



Exhibit R-3

Ecological Assessment

Case No. 20-1814-EL-BGN

From: Ohio, FW3 <ohio@fws.gov>

Sent: Monday, April 5, 2021 10:05 AM

To: Lindsey Hesch <lhesch@nationalgridrenewables.com>

Cc: nathan.reardon@dnr.state.oh.us; Parsons, Kate <kate.parsons@dnr.state.oh.us>

Subject: Dodson Creek Solar, LLC Solar Energy Project, Highland County, Ohio - Additional Consultation Requested



UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. Fish and Wildlife Service
Ecological Services Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / Fax (614) 416-8994



TAILS# 03E15000-2020-TA-2450

Dear Ms. Hesch,

The U.S. Fish and Wildlife Service (Service) has received your recent correspondence requesting information about the subject proposal. We offer the following comments and recommendations to assist you in minimizing and avoiding adverse impacts to threatened and endangered species pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq), as amended (ESA).

Federally Threatened and Endangered Species: The endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*) occur throughout the State of Ohio. The Indiana bat and northern long-eared bat may be found wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and breed that may also include adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, woodlots, fallow fields, and pastures. Roost trees for both species include live and standing dead trees ≥ 3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities. These roost trees may be located in forested habitats as well as linear features such as fencerows, riparian forests, and other wooded corridors. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves, rock crevices and abandoned mines.

Seasonal Tree Clearing for Federally Listed Bat Species: The proposed project is in the vicinity of one or more confirmed records of Indiana bats. Should the proposed project site contain trees ≥ 3 inches dbh, we recommend avoiding tree removal wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees ≥ 3 inches dbh cannot be avoided, we recommend removal of any trees ≥ 3 inches dbh only occur between October 1 and March 31. Seasonal clearing is recommended to avoid adverse effects to Indiana bats and northern long-eared bats. While incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule (see <http://www.fws.gov/midwest/endangered/mammals/nleb/index.html>), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are known or assumed present. *Please note that, because Indiana bat presence has already been confirmed in the project vicinity, any additional summer surveys would not constitute presence/absence surveys for this species.*

Section 7 Coordination: If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), then no tree clearing should occur on any portion of the project area until consultation under section 7 of the ESA, between the Service and the federal action agency, is completed. We recommend the federal action agency submit a determination of effects to this office, relative to the Indiana bat and northern long-eared bat, for our review and concurrence. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

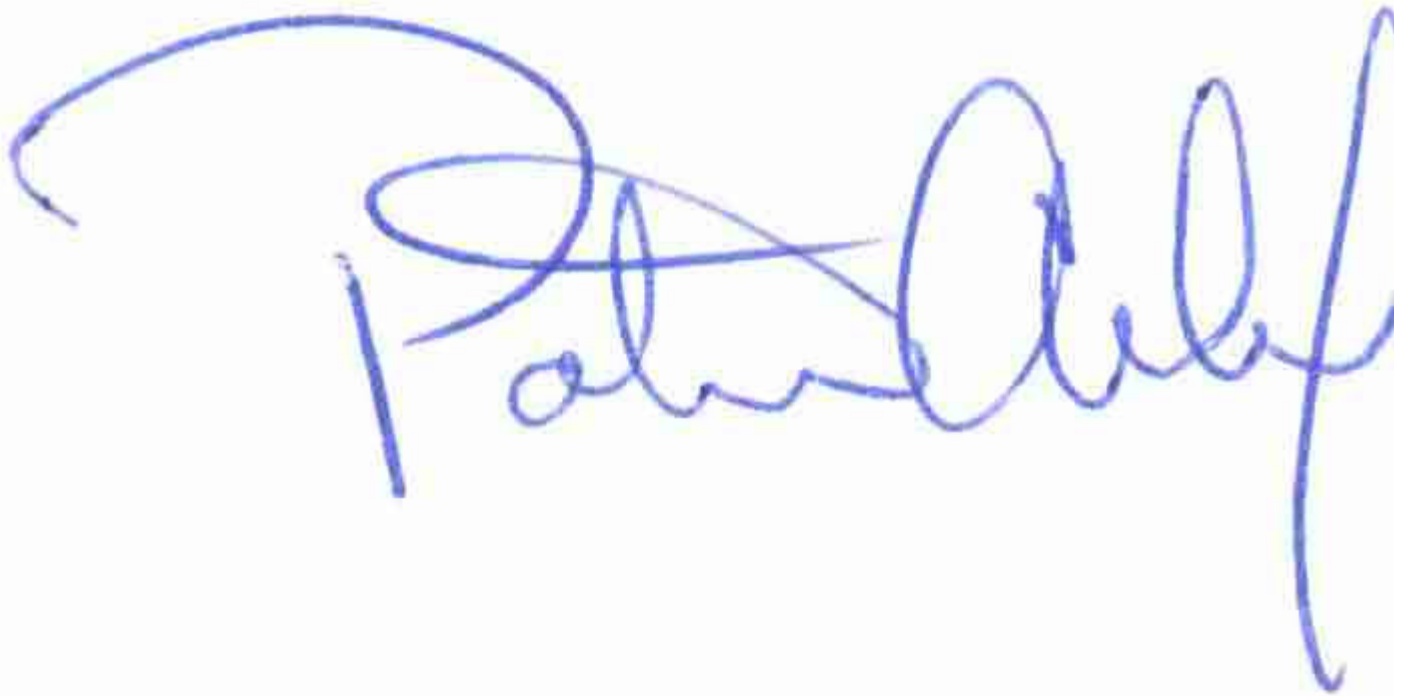
Stream and Wetland Avoidance: Over 90% of the wetlands in Ohio have been drained, filled, or modified by human activities, thus it is important to conserve the functions and values of the remaining wetlands in Ohio (https://epa.ohio.gov/portals/47/facts/ohio_wetlands.pdf). We recommend avoiding and minimizing project impacts to all wetland habitats (e.g., forests, streams, vernal pools) to the maximum extent possible in order to benefit water quality and fish and wildlife habitat. Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the U.S. Army Corps of Engineers should be contacted to determine whether a Clean Water Act section 404 permit is required. Best management practices should be used to minimize erosion, especially on slopes. Disturbed areas should be mulched and revegetated with native plant species. In addition, prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, or proposed species, or proposed or designated critical habitat. Should the project design change, or additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, coordination with the Service should be initiated to assess any potential impacts.

Thank you for your efforts to conserve listed species and sensitive habitats in Ohio. We recommend coordinating with the Ohio Department of Natural Resources due to the potential for the proposed project to affect state listed species and/or state lands. Contact Mike Pettegrew, Acting Environmental Services Administrator, at (614) 265-6387 or at mike.pettegrew@dnr.state.oh.us.

If you have questions, or if we can be of further assistance in this matter, please contact our office at (614) 416-8993 or ohio@fws.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Patrice Ashfield". The signature is fluid and cursive, with a large initial "P" and a long, sweeping underline.

Patrice Ashfield
Field Office Supervisor

cc: Nathan Reardon, ODNR-DOW
Kate Parsons, ODNR-DOW



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / FAX (614) 416-8994

October 2019

Federally Endangered and Threatened Species in Ohio

SPECIES	Counties of Current, Recent, and Possible Distribution
Indiana Bat (E) <i>Myotis sodalis</i>	All counties in Ohio
Northern Long-Eared Bat (T) <i>Myotis septentrionalis</i>	All counties in Ohio
Piping Plover (E) <i>Charadrius melodus</i>	Ashtabula, Cuyahoga, Erie (CH), Lake (CH), Lorain, Lucas, Ottawa, Sandusky
Rufa Red Knot (T) (<i>Calidris canutus rufa</i>)	Ashtabula, Cuyahoga, Erie, Lake, Lorain, Lucas, Ottawa, Sandusky
Scioto Madtom (E) <i>Noturus trautmani</i>	Franklin, Madison, Pickaway, Union
Clubshell (E) <i>Pleurobema clava</i>	Ashtabula, Coshocton, Defiance, Franklin, Greene, Hancock, Hardin, Madison, Pickaway, Pike, Ross, Scioto, Trumbull, Union, Williams
Fanshell (E) <i>Cyprogenia stegaria</i>	Adams, Athens, Brown, Clermont, Coshocton, Gallia, Hamilton, Lawrence, Meigs, Morgan, Muskingum, Scioto, Washington
Northern Riffleshell (E) <i>Epioblasma torulosa rangiana</i>	Defiance, Franklin, Madison, Pickaway, Pike, Ross, Scioto, Union, Williams
Pink Mucket Pearly Mussel (E) <i>Lampsilis abrupta</i>	Adams, Athens, Brown, Clermont, Gallia, Hamilton, Lawrence, Meigs, Morgan, Scioto, Washington
Purple Cat's Paw Pearlymussel (E) <i>Epioblasma o. obliquata</i>	Coshocton
Rayed Bean (E) <i>Villosa fabalis</i>	Adams, Brown, Butler, Clark, Clermont, Coshocton, Darke, Defiance, Delaware, Franklin, Fulton, Greene, Hamilton, Hancock, Hardin, Logan, Lucas, Madison, Marion, Miami, Montgomery, Pickaway, Pike, Ross, Scioto, Shelby, Union, Warren, Williams, Wyandot
Sheepnose (E) <i>Plethobasus cyphus</i>	Adams, Athens, Brown, Clermont, Coshocton, Gallia, Hamilton, Lawrence, Meigs, Morgan, Muskingum, Scioto, Washington

Snuffbox (E) <i>Epioblasma triquetra</i>	Adams, Ashtabula, Athens, Brown, Clermont, Coshocton, Delaware, Franklin, Gallia, Greene, Hamilton, Lake, Lawrence, Madison, Meigs, Miami, Montgomery, Morgan, Muskingum, Pickaway, Ross, Scioto, Union, Washington
White Cat's Paw Pearly Mussel (E) <i>Epioblasma obliquata perobliqua</i>	Defiance, Williams
Rabbitsfoot (T) <i>Quadrula c. cylindrica</i>	Coshocton (CH), Franklin, Delaware, Madison (CH), Muskingum, Pickaway, Union (CH), Williams (CH)
American Burying Beetle (E) <i>Nicrophorus americanus</i>	Athens, Hocking, Morgan, Perry, Vinton
Karner Blue Butterfly (E) <i>Lycaeides melissa samuelis</i>	Lucas
Mitchell's Satyr (E) <i>Neonympha m. mitchellii</i>	Portage
Running Buffalo Clover (E) <i>Trifolium stoloniferum</i>	Adams, Athens, Belmont, Brown, Butler, Clermont, Delaware, Fairfield, Franklin, Gallia, Hamilton, Highland, Hocking, Jackson, Lawrence, Meigs, Pickaway, Pike, Ross, Scioto, Vinton, Warren
Eastern Prairie Fringed Orchid (T) <i>Platanthera leucophaea</i>	Clark, Holmes, Lucas, Ottawa, Sandusky, Wayne
Lakeside Daisy (T) <i>Hymenoxys herbacea</i>	Erie, Ottawa
Northern Monkshood (T) <i>Aconitum noveboracense</i>	Hocking, Portage, Summit
Small Whorled Pogonia (T) <i>Isotria medeoloides</i>	Hocking, Scioto
Virginia Spiraea (T) <i>Spiraea virginiana</i>	Scioto
Copperbelly Water Snake (T) <i>Nerodia erythrogaster neglecta</i>	Defiance, Hardin, Williams
Eastern Massasauga (T) <i>Sistrurus catenatus</i>	Ashtabula, Butler, Champaign, Clark, Clinton, Columbiana, Crawford, Erie, Fairfield, Fayette, Greene, Hardin, Holmes, Huron, Lake, Licking, Logan, Lucas, Mahoning, Marion, Montgomery, Ottawa, Perry, Portage, Preble, Richland, Sandusky, Stark, Summit, Trumbull, Warren, Wayne, Wyandot

IMPORTANT NOTES: This list reflects data available as of October 2019, and will change as new data become available. For this reason, searches for listed species should not be limited to the counties noted above. Any decisions in that regard should be made only after calling the USFWS (614/416-8993) for guidance.

The Bald Eagle is no longer federally listed but remains protected by the Bald and Golden Eagle Protection Act. The

USFWS recommends that all project areas be checked for the presence of eagle nests. For technical assistance on bald eagles, please visit the USFWS's Bald Eagle website: <https://www.fws.gov/midwest/eagle/index.html>

E = Endangered
T = Threatened
CH = Critical Habitat

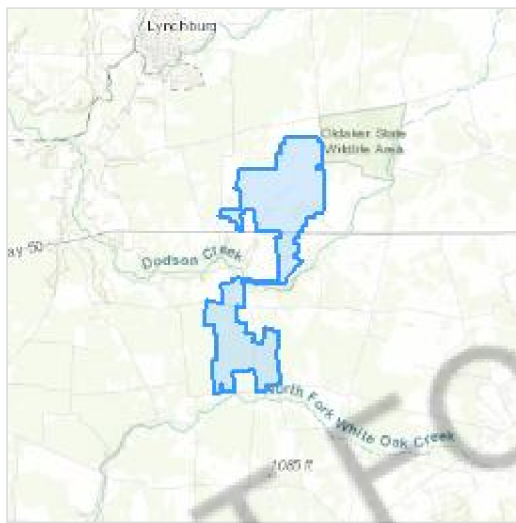
IPaC resource list

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

Highland County, Ohio



Local office

Ohio Ecological Services Field Office

☎ (614) 416-8993

📅 (614) 416-8994

4625 Morse Road, Suite 104
Columbus, OH 43230-8355

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 species¹ 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 Fisheries²).

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
<p>Indiana Bat <i>Myotis sodalis</i></p> <p>Wherever found</p> <p>There is final critical habitat for this species. The location of the critical habitat is not available.</p> <p>https://ecos.fws.gov/ecp/species/5949</p>	Endangered
<p>Northern Long-eared Bat <i>Myotis septentrionalis</i></p> <p>Wherever found</p> <p>This species only needs to be considered if the following condition applies:</p> <ul style="list-style-type: none"> • 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 <p>No critical habitat has been designated for this species.</p> <p>https://ecos.fws.gov/ecp/species/9045</p>	Threatened

Flowering Plants

NAME	STATUS
<p>Running Buffalo Clover <i>Trifolium stoloniferum</i></p> <p>No critical habitat has been designated for this species.</p> <p>https://ecos.fws.gov/ecp/species/2529</p>	Endangered

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 Act¹ and the Bald and Golden Eagle Protection Act².

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.)

Bald Eagle *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Breeds Oct 15 to Aug 31

Bobolink *Dolichonyx oryzivorus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 20 to Jul 31

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

Red-headed Woodpecker *Melanerpes erythrocephalus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 10 to Sep 10

Rusty Blackbird *Euphagus carolinus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds elsewhere

Short-billed Dowitcher *Limnodromus griseus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9480>

Breeds elsewhere

Wood Thrush *Hylocichla mustelina*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 10 to Aug 31

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.
- 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 $0.05/0.25 = 0.2$.
 - 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.

■ probability of presence ■ breeding season | survey effort — no data

SPECIES JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

Bald Eagle
Non-BCC Vulnerable
(This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



Bobolink
BCC Rangewide (CON)
(This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Lesser Yellowlegs
BCC Rangewide (CON)
(This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Red-headed Woodpecker
BCC Rangewide (CON)
(This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Rusty Blackbird
BCC Rangewide (CON)
(This is a Bird of
Conservation Concern
(BCC) throughout its
range in the continental
USA and Alaska.)



Short-billed Dowitcher
BCC Rangewide (CON)
(This is a Bird of
Conservation Concern
(BCC) throughout its
range in the continental
USA and Alaska.)



Wood Thrush
BCC Rangewide (CON)
(This is a Bird of
Conservation Concern
(BCC) throughout its
range in the continental
USA and Alaska.)



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](#).

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

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 tubercid 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 C

TRC Jurisdictional Waters Delineation Report Dodson Creek Solar, LLC

JURISDICTIONAL WATERS DELINEATION REPORT

**Dodson Creek Solar, LLC
Highland County, Ohio
April 2021**

TRC Project No. 416571.0000.0000



Prepared For:

Dodson Creek Solar, LLC
8400 Normandale Lake Boulevard,
Suite 1200
Bloomington, MN 55437
Phone: 952.988.9000

A handwritten signature in black ink, appearing to read "Justin Pitts".

Justin Pitts
Project Manager

Prepared By:

TRC Environmental Corporation
781 Science Boulevard, Suite 200
Gahanna, OH 43230
Phone: 614.423.6353

A handwritten signature in black ink, appearing to read "Matthew R. Ray".

