

APPENDIX 1

PJM Generation Interconnection Feasibility Study

Date: July 11, 2017

Dear Mr. Wright:

Re: PJM Queue Position AC2-120, "Ripley 69 kV" Feasibility Study Report and System Impact Study Agreement

Enclosed is a report documenting the results of the PJM queue project AC2-120, "Ripley 69 kV" Feasibility Study. The results of this study are predicated on a year 2020 transmission system and based on PJM's best assumptions at the present time for load growth and for connection of proposed new generation additions. Feasibility Studies are performed to determine the facilities required for interconnection and to define the cost and timing for construction of direct connection facilities and transmission network upgrades required for the reliable interconnection of a generation project to the transmission system.

The direct connection facilities, network upgrades costs, and associated timing described in the attached report is based upon estimates given to PJM by the Southern Maryland Electric Cooperative (SMECO). The costs, if any, are your responsibility as the Interconnection Customer.

Pursuant to section 204.3 of the PJM Tariff, attached is a System Impact Study Agreement for your consideration. The Agreement must be executed and in PJM's possession within thirty (30) days **(by close of business on August 11, 2017)** in order to maintain the project's position in the queue. Per PJM Manual 14A, Table 2-2-1 and 2-2-2, a deposit of **\$13,750** is required to accompany the signed Agreement.

PJM is now utilizing the DocuSign electronic signature program for executing agreements. Please follow the instructions provided by that program to execute the Agreement. If you are not familiar with, or not able to use the DocuSign process, please contact me immediately.

Please ensure that all requirements of Section 204 of the PJM Tariff are completed when returning the System Impact Study Agreement including specifying the Point of Interconnection if more than one option was provided in the Feasibility Study Report.

Using your CAM account, you may access the Impact Study data form through the same dashboard as the Attachment N form - <https://planningcenter.pjm.com/queuepoint/>. This information must be returned by **August 11, 2017** in order to maintain this project's queue position.

Costs for the Feasibility Study are being tabulated and you will receive an invoice in the near future. If you desire to discuss the Feasibility Study Report or the System Impact Study Agreement in more detail, please call me at (610) 666-4566 or email me at Kenneth.Graff@pjm.com. A meeting or teleconference will be arranged at your convenience.

The following information is provided for wire transfers: Bank: PNC Bank, NA, New Jersey; ABA Number: 031-207-607; Account Number: 8013589826. Please e-mail Jeannette Mittan at Jeannette.Mittan@pjm.com with the project's name, queue number, date, and amount of wire.

Sincerely,

Ken Graff
PJM Interconnection LLC
Interconnection Projects
610-666-4566

***Generation Interconnection
Feasibility Study Report***

For

***PJM Generation Interconnection Request
Queue Position AC2-120***

“Ripley 69 kV”

July 2017

Preface

The intent of the Feasibility 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 Interconnection Customer. As a requirement for interconnection, the Interconnection Customer 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 Interconnection Customer 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.

Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The Interconnection Customer may be 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

MD Solar 2, LLC, the Interconnection Customer (IC), has proposed a 27.5 MW (10.45 MWC) solar generating facility to be located in Pispah, Charles County, Maryland. PJM studied AC2-120 as a 27.5 MW injection into the Southern Maryland Electric Cooperative (SMECO) system at the Hawkins Gate 69 kV Substation and evaluated it for compliance with reliability criteria for summer peak conditions in 2020. The planned in-service date, as requested by the IC during the project kick-off call, is June 30, 2019. This date may not be attainable due to additional required PJM studies (System Impact and Facilities) and the Transmission Owner's construction schedule.

Point of Interconnection

The Interconnection Customer requested a transmission level Point of Interconnection (POI). As a result, AC2-120 will interconnect with the SMECO transmission system at an open 69 kV bay within the existing SMECO 69 kV Ripley switching station (see Attachment 1).

Transmission Owner Scope of Direct Connection Work

Substation Interconnection Conceptual Estimate

Scope: Additional land acquisition is needed in order to utilize the open 69 kV bay position at SMECO's Ripley switching station as described. The IC is responsible for acquiring and conveying the necessary land, opposite the open bay position, to SMECO. It is believed that the adjacent land area is owned or otherwise available to the IC for this purpose.

Load break disconnect switches need to be added to the existing Ripley switching station bus work at the open bay position. This work requires a partial 69 kV bus outage. During the bus outage period, SMECO will need to construct two temporary 69 kV transmission bypass circuits to maintain service to existing Grayton and McConchie substation loads served via transmission line #6718 and #6727 respectively.

The physical interconnection itself will include a 69 kV line breaker with protective relaying and control circuits, communications, revenue metering units, and load break disconnect switches. The generator can physically connect to the new breaker position using hard bus or overhead line conductor.

SMECO's estimated cost for this work is \$568,500 and covers engineering, project management, construction, labor and materials. Estimated engineering and construction time is 12 to 18 months. Cost estimate assumptions include:

- The temporary transmission bypass circuits requires jumpers to be installed on the dual-circuit #6727 / #6717 pole line just south of Ripley switching station and line #6717 from Mason Springs substation must be temporarily relocated to a second open bay at Ripley switching station. This allows the necessary bus outage on half of Ripley switching station.
- The IC can terminate its generation tap line/bus directly to SMECO's Ripley switching station dead-end. The SMECO / IC demarcation (Point of Interconnection) is the 69 kV line disconnect switch at Ripley switching station. The Interconnection Customer is responsible for installing the conductor up to the dead-end and SMECO demarcation switch.
- Protective relaying is installed within the 69 kV breaker cabinet as opposed to a separate control building. This estimate does not include the addition of a climate-controlled control building at Ripley switching station.
- Estimate does not include any environmental, real estate, or permitting costs. Such items were not reviewed as part of this Feasibility Study.
- Grading and site work are not included in this estimate.
- The Interconnection Customer is responsible for all aspects of the new 69 kV tap line or bus, the isolation transformer, and associated distribution feeder circuits. All such facilities are subject to SMECO review and approval.

Estimate: \$568,500

Construction Time: 12-18 months

Interconnection Customer Scope of Work

The Interconnection Customer is responsible for all design and construction related to activities on their side of the Point of Interconnection. Site preparation, including grading and an access road, as necessary, is assumed to be by the IC. Route selection, line design, and right-of-way acquisition of the direct connect facilities is not included in this report, and is the responsibility of the IC.

Metering

The IC is required to provide revenue metering and real-time telemetering data to PJM in conformance with the requirements contained in PJM Manuals M-01 and M-14 and the PJM Tariff.

Required Relaying and Communications

Protective relaying design and installation must comply with SMECO's applicable standards.

Summer Peak Analysis - 2020

Transmission Network Impacts

Potential transmission network impacts are as follows:

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

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

Summer Peak Load Flow Analysis Reinforcements

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

Steady-State Voltage Requirements

To be performed during later study phases.

Short Circuit

No issues identified.

Stability and Reactive Power Requirement

To be performed during later study phases.

Light Load Analysis - 2020

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

Facilities Study Estimate

7 months: \$100,000

Delivery of Energy Portion of Interconnection Request

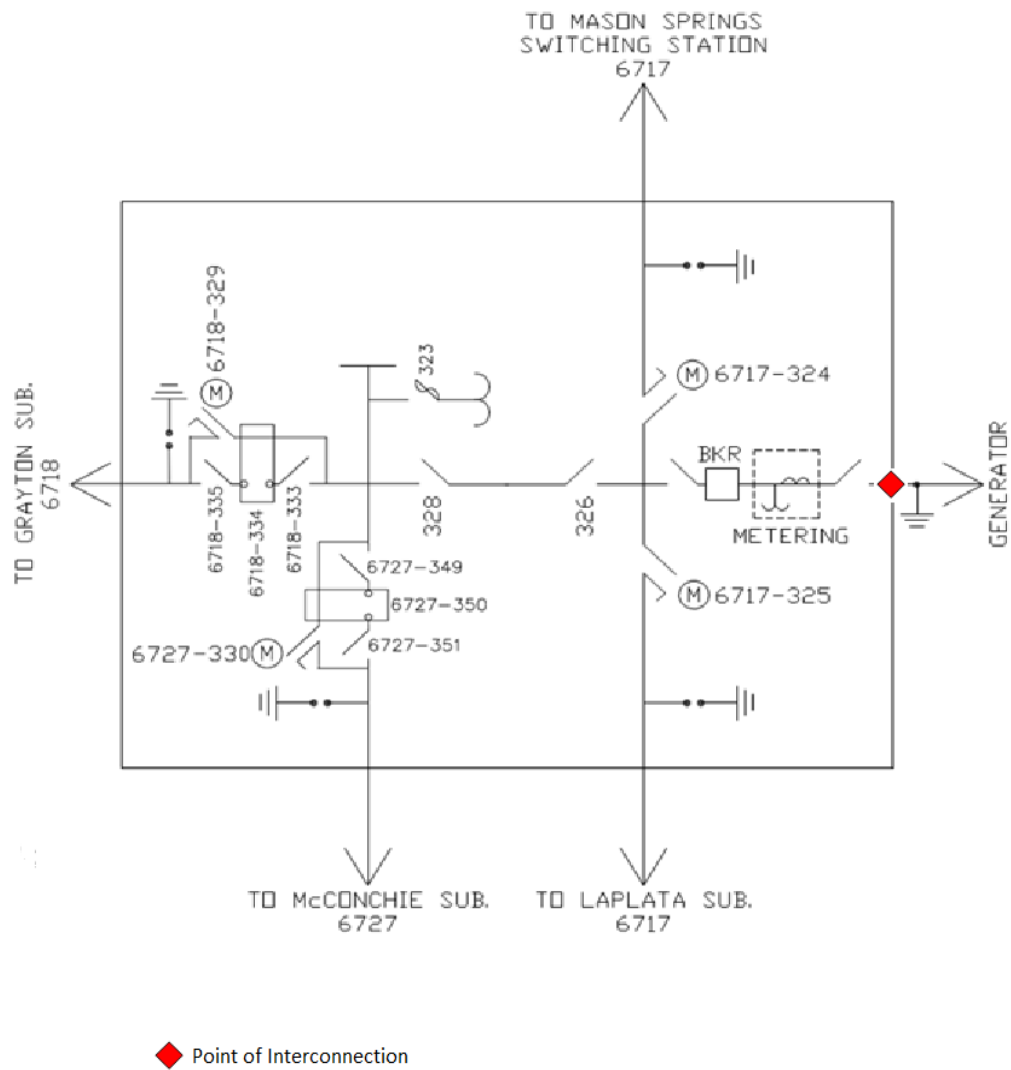
PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion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

Only the most severely overloaded conditions are listed. 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 will study all overload conditions associated with the overloaded element(s) identified.

None

Attachment 1

AC2-120 Ripley 69 kV Switching Station



**ATTACHMENT N-1
FORM OF
SYSTEM IMPACT STUDY AGREEMENT**

(PJM Queue Position #**AC2-120**)

RECITALS

1. This System Impact Study Agreement, dated as of **July 11, 2017**, is entered into, by and between **MD Solar 2, LLC** ("New Service Customer") and PJM Interconnection, L.L.C. ("Transmission Provider") pursuant to Part VI of the PJM Interconnection, L.L.C. Open Access Transmission Tariff ("PJM Tariff").
2. The Transmission Provider has: (i) pursuant to Section 36.2 of the PJM Tariff, completed an Interconnection Feasibility Study and provided the results of that study to the New Service Customer; (ii) received a valid Upgrade Request; or (iii) pursuant to Section 19 or Section 32, as applicable, of the PJM Tariff, the Transmission Provider has completed an Initial Study and provided the results of that study to the New Service Customer.
3. Pursuant to Sections 19.1, 32.1, 37, 110.2, 111.2, 204.2, or 204.3, as applicable, of the PJM Tariff, the New Service Customer (i) requests that the Transmission Provider perform a System Impact Study, and (ii) agrees to submit a deposit to the Transmission Provider which will be applied to the New Service Customer's cost responsibility for the System Impact Study, as set forth in Section 204.3A of the PJM Tariff.

PREVIOUS SUBMISSIONS

4. Except as otherwise specifically set forth in an attachment to this agreement, New Service Customer represents and warrants that the information provided in Section 3 of the Interconnection Feasibility Study Agreement dated **March 27, 2017**, for the project designated **AC2-120, "Ripley 69 kV"** by and between the New Service Customer and the Transmission Provider is accurate and complete as of the date of execution of this System Impact Study Agreement. New Service Customer further provides the following information and represents and warrants that said information is true and correct:
 - a. Specify whether the generation to be interconnected to the Transmission System is to be a Capacity Resource or an Energy Resource.

 - b. Identification of evidence of initial application for the necessary air permits (attach documentation separately):

- c. Other information not previously provided that may be relevant to the study being conducted hereunder (attach generator data for stability study analysis):
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PURPOSE OF THE SYSTEM IMPACT STUDY

5. Consistent with Section 205 of the PJM Tariff, the Transmission Provider, in consultation with the affected Transmission Owner(s), shall conduct a System Impact Study that identifies the system constraints relating to the New Service Requests being evaluated in the study and the Attachment Facilities, Local Upgrades, and Network Upgrades necessary to accommodate such New Service Requests. It is expected that the System Impact Study will be completed by **February 28, 2018**. In the event that the Transmission Provider is unable to complete the System Impact Study by that date, the Transmission Provider shall notify the New Service Customer and explain the reasons for the delay.
6. The System Impact Study conducted hereunder will provide more comprehensive estimates of the cost and length of time required to accommodate the New Service Customer's New Service Request than those developed through the Feasibility Study or Initial Study, if applicable, performed for the New Service Customer. These estimates shall represent a good faith attempt to determine the cost of necessary facilities and upgrades to accommodate the New Service Customer's New Service Request, and the New Service Customer's cost responsibility for them, but shall not be deemed final or binding. The scope of the System Impact Study may include (a) an assessment of sub-area import deliverability, (b) an assessment of sub-area export deliverability, (c) an assessment of project related system stability issues, (d) an assessment of project related short circuit duty issues, (e) a contingency analysis consistent with NERC's and each Applicable Regional Entity's reliability criteria, (f) an assessment of regional transmission upgrades that most effectively meet identified needs, and (g) an analysis to determine cost allocation responsibility for required facilities and upgrades. Final estimates will be developed only upon execution of a Facilities Study Agreement in accordance with Part VI of the PJM Tariff. The System Impact Study necessarily will employ various assumptions regarding the New Service Request, other pending requests, and PJM's Regional Transmission Expansion Plan at the time of the study. **IN NO EVENT SHALL THE SYSTEM IMPACT STUDY IN ANY WAY BE DEEMED TO OBLIGATE THE TRANSMISSION PROVIDER OR THE TRANSMISSION OWNERS THAT MAY INTERCONNECT WITH THE NEW SERVICE CUSTOMER TO CONSTRUCT ANY FACILITIES OR UPGRADES.**

CONFIDENTIALITY

7. The New Service Customer agrees to provide all information requested by the Transmission Provider necessary to complete the System Impact Study. Subject to paragraph 8 of this System Impact Study Agreement and to the extent required by Section 222 of the PJM Tariff, information provided pursuant to this Section 7 shall be and remain confidential.
8. Until completion of the System Impact Study, the Transmission Provider shall keep confidential all information provided to it by the New Service Customer. Pursuant to Section 205.4 of the PJM Tariff, upon completion of the System Impact Study, the Transmission Provider shall provide a copy of the System Impact Study to all New Service Customers whose New Service Requests were evaluated in the System Impact Study along with all related work papers. Additionally, Transmission Provider shall post on Transmission Provider's website (i) the existence of the System Impact Study, (ii) the New Service Customers that had New Service Requests evaluated in the System Impact Study, (iii) the location and size in megawatts of each New Service Customer's generation project, if applicable, and (iv) each New Service Customer's Queue Position. Additionally, New Service Customer acknowledges and consents to such other disclosures as may be required under the PJM Tariff or the FERC's rules and regulations.
9. New Service Customer acknowledges that, consistent with Part VI of the PJM Tariff, the Transmission Owners will participate in the System Impact Study process and that the Transmission Provider may disseminate information to the Transmission Owners and rely upon them to conduct part or all of the System Impact Study.

