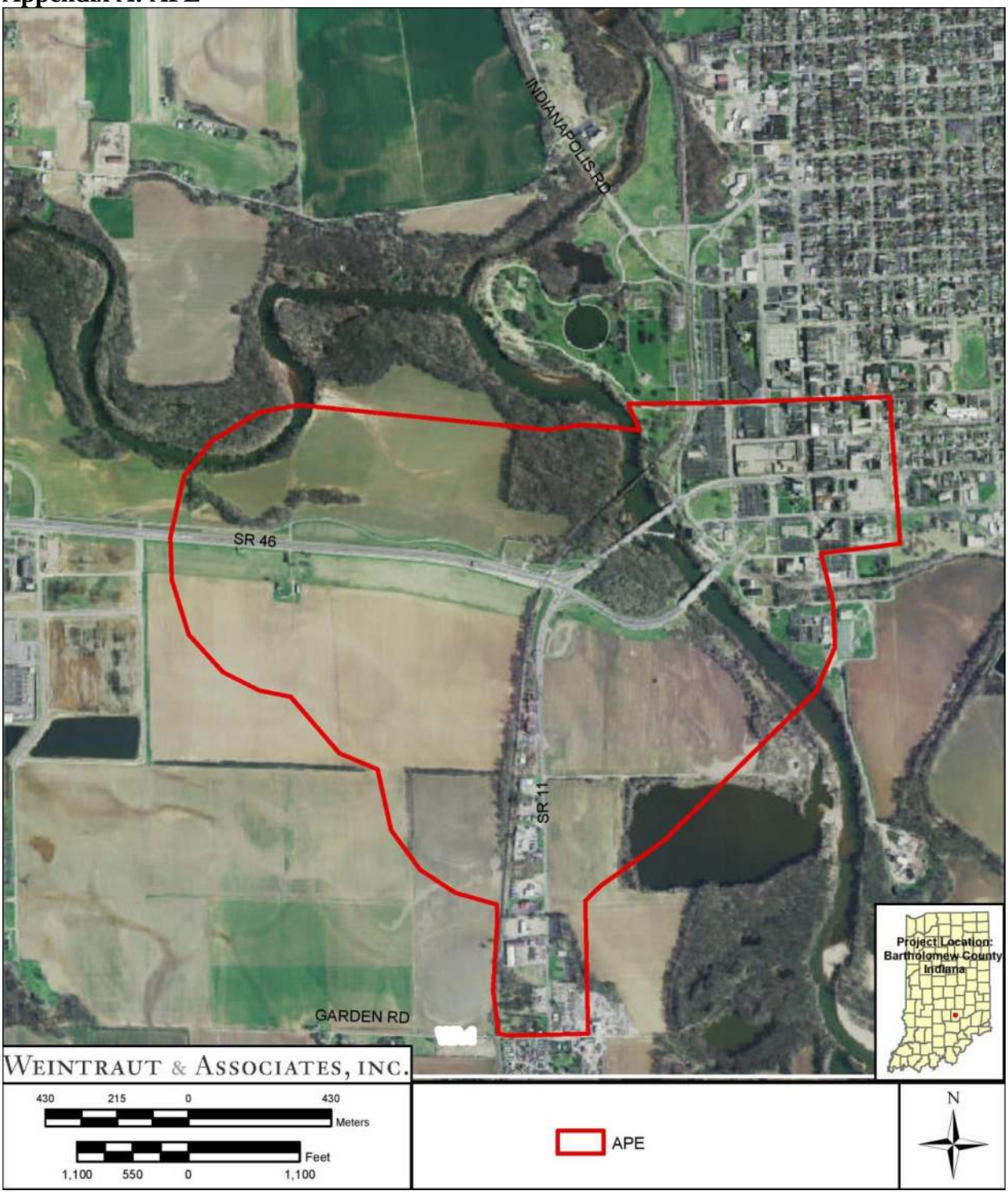
MEMORANDUM OF AGREEMENT
BETWEEN FEDERAL HIGHWAY ADMINISTRATION
AND THE INDIANA STATE HISTORIC PRESERVATION OFFICER
SUBMITTED TO THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
PURSUANT TO 36 CFR § 800.6(b)(iv)
REGARDING THE STATE ROAD 46 GRADE SEPARATION PROJECT
IN THE CITY OF COLUMBUS, COLUMBUS TOWNSHIP,
BARTHOLOMEW COUNTY, INDIANA
DES. NO.: 1700139

INVITED SIGNATORY:

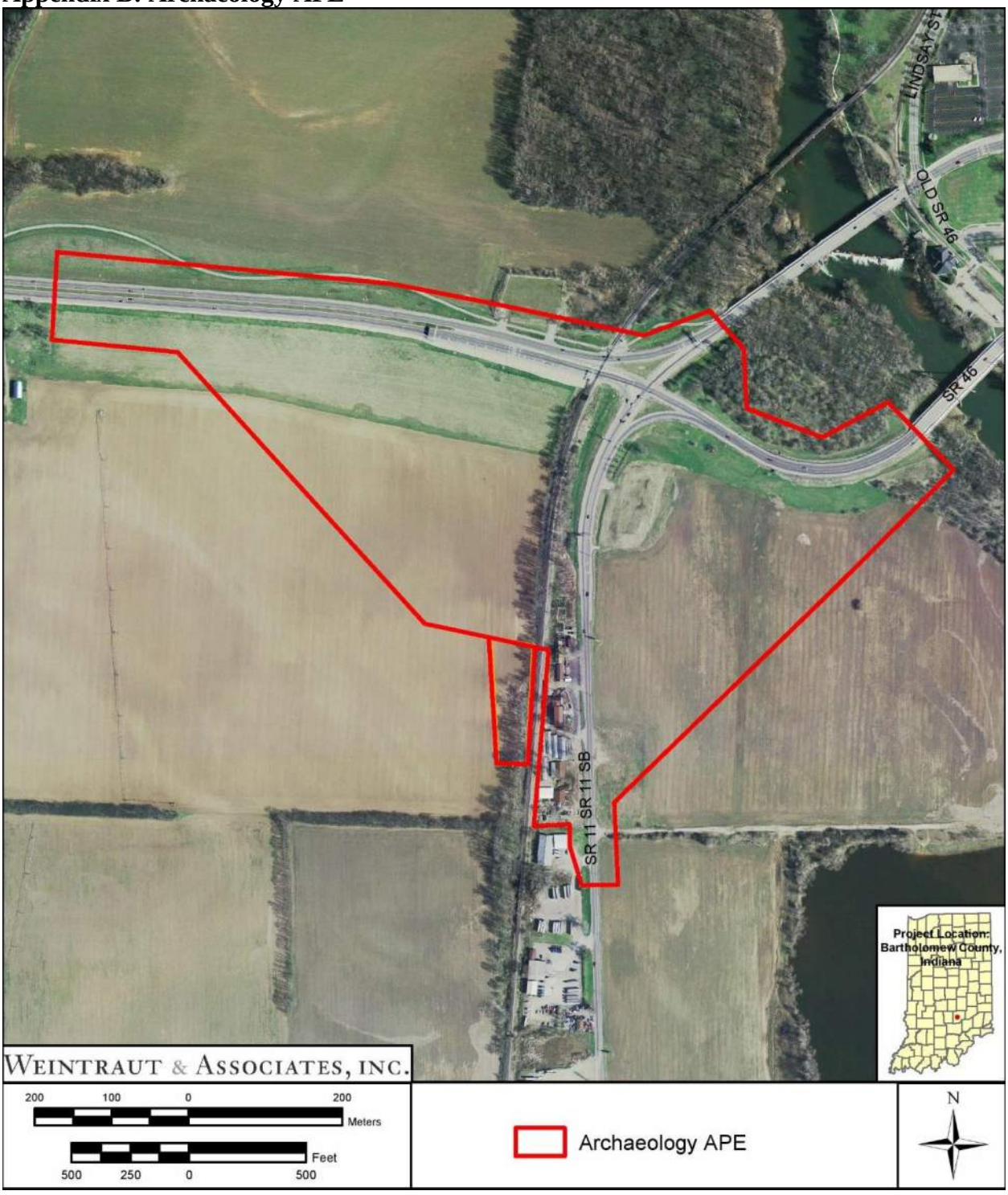
CITY OF COLUMBUS

Signed by: _____ Date 5/28/19
Name and Title Mayor

Appendix A: APE



Appendix B: Archaeology APE



Appendix C:

- Bartholomew County History Center
- Bartholomew County Historian
- Bartholomew County Genealogical Society
- Bartholomew County Board of Commissioners
- Columbus Area Metropolitan Planning Organization
- Indiana Landmarks—Central Regional Office
- James Cooper
- Historic SPANS Task Force
- National Park Service
- State Historic Preservation Officer
- Landmark Columbus
- City of Columbus Mayor's Office
- Assistant Engineer, City of Columbus
- Engineer, Bartholomew County Highway Department
- Columbus Area Chamber of Commerce—IN
- Columbus Area Visitors Center
- Columbus Redevelopment Department
- Debra Haza
- Eastern Shawnee Tribe
- Miami Tribe of Oklahoma
- Delaware Nation
- Peoria Tribe of Indians of Oklahoma
- Pokagon Band of Potawatomi Indians

THE REPUBLIC

AIM MEDIA INDIANA, d/b/a THE REPUBLIC, P.O. BOX 3213, McALLEN, TX 78502-3213 FED I.D. #32-0472774

Prescribed by State Board of Accounts General Form No. 99P (Rev. 2009A)

Attn: BETHANY NATALI
Name: WEINTRAUT & ASSOCIATES
Address: PO BOX 5034
City State: ZIONSVILLE IN 46077
(Government Unit)
County: Bartholomew
Acct. # C11171462
Order # 60013641

PUBLISHER'S CLAIM

LINE COUNT

Display Master (Must not exceed two actual lines, neither of which shall total more than four solid lines of the type in which the body of the advertisement is set) -- number of equivalent lines

Head -- number of lines ----------
Body -- number of lines ----------
Tail -- number of lines ----------
Total number of lines in notice ---------- 145

COMPUTATION OF CHARGES

145 lines, 1 columns wide equals 145 equivalent lines at $ 0.3355

cents per line ---------- $ ____

Additional charges for notices containing rule or tabular work (50 per cent of above amount) ---------- $ ____

Charge for extra proofs of publication ($1.00 for each proof in excess of two) ---------- ____

TOTAL AMOUNT OF CLAIM ---------- $ 48.65

DATA FOR COMPUTING COST

Width of single column in picas: 7.217 Size of type...7....point.
Number of insertions: 1

Pursuant to the provisions and penalties of IC 5-11-10-1, I hereby certify that the foregoing account is just and correct, that the amount claimed is legally due, after allowing all just credits, and that no part of the same has been paid.

I also certify that the printed matter attached hereto is a true copy, of the same column width and type size, which was duly published in said paper 1 times. The dates of publication being as follows:

2/15/19

Additionally, the statement checked below is true and correct:

..... Newspaper does not have a Web site.
X Newspaper has a Web site and this public notice was posted on the same day as it was published in the newspaper.
..... Newspaper has a Web site, but due to technical problem or error, public notice was posted on .....
..... Newspaper has a Web site but refuses to post the public notice.

Date: February 15, 2019

Vicki Fields
Title.....Legal Advertising Clerk

	:	1 of 3 02/15/2019 09:06:31	**Ad Number**	:	50015819
			Ad Key	:	
Order Number	:	60013641	**Salesperson**	:	28 - Amirtha Sathi Sargunam
PO Number	:	Bethany Natali	**Publication**	:	The Republic
Customer	:	C11171462 WEINTRAUT & ASSOCIATES	**Section**	:	60 Notices
Contact	:	LINDA WEINTRAUT	**Sub Section**	:	60 Notices
Address1	:	PO BOX 5034	**Category**	:	6015 Legals
Address2	:		**Dates Run**	:	02/15/2019-02/15/2019
City St Zip	:	ZIONSVILLE IN 46077	**Days**	:	1
Phone	:	(317) 733-9770 x308	**Size**	:	1 x 14.07, 145 lines
Fax	:	(317) 733-9770	**Words**	:	485
Credit Card	:		**Ad Rate**	:	Open
Printed By	:	Vicki Fields	**Ad Price**	:	48.65
Entered By	:	Amirtha Sathi Sargunam	**Amount Paid**	:	0.00
			Amount Due	:	48.65
Keywords	:	Public Notice INDOT Des. No. 1700139			
Notes	:	2/14-Paid CC ID:640456496.AS			
Zones	:				

Public Notice
Des. No. 1700139

The Indiana Department of Transportation (INDOT), with funding from the Federal Highway Administration (FHWA) and funding support from the City of Columbus, proposes to proceed with a grade separation of State Road (SR) 46 at SR 11 over the Louisville & Indiana Railroad. The project is located in the City of Columbus, Bartholomew County, Indiana.

Under the preferred alternative, the proposed project would involve a grade separation intended to carry SR 46 over the Louisville & Indiana Railroad. The existing intersection of SR 46 and SR 11 will need to be reconfigured to accommodate the proposed grade separation. The structure would be approximately 34 feet from the railroad track to the top of the bridge deck and approximately 45 feet from SR 11 to the top of the bridge deck. Single-arm cobra head street lights would be installed on the bridge deck with height of 25 feet. Elsewhere, the other roadways will have lights installed at the normal 40 feet height (similar to the present street lights). It has not been a goal of this project to construct a "signature" bridge, and so there will not be any architectural enhancements installed to it.

Properties listed in or eligible for the National Register of Historic Places (NRHP) located within the Area of Potential Effects (APE) include: Columbus Historic District; Bartholomew County Courthouse; Haw Creek Leather Company; The Republic; Third

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Phone	:	(317) 733-9770 x308	Dates Run	:	02/15/2019-02/15/2019
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Credit Card	:		Size	:	1 x 14.07, 145 lines
Printed By	:	Vicki Fields	Words	:	485
Entered By	:	Amirtha Sathi Sargunam	Ad Rate	:	Open
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Notes	:	2/14-Paid CC ID:640456496.AS	Amount Due	:	48.65
Zones	:				

Street/SR 46 Bridge; City Power House Building; Pennsylvania Railroad Bridge; Columbus City Hall; McEwen-Samuels-Marr Home; First Christian Church; Columbus Post Office. The proposed effects on archaeological resources are not yet known. The proposed effects of the undertaking on archaeological resources are not yet known. Eligibility of archaeological resources will be addressed at a later date and additional archaeological investigations to determine that eligibility are stipulated in the Memorandum of Agreement for this project. Accordingly, the FHWA has issued an "Adverse Effect" finding for the project. In accordance with the National Historic Preservation Act, the views of the public are being sought regarding the effect of the proposed project on the historic elements as per 36 CFR 800.2(d), 800.3(e) and 800.6(a)(4). Pursuant to 36 CFR 800.4(d)(2), the documentation specified in 36 CFR 800.11(e) is available for inspection in the offices of CMT, 8790 Purdue Road, Indianapolis, IN 46268. Additionally, this documentation can be viewed electronically by accessing INDOT's Section 106 document posting website IN SCOPE at http://erms.indot.in.gov/Section106Documents. This documentation serves as the basis for the "Adverse Effect" finding. The views of the public on this effect finding are being sought. Please reply with any comments to Dr. Linda Weintraut P.O. Box 5034 Zionsville, Indiana 46077, 317-733-9770, Linda@weintrautinc.com

	:	3 of 3 02/15/2019 09:06:31	**Ad Number**	:	50015819
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Keywords	:	Public Notice INDOT Des. No. 1700139	**Amount Due**	:	48.65
Notes	:	2/14-Paid CC ID:640456496.AS			
Zones	:				

, no later than March 16, 2019.

In accordance with the "Americans with Disabilities Act", if you have a disability for which INDOT needs to provide accessibility to the document(s) such as interpreters or readers, please contact Rickie Clark at 317-232-6601 or rclark@indot.in.gov.

R: 02/15 60013641 hspaxlp

DNR Indiana Department of Natural Resources

Eric Holcomb, Governor
Cameron F. Clark, Director

Division of Historic Preservation & Archaeology · 402 W. Washington Street, W274 · Indianapolis, IN 46204-2739
Phone 317-232-1646 · Fax 317-232-0693 · dhpa@dnr.IN.gov · www.IN.gov/dnr/historic

March 4, 2019

Linda Weintraut, Ph.D.
Weintraut & Associates, Inc.
Post Office Box 5034
Zionsville, Indiana 46077

Federal Agency: Indiana Department of Transportation ("INDOT"), on behalf of Federal Highway Administration, Indiana Division ("FHWA")

Re: Phase Ic subsurface reconnaissance report (Goldbach, 01/22/2019), relating to the SR 46 New Interchange Construction at SR 11 and Grade Separation over Louisville and Indiana Railroad (Des. No. 1700139; DHPA No. 22139)

Dear Dr. Weintraut:

Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. §306108), 36 C.F.R. Part 800, the "Programmatic Agreement (PA) Among the Federal Highway Administration, the Indiana Department of Transportation, the Advisory Council on Historic Preservation and the Indiana State Historic Preservation Officer Regarding the Implementation of the Federal Aid Highway Program In the State of Indiana," the staff of the Indiana State Historic Preservation Officer ("Indiana SHPO" or "INDNR-DHPA") has reviewed the aforementioned archaeological report, which arrived under Weintraut & Associates' review request submittal form dated January 31, 2019, which we received on February 4, 2019, for the aforementioned proposed project in the City of Columbus, Columbus Township, Bartholomew County, Indiana (Des. No. 1700139; DHPA No. 22139).

Based upon the submitted information and the documentation available to the staff of the Indiana SHPO, we concur with the opinion of the archaeologist, as expressed in the Phase Ic subsurface reconnaissance report (Goldbach, 01/22/2019), that archaeological site 12-B-1511 (which was investigated during the Phase Ic archaeological investigations) does not appear eligible for inclusion in the National Register of Historic Places ("NRHP"), and that no further archaeological investigations appear necessary at this location.

If any prehistoric or historic archaeological artifacts or human remains are uncovered during construction, demolition, or earthmoving activities, state law (Indiana Code 14-21-1-27 and -29) requires that the discovery be reported to the INDNR-DHPA within two (2) business days. In that

event, please call (317) 232-1646. Be advised that adherence to Indiana Code 14-21-1-27 and -29 does not obviate the need to adhere to applicable federal statutes and regulations, including but not limited to 36 C.F.R. Part 800.

