Exhibit A

Environmental Studies

Jurisdictional Waters of the U.S. Assessment

Fleming Solar Project

Fleming County, Kentucky

April 2021

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Table of Contents

Tables

Figures

Appendices

1.0 Executive Summary

Energy Renewal Partners, LLC (ERP) is pleased to present Fleming Solar, LLC, on behalf of Core Solar LLC, with the results of a study of jurisdictional waters of the U.S. (WoUS), including wetlands, within the proposed boundaries of the Fleming Solar Project (the "Project"). The Project is a proposed solar energy facility located on approximately 831 acres in northern Fleming County, Kentucky approximately 0.4 miles northwest of the town of Flemingsburg, Kentucky (the "Site" or "project area") (Figure 1).

The Jurisdictional Waters of the U.S. Assessment included conducting a desktop review of relevant literature and database sources and subsequent field study (detailed in Sections 4.1 and 4.2, below). During the field study, ERP identified 48 channels, 24 features, and 11 ponds (Table 1 and Table 2). The findings of this study do not reflect the official findings or opinion of the USACE and are not to be interpreted as such prior to receiving USACE verification.

2.0 Project Background

The Site consists of approximately 831 acres located in the northern portion of Fleming County approximately 0.4 miles northwest of the town of Flemingsburg, Kentucky (Figure 1). The Site is generally bound by the Kentucky Route 11 (KY 11, also known as Maysville Road) along the northeastern boundary and Kentucky Route (KY) 559 (also known as Convict Pike or Convict Hill Road) along the southern boundary. KY 1200 (also known as Helena Road) bisects the central portion of the Site, oriented southeast to northwest.

Preliminary desktop review reveals that the Site's acreage consists primarily of cultivated cropland used for row crops, pastureland used for livestock grazing, and fragmented forested areas, primarily located along fencerows, property lines, riparian zones, or adjacent to an abandoned railroad right-of-way. The Site is relatively flat with gently rolling hills and several drainage features and water bodies located onsite. The Site is situated in a relatively rural area of Fleming County. Adjacent properties similarly consist of cultivated cropland, pastureland, and rural residences, and much of the Site directly abuts transportation corridors (KY 11, KY 559, KY 1200); some residential development adjacent to KY 559 and KY 1200 is located just outside project area boundaries (Figure 1 and Figure 2).

The Site is being developed as a solar energy facility. Although the final Project boundaries and design layout of the solar facility has not been completed, the Project will likely entail the installation of photovoltaic modules, inverters, an underground electrical collection system, internal project roads, security fencing, operation and maintenance structures, and temporary parking and laydown areas. Clearing of onsite vegetation and grading, if necessary, will occur before the installation of project infrastructure.

2.1 Project Location and Site Description

The Site consists of approximately 831 acres located in the northern portion of Fleming County approximately 0.4 miles northwest of the town of Flemingsburg, Kentucky (Figure 1). The Site is generally bound by KY 11 along the northeastern boundary and KY 559 along the southern boundary. KY 1200 bisects the central portion of the Site, oriented southeast to northwest.

The climate of Fleming County can be characterized as humid subtropical. For the nearby town of Maysville, Kentucky, the average annual rainfall is 46.02 inches (US Climate Data 2020).

2.2 Regulatory Considerations

The federal Clean Water Act (CWA) affords protections to waters of the U.S. (WoUS). The Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE) are the federal agencies that regulate the CWA as described in 33 CFR 328.3. The EPA's codification of the definition of WoUS has changed multiple times since it was first defined in 1977 and is found at 40 CFR 110.1, 112.2, 116.3, 117.1, 122.2, 230.3, 232.2, 300.5, 302.3, 401.11, and Appendix E to Part 300. The latest rule to define a WoUS is the Navigable Waters Protection Rule (NWPR) which was finalized on April 21, 2020 and effective as of June 22, 2020. The NWPR also codifies the definition of WoUS in a new section, 40 CFR 120.2. Should the NWPR go under litigation, the rule may become 'stayed' and the previous definitions and guidance of WoUS, known simply as the Rapanos Guidance, would become re-enacted. The USACE regulates the

discharge of dredged or fill materials into WoUS, including wetlands. Should impacts to WoUS be proposed, a Section 404 permit from the USACE may be required. The duration, volume, type, and location of specific proposed impacts will determine what permit type may be required.

Section 401 of the CWA also extends regulatory authority to individual states and the pertinent regulatory agency so designated by each state. The Kentucky Division of Water (KDOW) serves as the Section 401 Certification program for federal Section 404 permits issued under the CWA in Kentucky. The KDOW regulates waters of the commonwealth through the state's Water Quality Certification Program and Special Use Designations. The KDOW is responsible for performing Section 401 Certification reviews for any Section 404 USACE permit application for the discharge of dredged or fill material into national waters, including wetlands.

3.0 Methodology

During the desktop review, ERP scientists reviewed relevant, supporting information including the appropriate portion of the 2019 Elizaville, KY and 2019 Flemingsburg, KY 7.5-minute Series U.S. Geological Survey (USGS) Topographic Quadrangles (Figure 1); USGS National Hydrography Dataset (NHD) (Figure 2), the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) (Figure 2), representative aerial imagery (Figure 2), the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panel depicting the project area (Figure 2), the University of Kentucky Speleological Survey of Sinkhole Coverage for the Karst Areas of Kentucky (Figure 2); the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Fleming County Web Soil Survey (NRCS 2020) and USDA publication Hydric Soils of the U.S. (Figure 3); and 1983 and 1995 historical aerial imagery obtained from Environmental Data Resources, Inc. ERP consulted these sources to assist in the characterization of field conditions present within the project area, as well as to identify discrepancies between data obtained during the desktop review and the field study.

Subsequent to the desktop review, ERP conducted an on-site waters delineation within the project area. During the waters delineation, ERP scientists utilized a sub-meter accurate global positioning system Arrow Unit and an ESRI Collector web map application to delineate all surface waters within the Site including streams, wetlands, ponds, lakes, and ditches.

Wetlands are identified by utilizing a three (3)-parameter approach that requires positive evidence of 1) wetland hydrology; 2) hydrophytic vegetation; and 3) hydric soils. Wetlands were delineated following the guidance of the Routine Onsite Determination Method, as defined in the USACE Wetlands Delineation Manual (1987) and appropriate regional supplemental guides. The Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0) (USACE 2012) applies for the project area.

Streams are linear water features with evidence of a continuous bed and bank and an ordinary high-water mark (OHWM). ERP assessed and delineated streams with OHWM and continuous bed and bank utilizing the USACE Regulatory Guidance Letter No. 05-05, Ordinary High Water Mark Identification, the 2011 EPA Draft Guidance on Identifying Waters Protected by the CWA, and the definition of a tributary as described in the 2020 Navigable Waters Protection Rule, Section 120.2. ERP designated a flow regime (perennial, intermittent, or ephemeral) to streams based on the NWPR definitions and best professional judgement.

All surface waters that were identified and delineated within the assessed project area were evaluated for potential jurisdiction pursuant to Section 404 of the CWA, under the NWPR. Though best professional judgement was utilized to identify jurisdictional waters, implementation of federal regulatory authority over jurisdictional waters is administered by the USACE. Unless an Approved Jurisdictional Determination is issued by the USACE, all surface waters identified within the project area are considered to be potentially jurisdictional waters and federal regulatory authority should be assumed.

From December 14 to 16, 2020 and March 17-18, 2021, ERP scientists Daniel Roberts, Professional Wetland Scientist (PWS) and Qualified Hydrologic Professional In-Training (QHP-IT), and Sean Martin conducted a wetland delineation to evaluate the presence of aquatic resources within the Site. The USACE Antecedent Precipitation Tool (APT) (Deters 2020) was utilized to determine the wetness condition of the

Site based on the daily total, 30-day rolling total, and 30-year normal range of National Oceanic and Atmospheric Administration's daily global historical climatology network (Appendix C). This information can reveal reasons for certain hydrological characteristics observed within the Site. The APT was created by the USACE to determine field conditions during a delineation compared to a 'typical year' as defined in the NWPR.

4.0 Results

4.1 Desktop Review

According to the USGS Topographic Map (Figure 1) there are four (4) streams and five (5) open water bodies located in the project area (Figure 1). According to the NHD and NWI (Figure 2), five (5) streams are located within the Site, four (4) of which directly coincide with the features depicted on the USGS National Map. The NWI dataset depicts eight (8) wetland features within the Site. The NHD depicts nine (9) waterbodies, and eight (8) of the NWI wetland features coincide with the NHD ponds. The Site drains in multiple directions and three (3) distinct watersheds are located with the project area (Figure 2). The northern most portion of the Site drains north and is located in the Mill Creek-North Fork Licking River watershed (12-digit hydrologic unit code (HUC) #051001011003). The eastern and southeastern portions of the Site drain southeast and are located in the Allison Creek-Fleming Creek watershed (HUC #051001010903). The central, western, northwestern, and southwestern portions of the Site drain north to northwest and are located in the Upper Johnson Creek watershed (HUC #051001011103).

Available aerial imagery (Google Earth 2019) depicts the project area as cultivated cropland used for row crops, pastureland used for livestock grazing, and fragmented forested areas, primarily located along fencerows, property lines, riparian zones, or adjacent to an abandoned railroad right-of-way (Figure 2). Based on a review of the FEMA website, the Site does not contain flood hazard areas.

Hydric soils are defined as soils which are saturated or inundated with water long enough during the growing season to support wetland plant communities if not drained. The USDA Web Soil Survey (2020) revealed nine (9) soil types on-site. Of the on-site soils, one (1), Nolin silt loam, 0 to 3 percent slopes, occasionally flooded, is considered partially hydric or containing hydric inclusions (Figure 3). The remainder of the soils onsite are not considered to be hydric. Site-specific soils information is provided in Figure 3, attached. A custom NRCS soil resource report for the project area is available upon request.

The University of Kentucky's Speleological Survey of Sinkhole Coverage for the Karst Areas of Kentucky database was reviewed for sinkholes and subterranean streams. According to the database no sinkholes or subterranean streams are located within the project area (Figure 2). The database depicts the nearest sinkhole is located approximately 0.45 miles southeast of the project area and west of KY 11/57 (also known as Bypass Road) (Figure 2).

4.2 Field Assessment

Following the desktop review, ERP scientists Daniel Roberts, PWS and QHP-IT, and Sean Martin conducted a delineation for potentially jurisdictional surface waters within the Fleming Solar project area. The delineation was completed between December 14-16, 2020 and March 17-18, 2021. Weather conditions during the December delineation consisted of temperatures between approximately 24-39° F with approximately 0.34 inches of precipitation. Weather conditions at the time of the March delineation included temperatures of approximately 41-65° Fahrenheit with mostly cloudy skies, light precipitation, and winds of approximately 3 to 21 miles per hour. According to the APT, both delineations took place during the wet season and had a drought index of severe wetness. Conditions were considered slightly drier than normal during the December delineation and were considered much wetter than normal during the March delineation (Appendix C).

Based on the results of the delineation, there are potentially jurisdictional WoUS located partially or wholly within the project area (Figures 4A-4D) consisting of 14 potentially jurisdictional stream channels, 11 potentially jurisdictional wetlands, and two (2) potentially jurisdictional ponds (Table 1). ERP also identified 34 channels, 13 features, and nine (9) ponds that are likely excluded from jurisdictional under Section 404 of the CWA (Table 2). On-site aquatic resources flow either north to Johnson Creek or Mill Creek, or southeast to Town Branch. Summaries of feature size, location, and description can be found in the Potentially Jurisdictional Aquatic Resources Table (Table 1) and Potentially Non-Jurisdictional (Excluded) Aquatic Resources Table (Table 2). Descriptive narratives of distinct reaches and aquatic resource features can be found in Sections 4.2.1 to 4.2.4. Representative photographs of the Site and identified surface waters are included in Appendix A. USACE Wetland Determination Data Forms – Eastern Mountain and Piedmont Region (Data Points or DP) were used to identify the wetland/upland boundary of delineated areas. Representative data points of all potential wetlands and upland areas found throughout the Site are included in Appendix B. The locations of all collected data points are depicted in Figures 4A-4D. A list of wetlands with their corresponding wetland/upland boundary data points can be found in Tables 1 and 2.

Table 1: Potentially Jurisdictional Aquatic Resources for the Fleming Solar Project, Fleming County, Kentucky

Name	Flow Regime Or Resource Type	Measurement	Units	Latitude	Longitude	Figure Index	Data Points
Channel 10	Perennial Flow	1,409	Linear Feet	38.44911	-83.83140	4B	N/A
Channel 11	Perennial Flow	2,239	Linear Feet	38.44746	-83.77234	4B	N/A
Channel 12	Intermittent Flow	1,180	Linear Feet	38.44742	-83.76831	4B	N/A
Channel 16	Intermittent Flow	113	Linear Feet	38.44594	-83.76739	4B	N/A
Channel 20	Perennial Flow	3,079	Linear Feet	38.44542	-83.77865	4A	N/A
Channel 21	Intermittent Flow	263	Linear Feet	38.44677	-83.77883	4A	N/A
Channel 22	Intermittent Flow	588	Linear Feet	38.44544	-83.77975	4A	N/A
Channel 23	Intermittent Flow	676	Linear Feet	38.44400	-83.77980	4A	N/A
Channel 26	Intermittent Flow	67	Linear Feet	38.45123	-83.75970	4C	N/A
Channel 27	Intermittent Flow	8	Linear Feet	38.45119	-83.75970	4C	N/A
Channel 28	Intermittent Flow	305	Linear Feet	38.45448	-83.75261	4C	N/A
Channel 29	Intermittent Flow	59	Linear Feet	38.45453	-83.75255	4C	N/A
Channel 30	Intermittent Flow	117	Linear Feet	38.45893	-83.75579	4C	N/A
Channel 34	Intermittent Flow	65	Linear Feet	38.45787	-83.75115	4C	N/A
Pond 5	Pond	1.78	Acres	38.44120	-83.77409	4B	N/A
Pond 8	Pond	0.42	Acres	38.44636	-83.76697	4B	N/A
Feature 8	Forested Wetland	1.96	Acres	38.44634	-83.76455	4B	DP8-W, DP8-U
Feature 9	Emergent Wetland	0.15	Acres	38.44743	-83.76354	4B	DP8-W, DP8-U
Feature 10	Forested Wetland	0.67	Acres	38.44504	-83.76768	4B	DP10-W, DP10-U
Feature 11	Emergent Wetland	0.06	Acres	38.44293	-83.76811	4B	DP10-W, DP10-U

Name	Flow Regime Or Resource Type	Measurement	Units	Latitude	Longitude	Figure Index	Data Points
Feature 12	Emergent Wetland, Cow altered	0.16	Acres	38.44021	-83.83117	4B	DP12-W, DP12-U
Feature 13	Forested Wetland	1.69	Acres	38.44341	-83.77367	4B	DP13-W, DP13-U
Feature 16	Emergent Wetland	0.09	Acres	38.44599	-83.77826	4A	DP16-W, DP16-U
Feature 18	Emergent Wetland	0.02	Acres	38.44917	-83.77722	4A	DP16-W, DP16-U
Feature 20	Forested Wetland	0.43	Acres	38.45630	-83.75908	4C	DP20-W, DP20-U
Feature 21	Emergent Wetland	0.10	Acres	38.45811	-83.75107	4C	DP21-W, DP21-U
Totals	Channels	10,168	Linear Feet				
	Ponds	2.20	Acres				
	Wetland Features	5.33	Acres				

Table 2: Potentially Non-Jurisdictional (Excluded) Aquatic Resources for the Fleming Solar Project, Fleming County, Kentucky

Name	Flow Regime Or Resource Type	Measurement	Units	Latitude	Longitude	Figure Index	Data Points
Channel 1	Intermittent Flow	652	Linear Feet	38.43956	-83.75420	4B	N/A
Channel 1E	Ephemeral Flow	170	Linear Feet	38.44064	-83.75453	4B	N/A
Channel 2	Intermittent Flow	818	Linear Feet	38.43870	-83.75926	4B	N/A
Channel 2E	Ephemeral Flow	391	Linear Feet	38.43890	-83.75815	4B	N/A
Channel 3	Intermittent Flow	119	Linear Feet	38.43872	-83.76168	4B	N/A
Channel 3E	Ephemeral Flow	172	Linear Feet	38.43909	-83.76181	4B	N/A
Channel 4	Ephemeral Flow	140	Linear Feet	38.44113	-83.76282	4B	N/A
Channel 5	Ephemeral Flow	122	Linear Feet	38.44159	-83.76247	4B	N/A
Channel 6	Intermittent Flow	1,574	Linear Feet	38.44118	-83.75947	4B	N/A
Channel 7	Intermittent Flow	728	Linear Feet	38.44596	-83.76060	4B	N/A
Channel 8	Ephemeral Flow	125	Linear Feet	38.44701	-83.76379	4B	N/A
Channel 9	Ephemeral Flow	170	Linear Feet	38.44835	-83.76287	4B	N/A
Channel 13	Ephemeral Flow	191	Linear Feet	38.44826	-83.76886	4B	N/A
Channel 14	Ephemeral Flow	61	Linear Feet	38.44677	-83.76689	4B	N/A
Channel 15	Ephemeral Flow	97	Linear Feet	38.44668	-83.76659	4B	N/A
Channel 17	Ephemeral Flow	213	Linear Feet	38.44336	-83.76824	4B	N/A
Channel 18	Ephemeral Flow	331	Linear Feet	38.44562	-83.76857	4B	N/A
Channel 19	Ephemeral Flow	65	Linear Feet	38.44036	-83.77470	4B	N/A
Channel 21E	Ephemeral Flow	217	Linear Feet	38.44672	-83.78042	4A	N/A
Channel 24	Ephemeral Flow	229	Linear Feet	38.44283	-83.77780	4B	N/A

Name	Flow Regime Or Resource Type	Measurement	Units	Latitude	Longitude	Figure Index	Data Points
Channel 25	Ephemeral Flow	104	Linear Feet	38.44103	-83.77785	4A	N/A
Channel 27E	Ephemeral Flow	34	Linear Feet	38.45114	-83.75967	4C	N/A
Channel 29E	Ephemeral Flow	68	Linear Feet	38.45468	-83.75244	4C	N/A
Channel 30E	Ephemeral Flow	222	Linear Feet	38.45845	-83.75578	4C	N/A
Channel 31	Ephemeral Flow	192	Linear Feet	38.45849	-83.75587	4C	N/A
Channel 32	Ephemeral Flow	242	Linear Feet	38.45879	-83.75610	4C	N/A
Channel 33	Ephemeral Flow	72	Linear Feet	38.45839	-83.75752	4C	N/A
Channel 34E	Ephemeral Flow	50	Linear Feet	38.45774	-83.75126	4C	N/A
Channel 35	Ephemeral Flow	139	Linear Feet	38.44364	-83.77783	4A	N/A
Channel 36	Ephemeral Flow	643	Linear Feet	38.44460	-83.77654	4A	N/A
Channel 37	Ephemeral Flow	764	Linear Feet	38.44778	-83.78757	4D	N/A
Channel 38	Ephemeral Flow	61	Linear Feet	38.44982	-83.78498	4D	N/A
Channel 39	Ephemeral Flow	30	Linear Feet	38.44974	-83.78495	4D	N/A
Channel 40	Ephemeral Flow	185	Linear Feet	38.44895	-83.78364	4D	N/A
Pond 1	Pond	0.15	Acres	38.44255	-83.75567	4C	N/A
Pond 2	Pond	0.89	Acres	38.44197	-83.75971	4B	N/A
Pond 3	Pond	0.34	Acres	38.44071	-83.76427	4B	N/A
Pond 4	Pond	0.30	Acres	38.43984	-83.76743	4B	N/A
Pond 6	Pond	0.24	Acres	38.44341	-83.77998	4A	N/A
Pond 7	Pond	0.20	Acres	38.44671	-83.78179	4A	N/A
Pond 9	Pond	0.37	Acres	38.44795	-83.76327	4C	N/A

Name	Flow Regime Or Resource Type	Measurement	Units	Latitude	Longitude	Figure Index	Data Points
Pond 10	Pond	0.85	Acres	38.45557	-83.75328	4C	N/A
Pond 11	Pond	0.57	Acres	38.45869	-83.75683	4C	N/A
Feature 1	Emergent Wetland	0.23	Acres	38.44142	-83.75483	4B	DP1-W, DP1-U
Feature 2	Scrub/Shrub Wetland	0.09	Acres	38.43932	-83.75393	4B	DP2-W, DP2-U
Feature 3	Emergent Wetland	0.01	Acres	38.44119	-83.75938	4B	DP4-W, DP4-U
Feature 4	Emergent Wetland	0.09	Acres	38.44135	-83.75954	4B	DP4-W, DP4-U
Feature 5	Emergent Wetland	0.12	Acres	38.44201	-83.76021	4B	DP4-W, DP4-U
Feature 6	Emergent Wetland	0.23	Acres	38.44269	-83.75979	4B	DP4-W, DP4-U
Feature 7	Linear Ditch	0.08	Acres	38.44541	-83.76142	4B	DP4-W, DP4-U
Feature 14	Emergent Wetland	0.10	Acres	38.44090	-83.77730	4A	DP15-W, DP15-U
Feature 15	Emergent Wetland	0.18	Acres	38.44125	-83.77836	4A	DP15-W, DP15-U
Feature 17	Emergent Wetland	0.08	Acres	38.44768	-83.77742	4A	DP17-W, DP17-U
Feature 19	Emergent Wetland	0.27	Acres	38.45260	-83.75937	4B	DP19-W, DP19-U
Feature 22	Emergent Wetland	0.10	Acres	38.44060	-83.76230	4B	DP22-W, DP22-U
Feature 23	Emergent Wetland	0.45	Acres	38.44991	-83.78785	4D	DP23-W, DP23-U
Feature 24	Emergent Wetland	0.07	Acres	38.44959	-83.78475	4D	DP24-W, DP24-U
Totals	Channels	9,391	Linear Feet				
	Ponds	3.91	Acres				
	Wetland Features	2.10	Acres				

4.2.1 Southeastern Reach

Channel 1E flows south for approximately 170 linear feet to Channel 1 (Figure 4B). Channel 1E exhibits ephemeral flow and a non-contiguous OHWM and bed and bank (Appendix A, Photo 1). Channel 1E transitions to Channel 1 at a headcut where OHWM and bed and bank become contiguous, and flow becomes intermittent (Figure 4B). Channel 1 flows south for approximately 652 linear feet where it exits the southern Site boundary and continues offsite. Channel 1 exhibits intermittent flow with continuous OHWM and bed and bank (Appendix A, Photo 2). Based on aerial imagery, observations from public roadways along Convict Pike, and offsite observations made from the Site boundary, Channel 1 flows offsite and dissipates into sheetflow prior to crossing Convict Pike (Appendix A, Photos 53 and 54). Historical aerial imagery and Google Earth Street View were reviewed and no evidence of Channel 1 continuing to, or beyond, Convict Pike was observed (Appendix D). During the March 17-18, 2021 delineation, ERP observed no evidence of a surface connection from Channel 1 to downstream waters. According to the APT, this observation took place during the wet season, in wetter than normal conditions for a typical year (Appendix C). Channel 1E is excluded from jurisdiction based on flow regime under the NWPR. Channel 1 is also excluded from jurisdiction under the NWPR because the system does not contribute surface water directly to a WoUS.

Pond 1 is a farm pond constructed in an upland within the southeastern portion of the project area, upgradient of Channel 1 and Channel 1E (Figure 4B). Pond 1 has earthen berms on all sides with no outlet pipes (Appendix A, Photo 3, and Photo 4). As Pond 1 was constructed in an upland, it is excluded from jurisdiction under the NWPR. Feature 1 is an approximately 0.23-acre unconfined linear feature that flows south until the valley confines flow and Channel 1E is formed (Appendix A, Photo 5). Feature 1 originates onsite in a valley in the southeastern portion of the project area (Figure 4B). Feature 1 exhibits depleted soils, primary hydrology indicators, and is comprised of typical hydrophytic vegetation including soft rush (*Juncus effusus*), littleleaf buttercup (*Ranunculus abortivus*), Frank's sedge (*Carex frankii*), and green bulrush (*Scirpus atrovirens*) (Appendix B, DP1-W). Data sheets representative of the wetland and upland boundary for Feature 1 are in Appendix B, DP1-W and DP1-U, respectively. While Feature 1 meets the three (3) parameters of a wetland, it is considered excluded from jurisdiction because Channel 1 flows underground directly to groundwater and does not contribute surface water directly to a WoUS.

Feature 2 is an approximately 0.09-acre area located along the left bank of Channel 1 in the southeastern portion of the project area (Figure 4B). Feature 2 exhibits depleted soils with multiple primary hydrology indicators including standing water and saturation at the surface and are comprised of woody and herbaceous vegetation typical of wetlands including black willow (*Salix nigra*), narrow-leaf cattails (*Typha angustifolia*), Frank's sedge, and green bulrush (Appendix A, Photo 6). Data sheets representative of the wetland and upland boundary for Feature 2 are in Appendix B, DP2-W and DP2-U, respectively. While Feature 2 meets the three (3) parameters of a wetland, it is considered excluded from jurisdiction because Channel 1 flows underground directly to groundwater and does not contribute surface water directly to a WOUS.

Pond 2, depicted on NWI and NHD, is an impoundment of Channel 6, and is approximately 0.89 acres in size (Figure 4B; Appendix A, Photos 7 and 8). Feature 3 (0.01 acres) and Feature 4 (0.09 acres) are

constructed wet basins located downgradient of Pond 2 along the left bank of Channel 6 (Figure 4B; Appendix A, Photo 9). Feature 5 (0.12 acres) and Feature 6 (0.23 acres) are representative of the fringe portions of Pond 2 that are not inundated enough to be open water (Appendix A, Photo 10). Features 3, 4, 5, and 6 exhibit depleted soils with multiple primary hydrology indicators including standing water and saturation at the surface and are comprised of woody and herbaceous vegetation typical of wetlands including black willow, narrow-leaf cattails, Frank's sedge, and green bulrush (Appendix B, DP4-W). Data sheets representative of the wetland and upland boundary for Features 3, 4, 5, and 6 are in Appendix B, DP4-W and DP4-U, respectively. These five (5) features meet the three (3) parameters of a wetland but are considered excluded from jurisdiction; these features flow to Pond 2 and Channel 6, which flow underground directly to groundwater and do not contribute directly to a WoUS (Appendix B, Photos 13-16).

Feature 7 originates onsite within the central portion of the project area at the toe-of-slope of the abandoned railroad right-of-way (Figure 4B). Feature 7 is located at the boundary of the Allison Creek-Fleming Creek watershed and flows southeast to the confluence of Channel 6 and Channel 7 (Figure 4B). Feature 7 is an approximately 0.08-acre linear ditch displaying evidence of depleted soils, saturated soils, and wetland vegetation including black willow and green bulrush (Appendix B, DP4-W). Channel 7 originates onsite in the central-eastern portion of the project area and flows intermittently southwest for approximately 728 linear feet to its confluence with Channel 6 (Figure 4B). Channel 7 exhibits continuous OHWM and bed and bank (Appendix A, Photo 11). Channel 6 originates onsite at the confluence of Feature 7 and Channel 7, and Channel 6 flows intermittently along the toe-of-slope of the berm from the abandoned railroad for approximately 1,574 linear feet before going subsurface to groundwater (Figure 4B). Wooden debris has accumulated over the hole in which Channel 6 goes underground (Appendix B, Photos 13-16). While Pond 2, an impoundment of Channel 6, is depicted on NWI and NHD, no other portions or features of Channel 6 are depicted on desktop resources (Figure 2). Field observations found no evidence of Channel 6 returning to the surface after it flows underground (Appendix A, Photos 13-14, 53-54). Based on a review of current and historical aerial imagery and the University of Kentucky's Speleological Survey of Sinkhole Coverage for the Karst Areas of Kentucky, Channel 6 remains underground until it intercepts groundwater (Figure 2; Appendix D). Feature 7, Channel 7, and Channel 6 are considered excluded from jurisdiction as they do not contribute surface water to downstream WoUS.

Channel 2 originates onsite in the southern portion of the project area. Channel 2 flows east intermittently from its onsite origin for approximately 518 linear feet where it exits the project area and continues offsite for approximately 400 feet prior to re-entering the project area and continues to flow intermittently east-northeast for approximately 300 linear feet (Figure 4B; Appendix A, Photo 12). Due to the natural geology of the Site, ground water from Channel 2 is no longer able to reach the surface and the flow regime changes from intermittent to ephemeral. Channel 2E is depicted at this flow break and continues to flow ephemerally for approximately 391 linear feet where it goes subsurface to groundwater (Figure 4B). Wooden debris accumulated over the hole in which Channel 2E goes underground and erosion has caused the channel to over-widen (Appendix B, Photos 13-16). Channel 2 and Channel 2E are depicted on USGS, NWI, and NHD desktop sources (Figure 2). Field observations found no evidence of the channels returning to the surface after they flow underground (Appendix A, Photos 13-14, 53-54). Based on a review of

current and historical aerial imagery and the University of Kentucky's Speleological Survey of Sinkhole Coverage for the Karst Areas of Kentucky, Channel 2, and Channel 2E remain underground until they intercept groundwater (Figure 2; Appendix D). Channel 3 and Channel 3E originate onsite in a valley in the southern portion of the project area and flow south to Channel 2 (Figure 4B). Channel 3E originates as an erosional channel with ephemeral flow for approximately 172 linear feet and exhibits non-continuous OHWM and bed and bank. As flow continues down slope the channel intercepts ground water and begins to flow south intermittently as Channel 3 for approximately 119 linear feet to its confluence with Channel 2 (Figure 4B). Channel 3E and Channel 2E are considered excluded from jurisdiction under the NWPR as they do not meet the flow criteria of WOUS. Channel 2 and Channel 3 meet the flow requirements of a WOUS but are considered excluded from jurisdiction because they flow underground directly to groundwater.

Channel 4 and Channel 5 are ditches located on hillslopes in the southern portion of the project area (Figure 4B). Channel 4 is an approximately 140 linear foot ditch on a hillside with no OHWM or bed and bank (Appendix A, Photo 17). Channel 4 is an excavated ditch in an upland with ephemeral flow that drains southeast and dissipates into sheet flow. Channel 5 is an approximately 122 linear foot ditch with ephemeral flow on a hillside located approximately 180 feet northeast of Channel 4 (Figure 4B). Channel 5 appears to have been created by erosional process from cattle activity and is absent of OHWM or bed and banks (Appendix A, Photo 18). Channel 4 and Channel 5 are considered excluded from jurisdiction under the NWPR.

Feature 22 originates onsite in the southern portion of the project area approximately 120 feet downgradient from Channel 4 (Figure 4B). Feature 22 exhibits depleted soils, primary hydrology indicators and is comprised of hydrophytic vegetation including Frank's sedge and green bulrush (Appendix B, DP22-W). Feature 22 is located in a depression in the hillslope approximately 400 feet upgradient of Channel 3E. The hillslope between Feature 22 and Channel 3E lacks all three (3) wetland indicators and is generally comprised of upland vegetation including orchard grass (*Dactylis glomerata*), Canadian goldenrod (*Solidago canadensis*), and teasel (*Dipsacus fullonum*) (Appendix B, DP22-U). Even though Feature 22 meets all three (3) wetland parameters it is considered excluded from jurisdiction under the NWPR as it is not adjacent to downstream waters.

Pond 3 is an approximately 0.34-acre pond located in a valley in the central-southern portion of the project area (Figure 4B). Pond 4 is a constructed farm pond in a cattle field that is depicted on USGS, NHD, and NWI (Figure 1 and Figure 2). There are no regulated outlets or overflow channels to the pond. As Pond 3 was constructed in an upland, it is excluded from jurisdiction under the NWPR.

Pond 4 is an approximately 0.30-acre pond located in the south-central portion of the project area approximately 40 feet north of Convict Pike (Figure 4B). Pond 4 is a constructed farm pond in a cattle field that is depicted on USGS, NHD, and NWI (Figure 1 and Figure 2). There are no constructed outlets for the pond. A swale conveys overflow water to a roadside ditch and culvert which flow south under Convict Pike outside of the project area. As Pond 4 was constructed in an upland, it is excluded from jurisdiction under the NWPR.

Feature 12 originates onsite at a concrete box well within a cattle field in the southern portion of the project area (Figure 4B). Feature 12 flows south into a culvert on Convict Pike where it flows offsite. Feature 12 is situated within a valley and exhibits intermittent surface water flow, however the bed and banks and OHWM are not present due to alterations from cattle activity (Appendix A, Photos 19 and 20). In addition to the presence of saturated soils and surface water, Feature 12 displays evidence of depleted soils and hydrophytic vegetation and meets all three (3) wetland parameters (Appendix B, DP12-W and DP12-U). Feature 12 is jurisdictional under the NWPR as it contributes directly to downstream waters and meets the NWPR requirements of a tributary and all three (3) parameters of a wetland.

4.2.2 Central Reach

ERP observed several reaches and wetland complexes in the central portions of the Site. Feature 8 originates onsite within the central portion of the project area at the toe-of-slope of the abandoned railroad right-of-way (Figure 4B). Feature 8 is located at the boundary of the Upper Johnson Creek watershed and flows northwest to Channel 12. Feature 8 is approximately 1.96-acres and displayed evidence of depleted soils, wetland hydrology in the form of saturated soils, and typical wetland vegetation including black willow, green ash (*Fraxinus pennsylvanica*), Frank's sedge, and green bulrush (Appendix A, Photos 27 and 28; Appendix B, DP8-W). Data sheets representative of the wetland and upland boundary of Feature 8 are in Appendix B, DP8-W and DP8-U, respectively. Feature 8 is considered jurisdictional under the NWPR as it meets the three (3) wetland parameters of a WOUS and abuts downstream jurisdictional waters.

Channel 9 originates onsite within the northern-central portion of the project area and exhibits ephemeral flow for approximately 170 linear feet to Pond 9 (Figure 4B). Channel 9 exhibits a non-continuous OHWM and bed and bank typical of ephemeral conveyances (Appendix B, Photo 29). Pond 9 is an approximately 0.37-acre constructed pond in an upland identified on USGS, NHD, and NWI. A berm with an earthen driveway is located on the downgradient portion of the pond with no constructed outlet (Appendix B, Photo 30). Channel 9 is excluded from jurisdiction under the NWPR based on flow regime. Pond 9 is excluded from jurisdiction under the NWPR as it does not contribute surface water to down gradient jurisdictional waters in a typical year.

Feature 9 is located in a valley downgradient from Pond 9 (Figure 4B). Feature 9 is comprised of typical hydrophytic vegetation, depleted soils, and saturated soils. Data sheets representative of the wetland and upland boundary were collected (Appendix B, DP8-W and DP8-U). A concrete cistern or well is located in the central portion of Feature 9 (Appendix A, Photo 51). Feature 9 flows southwest toward Feature 8. As the valley narrows, Feature 9 narrows and transitions into Channel 8 which flows from Feature 9 by means of a culvert (Appendix A, Photo 52). Channel 8 exhibits ephemeral flow for approximately 125 linear feet with non-continuous OHWM and bed and banks. Feature 9 is jurisdictional under the NWPR as it is adjacent to jurisdictional waters. Channel 8 is excluded under the NWPR as it exhibits ephemeral flow.

Channel 12 originates onsite in the central-northern portion of the project area and flows northwest for approximately 1,180 linear feet to its confluence with Channel 10 (Figure 4B). Channel 12 exhibits intermittent flow with continuous OWHM and bed and banks (Appendix A, Photo 23). Channel 13

originates onsite in the central-northern portion of the project area and exhibits ephemeral flow northeastward for approximately 191 linear feet to its confluence with Channel 12 (Figure 4B). Channel 13 is a typical erosional feature absent of OHWM and bed and bank that is commonly found within the project area (Appendix A, Photo 24). Channel 12 is considered jurisdictional under the NWPR as it abuts other jurisdictional waters and exhibits intermittent flow. Channel 13 is excluded from jurisdiction under the NWPR as it exhibits ephemeral flow.

Channel 10 originates offsite and enters the project area in the central-northern portion of the Site flowing southwest toward Channel 12 and then northwest where it exits the project area and continues offsite (Figure 4B). Channel 10 is depicted on the USGS and NHD as a tributary to Johnson Creek (Figures 1 and 2). Channel 10 exhibits perennial flow with continuous OHWM and bed and bank for approximately 1,409 linear feet within the project area (Appendix A, Photo 21). Channel 10 is considered jurisdictional under the NWPR as it exhibits perennial flow and abuts other jurisdictional waters.

Feature 11 originates onsite in the central portion of the project area and flows north to Channel 17. Channel 17 continues to flow north to Feature 10 which flows north and abuts both Channel 16 and Pond 8 (Figure 4B). Features 10 and 11 are comprised of herbaceous vegetation typical of wetlands such as Frank's sedge, saw-toothed sunflower (*Helianthus grosseserratus*), and green bulrush (Appendix A, Photos 25 and 26). Features 10 and 11 also exhibit depleted soils and primary hydrology indicators. Data sheets representative of the upland and wetland boundary for Features 10 and 11 can be found in Appendix B, DP10-W and DP10-U. Channel 17 flows north for approximately 213 linear feet from Feature 11 to Feature 10 and exhibits ephemeral flow. Channel 16 flows north for approximately 113 linear feet with intermittent flow from Feature 10 to Pond 8 (Figure 4B). Pond 8 is an impoundment of Channel 16 and Channel 14. Channel 14 originates onsite from an outlet pipe of Pond 8 and exhibits ephemeral flow north to Channel 12 (Figure 4B). Channel 15 is a constructed overflow outlet channel from Pond 8 that exhibits ephemeral flow with no OHWM or bed and banks. Pond 8 is jurisdictional under the NWPR as it is an impoundment of waters and has a direct surface connection to Channel 12. Features 10 and 11 are also jurisdictional under the NWPR as they meet all three (3) wetland parameters and are adjacent to Pond 8. Channel 16 is jurisdictional as it exhibits intermittent flow. Channels 14, 15, and 17 are excluded from jurisdiction under the NWPR as they exhibit ephemeral flow.

Channel 18 is a constructed ditch along a hillside west of Feature 10 (Figure 4B). Channel 18 flows east for approximately 331 linear feet and does not display a continuous OHWM or bed and bank. Channel 18 dissipates into sheet flow on the hillside approximately 68 feet from Feature 10 (Figure 4B). Feature 18 is excluded from jurisdiction as it exhibits ephemeral flow and does not connect to downstream waters.

Channel 19 enters the project area from a culvert on Convict Pike and flows north for approximately 65 linear feet to Pond 5 (Figure 4B). Channel 19 is a ditched feature that connects a constructed offsite pond with Pond 5, a constructed pond within the project area. ERP observed standing water within Channel 19 at the time of the delineation likely due to precipitation within the previous 24 hours (Appendix B, Photo 31). Channel 19 exhibits ephemeral flow with non-contiguous OHWM. Channel 19 is excluded from jurisdiction under the NWPR as it exhibits ephemeral flow.

Pond 5 is an approximately 1.78 acre constructed pond in the southwest portion of the Site (Figure 4B). Pond 5 is depicted on USGS, NWI, and NHD as an impoundment of Channel 11. An outlet pipe connects Pond 5 to Feature 13. Feature 13 originates onsite at the overflow pipe outlet and toe-of-slope of Pond 5, and Feature 13 is located within a confined valley that connects to Channel 11 to the north (Figure 4B). Feature 13 is comprised of depleted and saturated soils with primary hydrology indicators and typical hydrophytic herbaceous and woody vegetation including black willow, green ash, Frank's sedge, and green bulrush (Appendix A, Photos 33 and 34). Data sheets representative of the wetland and upland boundary for Feature 13 are attached in Appendix B, DP13-W and DP13-U, respectively. A concrete cistern or well is located in the central portion of Feature 13. Channel 11 originates as wetland drainage patterns within Feature 13 as the valley narrows northward (Figure 4B). Channel 11 is depicted on USGS, NHD, and NWI and was field identified as flowing north for approximately 2,239 linear feet from its origin at Feature 13 to the confluence with Channel 10 (Figure 4B). Channel 11 exhibits perennial flow with well-defined bed and banks with continuous OHWM (Appendix A, Photo 22). Pond 5, Feature 13, and Channel 11 are considered jurisdictional under the NWPR as they contribute surface water directly to other jurisdictional waters.

4.2.3 Western Reach

Channel 20 originates offsite southwest of the project area and enters the project area from a culvert on Convict Pike in the southwestern portion of the Site (Figure 4A). Channel 20 flows north bisecting the western portion of the Site for approximately 3,079 linear feet where it continues to flow off-site toward Johnson Creek (Figure 4A). Channel 20 is depicted on the USGS, NWI, and NHD and exhibits intermittent to perennial flow. The bed and banks of the southern upstream portion of Channel 20 have been degraded by cattle activity, however ERP observed continuous OHWM and bed and banks throughout the northern portions of the Site (Appendix A, Photo 32). Feature 18 is a wetland located along the stream inner berm that abuts the northern portion of Channel 20 (Figure 4A). Feature 18 is comprised of herbaceous vegetation typical of wetlands, depleted soils, and is hydrologically connected to Channel 20. Channel 20 is considered jurisdictional under the NWPR as it exhibits perennial flow and abuts other jurisdictional waters.

Feature 16 is comprised of herbaceous vegetation and depleted saturated soils in the western portion of the project area (Appendix A, Photo 35). Feature 16 is approximately 0.09 acres and abuts the right bank of Channel 20 (Figure 4A). Feature 16 is jurisdictional under the NWPR as it meets all three (3) wetland parameters and abuts Channel 20 (Appendix B, DP16-W and DP16-U). Feature 17 is located approximately 25 feet east of Channel 20 and is entirely within the project area (Figure 4A). Feature 17 is comprised of typical wetland vegetation and depleted soils that dissipate into upland sheet flow (Appendix A, Photos 36; Appendix B, DP17-W and DP17-U). Though Feature 17 meets all three (3) wetland parameters, Feature 17 is excluded from jurisdiction under the NWPR as it does not meet the definition of adjacent.

Though no tributaries to Channel 20 are depicted on USGS, NWI, or NHD, the field delineation identified three (3) tributaries to Channel 20 (Channels 21, 22, and 23). Channel 21 originates onsite in the western portion of the project area where groundwater discharges to the surface and forms a continuous OHWM and bed and bank. Channel 21 exhibits intermittent flow eastward for approximately 263 linear feet until

its confluence with Channel 20 (Figure 4A). Channel 21E originates onsite within the same topographic draw as Channel 21 and flows east for approximately 217 linear feet (Figure 4A). Channel 21E exhibits ephemeral flow in an eroded channel with no OHWM or bed and bank and dissipates into sheet flow approximately 243 feet west from the origin point of Channel 21. Therefore, Channel 21E is excluded from jurisdiction under the NWPR.

Channel 22 originates offsite and enters the western portion of the project area where it flows east towards Channel 20 (Figure 4A). Channel 22 exhibits intermittent flow with a continuous OHWM and bed and bank for approximately 588 linear feet to a pipe approximately 30 feet west of Channel 20 (Appendix A, Photo 37). The pipe serves an unpaved farm road and appears to be reinforced with natural stones from the surrounding area (Appendix A, Photo 38). The pipe is crushed at the outlet and surface water, bed and bank, and OHWM do not continue downslope of the pipe. Surface water from Channel 22 is separated from downstream waters by the pipe, an artificial structure, and approximately 20 feet of non-jurisdictional sheet flow. Though Channel 22 exhibits intermittent flow, it is exempt from jurisdictional under the NWPR as it dissipates into sheet flow and does not directly contribute surface water to Channel 20.

Channel 23 originates offsite and enters the southwest project area north of Convict Pike where it flows for approximately 676 linear feet to its confluence with Channel 20 (Figure 4A). Cattle activity has altered the substrate material of the channel bed; however, ERP observed a continuous OWHM throughout the incised and eroded channel. Channel 23 exhibits intermittent flow within the project area and is considered jurisdictional under the NWPR.

Pond 6 is a farm pond constructed in an upland in the southwest portion of the project area (Figure 4A). Pond 6 is used by cattle and has a berm on all sides with no outlet structure. As this pond was constructed in an upland, it is excluded from jurisdiction under the NWPR.

Pond 7 was constructed in an upland for farm use located in the western portion of the Site, approximately 212 feet west of Channel 21E (Figure 4A). Pond 7 has an overflow outlet pipe that contributes water to Channel 21 and Channel 21E. As this pond was constructed in an upland, it is excluded from jurisdiction under the NWPR.

Channel 24 is an erosional ditch located along a hillslope in the western portion of the project area approximately 154 feet east of Channel 20 (Figure 4A). Channel 24 exhibits ephemeral flow, and no evidence of a OHWM or bed and bank was observed. Channel 24 flows west for approximately 229 linear feet towards Channel 20 but dissipates into sheet flow on the upland hillside. Channel 24 is excluded from jurisdiction under the NWPR due to its flow regime and because it does not contribute surface water directly to a WoUS.

Channel 25 originates onsite and connects Feature 14 with Feature 15 (Figure 4A). Channel 25 exhibits ephemeral flow in a narrowly eroded crenulation (Appendix A, Photo 40). Vegetation dominates the bed of Channel 25, and ERP did not observe a continuous OHWM. Features 14 and 15 are emergent wetlands that exhibit depleted soils, hydrophytic vegetation, and wetland hydrology (Appendix B, DP15-W and

DP15-U). Channel 25 and Features 14 and 15 are located in the southwestern portion of the Site, east of Channel 20, and are entirely within the project area. Due to its ephemeral flow regime and lack of OHWM, Channel 25 is excluded from jurisdiction under the NWPR. Feature 14 flows west to Feature 15 which continues to flow west and dissipates into sheet flow approximately 100 feet east of Channel 20 (Appendix A, Photo 39). Under the NWPR, Features 14 and 15 are excluded from jurisdiction as they are not considered adjacent to downstream waters.

Channel 35 is an erosional ditch located on a hillslope in the western portion of the project area approximately 164 feet east of Channel 20 (Figure 4A). Channel 35 exhibits ephemeral flow, and ERP did not observe evidence of OHWM or bed and bank. Channel 35 flows west for approximately 139 linear feet towards Channel 20 but dissipates into sheet flow on the upland hillside. Channel 35 is excluded from jurisdiction under the NWPR due to its flow regime and because it does not contribute surface water directly to a WoUS.

Channel 36 is an erosional ditch located on a hillslope in the western portion of the project area approximately 129 feet east of Channel 20 (Figure 4A). Channel 36 exhibits ephemeral flow, and ERP did not observe evidence of OHWM or bed and bank. Channel 36 flows west for approximately 643 linear feet towards Channel 20 before dissipating into sheet flow on the upland hillside. Channel 36 is excluded from jurisdiction under the NWPR due to its flow regime and because it does not contribute surface water directly to a WoUS.

Channel 37 originates onsite as an erosional feature and flows northwest to the Project boundary where it has been artificially straightened along a manmade berm. Channel 37 flows north along the inner Project boundary before dissipating into Feature 23 (Figure 4D; Appendix A, Photos 57, 58, and 59). Feature 23 is located in the northwestern corner of the Project area. Feature 23 is comprised of wetland vegetation and soils within oxidized rhizospheres which indicate hydric soils and wetland hydrology are present (Appendix B, DP23-W). During the March delineation, ERP observed that Channel 37 and Feature 23 are confined by a berm on the western Project area boundary (Appendix A, Photo 60; Appendix B, DP23-U). This observation of confinement took place in the wet season and during conditions of severe wetness (Appendix C). Channel 37 and Feature 23 are excluded from jurisdiction under the NWPR as they do not contribute surface water to a WOUS and are not inundated by surface water from a WOUS in a typical year.

Channels 38, 39, and 40 are erosional features that originate onsite in the northwest portion of the project area (Figure 4D). Channel 40 is an earthen swale that exhibits ephemeral flow, lacks an OHWM and bed and bank, and flows west for approximately 185 linear feet to Feature 24 (Appendix A, Photo 64). Feature 24 exhibits partial wetland conditions. Feature 24 is comprised of soils with iron-manganese masses and oxidized rhizospheres, which indicate hydric soils and wetland hydrology are present. The vegetation community of Feature 24 is comprised of mostly non-wetland plants (Appendix A, Photos 61 and 62). Feature 24 flows northwest as flow concentrates into Channels 38 and 39, which flow north, intersect with each other, and continue off site (Figure 4D; Appendix A, Photo 63). Channels 38 and 39 exhibit ephemeral flow with observable bed and bank but inconsistent OHWM. Channels 38 and 39 form where sheet flow concentrates within Feature 24. Soils within the bed of Channels 38 and 39 exhibit both high

matrix and high chroma values, indicative of long term non-saturated soil conditions. Channel 38 continues off site until its intersection with Channel 12. Channels 38, 39, and 40 are excluded from jurisdiction under the NWPR as they do not meet flow regime requirements of a water of the U.S. Feature 24 is separated from the nearest WOUS by non-jurisdictional Channel 38. Feature 24 is excluded from jurisdiction under the NWPR as it does not meet all three (3) wetland criteria and is not adjacent to a WOUS.

4.2.4 Northern Reach

Feature 19 is located entirely onsite in a closed depression along the western boundary of the northern portion of the project area (Figure 4C). Cattle and farming activity has altered a majority of the vegetation and top four (4) inches of soil within this closed depression (Appendix A, Photo 41). The identifiable vegetation within Feature 19 is predominately narrow leaf cattails; soils are saturated at the surface and meet the criteria for redox depressions (Appendix B, DP19-W, DP19-U). Feature 19 meets all three (3) wetland parameters, but it is considered excluded under the NWPR as it is not adjacent to downstream waters.

Feature 20 originates onsite in a crenulation flowing west in the northern portion of the project area and continues to flow offsite (Figure 4C). While adjacent parcels were not evaluated as a part of this assessment, aerial imagery suggests Feature 20 may flow to a ditch which connects it to downstream waters (Figure 2). Feature 20 is a forested system comprised primarily of American sycamore (*Platanus occidentalis*) and green ash with saturated, depleted soils above a high-water table (Appendix A, Photo 42; Appendix B, DP20-W). Adjacent upland areas are comprised of a variety of elm trees (*Ulmus spp.*) and hackberry trees (*Celtis occidentalis*) that lack depleted soils and hydrology indicators (Appendix B, DP20-U). Feature 20 meets all three (3) wetland parameters and is considered jurisdictional under the NWPR due to its likely offsite surface connectivity to downstream waters.

Channel 34E originates onsite in the northeastern corner of the project area and flows northeast for approximately 50 linear feet to Channel 34 (Figure 4C). Channel 34E is an erosional feature that lacks OHWM and bed and bank, which conveys surface water to a concrete spring box (Appendix A, Photo 43). Channel 34 originates onsite at the spring with a concrete box in the northeastern project area and flows for approximately 65 linear feet into Feature 21 (Appendix A, Photo 44). Channel 34 flows intermittently with defined OHWM and bed and banks. Feature 21 is an emergent system comprised primarily of narrow-leaf cattail with visible saturation at the surface, a high-water table, and depleted soils (Appendix B, DP21-W). Feature 21 originates onsite and flows northeast out of the project area (Figure 4C). Data forms representative of the wetland and upland boundary of Feature 21 are included in Appendix B as DP21-W and DP21-U. Feature 21 meets all three (3) wetland parameters and is considered jurisdictional under the NWPR as it connects offsite to downstream waters. Based on the flow regimes displayed at the time of the delineation, Channel 34 is considered jurisdictional while Channel 34E is not considered jurisdictional under the NWPR.

Pond 10 is an approximately 0.85-acre pond located in the northeast project area (Figure 4C). Pond 10 is a constructed farm pond and is depicted as a constructed pond on the USGS topographic map (Figure 1). While Pond 10 has a spill way for controlling overflow events, it does not have an outlet that connects

flow to downstream waters. Pond 10 does not contribute surface water during a typical year, and it is therefore considered excluded from jurisdiction under the NWPR (Appendix A, Photos 45 and 46).

Channel 29 and Channel 29E originate within a single drainage onsite east of Channel 28 and flow southwest to a confluence with Channel 28 within the northern project area (Figure 4C). Channel 29E is an erosional feature that lacks OHWM and exhibits ephemeral flow for approximately 68 linear feet to Channel 29. Channel 29 originates at a headcut that intercepts ground water. Channel 29 flows intermittently exhibiting a continuous OHWM and bed and bank for approximately 59 linear feet to its confluence with Channel 28 (Figure 4C). Channel 28 exhibited a continuous OHWM and bed and banks flowing intermittently south for 305 linear feet and offsite (Appendix A, Photo 48). Based on the observed channel characteristics, flow regime, and connection to downstream waters, Channel 28 and Channel 29 are considered jurisdictional under the NWPR. Channel 29E is considered excluded from jurisdiction under the NWPR due to its ephemeral flow regime.

Channel 26 originates onsite in the southwestern portion of the northern project area at concrete box and spring (Figure 4C). Channel 26 flows west intermittently for 67 linear feet where it flows offsite and into an offsite pond. Cattle have altered this feature, and OHWM and bed and bank were not visible at the time of the delineation. However, flowing surface water was observed within Channel 26 (Appendix B, Photo 47). Channel 27E and Channel 27 originate onsite as a tributary to Channel 26 (Figure 4C). Channel 27E exhibited ephemeral flow northwest for approximately 34 linear feet to a headcut. Below the headcut, Channel 27 forms and displayed intermittent flow for approximately eight (8) linear feet to its confluence with Channel 26. Though cattle have altered their natural conditions, Channel 26 and Channel 27 are considered jurisdictional under the NWPR due to the channelized intermittent flow observed and connection to downstream WOUS. Channel 27E displays ephemeral flow and is not considered jurisdictional under the NWPR.

Pond 11 is an approximately 0.57-acre constructed pond depicted on NHD located in the northern project area (Figure 4C; Appendix A, Photo 49). Channel 33 flows northeast for approximately 72 linear feet into Pond 11 (Figure 4C). Channel 33 exhibits ephemeral flow and lacks OHWM. Channel 32 is an earthen overflow outlet structure of Pond 11 that flows west for approximately 242 linear feet to an onsite confluence with Channel 30 (Figure 4C). Channel 32 is an erosional feature that exhibits ephemeral flow and lacks OHWM and bed and banks (Appendix A, Photo 50). Channel 31 and Channel 30E are erosional features located in the northern project area that exhibit non-continuous OHWM and bed and banks with ephemeral flow to their confluence with Channel 30 (Figure 4C). Channel 31 flows north for approximately 192 linear feet to its confluence with Channel 30. Channel 30E flows north for approximately 222 linear feet to its confluence with Channel 30. Channel 30 originates onsite in the northern portion of the project area at a headcut where Channel 30E and Channel 31 confluence (Figure 4C). Channel 30 exhibits intermittent flow northeast for approximately 117 linear feet to the project boundary with continuous OHWM and bed and banks where it continues to flow offsite (Figure 4C). Channel 30 is jurisdictional under the NWPR as it displays intermittent flow and is connected to downstream surface waters. Channels 30E, 31, 32, and 33 display ephemeral flow and are excluded from jurisdiction under the NWPR. Pond 11 is a constructed farm pond in an upland and is excluded from jurisdiction under the NWPR.