COST RESPONSIBILITY

10. The New Service Customer shall reimburse the Transmission Provider for the actual cost of the System Impact Study in accordance with its cost responsibility as determined under Sections 110.2, 111.2, 112.2, or 203 of the PJM Tariff. The refundable portion of the deposit described in Section 3 of this Agreement, paid by the New Service Customer pursuant to Sections 110.2, 111.2, 112.2, or 204.3A of the PJM Tariff, shall be applied toward the New Service Customer's System Impact Study cost responsibility. Pursuant to Section 204.3 of the PJM Tariff, during the acceptance review of this Agreement, in the event that the Transmission Provider anticipates that the New Service Customer's study cost responsibility will substantially exceed the refundable portion of the deposit, the Transmission Provider shall provide the New Service Customer with an estimate of the additional study costs and the New Service Customer's cost responsibility. The estimated additional study costs are non-binding, and additional actual study costs may exceed the estimated additional study cost increases provided by the Transmission Provider. Regardless of whether the Transmission Provider provides the New Service Customer with notification of estimated additional study costs, the New Service Customer is responsible for and must pay all actual study costs. If the Transmission Provider provides the New Service Customer with notification of estimated additional study costs, the New Service Customer must pay such estimated additional study costs within ten business days of Transmission Provider sending the New Service Customer notification of such estimated additional study costs. If the New Service Customer fails

to pay such estimated additional study costs within ten business days of Transmission Provider sending the New Service Customer notification of such estimated additional study costs, then the New Service Request shall be deemed to be withdrawn and terminated.

DISCLAIMER OF WARRANTY, LIMITATION OF LIABILITY

11. In analyzing and preparing the System Impact Study, the Transmission Provider, the Transmission Owner(s), and any other subcontractors employed by the Transmission Provider shall have to rely on information provided by the New Service Customer and possibly by third parties and may not have control over the accuracy of such information. Accordingly, NEITHER THE TRANSMISSION PROVIDER, THE TRANSMISSION OWNER(S), NOR ANY OTHER SUBCONTRACTORS EMPLOYED BY THE TRANSMISSION PROVIDER 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 SYSTEM IMPACT STUDY. The New Service 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. Neither this System Impact Study Agreement nor the System Impact Study prepared hereunder is intended, nor shall either be interpreted, to constitute agreement by the Transmission Provider or the Transmission Owner(s) to provide any transmission or interconnection service to or on behalf of the New Service Customer either at this point in time or in the future.
12. In no event will the Transmission Provider, Transmission Owner(s) or other subcontractors employed by the Transmission Provider be liable for indirect, special, incidental, punitive, or consequential damages of any kind including loss of profits, whether arising under this System Impact Study Agreement or otherwise, even if the Transmission Provider, Transmission Owner(s), or other subcontractors employed by the Transmission Provider have been advised of the possibility of such a loss. Nor shall the Transmission Provider, Transmission Owner(s), or other subcontractors employed by the Transmission Provider be liable for any delay in delivery or of the non-performance or delay in performance of the Transmission Provider's obligations under this System Impact Study Agreement.

Without limitation of the foregoing, the New Service Customer further agrees that Transmission Owner(s) and other subcontractors employed by the Transmission Provider to prepare or assist in the preparation of any System Impact Study shall be deemed third party beneficiaries of this provision entitled "Disclaimer of Warranty/Limitation of Liability."

MISCELLANEOUS

13. Any notice or request made to or by either party regarding this System Impact Study Agreement shall be made to the representative of the other party as indicated below.

Transmission Provider

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

New Service Customer

MD Solar 2, LLC
800 Brickell Ave, Suite 1100
Miami, Florida 33131
Attn: Mr. Chris Wright
Email: chris.wright@origisenergy.com
Phone: (786) 397-9507

14. No waiver by either party of one or more defaults by the other in performance of any of the provisions of this System Impact Study Agreement shall operate or be construed as a waiver of any other or further default or defaults, whether of a like or different character.
15. This System Impact Study Agreement or any part thereof, may not be amended, modified, or waived other than by a writing signed by all parties hereto.
16. This System Impact Study Agreement shall be binding upon the parties hereto, their heirs, executors, administrators, successors, and assigns.
17. Neither this System Impact Study Agreement nor the System Impact Study performed hereunder shall be construed as an application for service under Part II or Part III of the PJM Tariff.
18. The provisions of Part VI of the PJM Tariff are incorporated herein and made a part hereof.
19. Capitalized terms used but not otherwise defined herein shall have the meaning ascribed to them in the PJM Tariff.
20. This System Impact Study Agreement shall be effective as of the date of the New Service Customer's execution of it and shall remain in effect until the earlier of (a) the date on which the Transmission Provider tenders the completed System Impact Study and a proposed Facilities Study Agreement to New Service Customer pursuant to Section 206 of the PJM Tariff, or (b) termination and withdrawal of the New Service Request(s) to which the System Impact Study hereunder relates.

21. **No Third-Party Beneficiaries**
This System Impact Study Agreement is not intended to and does not create rights, remedies, or benefits of any character whatsoever in favor of any persons, corporations, associations, or entities other than the parties, and the obligations herein assumed are solely for the use and benefit of the parties, their successors in interest and where permitted, their assigns.
22. **Multiple Counterparts**
This System Impact Study Agreement may be executed in two or more counterparts, each of which is deemed an original but all constitute one and the same instrument.
23. **No Partnership**
This System Impact Study Agreement shall not be interpreted or construed to create an association, joint venture, agency relationship, or partnership between the parties or to impose any partnership obligation or partnership liability upon either party. Neither party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other party.
24. **Severability**
If any provision or portion of this System Impact Study Agreement shall for any reason be held or adjudged to be invalid or illegal or unenforceable by any court of competent jurisdiction or other Governmental Authority, (1) such portion or provision shall be deemed separate and independent, (2) the parties shall negotiate in good faith to restore insofar as practicable the benefits to each party that were affected by such ruling, and (3) the remainder of this System Impact Study Agreement shall remain in full force and effect.
25. **Governing Law, Regulatory Authority, and Rules**
For Interconnection Requests, the validity, interpretation and enforcement of this System Impact Study Agreement and each of its provisions shall be governed by the laws of the state of **Maryland** (where the Point of Interconnection is located), without regard to its conflicts of law principles. This System Impact Study Agreement is subject to all Applicable Laws and Regulations. Each party expressly reserves the right to seek changes in, appeal, or otherwise contest any laws, orders, or regulations of a Governmental Authority.
26. **Reservation of Rights**
The Transmission Provider shall have the right to make a unilateral filing with FERC to modify this System Impact Study Agreement with respect to any rates, terms and conditions, charges, classifications of service, rule or regulation under section 205 or any other applicable provision of the Federal Power Act and FERC's rules and regulations thereunder, and the Interconnection Customer shall have the right to make a unilateral filing with FERC to modify this System Impact Study Agreement under any applicable provision of the Federal Power Act and FERC's rules and regulations; provided that each party shall have the right to protest any such filing by the other party and to participate

fully in any proceeding before FERC in which such modifications may be considered. Nothing in this System Impact Study Agreement shall limit the rights of the parties or of FERC under sections 205 or 206 of the Federal Power Act and FERC's rules and regulations, except to the extent that the parties otherwise agree as provided herein.

IN WITNESS WHEREOF, the Transmission Provider and the New Service Customer have caused this System Impact Study Agreement to be executed by their respective authorized officials.

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

By: _____
Name Title Date

Printed Name

New Service Customer: MD Solar 2, LLC

By: _____
Name Title Date

Chris wright

Printed Name

APPENDIX 2

ECS Forest Stand Delineation



**FOREST STAND DELINEATION REPORT
MARYLAND SOLAR SITE 2: RIPLEY ROAD**

CHARLES COUNTY, MARYLAND

ECS PROJECT NO. 47: 4209-A

FOR

**MD SOLAR 2, LLC
(c/o H&B Solutions)**

SEPTEMBER 20, 2017



September 20, 2017

Mr. Jean David
MD Solar 2, LLC (c/o H&B Solutions)
800 Brickell Avenue
Suite 1100
Miami, Florida

ECS Project No. 47:4209-A

Reference: Forest Stand Delineation Report
MD Solar 2 Property
Ripley Road
La Plata, Maryland

ECS Mid-Atlantic, LLC (ECS) is pleased to present this Forest Stand Delineation Report for the above-referenced project in general accordance with ECS Proposal No. 47:4079-EPR, dated April 5, 2017. Charles County requires forest stand delineation plans be submitted to the County as part of the proposed development of the site. County requirements for the forest stand delineation submittal are presented in the Methods section.

PROPERTY DESCRIPTION

The MD Solar 2 Property consists of approximately 260 acres located along Ripley Road south of its intersection with Mildred Place in La Plata, Charles County, Maryland. The site is undeveloped and almost entirely wooded. The surrounding parcels are in residential and/or agricultural use or undeveloped and wooded.

The wooded areas onsite are somewhat disconnected from primary forested areas, part of the patchwork nature of the rural agricultural landscape of the surrounding area. The disturbance of the land over the years, including farming practices and periodic selective logging, has left the property less than ideal to support habitat for wildlife due to the resulting fragmentation. Roads and utility easements also bisect or border the site, also leading to fragmentation.

SECONDARY INFORMATION

Secondary Information entails the background research and review of recorded data and mapping pertaining to the project site. Resources include but are not limited to:

- U.S. Geological Survey (USGS) Topographic Map, Port Tobacco, MD Quadrangle, 2016
- Charles County Website and Mapping; <http://www.pgatlas.com/>

- Natural Resources Conservation Service (NRCS) online soils database; <http://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateId=MD>
- Available aerial photography and GIS information; NETR Online <http://www.historicaerials.com/> , Google Earth

The USGS Port Tobacco Quadrangle map shows elevations of approximately 160 to 110 feet above mean sea level (MSL) throughout the site. The soil survey indicates that the site is underlain primarily by the soil units listed in Table 1 below.

Table 1 – Soil Units Onsite

Soil Unit	Hydric Rating
BaB/C: Beltsville silt loam	5
BcA: Beltsville-Aquasco complex	5
BgB: Beltsville-Grosstown-Woodstown complex	5
GmF: Grosstown-Marr-Hoghole complex	10
GwD: Grosstown-Woodstown-Beltsville	5
Pu: Potobac-Issue complex, frequently flooded	70

METHODS

Charles County requires a forest stand delineation to be prepared by a qualified professional for all new developments 40,000 square feet or greater in size per COMAR Article 17 of the State Code and according to the County FSD Plan Checklist. A Forest Stand Delineation Plan shall include:

- Data collection: forest type, dominant size class, dominant trees, dominant canopy trees, number of trees per acre, number of dead trees per acre, common understory species, forest structure value, percentage of canopy coverage, understory coverage, herbaceous coverage, downed woody material, and invasive species;
- Specimen trees, defined as greater than 30 inches diameter at breast height (DBH), will be located, identified, measured, and their condition assessed;
- Locations of specimen tree critical root zones, forest interior dwelling species, forest stand boundaries, and stand acreages will be recorded; and
- A FSD report shall include:
 - A forest stand summary table comprised of the data collected in the field and mentioned above;
 - Stand summary sheets;

- A narrative that describes forest stand conditions, methodology, and forest structure;
- A site location map; and,
- A site plan that delineates:
 - Natural features such as intermittent and perennial streams and their buffers; steep slope areas and erodible soils; and 100-year floodplain and drainage-way buffers;
 - Topography of existing conditions;
 - Hydric soils;
 - Habitats of rare, threatened and endangered species;
 - Trees designated as a national, state, or local champion;
 - Historic and archeological sites;
 - Trees with a DBH of 30 inches or greater;
 - Limits of forest areas, non-forested areas, and Forest Stand locations

FINDINGS

ECS identified two (2) forest stands located within the project site containing woody vegetation. A forest stand delineation plan is attached showing the general location of these stand types. A stand summary sheet and data sheets for individual plots can also be found attached. Forty-four specimen trees were identified for this site.

Stand A

Stand A is approximately 10,387,611 square feet (SF) (238.5-acres) in size and is located in the west and central project area. It consists primarily of medium to large sized American Beech and Oak trees, with an understory of sapling American Beech, Black Gum, and American Holly. Dominant and subdominant species are listed in Table 1 below. Stand density is relatively even in age and size throughout the forest stand. Stand A has a moderate amount of understory growth, a low amount of invasive species (such as *Microstegium*), and an average basal area of 117 SF per acre (BAF 10). Twenty-six specimen trees were located in Stand A.

Table 1 – Dominant Woody Vegetation: Stand A

Common Name	Scientific Name
Dominant Species	
American Beech	<i>Fagus grandifolia</i>
White Oak	<i>Quercus alba</i>
Northern Red Oak	<i>Quercus rubra</i>
Subdominant Species	
Sweetgum	<i>Liquidambar styraciflua</i>
Black Gum	<i>Nyssa sylvatica</i>
American Holly	<i>Ilex opaca</i>
Red Maple	<i>Acer rubrum</i>
Mockernut Hickory	<i>Carya tomentosa</i>

The overall health of the woodland is fair with some evidence of insect or fungal infestation in isolated areas throughout the Stand. Tree quality appears to be fair for wildlife habitat, providing some food sources and adequate canopy cover. The forest stand displays some signs of previous selective logging.

