APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): December 22, 2016

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: **CENAB-OP-RMS (Gateway Solar, LLC) / 2016-60716 (North) and 2016-60717 (North)**

PROJECT LOCATION AND BACKGROUND INFORMATION: **The project is an existing farm field currently in agricultural production under "normal farming" operations. The two sites are bounded by Maryland Route 346 (Old Ocean City Road) to the north, to the west by forested wetlands, to the east by a jurisdictional ditch and forested wetlands, and the south by Maryland Route 50 (Ocean Gateway), southeast of Whaleysville, Worcester County, Maryland.**

Reaches: **One (1) named tributary (Double Bridges Branch), three (3) unnamed tributaries (Streams S1, S2, & S3), and thirty-three (33) jurisdictional wetlands (A-GG) either directly abutting, or adjacent to the stream channels or non-jurisdictional conveyances / ditches on an approximate 205-acre area of review near 8620 Old Ocean City Road, recorded in the Worcester County land records**

State: **Maryland** County/parish/borough: **Worcester** City: **Berlin**
Center coordinates of site (lat/long in degree decimal format): **Latitude N 38.376511 & Longitude W -75.275833.**
Name of nearest waterbody: **Double Bridges Branch**
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: **Double Bridges Branch draining Whaleysville Branch to the Pocomoke River. The site contains four (3) unnamed non-navigable tributaries draining to Double Bridges Branch, a non-tidal tributary to Whaleysville Branch, a non-tidal tributary of the Pocomoke River, a tidal, navigable, interstate tributary flowing to Pocomoke Sound, a TNW. The waters of the U.S. flow offsite in a westerly direction via Double Bridges Branch. The channels convey flow from upstream wetlands located onsite and offsite as identified by MDDNR mapped wetlands.**

Name of watershed or Hydrologic Unit Code (HUC): **Pocomoke Watershed -- 02060009**
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: **26 July 2016; MDDNR Wetlands Inventory, Baltimore GIS and Google Aerial Photos.**

☒ Field Determination. Date(s): **Kathy Anderson, Frank Plewa, Woody Francis, Laura Shively, Chikita Sanders of the Corps, Mike Mansolino of EPA, Jim Brewer of NRCS, Tim Kellerman, Ryan Jiorie Triad Consultants, Alex Dologos Consultant and Tom Anderson of Constellation Solar, Applicant met on site 9 December 2015. Although this meeting was held no final determination was made on jurisdiction. / 3 August 2016 by Gene Morgenthaler and Rod Schwarm of the Corps / November 10, 2016 by Gene Morgenthaler.**

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There are not "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There are and are "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☒ Non-RPWs that flow directly or indirectly into TNWs

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
☒ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
☒ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
☐ Impoundments of jurisdictional waters
☐ Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area: **The project site consists of nontidal wetlands and three intermittent stream channels that are non-navigable tributaries flowing to Double Bridges Branch, a non-tidal tributary to Whaleysville Branch that flow to the Pocomoke River, A TNW. The three stream channels identified are relatively permanent waters (RPW), since these stream contain water at least seasonally; and the thirty-three (33) farmed wetlands are either directly abutting, or adjacent to the RPWs or non-jurisdictional conveyances onsite. Total area of waters of the U.S. is approximately 345,204 linear feet of jurisdictional waters (Double Bridges Branch, S1, S2, & S3) and 589,853 square feet (13.54 acres) of jurisdictional wetlands (A-GG).**

Wetlands:

Wetland A = 6,360 square feet (adjacent wetlands to RPW)
Wetland B = 71,634 square feet (adjacent wetlands to RPW)

Note: Wetland A and B are essentially the same wetland. Because of the disturbance the open water portion would very likely be vegetated if cropping stopped.