A copy of the revised 36 C.F.R. Part 800 that went into effect on August 5, 2004, may be found on the Internet at www.achp.gov for your reference. If you have questions about archaeological issues please contact Wade T. Tharp at (317) 232-1650 or wtharp1@dnr.in.gov. Additionally, in all future correspondence regarding the above indicated project, please refer to DHPA No. 22139.

Very truly yours,

Chad W. Slider

Beth K. McCord
Deputy State Historic Preservation Officer

BKM:WTT:wtt

emc: Michelle Allen, Federal Highway Administration
Antonio Johnson, Federal Highway Administration
Anuradha Kumar, Indiana Department of Transportation
Patrick Carpenter, Indiana Department of Transportation
Shaun Miller, Indiana Department of Transportation
Matthew Coon, Ph.D., Indiana Department of Transportation
Susan Branigin, Indiana Department of Transportation
Shirley Clark, Indiana Department of Transportation
Nick Batta, PE, Crawford, Murphy & Tilly, Inc.
Linda Weintraut, PhD, Weintraut & Associates, Inc.
Bethany Natali, Weintraut & Associates, Inc.
Jason Goldbach, Weintraut & Associates, Inc.
J. Richard Jones III, Ph.D., Weintraut & Associates, Inc.
Columbus Redevelopment Commission
Miami Tribe of Oklahoma
Delaware Nation
Indiana Landmarks, Central Regional Office
John Carr, Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology
Wade T. Tharp, Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology

DNR Indiana Department of Natural Resources

Eric Holcomb, Governor
Cameron F. Clark, Director

Division of Historic Preservation & Archaeology · 402 W. Washington Street, W274 · Indianapolis, IN 46204-2739
Phone 317-232-1646 · Fax 317-232-0693 · dhpa@dnr.IN.gov · www.IN.gov/dnr/historic

March 18, 2019

Linda Weintraut, Ph.D.
Weintraut and Associate, Inc.
Post Office Box 5034
Zionsville, Indiana 46077

Federal Agency: Federal Highway Administration, Indiana Division ("FHWA")

State Agency: Indiana Department of Transportation ("INDOT")

Subject: "Addendum: Archaeological Records Check and Phase Ia Reconnaissance: SR 46 New Interchange Construction at SR 11 and Grade Separation over Louisville and Indiana Railroad, City of Columbus, Bartholomew County, Indiana" (Jones, 01/28/2019); FHWA's finding of Adverse Effect, with supporting documentation; and draft memorandum of agreement ("Draft MOA"; 01/30/2019); for the State Road 46 Grade Separation Project (Des. No. 1700139; DHPA No. 22139)

Dear Dr. Weintraut:

Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. § 306108), 36 C.F.R. Part 800, the "Programmatic Agreement (PA) Among the Federal Highway Administration, the Indiana Department of Transportation, the Advisory Council on Historic Preservation and the Indiana State Historic Preservation Officer Regarding the Implementation of the Federal Aid Highway Program In the State of Indiana," the staff of the Indiana State Historic Preservation Officer ("Indiana SHPO" or "INDNR-DHPA") has reviewed Weintraut & Associates' February 14, 2019, review request submittal form enclosing the aforementioned documents, which we received on February 15, 2019.

In regard to archaeological resources, based on the submitted information and the documentation available to the staff of the Indiana SHPO, we have not identified any currently known archaeological resources listed in or eligible for inclusion in the National Register of Historic Places ("NRHP") within the additional portions of the proposed project area that were subjected to archaeological field reconnaissance survey; and we concur with the opinion of the archaeologist, as expressed in the Indiana archaeological short report (Jones, 01/28/2019) that no further archaeological investigations appear necessary at the additional portions of the proposed project area that were subjected to archaeological investigations. For our comments regarding the impact of project-related ground-disturbing activities on archaeological resources within the original portions of the proposed project area, please see our previous response letters regarding this project.

If any prehistoric or historic archaeological artifacts or human remains are uncovered during construction, demolition, or earthmoving activities, state law (Indiana Code 14-21-1-27 and -29) requires that the discovery be reported to INDNR-DHPA within two (2) business days. In that event, please call (317) 232-1646. Be advised that adherence to Indiana Code 14-21-1-27 and -29 does not obviate the need to adhere to applicable federal statutes and regulations, including but not limited to 36 C.F.R. Part 800.

Eleven above-ground historic properties have been identified within the area of potential effects for this project that are either a National Historic Landmark, listed in the NRHP, or eligible for inclusion in the NRHP: Columbus Historic District, Bartholomew County Courthouse, Haw Creek Leather Company, The Republic, Third Street/SR 46 Bridge, City Power House Building, Pennsylvania Railroad Bridge, Columbus City Hall, McEwen-Samuels-Marr Home, First Christian Church, and

Columbus Post Office. With regard to FHWA's February 12, 2019, effect finding, we agree that none of those eleven above-ground historic properties will be adversely affected by this project.

We also agree with FHWA's determination that the project's effects on archaeological resources should be considered to be adverse, because the identification and evaluation of archaeological resources—including Site 12-B-1024, which is potentially eligible for inclusion in the NRHP—is ongoing but has not been completed.

Accordingly, we concur with FHWA's February 12, 2019, Section 106 finding of Adverse Effect for this federal undertaking as a whole.

We have some recommendations regarding the Draft MOA ("Draft MOA"; 01/30/2019).

Please revise the text of the *STIPULATION IV. POST-REVIEW DISCOVERIES/B.* section to state, "[…] by immediately ceasing all project-related ground-disturbing activities within one hundred (100) feet of the discovery area […]"

Stipulation III.A.5. appropriately introduces the abbreviation "IC" for Indiana Code. However, in Stipulation III.B.1., it is still spelled out as "Indiana code" (*sic*).

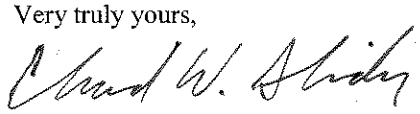
We prefer to spell "archaeology" in this way, which for the most part is how it is spelled in the Draft MOA. There are a few places in the Draft MOA (e.g., Stipulations III.C.1. and 2. and D.) where it is spelled "archeology." We recommend consistency throughout the document.

The Draft MOA includes a signature line for the Bartholomew County Commissioners as an invited signatory. We do not object to inviting the Commissioners to sign, but we wonder why it would not be appropriate to offer the City of Columbus the same status. The opening paragraph of the 36 C.F.R. § 800.11(e) documentation indicates that City of Columbus is contributing funds to the project, but it does not mention the County. On the other hand, INDOT's January 23, 2018, early coordination letter and May 3, 2018, additional information letter identified both the City and the County as contributors to the project funding. However, we are unable to find a specific responsibility assigned to either the City or the County in the stipulations of the Draft MOA. For guidance, please refer to 36 C.F.R. § 800.6(c)(1), (2), and (3).

The archaeological reviewer for this project on the Indiana SHPO staff is Wade T. Tharp, and the structures reviewer is John Carr. However, if you have questions about the status of our review of a submission, about the kind of information to submit, or about a procedural issue, please contact initially an INDOT Cultural Resources Office staff member who is assigned to this project.

In all future correspondence regarding the SR 46 Grade Separation Project in the City of Columbus and Columbus Township, Bartholomew County (Des. No. 1700139), please continue to refer to DHPA No. 22139.

Very truly yours,



Beth K. McCord
Deputy State Historic Preservation Officer

BKM:JLC:WTT:wtt

emc: Michelle Allen, FHWA
Anuradha Kumar, INDOT
Patrick Carpenter, INDOT
Shaun Miller, INDOT
Matthew Coon, Ph.D., INDOT
Susan Branigin, INDOT
Shirley Clark, INDOT
Greg Prince, INDOT, Seymour District
David Hayward, P.E., City of Columbus
Laura Thayer, AICP, Columbus Area Metropolitan Planning Organization
Nick Batta, P.E., Crawford, Murphy & Tilly, Inc.
Bill Hawkins, Strand Associates, Inc.
Linda Weintraut, Ph.D., Weintraut & Associates, Inc.
Bethany Natali, Weintraut & Associates, Inc.
Jason Goldbach, Weintraut & Associates, Inc.
J. Richard Jones III, Ph.D., Weintraut & Associates, Inc.

Columbus Redevelopment Commission
Miami Tribe of Oklahoma
Delaware Nation
Debra Haza, Consulting Party
Sam Burgess, Indiana Landmarks, Central Regional Office
Wade T. Tharp, INDNR-DHPA
John Carr, INDNR-DHPA

Appendix E

Red Flag and Hazardous Materials

UNITED Consulting

ENGINEERING
ENVIRONMENTAL
INSPECTION
LAND SURVEYING
LAND ACQUISITION
PLANNING
WATER & WASTEWATER
SINCE 1965

OFFICERS
William E. Hall, PE
Dave Richter, PE, PLS
Steven W. Jones
Christopher R. Pope, PE
B. Keith Bryant, PE
Michael Rowe, PE

PROFESSIONAL STAFF
Andrew T. Wolka, PE
Devin L. Stettler, AICP
Michael S. Oliphant, AICP
E. Rachelle Pemberton, PE
Timothy J. Coomes, PLS
Jon E. Clodfelter, PE
Steven R. Passey, PE
Brian J. Pierson, PE
Christopher L. Hammond, PE
Paul D. Glotzbach, PE
Brian S. Frederick, PE
Jay N. Ridens, PE
Christopher J. Dyer, PE
Matthew R. Lee, PE
William R. Curtis, PE
Jeromy A. Richardson, PE
Heather E. Kilgour, PE
Adam J. Greulich, PLS
Caleb C. Ross, PE
Dann C. Barrett, PE
Scott G. Minnich, PE
Jim R. Lesh, PE
Nicholas J. Kocher, PE
Jennifer L. Hart, PE
Jeffrey R. Andrews, PE
Kelton S. Cunningham, PE
Braun S. Rodgers, PE
Chris J. Andrzejewski, PE
Greg J. Broz, PE
John E. Harstad, PE
Asad A. Khan, PE
Joshua D. Gonya, PE
Brian S. Haefliger, PE

1625 N. Post Road, Indianapolis, IN 46219 (317) 895-2585 www.ucindy.com

Date: January 17, 2018

To: Hazardous Materials Unit
Environmental Services
Indiana Department of Transportation
100 North Senate Avenue, Room N642
Indianapolis, IN 46204

From: Michael S. Oliphant, AICP
United Consulting
1625 North Post Road
Indianapolis, Indiana 46219
mikeo@ucindy.com

Re: RED FLAG INVESTIGATION
SR 46 Grade Separation over Louisville & Indiana Railroad
INDOT Seymour District
Bartholomew County, Columbus, Indiana
Des. No.: 1700139

NARRATIVE

The Indiana Department of Transportation (INDOT) propose a grade separation for SR 46 over the Louisville & Indiana Railroad. This project is located in Section 25, Township 9 North, Range 5 East, Columbus Township, in Bartholomew County, Indiana. The intersection is located along SR 46 approximately 1.52 miles east of I-65. This proposed project will construct a grade separation carrying SR 46 over the railroad corridor. Due to the close proximity of the SR 46/SR 11 intersection, it will need to be reconfigured as part of the grade separation project. Options being studied involve realigning SR 46 to the south and then crossing over the railroad. The railroad would remain on its current horizontal and vertical alignments. Fill will be needed to construct the SR 46 embankments to raise its profile grade. Excavation is anticipated to be necessary for reconstruction of the intersection, with excavation anticipated at depths between 2 and 3 feet. Further options being considered include both an interchange and at-grade intersection treatments for the new SR 46/SR11 location. New permanent and temporary right-of-way will be needed to complete the project, although the magnitude of these acreages is unknown at this time. No relocations are anticipated for this project. The preferred maintenance of traffic plan is anticipated to keep SR 46 open during construction (it's not yet known about SR 11). This proposed grade separation is a state sponsored project.

SUMMARY

Infrastructure
Indicate the number of items of concern found within 0.5 mile, including an explanation why each item within the 0.5 mile search radius will/will not impact the project. If there are no items, please indicate N/A:

Religious Facilities	**1**	Recreational Facilities	**3**
Airports	**N/A**	Pipelines	**2**

Cemeteries	**N/A**	Railroads	**3**
Hospitals	**N/A**	Trails	**3**
Schools	**N/A**	Managed Lands	**1**

Explanation:

Religious Facilities – One (1) religious facility is located within the 0.5 mile search radius. The First Christian Church is located approximately 0.5 miles northeast of the project area. The facility is incorrectly illustrated as a school on the infrastructure map. No impact is expected.

Recreational Facilities – Three (3) recreational facilities are located within the 0.5 mile search radius. The nearest facility, Tipton Park, is located approximately 0.13 miles east of the project area. No impact is expected.

Pipelines – Two (2) pipelines are located within the 0.5 mile search radius. The nearest pipeline, a natural gas line of the Indiana Gas Co. Inc., lies within the project area and could potentially be impacted by this project. Coordination with INDOT Utilities and Railroads should occur.

Railroads – Three (3) railroad segments are located within the 0.5 mile search radius. The nearest railroad, Louisville & Indiana Railroad, lies within the project area and will be impacted by this project. Coordination with INDOT Utilities and Railroads should occur.

Trails – Three (3) trail segments are located within the 0.5 mile search radius. The nearest trail, Columbus People's Trail, lies within the project area and could potentially be impacted by this project. 4(f) coordination may be required. Coordination with Columbus Parks and Recreation Department will occur.

Managed Lands – One (1) managed land is located within the 0.5 mile search radius. The nearest managed land, Columbus White River Access Site, is located approximately 0.16 miles east of the project area. No impact is expected.

Water Resources
Indicate the number of items of concern found within 0.5 mile, including an explanation why each item within the 0.5 mile search radius will/will not impact the project. If there are no items, please indicate N/A:

NWI - Points	**1**	NWI - Wetlands	**15**
Karst Springs	**N/A**	IDEM 303d Listed Lakes	**N/A**
Canal Structures – Historic	**N/A**	Lakes	**6**
NWI - Lines	**N/A**	Floodplain - DFIRM	**2**
IDEM 303d Listed Rivers and Streams (Impaired)	**2**	Cave Entrance Density	**N/A**
Rivers and Streams	**2**	Sinkhole Areas	**N/A**
Canal Routes - Historic	**N/A**	Sinking-Stream Basins	**N/A**

Urbanized Area Boundary (UAB)	**1**		

Explanation:

NWI-Points – One (1) NWI-Point is located within the 0.5 mile search radius. The NWI-Point is located approximately 0.5 miles south of the project area. No impact is expected.

IDEM 303d Listed Rivers and Streams (Impaired) – Two (2) IDEM 303d Listed River and Stream segments are located within the 0.5 mile search radius. The nearest segment, associated with Driftwood River, is located approximately 0.26 mile northwest of the western extent of the project area. The segment is listed as impaired for *E*. *coli*. No impact is expected.

Rivers and Streams – Two (2) river and stream segments are located within the 0.5 mile search radius. The nearest river, Flatrock River, is located approximately 0.07 miles east of the project area. No impact is expected.

NWI – Wetlands – Fiteen (15) NWI – wetlands are located within the 0.5 mile search radius. The nearest wetland is located adjacent to the eastern limits of the project area, and could potentially be impacted by this project. A Waters of the U.S. Report will be prepared and coordination with INDOT ES Ecology and Waterway Permitting will occur.

Lakes – Six (6) lakes are located within the 0.5 mile search radius. The nearest lake, a swamp/marsh, is located approximately 0.11 miles north of the project area. No impact is expected.

Floodplain – DFIRM – Two (2) floodplains are located within the 0.5 mile search radius. The nearest floodplain lies within the project area and will be impacted by this project. Coordination with INDOT ES Ecology and Waterway Permitting will occur.

Urbanized Area Boundary – This project lies within the Columbus UAB. Post construction Storm Water Quality Best Management Practices (BMPs) may need to be considered. An early coordination letter with topographic and aerial maps showing the project area should be sent to Ms. Heather Shireman, MS4 coordinator at 1040 2nd St., Columbus, IN 47201.

Mining/Mineral Exploration
Indicate the number of items of concern found within 0.5 mile, including an explanation why each item within the 0.5 mile search radius will/will not impact the project. If there are no items, please indicate N/A:

Petroleum Wells	**1**	Petroleum Fields	**N/A**
Mines – Surface	**N/A**	Mines – Underground	**N/A**

Explanation:

Petroleum Wells – One (1) petroleum well is located within the 0.5 mile search radius. The petroleum well, leased to Lewis F. Meek, is located approximately 0.38 miles northwest of the project area. No impact is expected.

Hazmat Concerns
Indicate the number of items of concern found within 0.5 mile, including an explanation why each item within the 0.5 mile search radius will/will not impact the project. If there are no items, please indicate N/A:

Brownfield Sites	**3**	Restricted Waste Sites	**N/A**
Corrective Action Sites (RCRA)	**N/A**	Septage Waste Sites	**N/A**
Confined Feeding Operations	**N/A**	Solid Waste Landfills	**N/A**
Construction Demolition Waste	**N/A**	State Cleanup Sites	**4**
Industrial Waste Sites (RCRA Generators)	**1**	Tire Waste Sites	**N/A**
Leaking Underground Storage Tanks (LUSTs)	**8**	Waste Transfer Stations	**N/A**
Manufactured Gas Plant Sites	**N/A**	RCRA Waste Treatment, Storage, and Disposal Sites (TSDs)	**N/A**
NPDES Facilities	**1**	Underground Storage Tanks	**11**
NPDES Pipe Locations	**3**	Voluntary Remediation Program	**3**
Open Dump Sites	**N/A**	Superfund	**1**
Institutional Control Sites	**3**		

Explanation:

Brownfield Sites – Three (3) brownfield sites are located within the 0.5 mile search radius. The nearest brownfield, associated with Columbus Wood Preserving Company, 500 Block of 1st St., Columbus IN, 47201 (BCA Site # 7893), is located approximately 0.35 miles east of the project area. No impact is expected.