Stand B

Stand B is approximately 1,140,741-SF (26.2-ac) in size and located in the floodplain of the stream along the eastern property boundary. It consists primarily of medium to large sized American Beech and Tulip Poplar, with an understory of primarily Red Maple, Black Gum, and Sweetgum species. Dominant and subdominant species are listed in Table 2 below. Stand density is relatively even throughout Stand B with a moderate amount of understory growth and herbaceous and vine species. Stand B has a basal area of 113 SF per acre (BAF 10).

Table 2 – Dominant Woody Vegetation: Stand B

Common Name	Scientific Name
Dominant Species	
American Beech	<i>Fagus grandifolia</i>
Tulip Poplar	<i>Liriodendron tulipifera</i>
Subdominant Species	
Sweetgum	<i>Liquidambar styraciflua</i>
Black Gum	<i>Nyssa sylvatica</i>
American Hornbeam	<i>Carpinus caroliniana</i>
Red Maple	<i>Acer rubrum</i>

The overall health of the stand is fair with little evidence of insect or fungal infestation. A low concentration of non-native invasive plants (such as *Microstegium*) was observed in the stand. Eighteen Specimen Trees were located in Stand B. Tree quality appears to be fair for wildlife habitat, providing some food sources and adequate cover.

OVERALL SUMMARY

Based on our site reconnaissance, the project site contains two (2) different forest stands, one upland stand dominated by American Beech and Oak species and the second floodplain stand dominated by American Beech and Tulip Poplar. Forty four specimen trees were identified onsite. Both stands are in generally fair condition with sapling, pole, medium, and large trees in good or fair condition. Overall tree quality appears to be fair for wildlife habitat, providing some food sources and cover.

A limited review of historical photographs and topographic maps indicate that the property has been wooded since the 1960s. Based on this information, preservation of the existing forested buffer of the stream along the eastern property boundary may be beneficial for limiting adverse impacts to local streams and water quality.

During construction, standard erosion and sediment control methods (tree protection fencing and/or super silt fencing) should be used to protect any tree conservation areas. Additionally, encroachment into the conservation areas should not take place within the drip-line of the conserved trees. Mulching the perimeter of conservation areas should be incorporated in order to reduce the effects of erosion and sedimentation.

ECS would like to thank MD Solar 2, LLC for the opportunity to provide you with this Forest Stand Delineation. We look forward to assisting you further with this project and other environmental concerns you may have. If you have any questions, please feel free to contact us at any time at 703-471-8400.

Sincerely,

ECS MID-ATLANTIC, LLC



Anna Allie MEM, ISA-CA
Environmental Project Manager
AAllie@ecslimited.com

This Forest Stand Delineation has been prepared in accordance with all State and local ordinances which were in effect as of the date shown below. The undersigned is a qualified professional in accordance with COMAR 08.19.06.01.



James E. Irre

September 20, 2017

Date

FSD DATA SHEETS

Forest Sample Plot Field Data Sheet

Property: MD Solar 2 (Ripley) Prepared by: AEA
 Stand #: A Plot#: 1 Plot Size: 30' Date: 6/20/17

Basal Area in
sf/acre:
140

Size Class of Trees within sample plot

Tree Species	# of Trees			# of Trees			# of Trees			# of Trees			# of Trees			Total
	2-5.9" dbh			6-9.9" dbh			10-17.9" dbh			18-29.9" dbh			> 30" dbh			
Crown Position	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	
American Beech			4		1	2	3	3								13
American Holly			2													2
White Oak							3			1						4
Red Cedar			2													2
Black Gum			3													3
Total Number of Trees per Size Class	11			3			9			1			0			24
Number of standing dead trees 6" dbh or greater																0

1/100 Ac. Samples:

List of Common Understory Species 3'-20'	% Canopy Coverage							% Invasive Cover						
American Beech	C	N	E	S	W	Total		C	N	E	S	W	Total	
	80	75	70	85	95	81		0	0	0	0	0	0	
List of Herbaceous Species 0'-3'	% Understory Cover 3'-20'							% Herbaceous/ Woody Cover 0'-3'						
American Beech, Greenbriar	C	N	E	S	W	Total		C	N	E	S	W	Total	
	40	20	30	15	30	27		5	5	5	10	5	6	
List of Invasive Species								Plot Successional Stage:						
								Late-successional upland Oak-Beech Assoc.						

Comments:

Total number of tree species > 6": 2

sheet 1 of 16

Forest Sample Plot Field Data Sheet

Property: MD Solar 2 (Ripley) Prepared by: AEA
 Stand #: A Plot#: 10 Plot Size: 30' Date: 6/20/17

Basal Area in
sf/acre:
130

Size Class of Trees within sample plot

Tree Species	# of Trees			#of Trees			# of Trees			# of Trees			# of Trees			Total
	2-5.9" dbh			6-9.9" dbh			10-17.9"dbh			18-29.9" dbh			> 30" dbh			
Crown Position	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	
Tulip Poplar							2									2
American Beech			12		2		6									20
Red Maple				1												1
Chestnut Oak				1												1
Total Number of Trees per Size Class	12			4			8			0			0			24
Number of standing dead trees 6" dbh or greater				1												1

1/100 Ac. Samples:

List of Common Understory Species 3'-20'	% Canopy Coverage							% Invasive Cover						
American Beech, Red Maple	C	N	E	S	W	Total		C	N	E	S	W	Total	
	80	95	80	75	80	82		0	0	0	0	0	0	
List of Herbaceous Species 0'-3'	% Understory Cover 3'-20'							% Herbaceous/ Woody Cover 0'-3'						
American Beech	C	N	E	S	W	Total		C	N	E	S	W	Total	
	10	20	20	25	35	22		5	5	5	5	5	5	
List of Invasive Species								Plot Successional Stage:						
								Late-successional upland Oak-Beech Assoc.						

Comments:

Total number of tree species > 6": 4

sheet 10 of 16

Forest Sample Plot Field Data Sheet

Property: MD Solar 2 (Ripley) Prepared by: AEA
 Stand #: A Plot#: 11 Plot Size: 30' Date: 6/20/17

Basal Area in sf/acre: 120	Size Class of Trees within sample plot															
Tree Species	# of Trees			#of Trees			# of Trees			# of Trees			# of Trees			Total
	2-5.9" dbh			6-9.9" dbh			10-17.9"dbh			18-29.9" dbh			> 30" dbh			
Crown Position	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	
Black Gum			2													2
American Holly			6													6
American Beech			7		4		1			2						14
White Oak							3			1						4
Red Maple					1											1
Northern Red Oak					1											1
Total Number of Trees per Size Class	15			6			4			3			0			28
Number of standing dead trees 6" dbh or greater				2												2

1/100 Ac. Samples:														
List of Common Understory Species 3'-20'	% Canopy Coverage						% Invasive Cover							
American Beech, American Holly	C	N	E	S	W	Total	C	N	E	S	W	Total		
	80	70	70	75	85	76	0	0	0	0	0	0		
List of Herbaceous Species 0'-3'	% Understory Cover 3'-20'						% Herbaceous/ Woody Cover 0'-3'							
American Beech, American Holly	C	N	E	S	W	Total	C	N	E	S	W	Total		
	10	30	15	40	25	24	5	5	5	5	5	5		
List of Invasive Species							Plot Successional Stage:							
							Late-successional upland Oak-Beech Assoc.							

Comments:
 Total number of tree species > 6": 4
 sheet 11 of 16

Forest Sample Plot Field Data Sheet

Property: MD Solar 2 (Ripley) Prepared by: AEA
 Stand #: A Plot#: 12 Plot Size: 30' Date: 6/20/17

Basal Area in sf/acre: 100	Size Class of Trees within sample plot															
Tree Species	# of Trees			#of Trees			# of Trees			# of Trees			# of Trees			Total
	2-5.9" dbh			6-9.9" dbh			10-17.9"dbh			18-29.9" dbh			> 30" dbh			
Crown Position	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	
Mockernut Hickory										2						2
American Beech			4		2											6
Northern Red Oak				1	1		1									3
American Holly			4		1											5
Sweetgum			1		2		1									4
Red Maple			2				1									3
Black Gum			1				1									2
Total Number of Trees per Size Class	12			7			4			2			0			25
Number of standing dead trees 6" dbh or greater				1			1									2

1/100 Ac. Samples:																
List of Common Understory Species 3'-20'							% Canopy Coverage					% Invasive Cover				
American Beech, American Holly, Black Gum							C	N	E	S	W	Total	C	N	E	Total
							80	90	85	90	85	86	0	0	0	0
List of Herbaceous Species 0'-3'							% Understory Cover 3'-20'					% Herbaceous/ Woody Cover 0'-3'				
American Beech, American Holly, Christmas Fern, Wild Chive							C	N	E	S	W	Total	C	N	E	Total
							30	20	15	40	30	27	15	10	5	10
List of Invasive Species												Plot Successional Stage:				
												Late-successional upland Oak-Beech Assoc.				

Comments:
 Total number of tree species > 6": 7
 sheet 12 of 16

Forest Sample Plot Field Data Sheet

Property: MD Solar 2 (Ripley) Prepared by: AEA
 Stand #: A Plot#: 2 Plot Size: 30' Date: 6/20/17

Basal Area in
sf/acre:
120

Size Class of Trees within sample plot

Tree Species	# of Trees			# of Trees			# of Trees			# of Trees			# of Trees			Total
	2-5.9" dbh			6-9.9" dbh			10-17.9"dbh			18-29.9" dbh			> 30" dbh			
Crown Position	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	
White Oak				1			1			1						3
American Beech			10		2		1			2						15
Red Cedar			1													1
American Holly			2													2
Red Maple			2													2
Sweetgum					1											1
Black Gum			2													2
Virginia Pine							2									2
Total Number of Trees per Size Class	17			4			4			3			0			28
Number of standing dead trees 6" dbh or greater				1												1

1/100 Ac. Samples:

List of Common Understory Species 3'-20'	% Canopy Coverage							% Invasive Cover						
American Beech, Black Gum, American Holly	C	N	E	S	W	Total		C	N	E	S	W	Total	
	95	95	75	90	95	90		0	0	0	0	0	0	
List of Herbaceous Species 0'-3'	% Understory Cover 3'-20'							% Herbaceous/ Woody Cover 0'-3'						
American Beech, Greenbriar	C	N	E	S	W	Total		C	N	E	S	W	Total	
	30	20	40	20	30	28		5	5	5	5	5	5	
List of Invasive Species								Plot Successional Stage:						
								Late-successional upland Oak-Beech Assoc.						

Comments:

Total number of tree species > 6": 4

sheet 2 of 16

Forest Sample Plot Field Data Sheet

Property: MD Solar 2 (Ripley) Prepared by: AEA
 Stand #: A Plot#: 3 Plot Size: 30' Date: 6/20/17

Basal Area in
sf/acre:
110

Size Class of Trees within sample plot

Tree Species	# of Trees			#of Trees			# of Trees			# of Trees			# of Trees			Total
	2-5.9" dbh			6-9.9" dbh			10-17.9"dbh			18-29.9" dbh			> 30" dbh			
Crown Position	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	
Northern Red Oak		2			2											4
American Beech			7		2		1									10
White Oak					1		1			1						3
Black Gum			2		1	1										4
American Holly			2			1										3
Pignut Hickory							1									1
Sweetgum			1													1
Red Maple			1													1
Total Number of Trees per Size Class	15			8			3			1			0			27
Number of standing dead trees 6" dbh or greater				2			1									3

1/100 Ac. Samples:

List of Common Understory Species 3'-20'	% Canopy Coverage							% Invasive Cover						
American Beech, Black Gum, American Holly	C	N	E	S	W	Total		C	N	E	S	W	Total	
	85	65	60	80	85	75		0	0	0	0	0	0	
List of Herbaceous Species 0'-3'	% Understory Cover 3'-20'							% Herbaceous/ Woody Cover 0'-3'						
American Beech, Greenbriar, American Holly, Virginia Pine	C	N	E	S	W	Total		C	N	E	S	W	Total	
	50	30	60	50	20	42		10	5	40	10	5	14	
List of Invasive Species								Plot Successional Stage:						
								Late-successional upland Oak-Beech Assoc.						

Comments:

Total number of tree species > 6": 6

sheet 3 of 16

Forest Sample Plot Field Data Sheet

Property: MD Solar 2 (Ripley) Prepared by: AEA
 Stand #: A Plot#: 4 Plot Size: 30' Date: 6/20/17

Basal Area in
sf/acre:
130

Size Class of Trees within sample plot

Tree Species	# of Trees			# of Trees			# of Trees			# of Trees			# of Trees			Total
	2-5.9" dbh			6-9.9" dbh			10-17.9" dbh			18-29.9" dbh			> 30" dbh			
Crown Position	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	
White Oak			1		1		8									10
American Holly			4													4
Black Gum			2		2											4
American Beech			9	1	1		1									12
Sweetgum					1			2								3
Total Number of Trees per Size Class	16			6			11			0			0			33
Number of standing dead trees 6" dbh or greater				1												1

1/100 Ac. Samples:

List of Common Understory Species 3'-20'	% Canopy Coverage							% Invasive Cover						
American Beech, Black Gum, American Holly	C	N	E	S	W	Total		C	N	E	S	W	Total	
	90	70	70	80	85	79		0	0	0	0	0	0	
List of Herbaceous Species 0'-3'	% Understory Cover 3'-20'							% Herbaceous/ Woody Cover 0'-3'						
American Beech, American Holly	C	N	E	S	W	Total		C	N	E	S	W	Total	
	20	50	30	40	20	32		5	5	5	5	5	5	
List of Invasive Species								Plot Successional Stage:						
								Late-successional upland Oak-Beech Assoc.						

Comments:

Total number of tree species > 6": 4

sheet 4 of 16

Forest Sample Plot Field Data Sheet

Property: MD Solar 2 (Ripley) Prepared by: AEA
 Stand #: A Plot#: 5 Plot Size: 30' Date: 6/20/17

Basal Area in
sf/acre:
110

Size Class of Trees within sample plot

Tree Species	# of Trees			# of Trees			# of Trees			# of Trees			# of Trees			Total
	2-5.9" dbh			6-9.9" dbh			10-17.9" dbh			18-29.9" dbh			> 30" dbh			
Crown Position	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	
American Beech			7		4	1	1	2		1						16
Virginia Pine					2											2
Sweetgum			1					1								2
American Holly			3		1											4
Black Gum								1								1
White Oak					1		1									2
Northern Red Oak							1									1
Total Number of Trees per Size Class	11			9			7			1			0			28
Number of standing dead trees 6" dbh or greater																0

1/100 Ac. Samples:

List of Common Understory Species 3'-20'	% Canopy Coverage							% Invasive Cover						
American Beech, Sweetgum, American Holly	C	N	E	S	W	Total		C	N	E	S	W	Total	
	90	90	85	85	80	86		0	0	0	0	0	0	
List of Herbaceous Species 0'-3'	% Understory Cover 3'-20'							% Herbaceous/ Woody Cover 0'-3'						
American Beech, American Holly	C	N	E	S	W	Total		C	N	E	S	W	Total	
	30	40	50	25	30	35		5	5	5	5	5	5	
List of Invasive Species								Plot Successional Stage:						
								Late-successional upland Oak-Beech Assoc.						

