

Wetland Delineation Report
Russellville Solar
Watermelon Road
Russellville, Logan County, Kentucky

July 31, 2019

Terracon Project No. N1197212



Prepared for:

Community Energy Solar, LLC
Chapel Hill, North Carolina

Prepared by:

Terracon Consultants, Inc.
Cincinnati, Ohio

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July 31, 2019



Community Energy Solar, LLC
151 E. Rosemary Street
Suite 202
Chapel Hill, North Carolina 27514-3539

Attn: Mr. Chris Killenberg – Director
P: (919) 967-7063
E: chris.killenberg@communityenergyinc.com

RE: Wetland Delineation Report
Russellville Solar
Watermelon Road
Russellville, Logan County, Kentucky
Terracon Project No. N1197212

Dear Mr. Killenberg,

Terracon is pleased to submit the Wetland Delineation Report for the above referenced project. Based on the results of the assessment, Terracon observed thirteen wetlands, fifteen streams, and fifteen ponds on the project site.

A cover letter addressed to the U.S. Army Corps of Engineers (USACE) has been included with the enclosed report; however, a copy of this report has not been provided to USACE by Terracon. A copy of the Wetland Delineation Report and attached letter should be submitted to USACE for review and concurrence. USACE can be reached at the following address:

US Army Corps of Engineers – Louisville District
OPF-N, Room 752
P.O. Box 59
Louisville, KY 40201-0059

Terracon appreciates the opportunity to have worked for you on this project. If you have any questions regarding the content of this report, please contact me at (513) 612-9094 or via email at swest@terracon.com.

Sincerely,
Terracon Consultants, Inc.

Cassie Brendel
Field Scientist

Scott E. West
Group Manager



Terracon Consultants, Inc 611 Lunken Park Drive Cincinnati, OH 45226
P (513) 321-5816 F (513) 321-0294 terracon.com

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July 31, 2019

US Army Corps of Engineers – Louisville District
OPF-N, Room 752
P.O. Box 59
Louisville, KY 40201-0059

RE: Wetland Delineation Report
Russellville Solar
Watermelon Road
Russellville, Logan County, Kentucky
Terracon Project No. N1197212

Regulatory Branch:

Terracon is pleased to submit the Wetland Delineation Report prepared for Community Energy Solar, LLC for the abovementioned project. This assessment describes the observations made during our site visit and other sources of information used to investigate the site for wetlands and other waterbodies. Based on the results of the assessment, the site appears to have thirteen wetlands, fifteen streams, and fifteen ponds within its boundaries. At this time, we are requesting that your office perform a review of the report for the project and advise our client if a permit will be required for any proposed impacts.

If you have any questions concerning this report, please contact Scott West at (513) 612-9094 or by e-mail at swest@terracon.com.

Sincerely,
TERRACON Consultants, Inc.

Cassie Brendel
Field Scientist

Scott E. West
Group Manager

Copy to: Mr. Chris Killenberg

terracon.com



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**Wetland Delineation Report
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Russellville, Logan County, Kentucky
Terracon Project No. N1197212
July 31, 2019**

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) was retained by Community Energy Solar, LLC (client) to perform a wetland delineation to determine if wetlands or other waters under the jurisdiction of the United States Army Corps of Engineers (USACE) and the Kentucky Department of Environmental Protection (KDEP) Division of Water (DOW) are present at the approximately 1,600-acre parcel, hereafter referred to as the project site. The project site is located on the east side of Watermelon Road, Russellville, Logan County, Kentucky. The site location is depicted on Exhibit 1 in Appendix A.

The purpose of performing a wetland delineation at the project site was to characterize the existing site conditions, observe the project site for suspect waterbodies and wetlands and provide a recommendation regarding whether or not suspect waterbodies (if observed) would be considered jurisdictional.

It is important to note that the findings presented in this report represent Terracon's professional opinion, based upon field observations made during the site visit and our experience with current regulatory guidance under the Clean Water Act. In order to verify the delineation boundaries and jurisdictional classifications presented in this report, the USACE must review this report and make a jurisdictional determination.

2.0 SCOPE OF SERVICES

Terracon performed the following scope of work:

- Reviewed United States Geologic Survey (USGS) topographical maps, National Wetlands Inventory (NWI) maps, United States Department of Agriculture (USDA) National Resource Conservation Service (NRCS) Soil Survey Geographic Database (SSURGO) soil maps and surveys, Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), and aerial photographs to assist with identifying suspect Waters of the United States (WOUS) at the project site;
- Mobilized to the project site to conduct the preliminary site visit;
- Prepared a map showing approximate locations of suspect waterbodies or wetland areas observed during the site visit, if any; and

- Completed a Wetland Delineation Report that included project site characterization information, a discussion of applicable data, and recommendations for the project site.

3.0 PRELIMINARY DATA GATHERING AND ANALYSIS

Prior to performing the delineation, several map and aerial photograph resources were reviewed to assist with identifying potential WOUS at the project site. Each source of data is described in detail below.

3.1 Topographic Map

The USGS 7.5-Minute Topographic Map of the project site was reviewed to identify potential water features within the project site boundaries. The project site appears to consist of vacant land with various waterbodies within its boundaries. Four intermittent streams are depicted across the project site; one flowing across the northwestern portion, one connecting to a pond and wetlands in the southwestern portion, one flowing offsite in the northeastern portion, and one flowing offsite in the southeastern portion. Three wetland areas are indicated across the project site; one in the northwestern portion, one in the southwestern portion, and one in the northeastern portion. Additionally, approximately twenty ponds are depicted throughout the project site. The slope ranges from approximately 600 to 650 feet while generally sloping to the south-southeast. A portion of the Russellville, Kentucky USGS Quadrangle can be seen as Exhibit 1 in Appendix A.

3.2 National Wetland Inventory Map

The NWI Map of the project site was reviewed to identify potential wetland areas. The map for the project site was published by the U.S. Department of the Interior’s Fish and Wildlife Service and depicts probable wetland areas based on stereoscopic analysis of high-altitude aerial photographs and analysis of infrared bands from remotely-sensed imagery. The NWI map data for the project site can be seen as Exhibit 2 in Appendix A.

Number and Type of Feature	Cowardin Classification	General Location
One unconsolidated bottom pond, semi-permanently flooded	PUBF	Northwestern portion of the site.
Nine unconsolidated bottom ponds, permanently flooded, excavated	PUBHx	
One forested/shrub wetland, semi-permanently flooded	PFO1F	
One unconsolidated bottom pond, semi-permanently flooded, excavated	PUBFx	
One intermittent stream	R4SBC	
Two intermittent streams	R4SBC	

Number and Type of Feature	Cowardin Classification	General Location
One unconsolidated bottom pond, permanently flooded, diked/impounded	PUBHh	Southwestern portion of the site.
Five unconsolidated bottom ponds, permanently flooded, excavated	PUBHx	
Two emergent wetlands, temporarily flooded	PEM1A	
One forested wetland, seasonally flooded	PFO1C	
Two forested wetlands, seasonally flooded	PFO1C	Northeastern portion of the site.
One unconsolidated bottom pond, semi-permanently flooded	PUBF	
Three unconsolidated bottom ponds, permanently flooded, excavated	PUBHx	
One unconsolidated bottom pond, semi-permanently flooded, excavated	PUBFx	Southeastern portion of the site.
One unconsolidated bottom pond, permanently flooded, excavated	PUBHx	
One unconsolidated bottom pond, semi-permanently flooded, excavated	PUBFx	

3.3 Soil Survey

Data from the soil survey of Logan County, Kentucky was reviewed to identify soil types, including hydric soils. Data for the soil survey was compiled by the USDA NRCS in 1975. Hydric soils information was gathered from the 'National Hydric Soils List' (USDA Natural Resource Conservation Service, current). A soil survey map is included as Exhibit 3 in Appendix A.

The following soil types were identified within the project site on the soil survey map:

- Baxter cherty silty loam 12 to 20 percent slopes (BaD): This soil is classified as deep, well drained and is found on sides of ridges. This map unit is not classified as hydric.
- Baxter cherty silty clay loam 6 to 12 percent slopes, severely eroded (BbC3): This soil is classified as deep, well drained, and is found on narrow ridgetops. This map unit is not classified as hydric.
- Crider silt loam, 0 to 2 percent slopes (CrA): This soil is classified as nearly level, deep, well drained, and is found on broad ridgetops. This map unit is not classified as hydric.
- Crider silt loam, 2 to 6 percent slopes (CrB): This soil is classified as nearly level, deep, well drained, and is found on broad ridgetops. This map unit is not classified as hydric.
- Crider silt loam 6 to 12 percent slopes (CrC): This soil is classified as nearly level, deep, well drained, and is found on long, narrow ridgetops and side slopes. This map unit is not classified as hydric.

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- Lawrence silt loam (La): This soil is classified as nearly level, somewhat poorly drained, and is found on stream terraces and concave uplands. This map unit is classified as hydric.
- Lindside silt loam (Ld): This soil is classified as deep, moderately well drained, and is found on flood plains and upland depressions. This map unit is not classified as hydric.
- Melvin silt loam (Me): This soil is classified as nearly level, deep, poorly drained, and is found on flood plains. This map unit is not classified as hydric.
- Newark silt loam (Ne): This soil is classified as nearly level, somewhat poorly drained, and is found on flood plains. This map unit is classified as hydric.
- Nicholson silt loam, 0 to 2 percent slopes (NhA): This soil is classified as moderately well drained and is found on broad ridgetops and low stream terraces. This map unit is not classified as hydric.
- Nicholson silt loam, 2 to 6 percent slopes (NhB): This soil is classified as moderately well drained and is found on broad ridgetops and stream terraces. This map unit is not classified as hydric.
- Nolin silt loam (No): This soil is classified as nearly level, deep, well drained and is found on flood plains and upland depressions. This map unit is not classified as hydric.
- Pembroke silt loam, 0 to 2 percent slopes (PeA): This soil is classified as nearly level to sloping, deep, well drained, and is found on broad ridgetops. This map unit is not classified as hydric.
- Pembroke silt loam, 2 to 6 percent slopes (PeB): This soil is classified as nearly level to sloping, deep, well drained, and is found on broad ridgetops. This map unit is not classified as hydric.
- Pembroke silt loam, 6 to 12 percent slopes (PeC): This soil is classified as nearly level to sloping, deep, well drained, and is found on broad ridgetops. This map unit is not classified as hydric.
- Pembroke silty clay loam 6 to 12 percent slopes, severely eroded (PfC3): This soil is classified as level to sloping, deep, well drained, and is found on broad ridgetops. This map unit is not classified as hydric.
- Pickwick silty clay loam, 6 to 12 percent slopes, severely eroded (PfC3): This soil is classified as deep, well-drained soils, and is found on sides of ridges. This map unit is not classified as hydric.

3.4 Aerial Photographs

A recent aerial photograph (2018) of the project site was reviewed to determine land use and evaluate vegetative cover. The aerial photograph shows the project site to consist predominately of agricultural, forested, and grassy land. Additionally, multiple barn and farm house structures are apparent throughout the site. For reference, the aerial photograph has been included as Exhibit 4 in Appendix A.

3.5 FEMA FIRM Data

Terracon reviewed FEMA FIRM data (Panel #s:21141C0275D, 10/2/2012, 21141C0270D, 10/2/2012) to identify areas that may have elevated likelihoods of containing WOUS. The FEMA FIRM data indicated that the project site is predominately in Zone X, an area of minimal flood hazard. A small portion of the northeastern corner of the site lies in the 1% Annual Chance Flood Hazard. This data is included as Exhibit 5 in Appendix A.

4.0 FIELD TECHNIQUES

Terracon personnel, Cassie Brendel and Jim Schwieterman, conducted a reconnaissance of the project site on July 9 and 10, 2019, to characterize the existing site conditions and observe for the presence of wetlands and potential jurisdictional waters. Characteristics of jurisdictional waters and the wetland area were assessed utilizing the criteria detailed in sections 4.1 and 4.2 of this report. The evaluation methods generally followed the routine on-site determination method referenced in the 1987 USACE Manual and 2012 Midwest Regional Supplement.

4.1 Wetland Observations

Wetlands generally have three essential characteristics: hydrophytic (wetland) vegetation, hydric soils, and wetland hydrology. Based on NWI data, aerial imagery and topographical data, on-site areas were investigated for potential wetland properties. Additional areas were investigated, based on observations made during site reconnaissance. Data regarding the three essential characteristics was gathered within observed suspect wetland areas to further delineate boundaries.

4.1.1 Plant Community Assessment

Suspect areas were visually observed to determine the species, when possible, and absolute percentage of ground cover for four stratum of plant community types. Herbs were generally observed within a five-foot radius, shrubs/saplings within a fifteen-foot radius, and trees and vines within a thirty-foot radius of the observation location.

For each species of vegetation observed, their wetland indicator status was evaluated. Indicator status was determined using the NRCS Plants Database. Indicator categories for vegetation are presented below:

- **Obligate Wetland (OBL)** - occur almost always (estimated probability greater than 99%) under natural conditions in wetlands.
- **Facultative Wetland (FACW)** - usually occur in wetlands (estimated probability 67% - 99%) but occasionally found in non-wetlands.

- **Facultative (FAC)** - equally likely to occur in wetlands or non-wetlands (estimated probability 34% - 66%).
- **Facultative Upland (FACU)** - usually occur in non-wetlands (estimated probability 67% - 99%) but occasionally found in wetlands.
- **Obligate Upland (UPL)** – rarely occur in wetlands, but occur almost always (estimated probability greater than 99%) under natural conditions in non-wetlands.

The percent cover of each stratum was determined and dominance was evaluated. Dominant species were the most abundant species that accounted for more than 20 percent of the absolute percent coverage of the stratum. The number of dominant species with an indicator status of OBL, FACW, and/or FAC was compared to the total number of dominant species across all strata. Typically, when more than 50 percent of the dominant species had an indicator status of OBL, FACW, and/or FAC, hydrophytic vegetation was present.

If the percentage of dominant species with an indicator status of OBL, FACW, and/or FAC was less than 50 percent, prevalence index and morphological adaptations may have been evaluated to confirm if hydrophytic vegetation was present or absent.

4.1.2 Hydric Soils Assessment

After Terracon evaluated wetland vegetation, subsurface soil samples were collected using a soil probe. The samples were collected to a depth of approximately 15 inches below ground surface and were visually compared to Munsell Soil Color Charts (Munsell, 2009), which aided in the evaluation of hydric soil characteristics. The soil samples were further examined for hydric soil indicators including, but not limited to, histosol, thick dark surface, sandy gleyed matrix, sandy redox, loamy gleyed matrix, redox dark surface, and/or redox depressions. If these or other hydric soil indicators were observed in the subsurface soil sample, the observation location was considered to have hydric soil.

4.1.3 Wetland Hydrology Assessment

Visual indicators of wetland hydrology were evaluated. Examples of primary wetland hydrology indicators include, but are not limited to, surface water, high water table, soil saturation, water marks, sediment deposits, drift deposits, iron deposits, inundation visible on aerial imagery, sparsely vegetated concave surface, and water-stained leaves. If at least one primary or two secondary indicators were observed, the observation location was considered to have wetland hydrology.

4.1.4 Classification of Wetlands

Upon completion of the review of the three wetland criteria at each area, a wetland determination was made. Under normal circumstances, if one or more of the wetland criteria

were not identified, the area was not considered to be a wetland. If all three wetland indicators were identified, the area was classified as wetland. Additional observations were made throughout the wetland area to define the wetland/non-wetland boundary. Vegetation, soil and hydrology assessment data from at least one location within the wetland and one upland location outside of the wetland were recorded on a USACE Wetland Determination Form.

4.2 Other Waters Observations

Terracon also made observations of site features that may be considered a jurisdictional waterbody. If a potential jurisdictional waterbody was identified, observations regarding its characteristics were recorded. Potential jurisdictional waterbodies were evaluated based on the observation of the following characteristics:

- Flow Characteristics:
 - Perennial: contains water at all times except during extreme drought.
 - Intermittent: carries water a considerable portion of the time, but ceases to flow occasionally or seasonally.
 - Ephemeral: carries water only during and immediately after periods of rainfall or snowmelt.
- Ordinary High Water Mark:
 - The limit line on the shore established by the fluctuation of the water surface. It is shown by such things as a clear line impressed on the bank, shelving, changes in soil character, destruction of terrestrial vegetation, the presence of litter and debris or other features influenced by the surrounding area.
- Bank Shape Descriptions:
 - Undercut: banks that overhang the stream channel
 - Steep: bank slope of approximately greater than 30 degrees
 - Gradual: bank slope of approximately 30 degrees or less
- Aquatic Habitat Descriptions:
 - Pool: deeper portion of a stream where water flows slower than in neighboring, shallower portions, smooth surface, and finer substrate
 - Riffle: shallow area in a stream where water flows swiftly over gravel and rock or other coarse substrate resulting in a rough flow and a turbulent surface
 - Run: section of a stream with a low or high velocity and with little or no turbulence on the surface of the water.

5.0 FIELD OBSERVATIONS RESULTS

On July 9 and 10, 2019, Terracon performed field observations at the project site. Thirteen wetlands, fifteen streams, fifteen ponds, and eleven karst features were identified within the project site boundaries. Ground photographs, included in Appendix B, provide an indication of the

physical characteristics observed during the site visit. Descriptions of the observed areas are listed in the following sections.

5.1 Plant Communities Found at Site

5.1.1 Scrub-Shrub/Emergent Wetlands

The dominant plant species found in the scrub-shrub, emergent wetlands were rice cut grass (*Leersia oryzoides*), Virginia whitegrass (*Leersia virginica*), broome sedge (*Carex scoparia*), swamp smartweed (*Polygonum hydropiperoides*), green ash (*Fraxinus pennsylvanica*) saplings, black willow (*Salix nigra*), deertongue (*Dichanthelium clandestinum*), brome-like sedge (*Carex bromoides*), American elm (*Ulmus americana*) saplings, longhair sedge (*Carex comosa*), boxelder (*Acer negundo*) saplings, fox sedge (*Carex vulpinoidea*), fowl mannagrass (*Glyceria striata*), and cattail sedge (*Carex typhina*).

5.1.2 Forested Wetlands

The dominant plant species found in the forested wetlands were red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), pin oak (*Quercus palustris*), sugarberry (*Celtis laevigata*), dotted smartweed (*Polygonum punctatum*), and swamp smartweed.

5.1.3 Agricultural Uplands

The dominant plant species found in the agricultural uplands were corn (*Zea mays*), tobacco (*Nicotiana tabacum*), and soybean (*Glycine max*).

5.1.4 Forested Uplands

The dominant plant species found in the forested uplands were black walnut (*Juglans nigra*), pawpaw (*Asimina triloba*), American beech (*Fagus grandifolia*), red maple, Amur honeysuckle (*Lonicera maackii*), mayapple (*Podophyllum peltatum*), and poison ivy (*Toxicodendron radicans*).

Photographs of the project site and on-site waters are attached in Appendix B.

5.2 Wetland Area Description

The following wetlands were observed at the project site during the site reconnaissance.

WETLAND	SIZE (ACRES)	COWARDIN CLASSIFICATION	WATER SOURCES	USACE JURISDICTIONAL
A	0.95	PFO	Precipitation, Surface Runoff	Yes; adjacent to off-site stream
B	1.11	PEM	Precipitation, Surface Runoff	Yes; adjacent to Stream 1
C	0.88	PFO	Precipitation, Surface Runoff	Yes; neighboring Stream 2
D	0.09	PEM	Precipitation, Surface Runoff	Yes; neighboring Stream 2

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E	0.14	PEM	Precipitation, Surface Runoff	Yes; neighboring Stream 2
F	1.84	PFO	Precipitation, Surface Runoff, Streams 4 and 10, Pond 7	Yes; adjacent to Streams 4 and 9
G	0.18	PEM	Precipitation, Surface Runoff, Pond 8	Yes; neighboring Streams 4 and 9
H	0.08	PEM/PSS	Precipitation, Surface Runoff	Yes; neighboring Stream 13
I	0.03	PEM/PSS	Precipitation, Surface Runoff	Yes; adjacent to Stream 13
J	3.27	PFO	Precipitation, Surface Runoff	Yes; neighboring Stream 12
K	1.22	PFO	Precipitation, Surface Runoff	Yes; neighboring Stream 12
L	0.74	PEM	Precipitation, Surface Runoff, Stream 14	Yes; adjacent to Stream 14
M	0.05	PEM	Precipitation, Surface Runoff	Yes; neighboring Stream 2
TOTAL	10.58 acres			

PEM – Palustrine emergent wetland; PSS – Palustrine scrub-shrub wetland; PFO - Palustrine forested wetland

Terracon considers these on-site wetlands jurisdictional based on their adjacent and neighboring locations to tributaries of an off-site anchor water, Red River.

5.3 Streams

The following streams were observed at the project site during the site reconnaissance:

STREAM	LENGTH (LINEAR FEET)	FLOW REGIME	AVERAGE STREAM WIDTH AT TOP OF BANK (FEET)
1	207	Ephemeral	2-4
2	4,599	Intermittent	10-12
3	1,537	Intermittent	4-6
4	186	Ephemeral	2-4
5	365	Ephemeral	4-6
5A	75	Ephemeral	2-4
6	84	Ephemeral	2-4
7	60	Ephemeral	2-4
8	16	Ephemeral	2-4
9	28	Ephemeral	2-4
10	171	Ephemeral	2-4
11	778	Ephemeral	2-4
12	1,466	Ephemeral	4-6
13	685	Ephemeral	2-4

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STREAM	LENGTH (LINEAR FEET)	FLOW REGIME	AVERAGE STREAM WIDTH AT TOP OF BANK (FEET)
14	325	Ephemeral	2-4
TOTAL	10,582 ft		

Streams 2, 5, 6, 7, 8, 9, and 10 are drained by karst features, sinkholes leading to underground drainage systems. Due to their neighboring and adjacent locations to on-site waters and significant nexus to the off-site anchor water, Red River, Terracon considers these streams jurisdictional. Additionally, Terracon considers the remaining on-site streams jurisdictional based on their connection, as tributaries, to an off-site anchor water, Red River.

5.4 Other Waters

Other waters (ponds) were observed at the project site during the site reconnaissance:

POND	SIZE (ACRES)	COWARDIN CLASSIFICATION	WATER SOURCES	USACE JURISDICTIONAL
1	0.92	PUB	Precipitation, Surface Runoff	No
2	0.70	PUB	Precipitation, Surface Runoff	No
3	0.42	PUB	Precipitation, Surface Runoff	No
4	0.46	PUB	Precipitation, Surface Runoff	No
5	0.70	PUB	Precipitation, Surface Runoff	No
6	0.25	PUB	Precipitation, Surface Runoff	Yes; adjacent to Wetland C and neighboring Stream 2
7	0.81	PUB	Precipitation, Surface Runoff	Yes; adjacent to Stream 4 and neighboring Wetland F
8	0.23	PUB	Precipitation, Surface Runoff	Yes; adjacent to Wetland G and Stream 9
9	0.70	PUB	Precipitation, Surface Runoff	Yes; neighboring Wetland H and Stream 13
10	0.31	PUB	Precipitation, Surface Runoff	No
11	0.26	PUB	Precipitation, Surface Runoff	Yes; adjoining Wetland J
12	0.22	PUB	Precipitation, Surface Runoff	Yes; neighboring Wetlands J and K
13	0.29	PUB	Precipitation, Surface Runoff	No

14	0.35	PUB	Precipitation, Surface Runoff	No
15	0.74	PUB	Precipitation, Surface Runoff	Yes; neighboring Stream 2
TOTAL	7.36 ac			

Terracon considers Ponds 6, 7, 8, 9, 11, 12, and 15 jurisdictional based on their neighboring and adjacent locations to waters on-site, which connect to an off-site anchor water, Red River. Ponds 1, 2, 3, 4, 5, 10, 13, and 14 are considered non-jurisdictional as they do not have a significant connection to any on-site waters.

Additionally, eleven karst features (five standalone and six associated with streams) were observed on-site during the site reconnaissance. These features are connected to sinkholes which connect to underground drainage systems. These features are not considered jurisdictional.

6.0 SUMMARY AND CONCLUSIONS OF FIELD OBSERVATIONS

A wetland delineation of an approximate 1,600-acre site located in Russellville, Kentucky was conducted on July 9 and 10, 2019. A review of the project site was conducted utilizing readily available information including, but not limited to, topographical, aerial and wetland data. In addition, a preliminary site visit was performed to characterize the existing site conditions and observe the project site for suspect waterbodies and wetlands (if any). A summary of field observations and conclusions concerning jurisdictional status is outlined in the following sections.

6.1 Wetlands

Thirteen wetlands, totaling 10.58 acres, were observed on the project site. It is Terracon’s opinion that these on-site wetlands jurisdictional based on their adjacent and neighboring locations to tributaries of an off-site anchor water, Red River.

6.2 Streams

Fifteen streams, totaling 10,582 linear feet, were observed on the project site during the site reconnaissance. Terracon considers the on-site streams jurisdictional based on their connection to an off-site anchor water, Red River.

6.3 Other Waters

Fifteen ponds, totaling 7.36 acres, were observed on the project site during the site reconnaissance. Terracon considers Ponds 6, 7, 8, 9, 11, 12, and 15 jurisdictional based on their neighboring and adjacent locations to on-site waters, which connect to an off-site anchor water, Red River. Ponds 1, 2, 3, 4, 5, 10, 13, and 14 are considered non-jurisdictional as they do not appear to have a significant connection to any on-site waters.

Additionally, eleven karst features (five standalone and six associated with streams) were observed on-site during the site reconnaissance. These features are connected to sinkholes which connect to underground drainage systems. These features are not considered jurisdictional.

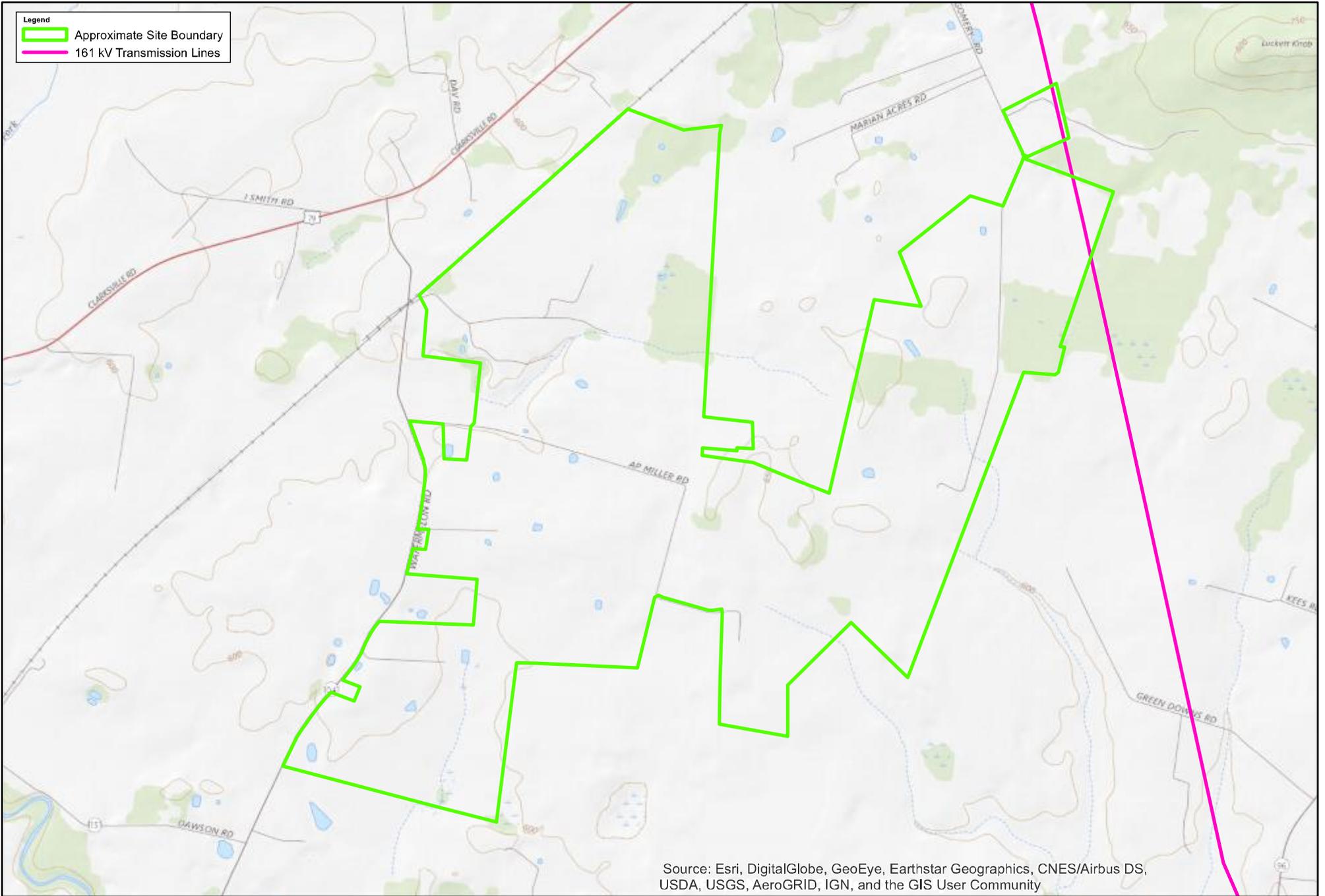
7.0 GENERAL COMMENTS

The wetland delineation was performed in accordance with generally accepted practices of this profession undertaken in similar studies at the same time and in the same geographical area. A wetland delineation, such as the one performed at this site, is of limited scope, is noninvasive, and cannot eliminate the potential that wetlands or waterbodies are present at the site beyond what is identified by the limited scope of this preliminary assessment. In conducting the limited scope of services described herein, certain sources of information and public records were not reviewed. No biological assessment can wholly eliminate uncertainty regarding the potential for concerns in connection with a project. The limitations of this preliminary assessment should be recognized.

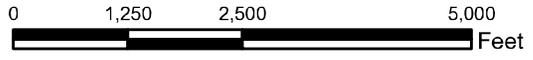
This report has been prepared in accordance with generally accepted scientific and engineering evaluation practices. This report is for the exclusive use of the client for the project being discussed. No warranties, either expressed or implied, are intended or made.

APPENDIX A – EXHIBITS

Legend
 Approximate Site Boundary
 161 kV Transmission Lines



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



1:25,000



Project No.	N1197212
Drawn By:	MDP
Approved By:	SEW
Date:	6/28/2019

Terracon
 Consulting Engineers & Scientists
 611 Lunken Park Drive Cincinnati, Ohio 45226
 PH: (513) 321-5816 FAX: (513) 321-0294

Topographic Map

**Russellville Solar
 Watermelon Road
 Russellville, Kentucky**

Exhibit

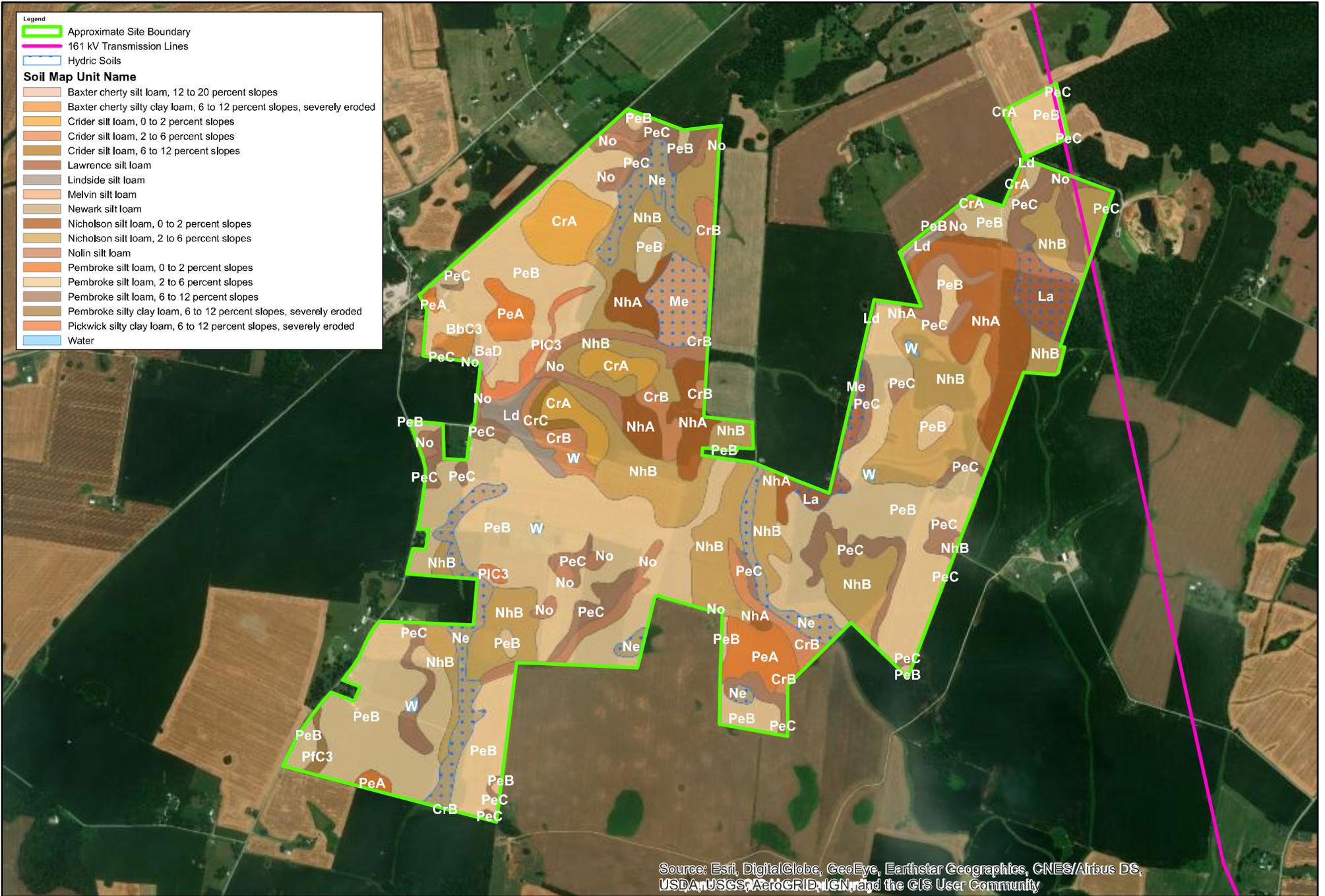
1

Legend

- Approximate Site Boundary
- 161 kV Transmission Lines
- Hydric Soils

Soil Map Unit Name

- Baxter cherty silt loam, 12 to 20 percent slopes
- Baxter cherty silty clay loam, 6 to 12 percent slopes, severely eroded
- Crider silt loam, 0 to 2 percent slopes
- Crider silt loam, 2 to 6 percent slopes
- Crider silt loam, 6 to 12 percent slopes
- Lawrence silt loam
- Lindside silt loam
- Melvin silt loam
- Newark silt loam
- Nicholson silt loam, 0 to 2 percent slopes
- Nicholson silt loam, 2 to 6 percent slopes
- Nolin silt loam
- Pembroke silt loam, 0 to 2 percent slopes
- Pembroke silt loam, 2 to 6 percent slopes
- Pembroke silt loam, 6 to 12 percent slopes
- Pembroke silty clay loam, 6 to 12 percent slopes, severely eroded
- Pickwick silty clay loam, 6 to 12 percent slopes, severely eroded
- Water



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



1:25,000



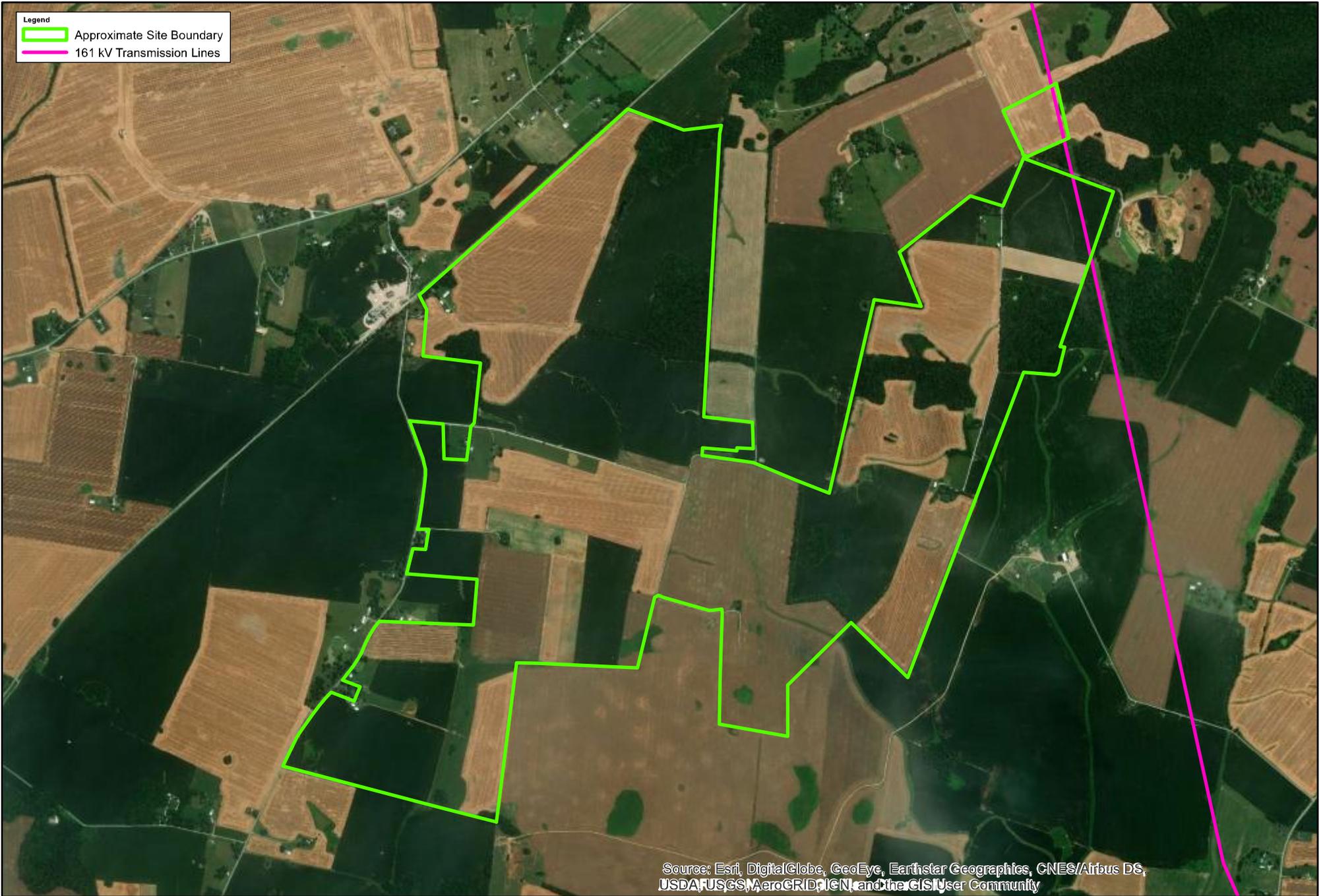
Project No.	N1197212
Drawn By:	MDP
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Date:	6/28/2019

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NRCS SSURGO Soils Map
 Russellville Solar Project
 Watermelon Road
 Russellville, Logan County, Kentucky

Exhibit
3

Legend
 Approximate Site Boundary
 161 kV Transmission Lines



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA/FUSCS, AeroGRID, IGN, and the GIS User Community



1:25,000



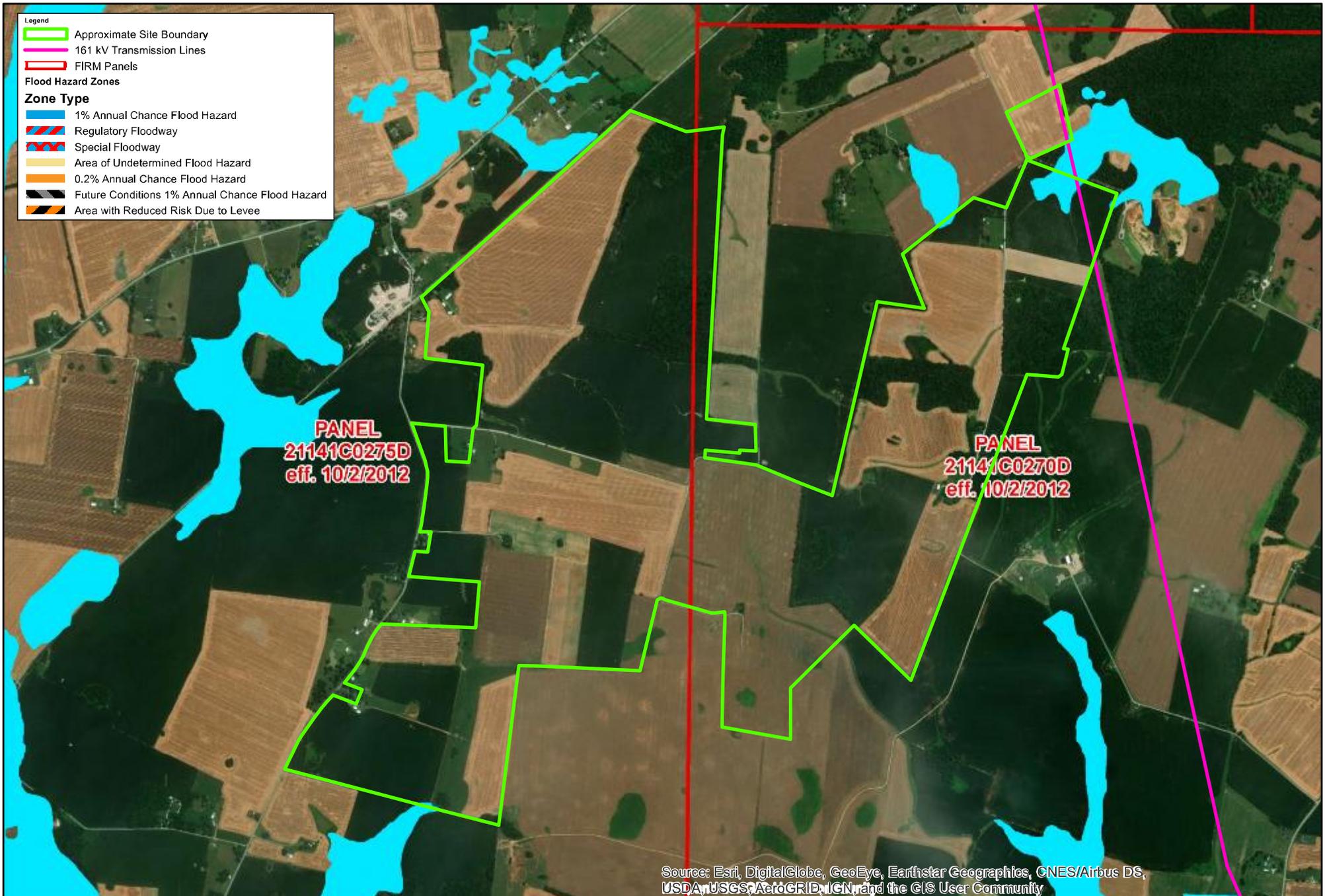
Project No.	N1197212
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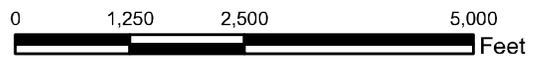
Aerial Image (2018)
Russellville Solar Project Watermelon Road Russellville, Logan County, Kentucky

Exhibit
4

- Legend**
-  Approximate Site Boundary
 -  161 kV Transmission Lines
 -  FIRM Panels
- Flood Hazard Zones**
- Zone Type**
-  1% Annual Chance Flood Hazard
 -  Regulatory Floodway
 -  Special Floodway
 -  Area of Undetermined Flood Hazard
 -  0.2% Annual Chance Flood Hazard
 -  Future Conditions 1% Annual Chance Flood Hazard
 -  Area with Reduced Risk Due to Levee