Industrial Waste Sites (RCRA Generators) – One (1) industrial waste site is located within the 0.5 mile search radius. The RCRA generator, associated with the Goodyear Auto Service Center, 123 2nd St., Columbus IN, 47201 (Agency ID No. 976), is located approximately 0.20 miles northeast of the project area. According to the Indiana Department of Environmental Management (IDEM) Virtual File Cabinet (VFC), Office of Land Quality (OLQ) Authorization letter, dated January 9, 2008, this site is no longer a hazardous waste generator, and has been out of operation since May of 2002. No impact is expected.

Leaking Underground Storage Tanks (LUSTs) – Eight (8) LUSTs are located within the 0.5 mile search radius. The nearest LUST, associated with the Kocelene Service Center #47, 505 W. Jonathan Moore Pike, Columbus IN, 47201 (FID No. 4839), is located within the limits of the project area. This site was a former gas station that has since been removed. The IDEM issued a No Further Action Determination Approval Pursuant to 1994 UST Branch Guidance letter, dated July 17, 2007; however, residual petroleum impacts appear to remain on the property and extend beneath SR 46. Proper removal and disposal of soil and/or groundwater may be necessary.

NPDES Facilities – One (1) NPDES Facility is located within the 0.5 mile search radius. The NPDES Facility, the City of Columbus Waste Water Treatment Plant, 327 Water St., Columbus IN, 47201 (RP ID: 17973), is located approximately 0.30 miles east of the project area. No impact is expected.

NPDES Pipe Locations – Three (3) NPDES Pipe Locations are located within the 0.5 mile search radius. The nearest NPDES pipe location, a combined sewer overflow (CSO) system associated with the City of Columbus Waste Water Treatment Plant, is located approximately 0.17 miles southeast of the project area. No impact is expected.

Institutional Control Sites – Three (3) Institutional Control Sites are located within the 0.5 mile search radius. The nearest institutional control site, an environmental restrictive covenant (ERC) placed on the Old Columbus City Landfill, SR 46 and SR 11, Columbus IN, 47201 (FID No. 7500011), is located within the proposed construction limits for this project. According to the IDEM VFC, a superfund monitoring report dated May 6, 2015, states this superfund site has undergone remediation and was deemed ready for reuse in September of 2012. A more recent inspection report, dated October 20, 2016, confirms that remedial activities are in compliance and have been functioning properly. However, due to the ERC on the property, no construction of roadways can occur within the limits of the ERC without advanced approval from IDEM. Coordination with IDEM will occur and approval will be necessary for any construction activities to take within the limits of the ERC.

State Cleanup Sites – Four (4) state cleanup sites are located within the 0.5 mile search radius. The nearest state cleanup site, listed within ARCGIS as the former Macs Convenience Store, 1915 W. Jonathan Moore Pike, Columbus, IN 47201 (Agency ID No. 7023) (Site # 2006-02-161), is located approximately 0.38 miles west of the project area. This site is actually listed within the IDEM VFC as being Circle K #2227, located at 1206 E. Eads Parkway, Greendale, IN 47201 more than 50 miles southeast of the project area. As a result, the former Macs Convenience Store is not a State Cleanup Site. No impact is expected.

Underground Storage Tanks – Eleven (11) underground storage tanks area located within the 0.5 mile search radius. The nearest underground storage tank, associated with the Goodyear Auto Service Center, 123 2nd St., Columbus IN, 47201 (FID No. 2135), is located approximately 0.20 miles northeast of the project area. No impact is expected.

Voluntary Remediation Program – Three (3) voluntary remediation program sites are located within the 0.5 mile search radius. The nearest voluntary remediation program site, associated with the Indiana Gas Co. Inc., 5th St. and Carl Miske Dr., Columbus IN, 47201 (VRP Site # 6000411), is located approximately 0.36 miles north of the project area. No impact is expected.

Superfund – One (1) superfund is located within the 0.5 mile search radius. The superfund, associated with the Old Columbus City Landfill, SR 46 and SR 11, Columbus IN, 47201 (Agency ID No. 8868) is located adjacent to the project area. According to IDEMs VFC, the superfund monitoring report dated May 6, 2015, states that this superfund site has undergone remediation and has specific limitations and an ERC placed on the northern and southern extents of the property. These restrictions have been put in place to reduce exposure to the site through physical restrictions (fencing) and deed restrictions (including excavation limitations). Coordination with IDEM will occur and, if warranted, a Phase II may be necessary.

Ecological Information

The Bartholomew County listing of the Indiana Natural Heritage Data Center information on endangered, threatened, or rare (ETR) species and high quality natural communities is attached. The ETR species have been highlighted. Coordination with IDNR and USFWS will occur.

A review of the USFWS database did not indicate the presence of endangered bat species in or within 0.5 miles of the project area. The range-wide programmatic consultation for the Indiana Bat and Northern Long-Eared Bat will be completed according to "Using the USFWS's IPaC System for Listed Bat Consultation for INDOT Projects" dated October 25, 2017.

Rusty Patched Bumble Bee:

An inquiry using the USFWS Information for Planning and Consultation (IPaC) website did not indicate the presence of the federally endangered species, the Rusty Patched Bumble Bee, in or within 0.5 miles of the project area. No impact is expected.

Cultural Resources

Due to the scope, full Section 106 will be necessary. Coordination will occur with INDOT ES Cultural Resources.

RECOMMENDATIONS

INFRASTRUCTURE:

Pipelines: One pipeline lies within the project area. Coordination with Indiana Gas Co. Inc. should occur.

Railroads: One railroad lies within the project area. Coordination with INDOT Utilities and Railroads should occur.

Trails: One trail lies within the project area. 4(f) documentation may be necessary. Coordination with Columbus Parks and Recreation Department will occur.

WATER RESOURCES: The presence of following water resources will require the preparation of a Waters of the US Report and coordination with INDOT ES Ecology and Waterway Permitting:

One wetland is located near the project area.

One floodplain lies within the project area.

This area lies within the Columbus UAB. Post construction Storm Water Quality Best Management Practices (BMPs) may need to be considered. An early coordination letter with topographic and aerial maps showing the project area should be sent to Ms. Heather Shireman, MS4 coordinator at 1040 2nd St., Columbus, IN 47201.

MINING/MINERAL EXPLORATION: N/A

HAZMAT CONCERNS:

One Superfund site is located adjacent to the project area. This superfund site has specific limitations and an ERC placed on the northern and southern extents of the property. These restrictions have been put in place to reduce exposure to the site through physical restrictions (fencing) and deed restrictions (including excavation limitations). Coordination with IDEM will occur and, if warranted, a Phase II may be necessary.

One LUST, associated with the Kocelene Service Center #47, 505 W. Jonathan Moore Pike, Columbus IN, 47201 (FID No. 4839), is located within the limits of the project area. Proper removal and disposal of soil and/or groundwater may be necessary.

ECOLOGICAL INFORMATION: Coordination with IDNR and USFWS will occur. The range-wide programmatic consultation for the Indiana Bat and Northern Long-Eared Bat will be completed according to "Using the USFWS's IPaC System for Listed Bat Consultation for INDOT Projects" dated October 25, 2017.

CULTURAL RESOURCES: Due to the scope, full Section 106 will be necessary. Coordination will occur with INDOT ES Cultural Resources.

INDOT Environmental Services concurrence: Nicole Fohey-Breting Digitally signed by Nicole Fohey-Breting DN: cn=Nicole Fohey-Breting, o=INDOT, ou=Environmental Services, HazMat, email=NFoheyBreting@indot.in.gov, c=US Date: 2018.01.19 10:21:49 -05'00' _____ (Signature)

Prepared by:

Michael S. Oliphant, AICP
Environmental Specialist
United Consulting

Checked by:

Devin L. Stettler, MPI, AICP
Manager, Environmental Services
United Consulting

Graphics:

A map for each report section with a 0.50 mile search radius buffer around all project area(s) showing all items identified as possible items of concern is attached. If there is not a section map included, please change the YES to N/A:

GENERAL SITE MAP SHOWING PROJECT AREA: YES

INFRASTRUCTURE: YES

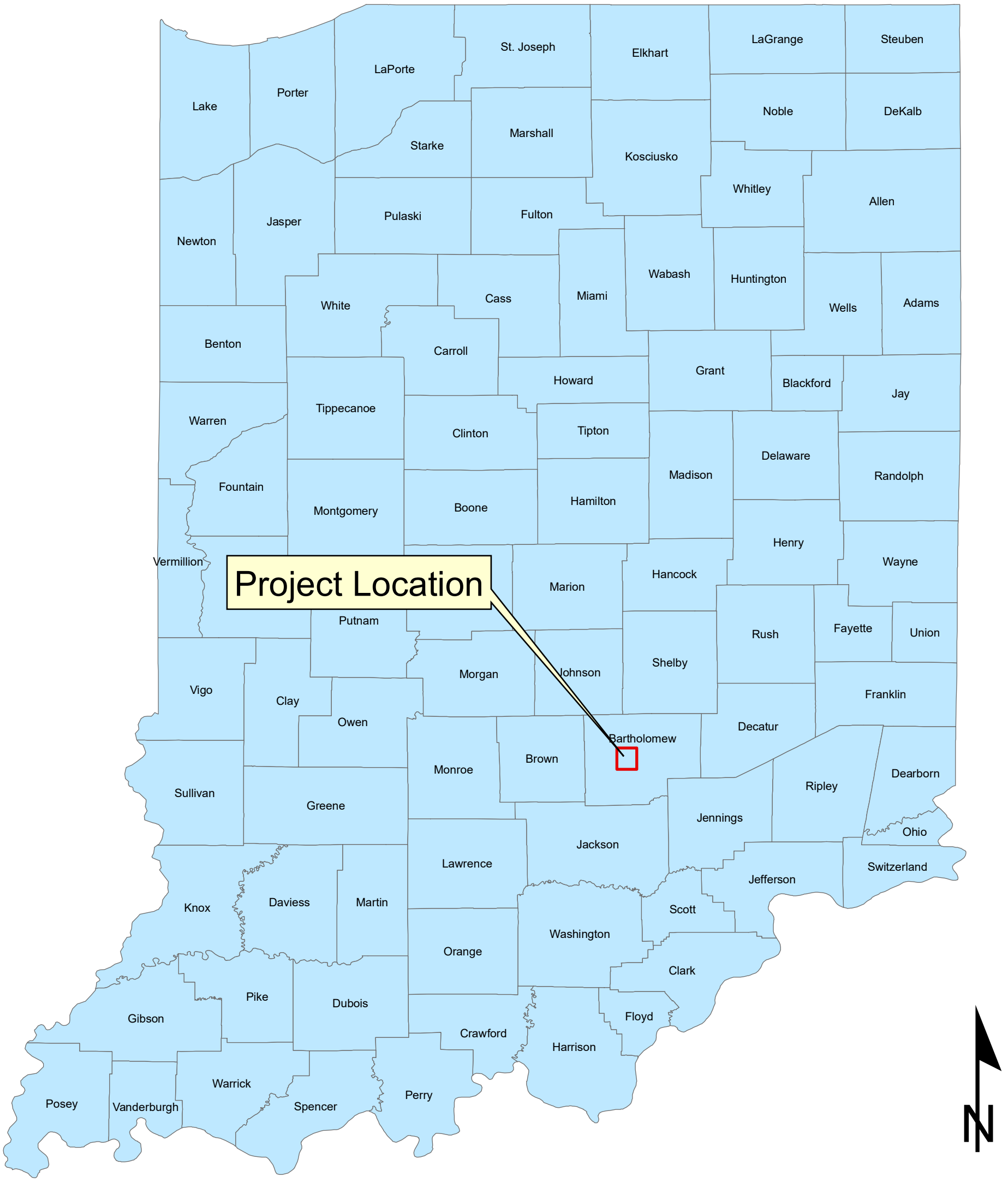
WATER RESOURCES: YES

MINING/MINERAL EXPLORATION: YES

HAZMAT CONCERNS: YES

URBAN AREA BOUNDARY MAP: YES

Red Flag Investigation - State Location
SR 46 Grade Separation
Carrying SR 46 over Louisville & Indiana Railroad
Bartholomew County, Indiana
Des. No.: 1700139



Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community

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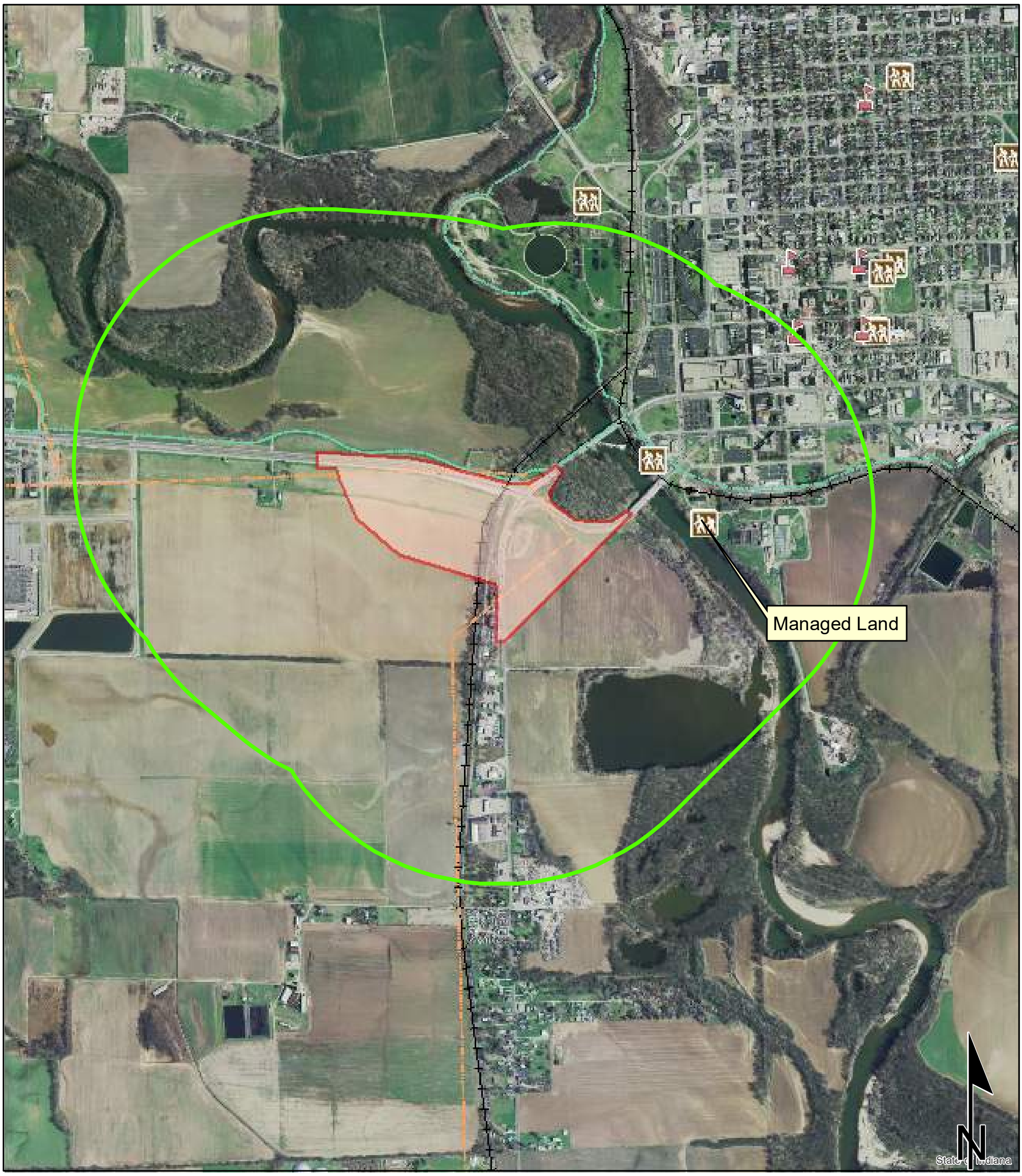
Red Flag Investigation - Infrastructure
SR 46 Grade Separation
Carrying SR 46 over Louisville & Indiana Railroad
Bartholomew County, Indiana
Des. No.: 1700139



UNITED Consulting

0.2 0.1 0 0.2 Miles

Sources:

Non Orthophotography

Data - Obtained from the State of Indiana Geographical Information Office Library

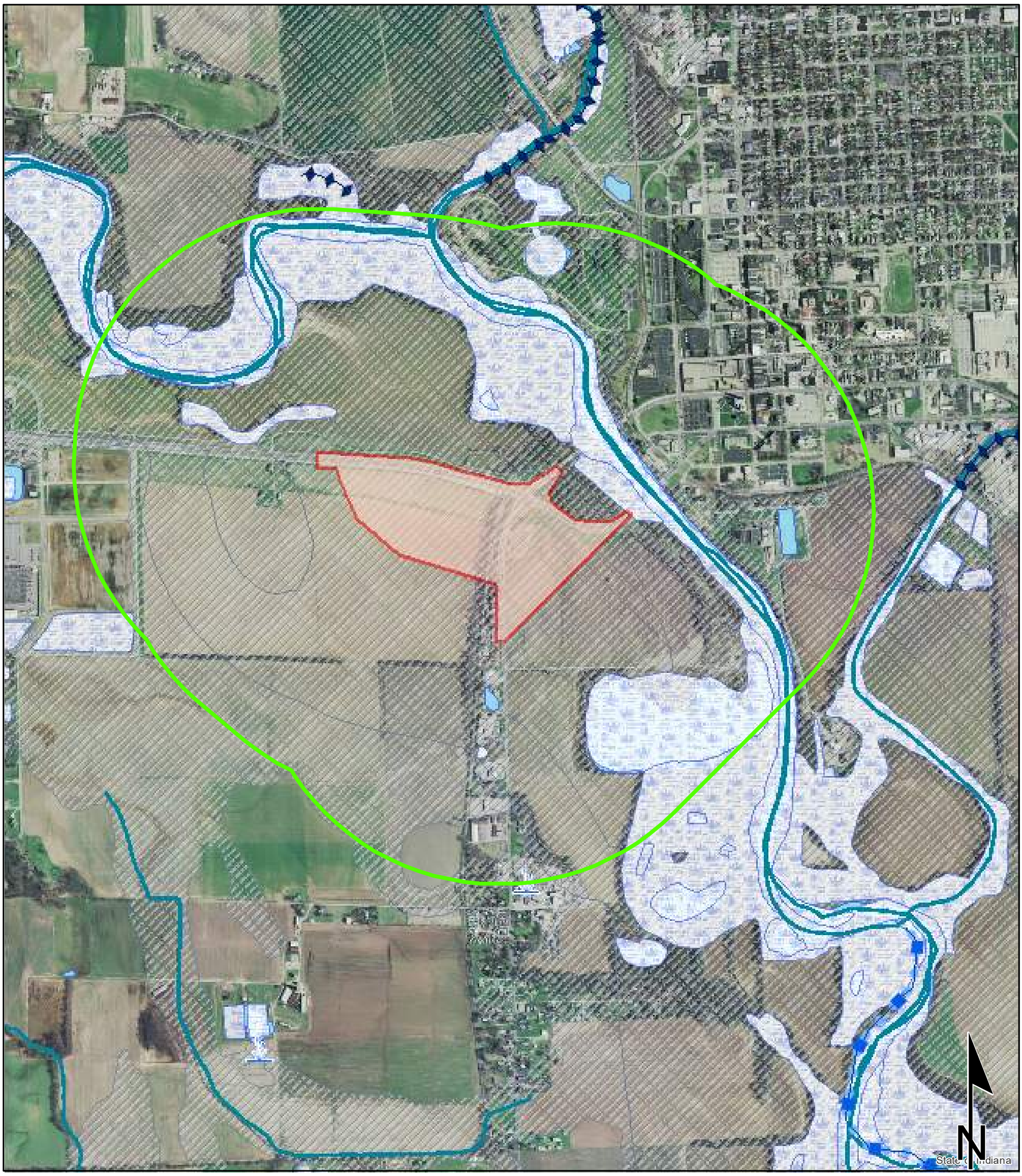
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)