Comments:

Total number of tree species > 6": 7

sheet 5 of 16

Forest Sample Plot Field Data Sheet

Property: MD Solar 2 (Ripley) Prepared by: AEA
 Stand #: A Plot#: 6 Plot Size: 30' Date: 6/20/17

Basal Area in
sf/acre:
110

Size Class of Trees within sample plot

Tree Species	# of Trees			# of Trees			# of Trees			# of Trees			# of Trees			Total
	2-5.9" dbh			6-9.9" dbh			10-17.9" dbh			18-29.9" dbh			> 30" dbh			
Crown Position	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	
American Beech			9		3		1									13
Black Gum		1	2													3
White Oak		1	1				2									4
American Holly			4													4
Sweetgum			1													1
Red Maple					1											1
Total Number of Trees per Size Class	19			4			3			0			0			26
Number of standing dead trees 6" dbh or greater				2												0

1/100 Ac. Samples:

List of Common Understory Species 3'-20'	% Canopy Coverage							% Invasive Cover						
American Beech, Black Gum, American Holly	C	N	E	S	W	Total		C	N	E	S	W	Total	
	75	85	70	65	85	76		0	0	0	0	0	0	
List of Herbaceous Species 0'-3'	% Understory Cover 3'-20'							% Herbaceous/ Woody Cover 0'-3'						
American Beech	C	N	E	S	W	Total		C	N	E	S	W	Total	
	30	30	60	50	45	43		5	5	20	20	10	12	
List of Invasive Species								Plot Successional Stage:						
								Late-successional upland Oak-Beech Assoc.						

Comments:

Total number of tree species > 6": 3

sheet 6 of 16

Forest Sample Plot Field Data Sheet

Property: MD Solar 2 (Ripley) Prepared by: AEA
 Stand #: A Plot#: 7 Plot Size: 30' Date: 6/20/17

Basal Area in sf/acre: 100	Size Class of Trees within sample plot															
Tree Species	# of Trees			#of Trees			# of Trees			# of Trees			# of Trees			Total
	2-5.9" dbh			6-9.9" dbh			10-17.9"dbh			18-29.9" dbh			> 30" dbh			
Crown Position	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	
White Oak				1			1									2
Red Maple		1	5		2											8
American Beech		8	10		2		1									21
Pignut Hickory			1													1
Sweetgum			1													1
Total Number of Trees per Size Class	26			4			2			0			0			33
Number of standing dead trees 6" dbh or greater				1			3									4

1/100 Ac. Samples:													
List of Common Understory Species 3'-20'	% Canopy Coverage						% Invasive Cover						
American Beech, Red Maple, American Holly	C	N	E	S	W	Total	C	N	E	S	W	Total	
	90	90	85	80	90	87	0	0	0	0	0	0	
List of Herbaceous Species 0'-3'	% Understory Cover 3'-20'						% Herbaceous/ Woody Cover 0'-3'						
American Beech, American Holly	C	N	E	S	W	Total	C	N	E	S	W	Total	
	25	40	30	20	20	27	5	5	5	5	5	5	
List of Invasive Species							Plot Successional Stage:						
							Late-successional upland Oak-Beech Assoc.						

Comments:
 Total number of tree species > 6": 3
 sheet 7 of 16

Forest Sample Plot Field Data Sheet

Property: MD Solar 2 (Ripley) Prepared by: AEA
 Stand #: A Plot#: 8 Plot Size: 30' Date: 6/20/17

Basal Area in
sf/acre:
110

Size Class of Trees within sample plot

Tree Species	# of Trees			#of Trees			# of Trees			# of Trees			# of Trees			Total
	2-5.9" dbh			6-9.9" dbh			10-17.9"dbh			18-29.9" dbh			> 30" dbh			
Crown Position	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	
Black Gum					1		1									2
Red Maple			1			1										2
White Oak							1	1		3						5
American Beech			3					1								4
Total Number of Trees per Size Class	4			2			4			3			0			13
Number of standing dead trees 6" dbh or greater				1												1

1/100 Ac. Samples:

List of Common Understory Species 3'-20'	% Canopy Coverage							% Invasive Cover						
American Beech, Blackgum, American Holly	C	N	E	S	W	Total		C	N	E	S	W	Total	
	85	75	60	65	75	72		0	15	0	0	10	5	
List of Herbaceous Species 0'-3'	% Understory Cover 3'-20'							% Herbaceous/ Woody Cover 0'-3'						
American Beech, American Holly, Chainfern	C	N	E	S	W	Total		C	N	E	S	W	Total	
	5	5	5	50	5	14		25	15	5	5	20	14	
List of Invasive Species								Plot Successional Stage:						
Microstegium								Late-successional upland Oak-Beech Assoc.						

Comments:

Total number of tree species > 6": 4

sheet 8 of 16

Forest Sample Plot Field Data Sheet

Property: MD Solar 2 (Ripley) Prepared by: AEA
 Stand #: A Plot#: 9 Plot Size: 30' Date: 6/20/17

Basal Area in sf/acre: 120	Size Class of Trees within sample plot															
Tree Species	# of Trees			#of Trees			# of Trees			# of Trees			# of Trees			Total
	2-5.9" dbh			6-9.9" dbh			10-17.9"dbh			18-29.9" dbh			> 30" dbh			
Crown Position	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	
American Beech			1		1		4			2						8
American Holly			11			2										13
Sweetgum					1											1
White Oak							1									1
Total Number of Trees per Size Class	12			4			5			2			0			23
Number of standing dead trees 6" dbh or greater																0

1/100 Ac. Samples:													
List of Common Understory Species 3'-20'	% Canopy Coverage						% Invasive Cover						
American Beech, American Holly	C	N	E	S	W	Total	C	N	E	S	W	Total	
	85	90	95	80	80	86	0	0	0	0	0	0	
List of Herbaceous Species 0'-3'	% Understory Cover 3'-20'						% Herbaceous/ Woody Cover 0'-3'						
American Beech	C	N	E	S	W	Total	C	N	E	S	W	Total	
	30	20	40	40	15	29	5	5	5	5	5	5	
List of Invasive Species							Plot Successional Stage:						
							Late-successional upland Oak-Beech Assoc.						

Comments:
 Total number of tree species > 6": 4
 sheet 9 of 16

Forest Sample Plot Field Data Sheet

Property: MD Solar 2 (Ripley) Prepared by: AEA
 Stand #: B Plot#: 1 Plot Size: 30' Date: 6/20/17

Basal Area in
sf/acre:
90

Size Class of Trees within sample plot

Tree Species	# of Trees			# of Trees			# of Trees			# of Trees			# of Trees			Total
	2-5.9" dbh			6-9.9" dbh			10-17.9" dbh			18-29.9" dbh			> 30" dbh			
Crown Position	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	
American Beech			3		2	2										7
Tulip Poplar													1			1
Red Maple					1		1									2
Mockernut Hickory					1											1
Black Gum			1				1									2
American Holly			2													2
Sweetgum			1													1
White Oak										1						1
Total Number of Trees per Size Class	7			6			2			1			1			17
Number of standing dead trees 6" dbh or greater										1						1

1/100 Ac. Samples:

List of Common Understory Species 3'-20'	% Canopy Coverage							% Invasive Cover						
American Beech, Black Gum, Red Maple, Paw-Paw	C	N	E	S	W	Total		C	N	E	S	W	Total	
	90	90	85	90	80	87		0	0	0	0	0	0	
List of Herbaceous Species 0'-3'	% Understory Cover 3'-20'							% Herbaceous/ Woody Cover 0'-3'						
American Beech, Chainfern	C	N	E	S	W	Total		C	N	E	S	W	Total	
	20	30	10	40	35	27		5	5	5	5	5	5	
List of Invasive Species								Plot Successional Stage:						
								Late-successional floodplain Maple-Beech Assoc.						

Comments:

Total number of tree species > 6": 6

sheet 13 of 16

Forest Sample Plot Field Data Sheet

Property: MD Solar 2 (Ripley) Prepared by: AEA
 Stand #: B Plot#: 2 Plot Size: 30' Date: 6/20/17

Basal Area in
sf/acre:
100

Size Class of Trees within sample plot

Tree Species	# of Trees			#of Trees			# of Trees			# of Trees			# of Trees			Total
	2-5.9" dbh			6-9.9" dbh			10-17.9"dbh			18-29.9" dbh			> 30" dbh			
Crown Position	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	
American Beech			1		1		4			1						7
Swamp Chestnut Oak										1						1
Tulip Poplar			2				1									3
Pignut Hickory							1									1
Total Number of Trees per Size Class	3			1			6			2			0			17
Number of standing dead trees 6" dbh or greater							1									1

1/100 Ac. Samples:

List of Common Understory Species 3'-20'	% Canopy Coverage							% Invasive Cover						
	C	N	E	S	W	Total		C	N	E	S	W	Total	
American Beech, American Holly, Paw-Paw	85	90	80	90	85	86		0	0	0	0	0	0	
List of Herbaceous Species 0'-3'	% Understory Cover 3'-20'							% Herbaceous/ Woody Cover 0'-3'						
	C	N	E	S	W	Total		C	N	E	S	W	Total	
American Beech, American Holly, Chainfern	20	20	15	10	30	19		20	5	25	15	10	15	
List of Invasive Species								Plot Successional Stage:						
								Late-successional floodplain Maple-Beech Assoc.						

Comments:

Total number of tree species > 6": 4

sheet 14 of 16

Forest Sample Plot Field Data Sheet

Property: MD Solar 2 (Ripley) Prepared by: AEA
 Stand #: B Plot#: 3 Plot Size: 30' Date: 6/20/17

Basal Area in
sf/acre:
150

Size Class of Trees within sample plot

Tree Species	# of Trees			# of Trees			# of Trees			# of Trees			# of Trees			Total
	2-5.9" dbh			6-9.9" dbh			10-17.9" dbh			18-29.9" dbh			> 30" dbh			
Crown Position	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	
American Beech			5													5
Northern Red Oak								1								1
Pignut Hickory										1						1
Tulip Poplar						2	5			3						10
American Holly			3													3
Red Maple			1													1
Total Number of Trees per Size Class	9			2			6			4			0			21
Number of standing dead trees 6" dbh or greater																0

1/100 Ac. Samples:

List of Common Understory Species 3'-20'	% Canopy Coverage						% Invasive Cover					
American Beech, Red Maple	C	N	E	S	W	Total	C	N	E	S	W	Total
	85	75	90	85	90	85	0	0	0	0	0	0
List of Herbaceous Species 0'-3'	% Understory Cover 3'-20'						% Herbaceous/ Woody Cover 0'-3'					
Jack-in-the-Pulpit, Greenbriar Chainfern	C	N	E	S	W	Total	C	N	E	S	W	Total
	30	20	15	35	20	24	80	50	80	80	25	63
List of Invasive Species							Plot Successional Stage:					
							Late-successional floodplain Maple-Beech Assoc.					

Comments:

Total number of tree species > 6": 3

sheet 15 of 16

Forest Sample Plot Field Data Sheet

Property: MD Solar 2 (Ripley) Prepared by: AEA
 Stand #: B Plot#: 4 Plot Size: 30' Date: 6/20/17

Basal Area in sf/acre: 110	Size Class of Trees within sample plot															
Tree Species	# of Trees			# of Trees			# of Trees			# of Trees			# of Trees			Total
	2-5.9" dbh			6-9.9" dbh			10-17.9" dbh			18-29.9" dbh			> 30" dbh			
Crown Position	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	
Tulip Poplar										3			1			4
American Beech							2									2
American Holly			1													1
American Hornbeam			2													2
Black Willow							1									1
Red Maple			1			2										3
Sassafras						1										1
Dogwood			1													1
Total Number of Trees per Size Class	5			3			3			3			1			15
Number of standing dead trees 6" dbh or greater				1												1

1/100 Ac. Samples:																			
List of Common Understory Species 3'-20'								% Canopy Coverage				% Invasive Cover							
American Beech, American Hornbeam, Red Maple, Paw-Paw								C	N	E	S	W	Total	C	N	E	S	W	Total
								65	90	85	70	85	79	5	0	30	80	10	25
List of Herbaceous Species 0'-3'								% Understory Cover 3'-20'				% Herbaceous/ Woody Cover 0'-3'							
American Beech, Paw-Paw, Christmas Fern, Virginia Creeper								C	N	E	S	W	Total	C	N	E	S	W	Total
								20	10	30	40	30	26	20	35	20	20	35	26
List of Invasive Species												Plot Successional Stage:							
Microstegium												Late-successional floodplain Maple-Beech Assoc.							

Comments:
 Total number of tree species > 6": 5

sheet 16 of 16

PHOTOGRAPHIC LOG



Photograph 1: View of Forest Stand A at plot FSA-3.



Photograph 2: View of Forest Stand A at plot FSA-4.



Photograph 3: View of Forest Stand A at plot FSA-6.



Photograph 4: View of Forest Stand A at plot FSA-7



Photograph 5: View of ST-18 in Stand A.



Photograph 6: View of ST-30 in Stand B.



Photograph 7: View of ST-55 in Stand A.



Photograph 8: View of Stand B near FSB-2.



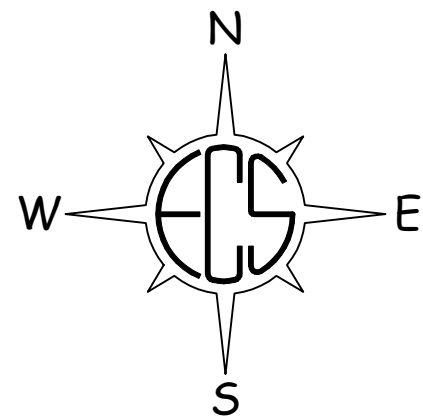
Photograph 9: View of Stand B near FSB-4.



Photograph 10: View of Stand A near FSA-10.



Photograph 11: View of Stand A near FSA-11.