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



1:25,000



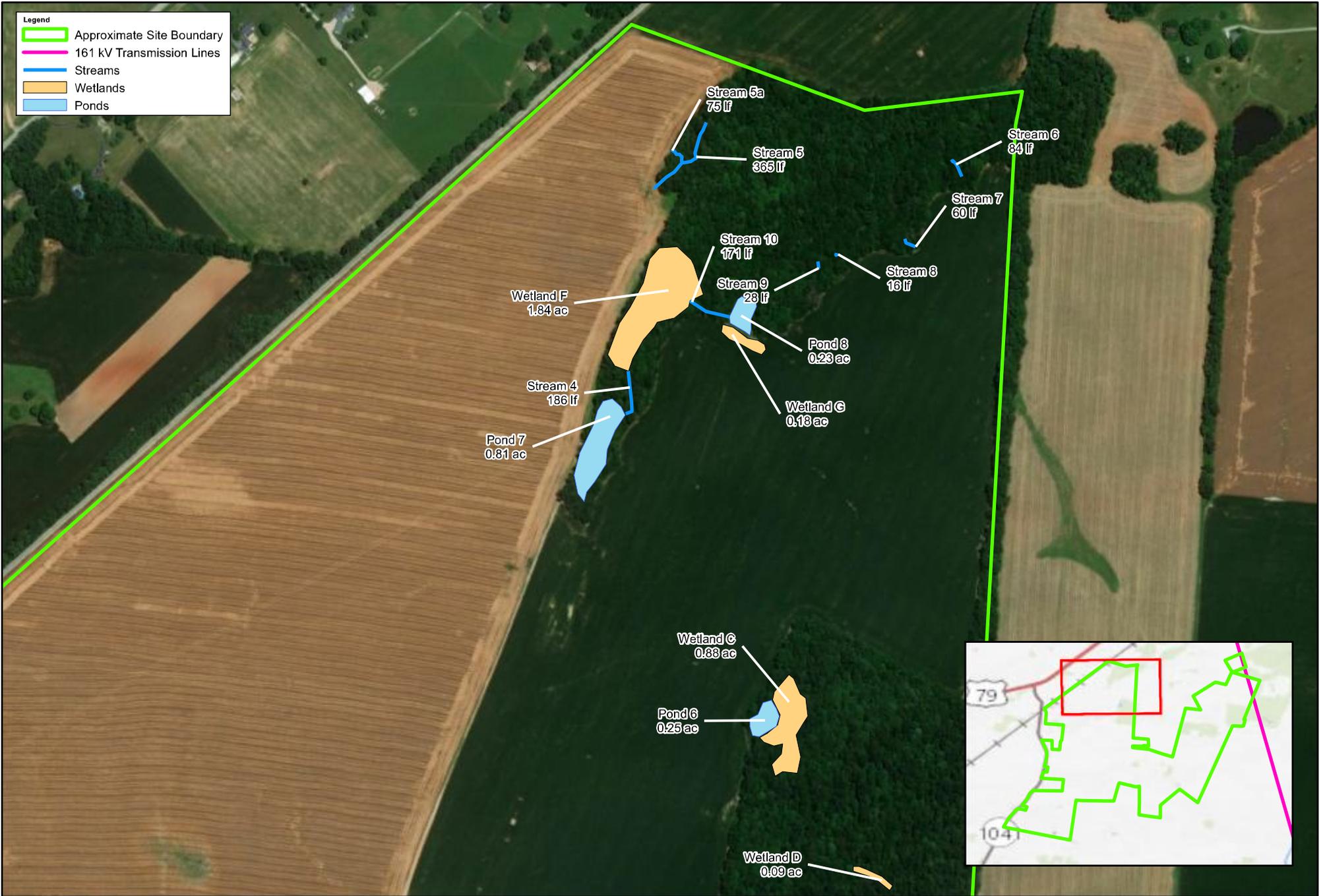
Project No.	N1197212
Drawn By:	MDP
Approved By:	SEW
Date:	6/28/2019

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FEMA Flood Insurance Rate Map (FIRM)
Russellville Solar Project Watermelon Road Russellville, Logan County, Kentucky

Exhibit
5

- Legend**
- ▬ Approximate Site Boundary
 - ▬ 161 kV Transmission Lines
 - ▬ Streams
 - ▭ Wetlands
 - ▭ Ponds



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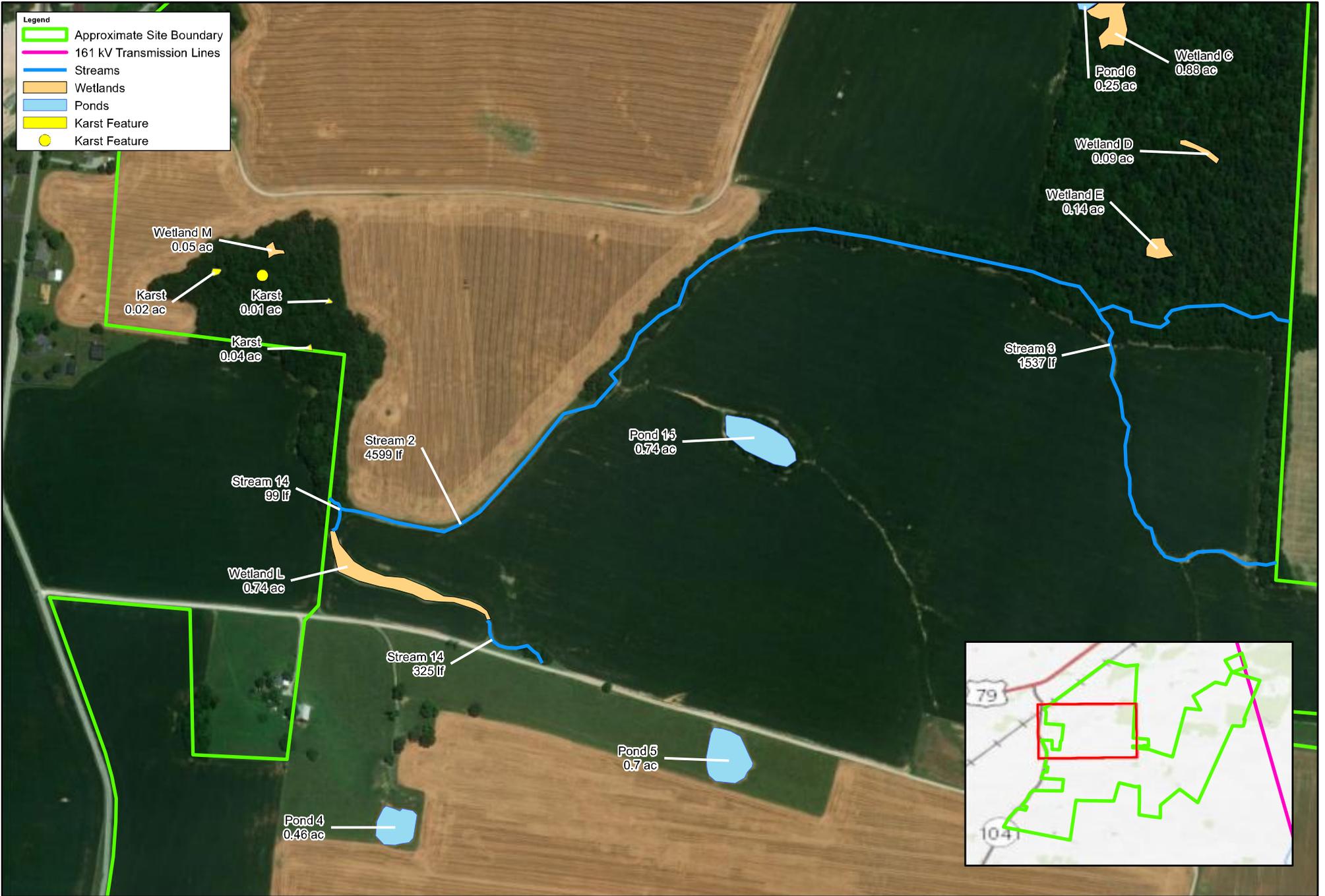
Project No.	N1197212
Drawn By:	MDP
Approved By:	SEW
Date:	7/24/2019

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 Consulting Engineers & Scientists
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 PH: (513) 321-5816 FAX: (513) 321-0294

Wetland Delineation Map
 Russellville Solar Project
 Watermelon Road
 Russellville, Logan County, Kentucky

Exhibit
 6

- Legend**
- ▬ Approximate Site Boundary
 - ▬ 161 kV Transmission Lines
 - ▬ Streams
 - ▭ Wetlands
 - ▭ Ponds
 - ▭ Karst Feature
 - Karst Feature



1:6,000



Project No.	N1197212
Drawn By:	MDP
Approved By:	SEW
Date:	7/24/2019

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 PH: (513) 321-5816 FAX: (513) 321-0294

Wetland Delineation Map
 Russellville Solar Project
 Watermelon Road
 Russellville, Logan County, Kentucky

Exhibit
 6

- Legend**
- ▬ Approximate Site Boundary
 - ▬ 161 kV Transmission Lines
 - ▬ Streams
 - ▭ Wetlands
 - ▭ Ponds