Matthew Ray
Wetland Scientist



CONFIDENTIAL BUSINESS INFORMATION

TABLE OF CONTENTS

ACRONYMS	iii
1.0 INTRODUCTION	1
2.0 METHODOLOGY	2
2.1 Desktop Review Methodology	2
2.2 Field Methodology-Wetlands	3
2.3 Ohio Rapid Assessment Method	6
2.4 Field Methodology - Other Waters Of The United States	7
3.0 RESULTS	9
3.1 Background Resources	17
3.1.1 USGS Topographic Map	17
3.1.2 Soils	17
3.1.3 National Wetlands Inventory	19
3.1.4 National Hydrography Dataset	19
3.1.5 Ohio EPA Stream Eligibility for Nationwide Permit Program	19
3.1.6 FEMA Flood Hazard	19
3.1.7 Water Quality Standards	20
3.2 Field Delineations	20
3.2.1 Wetlands	20
3.2.2 Other Waters of the United States	34
4.0 REFERENCES	64

List of Tables

Table 3.1	Potential Wetlands and Other Waters of the United States Investigated and Jurisdictional Determinations within the Study Area	9
Table 3.1.2	Soils Mapped within the Study Area	18
Table 3.2.1	Wetlands Delineated within the Study Area	21
Table 3.2.2	Other Waters of the United States Delineated within the Study Area	35
Table 3.2.3	Waterbodies Delineated within the Study Area	63

Appendices

Appendix A: Figures

- Figure 1 – USGS Topographic Map
- Figure 2 – Soil Survey Map
- Figure 3 – National Wetlands Inventory and National Hydrography Dataset Map
- Figure 4 – Nationwide Permits Stream Eligibility Map
- Figure 5 – Federal Emergency Management Agency Flood Hazard Map
- Figure 6 – Delineated Features Map

Appendix B: Photographic Log

- Wetland Resource Photographs
- Other Waters of the United States Resource Photographs

Appendix C: Data Forms

- USACE Wetland Determination Data Forms
- Ohio EPA ORAM Data Forms
- Ohio EPA Stream Data Forms

ACRONYMS

1987 Manual	USACE Wetlands Delineation Manual
FAC	Facultative
FACU	Facultative upland
FACW	Facultative wetland
FEMA	Federal Emergency Management Agency
GPS	Global Positioning System
HHEI	Headwater Habitat Evaluation Index
HUC	Hydrologic Unit Code
LRW	Limited Resource Water
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OAC	Ohio Administrative Code
OBL	Obligate wetland
Ohio EPA	Ohio Environmental Protection Agency
OHWM	Ordinary High Water Mark
ORAM	Ohio Rapid Assessment Method
PEM	Palustrine emergent
PFO	Palustrine forested
POW	Palustrine open-water
Project	Dodson Creek Solar, LLC proposed development
PSS	Palustrine scrub-shrub
QHEI	Qualitative Habitat Evaluation Index
Regional Supplement Report	Regional Supplement to the U.S. Army Corps of Engineers Wetland Delineation Manual: Midwest (Version 2.0) Dodson Creek Solar, LLC Jurisdictional Waters Delineation Report
Study Area	Dodson Creek Solar, LLC Jurisdictional Waters Delineation Study Area
Dodson Creek	Dodson Creek Solar, LLC
TNM	The National Map
TRC	TRC Environmental Corporation
UPL	Upland

U.S.	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
US EPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WOTUS	Waters of the United States
WQC	Water Quality Certification

1.0 INTRODUCTION

On behalf of Dodson Creek Solar, LLC (Dodson Creek), a subsidiary of National Grid Renewables Development, LLC, TRC Environmental Corporation (TRC) has prepared this Dodson Creek Solar, LLC *Jurisdictional Waters Delineation Report* (Report) for the development of an up to 117-megawatt (MW) solar facility in Highland County, Ohio (Project) (see Appendix A, Figure 1). This Report contains the methodology and results of the jurisdictional waters delineation investigations performed by TRC from December 7, 2020 through December 11, 2020, December 14, 2020 through December 17, 2020, and March 14, 2021 through March 19, 2021. Mr. Shane Brodnick; PWS, Mr. Jeff Vandever; PWS, Mr. Justin Pitts, Mr. Matthew Ray, Mr. Tony Tredway, Mr. Thomas Radford, and Ms. Lindsey Jakovljevic, of TRC, are environmental scientists who have over 30 years of combined experience and performed field surveys for this Project.

The objective of the survey was to identify and evaluate wetlands and other waters of the United States (WOTUS) within the Dodson Creek Solar Study Area (Study Area), such that the resources could be considered in the planning, design, permitting, and installation of the proposed Project in accordance with Ohio Administrative Code (OAC) Chapter 4906-4-08 (B)(1)(a)(iv-v)-(b).

In total, the Study Area is approximately 1,462 acres (591.7 hectares). The Study Area contains United States Route 50 (east/west), Spickard Road (north/south), Rammel Road (north/south), Gibler Road (north/south), Abernathy Road (north/south), Tedrick Road (east/west), and Sherry Road (east/west). The Project Area is located within Dodson, Hamer, and Union Townships in Highland County, Ohio (Appendix A, Figure 1).

The Study Area lies within the Eastern Corn Belt Plains, which typically have loamy and well-drained soils, and are most commonly characterized by rolling till plains and local end moraines (Woods, et al., 1998). The vegetation of the ecoregion was originally dominated by American beech (*Fagus grandifolia*), sugar maple (*Acer saccharum*), and American basswood (*Tilia americana*) forests. Overall, the landscape has been significantly altered to accommodate agricultural activities which have negatively altered stream chemistry and turbidity (US EPA, 2013) (Woods, et al., 1998). The area investigated was dominated by rotational upland cropland with pockets of emergent herbaceous wetlands, scrub/shrub wetlands, forested wetlands, and upland deciduous forests. Topography in the region consists of flat to moderately sloping

agricultural fields, with elevations ranging from approximately 980 feet (298.7 meters) to 1,040 feet (316.99 meters) above mean sea level.

The proposed Project is located within the Middle Ohio-Little Miami drainage within the Ohio River drainage basin. The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) maintains a classification system for identifying watersheds by hydrologic unit code (HUC). The Project is located within three (3) 12-digit HUC watersheds; Anthony Run-Dodson Creek watershed (HUC: 050902021004), Little North Fork-North Fork Whiteoak Creek watershed (HUC: 050902010903), and Headwaters Dodson Creek watershed (HUC: 050902021003) (USDA-NRCS,USGS,EPA, 2020). The streams found within the Study Area include Dodson Creek, multiple unnamed tributaries to Dodson Creek, and multiple unnamed tributaries to North Fork White Oak Creek.

2.0 METHODOLOGY

Pursuant to the United States Army Corps of Engineers (USACE) wetlands and other waters of the U.S. delineation methodology, potential wetland and other WOTUS located within the Study Area were identified, delineated, and mapped through the combined use of existing available public source information and field investigation. In accordance with the State of Ohio's Water Quality Standards (OAC Rule 3745-1-54), wetlands within the Study Area were evaluated and provisionally categorized utilizing Ohio Environmental Protection Agencies' (Ohio EPA's) Ohio Rapid Assessment Method (ORAM). Wetlands within the Study Area were also evaluated for a hydrological connection to a water of the U.S., which thereby renders the wetland jurisdictional under the USACE (33 CFR Part 328) (Federal Register, 2020). Wetlands that are not hydrologically connected to a WOTUS are considered isolated. Isolated wetlands may not be considered WOTUS in Ohio; however, they are considered waters of the State of Ohio (ORC 6111.02-6111.028) (Ohio EPA, 2020). The USACE has the final determination on wetland connectivity relating to jurisdictional status.

2.1 Desktop Review Methodology

The sources utilized for the desktop review included: the United States Geological Survey (USGS) New Washington, Ohio 7.5 minute series topographical quadrangles (USGS, 1988) (Appendix A, Figure 1); soil datasets acquired from the NRCS Web Soil Survey (USDA, 2020) for Highland

County, Ohio (Appendix A, Figure 2); the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) for Ohio (USFWS, 2020) (Appendix A, Figure 3); the USGS National Hydrography Dataset (NHD) (USGS, 2018) (Appendix A, Figure 3); the Ohio Environmental Protection Agency (Ohio EPA) 401 Water Quality Certification (WQC) for the Nationwide Permits Stream Eligibility Map (Ohio EPA, 2020) (Appendix A, Figure 4); the Federal Emergency Management Agency (FEMA) flood hazard risk map (FEMA, 2011) (Appendix A, Figure 5); and the Ohio EPA OAC Chapter 3745-1 Water Quality Standards (Ohio EPA, 2017). Sources were reviewed to identify potential wetlands and other WOTUS conditions that may be present within the Study Area. The results of the desktop review were used to aid in the field investigation.

2.2 Field Methodology-Wetlands

Wetland resources within the Study Area were identified and their boundaries determined in accordance with the USACE *Wetlands Delineation Manual (1987 Manual)* (USACE, 1987), utilizing the *Regional Supplement to the U.S. Army Corps of Engineers Wetland Delineation Manual: Midwest (Version 2.0) (Regional Supplement)* (USACE, 2012). Consistent with the *1987 Manual*, wetland determinations were based on dominant plant species, soil characteristics, and hydrologic characteristics. In addition, wetlands and other WOTUS were evaluated in accordance with the State of Ohio's Water Quality Standards (OAC Chapter 3745-1) as managed by the Ohio EPA. In areas that were observed to have "normal circumstances" and contain three criteria (i.e. hydric soils, wetland hydrology, and a dominance of hydrophytic vegetation) were considered potentially jurisdictional wetlands. Areas observed to have problematic or difficult situations were delineated utilizing the procedures identified in the Regional Supplement, Section 5 – "Difficult Wetland Situations in the Midwest Region" (USACE 2012, pp. 100-124).

Wetlands or other WOTUS are considered potentially jurisdictional until verified by the USACE (USACE/USEPA, 2008). A photographic log of representative field observations is presented in Appendix B. Completed USACE Wetland Determination Data Forms – Midwest Region are presented in Appendix C.

Soils were examined by excavating a soil pit 20 inches (50 centimeters) below the ground surface using a tile spade. The exposed soil profile was examined for characteristics using hydric soil criteria described in the National Technical Committee for Hydric Soils *Field Indicators of Hydric Soils in the United States* (USDA-NRCS, 2018). Hue, value, and chroma of the matrix (e.g., 10YR

6/1) and mottles (e.g., 10YR 5/6) of moist soils were examined and then determined by comparing soils to the *Munsell Soil Color Chart* (Munsell Color, 2009).

The hydrology criterion in the *Regional Supplement* requires that an area exhibit at least one primary or at least two secondary indicators of wetland hydrology. Examples of primary wetland hydrology indicators include standing water or saturated soils, water marks on trees, drift lines, water-stained leaves, and oxidized root zones surrounding living roots. Examples of secondary wetland hydrology indicators include drainage patterns, microtopographic relief, presence of crayfish burrows, and sparsely vegetated concave surfaces. Additional secondary signs of hydrology include visible saturation on aerial photographs and a positive facultative (FAC)-neutral test as described below (USACE, 2012).

Plants were identified to the lowest taxonomic level possible, using professional references to differentiate cryptic taxa (Braun, 1967) (Braun, 1969) (Gleason & Cronquist, 1991) (Holmgren, 1998) (Mohlenbrock, 2001a) (Mohlenbrock, 2001) (Mohlenbrock, 2002) (Mohlenbrock, 2006) (Mohlenbrock, 2011) (Newcomb, 1977) (Rhoads & Block, 2007) (Rothrock, 2009) (Stein, Binion, & Acciavatti, 2003) (Voss & Reznicek, 2012) (Weakley, Ludwig, & Townsend, 2013). Dominant vegetation for each community was determined by estimating dominant species in the tree, sapling/shrub, herbaceous, and woody vine strata. Dominant species were determined by using the 50/20 dominance rule for each stratum, which was accomplished by estimating the percent areal cover for each species. The relative percent areal cover was calculated for each species by dividing each species percent cover by the total percent cover for all species and multiplying by 100. The species were then arranged in descending order of relative percent cover. A running total was kept by adding the relative cover of each species starting with the species with the highest relative cover until the total cover equals 50 percent. All species included in this calculation are regarded as dominant. Species of equal cover value that contributed to meeting the sum of 50 percent are also considered dominant. Additionally, other species that solely accounted for 20 percent or more of the relative percent cover were also considered dominant species.

The indicator status of each dominant species was determined. An indicator status of obligate (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU) or upland (UPL) has been assigned to each plant species in the *U.S. Army Corps of Engineers National Wetlands Plant List* (Lichvar, 2018). In accordance with the aforementioned guidance, an area was classified with hydrophytic vegetation when, under normal circumstances, more than 50 percent

of the composition of the dominant species from all strata is comprised of OBL, FACW, and/or FAC species.

The FAC-neutral test, as a secondary indicator of hydrology, was calculated for each data set. This test considers all FAC species as neutral for wetland determination and compares the number of dominant species wetter than FAC (i.e., OBL, FACW) against the number of dominant species drier than FAC (i.e., FACU, UPL). A positive FAC-neutral test results when dominant species wetter than FAC are more prevalent than dominant species drier than FAC. A positive FAC-neutral test is a secondary indicator of wetland hydrology.

TRC mapped the wetland boundary for sample plots, and their surrounding plant communities, that met the three criteria to be considered a wetland (hydric soils, wetland hydrology, and hydrophytic vegetation). The boundary of the delineated wetlands was identified by the location of where one or more of the three criteria were not met and display upland characteristics (i.e., no longer met the hydric soils, wetland hydrology, or hydrophytic vegetation requirements as previously described). Sample plots were also taken in nearby apparent upland areas to confirm that one or more of the criteria were not met in the upland locations.

Wetlands within the Study Area were classified according to the USFWS *Classification of Wetlands and Deepwater Habitats for the United States* (Federal Geographic Data Committee, 2013). Wetland classifications were based upon hydrophytic vegetation type and dominance found within the delineated wetland, and included the following classification types: palustrine emergent (PEM), palustrine scrub-shrub (PSS), palustrine forested (PFO), palustrine unconsolidated bottom, permanently flooded, diked/impounded (PUBGh), or a combination of these classifications (Federal Geographic Data Committee, 2013).

The wetland boundaries were flagged and surveyed through the use of a Global Positioning System (GPS) receiver capable of sub-meter accuracy (Model R1, Trimble, Sunnyvale, California). The delineated wetlands were labeled utilizing a standardized naming convention, which includes the feature type [wetland (W), stream (S), pond (P)], delineators first, middle, last initials, and feature number (e.g. *W-MMM-1*, *W-MRR-1*, *W-SJB-1*, *S-MMM-1*. etc.) and correspond to the wetlands illustrated on the Delineated Features Map provided in Appendix A, as Figure 6. The wetland boundaries were mapped as polygons and the wetland areal extents were calculated using the shapefile properties utility in ArcMap.

Wetland boundaries that extend beyond the Study Area were collected to the edge of the Study Area and noted as “Continuing Offsite” within this Report to indicate that the wetland continued outside the Study Area.

2.3 Ohio Rapid Assessment Method

The regulation of wetlands under Section 401 and 404 of the Clean Water Act, requires the assessment of the function and quality of wetlands in order to determine the appropriate level of mitigation that should be required for the destruction, alteration, or degradation of a wetland. In accordance with Ohio EPA requirements (OAC Rule 3745-1-54), delineated wetlands within the Study Area were evaluated using the ORAM in an attempt to determine the ecological quality and the level of function of these wetlands (ORAM Version 5.0) (Mack, 2001). The wetland value information, as determined by the ORAM, is provided to the Ohio EPA for the purposes of placing wetlands in the appropriate wetland Antidegradation Category as defined in Ohio’s Wetland Antidegradation Rule (OAC Rule 3745-1-54). These ORAM scoring sheets (data forms) are populated based on a review of resource material (e.g. FEMA 100 year floodplain, known occurrence of state/federal threatened or endangered species, etc.), data obtained in the field, and the acreage as determined by delineation and mapping. Utilizing the ORAM wetland categories as defined by Ohio EPA, wetlands were provisionally categorized as low quality (Category 1) to high quality (Category 3). The score from the Quantitative Rating ranges from 0 to 100 and the scoring breakdown for wetland regulatory categories is as follows:

- Category 1: 0 - 29.9 (Low Quality)
- Category 1 or 2 Gray Zone: 30 - 34.9
- Modified Category 2: 35 - 44.9
- Category 2: 45 - 59.9 (Moderate Quality)
- Category 2 or 3 Gray Zone: 60 - 64.9
- Category 3: 65 - 100 (High Quality)

The ORAMs were performed using detailed field evaluations and, for wetland features extending beyond the Study Area, were supplemented by aerial photographic interpretation to aid in approximate boundary determination and total area estimates. While the score and conclusions of the ORAM are designed such that they correlate well with more detailed measures of the biology of the wetlands, they are not considered definite. ORAM scores are considered preliminary until verified by the Ohio EPA. Refer to Appendix C for completed ORAM data forms.

The scoring sheets (ORAM Version 5.0 Field Form Quantitative Rating) for individual wetlands were completed and were the basis for the provisional wetland categorizations. The delineated wetlands are illustrated in Appendix A, Figure 6.

2.4 Field Methodology - Other Waters of the United States

The Study Area was screened for the presence of non-wetland areas that meet the criteria for other potential waters of the U.S.” specified in the USACE’s *1987 Manual and Regional Supplement*. Other WOTUS consist of intermittent, and perennial streams, as well as open water features, such as ponds. Although ephemeral streams are now explicitly excluded from the definition of WOTUS, Waters of the State of Ohio includes all streams within its definition located in (85 Fed. Reg. 22,250, 22,251-22,252 (April 21, 2020).) (USACE, DoD, EPA, 2020). Drainage channels that exhibited defined “bed and bank” and an ordinary high water mark (OHWM) in the channel were identified and delineated as jurisdictional streams. For the purposes of this Report non-jurisdictional drainage channels that did not exhibit an OHWM and/or defined bed and bank were excluded from this Report. Delineated resources are illustrated in Appendix A, Figure 6. Final jurisdictional determinations are made by the USACE; therefore, all determinations are preliminary until verified by the USACE (USACE/USEPA, 2008).

Identified streams were evaluated utilizing Ohio EPA approved methods for stream habitat assessment which include the Qualitative Habitat Evaluation Index (QHEI) (Ohio EPA, 2006) and/or the Headwater Habitat Evaluation Index (HHEI) (Ohio EPA, 2018a) assessment method. These approved assessment methods provide an empirical, quantified evaluation of streams as required by the State of Ohio for permitting and mitigation purposes per Section 401 of the Clean Water Act of 1977 (33 U.S.C. 1344). These methods assess stream habitat to provide a qualitative index (score) to determine the level of compensatory mitigation that may be needed for impacts to WOTUS of the State of Ohio.

Use of the QHEI or HHEI assessment method is determined based on the size of the stream’s drainage area and/or the stream’s pool depths. Where coverage was available, the drainage area was calculated using automated basin characteristics from USGS StreamStats v 4.4.0: Ohio (USGS, 2020).