LEGEND

- FOREST STAND A (238.5-AC)
- FOREST STAND B (26.2-AC)
- FS#-#

FOREST STAND DATA POINT
- ST-#

SPECIMEN TREE LOCATION
- PROJECT SITE
- BcA

SOIL UNITS

CELEBRATING
OVER 25 YEARS
OF EXCELLENCE

ECS - MD-ATLANTIC, LLC

14626 THUNDERBOLT PLACE

SUITE 100

CHATELAIN, MD 20751

410-893-8324

410-893-8325

703-471-8400

(FAX) 703-834-9227

"SETTING THE STANDARD FOR SERVICE"



MD SOLAR 2

RIPLEY ROAD

LA PLATA, CHARLES COUNTY, MARYLAND

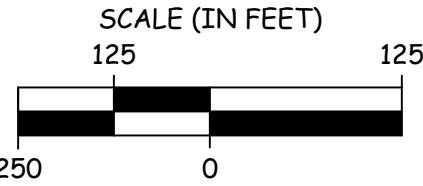
FOREST STAND

DELINEATION MAP

MD SOLAR 2, LLC

ECS REVISIONS	
ENGINEER	DRAFTING
AMM	AEA
SCALE	
1" = 250'	
PROJECT NO.	
47:4209-A	
SHEET	
1 OF 1	
DATE	
9/20/17	

Tree No.	Species	Inches DBH	Condition	Notes
12	American Beech	30.0	Fair	Double trunk, small Dead limbs, small hollows
13	American Beech	39.5	Fair/Poor	Double trunk, dead leader, Dead limbs
14	American Beech	32.0	Fair	Large dead limbs
15	American Beech	31.0	Fair	Double trunk, dead leader, Dead limbs
16	White Oak	33.0	Good	Double trunk, small Dead limbs
17	American Beech	32.0	Fair	Double trunk, Dead limbs, sap sucker damage
18	American Beech	37.0	Fair	Dead limbs, trunk damage
19	White Oak	35.0	Fair	Large dead limbs
20	American Beech	33.0	Poor	Hollow
21	American Beech	32.0	Fair	Double trunk, Dead limbs
22	Chestnut Oak	42.0	Fair	Double trunk, Dead limbs one side
23	White Oak	35.0	Fair	Lean, Large dead limbs
24	White Oak	30.0	Fair	Large dead limbs
25	American Beech	31.0	Fair	Small Large dead limbs, small hollows
26	White Oak	33.0	Fair	Large dead limbs, lean
27	Tulip Poplar	34.0	Fair	Dead limbs, trunk damage
28	Tulip Poplar	45.0	Fair	Dead limbs, vines
29	American Beech	35.0	Fair	Dead limbs, trunk dying
30	White Oak	51.0	Fair	Large dead limbs
31	Tulip Poplar	42.0	Poor	Broken leader, hollow
32	Southern Red Oak	42.0	Fair	Large dead limbs
33	Tulip Poplar	36.0	Poor	Broken, hollow near top
34	Tulip Poplar	34.0	Fair	Dead limbs
35	American Beech	37.0	Fair	Large dead limbs
36	American Beech	43.0	Fair	Large dead limbs
37	Northern Red Oak	47.0	Fair/Poor	Broken leader, Large dead limbs
38	Sweet Gum	41.0	Fair	Large dead limbs
39	American Beech	35.0	Good	Dead limbs
40	Tulip Poplar	43.0	Fair	Dead limbs, weak join
41	Tulip Poplar	44.0	Fair	Dead limbs, vines
42	American Beech	30.0	Fair	Dead limbs, lean
43	Tulip Poplar	35.0	Fair	Double trunk, one side Dead limbs
44	Tulip Poplar	33.0	Fair	Lean, vines, Dead limbs
45	Tulip Poplar	31.0	Fair	Large dead limbs
46	Tulip Poplar	30.0	Fair	Lean, Dead limbs
47	Tulip Poplar	34.0	Fair	Exposed roots, vines
48	White Oak	32.0	Fair	Double trunk, Large dead limbs
49	White Oak	34.0	Fair	Double trunk, Large dead limbs
50	White Oak	33.0	Fair	Double trunk, Large dead limbs
51	American Beech	30.0	Good	Dead limbs
52	White Oak	31.0	Fair	Double trunk, Large dead limbs
53	American Beech	44.0	Poor	Many hollows, rot rot, Large dead limbs
54	American Beech	34.0	Fair	Broken leader, Large dead limbs
55	American Beech	34.0	Fair	Dead limbs



APPENDIX 3

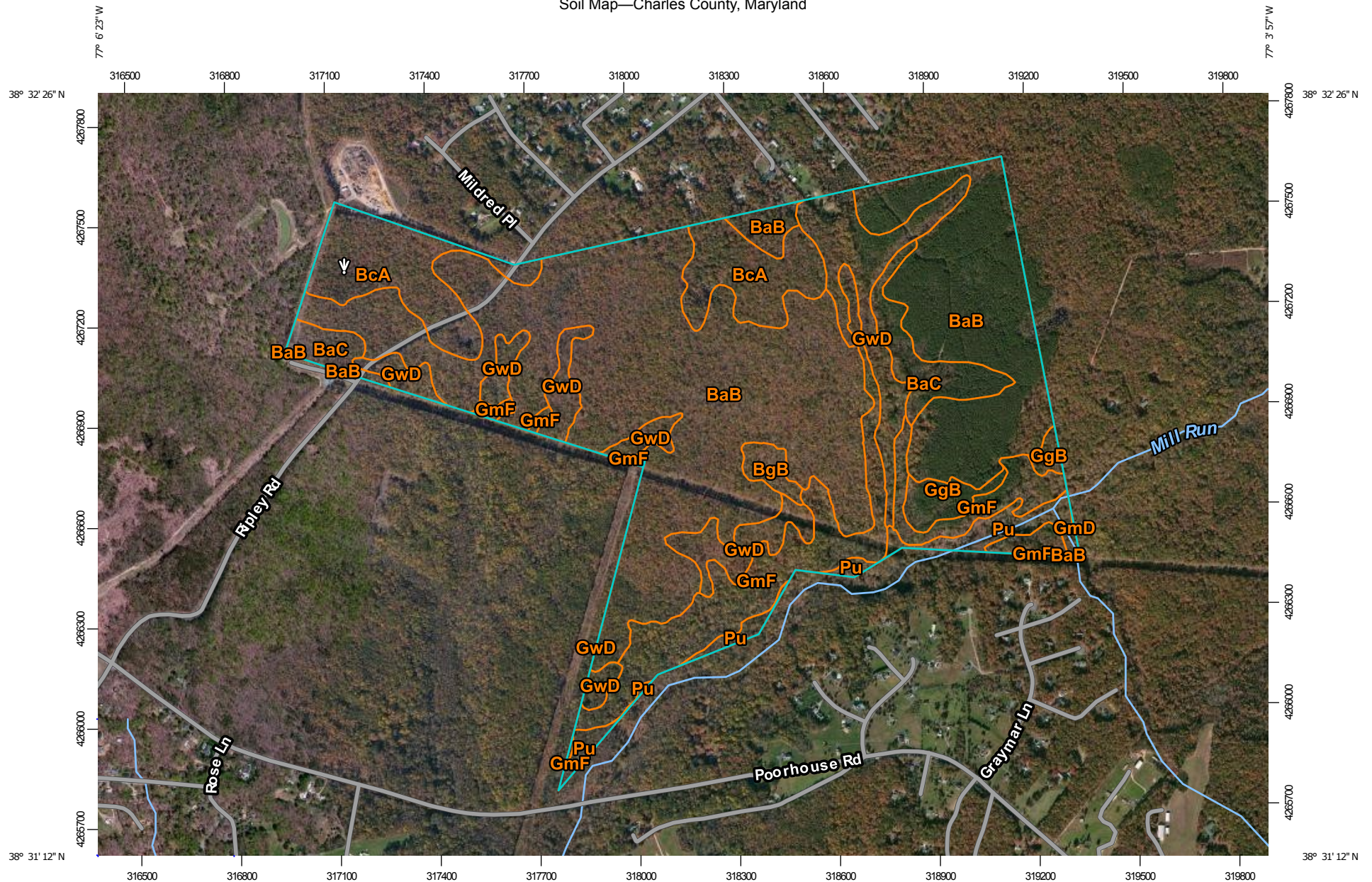
ECS Forest Conservation Plan

The Applicant engaged ECS Mid-Atlantic to complete the FSD and FCP. As noted in **Appendix 2**, the FSD has been completed and included with this ERD. Once the FSD has been approved, ECS will prepare the FCP. Once this document had been submitted to Charles County, the Applicant will prepare a supplemental filing of same to PPRP.

APPENDIX 4

NRCS Soils Report

Soil Map—Charles County, Maryland



Map Scale: 1:16,100 if printed on A landscape (11" x 8.5") sheet.

0 200 400 800 1200 Meters

0 500 1000 2000 3000 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84




**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

4/26/2017
Page 1 of 3

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Charles County, Maryland

Survey Area Data: Version 10, Sep 19, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 14, 2011—Nov 7, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Charles County, Maryland (MD017)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BaB	Beltsville silt loam, 2 to 5 percent slopes	284.7	56.2%
BaC	Beltsville silt loam, 5 to 10 percent slopes	21.1	4.2%
BcA	Beltsville-Aquasco complex, 0 to 2 percent slopes	53.4	10.5%
BgB	Beltsville-Grosstown-Woodstown complex, 0 to 5 percent slopes	4.5	0.9%
GgB	Grosstown gravelly silt loam, 2 to 5 percent slopes	9.1	1.8%
GmD	Grosstown-Marr-Hoghole complex, 5 to 15 percent slopes	0.0	0.0%
GmF	Grosstown-Marr-Hoghole complex, 15 to 40 percent slopes	60.3	11.9%
GwD	Grosstown-Woodstown-Beltsville complex, 5 to 15 percent slopes	58.3	11.5%
Pu	Potobac-Issue complex, frequently flooded	15.6	3.1%
Totals for Area of Interest		506.9	100.0%

APPENDIX 5

FEMA Flood Insurance Rate Map

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 18N. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of information shown on this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>.

Base map source: Road centerlines and corporate limits were provided in digital spatial data format by Charles County, 2007 National Agriculture Imagery Program (NAIP) 1-m resolution data were downloaded, and used as the basis of streamline digitization. Adjustments were made to specific base map features to align them to the orthophotos.

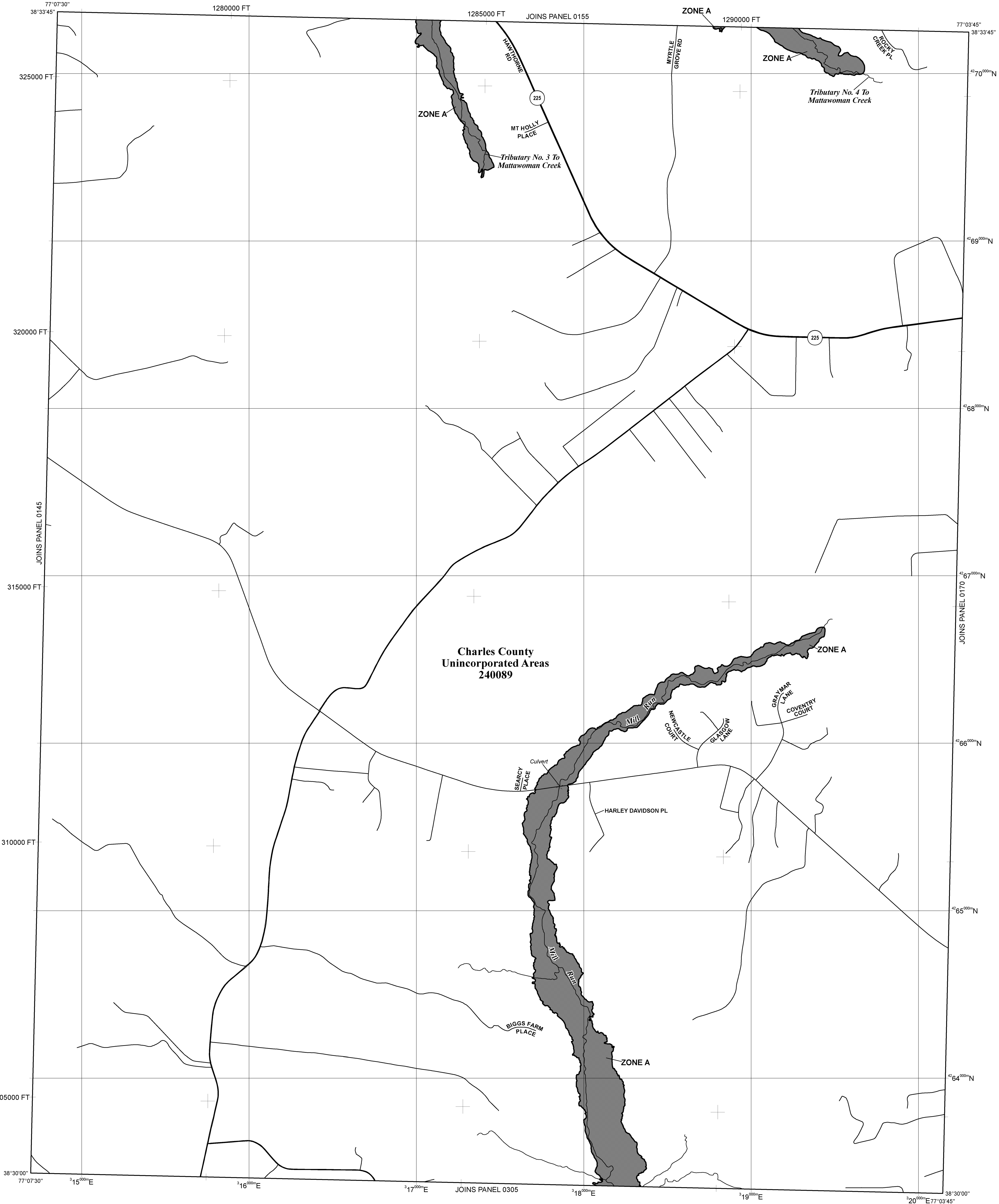
This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to confirm to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels, community map repository addresses, and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Information eXchange** at 1-877-336-2627 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Information eXchange may also be reached by Fax at 1-800-358-9620 and their website at <http://www.msc.fema.gov/>.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA MAP (1-877-336-2627) or visit the FEMA website at www.fema.gov



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

Legend Symbols:

- Floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Limit of Moderate Wave Action
- Base Flood Elevation line and value; elevation in feet*
- Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

Map Symbols:

- Cross section line
- Transect line
- Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 1000-meter Universal Transverse Mercator grid values, zone 18N
- 5000-foot grid values: Maryland State Plane coordinate system (FIPSZONE 1900), Lambert Conformal Conic projection
- Bench mark (see explanation in Notes to Users section of this FIRM panel)
- River Mile
- Refer to listing of Map Repositories on Map Index
- EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP: September 4, 2013
- EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL: May 4, 2015 - To incorporate new detailed coastal flood hazard analysis and to reflect updated topographic information.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

MAP SCALE 1" = 1000'