Map Projection: UTM Zone 16 N **Map Datum:** NAD83

This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

- Religious Facility
- Religious Facility Indiana Map
- Airport
- Cemeteries
- Hospital
- School
- Recreation Facility
- Pipeline
- Railroad
- Trails
- Managed Lands
- County Boundary
- Project Area
- Half Mile Radius
- Interstate
- State Route
- US Route
- Local Road

Red Flag Investigation - Water Resources
SR 46 Grade Separation
Carrying SR 46 over Louisville & Indiana Railroad
Bartholomew County, Indiana
Des. No.: 1700139



UNITED Consulting

0.2 0.1 0 0.2 Miles

Sources:
Non Orthophotography Data - Obtained from the State of Indiana Geographical Information Office Library
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N **Map Datum**: NAD83

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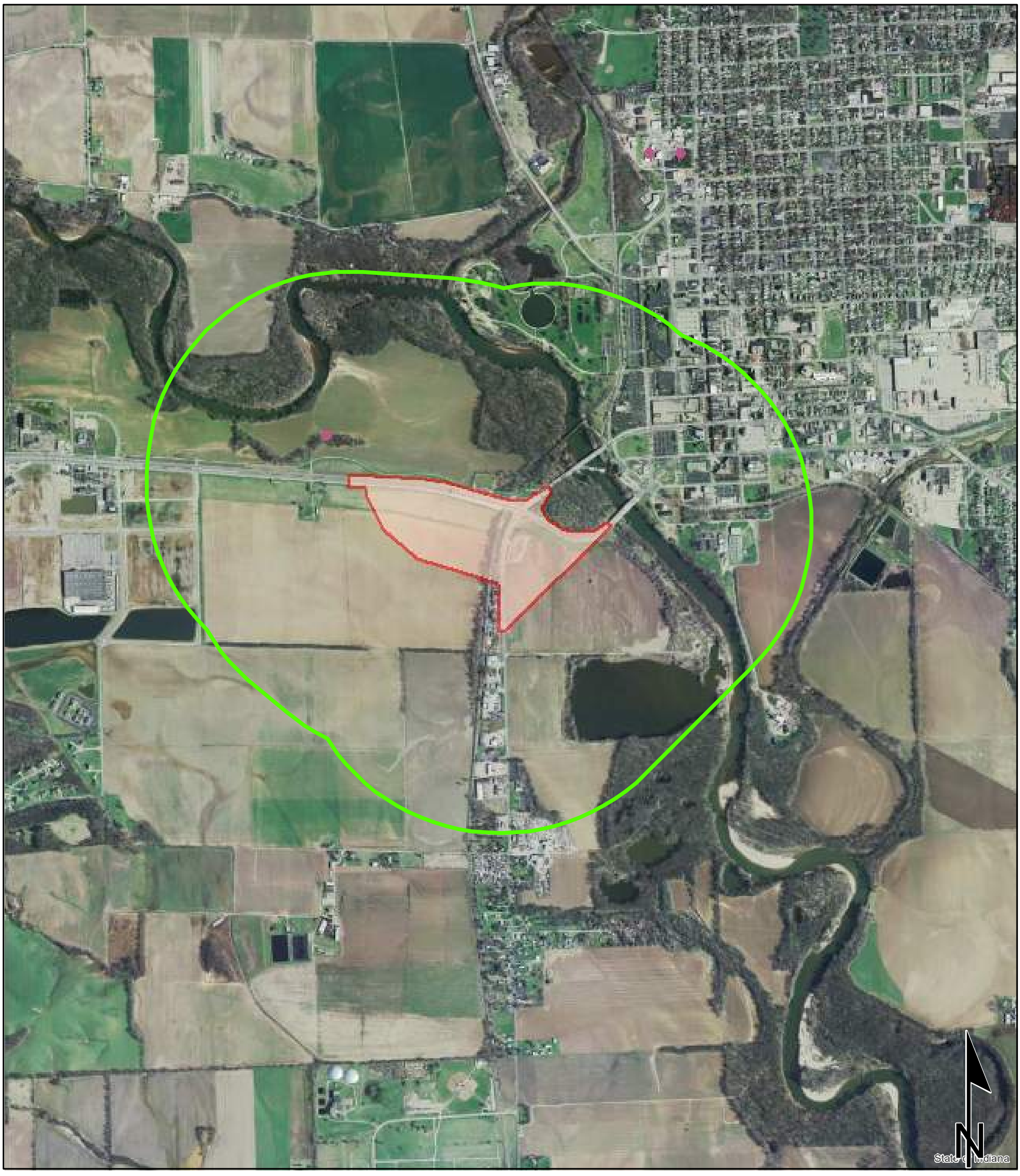
- NWI - Point
- Karst Spring
- Canal Structure - Historic
- NWI- Line
- Stream - Impaired
- NPS NRI listed
- River
- Canal Route - Historic
- Wetlands
- Lake - Impaired
- Lake
- Floodplain - DFIRM
- Cave Entrance Density
- Sinkhole Area
- Sinking-Stream Basin
- County Boundary
- Project Area
- Half Mile Radius
- Interstate
- State Route
- US Route
- Local Road

Red Flag Investigation - Mining/Mineral Exploration
SR 46 Grade Separation
Carrying SR 46 over Louisville & Indiana Railroad
Bartholomew County, Indiana
Des. No.: 1700139



UNITED Consulting

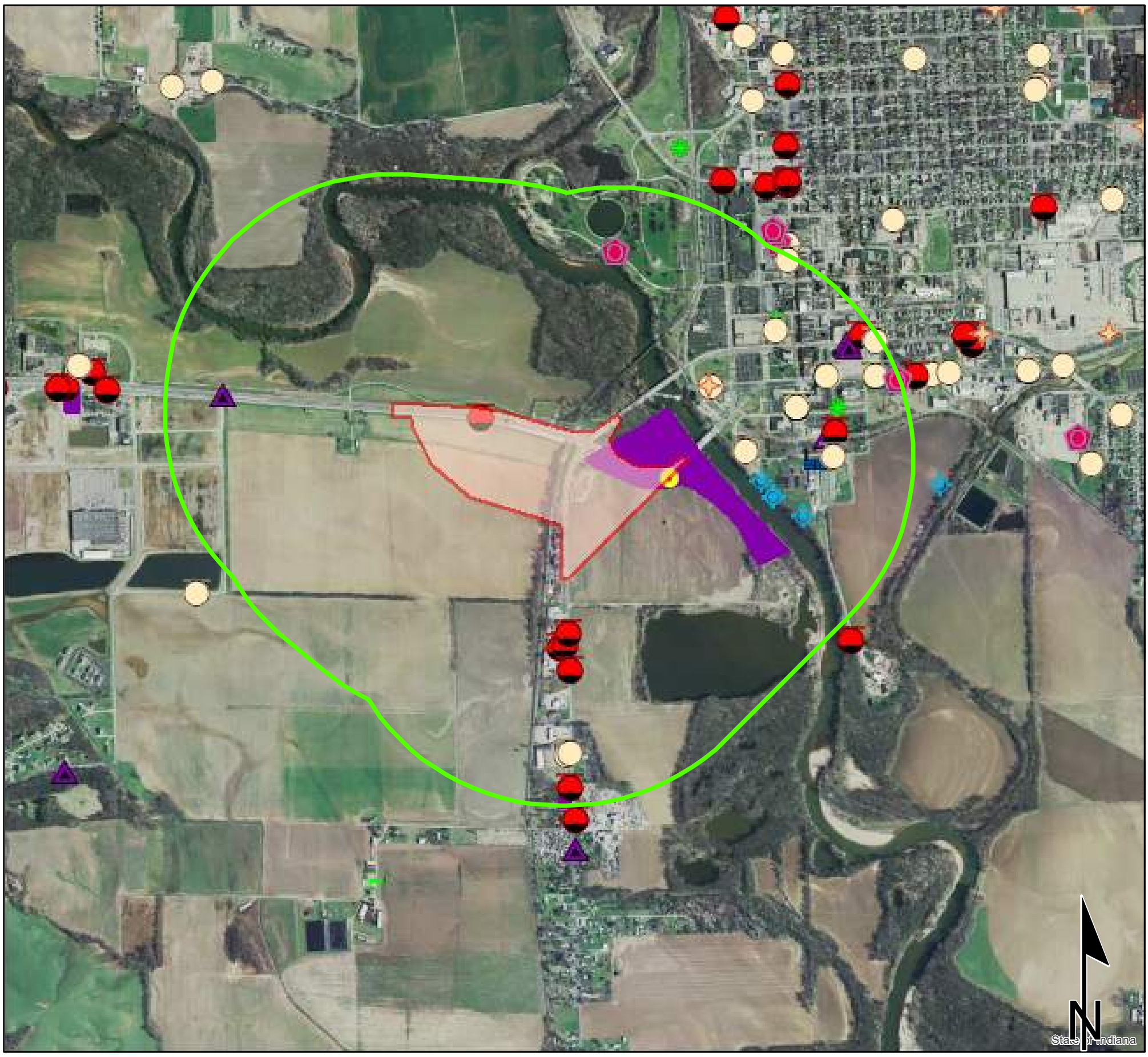
0.2 0.1 0 0.2 Miles

Sources:
Non Orthophotography
Data - Obtained from the State of Indiana Geographical Information Office Library
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N **Map Datum**: NAD83

This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

- Petroleum Well
- Mine - Surface
- Mine - Underground
- Petroleum Field
- County Boundary
- Project Area
- Half Mile Radius
- Interstate
- State Route
- US Route
- Local Road

Red Flag Investigation - Hazmat Concerns
SR 46 Grade Separation
Carrying SR 46 over Louisville & Indiana Railroad
Bartholomew County, Indiana
Des. No.: 1700139



- Brownfield
- RCRA Corrective Action Sites
- Confined Feeding Operation
- Construction/Demolition Site
- Infectious/Medical Waste Site
- Leaking Underground Storage Tank
- Manufactured Gas Plant
- NPDES Facilites
- NPDES Pipe Locations
- Open Dump Waste Site
- RCRA Generator/TSD
- Restricted Waste Site
- Septage Waste Site
- Solid Waste Landfill
- State Cleanup Site
- Superfund
- Tire Waste Site
- Underground Storage Tank
- Voluntary Remediation Program
- Waste Transfer Station
- Institutional Controls
- County Boundary
- Project Area
- Half Mile Radius
- Interstate
- State Route
- US Route
- Local Road

0.3 0.15 0 0.3 Miles

This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

UNITED Consulting

Sources:

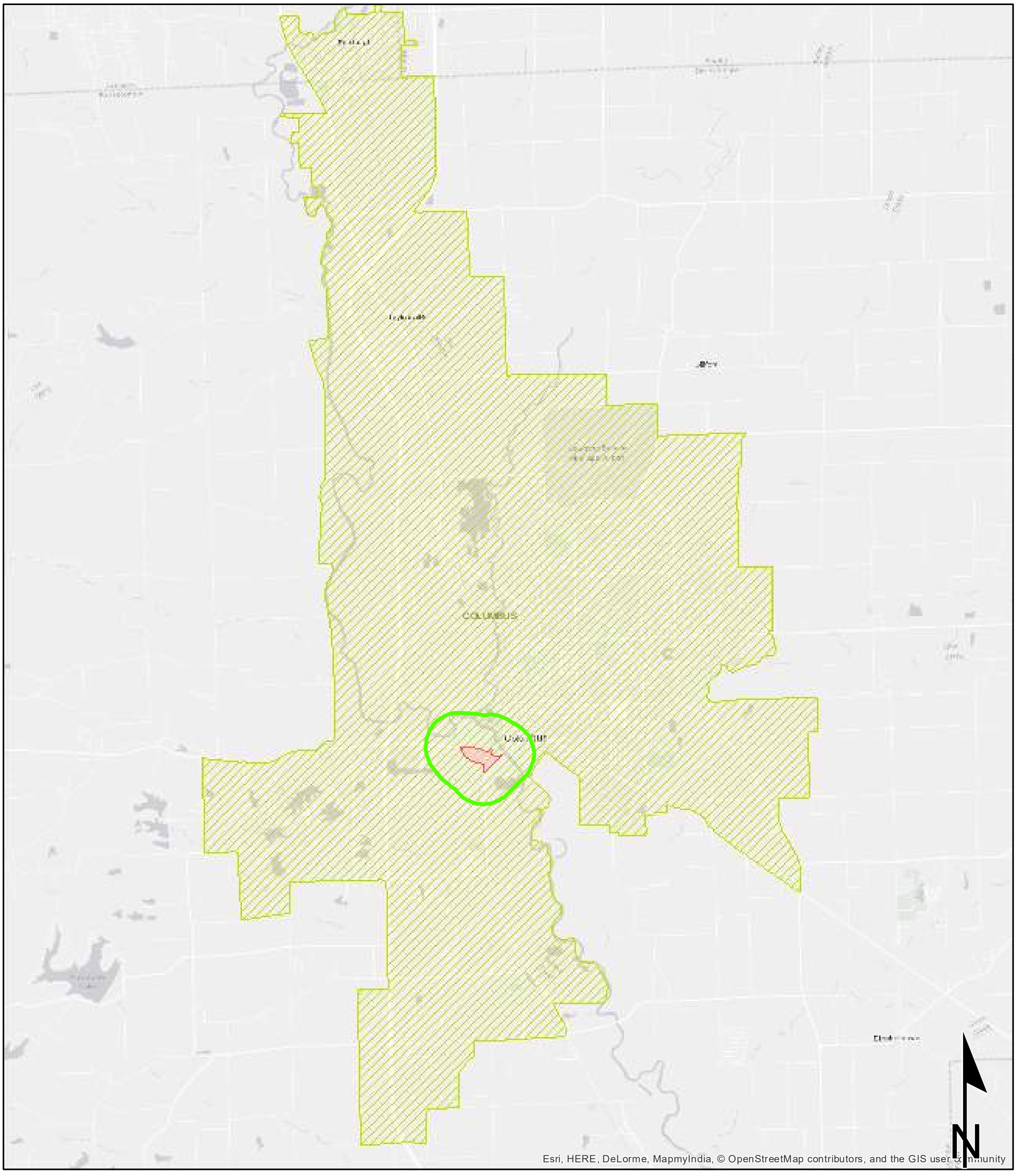
Non Orthophotography

Data - Obtained from the State of Indiana Geographical Information Office Library

Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)

Map Projection: UTM Zone 16 N **Map Datum:** NAD83

Red Flag Investigation - Urbanized Area Boundary
SR 46 Grade Separation
Carrying SR 46 over Louisville & Indiana Railroad
Bartholomew County, Indiana
Des. No.: 1700139



Sources:
Non Orthophotography Data - Obtained from the State of Indiana Geographical Information Office Library
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N **Map Datum:** NAD83

1.5 0.75 0 1.5 Miles

This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

UNITED Consulting

Indiana County Endangered, Threatened and Rare Species List

County: Bartholomew

Species Name	Common Name	FED	STATE	GRANK	SRANK
Mollusk: Bivalvia (Mussels)					
Cyprogenia stegaria	Eastern Fanshell Pearlymussel	LE	SE	G1Q	S1
Epioblasma torulosa rangiana	Northern Riffleshell	LE	SE	G2T2	SX
Epioblasma triquetra	Snuffbox	LE	SE	G3	S1
Lampsilis fasciola	Wavyrayed Lampmussel		SSC	G5	S3
Obovaria subrotunda	Round Hickorynut		SE	G4	S1
Pleurobema clava	Clubshell	LE	SE	G1G2	S1
Pleurobema pyramidatum	Pyramid Pigtoe		SE	G2G3	SX
Ptychobranchus fasciolaris	Kidneyshell		SSC	G4G5	S2
Quadrula cylindrica cylindrica	Rabbitsfoot	LT	SE	G3G4T3	S1
Toxolasma lividus	Purple Lilliput		SSC	G3Q	S2
Villosa fabalis	Rayed Bean	LE	SE	G2	S1
Villosa lienosa	Little Spectaclecase		SSC	G5	S3
Reptile					
Clonophis kirtlandii	Kirtland's Snake		SE	G2	S2
Bird					
Aimophila aestivalis	Bachman's Sparrow			G3	SXB
Ammodramus henslowii	Henslow's Sparrow		SE	G4	S3B
Buteo lineatus	Red-shouldered Hawk		SSC	G5	S3
Cistothorus platensis	Sedge Wren		SE	G5	S3B
Falco peregrinus	Peregrine Falcon		SSC	G4	S2B
Haliaeetus leucocephalus	Bald Eagle		SSC	G5	S2
Helmitheros vermivorus	Worm-eating Warbler		SSC	G5	S3B
Mniotilta varia	Black-and-white Warbler		SSC	G5	S1S2B
Nycticorax nycticorax	Black-crowned Night-heron		SE	G5	S1B
Tyto alba	Barn Owl		SE	G5	S2
Wilsonia citrina	Hooded Warbler		SSC	G5	S3B
Mammal					
Lasiurus borealis	Eastern Red Bat		SSC	G5	S4
Lasiurus cinereus	Hoary Bat		SSC	G5	S4
Mustela nivalis	Least Weasel		SSC	G5	S2?
Myotis lucifugus	Little Brown Bat		SSC	G3	S2
Myotis septentrionalis	Northern Myotis		SSC	G1G3	S2S3
Myotis sodalis	Indiana Bat or Social Myotis	LE	SE	G2	S1
Nycticeius humeralis	Evening Bat		SE	G5	S1
Perimyotis subflavus	Eastern Pipistrelle		SSC	G3	S2S3
Taxidea taxus	American Badger		SSC	G5	S2
Vascular Plant					
Arabis patens	Spreading Rockcress		SE	G3	S1
Carex straminea	Straw Sedge		ST	G5	S2

Indiana Natural Heritage Data Center
Division of Nature Preserves
Indiana Department of Natural Resources
This data is not the result of comprehensive county surveys.

