- Palustrine Emergent (PEM) Wetlands
- Palustrine Forested (PFO) Wetlands
- Palustrine Scrub-Shrub (PSS) Wetlands
- Palustrine Open Water (POW)



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www.timmons.com

PROJECT NAME & LOCATION

ALTON POST OFFICE
HALIFAX COUNTY, VIRGINIA

DATE 01/22/2020

PROJECT NUMBER 39225

PROJECT NAME ALTON POST OFFICE

DESIGNED BY / DRAWN BY K. SCHMIDT

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5. Cowardin Stream Classifications are based solely on field observations. No formal Stream assessment methodology was completed to determine these Cowardin Classifications.

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION
FIGURE 4:
WETLANDS AND WATERS OF THE U.S. DELINEATION MAP

SCALE (FEET)
0 170 340
PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE H:1 " = 175 '

SHEET NUMBER 2 of 4

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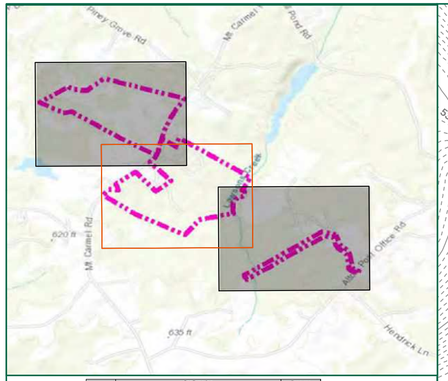

Resource Identification	Confirmation									Resource Description Notes*
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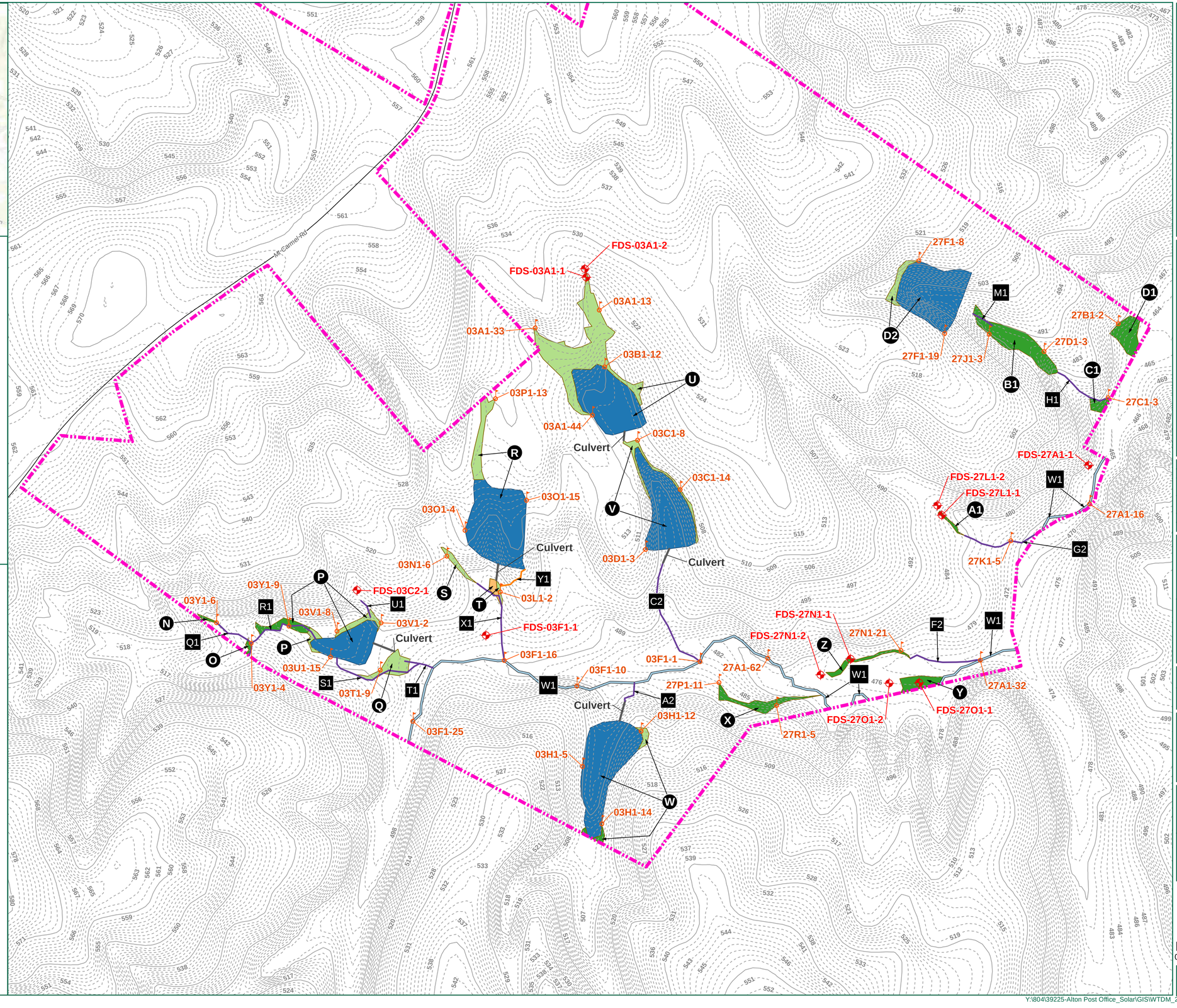
B	991									NT/V
C	834									NT/V
D	1,065									NT/V
E	3,375									NT/V
F	18,422		12,936	117,764						NT/V, NT/NV
G	851									NT/V
H	29,858		4,451							NT/V
I	170									NT/V
J	297									NT/V
K	166									NT/V
L	2,246									NT/V
M	2,209		13,494	61,951						NT/V, NT/NV
N	591									NT/V
O	743									NT/V
P	5,108		5,356	22,697						NT/V, NT/NV
Q			7,898							NT/V
R			8,805	55,517						NT/V, NT/NV
S			2,412							NT/V
T		1,699	754							NT/V
U			45,979	43,379						NT/V, NT/NV
V			5,299	42,617						NT/V, NT/NV
W	1,417		1,656	51,448						NT/V, NT/NV
X	7,536									NT/V
Y	6,223									NT/V
Z	3,736									NT/V
A1	1,028									NT/V
B1	18,990									NT/V
C1	2,657									NT/V
D1	9,664									NT/V
E1	132									NT/V
F1						1,883				NT/NV
G1						69				NT/NV
H1							230			NT/NV
I1							227			NT/NV
J1								141		NT/NV
K1						1,380				NT/NV
L1							46			NT/NV
M1							83			NT/NV
N1						433				NT/NV
O1						847				NT/NV
P1						83				NT/NV
Q1							153			NT/NV
R1							345			NT/NV
S1							343			NT/NV
T1							106			NT/NV
U1							72			NT/NV
V1						381				NT/NV
W1						2,775				NT/NV
X1							336			NT/NV
Y1								120		NT/NV
Z1								464		NT/NV
A2							185			NT/NV
B2							11	350		NT/NV
C2							488			NT/NV
D2			4,243	45,753						NT/NV
E2								106		NT/NV
F2							265			NT/NV
G2							290			NT/NV
H2	4,436									NT/V
I2						282				NT/NV
J2								270		NT/NV
Total	**132,354**	**1,699**	**113,025**	**441,325**	**8,134**	**3,180**	**1,451**	**0**		
Total Wetland Area =	**685,404 sq ft**									
	15.80 ac									
Total Stream Length =	**12,764 lf**									

* T=Total, NT=Non-tidal, V=Vegetated, NV=Non-Vegetated, PFO=Palustrine Forested Wetland, PSS=Palustrine Scrub-Shrub Wetland, PEM=Palustrine Emergent Wetland, POW= Palustrine Open Water, EM= Estuarine Intertidal Wetlands, R3= Upper Perennial Streams, R4=Intermittent Streams, R6 = Ephemeral Streams

Legend

- Project Study Limits - 299.3 Acres
- Stream Identifier
- Wetland Identifier
- Flag
- Field Data Station
- Culvert
- Perennial Stream (R3)
- Intermittent Stream (R4)
- Ephemeral Stream (R6)
- Palustrine Emergent (PEM) Wetlands
- Palustrine Forested (PFO) Wetlands
- Palustrine Scrub-Shrub (PSS) Wetlands
- Palustrine Open Water (POW)



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Richmond, VA 23225
TEL 804.200.6500
www.timmons.com

PROJECT NAME & LOCATION

ALTON POST OFFICE
HALIFAX COUNTY, VIRGINIA

DATE 01/22/2020

PROJECT NUMBER 39225

PROJECT NAME ALTON POST OFFICE

DESIGNED BY / DRAWN BY K. SCHMIDT

1. Waters of the U.S. within the project study limits have been located using submeter, Bluetooth GPS antennas by Timmons Group.
2.Waters of the U.S. have not been confirmed by the U.S. Army Corps of Engineers until stamped.
3. Project limits are approximate.
4. Topography based on USGS LiDAR.
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REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION:
FIGURE 4:
WETLANDS AND WATERS OF THE U.S. DELINEATION MAP

SCALE (FEET)
0 170 340
PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE	SHEET NUMBER
H:1 " = 175 '	3 of 4

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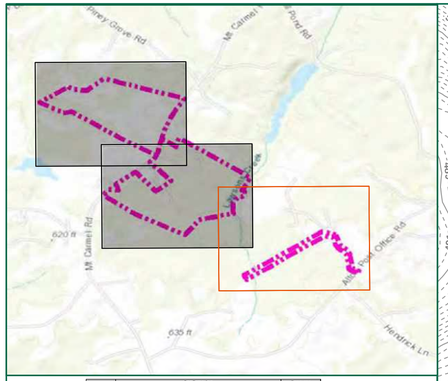

Resource Identification	Confirmation									Resource Description Notes*
	PFO; (sq ft)	PSS (sq ft)	PEM (sq ft)	POW (sq ft)	R3 (ft)	R4 (ft)	R6 (ft)	Ditch (ft)		
A	9,097									NTV
B	561									NTV
C	834									NTV
D	1,065									NTV
E	3,375									NTV
F	18,422		12,936	117,764						NTV; NTNV
G	851									NTV
H	29,858		4,451							NTV
I	170									NTV
J	297									NTV
K	166									NTV
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S1						363				NTNV
T1						106				NTNV
U1						72				NTNV
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E2							106			NTNV
F2						265				NTNV
G2						290				NTNV
H2	4,436									NTV
I2					282					NTNV
J2							270			NTNV
Total	**132,354**	**1,699**	**113,025**	**441,325**	**8,134**	**3,180**	**1,451**	**0**		
Total Wetland Area =			**695,464 sq ft**			**15.90 ac**				
Total Stream Length =			**12,764 lf**							

*T= Total; NT= Non-tidal; V= Vegetated; NV=Non-Vegetated; PFO=Palustrine Forested Wetland; PSS=Palustrine Scrub-Shrub Wetland; PEM=Palustrine Emergent Wetland; POW= Palustrine Open Water; EM= Estuarine Intertidal Wetlands; R3= Upper Perennial Streams; R4=Intermittent Streams; R6 = Ephemeral Streams.

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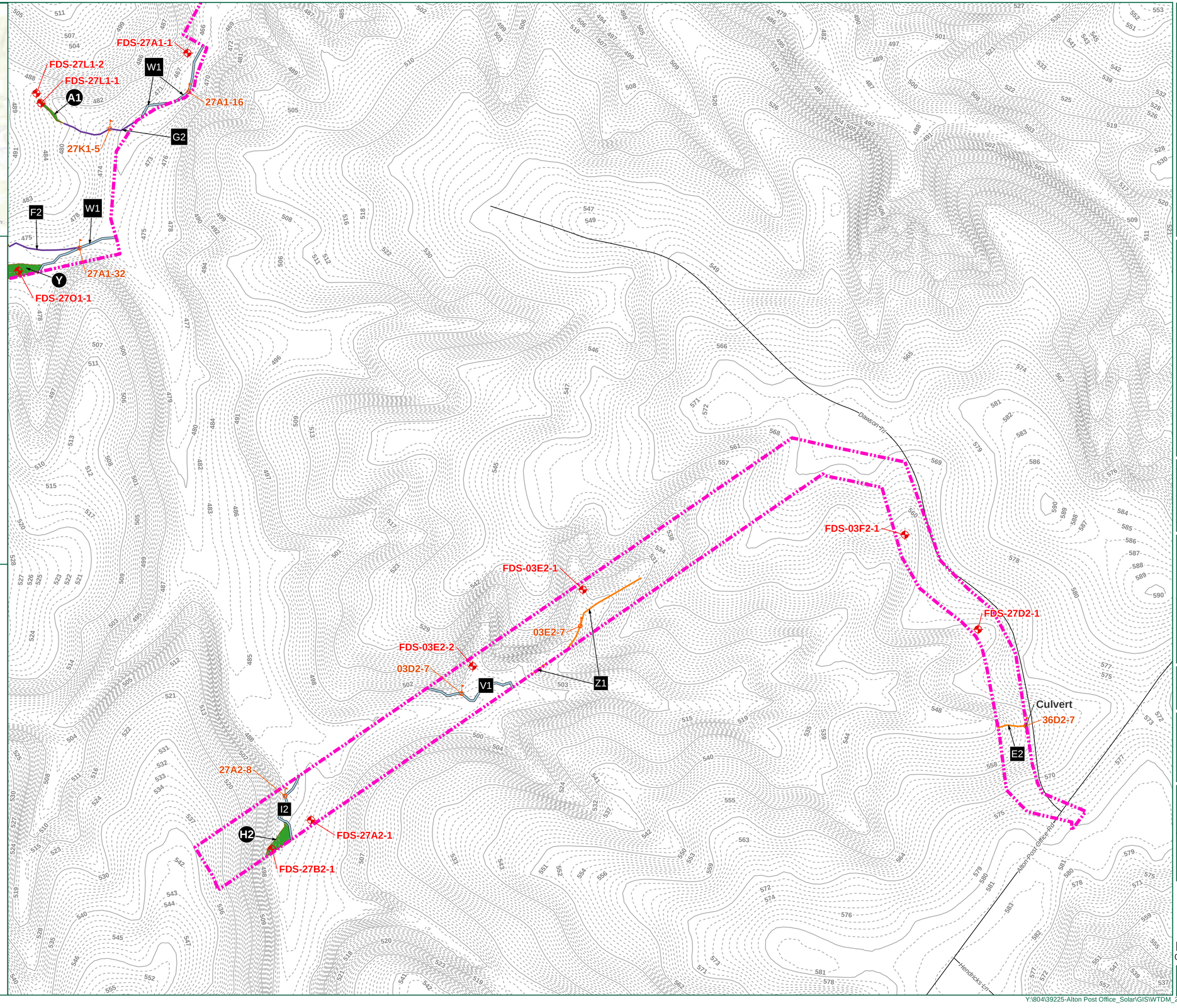

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PROJECT NAME & LOCATION

ALTON POST OFFICE
HALIFAX COUNTY, VIRGINIA

DATE 01/22/2020

PROJECT NUMBER 39225

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DESIGNED BY / DRAWN BY K. SCHMIDT

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DRAWING DESCRIPTION

FIGURE 4:
WETLANDS AND WATERS OF THE U.S. DELINEATION MAP

SCALE (FEET)
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PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE H:1 " = 175 '

SHEET NUMBER 4 of 4

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APPENDIX A
FIELD DATA SHEETS

Field Data Sheets Available Upon Request

APPENDIX B
USACE JD REQUEST FORM

NORFOLK DISTRICT REGULATORY OFFICE PRE-APPLICATION AND/OR JURISDICTIONAL WATERS DETERMINATION REQUEST FORM

This form is used when you want to determine if areas on your property fall under regulatory requirements of the U.S. Army Corps of Engineers (USACE). Please supply the following information and supporting documents described below. This form can be filled out online and/or printed and then mailed, faxed, or e-mailed to the Norfolk District. Submitting this request authorizes the US Army Corps of Engineers to field inspect the property site, if necessary, to help in the determination process. **THIS FORM MUST BE SIGNED BY THE PROPERTY OWNER TO BE CONSIDERED A FORMAL REQUEST.**

The printed form and supporting documents should be mailed to:

U.S. Army Corps of Engineers, Norfolk District
Regulatory Branch
803 Front Street
Norfolk, Virginia 23510-1096

Or faxed to (757) 201-7678

Or sent via e-mail to: CENAO.REG_ROD@usace.army.mil

Additional information on the Regulatory Program is available on our website at:
http://www.nao.usace.army.mil/
Please contact us at 757-201-7652 if you need any assistance with filling out this form.