MAP SCALE 1" = 1000'

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0165D

FIRM

FLOOD INSURANCE RATE MAP

CHARLES COUNTY, MARYLAND AND INCORPORATED AREAS

PANEL 165 OF 575
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CHARLES COUNTY	240089	0165	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
24017C0165D

MAP REVISED
MAY 4, 2015

Federal Emergency Management Agency

APPENDIX 6

Critical Area Commission Map



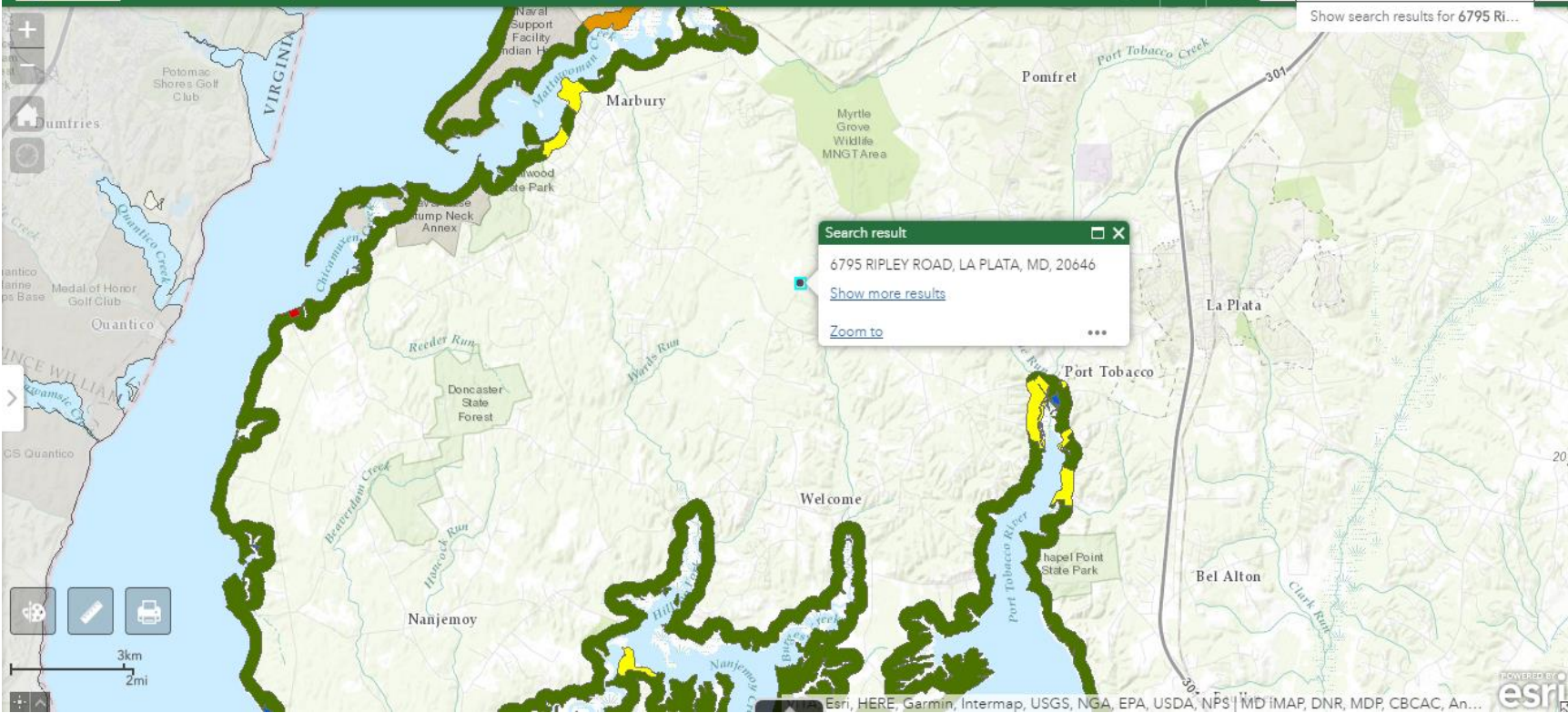
MERLIN-Marylands Environmental Resource & Land Information Network



6795 Ripley Road, La Plata X



Show search results for 6795 Ri...



Esri, HERE, Garmin, Intermap, USGS, NGA, EPA, USDA, NPS, MDIMAP, DNR, MDP, CBCAC, An...



APPENDIX 7

ECS Wetlands Report



**PRELIMINARY WATERS OF THE U.S. DETERMINATION REPORT
MARYLAND SOLAR SITE 2: RIPLEY ROAD**

CHARLES COUNTY, MARYLAND

ECS PROJECT NO. 47: 4209-A

FOR

**MD SOLAR 2, LLC
(c/o H&B Solutions)**

JULY 2017



July 18, 2017

Mr. Jean David
MD Solar 2, LLC (c/o H&B Solutions)
800 Brickell Avenue
Suite 1100
Miami, Florida

ECS Project No. 47: 4209-A

Reference: Preliminary Waters of the U.S. Determination, Maryland Solar Site 2, Ripley Road, Charles County, Maryland

Dear Mr. David:

ECS Mid-Atlantic (ECS) is pleased to present this preliminary Waters of the U.S. Determination for the above-referenced project in general accordance with ECS Proposal No. 47:4079-EPR, dated April 5, 2017. A preliminary Waters of the U.S. Determination entails the gathering of appropriate secondary information; including but not limited to, USGS, NWI, county soils mapping, and aerial photography. Secondly, a site visit is made to determine if areas of concern may be present and exhibit wetland or other Waters of the United States characteristics. Some field data is gathered to make these determinations but it is not adequate enough for submittal to the U.S. Army Corps of Engineers or Maryland Department of the Environment for confirmation, nor are the boundaries of such areas flagged.

PROPERTY DESCRIPTION

The site is approximately 255-acres in size and is located on both sides of Ripley Road in La Plata, Maryland (Figure 1). According to a preliminary site plan provided to ECS and aerial photographs, the subject site is currently undeveloped, wooded land. Proposed development of the site includes a solar power generating facility.

SECONDARY INFORMATION

Secondary Information entails the background research and review of recorded data and mapping pertaining to the project site. Resources include but are not limited to the:

- U. S. Geological Survey (USGS) Topographic Map, Port Tobacco Quadrangle, 2016
- U. S. Fish and Wildlife Service (USFWS), National Wetlands Inventory (NWI) Online Mapper, http://wetlands.fws.gov/mapper_tool.htm
- Natural Resources Conservation Service (NRCS), Electronic Field Office Technical Guide, Charles County Soils, www.nrcs.usda.gov/technical/efotg/
- Available aerial photography and GIS data.

The USGS Port Tobacco quadrangle map shows elevations ranging from approximately 160 feet above mean sea level (MSL) along the perimeter of the site to 150 feet above MSL in the central portions of the site (Figure 2). As shown on the USGS Map, the project site drains to Mill Run and is located within the Lower Potomac watershed, identified as Hydrologic Unit Code

(HUC) 02070011. The NWI map does not depict wetland areas within the study area (Figure 3). The soil survey indicates that the site is underlain primarily by Units BaB – Beltsville silt loam, BcA – Beltsville-Aquasco complex, and GwD – Grosstown-Woodstown-Beltsville complex (Figure 4). Each of these dominant soils is classified by the NRCS as hydric. Figures are included in Appendix I.

FIELD VISIT FINDINGS

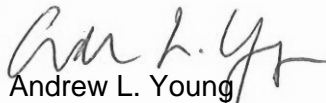
A field evaluation was conducted on June 20, 2017, during which time ECS observed potentially jurisdictional Waters onsite (see Figure 5). In the north-central portion of the site, several small potential palustrine emergent/forested (PEM/PFO) wetlands were observed near the property boundary and along Ripley Road. Near the center of the site, an area of potential palustrine forested/scrub-shrub (PFO/PSS) wetlands was observed. Ephemeral and intermittent stream channels drain the site to the south and southeast. A potential PEM wetland was observed west of Ripley Road near the southern border of the property. On the east border of the property along Mill Run, potential PFO/PEM wetlands were also found. A photographic log of site conditions is included in Appendix II.

Based on these findings, ECS recommends avoidance of these areas. Please refer to these areas as field mapping which needs to be confirmed through the Maryland Department of the Environment (MDE) site visit. We look forward to meeting with H&B Solutions and MDE to conduct the site visit to confirm the findings of this report. Please let us know when H&B Solutions and MDE are available to meet.

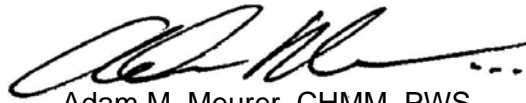
ECS would like to thank MD Solar 2, LLC for the opportunity to provide you with this preliminary wetland determination. We look forward to assisting you further with this project and other environmental concerns you may have. If you have any questions, please feel free to contact us at any time at 703-471-8400.

Sincerely,

ECS MID-ATLANTIC, LLC



Andrew L. Young
Environmental Project Manager
AYoung@ecslimited.com



Adam M. Meurer, CHMM, PWS
Environmental Principal
AMeurer@ecslimited.com

I:_e-projects\4200-4299\4209-A MD Solar 2 Ripley Rd Nat Res\Prelim wetlands\4209-A Ripley Road Preliminary Wetlands Letter_rev.doc