Fed: LE = Endangered; LT = Threatened; C = candidate; PDL = proposed for delisting

State: SE = state endangered; ST = state threatened; SR = state rare; SSC = state species of special concern; SX = state extirpated; SG = state significant; WL = watch list

GRANK: Global Heritage Rank: G1 = critically imperiled globally; G2 = imperiled globally; G3 = rare or uncommon globally; G4 = widespread and abundant globally but with long term concerns; G5 = widespread and abundant globally; G? = unranked; GX = extinct; Q = uncertain rank; T = taxonomic subunit rank

SRANK: State Heritage Rank: S1 = critically imperiled in state; S2 = imperiled in state; S3 = rare or uncommon in state; G4 = widespread and abundant in state but with long term concern; SG = state significant; SH = historical in state; SX = state extirpated; B = breeding status; S? = unranked; SNR = unranked; SNA = nonbreeding status unranked

Indiana County Endangered, Threatened and Rare Species List

County: Bartholomew

Species Name	Common Name	FED	STATE	GRANK	SRANK
Crataegus prona	Illinois Hawthorn		SE	G4G5	S1
Juglans cinerea	Butternut		WL	G4	S3
Liatris pycnostachya	Cattail Gay-feather		ST	G5	S2
Oenothera perennis	Small Sundrops		SR	G5	S2
Panax quinquefolius	American Ginseng		WL	G3G4	S3
Panicum bicknellii	A Panic-grass		SE	G4?Q	S1
Penstemon canescens	Gray Beardtongue		SE	G4	S2
Schoenoplectus smithii	Smith's Bulrush		SE	G5?	S1
Sparganium androcladum	Branching Bur-reed		ST	G4G5	S2
Spiranthes ochroleuca	Yellow Nodding Ladies'-tresses		ST	G4	S2
High Quality Natural Community					
Forest - flatwoods bluegrass till plain	Bluegrass Till Plain Flatwoods		SG	G3	S2
Forest - upland dry	Dry Upland Forest		SG	G4	S4
Forest - upland dry-mesic	Dry-mesic Upland Forest		SG	G4	S4
Forest - upland mesic	Mesic Upland Forest		SG	G3?	S3
Primary - cliff limestone	Limestone Cliff		SG	GU	S1
Primary - wash gravel	Gravel Wash		SG	GU	S1
Other Significant Element					
Geomorphic - Nonglacial Erosional Feature - Water Fall and Cascade	Water Fall and Cascade			GNR	SNR

Indiana Natural Heritage Data Center
Division of Nature Preserves
Indiana Department of Natural Resources
This data is not the result of comprehensive county surveys.

Fed: LE = Endangered; LT = Threatened; C = candidate; PDL = proposed for delisting

State: SE = state endangered; ST = state threatened; SR = state rare; SSC = state species of special concern; SX = state extirpated; SG = state significant; WL = watch list

GRANK: Global Heritage Rank: G1 = critically imperiled globally; G2 = imperiled globally; G3 = rare or uncommon globally; G4 = widespread and abundant globally but with long term concerns; G5 = widespread and abundant globally; G? = unranked; GX = extinct; Q = uncertain rank; T = taxonomic subunit rank

SRANK: State Heritage Rank: S1 = critically imperiled in state; S2 = imperiled in state; S3 = rare or uncommon in state; G4 = widespread and abundant in state but with long term concern; SG = state significant; SH = historical in state; SX = state extirpated; B = breeding status; S? = unranked; SNR = unranked; SNA = nonbreeding status unranked

INDIANA DEPARTMENT OF TRANSPORTATION

100 North Senate Avenue
Room N642
Indianapolis, Indiana 46204

PHONE: (317) 232-5429
FAX: (317) 233-5428

Eric Holcomb, Governor
Joe McGuinness, Commissioner

Date: April 10, 2018

To: Site Assessment & Management (SAM)
Environmental Policy Office
Environmental Services Division
Indiana Department of Transportation
100 N Senate Avenue, Room N642
Indianapolis, IN 46204

From: Michael S. Oliphant, AICP
United Consulting
1625 North Post Road
Indianapolis, Indiana 46219
mikeo@ucindy.com

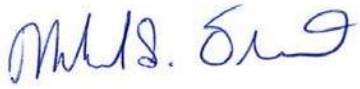
Re: RED FLAG INVESTIGATION ADDENDUM
DES #1700139 – SR 46 Grade Separation over Louisville & Indiana Railroad
Bartholomew County, Columbus, Indiana

A review of the original RFI signed on January 19, 2018, for the above DES indicated that substantive changes have occurred within the 0.5 mile radius and project area limits that may have an impact to the project. The following items should be considered as part of the RFI for the project. This document should be attached to the original, signed RFI.

1. Hazardous Material Concerns:
   State Cleanup Sites: One (1) additional state cleanup site is located within the 0.5 mile search radius. The state cleanup site, Former Wischmeier Nursery (State Cleanup Site # 0000655), located at the Chaille Veterinary Services, LLC, 240 Jonesville Road, Columbus, Indiana 47201, is located adjacent to the project area to the southwest. According to the IDEM VFC, the Initial Site Investigation and Groundwater Monitoring Reports, dated September 15, 2017 and December 7, 2017, underground storage tanks existed on this property and were removed in the 1980's. Site assessments revealed low levels of contamination, below tap screening levels, in groundwater samples at 15 to 16 feet below ground surface (bgs). Samples collected near the location of the removed tanks, approximately 40 feet west of the roadway, also revealed concentrations of contaminants below tap screening levels, yet at more shallow depths of 1 to 2 feet bgs. The most recent Groundwater Monitoring Report, dated April 2, 2018, states that all samples taken during the quarterly sampling event showed concentrations of all chemicals of concern to be below laboratory reporting limits. Monitoring will continue for another quarter to determine if contamination remains on site. If excavation occurs in this area, proper handling and disposal of any contaminated soil and/or groundwater may be necessary.

INDOT Environmental Services concurrence: Marlene Mathas Digitally signed by Marlene Mathas Date: 2018.04.10 09:55:18 -04'00'

Prepared by:



Michael S. Oliphant, AICP
Environmental Specialist
United Consulting

Checked By:

Devin L. Stettler, MPI, AICP
Manager, Environmental Services
United Consulting

Graphics:

A map for each report section with a 0.50 mile search radius buffer around all project area(s) showing all items identified as possible items of concern is attached. If there is not a section map included, please change YES to N/A:

GENERAL SITE MAP SHOWING PROJECT AREA: N/A

INFRASTRUCTURE: N/A

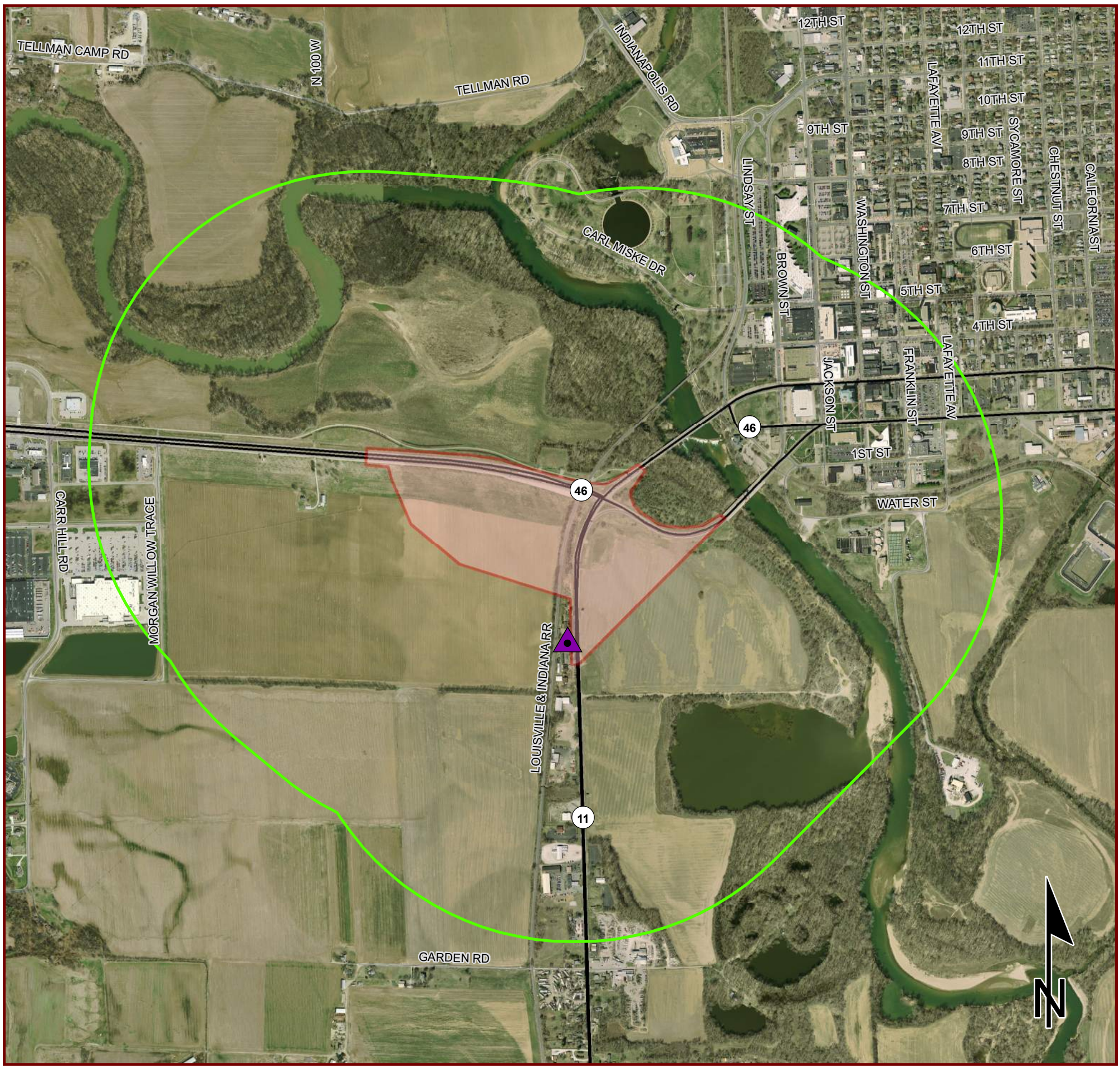
WATER RESOURCES: N/A

MINING/MINERAL EXPLORATION: N/A

HAZMAT CONCERNS: YES

URBAN AREA BOUNDARY MAP: N/A

Red Flag Investigation - Additional HazMat Concerns
SR 46 Grade Separation over Louisville and Indiana Railroad
Columbus, Bartholomew County, Indiana
DES. No.: 1700139



- Brownfield
- RCRA Corrective Action Sites
- Confined Feeding Operation
- Notice_Of_Contamination
- Construction/Demolition Site
- Infectious/Medical Waste Site
- Leaking Underground Storage Tank
- Manufactured Gas Plant
- NPDES Facilites
- NPDES Pipe Locations
- Open Dump Waste Site
- RCRA Generator/TSD
- Restricted Waste Site
- Septage Waste Site
- Solid Waste Landfill
- State Cleanup Site
- Superfund
- Tire Waste Site
- Underground Storage Tank
- Voluntary Remediation Program
- Waste Transfer Station
- Institutional Controls
- County Boundary
- Project Area
- Half Mile Radius
- Toll
- Interstate
- State Route
- US Route
- Local Road

0.25 0.125 0 0.25 Miles

This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

Sources:
Non Orthophotography
Data - Obtained from the State of Indiana Geographical Information Office Library
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N **Map Datum:** NAD83

Appendix F

Ecological and Water Resources

APPROVED NOVEMBER 14, 2017

WATERS DETERMINATION REPORT

S.R. 46 INTERCHANGE
INTERSECTION IMPROVEMENT PROJECT
COLUMBUS TOWNSHIP, BARTHOLOMEW COUNTY, INDIANA
Des. No. 1700139

Prepared for:
INDOT

October 30, 2017

Prepared by:

Metric Environmental, LLC

Complex Environment. Creative Solutions.
6971 Hillsdale Court
Indianapolis, IN 46256
Telephone: 317.207.4286
www.metricenv.com

Contents

WATERS OF THE U.S. DETERMINATION REPORT
S.R. 46 Interchange
Intersection Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Prepared By: Josh Myers, Metric Environmental, LLC
October 30, 2017

Date of Waters Field Investigation: August 23, 2017

Location:
Sections 25 and 26; Township 9 North; Range 5 East (**Exhibit 1**)
Columbus, IN United States Geological Survey (USGS) Topographic Quadrangle (**Exhibit 2**)
Columbus Township, Bartholomew County, Indiana

National Wetlands Inventory (NWI) Information:
Two mapped NWI wetlands, a Palustrine, Forested, Broad-Leaved Deciduous, Temporary Flooded (PFO1A) wetland and a Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Temporary Flooded (PSS1A) wetland enter the northeast corner of the project study limits (**Exhibit 3**). A PFO1A wetland is located outside of the northwest corner of the project study limits, north of S.R. 46. This area corresponded to a forested area north of a walking path that was outside of the western boundary of the project study limits. A Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded (R2UBH) wetland, corresponding with the Flatrock River, is located outside of the project study limits to the northeast.

FEMA Insurance Rate Map (FIRM):
The floodplain of Flatrock River, identified as Zone AE, an area subject to inundation by the 1% annual chance of flood, covers the entirety of the project study limits. The FIRM map for this area is provided as **Exhibit 4**.

Soils:
According to the Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) Database for Bartholomew County, Indiana, the project study limits contain seven mapped soil units, as shown in the table below. Medway silty clay loam (MjjAH), Rossburg silt loam (RtxAH), and Shoals silt loam (SldAH) are nationally listed hydric soils. Eel loam (EcyAH), Genessee loam (GccAH), Nineveh gravelly sandy loam (NpcAQ), and Udorthents (Uaz) are present but are not nationally listed hydric soils. The NRCS soil survey map is attached as **Exhibit 5**.

Symbol	Map Unit Name	Hydric Rating
EcyAH	Eel loam, 0 to 2 percent slopes, frequently flooded, brief duration	Not Hydric
GccAH	Genessee loam, 0 to 2 percent slopes, frequently flooded, brief duration	Not Hydric
MjjAH	Medway silty clay loam, 0 to 2 percent slopes, frequently flooded brief duration	Hydric (5%)
NpcAQ	Nineveh gravelly sandy loam, 0 to 2 percent slopes, rarely flooded	Not Hydric
RtxAH	Rossburg silt loam, 0 to 2 percent slopes, frequently flooded brief duration	Hydric (5%)
SldAH	Shoals silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	Hydric (4%)
Uaz	Udorthents, sandy	Not Hydric

Attached Documents:
Maps of the project area (**Exhibits 1-6**)
Photo Location Map (**Exhibit 7**)
Site Photographs
Wetland Determination Data Form(s)
Preliminary Jurisdictional Determination Form

Project Description:
The proposed project, Des. No. 1700139, is located in the central portion of Bartholomew County, Indiana, at the interchange of S.R. 46 and S.R. 11 in Sections 25 and 26, Township 9 North, Range 5 East of Columbus Township, Bartholomew County, Indiana. The proposed improvements include a reconfiguration of the intersection of S.R. 46 and S.R. 11, with a grade separation for S.R. 46 over the Louisville & Indiana Railroad.

Field Reconnaissance:
The wetland determination field visit was conducted on August 23, 2017 by Josh Myers and Amy Noel Smith of Metric Environmental, LLC. The project study limits consist of the area that has the potential to be impacted, based on the provided design scenario. This area was evaluated for the presence of wetlands and Waters of the United States (U.S.). This investigation was conducted in accordance with the *1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual* and the *August 2010 Midwest Regional Supplement (version 2.0) Manual*.

A Location Map showing the project location is provided as **Exhibit 1** and a USGS Columbus, Indiana Quadrangle Topographic Map is provided as **Exhibit 2**. The project study limits extended east and west along S.R. 46 and north and south along S.R. 11 to encompass the entire

interchange. An aerial map of sampling points and wetland locations is provided as **Exhibit 6**. A photo location map is provided as **Exhibit 7** and site photographs are attached.

The site was investigated for evidence of hydrophytic vegetation, hydric soil, and wetland hydrology to determine if the project impacts wetlands and other Waters of U.S. The uplands consisted of riparian forest and road right-of-way. The sampling point (SP) locations were chosen in possible wetland areas within the project study limits. Six sampling points were taken and are identified as SP-A1, SP-A2, SP-B1, SP-B2, SP-1, and SP-2. The sampling points, recorded on the USACE Wetland Determination Data Form and shown on **Exhibit 6,** provided the following information:

Sampling Plot Data Summary Table
S.R. 46 Interchange
Intersection Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139

Plot #	Photo #s	Lat/Long	Hydrophytic Vegetation	Hydric Soils	Wetland Hydrology	Within Wetland
SP-A1	47-49	39.19910 -85.927355	Yes	Yes	Yes	Yes, Wetland A
SP-A2	50-52	39.198971 -85.927516	Yes	No	No	No
SP-B1	53-55	39.199765 -85.93651	Yes	Yes	Yes	Yes, Wetland B
SP-B2	56-58	39.19985 -85.93791	No	No	Yes	No
SP-1	59-61	39.197786 -85.929958	Yes	No	Yes	No
SP-2	62-64	39.198141 -85.926104	Yes	No	No	No

Wetlands:
Two wetlands were observed within the project study limits during the field reconnaissance. Descriptions of the sampling points within each wetland are provided below.