Location and Information about Property to be subject to a Jurisdictional Determination:

1. Date of Request: 02/05/2020
2. Project Name: Alton Post Office Solar Facility
3. City or County where property located: Halifax County
4. Address of property and directions (attach a map of the property location and a copy of the property plat): Mount Carmel Rd, just south of it's intersection with Piney Grove Rd
5. Coordinates of property (if known): 36.572740, -79.055127
6. Size of property in acres: 299.3
7. Tax Parcel Number / GPIN (if available): 6205, 6206, 25713, 24774
8. Name of Nearest Waterway: Lawsons Creek, Winns Creek

9. Brief Description of Proposed Activity, Reason for Preapplication Request, and/or Reason for Jurisdictional Waters Determination Request:
Solar development

10. Has a wetland delineation/determination been completed by a consultant or the Corps on the property previously? ☐ YES ☐ NO ☒ UNKNOWN

If yes, please provide the name of the consultant and/or Corps staff and Corps permit number, if available:

Property Owner Contact Information:

Property Owner Name: Allen Deborah T & Others
Mailing Address: 2103 Mt Carmel Rd
City: State: Zip: Alton, VA 24520
Daytime Telephone:
E-mail Address:

If the person requesting the Jurisdictional Determination is **NOT** the Property Owner, please also supply the Requestor's contact information here:

Requestor Name: Timmons Group
Mailing Address: 1001 Boulders Parkway, Suite 300
City: State: Zip: Richmond, VA 23225
Daytime Telephone: (804) 200-6370
E-mail Address: ben.crumrine@timmons.com

Additionally, if you have any of the following information, please include it with your request: wetland delineation map, other relevant maps, drain tile survey, topographic survey, and/or site photographs.

CERTIFICATION: I am hereby requesting a preapplication consultation or jurisdictional waters and/or wetlands determination from the U.S. Army Corps of Engineers, for the property(ies) I have described herein. I agree to allow the duly authorized representatives of the Norfolk District Corps of Engineers and other regulatory or advisory agencies to enter upon the premises of the project site at reasonable times to evaluate inspect and photograph site conditions. This consent to enter the property is superior to, takes precedence over, and waives any communication to the contrary. For example, if the property is posted as "no trespassing" this consent specifically supercedes and waives that prohibition and grants permission to enter the property despite such posting. I hereby certify that the information contained in the Request for a Jurisdictional Determination is accurate and complete:

John J. Thoran
Property Owner's Signature

3-2-2020
Date

NORFOLK DISTRICT REGULATORY OFFICE
PRE-APPLICATION AND/OR JURISDICTIONAL WATERS DETERMINATION REQUEST FORM

This form is used when you want to determine if areas on your property fall under regulatory requirements of the U.S. Army Corps of Engineers (USACE). Please supply the following information and supporting documents described below. This form can be filled out online and/or printed and then mailed, faxed, or e-mailed to the Norfolk District. Submitting this request authorizes the US Army Corps of Engineers to field inspect the property site, if necessary, to help in the determination process. **THIS FORM MUST BE SIGNED BY THE PROPERTY OWNER TO BE CONSIDERED A FORMAL REQUEST.**

The printed form and supporting documents should be mailed to:

U.S. Army Corps of Engineers, Norfolk District
Regulatory Branch
803 Front Street
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Or faxed to (757) 201-7678

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Additional information on the Regulatory Program is available on our website at:
http://www.nao.usace.army.mil/
Please contact us at 757-201-7652 if you need any assistance with filling out this form.

Location and Information about Property to be subject to a Jurisdictional Determination:

1. Date of Request: 02/05/2020
2. Project Name: Alton Post Office Solar Facility
3. City or County where property located: Halifax County
4. Address of property and directions (attach a map of the property location and a copy of the property plat): Outparcel corridor located just west of Alton Post Office Rd and Hendricks Ln
5. Coordinates of property (if known): 36.562424°, -79.040855°
6. Size of property in acres: 299.3
7. Tax Parcel Number / GPIN (if available): 21862
8. Name of Nearest Waterway: Lawsons Creek, Winns Creek

9. Brief Description of Proposed Activity, Reason for Preapplication Request, and/or Reason for Jurisdictional Waters Determination Request:
Solar development

10. Has a wetland delineation/determination been completed by a consultant or the Corps on the property previously? ☐ YES ☐ NO ☒ UNKNOWN

If yes, please provide the name of the consultant and/or Corps staff and Corps permit number, if available:

Property Owner Contact Information:

Property Owner Name: WRR Management Company LLC & Others
Mailing Address: 1211 Wilson Rd
City: State: Zip: Virgilina, VA 24598
Daytime Telephone:
E-mail Address:

If the person requesting the Jurisdictional Determination is **NOT** the Property Owner, please also supply the Requestor's contact information here:

Requestor Name: Timmons Group
Mailing Address: 1001 Boulders Parkway, Suite 300
City: State: Zip: Richmond, VA 23225
Daytime Telephone: (804) 200-6370
E-mail Address: ben.crumrine@timmons.com

Additionally, if you have any of the following information, please include it with your request: wetland delineation map, other relevant maps, drain tile survey, topographic survey, and/or site photographs.

CERTIFICATION: I am hereby requesting a preapplication consultation or jurisdictional waters and/or wetlands determination from the U.S. Army Corps of Engineers, for the property(ies) I have described herein. I agree to allow the duly authorized representatives of the Norfolk District Corps of Engineers and other regulatory or advisory agencies to enter upon the premises of the project site at reasonable times to evaluate inspect and photograph site conditions. This consent to enter the property is superior to, takes precedence over, and waives any communication to the contrary. For example, if the property is posted as "no trespassing" this consent specifically supercedes and waives that prohibition and grants permission to enter the property despite such posting. I hereby certify that the information contained in the Request for a Jurisdictional Determination is accurate and complete:

WRR Management Co LLC
Walter Robertson

Property Owner's Signature

3/5/20
Date

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1011

June 22, 2018

APPROVED JURISDICTIONAL DETERMINATION

Western Virginia Regulatory Section
NAO-2017-02134 (Lawsons Creek)

Ms. Deborah T. Allen
2103 Mt. Carmel Road
Alton, Virginia 24520

Dear Ms. Allen:

This letter is in regard to your request for verification of an approved jurisdictional determination for the waters of the U.S. (including wetlands) on property located on a 213 acre parcel at the intersection of Emergency Road (Route 911) and Alton Post Office Road (Route 711), in Halifax County, Virginia (tax map parcel #25131 and 23785).

An on-site jurisdictional determination found waters and wetlands regulated under Section 404 of the Clean Water Act (33 U.S.C. 1344) on the property listed above. Nontidal, wetlands and streams have been identified on the site. This letter shall serve to confirm the wetlands delineation by Marjorie Howren of Timmons Group, as surveyed and shown on the map titled, "Alton Post Office Solar Site" dated January 25, 2018 and Corps date stamped as received June 13, 2018 (*copy attached*).

Our basis for this determination is the application of the Corps' 1987 Wetland Delineation Manual (*and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)*) and the positive indicators of wetland hydrology, hydric soils, and hydrophytic vegetation. The wetland is a water of the United States and is part of a tributary system to interstate waters (33 CFR 328.3(a)). This site also contains waters that meet the Corps' definition of waters of the United States, are part of a tributary system to interstate waters (33 CFR 328.3 (a)) and have an ordinary high water mark (or high tide line). This letter is not confirming the Cowardin classifications of these aquatic resources.

Discharges of dredged or fill material, including those associated with mechanized landclearing, into jurisdictional waters and/or wetlands on this site will require a Department of the Army permit and may require authorization by state and local authorities, including a Virginia Water Protection Permit from the Virginia Department of Environmental Quality (DEQ), a permit from the Virginia Marine Resources Commission (VMRC) and/or a permit from your local wetlands board. This letter is a confirmation of the Corps jurisdiction for the waters and/or wetlands on the subject property and does not authorize any work in these jurisdictional areas. Please obtain all required permits before starting work in the delineated waters/wetland areas.

This letter contains an approved jurisdictional determination for your subject site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the North Atlantic Division Office at the following address:

ATTN: Mr. James Haggerty, Regulatory Program Manager
United States Army Corps of Engineers
CENAD-PD-OR
Fort Hamilton Military Community
301 General Lee Avenue
Brooklyn, NY 11252-6700
Email: james.w.haggerty@usace.army.mil

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 C.F.R. part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by DATE (60 days). It is not necessary to submit an RFA form to the Division office if you do not object to the determination in this letter.

This jurisdictional determination is valid for a period of five (5) years from the date of this letter unless new information warrants revision prior to the expiration date. If you have any questions, please contact Dana Heston either via telephone at (540) 344-1409 or via email at dana.m.heston@usace.army.mil.

Sincerely,

Dana Heston
Project Manager, Western Virginia
Regulatory Section

Enclosure(s):
Delineation Map
Appeals Form

Cc: Marjorie Howren, Timmons Group
Jay Roberts, Virginia Department of Environmental Quality

PREPARED FOR:
URBAN GRID SOLAR PROJECTS, LLC
337 LOG CANOE CIRCLE
STEVENSVILLE, MD 21666

ALTON POST OFFICE SOLAR FACILITY

JURISDICTIONAL WATERS OF THE U.S. DELINEATION PACKAGE

FEBRUARY 2018

PREPARED BY:
TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.
1001 BOULDERS PARKWAY, SUITE 300
RICHMOND, VIRGINIA 23225
PHONE: 804.200.6500
FAX: 804.560.1648
WWW.TIMMONS.COM

TIMMONS GROUP PROJECT NO. 39225

EXECUTIVE SUMMARY

On behalf of Urban Grid Solar Projects, LLC, Timmons Group environmental scientist Marjorie Howren, and environmental technicians Benjamin Sagara, Hunter Wines, and Melissa Davis conducted a field delineation on January 15 and 16, 2018 to identify jurisdictional Waters of the U.S. (WUS) and wetlands within the project study limits of the Alton Post Office Solar Facility (Site).

The Site encompasses approximately 213 acres and is located in Halifax County, Virginia. It is bound by agricultural fields and mixed hardwood forests to the north, south, east, and west. The majority of the Site consists of pasture and mixed hardwood forest. The property is located within the Lower Dan watershed (HUC 03010104) and is drained by several unnamed tributaries that converge in the northern corner of the project limits. These tributaries flow north and eventually offsite into Lawsons Creek (see Figure 1: Vicinity Map).

The Site was delineated based upon the methodology outlined in the 1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual; the Regional Supplement to the USACE Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0) and subsequently issued USACE regulatory guidance regarding the identification of jurisdictional stream channels through the recognition of field indicators of an ordinary high water mark within drainage features. Using these methodologies, preliminary delineation mapping was produced and is included along with the attached Site description and discussion for your review. During our delineation, approximately 1.70 acres of palustrine forested (PFO) wetlands, 0.02 acres of palustrine scrub-shrub (PSS) wetlands, 0.59 acres of palustrine emergent (PEM) wetlands, and 1.73 acres of palustrine open water (POW) jurisdictional area were identified onsite. In addition, 2,857 linear feet of perennial stream and 2,671 linear feet of intermittent stream were identified onsite.

JURISDICTIONAL WATERS OF THE U.S. DELINEATION PACKAGE
Alton Post Office Solar Facility

TABLE OF CONTENTS

MAPS

APPENDICES

1.0 PROJECT INFORMATION SHEET

General

Project Name:	Alton Post Office Solar Facility
State:	Virginia
County:	Halifax
Latitude:	36˚ 33’ 45.9” North
Longitude:	79˚ 03’ 11.3” West
Subject Property Size:	+/- 213 acres
HUC Code:	03010104 (Lower Dan Watershed)
Waterbodies (TNW):	Unnamed tributaries to Lawsons Creek

Corresponding Information

USGS Quad and NWI:	Alton, 2016
USDA Soils Map:	http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm Halifax, VA

Owner/Applicant

Name:	Urban Grid Solar Projects, LLC
Address:	337 Log Canoe Circle Stevensville, MD 21666
Contact:	James Crawford

Consultant

Name:	Timmons Group
Address:	1001 Boulders Parkway, Suite 300 Richmond, VA 23225
Telephone:	(804) 200-6500
Contacts:	Melissa Davis: (804) 200-6541 Marjorie Howren: (804) 200-6370

2.0 INTRODUCTION

On behalf of Urban Grid Solar Projects, LLC, Timmons Group environmental scientist Marjorie Howren and environmental technicians Benjamin Sagara, Hunter Wines, and Melissa Davis conducted a field delineation on January 15 and 16, 2018 to identify jurisdictional Waters of the U.S. (WUS) and wetlands within the project study limits of the Alton Post Office Solar Facility (Site).

3.0 SITE INFORMATION

3.1 Site Location

The Site encompasses approximately 213 acres and is located at the intersection of Alton Post Office Road and Emergency Road in Halifax County, Virginia (see Figure 1: Vicinity Map). It is located within the Lower Dan watershed (HUC 03010104) and is drained by unnamed tributaries to Lawsons Creek north of the property boundary (see Figure 2: Hydrologic Unit Code Map). The property is located in the Piedmont Physiographic Province.

3.2 Site Description

The majority of the Site consists of open space with gently to moderately sloping topography. Historic and current land use has rotated between agriculture and pasture. The remaining areas onsite consist of mid-successional pine and hardwood forest located mostly within topographic draws and areas of lower elevation along the project boundaries. The Site topography depicts ridges throughout the central portion of the Site surrounded by topographic draws that contain unnamed tributaries to Lawsons Creek north of the project area.

4.0 METHODS OF DELINEATION

4.1 Preliminary Offsite Investigation/Data Review

A review of publicly available resources was performed prior to the onsite field investigation in order to determine if there is the potential for jurisdictional areas, and if present, the extent of these areas located within the project area. These mapping resources generally include but are not limited to the United States Geological Survey (USGS) maps, the U.S. Department of Agriculture Natural Resource Conservation Service (NRCS) soils database, and the U.S. Fish & Wildlife Service National Wetlands Inventory (NWI) database.

4.2 Field Investigation

The Site was delineated based upon the methodology outlined in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual; the Regional Supplement to the USACE Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0); and subsequently issued USACE regulatory guidance regarding the identification of jurisdictional stream channels through the recognition of field indicators of an ordinary high water mark within drainage features.

The wetland boundary was flagged with consecutively numbered pink and black ribbon at approximately 50 foot intervals. Field data stations were established within close proximity to the flagged wetland boundary, usually within 10 to 20 feet, in order to document upland and wetland conditions existing along the jurisdictional boundary. Field data stations were labeled and marked with blue flagging in the field. Features identified in the field were GPS located for the study area. Photographs were taken of the field data stations to depict existing site conditions along the delineation boundary. Field data sheets are included in Appendix A. Site photographs collected during the field delineation are available upon request.

5.0 DELINEATION FINDINGS

5.1 Preliminary Offsite Investigation/Data Review Findings

Review of USGS mapping shows several ridges throughout the central portion of the Site surrounded by topographic relief sloping to the north, east, and west. The topographic draws in the central portion of the Site and along the western property boundary contain unnamed tributaries that flow north and converge with a perennial stream channel that flows east along the northern project boundary. The Site has topographic highs of approximately 592 feet above mean sea level (AMSL) along ridges in the southwestern portion of the Site and transitions to lower elevations of approximately 476 feet AMSL in the northern portion (see Figure 1: Vicinity Map).

The NRCS soils mapping identifies nine (9) distinct soil series/complexes within the Site. Of the nine (9) soil series/complexes identified, only one is documented as being partially hydric in Halifax County. There are no hydric soils documented within the Site limits. The partially hydric soil mapped onsite is Cordorus and Hatboro soils (14A). The remaining soils are generally described as being well-drained and soil textures include clay loam and loamy sand (see Figure 3: Environmental Inventory Map).

NHD mapping depicts the presence of three unnamed tributaries within the Site that drain north and eventually flow offsite into Lawsons Creek. NWI mapping is minimal within the project area and documents the presence of three linear riverine wetland features surrounding the three unnamed NHD tributaries. Additionally, a small freshwater pond is documented in the eastern portion of the Site.

5.2 Onsite Determination/Findings

5.2.1 Jurisdictional Area Summary

The onsite delineation verified the presence of wetlands and streams within the project study area. A summary of the jurisdictional areas identified onsite is provided below in Table 1: Jurisdictional Areas Summary. The location and size of jurisdictional areas delineated onsite are shown on Figure 4: Wetlands and Waters of the U.S. Delineation Map.

Table 1: Jurisdictional Area Summary

Area Description	Area Size (acres)	PFO (acres)	PSS (acres)	PEM (acres)	POW (acres)	R3 Streams (L.F.)	R4 Streams (L.F.)	R6 Streams (L.F.)
Alton Post Office Solar Facility	213	1.70	0.02	0.59	1.73	2,857	2,671	0

Notes:
1) PFO = palustrine forested wetlands, PSS = palustrine scrub-shrub wetlands, PEM = palustrine emergent wetlands, R3 = upper perennial streams, R4 = intermittent streams, R6 = ephemeral streams, and L.F. = linear feet.
2) Jurisdictional area acreages are preliminary based on field delineation and have not been confirmed or surveyed.

5.2.1.1 Jurisdictional Area Vegetation

The dominant vegetation within the tree and sapling stratums of the wetlands onsite were red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), black willow (*Salix nigra*), american sycamore (*Platanus occidentalis*) and brookside alder (*Alnus serrulata*). The dominant shrub vegetation within jurisdictional areas included brookside alder, eastern red cedar (*Juniperus virginiana*), and winged elm (*Ulmus alata*). The herbaceous stratums within the wetlands area were generally comprised of Japanese stilt grass (*Microstegium vimineum*), greenbrier (*Smilax rotundifolia*), rice cut grass (*Leersia oryzoides*), small carp grass (*Arthraxon hispidus*), soft rush (*Juncus effusus*), and tapered rosette grass (*Dichanthelium acuminatum*).

5.2.1.2 Jurisdictional Area Hydrology

Primary hydrology indicators observed within the jurisdictional areas included saturation and high water table within the upper 12 inches of soil, surface water, and water stained leaves. Secondary hydrology indicators included the geomorphic position and drainage patterns.

5.2.1.3 Jurisdictional Area Soils

Soils within the wetland areas onsite exhibited low chroma matrix colors and concentrations that are characteristic of reducing anaerobic conditions associated with the formation of hydric soils. Wetland soils were typically very dark grayish brown (10YR 3/2) or dark grayish brown (10YR 4/2) within the upper 6 inches. Between 4 and 8 inches below ground surface, the soil matrix was dominantly gray (10YR 5/1) or grayish brown (10YR 5/2). The soil matrix between 6 and 15 inches below ground surface was typically dark gray (10YR 4/1), gray (10YR 6/1) or light brownish gray (10YR 6/2). Redox concentrations greater than 2% were observed between 2 and 15 inches below soil surface and were typically dark yellowish brown (10YR 4/6), yellowish brown (10YR 5/8) or brownish yellow (10YR 6/6). The soils meet the F3 Depleted Matrix hydric soil indicator. Textures within the jurisdictional areas included loam, clay loam, silt loam, sandy clay loam and sandy loam. Field data sheets are included in Appendix A and provide additional detail regarding the representative soils within wetlands.

5.3.1 Upland Area Summary

During the field investigation of the subject property, approximately 209 acres of upland or non-jurisdictional areas were identified onsite. The majority of the upland areas located within the subject property are characterized by active pasture fields and mixed hardwood forest. Upland soils were typically brown (7.5YR 4/4 and 10YR 4/3), yellowish brown (10YR 5/4), and yellowish red (5YR 4/6). Soil textures included sandy clay loam, silt loam, and fine sandy loam. The mapped soils present within the Site are depicted on Figure 3: Environmental Inventory Map. With the exception of geomorphic position, no indicators of wetland hydrology were observed within the upland areas. The location and size of upland areas delineated onsite are shown on Figure 4: Wetlands and Waters of the U.S. Delineation Map.

6.0 REFERENCES

United States Army Corps of Engineers. 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0). ERDC/EL TR-10-09. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. *Classification of wetlands and deepwater habitats of the United States*. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.

National List of Hydric Soils 2010, United States Department of Agriculture Natural Resource Conservation Service, http://soils.usda.gov/use/hydric/

United States Department of Agriculture. Natural Resources Conservation Service http://websoilsurvey.nrcs.usda.gov/app/

United States Fish and Wildlife Service. National Wetlands Inventory http://www.fws.gov/nwi/

Wetland Training Institute. 1995. Field Guide for Wetland Delineation: 1987 Corps of Engineers Manual, Wetland Training Institute, Glenwood, NM, USA.

MAPS

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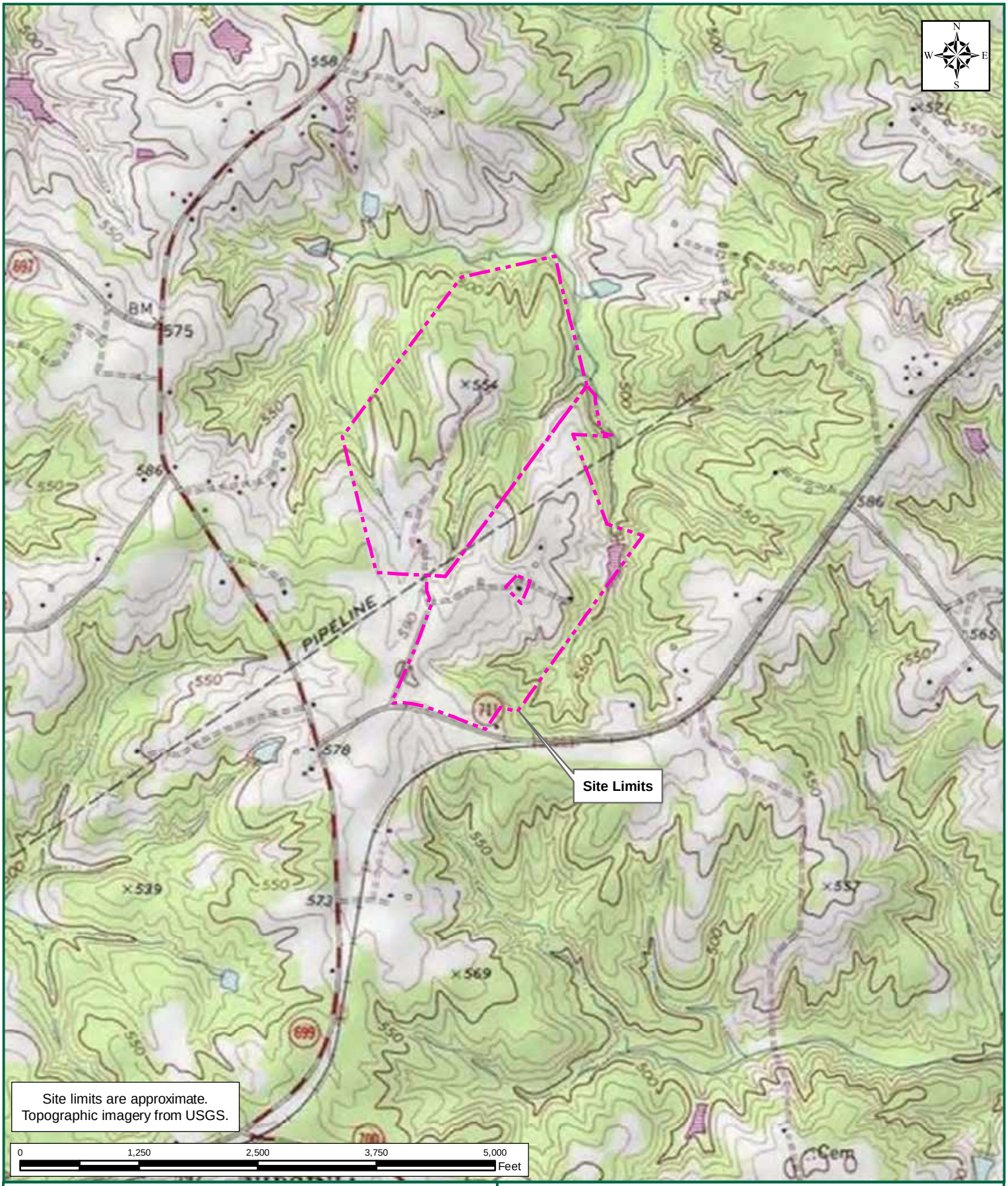


ALTON POST OFFICE

HALIFAX COUNTY, VIRGINIA

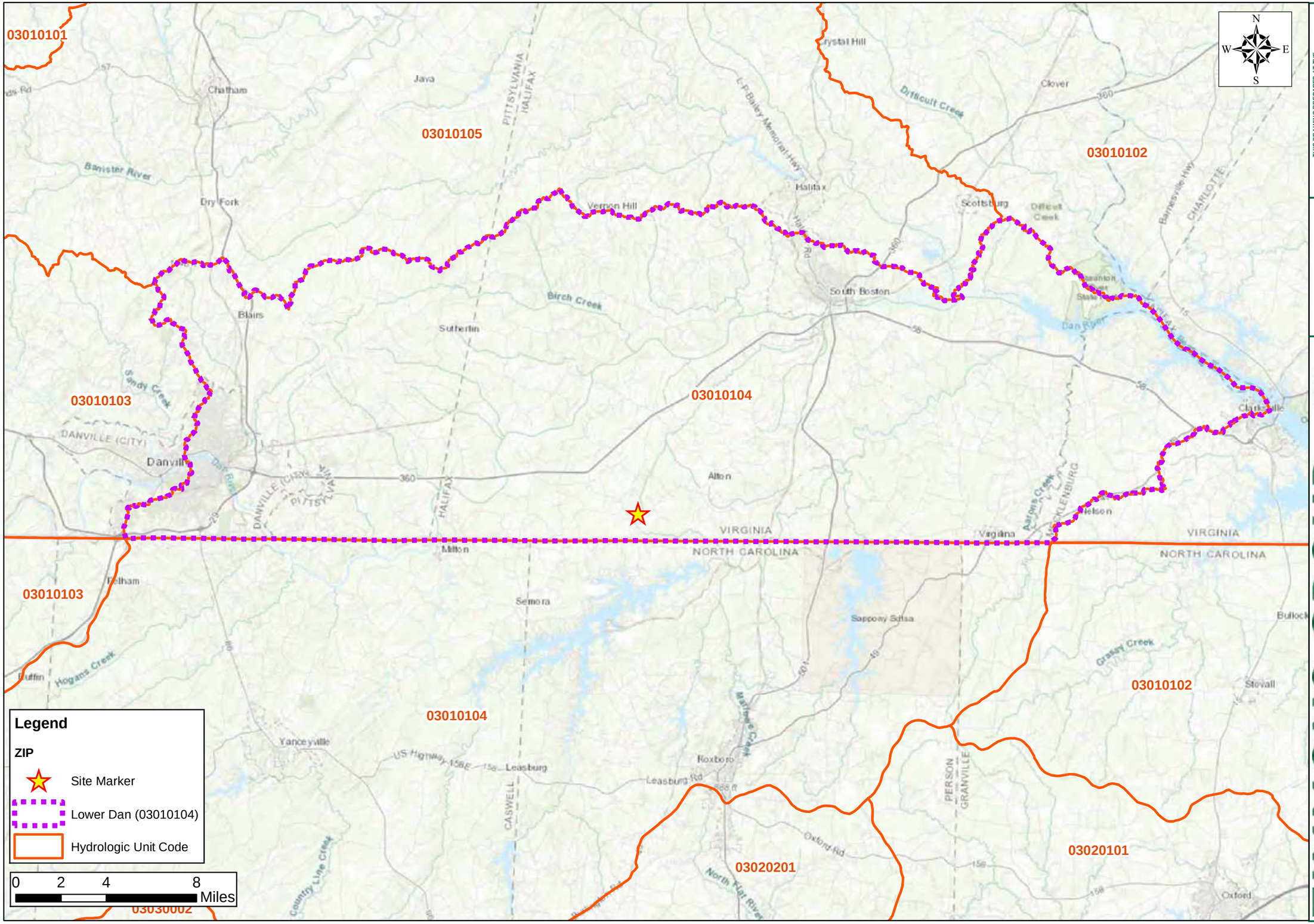
FIGURE 1: VICINITY MAP

TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.

TIMMONS GROUP JOB NUMBER: *39225*
PROJECT STUDY LIMITS: *213 TOTAL ACRES*
LATITUDE: *36° 33' 45.9" N*
LONGITUDE: *79° 03' 11.3" W*

U.S.G.S. QUADRANGLE(S): *ALTON*
DATE(S): *2016*
WATERSHED(S): *LOWER DAN*
HYDROLOGIC UNIT CODE(S): *03010104*



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THIS DRAWING PREPARED AT THE CORPORATE OFFICE
1001 Boulders Parkway, Suite 300 | Richmond, VA 23225
TEL 804.200.6500 FAX 804.560.1568 www.timmons.com

YOUR VISION ACHIEVED THROUGH OURS

Site Development | Residential | Infrastructure | Technology | Environmental

DATE	REVISION DESCRIPTION

DATE 01/10/2018
DRAWN BY L. WHEELER
DESIGNED BY L. WHEELER
CHECKED BY M. HOWREN
SCALE 1" = 4 MILES

TIMMONS GROUP

ALTON POST OFFICE
HALIFAX COUNTY, VIRGINIA

FIGURE 2: HYDROLOGIC UNIT CODE MAP

JOB NUMBER 39225
SHEET NO. 1 OF 1

Lower Dan Soils

Mapunit Symbol	Mapunit Name
14A	Codorus and Hatboro soils, 0 to 2 percent slopes, frequently flooded
21D	Fairview sandy loam, 15 to 25 percent slopes
24C	Halifax sandy loam, 8 to 15 percent slopes
3C	Bentley loamy sand, 8 to 15 percent slopes
48D	Toast sandy loam, 15 to 25 percent slopes
8B	Clifford sandy loam, 2 to 8 percent slopes
8C	Clifford sandy loam, 8 to 15 percent slopes
9B3	Clifford clay loam, 2 to 8 percent slopes, severely eroded
9C3	Clifford clay loam, 8 to 15 percent slopes, severely eroded
W	Water

Legend

- Project Study Limits - 213 Acres
- NHD Streams
- National Wetland Inventory

Hydric Soil Classification

- All hydric
- Not hydric
- Partially hydric

Notes:
Project Limits are approximate.
NWI from US Fish and Wildlife Service.
Soils data for SSURGO.
National Hydrography Dataset from USGS.
Aerial imagery from ESRI online.

N

0 300 600 1,200
Feet

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TIMMONS GROUP
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Site Development | Residential | Infrastructure | Technology | Environmental

REVISION DESCRIPTION

DATE

DATE 01/10/2018
DRAWN BY L. WHEELER
DESIGNED BY L. WHEELER
CHECKED BY M. HOWREN
SCALE 1" = 300'

ALTON POST OFFICE SOLAR SITE
HALIFAX COUNTY, VIRGINIA
FIGURE 3: ENVIRONMENTAL INVENTORY MAP

JOB NO. 39225
SHEET NO. 1 of 3

Resource Identification	Confirmation								Resource Description Notes*
	PFO (sq ft)	PSS (sq ft)	PEM (sq ft)	POW (sq ft)	R3 (lf)	R4 (lf)	R6 (lf)	Ditch (lf)	
A				75,323					NTIV
B	5,349								NTIV
C			8,880						NTIV
D	4,313								NTIV
E	15,408								NTIV
F	25,062								NTIV
G				122,550					NTIV
H			4,379						NTIV
I			846						NTIV
J		801							NTIV
K	11,940								NTIV
L	607								NTIV
M	7,543								NTIV
N	3,123								NTIV
O			11,569						NTIV
P	495								NTIV
Q					132				NT/NV
R						65			NT/NV
S						93			NT/NV
T						122			NT/NV
U						954			NT/NV
V						1,138			NT/NV
W					1,380				NT/NV
X					440				NT/NV
Y						299			NT/NV
Z					128				NT/NV
AA					166				NT/NV
BB					542				NT/NV
CC					69				NT/NV
Total	**73,840**	**801**	**25,674**	**75,323**	**2,857**	**2,671**	**0**	**0**	
Total Wetland Area =			**175,538 sq ft**			**4.03 ac**			
Total Stream Length =			**5,528 lf**						

* T=Tidal; NT=Non-tidal; V=Vegetated; NV=Non-Vegetated; PFO=Palustrine Forested Wetland; PSS=Palustrine Scrub-Shrub Wetland; PEM=Palustrine Emergent Wetland; POW= Palustrine Open Water; EW= Estuarine Intertidal Wetlands; R3= Upper Perennial Streams; R4=Intermittent Streams; R6 = Ephemeral Streams; ISO = Isolated

Legend

- Project Study Limits - 213 Acres
- Wetland Flag
- Field Data Station
- Stream Identifier
- Wetland Identifier
- Culvert
- Perennial Stream (R3)
- Intermittent Stream (R4)
- Overland Connection
- Palustrine Emergent (PEM) Wetlands
- Palustrine Forested (PFO) Wetlands
- Palustrine Scrub-Shrub (PSS) Wetlands
- Palustrine Open Water (POW)
- 5 Foot Contour

NOTES:

1. WATERS OF THE U.S. WITHIN THE PROJECT STUDY LIMITS HAVE BEEN GPS LOCATED BY TIMMONS GROUP.
2. WATERS OF THE U.S. HAVE NOT BEEN CONFIRMED BY THE U.S. ARMY CORPS OF ENGINEERS.
3. PROJECT STUDY LIMITS ARE APPROXIMATE.
4. TOPOGRAPHY BASED ON USGS LIDAR DATA.
5. COWARDIN STREAM CLASSIFICATIONS ARE BASED SOLELY ON FIELD OBSERVATIONS. NO FORMAL STREAM ASSESSMENT METHODOLOGY WAS COMPLETED TO DETERMINE THESE COWARDIN CLASSIFICATIONS.

N

0 225 450 900
Feet

Culvert

Path: Y:\804\39225-Alton Post Office_Solar\GIS\Wetland Delineation (Addtl Parcels)\39225-WTDM(AddtlParcels).mxd

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TEL 804.200.6500 FAX 804.560.1016 www.timmons.com

Site Development | Residential | Infrastructure | Technology | Environmental

YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION

DATE

DATE 1/25/2018

DRAWN BY A. WILSON

DESIGNED BY A. WILSON

CHECKED BY M. HOWREN

SCALE 1" = 225'

TIMMONS GROUP

ALTON POST OFFICE SOLAR SITE

HALIFAX COUNTY, VIRGINIA

FIGURE 4: WETLANDS AND WATERS OF THE U.S. DELINEATION MAP

JOB NO. 39225

SHEET NO. 1 of 1

APPENDIX A
FIELD DATA SHEETS

Field Data Sheets Available Upon Request

APPENDIX B
USACE JD REQUEST FORM

NORFOLK DISTRICT REGULATORY OFFICE
PRE-APPLICATION AND/OR JURISDICTIONAL WATERS DETERMINATION REQUEST FORM

This form is used when you want to determine if areas on your property fall under regulatory requirements of the U.S. Army Corps of Engineers (USACE). Please supply the following information and supporting documents described below. This form can be filled out online and/or printed and then mailed, faxed, or e-mailed to the Norfolk District. Submitting this request authorizes the US Army Corps of Engineers to field inspect the property site, if necessary, to help in the determination process. **THIS FORM MUST BE SIGNED BY THE PROPERTY OWNER TO BE CONSIDERED A FORMAL REQUEST.**

The printed form and supporting documents should be mailed to:

U.S. Army Corps of Engineers, Norfolk District
Regulatory Office
803 Front Street
Norfolk, Virginia 23510-1096

Or faxed to (757) 201-7678

Or sent via e-mail to: CENAO.REG_ROD@usace.army.mil

Additional information on the Regulatory Program is available on our website at:
http://www.nao.usace.army.mil/
Please contact us at 757-201-7652 if you need any assistance with filling out this form.

Location and Information about Property to be subject to a Jurisdictional Determination:

1. Date of Request:
2. Project Name: Alton Post Office Solar Facility
3. City or County where property located: Halifax County, VA
4. Address of property and directions (attach a map of the property location and a copy of the property plat): Site is located at the intersection of Alton Post Office Road (Rte. 711) and Emergency Road (Rte. 911) in Halifax County, Virginia.
5. Coordinates of property (if known): Latitude: 36° 33' 45" North; Longitude: 79° 03' 11" West
6. Size of property in acres: 213
7. Tax Parcel Number / GPIN (if available): 25131 and 23785
8. Name of Nearest Waterway: Lawsons Creek

7. Brief Description of Proposed Activity, Reason for Preapplication Request, and/or Reason for Jurisdictional Waters Determination Request:
Preliminary Site Investigation for Solar Panel farm.

8. Has a wetland delineation/determination been completed by a consultant or the Corps on the property previously? ☐ YES ☐ NO ☒ UNKNOWN

If yes, please provide the name of the consultant and/or Corps staff and Corps permit number, if available:

Property Owner Contact Information

Property Owner Name: Deborah T Allen
Mailing Address: 2103 Mt Carmel Road
City: State: Zip: Alton, VA 24520
Daytime Telephone:
E-mail Address:

If the person requesting the Jurisdictional Determination is **NOT** the Property Owner, please also supply the Requestor's contact information here:

Requestor Name: Timmons Group C/O Marjorie Howren
Mailing Address: 1001 Boulders Parkway, Suite 300
City: State: Zip: Richmond, VA 23225
Daytime Telephone: (804) 200-6370
E-mail Address: marjorie.howren@timmons.com

Additionally, if you have any of the following information, please include it with your request: wetland delineation map, other relevant maps, drain tile survey, topographic survey, and/or site photographs.

CERTIFICATION: I am hereby requesting a preapplication consultation or jurisdictional waters and/or wetlands determination from the U.S. Army Corps of Engineers, for the property(ies) I have described herein. I agree to allow the duly authorized representatives of the Norfolk District Corps of Engineers and other regulatory or advisory agencies to enter upon the premises of the project site at reasonable times to evaluate inspect and photograph site conditions. This consent to enter the property is superior to, takes precedence over, and waives any communication to the contrary. For example, if the property is posted as "no trespassing" this consent specifically supercedes and waives that prohibition and grants permission to enter the property despite such posting. I hereby certify that the information contained in the Request for a Jurisdictional Determination is accurate and complete:

Property Owner's Signature Deborah T. Allen Date 2-27-18

Appendix 2 - **PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM**

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD: 22DEC2017

B. NAME AND ADDRESS OF PERSON REQUESTING PJD:
Alton Post Office Solar, LLC, James Crawford 337 Log Canoe Circle Stevensville, MD 21666

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:
NAO-2017-2134, Alton Post Office Solar, LLC

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:

(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: Virginia County/parish/borough: Halifax City: Alton

Center coordinates of site (lat/long in degree decimal format): 36° 33' 52.50", -79° 01' 46.40" West

Lat.: xx.xxx° Long.: yy.yyy°

Universal Transverse Mercator:

Name of nearest waterbody: Powell's Creek

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:

☑ Field Determination. Date(s): August 11, 2017

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
See	Attachement				

1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.

2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

- [x] Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:
  Map: Avon Post Office Solar Site Parker County.
- [x] Data sheets prepared/submitted by or on behalf of the PJD requestor.
  - [x] Office concurs with data sheets/delineation report.
  - [ ] Office does not concur with data sheets/delineation report. Rationale: _____.
- [ ] Data sheets prepared by the Corps: _____.
- [ ] Corps navigable waters' study: _____.
- [ ] U.S. Geological Survey Hydrologic Atlas: _____.
  - [ ] USGS NHD data.
  - [ ] USGS 8 and 12 digit HUC maps.
- [ ] U.S. Geological Survey map(s). Cite scale & quad name: _____.
- [ ] Natural Resources Conservation Service Soil Survey. Citation: _____.
- [ ] National wetlands inventory map(s). Cite name: _____.
- [ ] State/local wetland inventory map(s): _____.
- [ ] FEMA/FIRM maps: _____.
- [ ] 100-year Floodplain Elevation is: ____. (National Geodetic Vertical Datum of 1929)
- [x] Photographs: [x] Aerial (Name & Date): Google Earth Pro June 2016
  or [ ] Other (Name & Date): _____.
- [ ] Previous determination(s). File no. and date of response letter: _____.
- [ ] Other information (please specify): _____.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

MILLER.TODD.M.1195494890 Digitally signed by MILLER.TODD.M.1195494890 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=MILLER.TODD.M.1195494890 Date: 2017.12.22 09:56:05 -05'00'

Signature and date of Regulatory staff member completing PJD

James A Crawford Jr Digitally signed by James A Crawford Jr Date: 2018.01.03 11:22:25 -05'00'

Signature and date of person requesting PJD (REQUIRED, unless obtaining the signature is impracticable)[1]

[1] Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

PREPARED FOR:
ALTON POST OFFICE SOLAR, LLC
337 LOG CANOE CIRCLE
STEVENSVILLE, MD 21666

ALTON POST OFFICE SOLAR SITE

PRELIMINARY JURISDICTIONAL WATERS OF THE U.S. DELINEATION PACKAGE

JUNE 2017

PREPARED BY:
TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.
1001 BOULDERS PARKWAY, SUITE 300
RICHMOND, VIRGINIA 23225
PHONE: 804.200.6500
FAX: 804.560.1648
WWW.TIMMONS.COM
TIMMONS GROUP PROJECT NO. 39225

EXECUTIVE SUMMARY

On behalf of Alton Post Office Solar, LLC, Timmons Group environmental scientists Ethan Virts, and Mark Hepner conducted a field delineation on January 24, 25, and 26, 2017 to identify jurisdictional Waters of the U.S. (WUS) and wetlands within the project study limits of the Alton Post Office Solar Property (Site).

The Site encompasses approximately 279 acres and is located in Halifax County, Virginia. It is bound by mixed pine-hardwood forest to the north, agriculture and mixed pine-hardwood forest to the east, Alton Post Office Road (State Route 701) to the west, and mixed pine-hardwood forest and residential properties to the south. The majority of the Site consists of pastured open fields and mixed forest. The property is located within the Lower Dan watershed (HUC 03010104) and is drained by unnamed tributaries of Powells Creek flowing southeast into Powells Creek (see Figure 1: Vicinity Map).

The Site was delineated based upon the methodology outlined in the 1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual; the Regional Supplement to the USACE Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0) and subsequently issued USACE regulatory guidance regarding the identification of jurisdictional stream channels through the recognition of field indicators of an ordinary high water mark within drainage features. Using these methodologies, preliminary delineation mapping was produced and is included along with the attached Site description and discussion for your review. During our delineation, approximately 3.93 acres of palustrine forested (PFO) wetlands, 0.14 acres of palustrine scrub-shrub (PSS) wetlands, 2.01 acres of palustrine emergent (PEM) wetlands, and 4.79 acres of palustrine open water (POW) jurisdictional area were identified onsite. In addition, 7,701 linear feet (LF) of upper perennial stream (R3), 3,582 LF of intermittent stream, 680 LF of ephemeral stream, and 215 LF of ditch were identified onsite.

PRELIMINARY WATERS OF THE U.S. DELINEATION PACKAGE
ALTON POST OFFICE SOLAR SITE

TABLE OF CONTENTS

MAPS

APPENDICES

1.0 PROJECT INFORMATION SHEET

General

Project Name:	Alton Post Office Solar Site
State:	Virginia
County:	Halifax
Latitude:	36° 33' 52.50" North
Longitude:	79° 01' 46.40" West
Subject Property Size:	+/- 279 acres
HUC Code:	03010104 (Lower Dan Watershed)
Waterbodies (TNW):	Unnamed Tributaries of Powells Creek

Corresponding Information

USGS Quad and NWI	Alton, 2013
USDA Soils Map:	http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm Halifax, VA

Owner/Applicant

Name:	Alton Post Office Solar, LLC
Address:	337 Log Canoe Circle Stevensville, MD 21666
Contact:	James Crawford: (410) 604-3603 james.crawford@urbangridco.com

Consultant

Name:	Timmons Group
Address:	1001 Boulders Parkway, Suite 300 Richmond, VA 23225
Telephone:	(804) 200-6500
Contacts:	Ethan Virts: (804) 200-6414 Brain Breissinger: (804) 200-6439

2.0 INTRODUCTION

On behalf of Alton Post Office Solar, LLC, Timmons Group environmental scientists Ethan Virts, and Mark Hepner conducted a delineation on January 24, 25, and 26, 2017 to identify Waters of the U.S. (WUS) and wetlands within the project study limits of the Alton Post Office Solar Property (Site).

3.0 SITE INFORMATION

3.1 Site Location

The Site is approximately 279 acres located off of Alton Post Office Road (State Route 711) in Halifax County, Virginia (see Figure 1: Vicinity Map). It is located within the Lower Dan watershed (HUC 03010104) and is drained by unnamed tributaries of Powells Creek (see Figure 2: Hydrologic Unit Code Map). The property is located in the Piedmont Physiographic Province.

3.2 Site Description

The majority of the Site consists of pastured open fields and mixed forest. The Site has been in agriculture production in the past as determined by historic aerials showing contour planting around drainages and old farm structures. Currently, cattle have access to graze the majority of the Site. The Site is bound by mixed pine-hardwood forest to the north, agriculture and mixed pine-hardwood forest to the east, Alton Post Office Road (State Route 701) to the west, and mixed pine-hardwood forest and residential properties to the south (see Figure 3: Environmental Inventory Map).

4.0 METHODS OF DELINEATION

4.1 Preliminary Offsite Investigation/Data Review

A review of publicly available resources was performed prior to the onsite field investigation in order to determine if there is the potential for jurisdictional areas, and if present, the extent of these areas located within the project area. These mapping resources generally include but are not limited to the United States Geological Survey (USGS) maps, the U.S. Department of Agriculture Natural Resource Conservation Service (NRCS) soils database, and the U.S. Fish & Wildlife Service National Wetlands Inventory (NWI) database.

4.2 Field Investigation

The Site was delineated based upon the methodology outlined in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual; the Regional Supplement to the USACE Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0); and subsequently issued USACE regulatory guidance regarding the identification of jurisdictional stream channels through the recognition of field indicators of an ordinary high water mark within drainage features.

The wetland boundary was flagged with consecutively numbered pink and black ribbon at approximately 50 foot intervals, except in areas that are actively being grazed by livestock.

Field data stations were established within close proximity to the flagged wetland boundary, usually within 10 to 20 feet, in order to document upland and wetland conditions existing along the jurisdictional boundary. Field data stations were labeled and marked with blue flagging in the field. Features identified in the field were GPS located for the study area. Photographs were taken of the field data stations to depict existing site conditions along the delineation boundary. Field data sheets are included in Appendix A. Site photographs collected during the field delineation are available upon request.

5.0 DELINEATION FINDINGS

5.1 Preliminary Offsite Investigation/Data Review Findings

The USGS map depicts two (2) main topographic drainage features extending through the Site. These topographic draws extend along the northern and southern boundaries of the Site. There is and additional topographic feature located on the eastern portion of the property (see Figure 1: Vicinity Map).

The NRCS soils depict hydric soil within the eastern portion of the Site. NWI mapping indicates that two (2) isolated wetlands are located within the central and western portions of the Site; and also shows wetlands along the eastern portion (see Figure 3: Environmental Inventory Map). There are five (5) streams shown to occur within the project limits, based on National Hydrography Dataset information.

5.2 Onsite Determination/Findings

5.2.1 Jurisdictional Area Summary

The onsite delineation verified the presence of wetlands and hydric soils depicted on the NWI and Soil Survey mapping and determined the wetland systems to be more extensive than mapped. A summary of the jurisdictional areas identified onsite is provided below in Table 1: Jurisdictional Areas Summary. The location and size of jurisdictional areas delineated onsite are shown on Figure 4: Preliminary Jurisdictional Waters of the U.S. Delineation Map.

Table 1: Jurisdictional Area Summary

Area Description	Area Size (acres)	PFO (acres)	PSS (acres)	PEM (acres)	POW (acres)	R3 (L.F.)	R4 (L.F.)	R6 (L.F.)	Ditch (L.F.)
Alton Post Office Solar	279	3.93	0.14	2.01	4.79	7,701	3,582	680	215

Notes:

1) PFO = Palustrine Forested Wetland; PSS = Palustrine Scrub-Shrub Wetland; PEM = Palustrine Emergent Wetland; POW = Palustrine Open Water; R3 = Upper Perennial Stream; R4 = Intermittent Stream; R6 = Ephemeral Stream; L.F. = linear feet.

2) Jurisdictional area acreages are preliminary based on field delineation and have not been confirmed by the U.S. Army Corps of Engineers.

5.2.1.1 Jurisdictional Area Vegetation

In the jurisdictional areas, the tree and sapling stratum is dominated by sweetgum (*Liquidambar styraciflua*), and red maple (*Acer rubrum)*. The shrub stratum is dominated by sweetgum, and red maple. The herb stratum is dominated by netted chain fern (*Woodwardia areolata),* soft rush (*Juncus effuses*), and Japanese stiltgrass (*Microstegium vemineum)*.

5.2.1.2 Jurisdictional Area Hydrology

Primary hydrology indicators identified during the wetland delineation include saturation within the upper 12 inches of the soil, high water table, drift deposits, and water-stained leaves. Geomorphic position and drainage patterns were observed as secondary indicators. Most of the wetland hydrology onsite was driven by toe-of-slope groundwater seeps within terrace and floodplain landscape positions.

5.2.1.3 Jurisdictional Area Soils

The hydric soils observed within jurisdictional areas exhibited low chroma matrix colors and depletions that are characteristic of reducing anaerobic conditions associated with the formation of hydric soils. Soil colors ranging from (7.5YR 4/2) to (10YR 5/2) with redox concentrations ranging from (5YR 3/4) to (7.5 YR 5/8) were present in wetland areas. The hydric soils identified within the wetland areas met the F3 Reduced Matrix hydric soil indicator. Soil textures were predominately silty loam, sandy loam, sandy clay loam, and loamy sand. Field data sheets are included in Appendix A and provide additional detail regarding the representative soils present within wetlands.

5.3.1 Upland Area Summary

During the field investigation of the subject property, approximately 268.13 acres of upland or non-jurisdictional areas were identified onsite. The majority of the upland areas located within the subject property are characterized by pastured open fields and mixed pine-hardwood forest. Upland soils were typically very dark grayish brown (10YR 3/2) and strong brown (7.5YR 5/6) within the upper 1 to 8 inches and underlain by brown (7.5YR 4/4) to light yellowish brown (10YR 5/4) soils below 1 to 8 inches. Soil textures include loamy sand, sandy loam, loam, and silty loam. The mapped soils present within the Site are depicted on Figure 3: Environmental Inventory Map. Indicators of wetland hydrology observed within the upland areas were saturation, drift deposits, drainage patterns, and geomorphic location. The presence of these hydrology indicators in uplands can be attributed to the fact that this area received approximately two inches of rainfall in the two days prior to completing the delineation. The location and size of upland areas delineated onsite are shown on Figure 4: Preliminary Jurisdictional Waters of the U.S. Delineation Map.

6.0 REFERENCES

United States Army Corps of Engineers. 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0). ERDC/EL TR-10-09. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. *Classification of wetlands and deepwater habitats of the United States*. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.

National List of Hydric Soils 2010, United States Department of Agriculture Natural Resource Conservation Service, http://soils.usda.gov/use/hydric/

United States Department of Agriculture. Natural Resources Conservation Service http://websoilsurvey.nrcs.usda.gov/app/

United States Fish and Wildlife Service. National Wetlands Inventory http://www.fws.gov/nwi/

Wetland Training Institute. 1995. Field Guide for Wetland Delineation: 1987 Corps of Engineers Manual, Wetland Training Institute, Glenwood, NM, USA.

MAPS

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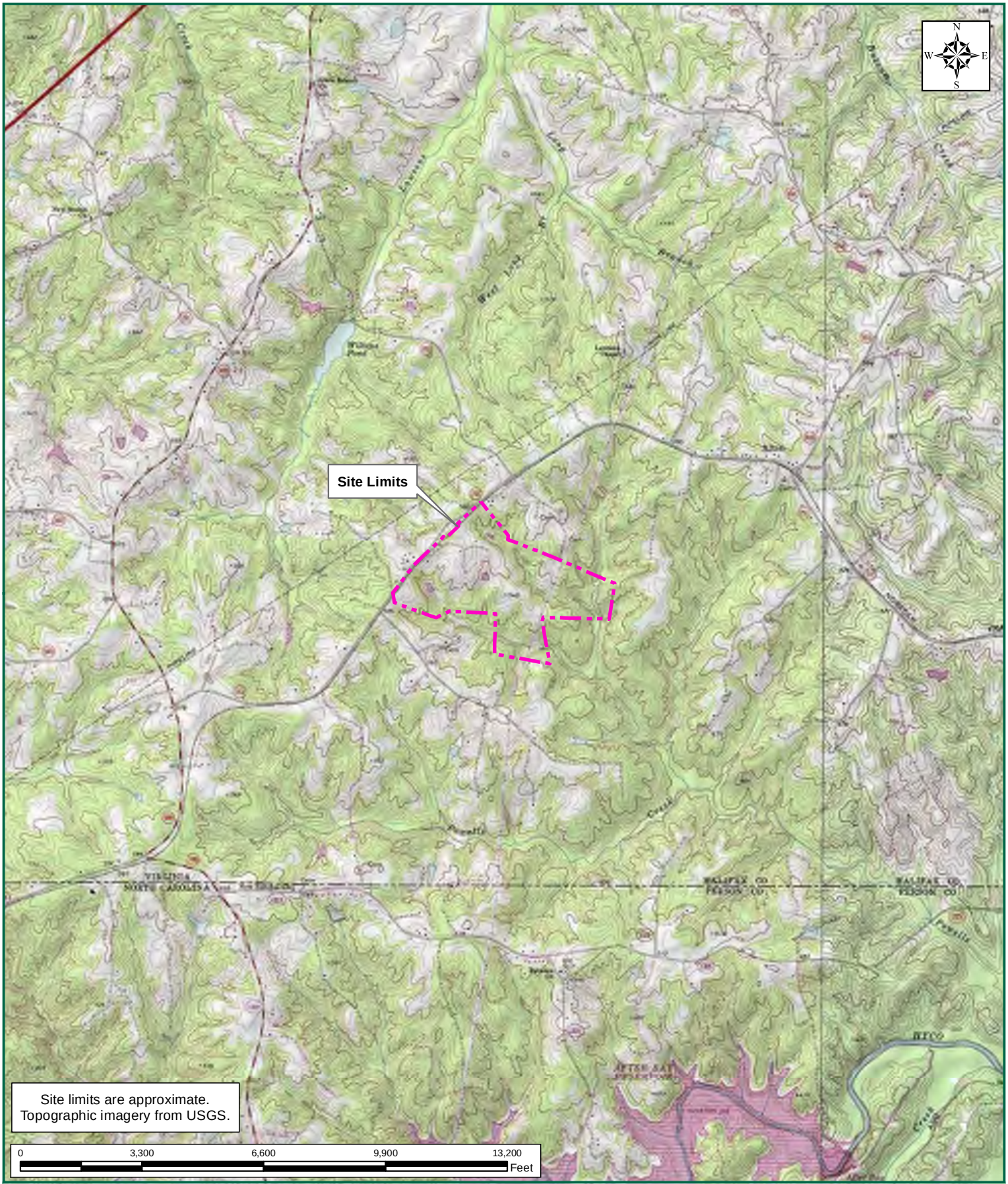


ALTON POST OFFICE SOLAR SITE

HALIFAX COUNTY, VIRGINIA

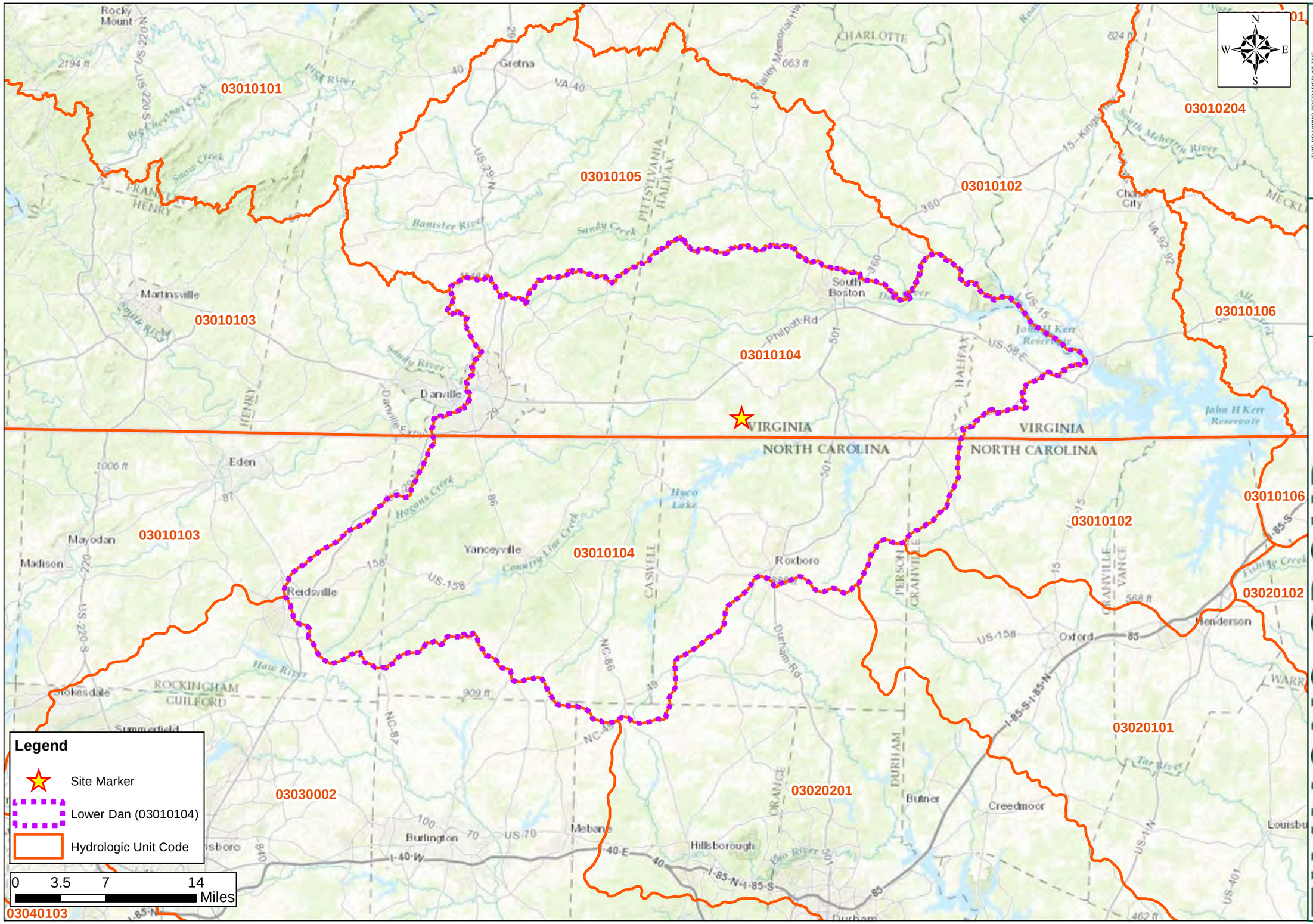
FIGURE 1: VICINITY MAP

TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.

TIMMONS GROUP JOB NUMBER: *39225*
PROJECT STUDY LIMITS: *279 ACRES*
LATITUDE: *36°33'52.50"N*
LONGITUDE: *79° 1'46.40"W*

U.S.G.S. QUADRANGLE(S): *ALTON*
DATE(S): *2013*
WATERSHED(S): *LOWER DAN*
HYDROLOGIC UNIT CODE(S): *03010104*



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DESIGNED BY L. MAJOR
CHECKED BY E. VIRTS
SCALE 1" = 7 MILES

TIMMONS GROUP

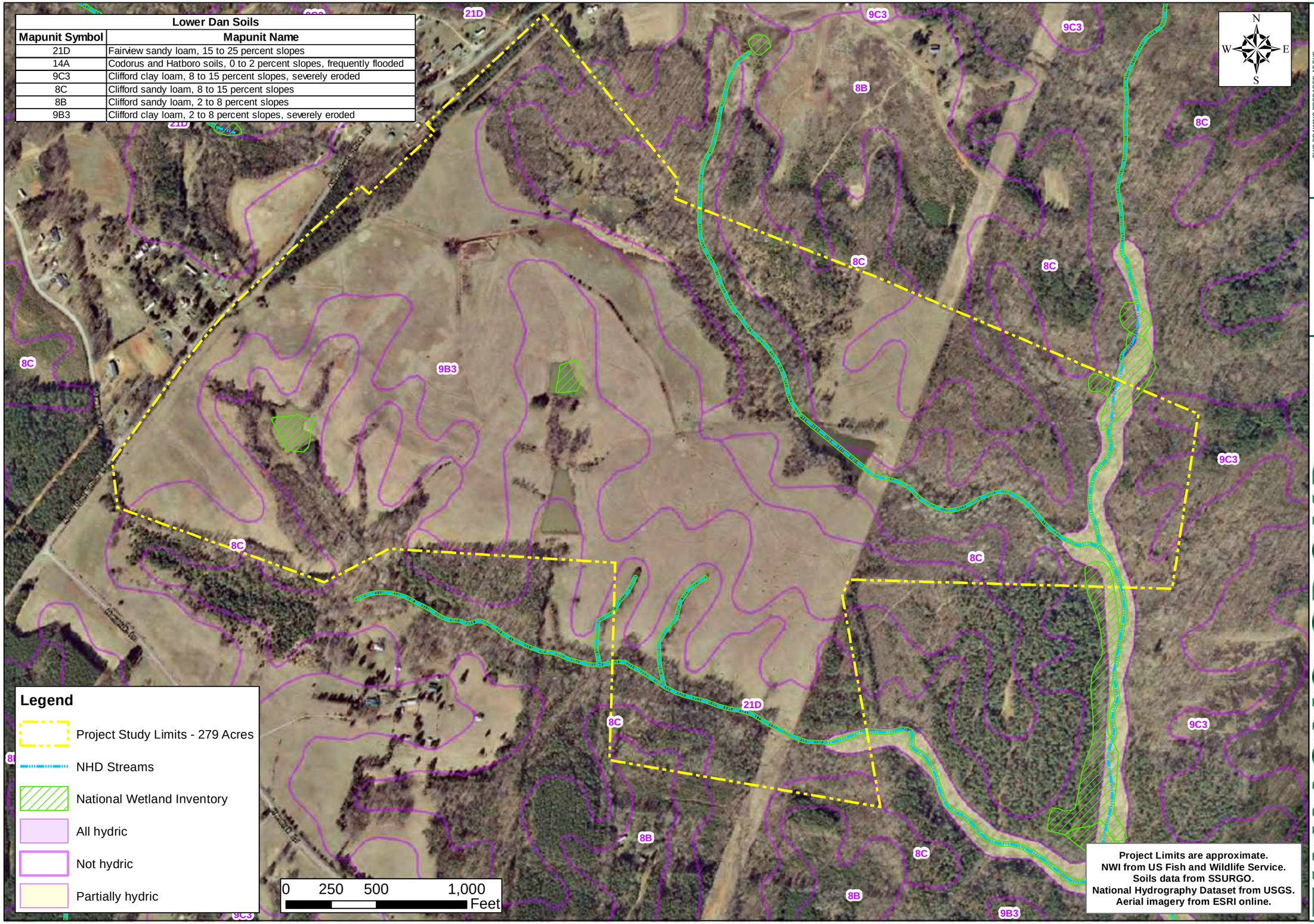
ALTON POST OFFICE SOLAR SITE

HALIFAX COUNTY, VIRGINIA

FIGURE 2: HYDROLOGIC UNIT CODE MAP

JOB NUMBER 39225
SHEET NO. 1 OF 1

Lower Dan Soils	
Mapunit Symbol	**Mapunit Name**
21D	Fairview sandy loam, 15 to 25 percent slopes
14A	Codorus and Hatboro soils, 0 to 2 percent slopes, frequently flooded
9C3	Clifford clay loam, 8 to 15 percent slopes, severely eroded
8C	Clifford sandy loam, 8 to 15 percent slopes
8B	Clifford sandy loam, 2 to 8 percent slopes
9B3	Clifford clay loam, 2 to 8 percent slopes, severely eroded



Legend

- Project Study Limits - 279 Acres
- NHD Streams
- National Wetland Inventory
- All hydric
- Not hydric
- Partially hydric

Project Limits are approximate.
NWI from US Fish and Wildlife Service.
Soils data from SSURGO.
National Hydrography Dataset from USGS.
Aerial imagery from ESRI online.

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SCALE *1" = 500'*

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ALTON POST OFFICE SOLAR SITE

HALIFAX COUNTY, VIRGINIA

FIGURE 3: ENVIRONMENTAL INVENTORY MAP

JOB NUMBER 39225
SHEET NO. 1 OF 1

Resource Identification	Confirmation								Resource Description Notes*
	PFO (sq ft)	PSS (sq ft)	PEM (sq ft)	POW (sq ft)	R3 (lf)	R4 (lf)	R6 (lf)	Ditch (lf)	
A					2739				NTINV
B						120			NTINV
C						641			NTINV
D						364			NTINV
E						835			NTINV
F						360			NTINV
G							117		NTINV
H					1742				NTINV
I							70		NTINV
J					1671				NTINV
K					22	355			NTINV
L						114			NTINV
M						29			NTINV
N					183				NTINV
O						8	243		NTINV
P						64			NTINV
Q								95	NTINV
R					887				NTINV
S					457	223		120	NTINV
T							166		NTINV
U							52		NTINV
V						370			NTINV
W						90	32		NTINV
X						9			NTINV
Y	48								NTIV
Z	17								NTIV
AA	406								NTIV
BB	299								NTIV
CC	127								NTIV
DD	2276								NTIV
EE	40								NTIV
FF	1691								NTIV
GG	3654								NTIV
HH	11325								NTIV
II	2351								NTIV
JJ	8068								NTIV
KK	2733		2107	17568					NTIV
LL	219								NTIV
MM	118								NTIV
NN	1538								NTIV
OO	118								NTIV
PP			3267						NTIV
QQ	145								NTIV
RR			749						NTIV
SS	36								NTIV
TT			5417						NTIV
UU	101								NTIV
VV	38313		19203						NTIV
WW	1301								NTIV
XX	4049								NTIV
YY	156								NTIV
ZZ	1753								NTIV
AAA	32794	2760	3996	53271					NTIV
BBB	1708		9661						NTIV
CCC				31554					NTIV
DDD	23228		35898	59330					NTIV
EEE	2168		6340						NTIV
FFF	395								NTIV
GGG	639								NTIV
HHH	2591								NTIV
III	82								NTIV
JJJ		3316	1008	46709					NTIV
KKK	1066								NTIV
LLL	3424								NTIV
MMM	20883								NTIV
NNN	749								NTIV
OOO	680								NTIV
PPP	31								NTIV
Total	**171,320**	**6,076**	**87,646**	**208,432**	**7,701**	**3,582**	**680**	**215**	
Total Wetland Area =	**473,474 sq ft**				**10.87 ac**				
Total Stream Length =	**12,178 lf**								

* Tr=Tidal; NT=Non-tidal; V=Vegetated; NV=Non-Vegetated; PFO=Palustrine Forested Wetland; PSS=Palustrine Scrub-Shrub Wetland; PEM=Palustrine Emergent Wetland; POW= Palustrine Open Water; EIW= Estuarine Intertidal Wetlands; R3= Upper Perennial Streams; R4=Intermittent Streams; R6 = Ephemeral Streams; JD= Jurisdictional Ditch

Legend

- Project Study Limits - 279.0 Acres
- Stream Identifier
- Wetland Identifier
- Culvert
- Perennial Stream (R3)
- Intermittent Stream (R4)
- Ephemeral Stream (R6)
- Ditch
- Palustrine Emergent (PEM) Wetlands
- Palustrine Forested (PFO) Wetlands
- Palustrine Scrub-Shrub (PSS) Wetlands
- Palustrine Open Water (POW)

NOTES:

1. WATERS OF THE U.S. WITHIN THE PROJECT STUDY LIMITS HAVE BEEN GPS LOCATED BY TIMMONS GROUP.
2. WATERS OF THE U.S. HAVE NOT BEEN CONFIRMED BY THE U.S. ARMY CORPS OF ENGINEERS.
3. PROJECT STUDY LIMITS ARE APPROXIMATE.
4. TOPOGRAPHY BASED ON USGS LIDAR DATA.
5. COWARDIN STREAM CLASSIFICATIONS ARE BASED SOLELY ON FIELD OBSERVATIONS. NO FORMAL STREAM ASSESSMENT METHODOLOGY WAS COMPLETED TO DETERMINE THESE COWARDIN CLASSIFICATIONS.

N

0 240 480 960 Feet

Sheet 4 · Sheet 3 · Sheet 7 · Sheet 6 · Sheet 2 · Sheet 5

Culvert · Isolated

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DESIGNED BY L. MAJOR

CHECKED BY E. VIRTS

SCALE 1 " = 240 '

TIMMONS GROUP

ALTON POST OFFICE SOLAR SITE
HALIFAX COUNTY, VIRGINIA

FIGURE 4: PRELIMINARY JURISDICTIONAL WATERS OF THE U.S. DELINEATION MAP

JOB NO. 39225

SHEET NO. 1 OF 7

Resource Identification	Confirmation								Resource Description Notes*
	PFO (sq ft)	PSS (sq ft)	PEM (sq ft)	POW (sq ft)	R3 (lf)	R4 (lf)	R6 (lf)	Ditch (lf)	
A					2739				NTINV
B						120			NTINV
C						641			NTINV
D						364			NTINV
E						835			NTINV
F						360			NTINV
G							117		NTINV
H					1742				NTINV
I							70		NTINV
J					1671				NTINV
K					22	355			NTINV
L						114			NTINV
M						29			NTINV
N					183				NTINV
O						8	243		NTINV
P						64			NTINV
Q								95	NTINV
R					887				NTINV
S					457	223		120	NTINV
T							166		NTINV
U							52		NTINV
V						370			NTINV
W						90	32		NTINV
X						9			NTINV
Y	48								NTIV
Z	17								NTIV
AA	406								NTIV
BB	299								NTIV
CC	127								NTIV
DD	2276								NTIV
EE	40								NTIV
FF	1691								NTIV
GG	3654								NTIV
HH	11325								NTIV
II	2351								NTIV
JJ	8068								NTIV
KK	2733		2107	17568					NTIV
LL	219								NTIV
MM	118								NTIV
NN	1538								NTIV
OO	118								NTIV
PP			3267						NTIV
QQ	145								NTIV
RR			749						NTIV
SS	36								NTIV
TT			5417						NTIV
UU	101								NTIV
VV	38313		19203						NTIV
WW	1301								NTIV
XX	4049								NTIV
YY	156								NTIV
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AAA	32794	2760	3996	53271					NTIV
BBB	1708		9661						NTIV
CCC				31554					NTIV
DDD	23228		35898	59330					NTIV
EEE	2168		6340						NTIV
FFF	395								NTIV
GGG	639								NTIV
HHH	2591								NTIV
III	82								NTIV
JJJ		3316	1008	46709					NTIV
KKK	1066								NTIV
LLL	3424								NTIV
MMM	20883								NTIV
NNN	749								NTIV
OOO	680								NTIV
PPP	31								NTIV
Total	**171,320**	**6,076**	**87,646**	**208,432**	**7,701**	**3,582**	**680**	**215**	
Total Wetland Area =	**473,474 sq ft**				**10.87 ac**				
Total Stream Length =	**12,178 lf**								

* Tr=Total; NT=Non-tidal; V=Vegetated; NV=Non-Vegetated; PFO=Palustrine Forested Wetland; PSS=Palustrine Scrub-Shrub Wetland; PEM=Palustrine Emergent Wetland; POW= Palustrine Open Water; EIW= Estuarine Intertidal Wetlands; R3= Upper Perennial Streams; R4=Intermittent Streams; R6 = Ephemeral Streams; JD= Jurisdictional Ditch

Legend

- Project Study Limits - 279.0 Acres
- Stream Identifier
- Wetland Identifier
- Wetland Flag
- Field Data Station
- Culvert
- Perennial Stream (R3)
- Intermittent Stream (R4)
- Ephemeral Stream (R6)
- Ditch
- Palustrine Emergent (PEM) Wetlands
- Palustrine Forested (PFO) Wetlands
- Palustrine Scrub-Shrub (PSS) Wetlands
- Palustrine Open Water (POW)

NOTES:

1. WATERS OF THE U.S. WITHIN THE PROJECT STUDY LIMITS HAVE BEEN GPS LOCATED BY TIMMONS GROUP.
2. WATERS OF THE U.S. HAVE NOT BEEN CONFIRMED BY THE U.S. ARMY CORPS OF ENGINEERS.
3. PROJECT STUDY LIMITS ARE APPROXIMATE.
4. TOPOGRAPHY BASED ON USGS LIDAR DATA.
5. COWARDIN STREAM CLASSIFICATIONS ARE BASED SOLELY ON FIELD OBSERVATIONS. NO FORMAL STREAM ASSESSMENT METHODOLOGY WAS COMPLETED TO DETERMINE THESE COWARDIN CLASSIFICATIONS.

N

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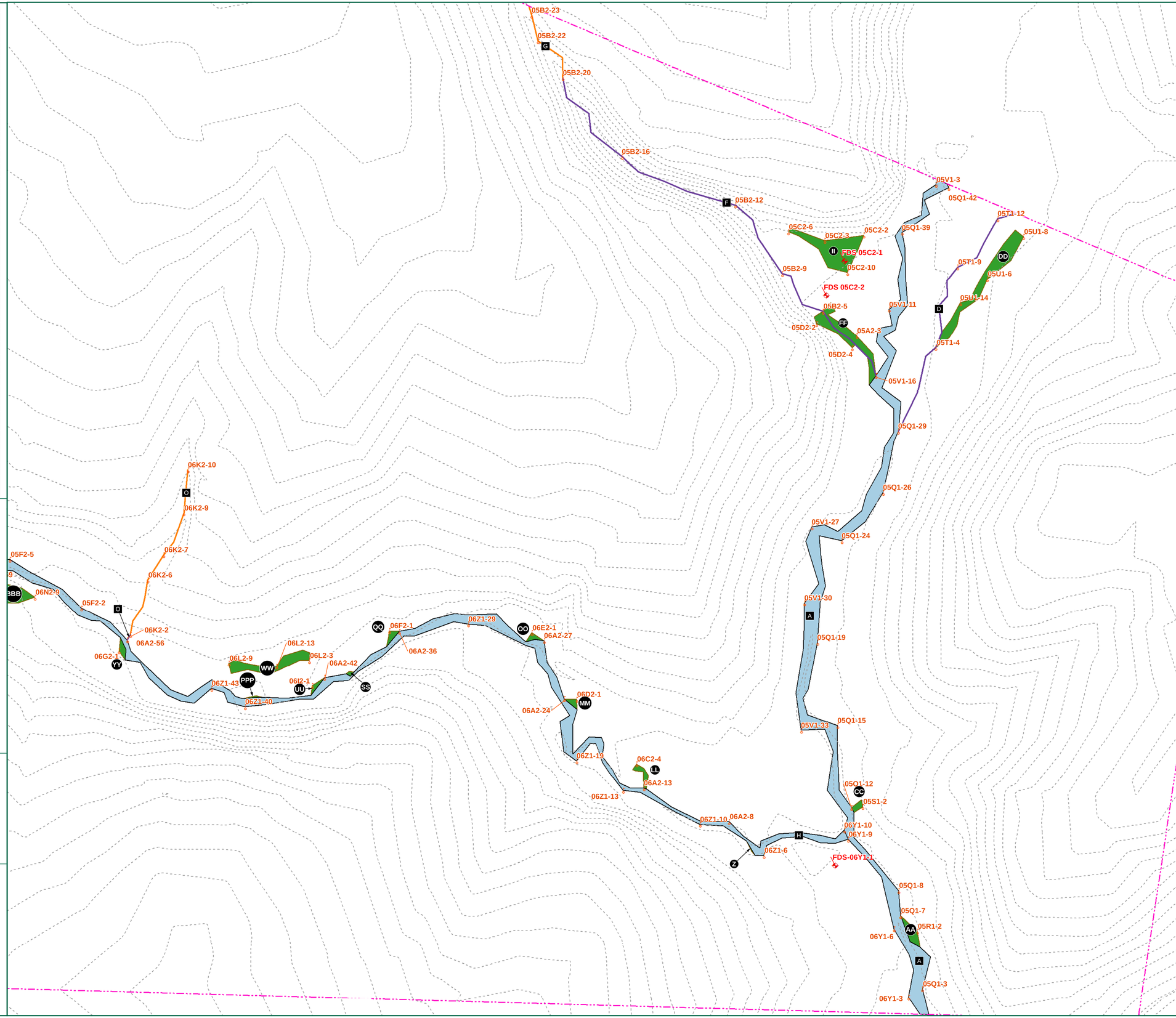

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DATE 1/31/2017

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DESIGNED BY L. MAJOR

CHECKED BY E. VIRTS

SCALE 1 " = 60 '

TIMMONS GROUP

ALTON POST OFFICE SOLAR SITE
HALIFAX COUNTY, VIRGINIA

FIGURE 4: PRELIMINARY JURISDICTIONAL WATERS OF THE U.S. DELINEATION MAP

JOB NO. 39225

SHEET NO. 2 OF 7

Resource Identification	Confirmation								Resource Description Notes*
	PFO (sq ft)	PSS (sq ft)	PEM (sq ft)	POW (sq ft)	R3 (lf)	R4	R6 (lf)	Ditch (lf)	
A					2739				NTINV
B						120			NTINV
C						641			NTINV
D						364			NTINV
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F						360			NTINV
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LL	219								NTIV
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Legend

- Project Study Limits - 279.0 Acres
- Stream Identifier
- Wetland Identifier
- Wetland Flag
- Field Data Station
- Culvert
- Perennial Stream (R3)
- Intermittent Stream (R4)
- Ephemeral Stream (R6)
- Ditch
- Palustrine Emergent (PEM) Wetlands
- Palustrine Forested (PFO) Wetlands
- Palustrine Scrub-Shrub (PSS) Wetlands
- Palustrine Open Water (POW)

NOTES:

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3. PROJECT STUDY LIMITS ARE APPROXIMATE.
4. TOPOGRAPHY BASED ON USGS LIDAR DATA.
5. COWARDIN STREAM CLASSIFICATIONS ARE BASED SOLELY ON FIELD OBSERVATIONS. NO FORMAL STREAM ASSESSMENT METHODOLOGY WAS COMPLETED TO DETERMINE THESE COWARDIN CLASSIFICATIONS.

N

0 60 120 240 Feet

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DATE 1/31/2017

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DESIGNED BY L. MAJOR

CHECKED BY E. VIRTS

SCALE 1 " = 60 '

JOB NO. 39225

SHEET NO. 3 OF 7

TIMMONS GROUP

ALTON POST OFFICE SOLAR SITE
HALIFAX COUNTY, VIRGINIA

FIGURE 4: PRELIMINARY JURISDICTIONAL WATERS OF THE U.S. DELINEATION MAP

Resource Identification	Confirmation								Resource Description Notes*
	PFO (sq ft)	PSS (sq ft)	PEM (sq ft)	POW (sq ft)	R3 (lf)	R4 (lf)	R6 (lf)	Ditch (lf)	
A					2739				NTINV
B						120			NTINV
C						641			NTINV
D						364			NTINV
E						835			NTINV
F						360			NTINV
G							117		NTINV
H					1742				NTINV
I							70		NTINV
J					1671				NTINV
K					22	355			NTINV
L						114			NTINV
M						29			NTINV
N					183				NTINV
O						8	243		NTINV
P						64			NTINV
Q								95	NTINV
R					887				NTINV
S					457	223		120	NTINV
T							166		NTINV
U							52		NTINV
V						370			NTINV
W						90	32		NTINV
X						9			NTINV
Y	48								NTIV
Z	17								NTIV
AA	406								NTIV
BB	299								NTIV
CC	127								NTIV
DD	2276								NTIV
EE	40								NTIV
FF	1691								NTIV
GG	3654								NTIV
HH	11325								NTIV
II	2351								NTIV
JJ	8068								NTIV
KK	2733		2107	17568					NTIV
LL	219								NTIV
MM	118								NTIV
NN	1538								NTIV
OO	118								NTIV
PP			3267						NTIV
QQ	145								NTIV
RR			749						NTIV
SS	36								NTIV
TT			5417						NTIV
UU	101								NTIV
VV	38313		19203						NTIV
WW	1301								NTIV
XX	4049								NTIV
YY	156								NTIV
ZZ	1753								NTIV
AAA	32794	2760	3996	53271					NTIV
BBB	1708		9661						NTIV
CCC				31554					NTIV
DDD	23228		35898	59330					NTIV
EEE	2168		6340						NTIV
FFF	395								NTIV
GGG	639								NTIV
HHH	2591								NTIV
III	82								NTIV
JJJ		3316	1008	46709					NTIV
KKK	1066								NTIV
LLL	3424								NTIV
MMM	20883								NTIV
NNN	749								NTIV
OOO	680								NTIV
PPP	31								NTIV
Total	**171,320**	**6,076**	**87,646**	**208,432**	**7,701**	**3,582**	**680**	**215**	
Total Wetland Area =	**473,474 sq ft**				**10.87 ac**				
Total Stream Length =	**12,178 lf**								

* Tr=Tidal; NT=Non-tidal; V=Vegetated; NV=Non-Vegetated; PFO=Palustrine Forested Wetland; PSS=Palustrine Scrub-Shrub Wetland; PEM=Palustrine Emergent Wetland; POW= Palustrine Open Water; EIW= Estuarine Intertidal Wetlands; R3= Upper Perennial Streams; R4=Intermittent Streams; R6 = Ephemeral Streams; JD= Jurisdictional Ditch

Legend

- Project Study Limits - 279.0 Acres
- Stream Identifier
- Wetland Identifier
- Wetland Flag
- Field Data Station
- Culvert
- Perennial Stream (R3)
- Intermittent Stream (R4)
- Ephemeral Stream (R6)
- Ditch
- Palustrine Emergent (PEM) Wetlands
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- Palustrine Open Water (POW)

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N

0 60 120 240 Feet

FDS-06G3-1
06G3-2
I
06G3-1
05W2-15
KK
05W2-13
06E3-12
KK
06F3-2
06E3-8
05W2-11
06E3-4
05W2-8
KK
KK
05W2-6
KK
05W2-4
06E3-1
Culvert
06D3-6
06X2-35
05V2-7
05V2-4
06X2-30
05W2-2
JJ
06C3-4
06X2-24
05T2-11
06X2-20
06A3-2
05T2-9
HH
05T2-7
06Z2-1
E
05T2-4
05S1-9
GG
06X2-13
05S1-10
FDS 05S1-2
06U2-39
05U2-6
FDS 05S1-1
05S1-3
06Y2-1
EE
06X2-3
05S1-1
06U2-36
06U2-33
C
06U2-31
06U2-28
06U2-26
06U2-21
06W2-4
BB
06W2-2

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SCALE 1 " = 60 '

ALTON POST OFFICE SOLAR SITE
HALIFAX COUNTY, VIRGINIA

FIGURE 4: PRELIMINARY JURISDICTIONAL WATERS OF THE U.S. DELINEATION MAP

JOB NO. 39225

SHEET NO. 4 OF 7

Resource Identification	Confirmation								Resource Description Notes*
	PFO (sq ft)	PSS (sq ft)	PEM (sq ft)	POW (sq ft)	R3 (lf)	R4 (lf)	R6 (lf)	Ditch (lf)	
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B						120			NTINV
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I							70		NTINV
J					1671				NTINV
K					22	355			NTINV
L						114			NTINV
M						29			NTINV
N					183				NTINV
O						8	243		NTINV
P						64			NTINV
Q								95	NTINV
R					887				NTINV
S					457	223		120	NTINV
T							166		NTINV
U							52		NTINV
V						370			NTINV
W						90	32		NTINV
X						9			NTINV
Y	48								NTIV
Z	17								NTIV
AA	406								NTIV
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Legend

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- Wetland Identifier
- Wetland Flag
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- Culvert
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N

0 60 120 240 Feet

Path: Y:\80439225-Alton Post Office_Solar\GIS\Wetland Delineation\39225-WTDM.mxd

FDS 05H1-2, 05H1-21, FDS 05H1-1, 05H1-22, 05H1-20, 06J1-8, 06J1-5, 06J1-11, 06I1-3, 06H1-6, 06H1-2, 06A1-46, 06A1-42, 05H1-17, 05H1-24, 05H1-26, 05H1-5, 05H1-3, 05H1-14, 06A1-39, 05B1-40, 05H1-12, 05H1-7, 05H1-9, 05H1-10, 05H1-5, 05H1-3, 06A1-35, 05B1-33, 06A1-31, 05F1-4, 05F1-3, 05E1-16, 06A1-27, 05E1-13, 05E1-8, 05E1-10, 05E1-5, 06A1-26, 06A1-24, 05E1-3, FDS 06G1-2, FDS 06G1-1, 06G1-0.5, 06G1-6, 06B1-3, 05B1-17, FDS 05B1-1, 05B1-15, 05B1-7, 05B1-5, 05B1-3, 06A1-4, 06C1-1, 06C1-3, 05D1-4, 05C1-2, 06A1-8, 06A1-15, 06A1-13, 06G1-4, 06G1-3, 06F1-3, 06E1-4, 06F1-2, 06C1-12, 06C1-11, 06C1-14, 06D1-2, 06C1-15

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SCALE 1 " = 60 '

ALTON POST OFFICE SOLAR SITE
HALIFAX COUNTY, VIRGINIA

FIGURE 4: PRELIMINARY JURISDICTIONAL WATERS OF THE U.S. DELINEATION MAP

JOB NO. 39225

SHEET NO. 5 OF 7

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Q								95	NTINV
R					887				NTINV
S					457	223		120	NTINV
T							166		NTINV
U							52		NTINV
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X						9			NTINV
Y	48								NTIV
Z	17								NTIV
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CC	127								NTIV
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WW	1301								NTIV
XX	4049								NTIV
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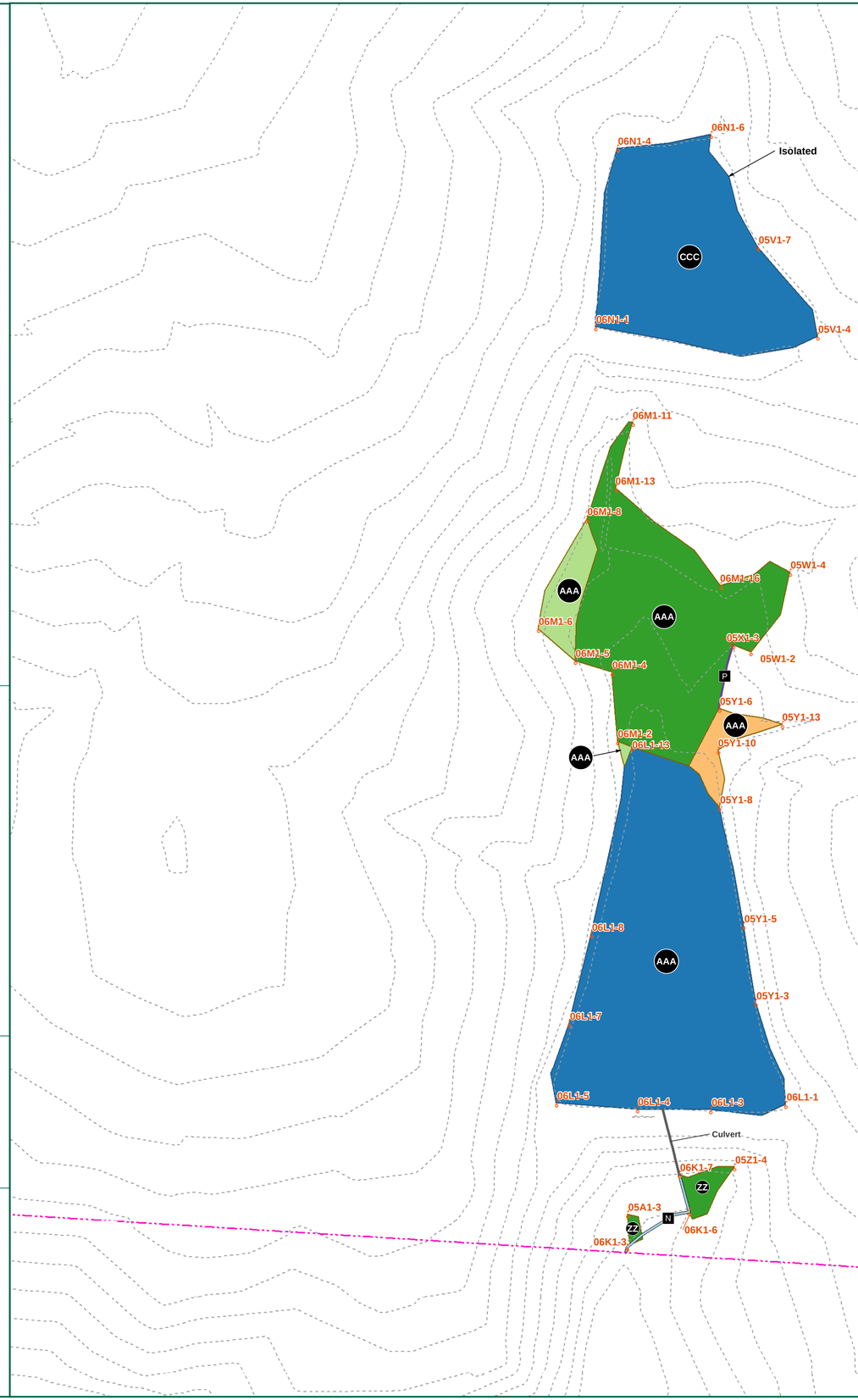
N

0 60 120 240 Feet



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SCALE 1 " = 60 '

ALTON POST OFFICE SOLAR SITE

HALIFAX COUNTY, VIRGINIA

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JOB NO. 39225

SHEET NO. 6 OF 7

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LL	219								NTIV
MM	118								NTIV
NN	1538								NTIV
OO	118								NTIV
PP			3267						NTIV
QQ	145								NTIV
RR			749						NTIV
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TT			5417						NTIV
UU	101								NTIV
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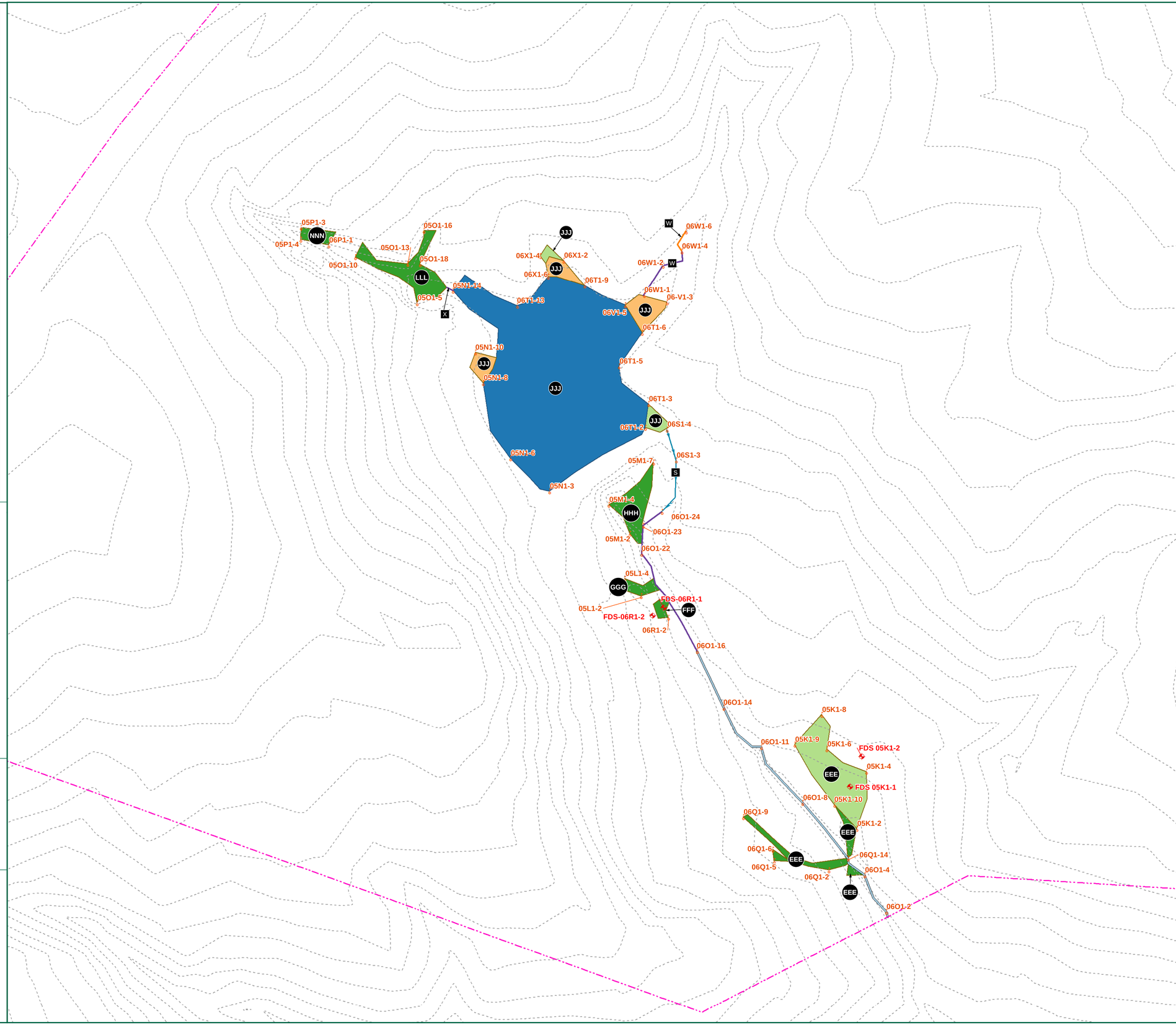

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FIGURE 4: PRELIMINARY JURISDICTIONAL WATERS OF THE U.S. DELINEATION MAP

JOB NO. 39225

SHEET NO. 7 OF 7

APPENDIX A
FIELD DATA SHEETS

Field Data Sheets Available Upon Request

APPENDIX B
USACE JD REQUEST FORM

NORFOLK DISTRICT REGULATORY OFFICE
PRE-APPLICATION AND/OR JURISDICTIONAL WATERS DETERMINATION REQUEST FORM

This form is used when you want to determine if areas on your property fall under regulatory requirements of the U.S. Army Corps of Engineers (USACE). Please supply the following information and supporting documents described below. This form can be filled out online and/or printed and then mailed, faxed, or e-mailed to the Norfolk District. Submitting this request authorizes the US Army Corps of Engineers to field inspect the property site, if necessary, to help in the determination process. **THIS FORM MUST BE SIGNED BY THE PROPERTY OWNER TO BE CONSIDERED A FORMAL REQUEST.**

The printed form and supporting documents should be mailed to:

U.S. Army Corps of Engineers, Norfolk District
Regulatory Office
803 Front Street
Norfolk, Virginia 23510-1096

Or faxed to (757) 201-7678

Or sent via e-mail to: CENAO.REG_ROD@usace.army.mil

Additional information on the Regulatory Program is available on our website at:
http://www.nao.usace.army.mil/technical%20services/Regulatory%20branch/homepage.asp

Please contact us at 757-201-7652 if you need any assistance with filling out this form.

Location and Information about Property to be subject to a Jurisdictional Determination:

1. City or County where property located: Halifax County, Virginia

2. Address of property and directions (attach a map of the property location and a copy of the property plat): From the intersection of Route 501(Main St.) and Route 58/360 (Philpott Rd.), head west on 58/360 toward Danville. In 9.5 Miles turn left onto Route 699, in 2.1 miles turn left on to Route 701, then in 2 miles turn right on to Route 711. Site will be on the left in 0.7 miles. (See Attached VIC Map)

3. Size of property in acres: 279

4. Tax parcel number (if available):

5. Has a jurisdictional determination been completed by a consultant or the Corps on the property previously? ☐ YES or ☒ NO

If yes, please provide the name of the consultant and/or Corps staff and Corps permit number, if available:

6. Brief Description of Proposed Activity or Reason for Jurisdictional Waters Determination Request: Site Due-diligence

7. Name of Nearest Waterway: Powells Creek

8. Date of Request: 6/8/2017

Property Owner Contact Information:

Property Owner Name: Alton Post Office Solar, LLC c/o James Crawford
Mailing Address: 337 Log Canoe Circle
City: State: Zip: Stevensville, MD 21666
Daytime Telephone: (410) 604-3603
E-mail Address: James.crawford@urbangridco.com

If the person requesting the Jurisdictional Determination is **not** the Property Owner, please also supply the Requestor's contact information here:

Requestor Name: Timmons Group c/o Ethan Virts
Mailing Address: 1001 Boulders Parkway, Suite 300
City: State: Zip: Richmond, Virginia 23225
Daytime Telephone: (804) 200-6414
E-mail Address: Ethan.Virts@timmons.com

Additionally, if you have any of the following information, please include it with your request: wetland delineation map, other relevant maps, drain tile survey, topographic survey, and/or site photographs.

CERTIFICATION: I am hereby requesting a preapplication consultation or jurisdictional waters and/or wetlands determination from the U.S. Army Corps of Engineers, for the property(ies) I have described herein. I agree to allow the duly authorized representatives of the Norfolk District Corps of Engineers and other regulatory or advisory agencies to enter upon the premises of the project site at reasonable times to evaluate inspect and photograph site conditions. This consent to enter the property is superior to, takes precedence over, and waives any communication to the contrary. For example, if the property is posted as "no trespassing" this consent specifically supercedes and waives that prohibition and grants permission to enter the property despite such posting. I hereby certify that the information contained in the Request for a Jurisdictional Determination is accurate and complete:

James A Crawford Jr
Property Owner's Signature

6/8/17
Date

Attachment J – Certification of Design

Virginia Department of Department of Environmental Quality
Small Renewable Energy Projects

Certification of Design

Facility Name and Location

Name: Alton Post Office Solar

Location: Halifax County, VA

Applicant's Name: Alton Post Office Solar, LLC

Applicant's Mailing Address:	Telephone Number and Email Address:
337 Log Canoe Circle Stevensville, MD 21666	(410)604-3603 james.crawford@urbangridco.com

Certification Requirement: The applicant is submitting an application for a small renewable energy Permit by Rule from the Virginia DEQ, in accordance with §10.1-1197.6 B9 of the Code of Virginia, before such permit application can be considered complete, the applicant furnishes to the department a certification signed by a professional engineer licensed in Virginia that the project is designed in accordance with 9VAC15-60-80.

Professional Engineer Licensed in Virginia

Name: Dan Jamison, P.E.

License Number: 38979

Phone: 804-200-6538

Email: dan.jamison@timmons.com

I hereby certify that the site plan furnished to comply with §10.1-1197.6 B 11 submitted as part of this Permit by Rule application is correct and fulfills the requirements of §10.1-1197.6 B 9 of the Code of Virginia.

Signature

DAN JAMISON, P.E.
Name

4/20/2020
Date

Attachment K – Operating Plan

Alton Post Office Solar Facility

Operations Plan

This document details the Operations Plan for the Alton Post Office solar facility located along Route 711 (Alton Post Office Road) and Route 699 (Mt Carmel Road) approximately one mile north of the North Carolina border in Halifax County, Virginia.

This Operations Plan describes basic criteria for usage during routine operations at Alton Post Office Solar.

Grounds Maintenance

Vegetation around the solar panel modules and inverters will be maintained to appropriate height. The project owner has committed to installing pollinator-friendly plants in select areas of the project boundary and specifications of the planting plan will be coordinated with Halifax County during the Site Plan review process. The vegetative buffer shall be maintained in good condition until decommissioning and removal.

When necessary, the presence of invasive herbaceous species will be managed with approved herbicides.

Areas outside of the fenced solar array will not be manicured to maintain natural conditions (typically forested).

Litter will be picked up from the site as needed on at least a bi-monthly schedule.

If necessary, tree management via trimming and removal will occur periodically in areas that shade solar panels or that present a hazard to the solar array and/or related equipment.

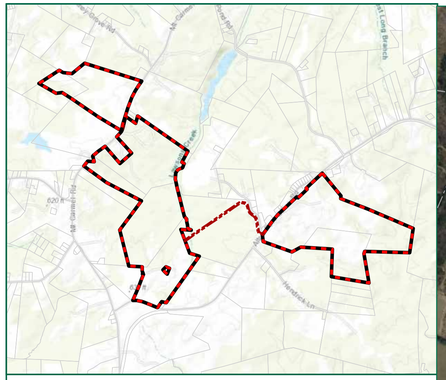
Site Access

Site access will be controlled by fencing around the solar array and inverters. No trespassing signs with appropriate contact information will be posted along the fence for security. The security fence shall be maintained until decommissioning and removal, and upon learning of any disrepair, shall be promptly fixed.

Solar Equipment

Equipment status will be monitored by Alton Post Office Solar, LLC personnel, or its designees. If maintenance is required, staff will be dispatched to the location to identify and correct the issue(s).

Attachment L – Site Plan, Context Map



Legend

- Project Limits - 778.1 Acres
- Project Easement - 5.1 Acres
- Property Setbacks - 25 Foot / 75 Foot / 100 Foot
- Project Entrance Location
- Stream
- Culvert
- 10' Topographic Contours
- Existing Vegetative Buffer
- Proposed Vegetative Buffer
- Inverter
- Panel
- Proposed Access Road
- OHP — Proposed Overhead Power Line
- Existing Pipeline
- Existing Pipeline Easement
- UGP — Proposed Underground Power
- Proposed Fence
- Proposed Substation
- Proposed Laydown Yard
- Wetland
- Wetland and Stream Buffer
- 1% annual chance flood hazard
- Development Envelope - 647.1 Acres
- Halifax County Tax Parcels

NOTES

1. Project Limits are approximate.
2. Site layout is for design purposes only. Not for construction.
3. Fence will be six (6) feet in height plus an additional one (1) foot of barbed wire (approximate).
4. Solar panels and solar inverters will be twelve (12) feet in height (approximate).
5. Waters of the U.S. within the project limits have been delineated by Timmons Group and confirmed or are pending confirmation under NAO-2017-02134.

Piney Grove Rd
Mill Pond Rd
S Mark Church Rd
Mt Carmel Rd
Coleman Dr
Dawson Trl
Alton Post Office Rd
Mason Chapel Rd
Emergency Rd
Honeytree Ln
Mt Carmel Ln

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.
1001 Boulders Parkway, Suite 300
Richmond, VA 23225
TEL 804.200.6500
www.timmons.com

PROJECT NAME & LOCATION

ALTON POST OFFICE SOLAR, LLC
HALIFAX COUNTY, VIRGINIA

DATE: 03/23/2020
PROJECT NUMBER: 39225
PROJECT NAME: ALTON POST OFFICE SOLAR, LLC
DESIGNED BY / DRAWN BY: L. WHEELER

REVISIONS

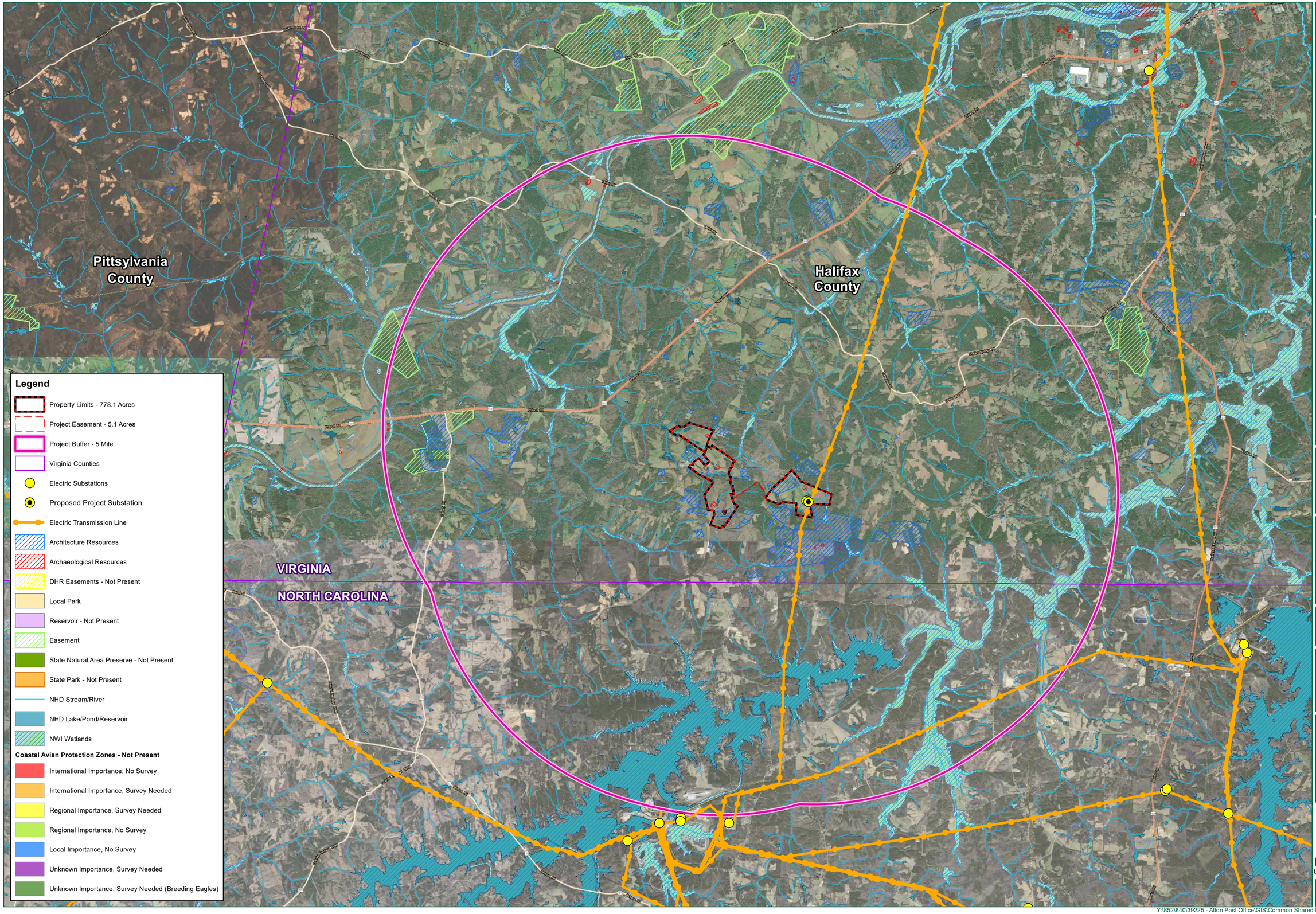
#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION: PRELIMINARY SITE PLAN

SCALE (FEET)
0 700 1,400
PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE	SHEET NUMBER
H:1 " = 700 '	1

Y:\852\840\39225 - Alton Post Office\GIS\Common Shared Exhibits\39225-PBR Site Plan.mxd



TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.
1001 Boulders Parkway, Suite 300
Richmond, VA 23225
TEL 804.200.6500
www.timmons.com

PROJECT NAME & LOCATION

ALTON POST OFFICE SOLAR, LLC

HALIFAX COUNTY, VIRGINIA

DATE	03/24/2020
PROJECT NUMBER	39225
PROJECT NAME	ALTON POST OFFICE SOLAR, LLC
DESIGNED BY / DRAWN BY	L. WHEELER

NOTES:
Project Limits are approximate.
Cultural Resource data from DHR.
Parks data from DCR.
Wetland data from FWS.
Stream data from USGS.
Easements from VOF.
Aerial imagery from ESRI.

REVISIONS

#	MM/DD/YY	DESCRIPTION

DRAWING DESCRIPTION
CONTEXT MAP

SCALE (FEET)
0 4,000 8,000
PLANS PRINTED AS 11X17 ARE HALF SCALE

SCALE	SHEET NUMBER
H:1 " = 4,000 '	1

Y:\852\840\39225 - Alton Post Office\GIS\Common Shared Exhibits\39225-ContextMap.mxd

Attachment M – Environmental Permit Certification Form

Virginia Department of Environmental Quality
Small Renewable Energy Projects (Solar)
Environmental Permit Certification Form

Facility Name and Location: Alton Post Office Solar
Halifax County, VA

Applicant's Name & Title: Alton Post Office Solar, LLC

Applicant's Mailing Address:	Telephone Number and Email Address:
337 Log Canoe Circle Stevensville, MD 21666	337 Log Canoe Circle Stevensville, MD 21666

The applicant is submitting an application for a small renewable energy permit by rule from the Virginia DEQ. In accordance with § 10.1-1197.6 B 12 of the Code of Virginia, before such permit application can be considered complete, the applicant must certify that the small renewable energy project has applied for or obtained all necessary environmental permits.

List all state and local environmental permits that are necessary for the small renewable energy project listed above. Indicate for each whether the permit has been applied for and/or obtained. If the permit has been obtained, attach either a copy of the permit or a letter from the appropriate agency staff member on agency stationery stating that the permit has been issued and the date of issuance. If a permit has not yet been obtained but has been applied for, provide the name of the permit, name and address of the receiving agency, name of the staff person at the receiving agency to whom the application was addressed (if available), and the date on which the application was submitted. If no permits are necessary, write the word "none" in the first column.

Permit	Permitting Agency / Authority, Address, Contact Person	Applied for (Date)	Obtained (Date)
General VPDES Permit for Discharges of Stormwater from Construction Activities	VDEQ – Office of Stormwater Management 1111 East Main St Richmond, VA 23219 Heather McAlister	04/22/2020	

***I hereby certify** that the information provided above (and any attached information) is correct and fulfills the requirements of § 10.1-1197.6 B 12 of the Code of Virginia and 9 VAC 15-40-30 A 12.*

Applicant's Signature	Date:
James A Crawford Jr	04/23/2020

Attachment N – Non-Utility Certification Form

Virginia Department of Environmental Quality
Small Renewable Energy Projects
Non-Utility Certification Form

Facility Name and Location: Alton Post Office Solar
Halifax County, VA

Applicant's Name: Alton Post Office Solar, LLC

Applicant's Mailing Address:	Telephone Number and Email Address:
337 Log Canoe Circle Stevensville, MD 21666	(410)604-3603 james.crawford@urbangridco.com

The applicant or his authorized representative an application for a small renewable energy permit by rule from the Virginia Department of Environmental Quality. In accordance with § 10.1 -1197.6 H of the Code of Virginia, before such permit application can be considered complete, the applicant must certify the project is proposed, developed, constructed or purchase by a person that is NOT a utility regulated pursuant to Title 56 of the Code of Virginia.

The undersigned is an responsible official for the proposed project and certifies that the project is proposed, developed, constructed or purchased by a person that is NOT a utility regulated pursuant to Title 56 of the Code of Virginia.

Applicant's signature:	Date:
James A Crawford JR	02/27/2020

Attachment O – Public Review Documents

Alton Post Office Solar, LLC

Public Participation Summary

The Alton Post Office project ("Project") is a 75 MW solar facility proposed by Alton Post Office Solar, LLC. The Project is located along Route 711 (Alton Post Office Road) and Route 699 (Mt Carmel Road) approximately one mile north of the North Carolina border in Halifax County, Virginia.

In accordance with § 10.1-1197.6 B 13 and 14 of the Code of Virginia, there was a 30-day public review and comment period from August 13 to September 11, 2020.

Notification in Newspaper

The public review and comment period was announced by publication in the Gazette Virginian once a week for two consecutive weeks, on July 29 and August 5, 2020. An affidavit certifying the publication is included.

Public Comment Period

Materials were available for viewing during the review period electronically on the following website: (http://www.urbangridsolar.com/news).

During the public comment period, between August 13 and September 11, 2020, no comments were received.

Public Meeting

Pursuant to 9VAC15-60-90 and Executive Order 53, there was a public meeting on Wednesday, September 2, 2020 from 6pm until 7:30 pm in the parking lot of the Turbeville Ruritan Club, located at 1040 Melon Road, South Boston, Va.

The Applicant planned to maintain social distancing with the following strategy:

Information was presented on poster boards which would be visible by attendees' cars. Following the viewing of this information, citizens would be asked to park and remain in their cars. Citizens would be directed to ask questions by raising their hand out of the window or honking their horn, at which time a representative from Alton Post Office Solar, LLC would be available to receive comments while maintaining required social distancing practices. The meeting was attended by one individual.

The meeting was also held via RingCentral Meeting teleconferencing. Citizens were asked to pre-register to attend via teleconferencing and to receive a personalized access code for the meeting and participation instructions. No attendees requested to participate in the teleconference.

No formal comments were received during the meeting.

Supporting Documents

- Gazette Virginian Advertising Affidavit
- Copies of Public Notice
- Public Meeting Sign-In

GAZETTE'S ANNUAL SUBSCRIPTION DRIVE STARTS TODAY! SEE FLYER INSIDE FOR DETAILS!

THE GAZETTE-VIRGINIAN

SPORTS

YOUNG PLAYER IN DEMAND

RISING SOPHOMORE TAKES NEXT STEPS IN BASKETBALL CAREER

WEDNESDAY, JULY 29, 2020 OUR 117TH YEAR | HALIFAX COUNTY'S LARGEST NEWSPAPER $1 SAMPLE COPY | POSTAL PATRON

YOURGV.COM

HALIFAX COUNTY PUBLIC SCHOOLS

Speaker:

the installment plan."
Beware; there are
forces at work out there

Jack Dunavant
Halifax

PUBLIC NOTICE

ALTON POST OFFFICE SOLAR LLC

A solar renewable energy project is proposed to be located on approximately 778.1 acres (plus a 5.1-acre easement) located near Route 711 (Alton Post Office Road) and Route 699 (Mount Carmel Road), located approximately 1.5 miles southwest of Alton in Halifax County.

The project has been approved by the Halifax County Board of Supervisors under a Conditional Use Permit. The proposed project is now proceeding through the Virginia Permit by Rule process.

The project will have a maximum capacity of 75 Megawatts Alternating Current (AC) utilizing traditional photovoltaic solar modules which will rotate on a single axis to track the sun. Approximately 200,000 panels will be utilized with a maximum height of 12'.

We welcome the opportunity to present this project to interested parties. The purpose of the public participation is to (i) acquaint the public with the technical aspects of the proposed project and how the standards and the requirements of the Virginia Department of Environmental Quality PBR regulations will be met, (ii) identify issues of concern, (iii) facilitate communication, and (iv) establish a dialogue between the owner or operator and persons who may be affected by the project.

A 30-day comment period, in accordance with 9VAC15-60-90 C will be held commencing August 13, 2020 through September 11, 2020. Any interested parties may contact the applicant to ask questions or provide comments, or request a copy of the application materials by contacting:

Urban Grid Solar Project, LLC
ATTN: James Crawford
337 Log Canoe Circle
Stevensville, MD 21666
434-953-8810
James.Crawford@UrbanGridCo.com

A public meeting will be held in accordance with 9VAC15-60-90 C and Executive Order 53 on Wednesday, September 2, 2020 at 6:00 PM until 7:30 PM in the parking lot of the Turbeville Ruritan Club, located at 1040 Melon Road, South Boston, VA 24592. Information will be presented on poster boards which will be visible by attendees' cars. Following the viewing of this information, citizens are asked to park and remain in their cars. Citizens may ask questions by raising their hand out of the window or honking their horn, at which time a representative from Alton Post Office Solar, LLC will come to receive comments while maintaining required social distancing practices. Questions will then be addressed by an Alton Post Office Solar, LLC representative.

For those who would prefer to stay home to help prevent the spread of COVID-19, or are unable to attend the meeting at the Turbeville Ruritan Club, a digital public hearing will be held via RingCentral Meeting teleconferencing service and in compliance with Item 4-0.01 g of Chapter 1283 of the 2020 Acts of Assembly. To participate in the virtual presentation, please email James Crawford at james.crawford@urbangridco.com and type "Alton Post Office Solar, LLC, Virtual Presentation" in the subject line to receive a personalized access code for the meeting and participation instructions. The virtual presentation will be accessible fifteen minutes prior to the start of the live presentation, at 5:45 PM on September 2, 2020 until 7:30 PM.

Copies of the documentation to be submitted to the DEQ in support of the Permit by Rule application will be available for inspection on the following website: (http://www.urbangridsolar.com/news).

THE GAZETTE-VIRGINIAN

COUPONS INSIDE TODAY!

MORE THAN $38 IN SAVINGS!

MASK MAKERS

Women get creative during pandemic »B2

WEDNESDAY, AUGUST 5, 2020 *OUR 117TH YEAR | HALIFAX COUNTY'S LARGEST NEWSPAPER* $1

YOURGV.COM

Statue arguments aired

Courthouse renovation

cancer patients as they seek the needed lifesaving treatments.

As of July 9, 2020, HCCA has served 136 patients, provided 737 $5 food cards and gas for patients to travel to 1,164 cancer-related appointments, tests, and treatments. We have given financial help with cancer related medication totaling $8,535 as well as other services such as nutritional supplements, medical bill assistance, walk-

please see **VOICES**, page **A6**

PUBLIC NOTICE

ALTON POST OFFFICE SOLAR LLC

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ATTN: James Crawford
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Copies of the documentation to be submitted to the DEQ in support of the Permit by Rule application will be available for inspection on the following website: (http://www.urbangridsolar.com/news).

The Gazette-Virginian

P.O. Box 524 South Boston, Virginia
(434) 572-3945

attach
copy

CERTIFICATE OF PUBLICATION

I, Linda Shelton of The Gazette-Virginian, a newspaper published in the Town of South Boston, Virginia, general circulation in said County and Town, do hereby certify that the foregoing Order of Publication was published in said newspaper for (2)

successive weeks from the 29th day of July to the 5th day of August 2020.

Linda Shelton
By Cathy Beadles
For The Gazette-Virginian

Total Cost
$ 580 00

URBAN GRID

ALTON POST OFFICE SOLAR, LLC

PERMIT BY RULE PUBLIC MEETING

September 2, 2020

NAME	MAILING ADDRESS	PHONE/EMAIL
[illegible] McKinney	9000 Alton Post Rd	MCKINNEY_E@MSN.COM