Wetland C = 2,363 square feet (adjacent wetlands to RPW)
Wetland D = 2,438 square feet (adjacent wetlands to RPW)
Wetland E = 20,817 square feet (adjacent wetlands to RPW)
Wetland F = 12,400 square feet (adjacent wetlands to RPW)
Wetland G = 1,693 square feet (adjacent wetlands to RPW)
Wetland H = 1,721 square feet (adjacent wetlands to RPW)
Wetland I = 4,868 square feet (adjacent wetlands to RPW)
Wetland J = 2,038 square feet (abutting wetlands to non-RPW)
Wetland K = 33,062 square feet (adjacent wetlands to RPW)
Wetland L = 2,533 square feet (adjacent wetlands to RPW)
Wetland M = 1,718 square feet (abutting wetlands to RPW)
Wetland N = 24,869 square feet (adjacent wetlands to RPW)
Wetland O = 1,855 square feet (adjacent wetlands to RPW)
Wetland P = 735 square feet (adjacent wetlands to RPW)
Wetland Q = 6,907 square feet (adjacent wetlands to non-RPW)
Wetland R = 4,502 square feet (adjacent wetlands to RPW)
Wetland S = 18,958 square feet (adjacent wetlands to RPW)
Wetland T = 43,038 square feet (adjacent wetlands to RPW)
Wetland U = 23,320 square feet (adjacent wetlands to RPW)
Wetland V = 1,838 square feet (abutting wetlands to RPW)
Wetland W = 21,988 square feet (abutting wetlands to non-RPW)
Wetland X = 41,876 square feet (abutting wetlands to non-RPW)
Wetland Y = 21,635 square feet (adjacent wetlands to non-RPW)
Wetland Z = 25,661 square feet (adjacent wetlands to non-RPW)
Wetland AA= 20,271 square feet (adjacent wetlands to RPW)
Wetland BB= 6,948 square feet (adjacent wetlands to a non-RPW)
Wetland CC = 72,146 square feet (adjacent wetlands to RPW)
Wetland DD = 57,826 square feet (adjacent wetlands to RPW)
Wetland EE = 7,587 square feet (adjacent wetlands to non-RPW)
Wetland FF = 9,831 square feet (abutting wetlands to non-RPW)
Wetland GG = 14,417 square feet (abutting wetlands to non-RPW)

Streams:

Double Bridges Branch = 4,060 linear feet (tributary stream)
Stream S1 = 638 linear feet (intermittent RPW); first order stream
Stream S2 = 2,334 linear feet (intermittent RPW); first order stream
Stream S3 = 4,293 linear feet (intermittent RPW); first order stream

Note: All tributaries identified on site flow at least 3 consecutive months a year, but less than perennial. These are seasonal RPWs.

c. Limits (boundaries) of jurisdiction based on: 1987 U.S. Army Corps of Engineers Wetlands Delineation Manual
Elevation of established OHWM (if known): **The OHWM is highly variable, and thus is unknown**.

2. **Non-regulated waters/wetlands (check if applicable):**[3]

☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined not to be jurisdictional. Explain:

Waters: **In addition, there were man-made drainage features observed during the site visit. Corn was observed growing within the fields, some of which was stunted due to excess water. The features are typical of farm and irrigation drainage ditches dug in dry lands. These ditches were excavated in hydric soils, not draining wetlands and they did not carry a relatively permananet flow of water. They did not exhibit a clear, natural line impressed on the bank /discernable ordinary high water mark, are not considered tributaries and lacked at least one of the three wetland parameters. Therefore, these conveyences / ditches were not considered jurisdictional pursuant to the Clean Water Act following the U.S. Supreme Court Decision / Rapanos Guidance.**

Wetlands: **Wet areas on the farm fields were observed in the field, corn with stunted growth due to excess water and interpretation of archival aerial photos and topographic mapping indicating repeatable signature of saturation indicating potential farmed wetlands. These area of repeatable signatures were considered to be jurisdictional. Some wet areas are depressions created incidental to normal farming activities and the spin cut ditches are created by cutting with a disc as farm maintenance activity. These areas of the field are artificially irrigated.**