Wetland Summary Table
S.R. 46 Interchange
Intersection Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139

Wetland	Photo #s	Lat/Long	Cowardin Class	Est. Amount in Review Area	Quality	Likely Water of the US?
Wetland A	45-49	39.19957 -85.928062	PFO1A	2.574 acres	Good	Yes
Wetland B	53-55	39.199755 -85.936512	PEM1A	0.005 acre	Poor	Yes
Total Wetland Amount in Review Area				2.579 acres		

Wetland A (2.574 acre) - PFO1A

Wetland A is a PFO1A wetland located in the northeastern portion of the project study limits, east and west of S.R. 46 West. This wetland is located within the floodplain of the Flatrock River. Since this wetland is adjacent to highway right-of-way and S.R. 46, it can be deduced that the wetland receives significant polluted run-off from that source. The wetland exhibited moderate plant species diversity and serves significant function as wildlife habitat along a forested river corridor. These factors contribute to the conclusion that this wetland should be considered to be of good quality. Since Wetland A has a significant nexus to the Flatrock River due to its location in the floodplain, the wetland should be considered a jurisdictional Water of the U.S. by the USACE. The Flatrock River is listed as a Section 10 Traditional Navigable Water (TNW). Descriptions of the sampling points for Wetland A are provided below.

Sampling Point A1 (SP-A1) – Wetland A

SP-A1 was located on the east side of S.R. 46 West, within the floodplain of the Flatrock River. Dominant vegetation present at this sampling point included ash-leaf maple (*Acer negundo,* FAC) and silver maple (*Acer saccharinum,* FACW) in the tree stratum. In the sapling/shrub stratum the dominant vegetation included common hackberry (*Celtis occidentalis,* FAC). In the herb stratum, the dominant vegetation included white panicle aster (*Symphyotrichum lanceolatum,* FAC) and creeping-Jenny (*Lysimachia nummularia,* FAW). This met the hydrophytic vegetation criteria with a dominance test of 100% and a prevalence index of 2.74. To a depth of 15 in., the soil in the test pit was a sandy loam and exhibited a mixed matrix color of 10YR 4/2 (45%) and 10YR 4/3 (50%) with 10YR 5/6 (5%) prominent mottles as concentrations in the matrix. This met the hydric soil criterion for depleted matrix (F3). A restrictive layer of gravel was encountered at 15 in. preventing the further characterization of soil. Four secondary indicators of wetland hydrology, surface soil cracks (B6), drainage patterns (B10), geomorphic position (D2), and FAC-Neutral test

(D5), were observed. Since the hydrophytic vegetation, hydric soil, and hydrology criteria were met, this area qualified as a wetland.

Sampling Point A2 (SP-A2) - Wetland A upland

SP-A2 was located on the east side of S.R. 46 West, within the floodplain of Flatrock River, on an upland slope, southwest of Wetland A. The dominant vegetation at this sampling point included common hackberry (*Celtis occidentalis,* FAC) and ash-leaf maple (*Acer negundo,* FAC) in the tree stratum. In the sapling/shrub stratum, the dominant vegetation included common hackberry (*Celtis occidentalis,* FAC). In the herb stratum, the dominant vegetation included (*Persicaria virginiana,* FAC) and white panicle aster (*Symphyotrichum lanceolatum,* FAC). In the woody vine stratum, the dominant vegetation consisted of Virginia creeper (*Parthenocissus quinquefolia,* FACU). This met the hydrophytic vegetation criteria with a dominance test of 83%. The soil in the test pit was a sandy loam and exhibited a mixed matrix color of 10YR 4/2 (50%) and 10YR 3/2 (50%) to a depth of 2 in. This did not meet the criteria to be classified as a hydric soil. A restrictive layer of gravel was encountered at 15 in. preventing the further characterization of soil. No primary or secondary indicators of hydrology were observed. Since only one of the three wetland criteria was met, this area did not qualify as a wetland.

Wetland B (0.005 acre) - PEM1A

Wetland B is a PEM1A wetland located on the north side of S.R. 46, within a roadside ditch, in the western portion of the project study limits. Since this wetland is adjacent to a S.R. 46 and located within the road right-of-way, it can be deduced that the wetland receives significant polluted run-off from those sources. In addition, the wetland exhibited low plant species diversity. These two factors contribute to the conclusion that this wetland does not support significant wildlife or aquatic habitat, and therefore should be considered to be of poor quality. Wetland B appears to be the result of drainage from S.R. 46 storm water with no likely significant nexus to a TNW and therefore does not appear to connect to any jurisdictional waters. Descriptions of the sampling points for Wetland B are provided below.

Sampling Point B1 (SP-B1)-Wetland B

SP-B1 was located on the north side of S.R. 46 within Roadside Ditch 1 (RSD 1) and Wetland B. Dominant vegetation present at this sampling point included barnyard grass (*Echinochloa crus-galli,* FACW) and tall fescue (*Schedonorus arundinaceus,* FACU) in the herb stratum. This met the hydrophytic vegetation criteria with a prevalence index of 2.80. To a depth of 20 in., the soil in the test pit was a silty clay loam. From 0 to 5 in., the soil exhibited a matrix color of 10YR 4/1 (75%) with 10YR 4/4 (20%) distinct mottles and 10YR 4/6 (5%) prominent mottles. From 5 to 20 in., the soil exhibited a matrix color of 10YR 4/3 (90%) with 10YR 5/4 (10%) faint mottles. This met the hydric soil criteria for depleted matrix (F3). One primary indicator of wetland hydrology, surface water (A1) and one secondary indicator of wetland hydrology, geomorphic position (D2), were observed. Since the hydrophytic vegetation, hydric soil, and hydrology criteria were met, this area qualified as a wetland.

Sampling Point B2 (SP-B2) - Wetland B upland

SP-B2 was located on the north side of S.R. 46, within RSD 1, and west of Wetland B. The dominant vegetation present at this sampling point included barnyard grass (*Echinochloa crus-galli,* FACW) and tall fescue (*Schedonorus arundinaceus,* FACU) in the herb stratum. This did not meet the hydrophytic vegetation criteria. The soil in the test pit was a sandy clay loam to a depth of 12 in. and a sandy loam from 12 to 20 in. with some gravel mixed into the soil. From 0 to 12 in. the soil exhibited a matrix color of 10YR 3/1 (100%). From 12 to 20 in. the soil exhibited a matrix color of 10YR 4/3 (100%). This did not meet the criteria to be classified as a hydric soil. Two primary indicators of hydrology, surface water (A1) and saturation (A3) and one secondary indicator, geomorphic position (D2), were observed. This sampling point does not appear to be inundated or have a water table at 12 in. or less from the surface for 14 or more consecutive days during the growing season. Due to recent rain events and storm water runoff from S.R. 46, temporary hydrology was present at this sampling point. Since only one of the three wetland criteria was met, this area did not qualify as a wetland.

Additional Sampling Points:

Additional sampling points were taken in an area where wetlands were suspected, but these areas did not meet the criteria to qualify as wetland. Descriptions of these sampling points are provided below.

Sampling Point 1 (SP-1)

SP-1 was located on the east side of S.R. 11, within RSD 3. The dominant vegetation present at this sampling point included silver maple (*Acer saccharinum,* FACW) and ash-leaf maple (*Acer negundo,* FAC) in the tree stratum. In the sapling/shrub stratum, the dominant vegetation included white mulberry (*Morus alba,* FAC) and amur honeysuckle (*Lonicera maackii,* NI). In the herb stratum, the dominant vegetation included fox sedge (*Carex vulpinoidea*, FACW) and white panicle aster (*Symphyotrichum lanceolatum,* FAC). In the woody vine stratum, the dominant vegetation consisted of eastern poison ivy (*Toxicodendron radicans*, FAC). This met the hydrophytic vegetation criteria with a dominance test of 100%. To a depth of 4 in., the soil in the test pit was a silt loam and exhibited a matrix color of 10YR 4/2 (100%). This did not meet the criteria to be classified as a hydric soil. A restrictive layer of gravel was encountered at 4 in. preventing the further characterization of soil. It is not likely that this soil would have mottles at a deeper depth if a soil pit could be dug deeper as it does not appear water collects in this area for extended periods. Two secondary indicators of hydrology, geomorphic position (D2) and FAC-Neutral Test (D5), were observed. Since only two of the three wetland criteria were met, this area did not qualify as a wetland.

Sampling Point 2 (SP-2)

SP-2 was located within the mapped floodplain of the Flatrock River, on a second terrace to the river, and within a mapped PSS1A NWI wetland, on the west side of S.R. 46 East. The dominant

vegetation present at this sampling point included common hackberry (*Celtis occidentalis,* FAC) in the tree stratum. In the sapling/shrub stratum, the dominant vegetation included common hackberry (*Celtis occidentalis,* FAC) and amur honeysuckle (*Lonicera maackii,* NI). In the herb stratum, the dominant vegetation included Canadian clearweed (*Pilea pumila,* FACW) and garlic-mustard (*Alliaria petiolate,* FAC). This met the hydrophytic vegetation criteria with a dominance test of 100%. To a depth of 15 in., the soil in the test pit was a sandy loam and exhibited a mixed matrix color of 10YR 3/2 (50%) and 10YR 4/2 (50%). This did not meet the criteria to be classified as a hydric soil. A restrictive layer of gravel was encountered at 15 in. preventing further characterization of the soil. While the sampling point was located within the floodplain of the Flatrock River, it did not show the stratification that would be indicative of a problematic floodplain soil. One secondary indicator of hydrology, FAC-neutral test (D5), was observed. Due to the sampling point being located on a second terrace to the Flatrock River, it did not appear that the area received inundation from floodwaters for a period of 14 consecutive days or more within the growing season. This did not meet the criteria for wetland hydrology. Since only one of the three wetland criteria was met, this area did not qualify as a wetland.

Streams:
No streams were observed within the project study limits during the field reconnaissance.

Roadside Ditches:
Four roadside ditches (RSD) were identified within the project study limits during the field reconnaissance.

RSD 1 is located on the north side of S.R. 46 and flows east to Wetland B. It is a vegetated drainage swale that receives flow from S.R. 46 storm water. SP-B1 and SP-B2 were both correlated with RSD 1. The feature is approximately 780 LFT in length within the project study limits. No ordinary high water mark (OHWM) was observed within RSD 1. This feature is not likely jurisdictional.

RSD 2 is located on the east side of S.R. 11 and appears to flow north through a culvert and into RSD 3. It is a vegetated drainage swale adjacent to agricultural land and mowed right-of-way. The feature is approximately 202 LFT in length within the project study limits. No OHWM was observed within RSD 2. This feature is not likely jurisdictional.

RSD 3 is located on the east side of S.R. 11 and appears to flow north into a culvert that leads under S.R. 11. It is a vegetated drainage swale adjacent to agricultural land and mowed right-of-way. The feature is approximately 178 LFT in length within the project study limits. No OHWM was observed within RSD 2. This feature is not likely jurisdictional.

RSD 4 is located on the southeast side of S.R. 46 West, northeast of the S.R. 46 and S.R. 11 intersection. It is a vegetated drainage swale that appears to convey water from the road into

the floodplain of the Flatrock River to the east. No OHWM was observed within RSD 4. This feature is not likely jurisdictional.

Conclusion:
Two wetlands, Wetland A (PFO1A) and Wetland B (PEM1A), totaling 2.579 acres, were identified within the project study limits. Every effort should be taken to avoid or minimize impacts to these waterways. If impacts are necessary, mitigation may be required. The final determination of jurisdictional waters is ultimately made by the USACE. This report is our best judgment based on the guidelines set forth by USACE.

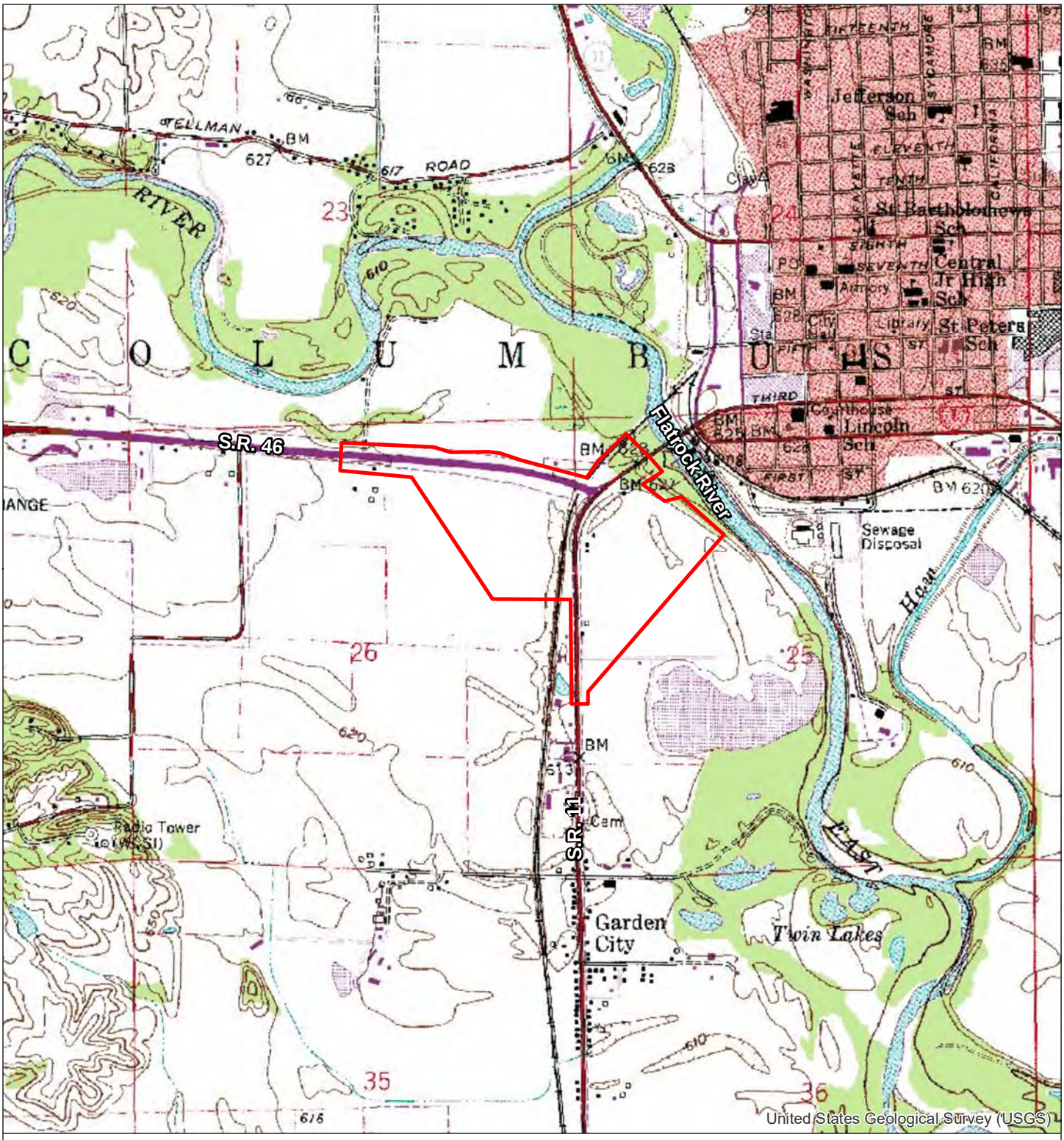
Exhibit 1 - Location Map
S.R. 46 Interchange
Intersection Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

All locations approximate

N

0 0.5 1 2
Miles

METRIC ENVIRONMENTAL



Project Study Limits

Exhibit 2 - USGS Topographic Map
Columbus, IN Quadrangle
S.R. 46 Interchange
Intersection Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