1:6,000



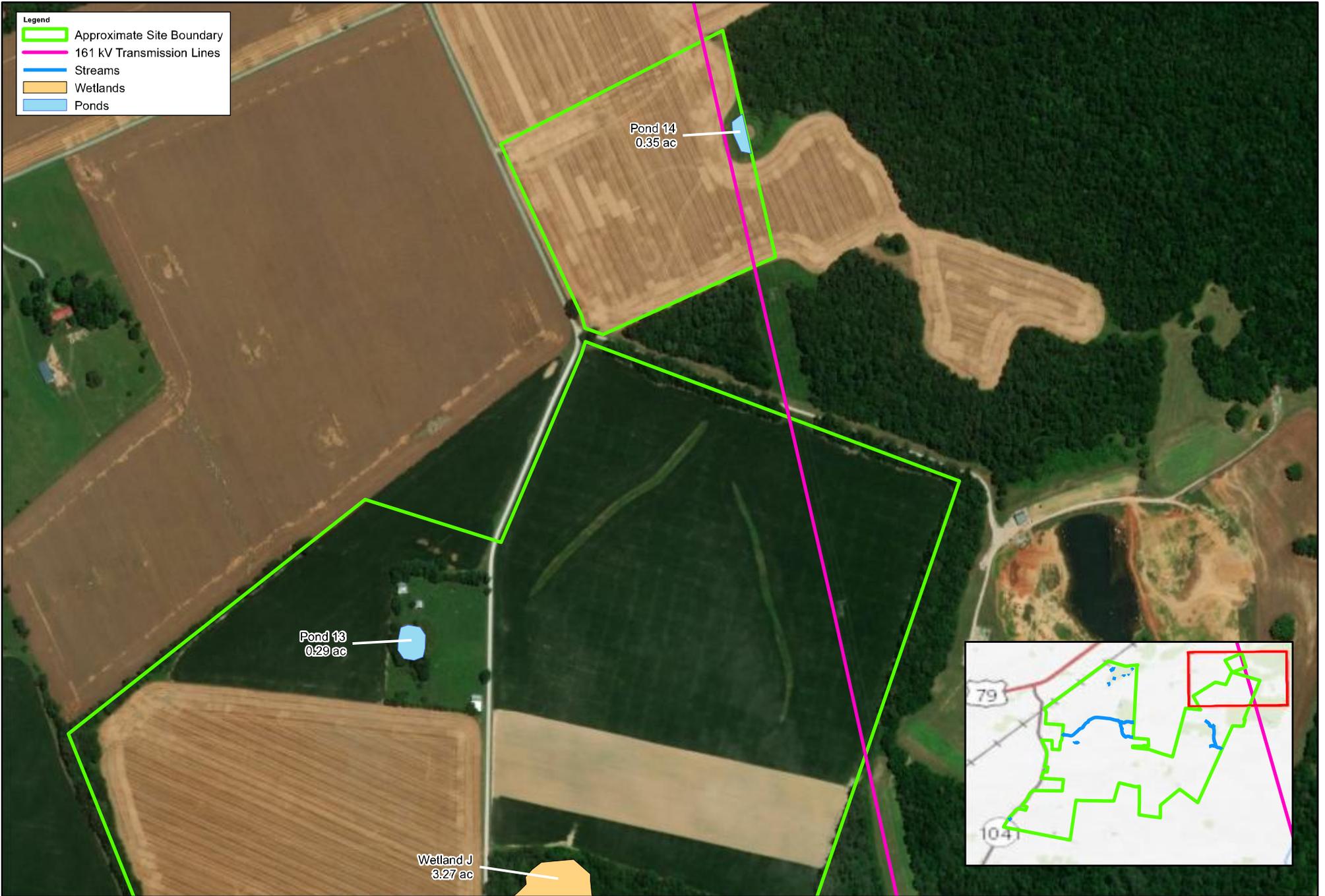
Project No.	N1197212
Drawn By:	MDP
Approved By:	SEW
Date:	7/24/2019

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Wetland Delineation Map
 Russellville Solar Project
 Watermelon Road
 Russellville, Logan County, Kentucky

Exhibit
 6

- Legend**
- ▬ Approximate Site Boundary
 - ▬ 161 kV Transmission Lines
 - ▬ Streams
 - ▭ Wetlands
 - ▭ Ponds



1:6,000



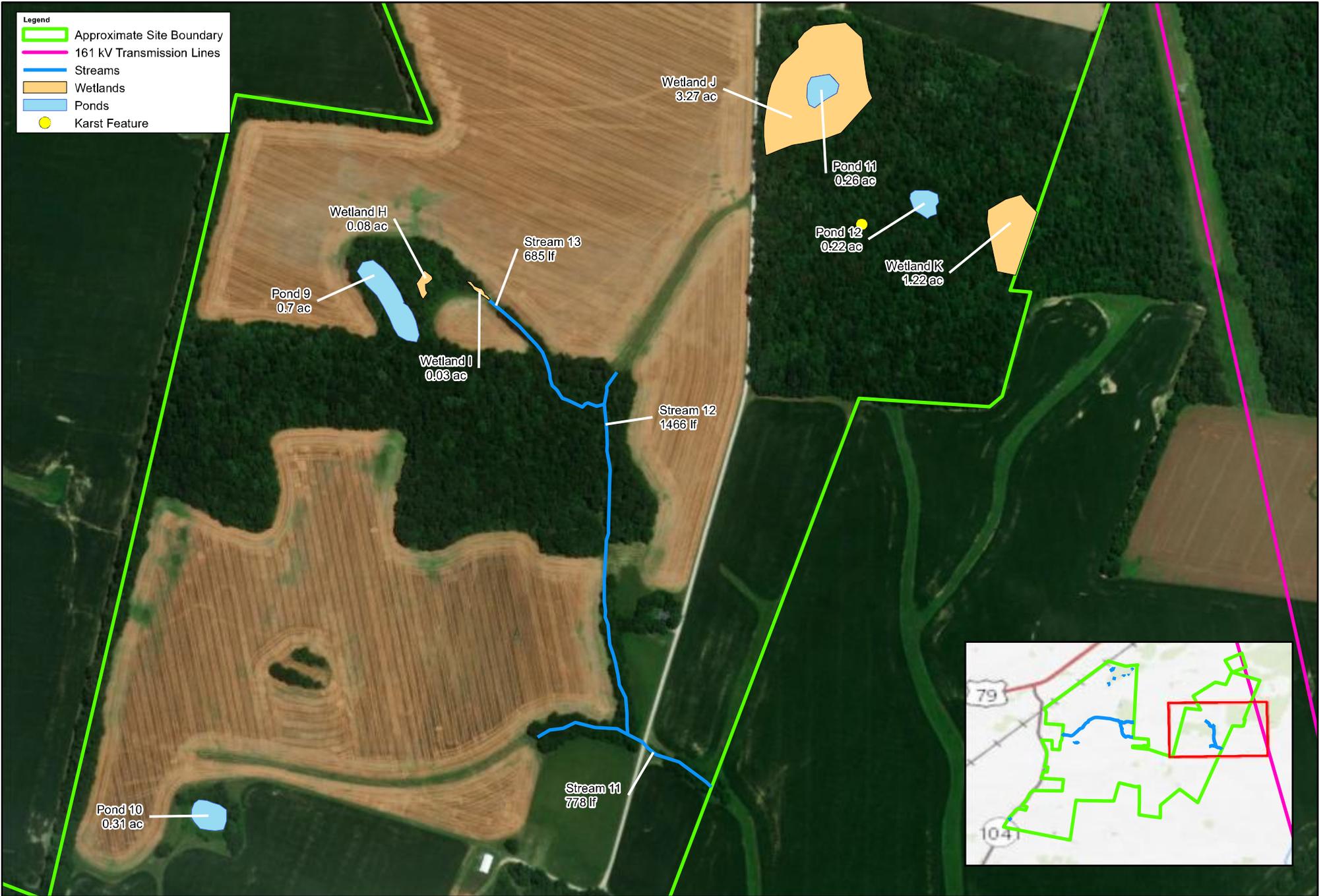
Project No.	N1197212
Drawn By:	MDP
Approved By:	SEW
Date:	7/24/2019

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Wetland Delineation Map
 Russellville Solar Project
 Watermelon Road
 Russellville, Logan County, Kentucky

Exhibit
 6

- Legend**
- ▬ Approximate Site Boundary
 - ▬ 161 kV Transmission Lines
 - ▬ Streams
 - ▭ Wetlands
 - ▭ Ponds
 - Karst Feature



1:6,000



Project No.	N1197212
Drawn By:	MDP
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Wetland Delineation Map
 Russellville Solar Project
 Watermelon Road
 Russellville, Logan County, Kentucky

Exhibit
 6

APPENDIX B – GROUND PHOTOGRAPHS



Pond 1.



General view of the site.



Pond 2.



Wetland A



Typical hydric soil found on-site.



Wetland B.



Stream 1.



General view of forested uplands on-site.



Stream 2.



Wetland C.



Example of hydric soil found on-site.



Pond 6.



Wetland D.



General view of forested uplands.



Stream 2.



Pond 7.



Stream 4.



Wetland F.



Stream 10.



Pond 8.



Wetland F.



Stream 5.



Karst feature associated with Stream 5.



Wetland G.



Stream 11.



Pond 9.



Wetland H.



Example of hydric soil found on-site.



Stream 13.



Wetland J surrounding Pond 11.



Stream 2 leading to karst feature.