Following Ohio EPA guidance, streams with a drainage area of greater than 1.0 square mile (2.6 square kilometers), or which have pools with maximum depths over 15.8 inches (40.0 centimeters), as determined by measuring pool depth within the stream, were evaluated using

the QHEI. Data on these streams were collected on the QHEI form provided by the Ohio EPA. The QHEI is composed of six principal metrics: substrate, instream cover, channel morphology, riparian zone and bank erosion, pool/glide and riffle-run quality, and map gradient. Each metric is scored separately and summed to obtain the total QHEI score. Using the scoring methods associated with these forms, the stream is placed into the following general narrative ranges, dependent on stream size; for smaller streams (≤ 20 sq. mi): Excellent >70 , Good 55-69, Fair 43-54, Poor 30-42, and Very Poor <30 ; for larger streams (>20 sq. mi): Excellent >75 , Good 60-74, Fair 45-59, Poor 30-44, and Very Poor <30 .

The HHEI was utilized to score streams with a drainage area of <1.0 square mile (2.6 square kilometers). Data on these streams were collected on the HHEI forms, provided by the Ohio EPA. Observational data regarding the physical nature of the stream corridor including stream flow, riparian zone land use and buffer width, and channel modification were recorded. Measurements included bankfull width, maximum pool depth and substrate composition.

Using the scoring method associated with these forms, a Modified Ephemeral Aquatic Stream, Ephemeral Aquatic Stream, Modified Small Drainage Warmwater Stream, Small Drainage Warmwater Stream, or Spring Water Stream was assigned to each stream (with Modified Ephemeral Aquatic Stream being the least protected and Spring Water Stream being the most protected). Streams that exhibited a major change in morphology were scored at multiple representative locations. QHEI and HHEI scores are considered preliminary until verified by the Ohio EPA. Appendix C provides completed Ohio EPA Stream Data Sheets (QHEI and HHEI Data Forms). The delineated streams are illustrated in Appendix A, Figure 6.

The Study Area was investigated for other WOTUS that are considered “open water” by the USACE. By definition, open water was “an area that, during a year with normal patterns of precipitation, has standing or flowing water for sufficient duration to establish an OHWM, where aquatic vegetation is either non-emergent, sparse, or absent” (USACE, 2019). When identified, the derived open water (pond) boundaries were surveyed through the use of a GPS receiver capable of sub-meter accuracy (Trimble R1 Receiver). Six (6) ponds were identified during investigations of the Study Area.

3.0 RESULTS

During the investigations, 41 wetlands, 56 streams, and six (6) ponds were identified and delineated within the Study Area (Tables 3.1, 3.2.1, 3.2.2, and 3.2.3). All features have been preliminarily determined to be jurisdictional; however, are not considered final until verified by the USACE.

Resource ID	Field Survey Date	Location (Latitude, Longitude)	Jurisdictional Determination¹ and Feature Type	Acreage (Hectares) of Jurisdictional Waters in Study Area and Cowardin Classification²
W-JDV-1	12/16/20	39.2066, -83.7704	WOTUS, Wetland	0.11 (0.04), PEM
W-JDV-2	12/16/20	39.2088, -83.7682	WOTUS, Wetland	0.07 (0.03), PEM
W-MMM-1	3/15/21	39.1806, -83.7630	WOTUS, Wetland	0.40 (0.16), PEM
W-MMM-2	3/15/21	39.1783, -83.7696	WOTUS, Wetland	0.09 (0.04), PEM
W-MMM-3	3/15/21	39.1770, -83.7653	WOTUS, Wetland	0.19 (0.08), PEM
W-MMM-4	3/15/21	39.1783, -83.7688	WOTUS, Wetland	0.06 (0.02), PEM
W-MMM-5	3/16/21	39.1812, -83.7695	WOTUS, Wetland	0.07 (0.03), PEM
W-MMM-6	3/16/21	39.1819, -83.7739	WOTUS, Wetland	0.21 (0.08), PFO
W-MMM-7	3/16/21	39.1832, -83.7745	WOTUS, Wetland	0.38 (0.15), PFO
W-MMM-8	3/16/21	39.1826, -83.7728	WOTUS, Wetland	0.14 (0.06), PFO

Resource ID	Field Survey Date	Location (Latitude, Longitude)	Jurisdictional Determination¹ and Feature Type	Acreage (Hectares) of Jurisdictional Waters in Study Area and Cowardin Classification²
W-MMM-9	3/16/21	39.1830, -83.7656	WOTUS, Wetland	0.24 (0.10), PEM
W-MRR-1	12/9/20	39.2071, -83.7628	WOTUS, Wetland	0.34 (0.14), PEM
W-MRR-2	12/9/20	39.2075, -83.7639	WOTUS, Wetland	0.45 (0.18), PEM
W-MRR-3	12/9/20	39.2096, -83.7616	WOTUS, Wetland	0.70 (0.28), PEM
W-MRR-4	12/9/20	39.2141, -83.7616	WOTUS, Wetland	3.23 (1.3), PEM/PSS
W-MRR-5	12/9/20	39.2126, -83.7678	WOTUS, Wetland	0.17 (0.06), PEM
W-MRR-9	3/18/21	39.2005, -83.7567	WOTUS, Wetland	0.12 (0.04), PEM
W-MRR-10	3/18/21	39.1977, -83.7557	WOTUS, Wetland	0.43 (0.17), PEM
W-MRR-11	3/18/21	39.1947, -83.7625	WOTUS, Wetland	0.15 (0.06), PFO
W-MRR-12	3/18/21	39.1982, -83.7533	WOTUS, Wetland	0.19 (0.08), PEM
W-MRR-13	3/18/21	39.1924, -83.7688	WOTUS, Wetland	0.02 (0.01), PEM
W-MRR-14	3/18/21	39.1872, -83.7699	WOTUS, Wetland	6.40 (2.59), PFO
W-MRR-15	3/18/21	39.1899, -83.7767	WOTUS, Wetland	0.14 (0.06), PEM

Table 3.1 Potential Wetlands and Other Waters of the United States Investigated and Jurisdictional Determinations within the Study Area

Resource ID	Field Survey Date	Location (Latitude, Longitude)	Jurisdictional Determination ¹ and Feature Type	Acreage (Hectares) of Jurisdictional Waters in Study Area and Cowardin Classification ²
W-MRR-16	3/19/21	39.2087, -83.7712	WOTUS, Wetland	0.12 (0.05), PEM
W-SJB-1	12/8/20	39.2047, -83.7615	WOTUS, Wetland	1.57 (0.64), PEM/PSS
W-SJB-2	12/8/20	39.2060, -83.7625	WOTUS, Wetland	0.04 (0.02), PSS
W-SJB-3	12/8/20	39.2076, -83.7574	WOTUS, Wetland	0.91 (0.37), PEM
W-SJB-4	12/8/20	39.2093, -83.7607	WOTUS, Wetland	0.58 (0.23), PEM
W-SJB-5	12/8/20	39.2058, -83.7521	WOTUS, Wetland	0.08 (0.03), PEM
W-SJB-6	12/8/20	39.2062, -83.7529	WOTUS, Wetland	0.12 (0.05), PEM
W-SJB-7	12/8/20	39.2099, -83.7597	WOTUS, Wetland	1.63 (0.66), PEM/PFO
W-SJB-8	12/8/20	39.2120, -83.7550	WOTUS, Wetland	0.48 (0.19), PEM/PFO
W-SJB-9	12/9/20	39.2128, -83.7538	WOTUS, Wetland	1.33 (0.54), PEM/PFO
W-SJB-10	12/9/20	39.2142, -83.7530	WOTUS, Wetland	0.47 (0.19), PEM
W-SJB-11	12/10/20	39.2196, -83.7574	WOTUS, Wetland	0.31 (0.13), PEM
W-SJB-12	12/10/20	39.2205, -83.7557	WOTUS, Wetland	0.39 (0.15), PEM

Table 3.1 Potential Wetlands and Other Waters of the United States Investigated and Jurisdictional Determinations within the Study Area

Resource ID	Field Survey Date	Location (Latitude, Longitude)	Jurisdictional Determination ¹ and Feature Type	Acreage (Hectares) of Jurisdictional Waters in Study Area and Cowardin Classification ²
W-SJB-13	12/10/20	39.2224, -83.7539	WOTUS, Wetland	0.31 (0.13), PEM
W-SJB-15	12/10/20	39.1976, -83.7578	WOTUS, Wetland	1.27 (0.51), PEM/PFO
W-TPT-1	12/10/20	39.2113, -83.7586	WOTUS, Wetland	0.29 (0.12), PEM
W-TPT-2	12/10/20	39.2112, -83.7572	WOTUS, Wetland	0.31 (0.13), PEM/PSS
W-TPT-3	12/10/20	39.2209, -83.7500	WOTUS, Wetland	2.69 (1.09), PEM/PSS
S-MMM-1	3/15/21	39.1734, -83.7612	WOTUS, Stream	0.04 (0.02), R4
S-MMM-2	3/15/21	39.1808, -83.7639	WOTUS, Stream	0.43 (0.17), R5
S-MMM-3	3/15/21	39.1767, -83.7693	WOTUS, Stream	0.03 (0.01), R6
S-MMM-4	3/15/21	39.1820, -83.7654	WOTUS, Stream	0.001 (0.001), R4
S-MMM-5	3/15/21	39.1826, -83.7697	WOTUS, Stream	0.25 (0.1), R4
S-MMM-6	3/15/21	39.1780, -83.7707	WOTUS, Stream	0.07 (0.03), R6
S-MMM-7	3/16/21	39.1780, -83.7701	WOTUS, Stream	0.007 (0.003), R6
S-MMM-8	3/16/21	39.1830, -83.7694	WOTUS, Stream	0.001 (0.001), R6

Table 3.1 Potential Wetlands and Other Waters of the United States Investigated and Jurisdictional Determinations within the Study Area

Resource ID	Field Survey Date	Location (Latitude, Longitude)	Jurisdictional Determination ¹ and Feature Type	Acreage (Hectares) of Jurisdictional Waters in Study Area and Cowardin Classification ²
S-MMM-9	3/16/21	39.1834, -83.7704	WOTUS, Stream	0.005 (0.002), R6
S-MRR-7	12/10/20	39.1965, -83.7624	WOTUS, Stream	0.02 (0.007), R6
S-MRR-15	3/18/21	39.1974, -83.7548	WOTUS, Stream	0.06 (0.02), R6
S-MRR-16	3/18/21	39.1971, -83.7575	WOTUS, Stream	0.04 (0.01), R4
S-MRR-17	3/18/21	39.1942, -83.7574	WOTUS, Stream	0.006 (0.002), R6
S-MRR-18	3/18/21	39.1948, -83.7671	WOTUS, Stream	0.45 (0.18), R5
S-MRR-19	3/18/21	39.1946, -83.7611	WOTUS, Stream	0.003 (0.001), R6
S-MRR-20	3/18/21	39.1945, -83.7599	WOTUS, Stream	0.01 (0.004), R4
S-MRR-21	3/18/21	39.1945, -83.7590	WOTUS, Stream	0.006 (0.003)/R6
S-MRR-22	3/18/21	39.1984, -83.7534	WOTUS, Stream	0.004 (0.002)/R6
S-MRR-23	3/18/21	39.1940, -83.7688	WOTUS, Stream	0.08 (0.03)/R4
S-MRR-24	3/18/21	39.1943, -83.7698	WOTUS, Stream	0.03 (0.01)/R6
S-MRR-25	3/19/21	39.1725, -83.7745	WOTUS, Stream	0.003 (0.001)/R6

Table 3.1 Potential Wetlands and Other Waters of the United States Investigated and Jurisdictional Determinations within the Study Area

Resource ID	Field Survey Date	Location (Latitude, Longitude)	Jurisdictional Determination ¹ and Feature Type	Acreage (Hectares) of Jurisdictional Waters in Study Area and Cowardin Classification ²
S-MRR-26	3/19/21	39.1725, -83.7715	WOTUS, Stream	0.001 (0.001), R6
S-MRR-27	3/19/21	39.2076, -83.7708	WOTUS, Stream	0.05 (0.02), R6
S-MRR-28	3/19/21	39.2074, -83.7711	WOTUS, Stream	0.003 (0.001), R6
S-SJB-1	12/9/20	39.2150, -83.7543	WOTUS, Stream	0.21 (0.08), R4
S-TJR-8	12/16/20	39.2076, -83.7701	WOTUS, Stream	0.005 (0.002), R4
S-TPT-1	12/9/20	39.2046, -83.7635	WOTUS, Stream	0.004 (0.002), R4
S-TPT-2	12/10/20	39.1985, -83.7673	WOTUS, Stream	3.33 (1.35), R5
S-TPT-3	12/9/20	39.2046, -83.7641	WOTUS, Stream	0.001 (0.001), R4
S-TPT-4	12/9/20	39.2061, -83.7626	WOTUS, Stream	0.004 (0.002), R6
S-TPT-5	12/9/20	39.2091, -83.7619	WOTUS, Stream	0.02 (0.007), R6
S-TPT-6	12/9/20	39.2090, -83.7613	WOTUS, Stream	0.001 (0.001), R6
S-TPT-7	12/8/20	39.2092, -83.7611	WOTUS, Stream	0.001 (0.001), R4
S-TPT-8	12/8/20	39.2113, -83.7583	WOTUS, Stream	0.002 (0.001), R6

Table 3.1 Potential Wetlands and Other Waters of the United States Investigated and Jurisdictional Determinations within the Study Area

Resource ID	Field Survey Date	Location (Latitude, Longitude)	Jurisdictional Determination ¹ and Feature Type	Acreage (Hectares) of Jurisdictional Waters in Study Area and Cowardin Classification ²
S-TPT-9	12/9/20	39.2120, -83.7570	WOTUS, Stream	0.02 (0.007), R4
S-TPT-10	12/8/20	39.2148, -83.7545	WOTUS, Stream	0.004 (0.002), R4
S-TPT-11	12/8/20	39.2153, -83.7546	WOTUS, Stream	0.002 (0.001), R4
S-TPT-12	12/9/20	39.2170, -83.7564	WOTUS, Stream	0.06 (0.02), R6
S-TPT-13	12/9/20	39.2172, -83.7557	WOTUS, Stream	0.01 (0.005), R6
S-TPT-14	12/9/20	39.2173, -83.7547	WOTUS, Stream	0.001 (0.001), R6
S-TPT-15	12/8/20	39.2188, -83.7341	WOTUS, Stream	0.002 (0.001), R6
S-TPT-16	12/9/20	39.2200, -83.7538	WOTUS, Stream	0.005 (0.002), R4
S-TPT-17	12/8/20	39.2221, -83.7535	WOTUS, Stream	0.009 (0.003), R4
S-TPT-18	12/8/20	39.2224, -83.7528	WOTUS, Stream	0.004 (0.001), R4
S-TPT-19	12/9/20	39.2137, -83.7608	WOTUS, Stream	0.23 (0.09), R5
S-TPT-20	12/9/20	39.2232, -83.7521	WOTUS, Stream	0.003 (0.001), R4
S-TPT-21	12/9/20	39.2207, -83.7507	WOTUS, Stream	0.20 (0.08), R5

Table 3.1 Potential Wetlands and Other Waters of the United States Investigated and Jurisdictional Determinations within the Study Area

Resource ID	Field Survey Date	Location (Latitude, Longitude)	Jurisdictional Determination ¹ and Feature Type	Acreage (Hectares) of Jurisdictional Waters in Study Area and Cowardin Classification ²
S-TPT-22	12/9/20	39.2186, -83.7505	WOTUS, Stream	0.32 (0.13), R4
S-TPT-23	12/9/20	39.2118, -83.7570	WOTUS, Stream	0.0004 (0.001), R6
S-TPT-24	12/9/20	39.2118, -83.7520	WOTUS, Stream	0.006 (0.002), R4
S-TPT-25	12/9/20	39.2076, -83.7592	WOTUS, Stream	0.14 (0.06), R5
S-TPT-26	12/10/20	39.2074, -83.7587	WOTUS, Stream	0.002 (0.001), R6
S-TPT-27	12/10/20	39.2074, -83.7587	WOTUS, Stream	0.002 (0.001), R6
S-TPT-28	12/10/20	39.2073, -83.7602	WOTUS, Stream	0.002 (0.001), R6
S-TPT-29	12/10/20	39.2049, -83.7639	WOTUS, Stream	0.007 (0.003), R4
S-TPT-30	12/10/20	39.2123, -83.7639	WOTUS, Stream	0.02 (0.006), R4
P-MMM-1	3/15/21	39.1824, -83.7651	WOTUS, Pond	0.22 (0.09), PUBGh
P-MRR-1	3/18/21	39.1866, -83.7695	WOTUS, Pond	0.09 (0.04), PUBGh
P-MRR-2	3/18/21	39.1905, -83.7766	WOTUS, Pond	0.37 (0.15), PUBGh
P-SJB-1	12/7/20	39.2063, -83.7524	WOTUS, Pond	1.03 (0.42), PUBGh

Table 3.1 Potential Wetlands and Other Waters of the United States Investigated and Jurisdictional Determinations within the Study Area

Resource ID	Field Survey Date	Location (Latitude, Longitude)	Jurisdictional Determination ¹ and Feature Type	Acreage (Hectares) of Jurisdictional Waters in Study Area and Cowardin Classification ²
P-SJB-2	12/7/20	39.2145, -83.7528	WOTUS, Pond	0.48 (0.19), PUBGh
P-SJB-3	12/7/20	39.2189, -83.7498	WOTUS, Pond	0.12 (0.05), PUBGh

¹Preliminarily assigned. Not considered final until verified by the USACE.