A small, wooded area north of Helena Road was reviewed for potential surface waters in the central-northern portion of the project area. A representative data point was collected in this wooded area (Appendix B, DPA-U). This wooded area is comprised mostly of hackberry, black walnut (*Junglans nigra*), and honeysuckle bush (*Lonicera maacki*) and is absent of wetland soils and wetland hydrology indicators (Appendix A, Photos 55, 56). DPA-U is representative for all of the small pockets of wooded areas scattered throughout the Site.

5.0 Conclusion

This report reflects the findings of ERP's Jurisdictional Waters of the U.S. Assessment, performed on behalf of Fleming Solar, LLC for the Fleming Solar Project. ERP conducted the jurisdictional waters study within the proposed boundaries of the Project, pursuant to the objectives of Fleming Solar, LLC and the CWA. During the field study, ERP identified 14 potentially jurisdictional stream channels, 10 potentially jurisdictional wetlands, and two (2) potentially jurisdictional ponds (Table 1). ERP also identified 34 channels, 14 features, and nine (9) ponds that are excluded from jurisdiction under Section 404 of the CWA (Table 2).

Pending regulatory verification from the USACE, all determinations made by ERP should be considered preliminary. Unless an Approved Jurisdictional Determination is issued by the USACE, all surface waters identified within the project area, including non-jurisdictional and excluded surface waters, are considered to be potentially jurisdictional waters and federal regulatory authority should be assumed. The findings of this study do not reflect the official findings or opinion of the USACE and are not to be interpreted as such prior to receiving USACE verification.

6.0 References

Deters, Jason. 2020. Antecedent Precipitation Tool (APT) - v1.0.13. U.S Army Corps of Engineers. Available at: https://github.com/jDeters-USACE/Antecedent-Precipitation-Tool/releases/tag/v1.0.13.

Google Earth V7.3.3.7786. 2016. Kentucky, United States. 38°27'01.91"N 83°45'34.55"W. Available at http://www.earth.google.com. Accessed December 2020.

Google Street View. Image Capture August 2009. Old Convict Road, Flemingsburg, Kentucky 41041. 38.436695, -83.753631. Accessed: January 2021.

Natural Resources Conservation Service (NRCS). 2020. United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed: December 2020.

U.S. Army Corps of Engineers (USACE). 1987. Environmental Laboratory, Wetlands Delineation Manual, Y-87-1, 1987.

USACE. 2005. Regulatory Guidance Letter No. 05-05, Ordinary High Water Mark Identification, 7 December 2005.

USACE. 2007. Jurisdictional Determination Form Instructional Guidebook. May 2007. Accessed December 2020.

USACE. 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountain and Piedmont Region (Version 2.0). ERDC/EL TR-10-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center. Accessed: December 2020.

U.S. Environmental Protection Agency (EPA). 2011. Draft Guidance on Identifying Waters Protected by the Clean Water Act. April 2011.

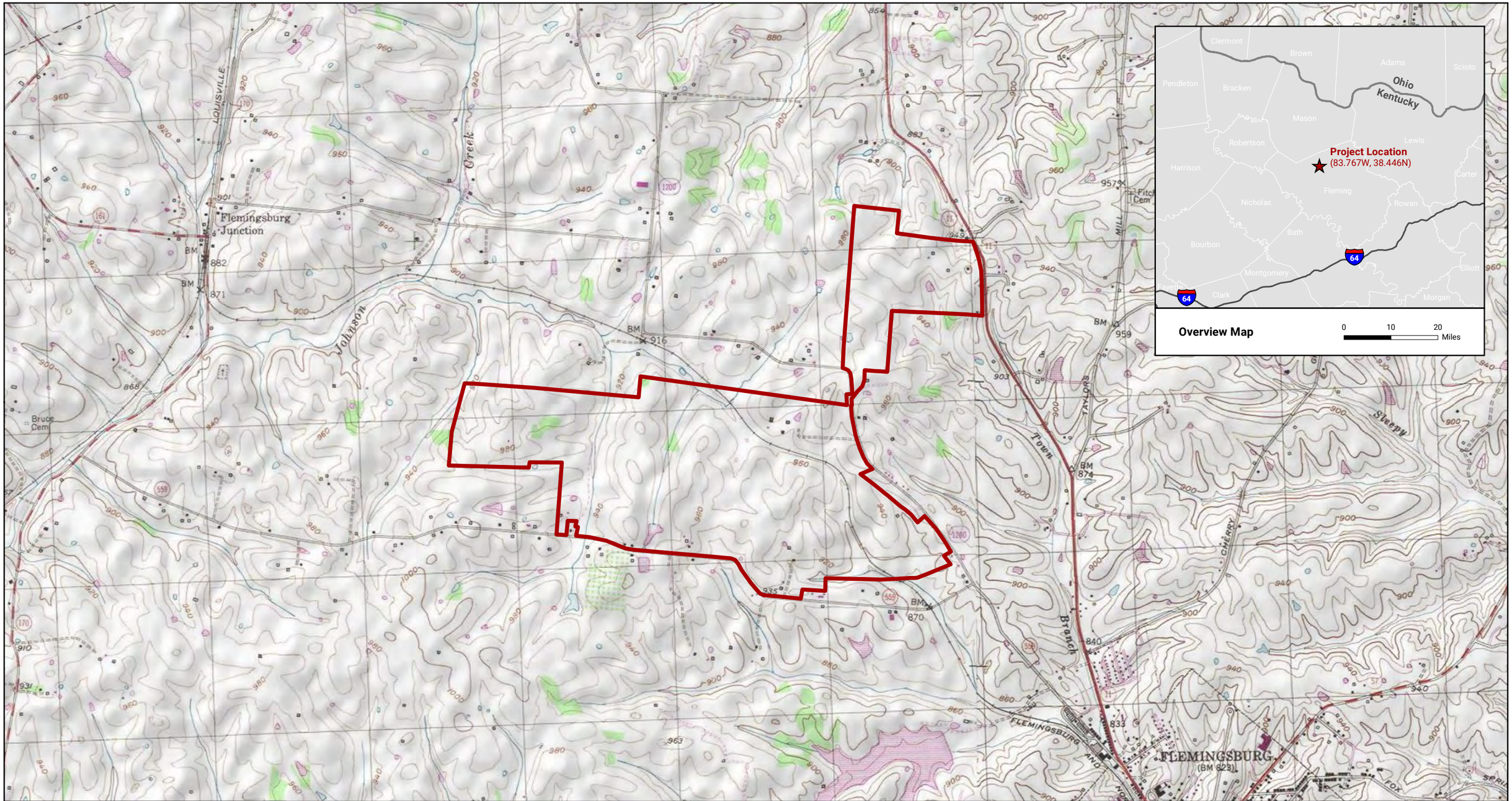
U.S. Fish and Wildlife Service (USFWS). 2018. National Wetland Inventory Map. Online at https://www.fws.gov/wetlands/data/Mapper.html. Accessed: December 2020.

U.S. Geological Survey (USGS). 2019. Elizaville, KY [map] and Flemingsburg, KY [map] 1:24,000. 7.5 Minute Series. Reston, VA: United States Department of the Interior. Accessed December 2020.

USGS. National Hydrography Dataset (USGS NHD). 2018. Available at https://viewer.nationalmap.gov/advanced-viewer/index.html?p=nhd. Accessed December 2020.

Weather Underground. 2020. Flemingsburg, KY Weather Conditions. Available at https://www.wunderground.com/weather/us/ky/flemingsburg/38.42,-83.74. Accessed December 2020.

Figures



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ENERGY RENEWAL PARTNERS, LLC

LEGEND

Project Area (~831 acres)

Fleming Solar, LLC

Fleming Solar Project

Regional Topography

Elizaville and Flemingsburg
USGS 1:24,000 Topographic Quadrangles

Project Location: Fleming County, Kentucky

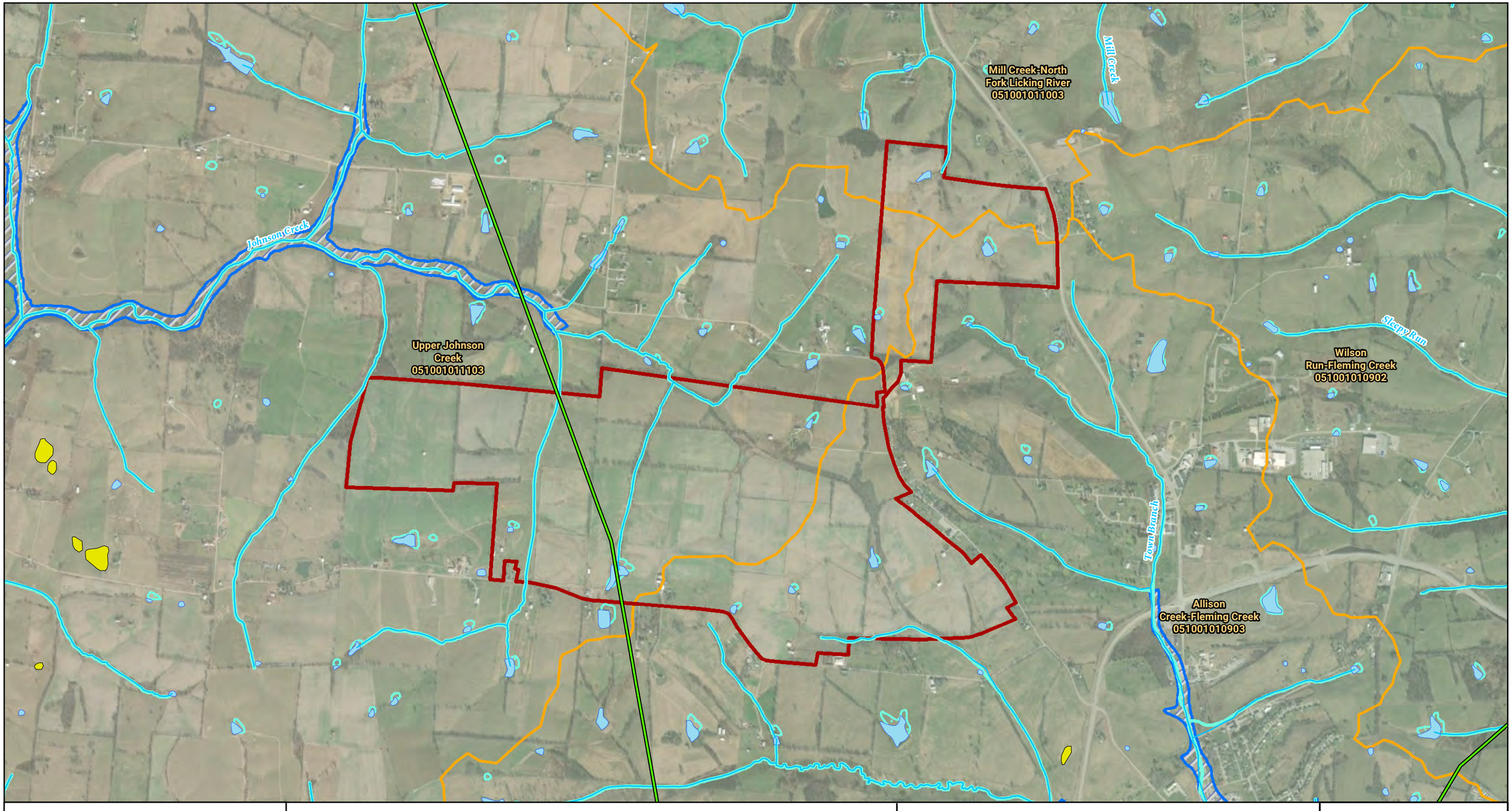
N

0 1,000 2,000 Feet

FIGURE 1

Prepared by: L. Kauffman

Date: 2021-03-31



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ERP
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LEGEND

- Project Area (~831 acres)
- Electric Transmission
- Stream/Drainage (NHD)
- Sinkhole (KGS)
- Water Body (NHD)
- Wetland (NWI)
- 100-year Floodplain
- Watershed (NWI HUC12)

Fleming Solar, LLC

Fleming Solar Project

Desktop-Identified Waters

Project Location: Fleming County, Kentucky

N

0 750 1,500 Feet

FIGURE 2

Prepared by: L. Kauffman

Date: 2021-03-31

Label	Map Unit	Hydric Rating	Percent of Project Area
Bs	Boonesboro silt loam, frequently flooded	0	0.8
CyC2	Cynthiana-Faywood complex, 6 to 12 percent slopes, eroded	0	1.4
CyE2	Cynthiana-Faywood complex, very rocky, 12 to 35 percent slopes, eroded	0	4.2
FwB	Faywood silt loam, 2 to 6 percent slopes	0	6.3
No	Nolin silt loam, 0 to 3 percent slopes, occasionally flooded	5	2.8
SaB	Sandview silt loam, 2 to 6 percent slopes	0	0.2
uLfC	Lowell-Faywood silt loams, 6 to 12 percent slopes	0	45.0
uLfD	Lowell-Faywood silt loams, 12 to 20 percent slopes	0	7.8
uLsoB	Lowell-Sandview silt loams, 2 to 6 percent slopes	0	30.9
W	Water	0	0.6

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LEGEND

Project Area (~831 acres)
Stream/Drainage (NHD)
Soil Map Unit
Electric Transmission

Fleming Solar, LLC

Fleming Solar Project

Hydric Rating by Soil Map Unit

Project Location: Fleming County, Kentucky

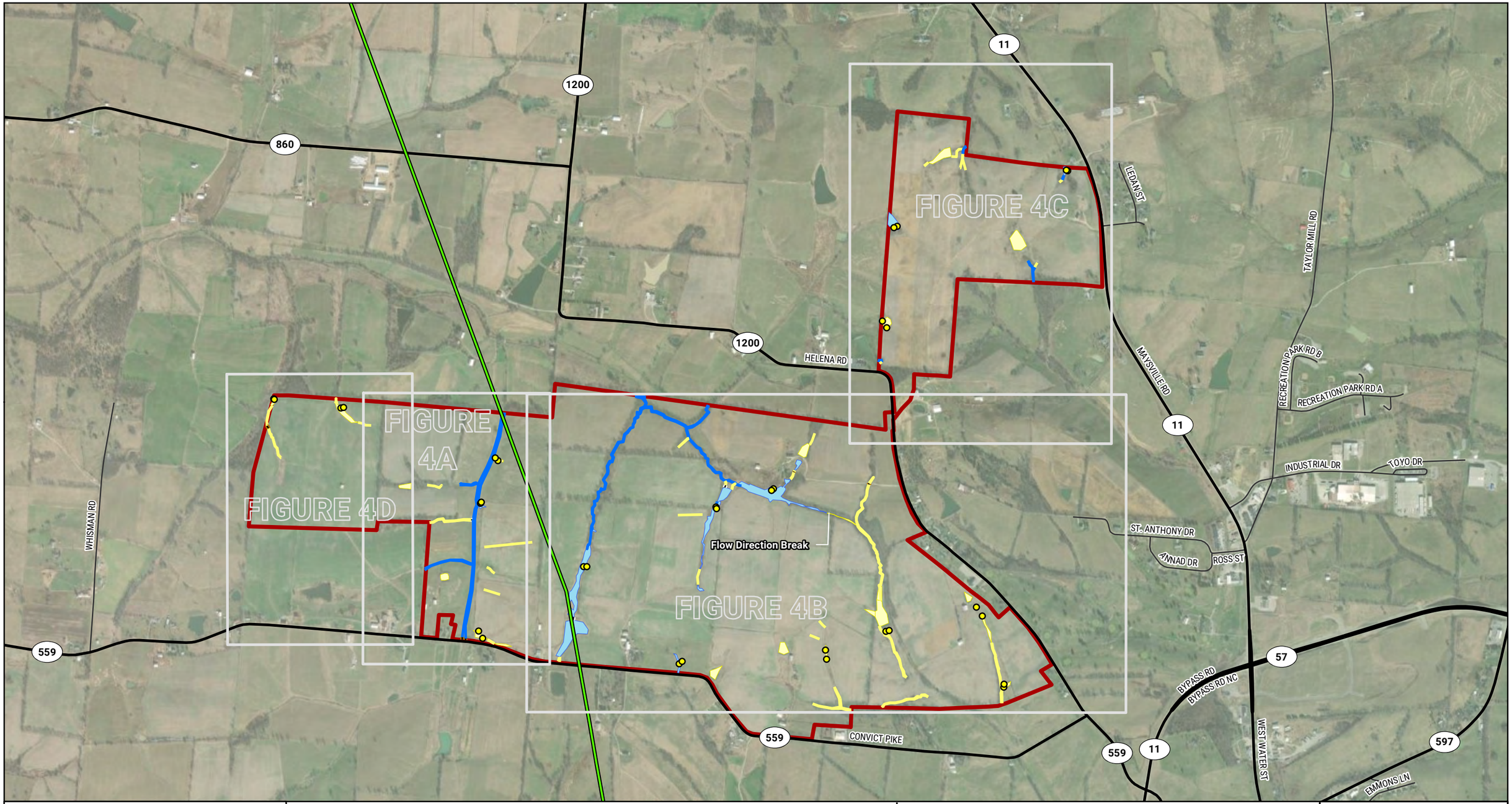
N

0 500 1,000 Feet

FIGURE 3

Prepared by: L. Kauffman

Date: 2021-03-31



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LEGEND

- Project Area (~831 acres)
- Electric Transmission
- Data Point
- Culvert
- Pipe
- Potentially Excluded Aquatic Resource
- Potentially Jurisdictional Aquatic Resource
- Potentially Excluded Aquatic Resource
- Potentially Jurisdictional Aquatic Resource

Fleming Solar, LLC

Fleming Solar Project

Field-Identified Waters
(Index)

Project Location: Fleming County, Kentucky

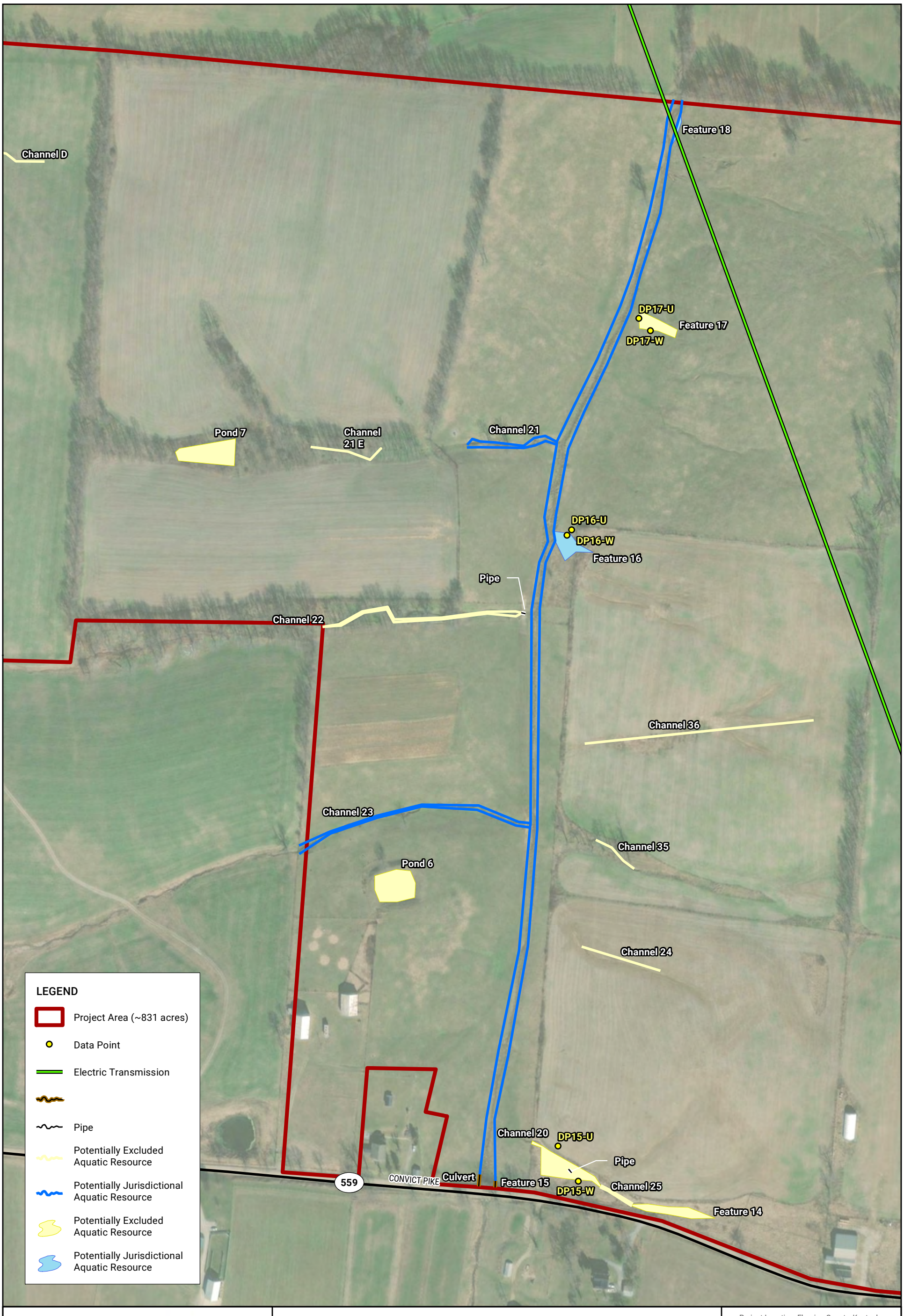
N

0 625 1,250 Feet

FIGURE 4

Prepared by: L. Kauffman

Date: 2021-04-06



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Fleming Solar, LLC

Fleming Solar Project

Field-Identified Waters

Project Location: Fleming County, Kentucky

N

0 125 250 Feet

FIGURE 4A

Prepared by: L. Kauffman

Date: 2021-04-05

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LEGEND

- Project Area (~831 acres)
- Data Point
- Electric Transmission
- Culvert
- Pipe
- Potentially Excluded Aquatic Resource
- Potentially Jurisdictional Aquatic Resource
- Potentially Excluded Aquatic Resource
- Potentially Jurisdictional Aquatic Resource

Fleming Solar, LLC

Fleming Solar Project

Field-Identified Waters

Project Location: Fleming County, Kentucky

N

0 250 500 Feet

FIGURE 4B

Prepared by: L. Kauffman

Date: 2021-03-31

LEGEND

Project Area (~831 acres)

Data Point

Potentially Excluded Aquatic Resource

Potentially Jurisdictional Aquatic Resource

Potentially Excluded Aquatic Resource

Potentially Jurisdictional Aquatic Resource

Pond 11

Channel 32

Channel 30

Channel 30 E

Channel 31

Channel 33

Feature 21

DP21-U

DP21-U

Channel 34

Channel 34 E

MAYSVILLE RD

11

Feature 20

DP20-W

DP20-U

Pond 10

Channel 29 E

Channel 29

Channel 28

11

Feature 19

DP19-U

DP19-W

Detail Map

HELENA RD

1200

Channel 26

Channel 27

Channel 27 E

DPA-U

1200

HELENA RD

Detail Map

0 50 100 Feet

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ERP
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Fleming Solar, LLC

Fleming Solar Project

Field-Identified Waters

Project Location: Fleming County, Kentucky

N

0 175 350 Feet

FIGURE 4C

Prepared by: L. Kauffman

Date: 2021-03-31

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ENERGY RENEWAL PARTNERS, LLC

Fleming Solar, LLC

Fleming Solar Project

Field-Identified Waters

Project Location: Fleming County, Kentucky

N

0 125 250 Feet

FIGURE 4D

Prepared by: L. Kauffman

Date: 2021-04-06

Appendix A
Photo Log

Photo 1: Typical view of channel bed with ephemeral and non-contiguous ordinary high-water mark and bed and bank. View of Channel 1E from the southeast portion of the Site.

Photo 2: Typical view of a channel with intermittent flow and continuous ordinary high-water mark and bed and bank. View from Channel 1, facing south.

Photo 3: Typical view of a constructed pond within the Site. View from Pond 1, facing north.

Photo 4: View of the upland area below Pond 1 with no overflow outlet. View from DP1-U, facing north.

Photo 5: View of unconfined linear wetland feature with typical herbaceous vegetation. View of Feature 1 at DP1-W, facing south.

Photo 6: View of wetland feature with typical herbaceous and woody vegetation. View of Feature 2 at DP2-W, facing northeast.

Photo 7: View of Pond 2 with forested railroad berm along its east bank. View from the southern portion of Pond 2, facing north.

Photo 8: View of a now-overgrown railroad berm within the project area, crossing the Site from southeast to northwest. View from east of DP4-U, facing southeast.

Photo 9: View of a constructed wet basin typical of Features 3 and 4. View from DP4-W, facing northeast.

Photo 10: View of typical wetland fringe along the banks of a pond. View from the east bank of Feature 6, facing west.

Photo 11: View of typical headwater stream with intermittent flow. View from the beginning of Channel 7, facing southwest.

Photo 12: View of typical stream with intermittent flow. View of Channel 2 entering the project boundary, facing southwest.

Photo 13: Landscape view of riparian buffers ending where Channel 2E and Channel 6 go underground. View from the southeast project boundary, facing northwest.

Photo 14: View of Channel 2E widening and hole where system goes underground. View from the end of Channel 2E in the southeastern portion of the Site.

Photo 15: View of Channel 6 entering hole in ground. View from the end of Channel 6, facing north.

Photo 16: View of wooden debris pile covering the hole that Channel 6 flows in too. View from the end of Channel 6, facing south.

Photo 17: View of a typical excavated hillside ditch. View from Channel 4, facing west-northwest.

Photo 18: View of a typical eroded hillside ditch in a cattle field. View of Channel 5, facing northwest.

Photo 19: View of cattle disturbed feature with wetland characteristics. View from DP12-W, facing south.

Photo 20: View of the well and cistern at the headwater of Feature 12. View from the northern portion of Feature 12, facing south.

Photo 21: Typical view of a second order or greater stream with perennial flow. View of Channel 10 east of its confluence with Channel 12, facing southwest.

Photo 22: Typical view of first order stream with perennial flow. View from the norther portion of Channel 11, facing southwest.

Photo 23: Typical view of intermittent stream with forested and herbaceous riparian buffer. View of Channel 12 downstream of its confluence with Channel 14, facing northwest.

Photo 24: View of typical channelized swale along fenced tree line with ephemeral flow. View from the top of Channel 13, facing northwest.

Photo 25: Typical view of an herbaceous wetland with adjacent farm field uplands. View from Data Point 10-W, facing northeast.

Photo 26: Representative wetland soil found throughout the project area displaying a depleted matrix with prominent redox concentrations and oxidized rhizospheres on livings roots. View of soil at DP10-W.

Photo 27: View of typical wetland complex. View from DP8-W, facing southeast.

Photo 28: View of typical upland boundary on hillslope. View from DP8-U, facing northwest.

Photo 29: Typical view of a channel with ephemeral flow in a forested area. View of Channel 9, facing northeast.

Photo 30: View of earthen road and Pond 9 berm with no outlet. View from Feature 9, facing northwest.

Photo 31: View of linear channel within incontiguous ordinary high-water mark and standing stagnate water from recent precipitation. View of Channel 19 from Pond 5, facing south.

Photo 32: View of cattle degraded stream with perennial flow. View from the mid-point of Channel 20, facing south.

Photo 33: View typical wetland complex. View of Feature 13 from Data Point 13-W, facing west.

Photo 34: View of typical upland vegetation on hillslopes. View from Data Point 13-U, facing north.

Photo 35: View of herbaceous wetland with Channel 20 depicted in the background. View from the north portion of Feature 16, facing west.

Photo 36: View of a wetland depression within a hillslope. View from DP17-W, facing east.

Photo 37: View of intermittent stream entering the project boundary from a forested area to a cattle field. View from the western end of Channel 22, facing west.

Photo 38: View of Channel 22 ending at a pipe. View from the terrace of Channel 20, facing west.

Photo 39: View of general onsite cattle pasture with wetland dissipating to sheet flow. View from the end of Feature 15, facing west.

Photo 40: View of confined valley with ephemeral flow becoming unconfined and exhibiting wetland characteristics. View from DP15-W, facing east.

Photo 41: View of upland and wetland boundary of a closed depression within a cattle field. View from DP19-W, facing west.

Photo 42: View of forested wetland altered by cattle. View from DP20-W, facing west.

Photo 43: View of Channel 34E with a lack of ordinary high-water mark. Located in the northeast portion of the project area, facing southwest.

Photo 44: View of a typical spring with concrete box found within the project area. View from Channel 34 in northeast portion of the Site, facing southwest.

Photo 45: View of a typical pond within the project area. View from Pond 10, facing northwest.

Photo 46: View of Pond 10 berm from the lowest downgradient position with no evidence of a channelized structure. View from Pond 10, facing northwest.

Photo 47: View of stream with intermittent flow altered by cattle. View from Channel 26, facing west.

Photo 48: View of typical intermittent streams. View from the confluence of Channels 28 and 29, facing south.

Photo 49: View of Pond 11 from the northern project area, facing north.

Photo 50: View of outlet structure from Pond 11 that lacks ordinary high-waters and bed banks. View from Channel 32, facing west.

Photo 51: View of cistern or well within Feature 9. View from the eastern portion of Feature 9, facing west.

Photo 52: View of culvert connecting Feature 9 to Channel 8. View from the southern portion of Feature 9, facing southeast.

Photo 53: View of offsite upland drainage downgradient from Channels 1, 2E, and 6. View from Convict Pike facing west towards Channel 1 circled in blue. Photo taken on March 17, 2021.

Photo 54: Continued view of offsite upland area and the offsite termination point of Channel 1, circled in blue. View from Site boundary, facing southeast towards Convict Pike.

Photo 55: Typical view of wooded upland area north of Helena Road. View from DPA-U, facing west.

Photo 56: Typical view of upland soils within forested, non-agricultural areas of the Site. View from DPA-U.

Photo 57: Typical view of Channel 37 and valley. View from southern portion of the channel, facing downstream and northwest. Photo taken on March 17, 2021.

Photo 58: Typical view of channelized portion of Channel 37. View from end of Channel 37, facing upstream, south. Photo taken on March 17, 2021.

Photo 59: Typical view of Feature 23 from its southern end, facing north. Photo taken on March 17, 2021.

Photo 60: Typical view of berm separating Feature 23 and Channel 37 from offsite WoUS. View from DP23-W facing DP23-U. Photo taken on March 17, 2021.

Photo 61: Typical view of Feature 24 boundary with adjacent cropland. View from Feature 24 facing northeast towards DP24-U. Photo taken on March 17, 2021.

Photo 62: Typical view of Feature 24 within the valley. View from DP24-W facing northwest. Photo taken on March 17, 2021.

Photo 63: Typical view of Channel 38 and Channel 39. View from Channel 38 facing southeast towards Feature 24. Photo taken on March 17, 2021.

Photo 64: Typical view of Channel 40, from its headwater facing west. Photo taken on March 17, 2021.

Appendix B

Wetland Determination Data Forms – Eastern Mountain and Piedmont Region

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020

Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DPA-U

Investigator(s): DR and SM Section, Township, Range: Flemingsburg

Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 4

Subregion (LRR or MLRA): LRR N Lat: 38.45085646 Long: -83.75909180 Datum: NAD 83

Soil Map Unit Name: Lowell-Faywood silt loams, 6 to 12 percent slopes NWI classification: N/A

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 X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This data sheet is representative of a wooded upland area north of Helena Road.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ 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)
- ___ 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)

Secondary Indicators (minimum of two required)

- ___ 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are not present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DPA-U

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Celtis occidentalis*	40	Yes	FACU
2. *Juglans nigra*	40	Yes	FACU
3. *Ulmus rubra*	40	Yes	FAC
4.			
5.			
6.			
7.			
	120	=Total Cover	
50% of total cover: 60		20% of total cover: 24	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Lonicera maackii*	40	Yes	UPL
2. *Callicarpa americana*	25	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	65	=Total Cover	
50% of total cover: 33		20% of total cover: 13	
Herb Stratum (Plot size: 5)			
1. *Poa pratensis*	35	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35	=Total Cover	
50% of total cover: 18		20% of total cover: 7	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 16.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are not present.

SOIL

Sampling Point: DPA-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/3	100					Loamy/Clayey	
6-20	10YR 5/4	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Indicators of hydric soils are not present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020

Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP1-U

Investigator(s): DR and SM Section, Township, Range: Flemingsburg

Landform (hillside, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 38.44219299 Long: -83.75530118 Datum: NAD 83

Soil Map Unit Name: Lowell-Faywood silt loams, 6 to 12 percent slopes NWI classification: N/A

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 X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This data sheet is representative of the upland area surrounding Feature 1.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ 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)
- ____ 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)

Secondary Indicators (minimum of two required)

- ____ 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are not present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP1-U

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Bidens frondosa*	20	No	FACW
2. *Ranunculus abortivus*	20	No	FACW
3. *Carex frankii*	30	Yes	OBL
4. *Dactylis glomerata*	45	Yes	FACU
5. *Dipsacus fullonum*	20	No	FACU
6. *Solanum carolinense*	15	No	FACU
7. *Solidago canadensis*	30	Yes	FACU
8.			
9.			
10.			
11.			
	180 =Total Cover		
50% of total cover: 90	20% of total cover: 36		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are not present.

SOIL

Sampling Point: DP1-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/3	100					Loamy/Clayey	
8-12	10YR 4/3	95	10YR 6/6	5	C	M	Loamy/Clayey	Distinct redox concentrations
12-20	10YR 5/3	95	10YR 6/6	5	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Indicators of hydric soils are not present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020

Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP1-W

Investigator(s): DR and SM Section, Township, Range: Flemingsburg

Landform (hillside, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 38.44125536 Long: -83.75946304 Datum: NAD 83

Soil Map Unit Name: Lowell-Faywood silt loams, 6 to 12 percent slopes NWI classification: N/A

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 X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
This data sheet is representative of Feature 1.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- X 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)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 3

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP1-W

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Juncus effusus*	55	Yes	FACW
2. *Ranunculus abortivus*	20	No	FACW
3. *Carex frankii*	45	Yes	OBL
4. *Scirpus atrovirens*	10	No	OBL
5. *Persicaria pensylvanica*	20	No	FACW
6. *Carex vulpinoidea*	30	No	OBL
7.			
8.			
9.			
10.			
11.			
	180 =Total Cover		
50% of total cover: 90	20% of total cover: 36		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are present.

SOIL

Sampling Point: DP1-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	95	7.5YR 4/6	5	C	M	Loamy/Clayey	Prominent redox concentrations
4-12	10YR 4/2	85	7.5YR 4/6	5	C	PL	Loamy/Clayey	Prominent redox concentrations
12-20	10YR 5/2	75	10YR 4/6	25	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Indicators of hydric soils are present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020

Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP2-U

Investigator(s): DR and SM Section, Township, Range: Flemingsburg

Landform (hillside, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 38.43938625 Long: -83.75392816 Datum: NAD 83

Soil Map Unit Name: Lowell-Faywood silt loams, 6 to 12 percent slopes NWI classification: N/A

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 X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This data sheet is representative of the upland area surrounding Feature 2.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ 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)
- ____ 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)

Secondary Indicators (minimum of two required)

- ____ 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are not present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP2-U

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Bidens frondosa*	20	No	FACW
2. *Rubus argutus*	40	Yes	FACU
3. *Rosa multiflora*	30	No	FACU
4. *Dactylis glomerata*	45	Yes	FACU
5. *Dipsacus fullonum*	20	No	FACU
6. *Solanum carolinense*	15	No	FACU
7. *Solidago canadensis*	45	Yes	FACU
8.			
9.			
10.			
11.			
	215 =Total Cover		
50% of total cover: 108	20% of total cover: 43		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are not present.

SOIL

Sampling Point: DP2-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/3	100					Loamy/Clayey	
8-12	10YR 4/3	95	10YR 6/6	5	C	M	Loamy/Clayey	Distinct redox concentrations
12-20	10YR 5/3	95	10YR 6/6	5	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Indicators of hydric soils are not present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020
Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP2-W
Investigator(s): DR and SM Section, Township, Range: Flemingsburg
Landform (hillside, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 3
Subregion (LRR or MLRA): LRR N Lat: 38.43926504 Long: -83.75404065 Datum: NAD 83
Soil Map Unit Name: Nolin silt loam, 0 to 3 percent slopes, occasionally flooded NWI classification: N/A
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 X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
This data sheet is representative of Feature 2.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- X 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)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 2
Water Table Present?	Yes X	No ____	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 3

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP2-W

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix nigra*	15	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
	15	=Total Cover	
50% of total cover: 8		20% of total cover: 3	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Salix nigra*	10	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	10	=Total Cover	
50% of total cover: 5		20% of total cover: 2	
Herb Stratum (Plot size: 5)			
1. *Typha angustifolia*	30	Yes	OBL
2. *Ranunculus abortivus*	20	No	FACW
3. *Carex frankii*	45	Yes	OBL
4. *Juncus effusus*	35	Yes	FACW
5. *Persicaria pensylvanica*	20	No	FACW
6. *Carex vulpinoidea*	30	Yes	OBL
7. *Scirpus atrovirens*	25	No	OBL
8.			
9.			
10.			
11.			
	205	=Total Cover	
50% of total cover: 103		20% of total cover: 41	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)
Prevalence Index = B/A =	

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are present.

SOIL

Sampling Point: DP2-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	95	7.5YR 4/6	5	C	M	Loamy/Clayey	Prominent redox concentrations
4-12	10YR 4/2	85	7.5YR 4/6	5	C	PL	Loamy/Clayey	Prominent redox concentrations
12-20	10YR 5/2	75	10YR 4/6	25	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Indicators of hydric soils are present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020

Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP4-U

Investigator(s): DR and SM Section, Township, Range: Flemingsburg

Landform (hillside, terrace, etc.): Hillside Local relief (concave, convex, none): None Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 38.44135992 Long: -83.75934728 Datum: NAD 83

Soil Map Unit Name: Lowell-Faywood silt loams, 6 to 12 percent slopes NWI classification: N/A

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 X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This data sheet is representative of the upland area surrounding Features 3, 4, 5, 6, and 7.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ 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)
- ___ 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)

Secondary Indicators (minimum of two required)

- ___ 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are not present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP4-U

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Solidago canadensis*	45	Yes	FACU
2. *Solidago altissima*	45	Yes	FACU
3. *Dipsacus fullonum*	30	No	FACU
4. *Arctium minus*	20	No	FACU
5. *Rosa multiflora*	20	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	160 =Total Cover		
50% of total cover: 80	20% of total cover: 32		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	160	x 4 =	640
UPL species	0	x 5 =	0
Column Totals:	160 (A)		640 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are not present.

SOIL

Sampling Point: DP4-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	2.5Y 5/3	100					Loamy/Clayey	
4-8	2.5Y 4/4	80	2.5Y 5/6	20	C	M	Loamy/Clayey	Distinct redox concentrations
8-20	2.5Y 6/4	75	2.5Y 8/6	25	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Indicators of hydric soils are not present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020
Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP4-W
Investigator(s): DR and SM Section, Township, Range: Flemingsburg
Landform (hillside, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 3
Subregion (LRR or MLRA): LRR N Lat: 38.44125536 Long: -83.75946304 Datum: NAD 83
Soil Map Unit Name: Lowell-Faywood silt loams, 6 to 12 percent slopes NWI classification: N/A
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 X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
This data sheet is representative of Features 3, 4, 5, 6, and 7.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- X 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)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 2
Water Table Present?	Yes X	No ____	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 3

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP4-W

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix nigra*	15	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
	15 =Total Cover		
50% of total cover: 8	20% of total cover: 3		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Salix nigra*	10	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	10 =Total Cover		
50% of total cover: 5	20% of total cover: 2		
Herb Stratum (Plot size: 5)			
1. *Typha angustifolia*	55	Yes	OBL
2. *Ranunculus abortivus*	20	No	FACW
3. *Carex frankii*	30	Yes	OBL
4. *Dipsacus fullonum*	5	No	FACU
5. *Persicaria pensylvanica*	20	No	FACW
6. *Carex vulpinoidea*	30	Yes	OBL
7.			
8.			
9.			
10.			
11.			
	160 =Total Cover		
50% of total cover: 80	20% of total cover: 32		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are present.

SOIL

Sampling Point: DP4-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/3	80	10YR 5/6	20	C	M	Loamy/Clayey	Distinct redox concentrations
3-8	10YR 5/1	80	5YR 4/6	20	C	PL	Loamy/Clayey	Prominent redox concentrations
8-14	10YR 4/1	75	5YR 4/6	25	C	M	Loamy/Clayey	Prominent redox concentrations
14-20	N 2.5/	75	5YR 4/6	25	C	M	Mucky Loam/Clay	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Indicators of hydric soils are present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020
Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP8-W
Investigator(s): DR and SM Section, Township, Range: Flemingsburg
Landform (hillside, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 1
Subregion (LRR or MLRA): LRR N Lat: 38.44375480 Long: -83.76477507 Datum: NAD 83
Soil Map Unit Name: Lowell-Sandview silt loams, 2 to 6 percent slopes NWI classification: None
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 X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
This data sheet is representative of Features 8 and 9.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ 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)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X 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)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 3
Water Table Present?	Yes ____	No X	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 8

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP8-W

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	45	Yes	FAC
2. *Fraxinus pennsylvanica*	45	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	90	=Total Cover	
50% of total cover: 45		20% of total cover: 18	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Acer rubrum*	40	Yes	FAC
2. *Salix nigra*	25	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	65	=Total Cover	
50% of total cover: 33		20% of total cover: 13	
Herb Stratum (Plot size: 5)			
1. *Carex frankii*	45	Yes	OBL
2. *Carex laevivaginata*	40	Yes	OBL
3. *Scirpus atrovirens*	20	Yes	OBL
4. *Xanthium strumarium*	20	Yes	FAC
5. *Dichanthelium clandestinum*	15	No	FAC
6. *Helianthus grosseserratus*	15	No	FACW
7. *Rubus argutus*	20	Yes	FACU
8.			
9.			
10.			
11.			
	175	=Total Cover	
50% of total cover: 88		20% of total cover: 35	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 88.9% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are present.

SOIL

Sampling Point: DP8-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/1	75	10YR 5/8	25	C	M	Loamy/Clayey	Prominent redox concentrations
10-20	10YR 5/2	70	10YR 5/8	30	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Indicators of hydric soils are present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020

Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP8-U

Investigator(s): DR and SM Section, Township, Range: Flemingsburg

Landform (hillside, terrace, etc.): Hillside Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR or MLRA): LRR N Lat: 38.44652433 Long: -83.76469182 Datum: NAD 83

Soil Map Unit Name: Lowell-Sandview silt loams, 2 to 6 percent slopes NWI classification: None

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 X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This data sheet is representative of the upland area surrounding Features 8 and 9.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ 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)
- ___ 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)

Secondary Indicators (minimum of two required)

- ___ 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are not present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP8-U

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Solidago canadensis*	65	Yes	FACU
2. *Digitaria ischaemum*	45	Yes	UPL
3. *Symphyotrichum ericoides*	65	Yes	FACU
4. *Daucus carota*	25	No	UPL
5. *Asclepias syriaca*	15	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	215 =Total Cover		
50% of total cover: 108	20% of total cover: 43		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are not present.

SOIL

Sampling Point: DP8-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 5/3	100					Loamy/Clayey	
5-20	2.5Y 5/4	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Indicators of hydric soils are not present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020

Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP10-U

Investigator(s): DR and SM Section, Township, Range: Flemingsburg

Landform (hillside, terrace, etc.): Hillside Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR or MLRA): LRR N Lat: 38.44583886 Long: -83.76734647 Datum: NAD 83

Soil Map Unit Name: Lowell-Faywood silt loams, 6 to 12 percent slopes NWI classification: None

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 X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This data sheet is representative of the upland area surrounding Features 10 and 11.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ 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)
- ___ 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)

Secondary Indicators (minimum of two required)

- ___ 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are not present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP10-U

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Solidago canadensis*	45	Yes	FACU
2. *Symphyotrichum ericoides*	40	Yes	FACU
3. *Daucus carota*	40	Yes	UPL
4. *Xanthium strumarium*	20	No	FAC
5. *Conium maculatum*	30	No	FACW
6. *Rubus argutus*	30	No	FACU
7. *Rosa multiflora*	20	No	FACU
8.			
9.			
10.			
11.			
	225 =Total Cover		
50% of total cover: 113	20% of total cover: 45		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are not present.

SOIL

Sampling Point: DP10-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 5/3	100					Loamy/Clayey	
10-15	10YR 5/2	95	10YR 4/6	5	C	PL		Prominent redox concentrations
15-20	10YR 5/2	80	7.5YR 5/8	20	C	M		Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Indicators of hydric soils are not present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020

Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP10-W

Investigator(s): DR and SM Section, Township, Range: Flemingsburg

Landform (hillside, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 38.44590562 Long: -83.76736579 Datum: NAD 83

Soil Map Unit Name: Lowell-Faywood silt loams, 6 to 12 percent slopes NWI classification: None

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 X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
This data sheet is representative of Features 10 and 11.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ 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)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X 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)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP10-W

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Carex frankii*	45	Yes	OBL
2. *Helianthus grosseserratus*	30	Yes	FACW
3. *Scirpus atrovirens*	20	No	OBL
4. *Xanthium strumarium*	20	No	FAC
5. *Conium maculatum*	30	Yes	FACW
6. *Solidago canadensis*	30	Yes	FACU
7. *Rosa multiflora*	10	No	FACU
8.			
9.			
10.			
11.			
	185 =Total Cover		
50% of total cover: 93	20% of total cover: 37		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are present.

SOIL

Sampling Point: DP10-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 5/3	100					Loamy/Clayey	
5-15	10YR 5/2	95	10YR 4/6	5	C	PL	Loamy/Clayey	Prominent redox concentrations
15-20	10YR 5/2	80	7.5YR 5/8	20	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Indicators of hydric soils are present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020

Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP12-U

Investigator(s): DR and SM Section, Township, Range: Flemingsburg

Landform (hillside, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): LRR N Lat: 38.44026669 Long: -83.76899212 Datum: NAD 83

Soil Map Unit Name: Lowell-Faywood silt loams, 12 to 20 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation X, 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 X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This data sheet is representative of the upland area surrounding Feature 12. This area is located within a cattle pasture. Vegetation is regularly grazed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ 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)
- ___ 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)

Secondary Indicators (minimum of two required)

- ___ 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are not present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP12-U

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Poa pratensis*	95	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95 =Total Cover		
50% of total cover: 48	20% of total cover: 19		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)
Prevalence Index = B/A =	

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are not present. Vegetation is regularly grazed by cattle.

SOIL

Sampling Point: DP12-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 5/4	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Indicators of hydric soils are not present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020

Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP12-W

Investigator(s): DR and SM Section, Township, Range: Flemingsburg

Landform (hillside, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): LRR N Lat: 38.44012361 Long: -83.76904805 Datum: NAD 83

Soil Map Unit Name: Lowell-Faywood silt loams, 12 to 20 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation X, Soil X, 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 X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
This data sheet is representative of Feature 12. This area is located within a cattle pasture. Vegetation is regularly grazed and soils are disturbed for the top 4 inches. Feature begins at a well and exhibits intermittent flow. Bed and banks and OHWM are altered by cattle activity. System would likely naturally be an intermittent stream.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X 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)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 3
Water Table Present?	Yes X	No ____	Depth (inches): 1
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are present. Feature begins at a well and exhibits intermittent flow. Bed and banks and OHWM are altered by cattle activity. System would likely naturally be an intermittent stream.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP12-W

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Poa pratensis*	80	Yes	FACU
2. *Ranunculus abortivus*	50	Yes	FACW
3. *Xanthium strumarium*	35	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	165 =Total Cover		
50% of total cover: 83	20% of total cover: 33		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are present. Vegetation is regularly grazed by cattle.

SOIL

Sampling Point: DP12-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100					Loamy/Clayey	Altered by cattle
4-20	10YR 4/1	95	10YR 5/8	5	C	PL	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Indicators of hydric soils are present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020
Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP13-W
Investigator(s): DR and SM Section, Township, Range: Flemingsburg
Landform (hillside, terrace, etc.): Valley Local relief (concave, convex, none): None Slope (%): 1
Subregion (LRR or MLRA): LRR N Lat: 38.44375480 Long: -83.77352199 Datum: NAD 83
Soil Map Unit Name: Lowell-Faywood silt loams, 6 to 12 percent slopes NWI classification: Riverine
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 X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
This data sheet is representative of Feature 13.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ 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)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X 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)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 3
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP13-W

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix nigra*	25	Yes	OBL
2. *Fraxinus pennsylvanica*	45	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	70	=Total Cover	
50% of total cover: 35		20% of total cover: 14	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Salix nigra*	15	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	15	=Total Cover	
50% of total cover: 8		20% of total cover: 3	
Herb Stratum (Plot size: 5)			
1. *Carex frankii*	45	Yes	OBL
2. *Carex laevivaginata*	40	Yes	OBL
3. *Scirpus atrovirens*	35	Yes	OBL
4. *Xanthium strumarium*	35	Yes	FAC
5. *Dichanthelium clandestinum*	30	No	FAC
6. *Helianthus grosseserratus*	15	No	FACW
7.			
8.			
9.			
10.			
11.			
	200	=Total Cover	
50% of total cover: 100		20% of total cover: 40	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)
Prevalence Index = B/A =	

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are present.

SOIL

Sampling Point: DP13-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/3	100					Loamy/Clayey	
3-15	10YR 5/1	80	10YR 4/6	20	C	PL	Loamy/Clayey	Prominent redox concentrations
15-20	10YR 6/1	85	10YR 4/6	15	C	PL/M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Indicators of hydric soils are present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020

Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP13-U

Investigator(s): DR and SM Section, Township, Range: Flemingsburg

Landform (hillside, terrace, etc.): Hillside Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR or MLRA): LRR N Lat: 38.44374878 Long: -83.77337947 Datum: NAD 83

Soil Map Unit Name: Lowell-Faywood silt loams, 6 to 12 percent slopes NWI classification: None

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 X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This data sheet is representative of the upland area surrounding Feature 13.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ 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)
- ___ 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)

Secondary Indicators (minimum of two required)

- ___ 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are not present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP13-U

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Celtis occidentalis*	30	Yes	FACU
2. *Acer rubrum*	15	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	45 =Total Cover		
50% of total cover: 23	20% of total cover: 9		
Herb Stratum (Plot size: 5)			
1. *Solidago canadensis*	45	Yes	FACU
2. *Digitaria ischaemum*	45	Yes	UPL
3. *Phytolacca americana*	30	No	FACU
4. *Helianthus grosseserratus*	20	No	FACW
5. *Asclepias syriaca*	15	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	155 =Total Cover		
50% of total cover: 78	20% of total cover: 31		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are not present.

SOIL

Sampling Point: DP13-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 5/3	100					Loamy/Clayey	
5-20	2.5Y 5/4	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Indicators of hydric soils are not present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020

Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP15-U

Investigator(s): DR and SM Section, Township, Range: Flemingsburg

Landform (hillside, terrace, etc.): Hillside Local relief (concave, convex, none): None Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 38.4414156 Long: -83.77842501 Datum: NAD 83

Soil Map Unit Name: Lowell-Faywood silt loams, 12 to 20 percent slopes NWI classification: N/A

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 X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This data sheet is representative of the upland area surrounding Features 14 and 15.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ 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)
- ____ 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)

Secondary Indicators (minimum of two required)

- ____ 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are not present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP15-U

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Solidago canadensis*	50	No	FACU
2. *Digitaria ischaemum*	60	Yes	UPL
3. *Poa pratensis*	60	Yes	FACU
4. *Dipsacus fullonum*	70	Yes	FACU
5. *Arctium minus*	10	No	FACU
6. *Symphyotrichum ericoides*	45	No	FACU
7. *Solanum carolinense*	20	No	FACU
8.			
9.			
10.			
11.			
	315 =Total Cover		
50% of total cover: 158	20% of total cover: 63		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are not present.

SOIL

Sampling Point: DP15-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	7.5YR 4/4	100					Loamy/Clayey	
10-20	10YR 4/4	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Indicators of hydric soils are not present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020
Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP15-W
Investigator(s): DR and SM Section, Township, Range: Flemingsburg
Landform (hillside, terrace, etc.): Hillside Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR or MLRA): LRR N Lat: 38.44120673 Long: -83.77829030 Datum: NAD 83
Soil Map Unit Name: Lowell-Faywood silt loams, 12 to 20 percent slopes NWI classification: N/A
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 X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
This data sheet is representative of Features 14 and 15.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ____ 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)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 11
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 10

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are present. Precipitation in last 24 hours. Anticedent precipitation tool indicates drier than normal conditions.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP15-W

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Setaria pumila*	70	Yes	FAC
2. *Carex frankii*	50	Yes	OBL
3. *Persicaria bicornis*	30	No	FACW
4. *Ranunculus abortivus*	10	No	FACW
5. *Arctium minus*	10	No	FACU
6. *Symphyotrichum ericoides*	20	No	FACU
7. *Poa pratensis*	30	No	FACU
8.			
9.			
10.			
11.			
	220 =Total Cover		
50% of total cover: 110	20% of total cover: 44		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are present.

SOIL

Sampling Point: DP15-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	2.5Y 5/2	90	10YR 2/2	10	C	M	Loamy/Clayey	Prominent redox concentrations
12-20	10YR 5/2	85	10YR 4/6	15	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Indicators of hydric soils are present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020

Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP16-U

Investigator(s): DR and SM Section, Township, Range: Flemingsburg

Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 38.4459 Long: -83.77805 Datum: NAD 83

Soil Map Unit Name: Lowell-Sandview silt loams, 2 to 6 percent slopes NWI classification: N/A

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 X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This data sheet is representative of the upland area surrounding Features 16 and 18.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ 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)
- ___ 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)

Secondary Indicators (minimum of two required)

- ___ 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)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are not present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP16-U

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Rubus argutus*	30	Yes	FACU
2. *Celtis occidentalis*	25	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	55 =Total Cover		
50% of total cover: 28	20% of total cover: 11		
Herb Stratum (Plot size: 5)			
1. *Solidago canadensis*	50	Yes	FACU
2. *Digitaria ischaemum*	60	Yes	UPL
3. *Poa pratensis*	60	Yes	FACU
4. *Solanum carolinense*	10	No	FACU
5. *Arctium minus*	10	No	FACU
6. *Symphyotrichum ericoides*	35	No	FACU
7. *Agrostis gigantea*	5	No	FACW
8.			
9.			
10.			
11.			
	230 =Total Cover		
50% of total cover: 115	20% of total cover: 46		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are not present.

SOIL

Sampling Point: DP16-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/3	100					Loamy/Clayey	
10-20	10YR 4/4	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Indicators of hydric soils are not present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020

Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP16-W

Investigator(s): DR and SM Section, Township, Range: Flemingsburg

Landform (hillside, terrace, etc.): Hillside Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): LRR N Lat: 38.44601100 Long: -83.77819867 Datum: NAD 83

Soil Map Unit Name: Lowell-Sandview silt loams, 2 to 6 percent slopes NWI classification: N/A

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 X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
This data sheet is representative of Features 16 and 18.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ 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)
- ___ 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)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP16-W

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:		20% of total cover:	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:		20% of total cover:	
Herb Stratum (Plot size: 5)			
1. *Setaria pumila*	60	Yes	FAC
2. *Carex frankii*	40	Yes	OBL
3. *Persicaria bicornis*	30	No	FACW
4. *Ranunculus abortivus*	10	No	FACW
5. *Bidens frondosa*	40	Yes	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	180 =Total Cover		
50% of total cover: 90		20% of total cover: 36	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are present.