Due to the recent cropping, and the resultant change in use to a solar farm, it was necessary to use Chapter 5 of the Coastal Plain Regional Supplement to establish the wetlands within the farm field. During visual observation, none of the wetlands had a predominance of hydrophytic vegetation. Our call is based on the fact that if cropping were to cease, hydrophytic vegetation would immediately start to colonize most areas as the hydrologic conditions are present, as evidenced by the repeated signatures on historic aerial photos and stressed crops observed in the field.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
Identify TNW:

Summarize rationale supporting determination:

2. **Wetland adjacent to TNW**
Summarize rationale supporting conclusion that wetland is "adjacent":

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for

---

[3] Supporting documentation is presented in Section III.F.
[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size: **The site contains 13.54 acres 11,325 linear feet of total jurisdictional WOUS.**
Drainage area: **+/- 400 acres. Double Bridges Branch watershed is located in the Coastal Plain Province and drains to the larger Pocomoke River.**

Average annual rainfall: **43.88 inches**
Average annual snowfall: 11.4 **inches**

(ii) Physical Characteristics:

(a) Relationship with TNW:

☐ Tributary flows directly into TNW.
☒ Tributary flows indirectly through **Streams S1, S2, & S3 are all unnamed, non-navigable tributaries to Double Bridges Branch. These streams are not identified as blueline streams on the National Hydrlogical Dataset (NHD) from the U.S. Geological Society and are variable distances from Double Bridges Branch as can be seen on the attached Figure 1 - RPWs / Conveyences. All tributaries that occur onsite have intermittent flow and drain offsite to a perennial RPW before entering the Pocomoke River, a TNW. The three stream channels are relatively permanent, meaning they contain water at least seasonally; and the wetlands either directly abut, are adjacent to the RPW tributaries or to the non-jurisdictional conveyances / farm ditches.**

Project waters are **approximately 2.35** river miles from TNW.
Project waters are **variable (see Figure 1-RPWs / Conveyances)** river miles from RPW.
Project waters are **approximately 1.80** aerial (straight) miles from TNW.
Project waters are **variable (see Figure 1-RPWs / Conveyances)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain:

.

Identify flow route to TNW[5]: **Streams S1, S2, & S3 drain through natural conveyances. The hydrological flow drains through an intermittent stream located onsite (Double Bridges Branch), which flows directly into Whaleysville Branch to the Pocomoke River, a TNW to the larger Pocomoke Sound, approximately 40 miles downstream.**

Tributary stream order, if known: **Streams S1, S2, & S3 are first order streams which flow directly into Double Bridges Branch.**

(b) General Tributary Characteristics (check all that apply):

Tributary is:
☒ Natural **Double Bridges Branch**
☒ Artificial (man-made). Explain: **There are man-made ditches draining cropfields to Double Bridges Branch or to jurisdictional streams.**
☒ Manipulated (man-altered). Explain: **Property is currently under agricultural uses and farming operation. The tributaries occurring onsite have defined bed, bank, and ordinary high water (OHWM) features and flow at least 3 consecutive months of the year. During the summer, as observed in aerial imagery, the channels exhibited no flow. Historical imagery shows the tributary system intact and water in the stream channels. Historically these features included ponded areas with seasonal saturation. Standing water, water table within the top 12-inches of the soil surface, drift lines, sediment depositions, and drainage patterns all present during the site visit. During the site visit in November, the Corps confirmed that these stream channels were exhibiting groundwater flow.**

Tributary properties with respect to top of bank (estimate):
Stream S1 - Average: 15-feet wide by 2-feet deep; side slopes 0 to 2%
Stream S2 - Average: 20-feet wide by 3-foot deep; side slopes 2% to 5%
Stream S3 - Average: 10-15 feet wide by 2.5 -3 feet deep;side slopes 1 to 5 %

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☒ Muck
☐ Bedrock	☒ Vegetation. Type/% cover: **30% cover within and on the side slopes of the stream channels.**	

☐ Other. Explain:

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: **Moderate level of stability - banks low erodibility and shallow, but only ~1.5 to 2 feet side slopes. The drainage system is maintained by cleaning out the channels and side-casting sediment into the fields to maintain flow volume to remove water from the farm fields during seasonally high saturation and ponding.**

Presence of run/riffle/pool complexes. **Yes** Explain: **During the Corps site visit 3 August 2016, a hydraulic flow velocity of approximately 0.5 cubic feet per second was observed. There was some algal matting in the channels. The high concentration of algae is due to the high levels of nitrogen and phosphorus resulting from agricultural runoff into the tributary and surrounding ditch system. Streams S1 and S2 are identified as a blue line stream on NHD data set. Some bent and stressed hydrophytic vegetation was observed in the stream channel system indicative of intermittent flow in this actively maintained system of drainage ditches within the agricultural lands.**

Tributary geometry: **Not sinuous on-site;**
Tributary gradient (approximate average slope): **1-2% avg.**

(c) Flow:
Tributary provides for: **Intermittent flow**
Estimate average number of flow events in review area/year: **50 (flowing)**
Describe flow regime: **Intermittent (RPW)**
Other information on duration and volume: **Generally less than 24 hours following storm events and during part of the wet season greater than 3 consecutive months. Drainage from the site flows generally westward toward Double Bridges Branch, a tributary to Whaleysville Branch to the Pocomoke River. Evidence of flow was observed with bed-and-bank, ordinary high water mark (OHWM), flow duration after rain event more than 24 hours later, and sorting of material.**
Surface flow is: **Discrete and confined** Characteristics:
Subsurface flow: **Unknown / possible due to high seasonable water tables.**

☐ Dye (or other) test performed: N/A.

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☒ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☒ destruction of terrestrial vegetation
☒ shelving	☐ the presence of wrack line
☒ vegetation matted down, bent, or absent	☒ sediment sorting
☐ leaf litter disturbed or washed away	☐ scour
☒ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: N/A.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: **Water was discolored; watershed highly disturbed from agricultural runoff.**
Identify specific pollutants, if known: **Excess nitrogen and phosphorus.**

(iv) Biological Characteristics. Channel supports (check all that apply):
☒ Riparian corridor. Characteristics (type, average width): **All tributaries onsite are located within an approximately 205 acre tract of agricultural land. To the west and east is a thick forested riparian zone.**
☒ Wetland fringe. Characteristics: **Wetlands A-GG are either directly abutting, or adjacent to the RPWs /streams S2, & S3 or non-jurisdictional conveyances / ditches- onsite.**
☐ Habitat for: **Unknown – A habitat survey was not completed.**

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break
[7]Ibid.

☐ Federally Listed species. Explain findings: **There are no known Federally Listed Species in this "area of review".**

☐ Fish/spawn areas. Explain findings:
☐ Other environmentally-sensitive species. Explain findings:
☐ Aquatic/wildlife diversity. Explain findings:

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
Wetland size: **All wetlands on the farm site vary in sized (See Figure 2 for dimensions).**
Wetland type. **Emergent; It is likely that at one time historically this field was PFO wetlands pior to converting to agriculture. A majority of the field was planted in corn during our site visit in August.**

Wetland quality. Explain: **Refer to Section IV.B.**
Project wetlands cross or serve as state boundaries. Explain: **N/A**.

(b) General Flow Relationship with Non-TNW:
Flow is: **Intermittent** Explain: **Directly abutting Streams S1, S2, & S3 are all first-order, intermittent streams / RPWs. Double Bridges Branch and S2 are identified as blue-line streams and S1 & S3 are stream channels that are relatively permanent, meaning they contain water at least seasonally; and the wetlands are either directly abutting or adjacent to the RPW tributaries or non-jurisdictional conveyances / ditches onsite.**

Surface flow is**: Following storm events and during at least a portion of the wet season greater than 3 consecutive months in duration.**
Characteristics:

Subsurface flow: **Likely, because flow is intermittent,** Explain findings: **The main source of water in from micro topography and groundwater. This area is part of the Delmarva Penninsula area and located in the Coastal Plain. Because unconsolidated sediments underlie the region, precipitation usually sinks readily, but areas of ponding often occurs due to water perching above tight silt loam soils. This ponding is depicted in repeatable signatures of saturation from aerial imagery.**
☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:
☒ Directly abutting / **some agricultural field wetlands are abutting.**
☒ Not directly abutting / **some agricultural field wetlands are not abutting but in close proximity**.
☒ Discrete wetland hydrologic connection. Explain: **Non-jurisdictional / Non-RPWs agricultural drainage ditches have been used as a surface connection to downstream receiving waters and TNWs.**
☐ Ecological connection. Explain:
☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW
Project wetlands are **approximately 2.35** river miles from TNW.
Project waters are **approximately 1.80** aerial (straight) miles from TNW.
Flow is from: **Wetlands to Stream Double Bridges Branch, S1, S2, & S3**
Estimate approximate location of wetland as within the floodplain. **None known.**

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: **Clear to Muddy Brown / some algae due to nitrogen and phosphorous from fertilizer.**
Identify specific pollutants, if known:

(iii) Biological Characteristics. Wetland supports (check all that apply):

☐ Riparian buffer. Characteristics (type, average width):
☒ Vegetation type/percent cover. Explain: **30% herbaceous cover within jurisdictional areas. Streams and wetlands are part of a wetland/stream complex and based on characteristics both visual and measurements in the field on 3 August 2016, they were determined to be either linear depression wetlands or had characteristics of a stream channel.**

☐ Habitat for: **Unknown – A habitat survey was not completed.**
☐ Federally Listed species. Explain findings: **There are no known Federally Listed Species in this "area of review".**

☐ Fish/spawn areas. Explain findings:
☐ Other environmentally-sensitive species. Explain findings:
☐ Aquatic/wildlife diversity. Explain findings:

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis:
Approximately in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in sq.ft)	Directly abuts? (Y/N)	Size (in acres)
Wetland A (N)	**6,360 square feet**	**N**	**0.146 acres**
Wetland B (N)	**71,634 square feet**	**N**	**1.644 acres**
Wetland C (N)	**2,363 square feet**	**N**	**0.054 acres**
Wetland D (N)	**2,438 square feet**	**N**	**0.055 acres**
Wetland E (N)	**20,817 square feet**	**N**	**0.477 acres**
Wetland F (N)	**12,400 square feet**	**N**	**0.284 acres**
Wetland G (N)	**1,693 square feet**	**N**	**0.038 acres**
Wetland H (N)	**1,721 square feet**	**N**	**0.039 acres**
Wetland I (N)	**4,868 square feet**	**N**	**0.111 acres**
Wetland K (N)	**33,062 square feet**	**N**	**0.758 acres**
Wetland L (N)	**2,533 square feet**	**N**	**0.058 acres**
Wetland M (Y)	**1,718 square feet**	**Y**	**0.039 acres**
Wetland N (N)	**24,869 square feet**	**N**	**0.570 acres**
Wetland O (N)	**1,855 square feet**	**N**	**0.042 acres**
Wetland P (N)	**735 square feet**	**N**	**0.016 acres**
Wetland R (N)	**4,502 square feet**	**N**	**0.103 acres**
Wetland S (N)	**18,958 square feet**	**N**	**0.435 acres**
Wetland T (N)	**43,038 square feet**	**N**	**0.988 acres**
Wetland U (N)	**23,320 square feet**	**N**	**0.535 acres**
Wetland V (Y)	**1,838 square feet**	**Y**	**0.042 acres**
Wetland AA (N)	**20,271 square feet**	**N**	**0.465 acres**
Wetland CC (N)	**72,146 square feet**	**N**	**1.656 acres**
Wetland DD (N)	**57,826 square feet**	**N**	**1.327 acres**

Summarize overall biological, chemical and physical functions being performed: **Refer to Section IV.B.**

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: **The ditches (non-RPWs) flow directly or indirectly into TNWs through the RPWs and are considered here to be a non-jurisdictional conveyances for those wetlands that are adjacent or abutting. These ditches drain to Double Bridges Branch, S2, & S3 but do not carry relatively permanent flow and are man-made cut in hydric soils to drain the cropland, do not meet all wetland parameters, do not drain wetlands and do not have an OHWM. All wetlands abutting or adjacent to these ditches (non-RPWs) are jurisdictional. This was conceded by the applicant at the meeting held on 9 December 2015.**

   The substrate of the stream beds of Double Bridges Branch, S1, S2, & S3 is dominated by sands and silts. All channels exhibited jurisdictional stream characteristics including OHWM, bank and bed, and shelving.

3. **Aquatic fauna, wetland vegetation, and evidence of groundwater seeps were observed within the four streams during the Corps' site visit 10 November 2016. The functions of Streams S1, S2, & S3 and Wetlands A-GG cumulatively contribute to the integrity of the TNW by performing a variety of functions.**

   * Aquatic Life (Organisms): **Due to the intermittent flow characteristics of the streams onsite fish, or other stream life that requires longer flow duration, would not be expected to be present. However, opportunistic organisms that have a short life history, such as some species of benthic macro-invertebrates, could be expected to be present seasonally. During the Corps' site visit on 10 November 2016, water was flowing in the channels, but upon a very cursory inspection no aquatic organisms were observed.**

   * Habitat for Wildlife: **A detailed assessment of in-stream habitat quality and/or undertaking of a functional assessment for both stream/wetland systems were not performed onsite. The intermittent stream system would not be expected to provide consistent drinking water for wildlife. The stream system is located on agricultural lands and may or may not be expected to provide food and shelter for a variety of non-aquatic organisms, however small.**

   * Support Nutrient Cycling**: All tributaries and their adjacent and abutting wetlands would be expected to support nutrient cycling by trapping nutrients with vegetation in the surrounding agricultural landscape.**

   * Sediment Transport: **Within these systems, materials are passively transported as water flows down-gradient to TNWs. No major blockages were observed on site or at adjoining parcels flowing offsite. Sediment laden with nitrogen and phosphorus was observed in the channel due to elevated levels of algae blooms and blue/green sediment deposits during high rain events within 24 hours.**

   * Pollutant Trapping: **During those storm events, precipitation falling on the site is generally carried into the RPWchannels onsite by sheet flow off agricultural fields and offsite from Maryland Route 346 (Old Ocean City Road). Some of the pollutants carried in the runoff would be expected to be trapped since the streams are moderately well connected to the fields and serve as the principal drainage features conveying flow offsite; especially with vegetation for trapping nutrients rooted in the channel themselves.**

   * WQ Improvement: **The channels have a moderate opportunity to improve the chemical and physical aspects of water quality because pollutants and sediment are trapped when the water flows into the channels, however the drainage area and high concentration of agricultural land-use in the watershed would be expected to overload the channels as evident in the field. There is no mature riparian buffer which would be expected to contribute shade which would help moderate water temperature fluctuations in the channel, thereby moderating fluctuations of the concentration of dissolved oxygen (DO) and improving biological parameters. Moreover, the channels and the associated riparian floodplain buffers typical of most healthy stream systems are not present. The site is highly disturbed and predominately agricultural farmland. Therefore, this channel would not be expected to provide greater functions and services in terms of improving water quality due to heavy loads of pollutants from the surrounding area versus a high value stream in a pristine area further downstream.**

   * Temperature: **Temperature loading is typical in the absence of mature riparian buffer which would be expected to contribute shade to moderate temperature fluctuations in the intermittent streams.**

   * Flood Storage: **Flood storage capacity is limited because the abutting wetlands are small and located on agricultural lands in farming production. A direct connection to groundwater was not observed during the Corps' site visit. This area of review is part of a region of Worcester County dominated by surface ponding typical of the Delmarva Peninsula. During the peak of the summer months into the early fall, surface ponding is infrequent.**