²**Cowardin Classification:**

PEM = Palustrine Emergent

PSS = Palustrine Scrub/Shrub

PFO = Palustrine Forested

PUBGh = Palustrine Unconsolidated Bottom, Permanently Flooded

R4 = Intermittent Stream

R5 = Perennial Stream

R6 = Ephemeral Stream

3.1 Background Resources

3.1.1 USGS Topographic Map

Based on desktop review, the Study Area contains no mapped wetlands, 11 mapped stream features, and three (3) mapped surface water features according to the Lynchburg and New Market, Ohio USGS 7.5-minute series topographic quadrangles (USGS, 1988) (Appendix A, Figure 1). The majority of the terrain is nearly level to gently sloping with moderately steep areas surrounding larger stream channels. Elevation ranges from approximately 980 feet (298.7 meters) to 1,040 feet (316.99 meters) above mean sea level.

3.1.2 Soils

According to the soil dataset acquired from the NRCS Web Soil Survey for Highland County, Ohio, the Study Area was underlain by fifteen (15) different soil types; six (6) soil types are mapped as non-hydric, seven (7) soil types are mapped as non-hydric with hydric inclusions, and two (2) soil types are mapped as hydric (USDA, 2020) (Table 3.1.2 and Appendix A, Figure 2).

Table 3.1.2 Soils Mapped within the Study Area¹

Soil Code	Soil Name	Percent (%) in Study Area	Hydric Status ²
Ag	Algiers silt loam	2.50	Non-Hydric w/ Hydric Inclusions
AtB2	Atlas silt loam, 2 to 6 percent slopes, moderately eroded	0.16	Non-Hydric
Bln3A	Blanchester silty clay loam, 0 to 1 percent slopes	1.63	Hydric
ChD2	Cincinnati silt loam, 12 to 18 percent slopes, moderately eroded	0.41	Non-Hydric
Cle1A	Clermont silt loam, 0 to 1 percent slopes	45.64	Hydric
Ee	Eel silt loam, 0 to 2 percent slopes, occasionally flooded	1.73	Non-Hydric w/ Hydric Inclusions
HyD3	Hickory clay loam, 12 to 18 percent slopes, severely eroded	0.53	Non-Hydric
JoR1B1	Jonesboro-Rossmoyne silt loams, 2 to 6 percent slopes	5.40	Non-Hydric
JoR1B2	Jonesboro-Rossmoyne silt loams, 2 to 6 percent slopes, eroded	1.02	Non-Hydric
RpC2	Rossmoyne silt loam, 6 to 12 percent slopes, moderately eroded	11.48	Non-Hydric
SaB	Sardinia silt loam, 2 to 6 percent slopes	0.22	Non-Hydric w/ Hydric Inclusions
Sh	Shoals silt loam, 0 to 2 percent slopes, frequently flooded	0.03	Non-Hydric w/ Hydric Inclusions
WsS1A1	Westboro-Schaffer silt loams, 0 to 2 percent slopes	17.39	Non-Hydric w/ Hydric Inclusions
WsS1B1	Westboro-Schaffer silt loams, 2 to 4 percent slopes	11.20	Non-Hydric w/ Hydric Inclusions
WvC	Williamsburg silt loam, 6 to 12 percent slopes	0.67	Non-Hydric w/ Hydric Inclusions

¹NRCS Web Soil Survey for Hardin County, Ohio (USDA, 2020)

²Hydric Soil: A soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994)

3.1.3 National Wetlands Inventory

According to the USFWS NWI (USFWS, 2020), one (1) palustrine forested/scrub-shrub wetland (PFO/PSS), seven (7) freshwater ponds, and seven (7) riverine features are located within the Study Area (Appendix A, Figure 3).

3.1.4 National Hydrography Dataset

The USGS National Hydrography Dataset (NHD) Downloadable Data Collection from The National Map (TNM) (USGS, 2018) is a comprehensive set of digital spatial data that encodes information about naturally occurring and constructed bodies of surface water (lakes, ponds, and reservoirs), paths through which water flows (canals, ditches, streams, and rivers), and related entities such as point features (springs, wells, stream gages, and dams). Within the Study Area, 12 streams are identified in the NHD (Appendix A, Figure 3).

3.1.5 Ohio EPA Stream Eligibility for Nationwide Permit Program

Ohio EPA, as part of Ohio's 401-WQC process, has determined which 12-digit HUC watersheds within the state have streams eligible for coverage under Nationwide Permits. There are three (3) categories identified within Ohio: eligible, ineligible, and possibly eligible, with additional field screening required. Forty-four (44) of the streams identified in the Study Area are located within an "Eligible" area according to Ohio EPA's Stream Eligibility for Nationwide Permit Program (Ohio EPA, 2020) and are therefore eligible for coverage under the 401-WQC for Nationwide Permits

Twelve (12) streams in the southern portion of the Study Area are located within an "Possibly Eligible" area according to Ohio EPA's Stream Eligibility for Nationwide Permit Program and therefore may require an individual water quality certification if the streams which are proposed to be impacted exhibit habitat features indicative of high quality waters, or if other Ohio general and special limitations and conditions for the nationwide permits are not under the OEPA 401 Water Quality Certification (WQC) for Nationwide Permits (Appendix A, Figure 4).

3.1.6 FEMA Flood Hazard

According to the FEMA Flood Hazard mapping, the Project Study Area is located within a Federal Emergency Management Agency (FEMA) mapped 100-year floodplain (Panel No.: 39071C0210E). The Project Study Area is also located in Panel number 39071C0250E (effective

on 03/3/2011) and Panel number 39027C0375D (effective on 5/3/2010) which are not located within a FEMA mapped 100-year floodplain (FEMA, 2011) (Appendix A, Figure 5).

3.1.7 Water Quality Standards

Two (2) streams within the Study Area had a Designated Use from Ohio EPA according to OAC Chapter 3745-1 Water Quality Standards (Ohio EPA, 2017). Dodson Creek (S-MRR-18) and an Unnamed Tributary to Dodson Creek at River Mile 4.52 (S-TPT-2) are listed as Warmwater Habitat (WWH), which is based on the results of a biological field assessment performed by the Ohio EPA. WWH habitat streams, according to OAC Chapter 3745-1-07 “Beneficial use designations and biological criteria”, are waters capable of supporting and maintaining a balanced, integrated, and adaptive community of warmwater aquatic organisms.

3.2 Field Delineations

TRC performed wetland and other WOTUS identification and delineation on December 7, 2020 through December 11, 2020, December 14, 2020 through December 17, 2020, and March 15, 2021 through March 19, 2021. Weather conditions were relatively cold, ranging between 40- and 45-degrees Fahrenheit (4.4- and 7.2-degrees Celsius) with rain. Native herbaceous vegetation and non-native cultivated crops were observed within the Study Area. The presence of hydrologic and hydric soil indicators, as well as identifiable plant species within the wetland areas allowed for positive wetland determinations. The USACE maintains the final authority that determines jurisdiction; therefore, statements about jurisdiction within this Report are preliminary and subject to final determination by the USACE and Ohio EPA.

3.2.1 Wetlands

During the course of this investigation, 41 wetlands were identified and delineated within the Study Area. All features have been preliminarily determined to be jurisdictional; however, are not considered final until verified by the USACE. Each wetland is listed in Table 3.2.1, described below, and shown in Appendix A on Figure 6. The completed USACE Wetland Determination Data Forms-Midwest Region are presented in Appendix C.

Table 3.2.1 Wetlands Delineated within the Study Area

Wetland ID	Vegetation Class ¹	Continues Offsite?	Acres (Hectares) ²	ORAM Score ³	ORAM Category ³	WOTUS Jurisdictional Status ⁴
W-JDV-1	PEM	No	0.11 (0.04)	30.5	Modified Category 2	Jurisdictional
W-JDV-2	PEM	No	0.07 (0.03)	17	Category 1	Jurisdictional
W-MMM-1	PEM	No	0.40 (0.16)	15	Category 1	Jurisdictional
W-MMM-2	PEM	No	0.09 (0.04)	23	Category 1	Jurisdictional
W-MMM-3	PEM	No	0.19 (0.08)	11	Category 1	Jurisdictional
W-MMM-4	PEM	No	0.06 (0.02)	8	Category 1	Jurisdictional
W-MMM-5	PEM	No	0.07 (0.03)	15	Category 1	Jurisdictional
W-MMM-6	PFO	No	0.21 (0.08)	38	Modified Category 2	Jurisdictional
W-MMM-7	PFO	No	0.38 (0.15)	33	Modified Category 2	Jurisdictional
W-MMM-8	PFO	No	0.14 (0.06)	27	Category 1	Jurisdictional
W-MMM-9	PEM	No	0.24 (0.10)	11	Category 1	Jurisdictional
W-MRR-1	PEM	No	0.34 (0.14)	28	Category 1	Jurisdictional
W-MRR-2	PEM	No	0.45 (0.18)	21	Category 1	Jurisdictional
W-MRR-3	PEM	No	0.70 (0.28)	22	Category 1	Jurisdictional
W-MRR-4	PEM/PSS	No	3.23 (1.31)	27	Category 1	Jurisdictional
W-MRR-5	PEM	No	0.17 (0.07)	15	Category 1	Jurisdictional
W-MRR-9	PEM	No	0.12 (0.05)	17	Category 1	Jurisdictional
W-MRR-10	PEM	No	0.43 (0.17)	23.5	Category 1	Jurisdictional

Table 3.2.1 Wetlands Delineated within the Study Area

Wetland ID	Vegetation Class ¹	Continues Offsite?	Acres (Hectares) ²	ORAM Score ³	ORAM Category ³	WOTUS Jurisdictional Status ⁴
W-MRR-11	PFO	No	0.15 (0.06)	32	Modified Category 2	Jurisdictional
W-MRR-12	PEM	No	0.19 (0.08)	19	Category 1	Jurisdictional
W-MRR-13	PEM	No	0.02 (0.01)	23	Category 1	Jurisdictional
W-MRR-14	PFO	No	6.40 (2.59)	44	Modified Category 2	Jurisdictional
W-MRR-15	PEM	No	0.14 (0.06)	26	Category 1	Jurisdictional
W-MRR-16	PEM	No	0.12 (0.05)	18.5	Category 1	Jurisdictional
W-SJB-1	PEM/PSS	No	1.57 (0.64)	22	Category 1	Jurisdictional
W-SJB-2	PEM/PSS	No	0.04 (0.02)	21	Category 1	Jurisdictional
W-SJB-3	PEM	No	0.91 (0.37)	23	Category 1	Jurisdictional
W-SJB-4	PEM	No	0.58 (0.23)	25	Category 1	Jurisdictional
W-SJB-5	PEM	No	0.08 (0.03)	24	Category 1	Jurisdictional
W-SJB-6	PEM	No	0.12 (0.05)	18	Category 1	Jurisdictional
W-SJB-7	PEM/PFO	No	1.63 (0.66)	23	Category 1	Jurisdictional
W-SJB-8	PEM/PFO	No	0.48 (0.19)	21	Category 1	Jurisdictional
W-SJB-9	PEM/PFO	No	1.33 (0.54)	23	Category 1	Jurisdictional
W-SJB-10	PEM	No	0.47 (0.19)	21	Category 1	Jurisdictional
W-SJB-11	PEM	No	0.31 (0.13)	20	Category 1	Jurisdictional
W-SJB-12	PEM	No	0.39 (0.16)	19	Category 1	Jurisdictional

Table 3.2.1 Wetlands Delineated within the Study Area						
Wetland ID	Vegetation Class ¹	Continues Offsite?	Acres (Hectares) ²	ORAM Score ³	ORAM Category ³	WOTUS Jurisdictional Status ⁴
W-SJB-13	PEM	No	0.31 (0.13)	19	Category 1	Jurisdictional
W-SJB-15	PEM/PFO	No	1.27 (0.51)	19	Category 1	Jurisdictional
W-TPT-1	PEM	No	0.29 (0.12)	28	Category 1	Jurisdictional
W-TPT-2	PEM/PSS	No	0.31 (0.13)	25	Category 1	Jurisdictional
W-TPT-3	PEM/PSS	No	2.69 (1.09)	29	Category 1	Jurisdictional

1 PEM = palustrine emergent; PFO = palustrine forested; and PSS = palustrine scrub-shrub

2 Represents delineated area within Study Area

3 Preliminarily assigned; not considered final until verified by Ohio EPA

4 Preliminarily assigned; not considered final until verified by the USACE

Much of the Study Area is maintained active, rotational agriculture (primarily corn and soy beans). Wetlands mostly occurred in the saturated unplanted agricultural areas and forested portions of the Study Area. Historic and recent tiling is prevalent within the Study Area for the purpose of creating useable farmland. All wetlands within the Study Area have been considered potentially jurisdictional; however, are preliminary until the USACE makes the final determination.

Wetland W-JDV-1

Wetland W-JDV-1 is a 0.11-acre (0.04 hectare) PEM wetland dominated by fowl mannagrass (*Glyceria striata*) in the herb stratum. The wetland is preliminarily assigned an ORAM score of 30.5, corresponding to a Modified Category 2 wetland. The determination of Category 2 was based on the regular inundation/saturation and recovering from disturbances to the hydrology, substrate, and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by very narrow buffer width, high intensity of surrounding land use, and poor habitat development.

Wetland W-JDV-2

Wetland W-JDV-2 is a 0.07-acre (0.03 hectare) PEM wetland dominated by narrowleaf cattail (*Typha angustifolia*) in the herb stratum. The wetland is preliminarily assigned an ORAM score of 17, corresponding to a Category 1 wetland. The determination of Category 1 was based on

the regular inundation/saturation and recovering from disturbances to the hydrology, substrate, and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by very narrow buffer width, high intensity of surrounding land use, poor habitat development, and extensive invasive plant (*Typha angustifolia*) coverage.

Wetland W-MMM-1

Wetland W-MMM-1 is a 0.40-acre (0.16 hectare) PEM wetland dominated by narrowleaf cattail in the herb stratum. The wetland is preliminarily assigned an ORAM score of 15, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation, recovery from disturbances to the hydrology, and recovering from disturbance to substrate and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by narrow buffer width, high intensity of surrounding land use, and poor to fair habitat development.

Wetland W-MMM-2

Wetland W-MMM-2 is a 0.09-acre (0.04 hectare) PEM wetland dominated by shallow sedge (*Carex lurida*) in the herb stratum. The wetland is preliminarily assigned an ORAM score of 23, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation, recovery from disturbances to the hydrology, and recovering from disturbance to substrate and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by narrow buffer width, high intensity of surrounding land use, and poor to fair habitat development.

Wetland W-MMM-3

Wetland W-MMM-3 is a 0.19-acre (0.08 hectare) PEM wetland dominated by fowl blue grass (*Poa palustris*) in the herb stratum. The wetland is preliminarily assigned an ORAM score of 11, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation, recovery from disturbances to the hydrology, and recovering from disturbance to substrate and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by narrow buffer width, high intensity of surrounding land use, and poor to fair habitat development.

Wetland W-MMM-4

Wetland W-MMM-4 is a 0.06-acre (0.02 hectare) PEM wetland dominated by shallow sedge in the herb stratum. The wetland is preliminarily assigned an ORAM score of 8, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular

inundation/saturation, recovery from disturbances to the hydrology, and recovering from disturbance to substrate and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by narrow buffer width, high intensity of surrounding land use, and poor to fair habitat development.

Wetland W-MMM-5

Wetland W-MMM-5 is a 0.07-acre (0.03 hectare) PEM wetland dominated by narrowleaf cattail in the herb stratum. The wetland is preliminarily assigned an ORAM score of 15, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation, recovery from disturbances to the hydrology, and recovering from disturbance to substrate and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by narrow buffer width, high intensity of surrounding land use, and poor to fair habitat development.

Wetland W-MMM-6

Wetland W-MMM-6 is a 0.21-acre (0.08 hectare) PFO wetland dominated by red oak (*Quercus rubra*) and American beech (*Fagus grandifolia*) in the tree stratum. The wetland is preliminarily assigned an ORAM score of 38, corresponding to a Modified Category 2 wetland. The determination of Modified Category 2 was based on the regular inundation/saturation, recovery from disturbances to the hydrology, and recovering from disturbance to substrate and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by narrow buffer width, high intensity of surrounding land use, and poor to fair habitat development.

Wetland W-MMM-7

Wetland W-MMM-7 is a 0.38-acre (0.15 hectare) PFO wetland containing a sparsely vegetated concave surface. The wetland is preliminarily assigned an ORAM score of 33, corresponding to a Modified Category 2 wetland. The determination of Modified Category 2 was based on the regular inundation/saturation, recovery from disturbances to the hydrology, and recovering from disturbance to substrate and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by narrow buffer width, high intensity of surrounding land use, and poor to fair habitat development.

Wetland W-MMM-8

Wetland W-MMM-8 is a 0.14-acre (0.06 hectare) PFO wetland dominated by red maple (*Acer rubrum*) in the tree stratum and poison ivy (*Toxicodendron radicans*) in the herb stratum. The wetland is preliminarily assigned an ORAM score of 27, corresponding to a Category 1 wetland.

The determination of Category 1 was based on the regular inundation/saturation, recovery from disturbances to the hydrology, and recovering from disturbance to substrate and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by narrow buffer width, high intensity of surrounding land use, and poor to fair habitat development.

Wetland W-MMM-9

Wetland W-MMM-9 is a 0.24-acre (0.10 hectare) PEM wetland dominated by large barnyard grass (*Echinochloa crus-galli*) in the herb stratum. The wetland is preliminarily assigned an ORAM score of 11, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation, recovery from disturbances to the hydrology, and recovering from disturbance to substrate and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by narrow buffer width, high intensity of surrounding land use, and poor to fair habitat development.

Wetland W-MRR-1

Wetland W-MRR-1 is a 0.34-acre (0.14 hectare) PEM wetland dominated by witchgrass (*Panicum capillare*) in the herb stratum. The wetland is preliminarily assigned an ORAM score of 28.0, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation, recovery from disturbances to the hydrology, and recovering from disturbance to substrate and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by narrow buffer width, high intensity of surrounding land use, and poor to fair habitat development.

Wetland W-MRR-2

Wetland W-MRR-2 is a 0.45-acre (0.18 hectare) PEM wetland dominated by silky dogwood (*Cornus amomum*) in the sapling and shrub stratum, and yellow foxtail (*Setaria pumila*) in the herb stratum. The wetland is preliminarily assigned an ORAM score of 21, corresponding to a Category 1 wetland. The determination of Category 1 was based on the seasonal inundation, recovery from disturbances to the substrate, and recovering from disturbances to the hydrology, and habitat (i.e. tiles). The score was limited by very narrow buffer width, high intensity of surrounding land use, and poor habitat development.

Wetland W-MRR-3

Wetland W-MRR-3 is a 0.70-acre (0.28 hectare) PEM wetland dominated by field horsetail (*Equisetum arvense*) in the herb stratum. The wetland is preliminarily assigned an ORAM score of 22, corresponding to a Category 1 wetland. The determination of Category 1 was based on

the regular inundation/saturation, recovery from disturbances to the substrate, and recovering from disturbances to the hydrology and habitat (i.e. ditch, tile, and farming). The score was limited by very narrow buffer width, high intensity of surrounding land use, and poor habitat development.

Wetland W-MRR-4

Wetland W-MRR-4 is a 3.23-acre (1.31 hectare) wetland complex made up of a 0.9-acre (0.36 hectare) PEM wetland and a 2.33-acre (0.94 hectare) PSS wetland. The PEM portion of W-MRR-4 is dominated by narrowleaf cattail in the herb stratum. The PSS portion of W-MRR-4 is dominated by black willow (*Salix nigra*) in the sapling and shrub stratum and spotted dead-nettle (*Lamium maculatum*) in the herb stratum. The wetland is preliminarily assigned an ORAM score of 27, corresponding to a Category 1 wetland. The determination of a Category 1 wetland was based on fair habitat development, narrow buffer width, and recovery from hydrologic, substrate, and habitat disturbance. The score was limited by very narrow buffer width, high intensity of surrounding land use, and poor to fair habitat development, and extensive invasive plant (*Typha angustifolia*) coverage.

Wetland W-MRR-5

Wetland W-MRR-5 is a 0.17-acre (0.07 hectare) PEM dominated by witchgrass in the herb stratum. The wetland is preliminarily assigned an ORAM score of 15, corresponding to a Category 1 wetland. The determination of Category 1 was based on the seasonal inundation and recovering from disturbances to the hydrology (i.e. tiles). The score was limited by very narrow buffer width, high intensity of surrounding land use, recent disturbances to the substrate and habitat, and poor habitat development.

Wetland W-MRR-9

Wetland W-MRR-9 is a 0.12-acre (0.05 hectare) PEM wetland dominated by fowl blue grass (*Poa palustris*) and lamp rush (*Juncus effusus*) in the herb stratum. The wetland is preliminarily assigned an ORAM score of 17, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation, recovery from disturbances to the hydrology, and recovering from disturbance to substrate and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by narrow buffer width, high intensity of surrounding land use, and poor to fair habitat development.

Wetland W-MRR-10

Wetland W-MRR-10 is a 0.43-acre (0.17 hectare) PEM wetland dominated by lamp rush in the herb stratum. The wetland is preliminarily assigned an ORAM score of 23.5, corresponding to a

Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation, recovery from disturbances to the hydrology, and recovering from disturbance to substrate and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by narrow buffer width, high intensity of surrounding land use, and poor to fair habitat development.

Wetland W-MRR-11

Wetland W-MRR-11 is a 0.15-acre (0.06 hectare) PFO wetland dominated by American elm (*Ulmus americana*) in the tree stratum. The wetland is preliminarily assigned an ORAM score of 32, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation, recovery from disturbances to the hydrology, and recovering from disturbance to substrate and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by narrow buffer width, high intensity of surrounding land use, and poor to fair habitat development.

Wetland W-MRR-12

Wetland W-MRR-12 is a 0.19-acre (0.08 hectare) PEM wetland dominated by narrowleaf cattail in the herb stratum. The wetland is preliminarily assigned an ORAM score of 19, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation, recovery from disturbances to the hydrology, and recovering from disturbance to substrate and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by narrow buffer width, high intensity of surrounding land use, and poor to fair habitat development.

Wetland W-MRR-13

Wetland W-MRR-13 is a 0.02-acre (0.01 hectare) PEM wetland dominated by reed canary grass (*Phalaris arundinacea*) in the herb stratum. The wetland is preliminarily assigned an ORAM score of 23, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation, recovery from disturbances to the hydrology, and recovering from disturbance to substrate and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by narrow buffer width, high intensity of surrounding land use, and poor to fair habitat development.

Wetland W-MRR-14

Wetland W-MRR-14 is a 6.40-acre (2.59 hectare) PFO wetland dominated by pin oak (*Quercus palustris*) in the tree stratum and Gray's sedge (*Carex grayi*) in the herb stratum. The wetland is

preliminarily assigned an ORAM score of 44, corresponding to a Modified Category 2 wetland. The determination of Modified Category 2 was based on the regular inundation/saturation, recovery from disturbances to the hydrology, and recovering from disturbance to substrate and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by narrow buffer width, high intensity of surrounding land use, and poor to fair habitat development.

Wetland W-MRR-15

Wetland W-MRR-15 is a 0.14-acre (0.06 hectare) PEM wetland dominated by lamp rush in the herb stratum. The wetland is preliminarily assigned an ORAM score of 26, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation, recovery from disturbances to the hydrology, and recovering from disturbance to substrate and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by narrow buffer width, high intensity of surrounding land use, and poor to fair habitat development.

Wetland W-MRR-16

Wetland W-MRR-16 is a 0.12-acre (0.05 hectare) PEM wetland dominated by lamp rush in the herb stratum. The wetland is preliminarily assigned an ORAM score of 18.5, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation, recovery from disturbances to the hydrology, and recovering from disturbance to substrate and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by narrow buffer width, high intensity of surrounding land use, and poor to fair habitat development.

Wetland W-SJB-1

Wetland W-SJB-1 is a 1.57-acre (0.64 hectare) wetland complex made up of a 0.80-acre (0.32 hectare) PEM wetland and a 0.77-acre (0.31 hectare) PSS wetland. The PEM portion of W-SJB-1 is dominated by shallow sedge in the herb stratum and the PSS portion is dominated by black willow in the sapling and shrub stratum. The wetland is preliminarily assigned an ORAM score of 22, corresponding to a Category 1 wetland. The determination of Category 1 was based on moderately good habitat development and recovering from disturbances to the hydrology, substrate, and habitat (i.e. tile, farming, sedimentation, and nutrient enrichment). The score was limited by very narrow buffer width, high intensity of surrounding land use, and seasonal saturation.

Wetland W-SJB-2

Wetland W-SJB-2 is a 0.04-acre (0.02 hectare) PSS wetland dominated by black willow in the sapling and shrub stratum and narrowleaf cattail in the herb stratum. The wetland is preliminarily assigned an ORAM score of 21, corresponding to a Category 1 wetland. The determination of Category 1 was based on moderately good habitat development and recovering from disturbances to the hydrology, substrate, and habitat (i.e. ditch, mowing, farming, sedimentation, and nutrient enrichment). The score was limited by very narrow buffer width, high intensity of surrounding land use, and seasonal saturation.

Wetland W-SJB-3

Wetland W-SJB-3 is a 0.91-acre (0.37 hectare) PEM wetland dominated by witchgrass in the herb stratum. The wetland is preliminarily assigned an ORAM score of 23, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation and recovering from disturbances to the hydrology, substrate, and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by very narrow buffer width, high intensity of surrounding land use, and poor habitat development.

Wetland W-SJB-4

Wetland W-SJB-4 is a 0.58-acre (0.23 hectare) PEM wetland dominated by shallow sedge in the herb stratum. The wetland is preliminarily assigned an ORAM score of 25, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation, moderately good habitat development, and recovering from disturbances to the hydrology, substrate, and habitat (i.e. tile, mowing, farming, sedimentation, and nutrient enrichment). The score was limited by very narrow buffer width and high intensity of surrounding land use.

Wetland W-SJB-5

Wetland W-SJB-5 is a 0.08-acre (0.03 hectare) PEM wetland dominated by celery-leaved buttercup (*Ranunculus sceleratus*) in the herb stratum. The wetland is preliminarily assigned an ORAM score of 24, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation and recovering from disturbances to the hydrology, substrate, and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by very narrow buffer width, high intensity of surrounding land use, and poor habitat development.

Wetland W-SJB-6

Wetland W-SJB-6 is a 0.12-acre (0.05 hectare) PEM wetland dominated by celery-leaved buttercup in the herb stratum. The wetland is preliminarily assigned an ORAM score of 18, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation and recovering from disturbances to the hydrology, substrate, and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by very narrow buffer width, high intensity of surrounding land use, and poor habitat development.

Wetland W-SJB-7

Wetland W-SJB-7 is a 1.63-acre (0.66 hectare) wetland complex made up of a 0.33-acre (0.13 hectare) PEM wetland and a 1.30-acre (0.53 hectare) PFO wetland. The PEM portion of the wetland is dominated by fox sedge (*Carex vulpinoidea*) in the herb stratum. The PFO portion of the wetland is dominated by American sycamore (*Platanus occidentalis*) in the tree stratum, silky dogwood in the sapling and shrub stratum, and shallow sedge in the herb stratum. The wetland is preliminarily assigned an ORAM score of 23, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation, moderately good habitat development, recovery from disturbances to the habitat, and recovering from disturbances to the hydrology and substrate (i.e. tile, farming, and nutrient enrichment). The score was limited by very narrow buffer width and high intensity of surrounding land use.

Wetland W-SJB-8

Wetland W-SJB-8 is a 0.48-acre (0.19 hectare) wetland complex made up of a 0.34-acre (0.14 hectare) PEM wetland and a 0.14-acre (0.056 hectare) PFO wetland. The PEM portion of the wetland is dominated by shallow sedge in the herb stratum. The PFO portion of the wetland is dominated by black willow in the tree stratum, black willow in the sapling and shrub stratum, and shallow sedge in the herb stratum. The wetland is preliminarily assigned an ORAM score of 21, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation, fair habitat development, and recovering from disturbances to the hydrology, substrate, and habitat (i.e. tile, farming, mowing, sedimentation, and nutrient enrichment). The score was limited by very narrow buffer width and high intensity of surrounding land use.

Wetland W-SJB-9

Wetland W-SJB-9 is a 1.33-acre (0.54 hectare) wetland complex made up of a 0.68-acre (0.28 hectare) PEM wetland and a 0.65-acre (0.26 hectare) PFO wetland. The PEM portion of the

wetland is dominated by shallow sedge in the herb stratum. The PFO portion of the wetland is dominated by black willow in the tree stratum. The wetland is preliminarily assigned an ORAM score of 23, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation and recovering from disturbances to the hydrology, substrate, and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by very narrow buffer width, high intensity of surrounding land use and poor habitat development.

Wetland W-SJB-10

Wetland W-SJB-10 is a 0.47-acre (0.19 hectare) PEM wetland dominated by shallow in the herb stratum. The wetland is preliminarily assigned an ORAM score of 21, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation and recovering from disturbances to the hydrology, substrate, and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by very narrow buffer width, high intensity of surrounding land use and poor habitat development.

Wetland W-SJB-11

Wetland W-SJB-11 is a 0.31-acre (0.13 hectare) PEM wetland dominated by fox sedge in the herb stratum. The wetland is preliminarily assigned an ORAM score of 20, corresponding to a Category 1 wetland. The determination of Category 1 was based on the seasonal saturation and recovering from disturbances to the substrate (i.e. tile, sedimentation, farming, and nutrient enrichment). The score was limited by very narrow buffer width, high intensity of surrounding land use, poor to fair habitat development, and recent hydraulic and habitat disturbances.

Wetland W-SJB-12

Wetland W-SJB-12 is a 0.39-acre (0.16 hectare) PEM wetland dominated by fox sedge in the herb stratum. The wetland is preliminarily assigned an ORAM score of 19, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation and recovering from disturbances to the hydrology, substrate, and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by very narrow buffer width, high intensity of surrounding land use and poor to fair habitat development.

Wetland W-SJB-13

Wetland W-SJB-13 is a 0.31-acre (0.13 hectare) PEM wetland dominated by Gray's sedge in the herb stratum. The wetland is preliminarily assigned an ORAM score of 19, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation and recovering from disturbances to the hydrology, substrate, and habitat

(i.e. tile, farming, and nutrient enrichment). The score was limited by very narrow buffer width, high intensity of surrounding land use and poor to fair habitat development.

Wetland W-SJB-15

Wetland W-SJB-15 is a 1.27-acre (0.51 hectare) wetland complex made up of a 0.97-acre (0.39 hectare) PEM wetland and a 0.30-acre (0.12 hectare) PFO wetland. The PEM portion of the wetland is dominated by lamp rush in the herb stratum. The PFO portion of the wetland is dominated by black willow in the tree stratum. The wetland is preliminarily assigned an ORAM score of 19, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation and recovering from disturbances to the hydrology, substrate, and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by very narrow buffer width, high intensity of surrounding land use and poor habitat development.

Wetland W-TPT-1

Wetland W-TPT-1 is a 0.29-acre (0.12 hectare) PEM wetland dominated by yellow foxtail (*Setaria pumila*) and soft rush in the herb stratum. The wetland is preliminarily assigned an ORAM score of 28, corresponding to a Category 1 wetland. The determination of Category 1 was based on the seasonal inundation, medium buffer width, and recovering from disturbances to the hydrology, substrate, and habitat (i.e. tile, mowing, farming, and nutrient enrichment). The score was limited by high intensity of surrounding land use and poor to fair habitat development.

Wetland W-TPT-2

Wetland W-TPT-2 is a 0.31-acre (0.13 hectare) wetland complex made up of a 0.31-acre (0.13 hectare) PEM wetland and a 0.10-acre (0.04 hectare) PSS wetland. The PEM portion of the wetland is dominated by narrowleaf cattail and soft rush in the herb stratum. The PSS portion of the wetland is dominated by black willow in the sapling and shrub stratum, and by narrowleaf cattail in the herb stratum. The wetland is preliminarily assigned an ORAM score of 25, corresponding to a Category 1 wetland. The determination of Category 1 was based on the seasonal inundation and recovering from disturbances to the hydrology, substrate, and habitat (i.e. tile, mowing, and farming). The score was limited by very narrow buffer width, moderately high intensity of surrounding land use, moderate invasive coverage and fair habitat development.

Wetland W-TPT-3

Wetland W-TPT-3 is a 2.69-acre (1.09 hectare) wetland complex made up of a 1.75-acre (0.71 hectare) PEM wetland and a 0.94-acre (0.38 hectare) PSS wetland. The PEM portion of the

wetland is dominated by black willow in the sapling and shrub stratum, and by soft rush and narrowleaf cattail in the herb stratum. The PSS portion of the wetland is dominated by black willow in the sapling and shrub stratum and by narrowleaf cattail in the herb stratum. The wetland is preliminarily assigned an ORAM score of 29, corresponding to a Category 1 wetland. The determination of Category 1 was based on the regular inundation/saturation and recovering from disturbances to the hydrology, substrate and habitat (i.e. tile, farming, and nutrient enrichment). The score was limited by narrow buffer width, high intensity of surrounding land use, fair habitat development and sparse invasive coverage.

3.2.2 Other Waters of the United States

A. Streams

Fifty-six (56) streams with defined bed and bank and OHWM were identified within the Study Area. Delineated streams within the Study Area are within the Little Miami watershed (8-Digit HUC: 05090202) and the Ohio Brush-Whiteoak watershed (8-Digit HUC: 05090201) (USDA-NRCS,USGS,EPA, 2020). The streams are listed in Table 3.2.2, described below and shown in Appendix A on Figure 6. The streams were channelized agricultural drainages and received direct drainage from field drain tile sources which has influenced channel morphology, increased embeddedness, reduced sinuosity and flow regime, and affected water quality of the streams. Therefore, the streams are recorded as “Modified” channels. Table 3.2.2. provides flow regime, drainage area, preliminary HHEI and QHEI scores, and HHEI class and QHEI ratings for streams identified in the Study Area. All HHEI and QHEI scores are considered preliminary until verified by the Ohio EPA. Completed Ohio EPA stream assessment forms are provided in Appendix C. All features have been preliminarily determined to be jurisdictional; however, are not considered final until verified by the USACE.