SOIL

Sampling Point: DP16-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/2	75	10YR 4/6	25	C	M	Loamy/Clayey	Prominent redox concentrations
12-20	10YR 5/2	60	10YR 2/2	10	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Indicators of hydric soils are present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020

Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP17-U

Investigator(s): DR and SM Section, Township, Range: Flemingsburg

Landform (hillside, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 38.44773800 Long: -83.77759842 Datum: NAD 83

Soil Map Unit Name: Nolin silt loam, 0 to 3 percent slopes, occasionally flooded NWI classification: N/A

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 X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This data sheet is representative of the upland area surrounding Feature 17.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ 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)
- ____ 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)

Secondary Indicators (minimum of two required)

- ____ 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are not present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP17-U

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Solidago canadensis*	40	No	FACU
2. *Digitaria ischaemum*	60	Yes	UPL
3. *Poa pratensis*	60	Yes	FACU
4. *Solanum carolinense*	10	No	FACU
5. *Arctium minus*	10	No	FACU
6. *Symphyotrichum ericoides*	20	No	FACU
7. *Agrostis gigantea*	20	No	FACW
8.			
9.			
10.			
11.			
	220 =Total Cover		
50% of total cover: 110	20% of total cover: 44		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are not present.

SOIL

Sampling Point: DP17-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/3	100					Loamy/Clayey	
10-20	10YR 4/4	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Indicators of hydric soils are not present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020
Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP17-W
Investigator(s): DR and SM Section, Township, Range: Flemingsburg
Landform (hillside, terrace, etc.): Hillside Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR or MLRA): LRR N Lat: 38.44763631 Long: -83.77741203 Datum: NAD 83
Soil Map Unit Name: Lowell-Sandview silt loams, 2 to 6 percent slopes NWI classification: N/A
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 X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
This data sheet is representative of Feature 17.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ 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)
- ___ 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)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP17-W

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Setaria pumila*	60	Yes	FAC
2. *Carex frankii*	30	Yes	OBL
3. *Persicaria bicornis*	30	Yes	FACW
4. *Ranunculus abortivus*	10	No	FACW
5. *Arctium minus*	10	No	FACU
6. *Symphyotrichum ericoides*	20	No	FACU
7. *Poa pratensis*	30	Yes	FACU
8. *Digitaria ischaemum*	30	Yes	UPL
9.			
10.			
11.			
	220 =Total Cover		
50% of total cover: 110	20% of total cover: 44		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are present.

SOIL

Sampling Point: DP17-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/2	75	10YR 4/6	25	C	M	Loamy/Clayey	Prominent redox concentrations
12-20	10YR 5/2	60	10YR 2/2	10	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Indicators of hydric soils are present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020
Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP20-U
Investigator(s): DR and SM Section, Township, Range: Flemingsburg
Landform (hillside, terrace, etc.): Hillside Local relief (concave, convex, none): None Slope (%): 3
Subregion (LRR or MLRA): LRR N Lat: 38.45270 Long: -83.7595888 Datum: NAD 83
Soil Map Unit Name: Cynthiana-Faywood complex, very rocky, 12 to 35 percent slopes, eroded NWI classification: N/A
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 X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This data sheet is representative of the upland area surrounding Feature 19.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ 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)
- ___ 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)

Secondary Indicators (minimum of two required)

- ___ 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are not present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP20-U

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ulmus rubra*	40	Yes	FAC
2. *Celtis occidentalis*	40	Yes	FACU
3. *Acer rubrum*	40	Yes	FAC
4.			
5.			
6.			
7.			
	120	=Total Cover	
50% of total cover: 60		20% of total cover: 24	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Ulmus rubra*	40	Yes	FAC
2. *Ulmus alata*	20	Yes	FACU
3. *Juniperus virginiana*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
	70	=Total Cover	
50% of total cover: 35		20% of total cover: 14	
Herb Stratum (Plot size: 5)			
1. *Solidago canadensis*	40	Yes	FACU
2. *Solidago altissima*	40	Yes	FACU
3. *Symphyotrichum ericoides*	30	Yes	FACU
4. *Arctium minus*	20	No	FACU
5. *Rubus argutus*	30	Yes	FACU
6. *Lonicera maackii*	30	Yes	UPL
7.			
8.			
9.			
10.			
11.			
	190	=Total Cover	
50% of total cover: 95		20% of total cover: 38	
Woody Vine Stratum (Plot size: 30)			
1. *Toxicodendron radicans*	30	Yes	FAC
2.			
3.			
4.			
5.			
	30	=Total Cover	
50% of total cover: 15		20% of total cover: 6	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 36.4% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are not present.

SOIL

Sampling Point: DP20-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100					Loamy/Clayey	
4-20	10YR 4/3	90	10YR 5/8	10	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Indicators of hydric soils are not present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020
Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP19-W
Investigator(s): DR and SM Section, Township, Range: Flemingsburg
Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0
Subregion (LRR or MLRA): LRR N Lat: 38.45242032 Long: -83.75939447 Datum: NAD 83
Soil Map Unit Name: Lowell-Faywood silt loams, 6 to 12 percent slopes NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation X, Soil X, 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 X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
This data sheet is representative of Feature 19. Area is a bermed closed depression located on the edge of a farm field. Area is disturbed by cattle.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- X 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)

Secondary Indicators (minimum of two required)

- ____ 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)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 2
Water Table Present?	Yes X	No ____	Depth (inches): 12
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP19-W

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Typha angustifolia*	30	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30 =Total Cover		
50% of total cover: 15	20% of total cover: 6		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)
Prevalence Index = B/A =		

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are present.

SOIL

Sampling Point: DP19-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	2.5YR 4/4	80	2.5YR 5/8	20	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Indicators of hydric soils are present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020

Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP20-U

Investigator(s): DR and SM Section, Township, Range: Flemingsburg

Landform (hillside, terrace, etc.): Hillside Local relief (concave, convex, none): None Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 38.45812126 Long: -83.75095120 Datum: NAD 83

Soil Map Unit Name: Cynthiana-Faywood complex, very rocky, 12 to 35 percent slopes, eroded NWI classification: N/A

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 X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This data sheet is representative of the upland area surrounding Feature 20.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ 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)
- ___ 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)

Secondary Indicators (minimum of two required)

- ___ 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are not present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP20-U

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ulmus rubra*	40	Yes	FAC
2. *Celtis occidentalis*	40	Yes	FACU
3. *Acer rubrum*	40	Yes	FAC
4.			
5.			
6.			
7.			
	120	=Total Cover	
50% of total cover: 60		20% of total cover: 24	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Ulmus rubra*	40	Yes	FAC
2. *Ulmus alata*	20	Yes	FACU
3. *Juniperus virginiana*	10	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
	70	=Total Cover	
50% of total cover: 35		20% of total cover: 14	
Herb Stratum (Plot size: 5)			
1. *Solidago canadensis*	40	Yes	FACU
2. *Solidago altissima*	40	Yes	FACU
3. *Symphyotrichum ericoides*	30	Yes	FACU
4. *Arctium minus*	20	No	FACU
5. *Rubus argutus*	30	Yes	FACU
6. *Lonicera maackii*	30	Yes	UPL
7.			
8.			
9.			
10.			
11.			
	190	=Total Cover	
50% of total cover: 95		20% of total cover: 38	
Woody Vine Stratum (Plot size: 30)			
1. *Toxicodendron radicans*	30	Yes	FAC
2.			
3.			
4.			
5.			
	30	=Total Cover	
50% of total cover: 15		20% of total cover: 6	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 36.4% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are not present.

SOIL

Sampling Point: DP20-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100					Loamy/Clayey	
4-20	10YR 4/3	90	10YR 5/8	10	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Indicators of hydric soils are not present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020
Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP20-W
Investigator(s): DR and SM Section, Township, Range: Flemingsburg
Landform (hillside, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR or MLRA): LRR N Lat: 38.45612312 Long: -83.75887992 Datum: NAD 83
Soil Map Unit Name: Lowell-Faywood silt loams, 6 to 12 percent slopes NWI classification: N/A
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 X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
This data sheet is representative of Feature 20.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- X 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)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 3
Water Table Present?	Yes X	No ____	Depth (inches): 12
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP20-W

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Platanus occidentalis*	40	Yes	FACW
2. *Fraxinus pennsylvanica*	30	Yes	FACW
3. *Ulmus rubra*	20	No	FAC
4. *Liquidambar styraciflua*	20	No	FAC
5.			
6.			
7.			
	110	=Total Cover	
50% of total cover: 55		20% of total cover: 22	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Platanus occidentalis*	30	Yes	FACW
2. *Fraxinus pennsylvanica*	30	Yes	FACW
3. *Ulmus rubra*	30	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
	90	=Total Cover	
50% of total cover: 45		20% of total cover: 18	
Herb Stratum (Plot size: 5)			
1. *Dichanthelium clandestinum*	40	Yes	FAC
2. *Andropogon glomeratus*	30	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70	=Total Cover	
50% of total cover: 35		20% of total cover: 14	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are present.

SOIL

Sampling Point: DP20-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	2.5YR 4/3	100					Loamy/Clayey	
3-20	2.5YR 4/2	90	10YR 5/8	10	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Indicators of hydric soils are present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020

Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP21-U

Investigator(s): DR and SM Section, Township, Range: Flemingsburg

Landform (hillside, terrace, etc.): Hillside Local relief (concave, convex, none): None Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 38.45812126 Long: -83.75095120 Datum: NAD 83

Soil Map Unit Name: Cynthiana-Faywood complex, very rocky, 12 to 35 percent slopes, eroded NWI classification: N/A

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 X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This data sheet is representative of the upland area surrounding Feature 21.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ 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)
- ___ 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)

Secondary Indicators (minimum of two required)

- ___ 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are not present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP21-U

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Solidago canadensis*	55	Yes	FACU
2. *Solidago altissima*	55	Yes	FACU
3. *Dipsacus fullonum*	45	Yes	FACU
4. *Arctium minus*	20	No	FACU
5. *Rosa multiflora*	20	No	FACU
6. *Vernonia gigantea*	20	No	FAC
7. *Artemisia vulgaris*	30	No	UPL
8.			
9.			
10.			
11.			
	245 =Total Cover		
50% of total cover: 123	20% of total cover: 49		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are not present.

SOIL

Sampling Point: DP21-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100					Loamy/Clayey	
4-20	10YR 4/3	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Indicators of hydric soils are not present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020
Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP21-W
Investigator(s): DR and SM Section, Township, Range: Flemingsburg
Landform (hillside, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR or MLRA): LRR N Lat: 38.45814332 Long: -83.75101145 Datum: NAD 83
Soil Map Unit Name: Cynthiana-Faywood complex, very rocky, 12 to 35 percent slopes, eroded NWI classification: N/A
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 X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
This data sheet is representative of Feature 21.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- X 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)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 2
Water Table Present?	Yes X	No ____	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 3

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP21-W

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix nigra*	15	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
	15	=Total Cover	
50% of total cover: 8		20% of total cover: 3	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Salix nigra*	10	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	10	=Total Cover	
50% of total cover: 5		20% of total cover: 2	
Herb Stratum (Plot size: 5)			
1. *Typha angustifolia*	70	Yes	OBL
2. *Ranunculus abortivus*	40	Yes	FACW
3. *Carex frankii*	20	No	OBL
4. *Juncus effusus*	20	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	150	=Total Cover	
50% of total cover: 75		20% of total cover: 30	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are present.

SOIL

Sampling Point: DP21-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	95	7.5YR 4/6	5	C	M	Loamy/Clayey	Prominent redox concentrations
4-20	10YR 5/1	95	7.5YR 4/6	5	C	PL	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Indicators of hydric soils are present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020

Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP22-U

Investigator(s): DR and SM Section, Township, Range: Flemingsburg

Landform (hillside, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 38.44031882 Long: -83.76226228 Datum: NAD 83

Soil Map Unit Name: Lowell-Faywood silt loams, 6 to 12 percent slopes NWI classification: N/A

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 X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This data sheet is representative of the upland area surrounding Feature 22.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ 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)
- ____ 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)

Secondary Indicators (minimum of two required)

- ____ 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are not present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP22-U

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Conium maculatum*	55	Yes	FACW
2. *Jacobaea vulgaris*	40	No	UPL
3. *Dipsacus fullonum*	40	No	FACU
4. *Dactylis glomerata*	45	Yes	FACU
5. *Solidago canadensis*	55	Yes	FACU
6. *Solanum carolinense*	5	No	FACU
7.			
8.			
9.			
10.			
11.			
	240 =Total Cover		
50% of total cover: 120	20% of total cover: 48		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are not present.

SOIL

Sampling Point: DP22-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 4/3	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Indicators of hydric soils are not present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 12-16-2020

Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP22-W

Investigator(s): DR and SM Section, Township, Range: Flemingsburg

Landform (hillside, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 38.44065074 Long: -83.76230718 Datum: NAD 83

Soil Map Unit Name: Lowell-Faywood silt loams, 6 to 12 percent slopes NWI classification: N/A

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 X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
This data sheet is representative of Feature 22.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- X 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)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): 2
Water Table Present?	Yes X	No ____	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 3

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP22-W

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Juncus effusus*	35	Yes	FACW
2. *Ranunculus abortivus*	20	No	FACW
3. *Carex frankii*	55	Yes	OBL
4. *Scirpus atrovirens*	20	No	OBL
5. *Persicaria pensylvanica*	10	No	FACW
6. *Carex vulpinoidea*	30	No	OBL
7.			
8.			
9.			
10.			
11.			
	170 =Total Cover		
50% of total cover: 85	20% of total cover: 34		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are present.

SOIL

Sampling Point: DP22-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	95	7.5YR 4/6	5	C	M	Loamy/Clayey	Prominent redox concentrations
4-12	10YR 5/1	95	7.5YR 4/6	5	C	PL	Loamy/Clayey	Prominent redox concentrations
12-20	10YR 7/1	95	10YR 4/6	5	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Indicators of hydric soils are present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 03-17-21
Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP23-U
Investigator(s): DR Section, Township, Range: Flemingsburg
Landform (hillside, terrace, etc.): Berm Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR or MLRA): LRR N Lat: 38.449938 Long: -83.78788 Datum: NAD 83
Soil Map Unit Name: Lowell-Faywood silt loams, 6 to 12 percent slopes NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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 X	**Is the Sampled Area**		
Hydric Soil Present?	Yes ____	No X	**within a Wetland?**	**Yes** ____	**No** X
Wetland Hydrology Present?	Yes ____	No X			

Remarks:
This data sheet is representative of the upland area adjacent to Feature 23. The antecedent precipitation tool indicates that the area was experiencing severe wetness at the time of the delineation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ 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)
- ___ 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)

Secondary Indicators (minimum of two required)

- ___ 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No X	Depth (inches): 2

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of surface hydrology are from active precipitation. No water table present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP23-U

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Xanthium strumarium*	30	No	FAC
2. *Lamium amplexicaule*	60	Yes	UPL
3. *Solidago canadensis*	50	Yes	FACU
4. *Veronica persica*	45	Yes	UPL
5. *Rubus argutus*	35	No	FACU
6. *Daucus carota*	35	No	UPL
7. *Apocynum cannabinum*	35	No	FACU
8.			
9.			
10.			
11.			
	290 =Total Cover		
50% of total cover: 145	20% of total cover: 58		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are not present.

SOIL

Sampling Point: DP23-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	7.5YR 4/3	95	7.5YR 4/2	5	RM	M	Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Indicators of hydric soils are not present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 03-17-21
Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP23-W
Investigator(s): DR Section, Township, Range: Flemingsburg
Landform (hillside, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR or MLRA): LRR N Lat: 38.44991 Long: -83.78785 Datum: NAD 83
Soil Map Unit Name: Lowell-Faywood silt loams, 6 to 12 percent slopes NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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 X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
This data sheet is representative of Feature 23. The antecedent precipitation tool indicates that the area was experiencing severe wetness at the time of the delineation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- X 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)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes X	No ____	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 3

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are present. Saturation and water table are present due to recent precipitation and may not be indicators of long term hydrology.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP23-W

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Xanthium strumarium*	30	Yes	FAC
2. *Vernonia noveboracensis*	25	Yes	FACW
3. *Lamium amplexicaule*	30	Yes	UPL
4. *Juncus effusus*	10	No	FACW
5. *Veronica persica*	15	No	UPL
6. *Dactylis glomerata*	30	Yes	FACU
7. *Phalaris arundinacea*	25	Yes	FACW
8. *Apocynum cannabinum*	20	No	FACU
9. *Typha angustifolia*	25	Yes	OBL
10.			
11.			
	210 =Total Cover		
50% of total cover: 105	20% of total cover: 42		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	60	x 2 =	120
FAC species	30	x 3 =	90
FACU species	50	x 4 =	200
UPL species	45	x 5 =	225
Column Totals:	210 (A)		660 (B)

Prevalence Index = B/A = 3.14

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are present.

SOIL

Sampling Point: DP23-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 4/3	95	7.5YR 4/6	5	C	M	Loamy/Clayey	Distinct redox concentrations
6-14	7.5YR 4/2	90	7.5YR 4/6	5	C	PL	Loamy/Clayey	Prominent redox concentrations
14-20	7.5YR 3/2	75	10YR 4/6	25	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- X Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Indicators of hydric soils are present; 5% manganese masses occuring in the 6-14 inch layer.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 03-17-21
Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP24-U
Investigator(s): DR Section, Township, Range: Flemingsburg
Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 2
Subregion (LRR or MLRA): LRR N Lat: 38.44906912 Long: -83.78415548 Datum: NAD 83
Soil Map Unit Name: Lowell-Faywood silt loams, 6 to 12 percent slopes NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (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 X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
This data sheet is representative of the upland area adjacent to Feature 24. The antecedent precipitation tool indicates that the area was experiencing severe wetness at the time of the delineation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ 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)
- ___ 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)

Secondary Indicators (minimum of two required)

- ___ 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No X	Depth (inches): 2

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of surface hydrology are from active precipitation. No water table present.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP24-U

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Xanthium strumarium*	80	Yes	FAC
2. *Lamium amplexicaule*	60	Yes	UPL
3. *Solidago canadensis*	50	Yes	FACU
4. *Veronica persica*	45	No	UPL
5. *Rubus argutus*	35	No	FACU
6. *Zea mays*	35	No	UPL
7.			
8.			
9.			
10.			
11.			
	305 =Total Cover		
50% of total cover: 153	20% of total cover: 61		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are not present.

SOIL

Sampling Point: DP24-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 4/3	100					Loamy/Clayey	
8-14	7.5YR 4/3	98	10YR 2/1	2	C	M	Loamy/Clayey	Manganese concentrations
14-20	7.5YR 4/3	60	7.5YR 4/2	40	RM	M	Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Indicators of hydric soils are not present.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Fleming Solar Project City/County: Fleming County Sampling Date: 03-17-21
Applicant/Owner: Fleming Solar, LLC State: KY Sampling Point: DP24-W
Investigator(s): DR Section, Township, Range: Flemingsburg
Landform (hillside, terrace, etc.): Valley Local relief (concave, convex, none): Concave Slope (%): 1
Subregion (LRR or MLRA): LRR N Lat: 38.449596 Long: -83.7847588 Datum: NAD 83
Soil Map Unit Name: Lowell-Faywood silt loams, 6 to 12 percent slopes NWI classification: N/A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (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 X	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** X
Hydric Soil Present?	Yes X	No ___	
Wetland Hydrology Present?	Yes X	No ___	

Remarks:
This data sheet is representative of Feature 24. The antecedent precipitation tool indicates that the area was experiencing severe wetness at the time of the delineation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X 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)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X 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)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X 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)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 3

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Indicators of wetland hydrology are present. Saturation and water table are present due to recent precipitation and may not be indicators of long term hydrology.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP24-W

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5)			
1. *Xanthium strumarium*	30	Yes	FAC
2. *Vernonia noveboracensis*	25	No	FACW
3. *Lamium amplexicaule*	40	Yes	UPL
4. *Juncus effusus*	10	No	FACW
5. *Veronica persica*	15	No	UPL
6. *Dactylis glomerata*	30	Yes	FACU
7. *Phalaris arundinacea*	25	No	FACW
8. *Apocynum cannabinum*	20	No	FACU
9.			
10.			
11.			
	195 =Total Cover		
50% of total cover: 98	20% of total cover: 39		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	30	x 3 =	90
FACU species	50	x 4 =	200
UPL species	55	x 5 =	275
Column Totals:	195 (A)		685 (B)

Prevalence Index = B/A = 3.51

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)
Indicators of hydrophytic vegetation are present.

SOIL

Sampling Point: DP24-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 4/3	95	7.5YR 4/6	5	C	M	Loamy/Clayey	Distinct redox concentrations
6-14	7.5YR 4/2	90	7.5YR 4/6	5	C	PL	Loamy/Clayey	Prominent redox concentrations
14-20	7.5YR 3/2	75	10YR 4/6	25	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- X Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

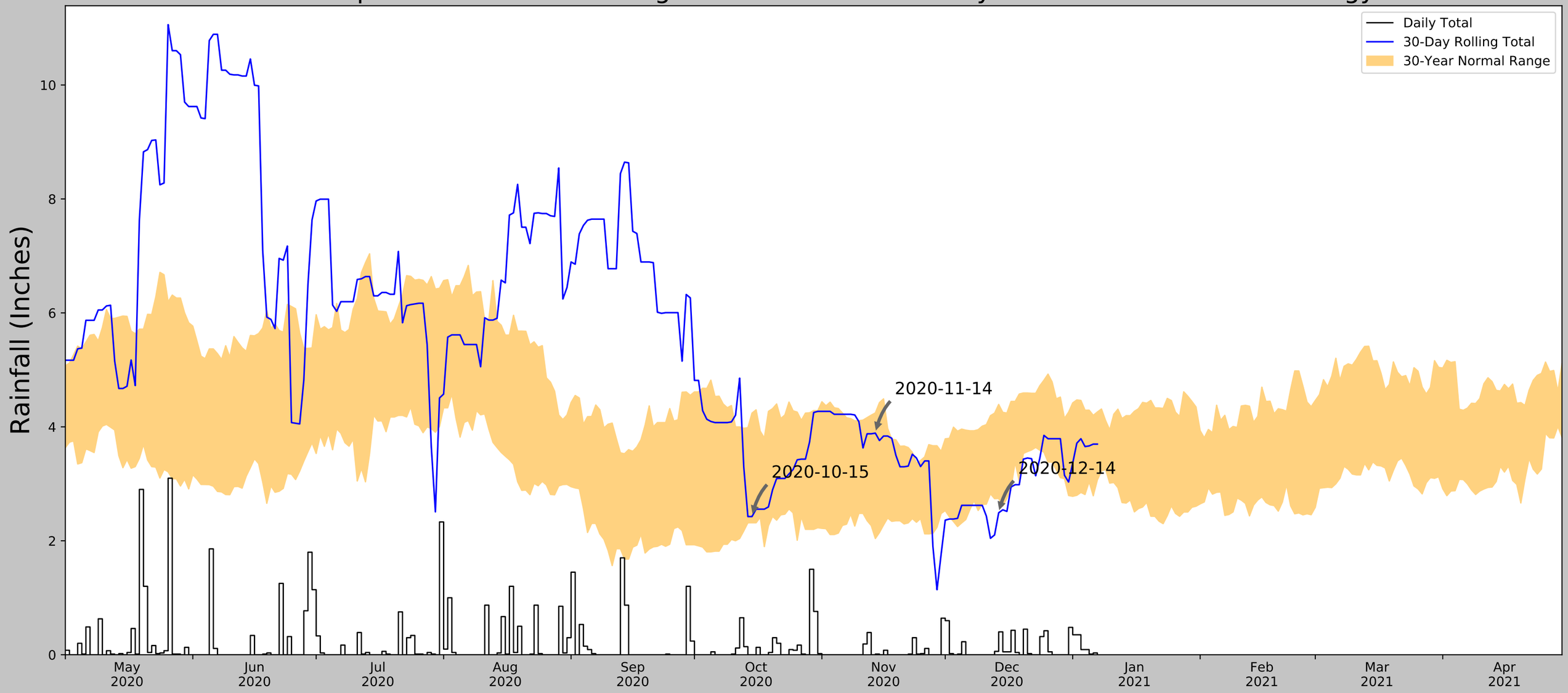
Hydric Soil Present? **Yes** X **No** ___

Remarks:

Indicators of hydric soils are present; 5% manganese masses occuring in the 6-14 inch layer.

Appendix C
Antecedent Precipitation Tool

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	38.44672, -83.78042
Observation Date	2020-12-14
Elevation (ft)	939.79
Drought Index (PDSI)	Severe wetness
WebWIMP H_2O Balance	Wet Season

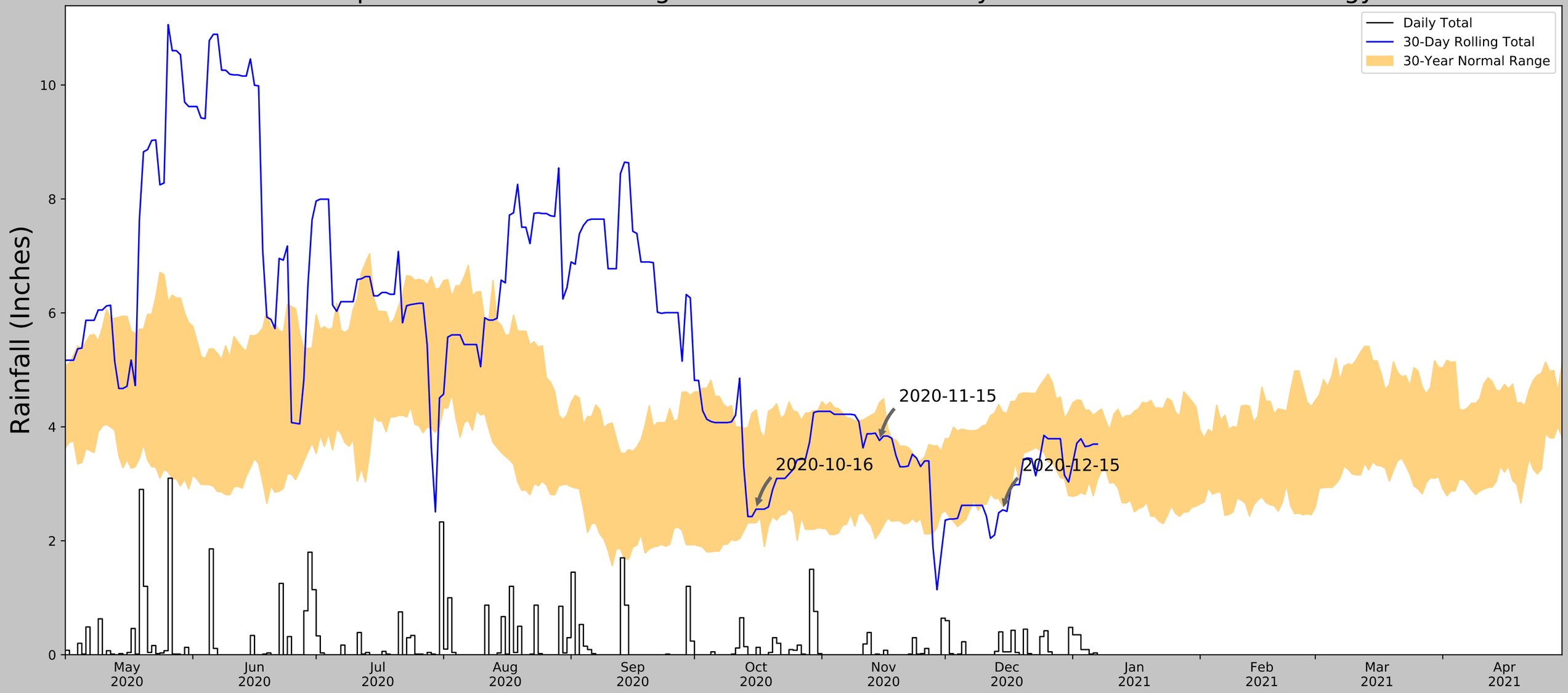
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2020-12-14	2.74252	4.394095	2.492126	Dry	1	3	3
2020-11-14	2.03937	4.244095	3.889764	Normal	2	2	4
2020-10-15	2.315354	4.241339	2.425197	Normal	2	1	2
Result							Drier than Normal - 9

Figure and tables made by the **Antecedent Precipitation Tool** Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days (Normal)	Days (Antecedent)
CAVE RUN LAKE	38.1228, -83.5328	839.895	26.101	99.895	14.353	11298	89
FLEMINGSBURG 2 N	38.4503, -83.7355	939.961	2.443	0.171	1.1	52	0
MAYSVILLE 6.8 SSE	38.5324, -83.7547	834.974	6.081	104.816	3.374	1	1
BLUE LICK SPRINGS	38.4233, -83.9983	609.908	11.903	329.882	9.283	2	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	38.44672, -83.78042
Observation Date	2020-12-15
Elevation (ft)	939.79
Drought Index (PDSI)	Severe wetness
WebWIMP H_2O Balance	Wet Season

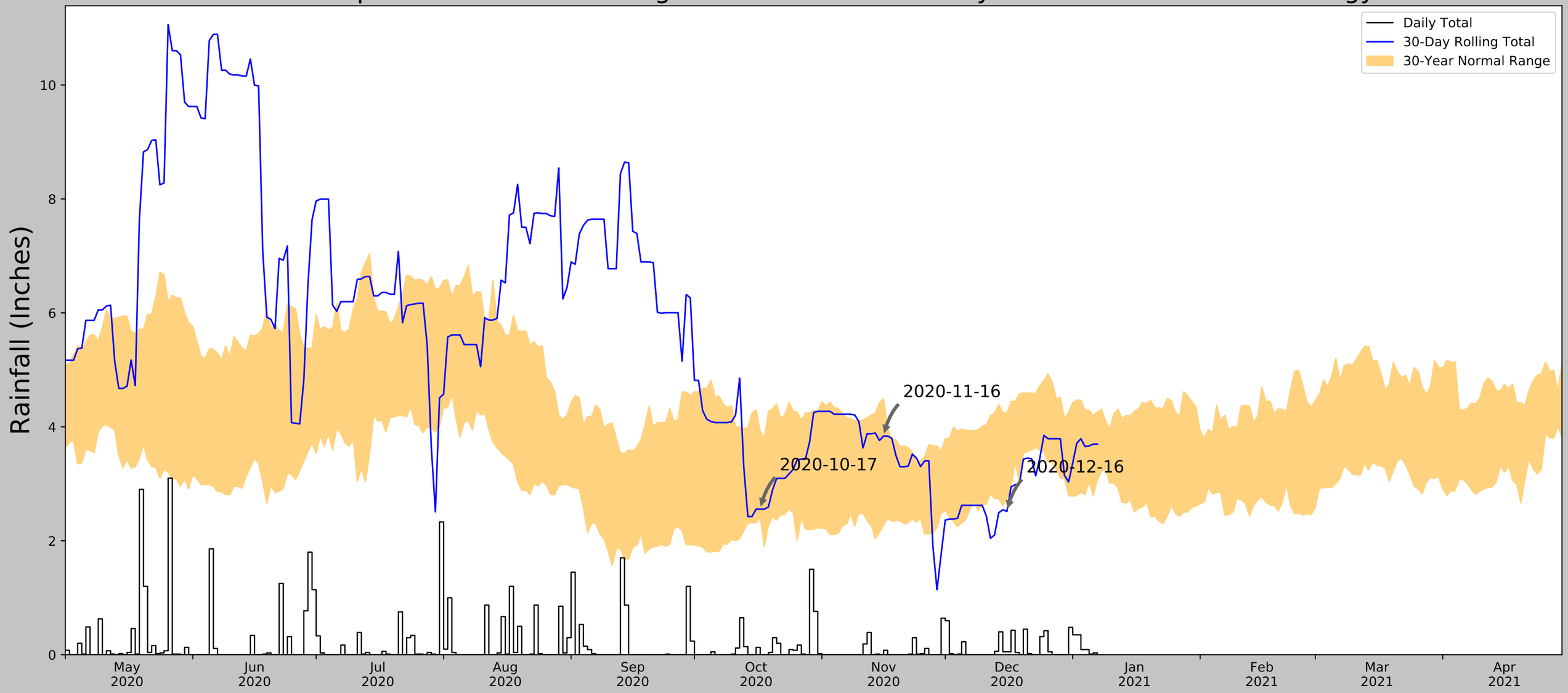
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2020-12-15	2.609843	4.253937	2.543307	Dry	1	3	3
2020-11-15	2.144095	4.426378	3.759843	Normal	2	2	4
2020-10-16	2.315354	4.299213	2.555118	Normal	2	1	2
Result							Drier than Normal - 9

Figure and tables made by the **Antecedent Precipitation Tool** Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days (Normal)	Days (Antecedent)
CAVE RUN LAKE	38.1228, -83.5328	839.895	26.101	99.895	14.353	11298	89
FLEMINGSBURG 2 N	38.4503, -83.7355	939.961	2.443	0.171	1.1	52	0
MAYSVILLE 6.8 SSE	38.5324, -83.7547	834.974	6.081	104.816	3.374	1	1
BLUE LICK SPRINGS	38.4233, -83.9983	609.908	11.903	329.882	9.283	2	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	38.44672, -83.78042
Observation Date	2020-12-16
Elevation (ft)	939.79
Drought Index (PDSI)	Severe wetness
WebWIMP H_2O Balance	Wet Season

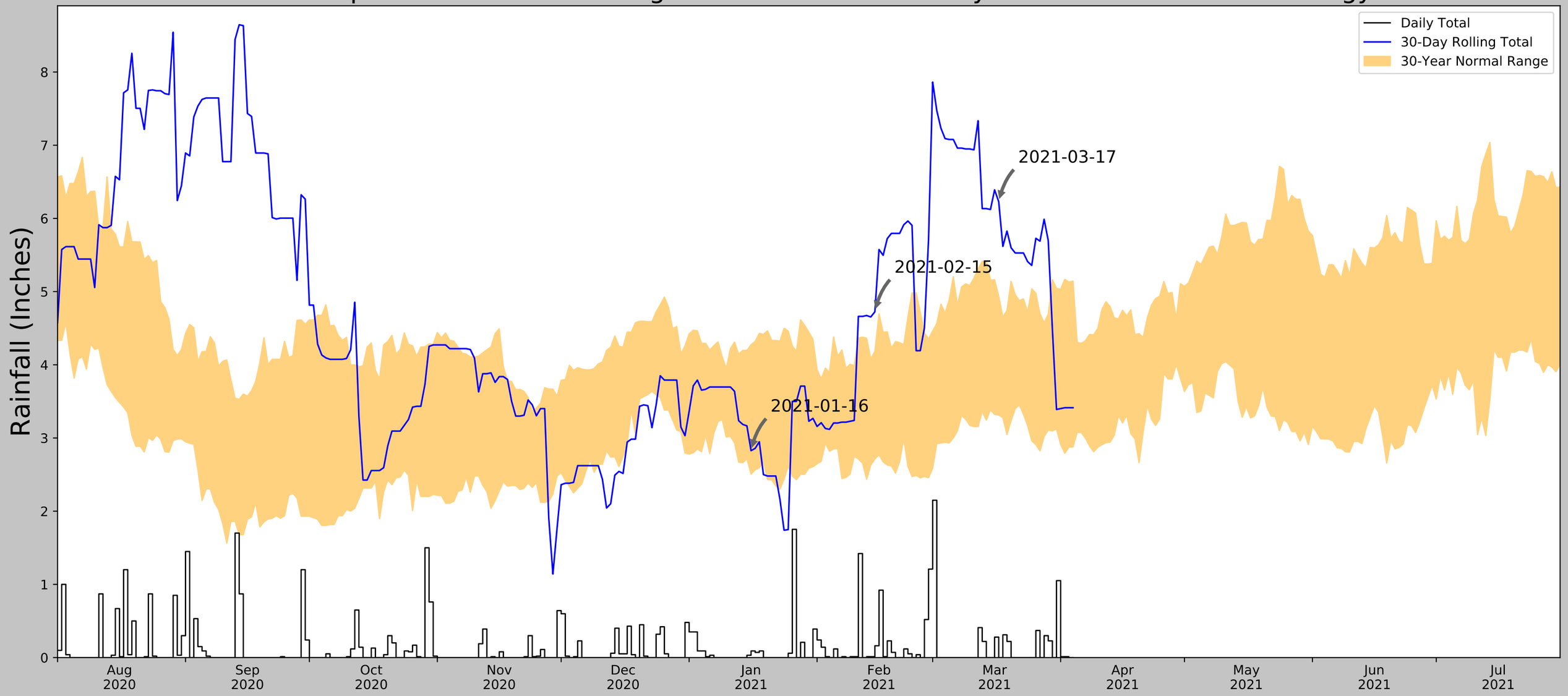
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2020-12-16	2.746063	4.24252	2.515748	Dry	1	3	3
2020-11-16	2.275984	4.491339	3.838583	Normal	2	2	4
2020-10-17	2.411024	3.92441	2.555118	Normal	2	1	2
Result							Drier than Normal - 9

Figure and tables made by the **Antecedent Precipitation Tool** Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days (Normal)	Days (Antecedent)
CAVE RUN LAKE	38.1228, -83.5328	839.895	26.101	99.895	14.353	11298	89
FLEMINGSBURG 2 N	38.4503, -83.7355	939.961	2.443	0.171	1.1	52	0
MAYSVILLE 6.8 SSE	38.5324, -83.7547	834.974	6.081	104.816	3.374	1	1
BLUE LICK SPRINGS	38.4233, -83.9983	609.908	11.903	329.882	9.283	2	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	38.44993853, -83.7878843
Observation Date	2021-03-17
Elevation (ft)	906.93
Drought Index (PDSI)	Severe wetness (2021-02)
WebWIMP H_2O Balance	Wet Season

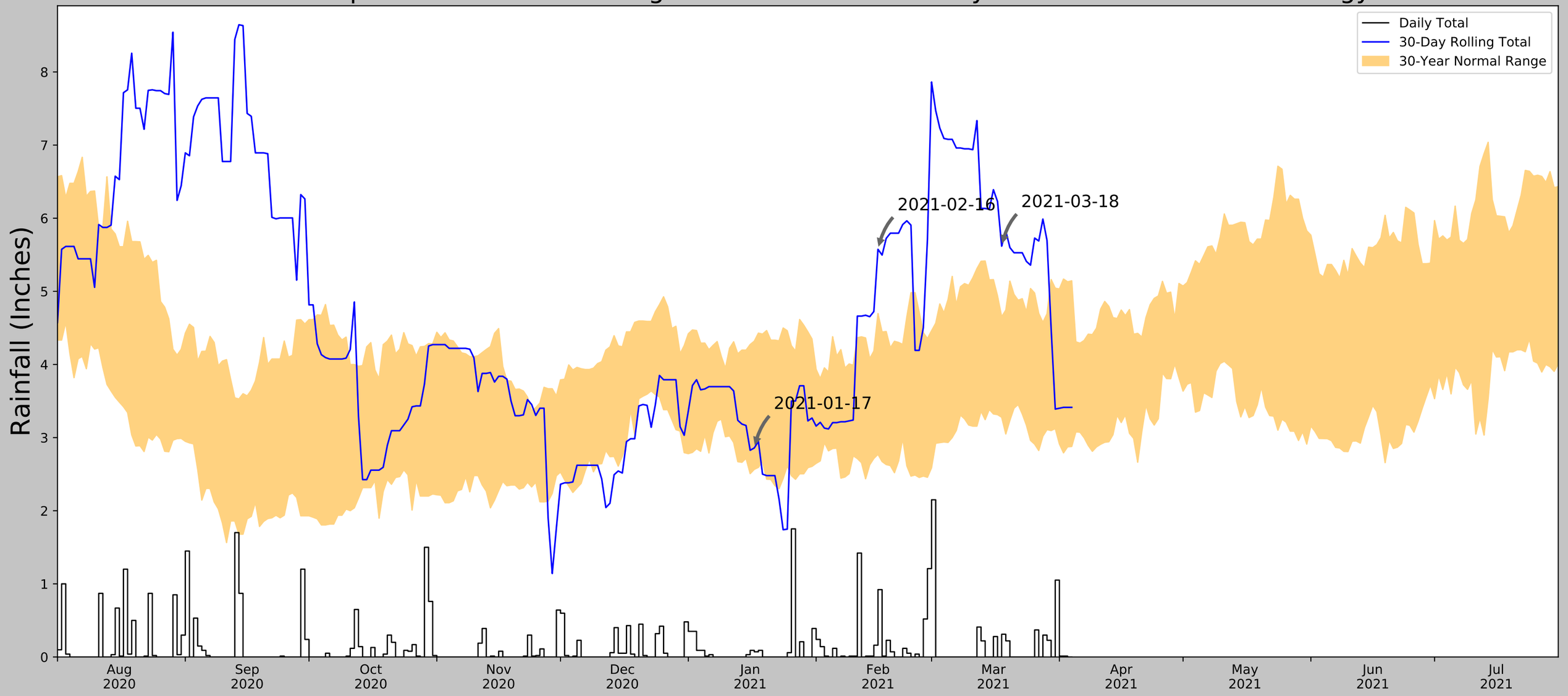
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2021-03-17	3.31378	4.938583	6.228347	Wet	3	3	9
2021-02-15	2.714567	4.183071	4.72441	Wet	3	2	6
2021-01-16	2.507087	4.272835	2.826772	Normal	2	1	2
Result							Wetter than Normal - 17

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days (Normal)	Days (Antecedent)
CAVE RUN LAKE	38.1228, -83.5328	839.895	26.501	67.035	13.702	11298	89
FLEMINGSBURG 2 N	38.4503, -83.7355	939.961	2.835	33.031	1.369	52	0
MAYSVILLE 6.8 SSE	38.5324, -83.7547	834.974	5.973	71.956	3.118	1	1
BLUE LICK SPRINGS	38.4233, -83.9983	609.908	11.536	297.022	8.617	2	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	38.44993853, -83.7878843
Observation Date	2021-03-18
Elevation (ft)	906.93
Drought Index (PDSI)	Severe wetness (2021-02)
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2021-03-18	3.27874	4.652756	5.61811	Wet	3	3	9
2021-02-16	2.770866	4.696851	5.574803	Wet	3	2	6
2021-01-17	2.565354	4.318898	2.858268	Normal	2	1	2
Result							Wetter than Normal - 17

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days (Normal)	Days (Antecedent)
CAVE RUN LAKE	38.1228, -83.5328	839.895	26.501	67.035	13.702	11298	89
FLEMINGSBURG 2 N	38.4503, -83.7355	939.961	2.835	33.031	1.369	52	0
MAYSVILLE 6.8 SSE	38.5324, -83.7547	834.974	5.973	71.956	3.118	1	1
BLUE LICK SPRINGS	38.4233, -83.9983	609.908	11.536	297.022	8.618	2	0

Appendix D
Historic Aerial Imagery


INQUIRY #: 5824675.8
YEAR: 1995
= 1125'
N
EDR


INQUIRY #: 5824675.8
YEAR: 1983
= 1125'
N
EDR

Protected Species Habitat Assessment

Fleming Solar Project

Fleming County, Kentucky

April 2021

Prepared for:
Fleming Solar, LLC

Prepared by:
Energy Renewal Partners, LLC
1221 S. Mopac Expressway, Suite 225
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April 28, 2021

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Table of Contents

Table of Contents Continued

Tables

Figures

Appendices

1.0 Executive Summary

Energy Renewal Partners, LLC (ERP) completed a protected species habitat assessment for the proposed Fleming Solar Project (the "Project") located approximately 0.4 miles northwest of the city of Flemingsburg, Kentucky, in northern Fleming County (the "Site" or "project area") (Figure 1). In preparation for development of the Project, Fleming Solar, LLC, on behalf of Core Solar LLC, requested that ERP perform an assessment to determine if habitat for state or federally protected species has the potential to occur within the project area and if that habitat is likely to support the presence of protected species. The objectives of this assessment included identifying, evaluating, and addressing potential impacts to species protected by state and/or federal regulations by determining the likely presence of preferred habitat for those species and the likelihood of their presence within the proposed project area.

Based on desktop database and literature review and field observations, the project area consists predominantly of cultivated cropland and pastureland, with small areas of fragmented deciduous and mixed forest, as well as low density residential and agricultural development (Figure 2). Roadways and electrical transmission and distribution infrastructure bisect the project area (Figure 3). No named streams are located within the project area, however, three (3) unnamed tributaries to Johnson Creek are located in the western portion, one (1) unnamed tributary to Town Branch is located in the southeastern portion, and one (1) unnamed tributary to Mill Creek is located within the northeastern portion of the Site.

Desktop review found that the Site includes habitat elements supportive of five (5) federally protected species: the Indiana bat (*Myotis sodalis*), northern long-eared bat ([NLEB], *Myotis septentrionalis*), snuffbox mussel (*Epioblasma triquetra*), golden eagle (*Aquila chrysaetos*), and running buffalo clover (*Trifolium stoloniferum*). While suitable habitat may exist onsite, there are no publicly available records of known populations of these species existing within or in close proximity to the project area. Potential foraging habitat exists onsite for the Indiana bat within forested stream corridors, upland and bottomland forests, forested wetlands, and along wooded edges of agriculture fields, pastures, and ponds. Potential summer roosting habitat is available onsite in living, dead, or dying trees that have regular sun exposure and where exfoliating bark allows the bats to roost between the bark and bole of the tree. Potential summer roosting habitat for the NLEB, including dead or living trees of various sizes, stumps, fences, barns, etc., with a consistent source of sun exposure, also exists onsite. Potential preferred habitat for the snuffbox mussel has the potential to occur onsite within perennial tributaries to Johnson Creek. The Site has the potential to provide marginal foraging habitat for the golden eagle, although this species is more likely to utilize higher quality offsite habitats associated with the Licking River located approximately eight (8) miles south-southwest of the project area as well as the Ohio River located approximately 12.2 miles north of the project area. Additionally, potential suitable habitat for the running buffalo clover may exist onsite within transitional vegetation zones areas where the plant community changes between open forest and prairie.

2.0 Introduction

2.1 Purpose

This report describes the results of the protected species habitat assessment completed for the Fleming Solar Project in the northern portion of Fleming County, Kentucky (Figure 1). In Kentucky, animal or plant species may be listed as threatened or endangered under the authority of state law and/or under the federal Endangered Species Act (ESA). Assessment objectives included identifying, evaluating, and addressing potential impacts to Kentucky natural resources of conservation concern by determining the likely presence of habitat for federal and/or state listed species and their potential presence within habitat observed within the project area.

2.2 Project Background

The Site consists of approximately 831 acres located in the northern portion of Fleming County approximately 0.4 miles northwest of the town of Flemingsburg, Kentucky (Figure 1). The Site is generally bound by the Kentucky Route 11 (KY 11, also known as Maysville Road) along the northeastern boundary and Kentucky Route (KY) 559 (also known as Convict Pike or Convict Hill Road) along the southern boundary. KY 1200 (also known as Helena Road) bisects the central portion of the Site, oriented southeast to northwest.

Most of the Site's acreage consists of cultivated cropland used for row crops, pastureland used for livestock grazing, and fragmented forested areas that are primarily located along fencerows, property lines, riparian zones, or adjacent to an abandoned railroad right-of-way. Several structures are located throughout the Site, including single-family rural residences and associated farming structures. The former Flemingsburg & Northern Railroad, a standard-gauge railroad abandoned in 1955, bisects the Site meandering northwest to southeast along the central project area. The Flemingsburg to Spurlock 138-kilovolt (kV) transmission line crosses the western portion of the Site, and an electric distribution line crosses the central portion towards the city of Flemingsburg (Figure 3).

Adjacent properties similarly consist of cultivated cropland, pastureland, and rural residences, and much of the Site directly abuts transportation corridors (KY 11, KY 559, KY 1200); some residential development adjacent to KY 559 and KY 1200 is located just outside project area boundaries (Figure 3).

The Site is being developed as a solar energy facility. Although the final design of the solar facility has not been completed, the Project will likely entail the installation of photovoltaic (PV) modules, inverters, an underground electrical collection system, internal project roads, security fencing, operation, and maintenance (O&M) structures, and temporary parking and laydown areas. Clearing of onsite vegetation and grading, if necessary, will occur before the installation of project infrastructure.

2.3 Regulatory Considerations

The federal ESA provides for the conservation of species that are endangered or threatened throughout all or a significant portion of their range and the conservation of the ecosystems on which they depend. The ESA is administered by the U.S. Fish and Wildlife Service (USFWS) for terrestrial and freshwater species and serves several functions, including authorizing the determination and listing of species as endangered or threatened and prohibiting unauthorized take, possession, sale, and transport of these species. The

ESA also authorizes the assessment of civil and criminal penalties for violations of the Act or regulations. Under the ESA, taking a listed species without a permit is unlawful. The definition of "take" under the ESA is "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." Within this regulation, the definition of the term "harm" includes significant modification or degradation of habitat. Additionally, federally listed plant species are not protected from "take" on private lands if there is no federal nexus.

The Migratory Bird Treaty Act (MBTA) protects more than 1,000 bird species that occur in the U.S. Under the MBTA, it is unlawful to take any migratory bird, or any part, nest, or egg of any such bird, unless a permit is acquired from the Secretary of the Interior. The definition of take under the MBTA matches that of the ESA. Per a recent revision to the MBTA, published January 5, 2021, incidental take of migratory birds is not considered to be in violation of the MBTA. Regulatory definitions determining if incidental take violates the MBTA can change with new federal administrations. Therefore, it is possible that liability for incidental take of migratory birds could be in flux with the new administration. The MBTA does not extend protection to game birds and non-native bird species of the U.S.

The Bald and Golden Eagle Protection Act (BGEPA) prohibits the unauthorized take of bald eagles and golden eagles, including their parts, nests, or eggs. The definition of take under the BGEPA varies slightly from the ESA and MBTA in that it includes restrictions on "disturbing" a bald or golden eagle. "Disturb" is defined as to agitate or bother a bald or golden eagle to the degree that causes, or is likely to cause, injury to an eagle, a decrease in its productivity, or nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior (USFWS 2018).

The Lacey Act was passed in 1900 and protects bald eagles by making it a federal offense to take, possess, transport, sell, import, or export their nests, eggs and parts that are taken in violation of any state, tribal or U.S. law. It also prohibits false records, labels, or identification of the wildlife shipped, prohibits importation of injurious species, and prohibits shipment of fish or wildlife in an inhumane manner.

Kentucky has no equivalent state law to the Federal ESA. The State monitors biodiversity and maintains a list of state endangered, threatened, and special concern species, but the state designations convey no legal protection for species which are only listed by the state and not listed by the federal ESA. The Kentucky legislature has authorized regulations pertaining to the management, regulation, and protection of endangered fish and wildlife listed within the federal ESA by the U.S. Department of the Interior. As outlined in Chapter 301 of the Kentucky Administrative Regulations (KAR) Chapter 3, Article 61, State law prohibits the import, transport, possession, sale or offer of endangered fish and wildlife listed within the federal ESA, or parts thereof without the issuance of a permit. The State defines endangered species as any species or subspecies listed as endangered within the federal ESA. Consequently, any animal or plant species that are only state listed (and not federally listed) do not pose a concern regarding Project development and are not discussed further herein.

3.0 Methodology

3.1 Site-Specific Habitat Characterization

ERP conducted a literature and database review to characterize the landcover, land use, and habitats which occur within the project area.

An ERP scientist reviewed available literature and relevant, supporting information, including the 2019 Elizaville, KY and 2019 Flemingsburg, KY 7.5-minute Series U.S. Geological Survey (USGS) Topographic Quadrangles (Figure 1), the USGS National Land Cover Database (NLCD) (Yang et al. 2018) (Figure 2), and representative aerial imagery (Figure 3). ERP personnel also reviewed the USGS National Hydrography Dataset (NHD), the USFWS National Wetlands Inventory (NWI) map, and the Federal Emergency Management Agency (FEMA) flood hazard data (Figure 3). ERP consulted these sources to assist in the characterization of landcover, land use, and habitat conditions present within the project area.

3.2 Species Accounts

ERP obtained information for Fleming County and the project area from the USFWS Information for Planning and Consultation (IPaC) Resource List (USFWS 2020a) (Appendix A) and the Kentucky Department of Fish and Wildlife Resources (KDFWR) Fleming County State Threatened, Endangered, and Special Concern Species list (KDFWR 2020) (Appendix B). These sources were used to determine which species should be considered in an effects analysis of the proposed Project.

4.0 Site-Specific Habitat Characterization

4.1 Literature and Database Review

The 2019 Elizaville, KY and 2019 Flemingsburg, KY 7.5-minute Series USGS Topographic Quadrangles depict areas of higher elevation within the central portions of the project area, near Helena Road. Johnson Creek bisects the central portion of the Site and flows west-northwest outside of the project area (Figure 1 and Figure 3). ERP reviewed the NWI and identified approximately nine (9) acres of wetlands within the Site boundary, composed of pond features utilized for livestock (approximately 3.9 acres), riverine wetlands consistent with NHD data and parallel with onsite drainages (4.8 acres), and less than 0.3 acres of freshwater palustrine emergent wetlands (Figure 3).

According to the USGS NLCD (Yang et al. 2018), the Site consists primarily of cultivated cropland and pasture/hay land cover, with fragmented areas of deciduous forest, mixed forest, and several natural drainages, and ponds (Figure 2). Developed open space, developed low intensity, medium intensity, and developed high intensity are depicted and are associated with KY 11 and KY 1200 (project area boundaries), KY 1200, and scattered residences and agricultural structures. A review of recent available aerial imagery generally confirms the land cover onsite (Google Earth 2016) (Figure 3). Table 1, below, categorizes the NLCD land uses within the project area by acreage and overall percent coverage.

Table 1: USGS National Land Cover Database Categories Within Project Area

Land Cover Type	Acres within Project Area	Percent of Project Area
Pasture/Hay	412.9	49.6
Cultivated Crops	371.6	44.8
Deciduous Forest	22.1	2.6
Developed, Open Space	11.7	1.5
Mixed Forest	10.1	1.3
Developed, Low Intensity	1.0	0.1
Open Water	0.7	0.1
Developed, Medium Intensity	0.1	0.0

Source: USGS National Land Cover Database (Yang et al. 2018)

A review of the Protected Areas Database of the U.S. revealed no protected areas within the project area or within a five (5) mile radius of the project area. Immediately southeast of the project area, on the east side of KY 11, resides a golf course owned by Fleming County, a 9-hole public golf course in operation since 1965 (Fleming County Golf Association, n.d.), and the Fleming County Recreation Park is located approximately 0.5 mile east of the project area (City of Flemingsburg 2017).

According to the U.S. Environmental Protection Agency (EPA), the project area is within the Interior Plateau Level III Ecoregion (EPA 2020). The Interior Plateau is characterized as having hilly and rolling topography with areas of swampy, alluvial valleys, deeply entrenched rivers and streams, and expansive karst plains (The Nature Conservancy n.d.). The project area is underlain by the Bull Rock Formation, comprised of Ordovician-age shale and limestone (Kentucky Geological Survey 1971). Annual precipitation in nearby Maysville, Kentucky is 46.02 inches (U.S. Climate Data 2020).