* Commerce: Double Bridges Branch, **Streams S1, S2, & S3 are too small and flow too infrequent to provide recreational boating or fishing and thus have limited opportunities to support commerce. However, they would be expected to contribute to downstream flow and a small detritus input which would aid in improving water quality downstream in the Pocomoke River, a TNW which does support commerce.**

* Navigation: **All of the intermittent stream system onsite is non-navigable and includes non-RPWs.**

* Recreation: **All of the intermittent streams are located on private property in agricultural production and have limited recreational opportunities due to small size, land-use and lack of regular flow.**

* Public Health: **The water quality functions of these streams, although limited, directly influences downstream areas; therefore, providing a direct benefit to the overall public health, albeit small.**

* Groundwater Discharge: **Groundwater seeps along the banks of the stream channel systems Double Bridges Branch, S1, S2, & S3 was observed during the Corps' site visit on 10 November 2016.**

* Groundwater recharge: **Although no direct connection to groundwater was observed during the Corps' site visit, the area of review, as part of a region of Worcester County dominated by hydric soils, and a perched water table would be expected to causing surface saturation and ponding of water before transferring through the soil to the water table.**

In conclusion, based on the above evidence gathered in the field investigation using established visual measures of specific stream and/or wetland functions in addition to routine field experience in Worcester County Maryland, Double Bridges Branch, Streams S1, S2, & S3 and Wetlands A-GG described above do have a significant nexus with the physical, chemical, or biological integrity of the TNW, Pocomoke River. These wetlands exhibited a continuous surface connection to all Double Bridges Branch, S1, S2, & S3. The functions performed by these wetlands are more than a speculative or insubstantial nexus with downstream waters of the Pocomoke River. The wetlands trap and filter pollutants and provide for maintenance of water quality to the TNW. The provision of aquatic habitat is minimal as observed in the field using indirect measures. The wetlands were identified using a three-parameter approach to the delineation which relies heavily on indicators or reduction and oxidation process. Therefore, the functions of the wetlands and streams themselves are based on specific field indicators. The surrounding land-use is predominately agriculture, so these wetlands function to remove pollutants, particulate retention, and provide for nutrient cycling and denitrification.

4. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
☐ TNWs:
☐ Wetlands adjacent to TNWs:

2. **RPWs that flow directly or indirectly into TNWs.**
☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: **Through site visits at different times of year.**

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ **Tributary waters:**
Identify type(s) of waters:

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☒ **Tributary waters: 11,325 linear feet of streams.**

Double Bridges Branch = 4,060 linear feet (Tributary Stream)
Stream S1 = 639 linear feet (intermittent RPW); first order stream

[8]See Footnote # 3.

Stream S2 = 2,334 linear feet (intermittent RPW); first order stream
Stream S3 = 4,293 linear feet (intermittent RPW); first order stream

☐ Other non-wetland waters:
Identify type(s) of waters:

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☒ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above.
Provide rationale indicating that wetland is directly abutting an RPW: **See Figure 2 / Double Bridges Branch**

☒ **Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: See Figure 2 / S3**

Provide acreage estimates for jurisdictional wetlands in the review area: Wetlands M & V = 0.081 acres

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☒ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: Wetlands A through I, K, L, N, O, P, R, S, T, U, AA, CC, & DD = 9.81 acres

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☒ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: Wetlands J, W, X, Y, Z BB, EE, FF, & GG = 3.48 acres

7. **Impoundments of jurisdictional waters.**[9]
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain:
☐ Other factors. Explain:

Identify water body and summarize rationale supporting determination:

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters:
☐ Other non-wetland waters:
Identify type(s) of waters:
☐ Wetlands:

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
  ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:
  ☐ Other: (explain, if not covered above):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

☒ Non-wetland waters (i.e., rivers, streams): **There are approximately 13 agricultural drainage ditches excavated in uplands and 2 driveway ditches that drain the cropfields or the driveway, respectively. The ditches are typical of that shown in figure 3, which, convey flow off the agricultural fields. At some point in time, a series of man-made conveyance ditches were constructed to induce positive drainage off the agricultural fields to limit potential crop loss.**

