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	L DETERMINATION	(JD):	6/2/2022
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В.	DISTRICT OFFICE, FILE NAME, AND NUMBER: LRP-2022-32 Cardinal Solar, LLC
C.	PROJECT LOCATION AND BACKGROUND INFORMATION: State: PA County/parish/borough: Cranberry Township, Venango County City: Center coordinates of site (lat/long in degree decimal format): Lat. 41.337224° N, Long79.732558° W. Universal Transverse Mercator: Name of nearest waterbody: East Sandy Creek
	Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Allegheny River Name of watershed or Hydrologic Unit Code (HUC): 05010003 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: 2/1/2022 ☐ Field Determination. Date(s):
	CTION II: SUMMARY OF FINDINGS RHA SECTION 10 DETERMINATION OF JURISDICTION.
	were Are no "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the iew 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:
В.	CWA SECTION 404 DETERMINATION OF JURISDICTION.
The	1. Waters of the U.S. a. Indicate presence of waters of U.S. in review area (check all that apply): 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 Wetlands adjacent to but not 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 Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs

b. Identify (estimate) size of waters of the U.S. in the review area:

Isolated (interstate or intrastate) waters, including isolated wetlands

Non-wetland waters: linear feet: width (ft) and/or acres. Wetlands: acres.

c. Limits (boundaries) of jurisdiction based on: Pick List

Impoundments of jurisdictional waters

Elevation of established OHWM (if known): .

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

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: Isolated wetlands (W5 and W8) that do not have a significant nexus to jurisdictional waters.

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).

Supporting documentation is presented in Section III.F.

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 waterbody⁴ 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 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: acres Drainage area: Average annual rainfall: inches Average annual snowfall: inches (ii) Physical Characteristics: (a) Relationship with TNW: ☐ Tributary flows directly into TNW. Tributary flows through **Pick List** tributaries before entering TNW. Project waters are **Pick List** river miles from TNW. Project waters are **Pick List** river miles from RPW. Project waters are **Pick List** aerial (straight) miles from TNW. Project waters are **Pick List** aerial (straight) miles from RPW. Project waters cross or serve as state boundaries. Explain: Identify flow route to TNW⁵: Tributary stream order, if known:

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

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.

(b)	General Tributary Characteristics (check all that apply): Tributary is: Natural Artificial (man-made). Explain: Manipulated (man-altered). Explain:
	Tributary properties with respect to top of bank (estimate): Average width: feet Average depth: feet Average side slopes: Pick List.
	Primary tributary substrate composition (check all that apply): Silts Sands Concrete Cobbles Gravel Muck Bedrock Vegetation. Type/% cover: Other. Explain:
	Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Presence of run/riffle/pool complexes. Explain: Tributary geometry: Pick List Tributary gradient (approximate average slope): %
(c)	Flow: Tributary provides for: Pick List Estimate average number of flow events in review area/year: Pick List Describe flow regime: Other information on duration and volume:
	Surface flow is: Pick List. Characteristics:
	Subsurface flow: Pick List. Explain findings: Dye (or other) test performed:
	Tributary has (check all that apply): Bed and banks OHWM ⁶ (check all indicators that apply): clear, natural line impressed on the bank changes in the character of soil shelving vegetation matted down, bent, or absent leaf litter disturbed or washed away sediment deposition water staining other (list): Discontinuous OHWM. ⁷ Explain:
	If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply): High Tide Line indicated by: oil or scum line along shore objects fine shell or debris deposits (foreshore) physical markings/characteristics tidal gauges other (list): Mean High Water Mark indicated by: survey to available datum; physical markings; vegetation lines/changes in vegetation types.
Cha	emical Characteristics: racterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.). Explain: tify specific pollutants, if known:

(iii)

⁶A 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.

⁷Ibid.

	(iv)	Biol	logical Characteristics. Channel supports (check all that apply): Riparian corridor. Characteristics (type, average width): Wetland fringe. Characteristics: Habitat for: Federally Listed species. Explain findings: Fish/spawn areas. Explain findings: Other environmentally-sensitive species. Explain findings: Aquatic/wildlife diversity. Explain findings:
2.	Cha	ract	eristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW
	(i)		Sical Characteristics: General Wetland Characteristics: Properties: Wetland size: acres Wetland type. Explain: Wetland quality. Explain: Project wetlands cross or serve as state boundaries. Explain:
		(b)	General Flow Relationship with Non-TNW: Flow is: Pick List. Explain:
			Surface flow is: Pick List Characteristics: .
			Subsurface flow: Pick List. Explain findings: Dye (or other) test performed:
		(c)	Wetland Adjacency Determination with Non-TNW: ☐ Directly abutting ☐ Not directly abutting ☐ Discrete wetland hydrologic connection. Explain: ☐ Ecological connection. Explain: ☐ Separated by berm/barrier. Explain:
		(d)	Proximity (Relationship) to TNW Project wetlands are Pick List river miles from TNW. Project waters are Pick List aerial (straight) miles from TNW. Flow is from: Pick List. Estimate approximate location of wetland as within the Pick List floodplain.
	(ii)	Cha	emical Characteristics: uracterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: utify specific pollutants, if known:
	(iii)	Bio	logical Characteristics. Wetland supports (check all that apply): Riparian buffer. Characteristics (type, average width): Vegetation type/percent cover. Explain: Habitat for: Federally Listed species. Explain findings: Fish/spawn areas. Explain findings: Other environmentally-sensitive species. Explain findings: Aquatic/wildlife diversity. Explain findings:
3.	Cha	All	wetland(s) being considered in the cumulative analysis: Pick List broximately () acres in total are being considered in the cumulative analysis.

Directly abuts? (Y/N) Size (in acres) Directly abuts? (Y/N) Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

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:
- 3. 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 ALI
	THAT APPLY):

1.	TNWs and Adjacent Wetlands. Check all that apply and provide size estimates in review area: TNWs: linear feet width (ft), Or, acres.
2.	Wetlands adjacent to TNWs: acres. RPWs that flow directly or indirectly into TNWs.
۷.	☐ 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:

	Provide estimates for jurisdictional waters in the review area (check all that apply): Tributary waters: linear feet width (ft). Other non-wetland waters: acres. 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: linear feet width (ft). Other non-wetland waters: acres. 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: Wetlands directly abutting on RPW where tributeries typically flow "seeseeally." Provide data in directly abutting an RPW.
	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:
	Provide acreage estimates for jurisdictional wetlands in the review area: 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: 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: 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).
SUC	DLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, GRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY CH 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:
	ntify water body and summarize rationale supporting determination:

E.

 ⁸See Footnote # 3.
 To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
 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.

		vide estimates for jurisdictional waters in the review area (check all that apply): Tributary waters: linear feet width (ft). Other non-wetland waters: acres. Identify type(s) of waters: Wetlands: acres.
F.		N-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY): 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:W5 and W8 are situated in such a manner that they are isolated and do not have a significant nexus or connection to jurisdictional waters. Other: (explain, if not covered above):
	fact	wide acreage estimates for non-jurisdictional waters in the review area, where the <u>sole</u> potential basis of jurisdiction is the MBR ors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional gment (check all that apply): Non-wetland waters (i.e., rivers, streams): linear feet width (ft). Lakes/ponds: acres. Other non-wetland waters: acres. List type of aquatic resource: Wetlands: acres.
		wide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such ading is required for jurisdiction (check all that apply): Non-wetland waters (i.e., rivers, streams): linear feet, width (ft). Lakes/ponds: acres. Other non-wetland waters: acres. List type of aquatic resource: Wetlands: 0.59 acres.
SEC	CTIC	ON IV: DATA SOURCES.
A. :		PORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked requested, appropriately reference sources below): Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Wetland and Stream Delineation dated 4/29/22. 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. Data sheets prepared by the Corps: Corps navigable waters' study: U.S. Geological Survey Hydrologic Atlas:
	$\boxtimes\boxtimes$	USGS 8 and 12 digit HUC maps. U.S. Geological Survey map(s). Cite scale & quad name: USDA Natural Resources Conservation Service Soil Survey. Citation: NRCS Soil Maps Online. National wetlands inventory map(s). Cite name: NWI Maps Online. State/Local wetland inventory map(s): FEMA/FIRM maps: 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929) Photographs: ☒ Aerial (Name & Date):Google Earth Aerial 10/9/2019.
		or Other (Name & Date): Previous determination(s). File no. and date of response letter: Applicable/supporting case law: Applicable/supporting scientific literature: Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD:

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

Α.	REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION ((JD)): 6/2/2022

В.	DISTRICT OFFICE, FILE NAME, AND NUMBER: LRP-2022-32 Cardinal Solar, LLC
с.	PROJECT LOCATION AND BACKGROUND INFORMATION: State: PA County/parish/borough: Cranberry Township, Venango County City: Center coordinates of site (lat/long in degree decimal format): Lat. 41.337224° N, Long79.732558° W. Universal Transverse Mercator: Name of nearest waterbody: East Sandy Creek Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Allegheny River
	Name of watershed or Hydrologic Unit Code (HUC): 05010003 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: 6/2/2022 ☐ Field Determination. Date(s):
SE(A.	CTION II: SUMMARY OF FINDINGS RHA SECTION 10 DETERMINATION OF JURISDICTION.
	waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the ew 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:
В.	CWA SECTION 404 DETERMINATION OF JURISDICTION.
The	re 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): 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 Wetlands directly abutting RPWs that flow directly or indirectly into TNWs Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly 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: Non-wetland waters: 782 linear feet: 5 width (ft) and/or acres. Wetlands: 0.68 acres.
	c. Limits (boundaries) of jurisdiction based on: Established by OHWM.

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

Explain:

Elevation of established OHWM (if known):

Non-regulated waters/wetlands (check if applicable):³

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).

³ Supporting documentation is presented in Section III.F.

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 waterbody⁴ 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 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: <100 acres Drainage area: <100 acres Average annual rainfall: 45 inches Average annual snowfall: 65 inches (ii) Physical Characteristics: (a) Relationship with TNW: ☐ Tributary flows directly into TNW. Tributary flows through 3 tributaries before entering TNW. Project waters are 5-10 river miles from TNW. Project waters are 1 (or less) river miles from RPW. Project waters are 2-5 aerial (straight) miles from TNW. Project waters are 1 (or less) aerial (straight) miles from RPW. Project waters cross or serve as state boundaries. Explain: Identify flow route to TNW5: UNT to East Sandy Creek > UNT to East Sandy Creek > East Sandy Creek > Allegheny River.

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

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 stream order, if known: .
	(b)	General Tributary Characteristics (check all that apply): Tributary is:
		Tributary properties with respect to top of bank (estimate): Average width: 5 feet Average depth: 0.3 feet Average side slopes: 3:1.
		Primary tributary substrate composition (check all that apply): Silts Sands Concrete Cobbles Gravel Muck Bedrock Vegetation. Type/% cover: Other. Explain: Clay.
		Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Presence of run/riffle/pool complexes. Explain: Tributary geometry: Pick List Tributary gradient (approximate average slope): %
	(c)	Flow: Tributary provides for: Seasonal flow Estimate average number of flow events in review area/year: 20 (or greater) Describe flow regime: Intermittent. Other information on duration and volume:
		Surface flow is: Discrete and confined. Characteristics: .
		Subsurface flow: Unknown. Explain findings:
		Tributary has (check all that apply):
		If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply): High Tide Line indicated by:
(iii)	Cha	emical Characteristics: uracterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.). Explain: tify specific pollutants, if known:

⁶A 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.

⁷Ibid.

	(iv)	Biol	logical Characteristics. Channel supports (check all that apply):
		\boxtimes	Riparian corridor. Characteristics (type, average width): Forested, >100'.
			Wetland fringe. Characteristics: .
			Habitat for:
			Federally Listed species. Explain findings:
			Fish/spawn areas. Explain findings:
			Other environmentally-sensitive species. Explain findings: .
			Aquatic/wildlife diversity. Explain findings: .
2.	Cha	ıract	eristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW
	(i)	Phy	sical Characteristics:
		(a)	General Wetland Characteristics:
			Properties:
			Wetland size: 0.68 acres
			Wetland type. Explain: PEM/PSS.
			Wetland quality. Explain: .
			Project wetlands cross or serve as state boundaries. Explain: .
		(b)	General Flow Relationship with Non-TNW:
			Flow is: Intermittent flow . Explain: .
			Surface flow is: Discrete
			Characteristics:
			Characteristics.
			Subsurface flow: Pick List. Explain findings: .
			Dye (or other) test performed:
		(c)	Wetland Adjacency Determination with Non-TNW:
		(-)	Directly abutting
			Not directly abutting
			Discrete wetland hydrologic connection. Explain:
			Ecological connection. Explain: W-1 has a significant nexus to S-1.
			Separated by berm/barrier. Explain:
		(d)	Proximity (Relationship) to TNW
			Project wetlands are 5-10 river miles from TNW.
			Project waters are 2-5 aerial (straight) miles from TNW.
			Flow is from: Wetland to navigable waters.
			Estimate approximate location of wetland as within the 2-year or less floodplain.
	(::)	Cha	and all Channest and the control of
	(11)		emical Characteristics: racterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed
		Clia	
		Idan	characteristics; etc.). Explain:
		idei	ntry specific pondiants, it known.
	(iii) Biol	logical Characteristics. Wetland supports (check all that apply):
			Riparian buffer. Characteristics (type, average width):
		$\overline{\boxtimes}$	Vegetation type/percent cover. Explain: PEM/PSS 95%.
		Ħ	Habitat for:
		_	Federally Listed species. Explain findings: .
			Fish/spawn areas. Explain findings: .
			Other environmentally-sensitive species. Explain findings:
			Aquatic/wildlife diversity. Explain findings:
3.	Cha		eristics of all wetlands adjacent to the tributary (if any)
			wetland(s) being considered in the cumulative analysis: 2
		App	proximately (0.68) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)Size (in acres)Directly abuts? (Y/N)Size (in acres)W1 - N0.08W2 - Y0.60

Summarize overall biological, chemical and physical functions being performed: Flood/runoff storage, wildlife feeding/rearing habitat.

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:
- 3. 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: W-1 is situated upslope of S-1 which is an RPW. W-1 provides flood storage and wildlife habitat to S-1.

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: linear feet width (ft), Or, acres. Wetlands adjacent to TNWs: acres.
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: S-1 is an intermittent tributary to East Sandy Creek, which is an RPW with seasonal flow.

	Provide estimates for jurisdictional waters in the review area (check all that apply): Tributary waters: 782 linear feet 5 width (ft). Other non-wetland waters: acres. 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: linear feet width (ft). Other non-wetland waters: acres. 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:
	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: W-2 is shown as directly abutting S-1 on figures provided in report.
	Provide acreage estimates for jurisdictional wetlands in the review area: 0.60 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: 0.08 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: 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).
DE SU	DLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, GRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY CH 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:

E.