Appendix 1 – Figures

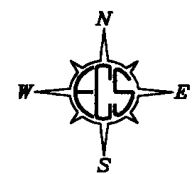
Appendix 2 – Site Photographs

APPENDIX I

FIGURES



FIGURE 1: SITE LOCATION MAP
PROJECT #47:4209-A —RIPLEY ROAD
CHARLES COUNTY, MARYLAND



NOT TO SCALE

PRELIMINARY WETLANDS DETERMINATION

FOR: MD SOLAR 2, LLC

JULY 2017

SOURCE: GOOGLE MAPS

ECS MID-ATLANTIC, LLC

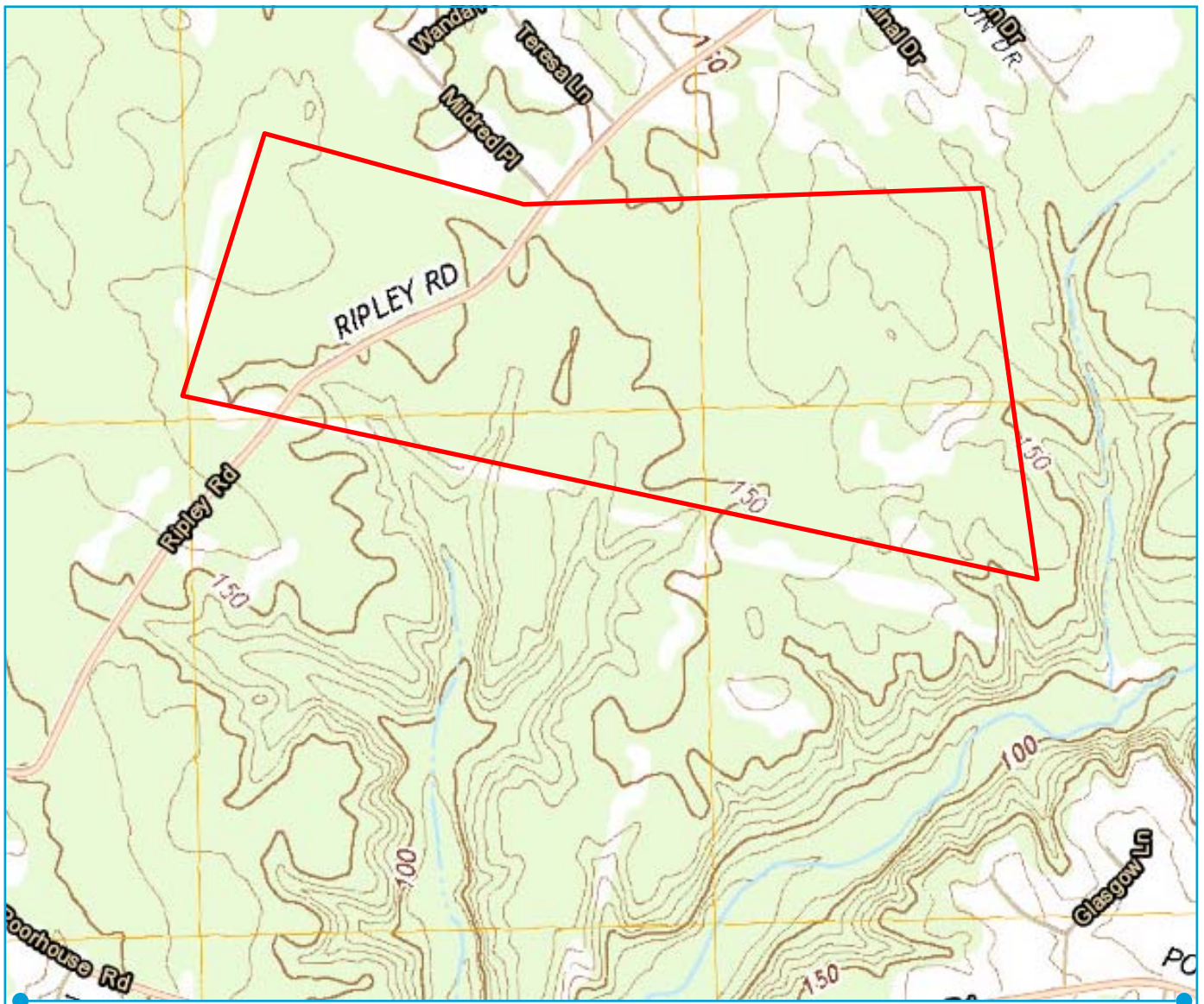
14026 THUNDERBOLT PLACE

SUITE 100

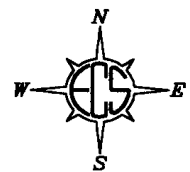
CHANTILLY, VA 20151

703-471-8400





**FIGURE 2: USGS TOPOGRAPHIC MAP
PROJECT #47:4209-A —RIPLEY ROAD
CHARLES COUNTY, MARYLAND**

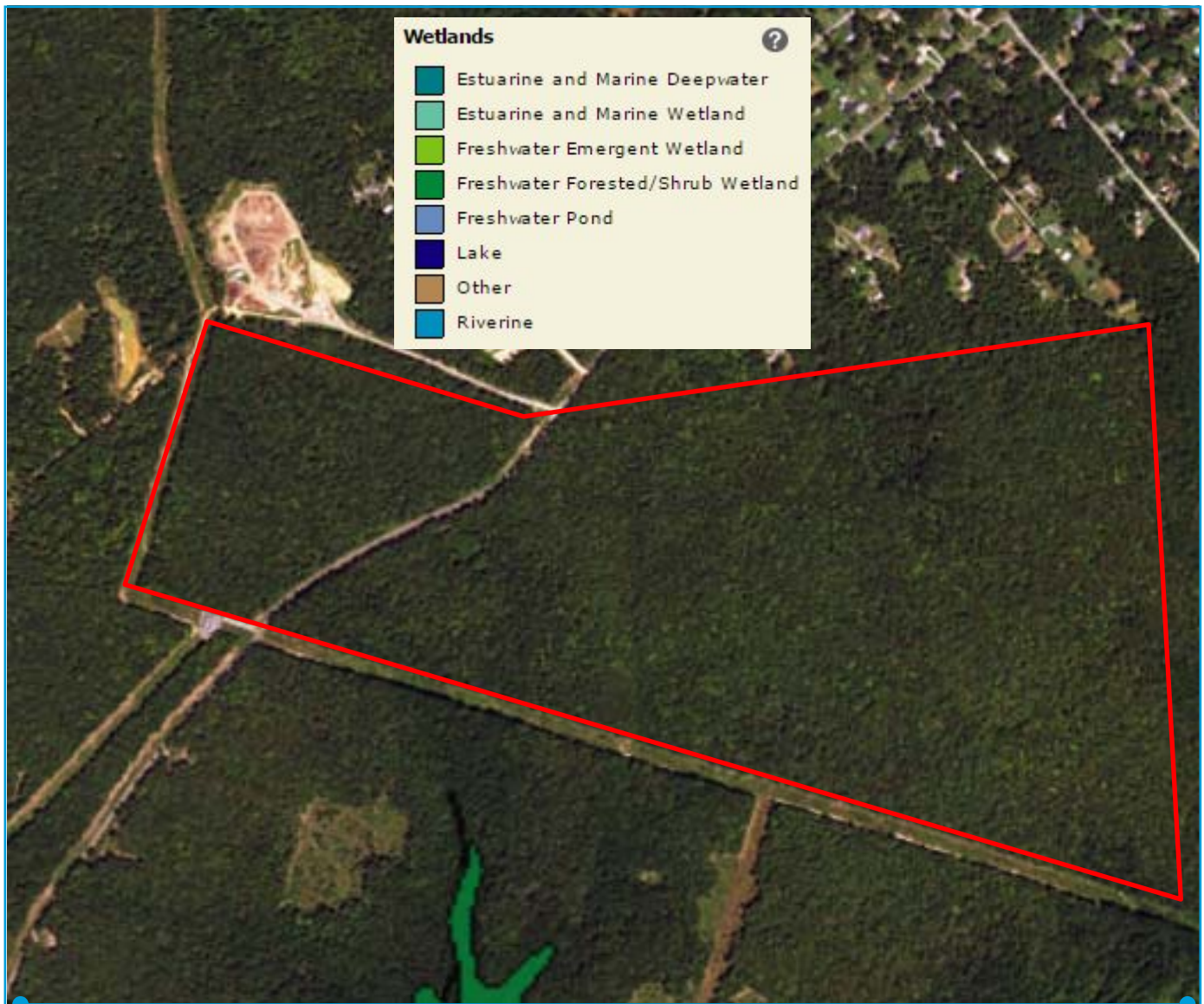


NOT TO SCALE

PRELIMINARY WETLANDS DETERMINATION
FOR: MD SOLAR 2, LLC
JULY 2017
SOURCE: MERLIN

ECS MID-ATLANTIC, LLC
14026 THUNDERBOLT PLACE
SUITE 100
CHANTILLY, VA 20151
703-471-8400





PRELIMINARY WETLANDS DETERMINATION
FOR: MD SOLAR 2, LLC
JULY 2017
SOURCE: USFWS WETLANDS MAPPER

ECS MID-ATLANTIC, LLC
14026 THUNDERBOLT PLACE
SUITE 100
CHANTILLY, VA 20151
703-471-8400



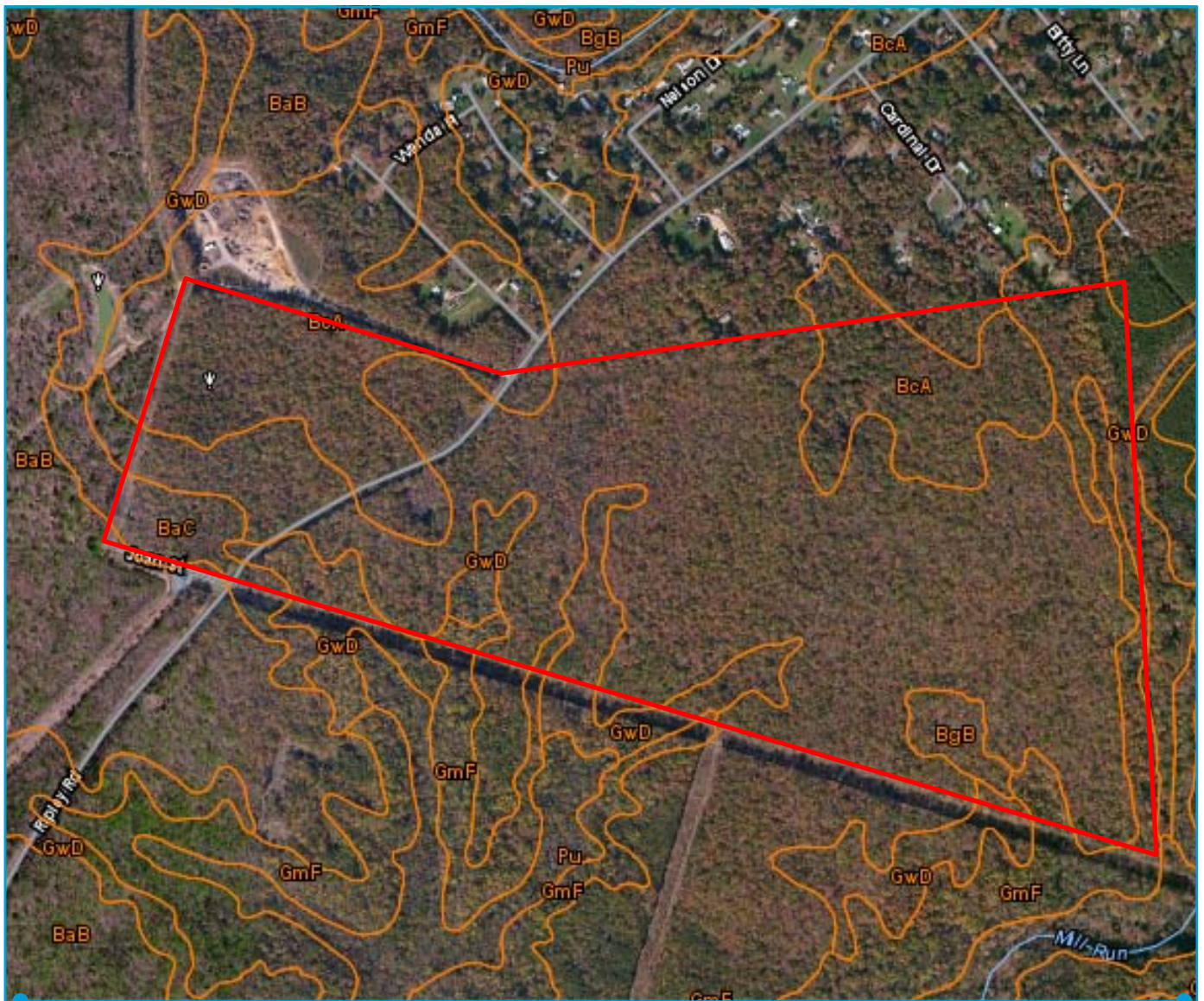
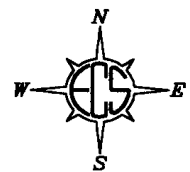


FIGURE 4: USDA SOILS MAP
PROJECT #47:4209-A —RIPLEY ROAD
CHARLES COUNTY, MARYLAND

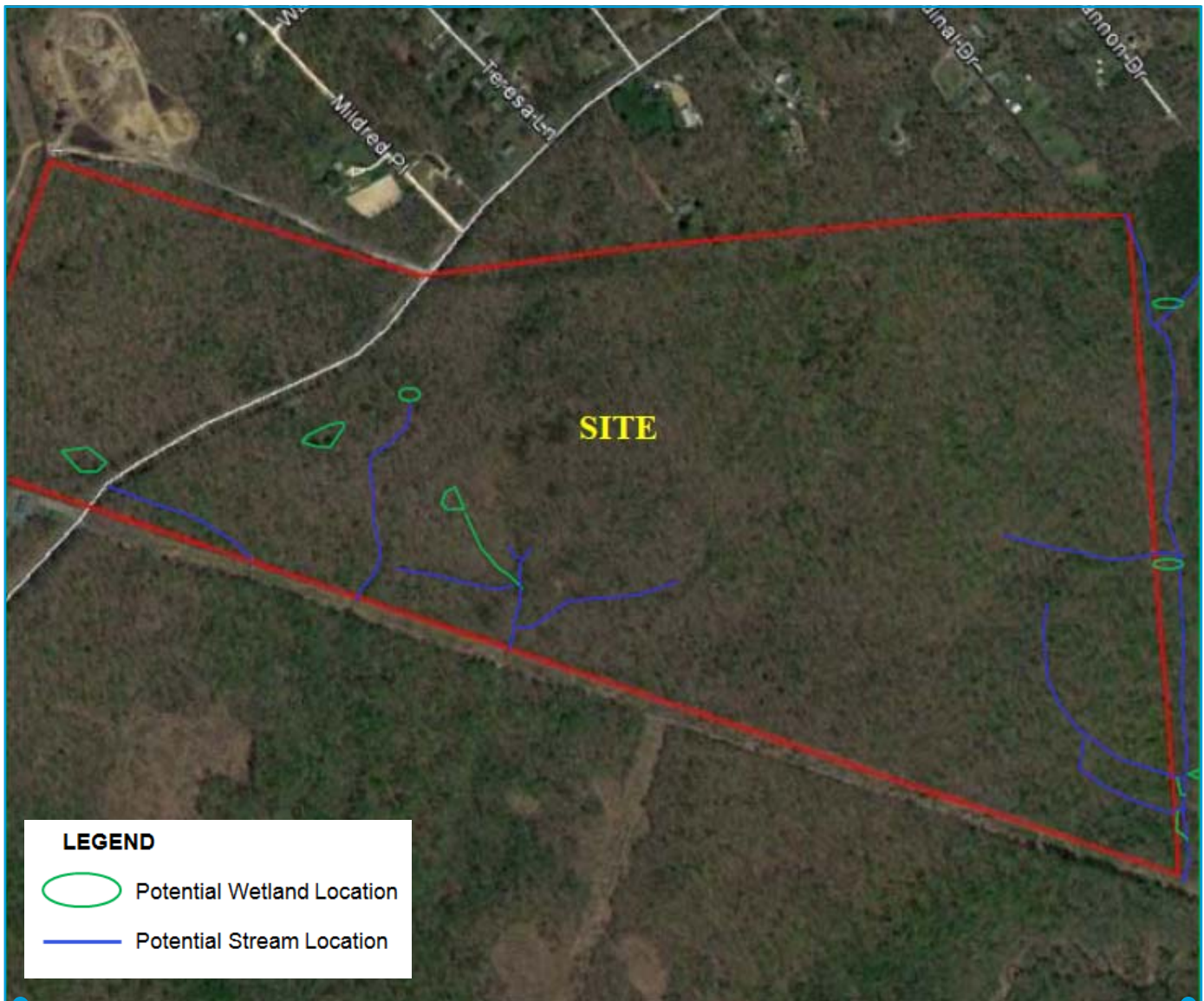


NOT TO SCALE

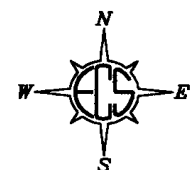
PRELIMINARY WETLANDS DETERMINATION
FOR: MD SOLAR 2, LLC
JULY 2017
SOURCE: NRCS WEB SOIL SURVEY

ECS MID-ATLANTIC, LLC
14026 THUNDERBOLT PLACE
SUITE 100
CHANTILLY, VA 20151
703-471-8400





**FIGURE 5: APPROXIMATE WOUS LOCATION MAP
PROJECT #47:4209-A —RIPLEY ROAD
CHARLES COUNTY, MARYLAND**



NOT TO SCALE

PRELIMINARY WETLANDS DETERMINATION
FOR: MD SOLAR 2, LLC
JULY 2017
SOURCE: NRCS WEB SOIL SURVEY

ECS MID-ATLANTIC, LLC
14026 THUNDERBOLT PLACE
SUITE 100
CHANTILLY, VA 20151
703-471-8400

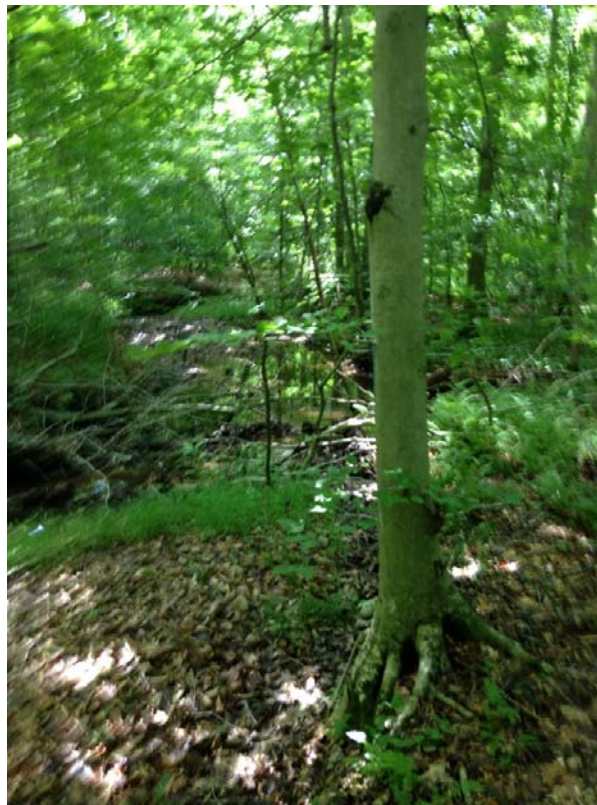


APPENDIX II

PHOTOLOG



Photograph 1: View of potentially jurisdictional wetland areas within the study area.



Photograph 2: View of potentially jurisdictional wetland areas within the study area.



Photograph 3: View of potentially jurisdictional wetland areas within the study area.



Photograph 4: View of potentially jurisdictional wetland areas within the study area.



Photograph 5: View of potentially jurisdictional wetland areas within the study area.



Photograph 6: View of potentially jurisdictional wetland areas within the study area.

