EXISTING DP&L
STUART - CLINTON 345kV

INVERTER
PAD (TYP)

MODULE
TRACKER (TYP)

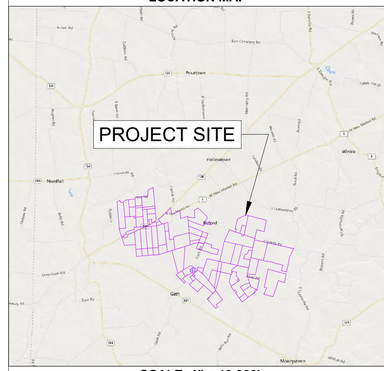
NEW INTERCONNECTION
SUBSTATION

NEW PROJECT
SUBSTATION

POINT OF INTERCONNECTION

OHE

LOCATION MAP



SCALE: 1" = 10,000'

LEGEND

- PROPERTY BOUNDARY
- PV PLANT FENCE
- PUBLIC ROADS
- CONTOURS
- OVERHEAD ELECTRIC LINE
- SETBACKS
- STREAM
- SURFACE WATER
- WETLANDS

PROJECT DATA

CAPACITY (AC):	300 MW
PV MODULES:	
MFR:	RIZEN
INVERTERS:	
MFR:	CHINT
ARRAY:	
MFR:	ARCTECH
TYPE:	SINGLE AXIS

N

0 500' 1000' 2000' 3000'

SCALE: 1"=1000'

REV	DATE	DESCRIPTION	DWN	CHKD
A	06JUN17	FOR INTERCONNECTION	JAB	JAB
B	07JUN18	PPA EXHIBIT	JPD	JAB
C	19JUN18	ADDED WETLANDS & INVERTER STATIONS	JPD	JAB
D	14SEP18	FOR PUBLIC MEETING	ARB	JAB
E	03OCT18	OPSB APPLICATION	ARB	JAB

SITE PLAN

HECATE ENERGY HIGHLAND
BUFORD, OH

RINA

Hecate Energy

SCALE:
1"=1000'

SHEET
C-100B

LEGEND

PROJECT BOUNDARY

HALF MILE RADIUS

Project Mngr:	EK
Drawn By:	JSL
Checked By:	MRF/EK
Approved By:	EK
Project No.	49187638
Scale:	AS SHOWN
File No.	49187638-9-WILDLIFE
Date:	SEPT. 2018

Terracon
Consulting Engineers and Scientists
2105 Newpoint Place, Ste. 600 Lawrenceville, GA 30043
(770) 623-0755 (770) 623-9628

WILDLIFE PRESERVES AND REFUGES MAP

ECOLOGICAL RESOURCES ANALYSIS REPORT
PROPOSED HIGHLAND SOLAR FARM
STATE ROUTE 138 & HIGHLAND COUNTY ROAD 5
BUFORD, HIGHLAND COUNTY, OH

EXHIBIT 9

APPENDIX B

EARLY COORDINATION WITH STATE AND FEDERAL NATURAL RESOURCE AGENCIES

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ohio Ecological Services Field Office
4625 Morse Road, Suite 104
Columbus, OH 43230-8355
Phone: (614) 416-8993 Fax: (614) 416-8994

In Reply Refer To:
Consultation Code: 03E15000-2018-SLI-2011
Event Code: 03E15000-2018-E-01978
Project Name: Highland Solar Farm

September 11, 2018

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

To Whom It May Concern:

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

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

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

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

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

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

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see http://www.fws.gov/migratorybirds/RegulationsandPolicies.html.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/BirdHazards.html.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit http://www.fws.gov/migratorybirds/AboutUS.html.

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

Ohio Ecological Services Field Office
4625 Morse Road, Suite 104
Columbus, OH 43230-8355
(614) 416-8993

Project Summary

Consultation Code: 03E15000-2018-SLI-2011

Event Code: 03E15000-2018-E-01978

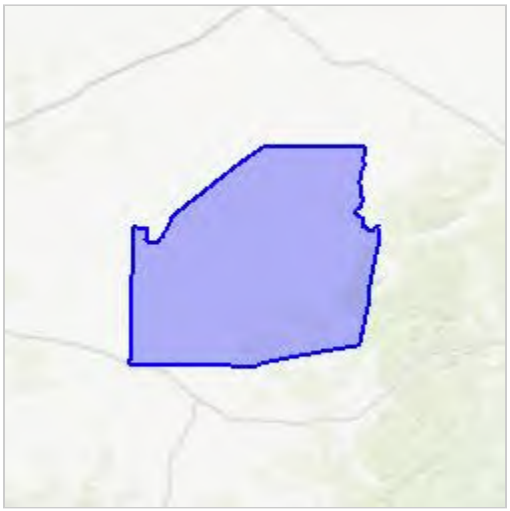
Project Name: Highland Solar Farm

Project Type: POWER GENERATION

Project Description: Renewable Energy Development

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/39.1988135190025N83.60988431680059W



Counties: Highland, OH

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. 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.

Mammals

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ Incidental take of the northern long-eared bat is not prohibited at this location. Federal action agencies may conclude consultation using the streamlined process described at https://www.fws.gov/midwest/endangered/mammals/nleb/s7.html Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Flowering Plants

NAME	STATUS
Running Buffalo Clover *Trifolium stoloniferum* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2529	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

HIGHLAND COUNTY

State Status	Federal Status	County	Category	Species	CommonName	Sensitive Species	Most Recent Record	FWS
Endangered		Highland	Insect - beetle	Pseudanophthalmus ohioensis	Ohio Cave Beetle	No	2008	
Endangered	Endangered	Highland	Invert. - fw bivalve	Epioblasma triquetra	Snuffbox	No	1972	
Endangered	**Endangered**	**Highland**	**Mammal**	**Myotis sodalis**	**Indiana Myotis**	**Yes**	**2013**	
Endangered	**Species of Concern**	**Highland**	**Reptile - Snake**	**Crotalus horridus**	**Timber Rattlesnake**	**Yes**		*
Threatened		Highland	Fish	Notropis boops	Bigeye Shiner	No	2006	
Threatened		Highland	Invert. - isopod	Caecidotea rotunda	Frost Cave Isopod	No	2008	
Threatened		Highland	Mammal	Reithrodontomys humulis	Eastern Harvest Mouse	No	1971	
Species of Concern		Highland	Amphibian - Frog / Toad	Acris crepitans crepitans	Eastern Cricket Frog	No	2009	
Species of Concern		Highland	Amphibian - Salamander	Hemidactylium scutatum	Four-toed Salamander	No	1929	
Species of Concern		Highland	Fish	Esox masquinongy	Muskellunge	No	1985	
Species of Concern		Highland	Insect - moth	Hemileuca maia	Buck Moth	No	1955	
Species of Concern		Highland	Invert. - fw bivalve	Alasmidonta marginata	Elktoe	No	1972	
Species of Concern		Highland	Invert. - fw bivalve	Lampsilis fasciola	Wavy-rayed Lampmussel	No	1972	
Species of Concern		Highland	Invert. - fw bivalve	Lasmigona compressa	Creek Heelsplitter	No	1967	
Species of Concern		Highland	Invert. - fw bivalve	Ptychobranchus fasciolaris	Kidneyshell	No	1972	
Species of Concern		Highland	Mammal	Eptesicus fuscus	Big Brown Bat	No	2013	
Species of Concern		Highland	Mammal	Lasionycteris noctivagans	Silver-haired Bat	No	2013	
Species of Concern		Highland	Mammal	Lasiurus borealis	Red Bat	No	2013	
Species of Concern		Highland	Mammal	Lasiurus cinereus	Hoary Bat	No	2013	
Species of Concern		Highland	Mammal	Microtus ochrogaster	Prairie Vole	No	1972	
Species of Concern		Highland	Mammal	Myotis lucifugus	Little Brown Bat	No	2013	
Species of Concern	Threatened	Highland	Mammal	Myotis septentrionalis	Northern Long-eared Bat	No	2013	
Species of Concern		Highland	Mammal	Perimyotis subflavus	Tri-colored Bat	No	2013	
Species of Concern		Highland	Mammal	Peromyscus maniculatus	Deer Mouse	No	2004	
Species of Concern		Highland	Mammal	Synaptomys cooperi	Southern Bog Lemming	No	1971	
Species of Concern		Highland	Mammal	Taxidea taxus	Badger	No	2008	
Special Interest		Highland	Mammal	Nycticeius humeralis	Evening Bat	No	2013	

Terracon
Consulting Engineers & Scientists

January 30, 2018

U.S. Fish and Wildlife Service
Ohio Ecological Services Field Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230-8355

Re: Pre-Development Consultation Request
Proposed Highland Solar Farm
OH 138
Buford, Highland County, Ohio
Terracon Project No. N1177433

Dear USFWS Official:

Terracon Consultants, Inc. (Terracon) is requesting Pre-Development Consultation for an approximately proposed 2,500-acre solar farm development project (i.e., Proposed Highland Solar Farm) located in Buford, Highland County, Ohio. Project details are included in this letter.

Project Description

Project Purpose

The proposed solar farm development is designed to provide more sustainable energy resources and options to an area of Appalachia.

Project Location

The proposed development consists of approximately 3,500-acres of area predominantly occupied by row-crop agriculture. This area is located east of Buford, Ohio along portions of State Route 138 and multiple smaller roads. The coordinates (NAD83) for the approximate center point of the proposed project are 39.078670, -83.786241. Enclosed is a site location map (including portions of the USGS Sardinia and Sugar Tree Ridge, Ohio Quadrangles) showing the project location for your reference.

Site Description

The majority of the site consists of row-crop agricultural use (soybeans and corn) with small woodlots interspersed. Several streams and ponds are located across the site. A few sparse residences and barns are also located across the site.

Project Equipment and Approach

Terracon understands that the client intends to perform minimal grading activities across the site in preparation for the installation of solar panel equipment. Terracon understands that best management practices for erosion control, including the use of silt fences and straw bales, will be utilized to minimize impacts to streams and/or other waterbodies.

Listed Species and Effects Analysis

Terracon has reviewed the United States Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) website and obtained an official species list for this project. The following species were listed as potentially occurring in Highland County:

Mammals

- The Indiana bat (*Myotis sodalis*) and Northern long-eared bat (*Myotis septentrionalis*) are federally-listed endangered and threatened species, respectively, known to occur in Highland County. Potential summer roosting habitat for these species generally consists of sites that contain mature and/or standing dead trees with exfoliating bark, and/or stream/river corridors which serve as flight paths. Additionally, sites that contain caves could be used by the Indiana bat and Northern long-eared bat for winter hibernacula. Mature trees were observed in forested areas on site with relatively open understories and nearby stream corridors.

- **Effects Analysis**: Based on Terracon's understanding that forested areas will primarily be avoided as part of the proposed development, it is Terracon's opinion that the Indiana and Northern long-eared bats would not be subject to direct, indirect, or cumulative impacts related to this project. Any clearing of forest resources would be very minimal and would be performed during the bat hibernation season – outside of potential roosting months. Additionally, incidental take of the Northern long-eared bat is excepted at this location by the 4(d) rule and is therefore not prohibited.

Flowering Plants

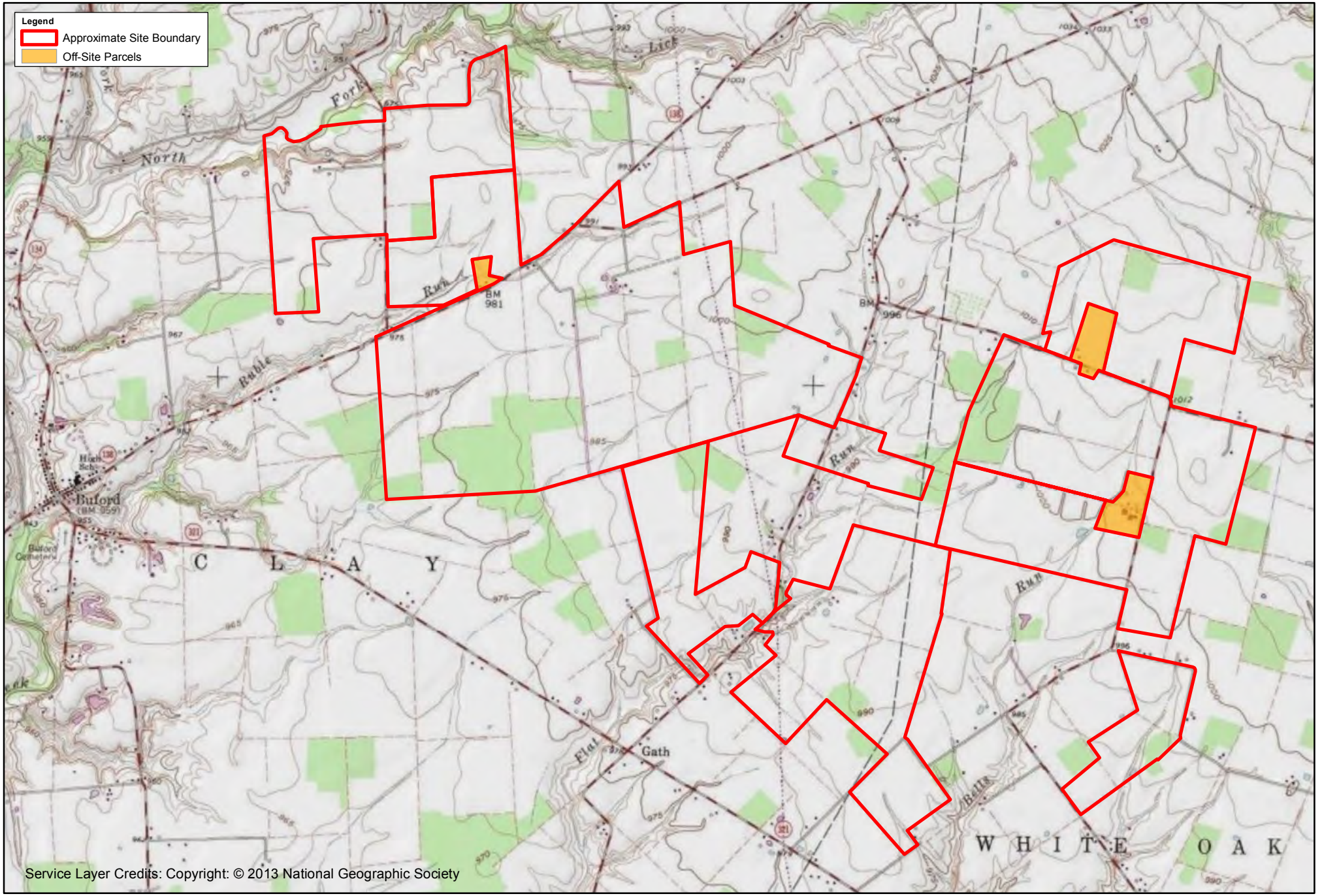
- Running buffalo clover (*Trifolium stoloniferum*) is a federally-listed endangered species known to occur in Highland County. This species typically occurs in mesic habitats of partial to filtered sunlight, where there is a prolonged pattern of moderate periodic disturbance, such as mowing, trampling, or grazing. It is most often found in regions underlain with limestone or other calcareous bedrock. Based on the absence of habitat observed during the site reconnaissance, Terracon does not consider this species to be at risk of a take.

- **Effects Analysis**: It is Terracon's opinion that the listed flowering plant species would not be subject to direct, indirect, or cumulative impacts related to this project.

If you have any questions, please feel free to call me at (513) 612-9029 or email at michael.perkins@terracon.com. Thank you for your time and effort.

Sincerely,

Michael D Perkins
Senior Staff Scientist



0 1,250 2,500 5,000 Feet

1:30,000

N

Project No.	N1177433
Drawn By:	MDP
Approved By:	SEW
Date:	1/10/2018

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

Topographic Map

Proposed Highland Solar Farm
OH 138
Buford, Highland County, Ohio

Exhibit 1

Office of Real Estate
Paul R. Baldridge, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6649
Fax: (614) 267-4764

March 22, 2018

Michael Perkins
Terracon
611 Lunken Park Drive
Cincinnati, Ohio 45226

Re: 18-312; Highland Solar Farm

Project: The proposed project involves the construction of a solar farm.

Location: The proposed project is located in Buford Township, Highland County, Ohio.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Natural Heritage Database: The Natural Heritage Database has the following record at or within a one-mile radius of the project area:

Loggerhead shrike (*Lanius ludovicianus*), State endangered, federal species of concern

The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980. This information is provided to inform you of features present within your project area and vicinity. Additional comments on some of the features may be found in pertinent sections below.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Although all types of plant communities have been surveyed, we only maintain records on the highest quality areas.

Fish and Wildlife: The Division of Wildlife (DOW) has the following comments.

The DOW recommends that impacts to streams, wetlands and other water resources be avoided and minimized to the fullest extent possible, and that best management practices be utilized to minimize erosion and sedimentation.

The project is within the vicinity of records for the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. Presence of the Indiana bat has been established in the area, and therefore additional summer surveys would not constitute presence/absence in the area. The following species of trees have relatively high value as potential Indiana bat roost trees to include: shagbark hickory (*Carya ovata*), shellbark hickory (*Carya laciniosa*), bitternut hickory (*Carya cordiformis*), black ash (*Fraxinus nigra*), green ash (*Fraxinus pennsylvanica*), white ash (*Fraxinus americana*), shingle oak (*Quercus imbricaria*), northern red oak (*Quercus rubra*), slippery elm (*Ulmus rubra*), American elm (*Ulmus americana*), eastern cottonwood (*Populus deltoides*), silver maple (*Acer saccharinum*), sassafras (*Sassafras albidum*), post oak (*Quercus stellata*), and white oak (*Quercus alba*). Indiana bat roost trees consists of trees that include dead and dying trees with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. However, Indiana bats are also dependent on the forest structure surrounding roost trees. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31. If no tree removal is proposed, this project is not likely to impact this species

The project is within the range of the bigeye shiner (*Notropis boops*), a state threatened fish. The DOW recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed, this project is not likely to impact this species.

The project is within the range of the timber rattlesnake (*Crotalus horridus horridus*), a state endangered species, and a federal species of concern. The timber rattlesnake is a woodland species, utilizing dry slopes and rocky outcrops. In addition to using wooded areas, the timber rattlesnake utilizes sunlit gaps in the canopy for basking and deep rock crevices for overwintering. Due to the location, the habitat within the project area, and the type of work proposed, this project is not likely to impact this species.

The DOW has records within the project area for the loggerhead shrike (*Lanius ludovicianus*), a state endangered bird. The loggerhead shrike nests in hedgerows, thickets and fencerows. They hunt over hayfields, pastures, and other grasslands. If thickets or other types of dense shrubbery habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 1 to August 1. If this habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the black bear (*Ursus americanus*), a state endangered species. Due to the mobility of this species, this project is not likely to impact this species.

Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the U.S. Fish & Wildlife Service.

Water Resources: The Division of Water Resources has the following comment.

The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project. Your local floodplain administrator contact information can be found at the website below.

http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community%20Contact%20List_8_16.pdf

ODNR appreciates the opportunity to provide these comments. Please contact John Kessler at (614) 265-6621 if you have questions about these comments or need additional information.

John Kessler
ODNR Office of Real Estate
2045 Morse Road, Building E-2
Columbus, Ohio 43229-6693
John.Kessler@dnr.state.oh.us

APPENDIX C

WETLAND DELINEATION REPORT

August 17, 2018

Hecate Energy Highland LLC
621 Randolph Street Chicago,
Illinois 60661

Attn: Ms. Patti Shorr
P: (614) 205-3798
E: PShorr@HecateEnergy.com

Re: Wetland Delineation Report
Proposed Highland Solar Farm
OH 138
Buford, Highland County, Ohio
Terracon Project No. N1177433

Dear Ms. Shorr:

Terracon is pleased to submit the wetland delineation report for the above referenced project. Based on the results of the assessment, Terracon observed 31 wetlands, 30 streams, and 10 ponds on the project site.

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

US Army Corps of Engineers – Huntington District
ATTN: Regulatory Branch
502 Eighth Street
Huntington, WV 25701-2070

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

Sincerely,
TERRACON Consultants, Inc.

For

Cassie Brendel
Field Scientist

Scott E. West
Senior Project Manager

Wetland Delineation Report

Proposed Highland Solar Farm

OH 138

Buford, Highland County, Ohio

Date: August 17, 2018
Terracon Project No. N1177433

Prepared for:
Hecate Energy Highland LLC
Chicago, Illinois

Prepared by:
Terracon Consultants, Inc.
Cincinnati, Ohio

August 17, 2018

US Army Corps of Engineers – Huntington District
ATTN: Regulatory Branch
502 Eighth Street
Huntington, WV 25701-2070

Re: Wetland Delineation Report
Proposed Highland Solar Farm
OH 138
Buford, Highland County, Ohio
Terracon Project No. N1177433

Regulatory Branch:

Terracon is pleased to submit the wetland delineation report prepared for Hecate Energy, LLC for the abovementioned project. This assessment describes the observations made during our site visit and other sources of information used to investigate the project site for wetlands and other waterbodies. Based on the results of the assessment, 31 wetlands, 30 streams, and 10 are present at the project site. At this time, we are requesting that your office perform a review of the report for the project site and advise our client if a permit will be required for any proposed impacts.

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

Sincerely,
TERRACON Consultants, Inc.

Cassie Brendel
Field Scientist

Scott E. West
Senior Project Manager

Copy to: Ms. Patti Shorr
Hecate Energy, LLC
621 Randolph Street
Chicago, Illinois 60661

TABLE OF CONTENTS

Wetland Delineation Report
Proposed Highland Solar Farm
OH 138
Buford, Highland County, Ohio
Terracon Project No. N1177433
August 17, 2018

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) was retained by Hecate Energy Highland LLC to perform a wetland delineation to determine if wetlands or other waters under the jurisdiction of the United States Army Corps of Engineers (USACE) or the Ohio Environmental Protection Agency (OEPA) are present at the approximately 3,100-acre parcel, hereafter referred to as the project site. The project site is located along portions of OH 138, near Buford, Highland County, Ohio. The project site location is depicted on Exhibit 1 in Appendix A.

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

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

2.0 SCOPE OF SERVICES

Terracon performed the following scope of work:

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

3.0 PRELIMINARY DATA GATHERING AND ANALYSIS

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

3.1 Topographic Map

The United States Department of the Interior Geologic Survey (USGS) 7.5-Minute Topographic Map of the project site was reviewed to identify drainages or potential wetlands within the project site. The USGS map depicts two intermittent streams discharging into North Fork White Oak Creek in the northwestern portion of the project site. Additionally, six intermittent streams that discharge into Ruble Run are depicted in the western portion of the project site. Flat Run, an intermittent stream with multiple, associated tributaries, is depicted as draining to the south-southwest from near the center of the project site. Bell's Run, an intermittent stream, and three, associated tributaries are depicted as draining the southern and eastern portions of the project site. Two intermittent tributaries to Oak Creek are depicted as draining to the southeast from the northeastern portion of the project site. Ten small ponds and/or depressional areas are depicted across the project site. Portion of the Sardinia and Sugar Tree Ridge, Ohio Quadrangles can be seen as Exhibit 1 in Appendix A.

3.2 National Wetlands Inventory Map

The National Wetlands Inventory (NWI) Map of the project site was reviewed to identify potential wetland areas. The map for the project site was published by the U.S. Department of the Interior's Fish and Wildlife Service and depicts probable wetland areas based on stereoscopic analysis of high altitude aerial photographs and analysis of infrared bands from remotely-sensed imagery. Features indicated within the project site boundaries from the review of the NWI data are summarized in the table below. The NWI map for the project site can be seen as Exhibit 2 in Appendix A.

Number and Type of Feature	Cowardin Classification	General Location
One perennial stream	R3UBH	Northwestern portion of the site
Two intermittent streams	R4SBC	
One emergent wetland, seasonally flooded	PEM1C	
Seven intermittent streams	R4SBC	Western portion of site; draining to the west
Four emergent wetlands, temporarily flooded	PEM1A	Western portion of site
Three wetlands/ponds, permanently flooded, excavated	PUBGx	
Four forested wetlands, temporarily flooded	PFO1A	

Six intermittent streams	R4SBC	Central portion of site; draining to the southwest
Three wetlands/ponds, permanently flooded, excavated	PUBGh	Southern portion of site
Two wetlands/ponds, permanently flooded, excavated	PUBGx	Southern portion of site
Emergent wetland, temporarily flooded	PEM1A	Southern portion of site
Four intermittent streams	R4SBC	Southern portion of site; draining to the south
Scrub-shrub wetland, temporarily flooded	PSS1A	Eastern interior of the site
Two intermittent streams	R4SBC	Eastern interior of the site; draining to the southwest
Wetland/pond, permanently flooded, excavated	PUBGh	Eastern portion of the site
Wetland/pond, permanently flooded, excavated	PUBGx	Eastern portion of the site
Two intermittent streams	RS4BC	Eastern portion of the site; draining to the southeast

3.3 Soil Survey

Data from the soil survey of Highland County, Ohio was reviewed to identify soil types, including hydric soils. Data for the soil survey was compiled by the U.S. Department of Agriculture Natural Resource Conservation Service (NRCS) in 1977. Hydric soils information was gathered from the 'National Hydric Soils List' (USDA Natural Resource Conservation Service, https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/). A soil survey map is included as Exhibit 3 in Appendix A.

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

- Algiers silt loam (Ag): This soil is defined as somewhat poorly drained, nearly level, and typically located in flood plains. The soil color is typically dark grayish brown. This map unit is classified as hydric.
- Atlas silt loam, 2 to 6 percent slopes, moderately eroded (AtB2): This soil is defined as somewhat poorly drained, gently sloping, and is typically located on upland stream slopes. The soil color ranges from brown to yellowish-brown. This map unit is classified as hydric.
- Clermont silt loam, 0 to 1 percent slopes (Cle1A): This soil is defined as somewhat poorly to poorly drained and nearly level. The soil color is typically grayish brown. This map unit is classified as hydric.
- Eel silt loam, 0 to 2 percent slopes, occasionally flooded (Ee): This soil is defined as well drained to very poorly drained and is typically found in flood plains. The soil color ranges from yellowish brown to dark grayish brown. This map unit is classified as hydric.
- Jonesboro-Rossmoyne silt loams, 2 to 6 percent slopes (JoR1B1): This soil is defined as moderately well drained, gently sloping to sloping, and is typically found along drainageways.

The soil color ranges from dark grayish brown to yellowish-brown. This map unit is not classified as hydric.

- Jonesboro-Rossmoyne silt loams, 2 to 6 percent slopes, eroded (JoR1B2): This soil is defined as moderately well drained, gently sloping to sloping, and is typically found along drainageways. The soil color ranges from dark grayish brown to yellowish-brown. This map unit is not classified as hydric.
- Rossmoyne silt loam, 6 to 12 percent slopes, moderately eroded (RpC2): This soil is defined as moderately well drained, sloping, and is typically found along drainageways. The soil color ranges from dark grayish brown to yellowish-brown. This map unit is not classified as hydric.
- Sloan silt loam (Sn): This soil is defined as very poorly drained, nearly level, and is typically found in flood plains. The soil color ranges from very dark gray to dark grayish brown. This map unit is classified as hydric.
- Westboro-Schaffer silt loams, 0 to 2 percent slopes (WsS1A1): This soil is defined as somewhat poorly drained, nearly level, and typically found in till plains. The soil color ranges from dark grayish brown to yellowish brown. This map unit is classified as hydric.
- Westboro-Schaffer silt loams, 2 to 4 percent slopes (WsS1B1): This soil is defined as somewhat poorly drained, gently sloping, and is typically found in till plains. The soil color ranges from dark grayish brown to yellowish brown. This map unit is classified as hydric.

3.4 Aerial Photographs

A recent aerial photograph (2015) of the project site was reviewed to determine land use and evaluate vegetative cover. The project site is predominantly shown to consist of row crop agricultural lands. Streams and pockets of forested areas are shown across the project site. In the northwestern portion of the project site, an apparent residence with multiple barns/outbuildings is shown with a large riparian corridor to the north, along the northern project site boundary. Several residential structures are depicted on the project site – one west of Gath Road in the southern portion of the project site and another depicted on the southern side of W New Market Road with a pond, in the northeastern portion of the project site. Additionally, apparent agricultural facilities associated with a residential structure are depicted south of the intersection of OH138 and W New Market Road, in the west central portion of the project site. Apparent agricultural facilities are depicted along both sides of Stringtown Road in the southeastern portion of the project site, and another agricultural facility (off-site) is depicted on the western side of Stringtown Road, south of Edwards Road, in the eastern portion of the project site. For reference, the aerial photograph has been included as Exhibit 4 in Appendix A.

3.5 FEMA FIRM Data

Terracon reviewed FEMA FIRM data (Panel #s 39015C0175D, 9/29/2010 and 39071C0350E, 3/3/2011) to identify areas that may have elevated likelihoods of containing WOUS. The FEMA FIRM data indicated that the majority of the project site is in Zone X, an area of minimal flood hazard. The area along the northwest corner of the project site boundary is located in the 100-

year flood plain, Zone X, an area of moderate flood hazard. This data is included as Exhibit 5 in Appendix A.

4.0 FIELD TECHNIQUES

Terracon personnel, Michael Perkins, Cassandra Brendel, and Scott West conducted a reconnaissance of the project site on December 14, 15, 19, and 20, 2017, January 24, July 11, and July 12, 2018, to characterize the existing site conditions and observe for the presence of wetlands and potential jurisdictional waters. Characteristics of jurisdictional waters and wetland areas were assessed utilizing the criteria detailed in sections 4.1 and 4.2 of this report. The evaluation methods generally followed the routine on-site determination method referenced in the 1987 USACE Manual and 2010 Midwest Regional Supplement.

4.1 Wetland Observations

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

4.1.1. Plant Community Assessment

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

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

- Obligate Wetland (OBL) - occur almost always (estimated probability greater than 99%) under natural conditions in wetlands.
- Facultative Wetland (FACW) - usually occur in wetlands (estimated probability 67% - 99%) but occasionally found in non-wetlands.
- Facultative (FAC) - equally likely to occur in wetlands or non-wetlands (estimated probability 34% - 66%).

- Facultative Upland (FACU) - usually occur in non-wetlands (estimated probability 67% - 99%) but occasionally found in wetlands.

- Obligate Upland (UPL) – rarely occur in wetlands, but occur almost always (estimated probability greater than 99%) under natural conditions in non-wetlands.

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

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

4.1.2. Hydric Soils Assessment

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

4.1.3 Wetland Hydrology Assessment

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

4.1.4 Classification of Wetlands

Upon completion of the review of the three wetland criteria at each area, a wetland determination was made. Under normal circumstances, if one or more of the wetland criteria were not identified, the area was not considered to be a wetland. If all three wetland indicators were identified, the area was classified as wetland. Additional observations were made

throughout the wetland area to define the wetland/non-wetland boundary. Vegetation, soil and hydrology assessment data from at least one location within the wetland and one upland location outside of the wetland were recorded on a USACE Wetland Determination Form (Data Sheet).

4.2 Other Waters Observations

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

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

5.0 FIELD OBSERVATIONS RESULTS

On December 14, 15, 19, and 20, 2017 and January 24, July 11, and July 12, 2018, Terracon performed field observations at the project site. The majority of the project site consisted of agricultural land with limited, interspersed forested areas as well as residences and associated barns/outbuildings. Ground photographs, included in Appendix B, provide an indication of the

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

5.1 Plant Communities Found at Project Site

5.1.1 Forested Wetlands

The dominant plant species observed in the forested wetland areas were pin oak (*Quercus palustris*), red maple (*Acer rubrum*), American beech (*Fagus grandifolia*), swamp white oak (*Quercus bicolor*), sycamore (*Platanus occidentalis*), sweetgum (*Liquidambar styraciflua*), American elm (*Ulmus americana*), blackgum (*Nyssa sylvatica*), *spicebush* (*Lindera benzoin*), lurid sedge (*Carex lurida*), softstem bulrush (*Schoenoplectus tabernaemontani*), Allegheny blackberry (*Rubus allegheniensis*), woolgrass (*Scirpus cyperinus*), Virginia rye grass (*Elymus virginicus*), and greenbrier (*Smilax rotundifolia*).

5.1.2 Emergent Wetlands

The dominant plant species observed in the emergent wetland areas were panic grass (*Panicum virgatum*), Gray's sedge (*Carex grayi*), squarrose sedge (*Carex squarrosa*), greater bladder sedge (*Carex intumescens*), touch-me-nots (*Impatiens capensis*), soft rush (*Juncus effusus*), sensitive fern (*Onoclea sensibilis*), white grass (*Leersia virginica*), fox sedge (*Carex vulpinoidea*), square-pod water-primrose (*Ludwigia alternifolia*), green bulrush (*Scirpus atrovirens*), and softstem bulrush.

5.1.3 Forested Uplands

The dominant plant species observed in the forested upland areas were white oak (*Quercus alba*), shagbark hickory (*Carya ovata*), American beech, red maple, pawpaw (*Asimina triloba*), northern red oak (*Quercus rubra*), poison ivy (*Toxicodendron radicans*), greenbrier, Allegheny blackberry, lurid sedge, and multiflora rose (*Rosa multiflora*).

5.1.4 Agricultural Uplands

The dominant plant species observed in the agricultural upland areas were the remnants of corn (*Zea mays*) and soybeans (*Glycine max*) that have been recently harvested.

5.1.5 Maintained Uplands

The dominant plant species found in the yards around residences and associated outbuildings consisted of fescue (*Festucca* spp.) and ornamental plants.

5.2 Wetland Area Description

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

Wetland	Size (acres)	Cowardin Classification	Water Sources	USACE Jurisdictional (Y/N)
A	8.82	PFO	Precipitation, Surface Runoff	Y
B	0.06	PFO	Precipitation, Surface Runoff	Y
C	0.23	PEM	Precipitation, Surface Runoff	Y
D	4.32	PFO	Precipitation, Surface Runoff	Y
E	3.8	PFO	Precipitation, Surface Runoff	Y
F	0.36	PFO	Precipitation, Surface Runoff	Y
G	22.4	PFO	Precipitation, Surface Runoff	Y
H	0.33	PFO	Precipitation, Surface Runoff	Y
I	7.10	PFO	Precipitation, Surface Runoff	Y
J	6.45	PFO/PEM	Precipitation, Surface Runoff	Y
K	9.03	PFO	Precipitation, Surface Runoff	Y
L	12.79	PFO	Precipitation, Surface Runoff	Y
M	80.84	PFO	Precipitation, Surface Runoff	Y
N	7.19	PFO	Precipitation, Surface Runoff	Y
O	6.19	PFO	Precipitation, Surface Runoff	Y
P	12.53	PEM	Precipitation, Surface Runoff	Y
Q	20.81	PFO/PEM	Precipitation, Surface Runoff	Y
R	2.84	PFO/PEM	Precipitation, Surface Runoff	Y
S	0.54	PEM	Precipitation, Surface Runoff	Y
T	0.55	PFO	Precipitation, Surface Runoff	Y
U	5.87	PFO	Precipitation, Surface Runoff	Y
V	1.47	PFO	Precipitation, Surface Runoff	Y
W	23.74	PFO	Precipitation, Surface Runoff	Y
X	6.92	PFO/PEM	Precipitation, Surface Runoff	Y
Y	4.81	PFO	Precipitation, Surface Runoff	Y
Z	6.84	PFO	Precipitation, Surface Runoff	Y
AA	9.25	PFO	Precipitation, Surface Runoff	Y
AB	0.65	PFO	Precipitation, Surface Runoff	Y
AC	9.4	PFO	Precipitation, Surface Runoff	Y
AD	8.7	PFO	Precipitation, Surface Runoff	Y
AE	2.35	PFO	Precipitation, Surface Runoff	Y
TOTAL	**287.18 acres**			

PEM – Palustrine emergent wetland; PFO – Palustrine forested wetland

Terracon determined the USACE jurisdictional status of the on-site wetlands based on the following:

- **Wetland A** has significant nexus to Stream 6 through an agricultural ditch that drains to the north;
- **Wetland B** has significant nexus to a tributary of Bell's Run (Stream 4) through an agricultural ditch that drains to the southeast;
- **Wetlands C** and **D** have significant nexus to Stream 1 through overland flow to the west;
- **Wetlands E** and **F** have significant nexus to a tributary of Bell's Run (Stream 4) through an agricultural ditch that drains to the southwest;
- **Wetland G** has significant nexus to Stream 2 through direct drainage;
- **Wetland H** significant nexus to Stream 3 through direct drainage;
- **Wetland I** has significant nexus to Stream 2 through an agricultural ditch that drains to the south then west;
- **Wetland J** has significant nexus to Stream 10 through an agricultural ditch that drains to the west then south;
- **Wetland K** has significant nexus to Stream 10 through an agricultural ditch that drains to the west then north;
- **Wetland L** has significant nexus to Stream 10 through an agricultural ditch that drains to the south then west;
- **Wetland M** has significant nexus to Stream 10 through overland flow to the southeast and to Stream 11 through direct drainage;
- **Wetland N** has significant nexus to Stream 11 through an agricultural ditch that drains to the east and to off-site portions of Stream 12 through overland flow to the west;
- **Wetland O** has significant nexus to Stream 15 through an agricultural ditch that drains to the east;
- **Wetland P** has significant nexus to Stream 15 through an agricultural ditch that drains to the west then south and significant nexus to Stream 21 through an agricultural ditch that drains to the north;
- **Wetland Q** has significant nexus to a tributary of North Fork White Oak Creek (Stream 20) through an agricultural ditch that drains to the west and significant nexus to Ruble Run through an agricultural ditch that drains to the south;
- **Wetland R** has significant nexus to the North Fork White Oak Creek (Stream 20) through direct drainage;
- **Wetland S** has significant nexus to Stream 17 through direct drainage;
- **Wetland T** has significant nexus to Flat Run (Stream 5) through an agricultural ditch that runs south;
- **Wetland U** has significant nexus to a tributary of Flat Run (Stream 5) through an agricultural ditch that drains to the south;
- **Wetland V** has significant nexus to a tributary of Bell's Run (Stream 4) through overland flow to the east and to another tributary of Bell's run through an agricultural ditch that drains to the south;

- **Wetland W** has significant nexus to Stream 26 through an agricultural drainage that drains to the west;
- **Wetland X** has significant nexus to Stream 1 through an agricultural drainage that drains west;
- **Wetland Y** has significant nexus to Bell's Run (Stream 4) through overland flow to the east;
- **Wetland Z** has significant nexus to Stream 28 through an agricultural drainage that drains west;
- **Wetland AA** has significant nexus to Stream 26 through an offsite agricultural drainage that drains north;
- **Wetland AB** has significant nexus to Stream 28 through an agricultural drainage that drains west then south;
- **Wetland AC** has significant nexus to Stream 12 through an agricultural drainage that drains north;
- **Wetland AD** has significant nexus to Ruble Run (Stream 13) through an offsite agricultural drainage that drains south then east; **and**
- **Wetland AE** has significant nexus to Ruble Run (Stream 13) through an offsite agricultural drainage that drains east.

5.3 Streams

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

Streams	Length (linear feet)	Flow Regime	Average Stream Width at Top of Bank (feet)
1	2647	Intermittent	6
2	5182	Intermittent	7
3	997	Intermittent	7
4 (Bell's Run)	4289	Intermittent	5
5 (Flat Run)	2865	Intermittent	8
6	3233	Ephemeral	3
7	325	Ephemeral	2
8	82	Ephemeral	2
9	262	Ephemeral	2
10	3511	Intermittent	6
11	2171	Ephemeral	4
12	5500	Intermittent	6
13 (Ruble Run)	5654	Intermittent	8
14	1077	Ephemeral	2
15	975	Ephemeral	2
16	653	Ephemeral	2
17	1751	Intermittent	4
18	178	Ephemeral	2
19	148	Ephemeral	2

20 (North Fork White Oak Creek)	1530	Perennial	40
21	1855	Intermittent	8
22	658	Ephemeral	2
23	218	Ephemeral	2
24	381	Ephemeral	4
25	814	Ephemeral	3
26	1424	Intermittent	5
27	132	Ephemeral	3
28	904	Intermittent	5
29	236	Ephemeral	2
30	169	Ephemeral	3
TOTAL	**49,821 linear feet**		

5.4 Other Waters

Terracon observed four ponds, described below, during the site reconnaissance.

Pond	Size (acres)	Cowardin Classification	Water Sources	USACE Jurisdictional (Y/N)
A	0.27	PUB	Precipitation, Surface Runoff	N
B	0.18	PUB	Precipitation, Surface Runoff	Y
C	0.13	PUB	Precipitation, Surface Runoff	Y
D	0.73	PUB	Precipitation, Surface Runoff	N
E	1.05	PUB	Precipitation, Surface Runoff	Y
F	0.62	PUB	Precipitation, Surface Runoff	Y
G	0.41	PUB	Precipitation, Surface Runoff	N
H	0.26	PUB	Precipitation, Surface Runoff	Y
I	0.11	PUB	Precipitation, Surface Runoff	Y
J	0.69	PUB	Precipitation, Surface Runoff	Y
TOTAL	**4.45**			

Terracon determined the USACE jurisdictional status of the on-site ponds based on the following:

- **Pond A** appears to be isolated. Stream 6, the nearest potential observed nexus, is approximately 310 feet away;
- **Pond B** is located within the boundaries of and discharges into Wetland J which has significant nexus to Stream 10 through an agricultural ditch that drains to the west then south;

- **Pond C** is located within the boundaries of and discharges into Wetland M which has significant nexus to Stream 10 through overland flow to the southeast and to Stream 11 through direct drainage;
- **Pond D** appears to be isolated;
- **Pond E** is located within the boundaries of and discharges into Wetland Y which has significant nexus to Bell's Run (Stream 4) through overland flow to the east;
- **Pond F** is located within the boundaries of and discharges into Wetland X which has a significant nexus to Stream 1 through an agricultural drainage that drains west;
- **Pond G** appears to be isolated;
- **Pond H** has a significant nexus to Stream 28 through an agricultural drainage that drains west;
- **Pond I** is located within the boundaries of and discharges into Wetland AB which has significant nexus to Stream 28 through an agricultural drainage that drains west then south; and
- **Pond J** has a significant nexus to Bell's Run (Stream 4) through overland flow.

6.0 SUMMARY AND CONCLUSIONS OF FIELD OBSERVATIONS

A wetland delineation was conducted at an approximately 3,100-acre site located near Buford, Ohio on December 14, 15, 19, and 20, 2017 and January 24, July 11, and July 12, 2018. A review of the project site was conducted utilizing readily available information including, but not limited to, topographical, aerial, soils, floodplain, and wetland data. In addition, a preliminary site visit was performed to characterize the existing site conditions and observe the project site for suspect waterbodies and wetlands (if any). A summary of field observations and conclusions concerning jurisdictional status is outlined in the following sections.

6.1 Wetlands

Thirty-one (31) wetlands totaling 287.18 acres were observed across the project site during the site reconnaissance. All on-site wetlands appear to be jurisdictional.

6.2 Streams

Thirty (30) streams totaling 49,821 linear feet were observed across the project site during the site reconnaissance.

6.3 Other Waters

Ten ponds, totaling 4.45 acres were observed during the site reconnaissance. Ponds A, D, and G appear to be isolated, and Ponds B, C, D, E, F, H, I, and J appear to be jurisdictional.

7.0 RECOMMENDATIONS

According to our preliminary site investigation, 31 wetlands, 30 streams, and 10 ponds are present on the project site. However, for all on-site areas, only the USACE can make the final determination on the jurisdictional status of waterbodies, and on the need for permit processing and compensatory mitigation. In addition, it should be noted that the State of Ohio has an isolated wetlands program, which included isolated ponds, and any impacts to on-site waters may have to be processed through the Ohio Environmental Protection Agency's 401 program.

Again, Terracon recommends a copy of this report be submitted to the USACE for their final determination of the findings of this delineation on the site. The USACE can be reached at the following address:

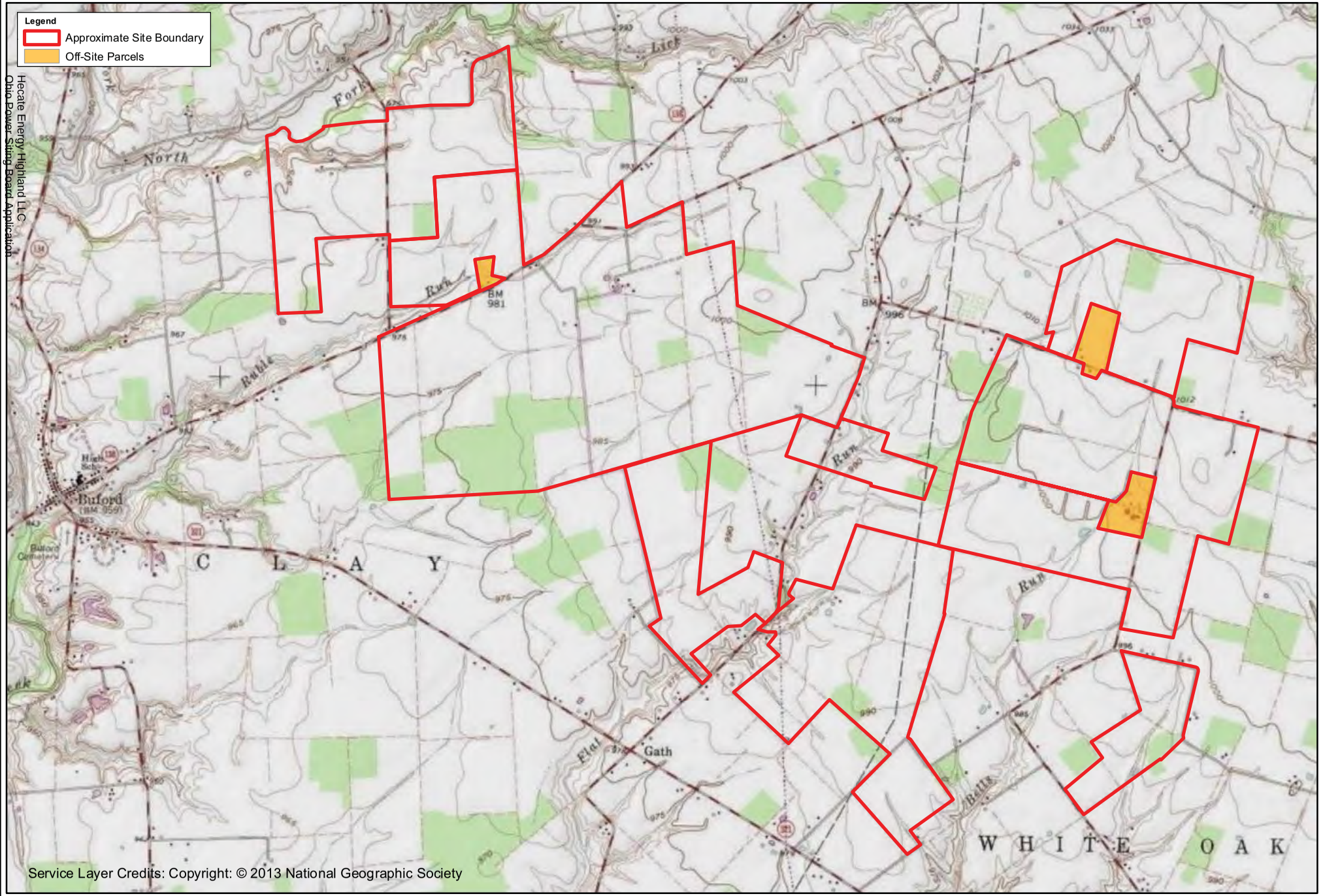
US Army Corps of Engineers – Huntington District
ATTN: Regulatory Branch
502 Eighth Street
Huntington, WV 25701-2070

8.0 GENERAL COMMENTS

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

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

APPENDIX A – EXHIBITS



0 1,250 2,500 5,000 Feet

1:30,000

N

Project No.	N1177433
Drawn By:	MDP
Approved By:	SEW
Date:	1/10/2018

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

Topographic Map

Proposed Highland Solar Farm
OH 138
Buford, Highland County, Ohio

Exhibit

1

Summary: Application Exhibit G (Part 2) electronically filed by Ms. Karen A. Winters on behalf of Hecate Energy Highland LLC