 ⁸See Footnote # 3.
 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.

	D	
		vide estimates for jurisdictional waters in the review area (check all that apply): Tributary waters: linear feet width (ft). Other non-wetland waters: acres.
		Identify type(s) of waters: Wetlands: acres. Wetlands: acres.
	_	Wettands. deres.
F.		N-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY): 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):
	fact	vide acreage estimates for non-jurisdictional waters in the review area, where the <u>sole</u> potential basis of jurisdiction is the MBR cors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional gment (check all that apply):
		Non-wetland waters (i.e., rivers, streams): linear feet width (ft). Lakes/ponds: acres.
		Other non-wetland waters: acres. List type of aquatic resource: Wetlands: acres.
		vide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such adding is required for jurisdiction (check all that apply):
		Non-wetland waters (i.e., rivers, streams): linear feet, width (ft). Lakes/ponds: acres.
		Other non-wetland waters: acres. List type of aquatic resource: Wetlands: acres.
SF(CTIC	ON IV: DATA SOURCES.
		PORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked
	\boxtimes	requested, appropriately reference sources below): Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Wetland and Stream Delineation dated 4/29/22.
	\boxtimes	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. Data sheets prepared by the Corps:
		Corps navigable waters' study: U.S. Geological Survey Hydrologic Atlas: USGS NHD data.
	\boxtimes	U.S. Geological Survey map(s). Cite scale & quad name:
		USDA Natural Resources Conservation Service Soil Survey. Citation: NRCS Soil Maps Online. National wetlands inventory map(s). Cite name: NWI Maps Online.
		State/Local wetland inventory map(s): FEMA/FIRM maps:
	$ \boxtimes$	100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929) Photographs: Aerial (Name & Date):Google Earth Aerial 10/9/2019.
		or Other (Name & Date): Previous determination(s). File no. and date of response letter:
		Applicable/supporting case law: Applicable/supporting scientific literature: Other information (please specify):
		- · · · · · · · · · · · · · · · · · · ·

Identify water body and summarize rationale supporting determination:

B. ADDITIONAL COMMENTS TO SUPPORT JD:

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.

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 6/2/2022 DISTRICT OFFICE, FILE NAME, AND NUMBER: LRP-2022-32 Cardinal Solar, LLC C. PROJECT LOCATION AND BACKGROUND INFORMATION: State: PA County/parish/borough: Cranberry Township, Venango County Center coordinates of site (lat/long in degree decimal format): Lat. 41.337224° N, Long. -79.732558° W Universal Transverse Mercator: Name of nearest waterbody: East Sandy Creek Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Allegheny River Name of watershed or Hydrologic Unit Code (HUC): 05010003 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: 6/2/2022 Field Determination. Date(s): SECTION II: SUMMARY OF FINDINGS A. RHA SECTION 10 DETERMINATION OF JURISDICTION. There Are no "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. B. CWA SECTION 404 DETERMINATION OF JURISDICTION. There 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

b. Identify (estimate) size of waters of the U.S. in the review area:

Impoundments of jurisdictional waters

Non-wetland waters: 164 linear feet: 2.5 width (ft) and/or acres

Non-RPWs that flow directly or indirectly into TNWs

Relatively permanent waters² (RPWs) that flow directly or indirectly into TNWs

Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs

Wetlands directly abutting RPWs that flow directly or indirectly into TNWs

Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs

Isolated (interstate or intrastate) waters, including isolated wetlands

Wetlands: acres.

SECTION I: BACKGROUND INFORMATION

c. Limits (boundaries) of jurisdiction based on: Established by OHWM.

Elevation of established OHWM (if known): .

TNWs, including territorial seas Wetlands adjacent to TNWs

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

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

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).

Supporting documentation is presented in Section III.F.

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 waterbody⁴ 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 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: <100 acres Drainage area: <100 acres Average annual rainfall: 45 inches Average annual snowfall: 65 inches (ii) Physical Characteristics: (a) Relationship with TNW: ☐ Tributary flows directly into TNW. Tributary flows through 3 tributaries before entering TNW. Project waters are 5-10 river miles from TNW. Project waters are 1 (or less) river miles from RPW. Project waters are 2-5 aerial (straight) miles from TNW. Project waters are 1 (or less) aerial (straight) miles from RPW. Project waters cross or serve as state boundaries. Explain: Identify flow route to TNW5: UNT to East Sandy Creek > UNT to East Sandy Creek > East Sandy Creek > Allegheny River.

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

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 stream order, if known: .
	(b)	General Tributary Characteristics (check all that apply): Tributary is: ☐ Natural ☐ Artificial (man-made). Explain: ☐ Manipulated (man-altered). Explain:
		Tributary properties with respect to top of bank (estimate): Average width: 5 feet Average depth: 0.3 feet Average side slopes: 3:1.
		Primary tributary substrate composition (check all that apply): Silts Sands Concrete Cobbles Gravel Muck Bedrock Vegetation. Type/% cover: Other. Explain: Clay.
		Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Presence of run/riffle/pool complexes. Explain: Tributary geometry: Pick List Tributary gradient (approximate average slope): %
	(c)	Flow: Tributary provides for: Seasonal flow Estimate average number of flow events in review area/year: 20 (or greater) Describe flow regime: Ephemeral. Other information on duration and volume:
		Surface flow is: Discrete and confined. Characteristics: .
		Subsurface flow: Unknown. Explain findings:
		Tributary has (check all that apply):
		If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply): High Tide Line indicated by:
(iii)	Cha	emical Characteristics: racterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.). Explain: tify specific pollutants, if known:

⁶A 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. ⁷Ibid.

	(iv)		logical Characteristics. Channel supports (check all that apply): Riparian corridor. Characteristics (type, average width): Forested, >100'. Wetland fringe. Characteristics: Habitat for: Federally Listed species. Explain findings: Fish/spawn areas. Explain findings: Other environmentally-sensitive species. Explain findings: Aquatic/wildlife diversity. Explain findings:
2.	Cha	ract	eristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW
	(i)		Asical Characteristics: General Wetland Characteristics: Properties: Wetland size: acres Wetland type. Explain: Wetland quality. Explain: Project wetlands cross or serve as state boundaries. Explain:
		(b)	General Flow Relationship with Non-TNW: Flow is: Pick List. Explain:
			Surface flow is: Pick List Characteristics:
			Subsurface flow: Pick List. Explain findings: Dye (or other) test performed:
		(c)	Wetland Adjacency Determination with Non-TNW: ☐ Directly abutting ☐ Not directly abutting ☐ Discrete wetland hydrologic connection. Explain: ☐ Ecological connection. Explain: W-1 has a significant nexus to S-1. ☐ Separated by berm/barrier. Explain:
		(d)	Proximity (Relationship) to TNW Project wetlands are Pick List river miles from TNW. Project waters are Pick List aerial (straight) miles from TNW. Flow is from: Pick List. Estimate approximate location of wetland as within the Pick List floodplain.
	(ii)	Cha	emical Characteristics: aracterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: attify specific pollutants, if known:
	(iii)	Bio	logical Characteristics. Wetland supports (check all that apply): Riparian buffer. Characteristics (type, average width): Vegetation type/percent cover. Explain: . Habitat for: Federally Listed species. Explain findings: Fish/spawn areas. Explain findings: Other environmentally-sensitive species. Explain findings: Aquatic/wildlife diversity. Explain findings:
3.	Cha	All	eristics of all wetlands adjacent to the tributary (if any) wetland(s) being considered in the cumulative analysis: Pick List proximately () acres in total are being considered in the cumulative analysis.

Directly abuts? (Y/N) Size

Size (in acres)

Directly abuts? (Y/N)

Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

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: S-2 provides seasonal flow to the Allegheny River (a TNW) as well as wildlife habitat and surface flow conveyance.
- 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:
- 3. 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: linear feet width (ft), Or, acres. Wetlands adjacent to TNWs: acres.
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:

	Provide estimates for jurisdictional waters in the review area (check all that apply): Tributary waters: linear feet width (ft). Other non-wetland waters: acres. 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: 164 linear feet 2.5 width (ft). Other non-wetland waters: acres. 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:
	■ 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:
	Provide acreage estimates for jurisdictional wetlands in the review area: 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: 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: 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).
DE SU	DLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, GRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY CH 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:

E.

 ⁸See Footnote # 3.
 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.

		vide estimates for jurisdictional waters in the review area (check all that apply): Tributary waters: linear feet width (ft). Other non-wetland waters: acres. Identify type(s) of waters: Wetlands: acres.
F.		N-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY): 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):
	fact	vide acreage estimates for non-jurisdictional waters in the review area, where the <u>sole</u> potential basis of jurisdiction is the MBR ors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional gment (check all that apply): Non-wetland waters (i.e., rivers, streams): linear feet width (ft). Lakes/ponds: acres. Other non-wetland waters: acres. List type of aquatic resource: . Wetlands: acres.
		vide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such adding is required for jurisdiction (check all that apply): Non-wetland waters (i.e., rivers, streams): linear feet, width (ft). Lakes/ponds: acres. Other non-wetland waters: acres. List type of aquatic resource: . Wetlands: acres.
	SUP and	PORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked requested, appropriately reference sources below): Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Wetland and Stream Delineation dated 4/29/22. 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. 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.
	$\boxtimes\boxtimes$	U.S. Geological Survey map(s). Cite scale & quad name: USDA Natural Resources Conservation Service Soil Survey. Citation: NRCS Soil Maps Online. National wetlands inventory map(s). Cite name: NWI Maps Online. State/Local wetland inventory map(s): FEMA/FIRM maps: 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929) Photographs: Aerial (Name & Date):Google Earth Aerial 10/9/2019.
		or Other (Name & Date): Previous determination(s). File no. and date of response letter: Applicable/supporting case law: Applicable/supporting scientific literature: Other information (please specify):

Identify water body and summarize rationale supporting determination:

B. ADDITIONAL COMMENTS TO SUPPORT JD:

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

REPORT COMPLETION DATE FOR APPROVED JURIS	DICTIONAL DETERMINATION (JD): 6/2/2022
	REPORT COMPLETION DATE FOR APPROVED JURIS

B.	DISTRICT OFFICE, FILE NAME, AND NUMBER: LRP-2022-32 Cardinal Solar, LLC
C.	PROJECT LOCATION AND BACKGROUND INFORMATION: State: PA County/parish/borough: Cranberry Township, Venango County City: Center coordinates of site (lat/long in degree decimal format): Lat. 41.337224° N, Long79.732558° W. Universal Transverse Mercator: Name of nearest waterbody: East Sandy Creek Name of nearest Traditional Navigable Water (TNW) Into which the aquatic resource flows: Allegheny River Name of watershed or Hydrologic Unit Code (HUC): 05010003 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: 6/2/2022 Field Determination. Date(s):
SEC A.	CTION II: SUMMARY OF FINDINGS RHA SECTION 10 DETERMINATION OF JURISDICTION.
	re Are no "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the ew 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:
В.	CWA SECTION 404 DETERMINATION OF JURISDICTION.
The	re 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): TNWs, including territorial seas Wetlands adjacent to TNWs Relatively permanent waters² (RPWs) that flow directly or indirectly into TNWs Non-RPWs that flow directly or indirectly into TNWs 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: Non-wetland waters: 144 linear feet: 2.5 width (ft) and/or acres. Wetlands: 0.78 acres.
	c. Limits (boundaries) of jurisdiction based on: Established by OHWM. Elevation of established OHWM (if known):
	 Non-regulated waters/wetlands (check if applicable):³ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.

Explain:

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).

³ Supporting documentation is presented in Section III.F.

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 waterbody⁴ 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 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

Watershed size: <100 acres Drainage area: <100 acres Average annual rainfall: 45 inches Average annual snowfall: 65 inches (ii) Physical Characteristics:

(i) General Area Conditions:

(a) Relationship with TNW:

☐ Tributary flows directly into TNW.

☐ Tributary flows through 3 tributaries before entering TNW.

Project waters are Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW⁵: UNT to East Sandy Creek > UNT to East Sandy Creek > UNT to East Sandy Creek > East Sandy Creek > Allegheny River.

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

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 stream order, if known: .
	(b)	General Tributary Characteristics (check all that apply): Tributary is: ☐ Natural ☐ Artificial (man-made). Explain: ☐ Manipulated (man-altered). Explain:
		Tributary properties with respect to top of bank (estimate): Average width: 3.5 feet Average depth: 0.3 feet Average side slopes: 3:1.
		Primary tributary substrate composition (check all that apply): Silts Sands Concrete Cobbles Gravel Muck Bedrock Vegetation. Type/% cover: Other. Explain: Clay.
		Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Presence of run/riffle/pool complexes. Explain: Tributary geometry: Pick List Tributary gradient (approximate average slope): %
	(c)	Flow: Tributary provides for: Seasonal flow Estimate average number of flow events in review area/year: 20 (or greater) Describe flow regime: Intermittent. Other information on duration and volume:
		Surface flow is: Discrete and confined. Characteristics: .
		Subsurface flow: Unknown. Explain findings:
		Tributary has (check all that apply):
		If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply): High Tide Line indicated by:
(iii)	Cha	emical Characteristics: uracterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.). Explain: tify specific pollutants, if known:

⁶A 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.

⁷Ibid.

	(iv)	Bio	logical Characteristics. Channel supports (check all that apply): Riparian corridor. Characteristics (type, average width): Forested, >100'. Wetland fringe. Characteristics: Habitat for: Federally Listed species. Explain findings: Fish/spawn areas. Explain findings: Other environmentally-sensitive species. Explain findings: Aquatic/wildlife diversity. Explain findings:
2.	Cha	aract	eristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW
	(i)		General Wetland Characteristics: Properties: Wetland size: 0.78 acres Wetland type. Explain: PSS. Wetland quality. Explain: . Project wetlands cross or serve as state boundaries. Explain: .
		(b)	General Flow Relationship with Non-TNW: Flow is: Intermittent flow. Explain: Surface flow is: Discrete Characteristics: Subsurface flow: Unknown. Explain findings: Dye (or other) test performed:
		(c)	Wetland Adjacency Determination with Non-TNW: ☐ Directly abutting ☐ Discrete wetland hydrologic connection. Explain: ☐ Ecological connection. Explain: W-1 has a significant nexus to S-1. ☐ Separated by berm/barrier. Explain:
		(d)	Proximity (Relationship) to TNW Project wetlands are 5-10 river miles from TNW. Project waters are 2-5 aerial (straight) miles from TNW. Flow is from: Wetland to navigable waters. Estimate approximate location of wetland as within the 2-year or less floodplain.
	(ii)	Cha	emical Characteristics: aracterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: No visible pollution. Wetland is located in a forested area adjacent to an agricultural field ntify specific pollutants, if known:
	(iii		logical Characteristics. Wetland supports (check all that apply): Riparian buffer. Characteristics (type, average width): Forested 50-100'. Vegetation type/percent cover. Explain: Trees - 90-100% cover. Habitat for: Federally Listed species. Explain findings: Potential habitat for T&E Bats. Fish/spawn areas. Explain findings: Other environmentally-sensitive species. Explain findings: Aquatic/wildlife diversity. Explain findings:
3.	Cha	All	wetland(s) being considered in the cumulative analysis: I broximately (0.78) acres in total are being considered in the cumulative analysis.