4.2 Field Assessment

Following the desktop review, two (2) qualified ERP scientists, Sean Martin and Daniel Roberts, conducted a field assessment within the project area on December 14-16, 2020 and on March 17 and 18, 2021. Weather conditions at the time of the December site visit included temperatures of approximately 24-39° Fahrenheit with mostly cloudy skies, light precipitation, and winds of approximately 0 to 16 miles per hour (Weather Underground 2020). Weather conditions at the time of the March site visit included temperatures of approximately 41-65° Fahrenheit with mostly cloudy skies, light precipitation, and winds of approximately 3 to 21 miles per hour (Weather Underground 2021).

ERP confirmed the project area consists of cultivated cropland used for row crops, pasture areas utilized for cattle grazing, and with fragmented deciduous and mixed forested areas. Several existing structures are located throughout the Site, including single-family rural residences and associated farming structures. Multiple ponds and drainages were identified within the project area. Photographs taken during the field assessment are included in Appendix C.

5.0 Species Accounts

The following are brief descriptions of protected species and their preferred habitats listed within the USFWS IPaC Resources List (USWFS 2020a) and KDFWR Fleming County State Threatened, Endangered, and Special Concern Species list (KDFWR 2020). Regarding federally listed species, species which are only federally listed (endangered, threated, proposed, or candidate) in the USFWS IPaC Official Species List were considered in an effects analysis; additional federally listed species were reviewed from the KDFWR county list. Kentucky law defines endangered species as any species or subspecies listed as endangered within the ESA. Consequently, any animal or plant species that are only state listed (and not federally listed) do not pose a concern regarding Project development and are not discussed further herein. A complete list of federal and state protected species reviewed is included in Appendix A and Appendix B, respectively.

Table 2 depicts each species described below and includes the species' state and/or federal listing, preferred habitat description, whether preferred habitat was observed onsite, and an effects determination.

5.1 IPaC Federally Listed Species

5.1.1 Gray Bat (*Myotis grisescens*)

The federal endangered gray bat is a cave obligate species and occupies caves year-round within limestone karst areas of the southeastern United States. During the summer, this species will occupy caves in close proximity to rivers and forage within large tracts of continuous, forested habitat utilizing river corridors to travel from roosting sites to foraging sites. During the winter, this species prefers deep, vertical caves with particular temperature ranges where they roost in large numbers (USFWS 2019a). Gray bats, restricted to caves or cave-like habitats with deep vertical passages, have been documented traveling as far as 26 miles from their colony to feed. Because of the specific roosting habitat of the gray bat, 95 percent of the known populations hibernate in less than 20 caves. Fleming County does not have these hibernaculum records nor maternity/reproductive records, but Rowan County approximately 15 miles to the southeast has maternity/reproductive records known to KDFWR (KDFWR 2017).

According to the IPaC Resource List, no critical habitat has been designated for this species (USWFS 2020a). The project area only contains narrow strips of riparian woodlands and is not connected to offsite large tracts of forest, due to similar agricultural uses on adjacent tracts outside of the Site. As the project area is comprised of small areas of fragmented forest, foraging habitat for the gray bat does not occur onsite. The project area is located within an ecoregion that is characterized as having expansive limestone karst plains, which can provide conditions suitable for caves. However, no known gray bat cave roosts are located within Fleming County, and it is unlikely a cave roost meeting the species' rare cave conditions requirements would be located onsite. Therefore, the species is unlikely to be located onsite.

5.1.2 Indiana Bat (*Myotis sodalis*)

The federally endangered Indiana bat prefers habitat consisting of deciduous forests, typically near a river or stream where this species can easily travel from roosting sites to foraging sites. The Indiana bat roosts during the summer in living, dead, and dying trees under sloughing bark with consistent sun exposure.

Females roost in groups of up to 300 bats, while males roost individually or in small groups. Female Indiana bats have high roost fidelity, meaning they will return to the same primary roost tree each year. Indiana bats forage in forested stream corridors, upland and bottomland forests, forested wetlands, and along wooded edges of agriculture fields, pastures, and ponds. The Indiana bat migrates to hibernacula in the fall and hibernates during the winter in caves and mines in large clusters on cave ceilings. This species requires cool, humid hibernacula with stable temperatures (USFWS 2008).

According to the IPaC Resource List, final critical habitat has been designated, however, no critical habitat occurs within the project area (USWFS 2020a). The Office of Kentucky Nature Preserves provides spatial data depicting areas of known critical habitat (OKNP 2020). The database does not identify Fleming County to be a critical habitat area for the Indiana bat; however, the three counties directly to the east (Carter, Lewis, and Greenup) are designated as critical habitat areas for the Indiana bat by the USFWS (OKNP 2020). The boundary of Lewis County is approximately 7.4 miles northeast of the Site at the closest point and the boundary of Carter County (the next closest county with USFWS-designated critical habitat) is approximately 23.8 miles southeast of the Site. Areas within the project area that are depicted as being deciduous or mixed forest land cover adjacent to stream features constitute suitable roosting and foraging habitat for the Indiana bat (Figure 2).

5.1.3 Northern Long-eared Bat (*Myotis septentrionalis*)

The federally threatened and state endangered NLEB, also known as the northern myotis, prefers habitat consisting of deciduous forests near riparian corridors where this species can easily travel from roosting sites to foraging sites. The NLEB selects for a variety of summer roosting structures including dead or living trees of various sizes, stumps, fences, barns, etc., all of which must have a consistent source of sun exposure. The NLEB hibernates throughout the winter in caves and abandoned mines of various sizes that must have constant temperatures, high humidity, and no air current (USFWS 2015).

The USFWS published a final 4(d) rule authorizing incidental take of the NLEB under specific circumstances. According to the final 4(d) rule, incidental take caused by tree removal outside a 0.25-mile radius of a known hibernacula and a 150-foot radius of known maternity roost trees during pup season (June 1 – July 31) is not prohibited without an Incidental Take Permit. However, on January 28, 2020, a district court remanded the USFWS's April 2015 decision to list the NLEB as threatened. According to this district court, the USFWS did not adequately explain why threats facing the NLEB warranted a listing as threatened rather than endangered. The district court did not vacate the threatened listing and 4(d) rule. Therefore, the NLEB remains federally listed as threatened with the 4(d) rule in place until the USFWS reconsiders and provides more evidence for a new listing determination (United States District Court for the District of Columbia, 2020). It is possible that the USFWS will relist the NLEB as endangered in the near future. The timeline of the new listing decision is unknown.

The USFWS's Kentucky Ecological Services Field Office (KYFO) has incorporated site-specific information for NLEB hibernacula and maternity roost tree locations into the IPaC database. The IPaC Resource List does not indicate that the Project is located within 0.25 mile of a known northern long-eared bat hibernaculum or within 150 feet of a known maternity roost tree. The project area includes suitable roosting and foraging areas for the NLEB, including barn structures and forested areas near streams

located throughout the project area. Potential roosting and foraging habitat has the potential to occur onsite, and therefore, this species may occur onsite.

5.1.4 Snuffbox Mussel (*Epioblasma triquetra*)

The federal and state endangered snuffbox is a freshwater mussel which prefers habitat consisting of small- to medium-sized streams with a swift current and gravel, sand, and cobble substrates. Additionally, this species will occasionally occur within large lakes and rivers (USFWS 2019b).

A tributary to Johnson Creek with a likely perennial (year-round) flow regime is located within the north-central portion of the project area containing segments with gravel, sand, and cobble substrate that could potentially serve as habitat for the snuffbox mussel. Therefore, it is possible that this species occurs onsite.

5.1.5 Running buffalo clover (*Trifolium stoloniferum*)

The running buffalo clover (*Trifolium stoloniferum*) is a federally endangered, perennial, herbaceous plant with leaves divided into three (3) leaflets, one (1)-inch wide white flowers blooming in late spring and early summer. The species occurs in rich soils in the transition zone between open forest and prairie, and this species depends on disturbance events to disperse seeds and create open habitat. With the absence of bison and habitat loss and fragmentation, it now most commonly occurs in mowed areas (lawns, cemeteries, and parks), along streams and trails, and in partially shaded open areas (USFWS 2019e).

The project area contains numerous unnamed drainages to Johnson Creek, Mill Creek, and Town Branch that each contain narrow riparian woodland areas that abut open pastures. Therefore, small areas containing transition zones between forest and open prairies, as well as partially shaded open areas, which provide optimal habitat for the running buffalo clover may exist onsite.

5.1.6 Short's goldenrod (*Solidago shortii*)

A member of the sunflower family, Short's goldenrod is a federally endangered plant species typically about two (2) feet tall with bright yellow flowers blooming from August to October, and occurs in a variety of dry, mostly open habitats with clayey soils and occasional natural disturbances, like grazing, trampling by bison, deer and elk, and wildfire (USFWS 2012).

No critical habitat has been designated by USFWS for this species, however, short's goldenrod occurs in only two (2) known populations in Kentucky and Indiana. The first is found in a two (2)-square mile radius in and around Blue Licks Battlefield State Park approximately 11.3 miles west of the project area, at the conjunction of Fleming, Nicholas, and Robertson counties along the Licking River (USFWS 2012). The second occurs within a 210-acre preserve outside of the Blue Licks Battlefield State Park, the Short's Goldenrod State Nature Preserve, which has been protecting this eastern population since 2004 (Commonwealth of Kentucky 2019). The distance between this known population of short's goldenrod and the project area would make any natural establishment of the species onsite unlikely, and the lack of clayey soils within the Site, which is comprised almost exclusively of silt loams, would furthermore make it unlikely that the species would successfully propagate within the project area boundaries. Therefore, the short's goldenrod is not anticipated to occur within the project area.

5.2 State-listed Species

Kentucky has no equivalent state law to the federal ESA. The State monitors biodiversity and maintains a list of state endangered, threatened, and special concern species, but the state designations convey no legal protection to species which are only listed by the state and not listed by the federal ESA. As such, a list of state endangered, threatened, and special concern species known to occur in Fleming County is attached (Appendix B) and additional species listed under the federal ESA, but not included in the IPaC Resource list, are described in Section 5.3 below.

5.3 Additional Federally Protected Species

The sections below detail species that are federally listed under the ESA but were not included in the IPaC Resource list; their potential occurrences within the project area were provided by KDFWR, or in the case of the bald eagle (Section 5.3.4) and golden eagle (Section 5.3.5), they are protected under the BGEPA.

5.3.1 Fanshell (*Cyprogenia stegaria*)

The KDFWR Fleming County List of State Threatened, Endangered, and Special Concern Species includes the fanshell as both state and federally endangered. This species prefers habitat consisting of medium to large-sized rivers, primarily found in relatively deep water with gravel substrate and moderate current (KDFWR 2019).

Fanshell mussels historically occurred in the Ohio River and many of its large tributaries from Pennsylvania to Alabama, including those within Kentucky (KDFWR 2019). According to the KDFWR, it is believed the only viable reproducing populations of fanshell mussels within Kentucky exist in the Green River within Hart and Edmonson counties, and the Licking River within Kenton, Campbell, and Pendleton counties. Johnson Creek serves as a tributary to the Licking River, but its confluence exists along the Harrison/Robertson county line; with its tributaries within the project area nearing their headwaters, they would not sustain the necessary depth and flow for the fanshell mussel to occur. Therefore, this species is not anticipated to occur onsite.

5.3.2 Northern riffleshell (*Epioblasma rangiana*)

The KDFWR Fleming County List of State Threatened, Endangered and Special Concern Species includes the northern riffleshell as being both federally and state endangered. This species, only found in approximately five (5) percent of its original habitat largely due to the construction of reservoirs, is known to occur in large streams and small rivers, with firmly packed sand or gravel of riffle areas, as well as in Lake Erie. It requires a stable environment with sufficient populations of host fish to complete the mussel's larval development (USFWS 2019c).

According to the USFWS Midwest Region Ohio Field Office (USFWS 2019c), the only remaining habitat for the northern riffleshell within Kentucky is within certain short stretches of the Green River, a separate watershed more than 80 miles to the southwest. Therefore, the northern riffleshell is not anticipated to occur onsite.

5.3.3 Sheepnose (*Plethobasus cyphyus*)

The KDFWR Fleming County List of State Threatened, Endangered and Special Concern Species includes the sheepnose as being both federally and state endangered. Found across the Midwest and Southeast, it is now only found in a third of the original number of streams (25 of 76) in which it was historically known. The sheepnose prefers larger rivers and streams, in shallower areas with moderate to swift currents flowing over coarse sand and gravel. Being suspension feeders, sheepnose mussels require consistent water to siphon and feed on algae, bacteria, detritus, and microscopic animals, and they depend on fish to move up or downstream (USFWS 2019d).

Although small perennial, intermittent and ephemeral tributaries exist within the project area, these waterways do not contain the volume or consistency of flow regime to support habitat or sufficient food and reproductive opportunities for the sheepnose mussel, and it is not anticipated to occur onsite.

5.3.4 Bald Eagle (*Haliaeetus leucocephalus*)

Bald eagles are federally protected under the BGEPA, MBTA, and are listed as state threatened. The bald eagle utilizes large, super-canopy trees located in close proximity to rivers, lakes, marshes, or other large waterbodies where fish are abundant. The bald eagle is an opportunistic forager and will consume carrion of fish, birds, and mammals. The bald eagle prefers large trees that provide high perches used to locate prey and provide branches that afford the strength required to support the weight of their nest. Bald eagles are known to reuse their nests year after year, especially if the parents successfully raise young from that nest and prey density remains static (USFWS 2020b).

According to the eBird database, the nearest observation of the bald eagle was in February 2017 approximately 5.8 miles southeast of the project area (eBird 2020). There are no large lakes or rivers within the project area, or immediately adjacent to it, that could provide optimal nesting or foraging habitat for the bald eagle. Additionally, this species is more likely to utilize higher quality offsite habitats associated with the Licking River located approximately eight (8) miles south-southwest of the project area, the Ohio River located approximately 12.2 miles north of the project area, and dense forested areas located approximately five (5) miles west and six (6) miles east of the Site. Therefore, it is unlikely that this species will utilize the Site.

5.3.5 Golden Eagle (*Aquila chrysaetos*)

The golden eagle is protected under the BGEPA, MBTA, and Lacey Act. This species can be found in habitats consisting of grassland, forests, brushlands, and arid deserts. The golden eagle prefers to forage in open habitat where it can easily hunt for small to mid-sized animals including reptiles, birds, and mammals. This species prefers nesting habitat consisting of large trees within forest stands and cliffs that provide an unobstructed view of the surrounding habitat (USFWS 2011).

According to the eBird database, the nearest observation of the golden eagle occurred approximately 12.5 miles north-northeast of the project area in December 2016, on the Ohio side of the Ohio-Kentucky border, across the Ohio River (eBird 2020). Uncommon in Kentucky compared to bald eagles, golden eagles do migrate through and winter in Kentucky; the species is not known to occur within Fleming County during the breeding season and there are no known current or historic breeding sites for the

golden eagle within Kentucky (KDFWR n.d.). Therefore, suitable nesting habitat does not occur onsite. Marginally suitable foraging habitat may occur within the open, cultivated cropland areas of the project area, as well as its pasture areas. This species is more likely to utilize higher quality habitats associated with the Licking River located approximately eight (8) miles south-southwest of the project area, the Ohio River located approximately 12.2 miles north of the project area, however, marginal foraging habitat has the potential to exist onsite.

Table 2: State and Federally Protected Species Habitat Requirements and Investigation Findings

Common Name (*Scientific Name*)	Federal Status	State Status	Preferred Habitat Description	Preferred Habitat Observed Onsite?	Effects Determination[1] (Federally listed Species Only)
Gray Bat (*Myotis grisescens*)	Endangered	-	Inhabit caves year-round; large, forages in continuous tracts of deciduous forest near rivers	No	No Effect
Indiana Bat (*Myotis sodalis*)	Endangered	-	During the winter hibernates in cool, humid caves; summer roosts in wooded areas under loose tree bark or in dead or dying trees	Yes; potential roosting and foraging	May affect, but not likely to adversely affect
Northern Long-eared Bat (*Myotis septentrionalis*)	Threatened	Endangered	Hibernates in caves and mines during the winter; roosts in dead or living trees of various sizes, stumps, fences, barns in the summer	Yes; potential roosting and foraging	May affect, but not likely to adversely affect
Snuffbox Mussel (*Epioblasma triquetra*)	Endangered	Endangered	Inhabit small- to medium-sized creeks with a swift current with sand, gravel, or cobble substrates	Yes	May affect, but not likely to adversely affect
Fanshell (*Cyprogenia stegaria*)	Endangered	Endangered	Medium- to large-sized rivers with gravel substrates, relatively deep water with moderate current	No	No Effect
Northern riffleshell (*Epioblasma rangiana*)	Endangered	Endangered	Large streams and small rivers, with firmly packed sand or gravel of riffle areas	No	No Effect
Sheepnose (*Plethobasus cyphyus*)	Endangered	Endangered	Larger rivers and streams, in shallower areas with moderate to swift currents flowing over coarse sand and gravel	No	No Effect

Common Name (*Scientific Name*)	Federal Status	State Status	Preferred Habitat Description	Preferred Habitat Observed Onsite?	Effects Determination[1] (Federally listed Species Only)
Bald Eagle (*Haliaeetus leucocephalus*)	BEGPA	Threatened	Large, super-canopy trees located in close proximity to rivers, lakes, marshes or other large waterbodies	No	-
Golden Eagle (*Aquila chrysaetos*)	BGEPA	-	Grassland, forests, brushlands, and arid deserts; nesting habitat consisting of large trees within dense forest stands and cliffs	Yes; potential foraging	-
Running buffalo clover (*Trifolium stoloniferum*)	Endangered	-	Ecotone between forest and open prairies; not overly sunny or canopied; areas prone to natural disturbance	Yes	May affect, but not likely to adversely affect
Short's goldenrod (*Solidago shortii*)	Endangered	-	Clayey soils, in open sunny areas prone to natural disturbance	No	No Effect

1. In an effects analysis of the Project, the following terms, used by the USFWS, were employed for species listed under the ESA:
- "No Effect"- no impacts, positive or negative, to listed or proposed resources
- "May affect, but not likely to adversely affect"- all effects are beneficial, insignificant, or discountable
- "May affect, and is likely to adversely affect"- listed resources are likely to be exposed to the action or its environmental consequences and will respond in a negative manner to the exposure

6.0 Conclusion and Recommendations

For this Protected Species Habitat Assessment for the Fleming Solar Project, ERP conducted a desktop database and literature review as well as a site visit to assess the habitat types present within the project area and determine if preferred habitat for federally protected species exists onsite.

ERP conducted a review of the Site for protected species and their respective habitats and concluded that the Site has the potential to provide suitable habitat for federally protected species (Table 2). The Site consists primarily of cultivated cropland, open pastures used for livestock grazing, and with small areas of fragmented forests throughout the project area. Tributaries to Johnson Creek bisect the central portions of the Site.

ERP found that the Site provides suitable habitat for five (5) federally protected species: the Indiana bat, NLEB, snuffbox mussel, golden eagle, and running buffalo clover. The project area is located within an ecoregion that is characterized as having expansive limestone karst plains, which can provide conditions suitable for caves. However, no known gray bat cave roosts are located within Fleming County, and it is unlikely a cave roost meeting the species' rare cave conditions requirements would be located onsite. Therefore, the species is unlikely to be located onsite. The fragmented forested areas within the project area provide potential suitable habitat for the Indiana bat and NLEB, while small perennial portions to Johnson Creek, near the north-central portion of the Site, may provide suitable habitat for the snuffbox mussel. The Site has the potential to provide marginal foraging habitat for the golden eagle, although this species is more likely to utilize higher quality habitats associated with Licking River located approximately eight (8) miles south-southwest of the project area, and the Ohio River located approximately 12.2 miles north of the project area. Additionally, fringe areas of forest-prairie transition zones, where riparian woodlands along natural drainages abut open pastures, and other partially shaded, open areas may exist that would provide suitable habitat for the running buffalo clover.

The federally and state endangered Indiana bat and the federally threatened and state endangered NLEB have the potential to occur onsite. ERP recommends implementing best management practices (BMPs) during design, construction, and operations to reduce the likelihood of impacting these species. BMPs for protected bats include avoidance of tree clearing, if possible, and clearing trees outside of the bat maternity season (May 15 – August 15). If tree clearing during the maternity season cannot be avoided, ERP recommends completing presence/absence surveys to determine if these species are present or likely absent from the project area.

The federal and state endangered snuffbox mussel has the potential to occur onsite. ERP recommends implementing BMPs that include developing sediment and erosion control plans for construction that will prevent sedimentation into onsite and offsite aquatic features that may provide habitat for these protected species.

The Site also has the potential to provide habitat for avian species protected under the MBTA. BMPs to protect these species include clearing vegetation outside of their primary nesting season, which occurs March through August. If tree clearing during the primary nesting season cannot be avoided, ERP recommends completing a survey for active nests prior to clearing.

ERP recommends coordinating with the USFWS and the KDFWR to obtain concurrence with the onsite habitat assessment.

7.0 References

City of Flemingsburg. 2017. Community, Recreation. Available at http://www.flemingsburgky.org/community/recreation/index.php. Accessed November 2020.

Commonwealth of Kentucky. 2019. Blue Licks Battlefield State Park, and Short's Goldenrod State Nature Preserve. Available at https://eec.ky.gov/Nature-Preserves/Locations/Pages/Blue-Licks.aspx. Accessed November 2020.

eBird. 2020. eBird: An online database of bird distribution and abundance [web application]. Cornell Lab of Ornithology, Ithaca, New York. Available at http://www.ebird.org. Accessed November 2020.

Google Earth V7.3.3.7786. 2016. Kentucky, United States. 38°27'01.91"N 83°45'34.55"W. Available at http://www.earth.google.com. Accessed November 2020.

Environmental Protection Agency (EPA). 2020. Ecoregions of North America. Available at https://www.epa.gov/eco-research/ecoregions-north-america. Accessed November 2020.

Fleming County Golf Association. n.d. Fleming County Golf Course. Available at https://fcga.weebly.com/. Accessed November 2020.

Kentucky Department of Fish and Wildlife Resources (KDFWR). n.d. Kentucky's Bald Eagles. Available at https://fw.ky.gov/Wildlife/Pages/Bald-Eagles.aspx. Accessed November 2020.

KDFWR. 2017. Species Profile, Gray Bat. Available at https://fw.ky.gov/Wildlife/Pages/Gray-Bat.aspx. Accessed January 2021.

KDFWR. 2019. Species Profile, Fanshell. Available at https://www.fws.gov/southeast/wildlife/mussels/fanshell/. Accessed November 2020.

KDFWR. 2020. Species Information, Species list search by county. Available at http://app.fw.ky.gov/speciesinfo/speciesinfo.asp. Accessed November 2020.

Kentucky Geological Survey. 1971. Geologic Map of the Elizaville Quadrangle, Fleming and Mason Counties, Kentucky. University of Kentucky, Kentucky Geologic Map Service. Available at https://kgs.uky.edu/kygeode/geomap/. Accessed November 2020.

The Nature Conservancy. N.d. Interior Low Plateau. Available at https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/terrestrial/ecoregional/ilp/Pages/default.aspx#:~:text=The%20Interior%20Low%20Plateau%20ecoregion,%2C%20Kentucky%2C%20Tennessee%20and%20Alabama.&text=along%20the%20Ohio%20River%20as,between%20500%20and%20850%20ft. Accessed November 2020.

Office of Kentucky Nature Preserves (OKNP). 2020. Available at http://kynaturepreserves.org/content/map. Accessed November 2020.

Protected Areas Data Portal [PAD-US]. 2018. Available at https://maps.usgs.gov/padus/. Accessed November 2020.

U.S. Climate Data. 2020. Monthly Temperature, Precipitation. Climate Maysville, KY. Available at https://www.usclimatedata.com/climate/maysville/kentucky/united-states/usky1131. Accessed November 2020.

United States District Court for the District of Columbia. 2020. Case 1:15-cv-00477-EGS. Document 81. Available at https://www.biologicaldiversity.org/species/mammals/northern_long-eared_bat/pdfs/Northern-Long-eared-Bat-Opinion-and-Order.pdf. Accessed November 2020.

USFWS. 2008. Section 7 technical assistance summary of Indiana bat ecology. Available at https://www.fws.gov/midwest/endangered/section7/s7process/mammals/inba/INBAEcologySummary.html. Accessed November 2020.

USFWS. 2011. Golden Eagle. Status fact sheet. Available at https://www.fws.gov/migratorybirds/pdf/management/golden-eagle-fact-sheet.pdf. Accessed November 2020.

USFWS. 2012. Short's Goldenrod Fact Sheet. Available at https://www.fws.gov/endangered/map/ESA_success_stories/KY/KY_story1/index.html. Accessed November 2020.

USFWS. 2015. Northern Long-eared Bat Fact Sheet. Available at https://www.fws.gov/Midwest/endangered/mammals/nleb/nlebFactSheet.html. Accessed November 2020.

USFWS. 2015. Bald & Golden Eagle Protection Act. Available at https://www.fws.gov/birds/policies-and-regulations/laws-legislations/bald-and-golden-eagle-protection-act.php. Accessed December 2020.

USFWS 2019a. Gray Bat Fact Sheet. USFWS. Available at https://www.fws.gov/midwest/endangered/mammals/grbat_fc.html. Accessed November 2020.

USFWS 2019b. Snuffbox Fact Sheet. USFWS. Available at https://www.fws.gov/midwest/endangered/mammals/inba/index.html. Accessed November 2020.

USFWS. 2019c. Northern riffleshell. Midwest Region Endangered Species. Available at https://www.fws.gov/midwest/endangered/clams/nriffleshell/index.html. Accessed November 2020.

USFWS. 2019d. Sheepnose mussel. Midwest Region Endangered Species. Available at https://www.fws.gov/midwest/endangered/clams/sheepnose/index.html. Accessed November 2020.

USFWS. 2019e. Running buffalo clover. Midwest Region Endangered Species. https://www.fws.gov/midwest/endangered/plants/rbcl/index.html. Accessed November 2020.

USFWS 2020a. Information for Planning and Consultation (IPaC), Environmental Conservation Online System (ECOS). Available at https://ecos.fws.gov/ipac/. Accessed November 2020.

USFWS. 2020b. Species Profile for Bald Eagle. Available at https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=B008. Accessed November 2020.

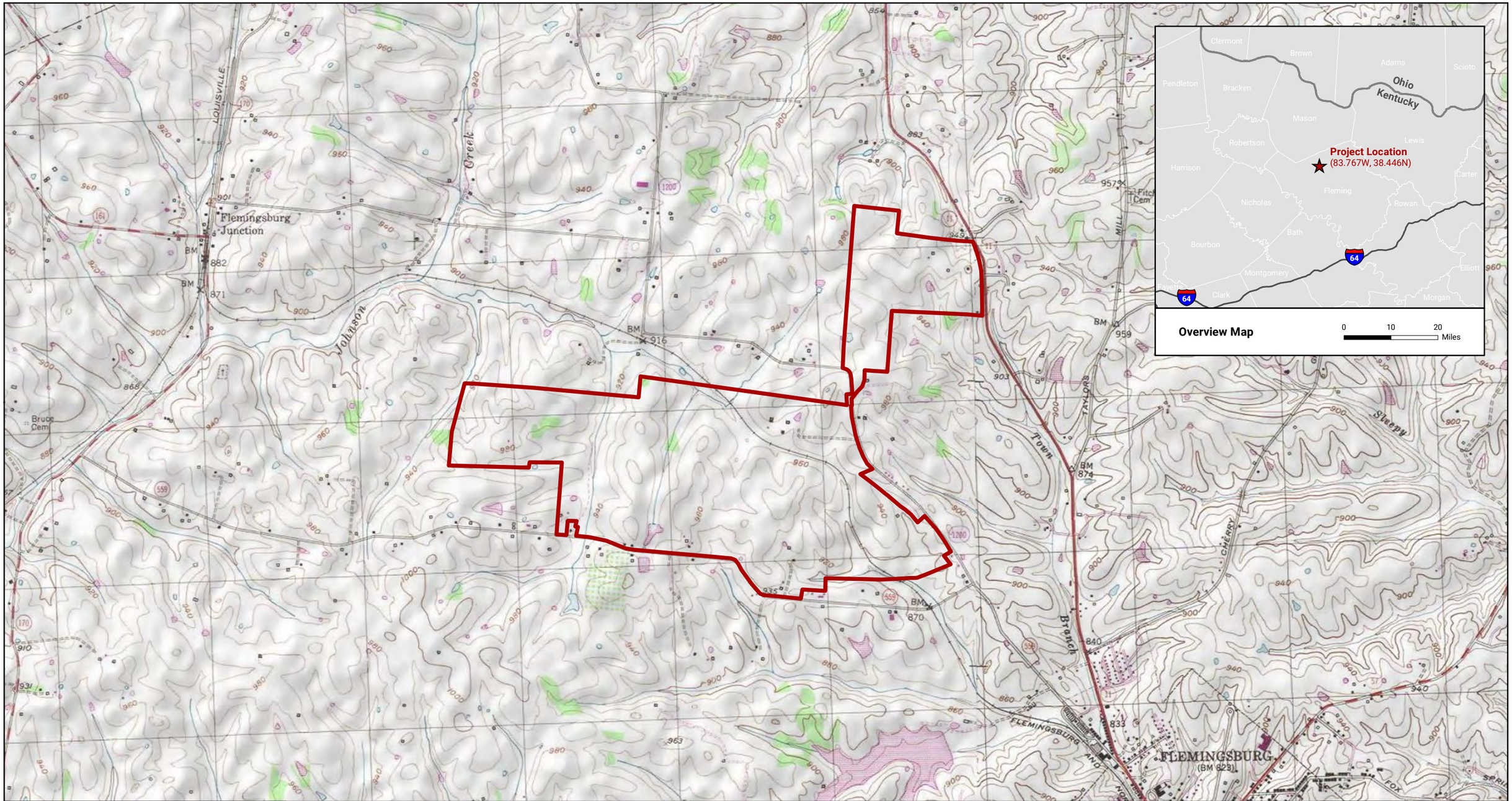
U.S. Geological Survey [USGS]. 2019. Elizaville, KY [map] and Flemingsburg, KY [map] 1:24,000. 7.5 Minute Series. Reston, Va: United States Department of the Interior. Accessed November 2020.

Weather Underground. 2020. Flemingsburg, KY Weather Conditions. Available at https://www.wunderground.com/weather/us/ky/flemingsburg/38.42,-83.74. Accessed December 2020.

Weather Underground. 2021. Flemingsburg, KY Weather Conditions. Available at https://www.wunderground.com/weather/us/ky/flemingsburg/38.42,-83.74. Accessed April 2020.

Yang, L., Jin, S., Danielson, P., Homer, C., Gass, L., Case, A., Costello, C., Dewitz, J., Fry, J., Funk, M., Grannemann, B., Rigge, M. and G. Xian. 2018. A New Generation of the United States National Land Cover Database: Requirements, Research Priorities, Design, and Implementation Strategies, ISPRS Journal of Photogrammetry and Remote Sensing, 146, pp.108-123.

FIGURES



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LEGEND

Project Area (~831 acres)

Fleming Solar, LLC

Fleming Solar Project

Regional Topography

Elizaville and Flemingsburg
USGS 1:24,000 Topographic Quadrangles

Project Location: Fleming County, Kentucky

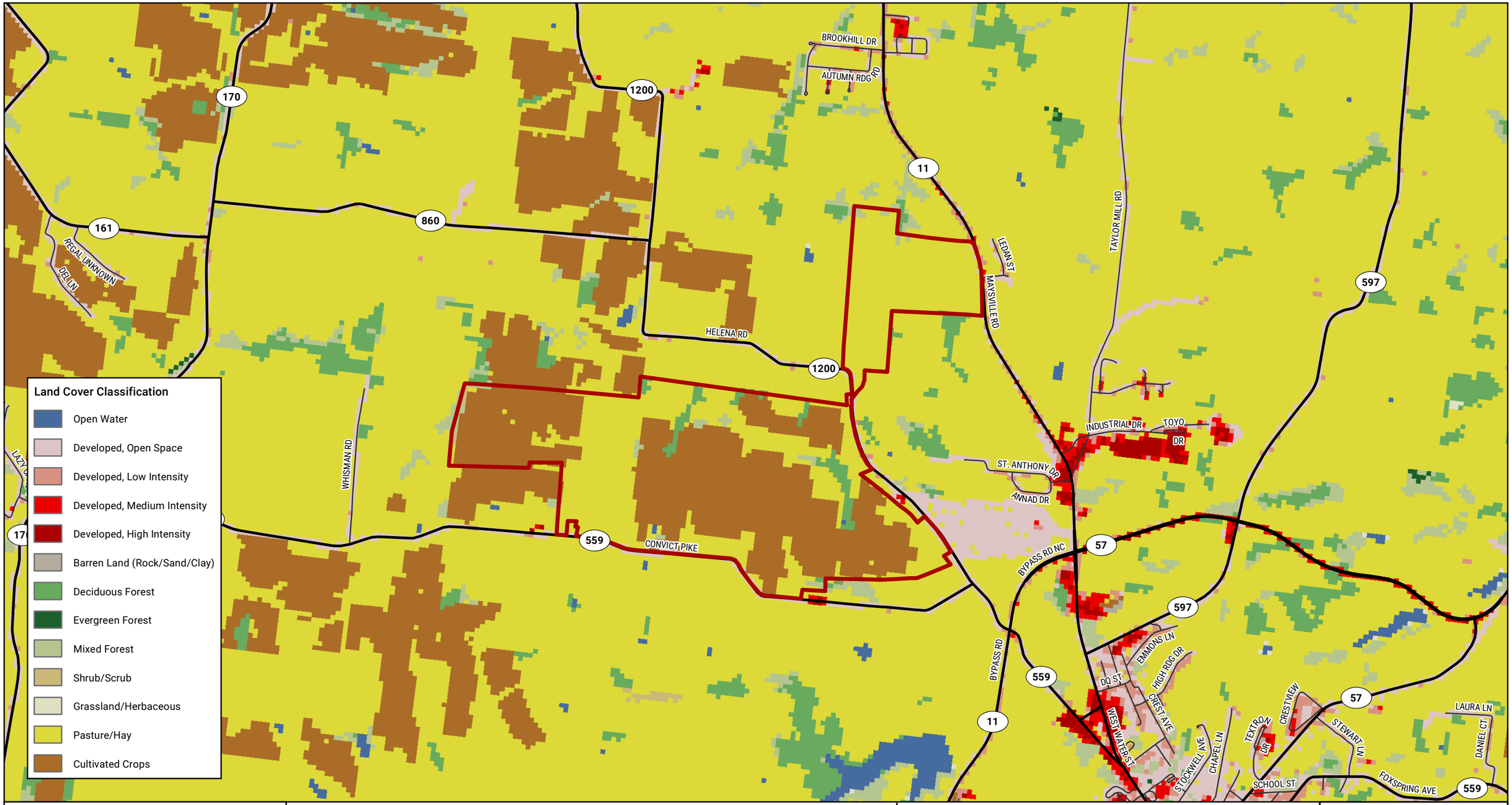
N

0 1,000 2,000 Feet

FIGURE 1

Prepared by: L. Kauffman

Date: 2021-03-31



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ERP
ENERGY RENEWAL PARTNERS, LLC

LEGEND

Project Area (~831 acres)

Fleming Solar, LLC

Fleming Solar Project

Land Cover

Project Location: Fleming County, Kentucky

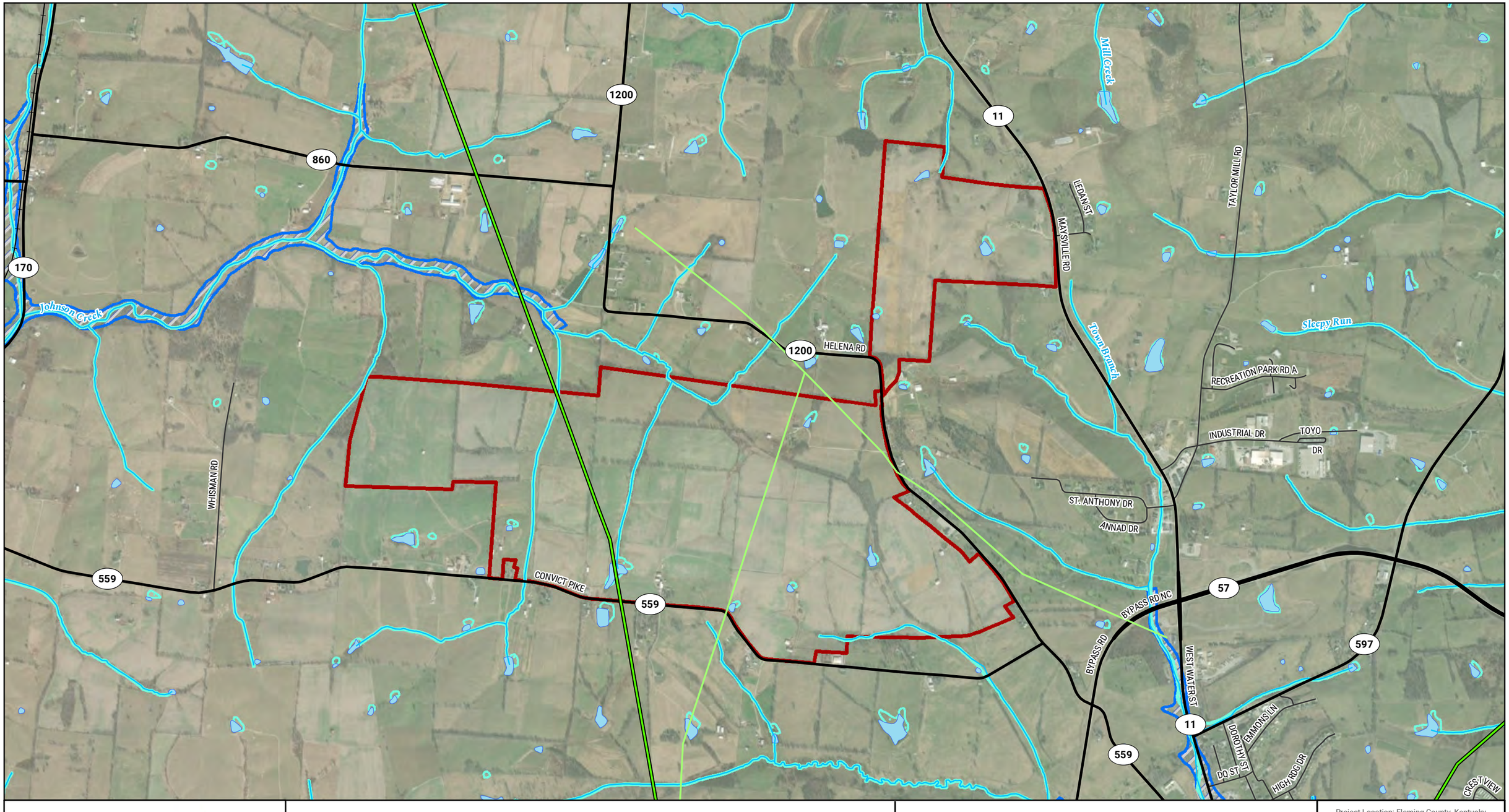
N

0 1,000 2,000 Feet

FIGURE 2

Prepared by: L. Kauffman

Date: 2021-03-31



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LEGEND

- Project Area (~831 acres)
- Stream/Drainage (NHD)
- Water Body (NHD)
- Wetland (NWI)
- 100-year Floodplain
- Electric Transmission
- Electric Distribution

Fleming Solar, LLC

Fleming Solar Project

Desktop Findings

Project Location: Fleming County, Kentucky

N

0 750 1,500 Feet

FIGURE 3

Prepared by: L. Kauffman

Date: 2021-03-31

Appendix A

USFWS Information for Planning and Consultation Resource List

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Fleming County, Kentucky

Local office

Kentucky Ecological Services Field Office

(502) 695-0468
(502) 695-1024

J C Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601-8670

http://www.fws.gov/frankfort/

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS

Gray Bat Myotis grisescens — Endangered
Wherever found
This species only needs to be considered if the following condition applies:
- The project area includes potential gray bat habitat.

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6329

Indiana Bat Myotis sodalis — Endangered
Wherever found
This species only needs to be considered if the following condition applies:
- The project area includes 'potential' habitat. All activities in this location should consider possible effects to this species.

There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/5949

Northern Long-eared Bat Myotis septentrionalis — Threatened
Wherever found
This species only needs to be considered if the following condition applies:
- The specified area includes areas in which incidental take would not be prohibited under the 4(d) rule. For reporting purposes, please use the "streamlined consultation form," linked to in the "general project design guidelines" for the species.

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/9045

Clams

NAME	STATUS
Snuffbox Mussel Epioblasma triquetra Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4135	Endangered

Flowering Plants

NAME	STATUS
Running Buffalo Clover Trifolium stoloniferum No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2529	Endangered

Short's Goldenrod Solidago shortii Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/5367

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any

week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

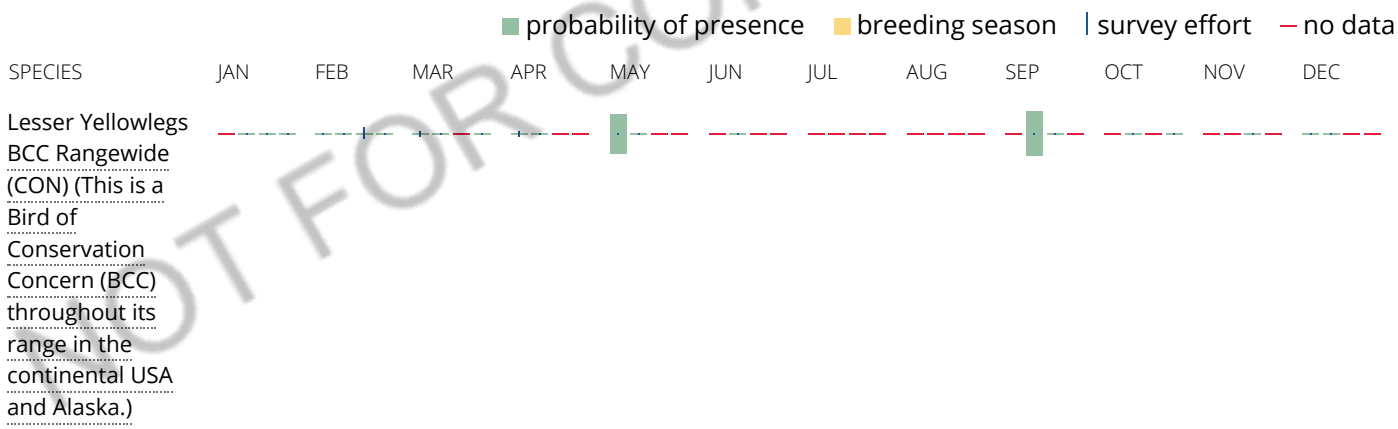
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

PEM1Fh

FRESHWATER POND

PUBHh

RIVERINE

R5UBH
R4SBC

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal,

state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Appendix B

KDFWR State Threatened, Endangered, and Special Concern Species

Species Information

State Threatened, Endangered, and Special Concern Species observations for selected counties

Linked life history provided courtesy of NatureServe Explorer .
Records may include both recent and historical observations.
US Status Definitions Kentucky Status Definitions

List State Threatened, Endangered, and Special Concern Species observations in 1 selected county.
Selected county is: Fleming.

Scientific Name and Life History	Common Name and Pictures	Class	County	US Status	KY Status	WAP	Reference
Accipiter striatus	Sharp-shinned Hawk	Aves	Fleming	N	S	Yes	Reference
Alasmidonta marginata	Elktoe	Bivalvia	Fleming	N	T	Yes	Reference
Circus hudsonius	Northern Harrier	Aves	Fleming	N	T	Yes	Reference
Cryptobranchus alleganiensis alleganiensis	Eastern Hellbender	Amphibia	Fleming	N	E	Yes	Reference
Cyprogenia stegaria	Fanshell	Bivalvia	Fleming	E	E	Yes	Reference
Dryobius sexnotatus	Sixbanded Longhorn Beetle	Insecta	Fleming	N	T		Reference
Epioblasma rangiana	Northern Riffleshell	Bivalvia	Fleming	E	E	Yes	Reference
Epioblasma triquetra	Snuffbox	Bivalvia	Fleming	E	E	Yes	Reference
Fulica americana	American Coot	Aves	Fleming	N	E		Reference
Junco hyemalis	Dark-eyed Junco	Aves	Fleming	N	S		Reference
Mustela nivalis	Least Weasel	Mammalia	Fleming	N	S		Reference
Myotis septentrionalis	Northern Myotis	Mammalia	Fleming	T	E		Reference
Noturus stigmosus	Northern Madtom	Actinopterygii	Fleming	N	S	Yes	Reference
Phalacrocorax auritus	Double-crested Cormorant	Aves	Fleming	N	T		Reference

Plethobasus cyphyus	Sheepnose	Bivalvia	Fleming	E	E	Yes	Reference
Rana pipiens	Northern Leopard Frog	Amphibia	Fleming	N	S	Yes	Reference
Spatula clypeata	Northern Shoveler	Aves	Fleming	N	E		Reference
Spatula discors	Blue-winged Teal	Aves	Fleming	N	T		Reference
Tyto alba	Barn Owl	Aves	Fleming	N	S	Yes	Reference
Ursus americanus	American Black Bear	Mammalia	Fleming	N	S	Yes	Reference

20 species are listed

Appendix C
Photo Log

Photo 1: View of undulating fallow corn fields and large pond, with riparian vegetation surrounding drainages in the northern portion of the project area, facing south.

Photo 2: View looking north of a tributary to Johnson Creek within the project area, flowing north.

ERP ENERGY RENEWAL PARTNERS, LLC	Fleming Solar, LLC **Fleming Solar Project** Photo Log	Location: Fleming County, KY Photos Taken By: S. Martin, D. Roberts Date Taken: December 14-16, 2020 and March 17-18, 2021

Photo 3: View of a fallow corn field and barn along the project area's western boundary.

Photo 4: View of a NWI wetland located within a large swale in the southern portion of the project area, looking south.

Photo 5: View of a pond located adjacent to residential and agricultural structures in the north-central portion of the project area.

Photo 6: View of a now-overgrown railroad berm within the project area, crossing the Site from southeast to northwest; photo taken in the southeastern portion.

Photo 7: View of general onsite cattle pasture, with residential and agricultural infrastructure in the background. View in the southwestern portion of the project area, facing west.

Photo 8: View of riparian woodlands surrounding an unnamed drainage in the southeastern portion of the project area.

Photo 9: View of a tributary to Johnson Creek located within the eastern portion of the project area, facing upstream (east).

Photo 10: View of a NWI wetland complex in the north-central portion of the project area, facing southeast.

Photo 11: Typical view of western most project area with riparian forest, facing west.

Photo 12: View of a western most project area, facing north.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kentucky Ecological Services Field Office
330 West Broadway, Suite 265
Frankfort, Kentucky 40601
(502) 695-0468

July 9, 2021

Sean Martin
Energy Renewal Partners, LLC
1221 S. Mopac Expressway, Suite 225
Austin, Texas 78746

Subject: FWS 2021-B-0341; Fleming Solar Project; Fleming County, Kentucky

Dear Sean Martin:

The U.S. Fish and Wildlife Service's Kentucky Field Office (KFO) has reviewed the above-referenced project information received by our office on May 18, 2021. The Fleming Solar Project proposes to develop a solar farm on 831 acres in Fleming County, Kentucky. Based on the information provided, the KFO offers the following comments.

Project Description
The final design of the solar facility has not been completed; however, the project will likely involve the installation of photovoltaic modules, inverters, an underground electrical collection system, internal project roads, security fencing, operation and maintenance structures, and temporary parking and laydown areas. The project area primarily consist of cultivated cropland, pasture, and fragmented forested areas. Clearing of onsite vegetation and grading, if necessary, will occur before the installation of project infrastructure. At this time, the project is a private commercial development and may or may not require federal permitting. If the final project involves a federal action, consultation under section 7 of the Endangered Species Act will be required. If there is no federal action, the applicant must evaluate the project and determine if it is likely to result in prohibited take of a federally listed species. Guidance on making this determination can be found in the 2018 Guidance Memo. Additionally, the KFO stands ready to provide additional assistance as requested.

Federally Listed Species
On behalf of Fleming Solar, LLC (Fleming Solar), Energy Renewal Partners, LLC (ERP) evaluated the potential for the project to affect the gray bat (*Myotis grisescens*), Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), Snuffbox (*Epioblasma triquetra*), Fanshell (*Cyprogenia stegaria*), Northern Riffleshell (*Epioblasma torulosa rangiana*), Sheepnose (*Plethobasus cyphyus*), Short's goldenrod (*Solidago shortii*), and running buffalo clover (*Trifolium stoloniferum*).

Gray Bat (*Myotis grisescens*): The Protected Species Habitat Assessment (assessment) included with the submittal states that gray bats are unlikely to occur within the project area because no known gray bat cave roosts are located within Fleming County, and it is unlikely a cave roost meeting the species' rare cave conditions requirements occur onsite. However, the assessment also states that the project area is located within an ecoregion that is characterized as having expansive limestone karst plains, which can provide conditions suitable for caves. Therefore, we recommend that that applicant survey the site to determine if caves or cave-like features that could be used as gray bat summer or winter roosts occur within the project area.

Indiana Bat and Northern Long-eared Bat (NLEB): The proposed project occurs in "potential" habitat for both species. As stated in the assessment, the project area is located within an ecoregion that is characterized as having expansive limestone karst plains, which can provide conditions suitable for caves. Therefore, we recommend that that applicant survey the site to determine if caves or cave-like features occur within the project area that could be uses as Indiana bat or NLEB winter roosts. The assessment determined that forested habitat onsite is suitable Indiana bat and NLEB roosting and foraging habitat and may need to be removed.

The assessment states that if trees need to be removed, they will be removed during the unoccupied timeframe (October 15 to March 31) to avoid impacts to the Indiana bat and NLEB. However, adverse effects to these species could still occur if roosting, foraging, and commuting habitat is modified/degraded to an extent that results in significant impairment of behavioral patterns. If the proposed project will involve the removal of suitable Indiana bat or NLEB habitat, we recommend coordinating with our office regarding options to address potential adverse effects to these species.

Snuffbox: ERP has determined that one unnamed tributary within the project area has the potential to support the Snuffbox. In the assessment, ERP recommends that Fleming Solar implement Best Management Practices (BMPs) to avoid potential impacts to the Snuffbox. At this time, it is unclear if stream impacts are proposed. Therefore, we recommend providing our office with an evaluation of potential aquatic impacts that could occur within the project area and additional information regarding the design and implementation of BMPs for additional review.

Fanshell, Sheepnose, and Northern Riffleshell: ERP has determined that the three unnamed tributaries within the project area do not provide the size or flow regime necessary to support the Fanshell, Sheepnose, and Northern Riffleshell. Because these species typically inhabit larger streams and rivers and the streams within the project area are small, we agree that these species are not likely to be present within the project area.

Short's Goldenrod: There are no prohibitions on impacting plants as a result of nonfederal projects on private land. According to the assessment, Short's goldenrod is unlikely to occur within the project area due to the distance from the nearest known location (11.3 miles) and lack of clay soils within the project area. However, the KFO believes that given the size of the project area and significant amount of open area within the project area, the species could be present. If the proposed project does have a federal nexus in the future, we recommend a more extensive habitat assessment and/or species survey to determine the likelihood of the project impacting this species.

Running Buffalo Clover (RBC): There are no prohibitions on impacting plants as a result of nonfederal projects on private land. According to the assessment, the project area contains "optimal" RBC habitat. We recommend that Fleming Solar avoid impacts to these areas, if feasible. If these areas cannot be avoided and the project does have a federal nexus in the future, we recommend a more extensive habitat assessment and/or species survey to determine the likelihood of the project impacting this species.

The Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits the take of bird species listed under the four international migratory bird treaties signed by the U.S. (50 CFR 10.13). Your correspondence indicates that the project proponent intends to avoid and/or minimize impacts to migratory birds. The KFO appreciates your commitment to protect migratory birds and has no additional comment regarding the MBTA.

Pollinator Habitat

Pollinators play vital roles in our ecosystems, helping to pollinate over 75% of flowering plants and nearly 75% of crops. The main threats facing pollinators are habitat loss, degradation, and fragmentation. As native vegetation is replaced by roadways, manicured lawns, crops and non-native gardens, pollinators lose the habitat necessary for their survival. We recommend that Fleming Solar consider landscaping that would promote pollinators at this proposed facility. The Center for Pollinators in Energy (https://fresh-energy.org/beeslovesolar/) maintains a national clearinghouse of pollinator- friendly solar information, standards, best practices, and state-based initiatives.

We appreciate the opportunity to review the proposed project. If you have any questions, please contact Carrie Allison of my staff at 502-695-0468, extension 46103.

Sincerely,

for Virgil Lee Andrews, Jr.
Field Supervisor

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, LOUISVILLE DISTRICT
600 DR. MARTIN LUTHER KING JR PL
LOUISVILLE, KY 40202

August 2, 2021

Regulatory Division
South Branch
ID No. LRL-2021-00511-mad

Daniel Roberts
Energy Renewal Partners, LLC
1221 South MoPac Expressway, Suite 225
Austin, Texas 78746

Dear Ms. Ilnick:

This is regarding your request dated June 2, 2021 for an approved jurisdictional determination on the 830-acre Fleming Solar Project property in Fleming County, Kentucky (Lat: 38.4438°, Long: -83.7647°).

The U. S. Army Corps of Engineers exercises regulatory authority under Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) and Section 404 of the Clean Water Act (33 USC 1344) for certain activities in "waters of the United States (U.S.)". These waters include all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce.

Jurisdictional features within the review area include three perennial streams, ten intermittent streams, two open water features, and eight wetlands. In addition, sixty features within the review area do not appear to be used or be susceptible to use in interstate or foreign commerce. As such, that resource is not considered to be a "water of the U.S.". This jurisdictional determination is valid for a period of five years from the date of this letter unless new information warrants revision of the determination before the expiration date. However, this determination does not relieve you of the responsibility to comply with applicable state law. We urge you to contact the Kentucky Division of Water, 300 Sower Boulevard, Frankfort, Kentucky 40601 to determine the applicability of state law to your project.

This letter contains an approved jurisdictional determination for your subject site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination, you must submit a completed RFA form to the Lakes and Rivers Division Office at the following address:

Regulatory Appeal Review Officer
ATTN: Ms. Suzanne Chubb
U.S. Army Engineer Division, CELRD-PD-REG
550 Main Street - Room 10-714
Cincinnati, Ohio 45202-3222

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by October 1, 2021.

It is not necessary to submit an RFA form to the Division office if you do not object to the determination in this letter.

If we can be of any further assistance, please contact us by writing to the above address, ATTN: CELRL-RDS, or contact me directly at 502-315-6689 or matt.a.dennis@usace.army.mil. Any correspondence on this matter should refer to our ID Number LRL-2021-00511-mad.

Sincerely,

Matt Dennis
Senior Project Manager
Regulatory Division