Stream ID	Flow Regime	Length¹ ft (m)	Drainage Area sq mi² (sq km)²	HHEI³ (H) /QHEI⁴ (Q) Score	HHEI Class/ QHEI Rating	WOTUS Jurisdictional Status⁵
S-MMM-1	Perennial	338.4 (103.14)	0.05 (0.13)	51 (H)	Small Drainage Warmwater Stream	Jurisdictional
S-MMM-2	Perennial	4,270.0 (1301.5)	0.86 (2.23)	60 (H)	Small Drainage Warmwater Stream	Jurisdictional
S-MMM-3	Ephemeral	332.0 (101.2)	0.05 (0.13)	21 (H)	Modified Ephemeral Stream	Jurisdictional
S-MMM-4	Intermittent	77.4 (23.6)	0.13 (0.34)	36 (H)	Modified Small Drainage Warmwater Stream	Jurisdictional
S-MMM-5	Intermittent	2,745.7 (836.9)	0.12 (0.31)	55 (H)	Small Drainage Warmwater Stream	Jurisdictional
S-MMM-6	Ephemeral	1,107.8 (337.6)	0.05 (0.13)	24 (H)	Modified Ephemeral Stream	Jurisdictional
S-MMM-7	Ephemeral	60.1 (18.3)	0.05 (0.13)	22 (H)	Modified Ephemeral Stream	Jurisdictional
S-MMM-8	Ephemeral	32.5 (9.9)	0.05 (0.13)	16 (H)	Modified Ephemeral Stream	Jurisdictional
S-MMM-9	Ephemeral	113.3 (34.5)	0.05 (0.13)	21 (H)	Modified Ephemeral Stream	Jurisdictional
S-MRR-7	Ephemeral	204.2 (62.2)	0.05 (0.13)	28 (H)	Modified Ephemeral Stream	Jurisdictional
S-MRR-15	Ephemeral	917.7 (279.7)	0.043 (0.11)	33 (H)	Modified Small Drainage Warmwater Stream	Jurisdictional
S-MRR-16	Intermittent	765.9 (233.5)	0.05 (0.13)	36 (H)	Modified Small Drainage Warmwater Stream	Jurisdictional

Stream ID	Flow Regime	Length¹ ft (m)	Drainage Area sq mi² (sq km)²	HHEI³ (H) /QHEI⁴ (Q) Score	HHEI Class/ QHEI Rating	WOTUS Jurisdictional Status ⁵
S-MRR-17	Ephemeral	197.6 (60.2)	0.05 (0.13)	17 (H)	Modified Ephemeral Stream	Jurisdictional
S-MRR-18 (Dodson Creek)	Perennial	440.0 (134.1)	17.1 (44.29)	63 (Q)	Good	Jurisdictional
S-MRR-19	Ephemeral	121.0 (36.9)	0.05 (0.13)	16 (H)	Modified Ephemeral Stream	Jurisdictional
S-MRR-20	Intermittent	213.4 (65.1)	0.05 (0.13)	16 (H)	Modified Ephemeral Stream	Jurisdictional
S-MRR-21	Ephemeral	285.8 (87.1)	0.05 (0.13)	16 (H)	Modified Ephemeral Stream	Jurisdictional
S-MRR-22	Ephemeral	193.5 (59.0)	0.05 (0.13)	17 (H)	Modified Ephemeral Stream	Jurisdictional
S-MRR-23	Intermittent	1,497.8 (456.5)	0.07 (0.18)	26 (H)	Modified Ephemeral Stream	Jurisdictional
S-MRR-24	Ephemeral	776.0 (236.5)	0.05 (0.13)	16 (H)	Modified Ephemeral Stream	Jurisdictional
S-MRR-25	Ephemeral	232.4 (70.8)	0.05 (0.13)	15 (H)	Modified Ephemeral Stream	Jurisdictional
S-MRR-26	Ephemeral	82.9 (25.3)	0.05 (0.13)	15 (H)	Modified Ephemeral Stream	Jurisdictional
S-MRR-27	Perennial	634.2 (193.3)	0.53 (1.37)	48 (H)	Small Drainage Warmwater Stream	Jurisdictional
S-MRR-28	Ephemeral	205.5 (62.7)	0.05 (0.13)	16 (H)	Modified Ephemeral Stream	Jurisdictional
S-SJB-1	Intermittent	2,361.4 (719.8)	0.20 (0.52)	50 (H)	Small Drainage Warmwater Stream	Jurisdictional

Stream ID	Flow Regime	Length¹ ft (m)	Drainage Area sq mi² (sq km)²	HHEI³ (H) /QHEI⁴ (Q) Score	HHEI Class/ QHEI Rating	WOTUS Jurisdictional Status⁵
S-TJR-8	Intermittent	273.6 (83.4)	0.05 (0.13)	25 (H)	Modified Ephemeral Stream	Jurisdictional
S-TPT-1	Intermittent	110.88 (33.8)	0.041 (0.11)	16 (H)	Modified Ephemeral Stream	Jurisdictional
S-TPT-2 (UNT to Dodson Creek)	Perennial	8,830.0 (2,691.4)	5.04 (13.05)	76 (H), 60.50 (Q)	Small Drainage Warmwater Stream/Good	Jurisdictional
S-TPT-3	Intermittent	11.2 (3.4)	0.015 (0.04)	34 (H)	Modified Small Drainage Warmwater Stream	Jurisdictional
S-TPT-4	Ephemeral	63.1 (19.2)	0.02 (0.05)	11 (H)	Modified Ephemeral Stream	Jurisdictional
S-TPT-5	Ephemeral	445.5 (135.8)	0.02 (0.05)	10 (H)	Modified Ephemeral Stream	Jurisdictional
S-TPT-6	Ephemeral	34.0 (10.4)	0.02 (0.05)	10 (H)	Modified Ephemeral Stream	Jurisdictional
S-TPT-7	Intermittent	37.4 (11.4)	0.02 (0.05)	15 (H)	Modified Ephemeral Stream	Jurisdictional
S-TPT-8	Ephemeral	40.0 (12.2)	0.02 (0.05)	10 (H)	Modified Ephemeral Stream	Jurisdictional
S-TPT-9	Intermittent	213.8 (65.2)	0.10 (0.26)	35 (H)	Modified Small Drainage Warmwater Stream	Jurisdictional
S-TPT-10	Intermittent	54.7 (16.7)	0.02 (0.05)	21 (H)	Modified Ephemeral Stream	Jurisdictional
S-TPT-11	Intermittent	44.4 (13.5)	0.02 (0.05)	21 (H)	Modified Ephemeral Stream	Jurisdictional

Stream ID	Flow Regime	Length¹ ft (m)	Drainage Area sq mi² (sq km)²	HHEI³ (H) /QHEI⁴ (Q) Score	HHEI Class/ QHEI Rating	WOTUS Jurisdictional Status⁵
S-TPT-12	Ephemeral	996.3 (303.7)	0.02 (0.05)	10 (H)	Modified Ephemeral Stream	Jurisdictional
S-TPT-13	Ephemeral	269.0 (82.0)	0.02 (0.05)	10 (H)	Modified Ephemeral Stream	Jurisdictional
S-TPT-14	Ephemeral	50.2 (15.3)	0.02 (0.05)	10 (H)	Modified Ephemeral Stream	Jurisdictional
S-TPT-15	Ephemeral	46.9 (14.3)	0.02 (0.05)	7 (H)	Modified Ephemeral Stream	Jurisdictional
S-TPT-16	Intermittent	59.1 (18.0)	0.60 (1.55)	51 (H)	Small Drainage Warmwater Stream	Jurisdictional
S-TPT-17	Intermittent	254.5 (77.6)	0.10 (0.26)	32 (H)	Modified Small Drainage Warmwater Stream	Jurisdictional
S-TPT-18	Intermittent	39.5 (12.0)	0.10 (0.26)	33 (H)	Modified Small Drainage Warmwater Stream	Jurisdictional
S-TPT-19	Perennial	2,525 (769.6)	0.10 (0.26)	70 (H)	Small Drainage Warmwater Stream	Jurisdictional
S-TPT-20	Intermittent	170.5 (52.0)	0.10 (0.26)	17 (H)	Modified Ephemeral Stream	Jurisdictional
S-TPT-21	Perennial	2,211.1 (674.0)	0.10 (0.26)	71 (H)	Small Drainage Warmwater Stream	Jurisdictional
S-TPT-22	Intermittent	2,119.7 (646.1)	0.15 (0.39)	50 (H)	Small Drainage Warmwater Stream	Jurisdictional
S-TPT-23	Ephemeral	40.0 (12.19)	0.015 (0.04)	13 (H)	Modified Ephemeral Stream	Jurisdictional
S-TPT-24	Intermittent	510.3 (155.5)	0.10 (0.26)	13 (H)	Modified Ephemeral Stream	Jurisdictional

Stream ID	Flow Regime	Length¹ ft (m)	Drainage Area sq mi² (sq km)²	HHEI³ (H) /QHEI⁴ (Q) Score	HHEI Class/ QHEI Rating	WOTUS Jurisdictional Status⁵
S-TPT-25	Perennial	1,582.4 (482.3)	0.10 (0.26)	66 (H)	Small Drainage Warmwater Stream	Jurisdictional
S-TPT-26	Ephemeral	115.7 (35.3)	0.10 (0.26)	17 (H)	Modified Ephemeral Stream	Jurisdictional
S-TPT-27	Ephemeral	129.9 (39.6)	0.10 (0.26)	17 (H)	Modified Ephemeral Stream	Jurisdictional
S-TPT-28	Ephemeral	99.1 (30.2)	0.015 (0.04)	17 (H)	Modified Ephemeral Stream	Jurisdictional
S-TPT-29	Intermittent	131.6 (40.1)	0.02 (0.05)	33 (H)	Modified Small Drainage Warmwater Stream	Jurisdictional
S-TPT-30	Intermittent	354.1 (107.9)	0.02 (0.05)	23 (H)	Modified Ephemeral Stream	Jurisdictional

1 Represents delineated length, in feet, and meters within Study Area.

2 Where within coverage, drainage area was calculated using automated basin characteristics from USGS StreamStats v 4.4.0: Ohio (USGS, 2020).

3 HHEI for streams with drainage areas of <1.0 square mile and a maximum pool depth of <40 centimeters.

4 QHEI for larger streams with a drainage area greater than 1.0 square mile.

5 Preliminarily assigned; not considered final until verified by the USACE.

Stream S-MMM-1

Stream S-MMM-1 is a perennial stream within the Study Area with a drainage area of less than 0.05 square mile (0.13 square kilometer). The stream flows north to south through the Study Area for approximately 338 feet (103 meters). Stream S-MMM-1 drains to North Fork White Oak Creek, which drains into the White Oak Creek which then drains into the Ohio River. As such, S-MMM-1, is preliminarily determined to be jurisdictional. It was determined that dominant substrates for this stream are comprised of silt and muck and instream cover was nearly absent. Stream S-MMM-1 has low stream sinuosity, no riparian zone, maximum pool depth 10-22.5 centimeters,

and row crop makes up the floodplain along each bank. This stream has been preliminarily assigned a HHEI score of 51; therefore, categorized as a Small Drainage Warmwater Stream.

Stream S-MMM-2

Stream S-MMM-2 is a perennial stream within the Study Area with a drainage area of 0.86 square mile (2.23 square kilometers). The stream flows east to west through the Study Area for approximately 4,270 feet (1,302 meters). Stream S-MMM-2 drains to North Fork White Oak Creek, which drains into the White Oak Creek which then drains into the Ohio River. As such, S-MMM-2, is preliminarily determined to be jurisdictional. It was determined that dominant substrates for this stream are comprised of gravel and silt and instream cover was nearly absent. Stream S-MMM-2 has low stream sinuosity, no riparian zone, maximum pool depth 10-22.5 centimeters, and row crop makes up the floodplain along each bank. This stream has been preliminarily assigned a HHEI score of 61; therefore, categorized as a Small Drainage Warmwater Stream.

Stream S-MMM-3

Stream S-MMM-3 is an ephemeral stream within the Study Area with a drainage area of less than 0.05 square mile (0.13 square kilometer). The stream flows east to west through the Study Area for approximately 332 feet (101 meters). Stream S-MMM-3 drains to S-MMM-2, which drains to North Fork White Oak Creek, which drains into the White Oak Creek which then drains into the Ohio River. As such, stream S-MMM-3 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-MMM-3. It was determined that dominant substrates for this stream are comprised of sand and silt, there was no stream sinuosity, there was moderate riparian width, maximum pool depth <5 centimeters, and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-MMM-3 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 21; therefore, categorized as a Modified Ephemeral Stream.

Stream S-MMM-4

Stream S-MMM-4 is an intermittent stream within the Study Area with a drainage area of 0.13 square mile (0.34 square kilometer). The stream flows north to south through the Study Area for approximately 77 feet (24 meters). Stream S-MMM-4 drains to S-MMM-2, which drains to North Fork White Oak Creek, which drains into the White Oak Creek which then drains into the Ohio River. As such, stream S-MMM-4 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-MMM-4. It was determined that

dominant substrates for this stream are comprised of gravel and silt, there was low stream sinuosity, there was narrow to moderate riparian width, the channel was observed to have a maximum pool depth between 5-10 centimeters, and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-MMM-4 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 36; therefore, categorized as an Modified Small Drainage Warmwater Stream.

Stream S-MMM-5

Stream S-MMM-5 is an intermittent stream within the Study Area with a drainage area of 0.12 square mile (0.31 square kilometer). The stream flows north to south through the Study Area for approximately 2,745 feet (837 meters). Stream S-MMM-5 drains to S-MMM-2, which drains to North Fork White Oak Creek, which drains into the White Oak Creek which then drains into the Ohio River. As such, stream S-MMM-5 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-MMM-5. It was determined that dominant substrates for this stream are comprised of gravel and silt, there was low stream sinuosity, there was narrow to moderate riparian width, the channel was observed to have a maximum pool depth between 10-22.5 centimeters, and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-MMM-5 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 56; therefore, categorized as an Small Drainage Warmwater Stream.

Stream S-MMM-6

Stream S-MMM-6 is an ephemeral stream within the Study Area with a drainage area of less than 0.05 square mile (0.13 square kilometer). The stream flows west to east through the Study Area for approximately 1,108 feet (338 meters). Stream S-MMM-6 drains to S-MMM-2, which drains to North Fork White Oak Creek, which drains into the White Oak Creek which then drains into the Ohio River. As such, stream S-MMM-6 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-MMM-6. It was determined that dominant substrates for this stream are comprised of gravel and muck, there was no stream sinuosity, there was moderate riparian width, the channel was observed to have a maximum pool depth between less than 5 centimeters, and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-MMM-6 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 22; therefore, categorized as a Modified Ephemeral Stream.

Stream S-MMM-7

Stream S-MMM-7 is an ephemeral stream within the Study Area with a drainage area of less than 0.05 square mile (0.13 square kilometer). The stream flows north to south through the Study Area for approximately 60 feet (18 meters). Stream S-MMM-7 drains to S-MMM-6, then to S-MMM-2, which drains to North Fork White Oak Creek, which drains into the White Oak Creek which then drains into the Ohio River. As such, stream S-MMM-7 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-MMM-7. It was determined that dominant substrates for this stream are comprised of gravel and muck, there was no stream sinuosity, there was moderate riparian width, the channel was observed to have a maximum pool depth between less than 5 centimeters, and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-MMM-7 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 24; therefore, categorized as a Modified Ephemeral Stream.

Stream S-MMM-8

Stream S-MMM-8 is an ephemeral stream within the Study Area with a drainage area of less than 0.05 square mile (0.13 square kilometer). The stream flows east to west through the Study Area for approximately 32 feet (10 meters). Stream S-MMM-8 drains to S-MMM-5, then to S-MMM-2, which drains to North Fork White Oak Creek, which drains into the White Oak Creek which then drains into the Ohio River. As such, stream S-MMM-8 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-MMM-8. It was determined that dominant substrates for this stream are comprised of gravel and clay, there was no stream sinuosity, there was moderate riparian width, the channel was observed to have a maximum pool depth less than 5 centimeters, and bank full width is less than or equal to 1.0 meter (3.3 feet). Stream S-MMM-8 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 16; therefore, categorized as a Modified Ephemeral Stream.

Stream S-MMM-9

Stream S-MMM-9 is an ephemeral stream within the Study Area with a drainage area of less than 0.05 square mile (0.13 square kilometer). The stream flows west to east through the Study Area for approximately 113 feet (35 meters). Stream S-MMM-9 drains to S-MMM-5, which drains to S-MMM-2, which drains to North Fork White Oak Creek, which drains into the White Oak Creek which then drains into the Ohio River. As such, stream S-MMM-9 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-MMM-9.

It was determined that dominant substrates for this stream are comprised of gravel and clay, there was no stream sinuosity, there was moderate riparian width, the channel was observed to have a maximum pool depth less than 5 centimeters, and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-MMM-9 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 21; therefore, categorized as a Modified Ephemeral Stream.

Stream S-MRR-7

Stream S-MRR-7 is an ephemeral stream within the Study Area with a drainage area of less than 0.05 square mile (0.13 square kilometer). The stream flows north to south through the Study Area for approximately 204 feet (62 meters). Stream S-MRR-7 drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-MRR-7 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-MRR-7. It was determined that dominant substrates for this stream are comprised of clay and leaf pack/woody debris, there was no stream sinuosity, there was moderate riparian width, the channel was observed to have a maximum pool depth less than 5 centimeters, and bank full width was between 1.0 meter (3.3 feet) and 1.5 meter (4.9 feet). Stream S-MRR-7 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 28; therefore, categorized as a Modified Ephemeral Stream.

Stream S-MRR-15

Stream S-MRR-15 is an ephemeral stream within the Study Area with a drainage area of less than 0.043 square mile (0.11 square kilometer). The stream flows north to south through the Study Area for approximately 918 feet (280 meters). Stream S-MRR-15 drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-MRR-15 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-MRR-15. It was determined that dominant substrates for this stream are comprised of gravel and clay, there was no stream sinuosity, there was moderate riparian width, the channel was observed to have a maximum pool depth between 5-10 centimeters, and bank full width was between 1.0 meter (3.3 feet) and 1.5 meter (3.7 feet). Stream S-MRR-15 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 33; therefore, categorized as a Modified Small Drainage Warmwater Stream.

Stream S-MRR-16

Stream S-MRR-16 is an intermittent stream within the Study Area with a drainage area of less than 0.05 square mile (0.13 square kilometer). The stream flows north to south through the Study Area for approximately 766 feet (233 meters). Stream S-MRR-16 drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-MRR-16 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-MRR-16. It was determined that dominant substrates for this stream are comprised of gravel and clay, there was no stream sinuosity, there was moderate riparian width, the channel was observed to have a maximum pool depth between 10-22.5 centimeters, and bank full width was between 1.0 meter (3.3 feet) and 1.5 meter (4.9 feet). Stream S-MRR-16 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 36; therefore, categorized as a Modified Small Drainage Warmwater Stream.