<u>Directly abuts? (Y/N)</u> <u>Size (in acres)</u> <u>Directly abuts? (Y/N)</u> <u>Size (in acres)</u>
W2 - Y

0.78

Summarize overall biological, chemical and physical functions being performed: Wetland is located at the headwaters of S3 and S2 and serves pollution filtration and wildlife habitat functions. Additionally, the wetland serves some function in providing flow contribution and runoff storage to S3.

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:
- 3. 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: linear feet width (ft), Or, acres. Wetlands adjacent to TNWs: acres.
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: See description of tributary characteristics above.

	Provide estimates for jurisdictional waters in the review area (check all that apply): Tributary waters: 144 linear feet 2.5 width (ft). Other non-wetland waters: acres. 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: linear feet width (ft). Other non-wetland waters: acres. 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:
	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:
	Provide acreage estimates for jurisdictional wetlands in the review area: 0.78 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: 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: acres.
7.	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).
DE SU	OLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, GRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY CH 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:

E.

 ⁸See Footnote # 3.
 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.

	☐ 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: linear feet width (ft). Other non-wetland waters: acres. Identify type(s) of waters: Wetlands: acres.
F.	NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY): 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): linear feet width (ft). Lakes/ponds: acres. Other non-wetland waters: acres. List type of aquatic resource: Wetlands: acres. 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): linear feet, width (ft).
	Lakes/ponds: acres. Other non-wetland waters: acres. List type of aquatic resource: Wetlands: acres.
SE	CTION 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: Wetland and Stream Delineation dated 4/29/2022. 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. Data sheets prepared by the Corps: Corps navigable waters' study: U.S. Geological Survey Hydrologic Atlas: USGS NHD data. USGS NHD data. USGS NHD data. USGS NAID data. USGS and 12 digit HUC maps. U.S. Geological Survey map(s). Cite scale & quad name: USDA Natural Resources Conservation Service Soil Survey. Citation: NRCS Soil Maps Online. National wetlands inventory map(s). Cite name: NWI Maps Online. State/Local wetland inventory map(s): FEMA/FIRM maps: 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929) Photographs: Aerial (Name & Date): Google Earth Aerial 10/9/2019. or
	Applicable/supporting scientific literature: Other information (please specify):

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 (JI	D): 6/2/2023
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В.	DISTRICT OFFICE, FILE NAME, AND NUMBER: LRP-2022-32 Cardinal Solar, LLC
с.	PROJECT LOCATION AND BACKGROUND INFORMATION: State: PA County/parish/borough: Cranberry Township, Venango County City: Center coordinates of site (lat/long in degree decimal format): Lat. 41.337224° N, Long79.732558° W. Universal Transverse Mercator:
	Name of nearest waterbody: East Sandy Creek
	Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Allegheny River Name of watershed or Hydrologic Unit Code (HUC): 05010003 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: 6/2/2022 ☐ Field Determination. Date(s):
SEC A.	CTION II: SUMMARY OF FINDINGS RHA SECTION 10 DETERMINATION OF JURISDICTION.
revi	re Are no "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the ew 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: CNA CECTION 464 DETERMINATION OF HIRSDICTION.
В.	CWA SECTION 404 DETERMINATION OF JURISDICTION.
The	re 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): 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 Wetlands directly abutting RPWs that flow directly or indirectly into TNWs Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly 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: Non-wetland waters: 344 linear feet: 6 width (ft) and/or acres.
	Wetlands: 5.09 acres.
	c. Limits (boundaries) of jurisdiction based on: Established by OHWM. Elevation of established OHWM (if known):

Non-regulated waters/wetlands (check if applicable):³

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

Explain:

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).

³ Supporting documentation is presented in Section III.F.

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 waterbody⁴ 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 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: <100 acres

Drainage area: <100 acres Average annual rainfall: 45 inches Average annual snowfall: 65 inches (ii) Physical Characteristics: (a) Relationship with TNW: ☐ Tributary flows directly into TNW. ☐ Tributary flows through 2 tributaries before entering TNW. Project waters are 2-5 river miles from TNW. Project waters are 1 (or less) river miles from RPW. Project waters are 2-5 aerial (straight) miles from TNW. Project waters are 1 (or less) aerial (straight) miles from RPW. Project waters cross or serve as state boundaries. Explain: Identify flow route to TNW⁵: UNT to East Sandy Creek > East Sandy Creek > Allegheny River. Tributary stream order, if known:

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

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.

(b)	General Tributary Characteristics (check all that apply): Tributary is: ☐ Natural ☐ Artificial (man-made). Explain: ☐ Manipulated (man-altered). Explain:
	Tributary properties with respect to top of bank (estimate): Average width: 6 feet Average depth: 0.6 feet Average side slopes: 3:1.
	Primary tributary substrate composition (check all that apply): Silts Sands Concrete Cobbles Gravel Muck Bedrock Vegetation. Type/% cover: Other. Explain: Clay.
	Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Presence of run/riffle/pool complexes. Explain: Tributary geometry: Pick List Tributary gradient (approximate average slope): %
(c)	Flow: Tributary provides for: Seasonal flow Estimate average number of flow events in review area/year: 20 (or greater) Describe flow regime: Perennial. Other information on duration and volume:
	Surface flow is: Discrete and confined. Characteristics: .
	Subsurface flow: Unknown. Explain findings:
	Tributary has (check all that apply):
	If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply): High Tide Line indicated by:
Cha	emical Characteristics: uracterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.) Explain: tify specific pollutants, if known:

(iii)

⁶A 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.

⁷Ibid.

	(iv)	Biol	logical Characteristics. Channel supports (check all that apply):
		\square	Riparian corridor. Characteristics (type, average width): Forested, >100'. Wetland fringe. Characteristics:
			Habitat for:
			Federally Listed species. Explain findings:
			Fish/spawn areas. Explain findings:
			Other environmentally-sensitive species. Explain findings: Aquatic/wildlife diversity. Explain findings:
			Aquatic/wilding diversity. Explain initialigs.
2.	Cha	aract	eristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW
	(i)		sical Characteristics:
		(a)	General Wetland Characteristics:
			Properties:
			Wetland size: 5.09 acres Wetland type. Explain: PEM/PUB.
			Wetland quality. Explain: .
			Project wetlands cross or serve as state boundaries. Explain:
		(b)	General Flow Relationship with Non-TNW:
			Flow is: Perennial flow . Explain:
			Surface flow is: Discrete
			Characteristics: .
			Subsurface flow: Pick List. Explain findings:
			Dye (or other) test performed:
		(c)	Wetland Adjacency Determination with Non-TNW:
		(-)	☐ Directly abutting
			Not directly abutting
			Discrete wetland hydrologic connection. Explain:
			Ecological connection. Explain:
			Separated by berm/barrier. Explain:
		(d)	Proximity (Relationship) to TNW
		(u)	Project wetlands are 2-5 river miles from TNW.
			Project waters are 2-5 aerial (straight) miles from TNW.
			Flow is from: Wetland to navigable waters.
			Estimate approximate location of wetland as within the 2-year or less floodplain.
	(;;)	Cha	emical Characteristics:
	(11)		racterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed
		Ciiu	characteristics; etc.). Explain:
		Ider	ntify specific pollutants, if known:
	(***	. D.	
	(111)) Bio	logical Characteristics. Wetland supports (check all that apply): Riparian buffer. Characteristics (type, average width):
		X	Vegetation type/percent cover. Explain: PEM/PUB 100%.
		П	Habitat for:
		_	Federally Listed species. Explain findings: .
			Fish/spawn areas. Explain findings:
			Other environmentally-sensitive species. Explain findings:
			Aquatic/wildlife diversity. Explain findings:
3.	Chs	aract	eristics of all wetlands adjacent to the tributary (if any)
٠.	~116		wetland(s) being considered in the cumulative analysis: 1

3.

Approximately (5.09) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

 $\begin{array}{ccc} \underline{Directly\ abuts?\ (Y/N)} & \underline{Size\ (in\ acres)} & \underline{Directly\ abuts?\ (Y/N)} & \underline{Size\ (in\ acres)} \\ W3-Y & 5.09 & & \end{array}$

Summarize overall biological, chemical and physical functions being performed: Flood/runoff storage, wildlife feeding/rearing habitat.

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:
- 3. 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):

TNING and Address Wetlands Charlett date and analysis are attended in an in-

1.	Tryvs and Adjacent victiands. Check an that apply and provide size estimates in review area.
	TNWs: linear feet width (ft), Or, acres.
	☐ Wetlands adjacent to TNWs: acres.
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: See tributary characteristics above.
	☐ 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: .

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 ⁸See Footnote # 3.
 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.

		vide estimates for jurisdictional waters in the review area (check all that apply): Tributary waters: linear feet width (ft). Other non-wetland waters: acres. Identify type(s) of waters: . Wetlands: acres.
F.		N-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY): 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):
	fact	vide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR ors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional tement (check all that apply): Non-wetland waters (i.e., rivers, streams): linear feet width (ft). Lakes/ponds: acres. Other non-wetland waters: acres. List type of aquatic resource: Wetlands: acres.
		vide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such ding is required for jurisdiction (check all that apply): Non-wetland waters (i.e., rivers, streams): linear feet, width (ft). Lakes/ponds: acres. Other non-wetland waters: acres. List type of aquatic resource: . Wetlands: acres.
	SUPI and	PORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked requested, appropriately reference sources below): Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Wetland and Stream Delineation dated 4/29/22. 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. 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: USDA Natural Resources Conservation Service Soil Survey. Citation: NRCS Soil Maps Online. National wetlands inventory map(s). Cite name: NWI Maps Online. State/Local wetland inventory map(s): FEMA/FIRM maps: 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929) Photographs: Aerial (Name & Date): Google Earth Aerial 10/9/2019. or Other (Name & Date):
		Previous determination(s). File no. and date of response letter: Applicable/supporting case law: Applicable/supporting scientific literature: Other information (please specify):

Identify water body and summarize rationale supporting determination:

B. ADDITIONAL COMMENTS TO SUPPORT JD:

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): 6/2

B.	DISTRICT OFFICE, FILE NAME, AND NUMBER: LRP-2022-32 Cardinal Solar, LLC
C.	PROJECT LOCATION AND BACKGROUND INFORMATION: State: PA County/parish/borough: Cranberry Township, Venango County City: Center coordinates of site (lat/long in degree decimal format): Lat. 41.337224° N, Long79.732558° W. Universal Transverse Mercator: Name of nearest waterbody: East Sandy Creek
	Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Allegheny River Name of watershed or Hydrologic Unit Code (HUC): 05010003 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: 6/2/2022 ☐ Field Determination. Date(s):
SEC A.	CTION II: SUMMARY OF FINDINGS RHA SECTION 10 DETERMINATION OF JURISDICTION.
	re Are no "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the ew 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:
В.	CWA SECTION 404 DETERMINATION OF JURISDICTION.
The	re 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): TNWs, including territorial seas Wetlands adjacent to TNWs Relatively permanent waters² (RPWs) that flow directly or indirectly into TNWs Non-RPWs that flow directly or indirectly into TNWs 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: Non-wetland waters: 155 linear feet: 16 width (ft) and/or acres. Wetlands: 1.23 acres.
	c. Limits (boundaries) of jurisdiction based on: Established by OHWM. Elevation of established OHWM (if known):
	 Non-regulated waters/wetlands (check if applicable):³ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.

Explain:

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).

³ Supporting documentation is presented in Section III.F.

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 waterbody⁴ 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 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: <100 acres

Drainage area: <100 acres Average annual rainfall: 45 inches Average annual snowfall: 65 inches (ii) Physical Characteristics: (a) Relationship with TNW: ☐ Tributary flows directly into TNW. ☐ Tributary flows through 2 tributaries before entering TNW. Project waters are 2-5 river miles from TNW. Project waters are 1 (or less) river miles from RPW. Project waters are 2-5 aerial (straight) miles from TNW. Project waters are 1 (or less) aerial (straight) miles from RPW. Project waters cross or serve as state boundaries. Explain: Identify flow route to TNW⁵: UNT to East Sandy Creek > East Sandy Creek > Allegheny River. Tributary stream order, if known:

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

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.

(b)	General Tributary Characteristics (check all that apply): Tributary is: ☐ Natural ☐ Artificial (man-made). Explain: ☐ Manipulated (man-altered). Explain:				
	Tributary properties with respect to top of bank (estimate): Average width: 12 feet Average depth: 1 feet Average side slopes: 3:1.				
	Primary tributary substrate composition (check all that apply): Silts Sands Concrete Cobbles Gravel Muck Bedrock Vegetation. Type/% cover: Other. Explain: Clay.				
	Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Presence of run/riffle/pool complexes. Explain: Tributary geometry: Pick List Tributary gradient (approximate average slope): %				
(c)	Flow: Tributary provides for: Seasonal flow Estimate average number of flow events in review area/year: 20 (or greater) Describe flow regime: Perennial. Other information on duration and volume:				
	Surface flow is: Discrete and confined. Characteristics:				
	Subsurface flow: Unknown. Explain findings:				
	Tributary has (check all that apply): ☐ Bed and banks ☐ OHWM ⁶ (check all indicators that apply): ☐ clear, natural line impressed on the bank ☐ changes in the character of soil ☐ shelving ☐ vegetation matted down, bent, or absent ☐ leaf litter disturbed or washed away ☐ sediment deposition ☐ water staining ☐ other (list): ☐ Discontinuous OHWM. ⁷ Explain: ☐ Explain: ☐ Explain: ☐ Check all that apply): ☐ the presence of litter and debris ☐ destruction of terrestrial vegetation ☐ the presence of wrack line ☐ sediment sorting ☐ sediment sorting ☐ water staining ☐ multiple observed or predicted flow events ☐ abrupt change in plant community ☐ other (list): ☐ Discontinuous OHWM. ⁷ Explain: ☐ .				
	If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply): High Tide Line indicated by:				
Cha	emical Characteristics: uracterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.) Explain: tify specific pollutants, if known:				

(iii)

⁶A 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.

⁷Ibid.

	(iv)	Biol	ogical Characteristics. Channel supports (check all that apply):
			Riparian corridor. Characteristics (type, average width): Forested, >100'. Wetland fringe. Characteristics:
			Habitat for:
			Federally Listed species. Explain findings:
			☐ Fish/spawn areas. Explain findings: ☐ Other environmentally-sensitive species. Explain findings:
			Aquatic/wildlife diversity. Explain findings:
			Aquatic/witdiffe diversity. Explain initings.
2.	Cha	aract	eristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW
	(i)		sical Characteristics:
		(a)	General Wetland Characteristics:
			Properties:
			Wetland size: 1.23 acres
			Wetland type. Explain: PEM. Wetland quality. Explain:
			Project wetlands cross or serve as state boundaries. Explain:
			110 Jeet wednings cross of serve as state boundaries. Explain.
		(b)	General Flow Relationship with Non-TNW:
			Flow is: Perennial flow . Explain: .
			Surface flow is: Discrete Characteristics:
			Characteristics.
			Subsurface flow: Pick List. Explain findings: .
			Dye (or other) test performed: .
		(c)	Wetland Adjacency Determination with Non-TNW:
			Directly abutting
			Not directly abutting
			☐ Discrete wetland hydrologic connection. Explain: ☐ Ecological connection. Explain:
			Separated by berm/barrier. Explain:
			Beparated by bernarbarrer. Explain.
		(d)	Proximity (Relationship) to TNW
			Project wetlands are 2-5 river miles from TNW.
			Project waters are 2-5 aerial (straight) miles from TNW.
			Flow is from: Wetland to navigable waters.
			Estimate approximate location of wetland as within the 2-year or less floodplain.
	(ii)	Che	emical Characteristics:
	()		racterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed
			characteristics; etc.). Explain:
		Iden	ntify specific pollutants, if known:
		. D I	Later Change As 24 as Western Language As (Alaska Halla Assault)
	(111		logical Characteristics. Wetland supports (check all that apply): Riparian buffer. Characteristics (type, average width):
		Ħ	Vegetation type/percent cover. Explain: PEM 100%.
		=	Habitat for:
		ш	Federally Listed species. Explain findings:
			Fish/spawn areas. Explain findings:
			Other environmentally-sensitive species. Explain findings:
			Aquatic/wildlife diversity. Explain findings: .
2	CI.		emistics of all modern is a discount to the tributous (if are-)
3.	Cha		eristics of all wetlands adjacent to the tributary (if any)
			wetland(s) being considered in the cumulative analysis: 1

For each wetland, specify the following:

<u>Directly abuts? (Y/N)</u> <u>Size (in acres)</u> <u>Directly abuts? (Y/N)</u> <u>Size (in acres)</u> W4 - Y 1.23

Summarize overall biological, chemical and physical functions being performed: Flood/runoff storage, wildlife feeding/rearing habitat.

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:
- 3. 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):

TNWs and Adjacent Wetlands. Check all that apply and provide size estimates in review error

1.	114 vis and Adjacent victianus. Check an mai appry and provide size estimates in review area.
	TNWs: linear feet width (ft), Or, acres.
	Wetlands adjacent to TNWs: acres.
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: See tributary characteristics above.
	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: .

	Provide estimates for jurisdictional waters in the review area (check all that apply): Tributary waters: 155 linear feet 16 width (ft).
	Other non-wetland waters: acres.
	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: linear feet width (ft). Other non-wetland waters: acres. 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: W4 is shown as abutting S5 in provided figures.
	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:
	Provide acreage estimates for jurisdictional wetlands in the review area: 1.23 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: 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: 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).
SUC	DLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, GRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY CH 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:
	Other factors. Explain: .

 ⁸See Footnote # 3.
 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.

		vide estimates for jurisdictional waters in the review area (check all that apply): Tributary waters: linear feet width (ft). Other non-wetland waters: acres. Identify type(s) of waters: . Wetlands: acres.
F.		N-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY): 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):
	fact	vide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR ors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional tement (check all that apply): Non-wetland waters (i.e., rivers, streams): linear feet width (ft). Lakes/ponds: acres. Other non-wetland waters: acres. List type of aquatic resource: Wetlands: acres.
		vide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such ding is required for jurisdiction (check all that apply): Non-wetland waters (i.e., rivers, streams): linear feet, width (ft). Lakes/ponds: acres. Other non-wetland waters: acres. List type of aquatic resource: . Wetlands: acres.
	SUPI and	PORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked requested, appropriately reference sources below): Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Wetland and Stream Delineation dated 4/29/22. 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. 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: USDA Natural Resources Conservation Service Soil Survey. Citation: NRCS Soil Maps Online. National wetlands inventory map(s). Cite name: NWI Maps Online. State/Local wetland inventory map(s): FEMA/FIRM maps: 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929) Photographs: Aerial (Name & Date): Google Earth Aerial 10/9/2019. or Other (Name & Date):
		Previous determination(s). File no. and date of response letter: Applicable/supporting case law: Applicable/supporting scientific literature: Other information (please specify):

Identify water body and summarize rationale supporting determination:

B. ADDITIONAL COMMENTS TO SUPPORT JD:

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): 6/2

B.	DISTRICT OFFICE, FILE NAME, AND NUMBER: LRP-2022-32 Cardinal Solar, LLC
C.	PROJECT LOCATION AND BACKGROUND INFORMATION: State: PA County/parish/borough: Cranberry Township, Venango County City: Center coordinates of site (lat/long in degree decimal format): Lat. 41.337224° N, Long79.732558° W. Universal Transverse Mercator: Name of nearest waterbody: East Sandy Creek
	Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Allegheny River Name of watershed or Hydrologic Unit Code (HUC): 05010003 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: 6/2/2022 ☐ Field Determination. Date(s):
SEC A.	CTION II: SUMMARY OF FINDINGS RHA SECTION 10 DETERMINATION OF JURISDICTION.
	re Are no "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the ew 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.
The	re 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): 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 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: Non-wetland waters: 118 linear feet: 5 width (ft) and/or acres. Wetlands: 0.38 acres.
	c. Limits (boundaries) of jurisdiction based on: Established by OHWM. Elevation of established OHWM (if known):
	 Non-regulated waters/wetlands (check if applicable):³ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional Explain:

Boxes checked below shall be supported by completing the appropriate sections in Section III below.
 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).
 Supporting documentation is presented in Section III.F.

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 waterbody⁴ 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 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: <100 acres Drainage area: <100 acres Average annual rainfall: 45 inches Average annual snowfall: 65 inches (ii) Physical Characteristics: (a) Relationship with TNW: ☐ Tributary flows directly into TNW. Tributary flows through 3 tributaries before entering TNW. Project waters are 5-10 river miles from TNW. Project waters are 1 (or less) river miles from RPW. Project waters are 2-5 aerial (straight) miles from TNW. Project waters are 1 (or less) aerial (straight) miles from RPW. Project waters cross or serve as state boundaries. Explain: Identify flow route to TNW5: UNT to East Sandy Creek > UNT to East Sandy Creek > East Sandy Creek > Allegheny River.

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

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 stream order, if known: .			
	(b)	General Tributary Characteristics (check all that apply): Tributary is: ☐ Natural ☐ Artificial (man-made). Explain: ☐ Manipulated (man-altered). Explain:			
		Tributary properties with respect to top of bank (estimate): Average width: 5 feet Average depth: 0.3 feet Average side slopes: 3:1.			
		Primary tributary substrate composition (check all that apply): Silts Sands Concrete Cobbles Gravel Muck Bedrock Vegetation. Type/% cover: Other. Explain: Clay.			
		Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Presence of run/riffle/pool complexes. Explain: Tributary geometry: Pick List Tributary gradient (approximate average slope): %			
	(c)	Flow: Tributary provides for: Seasonal flow Estimate average number of flow events in review area/year: 20 (or greater) Describe flow regime: Intermittent. Other information on duration and volume:			
		Surface flow is: Discrete and confined. Characteristics: .			
		Subsurface flow: Unknown. Explain findings:			
		Tributary has (check all that apply):			
		If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply): High Tide Line indicated by:			
(iii)	Cha	emical Characteristics: uracterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.). Explain: utify specific pollutants, if known:			

⁶A 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. ⁷Ibid.

	(iv)	Bio	logical Characteristics. Channel supports (check all that apply):
		\boxtimes	Riparian corridor. Characteristics (type, average width): Forested, >100'.
			Wetland fringe. Characteristics: .
			Habitat for:
			Federally Listed species. Explain findings:
			Fish/spawn areas. Explain findings:
			Other environmentally-sensitive species. Explain findings: .
			Aquatic/wildlife diversity. Explain findings: .
2.	Cha	ract	eristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW
	(i)	Phy	sical Characteristics:
		(a)	General Wetland Characteristics:
			Properties:
			Wetland size: 0.38 acres
			Wetland type. Explain: PEM.
			Wetland quality. Explain: .
			Project wetlands cross or serve as state boundaries. Explain:
		(b)	General Flow Relationship with Non-TNW:
		(0)	Flow is: Intermittent flow . Explain: .
			110W IS. Interimetent from Explain.
			Surface flow is: Discrete
			Characteristics: .
			Subsurface flow: Pick List. Explain findings:
			Dye (or other) test performed:
		(c)	Wetland Adjacency Determination with Non-TNW:
		(0)	Directly abutting
			Not directly abutting Not directly abutting
			Discrete wetland hydrologic connection. Explain:
			Ecological connection. Explain: W-6 and 7 have a significant nexus to S-6.
			Separated by berm/barrier. Explain:
		(d)	Proximity (Relationship) to TNW
			Project wetlands are 5-10 river miles from TNW.
			Project waters are 2-5 aerial (straight) miles from TNW.
			Flow is from: Wetland to navigable waters.
			Estimate approximate location of wetland as within the 2-year or less floodplain.
	(ii)	Che	emical Characteristics:
		Cha	racterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed
			characteristics; etc.). Explain:
		Ider	ntify specific pollutants, if known:
	(iii	Rio	logical Characteristics. Wetland supports (check all that apply):
	(Riparian buffer. Characteristics (type, average width):
		\square	Vegetation type/percent cover. Explain: PEM 100%.
		Ħ	Habitat for:
		_	Federally Listed species. Explain findings: .
			Fish/spawn areas. Explain findings:
			Other environmentally-sensitive species. Explain findings:
			Aquatic/wildlife diversity. Explain findings:
2	CI.		anistica of all modern de a dia cont. to the tailmtone (if are)
3.	Cna		eristics of all wetlands adjacent to the tributary (if any) wetland(s) being considered in the cumulative analysis: 2
			proximately (0.38) acres in total are being considered in the cumulative analysis.
		17	, , , , , , , , , , , , , , , , , , ,

For each wetland, specify the following:

Directly abuts? (Y/N)Size (in acres)Directly abuts? (Y/N)Size (in acres)W6 - N0.01W7 - N0.37

Summarize overall biological, chemical and physical functions being performed: Flood/runoff storage, wildlife feeding/rearing habitat.

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:
- 3. 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: W6 and 7 are situated upslope of S-6 which is an RPW. Both wetlands provide flood storage, pollution filtration and wildlife habitat to S-6.

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: linear feet width (ft), Or, acres. Wetlands adjacent to TNWs: acres.			
2.	 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 the 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: S-6 is an intermittent tributary to East Sandy Creek, which is an RPW with seasonal flow. 			

	Provide estimates for jurisdictional waters in the review area (check all that apply): Tributary waters: 118 linear feet 5 width (ft). Other non-wetland waters: acres. 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: linear feet width (ft). Other non-wetland waters: acres. 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: 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:
	Provide acreage estimates for jurisdictional wetlands in the review area: 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: 0.38 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: acres.
7.	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).
DE SUC	OLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, GRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY CH 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:

 ⁸See Footnote # 3.
 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.

	☐ 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: linear feet width (ft). Other non-wetland waters: acres. Identify type(s) of waters: Wetlands: acres.
F.	NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY): 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): linear feet width (ft). Lakes/ponds: acres. Other non-wetland waters: acres. List type of aquatic resource: Wetlands: acres. 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): linear feet, width (ft).
	□ Lakes/ponds: acres. □ Other non-wetland waters: acres. List type of aquatic resource: □ Wetlands: acres.
SE	CTION 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: Wetland and Stream Delineation dated 4/29/22. 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. Data sheets prepared by the Corps: Corps navigable waters' study: U.S. Geological Survey Hydrologic Atlas: USGS NHD data. USGS NHD data. USGS NHD data. USG Societal Survey map(s). Cite scale & quad name: USDA Natural Resources Conservation Service Soil Survey. Citation: NRCS Soil Maps Online. National wetlands inventory map(s). Cite name: NWI Maps Online. State/Local wetland inventory map(s): FEMA/FIRM maps: 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929) Photographs: Aerial (Name & Date): Google Earth Aerial 10/9/2019. or Other (Name & Date): Previous determination(s). File no. and date of response letter: Applicable/supporting case law:
	Applicable/supporting scientific literature: Other information (please specify):

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.

REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 6/2/2022

DISTRICT OFFICE, FILE NAME, AND NUMBER: LRP-2022-32 Cardinal Solar, LLC PROJECT LOCATION AND BACKGROUND INFORMATION: State: PA County/parish/borough: Cranberry Township, Venango County Center coordinates of site (lat/long in degree decimal format): Lat. 41.337224° N, Long. -79.732558° W Universal Transverse Mercator: Name of nearest waterbody: East Sandy Creek Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Allegheny River Name of watershed or Hydrologic Unit Code (HUC): 05010003 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: 6/2/2022 Field Determination. Date(s): SECTION II: SUMMARY OF FINDINGS A. RHA SECTION 10 DETERMINATION OF JURISDICTION. There Are no "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.

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

SECTION I: BACKGROUND INFORMATION

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

Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

1. V	Vaters	of the	U.S.
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* * * *	vaters of the C.b.					
a.	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					
	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 TNV					
	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.	b. Identify (estimate) size of waters of the U.S. in the review area:					
	Non-wetland waters: 2354 linear feet: 16 width (ft) and/or acres.					
	Wetlands: acres.					

c. Limits (boundaries) of jurisdiction based on: Established by OHWM.

Elevation of established OHWM (if known): .

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

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

Explain:

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).

Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

TNIX

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.

2.	Wetland adjacent to TNW		
	Summarize rationale supporting determination:		
1.	Identify 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 waterbody⁴ 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 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: 0.6 square miles

Drainage area: 0.6 square miles Average annual rainfall: 45 inches Average annual snowfall: 65 inches (ii) Physical Characteristics: (a) Relationship with TNW: ☐ Tributary flows directly into TNW. ☐ Tributary flows through 2 tributaries before entering TNW. Project waters are 5-10 river miles from TNW. Project waters are 1 (or less) river miles from RPW. Project waters are 2-5 aerial (straight) miles from TNW. Project waters are 1 (or less) aerial (straight) miles from RPW. Project waters cross or serve as state boundaries. Explain: Identify flow route to TNW⁵: UNT to East Sandy Creek > East Sandy Creek > Allegheny River. Tributary stream order, if known:

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

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.

(b)	General Tributary Characteristics (check all that apply): Tributary is:
	Tributary properties with respect to top of bank (estimate): Average width: 12 feet Average depth: 0.5 feet Average side slopes: 3:1.
	Primary tributary substrate composition (check all that apply): Silts
	Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Presence of run/riffle/pool complexes. Explain: Tributary geometry: Pick List Tributary gradient (approximate average slope): %
(c)	Flow: Tributary provides for: Seasonal flow Estimate average number of flow events in review area/year: 20 (or greater) Describe flow regime: Intermittent. Other information on duration and volume:
	Surface flow is: Discrete and confined. Characteristics:
	Subsurface flow: Unknown. Explain findings: Dye (or other) test performed:
	Tributary has (check all that apply): Bed and banks OHWM ⁶ (check all indicators that apply): clear, natural line impressed on the bank changes in the character of soil shelving vegetation matted down, bent, or absent leaf litter disturbed or washed away sediment deposition water staining other (list): Discontinuous OHWM. ⁷ Explain: the presence of litter and debris destruction of terrestrial vegetation the presence of wrack line sediment sorting sediment sorting abrupt change in plant community
	If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply): High Tide Line indicated by: Oil or scum line along shore objects Fine shell or debris deposits (foreshore) Ophysical markings/characteristics Other (list): Mean High Water Mark indicated by: Survey to available datum; Ophysical markings; Output Ophysical m
Cha	emical Characteristics: racterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.) Explain: .tify specific pollutants, if known:

(iii)

⁶A 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.

⁷Ibid.

	(iv)		logical Characteristics. Channel supports (check all that apply): Riparian corridor. Characteristics (type, average width): Forested, >100'. Wetland fringe. Characteristics: Habitat for: Federally Listed species. Explain findings: Fish/spawn areas. Explain findings: Other environmentally-sensitive species. Explain findings: Aquatic/wildlife diversity. Explain findings:
2.	Cha	ract	eristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW
	(i)		Asical Characteristics: General Wetland Characteristics: Properties: Wetland size: acres Wetland type. Explain: Wetland quality. Explain: Project wetlands cross or serve as state boundaries. Explain:
		(b)	General Flow Relationship with Non-TNW: Flow is: Pick List. Surface flow is: Pick List Characteristics:
			Subsurface flow: Pick List. Explain findings: Dye (or other) test performed:
		(c)	Wetland Adjacency Determination with Non-TNW: ☐ Directly abutting ☐ Not directly abutting ☐ Discrete wetland hydrologic connection. Explain: ☐ Ecological connection. Explain: W-1 has a significant nexus to S-1. ☐ Separated by berm/barrier. Explain:
		(d)	Proximity (Relationship) to TNW Project wetlands are Pick List river miles from TNW. Project waters are Pick List aerial (straight) miles from TNW. Flow is from: Pick List. Estimate approximate location of wetland as within the Pick List floodplain.
	(ii)	Cha	emical Characteristics: aracterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: attify specific pollutants, if known:
	(iii)	Bio	logical Characteristics. Wetland supports (check all that apply): Riparian buffer. Characteristics (type, average width): Vegetation type/percent cover. Explain: Habitat for: Federally Listed species. Explain findings: Fish/spawn areas. Explain findings: Other environmentally-sensitive species. Explain findings: Aquatic/wildlife diversity. Explain findings:
3.	Cha	All	eristics of all wetlands adjacent to the tributary (if any) wetland(s) being considered in the cumulative analysis: Pick List proximately () acres in total are being considered in the cumulative analysis.

<u>Directly abuts? (Y/N)</u> <u>Size (in acres)</u> <u>Directly abuts? (Y/N)</u> <u>Size (in acres)</u>

Summarize overall biological, chemical and physical functions being performed:

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:
- 3. 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):

TNWs and Adjacent Wetlands. Check all that apply and provide size estimates in review area:

	Wetlands adjacent to TNWs: acres.
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: See tributary description above. Trib is described as perennial in report and demonstrates characteristics
	that are indicative of a perennial stream.
	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. See description of tributary characteristics above

	Provide estimates for jurisdictional waters in the review area (check all that apply): Tributary waters: linear feet width (ft). Other non-wetland waters: acres.
	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: linear feet width (ft). Other non-wetland waters: acres. 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:
	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:
	Provide acreage estimates for jurisdictional wetlands in the review area: 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: 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: 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).
	Belloustate that water is isolated with a nexus to commerce (see 2 below).
DE SU	DLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, GRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY CH 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:
_	

 ⁸See Footnote # 3.
 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.

	_	
		vide estimates for jurisdictional waters in the review area (check all that apply): Tributary waters: linear feet width (ft). Other non-wetland waters: acres.
		Identify type(s) of waters: Wetlands: acres.
		Trendings. deres.
F.		N-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY): 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):
	fact	vide acreage estimates for non-jurisdictional waters in the review area, where the <u>sole</u> potential basis of jurisdiction is the MBR tors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional gment (check all that apply):
		Non-wetland waters (i.e., rivers, streams): linear feet width (ft). Lakes/ponds: acres.
		Other non-wetland waters: acres. List type of aquatic resource: . Wetlands: acres.
		vide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such nding is required for jurisdiction (check all that apply):
		Non-wetland waters (i.e., rivers, streams): linear feet, width (ft). Lakes/ponds: acres.
		Other non-wetland waters: acres. List type of aquatic resource: Wetlands: acres.
OTE 4	OTTO	ON HV. DATA GOUDGES
		<u>DN IV: DATA SOURCES.</u><u>PORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked items shall be included in case file and, where checked items shall be included in case file and the checked items.</u>
		requested, appropriately reference sources below): Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Wetland and Stream Delineation dated 4/29/22.
	\boxtimes	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. Data sheets prepared by the Corps:
	Ħ	Corps navigable waters' study: U.S. Geological Survey Hydrologic Atlas:
		USGS NHD data. USGS 8 and 12 digit HUC maps.
	\boxtimes	U.S. Geological Survey map(s). Cite scale & quad name: USDA Natural Resources Conservation Service Soil Survey. Citation: NRCS Soil Maps Online.
		National wetlands inventory map(s). Cite name: NWI Maps Online. State/Local wetland inventory map(s):
		FEMA/FIRM maps: . 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
	\boxtimes	Photographs: ☐ Aerial (Name & Date):Google Earth Aerial 10/9/2019. or ☐ Other (Name & Date):
		Previous determination(s). File no. and date of response letter: Applicable/supporting case law:
		Applicable/supporting scientific literature: Other information (please specify):

Identify water body and summarize rationale supporting determination:

B. ADDITIONAL COMMENTS TO SUPPORT JD:

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): 6/2/2022

В.	DISTRICT	OFFICE,	FILE NAM	IE, AND	NUMBER: L	RP-2022-32	Cardinal Solar, LLC

Ь.	DISTRICT OFFICE, FILE NAME, AND NUMBER: LRF-2022-32 Carumai Solar, LLC
C.	PROJECT LOCATION AND BACKGROUND INFORMATION: State: PA County/parish/borough: Cranberry Township, Venango County City: Center coordinates of site (lat/long in degree decimal format): Lat. 41.337224° N, Long79.732558° W. Universal Transverse Mercator: Name of nearest waterbody: East Sandy Creek
	Name of nearest Traditional Navigable Water (TNW) Into which the aquatic resource flows: Allegheny River Name of watershed or Hydrologic Unit Code (HUC): 05010003 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: 6/2//2022 ☐ Field Determination. Date(s):
	CTION II: SUMMARY OF FINDINGS RHA SECTION 10 DETERMINATION OF JURISDICTION.
	re Are no "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the ew 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.
The	re 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 waters² (RPWs) that flow directly or indirectly into TNWs Non-RPWs that flow directly or indirectly into TNWs 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: Non-wetland waters: 365 linear feet: 3 width (ft) and/or acres. Wetlands: 1.97 acres.
	c. Limits (boundaries) of jurisdiction based on: Established by OHWM. Elevation of established OHWM (if known):
	2. Non-regulated waters/wetlands (check if applicable): ³ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

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).

³ Supporting documentation is presented in Section III.F.

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 waterbody⁴ 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 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: <100 acres Drainage area: <100 acres Average annual rainfall: 45 inches Average annual snowfall: 65 inches (ii) Physical Characteristics: (a) Relationship with TNW: ☐ Tributary flows directly into TNW. Tributary flows through 3 tributaries before entering TNW. Project waters are 2-5 river miles from TNW. Project waters are 1 (or less) river miles from RPW. Project waters are 2-5 aerial (straight) miles from TNW. Project waters are 1 (or less) aerial (straight) miles from RPW. Project waters cross or serve as state boundaries. Explain: Identify flow route to TNW5: UNT to East Sandy Creek > UNT to East Sandy Creek > East Sandy Creek > Allegheny River.

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

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 stream order, if known: .
	(b)	General Tributary Characteristics (check all that apply): Tributary is: ☐ Natural ☐ Artificial (man-made). Explain: ☐ Manipulated (man-altered). Explain:
		Tributary properties with respect to top of bank (estimate): Average width: 3 feet Average depth: 0.3 feet Average side slopes: 3:1.
		Primary tributary substrate composition (check all that apply): Silts Sands Concrete Cobbles Gravel Muck Bedrock Vegetation. Type/% cover: Other. Explain: Clay.
		Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Presence of run/riffle/pool complexes. Explain: Tributary geometry: Pick List Tributary gradient (approximate average slope): %
	(c)	Flow: Tributary provides for: Seasonal flow Estimate average number of flow events in review area/year: 20 (or greater) Describe flow regime: Intermittent. Other information on duration and volume:
		Surface flow is: Discrete and confined. Characteristics: .
		Subsurface flow: Unknown. Explain findings:
		Tributary has (check all that apply):
		If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply): High Tide Line indicated by:
(iii)	Cha	emical Characteristics: uracterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.). Explain: utify specific pollutants, if known:

⁶A 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. ⁷Ibid.

	(iv)	Biol	ogical Characteristics. Channel supports (check all that apply):
		\boxtimes	Riparian corridor. Characteristics (type, average width): Forested, >100'.
			Wetland fringe. Characteristics: .
			Habitat for:
			Federally Listed species. Explain findings: .
			Fish/spawn areas. Explain findings:
			Other environmentally-sensitive species. Explain findings:
			Aquatic/wildlife diversity. Explain findings: .
2.	Cha	aract	eristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW
	(i)	Phy	sical Characteristics:
			General Wetland Characteristics:
			Properties:
			Wetland size: 1.97 acres
			Wetland type. Explain: PFO.
			Wetland quality. Explain: .
			Project wetlands cross or serve as state boundaries. Explain:
		(b)	General Flow Relationship with Non-TNW:
			Flow is: Intermittent flow . Explain: .
			Surface flow is: Discrete
			Characteristics: .
			Subsurface flow: Pick List. Explain findings: .
			Dye (or other) test performed:
			by c (or other) test performed.
		(c)	Wetland Adjacency Determination with Non-TNW:
		` /	☐ Directly abutting
			Not directly abutting
			Discrete wetland hydrologic connection. Explain:
			Ecological connection. Explain:
			Separated by berm/barrier. Explain:
			_ , , , .
		(d)	Proximity (Relationship) to TNW
			Project wetlands are 2-5 river miles from TNW.
			Project waters are 2-5 aerial (straight) miles from TNW.
			Flow is from: Wetland to navigable waters.
			Estimate approximate location of wetland as within the 2-year or less floodplain.
	(88)	~	
	(ii)		emical Characteristics:
		Cha	racterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed
		T 1	characteristics; etc.). Explain:
		Ider	ntify specific pollutants, if known:
	(iii) Rial	logical Characteristics. Wetland supports (check all that apply):
	(111		Riparian buffer. Characteristics (type, average width):
			Vegetation type/percent cover. Explain: PFO 100%.
		H	Habitat for:
			Federally Listed species. Explain findings: .
			Fish/spawn areas. Explain findings:
			Other environmentally-sensitive species. Explain findings:
			Aquatic/wildlife diversity. Explain findings:
3.	Cha	aract	eristics of all wetlands adjacent to the tributary (if any)
			wetland(s) being considered in the cumulative analysis: 1
			provimately (107) agree in total are being considered in the cumulative analysis

For each wetland, specify the following:

<u>Directly abuts? (Y/N)</u> <u>Size (in acres)</u> <u>Directly abuts? (Y/N)</u> <u>Size (in acres)</u> W9 - Y 1.97

Summarize overall biological, chemical and physical functions being performed: Flood/runoff storage, wildlife feeding/rearing habitat.

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:
- 3. 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.	IN WS and Adjacent Wetlands. Check all that apply and provide size estimates in review area:
	TNWs: linear feet width (ft), Or, acres.
	Wetlands adjacent to TNWs: acres.
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: See tributary characteristics above.
	☐ 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: .

	Provide estimates for jurisdictional waters in the review area (check all that apply): Tributary waters: 365 linear feet 2.5 width (ft).
	Other non-wetland waters: acres.
	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: linear feet width (ft). Other non-wetland waters: acres. 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: W9 is shown as abutting S8 in the delineation report.
	■ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary i seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:
	Provide acreage estimates for jurisdictional wetlands in the review area: 1.97 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: 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: acres.
7.	Impoundments of jurisdictional waters. 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).
SUC	DLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, GRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY CH 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:

 ⁸See Footnote # 3.
 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.

		vide estimates for jurisdictional waters in the review area (check all that apply): Tributary waters: linear feet width (ft). Other non-wetland waters: acres. Identify type(s) of waters: . Wetlands: acres.					
F.	NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY): 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):						
	fact	wide acreage estimates for non-jurisdictional waters in the review area, where the <u>sole</u> potential basis of jurisdiction is the MBR ors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional gment (check all that apply): Non-wetland waters (i.e., rivers, streams): linear feet width (ft). Lakes/ponds: acres. Other non-wetland waters: acres. List type of aquatic resource: Wetlands: acres.					
		wide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such adding is required for jurisdiction (check all that apply): Non-wetland waters (i.e., rivers, streams): linear feet, width (ft). Lakes/ponds: acres. Other non-wetland waters: acres. List type of aquatic resource: . Wetlands: acres.					
	SUPI and	PORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked requested, appropriately reference sources below): Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Wetland and Stream Delineation dated 4/29/22. 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. 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.					
	$\boxtimes\boxtimes\boxtimes\Box\Box\boxtimes$	U.S. Geological Survey map(s). Cite scale & quad name: USDA Natural Resources Conservation Service Soil Survey. Citation: NRCS Soil Maps Online. National wetlands inventory map(s). Cite name: NWI Maps Online. State/Local wetland inventory map(s): FEMA/FIRM maps: 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929) Photographs: Aerial (Name & Date): Google Earth Aerial 10/9/2019. or Other (Name & Date):					
		Previous determination(s). File no. and date of response letter: Applicable/supporting case law: Applicable/supporting scientific literature: Other information (please specify):					

Identify water body and summarize rationale supporting determination:

B. ADDITIONAL COMMENTS TO SUPPORT JD:

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.