APPENDIX C – DATA SHEETS

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Russellville Solar City/County: Russellville/Logan Sampling Date: 7/9/19
 Applicant/Owner: Community Energy Solar, LLC State: KY Sampling Point: WA
 Investigator(s): C. Brendler, J. Schwilke Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: NAD83
 Soil Map Unit Name: Newark silt loam NWI classification: PFO1C
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>Soil and vegetative disturbance due to cattle exposure</u> <div style="font-size: 2em; font-family: cursive; margin-left: 20px;">Wetland A</div>	

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required: check all that apply) <input checked="" type="checkbox"/> Surface Water (A1) _____ True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ _____ Inundation Visible on Aerial Imagery (B7) _____ _____ Water-Stained Leaves (B9) _____ _____ Aquatic Fauna (B13) _____	_____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>2</u> Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>1</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Russellville Solar City/County: Russellville / Logan Sampling Date: 7/9/19
 Applicant/Owner: Community Energy Solar, LLC State: KY Sampling Point: WB
 Investigator(s): C. Brerdel, J. Schusterman Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: NAD83
 Soil Map Unit Name: Pembroke City clay loam, 6 to 12% slopes NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <div style="font-size: 2em; font-family: cursive;">Wetland B</div>	

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one is required: check all that apply)</u></p> <input checked="" type="checkbox"/> Surface Water (A1) _____ <input checked="" type="checkbox"/> High Water Table (A2) _____ <input checked="" type="checkbox"/> Saturation (A3) _____ _____ Water Marks (B1) _____ _____ Sediment Deposits (B2) _____ _____ Drift Deposits (B3) _____ _____ Algal Mat or Crust (B4) _____ _____ Iron Deposits (B5) _____ _____ Inundation Visible on Aerial Imagery (B7) _____ _____ Water-Stained Leaves (B9) _____ _____ Aquatic Fauna (B13) _____	<p><u>Secondary Indicators (minimum of two required)</u></p> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
<p>Field Observations:</p> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>6-8</u> Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>4</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>2</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:	

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Russellville Solar City/County: Russellville / Logan Sampling Date: 7/9/19
 Applicant/Owner: Community Energy Solar, LLC State: KY Sampling Point: W/C
 Investigator(s): C. Burdett, J. Schuette Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: NAD83
 Soil Map Unit Name: Melvin silt loam NWI classification: PFO1F
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No _____	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____	
Remarks: <u>wetland C</u>			

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
<u>Primary Indicators (minimum of one is required; check all that apply)</u>		
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Geomorphic Position (D2)
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)
		<input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations:		
Surface Water Present? Yes <input checked="" type="checkbox"/> No _____	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Water Table Present? Yes <input checked="" type="checkbox"/> No _____	Depth (inches): _____	
Saturation Present? (Includes capillary fringe) Yes <input checked="" type="checkbox"/> No _____	Depth (inches): _____	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Russellville Solar City/County: Russellville / Logan Sampling Date: 7/9/19
 Applicant/Owner: Community Energy Solar, LLC State: KY Sampling Point: WD/WE
 Investigator(s): C. Brundel, J. Schwilke Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: NAD83
 Soil Map Unit Name: _____ NWI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <div style="font-size: 2em; color: blue; margin-top: 20px;">Wetlands D and E</div>	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) _____ True Aquatic Plants (B14) _____ High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) _____ <input checked="" type="checkbox"/> Water-Stained Leaves (B9) _____ _____ Aquatic Fauna (B13) _____	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>2</u> Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>1</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Russellville Solar City/County: Russellville / Logan Sampling Date: 7/9/19
 Applicant/Owner: Community Energy Solar, LLC State: KY Sampling Point: WF
 Investigator(s): C. Breder, J. Shwartzman Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks:	

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <input checked="" type="checkbox"/> Surface Water (A1) _____ True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	<p><u>Secondary Indicators (minimum of two required)</u></p> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
<p>Field Observations:</p> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>12</u> Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>6</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>4</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Russellville Solar City/County: Russellville / Logan Sampling Date: 7/9 & 7/10/19
 Applicant/Owner: Community Energy Solar, LLC State: KY Sampling Point: WG/WL
 Investigator(s): C. Brendel, J. Schuffertman Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: NAD83
 Soil Map Unit Name: Mulvin silt loam / Newark silt loam NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <div style="font-size: 1.2em; font-family: cursive;">Wetland G and L</div>	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9) ___ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>1</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Russellville Solar City/County: Russellville/Logan Sampling Date: 7/10/19
 Applicant/Owner: Community Energy Solar, LLC State: FY Sampling Point: WH
 Investigator(s): C. Brundel, J. Schumaker Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: NADE83
 Soil Map Unit Name: Nicholson silt loam, 0 to 2 percent slopes NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: _____ _____ _____	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ True Aquatic Plants (B14) _____ High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ _____ Inundation Visible on Aerial Imagery (B7) _____ _____ Water-Stained Leaves (B9) _____ _____ Aquatic Fauna (B13) _____	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>1</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: _____ _____	
Remarks: _____ _____ _____	

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Russellville Solar City/County: Russellville / Logan Sampling Date: 7/10/19
 Applicant/Owner: Community Energy Solar, LLC State: KY Sampling Point: WI
 Investigator(s): C. Brendel, J. Schwilke/Forman Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: NAD83
 Soil Map Unit Name: Nicholson silt loam, 0 to 2 percent slopes NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks:	

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9) ___ Aquatic Fauna (B13)	<p><u>Secondary Indicators (minimum of two required)</u></p> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
<p>Field Observations:</p> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>2</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Russellville Solar City/County: Russellville / Logan Sampling Date: 7/10/19
 Applicant/Owner: Community Solar Energy, LLC State: KY Sampling Point: WJ/WK
 Investigator(s): C. Brendel, J. Schwieterman Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: NAD83
 Soil Map Unit Name: Lawrence silt loam NWI classification: PFO1C
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <p align="center" style="font-size: 1.2em;"><u>Wetlands J and K</u></p>	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required: check all that apply)</u>		<u>Secondary Indicators (minimum of two required)</u>	
___ Surface Water (A1) ___ High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) ___ Water Marks (B1) ___ Sediment Deposits (B2) ___ Drift Deposits (B3) ___ Algal Mat or Crust (B4) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) ___ Aquatic Fauna (B13)	___ True Aquatic Plants (B14) ___ Hydrogen Sulfide Odor (C1) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Presence of Reduced Iron (C4) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Thin Muck Surface (C7) ___ Other (Explain in Remarks)	___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)	
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>2</u> (includes capillary fringe)		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Russellville Solar City/County: Russellville/Logan Sampling Date: 7/10/19
 Applicant/Owner: Community Energy Solar, LLC State: KY Sampling Point: WM
 Investigator(s): C. Bardsley, J. Schmittlerman Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: NAD83
 Soil Map Unit Name: Baxter cherty silty clay loam, 6 to 12% slopes NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks:	

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> _____ Surface Water (A1) _____ True Aquatic Plants (B14) _____ High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	<p><u>Secondary Indicators (minimum of two required)</u></p> _____ Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
<p>Field Observations:</p> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>3</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Russellville Solar City/County: Russellville/Logan Sampling Date: 7/9/10
 Applicant/Owner: Community Energy Solar, LLC State: KY Sampling Point: UP-1
 Investigator(s): C. Brandel, J. Schwaberterman Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: NAD83
 Soil Map Unit Name: Pembroke silt loam NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <div style="font-size: 1.2em; font-family: cursive;">Agricultural uplands</div>	

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Russellville Solar City/County: Russellville/Logan Sampling Date: 7/9/19
 Applicant/Owner: Community Energy Solar, LLC State: KY Sampling Point: UP-2
 Investigator(s): C. Byrdell, J. Schulteferman Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: NAD83
 Soil Map Unit Name: Dembrock silt loam NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <div style="font-size: 1.2em; font-family: cursive;">Agricultural uplands</div>	

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<p><u>Secondary Indicators (minimum of two required)</u></p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
<p>Field Observations:</p> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Russellville Solar City/County: Russellville/Logan Sampling Date: 7/10/19
 Applicant/Owner: Community Energy Solar, LLC State: KY Sampling Point: WP-3
 Investigator(s): C. Bunde, J. Schwilke, J. Schmitt Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: NAD83
 Soil Map Unit Name: Pembroke Silt loam NWI classification: _____
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: <div style="font-size: 1.2em; font-family: cursive;">Agricultural uplands</div>	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) 	Secondary Indicators (minimum of two required) <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Russellville Solar City/County: Russellville/Logan Sampling Date: 7/10/19
 Applicant/Owner: Community Energy Solar, LLC State: KY Sampling Point: UL-4
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: NAD83
 Soil Map Unit Name: Nicholson silt loam NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <div style="font-size: 1.2em; font-family: cursive;">Forested uplands</div>	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9) ___ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Russellville Solar City/County: Russellville / Logan Sampling Date: 7/10/19
 Applicant/Owner: Community Energy Solar, LLC State: KY Sampling Point: WP-5
 Investigator(s): C. Brudel, J. Schneiderman Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): _____ Lat: _____ Long: _____ Datum: NAD83
 Soil Map Unit Name: Nicholson silt loam NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <div style="font-size: 1.2em; font-family: cursive;">Forested upland</div>	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
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Remarks:	