APPENDIX 8

MDE Wetlands Avoidance Confirmation Memo

MEMORANDUM

To: Dane Bauer/Melissa Hall;

From: Jeff Thompson, Central Region Chief
Maryland Department of the Environment/Nontidal Wetlands Division

Date: September 11, 2017

Re: Ripley Road, LaPlata, Charles Co., Maryland

The Maryland Department of the Environment, Nontidal Wetlands Division has reviewed the project limits of disturbance and nontidal wetlands noted for a proposed solar facility at the subject location. The Department is in agreement with the wetlands locations and that the location of the solar panels and the associated infrastructure will have no impacts to jurisdictional areas of the State, including regulated 25 foot buffer areas. It should also be noted that the project is located within a Tier II watershed and water quality should be of prime importance in planning and construction of this project.

If this project does not disturb wetlands or wetland buffers, then no authorization from this office is necessary. If it is determined that as a result of the grid connection or any associated infrastructure that there will be impacts to any regulated resources an authorization will be required and a JPA will need to be submitted.

It is our desire to see that these types of projects can take place without sacrificing any wetland functions that might exist on potential sites within the region. The Department is pleased that these specific projects have been designed to avoid such wetland losses. If I can be of further assistance, please feel free to contact me at Jeffrey.thompson@maryland.gov or at 443-463-9850.

APPENDIX 9

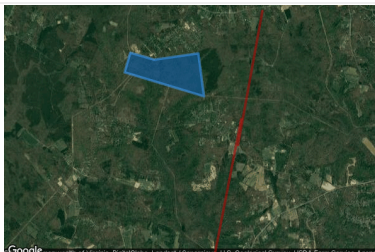
Glare Analysis Reports



GlareGauge Glare Analysis Results

Site Configuration: MD83 Ty-ti-to Airport MD Solar 2 LLC

Project site configuration details and results.



Created **June 29, 2017 2:31 p.m.**
 DNI **varies** and peaks at **1,000.0 W/m²**
 Analyze every **1 minute(s)**
0.5 ocular transmission coefficient
0.0066 ft pupil diameter
0.056 ft eye focal length
9.3 mrad sun subtended angle
 Site Configuration ID: 9036.1532

Summary of Results No glare predicted!

PV name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
PV array 1	0.0	0.0	0	0	105,100,000.0

Component Data

PV Array(s)

Name: PV array 1
Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Limit tracking rotation? Yes
Maximum tracking angle: 60.0 deg
Rated power: 34000.0 kW
Panel material: Smooth glass without AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 6.55 mrad
Predicted energy output: 105,100,000.0 kWh
 (assuming sunny, clear skies)

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	38.533396	-77.100163	158	0	158
2	38.537559	-77.098618	161	0	161
3	38.536082	-77.092094	150	0	150
4	38.537424	-77.080078	159	0	159
5	38.528293	-77.078533	100	0	100

Flight Path Receptor(s)

Name: FP 1
Description:
Threshold height: 50 ft
Direction: 10.33 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 120.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	38.517974	-77.069263	152	50	202
2-mile point	38.546418	-77.062629	157	598	756

Name: FP 2
Description:
Threshold height: 50 ft
Direction: 191.07 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 120.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	38.523458	-77.068405	153	50	203
2-mile point	38.495084	-77.075509	84	671	756

PV Array Results

PV array 1

Component	Green glare (min)	Yellow glare (min)	Red glare (min)
FP: FP 1	0	0	0
FP: FP 2	0	0	0

Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values may differ.
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass : continuous, not discrete, spectrum.



GlareGauge Glare Analysis Results

Site Configuration: Unknown Airport MD Solar 2 LLC

Project site configuration details and results.



Created **June 29, 2017 2:31 p.m.**
 DNI **varies** and peaks at **1,000.0 W/m²**
 Analyze every **1 minute(s)**
0.5 ocular transmission coefficient
0.0066 ft pupil diameter
0.056 ft eye focal length
9.3 mrad sun subtended angle
 Site Configuration ID: 9036.1532

Summary of Results No glare predicted!

PV name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
PV array 1	0.0	0.0	0	0	105,100,000.0

Component Data

PV Array(s)

Name: PV array 1
Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Limit tracking rotation? Yes
Maximum tracking angle: 60.0 deg
Rated power: 34000.0 kW
Panel material: Smooth glass without AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 6.55 mrad
Predicted energy output: 105,100,000.0 kWh
 (assuming sunny, clear skies)

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	38.533396	-77.100163	158	0	158
2	38.537559	-77.098618	161	0	161
3	38.536082	-77.092094	150	0	150
4	38.537424	-77.080078	159	0	159
5	38.528293	-77.078533	100	0	100

Flight Path Receptor(s)

Name: FP 1
Description:
Threshold height: 50 ft
Direction: 322.35 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 120.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	38.508214	-77.119217	148	50	198
2-mile point	38.531106	-77.141813	139	612	751

Name: FP 2
Description:
Threshold height: 50 ft
Direction: 138.31 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 120.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	38.516038	-77.127435	87	50	137
2-mile point	38.494447	-77.102830	116	574	691

PV Array Results

PV array 1

Component	Green glare (min)	Yellow glare (min)	Red glare (min)
FP: FP 1	0	0	0
FP: FP 2	0	0	0

Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values may differ.
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass : continuous, not discrete, spectrum.

APPENDIX 10

ECS Preliminary Geotechnical Assessment Report

The Applicant engaged ECS Mid-Atlantic to complete the Preliminary Geotechnical Assessment Report. Field work has been completed as well as the preliminary soils analysis. However, at the time of this submittal the Geotechnical Assessment Report is not in final form. Once this document is completed, the Applicant will prepare a supplemental filing of same to PPRP.

APPENDIX 11

*DNR Wildlife and Heritage
Response Letter*



August 16, 2017

Mr. Jean David
MD Solar 2, LLC (c/o H&B Solutions)
800 Brickell Avenue
Suite 1100
Miami, Florida

ECS Project No. 47:4209-A

Reference: Biological Assessment Summary Letter, Maryland Solar Site 2, Ripley Road,
Charles County, Maryland

Dear Mr. David:

ECS Mid-Atlantic, LLC (ECS) is pleased to provide MD Solar 2, LLC with the results of the Biological Assessment for the above-referenced project site. Our services were provided in general accordance with ECS Proposal No. 47:4199-EPR, dated April 20, 2017.

PROPERTY DESCRIPTION

We understand the Maryland Solar Site 2 project consists of one property containing approximately 255-acres within the study area limits. Based on information provided by the client in a .kmz file, Maryland Solar Site 2 is located on the east and west sides of Ripley Road, just south of the intersection with Mildred Place. This area is undeveloped, wooded land located in La Plata, Charles County, Maryland.

DATABASE REVIEW FINDINGS

Maryland Department of Natural Resources (DNR):

ECS contacted the Maryland DNR Wildlife and Heritage Service on June 21, 2017 to request an environmental review for all Federal and/or State listed threatened and endangered species within the project boundaries (see Appendix I). According to DNR, one plant is of concern within the project boundary:

- Rare/watchlist species Primrose-willow (*Ludwigia decurrens*)

The Primrose-willow is known to grow along the edges of swamp areas, which exist at the southeast corner of the Ripley Road site. However, based on the proposed site plan, disturbance will not occur within this area. In addition, this species is not a state or federally listed threatened or endangered species and therefore not afforded specific legal protections under endangered species laws. Because of the avoidance of this potential habitat area and its

non-protected status, ECS believes there will be no adverse impacts to this species and does not believe additional action is required at this time.

U.S. Fish and Wildlife Service (USFWS):

ECS conducted a review of the U.S. Fish and Wildlife Service's Information, Planning, and Consulting (IPAC) database to document the occurrence or potential habitat for Federally listed species within the project boundaries (see Appendix II). According to USFWS, no species are expected to occur at this location.

This completes our scope of service for this project. If you have any questions or comments concerning the contents of the enclosed documents or other related topics, please feel free to contact us at (703) 471-8400.

Respectfully submitted,

ECS MID-ATLANTIC, LLC



Ellen C. Martin, EIT
Environmental Staff Project Manager
EMartin@ecslimited.com



Adam M. Meurer, CHMM, PWS
Environmental Principal
AMeurer@ecslimited.com

APPENDIX I

Maryland Department of Natural Resources (DNR)
Search Results



Larry Hogan, Governor
Boyd Rutherford, Lt. Governor
Mark Belton, Secretary
Joanne Throwe, Deputy Secretary

July 5, 2017

Ms. Jessica A. Antos
ECS Mid-Atlantic, LLC
14026 Thunderbolt Place
Suite 100
Chantilly, Virginia 20151-3232

RE: Environmental Review for ECS Project No. 47:4209A Ripley Road Property, Shugart Valley Drive, La Plata, Charles County, Maryland.

Dear Ms. Antos:

The Wildlife and Heritage Service has determined that this project site overlaps a portion of Mill Run/Poorhouse Swamp in the southeast corner of the project site. This wetland is known to support occurrences of the state rare/watchlist plant Primrose-willow (*Ludwigia decurrens*). The record describes the population of Primrose-willow as growing in the edges of the swamp habitat. While this is not a listed species in Maryland, we would still encourage efforts to conserve this native plant.

In addition, our remote analysis suggests that the forested area on this property contains Forest Interior Dwelling Bird habitat. Populations of many bird species which depend on this type of forested habitat are declining in Maryland and throughout the eastern United States. Interested landowners can contact us for further voluntary guidelines to help conserve this important habitat.

Please be sure to let us know if the limits of proposed disturbance or overall site boundaries change and we will provide you with an updated evaluation. Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

Sincerely,

Lori A. Byrne,
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER# 2017.0991.ch
Cc: S. Gray, DNR
K. McCarthy, DNR

APPENDIX II

U.S. Fish & Wildlife Service (USFWS)
Search Results



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
Phone: (410) 573-4599 Fax: (410) 266-9127

<http://www.fws.gov/chesapeakebay/>
<http://www.fws.gov/chesapeakebay/endsppweb/ProjectReview/Index.html>

In Reply Refer To:

July 07, 2017

Consultation Code: 05E2CB00-2017-SLI-1550

Event Code: 05E2CB00-2017-E-03248

Project Name: Ripley Road Property

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having

similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at:

<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>;

<http://www.towerkill.com>; and

<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
 - Wetlands
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chesapeake Bay Ecological Services Field Office

177 Admiral Cochrane Drive

Annapolis, MD 21401-7307

(410) 573-4599

Project Summary

Consultation Code: 05E2CB00-2017-SLI-1550

Event Code: 05E2CB00-2017-E-03248

Project Name: Ripley Road Property

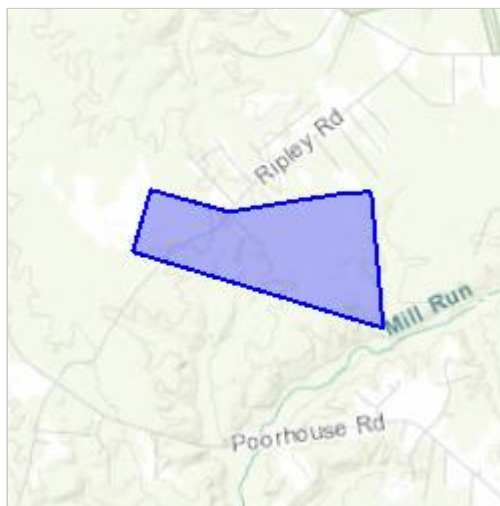
Project Type: DEVELOPMENT

Project Description: The project area contains about 220 acres of interest for possible development.

Project Location:

Approximate location of the project can be viewed in Google Maps:

<https://www.google.com/maps/place/38.53297623552166N77.08871331979122W>



Counties: Charles, MD

Endangered Species Act Species

There is a total of 0 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

Critical habitats

There are no critical habitats within your project area.

USFWS National Wildlife Refuges And Fish Hatcheries

Any activity proposed on [National Wildlife Refuge](#) lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuges or fish hatcheries within your project area.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

There are no wetlands within your project area.

APPENDIX 12

Maryland Historical Trust Response



PROJECT REVIEW FORM

Request for Comments from the Maryland Historical Trust/
MDSHPO on State and Federal Undertakings

MHT USE ONLY

Date Received:

Log Number:

6/29/17 S PSC NSL/DLH 201703598

Project Name MD Solar 2, LLC County Charles

Primary Contact:

Contact Name Dane Bauer Company/Agency H&B Solutions, LLC
Mailing Address 37534 Oliver Dr.
City Selbyville State Delaware Zip 19975
Email dbauer@hallandbauer.com Phone Number +1 (410) 812-9109 Ext.

Project Location:

Address 6795 Ripley Road (see cover letter for TM/Parcel info) City/Vicinity Nanjamoy
Coordinates (if known): Latitude 38.534453 Longitude 77.094499 Waterway Nanjamoy

Project Description:

List federal and state sources of funding, permits, or other assistance (e.g. Bond Bill Loan of 2013, Chapter #; HUD/CDBG; MDE/COE permit; etc.).	Agency Type	Agency/Program/Permit Name	Project/Permit/Tracking Number (if applicable)
	<u>S</u>	<u>PSC</u>	

This project includes (check all applicable): ☒ New Construction ☐ Demolition ☐ Remodeling/Rehabilitation
☐ State or Federal Rehabilitation Tax Credits ☒ Excavation/Ground Disturbance ☐ Shoreline/Waterways/Wetlands

Other\Additional Description: 27.5 MW solar project consisting of ballasts, posts, racks, panels, inverters, and switch gear.

Known Historic Properties:

This project involves properties (check all applicable): ☐ Listed in the National Register ☐ Subject to an easement held by MHT
☐ Included in the Maryland Inventory of Historic Properties ☐ Designated historic by a local government
☐ Previously subject to archeological investigations

Property\District\Report Name The property has historically been timbered and has no improvements onsite.

Attachments:

All attachments are required. Incomplete submittals may result in delays or be returned without comment.

- ☒ Aerial photograph or USGS Quad Map section with location and boundaries of project clearly marked.
☒ Project Description, Scope of Work, Site Plan, and/or Construction Drawings.
☒ Photographs (print or digital) showing the project site including images of all buildings and structures.
☒ Description of past and present land uses in project area (wooded, mined, developed, agricultural uses, etc).

MHT Determination:

- ☒ There are **NO HISTORIC PROPERTIES** in the area of potential effect ☐ The project will have **NO ADVERSE EFFECT WITH CONDITIONS**
☐ The project will have **NO EFFECT** on historic properties ☐ The project will have **ADVERSE EFFECTS** on historic properties
☐ The project will have **NO ADVERSE EFFECT** on historic properties ☐ **MHT REQUESTS ADDITIONAL INFORMATION**

MHT Reviewer:

Date:

Submit printed copy of form and all attachments by mail to: Beth Cole, MHT, 100 Community Place, Crownsville, MD 21032