Stream S-MRR-17

Stream S-MRR-17 is an ephemeral stream within the Study Area with a drainage area of less than 0.05 square mile (0.13 square kilometer). The stream flows north to south through the Study Area for approximately 198 feet (60 meters). Stream S-MRR-17 drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-MRR-17 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-MRR-17. It was determined that dominant substrates for this stream are comprised of clay and silt, there was no stream sinuosity, there was moderate riparian width, the channel was observed to have a maximum pool depth less than 5 centimeters, and bank full width was less than 1.0 meter (feet). Stream S-MRR-17 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 17; therefore, categorized as a Modified Ephemeral Stream.

Stream S-MRR-18 (Dodson Creek)

Stream S-MRR-18 is a perennial stream within the Study Area with a drainage area of 17.1 square miles (44.29 square kilometers). The stream flows north to south through the Study Area for approximately 440 feet (134 meters). Stream S-MRR-18 (Dodson Creek) drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, S-MRR-18 (Dodson Creek), is preliminarily determined to be jurisdictional. It was determined that dominant substrates for this stream are comprised of cobble and gravel and instream cover was nearly absent. Stream S-MRR-18 has low stream sinuosity, no riparian zone,

maximum depth is less than 0.2 meter, and row crop makes up the floodplain along each bank. Dodson Creek (Stream S-MRR-18) has an Ohio EPA designated use of WWH. This stream has been preliminarily assigned a QHEI score of 64; therefore, categorized as Good.

Stream S-MRR-19

Stream S-MRR-19 is an ephemeral stream within the Study Area with a drainage area of less than 0.05 square mile (0.13 square kilometer). The stream flows north to south through the Study Area for approximately 121 feet (37 meters). Stream S-MRR-19 drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-MRR-19 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-MRR-19. It was determined that dominant substrates for this stream are comprised of clay and silt, there was no stream sinuosity, there was moderate riparian width, the channel was observed to have a maximum pool depth less than 5 centimeters, and bank full width was less than 1.0 meter (3.3 feet). Stream S-MRR-19 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 16; therefore, categorized as a Modified Ephemeral Stream.

Stream S-MRR-20

Stream S-MRR-20 is an intermittent stream within the Study Area with a drainage area of less than 0.05 square mile (0.13 square kilometer). The stream flows north to south through the Study Area for approximately 213 feet (65 meters). Stream S-MRR-20 drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-MRR-20 is preliminarily determined to be jurisdictional. It was determined that dominant substrates for this stream are comprised of clay and silt, there was no stream sinuosity, there was moderate riparian width, the channel was observed to have a maximum pool depth less than 5 centimeters, and bank full width was less than 1.0 meter (3.3 feet). Stream S-MRR-20 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 16; therefore, categorized as a Modified Ephemeral Stream.

Stream S-MRR-21

Stream S-MRR-21 is an ephemeral stream within the Study Area with a drainage area of less than 0.05 square mile (0.13 square kilometer). The stream flows north to south through the Study Area for approximately 286 feet (87 meters). Stream S-MRR-21 drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to

the Ohio River. As such, stream S-MRR-21 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-MRR-21. It was determined that dominant substrates for this stream are comprised of clay and silt, there was no stream sinuosity, there was moderate riparian width, the channel was observed to have a maximum pool depth less than 5 centimeters, and bank full width was less than 1.0 meter (3.3 feet). Stream S-MRR-21 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 16; therefore, categorized as a Modified Ephemeral Stream.

Stream S-MRR-22

Stream S-MRR-22 is an ephemeral stream within the Study Area with a drainage area of less than 0.05 square mile (0.13 square kilometer). The stream flows north to south through the Study Area for approximately 194 feet (59 meters). Stream S-MRR-22 drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-MRR-22 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-MRR-22. It was determined that dominant substrates for this stream are comprised of clay and silt, there was no stream sinuosity, there was moderate riparian width, the channel was observed to have a maximum pool depth less than 5 centimeters, and bank full width was less than 1.0 meter (3.3 feet). Stream S-MRR-22 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 17; therefore, categorized as a Modified Ephemeral Stream.

Stream S-MRR-23

Stream S-MRR-23 is an intermittent stream within the Study Area with a drainage area of less than 0.07 square mile (0.18 square kilometer). The stream flows south to north through the Study Area for approximately 1,498 feet (457 meters). Stream S-MRR-23 drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-MRR-23 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-MRR-23. It was determined that dominant substrates for this stream are comprised of clay and silt, there was no stream sinuosity, there was moderate riparian width, the channel was observed to have a maximum pool depth between 5-10 centimeters, and bank full width was less than 1.0 meter (3.3 feet). Stream S-MRR-23 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 26; therefore, categorized as a Modified Ephemeral Stream.

Stream S-MRR-24

Stream S-MRR-24 is an ephemeral stream within the Study Area with a drainage area of less than 0.05 square mile (0.13 square kilometer). The stream flows south to north through the Study Area for approximately 776 feet (237 meters). Stream S-MRR-24 drains to S-MRR-23 which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-MRR-24 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-MRR-24. It was determined that dominant substrates for this stream are comprised of clay and silt, there was no stream sinuosity, there was moderate riparian width, the channel was observed to have a maximum pool depth less than 5 centimeters, and bank full width was less than 1.0 meter (3.3 feet). Stream S-MRR-24 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 16; therefore, categorized as a Modified Ephemeral Stream.

Stream S-MRR-25

Stream S-MRR-25 is an ephemeral stream within the Study Area with a drainage area of less than 0.05 square mile (0.13 square kilometer). The stream flows north to south through the Study Area for approximately 232 feet (71 meters). Stream S-MRR-25 drains to North Fork White Oak Creek, which drains into the White Oak Creek which then drains into the Ohio River. As such, stream S-MRR-25 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-MRR-25. It was determined that dominant substrates for this stream are comprised of clay and silt, there was no stream sinuosity, there was moderate riparian width, the channel was observed to have a maximum pool depth less than 5 centimeters, and bank full width was less than 1.0 meter (3.3 feet). Stream S-MRR-25 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 15; therefore, categorized as a Modified Ephemeral Stream.

Stream S-MRR-26

Stream S-MRR-26 is an ephemeral stream within the Study Area with a drainage area of less than 0.05 square mile (0.13 square kilometer). The stream flows north to south through the Study Area for approximately 83 feet (25 meters). Stream S-MRR-26 drains to North Fork White Oak Creek, which drains into the White Oak Creek which then drains into the Ohio River. As such, stream S-MRR-26 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-MRR-26. It was determined that dominant substrates for this stream are comprised of clay and silt, there was no stream sinuosity, there was moderate

riparian width, the channel was observed to have a maximum pool depth less than 5 centimeters, and bank full width was less than 1.0 meter (3.3 feet). Stream S-MRR-26 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 16; therefore, categorized as a Modified Ephemeral Stream.

Stream S-MRR-27

Stream S-MRR-27 is a perennial stream within the Study Area with a drainage area of 0.53 square miles (1.37 square kilometers). The stream flows north to south through the Study Area for approximately 634 feet (193 meters). Stream S-MRR-27 drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, S-MRR-27, is preliminarily determined to be jurisdictional. It was determined that dominant substrates for this stream are comprised of clay and silt, there was no stream sinuosity, there was moderate riparian width, the channel was observed to have a maximum pool depth between 10-22.5 centimeters, and bank full width was between 1.0 meter (3.3 feet) and 1.5 meter (4.9 feet). Stream S-MRR-27 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 58; therefore, categorized as a Small Drainage Warmwater Stream.

Stream S-MRR-28

Stream S-MRR-28 is an ephemeral stream within the Study Area with a drainage area of less than 0.05 square mile (0.13 square kilometer). The stream flows west to east through the Study Area for approximately 206 feet (63 meters). Stream S-MRR-28 drains to S-MRR-277, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-MRR-28 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-MRR-28. It was determined that dominant substrates for this stream are comprised of clay and silt, there was no stream sinuosity, there was moderate riparian width, the channel was observed to have a maximum pool depth less than 5 centimeters, and bank full width was less than 1.0 meter (3.3 feet). Stream S-MRR-28 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 16; therefore, categorized as a Modified Ephemeral Stream.

Stream S-SJB-1

Stream S-SJB-1 is an intermittent stream within the Study Area with a drainage area of 0.20 square mile (0.52 square kilometer). The stream flows east to west through the Study Area for

approximately 2,361 feet (720 meters). Stream S-SJB-1 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-SJB-1 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-SJB-1. It was determined that dominant substrates for this stream are comprised of silt and cobble, there was low stream sinuosity, there was no riparian width, the channel was moist with isolated pools and no flow at time of survey, and bank full width was between 1.0 and 1.5 meters (3.3 to 4.7 feet). Stream S-SJB-1 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 50; therefore, categorized as a Small Drainage Warmwater Stream.

Stream S-TJR-8

Stream S-TJR-8 is an intermittent stream within the Study Area with a drainage area of less than 0.05 square mile (0.13 square kilometer). The stream flows east to west through the Study Area for approximately 274 feet (83 meters). Stream S-TJR-8 drains to S-MRR-27, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TJR-8 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TJR-8. It was determined that dominant substrates for this stream are comprised of clay and silt, there was low stream sinuosity, there was narrow to moderate riparian width, the channel was moist with isolated pools (no flow), and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TJR-8 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 25; therefore, categorized as a Modified Ephemeral Stream.

Stream S-TPT-1

Stream S-TPT-1 is an intermittent stream within the Study Area with a drainage area of less than 0.041 square mile (0.11 square kilometer). The stream flows east to west through the Study Area for approximately 111 feet (34 meters). Stream S-TPT-1 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-1 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-1. It was determined that dominant substrates for this stream are comprised of clay and silt, there was low stream sinuosity, there was narrow to moderate riparian width, the channel was moist with isolated pools (no flow), and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream

S-TPT-1 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 16; therefore, categorized as a Modified Ephemeral Stream.

Stream S-TPT-2 (UNT to Dodson Creek)

Stream S-TPT-2 is a perennial stream within the Study Area with a drainage area of 5.04 square miles (13.05 square kilometers). The stream flows north to south through the Study Area for approximately 8,830 feet (2,691 meters). Stream S-TPT-2 drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, S-TPT-2, is preliminarily determined to be jurisdictional. It was determined that dominant substrates for this stream are comprised of gravel and sand and instream cover was nearly absent. Stream S-TPT-2 has low stream sinuosity, moderate riparian zone, maximum depth is less than 0.2 meter, and a small wooded area makes up the floodplain along each bank. Stream S-TPT-2 has an Ohio EPA designated use of WWH. This stream has been preliminarily assigned a QHEI score of 60.5; therefore, categorized as Good.

Stream S-TPT-3

Stream S-TPT-3 is an intermittent stream within the Study Area with a drainage area of 0.015 square mile (0.04 square kilometer). The stream flows west to east through the Study Area for approximately 11 feet (3 meters). Stream S-TPT-3 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, Stream S-TPT-3 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-3. It was determined that dominant substrates for this stream are comprised of cobble and sand, there was low stream sinuosity, there was moderate to wide riparian width, the channel was moist with isolated pools (no flow), and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-3 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 34; therefore, categorized as a Modified Small Drainage Warmwater Stream.

Stream S-TPT-4

Stream S-TPT-4 is an ephemeral stream within the Study Area with a drainage area of less than 0.02 square mile (0.04 square kilometer). The stream flows east to west through the Study Area for approximately 63 feet (19 meters). Stream S-TPT-4 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-4 is preliminarily determined to be

jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-4. It was determined that dominant substrates for this stream are comprised of silt and clay, there was no stream sinuosity, there was moderate riparian width, there was no water in the channel, and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-4 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 11; therefore, categorized as a Modified Ephemeral Stream.

Stream S-TPT-5

Stream S-TPT-5 is an ephemeral stream within the Study Area with a drainage area of less than 0.02 square mile (0.04 square kilometer). The stream flows west to east through the Study Area for approximately 446 feet (136 meters). Stream S-TPT-5 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-5 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-5. It was determined that dominant substrates for this stream are comprised of clay and silt, there was no stream sinuosity, there was narrow riparian width, there was no water in the channel, and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-5 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 10; therefore, categorized as a Modified Ephemeral Stream.

Stream S-TPT-6

Stream S-TPT-6 is an ephemeral stream within the Study Area with a drainage area of less than 0.02 square mile (0.04 square kilometer). The stream flows west to east through the Study Area for approximately 34 feet (10 meters). Stream S-TPT-6 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-6 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-6. It was determined that dominant substrates for this stream are comprised of clay and leafy pack/woody debris, there was low stream sinuosity, there was narrow to moderate riparian width, there was no water in the channel, and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-6 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 10; therefore, categorized as a Modified Ephemeral Stream.

Stream S-TPT-7

Stream S-TPT-7 is an intermittent stream within the Study Area with a drainage area of less than 0.02 square mile (0.04 square kilometer). The stream flows west to east through the Study Area for approximately 37 feet (11 meters). Stream S-TPT-7 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-7 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-7. It was determined that dominant substrates for this stream are comprised of clay and leafy pack/woody debris, there was low stream sinuosity, there was narrow to wide riparian width, the channel was moist with isolated pools (no flow), and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-7 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 15; therefore, categorized as a Modified Ephemeral Stream.

Stream S-TPT-8

Stream S-TPT-8 is an ephemeral stream within the Study Area with a drainage area of less than 0.02 square mile (0.04 square kilometer). The stream flows north to south through the Study Area for approximately 40 feet (12 meters). Stream S-TPT-8 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-8 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-8. It was determined that dominant substrates for this stream are comprised of silt and clay, there was no stream sinuosity, there was narrow riparian width, there was no water present in the channel, and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-8 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 10; therefore, categorized as a Modified Ephemeral Stream.

Stream S-TPT-9

Stream S-TPT-9 is an intermittent stream within the Study Area with a drainage area of 0.10 square mile (0.26 square kilometer). The stream flows north to south through the Study Area for approximately 214 feet (65 meters). Stream S-TPT-9 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-9 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-9. It was determined that dominant substrates for this stream are comprised of silt and clay, there was

low stream sinuosity, there was narrow to moderate riparian width, the channel was moist with isolated pools and no flow at time of survey, and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-9 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 35; therefore, categorized as a Modified Small Drainage Warmwater Stream.

Stream S-TPT-10

Stream S-TPT-10 is an intermittent stream within the Study Area with a drainage area of less than 0.02 square mile (0.04 square kilometer). The stream flows west to east through the Study Area for approximately 55 feet (17 meters). Stream S-TPT-10 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-10 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-10. It was determined that dominant substrates for this stream are comprised of clay and gravel, there was low stream sinuosity, there was narrow to wide riparian width, the channel was moist with isolated pools (no flow), and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-10 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 21; therefore, categorized as a Modified Ephemeral Stream.

Stream S-TPT-11

Stream S-TPT-11 is an intermittent stream within the Study Area with a drainage area of less than 0.02 square mile (0.04 square kilometer). The stream flows west to east through the Study Area for approximately 44 feet (14 meters). Stream S-TPT-11 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-11 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-11. It was determined that dominant substrates for this stream are comprised of clay and muck, there was no stream sinuosity, there was narrow riparian width, the channel was moist with isolated pool (no flow), and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-11 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 21; therefore, categorized as a Modified Ephemeral Stream.

Stream S-TPT-12

Stream S-TPT-12 is an ephemeral stream within the Study Area with a drainage area of less than 0.02 square mile (0.04 square kilometer). The stream flows west to east through the Study Area

for approximately 996 feet (304 meters). Stream S-TPT-12 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-12 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-12. It was determined that dominant substrates for this stream are comprised of leafy pack/woody debris and clay, there was no stream sinuosity, there was narrow riparian width, there was no water in the channel, and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-12 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 10; therefore, categorized as a Modified Ephemeral Stream.

Stream S-TPT-13

Stream S-TPT-13 is an ephemeral stream within the Study Area with a drainage area of less than 0.02 square mile (0.04 square kilometer). The stream flows west to east through the Study Area for approximately 269 feet (82 meters). Stream S-TPT-13 drains to S-TPT-14, which drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-13 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-13. It was determined that dominant substrates for this stream are comprised of clay and leafy pack/woody debris, there was low stream sinuosity, there was narrow riparian width, there was no water in the channel, and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-13 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 10; therefore, categorized as a Modified Ephemeral Stream.

Stream S-TPT-14

Stream S-TPT-14 is an ephemeral stream within the Study Area with a drainage area of less than 0.02 square mile (0.04 square kilometer). The stream flows west to east through the Study Area for approximately 50 feet (15 meters). Stream S-TPT-14 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-14 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-14. It was determined that dominant substrates for this stream are comprised of clay and silt, there was low stream sinuosity, there was narrow to moderate riparian width, there was no water in the channel, and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-14 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 10; therefore, categorized as a Modified Ephemeral Stream.

Stream S-TPT-15

Stream S-TPT-15 is an ephemeral stream within the Study Area with a drainage area of less than 0.02 square mile (0.04 square kilometer). The stream flows north to south through the Study Area for approximately 47 feet (14 meters). Stream S-TPT-15 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-15 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-15.

It was determined that dominant substrates for this stream are comprised of clay and muck, there was no stream sinuosity, there was narrow to wide riparian width, there was no water present in the channel, and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-15 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 7; therefore, categorized as a Modified Ephemeral Stream.

Stream S-TPT-16

Stream S-TPT-16 is an intermittent stream within the Study Area with a drainage area of 0.60 square mile (1.55 square kilometer). The stream flows west to east through the Study Area for approximately 59 feet (18 meters). Stream S-TPT-16 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-16 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-16. It was determined that dominant substrates for this stream are comprised of clay and gravel, there was no stream sinuosity, there was moderate riparian width, the stream was flowing, and bank full width was between 1.0 meter and 1.4 meters (3.3 feet to 4.7 feet). Stream S-TPT-16 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 51; therefore, categorized as a Small Drainage Warmwater Stream.

Stream S-TPT-17

Stream S-TPT-17 is an intermittent stream within the Study Area with a drainage area of less than 0.10 square mile (0.26 square kilometer). The stream flows west to east through the Study Area for approximately 255 feet (78 meters). Stream S-TPT-17 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-17 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-17. It was determined that dominant substrates for this stream are comprised of clay and gravel, there was moderate stream sinuosity, there was narrow riparian width, the channel was moist with isolated pool (no flow), and bank full width was between 1.0 meter and 1.4 meters (3.3 feet to 4.7 feet). Stream S-TPT-17 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 32; therefore, categorized as a Modified Small Drainage Warmwater Stream.

Stream S-TPT-18

Stream S-TPT-18 is an intermittent stream within the Study Area with a drainage area of less than 0.10 square mile (0.26 square kilometer). The stream north to south through the Study Area for approximately 39 feet (12 meters). Stream S-TPT-18 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-18 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-18. It was determined that dominant substrates for this stream are comprised of gravel and clay, there was no stream sinuosity, there was moderate riparian width, the channel was moist with isolated pools (no flow), and bank full width was between 1.0 meter and 1.4 meters (3.3 feet to 4.7 feet). Stream S-TPT-18 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 33; therefore, categorized as a Modified Small Drainage Warmwater Stream.

Stream S-TPT-19

Stream S-TPT-19 is a perennial stream within the Study Area with a drainage area of less than 0.10 square mile (0.26 square kilometer). The stream flows north to south through the Study Area for approximately 2,525 feet (770 meter). Stream S-TPT-19 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-19 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-19. It was determined that dominant substrates for this stream are comprised of cobble and gravel, there was moderate stream sinuosity, there was narrow riparian width, the stream was flowing, and bank full width was between 1.0 meter and 1.4 meters (3.3 feet to 4.7 feet). Stream S-TPT-19 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 70; therefore, categorized as a Small Drainage Warmwater Stream.

Stream S-TPT-20

Stream S-TPT-20 is an intermittent stream within the Study Area with a drainage area of less than 0.10 square mile (0.26 square kilometer). The stream flows west to east through the Study Area for approximately 170 feet (52 meters). Stream S-MRR-4 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-21 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-21.

It was determined that dominant substrates for this stream are comprised of sand and silt, there was low stream sinuosity, there was narrow to wide riparian width, the channel was moist with isolated pools (no flow), and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-21 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 17; therefore, categorized as a Modified Ephemeral Stream.

Stream S-TPT-21

Stream S-TPT-21 is a perennial stream within the Study Area with a drainage area of less than 0.10 square mile (0.26 square kilometer). The stream flows east to west through the Study Area for approximately 2,211 feet (674 meters). Stream S-TPT-21 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-21 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-21. It was determined that dominant substrates for this stream are comprised of cobble and gravel, there was high stream sinuosity, there was narrow riparian width, the stream was flowing, and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-21 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 71; therefore, categorized as a Small Drainage Warmwater Stream.

Stream S-TPT-22

Stream S-TPT-22 is an intermittent stream within the Study Area with a drainage area of 0.15 square mile (0.39 square kilometer). The stream flows east to west through the Study Area for approximately 2,120 feet (646 meters). Stream S-TPT-22 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-22 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-22. It was determined that dominant substrates for this stream are comprised of gravel and sand, there was low stream sinuosity, there was narrow riparian width, the stream was flowing, and bank full width was between 1.0 meter and 1.4 meters (3.3 feet to 4.7 feet). Stream S-TPT-22 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 50; therefore, categorized as a Small Drainage Warmwater Stream.

Stream S-TPT-23

Stream S-TPT-23 is an ephemeral stream within the Study Area with a drainage area of less than 0.01 square mile (0.04 square kilometer). The stream flows east to west through the Study Area

for approximately 40 feet (12 meters). Stream S-TPT-23 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-23 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-23. It was determined that dominant substrates for this stream are comprised of leafy pack/woody debris and silt, there was no stream sinuosity, there was wide riparian width, there was no water present in the channel, and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-23 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 13; therefore, categorized as a Modified Ephemeral Stream.

Stream S-TPT-24

Stream S-TPT-24 is an intermittent stream within the Study Area with a drainage area of less than 0.10 square mile (0.26 square kilometer). The stream flows east to west through the Study Area for approximately 510 feet (156 meters). Stream S-TPT-24 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-24 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-24. It was determined that dominant substrates for this stream are comprised of leafy pack/woody debris and silt, there was no stream sinuosity, there was wide riparian width, the channel was moist with isolated pools (no flow), and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-24 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 13; therefore, categorized as a Modified Ephemeral Stream.

Stream S-TPT-25

Stream S-TPT-25 is a perennial stream within the Study Area with a drainage area of less than 0.10 square mile (0.26 square kilometer). The stream flows west to east through the Study Area for approximately 1,582 feet (482 meters). Stream S-TPT-25 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-25 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-25. It was determined that dominant substrates for this stream are comprised of cobble and gravel, there was high stream sinuosity, there was moderate riparian width, the stream was flowing, and bank full width was between 1.0 meter and 1.4 meters (3.3 feet to 4.7 feet). Stream S-TPT-25

does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 66; therefore, categorized as a Small Drainage Warmwater Stream.

Stream S-TPT-26

Stream S-TPT-26 is an ephemeral stream within the Study Area with a drainage area of less than 0.10 square mile (0.26 square kilometer). The stream flows south to north through the Study Area for approximately 116 feet (35 meters). Stream S-TPT-26 drains to Stream S-TPT-25, which drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-26 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-26. It was determined that dominant substrates for this stream are comprised of silt and sand, there was no stream sinuosity, there was wide riparian width, there was no water present in the channel, and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-26 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 17; therefore, categorized as a Modified Ephemeral Stream.

Stream S-TPT-27

Stream S-TPT-27 is an ephemeral stream within the Study Area with a drainage area of less than 0.10 square mile (0.26 square kilometer). The stream flows south to north through the Study Area for approximately 130 feet (40 meters). Stream S-TPT-27 drains to Stream S-TPT-25, which drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-27 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-27. It was determined that dominant substrates for this stream are comprised of silt and sand, there was no stream sinuosity, there was wide riparian width, there was no water present in the channel, and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-27 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 17; therefore, categorized as a Modified Ephemeral Stream.

Stream S-TPT-28

Stream S-TPT-28 is an ephemeral stream within the Study Area with a drainage area of 0.015 square mile (0.04 square kilometer). The stream flows south to north through the Study Area for approximately 99 feet (30 meters). Stream S-TPT-28 drains to Stream S-TPT-25, which drains

to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-28 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-28. It was determined that dominant substrates for this stream are comprised of silt and sand, there was no stream sinuosity, there was wide riparian width, there was no water present in the channel, and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-28 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 17; therefore, categorized as a Modified Ephemeral Stream.

Stream S-TPT-29

Stream S-TPT-29 is an intermittent stream within the Study Area with a drainage area of less than 0.02 square mile (0.05 square kilometer). The stream flows north to south through the Study Area for approximately 132 feet (40 meters). Stream S-TPT-29 drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-29 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-29. It was determined that dominant substrates for this stream are comprised of sand and leafy pack/woody debris, there was no stream sinuosity, there was wide riparian width, the stream was flowing, and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-29 does not have an Ohio EPA designated use. This stream has been preliminarily assigned a HHEI score of 33; therefore, categorized as a Modified Small Warmwater Drainage Stream.

Stream S-TPT-30

Stream S-TPT-30 is an intermittent stream within the Study Area with a drainage area of less than 0.02 square mile (0.05 square kilometer). The stream flows west to east through the Study Area for approximately 354 feet (108 meters). Stream S-TPT-30 drains to W-TPT-2 via sheet flow, which drains to S-TPT-8, which drains to S-TPT-2, which drains to Dodson Creek, which drains to the East Fork Little Miami River, which drains into the Little Miami River, which drains to the Ohio River. As such, stream S-TPT-30 is preliminarily determined to be jurisdictional. The HHEI habitat assessment method was used to evaluate stream S-TPT-30. It was determined that dominant substrates for this stream are comprised of sand and silt, there was low stream sinuosity, there was no riparian width, the channel was moist with isolated pools (no flow), and bank full width was less than or equal to 1.0 meter (3.3 feet). Stream S-TPT-30 does not have an Ohio EPA

designated use. This stream has been preliminarily assigned a HHEI score of 23; therefore, categorized as a Modified Ephemeral Stream.

B. Open Water (Pond)

The Study Area was investigated for areas that are considered “open water” by the USACE. Field investigations identified six (6) potentially jurisdictional open water resources (ponds) within the Study Area.

Table 3.2.3 Waterbodies Delineated within the Study Area	
Waterbody ID	Acres (Hectares)
P-MMM-1	0.22 (0.09)
P-MRR-1	0.09 (0.04)
P-MRR-2	0.36 (0.15)
P-SJB-1	1.03 (0.42)
P-SJB-2	0.48 (0.19)
P-SJB-3	0.12 (0.05)

Pond P-MMM-1

Waterbody P-MMM-1 is a potentially jurisdictional open water resource that drains into Stream S-MMM-4 within the Study Area, along Abernathy Road. Pond P-MMM-1 is shown in Appendix A, on Figure 6.

Pond P-MRR-1

Waterbody P-MRR-1 is a potentially jurisdictional open water resource that drains into Stream S-MMM-5 within the Study Area, west of Abernathy Road. Pond P-MRR-1 is shown in Appendix A, on Figure 6.

Pond P-MRR-2

Waterbody P-MRR-2 is a potentially jurisdictional open water resource that drains Wetland W-MRR-15 within the Study Area, just south of Tedrick Road. Pond P-MRR-2 is shown in Appendix A, on Figure 6.

Pond P-SJB-1

Waterbody P-SJB-1 is a potentially jurisdictional open water resource that drains Wetlands W-SJB-5 and W-SJB-6 within the Study Area, just north of US-50. Pond P-SJB-1 is shown in Appendix A, on Figure 6.

Pond P-SJB-2

Waterbody P-SJB-2 is a potentially jurisdictional open water resource that drains into W-SJB-10, which drains into S-TPT-2 within the Study Area, west of Spickard Road. The pond appears to be a man-made farm pond. P-SJB-3 is shown in Appendix A, on Figure 6.

Pond P-SJB-3

Waterbody P-SJB-3 is a potentially jurisdictional open water resource that drains into S-TPT-22 within the Study Area, east of the intersection of Township Road 35 and County Road 110. The pond appears to be man-made, existing in an excavation pit. P-SJB-3 is shown in Appendix A, on Figure 6.

4.0 REFERENCES

- Braun, E. L. (1967). *The Vascular Flora of Ohio, Volume 1-The Monocotyledoneae: Cattails to Orchids*. Columbus, OH: The Ohio State University Press.
- Braun, E. L. (1969). *The Woody Plants of Ohio: Trees, Shrubs, and Woody Climbers Native, Naturalized, and Escaped*. Columbus, OH: Ohio State University Press.
- Federal Geographic Data Committee. (2013). *Classification of wetlands and deepwater habitats of the United States*. Washington, DC.: Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service.
- Federal Register. (1994). *Changes in Hydric Soils of the United States*. Washington, D.C.
- FEMA. (2011, January 19). *FEMA Flood Map Service Center*. Retrieved March 2020, from U.S. Department of Homeland Security: Federal Emergency Management Agency: <https://msc.fema.gov/portal>
- Gleason, H. A., & Cronquist, A. (1991). *Manual of the Vascular Plants of Northeastern United States and Adjacent Canada* (2nd ed.). Bronx, NY: The New York Botanical Press.
- Holmgren, N. H. (1998). *Illustrated Companion to Gleason and Cronquist's Manual: Illustrations of the Vascular Plants of Northeastern United States and Adjacent Canada*. Bronx, NY: The New York Botanical Garden.
- Lichvar, R. (2018). *The National Wetland Plant List: 2018 Ratings*.
- Mack, J. J. (2001). *Ohio Rapid Assessment Method for Wetlands, Manual for Using Version 5.0*. Ohio EPA Technical Bulletin Wetland/2001-1-1, Ohio Environmental Protection Agency, Division of Surface Water, 401 Wetland Ecology Unit, Columbus, OH.
- Mohlenbrock, R. H. (2001). *Illustrated Flora of Illinois, Grasses: Panicum to Danthonia* (2nd ed.). Carbondale, IL: Southern Illinois University Press.
- Mohlenbrock, R. H. (2001a). *Illustrated Flora of Illinois, Sedges: Cyperus to Scleria* (2nd ed.). Carbondale, IL: Southern Illinois University Press.
- Mohlenbrock, R. H. (2002). *Illustrated Flora of Illinois, Grasses: Bromus to Paspalum* (2nd ed.). Carbondale, IL: Southern Illinois University Press.

- Mohlenbrock, R. H. (2006). *Illustrated Flora of Illinois, Flowering Plants: Flowering Rush to Rushes* (2nd ed.). Carbondale, IL: Southern Illinois University Press.
- Mohlenbrock, R. H. (2011). *Illustrated Flora of Illinois, Sedges: Carex* (2nd ed.). Carbondale, IL: Southern Illinois University Press.
- Munsell Color. (2009). *Munsell Soil Color Book* (2013 ed.). Grand Rapids, MI.
- Newcomb, L. (1977). *Newcomb's Wildflower Guide*. Little, Brown and Company.
- Ohio EPA. (2006). *Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI)*. Columbus, OH: Division of Surface Water, Ohio Environmental Protection Agency.
- Ohio EPA. (2017, February 6). *OAC Chapter 3745-1 Water Quality Standards*. Retrieved November 2020, from https://epa.ohio.gov/dsw/rules/3745_1#use%20designations
- Ohio EPA. (2018a). *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams (HHEI)*. Columbus, OH: Division of Surface Water, Ohio Environmental Protection Agency.
- Ohio EPA. (2020, November). *401 Water Quality Certification for Nationwide Permits Stream Eligibility Web Map*. Retrieved November 2020, from <https://www.arcgis.com/apps/webappviewer/index.html?id=e6b46d29a38f46229c1eb47deefe49b6>
- Rhoads, A. F., & Block, T. A. (2007). *The Plants of Pennsylvania* (2nd ed.). Philadelphia, PA: University of Pennsylvania Press.
- Rothrock, P. E. (2009). *Sedges of Indiana and the Adjacent States: The Non-Carex Species*. Indianapolis, IN: Indiana Academy of Science.
- Stein, J., Binion, D., & Acciavatti, R. (2003). *Field Guide to Native Oak Species of Eastern North America*. Morgantown, WV: U.S. Department of Agriculture, Forest Service.
- US EPA. (2013). *Level III Ecoregions of the Conterminous United States*. U.S. Environmental Protection Agency, U.S. EPA Office of Research and Development (ORD) - National Health and Environmental Effects Research Laboratory (NHEEL) , Corvallis, OR.

- USACE. (1987). *Corps of Engineers Wetlands Delineation Manual*. Vicksburg, MS: Environmental Laboratory U.S. Army Corps of Engineers.
- USACE. (2012). *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest (Version 2.0)*. Vicksburg: U.S. Army Engineer Research and Development Center Environmental Laboratory: U.S. Army Corps of Engineers.
- USACE. (2019). *Definition of Terms*. Retrieved December 16, 2019, from <http://www.nap.usace.army.mil/Missions/Regulatory/FAQs/definitions.aspx>
- USACE/USEPA. (2008). *Memorandum Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell V. United States*.
- USDA. (2020). *Web Soil Survey*. Retrieved November 2020, from U.S. Department of Agriculture, Natural Resources Conservation Service: <http://websoilsurvey.sc.egov.usda.gov/>
- USDA. (2020, April 20). *Web Soil Survey 3.0*. Retrieved from U.S. Department of Agriculture, Natural Resources Conservation Service: <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>
- USDA-NRCS. (2018). *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils, Version 8.2, 2018*. U.S. Department of Agriculture, Natural Resources Conservation Service. In Cooperation with the National Technical Committee for Hydric Soils.
- USDA-NRCS,USGS,EPA. (2020). *Watershed Boundary Dataset for Highland County, Ohio*. Retrieved November 2020, from <http://datagateway.nrcs.usda.gov>
- USFWS. (2020, November). *National Wetlands Inventory Online Mapper v 2.0*. Retrieved November 2020, from U.S. Department of the Interior, U.S. Fish and Wildlife Service: <https://www.fws.gov/wetlands/data/mapper.HTML>
- USGS. (1988). *Topographical Quadrangle Maps (7.5-minute series)*. U.S. Geological Survey.
- USGS. (2018). *National Hydrography Dataset*. Retrieved from <https://nhd.usgs.gov/data.html>
- USGS. (2020). *StreamStats*. (U.S. Geological Survey) Retrieved November 2020, from StreamStats Ohio: <https://streamstats.usgs.gov/ss/>

- Voss, E. G., & Reznicek, A. A. (2012). *Field Manual of Michigan Flora*. Ann Arbor, MI: University of Michigan Press.
- Weakley, A. S., Ludwig, J. C., & Townsend, J. F. (2013). *Flora of Virginia* (2nd ed.). (B. Crowder, Ed.) Foundation of the Flora of Virginia Project, Inc. and Botanical Research Institute of Texas.
- Woods, A. J., Omernik, J. M., Brockman, C. S., Gerber, T. D., Hosteter, W. D., & Azevedo, S. H. (1998). *North American Terrestrial Ecoregions Level IV*. United States Environmental Protection Agency. Retrieved from http://www.cec.org/Atlas/Files/Terrestrial_Ecoregions_L1/TerrestrialEcoregions_L1_GeoPDF.zip

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

5/27/2021 3:40:33 PM

in

Case No(s). 20-1814-EL-BGN

Summary: Application Application - Exhibit R-3 (Ecological Assessment) electronically filed by Mr. Michael J. Settineri on behalf of Dodson Creek Solar, LLC