A.	REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 6/2/2022
B.	DISTRICT OFFICE, FILE NAME, AND NUMBER: LRP-2022-32 Cardinal Solar, LLC
C.	PROJECT LOCATION AND BACKGROUND INFORMATION: State: PA County/parish/borough: Cranberry Township, Venango County City: Center coordinates of site (lat/long in degree decimal format): Lat. 41.337224° N, Long79.732558° W. Universal Transverse Mercator: Name of nearest waterbody: East Sandy Creek Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Allegheny River Name of watershed or Hydrologic Unit Code (HUC): 05010003 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: 6/2/2022 Field Determination. Date(s):
	CTION II: SUMMARY OF FINDINGS RHA SECTION 10 DETERMINATION OF JURISDICTION.
	ere Are no "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the iew 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.

SECTION I: BACKGROUND INFORMATION

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

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						
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:						
Non-wetland waters: 117 linear feet: 3 width (ft) and/or acres.						
Wetlands: acres.						

c. Limits (boundaries) of jurisdiction based on: Established by OHWM.

Elevation of established OHWM (if known): .

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

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

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).

Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

TNIX

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.

2.	Wetland adjacent to TNW				
	Summarize rationale supporting determination: .				
1.	Identify 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 waterbody⁴ 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 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: <100 acres Drainage area: <100 acres

Average annual rainfall: 45 inches Average annual snowfall: 65 inches (ii) Physical Characteristics: (a) Relationship with TNW: Tributary flows directly into TNW. Tributary flows through 2 tributaries before entering TNW. Project waters are Project water

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

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.

(b)	General Tributary Characteristics (check all that apply): Tributary is: ☐ Natural ☐ Artificial (man-made). Explain: ☐ Manipulated (man-altered). Explain:
	Tributary properties with respect to top of bank (estimate): Average width: 12 feet Average depth: 0.5 feet Average side slopes: 3:1.
	Primary tributary substrate composition (check all that apply): Silts Sands Concrete Cobbles Gravel Muck Bedrock Vegetation. Type/% cover: Other. Explain: Clay.
	Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Presence of run/riffle/pool complexes. Explain: Tributary geometry: Pick List Tributary gradient (approximate average slope): %
(c)	Flow: Tributary provides for: Seasonal flow Estimate average number of flow events in review area/year: 20 (or greater) Describe flow regime: Intermittent. Other information on duration and volume:
	Surface flow is: Discrete and confined. Characteristics:
	Subsurface flow: Unknown . Explain findings:
	Tributary has (check all that apply):
	If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply): High Tide Line indicated by: oil or scum line along shore objects fine shell or debris deposits (foreshore) physical markings/characteristics tidal gauges other (list): Mean High Water Mark indicated by: survey to available datum; physical markings; vegetation lines/changes in vegetation types.
Cha	emical Characteristics: uracterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.) Explain: tify specific pollutants, if known:

(iii)

⁶A 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.

⁷Ibid.

	(iv)		logical Characteristics. Channel supports (check all that apply): Riparian corridor. Characteristics (type, average width): Forested, >100'. Wetland fringe. Characteristics: Habitat for: Federally Listed species. Explain findings: Fish/spawn areas. Explain findings: Other environmentally-sensitive species. Explain findings: Aquatic/wildlife diversity. Explain findings:
2.	Cha	ract	eristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW
	(i)		Asical Characteristics: General Wetland Characteristics: Properties: Wetland size: acres Wetland type. Explain: Wetland quality. Explain: Project wetlands cross or serve as state boundaries. Explain:
		(b)	General Flow Relationship with Non-TNW: Flow is: Pick List. Surface flow is: Pick List Characteristics:
			Subsurface flow: Pick List. Explain findings: Dye (or other) test performed:
		(c)	Wetland Adjacency Determination with Non-TNW: ☐ Directly abutting ☐ Not directly abutting ☐ Discrete wetland hydrologic connection. Explain: ☐ Ecological connection. Explain: W-1 has a significant nexus to S-1. ☐ Separated by berm/barrier. Explain:
		(d)	Proximity (Relationship) to TNW Project wetlands are Pick List river miles from TNW. Project waters are Pick List aerial (straight) miles from TNW. Flow is from: Pick List. Estimate approximate location of wetland as within the Pick List floodplain.
	(ii)	Cha	emical Characteristics: aracterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: attify specific pollutants, if known:
	(iii)	Bio	logical Characteristics. Wetland supports (check all that apply): Riparian buffer. Characteristics (type, average width): Vegetation type/percent cover. Explain: Habitat for: Federally Listed species. Explain findings: Fish/spawn areas. Explain findings: Other environmentally-sensitive species. Explain findings: Aquatic/wildlife diversity. Explain findings:
3.	Cha	All	eristics of all wetlands adjacent to the tributary (if any) wetland(s) being considered in the cumulative analysis: Pick List proximately () acres in total are being considered in the cumulative analysis.

Directly abuts? (Y/N) Size (in acres) Directly abuts? (Y/N) Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

C. SIGNIFICANT NEXUS DETERMINATION

TNWs:

linear feet

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:
- 3. 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):

acres

TNWs and Adjacent Wetlands. Check all that apply and provide size estimates in review area:

width (ft). Or.

	Wetlands adjacent to TNWs: acres.
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: See tributary description above. Trib is described as perennial in report and demonstrates characteristics
	that are indicative of a perennial stream.
	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: See description of tributary characteristics above.

	Provide estimates for jurisdictional waters in the review area (check all that apply): Tributary waters: linear feet width (ft).
	Other non-wetland waters: acres.
	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: linear feet width (ft). Other non-wetland waters: acres. 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:
	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:
	Provide acreage estimates for jurisdictional wetlands in the review area: 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: 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: acres.
7.	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 ented above (1-6), or
	Demonstrate that water is isolated with a nexus to commerce (see E below).
DE SU	DLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, GRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY CH 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:

E.

 ⁸See Footnote # 3.
 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.

	_	
		vide estimates for jurisdictional waters in the review area (check all that apply): Tributary waters: linear feet width (ft). Other non-wetland waters: acres.
		Identify type(s) of waters: Wetlands: acres.
		Trendings. deres.
F.		N-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY): 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):
	fact	vide acreage estimates for non-jurisdictional waters in the review area, where the <u>sole</u> potential basis of jurisdiction is the MBR tors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional gment (check all that apply):
		Non-wetland waters (i.e., rivers, streams): linear feet width (ft). Lakes/ponds: acres.
		Other non-wetland waters: acres. List type of aquatic resource: . Wetlands: acres.
		vide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such nding is required for jurisdiction (check all that apply):
		Non-wetland waters (i.e., rivers, streams): linear feet, width (ft). Lakes/ponds: acres.
		Other non-wetland waters: acres. List type of aquatic resource: Wetlands: acres.
OTE 4	OTTO	ON W. DATA GOUDGES
		<u>DN IV: DATA SOURCES.</u><u>PORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked items shall be included in case file and, where checked items shall be included in case file and the checked items.</u>
		requested, appropriately reference sources below): Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Wetland and Stream Delineation dated 4/29/22.
	\boxtimes	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. Data sheets prepared by the Corps:
	Ħ	Corps navigable waters' study: U.S. Geological Survey Hydrologic Atlas:
		USGS NHD data. USGS 8 and 12 digit HUC maps.
	\boxtimes	U.S. Geological Survey map(s). Cite scale & quad name: USDA Natural Resources Conservation Service Soil Survey. Citation: NRCS Soil Maps Online.
		National wetlands inventory map(s). Cite name: NWI Maps Online. State/Local wetland inventory map(s):
		FEMA/FIRM maps: . 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
	\boxtimes	Photographs: ☐ Aerial (Name & Date):Google Earth Aerial 10/9/2019. or ☐ Other (Name & Date):
		Previous determination(s). File no. and date of response letter: Applicable/supporting case law:
		Applicable/supporting scientific literature: Other information (please specify):

Identify water body and summarize rationale supporting determination:

B. ADDITIONAL COMMENTS TO SUPPORT JD:

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): 6/2

B.	DISTRICT OFFICE, FILE NAME, AND NUMBER: LRP-2022-32 Cardinal Solar, LLC
C.	PROJECT LOCATION AND BACKGROUND INFORMATION: State: PA County/parish/borough: Cranberry Township, Venango County City: Center coordinates of site (lat/long in degree decimal format): Lat. 41.337224° N, Long79.732558° W. Universal Transverse Mercator: Name of nearest waterbody: East Sandy Creek Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Allegheny River Name of watershed or Hydrologic Unit Code (HUC): 05010003 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: 6/2/2022 Field Determination. Date(s):
SEC A.	CTION II: SUMMARY OF FINDINGS RHA SECTION 10 DETERMINATION OF JURISDICTION.
	re Are no "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the ew 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:
В.	CWA SECTION 404 DETERMINATION OF JURISDICTION.
The	re 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): TNWs, including territorial seas Wetlands adjacent to TNWs Relatively permanent waters² (RPWs) that flow directly or indirectly into TNWs Non-RPWs that flow directly or indirectly into TNWs 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: Non-wetland waters: 214 linear feet: 3 width (ft) and/or acres. Wetlands: 0.17 acres.
	c. Limits (boundaries) of jurisdiction based on: Established by OHWM. Elevation of established OHWM (if known):
	 Non-regulated waters/wetlands (check if applicable):³ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.

Explain:

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).

³ Supporting documentation is presented in Section III.F.

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 waterbody⁴ 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 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: <100 acres Drainage area: <100 acres Average annual rainfall: 45 inches Average annual snowfall: 65 inches (ii) Physical Characteristics: (a) Relationship with TNW: ☐ Tributary flows directly into TNW. Tributary flows through 3 tributaries before entering TNW. Project waters are 2-5 river miles from TNW. Project waters are 1 (or less) river miles from RPW. Project waters are 2-5 aerial (straight) miles from TNW. Project waters are 1 (or less) aerial (straight) miles from RPW. Project waters cross or serve as state boundaries. Explain: Identify flow route to TNW5: UNT to East Sandy Creek > UNT to East Sandy Creek > East Sandy Creek > Allegheny River.

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

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 stream order, if known: .
	(b)	General Tributary Characteristics (check all that apply): Tributary is: ☐ Natural ☐ Artificial (man-made). Explain: ☐ Manipulated (man-altered). Explain:
		Tributary properties with respect to top of bank (estimate): Average width: 3 feet Average depth: 0.5 feet Average side slopes: 3:1.
		Primary tributary substrate composition (check all that apply): Silts Sands Concrete Cobbles Gravel Muck Bedrock Vegetation. Type/% cover: Other. Explain: Clay.
		Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Presence of run/riffle/pool complexes. Explain: Tributary geometry: Pick List Tributary gradient (approximate average slope): %
	(c)	Flow: Tributary provides for: Seasonal flow Estimate average number of flow events in review area/year: 20 (or greater) Describe flow regime: Intermittent. Other information on duration and volume:
		Surface flow is: Discrete and confined. Characteristics: .
		Subsurface flow: Unknown. Explain findings:
		Tributary has (check all that apply):
		If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply): High Tide Line indicated by:
(iii)	Cha	emical Characteristics: uracterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.). Explain: tify specific pollutants, if known:

⁶A 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.

⁷Ibid.

	(iv)	Bio	logical Characteristics. Channel supports (check all that apply):
			Riparian corridor. Characteristics (type, average width): Forested, >100'. Wetland fringe. Characteristics:
			Habitat for:
			Federally Listed species. Explain findings:
			Fish/spawn areas. Explain findings:
			Other environmentally-sensitive species. Explain findings:
			Aquatic/wildlife diversity. Explain findings: .
2.	Cha	aract	eristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW
	(i)		sical Characteristics:
		(a)	General Wetland Characteristics:
			Properties:
			Wetland size: 0.17 acres
			Wetland type. Explain: PSS. Wetland quality. Explain:
			Project wetlands cross or serve as state boundaries. Explain:
			Troject wettands cross of serve as state boundaries. Explain.
		(b)	General Flow Relationship with Non-TNW:
			Flow is: Intermittent flow . Explain: .
			Surface flow is: Discrete
			Characteristics: .
			Subsurface flow: Pick List. Explain findings: .
			Dye (or other) test performed:
		(c)	Wetland Adjacency Determination with Non-TNW:
			☐ Directly abutting
			Not directly abutting
			Discrete wetland hydrologic connection. Explain:
			Ecological connection. Explain:
			Separated by berm/barrier. Explain:
		(d)	Proximity (Relationship) to TNW
		(u)	Project wetlands are 2-5 river miles from TNW.
			Project waters are 2-5 aerial (straight) miles from TNW.
			Flow is from: Wetland to navigable waters.
			Estimate approximate location of wetland as within the 2-year or less floodplain.
	(ii)		emical Characteristics:
		Cha	racterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed
		T.J	characteristics; etc.). Explain:
		idei	ntify specific pollutants, if known:
	(iii) Bio	logical Characteristics. Wetland supports (check all that apply):
	(Riparian buffer. Characteristics (type, average width):
		\boxtimes	Vegetation type/percent cover. Explain: PSS 100%.
			Habitat for:
			Federally Listed species. Explain findings: .
			Fish/spawn areas. Explain findings: .
			Other environmentally-sensitive species. Explain findings:
			Aquatic/wildlife diversity. Explain findings:
2	Ch	nroot	oristics of all wotlands adjacent to the tributory (if any)
3.	Cna		eristics of all wetlands adjacent to the tributary (if any) wetland(s) being considered in the cumulative analysis: 1
			vertailu(s) being considered in the cumulative analysis.

For each wetland, specify the following:

<u>Directly abuts? (Y/N)</u> <u>Size (in acres)</u> <u>Directly abuts? (Y/N)</u> <u>Size (in acres)</u> W10 - Y 0.17

Summarize overall biological, chemical and physical functions being performed: Flood/runoff storage, wildlife feeding/rearing habitat, pollution filtration.