Discussion: These ditches have no relatively permanent flow, are excavated in hydric soils, do not drain the farmed wetlands at least during the wettest years, as they are evident in historical aerial photos, lack at least one of the three wetlands parameters and do not have an OHWM. The Corps has determined the series of ditches to be "not jurisdictional." Based on the current guidance, those ditches subjected to Federal CWA jurisdiction include those excavated in wetlands, excavated in uplands but drain wetlands or ditches w/ relatively permanent flow. These are case-by-case situations where CWA jurisdiction would extend to ditches. Additionally, small swales have formed under normal circumstances or was the result of farm equipment sitting for a longer duration of time when tilling and/or seeding the field. Such activities can create small depressions in the landscape.

☐ Lakes/ponds:
☐ Other non-wetland waters: List type of aquatic resource:
☐ Wetlands:

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams):
☐ Lakes/ponds:
☐ Other non-wetland waters: acres. List type of aquatic resource:
☐ Wetlands:

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: **Figure 2 dated 1 December 2016 prepared by Triad Engineering Incorporated for jurisdictional wetlands on site. Routine Wetland Determination and Report dated 9 October 2015 prepared by Triad Engineering, Inc.**

Figure 1 Jurisdictional RPWs and non-jurisdictional waters aerial photo prepared by Corps.

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  ☐ Office concurs with data sheets/delineation report.
  ☒ Office does not concur with data sheets/delineation report. **After thorough discussions with the consultant, applicant, assistance from Frank Plewa of the Corps of Engineers and additional site visits, this is the Approved Jurisdictional Determination decision.**
☐ Data sheets prepared by the Corps:
☐ Corps navigable waters' study:
☒ U.S. Geological Survey Hydrologic Atlas:
  ☒ USGS NHD data.
  ☒ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: **Worcester County 7.5-minute quads / Waleysville and Ninepin Branch**
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: **Worcester County SSURGO**
☐ National wetlands inventory map(s). Cite name:
☒ State/Local wetland inventory map(s): **MDDNR wetlands inventory data layer for area of review.**
☐ FEMA/FIRM maps:
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): **Baltimore GIS / Worcester County**
  or ☒ Other (Name & Date): **Field Photos** / Figure 3
☐ Previous determination(s). File no. and date of response letter:

☐ Applicable/supporting case law:
☐ Applicable/supporting scientific literature:
☒ Other information (please specify): **Google Earth Maps: 3/2016; 5/2015; 3/2013; 11/2011; 7/2010; 10/2009; 2/2008; 8/2006; 9/2005; & 4/1989**

B. ADDITIONAL COMMENTS TO SUPPORT JD:

The Corps examined several features typical of man-made agricultural ditches. The ditches are dry features during most of the growing season. Typical of this region on the Eastern Shore of Maryland in Worcester County, farmers often construct these ditches along natural drainage paths. These ditches carry away excess rain that might otherwise flood fields. Many ditches also have tile drains. These run under the fields to remove rainwater that might waterlog the roots of crops. Based on the lack of stream characteristics, such as flow, the Corps determined these features to be an drainage features and not to be a jurisdictional WOUS since there features do not drain wetlands, do not have an OHWM and lack relatively permanent flow and lack at least one of the three wetland parameters. The ditches are artificial, man-made agricultural features whose purpose is to convey surface water from one area to another off the surrounding cropfields.

The stream channels Double Bridges Branch, S1, S2, & S3 are regulated even in the absence of perennial flows (RPW) onsite since the wetland/stream complex drains to TNWs and have a significant nexus to those TNWs and therefore fall under the jurisdiction of the Clean Water Act. The 13 agricultural ditches and 2 driveway ditches are not jurisdictional waters.

The change in use from this farming operation that contributes nitrogen and phosphorous to the downstream receiving waters to a solar farm is advantageous to water quality because the solar field will be planted in native grasses without the need for fertilizer.