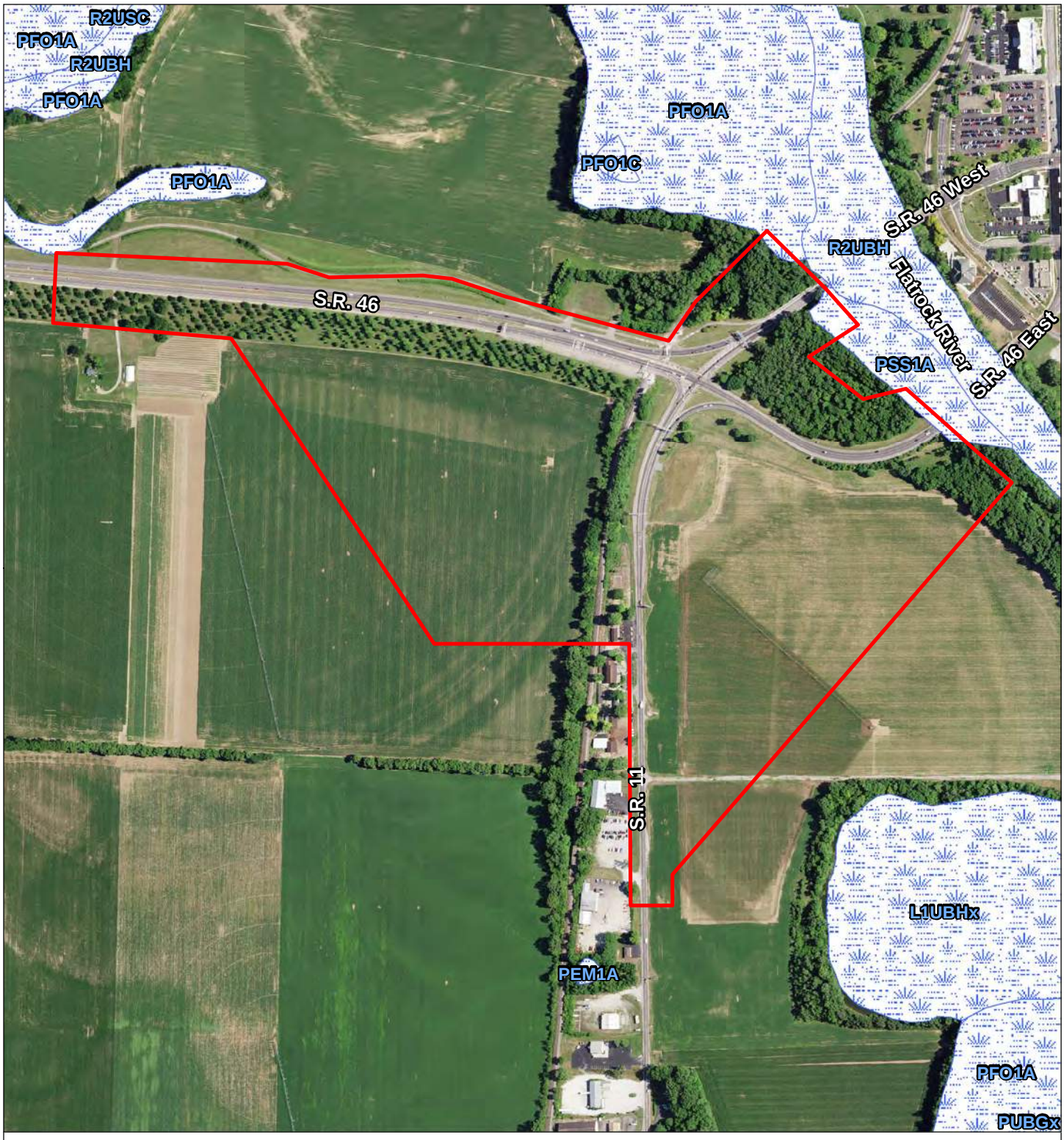
All locations approximate

Source: Indiana Spatial Data Portal (1962 Topographic Map)

N

0 0.075 0.15 0.3
Miles

METRIC ENVIRONMENTAL



Project Study Limits NWI Wetlands

Exhibit 3 - National Wetlands Inventory Map
S.R. 46 Interchange
Intersection Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

All locations approximate

Source: Indiana Spatial Data Portal (2016 Aerial)

N

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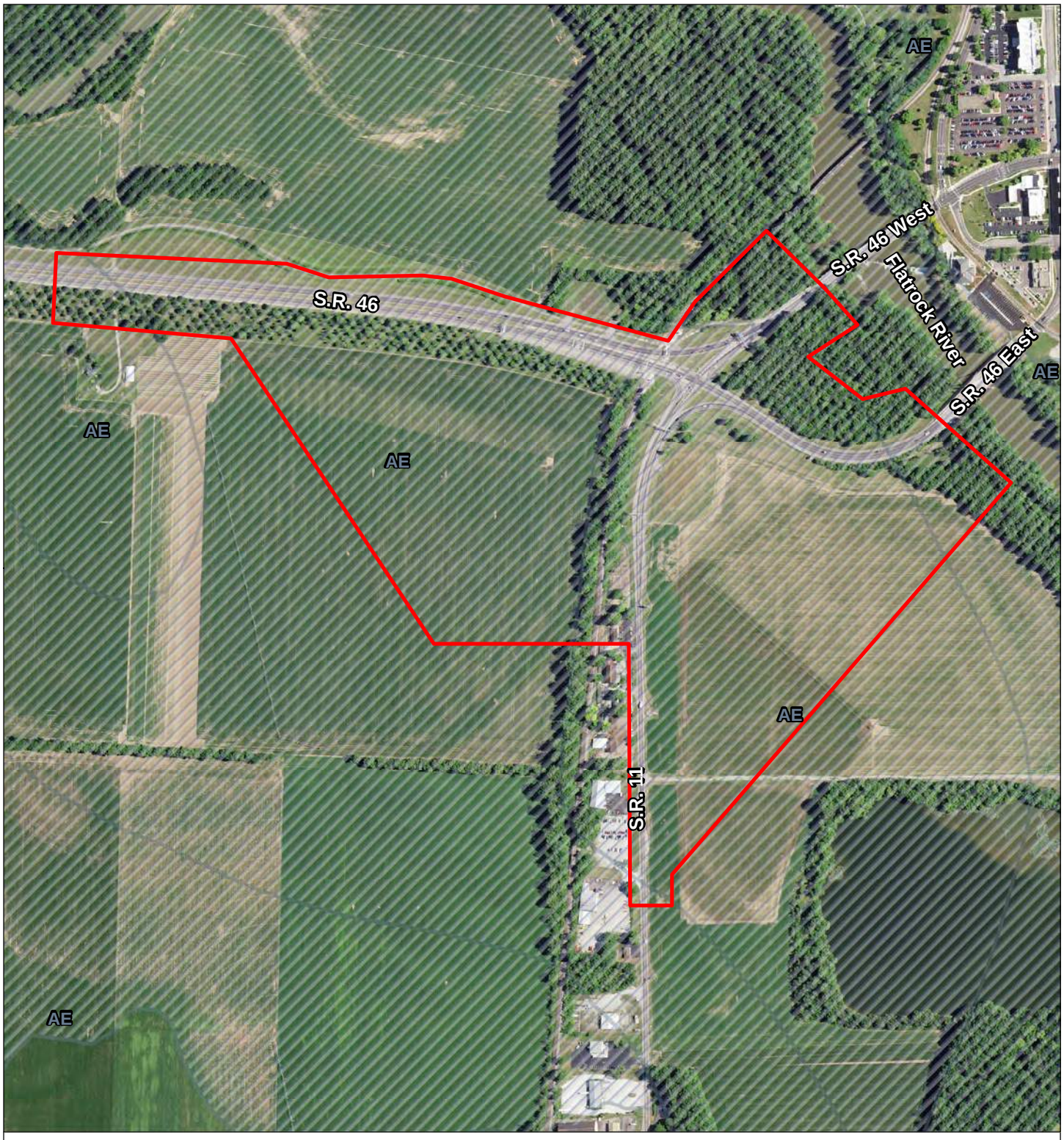
Feet

METRIC ENVIRONMENTAL



Project Study Limits Floodplain - Zone AE - 1% Chance Annual Flood

Exhibit 4 - Flood Insurance Rate Map
S.R. 46 Interchange
Intersection Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

All locations approximate

Source: Indiana Spatial Data Portal (2016 Aerial)

N

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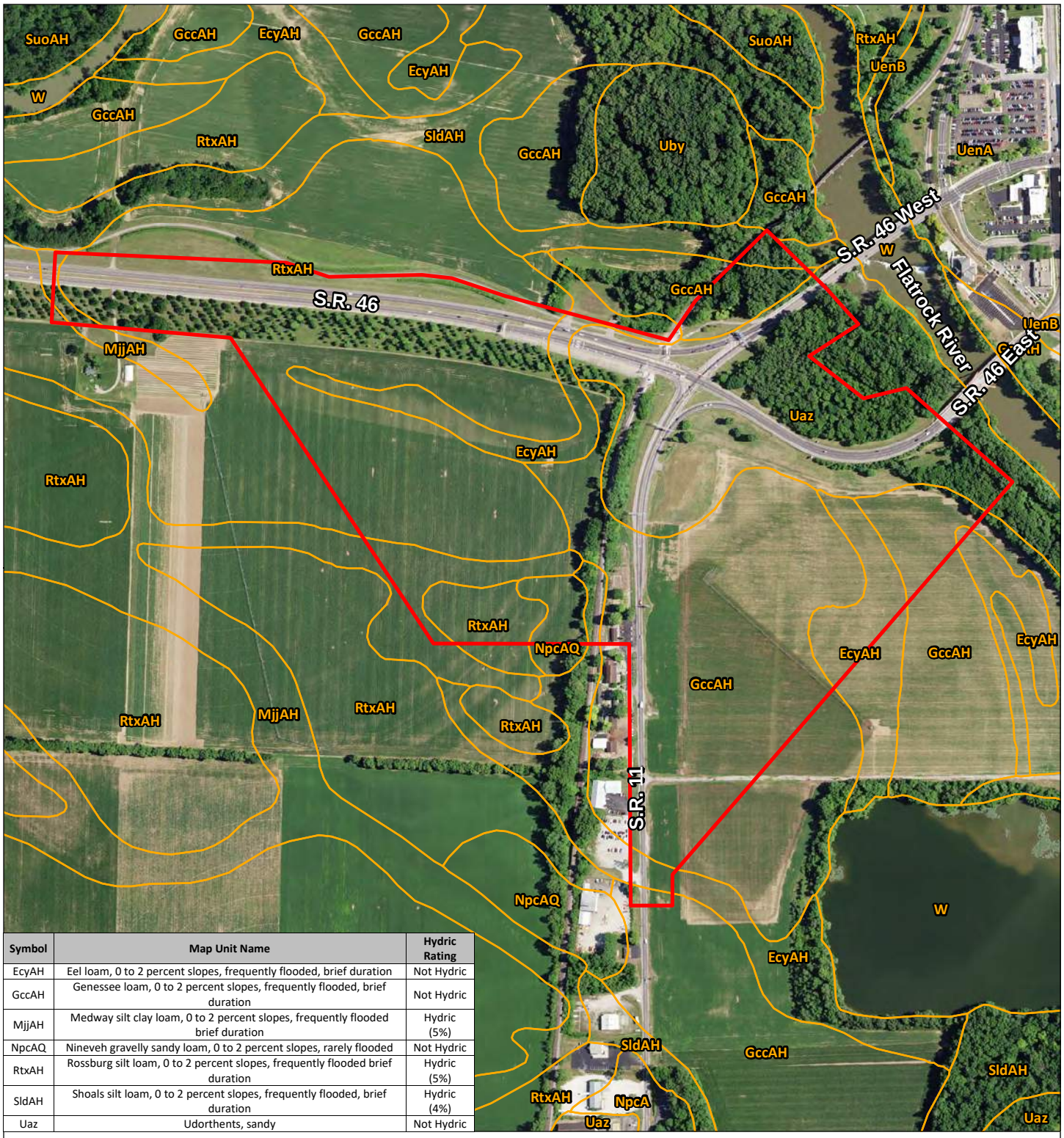
Feet

METRIC ENVIRONMENTAL



Symbol	Map Unit Name	Hydric Rating
EcyAH	Eel loam, 0 to 2 percent slopes, frequently flooded, brief duration	Not Hydric
GccAH	Genessee loam, 0 to 2 percent slopes, frequently flooded, brief duration	Not Hydric
MjjAH	Medway silt clay loam, 0 to 2 percent slopes, frequently flooded brief duration	Hydric (5%)
NpcAQ	Nineveh gravelly sandy loam, 0 to 2 percent slopes, rarely flooded	Not Hydric
RtxAH	Rossburg silt loam, 0 to 2 percent slopes, frequently flooded brief duration	Hydric (5%)
SldAH	Shoals silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	Hydric (4%)
Uaz	Udorthents, sandy	Not Hydric

Project Study Limits NRCS Soil Survey

Exhibit 5 - NRCS Soil Survey Map
S.R. 46 Interchange
Intersection Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

All locations approximate

Source: Indiana Spatial Data Portal (2016 Aerial)

N

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Feet

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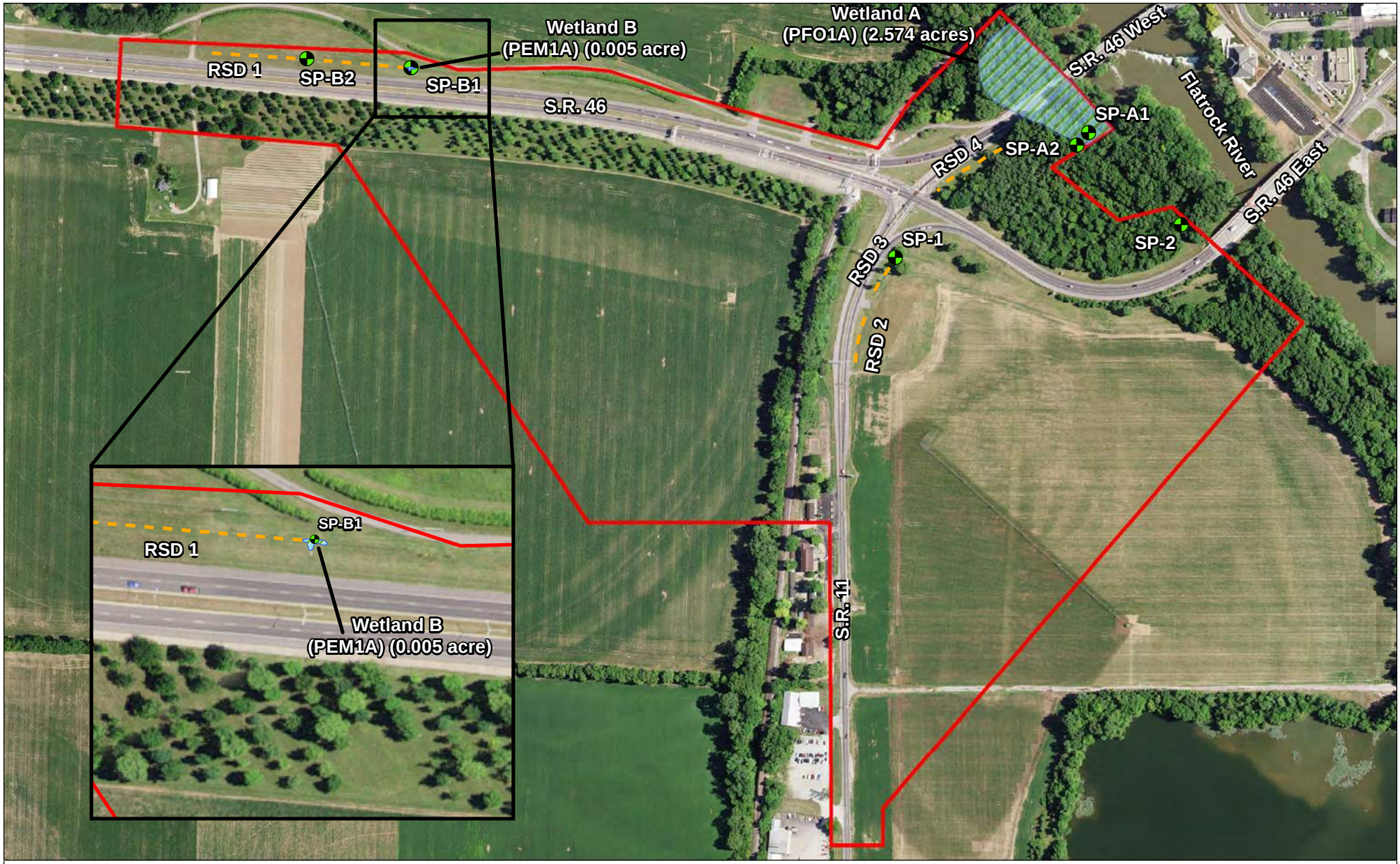

Project Study Limits | Sampling Points | Roadside Ditch | Wetland

Exhibit 6 - Waters Delineation Map
S.R. 46 Interchange
Intersection Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

All locations approximate

Source: Indiana Spatial Data Portal (2016 Aerial)

N

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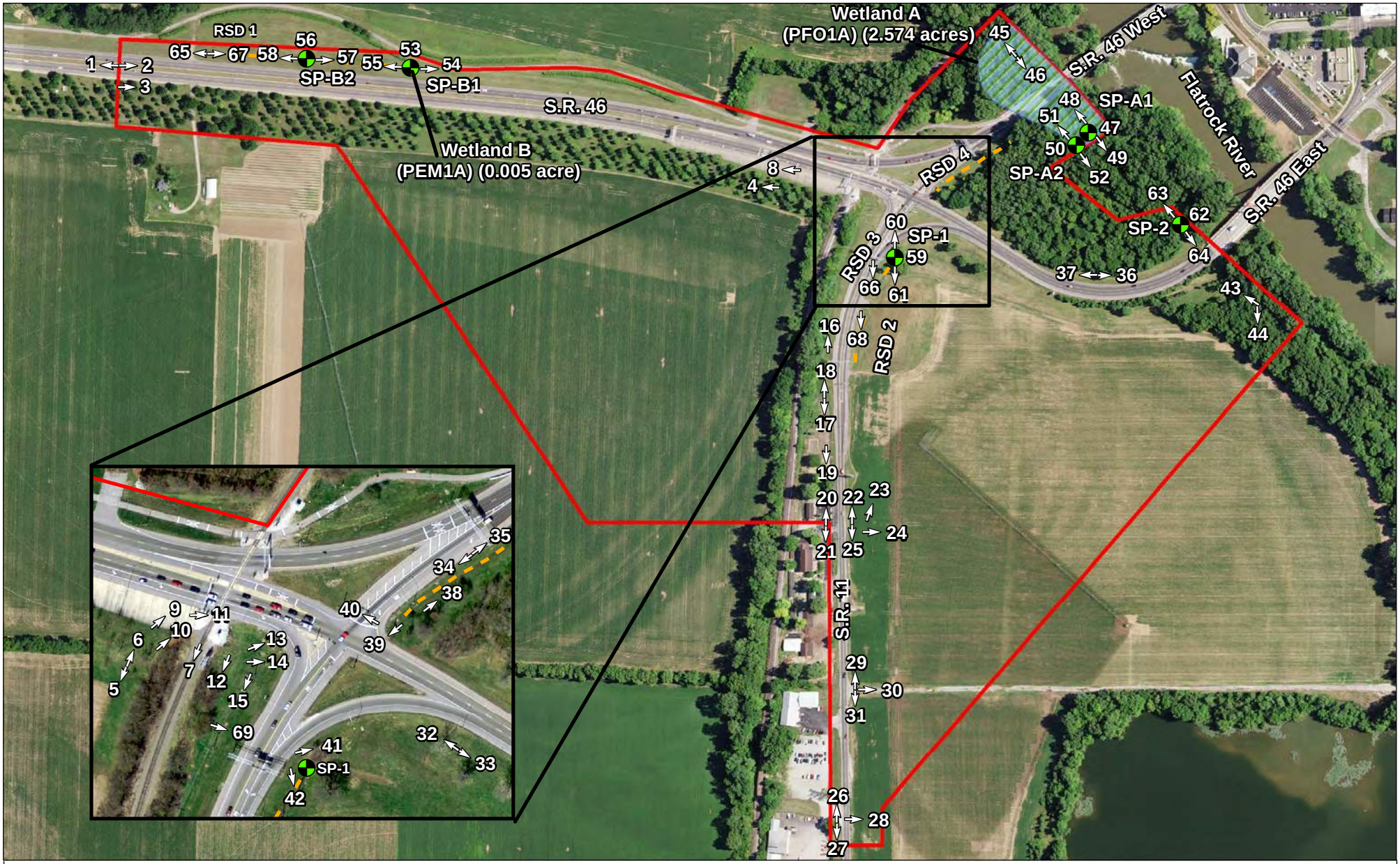
Feet