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:
- 3. 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: linear feet width (ft), Or, acres. ☐ Wetlands adjacent to TNWs: acres.						
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: See tributary characteristics above. Description of stream is indicative of an intermittent stream with seasonal flow.						

	Provide estimates for jurisdictional waters in the review area (check all that apply): Tributary waters: 214 linear feet 3 width (ft). Other non-wetland waters: acres. 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: linear feet width (ft). Other non-wetland waters: acres. 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: W10 is shown as abutting S10 in provided figures.
	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:
	Provide acreage estimates for jurisdictional wetlands in the review area: 0.17 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: 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 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: acres.
7.	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).
DE SUC	DLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, GRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY CH 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:

E.

 ⁸See Footnote # 3.
 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.

	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: linear feet width (ft). Other non-wetland waters: acres. Identify type(s) of waters: Wetlands: acres.
F.	NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY): 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): linear feet width (ft). Lakes/ponds: acres. Other non-wetland waters: acres. List type of aquatic resource: Wetlands: acres.
	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): linear feet, width (ft). Lakes/ponds: acres. Other non-wetland waters: acres. List type of aquatic resource: Wetlands: acres.
SE	CTION 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: Wetland and Stream Delineation dated 4/29/2022. 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. Data sheets prepared by the Corps: Corps navigable waters' study: U.S. Geological Survey Hydrologic Atlas: USGS NHD data. USGS NHD data. USGS 8 and 12 digit HUC maps. U.S. Geological Survey map(s). Cite scale & quad name: USDA Natural Resources Conservation Service Soil Survey. Citation: NRCS Soil Maps Online. National wetlands inventory map(s). Cite name: NWI Maps Online. State/Local wetland inventory map(s): FEMA/FIRM maps: 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929) Photographs: Aerial (Name & Date): Google Earth Aerial 10/9/2019. Or Other (Name & Date): Previous determination(s). File no. and date of response letter: Applicable/supporting case law:
	Applicable/supporting case law: Applicable/supporting scientific literature: Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD:



Table 2. Delineated Wetlands within the Project Site

Wetland Field Designation	Cla	Cover Type Classification ¹ and Acreage		nd	Acreage within		Chapter 93 Designation ⁶	Latitude	Longitude	
3	PEM	PSS	PFO	PUB	Project Site ²	Type ³				
W-1	0.08	-	-	-	0.08	-	To Be Determined	-	41.348723	-79.727552
W-2	-	0.78	-	-	0.78	-	To Be Determined	Exceptional Value	41.349091	-79.728832
W-3	4.40	-	-	0.69	5.09	PUBH	To Be Determined	Exceptional Value	41.346166	-79.732073
W-4	1.23	-	-	-	1.23	-	To Be Determined	Exceptional Value	41.339431	-79.734369
W-5	0.24	-	-	-	0.24	-	To Be Determined	-	41.334736	-79.737069
W-6	0.01	-	-	-	0.01	-	To Be Determined	-	41.335761	-79.726469
W-7	0.37	-	-	-	0.37	-	To Be Determined	-	41.336402	-79.727208
W-8	0.35	-	-	-	0.35	-	To Be Determined	-	41.338527	-79.726618
W-9	-	-	1.97	-	1.97	-	To Be Determined	Exceptional Value	41.341933	-79.721221
W-10	-	0.17	-	-	0.17	-	To Be Determined	Exceptional Value	41.339362	-79.716515
Total Wetland Acreage Delineated:					10.29					

¹PEM – palustrine emergent; PSS – palustrine scrub-shrub; PFO – palustrine forested; PUB – palustrine unconsolidated bottom

²Acreage is rounded to the nearest 0.01-acre. Any resources comprising less than 0.01 acres are tabulated within the total as 0.01 acres.

³PUBH – Palustrine, Unconsolidated Bottom, Permanently Flooded

⁴Jurisdictional Status to be determined by the USACE following completion of their Jurisdictional Determination. All suppositions regarding connectivity and jurisdictionality have been removed from this report at the request of the USACE.

⁵All resources are considered PADEP-jurisdictional under Chapter 105, as discussed within Section 2.0 of this report.

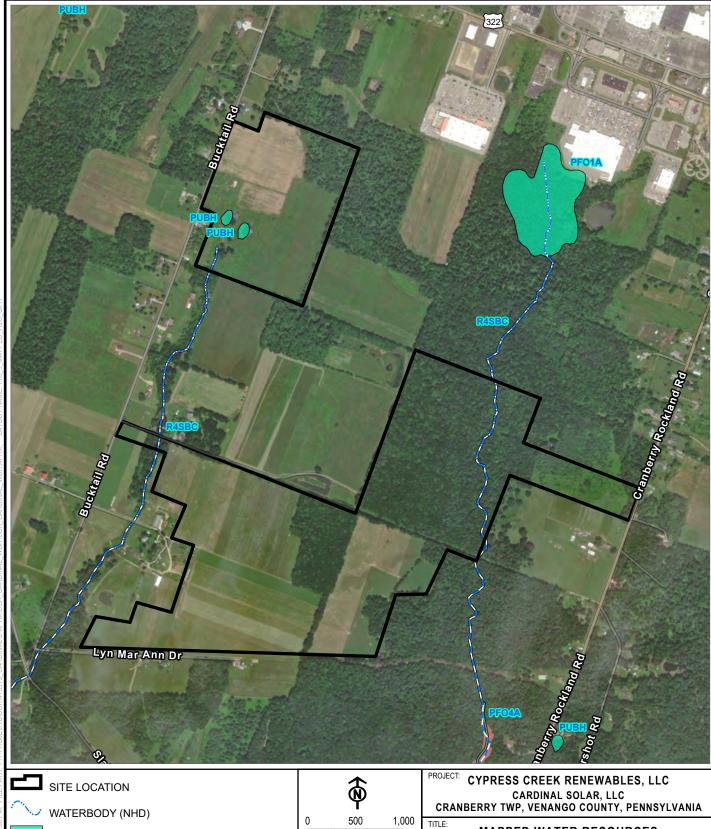
⁶Wetlands that are located in or along the floodplain of a Wild Trout Stream or within or along the floodplain of its UNTs are considered Exceptional Value (EV) wetlands under Chapter 105. Named streams and UNTs that do not have an associated FEMA floodplain have an assumed floodplain extending outward 50 feet from the top-of-bank. East Sandy Creek and it UNTs are listed as Wild Trout Streams (see Section 5.3); therefore, identified wetlands that fall within the assumed 50-foot floodplain are considered EV.

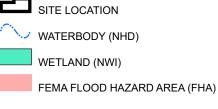


Table 3. Delineated Streams within the Project Site

Stream Field Designation	Flow Regime Classification ¹	Linear Feet within Project Site ²	Stream Name	Protected Water Use ³	Jurisdictional Status ^{4, 5}	Associated Riparian Buffer ⁶	Wild Trout Stream ⁷	Approved Trout Water ⁸	Latitude	Longitude
S-1	Intermittent	782	UNT to East Sandy Creek	CWF	To Be Determined	-	Yes	Yes	41.348551	-79.728114
S-2	Ephemeral	164	UNT to East Sandy Creek	CWF	To Be Determined	-	Yes	Yes	41.348921	-79.728146
S-3	Intermittent	144	UNT to East Sandy Creek	CWF	To Be Determined	-	Yes	Yes	41.348374	-79.728337
S-4	Perennial	344	UNT to East Sandy Creek	CWF	To Be Determined	-	Yes	Yes	41.345737	-79.732422
S-5	Perennial	155	UNT to East Sandy Creek	CWF	To Be Determined	-	Yes	Yes	41.340321	-79.734344
S-6	Intermittent	118	UNT to East Sandy Creek	CWF	To Be Determined	-	Yes	Yes	41.335465	-79.725899
S-7	Perennial	2,354	UNT to East Sandy Creek	CWF	To Be Determined	-	Yes	Yes	41.38275	-79.722080
S-8	Intermittent	365	UNT to East Sandy Creek	CWF	To Be Determined	-	Yes	Yes	41.340290	-79.721773
S-9	Intermittent	117	UNT to East Sandy Creek	CWF	To Be Determined	-	Yes	Yes	41.341532	-79.721498
S-10	Intermittent	214	UNT to East Sandy Creek	CWF	To Be Determined	-	Yes	Yes	41.338955	-79.716363
	Total Stream Length Delineated:									

COORDINATE SYSTEM: NAD 1983 2011 STATEPLANE PENNSYLVANIA NORTH FIPS 3701 FT US; MAI





0 500 1,000 T 1:12,000 1" = 1,000'

MAPPED WATER RESOURCES AND FLOODPLAINS

DRAWN BY:	D. SWEENEY	PROJ. NO.:	413379.0000
CHECKED BY:	J. VANDEVEER		
APPROVED BY:	C. KAYSER	FIGL	JRE 3
DATE:	NOVEMBER 2021		



♦ TRC

2200 LIBERTY AVENUE SUITE 100 PITTSBURGH, PA 15222 PHONE: 412-713-7131

BASE MAP: ESRI WORLD IMAGERY SERVICE (JUNE 2018) DATA SOURCES: USGS, USFWS, FEMA, TRC, CCR



TRC DELINEATED STREAM **EPHEMERAL**



INTERMITTENT



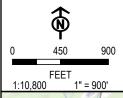
PERENNIAL



TRC DELINEATED WETLAND

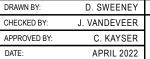
NOTE: STREAM AND WETLAND BOUNDARIES CONFIRMED BY BOTH THE USACE AND PADEP ON APRIL, 26, 2022

BASE MAP: ESRI WORLD IMAGERY SERVICE (JUNE 2018) DATA SOURCES: TRC, CCR



CYPRESS CREEK RENEWABLES, LLC CARDINAL SOLAR, LLC
CRANBERRY TWP, VENANGO COUNTY, PENNSYLVANIA

DELINEATED WETLANDS AND WATERBODIES



PROJ. NO.: 413379.0000

FIGURE 4



317 E CARSON STREET SUITE 338 PITTSBURGH, PA 15219 PHONE: 412-713-7131 CCR CARDINAL WDR

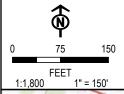


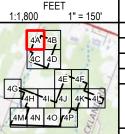


SITE LOCATION TRC DELINEATED WETLAND WETLAND FLAG

 $\mbox{NOTE:}$ STREAM AND WETLAND BOUNDARIES CONFIRMED BY BOTH THE USACE AND PADEP ON APRIL, 26, 2022

BASE MAP: ESRI WORLD IMAGERY SERVICE (JUNE 2018) DATA SOURCES: TRC, CCR





CYPRESS CREEK RENEWABLES, LLC CARDINAL SOLAR, LLC
CRANBERRY TWP, VENANGO COUNTY, PENNSYLVANIA

DELINEATED WETLANDS AND WATERBODIES

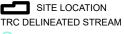
DRAWN BY:	D. SWEENEY	PROJ. NO.:
CHECKED BY:	J. VANDEVEER	
APPROVED BY:	C. KAYSER	
DATE:	APRIL 2022	

413379.0000

FIGURE 4A

TRC

317 E CARSON STREET SUITE 338 PITTSBURGH, PA 15219 PHONE: 412-713-7131





INTERMITTENT TRC DELINEATED WETLAND

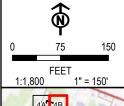
WETLAND FLAG

STREAM FLAG

USACE WETLAND DATA PLOT

NOTE: STREAM AND WETLAND BOUNDARIES CONFIRMED BY BOTH THE USACE AND PADEP ON APRIL, 26, 2022

BASE MAP: ESRI WORLD IMAGERY SERVICE (JUNE 2018) DATA SOURCES: TRC, CCR



CYPRESS CREEK RENEWABLES, LLC CARDINAL SOLAR, LLC
CRANBERRY TWP, VENANGO COUNTY, PENNSYLVANIA

DELINEATED WETLANDS AND WATERBODIES

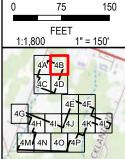
DRAWN BY:	D. SWEENEY
CHECKED BY:	J. VANDEVEER
APPROVED BY:	C. KAYSER
DATE:	APRIL 2022

PROJ. NO.: 413379.0000

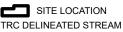
FIGURE 4B

317 E CARSON STREET SUITE 338 PITTSBURGH, PA 15219 PHONE: 412-713-7131

CCR CARDINAL WDR



TRC





PERENNIAL

TRC DELINEATED WETLAND

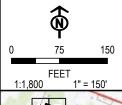
WETLAND FLAG

STREAM FLAG

USACE WETLAND DATA PLOT

NOTE: STREAM AND WETLAND BOUNDARIES CONFIRMED BY BOTH THE USACE AND PADEP ON APRIL, 26, 2022

BASE MAP: ESRI WORLD IMAGERY SERVICE (JUNE 2018) DATA SOURCES: TRC, CCR



CYPRESS CREEK RENEWABLES, LLC CARDINAL SOLAR, LLC
CRANBERRY TWP, VENANGO COUNTY, PENNSYLVANIA

DELINEATED WETLANDS AND WATERBODIES

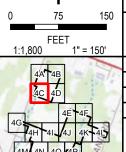
DRAWN BY:	D. SWEENEY	PROJ. NO.:
CHECKED BY:	J. VANDEVEER	
APPROVED BY:	C. KAYSER	
DATE:	APRIL 2022	

FIGURE 4C



317 E CARSON STREET SUITE 338 PITTSBURGH, PA 15219 PHONE: 412-713-7131

413379.0000





75 150 FEET 1:1,800

CYPRESS CREEK RENEWABLES, LLC CARDINAL SOLAR, LLC
CRANBERRY TWP, VENANGO COUNTY, PENNSYLVANIA

DELINEATED WETLANDS AND WATERBODIES

DRAWN BY:	D. SWEENEY
CHECKED BY:	J. VANDEVEER
APPROVED BY:	C. KAYSER
DATE:	APRIL 2022

PROJ. NO.: 413379.0000

FIGURE 4D



317 E CARSON STREET SUITE 338 PITTSBURGH, PA 15219 PHONE: 412-713-7131 CCR CARDINAL WDR

 $\textbf{NOTE} : \mathsf{STREAM} \ \mathsf{AND} \ \mathsf{WETLAND} \ \mathsf{BOUNDARIES} \ \mathsf{CONFIRMED} \ \mathsf{BY} \ \mathsf{BOTH} \ \mathsf{THE}$ USACE AND PADEP ON APRIL, 26, 2022

BASE MAP: ESRI WORLD IMAGERY SERVICE (JUNE 2018) DATA SOURCES: TRC, CCR



75 150 FEET 1" = 150' 1:1,800

CYPRESS CREEK RENEWABLES, LLC CARDINAL SOLAR, LLC
CRANBERRY TWP, VENANGO COUNTY, PENNSYLVANIA

DELINEATED WETLANDS AND WATERBODIES

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CHECKED BY:	J. VANDEVEER
APPROVED BY:	C. KAYSER
DATE:	V D D II 2022

PROJ. NO.: 413379.0000

FIGURE 4E

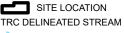


317 E CARSON STREET SUITE 338 PITTSBURGH, PA 15219 PHONE: 412-713-7131

CCR CARDINAL WDR

BASE MAP: ESRI WORLD IMAGERY SERVICE (JUNE 2018) DATA SOURCES: TRC, CCR

 $\mbox{NOTE} : \mbox{STREAM}$ AND WETLAND BOUNDARIES CONFIRMED BY BOTH THE USACE AND PADEP ON APRIL, 26, 2022



INTERMITTENT

PERENNIAL

TRC DELINEATED WETLAND

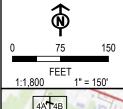
WETLAND FLAG

STREAM FLAG

USACE WETLAND DATA PLOT

NOTE: STREAM AND WETLAND BOUNDARIES CONFIRMED BY BOTH THE USACE AND PADEP ON APRIL, 26, 2022

BASE MAP: ESRI WORLD IMAGERY SERVICE (JUNE 2018) DATA SOURCES: TRC, CCR



CYPRESS CREEK RENEWABLES, LLC CARDINAL SOLAR, LLC
CRANBERRY TWP, VENANGO COUNTY, PENNSYLVANIA

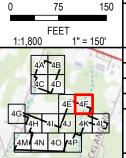
DELINEATED WETLANDS AND WATERBODIES

DRAWN BY:	D. SWEENEY	
CHECKED BY:	J. VANDEVEER	
APPROVED BY:	C. KAYSER	
DATE:	APRIL 2022	

ROJ. NO.: 413379.0000 FIGURE 4F

317 E CARSON STREET SUITE 338 PITTSBURGH, PA 15219 PHONE: 412-713-7131

CCR CARDINAL WDR



TRC



DATA SOURCES: TRC, CCR

75 150 FEET 1:1,800

CYPRESS CREEK RENEWABLES, LLC CARDINAL SOLAR, LLC
CRANBERRY TWP, VENANGO COUNTY, PENNSYLVANIA

DELINEATED WETLANDS AND WATERBODIES

DRAWN BY:	D. SWEENEY	Pl
CHECKED BY:	J. VANDEVEER	
APPROVED BY:	C. KAYSER	
DATE:	ADDII 2022	

ROJ. NO.: 413379.0000

FIGURE 4G

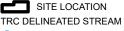


317 E CARSON STREET SUITE 338 PITTSBURGH, PA 15219 PHONE: 412-713-7131

CCR CARDINAL WDR

BASE MAP: ESRI WORLD IMAGERY SERVICE (JUNE 2018)

 $\mbox{NOTE}\colon\mbox{STREAM}$ AND WETLAND BOUNDARIES CONFIRMED BY BOTH THE USACE AND PADEP ON APRIL, 26, 2022





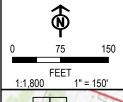
PERENNIAL

TRC DELINEATED WETLAND

- WETLAND FLAG
- STREAM FLAG
- USACE WETLAND DATA PLOT

NOTE: STREAM AND WETLAND BOUNDARIES CONFIRMED BY BOTH THE USACE AND PADEP ON APRIL, 26, 2022

BASE MAP: ESRI WORLD IMAGERY SERVICE (JUNE 2018) DATA SOURCES: TRC, CCR



CYPRESS CREEK RENEWABLES, LLC CARDINAL SOLAR, LLC
CRANBERRY TWP, VENANGO COUNTY, PENNSYLVANIA

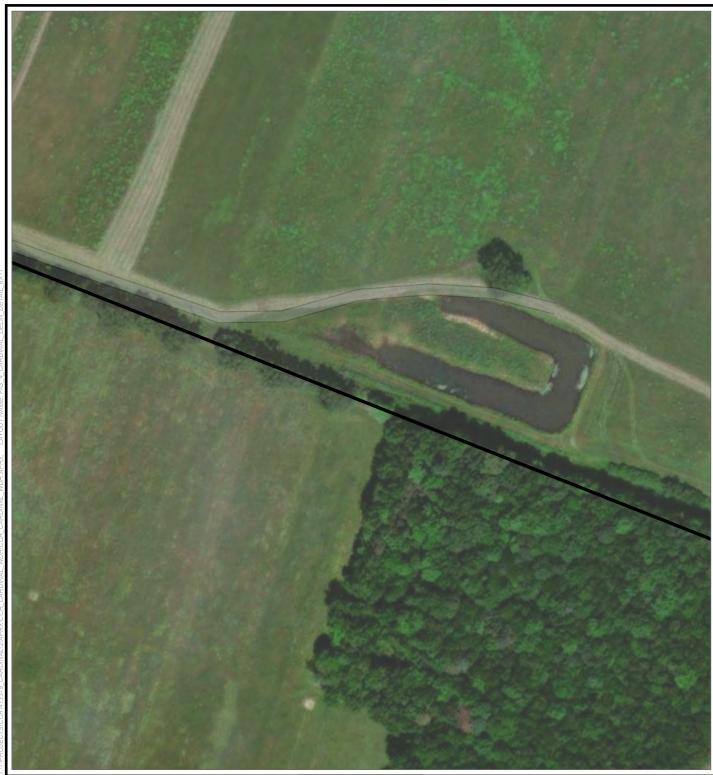
DELINEATED WETLANDS AND WATERBODIES

DRAWN BY:	D. SWEENEY	PROJ. NO.:	4133
CHECKED BY:	J. VANDEVEER		
APPROVED BY:	C. KAYSER	FIGUR	E 4H
DATE:	APRIL 2022		



317 E CARSON STREET SUITE 338 PITTSBURGH, PA 15219 PHONE: 412-713-7131

413379.0000



75 150 FEET <u>1" = 150'</u> 1:1,800

CYPRESS CREEK RENEWABLES, LLC CARDINAL SOLAR, LLC
CRANBERRY TWP, VENANGO COUNTY, PENNSYLVANIA

DELINEATED WETLANDS AND WATERBODIES

D. SWEENEY DRAWN BY: PROJ. NO.: J. VANDEVEER CHECKED BY: APPROVED BY: C. KAYSER

413379.0000

APRIL 2022

FIGURE 41



317 E CARSON STREET SUITE 338 PITTSBURGH, PA 15219 PHONE: 412-713-7131 CCR CARDINAL WDR

USACE AND PADEP ON APRIL, 26, 2022

 $\textbf{NOTE} : \mathsf{STREAM} \ \mathsf{AND} \ \mathsf{WETLAND} \ \mathsf{BOUNDARIES} \ \mathsf{CONFIRMED} \ \mathsf{BY} \ \mathsf{BOTH} \ \mathsf{THE}$

BASE MAP: ESRI WORLD IMAGERY SERVICE (JUNE 2018) DATA SOURCES: TRC, CCR



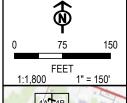


WETLAND FLAG

USACE WETLAND DATA PLOT

NOTE: STREAM AND WETLAND BOUNDARIES CONFIRMED BY BOTH THE USACE AND PADEP ON APRIL, 26, 2022

BASE MAP: ESRI WORLD IMAGERY SERVICE (JUNE 2018) DATA SOURCES: TRC, CCR



CYPRESS CREEK RENEWABLES, LLC CARDINAL SOLAR, LLC
CRANBERRY TWP, VENANGO COUNTY, PENNSYLVANIA

DELINEATED WETLANDS AND WATERBODIES

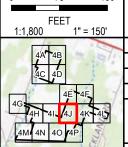
DRAWN BY:	D. SWEENEY	
CHECKED BY:	J. VANDEVEER	
APPROVED BY:	C. KAYSER	
DATE:	APRIL 2022	

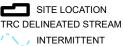
PROJ. NO.: 413379.0000

FIGURE 4J



317 E CARSON STREET SUITE 338 PITTSBURGH, PA 15219 PHONE: 412-713-7131







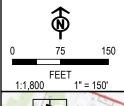
TRC DELINEATED WETLAND

WETLAND FLAG

STREAM FLAG

NOTE: STREAM AND WETLAND BOUNDARIES CONFIRMED BY BOTH THE USACE AND PADEP ON APRIL, 26, 2022

BASE MAP: ESRI WORLD IMAGERY SERVICE (JUNE 2018) DATA SOURCES: TRC, CCR



CYPRESS CREEK RENEWABLES, LLC CARDINAL SOLAR, LLC
CRANBERRY TWP, VENANGO COUNTY, PENNSYLVANIA

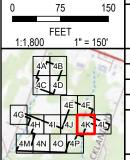
DELINEATED WETLANDS AND WATERBODIES

DRAWN BY:	D. SWEENEY	
CHECKED BY:	J. VANDEVEER	
APPROVED BY:	C. KAYSER	
DATE:	APRIL 2022	

PROJ. NO.: 413379.0000

FIGURE 4K

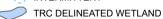
317 E CARSON STREET SUITE 338 PITTSBURGH, PA 15219 PHONE: 412-713-7131



SITE LOCATION TRC DELINEATED STREAM



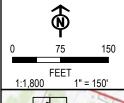
INTERMITTENT



- WETLAND FLAG
- STREAM FLAG
- USACE WETLAND DATA PLOT

NOTE: STREAM AND WETLAND BOUNDARIES CONFIRMED BY BOTH THE USACE AND PADEP ON APRIL, 26, 2022

BASE MAP: ESRI WORLD IMAGERY SERVICE (JUNE 2018) DATA SOURCES: TRC, CCR



CYPRESS CREEK RENEWABLES, LLC CARDINAL SOLAR, LLC
CRANBERRY TWP, VENANGO COUNTY, PENNSYLVANIA

DELINEATED WETLANDS AND WATERBODIES

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CHECKED BY:	J. VANDEVEER	
APPROVED BY:	C. KAYSER	
DATE:	ADDII 2022	

PROJ. NO.:

413379.0000

317 E CARSON STREET SUITE 338 PITTSBURGH, PA 15219 PHONE: 412-713-7131

FIGURE 4L



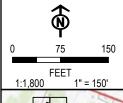
TRC DELINEATED WETLAND

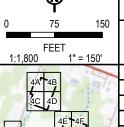
WETLAND FLAG

USACE WETLAND DATA PLOT

 $\mbox{NOTE}\colon\mbox{STREAM}$ AND WETLAND BOUNDARIES CONFIRMED BY BOTH THE USACE AND PADEP ON APRIL, 26, 2022

BASE MAP: ESRI WORLD IMAGERY SERVICE (JUNE 2018) DATA SOURCES: TRC, CCR





CYPRESS CREEK RENEWABLES, LLC CARDINAL SOLAR, LLC
CRANBERRY TWP, VENANGO COUNTY, PENNSYLVANIA

DELINEATED WETLANDS AND WATERBODIES

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APPROVED BY:	C. KAYSER
DATE:	APRIL 2022

PROJ. NO.: 413379.0000

FIGURE 4M

TRC

317 E CARSON STREET SUITE 338 PITTSBURGH, PA 15219 PHONE: 412-713-7131



75 150 FEET 1" = 150' 1:1,800

CYPRESS CREEK RENEWABLES, LLC CARDINAL SOLAR, LLC
CRANBERRY TWP, VENANGO COUNTY, PENNSYLVANIA

DELINEATED WETLANDS AND WATERBODIES

DRAWN BY:	D. SWEENEY	
CHECKED BY:	J. VANDEVEER	
APPROVED BY:	C. KAYSER	
DATE:	ADDII 2022	

PROJ. NO.: 413379.0000

FIGURE 4N

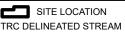


317 E CARSON STREET SUITE 338 PITTSBURGH, PA 15219 PHONE: 412-713-7131

CCR CARDINAL WDR

 ${\bf NOTE} :$ STREAM AND WETLAND BOUNDARIES CONFIRMED BY BOTH THE USACE AND PADEP ON APRIL, 26, 2022

BASE MAP: ESRI WORLD IMAGERY SERVICE (JUNE 2018) DATA SOURCES: TRC, CCR





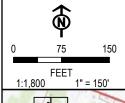
INTERMITTENT

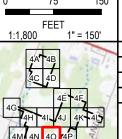
TRC DELINEATED WETLAND

- WETLAND FLAG
- STREAM FLAG
- USACE WETLAND DATA PLOT

NOTE: STREAM AND WETLAND BOUNDARIES CONFIRMED BY BOTH THE USACE AND PADEP ON APRIL, 26, 2022

BASE MAP: ESRI WORLD IMAGERY SERVICE (JUNE 2018) DATA SOURCES: TRC, CCR





CYPRESS CREEK RENEWABLES, LLC CARDINAL SOLAR, LLC
CRANBERRY TWP, VENANGO COUNTY, PENNSYLVANIA

DELINEATED WETLANDS AND WATERBODIES

DRAWN BY:	D. SWEENEY	PROJ. NO.: 413379.0000	
CHECKED BY:	J. VANDEVEER		
APPROVED BY:	C. KAYSER	FIGURE 40	
DATE:	APRIL 2022		

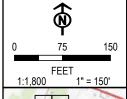


317 E CARSON STREET SUITE 338 PITTSBURGH, PA 15219 PHONE: 412-713-7131



 $\mbox{NOTE}\colon \mbox{STREAM}$ AND WETLAND BOUNDARIES CONFIRMED BY BOTH THE USACE AND PADEP ON APRIL, 26, 2022

BASE MAP: ESRI WORLD IMAGERY SERVICE (JUNE 2018) DATA SOURCES: TRC, CCR



PROJECT: CYPRESS CREEK RENEWABLES, LLC
CARDINAL SOLAR, LLC
CRANBERRY TWP, VENANGO COUNTY, PENNSYLVANIA

DELINEATED WETLANDS AND WATERBODIES

DRAWN BY:	D. SWEENEY	PROJ. NO.:
CHECKED BY:	J. VANDEVEER	
APPROVED BY:	C. KAYSER	I
DATE:	APRIL 2022	

FIGURE 4P



317 E CARSON STREET SUITE 338 PITTSBURGH, PA 15219 PHONE: 412-713-7131

413379.0000

CCR_CARDINAL_WDR

:OORDINATE SYSTEM: NAD 1983 2011 STATEPLANE PENNSYLVANIA NORTH FIP