METRIC ENVIRONMENTAL



Project Study Limits | Sampling Points | Wetland

Exhibit 7 - Photo Location Map
S.R. 46 Interchange
Intersection Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

All locations approximate

Source: Indiana Spatial Data Portal (2016 Aerial)

N

0 125 250 500
Feet

METRIC ENVIRONMENTAL

1. View from western project boundary looking west at S.R. 46.

2. View from western project boundary looking east at S.R. 46.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

METRIC ENVIRONMENTAL

3. View from south of S.R. 46 looking east at right-of-way.

4. View from south of S.R 46 and west of S.R. 11 looking west at right-of-way.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

METRIC ENVIRONMENTAL

5. View west of S.R. 11 looking southwest at railroad right-of-way.

6. View west of S.R. 11 looking northeast at S.R. 46.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

METRIC ENVIRONMENTAL

7. View west of S.R. 11 looking southwest at railroad tracks.

8. View looking west at S.R. 46.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

METRIC ENVIRONMENTAL

9. View looking northeast at intersection of S.R. 46 at railroad.

10. View looking northeast at S.R. 46 interchange with S.R. 11.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

METRIC ENVIRONMENTAL

11. View looking east at S.R. 46 interchange with S.R. 11

12. View looking southwest at right-of-way between S.R. 11 and railroad.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

METRIC ENVIRONMENTAL

13. View looking northeast at S.R. 46 interchange with S.R. 11

14. View looking east at S.R. 46 interchange with S.R. 11.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

METRIC ENVIRONMENTAL

15. View looking south at S.R. 11 right-of-way.


16. View of S.R. 11 right-of-way looking north.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

17. View of S.R. 11 right-of-way looking south.

18. View of S.R. 11 right-of-way looking north.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

METRIC ENVIRONMENTAL

19. View of S.R. 11 right-of-way looking south.

20. View of S.R. 11 right-of way looking north.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

METRIC ENVIRONMENTAL

21. View of S.R. 11 right-of-way looking south.

22. View of S.R. 11 right of way looking north.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
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Metric Project No. 17-0057-1

23. View of field east of S.R. 11 looking northeast.

24. View of field east of S.R. 11 looking east.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

METRIC ENVIRONMENTAL

25. View of S.R. 11 right-of-way looking south.

26. View from southern project study limits looking north at S.R. 11.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

METRIC ENVIRONMENTAL

27. View from southern project study limits looking south at S.R. 11.

28. View from southern project study limits looking east.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

METRIC ENVIRONMENTAL

29. View of S.R. 11 right-of-way looking north.

30. View of farm road looking east from S.R. 11.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
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Metric Project No. 17-0057-1

31. View of S.R. 11 right-of-way looking south.

32. View from southern side of S.R. 46 East looking northwest at S.R. 46 interchange.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

33. View from southern side of S.R. 46 East looking southeast at S.R. 46 right-of-way.

34. View from southern side of S.R. 46 West looking southwest at S.R. 46 right-of-way and RSD 4.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
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METRIC ENVIRONMENTAL

35. View from southern side of S.R. 46 West looking northeast at S.R. 46 right-of-way and RSD 4.

36. View from northern side of S.R. 46 East looking east at S.R. 46.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

METRIC ENVIRONMENTAL

37. View from northern side of S.R. 46 East looking west at S.R 46.

38. View from S.R. 46 interchange looking northeast at S.R. 46 West right-of-way and RSD 4.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

METRIC ENVIRONMENTAL

39. View from S.R 46 interchange looking southwest at S.R. 46 East and S.R. 11.

40. View from S.R. 46 interchange looking northwest at S.R. 46 West and railroad crossing.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

METRIC ENVIRONMENTAL

41. View from east of S.R. 11 looking northeast at field and S.R. 46 East.

42. View from east of S.R. 11 looking southeast at field within south eastern portion of project study limits.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

43. View of field within forested area in northeastern portion of project study limits looking northwest.

44. View of forested area in northeast portion of project study limits looking south.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
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45. View of Wetland A in the northern portion of the project study limits looking northwest.

46. View of Wetland A in the northern portion of the project study limits looking southeast.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

METRIC ENVIRONMENTAL

47. View of SP-A1, Wetland A, soil profile.

48. View of SP-A1, Wetland A, looking northwest.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
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METRIC ENVIRONMENTAL

49. View of SP-A1, Wetland A, looking southeast.

50. View of SP-A2, Wetland A upland, soil profile.

Site Photographs
S.R. 46 Interchange
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51. View of SP-A2, Wetland A upland, looking northwest.

52. View of SP-A2, Wetland A upland, looking southeast.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
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53. View of SP-B1, Wetland B, soil profile.

54. View of SP-B1, Wetland B, looking east.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
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METRIC ENVIRONMENTAL

55. View of SP-B1, Wetland B, looking west.

56. View of SP-B2, Wetland B upland, soil profile.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

METRIC ENVIRONMENTAL

57. View of SP-B2, Wetland B upland, looking east.

58. View of SP-B2, Wetland B upland, looking west.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

59. View of SP-1 soil profile.

60. View of SP-1 looking north.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

METRIC ENVIRONMENTAL

61. View of SP-1 looking south.

62. View of SP-2 soil profile.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

METRIC ENVIRONMENTAL

63. View of SP-2 looking northwest.

64. View of SP-2 looking southeast.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

METRIC ENVIRONMENTAL

65. View of culvert draining into RSD 1.

66. View of RSD 3 looking south.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
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67. View of RSD 1 looking east.

68. View of RSD 2 looking south.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
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69. View of Culvert on western side of S.R. 11 looking southeast.

Site Photographs
S.R. 46 Interchange
Interchange Improvement Project
Columbus Township, Bartholomew County, Indiana
Des. No. 1700139
Metric Project No. 17-0057-1

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: S.R. 46 Interchange (Des. No. 1700139) City/County: Columbus/Bartholomew Sampling Date: 8/23/2017

Applicant/Owner: INDOT State: IN Sampling Point: SP-A1

Investigator(s): Amy Smith, Josh Myers Section, Township, Range: S25, T9N, R5E

Landform (hillslope, terrace, etc.): Second terrace Local relief (concave, convex, none): None

Slope (%): 0% Lat: 39.1991 Long: -85.927355 Datum: NAD83

Soil Map Unit Name: Udorthents, sandy (Uaz) NWI classification: PSS1A

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

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes X No ____

Hydric Soil Present? Yes X No ____

Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks:
Wetland A (PFO1A) Sampling Point

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer negundo*	30%	Yes	FAC
2. *Acer saccharinum*	10%	Yes	FACW
3. *Platanus occidentalis*	5%	No	FACW
4.			
5.			
	45%	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *Celtis occidentalis*	2%	Yes	FAC
2.			
3.			
4.			
5.			
	2%	= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. *Symphyotrichum lanceolatum*	40%	Yes	FAC
2. *Lysimachia nummularia*	20%	Yes	FACW
3. *Ambrosia artemisiifolia*	5%	No	FACU
4. *Viola sororia*	5%	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	70%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
		= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species	35%	x2 =	0.7
FAC species	77%	x3 =	2.31
FACU species	5%	x4 =	0.2
UPL species		x5 =	
Column Totals:	1.17 (A)		3.21 (B)

Prevalence Index = B/A = 2.74

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation

X 2-Dominance Test is >50%

X 3-Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: SP-A1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 4/2	45	10YR 5/6	5	C	M	SL	Prominent Mottles
	10YR 4/3	50					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Dark Surface (S7)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 15

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

Remarks:

Could not dig past 15 inches due to a restrictive layer of gravel.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

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

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: S.R. 46 Interchange (Des. No. 1700139) City/County: Columbus/Bartholomew Sampling Date: 8/23/2017

Applicant/Owner: INDOT State: IN Sampling Point: SP-A2

Investigator(s): Amy Smith, Josh Myers Section, Township, Range: S25, T9N, R5E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex

Slope (%): 3% Lat: 39.198971 Long: -85.927516 Datum: NAD83

Soil Map Unit Name: Udorthents, sandy (Uaz) NWI classification: None

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

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes X No ____

Hydric Soil Present? Yes ____ No X

Wetland Hydrology Present? Yes ____ No X

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:
Wetland A Upland Sampling Point

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Celtis occidentalis*	20%	Yes	FAC
2. *Acer negundo*	10%	Yes	FAC
3.			
4.			
5.			
	30% = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *Celtis occidentalis*	15%	Yes	FAC
2.			
3.			
4.			
5.			
	15% = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. *Persicaria virginiana*	50%	Yes	FAC
2. *Symphyotrichum lanceolatum*	20%	Yes	FAC
3. *Viola sororia*	10%	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	80% = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1. *Parthenocissus quinquefolia*	10%	Yes	FACU
2.			
	10% = Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 83% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species	125%	x3 =	3.75
FACU species	10%	x4 =	0.4
UPL species		x5 =	
Column Totals:	1.35 (A)		4.15 (B)

Prevalence Index = B/A = 3.07

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation

X 2-Dominance Test is >50%

____ 3-Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: SP-A2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/2	50					SL	
	10YR 3/2	50					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Dark Surface (S7)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 2

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

Remarks:

Could not dig past 2 inches due to a restrictive layer of gravel.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: S.R. 46 Interchange (Des. No. 1700139) City/County: Columbus/Bartholomew Sampling Date: 8/23/2017

Applicant/Owner: INDOT State: IN Sampling Point: SP-B1

Investigator(s): Amy Smith, Josh Myers Section, Township, Range: S26, T9N, R5E

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): None

Slope (%): 0% Lat: 39.199765 Long: -85.93651 Datum: NAD83

Soil Map Unit Name: Rossburg silt loam (RtxAH) NWI classification: None

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

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes X No ____

Hydric Soil Present? Yes X No ____

Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks:
Wetland B (PEM1A) Sampling Point

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15' radius)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

Herb Stratum (Plot size: 5' radius)			
1. *Echinochloa crus-galli*	50%	Yes	FACW
2. *Schedonorus arundinaceus*	20%	Yes	FACU
3. *Digitaria sanguinalis*	10%	No	FACU
4. *Poa pratensis*	10%	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	90% = Total Cover		

Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	= Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species	50%	x2 =	1
FAC species	10%	x3 =	0.3
FACU species	30%	x4 =	1.2
UPL species		x5 =	
Column Totals:	0.90 (A)		2.5 (B)

Prevalence Index = B/A = 2.78

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation

____ 2-Dominance Test is >50%

X 3-Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: SP-B1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/1	75	10YR 4/4	20	C	M	SiCL	Distinct Mottles
			10YR 4/6	5	C	M	SiCL	Prominent Mottles
5-20	10YR 4/3	90	10YR 5/4	10	C	M	SiCL	Faint Mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Dark Surface (S7)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:
1/2 inch surface layer of muck

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 0

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? Yes X No ___ Depth (inches): 2

(includes capillary fringe)

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

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: S.R. 46 Interchange (Des. No. 1700139) City/County: Columbus/Bartholomew Sampling Date: 8/23/2017

Applicant/Owner: INDOT State: IN Sampling Point: SP-B2

Investigator(s): Amy Smith, Josh Myers Section, Township, Range: S26, T9N, R5E

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): None

Slope (%): 0% Lat: 39.19985 Long: -85.93791 Datum: NAD83

Soil Map Unit Name: Rossburg silt loam (RtxAH) NWI classification: None

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

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ____ No X

Hydric Soil Present? Yes ____ No X

Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:
Wetland B Upland Sampling Point
Located within a roadside ditch with drainage from S.R. 46

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15' radius)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

Herb Stratum (Plot size: 5' radius)			
1. *Echinochloa crus-galli*	50%	Yes	FACW
2. *Schedonorus arundinaceus*	20%	Yes	FACU
3. *Digitaria sanguinalis*	10%	No	FACU
4. *Plantago major*	10%	No	FAC
5. *Poa pratensis*	10%	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	100% = Total Cover		

Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	= Total Cover		

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species	50%	x2 =	1
FAC species	20%	x3 =	0.6
FACU species	30%	x4 =	1.2
UPL species		x5 =	
Column Totals:	1.00 (A)		2.8 (B)

Prevalence Index = B/A = 2.80

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)
Sampling does not pass for prevalence index because both hydric soil, and hydrology must also be present.

SOIL

Sampling Point: SP-B2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/1	100					SCL	Gravel mixed in
12-20	10YR 4/3	100					SL	Gravel mixed in

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Dark Surface (S7)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X No ___	Depth (inches):	1
Water Table Present?	Yes X No ___	Depth (inches):	18
Saturation Present? (includes capillary fringe)	Yes X No ___	Depth (inches):	0

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

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

Remarks:

Recent rain events provided temporary hydrology for the sampling point.

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: S.R. 46 Interchange (Des. No. 1700139) City/County: Columbus/Bartholomew Sampling Date: 8/23/2017

Applicant/Owner: INDOT State: IN Sampling Point: SP-1

Investigator(s): Amy Smith, Josh Myers Section, Township, Range: S25, T9N, R5E

Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): Concave

Slope (%): 2% Lat: 39.197786 Long: -85.929958 Datum: NAD83

Soil Map Unit Name: Udorthents, sandy (Uaz) NWI classification: None

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

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	20%	Yes	FACW
2. *Acer negundo*	10%	Yes	FAC
3.			
4.			
5.			
	30%	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *Morus alba*	5%	Yes	FAC
2. *Lonicera maackii*	5%	Yes	NI
3.			
4.			
5.			
	10%	= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1. *Carex vulpinoidea*	20%	Yes	FACW
2. *Symphyotrichum lanceolatum*	10%	Yes	FAC
3. *Elymus virginicus*	5%	No	FACW
4. *Setaria pumila*	5%	No	FAC
5. *Plantago major*	2%	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	42%	= Total Cover	

Woody Vine Stratum (Plot size: 30' radius)			
1. *Toxicodendron radicans*	20%	Yes	FAC
2.			
	20%	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species	45%	x2 =	0.9
FAC species	52%	x3 =	1.56
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	0.97 (A)		2.46 (B)

Prevalence Index = B/A = 2.54

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation

X 2-Dominance Test is >50%

____ 3-Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: SP-1

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Dark Surface (S7)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Gravel/Riprap

Depth (inches): 4

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

Remarks:

Could not dig past 4 inches due to a restrictive layer of gravel and riprap. It is not likely that this soil would have mottles at a deeper depth, if a soil pit could be dug deeper, as it does not appear that water collects in this area for extended periods. The only indicators of hydrology were the secondary indicators of FAC-Neutral and geomorphic position. There were no primary indicators of hydrology present.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: S.R. 46 Interchange (Des. No. 1700139) City/County: Columbus/Bartholomew Sampling Date: 8/23/2017

Applicant/Owner: INDOT State: IN Sampling Point: SP-2

Investigator(s): Amy Smith, Josh Myers Section, Township, Range: S25, T9N, R5E

Landform (hillslope, terrace, etc.): Second terrace Local relief (concave, convex, none): Concave

Slope (%): 2% Lat: 39.198141 Long: -85.926104 Datum: NAD83

Soil Map Unit Name: Udorthents, sandy (Uaz) NWI classification: PSS1A

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

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes X No ____

Hydric Soil Present? Yes ____ No X

Wetland Hydrology Present? Yes ____ No X

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Celtis occidentalis*	50%	Yes	FAC
2.			
3.			
4.			
5.			
	50% = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' radius)			
1. *Celtis occidentalis*	30%	Yes	FAC
2. *Lonicera maackii*	20%	Yes	NI
3.			
4.			
5.			
	50% = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. *Pilea pumila*	50%	Yes	FACW
2. *Alliaria petiolata*	30%	Yes	FAC
3. *Celtis occidentalis*	10%	No	FAC
4. *Elymus virginicus*	10%	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species	60%	x2 =	1.2
FAC species	120%	x3 =	3.6
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	1.80 (A)		4.8 (B)

Prevalence Index = B/A = 2.67

Hydrophytic Vegetation Indicators:

____ 1-Rapid Test for Hydrophytic Vegetation

X 2-Dominance Test is >50%

____ 3-Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: SP-2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 3/2	50					SL	
	10YR 4/2	50					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Dark Surface (S7)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 15

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

Remarks:

Could not dig past 15 inches due to a restrictive layer of gravel.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

Appendix 2 - PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD: October 30, 2017

B. NAME AND ADDRESS OF PERSON REQUESTING PJD:

Josh Myers
Metric Environmental, LLC
6971 Hillsdale Court
Indianapolis, IN 46250
317-912-3499

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:

The proposed project, Des. No. 1700139, is located in the central portion of Bartholomew County, Indiana, at the interchange of S.R. 46 and S.R. 11 in Sections 25 and 26, Township 9 North, Range 5 East of Columbus Township, Bartholomew County, Indiana. The proposed improvements include a reconfiguration of the intersection of S.R. 46 and S.R. 11, with a grade separation for S.R. 46 over the Louisville & Indiana Railroad.

(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: IN County/parish/borough: Bartholomew County City: Columbus
Center coordinates of site (lat/long in degree decimal format):
Lat.: 39.197036
Long.: -85.931289
Universal Transverse Mercator: 16S, 592285.44 m E 4339186.22 m N

Name of nearest waterbody: Flatrock River

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:

☐ Field Determination. Date(s):

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
Wetland A	39.19957	-85.928062	2.574 acres	Wetland	Section 404
Wetland B	39.199755	-85.936512	0.005 acre	Wetland	Section 404

1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.

2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information: